



DEHN + SÖHNE

Surge Protection

Main Catalogue 2008 / 2009



Lightning Protection



Surge Protection



Safety Equipment

. . . Your safety is our concern.



Valid from 1st May 2008

This catalogue replaces the UE Main Catalogue published in 2006.

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Publication No. DS570/E/2008

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DEHN – Safety with Tradition.

Production around 1930.



At first there was the idea of diverting lightning to the ground without endangering home or people. This was the challenge, Hans Dehn met in his company founded in Nuremberg in 1910. Since the beginning of the 1920s DEHN has produced lightning protection and earthing components. Over the years, a diversified product range for external lightning protection came into existence.

However, not only protecting systems and buildings against the effects of lightning, but also the protection of people installing and maintaining electrical systems became a central requirement.

In 1952, DEHN + SÖHNE amplified their product range by safety equipment for working in electrical installations.



Centre of lightning and surge protection.

The entering of electrical and electronic equipment in industries, administrations and households showed soon, that conventional lightning protection was not sufficient to protect these devices. With the experience of decades in the field of external lightning protection, the necessity of surge protection came up. Therefore, the first generation of surge protective devices (SPDs) of DEHN + SÖHNE was introduced to the market in 1954.

Today, the location in Neu- markt, Germany, unifies research and development, production, sales and administration for lightning protection, surge protection and safety equipment.

Production today.



With approx. 850 employees, a process-orientated management, laboratories, computer-controlled production lines and a wide product range for safety, DEHN + SÖHNE is a worldwide recognised and leading family-owned company.

DEHN – Products for Safety.

In the course of its history of almost 100 years, the initial handicraft business has become a worldwide operating industrial company with three product ranges:



Lightning Protection



Surge Protection



Safety Equipment

DEHN + SÖHNE is a booster of technological progress. We do intensive, application-related research work for customer-orientated solutions. The performance parameters of our impulse current test laboratories are unique worldwide.

With the experience in research and development, production, quality assurance and application of components for lightning and surge protection as well as safety equipment, we have influenced national and international standardisation considerably. Our most important aim is to stipulate a maximum quality and safety level. This has made DEHN + SÖHNE known as a brand of quality far beyond the borders of Germany.

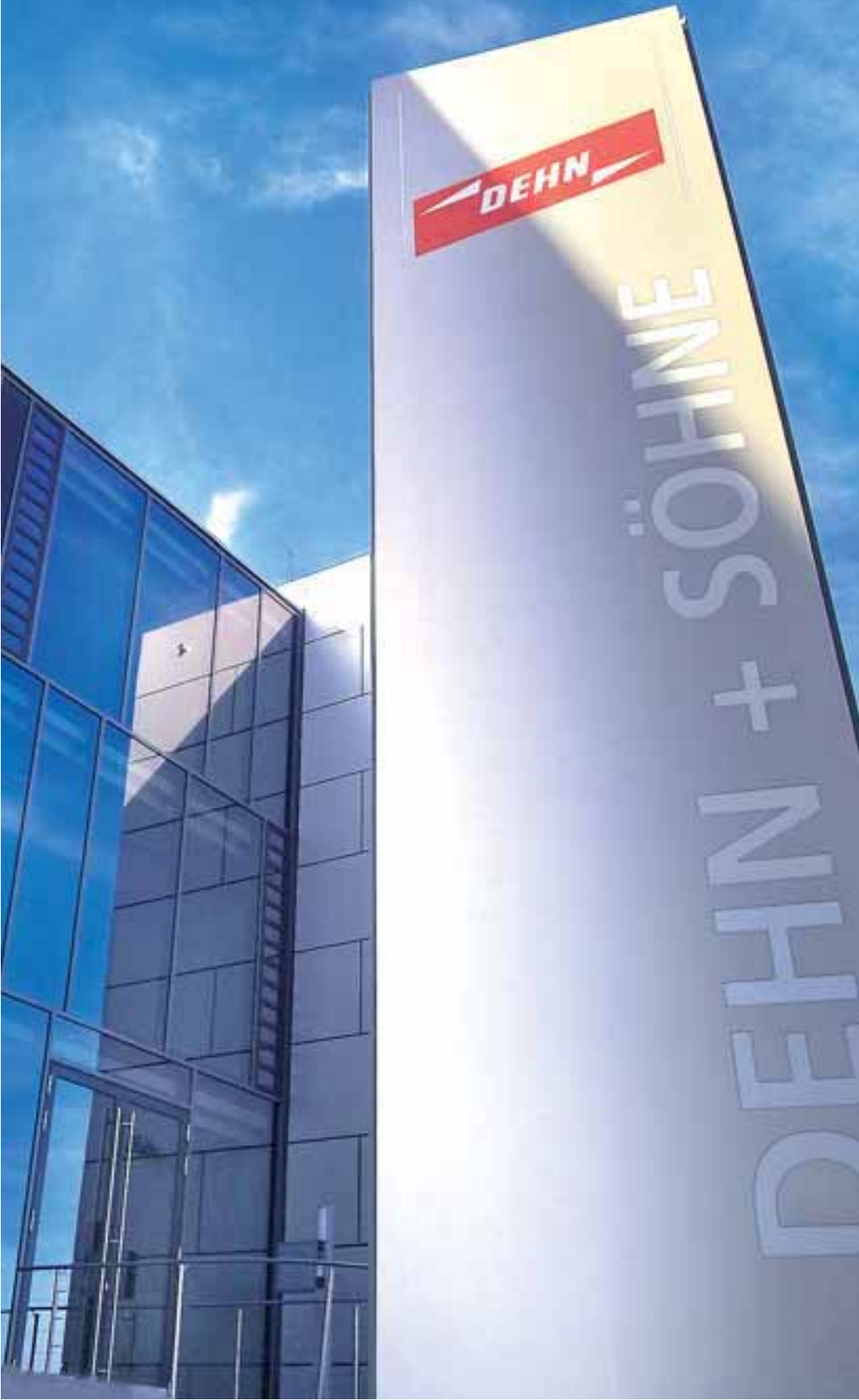


Surge Protection.



Impulse current test laboratory.

DEHN – Quality and Safety.



DEHN + SÖHNE produce more than 3,500 devices and components for your safety. Our products protect human lives and material assets. High quality requirements and the awareness in the treatment of the environment is therefore a must.

In order to ensure this and make it also transparent for you as our customer, the company was certified according to DIN EN ISO 9001 and DIN EN ISO 14001. Annual examinations and complete reaudits every three years show the central significance of quality and environmental management in the company.

We cooperate intensively with international and national standard committees and take part in congresses worldwide. We are active members of the "Ausschuss für Blitzschutz und Blitzforschung" (ABB) [Commission for Lightning Protection and Research] and "Verband Deutscher Blitzschutzfirmen (VDB)" [Association of German Lightning Protection Companies]. Thus, we foster nationally and internationally the aims and further development of lightning protection. Our aim is to provide sophisticated, customer-orientated solutions to increase the economy of companies. Only those who are accessible can be quick, flexible and efficient.

We provide you with the necessary safety.



DEHN – Global Safety.

DEHN + SÖHNE supplies equipment and provides services covering lightning and surge protection worldwide. We have committed ourselves to continuous market presence, productivity, product quality and delivery in time. Developing innovative and market-related products requires closeness to our customers. They benefit from our strength in innovation, flexibility and short decision processes.

Sustained success in the market is only possible if local conditions are considered.

Our market presence: 17 sales offices and 4 outlets in Germany, subsidiaries or representatives in more than 70 countries. Besides continuous participation in international fairs, DEHN + SÖHNE offers extensive technical support and customer service on the spot. Additionally, we organise seminars and lectures, and supply detailed information and designing material. We contribute to specialist publications and carry out continuous PR work.

Safety is not just related to the features and benefits of our products but can also be applied to the relationship with our customers and suppliers.

This means for our partners that their problems that need to be solved are in safe hands.



Cell Sites – safely protected by DEHN!

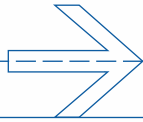


Traffic Systems – safely protected by DEHN!



Process technology – safely protected by DEHN!

DEHN – Worldwide.



- | | |
|----------------|----------------------|
| Algeria | Netherlands |
| Argentina | New Zealand |
| Australia | Nicaragua |
| Austria | Nigeria |
| Belgium | Norway |
| Belize | Oman |
| Bolivia | Pakistan |
| Brazil | Panama |
| Bulgaria | Peru |
| Canada | Poland |
| Cap Verde | Portugal |
| Chile | Romania |
| China | Russia |
| Columbia | Saudi Arabia |
| Costa Rica | Serbia |
| Croatia | Singapore |
| Cuba | Slovakia |
| Czech Republic | Slovenia |
| Denmark | South Africa |
| El Salvador | Spain |
| Estonia | Sri Lanka |
| F.Y.R.O.M | Sweden |
| Finland | Switzerland |
| France | Syria |
| Great Britain | Taiwan |
| Greece | Thailand |
| Guatemala | Turkey |
| Honduras | Uganda |
| Hungary | United Arab Emirates |
| Iceland | USA |
| India | Venezuela |
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DEHN – Safety according to Specification.

Lightning Protection Zones Concept

Failures of technical systems and installations are very unpleasant for the operators. These require faultless operation from the equipment both under “normal” conditions and in case of thunderstorms. Loss reports of insurance companies show clearly that there is a backlog demand both in the private (Fig. 1) and commercial sector (Fig. 2). A comprehensive protection concept would help to achieve this aim.

The Lightning Protection Zones Concept enables designers, constructors and operators to plan, perform and control protection measures. All relevant devices, installations and systems are thus reliably protected and furthermore with economically acceptable efforts.

Sources of interferences

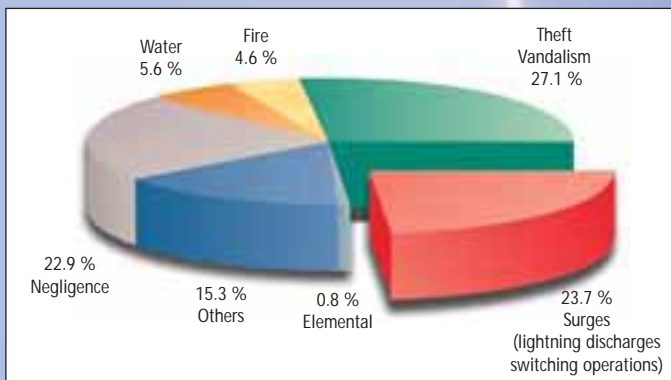


Fig. 1: Causes of damage to electronic equipment in 2001, Analysis of 7370 damage claims (Ref.: Württembergische Versicherung AG)

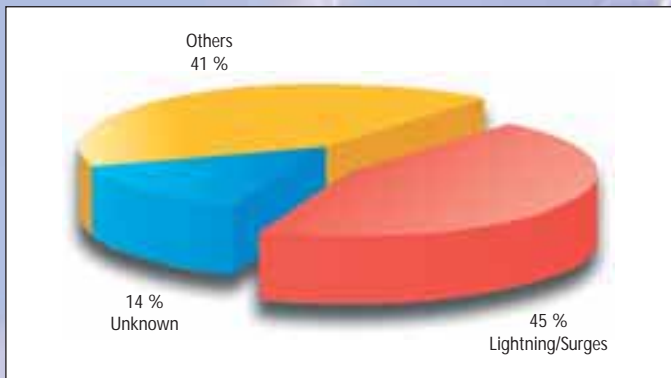


Fig. 2: Average damage causes for the last years (Ref.: Gesamtverband der Deutschen Versicherungswirtschaft e.V., Berlin 2001)

Surges arising due to thunderstorms, are caused by direct or close lightning strokes or distant lightning strokes (Fig. 3).

Direct or close lightning strokes are strokes into the lightning protection system of a structure, into its immediate surroundings or into the conductive systems entering the structure (e.g. low-voltage power supply, telecommunications lines and control lines...).

Due to their amplitudes and energy loads, the arising impulse currents and impulse voltages as well as the corresponding electromagnetic field (LEMP) represent a special risk for the system to be protected.

In case of a close or direct lightning strike, the surges (Fig.3: Case 1a) are caused by a voltage drop at the impulse earthing resistance and the resulting potential rise of the structure towards the distant surroundings. This is the maximum load on electrical installations in structures.

The characteristic parameters of flowing impulse currents (peak value, rate of current rise, load, specific energy) can be described with the impulse-current wave form 10/350 μs (Fig. 4) and are defined in international, European and national standards as test currents for components and devices for protection against direct lightning strokes.

In addition to the voltage drop at the impulse earthing resistance, surges arise in the electrical building installation and the systems connected to it and equipment due to the induction effect of the electromagnetic lightning field (Fig 3: Case 1b).

The power of these induced surges and the resulting impulse currents is considerably lower than the power of a direct lightning impulse current and is therefore only described with the impulse current wave 8/20 μs (Fig. 4). Components and equipment, which do not have to conduct currents from direct lightning strokes, are therefore tested with impulse currents of 8/20 μs .

Protection philosophy

Distant strokes are lightning strokes from a distance to the object to be protected, lightning strokes into the medium voltage overhead line network or into its immediate surroundings, or lightning discharges from cloud to cloud (Fig. 3: Cases 2a, 2b and 2c).

In analogy to induced surges, the effects of distant lightning strokes on the electrical system of a structure are controlled by devices and components, which are designed accordingly for impulse current wave 8/20 μs .

Surges due to switching operations (SEMP) are caused by e.g.

- switching off inductive loads (e.g. transformers, coils, motors),
- ignition and interruption of electric arcs (e.g. arc welding device),
- tripping of fuses.

The effects of switching operations in electrical installations of structures can also be emulated with impulse currents of wave form 8/20 μs for testing purposes.

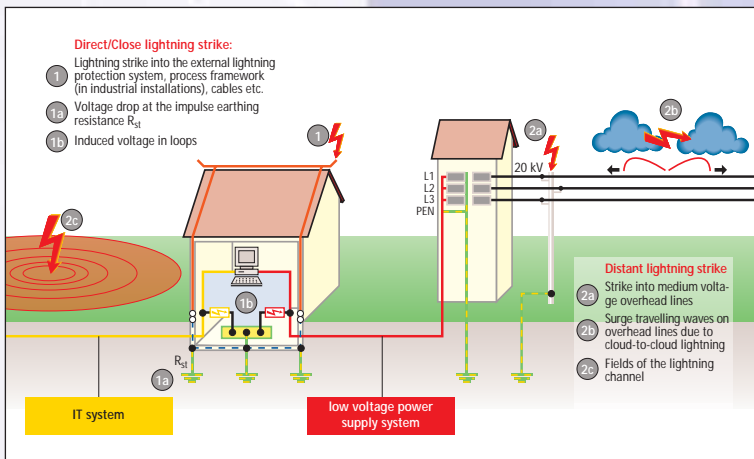


Fig. 3: Causes of surges in case of lightning discharges

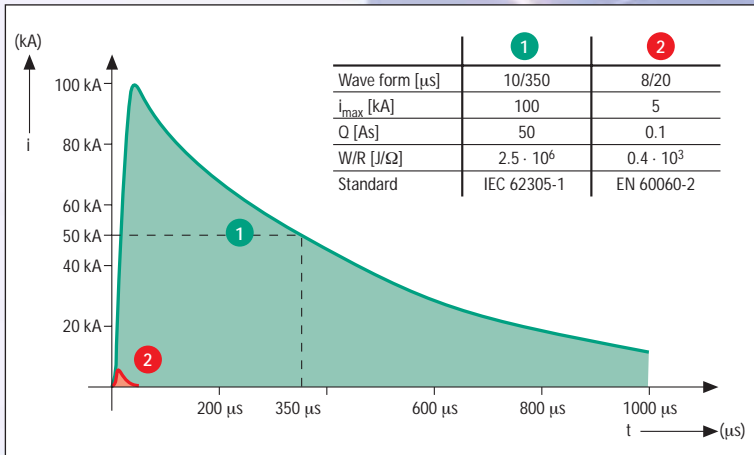


Fig. 4: 1 Test impulse current for lightning current arresters 2 Test impulse current for surge arresters

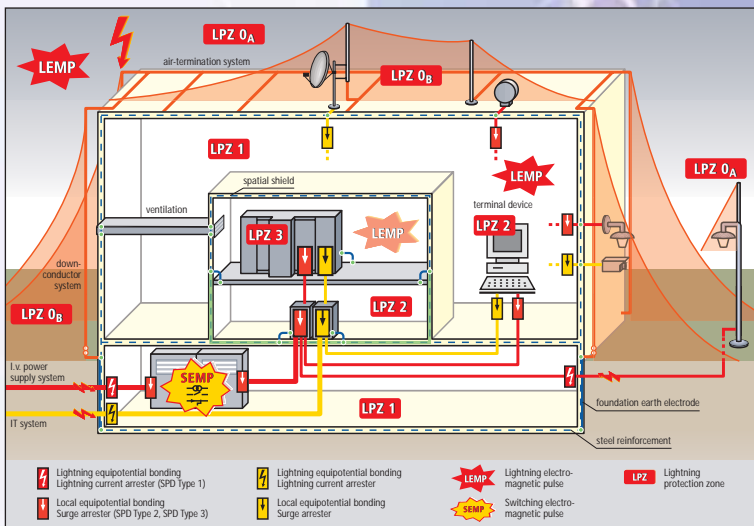


Fig. 5: EMC-based lightning protection zones concept

LEMP protection of structures with electrical and electronic systems according to IEC 62305-4

Lightning Protection Zone	Description
LPZ 0 _A	Threat by direct lightning strokes, impulse currents up to complete lightning currents and the entire lightning field.
LPZ 0 _B	Protected against direct lightning strokes. Threat by impulse currents up to partial lightning currents and the entire lightning field.
LPZ 1	Impulse currents are further limited by current distribution and SPDs situated at the zone boundaries. The lightning field is mostly attenuated by spatial shielding.
LPZ 2	Impulse currents are further limited by current distribution and SPDs situated at the zone boundaries. The lightning field is mostly attenuated by spatial shielding.

Table 1: Definition of lightning protection zones (LPZ)

To ensure continuous availability of complex electrical and IT systems even in case of a direct lightning effect, further measures for surge protection of electrical and electronic installations are necessary, based on a building lightning protection system. Taking all causes of surges into consideration is very important. For this purpose, the Lightning Protection Zones Concept of IEC 62305-4 is applied (Fig. 5).

A structure is subdivided in different risk zones. These zones help to define the necessary devices and components for lightning and surge protection. Part of an EMC-conform lightning protection zones concept is an external lightning protection system (including air-termination system, down-conductor system, earthing), equipotential bonding, spatial shielding and surge protection for the power supply systems and IT systems. The definition of the lightning protection zones is subject to the predeterminations in Table 1.

In correspondence with the requirements and loads on surge protective devices with respect to their installation sites, these are classified as lightning current arresters, surge arresters and combined lightning current and surge arresters.

The highest requirements for the discharge capacity are made on lightning current and combined lightning current and surge arresters used for the transition from Lightning Protection Zone 0_A to 1 or 0_A to 2.

These SPDs must be able to conduct partial lightning currents (wave form 10/350 μs) several times without destruction in order to prevent the penetration of destructive partial lightning currents into the electrical installation of a building.

At the boundary from LPZ 0_B to 1 or downstream of the lightning current arrester at the boundary from LPZ 1 to 2 and higher, surge arresters are used for protection against surges. Their function is to further reduce both the residual loads of the upstream protection levels and limit the induced or own surges.

The aforementioned lightning and surge protective measures at the boundaries of the lightning protection zones apply to both power supply systems and IT systems to the same extent.

The entirety of the measures described in the EMC-conform Lightning Protection Zones Concept helps to achieve a permanent system availability of a modern infrastructure.

DEHN – Technical Definitions.

Surge Protective Devices (SPD)

Surge protective devices are items of equipment whose basic components are voltage-controlled resistors (varistors, suppressor diodes) and/or spark gaps (discharge paths). The function of surge protective devices is to protect other electrical equipment and installations against impermissibly high surges and/or to establish the equipotential bonding.

Surge protective devices are classified

a) according to their **application** in

– **Surge protective devices for power supply systems and equipment**

for nominal voltage ranges up to 1000 V

- according to EN 61643-1:2001 as SPD Types 1/2/3
- according to IEC 61643-1:1998-02 as SPDs Class I / II / III

– **Surge protective devices for IT systems and equipment**

for protection of modern electronic systems in telecommunications and signal-processing networks with nominal voltages up to 1000 V a.c. (root-mean-square value (rms)) and 1500 V d.c. against indirect and direct effects of lightning strokes and other transients.

- according to IEC 61643-21:2000 + Corrigendum:2001, EN 61643-21:2001 and DIN VDE 0845 Part 3-1.

– **Isolating spark gaps for earth-termination systems or for equipotential bonding**

b) according to their **impulse current discharge capacity** and their protective effect in

– **Lightning current arresters / Coordinated lightning current arresters**

for interferences due to direct or close lightning strokes for protection of installations and equipment (for use at the boundaries of Lightning Protection Zones (LPZ) O_A and 1).

– **Surge arresters**

for distant lightning strokes, switching over-voltages as well as electrostatic discharges for protection of installations, equipment and terminal devices (for use at the boundaries downstream of LPZ O_B).

– **Combined lightning current and surge arresters**

for interferences due to direct or close lightning strokes for protection of installations, equipment and terminal devices (for use at the boundaries between LPZ O_A and 1 as well as O_A and 2).

Technical data of surge protective devices

The technical data of surge protective devices comprise information defining the application conditions upon

- application (e.g. installation, mains conditions, temperature)
- performance on interferences (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 on failure (e.g. backup fuse, disconnection device, fail-safe)

Bandwidth f_G

defines the frequency-dependent performance of an SPD. Bandwidths are frequencies causing an insertion loss (a_E) of 3 dB under certain test conditions (see EN 61643-21:2001).

If no other value is indicated, the frequency value refers to a 50 Ω system.

Categories according to IEC 61643-21: 2000 (DIN VDE 0845 Part 3-1)

For testing the current carrying capability and voltage limitation under influences of impulses, a variety of impulse voltages and impulse currents is described in E DIN EN 61644-1 (VDE 0845 Part 3-1). They are sorted in Table 3 and provide preferred values. These categories (A ... to D ...) are not comparable to the classes stated in E DIN VDE 0675-6:1989-11, -6/A1:1996-03 and -6/A2:1996-10. E DIN EN 61644-1 (VDE 0845 Part 3-1):1999-07 classifies impulse currents from surge interferences as category C and partial lightning currents as category D (maximum load class).

The technical data indicate a classification according to the fulfilled categories.





DEHN + SÖHNE surge protective devices exceed the values indicated in the categories. The explicit value for the impulse current carrying capability is therefore indicated by the stated nominal discharge current (8/20 μ s) and lightning impulse current (10/350 μ s).

Combined impulse U_{oc}

is generated by a hybrid generator (1.2/50 μ s, 8/20 μ s) with a virtual impedance of 2 Ω . The open-circuit voltage of this generator is defined as U_{oc} . U_{oc} is especially indicated for SPDs Type 3.

Degree of protection

The degree of protection (IP) corresponds to the subdivision into degrees of protection in accordance with DIN EN 60529 (VDE 0470 Part 1).

Disconnecting time t_a

is the time passing until the automatic disconnection from power supply of the electrical circuit or equipment to be protected (see page 329) in case of a failure. The disconnecting time is an application-specific value resulting from the intensity of the fault current flowing and the characteristics of the protective device.

Disconnection capacity / Follow current extinguishing capability I_{fi}

The disconnection capacity is the uninterfered (prospective) rms value of the mains follow current, which can automatically be extinguished by the surge protective device at presence of U_c . It can be proven in the scope of an operating duty test according to E DIN VDE 0675-6/A1:1996-03.

Frequency range

characterises the transmission band or let-through frequency of an SPD according to the described attenuation characteristics.

Insertion loss

With an indicated frequency, the insertion loss of a surge protective device is defined by the relation of the voltage value at the installation site before and after installing the SPD. If no other value is indicated, the value refers to a 50 Ω system.

LifeCheck®

Repeated discharges with values beyond the specifications of the device can overload SPDs used in IT systems. In order to ensure a high

system availability, SPDs should therefore be subject to systematic tests. LifeCheck allows for quick and easy SPD testing (refer also to page 154).

Lightning impulse current I_{imp}

is a standardised impulse current curve, with a wave form of 10/350 μ s. Its parameters (peak value, charge, specific power) simulate the loads of natural lightning currents. Lightning current and combined lightning current and surge arresters must be capable of discharging such lightning impulse currents several times without consequential destruction of the equipment.

Mains-side overcurrent protection / Backup fuse

is an overcurrent protective device (e.g. fuse or circuit breaker), which is installed outside of the surge arrester on the supply side to interrupt the power-frequency follow currents, if the breaking capacity of the surge protective device is exceeded.

Max. continuous operating voltage U_c

is the root mean square (rms) value of the maximum voltage, which may be applied to the correspondingly marked terminals of the surge protective device during operation. It is the maximum voltage on the SPD in the defined non-conductive state, which ensures that this state is regained after response and discharge.

The value of U_c shall be chosen in accordance with the nominal voltage of the system to be protected and the requirements of the installation provisions (IEC 60364-5-534).

Max. discharge current I_{max}

is the maximum peak value of the impulse current (8/20 μ s), which can be safely discharged by the device.

Max. transmission capacity

defines the maximum RF capacity which can be transmitted via a coax surge protective device without interfering with the protective component.

Nominal discharge current I_n

is the peak value of an impulse current (wave form 8/20 μ s), which the surge protective device is rated for according to a certain test programme.

Nominal load current (nominal current) I_L

is the highest permissible operating current, which may be permanently conducted via the correspondingly marked terminals.

Nominal voltage U_N

corresponds to the nominal voltage of the system to be protected. The nominal voltage is often indicated for surge protective devices used in IT installations for type designation purposes. For a.c. voltages it is indicated as rms value.

N-PE surge arresters

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

Operating temperature range T_U

indicates the range the devices can be used within. For devices without self-heating, it is equal to the ambient temperature range. The temperature rise of devices with self-heating must not exceed the maximum value indicated.

Protective circuit

Protective circuits are multi-stage, cascaded protective devices. The individual protection stages can consist of discharge paths, varistors, semiconductor elements. The energy coordination of the individual protection stages is performed with decoupling elements.

Protective conductor current I_{PE}

is the current flowing through the PE connection when the surge protective device is connected to the maximum continuous operating voltage U_C , corresponding to the installation instructions and without load-side consumers.

Response time t_A

Response times generally characterise the response performance of the individual protection elements used in surge protective devices (refer also to page 329).

Depending on the steepness du/dt of the impulse voltage or di/dt of the impulse current, the response times can change within certain limits.

Return loss

indicates for high-frequency applications, how many rates of the "forward" wave are reflected at the protective device ("transition point"). It is a direct measure for rating the adjustment of the protective device to the surge impedance of the system.

Series impedance

is the impedance in the direction of the signal flow between input and output of the SPD.

Shield attenuation

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

Short-circuit withstand capability

is the value of the prospective power-frequency short-circuit current controlled by the surge protective device if it is supplied with an upstream backup fuse.

SPD class (Yellow / Line)

All DEHN surge arresters for use in IT systems are assigned a Yellow/Line SPD Class and are marked correspondingly with a symbol in the technical data sheet and on the rating plate (refer also to page 153).

Thermal disconnecter

Surge protective devices for use in power supply systems, which are supplied with voltage-controlled resistors (varistors), mostly have an integrated disconnection device, which isolates the surge protective device from mains in case of overloads and indicates this operating state.

The disconnecter reacts on the "joule heat" generated by an overloaded varistor and disconnects the surge protective device from mains, if a certain temperature is exceeded.

The disconnection device is designed to disconnect the overloaded surge protective device in time to avoid a fire hazard. It is not designed to ensure the protective measure of "protection against indirect contact".

The function of these thermal disconnectors can be tested by simulated overloads/ageing of the SPD.

Voltage protection level U_p

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

- Lightning impulse sparkover voltage 1.2/50 μ s (100%)
- Response voltage for a steepness of 1 kV/ μ s
- Residual voltage for nominal discharge current U_{res}

The voltage protection level characterises the capability of a surge protective device to limit surges to a residual level. If used in power supply systems, the voltage protection level defines the location of use by the overvoltage category according to DIN VDE 0110-1:1997-04 (EN 60664-1, IEC 60664-1). For surge protective devices designed for protection of IT systems, the voltage protection level has to be adapted to the immunity of the equipment to be protected (DIN EN 61000-4-5: 2001-12).

Surge protection for POWER SUPPLY SYSTEMS

SPDs for low-voltage installations and equipment







POWER SUPPLY SYSTEMS

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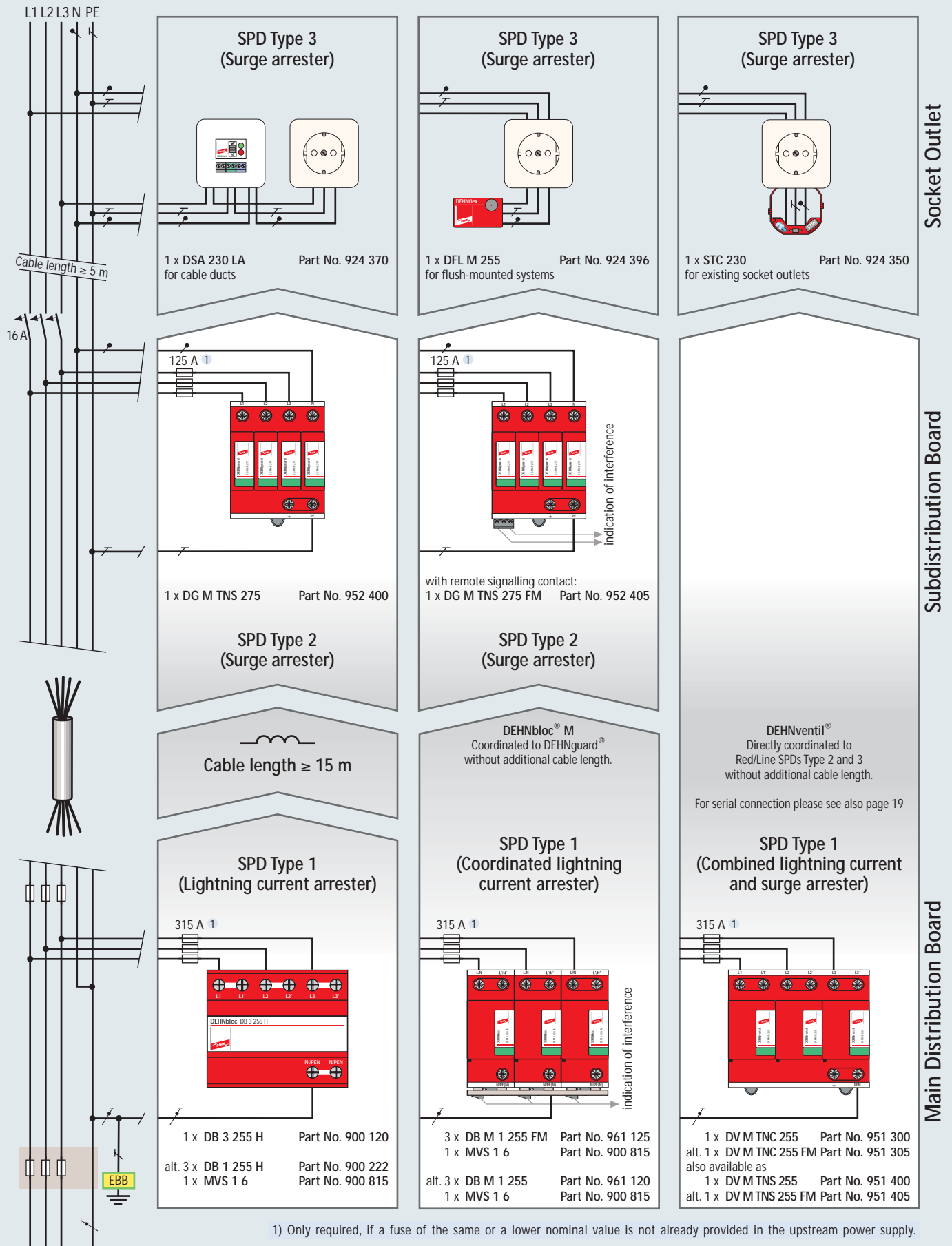
Easy choice

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Easy Choice

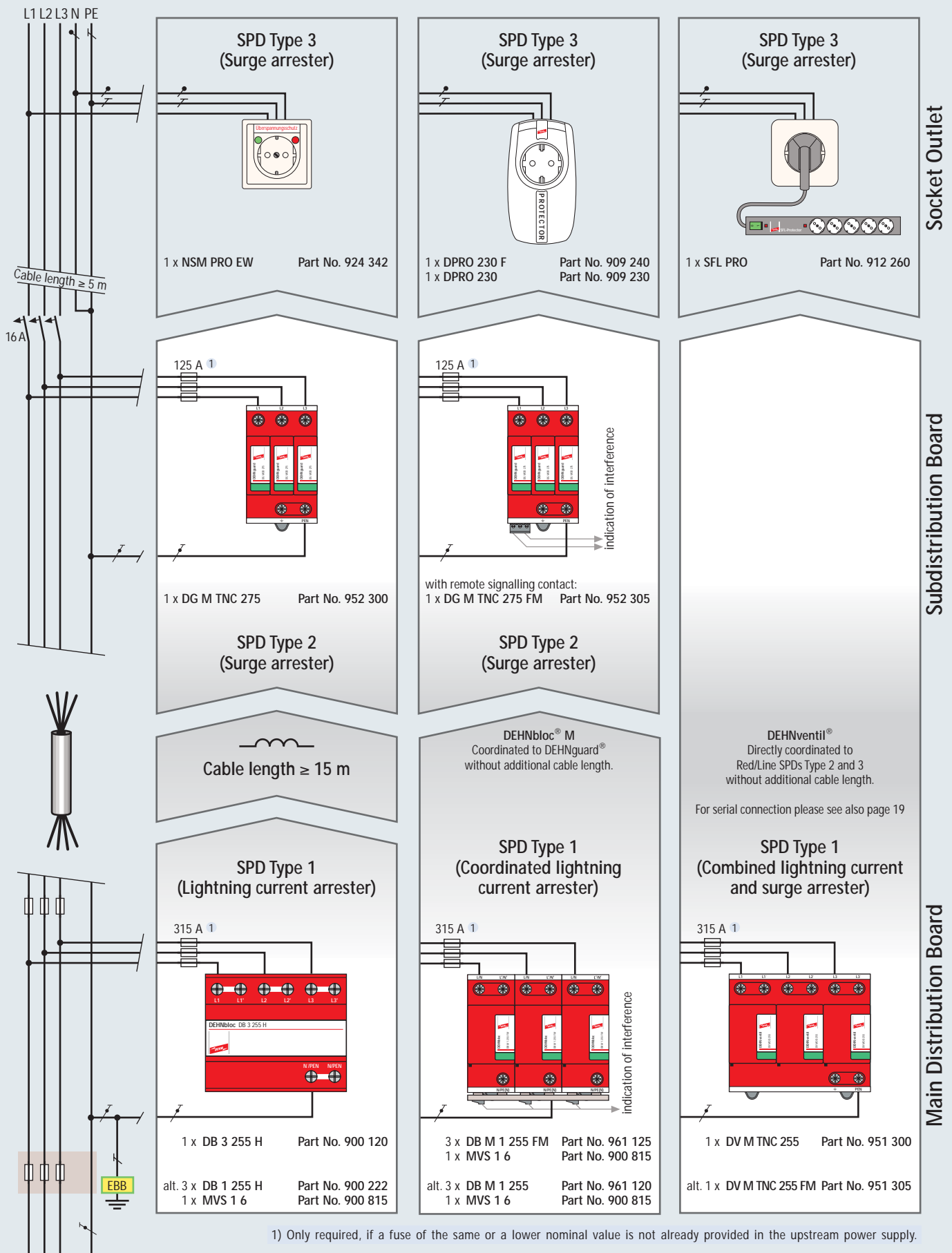
POWER SUPPLY SYSTEMS



TN systems: Example: Office Building – Separation of the PEN in the main distribution board

POWER SUPPLY SYSTEMS

Easy Choice



Socket Outlet

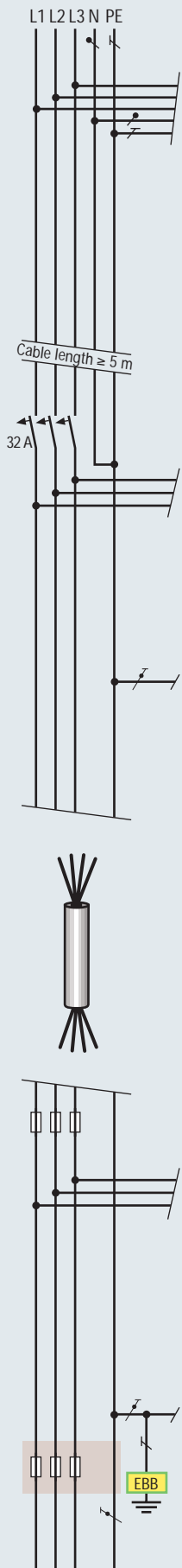
Subdistribution Board

Main Distribution Board

TN systems: Example: Office Building – Separation of the PEN in the subdistribution board

Easy Choice

POWER SUPPLY SYSTEMS



SPD Type 3 (Surge arrester)

3 A 1

DEHN SPD SPS PRO

function

PLC

OUT / FM

1 x SPS PRO Part No. 912 253

SPD Type 3 (Surge arrester)

25 A also permissible without NF 10

10 A 1

NETZFILTER

PLC

1 x DR M 2P 255 FM Part No. 953 205
1 x NF 10 Part No. 912 254

SPD Type 3 (Surge arrester)

25 A 1

indication of interference

electronic equipment

1 x DR M 4P 255 FM Part No. 953 405
alt. 1 x DR M 4P 255 Part No. 953 400

Switchgear/Machine

SPD Type 2 (Surge arrester)

3 x V NH00 280 Part No. 900 261

SPD Type 2 (Surge arrester)

125 A 1

1 x DG M TNC 275 Part No. 952 300
or with remote signalling contact:
1 x DG M TNC 275 FM Part No. 952 305

Subdistribution Board

Cable length ≥ 15 m

DEHNbloc[®] M
Coordinated to DEHNguard[®]
without additional cable length.

DEHNventil[®]
Directly coordinated to Red/Line SPDs Type 2 and 3
without additional cable length.
For serial connection please see also page 19

SPD Type 1 (Lightning current arrester)

315 A 1

3 x DB NH00 255 H Part No. 900 273

alt. 3 x DB 1 255 H Part No. 900 222
1 x MVS 1 6 Part No. 900 815

SPD Type 1 (Coordinated lightning current arrester)

315 A 1

3 x DB M 1 255 FM Part No. 961 125
1 x MVS 1 6 Part No. 900 815

alt. 3 x DB M 1 255 Part No. 961 120
1 x MVS 1 6 Part No. 900 815

indication of interference

SPD Type 1 (Combined lightning current and surge arrester)

315 A 1

1 x DV M TNC 255 FM Part No. 951 305

alt. 1 x DV M TNC 255 Part No. 951 300

indication of interference

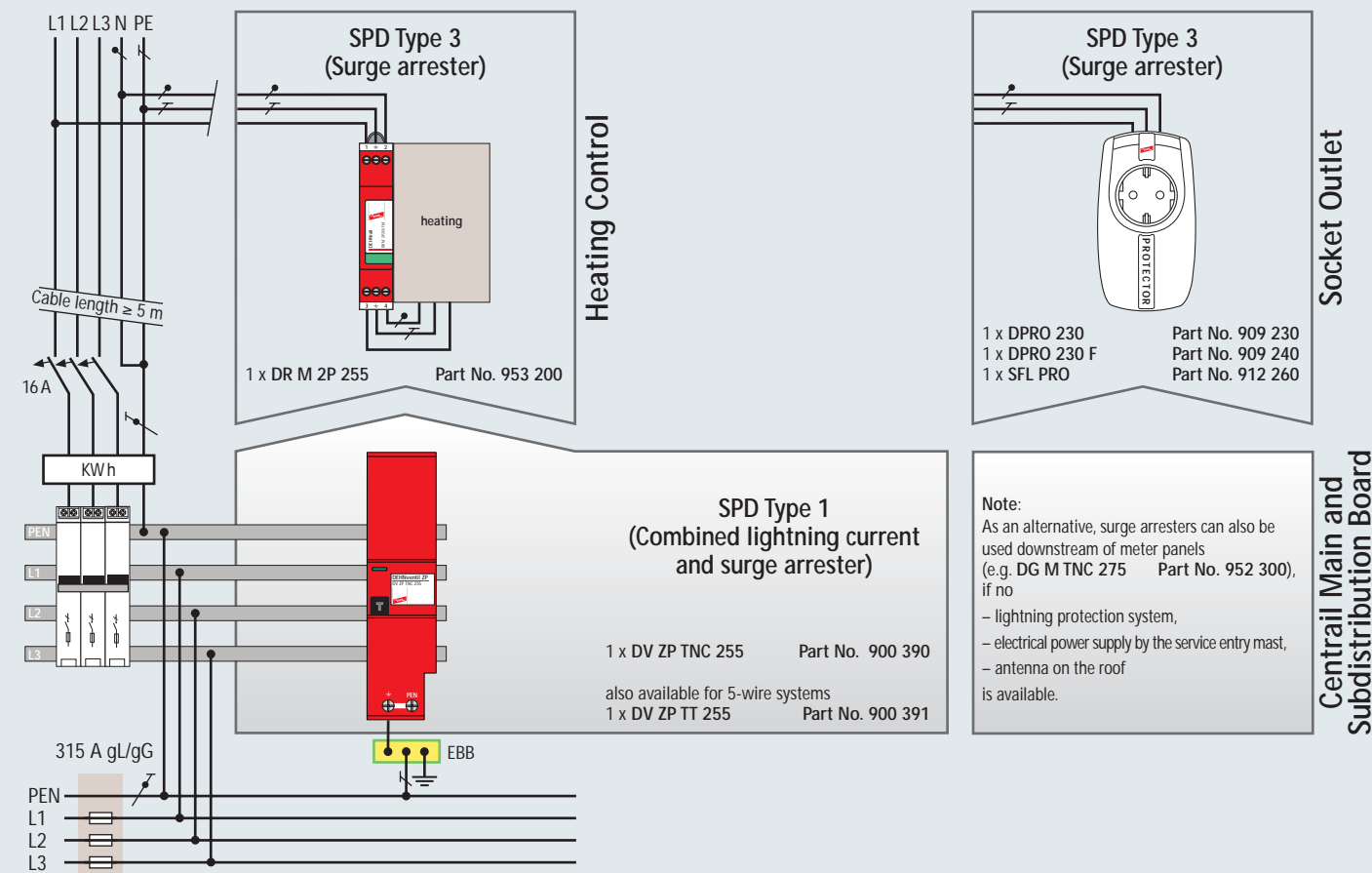
Main Distribution Board

1) Only required, if a fuse of the same or a lower nominal value is not already provided in the upstream power supply.
2) Without separate backup fuse in case of earth-fault- and short-circuit-proof installation.

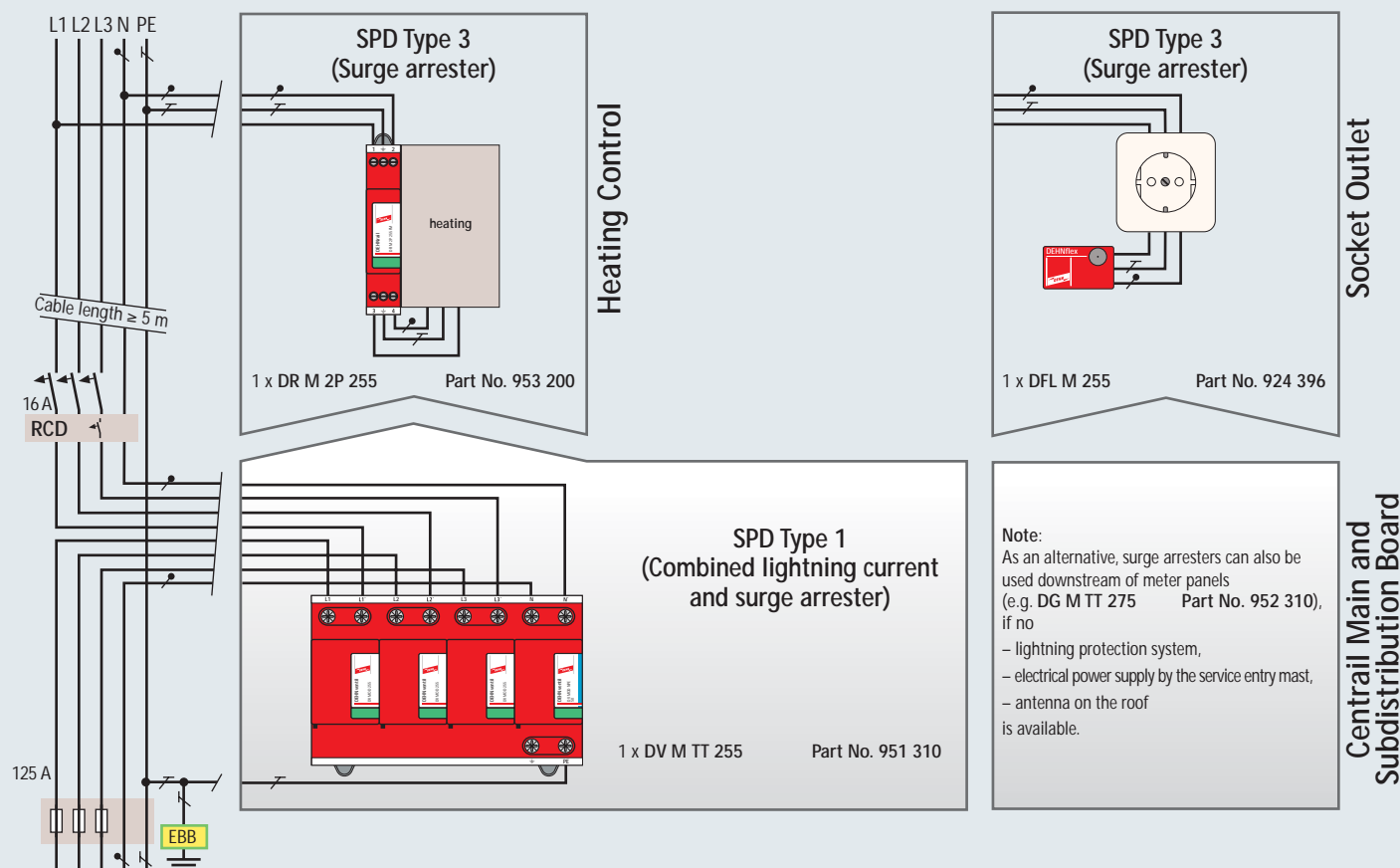
TN systems: Example: Industry – Separation of the PEN in the subdistribution board

POWER SUPPLY SYSTEMS

Easy Choice



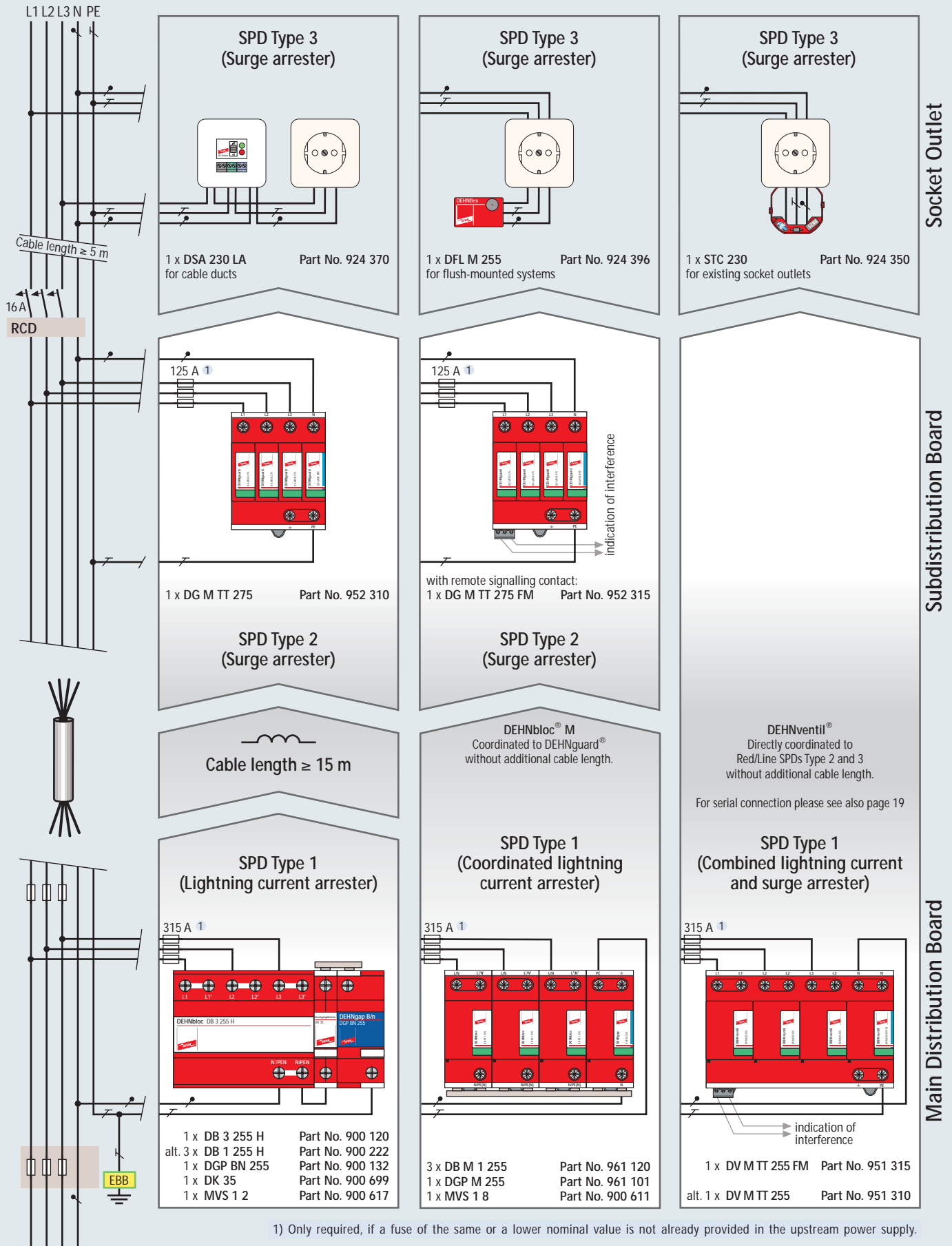
TN systems: Example: Single-family house



TT systems: Example: Single-family house

Easy Choice

POWER SUPPLY SYSTEMS



Socket Outlet

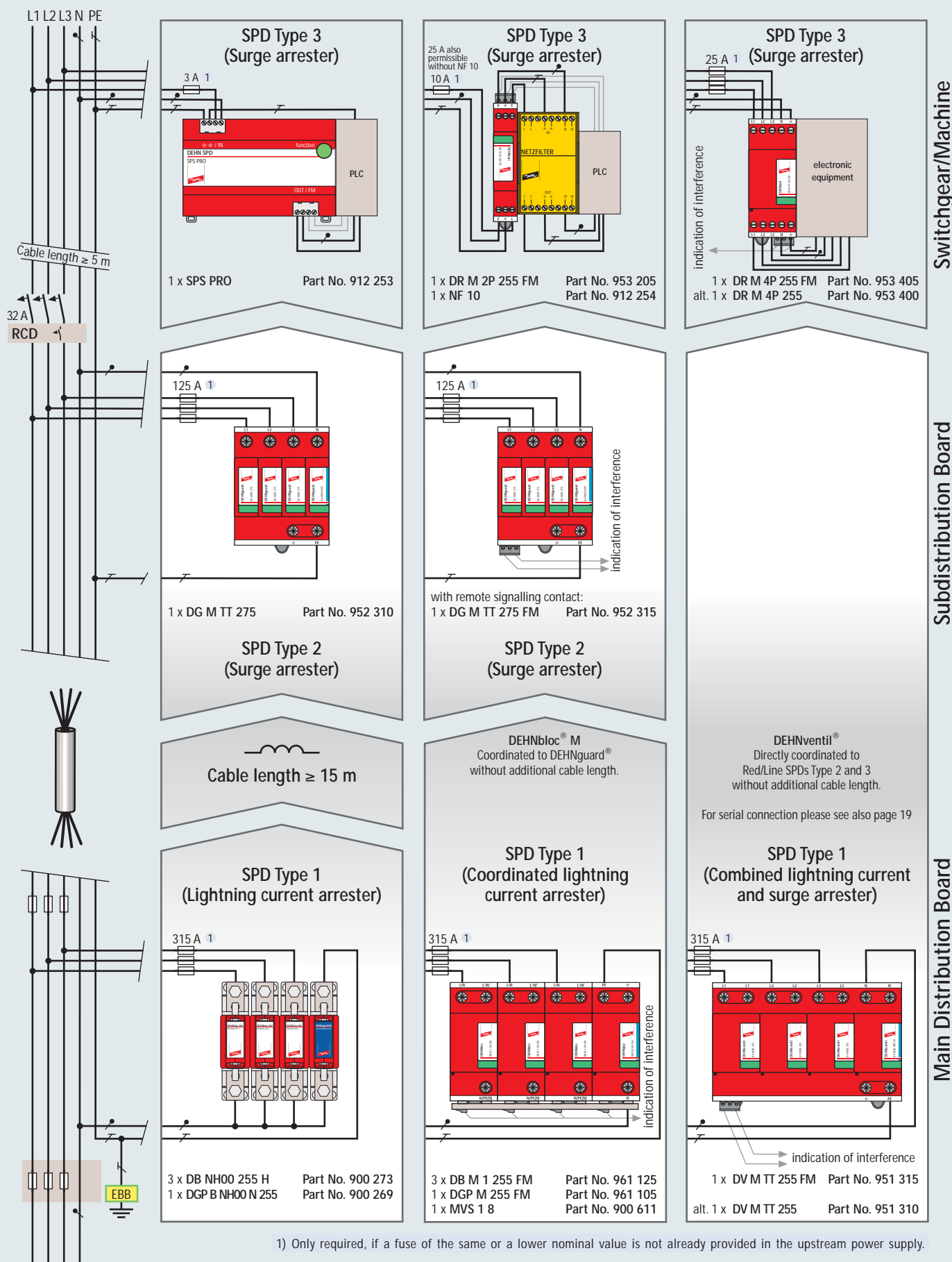
Subdistribution Board

Main Distribution Board

TT systems: Example: Office Building

POWER SUPPLY SYSTEMS

Easy Choice



Switchgear/Machine

Subdistribution Board

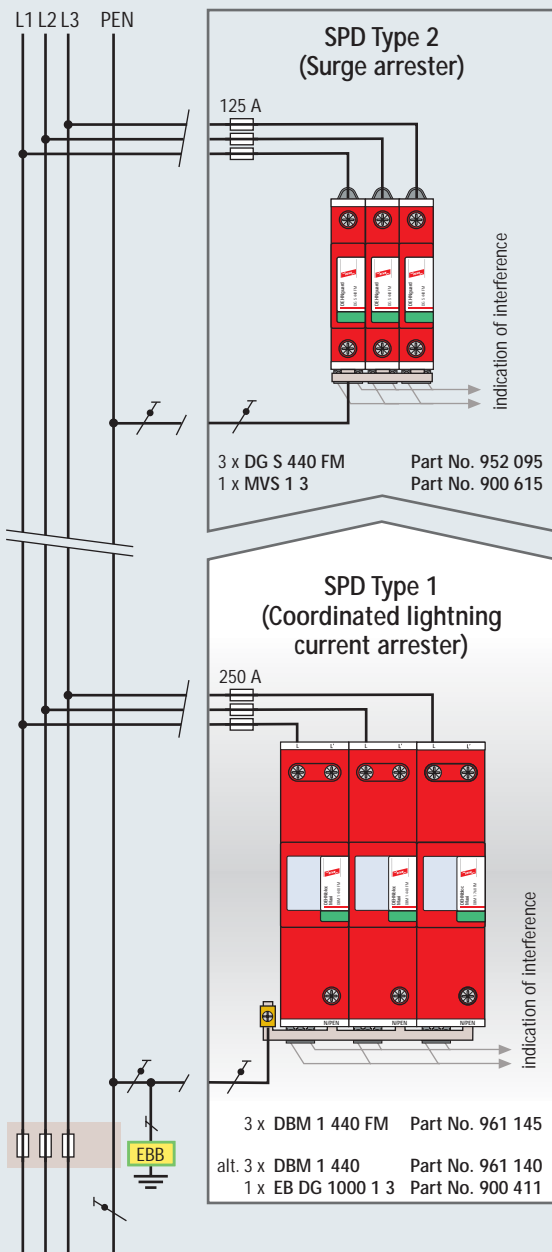
Main Distribution Board

1) Only required, if a fuse of the same or a lower nominal value is not already provided in the upstream power supply.

