



Surge Protection

Main Catalogue 2014/2015



New Products





DEHNcombo YPV SCI ... (FM)

- Combined lightning current and surge arrester type 1 + type 2 for use in photovoltaic generator circuits
- Space-optimised enclosure with a width of only four modules for up to 1500 V d.c.
- Patented SCI technology prevents fire damage caused by d.c. switching arcs

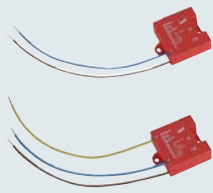
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DEHNSolid 1 255

- Coordinated spark-gap-based lightning current arrester with a robust design
- Extremely high lightning current discharge capacity up to 200 kA (10/350 μ s)
- Low voltage protection level $U_p \leq 2.5$ kV

See page 55



DEHNcord L ...

- Compact type 2 surge arrester for use in flush-type boxes, flush-mounted systems and cable ducts
- Single-pole and two-pole versions
- Visual operating state / fault indication

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DEHNgard ME YPV SCI 1500 (FM)

- New design for safe use in PV systems up to 1500 V (module width of 1.5 modules)
- Prewired and modular surge arrester with fault-resistant Y circuit and a width of 4.5 modules
- Patented SCI technology prevents fire damage caused by d.c. switching arcs

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DEHNgard YPV SCI ... - compact

- Prewired surge arrester for the d.c. side of PV systems
- Reliable protection for use in small and medium-sized PV systems without backup fuse
- Patented SCI technology prevents fire damage caused by d.c. switching arcs

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BLITZDUCTOR SP

- Surge arrester for the signal interfaces of data and information technology systems
- Consists of a protection module and universal base part
- Protection of up to four single lines or two pairs over a width of only 12 mm
- All protection components integrated in the protection module

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BXT M2 S EX 24

- Surge arrester for use in hazardous areas
- Protection of one pair of intrinsically safe measuring circuits
- Connections for direct or indirect shield earthing
- ATEX and IECEx-approved

See page 259



DEHNconnect DCO SD2

- Two-pole terminal block with integrated surge protection for the signal interfaces of data and information technology systems
- Fast and safe conductor connection thanks to spring-loaded connection system
- Disconnection module for disconnecting the signal circuit for maintenance work

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BVT AVD 24

- EMC protection for the 24 V power supply of PLCs
- Extremely low protection level
- Tested and adapted to Siemens PLC applications

See page 283



DEHNCube YPV SCI 1000 ...

- Type 2 surge arrester with IP 65 degree of protection for the d.c. side of PV systems up to 1000 V with patented SCI technology
- Prewired complete unit can be easily and quickly installed directly next to the equipment to be protected without requiring space in a separate insulating enclosure
- 1 MPP and 2 MPP versions

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Connecting cables AL DCU ...

- Prewired 6 mm² connecting cables for quickly and easily connecting DEHNCube YPV SCI 1000 ... to the inverter
- AL DCU Y ... for connecting a string to surge arresters and inverters
- AL DCU X ... for collecting two strings and connecting them to surge arresters and inverters

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DEHNgard PCB ... (FM)

- Base for DEHNgard protection modules to be mounted on PCBs
- Optionally available with remote signalling contact which can be directly evaluated on the PCB
- Easy replacement of protection modules without tools

See page 134



IGA 7 IP54

- Insulating enclosure for arresters with a maximum capacity of 7 modules
- Lightning-current-tested enclosure
- Transparent door allows easy visual inspection of the installed arresters

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IGA 12 IP65

- Insulating enclosure with a maximum capacity of 12 modules for arresters without venting means
- High IP 65 degree of protection
- Transparent door allows easy visual inspection of the installed arresters

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EM 2 DRL earthing module

- For directly earthing unused lines in LSA installation systems
- Can be plugged into LSA disconnection blocks via an earthing frame
- Fast replacement when retrofitting a DEHNRapid LSA protection module

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DEHNgate LG/L4 7 16 MFA

- Powerful combined lightning current and surge arrester for coaxial multi-frequency applications (e.g. LTE)
- Arrester with exchangeable gas capsule also suited for systems with d.c. supply
- Maximum transmission and PIM performance

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DEHNrecord DRC SCM XT

- Condition monitoring of LifeCheck®-equipped arresters
- Permanent monitoring of up to 10 arresters
- Remote signalling via floating remote signalling contact
- Easy to use and reduced installation time

See page 383



DEHNrecord DRC LC M1+

- Portable test device for easily testing LifeCheck®-equipped arresters
- Detection of pre-damaged arresters
- Testing without removing the arresters
- Intuitive operation

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Surge Protection Main Catalogue 2014/2015

Valid as of 1st January 2014

This catalogue replaces the Surge Protection Main Catalogue 2012/2013.

We reserve the right to introduce changes in configuration and technology, dimensions, weights and materials in the course of technical progress. Illustrations are not binding. Misprints and errors cannot be ruled out and the right to make changes is reserved.

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Our Promise



"We are a reliable partner for our customers and employees."

Dr. Philipp Dehn
Executive Director



"First and foremost, our innovations must benefit our customers."

Dr. Peter Zahlmann
Executive Director



"We put our customers in the focus of our activities"

Helmut Pusch
Executive Director

DEHN protects.

Our family-owned company specialises in surge protection, lightning protection and safety equipment. Therefore, we are doing the utmost to protect lives and assets. Our pioneering spirit and innovative ideas have defined our company for more than 100 years and made us a market leader with about 1,600 employees. Our market insight, determination and ideas are reflected in our products and safety concepts.

As early as in 1923, our founder Hans Dehn started to produce external lightning protection and earthing components to optimise protection of buildings and installations. In 1954, we launched the world's first series of surge protective devices for indoor application. Constant further development of these devices ensures safe operation and permanent availability of electrical and electronic installations. Also during the 1950s, our third sector, safety equipment, was added to our portfolio.

The Bavarian town of Neumarkt in der Oberpfalz is the heart of our activities where product managers and developers advance our protection technologies. Here we manufacture our high-quality safety products.

Fair partnership for the best solution

Our goal is to be a reliable and fair partner for our industrial, commercial and technical customers all over the world. To this end, we always focus on the best solution to eliminate protection problems.

Our sales teams in Germany, our global network of 17 subsidiaries and offices as well as more than 70 international sales partners ensure competent and customer-oriented marketing of our products. Proximity and close contact to our customers is of utmost importance to us, be it on-site support by our experienced team, our telephone hotline or personal contact at trade fairs. In hundreds of seminar, workshops, trainings and conferences held every year throughout the world, we impart practical knowledge on our products and solutions based on specific sample applications, physical interactions and standardisation. Our "Lightning Protection Guide" and brochures will broaden your practical knowledge.

DEHN stands for innovation, top quality and consistent customer and market orientation – also in the future.



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Planned Safety

Failure of technical installations and systems in residential and functional buildings is very unpleasant and expensive. Therefore, faultless operation of devices must be ensured both during normal operation and thunderstorms. The number of annually registered lightning activities in Germany maintained at a constantly high level over many years. Damage statistics of insurance companies clearly show that there are deficits in terms of lightning and surge protection measures both in the private and commercial sector (Figure 1).

A professional solution allows to take adequate protection measures. The lightning protection zone concept, for example, enables designers, constructors and operators of buildings and installations to consider, implement and monitor different protection measures. All relevant devices, installations and systems are thus reliably protected at a reasonable expense.

Sources of interference

Surges occurring during a thunderstorm are caused by direct/nearby lightning strikes or remote lightning strikes (Figure 3). Direct or nearby lightning strikes are lightning strikes to a building, its surroundings or electrically conductive systems entering the building (e.g. low-voltage supply, telecommunication and data lines). The resulting impulse currents and impulse voltages as well as the associated electromagnetic field (LEMP) are particularly dangerous for the devices to be protected with regard to the amplitude and energy content involved. In case of a direct or nearby lightning strike, surges are caused by the voltage drop at the conventional earthing impedance R_{st} and the resulting potential rise of the building in relation to the remote earth (Figure 3, case 2). This means the highest load for electrical installations in buildings.

The characteristic parameters of the impulse current present (peak value, rate of current rise, charge, specific energy) can be described by means of the 10/350 μ s impulse current wave form. They have been defined in international, European and national standards as test current for com-

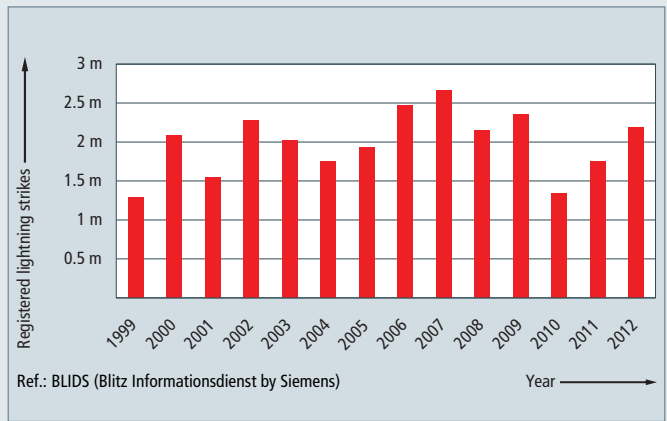


Figure 1: Lightning activity registered in Germany from 1999 to 2012.

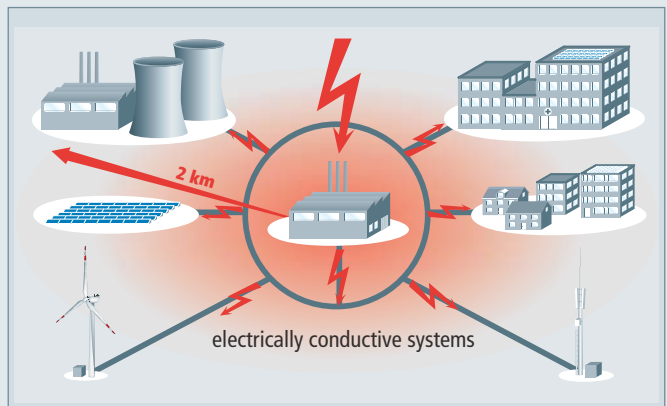


Figure 2: General risks for buildings and installations resulting from lightning strikes.

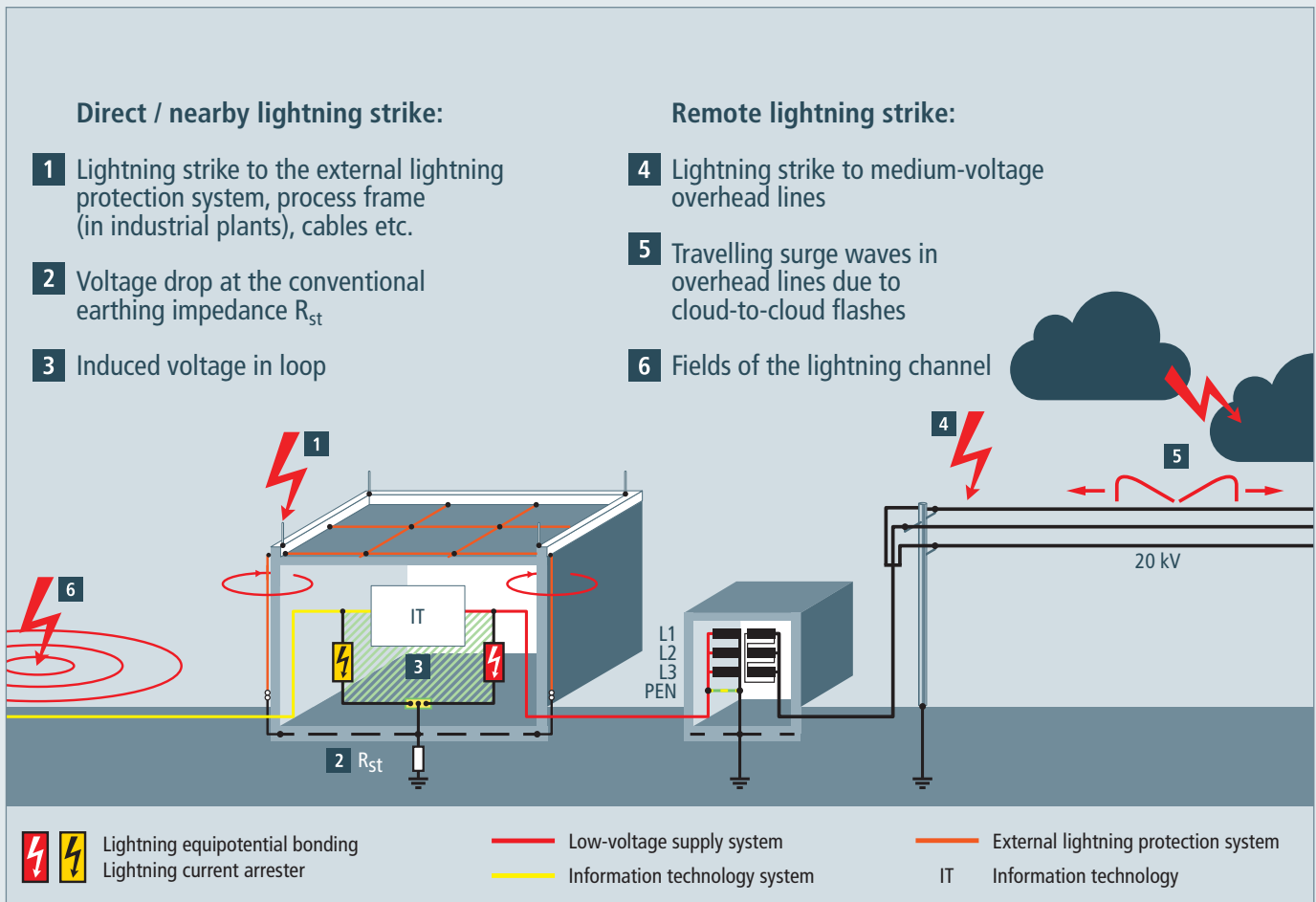


Figure 3: Causes of surges during lightning discharges.

ponents and devices protecting against direct lightning strikes (Figure 4). In addition to the voltage drop at the conventional earthing impedance, surges are generated in the electric building installation and the systems and devices connected to it due to the inductive effect of the electromagnetic lightning field (Figure 3, case 3). The energy of these induced surges and of the resulting impulse currents is far lower than the energy of a direct lightning impulse current and is therefore described by a 8/20 μ s impulse current wave form (Figure 4). Components and devices that do not have to conduct currents resulting from direct lightning strikes are therefore tested with such 8/20 μ s impulse currents.

Protection scheme

Lightning strikes are called remote if they occur at a farer distance to the object to be protected, strike medium-voltage overhead lines or their surroundings or occur as cloud-to-cloud lightning discharges (Figure 3, cases 4, 5, 6). Similar to induced surges, the effects of remote lightning strikes on the electrical installation of a building are handled by devices and components which have been dimensioned according to 8/20 μ s impulse current waves. Surges caused by switching operations (SEMP) are, for example, generated by:

- Disconnection of inductive loads (e.g. transformers, reactors, motors)
- Arc ignition and interruption (e.g. arc welding equipment)
- Tripping of fuses

The effects of switching operations in the electrical installation of a building can also be simulated by impulse currents of 8/20 μ s wave form under test conditions. To ensure continuous availability of complex power supply and information technology systems even in case of direct lightning interference, further surge protection measures for electrical and electronic installations and devices based on a lightning protection system for the building are required. It is important to take all causes of surges into account. To do so, the lightning protection zone concept as described in IEC 62305-4 is applied (Figure 5).

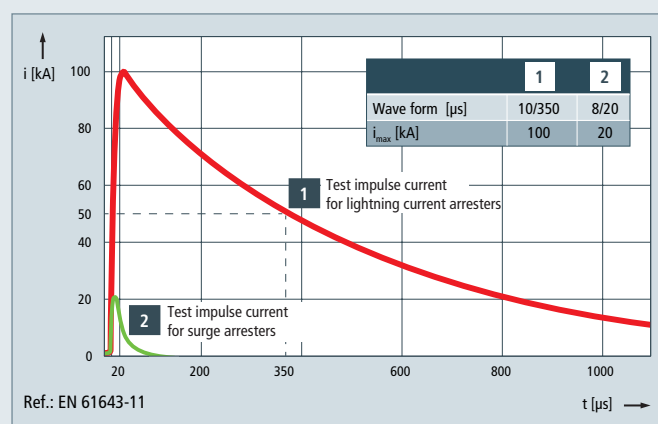


Figure 4: Test impulse currents for lightning current and surge arresters.

Lightning protection zone concept

The building is divided into different endangered zones. These zones help to define the necessary protection measures, in particular the lightning and surge protection devices and components. Part of an EMC compatible (EMC: ElectroMagnetic Compatibility) lightning protection zone concept is the external lightning protection system (including air-termination system, down-conductor system, earth-termination system), equipotential bonding, spatial shielding and surge protection for the power supply and information technology systems. Definitions apply as classified in Table 1.

According to the requirements and loads placed on surge protective devices, they are categorised as lightning current arresters, surge arresters and combined arresters. The highest requirements are placed on the discharge capacity of lightning current arresters and combined

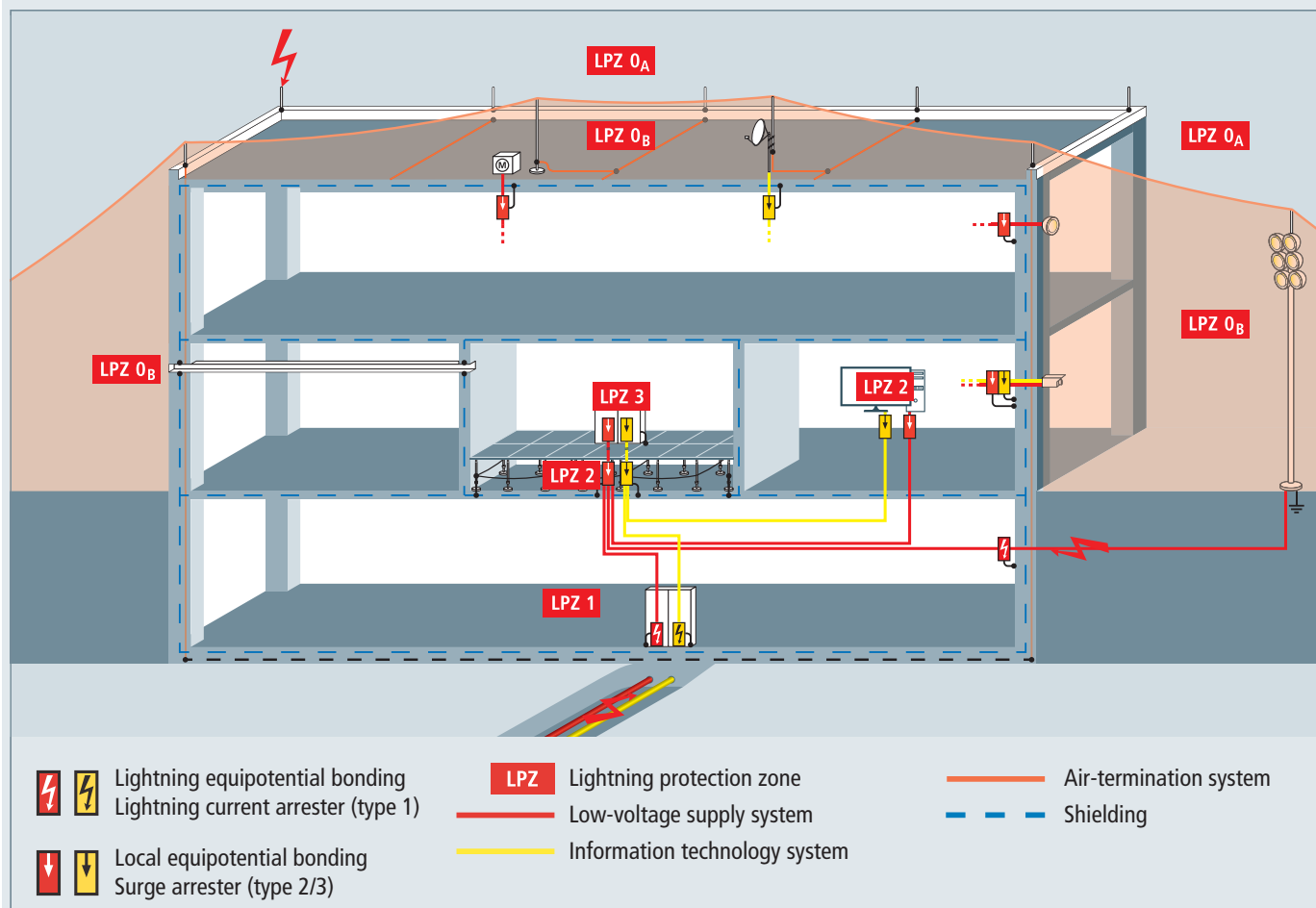
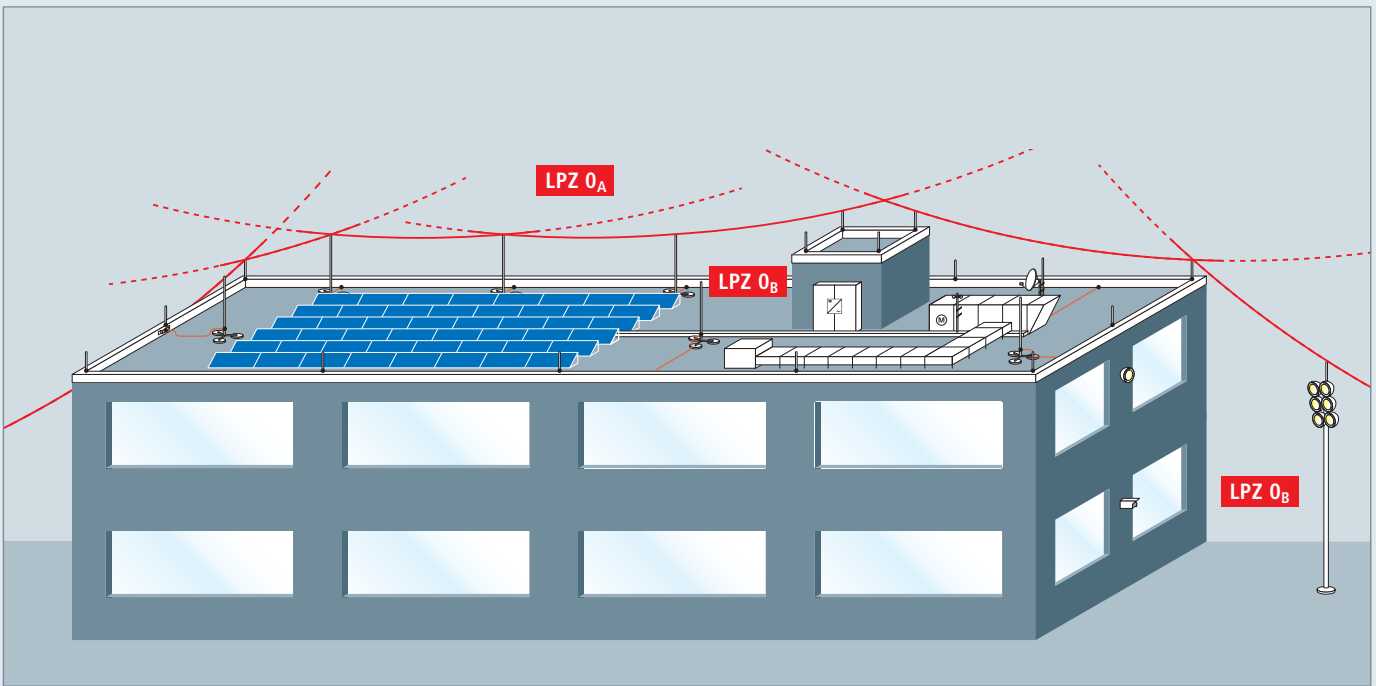
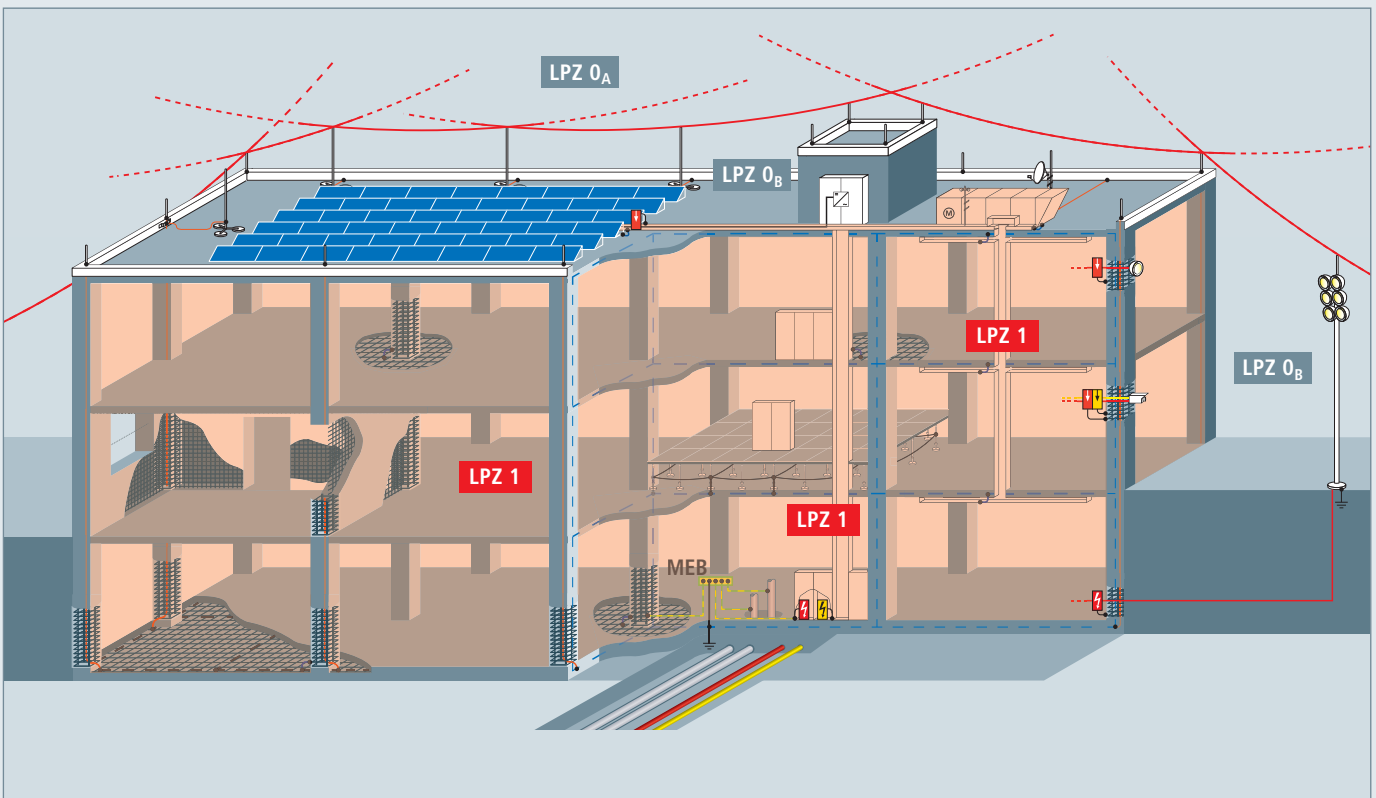


Figure 5: Overall view of a lightning protection zone concept.



▲ **Figure 5.1:** Transition from LPZ 0_A to LPZ 0_B (above)

▼ **Figure 5.2:** Transitions from LPZ 0_A to LPZ 1 and LPZ 0_B to LPZ 1 (below)



arresters used at the transition from lightning protection zone 0_A to 1 or 0_A to 2. These arresters must be capable of conducting partial lightning currents of 10/350 μ s wave form several times without being destroyed in order to prevent the ingress of destructive partial lightning currents into the electrical installation of a building. At the transition point from LPZ 0_B to 1 or downstream of the lightning current arrester at the transition point from LPZ 1 to 2 and higher, surge arresters are used to protect against surges. Their task is both to reduce the residual energy of the upstream protection stages even further and to limit the surges induced or generated in the installation itself.

The lightning and surge protective measures at the boundaries of the lightning protection zones described above equally apply to power supply and information technology systems. All measures described in the EMC compatible lightning protection zone concept help to achieve continuous availability of electrical and electronic devices and installations. For more detailed technical information, DEHN + SÖHNE offers a free "Lightning Protection Guide" which can be downloaded at www.dehn-international.com/en/downloads.

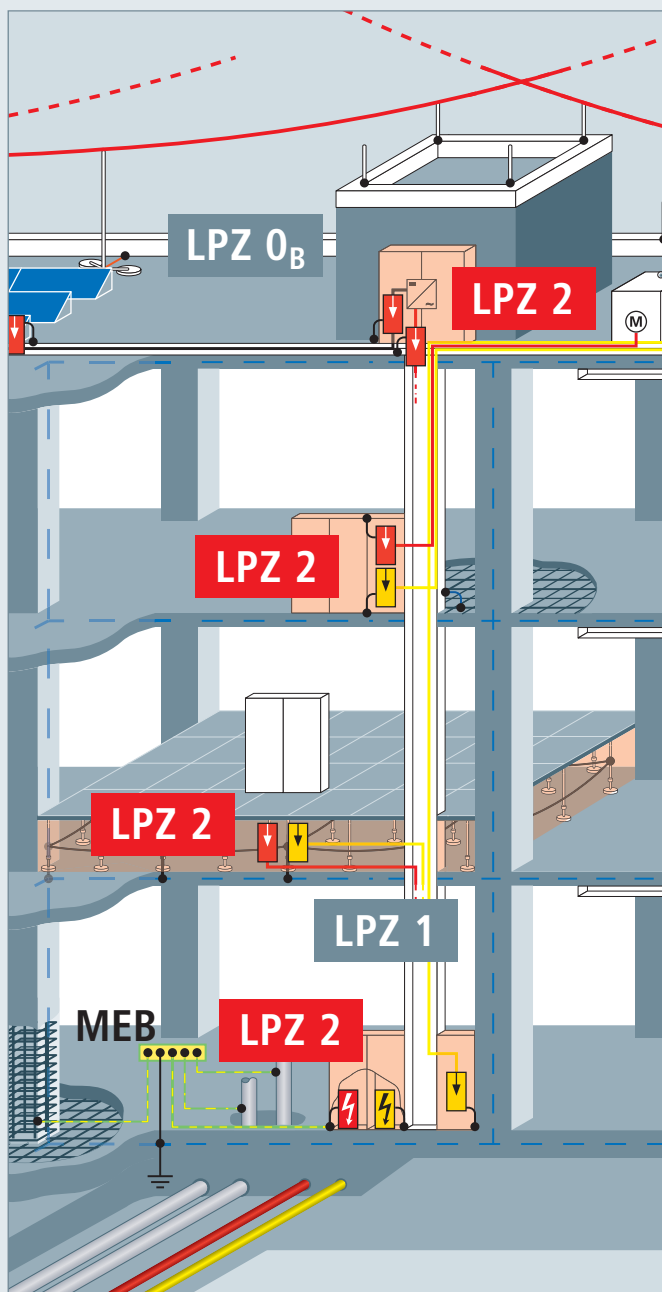


Figure 5.3: Transition from LPZ 1 to LPZ 2

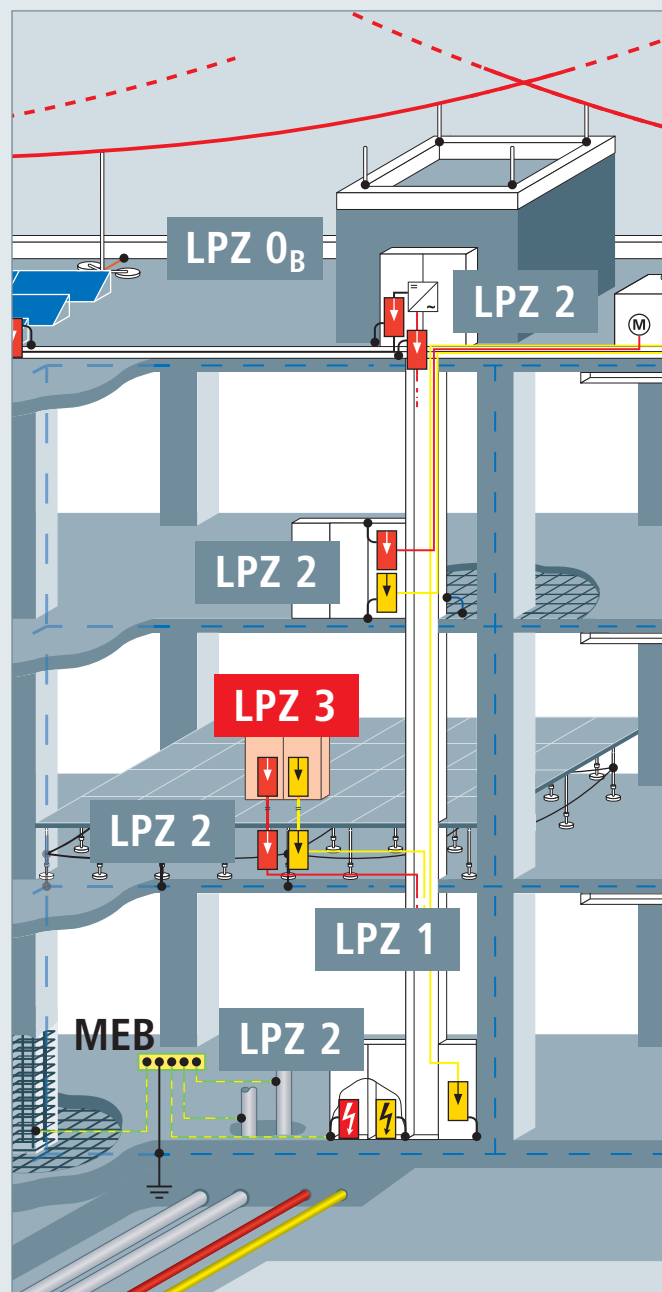


Figure 5.4: Transition from LPZ 2 to LPZ 3

	Lightning equipotential bonding		Lightning protection zone		Equipotential bonding
	Lightning current arrester (type 1)		Main earthing busbar		Air-termination system
	Local equipotential bonding		Low-voltage supply system		Supply line (metal)
	Surge arrester (type 2/3)		Information technology system		Shielding

IEC 62305-4:2010

Outer zones:

LPZ 0 Zone where the threat is due to the unattenuated lightning electromagnetic field and where the internal systems may be subjected to **full or partial lightning surge current**.

LPZ 0 is subdivided into:

LPZ 0_A Zone where the threat is due to the direct lightning flash and the full lightning electromagnetic field. The **internal systems** may be subjected to **full lightning surge current**.

LPZ 0_B Zone protected against direct lightning flashes but where the threat is the full lightning electromagnetic field. The **internal systems** may be subjected to **partial lightning surge currents**.

Inner zones (protected against direct lightning flashes):

LPZ 1 Zone where the surge current is limited by current sharing and **isolating interfaces and/or by SPDs** at the boundary. **Spatial shielding** may attenuate the lightning electromagnetic field.

LPZ 2 ... n Zone where the surge current may be further limited by current sharing and isolating interfaces and/or by **additional SPDs** at the boundary. **Additional spatial shielding** may be used to further attenuate the lightning electromagnetic field.

Table 1: Definition of lightning protection zones.

Terms and Definitions

actiVsense®

The actiVsense technology is integrated in universal combined arresters for protecting information technology installations and devices. The arrester automatically detects the signal voltage applied and optimally adapts the voltage protection level to it. Thus, the arrester can be universally used for different interfaces and provides maximum protection for the devices and system circuits connected to it in case of failure.

Breaking capacity, follow current extinguishing capability I_{fi}

The breaking capacity is the uninfluenced (prospective) r.m.s. value of the mains follow current which can automatically be extinguished by the surge protective device when connecting U_C . It can be proven in an operating duty test according to EN 61643-11.

Categories according to IEC 61643-21:2009

A number of impulse voltages and impulse currents are described in IEC 61643-21:2009 for testing the current carrying capability and voltage limitation of impulse interference. Table 3 of this standard lists these into categories and provides preferred values. In Table 2 of the IEC 61643-22 standard the sources of transients are assigned to the different impulse categories according to the decoupling mechanism. Category C2 includes inductive coupling (surges), category D1 galvanic coupling (lightning currents). The relevant category is specified in the technical data. DEHN + SÖHNE surge protective devices surpass the values in the specified categories. Therefore, the exact value for the impulse current carrying capability is indicated by the nominal discharge current (8/20 μ s) and the lightning impulse current (10/350 μ s).

Combination wave

A combination wave is generated by a hybrid generator (1.2/50 μ s, 8/20 μ s) with a fictitious impedance of 2 Ω . The open-circuit voltage of this generator is referred to as U_{OC} . U_{OC} is a preferred indicator for type 3 arresters since only these arresters may be tested with a combination wave (according to EN 61643-11).

Cut-off frequency f_G

The cut-off frequency defines the frequency-dependent behaviour of an arrester. The cut-off frequency is equivalent to the frequency which induces an insertion loss (a_E) of 3 dB under certain test conditions (see EN 61643-21:2010). Unless otherwise indicated, this value refers to a 50 Ω system.

Degree of protection

The IP degree of protection corresponds to the protection categories described in IEC 60529.

Disconnecting time t_a

The disconnecting time is the time passing until the automatic disconnection from power supply in case of a failure of the circuit or equipment to be protected. The disconnecting time is an application-specific value resulting from the intensity of the fault current and the characteristics of the protective device.

Energy coordination of SPDs

Energy coordination is the selective and coordinated interaction of cascaded protection elements (= SPDs) of an overall lightning and surge protection concept. This means that the total load of the lightning impulse current is split between the SPDs according to their energy carrying capability. If energy coordination is not possible, downstream SPDs are insufficiently relieved by the upstream SPDs since the upstream SPDs operate too late, insufficiently or not at all. Consequently, downstream SPDs as well as terminal equipment to be protected may be destroyed. DIN CLC/TS 61643-12:2010 describes how to verify energy coordination. Spark-gap-based type 1 SPDs offer considerable advantages due to their voltage-switching characteristic (see WAVE BREAKER FUNCTION).

Frequency range

The frequency range represents the transmission range or cut-off frequency of an arrester depending on the described attenuation characteristics.

Insertion loss

With a given frequency, the insertion loss of a surge protective device is defined by the relation of the voltage value at the place of installation before and after installing the surge protective device. Unless otherwise indicated, the value refers to a 50 Ω system.

Integrated backup fuse

According to the product standard for SPDs, overcurrent protective devices / backup fuses must be used. This, however, requires additional space in the distribution board, additional cable lengths, which should be as short as possible according to IEC 60364-5-53, additional installation time (and costs) and dimensioning of the fuse. A fuse integrated in the arrester ideally suited for the impulse currents involved eliminates all these disadvantages. The space gain, lower wiring effort, integrated fuse monitoring and the increased protective effect due to shorter connecting cables are clear advantages of this concept which is integrated in the DEHNvenCI, DEHNbloc Maxi S, DEHNguard ... CI and V(A) NH product families.



LifeCheck®

Repeated discharge processes which exceed the specification of the device can overload arresters in information technology systems. In order to ensure high system availability, arresters should therefore be subjected to systematic tests. LifeCheck allows quick and easy testing of arresters (see page 194).

Lightning impulse current I_{imp}

The lightning impulse current is a standardised impulse current curve with a 10/350 μ s wave form. Its parameters (peak value, charge, specific energy) simulate the load caused by natural lightning currents. Lightning current and combined arresters must be capable of discharging such lightning impulse currents several times without being destroyed.

Mains-side overcurrent protection / arrester backup fuse

Overcurrent protective device (e.g. fuse or circuit breaker) located outside of the arrester on the infeed side to interrupt the power-frequency follow current as soon as the breaking capacity of the surge protective device is exceeded. No additional backup fuse is required since the backup fuse is already integrated in the SPD (see relevant section).

Maximum continuous operating voltage U_C

The maximum continuous operating voltage (maximum permissible operating voltage) is the r.m.s. value of the maximum voltage which may be connected to the corresponding terminals of the surge protective device during operation. This is the maximum voltage on the arrester in the defined non-conducting state, which reverts the arrester back to this state after it has tripped and discharged. The value of U_C depends on the nominal voltage of the system to be protected and the installer's specifications (IEC 60364-5-534).

Maximum continuous operating voltage U_{CPV} for a photovoltaic (PV) system

Value of the maximum d.c. voltage that may be permanently applied to the terminals of the SPD. To ensure that U_{CPV} is higher than the maximum open-circuit voltage of the PV system in case of all external influences (e.g. ambient temperature, solar radiation intensity), U_{CPV} must be higher than this maximum open-circuit voltage by a factor of 1.2 (according to CLC/TS 50539-12). This factor of 1.2 ensures that the SPDs are not incorrectly dimensioned.

Maximum discharge current I_{max}

The maximum discharge current is the maximum peak value of the 8/20 μ s impulse current which the device can safely discharge.

Maximum transmission capacity

The maximum transmission capacity defines the maximum high-frequency power which can be transmitted via a coaxial surge protective device without interfering with the protection component.

Nominal discharge current I_n

The nominal discharge current is the peak value of a 8/20 μ s impulse current for which the surge protective device is rated in a certain test programme and which the surge protective device can discharge several times.

Nominal load current (nominal current) I_L

The nominal load current is the maximum permissible operating current which may permanently flow through the corresponding terminals.

Nominal voltage U_N

The nominal voltage stands for the nominal voltage of the system to be protected. The value of the nominal voltage often serves as type designation for surge protective devices for information technology systems. It is indicated as an r.m.s. value for a.c. systems.

N-PE arrester

Surge protective devices exclusively designed for installation between the N and PE conductor.

Operating temperature range T_U

The operating temperature range indicates the range in which the devices can be used. For non-self-heating devices, it is equal to the ambient temperature range. The temperature rise for self-heating devices must not exceed the maximum value indicated.

Protective circuit

Protective circuits are multi-stage, cascaded protective devices. The individual protection stages may consist of spark gaps, varistors, semiconductor elements and gas discharge tubes (see Energy coordination).

Protective conductor current I_{PE}

The protective conductor current is the current which flows through the PE connection when the surge protective device is connected to the maximum continuous operating voltage U_C , according to the installation instructions and without load-side consumers.

Remote signalling contact

A remote signalling contact allows easy remote monitoring and indication of the operating state of the device. It features a three-pole terminal in the form of a floating changeover contact. This contact can be used as break and / or make contact and can thus be easily integrated in the building control system, controller of the switchgear cabinet, etc.

Response time t_A

Response times mainly characterise the response performance of individual protection elements used in arresters. Depending on the rate of rise du/dt of the impulse voltage or di/dt of the impulse current, the response times may vary within certain limits.

Return loss

In high-frequency applications, the return loss refers to how many parts of the "leading" wave are reflected at the protective device (surge point). This is a direct measure of how well a protective device is attuned to the characteristic impedance of the system.

SCI technology

Direct currents (d.c.) flow on the generator side of a PV system. The surge protective devices used on the generator side can be overloaded due to different scenarios (e.g. impulse load, insulation faults) and must not endanger the PV system. However, insufficient d.c. disconnection capability in a PV system may cause fire. Conventional surge arresters only feature a disconnector in the form of a simple break contact mechanism which is typically used for a.c. devices. Due to the lacking zero crossing of the d.c. source, a d.c. arc may persist and cause fire. The SCI technology patented by DEHN + SÖHNE with active arc extinction is an ideal solution. In case of overload, a contact is opened and a short-circuit is generated (Short Circuit). Thus, a possible switching arc is actively, quickly and safely extinguished. The PV fuse integrated in the short-circuit path immediately trips after the arc has been extinguished and ensures safe electrical isolation (Interruption) (see also page 50/118). Thus, all PV arresters from DEHN + SÖHNE combine surge protection, fire protection and personal protection in a single device.



Series resistance

Resistance in the direction of the signal flow between the input and output of an arrester.

Shield attenuation

Relation of the power fed into a coaxial cable to the power radiated by the cable through the phase conductor.

Surge protective devices (SPDs)

Surge protective devices mainly consist of voltage-dependent resistors (varistors, suppressor diodes) and / or spark gaps (discharge paths). Surge protective devices are used to protect other electrical equipment and installations against inadmissibly high surges and / or to establish equipotential bonding. Surge protective devices are categorised:

a) according to their use into:

- **Surge protective devices for power supply installations and devices (Red/Line® product family)**

for nominal voltage ranges up to 1000 V

- according to EN 61643-11:2012 into type 1 / 2 / 3 SPDs

- according to IEC 61643-11:2011 into class I / II / III SPDs

The changeover of the Red/Line® product family to the new EN 61643-11:2012 and IEC 61643-11:2011 standard will be completed in the course of the year 2014.

- **Surge protective devices for information technology installations and devices (Yellow/Line product family)**

for protecting modern electronic equipment in telecommunications and signalling networks with nominal voltages up to 1000 V a.c. (effective value) and 1500 V d.c. against the indirect and direct effects of lightning strikes and other transients.

- according to IEC 61643-21:2009 and EN 61643-21: 2010.

- **Isolating spark gaps for earth-termination systems or equipotential bonding (Red/Line® product family)**

- **Surge protective devices for use in photovoltaic systems (Red/Line® product family)**

for nominal voltage ranges up to 1500 V

- according to EN 50539-11:2013 into type 1 / 2 SPDs

b) according to their impulse current discharge capacity and protective effect into:

- **Lightning current arresters / coordinated lightning current arresters**

for protecting installations and equipment against interference resulting from direct or nearby lightning strikes (installed at the boundaries between LPZ 0_A and 1).

- **Surge arresters**

for protecting installations, equipment and terminal devices against remote lightning strikes, switching overvoltages as well as electrostatic discharges (installed at the boundaries downstream of LPZ 0_B).

- **Combined arresters**

for protecting installations, equipment and terminal devices against interference resulting from direct or nearby lightning strikes (installed at the boundaries between LPZ 0_A and 1 as well as 0_A and 2).

Technical data of surge protective devices

The technical data of surge protective devices include information on their conditions of use according to their:

- Application (e.g. installation, mains conditions, temperature)
- Performance in case of interference (e.g. impulse current discharge capacity, follow current extinguishing capability, voltage protection level, response time)
- Performance during operation (e.g. nominal current, attenuation, insulation resistance)
- Performance in case of failure (e.g. backup fuse, disconnector, fail-safe, remote signalling option)

Terms and Definitions

Short-circuit withstand capability

The short-circuit withstand capability is the value of the prospective power-frequency short-circuit current handled by the surge protective device when the relevant maximum backup fuse is connected upstream.

Short-circuit rating I_{SCPV} of an SPD in a photovoltaic (PV) system

Maximum uninfluenced short-circuit current which the SPD, alone or in conjunction with its disconnection devices, is able to withstand.

Temporary overvoltage (TOV)

Temporary overvoltage may be present at the surge protective device for a short period of time due to a fault in the high-voltage system. This must be clearly distinguished from a transient caused by a lightning strike or a switching operation, which last no longer than about 1 ms. The amplitude U_T and the duration of this temporary overvoltage are specified in EN 61643-11 (200 ms, 5 s or 120 min.) and are individually tested for the relevant SPDs according to the system configuration (TN, TT, etc.). The SPD can either a) reliably fail (TOV safety) or b) be TOV-resistant (TOV withstand), meaning that it is completely operational during and following temporary overvoltages.

Thermal disconnecter

Surge protective devices for use in power supply systems equipped with voltage-controlled resistors (varistors) mostly feature an integrated thermal disconnecter that disconnects the surge protective device from the mains in case of overload and indicates this operating state. The disconnecter responds to the "current heat" generated by an overloaded varistor and disconnects the surge protective device from the mains if a certain temperature is exceeded. The disconnecter is designed to disconnect the overloaded surge protective device in time to prevent a fire. It is not intended to ensure protection against indirect contact. The function of these thermal disconnecters can be tested by means of a simulated overload / ageing of the arresters.

Total discharge current I_{total}

Current which flows through the PE, PEN or earth connection of a multipole SPD during the total discharge current test. This test is used to determine the total load if current simultaneously flows through several protective paths of a multipole SPD. This parameter is decisive for the total discharge capacity which is reliably handled by the sum of the individual paths of an SPD.

Voltage protection level U_p

The voltage protection level of a surge protective device is the maximum instantaneous value of the voltage at the terminals of a surge protective device, determined from the standardised individual tests:

- Lightning impulse sparkover voltage 1.2/50 μ s (100%)
- Sparkover voltage with a rate of rise of 1kV/ μ s
- Measured limit voltage at a nominal discharge current I_n

The voltage protection level characterises the capability of a surge protective device to limit surges to a residual level. The voltage protection level defines the installation location with regard to the overvoltage category according to IEC 60664-1 in power supply systems. For surge protective devices to be used in information technology systems, the voltage protection level must be adapted to the immunity level of the equipment to be protected (IEC 61000-4-5: 2001).

Wave breaker function

Due to the technical design of type 1 SPDs, energy coordination of SPDs considerably varies. Experience has shown that even small amplitudes of the 10/350 μ s lightning impulse current overload downstream SPDs or even destroy them if varistor-based type 1 lightning current arresters are used. In case of spark-gap-based type 1 arresters, in contrast, virtually the total current flows through the type 1 arrester. Similar to a wave breaker the energy is reduced to an acceptable level. The advantage is that the time to half value of the 10/350 μ s impulse current is reduced due to the reduction of the impulse time and the switching behaviour of type 1 SPDs. This considerably relieves downstream SPDs.

All devices of the DEHN + SÖHNE Red/Line and Yellow/Line product family are energy-coordinated. Moreover, all type 1 arresters of the Red/Line family are based on spark gaps and thus feature this **WAVE BRAKER FUNCTION**.

Yellow / Line SPD class

All DEHN arresters for use in information technology systems are categorised into a Yellow/Line SPD class and are marked with the corresponding symbol in the datasheet and on the rating plate (see page 193).



Surge Protection for POWER SUPPLY SYSTEMS

SPDs for low-voltage Installations and Devices

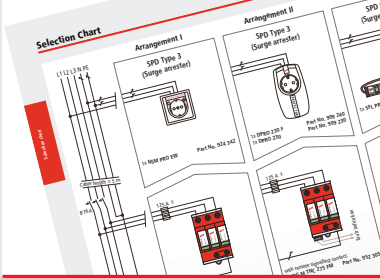


Red / Line®



General

16



Selection Chart

17



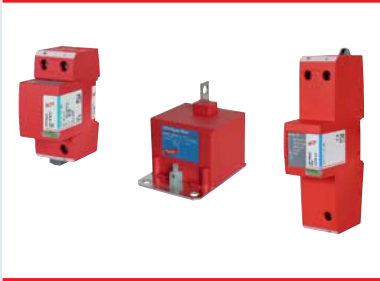
Type 1 Combined Arresters

31



Coordinated Type 1 Lightning Current Arresters

55



N-PE Lightning Current Arresters

79



Type 2 Surge Arresters

87



Type 3 Surge Arresters

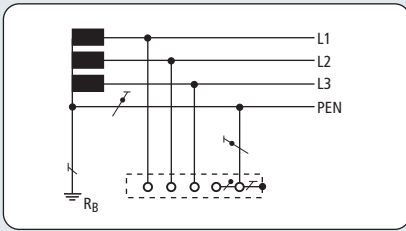
149



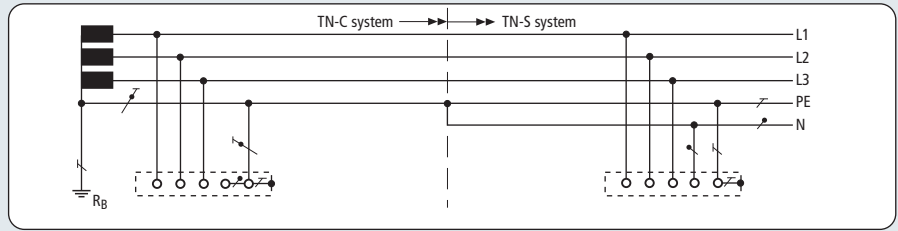
General Accessories

177

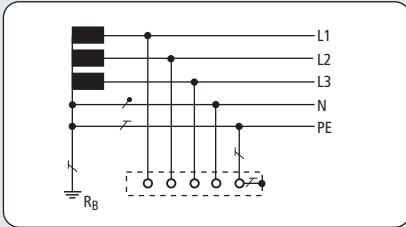
International system configurations* according to IEC 60364-1



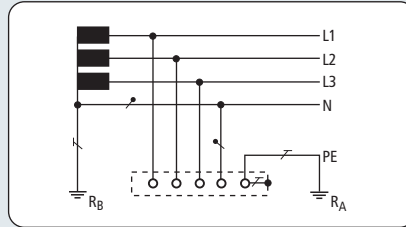
TN-C system 230 / 400 V



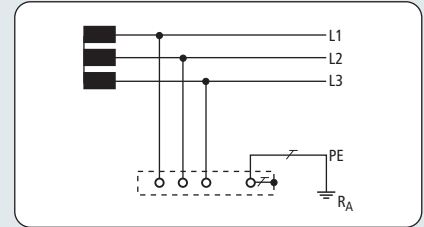
TN-C-S system 230 / 400 V



TN-S system 230 / 400 V

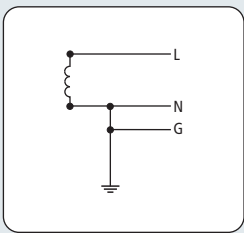


TT system 230 / 400 V



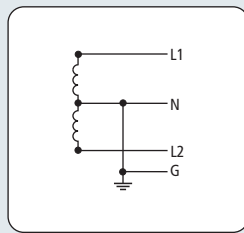
IT system 230 V, 400 V, 500 V, 690 V

Further international system configurations*



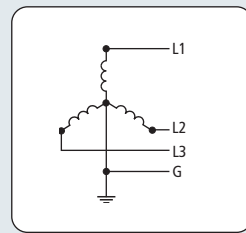
single-phase; 3 conductors

(1 Ph, 2 W + G)
110 V
120 V
220 V
240 V



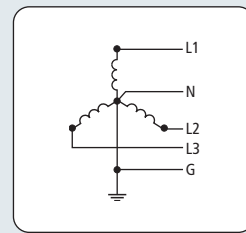
single-phase; 4 conductors
Split Phase or Edison

(1 Ph, 3 W + G)
120 V / 240 V



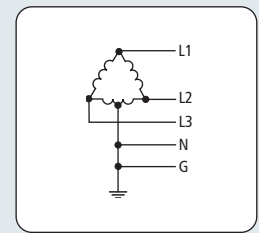
three-phase; 4 conductors

(3 Ph Y, 3 W + G)
480 V



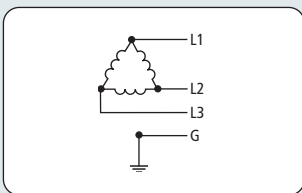
three-phase; 5 conductors

(3 Ph Y, 4 W + G)
120 V / 208 V
277 V / 480 V



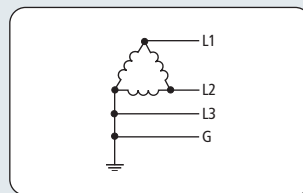
three-phase; 5 conductors
Delta "Highleg"

(3 Ph Δ, 4 W + G)
120 V / 240 V



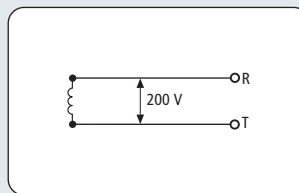
three-phase; 4 conductors
Delta "Ungrounded"

(3 Ph Δ, 3 W + G)
240 V
480 V



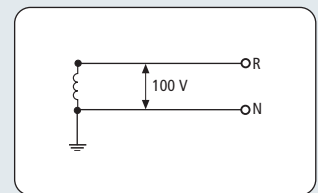
three-phase; 4 conductors
Delta "Grounded Corner"

(3 Ph Δ, 3 W + G)
240 V
480 V



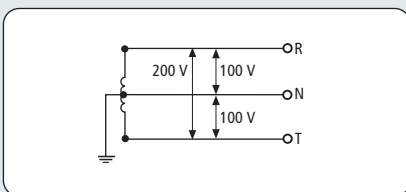
single-phase; 2 conductors

(1 Ph, 2 W)
200 V



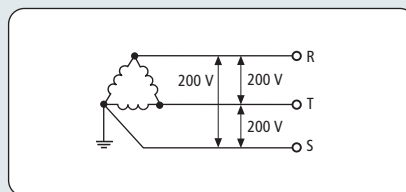
single-phase; 2 conductors

(1 Ph, 2 W)
100 V



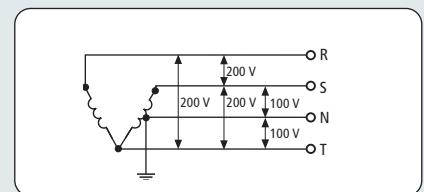
single-phase; 3 conductors

(1 Ph, 3 W)
100 V / 200 V



three-phase; 3 conductors

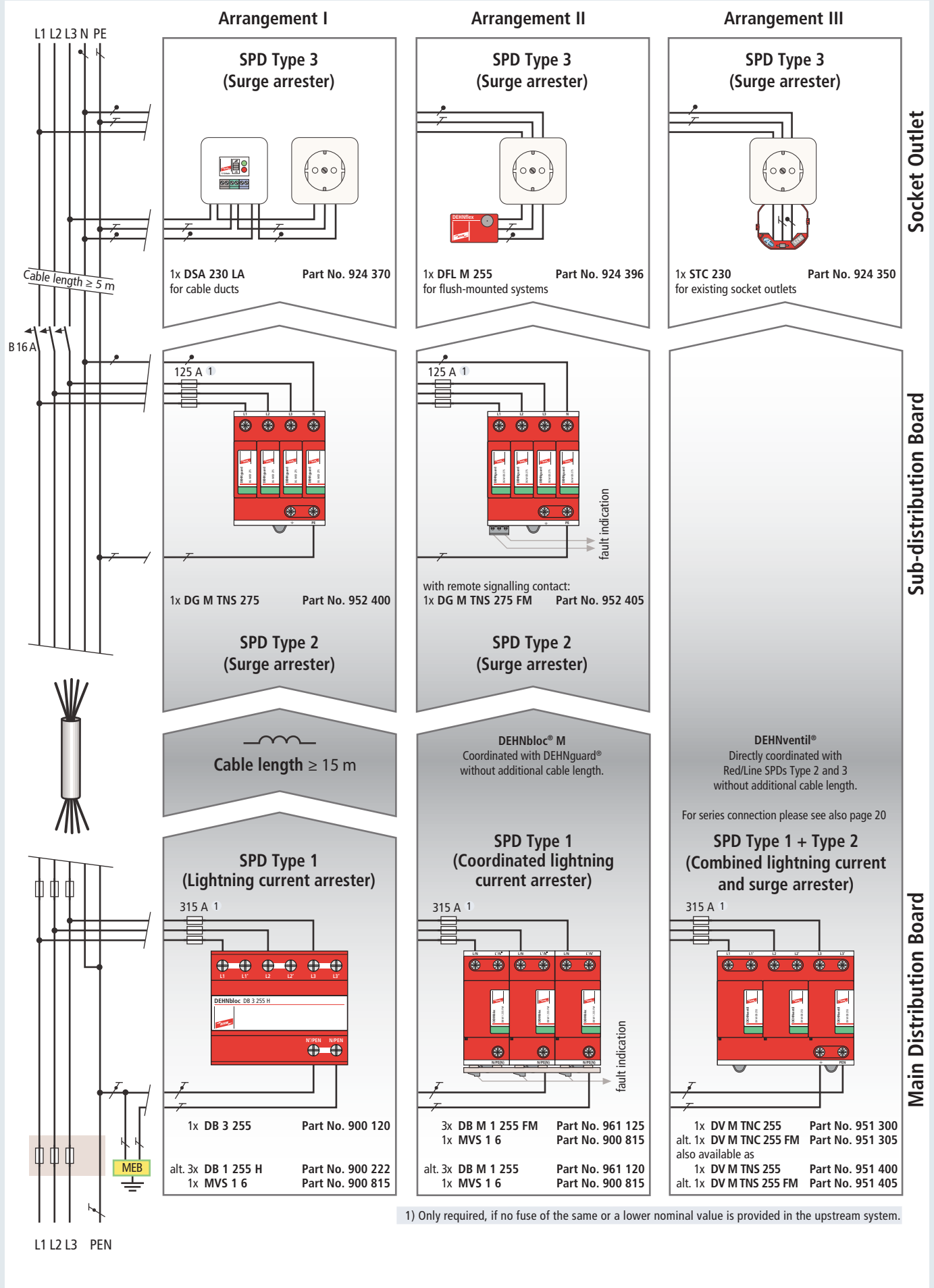
(3 Ph, 3 W)
200 V



three-phase; 3 conductors + single-phase; 3 conductors

100 V / 200 V; 200 V

* System according to the earth connection (according to IEC 60364-1)

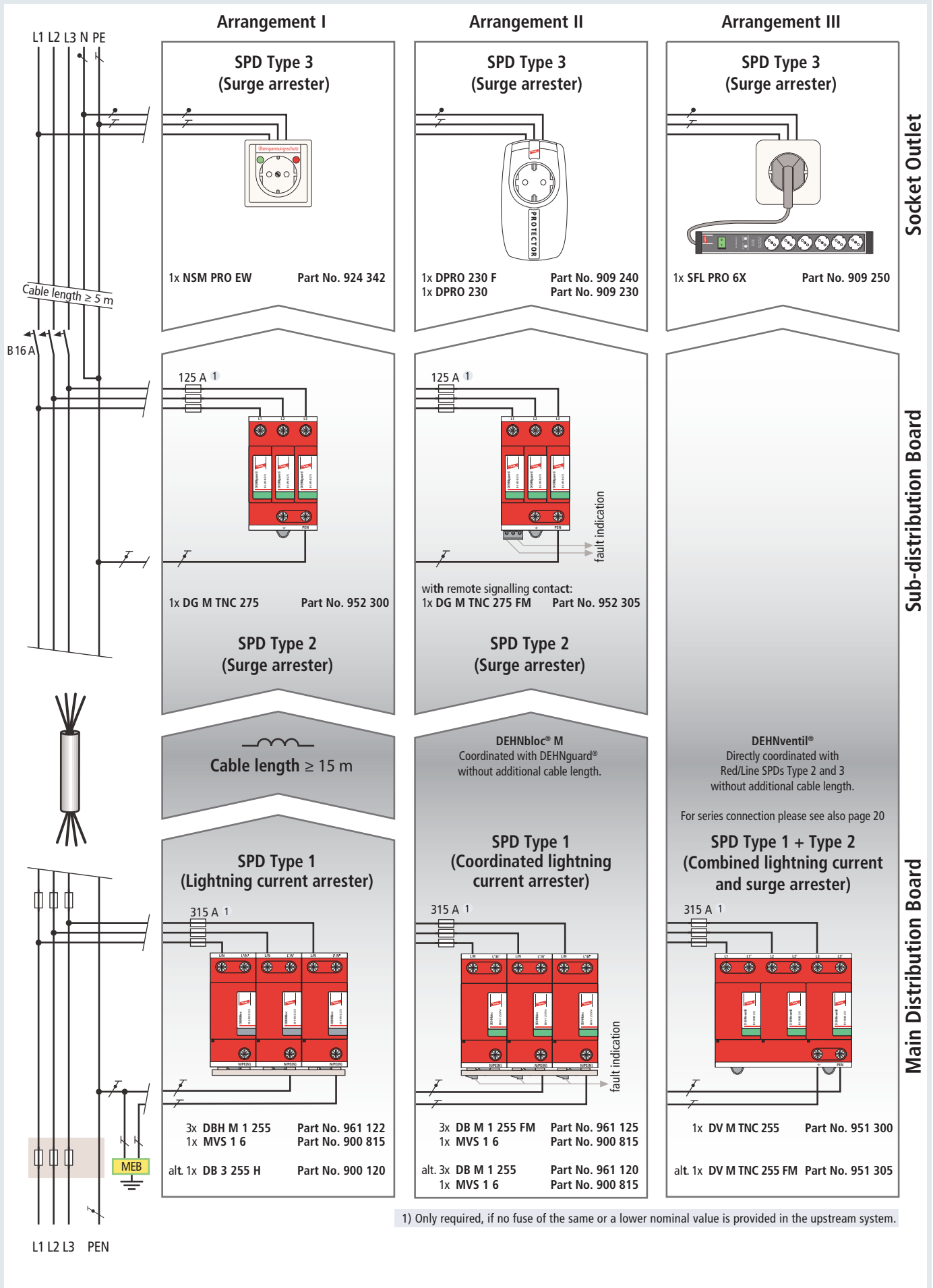


Selection Chart

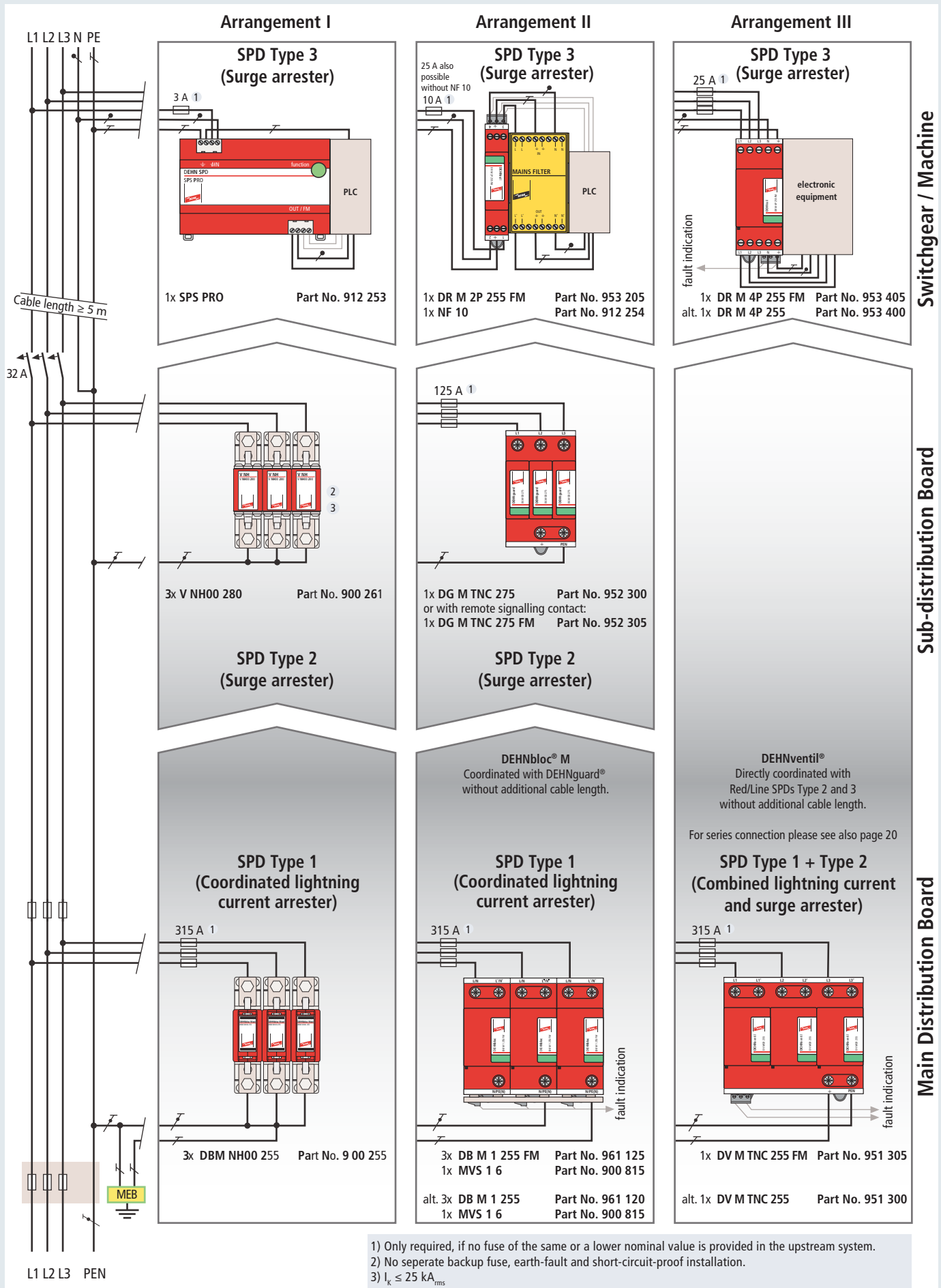
Sub-distribution Board

Main Distribution Board

TN system: Example: Office building – Separation of the PEN conductor in the main distribution board



TN system: Example: Office building – Separation of the PEN conductor in the sub-distribution board



Selection Chart

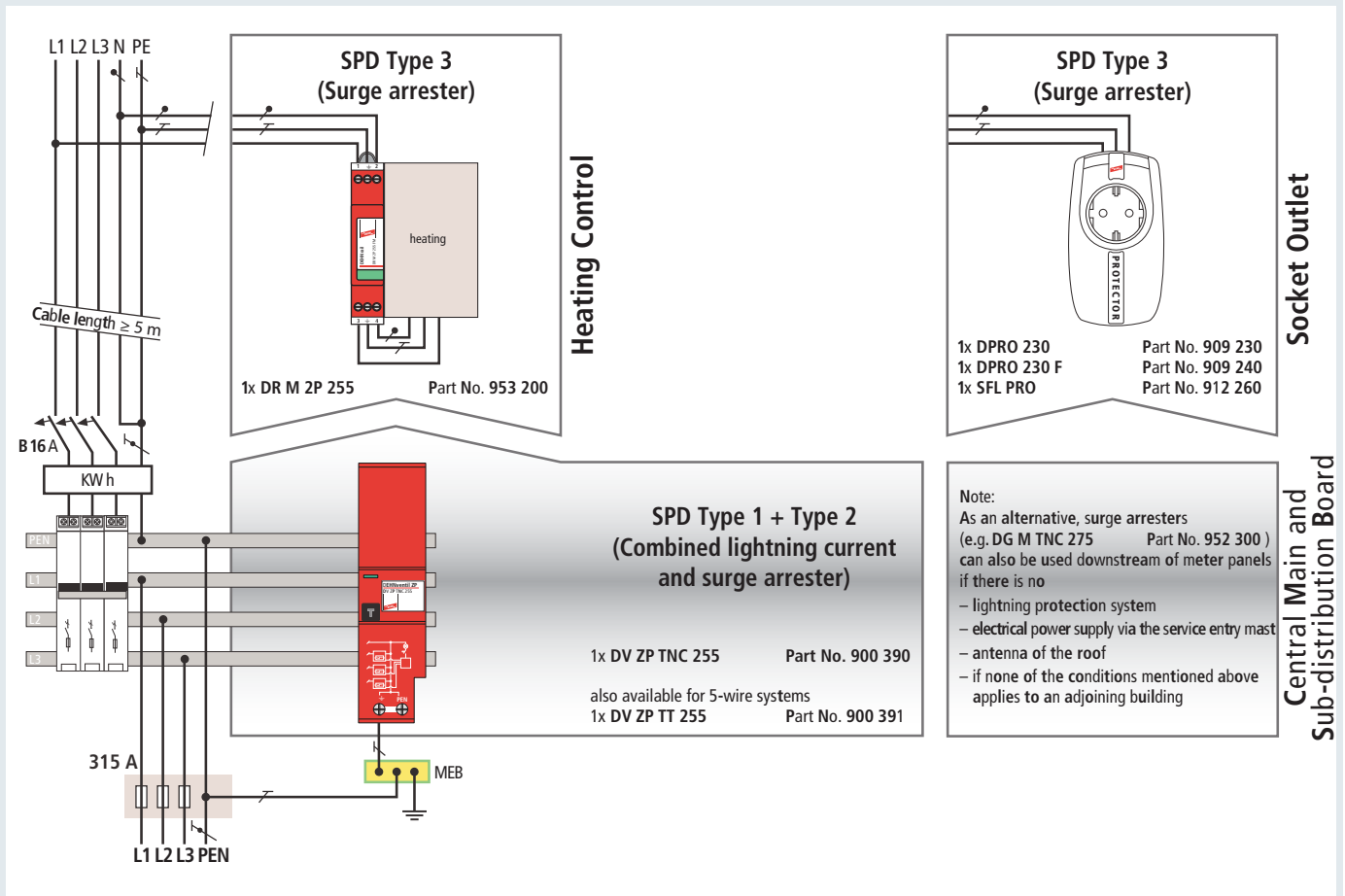
Switchgear / Machine

Sub-distribution Board

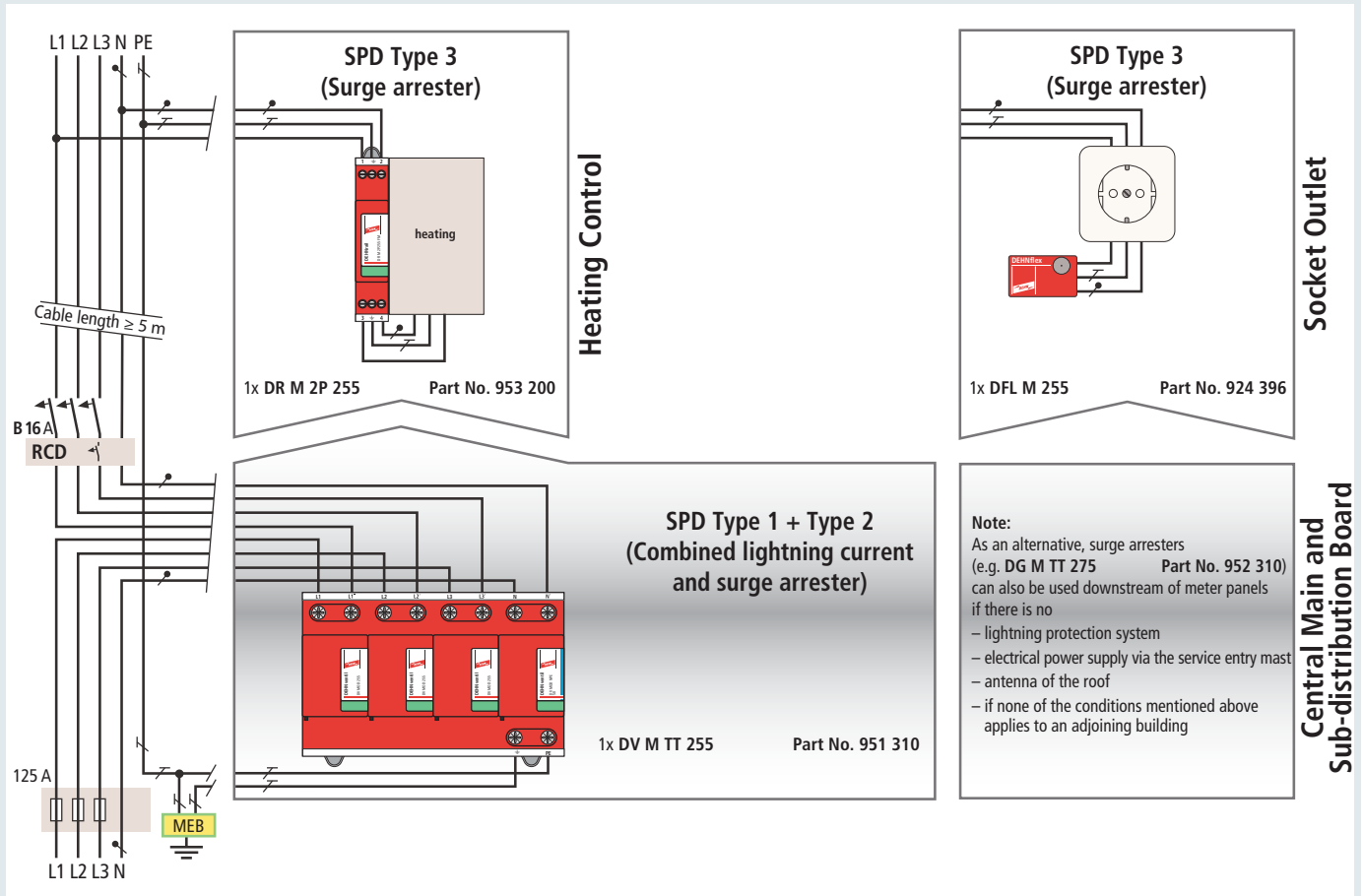
Main Distribution Board

1) Only required, if no fuse of the same or a lower nominal value is provided in the upstream system.
 2) No separate backup fuse, earth-fault and short-circuit-proof installation.
 3) $I_k \leq 25 \text{ kA}_{\text{rms}}$

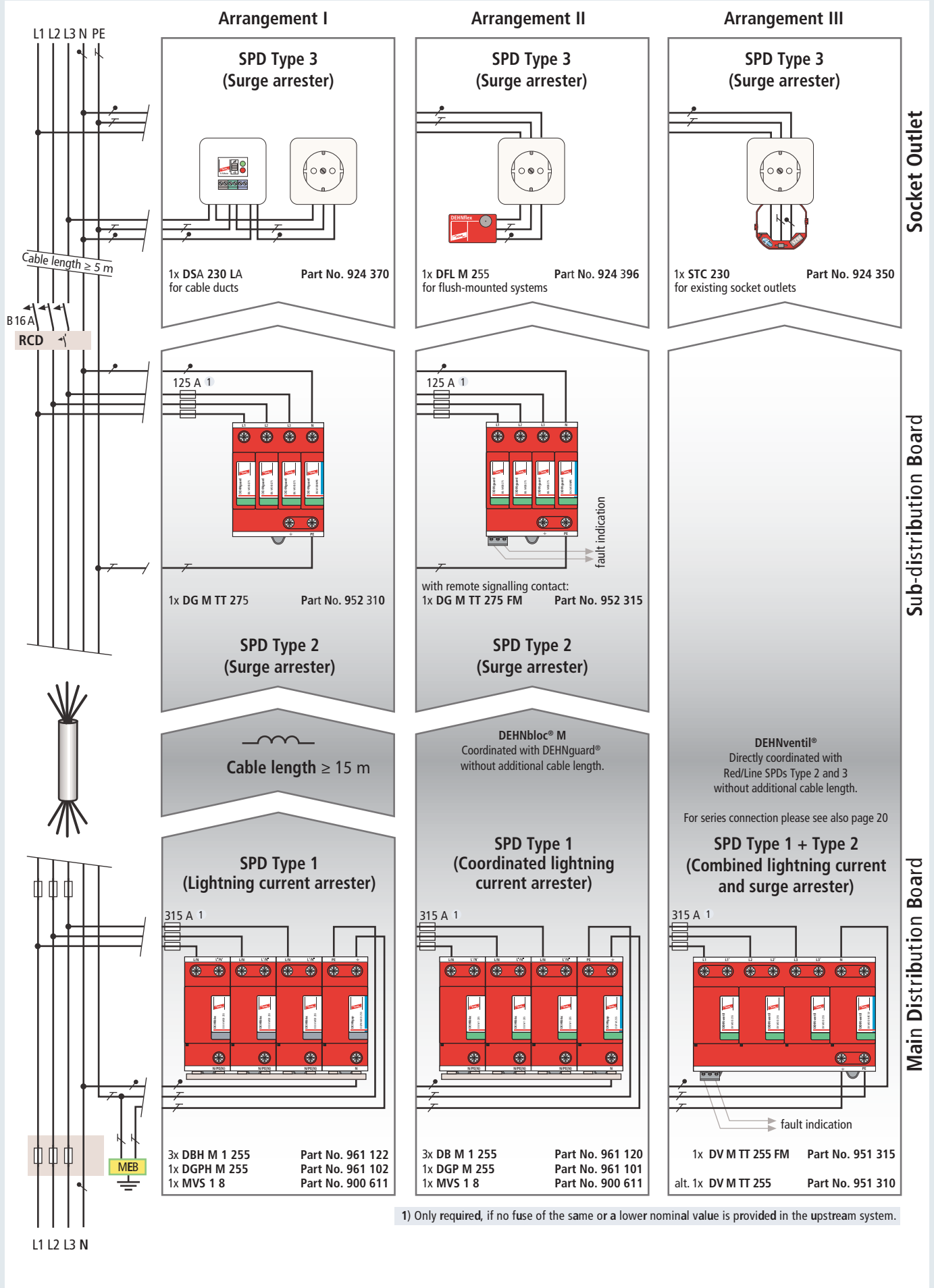
TN system: Example: Industrial building – Separation of the PEN conductor in the sub-distribution board



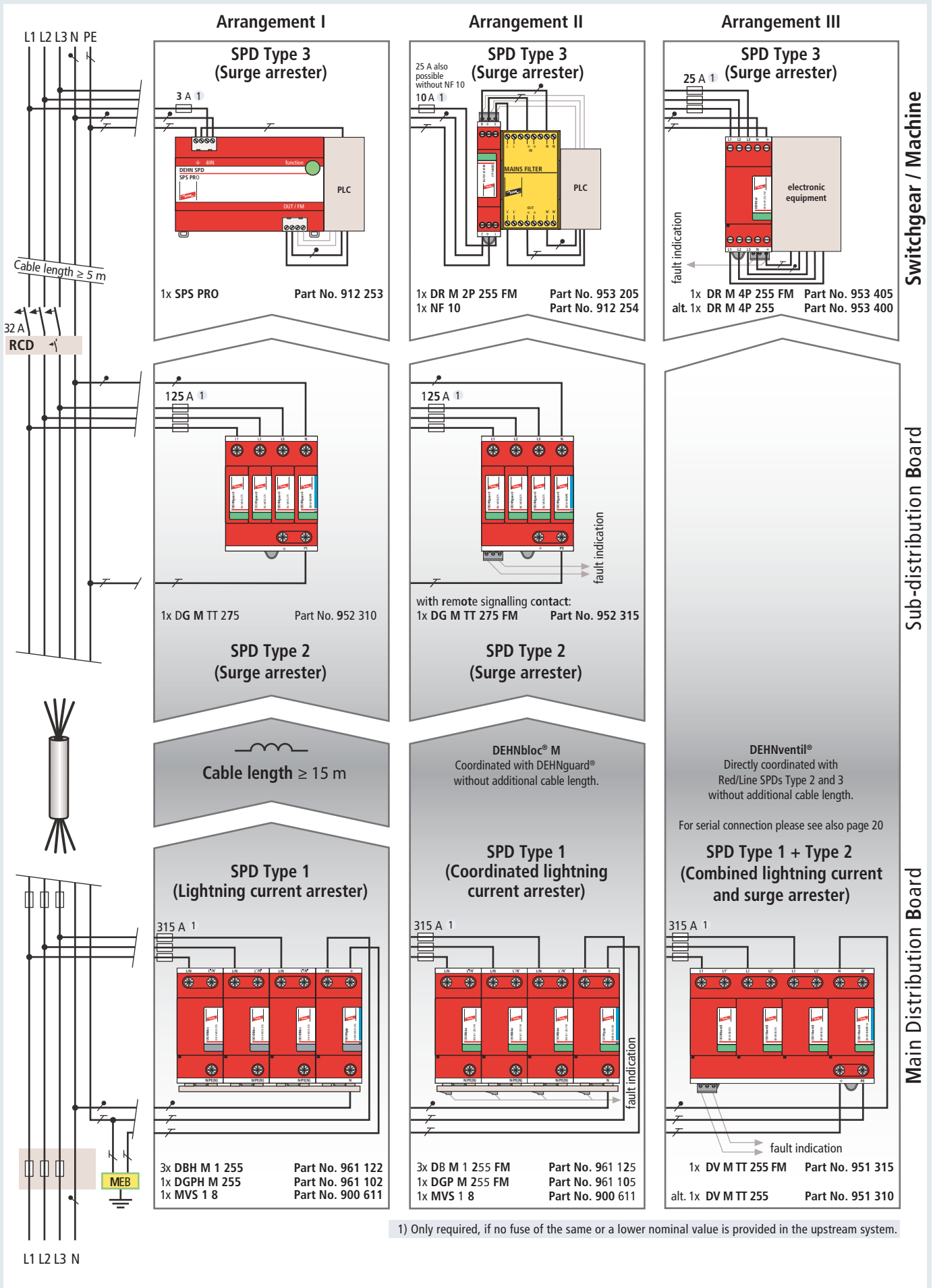
TN system: Example: Single-family house



TT system: Example: Single-family house



TT system: Example: Office building



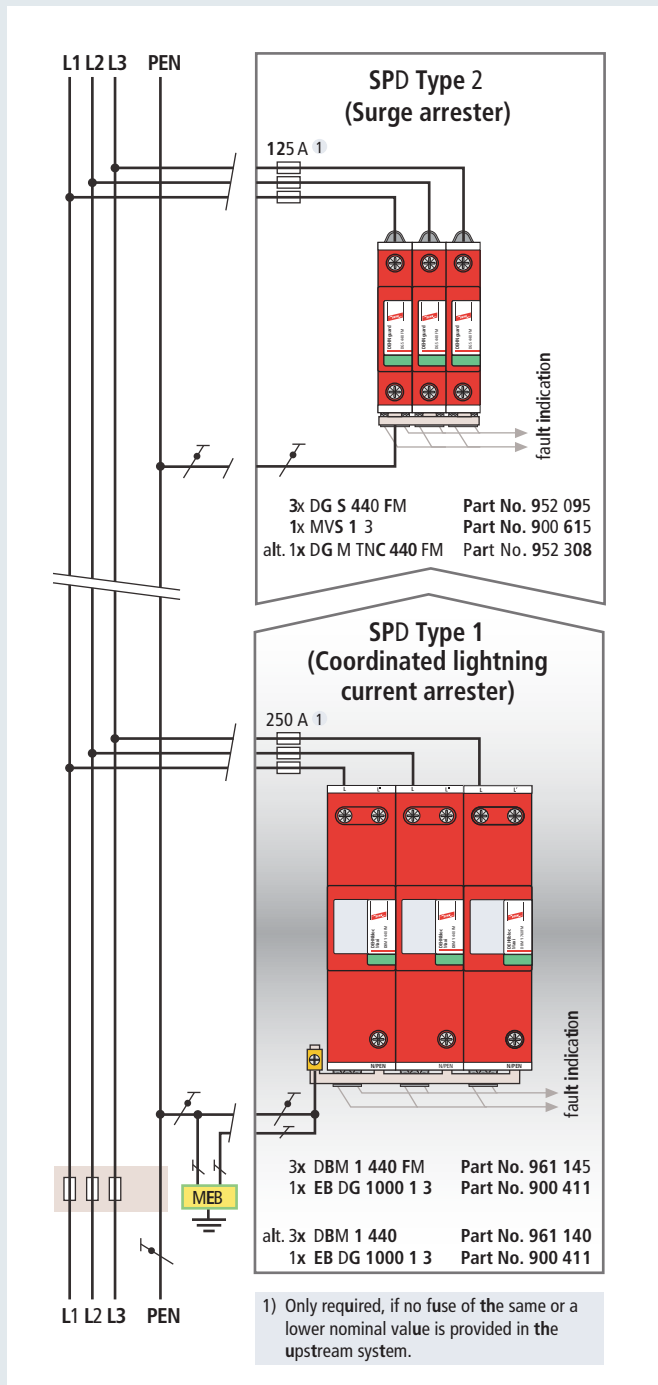
Switchgear / Machine

Sub-distribution Board

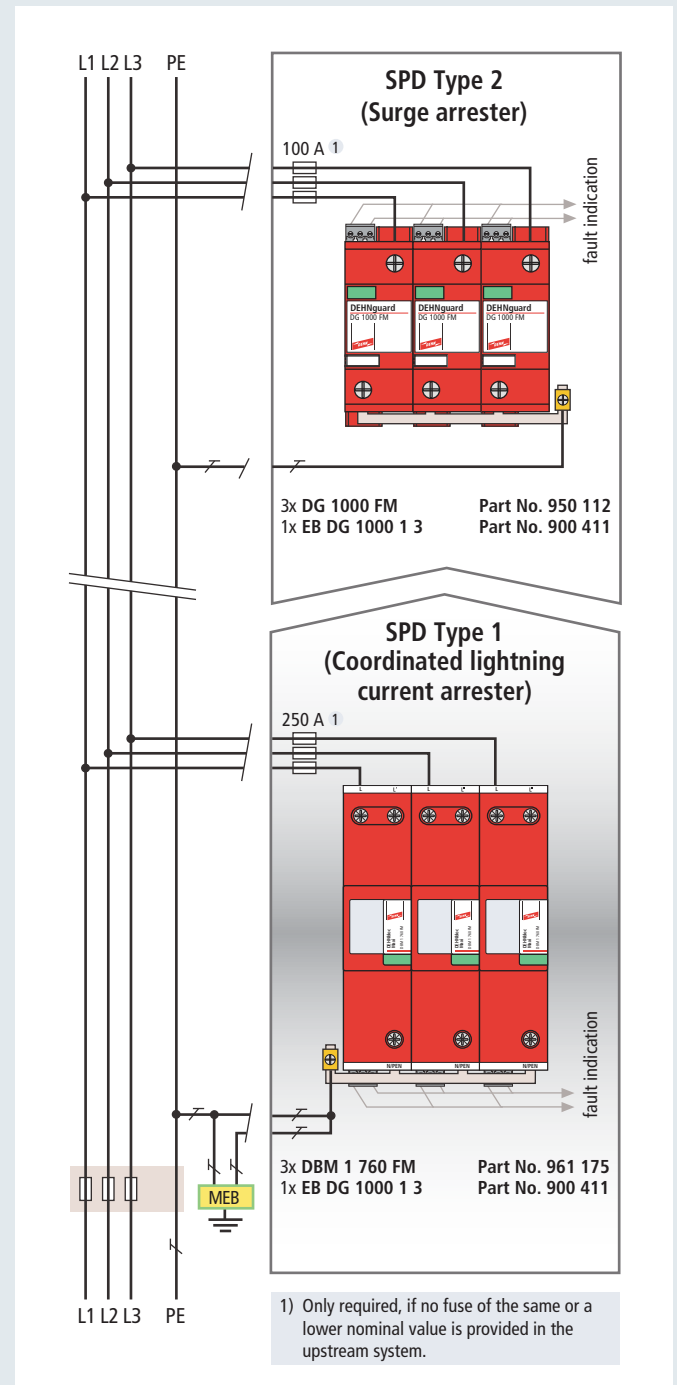
Main Distribution Board

1) Only required, if no fuse of the same or a lower nominal value is provided in the upstream system.

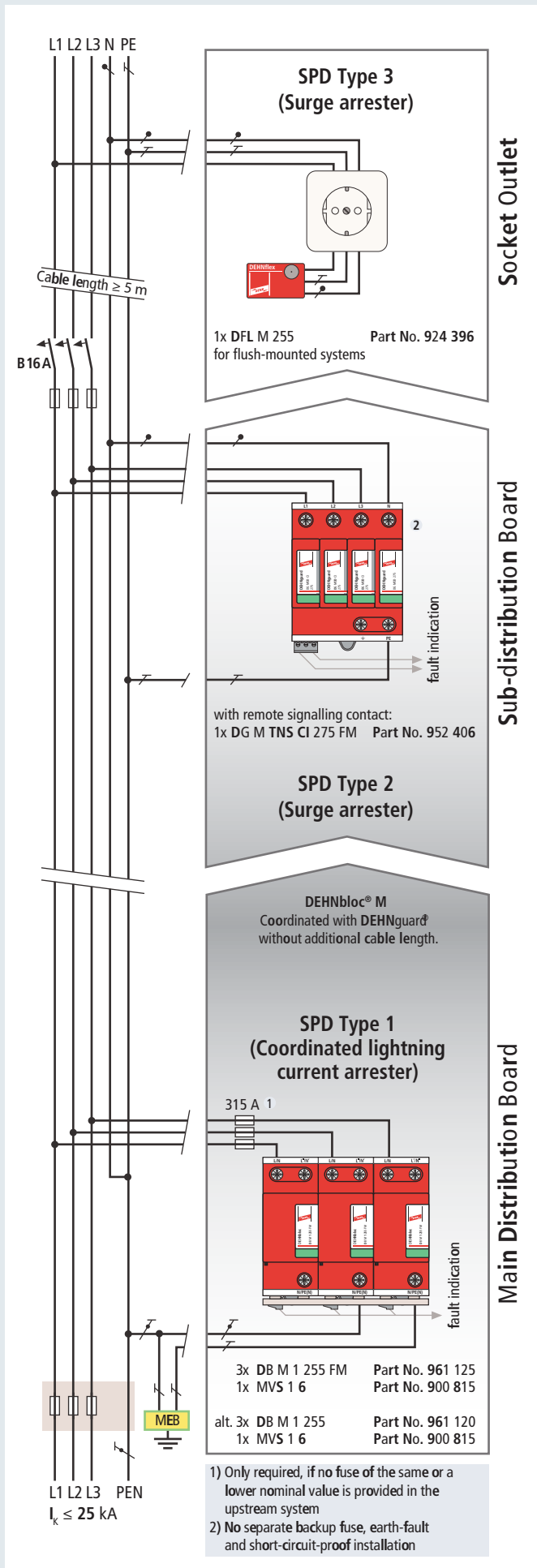
TT system: Example: Industrial building



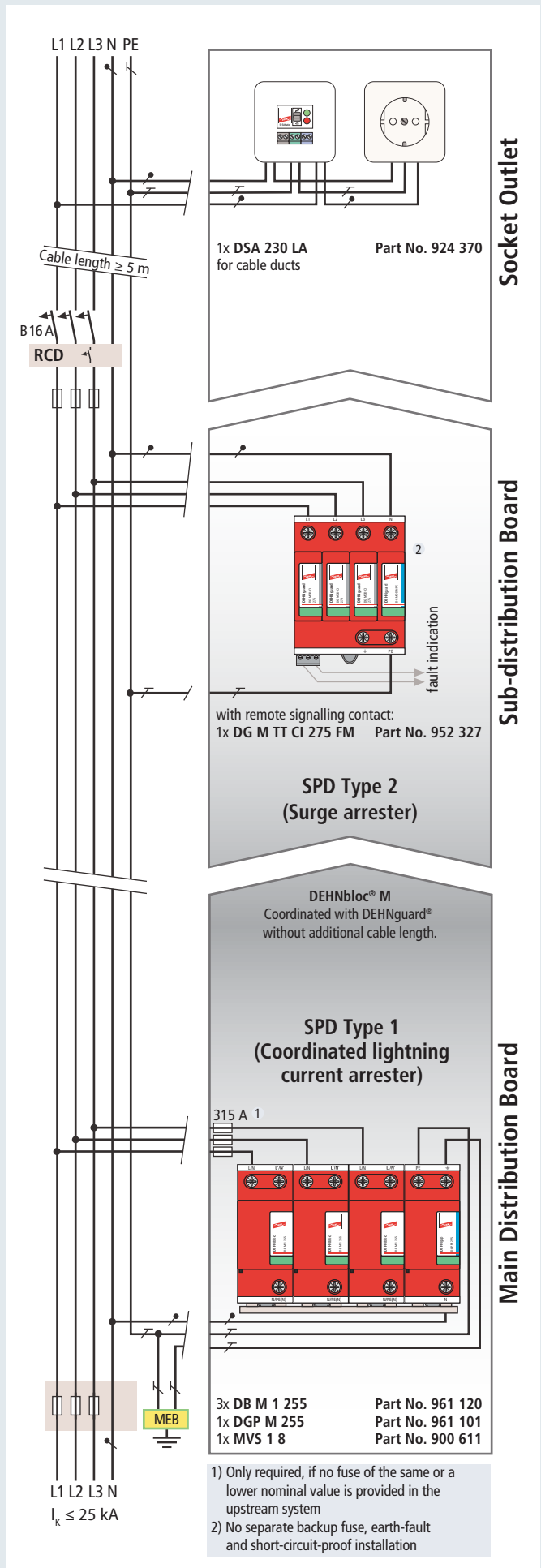
TN system: Industrial building TN-C 400/690 V



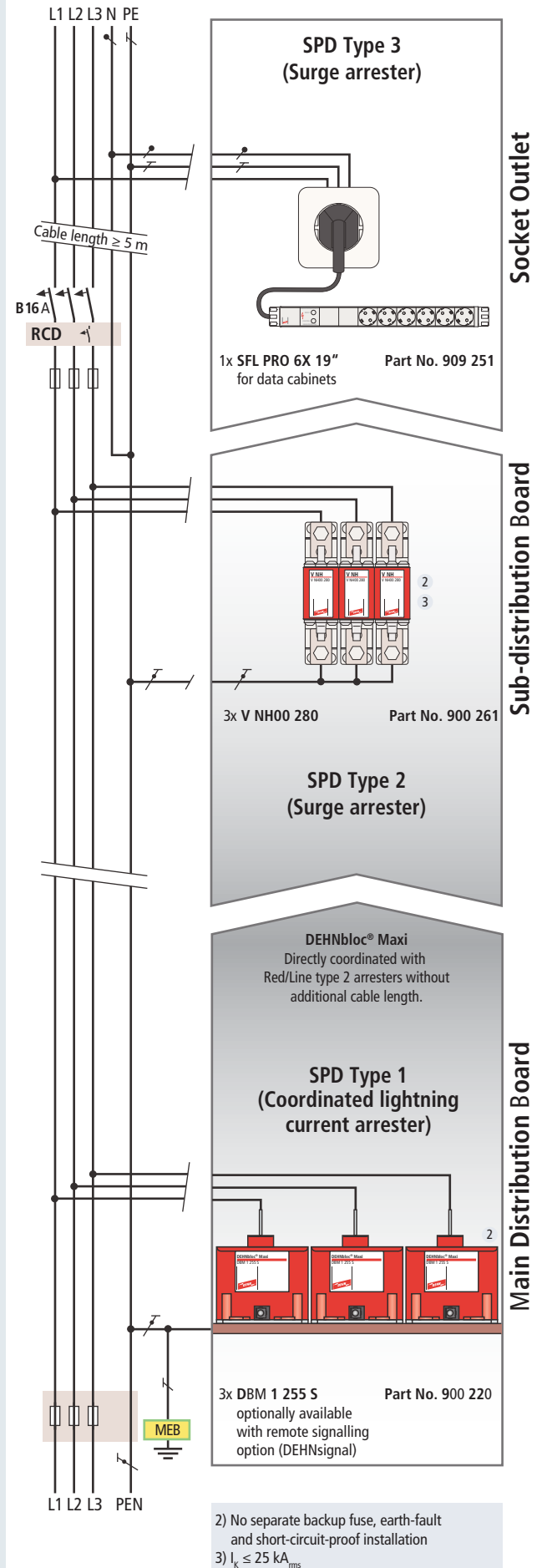
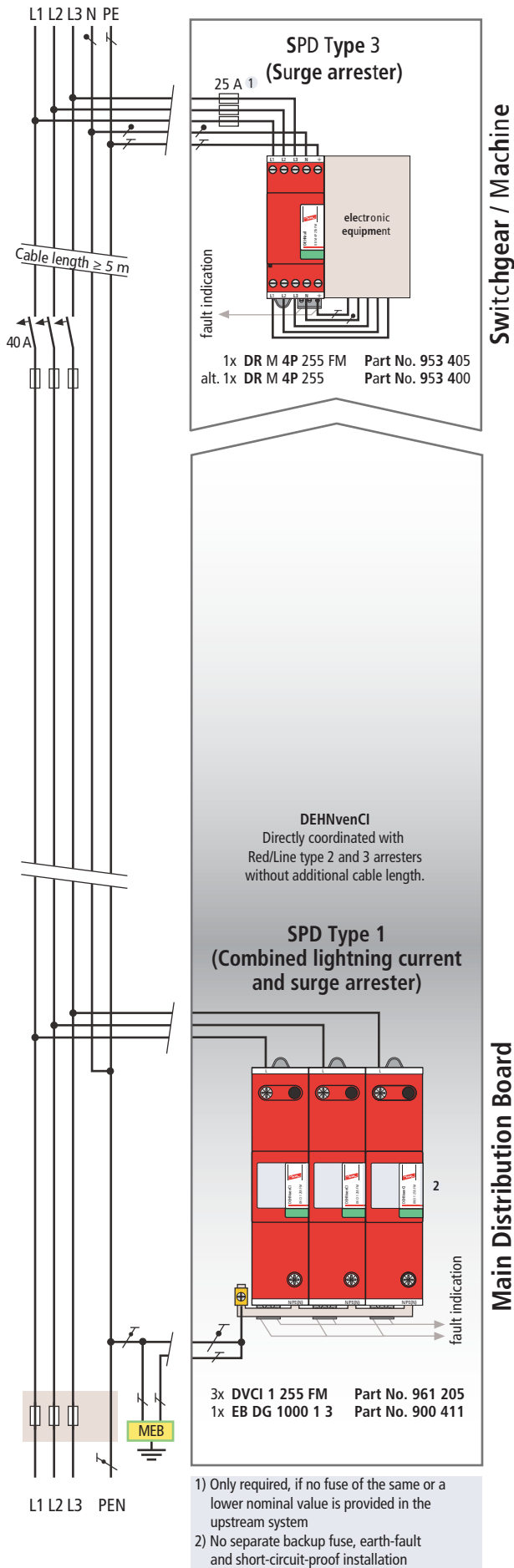
IT system: Industrial building IT 690 V, without integrated neutral



TN system

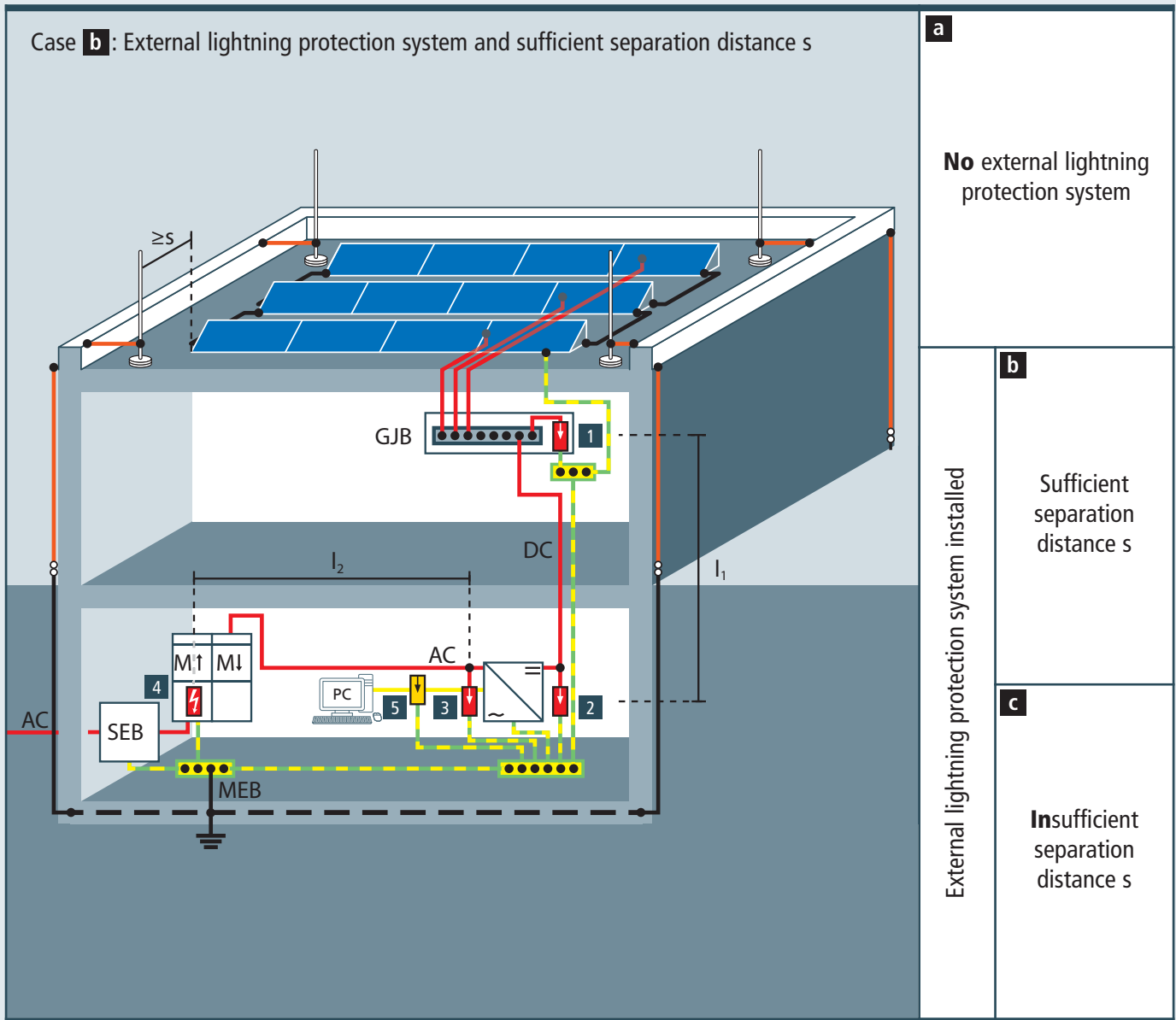


TT system



TN system: Use of type 1 and 2 arresters with integrated backup fuse in an industrial building








Decide for cases **a**, **b** and **c** whether the specified surge protective devices for the d.c. and a.c. side can be used at the defined places of installation **1**, **2**, **3**, **4** and **5**.



Equipotential bonding

The PV frame should be connected to the equipotential bonding system as follows:

- **a** + **b**: Defined connection at the PV frame by means of a copper conductor of at least 6 mm² (or equivalent)
- **c**: Defined connection at the PV frame by means of a copper conductor of at least 16 mm² (or equivalent)
- Permanently conductive connection of the PV frames has to be ensured
- The earthing conductor is connected to the main earthing busbar of the building on ground level
- The earthing conductor has to be installed in parallel and in close proximity to the d.c. and a.c. cables / lines and the accessories

d.c. side				a.c. side		
Type 1+2	Type 1	Type 2	Type 2	Type 2	Type 1+2	Type 1+2
						
DEHNCombo YPV SCI See page 51	DEHNlimit See page 54	DEHNGuard® YPV SCI - compact See page 127	DEHNCube YPV SCI See page 130	DEHNGuard® M See page 95	DEHNshield® See page 45	DEHNventil® M See page 32
--	--	2		4		
		If $l_1 > 10$ m: additionally 1		If $l_2 > 10$ m: additionally 3		
		2		If $l_2 > 10$ m: additionally 3		
		If $l_1 > 10$ m: additionally 1		4		
class of LPS*) / $l_1 \geq 4$ down cond.**); class of LPS*) III / IV	2					
	If $l_1 > 10$ m: additionally 1					
class of LPS*) / l_1 , 2 down cond.**)	2					
	If $l_1 > 10$ m: additionally 1					
		--		If $l_2 > 10$ m: additionally 3		
		--		4		

*) lightning protection system

**) down conductors of the external lightning protection system

Integration of type 2 arresters (d.c. and a.c.)



DEHNGuard® PCB ... (FM)

Base for DEHNGuard protection modules is integrated in the PCBs of inverters, optionally available with remote signalling contact.

See page 135

Data interface

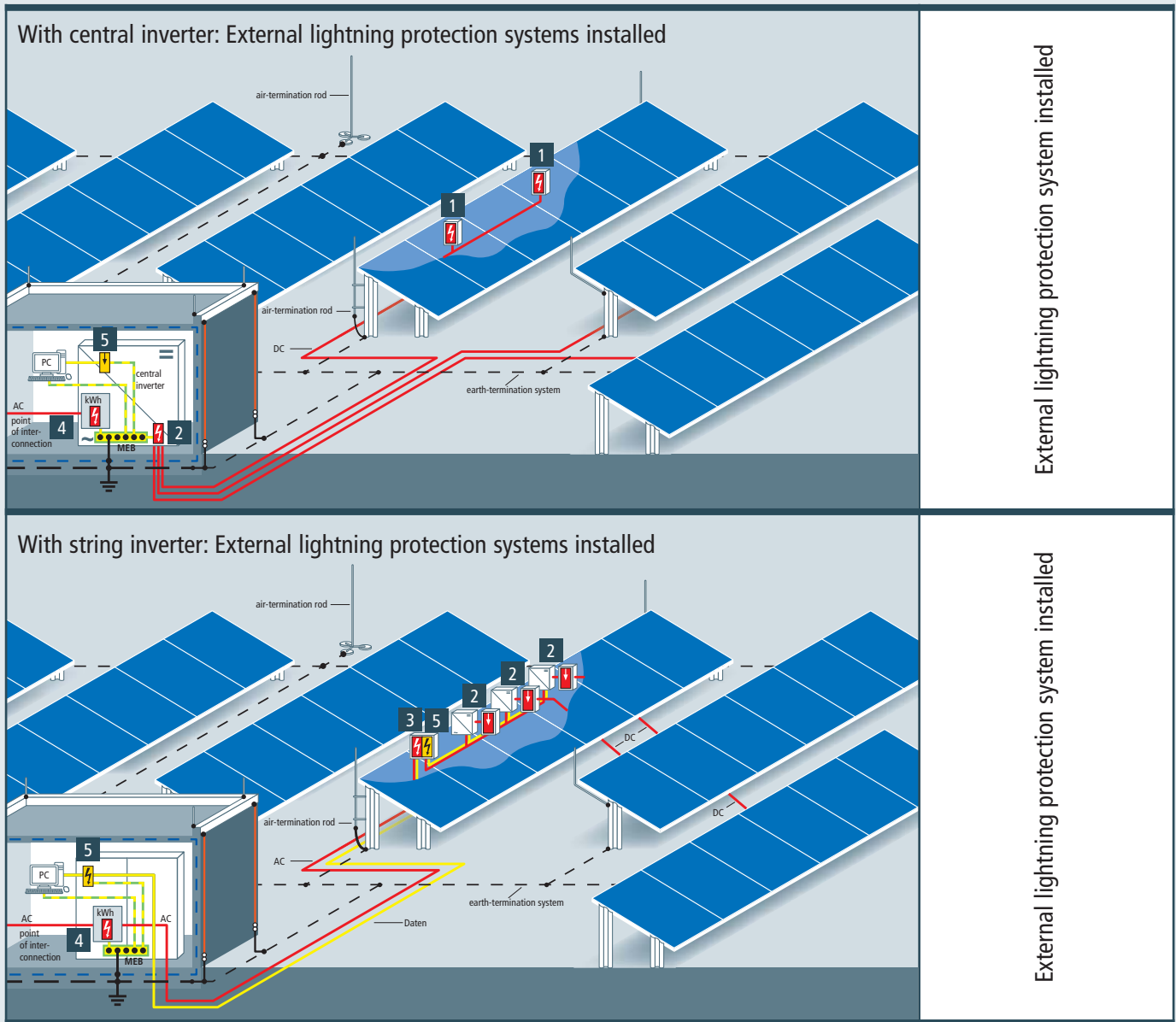


5 BLITZDUCTOR® XTU combined arrester

DIN rail mounted combined lightning current and surge arrester with actiVsense and LifeCheck technology for protecting two pairs of balanced interfaces (e.g. RS485) (BXT BAS base part (Part No. 920 300) required).

See page 252







Decide whether the specified surge protective devices for the d.c. and a.c. side can be used at the defined places of installation **1**, **2**, **3**, **4** and **5**.



Equipotential bonding

The PV frame should be connected to the equipotential bonding system as follows:

- Intermeshed earth-termination systems with a mesh size from 20 x 20 m to 40 x 40 m
- Permanently conductive connection of the PV frames has to be ensured
- Screw-in and pile-driven foundations ensure contact with earth

d.c. side				a.c. side	
Type 1+2	Type 2	Type 2	Type 2	Type 1+2	Type 1+2
 <p>DEHNcombo YPV SCI See page 51</p>	 <p>DEHNgard® M (Y)PV SCI See page 119</p>	 <p>DEHNgard® YPV SCI - compact See page 127</p>	 <p>DEHNCube YPV SCI See page 130</p>	 <p>DEHNshield® See page 45</p>	 <p>DEHNventil® M See page 32</p>
1 + 2	--	--	--	--	4
--	2			3	4

Selection Chart

Integration of type 2 arresters (d.c. and a.c.)



DEHNgard® PCB ... (FM)

Base for DEHNgard protection modules is integrated in the PCBs of inverters, optionally available with remote signalling contact.

See page 135

Data interface



5 BLITZDUCTOR® XTU combined arrester

DIN rail mounted combined lightning current and surge arrester with actiVsense and LifeCheck technology for protecting two pairs of balanced interfaces (e.g. RS485) (BXT BAS base part (Part No. 920 300) required).

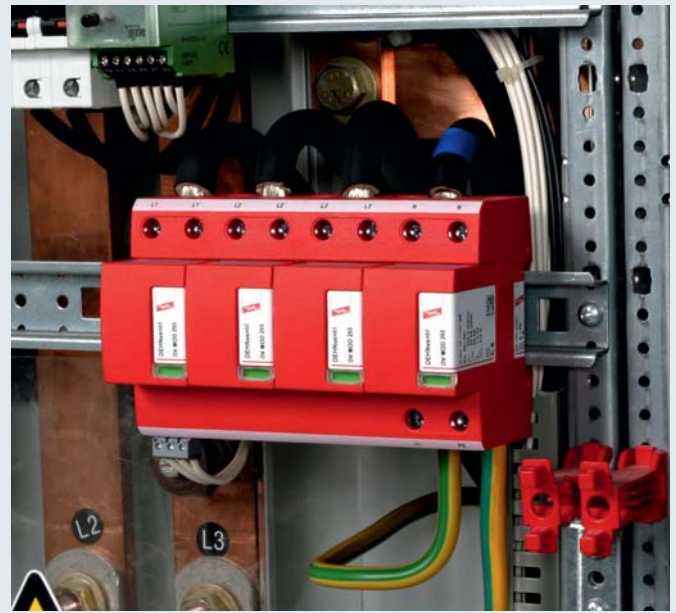
See page 252

- Prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester consisting of a base part and plug-in protection modules
- Maximum system availability due to RADAX Flow follow current limitation
- No tripping of 20 A gL/gG fuses up to short-circuit currents of 50 kA_{rms}
- Discharge capacity up to 100 kA (10/350 μs)
- Capable of protecting terminal equipment
- Operating state / fault indication by green / red indicator flag in the inspection window
- Easy replacement of protection modules without tools due to module locking system with module release button
- Vibration and shock-tested acc. to EN 60068-2



DEHNventil M TNC 255:	Modular combined lightning current and surge arrester for use in TN-C systems
DEHNventil M TNS 255:	Modular combined lightning current and surge arrester for use in TN-S systems
DEHNventil M TT 255:	Modular combined lightning current and surge arrester for use in TT and TN-S systems ("3+1" circuit)
DEHNventil M TN 255:	Modular combined lightning current and surge arrester for use in single-phase TN systems
DEHNventil M TT 2P 255:	Modular combined lightning current and surge arrester for use in single-phase TT and TN systems ("1+1" circuit)
DEHNventil M ... FM:	With remote signalling contact for monitoring device (floating changeover contact)

With their functional Red/Line design, the devices of the modular DEHNventil family provide a combination of safety and innovation. Designed for "all-in-one installation", the arresters integrate lightning equipotential bonding and surge protection in a single device, making them ideal for use in compact electrical installations. The energy-coordinated arresters even allow to protect terminal equipment if the distance between DEHNventil and the loads is ≤ 5 m. With a lightning current discharge capacity up to 100,000 A, the arresters ensure a high degree of availability of the electrical installation to be protected. Even in large-scale electrical installations, the modular DEHNventil arresters provide various application benefits. The Red/Line surge arresters installed at the boundaries of the individual lightning protection zones, for example, are already energy-coordinated with the DEHNventil arresters. DEHNventil arresters can be easily integrated into switchgear installations or distribution boards due to their encapsulated creepage discharge spark gaps and compact dimensions. A special feature of the modular DEHNventil family is its functional design, in particular the module locking system. It fixes the protection module firmly in place so that it is safely connected to the base part even with maximum loads. Protection modules can be easily replaced without tools by pressing the module release button and removing the protection module.



For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2.

By using the double terminals suitable for all conductors, the arresters can be connected in series in a space-saving and cost-effective way according to IEC 60364-5-53 requirements for nominal currents up to 125 A. Busbars of type MVS 3 8 6 and MVS 4 11 8 can be used for connecting further DIN rail mounted devices. The type designation of DEHNventil arresters allows to easily choose the right arrester for the relevant system configuration of the low-voltage consumer's installation.

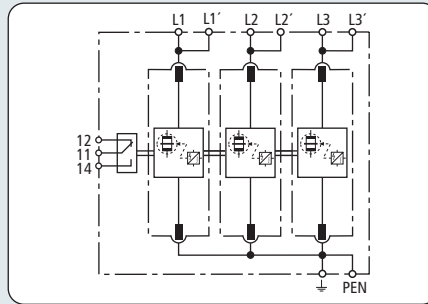
The patented RADAX Flow technology ensures follow current limitation and extinction as well as maximum system availability of the electrical consumer's installation to be protected. Even in case of short-circuit currents as high as 100 kA_{rms}, mains follow currents are reduced in such a way that selectivity with respect to low-value fuses is ensured, meaning that upstream fuses are not tripped by mains follow currents.

The operating state / fault indicator of each protective path needs no power to operate and immediately shows the operating state of the surge arrester. Apart from the standard visual indication with green and red flags, DEHNventil M ... FM devices feature a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.

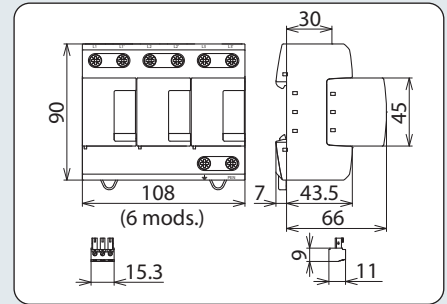
Due to their parameters and design, the devices can be installed even upstream of meter panels in low-voltage consumer's installations.

DEHNventil M TNC (FM)

Type 1 Combined Arresters



Basic circuit diagram DV M TNC 255 FM



Dimension drawing DV M TNC 255 FM

- Prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester consisting of a base part and plug-in protection modules
- Maximum system availability due to RADAX Flow follow current limitation
- Capable of protecting terminal equipment

Modular combined lightning current and surge arrester for protecting TN-C systems against surges.

Type	DV M TNC 255	DV M TNC 255 FM
Part No.	951 300	951 305
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5m)	type 1 + type 2 + type 3	type 1 + type 2 + type 3
Nominal a.c. voltage (U _N)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	264 V (50 / 60 Hz)	264 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) [L1+L2+L3-PEN] (I _{total})	75 kA	75 kA
Specific energy [L1+L2+L3-PEN] (W/R)	1.40 MJ/ohms	1.40 MJ/ohms
Lightning impulse current (10/350 μs) [L-PEN] (I _{imp})	25 kA	25 kA
Specific energy [L-PEN] (W/R)	156.25 kJ/ohms	156.25 kJ/ohms
Nominal discharge current (8/20 μs) [L-PEN]/[L1+L2+L3-PEN] (I _n)	25 / 75 kA	25 / 75 kA
Voltage protection level (U _P)	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability a.c. (I _n)	50 kA _{rms}	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 20 A gL/gG fuse up to 50 kA _{rms} (prosp.)	
Response time (t _λ)	≤ 100 ns	≤ 100 ns
Max. backup fuse (L) up to I _k = 50 kA _{rms}	315 A gL/gG	315 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG	125 A gL/gG
Temporary overvoltage (TOV) (U _T) – Characteristic	440 V / 120 min. – withstand	440 V / 120 min. – withstand
Operating temperature range [parallel] / [series] (T _U)	-40 °C ... +80 °C / -40 °C ... +60 °C	-40 °C ... +80 °C / -40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (L1, L1', L2, L2', L3, L3', PEN, ⚬) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (L1, L2, L3, PEN) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L1', L2', L3', ⚬) (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	6 module(s), DIN 43880	6 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA_{rms} (tested by the German VDE)	
– Maximum prospective short-circuit current	100 kA _{rms} (220 kA _{peak})	100 kA _{rms} (220 kA _{peak})
– Limitation / Extinction of mains follow currents	up to 100 kA _{rms} (220 kA _{peak})	up to 100 kA _{rms} (220 kA _{peak})
– Max. backup fuse (L) up to I _k = 100 kA _{rms}	315 A gL/gG	315 A gL/gG

Accessory for DEHNventil® modular

Spark-Gap-Based Protection Module

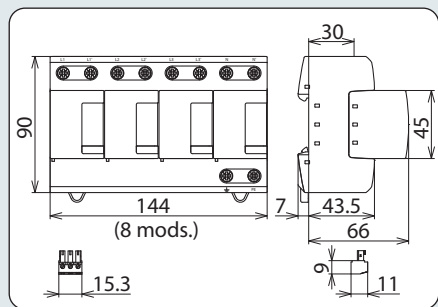
Spark-gap-based protection module



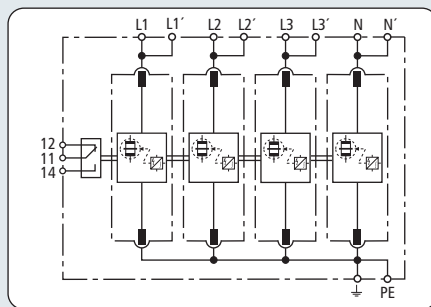
Type	DV MOD 255
Part No.	951 001
Max. continuous operating a.c. voltage (U _C)	264 V

Type 1 Combined Arresters

DEHNventil M TNS (FM)



Dimension drawing DV M TNS 255 FM



Basic circuit diagram DV M TNS 255 FM



Modular combined lightning current and surge arrester for protecting TN-S systems against surges.

- Prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester consisting of a base part and plug-in protection modules
- Maximum system availability due to RADAX Flow follow current limitation
- Capable of protecting terminal equipment

Type	DV M TNS 255	DV M TNS 255 FM
Part No.	951 400	951 405
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5m)	type 1 + type 2 + type 3	type 1 + type 2 + type 3
Nominal a.c. voltage (U _N)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _c)	264 V (50 / 60 Hz)	264 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) [L1+L2+L3+N-PE] (I _{total})	100 kA	100 kA
Specific energy [L1+L2+L3+N-PE] (W/R)	2.50 MJ/ohms	2.50 MJ/ohms
Lightning impulse current (10/350 μs) [L, N-PE] (I _{imp})	25 kA	25 kA
Specific energy [L, N-PE] (W/R)	156.25 kJ/ohms	156.25 kJ/ohms
Nominal discharge current (8/20 μs) [L/N-PE]/[L1+L2+L3+N-PE] (I _n)	25 / 100 kA	25 / 100 kA
Voltage protection level [L-PE]/[N-PE] (U _p)	≤ 1.5 / ≤ 1.5 kV	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability a.c. (I _{fi})	50 kA _{rms}	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 20 A gL/gG fuse up to 50 kA _{rms} (prosp.)	
Response time (t _Δ)	≤ 100 ns	≤ 100 ns
Max. backup fuse (L) up to I _k = 50 kA _{rms}	315 A gL/gG	315 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG	125 A gL/gG
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	440 V / 120 min. – withstand	440 V / 120 min. – withstand
Operating temperature range [parallel] / [series] (T _U)	-40 °C ... +80 °C / -40 °C ... +60 °C	-40 °C ... +80 °C / -40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (L1, L1', L2, L2', L3, L3', N, N', PE, ⚬) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (L1, L2, L3, N, PE) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L1', L2', L3', N', ⚬) (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	8 module(s), DIN 43880	8 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA_{rms} (tested by the German VDE)	
– Maximum prospective short-circuit current	100 kA _{rms} (220 kA _{peak})	100 kA _{rms} (220 kA _{peak})
– Limitation / Extinction of mains follow currents	up to 100 kA _{rms} (220 kA _{peak})	up to 100 kA _{rms} (220 kA _{peak})
– Max. backup fuse (L) up to I _k = 100 kA _{rms}	315 A gL/gG	315 A gL/gG

Type 1 Combined Arresters

Accessory for DEHNventil® modular

Spark-Gap-Based Protection Module

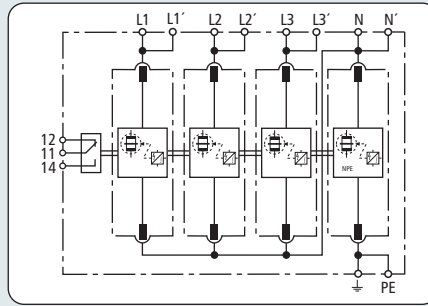
Spark-gap-based protection module

Type	DV MOD 255
Part No.	951 001
Max. continuous operating a.c. voltage (U _c)	264 V

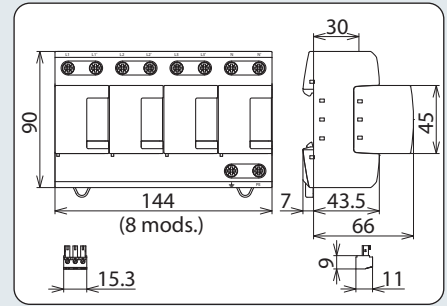


DEHNventil M TT (FM)

Type 1 Combined Arresters



Basic circuit diagram DV M TT 255 FM



Dimension drawing DV M TT 255 FM

- Prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester consisting of a base part and plug-in protection modules
- Maximum system availability due to RADAX Flow follow current limitation
- Capable of protecting terminal equipment

Modular combined lightning current and surge arrester for protecting TT and TN-S systems ("3+1" circuit) against surges.

Type	DV M TT 255	DV M TT 255 FM
Part No.	951 310	951 315
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5m)	type 1 + type 2 + type 3	type 1 + type 2 + type 3
Nominal a.c. voltage (U _N)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U _C)	264 V (50 / 60 Hz)	264 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U _{C (N-PE)})	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) [L1+L2+L3+N-PE] (I _{total})	100 kA	100 kA
Specific energy [L1+L2+L3+N-PE] (W/R)	2.50 MJ/ohms	2.50 MJ/ohms
Lightning impulse current (10/350 μs) [L-N]/[N-PE] (I _{imp})	25 / 100 kA	25 / 100 kA
Specific energy [L-N]/[N-PE] (W/R)	156.25 kJ/ohms / 2.50 MJ/ohms	156.25 kJ/ohms / 2.50 MJ/ohms
Nominal discharge current (8/20 μs) [L-N]/[N-PE] (I _n)	25 / 100 kA	25 / 100 kA
Voltage protection level [L-N]/[N-PE] (U _p)	≤ 1.5 / ≤ 1.5 kV	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability [L-N]/[N-PE] (I _n)	50 kA _{rms} / 100 A _{rms}	50 kA _{rms} / 100 A _{rms}
Follow current limitation / Selectivity	no tripping of a 20 A gL/gG fuse up to 50 kA _{rms} (prosp.)	
Response time (t _a)	≤ 100 ns	≤ 100 ns
Max. backup fuse (L) up to I _k = 50 kA _{rms}	315 A gL/gG	315 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG	125 A gL/gG
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	440 V / 120 min. – withstand	440 V / 120 min. – withstand
Temporary overvoltage (TOV) [N-PE] (U _T) – Characteristic	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand
Operating temperature range [parallel] / [series] (T _U)	-40 °C ... +80 °C / -40 °C ... +60 °C	-40 °C ... +80 °C / -40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (L1, L1', L2, L2', L3, L3', N, N', PE, ⚡) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (L1, L2, L3, N, PE) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L1', L2', L3', N', ⚡) (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	8 module(s), DIN 43880	8 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA _{rms} (tested by the German VDE)	
– Maximum prospective short-circuit current	100 kA _{rms} (220 kA _{peak})	100 kA _{rms} (220 kA _{peak})
– Limitation / Extinction of mains follow currents	up to 100 kA _{rms} (220 kA _{peak})	up to 100 kA _{rms} (220 kA _{peak})
– Max. backup fuse (L) up to I _k = 100 kA _{rms}	315 A gL/gG	315 A gL/gG

Accessory for DEHNventil® modular

Accessory for DEHNventil® modular

Spark-Gap-Based Protection Module

N-PE Spark-Gap-Based Protection Module



Spark-gap-based protection module

Type	DV MOD 255
Part No.	951 001
Max. continuous operating a.c. voltage (U _C)	264 V

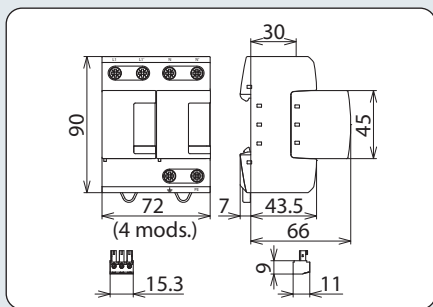


100 kA N-PE spark-gap-based protection module

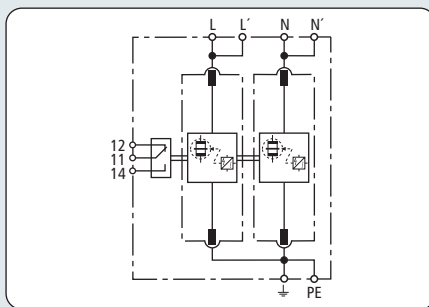
Type	DV MOD NPE 100
Part No.	951 100
Max. continuous operating a.c. voltage (U _C)	255 V

Type 1 Combined Arresters

DEHNventil M TN (FM)



Dimension drawing DV M TN 255 FM



Basic circuit diagram DV M TN 255 FM



- Prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester consisting of a base part and plug-in protection modules
- Maximum system availability due to RADAX Flow follow current limitation
- Capable of protecting terminal equipment

Modular combined lightning current and surge arrester for protecting single-phase TN systems against surges.

Type	DV M TN 255	DV M TN 255 FM
Part No.	951 200	951 205
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5m)	type 1 + type 2 + type 3	type 1 + type 2 + type 3
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	264 V (50 / 60 Hz)	264 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) [L+N-PE] (I _{total})	50 kA	50 kA
Specific energy [L+N-PE] (W/R)	625.00 kJ/ohms	625.00 kJ/ohms
Lightning impulse current (10/350 μs) [L, N-PE] (I _{imp})	25 kA	25 kA
Specific energy [L, N-PE] (W/R)	156.25 kJ/ohms	156.25 kJ/ohms
Nominal discharge current (8/20 μs) [L/N-PE]/[L+N-PE] (I _n)	25 / 50 kA	25 / 50 kA
Voltage protection level [L-PE]/[N-PE] (U _p)	≤ 1.5 / ≤ 1.5 kV	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability a.c. (I _{fi})	50 kA _{rms}	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 20 A gL/gG fuse up to 50 kA _{rms} (prosp.)	
Response time (t _Δ)	≤ 100 ns	≤ 100 ns
Max. backup fuse (L) up to I _k = 50 kA _{rms}	315 A gL/gG	315 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG	125 A gL/gG
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	440 V / 120 min. – withstand	440 V / 120 min. – withstand
Operating temperature range [parallel] / [series] (T _U)	-40 °C ... +80 °C / -40 °C ... +60 °C	-40 °C ... +80 °C / -40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (L, L', N, N', PE, ⚡) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (L, N, PE) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L', N', ⚡) (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	4 module(s), DIN 43880	4 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA_{rms} (tested by the German VDE)	
– Maximum prospective short-circuit current	100 kA _{rms} (220 kA _{peak})	100 kA _{rms} (220 kA _{peak})
– Limitation / Extinction of mains follow currents	up to 100 kA _{rms} (220 kA _{peak})	up to 100 kA _{rms} (220 kA _{peak})
– Max. backup fuse (L) up to I _k = 100 kA _{rms}	315 A gL/gG	315 A gL/gG

Accessory for DEHNventil® modular

Spark-Gap-Based Protection Module

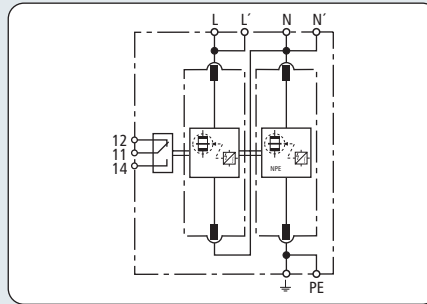
Spark-gap-based protection module

Type	DV MOD 255
Part No.	951 001
Max. continuous operating a.c. voltage (U _C)	264 V

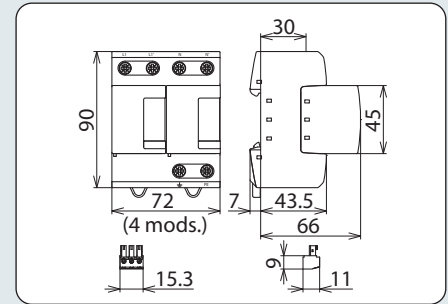


DEHNventil M TT 2P (FM)

Type 1 Combined Arresters



Basic circuit diagram DV M TT 2P 255 FM



Dimension drawing DV M TT 2P 255 FM

- Prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester consisting of a base part and plug-in protection modules
- Maximum system availability due to RADAX Flow follow current limitation
- Capable of protecting terminal equipment

Modular combined lightning current and surge arrester for protecting single-phase TT and TN systems ("1+1" circuit) against surges.

Type	DV M TT 2P 255	DV M TT 2P 255 FM
Part No.	951 110	951 115
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5m)	type 1 + type 2 + type 3	type 1 + type 2 + type 3
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U _C)	264 V (50 / 60 Hz)	264 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U _{C (N-PE)})	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) [L+N-PE] (I _{total})	50 kA	50 kA
Specific energy [L+N-PE] (W/R)	625.00 kJ/ohms	625.00 kJ/ohms
Lightning impulse current (10/350 μs) [L-N]/[N-PE] (I _{imp})	25 / 50 kA	25 / 50 kA
Specific energy [L-N]/[N-PE] (W/R)	156.25 / 625.00 kJ/ohms	156.25 / 625.00 kJ/ohms
Nominal discharge current (8/20 μs) [L-N]/[N-PE] (I _n)	25 / 50 kA	25 / 50 kA
Voltage protection level [L-N]/[N-PE] (U _p)	≤ 1.5 / ≤ 1.5 kV	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability [L-N]/[N-PE] (I _n)	50 kA _{rms} / 100 A _{rms}	50 kA _{rms} / 100 A _{rms}
Follow current limitation / Selectivity	no tripping of a 20 A gL/gG fuse up to 50 kA _{rms} (prosp.)	
Response time (t _a)	≤ 100 ns	≤ 100 ns
Max. backup fuse (L) up to I _k = 50 kA _{rms}	315 A gL/gG	315 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG	125 A gL/gG
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	440 V / 120 min. – withstand	440 V / 120 min. – withstand
Temporary overvoltage (TOV) [N-PE] (U _T) – Characteristic	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand
Operating temperature range [parallel] / [series] (T _U)	-40 °C ... +80 °C / -40 °C ... +60 °C	-40 °C ... +80 °C / -40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (L, L', N, N', PE, ⚬) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (L, N, PE) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L', N', ⚬) (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94-V-0	thermoplastic, red, UL 94-V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	4 module(s), DIN 43880	4 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA _{rms} (tested by the German VDE)	
– Maximum prospective short-circuit current	100 kA _{rms} (220 kA _{peak})	100 kA _{rms} (220 kA _{peak})
– Limitation / Extinction of mains follow currents	up to 100 kA _{rms} (220 kA _{peak})	up to 100 kA _{rms} (220 kA _{peak})
– Max. backup fuse (L) up to I _k = 100 kA _{rms}	315 A gL/gG	315 A gL/gG

Accessory for DEHNventil® modular

Accessory for DEHNventil® modular

Spark-Gap-Based Protection Module

Spark-gap-based protection module



Type	DV MOD 255
Part No.	951 001
Max. continuous operating a.c. voltage (U _C)	264 V

N-PE Spark-Gap-Based Protection Module

50 kA N-PE spark-gap-based protection module



Type	DV MOD NPE 50
Part No.	951 050
Max. continuous operating a.c. voltage (U _C)	255 V

Type 1 Combined Arresters

- High discharge capacity due to powerful creepage discharge spark gap
- Maximum system availability due to RADAX Flow follow current limitation
- Easy replacement of protection modules without tools due to module locking system with module release button
- Operating state / fault indication by green / red indicator flag in the inspection window
- The plug-in protection module can be replaced without the need to de-energise and without removing the distribution board cover



- DV MOD 255: Spark-gap-based protection module
- DV MOD NPE 50: 50 kA N-PE spark-gap-based protection module
- DV MOD NPE 100: 100 kA N-PE spark-gap-based protection module

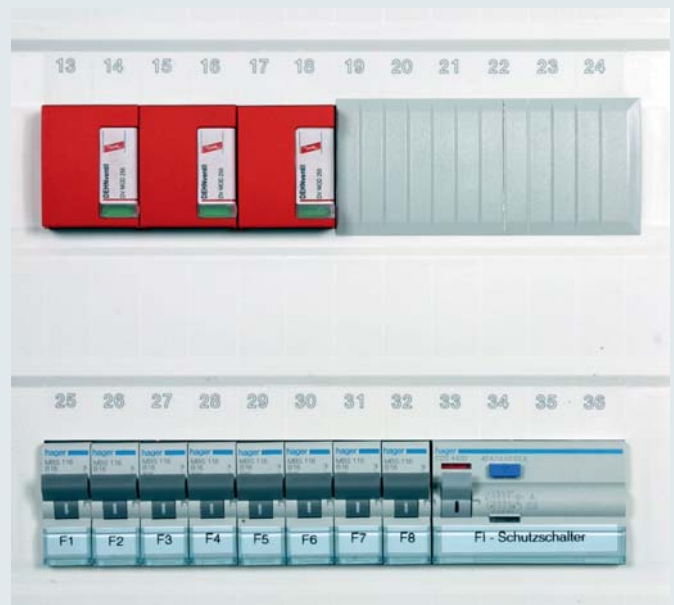
The spark-gap-based protection modules of the modular DEHNventil series combine safety and innovation in a single device. Apart from the encapsulated RADAX Flow spark gap technology, the compact protection modules incorporate the complete monitoring circuit for controlling the energy flow of the spark gap, the monitoring device and the operating state / fault indicator.

The mechanically coded protection module ensures that the N-PE protection modules are not confused with the spark-gap-based module for the phase conductors.



For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 2$.

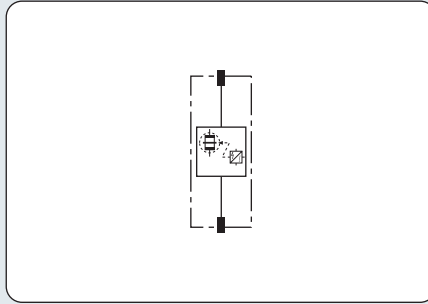
The module locking mechanism fixes the protection modules to the base part. Protection modules can be easily removed without tools by simply pressing the module release button.



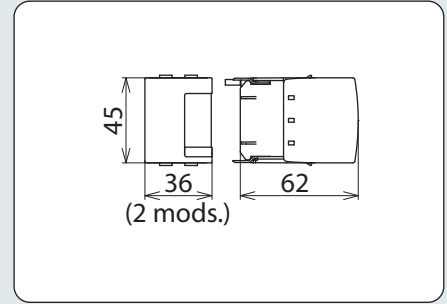
Type 1 Combined Arresters

Spark-Gap-Based Protection Module

Type 1 Combined Arresters



Basic circuit diagram DV MOD 255

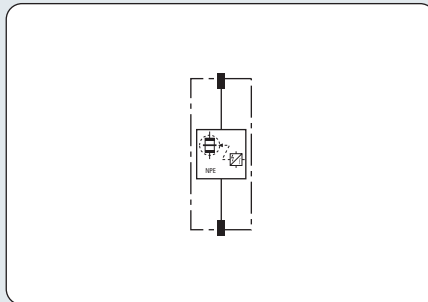


Dimension drawing DV MOD 255

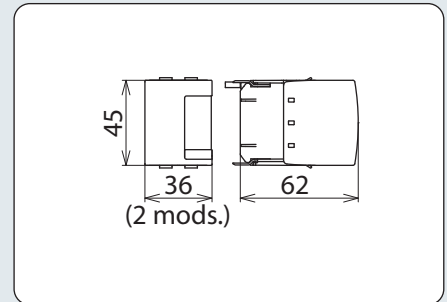
Spark-gap-based protection module

Type	DV MOD 255
Part No.	951 001
Max. continuous operating a.c. voltage (U_c)	264 V
Lightning impulse current (10/350 μ s) (I_{imp})	25 kA
Specific energy (W/R)	156.25 kJ/ohms
Follow current extinguishing capability [L-N] a.c. (I_{fl})	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 20 A gL/gG fuse up to 50 kA _{rms} (prosp.)