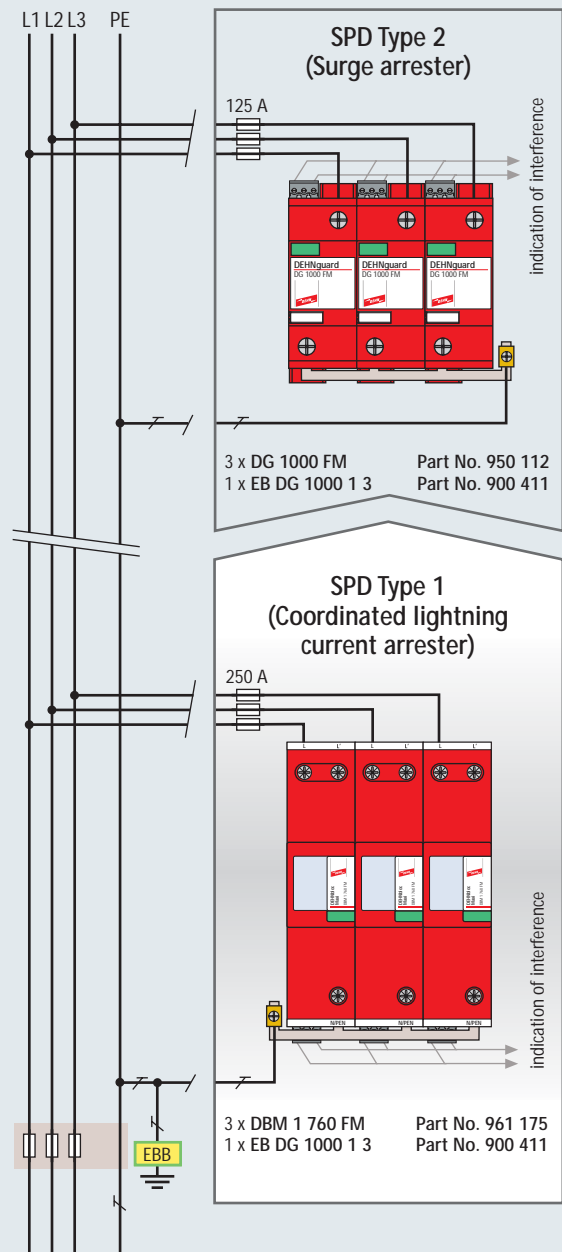
TT systems: Example: Industry

Easy Choice

POWER SUPPLY SYSTEMS



TN systems: Industry TN-C 400/690 V

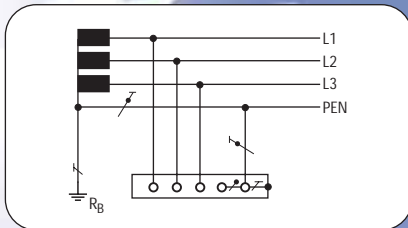


IT systems: Industry IT 690 V, without integrated neutral conductor

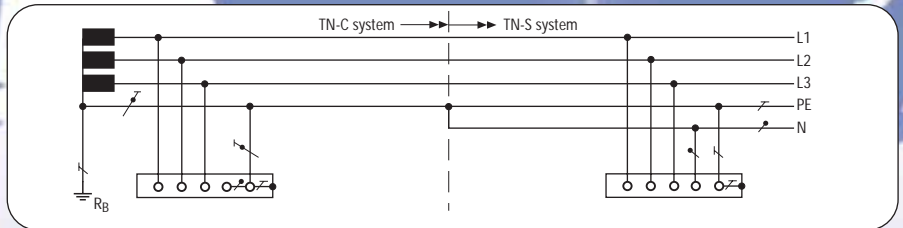
POWER SUPPLY SYSTEMS

Power Supply Systems Worldwide

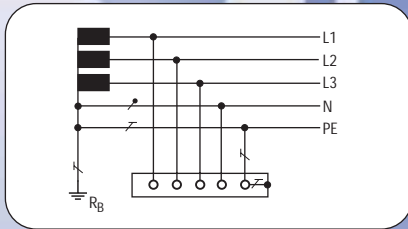
International system configurations* according to IEC 60364-1 (DIN VDE 0100-300)



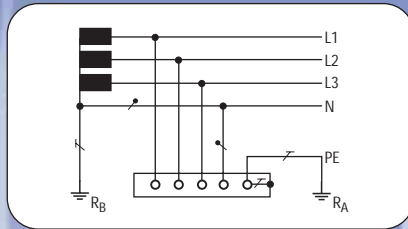
TN-C system 230 / 400 V



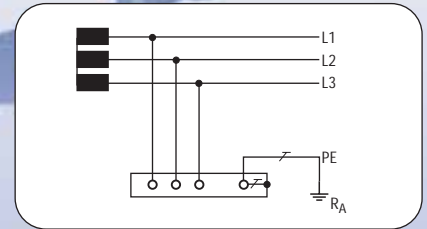
TN-C-S system 230 / 400 V



TN-S system 230 / 400 V

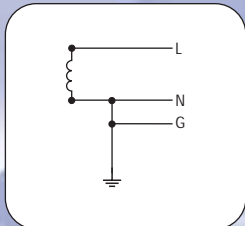


TT system 230 / 400 V



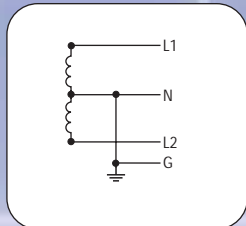
IT system 230 V

Further system configurations* used worldwide



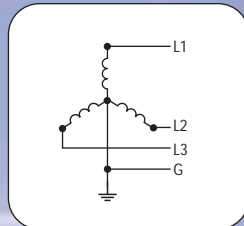
single-phase; 3 conductors

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



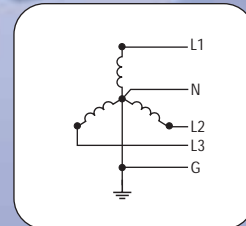
single-phase; 4 conductors
Split Phase or Edison

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



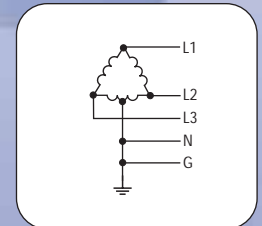
3-phase; 4 conductors

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



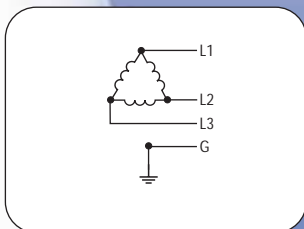
3-phase; 5 conductors

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



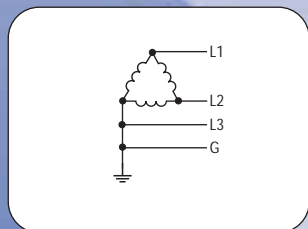
3-phase; 5 conductors
Delta "Highleg"

(3 Ph Δ, 4 W + G)
120 V / 240 V



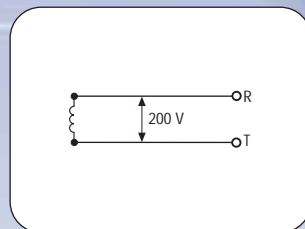
3-phase; 4 conductors
Delta "Ungrounded"

(3 Ph Δ, 3 W + G)
240 V
480 V



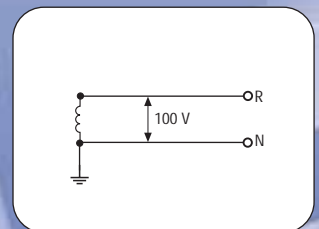
3-phase; 4 conductors
Delta "Grounded Corner"

(3 Ph Δ, 3 W + G)
240 V
480 V



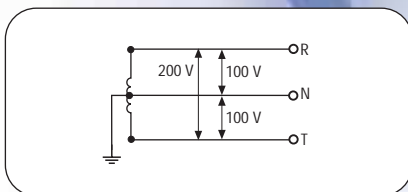
single-phase; 2 conductors

(1 Ph, 2 W)
200 V



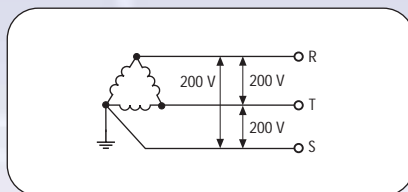
single-phase; 2 conductors

(1 Ph, 2 W)
100 V



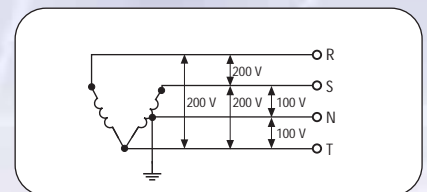
single-phase; 3 conductors

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



3-phase; 3 conductors

(3 Ph, 3 W)
200 V



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

100 V / 200 V; 200 V

* System according to earth connection (according to DIN VDE 0100-300)

Cross-reference

POWER SUPPLY SYSTEMS

Discontinued Products		Alternatives	
Part No.	Type	Part No.	Type
Combined SPDs – 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			
900 044	DBM 440	961 140 961 145	DBM 1 440 DBM 1 440 FM
Lightning Current Arresters – Type 1			
900 100	DP 255	900 222	DB 1 255 H
900 101	DP 440	961 140 900 159	DBM 1 440 DB 1 440
900 110	DB 3 255	900 120	DB 3 255 H
900 111	DB 1 255	900 222	DB 1 255 H
900 260	DB NH00 255	900 273	DB NH00 255 H
Surge Arresters – Type 2			
900 133	DGP C T 255	952 030 952 035	DGP C S DGP C S FM
900 265	V NH1 3	900 270	V NH1 280
900 266	VA NH1 3	900 271	VA NH1 280
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
900 520	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
900 550	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

Discontinued Products		Alternatives	
Part No.	Type	Part No.	Type
900 641	DG T 385	952 074	DG S 385
900 650	DG T 275	952 070	DG S 275
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
900 680	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
900 691	DG T 385 FM	952 094	DG S 385 FM
901 000	VAV 1000	950 102 950 112	DG 1000 DG 1000 FM
902 375	VA NH00 280 3 IG FM	–	
902 376	VA NH00 280 4 IG FM	–	
902 385	VA NH00 280 3 IG	–	
902 386	VA NH00 280 4 IG	–	
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
909 820	SF PRO	909 240	DPRO 230 F
909 821	S PRO	909 230	DPRO 230
Mains Connection Boxes			
900 964	NAK 63A 4	951 400	DV M TNS 255
900 965	NAK 63A 3	951 300	DV M TNC 255
900 966	NAK 35A 4	951 400	DV M TNS 255
900 967	NAK 35A 3+1	951 310	DV M TT 255
900 968	NAK 35A 3	951 300	DV M TNC 255
900 969	NAK 63A 3+1	951 310	DV M TT 255
902 492	NAK TAB 3	900 390	DV ZP TNC 255
902 493	NAK TAB 3+1	900 391	DV ZP TT 255
902 494	NAK TAB 4	900 391	DV ZP TT 255
Accessories			
900 309	IGA 10 IP54	902 480	IGA 10 IP55
900 121	DBR 35	–	
900 122	DBR 63	–	
Isolating Spark Gaps			
923 070	EXFS C1	923 100	EXFS 100
923 071	EXFS C1 KU	923 101	EXFS 100 KU

POWER SUPPLY SYSTEMS

DEHNventil® modular

COMBINED SPDs – TYPE 1

Multipole modular combined lightning current and surge arrester

SPD Type 1 according to EN 61643-11
SPD Class I according to IEC 61643-1



For protecting low-voltage consumer's installations against surges, even in case of direct lightning strokes. For use according to the lightning protection zones concept at boundaries $0_A - 2$.

- Prewired spark-gap-based 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 $50 \text{ kA}_{\text{rms}}$
- Discharge capacity up to 100 kA (10/350 μs)
- Allows for protection of terminal devices
- Operating state/fault indication by mark in the inspection window
- Allows for easy replacing of protection modules due to module locking system with releasing button
- Tested for vibration- and shock-proofness according 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 the functional design of the new Red/Line series, the devices of the modular DEHNventil family combine safety and innovation in an impressive way. Being an "all-in-one device" they assume lightning equipotential bonding and surge protection in only one stage. Especially for use in compact electrical installations, this function is of advantage. The design of the surge arresters according to energy-coordination criteria allows for protection of even terminal devices at short distances between DEHNventil and the consumers ($\leq 5 \text{ m}$). Considering the lightning current discharge capacity up to 100 000 A, this is a safe basis for high availability of the electrical installation to be protected. Even for expanded electrical installations, the modular DEHNventil devices provide various application possibilities. Red/Line surge arresters installed at the boundaries of the individual lightning protection zones are already energy-coordinated with DEHNventil devices. Encapsulated creepage discharge spark gaps and the small space required by the combined lightning current and surge arresters allow for easy integration into switchgear installations or distribution boards. A special feature of the new modular Red/Line product family is the functional design. An important component is the module releasing button. It fixes the protection module reliably to keep the safe connection to the base part even in case of maximum loads. If protection modules have to be replaced, it releases the module without requiring tools and allows to remove it easily. By using the double terminals available for all conductor connections, the surge arresters can be connected in series in a space-saving and cost-effective way up to nominal currents of 125 A, as preferred by IEC 60364-5-53. For connecting further DINrail

mountable devices, busbars type MVS 3 8 6 and MVS 4 11 8 can be used. The right DEHNventil devices can be easily chosen according to the system configuration of the existing low-voltage consumer's installation and type designation of the device.

Using the patented RADAX Flow technology for follow current limitation and extinction achieves high availability of the electrical installation to be protected. Even for high short-circuit currents up to $50 \text{ kA}_{\text{rms}}$, upcoming mains follow currents are reduced in such a way that there is a selectivity to small fuse values, i.e. upstream fuses cannot trip due to arising mains follow currents.

The operating state/fault indicator of each protective circuit, which is not supplied by operating currents, informs immediately about the operating state of the surge arrester. Apart from the standard visual indicator with green and red marks, types DEHNventil M ... FM have a 3-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact, according to circuit concept.

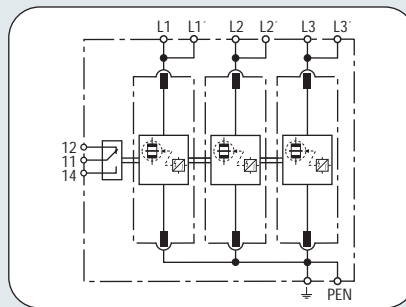


DEHNventil® modular

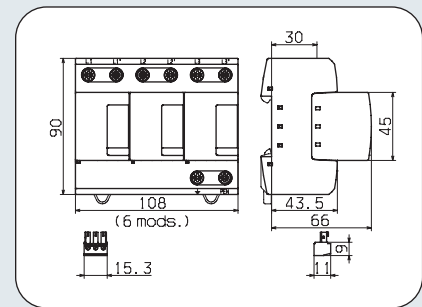
DEHNventil M TNC (FM)

POWER SUPPLY SYSTEMS

COMBINED SPDs – TYPE 1



Basic circuit diagram DV M TNC 255 FM



Dimension drawing DV M TNC 255 (FM)

DV M TNC 255 (FM): Modular combined lightning current and surge arrester for use in TN-C systems

	DV M TNC 255	DV M TNC 255 FM
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Nominal a.c. voltage U_N	230 / 400 V	230 / 400 V
Max. continuous operating a.c. voltage U_C	255 V	255 V
Lightning impulse current (10/350 μ s) [L1+L2+L3-PEN] I_{total}	75 kA	75 kA
Lightning impulse current (10/350 μ s) [L-PEN] I_{imp}	25 kA	25 kA
Nominal discharge current (8/20 μ s) 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_{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.)	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) 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	440 V / 5 sec.	440 V / 5 sec.
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
Cross-sectional area (L1, L1', L2, L2', L3, L3', PEN, \ominus) 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', \ominus) max.	35 mm ² stranded/25 mm ² flexible	35 mm ² stranded/25 mm ² flexible
For mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	6 mods., DIN 43880	6 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DV M TNC 255	DV M TNC 255 FM
Part No.	951 300	951 305
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNventil® modular



Spark-gap-based protection module
DV MOD 255: Spark-gap-based protection module

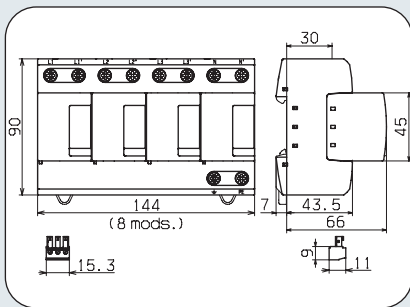
Type	PU pc(s)	Part No.
DV MOD 255	1	951 001

POWER SUPPLY SYSTEMS

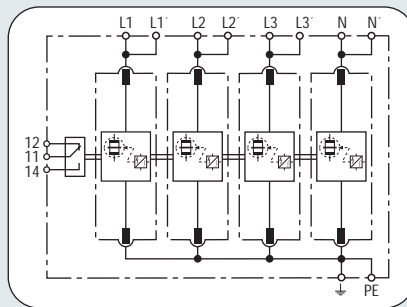
COMBINED SPDs – TYPE 1

DEHNventil® modular

DEHNventil M TNS (FM)



Dimension drawing DV M TNS 255 (FM)



Basic circuit diagram DV M TNS 255 FM



DV M TNS 255 (FM): Modular combined lightning current and surge arrester for TN-S systems

	DV M TNS 255	DV M TNS 255 FM
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Nominal a.c. voltage U_N	230 / 400 V	230 / 400 V
Max. continuous operating a.c. voltage U_C	255 V	255 V
Lightning impulse current (10/350 μ s) [L1+L2+L3+N-PE] I_{total}	100 kA	100 kA
Lightning impulse current (10/350 μ s) [L,N-PE] I_{imp}	25 kA	25 kA
Nominal discharge current (8/20 μ s) I_n	25 / 100 kA	25 / 100 kA
Voltage protection level [L-PE] U_p	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level [N-PE] U_p	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability a.c. I_{fn}	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.)	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) 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) [L-N] U_T	440 V / 5 sec.	440 V / 5 sec.
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
Cross-sectional area (L1, L1', L2, L2', L3, L3', N, N', PE, \pm) 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', \pm) max.	35 mm ² stranded/25 mm ² flexible	35 mm ² stranded/25 mm ² flexible
For mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	8 mods., DIN 43880	8 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DV M TNS 255	DV M TNS 255 FM
Part No.	951 400	951 405
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNventil® modular

Spark-gap-based protection module

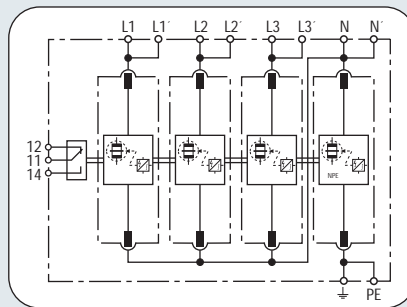
DV MOD 255: Spark-gap-based protection module

Type	PU pc(s)	Part No.
DV MOD 255	1	951 001

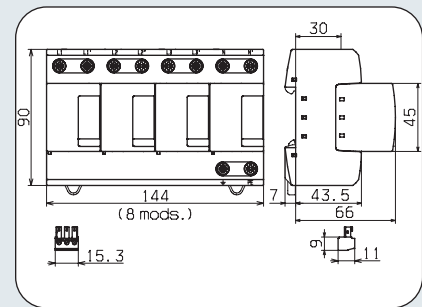


DEHNventil® modular

DEHNventil M TT (FM)



Basic circuit diagram DV M TT 255 FM



Dimension drawing DV M TT 255 (FM)

DV M TT 255 (FM): Modular combined lightning current and surge arrester for TT and TN-S systems ("3+1" circuit)

	DV M TT 255	DV M TT 255 FM
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Nominal a.c. voltage U_N	230 / 400 V	230 / 400 V
Max. continuous operating a.c. voltage U_C	255 V	255 V
Lightning impulse current (10/350 μ s) [L1+L2+L3+N-PE] I_{total}	100 kA	100 kA
Lightning impulse current (10/350 μ s) [L-N] I_{imp}	25 kA	25 kA
Lightning impulse current (10/350 μ s) [N-PE] I_{imp}	100 kA	100 kA
Nominal discharge current (8/20 μ s) I_n	25 / 100 kA	25 / 100 kA
Voltage protection level [L-N] U_p	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level [N-PE] U_p	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability [L-N] a.c. I_{fi}	50 A_{rms}	50 A_{rms}
Follow current extinguishing capability [N-PE] a.c. I_{fi}	100 A_{rms}	100 A_{rms}
Follow current limitation/Selectivity	no tripping of a 20 A gL/gG fuse up to 50 kA_{rms} (prosp.)	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) 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) [L-N] U_T	440 V / 5 sec.	440 V / 5 sec.
Temporary overvoltage (TOV) [N-PE] U_T	1200 V / 200 ms	1200 V / 200 ms
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
Cross-sectional area (L1, L1', L2, L2', L3, L3', N, N', PE, \ominus) 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', \ominus) max.	35 mm ² stranded/25 mm ² flexible	35 mm ² stranded/25 mm ² flexible
For mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	8 mods., DIN 43880	8 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DV M TT 255	DV M TT 255 FM
Part No.	951 310	951 315
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNventil® modular



Spark-gap-based protection module
DV MOD 255: Spark-gap-based protection module

Type	PU pc(s)	Part No.
DV MOD 255	1	951 001

Accessory Part for DEHNventil® modular



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

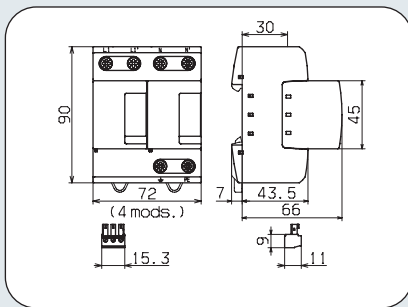
Type	PU pc(s)	Part No.
DV MOD NPE 100	1	951 100

POWER SUPPLY SYSTEMS

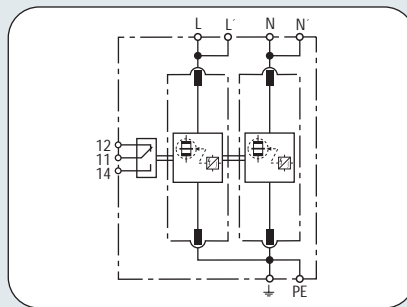
COMBINED SPDs – TYPE 1

DEHNventil® modular

DEHNventil M TN (FM)



Dimension drawing DV M TN 255 (FM)



Basic circuit diagram DV M TN 255 (FM)



DV M TN 255 (FM): Modular combined lightning current and surge arrester for single-phase TN systems

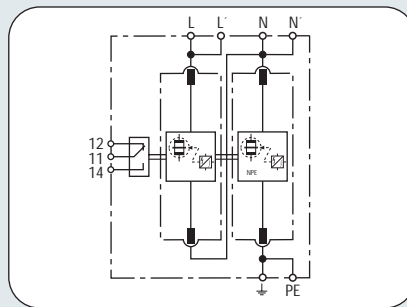
	DV M TN 255	DV M TN 255 FM
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Nominal a.c. voltage U_N	230 V	230 V
Max. continuous operating a.c. voltage U_c	255 V	255 V
Lightning impulse current (10/350 μ s) [L+N-PE] I_{total}	50 kA	50 kA
Lightning impulse current (10/350 μ s) [L,N-PE] I_{imp}	25 kA	25 kA
Nominal discharge current (8/20 μ s) I_n	25 / 50 kA	25 / 50 kA
Voltage protection level [L-PE] U_p	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level [N-PE] 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.)	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) 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) [L-N] U_T	440 V / 5 sec.	440 V / 5 sec.
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
Cross-sectional area (L, L', N, N', PE, $\frac{\pm}{\pm}$) 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', $\frac{\pm}{\pm}$) max.	35 mm ² stranded/25 mm ² flexible	35 mm ² stranded/25 mm ² flexible
For mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	4 mods., DIN 43880	4 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DV M TN 255	DV M TN 255 FM
Part No.	951 200	951 205
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNventil® modular

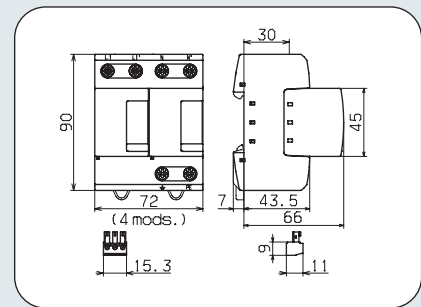
Spark-gap-based protection module
DV MOD 255: Spark-gap-based protection module

Type	PU pc(s)	Part No.
DV MOD 255	1	951 001



DEHNventil® modular
DEHNventil M TT 2P (FM)
POWER SUPPLY SYSTEMS
COMBINED SPDs – TYPE 1


Basic circuit diagram DV M TT 2P 255 FM



Dimension drawing DV M TT 2P 255 (FM)

DV M TT 2P 255 (FM): Modular combined lightning current and surge arrester for single-phase TT and TN systems ("1+1" circuit)

	DV M TT 2P 255	DV M TT 2P 255 FM
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Nominal a.c. voltage U_N	230 V	230 V
Max. continuous operating a.c. voltage U_C	255 V	255 V
Lightning impulse current (10/350 μ s) [L+N-PE] I_{total}	50 kA	50 kA
Lightning impulse current (10/350 μ s) [L-N] I_{imp}	25 kA	25 kA
Lightning impulse current (10/350 μ s) [N-PE] I_{imp}	50 kA	50 kA
Nominal discharge current (8/20 μ s) I_n	25 / 50 kA	25 / 50 kA
Voltage protection level [L-N] U_p	≤ 1.5 kV	≤ 1.5 kV
Voltage protection level [N-PE] U_p	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability [L-N] a.c. I_{fi}	50 kA_{rms}	50 kA_{rms}
Follow current extinguishing capability [N-PE] a.c. I_{fi}	100 A_{rms}	100 A_{rms}
Follow current limitation/Selectivity	no tripping of a 20 A gL/gG fuse up to 50 kA_{rms} (prosp.)	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) 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) [L-N] U_T	440 V / 5 sec.	440 V / 5 sec.
Temporary overvoltage (TOV) [N-PE] U_T	1200 V / 200 ms	1200 V / 200 ms
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
Cross-sectional area (L, L', N, N', PE, \ominus) 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', \ominus) max.	35 mm ² stranded/25 mm ² flexible	35 mm ² stranded/25 mm ² flexible
For mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94-V-0	red thermoplastic, UL 94-V-0
Degree of protection	IP 20	IP 20
Dimension	4 mods., DIN 43880	4 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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

Ordering information

Type	DV M TT 2P 255	DV M TT 2P 255 FM
Part No.	951 110	951 115
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNventil® modular


Spark-gap-based protection module
DV MOD 255: Spark-gap-based protection module

Type	PU pc(s)	Part No.
DV MOD 255	1	951 001

Accessory Part for DEHNventil® modular


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

Type	PU pc(s)	Part No.
DV MOD NPE 50	1	951 050

POWER SUPPLY SYSTEMS**Protection Module for DEHNventil® modular****COMBINED SPDs – TYPE 1**

SPD Type 1 according to EN 61643-11
 SPD Class I according to IEC 61643-1



- High discharge capacity due to powerful creepage discharge spark gap
- Maximum system availability due to RADAX Flow follow current limitation
- With module releasing button for replacing protection modules without tools
- Operating state/fault indication by green and red mark in the inspection window

For protecting low-voltage consumer's installations against surges even in case of direct lightning strokes. For use according to the lightning protection zones concept at boundaries $O_A - 2$.

- 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 an impressive way. Apart from the encapsulated RADAX Flow spark gap technology, the compact protection components include the complete monitoring circuit for controlling the energy flow of the spark gap, as well as the monitoring device and operating state/fault indication.

The mechanical coding of the protection module prevents any unintended confusing of the N-PE protection modules with the spark-gap-based module for the phase conductors.

The module locking device ensures a safe fixing of the protection modules in the base part. The module releasing button allows to remove the protection modules easily without tools.

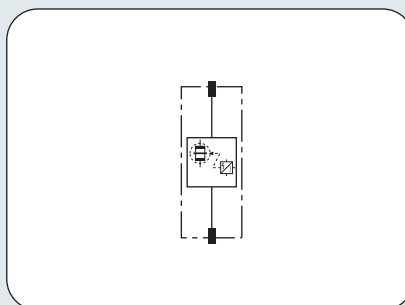


Protection Module for DEHNventil® modular

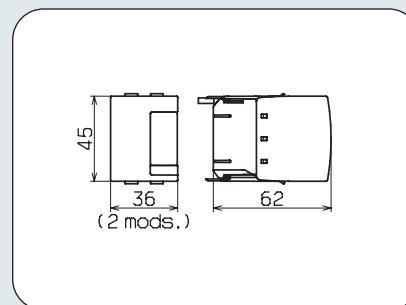
Spark-gap-based protection module

POWER SUPPLY SYSTEMS

COMBINED SPDs – TYPE 1



Basic circuit diagram DV MOD 255



Dimension drawing DV MOD 255

DV MOD 255: Spark-gap-based protection module

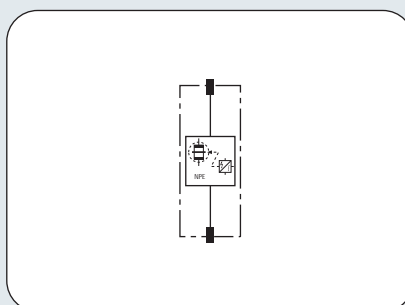
DV MOD 255

Max. continuous operating a.c. voltage U_c	255 V
Lightning impulse current (10/350 μ s) I_{imp}	25 kA
Follow current extinguishing capability [L-N] a.c. I_{fi}	50 kA _{rms}
Follow current limitation/Selectivity	no tripping of a 20 A gL/gG fuse up to 50 kA _{rms} (prosp.)

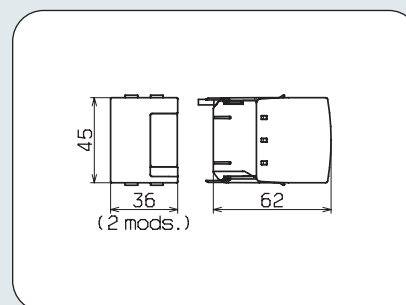
Ordering information

Type	DV MOD 255
Part No.	951 001
Packing unit	1 pc(s).

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

DV MOD NPE 50

DV MOD NPE 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
Follow current extinguishing capability [N-PE] a.c. I_{fi}	100 A _{rms}	100 A _{rms}

Ordering information

Type	DV MOD NPE 50	DV MOD NPE 100
Part No.	951 050	951 100
Packing unit	1 pc(s).	1 pc(s).

POWER SUPPLY SYSTEMS

DEHNventil® ZP

COMBINED SPDs – TYPE 1

Multipole combined lightning current and surge arrester for primary power supply systems

SPD Type 1 according to EN 61643-11
SPD Class I according to IEC 61643-1



For protecting low-voltage consumer's installations against surges even in case of direct lightning strokes. For use according to the lightning protection zones concept at boundaries $0_A - 2$.

- Combined lightning current and surge arrester with RADAX Flow spark gap technology
- Fulfills entirely the requirements of the national VDN* Directive on use upstream of supply meters
- Allows for quick and easy installation by snapping onto 40 mm busbar systems
- Test for correct functioning can be performed by pressing the according button with light indicator
- No tripping of fuses from 32 A gL/gG up to short-circuit currents of 25 kA_{rms}
- Discharge capacity up to 100 kA (10/350 μs)
- Allows for protection of terminal equipment
- Provides maximum system availability

DEHNventil ZP TNC 255: 3-pole combined lightning current and surge arrester for TN-C systems for use in primary power supply systems

DEHNventil ZP TT 255: 4-pole combined lightning current and surge arrester for TT and TN-S systems for use in primary power supply systems

The DEHNventil ZP combined lightning current and surge arrester is an SPD especially designed for busbar panels of supply meters. It can be snapped directly onto busbar systems without tools. The small installation width leaves enough space for connecting cables from the service entrance box (SEB), even if three selective main circuit breakers are installed.

The operating state of the SPD is reported by a light indicator which is controlled by a button. Both with this kind of operating state control and due to its design as an only spark-gap-based SPD, DEHNventil ZP is free of leakage and operating currents.

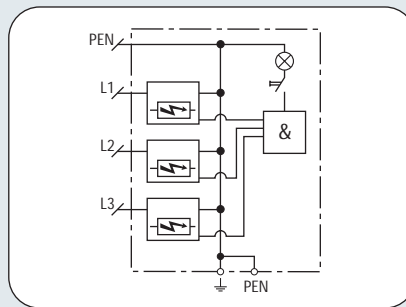
The RADAX Flow spark gap technology applied allows for the required selectivity on follow currents even for small-sized fuses in the SEB. Unwanted interruptions of the power supply due to tripping mains fuses are thus avoided.

The rating of the parameters as well as the complete concept of the device fulfil entirely the requirements of the new German VDN* Directive on use of surge protective devices in primary power supply systems.

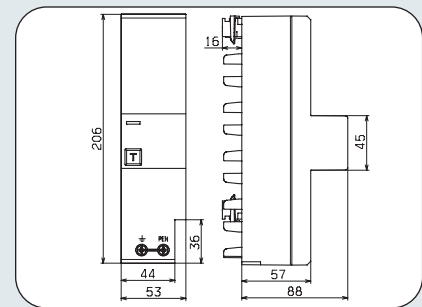


* VDN ... Verband der Netzbetreiber VDN e. V. at VDEW [Association of German network operators]



DEHNventil® ZP
DEHNventil ZP TNC
POWER SUPPLY SYSTEMS
COMBINED SPDs – TYPE 1


Basic circuit diagram DV ZP TNC 255



Dimension drawing DV ZP TNC 255

DV ZP TNC 255: Combined lightning current and surge arrester for TN-C systems for use in primary power supply systems ("3-0" circuit)

DV ZP TNC 255

SPD according to EN 61643-11	Type 1
SPD according to IEC 61643-1	Class I
Nominal a.c. voltage U_N	230 / 400 V
Max. continuous operating a.c. voltage U_c	255 V
Lightning impulse current (10/350 μ s) [L1+L2+L3-PEN] I_{total}	75 kA
Lightning impulse current (10/350 μ s) [L-PEN] I_{imp}	25 kA
Nominal discharge current (8/20 μ s) I_n	25 / 75 kA
Voltage protection level U_p	≤ 1.5 kV
Follow current extinguishing capability a.c. I_{fi}	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 up to $I = 25$ kA _{rms}	315 A gL/gG
Max. backup fuse for $I_K > 25$ kA _{rms}	200 A gL/gG
Temporary overvoltage (TOV) U_T	335 V / 5 sec.
Operating temperature range T_U	-40°C...+80°C
Function control	button with light indicator
Cross-sectional area (PEN, $\frac{1}{2}$)	10-35 mm ² flexible/50 mm ² stranded
For mounting on	40 mm busbar system
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IP 20
Dimension	3 mods., DIN 43880
Certifications, Approvals	VDE

Ordering information

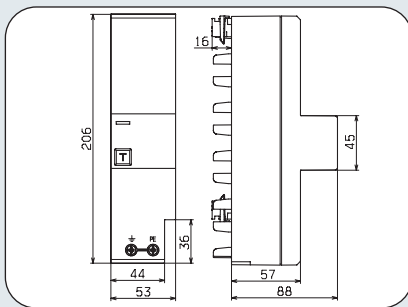
Type	DV ZP TNC 255
Part No.	900 390
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS

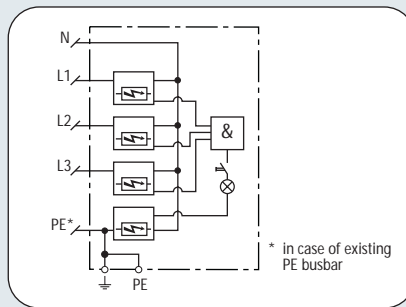
COMBINED SPDs – TYPE 1

DEHNventil® ZP

DEHNventil ZP TT



Dimension drawing DV ZP TT 255



Basic circuit diagram DV ZP TT 255



DV ZP TT 255: Combined lightning current and surge arrester for TT and TN-S systems for use in primary power supply systems ("3+1" circuit)

DV ZP TT 255

SPD according to EN 61643-11	Type 1
SPD according to IEC 61643-1	Class I
Nominal a.c. voltage U_N	230 / 400 V
Max. continuous operating a.c. voltage U_c	255 V
Lightning impulse current (10/350 μ s) [L1+L2+L3+N-PE] I_{total}	100 kA
Lightning impulse current (10/350 μ s) [L-N] I_{imp}	25 kA
Lightning impulse current (10/350 μ s) [N-PE] I_{imp}	100 kA
Nominal discharge current (8/20 μ s) 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 $I = 25$ 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	335 V / 5 sec.
Temporary overvoltage (TOV) [N-PE] U_T	1200 V / 200 ms
Operating temperature range T_U	-40°C...+80°C
Function control	button with light indicator
Cross-sectional area (PE, \pm)	10-35 mm ² flexible/50 mm ² stranded
For mounting on	40 mm busbar system
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IP 20
Dimension	3 mods., DIN 43880
Certifications, Approvals	VDE

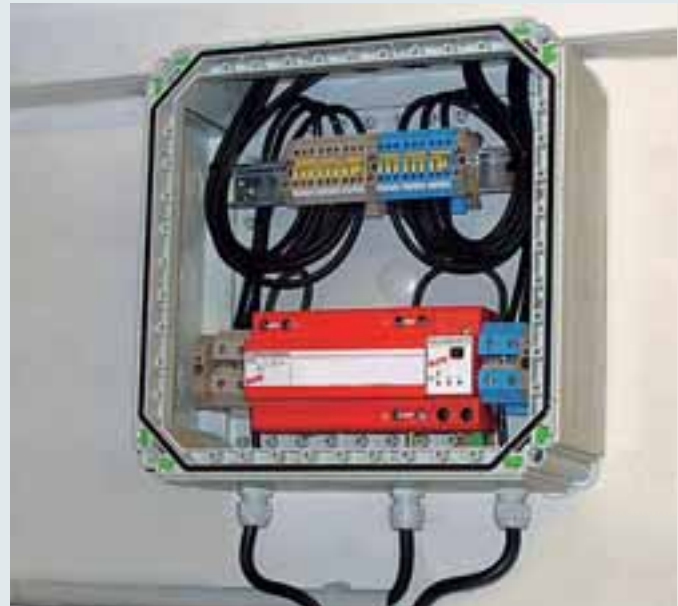
Ordering information

Type	DV ZP TT 255
Part No.	900 391
Packing unit	1 pc(s).

DEHNlimit PV 1000

Combined lightning current and surge arrester Type 1 for use in photovoltaic systems

- Prewired combined lightning current and surge arrester for use in photovoltaic generator circuits
- For use in photovoltaic installations up to 1000 V $U_{OC\ STC}$
- High lightning current discharge capacity due to approved spark gap technology
- Maximum system availability due to spark gap technology with d.c. current extinction



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

DEHNlimit PV 1000: Combined lightning current and surge arrester for use in photovoltaic power supply systems up to 1000 V d.c.

Combined lightning current and surge arrester DEHNlimit PV 1000 was developed especially for application in photovoltaic power supply systems. The approved encapsulated-spark-gap technology allows for safe protection of photovoltaic generators and inverters even against direct lightning impulse currents. It is the voltage protection level of DEHNlimit PV 1000 and arising reduction of the impulse time due to the using of spark-gap technology that allow for coordination of the SPD with the systems to be protected.

A unique feature of DEHNlimit PV 1000 is the d.c. current extinction by the spark gap. Potential short-circuit currents up to 100 A caused by a tripping spark gap are interrupted within only split seconds at a photovoltaic voltage up to 1000 V d.c.

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



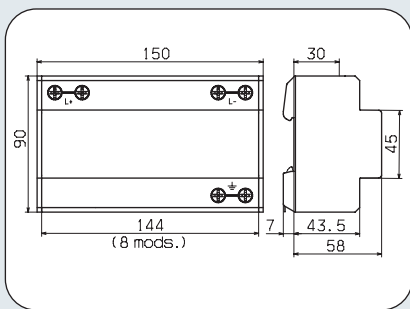
POWER SUPPLY SYSTEMS

COMBINED SPDs – TYPE 1

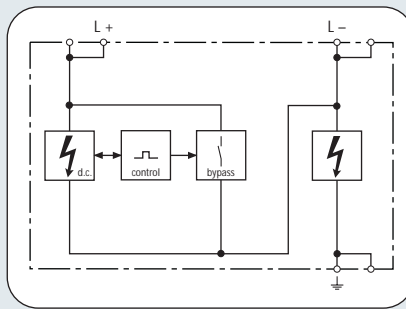
"SPD Type 1" classification according to EN 61643-11
"SPD Class I" classification according to IEC 61643-1

POWER SUPPLY SYSTEMS

COMBINED SPDs – TYPE 1

DEHNlimit PV 1000
DEHNlimit PV 1000


Dimension drawing DLM PV 1000



Basic circuit diagram DLM PV 1000



DLM PV 1000: Combined lightning current and surge arrester for use in photovoltaic power supply systems up to 1000 V d.c.

DLM PV 1000

SPD classification according to EN 61643-11	Type 1
SPD classification according to IEC 61643-1	Class I
Max. PV voltage [$U_{OC\ STC}$] of the PV generator	1000 V
Max. continuous operating d.c. voltage $U_{max\ d.c.}$	1000 V
Min. continuous operating d.c. voltage $U_{min\ d.c.}$	100 V
Follow current extinguishing capability d.c. $I_{fi\ d.c.}$	100 A
Nominal discharge current (8/20 μ s)	100 kA
Lightning impulse current (10/350 μ s) [L+/L- -> PE] I_{imp}	50 kA
Lightning impulse current (10/350 μ s) [L+ -> L-] I_{imp}	25 kA
Voltage protection level [L+ -> L-]	≤ 3.3 kV
Voltage protection level [(L+/L-) -> PE]	≤ 4 kV
Operating current $I_{IN\ d.c.}$	≤ 5 mA
Response time [L+ -> L-] t_A	≤ 20 ns
Protective conductor current I_{PE}	≤ 1 μ A
Operating temperature range	-40°C...+60°C
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 rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IP 20
Dimension	8 mods., DIN 43880

Ordering information

Type	DLM PV 1000
Part No.	900 330
Packing unit	1 pc(s).



POWER SUPPLY SYSTEMS

DEHNbloc® M

LIGHTNING CURRENT ARRESTERS – TYPE 1

Single-pole modular
coordinated lightning current arrester

SPD Type 1 according to EN 61643-11
SPD Class I according to EN 61643-1



For protecting low-voltage consumer's installations against surges even in case of direct lightning strokes. For use according to the lightning protection zones concept at boundaries $O_A - 1$.

- 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
- 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 μ s)
- Directly coordinated with DEHNguard surge protective devices without additional cable length
- Low voltage protection level
- Operating state/fault indication by mark in the inspection window
- Allows for easy replacing of protection modules due to module locking system with releasing button

DEHNbloc M 1 ...: Single-pole modular coordinated lightning current arrester with high follow current limitation

DEHNbloc M 1 ... FM: Single-pole modular coordinated lightning current arrester with high follow current limitation; with remote signalling contact for monitoring system (floating changeover contact)

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

The devices allow for energy coordination with surge arresters Type 2 of the DEHNguard family without additional cable lengths or decoupling coils. This is one of the most important characteristics within the Red/Line product families.

The DEHNbloc M devices stand for performance and user friendliness in a concise form. Their electrical parameters were rated for maximum requirements arising in lightning and surge protection systems. DEHNbloc M is the ideal device for use in main distribution boards of low-voltage consumer's installations in buildings. Providing the latest RADAX Flow spark gap technology, the highest aim is protection and availability of electrical installations.

Due to the unique follow current limitation and follow current extinction, a follow current breaking selectivity is ensured even for small-sized fuses in installations. The leakage-current-free structure of the protective circuit and mechanical operating state indicator allow to use the SPD even upstream of meter panels in low-voltage consumer's installations.

With the modular SPD design, the user of DEHNbloc M is provided with all safety characteristics and features for easy application this design has to offer. The vibration-proof module locking system, for example, is unique. No matter if there are shocks or vibrations during transport or

operation, or enormous mechanical impulse loads arising during discharges – the module locking system provides safe support both for the base part and protection module. And still, the protection modules can be easily replaced without tools, if necessary. For this purpose, the user-friendly module releasing button has simply to be applied. In order to avoid any incorrect supplying by the installer or user when replacing the modules, both the base part and protection module have a mechanical coding integrated by the manufacturer. As double terminals are used for connecting conductors, a series connection of the SPDs, as performed by IEC 60364-5-53, can be performed for up to nominal currents of 125 A in a space-saving and cost-effective way.

The mechanical operating state/fault indication of DEHNbloc M informs immediately on the availability of the device. Apart from the standard visual indicator with green and red marking, DEHNbloc M ... FM devices provide the user with an additional remote signalling output. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact, according to circuit concept.



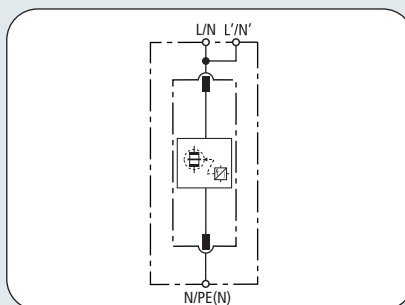
DEHNbloc® M

POWER SUPPLY SYSTEMS

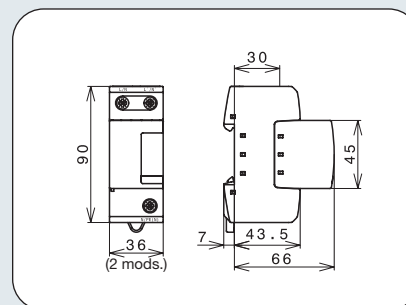
DEHNbloc M 1 ...

LIGHTNING CURRENT ARRESTERS – TYPE 1

NEW



Basic circuit diagram DB M 1 ...



Dimension drawing DB M 1 ...

DB M 1 ...: Single-pole modular coordinated lightning current arrester with high follow current limitation

	DB M 1 150	DB M 1 255
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Max. continuous operating a.c. voltage U_c	150 V	255 V
Lightning impulse current (10/350 μ s) I_{imp}	35 kA	50 kA
Nominal discharge current (8/20 μ s) I_n	35 kA	50 kA
Voltage protection level U_p	1.5 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.)	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)	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
Temporary overvoltage (TOV) U_T	200 V / 5 sec.	440 V / 5 sec.
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
Cross-sectional area (L/N, L'/N', N/PE (N)) min.	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
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 rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	2 mods., DIN 43880	2 mods., DIN 43880
Ordering information		
Type	DB M 1 150	DB M 1 255
Part No.	961 110	961 120
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNbloc® M

NEW

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



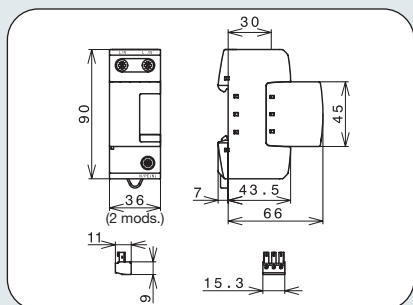
Type	PU pc(s)	Part No.
DB M MOD 150	1	961 001
DB M MOD 255	1	961 002

POWER SUPPLY SYSTEMS

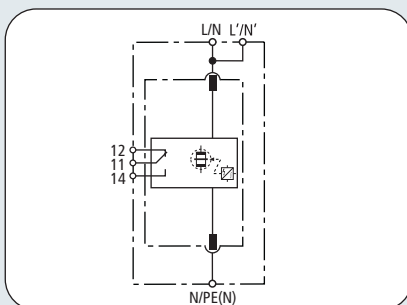
LIGHTNING CURRENT ARRESTERS – TYPE 1

DEHNbloc® M

DEHNbloc M 1 ... FM



Dimension drawing DB M 1 ... FM



Basic circuit diagram DB M 1 ... FM



NEW

DB M 1 ... FM: Single-pole modular coordinated lightning current arrester with high follow current limitation; with remote signalling contact for monitoring system (floating changeover contact)

	DB M 1 150 FM	DB M 1 255 FM
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Max. continuous operating a.c. voltage U_c	150 V	255 V
Lightning impulse current (10/350 μ s) I_{imp}	35 kA	50 kA
Nominal discharge current (8/20 μ s) I_n	35 kA	50 kA
Voltage protection level U_p	1.5 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.)	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)	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
Temporary overvoltage (TOV) U_T	200 V / 5 sec.	440 V / 5 sec.
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
Cross-sectional area (L/N, L'/N', N/PE (N)) min.	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
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 rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	2 mods., DIN 43880	2 mods., DIN 43880
Type of remote signalling contact	changeover contact	changeover contact
Switching capacity a.c.	250 V/0.5 A	250 V/0.5 A
Switching capacity d.c.	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
Ordering information		
Type	DB M 1 150 FM	DB M 1 255 FM
Part No.	961 115	961 125
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNbloc® M

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

Type	PU pc(s)	Part No.
DB M MOD 150	1	961 001
DB M MOD 255	1	961 002



NEW

Protection Module for DEHNbloc® M

DB M Spark-gap-based protection module

- High discharge capacity due to powerful creepage discharge spark gap
- Maximum system availability due to RADAX Flow follow current limitation
- Includes module releasing button for replacing protection modules without tools
- Operating state/fault indication by green-red mark in the inspection window

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

The spark-gap-based protection modules for DEHNbloc M devices provide complete protective circuits including RADAX Flow spark gap and monitoring circuit for controlling the energy flow. The spark gap monitoring and operating state and fault indication are also integrated into the protection module.

POWER SUPPLY SYSTEMS LIGHTNING CURRENT ARRESTERS – TYPE 1

SPD Type 1 according to EN 61643-11
SPD Class 1 according to IEC 61643-1

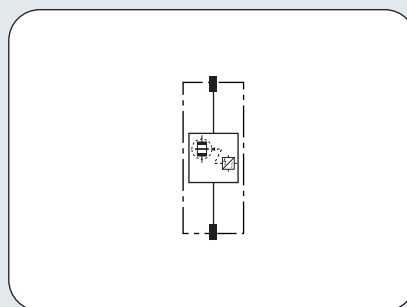


For protecting low-voltage consumer's installations against surges, even in case of direct lightning strokes. For use according to the lightning protection zones concept at boundaries $O_A - 1$.

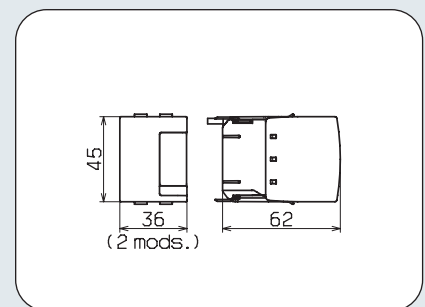
In order to avoid any incorrect supplying when replacing the protection modules, each protection module is mechanically coded by the manufacturer.

Like with all modular protective devices, the module releasing button allows for easy replacing of the protection modules without tools.

NEW



Basic circuit diagram DB M MOD ...



Dimension drawing DB M MOD ...

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

	DB M MOD 150	DB M MOD 255
Max. continuous operating a.c. voltage U_c	150 V	255 V
Lightning impulse current (10/350 μ s) I_{imp}	35 kA	50 kA
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.)	no tripping of a 32 A gL/gG fuse up to 50 kA _{rms} (prosp.)
Ordering information		
Type	DB M MOD 150	DB M MOD 255
Part No.	961 001	961 002
Packing unit	1 pc(s).	1 pc(s).

POWER SUPPLY SYSTEMS

DEHNbloc® Maxi

LIGHTNING CURRENT ARRESTERS – TYPE 1

Coordinated lightning
current arrester

SPD Type 1 according to EN 61643-11
SPD Class I according to IEC 61643-1



For protecting low voltage consumer's installations against surges, even in case of direct lightning strokes. For use in the lightning protection zones concept at boundaries $0_A - 1$.

DEHNbloc Maxi 1 320: Coordinated single-pole lightning current arrester with high follow current limitation for $U_C = 320 V$

The coordinated DEHNbloc Maxi 1 320 lightning current arrester adapts itself to every kind of application. Whether being used in exposed positions or rough industrial applications: DEHNbloc Maxi 1 320 always offers the right solution. The single-pole device is originally coordinated with the approved DEHNguard surge arresters of the Red/Line family. Independent from cable lengths and without requiring additional decoupling coils, the surge protection concept can be adapted individually to all operating conditions at the installation.

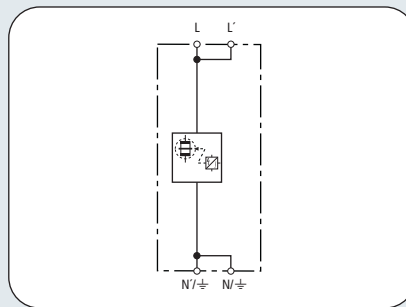
DEHNbloc Maxi 1 320 provides patented technology of encapsulated creepage discharge spark gaps and RADAX Flow follow current limitation. Special safety distances from busbars or equipment belong to the past as

- Encapsulated RADAX Flow spark gap with high follow current limitation
- No tripping of 32 A gL/gG fuses up to short-circuit currents of $50 kA_{rms}$
- Discharge capacity up to 20 kA (10/350 μs)
- Coordinated directly with SPD type DEHNguard S 320 (FM) without additional cable length
- Low voltage protection level
- Double terminals for series connection
- Multifunctional terminal for connecting conductors and busbars

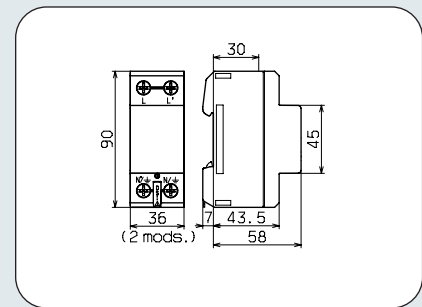
well as tripped backup fuses due to lacking selectivity between the protective device and overcurrent protection. This ensures maximum system availability.

Using the double terminals of DEHNbloc Maxi 1 320, which are suitable for all types of conductors, allows to realise a series connection in a space-saving and cost-effective way up to nominal currents of 125 A, as preferred by standard IEC 60364-5-53.

Conductors and busbars can be connected to the multifunctional terminal at the same time. This allows for easy wiring with other DIN rail mounted devices.

DEHNbloc® Maxi**POWER SUPPLY SYSTEMS****DEHNbloc Maxi 1 320****LIGHTNING CURRENT ARRESTERS – TYPE 1**

Basic circuit diagram DBM 1 320



Dimension drawing DBM 1 320

DBM 1 320: Coordinated single-pole lightning current arrester with high follow current limitation for $U_C = 320$ V

DBM 1 320

SPD according to EN 61643-11	Type 1
SPD according to IEC 61643-1	Class I
Max. continuous operating a.c. voltage U_C	320 V
Lightning impulse current (10/350 μ s) I_{imp}	20 kA
Nominal discharge current (8/20 μ s) I_n	20 kA
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}	250 A gL/gG
Max. backup fuse (L) for $I_K > 50$ kA _{rms}	160 A gL/gG
Max. backup fuse (L-L)	125 A gL/gG
Temporary overvoltage (TOV) U_T	425 V / 5 sec.
Operating temperature range (parallel connection) T_{UP}	-40°C...+80°C
Operating temperature range (series connection) T_{US}	-40°C...+60°C
Cross-sectional area (L, L', N/PE, N/PE) min.	10 mm ² solid/flexible
Cross-sectional area (L, N/PE) max.	50 mm ² stranded/35 mm ² flexible
Cross-sectional area (L', N/PE) max.	35 mm ² stranded/25 mm ² flexible
For mounting on	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IP 20
Dimension	2 mods., DIN 43880
Approvals, Certifications	UL

Ordering information

Type	DBM 1 320
Part No.	900 016
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS

DEHNbloc® Maxi 440 / 760

LIGHTNING CURRENT ARRESTERS – TYPE 1 **Coordinated lightning current arrester for nominal voltages 400 V and 690 V**

SPD Type 1 according to EN 61643-11
SPD Class I according to IEC 61643-1



For protecting low-voltage consumer's installations against surges, even in case of direct lightning strokes. For use in the lightning protection zones concept at boundaries $0_A - 1$.

- Encapsulated non-exhausting spark gap
- High follow current extinguishing capability and follow current limitation due RADAX Flow technology
- Directly coordinated to DEHNguard surge protective devices without cable length
- Operating state/fault indication by mark in the inspection window

DEHNbloc Maxi 1 440: Coordinated single-pole lightning current arrester with high follow current limitation for $U_C = 440\text{ V}$

DEHNbloc Maxi 1 440 FM: Coordinated single-pole lightning current arrester with high follow current limitation for $U_C = 440\text{ V}$; with remote signalling contact for monitoring system (floating changeover contact)

DEHNbloc Maxi 1 760 FM: Coordinated single-pole lightning current arrester with high follow current limitation for $U_C = 760\text{ V}$; with remote signalling contact for monitoring system (floating changeover contact)

The coordinated DEHNbloc Maxi 440 and 760 lightning current arresters were especially designed for higher system voltages. This allows for effective protection of many industrial applications against direct and indirect lightning currents.

Whether installed into a wind turbine installation or insulated low-voltage consumer's installation of an industrial company, DEHNbloc Maxi devices meet the upcoming challenges excellently.

Both the structure of the protective circuit and the enclosure especially designed for this type of devices take their application at high system voltages into consideration.

The core of the coordinated DEHNbloc Maxi 440 and 760 lightning current arresters is the approved RADAX Flow technology. The resulting capability of limiting mains-frequency follow currents considerably and extinguishing them in splits of a second, places these devices in a special position.

The patented RADAX Flow follow current limitation allows for a follow current disconnection selectivity, even for small-sized fuses in installations.

Its capability of discharging lightning currents without damage and suppressing mains follow currents without causing a tripping of upstream overcurrent protective devices, ensures high availability of electrical installations.

The operating state/fault indication of the coordinated lightning current arresters, which requires no operating currents, provides immediately information on the availability of the devices. Apart from the standard visual green and red marked indication, the DEHNbloc Maxi 1 ... FM types have a three-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact, according to circuit concept.



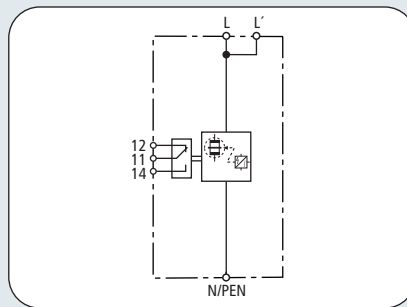
DEHNbloc® Maxi 440 / 760

DEHNbloc Maxi 1 440 (FM)

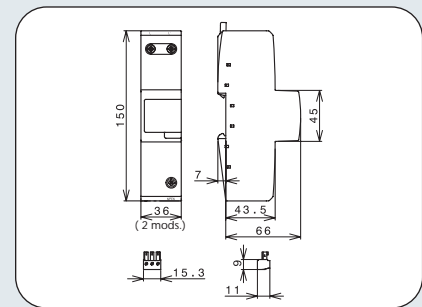
POWER SUPPLY SYSTEMS

LIGHTNING CURRENT ARRESTERS – TYPE 1

NEW



Basic circuit diagram DBM 1 440 FM



Dimension drawing DBM 1 440 FM

DBM 1 440 (FM): Coordinated single-pole lightning current arrester with high follow current limitation for use in 400/690 V TN/TT systems ($U_C = 440$ V)

	DBM 1 440	DBM 1 440 FM
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Max. continuous operating a.c. voltage U_C	440 V	440 V
Lightning impulse current (10/350 μ s) I_{imp}	35 kA	35 kA
Nominal discharge current (8/20 μ s) I_n	35 kA	35 kA
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.)	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) for $I_K > 50$ kA _{rms}	160 A gL/gG	160 A gL/gG
Max. backup fuse (L-L)	125 A gL/gG	125 A gL/gG
Temporary overvoltage (TOV) U_T	690 V / 5 sec.	690 V / 5 sec.
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
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 rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	2 mods., DIN 43880	2 mods., DIN 43880
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DBM 1 440	DBM 1 440 FM
Part No.	961 140	961 145
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNbloc® Maxi 440 / 760

EB DG 3-pole, single-phase

For earth-side bridging of 3 or 4 DEHNguard 1000 (FM) surge arresters



Type	Dimension	Terminal	PU pc(s)	Part No.
EB DG 1000 1 3	34 x 112 x 3 mm	up to 25 mm ²	1	900 411

Accessory Part for DEHNbloc® Maxi 440 / 760

Earthing Clip, 4-pole, single-phase

Earthing clip for earth-side bridging of e.g. 4 SPDs Type 1 in a 2-module enclosure with multifunctional terminal



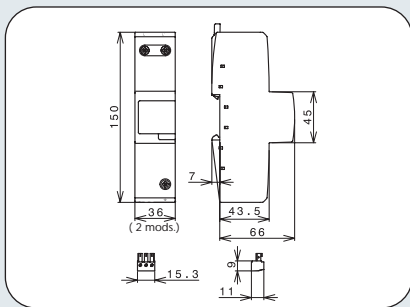
Type	Dimension	Nominal cross section	PU pc(s)	Part No.
EB 1 4 9	34 x 148 x 3 mm	up to 25 mm ²	1	900 417

POWER SUPPLY SYSTEMS

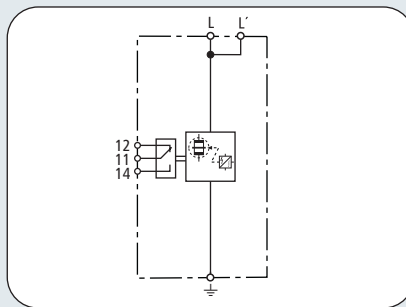
LIGHTNING CURRENT ARRESTERS – TYPE 1

DEHNbloc® Maxi 440 / 760

DEHNbloc Maxi 1 760 FM



Dimension drawing DBM 1 760 FM



Basic circuit diagram DBM 1 760 FM



NEW

DBM 1 760 FM: Coordinated single-pole lightning current arrester with high follow current limitation for $U_C = 760 V$

DBM 1 760 FM

SPD according to EN 61643-11	Type 1
SPD according to IEC 61643-1	Class I
Max. continuous operating a.c. voltage U_C	760 V
Lightning impulse current (10/350 μs) I_{imp}	25 kA
Nominal discharge current (8/20 μs) I_n	25 kA
Voltage protection level U_p	$\leq 4 kV$
Follow current extinguishing capability a.c. I_{fi}	10 kA_{rms}
Follow current limitation / Selectivity	no tripping of a 63 A gL/gG fuse up to 10 kA_{rms} (prosp.)
Response time t_A	$\leq 100 ns$
Max. backup fuse (L) up to $I_K = 10 kA_{rms}$ ($t_a \leq 5 s$)	250 A gL/gG
Max. backup fuse (L) up to $I_K > 10 kA_{rms}$	100 A gL/gG
Max. backup fuse (L-L)	125 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	25 kA_{rms}
Temporary overvoltage (TOV) U_T	1000 V / 5 sec.
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
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 rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IP 20
Dimension	2 mods., DIN 43880
Type of remote signalling contact	changeover contact
Switching capacity a.c.	250 V/0.5 A
Switching capacity d.c.	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

Ordering information	
Type	DBM 1 760 FM
Part No.	961 175
Packing unit	1 pc(s).

Accessory Part for DEHNbloc® Maxi 440 / 760

Earthing Clip, 4-pole, single-phase

Earthing clip for earth-side bridging of e.g. 4 SPDs Type 1 in a 2-module enclosure with multifunctional terminal

Type	Dimension	Nominal cross section	PU pc(s)	Part No.
EB 1 4 9	34 x 148 x 3 mm	up to 25 mm ²	1	900 417



Accessory Part for DEHNbloc® Maxi 440 / 760

EB DG 3-pole, single-phase

For earth-side bridging of 3 or 4 DEHNguard 1000 (FM) surge arresters

Type	Dimension	Terminal	PU pc(s)	Part No.
EB DG 1000 1 3	34 x 112 x 3 mm	up to 25 mm ²	1	900 411



DEHNbloc® Maxi S

POWER SUPPLY SYSTEMS

Coordinated lightning current arrester for busbars

LIGHTNING CURRENT ARRESTERS – TYPE 1

SPD Type 1 according to EN 61643-11
SPD Class 1 according to IEC 61643-1

- Combination of spark gap and backup fuse
- For mounting directly onto PEN/N busbars
- Low voltage protection level $U_p \leq 2.5$ kV (includes 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 follow current limitation due to RADAX Flow technology
- High lightning current discharge capacity
- With optical-fibre interface for monitoring the SPD



For protecting low voltage consumer's installations against surges. For use according to the lightning protection zones concept at boundaries $0_A - 1$.

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

DEHNbloc Maxi S allows more than before to integrate surge protection into application environments of a low-voltage switchgear installation or distribution board.

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

With the backup fuse integrated into the device, no further separate backup fuses need to be installed.

Installing the DEHNbloc Maxi S devices directly into the terminal panel of the switchgear installation upstream of the circuit breaker ensures short cable lengths of the SPDs and a low voltage protection level for the installation.

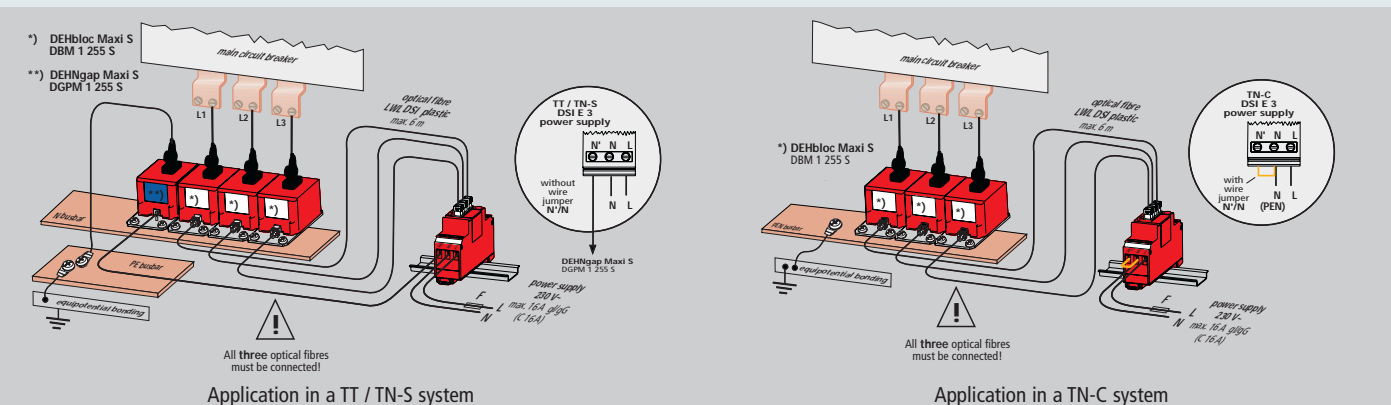
With a discharge capacity of 25 kA ($10/350$ μ s) DEHNbloc Maxi S fulfils maximum requirements by national and international lightning protection standards for all three-phase current applications in TN and TT systems. For "3+1" circuits, the user is provided with DEHNgap Maxi S, a powerful creepage discharge spark gap with a discharge capacity of 100 kA ($10/350$ μ s).

The patented RADAX Flow follow current limitation was also performed for DEHNbloc Maxi S and thus allows for selectivity, even for small-sized fuses.

The capability of conducting lightning impulse currents without damage and suppressing mains follow currents without causing a tripping of upstream overcurrent protective devices ensures the availability of the switchgear installation in case of a lightning strike and considerably reduces the risk of arising arcing faults in the installation.

Combined with DEHNsignal remote signalling system, the availability of DEHNbloc Maxi S devices can always be monitored.

An optical fibre transmission to DEHNsignal E 3 receiver module, which is easy to perform, ensures safe electrical isolation between the power circuit and remote signalling circuit.

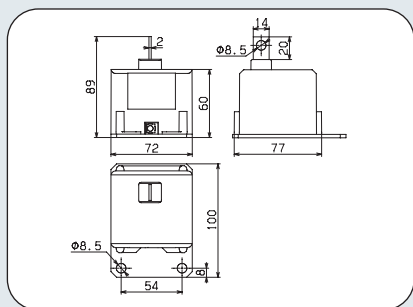


POWER SUPPLY SYSTEMS

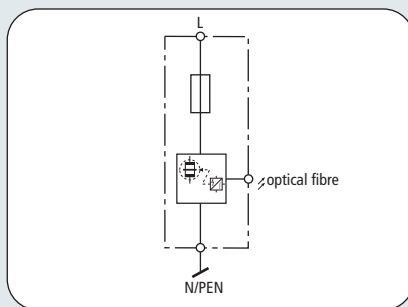
LIGHTNING CURRENT ARRESTERS – TYPE 1

DEHNbloc® Maxi S

DEHNbloc Maxi 1 255 S



Dimension drawing DBM 1 255 S



Basic circuit diagram DBM 1 255 S



DBM 1 255 S: Coordinated single-pole lightning current arrester with integrated backup fuse for busbars

DBM 1 255 S	
SPD according to EN 61643-11	Type 1
SPD according to IEC 61643-1	Class I
Max. continuous operating a.c. voltage U_c	255 V
Lightning impulse current (10/350 μ s) I_{imp}	25 kA
Nominal discharge current (8/20 μ s) I_n	25 kA
Voltage protection level U_p	≤ 2.5 kV (includes 80 cm connecting cable)
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
Short-circuit withstand capability	100 kA _{rms} (220 kA _{peak})
Temporary overvoltage (TOV) U_T	335 V / 5 sec.
Operating temperature range (parallel connection) T_{Up}	-40°C...+80°C
For mounting on	PEN / N busbar min. 35 mm ²
Connection	by cable lug min. 35 mm ² /max. 50 mm ²
Enclosure material	red thermoplastic, UL 94 V-0
Dimension (W x H x D)	72 x 89 x 100 mm
Operation indicator	by optical fibres via DSI E 3
Ordering information	
Type	DBM 1 255 S
Part No.	900 220
Packing unit	1 pc(s).

Accessory Part for DEHNbloc® Maxi S

LWL ST DSI

Plug for plastic optical fibres

Type	Diameter	PU pc(s)	Part No.
LWL ST DSI	2.2 mm	10	910 641



LWL DSI 18M

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

Type	Diameter	Length	PU pc(s)	Part No.
LWL DSI 18M	2.2 mm	18 m	1	910 642



Accessory Part for DEHNbloc® Maxi S

DEHNsignal E 3

DSI E 3: Optical-fibre-based receiver module for selective operating state indication / centralised fault indication by 3 coordinated lightning current arresters DEHNbloc Maxi S and, if required, DEHNgap Maxi S in 5-conductor systems

Type	PU pc(s)	Part No.
DSI E 3	1	910 631



DEHNsignal

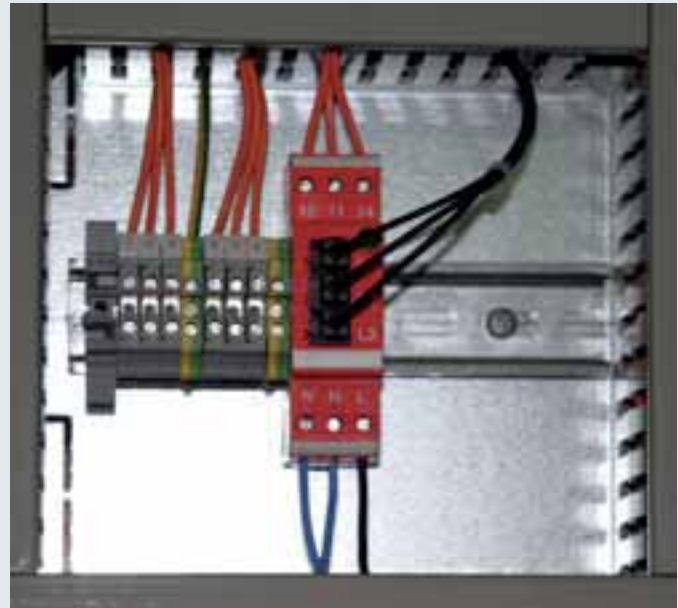
POWER SUPPLY SYSTEMS

Receiver module for optical fibre applications

ACCESSORIES FOR SPDs TYPE 1

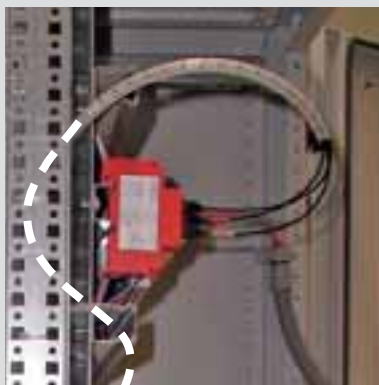
EN 61010-1; EN 61010-1/A2

- Operating state indication for the connected SPD
- Indication of phase failures
- Floating changeover contact
- Selective operating state indication
- Centralised fault indication



Receiver module for optical fibre applications for SPDs type DEHnbloc Maxi S and DEHNgap Maxi S with floating changeover contact.

DEHNsignal E 3: Receiver module for optical fibre applications for selective operating state indication and/or centralised fault indication of 3 coordinated lightning current arresters type DEHnbloc Maxi S and, where required, DEHNgap Maxi S in 5-wire systems.



DEHNsignal E3 receiver module for optical fibre applications performs remote signalling for DEHnbloc Maxi S and DEHNgap Maxi S surge protective devices.

DEHNsignal E 3 receiver module is adapted especially to sites where coordinated lightning current arresters type DEHnbloc Maxi S and DEHNgap Maxi S are used.

The receiver module allows to telemonitor three SPDs type DEHnbloc Maxi S and, where required, the N-PE protective circuit by means of optical fibres.

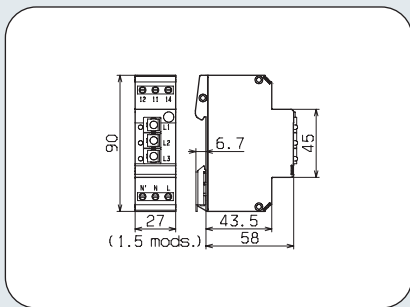
Considering the special installation environments of surge protective devices installed into switchgear installations, communication between the SPDs and DEHNsignal E3 receiver module by optical fibres is an essential and particularly safety-relevant advantage in application.

Using EMC-interference-resistant plastic optical fibres, the readiness for operation of the individual SPDs is transmitted as an optical signal to the DEHNsignal E3 receiver module. The optical signals are then evaluated within DEHNsignal E 3 and converted into an electrical signal. The operating state can be read directly from DEHNsignal E3 receiver module or provided by means of a floating changeover contact. For testing the operating state of the DEHNsignal E 3 receiver module, the same has a green light indicator situated at the device. Apart from indicating the operating state, a selective operating state indicator consisting of three red light indicators shows the operating state of the assigned SPDs. As soon as an SPD fails, this is signalled correspondingly to the receiver module. The surge protective devices and DEHNsignal E3 receiver module can be easily connected with optical fibres by means of the relevant accessories.

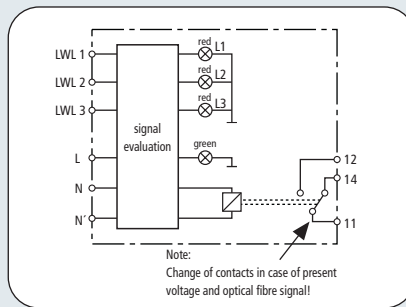


POWER SUPPLY SYSTEMS
ACCESSORIES FOR SPDs TYPE 1

DEHNsignal
DEHNsignal E 3



Dimension drawing DSI E 3



Basic circuit diagram DSI E 3



DSI E 3: Optical-fibre-based receiver module for selective operating state indication / centralised fault indication by 3 coordinated lightning current arresters DEHNbloc Maxi S and, if required, DEHNgap Maxi S in 5-conductor systems

DSI E 3	
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	-40°C...+80°C
Signal input	3x by optical fibre plug-in system (LWL ST DSI)
Operating state indication	green LED
Selective operating state indication	3 x red LEDs (L1, L2, L3)
For mounting on	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IP 20
Dimension	1.5 mods., DIN 43880
Type of remote signalling contact	floating changeover contact
Switching capacity a.c.	250 V/0.5 A
Switching capacity d.c.	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; 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
Ordering information	
Type	DSI E 3
Part No.	910 631
Packing unit	1 pc(s).

Accessory Part for DEHNsignal

LWL ST DSI
Plug for plastic optical fibres

Type	Diameter	PU pc(s)	Part No.
LWL ST DSI	2.2 mm	10	910 641



Accessory Part for DEHNsignal

LWL DSI 18M
18 metres of plastic optical fibre, preferably for use of DEHNbloc Maxi S

Type	Diameter	Length	PU pc(s)	Part No.
LWL DSI 18M	2.2 mm	18 m	1	910 642



DEHNbloc®**POWER SUPPLY SYSTEMS****Lightning current arrester****LIGHTNING CURRENT ARRESTERS – TYPE 1**SPD Type 1 according to EN 61643-11
SPD Class I according to IEC 61643-1

- Encapsulated, non-exhausting creepage discharge spark gap
- DEHNbloc ... H: RADAX Flow spark gap technology with high follow current limitation
- Energy-coordinated within the Red/Line product family
- Allows for installation even upstream of meter panels due to high insulation resistance
- Multifunctional terminal for connecting conductors and busbars
- Single-pole and 3-pole device (for lightning impulse currents up to 100 kA according to system configuration)
- Also available with "NH00" design



For protecting low voltage consumer's installations against surges even in case of direct lightning strokes. For use in the lightning protection zones concept at boundaries $0_A - 1$.

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

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

DEHNbloc NH00 H: Lightning current arrester, NH 00 design, with high follow current limitation

DEHNbloc 1 440: Single-pole lightning current arrester for $U_C = 440 V$

The spark gaps of the DEHNbloc lightning current arresters allow for a compact structure of low-voltage distribution boards. Using the pressure-controlled encapsulated creepage discharge spark gaps, safety distances from electrical busbars and special flameproof enclosures have belonged to the past already for a long time.

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

The consequent continuation of the idea of integration has made the DEHNbloc devices more powerful: With the product designation DEHNbloc ... H, the groundbreaking RADAX Flow spark gap technology for follow current extinction and follow current limitation was integrated into the DEHNbloc family.

The RADAX Flow technology prevents operational interruptions caused by tripping conductor protection due to responding SPDs. In times of increasing dependence of all systems on a functioning electrical infrastructure, this is an indispensable product feature. Due to the RADAX Flow principle, even short circuits up to 50 kA_{rms} in installations can be limited in their amplitudes to approx. 500 A and extinguished after approx. 5 ms. This performance allows for a breaking selectivity of the SPD even to smaller fuses.

But the concept of the DEHNbloc H family is also convincing with other product features: With its phase-side and earth-side double terminals, the single-pole device DEHNbloc 1 255 H provides the user with many possibilities for application.

With the double terminals, which are available for all conductor connections, even 3-pole SPDs type DEHNbloc 3 255 H can be connected in series in a space-saving and cost-effective way for nominal installation currents up to 125 A, as preferred in IEC 60364-5-53.

For application with other DIN rail mountable devices, especially multifunctional terminals are suitable for connecting conductors and busbars.

Especially for use in industrial distribution boards as well as in power supply systems DEHNbloc NH00 255 H was developed. It can be installed into NH base parts or NH disconnectors, size 00, in accordance with the system involved.

With DEHNbloc 1 440 the user is provided with a lightning current arrester for rated voltages of 440 V.



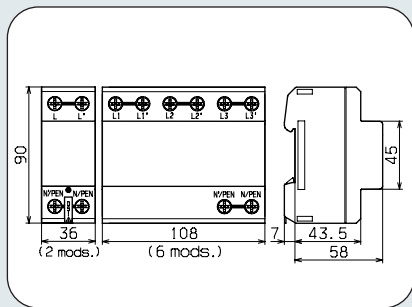
DB NH00 255 H applied in a busbar terminal field of a meter system

POWER SUPPLY SYSTEMS

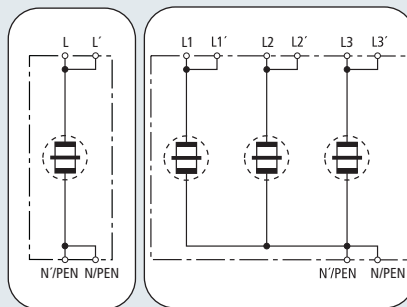
DEHNbloc®

LIGHTNING CURRENT ARRESTERS – TYPE 1

DEHNbloc ... 255 H



Dimension drawing DB 1 255 H / DB 3 255 H



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



DB ... 255 H: Single-pole and 3-pole lightning current arrester with high follow current limitation

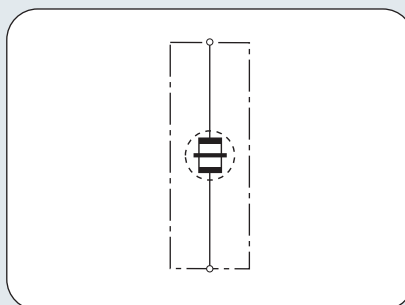
	DB 1 255 H	DB 3 255 H
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Nominal a.c. voltage U_N	230 V	230/400 V
Max. continuous operating a.c. voltage U_c	255 V	255 V
Lightning impulse current (10/350 μ s) I_{imp}	50 kA	—
Lightning impulse current (10/350 μ s) [L-N/PEN] I_{imp}	—	50 kA
Lightning impulse current (10/350 μ s) [L1+L2+L3-N/PEN] I_{total}	—	100 kA
Nominal discharge current (8/20 μ s) I_n	50 kA	50 / 100 kA
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.)	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	335 V / 5 sec.	335 V / 5 sec.
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
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 rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	2 mods., DIN 43880	6 mods., DIN 43880
Approvals, Certifications	KEMA	KEMA
Ordering information		
Type	DB 1 255 H	DB 3 255 H
Part No.	900 222	900 120
Packing unit	1 pc(s).	1 pc(s).

DEHNbloc®

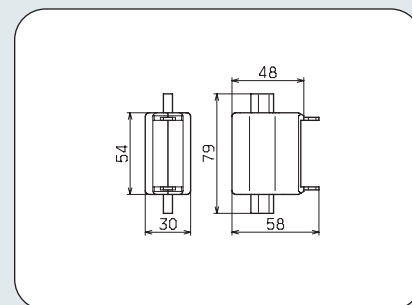
POWER SUPPLY SYSTEMS

DEHNbloc NH00 255 H

LIGHTNING CURRENT ARRESTERS – TYPE 1



Basic circuit diagram DB NH00 255 H



Dimension drawing DB NH00 255 H

DB NH00 255 H: Single-pole lightning current arrester in NH design, size 00, with high follow current limitation

DB NH00 255 H

SPD according to EN 61643-11	Type 1
SPD according to IEC 61643-1	Class I
Max. continuous operating a.c. voltage U_c	255 V
Lightning impulse current (10/350 μ s) I_{imp}	25 kA
Nominal discharge current (8/20 μ s) I_n	25 kA
Voltage protection level U_p	≤ 4 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 up to $I_K = 50$ kA _{rms} ($t_a \leq 0.2$ s)	315 A gL/gG
Max. backup fuse up to $I_K = 50$ kA _{rms} ($t_a \leq 5$ s)	200 A gL/gG
Max. backup fuse for $I_K > 50$ kA _{rms}	125 A gL/gG
Temporary overvoltage (TOV) U_T	335 V / 5 sec.
Operating temperature range	-40°C...+80°C
For mounting on	NH fuse holder, size 00
Enclosure material	red thermoplastic, UL 94 V-0

Ordering information

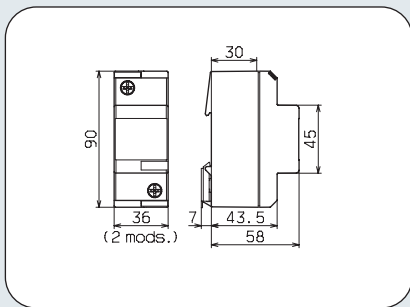
Type	DB NH00 255 H
Part No.	900 273
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS

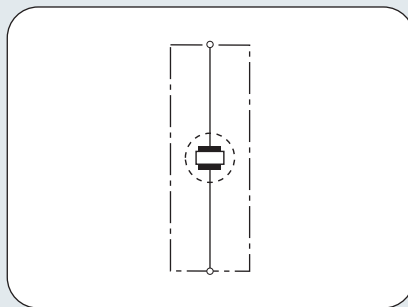
DEHNbloc®

LIGHTNING CURRENT ARRESTERS – TYPE 1

DEHNbloc 1 440



Dimension drawing DB 1 440



Basic circuit diagram DB 1 440



DB 1 440: Single-pole lightning current arrester with high discharge capacity for $U_c = 440\text{ V}$

DB 1 440	
SPD according to EN 61643-11	Type 1
SPD according to IEC 61643-1	Class I
Max. continuous operating a.c. voltage U_c	440 V
Lightning impulse current (10/350 μs) I_{imp}	50 kA
Nominal discharge current (8/20 μs) I_n	50 kA
Voltage protection level U_p	$\leq 4\text{ kV}$
Follow current extinguishing capability a.c. I_{fl}	1.5 kA_{rms}
Response time t_A	$\leq 100\text{ ns}$
Max. backup fuse up to $I_K = 50\text{ kA}_{rms}$ ($t_a \leq 0.2\text{ s}$)	500 A gL/gG
Max. backup fuse up to $I_K = 50\text{ kA}_{rms}$ ($t_a \leq 5\text{ s}$)	250 A gL/gG
Max. backup fuse for $I_K > 50\text{ kA}_{rms}$	160 A gL/gG
Temporary overvoltage (TOV) TN system U_T	580 V / 5 sec.
Temporary overvoltage (TOV) IT system U_T	1200 V + U_0 / 200 ms
Operating temperature range	-40°C...+80°C
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 rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IP 20
Dimension	2 mods., DIN 43880
Ordering information	
Type	DB 1 440
Part No.	900 159
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS

DEHNgap

N-PE LIGHTNING CURRENT ARRESTERS

N-PE Lightning current arrester

SPD Type 1 according to EN 61643-11
SPD Class 1 according to IEC 61643-1



For protecting low voltage consumer's installations against surges even in case of direct lightning strokes. For use in the lightning protection zones concept at boundaries $0_A - 1$ with 3+1 circuits.

DEHNgap M 255 (FM): Coordinated single-pole modular N-PE lightning current arrester

DEHNgap Maxi 1 255 S: Coordinated single-pole N-PE lightning current arrester for busbars

DEHNgap BN 255: Single-pole N-PE lightning current arrester

DEHNgap B NH00 N 255: Single-pole N-PE lightning current arrester in NH design

DEHNgap Maxi 440 (FM): Coordinated single-pole N-PE lightning current arrester for $U_C = 440$ V a.c.

Being total current arresters between neutral and protective conductors in TT systems, the single-pole N-PE lightning current arresters DEHNgap M, DEHNgap Maxi, DEHNgap Maxi S, DEHNgap BN and DEHNgap B NH are designed to ensure fulfilment of the protection requirements between protection of persons and material assets with "3+1 circuits". Especially for this challenge, the creepage discharge spark gaps were developed. With a discharge capacity up to 100 kA (10/350 μ s) they fulfil the highest requirements made on such kinds of devices by national and international lightning protection standards. Due to their leakage-current-free spark-gap-based design, the devices can be used in areas upstream of supply meters according to national regulations (e.g. German VDN Directive). Being coordinated N-PE lightning current arresters, DEHNgap M, DEHNgap Maxi and DEHNgap Maxi S have a special position among the total current arresters. Due to their response performance, they can be coordinated directly with N-PE surge arresters of the DEHNgap M family and DEHNgap S without additional decoupling coils. If lightning current and surge arresters have to be installed together at one site, no DEHNgap S has to be further installed due to the low voltage protection levels of DEHNgap M and DEHNgap Maxi.

The design and installation of DEHNgap Maxi S are adapted to the special characteristics of low voltage switchgear installations and complement entirely the application of DEHNgap Maxi S.

DEHNgap B NH was developed especially for industrial installations as well as for supply systems. This device can be integrated very easily into existing NH fuse holders, size 00. The DIN-rail-mountable devices DEHNgap M, DEHNgap Maxi and DEHNgap BN provide multifunctional

- Discharge capacity 100 kA (10/350 μ s)
- Total current arrester, especially for use in TT systems in "3+1" circuits according to IEC 60364-5-53 between neutral conductor N and protective conductor PE
- Creepage discharge spark gap technology
- Type DEHNgap M available with operating state/fault indication in the inspection window

terminals for connecting conductors and busbars for easy wiring with other DIN-rail-mountable terminals. With the functional Red/Line design of DEHNgap M, the user is provided with many features for safe and easy handling. The



mechanical operating state and fault indication, for example, stands for fulfilling the high safety requirements, just like the application of the module locking device which is unique for use with surge arresters. It fixes the protection modules tightly to the base part of the device. Neither vibrations or shocks during transport nor the enormous forces of a discharge can loosen the protection modules. And still, they can be replaced easily and without tools, if necessary. This is ensured by the user-friendly module releasing button of the protection module. In order to avoid any incorrect supplying by the installer or user, each protection module has a mechanical coding integrated by the manufacturer. Apart from the standard visual indicator in DEHNgap M, type DEHNgap M ... FM has a 3-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact according to circuit concept.

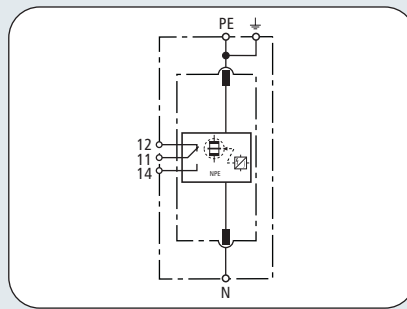
DEHNgap

DEHNgap M 255 (FM)

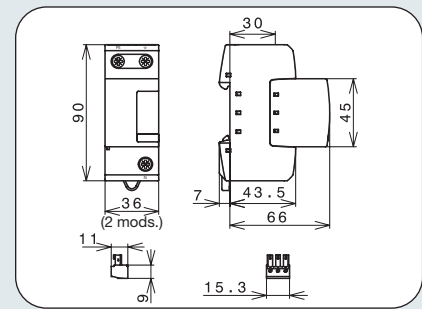
POWER SUPPLY SYSTEMS

N-PE LIGHTNING CURRENT ARRESTERS

NEW



Basic circuit diagram DGP M 255 FM



Dimension drawing DGP M 255 FM

DGP M 255 (FM): Single-pole, modular coordinated N-PE lightning current arrester for $U_C = 255 V$; also available with remote signalling contact for monitoring system (floating changeover contact)

	DGP M 255	DGP M 255 FM
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Max. continuous operating a.c. voltage U_C	255 V	255 V
Lightning impulse current (10/350 μs) I_{imp}	100 kA	100 kA
Nominal discharge current (8/20 μs) I_n	100 kA	100 kA
Voltage protection level U_P	$\leq 1.5 kV$	$\leq 1.5 kV$
Follow current extinguishing capability a.c. I_{fi}	100 A_{rms}	100 A_{rms}
Response time t_A	$\leq 100 ns$	$\leq 100 ns$
Temporary overvoltage (TOV)	1200 V / 200 ms	1200 V / 200 ms
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
Cross-sectional area (N, PE, \neq) 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 (\neq) max.	35 mm ² stranded/25 mm ² flexible	35 mm ² stranded/25 mm ² flexible
For mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	2 mods., DIN 43880	2 mods., DIN 43880
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DGP M 255	DGP M 255 FM
Part No.	961 101	961 105
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNgap

NEW



DGP M – 100 kA N-PE Spark-gap-based protection module

DGP M MOD ...: 100 kA N-PE Spark-gap-based protection module for use with all modular DEHNgap M devices

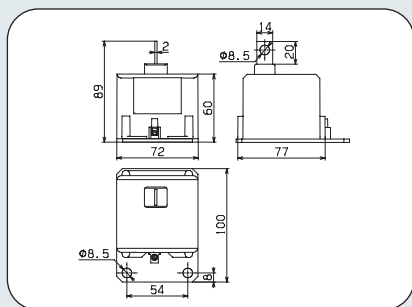
Type	PU pc(s)	Part No.
DGP M MOD 255	1	961 010

POWER SUPPLY SYSTEMS

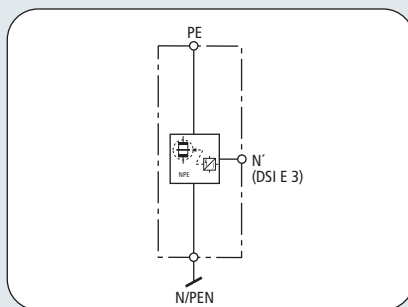
DEHNgap

N-PE LIGHTNING CURRENT ARRESTERS

DEHNgap Maxi 1 255 S



Dimension drawing DGPM 1 255 S



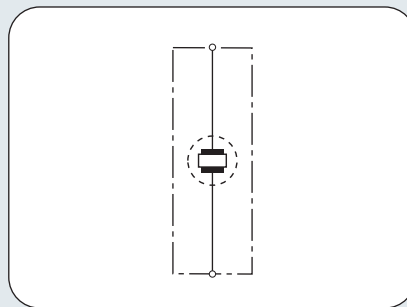
Basic circuit diagram DGPM 1 255 S



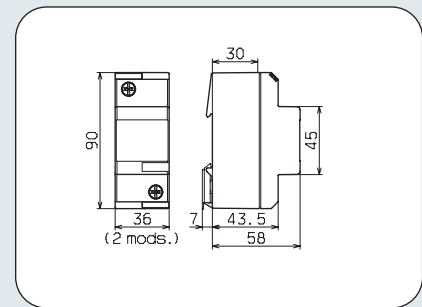
DGPM 1 255 S: Coordinated, single-pole N-PE lightning current arrester for busbars

DGPM 1 255 S	
SPD according to EN 61643-11	Type 1
SPD according to IEC 61643-1	Class I
Max. continuous operating a.c. voltage U_c	255 V
Lightning impulse current (10/350 μ s) I_{imp}	100 kA
Nominal discharge current (8/20 μ s) I_n	100 kA
Voltage protection level U_p	≤ 2.5 kV (includes 80 cm connecting cable)
Follow current extinguishing capability a.c. I_{fl}	100 A _{rms}
Response time t_A	≤ 100 ns
Temporary overvoltage (TOV)	1200 V / 200 ms
Operating temperature range (parallel connection) T_{UP}	-40°C...+80°C
Operating temperature range (series connection) T_{US}	-40°C...+60°C
For mounting on	N busbar min. 35 mm ²
Terminal	by cable lug min. 35 mm ² /max. 50 mm ²
Operating state control	by DEHNsignal DSI E 3
Min. connection for DSI E 3 (N')	1 mm ² solid/flexible
Max. connection for DSI E 3 (N')	2.5 mm ² solid/flexible
Enclosure material	red thermoplastic, UL 94 V-0
Dimension (W x H x D)	72 x 89 x 100 mm

Ordering information	
Type	DGPM 1 255 S
Part No.	900 050
Packing unit	1 pc(s).

DEHNgap**POWER SUPPLY SYSTEMS****DEHNgap BN 255****N-PE LIGHTNING CURRENT ARRESTERS**

Basic circuit diagram DGP BN 255



Dimension drawing DGP BN 255

DGP BN 255: Single-pole N-PE lightning current arrester

DGP BN 255

SPD according to EN 61643-11	Type 1
SPD according to IEC 61643-1	Class I
Max. continuous operating a.c. voltage U_c	255 V
Lightning impulse current (10/350 μ s) I_{imp}	100 kA
Nominal discharge current (8/20 μ s) I_n	100 kA
Voltage protection level U_p	≤ 4 kV
Follow current extinguishing capability a.c. I_{ff}	100 A _{rms}
Response time t_A	≤ 100 ns
Temporary overvoltage (TOV)	1200 V / 200 ms
Operating temperature range T_U	-40°C...+80°C
Operating state/fault indication	green / red
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 rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IP 20
Dimension	2 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL

Ordering information

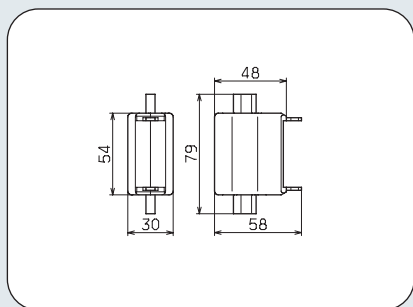
Type	DGP BN 255
Part No.	900 132
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS

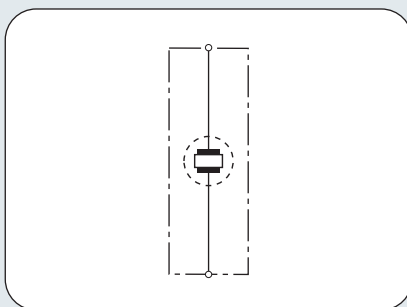
DEHNgap

N-PE LIGHTNING CURRENT ARRESTERS

DEHNgap B NH00



Dimension drawing DGP B NH00 N 255



Basic circuit diagram DGP B NH00 N 255



DGP B NH00 N 255: Single-pole N-PE lightning current arrester, NH design, size 00

DGP B NH00 N 255	
SPD according to EN 61643-11	Type 1
SPD according to IEC 61643-1	Class I
Max. continuous operating a.c. voltage U_c	255 V
Lightning impulse current (10/350 μ s) I_{imp}	50 kA
Nominal discharge current (8/20 μ s) I_n	50 kA
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)	1200 V / 200 ms
Operating temperature range T_U	-40°C...+80°C
For mounting on	NH fuse holder, size 00
Enclosure material	red thermoplastic, UL 94 V-0
Ordering information	
Type	DGP B NH00 N 255
Part No.	900 269
Packing unit	1 pc(s).

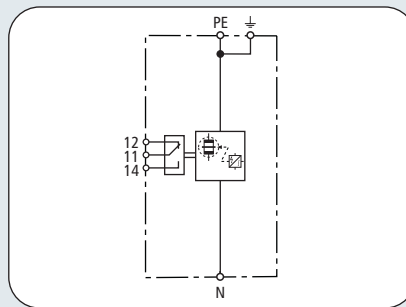
DEHNgap

DEHNgap Maxi 440 (FM)

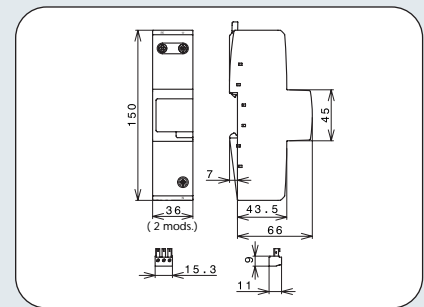
POWER SUPPLY SYSTEMS

N-PE LIGHTNING CURRENT ARRESTERS

NEW



Basic circuit diagram DGPM 440



Dimension drawing DGPM 440

DGPM 440 (FM): Coordinated, single-pole N-PE lightning current arrester for $U_C = 440\text{ V}$

	DGPM 440	DGPM 440 FM
SPD according to EN 61643-11	Type 1	Type 1
SPD according to IEC 61643-1	Class I	Class I
Max. continuous operating a.c. voltage U_C	440 V	440 V
Lightning impulse current (10/350 μs) I_{imp}	100 kA	100 kA
Nominal discharge current (8/20 μs) I_n	100 kA	100 kA
Voltage protection level U_P	$\leq 2.5\text{ kV}$	$\leq 2.5\text{ kV}$
Follow current extinguishing capability a.c. I_{fi}	100 A_{rms}	100 A_{rms}
Response time t_A	$\leq 100\text{ ns}$	$\leq 100\text{ ns}$
Temporary overvoltage (TOV)	1200 V / 200 ms	1200 V / 200 ms
Operating temperature range (parallel connection) T_{UP}	$-40^\circ\text{C} \dots +80^\circ\text{C}$	$-40^\circ\text{C} \dots +80^\circ\text{C}$
Operating temperature range (series connection) T_{US}	$-40^\circ\text{C} \dots +60^\circ\text{C}$	$-40^\circ\text{C} \dots +60^\circ\text{C}$
Operating state/fault indication	green / red	green / red
Cross-sectional area (N, PE, \ominus) 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 (\ominus) max.	35 mm ² stranded/25 mm ² flexible	35 mm ² stranded/25 mm ² flexible
For mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	2 mods., DIN 43880	2 mods., DIN 43880
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DGPM 440	DGPM 440 FM
Part No.	961 160	961 165
Packing unit	1 pc(s).	1 pc(s).

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 2

SPD Type 2 according to EN 61643-11
SPD Class II according to IEC 61643-1



For protecting low-voltage consumer's installations against surges. For use according to the lightning protection zones concept at boundaries $O_B - 1$ 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" circuit)
- DEHNGuard M TN ...: Modular surge arrester for use in 230 V TN systems
- DEHNGuard M TT 2P ...: Modular surge arrester for use in 230 V TT and TN systems ("1+1" circuit)
- 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)

The modular DEHNGuard M ... surge arresters with functional Red/Line family design set new standards for safety and easy application. The approved protective circuit with powerful zinc oxide varistors in combination with the dual Thermo Dynamic Control monitoring device characterise the DEHNGuard technology.

The fact that both safe surge protection and reliability of the devices are the central aspect of the new modular DEHNGuard, can be taken from many features of the device. The application-based product designation, which makes the choice of the right devices considerably easier, stands also for fulfilling high safety requirements as well as applying the module locking device, which is unique for use with surge protective devices. It fixes the protection modules to the base part of the device. Neither vibrations during transport nor the enormous forces of discharge currents can loosen the protection modules. And still, they can be replaced easily without tools, if necessary. This is ensured by the user-friendly module releasing button of the protection modules. In order to avoid any wrong supplying by the installer or user when replacing the modules, each protective circuit of the multipole surge arresters and protection module has a mechanical coding.

The dual Thermo Dynamic Control monitoring device was not developed only on the basis of the national and international product standards in

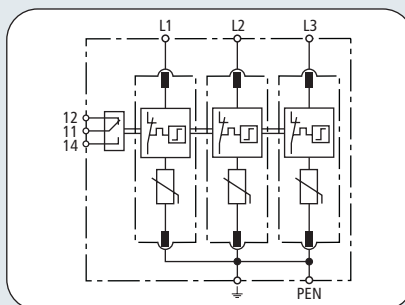
DEHNGuard® modular Multipole modular surge arrester

- Complete prewired unit, consisting of a base part and plug-in protection modules
- Energy-coordinated within the Red/Line product family
- High discharge capacity due to powerful zinc oxide varistors/spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device
- Multifunctional terminals for connecting conductors and busbars
- Allows for easy replacing of protection modules due to module locking system with releasing button
- Tested for vibration- and shock-proofness according to EN 60068-2

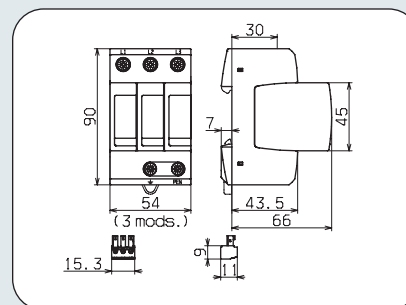
force, but it stands also for experience of decades with surge protective devices worldwide and takes many fields of application, where SPDs can be damaged, into account. Like with all DEHN surge arresters with Thermo Dynamic Control, also the intensity of the discharge current is evaluated apart from the surface temperature of the high-capacity varistor. The visual indicator shows readiness for operation of each protective circuit with green and red marks. Apart from this standard visual indicator, DEHNGuard M ... FM devices have a 3-pole terminal for remote signalling.

With the remote signalling contact being a floating changeover contact, the remote signal can be used as a make or break contract, according to circuit concept. The surge arresters of the multipole modular DEHNGuard M family have multifunctional terminals for connecting conductors and busbars in a standardised distance of 1 module for easy wiring with other DINrail mountable devices. A series connection according to IEC 60364-5-53, which is optimal for protection, is therefore possible for many applications.



DEHNguard® modular
DEHNguard M TNC ... (FM)
**POWER SUPPLY SYSTEMS
SURGE ARRESTERS – TYPE 2**


Basic circuit diagram DG M TNC ... FM



Dimension drawing DG M TNC ... FM

DG M TNC ... (FM): Modular surge arrester for use in TN-C systems

DG M TNC 275
DG M TNC 275 FM

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	230/400 V	230/400 V
Max. continuous operating a.c. voltage U_c	275 V	275 V
Nominal discharge current (8/20 μ s) I_n	20 kA	20 kA
Max. discharge current (8/20 μ s) I_{max}	40 kA	40 kA
Voltage protection level U_p	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level for 5 kA U_p	≤ 1 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	50 kA _{rms}	50 kA _{rms}
Temporary overvoltage (TOV) U_T	335 V / 5 sec.	335 V / 5 sec.
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	3 mods., DIN 43880	3 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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

Ordering information

Type	DG M TNC 275	DG M TNC 275 FM
Part No.	952 300	952 305
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® modular

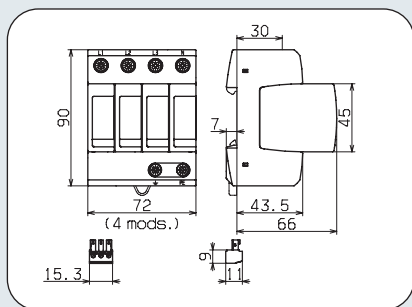
Varistor-based protection module

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

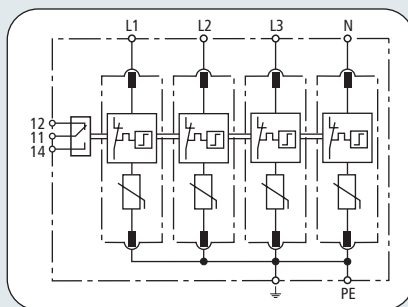
Type	PU pc(s)	Part No.
DG MOD 275	1	952 010

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 2

DEHNguard® modular DEHNguard M TNS ... (FM)



Dimension drawing DG M TNS ... FM



Basic circuit diagram DG M TNS ... FM



DG M TNS ... (FM): Modular surge arrester for use in TN-S systems

	DG M TNS 275	DG M TNS 275 FM
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	230/400 V	230/400 V
Max. continuous operating a.c. voltage U_c	275 V	275 V
Nominal discharge current (8/20 μ s) I_n	20 kA	20 kA
Max. discharge current (8/20 μ s) I_{max}	40 kA	40 kA
Voltage protection level U_p	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level for 5 kA U_p	≤ 1 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	50 kA _{rms}	50 kA _{rms}
Temporary overvoltage (TOV) U_T	335 V / 5 sec.	335 V / 5 sec.
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	4 mods., DIN 43880	4 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DG M TNS 275	DG M TNS 275 FM
Part No.	952 400	952 405
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® modular

Varistor-based protection module

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

Type	PU pc(s)	Part No.
DG MOD 275	1	952 010

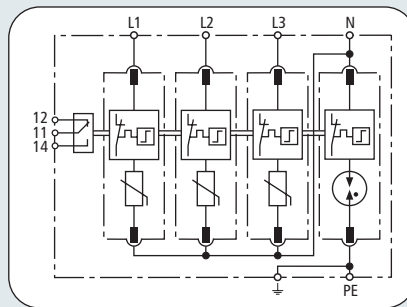


DEHNguard® modular

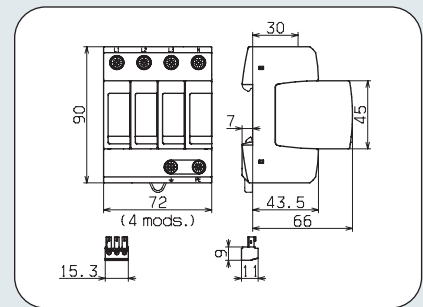
DEHNguard M TT ... (FM)

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 2



Basic circuit diagram DG M TT ... FM



Dimension drawing DG M TT ... FM

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

	DG M TT 275	DG M TT 275 FM
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	230/400 V	230/400 V
Max. continuous operating a.c. voltage [L-N] U_C	275 V	275 V
Max. continuous operating a.c. voltage [N-PE] U_C	255 V	255 V
Nominal discharge current (8/20 μ s) I_n	20 kA	20 kA
Max. discharge current (8/20 μ s) I_{max}	40 kA	40 kA
Lightning impulse current (10/350 μ s) [N-PE] I_{imp}	12 kA	12 kA
Voltage protection level [L-N] U_p	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level [L-N] for 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	125 A gL/gG	125 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	50 kA _{rms}	50 kA _{rms}
Temporary overvoltage (TOV) [L-N] U_T	335 V / 5 sec.	335 V / 5 sec.
Temporary overvoltage (TOV) [N-PE] U_T	1200 V / 200 ms	1200 V / 200 ms
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	4 mods., DIN 43880	4 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DG M TT 275	DG M TT 275 FM
Part No.	952 310	952 315
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® modular

Varistor-based protection module

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



Type	PU pc(s)	Part No.
DG MOD 275	1	952 010

Accessory Part for DEHNguard® modular

N-PE Spark-gap-based protection module

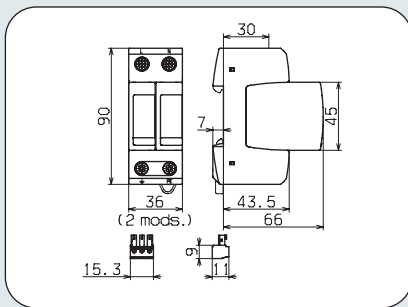
DG MOD NPE: N-PE spark-gap-based protection module for two- and four-pole DEHNguard DG M TT ... surge arresters



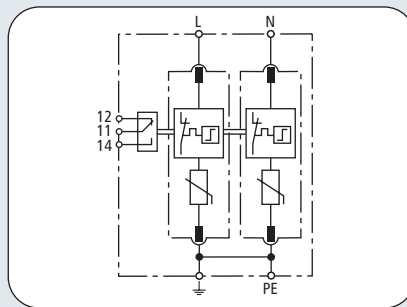
Type	PU pc(s)	Part No.
DG MOD NPE	1	952 050

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 2

DEHNguard® modular DEHNguard M TN ... (FM)



Dimension drawing DG M TN ... FM



Basic circuit diagram DG M TN ... FM



DG M TN ... (FM): Modular surge arrester for use in single-phase 230 V TN systems

	DG M TN 275	DG M TN 275 FM
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	230 V	230 V
Max. continuous operating a.c. voltage U_C	275 V	275 V
Nominal discharge current (8/20 μ s) I_n	20 kA	20 kA
Max. discharge current (8/20 μ s) I_{max}	40 kA	40 kA
Voltage protection level U_p	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level for 5 kA U_p	≤ 1 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	50 kA _{rms}	50 kA _{rms}
Temporary overvoltage (TOV) U_T	335 V / 5 sec.	335 V / 5 sec.
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	2 mods., DIN 43880	2 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DG M TN 275	DG M TN 275 FM
Part No.	952 200	952 205
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® modular

Varistor-based protection module

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

Type	PU pc(s)	Part No.
DG MOD 275	1	952 010

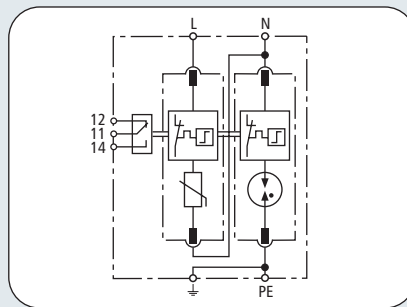


DEHNguard® modular

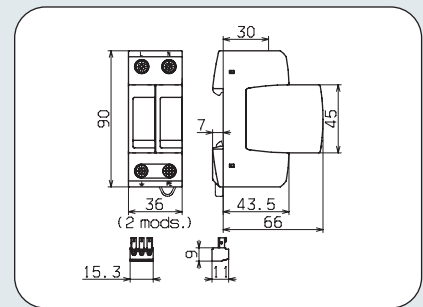
DEHNguard M TT 2P ... (FM)

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 2



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



Dimension drawing DG M TT 2P ... FM

DG M TT 2P ... (FM): Modular surge arrester for use in single-phase 230 V TT and TN systems ("1+1" circuit)

	DG M TT 2P 275	DG M TT 2P 275 FM
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	230 V	230 V
Max. continuous operating a.c. voltage [L-N] U_C	275 V	275 V
Max. continuous operating a.c. voltage [N-PE] U_C	255 V	255 V
Nominal discharge current (8/20 μ s) I_n	20 kA	20 kA
Max. discharge current (8/20 μ s) I_{max}	40 kA	40 kA
Lightning impulse current (10/350 μ s) [N-PE] I_{imp}	12 kA	12 kA
Voltage protection level [L-N] U_p	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level [L-N] for 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	125 A gL/gG	125 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	50 kA _{rms}	50 kA _{rms}
Temporary overvoltage (TOV) [L-N] U_T	335 V / 5 sec.	335 V / 5 sec.
Temporary overvoltage (TOV) [N-PE] U_T	1200 V / 200 ms	1200 V / 200 ms
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	2 mods., DIN 43880	2 mods., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DG M TT 2P 275	DG M TT 2P 275 FM
Part No.	952 110	952 115
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® modular



Varistor-based protection module

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

Type	PU pc(s)	Part No.
DG MOD 275	1	952 010

Accessory Part for DEHNguard® modular



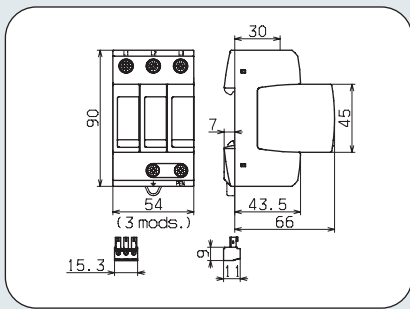
N-PE Spark-gap-based protection module

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

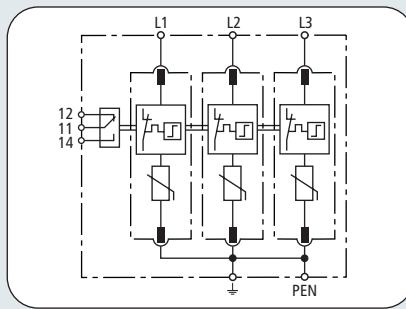
Type	PU pc(s)	Part No.
DG MOD NPE	1	952 050

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 2

DEHNguard® modular DEHNguard M WE ... (FM)



Dimension drawing DG M WE ... FM



Basic circuit diagram DG M WE ... FM



DG M WE ... (FM): 3-pole modular surge arrester for use in wind turbines

	DG M WE 600	DG M WE 600 FM
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	600 V	600 V
Max. continuous operating a.c. voltage U_C	600 V	600 V
Rated voltage of varistor 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 for 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	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) U_T	900 V / 5 sec.	900 V / 5 sec.
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	3 mods., DIN 43880	3 mods., DIN 43880
Approvals, Certifications	KEMA, UL, VdS	KEMA, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DG M WE 600	DG M WE 600 FM
Part No.	952 302	952 307
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® modular

Varistor-based protection module

DG MOD 750: Varistor-based protection module for DEHNguard M WE ... and DEHNguard S WE ... with rated varistor voltage $U_{mov} = 750$ V a.c.

Type	PU pc(s)	Part No.
DG MOD 750	1	952 017



DEHNguard® S / DEHNguard® S FM**Single-pole pluggable surge arrester**

- Surge arrester for universal use, consisting of a base element and plug-in protection module
- High discharge capacity due to powerful zinc oxide varistor
- High reliability due to "Thermo Dynamic Control" SPD monitoring device
- Energy-coordinated within the Red/Line product family
- Operating state/fault indication by mark in the inspection window
- Small (modular) design according to DIN 43880
- Multifunctional terminals for connecting conductors and busbars
- Allows for easy replacing of protection modules due to module locking system with releasing button
- Tested for vibration- and shock-proofness according to EN 60068-2

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

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

The universal features characterise the single-pole devices of the DEHNguard S product family. Whether used as a single device or in combination with other devices – DEHNguard S surge arresters always provide the right protective circuit. The modern Red/Line family design and its universal features ensure safety and easy application for the user. The module releasing button also characterises the devices of the DEHNguard S series, like the approved Thermo Dynamic Control SPD monitoring device with dual tripping performance.

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

The module locking system, which is unique for use with surge protective devices, fixes the protection module to the base part. Neither vibrations during transport nor the enormous forces of discharge currents can loosen them. And still, the modules can be easily replaced without tools, if necessary. This is ensured by the user-friendly releasing button of the protection modules.

In order to avoid any wrong supplying by the installer or user when replacing the protection modules, every base part and protection module has a mechanical coding integrated by the manufacturer.

POWER SUPPLY SYSTEMS**SURGE ARRESTERS – TYPE 2**

SPD Type 2 according to EN 61643-11
SPD Class II according to IEC 61643-1



For protecting low-voltage consumer's installations against surges. For use in the lightning protection zones concept at boundaries $O_B - 1$ and higher.

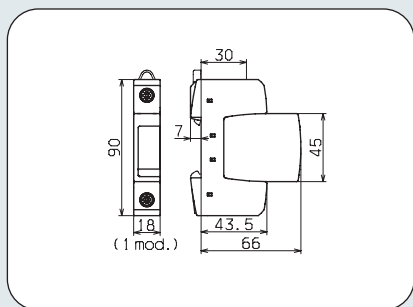
Like with all DEHNguard surge arresters, the users of DEHNguard S can rely on the dual Thermo Dynamic Control SPD monitoring device. It provides maximum reliability of the devices, even under unfavourable environmental conditions. The visual indicator shows the operating state of DEHNguard S with green and red marks. Apart from the standard visual indicator, DEHNguard S ... FM has a 3-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact, according to circuit concept. The DEHNguard S surge arresters are supplied with multifunctional terminals for connecting conductors and busbars. This allows for easy wiring in connection with other DINrail mountable devices. A series connection according to IEC 60364-5-53, which is optimal for protection, can therefore be performed in many applications.



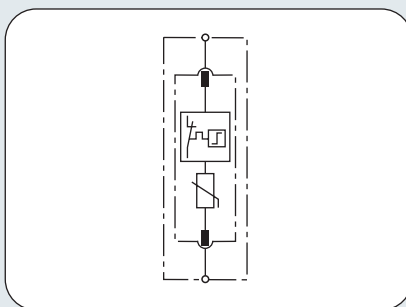
POWER SUPPLY SYSTEMS
SURGE ARRESTERS – TYPE 2

DEHNguard® S / DEHNguard® S FM

DEHNguard S ...



Dimension drawing DG S ...



Basic circuit diagram DG S ...



DG S ...: Single-pole pluggable surge arrester consisting of a base part and plug-in protection module

	DG S 48	DG S 75	DG S 150	DG S 275	DG S 320	DG S 385	DG S 440	DG S 600
SPD according to EN 61643-11	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Class II
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
Nominal discharge current (8/20 μ s) I_n	10 kA	10 kA	15 kA	20 kA	20 kA	20 kA	20 kA	15 kA
Max. discharge current (8/20 μ s) I_{max}	25 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	30 kA
Voltage protection level U_p	≤ 0.3 kV	≤ 0.4 kV	≤ 0.7 kV	≤ 1.25 kV	≤ 1.5 kV	≤ 1.75 kV	≤ 2 kV	≤ 2.5 kV
Voltage protection level for 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	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	—	—	—	335 V / 5 sec.	335 V / 5 sec.	—	580 V / 5 sec.	—
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	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red	green / red	green / red	green / red	green / red	green / red	green / red
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 rail according to EN 60715							
Enclosure material	red thermoplastic, UL 94 V-0							
Degree of protection	IP 20							
Dimension	1 mod., DIN 43880							
Approvals, Certifications	KEMA, VDE, UL, VdS							

Ordering information	NEW							
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
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® S / DEHNguard® S FM

Varistor-based protection module

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

Type	PU pc(s)	Part No.
DG MOD 48	1	952 018
DG MOD 75	1	952 011
DG MOD 150	1	952 012
DG MOD 275	1	952 010
DG MOD 320	1	952 013
DG MOD 385	1	952 014
DG MOD 440	1	952 015
DG MOD 600	1	952 016

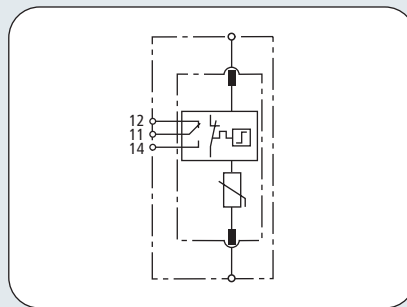
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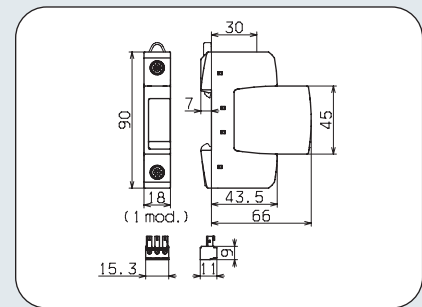
DEHNguard® S / DEHNguard® S FM

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 2

DEHNguard S ... FM



Basic circuit diagram DG S ... FM



Dimension drawing DG S ... FM

DG S ... FM: Single-pole pluggable surge arrester consisting of a base part and plug-in protection module; with floating remote signalling contact

	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
SPD according to EN 61643-11	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Class II
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
Nominal discharge current (8/20 μ s) I_n	10 kA	10 kA	15 kA	20 kA	20 kA	20 kA	20 kA	15 kA
Max. discharge current (8/20 μ s) I_{max}	25 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	30 kA
Voltage protection level U_p	≤ 0.3 kV	≤ 0.4 kV	≤ 0.7 kV	≤ 1.25 kV	≤ 1.5 kV	≤ 1.75 kV	≤ 2 kV	≤ 2.5 kV
Voltage protection level for 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	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	—	—	—	335 V / 5 sec.	335 V / 5 sec.	—	580 V / 5 sec.	—
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	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red	green / red	green / red	green / red	green / red	green / red	green / red
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 rail according to EN 60715							
Enclosure material	red thermoplastic, UL 94 V-0							
Degree of protection	IP 20							
Dimension	1 mod., DIN 43880							
Approvals, Certifications	—							
Approvals, Certifications	KEMA, VDE, UL, VdS							
Type of remote signalling contact	changeover contact							
Switching capacity a.c.	250 V/0.5 A							
Switching capacity d.c.	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							

Ordering information								
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.	NEW 952 098	952 091	952 092	952 090	952 093	952 094	952 095	952 096
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® S / DEHNguard® S FM

Varistor-based protection module

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

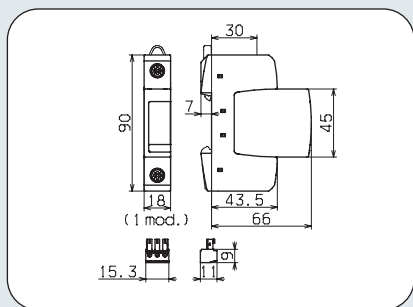
NEW



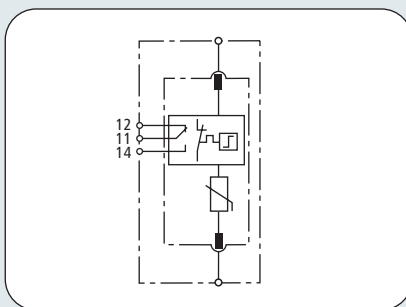
Type	PU pc(s)	Part No.
DG MOD 48	1	952 018
DG MOD 75	1	952 011
DG MOD 150	1	952 012
DG MOD 275	1	952 010
DG MOD 320	1	952 013
DG MOD 385	1	952 014
DG MOD 440	1	952 015
DG MOD 600	1	952 016

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 2

DEHNguard® S / DEHNguard® S FM DEHNguard S WE 600 (FM)



Dimension drawing DG S WE 600 FM



Basic circuit diagram DG S WE 600 FM



DG S WE 600 (FM): Single-pole pluggable surge arrester with rated varistor voltage of $U_{mov} = 750$ a.c., consisting of base part and plug-in protection module; available with floating remote signalling contact

	DG S WE 600	DG S WE 600 FM
SPD according to EN 61643-11	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II
Max. continuous operating a.c. voltage U_c	600 V	600 V
Max. continuous operating d.c. voltage U_c	600 V	600 V
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 for 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	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) U_T	900 V / 5 sec.	900 V / 5 sec.
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	1 mod., DIN 43880	1 mod., DIN 43880
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DG S WE 600	DG S WE 600 FM
Part No.	952 077	952 097
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® S / DEHNguard® S FM

DEHNguard M (S) WE Varistor-based protection module

DG MOD 750: Varistor-based protection module for DEHNguard M WE ... and DEHNguard S WE ... with rated varistor voltage $U_{mov} = 750$ V a.c.

Type	PU pc(s)	Part No.
DG MOD 750	1	952 017



DEHNgap C S

N-PE Surge Arrester

- Especially for use in TT systems in "3+1" and "1+1" circuits according to IEC 60364-5-53 between neutral conductor N and protective conductor PE
- High discharge capacity
- Two-part unit, consisting of a base part and spark-gap-based plug-in protection module
- Energy-coordinated within the Red/Line product family
- Operating state/fault indication by mark in the inspection window
- With remote signalling contact for SPD monitoring device
- Allows for easy replacing of protection modules without tools due to module releasing button
- Tested for vibration- and shock-proofness 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 arrester DEHNgap C S is the perfect addition to single-pole DEHNguard S surge protective devices. Being a total current arrester between neutral conductor and protective conductor in TT systems, its function is to ensure the fulfilling of the requirements for protection of persons and material assets in so-called "3+1" and "1+1" circuits.

With the modern Red/Line design, DEHNgap C S provides safety and performance just as the DEHNguard S devices. The module locking system, which is unique for use with surge protective devices, combines the spark-gap-based module and base part to a powerful unit. Neither vibrations during transport nor the enormous forces of discharge currents can loosen the protection module. And still, the protection modules can be easily replaced without tools, if necessary. This is ensured by the module releasing button of the protection module. The mechanical coding integrated by the manufacturer at the module and base part prevents any wrong supplying by the installer or user.



For protecting low-voltage consumer's installations against surges. For use according to the lightning protection zones concept at boundaries $O_B - 1$ and higher.

The monitoring of the arrester temperature and an integrated disconnect, which is connected in series to the surge arrester, further increase the safety of DEHNgap C S.

The visual indicator shows readiness for operation of DEHNgap C S with a green and red mark.

Apart from the standard visual indicator, DEHNgap C S ... FM provides a 3-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact, according to circuit concept. The N-PE surge arrester DEHNgap C S provides multifunctional terminals for connecting conductors and busbars. This allows for easy wiring with further DIN rail mountable devices. A series connection according to IEC 60364-5-53, which is optimal for protection, can therefore be performed in many applications.

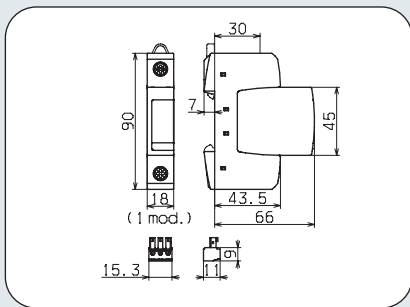
POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 2

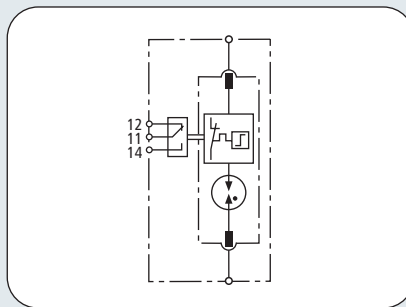
SPD Type 2 according to EN 61643-11
SPD Class II according to IEC 61643-1

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 2

DEHNgap C S DEHNgap C S (FM)



Dimension drawing DGP C S FM



Basic circuit diagram DGP C S FM



DGP C S (FM): N-PE Surge arrester

	DGP C S	DGP C S FM
SPD according to EN 61643-11	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II
Max. continuous operating a.c. voltage U_c	255 V	255 V
Nominal discharge current (8/20 μ s) I_n	20 kA	20 kA
Max. discharge current (8/20 μ s) I_{max}	40 kA	40 kA
Follow current extinguishing capability I_{fl}	100 A _{rms}	100 A _{rms}
Lightning impulse current (10/350 μ s) I_{imp}	12 kA	12 kA
Voltage protection level U_p	≤ 1.5 kV	≤ 1.5 kV
Response time t_A	≤ 100 ns	≤ 100 ns
Temporary overvoltage (TOV) U_T	1200 V / 200 ms	1200 V / 200 ms
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	1 mod., DIN 43880	1 mod., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DGP C S	DGP C S FM
Part No.	952 030	952 035
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNgap C S

N-PE Spark-gap-based protection module for DEHNgap C S

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

Type	PU pc(s)	Part No.
DGP C MOD	1	952 060



Protection Module

for DEHNguard® M, ... S and DEHNgap C S

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 2

SPD Type 2 according to EN 61643-11
SPD Class II according to IEC 61643-1

- High discharge capacity due to powerful zinc oxide varistors/spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device
- Energy-coordinated within the Red/Line product family
- Operating state/fault indication by mark in the inspection window
- Allows for easy replacing of protection modules without tools by module locking system with releasing button
- Tested for vibration- and shock-proofness according to EN 60068-2



For protecting low-voltage consumer's installations against surges. For use according to the lightning protection zones concept at boundaries $O_B - 1$ and higher.

- DEHNguard MOD ...: Varistor-based protection module for DEHNguard M ... and DEHNguard S
- DEHNguard MOD 750: Varistor-based protection module for DEHNguard M WE 600 and DEHNguard S WE 600
- DEHNguard MOD NPE: N-PE Spark-gap-based protection module for two- and four-pole DEHNguard M TT ... devices
- DEHNgap C MOD: N-PE Spark-gap-based protection module for single-pole N-PE DEHNgap C S ... surge arresters

The varistor- and spark-gap-based protection modules of the DEHNguard M-, DEHNguard S- and DEHNgap C S devices impress users with their performance and sophistication.

The compact protection modules include the complete protective circuit as well as the monitoring device and disconnecter.

The green mark in the inspection window indicates readiness for operation of the protection modules.

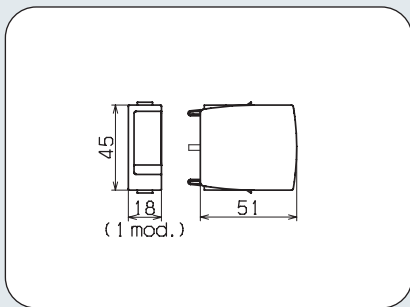
In order to avoid any wrong supplying by the installer or user when replacing the modules, all protection modules are coded mechanically by the manufacturer. For easy replacing of the modules without tools, all protection modules have a user-friendly module releasing button.