N-PE Spark-Gap-Based Protection Module



Basic circuit diagram DV MOD NPE ...



Dimension drawing DV MOD NPE ...

DV MOD NPE 50: 50 kA N-PE spark-gap-based protection module
 DV MOD NPE 100: 100 kA N-PE spark-gap-based protection module

Type	DV MOD NPE 50	DV MOD NPE 100
Part No.	951 050	951 100
Max. continuous operating a.c. voltage (U_c)	255 V	255 V
Lightning impulse current (10/350 μ s) (I_{imp})	50 kA	100 kA
Specific energy (W/R)	625.00 kJ/ohms	2.50 MJ/ohms
Follow current extinguishing capability [N-PE] a.c. (I_{fl})	100 A _{rms}	100 A _{rms}

Type 1 Combined Arresters Multipole Combined Lightning Current and Surge Arrester for Primary Power Systems

- Type 1 and type 2 combined lightning current and surge arrester with RADAX Flow spark gap technology
- Fully compliant with all requirements of the national VDN* guideline on the use of SPDs upstream of the meter panel
- Quick and easy installation by snapping the arrester onto 40 mm busbar systems
- Test for correct operation by pressing the button with indicator light
- No tripping of 32 A gL/gG fuses up to short-circuit currents of 25 kA_{rms}
- Discharge capacity up to 100 kA (10/350 μs)
- Capable of protecting terminal equipment
- Maximum system availability



DEHNventil ZP TNC 255: Three-pole combined lightning current and surge arrester for TN-C systems for use in primary power systems

DEHNventil ZP TT 255: Four-pole combined lightning current and surge arrester for TT and TN-S systems for use in primary power systems

DEHNventil ZP combined lightning current and surge arresters are specifically designed for installation in the busbar connection panels of meter panels. They can be directly snapped onto the busbar system without tools. Their compact dimensions leave enough space for the connecting cable from the service entrance box, even if three selective main circuit breakers are installed.

The operating state of the arresters is indicated by an indicator light at the push of a button. Both due to this kind of operating state indication and their design as a spark-gap-based arrester, DEHNventil ZP arresters have no leakage and operating currents.

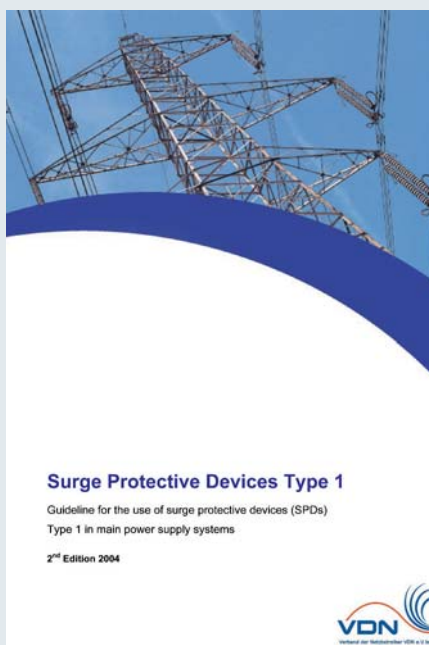
The RADAX Flow spark gap technology ensures the required disconnection selectivity for follow currents even in case of low-value fuses in the service entrance box. Undesirable supply interruptions due to tripped main fuses are thus avoided.

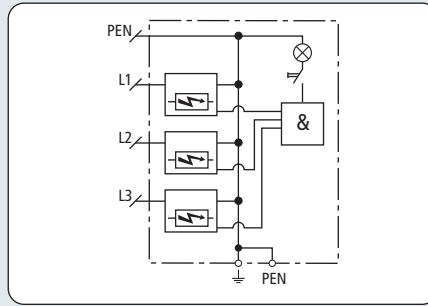
The dimensioning of the arrester parameters as well as the complete arrester concept are fully compliant with all requirements of the German VDN guideline* on the use of surge protective devices in primary power systems.

* VDN ... Verband der Netzbetreiber VDN e. V. beim BDEW
[Association of German Network Operators VDN e. V. at the BDEW in Germany]

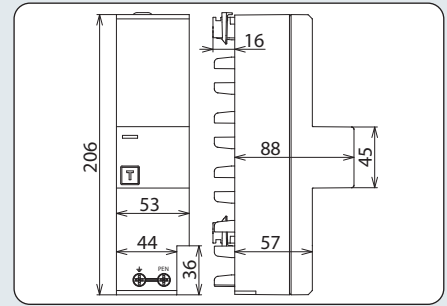


For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from O_A – 2.





Basic circuit diagram DV ZP TNC 255

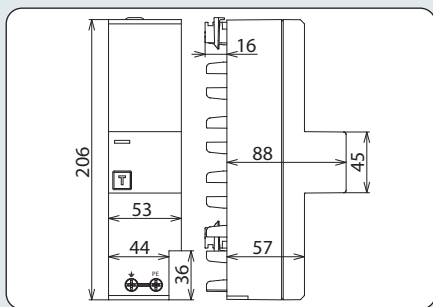


Dimension drawing DV ZP TNC 255

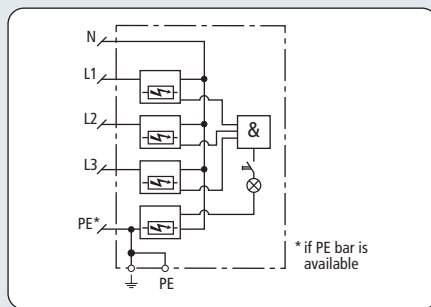
- Type 1 and type 2 combined lightning current and surge arrester with RADAX Flow spark gap technology
- Quick and easy installation by snapping the arrester onto 40 mm busbar systems
- Capable of protecting terminal equipment

Combined lightning current and surge arrester for TN-C systems for use in primary power systems ("3-0" circuit).

Type	DV ZP TNC 255
Part No.	900 390
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment ($\leq 5m$)	type 1 + type 2 + type 3
Nominal a.c. voltage (U_N)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) [L1+L2+L3-PEN] (I_{total})	75 kA
Specific energy [L1+L2+L3-PEN] (W/R)	1.40 MJ/ohms
Lightning impulse current (10/350 μs) [L-PEN] (I_{imp})	25 kA
Specific energy [L-PEN] (W/R)	156.25 kJ/ohms
Nominal discharge current (8/20 μs) [L-PEN]/[L1+L2+L3-PEN] (I_n)	25 / 75 kA
Voltage protection level (U_p)	≤ 1.5 kV
Follow current extinguishing capability a.c. (I_n)	25 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time (t_λ)	≤ 100 ns
Max. backup fuse up to $I_k = 25$ kA _{rms}	315 A gL/gG
Max. backup fuse for $I_k > 25$ kA _{rms}	200 A gL/gG
Temporary overvoltage (TOV) [L-PEN] (U_T) – Characteristic	440 V / 120 min. – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state indication	button with indicator light
Number of ports	1
Cross-sectional area (PEN, $\frac{1}{2}$)	10-35 mm ² flexible / 50 mm ² stranded
For mounting on	40 mm busbar systems
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 30 (in combination with cover)
Capacity	3 module(s), DIN 43880
Approvals	VDE



Dimension drawing DV ZP TT 255



Basic circuit diagram DV ZP TT 255

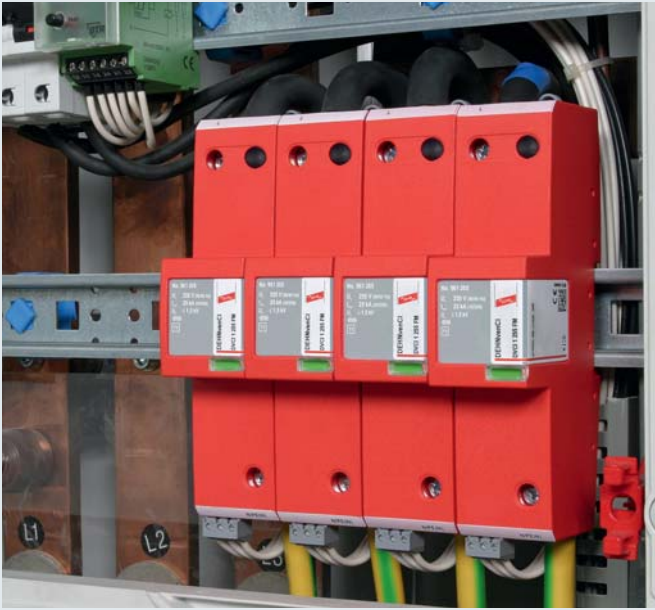


Combined lightning current and surge arrester for TT and TN-S systems for use in primary power systems ("3+1" circuit).

- Type 1 and type 2 combined lightning current and surge arrester with RADAX Flow spark gap technology
- Quick and easy installation by snapping the arrester onto 40 mm busbar systems
- Capable of protecting terminal equipment

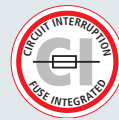
Type	DV ZP TT 255
Part No.	900 391
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment ($\leq 5m$)	type 1 + type 2 + type 3
Nominal a.c. voltage (U_N)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) [L1+L2+L3+N-PE] (I_{total})	100 kA
Specific energy [L1+L2+L3+N-PE] (W/R)	2.50 MJ/ohms
Lightning impulse current (10/350 μs) [L-N] (I_{imp})	25 kA
Specific energy [L-N] (W/R)	156.25 kJ/ohms
Lightning impulse current (10/350 μs) [N-PE] (I_{imp})	100 kA
Specific energy [N-PE] (W/R)	2.50 MJ/ohms
Nominal discharge current (8/20 μs) [L-N]/[N-PE] (I_n)	25 / 100 kA
Voltage protection level [L-N] (U_P)	≤ 1.5 kV
Voltage protection level [N-PE] (U_P)	≤ 1.5 kV
Follow current extinguishing capability [L-N] a.c. (I_{fi})	25 kA _{rms}
Follow current extinguishing capability [N-PE] a.c. (I_{fi})	100 A _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time (t_A)	≤ 100 ns
Max. backup fuse up to $I_K = 25$ kA _{rms}	315 A gL/gG
Max. backup fuse for $I_K > 25$ kA _{rms}	200 A gL/gG
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – withstand
Temporary overvoltage (TOV) [N-PE] (U_T) – Characteristic	1200 V / 200 ms – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state indication	button with indicator light
Number of ports	1
Cross-sectional area (PE, $\underline{\underline{=}}$)	10-35 mm ² flexible / 50 mm ² stranded
For mounting on	40 mm busbar systems
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 30 (in combination with cover)
Capacity	3 module(s), DIN 43880
Approvals	VDE

Single-pole Combined Lightning Current and Surge Arrester with integrated Backup Fuse Type 1 Combined Arresters



For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 2$.

- Spark-gap based combined lightning current and surge arrester with integrated backup fuse
- Energy coordination with other arresters of the Red/Line product family
- Low voltage protection level $U_p \leq 1.5 \text{ kV}$ (including backup fuse)
- Maximum system availability due to RADAX Flow follow current limitation
- Extinction of mains follow currents up to 100 kA_{rms}
- High lightning current discharge capacity up to 25 kA ($10/350 \mu\text{s}$)
- Capable of protecting terminal equipment
- Operating state / fault indication by green / red indicator flag in the inspection window



DEHNvenCI 1 255: Single-pole combined lightning current and surge arrester with integrated backup fuse
DEHNvenCI 1 255 FM: With remote signalling contact for monitoring device (floating changeover contact)

Featuring the functional Red/Line family design, DEHNvenCI coordinated combined lightning current and surge arresters provide maximum system protection and take up little space.

The features of the practice-proven DEHNventil family were combined with a lightning-current-carrying arrester backup fuse in an enclosure with a width of only two modules.

With switchgear installations getting more and more compact, it is difficult to install lightning current arresters in conformity with the standard. DEHNvenCI combined arresters cannot only be installed in a space-saving way, but also meet the protection requirements in modern switchgear installations. The integrated arrester backup fuse is dimensioned to ensure maximum discharge capacity and optimal system protection.

Therefore, there is no need to select and install an arrester backup fuse which ensures short connecting cable lengths as required in IEC 60364-5-53.

Thus, DEHNvenCI is an efficient combined arrester which is easy to install.

The energy-coordinated arresters even allow to protect terminal devices or sensitive electronic systems in modern switchgear installations if the distance between DEHNvenCI and the loads is $\leq 5 \text{ m}$.

The patented RADAX Flow technology ensures follow current limitation and extinction as well as high system availability of the electrical consumer's installations to be protected.

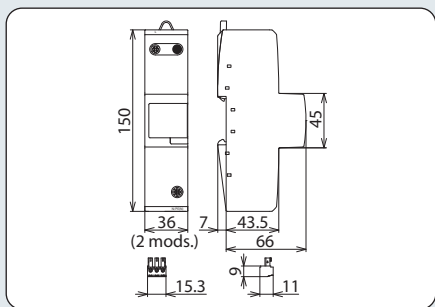
Even in case of short-circuit currents as high as 100 kA_{rms} , DEHNvenCI can be used in industrial installations without restrictions.

DEHNvenCI is capable of carrying lightning impulse currents without being destroyed and simultaneously reduces the energy to an acceptable level for terminal devices, thus ensuring the availability of the switchgear installation in case of a lightning strike. This considerably reduces the risk of costly downtime.

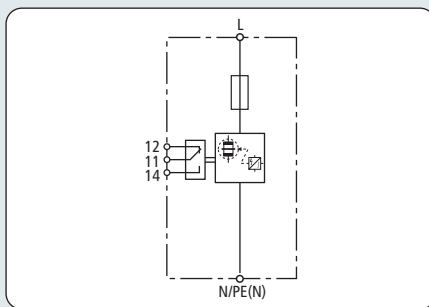
The operating state / fault indicator of DEHNvenCI, which houses the fuse monitoring system and needs no power to operate, shows the operating state of the arrester. Apart from the standard visual indication with green and red indicator flags, DEHNvenCI 1 255 FM devices feature a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.

Type 1 Combined Arresters

DEHNvenCI 255 (FM)



Dimension drawing DVCI 1 255 FM



Basic circuit diagram DVCI 1 255 FM



Combined lightning current and surge arrester with integrated arrester backup fuse.

- Spark-gap-based combined lightning current and surge arrester with integrated backup fuse
- Maximum system availability due to RADAX Flow follow current limitation
- Capable of protecting terminal equipment

Type	DVCI 1 255	DVCI 1 255 FM
Part No.	961 200	961 205
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I
Energy coordination with terminal equipment	type 1 + type 2	type 1 + type 2
Energy coordination with terminal equipment (≤ 5 m)	type 1 + type 2 + type 3	type 1 + type 2 + type 3
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Maximum continuous operating a.c. voltage (U _C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) (I _{imp})	25 kA	25 kA
Specific energy (W/R)	156.25 kJ/ohms	156.25 kJ/ohms
Voltage protection level (U _p)	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability a.c. (I _{fi})	50 kA _{rms}	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 20 A gL/gG fuse up to 50 kA _{rms} (prosp.)	
Response time (t _A)	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	not required	not required
Temporary overvoltage (TOV) (U _T) – Characteristic	440 V / 120 min. – withstand	440 V / 120 min. – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (L, N/PE(N)) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (L, N/PE(N)) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	KEMA	KEMA
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible
Extended technical data:	Use in installations with prospective short-circuit currents of more than 50 kA_{rms} (tested by the German VDE)	
– Maximum prospective short-circuit current	100 kA _{rms} (220 kA _{peak})	100 kA _{rms} (220 kA _{peak})
– Limitation / Extinction of mains follow currents	up to 100 kA _{rms} (220 kA _{peak})	up to 100 kA _{rms} (220 kA _{peak})

Accessory for DEHNvenCI

Earthing Clip, three-pole, single-phase

Earthing clip for connecting the earth terminals of e.g. three Type 1 SPDs in a two-module enclosure with multifunctional terminal to earth.

Type	EB DG 1000 1 3
Part No.	900 411
Dimensions	34 x 112 x 3 mm
Terminal	up to 25 mm ²



Accessory for DEHNvenCI

Earthing Clip, four-pole, single-phase

Earthing clip for connecting the earth terminals of e.g. four Type 1 SPDs in a two-module enclosure with multifunctional terminal to earth.

Type	EB 1 4 9
Part No.	900 417
Dimensions	34 x 148 x 3 mm
Terminal	up to 25 mm ²





- Application-optimised and prewired type 1 and type 2 combined lightning current and surge arrester based on spark gap technology
- Space-saving arrester for compact and simply equipped electrical installations with reduced technical requirements
- For use in residential buildings and special applications (see brochure DS193)
- Capable of protecting terminal equipment
- Discharge capacity up to 50 kA (10/350 μ s)
- Operating state / fault indication by green / red indicator flag in the inspection window
- High follow current extinguishing capacity ($I_{fi} = 25 \text{ kA}_{\text{rms}}$)

For protecting compact low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 2$.



- DEHNshield TNC 255: Application-optimised combined lightning current and surge arrester for TN-C systems
 DEHNshield TNS 255: Application-optimised combined lightning current and surge arrester for TN-S systems
 DEHNshield TT 255: Application-optimised combined lightning current and surge arrester for TT and TN-S systems ("3+1" circuit)
 DEHNshield TN 255: Application-optimised combined lightning current and surge arrester for single-phase TN systems
 DEHNshield TT 2P 255: Application-optimised combined lightning current and surge arrester for single-phase TT and TN systems ("1+1" circuit)

The space-saving and application-optimised DEHNshield family offers various benefits provided by type 1 and type 2 spark-gap-based arresters such as the "wave breaker function" (WBF). This function and the associated reduction of the pulse time mitigate the energy of the lightning impulse current to an acceptable level for downstream protection stages or terminal equipment. Moreover, DEHNshield arresters are directly energy coordinated with other arresters of the Red/Line product family. Application-optimised DEHNshield combined lightning current and surge arresters combine lightning equipotential bonding up to lightning impulse currents of 50 kA (10/350 μ s) and surge protection in a single device. This clearly distinguishes DEHNshield from varistor-based arresters of this application and performance class.

Due to their technical parameters, which are rated for use in simple and compact electrical installations, DEHNshield arresters are ideally suited for this application class. For this reason, they are a space-saving and application-optimised solution in particular for residential buildings. DEHNshield arresters also provide optimal protection in buildings without external lightning protection system where roof superstructures or overhead line supplies are installed. According to VdS 2031, it is advisable to use type 1 SPDs for these buildings. A detailed application description can be found in brochure DS193.

No additional backup fuse is required if an installation is protected by backup fuses up to 160 A.

If applications are not sufficiently defined, it is advisable to use DEHNventil. Fulfilling the most stringent technical requirements, DEHNventil provides sufficient protection at any time and is suitable for any application.

The energy-coordinated arresters even allow to protect terminal equipment if the distance between DEHNshield and the loads is $\leq 5 \text{ m}$. Owing to their spark gap without venting means and low space requirements, application-optimised combined lightning current and surge arresters can be easily integrated into distribution boards.

The follow-current-limiting spark gap technology ensures selectivity even in case of low-value fuses (35 A gL/gG), meaning that upstream fuses are not tripped by mains follow currents.

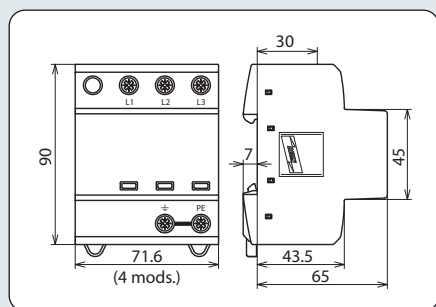
Busbars and pin-shaped terminals from DEHN + SÖHNE can be used for connecting DEHNshield to other DIN rail mounted devices. The type designation of DEHNshield allows to easily choose the right arrester for the relevant system configuration of the low-voltage consumer's installation.

The operating state / fault indicator of every protective path needs no power to operate and immediately shows the operating state of the arrester.

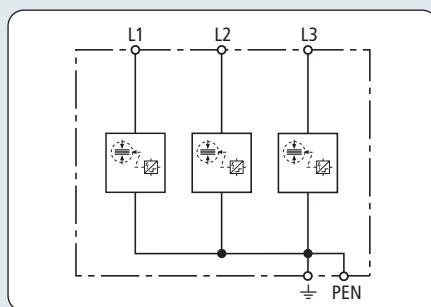
Due to their parameters and design, the DEHNshield devices can be installed even upstream of meter panels in low-voltage consumer's installations.



Series connection by means of a lightning-current-tested STAK 25 pin-shaped terminal.



Dimension drawing DSH TNC 255



Basic circuit diagram DSH TNC 255



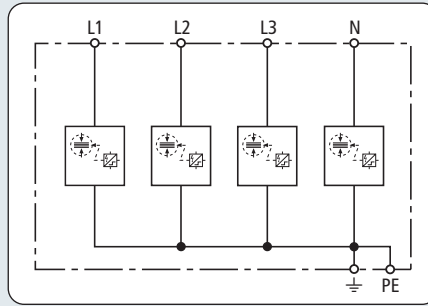
- Application-optimised and prewired type 1 and type 2 spark-gap-based combined lightning current and surge arrester
- Space-saving arrester for compact and simply equipped electrical installations with reduced technical requirements
- Capable of protecting terminal equipment

Application-optimised and prewired combined lightning current and surge arrester for TN-C systems.

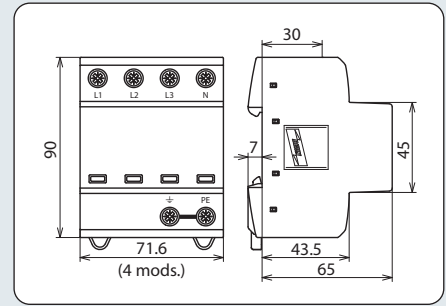
Type	DSH TNC 255
Part No.	941 300
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5 m)	type 1 + type 2 + type 3
Nominal a.c. voltage (U_N)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) [L1+L2+L3-PEN] (I_{total})	37.5 kA
Specific energy [L1+L2+L3-PEN] (W/R)	352.00 kJ/ohms
Lightning impulse current (10/350 μ s) [L-PEN] (I_{imp})	12.5 kA
Specific energy [L-PEN] (W/R)	39.06 kJ/ohms
Nominal discharge current (8/20 μ s) [L-PEN]/[L1+L2+L3-PEN] (I_n)	12.5 / 37.5 kA
Voltage protection level (U_p)	≤ 1.5 kV
Follow current extinguishing capability a.c. (I_n)	25 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time (t_d)	≤ 100 ns
Max. mains-side overcurrent protection	160 A gL/gG
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (L1, L2, L3, PEN) (min.)	1.5 mm ² solid / flexible
Cross-sectional area (L1, L2, L3, PEN) (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	4 module(s), DIN 43880
Approvals	KEMA, VDE, UL

DEHNshield TNS

Type 1 Combined Arresters



Basic circuit diagram DSH TNS 255



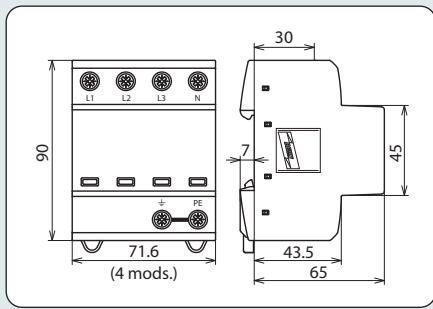
Dimension drawing DSH TNS 255

- Application-optimised and prewired type 1 and type 2 spark-gap-based combined lightning current and surge arrester
- Space-saving arrester for compact and simply equipped electrical installations with reduced technical requirements
- Capable of protecting terminal equipment

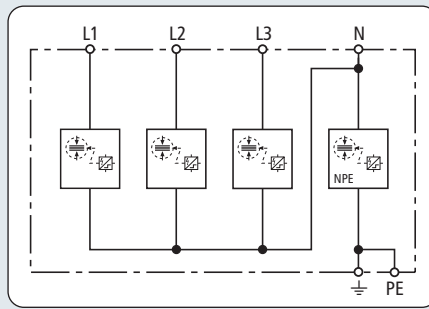
Application-optimised and prewired combined lightning current and surge arrester for TN-S systems.

Type 1 Combined Arresters

Type	DSH TNS 255
Part No.	941 400
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5 m)	type 1 + type 2 + type 3
Nominal a.c. voltage (U _N)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _c)	255 (50 / 60 Hz)
Lightning impulse current (10/350 μs) [L1+L2+L3+N-PE] (I _{total})	50 kA
Specific energy [L1+L2+L3+N-PE] (W/R)	625.00 kJ/ohms
Lightning impulse current (10/350 μs) [L, N-PE] (I _{imp})	12.5 kA
Specific energy [L,N-PE] (W/R)	39.06 kJ/ohms
Nominal discharge current (8/20 μs) [L/N-PE]/[L1+L2+L3+N-PE] (I _n)	12.5 / 50 kA
Voltage protection level [L-PE]/[N-PE] (U _p)	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability a.c. (I _n)	25 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time (t _λ)	≤ 100 ns
Max. mains-side overcurrent protection	160 A gL/gG
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	440 V / 120 min. – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (L1, L2, L3, N, PE, ⚡) (min.)	1.5 mm ² solid / flexible
Cross-sectional area (L1, L2, L3, N, PE, ⚡) (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	4 module(s), DIN 43880
Approvals	KEMA, VDE, UL



Dimension drawing DSH TT 255



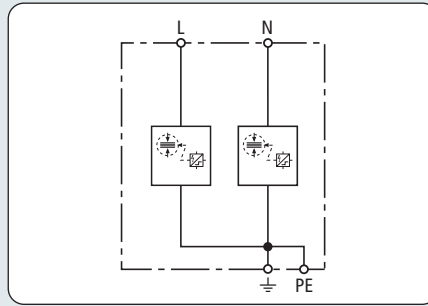
Basic circuit diagram DSH TT 255



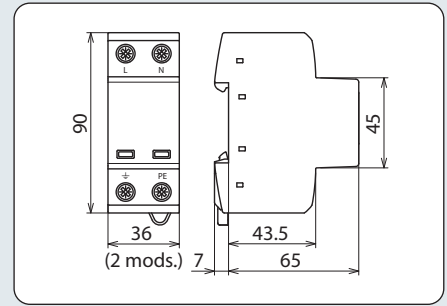
Application-optimised and prewired combined lightning current and surge arrester for TT and TN-S systems ("3+1" circuit).

- Application-optimised and prewired type 1 and type 2 spark-gap-based combined lightning current and surge arrester
- Space-saving arrester for compact and simply equipped electrical installations with reduced technical requirements
- Capable of protecting terminal equipment

Type	DSH TT 255
Part No.	941 310
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5 m)	type 1 + type 2 + type 3
Nominal a.c. voltage (U _N)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _c)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) [L1+L2+L3+N-PE] (I _{total})	50 kA
Specific energy [L1+L2+L3+N-PE] (W/R)	625.00 kJ/ohms
Lightning impulse current (10/350 μs) [L-N]/[N-PE] (I _{imp})	12.5 / 50 kA
Specific energy [L-N]/[N-PE] (W/R)	39.06 / 625.00 kJ/ohms
Nominal discharge current (8/20 μs) [L-N]/[N-PE] (I _n)	12.5 / 50 kA
Voltage protection level [L-N]/[N-PE] (U _p)	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability [L-N]/[N-PE] (I _{in})	25 kA _{rms} / 100 A _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time (t _Δ)	≤ 100 ns
Max. mains-side overcurrent protection	160 A gL/gG
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	440 V / 120 min. – withstand
Temporary overvoltage (TOV) [N-PE] (U _T) – Characteristic	1200 V / 200 ms – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (L1, L2, L3, N, PE, ⚬) (min.)	1.5 mm ² solid / flexible
Cross-sectional area (L1, L2, L3, N, PE, ⚬) (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	4 module(s), DIN 43880
Approvals	KEMA, VDE, UL



Basic circuit diagram DSH TN 255

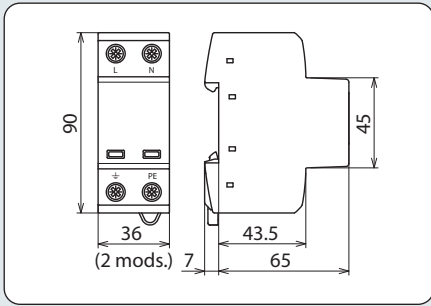


Dimension drawing DSH TN 255

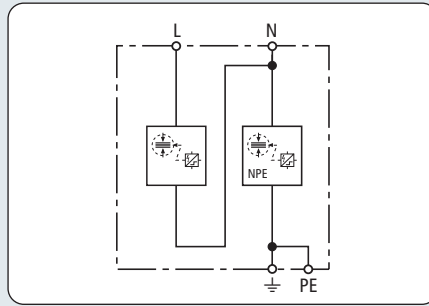
- Application-optimised and prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester
- Space-saving arrester for compact and simply equipped electrical installations with reduced technical requirements
- Capable of protecting terminal equipment

Application-optimised and prewired combined lightning current and surge arrester for single-phase TN systems.

Type	DSH TN 255
Part No.	941 200
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5 m)	type 1 + type 2 + type 3
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) [L+N-PE] (I_{total})	25 kA
Specific energy [L+N-PE] (W/R)	156.25 kJ/ohms
Lightning impulse current (10/350 μ s) [L, N-PE] (I_{imp})	12.5 kA
Specific energy [L,N-PE] (W/R)	39.06 kJ/ohms
Nominal discharge current (8/20 μ s) [L/N-PE]/[L+N-PE] (I_n)	12.5 / 25 kA
Voltage protection level [L-PE]/[N-PE] (U_p)	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability a.c. (I_n)	25 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	160 A gL/gG
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (L, N, PE, \perp) (min.)	1.5 mm ² solid / flexible
Cross-sectional area (L, N, PE, \perp) (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	2 module(s), DIN 43880
Approvals	KEMA, VDE, UL



Dimension drawing DSH TT 2P 255



Basic circuit diagram DSH TT 2P 255



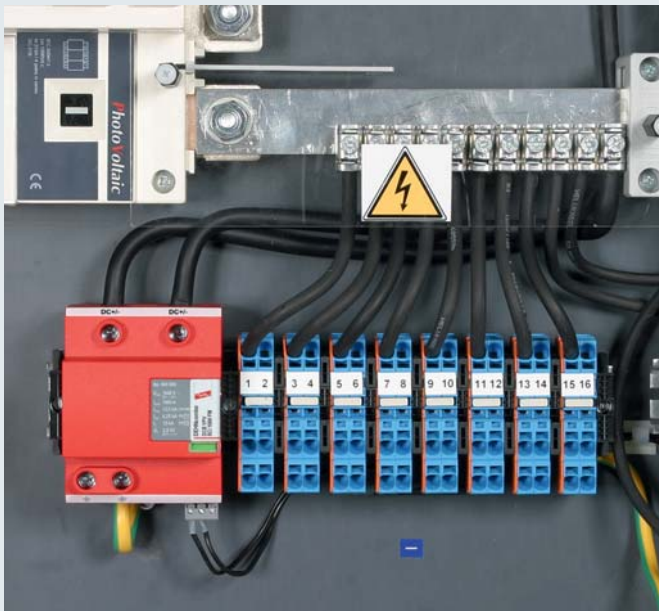
Application-optimised and prewired combined lightning current and surge arrester for single-phase TT and TN systems ("1+1" circuit).

- Application-optimised and prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester
- Space-saving arrester for compact and simply equipped electrical installations with reduced technical requirements
- Capable of protecting terminal equipment

Type	DSH TT 2P 255
Part No.	941 110
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5 m)	type 1 + type 2 + type 3
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) [L+N-PE] (I_{total})	25 kA
Specific energy [L+N-PE] (W/R)	156.25 kJ/ohms
Lightning impulse current (10/350 μ s) [L-N]/[N-PE] (I_{imp})	12.5 / 25 kA
Specific energy [L-N]/[N-PE] (W/R)	39.06 / 156.25 kJ/ohms
Nominal discharge current (8/20 μ s) [L-N]/[N-PE] (I_n)	12.5 / 25 kA
Voltage protection level [L-N]/[N-PE] (U_p)	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability [L-N]/[N-PE] (I_{fc})	25 kA _{rms} / 100 A _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time (t_d)	≤ 100 ns
Max. mains-side overcurrent protection	160 A gL/gG
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – withstand
Temporary overvoltage (TOV) [N-PE] (U_T) – Characteristic	1200 V / 200 ms – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (L, N, PE, $\frac{1}{2}$) (min.)	1.5 mm ² solid / flexible
Cross-sectional area (L, N, PE, $\frac{1}{2}$) (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	2 module(s), DIN 43880
Approvals	KEMA, VDE, UL

Combined Arrester for Use in Photovoltaic Systems

Type 1 Combined Arresters for Use in PV Systems



For protecting photovoltaic inverters against surges and even direct lightning strikes. For use in accordance with IEC 60364-7-712:2002-05 (Installation of photovoltaic power supply systems).

- Prewired type 1 and type 2 combined lightning current and surge arrester for use in photovoltaic generator circuits
- Combined disconnection and short-circuiting device with safe electrical isolation prevents fire damage caused by d.c. switching arcs (patented SCI principle)
- Approved fault-resistant Y circuit prevents damage to the surge protective devices in case of insulation faults in the generator circuit
- Space-saving enclosure with a width of only four modules for up to 1500 V d.c.
- Tested to EN 50539-11
- Suitable for use in all PV systems in accordance with IEC 60364-7-712
- Operating state / fault indication by green / red indicator flag in the inspection window



- DEHNcombo YPV SCI 600: Two-pole combined lightning current and surge arrester for use in photovoltaic power supply systems up to 600 V d.c.
- DEHNcombo YPV SCI 1000: Two-pole combined lightning current and surge arrester for use in photovoltaic power supply systems up to 1000 V d.c.
- DEHNcombo YPV SCI 1500: Two-pole combined lightning current and surge arrester for use in photovoltaic power supply systems up to 1500 V d.c.
- DEHNcombo YPV SCI ... FM: With remote signalling contact for monitoring device (floating changeover contact)

The DEHNcombo YPV SCI ... combined arrester protects equipment in photovoltaic systems against lightning currents.

Thanks to its application-optimised discharge capacity of 6.25 kA (10/350 μs) per pole, DEHNcombo meets the requirements of the latest version of the EN 50539-12 standard and Supplement 5 of the German DIN EN 62305-3 standard.

With a short-circuit current rating of 1000 A, DEHNcombo easily meets all requirements placed on surge arresters in small, medium and large photovoltaic systems. DEHNcombo can be used in all photovoltaic systems up to 1000 A without additional backup fuse.

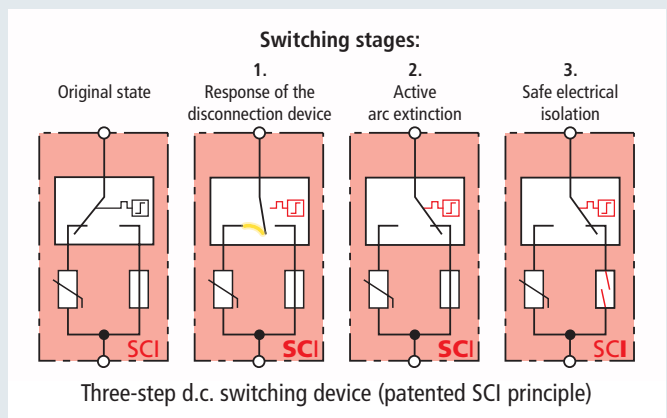
Due to its enclosure design specifically adapted to the system-specific requirements, even the version for photovoltaic systems up to 1500 V can be used without taking special precautions (e.g. safety distances). The combined lightning current arrester only takes up space of four modules, thus allowing space-saving installation.

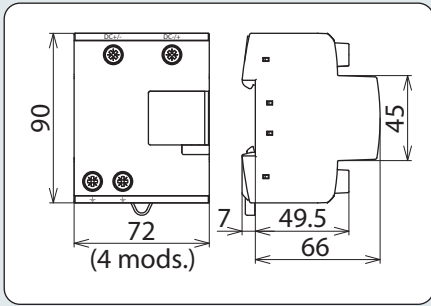
The patented three-step d.c. switching device (SCI principle) provides an extremely high degree of safety which is required in modern photovoltaic systems. 600 V, 1000 V and 1500 V versions are available, thus covering the most common voltage levels of photovoltaic systems.

The fault-resistant Y circuit and the combined disconnection and short-circuiting device further reduce the probability of an arrester failure in case of the operating and fault states which have to be considered in

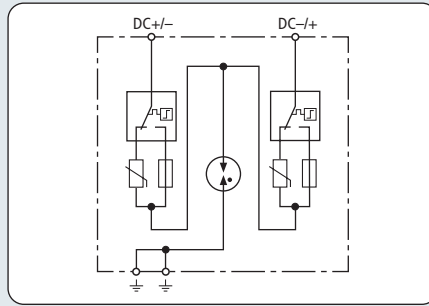
photovoltaic systems. This ensures reliable operation of the PV system at any time.

A low own consumption of the devices is also an important aspect in PV systems. The operating state / fault indication, which needs no power to operate and immediately provides information on the operating state of the arrester, also fulfils this requirement. With its optional floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.





Dimension drawing DCB YPV SCI ...



Basic circuit diagram DCB YPV SCI ...



Combined lightning current and surge arrester for use in photovoltaic power supply systems up to 1500 V d.c.

- Prewired type 1 and type 2 combined lightning current and surge arrester for use in photovoltaic generator circuits
- Combined disconnection and short-circuiting device with safe electrical isolation prevents fire damage caused by d.c. switching arcs (patented SCI principle)
- Space-saving enclosure with a width of four modules for up to 1500 V d.c.

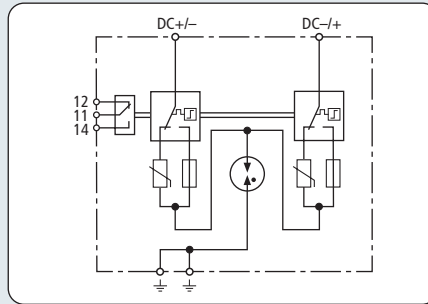
Type 1 Combined Arresters

Type	DCB YPV SCI 600	DCB YPV SCI 1000	DCB YPV SCI 1500
Part No.	900 060	900 061	900 062
SPD according to EN 50539-11	type 1 + type 2	type 1 + type 2	type 1 + type 2
Max. PV voltage [DC+ -> DC-] (U_{CPV})	≤ 600 V	≤ 1000 V	≤ 1500 V
Max. PV voltage [DC+/DC- -> PE] (U_{CPV})	≤ 450 V	≤ 720 V	≤ 1100 V
Short-circuit current rating (I_{SCP})	1000 A	1000 A	1000 A
Nominal discharge current (8/20 μ s) (I_n)	15 kA	15 kA	15 kA
Total discharge current (10/350 μ s) [DC+/DC- -> PE] (I_{total})	12.5 kA	12.5 kA	12.5 kA
Specific energy [DC+/DC- -> PE] (W/R)	39.06 kJ/ohms	39.06 kJ/ohms	39.06 kJ/ohms
Lightning impulse current (10/350 μ s) [DC+ -> PE/DC- -> PE] (I_{imp})	6.25 kA	6.25 kA	6.25 kA
Specific energy [DC+ -> PE/DC- -> PE] (W/R)	9.76 kJ/ohms	9.76 kJ/ohms	9.76 kJ/ohms
Voltage protection level [(DC+/DC-) -> PE] (U_p)	1.75 kV	2.5 kV	3.75 kV
Voltage protection level [DC+ -> DC-] (U_p)	3 kV	4.75 kV	7.25 kV
Response time (t_d)	≤ 25 ns	≤ 25 ns	≤ 25 ns
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (min.)	1,5 mm ² solid / flexible	1,5 mm ² solid / flexible	1,5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Dimensions	4 module(s), DIN 43880	4 module(s), DIN 43880	4 module(s), DIN 43880

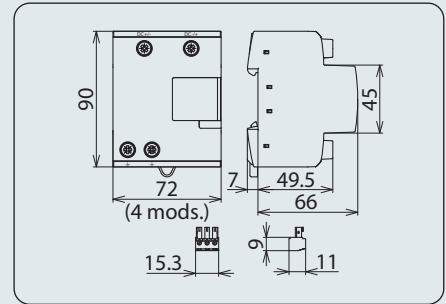
DEHNcombo YPV SCI ... FM

Type 1 Combined Arresters for Use in PV Systems

NEW



Basic circuit diagram DCB YPV SCI ... FM



Dimension drawing DCB YPV SCI ... FM

- Prewired type 1 and type 2 combined lightning current and surge arrester for use in photovoltaic generator circuits
- Combined disconnection and short-circuiting device with safe electrical isolation prevents fire damage caused by d.c. switching arcs (patented SCI principle)
- Space-saving enclosure with a width of four modules for up to 1500 V d.c.

Combined lightning current and surge arrester for use in photovoltaic power supply systems up to 1500 V d.c.; with floating remote signalling contact.

Type 1 Combined Arresters

Type	DCB YPV SCI 600 FM	DCB YPV SCI 1000 FM	DCB YPV SCI 1500 FM
Part No.	900 065	900 066	900 067
SPD according to EN 50539-11	type 1 + type 2	type 1 + type 2	type 1 + type 2
Max. PV voltage [DC+ -> DC-] (U_{CPV})	≤ 600 V	≤ 1000 V	≤ 1500 V
Max. PV voltage [DC+/DC- -> PE] (U_{CPV})	≤ 450 V	≤ 720 V	≤ 1100 V
Short-circuit current rating (I_{SCPV})	1000 A	1000 A	1000 A
Nominal discharge current (8/20 μs) (I_n)	15 kA	15 kA	15 kA
Total discharge current (10/350 μs) [DC+/DC- -> PE] (I_{total})	12.5 kA	12.5 kA	12.5 kA
Specific energy [DC+/DC- -> PE] (W/R)	39.06 kJ/ohms	39.06 kJ/ohms	39.06 kJ/ohms
Lightning impulse current (10/350 μs) [DC+ -> PE/DC- -> PE] (I_{imp})	6.25 kA	6.25 kA	6.25 kA
Specific energy [DC+ -> PE/DC- -> PE] (W/R)	9.76 kJ/ohms	9.76 kJ/ohms	9.76 kJ/ohms
Voltage protection level [(DC+/DC-) -> PE] (U_p)	1.75 kV	2.5 kV	3.75 kV
Voltage protection level [DC+ -> DC-] (U_p)	3 kV	4.75 kV	7.25 kV
Response time (t_A)	≤ 25 ns	≤ 25 ns	≤ 25 ns
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (min.)	1,5 mm ² solid / flexible	1,5 mm ² solid / flexible	1,5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Dimensions	4 module(s), DIN 43880	4 module(s), DIN 43880	4 module(s), DIN 43880
Type of remote signalling contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity		250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A	
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible

Type 1 Combined Arresters for Use in PV Systems Combined Lightn. Current and Surge Arrester for Use in PV Systems

- Prewired combined lightning current and surge arrester for use in photovoltaic generator circuits
- For use in photovoltaic systems up to 1000 V U_{CPV}
- High lightning current discharge capacity due to approved creepage discharge spark gap technology
- Maximum system availability due to spark gap technology with direct current extinction circuit
- Operating state / fault indication by green / red indicator flag in the inspection window
- Double and triple terminals provide additional installation benefits when connecting the combined lightning current and surge arrester (e.g. joining two PV strings)

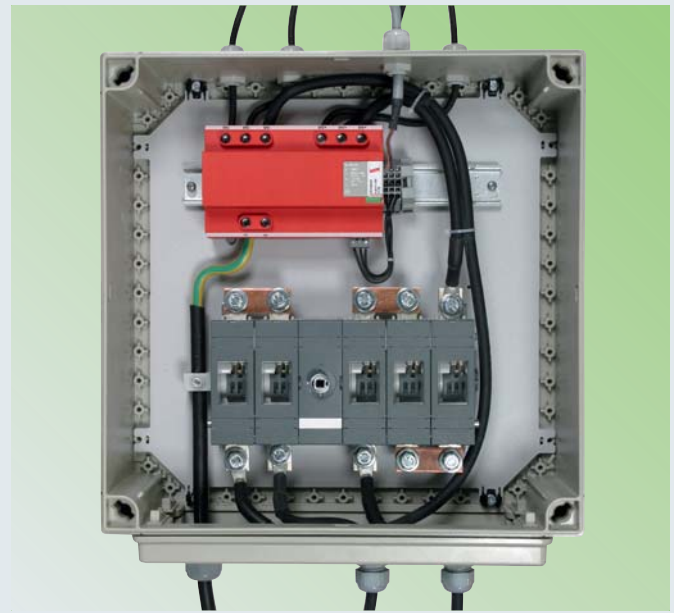


DEHNlimit PV 1000 V2: Two-pole combined lightning current and surge arrester for use in photovoltaic power supply systems up to 1000 V d.c.

DEHNlimit PV 1000 V2 FM: With remote signalling contact for monitoring device (floating changeover contact)

DEHNlimit PV 1000 V2 combined lightning current and surge arresters are specifically designed for use in solar power systems. The approved encapsulated creepage discharge spark gap technology allows to reliably protect photovoltaic generators and inverters also in case of direct lightning impulse currents. Due to its high lightning current discharge capacity, DEHNlimit PV 1000 V2 fulfils the most stringent requirements for lightning current arresters. The voltage protection level of DEHNlimit PV 1000 V2 and the reduction of the pulse time of the voltage pulse by means of the spark gap allow coordination of the arrester with the equipment to be protected.

The d.c. extinction by means of the spark gap is a unique feature of DEHNlimit PV 1000 V2. Potential d.c. short-circuit currents up to 100 A d.c. caused by a tripping spark gap are interrupted without destruction within a split of a second in case of a photovoltaic voltage up to 1000 V d.c.



For protecting photovoltaic inverters against surges and even direct lightning strikes. For use in accordance with IEC 60364-7-712:2002-05 (Installation of photovoltaic power supply systems).

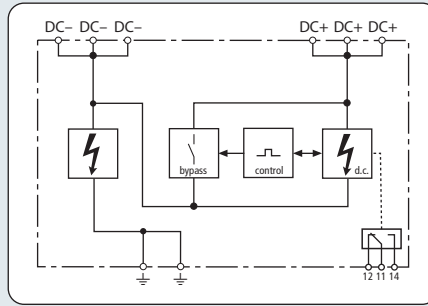
The combination of lightning current carrying capability, protection capability and follow current extinction ensures maximum availability of the PV system protected by DEHNlimit PV 1000 V2.

The use of triple terminals for the d.c.+ and d.c.- connection allows to protect several strings by means of a single arrester. The double PE terminal can be easily connected to the local equipotential bonding and earth-termination system. The clamping range of all terminals of 1.5 to 35 mm² is optimised for cross-sectional areas commonly used for photovoltaic systems.

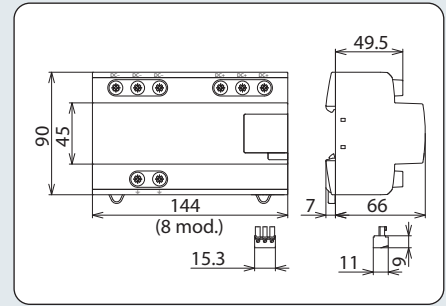
Moreover, DEHNlimit PV 1000 V2 features an operating state / fault indicator that needs no power to operate and immediately shows the operating state of the arrester. Apart from the standard visual indication with green and red indicator flags, DEHNlimit PV 1000 V2 FM features a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.

DEHNlimit PV 1000 V2 (FM)

Type 1 Combined Arresters for Use in PV Systems



Basic circuit diagram DLM PV 1000 V2 FM



Dimension drawing DLM PV 1000 V2 FM

- **Prewired combined lightning current and surge arrester for use in photovoltaic generator circuits**
- **High lightning current discharge capacity due to approved creepage discharge spark gap technology**
- **Maximum system availability due to spark gap technology with direct current extinction circuit**

Combined lightning current and surge arrester for photovoltaic power supply systems up to 1000 V d.c.

Type 1 Combined Arresters

Type	DLM PV 1000 V2	DLM PV 1000 V2 FM
Part No.	900 342	900 345
SPD classification according to EN 61643-11	type 1	type 1
SPD classification according to IEC 61643-11	class I	class I
Max. PV voltage (U_{CPV}) of the PV generator	1000 V	1000 V
Max. continuous operating d.c. voltage ($U_{max DC}$)	1000 V	1000 V
Min. continuous operating d.c. voltage ($U_{min DC}$)	100 V	100 V
Follow current extinguishing capability d.c. ($I_{fr DC}$)	100 A	100 A
Nominal discharge current (8/20 μ s) (I_n)	25 kA	25 kA
Lightning impulse current (10/350 μ s) [DC+ + DC- -> PE] (I_{imp})	50 kA	50 kA
Specific energy [DC+ + DC- -> PE] (W/R)	625.00 kJ/ohms	625.00 kJ/ohms
Lightning impulse current (10/350 μ s) [DC+ -> DC-] (I_{imp})	25 kA	25 kA
Specific energy [DC+ -> DC-] (W/R)	156.25 kJ/ohms	156.25 kJ/ohms
Voltage protection level [DC+ -> DC-] (U_p)	≤ 3.3 kV	≤ 3.3 kV
Voltage protection level [(DC+/DC-) -> PE] (U_p)	≤ 4 kV	≤ 4 kV
Operating current ($I_{IN d.c.}$)	≤ 5 mA	≤ 5 mA
Response time [DC+ -> DC-] (t_A)	≤ 20 ns	≤ 20 ns
Operating temperature range (T_U)	-40 °C ... +60 °C	-40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	8 module(s), DIN 43880	8 module(s), DIN 43880
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Coordinated Type 1 Lightning Current Arresters

- Coordinated spark-gap-based lightning current arrester
- Extremely high lightning current discharge capacity up to 200 kA (10/350 μ s)
- Low voltage protection level $U_p \leq 2.5$ kV
- Extremely robust design for installation on busbars or mounting plates



Coordinated Type 1 Lightning Current Arrester



For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$.

DSO 1 255: Coordinated, single-pole lightning current arrester with an extremely high lightning current discharge capacity

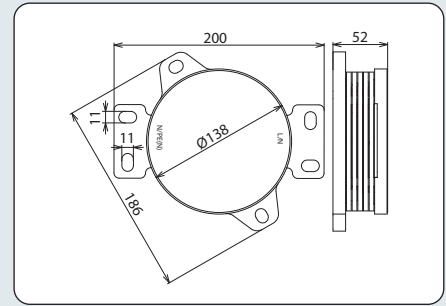
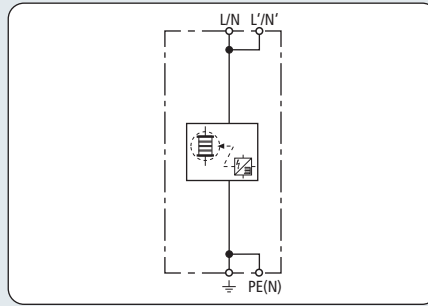
The spark gap of the coordinated lightning current arrester DEHNSolid stands out due to its extremely high lightning current discharge capacity of 200 kA (10/350 μ s). Consequently, DEHNSolid is the most powerful lightning current arrester currently available on the market. Therefore, a technical solution is now available for applications where such powerful surge protective devices are required. The device ensures lightning protection if the lightning current is not distributed and thus the full lightning current may flow through the surge protective device. If a lightning protection level higher than LPL I according to EN 62305 is to be expected, DEHNSolid offers adequate protection.

Due to its extreme installation conditions, DEHNSolid features a robust design. There are two possibilities to install DEHNSolid. On the one hand, the arrester can be directly mounted on the busbar. This ensures a mechanically stable installation, which is required in case of such extreme lightning currents due to the high forces, and short low-impedance connections. On the other hand, the arrester can be screwed onto a mounting plate / fixing unit via the fixing lugs if it is not possible to install it on a busbar. Extremely short and robust connecting cables are required for this device to ensure mechanical strength of the entire arrangement and a minimum voltage drop on the connecting cables to ensure an optimal voltage protection level for the installation.

DEHNsolid 1 255

Coordinated Type 1 Lightning Current Arresters

NEW



Basic circuit diagram DSO 1 255

Dimension drawing DSO 1 255

- Coordinated spark-gap-based lightning current arrester
- Extremely high lightning current discharge capacity up to 200 kA (10/350 μ s)
- Low voltage protection level $U_P \leq 2.5$ kV

Coordinated, single-pole lightning current arrester for installation on busbars or mounting plates.

Type	DSO 1 255
Part No.	900 230
Classification according to EN 61643-11	type 1
Classification according to IEC 61643-11	class I
Max. continuous operating a.c. voltage (U_c)	255 V
Lightning impulse current (10/350 μ s) (I_{imp})	200 kA
Specific energy (W/R)	10 MJ/ohms
Voltage protection level (U_P)	≤ 2.5 kV
Follow current extinguishing capability a.c. (I_{fi})	3 kA _{rms}
Response time (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	160 A gG
Short-circuit withstand capability	3 kA _{rms}
Temporary overvoltage (TOV) (U_T) – Characteristic	440 V / 120 min. – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Number of ports	1
For mounting on	PE(N) busbars, min. 35 mm ²
Connection	via of cable lug, min. 35 mm ² / max. 50 mm ²
Enclosure material	thermoplastic, red, UL 94 V-2
Place of installation	indoor installation

Coordinated Type 1 Lightning Current Arresters

- Coordinated spark-gap-based lightning current arrester consisting of a base part and plug-in protection module
- Maximum system availability due to RADAX Flow follow current limitation
- No tripping of 32 A gL/gG fuses up to short-circuit currents of 50 kA_{rms}
- Discharge capacity up to 50 kA (10/350 μs)
- Directly coordinated with DEHNguard surge protective devices without additional cable length
- Low voltage protection level
- Operating state / fault indication by green / red indicator flag in the inspection window
- Easy replacement of protection modules without tools due to module locking system with module release button



DEHNbloc M 1 ...: Coordinated and modular single-pole lightning current arrester with high follow current limitation
 DEHNbloc M 1 ... FM: With remote signalling contact for monitoring device (floating changeover contact)

The modular devices of the DEHNbloc M product family are coordinated lightning current arresters with a functional design.

Energy coordination with type 2 surge arresters of the DEHNguard family is ensured without additional cable lengths or decoupling coils. This is one of the most important features of the Red/Line product family.

The DEHNbloc M arresters combine high performance and ease of use in a single device. Their electrical parameters are rated for the most stringent requirements within lightning and surge protection systems. DEHNbloc M is ideally suited for use in the main distribution board of the low-voltage consumer's installation of a building. Equipped with the latest RADAX Flow spark gap technology, the protection and availability of electrical installations is a top priority of DEHNbloc M.

Due to the unique follow current limitation and extinction, fuses are not tripped by follow currents even in case of low-value fuses in the installation. The leakage-current-free protective circuit and the mechanical operating state indicator allow the device to be installed even upstream of meter panels in low-voltage consumer's installations.

The modular DEHNbloc M arresters are safe and easy to use. Their vibration-proof module locking system, for example, is unique. Shock or vibration during transport or operation or enormous mechanical impulse loads

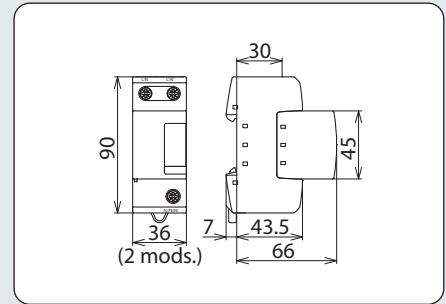
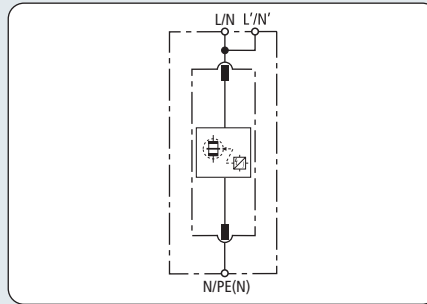


For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from 0_A - 1.

resulting from discharges do not affect the module locking system which ensures safe fixation both for the base part and protection module. Nevertheless, the protection modules can be easily replaced without tools by simply pressing the easy-to-use module release button. Both the base part and protection module are mechanically coded to ensure against installing an incorrect module. DEHNbloc M devices incorporate double terminals, allowing series connection of the arresters in a space-saving and cost-effective way according to IEC 60364-5-53 requirements for nominal currents up to 125 A.

The operating state / fault indicator of DEHNbloc M needs no power to operate and immediately shows the operating state of the device. Apart from the standard visual indication with red and green indicator flags, DEHNbloc M ... FM devices feature an additional remote signalling output. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.





Basic circuit diagram DB M 1 ...

Dimension drawing DB M 1 ...

- Coordinated spark-gap-based lightning current arrester consisting of a base part and plug-in protection module
- Maximum system availability due to RADAX Flow follow current limitation
- Directly coordinated with DEHNgard surge protective devices without additional cable length

Coordinated and modular single-pole lightning current arrester with high follow current limitation.

Type	DB M 1 150	DB M 1 255	DB M 1 320
Part No.	961 110	961 120	961 130
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I	type 1 / class I
Nominal a.c. voltage (U _N)	120 V (50 / 60 Hz)	230 V (50 / 60 Hz)	277 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	150 V (50 / 60 Hz)	255 V (50 / 60 Hz)	320 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) (I _{imp})	35 kA	50 kA	25 kA
Specific energy (W/R)	306.25 kJ/ohms	625.00 kJ/ohms	156.25 kJ/ohms
Voltage protection level (U _p)	≤ 1.5 kV	≤ 2.5 kV	≤ 2.5 kV
Follow current extinguishing capability a.c. (I _f)	50 kA _{rms}	50 kA _{rms}	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 50 kA _{rms} (prosp.)		
Response time (t _A)	≤ 100 ns	≤ 100 ns	≤ 100 ns
Max. backup fuse (L) up to I _k = 50 kA _{rms} (t _a ≤ 0.2 s)	500 A gL/gG	500 A gL/gG	315 A gL/gG
Max. backup fuse (L) up to I _k = 50 kA _{rms} (t _a ≤ 5 s)	315 A gL/gG	315 A gL/gG	315 A gL/gG
Max. backup fuse (L) for I _k > 50 kA _{rms}	200 A gL/gG	—	200 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG	125 A gL/gG	125 A gL/gG
Temporary overvoltage (TOV) (U _T) – Characteristic	230 V / 120 min. – withstand	440 V / 120 min. – withstand	530 V / 120 min. – withstand
Operating temperature range (parallel connection) (T _{UP})	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating temperature range (series connection) (T _{US})	-40 °C ... +60 °C	-40 °C ... +60 °C	-40 °C ... +60 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (L/N, L'/N', N/PE (N)) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (L/N, N/PE(N)) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L'/N') (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	UL, CSA	VDE, KEMA, UL	UL, CSA
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA_{rms} (tested by the German VDE)		
– Maximum prospective short-circuit current	—	100 kA _{rms} (220 kA _{peak})	—
– Limitation / Extinction of mains follow currents	—	up to 100 kA _{rms} (220 kA _{peak})	—
– Max. backup fuse (L) up to I _k = 100 kA _{rms} (t _a ≤ 0.2 s)	—	500 A gL/gG	—
– Max. backup fuse (L) up to I _k = 100 kA _{rms} (t _a ≤ 5 s)	—	315 A gL/gG	—

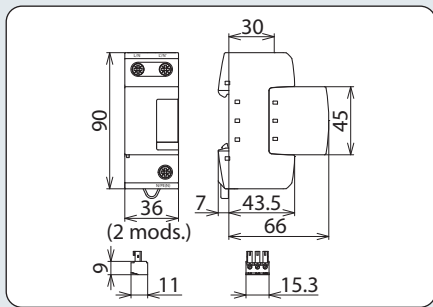
Accessory for DEHNbloc® modular

DB M Spark-Gap-Based Protection Module

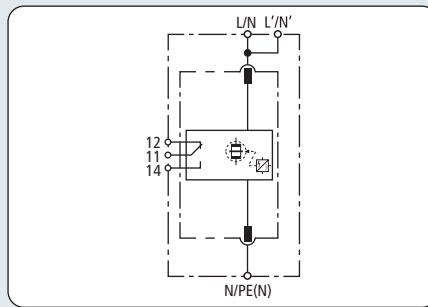
Spark-gap-based protection module



Type DB M MOD ...	150	255	320
Part No.	961 001	961 002	961 003
Max. continuous operating a.c. voltage (U _C)	150 V	255 V	320 V



Dimension drawing DB M 1 ... FM



Basic circuit diagram DB M 1 ... FM



Coordinated and modular single-pole lightning current arrester with high follow current limitation; with remote signalling contact for monitoring system (floating changeover contact).

- Coordinated spark-gap-based lightning current arrester consisting of a base part and plug-in protection module
- Maximum system availability due to RADAX Flow follow current limitation
- Directly coordinated with DEHNguard surge protective devices without additional cable length

Type	DB M 1 150 FM	DB M 1 255 FM	DB M 1 320 FM
Part No.	961 115	961 125	961 135
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I	type 1 / class I
Nominal a.c. voltage (U _N)	120 V (50 / 60 Hz)	230 V (50 / 60 Hz)	277 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	150 V (50 / 60 Hz)	255 V (50 / 60 Hz)	320 V (50 / 60 Hz)
Lightning impulse current (10/350 µs) (I _{imp})	35 kA	50 kA	25 kA
Specific energy (W/R)	306.25 kJ/ohms	625.00 kJ/ohms	156.25 kJ/ohms
Voltage protection level (U _p)	≤ 1.5 kV	≤ 2.5 kV	≤ 2.5 kV
Follow current extinguishing capability a.c. (I _n)	50 kA _{rms}	50 kA _{rms}	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 50 kA _{rms} (prosp.)		
Response time (t _a)	≤ 100 ns	≤ 100 ns	≤ 100 ns
Max. backup fuse (L) up to I _k = 50 kA _{rms} (t _a ≤ 0.2 s)	500 A gL/gG	500 A gL/gG	315 A gL/gG
Max. backup fuse (L) up to I _k = 50 kA _{rms} (t _a ≤ 5 s)	315 A gL/gG	315 A gL/gG	315 A gL/gG
Max. backup fuse (L) for I _k > 50 kA _{rms}	200 A gL/gG	—	200 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG	125 A gL/gG	125 A gL/gG
Temporary overvoltage (TOV) (U _T) – Characteristic	230 V / 120 min. – withstand	440 V / 120 min. – withstand	530 V / 120 min. – withstand
Operating temperature range (parallel connection) (T _{UP})	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating temperature range (series connection) (T _{US})	-40 °C ... +60 °C	-40 °C ... +60 °C	-40 °C ... +60 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (L/N, L'/N', N/PE (N)) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (L/N, N/PE(N)) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L'/N') (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	UL, CSA	VDE, KEMA, UL	UL, CSA
Type of remote signalling contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A		
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA_{rms} (tested by the German VDE)		
– Maximum prospective short-circuit current	—	100 kA _{rms} (220 kA _{peak})	—
– Limitation / Extinction of mains follow currents	—	up to 100 kA _{rms} (220 kA _{peak})	—
– Max. backup fuse (L) up to I _k = 100 kA _{rms} (t _a ≤ 0.2 s)	—	500 A gL/gG	—
– Max. backup fuse (L) up to I _k = 100 kA _{rms} (t _a ≤ 5 s)	—	315 A gL/gG	—

Coordinated Type 1 Lightning Current Arresters

Accessory for DEHNbloc® modular

DB M Spark-Gap-Based Protection Module

Spark-gap-based protection module

Type DB M MOD ...	150	255	320
Part No.	961 001	961 002	961 003
Max. continuous operating a.c. voltage (U _C)	150 V	255 V	320 V



Spark-Gap-Based Protection Module

Coordinated Type 1 Lightning Current Arresters



- High discharge capacity due to powerful creepage discharge spark gap
- Maximum system availability due to RADAX Flow follow current limitation
- Easy replacement of protection modules without tools due to module locking system with module release button
- Operating state / fault indication by green / red indicator flag in the inspection window
- The plug-in protection module can be replaced without the need to de-energise and removing the vertical cover



DB M MOD ...: Spark-gap-based protection module

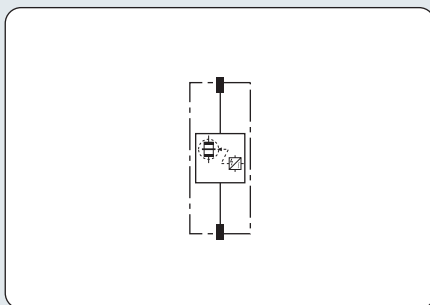
For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 1.

The spark-gap-based protection modules for devices of the DEHNbloc M family incorporate the complete protective circuit including the RADAX Flow spark gap and the monitoring circuit for controlling the energy flow. The spark gap monitoring system and the operating state / fault indicator are also housed in the protection module.

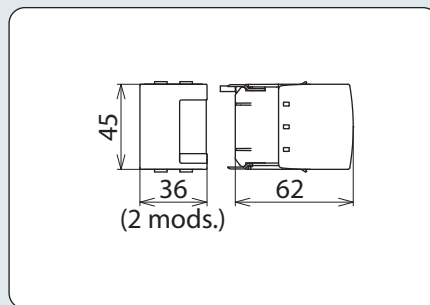
Every protection module is mechanically coded to ensure against installing an incorrect replacement module.

As with all modular protective devices, protection modules can be easily replaced without tools by simply pressing the module release button.

Coordinated Type 1 Lightning Current Arresters



Basic circuit diagram DB M MOD ...



Dimension drawing DB M MOD ...

Spark-gap-based protection module

Type	DB M MOD 150	DB M MOD 255	DB M MOD 320
Part No.	961 001	961 002	961 003
Max. continuous operating a.c. voltage (U _c)	150 V	255 V	320 V
Lightning impulse current (10/350 μs) (I _{imp})	35 kA	50 kA	25 kA
Specific energy (W/R)	306.25 kJ/ohms	625.00 kJ/ohms	156.25 kJ/ohms
Follow current extinguishing capability a.c. (I _f)	50 kA _{rms}	50 kA _{rms}	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 50 kA _{rms} (prosp.)		

- Encapsulated RADAX Flow spark gap with high follow current limitation
- No tripping of 32 A gL/gG fuses up to short-circuit currents of 50 kA_{rms}
- High lightning current discharge capacity
- Directly coordinated with DEHNguard ... and V(A) NH ... surge protective devices without additional cable length
- NH00 versions
- Low voltage protection level



For protecting low voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 1.

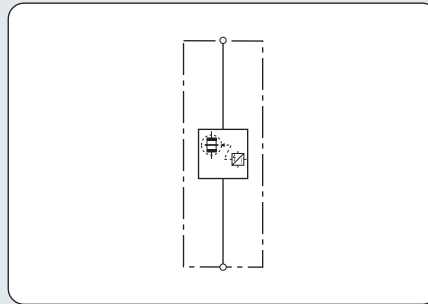
DBM NH00 255: Coordinated single-pole lightning current arrester in NH00 design with high follow current limitation for U_C = 255 V



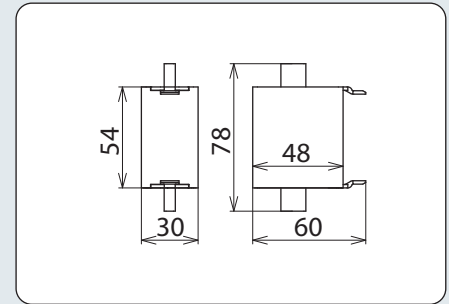
The coordinated DEHNbloc Maxi ... lightning current arresters adapt themselves to every kind of application. Whether being used in an exposed position or harsh industrial environments: DEHNbloc Maxi ... always offer the right solution. The single-pole devices are coordinated with the approved DEHNguard and V(A) NH surge arresters of the Red/Line family. Irrespective of cable lengths and without requiring additional decoupling coils, the surge protection concept can be adapted individually to all conditions at the installation.

DEHNbloc Maxi arresters provide the patented encapsulated creepage discharge spark gap and RADAX Flow follow current limitation. Special safety distances from busbars or equipment belong to the past as well as tripped backup fuses due to lacking selectivity between the protective device and any overcurrent protection system. This ensures maximum system availability.

DEHNbloc Maxi NH00 255 was specifically designed for industrial distribution boards and supply systems and allows compact and space-saving installation in NH00 fuse holders or NH disconnectors depending on the particular system.



Basic circuit diagram DBM NH00 255



Dimension drawing DBM NH00 255

- Encapsulated RADAX Flow spark gap with high follow current limitation
- High lightning current discharge capability
- Directly coordinated with DEHNguard ... and V(A) NH ... surge protective devices without additional cable length

Coordinated single-pole lightning current arrester in NH00 design with high follow current limitation for $U_c = 255$ V.

Type	DBM NH00 255
Part No.	900 255
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) (I_{imp})	25 kA
Specific energy (W/R)	156.25 kJ/ohms
Voltage protection level (U_p)	≤ 2.5 kV
Follow current extinguishing capability a.c. (I_{fi})	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 50 kA _{rms} (prosp.)
Response time (t_A)	≤ 100 ns
Max. backup fuse (L) up to $I_K = 50$ kA _{rms}	315 A gL/gG
Temporary overvoltage (TOV) (UT) – Characteristic	440 V / 120 min. – withstand
Operating temperature range (parallel connection) (T_{UP})	-40 °C ... +80 °C
Number of ports	1
For mounting on	NH fuse holders of size NH00
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	according to installation situation
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA_{rms} (tested by the German VDE)
– Maximum prospective short-circuit current	100 kA _{rms} (220 kA _{peak})
– Limitation / Extinction of mains follow currents	up to 100 kA _{rms} (220 kA _{peak})
– Max. backup fuse (L) up to $I_K = 100$ kA _{rms}	315 A gL/gG

Coordinated Type 1 Lightning Current Arresters

- Encapsulated spark gap without venting means
- High follow current extinguishing capability and follow current limitation due RADAX Flow technology
- Directly coordinated with DEHNguard surge protective devices without additional cable length
- Operating state / fault indication by green / red indicator flag in the inspection window



For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$.

- DEHNbloc Maxi 1 440: Coordinated single-pole lightning current arrester with high follow current limitation for $U_C = 440$ V
 DEHNbloc Maxi 1 440 FM: With remote signalling contact for monitoring device (floating changeover contact)
 DEHNbloc Maxi 1 760 FM: Coordinated single-pole lightning current arrester with high follow current limitation for $U_C = 760$ V
 With remote signalling contact for monitoring device (floating changeover contact)

The coordinated DEHNbloc Maxi 440 and 760 lightning current arresters are specifically designed for high system voltages. This allows to efficiently protect a variety of industrial applications from direct and indirect lightning currents.

Be it in a wind turbine or an isolated low-voltage installation of an industrial enterprise, DEHNbloc Maxi devices exactly fulfil the specific requirements.



Both the design of the protective circuit and the enclosure specifically designed for this type of arrester are particularly adapted to high system voltages.

The approved RADAX Flow technology is the essential core element of the coordinated DEHNbloc Maxi 440 and 760 lightning current arresters. Their capability of considerably limiting power-frequency follow currents and extinguishing them within a matter of milliseconds makes these devices special.

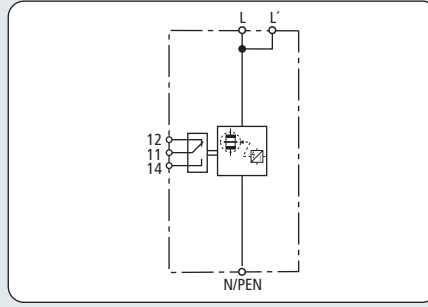
The patented RADAX Flow follow current limitation ensures that low-value fuses are not tripped by follow currents.

Their capability to discharge lightning currents without destruction and to suppress mains follow currents without tripping upstream overcurrent protective devices ensures a high degree of availability in electrical installations.

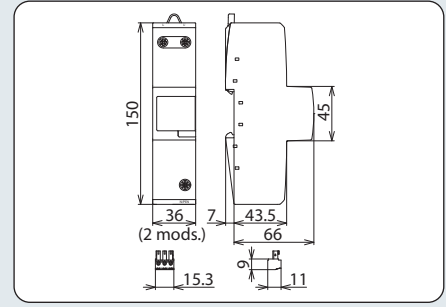
The operating state / fault indicator of the coordinated lightning current arresters needs no power to operate and immediately shows the operating state of the devices. Apart from the standard visual indication with green and red indicator flags, DEHNbloc Maxi 1 ... FM features a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.

DEHNbloc Maxi 1 440 (FM)

Coordinated Type 1 Lightning Current Arresters



Basic circuit diagram DBM 1 440 FM



Dimension drawing DBM 1 440 FM

- Encapsulated spark gap without venting means
- High follow current extinguishing capability and limitation due to RADAX Flow technology
- Directly coordinated with DEHNgard surge protective devices without additional cable length

Coordinated single-pole lightning current arrester with high follow current limitation for $U_C = 440$ V; optionally available with remote signalling contact for monitoring device (floating changeover contact).

Type	DBM 1 440	DBM 1 440 FM
Part No.	961 140	961 145
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I
Nominal a.c. voltage (U_N)	400 / 690 V (50 / 60 Hz)	400 / 690 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	440 V (50 / 60 Hz)	440 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) (I_{imp})	35 kA	35 kA
Specific energy (W/R)	306.25 kJ/ohms	306.25 kJ/ohms
Voltage protection level (U_p)	≤ 2.5 kV	≤ 2.5 kV
Follow current extinguishing capability a.c. (I_{fi})	50 kA _{rms}	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 50 kA _{rms} (prosp.)	
Response time (t_A)	≤ 100 ns	≤ 100 ns
Max. backup fuse (L) up to $I_k = 50$ kA _{rms} ($t_a \leq 0.2$ s)	500 A gL/gG	500 A gL/gG
Max. backup fuse (L) up to $I_k = 50$ kA _{rms} ($t_a \leq 5$ s)	250 A gL/gG	250 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG	125 A gL/gG
Temporary overvoltage (TOV) (U_T) – Characteristic	760 V / 120 min. – withstand	760 V / 120 min. – withstand
Operating temperature range (parallel connection) (T_{UP})	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating temperature range (series connection) (T_{US})	-40 °C ... +60 °C	-40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (L, L', N/PEN) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (L, N/PEN) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L') (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	UL, CSA	UL, CSA
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA_{rms} (tested by the German VDE)	
– Maximum prospective short-circuit current	100 kA _{rms} (220 kA _{peak})	100 kA _{rms} (220 kA _{peak})
– Limitation / Extinction of mains follow currents	up to 100 kA _{rms} (220 kA _{peak})	up to 100 kA _{rms} (220 kA _{peak})
– Max. backup fuse (L) up to $I_k = 100$ kA _{rms} ($t_a \leq 0.2$ s)	500 A gL/gG	500 A gL/gG
– Max. backup fuse (L) up to $I_k = 100$ kA _{rms} ($t_a \leq 5$ s)	250 A gL/gG	250 A gL/gG

Accessory for DEHNbloc® Maxi 440 / 760

Earthing Clip, three-pole, single-phase

Earthing clip for connecting the earth terminals of e.g. three type 1 SPDs in a two-module enclosure with multifunctional terminal to earth.

Type	EB DG 1000 1 3
Part No.	900 411
Dimensions	34 x 112 x 3 mm
Terminal	up to 25 mm ²



Accessory for DEHNbloc® Maxi 440 / 760

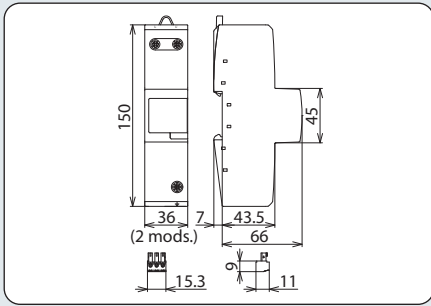
Earthing Clip, four-pole, single-phase

Earthing clip for connecting the earth terminals of e.g. four type 1 SPDs in a two-module enclosure with multifunctional terminal to earth.

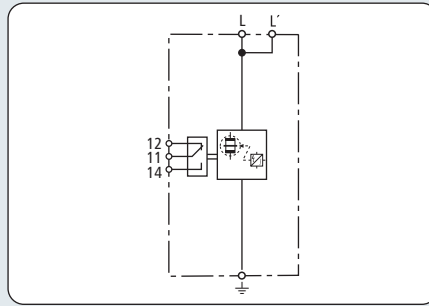
Type	EB 1 4 9
Part No.	900 417
Dimensions	34 x 148 x 3 mm
Terminal	up to 25 mm ²



Coordinated Type 1 Lightning Current Arresters



Dimension drawing DBM 1 760 FM



Basic circuit diagram DBM 1 760 FM



Single-pole coordinated lightning current arrester with high follow current limitation for $U_C = 760$ V with remote signalling contact for monitoring device (floating changeover contact).

- Encapsulated spark gap without venting means
- High follow current extinguishing capability and limitation due to RADAX Flow technology
- Directly coordinated with DEHNgard surge protective devices without additional cable length

Type	DBM 1 760 FM
Part No.	961 175
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I
Nominal a.c. voltage (U_N)	690 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	760 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) (I_{imp})	25 kA
Specific energy (W/R)	156.25 kJ/ohms
Voltage protection level (U_P)	≤ 4 kV
Follow current extinguishing capability a.c. (I_{fc})	25 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time (t_A)	≤ 100 ns
Max. backup fuse (L) up to $I_K = 25$ kA _{rms} ($t_a \leq 5$ s)	250 A gL/gG
Max. backup fuse (L) at $I_K > 25$ kA _{rms}	100 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG
Temporary overvoltage (TOV) (U_T) – Characteristic	1320 V / 120 min. – withstand
Operating temperature range (parallel connection) (T_{UP})	-40 °C ... +80 °C
Operating temperature range (series connection) (T_{US})	-40 °C ... +60 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (L, L', \pm) (min.)	10 mm ² solid / flexible
Cross-sectional area (L, \pm) (max.)	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L') (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	2 module(s), DIN 43880
Approvals	UL, CSA
Type of remote signalling contact	changeover contact
a.c. switching capacity	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible

Coordinated Type 1 Lightning Current Arresters

Accessory for DEHNbloc® Maxi 440 / 760

Earthing Clip, four-pole, single-phase

Earthing clip for connecting the earth terminals of e.g. four type 1 SPDs in a two-module enclosure with multifunctional terminal to earth.

Type	EB 1 4 9
Part No.	900 417
Dimensions	34 x 148 x 3 mm
Terminal	up to 25 mm ²



Accessory for DEHNbloc® Maxi 440 / 760

Earthing Clip, three-pole, single-phase

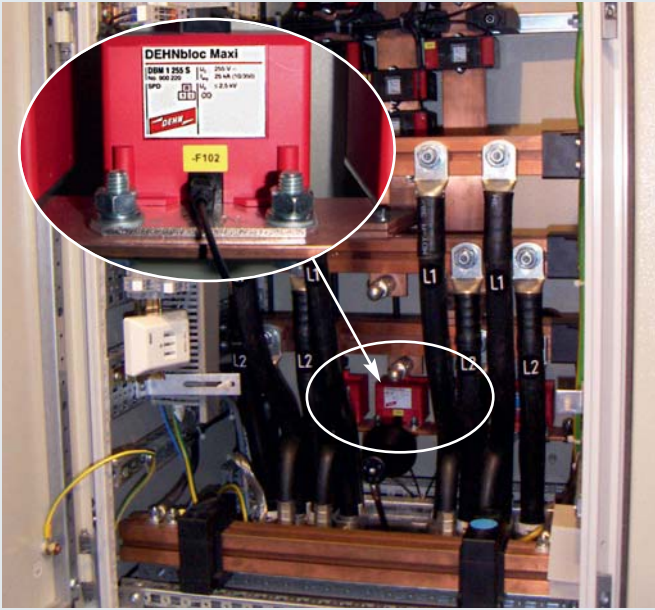
Earthing clip for connecting the earth terminals of e.g. three type 1 SPDs in a two-module enclosure with multifunctional terminal to earth.

Type	EB DG 1000 1 3
Part No.	900 411
Dimensions	34 x 112 x 3 mm
Terminal	up to 25 mm ²



Coordinated Lightning Current Arrester for Busbars

Coordinated Type 1 Lightning Current Arresters



For protecting low voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $O_A - 1$.

- Combination of spark gap and integrated arrester backup fuse
- Directly mounted onto PEN / N busbars
- Low voltage protection level $U_p \leq 2.5$ kV (including 80 cm connecting cable)
- Directly coordinated with DEHNguard surge protective device without additional cable length
- Short-circuit withstand capability of 100 kA_{rms} (220 kA_{peak})
- High follow current extinguishing capability and limitation due to RADAX Flow technology
- High lightning current discharge capacity
- With optical-fibre interface for SPD monitoring



DEHNbloc Maxi 1 255 S: Coordinated lightning current arrester with integrated arrester backup fuse for busbars

DEHNbloc Maxi S can be easily integrated into the application environment of a low-voltage switchgear installation or distribution board.

Thanks to its unique mechanical design, the coordinated DEHNbloc Maxi S lightning current arrester can be directly mounted onto the PEN / N busbar of a switchgear installation without the need for additional adapters.

With the arrester backup fuse integrated in the device, no other separate backup fuses needs to be installed.

Installing DEHNbloc Maxi S directly into the connection panel of a switchgear installation upstream of the circuit breaker ensures short cable lengths of the arresters and a low voltage protection level for the installation. In this environment, the VDE-tested DEHNbloc Maxi S can be used for short-circuit currents up to 100 kA_{rms}.

With a discharge capacity of 25 kA (10/350 μs), DEHNbloc Maxi S fulfils the most stringent requirements of national and international lightning protection standards for all three-phase current applications in TN and TT systems.

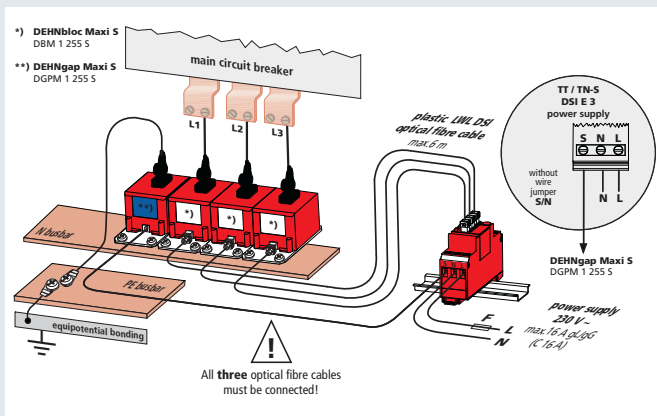
For "3+1" circuit configurations, DEHNgap Maxi S provides a powerful creepage discharge spark gap with a discharge capacity of 100 kA (10/350 μs).

DEHNbloc Maxi S also features patented RADAX Flow follow current limitation, thus ensuring selectivity even in case of low-value fuses.

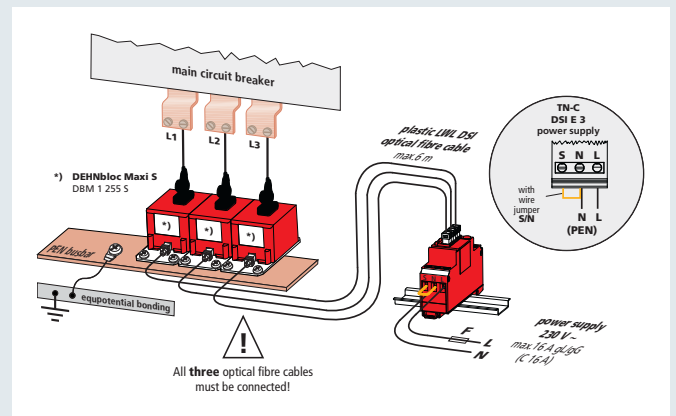
The capability to conduct lightning impulse currents without destruction and suppress mains follow currents without tripping upstream overcurrent protective devices ensures the availability of the switchgear installation in the event of a lightning strike. This considerably reduces the risk of arc formation in the installation.

In conjunction with the DEHNsignal remote signalling system, the operating state of DEHNbloc Maxi S devices can be monitored at any time.

Easy-to-implement optical transmission to the DEHNsignal E 3 remote signalling receiver module ensures safe electrical isolation between the power circuit and the remote signalling circuit.

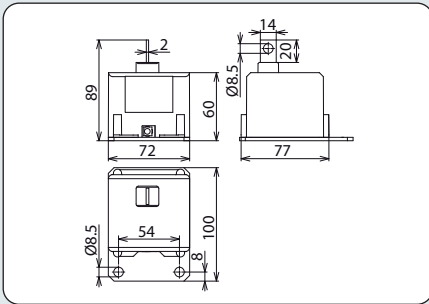


"3+1" Application in a TT / TN-S system

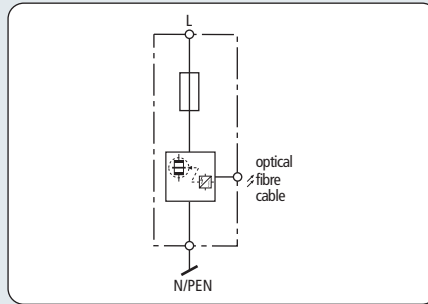


"3-0" Application in a TN-C system

Coordinated Type 1 Lightning Current Arresters



Dimension drawing DBM 1 255 S



Basic circuit diagram DBM 1 255 S



- Combination of spark gap and integrated arrester backup fuse
- Directly mounted onto PEN / N busbars
- High follow current extinguishing capability and limitation due to RADAX Flow technology

Coordinated single-pole lightning current arrester with integrated arrester backup fuse for busbars.

Type	DBM 1 255 S
Part No.	900 220
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) (I_{imp})	25 kA
Specific energy (W/R)	156.25 kJ/ohms
Voltage protection level (U_p)	≤ 2.5 kV (including 80 cm connecting cable)
Follow current extinguishing capability a.c. (I_{fi})	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 50 kA _{rms} (prosp.)
Response time (t_A)	≤ 100 ns
Short-circuit withstand capability (I_{SCCR})	100 kA _{rms} (220 kA _{peak})
Max. mains-side overcurrent protection	not required
Temporary overvoltage (TOV) (U_T) – Characteristic	440 V / 120 min. – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Number of ports	1
For mounting on	PEN / N busbars min. 35 mm ²
Connection	cable lug min. 35 mm ² / max. 50 mm ²
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Dimensions (W x H x D)	72 x 89 x 100 mm
Operating state indication	by optical fibre cables via DSI E 3
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA_{rms} (tested by the German VDE)
– Maximum prospective short-circuit current	100 kA _{rms} (220 kA _{peak})
– Limitation / Extinction of mains follow currents	up to 100 kA _{rms} (220 kA _{peak})

Accessory for DEHNbloc® Maxi S

LWL ST DSI

Plug for plastic optical fibre cables.

Type	LWL ST DSI
Part No.	910 641
Diameter	2.2 mm



LWL DSI 18M

18 metres of plastic optical fibre cable, preferably for use with DEHNbloc Maxi S.

Type	LWL DSI 18M
Part No.	910 642
Diameter	2.2 mm
Length	18 m



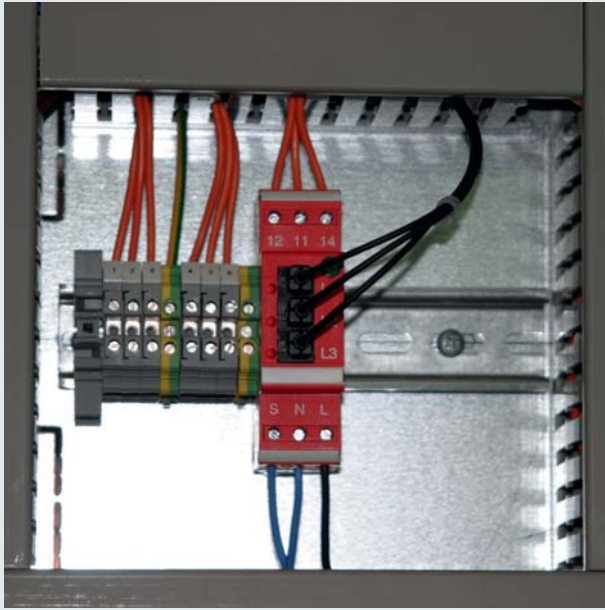
Accessory for DEHNbloc® Maxi S

DEHNsignal E 3

Receiver module for optical transmission for selective operating state indication / centralised fault indication of three coordinated DEHNbloc Maxi S and, where appropriate, DEHNgap Maxi S lightning current arresters in five-wire systems.

Type	DSI E 3
Part No.	910 631
Supply a.c. voltage (U_N)	230 V





Receiver module for optical transmission for DEHNBloc Maxi S and DEHNgap Maxi S surge protective devices with floating changeover contact

- Operating state indication of the surge protective device connected to it
- Indication of phase failures
- Floating changeover contact
- Selective operating state indication
- Centralised fault indication

DEHNSignal E 3: Receiver module for optical transmission for selective operating state indication / centralised fault indication of three coordinated DEHNBloc Maxi S and, where appropriate, DEHNgap Maxi S lightning current arresters in five-wire systems



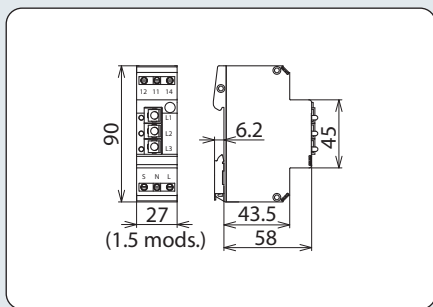
The DEHNSignal E 3 receiver module for optical transmission transmits remote signals of DEHNBloc Maxi S and DEHNgap Maxi S surge protective devices.

The DEHNSignal E 3 receiver module is particularly adapted to the place of installation of the coordinated DEHNBloc Maxi S and DEHNgap Maxi S surge protective devices.

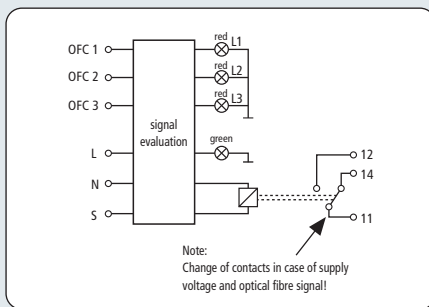
Three DEHNBloc Maxi S arresters and, if necessary, the N-PE protective circuit can be remotely monitored by the receiver module via optical fibre cables. Considering the special installation environment of surge protective devices in a switchgear installation, communication via optical fibre cable between the protective devices and the DEHNSignal E 3 receiver module is a considerable safety benefit.



The operating states of the individual arresters are transmitted to the DEHNSignal E 3 receiver module in the form of an optical signal via EMC-resistant plastic optical fibre cables. The optical signals are evaluated in the DEHNSignal E 3 receiver module and are converted into an electrical signal. The operating states can be directly read out at the DEHNSignal E 3 receiver module or can be transmitted via a floating changeover contact. The DEHNSignal E 3 receiver module features a green indicator light to check its operating state. In addition to the operating state indication, the three red indicator lights of the selective operating state indication indicate the operating states of the assigned protective devices. The receiver module signals if a protective device of a phase fails. The surge protective devices and the DEHNSignal E 3 receiver module can be easily connected via optical fibre cable by means of the accessory parts described.



Dimension drawing DSI E 3



Basic circuit diagram DSI E 3



- Operating state indication of the surge protective device connected to it
- Floating changeover contact
- Selective operating state indication

Receiver module for optical transmission for selective operating state indication / centralised fault indication of three coordinated DEHNbloc Maxi S and, where appropriate, DEHNgap Maxi S lightning current arresters in five-wire systems.

Type	DSI E 3
Part No.	910 631
Supply a.c. voltage (U _N)	230 V
Power input (P)	< 550 mW
Backup fuse for supply voltage	16 A gL/gG or C 16 A
Operating temperature range (T _U)	-40 °C ... +80 °C
Signal input	3x via optical fibre plug-in system (LWL ST DSI)
Operating state indication	green LED
Selective operating state indication	3x red LEDs (L1, L2, L3)
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Degree of protection	IP 20
Capacity	1.5 module(s), DIN 43880
Type of remote signalling contact	floating changeover contact
a.c. switching capacity	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area (min.)	0.5 mm ² solid / flexible
Cross-sectional area (max.)	4 mm ² solid / flexible
Max. distance with LWL DSI 18M	6 m
Test standards	EN 61010-1:1993 and EN 61010-1/A2:1995

Coordinated Type 1 Lightning Current Arresters

Accessory for DEHNsignal

LWL ST DSI

Plug for plastic optical fibre cables.

Type	LWL ST DSI
Part No.	910 641
Diameter	2.2 mm



Accessory for DEHNsignal

LWL DSI 18M

18 metres of plastic optical fibre cable, preferably for use with DEHNbloc Maxi S.

Type	LWL DSI 18M
Part No.	910 642
Diameter	2.2 mm
Length	18 m





For protecting d.c. consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$.

- DEHNsecure M 1 ...: Coordinated and modular single-pole lightning current arrester for d.c. applications
- DEHNsecure M 1 ... FM: With remote signalling contact for monitoring device (floating changeover contact)
- DEHNsecure M 2P ...: Coordinated and modular two-pole lightning current arrester for d.c. applications
- DEHNsecure M 2P ... FM: With remote signalling contact for monitoring device (floating changeover contact)



- Coordinated spark-gap-based lightning current arrester consisting of a base part and plug-in protection module
- Spark gap technology particularly suited for use in d.c. circuits
- Discharge capacity up to 25 kA (10/350 μ s)
- Directly coordinated with DEHNguard surge protective devices without additional cable length
- Low voltage protection level
- Operating state / fault indication by green / red indicator flag in the inspection window
- Easy replacement of protection modules due to module locking system with module release button

The modular devices of the DEHNsecure product family are coordinated lightning current arresters with a functional design.

They can be energy-coordinated with type 2 surge arresters of the DEHNguard family without additional cable lengths or decoupling coils. The DEHNsecure arresters combine high performance and ease of use in a single device. Their electrical parameters are rated for the most stringent requirements in lightning and surge protection systems.

The inner structure of the DEHNsecure spark gap is ideally suited for use in d.c. circuits. The device concept allows to prevent mains follow currents up to 2000 A d.c. at the early stages of development.

With this new arrester series, a consistent lightning protection zone concept including the cross-boundary d.c. lines can now be implemented.

Furthermore, the leakage-current-free version of the spark-gap-based arrester offers numerous advantages when used in insulation monitored systems or for applications with extreme requirements on the self-energy consumption.

DEHNsecure arresters are used, for example, in safety lighting systems, emergency power supply systems, d.c. systems for direct supply of d.c. drives, control circuits and any kind of battery-operated power supply system.

DEHNsecure M 1 60 (FM) and DEHNsecure M 2P 60 (FM) are specifically developed for Remote Radio Head (RRH) applications. Designed for possible high load currents, they leave sufficient margin for future extensions in the field of mobile communication.

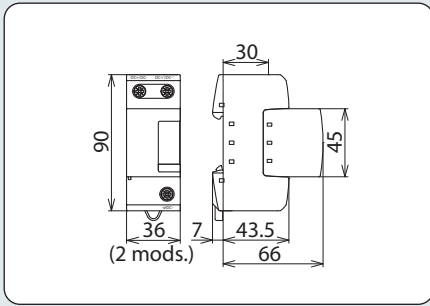
DEHNsecure M 1 242 (FM) is used for safety lighting systems. The relevant loads are supplied with a.c. voltage during normal operation and with battery-operated d.c. voltage during emergency operation. As over-voltages may occur during both operating states, DEHNsecure M 1 242 is suited for direct and alternating currents (backup fuse max. 10 A gL/gG).

The modular DEHNsecure arresters are safe and ease of use. Their vibration-proof module locking system, for example, is unique. Shock or vibration during transport or operation or enormous mechanical impulse loads resulting from discharges do not affect the module locking system which ensures safe fixation both for the base part and protection module. Nevertheless, the protection modules can be easily replaced without tools by simply pressing the easy-to-use module release button. The mechanically coded base part and protection module ensure against installing an incorrect module. DEHNsecure arresters incorporate double terminals, allowing series connection of the arresters in a space-saving and cost-effective way according to IEC 60364-5-53 requirements for nominal currents up to 125 A.

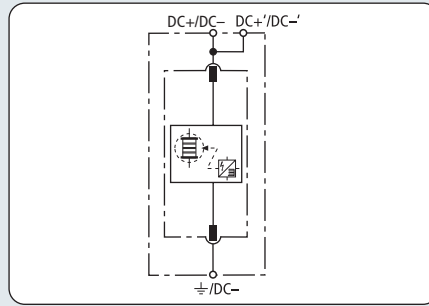
The operating state / fault indicator of DEHNsecure needs no power to operate and immediately shows the operating state of the device. Apart from the standard visual indication with red and green indicator flags, DEHNsecure ... FM devices have an additional remote signalling output. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.

Coordinated Type 1 Lightning Current Arresters for d.c. Systems

DEHNsecure M 1 ...



Dimension drawing DSE M 1 ...



Basic circuit diagram DSE M 1 ...



- Coordinated spark-gap-based lightning current arrester consisting of a base part and plug-in protection module
- Spark gap technology particularly suited for use in d.c. circuits
- Directly coordinated with DEHNguard surge protective devices without additional cable length

Coordinated and modular single-pole lightning current arrester for d.c. applications.

Type	DSE M 1 60	DSE M 1 220	DSE M 1 242
Part No.	971 121	971 120	971 122
SPD classification according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I	type 1 / class I
Max. continuous operating d.c. voltage (U _c)	60 V	220 V	242 V
Lightning impulse current (10/350 μs) (I _{imp})	25 kA	25 kA	25 kA
Specific energy (W/R)	156.25 kJ/ohms	156.25 kJ/ohms	156.25 kJ/ohms
Voltage protection level (U _p)	≤ 1.5 kV	≤ 2.5 kV	≤ 2.5 kV
Directly coordinated with DEHNguard	DG S 150 (Part No. 952 072)	DG S 385 (Part No. 952 074)	DG S 385 (Part No. 952 074)
Response time (t _A)	≤ 100 ns	≤ 100 ns	≤ 100 ns
Short-circuit withstand capability for			
max. mains-side overcurrent protection d.c. (I _{SCCR})	2000 A	2000 A	2000 A
Max. mains-side overcurrent protection	250 A gL/gG	250 A gL/gG	250 A gL/gG
Max. backup fuse (DC+/DC- -> DC+/DC-)	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range (parallel connection) (T _{UP})	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating temperature range (series connection) (T _{US})	-40 °C ... +60 °C	-40 °C ... +60 °C	-40 °C ... +60 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (DC+/DC-, DC+/DC-, +/-DC-) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (DC+/DC-, +/-DC-) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (DC+/DC-) (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	UL	UL	UL
Extended technical data:	used for safety lighting systems	used for safety lighting systems	used for safety lighting systems
- d.c. and a.c. operation	no	no	yes
- Max. continuous operating a.c. voltage (U _c)	—	—	253 V
- Max. backup fuse	—	—	10 A gL/gG

Coordinated Type 1 Lightning Current Arresters

Accessory for DEHNsecure modular

DSE M Spark-Gap-Based Protection Module

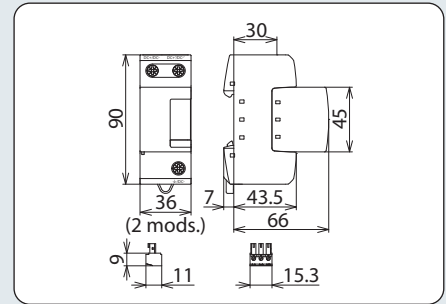
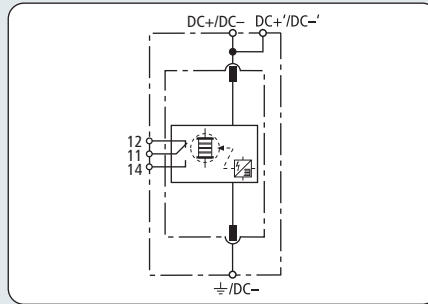
Spark-gap-based protection module

Type DSE MOD ...	60	220	242
Part No.	971 001	971 002	971 003
Max. continuous operating d.c. voltage (U _c)	60 V	220 V	242 V



DEHNsecure M 1 ... FM

Coordinated Type 1 Lightning Current Arresters for d.c. Systems



Basic circuit diagram DSE M 1 ... FM

Dimension drawing DSE M 1 ... FM

- Coordinated spark-gap-based lightning current arrester consisting of a base part and plug-in protection module
- Spark gap technology particularly suited for use in d.c. circuits
- Directly coordinated with DEHNguard surge protective devices without additional cable length

Coordinated and modular single-pole lightning current arrester for d.c. applications; with remote signalling contact for monitoring device (floating changeover contact).

Type	DSE M 1 60 FM	DSE M 1 220 FM	DSE M 1 242 FM
Part No.	971 126	971 125	971 127
SPD classification according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I	type 1 / class I
Max. continuous operating d.c. voltage (U _c)	60 V	220 V	242 V
Lightning impulse current (10/350 μs) (I _{imp})	25 kA	25 kA	25 kA
Specific energy (W/R)	156.25 kJ/ohms	156.25 kJ/ohms	156.25 kJ/ohms
Voltage protection level (U _p)	≤ 1.5 kV	≤ 2.5 kV	≤ 2.5 kV
Directly coordinated with DEHNguard	DG S 150 FM (Part No. 952 092)	DG S 385 FM (Part No. 952 094)	DG S 385 FM (Part No. 952 094)
Response time (t _A)	≤ 100 ns	≤ 100 ns	≤ 100 ns
Short-circuit withstand capability for max. mains-side overcurrent protection d.c. (I _{SCCR})	2000 A	2000 A	2000 A
Max. mains-side overcurrent protection	250 A gL/gG	250 A gL/gG	250 A gL/gG
Max. backup fuse (DC+/DC- → DC+/DC-')	125 A gL/gG	125 A gL/gG	125 A gL/gG
Operating temperature range (parallel connection) (T _{UP})	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating temperature range (series connection) (T _{US})	-40 °C ... +60 °C	-40 °C ... +60 °C	-40 °C ... +60 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (DC+/DC-, DC+/DC-', ±/DC-) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (DC+/DC-, ±/DC-) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (DC+/DC-') (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	UL	UL	UL
Type of remote signalling contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity		250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A	
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible
Extended technical data:	used for safety lighting systems	used for safety lighting systems	used for safety lighting systems
- d.c. and a.c. operation	no	no	yes
- Max. continuous operating a.c. voltage (U _c)	—	—	253 V
- Max. backup fuse	—	—	10 A gL/gG

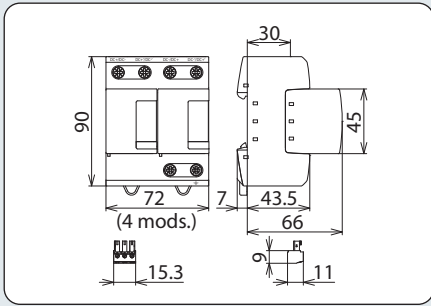
Accessory for DEHNsecure modular

DSE M Spark-Gap-Based Protection Module

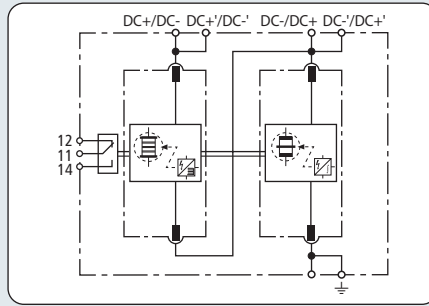
Spark-gap-based protection module



Type DSE MOD ...	60	220	242
Part No.	971 001	971 002	971 003
Max. continuous operating d.c. voltage (U _c)	60 V	220 V	242 V



Dimension drawing DSE M 2P ... FM



Basic circuit diagram DSE M 2P ... FM



- Coordinated spark-gap-based lightning current arrester consisting of a base part and plug-in protection module
- Spark gap technology particularly suited for use in d.c. circuits
- Directly coordinated with DEHNguard surge protective devices without additional cable length

Coordinated and modular two-pole lightning current arrester for d.c. applications from 12 to 60 volts ("1+1" circuits); FM version with floating remote signalling contact.

Type	DSE M 2P 60	DSE M 2P 60 FM
Part No.	971 221	971 226
SPD classification according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I
Max. continuous operating d.c. voltage (U _c)	60 V	60 V
Lightning impulse current (10/350 μs) (DC+/DC- -> DC-/DC+) / (DC-/DC+ -> ⊕) (I _{imp})	25 / 50 kA	25 / 50 kA
Specific energy (DC+/DC- -> DC-/DC+) / (DC-/DC+ -> ⊕) (W/R)	156.25 / 625.00 kJ/ohms	156.25 / 625.00 kJ/ohms
Voltage protection level (DC+/DC- -> DC-/DC+) / (DC-/DC+ -> ⊕) (U _p)	≤ 1.5 / ≤ 1.5 kV	≤ 1.5 / ≤ 1.5 kV
Response time (t _A)	≤ 100 ns	≤ 100 ns
Short-circuit withstand capability for max. mains-side overcurrent protection d.c. (I _{SCCR})	2000 A	2000 A
Max. mains-side overcurrent protection	250 A gL/gG	250 A gL/gG
Max. backup fuse (DC+/DC- -> DC+/DC-)	125 A gL/gG	125 A gL/gG
Operating temperature range (parallel connection) (T _{UP})	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating temperature range (series connection) (T _{US})	-40 °C ... +60 °C	-40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (DC+/DC-, DC-/DC+, ⊕) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (DC+/DC-, DC-/DC+) (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	4 module(s), DIN 43880	4 module(s), DIN 43880
Approvals	UL	UL
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Coordinated Type 1 Lightning Current Arresters

Accessory for DEHNsecure modular

DSE M / PE Spark-Gap-Based Protection Module

Spark-gap-based protection module

Type	DSE MOD 60	DSE MOD PE 60
Part No.	971 001	971 010
Max. continuous operating d.c. voltage (U _c)	60 V	60 V



Spark-Gap-Based Protection Module

Coordinated Type 1 Lightning Current Arresters for d.c. Systems



- Spark gap technology particularly suited for use in d.c. circuits
- Operating state / fault indication by green / red indicator flag in the inspection window
- Easy replacement of protection modules without tools due to module locking system with module release button

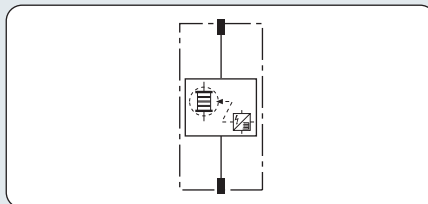


DSE MOD ...: Spark-gap-based protection module

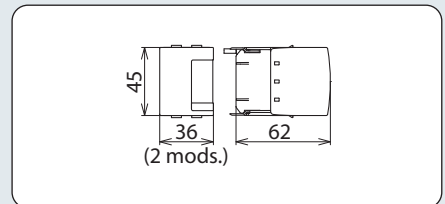
For protecting d.c. consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$.

Coordinated Type 1 Lightning Current Arresters

DSE M Spark-Gap-Based Protection Module



Basic circuit diagram DSE MOD ...

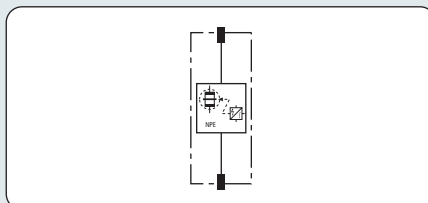


Dimension drawing DSE MOD ...

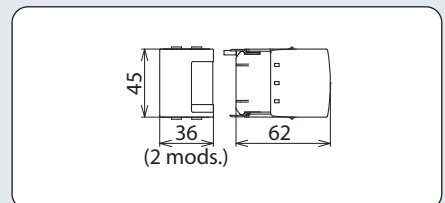
Spark-gap-based protection module

Type	DSE MOD 60	DSE MOD 220	DSE MOD 242
Part No.	971 001	971 002	971 003
Max. continuous operating d.c. voltage (U_c)	60 V	220 V	242 V
Lightning impulse current (10/350 μ s) (I_{imp})	25 kA	25 kA	25 kA
Specific energy (W/R)	156.25 kJ/ohms	156.25 kJ/ohms	156.25 kJ/ohms

DSE PE Spark-Gap-Based Protection Module



Basic circuit diagram DSE MOD ...



Dimension drawing DSE MOD ...

Spark-gap-based protection module

Type	DSE MOD PE 60
Part No.	971 010
Max. continuous operating d.c. voltage (U_c)	60 V
Lightning impulse current (10/350 μ s) (I_{imp})	50 kA
Specific energy (W/R)	625.00 kJ/ohms

- Encapsulated creepage discharge spark gap without venting means
- RADAX Flow spark gap technology with high follow current limitation
- Energy coordination with other arresters of the Red/Line product family
- Can also be used upstream of meter panels due to its high insulation resistance
- Multifunctional terminal for connecting conductors and busbars
- Single-pole and three-pole version (lightning impulse currents up to 100 kA depending on the system configuration)
- Modular single-pole version also available



DEHNbloc H M 1 255: Modular single-pole lightning current arrester with high follow current limitation

DEHNbloc 1 255 H: Single-pole lightning current arrester with high follow current limitation

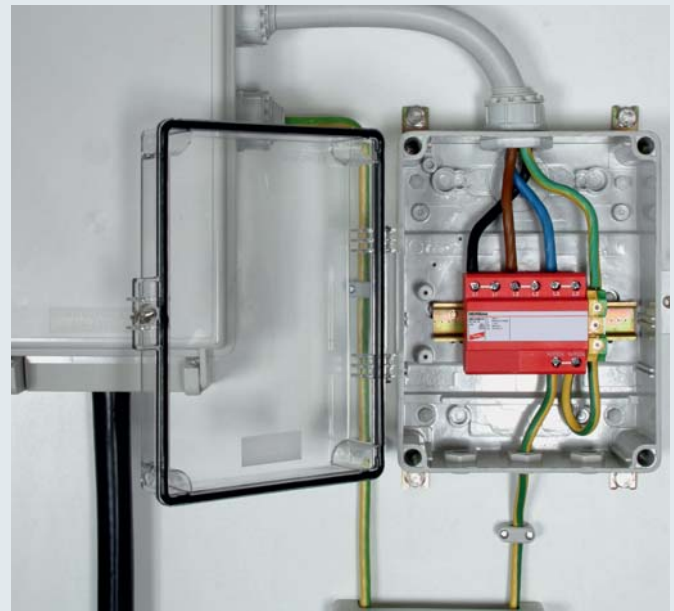
DEHNbloc 3 255 H: Three-pole lightning current arrester with high follow current limitation

The spark gaps of the DEHNbloc lightning current arresters allow a compact configuration of low-voltage distribution boards. By using pressurised and encapsulated creepage discharge spark gaps, no safety distance from busbars and special flameproof enclosures are necessary.

With a lightning current discharge capacity up to 50 kA (10/350 μ s) per pole, DEHNbloc devices fulfil the most stringent requirements of national and international lightning protection and application standards.

The consistent improvement of the integration concept made the DEHNbloc devices even more efficient: With DEHNbloc H, the ground-breaking RADAX Flow spark gap technology for follow current extinction and limitation was integrated into the DEHNbloc family.

The RADAX Flow technology prevents that system operation is disrupted due to a tripped line protection as soon as the arrester operates. In times where systems increasingly depend on a properly functioning electrical infrastructure, this is an indispensable product feature. Thanks to the patented RADAX Flow principle, even the amplitude of short-circuit currents in installations up to 50 kA_{rms} can be limited to approx. 500 A and extinguished after approximately 5 ms. This feature ensures selectivity even in case of low-value fuses.



For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$.

But the DEHNbloc H family concept also stands out due to other product features: With its double terminals on the phase and earth side, the single-pole DEHNbloc 1 255 H device offers various application options.

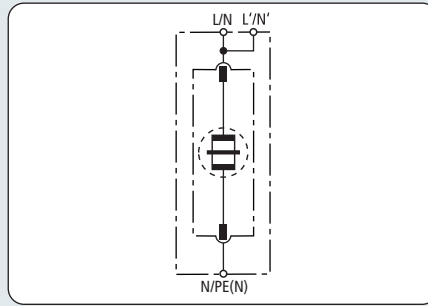
The DBH M 1 255 device with a new arrester design features the approved module release system that safely fixes the protection module to the base part even at maximum loads on the protection module. The modules can be easily replaced without tools by simply pressing the user-friendly module release button of the protection module.

The devices incorporate double terminals suitable for all conductors, allowing series connection of even three-pole DEHNbloc 3 255 H arresters in a space-saving and cost-effective way according to IEC 60364-5-53 requirements for nominal currents up to 125 A.

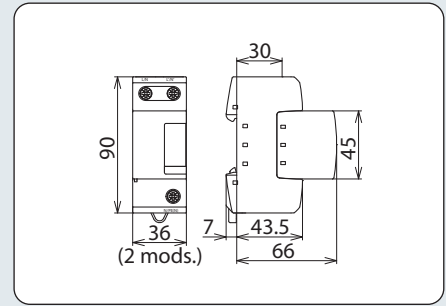
If DEHNbloc is to be used with other DIN rail mounted devices, multifunctional terminals are ideally suited for providing connection for conductors and busbars.

DEHNbloc H

Type 1 Lightning Current Arresters



Basic circuit diagram DBH M 1 255



Dimension drawing DBH M 1 255

- Encapsulated creepage discharge spark gap without venting means
- RADAX Flow spark gap technology with high follow current limitation
- Can also be used upstream of meter panels due to its high insulation resistance

Modular single-pole lightning current arrester with high follow current limitation for $U_C = 255 V$.

Type	DBH M 1 255
Part No.	961 122
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) (I_{imp})	50 kA
Voltage protection level (U_P)	≤ 4 kV
Follow current extinguishing capability a.c. (I_{fl})	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 50 kA _{rms} (prosp.)
Response time (t_a)	≤ 100 ns
Max. backup fuse (L) up to $I_K = 50$ kA _{rms} ($t_a \leq 0.2$ s)	500 A gL/gG
Max. backup fuse (L) up to $I_K = 50$ kA _{rms} ($t_a \leq 5$ s)	315 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG
Temporary overvoltage (TOV) (U_T) – Characteristic	440 V / 120 min. – withstand
Operating temperature range (parallel connection) (T_{UP})	-40 °C ... +80 °C
Operating temperature range (series connection) (T_{US})	-40 °C ... +60 °C
Number of ports	1
Cross-sectional area (L/N, L'/N', N/PE(N)) (min.)	10 mm ² solid / flexible
Cross-sectional area (L/N, N/PE(N)) (max.)	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L'/N') (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	2 module(s), DIN 43880
Extended technical data:	Use in switchgear installations with prospective short-circuit currents of more than 50 kA_{rms} (tested by the German VDE)
– Maximum prospective short-circuit current	100 kA _{rms} (220 kA _{peak})
– Limitation / Extinction of mains follow currents	up to 100 kA _{rms} (220 kA _{peak})
– Max. backup fuse (L) up to $I_K = 100$ kA _{rms} ($t_a \leq 0.2$ s)	500 A gL/gG
– Max. backup fuse (L) up to $I_K = 100$ kA _{rms} ($t_a \leq 5$ s)	315 A gL/gG

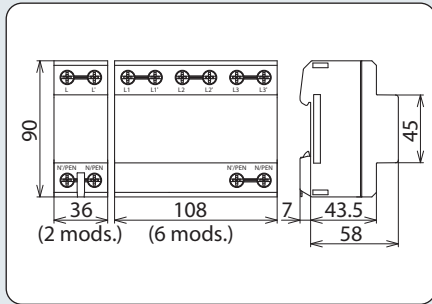
Accessory for DEHNbloc®

DB H Spark-Gap-Based Protection Module

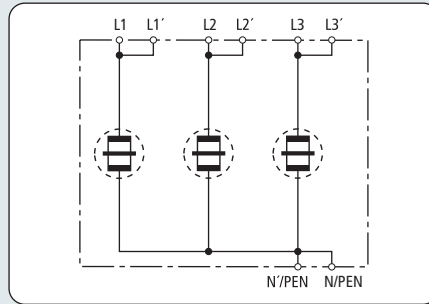
Spark-gap-based protection module



Type	DBH MOD 255
Part No.	961 022
Max. continuous operating a.c. voltage (U_C)	255 V



Dimension drawing DB 1 255 H / DB 3 255 H



Basic circuit diagram DB 1 255 H / DB 3 255 H



Single-pole and three-pole lightning current arrester with high follow current limitation.

- Encapsulated creepage discharge spark gap without venting means
- RADAX Flow spark gap technology with high follow current limitation
- Can also be used upstream of meter panels due to its high insulation resistance

Type	DB 1 255 H	DB 3 255 H
Part No.	900 222	900 120
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) (I_{imp})	50 kA	—
Specific energy (W/R)	625.00 kJ/ohms	—
Lightning impulse current (10/350 μ s) [L-N/PEN] (I_{imp})	—	50 kA
Specific energy [L-N/PEN] (W/R)	—	625.00 kJ/ohms
Lightning impulse current (10/350 μ s) [L1+L2+L3-N/PEN] (I_{total})	—	100 kA
Specific energy [L1+L2+L3-N/PEN] (W/R)	—	2.50 MJ/ohms
Voltage protection level (U_p)	≤ 4 kV	≤ 4 kV
Follow current extinguishing capability a.c. (I_{fi})	50 kA _{rms}	50 kA _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 50 kA _{rms} (prosp.)	
Response time (t_a)	≤ 100 ns	≤ 100 ns
Max. backup fuse up to $I_K = 50$ kA _{rms} ($t_a \leq 0.2$ s)	500 A gL/gG	500 A gL/gG
Max. backup fuse up to $I_K = 50$ kA _{rms} ($t_a \leq 5$ s)	315 A gL/gG	315 A gL/gG
Max. backup fuse for $I_K > 50$ kA _{rms}	200 A gL/gG	200 A gL/gG
Max. backup fuse (L-L')	125 A gL/gG	125 A gL/gG
Temporary overvoltage (TOV) (U_T) – Characteristic	440 V / 120 min. – withstand	440 V / 120 min. – withstand
Operating temperature range (parallel connection) (T_{Up})	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating temperature range (series connection) (T_{Us})	-40 °C ... +60 °C	-40 °C ... +60 °C
Number of ports	1	1
Cross-sectional area (L, L', N/PEN, N'/PEN) (min.)	10 mm ² solid / flexible	—
Cross-sectional area (L, N/PEN) (max.)	50 mm ² stranded / 35 mm ² flexible	—
Cross-sectional area (L', N'/PEN) (max.)	35 mm ² stranded / 25 mm ² flexible	—
Cross-sectional area (L1, L1', L2, L2', L3, L3', N/PEN, N'/PEN)	—	10 mm ² solid / flexible
Cross-sectional area (L1, L2, L3, N/PEN)	—	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (L1', L2', L3', N'/PEN)	—	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	6 module(s), DIN 43880
Approvals	KEMA, VDE	KEMA, VDE

- Discharge capacity up to 100 kA (10/350 μ s)
- Total current arrester specifically designed for installation in "3+1" and "1+1" circuits of TT systems according to IEC 60364-5-53 between neutral conductor N and protective conductor PE
- Creepage discharge spark gap technology
- Operating state / fault indication by green / red indicator flag in the inspection window



For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$ (3+1 circuit).

DEHNgap M 255 (FM):	Coordinated and modular single-pole N-PE lightning current arrester
DEHNgap Maxi 1 255 S:	Coordinated single-pole N-PE lightning current arrester for busbars
DEHNgap Maxi 1 255 (FM):	Coordinated single-pole N-PE lightning current arrester for "3+1" circuits with DEHNvenCI
DEHNgap Maxi 440 (FM):	Coordinated single-pole N-PE lightning current arrester for $U_c = 440$ V a.c.
DEHNgap H M 255:	Modular single-pole N-PE lightning current arrester

Being total current arresters between the neutral and protective conductor in TT systems, the single-pole N-PE lightning current arresters of type DEHNgap M, DEHNgap Maxi, DEHNgap Maxi S and DEHNgap H M fulfil the requirements for the protection of persons and equipment in "1+1" or "3+1" circuits. The creepage discharge spark gaps were specifically developed to meet this challenge. With a discharge capacity up to 100 kA (10/350 μ s), they fulfil the most stringent requirements of national and international lightning protection standards. Their leakage-current-free spark gap design allows the devices to be used upstream of the meter panel according to the German VDN guideline.

The DEHNgap M, DEHNgap Maxi S and DEHNgap Maxi coordinated N-PE lightning current arresters hold a special position among total current arresters. Due to their low voltage protection level, they can be directly coordinated with N-PE surge arresters of the DEHNguard M family and DEHNgap C S surge arresters without additional decoupling coil. If lightning current arresters are to be installed along with surge arresters at the same location, no additional DEHNgap C S is required thanks to the low voltage protection level of DEHNgap M and DEHNgap Maxi.

The design and installation of DEHNgap Maxi S arresters are adapted to the unique nature of low-voltage switchgear installations and entirely complement the use of DEHNgap Maxi S arresters.

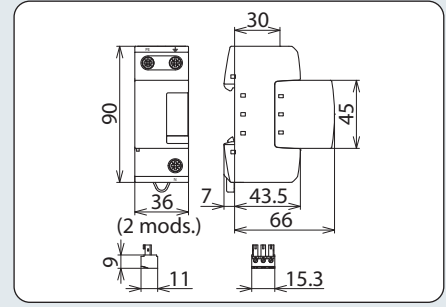
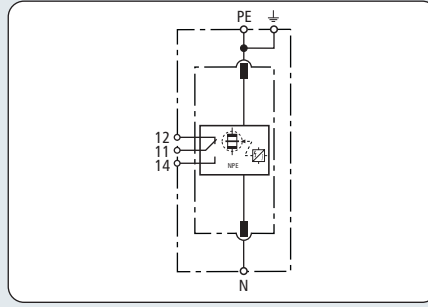
The multifunctional terminals of the DIN rail mounted DEHNgap M and DEHNgap H M devices are suitable for connecting conductors and busbars, allowing comfortable wiring with other DIN rail mounted terminals. With its functional Red/Line design, DEHNgap M combines safety and ease of use in a single device. The mechanical operating state / fault indi-

cation as well as the unique module locking system stand for fulfilling high safety requirements. The module locking system fixes the protection modules to the base part. Neither vibration during transport nor the enormous electromagnetic forces of discharge can loosen the protection modules. Nevertheless, they can be easily replaced without tools by simply pressing the easy-to-use module release button of the protection module. Each protection module is mechanically coded to ensure against installing an incorrect module. Apart from the standard visual indication of DEHNgap M, DEHNgap M ... FM features a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.



DEHNgap M 255 (FM)

N-PE Lightning Current Arresters



Basic circuit diagram DGP M 255 FM

Dimension drawing DGP M 255 FM

- Discharge capacity up to 100 kA (10/350 μ s)
- Total current arrester specifically designed for installation in "3+1" and "1+1" circuits of TT systems according to IEC 60364-5-53 between neutral conductor N and protective conductor PE
- Creepage discharge spark gap technology

Coordinated and modular single-pole N-PE lightning current arrester for $U_c = 255$ V; optionally available with remote signalling contact for monitoring system (floating changeover contact).

Type	DGP M 255	DGP M 255 FM
Part No.	961 101	961 105
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA	100 kA
Specific energy (W/R)	2.50 MJ/ohms	2.50 MJ/ohms
Voltage protection level (U_p)	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability a.c. (I_{fl})	100 A _{rms}	100 A _{rms}
Response time (t_A)	≤ 100 ns	≤ 100 ns
Temporary overvoltage (TOV) (U_T) – Characteristic	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand
Operating temperature range (parallel connection) (T_{UP})	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating temperature range (series connection) (T_{US})	-40 °C ... +60 °C	-40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (N, PE, \pm) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (N, PE) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (\pm) (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	VDE, KEMA, UL	VDE, KEMA, UL
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

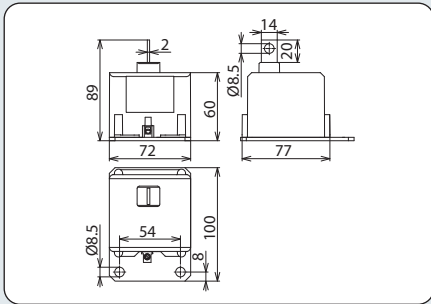
Accessory for DEHNgap

DGP M – 100 kA N-PE Spark-Gap-Based Protection Module

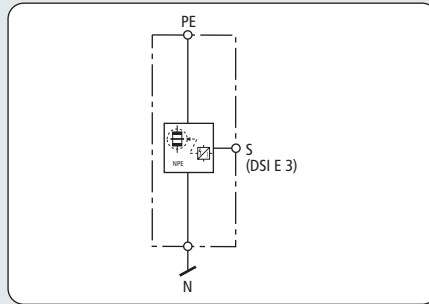
100 kA N-PE spark-gap-based protection module for all devices of the modular DEHNgap M family.



Type	DGP M MOD 255
Part No.	961 010
Max. continuous operating a.c. voltage (U_c)	255 V



Dimension drawing DGPM 1 255 S



Basic circuit diagram DGPM 1 255 S



Coordinated single-pole N-PE lightning current arrester for busbars.

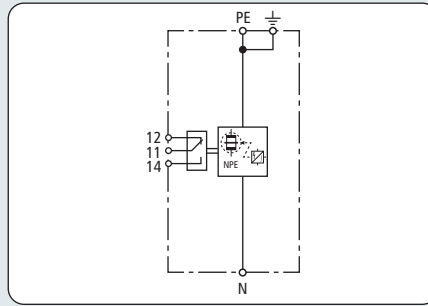
- Discharge capacity up to 100 kA (10/350 μ s)
- Total current arrester specifically designed for installation in "3+1" and "1+1" circuits of TT systems according to IEC 60364-5-53 between neutral conductor N and protective conductor PE
- Creepage discharge spark gap technology

Type	DGPM 1 255 S
Part No.	900 050
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA
Specific energy (W/R)	2.50 MJ/ohms
Voltage protection level (U_p)	≤ 2.5 kV (including 80 cm connecting cable)
Follow current extinguishing capability a.c. (I_n)	100 A _{rms}
Response time (t_d)	≤ 100 ns
Temporary overvoltage (TOV) (U_T) – Characteristic	1200 V / 200 ms – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Number of ports	1
For mounting on	N busbars, min. 35 mm ²
Connection	via cable lug, min. 35 mm ² / max. 50 mm ²
Operating state monitoring	via DEHNsignal DSI E 3
Connection for DSI E 3 (S) (min.)	1 mm ² solid / flexible
Connection for DSI E 3 (S) (max.)	2.5 mm ² solid / flexible
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Dimensions (W x H x D)	72 x 89 x 100 mm

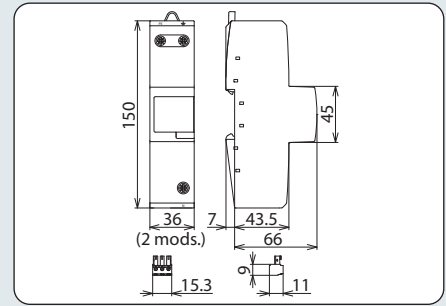
DEHNgap Maxi 1 255 (FM)

N-PE Lightning Current Arresters

NEW



Basic circuit diagram DGPM 1 255 FM

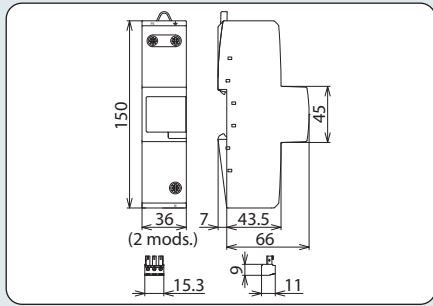


Dimension drawing DGPM 1 255 FM

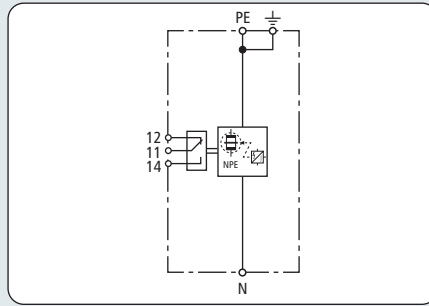
- Discharge capacity up to 100 kA (10/350 μ s)
- Total current arrester specifically designed for installation in "3+1" and "1+1" circuits of TT systems according to IEC 60364-5-53 between neutral conductor N and protective conductor PE
- Creepage discharge spark gap technology

Coordinated single-pole N-PE lightning current arrester for $U_C = 255$ V; optionally available with remote signalling contact for monitoring device (floating changeover contact).

Type	DGPM 1 255	DGPM 1 255 FM
Part No.	961 180	961 185
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA	100 kA
Specific energy (W/R)	2.50 MJ/ohms	2.50 MJ/ohms
Voltage protection level (U_P)	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability a.c. (I_{fl})	100 A _{rms}	100 A _{rms}
Response time (t_A)	≤ 100 ns	≤ 100 ns
Temporary overvoltage (TOV) (U_T) – Characteristic	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand
Operating temperature range (parallel connection) (T_{UP})	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating temperature range (series connection) (T_{US})	-40 °C ... +60 °C	-40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (N, PE, \pm) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (N, PE) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (\pm) (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible



Dimension drawing DGPM 440



Basic circuit diagram DGPM 440 FM



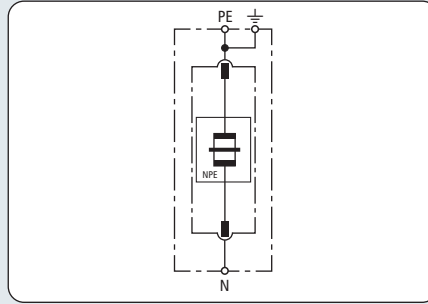
Coordinated single-pole N-PE lightning current arrester for $U_c = 440\text{ V}$; optionally available with remote signalling contact for monitoring device (floating changeover contact).

- Discharge capacity up to 100 kA (10/350 μs)
- Total current arrester specifically designed for installation in "3+1" and "1+1" circuits of TT systems according to IEC 60364-5-53 between neutral conductor N and protective conductor PE
- Creepage discharge spark gap technology

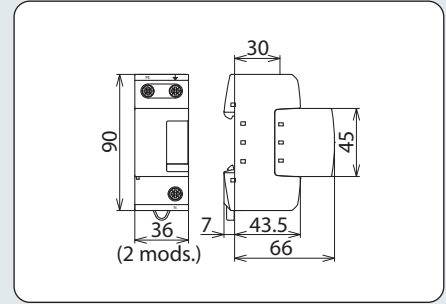
Type	DGPM 440	DGPM 440 FM
Part No.	961 160	961 165
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I	type 1 / class I
Max. continuous operating a.c. voltage (U_c)	440 V (50 / 60 Hz)	440 V (50 / 60 Hz)
Lightning impulse current (10/350 μs) (I_{imp})	100 kA	100 kA
Specific energy (W/R)	2.50 MJ/ohms	2.50 MJ/ohms
Voltage protection level (U_p)	$\leq 2.5\text{ kV}$	$\leq 2.5\text{ kV}$
Follow current extinguishing capability a.c. (I_n)	100 A _{rms}	100 A _{rms}
Response time (t_d)	$\leq 100\text{ ns}$	$\leq 100\text{ ns}$
Temporary overvoltage (TOV) (U_T) – Characteristic	1200 V / 200 ms. – withstand	1200 V / 200 ms. – withstand
Operating temperature range (parallel connection) (T_{UP})	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating temperature range (series connection) (T_{US})	-40 °C ... +60 °C	-40 °C ... +60 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (N, PE, \perp) (min.)	10 mm ² solid / flexible	10 mm ² solid / flexible
Cross-sectional area (N, PE) (max.)	50 mm ² stranded / 35 mm ² flexible	50 mm ² stranded / 35 mm ² flexible
Cross-sectional area (\perp) (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	UL	UL
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

DEHNgap H M 255

N-PE Lightning Current Arresters



Basic circuit diagram DGPH M 255



Dimension drawing DGPH M 255

- Discharge capacity up to 100 kA (10/350 μ s)
- Total current arrester specifically designed for installation in "3+1" and "1+1" circuits of TT systems according to IEC 60364-5-53 between neutral conductor N and protective conductor PE
- Creepage discharge spark gap technology

Modular single-pole N-PE lightning current arrester for $U_c = 255$ V.

Type	DGPH M 255
Part No.	961 102
SPD according to EN 61643-11 / IEC 61643-11	type 1 / class I
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA
Specific energy (W/R)	2.50 MJ/ohms
Voltage protection level (U_p)	≤ 4 kV
Follow current extinguishing capability a.c. (I_{fl})	100 A _{rms}
Response time (t_A)	≤ 100 ns
Temporary overvoltage (TOV) (U_T) – Characteristic	1200 V / 200 ms – withstand
Operating temperature range (parallel connection) (T_{UP})	-40 °C ... +80 °C
Operating temperature range (series connection) (T_{US})	-40 °C ... +60 °C
Number of ports	1
Cross-sectional area (min.)	10 mm ² solid / flexible
Cross-sectional area (max.)	50 mm ² stranded / 35 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	2 module(s), DIN 43880

Accessory for DEHNgap

DGPH M – 100 kA N-PE Spark-Gap-Based Protection Module

100 kA N-PE spark-gap-based protection module for all devices of the modular DEHNgap M family.



Type	DGPH MOD 255
Part No.	961 020
Max. continuous operating a.c. voltage (U_c)	255 V

- High discharge capacity due to powerful creepage discharge spark gap
- Easy replacement of protection modules without tools due to module locking system with module release button
- Operating state / fault indication by green / red indicator flag in the inspection window
- The plug-in protection module can be replaced without the need to de-energise and without removing the distribution board cover



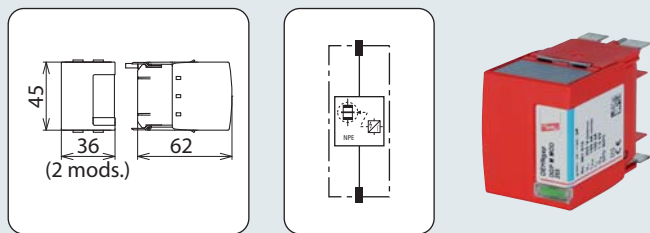
For protecting low-voltage consumer's installations against surges and even direct lightning strikes. For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$ (3+1 circuits).

DGP M MOD 255: 100 kA N-PE spark-gap-based protection module for all devices of the modular DEHNgap M family
DGPH MOD 255: 100 kA N-PE spark-gap-based protection module for all devices of the modular DEHNgap M H family

The N-PE spark-gap-based protection modules of the modular DEHNgap M family combine safety and innovation in a single device. Apart from the powerful encapsulated creepage discharge spark gap, the compact protection modules incorporate a monitoring device and an operating state / fault indicator. The mechanical coding of the protection module prevents that the N-PE protection modules are confused with the spark-gap-based protection module for the phase conductors.

The module locking system safely fixes the protection modules to the base part. The protection modules can be easily removed without tools by simply pressing the release button.

DGP M – 100 kA N-PE Spark-Gap-Based Protection Module



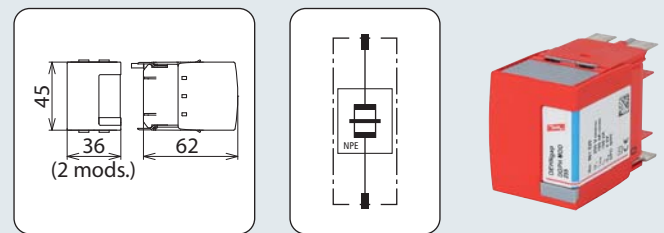
Dimension drawing
DGP M MOD 255

Basic circuit diagram
DGP M MOD 255

100 kA N-PE spark-gap-based protection module for all devices of the modular DEHNgap M family.

Type	DGP M MOD 255
Part No.	961 010
Max. continuous operating a.c. voltage (U_c)	255 V
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA
Specific energy (W/R)	2.50 MJ/ohms
Follow current extinguishing capability [N-PE] a.c. (I_{fi})	100 A _{rms}

DGPH M – 100 kA N-PE Spark-Gap-Based Protection Module



Dimension drawing
DGPH MOD 255

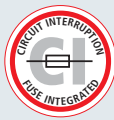
Basic circuit diagram
DGPH MOD 255

100 kA N-PE spark-gap-based protection module for all devices of the modular DEHNgap M H family.

Type	DGPH MOD 255
Part No.	961 020
Max. continuous operating a.c. voltage (U_c)	255 V
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA
Specific energy (W/R)	2.50 MJ/ohms
Follow current extinguishing capability [N-PE] a.c. (I_{fi})	100 A _{rms}

Type 2 Surge Arresters

- Arrester backup fuse integrated in the protection module
- Prewired complete unit consisting of a base part and plug-in protection modules
- Energy coordination with other arresters of the Red/Line product family
- High discharge capacity
- High reliability due to "Thermo Dynamic Control" SPD monitoring device
- Easy replacement of protection modules without tools due to module locking system with module release button



DEHNguard M TNC CI 275:	Modular surge arrester with integrated backup fuse for TN-C systems
DEHNguard M TNS CI 275:	With integrated backup fuse for TN-S systems
DEHNguard M TT CI 275:	With integrated backup fuse for TT and TN-S systems ("3+1" circuits)
DEHNguard M TN CI 275:	With integrated backup fuse for 230 V TN systems
DEHNguard M TT 2P CI 275:	With integrated backup fuse for 230 V TT and TN systems ("1+1" circuits)
DEHNguard S CI 275:	Modular single-pole surge arrester with integrated backup fuse
DEHNguard M ... CI 275 FM:	With remote signalling contact for monitoring device (floating changeover contact)

Featuring the functional Red/Line design, the modular surge arresters of the DEHNguard ... CI family combine short-circuit and surge protection in a single protection module, setting new patterns for ease of application.

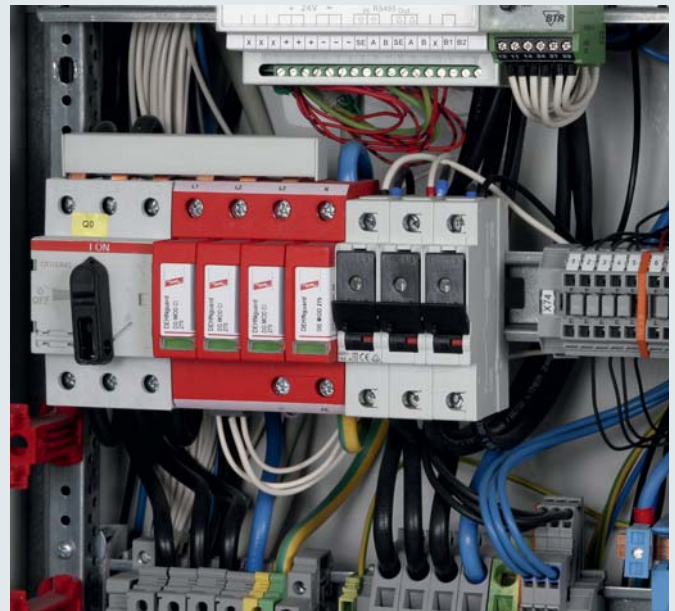
The protective circuit including the arrester backup fuse in the protection module and the heavy-duty zinc oxide varistor as well as the dual Thermo Dynamic Control monitoring device allow easy installation with minimum space requirements.

With the already integrated arrester backup fuse, the user no longer has to care about arrester-specific dimensioning requirements such as backup protection in the event of a short-circuit and impulse current carrying capability.

Space-saving surge protection measures covering all functions specified in the installation standards can be implemented in installations with short-circuit currents up to 25 kA_{ms}. All paths including the N-PE path feature an operating state indicator as required by the IEC 60364-5-53 standard.

Due to the "Thermo Dynamic Control" monitoring device, the surface temperature of the heavy-duty varistor and the intensity of the discharge current are used for evaluation. The state of each protective path is shown by means of a red and green mechanical indicator which needs no power to operate. It also indicates the activation of the "Thermo Dynamic Control" monitoring device and the integrated arrester backup fuse.

Modular Surge Arrester with integrated Backup Fuse



For protecting low-voltage consumer's installations against surges. For installation in conformity with the lightning protection zone concept at the boundaries from 0_B – 1 and higher.

In addition to this mechanical operating state / fault indication, the ... FM version of the DEHNguard ... CI devices features a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as break or make contact according to the particular circuit concept.

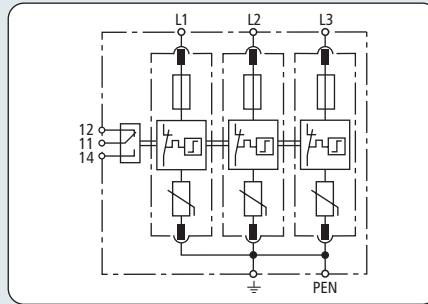
All the benefits of the modular design of the DEHNguard family have been integrated into the new DEHNguard ... CI family.

The system-configuration-specific product designation and the "Thermo Dynamic Control" monitoring device reflect the high safety requirements. The unique module locking system prevents the protection modules from becoming loose due to shock during transport or the enormous forces of discharge. Nevertheless, the protection modules can be easily replaced without tools, the need to de-energise and removing the distribution board cover by simply pressing the easy-to use module release button of the protection modules. Each protective circuit of the multipole and single-pole arresters and each protection module is mechanically coded to ensure against installing an incorrect protection module.

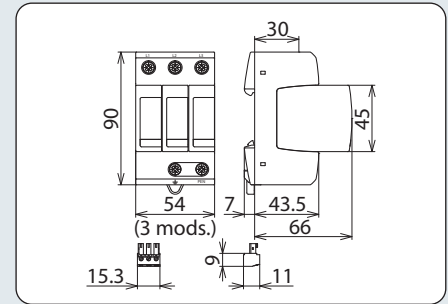
The surge arresters of the multipole modular DEHNguard ... CI family feature multifunctional terminals on a standardised spacing of one module for connecting conductors and busbars, allowing easy wiring with other DIN rail mounted devices. Thus, a variety of applications can be easily connected in series in accordance with IEC 60364-5-53 for optimal protection.

DEHNguard M TNC CI ... (FM)

Type 2 Surge Arresters



Basic circuit diagram DG M TNC CI ... FM



Dimension drawing DG M TNC CI ... FM

- Arrester backup fuse integrated in the protection module
- Prewired complete unit consisting of a base part and plug-in protection modules
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular surge arrester with integrated backup fuses for TN-C systems.

Type	DG M TNC CI 275	DG M TNC CI 275 FM
Part No.	952 304	952 309
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	275 V (50 / 60 Hz)	275 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	12.5 kA	12.5 kA
Max. discharge current (8/20 μs) (I _{max})	25 kA	25 kA
Voltage protection level (U _p)	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level at 5 kA (U _p)	≤ 1 kV	≤ 1 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	not required	not required
Short-circuit withstand capability (I _{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U _T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	3 module(s), DIN 43880	3 module(s), DIN 43880
Approvals	KEMA, VDE	KEMA, VDE
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Accessory for DEHNguard® modular with integrated Backup Fuse

Varistor-Based Protection Module for DEHNguard M CI

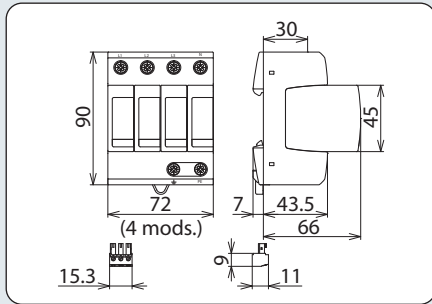
Protection module for DEHNguard M ... CI 275 arresters comprising a varistor connected in series with the integrated backup fuse.



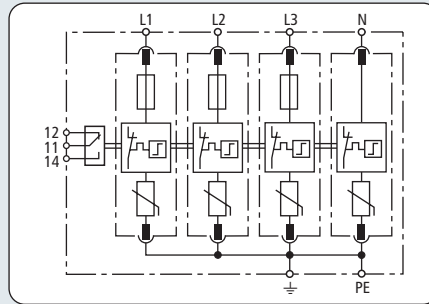
Type	DG MOD CI 275
Part No.	952 020
Max. continuous operating a.c. voltage (U _C)	275 V

Type 2 Surge Arresters

DEHNGuard M TNS CI ... (FM)



Dimension drawing DG M TNS CI ... FM



Basic circuit diagram DG M TNS CI ... FM



- Arrester backup fuse integrated in the protection module
- Prewired complete unit consisting of a base part and plug-in protection modules
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular surge arrester with integrated backup fuses for TN-S systems.

Type	DG M TNS CI 275	DG M TNS CI 275 FM
Part No.	952 401	952 406
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	275 V (50 / 60 Hz)	275 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	12.5 kA	12.5 kA
Max. discharge current (8/20 μs) (I _{max})	25 kA	25 kA
Voltage protection level (U _p)	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level at 5 kA (U _p)	≤ 1 kV	≤ 1 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	not required	not required
Short-circuit withstand capability (I _{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U _T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	4 module(s), DIN 43880	4 module(s), DIN 43880
Approvals	KEMA, VDE	KEMA, VDE
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Accessory for DEHNGuard® modular with integrated Backup Fuse

Varistor-Based Protection Module

Varistor-based protection module for DEHNGuard M ... and DEHNGuard S ... surge arresters.

Type	DG MOD 275
Part No.	952 010
Max. continuous operating a.c. voltage (U _C)	275 V



Accessory for DEHNGuard® modular with integrated Backup Fuse

Varistor-Based Protection Module for DEHNGuard M CI

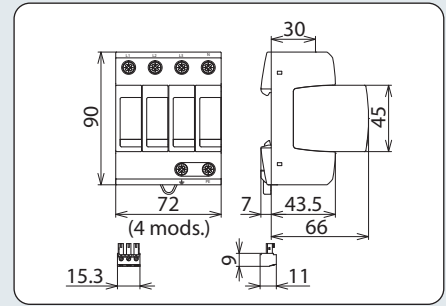
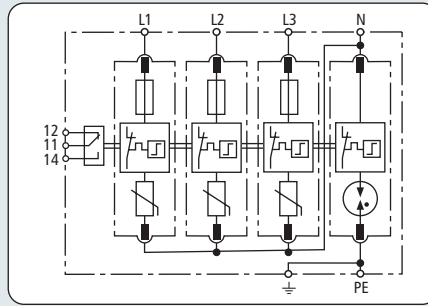
Protection module for DEHNGuard M ... CI 275 arresters comprising a varistor connected in series with the integrated backup fuse.

Type	DG MOD CI 275
Part No.	952 020
Max. continuous operating a.c. voltage (U _C)	275 V



DEHNguard M TT CI ... (FM)

Type 2 Surge Arresters



Basic circuit diagram DG M TT CI ... FM

Dimension drawing DG M TT CI ... FM

- Arrester backup fuse integrated in the protection module
- Prewired complete unit consisting of a base part and plug-in protection modules
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular surge arrester with integrated backup fuses for TT and TN-S systems ("3+1" circuits).

Type	DG M TT CI 275	DG M TT CI 275 FM
Part No.	952 322	952 327
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U _C)	275 V (50 / 60 Hz)	275 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U _C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) [L-N] (I _n)	12.5 kA	12.5 kA
Nominal discharge current (8/20 μs) [N-PE] (I _n)	20 kA	20 kA
Max. discharge current (8/20 μs) [L-N] (I _{max})	25 kA	25 kA
Max. discharge current (8/20 μs) [N-PE] (I _{max})	40 kA	40 kA
Lightning impulse current (10/350 μs) [N-PE] (I _{imp})	12 kA	12 kA
Voltage protection level [L-N] (U _p)	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level [L-N] at 5 kA (U _p)	≤ 1 kV	≤ 1 kV
Voltage protection level [N-PE] (U _p)	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability [N-PE] (I _{fi})	100 A _{rms}	100 A _{rms}
Response time [L-N] (t _A)	≤ 25 ns	≤ 25 ns
Response time [N-PE] (t _A)	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	not required	not required
Short-circuit withstand capability (I _{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [N-PE] (U _T) – Characteristic	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	4 module(s), DIN 43880	4 module(s), DIN 43880
Approvals	KEMA, VDE	KEMA, VDE
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Accessory for DEHNguard® modular with integrated Backup Fuse

Varistor-Based Protection Module for DEHNguard M CI

Protection module for DEHNguard M ... CI 275 arresters comprising a varistor connected in series with the integrated backup fuse.



Type	DG MOD CI 275
Part No.	952 020
Max. continuous operating a.c. voltage (U _C)	275 V

Accessory for DEHNguard® modular with integrated Backup Fuse

N-PE Spark-Gap-Based Protection Module for DEHNguard M TT ...

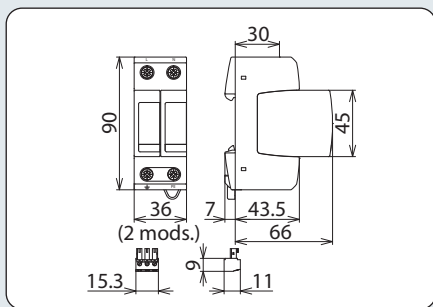
N-PE spark-gap-based protection module for two-pole and four-pole DEHNguard DG M TT ... surge arresters.



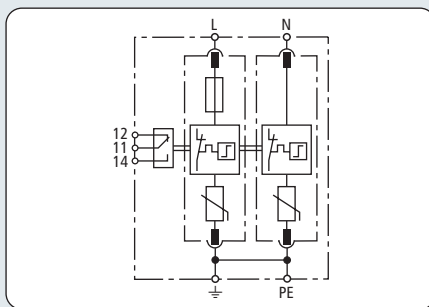
Type	DG MOD NPE
Part No.	952 050
Max. continuous operating a.c. voltage (U _C)	255 V

Type 2 Surge Arresters

DEHNgard M TN CI ... (FM)



Dimension drawing DG M TN CI ... FM



Basic circuit diagram DG M TN CI ... FM



- Arrester backup fuse integrated in the protection module
- Prewired complete unit consisting of a base part and plug-in protection modules
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular surge arrester with integrated backup fuses for single-phase 230 V TN systems.

Type	DG M TN CI 275	DG M TN CI 275 FM
Part No.	952 173	952 178
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	275 V (50 / 60 Hz)	275 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	12.5 kA	12.5 kA
Max. discharge current (8/20 μs) (I _{max})	25 kA	25 kA
Voltage protection level (U _p)	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level at 5 kA (U _p)	≤ 1 kV	≤ 1 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	not required	not required
Short-circuit withstand capability (I _{scCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U _T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	KEMA, VDE	KEMA, VDE
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Accessory for DEHNgard® modular with integrated Backup Fuse

Varistor-Based Protection Module

Varistor-based protection module for DEHNgard M ... and DEHNgard S ... surge arresters.

Type	DG MOD 275
Part No.	952 010
Max. continuous operating a.c. voltage (U _C)	275 V



Accessory for DEHNgard® modular with integrated Backup Fuse

Varistor-Based Protection Module for DEHNgard M CI

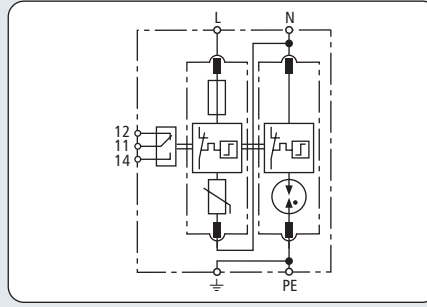
Protection module for DEHNgard M ... CI 275 arresters comprising a varistor connected in series with the integrated backup fuse.

Type	DG MOD CI 275
Part No.	952 020
Max. continuous operating a.c. voltage (U _C)	275 V

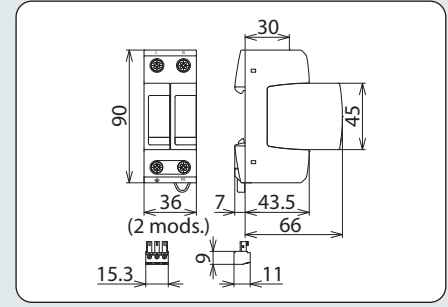


DEHNguard M TT 2P CI ... (FM)

Type 2 Surge Arresters



Basic circuit diagram DG M TT 2P CI ... FM



Dimension drawing DG M TT 2P CI ... FM

- Arrester backup fuse integrated in the protection module
- Prewired complete unit consisting of a base part and plug-in protection modules
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular surge arrester with integrated backup fuses for single-phase 230 V TT and TN systems ("1+1" circuits).

Type	DG M TT 2P CI 275	DG M TT 2P CI 275 FM
Part No.	952 171	952 176
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U _C)	275 V (50 / 60 Hz)	275 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U _C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) [L-N] (I _n)	12.5 kA	12.5 kA
Nominal discharge current (8/20 μs) [N-PE] (I _n)	20 kA	20 kA
Max. discharge current (8/20 μs) [L-N] (I _{max})	25 kA	25 kA
Max. discharge current (8/20 μs) [N-PE] (I _{max})	40 kA	40 kA
Lightning impulse current (10/350 μs) [N-PE] (I _{imp})	12 kA	12 kA
Voltage protection level [L-N] (U _p)	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level [L-N] at 5 kA (U _p)	≤ 1 kV	≤ 1 kV
Voltage protection level [N-PE] (U _p)	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability [N-PE] (I _{fi})	100 A _{rms}	100 A _{rms}
Response time [L-N] (t _A)	≤ 25 ns	≤ 25 ns
Response time [N-PE] (t _A)	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	not required	not required
Short-circuit withstand capability (I _{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [N-PE] (U _T) – Characteristic	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	KEMA, VDE	KEMA, VDE
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Accessory for DEHNguard® modular with integrated Backup Fuse

Varistor-Based Protection Module for DEHNguard M CI

Protection module for DEHNguard M ... CI 275 arresters comprising a varistor connected in series with the integrated backup fuse.



Type	DG MOD CI 275
Part No.	952 020
Max. continuous operating a.c. voltage (U _C)	275 V

Accessory for DEHNguard® modular with integrated Backup Fuse

N-PE Spark-Gap-Based Protection Module for DEHNguard M TT ...

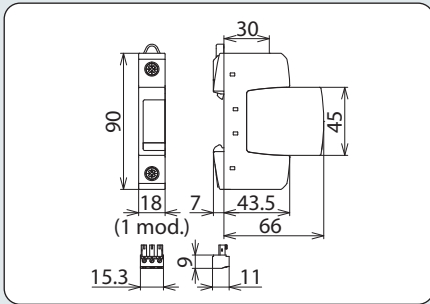
N-PE spark-gap-based protection module for two-pole and four-pole DEHNguard DG M TT ... surge arresters.



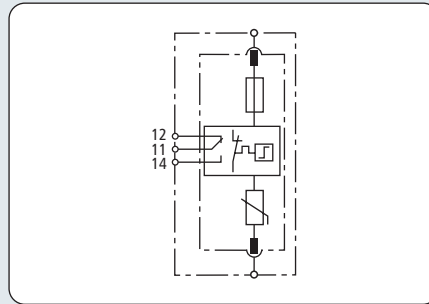
Type	DG MOD NPE
Part No.	952 050
Max. continuous operating a.c. voltage (U _C)	255 V

Type 2 Surge Arresters

DEHNGuard S CI ... (FM)



Dimension drawing DG S CI ... FM



Basic circuit diagram DG S CI ... FM



- Arrester backup fuse integrated in the protection module
- Prewired complete unit consisting of a base part and plug-in protection modules
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Pluggable single-pole surge arrester consisting of a base part and plug-in protection module; with integrated backup fuse; optionally available with floating remote signalling contact.

Type	DG S CI 275	DG S CI 275 FM
Part No.	952 079	952 099
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	275 V (50 / 60 Hz)	275 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	12.5 kA	12.5 kA
Max. discharge current (8/20 μs) (I _{max})	25 kA	25 kA
Voltage protection level (U _p)	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level at 5 kA (U _p)	≤ 1 kV	≤ 1 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	not required	not required
Short-circuit withstand capability (I _{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U _T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	1 module(s), DIN 43880	1 module(s), DIN 43880
Approvals	KEMA, VDE	KEMA, VDE
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Accessory for DEHNGuard® modular with integrated Backup Fuse

Varistor-Based Protection Module for DEHNGuard M CI

Protection module for DEHNGuard M ... CI 275 arresters comprising a varistor connected in series with the integrated backup fuse.

Type	DG MOD CI 275
Part No.	952 020
Max. continuous operating a.c. voltage (U _C)	275 V





- Prewired complete unit consisting of a base part and plug-in protection modules
- Energy coordination with other arresters of the Red/Line product family
- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device
- Easy replacement of protection modules without tools due to module locking system with module release button
- Vibration and shock-tested according to EN 60068-2

For protecting low-voltage consumer's installations against surges. For installation in conformity with the lightning protection zone concept at the boundaries from $U_B - 1$ and higher.

- DEHNguard M TNC ...: Modular surge arrester for use in TN-C systems
- DEHNguard M TNS ...: Modular surge arrester for use in TN-S systems
- DEHNguard M TT ...: Modular surge arrester for use in TT and TN-S systems ("3+1" circuits)
- DEHNguard M TN ...: Modular surge arrester for use in single-phase TN systems
- DEHNguard M TT 2P ...: Modular surge arrester for use in single-phase TT and TN systems ("1+1" circuits)
- DEHNguard M WE ...: Modular surge arrester especially for use in wind turbines
- DEHNguard M ... FM: With remote signalling contact for monitoring device (floating changeover contact)

Featuring the functional Red/Line family design, the modular DEHNguard M ... surge arresters set new standards in terms of safety and ease of use. The proven protective circuit with heavy-duty zinc oxide varistors in combination with the dual "Thermo Dynamic Control" monitoring device are characteristic of the DEHNguard technology.

A variety of features shows that both reliable surge protection and equipment safety are key elements of the modular DEHNguard surge arresters. The application-based product designation, which makes it considerably easier to choose the correct device for the relevant application, as well as the unique module locking system stand for fulfilling the most stringent safety requirements. The module locking system firmly fixes the protection modules to the base part. Neither vibration during transport nor the enormous forces of discharge can loosen the protection modules. Nevertheless, they can be easily replaced without tools by simply pressing the easy-to use module release button of the protection modules. Each protective circuit of the multipole surge arresters and each protection module are mechanically coded to ensure against installing an incorrect module.

The dual "Thermo Dynamic Control" monitoring device was not only developed on the basis of national and international product standards, but also stands for experience of decades in the world market of surge protective devices and considers many practical applications where arresters might be damaged. As with all DEHN surge arresters with

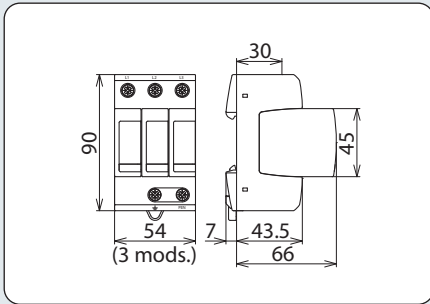
"Thermo Dynamic Control", the surface temperature of the heavy-duty varistor and the intensity of the discharge current are used for evaluation. The visual indicator with green and red indicator flags shows the availability of every protective circuit. Apart from this standard visual indication, DEHNguard M ... FM devices feature a three-pole remote signalling terminal.

With its floating changeover contact, the remote signal can be used as a make or break contract according to the particular circuit concept. The surge arresters of the multipole modular DEHNguard M family feature multifunctional terminals on a standardised spacing of 1 module for the connection of conductors and busbars, allowing easy wiring with other DIN rail mounted devices. Thus, a wide range of applications can be easily connected in series according to IEC 60364-5-53 for optimal protection.

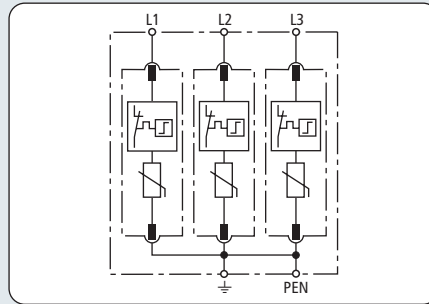


Type 2 Surge Arresters

DEHNguard M TNC ...



Dimension drawing DG M TNC ...



Basic circuit diagram DG M TNC ...



- **Prewired complete unit consisting of a base part and plug-in protection modules**
- **High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps**
- **High reliability due to "Thermo Dynamic Control" SPD monitoring device**

Modular surge arrester for use in TN-C systems.

Type	DG M TNC 150	DG M TNC 275	DG M TNC 385	DG M TNC 440
Part No.	952 313	952 300	952 314	952 303
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	120 / 240 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)	400 / 690 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	150 V (50 / 60 Hz)	275 V (50 / 60 Hz)	385 V (50 / 60 Hz)	440 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	15 kA	20 kA	20 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA	40 kA	40 kA
Voltage protection level (U _p)	≤ 0.7 kV	≤ 1.5 kV	≤ 1.75 kV	≤ 2 kV
Voltage protection level at 5 kA (U _p)	≤ 0.55 kV	≤ 1 kV	≤ 1.35 kV	≤ 1.7 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{scCR})	50 kA _{rms}	50 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic – withstand	175 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.	580 V / 5 sec.
Temporary overvoltage (TOV) (U _T) – Characteristic – safe failure	230 V / 120 min.	440 V / 120 min.	440 V / 120 min.	765 V / 120 min.
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red	green / red
Number of ports	1	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible			
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible			
For mounting on	35 mm DIN rails acc. to EN 60715			
Enclosure material	thermoplastic, red, UL 94 V-0			
Place of installation	indoor installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20	IP 20
Capacity	3 module(s), DIN 43880	3 module(s), DIN 43880	3 module(s), DIN 43880	3 module(s), DIN 43880
Approvals	KEMA, UL	KEMA, VDE, UL, Vds	KEMA, UL	KEMA, UL, Vds

Accessory for DEHNguard® modular

Varistor-Based Protection Module

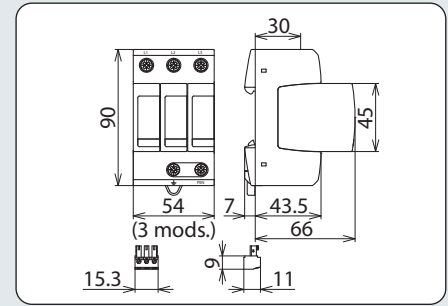
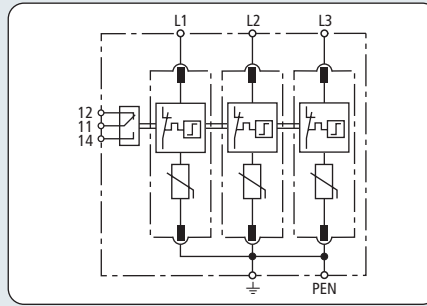
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.

Type DG MOD ...	150	275	385	440
Part No.	952 012	952 010	952 014	952 015
Max. continuous operating a.c. voltage (U _C)	150 V	275 V	385 V	440 V



DEHNguard M TNC ... FM

Type 2 Surge Arresters



Basic circuit diagram DG M TNC ... FM

Dimension drawing DG M TNC ... FM

- Prewired complete unit consisting of a base part and plug-in protection modules
- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular surge arrester for use in TN-C systems; with floating changeover contact.

Type	DG M TNC 150 FM	DG M TNC 275 FM	DG M TNC 385 FM	DG M TNC 440 FM
Part No.	952 318	952 305	952 319	952 308
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	120 / 240 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)	400 / 690 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	150 V (50 / 60 Hz)	275 V (50 / 60 Hz)	385 V (50 / 60 Hz)	440 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	15 kA	20 kA	20 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA	40 kA	40 kA
Voltage protection level (U _p)	≤ 0.7 kV	≤ 1.5 kV	≤ 1.75 kV	≤ 2 kV
Voltage protection level at 5 kA (U _p)	≤ 0.55 kV	≤ 1 kV	≤ 1.35 kV	≤ 1.7 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{SCCR})	50 kA _{rms}	50 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic – withstand	175 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.	580 V / 5 sec.
Temporary overvoltage (TOV) (U _T) – Characteristic – safe failure	230 V / 120 min.	440 V / 120 min.	440 V / 120 min.	765 V / 120 min.
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red	green / red
Number of ports	1	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible			
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible			
For mounting on	35 mm DIN rails acc. to EN 60715			
Enclosure material	thermoplastic, red, UL 94 V-0			
Place of installation	indoor installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20	IP 20
Capacity	3 module(s), DIN 43880	3 module(s), DIN 43880	3 module(s), DIN 43880	3 module(s), DIN 43880
Approvals	KEMA, UL	KEMA, VDE, UL, VdS	KEMA, UL	KEMA, UL, VdS
Type of remote signalling contact	changeover contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A			
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible			

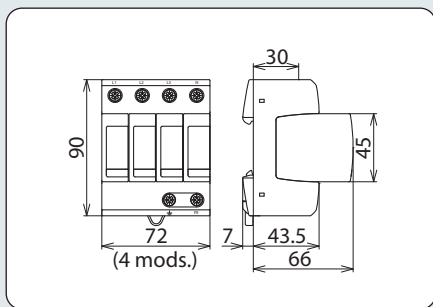
Accessory for DEHNguard® modular

Varistor-Based Protection Module

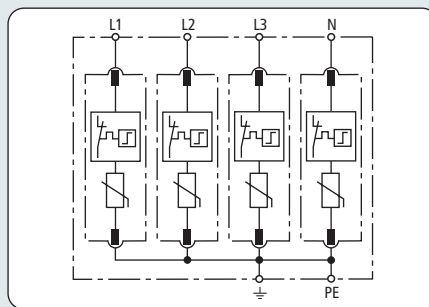
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.



Type DG MOD ...	150	275	385	440
Part No.	952 012	952 010	952 014	952 015
Max. continuous operating a.c. voltage (U _C)	150 V	275 V	385 V	440 V



Dimension drawing DG M TNS ...



Basic circuit diagram DG M TNS ...



- **Prewired complete unit consisting of a base part and plug-in protection modules**
- **High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps**
- **High reliability due to "Thermo Dynamic Control" SPD monitoring device**

Modular surge arrester for use in TN-S systems.

Type	DG M TNS 150	DG M TNS 275	DG M TNS 385
Part No.	952 403	952 400	952 404
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	120 / 240 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _c)	150 V (50 / 60 Hz)	275 V (50 / 60 Hz)	385 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	15 kA	20 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA	40 kA
Voltage protection level (U _p)	≤ 0.7 kV	≤ 1.5 kV	≤ 1.75 kV
Voltage protection level at 5 kA (U _p)	≤ 0.55 kV	≤ 1 kV	≤ 1.35 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short-circuit withstand capability for			
max. mains-side overcurrent protection (I _{scCR})	50 kA _{rms}	50 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	175 V / 5 sec. – withstand	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U _T) – Characteristic	230 V / 120 min. – safe failure	440 V / 120 min. – safe failure	440 V / 120 min. – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Capacity	4 module(s), DIN 43880	4 module(s), DIN 43880	4 module(s), DIN 43880
Approvals	KEMA, UL	KEMA, VDE, UL, VdS	KEMA, UL

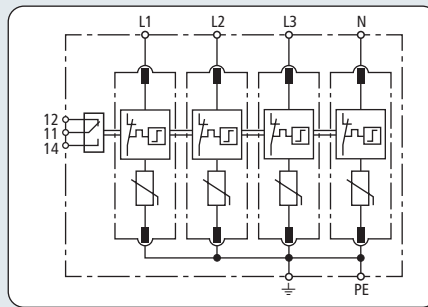
Accessory for DEHNguard® modular

Varistor-Based Protection Module

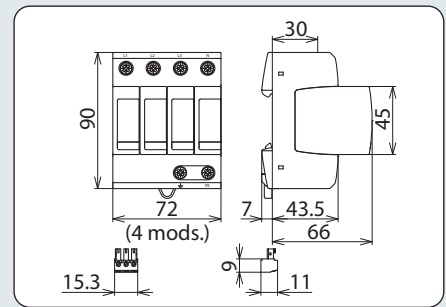
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.

Type DG MOD ...	150	275	385
Part No.	952 012	952 010	952 014
Max. continuous operating a.c. voltage (U _c)	150 V	275 V	385 V





Basic circuit diagram DG M TNS ... FM



Dimension drawing DG M TNS ... FM

- Prewired complete unit consisting of a base part and plug-in protection modules
- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular surge arrester for use in TN-S systems; with floating changeover contact.

Type	DG M TNS 150 FM	DG M TNS 275 FM	DG M TNS 385 FM
Part No.	952 408	952 405	952 409
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	120 / 240 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	150 V (50 / 60 Hz)	275 V (50 / 60 Hz)	385 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	15 kA	20 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA	40 kA
Voltage protection level (U _p)	≤ 0.7 kV	≤ 1.5 kV	≤ 1.75 kV
Voltage protection level at 5 kA (U _p)	≤ 0.55 kV	≤ 1 kV	≤ 1.35 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{SCCR})	50 kA _{rms}	50 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	175 V / 5 sec. – withstand	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U _T) – Characteristic	230 V / 120 min. – safe failure	440 V / 120 min. – safe failure	440 V / 120 min. – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Capacity	4 module(s), DIN 43880	4 module(s), DIN 43880	4 module(s), DIN 43880
Approvals	KEMA, UL	KEMA, VDE, UL, VdS	KEMA, UL
Type of remote signalling contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible

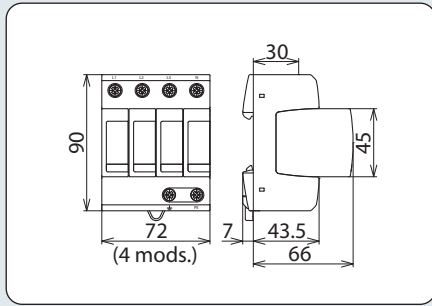
Accessory for DEHNguard® modular

Varistor-Based Protection Module

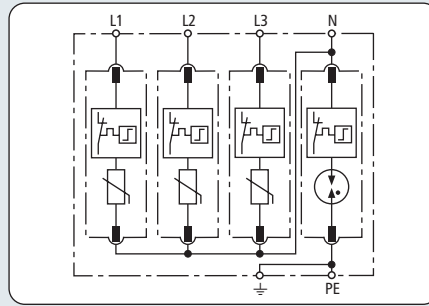
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.



Type DG MOD ...	150	275	385
Part No.	952 012	952 010	952 014
Max. continuous operating a.c. voltage (U _C)	150 V	275 V	385 V



Dimension drawing DG M TT ...



Basic circuit diagram DG M TT ...



- **Prewired complete unit consisting of a base part and plug-in protection modules**
- **High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps**
- **High reliability due to "Thermo Dynamic Control" SPD monitoring device**

Modular surge arrester for use in TT and TN-S systems ("3+1" circuit).

Type	DG M TT 150	DG M TT 275	DG M TT 320	DG M TT 385
Part No.	952 323	952 310	952 320	952 311
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	120 / 240 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U _C)	150 V (50 / 60 Hz)	275 V (50 / 60 Hz)	320 V (50 / 60 Hz)	385 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U _C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	15 kA	20 kA	20 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA	40 kA	40 kA
Lightning impulse current (10/350 μs) [N-PE] (I _{imp})	12 kA	12 kA	12 kA	12 kA
Voltage protection level [L-N] (U _p)	≤ 0.7 kV	≤ 1.5 kV	≤ 1.5 kV	≤ 1.75 kV
Voltage protection level [L-N] at 5 kA (U _p)	≤ 0.55 kV	≤ 1 kV	≤ 1.2 kV	≤ 1.35 kV
Voltage protection level [N-PE] (U _p)	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability [N-PE] (I _{fi})	100 A _{rms}	100 A _{rms}	100 A _{rms}	100 A _{rms}
Response time [L-N] (t _a)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Response time [N-PE] (t _a)	≤ 100 ns	≤ 100 ns	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{scCR})	50 kA _{rms}	50 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U _T)	175 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.
– Characteristic	– withstand	– withstand	– withstand	– withstand
Temporary overvoltage (TOV) [L-N] (U _T)	230 V / 120 min.	440 V / 120 min.	440 V / 120 min.	440 V / 120 min.
– Characteristic	– safe failure	– safe failure	– safe failure	– withstand
Temporary overvoltage (TOV) [N-PE] (U _T)	1200 V / 200 ms	1200 V / 200 ms	1200 V / 200 ms	1200 V / 200 ms
– Characteristic	– withstand	– withstand	– withstand	– withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red	green / red
Number of ports	1	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible			
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible			
For mounting on	35 mm DIN rails acc. to EN 60715			
Enclosure material	thermoplastic, red, UL 94 V-0			
Place of installation	indoor installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20	IP 20
Capacity	4 module(s), DIN 43880	4 module(s), DIN 43880	4 module(s), DIN 43880	4 module(s), DIN 43880
Approvals	—	KEMA, VDE, UL, VdS	KEMA	KEMA, UL

Accessory for DEHNguard® modular

N-PE Spark-Gap-Based Protection Module for DEHNguard M TT ...

N-PE spark-gap-based protection module for two-pole and four-pole DEHNguard DG M TT ... surge arresters.

Type	DG MOD NPE
Part No.	952 050
Max. continuous operating a.c. voltage (U _C)	255 V



Accessory for DEHNguard® modular

Varistor-Based Protection Module

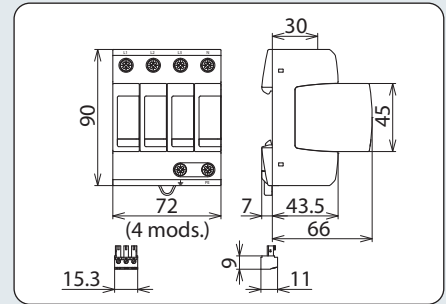
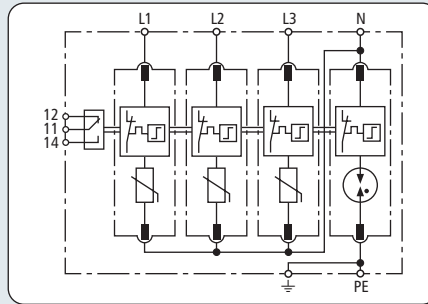
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.

Type DG MOD ...	150	275	320	385
Part No.	952 012	952 010	952 013	952 014
Max. continuous operating a.c. voltage (U _C)	150 V	275 V	320 V	385 V



DEHNguard M TT ... FM

Type 2 Surge Arresters



Basic circuit diagram DG M TT ... FM

Dimension drawing DG M TT ... FM

- Prewired complete unit consisting of a base part and plug-in protection modules
- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular surge arrester for use in TT and TN-S systems ("3+1" circuit); with floating remote signalling contact.

Type	DG M TT 150 FM	DG M TT 275 FM	DG M TT 320 FM	DG M TT 385 FM
Part No.	952 328	952 315	952 325	952 316
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	120 / 240 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U _C)	150 V (50 / 60 Hz)	275 V (50 / 60 Hz)	320 V (50 / 60 Hz)	385 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U _C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	15 kA	20 kA	20 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA	40 kA	40 kA
Lightning impulse current (10/350 μs) [N-PE] (I _{imp})	12 kA	12 kA	12 kA	12 kA
Voltage protection level [L-N] (U _p)	≤ 0.7 kV	≤ 1.5 kV	≤ 1.5 kV	≤ 1.75 kV
Voltage protection level [L-N] at 5 kA (U _p)	≤ 0.55 kV	≤ 1 kV	≤ 1.2 kV	≤ 1.35 kV
Voltage protection level [N-PE] (U _p)	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability [N-PE] (I _{fi})	100 A _{rms}	100 A _{rms}	100 A _{rms}	100 A _{rms}
Response time [L-N] (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Response time [N-PE] (t _A)	≤ 100 ns	≤ 100 ns	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{SCCR})	50 kA _{rms}	50 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U _T)	175 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.
– Characteristic	– withstand	– withstand	– withstand	– withstand
Temporary overvoltage (TOV) [L-N] (U _T)	230 V / 120 min.	440 V / 120 min.	440 V / 120 min.	440 V / 120 min.
– Characteristic	– safe failure	– safe failure	– safe failure	– withstand
Temporary overvoltage (TOV) [N-PE] (U _T)	1200 V / 200 ms	1200 V / 200 ms	1200 V / 200 ms	1200 V / 200 ms
– Characteristic	– withstand	– withstand	– withstand	– withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red	green / red
Number of ports	1	1	1	1
Cross-sectional area (min.)		1.5 mm ² solid / flexible		
Cross-sectional area (max.)		35 mm ² stranded / 25 mm ² flexible		
For mounting on		35 mm DIN rails acc. to EN 60715		
Enclosure material		thermoplastic, red, UL 94 V-0		
Place of installation	indoor installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20	IP 20
Capacity	4 module(s), DIN 43880	4 module(s), DIN 43880	4 module(s), DIN 43880	4 module(s), DIN 43880
Approvals	—	KEMA, VDE, UL, VdS	KEMA	KEMA, UL
Type of remote signalling contact	changeover contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity		250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A		
Cross-sectional area for remote signalling terminals		max. 1.5 mm ² solid / flexible		

Accessory for DEHNguard® modular

Varistor-Based Protection Module

Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.



Type DG MOD ...	150	275	320	385
Part No.	952 012	952 010	952 013	952 014
Max. continuous operating a.c. voltage (U _C)	150 V	275 V	320 V	385 V

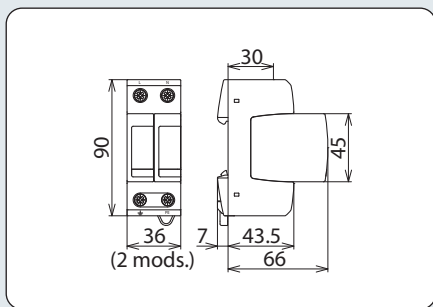
Accessory for DEHNguard® modular

N-PE Spark-Gap-Based Protection Module for DEHNguard M TT ...

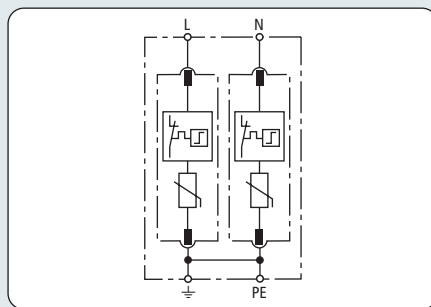
N-PE spark-gap-based protection module for two-pole and four-pole DEHNguard DG M TT ... surge arresters.



Type	DG MOD NPE
Part No.	952 050
Max. continuous operating a.c. voltage (U _C)	255 V



Dimension drawing DG M TN ...



Basic circuit diagram DG M TN ...



- **Prewired complete unit consisting of a base part and plug-in protection modules**
- **High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps**
- **High reliability due to "Thermo Dynamic Control" SPD monitoring device**

Modular surge arrester for use in single-phase TN systems.

Type	DG M TN 150	DG M TN 275
Part No.	952 201	952 200
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	120 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	150 V (50 / 60 Hz)	275 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	15 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA
Voltage protection level (U _p)	≤ 0.7 kV	≤ 1.5 kV
Voltage protection level at 5 kA (U _p)	≤ 0.55 kV	≤ 1 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG
Short-circuit withstand capability for		
max. mains-side overcurrent protection (I _{scCR})	50 kA _{rms}	50 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	175 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U _T) – Characteristic	230 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	KEMA, UL	KEMA, VDE, UL, VdS

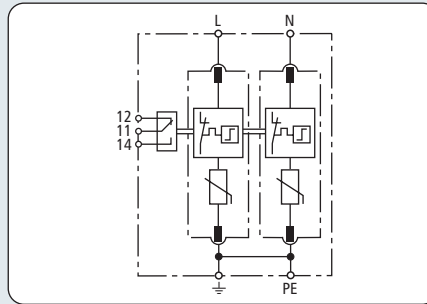
Accessory for DEHNguard® modular

Varistor-Based Protection Module

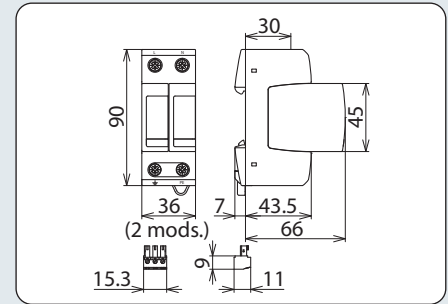
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.

Type DG MOD ...	150	275
Part No.	952 012	952 010
Max. continuous operating a.c. voltage (U _C)	150 V	275 V





Basic circuit diagram DG M TN ... FM



Dimension drawing DG M TN ... FM

- Prewired complete unit consisting of a base part and plug-in protection modules
- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular surge arrester for use in single-phase TN systems; with floating remote signalling contact.

Type	DG M TN 150 FM	DG M TN 275 FM
Part No.	952 206	952 205
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	120 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	150 V (50 / 60 Hz)	275 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	15 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA
Voltage protection level (U _p)	≤ 0.7 kV	≤ 1.5 kV
Voltage protection level at 5 kA (U _p)	≤ 0.55 kV	≤ 1 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{SCCR})	50 kA _{rms}	50 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	175 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U _T) – Characteristic	230 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	KEMA, UL	KEMA, VDE, UL, VdS
Type of remote signalling contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible

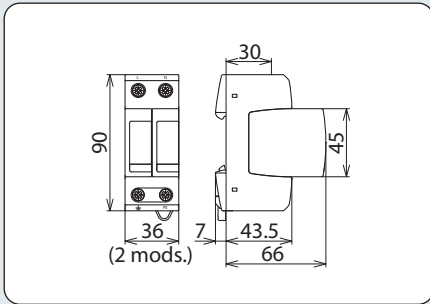
Accessory for DEHNguard® modular

Varistor-Based Protection Module

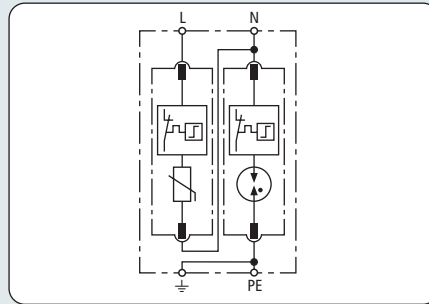
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.



Type DG MOD ...	150	275
Part No.	952 012	952 010
Max. continuous operating a.c. voltage (U _C)	150 V	275 V



Dimension drawing DG M TT 2P ...



Basic circuit diagram DG M TT 2P ...



- **Prewired complete unit consisting of a base part and plug-in protection modules**
- **High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps**
- **High reliability due to "Thermo Dynamic Control" SPD monitoring device**

Modular surge arrester for use in single-phase TT and TN systems ("1+1" circuit).

Type	DG M TT 2P 275	DG M TT 2P 320	DG M TT 2P 385
Part No.	952 110	952 130	952 111
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U _C)	275 V (50 / 60 Hz)	320 V (50 / 60 Hz)	385 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U _C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	20 kA	20 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA	40 kA
Lightning impulse current (10/350 μs) [N-PE] (I _{imp})	12 kA	12 kA	12 kA
Voltage protection level [L-N] (U _p)	≤ 1.5 kV	≤ 1.5 kV	≤ 1.75 kV
Voltage protection level [L-N] at 5 kA (U _p)	≤ 1 kV	≤ 1.2 kV	≤ 1.35 kV
Voltage protection level [N-PE] (U _p)	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability [N-PE] (I _{fi})	100 A _{rms}	100 A _{rms}	100 A _{rms}
Response time [L-N] (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns
Response time [N-PE] (t _A)	≤ 100 ns	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{scCR})	50 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure	440 V / 120 min. – withstand
Temporary overvoltage (TOV) [N-PE] (U _T) – Characteristic	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS	KEMA	KEMA

Accessory for DEHNguard® modular

N-PE Spark-Gap-Based Protection Module for DEHNguard M TT ...

N-PE spark-gap-based protection module for two-pole and four-pole DEHNguard DG M TT ... surge arresters.

Type	DG MOD NPE
Part No.	952 050
Max. continuous operating a.c. voltage (U _C)	255 V



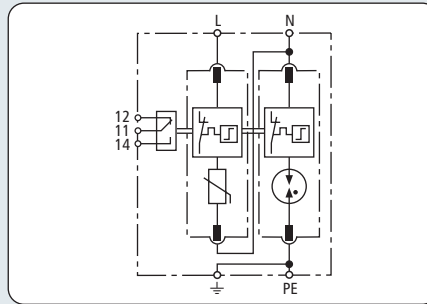
Accessory for DEHNguard® modular

Varistor-Based Protection Module

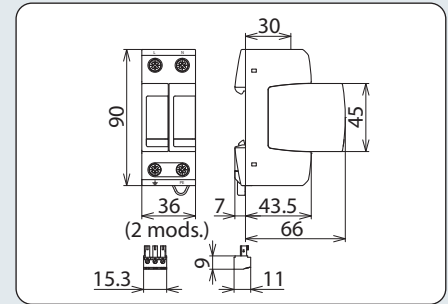
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.

Type DG MOD ...	275	320	385
Part No.	952 010	952 013	952 014
Max. continuous operating a.c. voltage (U _C)	275 V	320 V	385 V





Basic circuit diagram DG M TT 2P ... FM



Dimension drawing DG M TT 2P ... FM

- Prewired complete unit consisting of a base part and plug-in protection modules
- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular surge arrester for use in single-phase TT and TN systems ("1+1" circuit); with floating remote signalling contact.

Type	DG M TT 2P 275 FM	DG M TT 2P 320 FM	DG M TT 2P 385 FM
Part No.	952 115	952 135	952 116
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U _C)	275 V (50 / 60 Hz)	320 V (50 / 60 Hz)	385 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U _C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	20 kA	20 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA	40 kA
Lightning impulse current (10/350 μs) [N-PE] (I _{imp})	12 kA	12 kA	12 kA
Voltage protection level [L-N] (U _p)	≤ 1.5 kV	≤ 1.5 kV	≤ 1.75 kV
Voltage protection level [L-N] at 5 kA (U _p)	≤ 1 kV	≤ 1.2 kV	≤ 1.35 kV
Voltage protection level [N-PE] (U _p)	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability [N-PE] (I _{fi})	100 A _{rms}	100 A _{rms}	100 A _{rms}
Response time [L-N] (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns
Response time [N-PE] (t _A)	≤ 100 ns	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{SCCR})	50 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure	440 V / 120 min. – withstand
Temporary overvoltage (TOV) [N-PE] (U _T) – Characteristic	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS	KEMA	KEMA
Type of remote signalling contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible

Accessory for DEHNguard® modular

Varistor-Based Protection Module

Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.



Type DG MOD ...	275	320	385
Part No.	952 010	952 013	952 014
Max. continuous operating a.c. voltage (U _C)	275 V	320 V	385 V

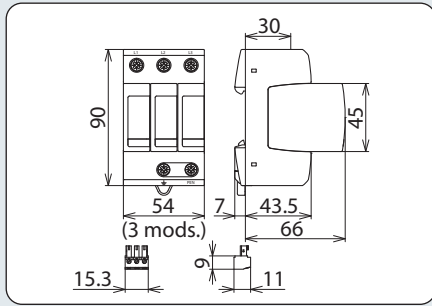
Accessory for DEHNguard® modular

N-PE Spark-Gap-Based Protection Module for DEHNguard M TT ...

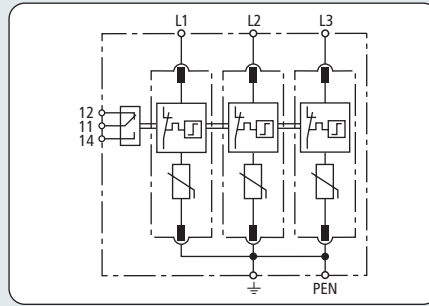
N-PE spark-gap-based protection module for two-pole and four-pole DEHNguard DG M TT ... surge arresters.



Type	DG MOD NPE
Part No.	952 050
Max. continuous operating a.c. voltage (U _C)	255 V



Dimension drawing DG M WE ... FM



Basic circuit diagram DG M WE ... FM



- **Prewired complete unit consisting of a base part and plug-in protection modules**
- **High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps**
- **High reliability due to "Thermo Dynamic Control" SPD monitoring device**

Modular three-pole surge arrester for use in wind turbines with a rated varistor voltage $U_{mov} = 750$ V a.c.; FM version with floating remote signalling contact.

Type	DG M WE 600	DG M WE 600 FM
Part No.	952 302	952 307
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U_N)	480 V (50 / 60 Hz)	480 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	600 V (50 / 60 Hz)	600 V (50 / 60 Hz)
Rated varistor voltage (U_{mov})	750 V	750 V
Nominal discharge current (8/20 μ s) (I_n)	15 kA	15 kA
Max. discharge current (8/20 μ s) (I_{max})	25 kA	25 kA
Voltage protection level (U_P)	≤ 3 kV	≤ 3 kV
Voltage protection level at 5 kA (U_P)	≤ 2.5 kV	≤ 2.5 kV
Response time (t_A)	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	100 A gL/gG	100 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U_T) – Characteristic	900 V / 5 sec. – withstand	900 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U_T) – Characteristic	915 V / 120 min. – safe failure	915 V / 120 min. – safe failure
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	3 module(s), DIN 43880	3 module(s), DIN 43880
Approvals	KEMA, UL, VdS	KEMA, UL, VdS
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Accessory for DEHNgard® modular

Varistor-Based Protection Module for DEHNgard M (S) WE

Varistor-based protection module for DEHNgard M WE ... and DEHNgard S WE ... surge arresters with a rated varistor voltage $U_{mov} = 750$ V a.c.

Type	DG MOD 750
Part No.	952 017
Max. continuous operating a.c. voltage (U_C)	600 V





For protecting low-voltage consumer's installations against surges. For installation in conformity with the lightning protection zone concept at the boundaries from $U_B - 1$ and higher.

- Multi-purpose surge arrester consisting of a base part and plug-in protection module
- High discharge capacity due to heavy-duty zinc oxide varistor
- High reliability due to "Thermo Dynamic Control" SPD monitoring device
- Energy coordination with other arresters of the Red/Line product family
- Operating state / fault indication by green / red indicator flag in the inspection window
- Narrow (modular) design acc. to DIN 43880
- Multifunctional terminals for connecting conductors and busbars
- Easy replacement of protection modules due to module locking system with module release button
- Vibration and shock-tested according to EN 60068-2

DEHNgard S ...: Pluggable surge arrester consisting of a base part and plug-in protection module

DEHNgard S ... FM: With remote signalling contact for monitoring device (floating changeover contact)

The single-pole devices of the DEHNgard S product family are characterised by their universal features. Be it as a single device or in combination with other devices – DEHNgard S surge arresters always provide adequate protection. The modern Red/Line family design and universal features ensure safety and ease of use. The module release button and the approved "Thermo Dynamic Control" SPD monitoring device with dual tripping performance characterise the devices of the DEHNgard S series.

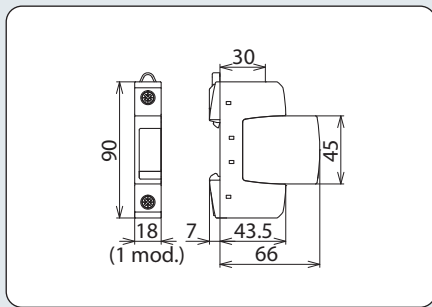
Experience of decades with the application of surge arresters worldwide has further improved the latest DEHNgard generation compared to the previous devices.

The unique module locking system fixes the protection module to the base part. Neither vibration during transport nor the enormous forces of discharge can loosen this connection. Nevertheless, the modules can be easily replaced without tools by simply pressing the easy-to-use module release button of the protection modules.

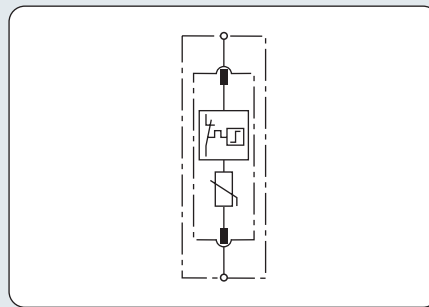
Every base part and protection module is mechanically coded to ensure against installing an incorrect replacement module.

As with all DEHNgard surge arresters, the user of DEHNgard S can rely on the dual "Thermo Dynamic Control" SPD monitoring device. It ensures a maximum degree of safety, even under harsh environmental conditions. The green and red indicator flags show the operating state of DEHNgard S surge arresters. Apart from this standard visual indication, DEHNgard S ... FM features a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept. The multifunctional terminals of DEHNgard S surge arresters are suitable for connecting conductors and busbars, allowing easy wiring with other DIN rail mounted devices. Series connection according to IEC 60364-5-53 for optimal protection is therefore possible for a wide range of applications.





Dimension drawing DG S ...



Basic circuit diagram DG S ...



Pluggable single-pole surge arrester consisting of a base part and plug-in protection module.

- Multi-purpose surge arrester consisting of a base element and plug-in protection module
- High discharge capacity due to heavy-duty zinc oxide varistor
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Type	DG S 48	DG S 75	DG S 150	DG S 275	DG S 320	DG S 385	DG S 440	DG S 600
Part No.	952 078	952 071	952 072	952 070	952 073	952 074	952 075	952 076
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	42 V (50 / 60 Hz)	60 V (50 / 60 Hz)	120 V (50 / 60 Hz)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)	400 V (50 / 60 Hz)	480 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	48 V (50 / 60 Hz)	75 V (50 / 60 Hz)	150 V (50 / 60 Hz)	275 V (50 / 60 Hz)	320 V (50 / 60 Hz)	385 V (50 / 60 Hz)	440 V (50 / 60 Hz)	600 V (50 / 60 Hz)
Max. continuous operating d.c. voltage (U _C)	60 V	100 V	200 V	350 V	420 V	500 V	585 V	600 V
Nominal discharge current (8/20 μs) (I _n)	7.5 kA	10 kA	15 kA	20 kA	20 kA	20 kA	20 kA	15 kA
Max. discharge current (8/20 μs) (I _{max})	25 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	30 kA
Voltage protection level (U _P)	≤ 0.33 kV	≤ 0.4 kV	≤ 0.7 kV	≤ 1.5 kV	≤ 1.5 kV	≤ 1.75 kV	≤ 2 kV	≤ 2.5 kV
Voltage protection level at 5 kA (U _P)	≤ 0.25 kV	≤ 0.35 kV	≤ 0.55 kV	≤ 1 kV	≤ 1.2 kV	≤ 1.35 kV	≤ 1.7 kV	≤ 2 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	100 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{SCCR})	50 kA _{rms}	50 kA _{rms}	50 kA _{rms}	50 kA _{rms}	25 kA _{rms}	25 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T)	70 V / 5 sec.	90 V / 5 sec.	175 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.	580 V / 5 sec.	700 V / 5 sec.
– Characteristic	– withstand	– withstand	– withstand	– withstand	– withstand	– withstand	– withstand	– withstand
Temporary overvoltage (TOV) (U _T)	90 V /	115 V /	230 V /	440 V /	440 V /	440 V /	765 V /	915 V /
– Characteristic	120 min.	120 min.	120 min.	120 min.	120 min.	120 min.	120 min.	120 min.
– safe failure	– safe failure	– safe failure	– safe failure	– safe failure	– safe failure	– withstand	– safe failure	– safe failure
Operating temperature range (T _U)	-40 °C ... +80 °C							
Operating state / fault indication	green / red							
Number of ports	1							
Cross-sectional area (min.)	1.5 mm ² solid / flexible							
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible							
For mounting on	35 mm DIN rails acc. to EN 60715							
Enclosure material	thermoplastic, red, UL 94 V-0							
Place of installation	indoor installations							
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Capacity	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880
Approvals	—	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA

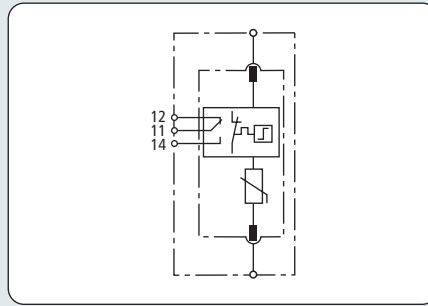
Accessory for DEHNguard® S

Varistor-Based Protection Module

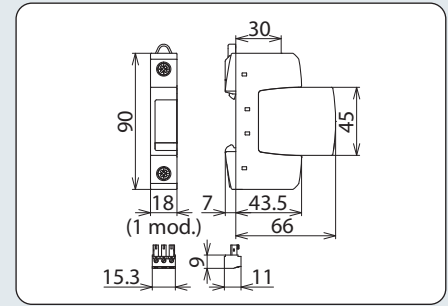
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.

Type DG MOD ...	48	75	150	275	320	385	440	600
Part No.	952 018	952 011	952 012	952 010	952 013	952 014	952 015	952 016
Max. continuous operating a.c. voltage (U _C)	48 V	75 V	150 V	275 V	320 V	385 V	440 V	600 V





Basic circuit diagram DG S ... FM



Dimension drawing DG S ... FM

- Multi-purpose surge arrester consisting of a base element and plug-in protection module
- High discharge capacity due to heavy-duty zinc oxide varistor
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Pluggable single-pole surge arrester consisting of a base part and plug-in protection module; with floating remote signalling contact.

Type	DG S 48 FM	DG S 75 FM	DG S 150 FM	DG S 275 FM	DG S 320 FM	DG S 385 FM	DG S 440 FM	DG S 600 FM
Part No.	952 098	952 091	952 092	952 090	952 093	952 094	952 095	952 096
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	42 V (50 / 60 Hz)	60 V (50 / 60 Hz)	120 V (50 / 60 Hz)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)	400 V (50 / 60 Hz)	480 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	48 V (50 / 60 Hz)	75 V (50 / 60 Hz)	150 V (50 / 60 Hz)	275 V (50 / 60 Hz)	320 V (50 / 60 Hz)	385 V (50 / 60 Hz)	440 V (50 / 60 Hz)	600 V (50 / 60 Hz)
Max. continuous operating d.c. voltage (U _C)	60 V	100 V	200 V	350 V	420 V	500 V	585 V	600 V
Nominal discharge current (8/20 μs) (I _n)	7.5 kA	10 kA	15 kA	20 kA	20 kA	20 kA	20 kA	15 kA
Max. discharge current (8/20 μs) (I _{max})	25 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	30 kA
Voltage protection level (U _p)	≤ 0.33 kV	≤ 0.4 kV	≤ 0.7 kV	≤ 1.5 kV	≤ 1.5 kV	≤ 1.75 kV	≤ 2 kV	≤ 2.5 kV
Voltage protection level at 5 kA (U _p)	≤ 0.25 kV	≤ 0.35 kV	≤ 0.55 kV	≤ 1 kV	≤ 1.2 kV	≤ 1.35 kV	≤ 1.7 kV	≤ 2 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	125 A gL/gG	100 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{SCCR})	50 kA _{rms}	50 kA _{rms}	50 kA _{rms}	50 kA _{rms}	25 kA _{rms}	25 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	70 V / 5 sec.	90 V / 5 sec.	175 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.	580 V / 5 sec.	700 V / 5 sec.
Temporary overvoltage (TOV) (U _T) – Characteristic	90 V / 120 min.	115 V / 120 min.	230 V / 120 min.	440 V / 120 min.	440 V / 120 min.	440 V / 120 min.	765 V / 120 min.	915 V / 120 min.
	– safe failure	– safe failure	– safe failure	– safe failure	– safe failure	– safe failure	– safe failure	– safe failure
Operating temperature range (T _U)	-40 °C ... +80 °C							
Operating state / fault indication	green / red							
Number of ports	1							
Cross-sectional area (min.)	1.5 mm ² solid / flexible							
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible							
For mounting on	35 mm DIN rails acc. to EN 60715							
Enclosure material	thermoplastic, red, UL 94 V-0							
Place of installation	indoor installation							
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Capacity	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880
Approvals	—	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA	KEMA, VDE, UL, VdS, CSA
Type of remote signalling contact	changeover contact							
a.c. switching capacity	250 V / 0.5 A							
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A							
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible							

Accessory for DEHNguard® S

Varistor-Based Protection Module

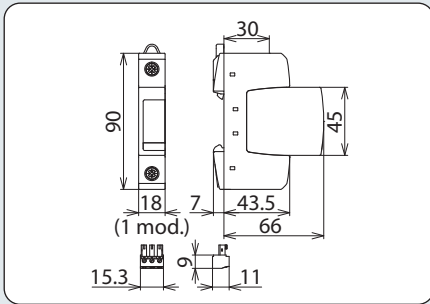
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.



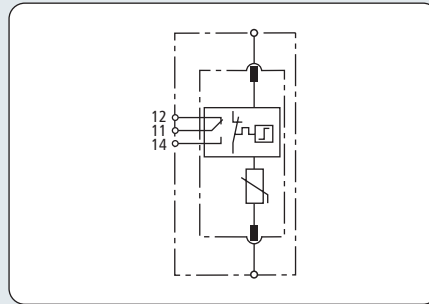
Type DG MOD ...	48	75	150	275	320	385	440	600
Part No.	952 018	952 011	952 012	952 010	952 013	952 014	952 015	952 016
Max. continuous operating a.c. voltage (U _C)	48 V	75 V	150 V	275 V	320 V	385 V	440 V	600 V

Type 2 Surge Arresters

DEHNgard S WE 600 (FM)



Dimension drawing DG S WE 600 FM



Basic circuit diagram DG S WE 600 FM



Pluggable single-pole surge arrester with a rated varistor voltage $U_{mov} = 750$ V a.c., consisting of base part and plug-in protection module; FM version with floating remote signalling contact.

- Multi-purpose surge arrester consisting of a base element and plug-in protection module
- High discharge capacity due to heavy-duty zinc oxide varistor
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Type	DG S WE 600	DG S WE 600 FM
Part No.	952 077	952 097
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U_N)	480 V (50 / 60 Hz)	480 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	600 V (50 / 60 Hz)	600 V (50 / 60 Hz)
Rated varistor voltage a.c. (U_{mov})	750 V	750 V
Nominal discharge current (8/20 μ s) (I_n)	15 kA	15 kA
Max. discharge current (8/20 μ s) (I_{max})	25 kA	25 kA
Voltage protection level (U_P)	≤ 3 kV	≤ 3 kV
Voltage protection level at 5 kA (U_P)	≤ 2.5 kV	≤ 2.5 kV
Response time (t_A)	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	100 A gL/gG	100 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U_T) – Characteristic	900 V / 5 sec. – withstand	900 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U_T) – Characteristic	915 V / 120 min. – safe failure	915 V / 120 min. – safe failure
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	1 module(s), DIN 43880	1 module(s), DIN 43880
Approvals	KEMA, UL, CSA, VdS	KEMA, UL, CSA, VdS
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

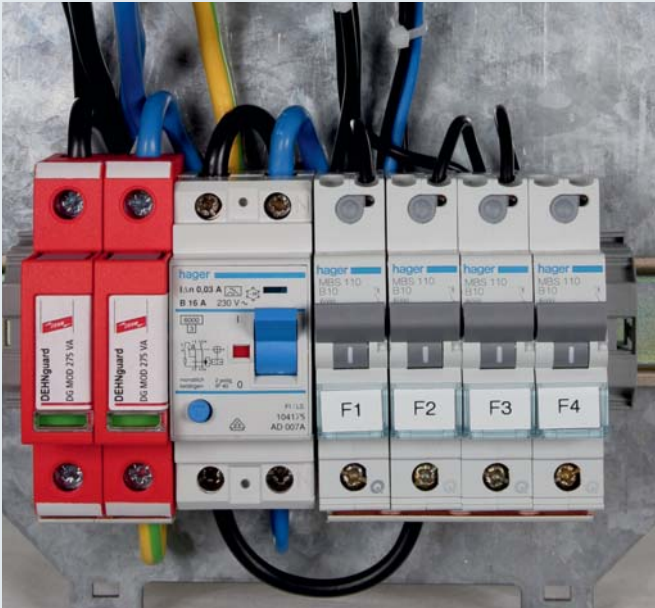
Accessory for DEHNgard® S

Varistor-Based Protection Module for DEHNgard M (S) WE

Varistor-based protection module for DEHNgard M WE ... and DEHNgard S WE ... surge arresters with a rated varistor voltage $U_{mov} = 750$ V a.c.

Type	DG MOD 750
Part No.	952 017
Max. continuous operating a.c. voltage (U_C)	600 V





For protecting low-voltage consumer's installations against surges. For installation in conformity with the lightning protection zone concept at the boundaries from $U_B - 1$ and higher.

- DEHNGuard S ... VA:** Modular single-pole surge arrester with a varistor connected in series with a spark gap in the pluggable protection module
- DEHNGuard S ... VA FM:** Modular single-pole surge arrester with a varistor connected in series with a spark gap in the pluggable protection module; with remote signalling contact for monitoring device (floating changeover contact)

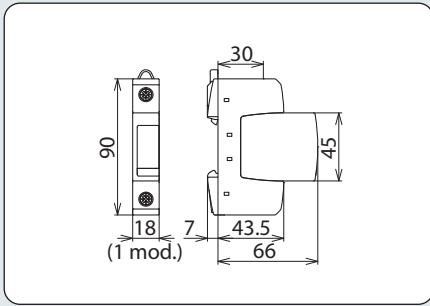
The single-pole DEHNGuard S ... VA surge arresters are an ideal supplement to the proven DEHNGuard product families. The special series connection of a spark gap and a varistor in the protection module opens up new fields of application. It is advisable to use DEHNGuard S ... VA devices to protect, for example, systems with permanent insulation monitoring and the traction power lines in railway systems where complete absence of leakage currents is required. DEHNGuard S ... VA surge arresters are also suited for protecting power line communication systems.

Multifunctional terminals allow almost unlimited flexibility in terms of connection to one another, but also to other DIN rail mounted devices in the distribution board. However, it is not only flexibility that characterises the DEHNGuard S ... VA family. Its distinctive performance parameters set standards worldwide:

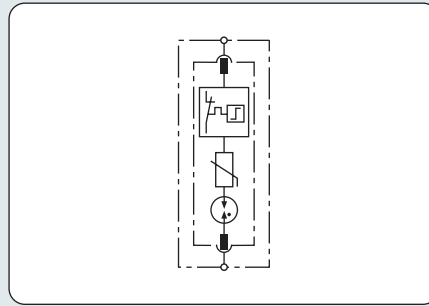
- Multi-purpose surge arrester consisting of a base part and plug-in protection module
- Leakage-current-free series connection of a varistor and a spark gap in the pluggable protection module
- High reliability due to "Thermo Dynamic Control" SPD monitoring device
- Energy coordination with other arresters of the Red/Line product family
- Easy replacement of protection modules without tools due to module locking system with module release button
- Narrow (modular) design according to DIN 43880
- Multifunctional terminal for connecting conductors and busbars

A high discharge capacity, complete absence of leakage currents, a low voltage protection level and the dual "Thermo Dynamic Control" monitoring and disconnection device describe the high degree of reliability.

The DEHN-specific "Thermo Dynamic Control" disconnecter ensures that the arresters enter a safe and isolated state, even in case of extreme overload. For this purpose, the surface temperature of the heavy-duty varistor and the intensity of the discharge current are used for evaluation. In addition to the standard visual indication with red and green indicator flags, the DEHNGuard S VA ... FM devices feature a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as break or make contact according to the particular protection concept.



Dimension drawing DG S ... VA



Basic circuit diagram DG S ... VA



Modular single-pole surge arrester with a varistor connected in series with a spark gap in the pluggable protection module.

- Multi-purpose surge arrester consisting of a base part and plug-in protection module
- Leakage-current-free series connection of a varistor and a spark gap in the pluggable protection module
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Type	DG S 75 VA	DG S 275 VA	DG S 385 VA
Part No.	952 080	952 082	952 084
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	60 V (50 / 60 Hz)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	75 V (50 / 60 Hz)	275 V (50 / 60 Hz)	385 V (50 / 60 Hz)
Max. continuous operating d.c. voltage (U _C)	100 V	350 V	500 V
Nominal discharge current (8/20 μs) (I _n)	10 kA	10 kA	10 kA
Maximum discharge current (8/20 μs) (I _{max})	20 kA	20 kA	20 kA
Voltage protection level (U _P)	≤ 1.1 kV	≤ 1.5 kV	≤ 1.75 kV
Response time (t _A)	≤ 100 ns	≤ 100 ns	≤ 100 ns
Maximum mains-side overcurrent protection	100 A gL/gG	100 A gL/gG	100 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{SCCR})	25 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	115 V / 120 min. – withstand	440 V / 120 min. – withstand	440 V / 120 min. – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible	1.5 mm ² stranded / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Capacity	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880

Accessory for DEHNguard® S ... VA

Varistor-Based Protection Module for DEHNguard S ... VA

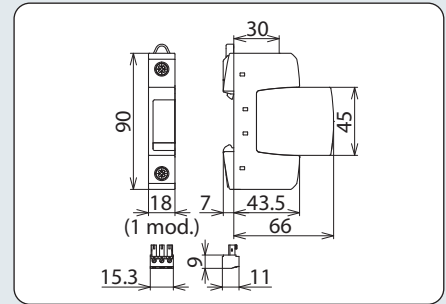
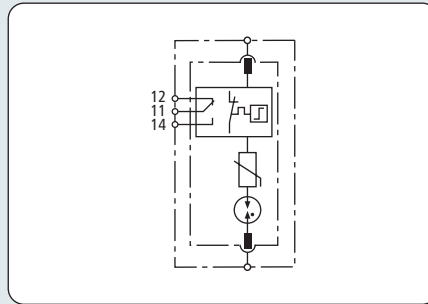
Protection module for DEHNguard S ... VA arresters comprising a varistor connected in series with a spark gap

Type DG MOD ...	75 VA	275 VA	385 VA
Part No.	952 025	952 027	952 029
Max. continuous operating a.c. voltage (U _C)	75 V	275 V	385 V



DEHNguard S VA FM

Type 2 Surge Arresters



Basic circuit diagram DG S ... VA FM

Dimension drawing DG S ... VA FM

- Multi-purpose surge arrester consisting of a base part and plug-in protection module
- Leakage-current-free series connection of a varistor and a spark gap in the pluggable protection module
- High reliability due to "Thermo Dynamic Control" SPD monitoring device

Modular single-pole surge arrester with a varistor connected in series with a spark gap in the pluggable protection module; with floating remote signalling contact.

Type	DG S 75 VA FM	DG S 275 VA FM	DG S 385 VA FM
Part No.	952 085	952 087	952 089
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	60 V (50 / 60 Hz)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	75 V (50 / 60 Hz)	275 V (50 / 60 Hz)	385 V (50 / 60 Hz)
Max. continuous operating d.c. voltage (U _C)	100 V	350 V	500 V
Nominal discharge current (8/20 μs) (I _n)	10 kA	10 kA	10 kA
Maximum discharge current (8/20 μs) (I _{max})	20 kA	20 kA	20 kA
Voltage protection level (U _p)	≤ 1.1 kV	≤ 1.5 kV	≤ 1.75 kV
Response time (t _a)	≤ 100 ns	≤ 100 ns	≤ 100 ns
Maximum mains-side overcurrent protection	100 A gL/gG	100 A gL/gG	100 A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{SCCR})	25 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	115 V / 120 min. – withstand	440 V / 120 min. – withstand	440 V / 120 min. – withstand
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red
Number of ports	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rail acc. to EN 60715	35 mm DIN rail acc. to EN 60715	35 mm DIN rail acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20
Capacity	1 module(s), DIN 43880	1 module(s), DIN 43880	1 module(s), DIN 43880
Type of remote signalling contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible

Accessory for DEHNguard® S ... VA

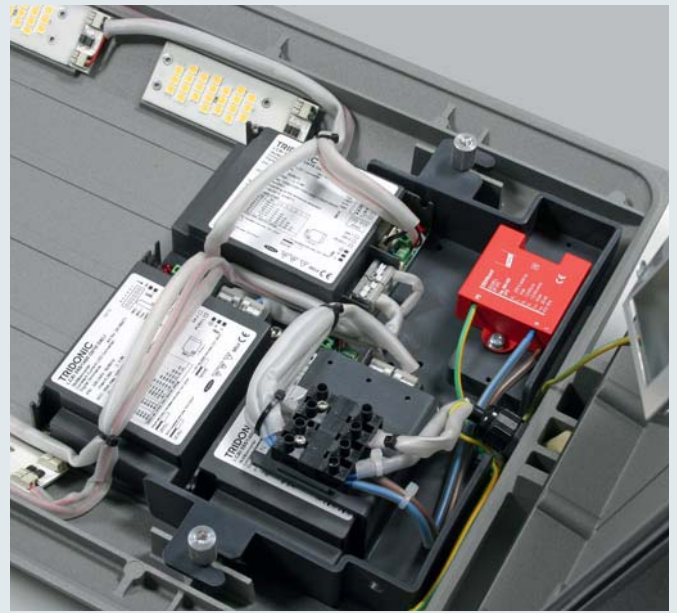
Varistor-Based Protection Module for DEHNguard S ... VA

Protection module for DEHNguard S ... VA arresters comprising a varistor connected in series with a spark gap



Type DG MOD ...	75 VA	275 VA	385 VA
Part No.	952 025	952 027	952 029
Max. continuous operating a.c. voltage (U _C)	75 V	275 V	385 V

- Two-pole or single-pole surge protective device with monitoring system and disconnecter
- Visual fault indication
- Compact design
- For use in flush-mounted systems, cable ducts and flush-type boxes



For protecting electronic devices from surges. For flexible installation in electrical installation systems such as flush-type boxes, flush-mounted systems, cable ducts and wall boxes. For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 1$ and higher.

DEHNcord L 2P ...: Compact two-pole version; for use in flush-type boxes, flush-mounted systems and cable ducts
DEHNcord L 1P ...: Compact single-pole version; or use in flush-type boxes, flush-mounted systems and cable ducts

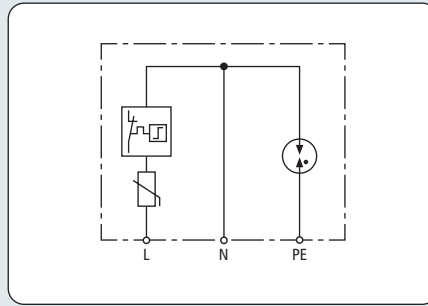
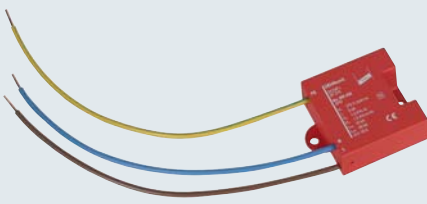
The DEHNcord series can be flexibly used as type 2 surge arresters, thus offering a variety of different application options. Compact in design, the surge arresters are ideally suited for protecting electrical and electronic loads in final circuits where the performance of a conventional type 3 surge protective device for terminal equipment reaches its limits. A possible field of application is the protection of outdoor LED lights. Since according to the standard DEHNcord is a type 2 surge arrester, it can be used according to the lightning protection zones concept at the bounda-

ries from $O_B - 1$ and higher. This ensures proper installation of surge protective devices where space is limited. The design is adapted to the preferred places of installation, namely cable ducts and flush-type boxes. In addition to the powerful protective circuit, the compact enclosure of the DEHNcord devices also houses a disconnecter and a mechanical operating state / fault indicator. Be it in cable ducts, flush-mounted systems, junction boxes or device casings: There is always enough space for DEHNcord in the relevant installation environment.

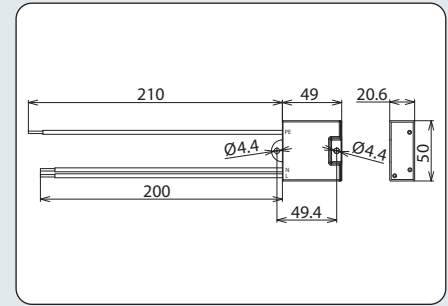
DEHNcord L 2P

Type 2 Surge Arresters

NEW



Basic circuit diagram DCOR L 2P ...



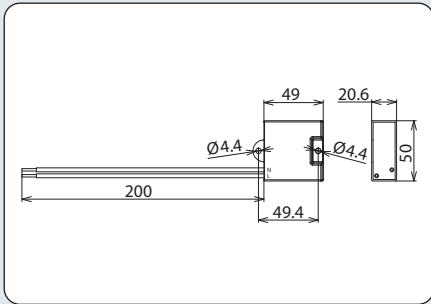
Dimension drawing DCOR L 2P ...

- Visual fault indication
- Compact design
- For use in flush-mounted systems, cable ducts and flush-type boxes

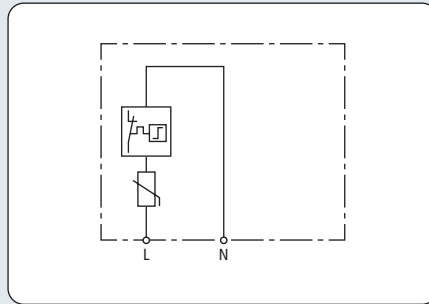
Surge arrester for all installation systems; compact design.

Type	DCOR L 2P 275	DCOR L 2P 320
Part No.	900 430	900 432
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)	230 / 277 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U_C)	275 V (50 / 60 Hz)	320 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U_C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	5 kA	5 kA
Maximum discharge current (8/20 μ s) (I_{max})	10 kA	10 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	20 kA	20 kA
Voltage protection level [L-N] (U_p)	≤ 1.5 kV	≤ 1.75 kV
Voltage protection level [N-PE] (U_p)	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability [N-PE] (I_{fi})	100 A _{rms}	100 A _{rms}
Response time [L-N] (t_A)	≤ 25 ns	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	16 A gL/gG	16 A gL/gG
Short-circuit withstand capability for mains-side overcurrent protection (I_{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [N-PE] (U_T) – Characteristic	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Connecting wires	1.5 mm ² , length: 200 mm	1.5 mm ² , length: 200 mm
Enclosure material	thermoplastic, red, UL 94 V-2	thermoplastic, red, UL 94 V-2
Place of installation	indoor installation	indoor installation
Degree of protection of installed device	IP 20	IP 20

NEW



Dimension drawing DCOR L 1P ...



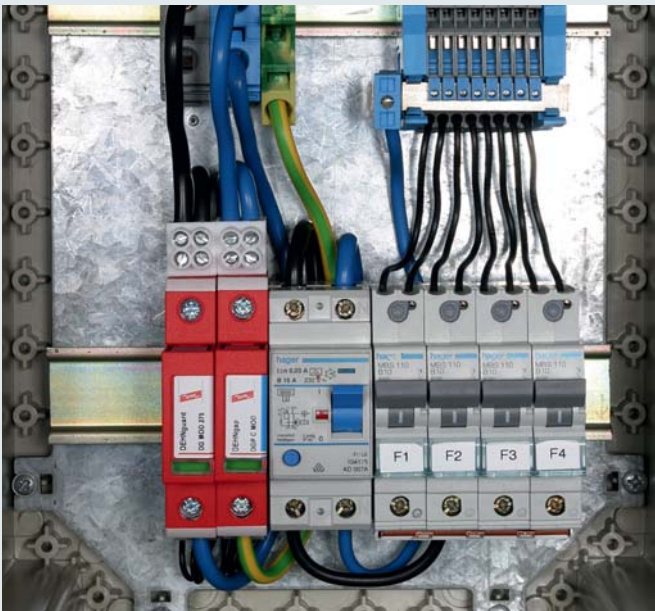
Basic circuit diagram DCOR L 1P ...



- Visual fault indication
- Compact design
- For use in flush-mounted systems, cable ducts and flush-type boxes

Surge arrester for all installation systems; compact design.

Type	DCOR L 1P 275	DCOR L 1P 320
Part No.	900 431	900 433
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)	230 / 277 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U_C)	275 V (50 / 60 Hz)	320 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	5 kA	5 kA
Maximum discharge current (8/20 μ s) (I_{max})	10 kA	10 kA
Voltage protection level [L-N] (U_p)	≤ 1.5 kV	≤ 1.75 kV
Response time [L-N] (t_A)	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	16 A gL/gG	16 A gL/gG
Short-circuit withstand capability for mains-side overcurrent protection (I_{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Connecting wires	1.5 mm ² , length: 200 mm	1.5 mm ² , length: 200 mm
Enclosure material	thermoplastic, red, UL 94 V-2	thermoplastic, red, UL 94 V-2
Place of installation	indoor installation	indoor installation
Degree of protection of installed device	IP 20	IP 20



For protecting low-voltage consumer's installations against surges. For installation in conformity with the lightning protection zone concept at the boundaries from $U_B - 1$ and higher.

- Specifically designed for use in "3+1" and "1+1" circuits of TT systems acc. to IEC 60364-5-53 between neutral conductor N and protective conductor PE
- High discharge capacity
- Two-part surge arrester consisting of a base part and a pluggable spark-gap-based protection module
- Energy coordination with other arresters of the Red/Line product family
- Operating state / fault indication by green / red indicator flag in the inspection window
- With remote signalling contact for monitoring device
- Easy replacement of protection modules without tools due to module locking system with module release button
- Vibration and shock-tested according to EN 60068-2

DEHNgap C S: N-PE surge arrester consisting of a base part and plug-in protection module

DEHNgap C S FM: With remote signalling contact for monitoring device (floating changeover contact)

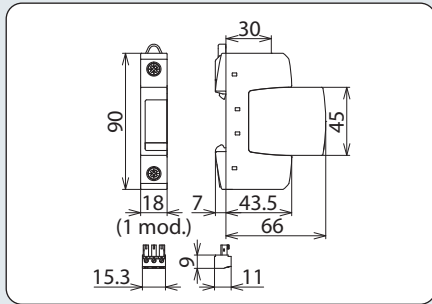
The N-PE surge arresters of type DEHNgap C S are an ideal supplement for the single-pole DEHNgard S surge protective devices. Being total current arresters between the neutral and protective conductor in TT systems, DEHNgap C S surge arresters help to ensure fulfilling the requirements for protecting personnel and equipment in "3+1" and "1+1" circuits.

With their modern Red/Line design, DEHNgap C S surge arresters have exactly the same easy-to-use safety features as the DEHNgard S devices. The unique module locking system combines the spark-gap-based protection module and the base part to a powerful unit. Neither vibration during transport nor the enormous forces of discharge can loosen this connection. Nevertheless, the protection modules can be easily replaced without tools by simply pressing the easy-to-use module release button of the protection module. The mechanical coding of the protection module and base part ensures against installing an incorrect module.

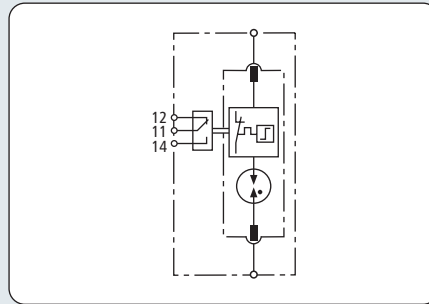
Safety of DEHNgap C S surge arresters is increased by monitoring the arrester temperature and an integrated disconnecter connected in series with the surge arrester.

The green and red indicator flags show the operating state of DEHNgap C S surge arresters.

Apart from this standard visual indication, DEHNgap C S ... FM features a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept. The N-PE surge arresters of type DEHNgap C S incorporate multifunctional terminals for connecting conductors and busbars, allowing easy wiring with other DIN rail mounted devices. Thus, a variety of applications can be easily connected in series according to IEC 60364-5-53 for optimal protection.



Dimension drawing DGP C S FM



Basic circuit diagram DGP C S FM



N-PE surge arrester; FM version with floating remote signalling contact.

- Specifically designed for use in "3+1" and "1+1" circuits of TT systems according to IEC 60364-5-53 between neutral conductor N and protective conductor PE
- High discharge capacity
- Two-part surge arrester consisting of a base part and a pluggable spark-gap-based protection module

Type	DGP C S	DGP C S FM
Part No.	952 030	952 035
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Max. continuous operating a.c. voltage (U _c)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	20 kA	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA
Follow current extinguishing capability (I _{fi})	100 A _{rms}	100 A _{rms}
Lightning impulse current (10/350 μs) (I _{imp})	12 kA	12 kA
Voltage protection level (U _p)	≤ 1.5 kV	≤ 1.5 kV
Response time (t _Δ)	≤ 100 ns	≤ 100 ns
Temporary overvoltage (TOV) (U _T) – Characteristic	1200 V / 200 ms – withstand	1200 V / 200 ms – withstand
Operating temperature range (T _u)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	1 module(s), DIN 43880	1 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Accessory for DEHNgap C S

N-PE Spark-Gap-Based Protection Module for DEHNgap C S

N-PE spark-gap-based protection module for single-pole N-PE surge arresters of type DEHNgap DGP C S ...

Type	DGP C MOD
Part No.	952 060
Max. continuous operating a.c. voltage (U _c)	255 V





For protecting low-voltage consumer's installations against surges. For use in accordance with IEC 60364-7-712:2002-05 (installation of photovoltaic power supply systems).

DEHNgard M YPV SCI 150/600/1000/1200: Modular multipole surge arrester with three-step d.c. switching device; for photovoltaic systems up to 150/600/1000/1200 V

DEHNgard M YPV SCI ... FM: With remote signalling contact for monitoring device (floating changeover contact)
DEHNgard S PV SCI 150/600: For photovoltaic systems up to 150/600 V solidly earthed on the d.c. side
DEHNgard S PV SCI ... FM: With remote signalling contact for monitoring device (floating changeover contact)

The modular DEHNgard modular (Y)PV SCI ... (FM) surge arresters are specifically designed for protecting equipment in photovoltaic systems. The innovative patented three-step d.c. switching device (SCI principle) makes these arresters especially safe so that they fulfil the requirements in modern photovoltaic systems. The devices are available for 150 V, 600 V, 1000 V and 1200 V applications. DEHNgard ME YPV SCI 1500 (FM) – a 1500 V version – covers the most common voltage levels.

The application features of the modular Red/Line family design are similarly unique as the three-step d.c. switching device. The module locking system firmly fixes the protection modules to the base part. Neither shock nor vibration nor the enormous forces of discharge affect the safe connection to the protection module. Nevertheless, the protection modules can be easily replaced without tools by simply pressing the easy-to-use module release button of the protection modules. Every protective path of DEHNgard modular (Y)PV SCI ... (FM) and every protection module is mechanically coded to ensure against installing the incorrect module.

To fulfil the special requirements in photovoltaic systems, a fault-resistant Y circuit consisting of three protective paths of the varistor and a combined disconnection and short-circuiting device are integrated in a single device.

This synergy reduces the probability of an arrester failure in case of the operating and fault states which have to be considered in photovoltaic systems. This ensures that the arrester is protected in case of overload, thus eliminating a fire risk to the system. Even in case of voltages up to 1200 V d.c., a switching arc, which is likely to occur in the surge protective device if a conventional disconnector (for a.c. application) is activated, is extinguished immediately without risk. Fire protection is the top priority of these surge arresters.

A fuse particularly developed for photovoltaic systems is integrated in the short-circuit path. This ensures safe electrical isolation in case of a faulty protection module, allowing de-energised replacement of the protection module without arc formation. This unique design combines surge protection, fire protection and personal protection. Due to this innovative and unique design, DEHNgard modular (Y)PV SCI ... (FM) can

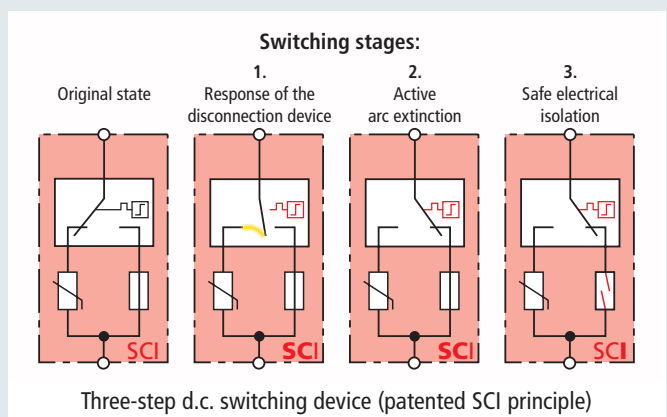
- Prewired modular complete unit for use in photovoltaic systems consisting of a base part and plug-in protection modules
- Combined disconnection and short-circuiting device with safe electrical isolation in the protection module prevents fire damage resulting from d.c. switching arcs (patented SCI principle)
- Tried and tested fault-resistant Y circuit of DEHNgard M YPV SCI ... (FM) prevents damage to surge protective devices in case of insulation faults in the generator circuit
- Integrated d.c. fuse allows safe replacement of protection modules without arc formation
- Tested to EN 50539-11
- Suitable for use in all PV systems according to IEC 60364-7-712



be used in all low, medium and high-performance photovoltaic systems with no need for an additional backup fuse.

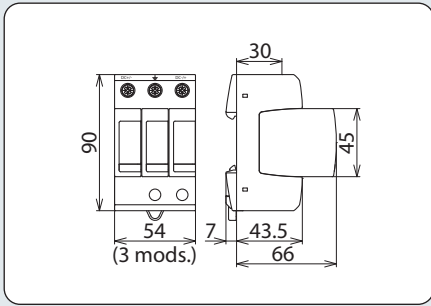
DG S PV SCI ... (FM) arresters are specifically designed for systems solidly earthed on the d.c. side; this type of earthing is meanwhile required among others by manufacturers of special thin-film modules or for legal or normative reasons in some regions. Since either the positive or the negative pole of the PV generator is solidly earthed, the space-saving and thus cost-effective DG S PV SCI ... (FM) arresters (one protection module was removed from the Y circuit) may be used if the distance from the earthing point does not exceed 5 m.

The green and red indicator flags show the availability of every protective circuit. Apart from this visual indication, DEHNgard (Y)PV SCI ... (FM) arresters also feature a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as make or break contact according to the particular circuit concept. As with all surge arresters of the modular DEHNgard modular family, DEHNgard modular (Y)PV SCI ... (FM) arresters incorporate multifunctional terminals on a standardised spacing of 1 module for connecting conductors and busbars, allowing easy wiring with other DIN rail mounted devices.

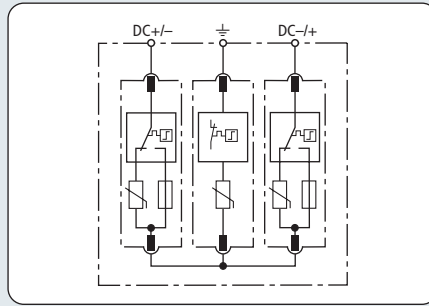


Type 2 Surge Arresters for PV Systems

DEHNgard M YPV SCI ...



Dimension drawing DG M YPV SCI ...



Basic circuit diagram DG M YPV SCI ...



Modular multipole surge arrester with three-step d.c. switching device for use in PV systems

- **Prewired modular complete unit for use in photovoltaic systems consisting of a base part and plug-in protection modules**
- **Combined disconnection and short-circuiting device with safe electrical isolation in the protection module prevents fire damage caused by d.c. switching arcs (patented SCI principle)**
- **Safe replacement of protection modules without arc formation due to integrated d.c. fuse**

Type	DG M YPV SCI 150	DG M YPV SCI 600	DG M YPV SCI 1000	DG M YPV SCI 1200
Part No.	952 513	952 511	952 510	952 512
SPD according to EN 50539-11	type 2	type 2	type 2	type 2
Max. PV voltage (U_{CPV})	≤ 150 V	≤ 600 V	≤ 1000 V	≤ 1200 V
Short-circuit current rating (I_{SCP})	1000 A	1000 A	1000 A	1000 A
Total discharge current (8/20 μ s) (I_{total})	40 kA	40 kA	40 kA	30 kA
Nominal discharge current (8/20 μ s) [(DC+/DC-) --> PE] (I_n)	10 kA	12.5 kA	12.5 kA	12.5 kA
Max. discharge current (8/20 μ s) [(DC+/DC-) --> PE] (I_{max})	20 kA	25 kA	25 kA	25 kA
Voltage protection level (U_p)	≤ 0.8 kV	≤ 2.5 kV	≤ 4 kV	≤ 4.5 kV
Voltage protection level at 5 kA (U_p)	≤ 0.6 kV	≤ 2 kV	≤ 3.5 kV	≤ 4 kV
Response time (t_A)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red	green / red
Number of ports	1	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible			
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible			
For mounting on	35 mm DIN rails acc. to EN 60715			
Enclosure material	thermoplastic, red, UL 94 V-0			
Place of installation	indoor installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20	IP 20
Capacity	3 module(s), DIN 43880	3 module(s), DIN 43880	3 module(s), DIN 43880	3 module(s), DIN 43880
Approvals	KEMA, UL, CSA	KEMA, UL, CSA	KEMA, UL, CSA	KEMA, UL, CSA

Accessory for DEHNgard® modular (Y)PV SCI ...

Varistor-Based Protection Module for DEHNgard M (S) (Y)PV SCI

Varistor-based protection module for DEHNgard M YPV SCI ... and DEHNgard S PV SCI ... arresters.

Type DG MOD PV ...	75	300	500	600
Part No.	952 045	952 043	952 041	952 044
Max. continuous operating d.c. voltage (U_c)	75 V	300 V	500 V	600 V



Accessory for DEHNgard® modular (Y)PV SCI ...

Varistor-Based Protection Module for DEHNgard M (S) (Y)PV SCI

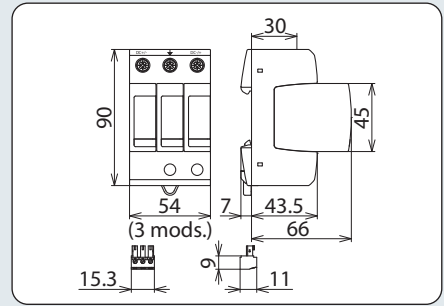
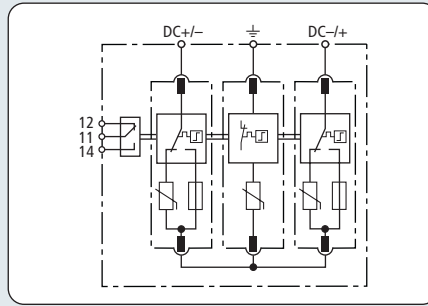
Protection module with integrated back-up fuse for DEHNgard M (Y)PV SCI ... arresters comprising a varistor connected in parallel with a short-circuiting device.

Type DG MOD PV ... SCI	75	300	500	600
Part No.	952 055	952 053	952 051	952 054
Max. continuous operating d.c. voltage (U_c)	75 V	300 V	500 V	600 V



DEHNguard M YPV SCI ... FM

Type 2 Surge Arresters for PV Systems



Basic circuit diagram DG M YPV SCI ... FM

Dimension drawing DG M YPV SCI ... FM

- **Prewired modular complete unit for use in photovoltaic systems consisting of a base part and plug-in protection modules**
- **Combined disconnection and short-circuiting device with safe electrical isolation in the protection module prevents fire damage caused by d.c. switching arcs (patented SCI principle)**
- **Safe replacement of protection modules without arc formation due to integrated d.c. fuse**

Modular multipole surge arrester with three-step d.c. switching device for use in PV systems with remote signalling contact for monitoring device (floating changeover contact)

Type	DG M YPV SCI 150 FM	DG M YPV SCI 600 FM	DG M YPV SCI 1000 FM	DG M YPV SCI 1200 FM
Part No.	952 518	952 516	952 515	952 517
SPD according to EN 50539-11	type 2	Type 2	Type 2	Type 2
Max. PV voltage (U _{CPV})	≤ 150 V	≤ 600 V	≤ 1000 V	≤ 1200 V
Short-circuit current rating (I _{SCPV})	1000 A	1000 A	1000 A	1000 A
Total discharge current (8/20 μs) (I _{total})	40 kA	40 kA	40 kA	30 kA
Nominal discharge current (8/20 μs) [(DC+/DC-) -> PE] (I _n)	10 kA	12.5 kA	12.5 kA	12.5 kA
Max. discharge current (8/20 μs) [(DC+/DC-) -> PE] (I _{max})	20 kA	25 kA	25 kA	25 kA
Voltage protection level (U _p)	≤ 0.8 kV	≤ 2.5 kV	≤ 4 kV	≤ 4.5 kV
Voltage protection level at 5 kA (U _p)	≤ 0.6 kV	≤ 2 kV	≤ 3.5 kV	≤ 4 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red	green / red
Number of ports	1	1	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible			
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible			
For mounting on	35 mm DIN rails acc. to EN 60715			
Enclosure material	thermoplastic, red, UL 94 V-0			
Place of installation	indoor installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20	IP 20
Capacity	3 module(s), DIN 43880	3 module(s), DIN 43880	3 module(s), DIN 43880	3 module(s), DIN 43880
Approvals	KEMA, UL, CSA	KEMA, UL, CSA	KEMA, UL, CSA	KEMA, UL, CSA
Type of remote signalling contact	changeover contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A			
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible			

Accessory for DEHNguard® modular (Y)PV SCI ...

Varistor-Based Protection Module for DEHNguard M (S) (Y)PV SCI

Protection module with integrated back-up fuse for DEHNguard M (Y)PV SCI ... arresters comprising a varistor connected in parallel with a short-circuiting device.



Type DG MOD PV ...	SCI 75	SCI 300	SCI 500	SCI 600
Part No.	952 055	952 053	952 051	952 054
Max. continuous operating d.c. voltage (U _c)	75 V	300 V	500 V	600 V

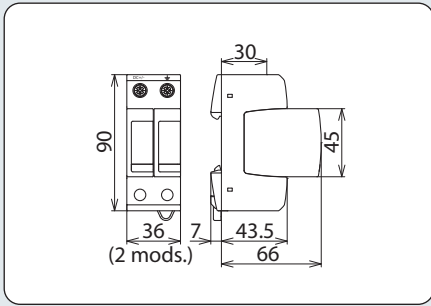
Accessory for DEHNguard® modular (Y)PV SCI ...

Varistor-Based Protection Module for DEHNguard M (S) (Y)PV SCI

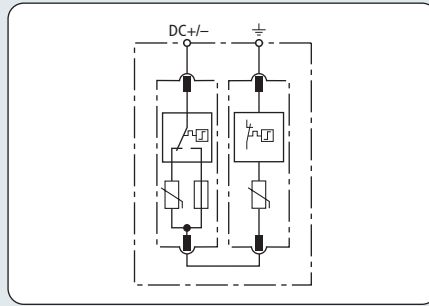
Varistor-based protection module for DEHNguard M YPV SCI ... and DEHNguard S PV SCI ... arresters.



Type DG MOD PV ...	75	300	500	600
Part No.	952 045	952 043	952 041	952 044
Max. continuous operating d.c. voltage (U _c)	75 V	300 V	500 V	600 V



Dimension drawing DG S PV SCI ...



Basic circuit diagram DG S PV SCI ...



Modular single-pole surge arrester with three-step d.c. switching device for PV systems.

- **Prewired modular complete unit for use in photovoltaic systems consisting of a base part and plug-in protection modules**
- **Combined disconnection and short-circuiting device with safe electrical isolation in the protection module prevents fire damage caused by d.c. switching arcs (patented SCI principle)**
- **Safe replacement of protection modules without arc formation due to integrated d.c. fuse**

Type	DG S PV SCI 150	DG S PV SCI 600
Part No.	952 551	952 550
SPD according to EN 50539-11	type 2	Type 2
Max. PV voltage (U _{CPV})	≤ 150 V	≤ 600 V
Short-circuit current rating (I _{SCPV})	1000 A	1000 A
Nominal discharge current (8/20 μs) [(DC+/DC-) --> PE] (I _n)	10 kA	12.5 kA
Max. discharge current (8/20 μs) [(DC+/DC-) --> PE] (I _{max})	20 kA	25 kA
Voltage protection level (U _p)	≤ 0.8 kV	≤ 2.5 kV
Voltage protection level at 5 kA (U _p)	≤ 0.6 kV	≤ 2 kV
Response time (t _d)	≤ 25 ns	≤ 25 ns
Operating temperature range (T _u)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	KEMA, UL, CSA	KEMA, UL, CSA

Accessory for DEHNgard® modular (Y)PV SCI ...

Varistor-Based Protection Module for DEHNgard M (S) (Y)PV SCI

Varistor-based protection module for DEHNgard M YPV SCI ... and DEHNgard S PV SCI ... arresters.

Type DG MOD PV ...	75	300
Part No.	952 045	952 043
Max. continuous operating d.c. voltage (U _c)	75 V	300 V



Accessory for DEHNgard® modular (Y)PV SCI ...

Varistor-Based Protection Module for DEHNgard M (S) (Y)PV SCI

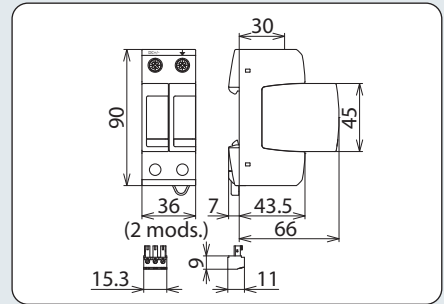
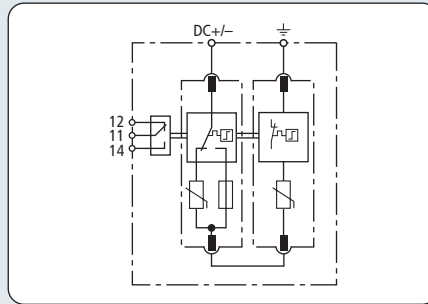
Protection module with integrated back-up fuse for DEHNgard M (Y)PV SCI ... arresters comprising a varistor connected in parallel with a short-circuiting device.

Type DG MOD PV SCI ...	75	300
Part No.	952 055	952 053
Max. continuous operating d.c. voltage (U _c)	75 V	300 V



DEHNgard S PV SCI ... FM

Type 2 Surge Arresters for PV Systems



Basic circuit diagram DG S PV SCI ... FM

Dimension drawing DG S PV SCI ... FM

- **Prewired modular complete unit for use in photovoltaic systems consisting of a base part and plug-in protection modules**
- **Combined disconnection and short-circuiting device with safe electrical isolation in the protection module prevents fire damage caused by d.c. switching arcs (patented SCI principle)**
- **Safe replacement of protection modules without arc formation due to integrated d.c. fuse**

Modular single-pole surge arrester with three-step d.c. switching device for PV systems; with remote signalling contact for monitoring device (floating changeover contact)

Type	DG S PV SCI 150 FM	DG S PV SCI 600 FM
Part No.	952 556	952 555
SPD according to EN 50539-11	type 2	Type 2
Max. PV voltage (U _{CPV})	≤ 150 V	≤ 600 V
Short-circuit current rating (I _{SCPV})	1000 A	1000 A
Nominal discharge current (8/20 μs) [(DC+/DC-) --> PE] (I _n)	10 kA	12.5 kA
Max. discharge current (8/20 μs) [(DC+/DC-) --> PE] (I _{max})	20 kA	25 kA
Voltage protection level (U _p)	≤ 0.8 kV	≤ 2.5 kV
Voltage protection level at 5 kA (U _p)	≤ 0.6 kV	≤ 2 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	gren / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	KEMA, UL, CSA	KEMA, UL, CSA
Type of remote signalling contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible

Accessory for DEHNgard® modular (Y)PV SCI ...

Varistor-Based Protection Module for DEHNgard M (S) (Y)PV SCI

Protection module with integrated back-up fuse for DEHNgard M (Y)PV SCI ... arresters comprising a varistor connected in parallel with a short-circuiting device.



Type DG MOD PV SCI ...	75	300
Part No.	952 055	952 053
Max. continuous operating d.c. voltage (U _C)	75 V	300 V

Accessory for DEHNgard® modular (Y)PV SCI ...

Varistor-Based Protection Module for DEHNgard M (S) (Y)PV SCI

Varistor-based protection module for DEHNgard M YPV SCI ... and DEHNgard S PV SCI ... arresters.



Type DG MOD PV ...	75	300
Part No.	952 045	952 043
Max. continuous operating d.c. voltage (U _C)	75 V	300 V

- Prewired modular complete unit for use in photovoltaic systems up to 1500 V consisting of a base part and plug-in protection modules
- Combined disconnection and short-circuiting device with safe electrical isolation in the protection module prevents fire damage resulting from d.c. switching arcs (patented SCI principle)
- Integrated d.c. fuse allows safe replacement of protection modules without arc formation
- New design for safe use in PV systems up to 1500 V
- Tested to EN 50539-11
- Suitable for use in all PV systems in accordance with IEC 60364-7-712



- DEHNgard ME YPV SCI 1500: Modular multipole surge arrester with three-step d.c. switching device for PV systems up to 1500 V
- DEHNgard SE PV SCI 1500: For PV systems up to 1500 V solidly earthed on the d.c. side
- DEHNgard ME/SE (Y)PV SCI 1500 FM: With remote signalling contact for monitoring device (floating changeover contact)

The modular DEHNgard ME YPV SCI 1500 (FM) and DEHNgard SE PV SCI 1500 (FM) surge arresters are specifically designed for protecting equipment in photovoltaic systems up to 1500 V. The new design of these arresters of the DEHNgard ... SCI family meets the increased requirements regarding such a high voltage range; this is reflected in the increased width (1.5 modules), additional terminal covers and a special terminal slot. The patented three-step d.c. switching device (SCI principle) makes these arresters particularly safe so that they fulfil all requirements in modern photovoltaic systems. The devices are specifically designed for PV systems with high system voltages (up to 1500 V). As with DEHNgard modular (Y)PV SCI ... (FM) arresters, which are available as 150 V, 600 V, 1000 V and 1200 V versions, they cover the most common voltage levels.

The application features of the modular Red/Line family design are similarly unique as the three-step d.c. switching device. The module locking system firmly fixes the protection modules to the base part. Neither shock nor vibration nor the enormous forces of discharge affect the safe connection to the protection module. Nevertheless, the protection modules can be easily replaced without tools by simply pressing the easy-to-use module release button of the protection modules. Every protective path of DEHNgard modular E (Y)PV SCI 1500 (FM) and every protection module is mechanically coded to ensure against installing the incorrect module. To fulfil the special requirements in photovoltaic systems, a fault-resistant Y circuit consisting of three protective paths of the varistor and a combined disconnection and short-circuiting device are integrated in a single device.

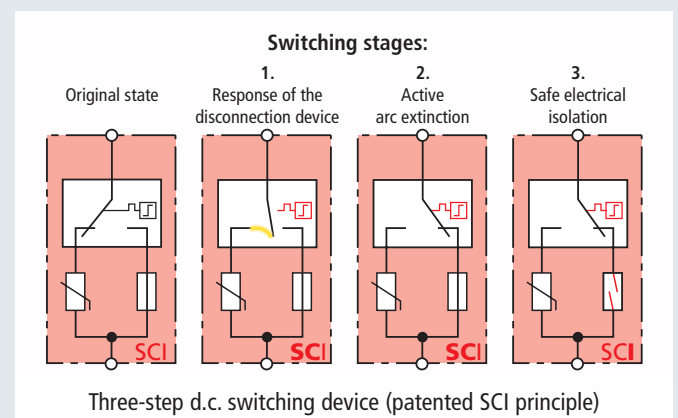
This synergy further reduces the probability of an arrester failure in case of the operating and fault states which have to be considered in photovoltaic systems. This ensures that the arrester is protected in case of overload without presenting a risk of fire to the system. Even in case of voltages up to 1500 V d.c., a switching arc, which is likely to occur when a conventional disconnecter (for a.c. application) of a surge protective device is triggered, is extinguished immediately without risk. Fire protection is the top priority of DEHNgard ME YPV SCI 1500 (FM) and DEHNgard SE PV SCI 1500 (FM) surge arresters.

A special fuse integrated in the short-circuit path allows de-energised replacement of the protection module without arc formation. This unique design combines surge, fire and personal protection. Due to this innovative and unique design, the arresters can be used in all low, medium and high-performance photovoltaic systems with no need for an additional backup fuse.

DEHNgard SE PV SCI 1500 (FM) arresters are specifically designed for systems solidly earthed on the d.c. side; this type of earthing is meanwhile required among others by manufacturers of special thin-film modules or for legal or normative reasons in some regions.

Since either the positive or the negative pole of the PV generator is solidly earthed, the optimised DEHNgard SE PV SCI 1500 (FM) arresters (one protection module was removed from the Y circuit) may be used if the distance from the earthing point does not exceed 5 m.

The green and red indicator flags show the availability of every protective circuit. Apart from this visual indication, DEHNgard ME YPV SCI 1500 FM und DEHNgard SE PV SCI 1500 FM arresters also feature a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as make or break contact according to the particular circuit concept.

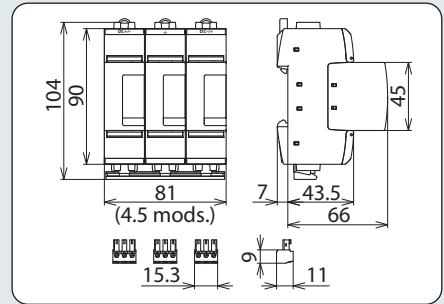
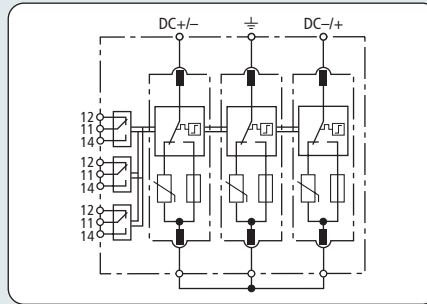


Type 2 Surge Arresters

DEHNguard ME YPV SCI 1500 (FM)

Type 2 Surge Arresters for PV Systems

NEW



Basic circuit diagram DG ME YPV SCI1500 FM

Dimension drawing DG ME YPV SCI 1500 FM

- **Prewired modular complete unit for use in photovoltaic systems consisting of a base part and plug-in protection modules**
- **Combined disconnection and short-circuiting device with safe electrical isolation in the protection module prevents fire damage due to d.c. switching arcs (patented SCI principle)**
- **Integrated d.c. fuse allows safe replacement of protection modules without arc formation**

Modular multipole surge arrester with three-step d.c. switching device for PV systems.

Type	DG ME YPV SCI 1500	DG ME YPV SCI1500 FM
Part No.	952 520	952 525
SPD according to EN 50539-11	type 2	type 2
Max. PV voltage (U _{CPV})	≤ 1500 V	≤ 1500 V
Short-circuit current rating (I _{SCPV})	1000 A	1000 A
Total discharge current (8/20 μs) (I _{total})	25 kA	25 kA
Nominal discharge current (8/20) [(DC+/DC-) --> PE] (I _n)	12.5 kA	12.5 kA
Voltage protection level (U _p)	≤ 6 kV	≤ 6 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	4.5 module(s), DIN 43880	4.5 module(s), DIN 43880
Approvals	KEMA	KEMA
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A, 125 V / 0.2 A, 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

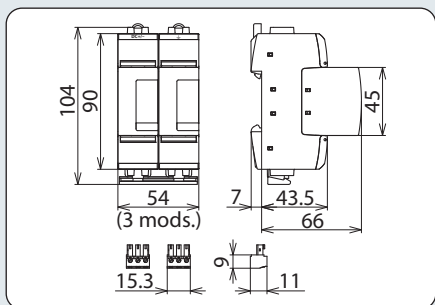
Accessory for DEHNguard® modular E (Y)PV SCI 1500

Varistor-Based Protection Module for DEHNguard ME YPV SCI and DEHNguard SE PV SCI

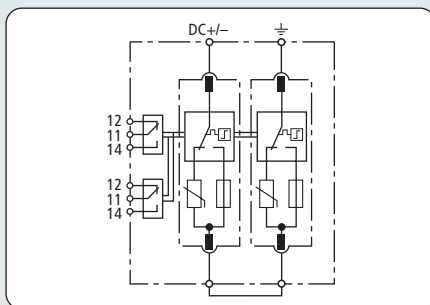
Varistor-based protection module for DEHNguard ME YPV SCI 1500 (FM) and DEHNguard SE PV SCI 1500 (FM)



Type	DG MOD E PV SCI 750
Part No.	952 056
Max. continuous operating d.c. voltage (U _C)	750 V



Dimension drawing DG SE PV SCI 1500 FM



Basic circuit diagram DG SE PV SCI 1500 FM



Modular single-pole surge arrester with three-step d.c. switching device for PV systems.

- **Prewired modular complete unit for use in photovoltaic systems consisting of a base part and plug-in protection modules**
- **Combined disconnection and short-circuiting device with safe electrical isolation in the protection module prevents fire damage due to d.c. switching arcs (patented SCI principle)**
- **Integrated d.c. fuse allows safe replacement of protection modules without arc formation**

Type	DG SE PV SCI 1500	DG SE PV SCI 1500 FM
Part No.	952 561	952 566
SPD according to EN 50539-11	type 2	type 2
Max. PV voltage (U _{CPV})	≤ 1500 V	≤ 1500 V
Short-circuit current rating (I _{SCPV})	1000 A	1000 A
Nominal discharge current (8/20) [(DC+/DC-) --> PE] (I _n)	12.5 kA	12.5 kA
Voltage protection level (U _p)	≤ 6 kV	≤ 6 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rail acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	3 module(s), DIN 43880	3 module(s), DIN 43880
Approvals	KEMA	KEMA
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A, 125 V / 0.2 A, 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Accessory for DEHNgard® modular E (Y)PV SCI 1500

Varistor-Based Protection Module for DEHNgard ME YPV SCI and DEHNgard SE PV SCI

Varistor-based protection module for DEHNgard ME YPV SCI 1500 (FM) and DEHNgard SE PV SCI 1500 (FM)

Type	DG MOD E PV SCI 750
Part No.	952 056
Max. continuous operating d.c. voltage (U _c)	750 V





For protecting low-voltage consumer's installations against surges. For use in accordance with IEC 60364-7-712:2002-05 (installation of photovoltaic power supply systems).

DEHNguard YPV SCI 600/1000: Multipole surge arrester with three-step d.c. switching device; for photovoltaic systems up to 600/1000 V

DEHNguard YPV SCI ... FM: With remote signalling contact for monitoring device (floating changeover contact)

The DEHNguard YPV SCI ... surge arresters are specifically designed for protecting equipment in photovoltaic systems. The patented three-step d.c. switching device (SCI principle) makes these arresters particularly safe so that they fulfil all requirements in modern photovoltaic systems. The devices are available as 600 V and 1000 V versions and cover the most common voltage levels for string inverter systems.

To fulfil the special requirements in photovoltaic systems, a fault-resistant Y circuit consisting of three protective paths of the varistor and a combined disconnection and short-circuiting device are integrated in a single device.

This synergy further reduces the probability of an arrester failure in case of the operating and fault states which have to be considered in photovoltaic systems. This ensures that the arrester is protected in case of overload, thus eliminating a fire risk to the system. Even in case of voltages up to 1000 V d.c., a switching arc, which is likely to occur when a conventional disconnector (for a.c. application) of a surge protective device is triggered, is extinguished immediately without risk. Fire protection is the top priority of DEHNguard YPV SCI ... surge arresters.

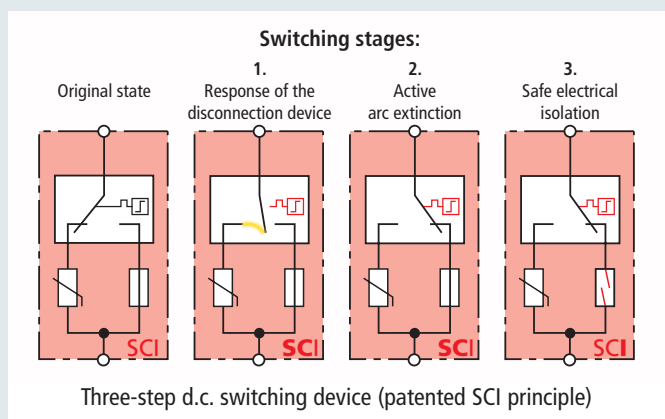
A fuse particularly developed for photovoltaic systems is integrated in the short-circuit path. This ensures safe electrical isolation in case of a faulty surge protective device. This unique design combines surge, fire and personal protection. Due to this innovative and singular design, DEHNguard YPV SCI ... can be used in all low and medium-performance photovoltaic systems with no need for an additional backup fuse.

- Prewired complete unit for use in photovoltaic systems
- Combined disconnection and short-circuiting device with safe electrical isolation prevents fire damage resulting from d.c. switching arcs (patented SCI principle)
- Tried and tested fault-resistant Y circuit of DEHNguard YPV SCI ... prevents damage to surge protective devices in case of insulation faults in the generator circuit
- Tested to EN 50539-11
- Suitable for use in all PV systems according to IEC 60364-7-712



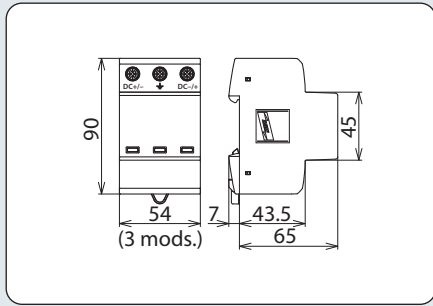
DEHNguard YPV SCI ... is a special cost-effective and application-optimized arrester designed for use in string inverter systems with a limited system current up to 200 A. This arrester incorporates the most important device features without compromising safety.

The green and red indicator flags show the availability of every protective circuit. Apart from this visual indication, DEHNguard YPV SCI ... (FM) arresters also feature a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as make or break contact according to the particular circuit concept.

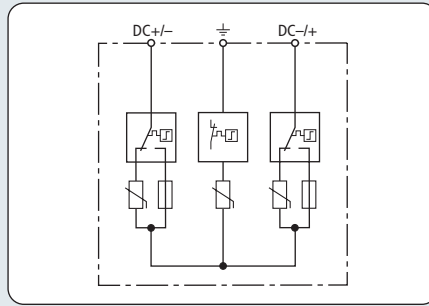


Type 2 Surge Arresters for PV Systems

DEHNguard compact YPV SCI ...



Dimension drawing DG YPV SCI ...



Basic circuit diagram DG YPV SCI ...



Multipole surge arrester with three-step d.c. switching device for use in PV systems

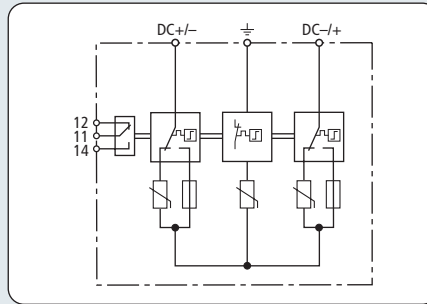
- **Prewired complete unit for use in photovoltaic systems**
- **Combined disconnection and short-circuiting device with safe electrical isolation prevents fire damage resulting from d.c. arcs (patented SCI principle)**
- **Tried and tested fault-resistant Y circuit of DEHNguard YPV SCI ... prevents damage to surge protective devices in case of insulation faults in the generator circuit**

Type	DG YPV SCI 600	DG YPV SCI 1000
Part No.	950 531	950 530
SPD according to EN 50539-11	type 2	type 2
Max. PV voltage (U _{CPV})	≤ 600 V	≤ 1000 V
Short-circuit current rating (I _{SCPV})	200 A	200 A
Total discharge current (8/20 μs) (I _{total})	40 kA	40 kA
Nominal discharge current (8/20 μs) [(DC+/DC-) --> PE] (I _n)	12.5 kA	12.5 kA
Maximum discharge current (8/20 μs) [(DC+/DC-) --> PE] (I _{max})	25 kA	25 kA
Voltage protection level (U _p)	≤ 2.5 kV	≤ 4 kV
Voltage protection level at 5 kA (U _{p5kA})	≤ 2 kV	≤ 3.5 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	3 mod(s), DIN 43880	3 mod(s), DIN 43880
Approvals	KEMA, UL	KEMA, UL

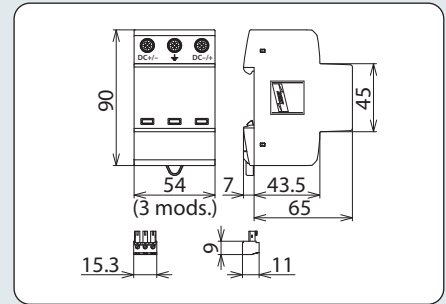
DEHNguard compact YPV SCI ... FM

Type 2 Surge Arresters for PV Systems

NEW



Basic circuit diagram DG YPV SCI ... FM



Dimension drawing DG YPV SCI ... FM

- **Prewired complete unit for use in photovoltaic systems**
- **Combined disconnection and short-circuiting device with safe electrical isolation prevents fire damage resulting from d.c. arcs (patented SCI principle)**
- **Tried and tested fault-resistant Y circuit of DEHNguard YPV SCI ... prevents damage to surge protective devices in case of insulation faults in the generator circuit**

Multipole surge arrester with three-step d.c. switching device for use in PV systems, with remote signalling contact for monitoring device (floating changeover contact).

Type	DG YPV SCI 600 FM	DG YPV SCI 1000 FM
Part No.	950 536	950 535
SPD according to EN 50539-11	type 2	type 2
Max. PV voltage (U _{CPV})	≤ 600 V	≤ 1000 V
Short-circuit current rating (I _{SCPV})	200 A	200 A
Total discharge current (8/20 μs) (I _{total})	40 kA	40 kA
Nominal discharge current (8/20 μs) [(DC+/DC-) --> PE] (I _n)	12.5 kA	12.5 kA
Maximum discharge current (8/20 μs) [(DC+/DC-) --> PE] (I _{max})	25 kA	25 kA
Voltage protection level (U _p)	≤ 2.5 kV	≤ 4 kV
Voltage protection level at 5 kA (U _p)	≤ 2 kV	≤ 3.5 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	3 mod(s), DIN 43880	3 mod(s), DIN 43880
Approvals	KEMA, UL	KEMA, UL
Type of remote signalling contact	changeover contact	changeover contact
a.c. switching capacity	250 V / 0.5 A	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A, 125 V / 0.2 A, 75 V / 0.5 A	250 V / 0.1 A, 125 V / 0.2 A, 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible	max. 1.5 mm ² solid / flexible

Type 2 Surge Arresters

- Prewired multipole surge arrester with IP 65 degree of protection for use in photovoltaic systems
- No space required in a distribution board enclosure
- Prewired connection cables (accessory) make it easier to connect the surge arrester directly upstream of the inverter to be protected
- Combined disconnection and short-circuiting device with safe electrical isolation in every protective path prevents fire damage due to d.c. switching arcs (patented SCI principle)
- Spring-loaded terminals for easy and quick connection without tools
- Tested to EN 50539-11
- For use in all PV systems according to IEC 60364-7-712



For protecting low-voltage consumer's installations against surges. For use in accordance with IEC 60364-7-712:2002-05 (installation of photovoltaic power supply systems).



- DEHNcube YPV SCI 1000 1M:** Three-pole surge arrester with IP 65 degree of protection and three-step d.c. switching device for protecting one MPP input; for PV systems up to 1000 V
- DEHNcube YPV SCI 1000 2M:** Five-pole surge arrester with IP 65 degree of protection and three-step d.c. switching device for protecting two MPP inputs; for PV systems up to 1000 V

The robust and flexible surge arresters of the DEHNcube YPV SCI 1000 ... family are specifically developed for protecting equipment in photovoltaic systems. The patented three-step d.c. switching device (SCI principle) makes these devices particularly safe so that they fulfil all requirements in modern photovoltaic systems.

DEHNcube YPV SCI 1000 ... is the first surge arrester with IP 65 degree of protection from DEHN + SÖHNE that is tested to EN 50539-11. Thus, no space is required in a distribution board enclosure or a distribution board enclosure does not have to be installed just for the surge protective device as in case with standard DIN rail mounted arresters. DEHNcube YPV SCI 1000 ... may be installed right next to the inverter, i.e. it is ideally suited for quickly and easily retrofitting a surge protective device in an existing PV system. The optionally available prewired X or Y connecting cables ensure easy connection of DEHNcube YPV SCI 1000 ... These connecting cables are as short as possible to ensure maximum protection, but at the same time long enough to ensure user-friendly, easy and feasible cabling.

To fulfil the special requirements in PV systems, the approved fault-resistant Y circuit consisting of three protective paths of the varistor and a combined disconnection and short-circuiting device are integrated in a single device.

This synergy further reduces the probability of an arrester failure in case of the operating and fault states which have to be considered in PV systems. This ensures that the arrester is protected in case of overload, thus eliminating a fire risk to the system. Even in case of voltages up to

1000 V d.c., a switching arc, which is likely to occur when a conventional disconnecter of a surge protective device is triggered, is extinguished immediately without risk. Fire protection is the top priority of DEHNcube YPV SCI 1000 ... This is ensured by its approved fault-resistant Y circuit which prevents damage to the surge protective devices in case of insulation faults in the generator circuit.

To ensure safe electrical isolation in case of a faulty surge protective device, a fuse which was particularly developed for PV systems was integrated into the short-circuit path. This unique design combines surge, fire and personal protection. Due to this innovative and singular design, DEHNcube YPV SCI 1000 ... can be used in all low, medium and high-performance photovoltaic systems with no need for an additional backup fuse.

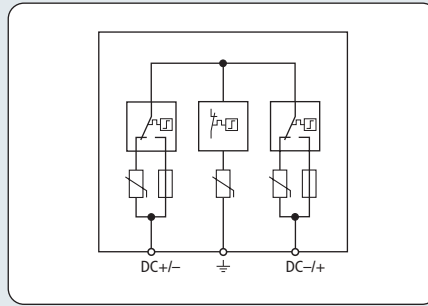
DEHNcube YPV SCI 1000 ... is a special type 2 surge protective device, which may be quickly installed directly next to the equipment of the PV generator circuit it is supposed to protect without requiring an additional insulating enclosure. The IP 65 degree of protection ensures that it is dust-proof and jet-water-tight. A pressure compensating element with an air-permeable and water-tight special membrane which avoids condensation in the enclosure is imperative for safe outdoor use and is therefore already integrated as a standard.

Wiring is quite easy with the X and Y connecting cables which are available as accessory. Various application possibilities of the connecting cables are illustrated on the following pages.

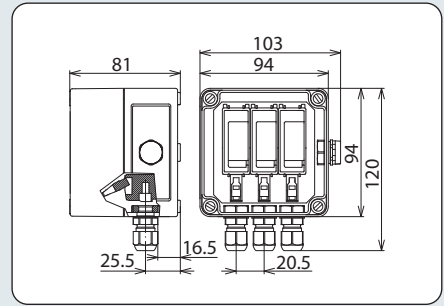
DEHNcube YPV SCI 1000 1M

Type 2 Surge Arresters for PV Systems

NEW



Basic circuit diagram DCU YPV SCI 1000 1M

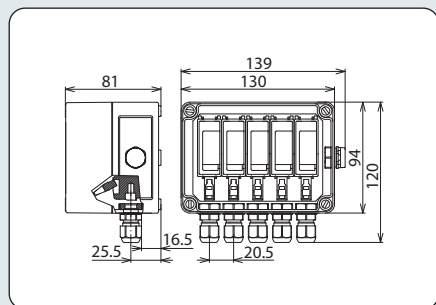


Dimension drawing DCU YPV SCI 1000 1M

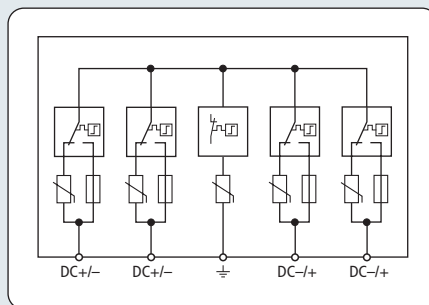
- Prewired multipole surge arrester with IP 65 degree of protection for photovoltaic systems
- Combined disconnection and short-circuiting device with safe electrical isolation in every protective path prevents fire damage caused by d.c. switching arcs (patented SCI principle)
- Easy and fast implementation of surge protection measures since no space is required in a separate insulating enclosure

Multipole surge arrester with three-step d.c. switching device for PV inverters with one MPP input.

Type	DCU YPV SCI 1000 1M
Part No.	900 910
SPD according to EN 50539-11	type 2
Max. PV voltage (U_{CPV})	≤ 1000 V
Short-circuit withstand capability (I_{SCPV})	1000 A
Total discharge current (8/20 μ s) (I_{total})	40 kA
Nominal discharge current (8/20 μ s) [(DC+/DC-) --> PE] (I_n)	12.5 kA
Max. discharge current (8/20 μ s) [(DC+/DC-) --> PE] (I_{max})	25 kA
Voltage protection level (U_p)	≤ 4 kV
Voltage protection level at 5 kA (U_p)	≤ 3.5 kV
Response time (t_A)	≤ 25 ns
Operating temperature range (T_U)	-35 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (min.)	2.5 mm ² solid / flexible
Cross-sectional area (max.)	6 mm ² solid / flexible
Place of installation	outdoor
Degree of protection	IP 65
Type	with pressure compensating element
Cover	transparent cover with product label
Colour of enclosure	grey
Number of cable entries	3x \varnothing 3-7 mm
Enclosure dimensions (w x h x d)	94 x 94 x 81 mm



Dimension drawing DCU YPV SCI 1000 2M



Basic circuit diagram DCU YPV SCI 1000 2M



Multipole surge arrester with three-step d.c. switching device for PV inverters with two MPP inputs.

- Prewired multipole surge arrester with IP 65 degree of protection for photovoltaic systems
- Combined disconnection and short-circuiting device with safe electrical isolation in every protective path prevents fire damage caused by d.c. switching arcs (patented SCI principle)
- Easy and fast implementation of surge protection measures since no space is required in a separate insulating enclosure

Type	DCU YPV SCI 1000 2M
Part No.	900 920
SPD according to EN 50539-11	type 2
Max. PV voltage (U_{CPV})	≤ 1000 V
Short-circuit withstand capability (I_{SCPV})	1000 A
Total discharge current (8/20 μ s) (I_{total})	40 kA
Nominal discharge current (8/20 μ s) [(DC+/DC-) --> PE] (I_n)	12.5 kA
Max. discharge current (8/20 μ s) [(DC+/DC-) --> PE] (I_{max})	25 kA
Voltage protection level (U_P)	≤ 4 kV
Voltage protection level at 5 kA (U_P)	≤ 3.5 kV
Response time (t_A)	≤ 25 ns
Operating temperature range (T_U)	-35 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (min.)	2.5 mm ² solid / flexible
Cross-sectional area (max.)	6 mm ² solid / flexible
Place of installation	outdoor
Degree of protection	IP 65
Type	with pressure compensating element
Cover	transparent cover with product label
Colour of enclosure	grey
Number of cable entries	5x \varnothing 3-7 mm
Enclosure dimensions (w x h x d)	130 x 94 x 81 mm

Type 2 Surge Arresters

Connecting Cables for DEHNCube

Type 2 Surge Arresters for PV Systems



Prewired connecting cables for easily connecting the incoming string lines to DEHNCube and the inverter.

- PV connecting cables for easily connecting DEHNCube YPV SCI 1000 ... to the inverter
- Suitable for outdoor use
- 6 mm² for minimum voltage drop
- Dimensions tailored to the relevant application
- Cable ends already stripped for quick connection to DEHNCube YPV SCI 1000 ... and PV plug connector
- Four different versions to cover all applications

- AL DCU Y ...: For connecting a string to DEHNCube and the inverter
- AL DCU X ...: For collecting two strings and connecting them to DEHNCube and the inverter
- AL DCU ... L600: 600 mm connecting cable from the node to the d.c. input of the inverter
- AL DCU ... L1000: 1000 mm connecting cable from the node to the d.c. input of the inverter

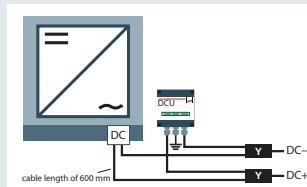
The connecting cables AL DCU X PV and AL DCU Y PV from DEHN + SÖHNE enable an easy and quick connection of DEHNCube YPV SCI 1000 1M and DEHNCube YPV SCI 1000 2M surge arresters.

The AL DCU Y PV connecting cable can be used connect one string to the inverter input to protect it from surges. This cable features three ends for the connections of the inverter (1), DEHNCube (2) and one string line (3). The designation Y symbolises the three cable ends.

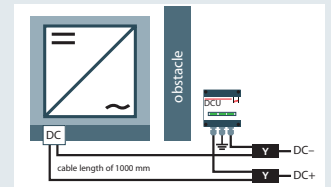
The AL DCU X PV connecting cable can be used to collect two strings and to connect them to an inverter input to protect it from surges. This cable features four cable ends for the connections of the inverter (1), DEHNCube (2), the first string line (3) and the second string line (4). The designation X symbolises the four cable ends.

means that line loss is reduced to a minimum. Due to their design, they are suitable for outdoor use in photovoltaic systems.

Two versions of AL DCU Y PV and AL DCU X PV with different cable lengths (1) (600 mm or 1000 mm) are available since the distance between the position of DEHNCube and the d.c. inputs of the inverter depends on the manufacturer and may vary according to the environmental conditions.



L600 version



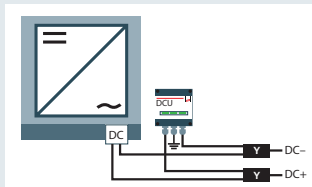
L1000 version



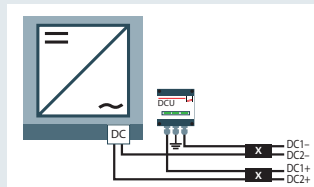
Application: One string per d.c. input (MPP tracker) of the inverter.



Application: Two strings per d.c. input (MPP tracker) of the inverter.



Two AL DCU Y PV connecting cables connected to DEHNCube and the inverter.

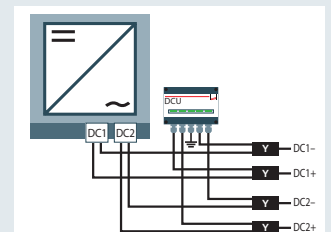


Two AL DCU X PV connecting cables collect two strings and connect them to DEHNCube and the inverter.

Connection to the inverter, string line (module side) and DEHNCube: The cable ends of the cables are already stripped to 15 mm to ensure quick attachment of the required PV connector (supplied with the inverter). The connection (2) is stripped by 12 mm since this is the required stripping length of the spring-loaded terminals of DEHNCube.



The applications shown can also be used for inverters with two MPP inputs which are protected by DCU YPV SCI 1000 2M.

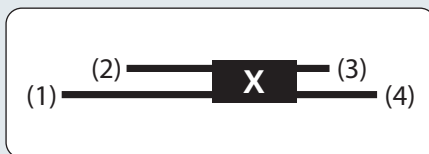


Example: DCU YPV SCI 1000 2M.

The cables are long enough for the required distances, but as short as possible to ensure maximum protection and to keep line loss as low as possible. The connecting cables have a cross-section of 6 mm² which

Type 2 Surge Arresters for PV Systems

X Connecting Cable for DEHNcube



Dimension drawing AL DCU X PV ...



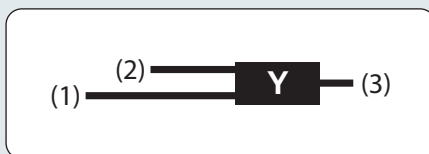
NEW

X connecting cable for DEHNcube.

- For collecting two PV string lines and connecting them to DEHNcube and the inverter (or other equipment)
- 6 mm² to keep the voltage drop as low as possible
- Dimensions tailored to the relevant application

Type	AL DCU X PV L600	AL DCU X PV L1000
Part No.	900 946	900 947
For connecting	2 strings	2 strings
Cable cross-section	6 mm ²	6 mm ²
Cable material	Cu	Cu
Degree of protection	IP 65	IP65
Length (1) [-> inverter]	600 mm	1000 mm
Length (2) [-> DEHNcube]	300 mm	300 mm
Length (3) [-> +/- string]	100 mm	100 mm
Length (4) [-> +/- string]	200 mm	200 mm

Y Connecting Cable for DEHNcube



Dimension drawing AL DCU Y PV ...

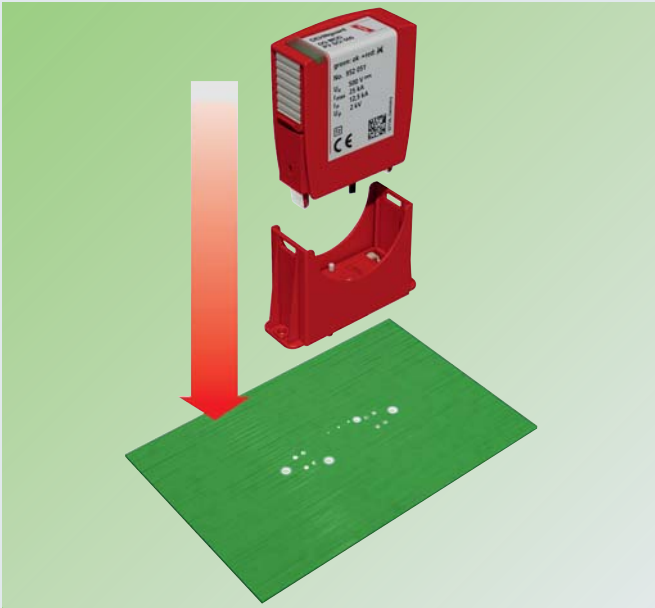


NEW

Y connecting cable for DEHNcube.

- For connecting one PV string line to DEHNcube and the inverter (or other equipment)
- 6 mm² to keep the voltage drop as low as possible
- Dimensions tailored to the relevant application

Type	AL DCU Y PV L600	AL DCU Y PV L1000
Part No.	900 948	900 949
For connecting	1 string	1 string
Cable cross-section	6 mm ²	6 mm ²
Cable material	Cu	Cu
Degree of protection	IP 65	IP 65
Length (1) [-> inverter]	600 mm	1000 mm
Length (2) [-> DEHNcube]	300 mm	300 mm
Length (3) [-> +/- string]	100 mm	100 mm



For integrating a type 2 arrester on the printed circuit board of a device to provide surge protection. For installation in conformity with the lightning protection zone concept at the boundaries from 0_B-1 and higher.

DEHNguard PCB ...: Base for mounting on printed circuit boards

DEHNguard PCB ... FM: With remote signalling contact for monitoring device (floating changeover contact)

The single-pole DEHNguard PCB ... (FM) base is specially designed for use on printed circuit boards (PCBs). Thus, surge protection can be taken into account at an early stage of development of the PCB and can be optimally integrated in the overall product. This single-pole version can be integrated in all system configurations. Fault-resistant Y circuits for PV systems or 3+1 circuits for a.c. systems can be easily implemented.

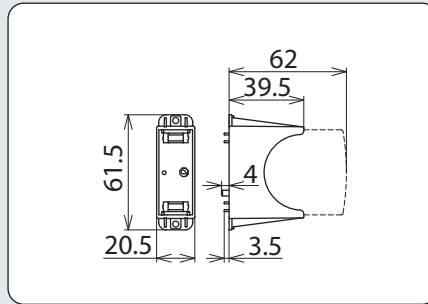
Thanks to the ideal positioning of the SPD on the device, an optimal voltage protection level for the electronics of the PCB is achieved since the cable length between the SPD and the device to be protected through which additional surges may be injected (in typical applications) is extremely low. The design of the PCB also allows series connection according to IEC 60364-5-53.

Various device features shows that reliable surge protection and equipment reliability are a top priority of the modular DEHNguard. The appli-

- Base for DEHNguard protection modules to be mounted on and integrated in PCBs
- Optimal integration of a type 2 arrester in devices
- Easy and flexible use for all circuit configurations
- Proven DEHNguard modules ensure high performance
- Coded base part and protection module ensure against installing an incorrect module
- Version with and without remote signalling contact for monitoring device
- Versions for other DEHNguard protection modules on request

cation-oriented product designation, which makes it considerably easier to assign the protection modules to the relevant DG PCB base part, and the unique module locking system reflect the high safety requirements. The module locking system firmly fixes the protection modules to DEHNguard PCB (FM). Neither vibration in the application environment nor the dynamic forces of discharge can loosen the protection modules. Nevertheless, they can be easily replaced without tools by simply pressing the easy-to-use module release button of the protection modules. Each DEHNguard PCB (FM) base and each protection module is mechanically coded to ensure against installing an incorrect module.

The ...FM version of DG PCB... features a three-pole remote signalling contact. With its floating changeover contact, the remote signal can be used as a make or break contact according to the particular circuit concept.