POWER SUPPLY SYSTEMS

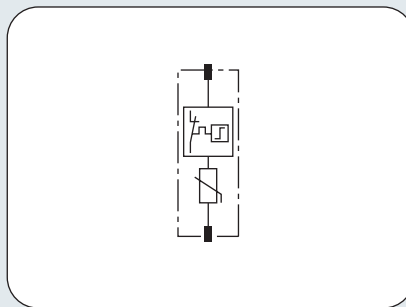
Protection Module for DG M, ... S and DGP C S

SURGE ARRESTERS – TYPE 2

Varistor-based protection module



Dimension drawing DG MOD varistor-based protection module



Basic circuit diagram DG MOD varistor-based protection module

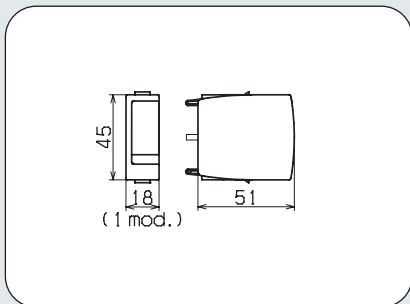


DG MOD ...: Varistor-based protection module for DEHNguard M ... and DEHNguard S ... surge arresters

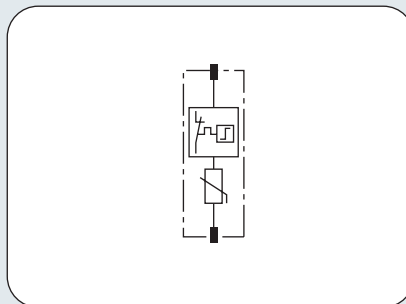
	DG MOD 48	DG MOD 75	DG MOD 150	DG MOD 275	DG MOD 320	DG MOD 385	DG MOD 440	DG MOD 600
Nominal discharge current (8/20 μs) I_n	10 kA	10 kA	15 kA	20 kA	20 kA	20 kA	20 kA	15 kA
Max. discharge current (8/20 μs) I_{max}	25 kA	40 kA	40 kA	40 kA	40 kA	40 kA	40 kA	30 kA
Max. continuous operating a.c. voltage 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

Ordering information								
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
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

DEHNguard M (S) WE Varistor-based protection module



Dimension drawing DG MOD 750 varistor-based protection module



Basic circuit diagram DG MOD 750 varistor-based protection module



NEW

DG MOD 750: Varistor-based protection module for DEHNguard M WE ... and DEHNguard S WE ... with rated varistor voltage $U_{mov} = 750$ V a.c.

DG MOD 750	
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 voltage (varistor) U_{mov}	750 V

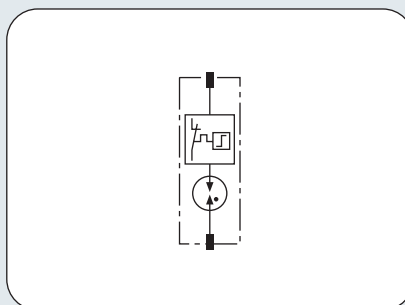
Ordering information	
Type	DG MOD 750
Part No.	952 017
Packing unit	1 pc(s).

Protection Module for DG M, ... S and DGP C S

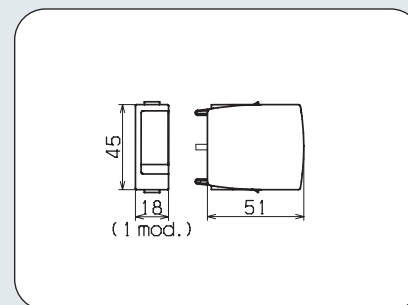
POWER SUPPLY SYSTEMS

N-PE Spark-gap-based protection module for DEHNguard M TT ...

SURGE ARRESTERS – TYPE 2



Basic circuit diagram DG MOD NPE



Dimension drawing DG MOD NPE

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

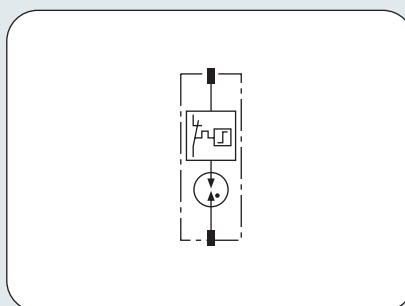
DG MOD NPE

Nominal discharge current (8/20 μ s) I_n	20 kA
Max. discharge current (8/20 μ s) I_{max}	40 kA
Max. continuous operating a.c. voltage U_c	255 V

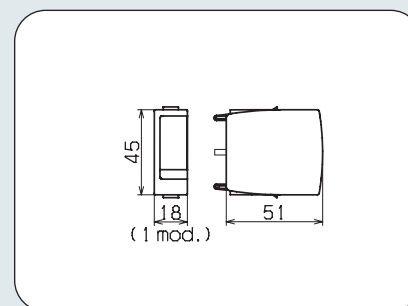
Ordering information

Type	DG MOD NPE
Part No.	952 050
Packing unit	1 pc(s).

N-PE Spark-gap-based protection module for DEHNgap C S



Basic circuit diagram DGP C MOD



Dimension drawing DGP C MOD

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

DGP C MOD

Nominal discharge current (8/20 μ s) I_n	20 kA
Max. discharge current (8/20 μ s) I_{max}	40 kA
Max. continuous operating a.c. voltage U_c	255 V

Ordering information

Type	DGP C MOD
Part No.	952 060
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 2

SPD Type 2 according to EN 61643-11
SPD Class II according to IEC 61643-1



For protecting low-voltage consumer's installations against surges. For use according to the lightning protection zones concept at boundaries $O_B - 1$ and higher.

DEHNGuard TNC H LI: Multipole surge arrester with service life indicator for use in TN-C systems

DEHNGuard TNS H LI: Multipole surge arrester with service life indicator for use in TN-S systems

DEHNGuard TT H LI: Multipole surge arrester with service life indicator for use in TT and TN-S systems ("3+1" circuit)

DEHNGuard T H LI: Single-pole surge arrester with service life indicator

The single- and multipole surge arresters of the DEHNGuard ... H LI family provide maximum safety and easy application and set new standards in surge protection.

With Pro-Active Thermo Control, they are the first "intelligent" surge arresters warning the user against prospective failures of the surge protection system. With this technology, the brandnew SPD monitoring device meets the more and more increasing requirements on the availability of electrical systems in industrial, commercial and private environments. The 3-stage visual <GREEN YELLOW RED> indicator coupled with a floating changeover contact for remote signalling, always informs on the operating state of the SPD. If there is a risk of prospective irreversible damage to the structure of the varistor due to an increased energy load, the yellow indicator and activated remote signalling device recommend the user to replace the surge protection module – before the installation is unprotected!

Like the well-known DEHNGuard family, the application-based type designation makes the choice of products of the complete prewired units considerably easier. Less installation errors and saving of installation work at the same time are unbeatable advantages for the customer. Both the

- Complete prewired device for use in common system configurations, consisting of a base part and plug-in protection modules
- Clear operating state indication due to 3-stage visual service life indicator <GREEN-YELLOW-RED> with linked remote signalling device
- "Pro-Active Thermo Control" SPD monitoring device
- Requests the user in due time to replace the protection module at risk of prospective overloads
- Energy-coordinated within the Red/Line product family

triple monitoring device of each circuit with Pro-Active Thermo Control and the coding of the pluggable protection modules integrated by the manufacturer characterise the maximum safety of the devices. Damage caused by wrong subsequent assembly by the installer or the user, is very unlikely.

With DEHNGuard T H LI, the operator is also provided with a single-pole device for universal use.

All types of DEHNGuard ... H LI have a 3-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a make or break contact, according to circuit concept. All surge arresters of the DEHNGuard ... H LI family have multifunctional terminals for connecting conductors and busbars for easy wiring with other DIN rail mountable devices.

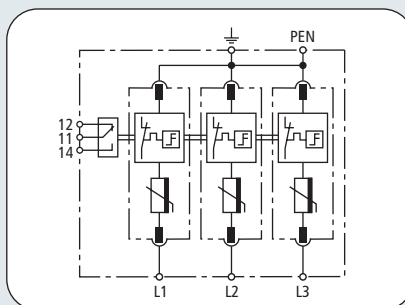


Yellow phase: Replacing of the protection module recommended

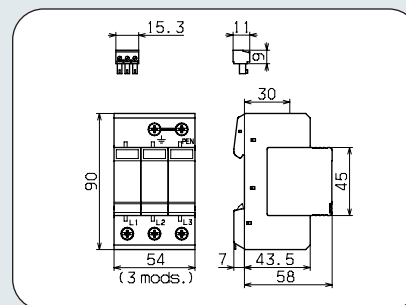
DEHNguard® ... H LI

DEHNguard TNC H ... LI ...

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 2



Basic circuit diagram DG TNC H230 400 LI



Dimension drawing DG TNC H230 400 LI

DG TNC H LI: Multi-pole surge arrester for use in TN-C systems with "Pro-Active Thermo Control" SPD monitoring device with 3-stage visual indicator.

DG TNC H230 400 LI

SPD according to EN 61643-11	Type 2
SPD according to IEC 61643-1	Class II
Nominal a.c. voltage	230/400 V
Max. continuous operating a.c. voltage U_c	275 V
Nominal discharge current (8/20 μ s) I_n	20 kA
Max. discharge current (8/20 μ s) I_{max}	65 kA
Voltage protection level U_p	≤ 1.25 kV
Voltage protection level for 5 kA U_p	≤ 1 kV
Response time t_A	≤ 25 ns
Max. mains-side overcurrent protection	160 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	20 kA _{rms}
Temporary overvoltage (TOV) U_T	335 V / 5 sec.
Operating temperature range	-40°C...+55°C
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 rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IP 20
Dimension	3 mods., DIN 43880
Approvals, Certifications	KEMA
Type of remote signalling contact	changeover contact
Switching capacity a.c.	250 V/0.5 A
Switching capacity d.c.	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
Indication of disconnecter	green-yellow-red

Ordering information

Type	DG TNC H230 400 LI
Part No.	950 160
Packing unit	1 pc(s).

Accessory Part for DEHNguard® ... H LI

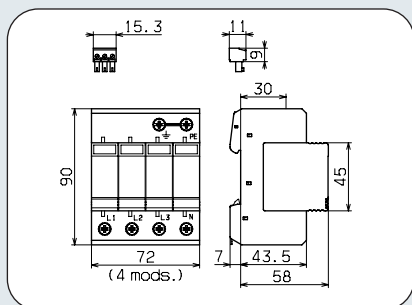


Varistor-based protection module with Pro-Active Thermo Control

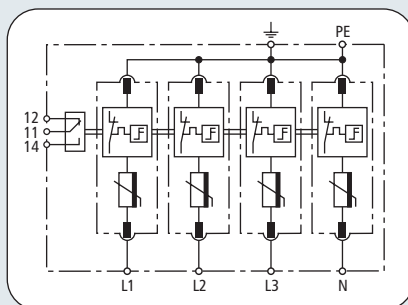
Type	PU pc(s)	Part No.
T H 275 LI	1	950 130

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 2

DEHNguard® ... H LI DEHNguard TNS H LI



Dimension drawing DG TNS H230 400 LI



Basic circuit diagram DG TNS H230 400 LI



DG TNS H LI: Multi-pole surge arrester for use in TN-S systems with "Pro-Active Thermo Control" SPD monitoring device with 3-stage visual indicator

DG TNS H230 400 LI

SPD according to EN 61643-11	Type 2
SPD according to IEC 61643-1	Class II
Nominal a.c. voltage	230/400 V
Max. continuous operating a.c. voltage U_c	275 V
Nominal discharge current (8/20 μ s) I_n	20 kA
Max. discharge current (8/20 μ s) I_{max}	65 kA
Voltage protection level U_p	≤ 1.25 kV
Voltage protection level for 5 kA U_p	≤ 1 kV
Response time t_A	≤ 25 ns
Max. mains-side overcurrent protection	160 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	20 kA _{rms}
Temporary overvoltage (TOV) U_T	335 V / 5 sec.
Operating temperature range	-40°C...+55°C
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 rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IP 20
Dimension	4 mods., DIN 43880
Approvals, Certifications	KEMA
Type of remote signalling contact	changeover contact
Switching capacity a.c.	250 V/0.5 A
Switching capacity d.c.	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
Indication of disconnecter	green-yellow-red

Ordering information

Type	DG TNS H230 400 LI
Part No.	950 170
Packing unit	1 pc(s).

Accessory Part for DEHNguard® ... H LI

Varistor-based protection module with Pro-Active Thermo Control

Type	PU pc(s)	Part No.
T H 275 LI	1	950 130

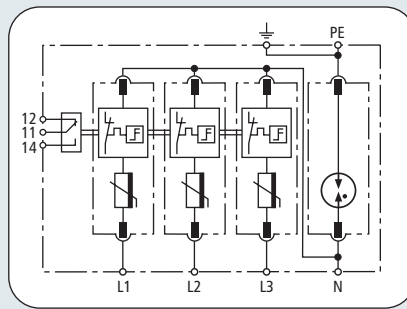


DEHNguard® ... H LI

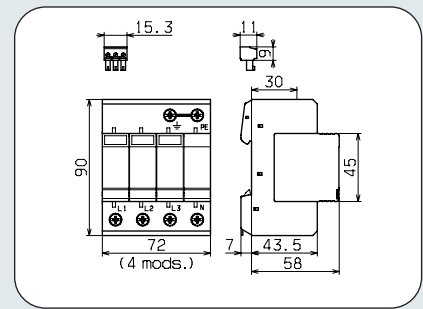
DEHNguard TT H LI

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 2



Basic circuit diagram DG TT H230 400 LI



Dimension drawing DG TT H230 400 LI

DG TT H LI: Multipole surge arrester with "Pro-Active Thermo Control" SPD monitoring device with 3-stage visual indicator for use in TT and TN-S systems ("3+1" circuit)

DG TT H230 400 LI

DG TT H230 400 LI385

SPD according to EN 61643-11	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II
Nominal a.c. voltage	230/400 V	230/400 V
Max. continuous operating a.c. voltage [L-N]	275 V	385 V
Max. continuous operating a.c. voltage [N-PE]	255 V	255 V
Nominal discharge current (8/20 µs) [L-N]	20 kA	20 kA
Nominal discharge current (8/20 µs) [N-PE]	40 kA	40 kA
Max. discharge current (8/20 µs) [N-PE]	65 kA	65 kA
Lightning impulse current (10/350 µs) [N-PE]	12 kA	12 kA
Voltage protection level [L-N]	≤ 1.25 kV	≤ 1.75 kV
Voltage protection level [L-N] for 5 kA	≤ 1 kV	≤ 1.35 kV
Voltage protection level [N-PE]	≤ 1.5 kV	≤ 1.5 kV
Follow current extinguishing capability [N-PE]	100 A _{rms}	100 A _{rms}
Response time [L-N]	≤ 25 ns	≤ 25 ns
Response time [N-PE]	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	160 A gL/gG	160 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	20 kA _{rms}	20 kA _{rms}
Temporary overvoltage (TOV) [L-N]	335 V / 5 sec.	—
Temporary overvoltage (TOV) [N-PE]	1200 V / 200 ms	—
Operating temperature range	-40°C...+55°C	-40°C...+55°C
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	4 mods., DIN 43880	4 mods., DIN 43880
Approvals, Certifications	KEMA	KEMA
Type of remote signalling contact	changeover contact	changeover contact
Switching capacity a.c.	250 V/0.5 A	250 V/0.5 A
Switching capacity d.c.	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
Indication of disconnecter	green-yellow-red	green-yellow-red

Ordering information

Type	DG TT H230 400 LI	DG TT H230 400 LI385
Part No.	950 150	950 151
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® ... H LI

Varistor-based protection module with Pro-Active Thermo Control



Type	PU pc(s)	Part No.
T H 275 LI	1	950 130
T H 385 LI	1	950 131

Accessory Part for DEHNguard® ... H LI

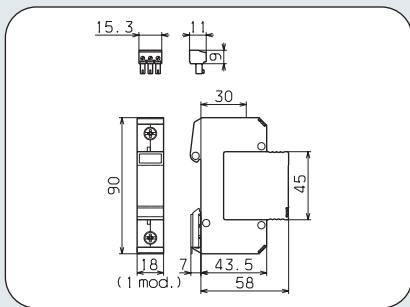


N-PE Spark-gap-based protection module

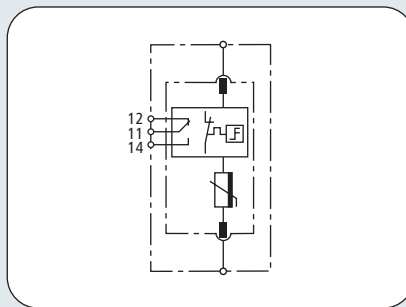
Type	PU pc(s)	Part No.
T C H 255	1	900 216

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 2

DEHNguard® ... H LI DEHNguard T H LI



Dimension drawing DG T H ... LI



Basic circuit diagram DG T H ... LI



DG T H LI: Single-pole, pluggable surge arrester with "Pro-Active Thermo Control" SPD monitoring device with 3-stage visual indicator

	DG T H 275 LI	DG T H 385 LI
SPD according to EN 61643-11	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II
Nominal a.c. voltage	230 V	230 V
Max. continuous operating a.c. voltage U_c	275 V	385 V
Nominal discharge current (8/20 μ s) I_n	20 kA	20 kA
Max. discharge current (8/20 μ s) I_{max}	65 kA	65 kA
Voltage protection level U_p	≤ 1.25 kV	≤ 1.75 kV
Voltage protection level for 5 kA U_p	≤ 1 kV	≤ 1.35 kV
Response time t_A	≤ 25 ns	≤ 25 ns
Max. mains-side overcurrent protection	160 A gL/gG	160 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	20 kA _{rms}	20 kA _{rms}
Temporary overvoltage (TOV) U_T	335 V / 5 sec.	—
Operating temperature range	-40°C...+55°C	-40°C...+55°C
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	1 mods., DIN 43880	1 mods., DIN 43880
Approvals, Certifications	KEMA	KEMA
Type of remote signalling contact	changeover contact	changeover contact
Switching capacity a.c.	250 V/0.5 A	250 V/0.5 A
Switching capacity d.c.	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
Indication of disconnecter	green-yellow-red	green-yellow-red
Ordering information		
Type	DG T H 275 LI	DG T H 385 LI
Part No.	950 120	950 121
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® ... H LI

Varistor-based protection module with Pro-Active Thermo Control

Type	PU pc(s)	Part No.
T H 275 LI	1	950 130
T H 385 LI	1	950 131



DEHNguard® PV ... SCP (FM)**Single-pole SPD with short-circuiting device
for use in photovoltaic installations**

- For use in all PV installations in accordance with IEC 60364-7-12
- High discharge capacity due to powerful zinc oxide varistor
- No fire risk at overloads due to combined disconnection and short-circuiting device
- Indication of overloads by red mark in the inspection window and remote signalling

POWER SUPPLY SYSTEMS**SURGE ARRESTERS – TYPE 2**

"SPD Type 2" classification according to EN 61643-11
"SPD Class II" classification according to IEC 61643-1



For protecting photovoltaic installations against surges. For use in accordance with IEC 60364-7-712:2002-05 (Installation of photovoltaic power-supply systems).

DG PV ... SCP: Single-pole surge arrester, with combined disconnection and short-circuiting device for use in photovoltaic generator circuits

DG PV ... SCP FM: With remote signalling contact for monitoring device (floating changeover contact)

The single-pole surge arresters type DEHNguard PV ... SCP (FM) are designed especially for application in photovoltaic power supply systems.



Even the external design of the surge arresters (2 modules in width) is completely adapted to the safety requirements of modern photovoltaic installations with their high system voltages.

Also the internal design of the SPDs Type 2, i.e. DEHNguard PV ... SCP (FM), sets new safety standards. The approved dual "Thermo Dynamic Control" monitoring and disconnection device was combined with an additional short-circuiting device. This completely new kind of SPD moni-

toring ensures a safe operating state, even in case of overloads on the devices, e.g. due to an insulation fault in the photovoltaic generator circuit, without causing a fire risk to the installation. The combined disconnection and short-circuiting device is capable of conducting the indicated short-circuit current independently until the maintenance of the PV installation.

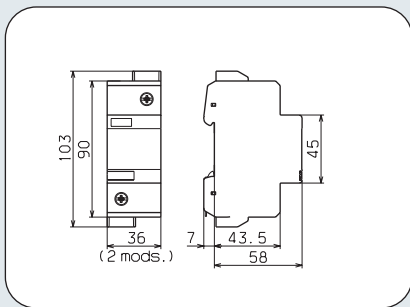
Apart from the standard visual indication with green and red marking, type DEHNguard PV ... SCP FM provides a three-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact, according to circuit concept.



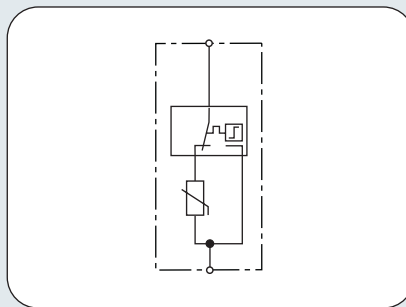
POWER SUPPLY SYSTEMS
SURGE ARRESTERS – TYPE 2

DEHNGuard® PV ... SCP (FM)

DEHNGuard PV ... SCP



Dimension drawing DG PV ... SCP

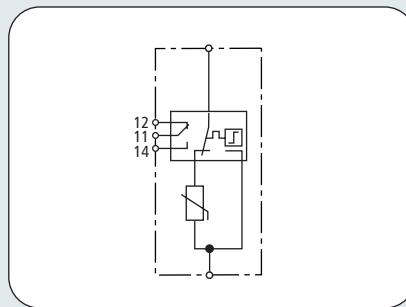


Basic circuit diagram DG PV ... SCP

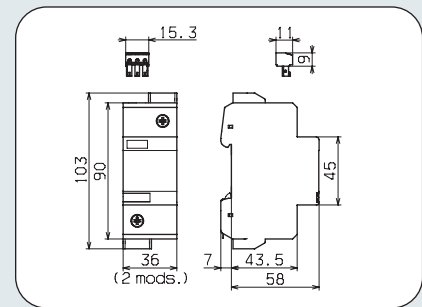


DG PV ... SCP: Single-pole surge arrester, with combined disconnection and short-circuiting device for use in photovoltaic generator circuits

	DG PV 500 SCP	DG PV 700 SCP	DG PV 1200 SCP
SPD classification according to EN 61643-11	Type 2	Type 2	Type 2
SPD classification according to IEC 61643-1	Class II	Class II	Class II
PV voltage of earth-free PV systems (2 x DG PV ...) $U_{OC\ STC}$	$\leq 1000\text{ V}$	$\leq 1400\text{ V}$	$\leq 1400\text{ V}$
PV voltage of functionally earthed PV systems (thin film) $U_{OC\ STC}$	$\leq 500\text{ V}$	$\leq 700\text{ V}$	$\leq 1200\text{ V}$
Max. continuous operating d.c. voltage U_c	500 V	700 V	1200 V
Nominal discharge current (8/20 μs) I_n	20 kA	15 kA	15 kA
Max. discharge current (8/20 μs) I_{max}	30 kA	30 kA	30 kA
Voltage protection level for I_n U_p	$\leq 2\text{ kV}$	$\leq 2.5\text{ kV}$	$\leq 4.2\text{ kV}$
Voltage protection level for 5 kA U_p	$\leq 1.7\text{ kV}$	$\leq 2\text{ kV}$	$\leq 3.5\text{ kV}$
Response time t_A	$\leq 25\text{ ns}$	$\leq 25\text{ ns}$	$\leq 25\text{ ns}$
Permanent short-circuit withstand capability I_K	80 A d.c.	80 A d.c.	80 A d.c.
Reverse current withstand capability I_{pmax}	50 kA / 5 ms	50 kA / 5 ms	50 kA / 5 ms
Max. protection of main d.c. line at the inverter	315 A gR	315 A gR	315 A gR
Operating temperature range T_U	-40°C...+65°C	-40°C...+65°C	-40°C...+65°C
Operating state/fault indication	green / red	green / red	green/red
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 according to EN 60715	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20	IP 20
Dimension	2 mods., DIN 43880	2 mods., DIN 43880	2 mods., DIN 43880
Ordering information			
Type	DG PV 500 SCP	DG PV 700 SCP	DG PV 1200 SCP
Part No.	950 500	950 501	950 502
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).

DEHNguard® PV ... SCP (FM)
DEHNguard PV ... SCP FM
POWER SUPPLY SYSTEMS
SURGE ARRESTERS – TYPE 2
NEW


Basic circuit diagram DG PV ... SCP FM



Dimension drawing DG PV ... SCP FM

DG PV ... SCP FM: Single-pole surge arrester, with combined disconnection and short-circuiting device for use in photovoltaic generator circuits; with floating remote signalling contact

	DG PV 500 SCP FM	DG PV 700 SCP FM	DG PV 1200 SCP FM
SPD classification according to EN 61643-11	Type 2	Type 2	Type 2
SPD classification according to IEC 61643-1	Class II	Class II	Class II
PV voltage of earth-free PV systems (2 x DG PV ...) $U_{OC\ STC}$	$\leq 1000\text{ V}$	$\leq 1400\text{ V}$	$\leq 1400\text{ V}$
PV voltage of functionally earthed PV systems (thin film) $U_{OC\ STC}$	$\leq 500\text{ V}$	$\leq 700\text{ V}$	$\leq 1200\text{ V}$
Max. continuous operating d.c. voltage U_C	500 V	700 V	1200 V
Nominal discharge current (8/20 μs) I_n	20 kA	15 kA	15 kA
Max. discharge current (8/20 μs) I_{max}	30 kA	30 kA	30 kA
Voltage protection level for I_n U_p	$\leq 2\text{ kV}$	$\leq 2.5\text{ kV}$	$\leq 4.2\text{ kV}$
Voltage protection level for 5 kA U_p	$\leq 1.7\text{ kV}$	$\leq 2\text{ kV}$	$\leq 3.5\text{ kV}$
Response time t_A	$\leq 25\text{ ns}$	$\leq 25\text{ ns}$	$\leq 25\text{ ns}$
Permanent short-circuit withstand capability I_K	80 A d.c.	80 A d.c.	80 A d.c.
Reverse current withstand capability I_{pmax}	50 kA / 5 ms	50 kA / 5 ms	50 kA / 5 ms
Max. protection of main d.c. line at the inverter	315 A gR	315 A gR	315 A gR
Operating temperature range T_U	-40°C...+65°C	-40°C...+65°C	-40°C...+65°C
Operating state/fault indication	green / red	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20	IP 20
Dimension	2 mods., DIN 43880	2 mods., DIN 43880	2 mods., DIN 43880
Type of remote signalling contact	changeover contact	changeover contact	changeover contact
Switching capacity a.c.	250 V/0.5 A	250 V/0.5 A	250 V/0.5 A
Switching capacity d.c.	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
Ordering information			
Type	DG PV 500 SCP FM	DG PV 700 SCP FM	DG PV 1200 SCP FM
Part No.	950 505	950 506	950 507
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).

POWER SUPPLY SYSTEMS**SURGE ARRESTERS – TYPE 2**

"SPD Type 2" classification according to EN 61643-11
"SPD Class II" classification according to IEC 61643-1



For protecting low voltage consumer's installations against surges. For use according to IEC 60364-7-712:2002-05 (Installation of photovoltaic systems).

DEHNgard Y PV 1000: Complete unit for use in photovoltaic systems with $U_{OC\ STC} \leq 1000\text{ V d.c.}$

DEHNgard Y PV 1000 FM: With remote signalling contact for monitoring device (floating changeover contact)

The multipole surge arresters DEHNgard Y PV 1000 (FM) pass approved DEHNgard safety to the field of photovoltaic power generating plants.

Both the dual monitoring device for each circuit with Thermo Dynamic Control and the code of the plug-in protection modules integrated by the manufacturer characterise the high reliability of the equipment. Damage caused by subsequent installation errors of the installer or operator is very unlikely. Apart from the surface temperature of the high-capacity varistor, the Thermo Dynamic Control monitoring and disconnecting device also evaluates the intensity of the discharge currents. This ensures that the SPD will not change to a safe and isolated state only in case of "standard" overloads but also remain safe if the device parameters are considerably exceeded.

The fault-resistant Y circuit with 3 high-capacity varistors avoids damage to the surge protection in case of isolation faults in the circuit of the photovoltaic generator.

DEHNgard® Y PV**Multipole surge arrester for photovoltaic systems**

- Complete prewired unit for use in photovoltaic installations, consisting of a base part and plug-in protection modules
- Fault-resistant Y circuit with 3 high-capacity varistors, avoids damage to the surge protection in case of insulation faults in the generator circuit
- For use in accordance with IEC 60364-7-712 (Installation of photovoltaic systems)
- High discharge capacity due to powerful zinc oxide varistors
- High reliability due to "Thermo Dynamic Control" disconnecter
- Fault indication by red mark in the inspection window

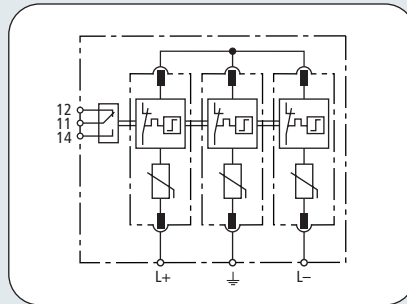
Apart from the standard visual indication with green and red marks, type DEHNgard Y PV 1000 FM provides a 3-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact, according to circuit concept. The surge arresters of the DEHNgard Y PV product family provide multifunctional terminals for connecting conductors and busbars for easy wiring with other DIN rail mounted devices.



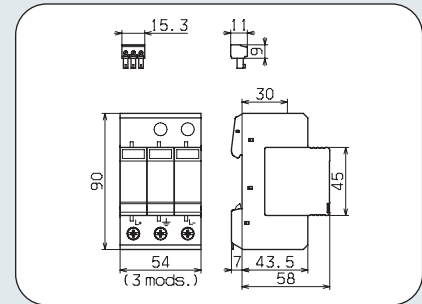
DEHNguard® Y PV

DEHNguard Y PV (FM)

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 2



Basic circuit diagram DG Y PV 1000 FM



Dimension drawing DG Y PV 1000 (FM)

DG Y PV 1000 Complete circuit for use in photovoltaic installations with $U_{OC\ STC} \leq 1000\text{ V d.c.}$

	DG Y PV 1000	DG Y PV 1000 FM
SPD classification according to EN 61643-11	Type 2	Type 2
SPD classification according to IEC 61643-1	Class II	Class II
PV voltage according to IEC 60364-7-712 $U_{OC\ STC}$	$\leq 1000\text{ V}$	$\leq 1000\text{ V}$
Max. continuous operating d.c. voltage [(L+/L-) → PE] U_c	500 V	500 V
Nominal discharge current (8/20 μs) I_n	20 kA	20 kA
Max. discharge current (8/20 μs) I_{max}	40 kA	40 kA
Voltage protection level U_p	$\leq 4\text{ kV}$	$\leq 4\text{ kV}$
Voltage protection level for 5 kA U_p	$\leq 3.5\text{ kV}$	$\leq 3.5\text{ kV}$
Response time t_A	$\leq 25\text{ ns}$	$\leq 25\text{ ns}$
Operating temperature range T_U	$-40^\circ\text{C} \dots +80^\circ\text{C}$	$-40^\circ\text{C} \dots +80^\circ\text{C}$
Operating state/fault indication	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	3 mods., DIN 43880	3 mods., DIN 43880
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.1 A
Switching capacity d.c.	—	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
Ordering information		
Type	DG Y PV 1000	DG Y PV 1000 FM
Part No.	900 517	900 547
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® Y PV



Varistor-based protection module with Thermo Dynamic Control

Type	PU pc(s)	Part No.
T 440	1	900 675

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 2

SPD Type 2 according to EN 61643-11
SPD Class II according to IEC 61643-1



For protecting low voltage consumer's installations against surges. For use in the lightning protection zones concept at boundaries $O_B - 1$ and higher.

DEHNGuard 1000: Single-pole compact surge arrester with rated voltage $U_C = 1000$ V a.c.

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

For rated voltages of 1000 V, the user is provided with the compact and powerful DEHNGuard ... 1000 (FM) surge arresters. Being single-pole devices, these surge arresters can be used for a wide range of applications.

It is not only the flexibility that characterises the DEHNGuard family, but especially the striking performance parameters, setting trends worldwide: High discharge capacity, low voltage protection level and dual "Thermo Dynamic Control" monitoring and disconnecting device stand for maximum reliability.

Especially the DEHN-specific "Thermo Dynamic Control" disconnecter ensures that the arresters change to a safe isolated operating state even in case of extreme overloads. Apart from the surface temperature of the high-capacity varistor, also the intensity of the discharge current is evaluated.

Also the external design of the device is adapted completely to the field of application. DEHNGuard 1000 (FM), 2 mods. wide, fulfils entirely all mechanical requirements resulting from the high system voltages.

DEHNGuard® 1000 (FM)

Single-pole, compact surge arrester

- High discharge capacity due to powerful zinc oxide varistor
- Quick response
- High reliability due to "Thermo Dynamic Control" disconnecter
- Fault indication by red mark in the inspection window
- Especially designed for high system voltages

Apart from the standard visual indicator with green and red marks, the DEHNGuard ... FM devices have a 3-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact, according to circuit concept.

For earth-side installation of DEHNGuard (FM) devices, earthing brackets type EB DG 1000 1 3 and EB 1 4 9 can be used.

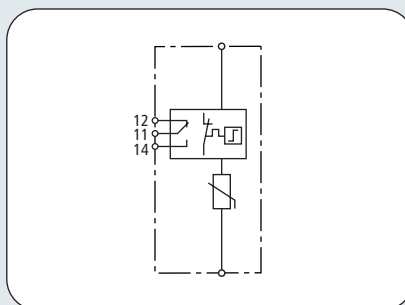


DEHNguard® 1000 (FM)

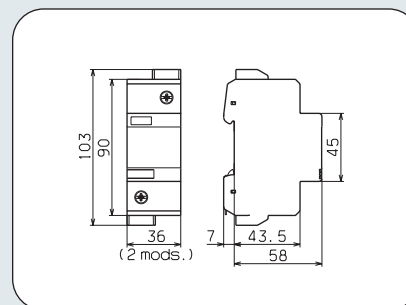
DEHNguard 1000 (FM)

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 2



Basic circuit diagram DG 1000 FM



Dimension drawing DG 1000 FM

DG 1000 (FM): Single-pole compact surge arrester with rated voltage $U_C = 1000$ V a.c.

	DG 1000	DG 1000 FM
SPD according to EN 61643-11	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II
Max. continuous operating a.c. voltage U_C	1000 V	1000 V
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 for 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 for $U \leq 690$ V a.c.	125 A gL/gG	125 A gL/gG
Short circuit withstand capability for max. backup fuse	25 kA _{rms}	25 kA _{rms}
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red
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 according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	2 mods., DIN 43880	2 mods., DIN 43880
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DG 1000	DG 1000 FM
Part No.	950 102	950 112
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNguard® 1000 (FM)

DG Earthing clip, 3-pole, single-phase

For earth-side bridging of 3 or 4 DEHNguard 1000 (FM) surge arresters



Type	Dimension	Terminal	PU pc(s)	Part No.
EB DG 1000 1 3	34 x 112 x 3 mm	up to 25 mm ²	1	900 411

Accessory Part for DEHNguard® 1000 (FM)

Earthing Clip, 4-pole, single-phase

Earthing clip for earth-side bridging of e.g. 4 SPDs Type 1 in a 2-module enclosure with multifunctional terminal



Type	Dimension	Nominal cross section	PU pc(s)	Part No.
EB 1 4 9	34 x 148 x 3 mm	up to 25 mm ²	1	900 417

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 2

SPD Type 2 according to EN 61643-11
SPD Class II according to IEC 61643-1



For protecting low voltage consumer's installations against surges. For use in the lightning protection zones concept at boundaries $O_B - 1$ and higher.

DEHNgaurd T ... VA: Two-part unit, consisting of a base part and plug-in protection module

DEHNgaurd T ... VA FM: Two-part unit, consisting of a base part and plug-in protection module; with remote signalling contact for monitoring device (floating changeover contact)

The single-pole DEHNgaurd T ... VA surge arresters complete the approved DEHNgaurd product families. The special series connection of spark gaps and varistor modules opens up new fields of application. For example, DEHNgaurd T ... VA devices provide reliable protection for systems with permanent isolation control.

The multifunctional terminals provide the devices with a nearly unlimited flexibility for connection with each other but also with other DIN rail mounted devices in the same distribution board. It is not only flexibility that characterises the DEHNgaurd T ... VA family but also the striking performance parameters setting trends worldwide:

High discharge capacity, low voltage protection level and the dual Thermo Dynamic Control disconnecter stand for high reliability.

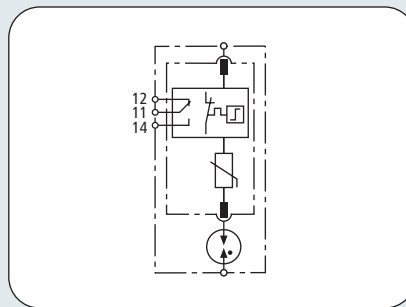
DEHNgaurd® T VA / DEHNgaurd® T VA FM

Varistor-/Spark-gap-based surge arrester

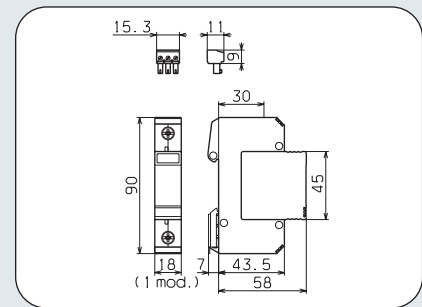
- Two-part unit, consisting of a base part and plug-in protection module
- Powerful zinc oxide varistor, "Thermo Dynamic Control" monitoring device and spark gap in series connection
- Energy-coordinated within the Red/Line product family
- Fault indication by red mark in the inspection window
- Small (modular) design according to DIN 43880
- Multifunctional terminals for connecting conductors and busbars

Especially the DEHN-specific Thermo Dynamic Control disconnecter ensures that the arresters change to a safe isolated operating state, even in case of extreme overloads. In addition to the surface temperature of the high-capacity varistor, the intensity of the discharge current is also evaluated. Apart from the standard visual indicator with green and red marks, DEHNgaurd T VA ... FM devices have a 3-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact, according to circuit concept.



DEHNguard® T VA / DEHNguard® T VA FM
POWER SUPPLY SYSTEMS
DEHNguard T VA (FM)
SURGE ARRESTERS – TYPE 2


Basic circuit diagram DG T ... VA FM



Dimension drawing DG T ... VA FM

DG T ... VA (FM): Single-pole surge arrester with varistor- and spark-gap-based series connection

	DG T 75 VA	DG T 75 VA FM	DG T 275 VA	DG T 275 VA FM
SPD according to EN 61643-11	Type 2	Type 2	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II	Class II	Class II
Max. continuous operating a.c. voltage U_C	75 V	75 V	275 V	275 V
Max. continuous operating d.c. voltage U_C	100 V	100 V	350 V	350 V
Nominal discharge current (8/20 μ s) I_n	10 kA	10 kA	10 kA	10 kA
Max. discharge current (8/20 μ s) I_{max}	20 kA	20 kA	20 kA	20 kA
Voltage protection level U_P	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV	≤ 1.5 kV
Response time t_A	≤ 100 ns	≤ 100 ns	≤ 100 ns	≤ 100 ns
Max. mains-side overcurrent protection	100 A gL/gG	100 A gL/gG	100 A gL/gG	100 A gL/gG
Short circuit withstand capability for max. mains-side overcurrent protection	25 kA _{rms}	25 kA _{rms}	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) U_T	—	—	335 V / 5 sec.	335 V / 5 sec.
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
Cross-sectional area (min.)	1.5 mm ² solid/flexible	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	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	35 mm DIN rail acc. to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20	IP 20	IP 20
Dimension	1 mod., DIN 43880	1 mod., DIN 43880	1 mod., DIN 43880	1 mod., DIN 43880
Type of remote signalling contact	—	changeover contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information				
Type	DG T 75 VA	DG T 75 VA FM	DG T 275 VA	DG T 275 VA FM
Part No.	900 667	900 692	900 659	900 689
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

POWER SUPPLY SYSTEMS

V NH / VA NH

SURGE ARRESTERS – TYPE 2

NH Surge arresters

SPD Type 2 according to EN 61643-11
SPD Class II according to IEC 61643-1



For protecting low voltage consumer's installations against surges. For use in the lightning protection zones concept at boundaries $O_B - 1$ and higher. German patent.

V(A) NH00 280: Surge arrester for use in NH fuse holders, size 00

V(A) NH1 280: Surge arrester for use in NH fuse holders, size 1

V(A) NH00 280 FM: With fault indicator for remote signalling; allows for use of NH fuse holders with microswitch (tripping distance of fault indicator max. 7 mm)

The single-pole V NH and VA NH surge arresters show that surge protective devices have not to be designed for DIN rails or socket outlets only. Being adapted to the conditions at industrial sub-circuit distribution boards, V NH and VA NH devices are designed in form of an NH fuse holder. This allows for easy integration into busbar systems, as often applied in zones belonging to the operators of power supply systems or in industrial installations. Thus, the advantages of busbar systems like easy installation, less installation time and less wiring, apply also to surge protection. The idea of such a busbar system is continued consistently with SPDs in NH design. V NH and VA NH surge arresters can be installed and removed by means of a fuse switch disconnecter and a fuse handle. This makes it considerably easier to measure the isolation of the installation, as the SPD has not to be disconnected any more.

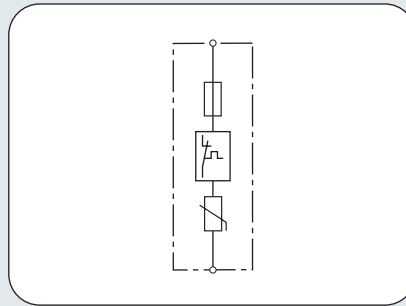


A further considerable advantage of the V NH / VA NH family is the already integrated backup fuse. Using an earth fault- and short-circuit-proof wiring, this is really a decisive contribution for saving space and costs in distribution boards. Type VA NH of the

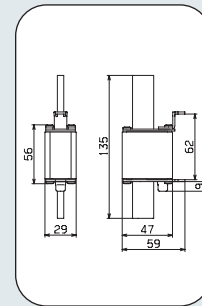
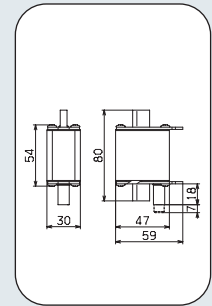
- Surge arrester for use in NH fuse holders, sizes 00 and 1
- Zinc oxide varistor with monitoring device, disconnecter and integrated backup fuse (VA NH with additional spark gap in series connection)
- Energy-coordinated within the Red/Line product family
- Visual indication of faults by tripping indicator



high-capacity zinc oxide varistor with thermal control and disconnection device of the V NH devices, was amended by a spark gap in series connection. VA NH devices provide reliable protection especially for widely expanded systems with permanent isolation control. Apart from the standard visual indication by fault indicator, V(A) NH ... FM devices provide a microswitch already set into the NH fuse base for remote signalling.

V NH / VA NH
V NH00 (FM), V NH1
POWER SUPPLY SYSTEMS
SURGE ARRESTERS – TYPE 2


Basic circuit diagram V NH00 (FM), V NH1


 Dimension drawing
V NH1

 Dimension drawing
V NH00 (FM)

V NH00 (FM): Surge arrester for use in NH fuse holders, size 00; available with fault indicator for remote signalling

V NH1: Surge arrester for use in NH fuse holders, size 1

	V NH00 280	V NH00 280 FM
SPD according to EN 61643-11	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II
Max. continuous operating a.c. voltage U_c	280 V	280 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	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level for 5 kA U_p	≤ 1 kV	≤ 1 kV
Response time t_A	≤ 25 ns	≤ 25 ns
Short circuit withstand capability	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) U_T	335 V / 5 sec.	335 V / 5 sec.
Indication of disconnecter	red fault indicator	red fault indicator (tripping distance 7 mm)
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
For mounting on	NH fuse holder, size 00	NH fuse holder, size 00
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IPX4W	—
Ordering information		
Type	V NH00 280	V NH00 280 FM
Part No.	900 261	900 263
Packing unit	1 pc(s).	1 pc(s).

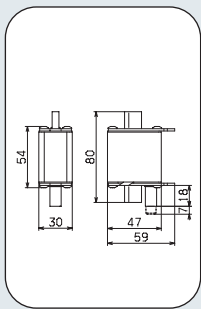
	V NH1 280
SPD according to EN 61643-11	Type 2
SPD according to IEC 61643-1	Class II
Max. continuous operating a.c. voltage U_c	280 V
Nominal discharge current (8/20 μ s) I_n	15 kA
Max. discharge current (8/20 μ s) I_{max}	30 kA
Voltage protection level U_p	≤ 1.25 kV
Voltage protection level for 5 kA U_p	≤ 1 kV
Response time t_A	≤ 25 ns
Short circuit withstand capability	25 kA _{rms}
Temporary overvoltage (TOV) U_T	335 V / 5 sec.
Indication of disconnecter	red fault indicator
Operating temperature range T_U	-40°C...+80°C
For mounting on	NH fuse holder, size 1
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IPX4W
Ordering information	
Type	V NH1 280
Part No.	900 270
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS

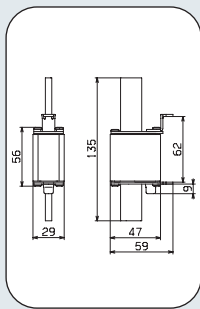
SURGE ARRESTERS – TYPE 2

V NH / VA NH

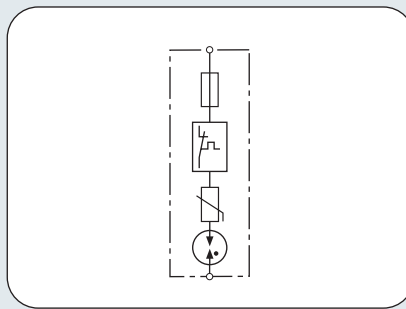
VA NH00 (FM), VA NH1



Dimension drawing
VA NH00 (FM)



Dimension drawing
VA NH1



Basic circuit diagram VA NH00 (FM), VA NH1



VA NH00 FM: Surge arrester with varistor- and spark-gap-based series connection; for use in NH fuse holders, size 00, available with fault indicator for remote signalling

VA NH1: Surge arrester with varistor- and spark-gap-based series connection; for use in NH fuse holders, size 1

	VA NH00 280	VA NH00 280 FM
SPD according to EN 61643-11	Type 2	Type 2
SPD according to IEC 61643-1	Class II	Class II
Max. continuous operating a.c. voltage U_c	280 V	280 V
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	≤ 2.0 kV	≤ 2.0 kV
Response time t_A	≤ 100 ns	≤ 100 ns
Short circuit withstand capability	25 kA _{rms}	25 kA _{rms}
Temporary overvoltage (TOV) U_T	335 V / 5 sec.	335 V / 5 sec.
Indication of disconnecter	red fault indicator	red fault indicator (tripping distance 7 mm)
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
For mounting on	NH fuse holder, size 00	NH fuse holder, size 00
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IPX4W	—
Ordering information		
Type	VA NH00 280	VA NH00 280 FM
Part No.	900 262	900 264
Packing unit	1 pc(s).	1 pc(s).

	VA NH1 280
SPD according to EN 61643-11	Type 2
SPD according to IEC 61643-1	Class II
Max. continuous operating a.c. voltage U_c	280 V
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	≤ 2.0 kV
Response time t_A	≤ 100 ns
Short circuit withstand capability	25 kA _{rms}
Temporary overvoltage (TOV) U_T	335 V / 5 sec.
Indication of disconnecter	red fault indicator
Operating temperature range T_U	-40°C...+80°C
For mounting on	NH fuse holder, size 1
Enclosure material	red thermoplastic, UL 94 V-0
Degree of protection	IPX4W
Ordering information	
Type	VA NH1 280
Part No.	900 271
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 3

SPD Type 3 according to EN 61643-11
SPD Class III according to IEC 61643-1



For protecting the power supply of industrial electronic devices in switchgear installations against surges.

DEHNRail modular

Two-pole pluggable surge arrester

- Two-pole surge arrester consisting of a base element and plug-in protection module
- High discharge capacity due to powerful zinc-oxide-varistor/spark-gap combination
- Energy-coordinated within the Red/Line product family
- Operating state/fault indication by mark in the inspection window
- Small (modular) design according to DIN 43880
- Allows for easy replacing of protection modules due to module locking system with releasing button
- Tested for vibration- and shock-proofness according to EN 60068-2

DEHNRail M 2P ...: Two-pole surge arrester consisting of a base element and plug-in protection module

DEHNRail M 2P ... FM: With remote signalling contact for monitoring device (floating changeover contact)

The new modular devices of the DEHNRail M product family impress the users with high performance parameters and new distinct Red/Line design. The device combines safety and easy handling in only one module to a convincing synergy. The low voltage protection level and comprehensive protection against common-mode and differential-mode interferences are rated for protecting industrial terminal electronic devices in an optimal way. The design of the devices with input and output terminals for series connection and the protective circuit designed for high load currents underline this concept.

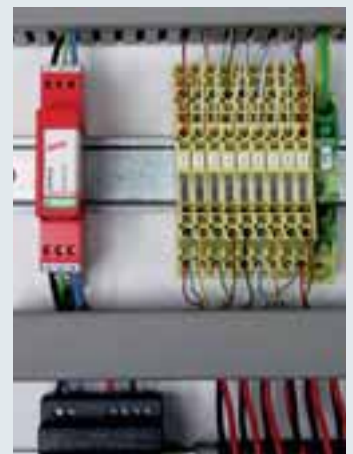
The very compact design of the DEHNRail M devices includes the confusion-proof Y protection circuit and the combined SPD monitoring device and disconnecter.

The coding integrated into the base part and protection module prevents any incorrect supplying by the installer or user.

The new module locking system of the DEHNRail M product family is unique for surge protective devices. It connects the surge protection module tightly with the base part of the SPD. Neither vibrations during transport nor the electromagnetic forces of discharges can loosen this connection.

If the protective circuit is overloaded despite of the powerful characteristics of the devices, the module releasing button allows for quick replacing of the protection modules.

Apart from the standard visual indication by the green and red marking, DEHNRail M ... FM devices provide a 3-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as break or make contact, according to circuit concept.



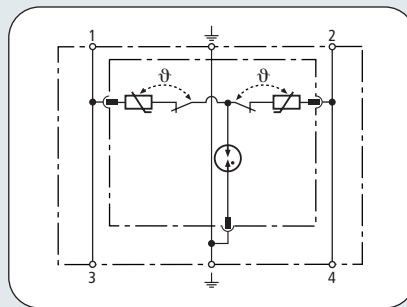
DEHNrail modular

DEHNrail M 2P ...

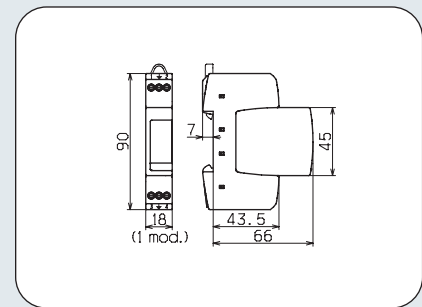
POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 3

NEW



Basic circuit diagram DR M 2P ...



Dimension drawing DR M 2P ...

DR M 2P ...: Two-pole surge arrester consisting of a base element and plug-in protection module

	DR M 2P 30	DR M 2P 60	DR M 2P 75	DR M 2P 150	DR M 2P 255
SPD according to EN 61643-11	Type 3	Type 3	Type 3	Type 3	Type 3
SPD according to IEC 61643-1	Class III	Class III	Class III	Class III	Class III
Nominal a.c. voltage U_N	24 V	48 V	60 V	120 V	230 V
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
Nominal load current a.c. I_N	25 A	25 A	25 A	25 A	25 A
Nominal discharge current (8/20 μ s) I_n	1 kA	1 kA	2 kA	2 kA	3 kA
Total discharge current (8/20 μ s) [L+N-PE] I_{total}	2 kA	2 kA	4 kA	4 kA	5 kA
Combined impulse U_{OC}	2 kV	2 kV	4 kV	4 kV	6 kV
Combined impulse [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	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.
Temporary overvoltage (TOV) [L/N-PE] (I) U_T	—	—	—	—	400 V / 5 sec.
Temporary overvoltage (TOV) [L+N-PE] (II) U_T	—	—	—	—	1200 V + U_0 / 200 ms
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
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 rail according to EN 60715				
Enclosure material	red thermoplastic, UL 94 V-0				
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20
Dimension	1 mod., DIN 43880	1 mod., DIN 43880	1 mod., DIN 43880	1 mod., DIN 43880	1 mod., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS

Ordering information					
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
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for DEHNrail modular

NEW

Protection module for DEHNrail M 2P

DR MOD ...: Protection module with integrated Y protection circuit



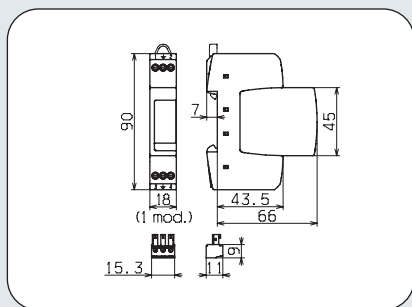
Type	PU pc(s)	Part No.
DR MOD 30	1	953 011
DR MOD 60	1	953 012
DR MOD 75	1	953 013
DR MOD 150	1	953 014
DR MOD 255	1	953 010

POWER SUPPLY SYSTEMS

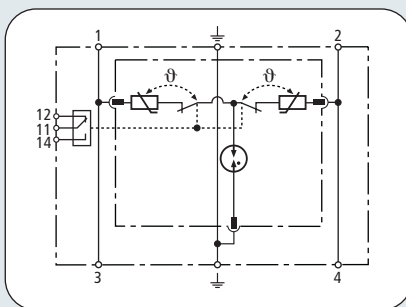
SURGE ARRESTERS – TYPE 3

DEHNrail modular

DEHNrail M 2P ... FM



Dimension drawing DR M 2P ... FM



Basic circuit diagram DR M 2P ... FM



NEW

DR M 2P ... FM: Two-pole surge arrester consisting of a base element and plug-in protection module; with floating remote signalling contact

	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
SPD according to EN 61643-11	Type 3	Type 3	Type 3	Type 3	Type 3
SPD according to IEC 61643-1	Class III	Class III	Class III	Class III	Class III
Nominal a.c. voltage U_N	24 V	48 V	60 V	120 V	230 V
Max. continuous operating a.c./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 μ s) I_n	1 kA	1 kA	2 kA	2 kA	3 kA
Total discharge current (8/20 μ s) [L+N-PE] I_{total}	2 kA	2 kA	4 kA	4 kA	5 kA
Combined impulse U_{OC}	2 kV	2 kV	4 kV	4 kV	6 kV
Combined impulse [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	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.
Temporary overvoltage (TOV) [L/N-PE] (I) U_T	—	—	—	—	400 V / 5 sec.
Temporary overvoltage (TOV) [L+N-PE] (II) U_T	—	—	—	—	1200 V + U_0 / 200 ms
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
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 rail according to EN 60715				
Enclosure material	red thermoplastic, UL 94 V-0				
Degree of protection	IP 20	IP 20	IP 20	IP 20	IP 20
Dimension	1 mod., DIN 43880	1 mod., DIN 43880	1 mod., DIN 43880	1 mod., DIN 43880	1 mod., DIN 43880
Approvals, Certifications	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS	KEMA, VDE, UL, VdS
Type of remote signalling contact	changeover contact	changeover contact	changeover contact	changeover contact	changeover contact
Switching capacity a.c.	250 V/0.5 A	250 V/0.5 A	250 V/0.5 A	250 V/0.5 A	250 V/0.5 A
Switching capacity d.c.	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				
Ordering information					
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
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Protection module for DEHNrail M 2P

DR MOD ...: Protection module with integrated Y protection circuit

Type	PU pc(s)	Part No.
DR MOD 30	1	953 011
DR MOD 60	1	953 012
DR MOD 75	1	953 013
DR MOD 150	1	953 014
DR MOD 255	1	953 010



NEW

DEHNrail modular, multipole

Four-pole, pluggable surge arrester

- Four-pole surge arrester consisting of a base element and plug-in protection module
- High discharge capacity due to powerful zinc-oxide- varistor/spark-gap combination
- Energy-coordinated within the Red/Line product family
- Operating state/fault indication by mark in the inspection window
- Allows for easy replacing of protection modules without tools due to module locking system with releasing button
- Nominal load current 25 A

DEHNrail M 4P ... (FM): Four-pole surge arrester consisting of a base element and plug-in protection module; available with floating remote signalling contact

The four-pole modular DEHNrail M 4P ... (FM) surge arrester was developed especially for protecting 3-phase industrial electronic terminal devices. Being adapted to this kind of environment, the SPD is designed for mounting on 35 mm DIN rails. The low voltage protection level as well as the comprehensive protection against common-mode and differential-mode interferences is characteristic for DEHNrail M 4P ... (FM). In order to provide the low voltage protection levels in an optimal way for the terminal system to be protected, the device is supplied with input and output terminals for series connection. Thus, DEHN rail M 4P ... (FM) adapts itself ideally into the cable run upstream of the terminal system without requiring additional terminal blocks for outgoing lines. The very compact design of DEHNrail M 4P ... (FM) already includes the approved disconnecter.



For protecting the power supply of industrial electronic devices in switchgear cabinets against surges.

It disconnects an overloaded SPD circuit from power supply without interrupting the supply circuit.

The coding integrated into the base part and protection modules of the device prevents any incorrect supplying by the installer or user.

The new module locking system of the DEHNrail M 4P family is unique for surge protective devices. It connects the surge protection modules tightly with the base part of the SPD. Neither vibrations during transport nor the electrodynamic forces arising during discharges can loosen this connection.

If the devices are still overloaded despite of their powerful characteristics and protective circuits, which are rated for high load currents up to 25 A, the modules can be replaced easily without tools by applying the module releasing button.

Apart from the standard visual indication with green and red marking, DEHNrail M 4P ... FM devices provide a 3-pole terminal for remote signalling. With the remote signalling contact being a floating changeover contact, the remote signal can be used as a break or make contact, according to circuit concept.

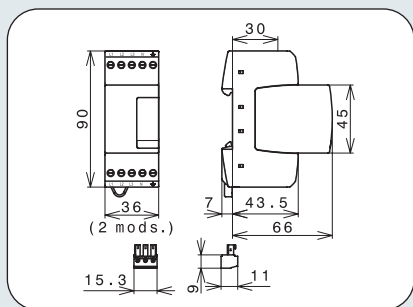
POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 3

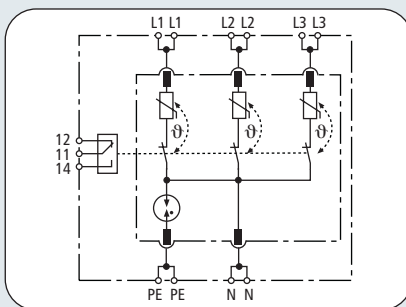
SPD Type 3 according to EN 61643-11
SPD Class III according to IEC 61643-1

POWER SUPPLY SYSTEMS SURGE ARRESTERS – TYPE 3

DEHNrail modular, multipole DEHN rail M 4P ... (FM)



Dimension drawing DR M 4P ... FM



Basic circuit diagram DR M 4P ... FM



NEW

DR M 4P ... (FM): Four-pole surge arrester consisting of a base element and plug-in protection modules; also available with floating remote signalling contact

	DR M 4P 255	DR M 4P 255 FM
SPD according to EN 61643-11	Type 3	Type 3
SPD according to IEC 61643-1	Class III	Class III
Nominal a.c. voltage U_N	230/400 V	230/400 V
Max. continuous operating a.c. voltage U_C	255/440 V	255/440 V
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) [L+N-PE] I_{total}	8 kA	8 kA
Combined impulse U_{OC}	6 kV	6 kV
Combined impulse [L+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	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] (I) U_T	400 V / 5 sec.	400 V / 5 sec.
Temporary overvoltage (TOV) [L+N-PE] (II) U_T	1200 V + U_0 / 200 ms	1200 V + U_0 / 200 ms
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C
Operating state/fault indication	green / red	green / red
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 rail according to EN 60715	35 mm DIN rail according to EN 60715
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Degree of protection	IP 20	IP 20
Dimension	1 mod., DIN 43880	1 mod., DIN 43880
Type of remote signalling contact	—	changeover contact
Switching capacity a.c.	—	250 V/0.5 A
Switching capacity d.c.	—	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
Ordering information		
Type	DR M 4P 255	DR M 4P 255 FM
Part No.	953 400	953 405
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNrail modular, multipole

Protection module for DEHNrail M 4P

DR MOD 4P ...: 4-pole protection module with integrated protection circuit

Type	PU pc(s)	Part No.
DR M MOD 4P 255	1	953 020



NEW

Protection Module for DEHNrail Modular

Plug-in protection module for SPDs Type 3

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 3

SPD Type 3 according to EN 61643-11
SPD Class III according to IEC 61643-1

- The plug-in protection module can be replaced without disconnecting from mains voltage and without removing the covering plate from the distribution board
- Operating state and fault indication by mark in the inspection window
- Allows for easy replacing of the protection modules by module locking system with releasing button



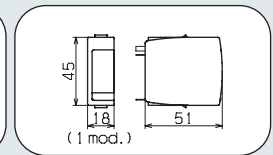
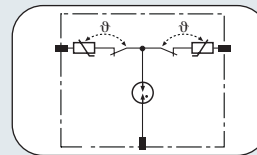
For protecting the power supply of industrial electronic systems against surges in switchgear installations.