Dimension drawing DG PCB PV SCI ...



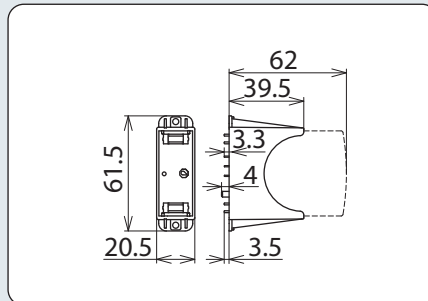
NEW

Single-pole base to be mounted on the PCBs of devices for DEHNguard modules.

- Integration of DEHNguard protection modules in the PCBs of electronic / electric devices
- Easy and flexible use for all circuit configurations
- Coded base part and protection module ensure against installing an incorrect module

Type	DG PCB PV SCI 300	DG PCB PV SCI 500	DG PCB PV SCI 600
Part No.	952 653	952 651	952 654
Associated protection module	DG MOD PV SCI 300 (Part No. 952 053)	DG MOD PV SCI 500 (Part No. 952 051)	DG MOD PV SCI 600 (Part No. 952 054)
Max. continuous d.c. voltage (module)	300 V	500 V	600 V
Operating temperature range (T _u)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
For mounting on	directly soldered into the PCB	directly soldered into PCB	directly soldered into PCB
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Degree of protection	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)

DEHNguard PCB PV SCI ... FM



Dimension drawing DG PCB PV SCI ... FM



NEW

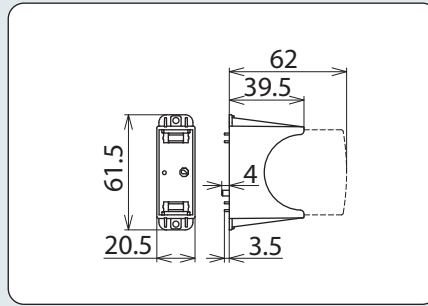
Single-pole base to be mounted on the PCBs of devices for DEHNguard modules, with remote signalling contact for monitoring system (floating changeover contact).

- Integration of DEHNguard protection modules in the PCBs of electronic / electrical devices
- Easy and flexible use for all circuit configurations
- Coded base part and protection module ensure against installing an incorrect module

Type	DG PCB PV SCI 300 FM	DG PCB PV SCI 500 FM	DG PCB PV SCI 600 FM
Part No.	952 753	952 751	952 754
Associated protection module	DG MOD PV SCI 300 (Part No. 952 053)	DG MOD PV SCI 500 (Part No. 952 051)	DG MOD PV SCI 600 (Part No. 952 054)
Max. continuous d.c. voltage (module)	300 V	500 V	600 V
Operating temperature range (T _u)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
For mounting on	directly soldered into the PCB	directly soldered into PCB	directly soldered into PCB
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Degree of protection	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)
Type of remote signalling contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	125 V / 0,1 A	125 V / 0,1 A	125 V / 0,1 A
d.c. switching capacity	42 V / 0,5 A; 24 V / 1 A; 12 V / 2 A	42 V / 0,5 A; 24 V / 1 A; 12 V / 2 A	42 V / 0,5 A; 24 V / 1 A; 12 V / 2 A
Soldering temperature (remote signalling contact)	max. 260 °C / 5 sec.	max. 260 °C / 5 sec.	max. 260 °C / 5 sec.

Type 2 Surge Arresters

NEW



Dimension drawing DG PCB PV ...

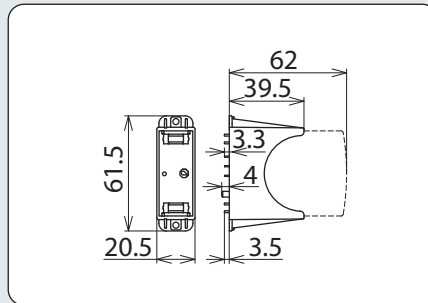
- Integration of DEHNguard protection modules in the PCBs of electronic / electrical devices
- Easy and flexible use for all circuit configurations
- Coded base part and protection module ensure against installing an incorrect module

Single-pole base to be mounted on the PCBs of devices for DEHNguard modules.

Type	DG PCB PV 300	DG PCB PV 500	DG PCB PV 600
Part No.	952 643	952 641	952 644
Associated protection module	DG MOD PV 300 (Part No. 952 043)	DG MOD PV 500 (Part No. 952 041)	DG MOD PV 600 (Part No. 952 044)
Max. continuous d.c. voltage (module)	300 V	500 V	600 V
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
For mounting on	directly soldered into the PCB	directly soldered into PCB	directly soldered into PCB
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-2	thermoplastic, red, UL 94 V-2
Degree of protection	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)

DEHNguard PCB PV ... FM

NEW



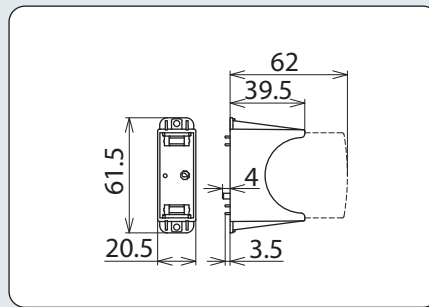
Dimension drawing DG PCB PV ... FM

- Integration of DEHNguard protection modules in the PCBs of electronic / electrical devices
- Easy and flexible use for all circuit configurations
- Coded base part and protection module ensure against installing an incorrect module

Single-pole base to be mounted on the PCBs of devices for DEHNguard modules, with remote signalling contact for monitoring system (floating changeover contact).

Type	DG PCB PV 300 FM	DG PCB PV 500 FM	DG PCB PV 600 FM
Part No.	952 743	952 741	952 744
Associated protection module	DG MOD PV 300 (Part No. 952 043)	DG MOD PV 500 (Part No. 952 041)	DG MOD PV 600 (Part No. 952 044)
Max. continuous d.c. voltage (module)	300 V	500 V	600 V
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
For mounting on	directly soldered into the PCB	directly soldered into PCB	directly soldered into PCB
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-2	thermoplastic, red, UL 94 V-2
Degree of protection	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)
Type of remote signalling contact	changeover contact	changeover contact	changeover contact
a.c. switching capacity	125 V / 0,1 A	125 V / 0,1 A	125 V / 0,1 A
d.c. switching capacity	42 V / 0,5 A; 24 V / 1 A; 12 V / 2 A	42 V / 0,5 A; 24 V / 1 A; 12 V / 2 A	42 V / 0,5 A; 24 V / 1 A; 12 V / 2 A
Soldering temperature (remote signalling contact)	max. 260 °C / 5 sec.	max. 260 °C / 5 sec.	max. 260 °C / 5 sec.

Type 2 Surge Arresters



Dimension drawing DG PCB ...



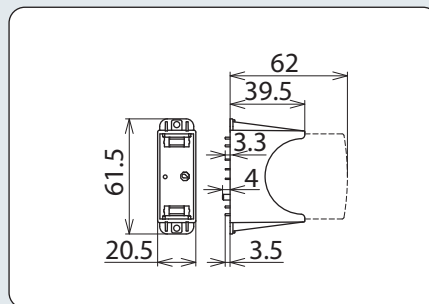
NEW

Single-pole base to be mounted on the PCBs of devices for DEHNguard modules.

- Integration of DEHNguard protection modules in the PCBs of electronic / electrical devices
- Easy and flexible use for all circuit configurations
- Coded base part and protection module ensure against installing an incorrect module

Type	DG PCB 275	DG PCB 385
Part No.	952 610	952 614
Associated protection module	DG MOD 275 (Part No. 952 010)	DG MOD 385 (Part No. 952 014)
Max. continuous a.c. voltage (module)	275 V	385 V
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
For mounting on	directly soldered into PCB	directly soldered into PCB
Enclosure material	thermoplastic, red, UL 94 V-2	thermoplastic, red, UL 94 V-2
Degree of protection	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)

DEHNguard PCB ... FM



Dimension drawing DG PCB PV ... FM



NEW

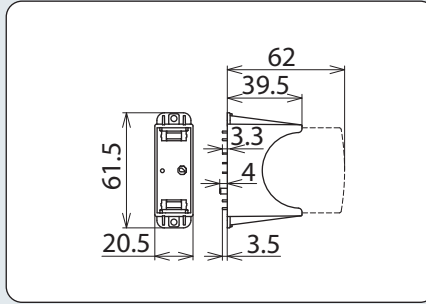
Single-pole base to be mounted on the PCBs of devices for DEHNguard modules, with remote signalling contact for monitoring system (floating changeover contact).

- Integration of DEHNguard protection modules in the PCBs of electronic / electrical devices
- Easy and flexible use for all circuit configurations
- Coded base part and protection module ensure against installing an incorrect module

Type	DG PCB 275 FM	DG PCB 385 FM
Part No.	952 710	952 714
Associated protection module	DG MOD 275 (Part No. 952 010)	DG MOD 385 (Part No. 952 014)
Max. continuous a.c. voltage (module)	275 V	385 V
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
For mounting on	directly soldered into PCB	directly soldered into PCB
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Degree of protection	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)
Type of remote signalling contact	changeover contact	changeover contact
a.c. switching capacity	125 V / 0,1 A	125 V / 0,1 A
d.c. switching capacity	42 V / 0,5 A; 24 V / 1 A; 12 V / 2 A	42 V / 0,5 A; 24 V / 1 A; 12 V / 2 A
Soldering temperature (remote signalling contact)	max. 260 °C / 5 sec.	max. 260 °C / 5 sec.

Type 2 Surge Arresters

NEW



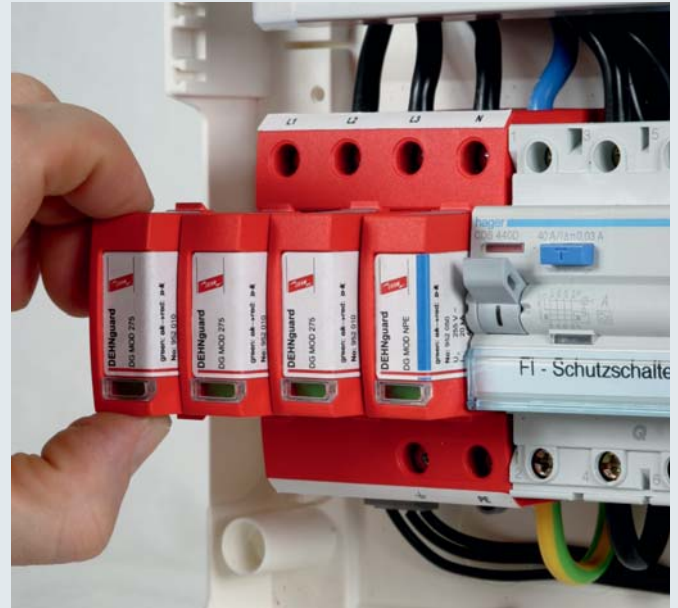
Dimension drawing DG PCB NPE (FM)

- Integration of DEHNguard protection modules in the PCBs of electronic / electrical devices
- Easy and flexible use for all circuit configurations
- Coded base part and protection module ensure against installing an incorrect module

Single-pole base to be mounted on the PCBs of devices for DEHNguard modules, with remote signalling contact for monitoring system (floating changeover contact).

Type	DG PCB NPE	DG PCB NPE FM
Part No.	952 650	952 750
Associated protection module	DG MOD NPE (Part No. 952 050)	DG MOD NPE (Part No. 952 050)
Max. continuous a.c. voltage (module)	255 V	255 V
Operating temperature range (T ₀)	-40 °C ... +80 °C	-40 °C ... +80 °C
For mounting on	directly soldered into PCB	directly soldered into PCB
Enclosure material	thermoplastic, red, UL 94 V-2	thermoplastic, red, UL 94 V-0
Degree of protection	IP 20 (protection module plugged in)	IP 20 (protection module plugged in)
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	125 V / 0.1 A
d.c. switching capacity	—	42 V / 0.5 A; 24 V / 1 A; 12 V / 2 A
Soldering temperature (remote signalling contact)	—	max. 260 °C / 5 sec.

- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device
- Energy coordination with other arresters of the Red/Line product family
- Operating state / fault indication by green / red indicator flag in the inspection window
- Easy replacement of protection modules without tools due to module locking system with module release button
- The plug-in protection module can be replaced without the need to de-energise and without removing the distribution board cover
- Vibration and shock-tested according to EN 60068-2



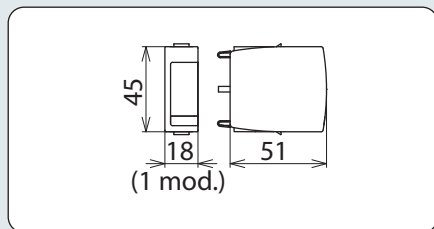
For protecting low-voltage consumer's installations against surges. For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 1$ and higher.

DEHNguard MOD CI 275:	Varistor-based protection module for DEHNguard M CI ... surge arresters
DEHNguard MOD ...:	Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters
DEHNguard MOD 750:	Varistor-based protection module for DEHNguard M WE 600 and DEHNguard S WE 600 surge arresters
DEHNguard MOD NPE:	N-PE spark-gap-based protection module for two-pole and four-pole DEHNguard M TT ... surge arresters
DEHNgap C MOD:	N-PE spark-gap-based protection module for single-pole N-PE surge arresters of type DEHNgap C S ...
DEHNguard MOD ... VA:	Varistor-based and spark-gap-based protection module for DEHNguard S ... VA surge arresters
DEHNguard MOD PV SCI ...:	Varistor-based protection module for DEHNguard M YPV SCI and DEHNguard S PV SCI ... surge arresters
DEHNguard MOD PV ...:	Varistor-based protection module for DEHNguard M YPV SCI and DEHNguard S PV SCI ... surge arresters
DEHNguard MOD E PV SCI 750:	Varistor-based protection module for DEHNguard ME YPV SCI and DEHNguard SE PV SCI ...

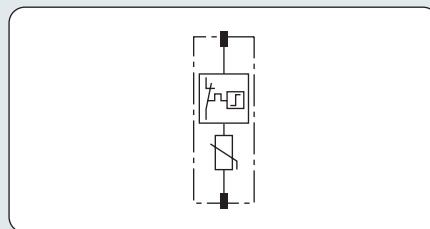
The varistor and spark-gap-based protection modules of the DEHNguard M, DEHNguard S and DEHNgap C S devices distinguish themselves through their outstanding performance and appearance. The compact protection modules incorporate the complete protective circuit as well as the monitoring and disconnection device. The green indicator flag in the inspection window shows the operating state of the protection modules.

All protection modules are mechanically coded to ensure against installing an incorrect module. The protection modules can be easily replaced without tools by simply pressing the easy-to-use module release button.

Varistor-based Protection Module



Dimension drawing DG MOD



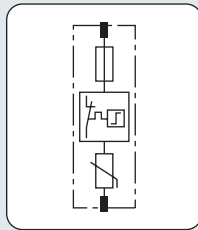
Basic circuit diagram DG MOD



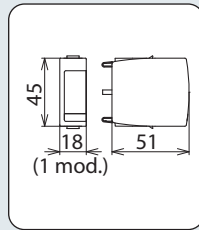
Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters.

Type	DG MOD 48	DG MOD 75	DG MOD 150	DG MOD 275	DG MOD 320	DG MOD 385	DG MOD 440	DG MOD 600
Part No.	952 018	952 011	952 012	952 010	952 013	952 014	952 015	952 016
Nominal discharge current (8/20 μs) (I_n)	7.5 kA	10 kA	15 kA	20 kA	20 kA	20 kA	20 kA	15 kA
Max. discharge current (8/20 μs) (I_{max})	25 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	30 kA
Max. continuous operating a.c. voltage (U_c)	48 V	75 V	150 V	275 V	320 V	385 V	440 V	600 V
Max. continuous operating d.c. voltage (U_c)	60 V	100 V	200 V	350 V	420 V	500 V	585 V	600 V

Varistor-Based Protection Module for DEHNgard M CI



Basic circuit diagram
DG MOD CI 275

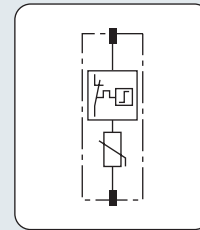


Dimension drawing DG
MOD CI 275

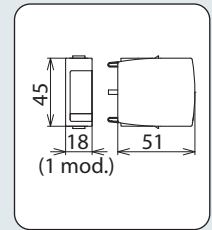
Protection module for DEHNgard M ... CI 275 surge arresters comprising a varistor connected in series with the integrated backup fuse.

Type	DG MOD CI 275
Part No.	952 020
Nominal discharge current (8/20 μs) (I _n)	12.5 kA
Max. discharge current (8/20 μs) (I _{max})	25 kA
Max. continuous operating a.c. voltage (U _c)	275 V

Varistor-Based Protection Module for DEHNgard M (S) WE



Basic circuit diagram
DG MOD 750

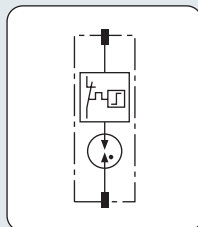


Dimension drawing
DG MOD 750

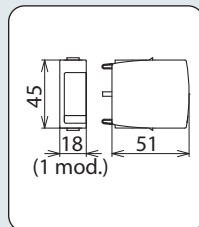
Varistor-based protection module for DEHNgard M WE ... and DEHNgard S WE ... surge arresters with a rated varistor voltage U_{mov} = 750 V a.c.

Type	DG MOD 750
Part No.	952 017
Nominal discharge current (8/20 μs) (I _n)	15 kA
Max. discharge current (8/20 μs) (I _{max})	25 kA
Max. continuous operating a.c. voltage (U _c)	600 V
Max. continuous operating d.c. voltage (U _c)	600 V
Rated varistor voltage (U _{mov})	750 V

N-PE Spark-Gap-Based Protection Module for DEHNgard M TT ...



Basic circuit diagram
DG MOD NPE

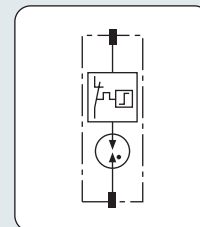


Dimension drawing
DG MOD NPE

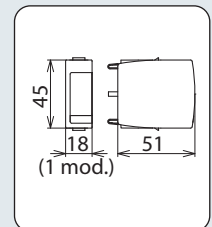
N-PE spark-gap-based protection module for two-pole and four-pole DEHNgard M TT ... surge arresters.

Type	DG MOD NPE
Part No.	952 050
Nominal discharge current (8/20 μs) (I _n)	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA
Max. continuous operating a.c. voltage (U _c)	255 V

N-PE Spark-Gap-Based Protection Module for DEHNgap C S ...



Basic circuit diagram
DGP C MOD



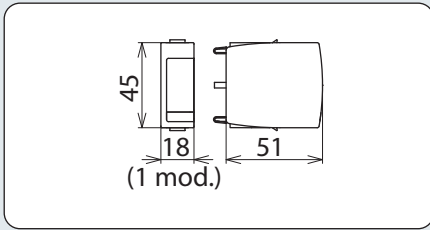
Dimension drawing
DGP C MOD

Protection module for single-pole N-PE surge arresters of type DEHNgap DGP C S ...

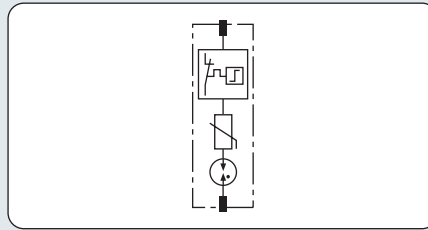
Type	DGP C MOD
Part No.	952 060
Nominal discharge current (8/20 μs) (I _n)	20 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA
Max. continuous operating a.c. voltage (U _c)	255 V

Type 2 Surge Arresters

Varistor and Spark-Gap-Based Protection Module for DEHNguard S ... VA



Dimension drawing DG MOD ... VA



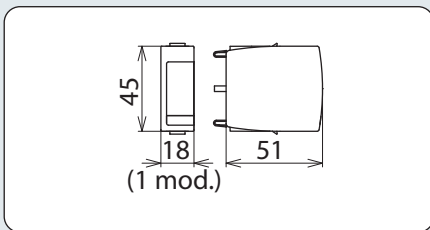
Basic circuit diagram DG MOD ... VA



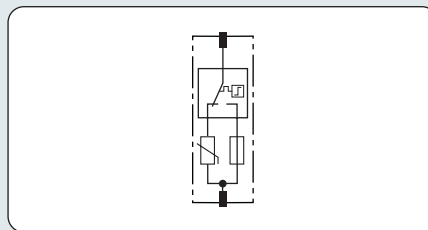
Protection module for DEHNguard S ... VA surge arresters comprising a varistor connected in series with a spark gap.

Type	DG MOD 75 VA	DG MOD 275 VA	DG MOD 385 VA
Part No.	952 025	952 027	952 029
Nominal discharge current (8/20 μs) (I _n)	10 kA	10 kA	10 kA
Max. discharge current (8/20 μs) (I _{max})	20 kA	20 kA	20 kA
Max. continuous operating a.c. voltage (U _c)	75 V	275 V	385 V
Max. continuous operating d.c. voltage (U _c)	100 V	350 V	500 V

Varistor-Based Protection Module for DEHNguard M YPV SCI and DEHNguard S PV SCI



Dimension drawing DG MOD PV SCI



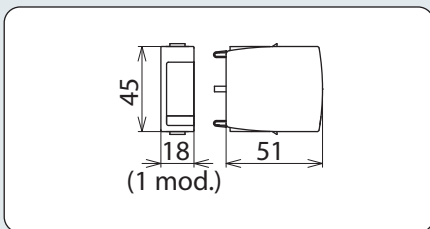
Basic circuit diagram DG MOD PV SCI



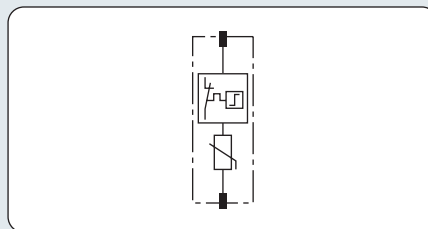
Protection module with integrated back-up fuse for DEHNguard M (Y)PV SCI ... surge arresters comprising a varistor connected in parallel with a short-circuiting device.

Type	DG MOD PV SCI 75	DG MOD PV SCI 300	DG MOD PV SCI 500	DG MOD PV SCI 600
Part No.	952 055	952 053	952 051	952 054
Nominal discharge current (8/20 μs) (I _n)	10 kA	12.5 kA	12.5 kA	12.5 kA
Max. discharge current (8/20 μs) (I _{max})	20 kA	25 kA	25 kA	25 kA
Max. continuous operating d.c. voltage (U _c)	75 V	300 V	500 V	600 V

Varistor-Based Protection Module for DEHNguard M YPV SCI and DEHNguard S PV SCI



Dimension drawing DG MOD PV



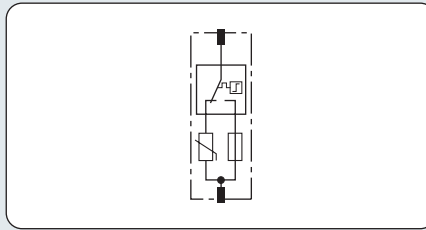
Basic circuit diagram DG MOD PV



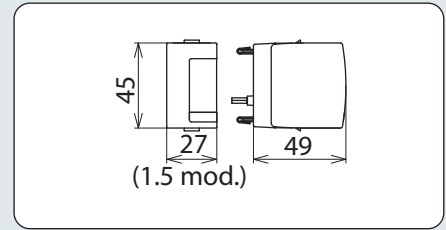
Varistor-based protection module for DEHNguard M YPV SCI ... and DEHNguard S PV SCI ... surge arresters.

Type	DG MOD PV 75	DG MOD PV 300	DG MOD PV 500	DG MOD PV 600
Part No.	952 045	952 043	952 041	952 044
Nominal discharge current (8/20 μs) (I _n)	10 kA	20 kA	20 kA	15 kA
Max. discharge current (8/20 μs) (I _{max})	40 kA	40 kA	40 kA	30 kA
Max. continuous operating d.c. voltage (U _c)	75 V	300 V	500 V	600 V

NEW



Basic circuit diagram DG MOD E PV SCI 750



Dimension drawing DG MOD E PV SCI 750

Varistor-based protection module for DEHNguard ME YPV SCI 1500 (FM) and DEHNguard SE PV SCI 1500 (FM) surge arresters.

Type	DG MOD E PV SCI 750
Part No.	952 056
Nominal discharge current (8/20 μs) (I _n)	12.5 kA
Max. discharge current (8/20 μs) (I _{max})	25 kA
Max. continuous operating d.c. voltage (U _c)	750 V

Type 2 Surge Arresters

Compact single-pole Surge Arrester

- High discharge capacity due to heavy-duty zinc oxide varistor
- Quick response
- High reliability due to "Thermo Dynamic Control" disconnecter
- Fault indication by green / red indicator flag in the inspection window
- Specifically designed for high system voltages



For protecting low voltage consumer's installations against surges. For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 1$ and higher.

DEHNguard 1000: Compact single-pole surge arrester with a rated voltage $U_C = 1000 \text{ V a.c. or } 1000 \text{ V d.c.}$
 DEHNguard ... FM: With remote signalling contact for monitoring device (floating changeover contact)

With a rated voltage of 1000 V, the compact and powerful single-pole DEHNguard 1000 (FM) surge arresters can be used for a wide range of applications.

The DEHNguard family is not only characterised by its high degree of flexibility, but also by its distinctive performance parameters which set standards worldwide: The high discharge capacity, low voltage protection level and dual "Thermo Dynamic Control" monitoring and disconnection device ensure maximum reliability.

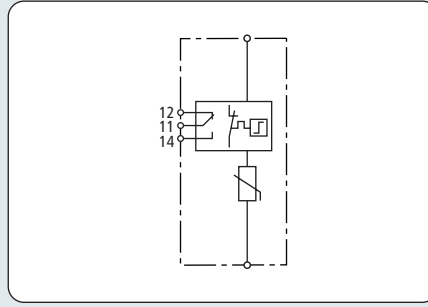
The DEHN-specific "Thermo Dynamic Control" disconnecter ensures that the arresters change into a safe, isolated state even in case of extreme overload. For this purpose, the surface temperature of the heavy-duty varistor and the intensity of the discharge current are used for evaluation.

The external design of the device reflects its field of application. DEHNguard 1000 (FM), with a width of two modules, entirely fulfils all mechanical requirements resulting from the high system voltages.

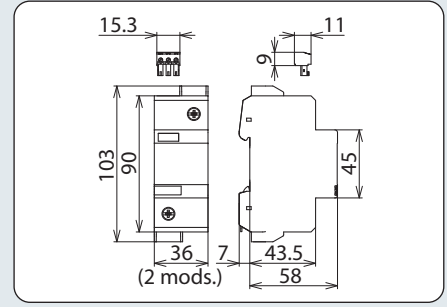
Apart from the standard visual indication with green and red indicator flags, DEHNguard 1000 (FM) arresters feature a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.

Earthing brackets of type EB DG 1000 1 3 and EB 1 4 9 can be used to connect the earth terminals of several DEHNguard 1000 (FM) surge arresters to earth.





Basic circuit diagram DG 1000 FM



Dimension drawing DG 1000 FM

- High discharge capacity due to heavy-duty zinc oxide varistor
- High reliability due to "Thermo Dynamic Control" disconnecter
- Specifically designed for high system voltages

Compact single-pole surge arrester with a rated voltage $U_C = 1000$ V a.c. or 1000 V d.c.; FM version with floating remote signalling contact.

Type	DG 1000	DG 1000 FM
Part No.	950 102	950 112
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U_N)	830 V (50 / 60 Hz)	830 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	1000 V (50 / 60 Hz)	1000 V (50 / 60 Hz)
Max. continuous operating d.c. voltage (U_C)	1000 V	1000 V
Nominal discharge current (8/20 μ s) (I_n)	15 kA	15 kA
Max. discharge current (8/20 μ s) (I_{max})	30 kA	30 kA
Voltage protection level (U_p)	≤ 4.2 kV	≤ 4.2 kV
Voltage protection level at 5 kA (U_p)	≤ 3.5 kV	≤ 3.5 kV
Response time (t_A)	≤ 25 ns	≤ 25 ns
Max. overcurrent protection	100 A aM	100 A aM
Max. overcurrent protection at $U \leq 690$ V a.c.	125 A gG	125 A gG
Short-circuit withstand capability for max. backup fuse (I_{SCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U_T) – Characteristic	1205 V / 5 sec. – withstand	1205 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U_T) – Characteristic	1580 V / 120 min. – safe failure	1580 V / 120 min. – safe failure
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 module(s), DIN 43880	2 module(s), DIN 43880
Approvals	UL	UL
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

Accessory for DEHNguard® 1000

Earthing Clip, three-pole, single-phase

Earthing clip for connecting the earth terminals of e.g. three type 1 SPDs in a two-module enclosure with multifunctional terminal to earth.

Type	EB DG 1000 1 3
Part No.	900 411
Dimensions	34 x 112 x 3 mm
Terminal	up to 25 mm ²



Accessory for DEHNguard® 1000

Earthing Clip, four-pole, single-phase

Earthing clip for connecting the earth terminals of e.g. four type 1 SPDs in a two-module enclosure with multifunctional terminal to earth.

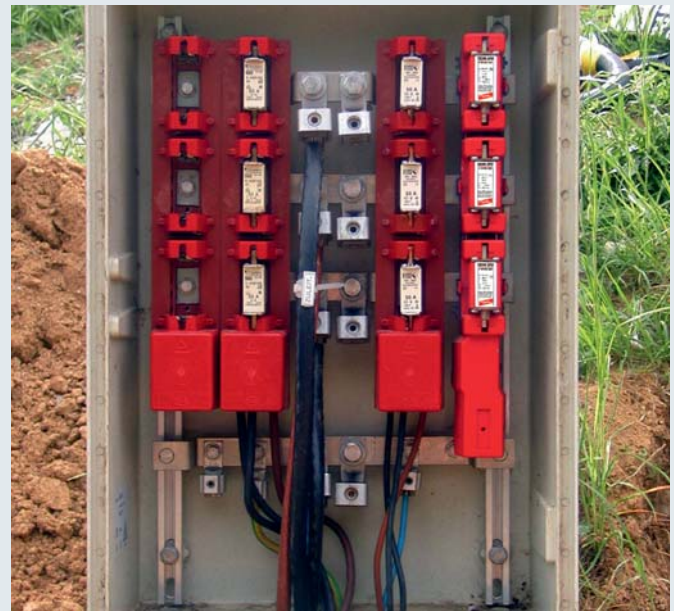
Type	EB 1 4 9
Part No.	900 417
Dimensions	34 x 148 x 3 mm
Terminal	up to 25 mm ²



Type 2 Surge Arresters

Surge Arrester in NH Design

- Surge arrester for use in NH 00 and 1 fuse holders
- Zinc oxide varistor with monitoring device, disconnecter and integrated backup fuse (VA NH... with additional spark gap connected in series)
- Energy coordination with other arresters of the Red/Line product family
- Fault indication by tripping indicator



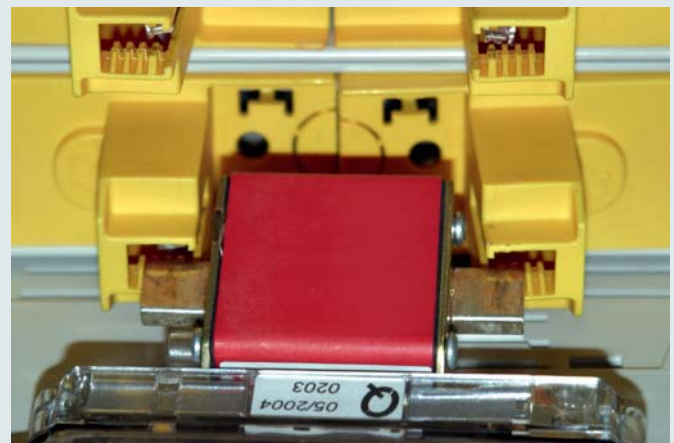
For protecting low voltage consumer's installations against surges. For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 1$ and higher. German patented design.

- V(A) NH00 280: Surge arrester for use in NH00 fuse holders
- V(A) NH1 280: Surge arrester for use in NH1 fuse holders
- V(A) NH00 280 FM: With fault indicator for remote signalling; allows for use of NH fuse holders with microswitch (max. tripping distance of indicator of 7 mm)

The single-pole V NH and VA NH surge arresters show that surge protective devices do not necessarily have to be designed for DIN rails or socket outlets. Adapted to the requirements in industrial sub-circuit distribution boards, V NH and VA NH surge arresters are designed in the form of an NH fuse holder. This allows to easily integrate them into busbar systems which are frequently used in the environment of utility operators or in industrial plants. Thus, these surge protective devices offer all the advantages of busbar systems such as easy installation, low installation time and reduced wiring. The idea of such a busbar system is consistently continued with arresters in NH design. V NH and VA NH surge arresters can be installed and removed by means of a fuse switch-disconnector and a fuse handle. This considerably facilitates insulation measurements in the installation as the arrester does not have to be disconnected any more.

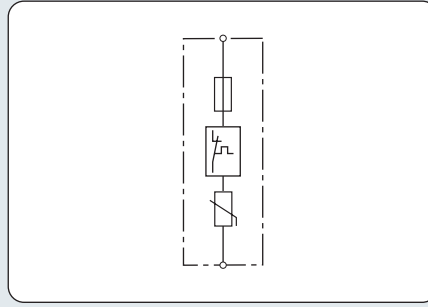


Another considerable advantage of the V NH / VA NH family is that a backup fuse is already integrated in the arrester. In case of earth-fault and short-circuit-proof wiring, this considerably saves costs and

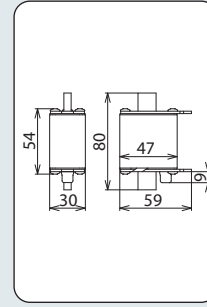


reduces space requirements in distribution boards. In case of the VA NH version, a spark gap is connected in series with the heavy-duty zinc oxide varistor with thermal monitoring and disconnection device of the V NH surge arresters. VA NH devices are used to reliably protect large-scale systems with permanent insulation monitoring. Apart from the standard visual indication by a tripping indicator, V(A) NH ... FM surge arresters feature a microswitch integrated in the NH fuse holder for remote signalling.

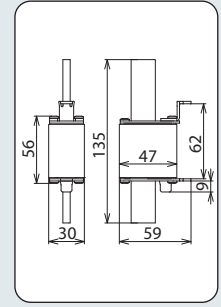
Type 2 Surge Arresters



Basic circuit diagram V NH00 FM



Dimension drawing V NH00 FM



Dimension drawing V NH1

- Surge arrester for use in NH00 and 1 fuse holders
- Zinc oxide varistor with monitoring device, disconnecter and integrated backup fuse (VA, NH with additional spark gap connected in series)
- Fault indication by tripping indicator

V NH00 (FM): Surge arrester for use in NH00 fuse holders, optionally available with special indicator for remote signalling.

V NH1: Surge arrester for use in NH1 fuse holders.

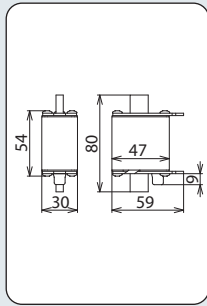
Type	V NH00 280	V NH00 280 FM
Part No.	900 261	900 263
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	280 V (50 / 60 Hz)	280 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	15 kA	15 kA
Max. discharge current (8/20 μs) (I _{max})	30 kA	30 kA
Voltage protection level (U _P)	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level at 5 kA (U _{P5})	≤ 1.2 kV	≤ 1.2 kV
Response time (t _A)	≤ 25 ns	≤ 25 ns
Maximum mains-side overcurrent protection	not required	not required
Short-circuit withstand capability (I _{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U _T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Indication of the disconnecter	red indicator	red indicator
Indicator for remote signalling	—	tripping distance of 7 mm
Number of ports	1	1
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
For mounting on	NH00 fuse holders	NH00 fuse holders
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	according built in situation	according built in situation

Type	V NH1 280
Part No.	900 270
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	280 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	15 kA
Max. discharge current (8/20 μs) (I _{max})	30 kA
Voltage protection level (U _P)	≤ 1.5 kV
Voltage protection level at 5 kA (U _{P5})	≤ 1.2 kV
Response time (t _A)	≤ 25 ns
Maximum mains-side overcurrent protection	not required
Short-circuit withstand capability (I _{SCCR})	25 kA _{rms}
Temporary overvoltage (TOV) (U _T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U _T) – Characteristic	440 V / 120 min. – safe failure
Indication of the disconnecter	red indicator
Number of ports	1
Operating temperature range (T _U)	-40 °C ... +80 °C
For mounting on	NH00 fuse holders
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	according built in situation

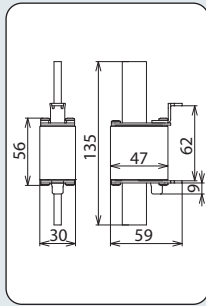
Type 2 Surge Arresters

Type 2 Surge Arresters

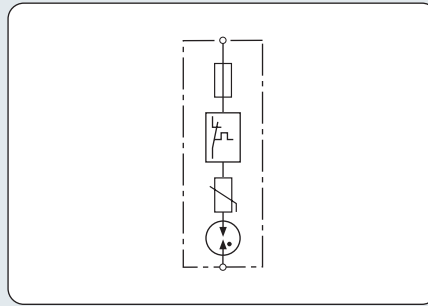
VA NH00 (FM) / VA NH1



Dimension drawing
VA NH00 FM



Dimension drawing
VA NH1



Basic circuit diagram VA NH00 FM



- Surge arrester for use in NH00 and NH1 fuse holders
- Zinc oxide varistor with monitoring device, disconnecter and integrated backup fuse (VA NH with additional spark gap connected in series)
- Fault indication by tripping indicator

VA NH00 (FM): Surge arrester with a varistor and a spark gap connected in series; for use in NH00 fuse holders, optionally available with special indicator for remote signalling.

VA NH1: Surge arrester with a varistor and a spark gap connected in series; for use in NH1 fuse holders.

Type	VA NH00 280	VA NH00 280 FM
Part No.	900 262	900 264
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II	type 2 / class II
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	280 V (50 / 60 Hz)	280 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	10 kA	10 kA
Max. discharge current (8/20 μ s) (I_{max})	20 kA	20 kA
Voltage protection level (U_P)	≤ 1.5 kV	≤ 1.5 kV
Response time (t_A)	≤ 100 ns	≤ 100 ns
Maximum mains-side overcurrent protection	not required	not required
Short-circuit withstand capability (I_{SCCR})	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) (U_T) – Characteristic	440 V / 120 min. – withstand	440 V / 120 min. – withstand
Indication of the disconnecter	red indicator	red indicator
Indicator for remote signalling	—	tripping distance of 7 mm
Number of ports	1	1
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
For mounting on	NH00 fuse holders	NH00 fuse holders
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	according built in situation	according built in situation

Type	VA NH1 280
Part No.	900 271
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	280 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	10 kA
Max. discharge current (8/20 μ s) (I_{max})	20 kA
Voltage protection level (U_P)	≤ 1.5 kV
Response time (t_A)	≤ 100 ns
Maximum mains-side overcurrent protection	not required
Short-circuit withstand capability (I_{SCCR})	25 kA _{rms}
Temporary overvoltage (TOV) (U_T) – Characteristic	440 V / 120 min. – withstand
Indication of the disconnecter	red indicator
Number of ports	1
Operating temperature range (T_U)	-40 °C ... +80 °C
For mounting on	NH1 fuse holders
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	according built in situation

- Two-pole surge arrester consisting of a base part and plug-in protection module
- High discharge capacity due to heavy-duty zinc oxide varistor / spark gap combination
- Energy coordination with other arresters of the Red/Line product family
- Operating state / fault indication by green / red indicator flag in the inspection window
- Narrow (modular) design according to DIN 43880
- Easy replacement of protection modules due to module locking system with module release button
- Vibration and shock-tested according to EN 60068-2



For protecting the power supply circuits of industrial electronics equipment against transients in switchgear cabinets. For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher.

DEHnrail M 2P ...: Two-pole surge arrester consisting of a base part and plug-in protection module
 DEHnrail M 2P ... FM: With remote signalling contact for monitoring device (floating changeover contact)

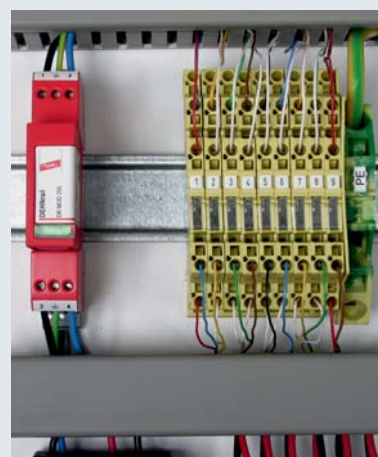
The modular devices of the DEHnrail M product family stand out due to their high performance parameters and straightforward Red/Line design. The devices combine safety and ease of use in a single module. The low voltage protection level and the comprehensive protection against common-mode and differential-mode interference make them ideal for protecting terminal equipment in industrial electronics environments. The input and output terminals for series connection and the protective circuit designed for high load currents underline this concept.

The very compact design of the DEHnrail M surge arresters includes the fault-proof Y protective circuit and a combined SPD monitoring and disconnection device.

The base part and protection module are coded to ensure against installing an incorrect module.

The unique module locking system of the DEHnrail M product family fixes the protection module to the base part. Neither vibration during transport nor the electrodynamic forces of discharge can loosen the connection.

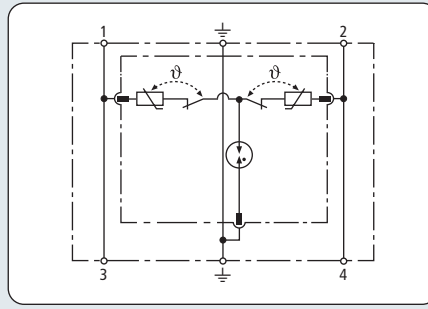
In the event of the protective circuit being overloaded, the protection modules can be easily replaced without tools by simply pressing the module release button.



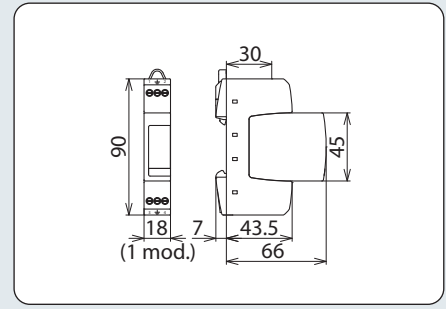
In addition to the standard visual indication with green and red indicator flags, DEHnrail M ... FM devices feature a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.

DEHNrail M 2P ...

Type 3 Surge Arresters



Basic circuit diagram DR M 2P ...



Dimension drawing DR M 2P ...

- Two-pole surge arrester consisting of a base part and plug-in protection module
- High discharge capacity due to heavy-duty zinc oxide varistor / spark gap combination
- Energy coordination with other arresters of the Red/Line product family

Two-pole surge arrester consisting of a base part and plug-in protection module.

Type	DR M 2P 30	DR M 2P 60	DR M 2P 75	DR M 2P 150	DR M 2P 255
Part No.	953 201	953 202	953 203	953 204	953 200
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III	type 3 / class III	type 3 / class III	type 3 / class III	type 3 / class III
Nominal a.c. voltage (U _N)	24 V (50 / 60 Hz)	48 V (50 / 60 Hz)	60 V (50 / 60 Hz)	120 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	30 V (50 / 60 Hz)	60 V (50 / 60 Hz)	75 V (50 / 60 Hz)	150 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Max. continuous operating d.c. voltage (U _C)	30 V	60 V	75 V	150 V	255 V
Nominal load current a.c. (I _L)	25 A	25 A	25 A	25 A	25 A
Nominal discharge current (8/20 μs) (I _n)	1 kA	1 kA	2 kA	2 kA	3 kA
Total discharge current (8/20 μs) [L+N-PE] (I _{total})	2 kA	2 kA	4 kA	4 kA	5 kA
Combination wave (U _{OC})	2 kV	2 kV	4 kV	4 kV	6 kV
Combination wave [L+N-PE] (U _{OC total})	4 kV	4 kV	8 kV	8 kV	10 kV
Voltage protection level [L-N] (U _P)	≤ 180 V	≤ 350 V	≤ 400 V	≤ 640 V	≤ 1250 V
Voltage protection level [L/N-PE] (U _P)	≤ 630 V	≤ 730 V	≤ 730 V	≤ 800 V	≤ 1500 V
Response time [L-N] (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Response time [L/N-PE] (t _A)	≤ 100 ns	≤ 100 ns	≤ 100 ns	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	25 A gL/gG or B 25 A	25 A gL/gG or B 25 A	25 A gL/gG or B 25 A	25 A gL/gG or B 25 A	25 A gL/gG or B 25 A
Short-circuit withstand capability for mains-side overcurrent protection with 25 A gL/gG (I _{SCCR})	6 kA _{rms}	6 kA _{rms}	6 kA _{rms}	6 kA _{rms}	6 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U _T)	—	—	—	—	335 V / 5 sec.
– Characteristic	—	—	—	—	– withstand
Temporary overvoltage (TOV) [L-N] (U _T)	—	—	—	—	440 V / 120 min.
– Characteristic	—	—	—	—	– safe failure
Temporary overvoltage (TOV) [L/N-PE] (U _T)	—	—	—	—	335 V / 120 min.
– Characteristic	—	—	—	—	– withstand
Temporary overvoltage (TOV) [L/N-PE] (U _T)	—	—	—	—	440 V / 5 sec.
– Characteristic	—	—	—	—	– withstand
Temporary overvoltage (TOV) [L+N-PE] (U _T)	—	—	—	—	1200 V + U _{REF} / 200 ms
– Characteristic	—	—	—	—	– safe failure
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red	green / red	green / red
Number of ports	1	1	1	1	1
Cross-sectional area (min.)	0.5 mm ² solid / flexible				
Cross-sectional area (max.)	4 mm ² solid / 2.5 mm ² flexible				
For mounting on	35 mm DIN rails acc. to EN 60715				
Enclosure material	thermoplastic, red, UL 94 V-0				
Place of installation	indoor installation				
Degree of protection	IP 20				
Capacity	1 module(s), DIN 43880				
Approvals	KEMA, VDE, UL, VdS, CSA				

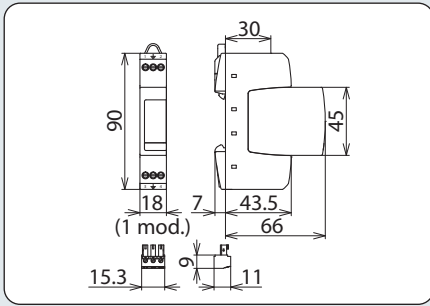
Accessory for DEHNrail modular

Protection Module for DEHNrail M 2P

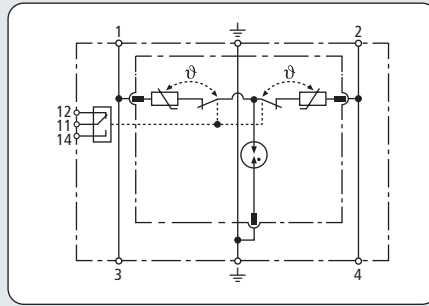
Protection module with integrated Y protection circuit.



Type DR MOD ...	30	60	75	150	255
Part No.	953 011	953 012	953 013	953 014	953 010
Max. continuous operating a.c. voltage (U _C)	30 V	60 V	75 V	150 V	255 V



Dimension drawing DR M 2P ... FM



Basic circuit diagram DR M 2P ... FM



Two-pole surge arrester consisting of a base part and plug-in protection module; with floating remote signalling contact.

- Two-pole surge arrester consisting of a base part and plug-in protection module
- High discharge capacity due to heavy-duty zinc oxide varistor / spark gap combination
- Energy coordination with other arresters of the Red/Line product family

Type	DR M 2P 30 FM	DR M 2P 60 FM	DR M 2P 75 FM	DR M 2P 150 FM	DR M 2P 255 FM
Part No.	953 206	953 207	953 208	953 209	953 205
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III	type 3 / class III	type 3 / class III	type 3 / class III	type 3 / class III
Nominal a.c. voltage (U _N)	24 V (50 / 60 Hz)	48 V (50 / 60 Hz)	60 V (50 / 60 Hz)	120 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	30 V (50 / 60 Hz)	60 V (50 / 60 Hz)	75 V (50 / 60 Hz)	150 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Max. continuous operating d.c. voltage (U _C)	30 V	60 V	75 V	150 V	255 V
Nominal load current a.c. (I _L)	25 A	25 A	25 A	25 A	25 A
Nominal discharge current (8/20 μs) (I _n)	1 kA	1 kA	2 kA	2 kA	3 kA
Total discharge current (8/20 μs) [L+N-PE] (I _{total})	2 kA	2 kA	4 kA	4 kA	5 kA
Combination wave (U _{OC})	2 kV	2 kV	4 kV	4 kV	6 kV
Combination wave [L+N-PE] (U _{OC total})	4 kV	4 kV	8 kV	8 kV	10 kV
Voltage protection level [L-N] (U _p)	≤ 180 V	≤ 350 V	≤ 400 V	≤ 640 V	≤ 1250 V
Voltage protection level [L/N-PE] (U _p)	≤ 630 V	≤ 730 V	≤ 730 V	≤ 800 V	≤ 1500 V
Response time [L-N] (t _a)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Response time [L/N-PE] (t _a)	≤ 100 ns	≤ 100 ns	≤ 100 ns	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	25 A gL/gG or B 25 A	25 A gL/gG or B 25 A	25 A gL/gG or B 25 A	25 A gL/gG or B 25 A	25 A gL/gG or B 25 A
Short-circuit withstand capability for mains-side overcurrent protection with 25 A gL/gG (I _{SCCR})	6 kA _{rms}	6 kA _{rms}	6 kA _{rms}	6 kA _{rms}	6 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U _T)	—	—	—	—	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U _T) – Characteristic	—	—	—	—	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U _T)	—	—	—	—	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U _T) – Characteristic	—	—	—	—	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U _T)	—	—	—	—	1200 V + U _{REF} / 200 ms – safe failure
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red	green / red	green / red	green / red
Number of ports	1	1	1	1	1
Cross-sectional area (min.)	0.5 mm ² solid / flexible				
Cross-sectional area (max.)	4 mm ² solid / 2.5 mm ² flexible				
For mounting on	35 mm DIN rails acc. to EN 60715				
Enclosure material	thermoplastic, red, UL 94 V-0				
Place of installation	indoor installation				
Degree of protection	IP 20				
Capacity	1 module(s), DIN 43880				
Approvals	KEMA, VDE, UL, VdS, CSA				
Type of remote signalling contact	changeover contact				
a.c. switching capacity	250 V / 0.5 A				
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A				
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible				

Protection Module for DEHNrail M 2P

Protection module with integrated Y protection circuit.

Type DR MOD ...	30	60	75	150	255
Part No.	953 011	953 012	953 013	953 014	953 010
Max. continuous operating a.c. voltage (U _C)	30 V	60 V	75 V	150 V	255 V





For protecting the power supply circuits of industrial electronics equipment against transients in switchgear cabinets. For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher.

DEHnrail M 4P ...: Four-pole surge arrester consisting of a base part and plug-in protection module
 DEHnrail M 4P ... FM: With remote signalling contact for monitoring device (floating changeover contact)

The modular four-pole DEHnrail M 4P ... (FM) surge arresters are specifically developed for protecting three-phase industrial electronics terminal equipment. Adapted to this kind of environment, the arresters with the Red/Line design are suitable for 35 mm DIN rails. The low voltage protection level and the comprehensive common and differential mode protection are characteristic of DEHnrail M 4P ... (FM). To provide optimal low voltage protection levels for the terminal equipment to be protected, the device features input and output terminals for series connection. DEHnrail M 4P ... (FM) devices ideally adapt to the cable run upstream of the terminal equipment. Therefore, no additional terminal blocks for outgoing cables are required. The compact design incorporates the tried and tested disconnecter. It disconnects an overloaded arrester circuit from the mains without interrupting the supply circuit.

The base part and protection module are coded to ensure against installing the incorrect module.

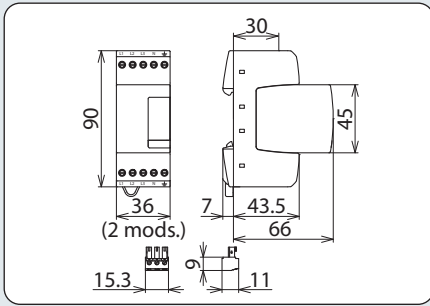
The unique module locking system of the DEHnrail M family fixes the protection modules to the base part. Neither vibrations during transport nor the electrodynamic forces of discharge can loosen the connection.

- Four-pole surge arrester consisting of a base part and plug-in protection module
- High discharge capacity due to heavy-duty zinc oxide varistor / spark gap combination
- Energy coordination with other arresters of the Red/Line product family
- Operating state / fault indication by green / red indicator flag in the inspection window
- Easy replacement of protection modules without tools due to module locking system with module release button
- Nominal load currents up to 25 A
- Vibration and shock-tested in accordance with EN 60068-2

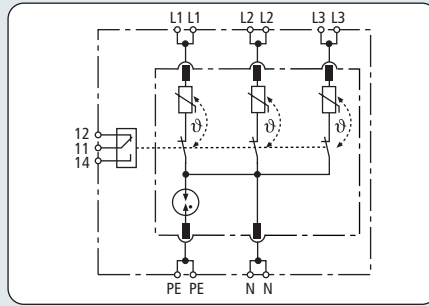
In the event of the protective circuit, which is rated for high load currents up to 25 A, being overloaded despite of the powerful designs of the surge arrester, the protection modules can be easily replaced without tools by simply pressing the module release button.

Apart from the standard visual indication with green and red indicator flags, DEHnrail M 4P ... FM devices feature a three-pole remote signalling terminal. With its floating changeover contact, the remote signal can be used as a break or make contact according to the particular circuit concept.





Dimension drawing DR M 4P ... FM



Basic circuit diagram DR M 4P ... FM



Four-pole surge arrester consisting of a base part and plug-in protection module; FM version with floating remote signalling contact.

- Four-pole surge arrester consisting of a base part and plug-in protection module
- High discharge capacity due to heavy-duty zinc oxide varistor / spark gap combination
- Energy coordination with other arresters of the Red/Line product family

Type	DR M 4P 255	DR M 4P 255 FM
Part No.	953 400	953 405
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III	type 3 / class III
Nominal a.c. voltage (U_N)	230 / 400 V (50 / 60 Hz)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 / 440 V (50 / 60 Hz)	255 / 440 V (50 / 60 Hz)
Nominal load current a.c. (I_L)	25 A	25 A
Nominal discharge current (8/20 μ s) (I_n)	3 kA	3 kA
Total discharge current (8/20 μ s) [L1+L2+L3+N-PE] (I_{total})	8 kA	8 kA
Combination wave (U_{OC})	6 kV	6 kV
Combination wave [L1+L2+L3+N-PE] ($U_{OC total}$)	16 kV	16 kV
Voltage protection level [L-N] (U_P)	≤ 1000 V	≤ 1000 V
Voltage protection level [L/N-PE] (U_P)	≤ 1500 V	≤ 1500 V
Response time [L-N] (t_A)	≤ 25 ns	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	25 A gL/gG or B 25 A	25 A gL/gG or B 25 A
Short-circuit withstand capability for mains-side overcurrent protection with 25 A gL/gG (I_{SCCR})	6 kA _{rms}	6 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [N-PE] (U_T) – Characteristic	1200 V / 200 ms – safe failure	1200 V / 200 ms – safe failure
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Operating state / fault indication	green / red	green / red
Number of ports	1	1
Cross-sectional area (min.)	0.5 mm ² solid / flexible	0.5 mm ² solid / flexible
Cross-sectional area (max.)	4 mm ² stranded / 2.5 mm ² flexible	4 mm ² solid / 2.5 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20
Capacity	2 modules, DIN 43880	2 modules, DIN 43880
Approvals	KEMA, VDE, UL	KEMA, VDE, UL
Type of remote signalling contact	—	changeover contact
a.c. switching capacity	—	250 V / 0.5 A
d.c. switching capacity	—	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	—	max. 1.5 mm ² solid / flexible

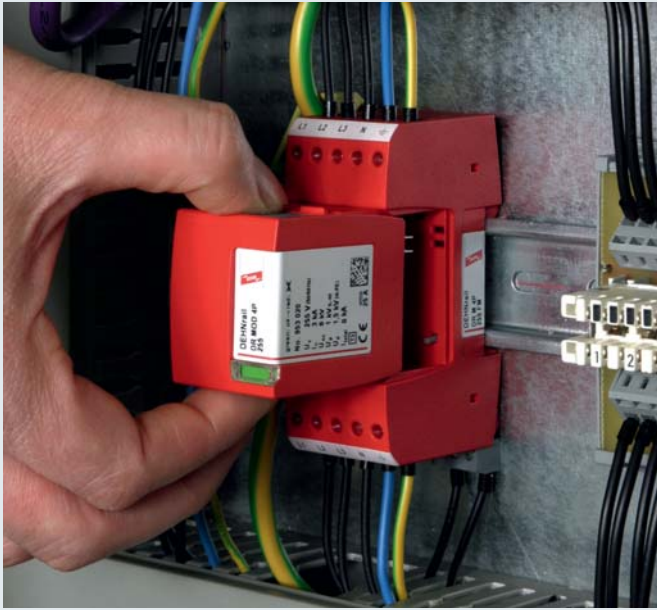
Accessory for DEHNrail modular, multipole

Protection Module for DEHNrail M 4P

Four-pole protection module with integrated protective circuit.

Type	DR MOD 4P 255
Part No.	953 020
Max. continuous operating a.c. voltage (U_C)	255 V





- High discharge capacity due to heavy-duty zinc oxide varistor / spark gap combination
- High reliability due to "Thermo Dynamic Control" disconnecter with dual monitoring
- Energy coordination with other arresters of the Red/Line product family
- Easy replacement of protection modules without tools due to module locking system with module release button
- Operating state / fault indication by green / red indicator flag in the inspection window
- The plug-in protection module can be replaced without the need to de-energise and without removing the distribution board cover
- Vibration and shock-tested in accordance with EN 60068-2

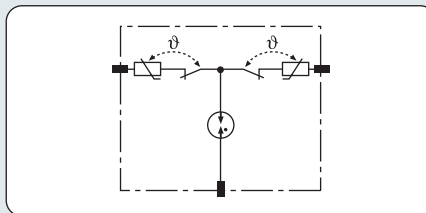
For protecting the power supply circuits of industrial electronics equipment against surges in switchgear cabinets. For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher.

DEHNrail MOD ...: For all types of two-pole DEHNrail M 2P ... surge arresters
 DEHNrail MOD 4P...: For all types of four-pole DEHNrail M 4P ... surge arresters

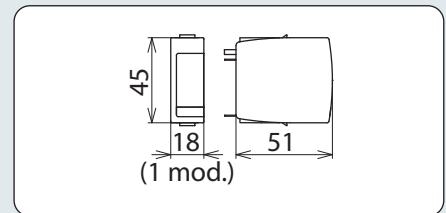
Protection Module for DEHNrail M 2P



Protection module with integrated Y protection circuit.



Basic circuit diagram of a DR MOD protection module



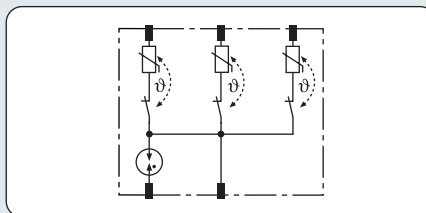
Dimension drawing of a DR MOD protection module

Type	DR MOD 30	DR MOD 60	DR MOD 75	DR MOD 150	DR MOD 255
Part No.	953 011	953 012	953 013	953 014	953 010
Nominal discharge current (8/20 μs) (I _n)	1 kA	1 kA	2 kA	2 kA	3 kA
Total discharge current (8/20 μs) [L+N-PE] (I _{total})	2 kA	2 kA	4 kA	4 kA	5 kA
Max. continuous operating a.c. voltage (U _c)	30 V	60 V	75 V	150 V	255 V
Max. continuous operating d.c. voltage (U _c)	30 V	60 V	75 V	150 V	255 V

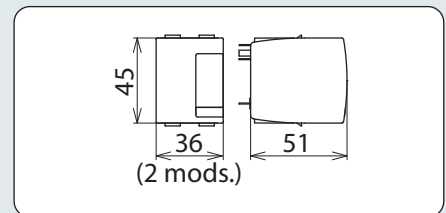
Protection Module for DEHNrail M 4P



Four-pole protection module with integrated protective circuit.



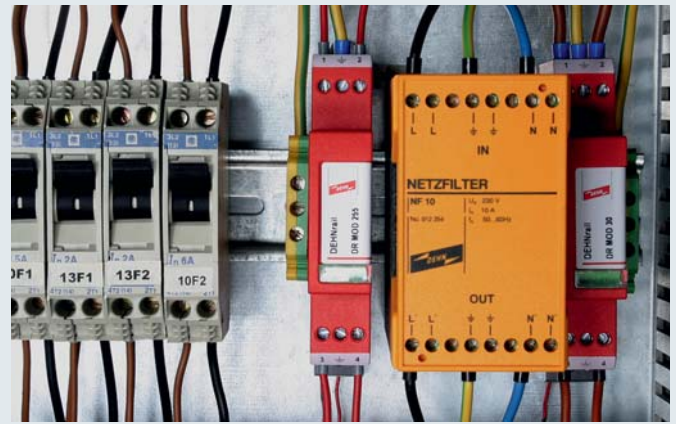
Basic circuit diagram of a DR MOD 4P protection module



Dimension drawing of a DR MOD 4P protection module

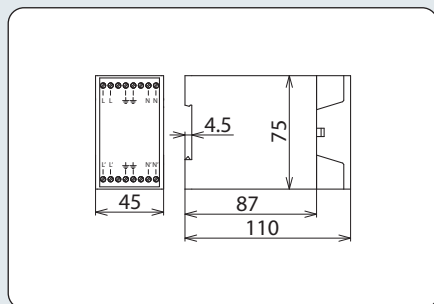
Type	DR MOD 4P 255
Part No.	953 020
Nominal discharge current (8/20 μs) (I _n)	3 kA
Total discharge current (8/20 μs) [L+N-PE] (I _{total})	8 kA
Max. continuous operating a.c. voltage (U _c)	255 V
Max. continuous operating d.c. voltage (U _c)	255 V

- Protection of sensitive industrial electronics equipment against balanced and unbalanced high-frequency interference
- For use in combination with surge protective devices, e.g. DEHNrail M 2P 255
- Easy installation on DIN rails in switchgear cabinets

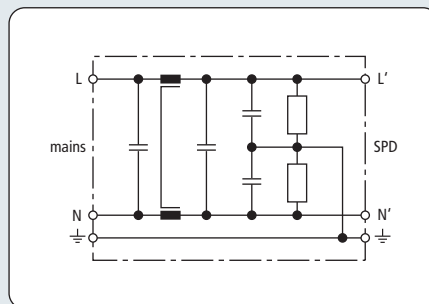


The NF 10 mains filters ideally complements surge protective devices for industrial terminal equipment. The DIN rail mounted mains filters are ideally suited for installation downstream of surge protective devices (e.g. DEHNrail M 2P 255). In addition to surge protection, protection against balanced and unbalanced high-frequency interference is provided. The

separate input and output terminals of the mains filter ensure optimal protection of the equipment to be protected. In addition to surge protection, the mains filter also fulfils electromagnetic compatibility requirements in plant and control systems.



Dimension drawing NF 10



Basic circuit diagram NF 10

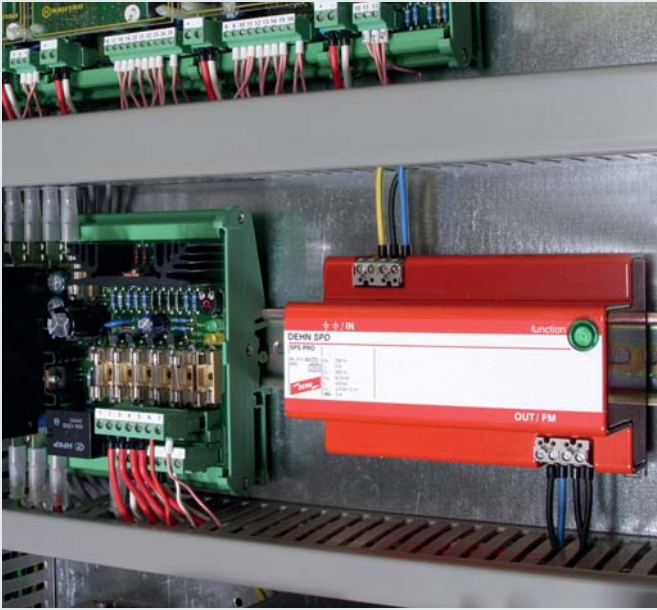


Mains filter for protection against balanced and unbalanced interferences.

Type	NF 10
Part No.	912 254
Nominal a.c. voltage (U_N)	230 V
Nominal load current a.c. (I_N)	10 A
Nominal frequency (f_N)	50-60 Hz
Discharge current (for U_N)	≤ 3.5 mA
Attenuation for $f = 1$ MHz, balanced	> 64 dB
Attenuation for $f = 1$ MHz, unbalanced	> 69 dB
Total circuit capacitance [L-N]	660 nF
Total circuit capacitance [L (N)-PE]	66 nF
Total circuit inductance	1.8 mH per path
Backup fuse	10 A gL/gG
Operating temperature range (T_U)	-25 °C ... +40 °C
Cross-sectional area (min.)	2.5 mm ² (stranded)
Cross-sectional area (max.)	4 mm ² (flexible)
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic GF (polycarbonate)
Degree of protection	IP 20
Dimensions	110 x 45 x 75 mm

Two-pole Surge Arrester with Filter

Type 3 Surge Arresters



For protecting the power supply circuits of industrial electronics equipment (e.g. programmable logic controls (PLCs)) against transients and high-frequency interference voltages. For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher.

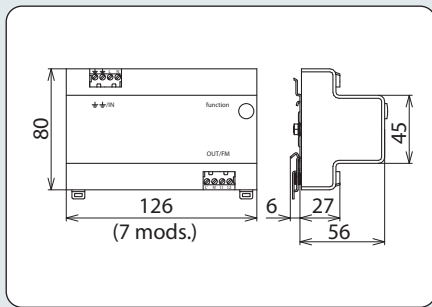
SPS Protector: Two-pole surge arrester with interference suppressor filter

The SPS Protector combines surge protection and interference suppressor filter in a compact device. This makes it ideal for protecting sensitive terminal equipment of industrial automation systems (e.g. programmable logic controls (PLCs)). The coordinated surge protection and filter functions complement one another and prevent core saturation of the filter in the event of energetic transients. The separate input and output terminals provide optimal protection for the device to be protected. The metal

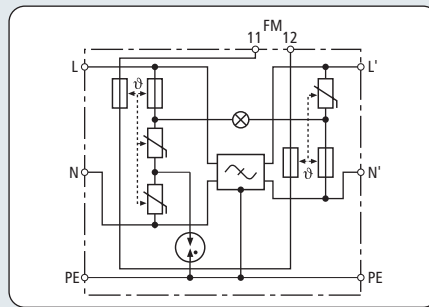
enclosure of the SPS Protector ensures that high-frequency interferences are discharged without interfering with other devices in the immediate vicinity. The compact design of the SPS Protector already houses the proven disconnector. In case of overload, it disconnects the arrester without interrupting the power supply circuit. Apart from the green indicator light, SPS Protectors also feature a remote signalling contact.



- Combination of surge protection and filter
- Surge protection with monitoring device and disconnector
- Interference suppressor filter for protecting sensitive industrial electronics equipment against balanced and unbalanced high-frequency interference
- Installation in a shielded enclosure
- Visual operating state indication (green) and floating remote signalling contact (break contact) for fault indication



Dimension drawing SPS PRO



Basic circuit diagram SPS PRO



- Combination of surge protection and filter
- Surge protection with monitoring device and disconnecter
- Interference suppressor filter for protecting sensitive industrial electronics equipment against balanced and unbalanced high-frequency interference

Surge arrester with interference suppressor filter.

Type	SPS PRO
Part No.	912 253
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Nominal load current a.c. (I_L)	3 A
Voltage drop in percent [$L'-N'/L-N$] for U_C/I_L (ΔU)	$\leq 1.6\%$
Nominal discharge current (8/20 μ s) (I_n)	3 kA
Combination wave (U_{OC})	6 kV
Total discharge current (8/20 μ s) [$L+N-PE$] (I_{total})	5 kA
Voltage protection level [$L-N$] (U_p)	≤ 0.8 kV
Voltage protection level [$L/N-PE$] (U_p)	≤ 1.0 kV
Combination wave [$L+N-PE$] ($U_{OC total}$)	10 kV
Response time [$L-N$] (t_A)	≤ 25 ns
Response time [$L/N-PE$] (t_A)	≤ 100 ns
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}
Temporary overvoltage (TOV) [$L-N$] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L/N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [$L/N-PE$] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [$L/N-PE$] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [$L+N-PE$] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Operating state indication	green light
Fault indication	green light off
Number of ports	2
Operating temperature range (T_U)	-10 °C ... +40 °C
Cross-sectional area (min.)	0.14 mm ² solid / stranded / flexible
Cross-sectional area (max.)	2.5 mm ² solid / stranded / flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	aluminium, red powder coating
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	7 modules, DIN 43880
Type of remote signalling contact	break contact
a.c. switching capacity	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ² solid / flexible
Mains filter	acc. to DIN VDE 0565 Part 3
Attenuation for $f = 1$ MHz, balanced	≥ 73 dB
Attenuation for $f = 1$ MHz, unbalanced	≥ 45 dB



For protecting electronic devices against surges. For installation in electrical installation systems, e.g. cable ducts or flush-type boxes. For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher.

DEHNsafe 230 LA: Surge protective device for use in cable ducts

DEHNsafe surge arresters particularly stand out due to their flexible application options. Due to their small mounting depth of only 31 mm, the two-pole surge protective devices for 230 V terminal equipment can be installed both in cable ducts and in flat flush-type boxes. DEHNsafe incorporates a monitoring device and a thermal disconnecter. In addition to a visual operating state indicator, the device features a programmable acoustic fault indicator which can be programmed for three different operating states:

- Acoustic fault indication,
- Test function,
- Muting of the acoustic signal.



- Two-pole surge protective device for 230 V terminal equipment
- For use in flush-type boxes and cable ducts
- Enhanced safety due to fault-proof Y protective circuit
- Multiple indicator
- Programmable acoustic function
- Terminals for series connection
- Independent of the socket outlet design

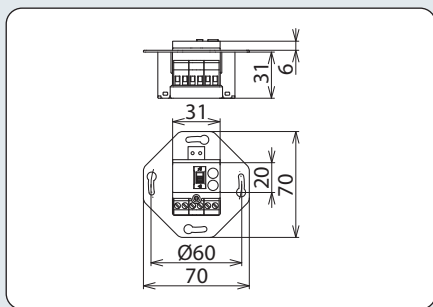


DEHNsafe surge arresters are covered by a triple TAE cover from any switch range manufacturer, thus ideally adapting to any socket outlet design.

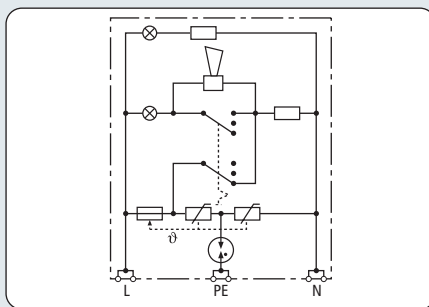
The double terminals for L, N and PE allow for series connection to ensure that the surge protective device is situated in parallel to the circuit to be protected. For this reason, DEHNsafe does not necessarily

interrupt the circuit to be protected in case of overload. They feature a green and red LED for visual inspection.





Dimension drawing DSA 230 LA



Basic circuit diagram DSA 230 LA



- For use in flush-type boxes and cable ducts
- Multiple indicator
- Programmable acoustic function

Surge protective device for use in cable ducts and flush-type boxes.

Type	DSA 230 LA
Part No.	924 370
SPD according to EN 61643-11 / IEC 61643-1/-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)
Nominal load current (I_l)	16 A
Nominal discharge current (8/20 μ s) (I_n)	3 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA
Combination wave (U_{oc})	6 kV
Combination wave [L+N-PE] ($U_{oc total}$)	10 kV
Voltage protection level [L-N] (U_p)	≤ 1.25 kV
Voltage protection level [L/N-PE] (U_p)	≤ 1.5 kV
Response time [L-N] (t_A)	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Fault indication	red light + acoustic signal
Operating state indication	green light
Number of ports	1
Switch	function test / acoustic signal off
Operating temperature range (T_U)	-25 °C ... +40 °C
Cross-sectional area (min.)	0.5 mm ² solid / stranded / flexible
Cross-sectional area (max.)	2.5 mm ² solid / stranded / flexible
For mounting on	retaining rings ($\varnothing 60$ mm) for installation in switch boxes (40 mm deep)
Enclosure material	thermoplastic, grey, UL 94 V-2
Place of installation	indoor installation
Degree of protection	IP 20
Cover	TAE

Accessory for DEHNsafe

Central Covering Plate

Single unit, alpha exclusive.

Type	ZAP STW
Part No.	924 329
Colour	studio white



Accessory for DEHNsafe

Cover Frame

Single unit, alpha exclusive.

Type	AR1 STW
Part No.	924 328
Colour	studio white



Socket Outlet with integrated Surge Protection

Type 3 Surge Arresters



For protecting electronic equipment against surges. Earthed socket outlet with surge protective circuit for installation in electrical installation systems. For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher. German utility patent.

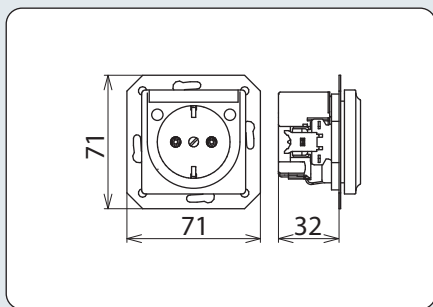
NSM Protector: Earthed socket outlet with integrated surge protection

The devices of the NSM Protector family combine surge protection and earthed socket outlet in a single device. The two-pole surge arresters are specifically designed for protecting electronic loads in final circuits. Their very compact design incorporates the approved disconnecter which disconnects overloaded surge arresters without interrupting the supply circuit. The low voltage protection level as well as the comprehensive com-

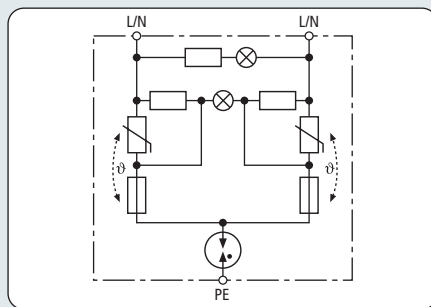
mon and differential mode protection are typical of the devices of the NSM Protector family. The fault-proof Y protective circuit ensures safety even if the phase and neutral conductors in final circuits cannot be identified. The integrated disconnecter ensures reliability of devices and installations. The standard green and red LEDs indicate the operating state of the surge protective devices.



- Surge protection with monitoring device and disconnecter
- Enhanced safety due to fault-proof Y protective circuit
- Visual operating state (green) and fault indication (red)
- With retaining ring (diameter of 60 mm) for installation in switch boxes with a diameter of 60 mm and a depth of 40 mm



Dimension drawing NSM PRO ...



Basic circuit diagram NSM PRO ...



- Surge protection with monitoring device and disconnecter
- Visual operating state (green) and fault indication (red)
- With retaining ring (diameter of 60 mm) for installation into switch boxes with a diameter of 60 mm and a depth of 40 mm

Socket outlet with surge protection

Type	NSM PRO TW	NSM PRO SI	NSM PRO AZ	NSM PRO EW
Part No.	924 335	924 337	924 339	924 342
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III	type 3 / class III	type 3 / class III	type 3 / class III
Nominal a.c. voltage (U _N)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U _C)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μs) (I _n)	3 kA	3 kA	3 kA	3 kA
Total discharge current (8/20 μs) [L+N-PE] (I _{total})	5 kA	5 kA	5 kA	5 kA
Combination wave (U _{OC})	6 kV	6 kV	6 kV	6 kV
Combination wave [L+N-PE] (U _{OC total})	10 kV	10 kV	10 kV	10 kV
Voltage protection level [L-N] (U _P)	≤ 1.25 kV	≤ 1.25 kV	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level [L/N-PE] (U _P)	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV
Response time [L-N] (t _A)	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns
Response time [L/N-PE] (t _A)	≤ 100 ns	≤ 100 ns	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A	B 16 A	B 16 A	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I _{SCCR})	1 kA _{rms}	1 kA _{rms}	1 kA _{rms}	1 kA _{rms}
Temporary overvoltage [L-N] (U _T) – Characteristic	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand	335 V / 5 sec. – withstand
Temporary overvoltage [L-N] (U _T) – Characteristic	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure	440 V / 120 min. – safe failure
Temporary overvoltage [L/N-PE] (U _T) – Characteristic	335 V / 120 min. – withstand	335 V / 120 min. – withstand	335 V / 120 min. – withstand	335 V / 120 min. – withstand
Temporary overvoltage [L/N-PE] (U _T) – Characteristic	440 V / 5 sec. – withstand	440 V / 5 sec. – withstand	440 V / 5 sec. – withstand	440 V / 5 sec. – withstand
Temporary overvoltage [L+N-PE] (U _T) – Characteristic	1200 V + U _{REF} / 200 ms – safe failure	1200 V + U _{REF} / 200 ms – safe failure	1200 V + U _{REF} / 200 ms – safe failure	1200 V + U _{REF} / 200 ms – safe failure
Fault indication	red light	red light	red light	red light
Operating state indication	green light	green light	green light	green light
Number of ports	1	1	1	1
Operating temperature range (T _U)	-25 °C ... +40 °C	-25 °C ... +40 °C	-25 °C ... +40 °C	-25 °C ... +40 °C
Cross-sectional area	screwless double terminals up to 2.5 mm ² each, also suitable for series connection			
For mounting on	retaining ring (Ø60 mm) for installation into 32 mm deep switch boxes			
Enclosure material	thermoplastic, UL 94 V-2	thermoplastic, UL 94 V-2	thermoplastic, UL 94 V-2	thermoplastic, UL 94 V-2
Place of installation	indoor installation	indoor installation	indoor installation	indoor installation
Degree of protection	IP 20	IP 20	IP 20	IP 20
DELTA line	DELTA profil, titanium white	DELTA profil, silver	DELTA profil, anthracite	DELTA plus, electrical white

Accessory for NSM Protector

AR1 Cover Frame

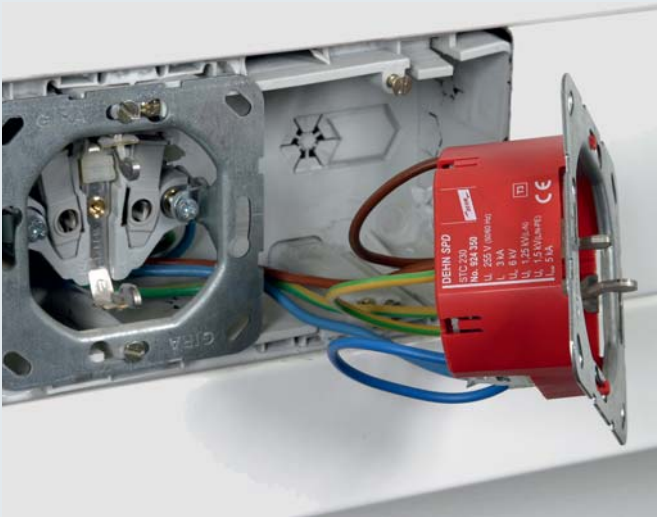
Single unit, suitable for NSM Protector.

Type	AR1 TW	AR1 SI	AR1 AZ	AR1 EW
Part No.	924 336	924 338	924 340	924 343
Type	DELTA profil, titanium white	DELTA profil, silver	DELTA profil, anthracite	DELTA plus, electrical white



Surge Arrester for earthed Socket Outlets

Type 3 Surge Arresters



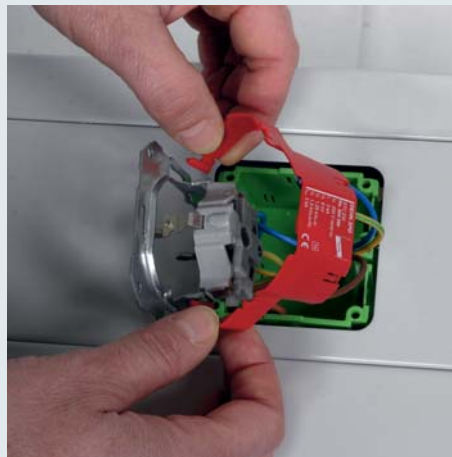
For protecting electronic devices against surges. For use with standard earthed socket outlets. For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher.

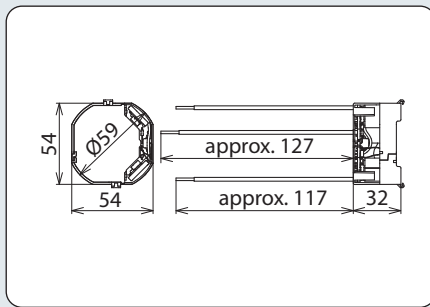
STC 230: Snap-on module for standard earthed socket outlets

The well received STC surge protection module can be fitted inconspicuously. Being a two-pole arrester, the module can be installed on the rear side of standard earthed socket outlets. The STC surge protection module thus adapts to every type of socket outlet. The plastic snap-on retaining ring allows easy installation even in already mounted earthed

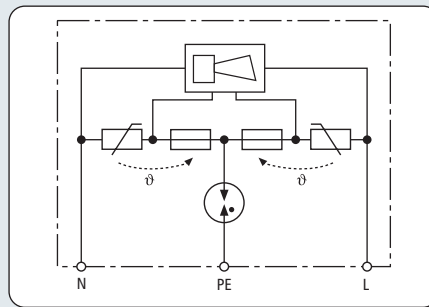
- Two-pole surge arrester with monitoring device and disconnecter
- Enhanced safety due to fault-proof Y protective circuit
- Acoustic fault indication
- For installation in standard earthed socket outlets
- Independent of the socket outlet design
- Plastic snap-on retaining ring for easy installation in already mounted socket outlets

socket outlets. In addition to a thermal disconnecter, the protective device features an acoustic fault indication. As the surge protection module is installed in parallel to the socket outlet, the power supply of the connected loads remains uninterrupted, even if the surge arrester is overloaded.





Dimension drawing STC 230



Basic circuit diagram STC 230



- Acoustic fault indication
- For installation in standard earthed socket outlets
- Independent of the the socket outlet design

Two-pole surge arrester to be snapped on earthed socket outlets.

Type	STC 230
Part No.	924 350
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	3 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA
Combination wave (U_{OC})	6 kV
Combination wave [L+N-PE] ($U_{OC total}$)	10 kV
Voltage protection level [L-N] (U_P)	≤ 1.25 kV
Voltage protection level [L/N-PE] (U_P)	≤ 1.5 kV
Response time [L-N] (t_A)	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Operating temperature range (T_U)	-25 °C ... +40 °C
Fault indication	acoustic signal on
Number of ports	1
Terminal wires	1 mm ² , 120 mm long
For mounting on	standard earthed socket outlets
Enclosure material	thermoplastic, red, UL 94 V-2
Place of installation	indoor installation
Degree of protection of installed device	IP 20
Dimensions	54 x 54 x 32 mm
Indication of disconnecter	acoustic signal on



For protecting electronic equipment against surges. For installation in electrical installation systems, e.g. flush-mounted systems, cable ducts and flush-type boxes. German utility patent for DEHNflex A / ... D. For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher.

DEHNflex M: Compact design; for use in cable duct systems and flush-type boxes

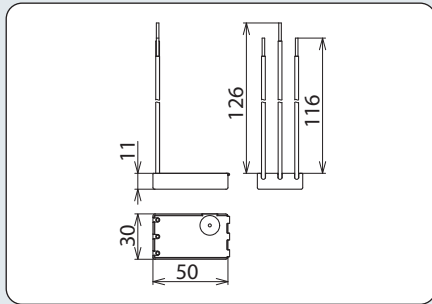
DEHNflex A: For use in any cable duct systems or flush-type boxes; with test function

DEHNflex D: Like DEHNflex A, but for series connection of several socket outlets

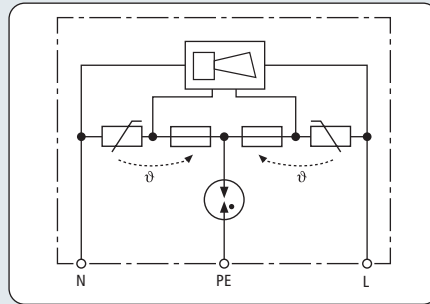
As the name suggests, the DEHNflex family offers almost unlimited application options. Being two-pole surge arresters, the compact modules are ideally suited for protecting electronic loads in final circuits. The design was adapted to the most common places of installation, that is cable ducts and flush-type boxes. DEHNflex devices show that small and compact dimensions do not necessarily mean that surge arresters are inefficient. The fault-proof Y protective circuit always ensures safety even if the phase and neutral conductors cannot be identified. Apart from the powerful Y circuit, the compact enclosure also houses a disconnector and an acoustic fault indicator. Be it in cable ducts, flush-mounted systems, branching boxes or device casings – DEHNflex is always installed in the right place close to terminal equipment.



- Two-pole surge arrester with monitoring device and disconnector
- Enhanced safety due to fault-proof Y protective circuit
- Acoustic fault indication
- Compact design
- For use in flush-mounted systems, cable ducts and flush-type boxes



Dimension drawing DFL M



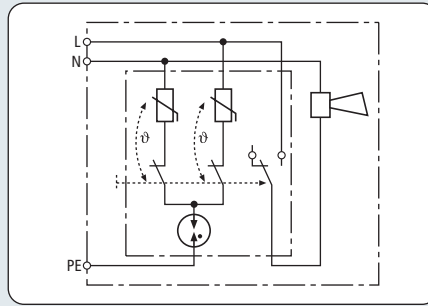
Basic circuit diagram DFL M



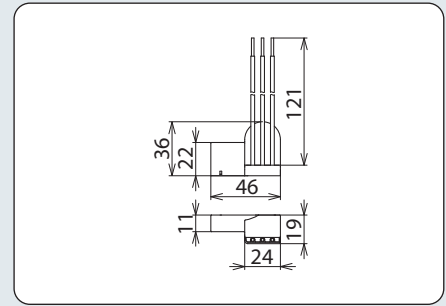
- Acoustic fault indication
- Compact design
- For use in flush-mounted systems, cable ducts and flush-type boxes

Surge arrester for use in all types of installation systems for terminal equipment; compact dimensions.

Type	DFL M 255
Part No.	924 396
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	1.5 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	3 kA
Combination wave (U_{oc})	3 kV
Combination wave [L+N-PE] ($U_{oc total}$)	6 kV
Voltage protection level [L-N] (U_p)	≤ 1.25 kV
Voltage protection level [L/N-PE] (U_p)	≤ 1.5 kV
Response time [L-N] (t_A)	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{sCCR})	1 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Fault indication	acoustic signal on
Number of ports	1
Operating temperature range (T_U)	-25 °C ... +40 °C
Terminal wires	1 mm ² , 120 mm long
Enclosure material	thermoplastic, red, UL 94 V-2
Place of installation	indoor installation
Degree of protection of installed device	IP 20
Dimensions	30 x 50 x 11 mm



Basic circuit diagram DFL A

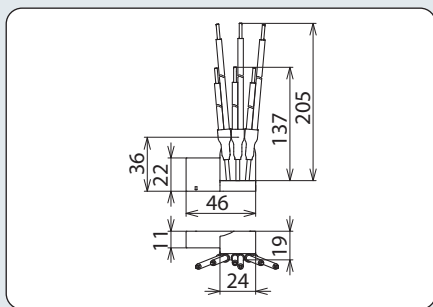


Dimension drawing DFL A

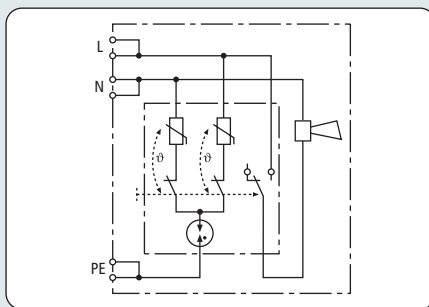
- Acoustic fault indication
- Compact design
- For use in flush-mounted systems, cable ducts and flush-type boxes

Surge arrester for use in all types of installation systems for terminal equipment; with test function.

Type	DFL A 255
Part No.	924 389
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	3 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA
Combination wave (U_{OC})	6 kV
Combination wave [L+N-PE] ($U_{OC total}$)	10 kV
Voltage protection level [L-N] (U_P)	≤ 1.25 kV
Voltage protection level [L/N-PE] (U_P)	≤ 1.5 kV
Response time [L-N] (t_A)	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Fault indication	acoustic signal on
Number of ports	1
Operating temperature range (T_U)	-25 °C ... +40 °C
Terminal wires	1 mm ² , 120 mm long
Enclosure material	thermoplastic, red, UL 94 V-2
Place of installation	indoor installation
Degree of protection of installed device	IP 20
Dimensions	36 x 46 x 19 mm



Dimension drawing DFL D



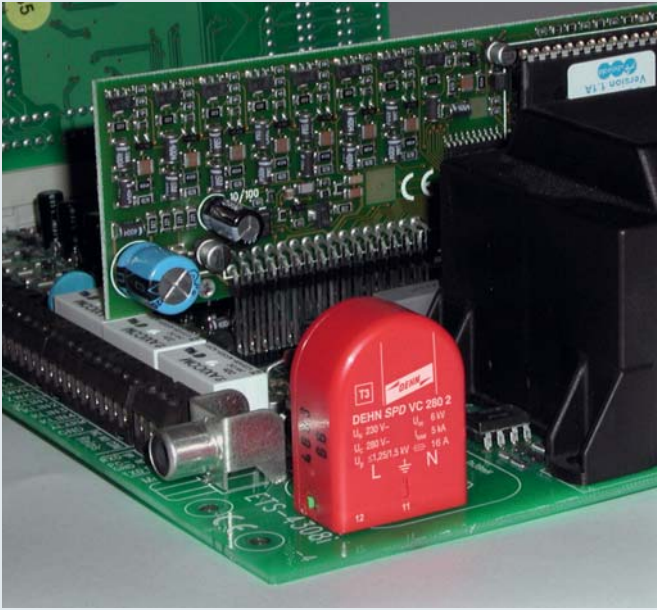
Basic circuit diagram DFL D



Surge arrester for use in all types of installation systems for terminal equipment; allows for through-wiring; with test function.

- Acoustic fault indication
- Compact design
- For use in flush-mounted systems, cable ducts and flush-type boxes

Type	DFL D 255
Part No.	924 395
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Nominal load current a.c. (I_L)	16 A
Nominal discharge current (8/20 μ s) (I_n)	3 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA
Combination wave (U_{OC})	6 kV
Combination wave [L+N-PE] ($U_{OC total}$)	10 kV
Voltage protection level [L-N] (U_p)	≤ 1.25 kV
Voltage protection level [L/N-PE] (U_p)	≤ 1.5 kV
Response time [L-N] (t_A)	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Fault indication	acoustic signal on
Number of ports	1
Operating temperature range (T_U)	-25 °C ... +40 °C
Terminal wires	1 mm ² , 130 / 200 mm long
Enclosure material	thermoplastic, red, UL 94 V-2
Place of installation	indoor installation
Degree of protection of installed device	IP 20
Dimensions	36 x 46 x 19 mm



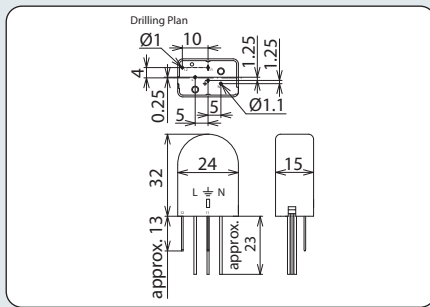
VC 280 2 protects electronic equipment against surges. It is installed in the enclosure or directly in the device to be protected in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher. German utility patent.

VC 280 2: Mains module with surge protection for installation in the terminal device to be protected

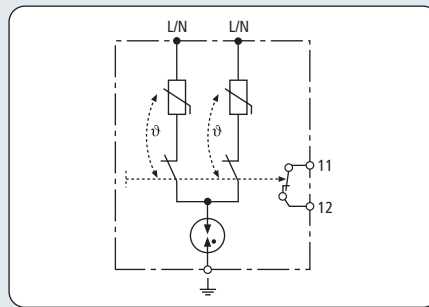
VC 280 2 surge arresters are small, but no less complex. The two-pole module incorporates a fault-proof Y protective circuit, a monitoring and disconnection device as well as a floating remote signalling contact, thus ensuring compact dimensions and maximum safety. The surge arresters

- Two-pole surge arrester with monitoring device and disconnecter
- Complete surge protective device for devices with a.c. voltage supply
- Enhanced safety due to fault-proof Y protective circuit
- Floating remote signalling contact (break contact) with test option for fault indicator
- For installation onto printed circuit boards

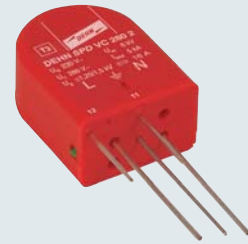
even feature an integrated test option for the fault indicator. VC 280 2 reliably protects electronic equipment against overvoltage. The solder pins of VC 280 2 surge arresters allow to install them directly onto the PCBs of the device to be protected.



Dimension drawing VC 280 2



Basic circuit diagram VC 280 2



Mains module with surge protection and floating break contact for installation into terminal equipment to be protected.

- Complete surge protective device for devices with a.c. voltage power supply
- Floating remote signalling contact (break contact) with test option for fault indicator
- For installation onto printed circuit boards

Type	VC 280 2
Part No.	900 471
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	280 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	3 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA
Combination wave (U_{OC})	6 kV
Combination wave [L+N-PE] ($U_{OC total}$)	10 kV
Voltage protection level [L-N] (U_P)	≤ 1.25 kV
Voltage protection level [L/N-PE] (U_P)	≤ 1.5 kV
Response time [L-N] (t_A)	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Fault indication	remote signalling contact (break contact)
Number of ports	1
Operating temperature range (U_T)	-25 °C ... +40 °C
For mounting on	printed circuit boards
Enclosure material	thermoplastic, red, UL 94 V-2
Place of installation	indoor installation
Degree of protection	IP 20
Dimensions	32 x 24 x 15 mm
Type of remote signalling contact	break contact
a.c. switching capacity	250 V / 0.5 A
d.c. switching capacity	250 V / 0.1 A; 125 V / 0.2 A; 75 V / 0.5 A



The adapter protects the power supply circuits of electronic equipment against transients and high-frequency interference voltages (DEHNpro 230 F Protector). For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher.

DEHNpro 230: Protection of terminal equipment

DEHNpro 230 F: Protection of terminal equipment with mains filter

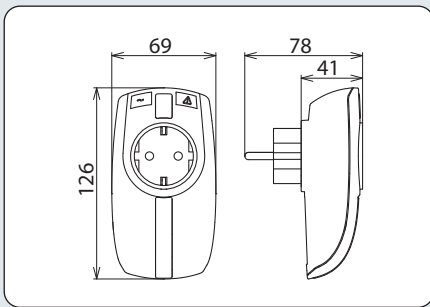
The adapters with integrated surge protection of the DEHNpro family protect electronic loads connected to final circuits from overvoltage. An interference suppressor filter with a balancing and unbalancing effect was integrated in the powerful surge protective circuit of DEHNpro 230 Protectors. This combination of surge protection and filter prevents a core saturation of the filter in case of energetic transients. The nominal current carrying capability of 16 A for DEHNpro 230 and 10 A for 230 F Protector allows flexible use of these devices in final circuits. The fault-proof Y circuit ensures protection even if the phase and neutral conductors in standard earthed socket outlets cannot be identified. The integrated discon-

- Surge protection with monitoring device and disconnecter
- Visual operating state (green) and fault indication (red)
- Mains filter (DEHNpro 230 F Protector only)
- Enhanced safety due to fault-proof Y protective circuit

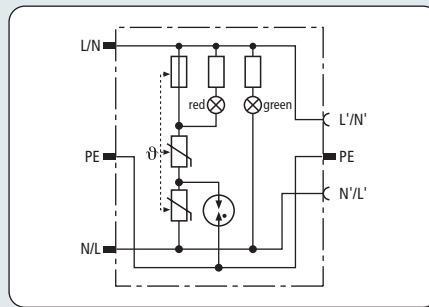
necter ensures reliability of devices and installations. The standard green and red LEDs indicate the operating state of the surge protective devices. The modern design of the DEHNpro devices and the use of high-quality materials ensure safety in a sophisticated appearance. The DEHNpro devices thus ideally adapt to the installation environment. They create the right technical environment already at the socket outlet for connecting the latest communication and multimedia systems. The curved enclosure surfaces and the smooth surface structure ensure that the DEHNpro devices will not lose their original properties even after several years of application.



For more detailed information on adapters with integrated surge protection for protecting power supply circuits and data interfaces of electronic devices, please refer to pages 330-334.



Dimension drawing DPRO 230



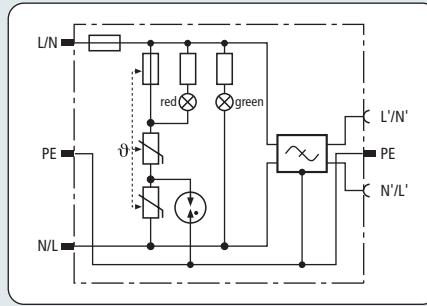
Basic circuit diagram DPRO 230



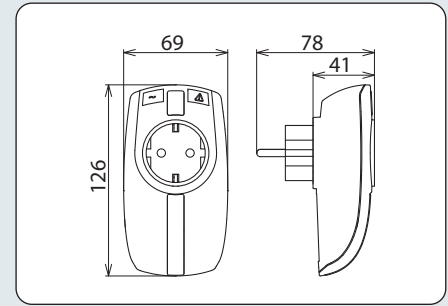
Adapter with integrated surge protection

- Surge protection with monitoring device and disconnector
- Visual operating state (green) and fault indication (red)
- Enhanced safety due to fault-proof Y protective circuit

Type	DPRO 230
Part No.	909 230
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Nominal load current a.c. (I_L)	16 A
Nominal discharge current (8/20 μ s) (I_n)	3 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA
Combination wave (U_{OC})	6 kV
Combination wave [L+N-PE] ($U_{OC total}$)	10 kV
Voltage protection level [L-N] (U_p)	≤ 1.25 kV
Voltage protection level [L/N-PE] (U_p)	≤ 1.5 kV
Response time [L-N] (t_A)	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Fault indication	red light
Operating state indication	green light
Number of ports	1
Operating temperature range (T_U)	-25 °C ... +40 °C
For mounting on	earthed socket outlets according to DIN 49440/DIN 49441
Enclosure material	thermoplastic, pure white, UL 94 V-2
Place of installation	indoor installation
Degree of protection	IP 20
Dimensions	126 x 69 x 41 mm



Basic circuit diagram DPRO 230 F



Dimension drawing DPRO 230 F

- Surge protection with monitoring device and disconnecter
- Visual operating state (green) and fault indication (red)
- Enhanced safety due to fault-proof Y protective circuit

Adapter with integrated surge protection and mains filter.

Type	DPRO 230 F
Part No.	909 240
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Nominal load current a.c. (I_L)	10 A
Voltage drop in percent [$L'/N'-N'/L' / L/N-N/L$] for U_C/I_L (ΔU)	≤ 0.3 %
Nominal discharge current (8/20 μ s) (I_n)	3 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA
Combination wave (U_{OC})	6 kV
Combination wave [L+N-PE] ($U_{OC total}$)	10 kV
Voltage protection level [L-N] (U_P)	≤ 1.25 kV
Voltage protection level [L/N-PE] (U_P)	≤ 1.5 kV
Response time [L-N] (t_A)	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Fault indication	red light
Operating state indication	green light
Number of ports	2
Operating temperature range (T_U)	-25 °C ... +40 °C
For mounting on	earthed socket outlets according to DIN 49440/DIN 49441
Enclosure material	thermoplastic, pure white, UL 94 V-2
Place of installation	indoor installation
Degree of protection	IP 20
Dimensions	126 x 69 x 41 mm
Mains filter	acc. to DIN VDE 0565 Part 3
Attenuation for f = 1 MHz, balanced	≥ 40 dB
Attenuation for f = 1 MHz, unbalanced	≥ 30 dB

Type 3 Surge Arresters

- Surge protection with monitoring device and disconnecter
- Interference suppressor filter
- Enhanced safety due to fault-proof Y protective circuit
- Mains switch with operating state indication (SFL PRO 6X only)
- 2 m connection cable for flexible use in a wide range of applications
- Visual operating state (green) and fault indicator (red)

Surge Protective Multiple Socket Outlet with Filter



Multiple socket outlet for protecting the power supply circuits of electronic equipment against transients and high-frequency interference voltages. For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher.

SFL PRO 6X: Surge protective multiple socket outlet with interference suppressor filter

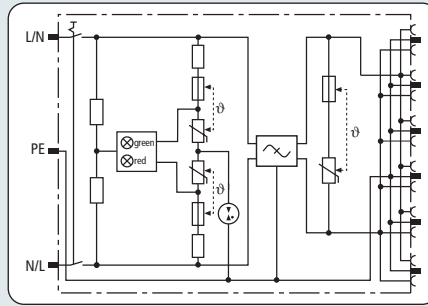
SFL PRO 6X 19": Surge protective multiple socket outlet with mains filter for 482.6 mm (19 inch) data cabinets



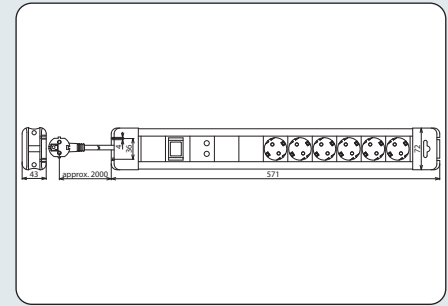
The SFL Protector surge arrester complements the wide range of Red/Line surge protective devices. The combination of surge protection and mains filter makes the six-way socket outlet a powerful device for protecting electronic loads in final electric circuits. The harmonised surge protection and filter functions complement one another and prevent a core saturation of the filter in case of energetic transients. The integrated mains filter is optimised for protection against balanced and unbalanced high-frequency interferences. The nominal current carrying capability of 16 A allows flexible use of these devices in final circuits.

The fault-proof Y protection circuit ensures protection even if the phase and neutral conductors in standard earthed socket outlets cannot be identified. The standard green and red LEDs indicate the operating state of the surge protective device.

The SFL PRO 6X 19" has been specifically developed for use in network cabinets and therefore provides optimal protection for terminal equipment in this critical field of application.



Basic circuit diagram SFL PRO 6X

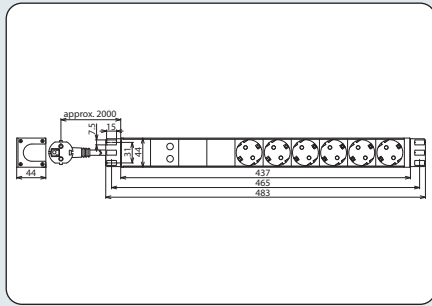


Dimension drawing SFL PRO 6X

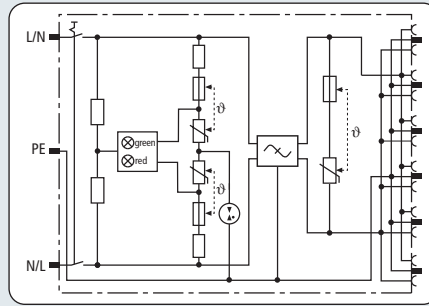
- Surge protection with monitoring device and disconnecter
- Interference suppressor filter
- Visual operating state (green) and fault indication (red)

Surge protective multiple socket outlet with mains filter.

Type	SFL PRO 6X
Part No.	909 250
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Nominal load current a.c. (I_L)	16 A
Voltage drop in percent for U_C/I_L (ΔU)	≤ 0.5 %
Nominal discharge current (8/20 μ s) (I_n)	3 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA
Combined wave (U_{OC})	6 kV
Combined wave [L+N-PE] ($U_{OC total}$)	10 kV
Voltage protection level (U_P)	≤ 1.5 kV
Response time [L-N] (t_A)	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	1.5 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Fault indication	red light
Operating state indication	green light
Number of ports	2
Operating temperature range (T_U)	-20 °C ... +40 °C
Connecting cable	approx. 2000 mm
Number of socket outlets	6
For mounting on	earthed socket outlets according to DIN 49440 / DIN 49441
Enclosure material	thermoplastic, black / silver, UL 94 V-1
Place of installation	indoor installation
Degree of protection	IP 20
Dimensions	571 x 72 x 43 mm
Mains filter	acc. to DIN VDE 0565 Part 3
Attenuation for $f = 1$ MHz, balanced	≥ 32 dB
Attenuation for $f = 1$ MHz, unbalanced	≥ 30 dB



Dimension drawing SFL PRO 6X 19"



Basic circuit diagram SFL PRO 6X 19"



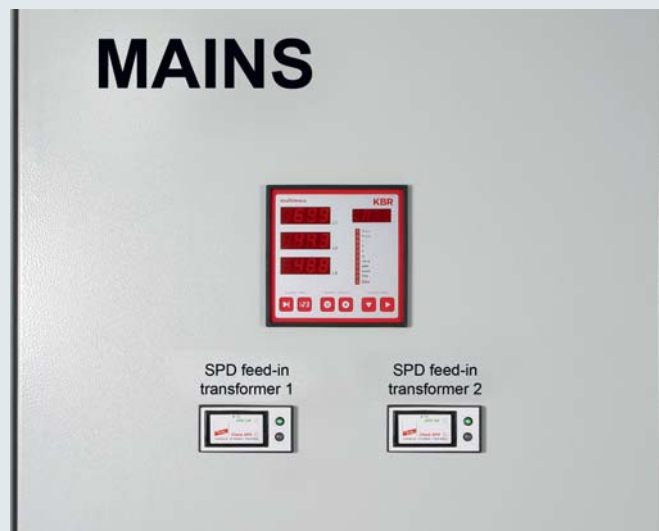
- Surge protection with monitoring device and disconnector
- Interference suppressor filter
- Visual operating state (green) and fault indication (red)

Surge protective multiple socket outlet with mains filter for 482.6 mm (19 inches) data cabinets.

Type	SFL PRO 6X 19"
Part No.	909 251
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)
Nominal load current a.c. (I_n)	16 A
Voltage drop in percent for U_c/I_n (ΔU)	$\leq 0.5 \%$
Nominal discharge current (8/20 μ s) (I_n)	3 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA
Combined wave (U_{oc})	6 kV
Combined wave [L+N-PE] ($U_{oc total}$)	10 kV
Voltage protection level (U_p)	≤ 1.5 kV
Response time [L-N] (t_A)	≤ 25 ns
Response time [L/N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	B 16 A
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	1.5 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure
Fault indication	red light
Operating state indication	green light
Number of ports	2
Operating temperature range (T_U)	-20 °C ... +40 °C
Connecting cable	approx. 2000 mm
Number of socket outlets	6
For mounting on	earthed socket outlets according to DIN 49440 / DIN 49441
Enclosure material	anodised aluminium profile, silver
Place of installation	indoor installation
Degree of protection	IP 20
Dimensions	483 x 44 x 44 mm
Mains filter	acc. to DIN VDE 0565 Part 3
Attenuation for f = 1 MHz, balanced	≥ 32 dB
Attenuation for f = 1 MHz, unbalanced	≥ 30 dB

General Accessories

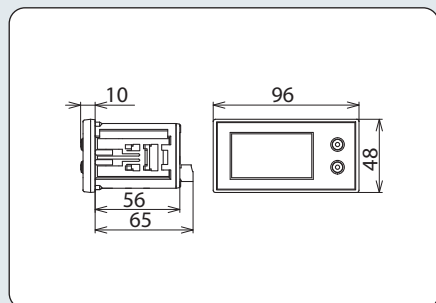
- Visual remote indicator for surge protective devices (SPDs)
- Easy installation
- For installation into switchgear cabinet doors
- Low energy consumption due to current-saving LEDs
- Supplied by two AA batteries
- Easy battery replacement without opening the switchgear cabinet door
- Wire breakage detection by connecting the break contact of the remote signalling contact



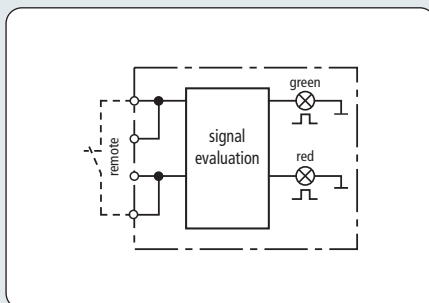
Visual indicator for surge protective devices for installation into switchgear cabinets.

DEHNpanel remotely indicates the status of surge protective devices in a switchgear installation by means of a remote signalling contact. High-luminosity LEDs clearly indicate the status of the surge protective device even under difficult lighting conditions. DEHNpanel can be easily integrated into existing switchgear installations, allowing the operator of the installation to easily test the surge protective devices installed without opening the switchgear cabinet.

The current-saving LEDs ensure a long battery service life of several years. Batteries can be replaced by ordinary persons since the switchgear cabinet does not have to be opened.



Dimension drawing DPAN L



Basic circuit diagram DPAN L

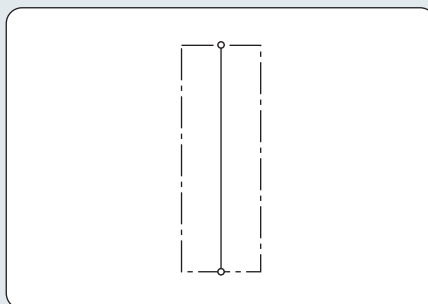


Type	DPAN L
Part No.	910 200
Voltage supply	2x 1.5 V AA batteries
Operating state / fault indication	green LED (flashing) / red LED (flashing)
Flashing frequency	0.1 s on / 1.3 s off
Enclosure material	noryl
Degree of protection (front / rear side)	IP 40 / IP 20
Operating temperature range (T _U)	-25 °C ... +60 °C
Mounting dimensions	92 x 45 mm
Dimensions	96 x 48 x 75 mm

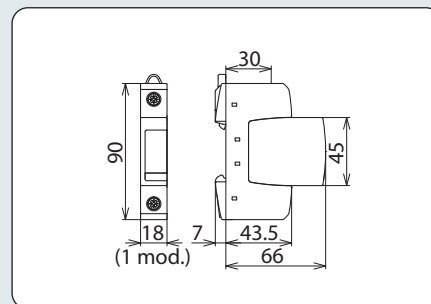


- Allows to change the wiring level
- For lightning-current-conform installation of arrester combinations

Uniform wiring level from the top by means of the DK 25 feed-through terminal.



Basic circuit diagram DK 25



Dimension drawing DK 25

Feed-through terminal for busbar wiring.

Type	DK 25
Part No.	952 699
Nominal a.c. / d.c. voltage (U_N)	500 V
Nominal load current a.c. (I_n)	100 A
Test current according to EN 60947-7-1	100 A
Lightning impulse current (10/350 μ s)	100 kA
Rated insulation voltage (U_i)	630 V
Rated impulse withstand voltage (U_{imp})	6 kV
Operating temperature range (T_U)	-40 °C ... +80 °C
Cross-sectional area (min.)	1.5 mm ² solid / flexible
Cross-sectional area (max.)	25 mm ² stranded / 16 mm ² flexible
For mounting on	35 mm DIN rails according to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Degree of protection	IP 20
Capacity	1 module, DIN 43880

- EMC-optimised series connection according to IEC 60364-5-53

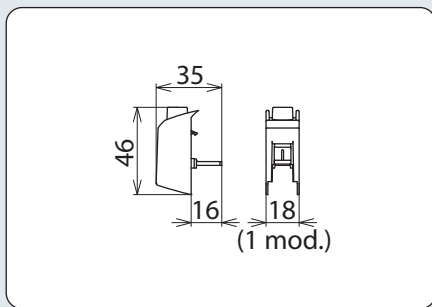


EMC-optimised series connection of lightning current and surge arresters according to IEC 60364-5-53 by means of STAK 2X16.

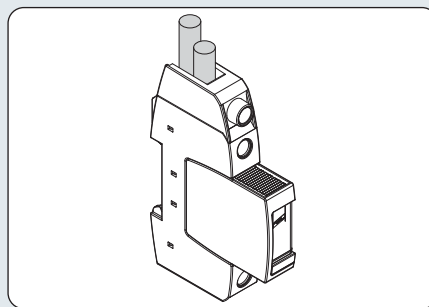


EMC-optimised series connection of string conductors in a PV generator junction box by means of STAK 25.

STAK 25 Pin-shaped Terminal



Dimension drawing STAK 25



Use of STAK 25 with DEHNGuard S



- Allows series connection (connection of two conductors) of surge protective devices up to 25 mm²

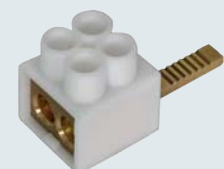
Pin-shaped terminal for EMC-optimised series connection of lightning current and surge arresters according to IEC 60364-5-53.

Type	STAK 25
Part No.	952 589
Nominal a.c. / d.c. voltage (U _N)	600 V
Max. PV voltage (U _{CPV}) when used in combination with DEHNGuard M YPV SCI ..	1200 V
Nominal load current a.c. (I _N)	100 A
Lightning impulse current (10/350 μs)	25 kA
Discharge current (8/20 μs)	50 kA
Rated insulation voltage (U _i)	630 V
Rated impulse withstand voltage (U _{imp})	6 kV
Operating temperature range (T _U)	-40 °C ... +80 °C
Cross-sectional area (min.)	1.5 mm ² solid / flexible
Cross-sectional area (max.)	25 mm ² stranded / 16 mm ² flexible
Type of connection	front
Suitable for	DEHNGuard S, DEHNGuard M, DEHNgap C S, DEHNshield, DK 25 feed-through terminal

STAK 2X16 Pin-shaped Terminal

Pin-shaped terminal for EMC-optimised series connection of lightning current and surge arresters according to IEC 60364-5-53.

Type	STAK 2X16
Part No.	900 589
Lightning impulse current (10/350 μs)	25 kA
Cross-sectional area (min.)	2x 1.5 mm ²
Cross-sectional area (max.)	2x max. 16 mm ²
Type of connection	front (double terminal)



- Allows to connect conductors with cross-sections that are smaller than the specified minimum terminal cross-section of the surge protective device

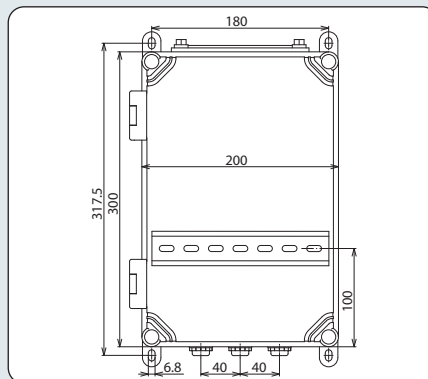


- Lightning-impulse-current-tested insulating enclosure for arresters

Application example: Modular DEHNventil M TNS installed in an IGA 10 V2 IP54 insulating enclosure.

Insulating Enclosure

IGA 10 V2 IP54

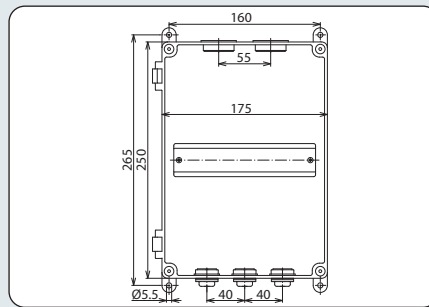


Dimension drawing IGA 10 V2 IP54

- Lightning-impulse-current-tested insulating enclosure for arresters

Lightning-current-tested insulating enclosure with a max. capacity of ten modules; with membrane flange for five EPDM cables (Ø7-30 mm) and three mounted M20 membrane openings with lock nut; ideally suited for series connection.

Type	IGA 10 V2 IP54
Part No.	902 315
Degree of protection	IP 54
Type	lightning-current-tested
Type of cover	transparent
Colour of enclosure	grey
Number of cable entries	1x for cables Ø7-10 mm; 2x for cables Ø10-14 mm or Ø15-30 mm each; 3x for cables Ø8-13 mm
Capacity	10 modules, DIN 43880
Dimensions (W x H x D)	200 x 300 x 132 mm
Cover	sealable



Dimension drawing IGA 7 IP54



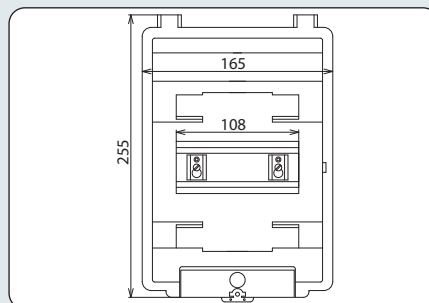
NEW

Lightning-current-tested insulating enclosure with a max. capacity of seven modules; with EPDM membrane flange for two cables (Ø1-25 mm) and three mounted M20 membrane openings with lock nut; ideally suited for series connection.

Type	IGA 7 IP54
Part No.	902 314
Degree of protection	IP 54
Type	lightning-current-tested
Type of cover	transparent
Colour of enclosure	grey
Number of cable entries	2x for cables Ø1-25 mm; 3x for cables Ø8-13 mm
Capacity	7 modules, DIN 43880
Dimensions (W x H x D)	175 x 250 x 100 mm
Cover	sealable

Insulating Enclosure

IGA 6 IP54



Dimension drawing IGA 6 IP54

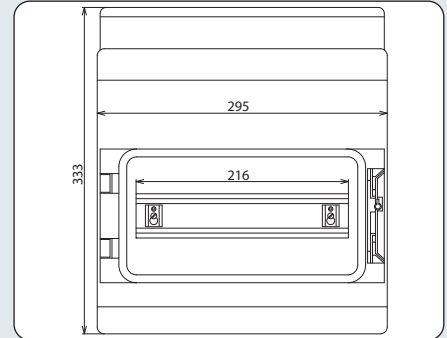


- Lightning-impulse-current-tested insulating enclosure for arresters

Enclosure for arresters without venting means with a max. capacity of six modules.

Type	IGA 6 IP54
Part No.	902 485
Degree of protection	IP 54
Type of cover	transparent
Colour of enclosure	grey
Number of cable entries	2 plug-in glands EST 21 for cables Ø9-21 mm
Capacity	6 modules, DIN 43880
Dimensions (W x H x D)	165 x 255 x 115 mm
Cover	sealable

IGA 12 IP54



- Easy visual inspection of the installed arresters through transparent door
- With integrated three-pole PE and twelve-pole N plug-in terminals
- With cable entry cover
- With blanking strips for unused DIN rail openings and labels

Integrated plug-in terminal technology for PE and N conductors.

Dimension drawing IGA 12 IP54

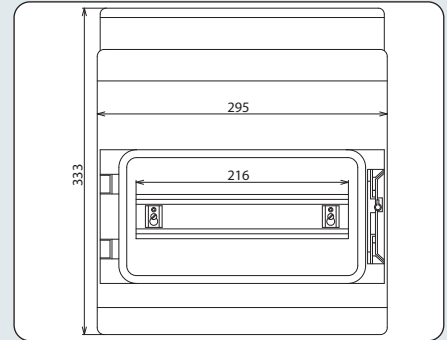
Insulating enclosure with a max. capacity of 12 modules, for arresters without venting means.

Type	IGA 12 IP54
Part No.	902 471
Degree of protection	IP 54
Type of cover	transparent door
Colour of enclosure	grey, RAL 7035
Cable entry	integrated elastic seal membrane
PE / N quantity x cross-section	3x 25 mm ² , 12x 4 mm ² , Cu
Capacity	12 modules, DIN 43880
Dimensions (W x H x D)	295 x 333 x 129 mm

Insulating Enclosure

IGA 12 IP65

NEW



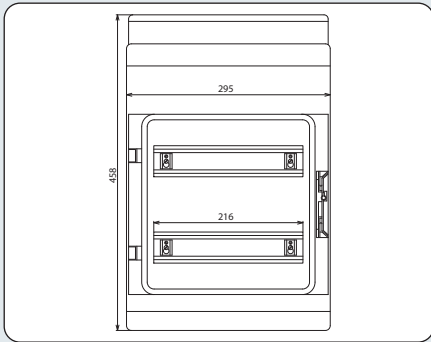
- Easy visual inspection of the installed arresters through transparent door
- With integrated three-pole PE and twelve-pole N plug-in terminals
- With cable entry cover
- With blanking strips for unused DIN rail openings and labels

Integrated PE and N plug-in terminals.

Dimension drawing IGA 12 IP65

Insulating enclosure with a max. capacity of 12 modules, for arresters without venting means.

Type	IGA 12 IP65
Part No.	902 316
Degree of protection	IP 65
Type of cover	transparent door
Colour of enclosure	grey, RAL 7035
Cable entry	integrated elastic seal membrane
PE / N quantity x cross-section	3x 25 mm ² , 12x 4 mm ² , Cu
Capacity	12 modules, DIN 43880
Dimensions (W x H x D)	295 x 333 x 129 mm



Dimension drawing IGA 24 IP54



Integrated plug-in terminal technology for PE and N conductors.



Insulating enclosure with a max. capacity of 2x 12 modules, for arresters without venting means.

- Easy visual inspection of the installed arresters through transparent door
- With integrated six-pole PE and 24-pole N plug-in terminals
- With cable entry cover
- With blanking strips for unused DIN rail openings and labels

Type	IGA 24 IP54
Part No.	902 472
Degree of protection	IP 54
Type of cover	transparent door
Colour of enclosure	grey, RAL 7035
Cable entry	integrated elastic seal membrane
PE / N quantity x cross-section	6x 25 mm ² , 24x 4 mm ² , Cu
Capacity	24 modules (2x 12 modules), DIN 43880
Dimensions (W x H x D)	295 x 458 x 129 mm

Accessory for Insulating Enclosure

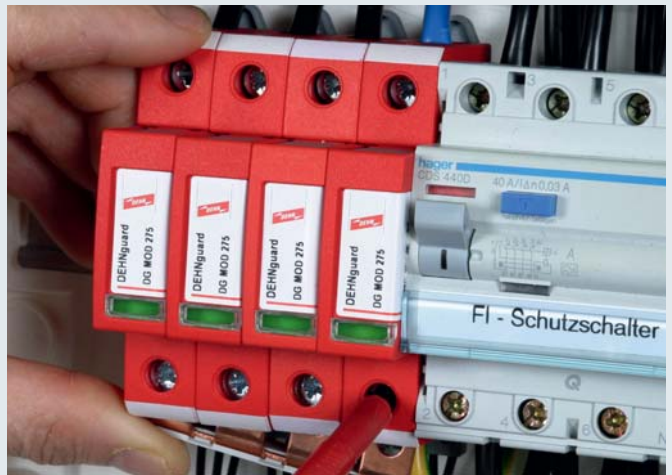
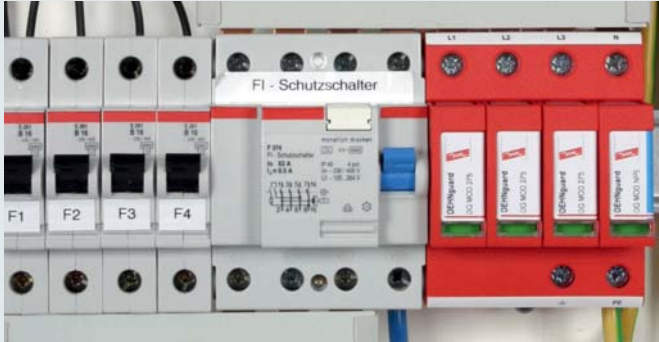
Sealing Device

For sealing between the lower and upper part of IGA 12 and IGA 24 insulating enclosures (doors can be sealed without additional part).

Type	PLOV IGA 12 24
Part No.	902 317
Material	aluminium



- Allows compact connection of arresters with each other and with other DIN rail mounted devices

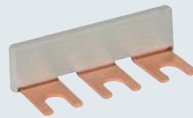


MVS single-phase, two-pole



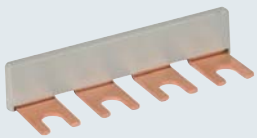
Type	MVS 1 2
Part No.	900 617
Type	single-phase
Number of contact studs	2
Max. installation length	2 module(s)
Nominal cross-section	16 mm ²

MVS single-phase, three-pole



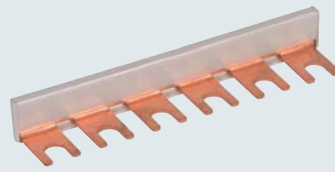
Type	MVS 1 3
Part No.	900 615
Type	single-phase
Number of contact studs	3
Max. installation length	3 module(s)
Nominal cross-section	16 mm ²

MVS single-phase, four-pole



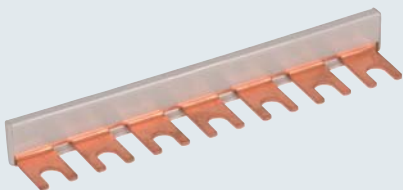
Type	MVS 1 4
Part No.	900 610
Type	single-phase
Number of contact studs	4
Max. installation length	4 module(s)
Nominal cross-section	16 mm ²

MVS single-phase, six-pole



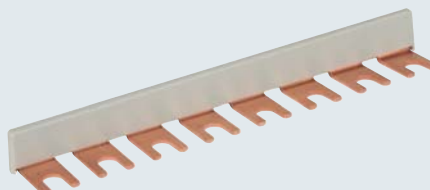
Type	MVS 1 6
Part No.	900 815
Type	single-phase
Number of contact studs	6
Max. installation length	6 module(s)
Nominal cross-section	16 mm ²

MVS single-phase, seven-pole



Type	MVS 1 7
Part No.	900 848
Type	single-phase
Number of contact studs	7
Max. installation length	7 module(s)
Nominal cross-section	16 mm ²

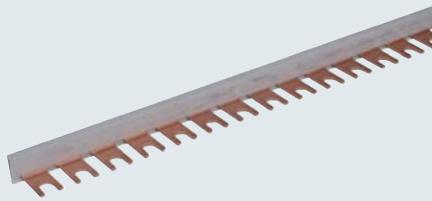
MVS single-phase, eight-pole



Type	MVS 1 8
Part No.	900 611
Type	single-phase
Number of contact studs	8
Max. installation length	8 module(s)
Nominal cross-section	16 mm ²

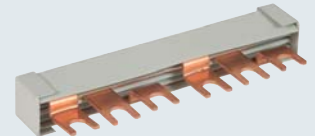
General Accessories

MVS single-phase, 57-pole



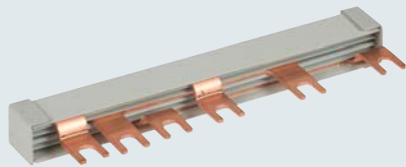
Type	MVS 1 57
Part No.	900 612
Type	single-phase
Number of contact studs	57
Max. installation length	57 module(s)
Nominal cross-section	16 mm ²

MVS three-phase, six-pole, 6 Modules



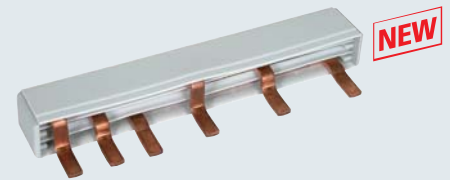
Type	MVS 3 6 6
Part No.	900 595
Type	three-phase
Number of contact studs	6
Max. installation length	6 module(s)
Nominal cross-section	16 mm ²

MVS three-phase, six-pole, 8 Modules



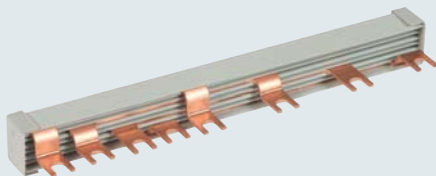
Type	MVS 3 6 8
Part No.	900 813
Type	three-phase
Number of contact studs	6
Max. installation length	8 module(s)
Nominal cross-section	16 mm ²

MVS three-phase, six-pole, 9 Modules



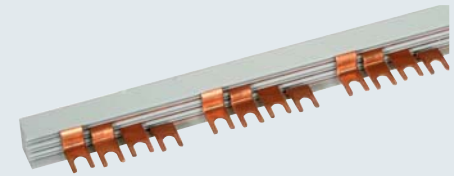
Type	MVS 3 6 9
Part No.	900 839
Type	three-phase
Number of contact studs	6
Max. installation length	9 module(s)
Nominal cross-section	16 mm ²

MVS four-phase, eight-pole



Type	MVS 4 8 11
Part No.	900 814
Type	four-phase
Number of contact studs	8
Max. installation length	11 module(s)
Nominal cross-section	16 mm ²

MVS four-phase, 56-pole



Type	MVS 4 56
Part No.	900 614
Type	four-phase
Number of contact studs	56
Max. installation length	56 module(s)
Nominal cross-section	16 mm ²

Earthing Clip, single-phase, three-pole

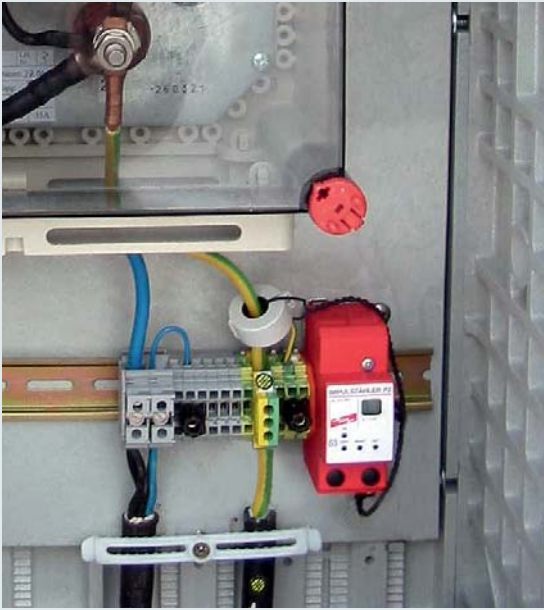


Type	EB DG 1000 1 3
Part No.	900 411
Type	single-phase
Number of contact studs	3
Dimensions	34 x 112 x 3 mm
Material	copper and tin-plated brass
Terminal	up to 25 mm ²

Earthing Clip, single-phase, four-pole



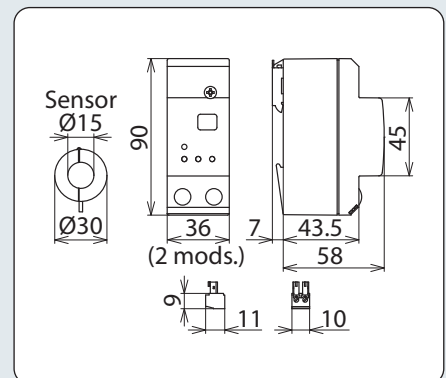
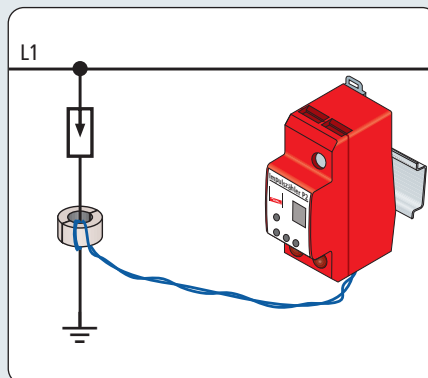
Type	EB 1 4 9
Part No.	900 417
Type	single-phase
Number of contact studs	4
Dimensions	34 x 148 x 3 mm
Material	copper and tin-plated brass
Terminal	up to 25 mm ²



- Potential-free registration of discharge currents flowing through surge protective devices
- Easy installation by enclosing the earth conductor of the arrester with a hinged toroidal core
- Counter in a DIN rail mounted enclosure (2 modules)
- Twisted sensor cable, 1 m long

Counter with integrated battery supply (9 V) and battery charge control. Indication via two-digit LCD display with setting and resetting buttons.

P2 impulse counter: Counter, sensor cable and toroidal core with fixing accessory



Dimension drawing P2

Type	P 2
Part No.	910 502
Response threshold for impulse currents (rise time $\geq 8 \mu\text{s}$)	$> 1 \text{ kA}$
Sequence of impulses	1 s
LCD display	electronic counter 0-99
Power supply	9 V battery (IEC 6LR61) included in delivery, replaceable, battery life $> 1 \text{ year}$
Battery charge control	button and LED situated on the device
Setting device	button on the device for setting the counter (e.g. after replacing a battery)
Resetting device	button on the device for resetting the counter to 0
Operating temperature range	$-10 \text{ }^\circ\text{C} \dots +50 \text{ }^\circ\text{C}$
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material (counter)	thermoplastic, red, UL 94 V-0
Enclosure material (sensor)	PA 6, grey
Degree of protection	IP 20
Dimensions (counter)	2 modules, DIN 43880
Dimensions (sensor)	inner $\varnothing 15 \text{ mm}$, outer $\varnothing 36 \text{ mm}$
Length of the connecting cable (between sensor and counter)	max. 1 m, twisted
Weight (counter, sensor and connecting cable)	0.2 kg
Accessories included in delivery	9 V battery, IEC 6LR61; cable tie (for fixing the sensor)

General Accessories

- For routine tests of surge protective devices
- Compact dimensions
- Suitable for mains and battery operation
- Low battery indicator
- Test leads included in delivery

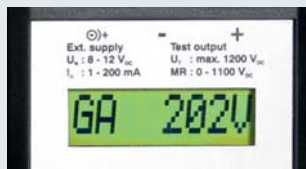


For testing the sparkover voltage of surge arresters. The specimen is connected via the included test leads or special test adapters.

The PM 20 SPD test device with integrated sparkover detection is used to test Yellow/Line and Red/Line surge arresters with integrated varistor, Zener diode or gas discharge tube. Both the sparkover performance between the connections of the arresters as well as the continuity can be tested. The results can be compared to the limit values specified in the

instructions for use. In case of deviations, the arrester or protection module must be replaced.

Test adapters for testing Yellow/Line products can be found from page 381.



Indication of the measured sparkover or reference voltage.



The response characteristics of gas discharge tubes, varistors and Zener diodes can be tested.



Insulated test leads included in delivery.



Can be directly connected to a DEHNguard protection module.



- Combined testing of protective circuits with gas discharge tubes, varistors and Zener diodes
- Easy and flexible use
- Test leads included in delivery

Combined device for testing the sparkover voltage of surge arresters (with gas discharge tubes / varistors / Zener diodes). Storage bag and measuring accessories included.

Type	PM 20
Part No.	910 511
Nominal d.c. voltage (U_N)	8-12 V d.c.
Test parameter: Test voltage	max. 1250 V d.c.
Test parameter: Test current (reference voltage)	1 mA d.c., constant
Measured value indication	alphanumeric, eight-digit LCD
Test output sockets	safety pole terminals (4 mm), positive pole: red colour, negative pole: black colour
Testing period	≤ 1.5 sec.
Number of individual tests during battery operation	typically 2000
Accessories included in delivery	2 test leads (each 1 m long), 2 safety tapping test clips, 1 plug-in power supply unit (230 V a.c.), 1 storage bag
Dimensions of the storage bag	300 x 110 x 110 mm

Surge Protection for INFORMATION TECHNOLOGY SYSTEMS

SPDs for Installations and Devices



Yellow / Line



General

192

Busysteme und MSR-Technik		Übersicht	Aktion	Adresse
Systemtyp	Montage	Anschlüsse	Ex	Seitenansicht
Schaltkasten	2	Schaltkasten	4	920 274
Schaltkasten	2	Schaltkasten	2	920 275
Schaltkasten	2	Schaltkasten	2	917 31
Schaltkasten	2	Schaltkasten	2	903 43
LSA	20	LSA	4	920 3
Schaltkasten	4	Schaltkasten	4	920

Easy Choice according to Interface/Signal

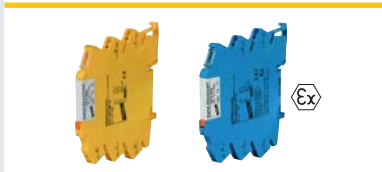
195



Pluggable DIN Rail mounted SPDs

221

BLITZDUCTOR SP/XT/XTU



DIN Rail mounted Terminal Blocks with integrated Surge Protection

271

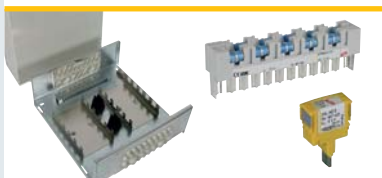
DEHNconnect SD2



Compact DIN Rail mounted SPDs

279

BLITZDUCTOR VT



SPDs for LSA Technology

291

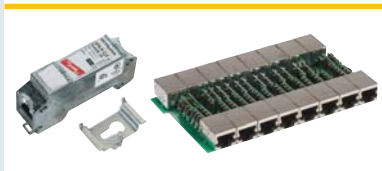
DEHNRapid LSA



SPDs for Field Devices

307

DEHNpipe



SPDs for Telecommunication and Data Networks

321

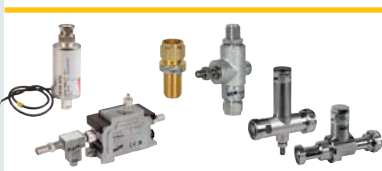
DEHNpatch, NET PRO



SPDs for Building Systems

329

DEHNprotector, DEHNbox, BUSsector, DEHNlink, DSM



SPDs for Coaxial Transmitters / Receivers and Video Systems

349

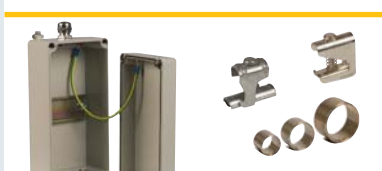
UGKF, DEHNgate



SPDs for SUB-D Connection

363

FS, USD



Shield Connection Systems and Enclosures

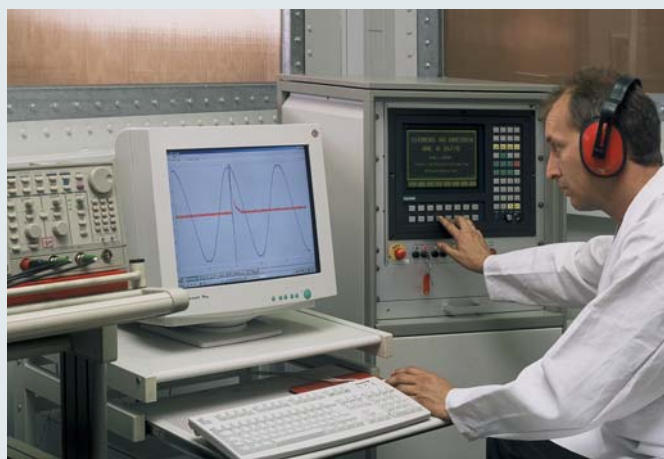
371



Measuring and Test Devices

381

DEHNrecord



Category	Type of test	Impulse voltage	Impulse current	Minimum quantity of impulses	Test for
C1	fast rate of rise	0.5 kV to 2 kV, 1.2/50 μ s	0.25 kA to 1 kA, 8/20 μ s	300	Surge arrester
C2		2 kV to 10 kV, 1.2/50 μ s	1 kA to 5 kA, 8/20 μ s	10	
C3		\geq 1 kV, 1 kV/ μ s	10 A to 100 A, 10/1000 μ s	300	
D1	high energy	\geq 1 kV	0.5 kA to 2.5 kA, 10/350 μ s	2	*)

*) Lightning current arrester / Combined lightning current and surge arrester
Impulse voltages and currents (preferred values) for determining the voltage-limiting characteristics (excerpt from Table 3 of IEC / EN 61643-21)

General

The surge protection components of arresters do not contain any radioactive isotopes and typically consist of at least one voltage-limiting or voltage-switching component and, in some cases, also of additional overcurrent-limiting components. The occurrence of blind spots in multi-stage arresters must be prevented. This means that it must be ensured that the different protection stages are fully coordinated with one another. Otherwise the protection stages will not reliably trip and cause faults in the protective device.