DEHNrail MOD ...: For use with all types of two-pole DEHNrail M 2P ... surge arresters

DEHNrail MOD 4P...: For use with all types of four-pole DEHNrail M 4P ... surge arresters

Protection module for DEHNrail M 2P

NEW



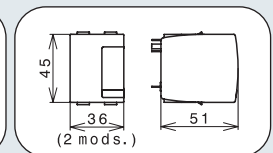
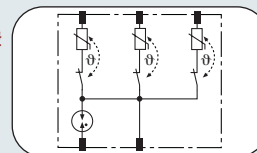
DR MOD ...: Protection module with integrated Y protection circuit

Basic circuit diagram DR MOD 2P protection module
Dimension drawing DR MOD 2P protection module

	DR MOD 30	DR MOD 60	DR MOD 75	DR MOD 150	DR MOD 255
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./d.c. voltage U_c	30 V	60 V	75 V	150 V	255 V
Ordering information					
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
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Protection module for DEHNrail M 4P

NEW



DR MOD 4P ...: 4-pole protection module with integrated protection circuit

Basic circuit diagram DR MOD 4P protection module
Dimension drawing DR MOD 4P protection module

DR M MOD 4P 255	
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./d.c. voltage U_c	255 V
Ordering information	
Type	DR M MOD 4P 255
Part No.	953 020
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS
SURGE ARRESTERS – TYPE 3

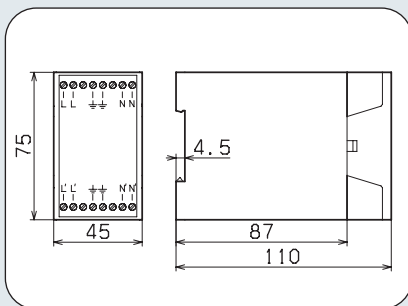
Mains Filter
NF 10



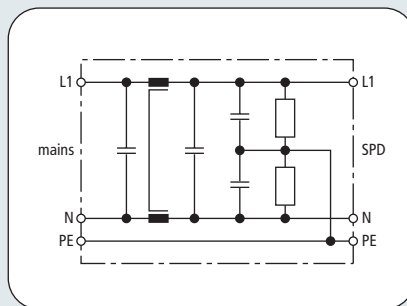
- Protects sensitive industrial electronic systems against balanced and unbalanced high-frequency interferences
- Completes surge protection, e.g. DEHNrail M 2P 255
- Allows for easy installation on DIN rails in switchgears

The NF 10 mains filter is the ideal completion of surge protection for industrial terminal equipment. Being a DIN rail mountable device, the mains filter can be ideally installed downstream of surge protective devices (e.g. DEHNrail M 2P 255). This ensures protection against balanced and unbalanced induced high-frequency interferences in addition

to surge protection. The separate input and output terminals of the mains filter ensure that the protective effect of the device is provided for the equipment to be protected in an optimal way. This also allows to come up to electromagnetic compatibility requirements exceeding surge protection for constructing control systems and installations.



Dimension drawing NF 10



Basic circuit diagram NF 10



NF 10: Mains filter for protection against balanced and unbalanced interferences

NF 10	
Nominal a.c. voltage U_N	230 V
Nominal load current a.c. I_L	10 A
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 capacity [L-N]	660 nF
Total circuit capacity [L (N)-PE]	66 nF
Total circuit inductance	1.8 mH per line
Backup fuse	10 A gL/gG
Operating temperature range	$-25^\circ\text{C} \dots +40^\circ\text{C}$
Cross-sectional area	min. 2.5 mm ² stranded, max. 4 mm ² flexible
For mounting on	35 mm DIN rail according to EN 60715
Enclosure material	thermoplastic GF (polycarbonate)
Degree of protection	IP 20
Dimension	110 x 45 x 75 mm
Ordering information	
Type	NF 10
Part No.	912 254
Packing unit	1 pc(s).

SPS Protector

Two-pole surge arrester with filter

- Combination of surge protection and filter
- Surge protection with monitoring device and disconnecter
- Interference suppressor filter for protecting sensitive industrial electronic systems against balanced and unbalanced high-frequency interferences
- Installed into a shielded enclosure
- Visual operating state indication (green) and floating remote signalling contact (break contact) for fault indication



For protecting the power supply of industrial electronic systems (e.g. programmable logic controls/PLCs) against surges and high-frequency interference voltages.

SPS Protector: Two-pole surge arrester with interference suppressor filter

SPS Protector combines surge protection and interference suppressor filter in a compact device. Therefore the device is ideal for protecting sensitive terminal equipment in industrial automation systems (e.g. programmable logic controls "PLCs"). The coordinated functions of surge protection and filter complement one another and prevent any core saturation of the filter upon high-energy transients. The separate input and output terminals ensure in an optimal way that the high protective effect is pro-

vided for the device to be protected. The metal enclosure of SPS Protector ensures that the high-frequency interferences are discharged without interfering with other devices close to the installation. The compact design of SPS Protector already includes the approved disconnecter. In case of overloads, it disconnects the SPD from mains without interrupting the supply circuit. Apart from the green light, standard SPS Protector devices can also be used for remote signalling.

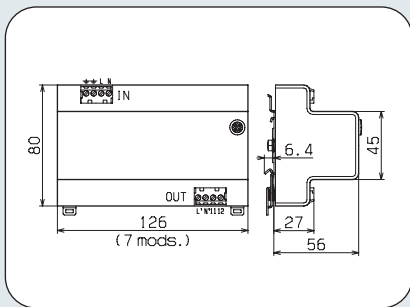


POWER SUPPLY SYSTEMS

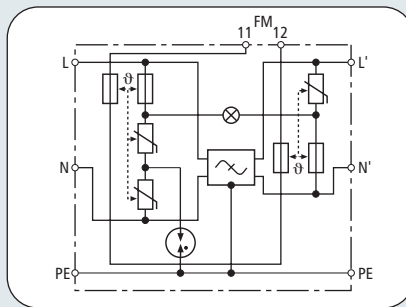
SURGE ARRESTERS – TYPE 3

SPS Protector

SPS Protector



Dimension drawing SPS PRO



Basic circuit diagram SPS PRO



SPS PRO: Surge arrester with interference suppressor filter

SPS PRO	
SPD according to EN 61643-11	Type 3
SPD according to IEC 61643-1	Class III
Nominal a.c. voltage U_N	230 V
Max. continuous operating a.c. voltage U_c	255 V
Nominal load current a.c. I_L	3 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
Combined impulse U_{oc}	6 kV
Combined impulse [L+N-PE] $U_{oc total}$	10 kV
Voltage protection level [L-N] U_p	≤ 0.8 kV
Voltage protection level [L/N-PE] U_p	≤ 1.0 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	6 kA _{rms}
Indication of disconnect	green light off
Operating state indication	green light
Operating temperature range T_U	-10°C...+40°C
Cross-sectional area (min.)	0.14 mm ² solid/flexible
Cross-sectional area (max.)	2.5 mm ² stranded/flexible
For mounting on	35 mm DIN rail according to EN 60715
Enclosure material	aluminium, red powder coating
Degree of protection	IP 20
Dimension	7 mods., DIN 43880
Type of remote signalling contact	break contact
Switching capacity a.c.	250 V/0.5 A
Switching capacity d.c.	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	according to DIN VDE 0565 Part 3
Attenuation for f = 1 MHz, balanced	≥ 73 dB
Attenuation for f = 1 MHz, unbalanced	≥ 45 dB
Ordering information	
Type	SPS PRO
Part No.	912 253
Packing unit	1 pc(s).

DEHNsafe**Surge arrester for use in cable ducts**

- Two-pole surge protection for 230 V terminal devices
- For use in wiring sockets and cable ducts
- Maximum safety due to confusion-proof Y protection circuit
- Multiple visual operating state indication
- Programmable acoustic function
- Terminals for series connection
- Independent from designs of socket outlets



For protecting electronic devices against surges. For installing into electrical installation systems, e.g. cable ducts or wiring sockets.

DEHNsafe 230 LA: Surge protective device for use in cable ducts

Especially the flexible application of DEHNsafe surge arresters entuses the operators. DEHNsafe is a two-pole surge protective device for 230 V terminal equipment applications for installing into cable ducts, but also into flat wiring sockets. This is possible due to the minimal installation depth of only 31 mm. DEHNsafe includes a monitoring device and a thermally based disconnecter. In addition to a visual operating state indication, the device provides a programmable acoustic fault indication. With such an acoustic signal, the fault indication can be programmed for three different operating states:

- Acoustic fault indication,
- Test function,
- Muting of the acoustic signal.



A triple TAE cover plate of any switch programme manufacturer can be used for covering it. Thus, DEHNsafe can adapt itself ideally to any socket outlet design.

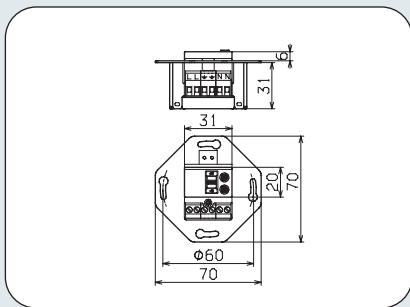
The two available terminals for L, N and PE allow for series connection to ensure that the surge protection is situated in parallel to the circuit to be protected. In case of overloads on DEHNsafe, this does not necessarily interrupt the circuit to be protected by the surge protection. DEHNsafe surge arresters provide the users with a green and red light for visual control of the protective device.



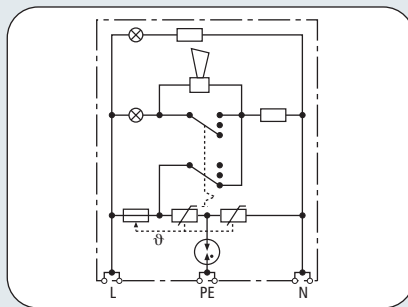
POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 3

DEHNsafe
DEHNsafe



Dimension drawing DSA 230 LA



Basic circuit diagram DSA 230 LA



DSA 230 LA: Surge protective device for use in cable ducts and wiring sockets

DSA 230 LA	
SPD according to EN 61643-11	Type 3
SPD according to IEC 61643-1	Class III
Nominal a.c. voltage U_N	230 V
Max. continuous operating a.c. voltage U_c	255 V
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
Combined impulse U_{OC}	6 kV
Combined impulse [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	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}
Temporary overvoltage (TOV) [L-N] U_T	335 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (I) U_T	400 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (II) U_T	1200 V + U_0 / 200 ms
Indication of disconnect	red light + acoustic signal
Operating state indication	green light
Switch	function test / acoustic signal off
Operating temperature range T_U	-25°C...+40°C
Cross-sectional area (max.)	2.5 mm ² stranded/2.5 mm ² flexible
For mounting on	supporting ring (Ø60 mm) for installing into switchboxes, depth 40 mm
Enclosure material	grey thermoplastic, UL 94 V-2
Degree of protection	IP 20
Cover	TAE
Ordering information	
Type	DSA 230 LA
Part No.	924 370
Packing unit	1 pc(s).

Accessory Part for DEHNsafe

Central covering plate
Single unit, alpha exclusive

Type	Colour	PU pc(s)	Part No.
ZAP STW	studio white	1	924 329



Accessory Part for DEHNsafe

Covering frame
Single unit, alpha exclusive

Type	Colour	PU pc(s)	Part No.
AR1 STW	studio white	1	924 328



STC Module

Surge arrester for socket outlets with earth contact

- Two-pole surge protection with monitoring device and disconnecter
- Maximum safety due to confusion-proof Y protection circuit
- Acoustic fault indicator with optional test function
- For attaching to common socket outlets with earth contact
- Independent from the designs of the socket outlets used
- Plastic supporting ring with latch for easy attaching to already mounted socket outlets



For protecting electronic devices against surges. For use with common socket outlets with earth contact.

STC 230: Snap-on module for common socket outlets with earth contact

The popular STC surge protection module presents itself modestly. Being a two-pole surge arrester, the module can be installed on the rear side of common socket outlets with earth contact. The STC surge protection module thus adapts itself to every type of socket outlet. The plastic supporting ring with latch allows for easy attaching even to already mounted socket

outlets. In addition to a thermal disconnecter, the protective device has an acoustic fault indicator. As the surge protection module is installed in parallel to the socket outlet, the power supply of the connected consumers remains uninterrupted, even if the surge arrester is overloaded.

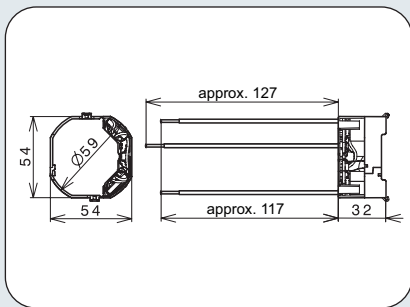


POWER SUPPLY SYSTEMS

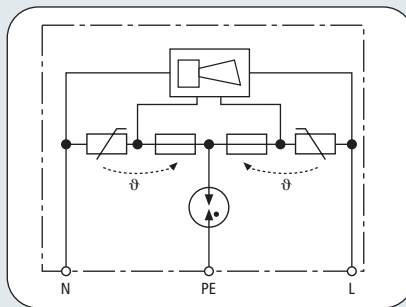
SURGE ARRESTERS – TYPE 3

STC Module

STC 230



Dimension drawing STC 230



Basic circuit diagram STC 230



NEW

STC 230: Two-pole surge arrester for snapping onto socket outlets with earth contact

STC 230	
SPD according to EN 61643-11	Type 3
SPD according to IEC 61643-1	Class III
Nominal a.c. voltage U_N	230 V
Max. continuous operating a.c. voltage U_c	255 V
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 impulse U_{oc}	6 kV
Combined impulse [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	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}
Temporary overvoltage (TOV) [L-N] U_T	335 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (I) U_T	400 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (II) U_T	1200 V + U_0 / 200 ms
Operating temperature range T_U	-25°C...+40°C
Terminal wires	1 mm ² , length: 120 mm
For mounting on	common socket outlets with earth contact
Enclosure material	red thermoplastic, UL 94 V-2
Degree of protection of installed device	IP 20
Dimension	53 x 53 x 32 mm
Indication of disconnecter	acoustic signal on
Ordering information	
Type	STC 230
Part No.	924 350
Packing unit	1 pc(s).

DEHNflex

Flexible protection for terminal equipment

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 3

SPD Type 3 according to EN 61643-11
SPD Class III according to IEC 61643-1

- Two-pole surge protection with control device and disconnecter
- Maximum safety due to confusion-proof Y protection circuit
- Acoustic fault indicator
- Compact design
- For use in flush-mounted systems, cable ducts and wiring sockets



For protecting electronic equipment against surges. For installation into electrical installation systems, e.g. flush-mounted systems, cable ducts and wiring sockets. German design patent for DEHNflex A / ... D.

DEHNflex M: Compact device; for use in cable duct systems and flush-mounted socket outlets

DEHNflex A: For use in any cable duct systems or flush-mounted socket outlets

DEHNflex D: Like DEHNflex A, but for series connection of several socket outlets

Already the name of the DEHNflex family points to the nearly unlimited application possibilities of the devices. Being 2-pole surge arresters, the compact modules can ideally be used for protecting electronic consumers in final circuits. The design was adapted to the most common installation sites, i.e. cable ducts and wiring sockets. DEHNflex devices show very impressively that small and compact sizes do not necessarily mean low-capacity performance. The confusion-proof Y protection circuit is always

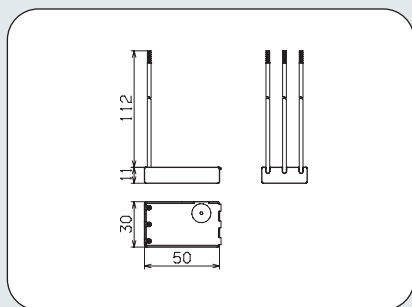
safe, even if phase and neutral conductor can not be assigned definitely. Apart from the powerful Y circuit, even a disconnecter and acoustic fault indicator for remote signalling can still be installed into the compact enclosure. Whether in cable ducts, flush-mounted systems, branching boxes or device tubs – DEHNflex can always be installed into the right place close to terminal equipment.



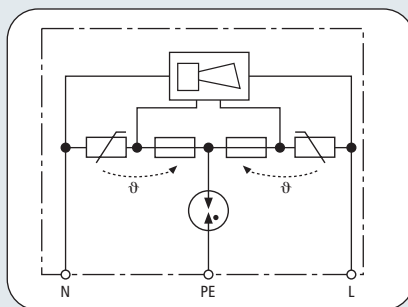
POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 3

DEHNflex
DEHNflex M



Dimension drawing DFL M



Basic circuit diagram DFL M



DFL M: Surge arrester for use in all kinds of installation systems on terminal equipment level; compact dimension

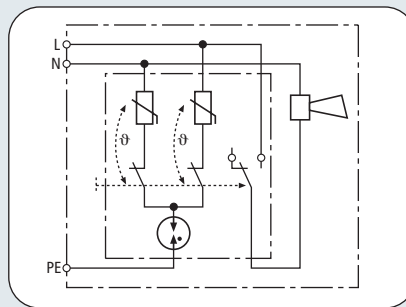
DFL M 255	
SPD according to EN 61643-11	Type 3
SPD according to IEC 61643-1	Class III
Nominal a.c. voltage U_N	230 V
Max. continuous operating a.c. voltage U_c	255 V
Nominal discharge current (8/20 μ s) I_n	1.5 kA
Total discharge current (8/20 μ s) [L+N-PE] I_{total}	3 kA
Combined impulse U_{oc}	3 kV
Combined impulse [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	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}
Temporary overvoltage (TOV) [L-N] U_T	335 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (I) U_T	400 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (II) U_T	1200 V + U_0 / 200 ms
Indication of disconnecter	acoustic signal on
Operating temperature range T_U	-25°C...+40°C
Terminal wires	1 mm ² , length: 120 mm
Enclosure material	red thermoplastic, UL 94 V-2
Degree of protection of installed device	IP 20
Dimension	30 x 50 x 11 mm
Ordering information	
Type	DFL M 255
Part No.	924 396
Packing unit	1 pc(s).

DEHNflex

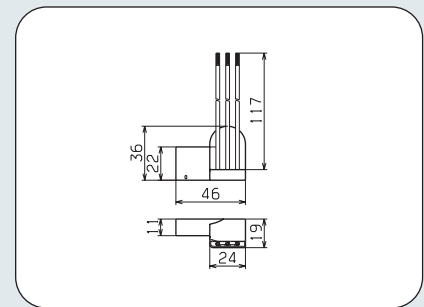
DEHNflex A

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 3



Basic circuit diagram DFL A



Dimension drawing DFL A

DFL A: Surge arrester for use in all kinds of installation systems on terminal equipment level; with test function

DFL A 255

SPD according to EN 61643-11	Type 3
SPD according to IEC 61643-1	Class III
Nominal a.c. voltage U_N	230 V
Max. continuous operating a.c. voltage U_C	255 V
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 impulse U_{OC}	6 kV
Combined impulse [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	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}
Temporary overvoltage (TOV) [L-N] U_T	335 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (I) U_T	400 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (II) U_T	1200 V + U_0 / 200 ms
Indication of disconnecter	acoustic signal on
Operating temperature range T_U	-25°C...+40°C
Terminal wires	1 mm ² , length: 120 mm
Enclosure material	red thermoplastic, UL 94 V-2
Degree of protection of installed device	IP 20
Dimension	36 x 62 x 19 mm

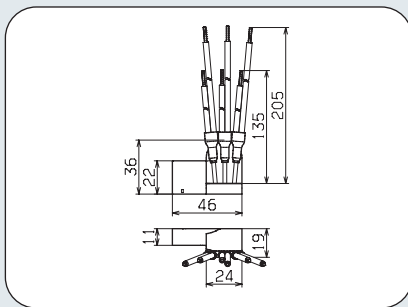
Ordering information

Type	DFL A 255
Part No.	924 389
Packing unit	1 pc(s).

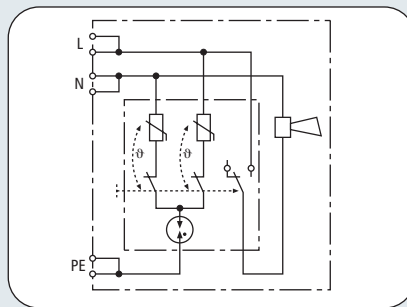
POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 3

DEHNflex
DEHNflex D



Dimension drawing DFL D



Basic circuit diagram DFL D



DFL D: Surge arrester for use in all kinds of installation systems on terminal equipment level; allows for series connection; with test function

DFL D 255	
SPD according to EN 61643-11	Type 3
SPD according to IEC 61643-1	Class III
Nominal a.c. voltage U_N	230 V
Max. continuous operating a.c. voltage U_C	255 V
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
Combined impulse U_{OC}	6 kV
Combined impulse [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	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}
Temporary overvoltage (TOV) [L-N] U_T	335 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (I) U_T	400 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (II) U_T	1200 V + U_0 / 200 ms
Indication of disconnecter	acoustic signal on
Operating temperature range T_U	-25°C...+40°C
Terminal wires	2.5 mm ² , length: 120 mm
Enclosure material	red thermoplastic, UL 94 V-2
Degree of protection of installed device	IP 20
Dimension	36 x 62 x 19 mm
Ordering information	
Type	DFL D 255
Part No.	924 395
Packing unit	1 pc(s).

NSM Protector

Surge protective socket outlet

- Surge protection with monitoring device and disconnecter
- Maximum safety due to confusion-proof Y protection circuit
- Visual operating state indication (green) and visual fault indication (red)
- With supporting ring (dimension 60 mm) for installation into switch-boxes Ø60 mm, depth 40 mm



For protecting electronic equipment against surges. Socket outlet with earth contact and surge protective circuit for installation into electrical installation systems. German design patent.

NSM Protector: Socket outlet with earth contact and integrated surge protection

The devices of the NSM Protector family combine surge protection and socket outlet with earth contact in one device. The two-pole surge arresters are designed especially for protecting electronic consumers in final circuits. The very compact design of NSM Protector devices already includes the approved disconnecter. It isolates overloaded surge arresters without interrupting the supply circuit. The low voltage protection level as well as the comprehensive protection against common-mode and differ-

ential-mode interferences is characterising for the devices of the NSM Protector family. The confusion-proof Y protection circuit takes the often lacking assignment of phase and neutral conductors in final circuits into account. The integrated disconnecter makes a further contribution to safety of devices and installations. The standard green and red lights inform the user about the present operating state of the surge protective devices.

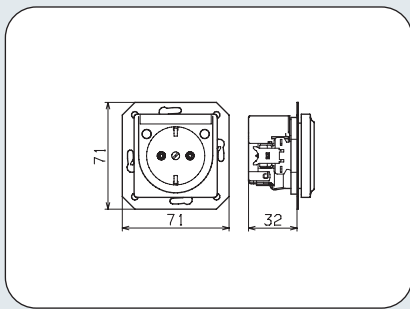


POWER SUPPLY SYSTEMS

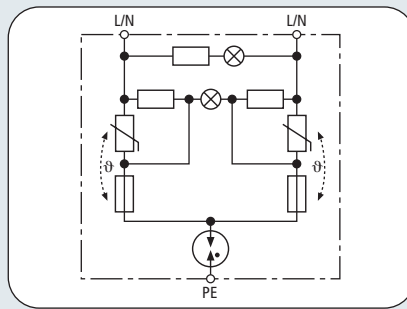
SURGE ARRESTERS – TYPE 3

NSM Protector

NSM PRO



Dimension drawing NSM PRO...



Basic circuit diagram NSM PRO...



NSM PRO: Surge protective socket outlet

	NSM PRO TW	NSM PRO SI	NSM PRO AZ	NSM PRO EW
SPD according to EN 61643-11	Type 3	Type 3	Type 3	Type 3
SPD according to IEC 61643-1	Class III	Class III	Class III	Class III
Nominal a.c. voltage U_N	230 V	230 V	230 V	230 V
Max. continuous operating a.c. voltage U_c	255 V	255 V	255 V	255 V
Nominal discharge current (8/20 μ s) I_n	3 kA	3 kA	3 kA	3 kA
Total discharge current (8/20 μ s) [L+N-PE] I_{total}	5 kA	5 kA	5 kA	5 kA
Combined impulse U_{oc}	6 kV	6 kV	6 kV	6 kV
Combined impulse [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	16 A gL/gG or B 16 A	16 A gL/gG or B 16 A	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}	6 kA _{rms}	6 kA _{rms}
Temporary overvoltage (TOV) [L-N] U_T	335 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.	335 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (I) U_T	400 V / 5 sec.	400 V / 5 sec.	440 V / 5 sec.	400 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (II) U_T	1200 V + U_0 / 200 ms	1200 V + U_0 / 200 ms	1200 V + U_0 / 200 ms	1200 V + U_0 / 200 ms
Indication of disconnect	red light	red light	red light	red light
Operating state indication	green light	green light	green light	green light
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	supporting ring (Ø60 mm) for installation into switchboxes, depth 32 mm			
Enclosure material	thermoplastic, UL 94 V-2	thermoplastic, UL 94 V-2	thermoplastic, UL 94 V-2	thermoplastic, UL 94 V-2
Degree of protection	IP 20	IP 20	IP 20	IP 20
DELTA type	titanium white profile	silver profile	anthracite profile	plus studio white
Ordering information				
Type	NSM PRO TW	NSM PRO SI	NSM PRO AZ	NSM PRO EW
Part No.	924 335	924 337	924 339	924 342
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for NSM Protector

AR1

Single unit, suitable for NSM Protector

Type	Profile	PU pc(s)	Part No.
AR1 TW	DELTA profile, titanium white	1	924 336
AR1 SI	DELTA profile, silver	1	924 338
AR1 AZ	DELTA profile, anthracite	1	924 340
AR1 EW	DELTA plus, studio white	1	924 343



DEHNpro

Surge protective adapter

- Surge protection with monitoring device and disconnecter
- Visual operating state indication (green) and fault indication (red)
- Mains filter (for DEHNpro 230 F Protector only)
- Maximum safety due to confusion-proof Y protection circuit



Adapters for protecting the power supply of electronic devices against the effects of transient surges as well as high-frequency interference voltages (DEHNpro 230 F Protector)

DEHNpro 230: Protection for terminal devices

DEHNpro 230 F: Protection for terminal devices with mains filter

The surge protective adapters of the DEHNpro Protector family provide surge protection for electronic consumers connected to terminal circuits. In DEHNpro 230 F Protector, the powerful surge protective circuit of DEHNpro 230 Protector was supplemented by an interference suppressor filter with a balancing and unbalancing effect. This combination of surge protection and filter prevents any core saturation of the filter upon high-energy transients. With a nominal current carrying capability of 16 A, DEHNpro 230 and 230 F Protector can be used flexibly in terminal circuits.



The confusion-proof Y protection circuit takes the lacking definite assignment of phase and neutral conductor in common socket outlets with earth contact into account. The integrated disconnecter also contributes to the safety of devices and installations. The standard green and red LED signals inform the user about the operating state of the surge protective devices. The modern design of DEHNpro devices and using high-quality materials present safety in a sophisticated appearance. The DEHNpro devices thus adapt themselves to their environment in an ideal way. They create the right technical ambience already from 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 impressive properties even after being used for years.

Note:

For further types of surge protective adapters for protecting the power supplies and data interfaces of electronic devices please also refer to pages 295-298.

POWER SUPPLY SYSTEMS

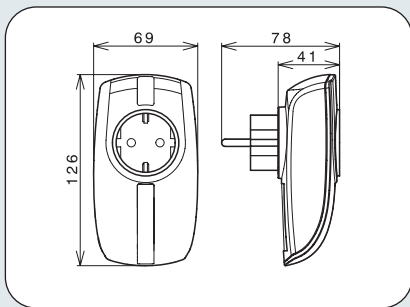
SURGE ARRESTERS – TYPE 3

DEHNpro

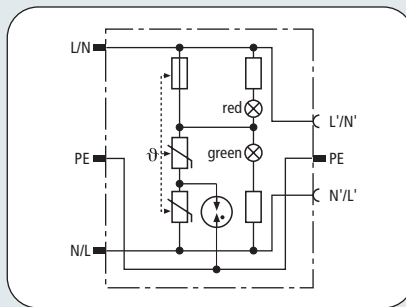
DPRO 230 Protector

Available from midyear 2008

NEW



Dimension drawing DPRO 230



Basic circuit diagram DPRO 230



DPRO 230: Surge protective adapter

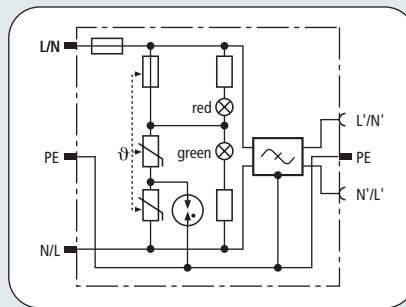
	DPRO 230	DPRO 230 SE
SPD according to EN 61643-11	Type 3	Type 3
SPD according to IEC 61643-1	Class III	Class III
Nominal a.c. voltage U_N	230 V	230 V
Max. continuous operating a.c. voltage U_c	255 V	255 V
Nominal load current a.c. I_L	16 A	16 A
Nominal discharge current (8/20 μ s) I_n	3 kA	3 kA
Total discharge current (8/20 μ s) [L+N-PE] I_{total}	5 kA	5 kA
Combined impulse U_{oc}	6 kV	6 kV
Combined impulse [L+N-PE] $U_{oc total}$	10 kV	10 kV
Voltage protection level [L-N] U_p	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level [L/N-PE] U_p	≤ 1.5 kV	≤ 1.5 kV
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 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] (I) U_T	400 V / 5 sec.	400 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (II) U_T	1200 V + U_0 / 200 ms	1200 V + U_0 / 200 ms
Indication of disconnect	red light	red light
Operating state indication	green light	green light
Operating temperature range T_U	-25°C...+40°C	-25°C...+40°C
For mounting on	plug-in system with earth contact according to DIN 49440 / DIN 49441	centre earthing contact system according to CEE 7, standard sheet V
Enclosure material	pure white thermoplastic, UL 94 V-2	pure white thermoplastic, UL 94 V-2
Degree of protection	IP 20	IP 20
Dimension	128 x 71 x 40 mm	128 x 71 x 40 mm
Ordering information		
Type	DPRO 230	DPRO 230 SE
Part No.	909 230	909 235
Packing unit	1 pc(s).	1 pc(s).

DEHNpro

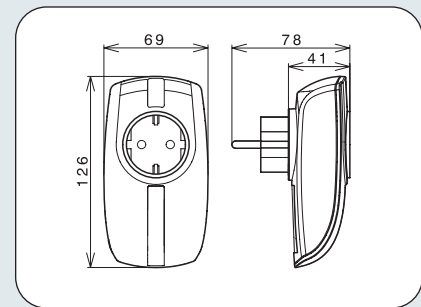
DPRO 230 F Protector

Available from midyear 2008

NEW



Basic circuit diagram DPRO 230 F



Dimension drawing DPRO 230 F

DPRO 230 F: Surge protective adapter with integrated mains filter

	DPRO 230 F	DPRO 230 SE F
SPD according to EN 61643-11	Type 3	Type 3
SPD according to IEC 61643-1	Class III	Class III
Nominal a.c. voltage U_N	230 V	230 V
Max. continuous operating a.c. voltage U_C	255 V	255 V
Nominal load current a.c. I_L	16 A	16 A
Nominal discharge current (8/20 μ s) I_n	3 kA	3 kA
Total discharge current (8/20 μ s) [L+N-PE] I_{total}	5 kA	5 kA
Combined impulse U_{OC}	6 kV	6 kV
Combined impulse [L+N-PE] $U_{OC total}$	10 kV	10 kV
Voltage protection level [L-N] U_p	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level [L/N-PE] U_p	≤ 1.5 kV	≤ 1.5 kV
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 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] (I) U_T	400 V / 5 sec.	400 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (II) U_T	1200 V + U_0 / 200 ms	1200 V + U_0 / 200 ms
Indication of disconnecter	red light	red light
Operating state indication	green light	green light
Operating temperature range T_U	-25°C...+40°C	-25°C...+40°C
For mounting on	plug-in system with earth contact according to DIN 49440 / DIN 49441	centre earthing contact system according to CEE 7, standard sheet V
Enclosure material	pure white thermoplastic, UL 94 V-2	pure white thermoplastic, UL 94 V-2
Degree of protection	IP 20	IP 20
Dimension	128 x 71 x 40 mm	128 x 71 x 40 mm
Mains filter	according to DIN VDE 0565 Part 3	according to DIN VDE 0565 Part 3
Attenuation for f = 1 MHz, balanced	≥ 40 dB	≥ 40 dB
Attenuation for f = 1 MHz, unbalanced	≥ 30 dB	≥ 30 dB
Ordering information		
Type	DPRO 230 F	DPRO 230 SE F
Part No.	909 240	909 245
Packing unit	1 pc(s).	1 pc(s).

POWER SUPPLY SYSTEMS**SFL Protector****SURGE ARRESTERS – TYPE 3****Surge protective multiple socket outlet
with filter**

SPD Type 3 according to EN 61643-11
SPD Class III according to IEC 61643-1



Multiple socket outlet for protecting the power supply of electronic devices against surges as well as high-frequency interference voltages.

- Surge protection with monitoring device and disconnecter
- Interference suppressor filter
- Maximum safety due to confusion-proof Y protection circuit
- Mains switch with operating state indication
- Visual fault indicator (red)

SFL Protector: Multiple socket outlet with surge protection and interference suppressor filter

SFL Protector amplifies the wide range of Red/Line surge protective devices. The connection between surge protection and mains filter turns the 5-fold socket outlet into a powerful device for protecting electronic consumers in final electrical circuits. The coordinated functions of surge protection and filter complement one another and prevent the core saturation of the filter upon high-energy transients. The integrated mains filter was optimised for protection against balanced and unbalanced high-

frequency interferences. With a nominal current carrying capability of 16 A, SFL Protector can be used flexibly in final electrical circuits. The confusion-proof Y protection circuit takes the lacking assignment of phase and neutral conductor in conventional socket outlets with earth contact into account. The standard green and red lights inform the user at a glance about the present operating state of the surge protective device.

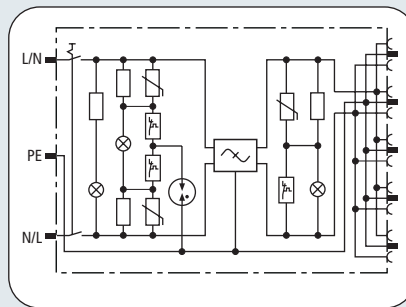


SFL Protector

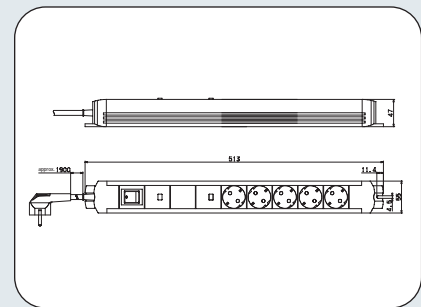
SFL PRO

POWER SUPPLY SYSTEMS

SURGE ARRESTERS – TYPE 3



Basic circuit diagram SFL PRO



Dimension drawing SFL PRO

SFL PRO: Multiple socket outlet with surge protection and mains filter

	SFL PRO	SFL PRO SE
SPD according to EN 61643-11	Type 3	Type 3
SPD according to IEC 61643-1	Class III	Class III
Nominal a.c. voltage U_N	230 V	230 V
Max. continuous operating a.c. voltage U_c	255 V	255 V
Nominal load current a.c. I_L	16 A	16 A
Nominal discharge current (8/20 μ s) I_n	3 kA	3 kA
Total discharge current (8/20 μ s) [L+N-PE] I_{total}	5 kA	5 kA
Combined impulse U_{oc}	6 kV	6 kV
Combined impulse [L+N-PE] $U_{oc total}$	10 kV	10 kV
Voltage protection level U_p	≤ 1.5 kV	≤ 1.5 kV
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 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	1.5 kA _{rms}	1.5 kA _{rms}
Temporary overvoltage (TOV) [L-N] U_T	335 V / 5 sec.	335 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (I) U_T	400 V / 5 sec.	400 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (II) U_T	1200 V + U_0 / 200 ms	1200 V + U_0 / 200 ms
Indication of disconnect	red light	red light
Operating state indication	green light	green light
Operating temperature range T_U	-25°C ... +40°C	-25°C ... +40°C
Connecting cable	length: 200 cm	length: 200 cm
Number of socket outlets	5	5
For mounting on	plug-in system with earth contact according to DIN 49440 / DIN 49441	centre earthing contact system according to CEE 7, standard sheet V
Enclosure material	black/anthracite thermoplastic, UL 94 V-2	black/anthracite thermoplastic, UL 94 V-2
Degree of protection	IP 20	IP 20
Dimension	513 x 55 x 47 mm	513 x 55 x 47 mm
Approvals, Certifications	VDE	—
Mains filter	according to DIN VDE 0565 Part 3	according to DIN VDE 0565 Part 3
Attenuation for $f = 1$ MHz, balanced	≥ 54 dB	≥ 54 dB
Attenuation at $f = 1$ MHz, unbalanced	≥ 42 dB	≥ 42 dB
Ordering information		
Type	SFL PRO	SFL PRO SE
Part No.	912 260	912 261
Packing unit	1 pc(s).	1 pc(s).

POWER SUPPLY SYSTEMS

VC 280/2

SURGE ARRESTERS – TYPE 3

Compact protection for terminal equipment

SPD Type 3 according to EN 61643-11
 SPD Class III according to IEC 61643-1



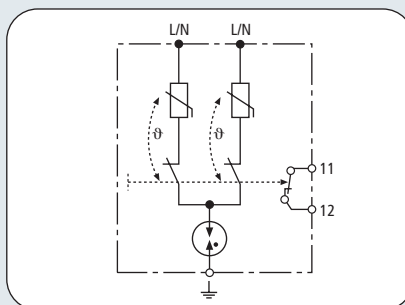
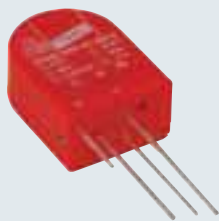
- Two-pole surge protection with monitoring device and disconnecter
- Complete surge protective circuit for devices with a.c. power supply
- More safety due to confusion-proof Y protection circuit
- Floating remote signalling contact (break contact) with test option for fault indication
- For installation onto printed circuit boards

For protecting electronic equipment against surges. For installation into enclosures or directly into the device to be protected. German design patent.

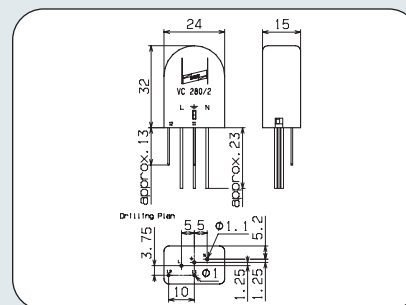
VC 280 2: Surge protective mains module for installation into terminal devices to be protected

Small-sized, but still supplied with all required characteristics – this is surge arrester type VC 280/2. The two-pole module includes the confusion-proof Y protection circuit, monitoring device and disconnecter as well as floating remote signalling contact. This means maximum compact

safety. The SPDs even provide an integrated device for optional testing of the fault indicator. With VC 280/2, electronic equipment can be protected safely against surges. By providing solders, the SPD can be installed directly onto the PCBs of the device to be protected.

VC 280/2
VC 280 2
**POWER SUPPLY SYSTEMS
SURGE ARRESTERS – TYPE 3**


Basic circuit diagram VC 280 2



Dimension drawing VC 280 2

VC 280 2: Surge protective mains module for installation into the terminal device to be protected

VC 280 2	
SPD according to EN 61643-11	Type 3
SPD according to IEC 61643-1	Class III
Nominal a.c. voltage U_N	230 V
Max. continuous operating a.c. voltage U_c	280 V
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 impulse U_{oc}	6 kV
Combined impulse [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	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}
Temporary overvoltage (TOV) [L-N] U_T	335 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (I) U_T	400 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (II) U_T	1200 V + U_0 / 200 ms
Indication of disconnecter	break contact
Operating temperature range U_T	-25°C...+40°C
For mounting on	printed circuit board
Enclosure material	red thermoplastic, UL 94 V-2
Degree of protection	IP 20
Dimension	32 x 24 x 15 mm
Type of remote signalling contact	break contact
Switching capacity a.c.	250 V/0.5 A
Switching capacity d.c.	250 V/0.1 A; 125 V/0.2 A; 75 V/0.5 A
Ordering information	
Type	VC 280 2
Part No.	900 471
Packing unit	1 pc(s).

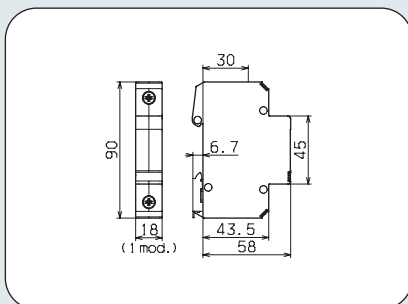
POWER SUPPLY SYSTEMS ACCESSORIES

Wiring Accessories DK 35 and STAK 2X16



- DK 35 allows for changing the wiring level
- DK 35 supports lightning-impulse-current-conform installation of SPD combinations
- STAK 2X16 allows for clamping cross sections smaller than the defined minimum clamping cross section of the surge protective device
- STAK 2X16 allows for EMC-optimised series connection according to IEC 60364-5-53

Performance of an EMC-optimised series connection of lightning current and surge arresters according to IEC 60364-5-53 by means of STAK 2X16



Dimension drawing DK 35



DK 35



STAK 2X16

DK 35: Feed-through terminal
STAK 2x16: Pin-shape terminal

	DK 35	STAK 2X16
Nominal a.c./d.c. voltage U_N	500 V	—
Nominal load current a.c. I_L	100 A	—
Test current according to EN 60947-7-1	125 A	—
Lightning impulse current (10/350 μ s)	100 kA	—
Backup fuse for application of arrester only	≤ 250 A gL/gG	—
Backup fuse carrying operating current	≤ 100 A gL/gG	—
Short circuit withstand capability for max. backup fuse	50 kA _{rms}	—
Operating temperature range T_U	-40°C...+80°C	—
Cross-sectional area	min. 1.5 mm ² solid/flexible, max. 35 mm ² stranded/25 mm ² flexible	2 x 16 mm ²
For mounting on	35 mm DIN rail according to EN 60715	—
Type of connection	—	front (double terminal)
Enclosure material	red thermoplastic, UL 94 V-0	—
Degree of protection	IP 20	—
Dimension	1 mod., DIN 43880	—
Approvals, Certifications	UL	—
Ordering information		
Type	DK 35	STAK 2X16
Part No.	900 699	900 589
Packing unit	1 pc(s).	1 pc(s).

Insulating Enclosure

POWER SUPPLY SYSTEMS

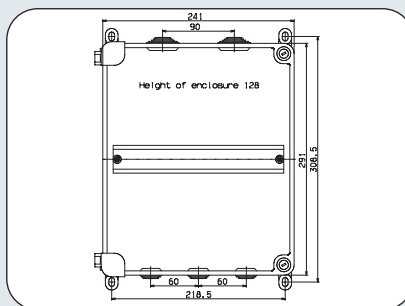
ACCESSORIES

- Enclosure for installation of surge arresters, tested with lightning impulse currents



Application example: Modular DEHNventil® M TNC in insulating enclosure IGA 10 IP55

IGA 10 IP55



Dimension drawing IGA 10 IP55

IGA 10 IP55: Insulating enclosure for installing max. 10 SPD modules; with 2 cable entries; ideal for applying series connections

IGA 10 IP55

Degree of protection	IP 55
Tested with lightning currents	✓
Type of cover	transparent cover
Colour of enclosure	grey
Quantity of cable entries	2 x for cables Ø4...32 mm; 3 x for cables Ø4...20 mm
Available space for installation	10 mods., DIN 43880
Dimension (W x H x D)	241 x 291 x 128 mm
Sealable	✓

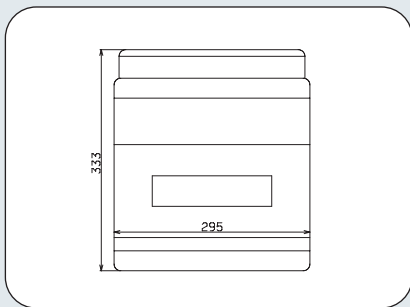
Ordering information	
Type	IGA 10 IP55
Part No.	902 480
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS

ACCESSORIES

Insulating Enclosure

IGA 12 IP54



Dimension drawing IGA 12 IP54



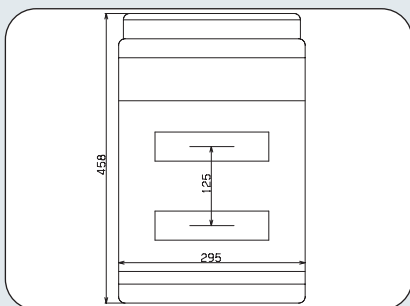
Integrated plug-in terminal technology for PE and N conductors



IGA 12 IP54: Insulating enclosure with space for 12 modules, for non-exhausting surge arresters

IGA 12 IP54	
Degree of protection	IP 54
Type of cover	transparent cover
Colour of enclosure	grey, RAL 7035
Cable entry	integrated, elastic sealing membrane for entering cables
PE/N Quantity x Cross section	3 x 25 mm ² , 12 x 4 mm ² , Cu
Available space for installation	12 mods., DIN 43880
Dimension (W x H x D)	295 x 333 x 129 mm
Ordering information	
Type	IGA 12 IP54
Part No.	902 471
Packing unit	1 pc(s).

IGA 24 IP54



Dimension drawing IGA 24 IP54



Integrated plug-in terminal technology for PE and N conductors



IGA 24 IP54: Insulating enclosure with space for installing max. 2x 12 modules, for non-exhausting surge arresters

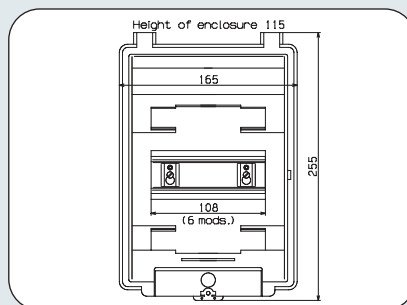
IGA 24 IP54	
Degree of protection	IP 54
Type of cover	transparent cover
Colour of enclosure	grey, RAL 7035
Cable entry	integrated, elastic sealing membrane for entering cables
PE/N Quantity x Cross section	6 x 25 mm ² , 24 x 4 mm ² , Cu
Available space for installation	24 (2x 12) mods., DIN 43880
Dimension (W x H x D)	295 x 458 x 129 mm
Ordering information	
Type	IGA 24 IP54
Part No.	902 472
Packing unit	1 pc(s).

Insulating Enclosure

IGA 6 IP54

POWER SUPPLY SYSTEMS

ACCESSORIES



Dimension drawing IGA 6 IP54

IGA 6 IP54: Enclosure for non-exhausting surge arresters with space for installing 6 modules

IGA 6 IP54

Degree of protection	IP 54
Type of cover	transparent cover
Colour of enclosure	grey
Quantity of cable entries	2 plug-in glands EST 21 for cables Ø9 ... 21 mm
Available space for installation	6 mods., DIN 43880
Dimension (W x H x D)	165 x 255 x 115 mm

Ordering information

Type	IGA 6 IP54
Part No.	902 485
Packing unit	1 pc(s).

POWER SUPPLY SYSTEMS

Busbars / Modular Wiring System

ACCESSORIES



- Allows for compact connection among the SPDs and with other DIN rail mounted devices



MVS 1 2	
Single-phase unit	✓
Number of contact studs	2
Max. installation width	2 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 1 2
Part No.	900 617
Packing unit	1 pc(s).

MVS 2-pole, single-phase



NEW

MVS 1 3	
Single-phase unit	✓
Number of contact studs	3
Max. installation width	3 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 1 3
Part No.	900 615
Packing unit	1 pc(s).

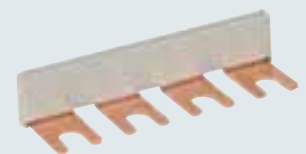
MVS 3-pole, single-phase



NEW

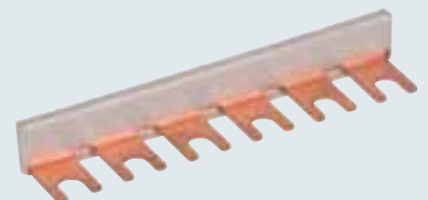
MVS 1 4	
Single-phase unit	✓
Number of contact studs	4
Max. installation width	4 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 1 4
Part No.	900 610
Packing unit	1 pc(s).

MVS 4-pole, single-phase



MVS 1 6	
Single-phase unit	✓
Number of contact studs	6
Max. installation width	6 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 1 6
Part No.	900 815
Packing unit	1 pc(s).

MVS 6-pole, single-phase



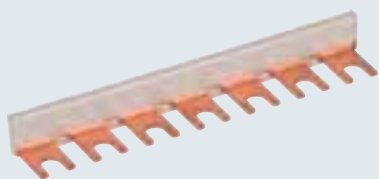
NEW

Busbars / Modular Wiring System

POWER SUPPLY SYSTEMS

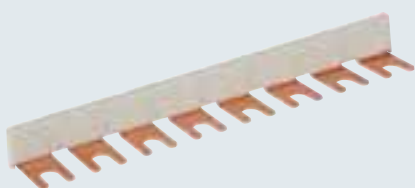
ACCESSORIES

MVS 7-pole, single-phase



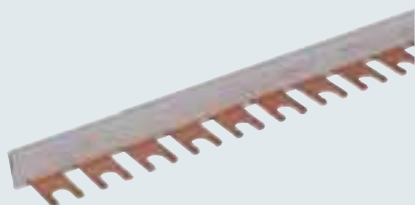
MVS 1 7	
Single-phase unit	✓
Number of contact studs	7
Max. installation width	7 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 1 7
Part No.	900 848
Packing unit	1 pc(s).

MVS 8-pole, single-phase



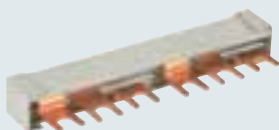
MVS 1 8	
Single-phase unit	✓
Number of contact studs	8
Max. installation width	8 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 1 8
Part No.	900 611
Packing unit	1 pc(s).

MVS 57-pole, single-phase



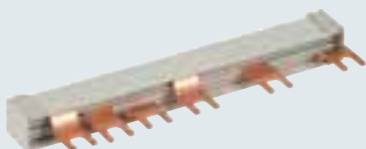
MVS 1 57	
Single-phase unit	✓
Number of contact studs	57
Max. installation width	57 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 1 57
Part No.	900 612
Packing unit	1 pc(s).

MVS 6-pole, three-phase



MVS 3 6	
Three-phase unit	✓
Number of contact studs	6
Max. installation width	6 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 3 6
Part No.	900 595
Packing unit	1 pc(s).

MVS 6-pole, three-phase



MVS 3 6 8	
Three-phase unit	✓
Number of contact studs	6
Max. installation width	8 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 3 6 8
Part No.	900 813
Packing unit	1 pc(s).

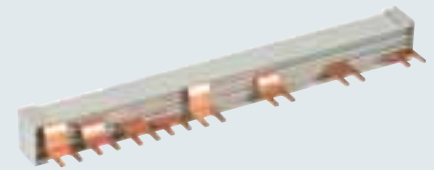
POWER SUPPLY SYSTEMS

Busbars / Modular Wiring System

ACCESSORIES

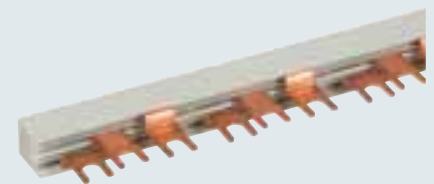
MVS 4 8 11	
Four-phase unit	✓
Number of contact studs	8
Max. installation width	11 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 4 8 11
Part No.	900 814
Packing unit	1 pc(s).

MVS 8-pole, four-phase



MVS 4 56	
Four-phase unit	✓
Number of contact studs	56
Max. installation width	56 mods.
Nominal cross section	16 mm ²
Ordering information	
Type	MVS 4 56
Part No.	900 614
Packing unit	1 pc(s).

MVS 56-pole, four-phase



EB DG 1000 1 3	
Single-phase unit	✓
Number of contact studs	3
Dimension	34 x 112 x 3 mm
Terminal	up to 25 mm ²
Ordering information	
Type	EB DG 1000 1 3
Part No.	900 411
Packing unit	1 pc(s).

**DG Earthing Clip
3-pole, single-phase**



EB 1 4 9	
Single-phase unit	✓
Number of contact studs	4
Dimension	34 x 148 x 3 mm
Nominal cross section	up to 25 mm ²
Ordering information	
Type	EB 1 4 9
Part No.	900 417
Packing unit	1 pc(s).

**Earthing Clip
4-pole, single-phase**





Surge protection for INFORMATION TECHNOLOGY SYSTEMS

SPDs for installations and equipment






























































Discontinued Products		Alternatives	
Part No.	Type	Part No.	Type
Pluggable SPDs for DIN rail mounting			
BLITZDUCTOR CT		BLITZDUCTOR XT	
919 506	BCT BAS	920 300	BXT BAS
919 310	BCT MLC B 110	920 310	BXT ML4 B 180
919 320	BCT MLC BE 5	920 220	BXT ML2 BE S 5
		920 320	BXT ML4 BE 5
919 321	BCT MLC BE 12	920 222	BXT ML2 BE S 12
		920 322	BXT ML4 BE 12
919 322	BCT MLC BE 15	920 222	BXT ML2 BE S 12
		920 322	BXT ML4 BE 12
919 323	BCT MLC BE 24	920 224	BXT ML2 BE S 24
		920 324	BXT ML4 BE 24
919 324	BCT MLC BE 30	920 224	BXT ML2 BE S 24
		920 324	BXT ML4 BE 24
919 325	BCT MLC BE 48	920 225	BXT ML2 BE S 48
		920 325	BXT ML4 BE 48
919 326	BCT MLC BE 60	920 326	BXT ML4 BE 60
919 327	BCT MLC BE 110	920 327	BXT ML4 BE 180
919 360	BCT MLC BE C 5	---	
919 361	BCT MLC BE C 12	---	
919 362	BCT MLC BE C 24	920 364	BXT ML4 BE C 24
919 363	BCT MLC BE C 30	920 364	BXT ML4 BE C 24
919 340	BCT MLC BD 5	920 240	BXT ML2 BD S 5
		920 340	BXT ML4 BD 5
919 341	BCT MLC BD 12	920 242	BXT ML2 BD S 12
		920 342	BXT ML4 BD 12
919 342	BCT MLC BD 15	920 242	BXT ML2 BD S 12
		920 342	BXT ML4 BD 12
919 343	BCT MLC BD 24	920 244	BXT ML2 BD S 24
		920 344	BXT ML4 BD 24
919 344	BCT MLC BD 30	920 244	BXT ML2 BD S 24
		920 344	BXT ML4 BD 24
919 345	BCT MLC BD 48	920 245	BXT ML2 BD S 48
		920 345	BXT ML4 BD 48
919 346	BCT MLC BD 60	920 346	BXT ML4 BD 60
919 347	BCT MLC BD 110	920 247	BXT ML2 BD 180
		920 347	BXT ML4 BD 180
919 349	BCT MLC BD 250	---	
919 370	BCT MLC BD HF 5	920 270	BXT ML2 BE HFS 5
		920 370	BXT ML4 BE HF 5
919 371	BCT MLC BD HFD 5	920 271	BXT ML2 BD HFS 5
		920 371	BXT ML4 BD HF 5
919 375	BCT MLC BD HFD 24	920 375	BXT ML4 BD HF 24
919 520	BCT MOD ME 5	920 220	BXT ML2 BE S 5
		920 320	BXT ML4 BE 5
919 521	BCT MOD ME 12	920 222	BXT ML2 BE S 12
		920 322	BXT ML4 BE 12

























































Accessories for compact SPDs for DIN rail mounting			
919 885	KB 5 DCO RK	---	
919 888	KB 8 DCO RK	---	
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
SPDs for 19" technology			
929 067	NET PRO ISDN	929 100	DPA M CAT6 RJ45S 48
929 068	NET PRO ISDN LSA	929 100	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
SPDs for RJ connection			
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
























































Discontinued Products		Alternatives	
Part No.	Type	Part No.	Type
Pluggable SPDs for DIN rail mounting			
BLITZDUCTOR CT		BLITZDUCTOR XT	
919 522	BCT MOD ME 15	920 222	BXT ML2 BE S 12
		920 322	BXT ML4 BE 12
919 523	BCT MOD ME 24	920 224	BXT ML2 BE S 24
		920 324	BXT ML4 BE 24
919 524	BCT MOD ME 30	920 224	BXT ML2 BE S 24
		920 324	BXT ML4 BE 24
919 525	BCT MOD ME 48	920 225	BXT ML2 BE S 48
		920 325	BXT ML4 BE 48
919 526	BCT MOD ME 60	920 326	BXT ML4 BE 60
919 527	BCT MOD ME 110	920 327	BXT ML4 BE 180
919 560	BCT MOD ME C 5	---	
919 561	BCT MOD ME C 12	---	
919 562	BCT MOD ME C 24	920 364	BXT ML4 BE C 24
919 563	BCT MOD ME C 30	920 364	BXT ML4 BE C 24
919 540	BCT MOD MD 5	920 240	BXT ML2 BD S 5
		920 340	BXT ML4 BD 5
919 541	BCT MOD MD 12	920 242	BXT ML2 BD S 12
		920 342	BXT ML4 BD 12
919 542	BCT MOD MD 15	920 242	BXT ML2 BD S 12
		920 342	BXT ML4 BD 12
919 543	BCT MOD MD 24	920 244	BXT ML2 BD S 24
		920 344	BXT ML4 BD 24
919 544	BCT MOD MD 30	920 244	BXT ML2 BD S 24
		920 344	BXT ML4 BD 24
919 545	BCT MOD MD 48	920 245	BXT ML2 BD S 48
		920 345	BXT ML4 BD 48
919 546	BCT MOD MD 60	920 346	BXT ML4 BD 60
919 547	BCT MOD MD 110	920 247	BXT ML2 BD 180
		920 347	BXT ML4 BD 180
919 549	BCT MOD MD 250	---	
919 570	BCT MOD MD HF 5	920 270	BXT ML2 BE HFS 5
		920 370	BXT ML4 BE HF 5
919 571	BCT MOD MD HFD 5	920 271	BXT ML2 BD HFS 5
		920 371	BXT ML4 BD HF 5
919 575	BCT MOD MD HFD 24	920 375	BXT ML4 BD HF 24
919 552	BCT MOD MD TC N	---	
919 589	BCT MOD MY 250	920 389	BXT ML4 MY 250
919 502	GDT 90	---	
919 504	BCT MOD PTS	920 309	BXT M4 T
919 505	EKS BCT	920 308	BXT M4 E
919 508	EFK BCT	920 395	SAK BXT LR



















































SPDs for coaxial connection			
929 041	DGA G 1.6 5.6	929 040	DGA F 1.6 5.6
929 049	DGA L4 N B	929 059	DGA L4 N EB
929 058	DGA G N 3	929 044	DGA G N
SPDs for terminal connection			
924 271	DSM TC 1 SK	924 272	DSM TC 2 SK
924 273	DSM TC DK SK	---	
Accessories for screwable SPDs			
929 981	KV S M20 MS 13	---	
929 985	KV M20 MS 8	---	
SPDs for potentially explosive areas			
919 507	BCT BAS EX	920 301	BXT BAS EX
919 580	BCT MOD MD EX 24	920 381	BXT ML4 BD EX 24
919 581	BCT MOD MD EX 30	920 381	BXT ML4 BD EX 24
919 583	BCT MOD MD HFD EX 6	---	




























































				Easy choice according to Interface/Signal		134
				Pluggable SPDs for DIN rail mounting		155
				Compact SPDs for DIN rail mounting		173
				SPDs for LSA technology		193
				SPDs for 19" technology		209
				SPDs for RJ connection		215
				SPDs for BT Jack connection		227
				SPDs for coaxial connection		229
				SPDs for D-SUB connection		243
				SPDs for terminal connection		251
				Screwable SPDs		259
				SPDs for use in potentially explosive areas		263
				Accessories for terminal block systems		283
				Combined adapters		295



























































Bus systems and measuring and control technology											
Interface /Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD	Part No.	Page
					TYPE						
					1	2	3	4			
0-20 mA, 4-20 mA (also with HART)		screw terminals	4	●	●					920 324 + 920 300	159
		screw terminals	2	●	●					920 224 + 920 300	168
		spring terminals	2			●				919 921	174
		spring terminals	2				●			919 988	179
		wires / terminals	2			●				929 921	261
4-20 mA (also with HART) according to NAMUR recommen- dation NE 21 or according to EN 61000-4-5, open-circuit voltage 0.5 kV A-A, 1 kV A-PG		screw terminals	4	●	●					920 344 + 920 300	160
		screw terminals	2	●	●					920 244 + 920 300	167
		spring terminals	2			●				919 941	175
		screw terminals	4			●				918 407	184
		wires / terminals	2			●				929 941	260
		LSA	20			●				907 401 + 907 498 + 907 442	196
3/4 conductor measuring		screw terminals	4	●	●					920 354 + 920 300	161
ADVANT		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		screw terminals	5			●				918 401	185
		spring terminals	2			●				919 970	178
AS interface		vampir taps	2			●				925 013	257
Binary signals		screw terminals	4	●	●					920 320 – 327 + 920 300	159
		screw terminals	2	●	●					920 220 – 225 + 920 300	168
		spring terminals	2			●				919 920 – 923	174
		spring terminals	2				●			919 987 – 990	179
		LSA	20			●				907 401 + 907 498 + 907 422	196
Bitbus		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
BLN (Building Level Network)		screw terminals	4	●	●					920 342 + 920 300	160
		screw terminals	2	●	●					920 242 + 920 300	167
		screw terminals	4	●	●					920 345 + 920 300	160
		screw terminals	2	●	●					920 245 + 920 300	167





























































Bus systems and measuring and control technology											
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD 	Part No.	Page
					TYPE 1	TYPE 2	TYPE 3	TYPE 4			
CAN Bus (data line only)		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
		LSA	20		●					907 401 + 907 498 + 907 465	196
C Bus (Honeywell)		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
CP installations											
Sensor circuit		screw terminals	2		●					918 421 / 405	189
Anode circuit		screw terminals	2		●					918 420 / 404	188
Control Net		BNC	1			●				929 010	230
		BNC	1			●				909 710 / 111	233
Data Highway Plus		screw terminals	4	●	●					920 342 + 920 300	160
		screw terminals	2	●	●					920 242 + 920 300	167
		spring terminals	2			●				919 940	175
d.c. power supply +24 V d.c.		screw terminals	2			●				918 402	186
Delta Net Peer Bus		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
Device Net (data line only)		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
Dupline		screw terminals							Module available on request + 920 300	--	
E Bus (Honeywell)		screw terminals	4	●	●					920 345 + 920 300	160
		screw terminals	2	●	●					920 245 + 920 300	167
EIB		screw terminals	4	●	●					920 310 + 920 300	158
		wires	2			●				925 001	255
		LSA	20		●					907 401	196





























