Arrester selection

The following must be observed when selecting arresters:

- Protective effect [Yellow/Line SPD class (discharge capacity and voltage protection level)]
- System parameters (system voltage, nominal current and transmission parameters)
- Installations environment (design, connection conditions and approvals)

The selection guide according to interface/signal on pages 195 to 220 facilitates the selection of an adequate arrester.

Relevant product standard for arresters:

IEC / EN 61643-21

Low-voltage surge protective devices – Part 21: Surge protective devices connected to telecommunications and signalling networks – Performance requirements and testing methods

Discharge capacity

According to IEC/EN 61643-21 arresters must be tested with at least one impulse voltage and impulse current from the above table with the specified quantity of impulses. Further tests may be performed – even with different impulse values or quantities. The max. voltage protection level measured during the test(s) at the output of the device is specified as voltage protection level U_p . Category C represents particularly interference pulses with a steep rate of rise and low energy, while interference pulses of category D are supposed to simulate high energy loads caused by injected partial lightning currents. The relevant category is specified in the technical data of the arresters (see discharge capacity (I_n , I_{imp}) and voltage protection level (U_p)).

Immunity of terminal equipment to be protected

During electromagnetic compatibility (EMC) tests, electrical and electronic equipment (devices) must have a certain immunity to conducted interferences (surges). The requirements on the immunity and the test set-up are described in EN 61000-4-5.

Since the devices are used in different electromagnetic environments, they must have different immunities. The immunity of a device depends on the test level. To classify the different immunities of terminal equipment, test levels are subdivided into four different levels (1 to 4). Test level 1 places the lowest requirement on the immunity of terminal equipment. The test level is specified in the arrester documentation or can be requested from the manufacturer of the arrester.

Test levels 1 – 4 according to EN 61000-4-5	Corresponds to the charging voltage of the test generator
1	0.5 kV
2	1 kV
3	2 kV
4	4 kV

Protective effect of arresters

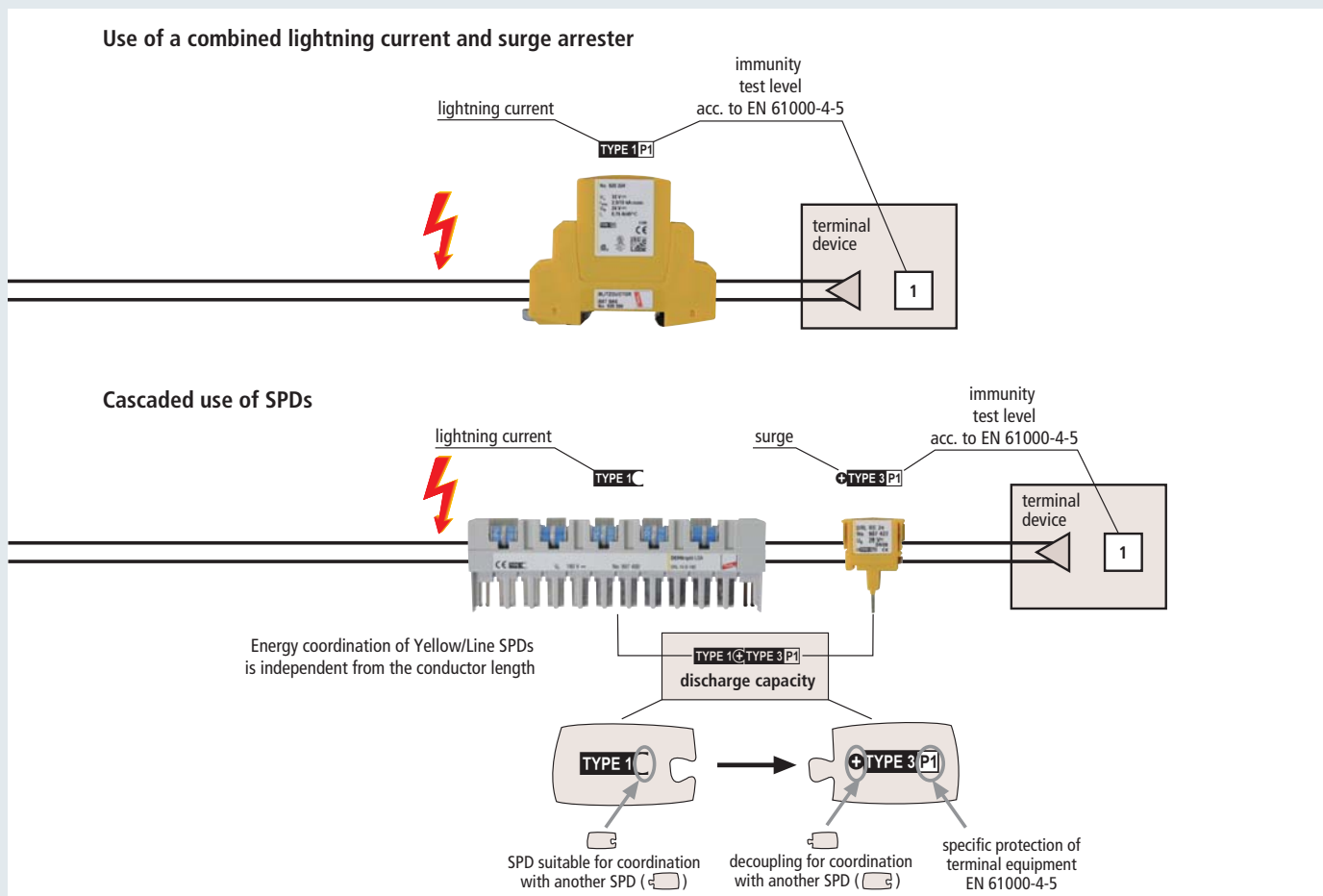
Yellow/Line arresters for use in information technology systems are capable of limiting conducted interference to a safe level so that the immunity of the terminal equipment is not exceeded. For example, an arrester with a let-through value below the EMC test values of the terminal device must be selected for a terminal device tested with test level 2: Impulse voltage < 1 kV in combination with an impulse current of some amperes (depending on the coupling network).

SPDs for Information Technology Systems

All SPD types of the Yellow/Line family for use in information technology systems are assigned to a Yellow/Line SPD class and marked with a symbol in the technical data sheet and on their rating plates. The symbol for the Yellow/Line SPD class graphically combines three important characteristics of the SPD and can be a single symbol or a combination of individual symbols:

Characteristics	Single symbol	Definition
Discharge capacity of an SPD (according to the categories from IEC 61643-21 / EN 61643-21)	TYPE 1	Impulse D1 (10/350 μ s), lightning impulse current ≥ 2.5 kA / line or ≥ 5 kA/total • exceeds the discharge capacity of TYPE 2 – TYPE 4
	TYPE 2	Impulse C2 (8/20 μ s), increased impulse load ≥ 2.5 kA / line or ≥ 5 kA/total • exceeds the discharge capacity of TYPE 3 – TYPE 4
	TYPE 3	Impulse C1 (8/20 μ s), impulse load ≥ 0.25 kA/line or ≥ 0.5 kA/total • exceeds the discharge capacity of TYPE 4
	TYPE 4	Load < TYPE 3
Protective effect of an SPD (limitation below the test levels according to EN 61000-4-5)	P1	Required test level of the terminal device: 1 or higher
	P2	Required test level of the terminal device: 2 or higher
	P3	Required test level of the terminal device: 3 or higher
	P4	Required test level of the terminal device: 4
Energy coordination (with another Yellow/Line SPD)	+	SPD with decoupling impedance, suitable for coordination with an SPD marked with ☐
	☐	SPD is suitable for coordination with an SPD with decoupling impedance +

Examples of energy coordination of SPDs according to Yellow/Line SPD classes:





Testing a protection module via a hand-held device based on RFID technology (LifeCheck).

Regular testing of arresters installed

During operation, an arrester may be overloaded by discharge processes exceeding the arrester specification. In order to ensure high system availability, it is therefore essential to test arresters on a regular basis. DIN EN 62305-3, supplement 3 (see table excerpt), specifies the maximum intervals between tests of external and internal lightning protection systems.

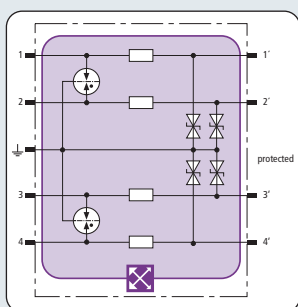
Class of LPS	Visual inspection	Complete inspection	Complete inspection of critical systems
I and II	1 year	2 years	1 year
III and IV	2 years	4 years	1 year

Easy testing with LifeCheck

Maintenance of LifeCheck-equipped BLITZDUCTOR XT arresters is particularly easy. LifeCheck uses modern RFID (Radio Frequency Identification) technology for monitoring the protective circuit and for communication. Irrespective of system downtimes, LifeCheck allows quick and easy testing of arresters by means of the hand-held DRC LC M1+ and DRC LC M3+ reader or a stationary DRC SCM XT and DRC MCM XT condition monitoring unit.

Indication of arrester failure

The three-stage LifeCheck monitoring circuit with early warning function detects extreme electrical or thermal stress on all protection elements of an arrester below their destruction limit. This can be contactlessly read out within a matter of seconds by means of an RFID reader. If the reader displays "LifeCheck OK", no extreme stress was detected. If the contrary is the case, the module should be replaced as soon as possible in order not to threaten the availability of the protected circuit.

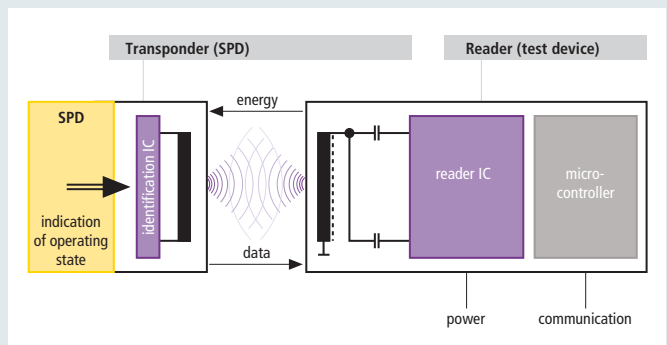


The basic circuit diagram graphically shows whether LifeCheck is used to monitor the protective circuit of an arrester. In case of BXT arresters, the complete protective circuit is monitored.

SPD diagnostics with early warning function!

- Increased protection and availability of your installations and systems due to integrated LifeCheck monitoring system
 - Integrated three-stage monitoring of all protective circuit components
 - Quick diagnostics of surge protective devices
 - Easy testing of protection modules without downtime via contactless RFID technology
 - Even detects pre-damaged arresters

Functional principle of the LifeCheck diagnostics systems



Principle of communication between an arrester and a test device

The diagnostics system consists of two functional units:

1. RFID reading and signalling unit (reader)

Combined with a visual indicator, an electronic system contactlessly transmits energy to the RFID transponder in the arrester via an antenna. If the operating state of the arrester can be read out, an "OK" message is displayed.

2. Monitoring unit in the arrester:

It combines the diagnostics of the three-stage LifeCheck monitoring circuit with the communication of the RFID transponder:

- Diagnostics of electrical overload (impulse current)

Lightning strikes or overvoltage exceeding the specified discharge capacity of the arrester will damage or even destroy the protection elements. The LifeCheck monitoring device detects this electrical overload. When reading out the transponder, the "Replace SPD!" message appears.
- Diagnostics of thermal overload (overheating)




















































Active and passive protection elements in a critical temperature range will be pre-damaged or even destroyed depending on the type and duration of the overload. This pre-damage or overload is detected by the LifeCheck monitoring device. When reading out the transponder, the "Replace SPD!" message appears.

Bus systems and measuring and control equipment
Telecommunications, telephone systems
Data networks
Antenna systems, broadband systems,
transmitting and receiving systems, video systems


























































Page 195 – 209
Page 210 – 214
Page 215 – 216
Page 217 – 220

Easy Choice

This selection chart is only intended for orientation. In practice, there may be other interface parameters. Therefore, we recommend to check whether the electrical parameters are suited for the interface to be protected before using the arrester.


















































Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD 	Part No.	Page
0-20 mA, 4-20 mA (also with HART)			Screw terminals	4	●	1		920 324 ¹⁾	236
			Screw terminals	2	●	1		920 224 ¹⁾	245
			Screw terminals	4		2		926 324 ¹⁾	224
			Screw terminals	2		2		926 224 ¹⁾	228
			Spring terminals	2		2		917 921	272
			Spring terminals	2		3		917 988	275
			Wires / terminals	2		2		929 921	310
			LSA	20		1		907 401 + 907 422 + 907 498	294 295/300
4-20 mA (also with HART) acc. to NAMUR recommendation NE 21 or according to EN 61000-4-5, open-circuit voltage 1 kV line-PG 			Screw terminals	4	●	1		920 344 ¹⁾	237
			Screw terminals	2	●	1		920 244 ¹⁾	244
			Screw terminals	4		2		926 344 ¹⁾	225
			Screw terminals	2		2		926 244 ¹⁾	229
			Spring terminals	2		2		917 941	273
			Screw terminals	4		2		918 407	281
			Wires / terminals	2		2		929 941	309
			LSA	20		1		907 401 + 907 442 + 907 498	294 296/300
3/4 conductor measurement			Screw terminals	4	●	1		920 350 ¹⁾	238
			Screw terminals	4	●	1		920 354 ¹⁾	238
ADVANT			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
			Screw terminals	5		2		918 401	282
			Spring terminals	2		2		917 970	274

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223
²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD	Part No.	Page
AS interface			Screw terminals	4	●	1		920 345 ¹⁾	237
			Screw terminals	2	●	1		920 245 ¹⁾	244
			Screw terminals	4		2		926 345 ¹⁾	225
			Screw terminals	2		2		926 245 ¹⁾	229
BACnet/IP			RJ45	4 x 2		2		929 100	322
			RJ45	4 x 2		2		929 121	323
			RJ45, LSA	8 x 8		3		929 035 / 036	325
			RJ45	8 x 8		4		929 037	325
			RJ45	4		2		909 321	334
BACnet MS/TP			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
				Screw terminals	2		2	926 271 ¹⁾	231
			Spring terminals	2		2		917 970	274
			LSA	20		1		907 401 + 907 465 + 907 498	294 298/300
									
Binary signals			Screw terminals	4	●	1		920 320 – 327 ¹⁾	236
			Screw terminals	2	●	1		920 220 – 225 ¹⁾	245
			Screw terminals	4		2		926 320 – 327 ¹⁾	224
			Screw terminals	2		2		926 220 – 225 ¹⁾	228
			Spring terminals	2		2		917 920 – 922	272
			Spring terminals	2		3		917 987 – 989	275
			LSA	20		1		907 401 + 907 422 + 907 498	294 295/300
									
Bitbus			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
			Spring terminals	2		2		917 970	274




























































¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD	Part No.	Page
BLN (Building Level Network)			Screw terminals	4	●	1		920 342 ¹⁾	237
			Screw terminals	2	●	1		920 242 ¹⁾	244
			Screw terminals	4	●	1		920 345 ¹⁾	237
			Screw terminals	2	●	1		920 245 ¹⁾	244
			Screw terminals	4		2		926 342 ¹⁾	225
			Screw terminals	2		2		926 242 ¹⁾	229
			Screw terminals	4		2		926 345 ¹⁾	225
			Screw terminals	2		2		926 245 ¹⁾	229
CAN bus (data line only)			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Spring terminals	2		2		917 970	274
			LSA	20		1		907 401 + 907 465 + 907 498	294 298/300
C-Bus (Honeywell)			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Spring terminals	2		2		917 970	274
CCP systems			Screw terminals	2		1		918 421	289
			Screw terminals	2		1		918 420	288
Control Net			BNC	1		2		929 010	351
			BNC	1		2		909 710 / 711	352
DALI-Bus			Screw terminals	2	●	1		920 244 ¹⁾	244
			Screw terminals	2		2		926 244 ¹⁾	229

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223









































































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD	Part No.	Page
Data Highway Plus 			Screw terminals	4	●	1		920 342 ¹⁾	237
			Screw terminals	2	●	1		920 242 ¹⁾	244
			Screw terminals	4		2		926 342 ¹⁾	225
			Screw terminals	2		2		926 242 ¹⁾	229
			Spring terminals	2		2		917 940	273
d.c. power supply up to 60 V d.c.			Screw terminals	2		3		918 422	283
			Screw terminals	2		1		918 408	284
			Screw terminals	2		1		918 409	284
Delta Net Peer Bus			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
			Spring terminals	2		2		917 970	274
Device Net (data line only) 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Spring terminals	2		2		917 970	274
Dupline 			Screw terminals	4	●	1		920 243 ¹⁾	249
E-Bus (Honeywell) 			Screw terminals	4	●	1		920 345 ¹⁾	237
			Screw terminals	2	●	1		920 245 ¹⁾	244
			Screw terminals	4		2		926 345 ¹⁾	225
			Screw terminals	2		2		926 245 ¹⁾	229
EIB			Screw terminals	4	●	1		920 310 ¹⁾	235
			Screw terminals	2	●	1		920 211 ¹⁾	248
			Wires	2		2		925 001	336
			LSA	20		1		907 401	294

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223



































































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment

Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD 	Part No.	Page
Electroacoustic system			Screw terminals	4	●	1		920 347 ¹⁾	237
			Screw terminals	4		2		926 347 ¹⁾	225
			LSA	20		1		907 401 + 907 445 + 907 498	294 296/300
ET 200			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
			Spring terminals	2		2		917 970	274
Ex(d) circuits 4-20 mA, NAMUR, HART, PROFIBUS-PA, F			Wires	2		2		929 962 / 964	313
			Wires	4		2		929 950 / 951	316
			Wires	4		2		929 952 / 953	317
Ex (i) circuits			Screw terminals	4	●	2		920 381 ²⁾	260
			Screw terminals	4	●	2		920 538 ²⁾	263
			Screw terminals	2	●	2		920 280 ²⁾	261
			Screw terminals	2		2		920 383 ²⁾	259
			Spring terminals	2		2		917 960	277
			Wires / terminals	2		2		929 960	311
			Wires	2		2		929 961 / 963	312
			Wires	4		2		929 950 / 951	316
			Wires	4		2		929 952 / 953	317
			Screw terminals	4	●	2		989 408	265
Fieldbus Foundation 			Screw terminals	4	●	1		920 344 ¹⁾	237
			Screw terminals	2	●	1		920 244 ¹⁾	244
			Screw terminals	4		2		926 344 ¹⁾	225
			Screw terminals	2		2		926 244 ¹⁾	229
			Spring terminals	2		2		917 941	273
			Wires / terminals	2		2		929 941	309
			LSA	20		1		907 401 + 907 442 + 907 498	294 296/300

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223


























































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD	Part No.	Page
Fieldbus Foundation Ex (i)			Screw terminals	4	●	2		920 381 ²⁾	260
			Screw terminals	4	●	2		920 538 ²⁾	263
			Screw terminals	2	●	2		920 280 ²⁾	261
			Screw terminals	2		2		920 383 ²⁾	259
			Spring terminals	2		2		917 960	277
			Wires / terminals	2		2		929 960	311
			Wires	2		2		929 961 / 963	312
			Wires	2		2		929 971	314
			Wires	4		2		929 950 / 951	316
			Screw terminals	4	●	2		989 408	265
FIPIO/FIPWAY			Screw terminals	4	●	1		920 344 ¹⁾	237
			Screw terminals	2	●	1		920 244 ¹⁾	244
			Screw terminals	4		2		926 344 ¹⁾	225
			Screw terminals	2		2		926 244 ¹⁾	229
FIP I/O			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
FSK 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Spring terminals	2		2		917 970	274
Genius I/O Bus			Screw terminals	4	●	1		920 342 ¹⁾	237
			Screw terminals	2	●	1		920 242 ¹⁾	244
			Screw terminals	4		2		926 342 ¹⁾	225
			Screw terminals	2		2		926 242 ¹⁾	229

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223






















































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment

Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD 	Part No.	Page
IEC Bus (RS485) 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Spring terminals	2		2		917 970	274
Industrial Ethernet			LSA	20		1		907 401 + 907 498 + 907 470	294 298/300
			RJ45	4 x 2		2		929 100	322
			RJ45	4 x 2		2		929 121	323
			RJ45, LSA / RJ45	8 x 8		3		929 035 / 036	325
			RJ45	8 x 8		4		929 037	325
			RJ45	4		2		909 321	334
INTERBUS-INLINE (I/O) 			Screw terminals	4	●	1		920 345 ¹⁾	237
			Screw terminals	4	●	1		920 325 ¹⁾	236
			Screw terminals	4		2		926 345 ¹⁾	225
			Screw terminals	4		2		926 325 ¹⁾	224
INTERBUS-Loop			Spring terminals	2		3		917 988	275
Interbus INLINE remote bus 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Screw terminals	5		2		918 401	282
K bus			Screw terminals	4	●	1		920 344 ¹⁾	237
			Screw terminals	2	●	1		920 244 ¹⁾	244
			Screw terminals	4		2		926 344 ¹⁾	225
			Screw terminals	2		2		926 244 ¹⁾	229
			Spring terminals	2		2		917 941	273































































¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD 	Part No.	Page
KBR energy bus			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
			Spring terminals	2		2		917 970	274
KNX bus			Screw terminals	4	●	1		920 310 ¹⁾	235
			Screw terminals	2	●	1		920 211 ¹⁾	248
			Wires	2		2		925 001	336
			LSA	20		1		907 401	294
LON – TP/XF 78 – TP/FTT10 and TP/LPT10 (up to 1 A) (up to 1 A) (up to 1.7 A) (up to 0.4 A) – TP/FTT 10			Screw terminals	4	●	1		920 340 ¹⁾	237
			Screw terminals	2	●	1		920 240 ¹⁾	244
			Screw terminals	4		2		926 340 ¹⁾	225
			Screw terminals	2		2		926 240 ¹⁾	229
			Screw terminals	4	●	1		920 345 ¹⁾	237
			Screw terminals	2	●	1		920 245 ¹⁾	244
			Screw terminals	4		2		926 345 ¹⁾	225
			Screw terminals	2		2		926 245 ¹⁾	229
			Spring terminals	2		2		917 942	273
			LSA	20		1		907 401 + 907 443 + 907 498	294 296/300
		Screw terminals	4	●	1		920 371 ¹⁾	241	
		Screw terminals	2	●	1		920 271 ¹⁾	247	
LUXMATE bus 			Screw terminals	4	●	1		920 344 ¹⁾	237
			Screw terminals	2	●	1		920 244 ¹⁾	244
			Screw terminals	4		2		926 344 ¹⁾	225
			Screw terminals	2		2		926 244 ¹⁾	229























































¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD	Part No.	Page
M bus 			Screw terminals	4	●	1		920 345 ¹⁾	237
			Screw terminals	2	●	1		920 245 ¹⁾	244
			Screw terminals	4		2		926 345 ¹⁾	225
			Screw terminals	2		2		926 245 ¹⁾	229
			Spring terminals	2		2		917 942	273
			LSA	20		1		907 401 + 907 443 + 907 498	294 296/300
Melsec Net 2			BNC	1	●	2		929 010	351
			BNC	1	●	2		909 710 / 711	352
MODBUS 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Spring terminals	2		2		917 970	274
			LSA	20		1		907 401 + 907 465 + 907 498	294 298/300
MPI bus 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Spring terminals	2		2		917 970	274
N1 LAN			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
			Spring terminals	2		2		917 970	274
			BNC	1		2		909 710 / 711	352



































































¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD 	Part No.	Page
N2 Bus (Johnson Controls, LON, FT10)			Screw terminals	4	1	1		920 371 ¹⁾	241
			Screw terminals	2	1	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
Optocoupler interface			Screw terminals	4	●	1		920 364 ¹⁾	239
			Screw terminals	4		2		918 400	280
Procontic CS31 (RS232)			Screw terminals	4	●	1		920 322 ¹⁾	236
			Screw terminals	4		2		926 322 ¹⁾	224
Procontic T200 (RS422) 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	5		2		918 401	282
PROFIBUS-DP/FMS			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			9-pin SUB-D	4		4		924 017	364
			Spring terminals	2		2		917 970	274
			LSA	20		1		907 401 + 907 465 + 907 498	294 298/300
PROFIBUS-PA 			Screw terminals	4	●	1		920 344 ¹⁾	237
			Screw terminals	2	●	1		920 244 ¹⁾	244
			Screw terminals	4		2		926 344 ¹⁾	225
			Screw terminals	2		2		926 244 ¹⁾	229
			Spring terminals	2		2		917 941	273
			Wires / terminals	2		2		929 941	309
			LSA	20		1		907 401 + 907 442 + 907 498	294 296/300



























































¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD	Part No.	Page
PROFIBUS-PA Ex (i)			Screw terminals	4	●	2		920 381 ²⁾	260
			Screw terminals	2	●	2		920 538 ²⁾	263
			Screw terminals	2	●	2		920 280 ²⁾	261
			Screw terminals	2		2		920 383 ²⁾	259
			Spring terminals	2		2		917 960	277
			Wires / terminals	2		2		929 960	311
			Wires	2		2		929 961 / 963	312
			Wires	4		2		929 950 / 951	316
			Screw terminals	4	●	2		989 408	265
PROFIBUS SIMATIC NET 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
PSM-EG-RS422 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	5		2		918 401	282
PSM-EG-RS485 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Screw terminals	5		2		918 401	282
Rackbus (RS485) 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Screw terminals	5		2		918 401	282

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223
























































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD	Part No.	Page
R bus 			Screw terminals	4	●	1		920 340 ¹⁾	237
			Screw terminals	2	●	1		920 240 ¹⁾	244
			Screw terminals	4		2		926 340 ¹⁾	225
			Screw terminals	2		2		926 240 ¹⁾	229
			Spring terminals	2		2		917 970	274
RS 485 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	4		2		926 371 ¹⁾	227
		⊕	Screw terminals	4	●	2		920 538 ²⁾	263
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	2		2		926 271 ¹⁾	231
			Screw terminals	5		2		918 401	282
			Spring terminals	2		2		917 970	274
			LSA	20		1		907 401	294
	⊕	Wires	2		2		+ 907 465 + 907 498	298/300	
RS422,V11 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Screw terminals	5		2		918 401	282
			Spring terminals	2		2		917 970	274
			15-pin SUB-D	6		2		924 051	368
			LSA	20		1		907 401	294
S bus			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
			Spring terminals	2		2		917 970	274

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223























































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment

Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD 	Part No.	Page
SafetyBUS p 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
			Spring terminals	2		2		917 970	274
SDLC			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
			Spring terminals	2		2		917 970	274
SDLS			RJ45, Screw terminals	4	●	2		918 410	285
			LSA	20	●	1		907 401 + 907 498 + 907 423	294 295/300
Securilan-LON-Bus (LONWORKS technology Standard Bus based on Echelon)			Screw terminals	4	●	1		920 340 ¹⁾	237
			Screw terminals	2	●	1		920 240 ¹⁾	244
			Screw terminals	4		2		926 340 ¹⁾	225
			Screw terminals	2		2		926 240 ¹⁾	229
			Spring terminals	2		2		917 970	274
SIGMASYS (Siemens fire alarm system)			Screw terminals	4	●	1		920 345 ¹⁾	237
			Screw terminals	2	●	1		920 245 ¹⁾	244
			Screw terminals	4	●	1		920 325 ¹⁾	236
			Screw terminals	2	●	1		920 225 ¹⁾	245
			Screw terminals	4		2		926 345 ¹⁾	225
			Screw terminals	2		2		926 245 ¹⁾	229
			Screw terminals	4		2		926 325 ¹⁾	224
			Screw terminals	2		2		926 225 ¹⁾	228
			LSA	20		1		907 401 + 907 498 + 907 423	294 295/300

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223





































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment									
Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD 	Part No.	Page
SINEC L1			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
SINEC L2			Screw terminals	4	●	1		920 370 ¹⁾	240
			Screw terminals	2	●	1		920 270 ¹⁾	246
			Screw terminals	4		2		926 370 ¹⁾	226
			Screw terminals	2		2		926 270 ¹⁾	230
			Spring terminals	2		2		917 970	274
			9-pin SUB-D	4		4		924 017	364
SS97 SIN/X (RS 232)			Screw terminals	4	●	1		920 322 ¹⁾	236
			Screw terminals	2	●	1		920 222 ¹⁾	245
			Screw terminals	4		2		926 322 ¹⁾	224
			Screw terminals	2		2		926 222 ¹⁾	228
SUCONET 			Screw terminals	4	●	1		920 371 ¹⁾	241
			Screw terminals	2	●	1		920 271 ¹⁾	247
			Screw terminals	4		2		926 371 ¹⁾	227
			Screw terminals	2		2		926 271 ¹⁾	231
Temperature measurement PT 100, PT 1000 Ni 1000, NTC, PTC			Screw terminals	4	●	1		920 354 ¹⁾	238
			Screw terminals	4	●	1		920 322 ¹⁾	236
			Screw terminals	2	●	1		920 222 ¹⁾	245
			Screw terminals	4		2		926 322 ¹⁾	224
			Screw terminals	2		2		926 222 ¹⁾	228
			Spring terminals	2		2		917 920	272
Temperature measurement Ex (i) PT 100, PT 1000 Ni 1000, NTC, PTC		Ex 	Screw terminals	4	●	2		920 384 ²⁾	262

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223




























































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Bus systems and measuring and control equipment

Interface/Signal	For mounting on	Ex	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD 	Part No.	Page
TTL			Screw terminals	4	●	1		920 322 ¹⁾	236
			Screw terminals	2	●	1		920 222 ¹⁾	245
			Screw terminals	4		2		926 322 ¹⁾	224
			Screw terminals	2		2		926 222 ¹⁾	228
			Spring terminals	2		2		917 920	272
			25-pin SUB-D	4, 9		2		924 046	369
			9-pin SUB-D	9		4		924 019	365
TTY			Screw terminals	4	●	1		920 364 ¹⁾	239
			Screw terminals	4	●	1		920 362 ¹⁾	239
			Screw terminals	4		2		918 400	280
TTY 4 – 20 mA			Screw terminals	4	●	1		920 324 ¹⁾	236
			Screw terminals	2	●	1		920 224 ¹⁾	245
			Screw terminals	4		2		926 324 ¹⁾	224
			Screw terminals	2		2		926 224 ¹⁾	228
			Spring terminals	2		2		917 921	272
			Spring terminals	2		3		917 988	275
			Wires / terminals	2		2		929 921	310
















































¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Telecommunications, telephone systems									
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck	SPD class TYPE	SPD	Part No.	Page	
		LSA	20		1		907 401 + 907 430 + 907 498	294 297/300	
		RJ45, LSA / RJ45	8 x 2		2		929 071 / 072	326	
		Screw terminals	4	●	1		920 347 ¹⁾	237	
		Screw terminals	4		2		926 347 ¹⁾	225	
		RJ45, Screw terminals	2		2		918 411	286	
		TAE, RJ12	2		2		909 310	332	
		Spring terminals / RJ45	2		2		929 230	328	
		Screw terminals	4	●	1		920 347 ¹⁾	237	
		Screw terminals	2	●	1		920 247 ¹⁾	243	
		Screw terminals	4		2		926 347 ¹⁾	225	
		Screw terminals	2		2		926 247 ¹⁾	229	
		LSA	20		1		907 401 + 907 430 + 907 498	294 297/300	
		Wires	2		2		924 272	347	
		TAE, RJ12	2		2		909 310	332	
		RJ45, LSA / RJ45	8 x 2		2		929 071 / 072	326	
		RJ45, Screw terminals	2		2		918 411	286	
		Spring terminals / RJ45	2		2		929 230	328	
		LSA	20		1		907 401 + 907 430 + 907 498	294 297/300	
		Screw terminals	4	●	1		920 347 ¹⁾	237	
		Screw terminals	4		2		926 347 ¹⁾	225	
Datex P		Screw terminals	4	●	1		920 375 ¹⁾	241	
		Screw terminals	4		2		926 375 ¹⁾	227	
E1		RJ45	4 x 2		2		929 100	322	
		RJ45	4 x 2		2		929 121	323	
		LSA	20		1		907 401 + 907 470 + 907 498	294 298/300	
		LSA / RJ45	8 x 4		2		929 075	327	
		Screw terminals	4	●	1		920 375 ¹⁾	241	
		Screw terminals	4		2		926 375 ¹⁾	227	

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

















































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Telecommunications, telephone systems									
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD 	Part No.	Page	
G.703 coaxial		1.6/5.6 connector	1		3		929 040	355	
G.703 / G.704		Insulation displacement terminals	2		2		907 214	301	
		LSA / RJ45	8 x 4		2		929 075	327	
		RJ45	4 x 2		2		929 100	322	
		RJ45	4 x 2		2		929 121	323	
		LSA	20		1		907 401 + 907 470 + 907 498	294 298/300	
		Screw terminals	4	●	1		920 375 ¹⁾	241	
		Screw terminals	4		2		926 375 ¹⁾	227	
HDSL		Screw terminals	4	●	1		920 375 ¹⁾	241	
		Screw terminals	4		2		926 375 ¹⁾	227	
		LSA	20		1		907 401 + 907 470 + 907 498	294 298/300	
		RJ45	4 x 2		2		929 100	322	
		RJ45	4 x 2		2		929 121	323	
		LSA / RJ45	8 x 4		2		929 075	327	
ISDN S ₀		Screw terminals	4	●	1		920 375 ¹⁾	241	
		Screw terminals	4		2		926 375 ¹⁾	227	
		RJ45	4		2		929 024	341	
		LSA	20		1		907 401 + 907 470 + 907 498	294 298/300	
		Wires	4		2		924 270	346	
		RJ45	4		2		909 320	333	
		RJ45	4 x 2		2		929 100	322	
		RJ45	4 x 2		2		929 121	323	
		RJ45, Screw terminals	4		2		918 410	285	



¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223































































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Telecommunications, telephone systems									
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck	SPD class TYPE	SPD	Part No.	Page	
	     	Screw terminals	4	●	1		920 375 ¹⁾	241	
		Screw terminals	4		2		926 375 ¹⁾	227	
		LSA	20		1		907 401 + 907 470 + 907 498	294 298/300	
		RJ45	4 x 2		2		929 100	322	
		RJ45	4 x 2		2		929 121	323	
		LSA / RJ45	8 x 4		2		929 075	327	
	        	Screw terminals	4	●	1		920 347 ¹⁾	237	
		Screw terminals	2	●	1		920 247 ¹⁾	243	
		Screw terminals	4		2		926 347 ¹⁾	225	
		Screw terminals	2		2		926 247 ¹⁾	229	
		LSA	20		1		907 401 + 907 430 + 907 498	294 297/300	
		RJ45, LSA / RJ45	8 x 2		2		929 071 / 072	326	
		TAE, RJ12	2		2		909 310	332	
		RJ45, Screw terminals Spring terminals / RJ45	2 2 10 x 2		2 2 2	  	918 411 929 230	286 328	
Modem M1	   	Screw terminals	4	●	1		920 322 ¹⁾	236	
		Screw terminals	2	●	1		920 222 ¹⁾	245	
		Screw terminals	4		2		926 322 ¹⁾	224	
		Screw terminals	2		2		926 222 ¹⁾	228	
SDSL		RJ45	4 x 2		2		929 100	322	
		RJ45	4 x 2		2		929 121	323	
		LSA	20		1		907 401 + 907 470 + 907 498	294 298/300	
		Screw terminals	4	●	1		920 375 ¹⁾	241	
		Screw terminals	4		2		926 375 ¹⁾	227	
		LSA / RJ45	8 x 4		2		929 075	327	

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223




































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Telecommunications, telephone systems

Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD	Part No.	Page
		Screw terminals	4	●	1		920 375 ¹⁾	241
		Screw terminals	4		2		926 375 ¹⁾	227
		RJ45	4 x 2		2		929 100	322
		RJ45	4 x 2		2		929 121	323
		LSA	20		1		907 401 + 907 470 + 907 498	294 298/300
		Screw terminals	4	●	1		920 310 ¹⁾	235
		Screw terminals	2	●	1		920 211 ¹⁾	248
		LSA / RJ45	8 x 4		2		929 075	327
<p>Telephones System telephones e.g. Siemens, HICOM, Alcatel</p> 		Screw terminals	2	●	1		920 247 ¹⁾	243
		Screw terminals	2		2		926 247 ¹⁾	229
		RJ45, RJ11	4		2		929 028	342
		RJ12	2		2		929 081	343
		LSA	20		1		907 401 + 907 430 + 907 498	294 297/300
		LSA	20		1		907 401 + 907 445 + 907 498	294 296/300
		Wires	4		2		924 272	347
		RJ45, LSA / RJ45	8 x 2		2		929 071 / 072	326
		TAE, RJ12	2		2		909 310	332
		RJ45, Screw terminals	2		2		918 411	286
		Spring terminals / RJ45	10 x 2		2		929 230	328
			Screw terminals	4	●	1		920 347 ¹⁾
		Screw terminals	2	●	1		920 247 ¹⁾	243
		Screw terminals	4		2		926 347 ¹⁾	225
		Screw terminals	2		2		926 247 ¹⁾	229
		LSA	20		1		907 401 + 907 498 + 907 430	294 297/300
		Wires	2		2		924 272	347
		TAE, RJ12	2		2		909 310	332
		RJ45, LSA / RJ45	8 x 2		2		929 071 / 072	326
		RJ45, Screw terminals	2		2		918 411	286
		Spring terminals / RJ45	10 x 2		2		929 230	328


























































¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Telecommunications, telephone systems									
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD	Part No.	Page	
		LSA	20		1		907 401 + 907 430 + 907 498	294 297/300	
		RJ45, LSA / RJ45	8 x 2		2		929 071 / 072	326	
		Screw terminals	2	●	1		920 347 ¹⁾	237	
		Screw terminals	2		2		926 347 ¹⁾	225	
		RJ45, Screw terminals	2		2		918 411	286	
		TAE, RJ12	2		2		909 310	332	
		Spring terminals / RJ45	10 x 2		2		929 230	328	
Universal lightning equipotential bonding		Screw terminals	4	●	1		920 310 ¹⁾	235	
		Screw terminals	2	●	1		920 211 ¹⁾	248	
		LSA	20		1		907 400	293	
		LSA	20		1		907 401	294	
		Insulation displacement terminals	20		2		907 214	301	
		Insulation displacement terminals	20		2		907 216	301	
VDSL 		LSA	20		1		907 401	294	
		Screw terminals	4	●	1		920 310 ¹⁾	235	
		Screw terminals	2	●	1		920 211 ¹⁾	248	













































¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Data networks								
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD	Part No.	Page
Arcnet		BNC	1		2		929 010	351
		BNC	1		2		909 710 / 711	352
ATM		RJ45	4 x 2		2		929 100	322
		RJ45	4 x 2		2		929 121	323
		RJ45, LSA / RJ45	8 x 8		3		929 035 / 036	325
		RJ45	8 x 8		4		929 037	325
		RJ45	4		2		909 321	334
Ethernet 10/100/1000 10 Base T		RJ45	4 x 2		2		929 100	322
		RJ45	4 x 2		2		929 121	323
		RJ45, LSA / RJ45	8 x 8		3		929 035 / 036	325
		RJ45	8 x 8		4		929 037	325
		RJ45	4		2		909 321	334
		RJ45	4		2		909 320	333
		RJ45	20		1		907 401 + 907 470 + 907 498	294 298/300
FDDI, CDDI		RJ45	4 x 2		2		929 100	322
		RJ45	4 x 2		2		929 121	323
		RJ45, LSA / RJ45	8 x 8		3		929 035 / 036	325
		RJ45	8 x 8		4		929 037	325
		RJ45	4		2		909 321	334
Industrial Ethernet		LSA	20		1		907 401 + 907 470 + 907 498	294 298/300
		RJ45	4 x 2		2		929 100	322
		RJ45	4 x 2		2		929 121	323
		RJ45, LSA / RJ45	8 x 8		3		929 035 / 036	325
		RJ45	8 x 8		4		929 037	325
		RJ45	4		2		909 321	334
Power over Ethernet PoE		RJ45	4 x 2		2		929 100	322
		RJ45	4 x 2		2		929 121	323
		RJ45	8 x 8		4		929 037	325

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

















































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Data networks									
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class TYPE	SPD 	Part No.	Page	
Token Ring		LSA	20		1		907 401 + 907 470 + 907 498	294 298/300	
		RJ45	4 x 2		2		929 100	322	
		RJ45	4 x 2		2		929 121	323	
		RJ45, LSA / RJ45	8 x 8		3		929 035 / 036	325	
		RJ45	8 x 8		4		929 037	325	
		RJ45	4		2		909 321	334	
V 24 (RS232 C)		Screw terminals	4		1		920 322 ¹⁾	236	
		Screw terminals	4		2		926 322 ¹⁾	224	
		Spring terminals	2		2		917 921	272	
		LSA	20		1		907 401 + 907 421 + 907 498	294 295/300	
		9-, 25-pin SUB-D	4, 9		2		924 046 / 061	369/367	
		9-, 25-pin SUB-D	9		4		924 018 / 019	366/365	
VG AnyLAN		RJ45	4 x 2		2		929 100	322	
		RJ45	4 x 2		2		929 121	323	
		RJ45, LSA / RJ45	8 x 8		3		929 035 / 036	325	
		RJ45	8 x 8		4		929 037	325	
		RJ45	4		2		909 321	334	
Voice over IP		RJ45	4 x 2		2		929 100	322	
		RJ45	4 x 2		2		929 121	323	
		RJ45	8 x 8		4		929 037	325	
		RJ45	4		2		909 321	334	

¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223























































²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Antenna systems, broadband systems, transmitting and receiving systems, video systems

Interface/Signal	For mounting on	Connection system	Protected lines	Frequency range	SPD class TYPE	SPD	Part No.	Page
AMPS, NADAC (824 – 894 MHz)		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		BNC	1	d.c. – 1 GHz	1		929 043	357
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
		N connector	1	d.c. – 2.5 GHz	1		929 045	357
		7/16 connector	1	d.c., 690 MHz – 2.7 GHz	1		929 146	358
		7/16 connector	1	690 MHz – 2.7 GHz	1		929 148	359
BWA (Broadband Wireless Access)		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
		N connector	1	2.0 – 6.0 GHz	1		929 059	360
CATV (cable TV)		F connector	1	d.c., 5 – 2400 MHz	1		909 705	354
		IEC/F connector	1	d.c. – 2400 MHz	2		909 300	331
DCS 1800 B162 (1710 – 1880 MHz)		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
		N connector	1	d.c. – 2.5 GHz	1		929 045	357
		7/16 connector	1	d.c., 690 MHz – 2.7 GHz	1		929 146	358
		7/16 connector	1	690 MHz – 2.7 GHz	1		929 148	359
DCF 77		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		BNC	1	d.c. – 1 GHz	1		929 043	357
		Screw terminals	2	d.c. – 2.8 MHz	1		920 242 ¹⁾	244
		Screw terminals	2	d.c. – 2.8 MHz	2		926 242 ¹⁾	229

























































¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Antenna systems, broadband systems, transmitting and receiving systems, video systems								
Interface/Signal	For mounting on	Connection system	Protected lines	Frequency range	SPD class TYPE	SPD	Part No.	Page
Radio systems		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		BNC	1	d.c. – 1 GHz	1		929 043	357
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
		N connector	1	d.c. – 2.5 GHz	1		929 045	357
		7/16 connector	1	d.c., 690 MHz – 2.7 GHz	1		929 146	358
		7/16 connector	1	380 – 512 MHz	1		929 047	359
		7/16 connector	1	690 MHz – 2.7 GHz	1		929 148	359
GPS (1565 – 1585 MHz)		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
		N connector	1	d.c. – 2.5 GHz	1		929 045	357
		7/16 connector	1	d.c., 690 MHz – 2.7 GHz	1		929 146	358
		7/16 connector	1	690 MHz – 2.7 GHz	1		929 148	359
GSM 900, GSMR (876 – 960 Hz)		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		BNC	1	d.c. – 1 GHz	1		929 043	357
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
		N connector	1	d.c. – 2.5 GHz	1		929 045	357
		7/16 connector	1	d.c., 690 MHz – 2.7 GHz	1		929 146	358
		7/16 connector	1	690 MHz – 2.7 GHz	1		929 148	359
PCS 1900 (1850 – 1990 MHz)		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
		N connector	1	d.c. – 2.5 GHz	1		929 045	357
		7/16 connector	1	d.c., 690 MHz – 2.7 GHz	1		929 146	358
		7/16 connector	1	690 MHz – 2.7 GHz	1		929 148	359

1) with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223



















2) with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Antenna systems, broadband systems, transmitting and receiving systems, video systems								
Interface/Signal	For mounting on	Connection system	Protected lines	Frequency range	SPD class TYPE	SPD	Part No.	Page
SAT		F connector	1	d.c., 5 – 2400 MHz	1		909 705	354
Sky DSL		F connector	1	d.c., 5 – 2400 MHz	1		909 705	354
TETRA, NMT 450 (380 – 512 Hz)		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		BNC	1	d.c. – 1 GHz	1		929 043	357
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
		N connector	1	d.c. – 2.5 GHz	1		929 045	357
		7/16 connector	1	380 – 512 MHz	1		929 047	359
TV		F connector	1	d.c., 5 – 3000 MHz	3		909 703	354
		F connector	1	d.c. – 2400 MHz	1		909 704	354
		F connector	1	d.c., 5 – 2400 MHz	1		909 705	354
		IEC/F connector	1	d.c. – 2400 MHz	2		909 300	331
UMTS		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
		N connector	1	d.c. – 2.5 GHz	1		929 045	357
		7/16 connector	1	d.c., 690 MHz – 2.7 GHz	1		929 146	358
		7/16 connector	1	690 MHz – 2.7 GHz	1		929 148	359
Video (two-wire)		Screw terminals	4	d.c. – 100 MHz	1		920 371 ¹⁾	241
		Screw terminals	2	d.c. – 100 MHz	1		920 271 ¹⁾	247
		Screw terminals	4	d.c. – 100 MHz	2		926 371 ¹⁾	227
		Screw terminals	2	d.c. – 100 MHz	2		926 271 ¹⁾	231
		RJ45	4 x 2	d.c. – 250 MHz	2		929 100	322
		RJ45	4 x 2	d.c. – 250 MHz	2		929 121	323
		Screw terminals	2	d.c. – 100 MHz	1		920 270 ¹⁾	246
		Screw terminals	2	d.c. – 100 MHz	2		926 270 ¹⁾	230
		RJ45	4	d.c. – 100 MHz	2		909 321	334
		LSA	20	d.c. – 90 MHz	1		907 401 + 907 465 + 907 498	294 298/300



¹⁾ with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

²⁾ with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Antenna systems, broadband systems, transmitting and receiving systems, video systems								
Interface/Signal	For mounting on	Connection system	Protected lines	Frequency range	SPD class TYPE	SPD	Part No.	Page
Video (coaxial)		BNC	1	d.c. – 300 MHz	2		929 010	351
		BNC	1	0 – 300 MHz	2		909 710 / 711	352
WiMax		N connector	1	2.0 – 6.0 GHz	1		929 059	360
WLAN (2.4 GHz band)		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		BNC	1	d.c. – 4 GHz	2		929 042	356
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
WLAN (5 GHz band)		SMA	1	d.c. – 5.8 GHz	2		929 039	356
		N connector	1	d.c. – 5.8 GHz	2		929 044	356
		N connector	1	2.0 – 6.0 GHz	1		929 059	360



BLITZDUCTOR® XTU / DEHNbox

Universal lightning current / surge arrester with actiVsense® technology

- Automatically detects the operating voltage
- Optimally adapts the voltage protection level to the voltage currently applied


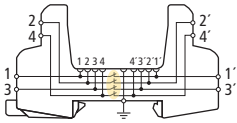

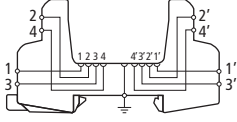







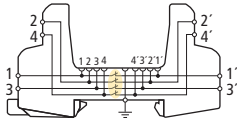




Application:

- Suitable for the vast majority of applications in information technology systems
 - Ideally suited for telecommunications systems, bus systems as well as measuring and control equipment
- ⇒ The nominal current of the SPD is limited to 100 mA, allowing the device to be used in the vast majority of information technology systems. In some applications where the signal line is also used for power supply the current may exceed 100 mA.
- ⇒ All signals are transmitted with signal frequencies up to 50 MHz.
- ⇒ In bus systems the SPD can be used for applications based on RS485 / RS422 interfaces (not RS232).
- For more detailed information, please refer to page 252 (BXTU) and page 337 (DBX).

1) with universal base part BXT BAS (Part No. 920 300) or BSP BAS 4 (Part No. 926 304) please refer to page 223

2) with universal base part BXT BAS EX (Part No. 920 301) please refer to page 258

Pluggable DIN Rail mounted SPDs

Product	Basic circuit diagram / symbol	Type	Part No.	Page
BXT BAS / BSP BAS 4 base parts				
		BXT BAS <ul style="list-style-type: none"> – Universal base part for protection modules of the BLITZDUCTOR SP and BLITZDUCTOR XT/XTU series – No signal disconnection if the protection module is removed – Connection of up to four lines 	920 300	223
		BSP BAS 4 <ul style="list-style-type: none"> – Universal base part for protection modules of the BLITZDUCTOR SP and BLITZDUCTOR XT/XTU series – Signal disconnection if the protection module is removed – Connection of up to four lines 	926 304	223
BLITZDUCTOR® SP				
		BSP M ... <ul style="list-style-type: none"> – Surge arrester modules – Two-pole and four-pole versions 	926 ...	224
BLITZDUCTOR® XT				
		BXT ML ... <ul style="list-style-type: none"> – Combined lightning current and surge arrester modules – With integrated LifeCheck – Two-pole and four-pole versions 	920 ...	235
BLITZDUCTOR® XTU				
		BXTU ML ... <ul style="list-style-type: none"> – Universal lightning current and surge arrester modules – With integrated LifeCheck – With integrated actuSense technology – Two-pole and four-pole versions 	920 349 920 249	254 255
BLITZDUCTOR® XT Ex (i)				
		BXT BAS EX <ul style="list-style-type: none"> – Universal base part for protection modules of the BLITZDUCTOR XT Ex (i) series – No signal disconnection if the protection module is removed – Connection of up to four lines 	920 301	258
		BXT M2 BD S EX 24 <ul style="list-style-type: none"> – Surge arrester modules for hazardous areas – Connection of one pair – Optionally available with direct or indirect shielding 	920 383	259
		BXT ML ... <ul style="list-style-type: none"> – Surge arrester modules for hazardous areas – With integrated LifeCheck – Two-pole and four-pole versions 	920 ...	260

Pluggable DIN Rail mounted SPDs

Surge Arrester

Pluggable DIN Rail mounted SPDs

Pluggable DIN Rail mounted SPDs



Pluggable and universal multipole surge arrester for use in information technology systems.

BLITZDUCTOR SP arresters are pluggable and universal multipole DIN rail mounted surge arresters for protecting measuring and control circuits, bus systems, emergency alarm systems or telecommunication systems. BLITZDUCTOR SP arresters combine a permanently high impulse current discharge capacity with an extremely low voltage protection level, thus ensuring effective protection of terminal equipment even in case of interference caused by impulse currents and surges resulting from switching operations.

- **Universal surge arrester**
 - Universal surge arrester for two-pole, three-pole or four-pole interfaces
 - High discharge capacity up to 20 kA (8/20 μs)
 - Low voltage protection level, capable of protecting terminal equipment
- **SPD consists of a protection module and a base part**
 - Easy replacement of protection modules
 - All protection components integrated in the protection module
 - Two universal base parts optionally available with or without signal disconnection
- **Functional and appealing design**
 - DIN rail mounted device with integrated earthing
 - Minimum space requirements, four single lines or two pairs over a width 12 mm
 - Vibration and shock-tested for safe operation

The arresters provide protection against vibration effects and shock up to a 30-fold acceleration of gravity. The function-optimised arrester design ensures both fast and easy replacement of protection modules which house all relevant protection elements.

A wide range of accessories e.g. for earthing unused lines or easily testing lines complete the product range. The protection module and base part have to be ordered separately!



Two-part design comprising a base part and a protection module.



The module locking mechanism ensures that the arrester is vibration-proof and protected against polarity reversal.

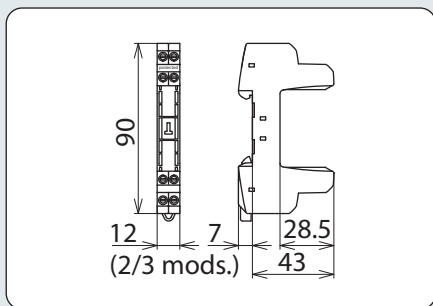


All protection elements are integrated in the plug-in module.

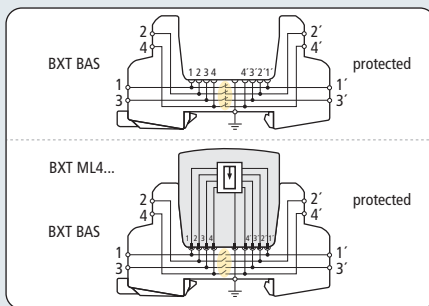


Two universal base parts with or without signal disconnection if the protection module is removed are optionally available.

BXT BAS



Dimension drawing BXT BAS



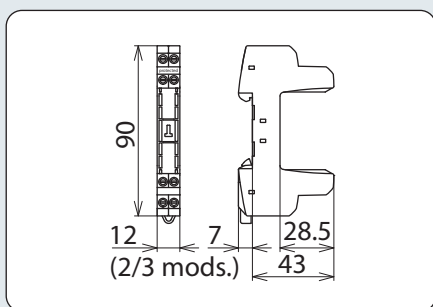
Basic circuit diagram with and without plugged-in module



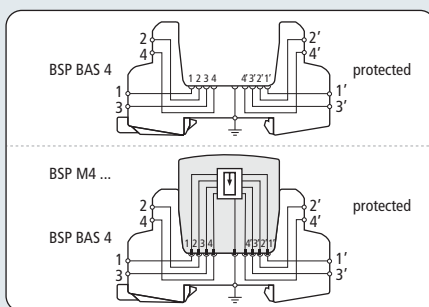
- Four-pole version for universal use with all types of BSP and BXT/BXTU protection modules
- No signal disconnection if the protection module is removed
- Universal design without protection elements

The BLITZDUCTOR XT base part is a very space-saving and universal four-pole feed-through terminal for the insertion of a protection module without signal disconnection if the protection module is removed. The snap-in mechanism at the supporting foot of the base part allows the protection module to be safely earthed via the DIN rail. Since no components of the protective circuit are situated in the base part, only the protection modules must be maintained.

BSP BAS 4



Dimension drawing BSP BAS 4



Basic circuit diagram with and without plugged-in module



NEW

- Four-pole version for universal use with all types of BSP and BXT/BXTU protection modules
- Signal disconnection if the protection module is removed
- Universal design without protection elements

The BLITZDUCTOR SP base part is a very space-saving and universal four-pole terminal for the insertion of a protection module with signal disconnection if the protection module is removed. The snap-in mechanism at the supporting foot of the base part allows the protection module to be safely earthed via the DIN rail. Since no components of the protective circuit are situated in the base part, only the protection modules must be maintained.

Type	BXT BAS	BSP BAS 4
Part No.	920 300	926 304
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 20	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Connection (input / output)	screw / screw	screw / screw
Signal disconnection	no	yes
Cross-sectional area, solid	0.08-4 mm ²	0.08-4 mm ²
Cross-sectional area, flexible	0.08-2.5 mm ²	0.08-2.5 mm ²
Tightening torque (terminals)	0.4 Nm	0.4 Nm
Earthing via	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc *)	—
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc *)	—
Approvals	CSA, VdS, UL, GOST	UL

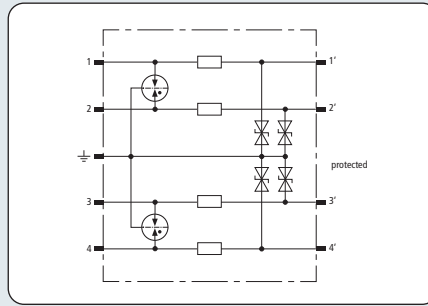
*) only in connection with an approved protection module

Pluggable DIN Rail mounted SPDs

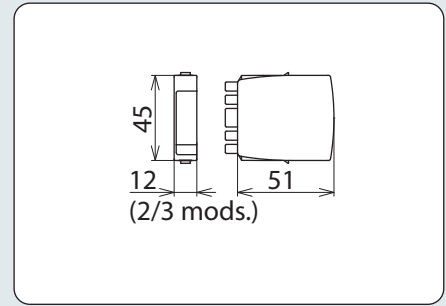
BSP M4 BE 5 – BE 180

Pluggable DIN Rail mounted SPDs

NEW



Basic circuit diagram BSP M4 BE



Dimension drawing BSP M4 BE

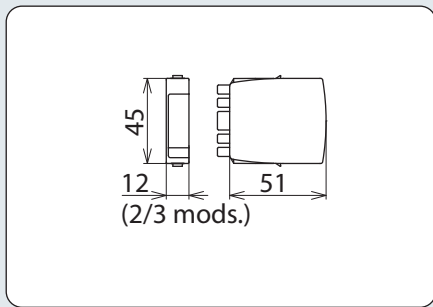
- High degree of protection for four single lines
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

Space-saving surge arrester module for protecting four single lines sharing a common reference potential and unbalanced interfaces.

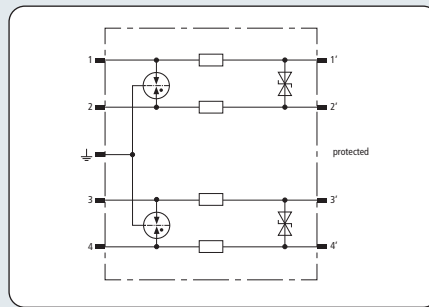
Type	BSP M4 BE 5	BSP M4 BE 12	BSP M4 BE 24	BSP M4 BE 48	BSP M4 BE 60	BSP M4 BE 180
Part No.	926 320	926 322	926 324	926 325	926 326	926 327
SPD class	TYPE 2 P1	TYPE 2 P1	TYPE 2 P1	TYPE 2 P1	TYPE 2 P1	TYPE 2 P2
Nominal voltage (U_n)	5 V	12 V	24 V	48 V	60 V	180 V
Max. continuous operating d.c. voltage (U_c)	6.0 V	15 V	33 V	54 V	70 V	180 V
Max. continuous operating a.c. voltage (U_c)	4.2 V	10.6 V	23.3 V	38.1 V	49.5 V	127 V
Nominal current at 45 °C (I_n)	1.0 A	0.75 A	0.75 A	0.75 A	1.0 A	1.0 A
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 40 V	≤ 55 V	≤ 105 V	≤ 170 V	≤ 220 V	≤ 550 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 60 V	≤ 60 V	≤ 85 V	≤ 115 V	≤ 155 V	≤ 300 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 18 V	≤ 38 V	≤ 90 V	≤ 140 V	≤ 180 V	≤ 500 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 9 V	≤ 19 V	≤ 45 V	≤ 70 V	≤ 90 V	≤ 250 V
Series impedance per line	1.0 ohm(s)	1.8 ohm(s)	1.8 ohm(s)	1.8 ohm(s)	1.0 ohm(s)	1.0 ohm(s)
Cut-off frequency line-PG (f_c)	1.0 MHz	2.7 MHz	6.8 MHz	8.7 MHz	9.0 MHz	25.0 MHz
Capacitance line-line (C)	≤ 2.7 nF	≤ 1.0 nF	≤ 0.5 nF	≤ 0.35 nF	≤ 250 pF	≤ 120 pF
Capacitance line-PG (C)	≤ 5.4 nF	≤ 2.0 nF	≤ 1.0 nF	≤ 0.7 nF	≤ 500 pF	≤ 240 pF
Operating temperature range (T_u)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part					
Earthing via	BXT BAS / BSP BAS 4 base part					
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow	yellow	yellow	yellow
Test standards	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B
SIL classification	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)
Approvals	UL	UL	UL	UL	UL	UL

*) For more detailed information, please visit www.dehn-international.com.

NEW



Dimension drawing BSP M4 BD



Basic circuit diagram BSP M4 BD



Pluggable DIN Rail mounted SPDs

Space-saving surge arrester module for protecting two pairs of balanced interfaces with electrical isolation.

- High degree of protection for two pairs
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_B – 2 and higher

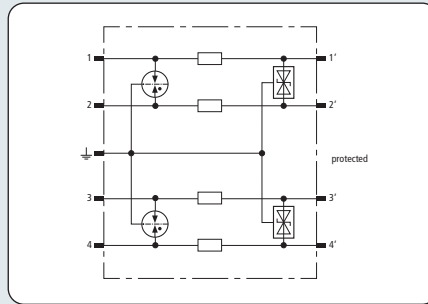
Type	BSP M4 BD 5	BSP M4 BD 12	BSP M4 BD 24	BSP M4 BD 48	BSP M4 BD 60	BSP M4 BD 180
Part No.	926 340	926 342	926 344	926 345	926 346	926 347
SPD class	TYPE 2P1	TYPE 2P1	TYPE 2P1	TYPE 2P1	TYPE 2P1	TYPE 2P2
Nominal voltage (U _N)	5 V	12 V	24 V	48 V	60 V	180 V
Max. continuous operating d.c. voltage (U _C)	6.0 V	15 V	33 V	54 V	70 V	180 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	10.6 V	23.3 V	38.1 V	49.5 V	127 V
Nominal current at 45 °C (I _N)	1.0 A	1.0 A	1.0 A	1.0 A	1.0 A	0.75 A
C2 Total nominal discharge current (8/20 μs) (I _N)	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _N)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
Voltage protection level line-line for I _N C2 (U _p)	≤ 15 V	≤ 27 V	≤ 55 V	≤ 85 V	≤ 110 V	≤ 270 V
Voltage protection level line-PG for I _N C2 (U _p)	≤ 600 V	≤ 600 V	≤ 600 V	≤ 600 V	≤ 600 V	≤ 600 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 9 V	≤ 19 V	≤ 45 V	≤ 70 V	≤ 90 V	≤ 250 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V
Series impedance per line	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)	1.8 ohm(s)
Cut-off frequency line-line (f _C)	1.0 MHz	2.8 MHz	7.8 MHz	8.7 MHz	11.0 MHz	25.0 MHz
Capacitance line-line (C)	≤ 5.4 nF	≤ 2.0 nF	≤ 1.0 nF	≤ 0.7 nF	≤ 500 pF	≤ 240 pF
Capacitance line-PG (C)	≤ 16 pF	≤ 16 pF	≤ 16 pF	≤ 16 pF	≤ 16 pF	≤ 16 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part					
Earthing via	BXT BAS / BSP BAS 4 base part					
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow	yellow	yellow	yellow
Test standards	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B
SIL classification	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)
Approvals	UL	UL	UL	UL	UL	UL

*) For more detailed information, please visit www.dehn-international.com.

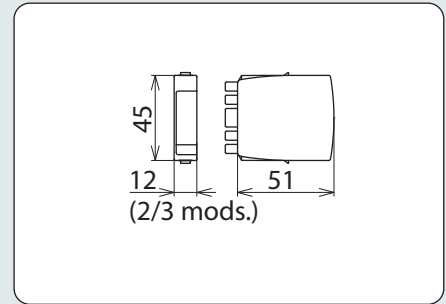
BSP M4 BE HF 5

Pluggable DIN Rail mounted SPDs

NEW



Basic circuit diagram BSP M4 BE HF



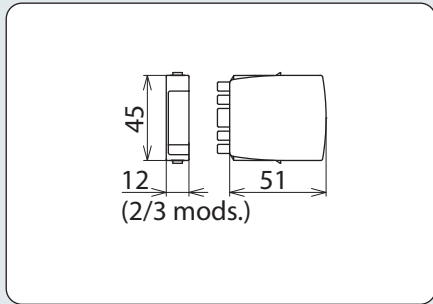
Dimension drawing BSP M4 BE HF

- High degree of protection for four single lines
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

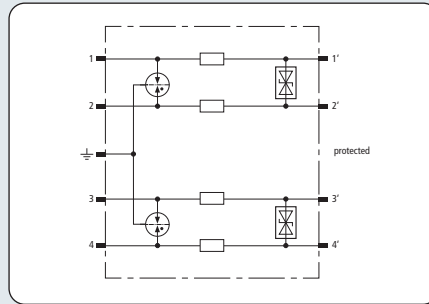
Space-saving surge arrester module for protecting four single lines sharing a common reference potential and high-frequency transmission systems without electrical isolation.

Type	BSP M4 BE HF 5
Part No.	926 370
SPD class	TYPE 2 P1
Nominal voltage (U_N)	5 V
Max. continuous operating d.c. voltage (U_C)	6.0 V
Max. continuous operating a.c. voltage (U_C)	4.2 V
Nominal current at 45 °C (I_N)	1.0 A
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 31 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 74 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 11 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 11 V
Series impedance per line	1.0 ohm(s)
Cut-off frequency line-PG (f_c)	100.0 MHz
Capacitance line-line (C)	≤ 20 pF
Capacitance line-PG (C)	≤ 25 pF
Operating temperature range (T_u)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21, UL 497B
SIL classification	up to SIL3 *)
Approvals	UL

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BSP M4 BD HF



Basic circuit diagram BSP M4 BD HF



NEW

Pluggable DIN Rail mounted SPDs

Space-saving surge arrester module for protecting two pairs of high-frequency bus systems or video transmission systems with galvanic isolation.

- Minimum signal interference
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_B – 2 and higher

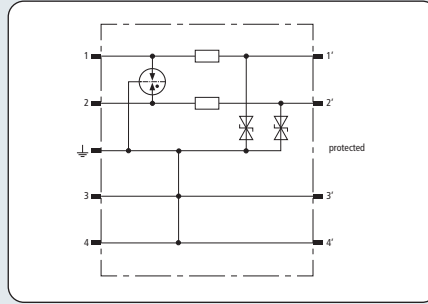
Type	BSP M4 BD HF 5	BSP M4 BD HF 24
Part No.	926 371	926 375
SPD class	TYPE 2 P1	TYPE 2 P1
Nominal voltage (U _N)	5 V	25 V
Max. continuous operating d.c. voltage (U _C)	6.0 V	33.0 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	23.3 V
Nominal current at 45 °C (I _N)	1.0 A	1.0 A
C2 Total nominal discharge current (8/20 μs) (I _N)	20 kA	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _N)	10 kA	10 kA
Voltage protection level line-line for I _N C2 (U _p)	≤ 35 V	≤ 67 V
Voltage protection level line-PG for I _N C2 (U _p)	≤ 600 V	≤ 600 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 11 V	≤ 47 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 550 V	≤ 550 V
Series impedance per line	1.0 ohm(s)	1.0 ohm(s)
Cut-off frequency line-line (f _C)	100.0 MHz	100.0 MHz
Capacitance line-line (C)	≤ 25 pF	≤ 25 pF
Capacitance line-PG (C)	≤ 16 pF	≤ 16 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
Test standards	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B
SIL classification	up to SIL3 *)	—
Approvals	UL	UL

*) For more detailed information, please visit www.dehn-international.com.

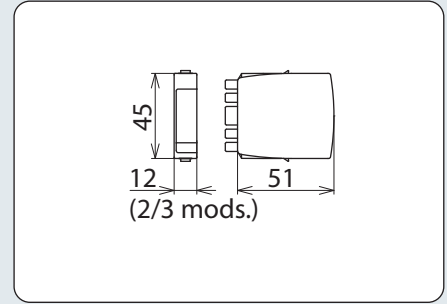
BSP M2 BE 5 – BE 180

Pluggable DIN Rail mounted SPDs

NEW



Basic circuit diagram BSP M2 BE



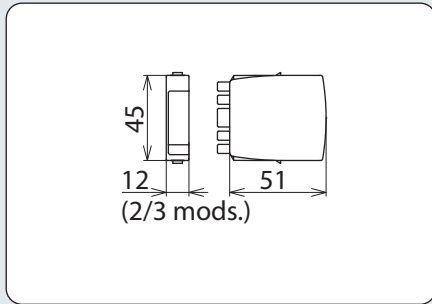
Dimension drawing BSP M2 BE

- High degree of protection for two single lines
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

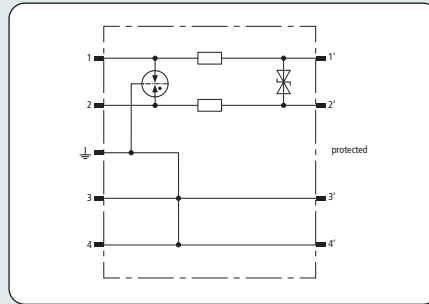
Space-saving surge arrester module for protecting two single lines sharing a common reference potential and unbalanced interfaces.

Type	BSP M2 BE 5	BSP M2 BE 12	BSP M2 BE 24	BSP M2 BE 48	BSP M2 BE 60	BSP M2 BE 180
Part No.	926 220	926 222	926 224	926 225	926 226	926 227
SPD class	TYPE 2 P1	TYPE 2 P1	TYPE 2 P1	TYPE 2 P1	TYPE 2 P1	TYPE 2 P2
Nominal voltage (U_n)	5 V	12 V	24 V	48 V	60 V	180 V
Max. continuous operating d.c. voltage (U_c)	6.0 V	15 V	33 V	54 V	70 V	180 V
Max. continuous operating a.c. voltage (U_c)	4.2 V	10.6 V	23.3 V	38.1 V	49.5 V	127 V
Nominal current at 45 °C (I_n)	1.0 A	0.75 A	0.75 A	0.75 A	1.0 A	1.0 A
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 40 V	≤ 55 V	≤ 105 V	≤ 170 V	≤ 220 V	≤ 550 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 60 V	≤ 60 V	≤ 85 V	≤ 115 V	≤ 155 V	≤ 300 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 18 V	≤ 38 V	≤ 90 V	≤ 140 V	≤ 180 V	≤ 500 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 9 V	≤ 19 V	≤ 45 V	≤ 70 V	≤ 90 V	≤ 250 V
Series impedance per line	1.0 ohm(s)	1.8 ohm(s)	1.8 ohm(s)	1.8 ohm(s)	1.0 ohm(s)	1.0 ohm(s)
Cut-off frequency line-PG (f_c)	1.0 MHz	2.7 MHz	6.8 MHz	8.7 MHz	9.0 MHz	25 MHz
Capacitance line-line (C)	≤ 2.7 nF	≤ 1.0 nF	≤ 0.5 nF	≤ 0.35 nF	≤ 250 pF	≤ 120 pF
Capacitance line-PG (C)	≤ 5.4 nF	≤ 2.0 nF	≤ 1.0 nF	≤ 0.7 nF	≤ 500 pF	≤ 240 pF
Operating temperature range (T_u)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part					
Earthing via	BXT BAS / BSP BAS 4 base part					
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow	yellow	yellow	yellow
Test standards	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B
SIL classification	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)
Approvals	UL	UL	UL	UL	UL	UL

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BSP M2 BD



Basic circuit diagram BSP M2 BD



NEW

Pluggable DIN Rail mounted SPDs

Space-saving surge arrester module for protecting one pair of balanced interfaces with electrical isolation.

- High degree of protection for one pair
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_B – 2 and higher

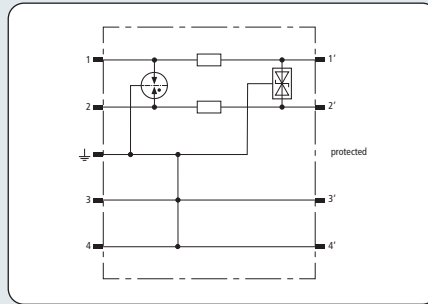
Type	BSP M2 BD 5	BSP M2 BD 12	BSP M2 BD 24	BSP M2 BD 48	BSP M2 BD 60	BSP M2 BD 180
Part No.	926 240	926 242	926 244	926 245	926 246	926 247
SPD class	TYPE 2P1	TYPE 2P1	TYPE 2P1	TYPE 2P1	TYPE 2P1	TYPE 2P2
Nominal voltage (U _N)	5 V	12 V	24 V	48 V	60 V	180 V
Max. continuous operating d.c. voltage (U _C)	6.0 V	15 V	33 V	54 V	70 V	180 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	10.6 V	23.3 V	38.1 V	49.5 V	127 V
Nominal current at 45 °C (I _N)	1.0 A	1.0 A	1.0 A	1.0 A	1.0 A	0.75 A
C2 Total nominal discharge current (8/20 μs) (I _N)	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _N)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
Voltage protection level line-line for I _N C2 (U _p)	≤ 15 V	≤ 27 V	≤ 55 V	≤ 85 V	≤ 110 V	≤ 270 V
Voltage protection level line-PG for I _N C2 (U _p)	≤ 600 V	≤ 600 V	≤ 600 V	≤ 600 V	≤ 600 V	≤ 600 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 9 V	≤ 19 V	≤ 45 V	≤ 70 V	≤ 90 V	≤ 250 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V
Series impedance per line	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)	1.8 ohm(s)
Cut-off frequency line-line (f _C)	1.0 MHz	2.8 MHz	7.8 MHz	8.7 MHz	11 MHz	25.0 MHz
Capacitance line-line (C)	≤ 5.4 nF	≤ 2.0 nF	≤ 1.0 nF	≤ 0.7 nF	≤ 500 pF	≤ 240 pF
Capacitance line-PG (C)	≤ 16 pF	≤ 16 pF	≤ 16 pF	≤ 16 pF	≤ 16 pF	≤ 16 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part					
Earthing via	BXT BAS / BSP BAS 4 base part					
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow	yellow	yellow	yellow
Test standards	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B
SIL classification	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)
Approvals	UL	UL	UL	UL	UL	UL

*) For more detailed information, please visit www.dehn-international.com.

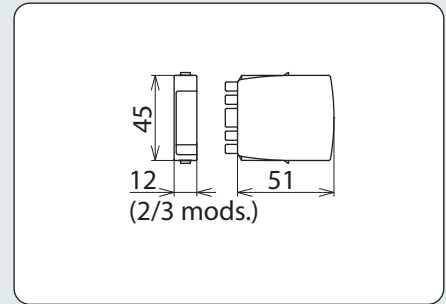
BSP M2 BE HF 5

Pluggable DIN Rail mounted SPDs

NEW



Basic circuit diagram BSP M2 BE HF



Dimension drawing BSP M2 BE HF

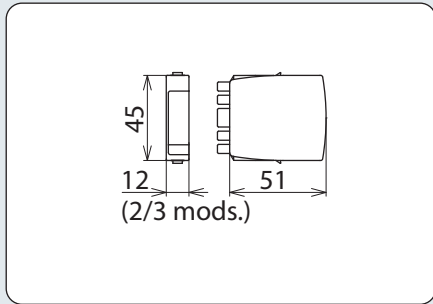
- High degree of protection for two single lines
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

Space-saving surge arrester module for protecting two single lines sharing a common reference potential and high-frequency transmission systems without electrical isolation.

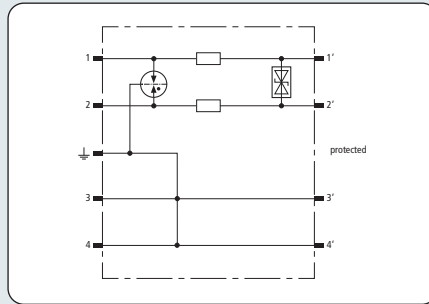
Type	BSP M2 BE HF 5
Part No.	926 270
SPD class	TYPE 2 P1
Nominal voltage (U_N)	5 V
Max. continuous operating d.c. voltage (U_C)	6.0 V
Max. continuous operating a.c. voltage (U_C)	4.2 V
Nominal current at 45 °C (I_N)	1.0 A
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 31 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 74 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 11 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 11 V
Series impedance per line	1.0 ohm(s)
Cut-off frequency line-PG (f_c)	100 MHz
Capacitance line-line (C)	≤ 20 pF
Capacitance line-PG (C)	≤ 30 pF
Operating temperature range (T_u)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21, UL 497B
SIL classification	up to SIL3 *)
Approvals	UL

*) For more detailed information, please visit www.dehn-international.com.

NEW



Dimension drawing BSP M2 BD HF



Basic circuit diagram BSP M2 BD HF



Pluggable DIN Rail mounted SPDs

Space-saving surge arrester module for protecting one pair of high-frequency bus systems or video transmission systems with galvanic isolation.

- Minimum signal interference
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_B – 2 and higher

Type	BSP M2 BD HF 5	BSP M2 BD HF 24
Part No.	926 271	926 275
SPD class	TYPE 2 P1	TYPE 2 P1
Nominal voltage (U _N)	5 V	24 V
Max. continuous operating d.c. voltage (U _C)	6.0 V	33.0 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	23,3 V
Nominal current at 45 °C (I _N)	1.0 A	1.0 A
C2 Total nominal discharge current (8/20 μs) (I _N)	20 kA	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _N)	10 kA	10 kA
Voltage protection level line-line for I _N C2 (U _p)	≤ 35 V	≤ 67 V
Voltage protection level line-PG for I _N C2 (U _p)	≤ 600 V	≤ 600 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 11 V	≤ 47 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 550 V	≤ 550 V
Series impedance per line	1.0 ohm(s)	1.0 ohm(s)
Cut-off frequency line-line (f _C)	100 MHz	100 MHz
Capacitance line-line (C)	≤ 25 pF	≤ 25 pF
Capacitance line-PG (C)	≤ 25 pF	≤ 25 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
Test standards	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B
SIL classification	up to SIL3 *)	—
Approvals	UL	UL

*) For more detailed information, please visit www.dehn-international.com.

Accessories

Pluggable DIN Rail mounted SPDs

Pluggable DIN Rail mounted SPDs



BXT BAS

Base part as a very space-saving and universal four-pole feed-through terminal for the insertion of a protection module without signal disconnection if the protection module is removed.

Type	BXT BAS
Part No.	920 300
Colour	yellow



BSP BAS 4

Base part as a very space-saving and universal four-pole terminal for the insertion of a protection module with signal disconnection if the protection module is removed.

Type	BSP BAS 4
Part No.	926 304
Colour	yellow



Earthing Module

For directly earthing lines connected to the BLITZDUCTOR SP/XT/XTU base part.

Type	BXT M4 E
Part No.	920 308
Colour	grey



Test / Disconnection Module

Module for testing lines, plugs into BLITZDUCTOR SP/XT/XTU base parts.

Type	BXT M4 T
Part No.	920 309
Colour	grey

EMC Spring Terminals

Two spring terminals for permanent low-impedance shield contact with the protected and unprotected side of a BLITZDUCTOR SP/XT/XTU arrester. With integrated coding for direct or indirect shield earthing. Cable ties and insulating strips are included. Suitable for BXT(U) ML2 ...S ... / BSP M2 ... types (only direct shield earthing).



Type	SAK BXT LR
Part No.	920 395
Accessories	cable tie, insulating strips
Clamping range (mm)	3-10

For "Accessories for BLITZDUCTOR SP", please also refer to pages 266 – 268.

Pluggable DIN Rail mounted SPDs

Lightning Current / Surge Arrester

- **Combined lightning current and surge arrester**
 - Maximum discharge capacity for two-pole, three-pole or four-pole interfaces
 - Capable of carrying lightning currents up to 10 kA (10/350 µs)
 - Low voltage protection level, capable of protecting terminal equipment
- **With integrated LifeCheck monitoring**
 - Arrester testing during operation
 - Detection of pre-damaged arresters
 - High signal availability thanks to preventive replacement of arresters
- **SPD consists of a protection module and a base part**
 - Vibration and shock-tested for safe operation
 - All protection components integrated in the protection module
 - Two universal base parts with/without signal disconnection
 - Minimum space requirements, 4 single lines or 2 pairs over a width of 12 mm

BLITZDUCTOR XT combined arresters are pluggable and universal multi-pole DIN rail mounted lightning current and surge arresters for protecting measuring and control circuits, bus systems and telecommunication systems. They are particularly suited for installations and systems which require a high level of availability. To ensure effective protection of terminal equipment under lightning and overvoltage conditions, BLITZDUCTOR XT arresters combine the permanently high impulse current discharge capacity of a lightning current arrester with the low voltage protection level of a surge arrester. LifeCheck allows quick and easy testing of arresters without removing the module. Integrated into the protection modules, LifeCheck constantly monitors the proper condition of the arrester and acts like an early warning system, detecting imminent electrical or thermal overload of the protection components. The status of the arrester can be read out within a



BLITZDUCTOR XT with an earthing module (grey). The lines can be tested by means of the measuring module (grey with lines) without disconnecting the terminals.

matter of seconds via contactless RFID technology by means of the portable DEHNrecord LC reader. LifeCheck also saves and indicates the date of the last test of the protection module. Stationary installed, a condition monitoring system permanently monitors the condition of up to 10 BXT arresters. The module locking system ensures safe operation. Thus, the arrester provides protection against vibration effects and shock up to a 30-fold acceleration of gravity. The function-optimised design of the arrester ensures both fast and easy replacement of protection modules which house all relevant protection elements. A wide range of accessories makes BLITZDUCTOR XT arresters particularly easy to use. Elements for earthing unused lines or easily testing signal circuits round off the product range. The protection module and base part must be ordered separately!



Two-part design with universal base part and application-specific protection module.



The module locking mechanism ensures that the arrester is vibration-proof and protected against polarity reversal.



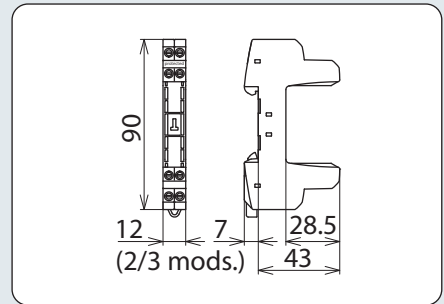
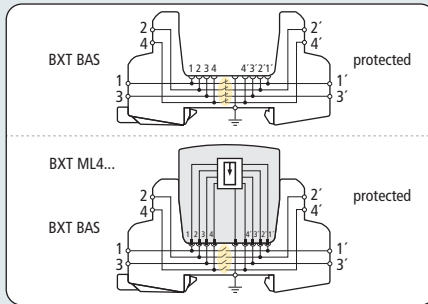
All protection elements are integrated in the plug-in module and are monitored by means of LifeCheck.



EMC spring terminal for permanent low-impedance shield contact.

Pluggable DIN Rail mounted SPDs

BXT BAS



- Four-pole version for universal use with all types of BSP and BXT/BXTU protection modules
- No signal disconnection if the protection module is removed
- Universal design without protection elements

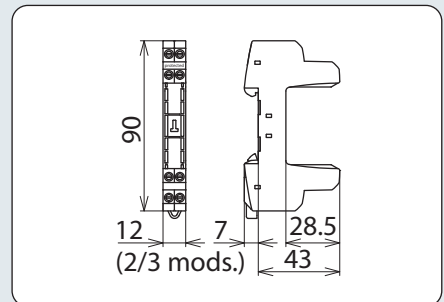
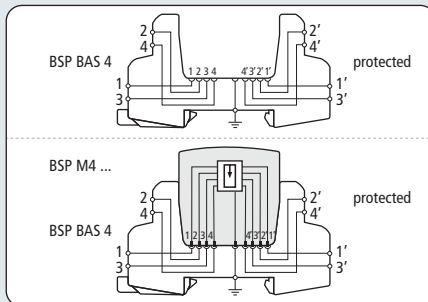
Basic circuit diagram with and without plugged-in module

Dimension drawing BXT BAS

The BLITZDUCTOR XT base part is a very space-saving and universal four-pole feed-through terminal for the insertion of a protection module without signal disconnection if the protection module is removed. The snap-in mechanism at the supporting foot of the base part allows the protection module to be safely earthed via the DIN rail. Since no components of the protective circuit are situated in the base part, only the protection modules must be maintained.

BSP BAS 4

NEW



- Four-pole version for universal use with all types of BSP and BXT/BXTU protection modules
- Signal disconnection if the protection module is removed
- Universal design without protection elements

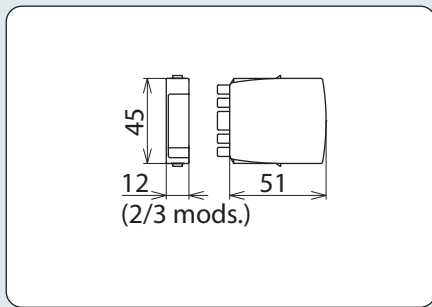
Basic circuit diagram with and without plugged-in module

Dimension drawing BSP BAS 4

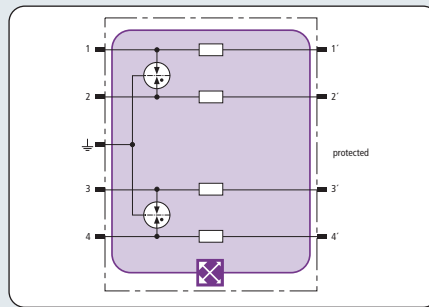
The BLITZDUCTOR SP base part is a very space-saving and universal four-pole terminal for the insertion of a protection module with signal disconnection if the protection module is removed. The snap-in mechanism at the supporting foot of the base part allows the protection module to be safely earthed via the DIN rail. Since no components of the protective circuit are situated in the base part, only the protection modules must be maintained.

Type	BXT BAS	BSP BAS 4
Part No.	920 300	926 304
Operating temperature range (T _u)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 20	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Connection (input / output)	screw / screw	screw / screw
Signal disconnection	no	yes
Cross-sectional area, solid	0.08-4 mm ²	0.08-4 mm ²
Cross-sectional area, flexible	0.08-2.5 mm ²	0.08-2.5 mm ²
Tightening torque (terminals)	0.4 Nm	0.4 Nm
Earthing via	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc *)	—
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc *)	—
Approvals	CSA, VdS, UL, GOST	UL

*) only in connection with an approved protection module



Dimension drawing BXT ML4 B



Basic circuit diagram BXT ML4 B



Pluggable DIN Rail mounted SPDs

Space-saving, four-pole lightning current arrester module with LifeCheck feature for almost all applications. For use in connection with downstream **TYPE 2 P1** surge arresters or combined lightning current and surge arresters with a lower or equal voltage level. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

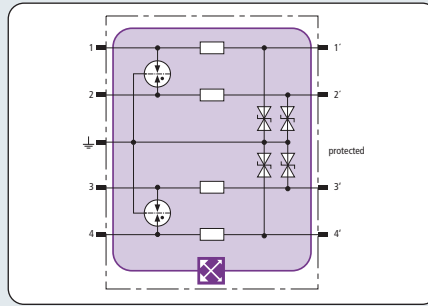
- LifeCheck SPD monitoring function
- Four-pole lightning equipotential bonding
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$ and higher

Type	BXT ML4 B 180
Part No.	920 310
SPD class	TYPE 1
SPD monitoring system	LifeCheck
Nominal voltage (U_N)	180 V
Max. continuous operating d.c. voltage (U_C)	180 V
Max. continuous operating a.c. voltage (U_C)	127 V
Nominal current at 45 °C (I_N)	1.2 A
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	10 kA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 600 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 550 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 650 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 550 V
Series resistance per line	0.4 ohm(s)
Capacitance line-line (C)	≤ 16 pF
Capacitance line-PG (C)	≤ 16 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	CSA, VdS, GOST

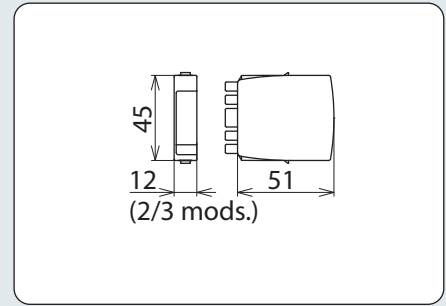
*) For more detailed information, please visit www.dehn-international.com.

BXT ML4 BE 5 – BE 180

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXT ML4 BE



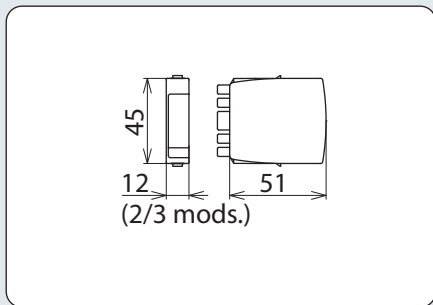
Dimension drawing BXT ML4 BE

- LifeCheck SPD monitoring function
- Optimal protection of four single lines
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

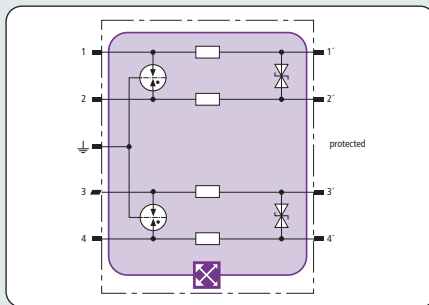
Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting four single lines sharing a common reference potential as well as unbalanced interfaces. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

Type BXT ML4 ...	BE 5	BE 12	BE 24	BE 36	BE 48	BE 60	BE 180
Part No.	920 320	920 322	920 324	920 336	920 325	920 326	920 327
SPD class	TYPE 1P1	TYPE 1P1	TYPE 1P1	TYPE 1P1	TYPE 1P1	TYPE 1P1	TYPE 1P2
SPD monitoring system	LifeCheck	LifeCheck	LifeCheck	LifeCheck	LifeCheck	LifeCheck	LifeCheck
Nominal voltage (U _N)	5 V	12 V	24 V	36 V	48 V	60 V	180 V
Max. continuous operating d.c. voltage (U _C)	6 V	15 V	33 V	45 V	54 V	70 V	180 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	10.6 V	23.3 V	31 V	38.1 V	49.5 V	127 V
Nominal current at 45 °C (I _N)	1.0 A	0.75 A	0.75 A	1.8 A	0.75 A	1.0 A	1.0 A
D1 Total lightning impulse current (10/350 µs) (I _{imp})	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
D1 Lightning impulse current (10/350 µs) per line (I _{imp})	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 µs) (I _n)	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
C2 Nominal discharge current (8/20 µs) per line (I _n)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 29 V	≤ 50 V	≤ 102 V	≤ 140 V	≤ 160 V	≤ 220 V	≤ 520 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 27 V	≤ 37 V	≤ 66 V	≤ 85 V	≤ 95 V	≤ 125 V	≤ 300 V
Voltage protection level line-line at 1 kV/µs C3 (U _p)	≤ 18 V	≤ 38 V	≤ 90 V	≤ 112 V	≤ 140 V	≤ 180 V	≤ 500 V
Voltage protection level line-PG at 1 kV/µs C3 (U _p)	≤ 9 V	≤ 19 V	≤ 45 V	≤ 56 V	≤ 70 V	≤ 90 V	≤ 250 V
Series resistance per line	1.0 ohm(s)	1.8 ohm(s)	1.8 ohm(s)	0.43 ohm(s)	1.8 ohm(s)	1.0 ohm(s)	1.0 ohm(s)
Cut-off frequency line-PG (f _c)	1.0 MHz	2.7 MHz	6.8 MHz	3.8 MHz	8.7 MHz	9.0 MHz	25.0 MHz
Capacitance line-line (C)	≤ 2.7 nF	≤ 1.0 nF	≤ 0.5 nF	≤ 0.8 nF	≤ 0.35 nF	≤ 250 pF	≤ 120 pF
Capacitance line-PG (C)	≤ 5.4 nF	≤ 2.0 nF	≤ 1.0 nF	≤ 1.6 nF	≤ 0.7 nF	≤ 500 pF	≤ 240 pF
Operating temperature range (T _U)	-40 °C ... +80 °C						
Degree of protection (plugged-in)	IP 20						
Pluggable into	BXT BAS / BSP BAS 4 base part						
Earthing via	BXT BAS / BSP BAS 4 base part						
Enclosure material	polyamide PA 6.6						
Colour	yellow						
Test standards	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc						
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc						
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4						
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4						
Approvals	CSA, VdS, UL, GOST	CSA, VdS, UL, GOST	CSA, VdS, UL, GOST	VdS, UL, GOST	CSA, VdS, UL, GOST	CSA, VdS, UL, GOST	CSA, VdS, UL, GOST

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BXT ML4 BD



Basic circuit diagram BXT ML4 BD



Pluggable DIN Rail mounted SPDs

Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting two pairs of unearthed balanced interfaces. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

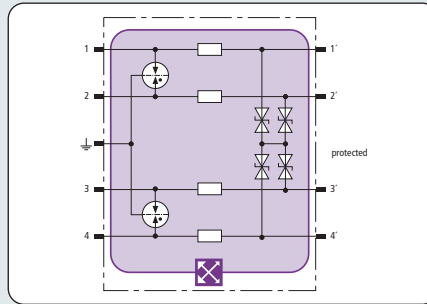
- LifeCheck SPD monitoring function
- Optimal protection of two pairs
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

Type BXT ML4 ...	BD 5	BD 12	BD 24	BD 48	BD 60	BD 180
Part No.	920 340	920 342	920 344	920 345	920 346	920 347
SPD class	TYPE 1P1	TYPE 1P1	TYPE 1P1	TYPE 1P1	TYPE 1P1	TYPE 1P2
SPD monitoring system	LifeCheck	LifeCheck	LifeCheck	LifeCheck	LifeCheck	LifeCheck
Nominal voltage (U _N)	5 V	12 V	24 V	48 V	60 V	180 V
Max. continuous operating d.c. voltage (U _C)	6.0 V	15 V	33 V	54 V	70 V	180 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	10.6 V	23.3 V	38.1 V	49.5 V	127 V
Nominal current at 45 °C (I _N)	1.0 A	1.0 A	1.0 A	1.0 A	1.0 A	0.75 A
D1 Total lightning impulse current (10/350 µs) (I _{imp})	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
D1 Lightning impulse current (10/350 µs) per line (I _{imp})	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 µs) (I _n)	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
C2 Nominal discharge current (8/20 µs) per line (I _n)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 25 V	≤ 26 V	≤ 52 V	≤ 80 V	≤ 110 V	≤ 270 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V
Voltage protection level line-line at 1 kV/µs C3 (U _p)	≤ 9 V	≤ 19 V	≤ 45 V	≤ 70 V	≤ 90 V	≤ 250 V
Voltage protection level line-PG at 1 kV/µs C3 (U _p)	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V
Series resistance per line	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)	1.8 ohm(s)
Cut-off frequency line-line (f _c)	1.0 MHz	2.8 MHz	7.8 MHz	8.7 MHz	11.0 MHz	25.0 MHz
Capacitance line-line (C)	≤ 5.4 nF	≤ 2.0 nF	≤ 1.0 nF	≤ 0.7 nF	≤ 500 pF	≤ 240 pF
Capacitance line-PG (C)	≤ 16 pF	≤ 16 pF	≤ 16 pF	≤ 16 pF	≤ 16 pF	≤ 16 pF
Operating temperature range (T _u)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part					
Earthing via	BXT BAS / BSP BAS 4 base part					
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow	yellow	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B					
SIL classification	up to SIL3 *)					
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc					
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc					
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4					
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4					
Approvals	CSA, UL, Vds, GOST					

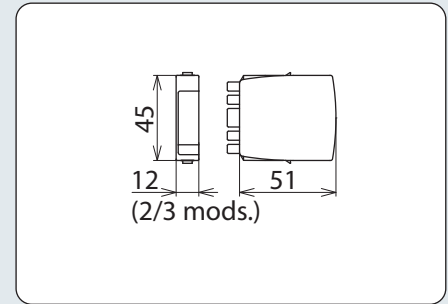
*) For more detailed information, please visit www.dehn-international.com.

BXT ML4 BC 5 / 24

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXT ML4 BC



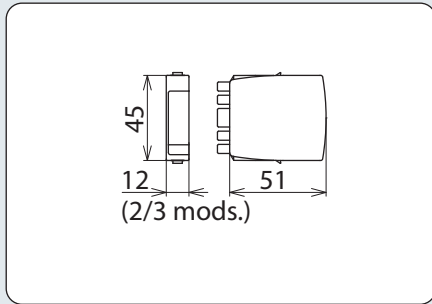
Dimension drawing BXT ML4 BC

- LifeCheck SPD monitoring function
- Optimal protection of up to four lines
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

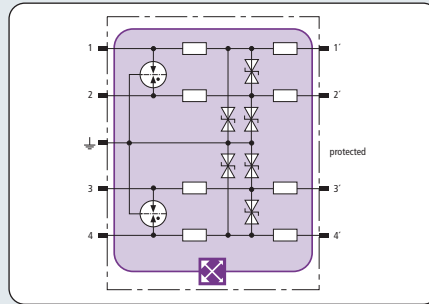
Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting up to four unearthed single lines sharing a common reference potential. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

Type	BXT ML4 BC 5	BXT ML4 BC 24
Part No.	920 350	920 354
SPD class	TYPE 1 P1	TYPE 1 P1
SPD monitoring system	LifeCheck	LifeCheck
Nominal voltage (U _N)	5 V	24 V
Max. continuous operating d.c. voltage (U _C)	6.0 V	33 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	23.3 V
Nominal current at 45 °C (I _N)	1.0 A	0.75 A
D1 Total lightning impulse current (10/350 μs) (I _{imp})	10 kA	10 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	10 kA	10 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 25 V	≤ 55 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 550 V	≤ 550 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 9 V	≤ 45 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 550 V	≤ 550 V
Series resistance per line	1.0 ohm(s)	1.8 ohm(s)
Cut-off frequency line-line (f _G)	1.0 MHz	5.7 MHz
Capacitance line-line (C)	≤ 5.4 nF	≤ 1.0 nF
Capacitance line-PG (C)	≤ 16 pF	≤ 16 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	CSA, VdS, GOST	CSA, VdS, GOST

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BXT ML4 BE C



Basic circuit diagram BXT ML4 BE C



Pluggable DIN Rail mounted SPDs

Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting two pairs of balanced interfaces with diode protective circuit at the input, current loops (TTY) and optocoupler inputs. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

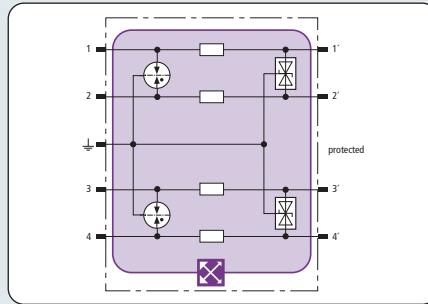
- LifeCheck SPD monitoring function
- Additional decoupling with regard to terminal equipment
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 2$ and higher

Type	BXT ML4 BE C 12	BXT ML4 BE C 24
Part No.	920 362	920 364
SPD class	TYPE 1 P1	TYPE 1 P1
SPD monitoring system	LifeCheck	LifeCheck
Nominal voltage (U_N)	12 V	24 V
Max. continuous operating d.c. voltage (U_C)	15 V	33 V
Max. continuous operating a.c. voltage (U_C)	10.6 V	23.3 V
Nominal current at 80 °C (I_N)	0.1 A	0.1 A
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	10 kA	10 kA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA	10 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 30 V	≤ 52 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 35 V	≤ 66 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 19 V	≤ 45 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 19 V	≤ 45 V
Series resistance per line	13.8 ohm(s)	28.8 ohm(s)
Cut-off frequency line-PG (f_G)	0.85 MHz	1.7 MHz
Capacitance line-line (C)	≤ 3.2 nF	≤ 1.5 nF
Capacitance line-PG (C)	≤ 3.2 nF	≤ 1.5 nF
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	GOST, VdS	CSA, VdS, GOST

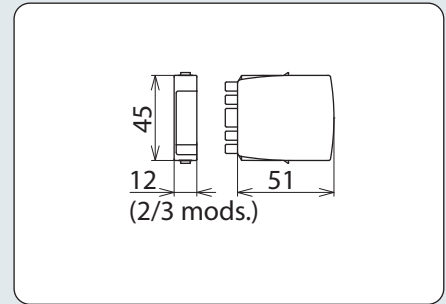
*) For more detailed information, please visit www.dehn-international.com.

BXT ML4 BE HF 5

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXT ML4 BE HF



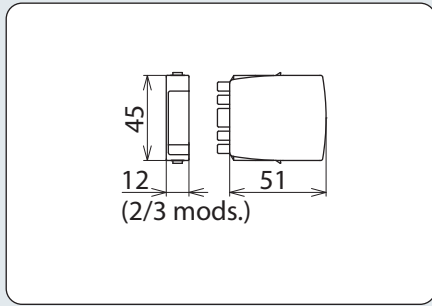
Dimension drawing BXT ML4 BE HF

- LifeCheck SPD monitoring function
- Optimal protection of four single lines
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

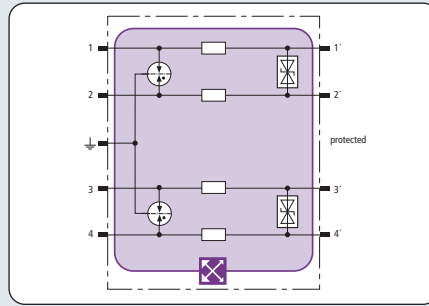
Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting four single lines sharing a common reference potential as well as high-frequency transmission systems without electrical isolation. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC / SCM / MCM reader.

Type	BXT ML4 BE HF 5
Part No.	920 370
SPD class	TYPE 1 P1
SPD monitoring system	LifeCheck
Nominal voltage (U _N)	5 V
Max. continuous operating d.c. voltage (U _C)	6.0 V
Max. continuous operating a.c. voltage (U _C)	4.2 V
Nominal current at 45 °C (I _N)	1.0 A
D1 Total lightning impulse current (10/350 μs) (I _{imp})	10 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	10 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 26 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 40 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 11 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 11 V
Series resistance per line	1.0 ohm(s)
Cut-off frequency line-PG (f _c)	100.0 MHz
Capacitance line-line (C)	≤ 20 pF
Capacitance line-PG (C)	≤ 25 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	CSA, VdS, UL, GOST

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BXT ML4 BD HF



Basic circuit diagram BXT ML4 BD HF



Pluggable DIN Rail mounted SPDs

Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting two pairs of unearthed high-frequency bus systems or two-wire video transmission systems. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

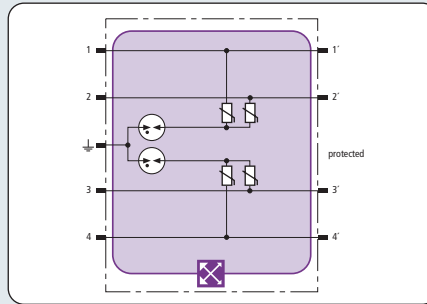
- LifeCheck SPD monitoring function
- Minimal signal interference
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

Type	BXT ML4 BD HF 5	BXT ML4 BD HF 24
Part No.	920 371	920 375
SPD class	TYPE 1 P1	TYPE 1 P1
SPD monitoring system	LifeCheck	LifeCheck
Nominal voltage (U _N)	5 V	24 V
Max. continuous operating d.c. voltage (U _C)	6.0 V	33 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	23.3 V
Nominal current at 45 °C (I _N)	1.0 A	1.0 A
D1 Total lightning impulse current (10/350 μs) (I _{imp})	10 kA	10 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	10 kA	10 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 25 V	≤ 65 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 550 V	≤ 550 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 11 V	≤ 47 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 550 V	≤ 550 V
Series resistance per line	1.0 ohm(s)	1.0 ohm(s)
Cut-off frequency line-line (f _C)	100.0 MHz	100,0 MHz
Capacitance line-line (C)	≤ 25 pF	≤ 25 pF
Capacitance line-PG (C)	≤ 16 pF	≤ 16 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	CSA, VdS, UL, GOST	CSA, VdS, UL, GOST

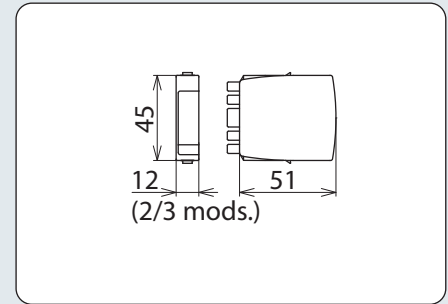
*) For more detailed information, please visit www.dehn-international.com.

BXT ML4 MY 110 / 250

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXT ML4 MY



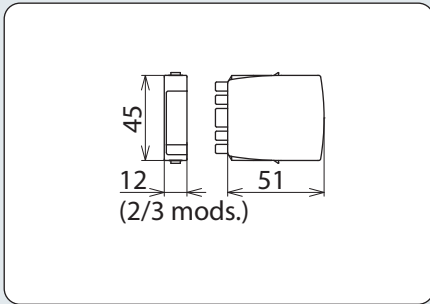
Dimension drawing BXT ML4 MY

- LifeCheck SPD monitoring function
- Fault-proof Y circuit
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

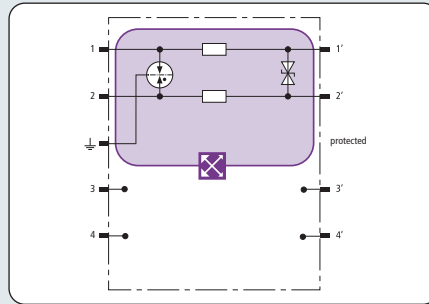
Space-saving surge arrester module with LifeCheck feature for protecting four lines of stranded signal interfaces. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

Type	BXT ML4 MY 110	BXT ML4 MY 250
Part No.	920 388	920 389
SPD class	TYPE 2P2	TYPE 2P3
SPD monitoring system	LifeCheck	LifeCheck
Nominal voltage (U_N)	110 V	250 V
Max. continuous operating d.c. voltage line-line (U_C)	170 V	620 V
Max. continuous operating d.c. voltage line-PG (U_C)	85 V	320 V
Max. continuous operating a.c. voltage line-line (U_C)	120 V	500 V
Max. continuous operating a.c. voltage line-PG (U_C)	60 V	250 V
Nominal current at 80 °C (I_n)	3.0 A	3.0 A
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5 kA	2.5 kA
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 300 V	≤ 1100 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 700 V	≤ 1200 V
Cut-off frequency line-line (f_c)	4.5 MHz	20.0 MHz
Capacitance line-line (C)	≤ 1.5 nF	≤ 300 pF
Capacitance line-PG (C)	≤ 16 pF	≤ 16 pF
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
SIL classification	—	up to SIL3 *)
Approvals	GOST	GOST

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BXT ML2 BD



Basic circuit diagram BXT ML2 BD



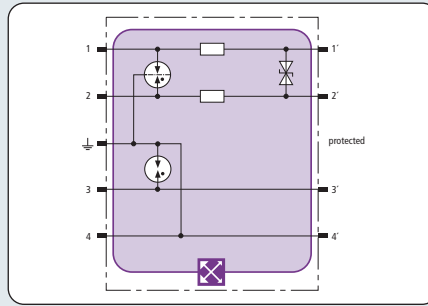
- LifeCheck SPD monitoring function
- Optimal protection of one pair
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 2$ and higher

Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting one pair of unearthed balanced interfaces. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

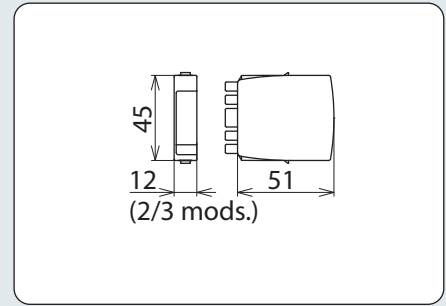
Type	BXT ML2 BD 180
Part No.	920 247
SPD class	TYPE 1 P2
SPD monitoring system	LifeCheck
Nominal voltage (U_N)	180 V
Max. continuous operating d.c. voltage (U_C)	180 V
Max. continuous operating a.c. voltage (U_C)	127 V
Nominal current at 45 °C (I_N)	0.75 A
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	5 kA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 270 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 550 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 250 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 550 V
Series resistance per line	1.8 ohm(s)
Cut-off frequency line-line (f_c)	25.0 MHz
Capacitance line-line (C)	≤ 240 pF
Capacitance line-PG (C)	≤ 16 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	CSA, GOST, Vds

*) For more detailed information, please visit www.dehn-international.com.

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXT ML2 BD



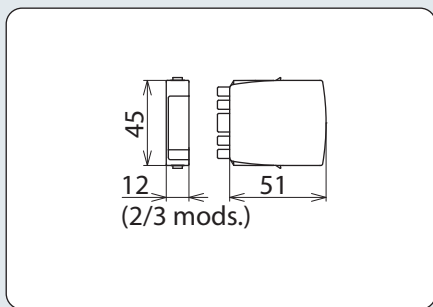
Dimension drawing BXT ML2 BD

- LifeCheck SPD monitoring function
- Optimal protection of one pair and the cable shield
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 2$ and higher

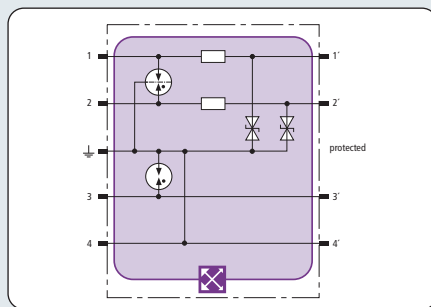
Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting one pair of unearthed balanced interfaces with direct or indirect shield earthing. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

Type	BXT ML2 BD S 5	BXT ML2 BD S 12	BXT ML2 BD S 24	BXT ML2 BD S 48
Part No.	920 240	920 242	920 244	920 245
SPD class	TYPE 1 P1	TYPE 1 P1	TYPE 1 P1	TYPE 1 P1
SPD monitoring system	LifeCheck	LifeCheck	LifeCheck	LifeCheck
Nominal voltage (U_N)	5 V	12 V	24 V	48 V
Max. continuous operating d.c. voltage (U_C)	6.0 V	15 V	33 V	54 V
Max. continuous operating a.c. voltage (U_C)	4.2 V	10.6 V	23.3 V	38.1 V
Nominal current at 45 °C (I_N)	1.0 A	1.0 A	1.0 A	1.0 A
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	9 kA	9 kA	9 kA	9 kA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	2.5 kA	2.5 kA	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA	20 kA	20 kA	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA	10 kA	10 kA	10 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 25 V	≤ 26 V	≤ 52 V	≤ 80 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 9 V	≤ 19 V	≤ 45 V	≤ 70 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V
Series resistance per line	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)	1.0 ohm(s)
Cut-off frequency line-line (f_G)	1.0 MHz	2.8 MHz	7.8 MHz	8.7 MHz
Capacitance line-line (C)	≤ 5.4 nF	≤ 2.0 nF	≤ 1.0 nF	≤ 0.7 nF
Capacitance line-PG (C)	≤ 25 pF	≤ 25 pF	≤ 25 pF	≤ 25 pF
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part			
Earthing via	BXT BAS / BSP BAS 4 base part			
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
SIL classification	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc	DEK 11.0032X: Ex nA IIC T4 Gc	DEK 11.0032X: Ex nA IIC T4 Gc	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4	2516389: Class I Div. 2 GP A, B, C, D T4	2516389: Class I Div. 2 GP A, B, C, D T4	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4	2516389: Class I Zone 2, AEx nA IIC T4	2516389: Class I Zone 2, AEx nA IIC T4	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	CSA, GOST, VdS	CSA, GOST, VdS	CSA, GOST, VdS	CSA, GOST, VdS

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BXT ML2 BE



Basic circuit diagram BXT ML2 BE



Pluggable DIN Rail mounted SPDs

Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting two single lines sharing a common reference potential as well as unbalanced interfaces, with direct or indirect shield earthing. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

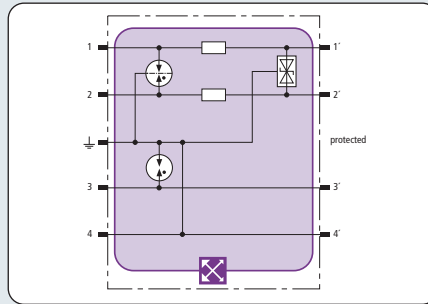
- LifeCheck SPD monitoring function
- Optimal protection of two single lines and the cable shield
- For use in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

Type	BXT ML2 BE S 5	BXT ML2 BE S 12	BXT ML2 BE S 24	BXT ML2 BE S 36	BXT ML2 BE S 48
Part No.	920 220	920 222	920 224	920 226	920 225
SPD class	TYPE 1 P1	TYPE 1 P1	TYPE 1 P1	TYPE 1 P1	TYPE 1 P1
SPD monitoring system	LifeCheck	LifeCheck	LifeCheck	LifeCheck	LifeCheck
Nominal voltage (U _N)	5 V	12 V	24 V	36 V	48 V
Max. continuous operating d.c. voltage (U _C)	6.0 V	15 V	33 V	45 V	54 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	10.6 V	23.3 V	31 V	38.1 V
Nominal current at 45 °C (I _N)	1.0 A	0.75 A	0.75 A	1.8 A	0.75 A
D1 Total lightning impulse current (10/350 μs) (I _{imp})	9 kA	9 kA	9 kA	9 kA	9 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA	20 kA	20 kA	20 kA	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	10 kA	10 kA	10 kA	10 kA	10 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 29 V	≤ 50 V	≤ 102 V	≤ 140 V	≤ 160 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 27 V	≤ 37 V	≤ 66 V	≤ 85 V	≤ 95 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 18 V	≤ 38 V	≤ 90 V	≤ 112 V	≤ 140 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 9 V	≤ 19 V	≤ 45 V	≤ 56 V	≤ 70 V
Series resistance per line	1.0 ohm(s)	1.8 ohm(s)	1.8 ohm(s)	0.43 ohm(s)	1.8 ohm(s)
Cut-off frequency line-PG (f _C)	1.0 MHz	2.7 MHz	6.8 MHz	3.8 MHz	8.7 MHz
Capacitance line-line (C)	≤ 2.7 nF	≤ 1.0 nF	≤ 0.5 nF	≤ 0.8 nF	≤ 0.35 nF
Capacitance line-PG (C)	≤ 5.4 nF	≤ 2.0 nF	≤ 1.0 nF	≤ 1.6 nF	≤ 0.7 nF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20	IP 20	IP 20	IP 20	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part				
Earthing via	BXT BAS / BSP BAS 4 base part				
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21, UL 497B	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)	up to SIL3 *)	up to SIL3 *)	—	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc	—	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc	DEK 11.0032X: Ex nA IIC T4 Gc	DEK 11.0032X: Ex nA IIC T4 Gc	—	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4	2516389: Class I Div. 2 GP A, B, C, D T4	2516389: Class I Div. 2 GP A, B, C, D T4	—	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4	2516389: Class I Zone 2, AEx nA IIC T4	2516389: Class I Zone 2, AEx nA IIC T4	—	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	CSA, GOST, VdS	CSA, GOST, VdS	CSA, GOST, VdS	UL, GOST, VdS	CSA, UL, GOST, VdS

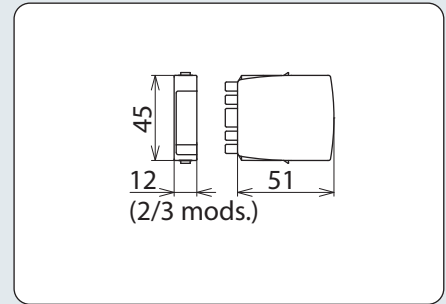
*) For more detailed information, please visit www.dehn-international.com.

BXT ML2 BE HFS 5

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXT ML2 BE HFS



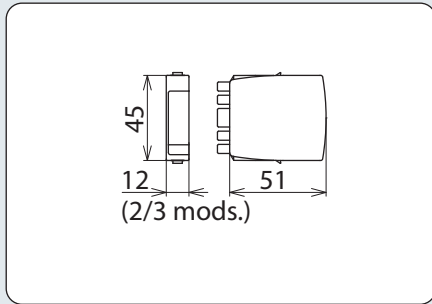
Dimension drawing BXT ML2 BE HFS

- LifeCheck SPD monitoring function
- Optimal protection of one pair and shield
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

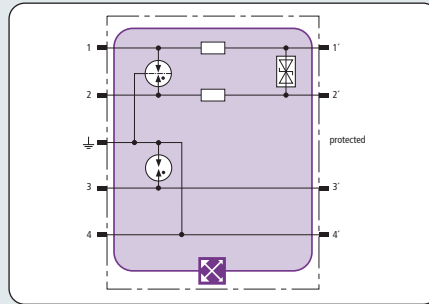
Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting one pair of high-frequency transmission systems without electrical isolation; with direct or indirect shield earthing. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

Type	BXT ML2 BE HFS 5
Part No.	920 270
SPD class	TYPE 1 P1
SPD monitoring system	LifeCheck
Nominal voltage (U _N)	5 V
Max. continuous operating d.c. voltage (U _C)	6.0 V
Max. continuous operating a.c. voltage (U _C)	4.2 V
Nominal current at 45 °C (I _N)	1.0 A
D1 Total lightning impulse current (10/350 μs) (I _{imp})	9 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	10 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 26 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 40 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 11 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 11 V
Series resistance per line	1.0 ohm(s)
Cut-off frequency line-PG (f _c)	100.0 MHz
Capacitance line-line (C)	≤ 20 pF
Capacitance line-PG (C)	≤ 30 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	CSA, UL, GOST, VdS

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BXT ML2 BD HFS



Basic circuit diagram BXT ML2 BD HFS



- LifeCheck SPD monitoring function
- Minimal signal interference
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

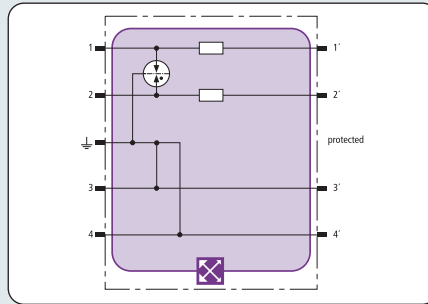
Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting one pair of unearthed high-frequency bus systems or video transmission systems, with direct or indirect shield earthing. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

Type	BXT ML2 BD HFS 5
Part No.	920 271
SPD class	TYPE 1 P1
SPD monitoring system	LifeCheck
Nominal voltage (U _N)	5 V
Max. continuous operating d.c. voltage (U _C)	6.0 V
Max. continuous operating a.c. voltage (U _C)	4.2 V
Nominal current at 45 °C (I _N)	1.0 A
D1 Total lightning impulse current (10/350 μs) (I _{imp})	9 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	10 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 25 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 550 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 11 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 550 V
Series resistance per line	1.0 ohm(s)
Cut-off frequency line-line (f _C)	100.0 MHz
Capacitance line-line (C)	≤ 25 pF
Capacitance line-PG (C)	≤ 25 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	CSA, UL, GOST, VdS

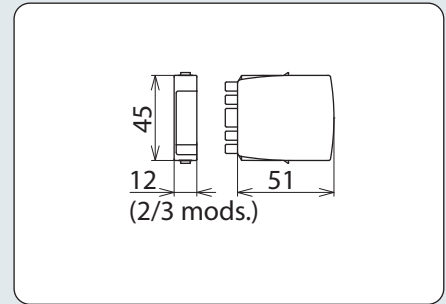
*) For more detailed information, please visit www.dehn-international.com.

BXT ML2 B 180

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXT ML2 B



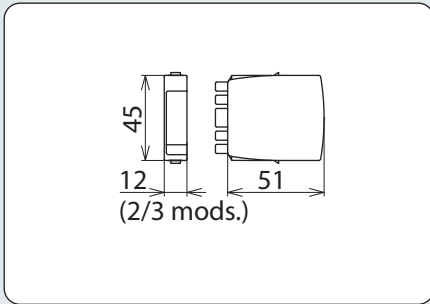
Dimension drawing BXT ML2 B

- LifeCheck SPD monitoring function
- Two-pole lightning equipotential bonding with four terminals for shield and/or functional earthing
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_A - 1$ and higher

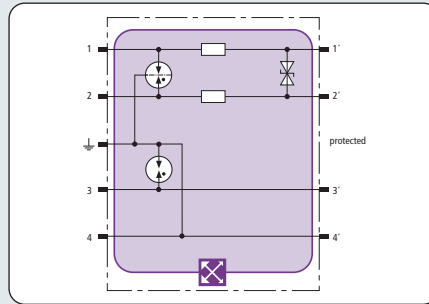
Space-saving, two-pole lightning current arrester module with LifeCheck feature and shield earthing for almost all applications. For use in conjunction with downstream **TYPE 2 P1** surge arresters or combined lightning current and surge arresters with a lower or equal voltage level. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

Type	BXT ML2 B 180
Part No.	920 211
SPD class	TYPE 1+
SPD monitoring system	LifeCheck
Nominal voltage (U_N)	180 V
Max. continuous operating d.c. voltage (U_C)	180 V
Max. continuous operating a.c. voltage (U_C)	127 V
Nominal current at 45 °C (I_L)	1.2 A
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	10 kA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 600 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 550 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 650 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 550 V
Series resistance per line	0.4 ohm(s)
Capacitance line-line (C)	≤ 16 pF
Capacitance line-PG (C)	≤ 16 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEX approvals	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	CSA, GOST, VdS

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BXT ML2 BD



Basic circuit diagram BXT ML2 BD



Pluggable DIN Rail mounted SPDs

Space-saving combined lightning current and surge arrester module with LifeCheck feature for protecting one pair of unearthed balanced interfaces, which specifically fulfils the requirements of Dupline buses, direct or indirect shield earthing. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

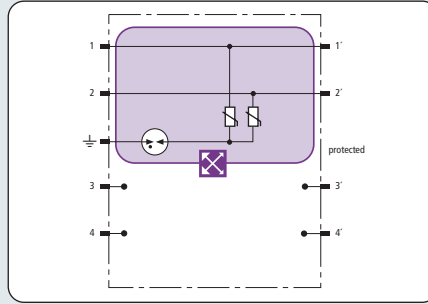
- Suitable for Dupline buses
- LifeCheck SPD monitoring function
- Effective protection for one pair and shield
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 2$ and higher

Type	BXT ML2 BD DL S 15
Part No.	920 243
SPD class	TYPE 1 P1
SPD monitoring system	LifeCheck
Nominal voltage (U_N)	15 V
Max. continuous operating d.c. voltage (U_C)	17 V
Max. continuous operating a.c. voltage (U_C)	12 V
Nominal current at 70 °C (I_N)	0.4 A
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	9 kA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 30 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 550 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 24 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 550 V
Series resistance per line	2.2 ohm(s)
Cut-off frequency line-line (f_c)	2.7 MHz
Capacitance line-line (C)	≤ 1.9 nF
Capacitance line-PG (C)	≤ 25 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
SIL classification	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc
CSA & USA Hazloc approvals (1)	2516389: Class I Div. 2 GP A, B, C, D T4
CSA & USA Hazloc approvals (2)	2516389: Class I Zone 2, AEx nA IIC T4
Approvals	GOST

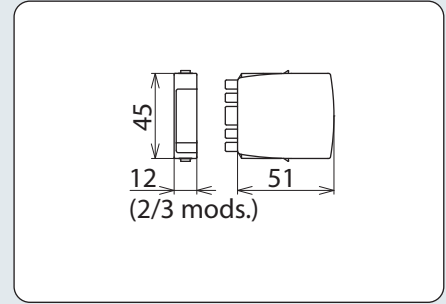
*) For more detailed information, please visit www.dehn-international.com.

BXT ML2 MY 250

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXT ML2 MY



Dimension drawing BXT ML2 MY

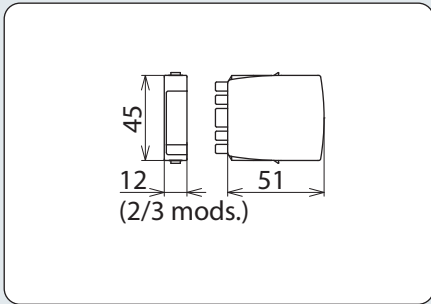
- LifeCheck SPD monitoring
- Fault-proof Y circuit
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

Space-saving surge arrester module with LifeCheck feature for protecting two lines of stranded signal interfaces up to 250 V a.c. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

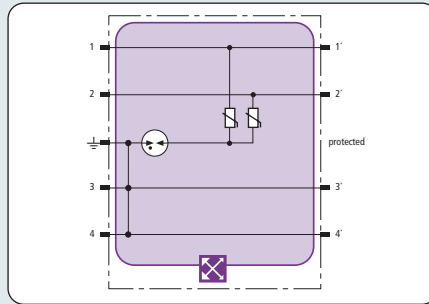
Type	BXT ML2 MY 250
Part No.	920 289
SPD class	TYPE 2P3
SPD monitoring system	LifeCheck
Nominal voltage (U_N)	250 V
Max. continuous operating d.c. voltage line-line (U_C)	620 V
Max. continuous operating d.c. voltage line-PG (U_C)	320 V
Max. continuous operating a.c. voltage line-line (U_C)	500 V
Max. continuous operating a.c. voltage line-PG (U_C)	250 V
Nominal current at 80 °C (I_n)	3.0 A
C2 Total nominal discharge current (8/20 μ s) (I_n)	5 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5 kA
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 1100 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1200 V
Cut-off frequency line-line (f_c)	20.0 MHz
Capacitance line-line (C)	≤ 300 pF
Capacitance line-PG (C)	≤ 16 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

*) For more detailed information, please visit www.dehn-international.com.

Pluggable DIN Rail mounted SPDs



Dimension drawing BXT ML2 MY E



Basic circuit diagram BXT ML2 MY E



- LifeCheck SPD monitoring
- Fault-proof Y circuit
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

Space-saving surge arrester module with LifeCheck feature for protecting two pairs of stranded signal interfaces. If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by the DEHNrecord LC/SCM/MCM reader.

Type	BXT ML2 MY E 110
Part No.	920 288
SPD class	TYPE 2 P2
SPD monitoring system	LifeCheck
Nominal voltage (U_N)	110 V
Max. continuous operating d.c. voltage line-line (U_C)	170 V
Max. continuous operating d.c. voltage line-PG (U_C)	85 V
Max. continuous operating a.c. voltage line-line (U_C)	120 V
Max. continuous operating a.c. voltage line-PG (U_C)	60 V
Nominal current at 80 °C (I_n)	3.0 A
C2 Total nominal discharge current (8/20 μ s) (I_n)	5 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5 kA
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 300 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 700 V
Series resistance per line	0 ohm(s)
Cut-off frequency line-line (f_c)	4.5 MHz
Cut-off frequency line-line (100 ohms) (f_c)	2.2 MHz
Capacitance line-line (C)	≤ 1.5 nF
Capacitance line-PG (C)	≤ 25 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

Pluggable DIN Rail mounted SPDs

Universal Lightning Current / Surge Arrester

Pluggable DIN Rail mounted SPDs



BLITZDUCTOR XTU for protecting different balanced signal and data interfaces. Space-saving two-part design comprising a base part and a protection module for DIN rail mounting.

The compact BLITZDUCTOR XTU combined lightning current and surge arrester is designed for protecting information and automation equipment and systems and distinguishes itself through its unique actiVsense technology. The arrester does not have a specific nominal voltage and can thus be used for all voltages ranging from 0 to 180 V with a superimposed signal voltage (± 5 V/50 MHz). The nominal current is limited to 100 mA which is completely sufficient for information technology systems.

Its innovative actiVsense technology allows the arrester to detect the signal voltage and to automatically adapt the voltage protection level to this voltage. This makes the arrester ideal for applications where changing or slowly fluctuating signal levels (≤ 400 Hz) are to be expected. In case of interference, BLITZDUCTOR XTU arresters have an adapted minimal residual voltage for every signal voltage, thus providing maximum protection for devices and system circuits connected to them.



Optimally adapted voltage protection level with integrated actiVsense technology ensures protection of terminal equipment.



The protection module of the pluggable arrester safely snaps into the base part, thus ensuring vibration and shock resistance.



To ensure high availability of the signal circuits, the integrated LifeCheck feature allows to quickly check whether arresters are pre-damaged.



DIN rail mounting by means of integrated earthing contact.

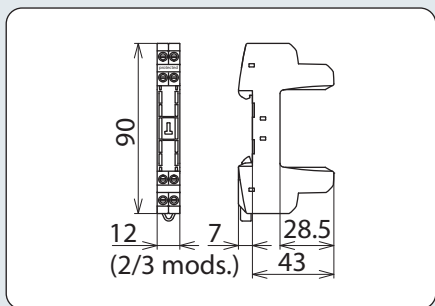
- **Combined lightning current and surge arrester**
 - Max. discharge capacity for balanced data interfaces
 - Capable of carrying lightning currents up to 10 kA (10/350 μ s)
 - For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher
- **With actiVsense technology**
 - Automatically detects the signal voltage ranging from 0 to 180 V
 - Optimally adapts the voltage protection level to the currently applied signal
 - Capable of protecting terminal equipment due to adapted voltage protection level
 - One arrester type for two different data interfaces
- **Integrated LifeCheck monitoring function**
 - Arresters can be tested without downtime
 - Detection of pre-damaged arresters
 - High signal availability due to preventive replacement of arresters
- **Arrester consists of a protection module and a base part**
 - For DIN rail mounting with a standard base part
 - Easy replacement of protection modules
 - Vibration and shock-tested for safe operation
 - Two universal base parts with/without signal disconnection

BLITZDUCTOR XTU is available in two versions. The four-pole version provides protection for two separate balanced interfaces, that is the arrester automatically detects the operating / signal voltage for every pair and optimally adapts the voltage protection level for every signal circuit. This allows to protect two different balanced interfaces by means of a single arrester, thus reducing installation time, saving costs and reducing the number of arresters to be used. If only one signal interface is to be protected, a two-pole version can be used for a balanced data interface (one pair). This version also allows to directly or indirectly connect cable shields to the equipotential bonding.

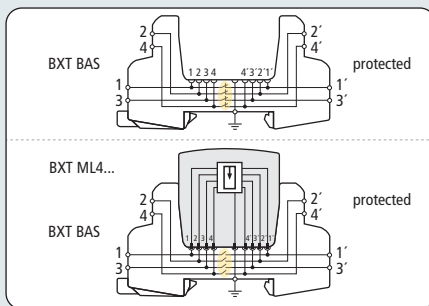
The DIN rail mounted arrester is ideally suited for use in information technology transmission systems such as telecommunication, bus or measuring and control systems.

The protection module and base part must be ordered separately!

BXT BAS



Dimension drawing BXT BAS



Basic circuit diagram with and without plugged-in module

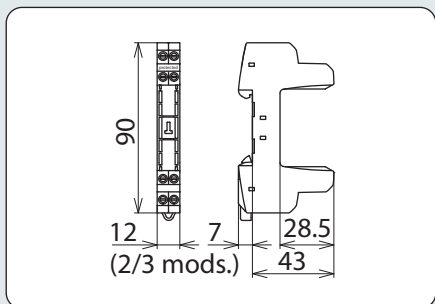


Pluggable DIN Rail mounted SPDs

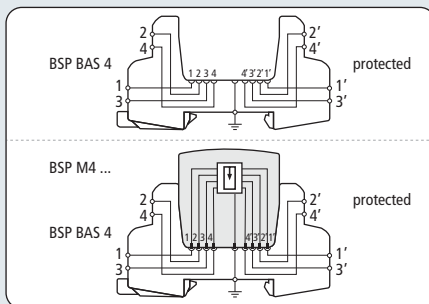
The BLITZDUCTOR XT base part is a very space-saving and universal four-pole feed-through terminal for the insertion of a protection module without signal disconnection if the protection module is removed. The snap-in mechanism at the supporting foot of the base part allows the protection module to be safely earthed via the DIN rail. Since no components of the protective circuit are situated in the base part, only the protection modules must be maintained.

- Four-pole version for universal use with all types of BSP and BXT/BXTU protection modules
- No signal disconnection if the protection module is removed
- Universal design without protection elements

BSP BAS 4



Dimension drawing BSP BAS 4



Basic circuit diagram with and without plugged-in module



The BLITZDUCTOR SP base part is a very space-saving and universal four-pole terminal for the insertion of a protection module with signal disconnection if the protection module is removed. The snap-in mechanism at the supporting foot of the base part allows the protection module to be safely earthed via the DIN rail. Since no components of the protective circuit are situated in the base part, only the protection modules must be maintained.

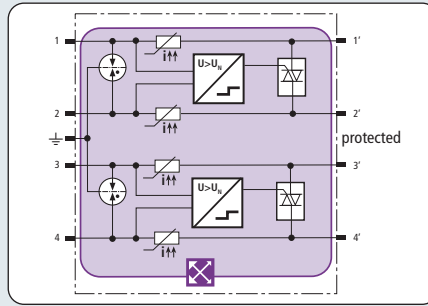
- Four-pole version for universal use with all types of BSP and BXT/BXTU protection modules
- Signal disconnection if the protection module is removed
- Universal design without protection elements

Type	BXT BAS	BSP BAS 4
Part No.	920 300	926 304
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 20	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Connection (input / output)	screw / screw	screw / screw
Signal disconnection	no	yes
Cross-sectional area, solid	0.08-4 mm ²	0.08-4 mm ²
Cross-sectional area, flexible	0.08-2.5 mm ²	0.08-2.5 mm ²
Tightening torque (terminals)	0.4 Nm	0.4 Nm
Earthing via	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
ATEX approvals	DEKRA 11ATEX0089 X: II 3 G Ex nA IIC T4 Gc *)	—
IECEx approvals	DEK 11.0032X: Ex nA IIC T4 Gc *)	—
Approvals	CSA, VdS, UL, GOST	UL

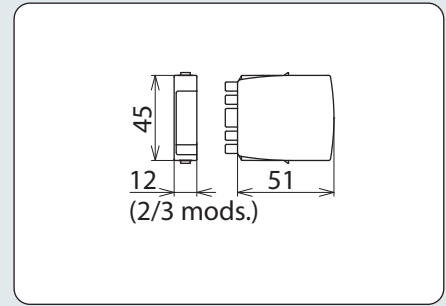
*) only in connection with an approved protection module

BXTU ML4 BD 0-180

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXTU ML4 BD 0-180



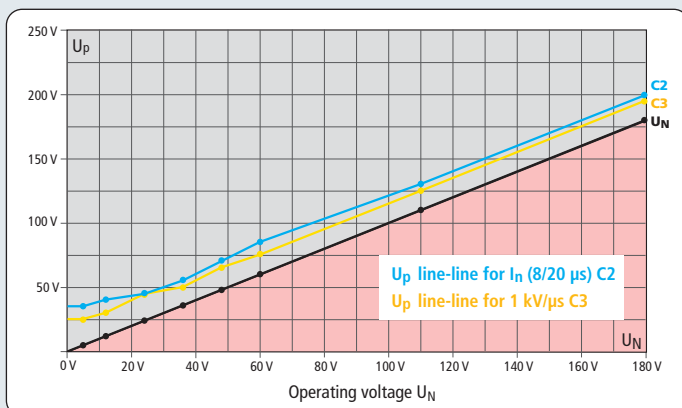
Dimension drawing BXTU ML4 BD 0-180

- Universal voltage type with actiVsense technology
- With integrated LifeCheck monitoring function
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

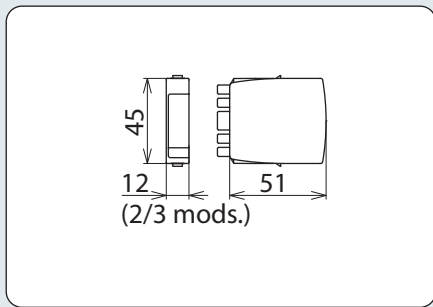
Space-saving combined lightning current and surge arrester module with actiVsense and LifeCheck technology for protecting two pairs with the same or a different operating voltage of galvanically isolated balanced interfaces. Automatically detects the operating voltage of the useful signal and optimally adapts the voltage protection level to it.

Type	BXTU ML4 BD 0-180
Part No.	920 349
SPD class	TYPE 1P1
SPD monitoring system	LifeCheck
Operating voltage (U _N)	0-180 V
Frequency of the operating voltage (f _{UN})	0-400 Hz
Max. continuous operating d.c. voltage (U _C)	180 V
Max. continuous operating a.c. voltage (U _C)	127 V
Permissible superimposed signal voltage (U _{signal})	≤ +/- 5 V
Cut-off frequency line-line (U _{signal} balanced 100 ohms) (f _C)	50 MHz
Nominal current at 80 °C (equal to max. short-circuit current) (I _L)	100 mA
D1 Total lightning impulse current (10/350 μs) (I _{imp})	10 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	10 kA
Voltage protection level line-line for I _n C2 (U _p)	see diagram, line C2
Voltage protection level line-line at 1 kV/μs C3 (U _p)	see diagram, line C3
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ U _N + 53 V
Voltage protection level line-PG for C2/C3/D1	≤ 550 V
Series resistance per line	≤ 10 ohms; typically 7.5 ohms
Capacitance line-line (C)	≤ 80 pF
Capacitance line-PG (C)	≤ 16 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)
Approvals	CSA, UL, GOST

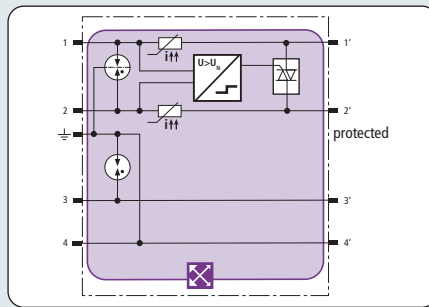
*) For more detailed information, please visit www.dehn-international.com.



Voltage protection level diagram BXTU



Dimension drawing BXTU ML2 BD S 0-180



Basic circuit diagram BXTU ML2 BD S 0-180



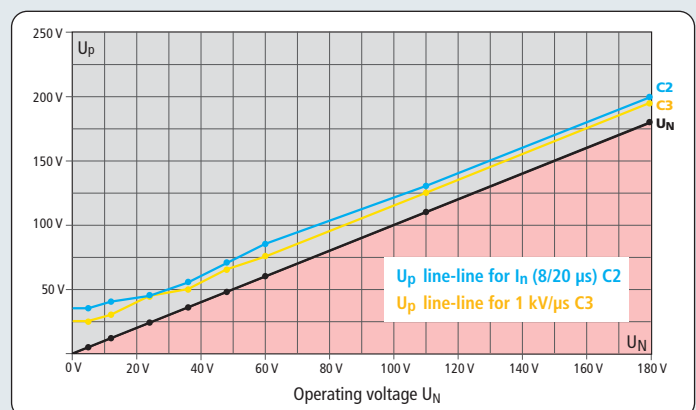
Pluggable DIN Rail mounted SPDs

Space-saving combined lightning current and surge arrester module with actiVsense and LifeCheck technology for protecting one pair, direct or indirect shield earthing. Automatically detects the operating voltage of the useful signal and optimally adapts the voltage protection level to it.

- Universal voltage type with actiVsense technology
- With integrated LifeCheck monitoring function
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 2$ and higher

Type	BXTU ML2 BD S 0-180
Part No.	920 249
SPD class	TYPE 1P1
SPD monitoring system	LifeCheck
Operating voltage (U_N)	0-180 V
Frequency of the operating voltage (f_{UN})	0-400 Hz
Max. continuous operating d.c. voltage (U_C)	180 V
Max. continuous operating a.c. voltage (U_C)	127 V
Permissible superimposed signal voltage (U_{signal})	$\leq \pm 5$ V
Cut-off frequency line-line ($U_{signal, balanced 100 ohms}$) (f_G)	50 MHz
Nominal current at 80 °C (equal to max. short-circuit current) (I_L)	100 mA
D1 Total lightning impulse current (10/350 μs) (I_{imp})	9 kA
D1 Lightning impulse current (10/350 μs) per line (I_{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μs) (I_n)	20 kA
C2 Nominal discharge current (8/20 μs) per line (I_n)	10 kA
Voltage protection level line-line for I_n C2 (U_p)	see diagram, line C2
Voltage protection level line-line at 1 kV/ μs C3 (U_p)	see diagram, line C3
Voltage protection level line-line for I_{imp} D1 (U_p)	$\leq U_N + 53$ V
Voltage protection level line-PG for C2/C3/D1	≤ 550 V
Series resistance per line	≤ 10 ohms; typically 7.5 ohms
Capacitance line-line (C)	≤ 80 pF
Capacitance line-PG (C)	≤ 25 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Pluggable into	BXT BAS / BSP BAS 4 base part
Earthing via	BXT BAS / BSP BAS 4 base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)
Approvals	CSA, UL, GOST

*) For more detailed information, please visit www.dehn-international.com.