Bus systems and measuring and control technology											
Interface /Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD	Part No.	Page
					TYPE						
					1	2	3	4			
Electroacoustic system (ELA)		screw terminals	4	●	●					920 327 + 920 300	159
		spring terminals	2			●				919 923	174
		LSA	20		●					907 401 + 907 498 + 907 445	196
ET 200		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
Ex(d) circuits 4-20 mA, NAMUR, HART, PROFIBUS-PA, FF		wires	2			●				929 962 / 964	270
Ex (i) circuits 4-20 mA, NAMUR, HART		screw terminals	4	●	●					920 381 + 920 301	274
		spring terminals	2			●				919 960	282
		wires / terminals	2			●				929 960	265
		wires	2			●				929 961 / 963	268
Fieldbus Foundation		screw terminals	4	●	●					920 344 + 920 300	160
		screw terminals	2	●	●					920 244 + 920 300	167
		spring terminals	2			●				919 941	175
		wires / terminals	2			●				929 941	260
		LSA	20		●					907 401 + 907 498 + 907 442	196
Fieldbus Foundation Ex(i)		screw terminals	4	●	●					920 381 + 920 301	274
		spring terminals	2			●				919 960	282
		wires / terminals	2			●				929 960	265
		wires	2			●				929 961 / 963	268
FIPIO/FIPWAY		screw terminals	4	●	●					920 344 + 920 300	160
		screw terminals	2	●	●					920 244 + 920 300	167
FIP I/O		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
FSK		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178





















































Bus systems and measuring and control technology											
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD 	Part No.	Page
					TYPE 1	TYPE 2	TYPE 3	TYPE 4			
Genius I/O Bus		screw terminals	4	●	●					920 342 + 920 300	160
		screw terminals	2	●	●					920 242 + 920 300	167
IEC Bus (RS 485)		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
Industrial Ethernet		LSA	20		●					907 401 + 907 498 + 907 470	196
		RJ45	8			●				929 100 / 110	216
		RJ45	8			●				929 121	217
		RJ45, LSA	8 x 8				●			929 035 / 036	211
		RJ45, LSA	8 x 8					●		929 037	211
INTERBUS INLINE (I/O)		screw terminals	4	●	●					920 345 + 920 300	160
		screw terminals	4	●	●					920 325 + 920 300	159
INTERBUS Loop		spring terminals	2			●				919 988	179
Interbus S		screw terminals	2	●	●					920 270 + 920 300	169
		screw terminals	5			●				918 401	185
K Bus		screw terminals	4	●	●					920 344 + 920 300	160
		screw terminals	2	●	●					920 244 + 920 300	167
		spring terminals	2			●				919 941	175
KBR Energy bus		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
KNX Bus		screw terminals	4	●	●					920 310 + 920 300	158
		wires	2			●				925 001	255
		LSA	20		●					907 401	196





















































Bus systems and measuring and control technology											
Interface /Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD	Part No.	Page
					TYPE						
					1	2	3	4			
LON - TP/XF 78 - TP/FTT10 (up to 1 A) and TP/LPT10 (up to 1 A) (up to 1.7 A) (up to 0.4 A) - TP/FTT 10		screw terminals	4	●	●					920 340 + 920 300	160
		screw terminals	2	●	●					920 240 + 920 300	167
		screw terminals	4	●	●					920 345 + 920 300	160
		screw terminals	2	●	●					920 245 + 920 300	167
		spring terminals	2			●				919 942	176
		LSA	20		●					907 401 + 907 498 + 907 443	196
		screw terminals	4	●	●					920 371 + 920 300	164
		screw terminals	2	●	●					920 271 + 920 300	170
LUXMATE Bus		screw terminals	4	●	●					920 344 + 920 300	160
		screw terminals	2	●	●					920 244 + 920 300	167
M Bus		screw terminals	4	●	●					920 345 + 920 300	160
		screw terminals	2	●	●					920 245 + 920 300	167
		spring terminals	2			●				919 942	176
		LSA	20		●					907 401 + 907 498 + 907 443	196
Melsec Net 2		BNC	1		●					929 010	230
		BNC	1		●					909 710 / 111	233
MODBUS		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
		LSA	20		●					907 401 + 907 498 + 907 465	196
MPI Bus		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
N1 LAN		screw terminals	4	●	●					920 371 + 920 300	164
		screw terminals	2	●	●					920 271 + 920 300	170
		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
		BNC	1		●					909 710 / 111	233



























































Bus systems and measuring and control technology											
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD 	Part No.	Page
					TYPE 1	TYPE 2	TYPE 3	TYPE 4			
N2 Bus (Johnson Controls, LON, FTT 10)		screw terminals	4	●	●					920 371 + 920 300	164
		screw terminals	2	●	●					920 271 + 920 300	170
Optocoupler Interface		screw terminals	4	●	●					920 364 + 920 300	162
		screw terminals	4			●				918 400	183
Procontic CS31 (RS 232)		screw terminals	4	●	●					920 322 + 920 300	159
Procontic T200 (RS 422)		screw terminals	4	●	●					920 371 + 920 300	164
		screw terminals	5			●				918 401	185
PROFIBUS-DP/FMS		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		D-Sub 9-pole	4				●			924 017	244
		spring terminals	2			●				919 970	178
		LSA	20		●					907 401 + 907 498 + 907 465	196
PROFIBUS PA		screw terminals	4	●	●					920 344 + 920 300	160
		screw terminals	2	●	●					920 244 + 920 300	167
		spring terminals	2			●				919 941	175
		wires / terminals	2			●				929 941	260
		LSA	20		●					907 401 + 907 498 + 907 442	196
PROFIBUS PA Ex (i)		screw terminals	4	●	●					920 381 + 920 301	274
		spring terminals	2			●				919 960	282
		wires / terminals	2			●				929 960	265
		wires	2			●				929 961 / 963	268
PROFIBUS SIMATIC NET		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
PSM EG RS 422		screw terminals	4	●	●					920 371 + 920 300	164
		screw terminals	5			●				918 401	185
PSM EG RS 485		screw terminals	4	●	●					920 371 + 920 300	164
		screw terminals	2	●	●					920 271 + 920 300	170
		screw terminals	5			●				918 401	185

























































Bus systems and measuring and control technology											
Interface /Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD 	Part No.	Page
					TYPE						
					1	2	3	4			
Rackbus (RS 485)		screw terminals	4	●	●					920 371 + 920 300	164
		screw terminals	2	●	●					920 271 + 920 300	170
		screw terminals	5			●				918 401	185
R Bus		screw terminals	4	●	●					920 340 + 920 300	160
		screw terminals	2	●	●					920 240 + 920 300	167
		spring terminals	2			●				919 970	178
RS 485		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		screw terminals	5			●				918 401	185
		spring terminals	2			●				919 970	178
		LSA	20		●					907 401 + 907 498 + 907 465	196
RS 422, V11		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		screw terminals	5			●				918 401	185
		spring terminals	2			●				919 970	178
		D-Sub 15-pole	6			●				924 051	249
		D-Sub 15-pole	6				●			924 016	246
		LSA	20		●					907 401 + 907 498 + 907 465	196
S Bus		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
SafetyBUS p		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
SDLC		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
SDLS		RJ45, screw terminals	4			●				918 410	219
		LSA	20		●					907 401 + 907 498 + 907 470	196
















Bus systems and measuring and control technology											
Interface /Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD 	Part No.	Page
					TYPE						
					1	2	3	4			
Securilan LON Bus (LONWORKS Technology Standard Bus based on Echelon)		screw terminals	4	●	●					920 340 + 920 300	160
		screw terminals	2	●	●					920 240 + 920 300	167
		spring terminals	2			●				919 970	178
SIGMASYS (Siemens fire alarm system)		screw terminals	4	●	●					920 345 + 920 300	160
		screw terminals	2	●	●					920 245 + 920 300	167
		screw terminals	4	●	●					920 325 + 920 300	159
		screw terminals	2	●	●					920 225 + 920 300	168
		LSA	20		●					907 401 + 907 498 + 907 423	196
SINEC L1		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
SINEC L2		screw terminals	4	●	●					920 370 + 920 300	163
		screw terminals	2	●	●					920 270 + 920 300	169
		spring terminals	2			●				919 970	178
		D-Sub 9-pole	4				●			924 017	244
SS97 SINIS (RS 232)		screw terminals	4	●	●					920 322 + 920 300	159
		screw terminals	2	●	●					920 222 + 920 300	168
SUCONET		screw terminals	4	●	●					920 340 + 920 300	160
		screw terminals	2	●	●					920 240 + 920 300	167
TELEPERM M Analogue input		screw terminals	4	●	●					920 322 + 920 300	159
		screw terminals	2	●	●					920 222 + 920 300	168
		screw terminals	4	●	●					920 324 + 920 300	159
		screw terminals	2	●	●					920 224 + 920 300	168
		spring terminals	2			●				919 920 / 921	174
		LSA	20		●					907 401 + 907 498 + 907 421	196
		LSA	20		●					907 401 + 907 498 + 907 422	196
TELEPERM M Binary input/output		screw terminals	4	●	●					920 325 + 920 300	159
		screw terminals	2	●	●					920 225 + 920 300	168
		spring terminals	2			●				919 942	176
		LSA	20		●					907 401 + 907 498 + 907 423	196







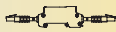































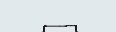







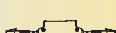




Bus systems and measuring and control technology											
Interface /Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD 	Part No.	Page
					TYPE						
					1	2	3	4			
TELEPERM MES 100 K		screw terminals	4	●	●					920 322 + 920 300	159
		screw terminals	2	●	●					920 222 + 920 300	168
		spring terminals	2			●				919 920	174
		LSA	20		●					907 401 + 907 498 + 907 421	196
TELEPERM MFM 100		screw terminals	4	●	●					920 342 + 920 300	160
		screw terminals	2	●	●					920 242 + 920 300	167
		spring terminals	2			●				919 940	175
TELEPERM M Coupling AG S5		screw terminals	4	●	●					920 324 + 920 300	159
		screw terminals	2	●	●					920 224 + 920 300	168
		spring terminals	2			●				919 921	174
		LSA	20		●					907 401 + 907 498 + 907 422	196
TELEPERM M Relais output		screw terminals	4	●	●					920 310 + 920 300	158
Temperature measuring PT 100, PT 1000 Ni 1000, NTC, PTC		screw terminals	4	●	●					920 350 + 920 300	161
		screw terminals	4	●	●					920 354 + 920 300	161
		screw terminals	4	●	●					920 320 + 920 300	159
		screw terminals	2	●	●					920 220 + 920 300	168
		spring terminals	2			●				919 970	178
Temperature measuring Ex(i) PT 100, PT 1000, Ni 1000, NTC, PTC		screw terminals	4	●	●					920 384 + 920 301	275
TTL		screw terminals	4	●	●					920 322 + 920 300	159
		screw terminals	2	●	●					920 222 + 920 300	168
		spring terminals	2			●				919 920	174
		D-Sub 25-pole	4, 9			●				924 046	250
		D-Sub 9-pole	9				●			924 019	245
TTY		screw terminals	4	●	●					920 364 + 920 300	162
		screw terminals	4			●				918 400	183
























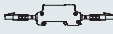







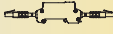


Telecommunications, Telephony											
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck	SPD class				SPD	Part No.	Page
					TYPE	1	2	3			
a/b wires		LSA	20		●					907 401 + 907 498 + 907 430	196
		RJ45, LSA	8 x 2			●				929 071 / 072	212
		screw terminals	4	●	●					920 347 + 920 300	160
		RJ45, screw terminals	2			●				918 411	220
	Combined adapter	TAE, RJ12	2			●				909 310	297
		BT jack	6			●				929 026	228
ADSL		screw terminals	4	●	●					920 347 + 920 300	160
		screw terminals	2	●	●					920 247 + 920 300	166
		LSA	20		●					907 401 + 907 498 + 907 430	196
		wires	2			●				924 272	253
	Combined adapter	TAE, RJ12	2			●				909 310	297
		RJ45, LSA	8 x 2			●				929 071 / 072	212
		RJ45, screw terminals	2			●				918 411	220
		BT jack	6			●				929 026	228
ADSL 2+		LSA	20		●					907 401 + 907 498 + 907 430	196
		screw terminals	4	●	●					920 347 + 920 300	160
Datex-P		screw terminals	4	●	●					920 375 + 920 300	164
E1		RJ45, LSA	8 x 2			●				929 100 / 110	216
		LSA	20		●					907 401 + 907 498 + 907 470	196
		RJ45, LSA	8 x 4			●				929 075	213
		screw terminals	4	●	●					920 375 + 920 300	164
G.703 koax		1.6/5.6 Connector	1				●			929 040	235
G.703 / G.704		insulation piercing connecting device	2			●				907 214	203
		RJ45, LSA	8 x 4			●				929 075	213
		RJ45, LSA	8 x 2			●				929 100 / 110	216
		LSA	20		●					907 401 + 907 498 + 907 470	196
		screw terminals	4	●	●					920 375 + 920 300	164


























































Telecommunications, Telephony											
Interface /Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD 	Part No.	Page
					TYPE						
					1	2	3	4			
HDSL up to 30 dBm for 600 W		screw terminals	4	●	●					920 375 + 920 300	164
		LSA	20		●					907 401 + 907 498 + 907 470	196
		RJ45, LSA	8 x 2			●				929 100 / 110	216
		RJ45, LSA	8 x 4			●				929 075	213
ISDN S ₀		screw terminals	4	●	●					920 375 + 920 300	164
		RJ45	4			●				929 024	224
		LSA	20		●					907 401 + 907 498 + 907 470	196
		wires	4			●				924 270	252
	Combined adapter	RJ45	4			●				909 320	298
		RJ45, LSA	8 x 2			●				929 100 / 110	216
		RJ45, screw terminals	4			●				918 410	219
	RJ45, screw terminals	4			●				924 274	222	
ISDN S _{2m} / U _{2m}		screw terminals	4	●	●					920 375 + 920 300	164
		LSA	20		●					907 401 + 907 498 + 907 470	196
		RJ45, LSA	8 x 2			●				929 100 / 110	216
		RJ45, LSA	8 x 4			●				929 075	213
ISDN U _{k0} / U _{p0}		screw terminals	4	●	●					920 347 + 920 300	160
		screw terminals	2	●	●					920 247 + 920 300	166
		spring terminals	2			●				919 943	177
		LSA	20		●					907 401 + 907 498 + 907 430	196
		RJ45, LSA	8 x 2			●				929 071 / 072	212
	Combined adapter	TAE, RJ12	2			●				909 310	297
		RJ45, screw terminals	2			●				918 411	220
Modem M1		screw terminals	4	●	●					920 322 + 920 300	159
		screw terminals	2	●	●					920 222 + 920 300	168
SDSL		RJ45, LSA	8 x 2			●				929 100 / 110	216
		LSA	20			●				907 401 + 907 498 + 907 470	196
		screw terminals	4	●	●					920 375 + 920 300	164
		RJ45, LSA	8 x 4			●				929 075	213






























































Telecommunications, Telephony											
Interface / Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD	Part No.	Page
					TYPE						
					1	2	3	4			
SHDSL		screw terminals	4	●	●					920 371 + 920 300	164
		screw terminals	4	●	●					920 375 + 920 300	164
		RJ45, LSA	8 x 2			●				929 100 / 110	216
		LSA	20		●					907 401 + 907 498 + 907 470	196
		screw terminals	4	●	●					920 310 + 920 300	158
		RJ45, LSA	8 x 4			●				929 075	213
Telephony System Telephony e. g. Siemens, HICOM, Alcatel		screw terminals	2	●	●					920 247 + 920 300	166
		spring terminals	2			●				919 943	177
		RJ45, RJ11	4			●				929 028	225
		RJ12	2			●				929 081	226
		LSA	20		●					907 401 + 907 498 + 907 430	196
		LSA	20		●					907 401 + 907 498 + 907 445	196
		wires	4			●				924 272	253
		RJ45, insulation piercing connecting device	8 x 2			●				929 071 / 072	212
	Combined adapter	TAE, RJ12	2			●				909 310	297
		RJ45, screw terminals	2			●				918 411	220
T-DSL		screw terminals	4	●	●					920 347 + 920 300	160
		screw terminals	2	●	●					920 247 + 920 300	166
		LSA	20		●					907 401 + 907 498 + 907 430	196
		wires	2			●				924 272	253
	Combined adapter	TAE, RJ12	2			●				909 310	297
		RJ45, LSA	8 x 2			●				929 071 / 072	212
		RJ45, screw terminals	2			●				918 411	220
Telecommunications systems		LSA	20		●					907 401 + 907 498 + 907 430	196
		RJ45, LSA	8 x 2			●				929 071 / 072	212
		screw terminals	2	●	●					920 347 + 920 300	160
		RJ45, screw terminals	2			●				918 411	220
	Combined adapter	TAE, RJ12	2			●				909 310	297
		BT jack	6			●				929 026	228





















Telecommunications, Telephony											
Interface /Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD	Part No.	Page
					TYPE						
					1	2	3	4			
Universal lightning equipotential bonding		screw terminals	4	●	●					920 310 + 920 300	158
		LSA	20		●					907 400	195
		LSA	20		●					907 401	196
		insulation piercing connecting device	20			●				907 214	203
		insulation piercing connecting device	20			●				907 216	203
VDSL		LSA	20		●					907 401	196
		screw terminals	4	●	●					920 310 + 920 300	158

Data networks											
Interface/Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD	Part No.	Page
					TYPE						
					1	2	3	4			
Arcnet		BNC	1			●				929 010	230
		BNC	1			●				909 710 / 111	233
ATM		RJ45	8			●				929 100 / 110	216
		RJ45	8			●				929 121	217
		RJ45, LSA	8 x 8				●			929 035 / 036	211
		RJ45, LSA	8 x 8					●		929 037	211
Ethernet 10/100/1000		RJ45	8			●				929 100 / 110	216
		RJ45	8			●				929 121	217
		RJ45, LSA	8 x 8				●			929 035 / 036	211
		RJ45, LSA	8 x 8					●		929 037	211
	10 Base T 	RJ45, screw terminals	4			●				924 274	222
	Combinded adapter 	RJ45	4			●				909 320	298
		LSA	20		●					907 401 + 907 498 + 907 470	196
FDDI, CDDI		RJ45	8			●				929 100 / 110	216
		RJ45	8			●				929 121	217
		RJ45, LSA	8 x 8				●			929 035 / 036	211
		RJ45, LSA	8 x 8					●		929 037	211
Industrial Ethernet		LSA	20		●					907 401 + 907 498 + 907 470	196
		RJ45	8			●				929 100 / 110	216
		RJ45	8			●				929 121	217
		RJ45, LSA	8 x 8				●			929 035 / 036	211
		RJ45, LSA	8 x 8					●		929 037	211
Power over Ethernet		RJ45	8			●				929 100 / 110	216
		RJ45	8			●				929 121	217
		RJ45, LSA	8 x 8					●		929 037	211

Data networks											
Interface /Signal	For mounting on	Connection system	Protected lines	LifeCheck 	SPD class				SPD	Part No.	Page
					TYPE						
					1	2	3	4			
Token Ring		LSA	20		●					907 401 + 907 498 + 907 470	196
		RJ45	8			●				929 100 / 110	216
		RJ45	8			●				929 121	217
		RJ45, LSA	8 x 8				●			929 035 / 036	211
		RJ45, LSA	8 x 8					●		929 037	211
Combined adapter		RJ45	4			●				909 320	298
V 24 (RS 232 C)		screw terminals	4	●	●					920 322 + 920 300	159
		spring terminals	2			●				919 921	174
		LSA	20		●					907 401 + 907 498 + 907 421	196
		D-Sub 9-, 25-pole	4, 9			●				924 046 / 061	250
		D-Sub 9-, 25-pole	9					●		924 018 / 019	247
VG AnyLAN		RJ45	8			●				929 100 / 110	216
		RJ45	8			●				929 121	217
		RJ45, LSA	8 x 8				●			929 035 / 036	211
		RJ45, LSA	8 x 8					●		929 037	211
Voice over IP		RJ45	8			●				929 100 / 110	216
		RJ45, LSA	8 x 8					●		929 037	211

Antenna systems, Broadband systems, Transmitting and receiving systems, Video systems											
Interface / Signal	For mounting on	Connection system	Protected lines	Frequency range	SPD class				SPD	Part No.	Page
					TYPE						
					1	2	3	4			
AMPS, NADAC (824 – 894 MHz)		BNC	1	d.c. – 4 GHz	●					929 042	236
		BNC	1	d.c. – 1 GHz	●					929 043	237
		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
		N Connector	1	d.c. – 2.5 GHz	●					929 045	237
		7/16 Connector	1	d.c., 806 – 2200 MHz	●					929 046	238
		7/16 Connector	1	880 – 2200 MHz	●					929 048	239
BWA (Broadband Wireless Access)		BNC	1	d.c. – 4 GHz	●					929 042	236
		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
		N Connector	1	2.0 – 6.0 GHz	●					929 059	240
CATV		F Connector	1	d.c., 5 – 2400 MHz	●					909 705	234
	Combined adapter	IEC / F Connector	1	d.c. – 2400 MHz	●					909 300	296
DCS 1800 B162 (1710 – 1880 MHz)		BNC	1	d.c. – 4 GHz	●					929 042	236
		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
		N Connector	1	d.c. – 2.5 GHz	●					929 045	237
		7/16 Connector	1	d.c., 806 – 2200 MHz	●					929 046	238
		7/16 Connector	1	880 – 2200 MHz	●					929 048	239
DCF 77		BNC	1	d.c. – 4 GHz	●					929 042	236
		BNC	1	d.c. – 1 GHz	●					929 043	237
GPS (1565 – 1585 MHz)		BNC	1	d.c. – 4 GHz	●					929 042	236
		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
		N Connector	1	d.c. – 2.5 GHz	●					929 045	237
		7/16 Connector	1	d.c., 806 – 2300 MHz	●					929 046	238
		7/16 Connector	1	880 – 2200 MHz	●					929 048	239
GSM 900, GSMR (876 – 960 MHz)		BNC	1	d.c. – 4 GHz	●					929 042	236
		BNC	1	d.c. – 1 GHz	●					929 043	237
		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
		N Connector	1	d.c. – 2.5 GHz	●					929 045	237
		7/16 Connector	1	d.c., 806 – 2200 MHz	●					929 046	238
		7/16 Connector	1	880 – 2200 MHz	●					929 048	239

Antenna systems, Broadband systems, Transmitting and receiving systems, Video systems											
Interface /Signal	For mounting on	Connection system	Protected lines	Frequency range	SPD class				SPD	Part No.	Page
					1	2	3	4			
PCS 1900 (1850 – 1990 MHz)		BNC	1	d.c. – 4 GHz	●					929 042	236
		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
		N Connector	1	d.c. – 2.5 GHz	●					929 045	237
		7/16 Connector	1	d.c., 806 – 2200 MHz	●					929 046	238
		7/16 Connector	1	880 – 2200 MHz	●					929 048	239
Radio systems		BNC	1	d.c. – 4 GHz	●					929 042	236
		BNC	1	d.c. – 1 GHz	●					929 043	237
		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
		N Connector	1	d.c. – 2.5 GHz	●					929 045	237
		7/16 Connector	1	d.c., 806 – 2200 MHz	●					929 046	238
		U Connector	1	d.c. - 300 MHz	●					929 057	237
		7/16 Connector	1	380 – 512 MHz	●					929 047	239
		7/16 Connector	1	880 – 2200 MHz	●					929 048	239
		N Connector	1	2.0 – 6.0 GHz	●					929 059	240
SAT		F Connector	1	d.c., 5 – 2400 MHz	●					909 705	234
Sky DSL		F Connector	1	d.c., 5 – 2400 MHz	●					909 705	234
TETRA, NMT 450 (380 – 512 MHz)		BNC	1	d.c. – 4 GHz	●					929 042	236
		BNC	1	d.c. – 1 GHz	●					929 043	237
		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
		N Connector	1	d.c. – 2.5 GHz	●					929 045	237
		7/16 Connector	1	380 – 512 MHz	●					929 047	239
TV		F Connector	1	d.c., 5 – 3000 MHz			●			909 703	234
		F Connector	1	d.c. – 2400 MHz	●					909 704	234
		F Connector	1	d.c., 5 – 2400 MHz	●					909 705	234
	Combined adapter	IEC / FConnector	1	d.c. – 2400 MHz	●					909 300	296
UMTS		BNC	1	d.c. – 4 GHz	●					929 042	236
		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
		N Connector	1	d.c. – 2.5 GHz	●					929 045	237
		7/16 Connector	1	d.c., 806 – 2200 MHz	●					929 046	238
		7/16 Connector	1	880 – 2200 MHz	●					929 048	239
WiMax		N Connector	1	2.0 – 6.0 GHz	●					929 059	240

Antenna systems, Broadband systems, Transmitting and receiving systems, Video systems											
Interface/Signal	For mounting on	Connection system	Protected lines	Frequency range	SPD class				SPD	Part No.	Page
					1	2	3	4			
WLAN (2.4 GHz band)		BNC	1	d.c. – 4 GHz	●					929 042	236
		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
WLAN (5 GHz band)		N Connector	1	d.c. – 5.8 GHz	●					929 044	236
		N Connector	1	2.0 – 6.0 GHz	●					929 059	240
Video (2-wire)		screw terminals	4	d.c. – 100 MHz	●					920 370 + 920 300	163
		RJ45	8	d.c. – 250 MHz		●				929 100 / 110	216
		RJ45	8	d.c. – 250 MHz		●				929 121	217
		screw terminals	2	d.c. – 100 MHz	●					920 270 + 920 300	169
Video (coax)		BNC	1	d.c. – 300 MHz	●					929 010	230
		BNC	1	0 – 300 MHz	●					909 710 / 111	233



Category	Type of test	Impulse voltage	Impulse current	Minimum quantity of impulses	Test for
C1		0.5 kV or 1 kV, 1.2/50 µs	0.25 kA or 0.5 kA, 8/20 µs	300	Surge arrester
C2	steep rate of rise	2 kV, 4 kV, or 10 kV, 1.2/50 µs	1 kA, 2 kA or 5 kA, 8/20 µs	10	
C3		≥ 1 kV, 1 kV/µs	10 A, 25 A or 100 A, 10/1000 µs	300	
D1	high energy	≥ 1 kV	0,5 kA, 1 kA or 2,5 kA, 10/350 µs	2	*)

*) Lightning current arrester / Combined lightning current and surge arrester

Voltage and current impulses (preferred values) for determining the voltage limiting characteristics (based on Table 3 of IEC 61643-21 / EN 61643-21)

General

The surge protection components of SPDs have no radioactive isotopes and usually consist of at least one voltage-limiting or voltage-switching device, and sometimes of overcurrent-limiting components as well. SPDs consisting of several stages, must be designed without blind spot, i.e. it has to be ensured that the different protective stages are coordinated to each other. Otherwise, the protective stages will respond only partially and lead to faults within the surge protective device.

Selection of SPDs

When selecting SPDs, the following aspects must be especially taken into consideration:

- Protective effect [Yellow/Line SPD class (discharge capacity and protection level)]
- System parameters (system voltage, nominal current and transmission parameters)
- Installation environment (design, conditions of connection and certifications)

The selection guide according to interface/signal on pages 134 to 151 shall facilitate the choice of the right SPD.

Relevant product standard for the SPDs:

IEC 61643-21 / 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 61643-21 / EN 61643-21, SPDs must be tested with at least one impulse voltage or impulse current as mentioned in the following table, with the indicated number of impulses. Further tests can be performed – even with different pulse amplitudes or quantities. The maximum protection level arisen during this or these tests is indicated as voltage protection level U_p measured at the output of the device. Category C represents especially disturbing pulses with a steep rate of rise and less energy, opposite to the disturbing pulses of category D, which is supposed to simulate high energy loads due to induced partial lightning currents. The category is also indicated in the technical data of the SPDs – both in the description of the discharge capacity (I_n , I_{imp}) and protection level (U_p).

Immunity of terminal devices to be protected

Within the scope of the test for electromagnetic compatibility (EMC), electrical and electronic equipment (devices) must have a predefined immunity against conducted pulse interferences (surges).

Requirements on the immunity and test constructions are specified in EN 61000-4-5.

Different electromagnetic environmental conditions make different demands on the immunity of the devices. The immunity of a device is linked to the test level applied. For classifying the different immunities of terminal devices, the test levels are subdivided into four different stages. Test level 1 includes the minimum requirements on the immunity of the terminal device. Generally, the test level can be taken from the documentation about the device or requested from its manufacturer.

Test levels according to EN 61000-4-5	Corresponds to charging voltage of the test generator
1	0.5 kV
2	1 kV
3	2 kV
4	4 kV

Protective effect of SPDs

Yellow/Line SPDs for use in IT systems can limit conducted interferences to safe values to ensure that the immunity of the terminal device is not exceeded. For protecting a terminal device tested for test level 2, a surge arrester has to be chosen with a let-through value below the EMC test values of the terminal device:

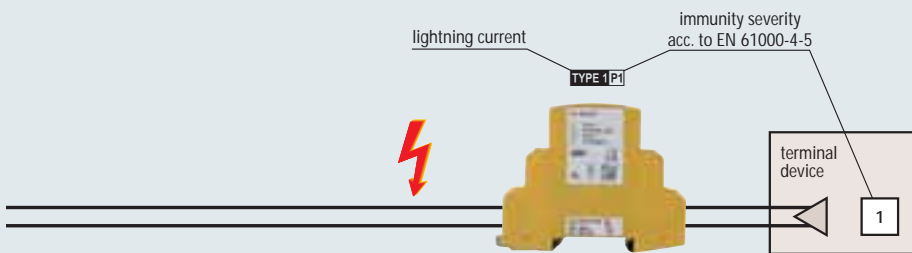
Impulse voltage < 1 kV in combination with a pulse current of a few amperes (in dependence on the coupling network).

All SPD types of the Yellow/Line family for IT systems are assigned a Yellow/Line SPD class and marked correspondingly with a symbol in the technical data sheet and on their rating plates. The symbol for the Yellow/Line SPD class connects graphically 3 important characteristics of the SPD and can be one single symbol or a combination of individual symbols:

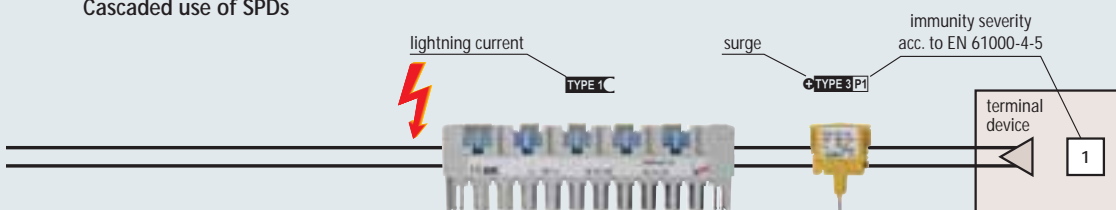
Characteristics	Single symbol	Definition
Discharge capacity of an SPD (according to categories from IEC 61643-21 / EN 61643-21)	TYPE 1	Impulse D1 (10/350 μ s), lightning impulse current \geq 2.5 kA/line or \geq 5 kA/total • exceeds the discharge capacity of TYPE 2 – TYPE 4
	TYPE 2	Impulse C2 (8/20 μ s), increased impulse load \geq 2.5 kA/line or \geq 5 kA/total • exceeds the discharge capacity of TYPE 3 – TYPE 4
	TYPE 3	Impulse C1 (8/20 μ s), impulse load \geq 0.25 kA/line or \geq 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 (to a further Yellow/Line SPD)	+	SPD with decoupling impedance, suitable for coordination with an SPD marked ☐
	☐	SPD is suitable for coordination with an SPD with decoupling impedance +

Examples for energy coordination of SPDs according to Yellow/Line SPD classes:

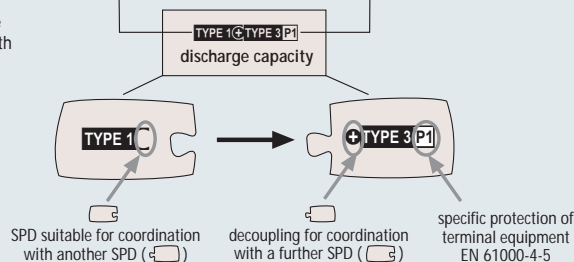
Use of a combined lightning current and surge arrester



Cascaded use of SPDs



Energy coordination of Yellow/Line is independent from conductor length



SPD diagnostics with early warning function!

- Without contacting
- Within seconds
- At low costs

Regular testing of SPDs installed

During operation, an SPD can be overloaded by discharge processes exceeding the equipment specification. In order to ensure high system availability, it is therefore essential to test SPDs on a regular basis. EN 62305-3 (see table excerpt) specifies the maximum intervals between tests of external and internal lightning protection systems.

Protection level	Visual inspection	Complete inspection	Complete inspections 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 BLITZDUCTOR XT with integrated LifeCheck is particularly easy. LifeCheck uses modern RFID (Radio Frequency Identification) technology for monitoring the protective circuit and for communication. Irrespective of downtimes of the system, LifeCheck allows for quick and easy testing of SPDs by means of the hand-held DRC LC M3 reader or the new stationary DRC MCM condition monitoring unit.

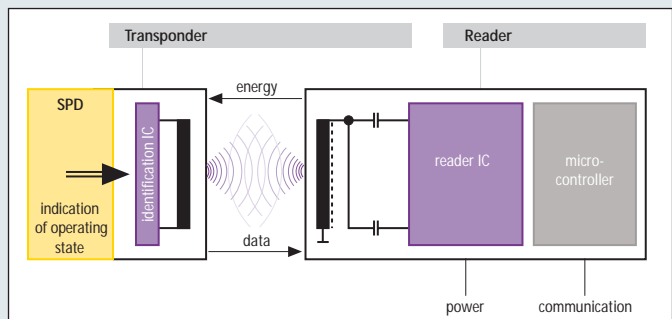
Signal before damage

The 3-stage LifeCheck monitoring circuit with early warning function detects the extreme electrical or thermal load of all protection elements of an SPD below their destruction limit. This can be read out within seconds and without contacting by means of a reader with RFID technology. If the reader displays "OK", no extreme load was detected. If the contrary is the case, the module has to be replaced as soon as possible in order not to threaten availability of the protected circuit.



Testing an SPD module with RFID technology (LifeCheck)

Functional principal of the LifeCheck diagnostics systems



Principle of communication of an SPD and testing device

The diagnostics system consists of two functional units:

- 1. RFID reading and signalling device (reader)**
 Combined with a visual and electrical display, an electronic system transmits energy without contact to the RFID transponder in the SPD via antenna. If the operating state can be read out, an "OK" message is displayed.
- 2. Monitoring unit within the SPD:**
 Diagnostics of the 3-stage LifeCheck monitoring circuit is combined with communication of the RFID transponder:
 - Diagnostics of electrical overload (impulse current)
 If overvoltage peaks may damage components, the transponder interrupts the "OK" message permanently
 - Diagnostics of thermal overload (overheating)
 If the protection elements work in the critical temperature range, thermal fuse elements prevent the "OK" message permanently.

PLUGGABLE SPDs FOR DIN RAIL MOUNTING **Lightning current and surge arrester**



Pluggable multi-pole universal lightning current and surge arrester for use in IT systems. The SPD modules with integrated LifeCheck function allow for quick non-contact testing of SPDs by means of a portable reading device or stationary condition monitoring system. SPD module and base part have to be ordered separately.

BLITZDUCTOR XT is a pluggable multi-pole universal lightning current and surge arrester for mounting onto DIN rails for use in measuring and control circuits, bus systems, alarm systems and telecommunication systems which are subject to maximum availability requirements.

If lightning current arrester type BXT ML4 B 180 establishes the equipotential bonding, a Yellow/Line surge arrester may be installed downstream as a further protective stage for limiting the currents to values bearable for the terminal equipment. The combined lightning current and surge arresters of the BLITZDUCTOR XT series combine the permanently high impulse current discharge capacity of a lightning current arrester with the extremely low protection level of a surge arrester for effective protection of terminal equipment against the influences of lightning and surges caused by switching operations.

LifeCheck allows for quick and easy testing of SPDs without removing the module. Being integrated into the SPD modules, LifeCheck permanently

- Maximum discharge capacity for 2-pole, 3-pole or 4-pole interfaces and minimum space requirements
- 2-pole SPD modules, available with direct or indirect shield earthing
- Integrated 3-stage monitoring system for all protective circuit components with early warning function via LifeCheck
- Allows for easy non-contact testing and monitoring of the SPD modules by reading out with portable DRC LC testing device or stationary condition monitoring device
- Vibration- and shock-proof design for safe operation
- Allows for universal use due to base part and different SPD modules

controls the operating state of the SPD. Just like an early warning system, LifeCheck detects prospective electrical or thermal overloads on the protection components. The LifeCheck operating state can be read out in a second without contact by means of portable DEHNrecord LC and shows when the SPD module was tested last time. The stationary condition monitoring system supports the operating-state-based maintenance of up to 10 BXT devices.

To ensure safe operation, the SPD can withstand vibrations and shock loads up to 30x acceleration of gravity. The function-optimised design of the device ensures both quick and easy replacing of SPD modules where all relevant protection elements are situated.

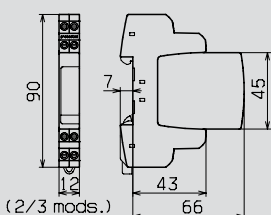
A wide range of accessories makes BLITZDUCTOR XT especially user-friendly. Elements for easy labelling, earthing of unused lines or easy testing of lines complete the program.



BLITZDUCTOR XT installed completely. Two-part design with universal base part and application-specific SPD module. Especially space-saving design, for DIN rail mounting.



Universal base part for all SPD modules. Optimises storage and favors prewiring and service. No signal interruption when replacing the modules.



Dimension drawing of BLITZDUCTOR XT base part with plugged-in SPD module. Width: 2/3 mods. (12 mm), suitable for DIN rail mounting in distribution boards.

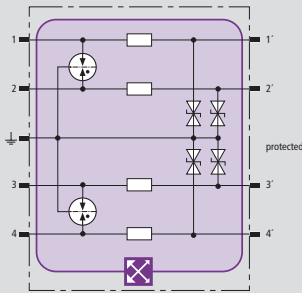


BXT ML4 B ...:
SPD modules for 4 single lines or 2 pairs with LifeCheck for high partial lightning currents.

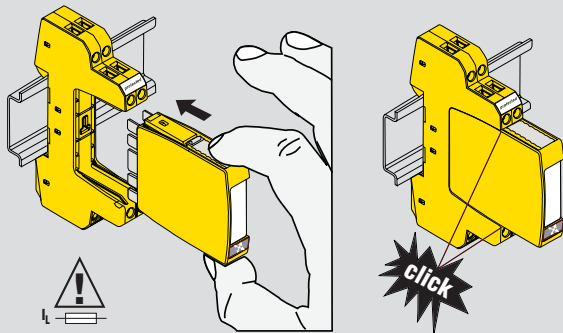
BXT ML2 B:
SPD modules for 2 single lines or 1 pair with LifeCheck for high partial lightning currents. Type BXT ML2 ... S additionally provides connections for direct or indirect shield earthing.

For further types of "BLITZDUCTOR XT for intrinsically safe circuits" please refer to pages 271-277.

Lightning current and surge arrester PLUGGABLE SPDs FOR DIN RAIL MOUNTING



If LifeCheck monitors a protective circuit of an SPD, this is shown graphically in the basic circuit diagram. For BXT, the complete protective circuit is monitored.

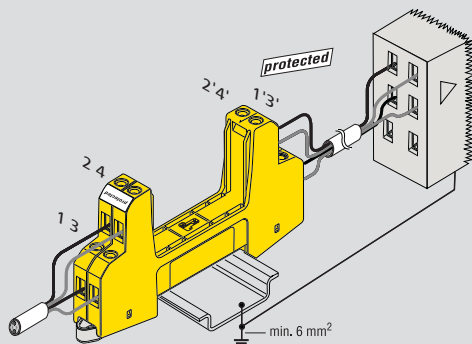
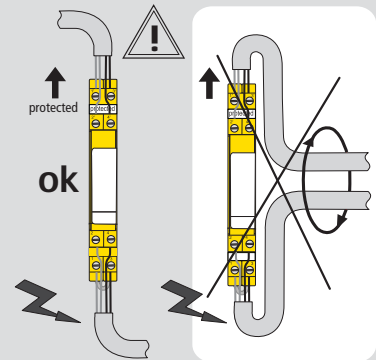


The function-optimised design of the device allows for both "safe plugging" and "easy removing" of an SPD module. The module is secured in the base part by snapping in. By pressing the grey buttons, the module can be removed again without problem. This is ensured by the laminated spring contacts and pressing the module releasing spring.



Testing an SPD module for use in intrinsically safe circuits (blue-coloured) by means of RFID technology (LifeCheck)

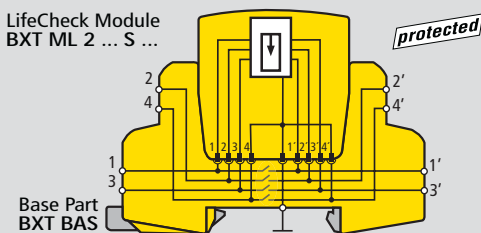
The protected lines have always to be assigned to clamps 1' to 4' (protected) of the base part. In order not to reduce the protective effect, protected and unprotected lines have to be installed separately.



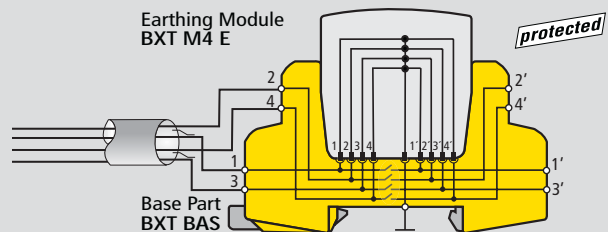
Up to 4 lines can be connected on 2 levels. Corresponding to DIN rail mounting, lines of a pair belonging to each other are connected one above the other.



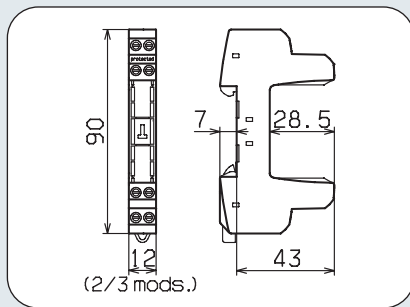
The clamps integrated into the base part can be used with many 2-pole modules for shield earthing. Especially for bus systems, the EMC spring terminal should be used for wide connection of line shields.



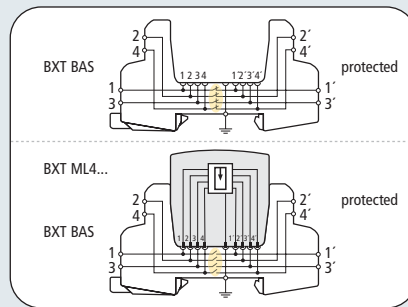
If a both-sided direct earthing of the line shield cannot be performed for technical reasons, one-sided indirect shield earthing may be of advantage. This can be performed by means of SPD modules type BXT ML2 ... S. Their terminal 3, 3' is connected to a gas discharge tube with lightning current carrying capability, which prevents compensating currents. Transient impulse currents on the shield are discharged via the indirect shield earthing.



For a stranded cable, unused lines should be laid and earthed. If the unused lines are connected to base parts, earthing modules type BXT M4 E should be used. These reserve space for retrofitting the SPD modules and the lines can be integrated efficiently into the equipotential bonding.



Dimension drawing BXT BAS



Basic circuit diagram with and without plugged-in module



BLITZDUCTOR XT base part, for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption. The SPD module is safely earthed by the supporting foot of the DIN rail by means of a snap-in fixing device. As there are no components of the protective circuit situated in the base part, maintenance work is only required for the protection modules.

- 4-pole device for universal use with all types of SPD modules
- Allows to plug in and remove the SPD modules without signal interruption
- Universal design without protection components

BXT BAS	
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rail according 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 by	35 mm DIN rail according to EN 60715
Enclosure material	polyamide PA 6.6
Colour	yellow
Approvals, Certifications	CSA, UL, VdS
Ordering information	
Type	BXT BAS
Part No.	920 300
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT Base Part

Labelling system

2 x 50 labels for marking BXT base parts or modules with their current numbers, printed with numbers 1-50.

Type	PU pc(s)	Part No.
BS 1 50 BXT	1	920 399



Accessory Part for BLITZDUCTOR® XT Base Part

Earthing module

Being plugged in, the earthing module short-circuits all lines connected to the BLITZDUCTOR XT base part to PG. It directly earths initially unused cable conductors, which are already connected to the base part.

Type	PU pc(s)	Part No.
BXT M4 E	1	920 308



Accessory Part for BLITZDUCTOR® XT Base Part

EMC spring terminals

2 spring terminals for permanent low-impedant shield contacting of the protected and unprotected side of a BXT device. With integrated terminal coding for direct or indirect shield earthing, with cable ties and insulating strips.

Type	SAK BXT LR
Accessories	cable tie, insulating stripes
Clamping range	3 - 10 mm

Type	PU set	Part No.
SAK BXT LR	1	920 395



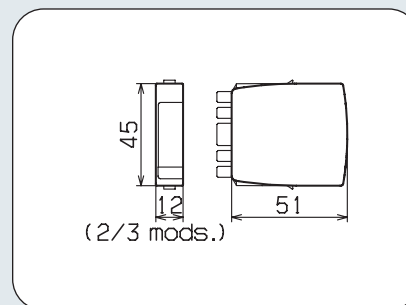
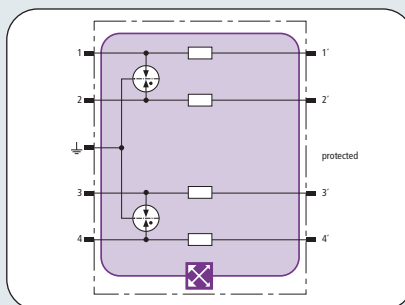
Accessory Part for BLITZDUCTOR® XT Base Part

Test / Disconnection module

Being plugged in, the test/disconnection module interrupts the cable run of the lines connected to the BLITZDUCTOR XT base part and leads them to a test socket at the front side of the module. This makes it possible to carry out measurements in the installation without removing the lines from the base part.

Type	PU pc(s)	Part No.
BXT M4 T	1	920 309





- LifeCheck SPD monitoring
- 4-pole lightning equipotential bonding
- For use according to the lightning protection zones concept at boundaries $O_A - 1$ and higher

LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.

Dimension drawing BXT ML4 B

Space-saving 4-pole lightning current arrester module with LifeCheck monitoring for use in nearly all types of applications. For use in connection with downstream surge arresters **TYPE 2P1** or combined lightning current and surge arresters with lower or equal voltage level.

BXT ML4 B 180

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	130 V
Nominal current for 45°C I_L	1.2 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
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 for 1 kV/µs C3 U_p	≤ 650 V
Voltage protection level line-PG for 1 kV/µs C3 U_p	≤ 550 V
Series impedance per line	0.4 Ohm
Capacitance line-line C	≤ 16 pF
Capacitance line-PG C	≤ 16 pF
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
Pluggable into	base part
Earthing by	base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21, UL 497B
Approvals, Certifications	CSA, VdS

Ordering information	
Type	BXT ML4 B 180
Part No.	920 310
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS

Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

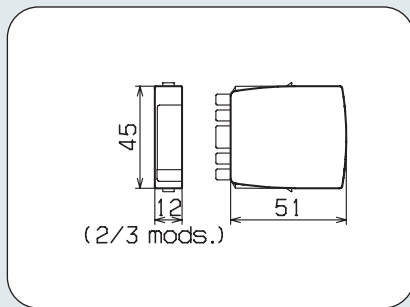
DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

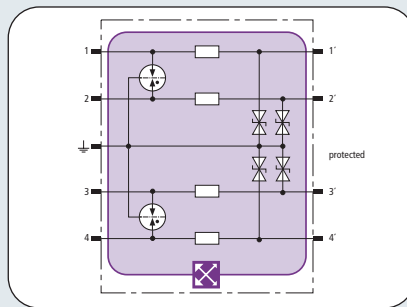


Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.



Dimension drawing BXT ML4 BE



LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.



- LifeCheck SPD monitoring
- Optimal protection for 4 single lines
- For use according to the lightning protection zones concept at boundaries 0_A – 2 and higher

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting 4 single lines with common reference potential as well as unbalanced interfaces.

BXT ML4 ...	BE 5	BE 12	BE 24	BE 36	BE 48	BE 60	BE 180
SPD class	TYPE 1 P1	TYPE 1 P1	TYPE 1 P1	TYPE 1 P1	TYPE 1 P1	TYPE 1 P1	TYPE 1 P2
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	6.0 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 for 45°C I _L	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
Voltage protection level line-line for I _{imp} D1 U _p	≤ 29 V	≤ 50 V	≤ 102 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 for 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 for 1 kV/µs C3 U _p	≤ 9 V	≤ 19 V	≤ 45 V	≤ 56 V	≤ 70 V	≤ 90 V	≤ 250 V
Series impedance per line	1.0 ohm	1.8 ohms	1.8 ohms	0.43 ohms	1.8 ohms	1.0 ohm	1.0 ohm
Bandwidth 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	-40°C...+80°C	-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	IP 20
Pluggable into	base part	base part	base part	base part	base part	base part	base part
Earthing by	base part	base part	base part	base part	base part	base part	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	polyamide PA 6.6
Colour	yellow	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, —	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B	IEC 61643-21, UL 497B
Approvals, Certifications	CSA, VdS	CSA, VdS	CSA, UL, VdS	—	CSA, VdS	CSA, VdS	CSA, UL, VdS

Ordering information							
Type	BXT ML4 BE 5	BXT ML4 BE 12	BXT ML4 BE 24	BXT ML4 BE 36	BXT ML4 BE 48	BXT ML4 BE 60	BXT ML4 BE 180
Part No.	920 320	920 322	920 324	920 336	920 325	920 326	920 327
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC LC M3
Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.



Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC MCM XT
DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

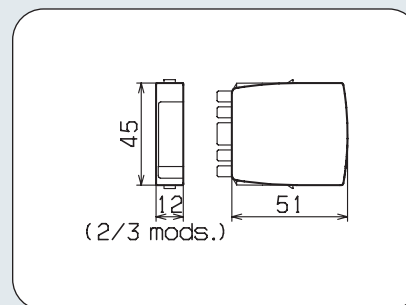
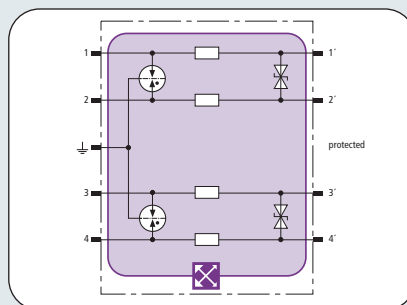
Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS
Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.



- LifeCheck SPD monitoring
- Optimal protection for 2 single pairs
- For use according to the lightning protection zones concept at boundaries $O_A - 2$ and higher

LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.

Dimension drawing BXT ML4 BD

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting 2 pairs at balanced interfaces with electrical isolation.

BXT ML4 ...	BD 5	BD 12	BD 24	BD 48	BD 60	BD 180
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 for 45°C I_L	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 μ s) I_{imp}	10 kA	10 kA	10 kA	10 kA	10 kA	10 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	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	20 kA	20 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 for 1 kV/ μ s C3 U_p	≤ 9 V	≤ 19 V	≤ 45 V	≤ 70 V	≤ 90 V	≤ 250 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V
Series impedance per line	1.0 ohm	1.0 ohm	1.0 ohm	1.0 ohm	1.0 ohm	1.8 ohms
Bandwidth line-line f_G	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	-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	base part	base part	base part	base part	base part	base part
Earthing by	base part	base part	base part	base part	base part	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
Approvals, Certifications	CSA, VdS	CSA, VdS	CSA, UL, VdS	CSA, VdS	CSA, VdS	CSA, UL, VdS

Ordering information						
Type	BXT ML4 BD 5	BXT ML4 BD 12	BXT ML4 BD 24	BXT ML4 BD 48	BXT ML4 BD 60	BXT ML4 BD 180
Part No.	920 340	920 342	920 344	920 345	920 346	920 347
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS

Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

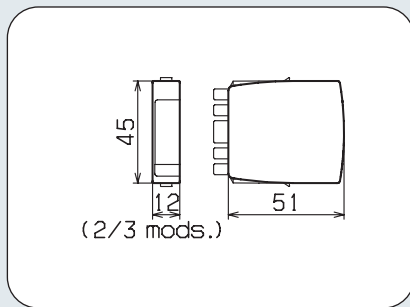
DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

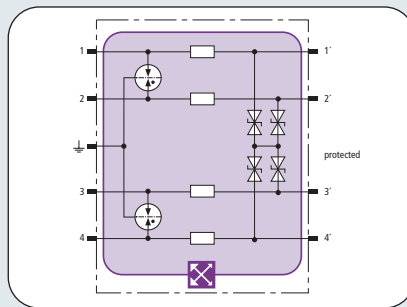


Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.



Dimension drawing BXT ML4 BC



LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.



- LifeCheck SPD monitoring
- Optimal protection for max. 4 lines
- For use according to the lightning protection zones concept at boundaries $0_A - 2$ and higher

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting max. 4 earth-potential-free single lines with common reference potential.

	BXT ML4 BC 5	BXT ML4 BC 24
SPD class	TYPE 1P1	TYPE 1P1
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 for 45°C I_L	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
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 for 1 kV/µs C3 U_p	≤ 9 V	≤ 45 V
Voltage protection level line-PG for 1 kV/µs C3 U_p	≤ 550 V	≤ 550 V
Series impedance per line	1.0 ohm	1.8 ohms
Bandwidth 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	-40°C...+80°C	-40°C...+80°C
Degree of protection (plugged-in)	IP 20	IP 20
Pluggable into	base part	base part
Earthing by	base part	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
Approvals, Certifications	CSA, VdS	CSA, VdS
Ordering information		
Type	BXT ML4 BC 5	BXT ML4 BC 24
Part No.	920 350	920 354
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

NEW



Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.

NEW



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

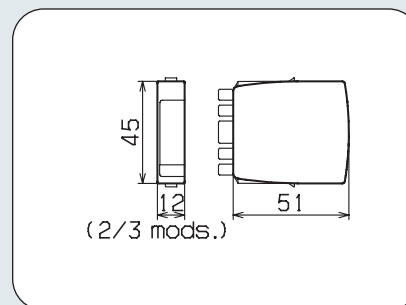
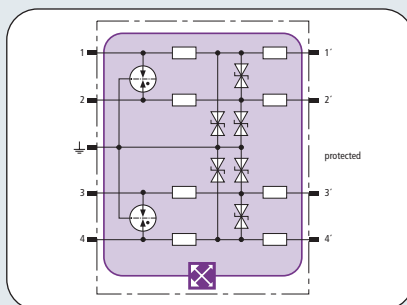
BXT BAS

Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.



- LifeCheck SPD monitoring
- Additional decoupling to the terminal equipment
- For use according to the lightning protection zones concept at boundaries 0_A – 2 and higher

LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.

Dimension drawing BXT ML4 BE C

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting 2 pairs at balanced interfaces with protective diode circuit at the input, current loops (TTY) and optocoupler inputs.

BXT ML4 BE C 24

SPD class	TYPE 1 P1
SPD monitoring system	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
Nominal current for 45°C I _L	0.1 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
Voltage protection level line-line for I _{imp} D1 U _p	≤ 52 V
Voltage protection level line-PG for I _{imp} D1 U _p	≤ 66 V
Voltage protection level line-line for 1 kV/µs C3 U _p	≤ 45 V
Voltage protection level line-PG for 1 kV/µs C3 U _p	≤ 45 V
Series impedance per line	28.8 ohms
Bandwidth line-PG f _G	1.7 MHz
Capacitance line-line C	≤ 1.5 nF
Capacitance line-PG C	≤ 1.5 nF
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
Pluggable into	base part
Earthing by	base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21, UL 497B
Approvals, Certifications	CSA, VdS

Ordering information	
Type	BXT ML4 BE C 24
Part No.	920 364
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS

Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

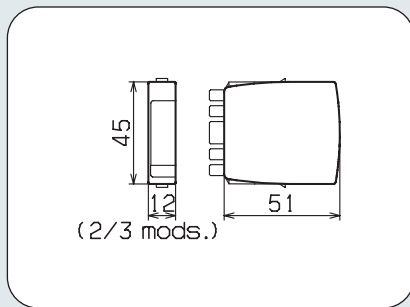
DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

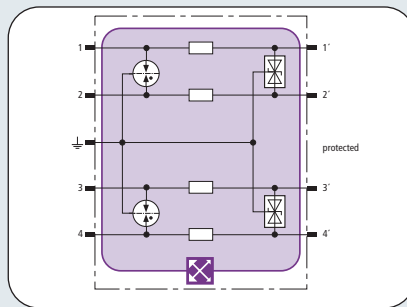


Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.



Dimension drawing BXT ML4 BE HF



LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.



- LifeCheck SPD monitoring
- Optimal protection for 4 single lines
- For use according to the lightning protection zones concept at boundaries $O_A - 2$ and higher

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting 4 single lines with common reference potential as well as high-frequency transmissions without electrical isolation.

BXT ML4 BE HF 5

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 for 45°C I_L	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
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 for 1 kV/µs C3 U_p	≤ 11 V
Voltage protection level line-PG for 1 kV/µs C3 U_p	≤ 11 V
Series impedance per line	1.0 ohm
Bandwidth line-PG f_C	100.0 MHz
Capacitance line-line C	≤ 20 pF
Capacitance line-PG C	≤ 25 pF
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
Pluggable into	base part
Earthing by	base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21, UL 497B
Approvals, Certifications	CSA, VdS

Ordering information	
Type	BXT ML4 BE HF 5
Part No.	920 370
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

NEW



Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.

NEW



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

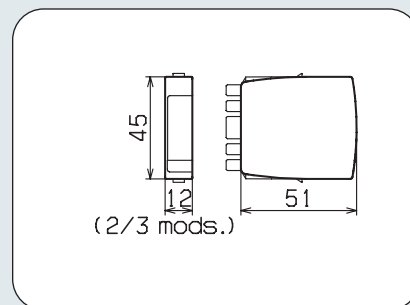
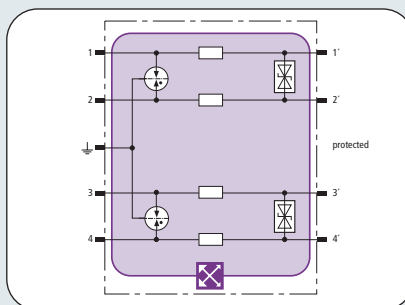
BXT BAS

Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.



- LifeCheck SPD monitoring
- Minimum signal disturbance
- For use according to the lightning protection zones concept at boundaries $0_A - 2$ and higher

LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.

Dimension drawing BXT ML4 BD HF

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting 2 pairs in high-frequency bus systems or video transmissions.

	BXT ML4 BD HF 5	BXT ML4 BD HF 24
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 for 45°C I_L	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
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 for 1 kV/µs C3 U_p	≤ 11 V	≤ 47 V
Voltage protection level line-PG for 1 kV/µs C3 U_p	≤ 550 V	≤ 550 V
Series impedance per line	1.0 ohm	1.0 ohm
Bandwidth line-line f_G	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	-40°C...+80°C	-40°C...+80°C
Degree of protection (plugged-in)	IP 20	IP 20
Pluggable into	base part	base part
Earthing by	base part	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
Approvals, Certifications	CSA, VdS	CSA, VdS
Ordering information		
Type	BXT ML4 BD HF 5	BXT ML4 BD HF 24
Part No.	920 371	920 375
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS

Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

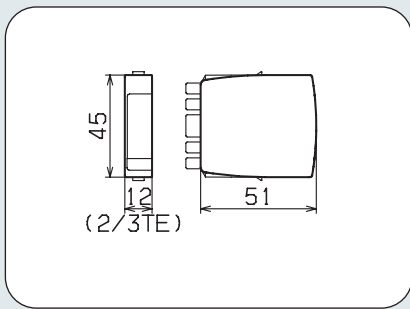
DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

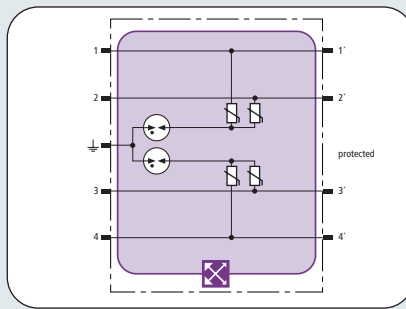


Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.



Dimension drawing BXT ML4 MY



LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.



NEW

- LifeCheck SPD monitoring
- Confusion-proof "Y" circuit
- For use according to the lightning protection zones concept at boundaries 0_B – 2 and higher

Space-saving surge arrester module with LifeCheck monitoring for protecting 4 lines of stranded signal interfaces up to 250 V a.c.

BXT ML4 MY 250

SPD class	TYPE 2 P3
SPD monitoring system	LifeCheck
Nominal voltage U _N	250 V
Max. continuous operating d.c. voltage U _C	line - PG 320 V
Max. continuous operating a.c. voltage U _C	line - PG 250 V
Nominal current for 45°C I _L	3.0 A
C2 Total nominal discharge current (8/20 μs) I _n	10 kA
C2 Nominal discharge current (8/20 μs) per line I _n	2.5 kA
Voltage protection level line-line for I _n C2 U _p	≤ 1700 V
Voltage protection level line-PG for I _n C2 U _p	≤ 1300 V
Voltage protection level line-line for 1 kV/μs C3 U _p	≤ 1100 V
Voltage protection level line-PG for 1 kV/μs C3 U _p	≤ 1200 V
Bandwidth line-line f _G	20 MHz
Capacitance line-line C	≤ 300 pF
Capacitance line-PG C	≤ 16 pF
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
Pluggable into	base part
Earthing by	base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21

Ordering information	
Type	BXT ML4 MY 250
Part No.	920 389
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

NEW



Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.

NEW



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS

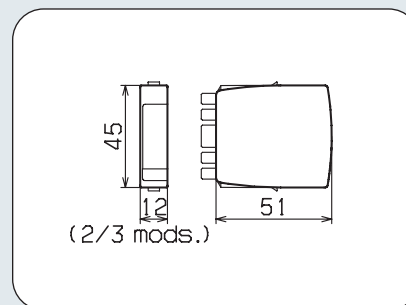
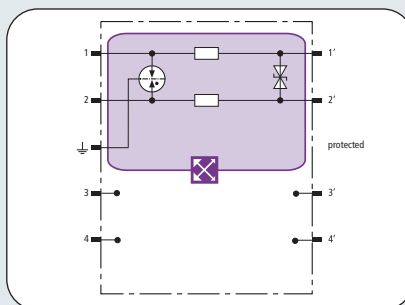
Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.

NEW



- LifeCheck SPD monitoring
- Optimal protection for 1 pair
- For use according to the lightning protection zones concept at boundaries $0_A - 2$ and higher

LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.

Dimension drawing BXT ML2 BD

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting 1 pair at balanced interfaces with electrical isolation.