Voltage protection level diagram BXTU

Accessories

Pluggable DIN Rail mounted SPDs

Pluggable DIN Rail mounted SPDs

BXT BAS

Base part as a very space-saving and universal four-pole feed-through terminal for the insertion of a protection module without signal disconnection if the protection module is removed.



Type	BXT BAS
Part No.	920 300
Colour	yellow

BSP BAS 4

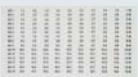
Base part as a very space-saving and universal four-pole terminal for the insertion of a protection module with signal disconnection if the protection module is removed.



Type	BSP BAS 4
Part No.	926 304
Colour	yellow

Labelling System BA1-BA15

2x 165 adhesive labels for labelling DRC MCM XT monitoring devices with the bus address.



Type	BS BA1 BA15 BXT
Part No.	920 398
Colour	transparent

Earthing Module

For directly earthing lines connected to the BLITZDUCTOR SP/XT/XTU base part.



Type	BXT M4 E
Part No.	920 308
Colour	grey

Test / Disconnection Module

Module for testing lines, plugs into BLITZDUCTOR SP/XT/XTU base parts.



Type	BXT M4 T
Part No.	920 309
Colour	grey

EMC Spring Terminals

Two spring terminals for permanent low-impedance shield contact with the protected and unprotected side of a BLITZDUCTOR SP/XT/XTU arrester. With integrated coding for direct or indirect shield earthing. Cable ties and insulating strips are included. Suitable for BXT(U) ML2 ...S ... / BSP M2 ... types (only direct shield earthing).



Type	SAK BXT LR
Part No.	920 395
Accessories	cable tie, insulating strips
Clamping range (mm)	3-10

DRC MCM XT

DIN rail mounted device with integrated LifeCheck sensor for condition monitoring of max. 10 LifeCheck-equipped BXT/BXTU arresters. An RS 485 interface allows to interconnect up to 15 DRC MCM XT.



Type	DRC MCM XT
Part No.	910 695
Colour	grey

DRC SCM XT

DIN rail mounted device with integrated LifeCheck sensor for condition monitoring of max. 10 LifeCheck-equipped BXT/BXTU arresters.



Type	DRC SCM XT
Part No.	910 696
Colour	grey

DRC LC M3+

Portable device with LifeCheck sensor for flexible use. Fast and easy testing of LifeCheck-equipped arresters. Documentation via PC database.



Type	DRC LC M3+
Part No.	910 653
Dimensions of storage case	340 x 275 x 83 mm

DRC LC M1+

Portable device with LifeCheck sensor for flexible use. Fast and easy testing of LifeCheck-equipped arresters.



Type	DRC LC M1+
Part No.	910 655
Dimensions of storage case	275 x 230 x 83 mm

LifeCheck Sensor for DRC BXT

Snap-on LifeCheck sensor and test module for use as spare part / extension for portable LifeCheck test devices.



Type	LCS DRC BXT
Part No.	910 652
For testing	BLITZDUCTOR XT ML

For "Accessories for BLITZDUCTOR XT/XTU", please also refer to pages 266 – 268.

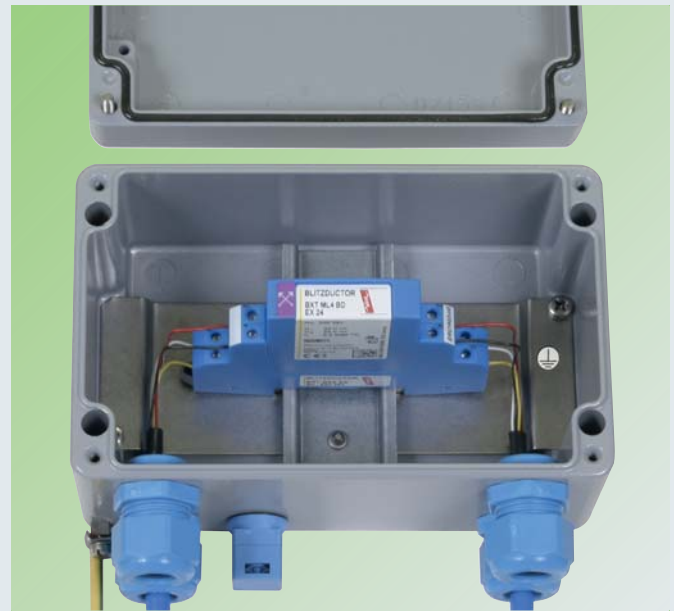
- Surge arrester for intrinsically safe measuring circuits and bus systems
 - Maximum discharge capacity for two-pole, three-pole or four-pole interfaces
 - Low voltage protection level, capable of protecting terminal equipment
 - Wide range of approvals: ATEX, IECEx, CSA Hazloc
- Arrester consists of a protection module and a base part
 - Easy replacement of protection modules
 - All protection components are integrated in the protection module
 - Arrester with integrated LifeCheck for preventive arrester monitoring
- Functional and appealing design
 - DIN rail mounted arrester with integrated earthing
 - Minimum space requirements, two pairs over a width of 12 mm
 - Vibration and shock-tested for safe operation

BLITZDUCTOR XT EX is a pluggable and universal four-pole DIN rail mounted surge arrester designed for the most stringent requirements on the availability of intrinsically safe measuring and control circuits and bus systems.

Regarding intrinsic safety, the arrester is considered unearthed and its self-inductance and self-capacitance are negligibly small. The low-impedance arrester design ensures a high impulse current discharge capacity (at least 10x) and a low voltage protection level.

LifeCheck allows quick and easy testing of arresters, however, the protection modules may only be read out by the hand-held DRC LC reader in non-explosive atmospheres.

Integrated into the protection modules, LifeCheck permanently monitors the proper condition of the arrester. Like an early warning system,



Pluggable and universal multipole surge arrester for use in intrinsically safe systems with integrated LifeCheck monitoring function.

LifeCheck detects imminent electrical or thermal overload of the protection components. The LifeCheck status can be read out within a matter of seconds by means of the hand-held DEHNrecord LC reader via contactless RFID technology. Moreover, the date of the last test of the protection module can be displayed and saved. A stationary condition monitoring system allows condition-based maintenance of 10 BXT arresters. To ensure safe operation, the arrester provides protection against vibration effects and shock up to a 30-fold acceleration of gravity. The function-optimised design of the devices allows quick and easy replacement of protection modules which house all relevant protection elements. The protection module and base part must be ordered separately!



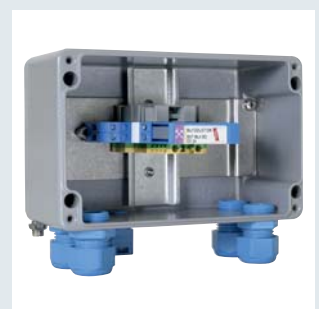
Two-part design comprising a universal base part and an application-specific protection module.



The module locking mechanism ensures that the arrester is vibration-proof and protected against polarity reversal.



All protection elements are integrated in the protection module and are monitored by means of LifeCheck.

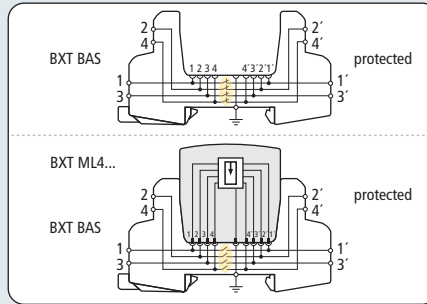


Prewired surge arrester unit ITAK EXI BXT 24.

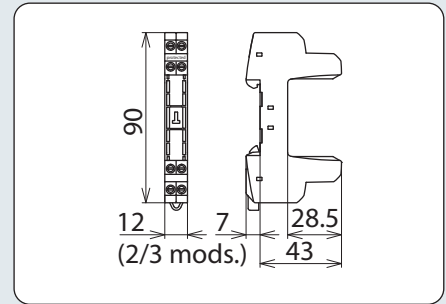
Pluggable DIN Rail mounted SPDs

BXT BAS EX – Base part without Signal Disconnection

Pluggable DIN Rail mounted SPDs



Basic circuit diagram with and without module



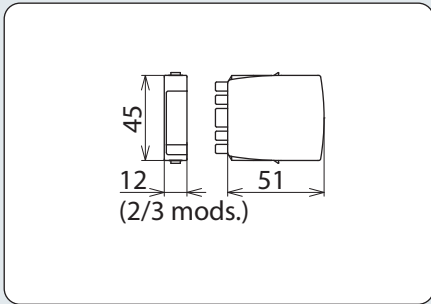
Dimension drawing BXT BAS EX

- Four-pole and universal base part for all types of intrinsically safe protection modules
- No signal disconnection if the protection module is removed
- Universal design without protection elements

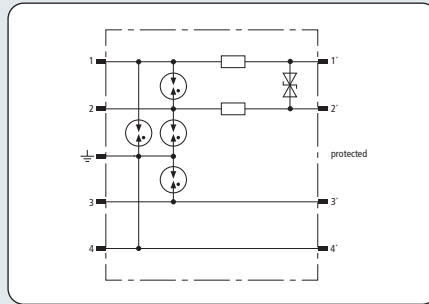
BLITZDUCTOR XT base part for use as an extremely space-saving and universal four-pole feed-through terminal for intrinsically safe circuits for the insertion of the protection module, no signal disconnection if the protection module is removed. The snap-in mechanism at the supporting foot of the base part allows the device to be safely earthed via the DIN rail. Since no components of the protective circuit are situated in the base part, only the protection modules must be maintained.

Type	BXT BAS EX
Part No.	920 301
Operating temperature range	-40 °C ... +80 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	screw / screw
Cross-sectional area, solid	0.08-4 mm ²
Cross-sectional area, flexible	0.08-2.5 mm ²
Tightening torque (terminals)	0.4 Nm
Earthing via	35 mm DIN rails acc. to EN 60715
Enclosure material	polyamide PA 6.6
Colour	blue
ATEX approvals (1)	KEMA 06ATEX0274 X: II 2 (1) G Ex ia [ja Ga] IIC T4 ... T6 Gb *)
ATEX approvals (2)	KEMA 06ATEX0274 X: II 2 G Ex ib IIC T4 ... T6, Gb *)
IECEx approvals (1)	DEK 11.0078X: Ex ia [ja Ga] IIC T4 ... T6 Gb *)
IECEx approvals (2)	DEK 11.0078X: Ex ib IIC T4 ... T6 Gb *)
Approvals	UL, CSA, GOST

*) only in connection with an approved protection module



Dimension drawing BXT M2 BD S EX 24



Basic circuit diagram BXT M2 BD S EX 24



Pluggable DIN Rail mounted SPDs

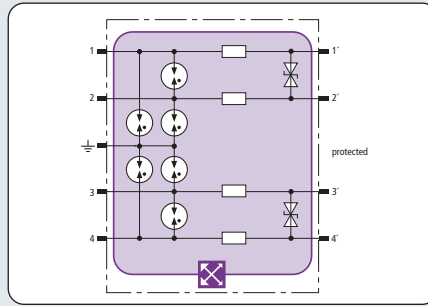
Space-saving surge arrester module for protecting one pair of intrinsically safe measuring circuits and bus systems, direct or indirect shield earthing, insulation strength > 500 V line-earth.

- For universal use
- Self-capacitance and self-inductance negligibly small
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_B – 2 and higher

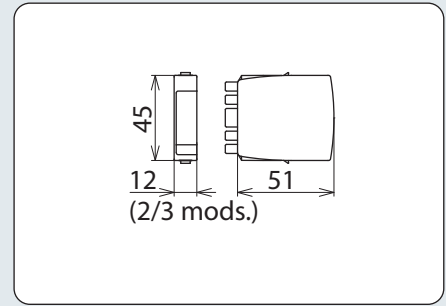
Type	BXT M2 BD S EX 24
Part No.	920 383
SPD class	TYPE 2 P1
Nominal voltage (U _N)	24 V
Max. continuous operating d.c. voltage (U _c)	36 V
Max. continuous operating a.c. voltage (U _e)	25.4 V
Max. input voltage acc. to EN 60079-11 (U _i)	30 V
Max. input current acc. to EN 60079-11 (I _i)	0.5 A
D1 Total lightning impulse current (10/350 μs) (I _{imp})	4 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	1 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	10 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	5 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 55 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 1300 V
Voltage protection level line-line for I _n C2 (U _p)	≤ 58 V
Voltage protection level line-PG for I _n C2 (U _p)	≤ 1400 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 50 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 1100 V
Series resistance per line	1.0 ohm
Cut-off frequency line-line (f _c)	7.7 MHz
Capacitance line-line (C)	≤ 0.8 nF
Capacitance line-PG (C)	≤ 16 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Plugs into	base part
Earthing via	base part
Enclosure material	polyamide PA 6.6
Colour	blue
Test standards	IEC 61643-21 / EN 61643-21
ATEX approvals (1)	KEMA 09ATEX0178 X: II 2 (1) G Ex ia IIC T4 ... T6 Gb
ATEX approvals (2)	KEMA 09ATEX0177 X: II 3 G Ex nA II T4 ... T6 Gc
IECEx approvals (1)	KEM 09.0077X: Ex ia [ia Ga] IIC T4 ... T6 Gb
IECEx approvals (2)	KEM 09.0077X: Ex nA IIC T4 ... T6 Gc
CSA & USA Hazloc approvals (1)	2392869: Class I Div. 1; Class I Zone 1
CSA & USA Hazloc approvals (2)	2392869: Ex ia IIC T4 ... T6

BXT ML4 BD EX 24

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXT ML4 BD EX



Dimension drawing BXT ML4 BD EX

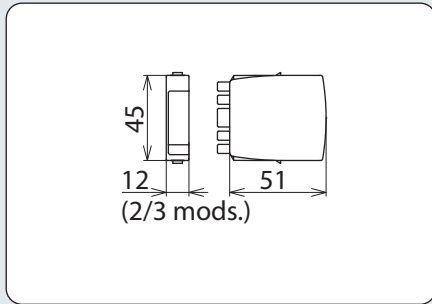
- For universal use, with LifeCheck monitoring function
- Self-capacitance and self-inductance negligibly small
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

Space-saving surge arrester module with LifeCheck feature for protecting two pairs of intrinsically safe measuring circuits and bus systems, meets FISCO requirements. ATEX. Insulation strength > 500 V line-earth.

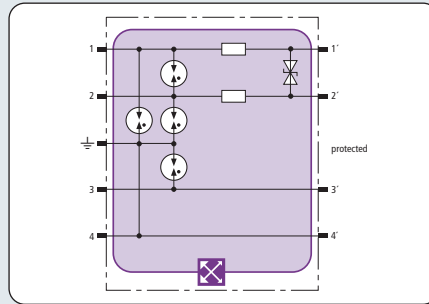
If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by DEHNrecord LC/SCM/MCM.

Type	BXT ML4 BD EX 24
Part No.	920 381
SPD class	TYPE 2 P1
SPD monitoring	LifeCheck
Nominal voltage (U_N)	24 V
Max. continuous operating d.c. voltage (U_c)	33 V
Max. continuous operating a.c. voltage (U_e)	23 V
Max. input voltage acc. to EN 60079-11 (U_i)	30 V
Max. input current acc. to EN 60079-11 (I_i)	0.5 A
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	4 kA
D1 Lightning impulse current (10/350 μ s) per line ($I_{imp,l}$)	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
C2 Nominal discharge current (8/20 μ s) per line ($I_{n,l}$)	5 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 50 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 1300 V
Voltage protection level line-line for I_n C2 (U_p)	≤ 52 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 1400 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 45 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1100 V
Series resistance per line	1.0 ohm
Cut-off frequency line-line (f_c)	7.7 MHz
Capacitance line-line (C)	≤ 0.8 nF
Capacitance line-PG (C)	≤ 16 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Plugs into	base part
Earthing via	base part
Enclosure material	polyamide PA 6.6
Colour	blue
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)
ATEX approvals (1)	KEMA 06ATEX0274 X: II 2 (1) G Ex ia [ia Ga] IIC T4 ... T6 Gb
ATEX approvals (2)	KEMA 06ATEX0274 X: II 2 G Ex ib IIC T4 ... T6 Gb
IECEX approvals (1)	DEK 11.0078X: Ex ia [ia Ga] IIC T4 ... T6 Gb
IECEX approvals (2)	DEK 11.0078X: Ex ib IIC T4 ... T6 Gb
Approvals	CSA, GOST

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BXT ML2 BD S EX



Basic circuit diagram BXT ML2 BD S EX



Pluggable DIN Rail mounted SPDs

Space-saving surge arrester module with LifeCheck feature for protecting one pair of intrinsically safe measuring circuits and bus systems, direct or indirect shield earthing. Insulation strength > 500 V line-earth.

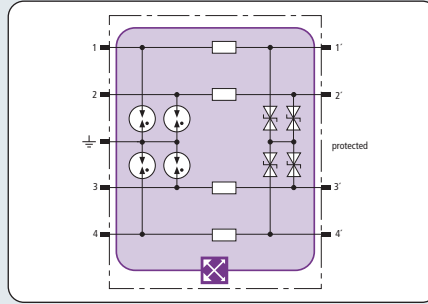
If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by DEHNrecord LC/SCM/MCM.

- For universal use, with LifeCheck monitoring function
- Self-capacitance and self-inductance negligibly small
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

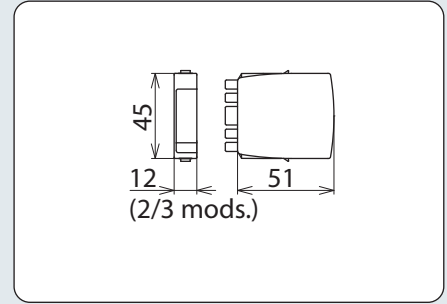
Type	BXT ML2 BD S EX 24
Part No.	920 280
SPD class	TYPE 2 P1
SPD monitoring	LifeCheck
Nominal voltage (U_N)	24 V
Max. continuous operating d.c. voltage (U_C)	33 V
Max. continuous operating a.c. voltage (U_C)	23.3 V
Max. input voltage acc. to EN 60079-11 (U_i)	30 V
Max. input current acc. to EN 60079-11 (I_i)	0.5 A
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	4 kA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 50 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 1300 V
Voltage protection level line-line for I_n C2 (U_p)	≤ 52 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 1400 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 45 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1100 V
Series resistance per line	1.0 ohm
Cut-off frequency line-line (f_c)	6 MHz
Capacitance line-line (C)	≤ 1.0 nF
Capacitance line-PG (C)	≤ 16 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Plugs into	base part
Earthing via	base part
Enclosure material	polyamide PA 6.6
Colour	blue
Test standards	IEC 61643-21 / EN 61643-21
ATEX approvals (1)	KEMA 06ATEX0274 X: II 2 (1) G Ex ia [ia Ga] IIC T4 ... T6 Gb
ATEX approvals (2)	KEMA 06ATEX0274 X: II 2 G Ex ib IIC T4 ... T6 Gb
IECEx approvals (1)	DEK 11.0078X: Ex ia [ia Ga] IIC T4 ... T6 Gb
IECEx approvals (2)	DEK 11.0078X: Ex ib IIC T4 ... T6 Gb
Approvals	GOST

BXT ML4 BC EX 24

Pluggable DIN Rail mounted SPDs



Basic circuit diagram BXT ML4 BC EX



Dimension drawing BXT ML4 BC EX

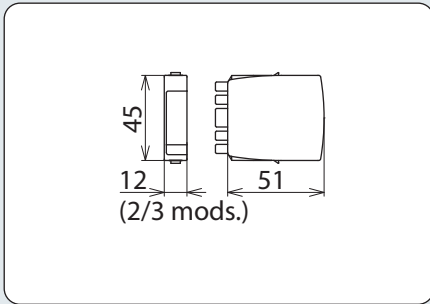
- For multi-wire measuring systems, with LifeCheck monitoring function
- Self-capacitance and self-inductance negligibly small
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

Space-saving surge arrester module with LifeCheck feature for protecting up to four unearthed single lines sharing a common reference potential in intrinsically safe measuring circuits, meets FISCO requirements. ATEX. Insulation strength > 500 V line-earth.

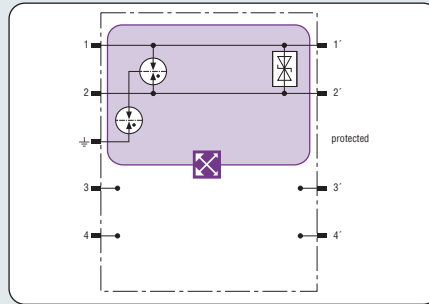
If LifeCheck detects thermal or electrical overload, the arrester has to be replaced. This status is indicated contactlessly by DEHNrecord LC/SCM/MCM.

Type	BXT ML4 BC EX 24
Part No.	920 384
SPD class	TYPE 2 P1
SPD monitoring	LifeCheck
Nominal voltage (U_N)	24 V
Max. continuous operating d.c. voltage (U_c)	33 V
Max. continuous operating a.c. voltage (U_e)	23.3 V
Max. input voltage acc. to EN 60079-11 (U_i)	30 V
Max. input current acc. to EN 60079-11 (I_i)	0.5 A
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	4 kA
D1 Lightning impulse current (10/350 μ s) per line ($I_{imp,l}$)	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
C2 Nominal discharge current (8/20 μ s) per line ($I_{n,l}$)	5 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 53 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 1300 V
Voltage protection level line-line for I_n C2 (U_p)	≤ 55 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 1400 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 45 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1100 V
Series resistance per line	1 ohm
Cut-off frequency line-line (f_c)	6.4 MHz
Capacitance line-line (C)	≤ 0.8 nF
Capacitance line-PG (C)	≤ 16 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Plugs into	base part
Earthing via	base part
Enclosure material	polyamide PA 6.6
Colour	blue
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
SIL classification	up to SIL3 *)
ATEX approvals (1)	KEMA 06ATEX0274 X: II 2 (1) G Ex ia [ia Ga] IIC T4 ... T6 Gb
ATEX approvals (2)	KEMA 06ATEX0274 X: II 2 G Ex ib IIC T4 ... T6 Gb
IECEX approvals (1)	DEK 11.0078X: Ex ia [ia Ga] IIC T4 ... T6 Gb
IECEX approvals (2)	DEK 11.0078X: Ex ib IIC T4 ... T6 Gb
Approvals	CSA, GOST

*) For more detailed information, please visit www.dehn-international.com.



Dimension drawing BXT ML2 BD HF EX



Basic circuit diagram BXT ML2 BD HF EX



Space-saving surge arrester module with LifeCheck feature for protecting one pair of intrinsically safe measuring circuits and RS485 bus systems. Insulation strength > 500 V line-earth. If LifeCheck detects thermal and electrical overload, the arrester has to be replaced. This status is indicated contactlessly by DEHNrecord LC/SCM/MCM.

- For universal use, with LifeCheck monitoring device
- Self-capacitance and self-inductance negligibly small
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

Type	BXT ML2 BD HF EX 6
Part No.	920 538
SPD class	TYPE 2 P1
SPD monitoring	LifeCheck
Nominal voltage (U_N)	6 V
Max. continuous operating d.c. voltage (U_C)	6 V
Max. continuous operating a.c. voltage (U_C)	4.2 V
Max. input voltage acc. to EN 60079-11 (U_i)	4.2 V
Max. input current acc. to EN 60079-11 (I_i)	4.8 A
Max. input current acc. to EN 60079-11 (without protection module only up to 60 °C) (I_i)	4.8 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 35 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 1600 V
Voltage protection level line-line for I_n C2 (U_p)	≤ 35 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 1800 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 20 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1400 V
Cut-off frequency line-line (f_c)	100 MHz
Capacitance line-line (C)	≤ 25 nF
Capacitance line-PG (C)	≤ 20 pF
Operating temperature range (T_u)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Plugs into	base part
Earthing via	base part
Enclosure material	polyamide PA 6.6
Colour	blue
Test standards	IEC 61643-21 / EN 61643-21
SIL classification	up to SIL3 *)
ATEX approvals (1)	KEMA 06ATEX0274 X: II 2 (1) G Ex ia [ia Ga] IIC T4 ... T6 Gb
ATEX approvals (2)	KEMA 06ATEX0274 X: II 2 G Ex ib IIC T4 ... T6 Gb
IECEx approvals (1)	DEK 11.0078X: Ex ia [ia Ga] IIC T4 ... T6 Gb
IECEx approvals (2)	DEK 11.0078X: Ex ib IIC T4 ... T6 Gb

*) For more detailed information, please visit www.dehn-international.com.

Accessories

Pluggable DIN Rail mounted SPDs

Pluggable DIN Rail mounted SPDs



BXT BAS EX

Base part for use as feed-through terminal in intrinsically safe circuits for the insertion of a protection module without signal disconnection if the protection module is removed.

Type	BXT BAS EX
Part No.	920 301
Colour	blue

Test / Disconnection Module

Module for testing lines, plugs into BLITZDUCTOR SP/XT/XTU base parts.



Type	BXT M4 T
Part No.	920 309
Colour	grey

Earthing Module

For directly earthing lines connected to the BLITZDUCTOR SP/XT/XTU base part.



Type	BXT M4 E
Part No.	920 308
Colour	grey

EMC Spring Terminals

Two spring terminals for permanent low-impedance shield contact with the protected and unprotected side of a BLITZDUCTOR SP/XT/XTU arrester. With integrated coding for direct or indirect shield earthing. Cable ties and insulating strips are included. Suitable for BXT(U) ML2 ...S ... / BSP M2 ... types (only direct shield earthing).



Type	SAK BXT LR
Part No.	920 395
Accessories	cable tie, insulating strips
Clamping range (mm)	3-10

Partition

Allows to position BXT devices for non-intrinsically circuits directly next to intrinsically safe circuits (thread measure ≥ 50 mm)



For DRC MCM XT and DRC SCM XT; 1 set = 2 pieces

Type	TW DRC MCM EX
Part No.	910 697
Colour	blue



DRC MCM XT

DIN rail mounted device with integrated LifeCheck sensor for condition monitoring of max. 10 LifeCheck-equipped BXT/BXTU arresters. An RS 485 interface allows to interconnect up to 15 DRC MCM XT.

Type	DRC MCM XT
Part No.	910 695
Colour	grey

NEW



DRC SCM XT

DIN rail mounted device with integrated LifeCheck sensor for condition monitoring of max. 10 LifeCheck-equipped BXT/BXTU arresters.

Type	DRC SCM XT
Part No.	910 696
Colour	grey

DRC LC M3+

Portable device with LifeCheck sensor for flexible use. Fast and easy testing of LifeCheck-equipped arresters. Documentation via PC database.



Type	DRC LC M3+
Part No.	910 653
Dimensions of storage case	340 x 275 x 83 mm

NEW



DRC LC M1+

Portable device with LifeCheck sensor for flexible use. Fast and easy testing of LifeCheck-equipped arresters.

Type	DRC LC M1+
Part No.	910 655
Dimensions of storage case	275 x 230 x 83 mm

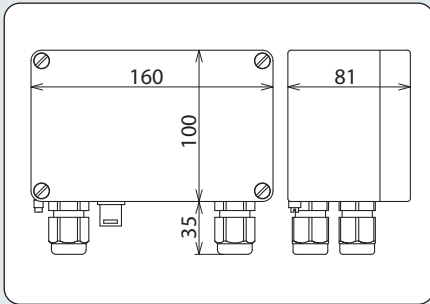
LifeCheck Sensor for DRC BXT

Snap-on LifeCheck sensor and test module for use as spare part / extension for portable LifeCheck test devices.

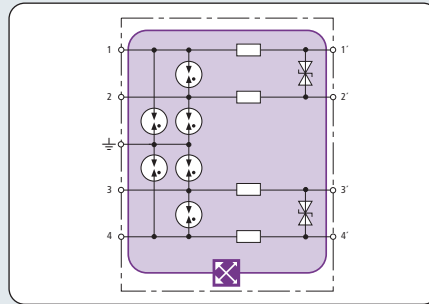


Type	LCS DRC BXT
Part No.	910 652
For testing	BLITZDUCTOR XT ML

For "Accessories for BLITZDUCTOR XT", please also refer to pages 266 – 268.



Dimension drawing ITAK EXI BXT



Basic circuit diagram ITAK EXI BXT



Pluggable DIN Rail mounted SPDs

Prewired BXT ML4 BD EX 24 and BXT BAS EX surge arrester unit completely mounted in a junction box for intrinsically safe measuring circuits, meets FISCO requirements.

- Prewired unit for two Ex(i) circuits
- Self-capacitance and self-inductance negligibly small
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

Type	ITAK EXI BXT 24
Part No.	989 408
SPD class	TYPE 2 P1
SPD monitoring system	LifeCheck
Nominal voltage (U_N)	24 V
Max. continuous operating d.c. voltage (U_C)	33 V
Max. input voltage acc. to EN 60079-11 (U_i)	30 V
Max. input current acc. EN 60079-11 (I_i)	0.5 A
Total nominal discharge current (8/20 μ s) (I_n)	20 kA
Nominal discharge current (8/20 μ s) per line (I_n)	5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 52 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 1400 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 45 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1100 V
Series resistance per line	1.0 ohm
Cut-off frequency line-line (f_c)	7.7 MHz
Capacitance line-line (C)	0.8 nF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 65
For mounting on	walls in Ex zone 1, 2
Connection (input / output)	cable gland (M20 x 1.5)
Cross-sectional area, solid	0.08-4 mm ²
Cross-sectional area, flexible	0.08-2.5 mm ²
Cross-sectional area (equipotential bonding)	4 mm ²
Tightening torque (terminals)	0.4 Nm
Earthing via	screw terminal on enclosure panel
Enclosure material	aluminium, grey
Test standards for installed BXT	IEC 61643-21 / EN 61643-21
Approvals for installed BXT	ATEX, IECEx, CSA

Accessory for ITAK Ex (i)

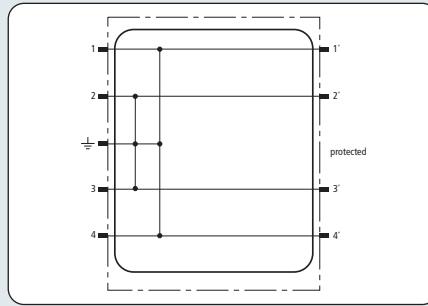
Mounting Set

For fixing ALGA 5 X enclosures at masts and pipes

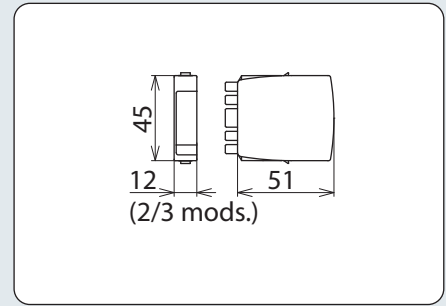
Type	MS ALGA 5 X
Part No.	906 059
Enclosure material	StSt



Earthing Module



Basic circuit diagram BXT M4 E



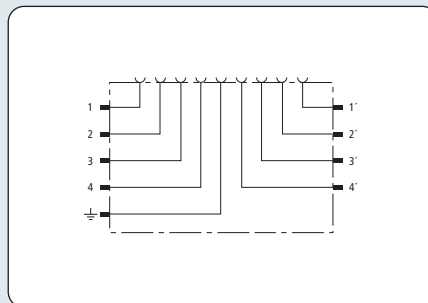
Dimension drawing BXT M4 E

- To be plugged into BLITZDUCTOR SP/XT/XTU base parts
- Easy to use
- Quick replacement when retrofitting a protection module

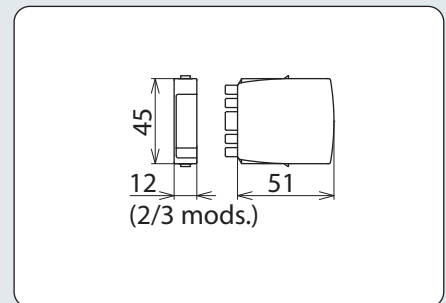
The plugged-in earthing module connects all lines connected to the BLITZDUCTOR SP/XT/XTU base part to the equipotential bonding. It directly earths unused wires that are already connected to the base part.

Type	BXT M4 E
Part No.	920 308
D1 Total lightning impulse current (10/350 μs) (I _{imp})	10 kA
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Plugs into	base part
Enclosure material	polyamide PA 6.6
Colour	grey

Test / Disconnection Module



Basic circuit diagram BXT M4 T



Dimension drawing BXT M4 T

- To be plugged into BLITZDUCTOR SP/XT/XTU base parts
- Easy maintenance and troubleshooting
- Measuring lines included

The plugged-in test / disconnection module interrupts the cable run of the lines connected to the BLITZDUCTOR SP/XT/XTU base part and leads them to a test socket at the front of the module. This allows to carry out measurements in the installation without removing the lines from the base part.

Type	BXT M4 T
Part No.	920 309
Max. continuous operating d.c. voltage (U _c)	180 V
Max. continuous operating a.c. voltage (U _c)	127 V
Nominal current at 80 °C (I _n)	1.0 A
Volume resistance	0.1 ohms
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection (plugged-in)	IP 20
Plugs into	base part
Test sockets	gold-plated, 1 mm
Enclosure material	polyamide PA 6.6
Colour	grey
Accessories	2 measuring lines (1 m), protective bag

Measuring Line for BXT M4 T



Pluggable DIN Rail mounted SPDs

Spare part/extension for test/disconnection modules. Only suitable for use with BXT M4 T test/disconnection modules.

1 set = 2 measuring lines.

Type	ML BXT M4 T
Part No.	920 394
Length	1000 mm
Colour	black

Labelling System BA1-BA15



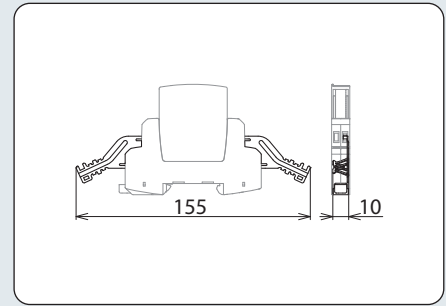
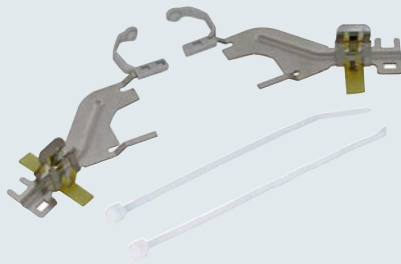
BA 1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10
BA 2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.10
BA 3	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	3.10
BA 4	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	4.10
BA 5	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	5.10
BA 6	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	6.10
BA 7	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	7.10
BA 8	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	8.10
BA 9	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	9.10
BA 10	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	10.10
BA 11	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	11.10
BA 12	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	12.10
BA 13	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	13.10
BA 14	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	14.10
BA 15	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	15.10

2x 165 adhesive labels for labelling DRC MCM XT monitoring devices with the bus address (BA1 to BA15) and BXT modules with consecutive numbers (1.1-1.10 to 15.1-15.10).

- For DRC MCM XT condition monitoring system
- Abrasion-proof
- Transparent

Type	BS BA1 BA15 BXT
Part No.	920 398
Dimensions (W x H)	13 x 7 mm

EMC Spring Terminals



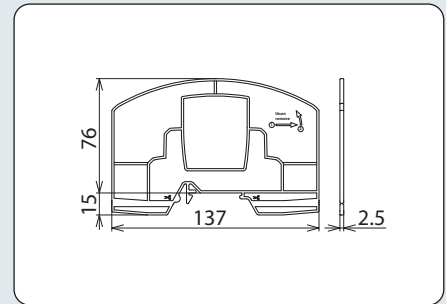
Dimension drawing SAK BXT LR

- Capable of carrying lightning currents
- Low-impedance flat conductor
- Flexible spring terminal

Two spring terminals for the protected and unprotected side of a BLITZDUCTOR BSP/XT/XTU arrester for permanent low-impedance shield contact with a shielded signal line. Insulating cap for indirect shield earthing (BXT only), cable ties and insulating strips included. For BXT(U) ML2 ...S ... / BSP M2 ... types (direct shield earthing only).

Type	SAK BXT LR
Part No.	920 395
D1 Lightning impulse current (10/350 µs)	5 kA
Plugs into	clamp connection BXT BAS / BSP BAS 4
Clamping range	3-10 mm
Colour	bare surface
Accessories	insulating caps, cable tie, insulating strips

Partition










Dimension drawing of the partition








- Allows devices for non-intrinsically circuits to be placed directly next to Ex i circuits (space gain)
- Increase of the thread measure to ≥ 50 mm in accordance with EN 60079-11
- Suitable for mounting rails with a height of 7.5 mm and 15 mm
- Easy installation by simply snapping the partition onto a mounting rail

Certain conditions must be fulfilled when installing BLITZDUCTOR XT Ex (i) surge protective devices in intrinsically safe circuits. In accordance with EN 60079-11;2007 a minimum distance (thread measure) of ≥ 50 mm must be maintained between intrinsically and non-intrinsically safe circuits (connecting parts, e.g. terminals)! When using the Ex i partition of type TW DRC MCM EX, this distance is also maintained if the surge protective devices are arranged directly next to one other. Ideally suited for use in conjunction with DRC MCM XT for condition monitoring of BXT modules.

Type	TW DRC MCM EX
Part No.	910 697
Material	polyamide PA 6.6
Colour	blue
For mounting on	35 mm DIN rails according to EN 60715

Part No.	Type	ATEX 	IECEX 	CSA-Hazloc 	SIL (up to SIL3)	UL 	CSA 	GOST 	VdS 
920 249	BXTU ML2 BD S 0-180				●	●	●	●	
920 349	BXTU ML4 BD 0-180				●	●	●	●	
920 211	BXT ML2 B 180	●(1)	●(2)	●(5)	●		●	●	●
920 220	BXT ML2 BE S 5	●(1)	●(2)	●(5)	●		●	●	●
920 222	BXT ML2 BE S 12	●(1)	●(2)	●(5)	●		●	●	●
920 224	BXT ML2 BE S 24	●(1)	●(2)	●(5)	●		●	●	●
920 225	BXT ML2 BE S 48	●(1)	●(2)	●(5)	●	●	●	●	●
920 226	BXT ML2 BE S 36					●		●	●
920 240	BXT ML2 BD S 5	●(1)	●(2)	●(5)	●		●	●	●
920 242	BXT ML2 BD S 12	●(1)	●(2)	●(5)	●		●	●	●
920 243	BXT ML2 BD DL S 15	●(1)	●(2)	●(5)	●			●	
920 244	BXT ML2 BD S 24	●(1)	●(2)	●(5)	●		●	●	●
920 245	BXT ML2 BD S 48	●(1)	●(2)	●(5)	●		●	●	●
920 247	BXT ML2 BD 180	●(1)	●(2)	●(5)	●		●	●	●
920 270	BXT ML2 BE HFS 5	●(1)	●(2)	●(5)	●	●	●	●	●
920 271	BXT ML2 BD HFS 5	●(1)	●(2)	●(5)	●	●	●	●	●
920 288	BXT ML2 MY E 110							●	
920 289	BXT ML2 MY 250							●	
920 310	BXT ML4 B 180	●(1)	●(2)	●(5)	●		●	●	●
920 320	BXT ML4 BE 5	●(1)	●(2)	●(5)	●	●	●	●	●
920 322	BXT ML4 BE 12	●(1)	●(2)	●(5)	●	●	●	●	●
920 324	BXT ML4 BE 24	●(1)	●(2)	●(5)	●	●	●	●	●
920 325	BXT ML4 BE 48	●(1)	●(2)	●(5)	●	●	●	●	●
920 326	BXT ML4 BE 60	●(1)	●(2)	●(5)	●	●	●	●	●
920 327	BXT ML4 BE 180	●(1)	●(2)	●(5)	●	●	●	●	●
920 336	BXT ML4 BE 36	●(1)	●(2)	●(5)	●	●		●	●
920 340	BXT ML4 BD 5	●(1)	●(2)	●(5)	●	●	●	●	●
920 342	BXT ML4 BD 12	●(1)	●(2)	●(5)	●	●	●	●	●
920 344	BXT ML4 BD 24	●(1)	●(2)	●(5)	●	●	●	●	●
920 345	BXT ML4 BD 48	●(1)	●(2)	●(5)	●	●	●	●	●
920 346	BXT ML4 BD 60	●(1)	●(2)	●(5)	●	●	●	●	●
920 347	BXT ML4 BD 180	●(1)	●(2)	●(5)	●	●	●	●	●
920 350	BXT ML4 BC 5	●(1)	●(2)	●(5)	●		●	●	●
920 354	BXT ML4 BC 24	●(1)	●(2)	●(5)	●		●	●	●
920 362	BXT ML4 BE C 12	●(1)	●(2)	●(5)	●			●	●
920 364	BXT ML4 BE C 24	●(1)	●(2)	●(5)	●		●	●	●
920 370	BXT ML4 BE HF 5	●(1)	●(2)	●(5)	●	●	●	●	●
920 371	BXT ML4 BD HF 5	●(1)	●(2)	●(5)	●	●	●	●	●
920 375	BXT ML4 BD HF 24	●(1)	●(2)	●(5)	●	●	●	●	●
920 388	BXT ML4 MY 110							●	
920 389	BXT ML4 MY 250				●			●	
920 280	BXT ML2 BD S EX 24	●(3)	●(4)	●(6)				●	
920 381	BXT ML4 BD EX 24	●(3)	●(4)	●(6)	●		●	●	
920 384	BXT ML4 BC EX 24	●(3)	●(4)	●(6)	●		●	●	
920 538	BXT ML2 BD HF EX 6	●(3)	●(4)	●(6)	●			●	
920 383	BXT M2 BD S EX 24	●(9)	●(8)	●(7)					

Pluggable DIN Rail mounted SPDs

Part No.	Type	ATEX 	IECEx 	CSA-Hazloc 	SIL (up to SIL3)	UL 	CSA 	GOST 	Vds 
926 220	BSP M2 BE 5				●	●			
926 222	BSP M2 BE 12				●	●			
926 224	BSP M2 BE 24				●	●			
926 225	BSP M2 BE 48				●	●			
926 226	BSP M2 BE 60				●	●			
926 227	BSP M2 BE 180				●	●			
926 240	BSP M2 BD 5				●	●			
926 242	BSP M2 BD 12				●	●			
926 244	BSP M2 BD 24				●	●			
926 245	BSP M2 BD 48				●	●			
926 246	BSP M2 BD 60				●	●			
926 247	BSP M2 BD 180				●	●			
926 270	BSP M2 BE HF 5				●	●			
926 271	BSP M2 BD HF 5				●	●			
926 275	BSP M2 BD HF 24					●			
926 320	BSP M4 BE 5				●	●			
926 322	BSP M4 BE 12				●	●			
926 324	BSP M4 BE 24				●	●			
926 325	BSP M4 BE 48				●	●			
926 326	BSP M4 BE 60				●	●			
926 327	BSP M4 BE 180				●	●			
926 340	BSP M4 BD 5				●	●			
926 342	BSP M4 BD 12				●	●			
926 344	BSP M4 BD 24				●	●			
926 345	BSP M4 BD 48				●	●			
926 346	BSP M4 BD 60				●	●			
926 347	BSP M4 BD 180				●	●			
926 370	BSP M4 BE HF 5				●	●			
926 371	BSP M4 BD HF 5				●	●			
926 375	BSP M4 BD HF 24					●			

(1) DEKRA 11ATEX0089 X: II 3G Ex nA IIC T4 Gc	(7) CSA 2392869: IS, Class I, Div. 1, GP A, B, C, D T4 ... T6 CSA 2392869: IS, Class I, Zone 1, AEx ia IIC T4 ... T6 CSA 2392869: Ex ia IIC T4...T6 CSA 2392869: Class I Div. 2, GP A,B,C,D T4 ... T6 CSA 2392869: Class I, Zone 2, AEx nA IIC T4 ... T6 CSA 2392869: Ex nA IIC T4...T6
(2) DEK 11.0032X: Ex nA IIC T4 Gc	
(3) KEMA 06ATEX0274 X: II 2(1)G Ex ia [ia Ga] IIC T4, T5, T6 Gb KEMA 06ATEX0274 X: II 2G Ex ib IIC T4, T5, T6 Gb	
(4) DEK 11.0078 X: Ex ia [ia Ga] IIC T4, T5, T6 Gb DEK 11.0078 X: Ex ib IIC T4, T5, T6 Gb	
(5) CSA 2516389: Class I Div. 2 GP A, B, C, D T4 CSA 2516389: Class I Zone 2, AEx nA IIC T4	
(6) CSA 12.70000011: IS, Class I, Zone 1, AEx ia [ia] IIC T4 ... T6 CSA 12.70000011: IS, Class I, Div 1, Group A, B, C, D, T4 ... T6 CSA 12.70000011: Ex ia [ia] IIC T4..T6 Gb	
	(8) KEM 09.0077X: Ex ia [ia Ga] IIC T4 ... T6 Gb KEM 09.0077X: Ex ic IIC T4...T6 Gc KEM 09.0077X: Ex nA IIC T4...T6 Gc
	(9) KEMA 09ATEX0177 X: II 3 G Ex ic IIC T4 ... T6 Gc KEMA 09ATEX0177 X: II 3 G Ex nA IIC T4 ... T6 Gc KEMA 09ATEX0178 X: II 2(1)G Ex ia [ia Ga] IIC T4 ... T6 Gb

For more detailed information on approvals and SIL, please visit www.dehn-international.com.

Pluggable DIN Rail mounted SPDs

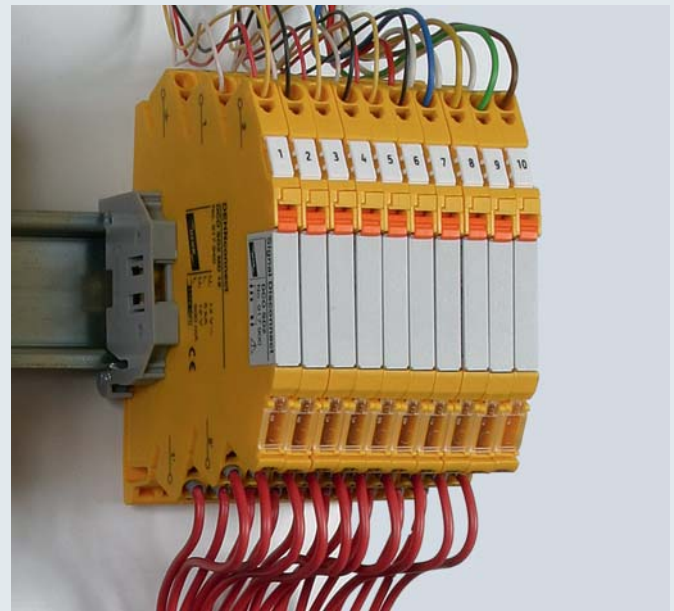
Terminal Block with integrated Surge Protection

- **Terminal block with integrated surge protection**
 - For protecting measuring and control circuits and bus systems
 - Maximum impulse current carrying capability I_{max} up to 20 kA (8/20 μ s)
 - Low voltage protection level, also suitable for terminal equipment
- **Modular disconnection function**
 - Disconnection module for disconnecting the signal circuit for maintenance work
 - Module fixing and mechanical ejector
 - Module in parking position after disconnection
- **Space-saving and function-optimised design**
 - Terminal block with integrated surge protection (width of 6 mm)
 - Fast conductor connection without tools thanks to spring-loaded connection system
 - Can be used with jumper bar (accessory)

The surge arresters of the DEHNconnect SD2 series are designed as space-saving terminal blocks with a width of 6 mm. These terminal blocks with integrated surge protection have a modular disconnection function that allows to interrupt the signal circuit for maintenance work. An integrated module ejector disconnects the signal circuit from terminal equipment. The disconnection module does not have to be removed, but remains in a parking position in the module slot.

Different types of arresters are available and protect two single lines sharing a common reference potential (unbalanced interfaces) or an unearthed pair (balanced interface). Arresters with a high cut-off frequency (HF) can be used for balanced bus interfaces with high data rates (e.g. Profibus, RS485).

Terminal Block with integrated Surge Protection



Application example: DEHNconnect for protecting the I/O of PLC interfaces.

Surge Protection Terminal Block

Conductors are connected via a vibration-proof spring-loaded connection system. Stripped solid conductors and flexible conductors with wire end ferrule can be easily and quickly inserted into the relevant conductor terminal without the use of tools. For rewiring, the conductor is removed from the clamping point and clamped into a new conductor terminal.

To reduce wiring, jumper bars can be inserted at the protected side of the surge arrester, thus quickly connecting signal circuits.

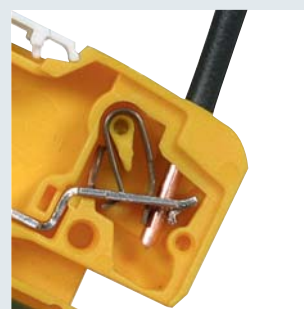
The arresters are ideally suited for use in industrial environments at information technology signal interfaces of automation, measuring and control as well as bus systems.



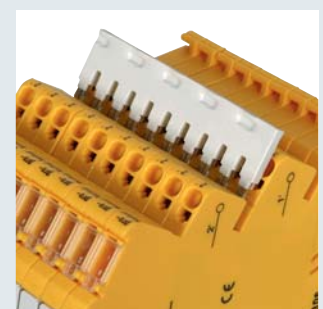
Disconnection module with ejector – for disconnecting the signal circuits.



Marking of the protected side – minimises wiring errors.



Spring-loaded connection system – fast and vibration-proof connection.

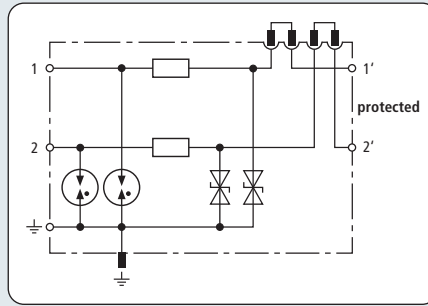


Slots for jumper bars – for quickly connecting signal circuits.

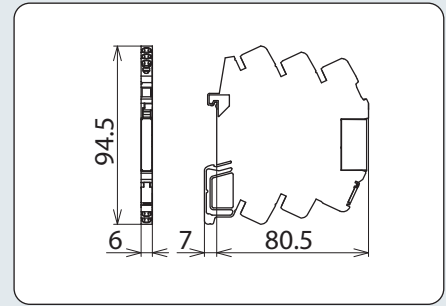
DCO SD2 ME

Terminal Block with integrated Surge Protection

NEW



Basic circuit diagram DCO SD2 ME



Dimension drawing DCO SD2 ME

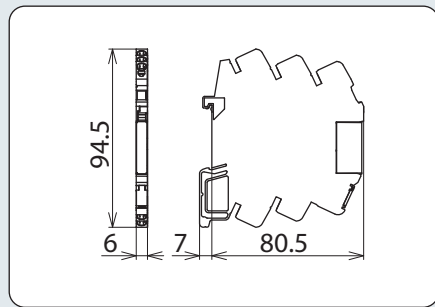
- Space-saving terminal block with integrated surge protection
- Disconnection module for disconnecting signal circuits for maintenance work
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

Energy-coordinated surge arrester with disconnection function for protecting two single lines sharing a common reference potential as well as unbalanced interfaces.

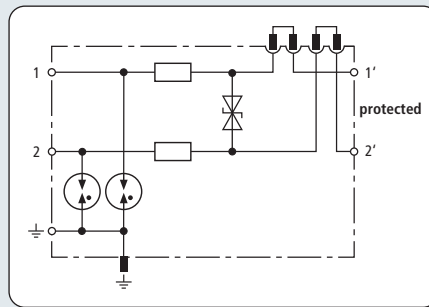
Type	DCO SD2 ME 12	DCO SD2 ME 24	DCO SD2 ME 48
Part No.	917 920	917 921	917 922
SPD class	TYPE 2 P1	TYPE 2 P1	TYPE 2 P1
Nominal voltage (U_N)	12 V	24 V	48 V
Max. continuous operating d.c. voltage (U_C)	14 V	33 V	55 V
Max. continuous operating a.c. voltage (U_C)	9.5 V	23 V	38.5 V
Nominal current at 80 °C (I_N)	0.5 A	0.5 A	0.5 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA	1 kA	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA	5 kA	5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 60 V	≤ 120 V	≤ 180 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 50 V	≤ 75 V	≤ 110 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 36 V	≤ 90 V	≤ 150 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 19 V	≤ 45 V	≤ 75 V
Series resistance per line	1.8 ohms	1.8 ohms	1.8 ohms
Cut-off frequency line-PG (f_c)	2.5 MHz	6 MHz	7.5 MHz
Capacitance line-line (C)	≤ 1.2 nF	≤ 0.5 nF	≤ 0.3 nF
Capacitance line-PG (C)	≤ 2.4 nF	≤ 1.0 nF	≤ 0.6 nF
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 00	IP 00	IP 00
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Connection (input / output)	spring / spring	spring / spring	spring / spring
Cross-sectional area (solid)	0.34-2.5 mm ²	0.34-2.5 mm ²	0.34-2.5 mm ²
Cross-sectional area (flexible)	0.34-2.5 mm ²	0.34-2.5 mm ²	0.34-2.5 mm ²
Earthing via	DIN rail / terminal	DIN rail / terminal	DIN rail / terminal
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Extended technical data:			
- Max. discharge current (8/20 μ s) [1/2 - PG], [1+2 - PG] (I_{max})	20 kA	20 kA	20 kA
- Voltage protection level line-PG at 1 kV/ μ s C3 after being subjected to I_{max} (U_p)	≤ 19 V	≤ 45 V	≤ 75 V

Terminal Block with integrated Surge Protection

DCO SD2 MD



Dimension drawing DCO SD2 MD



Basic circuit diagram DCO SD2 MD



NEW

Energy-coordinated surge arrester with disconnection function for protecting one unearthed pair as well as balanced interfaces.

- Space-saving terminal block with integrated surge protection
- Disconnection module for disconnecting signal circuits for maintenance work
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

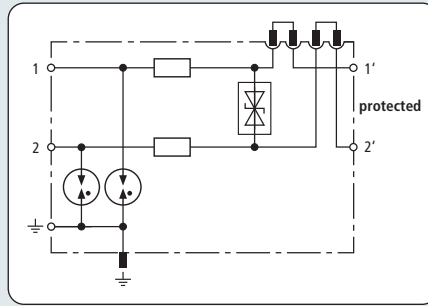
Surge Protection Terminal Block

Type	DCO SD2 MD 12	DCO SD2 MD 24	DCO SD2 MD 48
Part No.	917 940	917 941	917 942
SPD class	TYPE 2 P1	TYPE 2 P1	TYPE 2 P1
Nominal voltage (U_N)	12 V	24 V	48 V
Max. continuous operating d.c. voltage (U_C)	14 V	33 V	55 V
Max. continuous operating a.c. voltage (U_C)	9.5 V	23 V	38.5 V
Nominal current at 80 °C (I_N)	0.5 A	0.5 A	0.5 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA	1 kA	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA	5 kA	5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 30 V	≤ 50 V	≤ 100 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 750 V	≤ 750 V	≤ 750 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 19 V	≤ 45 V	≤ 72 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 650 V	≤ 650 V	≤ 650 V
Series resistance per line	1.8 ohms	1.8 ohms	1.8 ohms
Cut-off frequency line-PG (f_c)	2.5 MHz	6 MHz	8 MHz
Capacitance line-line (C)	≤ 2.4 nF	≤ 1.0 nF	≤ 0.6 nF
Capacitance line-PG (C)	≤ 6 pF	≤ 6 pF	≤ 6 pF
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 00	IP 00	IP 00
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Connection (input / output)	spring / spring	spring / spring	spring / spring
Cross-sectional area (solid)	0.34-2.5 mm ²	0.34-2.5 mm ²	0.34-2.5 mm ²
Cross-sectional area (flexible)	0.34-2.5 mm ²	0.34-2.5 mm ²	0.34-2.5 mm ²
Earthing via	DIN rail / terminal	DIN rail / terminal	DIN rail / terminal
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Extended technical data:			
– Max. discharge current (8/20 μ s) [1/2 - PG], [1+2 - PG] (I_{max})	20 kA	20 kA	20 kA
– Voltage protection level line-PG at 1 kV/ μ s C3 after being subjected to I_{max} (U_p)	≤ 650 V	≤ 650 V	≤ 650 V

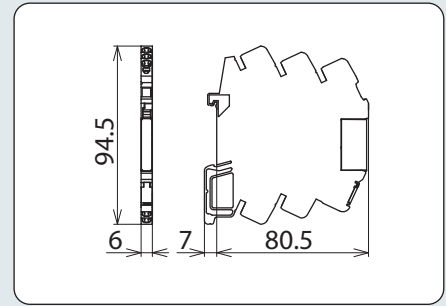
DCO SD2 MD HF

Terminal Block with integrated Surge Protection

NEW



Basic circuit diagram DCO SD2 MD HF



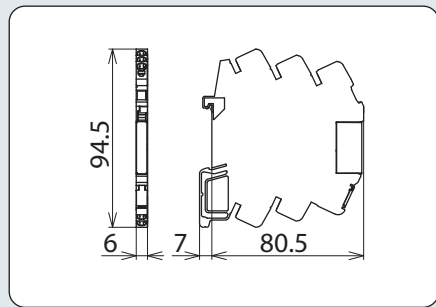
Dimension drawing DCO SD2 MD HF

- Space-saving terminal block with integrated surge protection for bus signals
- Disconnection module for disconnecting signal circuits for maintenance work
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

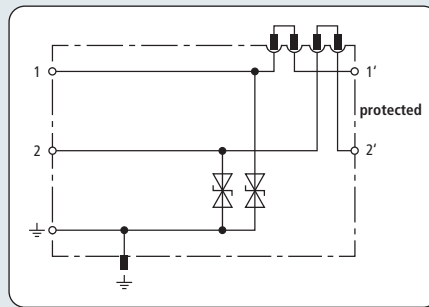
Energy-coordinated surge arrester with disconnection function for protecting balanced interfaces with extra-low voltages. Also suitable for high transmission rates due to a diode matrix with minimised capacitance. It is advisable to use SAK shield connection systems for shielded bus lines.

Type	DCO SD2 MD HF 5
Part No.	917 970
SPD class	TYPE 2 P1
Nominal voltage (U_N)	5 V
Max. continuous operating d.c. voltage (U_C)	8.5 V
Max. continuous operating a.c. voltage (U_C)	6.0 V
Nominal current at 80 °C (I_N)	0.5 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 35 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 750 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 14 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 650 V
Series resistance per line	1.8 ohm
Cut-off frequency line-line (f_c)	100 MHz
Capacitance line-line (C)	≤ 25 pF
Capacitance line-PG (C)	≤ 10 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 00
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	spring / spring
Cross-sectional area (solid)	0.34-2.5 mm ²
Cross-sectional area (flexible)	0.34-2.5 mm ²
Earthing via	DIN rail / terminal
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Extended technical data:	
- Max. discharge current (8/20 μ s) [1/2 - PG], [1+2 - PG] (I_{max})	20 kA
- Voltage protection level line-PG at 1 kV/ μ s C3 after being subjected to I_{max} (U_p)	≤ 650 V

Surge Protection Terminal Block



Dimension drawing DCO SD2 E



Basic circuit diagram DCO SD2 E



NEW

Finely-limiting surge protective device with disconnection function for two single lines sharing a common reference potential and unbalanced interfaces.

- Space-saving terminal block with integrated surge protection
- Disconnection module for disconnecting signal circuits for maintenance work
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

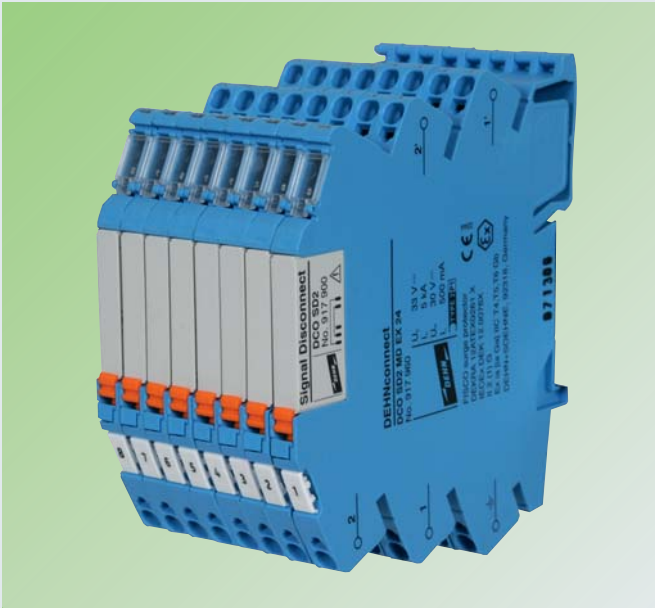
Surge Protection Terminal Block

Type	DCO SD2 E 12	DCO SD2 E 24	DCO SD2 E 48
Part No.	917 987	917 988	917 989
SPD class	TYPE 3 P1	TYPE 3 P1	TYPE 4 P1
Nominal voltage (U_N)	12 V	24 V	48 V
Max. continuous operating d.c. voltage (U_C)	13 V	28 V	58 V
Max. continuous operating a.c. voltage (U_C)	9 V	19.5 V	41 V
Nominal current at 60 °C (I_N)	10 A	10 A	10 A
C1 Total nominal discharge current (8/20 μ s) (I_n)	0.8 kA	0.6 kA	0.3 kA
C1 Nominal discharge current (8/20 μ s) per line (I_n)	0.4 kA	0.3 kA	0.15 kA
Voltage protection level line-line for I_n C1 (U_p)	≤ 50 V	≤ 96 V	≤ 180 V
Voltage protection level line-PG for I_n C1 (U_p)	≤ 25 V	≤ 48 V	≤ 90 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 36 V	≤ 76 V	≤ 150 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 18 V	≤ 38 V	≤ 75 V
Cut-off frequency line-PG (f_c)	2.3 MHz	5.5 MHz	8.7 MHz
Capacitance line-line (C)	≤ 2.5 nF	≤ 1.1 nF	≤ 0.65 nF
Capacitance line-PG (C)	≤ 1.3 nF	≤ 0.55 nF	≤ 0.35 nF
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 20	IP 20	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Connection (input / output)	spring / spring	spring / spring	spring / spring
Cross-sectional area (solid)	0,34-2.5 mm ²	0,34-2.5 mm ²	0,34-2.5 mm ²
Cross-sectional area (flexible)	0,34-2.5 mm ²	0,34-2.5 mm ²	0,34-2.5 mm ²
Earthing via	DIN rail / terminal	DIN rail / terminal	DIN rail / terminal
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21

Terminal block with integrated surge protection

Terminal Block with integrated Surge Protection

Surge Protection Terminal Block



Arrester group for protecting intrinsically safe measuring circuits

The surge arresters of the DEHNconnect SD2 series are designed as space-saving terminal blocks with a width of 6 mm. These terminal blocks with integrated surge protection have a modular disconnection function that allows to disconnect the signal circuit for maintenance work. An integrated module ejector disconnects the signal circuit from terminal equipment. The disconnection module does not have to be removed, but remains in a parking position in the module slot.

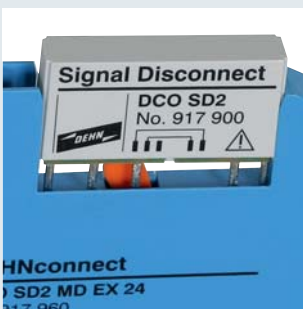
DEHNconnect SD2 Ex (i) is designed for intrinsically safe measuring and control circuits and bus systems and protects one unearthed pair (balanced interface).

- **Terminal block with integrated surge protection**
 - For protecting intrinsically safe measuring and control circuits and bus systems Ex (i)
 - Maximum impulse current carrying capability I_{max} up to 20 kA (8/20 μ s)
 - Low voltage protection level, also suitable for terminal equipment
 - Approvals: ATEX, IECEx
- **Modular disconnection function**
 - Disconnection module for disconnecting the signal circuit for maintenance work
 - Module fixing and mechanical ejector
 - Module in parking position after disconnection
- **Space-saving and function-optimised design**
 - Terminal block with integrated surge protection (width of 6 mm)
 - Fast and safe conductor connection thanks to spring-loaded connection system
 - Can be used with jumper bar (accessory)

Conductors are connected via a vibration-proof spring-loaded connection system. Stripped solid conductors and flexible conductors with wire end ferrule can be easily and quickly inserted into the relevant conductor terminal without the use of tools. For rewiring, the conductor is removed from the clamping point and clamped into a new conductor terminal.

To reduce wiring, jumper bars can be inserted at the protected side of the surge arrester, thus quickly connecting signal circuits.

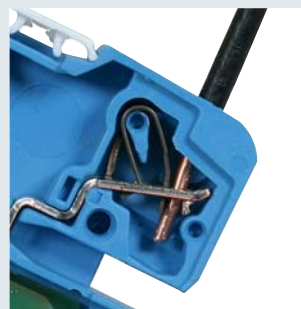
The arresters are ideally suited for use in the process industry to protect Ex (i) measuring circuits and interfaces for bus communication (e.g. Fieldbus Foundation or Profibus PA).



Disconnection module with ejector – for disconnecting the signal circuits.



Marking of the protected side – minimises wiring errors.



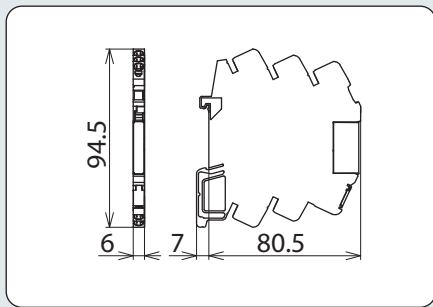
Spring-loaded connection system – fast and vibration-proof connection without tools.



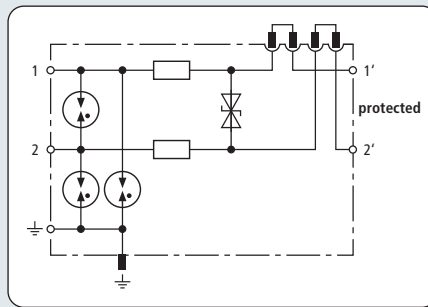
Slots for jumper bars – for quickly connecting signal circuits.

Terminal Block with integrated Surge Protection

DCO SD2 MD EX



Dimension drawing DCO SD2 MD EX 24



Basic circuit diagram DCO SD2 MD EX 24



Surge arrester with energy-coordinated low-capacitance protective circuit and disconnection module for disconnecting signal circuits. For protecting one pair in intrinsically safe measuring circuits and bus systems, meets FISCO requirements. Self-capacitance and self-inductance negligibly small. Insulation strength > 500 V to earth.

- For universal use in Ex (i) circuits
- Disconnection module for disconnecting signal circuits for maintenance work
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

Surge Protection Terminal Block

Type	DCO SD2 MD EX 24
Part No.	917 960
SPD class	TYPE 2 P1
Nominal voltage (U_N)	24 V
Max. continuous operating d.c. voltage (U_C)	33 V
Max. continuous operating a.c. voltage (U_C)	23 V
Max. input voltage according to EN 60079-11 (U_i)	30 V
Max. input current according to EN 60079-11 (I_i)	0.5 A
Nominal current at 80 °C (I_L)	0.5 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 50 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 1500 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 45 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1400 V
Series resistance per line	1.8 ohms
Cut-off frequency line-line (f_C)	5.8 MHz
Capacitance line-line (C)	≤ 1.0 nF
Capacitance line-PG (C)	≤ 8 pF
Operating temperature range	-40 °C ... +80 °C
Degree of protection	IP 00
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	spring / spring
Cross-sectional area (solid)	0.34-2.5 mm ²
Cross-sectional area (flexible)	0.34-2.5 mm ²
Earthing via	DIN rail / terminal
Enclosure material	polyamide PA 6.6
Colour	blue
Test standards	IEC 61643-21 / EN 61643-21
ATEX approvals	DEKRA 12ATEX0261 X: II 2(1) G Ex ia [ia Ga] IIC T4,T5,T6 Gb
IECEx approvals	DEK 12.0076X: Ex ia [ia Ga] IIC T4...T6 Gb
Extended technical data:	
- Max. discharge current (8/20 μ s) [1/2 - PG], [1+2 - PG] (I_{max})	20 kA
- Voltage protection level line-PG at 1 kV/ μ s C3 after being subjected to I_{max} (U_p)	≤ 1400 V

Signal Disconnect Disconnection Module (Spare Part)

NEW



Disconnection module (spare part) to be plugged into DCO SD2 for disconnecting the signal in the system circuit.

Type	DCO SD2
Part No.	917 900
Width	6 mm

Jumper Bar



Multipole jumper bar for DCO SD2 terminal blocks with integrated surge protection.

- Reduced wiring
- Fast connection of signal circuits
- Only to be used at the protected output of DCO SD2

Type	KB 10 DCO RK
Part No.	919 880
Poles	10

Quick Labelling System, horizontal Imprint

NEW



Plate with 2x plate numbers from 1 to 50 for DCO SD2, horizontal imprint.

- Pre-printed labels
- Fast and easy numbering of DCO SD2 terminal blocks with integrated surge protection

Type	LS 1 50 H DCO
Part No.	917 977
Material	plastic

Quick Labelling System, vertical Imprint

NEW

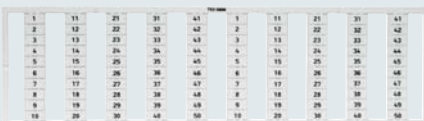


Plate with 2x plate numbers from 1 to 50 for DCO SD2, vertical imprint.

- Pre-printed labels
- Fast and easy numbering of DCO SD2 terminal blocks with integrated surge protection

Type	LS 1 50 V DCO
Part No.	917 976
Material	plastic

- Cost-effective protection of multi-core signal lines
- Interface-specific versions, e.g. TTY, RS485, telecommunication systems
- Versions for d.c. power supply systems



Compact DIN rail mounted surge protective device with screw terminals for multi-core lines.

Compact DIN rail mounted SPDs

BLITZDUCTOR VT is a family of compact DIN rail mounted arresters and consists of different types of enclosures with different connection systems. Both devices for protecting four-wire signal interfaces with screw connections are, for example, available, but also devices for protecting terminal equipment of telecommunication systems as well as telephone

systems with RJ connection. All types can be mounted onto DIN rails and are earthed via a screw terminal.

BLITZDUCTOR VT has a variable enclosure concept. Depending on the application, different types of arresters are available.



BVT enclosure type with a width of 1.5 modules and screw terminals:
 BVT AV/LD: Two protected lines for d.c. power supply systems
 BVT (M)TTY: Four protected signal cores



BVT enclosure type with a width of 3 modules and screw terminals:
 BVT RS485 specifically designed for protecting RS485 / RS422 interfaces.



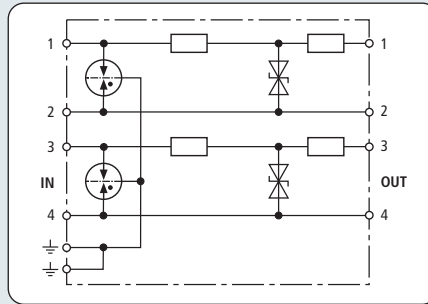
BVT enclosure type with a width of 1.5 modules and RJ connection:
 BVT TC1 and BVT ISDN for protecting telecommunication interfaces.



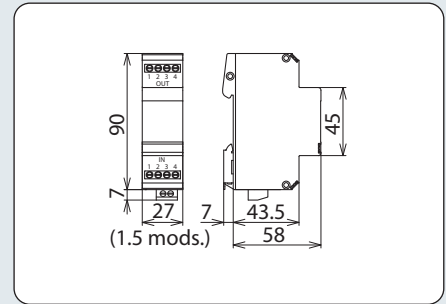
Separate earth connection on the unprotected side of the device. The second slot of the double terminal is intended for connecting the terminal equipment to the equipotential bonding.

BVT TTY

Compact DIN Rail mounted SPDs



Basic circuit diagram BVT TTY



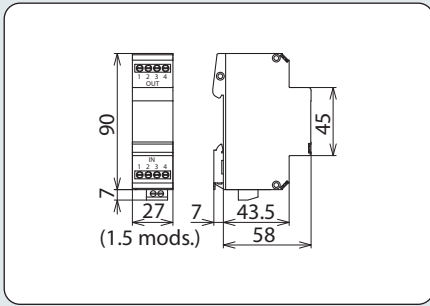
Dimension drawing BVT TTY

- Simultaneous protection of two TTY loops
- Additional decoupling with regard to the terminal device
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

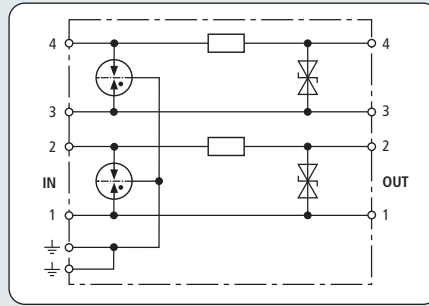
Owing to the additional decoupling resistors at the output, even diodes with a low absorption capacity integrated in terminal equipment are energy-coordinated with the protection stages. This is especially important for optocoupler interfaces.

Type	BVT TTY 24
Part No.	918 400
SPD class	TYPE 2 P1
Nominal d.c. voltage (U_N)	24 V
Max. continuous operating d.c. voltage (U_C)	26.8 V
Max. continuous operating a.c. voltage (U_C)	18.9 V
Nominal current (I_N)	0.1 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	0.8 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
Voltage protection line-line for I_n C2 (U_p)	≤ 65 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 700 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 36 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
Series resistance per line	17.2 ohms per pair
Cut-off frequency line-line (f_c)	8 MHz
Capacitance line-line (C)	≤ 1 nF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	screw / screw
Cross-sectional area, solid	0.08-2.5 mm ²
Cross-sectional area, flexible	0.08-2.5 mm ²
Tightening torque (terminals)	0.5 Nm
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
Approvals	CSA, GOST

Compact DIN rail mounted SPDs



Dimension drawing BVT MTTY



Basic circuit diagram BVT MTTY



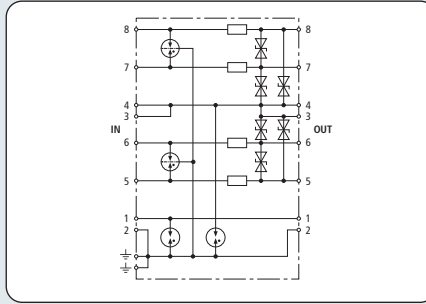
- Cost-effective compact protection
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

Energy-coordinated surge arrester, no leakage currents to earth, for two unearthed pairs. Unbalanced use of the decoupling impedance.

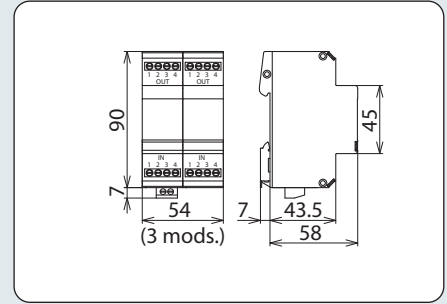
Type	BVT MTTY 24
Part No.	918 407
SPD class	TYPE 2 P1
Nominal d.c. voltage (U_N)	24 V
Max. continuous operating d.c. voltage (U_C)	26.8 V
Max. continuous operating a.c. voltage (U_C)	18.9 V
Nominal current (I_N)	0.1 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	0.8 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
Voltage protection line-line for I_n C2 (U_p)	≤ 65 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 700 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 36 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
Series resistance per line	2.2 ohms per pair
Cut-off frequency line-line (f_c)	10 MHz
Capacitance line-line (C)	≤ 1 nF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	screw / screw
Cross-sectional area, solid	0.08-2.5 mm ²
Cross-sectional area, flexible	0.08-2.5 mm ²
Tightening torque (terminals)	0.5 Nm
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

BVT RS485

Compact DIN Rail mounted SPDs



Basic circuit diagram BVT RS485



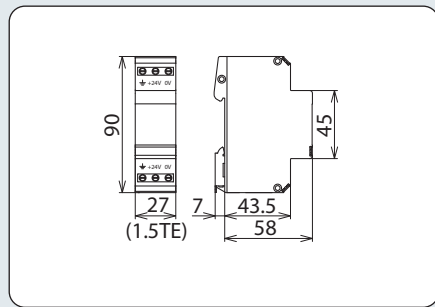
Dimension drawing BVT RS485

- Terminals for four bus lines and SG
- Direct or indirect shield earthing
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

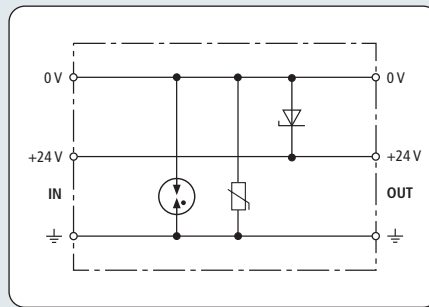
Surge arrester for a wide range of applications, e.g. for balanced four-wire RS485/422 interfaces or temperature sensors. Direct or indirect shield earthing, connection of a signal ground (SG).

Compact DIN rail mounted SPDs

Type	BVT RS485 5
Part No.	918 401
SPD class	TYPE 2 P1
Nominal d.c. voltage (U_N)	5 V
Max. continuous operating d.c. voltage (U_C)	6 V
Max. continuous operating a.c. voltage (U_C)	4.2 V
Nominal current (I_N)	0.5 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	0.8 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
Voltage protection line-line for I_n C2 (U_p)	≤ 20 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 700 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 8.5 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
Series resistance per line	1.8 ohms
Cut-off frequency line-line (f_c)	1.7 MHz
Capacitance line-line (C)	≤ 5 nF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	screw / screw
Cross-sectional area, solid	0.08-2.5 mm ²
Cross-sectional area, flexible	0.08-2.5 mm ²
Tightening torque (terminals)	0.5 Nm
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21, UL 497B
Approvals	CSA, GOST



Maßbild BVT AVD



Basic circuit diagram BVT AVD



NEW

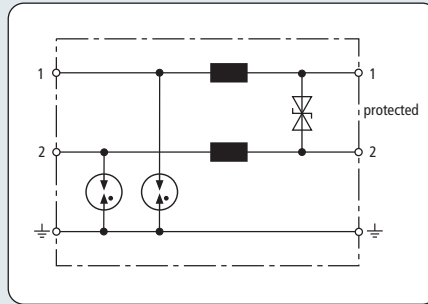
Surge arresters with improved voltage protection levels for EMC protection of electronic components with d.c. voltage supply. Ideally suited for Siemens PLCs. Since a unipolar diode is used, the polarity of the operating voltage must be observed.

- EMC protection for the 24 V supply of PLCs
- Extremely low protection level
- For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher

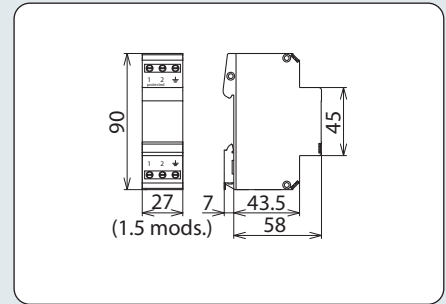
Type	BVT AVD 24
Part No.	918 422
SPD class	TYPE 3 P1
Nominal d.c. voltage (U_N)	24 V
Max. continuous operating d.c. voltage (U_C)	35 V
Nominal current at 80 °C (I_N)	10 A
C2 Nominal discharge current (8/20 μ s) per line (I_n)	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	2 kA
Voltage protection line-line for I_n C2 (U_p)	≤ 70 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 500 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 50 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 450 V
Capacitance line-line (C)	≤ 7 nF
Capacitance line-PG (C)	$\leq 1,5$ nF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rail acc. to EN 60715
Connection (input / output)	screw / screw
Cross-sectional area, solid	0.5-6.0 mm ²
Cross-sectional area, flexible	0.5-4.0 mm ²
Tightening torque (terminals)	0.8 Nm
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21

BVT ALD

Compact DIN Rail mounted SPDs



Basic circuit diagram BVT ALD



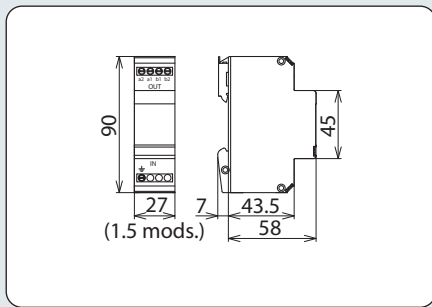
Dimension drawing BVT ALD

- For d.c. power supply systems up to nominal currents of 7 A
- Low voltage protection level
- For installation in conformity with the lightning protection zones concept at the boundaries from 0_A – 2 and higher

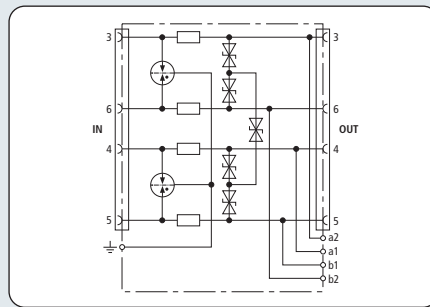
Energy-coordinated, DIN rail mounted combined lightning current and surge arrester for protecting unearthed d.c. power supply systems.

Type	BVT ALD 36	BVT ALD 60
Part No.	918 408	918 409
SPD class	TYPE 1 P1	TYPE 1 P1
Nominal d.c. voltage (U _N)	36 V	60 V
Max. continuous operating d.c. voltage (U _C)	45 V	65 V
Nominal current at 80 °C (I _N)	4 A	4 A
Nominal current at 45 °C (I _N)	7 A	7 A
Backup fuse if	—	U _N ≥ 45 V and I _N ≥ 1 A
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	2.5 kA	2.5 kA
D1 Total lightning impulse current (10/350 μs) (I _{imp})	5 kA	5 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	10 kA	10 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA	20 kA
Voltage protection line-line for I _n C2 (U _p)	≤ 80 V	≤ 120 V
Voltage protection level line-PG for I _n C2 (U _p)	≤ 1000 V	≤ 1000 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 60 V	≤ 90 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 650 V	≤ 650 V
Series resistance per line	22 μH	22 μH
Capacitance line-line (C)	≤ 1.5 pF	≤ 1.0 nF
Capacitance line-PG (C)	≤ 100 pF	≤ 100 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 20	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715
Connection (input / output)	screw / screw	screw / screw
Cross-sectional area, solid	0.5-6.0 mm ²	0.5-6.0 mm ²
Cross-sectional area, flexible	0.5-4.0 mm ²	0.5-4.0 mm ²
Tightening torque (terminals)	0.8 Nm	0.8 Nm
Earthing via	screw terminal	screw terminal
Enclosure material	thermoplastic, UL 94 V-0	thermoplastic, UL 94 V-0
Colour	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	GOST	—

Compact DIN rail mounted SPDs



Dimension drawing BVT ISDN



Basic circuit diagram BVT ISDN



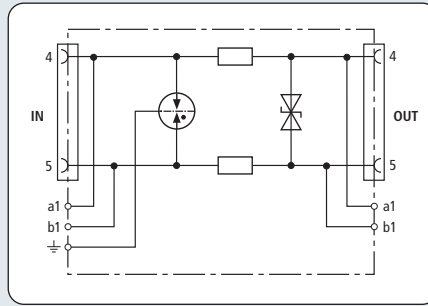
- RJ45 sockets
- Additional screw terminals at the output for the ISDN lines
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 2$ and higher

Energy-coordinated surge arrester for the ISDN S0 bus with RJ45 connections and additional protection of the remote supply. The additional screw terminal at the protected output allows double wiring of the S_0 bus.

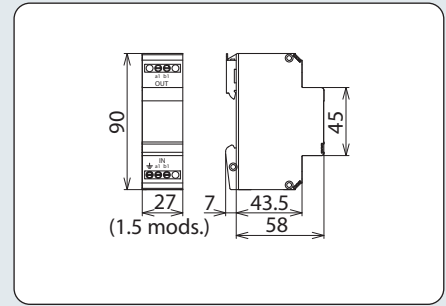
Type	BVT ISDN
Part No.	918 410
SPD class	TYPE 2 P1
Nominal voltage (U_N)	5 V
Nominal voltage pair-pair (U_N)	40 V
Max. continuous operating d.c. voltage (U_C)	7.5 V
Max. continuous operating a.c. voltage (U_C)	5.3 V
Max. continuous operating d.c. voltage pair-pair (U_C)	60 V
Nominal current (I_L)	0.2 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
Voltage protection line-line for I_n C2 (U_p)	≤ 30 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 600 V
Voltage protection level pair-pair for I_n C2 (U_p)	≤ 130 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 17 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
Voltage protection level pair-pair at 1kV/ μ s C3 (U_p)	≤ 100 V
Series resistance per line	1.0 ohm
Cut-off frequency line-line (f_G)	1.7 MHz
Capacitance line-line (C)	≤ 3.3 nF
Capacitance line-PG (C)	≤ 15 pF
Capacitance pair-pair (C)	≤ 600 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 10
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	RJ45 / RJ45 or terminals
Pinning	3/6, 4/5
Cross-sectional area, solid	0.08-2.5 mm ²
Cross-sectional area, flexible	0.08-2.5 mm ²
Earthing via	terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

BVT TC

Compact DIN Rail mounted SPDs



Basic circuit diagram BVT TC



Dimension drawing BVT TC

- Pins of RJ sockets compatible with RJ12
- Additional screw terminals for a/b lines
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

Energy-coordinated and leakage-current-free surge arrester for a/b lines, ISDN U_{k0} or ADSL with RJ45 plugs and additional screw terminals. Pinning of the RJ45 sockets is compatible with RJ11/12. The parallel screw terminals are more robust than the RJ45 sockets and increase the total nominal discharge current to 10 kA.

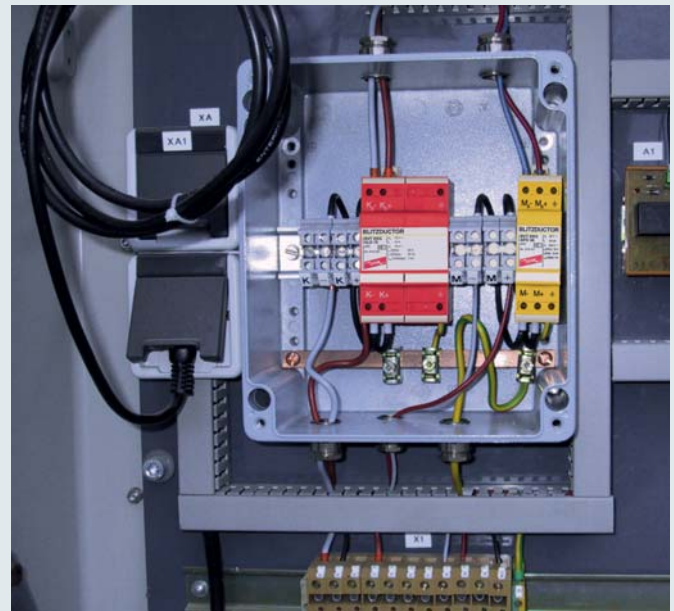
Compact DIN rail mounted SPDs

Type	BVT TC 1
Part No.	918 411
SPD class	TYPE 2 P2
Nominal voltage (U_N)	130 V
Max. continuous operating d.c. voltage (U_C)	170 V
Nominal current (I_N)	0.2 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	5 kA
Voltage protection line-line for I_n C2 (U_p)	≤ 275 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 600 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 240 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
Series resistance per line	4.7 ohms
Cut-off frequency line-line (f_c)	17 MHz
Capacitance line-line (C)	≤ 300 pF
Capacitance line-PG (C)	≤ 15 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 10
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	RJ45 or terminals / RJ45 or terminals
Pinning	4/5
Cross-sectional area, solid	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 2.5 mm ²
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

Compact DIN Rail mounted SPDs

- Extremely efficient thanks to high discharge capacity
- Easy maintenance due to remote signalling contact
- Resistant to permanent interference voltages up to 65 V a.c.

Combined Arrester for Cathodic Protection Systems



Arrester for protecting active cathodic corrosion systems. Integrated floating remote signalling contact (break contact) monitors the function of the arrester.

Compact DIN rail mounted SPDs

The protective circuit and voltage measuring circuit are protected against surge pulses caused by atmospheric discharges (lightning strikes) or switching operations (in power supply lines).

The devices are designed for permanent interference voltages up to 65 V a.c. between pipelines and earth. If this value is exceeded, the relevant regulations concerning protection against electric shock have to be observed and further measures have to be taken.

The devices may be overloaded by overcurrents as a result of mains faults (short-circuits or earth faults). For this reason, they should be installed in a separate metal enclosure or a prewired terminal unit (ITAK) should be used. The integrated remote signalling contact indicates thermal overload of the discharge paths.



Different arresters for the protective circuit (red) and voltage measuring circuit (yellow).



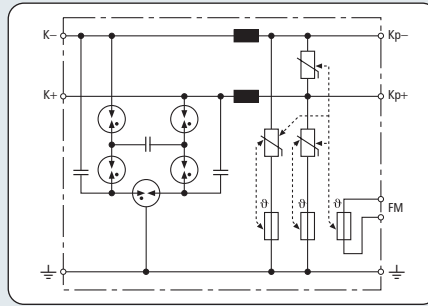
The arresters for cathodic corrosion protection are equipped with a remote signalling contact.



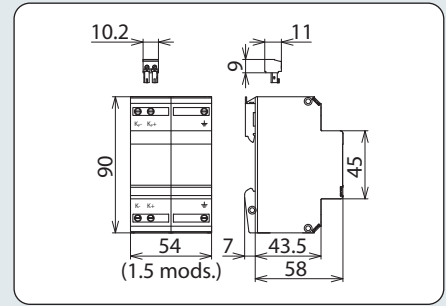
Prewired unit (ITAK) for cathodic corrosion protection consisting of an arrester for the protective circuit and voltage measuring circuit in a metal enclosure. Ordering designation: ITAK, serial No. 4305.

BVT KKS ALD

Compact DIN Rail mounted SPDs



Basic circuit diagram BVT KKS ALD



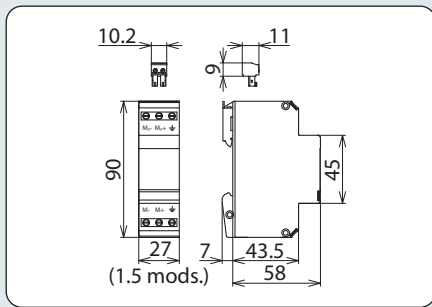
Dimension drawing BVT KKS ALD

- For protective circuits
- High nominal current
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

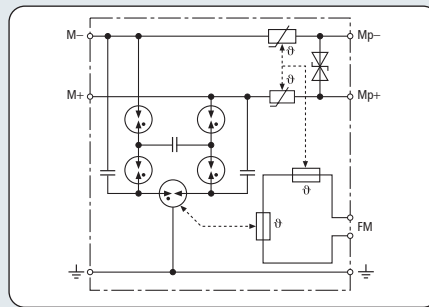
Energy-coordinated combined lightning current and surge arrester for protecting the rectifier in a protective circuit (red colour). Plug-in remote signalling contact (break contact) indicates overload (thermal monitoring of the varistors). Installation into steel-sheet enclosure recommended. A low impulse sparkover voltage is achieved by capacitive control.

Compact DIN rail mounted SPDs

Type	BVT KKS ALD 75
Part No.	918 420
SPD class	TYPE 1 P1
Nominal voltage (U _N)	70 V
Max. continuous operating d.c. voltage (U)	75 V
Nominal current (I _N)	12 A
D1 Total lightning impulse current (10/350 μs) (I _{imp})	7 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	3.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	40 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	20 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 400 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 400 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 350 V
Voltage protection level line-PG at 1 kV/μs PG (U _p)	≤ 350 V
A2 Total alternating current withstand capability	20 A
Series resistance per line	5 μH
Cut-off frequency line-line (f _c)	1 MHz
Capacitance line-line (C)	≤ 2 nF
Capacitance line-PG (C)	≤ 2 nF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	screw / screw
Cross-sectional area, solid	0.5-6 mm ²
Cross-sectional area, flexible	0.5-4 mm ²
Tightening torque (terminal)	0.8 Nm
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	red
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST
Type of remote signalling contacts	break contact
d.c. switching capacity	250 V / 0.1 A, 125 V / 0.2 A, 75 V / 0.5 A
a.c. switching capacity	250 V / 0.5 A
Cross-sectional area for remote signalling terminals	max 1.5 mm ²



Dimension drawing BVT KKS APD



Basic circuit diagram BVT KKS APD



- For voltage measuring circuits
- Plug-in remote signalling contact
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

Energy-coordinated combined lightning current and surge arrester for protecting voltage measuring circuits (yellow colour). Plug-in remote signalling contact (break contact) indicates overload (thermal monitoring of the discharge paths). Installation into steel-sheet enclosure recommended. A low impulse sparkover voltage is achieved by capacitive control.

Type	BVT KKS APD 36
Part No.	918 421
SPD class	TYPE 1 P1
Nominal voltage (U _N)	36 V
Max. continuous operating d.c. voltage (U _c)	36.8 V
Nominal current (I _N)	0.05 A
D1 Total lightning impulse current (10/350 μs) (I _{imp})	7 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	3.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	40 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	20 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 65 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 800 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 48 V
Voltage protection level line-PG at 1 kV/μs PG (U _p)	≤ 600 V
A2 Total alternating current carrying capacity	20 A
Series resistance per line	70 ohms
Cut-off frequency line-line (f _c)	4.5 dB at 1 MHz (100 ohms)
Capacitance line-line (C)	≤ 1 nF
Capacitance line-PG (C)	≤ 10 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	screw / screw
Cross-sectional area, solid	0.5 mm-6 mm ²
Cross-sectional area, flexible	0.5 mm-4 mm ²
Tightening torque (terminal)	0.8 Nm
Earthing via	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST
Type of remote signalling contacts	break contact
d.c. switching capacity	250 V / 0.1 A, 125 V / 0.2 A, 75 V / 0.5 A
a.c. switching capacity	250 V / 0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ²

Compact DIN rail
mounted SPDs

SPDs for LSA Technology

Product	Description	Type	Part No.	Page
Lightning current / surge arresters				
	<ul style="list-style-type: none"> – Lightning current carrying DRL plug-in SPD block can be easily plugged into LSA disconnection blocks of 2/10 type – Versions with / without fail-safe function / visual indication – Modularly expandable with a DRL protective plug to a combined lightning current and surge arrester – With integrated disconnection block contacts 	<p>DRL 10 B 180 DRL 10 B 180 FSD</p>	<p>907 400 907 401</p>	<p>293 294</p>
	<ul style="list-style-type: none"> – Protective plug for one pair inserted through the earthing frame into the DRL plug-in SPD block – Energy-coordinated with DRL plug-in SPD block – Low voltage protection level for application-specific protection of terminal equipment 	DRL ...	<p>907 420 – 907 470</p>	<p>295 – 298</p>
	<ul style="list-style-type: none"> – Snap-on earthing frame for earthing and mounting DRL protective plugs on a 10-pair disconnection block or the lightning current carrying DRL plug-in SPD block 	EF 10 DRL	907 498	300
Surge arresters				
	<ul style="list-style-type: none"> – Powerful SPD block can be easily plugged into LSA disconnection blocks of 2/10 type – Versions with / without fail-safe function / visual indication 	<p>DPL 10 G3 110 DPL 10 G3 110 FSD</p>	<p>907 214 907 216</p>	<p>301 301</p>
DEHN enclosure for equipotential bonding				
	<ul style="list-style-type: none"> – Lightning current carrying earthing system for arresters and shield connection – Pre-mounted mounting frame – Lockable enclosure 	DPG LSA ... P	<p>906 100 – 906 103</p>	<p>303</p>
Routing module for disconnection blocks with LSA spring-loaded terminal				
	<ul style="list-style-type: none"> – DIN rail mounted routing module for disconnection blocks – Equipped with LSA disconnection block and spring-loaded terminals for variable wire connection – Routing of different wire diameters 	TL2 10DA CC	907 991	306

SPDs for LSA Technology



- Variable protection for 1 to 10 pairs in LSA systems of 2/10 type
- LSA disconnection block function integrated in the lightning current arrester provides protection during testing, disconnecting and patching
- Modular system of lightning current and surge arresters can be combined to a single combined arrester

The DEHNrapid LSA arrester series is a modular system of lightning current arresters, surge arresters or combined lightning current and surge arresters that can be plugged into type 2 LSA disconnection blocks. The lightning current carrying 10-pair plug-in SPD block incorporates gas discharge tubes (optionally available with visual fault indication) and dis-

connection block contacts. This allows testing, disconnecting or patching of pairs with plugged-in protection or the additional attachment of single-pair surge arresters to ensure optimal protection of terminal equipment. The surge arresters snap into the earthing frame and can be removed as a block, whenever required.

SPDs for LSA Technology



Lightning current carrying SPD block with gas discharge tubes optionally available with visual fault indication and fail-safe feature.



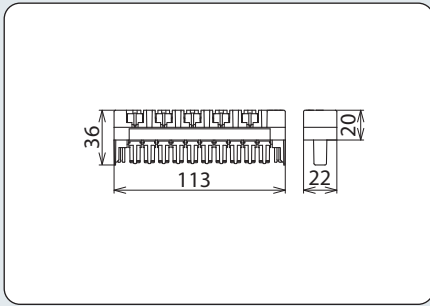
Pluggable surge arresters in the form of protection blocks can be plugged into terminal or disconnection blocks.



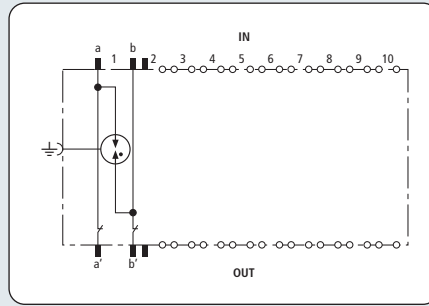
Application-specific protection modules for protecting terminal equipment.



Modular design consisting of a plug-in SPD block with gas discharge tubes, earthing frame and application-specific protection modules.



Dimension drawing DRL 10 B



Basic circuit diagram DRL 10 B

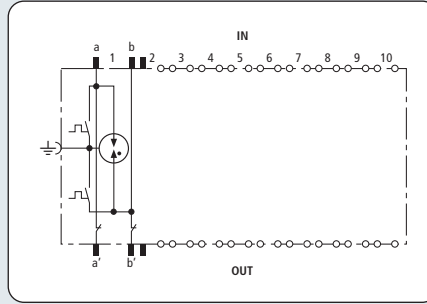


Lightning current carrying DRL plug-in SPD block (10 pairs) with three-pole gas discharge tubes for almost all applications. Expandable to a combined lightning current and surge arrester by means of a DRL protective plug. The integrated disconnection block contacts allow testing, measuring and patching with plugged-in protection.

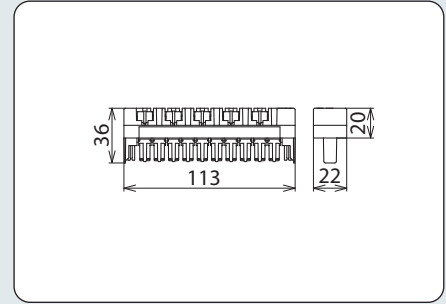
- Lightning current arrester for use as plug-in SPD block with integrated LSA disconnection block function
- Expandable to a combined lightning current and surge arrester
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 1 and higher

Type	DRL 10 B 180
Part No.	907 400
SPD class	TYPE 1C
Nominal voltage (U _N)	180 V
Max. continuous operating d.c. voltage (U _c)	180 V
Max. continuous operating a.c. voltage (U _c)	127 V
Nominal current (I _N)	0.4 A
D1 Total lightning impulse current (10/350 μs) (I _{imp})	5 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	10 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	5 kA
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ 500 V
Voltage protection level line-PG for I _{imp} D1 (U _p)	≤ 500 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 500 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 450 V
Series resistance per line	≤ 0.005 ohms
Capacitance line-line (C)	≤ 5 pF
Capacitance line-PG (C)	≤ 5 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection	IP 10
Plugs into	LSA disconnection block 2/10
Earthing via	mounting frame
Enclosure material	polyamide PA 6.6
Colour	grey
Test standards	IEC 61643-21 / EN 61643-21
Approvals	VdS, GOST

SPDs for LSA Technology



Basic circuit diagram DRL 10 B FSD



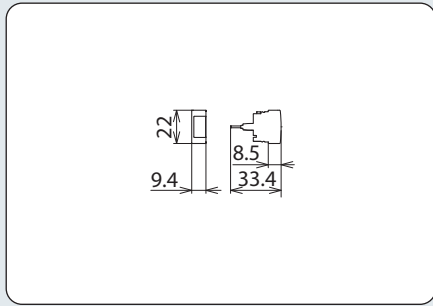
Dimension drawing DRL 10 B FSD

- Lightning current arrester for use as plug-in SPD block with integrated LSA disconnection block function
- Visual fault indicator of the gas discharge tubes
- Can be combined to a combined lightning current and surge arrester by means of a DRL protective plug
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$ and higher

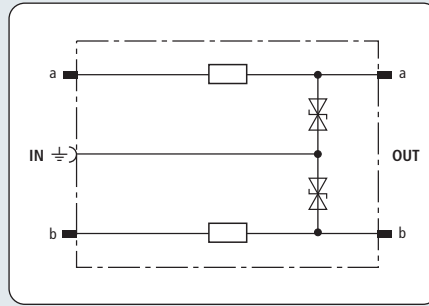
Lightning current carrying DRL plug-in SPD block (10 pairs) for almost all applications. Expandable to a combined lightning current and surge arrester by means of a DRL protective plug. The integrated disconnection block contacts allow testing, measuring and patching with plugged-in protection. The three-pole gas discharge tubes have a fail-safe function with visual fault indicator.

Type	DRL 10 B 180 FSD
Part No.	907 401
SPD class	TYPE 1C
Fault indication	visual, colour change
Nominal voltage (U_N)	180 V
Max. continuous operating d.c. voltage (U_c)	180 V
Max. continuous operating a.c. voltage (U_c)	127 V
Nominal current (I_n)	0.4 A
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	5 kA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA
Voltage protection level line-line for I_{imp} D1 (U_p)	≤ 500 V
Voltage protection level line-PG for I_{imp} D1 (U_p)	≤ 500 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 500 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 450 V
Series resistance per line	≤ 0.005 ohms
Capacitance line-line (C)	≤ 5 pF
Capacitance line-PG (C)	≤ 5 pF
Fail-safe function	gas discharge tube with spring contacts
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 10
Plugs into	LSA disconnection block 2/10
Earthing via	mounting frame
Enclosure material	polyamide PA 6.6
Colour	grey
Test standards	IEC 61643-21 / EN 61643-21
Approvals	VdS, GOST

SPDs for LSA Technology



Dimension drawing DRL RE



Basic circuit diagram DRL RE



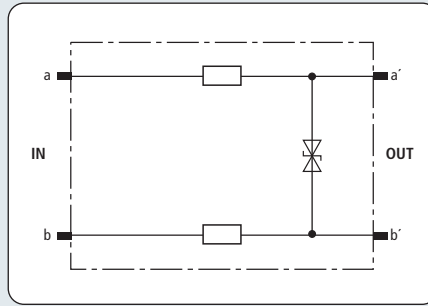
Protective plug (one pair), energy-coordinated with DRL plug-in SPD block, for use as single-stage protective device for terminal equipment with decoupling impedances. Ideally suited for signal circuits sharing a common reference potential. Earthing via EF 10 DRL. For disconnection blocks or DRL plug-in SPD blocks only.

- Low voltage protection level for the protection of terminal equipment
- Energy-coordinated with DRL plug-in SPD block
- For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher

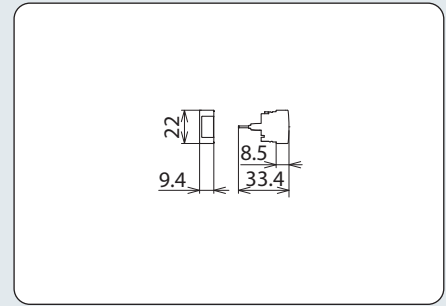
Type	DRL RE 5	DRL RE 12	DRL RE 24	DRL RE 48	DRL RE 60	DRL RE 180
Part No.	907 420	907 421	907 422	907 423	907 424	907 425
SPD class	TYPE 3P1	TYPE 3P1	TYPE 3P1	TYPE 3P1	TYPE 3P1	TYPE 3P1
Nominal voltage (U _N)	5 V	12 V	24 V	48 V	60 V	180 V
Max. continuous operating d.c. voltage (U _C)	6 V	14 V	28 V	54 V	70 V	180 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	9.5 V	19.5 V	38 V	49.5 V	127 V
Nominal current (I _N)	0.4 A	0.4 A	0.4 A	0.4 A	0.4 A	0.1 A
D1 Total lightning impulse current (10/350 μs) in combination with DRL 10 B... (I _{imp})	5 kA	5 kA	5 kA	5 kA	5 kA	5 kA
D1 Lightning impulse current (10/350 μs) per line in combination with DRL 10 B... (I _{imp})	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 μs) in combination with DRL 10 B... (I _n)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
C2 Nominal discharge current (8/20 μs) per line in combination with DRL 10 B... (I _n)	5 kA	5 kA	5 kA	5 kA	5 kA	5 kA
C1 Nominal discharge current (8/20 μs) per line without DRL 10 B... (I _n)	0.5 kA	0.5 kA	0.5 kA	0.25 kA	0.25 kA	0.5 kA
Voltage protection level line-PG for I _{imp} D1 in combination with DRL 10 B... (U _p)	≤ 40 V	≤ 45 V	≤ 65 V	≤ 95 V	≤ 115 V	≤ 280 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 17.0 V	≤ 36 V	≤ 72 V	≤ 135 V	≤ 185 V	≤ 500 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 9.5 V	≤ 19 V	≤ 38 V	≤ 70 V	≤ 95 V	≤ 270 V
Series resistance per line	4.7 ohms	4.7 ohms	4.7 ohms	6.8 ohms	6.8 ohms	4.7 ohms
Cut-off frequency line-PG (f _G)	0.95 MHz	2.7 MHz	4.5 MHz	7.35 MHz	10.5 MHz	42 MHz
Capacitance line-line (C)	≤ 3 nF	≤ 1 nF	≤ 0.55 pF	≤ 350 pF	≤ 250 pF	≤ 50 pF
Capacitance line-PG (C)	≤ 6 nF	≤ 2 nF	≤ 1.1 nF	≤ 700 pF	≤ 500 pF	≤ 80 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 20 (when plugged in)					
Plugs into	LSA disconnection block 2/10 or DRL 10 B ... plug-in SPD block					
Earthing via	earthing frame	earthing frame	earthing frame	earthing frame	earthing frame	earthing frame
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow	yellow	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	Vds, GOST	Vds, GOST	Vds, GOST	Vds, GOST	Vds, GOST	Vds, GOST

DRL RD

SPDs for LSA Technology



Basic circuit diagram DRL RD



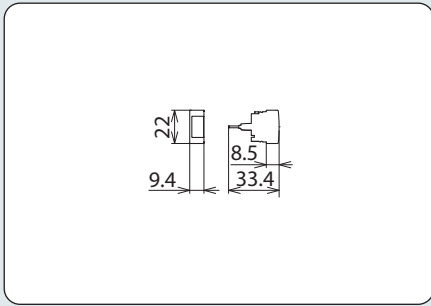
Dimension drawing DRL RD

- Low voltage protection level line/line for protecting terminal equipment
- Energy-coordinated with DRL plug-in SPD block
- For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher

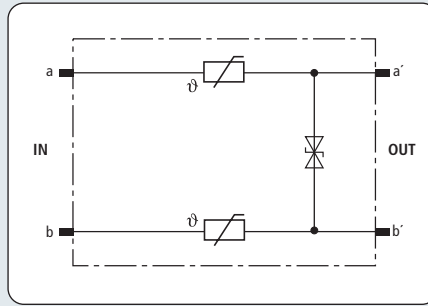
Protective plug (one pair), energy-coordinated with DRL plug-in SPD block, for use as single-stage protective device for terminal equipment. Low voltage protection level line-line for unearthed interfaces. To be mounted into EF 10 DRL. Installation recommended only in combination with DRL plug-in SPD block.

Type	DRL RD 5	DRL RD 12	DRL RD 24	DRL RD 48	DRL RD 60	DRL RD 110
Part No.	907 440	907 441	907 442	907 443	907 444	907 445
SPD class	⚡TYPE 3 P1	⚡TYPE 3 P1	⚡TYPE 3 P1	⚡TYPE 3 P1	⚡TYPE 3 P1	⚡TYPE 3 P1
Nominal voltage (U _N)	5 V	12 V	24 V	48 V	60 V	110 V
Max. continuous operating d.c. voltage (U _C)	6 V	14 V	28 V	54 V	70 V	180 V
Max. continuous operating a.c. voltage (U _C)	4.2 V	9.5 V	19.5 V	38 V	49.5 V	127 V
Nominal current (I _N)	0.4 A	0.4 A	0.4 A	0.4 A	0.4 A	0.4 A
D1 Total lightning impulse current (10/350 μs) in combination with DRL 10 B... (I _{imp})	5 kA	5 kA	5 kA	5 kA	5 kA	5 kA
D1 Lightning impulse current (10/350 μs) per line in combination with DRL 10 B... (I _{imp})	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 μs) in combination with DRL 10 B... (I _n)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
C2 Nominal discharge current (8/20 μs) per line in combination with DRL 10 B... (I _n)	5 kA	5 kA	5 kA	5 kA	5 kA	5 kA
C1 Nominal discharge current (8/20 μs) per line without DRL 10 B... (I _n)	0.5 kA	0.5 kA	0.5 kA	0.25 kA	0.25 kA	0.25 kA
Voltage protection level line-PG for I _{imp} D1 in combination with DRL 10 B... (U _p)	≤ 500 V	≤ 500 V	≤ 500 V	≤ 500 V	≤ 500 V	≤ 500 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 8.5 V	≤ 18 V	≤ 36 V	≤ 70 V	≤ 95 V	≤ 250 V
Series resistance per line	2.2 ohms	2.2 ohms	2.2 ohms	4.7 ohms	4.7 ohms	4.7 ohms
Cut-off frequency line-line (f _c)	1 MHz	2.7 MHz	5.4 MHz	7.8 MHz	11 MHz	20 MHz
Capacitance line-line (C)	≤ 5.5 nF	≤ 2.0 nF	≤ 1.1 nF	≤ 700 pF	≤ 500 pF	≤ 200 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 20 (when plugged in)					
Plugs into	LSA disconnection block 2/10 or DRL 10 B... plug-in SPD block					
Enclosure material	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow	yellow	yellow	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	VdS, GOST	VdS, GOST	VdS, GOST	VdS, GOST	VdS, GOST	GOST

SPDs for LSA Technology



Dimension drawing DRL PD



Basic circuit diagram DRL PD

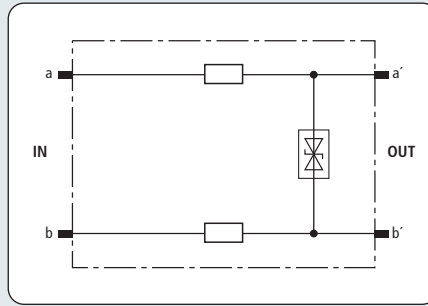


Protective plug (one pair), energy-coordinated with DRL plug-in SPD block, for use as single-stage protective device for terminal equipment. Low voltage protection level line-line and integrated overcurrent protection for ADSL, ISDN U_{k0} or a/b lines. To be mounted into EF 10 DRL. Installation recommended only in combination with DRL plug-in SPD block.

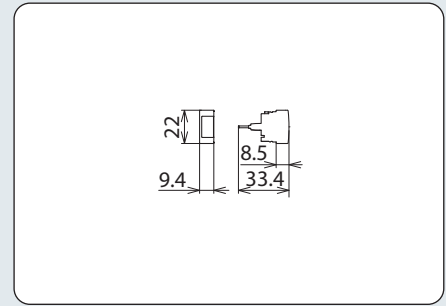
- For maximum transmission rates – combined with overcurrent protection
- Energy-coordinated with DRL plug-in SPD block
- For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher

Type	DRL PD 180
Part No.	907 430
SPD class	⚡ TYPE 3 P1
Nominal voltage (U_N)	180 V
Max. continuous operating d.c. voltage (U_C)	180 V
Max. continuous operating a.c. voltage (U_C)	127 V
Nominal current (I_N)	0.1 A
D1 Total lightning impulse current (10/350 μ s)	
in combination with DRL 10 B... (I_{imp})	5 kA
D1 Lightning impulse current (10/350 μ s) per line	
in combination with DRL 10 B... (I_{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μ s)	
in combination with DRL 10 B... (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line	
in combination with DRL 10 B... (I_n)	5 kA
C1 Nominal discharge current (8/20 μ s) per line	
without DRL 10 B... (I_n)	0.25 kA
Voltage protection level line-PG for I_{imp} D1	
in combination with DRL 10 B... (U_p)	≤ 500 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 270 V
Series resistance per line	10 ohms +/- 15%
Cut-off frequency line-line (f_C)	61 MHz
Capacitance line-line (C)	≤ 80 pF
Version	integrated overcurrent protection
Operating temperature range (T_U)	0 °C ... +70 °C
Degree of protection	IP 20 (when plugged in)
Plugs into	LSA disconnection block 2/10 or DRL 10 B... plug-in SPD block
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST, VdS

SPDs for LSA Technology



Basic circuit diagram DRL HD



Dimension drawing DRL HD

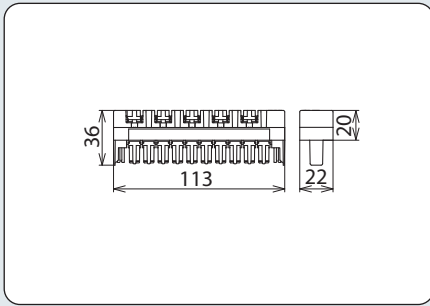
- For maximum transmission rates
- Energy-coordinated with DRL plug-in SPD block
- For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher

Protective plug (one pair), energy-coordinated with DRL plug-in SPD block, for use as single-stage protective device for terminal equipment for high-frequency transmissions such as G.703 or ISDN U_{2m} , S_{2m} and S_0 . To be mounted into EF 10 DRL. Installation recommended only in combination with DRL plug-in SPD block.

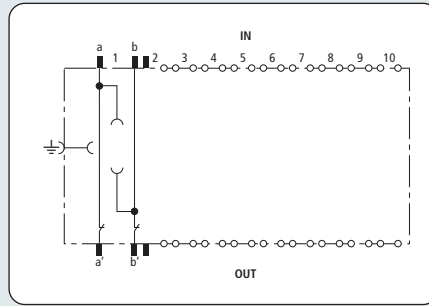
Type	DRL HD 5	DRL HD 24
Part No.	907 465	907 470
SPD class	⊕ TYPE 3 P1	⊕ TYPE 3 P1
Nominal voltage (U_N)	5 V	24 V
Max. continuous operating d.c. voltage (U_C)	6.5 V	28 V
Max. continuous operating a.c. voltage (U_C)	4.6 V	19.5 V
Nominal current (I_N)	0.4 A	0.4 A
D1 Total lightning impulse current (10/350 μ s)		
in combination with DRL 10 B... (I_{imp})	5 kA	5 kA
D1 Lightning impulse current (10/350 μ s) per line		
in combination with DRL 10 B... (I_{imp})	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 μ s)		
in combination with DRL 10 B... (I_n)	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) per line		
in combination with DRL 10 B... (I_n)	5 kA	5 kA
C1 Nominal discharge current (8/20 μ s) per line		
without DRL 10 B... (I_n)	0.5 kA	0.5 kA
Voltage protection level line-PG for I_{imp} D1		
in combination with DRL 10 B... (U_p)	≤ 500 V	≤ 500 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 25 V	≤ 46 V
Series resistance per line	2.2 ohms	4.7 ohms
Cut-off frequency line-line (f_c)	90 MHz	94 MHz
Capacitance line-line (C)	≤ 22 pF	≤ 22 pF
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 20 (when plugged in)	IP 20 (when plugged in)
Plugs into	LSA disconnection block 2/10 or DRL 10 B... plug-in SPD block	LSA disconnection block 2/10 or DRL 10 B... plug-in SPD block
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	GOST	VdS, GOST

SPDs for LSA Technology

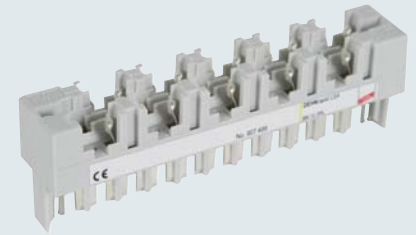
SPD Block (without SPD)



Dimension drawing BM 10 DRL



Basic circuit diagram BM 10 DRL



- Integrated disconnection contacts
- For LSA disconnection blocks of 2/10 type
- Can be individually equipped with arresters

Plug-in SPD block (without SPDs) for 1 to max. 10 three-pole GDT 230 B3 ... gas discharge tubes. Also suitable for DRL protective plugs with earthing frame.

Type	BM 10 DRL
Part No.	907 499
Plugs into	LSA disconnection blocks
Earthing via	mounting frame
Enclosure material	polyamide PA 6.6
Colour	grey

SPDs for LSA Technology

Gas Discharge Tube

High-capacity replacement gas discharge tube for DRL 10 or BM 10 DRL. Three-pole unit with common arcing chamber for a constant voltage protection level line-line and line-ground.



- Original replacement part for DRL 10
- Common arcing chamber of the poles for an optimised voltage protection level
- With fail-safe function and visual indicator

Type	GDT 230 B3 FSD
Part No.	907 401
Integrated into Part No.	907 401
Visual fault indicator	yes
Fail-safe spring	yes
Static sparkover voltage	230 V +/- 20%
D1 Total lightning impulse current (10/350 µs)	5 kA

Gas Discharge Tube

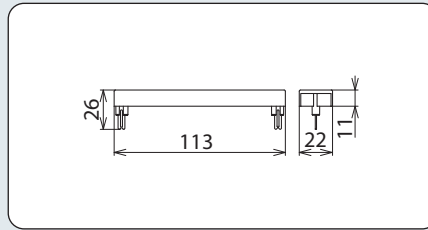
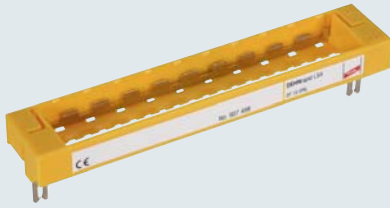
High-capacity replacement gas discharge tubes for DRL 10 or BM 10 DRL. Three-pole unit with common arcing chamber for a consistent voltage protection level line-line and line-ground.



- Original replacement part for DRL 10
- Common arcing chamber of the poles for an optimised voltage protection level

Type	GDT 230 B3
Part No.	907 218
Integrated into Part No.	907 400
Static sparkover voltage	230 V +/- 20%
D1 Total lightning impulse current (10/350 µs)	5 kA

Earthing Frame



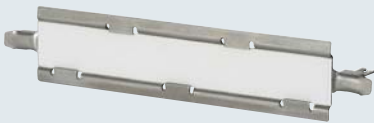
Dimension drawing EF 10 DRL

- Earthing of DRL protection modules
- Can be plugged into a DRL plug-in SPD block and LSA disconnection block of 2/10 type

Snap-on earthing frame for earthing and mounting max. 10 DRL protection modules. Plugs into a 10-pair disconnection block or DRL plug-in SPD block.

Type	EF 10 DRL
Part No.	907 498
Plugs into	LSA disconnection blocks or DRL SPD plug-in block
Earthing via	mounting frame or DRL SPD plug-in block
Enclosure material	polyamide PA 6.6
Colour	yellow

Label Holder



Universal label holder made of stainless steel for clear identification of LSA connections. Can be snapped onto DEHNrapid LSA plug-in SPD blocks, earthing frames with protective plugs or mounting frames with LSA SPD blocks of 2/10 type.

- Universal label holder for labelling surge protective devices or LSA blocks
- Break-proof support made of corrosion-resistant stainless steel
- Easily exchangeable label insert

Type	SR DRL
Part No.	907 497
Plugs into	DRL B, EF DRL, LSA terminal blocks 2/10 (profile, with earth connecting clip)
Enclosure material	stainless steel
Colour	bare surface

Earthing Module

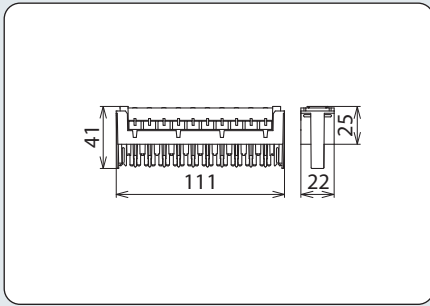
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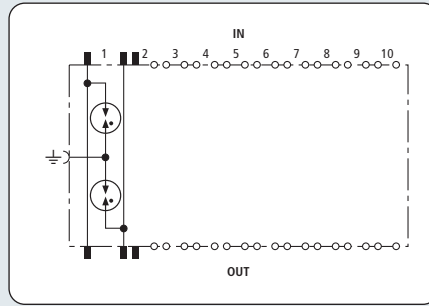
Plugged into the EF 10 DRL earthing frame, the earthing module connects a pair placed on an LSA disconnection block to the equipotential bonding. Its function is to directly earth unused cable cores that are placed on the LSA disconnection block. The earthing module must not be used in combination with the DRL 10 B... plug-in SPD block.

- To be plugged into an LSA disconnection block via the earthing frame
- Equipotential bonding of unused lines
- Fast replacement for retrofitting a DEHNrapid LSA module

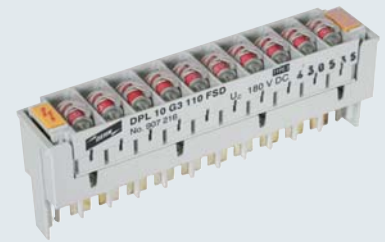
Type	EM 2 DRL
Part No.	907 496
D1 Total lightning impulse current (10/350 μs)	5 kA
Operating temperature range (T _U)	-40 °C ... +80 °C
Plugs into	TL2 10DA ...
Earthing via	EF 10 DRL
Material	zinc die-casting



Dimension drawing DPL 10 G3



Basic circuit diagram DPL 10 G3



- **Powerful SPD block**
- **Types with /without fail-safe function or visual indicator**
- **For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 1$ and higher**

SPD block for ten pairs with three-pole gas discharge tubes for almost all applications. FSD arresters feature a fail-safe function and additional visual indication after the fail-safe feature has been activated. Thus it can be immediately identified whether an arrester has to be replaced.

Type	DPL 10 G3 110	DPL 10 G3 110 FSD
Part No.	907 214	907 216
SPD class	TYPE 2	TYPE 2
Fault indicator	—	colour change
Nominal voltage (U_N)	110 V	110 V
Max. continuous operating d.c. voltage (U_c)	180 V	180 V
Max. continuous operating a.c. voltage (U_c)	127 V	127 V
Nominal current (I_n)	0.4 A	0.4 A
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA	5 kA
Overstressed fault mode	10 kA (8/20 μ s): open line EN 61643-21: mode 3	10 kA (8/20 μ s): open line EN 61643-21: mode 3
Impulse reset	no backup fuse under nominal conditions	no backup fuse under nominal conditions
Voltage protection level line-PG for I_{imp} 10/350 μ s D1 (U_p)	≤ 600 V	≤ 600 V
Voltage protection level line-line for I_n C2 (U_p)	≤ 600 V	≤ 600 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 600 V	≤ 600 V
Voltage protection level line-line for 1 kV/ μ s C3 (U_p)	≤ 600 V	≤ 600 V
Voltage protection level line-PG for 1 kV/ μ s (U_p)	≤ 600 V	≤ 600 V
Capacitance line-line (C)	≤ 5 pF	≤ 5 pF
Capacitance line-PG (C)	≤ 5 pF	≤ 5 pF
Fail-safe function	—	gas discharge tube with spring contacts
Operating temperature range (T_u)	-40 °C ... +80 °C	-40 °C ... +80 °C
Pluggable into	LSA disconnection and terminal blocks (type 2)	LSA disconnection and terminal blocks (type 2)
Earthing via	mounting frame	mounting frame
Enclosure material	polyamide	polyamide
Colour	grey	grey
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21

SPDs for LSA Technology

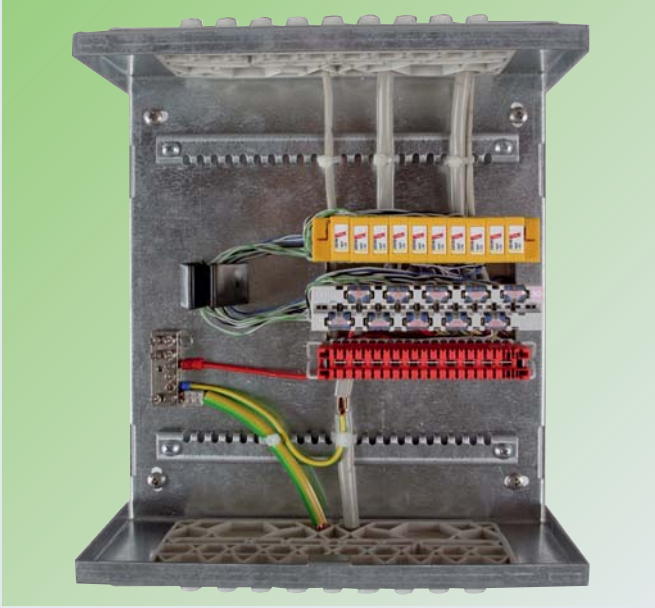
Accessory for DPL 10 G3

Gas Discharge Tube

High-capacity replacement gas discharge tubes for DPL 10 G3. Three-pole unit with common arcing chamber for a constant voltage protection level line-line and line-ground.

Type	GDT 230 G3	GDT 230 G3 FSD
Part No.	907 208	907 217
Integrated into Part No.	907 214	907 216
Visual fault indicator	—	yes
Fail-safe spring	—	yes





- Premounted enclosure system for wiring and protection components
- Tested lightning impulse current carrying capacity
- Optimised for equipotential bonding (surge arresters and shield connection)
- Lockable metal enclosure to prevent against unauthorised access

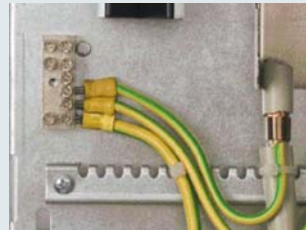
DEHN enclosures for equipotential bonding (DPG) are lockable metal enclosures for installation of wiring and protection components. Available in four different sizes, the lightning current carrying enclosures provide terminals that allow to integrate surge arresters and shields into the equipotential bonding system.

Lightning current carrying enclosure with IP 40 degree of protection for different distribution board designs and for the insertion of surge arresters. The cover can be removed from the wall plate without tools and features a lock with cylinder quarter turn and a key. The C-shaped design of the wall plate allows side and front access during installation work. LSA mounting frames or DIN rails can be mounted on the wall plate with cable entry plates and cable rails.

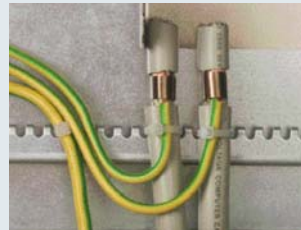
Despite a high packing density, structured cable management is ensured – crossing of cables with wires is avoided and the cables of e.g. the LSA blocks are clearly structured due to the 30 mm grid dimensions. For this kind of cabling, an optional shield connection system is available (constant force spring). The well-conceived earthing system permanently connects all conductive components of the enclosure system to the earthing block via mechanical contact or earthing conductors.



DEHN enclosures for equipotential bonding (DPG) come in different sizes, allowing the insertion of 3/6/12/22 LSA blocks. Even if 20/50/100/200 pairs are connected, enough space is provided for the earthing module for inserting the sheath wires.



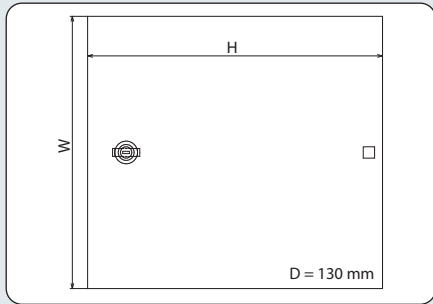
All equipotential bonding conductors are led together in the central earthing block.



The shields of incoming lines can be contacted with SA KRF constant force springs in a space-saving and lightning-current-carrying way.



The enclosure for equipotential bonding can be locked (key supplied with the enclosure).



- Lightning current carrying earthing system for arresters and shield connection
- Integrated mounting frame for LSA blocks with a grid dimension of 30 mm
- Extra space for uninterfered cable routing and surge arresters



DPG LSA is a completely premounted enclosure system with LSA mounting frame and allows optimised use of arresters and shield connection systems (constant force spring).

Type	DPG LSA 30 P	DPG LSA 60 P	DPG LSA 120 P	DPG LSA 220 P
Part No.	906 100	906 101	906 102	906 103
Carrying capacity of connection elements D1				
Total lightning impulse current (10/350 µs) (I _{imp})	15 kA	30 kA	50 kA	50 kA
LSA mounting frame for	1x 3 blocks 2/10	1x 6 blocks 2/10	2x 6 blocks 2/10	2x 11 blocks 2/10
Grid dimension of mounting frame	30 mm	30 mm	30 mm	30 mm
Wire guides	1 pc(s).	2 pc(s).	2 pc(s).	3 pc(s).
Cable entries	top / bottom	top / bottom	top / bottom	top / bottom
Cable rail	top / bottom	top / bottom	top / bottom	top / bottom
Lock	yes	yes	yes	yes
For mounting on	walls	walls	walls	walls
Degree of protection	IP 40	IP 40	IP 40	IP 40
Earthing via	earthing block	earthing block	earthing block	earthing block
Dimensions W x H x D	240 x 260 x 130 mm	240 x 350 x 130 mm	330 x 350 x 130 mm	330 x 500 x 130 mm
Enclosure material	sheet steel	sheet steel	sheet steel	sheet steel
Colour	RAL 9002	RAL 9002	RAL 9002	RAL 9002

SPDs for LSA Technology

Accessory for DEHN Enclosure for Equipotential Bonding

Self-bonding Rubber Tape

Roll with 9 m self-bonding rubber tape to be wrapped around constant force springs for permanent corrosion protection.

Type	SKB 19 9M SW
Part No.	919 030
Colour	black



Constant Force Spring

Constant force springs allow solderless shield connections for equipotential bonding or lightning equipotential bonding. They can be installed subsequently without interrupting the cable shield or requiring tools for installation. Approved for nuclear installations according to TÜV Certificate No. T12-04-ETL003 (TÜV = German Technical Inspectorate).

Type SA KRF ...	10 V2A	15 V2A	22 V2A	29 V2A	37 V2A
Part No.	919 031	919 032	919 033	919 034	919 035
Clamping range	4-10 mm	9-15 mm	14-22 mm	18.5-29 mm	23.5-37 mm
Material	StSt	StSt	StSt	StSt	StSt





- Proven insulation displacement method
- 45° angled blades in the disconnection block ensure a lower change in cross-section
- Enhanced stability of the conductor
- Enhanced corrosion resistance
- Further accessories available on request

The insulation displacement method is used for quickly connecting several lines at reasonable costs. This method is commonly used in the telecommunications sector (e.g. Deutsche Telekom AG).

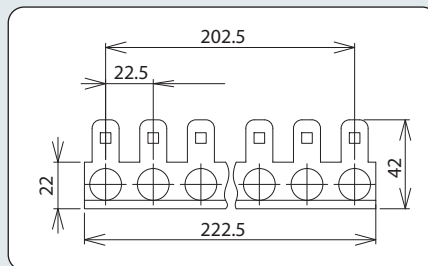
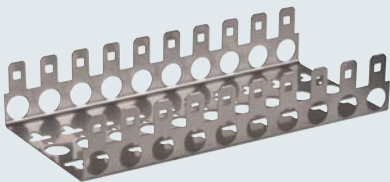
The blocks are suitable for connecting plastic-insulated wires with copper conductor material:

Conductor diameter: 0.4-0.8 mm

Outer diameter: 0.7-1.5 mm

After using wires with a conductor diameter of 0.65 mm, rewiring to smaller diameters is no longer possible.

Mounting Frame



Dimension drawing MB2 10 LSA

Mounting frame for 10 LSA blocks of 2/10 type, total width: 104.5 mm

Type	MB2 10 LSA
Part No.	907 995
Dimensions	223 x 105 x 42 mm

Insertion Tool



Insertion tool with sensor for LSA technology for connecting the wires and simultaneously cutting them to the required length. With fold-out extraction hook and blade.

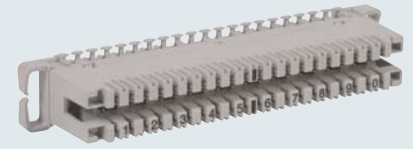
Type	AW2 LSA
Part No.	907 994
Colour	white

SPDs for LSA Technology

Terminal Block

Type 2 for LSA technology for inseparably connecting 10 pairs each on the cable and routing side. Accommodates DPL 10 G3 arresters. Parallel protective circuit only.

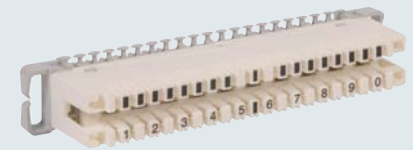
Type	AL2 10DA LSA
Part No.	907 997
Enclosure material	PBT
Test standards	DIN 47608-1, -2
Diameter of solid conductors	0.40-0.80 mm
Conductor diameter with insulation	0.70-1.50 mm
Contacting frequency for conductor diameters ≤ 0.65 mm	> 50 x
Contacting frequency for conductor diameters of 0.8 mm	≤ 50 x
Contact material	special brass
Contact surface	silver
Flame protection	UL 94 V-0
Insulation resistance	5x 10,000 Mohms
Volume resistance of IPC terminal	< 10 mohms
Electric strength	2 kV / 50 Hz



Disconnection Block

Type 2 for LSA technology for connecting 10 pairs each on the cable and routing side. Protection is provided between the disconnection contacts as soon as DRL components are plugged in. DPL 10 G3 arresters can also be plugged into the disconnection block.

Type	TL2 10DA LSA
Part No.	907 996
Enclosure material	PBT
Test standards	DIN 47608-1, -2
Approvals	compliance with DTAG TS 0272/96
Diameter of solid conductors	0.40-0.80 mm
Conductor diameter with insulation	0.70-1.50 mm
Contacting frequency for conductor diameters ≤ 0.65 mm	> 50 x
Contacting frequency for conductor diameters of 0.8 mm	≤ 50 x
Contact material	special brass
Contact surface	silver
Flame protection	UL 94 V-0
Insulation resistance	5x 10,000 Mohms
Volume resistance of IPC terminal	< 10 mohms
Electric strength	2 kV / 50 Hz

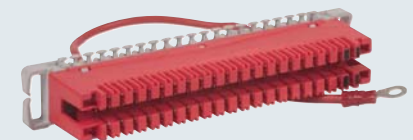


SPDs for LSA Technology

Earthing Plug

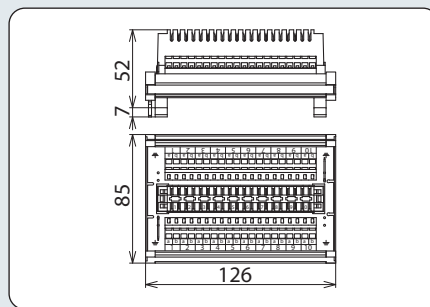
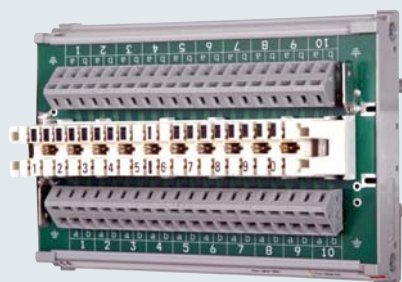
Type 2 for LSA technology for connecting 38 earth wires or shields.

Type	EL2 38EA LSA
Part No.	907 993
Colour	red



Routing Module for Disconnection Blocks with LSA spring-loaded Terminal

SPDs for LSA Technology



Dimension drawing


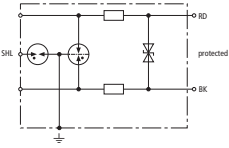

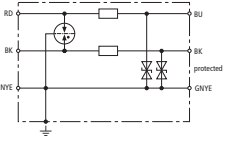
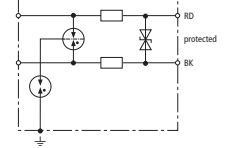

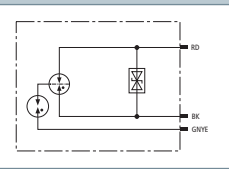

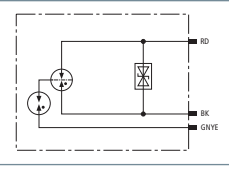

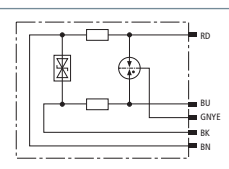

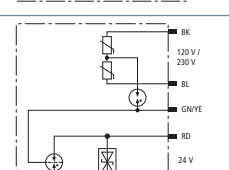

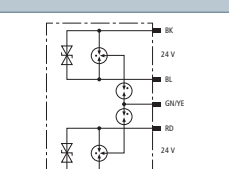

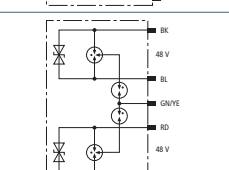
- Optional connection to LSA or spring-loaded terminals
- Routing of different wire diameters
- Adaption of DRL to DIN rail systems

DIN rail mounted routing module for disconnection blocks with LSA disconnection block of 2/10 type as well as spring-loaded terminals for variable wire connection. DPL and DEHNrapid LSA surge arresters can be plugged into the routing module.

Type	TL2 10DA CC
Part No.	907 991
Carrying capacity of connection components	
D1 Total lightning impulse current (10/350 μ s) (I_{imp})	5 kA
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	spring or LSA / spring or LSA
Cross-sectional area of spring terminal, solid	0.08-2.5 mm ²
Cross-sectional area of spring terminal, flexible	0.08-2.5 mm ²
Earthing via	DIN rail / flat connector 6.3 mm
Enclosure material	PA / PBT
Diameter of solid conductors	0.40-0.80 mm
Conductor diameter with insulation	0.70-1.60 mm
Volume resistance of IPC terminal	< 10 mohms

SPDs for LSA Technology

SPDs for Field Devices

Product	Basic circuit diagram	Type	Part No.	Page
DEHNpipe MD/ME				
		DPI MD - For one balanced interface - Direct or indirect shield earthing - Nominal voltage: 24 V - For series connection - With M20 x 1.5 thread (female/male)	929 941	309
		DPI ME - For one unbalanced interface - Nominal voltage: 24 V - For series connection - With 1/2-14 NPT thread (male/male)	929 921	310
DEHNpipe MD Ex (i)				
		DPI MD EX - For one balanced interface - Nominal voltage: 24 V - For series connection - With M20 x 1.5 thread	929 960	311
DEHNpipe CD Ex (i)				
		DPI CD EXI - For one balanced interface - Nominal voltage: 24 V - For parallel connection - With M20 x 1.5 or 1/2-14 NPT thread	929 961 929 963	312 312
DEHNpipe CD Ex (d)				
		DPI CD EXD 24 - For one balanced interface - Nominal voltage: 24 V - For parallel connection - With M20 x 1.5 or 1/2-14 NPT thread	929 962 929 964	313 313
		DPI CD HF EXD 5 - For one balanced interface - Nominal voltage: 5 V - For series connection - With M20 x 1.5 thread	929 971	314
		DPI CD EXD 230 24 - For one balanced interface and one 120/230 V power supply system - Nominal voltage: 24 V and 120/230 V - For parallel connection - With M20 x 1.5 or 1/2-14 NPT thread	929 969 929 970	315 315
DEHNpipe CD Ex (i) + Ex (d)				
		DPI CD EXI+D 2X24 - For two balanced interfaces - Nominal voltage: 24 V - For parallel connection - With M20 x 1.5 or 1/2-14 NPT thread	929 950 929 951	316 316
		DPI CD EXI+D 2X48 - For two balanced interfaces - Nominal voltage: 48 V - For parallel connection - With M20 x 1.5 or 1/2-14 NPT thread	929 952 929 953	317 317

SPDs for Field Devices

Surge Arrester

Screw-on SPDs for Field Devices



Surge arrester for outdoor use to be screwed onto two-wire field devices. Stainless steel, installation with cable gland up to IP 67.

- **Surge arresters to be screwed onto field devices**
 - Parallel or series connection
 - Made of corrosion-resistant stainless steel
 - Arrester for protecting a second interface (data or power side) available
- **Types for Ex (i) and Ex (d) application**
 - For protecting intrinsically safe measuring circuits and bus systems Ex (i)
 - Type in a flameproof enclosure Ex (d)
- **Variety of approvals**
 - Approvals depending on the arrester: IECEx, ATEX, FISCO, CSA Hazloc

The devices of the DEHNpipe family are made of corrosion-resistant stainless steel and can be directly screwed onto a field device. The permanently connected lines are connected to the terminals of the field device. Surge protective devices for series connection and parallel connection are available. Arresters for series connection are located directly in the cable run which ensures energy coordination with other arresters. These arresters can also be used for field devices with a single field device terminal or a single cable gland. Arresters for parallel connection are attached to the spare cable gland of the field devices or in the field bus distributor and are situated in parallel to the cable run. Due to their design, both versions have an IP 67 degree of protection.

Ex(i) und Ex(d) versions are available for field devices in potentially explosive atmospheres. Depending on the type, the arresters can thus be installed on field devices in intrinsically safe measuring circuits Ex(i) or on devices with flameproof enclosure and are suitable for use in Ex zone 1 or 2.

The surge arresters are ideally suited for installation in process environments, for example on transducers or field bus devices. 4-20 mA measuring circuits or bus systems up to 30 V are typical fields of application.



Types for series connection.



Robust type made of corrosion-resistant stainless steel.

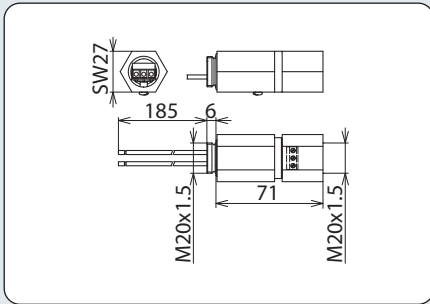


Metric and NPT thread.

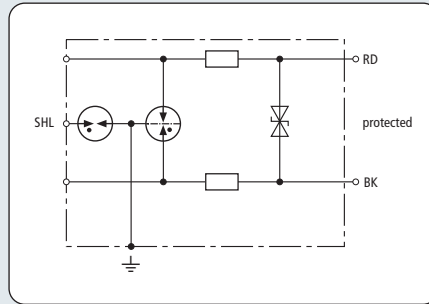


ATEX and IECEx approval.

SPDs for Field Devices



Dimension drawing DPI MD



Basic circuit diagram DPI MD

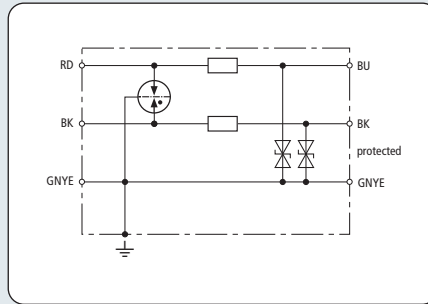


- Easy to mount due to two-part design
- Suitable for three shielding concepts
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

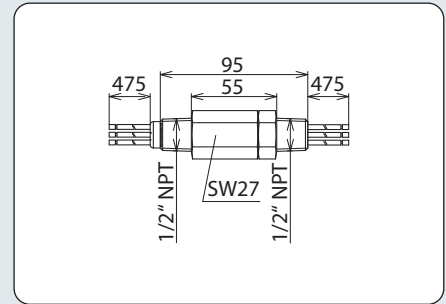
Energy-coordinated two-stage arrester, no leakage currents to earth, for 4-20 mA interfaces with M20 x 1.5 thread (female/male). Direct, indirect or no shield earthing. Cable gland available as accessory part.

Type	DPI MD 24 M 2S
Part No.	929 941
SPD class	TYPE 2 P1
Nominal voltage (U_N)	24 V
Max. continuous operating d.c. voltage (U_C)	34.8 V
Max. continuous operating a.c. voltage (U_C)	24.5 V
Nominal current (I_N)	0.5 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) shield-PG (I_n)	20 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 65 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 650 V
Voltage protection level shield-PG for I_n C2 (U_p)	≤ 650 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 50 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 500 V
Voltage protection level shield-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
Series resistance per line	2.2 ohms
Cut-off frequency line-line (f_C)	14 MHz
Capacitance line-line (C)	≤ 400 pF
Capacitance line-PG (C)	≤ 20 pF
Capacitance shield-PG (C)	≤ 15 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection with cable gland	IP 67
For mounting on (field / device side)	M20 x 1.5 female thread / M20 x 1.5 male thread
Connection (input / output)	screw / connecting lines (1.5 mm ²)
Length of the connecting line	200 mm
Cross-sectional area, solid	0.08-2.5 mm ²
Cross-sectional area, flexible	0.08-1.5 mm ²
Earthing via	enclosure or earthing ring (accessory)
Enclosure material	StSt (V2A)
Colour	bare surface
Test standards	IEC 61643-21 / EN 61643-21
SIL classification	up to SIL3 *)
Approvals	GOST

*) For more detailed information, please visit www.dehn-international.com.



Basic circuit diagram DPI ME



Dimension drawing DPI ME

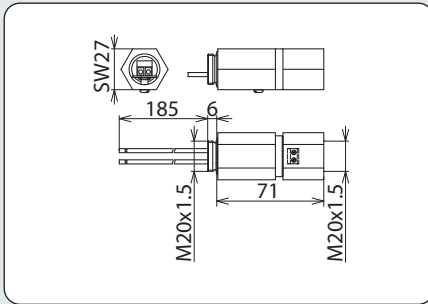
- Robust design
- Encapsulated protective circuit
- Types with single-ended cable connection available on request
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_B – 2 and higher

Energy-coordinated two-stage arrester with gas discharge tube and diodes to earth. For unbalanced interfaces with 1/2-14 NPT thread (male/male). The earthing conductor is led through the surge arrester.

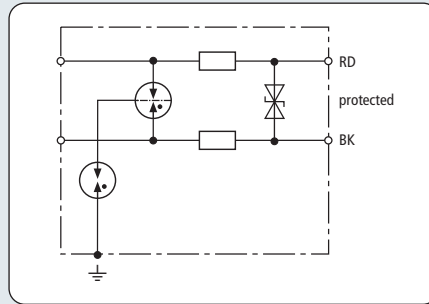
Type	DPI ME 24 N A2G
Part No.	929 921
SPD class	TYPE 2 P1
Nominal voltage (U _N)	24 V
Max. continuous operating d.c. voltage (U _C)	34.8 V
Max. continuous operating a.c. voltage (U _C)	24.5 V
Nominal current (I _N)	0.5 A
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	1 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	10 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	10 kA
Voltage protection level line-line for I _n C2 (U _P)	≤ 120 V
Voltage protection level line-PG for I _n C2 (U _P)	≤ 65 V
Voltage protection level line-line at 1 kV/μs C3 (U _P)	≤ 98 V
Voltage protection level line-PG at 1 kV/μs C3 (U _P)	≤ 49 V
Series resistance per line	4.7 ohms
Capacitance line-line (C)	≤ 250 pF
Capacitance line-PG (C)	≤ 450 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection	IP 67
For mounting on (field / device side)	1/2-14 NPT male thread / 1/2-14 NPT male thread
Connection (input / output)	connecting lines AWG 16
Length of the connecting line	500 mm
Earthing via	enclosure and connecting line
Enclosure material	StSt (V2A)
Colour	bare surface
Test standards	IEC 61643-21 / EN 61643-21
SIL classification	up to SIL3 *)
Approvals	UL, GOST

*) For more detailed information, please visit www.dehn-international.com.

SPDs for Field Devices



Dimension drawing DPI MD EX



Basic circuit diagram DPI MD EX



- Two-part design for easy installation
- Self-capacitance and self-inductance negligibly small
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

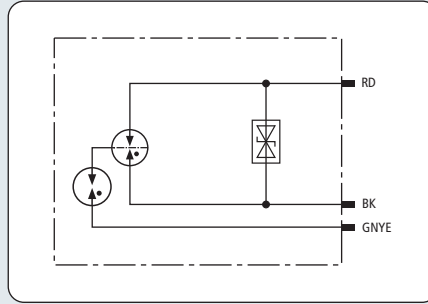
Energy-coordinated two-stage surge arrester with low-capacitance protective circuit for protecting intrinsically safe measuring circuits and bus systems, meets FISCO requirements. Insulation strength > 500 V to earth. Cable glands must be ordered separately.

Type	DPI MD EX 24 M 2
Part No.	929 960
SPD class	TYPE 2 P1
Nominal voltage (U_N)	24 V
Max. continuous operating d.c. voltage (U_C)	34.8 V
Max. continuous operating a.c. voltage (U_C)	24.5 V
Max. input voltage acc. to EN 60079-11 (U_i)	30 V
Max. input current acc. to EN 60079-11 (I_i)	0.5 A
Nominal current (I_L)	0.5 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 55 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 1100 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 49 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1000 V
Series resistance per line	1.8 ohms
Cut-off frequency line-line (f_c)	7 MHz
Capacitance line-line (C)	≤ 850 pF
Capacitance line-PG (C)	≤ 15 pF
Operating temperature range	-40 °C ... +80 °C
Degree of protection	IP 67
For mounting on (field / device side)	M20 x 1.5 female thread / M20 x 1.5 male thread
Connection (input / output)	screw / connecting lines (1.5 mm ²)
Length of the connecting line	200 mm
Cross-sectional area, solid	0.08-2.5 mm ²
Cross-sectional area, flexible	0.08-1.5 mm ²
Earthing via	enclosure
Enclosure material	StSt (V2A)
Colour	bare surface
Test standards	IEC 61643-21 / EN 61643-21
SIL classification	up to SIL3 *)
ATEX approvals	DEKRA 11ATEX0076 X: II 2 (1) G Ex ia [ia Ga] IIC T4 ... T6 Gb
IECEx approvals	DEK 11.0025X: Ex ia [ia Ga] IIC T4 ... T6 Gb
Approvals	GOST

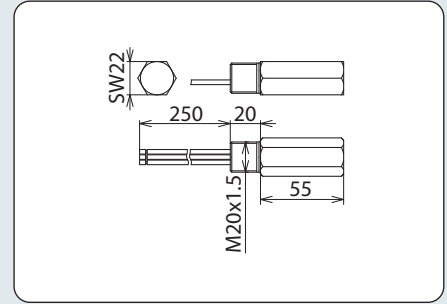
*) For more detailed information, please visit www.dehn-international.com.

DPI CD EXI

Screw-on SPDs for Field Devices



Basic circuit diagram DPI CD EXI



Dimension drawing DPI CD EXI

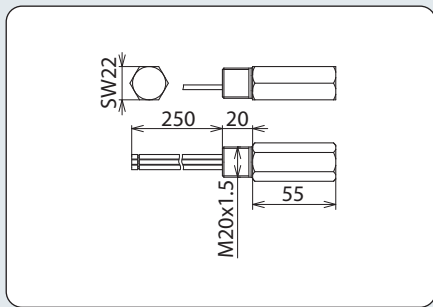
- Easy to mount on the spare cable gland of field devices
- Self-capacitance and self-inductance negligibly small
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

Surge arrester with a low-capacitance protective circuit for protecting intrinsically safe measuring circuits and bus systems, meets FISCO requirements. Insulation strength > 500 V to earth.

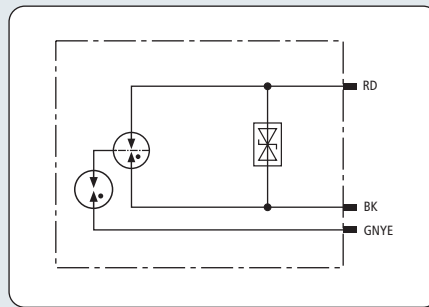
yp	DPI CD EXI 24 M	DPI CD EXI 24 N
Part No.	929 961	929 963
SPD class	TYPE 2 P1	TYPE 2 P1
Nominal voltage (U_N)	24 V	24 V
Max. continuous operating d.c. voltage (U_C)	32 V	32 V
Max. continuous operating a.c. voltage (U_C)	22.6 V	22.6 V
Max. input voltage acc. to EN 60079-11 (U_i)	30 V	30 V
Max. input current acc. to EN 60079-11 (I_i)	0.55 A	0.55 A
Nominal current (I_N)	0.55 A	0.55 A
D1 Lightning impulse current (10/350 μ s) line-PG (I_{imp})	1 kA	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) line-line (I_n)	150 A	150 A
C2 Nominal discharge current (8/20 μ s) line-PG (I_n)	10 kA	10 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 58 V	≤ 58 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 1700 V	≤ 1700 V
Voltage protection level line-line at 1 kV/ μ s C3 (I)	≤ 50 V	≤ 50 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1200 V	≤ 1200 V
Cut-off frequency line-line (f_C)	67 MHz	67 MHz
Capacitance line-line (C)	≤ 25 pF	≤ 25 pF
Capacitance line-PG (C)	≤ 15 pF	≤ 15 pF
Operating temperature range	-50 °C ... +80 °C	-50 °C ... +80 °C
Degree of protection	IP 67	IP 67
For mounting on (field / device side)	M20 x 1.5 male thread	$1/2$ -14 NPT male thread
Connection	connecting lines (1.3 mm ²)	connecting lines (1.3 mm ²)
Length of the connecting line	250 mm	250 mm
Earthing via	connecting line	connecting line
Enclosure material	StSt (V4A)	StSt (V4A)
Colour	bare surface	bare surface
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
SIL classification	up to SIL3 *)	up to SIL3 *)
ATEX approvals	KEMA 04ATEX1189 X: II 2 (1) G Ex ia [ia Ga] IIC T5 ... T6 Gb	KEMA 04ATEX1189 X: II 2 (1) G Ex ia [ia Ga] IIC T5 ... T6 Gb
IECEx approvals	KEM 09.0076X: Ex ia [ia Ga] IIC T5 ... T6 Gb	KEM 09.0076X: Ex ia [ia Ga] IIC T5 ... T6 Gb
CSA & USA Hazloc approvals (1)	CSA 13.70000407: Ex ia [ia] IIC T5	CSA 13.70000407: Ex ia [ia] IIC T5
CSA & USA Hazloc approvals (2)	CSA 13.70000407: Class I Div 1, 2; Class I Zone 1	CSA 13.70000407: Class I Div 1, 2; Class I Zone 1
Approvals	GOST	GOST

*) For more detailed information, please visit www.dehn-international.com.

SPDs for Field Devices



Dimension drawing DPI CD EXD



Basic circuit diagram DPI CD EXD



- Easy to mount on the spare cable gland of field devices
- Ex(d) type for universal use
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

Flameproof surge arrester with a low-capacitance protective circuit for protecting measuring circuits and bus systems in potentially explosive atmospheres. Insulation strength > 500 V to earth. Certified to CSA and USA Hazloc standards.

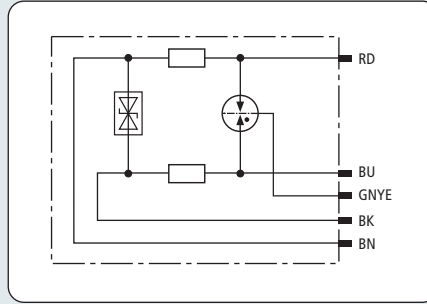
Type	DPI CD EXD 24 M	DPI CD EXD 24 N
Part No.	929 962	929 964
SPD class	TYPE 2 P1	TYPE 2 P1
Nominal voltage (U_N)	24 V	24 V
Max. continuous operating d.c. voltage (U_C)	32 V	32 V
Max. continuous operating a.c. voltage (U_C)	22.6 V	22.6 V
Nominal current (I_L)	0.55 A	0.55 A
D1 Lightning impulse current (10/350 μ s) line-PG (I_{imp})	1 kA	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA	10 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 58 V	≤ 58 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 1700 V	≤ 1700 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 50 V	≤ 50 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1200 V	≤ 1200 V
Cut-off frequency line-line (f_c)	67 MHz	67 MHz
Capacitance line-line (C)	≤ 25 pF	≤ 25 pF
Capacitance line-PG (C)	≤ 15 pF	≤ 15 pF
Operating temperature range (T_U)	-50 °C ... +80 °C	-50 °C ... +80 °C
Degree of protection	IP 67	IP 67
For mounting on (field / device side)	M20 x 1.5 male thread	1/2-14 NPT male thread
Connection	connecting lines (1.3 mm ²)	connecting lines (1.3 mm ²)
Length of the connecting line	250 mm	250 mm
Earthing via	connecting line	connecting line
Enclosure material	StSt (V4A)	StSt (V4A)
Colour	bare surface	bare surface
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
ATEX approvals	KEMA 04ATEX2190 X: II 2 G Ex d IIC T5 or T6 Gb	KEMA 04ATEX2190 X: II 2 G Ex d IIC T5 or T6 Gb
IECEx approvals	KEM 09.0064X: Ex d IIC T5 or T6 Gb	KEM 09.0064X: Ex d IIC T5 or T6 Gb
CSA & USA Hazloc approvals (1)	CSA 10.2317168: Ex d IIC T4 ... T6	CSA 10.2317168: Ex d IIC T4 ... T6
CSA & USA Hazloc approvals (2)	CSA 10.2317168: Class I Div 1, 2; Class I Zone 1	CSA 10.2317168: Class I Div 1, 2; Class I Zone 1
SIL classification	up to SIL3 *)	up to SIL3 *)
Approvals	GOST	GOST

*) For more detailed information, please visit www.dehn-international.com.

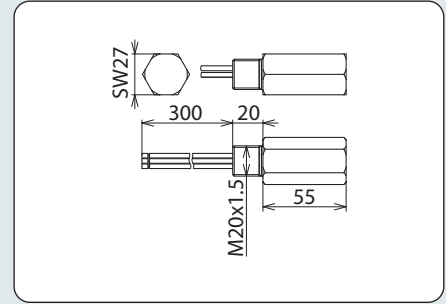
SPDs for Field Devices

DPI CD HF EXD

Screw-on SPDs for Field Devices



Basic circuit diagram DPI CD HF EXD



Dimension drawing DPI CD HF EXD

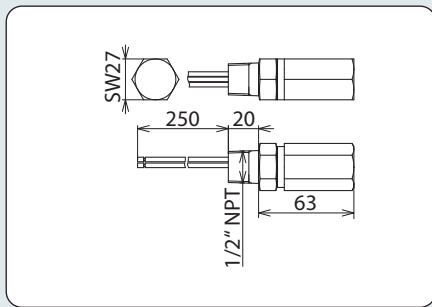
- Easy to mount on the spare cable gland of field devices
- Ex (d) version for a wide range of applications
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

Flameproof surge arrester with an energy-coordinated low-capacitance protective circuit for protecting measuring circuits and bus systems in potentially explosive atmospheres.

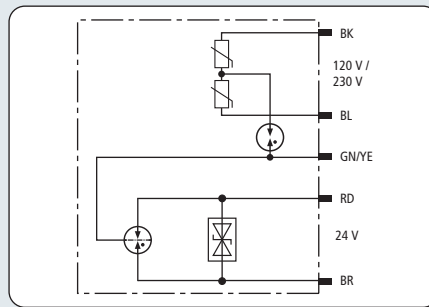
Type	DPI CD HF EXD 5 M
Part No.	929 971
SPD class	TYPE 2 P1
Nominal voltage (U_N)	5 V
Max. continuous operating d.c. voltage (U_C)	6 V
Max. continuous operating a.c. voltage (U_C)	4.2 V
Nominal current at 80 °C (I_N)	0.1 A
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	10 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 55 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 1000 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 12 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 700 V
Cut-off frequency line-line (f_c)	100 MHz
Capacitance line-line (C)	≤ 40 pF
Capacitance line-PG (C)	≤ 30 pF
Series resistance per line	4.7 ohms
Operating temperature range (T_U) for ATEX / IECEx	-50 °C ... +80 °C
Degree of protection	IP 67
For mounting on (field / device side)	M20 x 1.5 male thread
Connection	connecting lines (1.3 mm ²)
Length of the connecting line	300 mm
Earthing via	connecting line
Enclosure material	StSt (V4A)
Colour	bare surface
Test standards	IEC 61643-21 / EN 61643-21
ATEX approvals	KEMA 04ATEX2190 X: II 2 G Ex d IIC T5 or T6 Gb
IECEx approvals	KEM 09.0064X: Ex d IIC T5 or T6 Gb
Approvals	GOST, up to SIL3 *)

*) For more detailed information, please visit www.dehn-international.com.

SPDs for Field Devices



Dimension drawing DPI CD EXD 230 24



Basic circuit diagram DPI CD EXD 230 24



Flameproof surge arrester for the data and power side for protecting one 120 / 230 V power supply system and one 24 V data interface of field devices in potentially explosive areas (zones 1 and 2). Additional safety due to fault-proof Y circuit for 120 / 230 V power supply systems.

II 2 G Ex d IIC T5/T6 version universally applicable in hazardous zones 1 and 2. Certified to CSA and USA Hazloc standards.

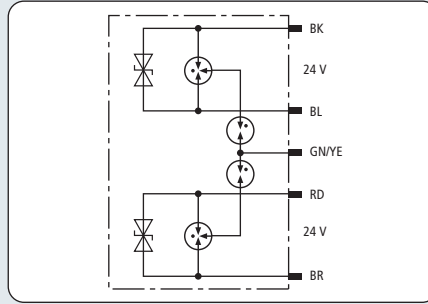
- Dual surge protection for one 120/230V power supply system and one data interface
- Easy to mount on field devices with a spare cable gland
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_B – 2 and higher

Type	DPI CD EXD 230 24 M	DPI CD EXD 230 24 N
Part No.	929 969	929 970
Protection of the data side:		
SPD class	TYPE 2P2	TYPE 2P2
Nominal voltage (U _N)	24 V	24 V
Max. continuous operating d.c. voltage (U _C)	32 V	32 V
Max. continuous operating a.c. voltage (U _C)	22.6 V	22.6 V
Nominal current at 80 °C (I _N)	0.55 A	0.55 A
D1 Lightning impulse current (10/350 μs) line-PG (I _{imp})	1 kA	1 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	10 kA	10 kA
C2 Nominal discharge current (8/20 μs) line-line (I _n)	0.15 kA	0.15 kA
Voltage protection level line-line for I _n C2 (U _p)	≤ 58 V	≤ 58 V
Voltage protection level line-PG for I _n C2 (U _p)	≤ 900 V	≤ 900 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 50 V	≤ 50 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 850 V	≤ 850 V
Capacitance line-line (C)	≤ 25 pF	≤ 25 pF
Capacitance line-PG (C)	≤ 15 pF	≤ 15 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 67	IP 67
For mounting on (field / device side)	M20 x 1.5 male thread	1/2-14 npt male thread
Connection	connecting lines (1.3 mm ²)	connecting lines (1.3 mm ²)
Length of the connecting line	250 mm	250 mm
Earthing via	connecting line	connecting line
Enclosure material	StSt (V4A)	StSt (V4A)
Colour	bare surface	bare surface
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
ATEX approvals	KEMA 10ATEX0114 X: II 2 G Ex d IIC T5/T6 Gb	KEMA 10ATEX0114 X: II 2 G Ex d IIC T5/T6 Gb
IECEx approvals	DEK 11.0006X: Ex d IIC T5 or T6 Gb	DEK 11.0006X: Ex d IIC T5 or T6 Gb
CSA & USA Hazloc approvals (1)	CSA 10.2317168: Ex d IIC T4 ... T6	CSA 10.2317168: Ex d IIC T4 ... T6
CSA & USA Hazloc approvals (2)	CSA 10.2317168: Class I Div 1, 2; Class I Zone 1	CSA 10.2317168: Class I Div 1, 2; Class I Zone 1
Approvals	GOST, up to SIL3 *)	GOST, up to SIL3 *)
Protection of the power side:		
SPD according to EN 61643-11	type 2	type 2
SPD according to IEC 61643-1	class II	class II
Nominal a.c. voltage (U _N)	120/230 V	120 / 230 V
Max. continuous operating a.c. voltage (U _C)	255 V	255 V
Nominal discharge current (8/20 μs) L-N (I _n)	3 kA	3 kA
Total discharge current (8/20 μs) L+N-PE (I _{total})	5 kA	5 kA
Voltage protection level L-N (U _p)	≤ 1.4 kV	≤ 1.4 kV
Voltage protection level L/N-PE (U _p)	≤ 1.5 kV	≤ 1.5 kV
Max. discharge current L-N (I _{max})	3 kA	3 kA
Max. mains-side overcurrent protection	16 A gL/gG or B 16 A	16 A gL/gG or B 16 A
Short-circuit withstand capability for mains-side overcurrent protection with 16 A gL/gG	6 kA _{rms}	6 kA _{rms}
Temporary overvoltage (TOV) L-N (U _T)	335 V / 5 sec.	335 V / 5 sec.
Temporary overvoltage (TOV) L/N-PE (1) (U _T)	400 V / 5 sec.	400 V / 5 sec.
Temporary overvoltage (TOV) L/N-PE (2) (U _T)	1200 V+U _{CS} / 200 ms	1200 V+U _{CS} / 200 ms
Indication of the disconnecter	upstream fuse	upstream fuse

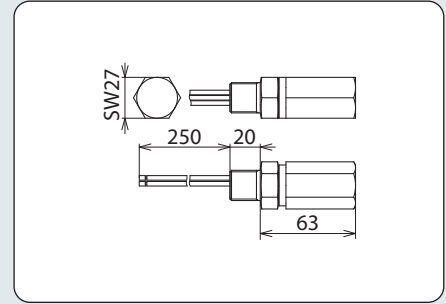
*) For more detailed information, please visit www.dehn-international.com.

DPI CD EXI+D 2X24

Screw-on SPDs for Field Devices



Basic circuit diagram DPI CD EXI+D



Dimension drawing DPI CD EXI+D

- Easy to mount on the spare cable gland of field devices
- Flexible use in Ex(i) and Ex(d) circuits
- Installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

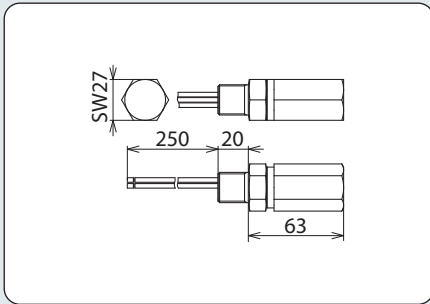
Flameproof surge arrester for protecting two 24 V interfaces in potentially explosive atmospheres.

Type	DPI CD EXI+D 2X24 M	DPI CD EXI+D 2X24 N
Part No.	929 950	929 951
SPD class	TYPE 2 P1	TYPE 2 P1
Nominal voltage (U_N)	24 V	24 V
Max. continuous operating d.c. voltage (U_C)	36 V	36 V
Max. continuous operating a.c. voltage (U_C)	25.4 V	25.4 V
Nominal current (I_N)	0.55 A	0.55 A
D1 Lightning impulse current (10/350 μ s) line-PG (I_{imp})	1.5 kA	1.5 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA	20 kA
C2 Nominal discharge current (8/20 μ s) line-PG (I_n)	10 kA	10 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 65 V	≤ 65 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 2000 V	≤ 2000 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 50 V	≤ 50 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 1200 V	≤ 1200 V
Capacitance line-line (C)	≤ 2 nF	≤ 2 nF
Capacitance line-PG (C)	≤ 15 pF	≤ 15 pF
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 67	IP 67
Mounting (field / device side)	M20 x 1.5 male thread	$1/2$ -14 NPT male thread
Connection	connecting lines (1.3 mm ²)	connecting lines (1.3 mm ²)
Length of the connecting line	250 mm	250 mm
Earthing via	connecting line	connecting line
Enclosure material	StSt (V4A)	StSt (V4A)
Colour	bare surface	bare surface
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
SIL classification	up to SIL3 *)	up to SIL3 *)
ATEX approvals (1)	DEKRA 11ATEX0207 X: II 2 (1) G Ex ia [ia Ga] IIC T5 / T6 Gb	DEKRA 11ATEX0207 X: II 2 (1) G Ex ia [ia Ga] IIC T5 / T6 Gb
ATEX approvals (2)	DEKRA 11ATEX0217 X: II 2 G Ex d IIC T5 / T6 Gb	DEKRA 11ATEX0217 X: II 2 G Ex d IIC T5 / T6 Gb
IECEX approvals (1)	DEK 11.0076X: Ex ia [ia Ga] IIC T5 / T6 Gb	DEK 11.0076X: Ex ia [ia Ga] IIC T5 / T6 Gb
IECEX approvals (2)	DEK 11.0079X: Ex d IIC T5 / T6 Gb	DEK 11.0079X: Ex d IIC T5 / T6 Gb
CSA & USA Hazloc approvals (1)	CSA 13.70000407: Ex ia [ia] IIC T5	CSA 13.70000407: Ex ia [ia] IIC T5
CSA & USA Hazloc approvals (2)	CSA 13.70000407: Class I Div 1, 2; Class I Zone 1	CSA 13.70000407: Class I Div 1, 2; Class I Zone 1
Approvals	GOST	GOST

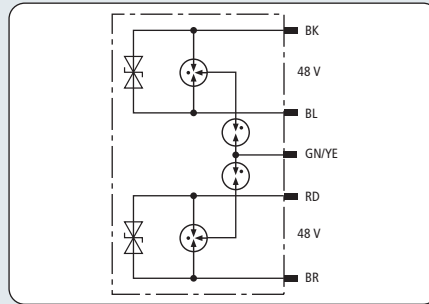
*) For more detailed information, please visit www.dehn-international.com.

SPDs for Field Devices





Dimension drawing DPI CD EXI+D



Basic circuit diagram DPI CD EXI+D



- Easy to mount on the spare cable gland of field devices
- Flexible use in Ex(i) and Ex(d) circuits
- Installation in conformity with the lightning protection zone concept at the boundaries from 0_B – 2 and higher

Flameproof surge arrester for protecting two 48 V interfaces in potentially explosive atmospheres.

Type	DPI CD EXI+D 2X48 M	DPI CD EXI+D 2X48 N
Part No.	929 952	929 953
SPD class	TYPE 2 P1	TYPE 2 P1
Nominal voltage (U _N)	48 V	48 V
Max. continuous operating d.c. voltage (U _C)	58 V	58 V
Max. continuous operating a.c. voltage (U _C)	41 V	41 V
Nominal current (I _N)	0.55 A	0.55 A
D1 Lightning impulse current (10/350 μs) line-PG (I _{imp})	1.5 kA	1.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA	20 kA
C2 Nominal discharge current (8/20 μs) line-PG (I _n)	10 kA	10 kA
Voltage protection level line-line for I _n C2 (U _p)	≤ 95 V	≤ 95 V
Voltage protection level line-PG for I _n C2 (U _p)	≤ 2000 V	≤ 2000 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 80 V	≤ 80 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 1200 V	≤ 1200 V
Capacitance line-line (C)	≤ 1.2 nF	≤ 1.2 nF
Capacitance line-PG (C)	≤ 15 pF	≤ 15 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 67	IP 67
Mounting (field / device side)	M20 x 1.5 male thread	1/2-14 NPT male thread
Connection	connecting lines (1.3 mm ²)	connecting lines (1.3 mm ²)
Length of the connecting line	250 mm	250 mm
Earthing via	connecting line	connecting line
Enclosure material	StSt (V4A)	StSt (V4A)
Colour	bare surface	bare surface
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
SIL classification	up to SIL3 *)	up to SIL3 *)
ATEX approvals (1)	DEKRA 11ATEX0207 X: II 2 (1) G Ex ia [ia Ga] IIC T5 / T6 Gb	DEKRA 11ATEX0207 X: II 2 (1) G Ex ia [ia Ga] IIC T5 / T6 Gb
ATEX approvals (2)	DEKRA 11ATEX0217 X: II 2 G Ex d IIC T5 / T6 Gb	DEKRA 11ATEX0217 X: II 2 G Ex d IIC T5 / T6 Gb
IECEx approvals (1)	DEK 11.0076X: Ex ia [ia Ga] IIC T5 / T6 Gb	DEK 11.0076X: Ex ia [ia Ga] IIC T5 / T6 Gb
IECEx approvals (2)	DEK 11.0079X: Ex d IIC T5 or T6 Gb	DEK 11.0079X: Ex d IIC T5 / T6 Gb
CSA & USA Hazloc approvals (1)	CSA 13.70000407: Ex ia [ia] IIC T5	CSA 13.70000407: Ex ia [ia] IIC T5
CSA & USA Hazloc approvals (2)	CSA 13.70000407: Class I Div 1, 2; Class I Zone 1	CSA 13.70000407: Class I Div 1, 2; Class I Zone 1
Approvals	GOST	GOST

*) For more detailed information, please visit www.dehn-international.com.

EMC Cable Gland



- For direct shield earthing
- Tested with DEHNpipe

Brass gland with shield connection

Type	KV S M20 MS 9.5
Part No.	929 982
Sealing range (Rd)	6.5-9.5 mm
Shield diameter	3.2-6.5 mm
For mounting on	M20 x 1.5
Degree of protection	IP 68
Material	nickel-plated brass

Cable Gland



- No direct shield connection
- Tested with DEHNpipe

Brass gland without shield connection

Type	KV M20 MS 10.5
Part No.	929 984
Sealing range (Rd)	7.0-10.5 mm
For mounting on	M20 x 1.5
Degree of protection	IP 68
Material	nickel-plated brass






Brass Earthing Ring



- Recommended for mounting DEHNpipe arresters in insulating enclosures

Earthing ring made of nickel-plated brass for externally earthing DEHNpipe arresters

Type	ER DPI M20
Part No.	929 996
For mounting on	DPI M20 x 1.5
Material	nickel-plated brass

Part No.	Type	ATEX 	IECEX 	CSA-Hazloc 	SIL (up to SIL3)	UL 	GOST 
929 941	DPI MD 24 M 25				●		●
929 921	DPI ME 24 N A2G				●	●	●
929 960	DPI MD EX 24 M 2	●(1)	●(2)		●		●
929 961	DPI CD EXI 24 M	●(3)	●(4)	●(12)	●		●
929 963	DPI CD EXI 24 N	●(3)	●(4)	●(12)	●		●
929 962	DPI CD EXD 24 M	●(5)	●(6)	●(11)	●		●
929 964	DPI CD EXD 24 N	●(5)	●(6)	●(11)	●		●
929 971	DPI CD HF EXD 5 M	●(5)	●(6)		●		●
929 969	DPI CD EXD 230 24 M	●(7)	●(8)	●(11)	●		●
929 970	DPI CD EXD 230 24 N	●(7)	●(8)	●(11)	●		●
929 950	DPI CD EXI+D 2x24 M	●(9)	●(10)	●(12)	●		●
929 951	DPI CD EXI+D 2x24 N	●(9)	●(10)	●(12)	●		●
929 952	DPI CD EXI+D 2x48 M	●(9)	●(10)	●(12)	●		●
929 953	DPI CD EXI+D 2x48 N	●(9)	●(10)	●(12)	●		●

(1)	DEKRA 11ATEX0076 X: II 2(1)G Ex ia [ia Ga] IIC T4 ... T6 Gb	(10)	IECEX DEK 11.0076X: Ex ia [ia Ga] IIC T5/T6 Gb IECEX DEK 11.0079X: Ex d IIC T5/T6 Gb
(2)	DEK 11.0025X: Ex ia [ia Ga] IIC T4 ... T6 Gb	(11)	CSA 10.2317168: Ex d IIC T4 ... T6 CSA 10.2317168: Class I Div 1, 2; Group A,B,C,D T4 ... T6 CSA 10.2317168: Class II Div 1, 2; Group E,F,G CSA 10.2317168: Class III Div 1, 2 CSA 10.2317168: Class I, AEx d IIC T4 ... T6
(3)	KEMA 04ATEX1189 X: II 2(1)G Ex ia IIC T5 ... T6 Gb		
(4)	KEM 09.0076X: Ex ia [ia Ga] IIC T5 ... T6 Gb	(12)	CSA 13.70000407: Class I, Zone 1, AEx ia [ia] IIC T5 ... T6 CSA 13.70000407: Class I, Zone 1, AEx nA IIC T5 ... T6 CSA 13.70000407: IS, Class I, Div 1, Group A,B,C,D,E,F,G T5 ... T6 CSA 13.70000407: Class I,II,III; Div 2, Group A,B,C,D,E,F,G T5 ... T6 CSA 13.70000407: Ex ia [ia] IIC T5
(5)	KEMA 04ATEX2190 X:II 2G Ex d IIC T5 or T6 Gb		
(6)	KEM 09.0064X: Ex d IIC T5 or T6 Gb		
(7)	KEMA 10ATEX0114 X:II 2G Ex d IIC T5 or T6 Gb		
(8)	DEK 11.0006X: Ex d IIC T5 or T6 Gb		
(9)	DEKRA 11ATEX0207 X: II 2(1)G Ex ia [ia Ga] IIC T5/T6 Gb DEKRA 11ATEX0217 X: II 2G Ex d IIC T5/T6 Gb		

For more detailed information on approvals and SIL, please visit www.dehn-international.com.

SPDs for
Field Devices

SPDs for Telecommunication and Data Networks

- Patch cable with built-in surge protection
- Cat. 6 according to ISO/IEC 11801
- CAT 6A in the channel according to ANSI/TIA/EIA-568
- Power over Ethernet (PoE+ according to IEEE 802.3at)
- Easy to retrofit



DEHNpatch is the first Cat. 6A certified patch cable with built-in surge protection that can be used according to IEEE 802.3at up to 57 V.

Designed as a patch cable, DEHNpatch can be easily installed in new installations or retrofitted into existing installations. DEHNpatch is installed between the patch panel and the active component (a switch for example) instead of the conventional patch cable. The snap-in mechanism of the supporting foot allows the device to be safely earthed via the DIN rail. For single application, DEHNpatch comes with a piece of DIN rail and a fixing device. A mounting set is also available as accessory for multiple application in 19" distribution boards. Fulfilling the requirements of Category 6, DEHNpatch can be universally used for all data services up to nominal voltages of 57 V. Both existing

applications in offices and industry such as Gigabit Ethernet, ATM or ISDN as well as future services such as Voice over IP and Power over Ethernet can be protected. Due to its fully shielded design, DEHNpatch can be used in shielded and unshielded networks. Its width is similar to that of an RJ45 socket, allowing up to 24 devices to be installed in one series and to be integrated into a 19" rack. DEHNpatch is available with a total patch cable length of 3 m and 5 m (other lengths can be provided available on request).



With RJ45 sockets, fully shielded.



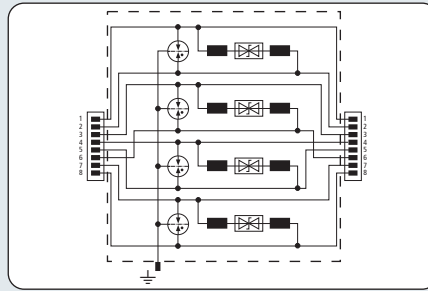
For DIN rail and wall mounting.



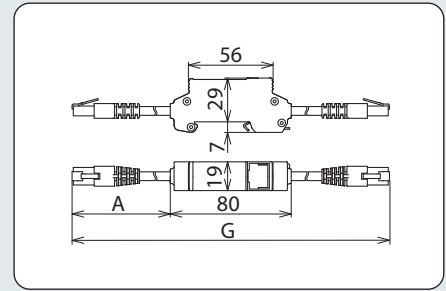
Patch cable version, fully shielded.



Mounting set (DIN rail, distance bolts) for 19" mounting sections available as accessory.



Basic circuit diagram DPA M CAT6 RJ45



Dimension drawing DPA M CAT6 RJ45

- Ideally suited for retrofitting, protection of all lines
- CAT 6A in the channel according to ANSI/TIA/EIA-568
- Power over Ethernet (PoE+ according to IEEE 802.3at)
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

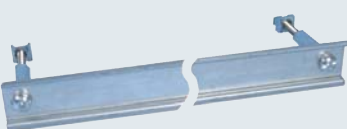
Universal arrester for Industrial Ethernet, Power over Ethernet (PoE+ according to IEEE 802.3at up to 57 V) and similar applications in structured cabling systems according to Cat. 6 and class E_A up to 500 MHz. Fully shielded type with patch cable for DIN rail mounting (up to 10 Gbit Ethernet).

Accessories: Earthing bracket with flat connector sleeve

Type	DPA M CAT6 RJ45S 48
Part No.	929 100
SPD class	TYPE 2 P1
Nominal voltage (U_N)	48 V
Max. continuous operating d.c. voltage (U_C)	48 V
Max. continuous operating a.c. voltage (U_C)	34 V
Max. continuous operating d.c. voltage pair-pair (PoE) (U_C)	57 V
Nominal current (I_N)	1 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Nominal discharge current (8/20 μ s) line-line (I_n)	150 A
C2 Nominal discharge current (8/20 μ s) line-PG (I_n)	2.5 kA
C2 Total nominal discharge current (8/20 μ s) line-PG (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) pair-pair (PoE) (I_n)	150 A
Voltage protection level line-line for I_n C2 (U_P)	≤ 190 V
Voltage protection level line-PG for I_n C2 (U_P)	≤ 600 V
Voltage protection level pair-pair for I_n C2 (PoE) (U_P)	≤ 600 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_P)	≤ 145 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_P)	≤ 500 V
Voltage protection level pair-pair at 1 kV/ μ s C3 (PoE) (U_P)	≤ 600 V
Insertion loss at 250 MHz	≤ 2 dB
Capacitance line-line (C)	≤ 165 pF
Capacitance line-PG (C)	≤ 255 pF
Operating temperature range (T_U)	-20 °C ... +60 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	RJ45 connecting line / RJ45 connecting line
Pinning	1/2, 3/6, 4/5, 7/8
Connecting line	A = approx. 0.5 m, G = approx. 3 m *)
Connector	Stewart 39 series
Earthing via	35 mm DIN rail acc. to EN 60715
Enclosure material	zinc die-casting
Colour	bare surface
Test standards	IEC 61643-21 / EN 61643-21
Transmission class according to ISO/IEC 11801	Cat. 6
Transmission class according to EN 50173-1	Class E_A
Transmission class according to ANSI/TIA/EIA-568	cat. 6A in the channel
Approvals	GHMT, GOST
Accessories	fixing material

*) Special lengths on request

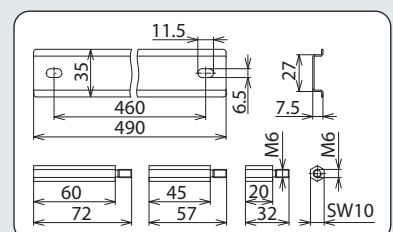
Accessory for DEHNpatch

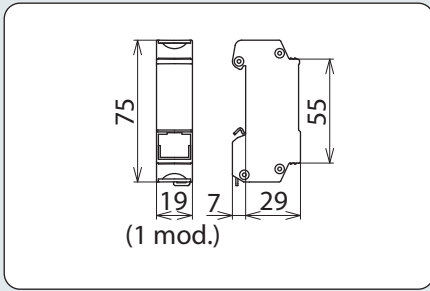


Mounting Set for DEHNpatch

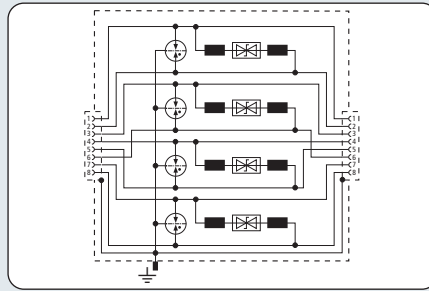
The set comprises a DIN rail for up to 24 DEHNpatch devices and different distance bolts with sliding nuts for installation into data distributors. To save space, the DIN rail can be mounted at the distributor panel or even upstream of the mounting sections in a 19" grid dimension.

Type	MS DPA
Part No.	929 199
Mounting in	19" cabinets





Dimension drawing DPA CLE



Basic circuit diagram DPA CLE



- Ideally suited for retrofitting, protection of all lines
- Cat. 6 in the channel (class E)
- Power over Ethernet (PoE+ according to IEEE 802.3at)
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

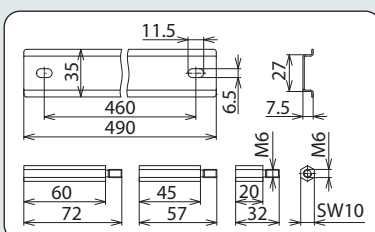
Universal arrester for Industrial Ethernet, Power over Ethernet (PoE+ acc. to IEEE 802.3at up to 57 V) and similar applications in structured cabling systems according to class E up to 250 MHz. Protection of all pairs by means of powerful gas discharge tubes and one adapted filter matrix per pair. Fully shielded type with sockets for DIN rail mounting (up to 1 Gbit Ethernet).

Accessories: Earthing bracket with flat connector sleeve

Type	DPA M CLE RJ45B 48
Part No.	929 121
SPD class	TYPE 2P1
Nominal voltage (U_N)	48 V
Max. continuous operating d.c. voltage (U_c)	48 V
Max. continuous operating a.c. voltage (U_c)	34 V
Max. continuous operating d.c. voltage pair-pair (PoE) (U_c)	57 V
Nominal current (I_N)	1 A
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	0.5 kA
C2 Nominal discharge current (8/20 μ s) line-line (I_n)	150 A
C2 Nominal discharge current (8/20 μ s) line-PG (I_n)	2.5 kA
C2 Total nominal discharge current (8/20 μ s) line-PG (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) pair-pair (PoE) (I_n)	150 A
Voltage protection level pair-pair for I_n C2 (U_p)	≤ 180 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 500 V
Voltage protection level line-line for I_n C2 (PoE) (U_p)	≤ 600 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 180 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 500 V
Voltage protection level pair-pair at 1 kV/ μ s C3 (PoE) (U_p)	≤ 600 V
Insertion loss at 250 MHz	≤ 3 dB
Capacitance line-line (C)	≤ 30 pF
Capacitance line-PG (C)	≤ 25 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 10
For mounting on	35 mm DIN rails acc. to EN 60715
Connection (input / output)	RJ45 socket / RJ45 socket
Pinning	1/2, 3/6, 4/5, 7/8
Earthing via	35 mm DIN rail acc. to EN 60715
Enclosure material	zinc die-casting
Colour	bare surface
Test standards	IEC 61643-21 / EN 61643-21
Approvals	CSA, UL, GOST
Accessories	fixing material

Tel. Data Networks RJ45

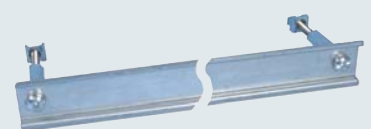
Accessory for DEHNpatch



Mounting Set for DEHNpatch

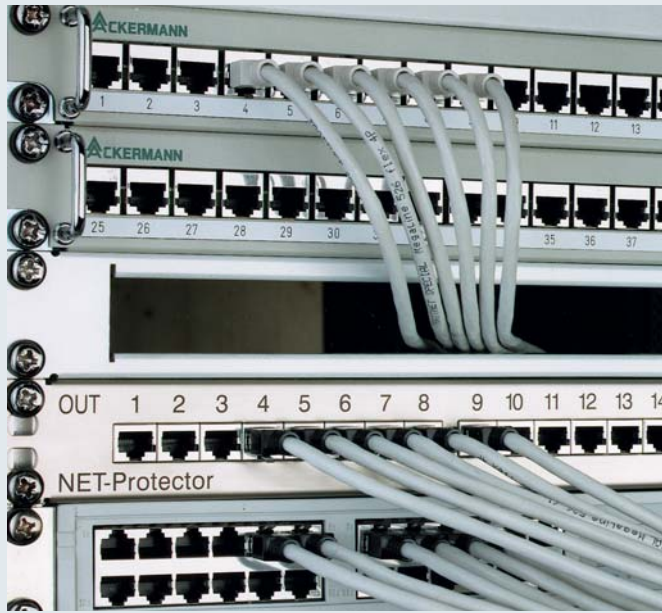
The set comprises a DIN rail for up to 24 DEHNpatch devices and different distance bolts with sliding nuts for installation into data distributors. To save space, the DIN rail can be mounted at the distributor panel or even upstream of the mounting sections in a 19" grid dimension.

Type	MS DPA
Part No.	929 199
Mounting in	19" cabinets



Surge arrester

SPDs for Telecommunication and Data Networks

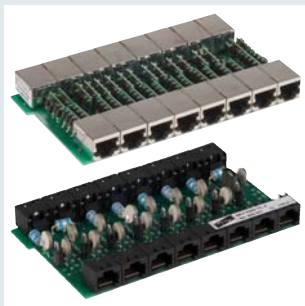


The 482.6 mm (19 inch) enclosure can be equipped with surge protection components for protecting network components (class D) or telecommunication systems.

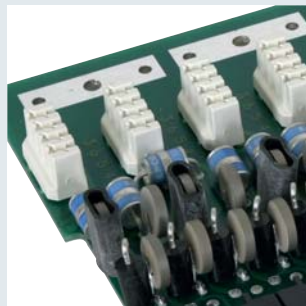
The 482.6 mm (19 inch) enclosure can be equipped with up to three surge protection components to protect active network components such as hubs, switches (class D) or telecommunication systems. NET Protector is typically used for Ethernet, Token Ring, E1 and telephone systems.

- Protects switches, hubs and telecommunication systems against overvoltage
- Allows for class D according to EN 50173 (Gigabit Ethernet)
- Patch panels can be flexibly equipped
- Retrofit versions with plug-in inputs and outputs

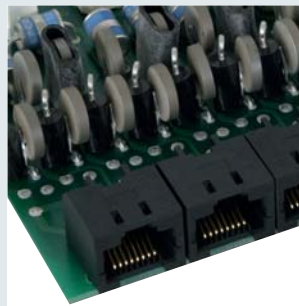
It only requires the space of one vertical module and is generally installed in terminal boards. It is inserted as a patch panel with surge protection or as a retrofit version for patching between the patch panel and the device to be protected.



Surge protection components for protecting 8 channels.



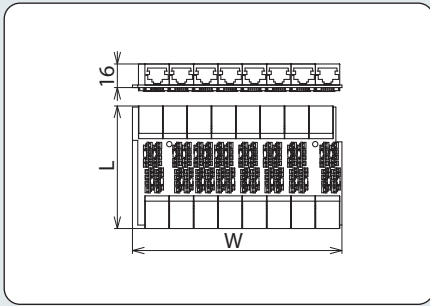
Version with LSA connection for use as patch field version for installation in new installations.



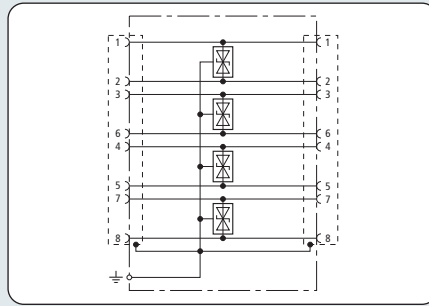
Retrofit version with RJ45 connection for existing installations.



Version with RJ45 sockets shielded on both ends.



Dimension drawing NET PRO 4TP



Basic circuit diagram NET PRO 4TP



Surge protection component fitted with eight shielded ports for universal cabling systems (class D). Multi-purpose solution since all four pairs (4 TP) are protected by a low-capacitance diode matrix per pair. To be installed into EG NET PRO 19" into distribution cabinets as a patch panel or retrofit version.

- GHMT certificate for class D channel link
- Low voltage protection level for all lines
- For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher

Type	NET PRO 4TP	NET PRO LSA 4TP	NET PRO 4TP 30
Part No.	929 035	929 036	929 037
SPD class	TYPE 3 P1	TYPE 3 P1	TYPE 4 P1
Nominal voltage (U _N)	5 V	5 V	24 V
Max. continuous operating d.c. voltage (U _c)	6 V	6 V	30 V
Max. continuous operating a.c. voltage (U _c)	4.2 V	4.2 V	21.1 V
Nominal current (I _N)	100 mA	100 mA	100 mA
C2 Nominal discharge current (8/20 μs) per port (I _n)	2.4 kA	2.4 kA	0.8 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	0.3 kA	0.3 kA	0.1 kA
Voltage protection level line-line for I _n C2 (U _p)	≤ 35 V	≤ 35 V	≤ 60 V
Voltage protection level line-PG for I _n C2 (U _p)	≤ 35 V	≤ 35 V	≤ 60 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 13 V	≤ 13 V	≤ 40 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 13 V	≤ 13 V	≤ 40 V
Cut-off frequency line-line at 100 ohms (f _c)	165 MHz	170 MHz	300 MHz
Insertion loss at 100 MHz	< 0.4 dB	< 0.4 dB	< 0.4 dB
Capacitance line-line (C)	≤ 35 pF	≤ 35 pF	≤ 16 pF
Capacitance line-PG (C)	≤ 50 pF	≤ 50 pF	≤ 20 pF
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 00	IP 00	IP 00
For mounting on	enclosure	enclosure	enclosure
Connection (input / output)	RJ45 shielded / RJ45 shielded	LSA / RJ45 shielded	RJ45 shielded / RJ45 shielded
Pinning	1/2, 3/6, 4/5, 7/8	1/2, 3/6, 4/5, 7/8	1/2, 3/6, 4/5, 7/8
Earthing via	enclosure	enclosure	enclosure
Dimensions (W x L)	135 x 77 mm	135 x 107 mm	135 x 77 mm
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	GHMT, GOST	GOST	GOST

Tel. Data Networks RJ45

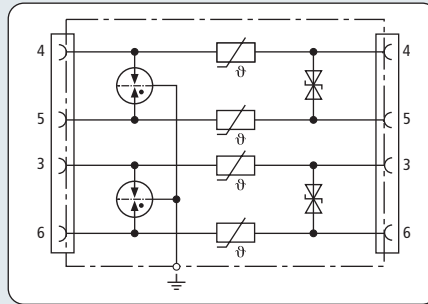
Accessory for NET Protector

482.6 mm (19 inch) Enclosure

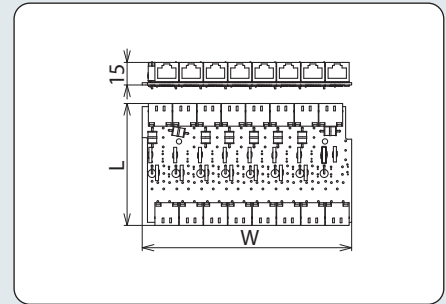
Fully shielded empty enclosure for max. three NET Protector protection components.

Type	EG NET PRO 19"
Part No.	929 034
Dimensions	1 vertical module
Enclosure material	stainless steel front / galvanised sheet metal





Basic circuit diagram NET PRO TC



Dimension drawing NET PRO TC

- Patch panel or retrofit version
- Integrated protection against power crossing
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

Surge protection component with eight unshielded ports for protecting telecommunications systems with analogue or system transmission from overvoltage and a.c. interference. PTC thermistors decouple the protection stages and thus additionally protect terminal equipment in case of power crossing. To be mounted into EG NET PRO 19" as retrofit or patch panel version (LSA).

Type	NET PRO TC 2	NET PRO TC 2 LSA
Part No.	929 071	929 072
SPD class	TYPE 2P2	TYPE 2P2
Nominal voltage (U_N)	130 V	130 V
Max. continuous operating d.c. voltage (U_C)	170 V	170 V
Max. continuous operating a.c. voltage (U_C)	120 V	120 V
Nominal current (I_N)	150 mA	150 mA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA	1 kA
C2 Nominal discharge current (8/20 μ s) per port (I_n)	10 kA	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5 kA	5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 250 V	≤ 275 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 600 V	≤ 600 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 230 V	≤ 230 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V	≤ 600 V
Series resistance per line	10 ohms	10 ohms
Cut-off frequency line-line (f_c)	10 MHz	10 MHz
Capacitance line-line (C)	≤ 300 pF	≤ 300 pF
Capacitance line-PG (C)	≤ 15 pF	≤ 25 pF
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 00	IP 00
For mounting on	enclosure	enclosure
Connection (input / output)	RJ45 / RJ45	LSA / RJ45
Pinning	4/5, 3/6	4/5, 3/6
Earthing via	enclosure	enclosure
Dimensions (W x L)	135 x 77 mm	135 x 107 mm
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	GOST	GOST

Accessory for NET Protector

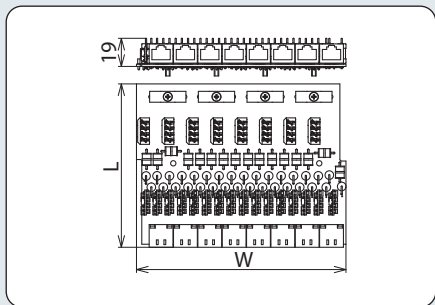
482.6 mm (19 inch) Enclosure

Fully shielded empty enclosure for max. three NET Protector protection components.

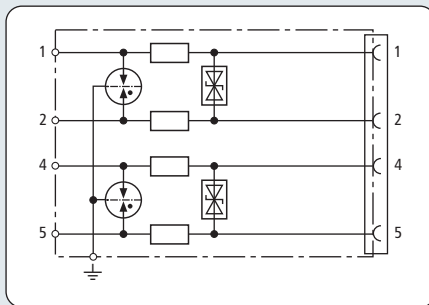


Type	EG NET PRO 19"
Part No.	929 034
Dimensions	1 vertical module
Enclosure material	stainless steel front / galvanised sheet metal

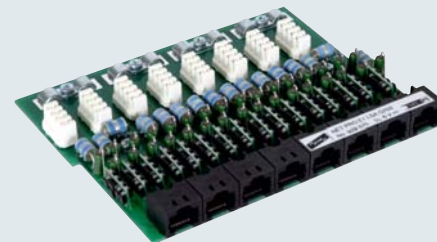
Tel., Data Networks RJ45



Dimension drawing NET PRO E1 LSA



Basic circuit diagram NET PRO E1 LSA



- Patch panel version
- Compliance with G.703 specification
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher according to G.703.

Surge protection component (patch panel version) with energy-coordinated protective circuit for two pairs and eight unshielded ports for E1 interfaces. To be mounted into EG NET PRO 19" into distribution cabinets upstream of the telecommunications system. For 2 MBit/s transmissions according to G.703.

Type		NET PRO E1 LSA G703
Part No.		929 075
SPD class		TYPE 2 P1
Nominal voltage (U_N)		5 V
Max. continuous operating d.c. voltage (U_C)		6 V
Max. continuous operating a.c. voltage (U_C)		4.2 V
Nominal current (I_L)		200 mA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})		1 kA
C2 Nominal discharge current (8/20 μ s) per port (I_n)		20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)		5 kA
Voltage protection level line-line for I_n C2 (U_p)		≤ 40 V
Voltage protection level line-PG for I_n C2 (U_p)		≤ 500 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)		≤ 15 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)		≤ 450 V
Series resistance per line		1 ohm
Cut-off frequency line-line at 100 ohms (f_G)		210 MHz
Capacitance line-line (C)		≤ 20 pF
Capacitance line-PG (C)		≤ 25 pF
Operating temperature range (T_U)		-40 °C ... +80 °C
Degree of protection		IP 00
For mounting on		enclosure
Connection (input / output)		LSA / RJ45 socket
Pinning		1/2, 4/5
Earthing via		enclosure
Dimensions (W x L)		135 x 108 mm
Test standards		IEC 61643-21 / EN 61643-21
Approvals		GOST

Accessory for NET Protector

482.6 mm (19 inch) Enclosure

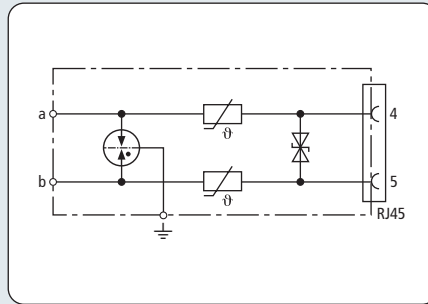
Fully shielded empty enclosure for max. three NET Protector protection components.

Type	EG NET PRO 19"
Part No.	929 034
Dimensions	1 vertical module
Enclosure material	stainless steel front / galvanised sheet metal

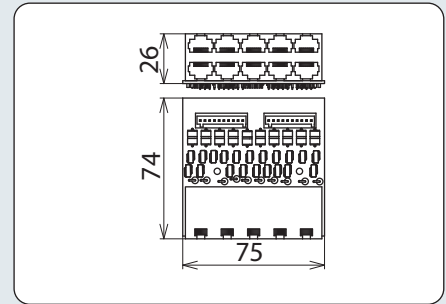




- Extremely compact design
- Integrated protection against power crossing
- Installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher



Basic circuit diagram NET PRO 10X TC1 RST



Dimension drawing NET PRO 10X TC1 RST

Surge protection component with ten ports for protecting telecommunications systems with analogue or system transmission from overvoltage and a.c. interference. Cage spring terminals which can be removed from the protection component as a block are situated on the input side, thus allowing to test the lines. For installation into EG NET PRO 10X 19" or EG NET PRO 10X 3HE enclosures.

Type	NET PRO 10X TC1 RST
Part No.	929 230
SPD class	TYPE 2 P2
Nominal voltage (U_N)	180 V
Max. continuous operating d.c. voltage (U_C)	180 V
Max. continuous operating a.c. voltage (U_C)	120 V
Nominal current at 20 °C / 50 °C / 70 °C (I_L)	120 mA / 100 mA / 60 mA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Nominal discharge current (8/20 μ s) per port (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 275 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 800 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 250 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
A2 a.c. resistance per line	5 A
Series resistance per line	3-12 ohms
Cut-off frequency at 100 ohms (f_C)	55 MHz
Capacitance line-line (C)	≤ 50 pF
Capacitance line-PG (C)	≤ 25 pF
Operating temperature range (T_U)	-40 °C ... +70 °C
Degree of protection	IP 00
For mounting on	enclosure
Connection (input / output)	plug-in spring terminal / RJ45
Pinning	4/5
Earthing via	enclosure
Dimensions (W x L)	75 x 73 mm
Test standards	IEC 61643-21 / EN 61643-21

Accessory for NET Protector

482.6 mm (19 inch) Enclosure, unshielded

Unshielded 19 inch enclosure (one vertical module) with a max. capacity of five NET PRO 10X modules, two earth terminals and cable rail.

Accessories: two nuts, two flat washers and two toothed lock washers for installing the earth terminal.

Type	EG NET PRO 10X 19"
Part No.	929 234
Dimensions	1 vertical module
Enclosure material	StSt (V2A)



Accessory for NET Protector

482.6 mm (19 inch) Enclosure (three vertical Modules)

Unshielded 19 inch enclosure for vertical installation (three vertical modules) with a capacity of one NET PRO 10X, with earth terminal.

Accessories: nut, flat washer and toothed lock washer for installing the earth terminal.

Type	EG NET PRO 10X 3HE
Part No.	929 235
Dimensions	3 vertical modules
Enclosure material	StSt (V2A)



SPDs for Building Systems

Product	Description	Type	Part No.	Page
DEHNprotector				
	<ul style="list-style-type: none"> – Combined adapter for protecting the power and data side of a terminal device – Different versions for protecting different interfaces – With visual operating state / fault indication 	DPRO 230 (SE) TV	909 300(5)	331
		DPRO 230 (SE) NT	909 310(5)	332
		DPRO 230 (SE) ISDN	909 320(5)	333
		DPRO 230 (SE) LAN100	909 321(6)	334
Bustector				
	<ul style="list-style-type: none"> – Surge arrester for protecting KNX / EIB systems – Optimally adapted to KNX / EIB systems – EIBA-approved 	BT 24	925 001	336
DEHNbox				
	<ul style="list-style-type: none"> – Wall-mounted universal lightning current and surge arrester – Integrated actiVsense technology – Easy installation and retrofitting 	DBX U4 KT BD S 0-180	922 400	338
		DBX U2 KT BD S 0-180	922 200	339
DEHNlink				
	<ul style="list-style-type: none"> – Wall-mounted surge arrester for protecting telecommunication interfaces – Versions with operating state indication of the remote supply voltage – Easy installation and retrofitting 	DLI ISDN I	929 024	341
		DLI TC I	929 028	342
		DLI TC	929 081	343
		DLI TC BT	929 026	344
DSM				
	<ul style="list-style-type: none"> – Flush-mounted surge arrester – Protection of ISDN, U_{k0} and DSL interfaces – Easy installation and retrofitting 	DSM ISDN	924 270	346
		DSM TC	924 272	347

Surge Arrester

SPDs for Building Systems



- Combined surge protection for the power and data side of terminal equipment
- Protection of
 - TVs and satellite devices
 - ISDN and telephone systems
 - Ethernet components
- Visual operating state / fault indication
- Easy retrofitting

Combined surge protective adapter with visual operating state and fault indication plugged into an earthed socket outlet.

The arresters of the DEHNprotector family are plugged into earthed socket outlets and protect terminal equipment with an additional data interface. Overvoltages are discharged to the PE contact of the socket outlet.

The plug-in installation facilitates retrofitting. The surge protective device for the power side features a visual operating state and fault indication, thus ensuring easy maintenance.



Type with coaxial connection.



Type with RJ connection.



Earthed socket outlet for protecting the power side.



Visual operating state and fault indication of the power side.

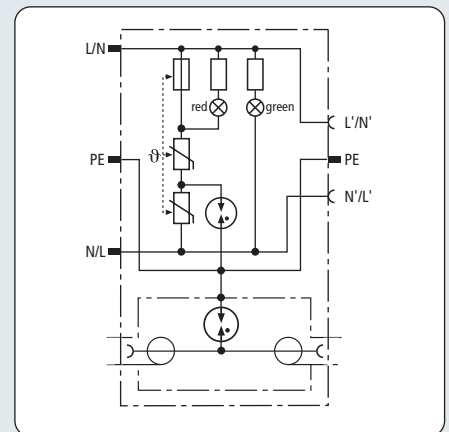
For further surge protective adapters for protecting the mains supply of electronic devices please also refer to pages 170 – 172.

Type	DPRO 230 TV	DPRO 230 SE TV
Part No.	909 300	909 305
Protection for the data side:		
SPD class	TYPE 2	
Max. continuous operating d.c. voltage (U_c)	60 V	
C2 Nominal discharge current (8/20 μ s) line-shield (PE) (I_n)	5 kA	
Voltage protection level line-shield (PE) at 1 kV/ μ s C3 (U_p)	≤ 600 V	
Insertion loss 0-2400 MHz	≤ 1.5 dB	
Operating temperature range (T_U)	-25 °C ... +40 °C	
Degree of protection	IP 20	
Connection (input / output)	F socket / F socket	
Earthing via	protective conductor connection	
Enclosure material	thermoplastic, UL 94 V-2	
Colour	pure white	
Test standards	IEC 61643-21 / EN 61643-21	
Protection for the power side:		
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III	
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)	
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)	
Nominal load current a.c. (I_l)	16 A	
Nominal discharge current (8/20 μ s) (I_n)	3 kA	
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA	
Combination wave (U_{oc})	6 kV	
Combination wave [L+N-PE] ($U_{oc total}$)	10 kV	
Voltage protection level [L-N] (U_p)	≤ 1.25 kV	
Voltage protection level [L/N-PE] (U_p)	≤ 1.5 kV	
Response time [L-N] (t_A)	≤ 25 ns	
Response time [L/N-PE] (t_A)	≤ 100 ns	
Max. mains-side overcurrent protection	B 16 A	
Short-circuit withstand capability for mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}	
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand	
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure	
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand	
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand	
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure	
Fault indication	red indicator light	
Operating state indication	green indicator light	
Number of ports	1	
For mounting on	earthed socket outlets DIN 49440/DIN 49441	centre earthing contact system according to CEE 7, standard sheet V
Test standards	EN 61643-11	

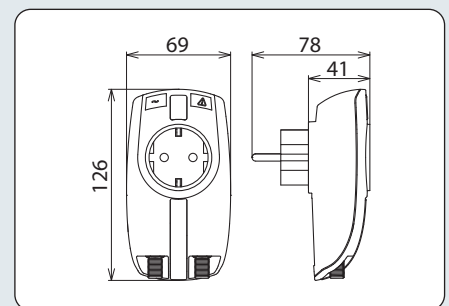


- Surge protective device for TV, radio or satellite devices with a modern design
- F socket to IEC plug adapter included
- For installation in conformity with the lightning protection zone concept at the boundaries from 2 – 3 and higher

Combined surge protection for the power and antenna side of TV, radio or satellite receivers. With visual operating state and fault indication.



Basic circuit diagram DPRO TV

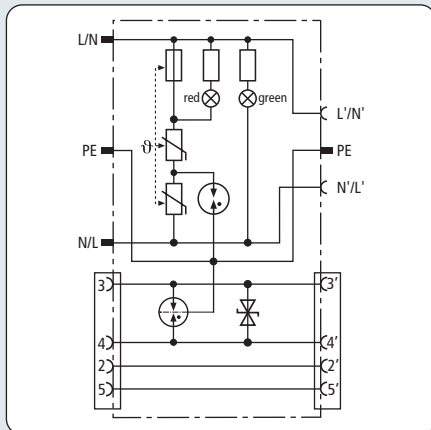


Dimension drawing DPRO TV

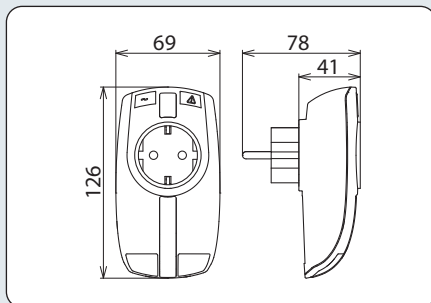


- Surge protective device for terminal equipment in telecommunications systems with a modern design
- Includes accessories for RJ 11/12 and TAE connections
- For installation in conformity with the lightning protection zone concept at the boundaries from 2 – 3 and higher

Combined surge protection for the power and data side of a digital network termination (NT). Also suited for telephones and fax machines. With visual operating state and fault indication.



Basic circuit diagram DPRO NT



Dimension drawing DPRO NT

Type	DPRO 230 NT	DPRO 230 SE NT
Part No.	909 310	909 315
Protection for the data side:		
SPD class	TYPE 2 P1	
Max. continuous operating d.c. voltage (U_c)	180 V	
Lightning impulse current (10/350 μ s) per line D1 (I_{imp})	1 kA	
C2 Nominal discharge current (8/20 μ s) per line C2 (I_n)	2.5 kA	
Voltage protection level line-line for I_n C2 (U_p)	≤ 300 V	
Voltage protection level line-PE for I_n C2 (U_p)	≤ 500 V	
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 300 V	
Voltage protection level line-PE at 1 kV/ μ s C3 (U_p)	≤ 500 V	
Cut-off frequency (f_c)	50 MHz	
Operating temperature range (T_U)	-25 °C ... +40 °C	
Degree of protection	IP 20	
Connection (input / output)	RJ12 socket / RJ12 socket	
Pinning	3/4	
Earthing via	protective conductor connection	
Enclosure material	thermoplastic, UL 94 V-2	
Colour	pure white	
Test standards	IEC 61643-21 / EN 61643-21	

Protection for the power side:		
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III	
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)	
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)	
Nominal load current a.c. (I_L)	16 A	
Nominal discharge current (8/20 μ s) (I_n)	3 kA	
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA	
Combination wave (U_{oc})	6 kV	
Combination wave [L+N-PE] ($U_{oc total}$)	10 kV	
Voltage protection level [L-N] (U_p)	≤ 1.25 kV	
Voltage protection level [L/N-PE] (U_p)	≤ 1.5 kV	
Response time [L-N] (t_A)	≤ 25 ns	
Response time [L/N-PE] (t_A)	≤ 100 ns	
Max. mains-side overcurrent protection	B 16 A	
Short-circuit withstand capability for mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}	
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand	
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure	
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand	
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand	
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure	
Fault indication	red indicator light	
Operating state indication	green indicator light	
Number of ports	1	
For mounting on	earthed socket outlets DIN 49440/DIN 49441	centre earthing contact system according to CEE 7, standard sheet V
Test standards	EN 61643-11	

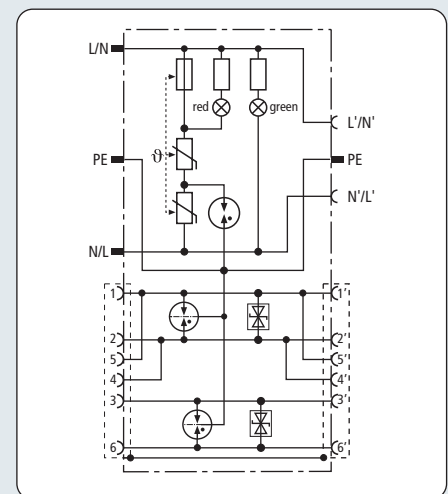
Type	DPRO 230 ISDN	DPRO 230 SE ISDN
Part No.	909 320	909 325
Protection for the data side:		
SPD class	TYPE 2 P1	
Max. continuous operating d.c. voltage (U_c)	48 V	
Lightning impulse current (10/350 μ s) per line D1 (I_{imp})	1 kA	
C2 Nominal discharge current (8/20 μ s) line-line (I_n)	120 A	
C2 Nominal discharge current (8/20 μ s) line-PE (I_n)	2.5 kA	
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA	
Voltage protection level line-line for I_n C2 (U_p)	≤ 100 V	
Voltage protection level line-PE for I_n C2 (U_p)	≤ 500 V	
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 80 V	
Voltage protection level line-PE at 1 kV/ μ s C3 (U_p)	≤ 500 V	
Cut-off frequency (f_c)	50 MHz	
Operating temperature range (T_U)	-25 °C ... +40 °C	
Degree of protection	IP 20	
Connection (input / output)	shielded RJ45 socket / shielded RJ45 socket	
Pinning	1(5)/2(4), 3/6	
Earthing via	protective conductor connection	
Enclosure material	thermoplastic, UL 94 V-2	
Colour	pure white	
Test standards	IEC 61643-21 / EN 61643-21	

Protection for the power side:		
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III	
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)	
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)	
Nominal load current a.c. (I_L)	16 A	
Nominal discharge current (8/20 μ s) (I_n)	3 kA	
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA	
Combination wave (U_{oc})	6 kV	
Combination wave [L+N-PE] ($U_{oc total}$)	10 kV	
Voltage protection level [L-N] (U_p)	≤ 1.25 kV	
Voltage protection level [L/N-PE] (U_p)	≤ 1.5 kV	
Response time [L-N] (t_A)	≤ 25 ns	
Response time [L/N-PE] (t_A)	≤ 100 ns	
Max. mains-side overcurrent protection	B 16 A	
Short-circuit withstand capability for mains-side overcurrent protection (I_{SCCR})	1 kA _{rms}	
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand	
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure	
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand	
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand	
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure	
Fault indication	red indicator light	
Operating state indication	green indicator light	
Number of ports	1	
For mounting on	earthed socket outlets DIN 49440/DIN 49441	centre earthing contact system according to CEE 7, standard sheet V
Test standards	EN 61643-11	

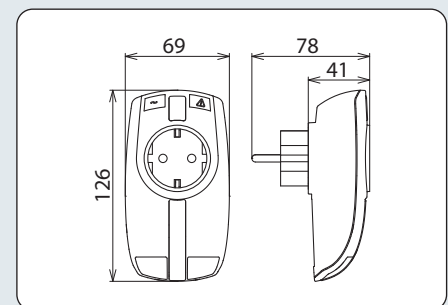


- Surge protective device for ISDN or Ethernet components (10 BASE-T) with a modern design
- Shielded patch cable (1.5 m) included
- For installation in conformity with the lightning protection zone concept at the boundaries from 2 – 3 and higher

Combined surge protection for the power and ISDN S_0 side of ISDN systems and devices. Shielded port allows to protect Ethernet 10 BT. With visual operating state and fault indication.



Basic circuit diagram DPRO ISDN

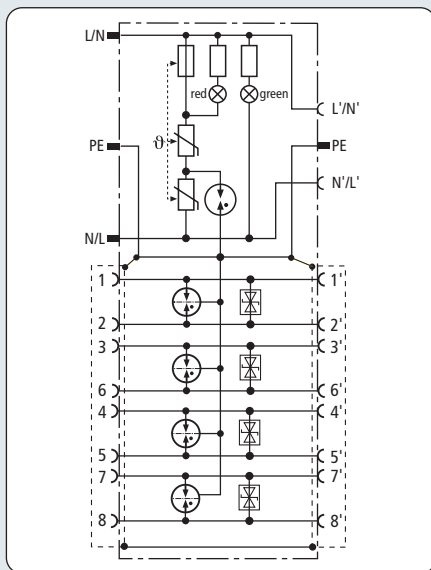


Dimension drawing DPRO ISDN

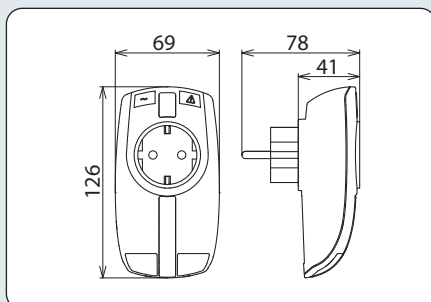


- Surge protective device for Ethernet components (1000 BASE-T) with a modern design
- Shielded Cat 5e patch cable (1.5 m) included
- For installation in conformity with the lightning protection zone concept at the boundaries from 2 – 3 and higher

Combined surge protection for the power side and data input for protecting LAN components. Protection of all pairs for Ethernet pin assignment. It meets the requirements for channel class D in accordance with EN 50173 and is thus suitable for 1000 Base-T (Gigabit Ethernet).



Basic circuit diagram DPRO LAN100

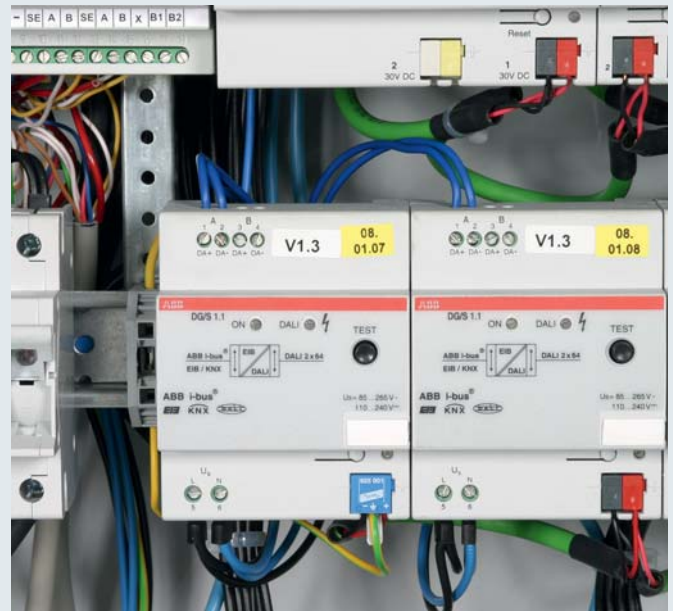


Dimension drawing DPRO LAN100

Type	DPRO 230 LAN100	DPRO 230 SE LAN100
Part No.	909 321	909 326
Protection for the data side:		
SPD class	TYPE 2 P1	
Max. continuous operating d.c. voltage (U_c)	58 V	
Lightning impulse current (10/350 μ s) per line D1 (I_{imp})	1 kA	
C2 Nominal discharge current (8/20 μ s) line-line (I_n)	30 A	
C2 Nominal discharge current (8/20 μ s) line-PE (I_n)	2.5 kA	
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA	
Voltage protection level line-line for I_n C2 (U_p)	≤ 100 V	
Voltage protection level line-PE for I_n C2 (U_p)	≤ 500 V	
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	90 V	
Voltage protection level line-PE at 1 kV/ μ s C3 (U_p)	≤ 500 V	
Cut-off frequency (f_c)	120 MHz	
Operating temperature range (T_U)	-25 °C ... +40 °C	
Degree of protection	IP 20	
Connection (input / output)	shielded RJ45 socket / shielded RJ45 socket	
Pinning	1/2, 3/6, 4/5, 7/8	
Earthing via	protective conductor connection	
Enclosure material	thermoplastic, UL 94 V-2	
Colour	pure white	
Test standards	IEC 61643-21 / EN 61643-21	

Protection for the power side:		
SPD according to EN 61643-11 / IEC 61643-11	type 3 / class III	
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)	
Max. continuous operating a.c. voltage (U_c)	255 V (50 / 60 Hz)	
Nominal load current a.c. (I_L)	16 A	
Nominal discharge current (8/20 μ s) (I_n)	3 kA	
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	5 kA	
Combination wave (U_{oc})	6 kV	
Combination wave [L+N-PE] ($U_{oc total}$)	10 kV	
Voltage protection level [L-N] (U_p)	≤ 1.25 kV	
Voltage protection level [L/N-PE] (U_p)	≤ 1.5 kV	
Response time [L-N] (t_A)	≤ 25 ns	
Response time [L/N-PE] (t_A)	≤ 100 ns	
Max. mains-side overcurrent protection	B 16 A	
Short-circuit withstand capability for mains-side overcurrent protection (I_{sCCR})	1 kA _{rms}	
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand	
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure	
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	335 V / 120 min. – withstand	
Temporary overvoltage (TOV) [L/N-PE] (U_T) – Characteristic	440 V / 5 sec. – withstand	
Temporary overvoltage (TOV) [L+N-PE] (U_T) – Characteristic	1200 V + U_{REF} / 200 ms – safe failure	
Fault indication	red indicator light	
Operating state indication	green indicator light	
Number of ports	1	
For mounting on	earthed socket outlets DIN 49440/DIN 49441	centre earthing contact system according to CEE 7, standard sheet V
Test standards	EN 61643-11	

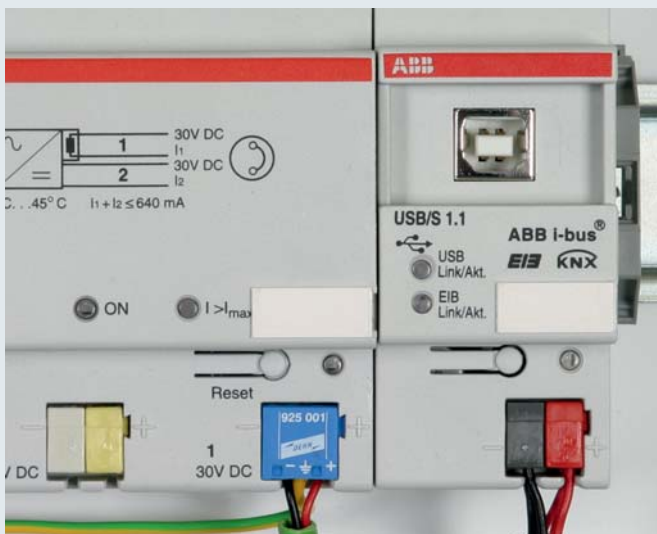
- Surge arrester for KNX / EIB buses
- Extremely space-saving due to KNX / EIB bus terminal design
- System-tested with EIBA certification



Surge arrester for KNX / EIB buses with connecting leads

The discharge capacity, protective effect and mechanical design of BUSector surge arresters are adapted to the installation environment of KNX / EIB buses. Like a bus terminal, they can be plugged onto the bus terminal pins of a terminal device and can be connected to the existing

connecting cables. BUSector surge arresters can also be connected to an existing bus terminal on the terminal device. They particularly protect line and area couplers as well as gateways and sensors installed at the outer walls of buildings.

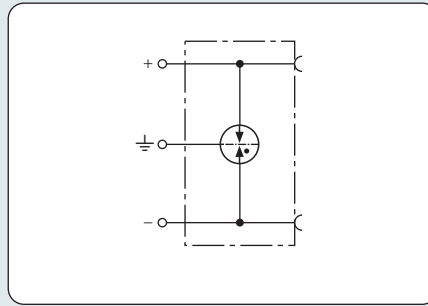


Protection of a KNX power supply unit by means of a BUSector surge arrester mounted in the bus terminal slot.

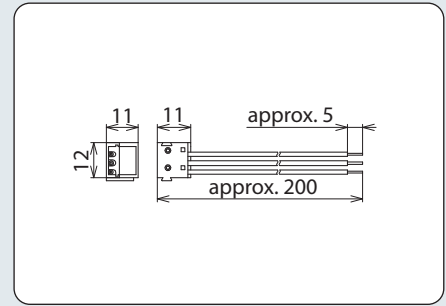


Protection of a KNX bus coupling unit by means of a BUSector surge arrester mounted on a bus terminal in the mounting panel of a cable duct.

SPDs for Building Systems



Basic circuit diagram BT



Dimension drawing BT

- Suitable for KNX / EIB systems
- Minimum space requirements
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 1$ and higher

Surge arrester with bus terminal design, adapted to the immunity of KNX / EIB systems. EIBA-certified.

Type	BT 24
Part No.	925 001
SPD class	TYPE 2
Nominal voltage (U_n)	24 V
Max. continuous operating d.c. voltage (U_c)	45 V
Nominal current (I_n)	6 A
D1 Lightning impulse current (10/350 μ s) per line	1 kA
C2 Nominal discharge current per line (I_n)	5 kA
Voltage protection level line-line for I_n C2	≤ 1200 V
Voltage protection level line-PG for I_n C2	≤ 650 V
Voltage protection level line-line at 1 kV/ μ s C3	≤ 750 V
Voltage protection level line-PG at 1 kV/ μ s C3	≤ 500 V
Cut-off frequency line-line	70 MHz
Capacitance line-line	≤ 10 pF
Capacitance line-PG	≤ 10 pF
Operating temperature range (T_u)	-40 °C ... +80 °C
Degree of protection	IP 20
Connection	spring contacts ($\varnothing 1$ mm) / connecting leads ($\varnothing 0.8$ mm)
Earthing via	lead (0.75 mm ²), 200 mm long
Enclosure material	thermoplastic
Colour	blue
Test standards	IEC 61643-21
Approvals	EIBA certification No. Z 32/1399/95

- **Combined lightning current and surge arrester**
 - Capable of carrying lightning currents up to 10 kA (10/350 μ s)
 - Low voltage protection level, capable of protecting terminal equipment
 - For installation in conformity with the lightning protection zones concept at the boundaries from 0_A – 2 and higher
- **With actiVsense technology**
 - Automatically detects the signal voltage from 0 to 180 V
 - Optimally adapts the voltage protection level to the currently applied signal
 - Adapted voltage protection level allows to protect terminal equipment
- **Universal use**
 - One arrester type for two different signal circuits
 - Suitable for wall mounting, degree of protection IP 65
 - Easy retrofitting



DEHNbox used for a telecommunication connection (example: U_{ko} interface)

The compact DEHNbox combined lightning current and surge arrester is designed for protecting information and automation equipment and systems. Due to its new actiVsense technology, the arrester does not have a specific nominal voltage and can thus be used for voltages ranging from 0 to 180 V with a superimposed signal voltage (± 5 V/50 MHz). The nominal current is limited to 100 mA which is sufficient for information technology systems.

This innovative actiVsense technology allows the arrester to detect the signal voltage and to automatically adapt the voltage protection level to this voltage. This makes the arrester ideal for applications where changing or slowly fluctuating signal levels (≤ 400 Hz) are to be expected. In case of interference, DEHNbox arresters have an adapted minimal residual voltage for every signal voltage to provide maximum protection for the devices and system circuits connected to them.

DEHNbox is available in two versions. The four-pole version provides protection for two separate balanced interfaces, that is the arrester automatically detects the operating / signal voltage for every pair and optimally adapts the voltage protection level for every signal circuit. This allows to protect two different balanced interfaces by means of a single

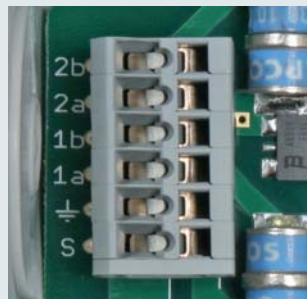
arrester, thus reducing installation time, saving costs and reducing the number of arresters to be used. If only one signal interface is to be protected, a two-pole version for a balanced data interface (one pair) can be used.

With its surface-mounted plastic enclosure with integrated fixing lugs, DEHNbox is ideally suited for wall mounting and can be easily retrofitted into existing equipment and systems. The IP 65 degree of protection allows the arrester to be used in harsh environments such as in moist atmospheres. Cables are therefore entered via easy-to-install self-sealing rubber membranes. These membranes allow easy and fast installation and prevent the ingress of moisture and dust. Both the cable wires and an installed cable shield can be contacted by means of spring-loaded terminals without the use of screws. Two separate terminals allow a cable shield to be directly or indirectly connected to the equipotential bonding system.

The arrester is ideally suited for domestic and industrial use in information technology transmission systems such as telecommunication, bus and measuring and control systems.



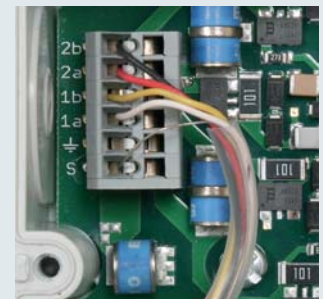
Self-sealing rubber membranes for leading the cables into the enclosure.



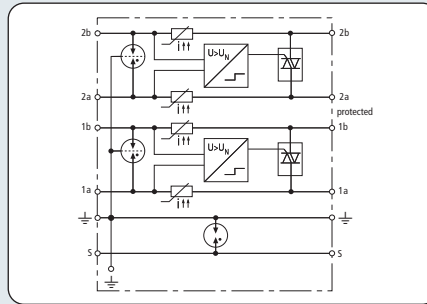
Spring-loaded terminals allow cables to be connected without screws.



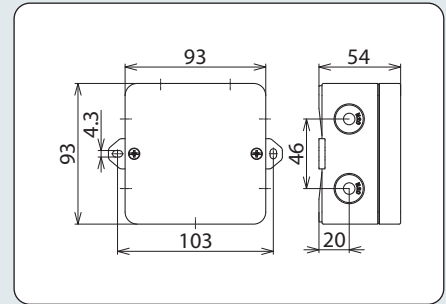
Fixing lugs on the enclosure allow wall mounting.



Available with direct or indirect shield earthing.



Basic circuit diagram DBX U4 KT BD S 0-180

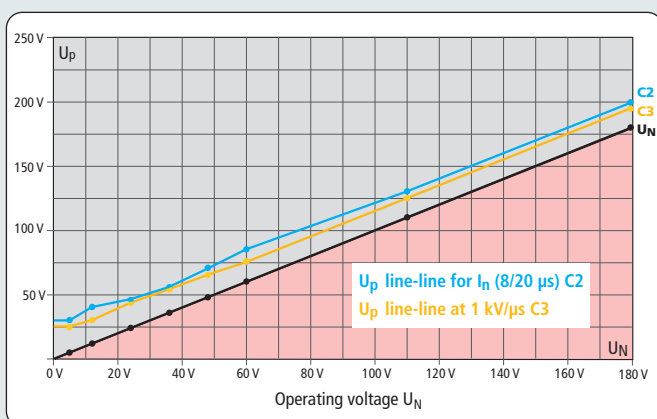


Dimension drawing DBX U4 KT BD S 0-180

- Universal voltage type with actiVsense technology
- Suitable for wall mounting, IP 65
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

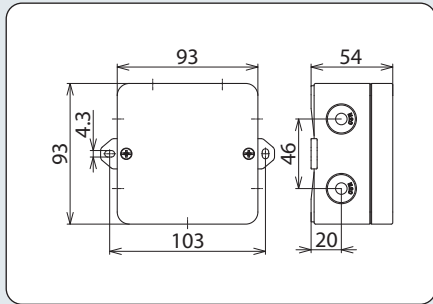
Compact combined lightning current and surge arrester in a surface-mounted plastic enclosure with actiVsense technology for protecting two pairs with the same or a different signal voltage of galvanically isolated balanced interfaces. Direct or indirect shield earthing.

Type		DBX U4 KT BD S 0-180
Part No.		922 400
SPD class		TYPE 1 P1
Nominal voltage (U _N)		0-180 V
Frequency of the nominal voltage (f _{UN})		0-400 Hz
Max. continuous operating d.c. voltage (U _C)		180 V
Permissible superimposed signal voltage (U _{signal})		≤ +/- 5 V
Cut-off frequency line-line (U _{signal} balanced 100 ohms) (f _G)		50 MHz
Nominal current I _L (according to max. short-circuit current)		100 mA
D1 Total lightning impulse current (10/350 μs) (I _{imp})		10 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})		2.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)		20 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)		10 kA
Voltage protection level line-line for I _n C2 (U _p)		see diagram, line C2
Voltage protection level line-line at 1 kV/μs C3 (U _p)		see diagram, line C3
Voltage protection level line-line for I _{imp} D1 (U _p)		≤ U _N + 50 V
Voltage protection level line-PG for D1/C2/C3		≤ 550 V
Series resistance per line		≤ 9 ohms; typically 7.9 ohms
Capacitance line-line (C)		≤ 80 pF
Capacitance line-PG (C)		≤ 70 pF
Operating temperature range (T _U)		-25 °C ... +40 °C
Degree of protection		IP 65
Cross-sectional area of the signal lines		0.08-1.5 mm ²
Cross-sectional area of the earth terminal		2.5-4 mm ²
Dimensions (L x W x H)		93 x 93 x 55 mm
Enclosure material		polycarbonate
Colour		grey
Test standards		IEC 61643-21 / EN 61643-21

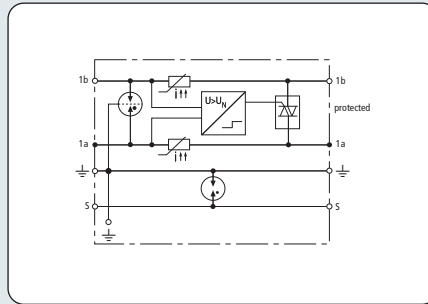


Voltage protection level diagram DBX

SPDs for Building Systems



Dimension drawing DBX U2 KT DB S 0-180



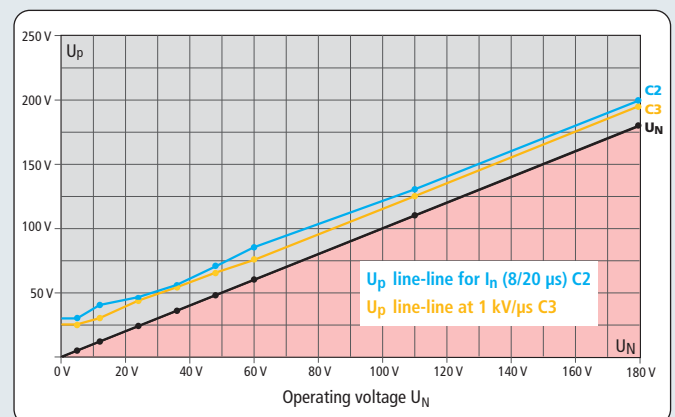
Basic circuit diagram DBX U2 KT DB S 0-180



- Universal voltage type with actiVsense technology
- Suitable for wall mounting, IP 65
- Installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

Compact combined lightning current and surge arrester in a surface-mounted plastic enclosure with actiVsense technology for protecting one pair of galvanically isolated balanced interfaces. Direct or indirect shield earthing.

Type	DBX U2 KT BD S 0-180
Part No.	922 200
SPD class	TYPE 1 P1
Nominal voltage (U _N)	0-180 V
Frequency of the nominal voltage (f _{UN})	0-400 Hz
Max. continuous operating d.c. voltage (U _C)	180 V
Permissible superimposed signal voltage (U _{signal})	≤ +/- 5 V
Cut-off frequency line-line (U _{signal} , balanced 100 ohms) (f _G)	50 MHz
Nominal current I _N (according to max. short-circuit current)	100 mA
D1 Total lightning impulse current (10/350 μs) (I _{imp})	9 kA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	2.5 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	10 kA
Voltage protection level line-line for I _n C2 (U _p)	see diagram, line C2
Voltage protection level line-line at 1 kV/μs C3 (U _p)	see diagram, line C3
Voltage protection level line-line for I _{imp} D1 (U _p)	≤ U _N + 50 V
Voltage protection level line-PG for D1/C2/C3	≤ 550 V
Series resistance per line	≤ 9 ohms; typically 7.9 ohms
Capacitance line-line (C)	≤ 80 pF
Capacitance line-PG (C)	≤ 70 pF
Operating temperature range (T _u)	-25 °C ... +40 °C
Degree of protection	IP 65
Cross-sectional area of the signal lines	0.08-1.5 mm ²
Cross-sectional area of the earth terminal	2.5-4 mm ²
Dimensions (L x W x H)	93 x 93 x 55 mm
Enclosure material	polycarbonate
Colour	grey
Test standards	IEC 61643-21 / EN 61643-21



Voltage protection level diagram DBX

Surge Arrester

SPDs for Building Systems



- Surface-mounted surge protective device for telecommunications systems
- Quick installation due to plug-in terminals
- Different interface-specific types

Surface-mounted surge arrester for telecommunications terminal equipment as well as telephone systems with RJ plug.

The surface-mounted surge arresters with a modern design particularly protect modems and telephone systems with RJ plugs. The plug-in terminals allow easy installation.



Easy and fast installation by means of RJ plug-in system.



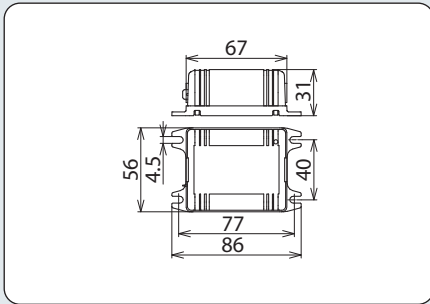
DLI ISDN I and DLI TC 2 I devices feature an LED display that indicates the supply voltage.



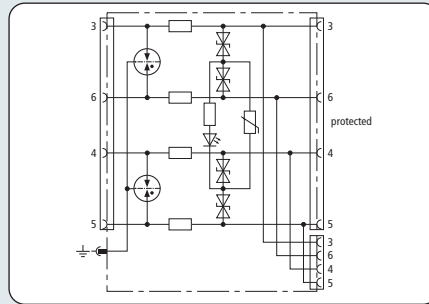
DLI ISDN I is capable of protecting two terminal devices at the same time.



Fixing lugs on the enclosure allow easy and fast wall mounting.



Dimension drawing DLI ISDN I



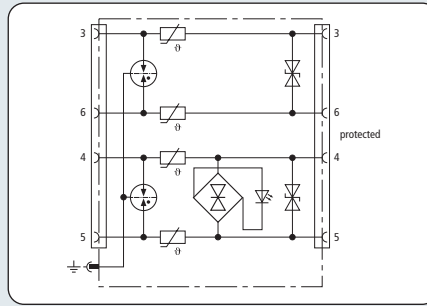
Basic circuit diagram DLI ISDN I



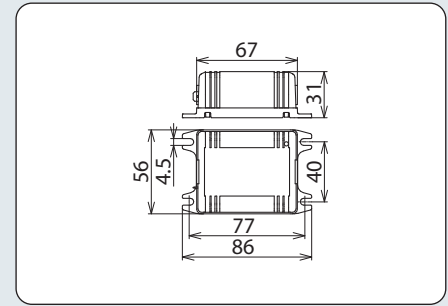
- Two protected outputs
- Surge protection and LED display for supply voltage included
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

Energy-coordinated surge arrester with two protected ISDN S_0 outputs and operating state indication (LED) of the remote supply voltage. No indication during emergency operation (supply from telephone network only). Connecting cable and mounting material included.

Type	DLI ISDN I
Part No.	929 024
SPD class	TYPE 2P1
Nominal voltage (U_N)	5 V
Nominal voltage pair-pair (U_N)	40 V
Max. continuous operating d.c. voltage (U_C)	7.5 V
Max. continuous operating a.c. voltage (U_C)	5.2 V
Max. continuous d.c. voltage pair-pair (U_C)	45 V
Nominal current (I_L)	200 mA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 30 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 600 V
Voltage protection level pair-pair for I_n C2 (U_p)	≤ 180 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 17 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
Voltage protection level pair-pair at 1 kV/ μ s C3 (U_p)	≤ 100 V
Series resistance per line	1 ohm
Cut-off frequency line-line	2 MHz
Capacitance line-line (C)	≤ 3 nF
Capacitance line-PG (C)	≤ 15 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 20
Connection (input / output)	RJ45 / 2 x RJ45
Pinning	3/6, 4/5
Earthing via	flat connector (6.3 mm)
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST
Accessories	connecting cable, mounting material



Basic circuit diagram DLI TC 2 I



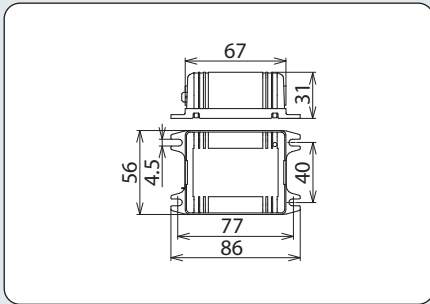
Dimension drawing DLI TC 2 I

- LED display for supply voltage
- Integrated protection against power crossing
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

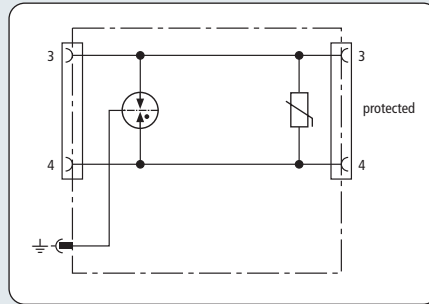
Two-stage surge arrester with overcurrent protection for analogue or system telephones with operating state indication (LED). Even protects from alternating current interference. Pins compatible with RJ11/12 plugs. Connecting cable and mounting material included.

Type	DLI TC 2 I
Part No.	929 028
SPD class	TYPE 2 P2
Nominal voltage (U_N)	110 V
Max. continuous operating d.c. voltage (U_C)	170 V
Max. continuous operating a.c. voltage (U_C)	120 V
Nominal current (I_N)	150 mA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 250 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 600 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 230 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
Series resistance per line	10 ohms
Cut-off frequency line-line	10 MHz
Capacitance line-line (C)	≤ 0.3 nF
Capacitance line-PG (C)	≤ 15 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 20
Connection (input / output)	RJ45 / RJ 45 (compatible with RJ12)
Pinning	3/6, 4/5 (3/4, 2/5 for RJ12)
Earthing via	flat connector (6.3 mm)
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST
Accessories	connecting cable, mounting material

SPDs for Building Systems



Dimension drawing DLI TC



Basic circuit diagram DLI TC



- Cost-effective protection for one pair
- Modern design
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

High-capacity surge arrester for analogue or system telephones, RJ12 sockets.

Type	DLI TC ECO RJ12
Part No.	929 081
SPD class	TYPE 2 P2
Nominal voltage (U_N)	130 V
Max. continuous operating d.c. voltage (U_C)	170 V
Max. continuous operating a.c. voltage (U_C)	120 V
Nominal current (I_N)	200 mA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	5 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 480 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 600 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 280 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
Cut-off frequency line-line	10 MHz
Capacitance line-line (C)	≤ 0.7 nF
Capacitance line-PG (C)	≤ 15 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 20
Connection (input / output)	RJ12 / RJ12
Pinning	3/4
Earthing via	flat connector (6.3 mm)
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST
Accessories	mounting material

Surge Arrester

SPDs for Building Systems



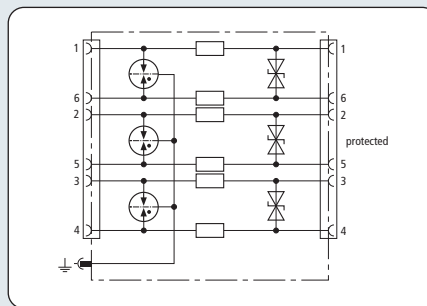
Surface-mounted surge arrester for telecommunications terminal equipment and telephone systems with BT plug.

- Surface-mounted surge protective device for telecommunications systems
- Plug-in terminals allow quick installation
- Im compliance with British Telecom requirements

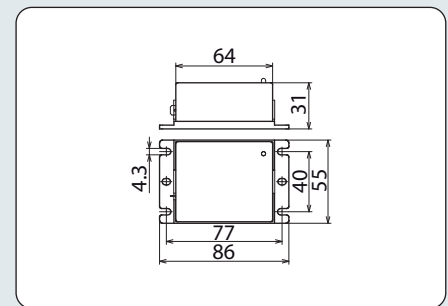
The surface-mounted surge arrester is perfectly suited for telecommunications terminal equipment and telephone systems with BT plug. The device meets the requirements of OfTel NS/G/23/L/100005 for connections between the network termination of a public telephone installation and any telecommunications terminal equipment. Fulfils BS6651:1992, Appendix C, Category C-High and CCITT K17.



- In compliance with British Telecom requirements
- Protection of all lines
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher



Basic circuit diagram DLI TC BT



Dimension drawing DLI TC BT

Surge protective device for analogue or system telephones in accordance with British Telecom requirements. Plug-in terminals allow easy installation. Energy-coordinated protective circuit for all pairs, no leakage currents to earth.

Type	DLI TC BT
Part No.	929 026
SPD class	TYPE 2P2
Nominal voltage (U_N)	130 V
Max. continuous operating d.c. voltage (U_C)	145 V
Nominal current (I_N)	125 mA
C2 Total nominal discharge current (8/20 μ s) (I_n)	10 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 210 V
Voltage protection level line-PG for I_n C2 (U_p)	≤ 550 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_p)	≤ 185 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_p)	≤ 450 V
Series resistance per line	4.7 ohm(s)
Cutt-off frequency (f_c)	13 MHz
Capacitance line-line (C)	≤ 400 pF
Capacitance line-PG (C)	≤ 10 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 20
Connection (input / output)	BT jack / BT jack
Pinning	1/6, 2/5, 3/4
Earthing via	flat connector (6.3 mm)
Enclosure material	thermoplastic
Colour	black
Test standards	IEC 61643-21
Accessory	connecting cable, mounting material

- Arrester for telecommunications equipment
- Space-saving flush mounting
- Easy to mount due to plug-in terminals



Surge arrester for protecting telecommunications equipment and installation into flush-type boxes or small-sized distribution boards. Plug-in terminals on the input side.

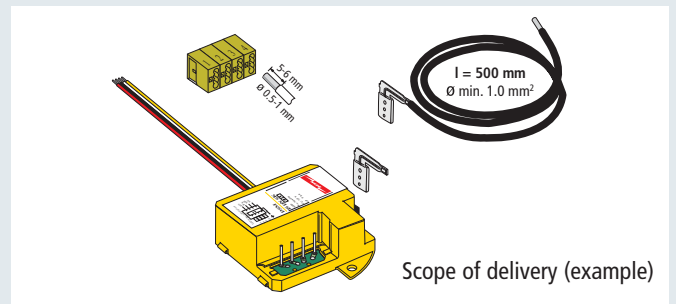
In a typical installation, DSM surge arresters are integrated into the junction box downstream of the socket outlet of the terminal equipment or into the cable duct, making them independent from the switch or box programme. They protect, invisibly for the user, telecommunications

equipment or devices. Of course, the arresters can also be integrated into small-sized distribution boards. The removable plug-in terminals simplify the installation of DSM. Since each plug-in terminal is designed for four lines, through-wiring of an S₀ bus, for example, is possible.



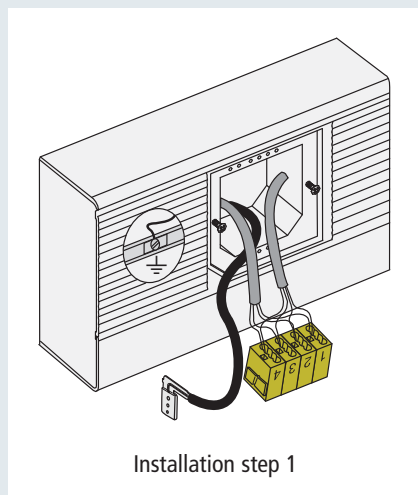
DSM surge arresters are compact enough to be easily installed even into small-sized distribution boards situated in moist environments.

DSM installed in a surface-mounted distribution board



Scope of delivery (example)

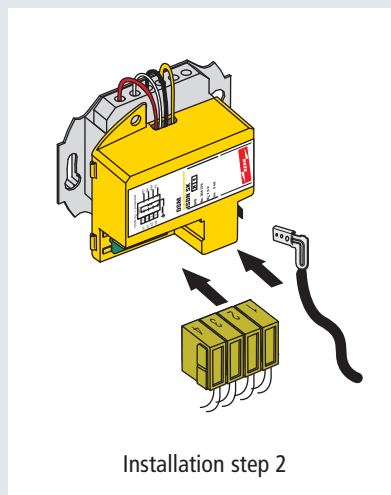
Apart from the plug-in terminals, delivery also includes a prewired earthing conductor.



Installation step 1

Prewiring of cables

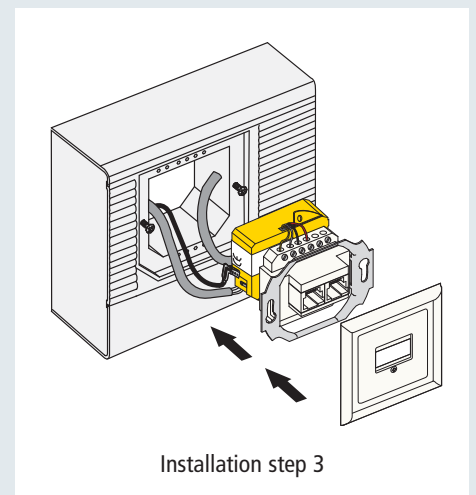
The plug-in terminals are prewired, allowing the ISDN bus to be wired.



Installation step 2

Connecting DSM ... SK to the telecommunications box

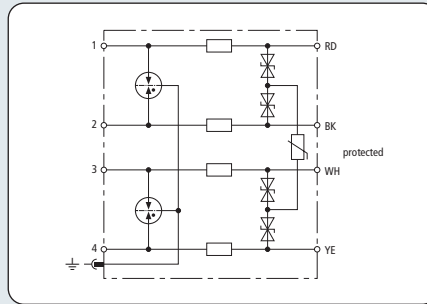
The lines fixed at the DSM surge arrester are connected to the telecommunications box and the DSM surge arrester is placed at the rear panel of the box. Then, the prewired terminals can be plugged in.



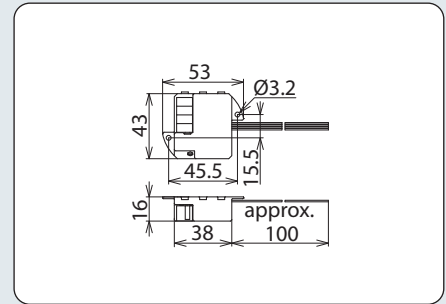
Installation step 3

Final assembly

The telecommunications box with the DSM surge arrester is inserted and fixed in the mounting panel. After that, an adequate cover has to be mounted.



Basic circuit diagram DSM ISDN



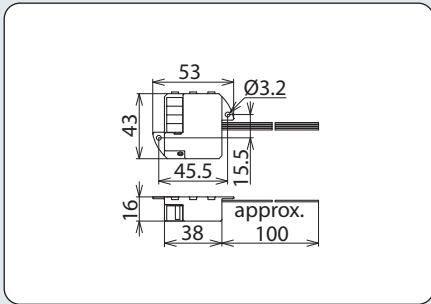
Dimension drawing DSM ISDN

- Optional through-wiring of the ISDN bus via plug-in terminals
- Integrated protection for the voltage supply
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

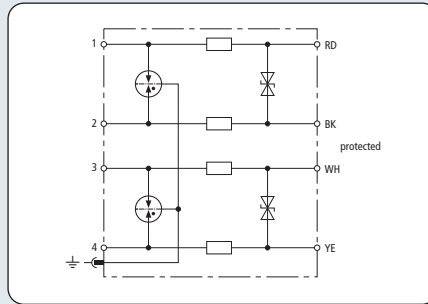
Energy-coordinated two-stage arrester for ISDN S_0 buses that also protects the voltage supply. Four-pole terminal allows through-wiring of the ISDN bus.

Type	DSM ISDN SK
Part No.	924 270
SPD class	TYPE 2P1
Nominal voltage (U_N)	5 V
Nominal voltage pair-pair (U_N)	40 V
Max. continuous operating d.c. voltage (U_C)	7.5 V
Max. continuous operating d.c. voltage pair-pair (U_C)	45 V
Nominal current (I_N)	200 mA
D1 Lightning impulse current (10/350 μ s) per line (I_{imp})	1 kA
C2 Total nominal discharge current (8/20 μ s) (I_n)	20 kA
C2 Nominal discharge current (8/20 μ s) per line (I_n)	5 kA
Voltage protection level line-line for I_n C2 (U_P)	≤ 30 V
Voltage protection level line-PG for I_n C2 (U_P)	≤ 600 V
Voltage protection level pair-pair for I_n C2 (U_P)	≤ 180 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_P)	≤ 17 V
Voltage protection level line-PG at 1 kV/ μ s C3 (U_P)	≤ 600 V
Voltage protection level pair-pair at 1 kV/ μ s C3 (U_P)	≤ 100 V
Series resistance per line	4.7 ohms
Cut-off frequency (f_G)	4 MHz
Capacitance line-line (C)	≤ 1.5 nF
Capacitance line-PG (C)	≤ 15 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 20
Connection (input / output)	four-pole terminal / stranded conductor (0.25 mm ²)
Pinning	2 pairs
Connection diameter, solid	0.5-1.0 mm
Earthing via	flat connector (2.8 mm)
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST
Accessories	flat connector, 500 mm earthing conductor

SPDs for Building Systems



Dimension drawing DSM TC



Basic circuit diagram DSM TC



Energy-coordinated two-stage surge arrester, no leakage currents to earth, for (system) telephones, U_{k0}, ADSL, for two pairs.

- Excellent transmission performance
- Also suitable for installation into distribution boards
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_B – 2 and higher

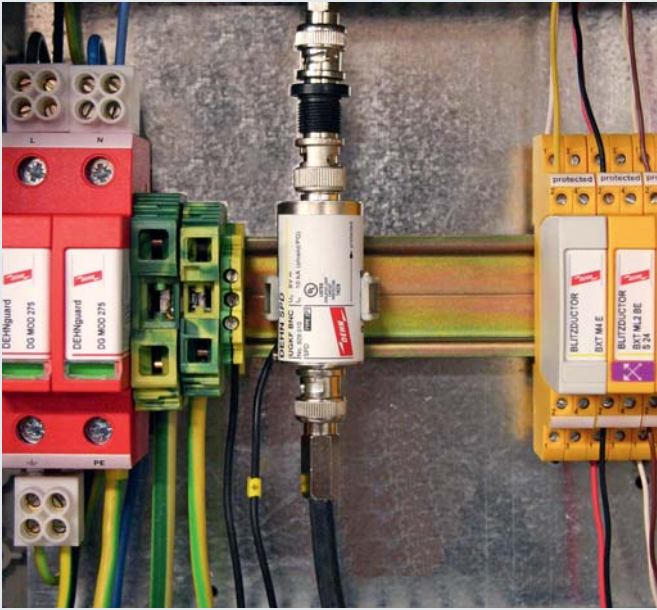
Type	DSM TC 2 SK
Part No.	924 272
SPD class	TYPE 2P2
Nominal voltage (U _N)	130 V
Max. continuous operating d.c. voltage (U _C)	170 V
Nominal current (I _N)	200 mA
D1 Lightning impulse current (10/350 μs) per line (I _{imp})	1 kA
C2 Total nominal discharge current (8/20 μs) (I _n)	20 kA
C2 Nominal discharge current (8/20 μs) per line (I _n)	5 kA
Voltage protection level line-line for I _n C2 (U _p)	≤ 275 V
Voltage protection level line-PG for I _n C2 (U _p)	≤ 600 V
Voltage protection level line-line at 1 kV/μs C3 (U _p)	≤ 220 V
Voltage protection level line-PG at 1 kV/μs C3 (U _p)	≤ 600 V
Series resistance per line	4.7 ohms
Cut-off frequency (f _c)	17 MHz
Capacitance line-line (C)	≤ 300 pF
Capacitance line-PG (C)	≤ 10 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection	IP 20
Connection (input / output)	four-pole terminal / stranded conductor (0.25 mm ²)
Pinning	2 pairs
Connection diameter, solid	0.5-1.0 mm
Earthing via	flat connector (2.8 mm)
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST
Accessories	flat connector, 500 mm earthing conductor

SPDs for Coaxial Connection

Product	Description	Type	Part No.	Page
UGKF BNC				
	<ul style="list-style-type: none"> - Easily adaptable - With indirect shield earthing to avoid leakage pickups - Protection of video cameras 	UGKF BNC	929 010	351
DEHNgate BNC VC				
	<ul style="list-style-type: none"> - Easily adaptable - For DIN rail or wall mounting - With direct or indirect shield earthing 	DGA BNC VCD DGA BNC VCID	909 710 909 711	352 352
DEHNgate FF / GF / GFF TV				
	<ul style="list-style-type: none"> - Combinable system of lightning current and surge arresters - With F connection for 75 ohm satellite and broadband cable systems - Integrated measuring output 	DGA FF TV DGA GF TV DGA GFF TV	909 703 909 704 909 705	354 354 354
DEHNgate F				
	<ul style="list-style-type: none"> - Easy retrofitting - For high transmission rates - With 1.6 / 5.6 connection 	DGA F 1.6 5.6	929 040	355
DEHNgate G				
	<ul style="list-style-type: none"> - Compact dimensions - Wide transmission range - With SMA, BNC or N connection 	DGA G SMA DGA G BNC DGA G N	929 039 929 042 929 044	356 356 356
DEHNgate AG				
	<ul style="list-style-type: none"> - Exchangeable gas discharge tube - Long endurance 	DGA AG BNC DGA AG N	929 043 929 045	357 357
DEHNgate LG / L4				
	<ul style="list-style-type: none"> - Wide transmission range for multi-frequency applications - Integrated quarterwave technology - With 7/16 or N connection 	DGA LG 7 16 MFA DGA L4 7 16 S DGA L4 7 16 MFA DGA L4 N EB	929 146 929 047 929 148 929 059	358 359 359 360

Surge Arrester

SPDs for Coaxial Connection



Surge arrester designed as cable adapter for protecting coaxial systems such as video and camera systems from potential damage.

- Plug-in surge protective adapter for easy retrofitting
- Directly plugs into terminal equipment with coaxial connections
- Integrated indirect shield earthing avoids leakage pickups

UGKF BNC shielded surge arresters are plugged into coaxial terminal equipment or connections. Common applications include the protection of outdoor video surveillance systems or video control centres. In order to avoid being influenced by leakage pickups, the cable shield is earthed indirectly via a gas discharge tube. The arrester inputs are used as sockets and the protected outputs as plugs. Devices for protecting video systems with a higher supply voltage or sockets on both ends are available on request.

We recommend to use DGA BNC VC... arresters for easy installation on a DIN rail. These space-saving surge arresters have BNC sockets and protect video and camera systems. Two versions are available: DGA BNC VCD with direct connection of the cable shield to the earth potential or DGA BNC VCID with indirect connection of the cable shield. The arresters are earthed via the DIN rail.



UGKF BNC can be directly plugged into the interfaces of terminal equipment.



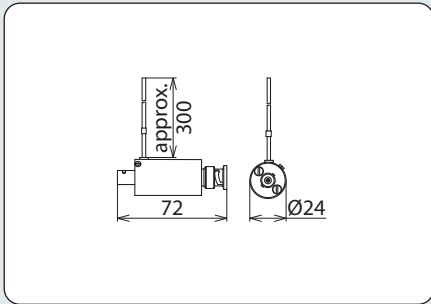
Different versions of UGKF BNC.



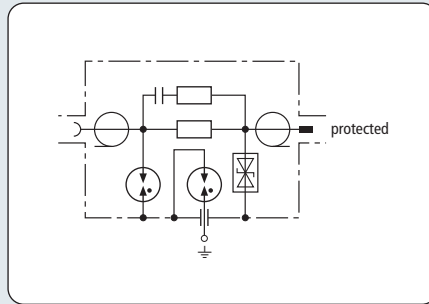
DGA BNC VC ... can be easily adapted due to BNC connection.



DGA BNC VC... can be easily mounted on DIN rails or walls.



Dimension drawing UGKF BNC



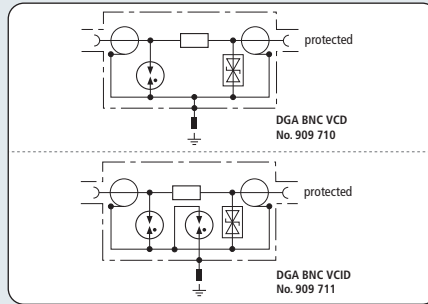
Basic circuit diagram UGKF BNC



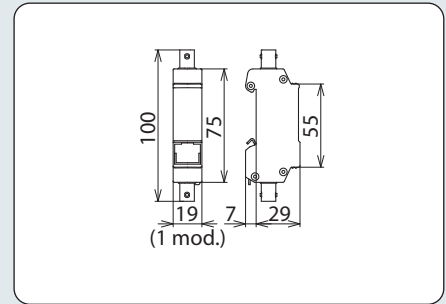
- Easily adaptable due to standard BNC connection
- Avoids leakage pickups
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

Two-stage surge arrester for protecting video cameras and Arcnet with BNC connection with indirect shield earthing to avoid being influenced by leakage pickups.

Type	UGKF BNC
Part No.	929 010
SPD class	TYPE 2 P1
Nominal voltage (U_N)	5 V
Max. continuous operating d.c. voltage (U_C)	8 V
Nominal current (I_N)	0.1 A
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5 kA
C2 Nominal discharge current (8/20 μ s) shield-PG (I_n)	10 kA
Voltage protection level line-shield for I_n C2 (U_p)	≤ 25 V
Voltage protection level line-shield at 1 kV/ μ s C3 (U_p)	≤ 15 V
Voltage protection level shield-PG at 1 kV/ μ s C3 (U_p)	≤ 600 V
Insertion loss at 300 MHz (50 ohms)	≤ 3 dB
Return loss at 40 MHz (50 ohms)	≥ 20 dB
Insertion loss at 265 MHz (75 ohms)	≤ 3 dB
Return loss at 40 MHz (75 ohms)	≥ 20 dB
Characteristic impedance (Z)	50 ohms / 75 ohms
Series resistance per line	10 ohms
Capacitance line-shield (C)	≤ 50 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Connection (input / output)	BNC socket / BNC plug
Earthing via	outgoing earth conductor (0.75 mm ²)
Shield earthing	indirectly via an integrated spark gap
Test standards	IEC 61643-21 / EN 61643-21
Approvals	CSA, UL, GOST



Basic circuit diagram DGA BNC VC



Dimension drawing DGA BNC VC

- Easily adaptable due to BNC sockets
- Available with direct or indirect shield earthing depending on the type
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

The space-saving surge arrester with BNC socket can be mounted on DIN rails for protecting video and camera systems. Available with direct (VCD) or indirect shield connection (VCID) depending on the type to avoid being influenced by leakage pickups.

Type	DGA BNC VCD	DGA BNC VCID
Part No.	909 710	909 711
SPD class	TYPE 2 P1	TYPE 2 P1
Nominal voltage (U_N)	5 V	5 V
Max. continuous operating d.c. voltage (U_C)	6.4 V	6.4 V
Nominal current (I_N)	0.1 A	0.1 A
D1 Lightning impulse current (10/350 μ s) (I_{imp})	1 kA	1 kA
C2 Nominal discharge current (8/20 μ s) shield-PG (I_n)	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) line-shield (I_n)	5 kA	5 kA
Voltage protection level line-shield for I_n C2 (U_p)	≤ 35 V	≤ 35 V
Voltage protection level shield-PG for I_n C2 (U_p)	—	≤ 650 V
Voltage protection level line-shield at 1 kV/ μ s C3 (U_p)	≤ 13 V	≤ 13 V
Voltage protection level shield-PG at 1 kV/ μ s C3 (U_p)	—	≤ 600 V
Frequency range	0-300 MHz	0-300 MHz
Insertion loss at 160 MHz	≤ 0.4 dB	≤ 0.4 dB
Insertion loss at 300 MHz	≤ 3 dB	≤ 3 dB
Return loss at 130 MHz	≥ 20 dB	≥ 20 dB
Return loss at 300 MHz	≥ 8 dB	≥ 10 dB
Characteristic impedance (Z)	50 ohms	50 ohms
Series resistance per line	4.7 ohms	4.7 ohms
Capacitance line-shield (C)	≤ 25 pF	≤ 25 pF
Capacitance shield-PG (C)	—	≤ 20 pF
Operating temperature range (T_U)	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection	IP 10	IP 10
For mounting on	35 mm DIN rails according to EN 60715	35 mm DIN rails according to EN 60715
Connection (input / output)	BNC socket / BNC socket	BNC socket / BNC socket
Earthing via	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	zinc die-casting	zinc die-casting
Colour	bare surface	bare surface
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	CSA, UL, GOST	CSA, UL, GOST

SPDs for Coaxial Connection

- Universal surge and combined arresters
- Maximum discharge capacity for coaxial systems
- Low voltage protection level allows to protect terminal equipment
- Contact materials with extremely long endurance

Lightning Current and Surge Arrester



DEHNgate is a family of lightning current / surge arresters designed as cable adapter for protecting coaxial systems such as cell sites and antenna systems from potential damage. Depending on the application, different mechanical and electrical types are available. The different designs and arrester technologies allow optimally adapted solutions for a wide range of applications.

DGA FF TV can be mounted onto a DIN rail in a space-saving way to protect satellite systems with several outputs. For single applications such as broadband cable connections, the device can be simply snapped into a wall-mounted adapter. Two F connections are also included.

The quarterwave surge arresters are bandpass filter. Only signals within a defined frequency band are transmitted. Since lightning interferences have a low frequency spectrum, the shorting stub acts as a short-circuit, conducting the lightning current to the ground. This makes the surge arresters mechanically very robust and almost maintenance-free. Due to their low protection level and high discharge capacity, they can be used as combined lightning current and surge arresters. If additional remote supply is needed for the antenna, a combination of a gas discharge tube and quarterwave technology (DGA LG) should be used. The arresters are made of top-quality materials and provide excellent endurance.



Surge arrester for satellite and broadband cable systems.



F connection for 75 ohm systems.



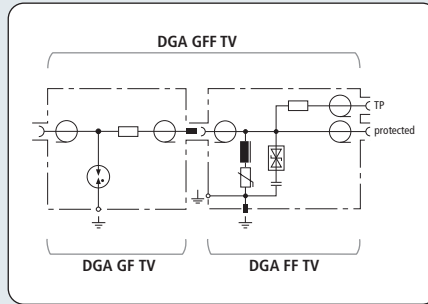
Types with exchangeable gas capsule.



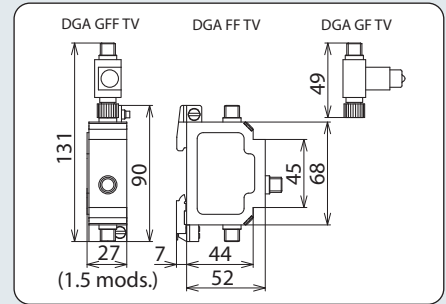
Maintenance-free quarterwave surge arresters for protecting high-frequency applications (e.g. LTE).

DGA TV

SPDs for Coaxial Connection



Basic circuit diagram DGA GFF TV consisting of DGA GF TV and DGA FF TV



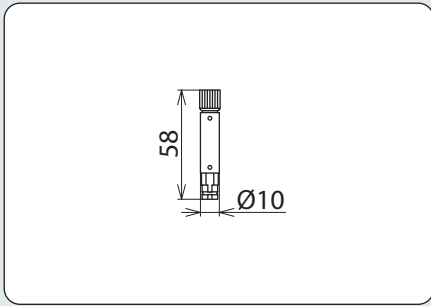
Dimension drawing DGA GFF TV consisting of DGA GF TV and DGA FF TV

- Frequency range for analogue and digital TV, also suitable for reverse LAN channels
- Arresters of type FF and GFF with integrated measuring output
- Three types for adapted use in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 (combined lightning current and surge arresters of type GFF), 0_A – 1 (lightning current arresters of type GF) and 1 – 2 (surge arresters of type FF)

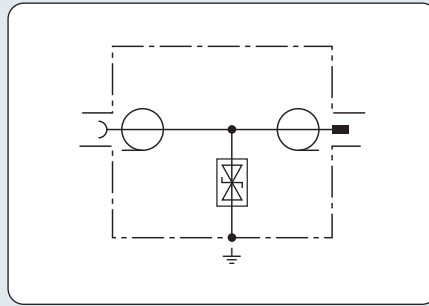
DGA ... TV are arresters with F connection for remote supply protect 75 ohm satellite and broadband cable systems and fulfil the high shielding requirements of class A according to EN 50083-2. They allow space-saving installation in all common TV and satellite applications and are available as lightning current arresters, surge arresters as well as combined lightning current and surge arresters with integrated measuring output for testing installations.

Type	DGA FF TV	DGA GF TV	DGA GFF TV
Part No.	909 703	909 704	909 705
SPD class	TYPE 3 P1	TYPE 1+	TYPE 1+ TYPE 3 P1
Max. continuous operating d.c. voltage (U _c)	24 V	60 V	24 V
Nominal current (I _n)	2 A	2 A	2 A
D1 Lightning impulse current (10/350 μs) (I _{imp})	0.2 kA	2.5 kA	2.5 kA
C2 Nominal discharge current (8/20 μs) (I _n)	1.5 kA	10 kA	10 kA
Voltage protection level for I _{imp} D1 (U _p)	≤ 230 V	≤ 700 V	≤ 230 V
Voltage protection level for I _n C2 (U _p)	≤ 300 V	≤ 700 V	≤ 300 V
Voltage protection level at 1 kV/μs C3 (U _p)	≤ 60 V	≤ 600 V	≤ 60 V
Frequency range	d.c. / 5-3000 MHz	0-2400 MHz	d.c. / 5-2400 MHz
Insertion loss	—	0.5 dB	—
Insertion loss 5-862 MHz typ.	1.2 dB	—	1.7 dB
Insertion loss 862-2400 MHz typ.	1.4 dB	—	1.9 dB
Insertion loss 2400-3000 MHz typ.	2 dB	—	—
Return loss	≥ 14 dB	≥ 18 dB (-1.5 dB/octave)	—
Return loss (5-8 MHz)	—	—	≥ 10 dB
Return loss (8-47 MHz)	—	—	≥ 14 dB
Return loss (47-2400 MHz)	≥ 18 dB (-1.5 dB/octave)	—	≥ 18 dB (-1.5 dB/octave)
Return loss test socket (5-47 MHz)	≥ 18 dB	—	≥ 18 dB
Test socket connection loss	20 dB	—	20 dB
Shield attenuation 5-300 MHz	≥ 85 dB	≥ 85 dB	≥ 85 dB
Shield attenuation 300-470 MHz	≥ 80 dB	≥ 80 dB	≥ 80 dB
Shield attenuation 470-1000 MHz	≥ 75 dB	≥ 75 dB	≥ 75 dB
Shield attenuation 1000-2400 MHz	≥ 55 dB	≥ 55 dB	≥ 55 dB
Characteristic impedance (Z)	75 ohms	75 ohms	75 ohms
Operating temperature range (T _U)	-40 °C ... +80 °C	-40 °C ... +80 °C	-40 °C ... +80 °C
Degree of protection (if lines are connected)	IP 30	IP 30	IP 30
For mounting on	35 mm DIN rails acc. to EN 60715 or wall mounting	earthing brackets	35 mm DIN rails acc. to EN 60715 or wall mounting
Connection (input / output)	F socket / F socket	F socket / F plug	F socket / F socket
Earthing via	DIN rail or screw connection	earthing bracket with screw connection	DIN rail or screw connection
Enclosure material	metal	metal	metal
Colour	bare surface	bare surface	bare surface
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	GOST	GOST	GOST
Accessories	2x F plugs	earthing bracket and 2x F plug	2x F plug

SPDs for Coaxial Connection



Dimension drawing DGA F



Basic circuit diagram DGA F



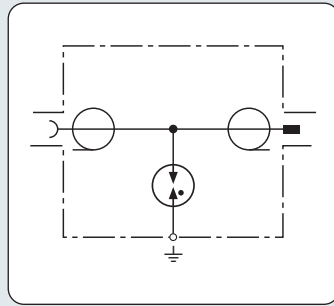
- Easy to retrofit
- For high transmission rates
- For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher

Quickly operating surge arrester for G.703 interfaces with low-capacitance diode matrix for optimised transmission performance. Earthing via enclosure. 1.6/5.6 connection.

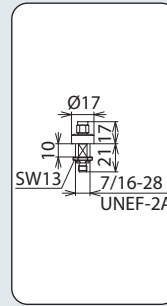
Type	DGA F 1.6 5.6
Part No.	929 040
SPD class	TYPE 3 P1
Nominal voltage (U _N)	5 V
Max. continuous operating d.c. voltage (U _C)	6 V
Nominal current (I _N)	0.25 A
C2 Nominal discharge current (8/20 µs) (I _n)	0.3 kA
Voltage protection level for I _n C2 (U _P)	≤ 30 V
Voltage protection level at 1 kV/µs C3 (U _P)	≤ 12 V
Frequency range	0-80 MHz
Insertion loss	≤ 0.2 dB
Characteristic impedance (Z)	75 ohms
Capacitance line-shield (C)	50 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection	IP 20
Connection	1.6/5.6 plug / 1.6/5.6 socket
Earthing via	externally via shield earthing
Enclosure material	metal
Colour	bare surface
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

DGA G

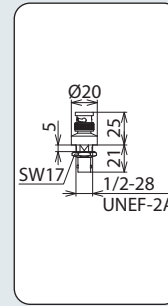
SPDs for Coaxial Connection



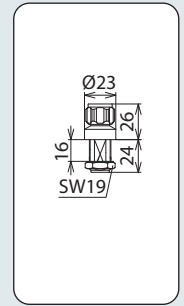
Basic circuit diagram DGA G



Dimension drawing DGA G SMA



Dimension drawing DGA G BNC



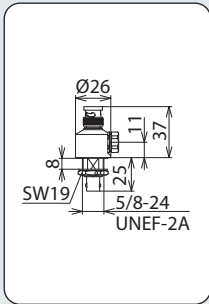
Dimension drawing DGA G N

- Compact dimensions
- Extremely wide transmission range
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 1$ and higher

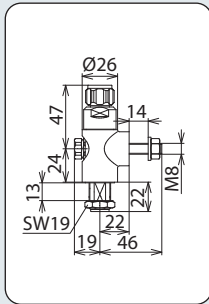
Surge arrester for remote power supply with integrated gas discharge tube. Ideally suited for wireless applications for the coaxial interfaces of devices and antennas.

Available with SMA, BNC or N connection for bushing installation.

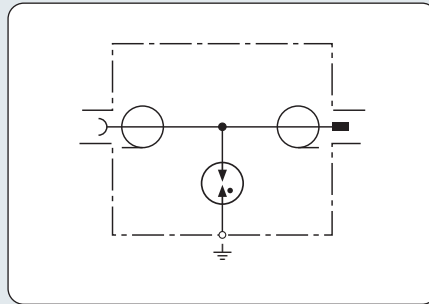
Type	DGA G SMA	DGA G BNC	DGA G N
Part No.	929 039	929 042	929 044
SPD class	TYPE 2	TYPE 2	TYPE 2
Max. continuous operating d.c. voltage (U_c)	135 V	135 V	135 V
Nominal current (I_n)	2 A	3.5 A	6 A
Max. transmission capacity	60 W	25 W	25 W
D1 Lightning impulse current (10/350 μ s) (I_{imp})	1 kA	1 kA	1 kA
C2 Nominal discharge current (8/20 μ s) (I_n)	5 kA	5 kA	5 kA
Voltage protection level for I_n C2 (U_p)	≤ 700 V	≤ 650 V	≤ 650 V
Frequency range	0-5.8 GHz	0-4 GHz	0-5.8 GHz
Insertion loss	≤ 0.2 dB	≤ 0.2 dB	≤ 0.2 dB
Return loss (d.c. - 3 GHz)	≥ 20 dB	≥ 20 dB	≥ 20 dB
Return loss (3 GHz-4 GHz)	≥ 18 dB	≥ 20 dB	≥ 20 dB
Return loss (4 GHz-5.8 GHz)	≥ 18 dB	—	≥ 20 dB
Characteristic impedance (Z)	50 ohms	50 ohms	50 ohms
Operating temperature range (T_u)	-40 °C ... +85 °C	-40 °C ... +85 °C	-40 °C ... +85 °C
Degree of protection (if lines are connected)	IP 65	IP 20	IP 65
Connection	SMA socket / SMA plug	BNC socket / BNC plug	N socket / N plug
Earthing via	bushing (Ø11.2 mm)	bushing (Ø12.9 mm)	bushing (Ø16.2 mm)
Enclosure material	gold-plated brass	brass, gold-plated	brass, gold-plated
Colour	gold	gold	gold
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	GOST	GOST	GOST



Dimension drawings
DGA AG BNC



Dimension drawings
DGA AG N



Basic circuit diagram DGA AG



Arrester suitable for remote supply with exchangeable gas discharge tube. Long endurance due to minimum contact erosion resulting from the large-area contact surface of the gas discharge tube.

- Large-area contact surface of gas discharge tubes
- Longevity due to minimum contact erosion at the inner conductor
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$ and higher

Type	DGA AG BNC	DGA AG N
Part No.	929 043	929 045
SPD class	TYPE 1	TYPE 1
Max. continuous operating d.c. voltage (U_c)	180 V	180 V
Nominal current (I_n)	3.5 A	6 A
Max. transmission capacity	150 W	150 W
D1 Lightning impulse current (10/350 μ s) (I_{imp})	5 kA	5 kA
C2 Nominal discharge current (8/20 μ s) (I_n)	20 kA	20 kA
Voltage protection level for I_n C2 (U_p)	≤ 850 V	≤ 850 V
Frequency range	0-1 GHz	0-2.5 GHz
Insertion loss	< 0.1 dB	< 0.2 dB
Return loss	≥ 19 dB	≥ 20 dB
Characteristic impedance (Z)	50 ohms	50 ohms
Operating temperature range (T_U)	-40 °C ... +85 °C	-40 °C ... +85 °C
Degree of protection	IP 20	IP 65
Connection	BNC socket / BNC plug	N socket / N plug
Earthing via	bushing ($\varnothing 16.1$ mm)	bushing ($\varnothing 16.1$ mm) or earthing screw
Enclosure material	brass, refined surface with trimetal plating	brass, refined surface with trimetal plating
Colour	bare surface	bare surface
Exchangeable gas discharge tube	yes	yes
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	GOST	GOST

Accessory for DEHNgate

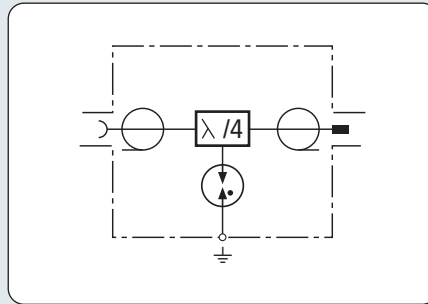
Gas Discharge Tube for DEHNgate

Lightning current carrying replacement gas discharge tube for DEHNgate arresters. High quality with extremely low capacitance.

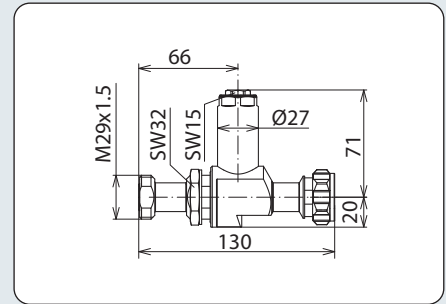
Type	GDT DGA 230
Part No.	929 498
Lightning impulse current carrying capability (10/350 μ s)	5 kA
Design	H 8 x 6 mm



NEW



Basic circuit diagram DGA LG 7 16 MFA



Dimension drawing DGA LG 7 16 MFA

- For multi-frequency applications with d.c. power supply
- Maximum transmission and PIM performance
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_A - 1$ and higher

Quarterwave arrester with a spark gap for remote supply protects multi-frequency applications (multi-carrier systems) due to minimum passive intermodulation. Broadband device for all 4+3G and LTE services.