BXT ML2 BD 180

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 for 45°C I_L	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
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 for 1 kV/ μ s C3 U_p	≤ 250 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 550 V
Series impedance per line	1.8 ohms
Bandwidth line-line f_G	25.0 MHz
Capacitance line-line C	≤ 240 pF
Capacitance line-PG C	≤ 16 pF
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
Pluggable into	base part
Earthing by	base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21

Ordering information	
Type	BXT ML2 BD 180
Part No.	920 247
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS

Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

DRC LC M3

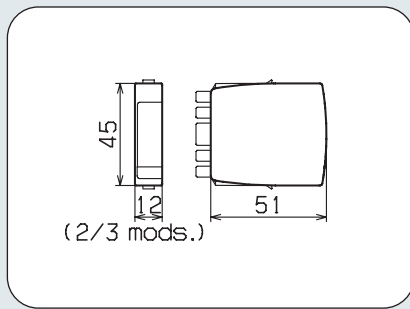
Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.



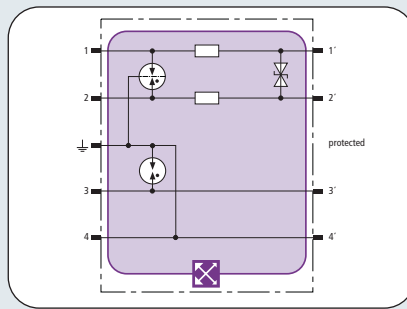
Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.

NEW



Dimension drawing BXT ML2 BD



LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.



- LifeCheck SPD monitoring
- Optimal protection for 1 pair and shield
- For use according to the lightning protection zones concept at boundaries 0_A – 2 and higher

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting 1 pair at balanced interfaces with electrical isolation, available with direct or indirect shield earthing.

	BXT ML2 BD S 5	BXT ML2 BD S 12	BXT ML2 BD S 24	BXT ML2 BD S 48
SPD class	TYPE 1P1	TYPE 1P1	TYPE 1P1	TYPE 1P1
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 for 45°C I _L	1.0 A	1.0 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
D1 Lightning impulse current (10/350 µs) per line I _{imp}	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
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 for 1 kV/µs C3 U _p	≤ 9 V	≤ 19 V	≤ 45 V	≤ 70 V
Voltage protection level line-PG for 1 kV/µs C3 U _p	≤ 550 V	≤ 550 V	≤ 550 V	≤ 550 V
Series impedance per line	1.0 ohm	1.0 ohm	1.0 ohm	1.0 ohm
Bandwidth 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	≤ 16 pF	≤ 16 pF	≤ 16 pF	≤ 16 pF
Operating temperature range	-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	base part	base part	base part	base part
Earthing by	base part	base part	base part	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	IEC 61643-21	IEC 61643-21	IEC 61643-21
Ordering information				
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
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

NEW



Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.

NEW



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS

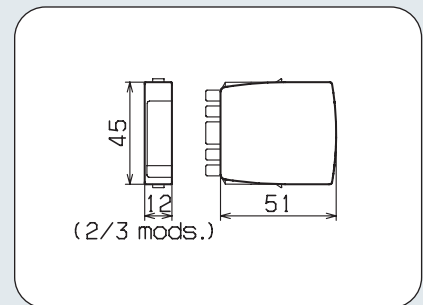
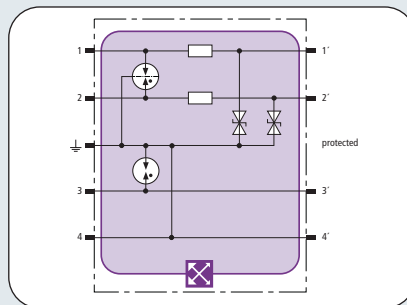
Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.

Type	PU pc(s)	Part No.
BXT BAS	1	920 300



For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.

NEW



- LifeCheck SPD monitoring
- Optimal protection for 2 single lines and shield
- For use according to the lightning protection zones concept at boundaries 0_A – 2 and higher

LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.

Dimension drawing BXT ML2 BE

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting 2 single lines with common reference potential as well as unbalanced interfaces, available with direct or indirect shield earthing.

	BXT ML2 BE S 5	BXT ML2 BE S 12	BXT ML2 BE S 24	BXT ML2 BE S 48
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 for 45°C I _L	1.0 A	0.75 A	0.75 A	0.75 A
D1 Total lightning impulse current (10/350 µs) I _{imp}	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
C2 Total nominal discharge current (8/20 µs) I _n	20 kA	20 kA	20 kA	20 kA
Voltage protection level line-line for I _{imp} D1 U _p	≤ 29 V	≤ 50 V	≤ 102 V	≤ 160 V
Voltage protection level line-PG for I _{imp} D1 U _p	≤ 27 V	≤ 37 V	≤ 66 V	≤ 95 V
Voltage protection level line-line for 1 kV/µs C3 U _p	≤ 18 V	≤ 38 V	≤ 90 V	≤ 140 V
Voltage protection level line-PG for 1 kV/µs C3 U _p	≤ 9 V	≤ 19 V	≤ 45 V	≤ 70 V
Series impedance per line	1.0 ohm	1.8 ohms	1.8 ohms	1.8 ohms
Bandwidth line-PG f _C	1.0 MHz	2.7 MHz	6.8 MHz	8.7 MHz
Capacitance line-line C	≤ 2.7 nF	≤ 1.0 nF	≤ 0.5 nF	≤ 0.35 nF
Capacitance line-PG C	≤ 5.4 nF	≤ 2.0 nF	≤ 1.0 nF	≤ 0.7 nF
Operating temperature range	-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	base part	base part	base part	base part
Earthing by	base part	base part	base part	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	IEC 61643-21	IEC 61643-21	IEC 61643-21
Ordering information				
Type	BXT ML2 BE S 5	BXT ML2 BE S 12	BXT ML2 BE S 24	BXT ML2 BE S 48
Part No.	920 220	920 222	920 224	920 225
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS

Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

DRC LC M3

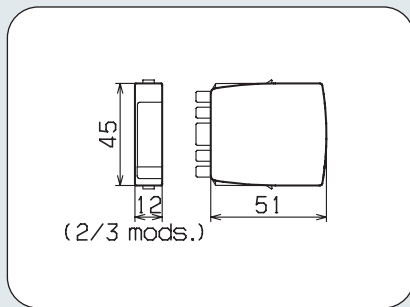
Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.



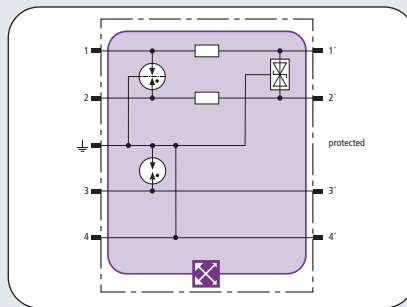
Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.

NEW



Dimension drawing BXT ML2 BE HFS



LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.



- LifeCheck SPD monitoring
- Optimal protection for 1 pair and shield
- For use according to the lightning protection zones concept at boundaries 0_A – 2 and higher

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting 1 pair in high-frequency transmissions without electrical isolation; available with direct or indirect shield earthing.

BXT ML2 BE HFS 5

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 for 45°C I _L	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
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 for 1 kV/µs C3 U _p	≤ 11 V
Voltage protection level line-PG for 1 kV/µs C3 U _p	≤ 11 V
Series impedance per line	1.0 ohm
Bandwidth line-PG f _C	100 MHz
Capacitance line-line C	≤ 20 pF
Capacitance line-PG C	≤ 25 pF
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
Pluggable into	base part
Earthing by	base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21

Ordering information	
Type	BXT ML2 BE HFS 5
Part No.	920 270
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

NEW



Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.

NEW



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS

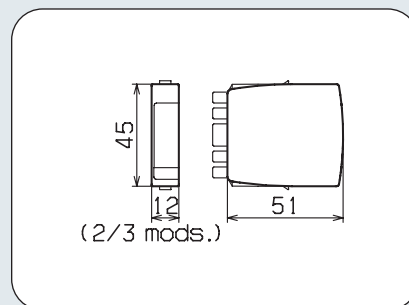
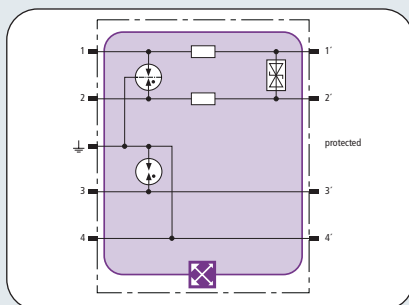
Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.

NEW



- LifeCheck SPD monitoring
- Minimum signal influence
- For use according to the lightning protection zones concept at boundaries $0_A - 2$ and higher

LifeCheck detects thermal and electrical overloads after which the SPD has to be replaced. This operating state is indicated by non-contact device DEHNrecord LC.

Dimension drawing BXT ML2 BD HFS

Space-saving combined lightning current and surge arrester module with LifeCheck monitoring for protecting 1 pair in high-frequency bus systems or video transmission systems, available with direct or indirect shield earthing.

BXT ML2 BD HFS 5

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 for 45°C I_L	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
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 for 1 kV/µs C3 U_p	≤ 11 V
Voltage protection level line-PG for 1 kV/µs C3 U_p	≤ 550 V
Series impedance per line	1.0 ohm
Bandwidth line-line f_G	100 MHz
Capacitance line-line C	≤ 25 pF
Capacitance line-PG C	≤ 16 pF
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
Pluggable into	base part
Earthing by	base part
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21

Ordering information	
Type	BXT ML2 BD HFS 5
Part No.	920 271
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

BXT BAS

Base part for use as very space-saving 4-pole universal feed-through terminal for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS	1	920 300

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck function.



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT LifeCheck® Module

NEW

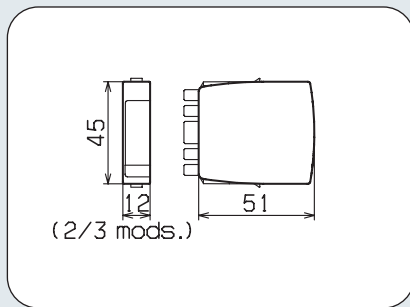
DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

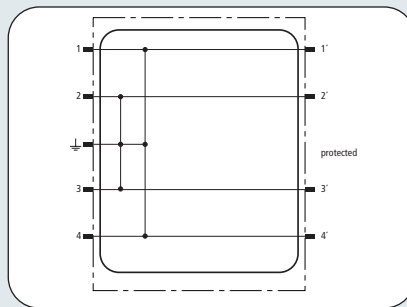


Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

For further technical details about "Accessories for BLITZDUCTOR XT LifeCheck modules" please also refer to pages 159 / 316 / 319.



Dimension drawing BXT M4E



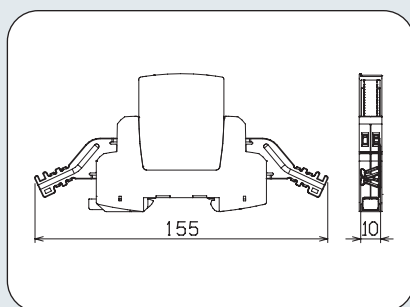
Basic circuit diagram BXT M4 E



Being plugged in, the earthing module short-circuits all lines connected to the BLITZDUCTOR XT base part to PG. It earths initially unused cable conductors directly, which are already connected to the base part.

- For plugging onto BLITZDUCTOR XT base parts
- Easy handling
- Allows for quick replacing when retrofitting an SPD module

BXT M4 E	
D1 Total lightning impulse current (10/350 µs) I_{imp}	10 kA
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
For plugging into	base part
Enclosure material	polyamide PA 6.6
Colour	grey
Ordering information	
Type	BXT M4 E
Part No.	920 308
Packing unit	1 pc(s).



Dimension drawing SAK BXT LR

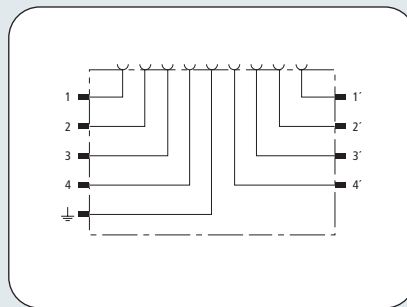
2 spring terminals for permanent low-impedant shield contacting of the protected and unprotected side of a BXT unit. With integrated terminal coding for direct or indirect shield earthing, with cable ties and insulating strips.

EMC spring terminals

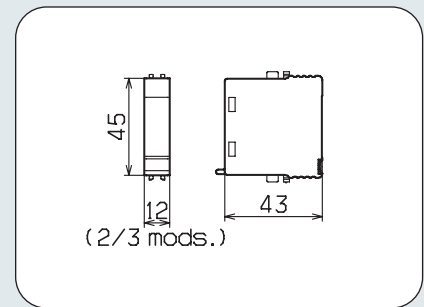


- Lightning current carrying capability
- Flat conductor with low impedance
- Flexible spring terminal

SAK BXT LR	
D1 Lightning impulse current (10/350 µs)	5 kA
For plugging into	clamp connection BXT BAS
Clamping range	3 - 10 mm
Colour	bare
Accessories	cable tie, insulating stripes
Ordering information	
Type	SAK BXT LR
Part No.	920 395
Packing unit	1 set



Basic circuit diagram BXT M4 T



Dimension drawing BXT M4 T

- For plugging into the BLITZDUCTOR XT base part
- Allows for easy maintenance and fault-finding
- Measuring lines included

Being plugged in, the test/disconnection module interrupts the cable run of the lines connected to the BLITZDUCTOR XT base part and leads them to a test socket at the front side of the module. This makes it possible to carry out measurements in the installation without removing the lines from the base part.

BXT M4 T	
Max. continuous operating d.c. voltage U_c	180 V
Max. continuous operating a.c. voltage U_c	127 V
Nominal current for 80° C I_L	1.0 A
Volume resistance	0.1 ohm
Operating temperature range	-40°C ... +80°C
Degree of protection (plugged-in)	IP 20
For plugging into	base part
Test sockets	gold-plated, 1 mm
Enclosure material	polyamide PA 6.6
Colour	grey
Accessories	2 measuring cables (1 m), protective bag
Ordering information	
Type	BXT M4 T
Part No.	920 309
Packing unit	1 pc(s).

Labelling system



- Abrasion-proof
- Pre-printed

2 x 50 labels for marking BXT base parts or modules with their current numbers, printed with numbers 1-50.

BS 1 50 BXT	
Dimension W x H	11 x 4 mm
Ordering information	
Type	BS 1 50 BXT
Part No.	920 399
Packing unit	1 pc(s).

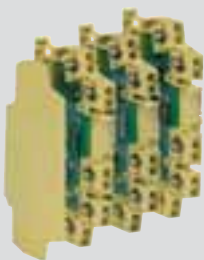


- Minimum installation width (only 6 mm)
- Quick installation with jumper bar (accessory part)
- Spring pressure connection system

6 mm wide surge protective terminal block, 2-pole, with Cage Clamp connection. Earthing by DIN rail or clamp.

DEHNconnect RK is a 6 mm wide surge protective terminal block. 2 lines can be protected by means of 5 Cage Clamp spring pressure connections, and additionally, equipotential bonding to terminal equipment can be established. The snap-in fixing device ensures safe earthing of the

supporting foot with the DIN rail. For reducing the wiring, jumper bars can also be plugged into the protected side of the SPD and thus transmit signals. As the SPDs are only enclosed on one side for space-saving reasons, a covering plate should be used at the end of every SPD block.

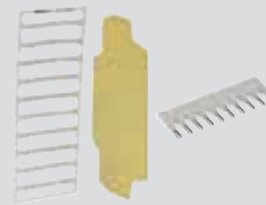


DCO RK

DEHNconnect RK is available in two performance categories:

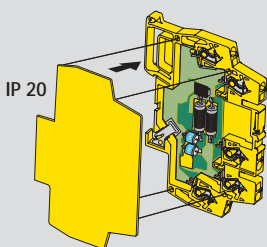
DCO RK M:
 Surge arrester with energy-coordinated protection stages

DCO RK E (D):
 Surge arrester with diodes only, for improving the electromagnetic compatibility (EMC) of terminal systems



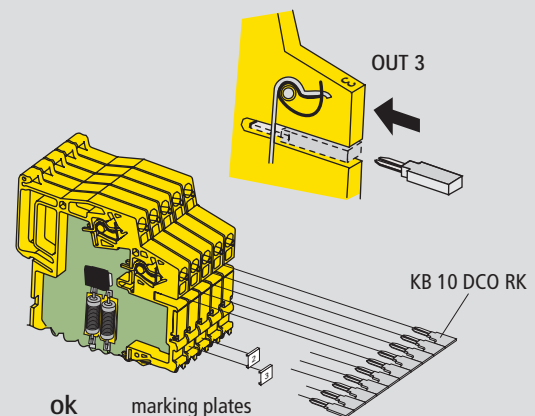
DCO RK Accessories

A wide range of accessories such as jumper bars, marking plates or covering plates complete DCO RK to a system easy to operate, which has been designed especially for use in industrial systems.



DCO RK with covering plate

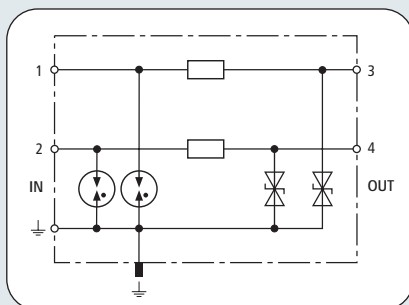
In order to minimise its width, one side of the SPD is not enclosed. For protection against contact, the SPD can be closed with a covering plate (accessories). If several devices are installed next to each other, one covering plate may be sufficient.



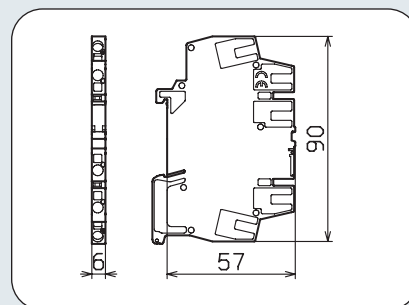
Application of the jumper bars

Operating state controls of switch contacts in industrial environments are often fed by a common power source. Using several DCO RK units the wiring can be minimised by bridging the feeding signal on the protected side (accessories).

DCO RK ME



Energy-coordinated gas discharge tubes and diodes to earth



Dimension drawing DCO RK ME

- Standard protection in modular terminal blocks
- Low series impedance
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

2-stage surge arrester for protecting 2 single lines with common reference potential as well as unbalanced interfaces.

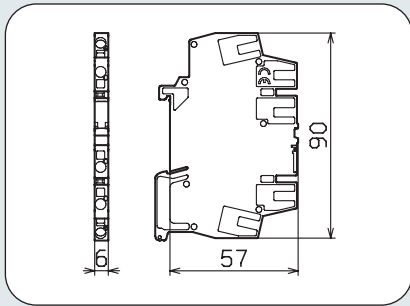
	DCO RK ME 12	DCO RK ME 24	DCO RK ME 48	DCO RK ME 110
SPD class	TYPE 2P1	TYPE 2P1	TYPE 2P1	TYPE 2P2
Nominal voltage U_N	12 V	24 V	48 V	110 V
Max. continuous d.c. voltage U_c	14 V	33 V	55 V	170 V
Max. continuous a.c. voltage U_c	9.5 V	23 V	38.5 V	120 V
Nominal current I_L	0.5 A	0.5 A	0.5 A	0.5 A
C2 Total nominal discharge current (8/20 μ s) I_n	10 kA	10 kA	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) per line I_n	5 kA	5 kA	5 kA	5 kA
Voltage protection level line-line for I_n C2 U_p	≤ 55 V	≤ 110 V	≤ 175 V	≤ 500 V
Voltage protection level line-PG for I_n C2 U_p	≤ 40 V	≤ 65 V	≤ 100 V	≤ 270 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 36 V	≤ 90 V	≤ 160 V	≤ 460 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 19 V	≤ 45 V	≤ 80 V	≤ 230 V
Series impedance per line	1.8 ohms	1.8 ohms	1.8 ohms	1.8 ohms
Bandwidth line-PG f_c	2.5 MHz	6 MHz	10 MHz	16 MHz
Capacitance line-line C	≤ 1.2 nF	≤ 0.5 nF	≤ 0.3 nF	≤ 0.2 nF
Capacitance line-PG C	≤ 2.4 nF	≤ 1 nF	≤ 0.6 nF	≤ 0.4 nF
Operating temperature range	-40°C...+80°C	-40°C...+80°C	-40°C...+80°C	-40°C...+80°C
Degree of protection	IP 00, with cover IP 20	IP 00, with cover IP 20	IP 00, with cover IP 20	IP 00, with cover IP 20
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	35 mm DIN rail acc. to EN 60175
Connection input/output	spring / spring	spring / spring	spring / spring	spring / spring
Cross-sectional area, solid	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²
Earthing by	DIN rail / terminal	DIN rail / terminal	DIN rail / terminal	DIN rail / terminal
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	IEC 61643-21	IEC 61643-21	IEC 61643-21
Ordering information				
Type	DCO RK ME 12	DCO RK ME 24	DCO RK ME 48	DCO RK ME 110
Part No.	919 920	919 921	919 922	919 923
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for DEHNconnect RK

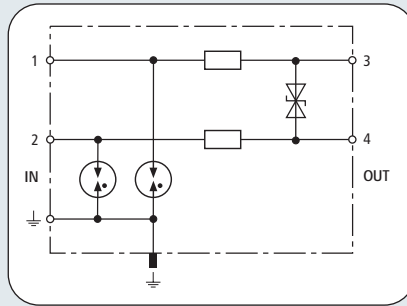


Covering plate
For DCO RK.

Type	Enclosure material	Colour	PU pc(s)	Part No.
AD DCO RK GE	polyamide PA 6.6	yellow	1	919 979



Dimension drawing DCO RK MD 12 / MD 24



Protective circuit, free of leakage currents to earth, energy-coordinated



- Standard protection in modular terminal blocks
- Low series impedance
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

2-stage surge arrester for protecting a floating pair as well as balanced interfaces.

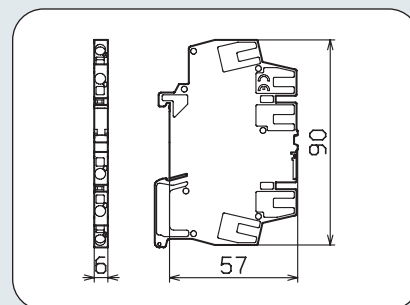
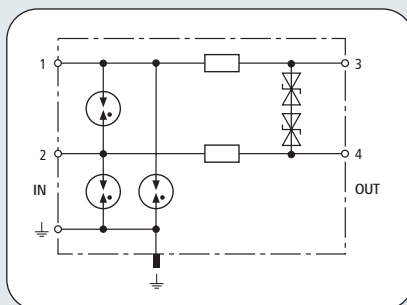
	DCO RK MD 12	DCO RK MD 24
SPD class	TYPE 2/P1	TYPE 2/P1
Nominal voltage U_N	12 V	24 V
Max. continuous d.c. voltage U_c	14 V	33 V
Max. continuous a.c. voltage U_c	9.5 V	23 V
Nominal current I_L	0.5 A	0.5 A
C2 Total nominal discharge current (8/20 μ s) I_n	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) per line I_n	5 kA	5 kA
Voltage protection level line-line for I_n C2 U_p	≤ 25 V	≤ 50 V
Voltage protection level line-PG for I_n C2 U_p	≤ 750 V	≤ 750 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 19 V	≤ 45 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 650 V	≤ 650 V
Series impedance per line	1.8 ohms	1.8 ohms
Bandwidth line-line f_G	2.5 MHz	6 MHz
Capacitance line-line C	≤ 2.4 nF	≤ 1 nF
Capacitance line-PG C	≤ 5 pF	≤ 5 pF
Operating temperature range	-40°C...+80°C	-40°C...+80°C
Degree of protection	IP 00, with cover IP 20	IP 00, with cover IP 20
Mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Connection input/output	spring / spring	spring / spring
Cross-sectional area, solid	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²
Earthing by	DIN rail / terminal	DIN rail / terminal
Enclosure material	polyamide PA 6.6	polyamide PA 6.6
Colour	yellow	yellow
Test standards	IEC 61643-21	IEC 61643-21
Ordering information		
Type	DCO RK MD 12	DCO RK MD 24
Part No.	919 940	919 941
Packing unit	1 pc(s).	1 pc(s).

Accessory Part for DEHNconnect RK

Covering plate
 For DCO RK.

Type	Enclosure material	Colour	PU pc(s)	Part No.
AD DCO RK GE	polyamide PA 6.6	yellow	1	919 979





- Standard protection in modular terminal blocks
- Extremely low series impedance
- For use according to the lightning protection zones concept at boundaries $0_B - 2$ and higher

Protective circuit, free of leakage currents to earth, energy-coordinated

Dimension DCO RK MD 48

2-stage surge arrester for protecting a floating pair as well as balanced interfaces up to 1.7 A.

DCO RK MD 48

SPD class	TYPE 2P1
Nominal voltage U_N	48 V
Max. continuous d.c. voltage U_c	55 V
Max. continuous a.c. voltage U_c	38.5 V
Nominal current I_L	1.7 A
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	≤ 100 V
Voltage protection level line-PG for I_n C2 U_p	≤ 750 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 70 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 650 V
Series impedance per line	0.4 ohms
Bandwidth line-line f_G	10 MHz
Capacitance line-line C	≤ 0.6 nF
Capacitance line-PG C	≤ 10 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 00, with cover IP 20
Mounting on	35 mm DIN rail according to EN 60715
Connection input/output	spring / spring
Cross-sectional area, solid	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 2.5 mm ²
Earthing by	DIN rail / terminal
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21

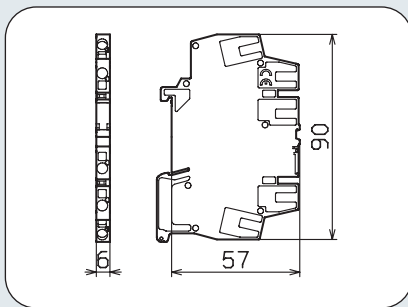
Ordering information	
Type	DCO RK MD 48
Part No.	919 942
Packing unit	1 pc(s).

Accessory Part for DEHNconnect RK

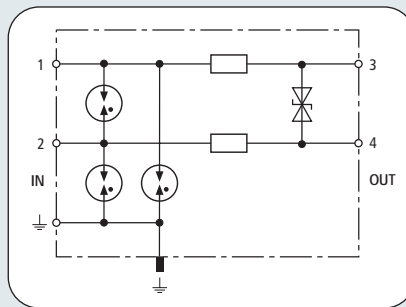


Covering plate
For DCO RK.

Type	Enclosure material	Colour	PU pc(s)	Part No.
AD DCO RK GE	polyamide PA 6.6	yellow	1	919 979



Dimension drawing DCO RK MD 110



Protection circuit, free of leakage currents to earth, energy-coordinated



- Standard protection in modular terminal blocks
- Low series impedance
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

2-stage surge arrester for protecting a floating pair, telecommunications.

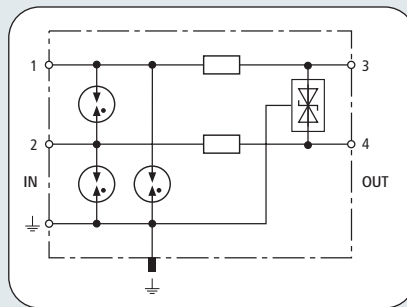
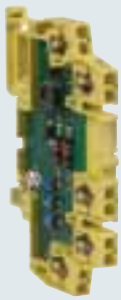
DCO RK MD 110	
SPD class	TYPE 2/P2
Nominal voltage U_N	110 V
Max. continuous d.c. voltage U_c	170 V
Max. continuous a.c. voltage U_c	120 V
Nominal current I_L	0.5 A
C2 Total nominal discharge current (8/20 μ s) I_n	10 kA
C2 Nominal discharge current (8/20 μ s) per line I_n	5 kA
Voltage protection level line-line for I_n C2 U_p	≤ 260 V
Voltage protection level line-PG for I_n C2 U_p	≤ 750 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 230 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 650 V
Series impedance per line	1.8 ohms
Bandwidth line-line f_G	16 MHz
Capacitance line-line C	≤ 0.4 nF
Capacitance line-PG C	≤ 5 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 00, with cover IP 20
Mounting on	35 mm DIN rail according to EN 60715
Connection input/output	spring / spring
Cross-sectional area, solid	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 2.5 mm ²
Earthing by	DIN rail / terminal
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21
Ordering information	
Type	DCO RK MD 110
Part No.	919 943
Packing unit	1 pc(s).

Accessory Part for DEHNconnect RK

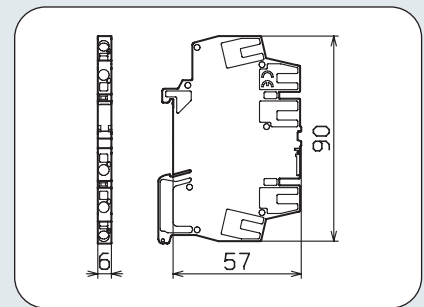
Covering plate
 For DCO RK.

Type	Enclosure material	Colour	PU pc(s)	Part No.
AD DCO RK GE	polyamide PA 6.6	yellow	1	919 979





The capacitance of the protective circuit can be minimised by combining several diodes to one matrix.



Dimension drawing DCO RK MD HF

- Low self-capacitance
- Very good transmission performance
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

2-stage surge arrester for protecting balanced or unbalanced interfaces with extra-low voltages. Also suitable for high transmission rates. For shielded bus lines, SAK shield connection systems should be used.

DCO RK MD HF 5

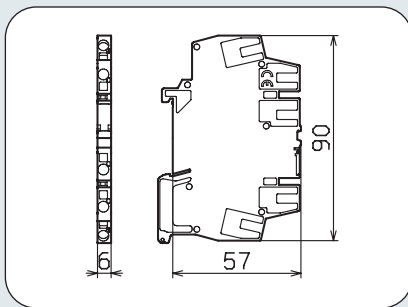
SPD class	TYPE 2 P1
Nominal voltage U_N	5 V
Max. continuous d.c. voltage U_c	6.0 V
Max. continuous a.c. voltage U_c	4.2 V
Nominal current I_L	0.1 A
C2 Total nominal discharge current (8/20 μ s) I_n	10 kA
C2 Nominal discharge current (8/20 μ s) per line I_n	5 kA
Voltage protection level line-line for I_n C2 U_p	≤ 27 V
Voltage protection level line-PG for I_n C2 U_p	≤ 50 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 14 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 14 V
Series impedance per line	1.0 ohm
Bandwidth line-line f_G	250 MHz
Bandwidth line-PG f_G	180 MHz
Capacitance line-line C	≤ 19 pF
Capacitance line-PG C	≤ 16 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 00 with cover IP 20
Mounting on	35 mm DIN rail according to EN 60715
Connection input/output	spring / spring
Cross-sectional area, solid	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 2.5 mm ²
Earthing by	DIN rail / terminal
Enclosure material	thermoplastic PA 6.6
Colour	yellow
Test standards	IEC 61643-21
Ordering information	
Type	DCO RK MD HF 5
Part No.	919 970
Packing unit	1 pc(s).

Accessory Part for DEHNconnect RK

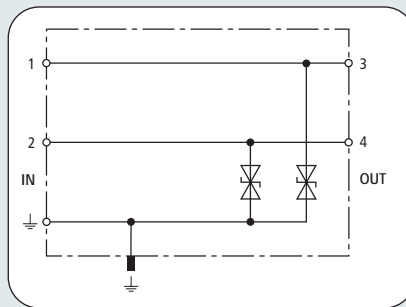


Covering plate
For DCO RK.

Type	Enclosure material	Colour	PU pc(s)	Part No.
AD DCO RK GE	polyamide PA 6.6	yellow	1	919 979



Dimension drawing DCO RK E



Powerful diodes limit surges to earth.



- Protection in modular terminal blocks
- High nominal current
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

Finely limiting surge protection for 2 single lines with common reference potential as well as unbalanced interfaces.

	DCO RK E 12	DCO RK E 24	DCO RK E 48	DCO RK E 60
SPD class	TYPE 3 P1	TYPE 3 P1	TYPE 4 P1	TYPE 4 P1
Nominal voltage U_N	12 V	24 V	48 V	60 V
Max. continuous d.c. voltage U_c	13 V	28 V	58 V	70 V
Max. continuous a.c. voltage U_c	9 V	19.5 V	41 V	49.5 V
Nominal current I_L	10 A	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	0.24 kA
C1 Nominal discharge current (8/20 μ s) per line I_n	0.4 kA	0.3 kA	0,15 kA	0.12 kA
Voltage protection level line-line for I_n C1 U_p	≤ 50 V	≤ 96 V	≤ 180 V	≤ 220 V
Voltage protection level line-PG for I_n C1 U_p	≤ 25 V	≤ 48 V	≤ 90 V	≤ 110 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 36 V	≤ 76 V	≤ 156 V	≤ 190 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 18 V	≤ 38 V	≤ 78 V	≤ 95 V
Bandwidth line-PG f_G	2.5 MHz	5.5 MHz	11 MHz	14 MHz
Capacitance line-line C	≤ 1.2 nF	≤ 0.6 nF	≤ 0.3 nF	≤ 0.25 nF
Capacitance line-PG C	≤ 2.5 nF	≤ 1.2 nF	≤ 0.6 nF	≤ 0.5 nF
Operating temperature range	-40°C...+80°C	-40°C...+80°C	-40°C...+80°C	-40°C...+80°C
Degree of protection	IP 00, with cover IP 20	IP 00, with cover IP 20	IP 00, with cover IP 20	IP 00, with cover IP 20
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	35 mm DIN rail acc. to EN 60715
Connection input/output	spring / spring	spring / spring	spring / spring	spring / spring
Cross-sectional area, solid	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²	0.08 - 2.5 mm ²
Earthing by	DIN rail / terminal	DIN rail / terminal	DIN rail / terminal	DIN rail / terminal
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	IEC 61643-21	IEC 61643-21	IEC 61643-21
Ordering information				
Type	DCO RK E 12	DCO RK E 24	DCO RK E 48	DCO RK E 60
Part No.	919 987	919 988	919 989	919 990
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

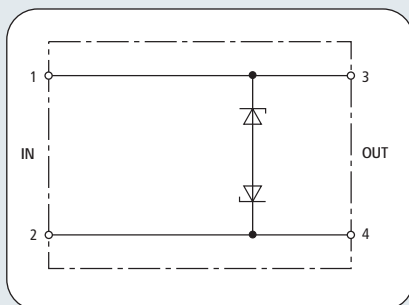
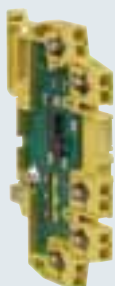
Accessory Part for DEHNconnect RK

Covering plate
 For DCO RK.

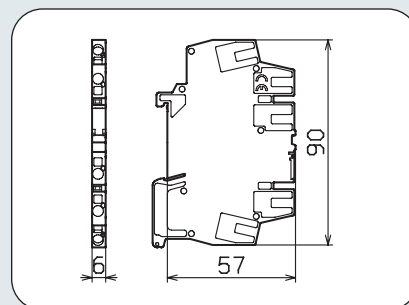
Type	Enclosure material	Colour	PU pc(s)	Part No.
AD DCO RK GE	polyamide PA 6.6	yellow	1	919 979



DCO RK D



Powerful diodes limit surges between the signal lines.



Dimension drawing DCO RK D

- EMC protection in modular terminal blocks
- High nominal current
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

Surge protection for output digital modules of SIEMENS-SPS S7-300 (lab-tested). The terminal allows for increased EMC protection. No connection to PG.

DCO RK D 5 24

SPD class	TYPE 4 P1
Nominal voltage U_N	+24 V / -5 V
Max. continuous d.c. voltage U_c	+30 V / -6 V
Nominal current I_L	10 A
C1 Total nominal discharge current (8/20 μ s) I_n	0.3 kA
C1 Nominal discharge current (8/20 μ s) per line I_n	0.3 kA
Voltage protection level line-line for I_n C1 U_p	≤ 70 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 45 V
Bandwidth line-line f_G	3.5 MHz
Capacitance line-line C	≤ 2 nF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 00, with cover IP 20
Mounting on	35 mm DIN rail according to EN 60715
Connection input/output	spring / spring
Cross-sectional area, solid	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 2.5 mm ²
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21

Ordering information	
Type	DCO RK D 5 24
Part No.	919 986
Packing unit	1 pc(s).

Accessory Part for DEHNconnect RK



Covering plate
For DCO RK.

Type	Enclosure material	Colour	PU pc(s)	Part No.
AD DCO RK GE	polyamide PA 6.6	yellow	1	919 979

For DCO RK

AD DCO RK GE	
Enclosure material	polyamide PA 6.6
Colour	yellow
Ordering information	
Type	AD DCO RK GE
Part No.	919 979
Packing unit	1 pc(s).

Covering plate



- Easy to open

Multipole unit for DCO RK

KB 10 DCO RK	
Poles	10
Ordering information	
Type	KB 10 DCO RK
Part No.	919 880
Packing unit	25 pc(s).

Jumper bar



- Reduces wiring
- Use for protected outputs of DCO RK only

Two plates with plate Nos. 1-50 for DCO RK

BS 1 50 DCO RK	
Enclosure material	plastic
Material	plastic
Ordering information	
Type	BS 1 50 DCO RK
Part No.	919 977
Packing unit	1 pc(s).

Quick marking system



- Pre-printed marking for DCO RK

- Economical protection for multicore signal lines
- Interface-specific types, e.g. TTY, RS 485
- Device for 24 V power supply of a PLC



Compact protection for terminal equipment, with screwable terminal connections for multi-core lines and DIN rail mounting.

BLITZDUCTOR VT is a family of compact SPDs for series connection and includes different types of enclosures. Most of the SPDs protect 4-wire

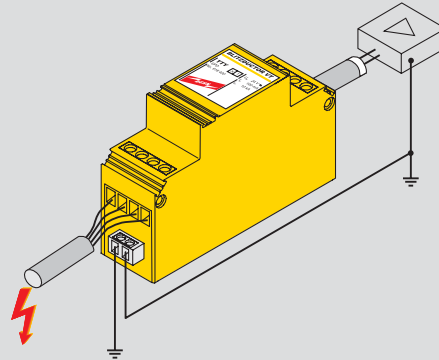
signal lines or special applications. The equipment is earthed by a screw terminal.



BVT enclosure family

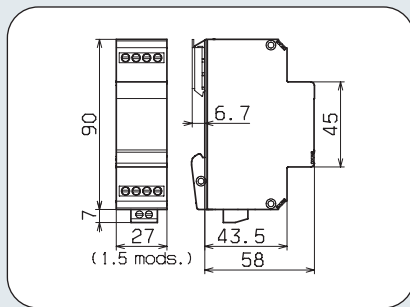
The enclosure concept of BLITZDUCTOR VT is variable. According to application, SPDs are distinguished between

- width: 1.5 mods., 4 protected signal lines
- width: 1.5 mods., 2 protected lines for 24 V d.c.
- width: 3 mods., 6 protected lines for RS 485/422

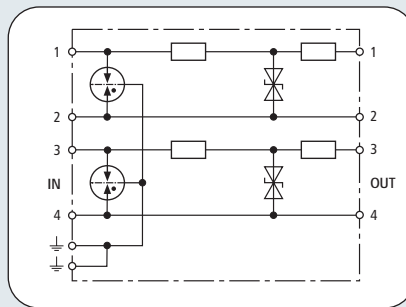


Connection

Connection to the ground has to be performed with a clamp instead of the snap-on fixing device of the DIN rail. Direct equipotential bonding can be established to the terminal device with the second clamping space of this double terminal.



Dimension drawing BVT TTY



The resistors at the circuit output protect the optocoupler and protective diodes in the terminal equipment against overloads.



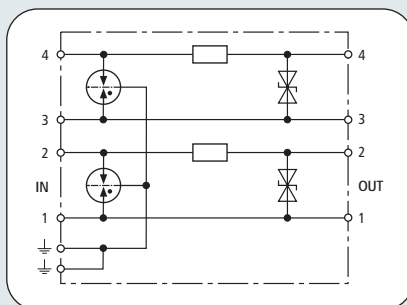
- Protection for two TTY loops at the same time
- Additional decoupling to the terminal device
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

Owing to the additional decoupling resistors at the output, only diodes in the terminal equipment, which can withstand loads only to a certain extent, are integrated into the energy coordination of the protective stages. This is especially important for optocoupler interfaces.

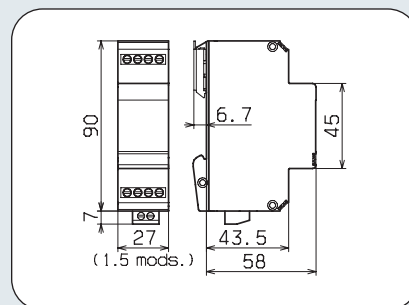
BVT TTY 24

SPD class	TYPE 2P1
Nominal 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_L	0.1 A
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
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 for 1 kV/ μ s C3 U_p	≤ 36 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 600 V
Series impedance per line	17.2 ohms per pair
Bandwidth line-line f_c	8 MHz
Capacitance line-line C	≤ 1 nF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rail according 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 by	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21, UL 497B
Approvals, Certifications	CSA

Ordering information	
Type	BVT TTY 24
Part No.	918 400
Packing unit	1 pc(s).



Protection circuit with simple decoupling, free of leakage currents to earth, energy-coordinated.



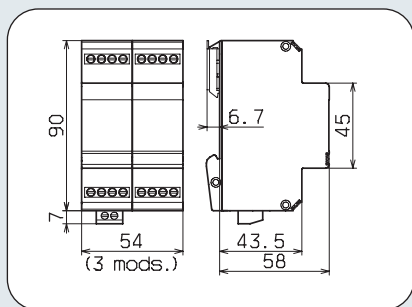
Dimension drawing BVT MTTY

- Economical compact protection
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

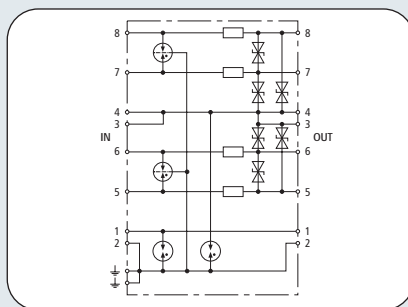
Surge arrester for two floating pairs. Unbalanced use of the decoupling impedance.

BVT MTTY 24

BVT MTTY 24	
SPD class	TYPE 2 P1
Nominal 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_L	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 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 for 1 kV/ μ s C3 U_p	≤ 36 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 600 V
Series impedance per line	2.2 ohms per pair
Bandwidth line-line f_G	10 MHz
Capacitance line-line C	≤ 1 nF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rail according 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 by	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21
Ordering information	
Type	BVT MTTY 24
Part No.	918 407
Packing unit	1 pc(s).



Dimension drawing BVT RS485



Circuiting diodes to a common reference point allows for a low protection level between the signal lines.



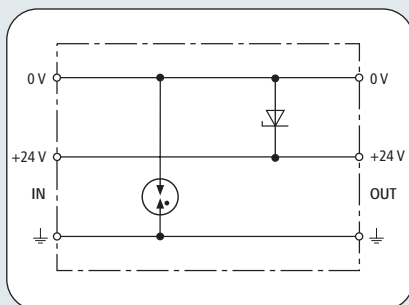
- Connections for 4 bus lines and SG
- Direct or indirect shield earthing
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

Surge arrester for many applications, e.g. for balanced 4-wire interfaces RS 485/422 or temperature sensors. Allows for either direct or indirect shield earthing and connecting of a signal ground (SG).

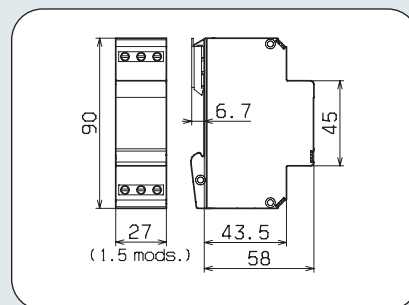
BVT RS485 5

SPD class	TYPE 2/P1
Nominal voltage U_N	5 V
Max. continuous d.c. voltage U_c	6 V
Max. continuous a.c. voltage U_c	4.2 V
Nominal current I_L	0.5 A
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
Voltage protection line-line at I_n C2 U_p	≤ 20 V
Voltage protection level line-PG at 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 impedance per line	1.8 ohms
Bandwidth line-line f_G	1.7 MHz
Capacitance line-line C	≤ 5 nF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Mounting on	35 mm DIN rail according 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 by	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21
Approvals, Certifications	CSA
Ordering information	
Type	BVT RS485 5
Part No.	918 401
Packing unit	1 pc(s).

BVT AD



As a unipolar diode is used, negative operating voltages are not permissible.



Dimension drawing BVT AD

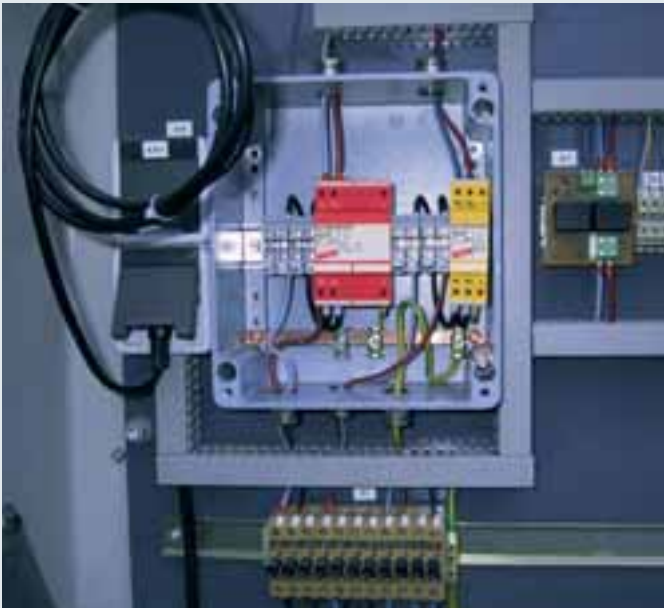
- EMC protection for PLC 24 V power supply
- Especially low protection level
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

Quickly responding surge protection, for e.g. Siemens SPS S7-300 with d.c. power supply. Especially for use in electromagnetically rough installation environments where common varistor-based surge arresters provide no sufficient limiting performance.

BVT AD 24

BVT AD 24	
SPD class	TYPE 3 P1
Nominal voltage U_N	24 V
Max. continuous d.c. voltage U_C	35 V
Nominal current I_L	10 A
C2 Total nominal discharge current (8/20 μ s) I_n	2 kA
C2 Nominal discharge current (8/20 μ s) per line I_n	1 kA
Voltage protection line-line for I_n C2 U_p	≤ 70 V
Voltage protection level line-PG for I_n C2 U_p	≤ 700 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 50 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 700 V
Capacitance line-line C	≤ 7 nF
Capacitance line-PG C	≤ 10 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Mounting on	35 mm DIN rail according to EN 60715
Connection input/output	screw / screw
Cross-sectional area, solid	0.5 - 4.0 mm ²
Cross-sectional area, flexible	0.5 - 4.0 mm ²
Tightening torque (terminal)	0.8 Nm
Earthing by	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21
Approvals, Certifications	CSA
Ordering information	
Type	BVT AD 24
Part No.	918 402
Packing unit	1 pc(s).

COMPACT SPDs FOR DIN RAIL MOUNTING Combined lightning current and surge arrester for cathodic corrosion protection systems



- Maximum efficiency due to high discharge capacity
- Easy maintenance due to remote signalling contact
- Resistant to permanent interference voltages up to 65 V a.c.

SPD for protecting of active cathodic corrosion protection systems. Integrated, floating remote signalling contact (break contact) for function monitoring.

The protective circuit and voltage measuring circuit are protected against surge impulses caused by atmospheric discharges (lightning) or switching operations (in power supply lines).

The devices are designed for operation at permanent interference voltages up to 65 V a.c. between pipelines and earth. If this value is exceeded, the relevant regulations for protection against electrical shock have to be considered and further measures have to be taken.

The devices can be overloaded by overcurrents caused by mains faults (short circuits or earth faults). Therefore, they should be installed into an own metallic enclosure, or a prewired terminal unit (ITAK) should be used. Thermal overload of the discharge paths is signalled by the integrated remote signalling contact.



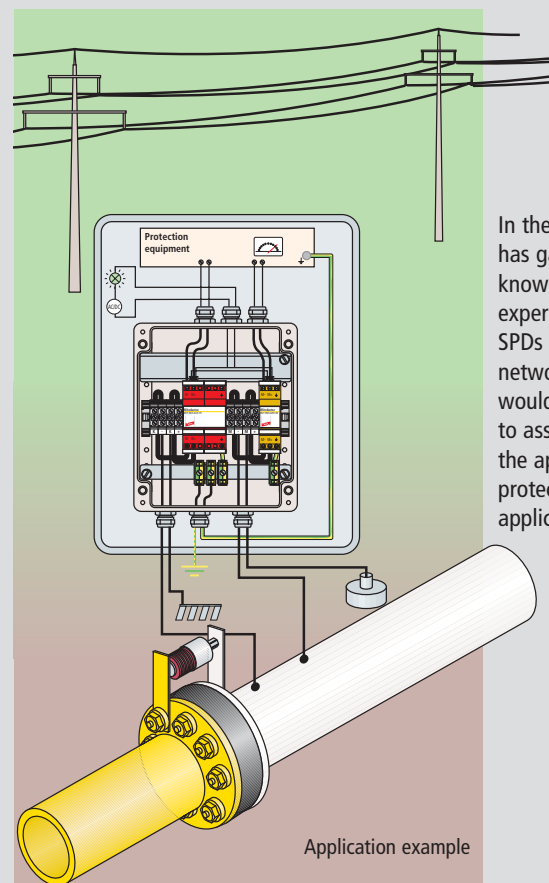
BVT KKS arrester family

For cathodic corrosion protection, SPDs for protective circuits and voltage measuring circuits are often used at the same time. For easy identification, the SPDs have different colours, i.e. yellow for voltage measuring circuits and red for protective circuits.



ITAK, Serial No. 4305

In practice, the installation of SPDs into an own metal enclosure has proven itself as the enclosure provides additional protection from overloads due to short circuits. With ITAK, DEHN provides corresponding prewired units for CP installations. The ITAK serial number is supposed to be taken as reference number for ordering.

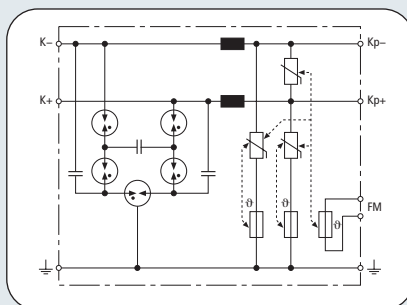


In the past, DEHN has gained great know-how and experience in using SPDs for pipeline networks and would be pleased to assist you to find the appropriate protection for your applications.

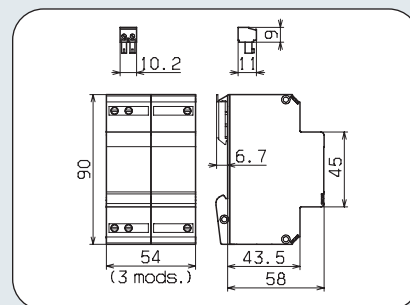
Application example



- For protective circuits
- High nominal current
- For use according to the lightning protection zones concept at boundaries $0_A - 2$ and higher



Thermal fuses monitor the varistors. Capacitive control for low impulse sparkover voltage.

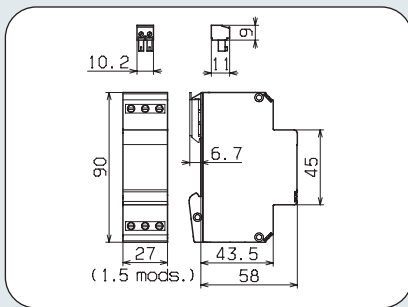


Dimension drawing BVT KKS ALD

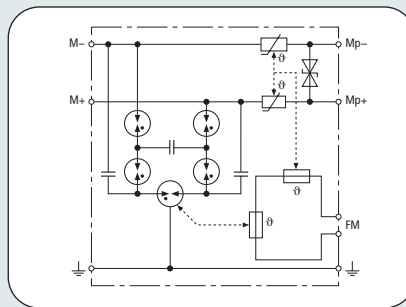
Energy-coordinated combined lightning current and surge arrester for protecting the inverter in the protective circuit (red colour). Plug-in remote signalling contact (break contact) for indicating overloads. Installation into the steel plate enclosure recommended.

BVT KKS ALD 75

BVT KKS ALD 75	
SPD class	TYPE 1 P1
Nominal voltage U_N	70 V
Max. continuous operating d.c. voltage U_c	75 V
Nominal current I_L	12 A
D1 Total lightning impulse current (10/350 μ s) I_{imp}	7 kA
D1 Lightning impulse current (10/350 μ s) per line I_{imp}	3.5 kA
C2 Total nominal discharge current (8/20 μ s) I_n	40 kA
C2 Nominal discharge current (8/20 μ s) 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 for 1 kV/ μ s C3 U_p	≤ 350 V
Voltage protection level line-PG for 1 kV/ μ s PG U_p	≤ 350 V
A2 Total a.c. current carrying capacity	20 A
Series impedance per line	5 μ H
Bandwidth line-line f_G	1 MHz
Capacitance line-line C	≤ 2 nF
Capacitance line-PG C	≤ 2 nF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rail according 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 by	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	red
Test standards	IEC 61643-21
Type of remote signalling contacts	break contact
Switching capacity d.c.	250 V/0.1 A, 125 V/0.2 A, 75 V/0.5 A
Switching capacity a.c.	250 V/0.5 A
Cross-sectional area for remote signalling terminals	max 1.5 mm ²
Ordering information	
Type	BVT KKS ALD 75
Part No.	918 420
Packing unit	1 pc(s).



Dimension drawing BVT KKS APD



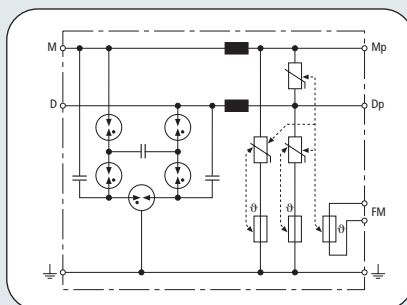
Thermal fuses monitor the discharge circuits.
 Capacitive control for a low impulse sparkover voltage.



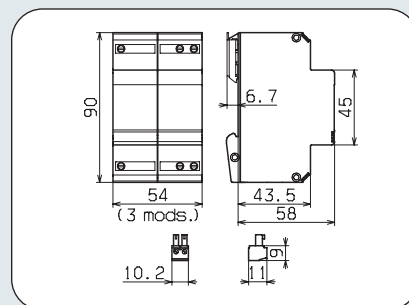
- For voltage measuring circuits
- Plug-in remote signalling contact
- For use according to the lightning protection zones concept at boundaries $0_A - 2$ and higher

Energy-coordinated combined lightning current and surge arrester for protecting voltage measuring circuits (yellow colour). Plug-in remote signalling contact (break contact) for indicating overloads. Installation into a steel-plate enclosure recommended.

BVT KKS APD 36	
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_L	0.05 A
D1 Total lightning impulse current (10/350 μ s) I_{imp}	7 kA
D1 Lightning impulse current (10/350 μ s) per line I_{imp}	3.5 kA
C2 Total nominal discharge current (8/20 μ s) I_n	40 kA
C2 Nominal discharge current (8/20 μ s) 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 for 1 kV/ μ s C3 U_p	≤ 48 V
Voltage protection level line-PG for 1 kV/ μ s PG U_p	≤ 600 V
A2 Total a.c. current carrying capacity	20 A
Series impedance per line	70 ohms
Bandwidth line-line f_G	4.5 dB for 1 MHz (100 ohms)
Capacitance line-line C	≤ 1 nF
Capacitance line-PG C	≤ 10 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rail according 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 by	screw terminal
Enclosure material	thermoplastic, UL 94 V
Colour	yellow
Test standards	IEC 61643-21
Type of remote signalling contacts	break contact
Switching capacity d.c.	250 V/0.1 A, 125 V/0.2 A, 75 V/0.5 A
Switching capacity a.c.	250 V/0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ²
Ordering information	
Type	BVT KKS APD 36
Part No.	918 421
Packing unit	1 pc(s).



Thermal fuses monitor the varistors. Capacitive control for low impulse sparkover voltage.



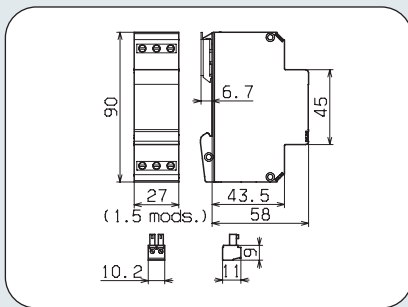
Dimension drawing BVT KKS ALD SN

- For protective circuits
- Device according to SNAM specification
- For use according to the lightning protection zones concept at boundaries 0_A – 2 and higher

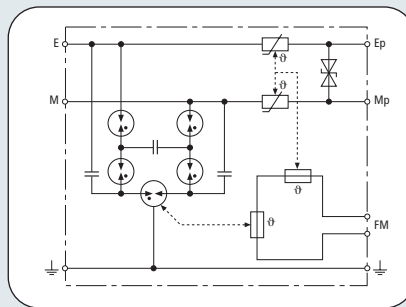
Energy-coordinated combined lightning current and surge arrester for protecting the inverter in the protective circuit (red colour). Plug-in remote signalling contact (break contact) for indicating overloads. Installation into steel-plate enclosure recommended. Device according to SNAM specification.

BVT KKS ALD SN

BVT KKS ALD SN	
SPD class	TYPE 1 P1
Nominal voltage U _N	70 V
Max. continuous operating d.c. voltage U _c	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 for 1 kV/μs C3 U _p	≤ 350 V
Voltage protection level line-PG for 1 kV/μs PG U _p	≤ 350 V
A2 Total a.c. current carrying capacity	20 A
Series impedance per line	5 μH
Bandwidth line-line f _G	1 MHz
Capacitance line-line C	≤ 2 nF
Capacitance line-PG C	≤ 2 nF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rail according 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 by	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	red
Test standards	IEC 61643-21
Approvals, Certifications	SNAM specification
Type of remote signalling contacts	break contact
Switching capacity d.c.	250 V/0.1 A, 125 V/0.2 A, 75 V/0.5 A
Switching capacity a.c.	250 V/0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ²
Ordering information	
Type	BVT KKS ALD SN
Part No.	918 404
Packing unit	1 pc(s).



Dimension drawing BVT KKS APD SN



Thermal fuses monitor the discharge circuits.
 Capacitive control for low impulse sparkover voltage.



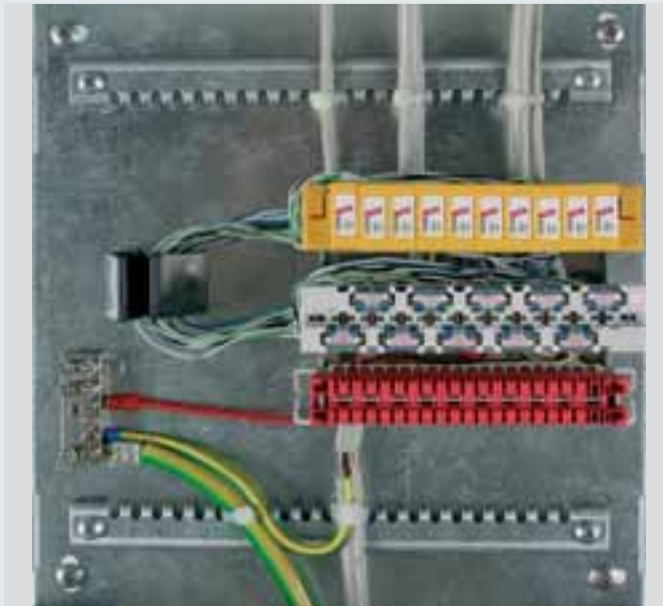
- For voltage measuring circuits
- Device according to SNAM specification
- For use according to the lightning protection zones concept at boundaries 0_A – 2 and higher

Energy-coordinated combined lightning current and surge arrester for protecting the voltage measuring circuit (yellow colour). Plug-in remote signalling contact (break contact) for indicating overloads. Installation into steel-plate enclosure recommended. Device according to SNAM specification.

BVT KKS APD SN

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_L	0.1 A
D1 Total lightning impulse current (10/350 μ s) I_{imp}	7 kA
D1 Lightning impulse current (10/350 μ s) per line I_{imp}	3.5 kA
C2 Total nominal discharge current (8/20 μ s) I_n	40 kA
C2 Nominal discharge current (8/20 μ s) 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	≤ 900 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 48 V
Voltage protection level line-PG for 1 kV/ μ s PG U_p	≤ 600 V
A2 Total a.c. current carrying capacity	20 A
Series impedance per line	10 ohms
Bandwidth line-line f_G	6 MHz
Capacitance line-line C	≤ 1 nF
Capacitance line-PG C	≤ 10 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rail according 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 by	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21
Approvals, Certifications	SNAM specification
Type of remote signalling contacts	break contact
Switching capacity d.c.	250 V/0.1 A, 125 V/0.2 A, 75 V/0.5 A
Switching capacity a.c.	250 V/0.5 A
Cross-sectional area for remote signalling terminals	max. 1.5 mm ²
Ordering information	
Type	BVT KKS APD SN
Part No.	918 405
Packing unit	1 pc(s).