Type	DGA LG 7 16 MFA
Part No.	929 146
SPD class	TYPE 1
Max. continuous operating d.c. voltage (U_c)	65 V
Nominal current (I_n)	13 A
Max. transmission capacity	1500 W
D1 Lightning impulse current (10/350 μ s) (I_{imp})	5 kA
C2 Nominal discharge current (8/20 μ s) (I_n)	20 kA
Voltage protection level for I_n C2 (U_p)	≤ 800 V
Frequency range	690 MHz-2.7 GHz
Insertion loss	≤ 0.1 dB
Return loss	≥ 28 dB
Characteristic impedance (Z)	50 ohms
Intermodulation	typ. -160 dBc @ 2*43 dBm
Operating temperature range (T_u)	-40 °C ... +85 °C
Degree of protection	IP 67
Connection	7/16 socket / 7/16 plug
Earthing via	bushing (\varnothing 29.5 mm) or M8 earthing screw
Enclosure material	brass, refined surface with trimetal plating
Colour	bare surface
Exchangeable gas discharge tube	yes
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

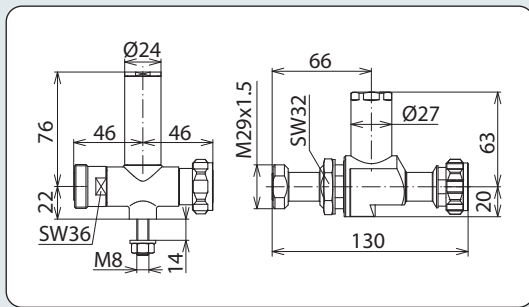
Accessory for DEHNgate

Gas Discharge Tube for DEHNgate

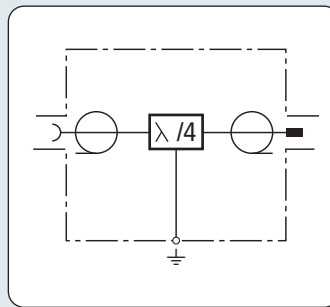
Lightning current carrying replacement gas discharge tube for DEHNgate arresters. High quality with extremely low capacitance.



Type	GDT DGA 90
Part No.	929 497
Lightning impulse current carrying capability (10/350 μ s)	5 kA
Design	H 8 x 6 mm



Dimension drawing DGA L4 7 16 S / DGA L4 7 16 MFA



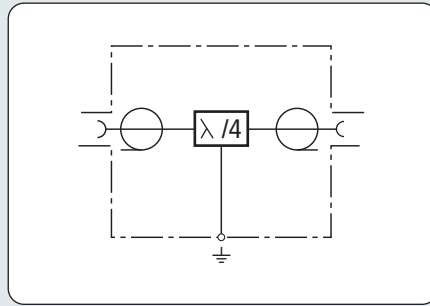
Basic circuit diagram DGA L4



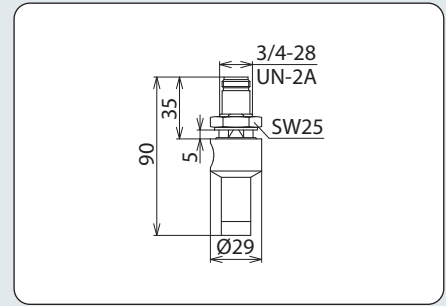
- Maintenance-free combined lightning current and surge arrester for multi-frequency applications
- Maximum transmission and PIM performance
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

Combined lightning current and surge arrester with maintenance-free quarterwave technology for multi-frequency applications (multi-carrier systems). The arrester is also capable of discharging high partial lightning currents. No remote supply as the arrester represents an electrical short-circuit for low-frequency signals. Broadband device for all 4+3G services.

Type	DGA L4 7 16 S	DGA L4 7 16 MFA
Part No.	929 047	929 148
SPD class	TYPE 1 P1	TYPE 1 P1
Max. continuous operating d.c. voltage (U _c)	0 V	0 V
Nominal current (I _n)	0 A	0 A
Max. transmission capacity	3000 W	1500 W
D1 Lightning impulse current (10/350 μs) (I _{imp})	25 kA	40 kA
C2 Nominal discharge current (8/20 μs) (I _n)	50 kA	80 kA
Voltage protection level for I _n C2 (U _p)	≤ 130 V	≤ 300 V
Frequency range	380-512 MHz	690 MHz-2.7 GHz
Insertion loss	< 0.1 dB	≤ 0.1 dB
Return loss	≥ 20 dB	≥ 28 dB
Characteristic impedance (Z)	50 ohms	50 ohms
Intermodulation	—	typ. -160 dBc @ 2*43 dBm
Operating temperature range (T _u)	-40 °C ... +85 °C	-40 °C ... +85 °C
Degree of protection	IP 65	IP 67
Connection	7/16 socket / 7/16 plug	7/16 socket / 7/16 plug
Earthing via	earthing screw	bushing (Ø 29.5 mm) or M8 earthing screw
Enclosure material	brass, refined surface with trimetal plating	brass, refined surface with trimetal plating
Colour	bare surface	bare surface
Test standards	IEC 61643-21 / EN 61643-21	IEC 61643-21 / EN 61643-21
Approvals	GOST	GOST



Basic circuit diagram DGA L4 N EB



Dimension drawing DGA L4 N EB

- Maintenance-free combined lightning current and surge arrester, optimised bandwidth and dimensions
- Maximum transmission performance for WiMax and Wi-Fi applications
- For installation in conformity with the lightning protection zone concept at the boundaries from 0_A – 2 and higher

Extremely broadband combined lightning current and surge arrester with maintenance-free quarterwave technology, adapted frequency band for Broadband Wireless Access applications and compact dimensions of the enclosure. No remote supply as the arrester represents an electrical short-circuit for low-frequency signals.

Type	DGA L4 N EB
Part No.	929 059
SPD class	TYPE 1 P1
Nominal voltage (U _N)	0 V
Max. continuous operating d.c. voltage (U _C)	0 V
Nominal current (I _N)	0 A
Max. transmission capacity	300 W
D1 Lightning impulse current (10/350 µs) (I _{imp})	25 kA
C2 Nominal discharge current (8/20 µs) (I _n)	50 kA
Voltage protection level for I _{imp} D1 (U _P)	≤ 18 V
Voltage protection level for I _n C2 (U _P)	≤ 30 V
Frequency range	2.0-6.0 GHz
Insertion loss	≤ 0.2 dB
Return loss	≥ 20 dB
Characteristic impedance (Z)	50 ohms
Operating temperature range (T _U)	-40 °C ... +85 °C
Degree of protection	IP 65
Connection	N socket / N socket
Earthing via	bushing (Ø19.3 mm)
Enclosure material	aluminium
Colour	bare surface
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

SPDs for Coaxial Connection

Gas Discharge Tube for DEHNgate

Lightning current carrying replacement gas discharge tube for DEHNgate arresters. High quality with extremely low capacitance.

Type GDT ...	DGA 90	DGA 230	DGA 470
Part No.	929 497	929 498	929 499
Lightning impulse current carrying capability (10/350 µs)	5 kA	5 kA	5 kA
Design	H 8 x 6 mm	H 8 x 6 mm	H 8 x 6 mm
Integrated into Part No.	929 046, 929 146	929 043, 929 045	—



Cable Lug with Earthing Conductor

Cable lug with highly flexible black copper earthing conductor for earthing DEHNgate arresters (Part Nos. 929 043, 929 044 or 929 045).

Type	EL 16 B17
Part No.	929 096
Colour	black



Earthing Block 4xF

Four-pole earthing block with F sockets for equipotential bonding of satellite cable shields or DGA GF TV lightning current arresters.

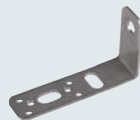
Type	EB 4 F
Part No.	929 095
Max. continuous operating d.c. voltage	65 V
D1 Lightning impulse current (10/350 µs)	10 kA
Frequency range	0-2400 MHz



Angled Fixing Plate for DEHNgate

Suitable for installing a DEHNgate arrester (Part Nos. 929 045, 929 146, 929 047, 929 148).

Part No.	106 310
Material	stainless steel



Angled Fixing Plate

Suitable for installing a DEHNgate arrester (Part Nos. 929 043 - 929 045), anti-rotation borehole (Ø16 mm)

Part No.	106 314
Material	stainless steel



Angled Fixing Plate

With three boreholes for three different sizes of DEHNgate, e.g. 1x 929 042 + 1x 929 057 + 1x (929 043, 929 044, 929 045 or 929 059).

Part No.	106 329
Material	stainless steel



Equipotential Bonding Busbar for industrial Use

Suitable for 3x DEHNgate (Part Nos. 929 045, 929 047, 929 146, 929 148, 929 446).

Type	PAS I 6AP M10 V2A
Part No.	472 209
Material	stainless steel



Earthing Conductor, open / closed Cable Lugs

Cable lug 1x open (M8/M10) and 1x closed (M8), can be combined with Part Nos. 106 310, 106 314, 106 329 and 472 209.

Part No.	416 411
Colour	black



- Surge arrester with SUB-D connection for easy retrofitting
- 9-pin, 15-pin or 25-pin shielded types
- Arrester with single-stage (FS) or two-stage (USD) protective circuit



Surge arrester with SUB-D connection (socket / pin version). Alternative pinning available on request for the USD series.

The surge arresters are available in a shielded enclosure with SUB-D connection (socket / pin version). The UNC threaded screws of the FS surge arresters for protecting terminal equipment can be exchanged as required. The thread is thus situated either on the pin or socket side,

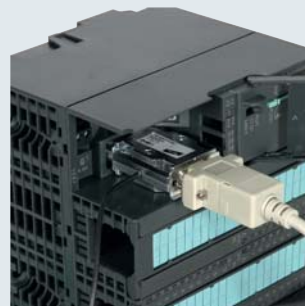
depending on the application. In switchgear cabinets, the powerful USD surge arrester can be snapped onto the DIN rail. Special types with other pinning or circuits are also available.



SUB-D connection for easy installation.



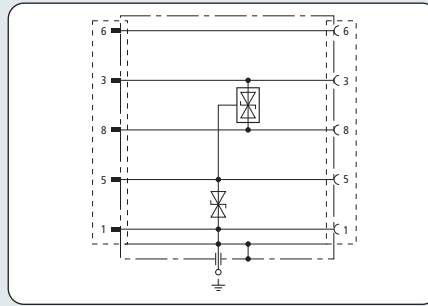
USD surge arresters are snapped onto a DIN rail. Overvoltage is discharged via the DIN rail.



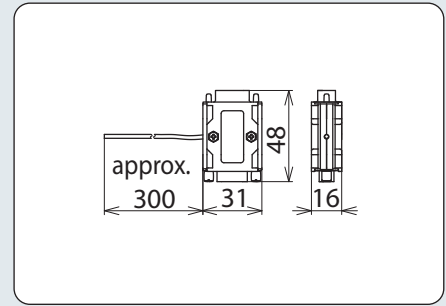
Direct connection of the device ensures optimal protection.



9-pin, 15-pin and 25-pin SUB-D version available.



Basic circuit diagram FS 9E PB

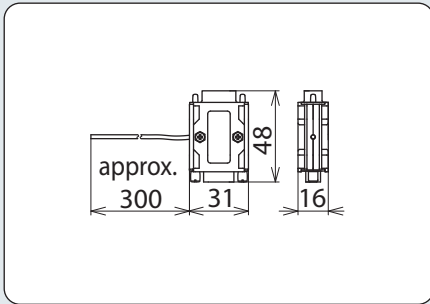


Dimension drawing FS 9E PB

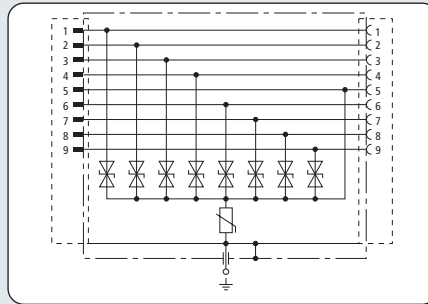
- Adapted to Profibus-DP
- Transmission up to 12 MBit/s
- For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher

Surge arrester for Profibus-DP. 9-pin SUB-D version, pin 6 unprotected for the programming interface.

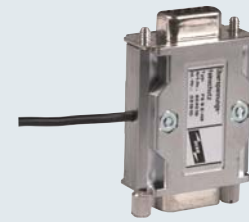
Type	FS 9E PB 6
Part No.	924 017
SPD class	TYPE 4 P1
Nominal voltage (U_N)	6 V
Max. continuous operating d.c. voltage (U_C)	7 V
C1 Nominal discharge current (8/20 μ s) line-line (I_n)	0.2 kA
C1 Nominal discharge current (8/20 μ s) line-SG (I_n)	0.2 kA
C1 Nominal discharge current (8/20 μ s) SG-PG (I_n)	0.4 kA
C2 Nominal discharge current (8/20 μ s) line-line (I_n)	0.2 kA
C2 Nominal discharge current (8/20 μ s) line-SG (I_n)	0.2 kA
C2 Nominal discharge current (8/20 μ s) SG-PG (I_n)	0.4 kA
Voltage protection level line-line for I_n C1 (U_p)	≤ 32 V
Voltage protection level line-SG for I_n C1 (U_p)	≤ 32 V
Voltage protection level SG-PG for I_n C1 (U_p)	≤ 25 V
Voltage protection level line-line at 1 kV/ μ s C3 (U_C)	≤ 25 V
Voltage protection level line-SG at 1 kV/ μ s C3 (U_p)	≤ 25 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 18 V
Cut-off frequency (f_C)	90 MHz
Capacitance line-line (C)	25 pF
Capacitance line-SG (C)	35 pF
Operating temperature range (T_U)	-40 °C ... +80 °C
Degree of protection	IP 40
For mounting on	SUB-D (2 threaded screws 4/40 UNC)
Connection (input / output)	SUB-D 9 plug / SUB-D 9 socket
Pinning	line: 3/8, SG: 5, PG: 1, 6: unprotected
Earthing via	outgoing earthing conductor (0.75 mm ²)
Length of the connecting line	300 mm (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST



Dimension drawing FS 9E HS



Basic circuit diagram FS 9E HS



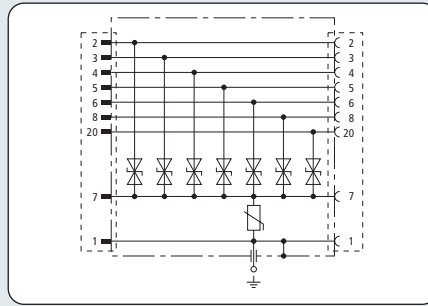
- All pins protected
- Low voltage protection level
- For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher

Surge arrester for V-24 interfaces with handshake. 9-pin SUB-D version.

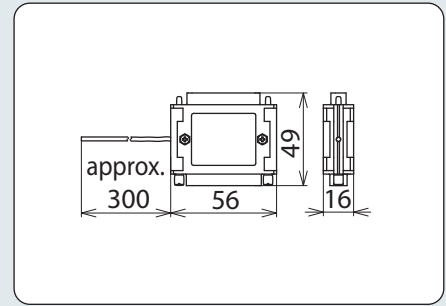
Type	FS 9E HS 12
Part No.	924 019
SPD class	TYPE 4 P1
Nominal voltage (U _N)	12 V
Max. continuous operating d.c. voltage (U _c)	15 V
C1 Nominal discharge current (8/20 μs) line-SG (I _n)	0.1 kA
C1 Nominal discharge current (8/20 μs) SG-PG (I _n)	0.1 kA
Voltage protection level line-SG for I _n C1 (U _p)	≤ 24 V
Voltage protection level SG-PG for I _n C1 (U _p)	≤ 200 V
Voltage protection level line-SG at 1 kV/μs C3 (U _p)	≤ 21 V
Voltage protection level SG-PG at 1 kV/μs C3 (U _p)	≤ 130 V
Cut-off frequency (f _c)	10 MHz
Capacitance line-SG (C)	700 pF
Capacitance SG-PG (C)	350 pF
Operating temperature range (T _u)	-40 °C ... +80 °C
Degree of protection	IP 40
For mounting on	SUB-D (2 threaded screws 4/40 UNC)
Connection (input / output)	SUB-D 9 plug / SUB-D 9 socket
Pinning	line: 1/2/3/4/6/7/8/9, SG: 5
Earthing via	outgoing earthing conductor (0.75 mm ²)
Length of the connecting line	300 mm (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

FS 25E HS

SPDs for SUB-D Connection



Basic circuit diagram FS 25E HS

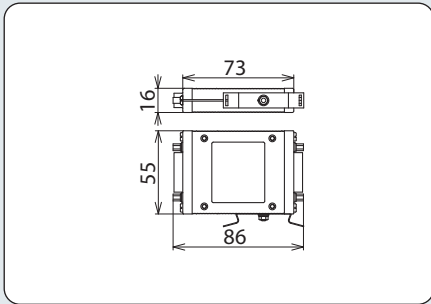


Dimension drawing FS 25E HS

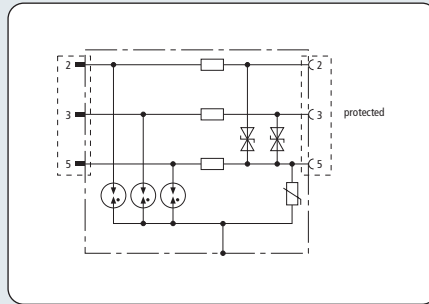
- All lines interconnected
- Low voltage protection level
- For installation in conformity with the lightning protection zone concept at the boundaries from 1 – 2 and higher

Surge arrester for V.24 interfaces with handshake. 25-pin SUB-D version.

Type	FS 25E HS 12
Part No.	924 018
SPD class	TYPE 4 P1
Nominal voltage (U _N)	12 V
Max. continuous operating d.c. voltage (U _c)	15 V
C1 Nominal discharge current (8/20 μs) line-SG (I _n)	0.1 kA
C1 Nominal discharge current (8/20 μs) SG-PG (I _n)	0.1 kA
Voltage protection level line-SG for I _n C1 (U _p)	≤ 24 V
Voltage protection level SG-PG for I _n C1 (U _p)	≤ 200 V
Voltage protection level line-SG at 1 kV/μs C3 (U _p)	≤ 21 V
Voltage protection level SG-PG at 1 kV/μs C3 (U _p)	≤ 130 V
Cut-off frequency (f _c)	10 MHz
Capacitance line-SG (C)	700 pF
Capacitance SG-PG (C)	350 pF
Operating temperature range (T _U)	-40 °C ... +80 °C
Degree of protection	IP 40
For mounting on	SUB-D (2 threaded screws 4/40 UNC)
Connection (input / output)	SUB-D 25 plug / SUB-D 25 socket
Pinning	line: 2/3/4/5/6/8/20, SG: 7, other lines are unprotected
Earthing via	outgoing earthing conductor (0.75 mm ²)
Length of the connecting line	300 mm (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST



Dimension drawing USD 9 V24



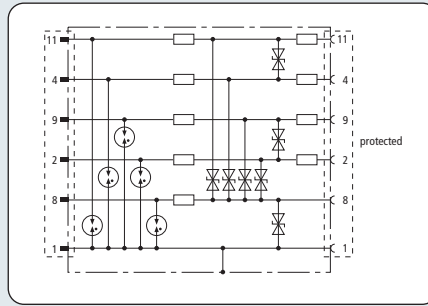
Basic circuit diagram USD 9 V24



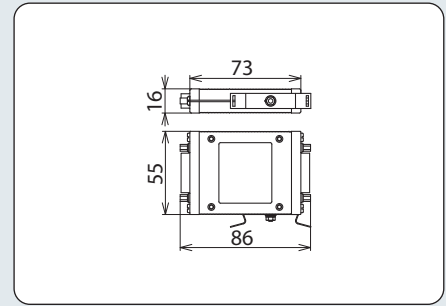
- Plug-in surge arrester with two-stage protective circuit
- For installation in conformity with the lightning protection zone concept at the boundaries from $O_B - 2$ and higher

Energy-coordinated two-stage arrester for V.24 interfaces. 9-pin SUB-D version.

Type	USD 9 V24 S B
Part No.	924 061
SPD class	TYPE 2 P1
Nominal voltage (U_N)	12 V
Max. continuous operating d.c. voltage (U_C)	12.5 V
C2 Nominal discharge current (8/20 μ s) line-PG (I_n)	2.5 kA
C2 Nominal discharge current (8/20 μ s) SG-PG (I_n)	7.5 kA
Voltage protection level line-SG for I_n C2 (U_p)	≤ 22 V
Voltage protection level SG-PG for I_n C2 (U_p)	≤ 330 V
Voltage protection level line-SG at 1 kV/ μ s C3 (U_p)	≤ 18 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 220 V
Series resistance per line	15 ohms
Operating temperature range (T_U)	-40 °C ... +80 °C
For mounting on	SUB-D or 35 mm DIN rails acc. to EN 60715
Connection (input / output)	SUB-D 9 plug / SUB-D 9 socket
Pinning	line: 2/3, SG: 5
Earthing via	earthing screw or DIN rail
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST



Basic circuit diagram USD 15 V11



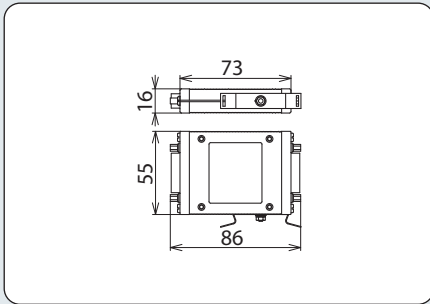
Dimension drawing USD 15 V11

- Plug-in surge arrester with two-stage protective circuit
- Protective circuit decoupled with regard to the terminal equipment
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

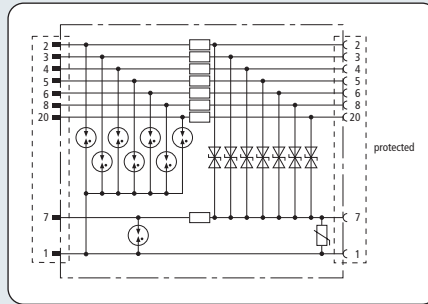
Energy-coordinated two-stage arrester for RS422, V.11 interfaces with diode protective circuit at the input. 15-pin SUB-D version.

Type	USD 15 V11 S B
Part No.	924 051
SPD class	TYPE 2 P1
Nominal voltage (U_N)	8 V
Max. continuous operating d.c. voltage (U_c)	8.5 V
C2 Nominal discharge current (8/20 μ s) line-PG (I_n)	2.5 kA
C2 Nominal discharge current (8/20 μ s) SG-PG (I_n)	7.5 kA
Voltage protection level line-line for I_n C2 (U_p)	≤ 55 V
Voltage protection level line-SG for I_n C2 (U_p)	≤ 30 V
Voltage protection level SG-PG for I_n C2 (U_p)	≤ 35 V
Voltage protection level line-line / line-SG at 1 kV/ μ s C3 (U_p)	≤ 15 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 15 V
Series resistance per line	37 ohms
Operating temperature range (T_U)	-40 °C ... +80 °C
For mounting on	SUB-D or 35 mm DIN rails acc. to EN 60715
Connection (input / output)	SUB-D 15 plug / SUB-D 15 socket
Pinning	line: 2/9/4/11, SG: 8, PG: 1
Earthing via	earthing screw or DIN rail
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

SPDs for SUB-D Connection



Dimension drawing USD 25 V24



Basic circuit diagram USD 25 V24







- Plug-in surge arrester with two-stage protective circuit
- For installation in conformity with the lightning protection zone concept at the boundaries from $0_B - 2$ and higher

Energy-coordinated two-stage arrester for V.24 interfaces with handshake. 25-pin SUB-D version.

Type	USD 25 V24 HS S B
Part No.	924 046
SPD class	TYPE 2 P1
Nominal voltage (U_N)	12 V
Max. continuous operating d.c. voltage (U_c)	12.5 V
C2 Nominal discharge current (8/20 μ s) line-PG (I_n)	2.5 kA
C2 Nominal discharge current (8/20 μ s) SG-PG (I_n)	7.5 kA
Voltage protection level line-SG for I_n C2 (U_p)	≤ 27 V
Voltage protection level SG-PG / line-PG for I_n C2 (U_p)	≤ 330 V
Voltage protection level line-SG at 1 kV/ μ s C3 (U_p)	≤ 18 V
Voltage protection level SG-PG at 1 kV/ μ s C3 (U_p)	≤ 220 V
Series resistance per line	15 ohms
Operating temperature range (T_u)	-40 °C ... +80 °C
Connection (input / output)	SUB-D 25 plug / SUB-D 25 socket
Pinning	line: 2/3/4/5/6/8/20, SG: 7, PG: 1
Earthing via	earthing screw or DIN rail
Test standards	IEC 61643-21 / EN 61643-21
Approvals	GOST

Shield Connection Systems and Enclosures

Product	Description	Type	Part No.	Page
Shield connection on anchor bars				
	<ul style="list-style-type: none"> – Shield terminals for earthing cable shields on anchor bars – Different versions for different cable diameters – Lightning current carrying system 	SAK ... AS V4A	308 403 – 308 408	373
	<ul style="list-style-type: none"> – Mounting rail for earthing and fixing shield terminals – Can be cut to length according to requirements 	AS SAK 1000 V2A	308 421	373
Shield connection on DIN rails				
	<ul style="list-style-type: none"> – Shield terminals for earthing cable shields on DIN rails – Different versions for different cable diameters – Lightning current carrying system 	SAK 6.5 SN MS SAK 11 SN MS	919 010 919 011	375 375
	<ul style="list-style-type: none"> – DIN rail mounted rail support – Low-impedance connection of the shield terminals to the DIN rail via the busbar 	SH1 18X3 ST SH2 18X3 ST	919 012 919 013	376 376
	<ul style="list-style-type: none"> – Busbar for shield terminals – Can be mounted onto busbar supports – Can be cut to length according to requirements 	SN 18X3 CU 1000	919 016	376
Shield connection for cables				
	<ul style="list-style-type: none"> – Constant force spring for solderless shield connection for equipotential bonding – Different versions for different cable diameters – Lightning current carrying system 	SA KRF ... V2A	919 031 – 919 038	379
Enclosure				
	<ul style="list-style-type: none"> – Aluminium enclosure for DIN rail mounted devices – IP 65 degree of protection – Version for arresters for use in intrinsically safe measuring circuits Ex (i) 	ALGA 5 ALGA 5X	906 055 906 058	380 380



Lightning current carrying shield connection system for anchor bars. A slipping spring element compensates the yield of the cable materials used.

The lightning-impulse-current-tested shield connection system is specifically used on anchor bars. As, in the course of time, the cable materials are subject to a yield, this yield is compensated by a slipping spring ele-

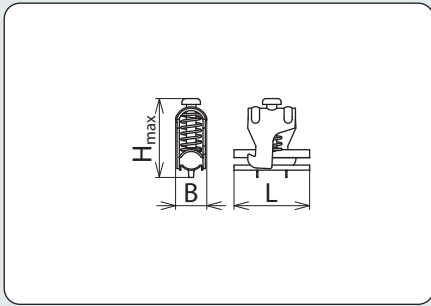
- Lightning-impulse-current-tested up to 10 kA (10/350 μ s)
- Corrosion-resistant stainless steel
- Spring element ensures permanent shield connection

ment. The shield connection can also be isolated from local potential by means of an adequate insulating joint.



Shield connection system on an anchor bar

This very robust shield connection system is particularly suited for cables with medium-sized diameters. It has been tested with lightning currents and is approved for nuclear plants.



Dimension drawing SAK

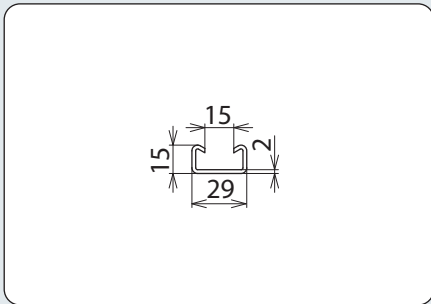


- Lightning current carrying system for anchor bars
- Large-area shield contact
- Compensates the yield of cable materials

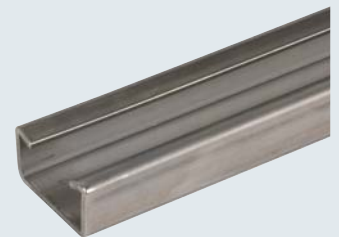
Shield terminals for earthing cable shields on anchor bars. Suitable for lightning equipotential bonding. Can be subsequently installed without interrupting the cable shield or requiring tools for installation. Approved for use in nuclear plants with TÜV test certificate ETL 10/PB 301/97 (TÜV = German Technical Inspectorate).

Type	SAK 10 AS V4A	SAK 14 AS V4A	SAK 18 AS V4A	SAK 21 AS V4A	SAK 26 AS V4A	SAK 33 AS V4A
Part No.	308 403	308 404	308 405	308 406	308 407	308 408
Lightning impulse current carrying capability (10/350 µs)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
Clamping range (Rd)	5-10 mm	8-14 mm	13-18 mm	17-21 mm	19-26 mm	25-33 mm
Material	StSt	StSt	StSt	StSt	StSt	StSt
Spring pressure	21-27 N	30-76 N	34-73 N	30-63 N	90-124 N	76-137 N
For mounting on	anchor bars	anchor bars	anchor bars	anchor bars	anchor bars	anchor bars
Dimensions (W x L x H)	16 x 40 x 48 mm	19.5 x 40 x 50 mm	24 x 40 x 56 mm	29 x 40 x 59 mm	36.5 x 40 x 74 mm	45 x 40 x 82 mm
Approvals	ETL 10/PB 301/97	ETL 10/PB 301/97	ETL 10/PB 301/97	ETL 10/PB 301/97	ETL 10/PB 301/97	ETL 10/PB 301/97

Anchor Bar



Dimension drawing AS SAK 1000 V2A



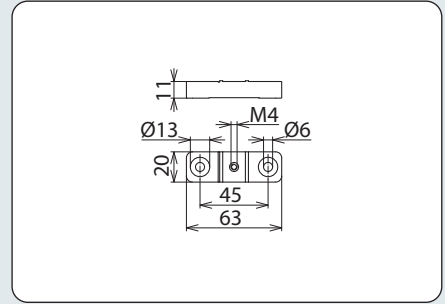
- Can be cut to length according to requirements

Mounting rail for earthing and fixing shield terminals.

Type	AS SAK 1000 V2A
Part No.	308 421
Material	StSt
Dimensions (W x L x H)	29 x 1000 x 15 mm
Approvals	ETL 10/PB 301/97

Insulated Busbar Support

Shield Connection Systems and Enclosures



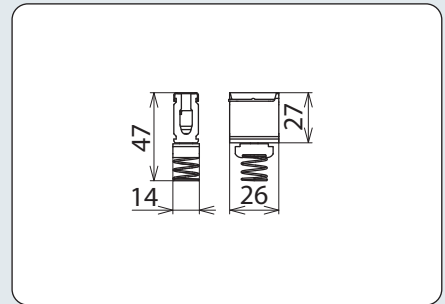
Dimension drawing ST AS SAK K

- Non-conductive connection between the mounting plate and the anchor bar
- Equipotential bonding via AK 16 AS SAK MS terminal

Busbar support for insulated fixing of AS SAK 1000 V2A anchor bars, with M4 threaded bushing.

Type	ST AS SAK K
Part No.	308 425
Material	plastic
Approvals	ETL 10/PB 301/97

Terminal



Dimension drawing AK 16 AS SAK MS

- Space-saving
- Two fixing screws for conductors included

For connecting equipotential bonding conductors to AS SAK 1000 V2A anchor bars.

Type	AK 16 AS SAK MS
Part No.	308 411
Cross-sectional area, solid	16 mm ²
For mounting on	anchor bars
Approvals	ETL 10/PB 301/97

Shield Connection Systems and Enclosures

- Lightning-impulse-current-tested up to 5 kA (10/350 μ s)
- Corrosion-resistant stainless steel
- Spring element ensures permanent shield connection

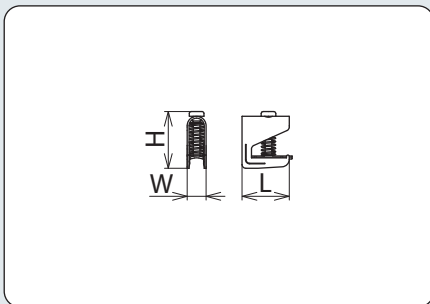


Lightning current carrying DIN rail mounted shield connection system, ideally suited for small cables. Slipping spring element compensates the yield of the cable materials.

The lightning-impulse-current-tested DIN rail mounted shield connection system for a wide range of applications is ideally suited for small cable diameters such as bus cables. As, in the course of time, the conductor

materials are subject to a yield, this is compensated by a slipping spring element. The shield connection can also be isolated from local potential by means of an adequate insulating element.

Shield Terminals



Dimension drawing SAK



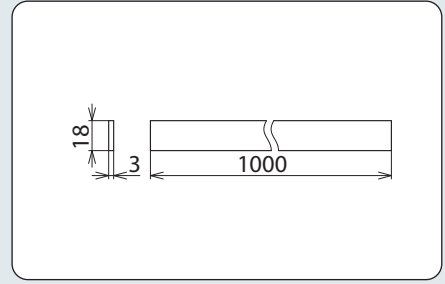
- Lightning current carrying system for busbars
- Large-area shield contact
- Compensates the yield of cable materials

Shield terminals for earthing cable shields on busbars (18x3). Suitable for lightning equipotential bonding. Can be subsequently installed without interrupting the cable shield or requiring tools for installation.

Type	SAK 6.5 SN MS	SAK 11 SN MS
Part No.	919 010	919 011
Lightning impulse current carrying capability (10/350 μ s)	5 kA	5 kA
Clamping range (Rd)	1.5-6.5 mm	5-11 mm
Material	nickel-plated brass	nickel-plated brass
Spring pressure	8-13 N	22-31 N
For mounting on	SN 18x3 CU 1000	SN 18x3 CU 1000
Dimensions (W x L x H)	10 x 25 x 40 mm	17 x 25 x 47 mm

Busbar

Shield Connection Systems and Enclosures



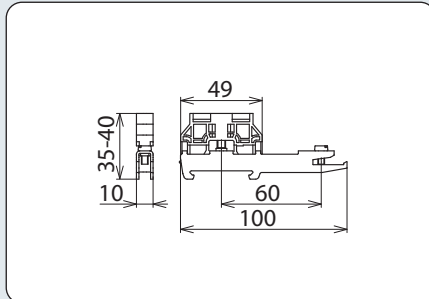
Dimension drawing SN 18X3 CU 1000

- Can be cut to length according to requirements
- Can be mounted onto busbar supports

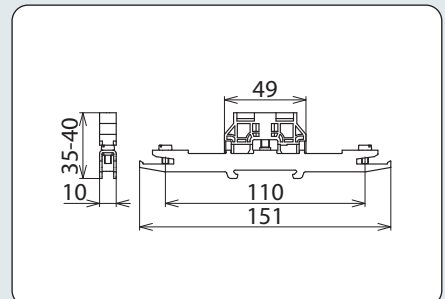
Mounting rail for shield terminals. Can be mounted onto busbar supports.

Type	SN 18X3 CU 1000
Part No.	919 016
Material	tin-plated copper
For mounting on	busbar supports
Dimensions (W x L x H)	18 x 1000 x 3 mm

Rail Support with one-sided / two-sided Contact



Dimension drawing SH1 18X3 ST

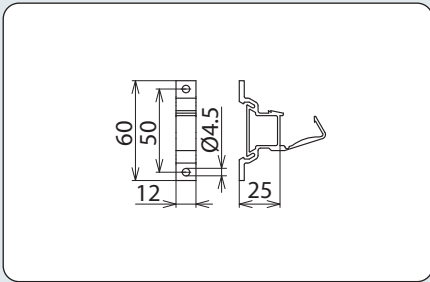


Dimension drawing SH2 18X3 ST

- Extremely space-saving
- With one-sided / two-sided contact
- For 35 mm DIN rails acc. to EN 60715

Rail support suitable for DIN rail mounting. Low-impedance connection of the shield terminals to the DIN rail via the busbar.

Type	SH1 18X3 ST	SH2 18X3 ST
Part No.	919 012	919 013
Version	one-sided contact	two-sided contact
Material	tin-plated steel	tin-plated steel
For mounting on	35 mm DIN rails acc. to EN 60715	35 mm DIN rails acc. to EN 60715



Dimension drawing SH 18X3 K

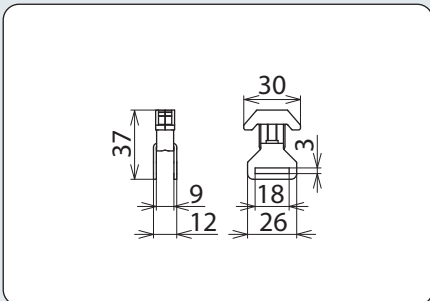


Rail support for DIN rail mounting or screw connection.

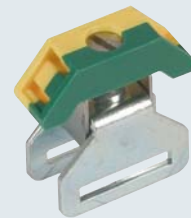
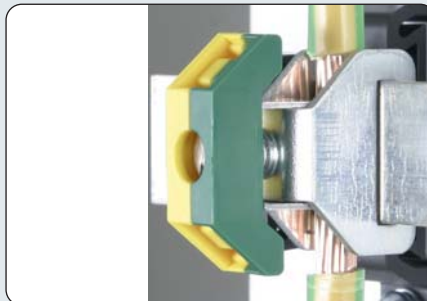
- Non-conductive connection between the busbar and DIN rail
- Equipotential bonding via AK 35 SN 18X3 GG terminal

Type	SH 18X3 K
Part No.	919 014
Material	plastic
Colour	black
For mounting on	DIN rails or mounting plates

Terminal



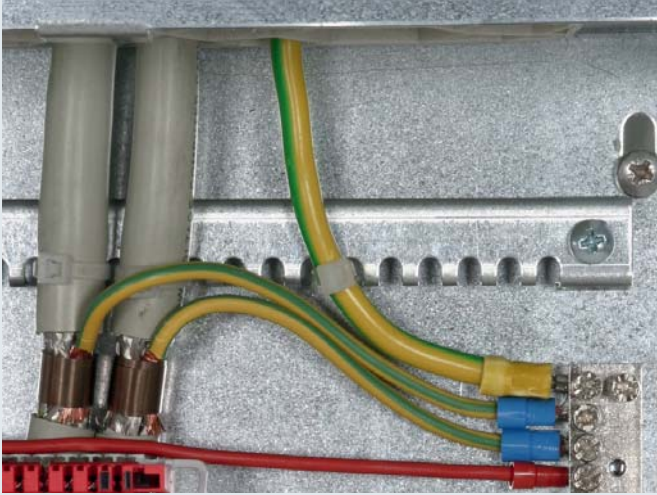
Dimension drawing AK 35 SN 18X3 GG



Particularly suited for indirect shield earthing.

- Wide cross-sectional area
- For insulated shield connection with SH 18X3 K

Type	AK 35 SN 18X3 GG
Part No.	919 015
Cross-sectional area, solid	35 mm ²
For mounting on	busbars



Extremely space-saving shield connection system for use as constant force spring. A spring element compensates the yield of the cable materials.

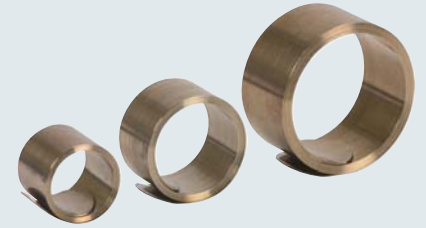
The shields of the incoming information and power supply lines can be contacted by means of SA KRF constant force springs in a space-saving and lightning current carrying way. As, in the course of time, the conduc-

- Lightning-impulse-current-tested up to 10 kA (10/350 μ s)
- Extremely space-saving
- Spring element ensures permanent shield connection

tor materials are subject to a yield, this yield is compensated by a spring element. To permanently protect the clamping point from corrosion, constant force springs are wrapped with a self-bonding SKB rubber tape.



Test certificate for constant force spring of type SA KRF ...



Constant force springs allow solderless shield connections for equipotential bonding or lightning equipotential bonding. They can be installed subsequently without interrupting the cable shield or requiring tools for installation. Approved for nuclear plants according to TÜV Certificate No. T12-04-ETL003 (TÜV = German Technical Inspectorate).

- For solderless connection of a conductor to the shield
- For use with all plastic and lead-sheathed cables
- Also suitable for steel-reinforced lead-sheathed cables

Type SA KRF ...	10 V2A	15 V2A	22 V2A	29 V2A	37 V2A	50 V2A	70 V2A	94 V2A
Part No.	919 031	919 032	919 033	919 034	919 035	919 036	919 037	919 038
Lightning impulse current carrying capability (10/350 µs)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
Clamping range (Rd)	4-10 mm	9-15 mm	14-22 mm	18.5-29 mm	23.5-37 mm	31-50 mm	44-70 mm	58-94 mm
Material	StSt	StSt	StSt	StSt	StSt	StSt	StSt	StSt
Colour	bare surface	bare surface	bare surface	bare surface	bare surface	bare surface	bare surface	bare surface
For mounting on	cable shields	cable shields	cable shields	cable shields	cable shields	cable shields	cable shields	cable shields
Approvals	T12-04-ETL 003	T12-04-ETL003	T12-04-ETL003	T12-04-ETL003	T12-04-ETL003	T12-04-ETL003	T12-04-ETL003	T12-04-ETL003

Self-bonding Rubber Tape



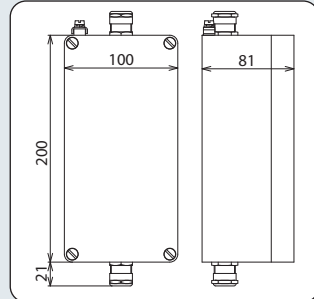
Roll with 9 m self-bonding rubber tape to be wrapped around constant force springs for permanent corrosion protection.

- Self-bonding
- Flexible

Type	SKB 19 9M SW
Part No.	919 030
Colour	black
Tape dimensions (W x L)	19 mm x 9 m

- High-quality accessories
- Suitable for DIN rail mounted arresters

Aluminium Enclosure



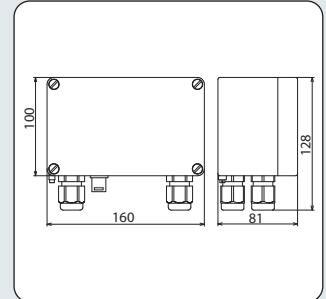
Dimension drawing of an aluminium enclosure

- DIN rail integrated
- Different types available on request

For the installation of DIN rail mounted devices. With two M20 brass glands.

Type	ALGA 5
Part No.	906 055
Degree of protection	IP 65
For mounting on	walls
Dimensions (W x H x D)	100 x 200 x 81 mm
Capacity	5 modules
Enclosure material	Al

Aluminium Enclosure for Ex(i) Surge Arresters



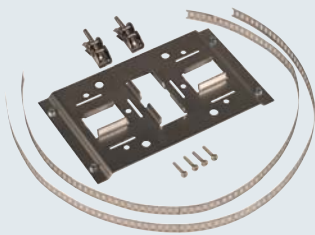
Dimension drawing of an aluminium enclosure for Ex(i) surge arresters

- DIN rail integrated
- All cables entered from below

With four plastic glands M20 x 1.5, sealable, pressure compensating membranes.

Type	ALGA 5 X
Part No.	906 058
Degree of protection	IP 65
For mounting on	walls
Dimensions (W x H x D)	160 x 100 x 85 mm
Capacity	6 modules
Enclosure material	Al

Mounting Set

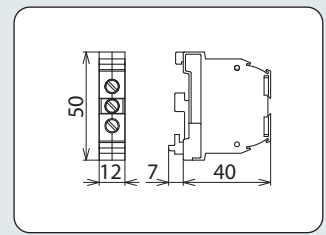


- Stainless steel
- For harsh environmental conditions

For fixing ALGA 5 X enclosures at masts and pipes.

Type	MS ALGA 5 X
Part No.	906 059
For mounting on	masts, pipes with a diameter of 25-140 mm
Enclosure material	StSt

Protective Conductor Terminal



Dimension drawing of a protective conductor terminal

- Capable of carrying lightning current

For earthing DIN rails.

Type	SLK 16
Part No.	910 099
Cross-sectional area, flexible	6-16 mm ²
Cross-sectional area, solid	6-25 mm ²
For mounting on	DIN rails acc. to EN 60715
Enclosure material	polyamide 6.6
Colour	green / yellow

Measuring and Test Devices

- Permanent condition monitoring of LifeCheck-equipped arresters ensures a maximum degree of system protection and availability
- The early detection system already detects pre-damaged arresters and warns of imminent arrester failure
 - Visual indication of faulty or pre-damaged arresters
 - Compact dimensions and minimum wiring
 - Monitoring of up to ten arresters (40 signal cores)
 - Remote signalling contact
 - Remote monitoring also via RS485 interface and PC software (DRC MCM XT)



Installed DEHNrecord condition monitoring system

Condition monitoring

The DRC MCM XT and DRC SCM XT condition monitoring systems are compact DIN rail mounted devices designed for condition monitoring of up to 10 pre-programmed BXT/BXTU arresters with an integrated LifeCheck monitoring circuit.

Integrated into the protection modules, LifeCheck permanently monitors the proper condition of the arrester and acts like an early warning system, detecting imminent electrical or thermal overload of the protection components. The LifeCheck status can be read out via contactless RFID technology. Stationary installed, a single condition monitoring unit allows condition-based maintenance of 10 BXT/BXTU arresters.

The unit acts like an early warning system, generating a fault alarm already in case of imminent arrester overload. This fault alarm is indicated by means of the integrated three-coloured LED and transmitted via an integrated remote signalling contact. Failure of the monitoring unit, e.g. due to a voltage breakdown, is also indicated via the remote signalling contact.

The Show function integrated in the DRC MCM XT and DRC SCM XT system allows to detect pre-damaged arresters in the monitoring group.

The DRC SCM XT device is ideally suited for small-sized installations and allows to monitor up to 10 protection modules with integrated LifeCheck. In case of larger installations with more than 10 arresters, the DRC MCM XT device with integrated RS485 interface is used. The condition monitoring units are connected via the integrated RS485 interfaces to synchronise the monitoring cycles. Up to 15 DRC MCM systems can be connected to one another at the RS485 bus, allowing up to 150 BLITZDUCTOR modules or 300 pairs to be monitored simultaneously with minimum wiring effort.

The "Status Display and Service Console" PC software

is an optional user software for the DRC MCM XT condition monitoring system. It indicates the status of the arresters and addresses the LifeCheck-equipped BLITZDUCTOR modules.

The software can be installed on a standard PC using an RS485/USB interface converter of type "USB-NANO 485" which is available as accessory.

The software can be downloaded free of charge at www.dehn-international.com or is available as CD for a nominal fee.



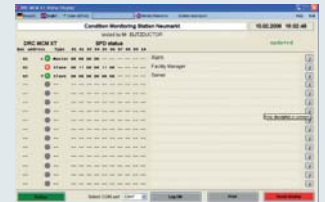
Integrated visual operating state indication with three-colour LED.



Floating remote signalling contact
 DRC MCM XT:
 break contact (21/22),
 make contact (13/14)
 DRC SCM XT:
 break contact (21/22)



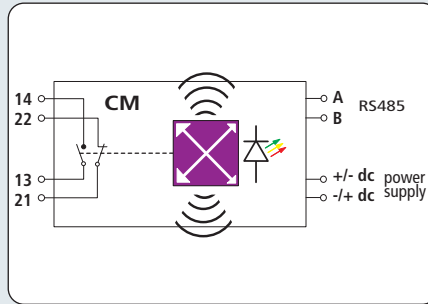
RS485 communications interface A/B (only for DRC MCM XT).



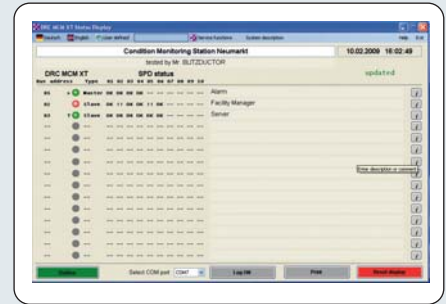
Online monitoring via free software (only for DRC MCM XT).

DRC MCM XT

Measuring and Test Devices



Basic circuit diagram DRC MCM XT



DRC MCM XT Status Display software

- Condition monitoring of LifeCheck-equipped arresters
- Permanent monitoring of up to 10 arresters (40 signal lines)
- Minimum wiring effort
- Remote signalling via remote signalling contact or optional RS485 interface

DIN rail mounted device with integrated LifeCheck sensor for condition monitoring of max. ten LifeCheck-equipped BLITZDUCTOR XT/XTU arresters. A three-coloured LED and a remote signalling contact (break or make contact) indicate the operating state of the arrester.

The free "Status Display and Service Console" software can be optionally used via an RS485 interface converter. The software allows to remotely indicate the condition of all monitored arresters by means of a PC.

Download: www.dehn-international.com

Type	DRC MCM XT
Part No.	910 695
For testing	up to 10 BLITZDUCTOR XT/XTU ML arresters up to 10 BLITZDUCTOR XT/XTU ML EX arresters; for use in non-hazardous atmospheres only! Observe thread measure!
Operating elements	multiway button, DIP switch
Indicator	three-coloured LED (green, orange, red)
Input voltage range (d.c.) (U _{IN})	18-48 V
Max. rated current consumption (I _{IN})	100 mA
RFID transmission frequency	125 kHz
Message: Replacing of SPD recommended	LED, remote signalling contact (break and make contact)
Test cycle	continuous
Operating temperature range for monitoring 10 BXT/BXTU arresters	-20 °C ... +60 °C
Operating temperature range for monitoring 8 BXT/BXTU arresters	-40 °C ... +80 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection	screw
Cross-sectional area (solid / flexible)	0.08-2.5 mm ²
Tightening torque (terminal)	0.4 Nm
Enclosure material	polyamide PA 6.6
Colour	grey
Test standards	EN 61010-1, 61000-6-2/4, ETSI EN 300 330-1 V1.7.1
Type of remote signalling contact	make (no) and break contact (nc)
Technical data of remote signalling contact	contact resistance < 25 ohms; leakage current < 1 µA
d.c. switching capacity	350 V / 0.12 A
a.c. switching capacity	250 V / 0.07 A
Delivery includes	base part, monitoring module, quick guide and labelling system

Accessories for Condition Monitoring System with LifeCheck® Sensor

USB Interface Converter of Type USB-NANO-485

USB-Nano-485 converts between USB and RS485 signals and is specifically designed for two-wire RS-485 buses. LEDs indicate the operating state (yellow), Rx (green) and Tx (red).

Due to its compact dimensions, USB-Nano-485 is ideally suited for use with notebooks, however, stationary use is also possible.

Status Center Software CD for DRC MCM XT

Status Center software for starting and managing up to 20 instances of the "Status Display with integrated Service Console" DRC MCM XT monitoring software. Monitoring and status indication of up to 3000 BLITZDUCTOR XT/XTU LifeCheck modules in up to 20 DRC MCM XT monitoring systems (15 DRC MCM XT each with RS485 bus wiring).



Type	USB NANO 485
Part No.	910 486
Version	with LED indication

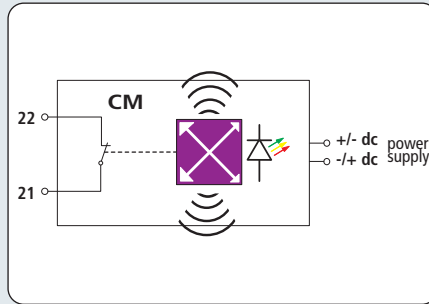


Type	SWP MCM ST CENTER
Part No.	910 489
For	up to 3000 BLITZDUCTOR XT

NEW



Basic circuit diagram DRC SCM XT



Basic circuit diagram DRC SCM XT



DIN rail mounted device with integrated LifeCheck sensor for condition monitoring up to ten LifeCheck-equipped BLITZDUCTOR XT/XTU arresters. Visual operating state indication via three-colour LED combined with remote signalling function (break contact).

- Condition monitoring of LifeCheck-equipped arresters
- Permanently monitors up to 10 arresters (40 signal lines)
- Minimum wiring
- Remote signalling via remote signalling contact (break contact)

Type	DRC SCM XT
Part No.	910 696
For testing	up to 10 BLITZDUCTOR XT/XTU ML arresters up to 10 BLITZDUCTOR XT/XTU ML EX arresters; for use in non-hazardous atmospheres only! Observe thread measure!
Operating elements	single button, DIP switch
Indicator	three-colour LED (green, orange, red)
Input voltage range (d.c.) (U _{IN})	18-48 V
Max. rated current consumption (I _{IN})	100 mA
RFID transmission frequency	125 kHz
Message: Replacing of SPD recommended	LED, remote signalling contact (break contact)
Test cycle	continuous
Operating temperature range for monitoring 10 BXT/BXTU arresters	-20 °C ... +60 °C
Operating temperature range for monitoring 8 BXT/BXTU arresters	-40 °C ... +80 °C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection	screw
Cross-sectional area (solid / flexible)	0.08-2.5 mm ²
Tightening torque (terminal)	0.4 Nm
Enclosure material	polyamide PA 6.6
Colour	grey
Test standards	EN 61010-1, 61000-6-2/4, ETSI EN 300 330-1 V1.7.1
Type of remote signalling contact	break contact (nc)
Technical data of remote signalling contact	contact resistance < 25 ohms; leakage current < 1 µA
d.c. switching capacity	350 V / 0.12 A
a.c. switching capacity	250 V / 0.07 A
Delivery includes	base part, monitoring module, quick guide and labelling system

Accessories for Condition Monitoring System with LifeCheck® Sensor

Labelling System BA1-BA15

2x 165 adhesive labels for labelling DRC MCM XT monitoring devices with the bus address.

Type	BS BA1 BA15 BXT
Part No.	920 398
Colour	transparent



DIN Rail mounted Power Supply Unit

High-performance DIN rail mounted power supply unit with single-phase wide-range input can be connected to different supply systems. The operating state indicator on the front indicates whether the output voltage is present. Up to 10 DRC MCM XT or DRC SCM XT (single application) or up to 15 DRC MCM XT monitoring devices (multiple application) can be connected to a single power supply unit.

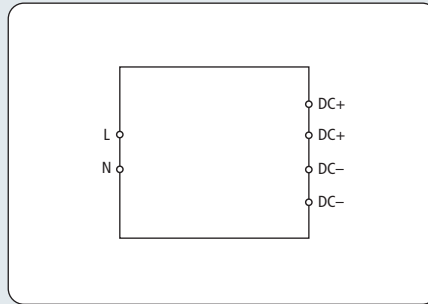
Type	PSU DC24 30W
Part No.	910 499
Nominal input voltage (U _e)	100 V ... 240 V (a.c.)
Nominal output voltage (U _a)	24 V (d.c.) (SELV)



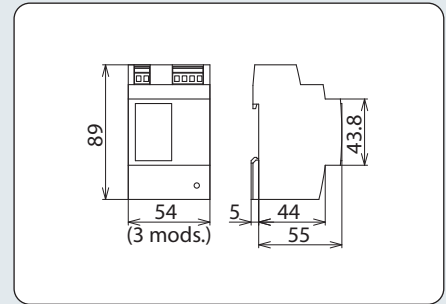
DIN Rail mounted Power Supply Unit

Measuring and Test Devices

NEW



Basic circuit diagram PSU DC24 30W



Dimension drawing PSU DC24 30W

- Primary synchronised power supply unit
- For devices and installations of protection class II
- Self-cooling due to natural convection in case of horizontal installation
- Stepped profile, ideally suited for distribution boards

High-performance DIN rail mounted power supply unit with single-phase wide-range input can be connected to different supply systems. The operating state indicator on the front indicates whether the output voltage is present. Up to 10 DRC MCM XT or DRC SCM XT (single application) or up to 15 DRC MCM XT monitoring devices (multiple application) can be connected to a single power supply unit.

Type	PSU DC24 30W
Part No.	910 499
Nominal input voltage (U _e)	100-240 V (a.c.)
Input voltage range	85-264 V (a.c.); 120-373 V (d.c.)
Input voltage derating	< 100 V (a.c.): I _a max. 1 A
Frequency	44-66 Hz; 0 Hz
Input current (I _e)	0.7 A at 110 V (a.c.) / 0.5 A at 230 V (a.c.)
Discharge current	typ. 1 mA
Switch-on current	< 30 A, NTC
Mains buffering	> 10 ms at 110 V (a.c.) / > 80 ms at 230 V (a.c.)
Nominal output voltage (U _a)	24 V (d.c.) (SELV)
Output voltage range	22.8-26.4 V (d.c.), variable
Output current (I _a)	1.3 A at 24 V (d.c.), max. 0.9 A in any installation position
Presetting	24 V (d.c.)
Deviation	2 %
Residual ripple	< 100 mVpp at 20 MHz
Current limitation	typ. 1.1 x I _a
Behaviour in case of overload	constant current
Operating state indication	green LED
Efficiency	typ. 82 %
Power loss (P _v)	2.6 W (230 V (a.c.) / open circuit), 7.0 W (230 V (a.c.) / nominal load)
Max. power loss (P _v)	typ. 7.3 W (100 V (a.c.) / 24 V, 1.3 A (d.c.))
Integrated fuse	2 AT
Recommended backup fuse	circuit breaker 10 A, 16 A, characteristic B, C
Ambient temperature	-25 °C ... +55 °C
Degree of pollution	2 (according to EN 50178)
Climatic category	3K3 (according to EN 60721)
Enclosure	plastic, light grey
Protection class	prepared for protection class II
Degree of protection	IP20 according to EN 60529
Short-circuit-proof	yes
Open-circuit-proof	yes
Feedback resistance	max. 30 V (d.c.)
Can be connected in parallel	yes
Can be connected in series	yes
Cross-sectional area (input / output)	0.08-2.5 mm ² / AWG 28 ... 12
Type of attachment	DIN rail mounting (EN 60715)
Dimensions (W x H x D)	54 x 89 x 59 mm
Weight	180 g
Standards / regulations	EN 60950, EN 61204-3, UL 60950, UL 508, GL

Measuring and Test Devices

- **SPD test device for preventive maintenance**
 - The LifeCheck monitoring device detects thermal or electrical overload conditions of all components
 - To avoid imminent failure and thus system downtime, the protection module should be replaced as soon as possible
- **Benefits of this type of SPD testing:**
 - Extremely easy and within a matter of seconds
 - Module does not have to be removed, testing during system operation
 - Detection of thermal or electrical pre-damage of all components



Maintenance tests and test intervals for a lightning protection systems are specified in DIN EN 62305-3, supplement 3 (see table excerpt). However, these periods are only standard-based minimum requirements.

Class of LPS	Visual inspection	Complete inspection	Complete inspection of critical systems
I and II	1 year	2 years	1 year
III and IV	2 years	4 years	1 year

Visual inspection of arresters for information technology systems does not make sense since the status of the devices is not generally visible. For this purpose, another method has to be chosen as is the case with complete inspections. In the past, measurement equipment was used to test arresters. These measurements were very time consuming, required expertise and did not provide sufficient information.

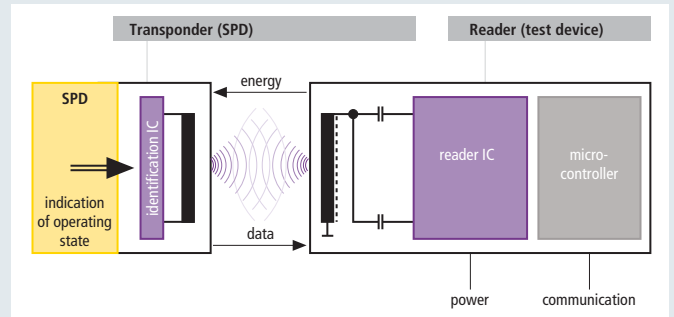
Preventive maintenance:

With this maintenance strategy, arresters are tested and measured at regular intervals. They are assessed according to predetermined criteria and, if required, replaced.

In the past, this procedure was very time consuming, expensive and required disconnection of the system. LifeCheck-equipped arresters have been available for some years now, allowing to determine the status of the arrester via RFID technology. A monitoring circuit with a transponder integrated the arrester permanently monitors the protective circuit for impermissible overload caused by thermal overheating or impulse currents.

Information is read out via a hand-held tester which houses the RFID reader.

It contactlessly transmits electromagnetic energy to the transponder in the SPD, reads out its status and displays it. Information is simple: "SPD OK" or "Replace SPD!". This test is carried out easily within a matter of seconds without removing the SPD. It can be carried out at any time without downtime since signal transmission is not interrupted.



Principle of operation of the LifeCheck diagnostic system

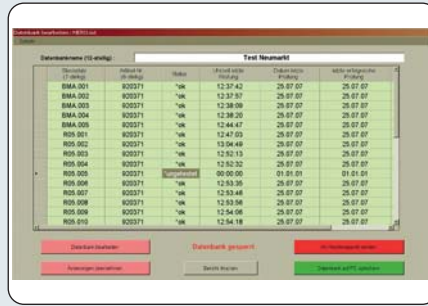
This type of monitoring reliably detects thermal and electrical overload of all components, typically before the arrester fails and the availability of the system to be protected is limited. In addition, no expertise is required for testing. The reader also facilitates documentation of the test results which is mandatory in compliance with the EN 62305-3 standard.

The test data (date, time, results) of all arresters are saved and can be transmitted to a PC via a USB interface for printing or storage. Consequently, a higher degree of protection and availability is achieved by means of LifeCheck-based preventive maintenance since overload of components is already detected before the protection of the system circuit fails.



DRC LC M3+

Measuring and Test Devices



- Fast testing of LifeCheck-equipped arresters
- Hand-held device, easy transport and operation
- Database allows documentation of test results
- Easy and fast parameterisation of arresters for condition monitoring with LifeCheck

PC database software

Snap-on LifeCheck sensor

Portable device with LifeCheck sensor for flexible use. Fast and easy testing of LifeCheck-equipped arresters. Visual and acoustic indication. With additional USB connection and database software for PC-aided management of test samples and documentation of the test results. The DRC LC M3+ features a snap-on LifeCheck sensor. The hand-held device allows parameterisation of arresters for condition monitoring.

Type	DRC LC M3+
Part No.	910 653
Testing of	BLITZDUCTOR XT/XTU ML
Testing of BXT ML EX	BLITZDUCTOR XT ML EX: for use in non-hazardous atmospheres only!
Voltage supply (included in delivery)	Li-ion battery
RFID transmission frequency	125 kHz
Measured value indication	beep and LCD
Testing period	typically 3 to 10 sec.
Operating temperature range	-20 °C ... +65 °C
Battery test	automatically switched off in case of flat battery
Cable length to the LifeCheck sensor	approx. 1000 mm
Dimensions of the LifeCheck sensor	90 x 51 x 12 mm
Dimensions of the hand-held device	166 x 95 x 30 mm
Delivery includes	hand-held device, LifeCheck sensor BXT, battery charger, USB cable, test module for reference, software CD, storage case
Dimensions of the storage case	340 x 275 x 83 mm

Accessory for LifeCheck® SPD Test Device

LifeCheck Sensor for DRC BXT

Snap-on LifeCheck sensor and test module for use as spare part / extension for portable LifeCheck test devices.



Type	LCS DRC BXT
Part No.	910 652
For testing	BLITZDUCTOR XT ML



Snap-on LifeCheck sensor



Portable device with LifeCheck sensor for flexible use. Fast and easy testing of LifeCheck-equipped arresters. The result of the LifeCheck test, the operating state of the device and the battery status are indicated via LEDs. The DRC LC M1+ features a snap-on LifeCheck sensor.

- Fast testing of LifeCheck-equipped arresters
- Handheld device, easy to transport and operate
- Country-specific adapter for charging unit
- Battery sufficient for about 2000 tests

Type	DRC LC M1+
Part No.	910 655
Testing of	BLITZDUCTOR XT/XTU ML
Testing of BXT ML EX	BLITZDUCTOR XT ML EX: for use in non-hazardous atmospheres only!
Voltage supply (included in delivery)	lithium-polymer battery
RFID transmission frequency	125 kHz
Measured value indication	LED
Testing period	typically 3 to 10 sec.
Operating temperature range	-20 °C ... +60 °C
Battery test	automatically switched off in case of empty batteries
Cable length to the LifeCheck sensor	approx. 1000 mm
Dimensions of the LifeCheck sensor	90 x 51 x 12 mm
Dimensions of the hand-held device	122 x 69 x 33 mm
Delivery includes	hand-held device, BXT LifeCheck sensor, power supply unit with country-specific adapters, USB cable, test module for reference, storage case
Dimensions of the storage case	275 x 230 x 83 mm

Accessory for LifeCheck® SPD Test Device

LifeCheck Sensor for DRC BXT

Snap-on LifeCheck sensor and test module for use as spare part / extension for portable LifeCheck test devices.

Type	LCS DRC BXT
Part No.	910 652
For testing	BLITZDUCTOR XT ML



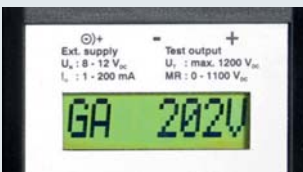


- For routine tests of surge protective devices
- Compact dimensions
- Suitable for mains and battery operation
- Low battery indicator
- Test leads included in delivery
- Shock-proof test adapter available as accessory

For testing the sparkover voltage of surge arresters. The specimen is connected via the included test leads or special test adapters.

The PM 20 SPD test device with integrated sparkover detection is used to test Yellow/Line and Red/Line surge arresters with integrated varistor, Zener diode or gas discharge tube. Both the sparkover performance between the connections of the arresters as well as the continuity can be tested. The results can be compared to the limit values specified in the

instructions for use. In case of deviations, the arrester or protection module must be replaced. Test adapters with a corresponding support make it easier to test arresters of the BLITZDUCTOR XT and DEHNrapid LSA product family.



Indication of the measured sparkover voltage.



The sparkover performance of gas discharge tubes, varistors and Zener diodes can be tested.



Insulated test leads included in delivery.



Can be directly connected to a test adapter for easy testing of DRL or BXT protection modules.



Combined device for testing the sparkover voltage of surge arresters (with gas discharge tubes / varistors / Zener diodes). Storage bag and measuring accessories included.

- Combined testing of protective circuits with gas discharge tubes, varistors and Zener diodes
- Easy and flexible use
- For use with PA BXT and PA DRL test adapters

Type	PM 20
Part No.	910 511
Nominal d.c. voltage (U _N)	8-12 V d.c.
Test parameter: Test voltage	max. 1250 V d.c.
Test parameter: Test current (reference voltage)	1 mA d.c., constant
Measured value indication	alphanumeric, eight-digit LCD
Test output sockets	safety pole terminals (4 mm), positive pole: red colour, negative pole: black colour
Testing period	≤ 1.5 sec.
Number of individual tests during battery operation	typically 2000
Accessories included in delivery	2 test leads (each 1 m long), 2 safety tapping test clips, 1 plug-in power supply unit (230 V a.c.), 1 storage bag
Dimensions of the storage bag	300 x 110 x 110 mm

Accessory for SPD Test Device

PA BXT Test Adapter

To be connected to PM 10 / PM 20 and to insert and test protection modules.

Type	PA BXT
Part No.	910 508
For protection modules	BLITZDUCTOR XT / CT



Accessory for SPD Test Device

PA DRL Test Adapter

To be connected to PM 10 / PM 20 and to insert and test protection modules.

Type	PA DRL
Part No.	910 507
For protection modules	DEHnrapiid LSA and DPL



LIGHTNING EQUIPOTENTIAL BONDING

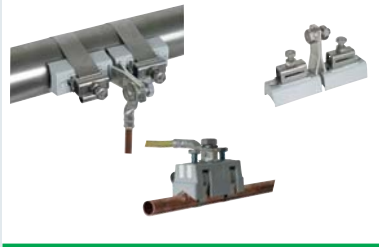
Isolating Spark Gaps and Components





Isolating Spark Gaps

395



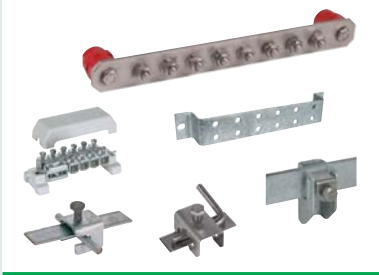
Pipe Clamps for Hazardous Areas

405



Voltage Limiters

409



Equipotential Bonding

411

Isolating Spark Gaps

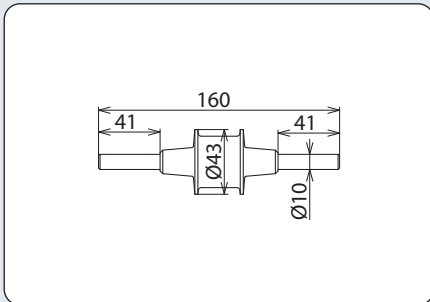
- For indirect connection / earthing of functionally isolated parts of installations under lightning conditions
- For lightning equipotential bonding according to IEC/EN 62305
- With corrosion-resistant stainless steel connections
- For installation in buildings, outdoors, in damp rooms as well as for underground installation
- Extremely heavy-duty devices



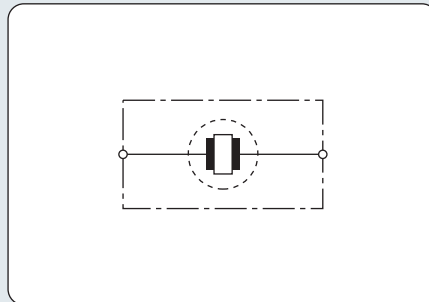
TFS: High-capacity isolating spark gap
KFSU: Isolating spark gap

For lightning equipotential bonding according to IEC/EN 62305 as well as for use in IT installations according to IEC 60364-5-54.

TFS / KFSU



Dimension drawing TFS / KFSU



Basic circuit diagram TFS / KFSU



Isolating spark gaps with plastic coating and two stainless steel connections (Rd 10 mm).

- For indirect connection / earthing of functionally isolated installation parts under lightning conditions
- For lightning equipotential bonding according to IEC/EN 62305
- For installation in buildings, outdoors, in damp rooms as well as for underground installation

Type	TFS	KFSU
Part No.	923 023	923 021
Isolating spark gap according to EN 62561-3 / IEC 62561-3	yes	yes
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA	—
Class (lightning current carrying capability)	H	—
Rated power-frequency withstand voltage (50 Hz) (U_{wAC})	300 V	300 V
Rated impulse sparkover voltage ($U_{r imp}$)	≤ 4 kV	≤ 4 kV
Operating temperature range (T_U)	-20 °C ... +80 °C	-20 °C ... +80 °C
Degree of protection protection	IP 65	IP 65
Length	160 mm	160 mm
Enclosure diameter	43 mm	43 mm
Enclosure material	steel / plastic coating	steel / plastic coating
Connection	Rd 10 mm	Rd 10 mm
Material (connection)	stainless steel	stainless steel
Extended technical data:		
– Nominal discharge current (8/20 μ s) (I_n)	100 kA	100 kA
– Power frequency sparkover voltage (50 Hz) (U_{aw})	≤ 2.5 kV	≤ 2.5 kV



ATEX and IECEx-certified isolating spark gap for lightning equipotential bonding according to IEC/EN 62305 with flexible cable connection.

- For indirect connection / earthing of functionally isolated parts of installations under lightning conditions
- For lightning equipotential bonding according to IEC/EN 62305 in hazardous areas (zone 2)
- Corrosion-resistant zinc die-cast enclosure with plastic cover and flexible cable connection
- For bridging insulating pieces, insulating flanges etc. in cathodically protected pipe sections
- Extremely heavy-duty device
- Approval according to ATEX directive 94/9/EC and IECEx

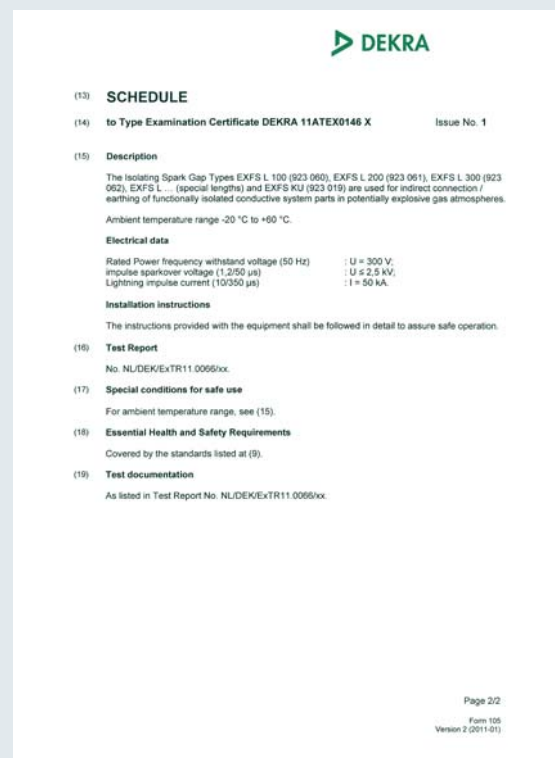
EXFS L ...: Isolating spark gap for use in hazardous areas with flexible connecting cable

EXFS KU: Isolating spark gap for use in hazardous areas with two 1.5 m long connecting cables for underground installation

Ex isolating spark gaps of the EXFS L / EXFS KU product family are used when electrically conductive parts of installations cannot be directly interconnected in hazardous areas, for example, in case of cathodically protected pipeline sections.

ATEX and IECEx-certified EXFS L and EXFS KU spark gaps provide approved safety in accordance with harmonised European standards. The arc-resistant tungsten / copper electrodes ensure a long service life of the Ex spark gaps.

The approved EXFS L type with flexible cable connection quickly adapts to any application environment. The prewired spark gaps feature connecting cables of different lengths with cable lug, screw and M10 nut. The flat or angled connection brackets (IF), which are available as accessory, allow to easily connect the spark gap to pipeline flanges. The EXFS KU type is enclosed by a water-proof PVC enclosure and is thus ideally suited for underground installation on insulating couplings.

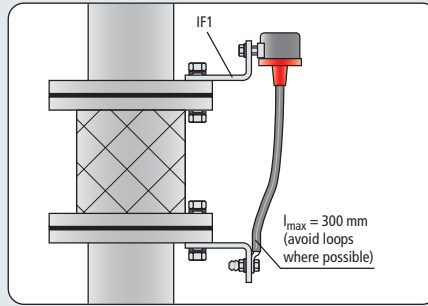


IEC		IECEX		IECEX Certificate of Conformity	
INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres <small>for rules and details of the IECEX Scheme visit www.iecex.com</small>					
Certificate No.:	IECEX DEK 11.0063X	Issue No.:	0	Certificate history:	
Status:	Current				
Date of Issue:	2011-10-12	Page 1 of 3			
Applicant:	DEHN + SÖHNE GmbH + Co. KG. Hans-Dehn-Strasse 1 D-92318 Neumarkt / Opl., Germany				
Electrical Apparatus:	Isolating Spark Gap series EXFS				
Optional accessory:					
Type of Protection:	Ex nC				
Marking:	Ex nC IIC T4 Gc				
Approved for issue on behalf of the IECEX Certification Body:	C.G. van Es				
Position:	Certificate Manager				
Signature: (for printed version)					
Date:	2011-10-12				
<p>1. This certificate and schedule may only be reproduced in full. 2. This certificate is not transferable and remains the property of the issuing body. 3. The Status and authenticity of this certificate may be verified by visiting the Official IECEX Website.</p>					
Certificate issued by:					
DEKRA Certification B.V. Utrechtseweg 319 6812 AR Arnhem The Netherlands <small>All testing, inspection, auditing and certification activities of the former KEMA Quality are an integral part of the DEKRA Certification Group.</small>					
					

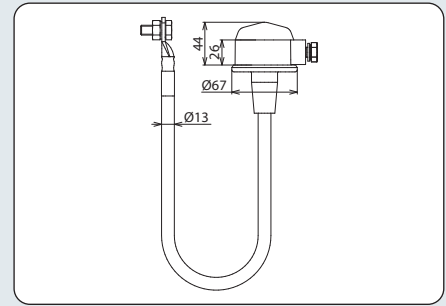
IEC		IECEX		IECEX Certificate of Conformity	
Certificate No.:	IECEX DEK 11.0063X	Issue No.:	0	Page 2 of 3	
Date of Issue:	2011-10-12				
Manufacturer:	DEHN + SÖHNE GmbH + Co. KG. Hans-Dehn-Strasse 1 D-92318 Neumarkt / Opl., Germany				
Manufacturing location(s):					
<p>This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended.</p>					
STANDARDS:					
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:					
IEC 60079-0 : 2007-10 Explosive atmospheres - Part 0: Equipment - General requirements Edition: 5					
IEC 60079-15 : 2010 Explosive atmospheres - Part 15: Equipment protection by type of protection "n" Edition: 4					
This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.					
TEST & ASSESSMENT REPORTS:					
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in					
Test Report: NL/DEKEXTR11.0066/00					
Quality Assessment Report: NL/KEM/QAR06.0008/02					

IEC		IECEX		IECEX Certificate of Conformity	
Certificate No.:	IECEX DEK 11.0063X	Issue No.:	0	Page 3 of 3	
Date of Issue:	2011-10-12				
Schedule					
EQUIPMENT:					
Equipment and systems covered by this certificate are as follows:					
The Isolating Spark Gap Types EXFS L 100 (923 060), EXFS L 200 (923 061), EXFS L 300 (923 062), EXFS L ... (special lengths) and EXFS KU (923 019) are used for indirect connection / earthing of functionally isolated conductive system parts in potentially explosive gas atmospheres.					
Electrical data					
Rated Power frequency withstand voltage (50 Hz): U = 300 V; impulse sparkover voltage (1.2/50 µs): U _i ≈ 2.5 kV; Lightning impulse current (10/350 µs): I = 50 kA.					
CONDITIONS OF CERTIFICATION: YES as shown below:					
Ambient temperature range -20 °C to +60 °C.					

IECEX approval for EXFS (download at www.dehn-international.com)



Installation of EXFS L



Dimension drawing EXFS L

- For indirect connection / earthing of functionally isolated parts of installations under lightning conditions
- For lightning equipotential bonding according to IEC/EN 62305 in hazardous areas (zone 2)
- Approval according to ATEX directive 94/9/EC and IECEx

Ex isolating spark gap for aboveground installation.

Type	EXFS L100	EXFS L200	EXFS L300
Part No.	923 060	923 061	923 062
Isolating spark gap according to EN 62561-3 / IEC 62561-3	yes	yes	yes
Lightning impulse current (10/350 µs) (I _{imp})	50 kA	50 kA	50 kA
Class (lightning current carrying capability)	N	N	N
Rated power-frequency withstand voltage (50 Hz) (U _{wAC})	300 V	300 V	300 V
Rated impulse sparkover voltage (U _{r imp})	≤ 2.5 kV	≤ 2.5 kV	≤ 2.5 kV
Operating temperature range (T _U)	-20 °C ... +80 °C	-20 °C ... +80 °C	-20 °C ... +80 °C
Degree of protection	IP 54	IP 54	IP 54
ATEX approvals	DEKRA 11ATEX0146 X	DEKRA 11ATEX0146 X	DEKRA 11ATEX0146 X
Ex marking according to EN 60079-0 and EN 60079-15: gas	II 3 G Ex nC IIC T4 Gc	II 3 G Ex nC IIC T4 Gc	II 3 G Ex nC IIC T4 Gc
IECEx approvals	IECEx DEK 11.0063X	IECEx DEK 11.0063X	IECEx DEK 11.0063X
Ex marking according to EN 60079-0	Ex nC IIC T4 Gc	Ex nC IIC T4 Gc	Ex nC IIC T4 Gc
Enclosure length	90 mm	90 mm	90 mm
Enclosure diameter	63 mm	63 mm	63 mm
Enclosure material	zinc die-cast, plastic	zinc die-cast, plastic	zinc die-cast, plastic
Connecting cable	H01N2-D 25 mm ² with cable lug and screw / nut (M10)	H01N2-D 25 mm ² with cable lug and screw / nut (M10)	H01N2-D 25 mm ² with cable lug and screw / nut (M10)
Cable length	100 mm	200 mm	300 mm
Suitable for flange size	20-130 mm	120-230 mm	220-320 mm
Extended technical data:			
- Nominal discharge current (8/20 µs) (I _n)	100 kA	100 kA	100 kA
- Power frequency sparkover voltage (50 Hz) (U _{aw})	≤ 1.2 kV	≤ 1.2 kV	≤ 1.2 kV

Accessory for EXFS L / EXFS KU

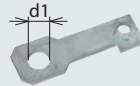


Angled Connection Brackets - IF 1 -

Angled connection bracket for EXFS ...; diameter corresponds to the bolt diameter of the bolted flange joint; material: St/tZn

Type AB EXFS ...	IF1 W 11	IF1 W 14	IF1 W 18
Part No.	923 311	923 314	923 318
Max. borehole diameter d1	11 mm	14 mm	18 mm
Type AB EXFS ...	IF1 W 22	IF1 W 26	IF1 W 30
Part No.	923 322	923 326	923 330
Max. borehole diameter d1	22 mm	26 mm	30 mm
Type AB EXFS ...	IF1 W 33	IF1 W 36	IF1 W 39
Part No.	923 333	923 336	923 339
Max. borehole diameter d1	33 mm	36 mm	39 mm
Type AB EXFS ...	IF1 W 42	IF1 W 48	
Part No.	923 342	923 348	
Max. borehole diameter d1	42 mm	48 mm	
Type AB EXFS ...	IF1 W 56	IF1 W 62	
Part No.	923 356	923 362	
Max. borehole diameter d1	56 mm	62 mm	

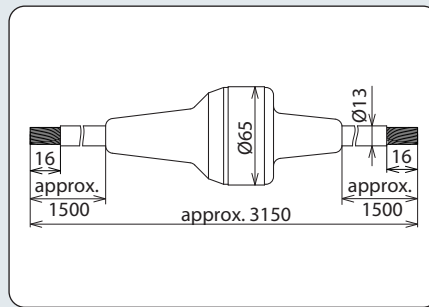
Accessory for EXFS L / EXFS KU



Flat Connection Brackets - IF 3 -

Flat connection bracket for EXFS ...; diameter corresponds to the bolt diameter of the bolted flange joint; material: St/tZn

Type AB EXFS ...	IF3 G 11	IF3 G 14	IF3 G 18
Part No.	923 211	923 214	923 218
Max. borehole diameter d1	11 mm	14 mm	18 mm
Type AB EXFS ...	IF3 G 22	IF3 G 26	IF3 G 30
Part No.	923 222	923 226	923 230
Max. borehole diameter d1	22 mm	26 mm	30 mm
Type AB EXFS ...	IF3 G 33	IF3 G 36	
Part No.	923 233	923 236	
Max. borehole diameter d1	33 mm	36 mm	
Type AB EXFS ...	IF3 G 39	IF3 G 42	
Part No.	923 239	923 242	
Max. borehole diameter d1	39 mm	42 mm	



Dimension drawing EXFS KU



Ex isolating spark gap with connecting cables for aboveground and underground installation; with water-proof sheath; may be shortened for short cable lengths.

- For indirect connection / earthing of functionally isolated parts of installations under lightning conditions
- For lightning equipotential bonding according to IEC 62305 in hazardous areas (zone 2)
- Approval according to ATEX directive 94/9/EC and IECEx

Type	EXFS KU
Part No.	923 019
Isolating spark gap according to EN 62561-3 / IEC 62561-3	yes
Lightning impulse current (10/350 μ s) (I_{imp})	50 kA
Class (lightning current carrying capability)	N
Rated power-frequency withstand voltage (50 Hz) (U_{wAC})	300 V
Rated impulse sparkover voltage ($U_{r imp}$)	≤ 2.5 kV
Operating temperature range (T_U)	-20 °C ... +80 °C
Degree of protection	IP 67
ATEX approvals	DEKRA 11ATEX0146 X
Ex marking according to EN 60079-0 and EN 60079-15: gas	II 3 G Ex nC IIC T4 Gc
IECEx approvals	IECEx DEK 11.0063X
Ex marking according to EN 60079-0	Ex nC IIC T4 Gc
Enclosure length	90 mm
Enclosure diameter	63 mm
Enclosure material	zinc die-cast, plastic
Connecting cable	NYJ-J-1x25 mm ²
Cable length	2x approx. 1500 mm
Extended technical data:	
– Nominal discharge current (8/20 μ s) (I_n)	100 kA
– Power frequency sparkover voltage (50 Hz) (U_{aw})	≤ 1.2 kV



ATEX and IECEx-certified isolating spark gap with low sparkover voltage for lightning equipotential bonding according to IEC/EN 62305.

EXFS 100: Isolating spark gap for use in hazardous areas with plastic sheath and M10 threaded bushings

EXFS 100 KU: Isolating spark gap for use in hazardous areas with two 2 m long connecting cables for underground installation

The Ex isolating spark gaps of the EXFS 100 / EXFS 100 KU product family are used when conductive installation parts situated in hazardous areas cannot be directly interconnected.

The spark gaps with low sparkover voltage are especially efficient for isolated parts of installations with low insulation strength.

No special requirements have to be observed for safe installation in zone 1 (gases) or zone 21 (dusts).

With a maximum lightning impulse current of 100 kA (10/350 μ s), EXFS 100 and EXFS 100 KU meet class H requirements (highest lightning current carrying capability class).

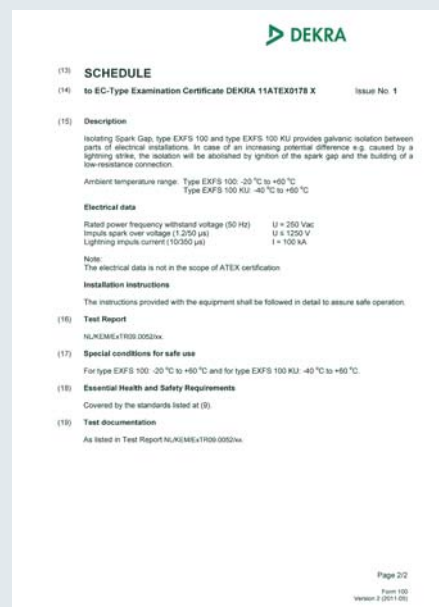
The ATEX and IECEx-certified EXFS 100 and EXFS 100 KU spark gaps provide approved safety according to harmonised European standards.

For connecting EXFS 100 spark gaps, prewired connecting cables of different lengths are available as accessory. Flat and angled connection brackets (IF) allow to easily connect the spark gaps to pipeline flanges.

- For indirect connection / earthing of functionally isolated parts of installations under lightning conditions
- Device for lightning equipotential bonding according to IEC/EN 62305 in hazardous areas
- For bridging insulating pieces, insulating flanges, etc. in cathodically protected pipe sections
- For safe installation in Ex zone 1 (gas) or 21 (dust)
- Extremely low sparkover voltage
- Extremely high alternating current withstand capability
- Approval according to ATEX Directive 94/9/EC and IECEx



EXFS 100 KU types are enclosed by a water-proof plastic sheath and are therefore ideally suited for underground installation on insulating couplings.



ATEX approvals for EXFS 100 (download at www.dehn-international.com)

IEC **IECEX** **IECEX Certificate of Conformity**

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
For rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX KEM 09.0051X** Issue No.: **2** Certificate history:
Issue No. 2 (2011-11-8)
Issue No. 1 (2009-11-18)
Issue No. 0 (2009-9-18)

Status: **Current**

Date of Issue: **2011-11-08** Page 1 of 4

Applicant: **DEHN + SÖHNE GmbH + Co. KG**
Hans-Dieth-Strasse 1
D-92318 Neumarkt,
Germany

Electrical Apparatus: **Isolating Spark Gap type EXFS 100 and type EXFS 100 KU**
Optional accessory:

Type of Protection: **Ex d, Ex td**

Marking: **Ex d IIC T6 Gb**
Ex tb IIC T80°C Db IP 66/67

Approved for issue on behalf of the IECEx Certification Body: **M. Erdhuizen**
Certification Manager

Signature: 
(for printed version)

Date: **2011-11-08**

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by: **DEKRA Certification B.V.**
Utrechtseweg 310
6512 AR Arnhem
The Netherlands

All testing, inspection, auditing and certification activities of the former KEMA Quality are an integral part of the DEKRA Certification Group.

DEKRA

IEC **IECEX** **IECEX Certificate of Conformity**

Certificate No.: **IECEX KEM 09.0051X** Issue No.: **2**
Date of Issue: **2011-11-08** Page 2 of 4

Manufacturer: **DEHN + SÖHNE GmbH + Co. KG**
Hans-Dieth-Strasse 1
D-92318 Neumarkt,
Germany

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2007-10 Explosive atmospheres - Part 0: Equipment - General requirements
Edition: 5
IEC 60079-1 : 2007-04 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition: 6
IEC 60079-31 : 2008 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "Y"
Edition: 1

This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
NL/KEM/EXTR09.0052/00 NL/KEM/EXTR09.0052/01 NL/KEM/EXTR09.0052/02

Quality Assessment Report:
NL/KEM/QAR08.0008/00 NL/KEM/QAR08.0008/02

IEC **IECEX** **IECEX Certificate of Conformity**

Certificate No.: **IECEX KEM 09.0051X** Issue No.: **2**
Date of Issue: **2011-11-08** Page 3 of 4

Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:
Isolating Spark Gap type EXFS 100 and type EXFS 100 KU provides galvanic isolation between parts of electrical installations. In case of an increasing potential difference e.g. caused by a lightning strike, the isolation will be abolished by ignition of the spark gap and the building of a low-resistance connection.
Ambient temperature range for type EXFS 100: -20 °C...+60 °C,
for type EXFS 100 KU: -40 °C...+60 °C.

Electrical data:
Rated power frequency withstand voltage (50 Hz) U = 250 Vac
Impuls spark over voltage (1.2/50 µs) U ≤ 1250 V
Lightning impuls current (10/350 µs) I = 100 kA

Note:
The electrical data is not in the scope of IECEx certification.

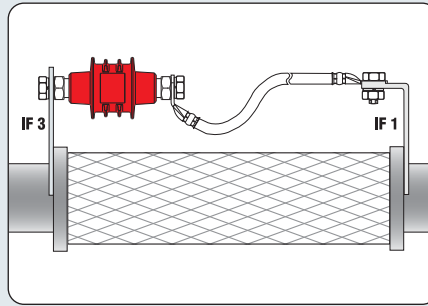
CONDITIONS OF CERTIFICATION: YES as shown below:
For type EXFS 100: -20 °C to +60 °C and for type EXFS 100 KU: -40 °C to +60 °C.

IEC **IECEX** **IECEX Certificate of Conformity**

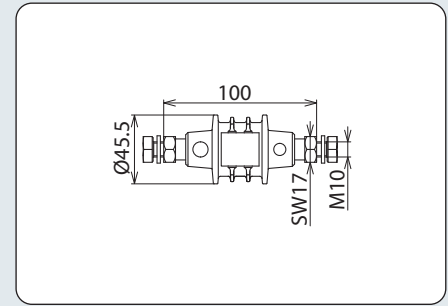
Certificate No.: **IECEX KEM 09.0051X** Issue No.: **2**
Date of Issue: **2011-11-08** Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 2:
Extended temperature range of EXFS 100 KU and
Upgraded standard issues



Installation of EXFS 100



Dimension drawing EXFS 100

- For indirect connection / earthing of functionally isolated parts of installations under lightning conditions
- Device for lightning equipotential bonding according to IEC 62305 in hazardous areas
- Approval according to ATEX Directive 94/9/EC and IECEx

Isolating spark gap for use in hazardous areas with plastic sheath and M10 threaded screws.

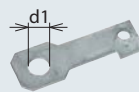
Type	EXFS 100
Part No.	923 100
Isolating spark gap according to EN 62561-3 / IEC 62561-3	yes
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA
Class (lightning current carrying capability)	H
Rated power-frequency withstand voltage (50 Hz) (U_{wAC})	250 V
Rated impulse sparkover voltage ($U_{r imp}$)	≤ 1.25 kV
Operating temperature range (T_U)	-20 °C ... +60 °C
Degree of protection	IP 67
ATEX approvals	DEKRA 11ATEX0178 X
Ex marking according to EN 60079-0 and EN 60079-1: gas	II 2 G Ex d IIC T6 Gb
Ex marking according to EN 60079-0 and EN 60079-31: dust	II 2 D Ex tb IIIC T80 °C Db IP 66/67
IECEx approvals	IECEx KEM 09.0051X
Ex marking according to EN 60079-0 and EN 60079-1: gas	Ex d IIC T6 Gb
Ex marking according to EN 60079-0 and EN 60079-31: dust	Ex tb IIIC T80 °C Db IP 66/67
Enclosure length	100 mm
Enclosure diameter	45.5 mm
Enclosure material	plastic sheath
Connection of enclosure	M10 threaded bushing, 2x M10x25 mm, 2x spring washer
Extended technical data:	
- Rated discharge current (50 Hz) (I_{max})	500 A / 0.2 sec.
- Nominal discharge current (8/20 μ s) (I_n)	100 kA
- Power frequency sparkover voltage (50 Hz) (U_{aw})	≤ 0.5 kV



Angled Connection Brackets - IF 1 -

Angled connection bracket for EXFS ...; diameter corresponds to the bolt diameter of the bolted flange joint; material: St/tZn

Type AB EXFS ...	IF1 W 11	IF1 W 14	IF1 W 18
Part No.	923 311	923 314	923 318
Max. borehole diameter d1	11 mm	14 mm	18 mm
Type AB EXFS ...	IF1 W 22	IF1 W 26	IF1 W 30
Part No.	923 322	923 326	923 330
Max. borehole diameter d1	22 mm	26 mm	30 mm
Type AB EXFS ...	IF1 W 33	IF1 W 36	IF1 W 39
Part No.	923 333	923 336	923 339
Max. borehole diameter d1	33 mm	36 mm	39 mm
Type AB EXFS ...	IF1 W 42	IF1 W 48	
Part No.	923 342	923 348	
Max. borehole diameter d1	42 mm	48 mm	
Type AB EXFS ...	IF1 W 56	IF1 W 62	
Part No.	923 356	923 362	
Max. borehole diameter d1	56 mm	62 mm	



Flat Connection Brackets - IF 3 -

Flat connection bracket for EXFS ...; diameter corresponds to the bolt diameter of the bolted flange joint; material: St/tZn

Type AB EXFS ...	IF3 G 11	IF3 G 14	IF3 G 18
Part No.	923 211	923 214	923 218
Max. borehole diameter d1	11 mm	14 mm	18 mm
Type AB EXFS ...	IF3 G 22	IF3 G 26	IF3 G 30
Part No.	923 222	923 226	923 230
Max. borehole diameter d1	22 mm	26 mm	30 mm
Type AB EXFS ...	IF3 G 33	IF3 G 36	
Part No.	923 233	923 236	
Max. borehole diameter d1	33 mm	36 mm	
Type AB EXFS ...	IF3 G 39	IF3 G 42	
Part No.	923 239	923 242	
Max. borehole diameter d1	39 mm	42 mm	

EXFS 100: Connecting Cable, Cu 25 mm²

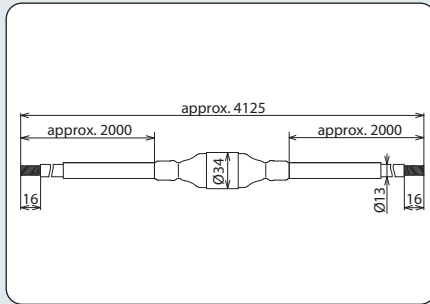
Connecting cable for EXFS 100; two cable lugs ($\varnothing 10.5$ mm) made of Cu/gal Sn, screw, nut, and spring washer.

Type AL EXFS ...	L100 KS	L200 KS	L300 KS
Part No.	923 025	923 035	923 045
Cable length	100 mm	200 mm	300 mm

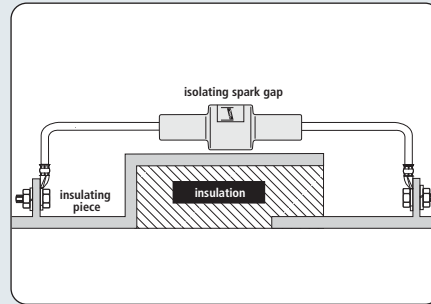


Isolating Spark Gaps

EXFS 100 KU



Dimension drawing EXFS 100 KU



Installation of EXFS 100 KU



Ex isolating spark gap with connecting cable for aboveground and underground installation; with water-proof sheath; may be shortened for short cable lengths.

- For indirect connection / earthing of functionally isolated parts of installations under lightning conditions
- Device for lightning equipotential bonding according to IEC 62305 in hazardous areas
- Approval according to ATEX Directive 94/9/EC and IECEx

Type	EXFS 100 KU
Part No.	923 101
Isolating spark gap according to EN 62561-3 / IEC 62561-3	yes
Lightning impulse current (10/350 μ s) (I_{imp})	100 kA
Class (lightning current carrying capability)	H
Rated power-frequency withstand voltage (50 Hz) (U_{wAC})	250 V
Rated impulse sparkover voltage ($U_{r imp}$)	≤ 1.25 kV
Operating temperature range (T_U)	-40 °C ... +60 °C
Degree of protection	IP 67
ATEX approvals	DEKRA 11ATEX0178 X
Ex marking according to EN 60079-0 and EN 60079-1: gas	II 2 G Ex d IIC T6 Gb
Ex marking according to EN 60079-0 and EN 60079-31: dust	II 2 D Ex tb IIIC T80 °C Db IP 66/67
IECEx approvals	IECEx KEM 09.0051X
Ex marking according to EN 60079-0 and EN 60079-1: gas	Ex d IIC T6 Gb
Ex marking according to EN 60079-0 and EN 60079-31: dust	Ex tb IIIC T80°C Db IP 66/67
Enclosure length	123 mm
Enclosure diameter	34 mm
Enclosure material	water-proof plastic sheath
Connection of enclosure	NY-Y-J-1x25 mm ²
Cable length	2x approx. 2000 mm
Extended technical data:	
- Rated discharge current (50 Hz) (I_{max})	500 A / 0.2 sec.
- Noimnal discharge current (8/20 μ s) (I_n)	100 kA
- Power frequency sparkover voltage (50 Hz) (U_{aw})	≤ 0.5 kV

Ex Pipe Clamps

- For use in explosion-hazardous areas Ex zones 1 and 2 (gases, vapours, mists) as well as Ex zones 21 and 22 (dusts)
- Tested according to explosion group IIB
- Time-saving installation – no need to deactivate systems/areas for welding or drilling works

EX BRS 27:	Clamping range of $\varnothing 6$ to 26.9 mm ($\frac{3}{4}$ ")
EX BRS 90:	Clamping range of $\varnothing 26.9$ ($\frac{3}{4}$ ") to 88.9 mm (3")
EX BRS 300:	Clamping range of $\varnothing 88.9$ (3") to 300 mm
EX BRS 500:	Clamping range of $\varnothing 300$ to 500 mm
Separate clamping body:	Clamping range of $\varnothing 26.9$ ($\frac{3}{4}$ ") to 500 mm

So far equipotential bonding and lightning equipotential bonding of pipes in hazardous areas has been implemented by means of welded or threaded bushing connections. Clamps may only be used if evidence of no ignition sparking in case of lightning current loading is provided. The pipe clamp of DEHN + SÖHNE is in compliance with the requirement for devoid of ignition sparks at lightning current loading. The clamp has been tested according to EN 50164-1 title English: Lightning Protection Components (LPC) - Part 1: Requirements for connection components in a potentially explosive atmosphere (clamps and connectors), and provided proof of no occurrence of ignition sparks at a lightning current loading of up to 50 kA (10/350 μ s). This novel, patented pipe clamp for hazardous areas not only ensures the safe elec-



Pipe clamp for electrical contacting of pipes in hazardous areas for implementing of lightning equipotential bonding according to IEC/EN 62305-3.

trical contact by means of two contact clips, but also the adequate mechanical fixing by an electrically insulated clamping body.

The Ex pipe clamp provides following connection possibilities

- Round conductors made of Cu, St/tZn, Al, StSt with $\varnothing 8$ mm or stranded copper conductors, cross section 16-35 mm², with E-Cu crimping cable lug (DIN 46235)
- Flat copper conductors with minimum dimensions of 20 x 2.5 mm and a bore of $\varnothing 10.5$ mm

More details in installation instructions No. 1599.



Installed at a StSt pipe



DEHN + SÖHNE

DECLARATION OF MANUFACTURER

Product:	Pipe clamp for explosive zones
Product description:	Part No. 540 821 Part No. 540 801 Part No. 540 803 Part No. 540 805 Part No. 540 810
Manufacturer:	DEHN + SÖHNE GmbH + Co.KG. Hans-Dehn-Str. 1 92318 Neumarkt i.d.OPf., Germany

Application:

The pipe clamp for explosive zones is used for connecting pipes of different materials and diameters to the lightning equipotential bonding structure in explosive atmospheres.

Lightning currents are discharged without formation of sparks as specified in the technical data sheet.

We herewith confirm that the pipe clamp for explosive zones is suitable for the use in explosive zones 1 and 2 (gas, vapour, mist) and explosive zones 21 and 22 (combustible dust) in connection with the installation instructions, Publication No. 1599, "Pipe Clamp for explosive zones" and is tested according to explosion group IIB.

Pipe clamps for explosive zones have no own potential source of ignition (mechanical device) and are thus not subject to the European directive 94/9/EG.

Therefore certification according to the European directive 94/9/EG is **not legally admissible** and **not necessary** with respect to explosion protection.

Neumarkt i.d.OPf., 12 Okt. 2009

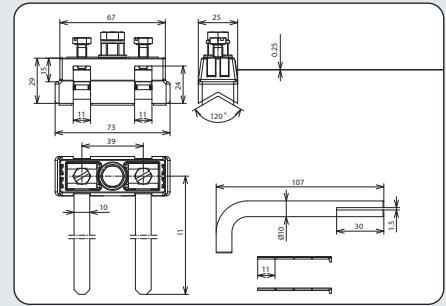
Ralph Brocke
Dr.-Ing. Ralph Brocke
Director R&D

Type EX BRS 27

Ex Pipe Clamps



Clamping range of Ø6-27 mm (3/4").



Dimension drawing EXFS 100 KU

Type	EX BRS 27
Part No.	540 821
Lightning impulse current (10/350 µs) Cu Ø6-12 mm (I _{imp})	10 kA
Lightning impulse current (10/350 µs) Cu Ø12-27 mm (3/4") (I _{imp})	20 kA
Lightning impulse current (10/350 µs) Cu Ø27 mm (3/4") (I _{imp})	25 kA
Lightning impulse current (10/350 µs) St/tZn Ø17-27 mm (3/4") (I _{imp})	25 kA
Lightning impulse current (10/350 µs) StSt Ø6-12 mm (I _{imp})	10 kA
Lightning impulse current (10/350 µs) StSt Ø12-27 mm (3/4") (I _{imp})	12 kA
Lightning impulse current (10/350 µs) StSt Ø27 mm (3/4") (I _{imp})	25 kA
Terminal	M8
Clamping range pipe Ø	6-27 mm (3/4")
Material of clamping body	polyamide
Material of grip head/tensioning strap	StSt
Material of contact clip	brass/gal Sn
Standard	EN 50164-1

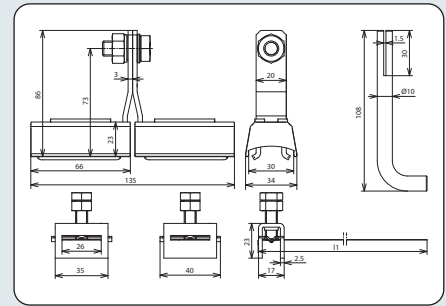
Type EX BRS 90 / 300 / 500



Type EX BRS 90 Part No. 540 801 clamping range Ø27 (3/4") to 89 mm (3")

Type EX BRS 300 Part No. 540 803 clamping range Ø89 (3") to 300 mm and

Type EX BRS 500 Part No. 540 805 clamping range Ø300 to 500 mm

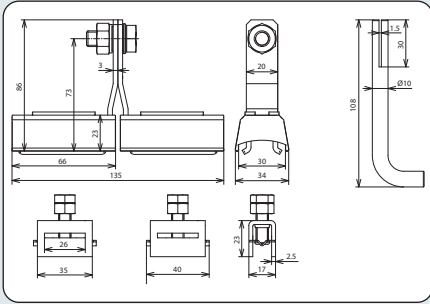


Dimension drawing EX BRS

Type	EX BRS 90	EX BRS 300	EX BRS 500
Part No.	540 801	540 803	540 805
Lightning impulse current (10/350 µs) Cu (I _{imp})	50 kA	50 kA	—
Lightning impulse current (10/350 µs) St/tZn (I _{imp})	50 kA	50 kA	—
Lightning impulse current (10/350 µs) St/blank (I _{imp})	—	—	50 kA
Lightning impulse current (10/350 µs) StSt (I _{imp})	25 kA	50 kA	50 kA
Terminal	M10	M10	M10
Clamping range pipe Ø	27-89 mm (3/4-3")	89 (3")-300 mm	300-500 mm
Material of clamping body	polyamide	polyamide	polyamide
Material of grip head/tensioning strap	StSt	StSt	StSt
Material of contact clip	Cu/gal Sn	Cu/gal Sn	Cu/gal Sn
Standard	EN 50164-1	EN 50164-1	EN 50164-1

Ex Pipe Clamps

Separate clamping body



For use with endless tensioning strap (Part No. 540 901) clamping ranges $\varnothing 27$ (3/4") to 500 mm.



Part No.	540 810
Lightning impulse current (10/350 μ s) Cu (I_{imp})	50 kA
Lightning impulse current (10/350 μ s) St/tZn (I_{imp})	50 kA
Lightning impulse current (10/350 μ s) StSt (I_{imp})	25 kA
Terminal	M10
Clamping range pipe \varnothing	27 (3/4")-500 mm
Material of clamping body	polyamide
Material of grip head/tensioning strap	StSt
Material of contact clip	Cu/gal Sn
Standard	EN 50164-1

Accessory for Pipe Clamps for Hazardous Areas

Tensioning Strap

Art.-Nr.	540 901
Material	StSt
Strap dimension (w x d)	25 x 0.3 mm
Length	100 m



Voltage Limiters

- Electrical isolation of insulated track sections and earthed parts of installations
- Safe equipotential bonding in case of a short-circuit or earth fault at the overhead contact line due to high-current-resistant welding of the electrodes
- Discharge of lightning surges without short-circuit formation due to lightning-resistant SDS ... voltage limiting device
- Short-circuit withstand capability up to 25 kA_{rms} / 100 ms; 36 kA_{rms} / 75 ms



Voltage Limiting Device



SDS ...: Cylindrical SDS spark gap unit for use with MA SDS M12 mast adapter

EN 50122-1 describes the use of voltage limiting devices for d.c. and a.c. traction systems for so-called "open traction system earthing" of conductive components of the overhead contact line and pantograph zone. Voltage limiting devices (SDS ...) are used to prevent the occurrence of hazardous surges between the insulated tracks or track sections of electric railways and earthed parts of the installation.

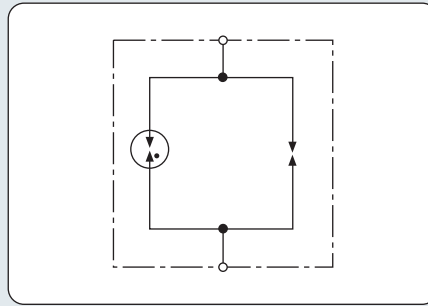
Their function is to permanently connect parts of the installation in the overhead contact line and pantograph zone to the return circuit as soon as the threshold voltage is exceeded.

In case of atmospheric overvoltages, the lightning-resistant SDS ... voltage limiting device is capable of returning to its initial state after discharging the impulse current. Only if the specified lightning current load is exceeded, a permanent short-circuit is initiated by high-current-resistant welding of the electrodes and the fuse link has to be replaced.

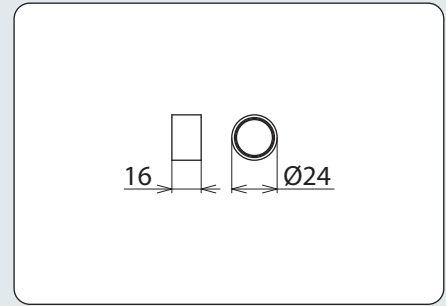
The SDS voltage limiting device consists of a spark gap unit and the respective connecting kit and can be directly connected to the rail or overhead contact line tower.

The spark gap unit of type SDS 1 (Part No. 923 110) developed by DEHN + SÖHNE has also been approved by the German Federal Railway Authority (EBA).





Basic circuit diagram SDS ...



Dimension drawing SDS ...

- Electrical isolation of insulated track sections and earthed parts of installations
- Safe equipotential bonding due to high-current-resistant welding of the electrodes in case of a short-circuit or earth fault at the overhead contact line
- Discharge of surges without short-circuit formation

Voltage limiting device for a power-frequency sparkover voltage of 940 V.

Type	SDS 1	SDS 2	SDS 3	SDS 4	SDS 5
Part No.	923 110	923 117	923 116	923 118	923 119
Power frequency sparkover voltage (U_{av})	≤ 940 V	—	—	—	—
d.c. sparkover voltage (U_{ag})	600 V +/- 20 %	350 V +/- 20 %	550 V	230 V +/- 20 %	120 V +/- 20 %
Impulse sparkover voltage	≤ 1400 V (1 kV/μs)	≤ 900 V (1 kV/μs)	≤ 1000 V (1 kV/μs)	≤ 650 V (1 kV/μs)	≤ 600 V (1 kV/μs)
Self-extinguishing capability	300 A / 65 V	—	—	—	—
Lightning current discharge capacity (10/350 μs)					
0.1x / 0.5x / 1x	5 kA	2 kA	2.5 kA	2.5 kA	2 kA
Lightning current withstand capability (10/350 μs)	25 kA	25 kA	25 kA	25 kA	25 kA
Impulse current discharge capacity (8/20 μs) 0.1x / 0.5x / 1x	—	—	—	20 kA	20 kA
Safe short-circuit due to welding of the electrodes in case of alternating currents	≥ 2.5 kA / 1000 V / 30 ms, ≥ 1.5 kA / 1000 V / 100 ms	—	—	—	—
Safe short-circuit due to welding of the electrodes in case of direct currents	≥ 750 A / 250 ms	≥ 600 A / 250 ms	—	≥ 600 A / 250 ms	≥ 600 A / 250 ms
Short-circuit withstand capability	25 kA _{rms} / 100 ms; 36 kA _{rms} / 75 ms	25 kA _{rms} / 100 ms; 36 kA _{rms} / 75 ms	25 kA _{rms} / 100 ms	25 kA _{rms} / 100 ms; 36 kA _{rms} / 75 ms	25 kA _{rms} / 100 ms; 36 kA _{rms} / 75 ms
Long-term current	1 kA _{rms} for t ≤ 120 s	1 kA _{rms} for t ≤ 120 s	—	1 kA _{rms} for t ≤ 120 s	1 kA _{rms} for t ≤ 120 s
Leakage current (I_{lc})	< 1 μA at 100 V d.c.	< 1 μA at 100 V d.c.	—	< 1 μA at 100 V d.c.	< 1 μA at 100 V d.c.
Operating temperature range (T_U)	- 40 °C ... + 80 °C	- 40 °C ... + 80 °C	- 40 °C ... + 80 °C	- 40 °C ... + 80 °C	- 40 °C ... + 80 °C
To be mounted with	MA SDS M12 mast adapter				
Approvals	EBA	—	—	—	—
DB drawing No.	4 Ebs 15.13.20 Sheet 2	—	—	—	—

Accessory for Voltage Limiters

Mast Adapter for SDS Voltage Limiting Devices

For installation on the mast profile of an overhead line mast with D = 8-12 mm



Type	MA SDS M12
Part No.	723 199
Lightning current carrying capability (10/350 μs)	25 kA
Short-circuit withstand capability	21 kA _{rms} / 30 ms
Long-term current	1 kA _{rms} at t ≤ 120 s
Leakage current (I_{lc})	< 1 μA at 100 V d.c.
Dimensions of the threaded bolt	M12
Material	Brass
Degree of protection of the inner enclosure	IP 67

Equipotential Busbars

Equipotential Busbars K12 With Snap-on Terminals

For protective and functional equipotential bonding according to IEC 60364-4-41/60364-5-54 and lightning equipotential bonding according to IEC 62305-3.



Standard type

Terminals for:

- 10 conductors 2.5-95 mm² (solid/stranded) or Rd Ø10 mm
- 1 conductor Fl up to 30 x 4 mm

Part No.	563 200
Contact bar	Cu/gal Sn
Cross section	30 mm ²
Standard	EN 50164-1



UV stabilised type

Terminals for:

- 10 conductors 2.5-95 mm² (solid/stranded) or Rd Ø10 mm
- 1 conductor Fl up to 30 x 4 mm

Part No.	563 201
Contact bar	Cu/gal Sn
Cross section	30 mm ²
Standard	EN 50164-1

Accessories / Construction Kit

Terminal Block

For connecting: 1 conductor 2.5-25 mm² (solid/stranded)



Part No.	563 011
Material	St/gal Zn
Modules	1

Terminal Block

For connecting: 1 conductor 16-95 mm² (solid/stranded) or Rd Ø8-10 mm



Part No.	563 013
Material	St/gal Zn
Modules	2

Terminal Block

For connecting: 1 conductor Fl up to 30 x 4 mm



Part No.	563 012
Material	St/gal Zn
Modules	4

Terminal Block

For connecting: 1 conductor Fl up to 40 x 5 mm



Part No.	563 019
Material	St/gal Zn
Modules	5

Clamping Bar

Part No.	563 016	563 017	563 018
Material	brass/gal Sn	brass/gal Sn	brass/gal Sn
Length	198 mm	398 mm	798 mm
Modules	15	30	60

Bar Frame

Part No.	563 014
Material	plastic
Fixing bores	[2x] 6 x 12 mm
Modules	2

Covers

can be snapped on / labelled



Part No.	563 015
Material	plastic
Modules	15

Equipotential Busbar MS



For equipotential bonding.

Terminals for:

- 7 conductors Rd 2.5 – 16 mm² (solid/stranded)
- 1 conductor Rd Ø7 – 10 mm
- 1 conductor Fl up to 30 x 3.5 mm or Rd Ø8 – 10 mm

Part No.	563 050
Contact bar	brass
Cross section	50 mm ²

Equipotential Busbars R15 With Terminal Block System / Kit

For protective and functional equipotential bonding according to IEC 60364-4-41/60364-5-54 and lightning equipotential bonding according to IEC 62305-3.



Type A

Terminals for:

- 7 conductors 2.5-25 mm² (solid/stranded)
- 2 conductors 16-95 mm² (solid/stranded) or Rd Ø8-10 mm
- 1 conductor Fl up to 30 x 4 mm

Part No.	563 010
Clamping bar	brass/gal Sn
Cross section	100 mm ²
Standard	EN 50164-1



Type B

Terminals for:

- 5 conductors 2.5-25 mm² (solid/stranded)
- 3 conductors 16-95 mm² (solid/stranded) or Rd Ø8-10 mm
- 1 conductor Fl up to 30 x 4 mm

Part No.	563 020
Clamping bar	brass/gal Sn
Cross section	100 mm ²
Standard	EN 50164-1



Type C

Terminals for:

- 13 conductors 2.5-25 mm² (solid/stranded)
- 1 conductor 16-95 mm² (solid/stranded) or Rd Ø8-10 mm

Part No.	563 030
Clamping bar	brass/gal Sn
Cross section	100 mm ²
Standard	EN 50164-1



Type D

Terminals for:

- 7 conductors 2.5-25 mm² (solid/stranded)
- 2 conductors 16-95 mm² (solid/stranded) or Rd Ø8-10 mm
- 1 conductor Fl up to 40 x 5 mm

Part No.	563 040
Clamping bar	brass/gal Sn
Cross section	100 mm ²
Standard	EN 50164-1

Equipotential Busbar With Terminal Block System Mini

For protective and functional equipotential bonding according to IEC 60364-4-41/60364-5-54 in small systems.



Without cover.

Terminals for:

- 6 conductors 2.5-25 mm² (solid/stranded)

Part No.	563 105
Clamping bar	brass/gal Sn
Cross section	100 mm ²
Standard	EN 50164-1

Note: You will find our complete earthing / equipotential bonding and lightning protection portfolio in our Lightning Protection Main Catalogue.

Equipotential Busbars

Equipotential Busbars Industry Design

For protective and functional equipotential bonding according to IEC 60364-4-41 410/60364-5-54 and lightning equipotential bonding according to IEC 62305-3, also for use in hazardous areas (screws are secured against self-loosening).



6 terminals
With insulators.

Part No.	472 207	472 209
Material	Cu	StSt
Dimension (l x w x d1)	295 x 40 x 5 mm	295 x 40 x 6 mm
Cross section	200 mm ²	240 mm ²
Standard	EN 50164-1	EN 50164-1



8 terminals
With insulators.

Part No.	472 227	472 229
Material	Cu	StSt
Dimension (l x w x d1)	365 x 40 x 5 mm	365 x 40 x 6 mm
Cross section	200 mm ²	240 mm ²
Standard	EN 50164-1	EN 50164-1



10 terminals
With insulators.

Part No.	472 217	472 219
Material	Cu	StSt
Dimension (l x w x d1)	435 x 40 x 5 mm	435 x 40 x 6 mm
Cross section	200 mm ²	240 mm ²
Standard	EN 50164-1	EN 50164-1



12 terminals
With insulators.

Part No.	472 237	472 239
Material	Cu	StSt
Dimension (l x w x d1)	505 x 40 x 5 mm	505 x 40 x 6 mm
Cross section	200 mm ²	240 mm ²
Standard	EN 50164-1	EN 50164-1

Accessories for Equipotential Busbars

Covers for EBB Industry Design

With insulators.



Part No.	472 279	472 269
Type of EBB	6 terminals	8 terminals
Dimension (l x w x d)	301 x 60 x 0.8 mm	371 x 60 x 0.8 mm
Material	StSt	StSt

Part No.	472 289	472 299
Type of EBB	10 terminals	12 terminals
Dimension (l x w x d)	441 x 60 x 0.8 mm	551 x 60 x 0.8 mm
Material	StSt	StSt

Insulator for EBB Industry Design



Part No.	472 210
Material	UP (thermoset)
Terminal thread	M10 (length 12 mm)
Dimension (d x h)	32 x 40 mm

Fixing Kit for EBB Industry Design



Part No.	472 201
Material of screw	St/tZn
Screw	45 mm ∇ M10x20 mm
Plastic dowel	\varnothing 12x60 mm

Earthing Busbars

Earthing Busbars, single-row

To be screwed to steel constructions, borehole spacing of 35 mm.



1x 4 terminals

Part No.	472 309
Material	StSt
Cross-section	105 mm ²
Borehole \square	11 x 11 mm



1x 6 terminals

Part No.	472 319
Material	StSt
Cross-section	105 mm ²
Borehole \square	11 x 11 mm



1x 8 terminals

Part No.	472 329
Material	StSt
Cross-section	105 mm ²
Borehole \square	11 x 11 mm



1x 10 terminals

Part No.	472 339
Material	StSt
Cross-section	105 mm ²
Borehole \square	11 x 11 mm



1x 12 terminals

Part No.	472 349
Material	StSt
Cross-section	105 mm ²
Borehole \square	11 x 11 mm

Earthing Busbars, two-row

For screwing to steel constructions, borehole spacing of 50 mm.



2x 2 terminals

Part No.	472 023	472 109
Material	St/tZn	StSt
Cross section	240 mm ²	300 mm ²
Borehole \varnothing	11 mm	11 mm



2x 3 terminals

Part No.	472 022	472 119
Material	St/tZn	StSt
Cross section	240 mm ²	300 mm ²
Borehole \varnothing	11 mm	11 mm



2x 4 terminals

Part No.	472 024	472 129
Material	St/tZn	StSt
Cross-section	240 mm ²	300 mm ²
Borehole \varnothing	11 mm	11 mm



2x 6 terminals

Part No.	472 021	472 139
Material	St/tZn	StSt
Cross section	240 mm ²	300 mm ²
Borehole \varnothing	11 mm	11 mm

Connecting Clamps

Connecting Clamps for Reinforcements

To connect the reinforcing steel mesh or reinforcement to round and flat conductors. Arrangement: (II) = parallel (+) = cross



For T, cross and parallel connections

Part No.	308 025
Material	St/tZn
Clamping range Rd / Rd	(+) 6-10 / 6-10 mm
Clamping range Rd / Fl	(+) 6-10 / 30 mm
Clamping range Fl / Fl	(II) 30 / 30 mm



For T, cross and parallel connections

Part No.	308 026
Material	St/tZn
Clamping range Rd / Rd	(+) 6-10 / 30 mm
Clamping range Fl / Fl	(+ / II) 30 / 30 mm



For T and cross connections

Part No.	308 030
Material	St/bare
Clamping range Rd / Fl	(+) 6-22 / 40 mm



For T, cross and parallel connections with clamping frame

For flexible connection of round conductors or for fixed earthing terminals and concurrent fixing in the formwork.

Part No.	308 035
Material	St/bare
Clamping range Rd / Rd	(+ / II) 6-22 / 6-10 mm
Clamping range Rd / Fl	(+) 6-22 / 40 mm



Pressure U-clamp

For T, cross and parallel connections.

Part No.	308 031
Material	St/bare
Clamping range Rd / Rd	(+ / II) 6-20 / 6-10 mm
Clamping range Rd / Fl	(+ / II) 6-20 / 30 x 3-4 mm
Clamping range Fl / Fl	(+ / II) 30 x 3-4 / 30 x 3-4 mm



Pressure U-clamp MAXI

For T, cross and parallel connections.

Part No.	308 036
Material	St/bare
Clamping range Rd / Rd	(+ / II) 20-32 / 6-10 mm
Clamping range Rd / Fl	(+ / II) 20-32 / 40 x 4-5 mm



U-clamp for Large Diameters

Part No.	308 045
Material	St/bare
Clamping range Rd / Rd	(II) 16-48 / 6-10 mm
Clamping range Rd / Fl	(II) 16-48 / 30-40 mm

Connecting Clamps



U-clamp for Large Diameters, with two additional clamping frames

For cross connection of round conductors (6-10 mm) or for fixing and concurrent connection of fixed earthing terminals.

Part No.	308 046
Material	St/bare
Clamping range Rd / Rd	(+ / II) 16-48 / 6-10 mm
Clamping range Rd / Fl	(II) 16-48 / 30-40 mm



MAXI MV Clamps

For T, cross and parallel connections.

Part No.	308 041	308 040
Material	St/tZn	St/bare
Clamping range Rd / Rd	(+ / II) 8-16 / 15-25 mm	(+ / II) 8-16 / 15-25 mm

Components for Foundation Earth Electrodes

Connecting Clamps for Foundation Earth Electrodes

Clamps to connect round and flat conductors in the concrete foundation. For T, cross and parallel connections, threading of conductors is not necessary.



Part No.	308 120	308 129
Material	St/tZn	StSt
Clamping range Rd / Fl	(+) 10 / 30 mm	(+) 10 / 30 mm
Clamping range Fl / Fl	(+ / II) 30 / 30 mm	(+ / II) 30 / 30 mm

Spacers

For installing earth conductors in the foundation slab. With safety lug to prevent loosening of the conductor.



Angled and reinforced / straight

Part No.	290 001	290 002
Type	angled and reinforced	straight
Material	St/tZn	St/tZn
Support Fl	40 mm	40 mm
Support Rd	8-10 mm	8-10 mm
Length	300 mm	280 mm

Expansion Strap for Foundation Earth Electrodes

For leading the foundation earth electrode through the expansion joints in case of large foundations (several sections), so that it is not necessary to lead the earth electrode out of the base plate.



Part No.	308 150
Material of strap	StSt
Dimension of strap (l x w x d)	approx. 700 x 30 x (4 x 1) mm
Material of block	polystyrene

Components for Ring Equipotential Bonding

Flat Strip Holder with Thrust Piece

For wall mounting.

Thrust piece with screw M8 for the installation of flat strip up to 11 mm and round conductor 6-10 mm.



Wall distance 11 mm

Part No.	277 230	277 237	277 239
Material of conductor holder	St/tZn	Cu	StSt
Fixing	Ø13 and 7 x 20	Ø13 and 7 x 20	Ø13 and 7 x 20
Material of screw	StSt	StSt	StSt



Wall distance 15 mm

Part No.	277 240
Material of conductor holder	St/tZn
Fixing	7 x 15 mm
Material of screw	StSt

Terminal Clamp

For universal connection to the ring equipotential bonding of St/tZn, copper or stainless steel (StSt).



Part No.	563 169
Conductor holder support Rd / Fl	Ø8-10 / 30 x 3 up to 11 mm
Material	StSt
Terminal cross section	2.5-95 mm ²

Clamping Piece

Clamping piece for the connection of flat material to construction elements or e.g. for the connection of terminal clamps to steel girders (no bore in the flat strip).



Part No.	380 129
Clamping range Fl	-30 x 4 mm
Material	StSt
Fixing	square hole 11 x 11

Brochures

- DS103E DEHN protects Wind Turbines
- DS104E DEHN protects Cell Sites
- DS107E Surge Protection:
Safety for Sewage Plants
- DS109E DEHN protects Photovoltaic Systems
- DS113 DEHN tests and analyses
- DS122 DEHN protects the Oil and Gas
Industry
- DS143E BLITZDUCTOR XT: Modular Lightning
Current and Surge Arrester
- DS144 DEHN protects Biogas Plants
- DS145E LSA with Lightning Current Carrying
Capacity
- DS150E Yellow/Line Selection Guide
- DS164E BLITZDUCTOR® XTU
- DS174E Testing and monitoring
- DS188E DEHNpatch / UGKF / DEHNgate
(pdf only)
- DS189 DEHN protects PV systems worldwide
- DS197E DEHN protects Safety Systems
- DS509E DEHN protects.
- DS614E DEHN stops Surges
- DS641E Coordinated Surge Protection
- DS649E Red/Line Selection Guide
- DS661E When Lightning Strikes
- DS702E Lightning Protection Guide

Further main catalogues

- DS396E Safety Equipment – Main Catalogue
- DS427E Lightning Protection / Earthing –
Main Catalogue

DEHN CD

- DS708E Animations on DVD
 - Surge Protection – Power Supply Systems
 - DEHN protects photovoltaic systems
 - DEHNguard TH...LI
with Pro Active Thermo Control
 - New Red/Line DEHNventil modular
 - Surge Protection – Information Technology
Systems
 - DEHN protects Cell Sites
 - Protection of Ex (i) circuits
 - Maintenance strategy with
BLITZDUCTOR XT
 - Surge Protection – Lightning Equipotential
Bonding
 - Pipelines exposed to lightning strikes
and overvoltage Lightning Protection

Reprints

- 61E Surge Protection – Practive-Oriented and
Standard-Conform; from etz, 10/2006
- 63E Lightning and Surge Protection for
Telecommunications and Signalling
Networks; from etz, 02/2007
- 77E Modular arc fault protection system
DEHNarc, from VDE ETG-Fachbericht,
09/2010 edition (pdf only)

DEHNacademy seminars

We hold seminars on

- **Lightning Protection / Earthing**
- **Surge Protection**
- **Safety Equipment**

as well as protection for special applications
such as cell sites, photovoltaic systems, wind
turbines, etc.

For more detailed information on dates,
locations, etc., please contact the responsible
DEHN + SÖHNE representative in your country.

Note

Like our catalogues and brochures, our
installation instructions can also be
downloaded from our website
www.dehn-international.com.

Contact

The printed publications can be ordered
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DIN VDE Standards, VDE-Verlag, Berlin

DIN VDE 0100-100:2009-06

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General principles

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Risk management

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Notes

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Sources

Lightning photos on the cover, page 13 and page 189
by Michael Bath, www.lightning photography.com

Key to Symbols used in Basic Circuit Diagrams

Symbol	Description	Standard	Symbol	Description	Standard
	Creeping discharge spark gap, follow-current-limiting, encapsulated, without venting means, RADAX FLOW technology			Gas discharge tube (simple)	DIN EN 60617 Part 7 07-22-04
	Creeping discharge spark gap, without venting means, encapsulated			Gas discharge tube (balanced)	DIN EN 60617 Part 7 07-22-05
	Horn gap, without venting means			Resistor, decoupling element, general	DIN EN 60617 Part 4 04-01-01
	Graphite spark gap, without venting means			Capacitor	DIN EN 60617 Part 4 04-02-01
	Varistor	DIN EN 60617 Part 4 04-01-04		Inductor	DIN EN 60617 Part 4 04-A3-01
	Thermal disconnect	DIN EN 60617 Part 7 07-09-03		Resistor, temperature-controlled	
	Thermo Dynamic Control	DIN EN 60617 Part 7 07-09-03		Socket and plug connector	DIN EN 60617 Part 3 03-03-05
	Spark gap, general	DIN EN 60617 Part 7 07-22-01		Break contact	DIN EN 60617 Part 7 07-02-03
	Fuse	DIN EN 60617 Part 7 07-21-01		Changeover break-before-make contact	DIN EN 60617 Part 7 07-02-04
	Thermal fuse			Changeover make-before-break contact	DIN EN 60617 Part 7 07-02-06
	Filter, general	DIN EN 60617 Part 10 10-16-03		Make contact	DIN EN 60617 Part 7 07-02-01
	Suppressor diode, bipolar	DIN EN 60617 Part 5 05-03-07		Enclosure with terminals	DIN EN 60617 Parts 2+3 02-01-07 03-02-02
	Suppressor diode, low-capacitance			LED, general	DIN EN 60617 Part 8 08-10-01
	Z diode, unipolar	DIN EN 60617 Part 5 05-03-06		Acoustic signal	DIN EN 60617 Part 8 08-10-05

Old / discontinued products		Alternatives	
Part No.	Type	Part No.	Type
Combined Arresters – Type 1			
900 370	DV 2P TT 255	951 110 951 115	DV M TT 2P 255 DV M TT 2P 255 FM
900 371	DV 2P TN 255	951 200 951 205	DV M TN 255 DV M TN 255 FM
900 373	DV TNC 255	951 300 951 305	DV M TNC 255 DV M TNC 255 FM
900 374	DV TNS 255	951 400 951 405	DV M TNS 255 DV M TNS 255 FM
900 375	DV TT 255	951 310 951 315	DV M TT 255 DV M TT 255 FM
Coordinated Lightning Current Arresters – Type 1			
900 015	DBM 1 135	961 110 961 115	DB M 1 150 DB M 1 150 FM
900 016	DBM 1 320	961 130 961 135	DB M 1 320 DB M 1 320 FM
900 025	DBM 1 255	961 120	DB M 1 255
900 026	DBM 1 255 L	961 125	DB M 1 255 FM
900 044	DBM 440	961 140 961 145	DBM 1 440 DBM 1 440 FM
900 055	DGPM 255	961 101 961 105	DGP M 255 DGP M 255 FM
Lightning Current Arresters – Type 1			
900 110	DB 3 255	900 120	DB 3 255 H
900 111	DB 1 255	900 222	DB 1 255 H
900 132	DGP BN 255	961 102	DGPH M 255
900 159	DB 1 440	961 140 961 145	DBM 1 440 DBM 1 440 FM
900 269	DGP B NH00 N 255	—	—
900 273	DB NH00 255 H	900 255	DBM NH00 255
Surge Arrester – Type 2			
900 133	DGP C T 255	952 030 952 035	DGP C S DGP C S FM
900 506	DG TN 230	952 200	DG M TN 275
900 507	DG TN 230 FM	952 205	DG M TN 275 FM
900 508	DG TT 230	952 110	DG M TT 2P 275
900 509	DG TT 230 FM	952 115	DG M TT 2P 275 FM
900 510	DG TNC 230 400	952 300	DG M TNC 275
900 516	DG IT 500	952 302	DG M WE 600
900 517	DG Y PV 1000	952 510 952 511	DG M YPV SCI 1000 DG M YPV SCI 600
900 520	DG TT 230 400	952 310	DG M TT 275
900 530	DG TNS 230 400	952 400	DG M TNS 275
900 540	DG TNC 230 400 FM	952 305	DG M TNC 275 FM
900 546	DG IT 500 FM	952 307	DG M WE 600 FM
900 547	DG Y PV 1000 FM	952 515 952 516	DG M YPV SCI 1000 FM DG M YPV SCI 600 FM
900 550	DG TT 230 400 FM	952 315	DG M TT 275 FM
900 560	DG TNS 230 400 FM	952 405	DG M TNS 275 FM
900 600	DG 275	952 070	DG S 275
900 601	DG 600	952 076	DG S 600
900 602	DG 385	952 074	DG S 385
900 603	DG 150	952 072	DG S 150
900 604	DG 75	952 071	DG S 75
900 605	DG 320	952 073	DG S 320
900 607	DG 440	952 075	DG S 440
900 620	DG 275 FM	952 090	DG S 275 FM
900 621	DG 600 FM	952 096	DG S 600 FM
900 622	DG 385 FM	952 094	DG S 385 FM
900 623	DG 150 FM	952 092	DG S 150 FM
900 624	DG 75 FM	952 091	DG S 75 FM
900 625	DG 320 FM	952 093	DG S 320 FM
900 627	DG 440 FM	952 095	DG S 440 FM
900 641	DG T 385	952 074	DG S 385
900 650	DG T 275	952 070	DG S 275

Old / discontinued products		Alternatives	
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900 651	DG T 600	952 076	DG S 600
900 652	DG T 320	952 073	DG S 320
900 653	DG T 150	952 072	DG S 150
900 654	DG T 75	952 071	DG S 75
900 655	DG T 440	952 075	DG S 440
900 659	DG T 275 VA	952 082	DG S 275 VA
900 667	DG T 75 VA	952 080	DG S 75 VA
900 680	DG T 275 FM	952 090	DG S 275 FM
900 681	DG T 600 FM	952 096	DG S 600 FM
900 682	DG T 320 FM	952 093	DG S 320 FM
900 683	DG T 150 FM	952 092	DG S 150 FM
900 684	DG T 75 FM	952 091	DG S 75 FM
900 685	DG T 440 FM	952 095	DG S 440 FM
900 689	DG T 275 VA FM	952 087	DG S 275 VA FM
900 691	DG T 385 FM	952 094	DG S 385 FM
900 692	DG T 75 VA FM	952 085	DG S 75 VA FM
901 000	VAV 1000	950 102 950 112	DG 1000 DG 1000 FM
950 120	DG T H 275 LI	—	—
950 121	DG T H 385 LI	—	—
950 150	DG TT H 230 400 LI	—	—
950 151	DG TT H230 400 LI385	—	—
950 160	DG TNC H230 400 LI	—	—
950 170	DG TNS H230 400 LI	—	—
950 220	DG T 48	952 078	DG S 48
950 225	DG T 48 FM	952 098	DG S 48 FM
950 500 (2x)	DG PV 500 SCP	952 510 952 511	DG M YPV SCI 1000 DG M YPV SCI 600 (Observe PV voltage)
950 501 (2x)	DG PV 700 SCP	952 510	DG M YPV SCI 1000
950 502 (2x)	DG PV 1200 SCP	952 512 952 520	DG M YPV SCI 1200 DG ME YPV SCI 1500
950 505 (2x)	DG PV 500 SCP FM	952 515 952 516	DG M YPV SCI 1000 FM DG M YPV SCI 600 FM (Observe PV voltage)
950 506 (2x)	DG PV 700 SCP FM	952 515	DG M YPV SCI 1000 FM
950 507 (2x)	DG PV 1200 SCP FM	952 517 952 525	DG M YPV SCI 1200 FM DG ME YPV SCI 1500 FM
Surge Arresters – Type 3			
901 100	DR 230 FML	953 205 953 200	DR M 2P 255 FM DR M 2P 255
901 101	DR 120 FML	953 209 953 204	DR M 2P 150 FM DR M 2P 150
901 102	DR 60 FML	953 208 953 203	DR M 2P 75 FM DR M 2P 75
901 103	DR 48 FML	953 207 953 202	DR M 2P 60 FM DR M 2P 60
901 104	DR 24 FML	953 206 953 201	DR M 2P 30 FM DR M 2P 30
901 130	DR 230 3N FML	953 405 953 400	DR M 4P 255 FM DR M 4P 255
909 820	SF PRO	909 240	DPRO 230 F
909 821	S PRO	909 230	DPRO 230
912 260	SFL PRO	909 250	SFL PRO 6X
Accessories			
900 121	DBR 35	—	—
900 122	DBR 63	—	—
900 309	IGA 10 IP54	902 315	IGA 10 V2 IP54
902 480	IGA 10 IP55	902 315	IGA 10 V2 IP54
900 699	DK 35	952 699	DK 25
910 600	DISO 3	—	—
Isolating Spark Gaps			
923 070	EXFS C1	923 100	EXFS 100
923 071	EXFS C1 KU	923 101	EXFS 100 KU

Old / discontinued products		Alternatives	
Part No.	Type	Part No.	Type
Compact DIN Rail mounted SPDs			
918 402	BVT AD 24	918 422	BVT AVD 24
919 920	DCO RK ME 12	917 920	DCO SD2 ME 12
919 921	DCO RK ME 24	917 921	DCO SD2 ME 24
919 922	DCO RK ME 48	917 922	DCO SD2 ME 48
919 923	DCO RK ME 110	920 327	BXT ML4 BE 180 and
		920 300	BXT BAS
919 940	DCO RK MD 12	917 940	DCO SD2 MD 12
919 941	DCO RK MD 24	917 941	DCO SD2 MD 24
919 942	DCO RK MD 48	917 942	DCO SD2 MD 48
919 943	DCO RK MD 110	920 247	BXT ML2 BD 180 and
		920 300	BXT BAS
919 960	DCO RK MD EX 24	917 960	DCO SD2 MD EX 24
919 970	DCO RK MD HF 5	917 970	DCO SD2 MD HF 5
919 986	DCO RK D 5 24	—	—
919 987	DCO RK E 12	917 987	DCO SD2 E 12
919 988	DCO RK E 24	917 988	DCO SD2 E 24
919 989	DCO RK E 48	917 989	DCO SD2 E 48
919 990	DCO RK E 60	—	—
Accessories for DIN Rail mounted SPDs			
919 976	BS 1 50 S DCO RK	917 976	LS 1 50 V DCO
919 977	BS 1 50 DCO RK	917 977	LS 1 50 H DCO
919 978	AD DCO RK BL	—	—
919 979	AD DCO RK GE	—	—
SPDs for LSA Technology			
907 209	GDT 230 G3 FS	907 217	GDT 230 G3 FSD
907 215	DPL 10 G3 110 FS	907 216	DPL 10 G3 110 FSD

Old / discontinued products		Alternatives	
Part No.	Type	Part No.	Type
SPDs for Telecommunication and Data Networks			
929 067 (1x)	NET PRO ISDN	929 100 (8x)	DPA M CAT6 RJ45S 48
929 068 (1x)	NET PRO ISDN LSA	929 100 (8x)	DPA M CAT6 RJ45S 48
929 069	NET PRO TC 1	929 071	NET PRO TC 2
929 070	NET PRO TC 1 LSA	929 072	NET PRO TC 2 LSA
929 110	DPA M CAT6 RJ45H 48	929 100	DPA M CAT6 RJ45S 48
SPDs for Building Systems			
929 027	DLI TC 1 I	929 028	DLI TC 2 I
929 029	DLI TC DK	—	—
929 080	DLI TC ECO	929 028	DLI TC 2 I
924 271	DSM TC 1 SK	924 272	DSM TC 2 SK
924 273	DSM TC DK SK	—	—
924 274	DSM TM	—	—
SPDs for coaxial Connection			
929 041	DGA G 1.6 5.6	929 040	DGA F 1.6 5.6
929 046	DGA LG 7 16	929 146	DGA LG 7 16 MFA
929 048	DGA L4 7 16 B	929 148	DGA L4 7 16 MFA
929 057	DGA AG U	—	—
929 058	DGA G N 3	929 044	DGA G N
929 446	DGA LG 7 16 X	929 146	DGA LG 7 16 MFA
SPDs for SUB-D Connection			
924 016	FS 15E 5	—	—
SPDs for Terminal Connection			
925 013	AS IBAS YE	—	—
Accessories for screwable SPDs			
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