Lightning current and surge arrester



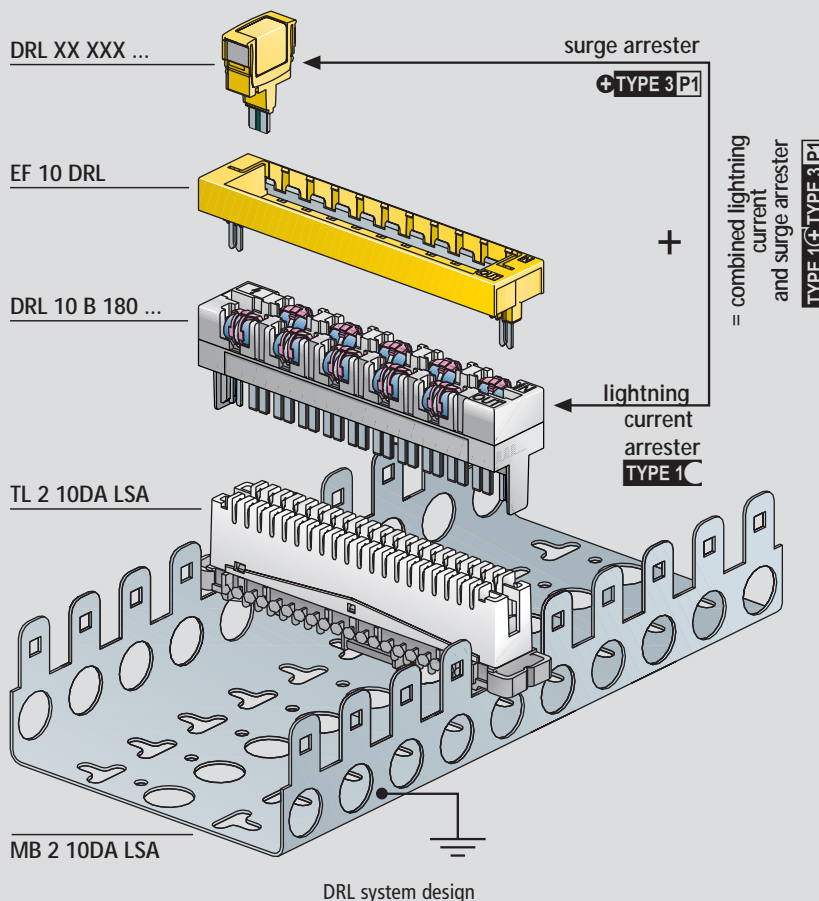
- Variable protection for 1 – 10 pairs for LSA systems, type series 2/10
- LSA disconnection block function integrated into the lightning current arrester provides protection for testing, disconnecting and patching
- Modular system of lightning current and surge arresters, allows also for combination to one combined SPD

DRL Plug-in SPD block (10 pairs):
Lightning current arrester for 10 pairs.

DRL Plug (1 pair):
Surge protective plug for 1 pair, energy-coordinated to the DRL plug-in SPD blocks.

Lightning current arrester, surge arrester or combined lightning current and surge arrester, pluggable into LSA disconnection blocks, type 2. The 10-pair plug-in SPD block with lightning current carrying capacity is supplied with gas discharge tubes (optionally with visual fault indicator) and disconnection block contacts. This allows for testing, disconnecting or

patching with lines at plugged-in protection or additional attaching of single-pair surge arresters for optimum protection of terminal equipment. The surge arresters snap into the earthing frame and can be removed as a block, whenever required.

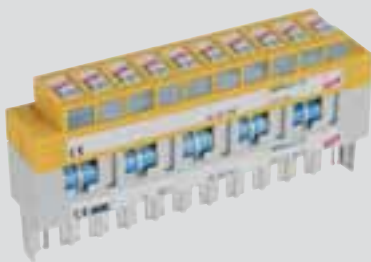


The DEHNrapid LSA lightning current arrester for LSA disconnection blocks protects sensitive hardware effectively from surges and allows for simultaneous testing, disconnecting and patching of connected lines. The modular SPD system for LSA disconnection blocks can be extended to a combined lightning current and surge arrester and has a fail-safe overload protection with visual fault indicator of the discharge elements.

With the compatible earthing frame, the fine limiting DEHNrapid LSA single-pair surge arresters can be plugged directly into the DRL plug-in terminal block or optionally into LSA disconnection blocks. The decoupling impedances integrated into the protective plugs allow for energy coordination to the DRL plug-in terminal block without having to consider the cable length. The single-pair plug also allows for partial supplying of disconnection blocks. One block can even support protective plugs with different circuits or nominal voltages.



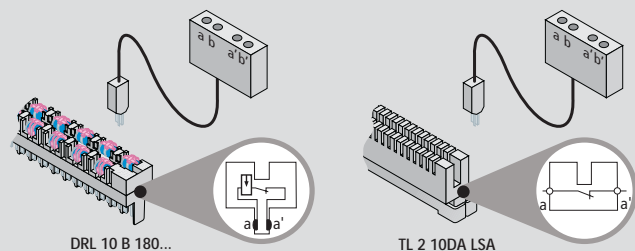
DRL protective plugs with earthing frame



DRL combined lightning current and surge arrester

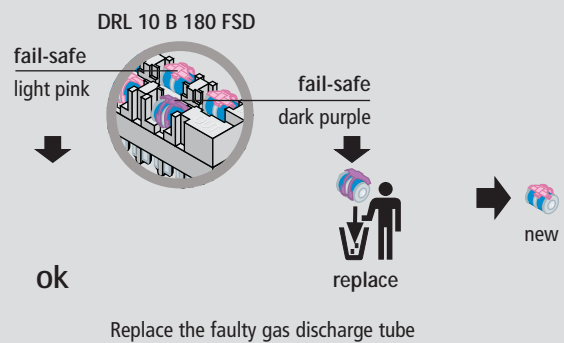
The joined unit of plug-in SPD block, earthing frame and protective plug (combined lightning current and surge arrester) can be plugged in and removed completely. The combined lightning current and surge arrester corresponds to SPD Class **TYPE 1+TYPE 3[P1]**.

The fail-safe function short-circuits the lines to earth in order to protect the gas discharge tube from a possible burn-off due to overcurrents. The disconnecting solder between the spring and SPD melts, the leads are short-circuited and the temperature-sensitive colour on the spring changes from light pink to dark purple and requests the user to replace the SPD.

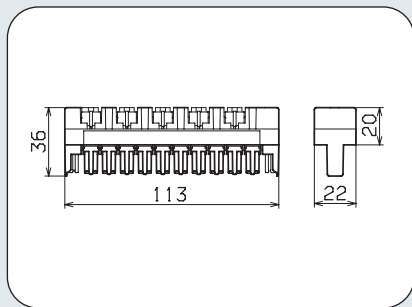


Disconnection block function

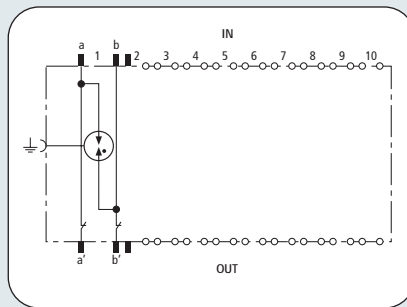
The plug-in terminal block has compatible disconnection contacts to the disconnection block. A measuring or disconnection adapter can be plugged into the DRL in the same way like into a disconnection block. This ensures protection even during maintenance work.



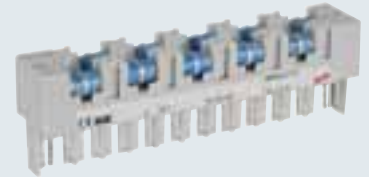
Replace the faulty gas discharge tube



Dimension drawing DRL 10 B



SPD block with 3-pole gas discharge tubes. Integrated isolating contacts for plugging additional elements.



- Lightning current arrester for use as plug-in SPD block with integrated LSA disconnection block function
- Extendible with modules to a combined lightning current and surge arrester
- For use according to the lightning protection zones concept at boundaries $O_A - 1$ and higher

DRL plug-in SPD block (10 pairs) with lightning current carrying capacity, for nearly all kinds of applications. Extendible with DRL protective plug to a combined lightning current and surge arrester. The integrated disconnection block contacts allow for testing, measuring and patching at plugged-in protection.

DRL 10 B 180

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_L	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 for 1 kV/ μ s C3 U_p	≤ 500 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 450 V
Series impedance per line	≤ 0.005 ohms
Capacitance line-line C	≤ 5 pF
Capacitance line-PG C	≤ 5 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 10
Pluggable into	LSA disconnection block 2/10
Earthing by	mounting frame
Enclosure material	polyamide PA 6.6
Colour	grey
Test standards	IEC 61643-21
Approvals, Certifications	VdS

Ordering information	
Type	DRL 10 B 180
Part No.	907 400
Packing unit	10 pc(s).

Accessory Part for DEHNrapid® LSA

Label holder

Universal label holder made of stainless steel, for clear marking of LSA connections. Can be snapped onto DEHNrapid LSA plug-in SPD blocks, earthing frames with protective plug or LSA SPD blocks, 2/10 series.

Type	PU pc(s)	Part No.
SR DRL	1	907 497



Accessory Part for DEHNrapid® LSA

Gas discharge tube

High-capacity spare gas discharge tubes for DRL 10 or BM 10 DRL. 3-pole unit with common thrust chamber for a steady voltage protection level for line-line and line-ground.

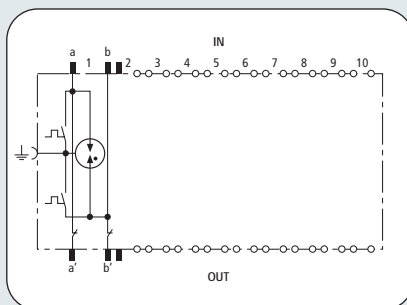
Type	GDT 230 B3	GDT 230 B3 FSD
Integrated into (Part No.)	907 400	907 401
Visual fault indicator	—	✓
Fail-safe spring	—	✓

Type	PU pc(s)	Part No.
GDT 230 B3	1	907 218
GDT 230 B3 FSD	1	907 219

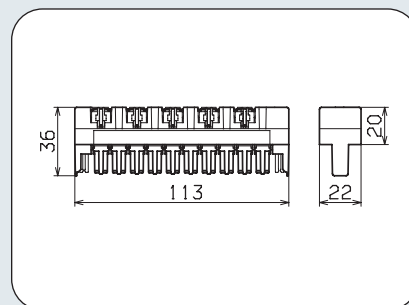




- Lightning current arrester for use as plug-in SPD block with integrated LSA disconnection block function
- Visual fault indicator of the gas discharge tubes
- Extendible with DRL protective plugs to a combined lightning current and surge arrester
- For use according to the lightning protection zones concept at boundaries $O_A - 1$ and higher



SPD block with 3-pole gas discharge tubes with fail-safe function. Integrated isolating contacts for plugging additional elements.



Dimension drawing DRL 10 B FSD

DRL plug-in SPD block (10 pairs) with lightning current carrying capacity, for nearly all types of applications. Extendible with DRL protective plug to a combined lightning current and surge arrester. The integrated disconnection block contacts allow for testing, measuring and patching at plugged-in protection. The gas discharge tubes have a fail-safe function with visual indicator for prospective faults.

DRL 10 B 180 FSD

SPD class	TYPE 1C
Fault indication	visual by 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_L	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 for 1 kV/ μ s C3 U_p	≤ 500 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 450 V
Series impedance per line	≤ 0.005 ohms
Capacitance line-line C	≤ 5 pF
Capacitance line-PG C	≤ 5 pF
Fail-safe performance	gas discharge tube with spring contacts
Operating temperature range	-40°C...+80°C
Degree of protection	IP 10
Pluggable into	LSA disconnection block 2/10
Earthing by	mounting frame
Enclosure material	polyamide PA 6.6
Colour	grey
Test standards	IEC 61643-21
Approvals, Certifications	VdS

Ordering information	
Type	DRL 10 B 180 FSD
Part No.	907 401
Packing unit	10 pc(s).

Gas discharge tube

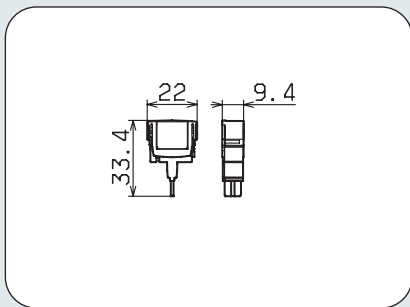
High-capacity spare gas discharge tubes for DRL 10 or BM 10 DRL. 3-pole unit with common thrust chamber for a steady voltage protection level for line-line and line-ground.

Type	GDT 230 B3	GDT 230 B3 FSD	PU pc(s)	Part No.
Integrated into (Part No.)	907 400	907 401		
Visual fault indicator	—	✓		
Fail-safe spring	—	✓		
Type			PU pc(s)	Part No.
GDT 230 B3			1	907 218
GDT 230 B3 FSD			1	907 219

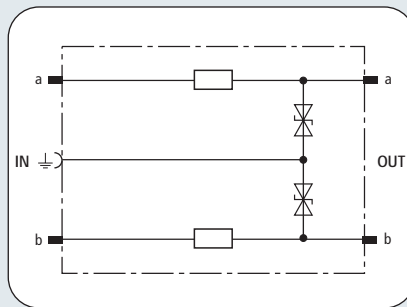
Label holder

Universal label holder made of stainless steel, for clear marking of LSA connections. Can be snapped onto DEHNrapid LSA plug-in SPD blocks, earthing frames with protective plug or LSA SPD blocks, 2/10 series.

Type	PU pc(s)	Part No.
SR DRL	1	907 497



Dimension drawing DRL RE



Protective circuit, energy-coordinated to DRL 10 B for protecting terminal equipment, fine limitation between line and PG



Protective plug (1 pair), energy-coordinated to DRL plug-in SPD block, for use as single-stage protection for terminal equipment with decoupling impedances. Especially suitable for signal circuits with common potential. Earthing by EF 10 DRL. For disconnection blocks or DRL plug-in SPD blocks only.

- Low voltage protection levels for protecting terminal equipment
- Energy-coordinated to DRL plug-in SPD block
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

	DRL RE 5	DRL RE 12	DRL RE 24	DRL RE 48	DRL RE 60	DRL RE 180
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	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_L	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 μ s)						
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 μ s) 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 μ s)						
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 μ s) per line						
in combination with DRL 10 B... I_n	5 kA	5 kA	5 kA	5 kA	5 kA	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 for 1 kV/ μ s C3 U_p	≤ 17.0 V	≤ 36 V	≤ 72 V	≤ 135 V	≤ 185 V	≤ 500 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 9.5 V	≤ 19 V	≤ 38 V	≤ 70 V	≤ 95 V	≤ 270 V
Series impedance per line	4.7 ohms	4.7 ohms	4.7 ohms	6.8 ohms	6.8 ohms	4.7 ohms
Bandwidth 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
Operating temperature range	-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 plugged in	IP 20 plugged in	IP 20 plugged in	IP 20 plugged in	IP 20 plugged in	IP 20 plugged in
Pluggable into	LSA disconnection block 2/10 or DRL 10 B ... plug-in SPD block					
Earthing by	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	IEC 61643-21	IEC 61643-21	IEC 61643-21	IEC 61643-21	IEC 61643-21
Approvals, Certifications	VdS	VdS	VdS	VdS	VdS	VdS

Ordering information						
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
Packing unit	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).

Label holder

Universal label holder made of stainless steel, for clear marking of LSA connections. Can be snapped onto DEHNrapid LSA plug-in SPD blocks, earthing frames with protective plug or LSA SPD blocks, 2/10 series.

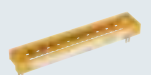
Type	PU pc(s)	Part No.
SR DRL	1	907 497

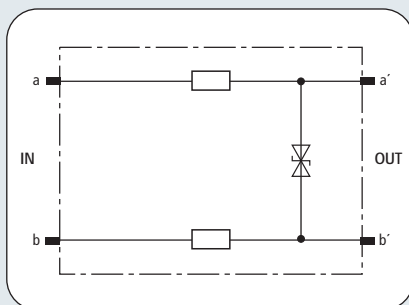


Earthing frame

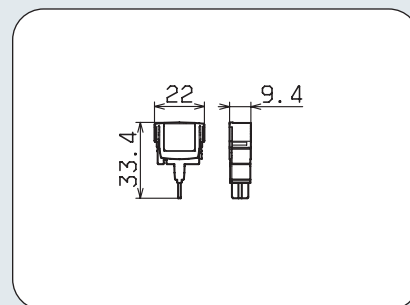
Earthing frame with snap-in device, required for earthing and mounting max. 10 DRL protective plugs. Pluggable onto a 10-pair disconnection block or DRL plug-in SPD block.

Type	PU pc(s)	Part No.
EF 10 DRL	1	907 498





Line-line protective circuit, energy-coordinated to DRL 10 B for protecting of terminal equipment.



Dimension drawing DRL RD

- Low voltage protection level line/line for protecting terminal equipment
- Energy-coordinated to DRL plug-in SPD block
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

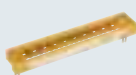
Protective plug (1 pair), energy-coordinated to DRL plug-in SPD block for use as single-stage protection for terminal equipment. Low voltage protection levels line-line for electrically isolated interfaces. To be installed with EF 10 DRL. Installation recommended only in combination with DRL plug-in SPD block.

	DRL RD 5	DRL RD 12	DRL RD 24	DRL RD 48	DRL RD 60	DRL RD 110
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_L	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 μ s) 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 μ s) 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 μ s) 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 μ s) per line in combination with DRL 10 B... I_n	5 kA	5 kA	5 kA	5 kA	5 kA	5 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 for 1 kV/ μ s C3 U_p	≤ 8.5 V	≤ 18 V	≤ 36 V	≤ 70 V	≤ 95 V	≤ 250 V
Series impedance per line	2.2 ohms	2.2 ohms	2.2 ohms	4.7 ohms	4.7 ohms	4.7 ohms
Bandwidth 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	-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 plugged in	IP 20 plugged in	IP 20 plugged in	IP 20 plugged in	IP 20 plugged in	IP 20 plugged in
Pluggable 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	IEC 61643-21	IEC 61643-21	IEC 61643-21	IEC 61643-21	IEC 61643-21
Approvals, Certifications	VdS	VdS	VdS	VdS	VdS	—

Ordering information						
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
Packing unit	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).

Earthing frame

Earthing frame with snap-in device, required for earthing and mounting max. 10 DRL protective plugs. Pluggable onto a 10-pair disconnection block or DRL plug-in SPD block.



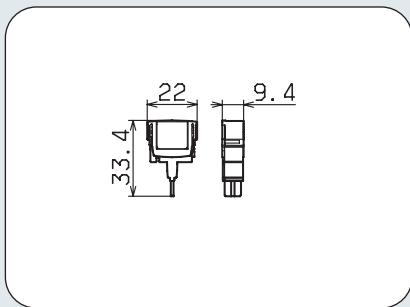
Type	PU pc(s)	Part No.
EF 10 DRL	1	907 498

Label holder

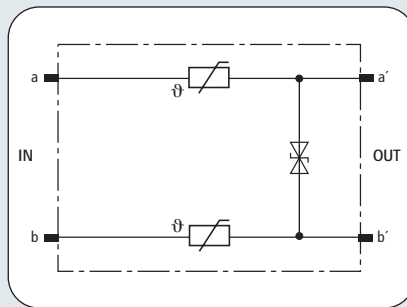
Universal label holder made of stainless steel, for clear marking of LSA connections. Can be snapped onto DEHNrapid LSA plug-in SPD blocks, earthing frames with protective plug or LSA SPD blocks, 2/10 series.



Type	PU pc(s)	Part No.
SR DRL	1	907 497



Dimension drawing DRL PD



Protective circuit, energy-coordinated to DRL 10 B for protecting terminal equipment, fine limitation between line and PG and additional overcurrent protection.



Protective plug (1 pair), energy-coordinated to DRL plug-in SPD block for use as single-stage protection for terminal equipment. Low voltage protection level line-line and integrated overcurrent protection for ADSL, ISDN U_{k0} or a/b lines. For mounting with EF 10 DRL. Installation recommended only in combination with DRL plug-in SPD block.

- For maximum transmission rates – combined with overcurrent protection
- Energy-coordinated to DRL plug-in SPD block
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

DRL PD 180	
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
Voltage protection level line-PG for I_{imp} D1 in combination with DRL 10 B... U_p	≤ 500 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 270 V
Series impedance per line	12 ohms
Bandwidth line-line f_c	61 MHz
Capacitance line-line C	≤ 80 pF
Capacitance line-PG C	≤ 7 pF
Integrated overcurrent protection	✓
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20 plugged in
Pluggable 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
Approvals, Certifications	VdS
Ordering information	
Type	DRL PD 180
Part No.	907 430
Packing unit	10 pc(s).

Label holder

Universal label holder made of stainless steel, for clear marking of LSA connections. Can be snapped onto DEHNrapid LSA plug-in SPD blocks, earthing frames with protective plug or LSA SPD blocks, 2/10 series.

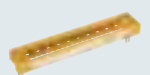
Type	PU pc(s)	Part No.
SR DRL	1	907 497

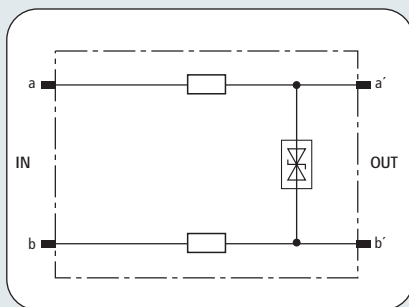


Earthing frame

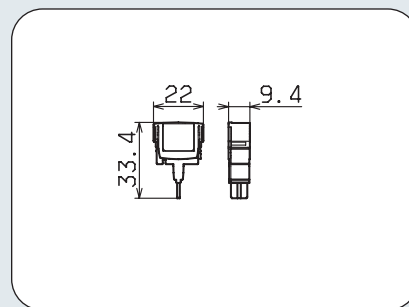
Earthing frame with snap-in device, required for earthing and mounting max. 10 DRL protective plugs. Pluggable onto a 10-pair disconnection block or DRL plug-in SPD block.

Type	PU pc(s)	Part No.
EF 10 DRL	1	907 498





Protective circuit, energy-coordinated to DRL 10 B, with low capacitance for protection of terminal equipment line-line.



Dimension drawing DRL HD

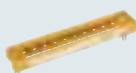
- For maximum transmission rates
- Energy-coordinated to DRL plug-in SPD block
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

Protective plug (1 pair), energy-coordinated to DRL plug-in SPD block, for use as single-stage protection for terminal equipment for high-frequency transmissions like G.703 or ISDN U_{2m} , S_{2m} and S_0 . To be installed with EF 10 DRL. Installation recommended only in combination with DRL plug-in SPD block.

	DRL HD 5	DRL HD 24
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_L	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
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 for 1 kV/ μ s C3 U_p	≤ 25 V	≤ 46 V
Series impedance per line	2.2 ohms	4.7 ohms
Bandwidth line-line f_G	90 MHz	94 MHz
Capacitance line-line C	≤ 22 pF	≤ 22 pF
Operating temperature range	-40°C...+80°C	-40°C...+80°C
Degree of protection	IP 20 plugged in	IP 20 plugged in
Pluggable into	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	IEC 61643-21
Approvals, Certifications	—	VdS
Ordering information		
Type	DRL HD 5	DRL HD 24
Part No.	907 465	907 470
Packing unit	10 pc(s).	10 pc(s).

Earthing frame

Earthing frame with snap-in device, required for earthing and mounting max. 10 DRL protective plugs. Pluggable onto a 10-pair disconnection block or DRL plug-in SPD block.



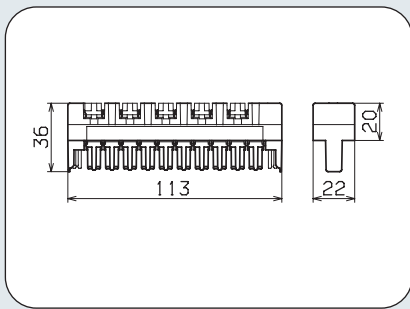
Type	PU pc(s)	Part No.
EF 10 DRL	1	907 498

Label holder

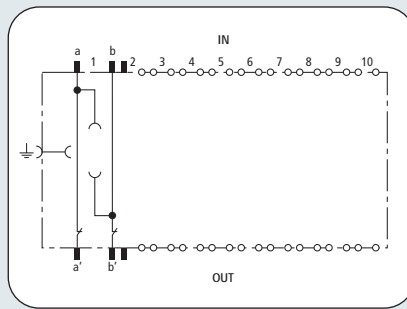
Universal label holder made of stainless steel, for clear marking of LSA connections. Can be snapped onto DEHNrapid LSA plug-in SPD blocks, earthing frames with protective plug or LSA SPD blocks, 2/10 series.



Type	PU pc(s)	Part No.
SR DRL	1	907 497



Dimension drawing BM 10 DRL



SPD block for 3-pole gas discharge tubes.
Integrated disconnecting contacts for plugging
additional elements.



- Integrated disconnection contacts
- For LSA disconnection blocks type 2/10
- Allows for individual supplying with SPDs

Plug-in SPD block (without SPDs) for supporting 1 to max. 10 gas discharge tubes type GDT 230 B3 ... Also suitable for supporting DRL protective plugs with earthing frame.

BM 10 DRL	
Pluggable into	LSA disconnection blocks
Earthing by	mounting frame
Enclosure material	polyamide PA 6.6
Colour	grey
Ordering information	
Type	BM 10 DRL
Part No.	907 499
Packing unit	10 pc(s).

Accessory Part for DEHNrapid® LSA plug-in SPD block without SPDs

Label holder

Universal label holder made of stainless steel, for clear marking of LSA connections. Can be snapped onto DEHNrapid LSA plug-in SPD blocks, earthing frames with protective plug or LSA SPD blocks, 2/10 series.

Type	PU pc(s)	Part No.
SR DRL	1	907 497



Accessory Part for DEHNrapid® LSA plug-in SPD block without SPDs

Gas discharge tube

High-capacity spare gas discharge tubes for DRL 10 or BM 10 DRL. 3-pole unit with common thrust chamber for a steady voltage protection level for line-line and line-ground.

Type	GDT 230 B3	GDT 230 B3 FSD
Integrated into (Part No.)	907 400	907 401
Visual fault indicator	—	✓
Fail-safe spring	—	✓

Type	PU pc(s)	Part No.
GDT 230 B3	1	907 218
GDT 230 B3 FSD	1	907 219



Surge arrester

- Suitable for terminal and disconnection blocks of LSA systems, type series 2/10
- Already supplied for 10 pairs with individually tested gas discharge tubes
- Individually replaceable protection elements (gas discharge tubes)



Pluggable SPDs for use in LSA systems, type series 2/10.
Unit for use as protection block for 10 pairs with individually replaceable protection elements.

Pluggable surge arresters for use as protection blocks for IT installations and devices, which have to be connected by terminal or disconnection blocks with LSA IDC termination. Installation onto terminal blocks, however, is the preferred method, as its contact forces provide better fixation – even in case of slight vibrations.

The surge arresters for 10 pairs can be easily installed and removed for testing purposes. The contact to earth to the mounting frame is automatically established when plugging in the SPD. After being overloaded, the protection elements can be individually replaced.



DPL 10 G3 family

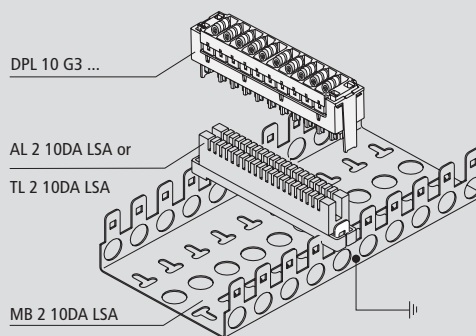
The protection blocks consist of equal basic terminal blocks, which are supplied and tested with different protection elements according to requirements.

DPL 10 G3:

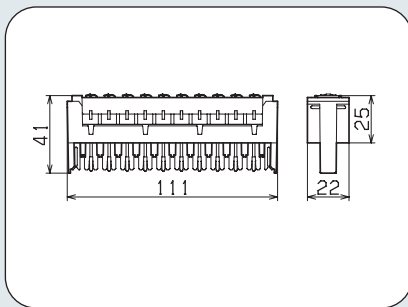
10 standard gas discharge tubes

DPL 10 G3 FSD:

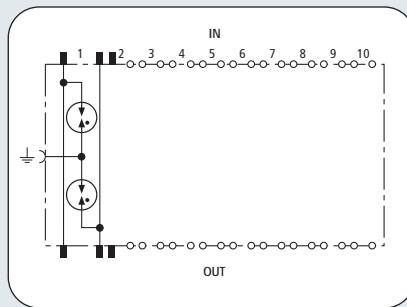
10 gas discharge tubes with fail-safe function and visual indicator



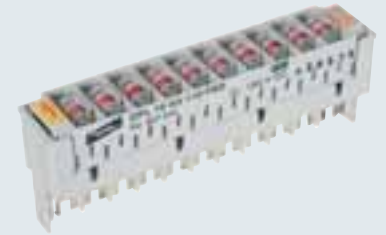
Installation of DPL



Dimension drawing DPL 10 G3



Block with 3-pole gas discharge tubes. When the fail-safe function is activated, the lines involved are short-circuited to earth.



- Powerful SPD block
- Types with/without fail-safe function or visual indicator
- For use according to the lightning protection zones concept at boundaries $O_B - 1$ and higher

Protective plug for 10 pairs with tripod gas discharge tubes for nearly all types of applications. SPDs Type FSD have a fail-safe function and provide an additional visual indicator after the fail-safe has been activated. This helps to recognise immediately if an SPD has to be replaced.

	DPL 10 G3 110	DPL 10 G3 110 FSD
SPD class	TYPE 2	TYPE 2
Fault indicator	—	visual by 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_L	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
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 performance	—	gas discharge tube with spring contacts
Operating temperature range	-40°C...+80°C	-40°C...+80°C
Pluggable into	LSA disconnection and terminal blocks (type 2)	LSA disconnection and terminal blocks (type series 2)
Earthing by	mounting frame	mounting frame
Enclosure material	polyamide	polyamide
Colour	grey	grey
Test standards	IEC 61643-21	IEC 61643-21
Ordering information		
Type	DPL 10 G3 110	DPL 10 G3 110 FSD
Part No.	907 214	907 216
Packing unit	10 pc(s).	10 pc(s).

Accessory Part for DPL 10 G3

Gas discharge tube

Powerful spare gas discharge tube for DPL 10 G3. 3-pole type with common thrust chamber for a constant protection level for line/line and line/earth.

Type	GDT 230 G3	GDT 230 G3 FSD
Integrated into (Part No.)	907 214	907 216
Visual fault indicator	—	✓
Fail-safe spring	—	✓
Type	PU pc(s)	Part No.
GDT 230 G3	1	907 208
GDT 230 G3 FSD	1	907 217



- Premounted enclosure system for wiring and protection components
- Tested lightning impulse current carrying capacity
- Optimised for equipotential bonding (surge arrester and shield connection)
- Metal enclosure, lockable against unauthorised access



DEHN enclosures for equipotential bonding (DPG) are lockable metal enclosures and prepared for installation of wiring and protection components. With four different sizes, the enclosures with lightning current carrying capacity provide clamping devices to integrate surge arresters and shields into the equipotential bonding.

Enclosure with lightning current carrying capacity, IP 40, for different designs of distribution boards and for using surge arresters. The cover can be removed from the wall plate without tools and is supplied with a lock with a cylindrical casement fastener and a key. The C-shaped design of the wall plate makes mounting work easier by sidewise or front access. LSA mounting frames or DIN rails can be attached to the wall plate with cable entrance plates and cable rails.

Despite of a high packing density, a structured cabling management is provided – crossings between cablings and wirings are avoided and the cabling of e.g. the LSA blocks becomes concise due to the 30 mm grid. For this kind of cabling, an optional shield connection system is available (constant force spring). The sophisticated earthing system permanently connects all conductive components of the enclosure system by mechanical contacting, or earth conductors by means of an earthing block.

DEHN enclosures for equipotential bonding (DPG) are available in 4 sizes to be supplied with 3/6/12/22 LSA blocks. Even for using 20/50/100/200 pairs, this still provides enough space for the earth conductor block for supporting shielded sheath wires.

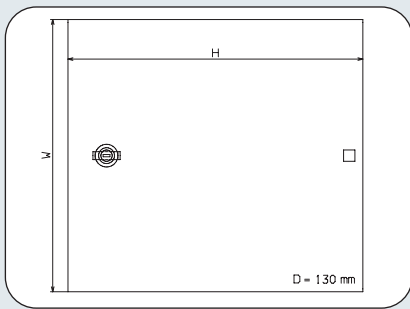
The shields of feeded conductors can be contacted with constant force springs type SA KRF in a space-saving way and with lightning current capacity. All equipotential bonding conductors are led together in the central earthing block.



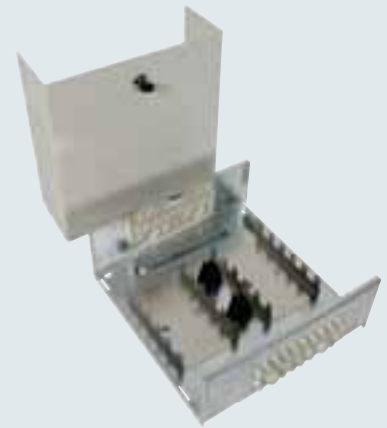
DEHN enclosures for equipotential bonding (DPG) in 4 sizes



Shield connection with SA KRF



- Earthing system with lightning current carrying capacity for SPDs and shield connection
- Mounting frame for LSA blocks integrated with a grid dimension of 30 mm
- Reserved space for uninterfered wiring and use of surge arresters



DPG LSA is a completely premounted enclosure system with LSA mounting frame and allows for optimised use of SPDs and shield connection systems (constant force spring).

	DPG LSA 30 P	DPG LSA 60 P	DPG LSA 120 P	DPG LSA 220 P
Carrying capacity of connection components				
D1 Total lightning impulse current (10/350 µs) I_{imp}	15 kA	30 kA	50 kA	50 kA
LSA mounting frame for	1 x 3 blocks 2/10	1 x 6 blocks 2/10	2 x 6 blocks 2/10	2 x 11 blocks 2/10
Grid dimension of mounting frame	30 mm	30 mm	30 mm	30 mm
Wirings	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
Locking device	yes	yes	yes	yes
For mounting on	wall	wall	wall	wall
Degree of protection	IP 40	IP 40	IP 40	IP 40
Earthing by	earthing block	earthing block	earthing block	earthing block
Dimension 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	steel plate	steel plate	steel plate	steel plate
Colour	RAL 9002	RAL 9002	RAL 9002	RAL 9002
Ordering information				
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
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for DEHN Enclosure for Equipotential Bonding

Selfbonding rubber tape

Reel with 9 m selfbonding rubber tape for wrapping around constant force springs for permanent protection against corrosion.

Type	PU pc(s)	Part No.
SKB 19 9M SW	1	919 030



Accessory Part for DEHN Enclosure for Equipotential Bonding

Constant force spring

Constant force springs allow for solderless shield connections for equipotential bonding or lightning equipotential bonding. They can be installed subsequently without interrupting the conductor shield or requiring tools for installation. Approved for nuclear installations according to TÜV Certificate No. T12-04-ETL003 (TÜV = German Technical Inspectorate).

Type	Clamping range	Material	PU pc(s)	Part No.
SA KRF 10 V2A	4 - 10 mm	StSt	20	919 031
SA KRF 15 V2A	9 - 15 mm	StSt	20	919 032
SA KRF 22 V2A	14 - 22 mm	StSt	20	919 033
SA KRF 29 V2A	18.5 - 29 mm	StSt	10	919 034
SA KRF 37 V2A	23.5 - 37 mm	StSt	10	919 035



- Approved quality
- 45° angled blade contacts
- Further accessories available on request



The IDC termination method is used for installing many lines quickly and economically. This method is especially common in telecommunications (e.g. Deutsche Telekom AG).

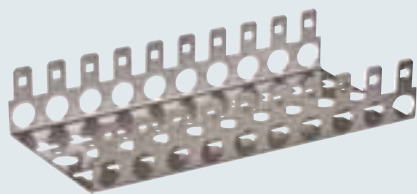
The blocks are suitable for connecting of plastic-insulated wires with copper conductor material:

Conductor diameter: 0.4-0.8 mm

Outer diameter: 0.7-1.5 mm

After using wires with a diameter of 0.65 mm, a re-wiring to smaller diameters is no longer possible.

Mounting Frame



For supporting 10 LSA blocks, type series 2/10.

MB2 10 LSA

Ordering information

Type	MB2 10 LSA
Part No.	907 995
Packing unit	1 pc(s).

Insertion Tools



Insertion tools with sensor for LSA connections for connecting the wires and simultaneous cutting of residual lengths. With extractor hook and unlatching blade.

AW2 LSA

Ordering information

Type	AW2 LSA
Part No.	907 994
Packing unit	1 pc(s).

SPDs FOR LSA TECHNOLOGY

Type series 2 for LSA connections for connecting 10 pairs, each to a non-open termination on the cable and routing side. Allows to plug in DPL 10 G3. Parallel protective circuit only.

Terminal Block

AL2 10DA LSA	
Enclosure material	PBT
Test standards	DIN 47608-1, -2
I.p.c.d. for solid conductor diameters	0.40 - 0.80 mm
Outer diameter via insulation of i.p.c.d.	0.70 - 1.50 mm
Contacting frequency ≤ 0.65 conductor diameter	$> 50 \times$
Contacting frequency 0.8 conductor diameter	$\leq 50 \times$
Contact material	special brass
Contact surface	silver
Flame protection	UL 94 V-0
Insulation resistance	5 x 10.000 Mohms
Volume resistance of i.p.c.d.	< 10 mohms
Electric strength	2 kV / 50 Hz
Ordering information	
Type	AL2 10DA LSA
Part No.	907 997
Packing unit	1 pc(s).



Type series 2 for LSA connections for connecting 10 pairs, each on the cable and routing side. By plugging in DRL, the protection is serially provided between the disconnection contacts. Allows also for plugging of DPL 10 G3 arresters.

Disconnection Block

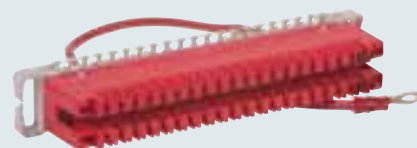
TL2 10DA LSA	
Enclosure material	PBT
Test standards	DIN 47608-1, -2
Standards, Certifications	corresponds to DTAG TS 0272/96
I.p.c.d. for solid conductor diameters	0.40 - 0.80 mm
Outer diameter via insulation of i.p.c.d.	0.70 - 1.50 mm
Contacting frequency ≤ 0.65 conductor diameter	$> 50 \times$
Contacting frequency 0.8 conductor diameter	$\leq 50 \times$
Contact material	special brass
Contact surface	silver
Flame protection	UL 94 V-0
Insulation resistance	5 x 10.000 Mohms
Volume resistance of i.p.c.d.	< 10 mohms
Electric strength	2 kV / 50 Hz
Ordering information	
Type	TL2 10DA LSA
Part No.	907 996
Packing unit	1 pc(s).



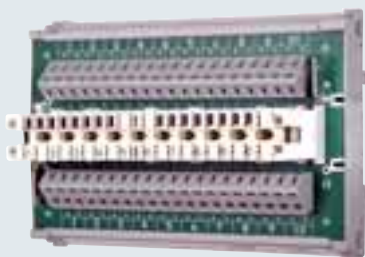
Type series 2 for LSA terminals for connecting 38 earth wires or shields.

Earth Conductor Block

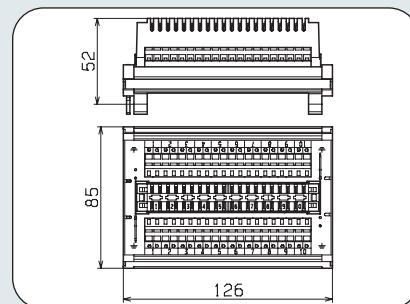
EL2 38EA LSA	
Ordering information	
Type	EL2 38EA LSA
Part No.	907 993
Packing unit	1 pc(s).



Routing module with LSA tension spring for disconnection blocks



- Optional connection to LSA or spring-pressure terminals
- Allows for routing of different wire diameters
- DRL adapted to DIN rail systems



Dimension drawing

Routing module for disconnection blocks for DIN rail mounting, supplied with tension spring type series 2/10, as well as spring-pressure terminals for variable wire connection. For plugging DPL and DEHNrapid LSA surge arresters.

TL2 10DA CC

Carrying capacity of connection components	
D1 Total lightning impulse current (10/350 μ s) I_{imp}	5 kA
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rail according to EN 60715
Connection input / output	spring or LSA / spring or LSA
Cross-sectional area of spring terminal, solid	0.08 mm ² - 2.5 mm ²
Cross-sectional area of spring terminal, flexible	0.08 mm ² - 2.5 mm ²
Earthing by	DIN rail / flat connector 6.3 mm
Enclosure material	PA / PBT
I.p.c.d. for solid conductor diameters	0.40 - 0.80 mm
Outer diameter via insulation of i.p.c.d.	0.70 - 1.60 mm
Volume resistance of i.p.c.d.	< 10 mohms

Ordering information

Type	TL2 10DA CC
Part No.	907 991
Packing unit	1 pc(s).

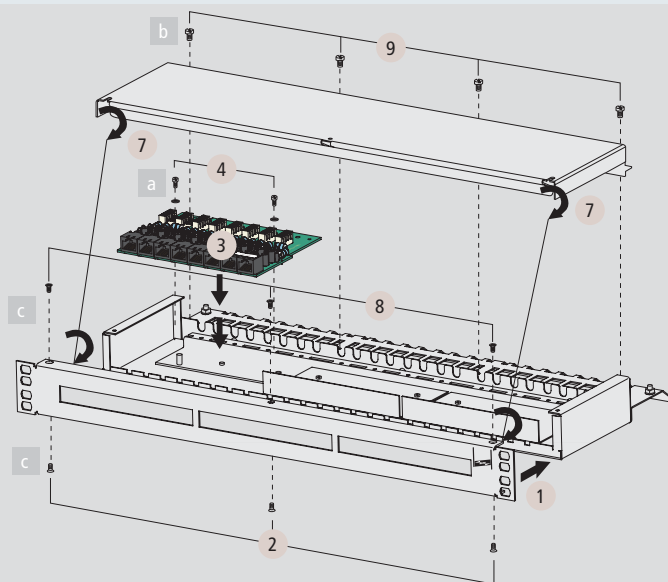


19" enclosure, can be equipped with surge protective boards for protecting network components (class D) or telecommunication systems.

19" enclosure, can be equipped with up to 3 surge protective boards for protecting active network components such as HUBs, switches (class D) or telecommunication systems. Typical applications: Ethernet, Token Ring, E1 and telephony.

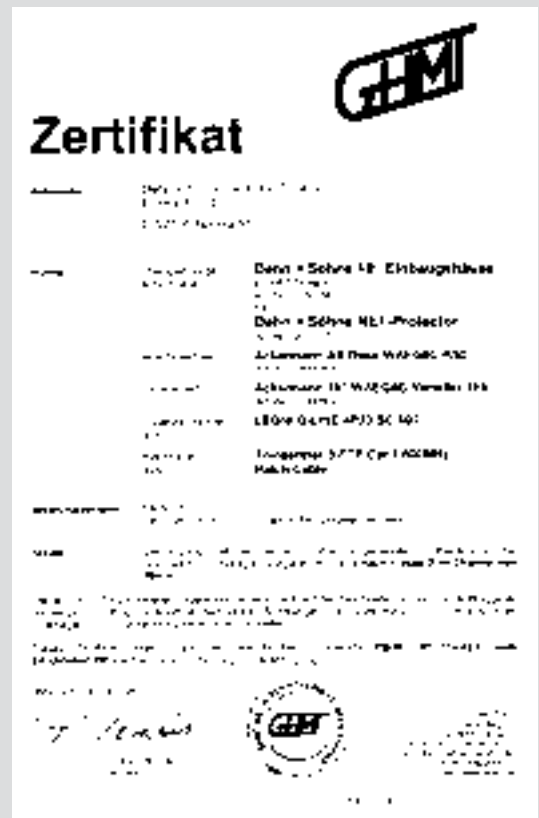
- Protects switches, HUBs and telecommunication systems
- Allows for class D according to EN 50173 (Gigabit Ethernet)
- Patch panels allow for flexible equipment
- Types available with plug-in inputs and outputs for retrofitting

NET Protector requires space of only one vertical module and is mostly installed into terminal boards. It is inserted as a patch panel with surge protection or as a retrofitted device for patching between the patch panel and the device to be protected.



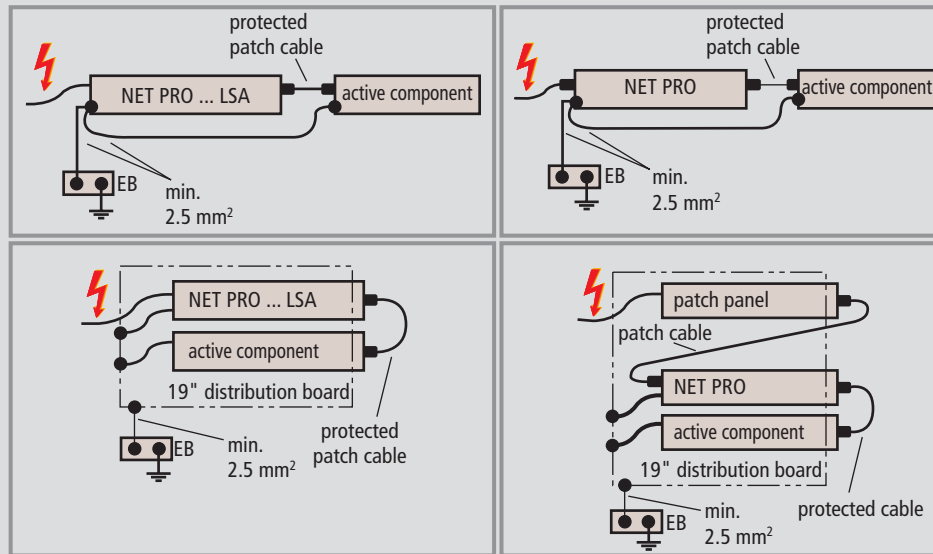
Assembly drawing

NET PRO has a modular design. The empty enclosure can be optionally equipped with 1, 2 or 3 surge protective panels.



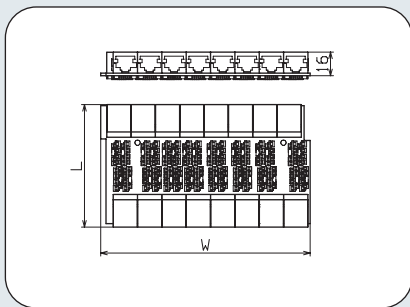
GHMT Certificate

With the completely shielded 19" enclosure and the 4TP board, class D networks can be established. This has been confirmed by the independent GHMT test institute.

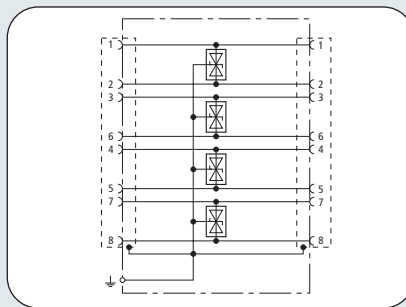


LSA type as patch field (left) / Type for retrofitting (right)

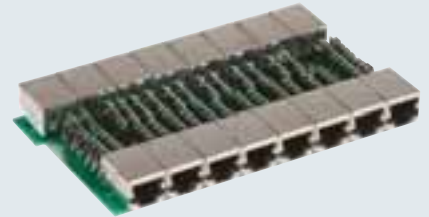
The protective boards have not only a different protective circuit but also a different connection. While the protected output is always an RJ45 unit, the input can be an IDC termination or RJ45 type. The IDC termination unit is often used as initial equipment of new installations, which includes no patch panel yet. The RJ45 type is also described as retrofitting unit for existing systems as it is patched easily between the patch panel and the active component.



Dimension drawing NET PRO 4TP



Surge protection for all pairs due to low capacitance diode matrix for each pair.



Surge protective board with 8 shielded ports for universal cablings (class D). For universal use as all 4 pairs (4 TP) are protected. To be installed into EG NET PRO 19" and mounted into distribution cabinets as a patch field or retrofitting unit.

- GHMT certificate for class D channel link
- Low protection level for all lines
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

	NET PRO 4TP	NET PRO LSA 4TP	NET PRO 4TP 30
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_L	100 mA	100 mA	100 mA
C2 Nominal discharge current (8/20 μ s) per port I_n	2.4 kA	2.4 kA	0.8 kA
C2 Nominal discharge current (8/20 μ s) 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 for 1 kV/ μ s C3 U_p	≤ 13 V	≤ 13 V	≤ 40 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 13 V	≤ 13 V	≤ 40 V
Bandwidth line-line for 100 ohms f_G	165 MHz	170 MHz	300 MHz
Insertion loss for 100 MHz	< 0.4 dB	< 0.3 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	-40°C...+80°C	-40°C...+80°C	-40°C...+80°C
Degree of protection	IP 00	IP 00	IP 00
For installation into	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 by	enclosure	enclosure	enclosure
Dimension W x L	135 x 77 mm	135 x 107 mm	135 x 77 mm
Test standards	IEC 61643-21	IEC 61643-21	IEC 61643-21
Approvals, Certifications	Class D	—	—
Ordering information			
Type	NET PRO 4TP	NET PRO LSA 4TP	NET PRO 4TP 30
Part No.	929 035	929 036	929 037
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for NET Protector

19" Enclosure

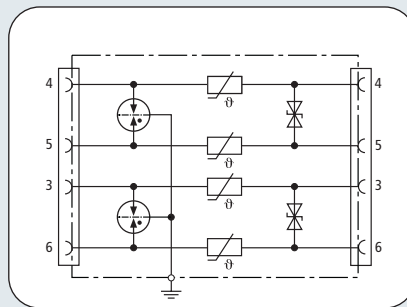
Completely shielded empty enclosure for supporting up to 3 NET Protector protective boards.

Type	EG NET PRO 19"		
Dimension	1 vertical module		
Enclosure material	stainless steel front / galvanised sheet metal		
Type	PU	Part	
EG NET PRO 19"	pc(s)	No.	
	1	929 034	

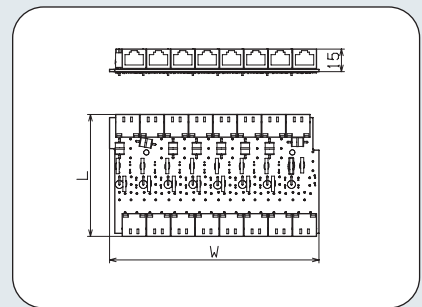




- Patch panel or retrofitting unit
- Protection against power crossing integrated
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher



PTC thermistors decouple the protective stages and thus protect the terminal systems additionally against "power crossings".



Dimension drawing NET PRO TC

Protective board with 8 unshielded ports for protection against surges and a.c. current interferences, for protecting telecommunication systems with analogue or system transmission technology. For installation into EG NET PRO 19" as retrofitting or patch panel unit (LSA).

	NET PRO TC 2	NET PRO TC 2 LSA
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_L	150 mA	150 mA
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 for 1 kV/ μ s C3 U_p	≤ 230 V	≤ 230 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 600 V	≤ 600 V
Series impedance per line	10 ohms	10 ohms
Bandwidth line-line f_G	10 MHz	10 MHz
Capacitance line-line C	≤ 300 pF	300 pF
Capacitance line-PG C	≤ 15 pF	15 pF
Operating temperature range	-40°C...+80°C	-40°C...+80°C
Degree of protection	IP 00	IP 00
For installation into	enclosure	enclosure
Connection input/output	RJ45 / RJ45	LSA / RJ45
Pinning	4/5, 3/6	4/5, 3/6
Earthing by	enclosure	enclosure
Dimension W x L	135 x 77 mm	135 x 107 mm
Test standards	IEC 61643-21	IEC 61643-21
Ordering information		
Type	NET PRO TC 2	NET PRO TC 2 LSA
Part No.	929 071	929 072
Packing unit	1 pc(s).	1 pc(s).

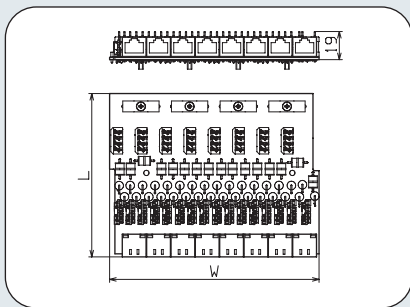
Accessory Part for NET Protector

19" Enclosure

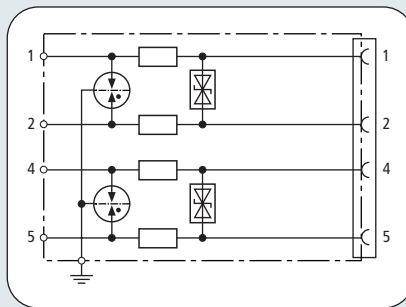
Completely shielded empty enclosure for supporting up to 3 NET Protector protective boards.



Type	EG NET PRO 19"		
Dimension	1 vertical module		
Enclosure material	stainless steel front / galvanised sheet metal		
Type	PU	Part	
EG NET PRO 19"	pc(s)	No.	
	1	929 034	



Dimension drawing NET PRO E1 LSA



Energy-coordinated 2-pair protective circuit for E1 interfaces



- Patch panel unit
- Corresponds to G.703 specification
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

Surge protective board, patch panel unit, with 8 unshielded ports for E1 interfaces. Installation into EG NET PRO 19" and mounting in distribution boards upstream of the telecommunication system. For 2 MBit/s transmissions according to G.703.

NET PRO E1 LSA G703

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
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 for 1 kV/ μ s C3 U_p	≤ 15 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 450 V
Series impedance per line	1 ohm
Bandwidth line-line for 100 ohms f_G	210 MHz
Capacitance line-line C	≤ 20 pF
Capacitance line-PG C	≤ 25 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 00
For installation into	enclosure
Connection input/output	LSA / RJ45 socket
Pinning	1/2, 4/5
Earthing by	enclosure
Dimension W x L	135 x 108 mm
Test standards	IEC 61643-21

Ordering information	
Type	NET PRO E1 LSA G703
Part No.	929 075
Packing unit	1 pc(s).

Accessory Part for NET Protector

19" Enclosure

Completely shielded empty enclosure for supporting up to 3 NET Protector protective boards.

Type	EG NET PRO 19"	
Dimension	1 vertical module	
Enclosure material	stainless steel front / galvanised sheet metal	
Type	PU pc(s)	Part No.
EG NET PRO 19"	1	929 034





- Patch cable with surge protection
- Cat. 6 according to ISO/IEC 11801
- For universal use up to 48 V
- Easy to retrofit

DEHNpatch is the first patch cable supplied with surge protection in Cat. 6 performance for universal use according to EN 50173 up to 48 V d.c.

Being designed as a patch cable, DEHNpatch can be easily installed. It allows not only to supply new installations very easily, but also to retrofit existing installations without extensive installation work.

DEHNpatch has simply to be plugged between the patch panel and active device (e.g. switch) instead of using a conventional patch cable. The DIN rail mountable supporting foot with snap-in device ensures safe earthing. For single applications, delivery includes a piece of DIN rail with fixing device. For multiple application in 19" distribution boards, the DEHNpatch mounting set should be used, which can be provided as an accessory part. DEHNpatch meets the Cat. 6 requirements and can universally be used for

nominal voltages up to 48 V. Both existing applications in offices and industry like Gigabit Ethernet, ATM or ISDN can be protected as well as future systems like Voice over IP and Power over Ethernet. Due to its fully shielded design, DEHNpatch can be used in shielded and unshielded networks. Its width corresponds approximately to the one of an RJ45 socket. This allows to install up to 24 devices in one series and integrate them into a 19" rack.

The standard total cable lengths of DEHNpatch are 3 m and 5 m (other lengths available on request).



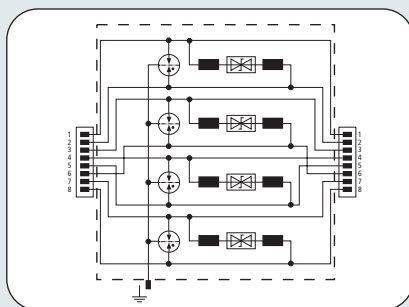
GHMT Certificate DPA M CAT6 RJ45S 48



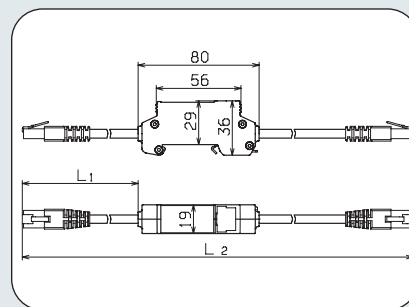
GHMT Certificate DPA M CAT6 RJ45H 48



- Ideal for retrofitting with protection for all lines
- Cat. 6 according to ISO/IEC 118001
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher



Protection for all pairs with powerful gas discharge tubes and an adapted filtering matrix per pair.



Dimension drawing DPA M CAT6 RJ45S 48

Universal SPD for use as a patch cable for Ethernet and similar applications in universally structured cabling systems. Certified according to Category 6 and class E. Fully shielded.

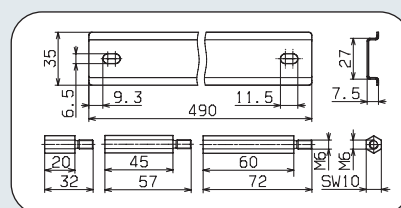
	DPA M CAT6 RJ45S 48	DPA M CAT6 RJ45H 48
SPD class	TYPE 2 P1	TYPE 2 P1
Nominal voltage U_N	48 V	48 V
Max. continuous operating d.c. voltage U_c	48 V	48 V
Max. continuous operating a.c. voltage U_c	34 V	34 V
Nominal current I_L	1 A	1 A
C2 Nominal discharge current (8/20 μ s) line-line I_n	150 A	150 A
C2 Total nominal discharge current (8/20 μ s) line-PG I_n	10 kA	10 kA
C2 Nominal discharge current (8/20 μ s) line-PG I_n	2.5 kA	2.5 kA
Voltage protection level line-line for I_n C2 U_p	≤ 190 V	≤ 190 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	≤ 145 V	≤ 145 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 500 V	≤ 500 V
Insertion loss for 250 MHz	≤ 2 dB	≤ 3 dB
Capacitance line-line C	≤ 165 pF	≤ 250 pF
Capacitance line-PG C	≤ 255 pF	≤ 400 pF
Operating temperature range	-20°C ... +60°C	-20°C ... +60°C
Degree of protection	IP 20	IP 20
For mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Connection input/output	RJ45 connecting lead / RJ45 connecting lead	RJ45 connecting lead / RJ45 connecting lead
Pinning	1/2, 3/6, 4/5, 7/8	1/2, 3/6, 4/5, 7/8
Cord	Cat. 6, $L_1 =$ approx. 0.5 m, $L_2 =$ approx. 3 m	Cat. 6, $L_1 =$ approx. 1 m, $L_2 =$ approx. 5 m
Connector	Stewart 39 series	Hirose TM 21P
Earthing by	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	bare
Test standards	IEC 61643-21	IEC 61643-21
Approvals, Certifications	Cat. 6 according to ISO/IEC 11801	Cat. 6 according to ISO/IEC 11801
Accessories	fixing material	fixing material
Ordering information		
Type	DPA M CAT6 RJ45S 48	DPA M CAT6 RJ45H 48
Part No.	929 100	929 110
Packing unit	1 pc(s).	1 pc(s).

Mounting set for DEHNpatch

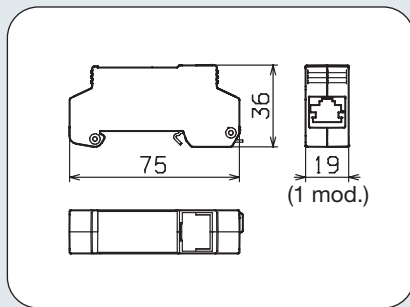
The set comprises a DIN rail for up to 24 DEHNpatch devices and different distance bolts with sliding nuts for installation into data distributions. The DIN rail can be mounted at the wall of the distribution board or even in front of the mounting stations according to a 19" grid in a space-saving way.



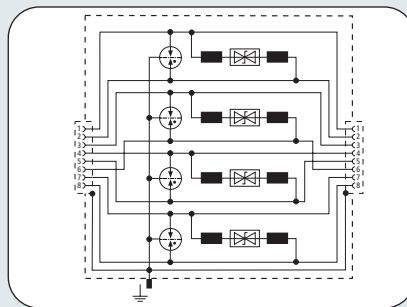
Type	PU pc(s)	Part No.
MS DPA	1	929 199



NEW



Dimension drawing DPA CLE



Protection for all pairs due to powerful gas discharge tubes and a filter matrix adapted to each pair.



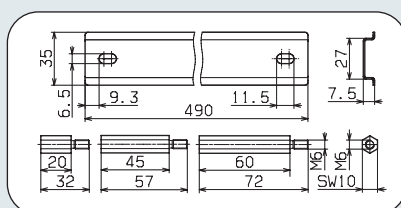
- Ideal for retrofitting, with protection for all lines
- Cat. 6 in channel (class E)
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

Universal SPD for Industrial Ethernet and similar applications in structured cabling systems according to class E up to 250 Hz. Fully shielded adapter with sockets for DIN rail mounting.

DPA M CLE RJ45B 48

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
Nominal current I_L	1 A
C2 Nominal discharge current (8/20 μ s) line-line I_n	150 A
C2 Total nominal discharge current (8/20 μ s) line-PG I_n	10 kA
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 180 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 500 V
Capacitance line-line C	≤ 30 pF
Capacitance line-PG C	≤ 25 pF
Operating temperature range	-40°C ...+80°C
Degree of protection	IP 10
For mounting on	35 mm DIN rail according to EN 60715
Connection input/output	RJ45 socket / RJ45 socket
Pinning	1/2, 3/6, 4/5, 7/8
Earthing by	35 mm DIN rail according to EN 60715
Enclosure material	zinc die casting
Colour	bare
Test standards	IEC 61643-21
Accessories	fixing material

Ordering information	
Type	DPA M CLE RJ45B 48
Part No.	929 121
Packing unit	1 pc(s).



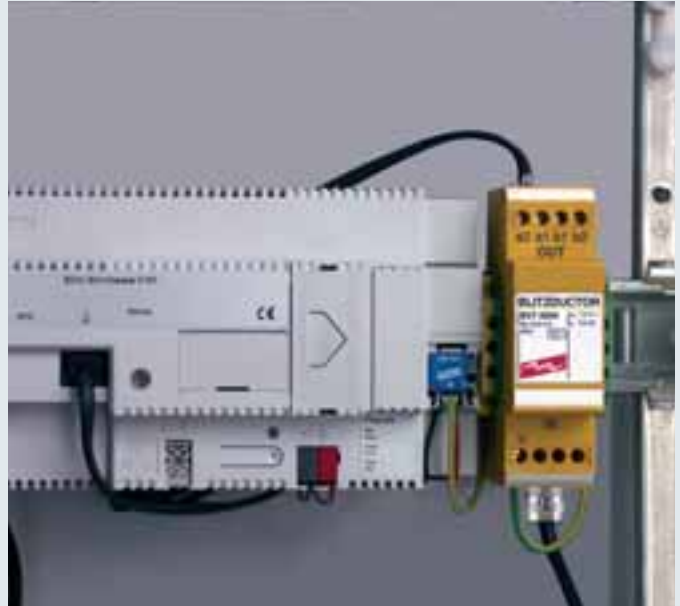
Mounting set for DEHNpatch

The set comprises a DIN rail for up to 24 DEHNpatch devices and different distance bolts with sliding nuts for installation into data distributions. The DIN rail can be mounted at the wall of the distribution board or even in front of the mounting stations according to a 19" grid in a space-saving way.

Type	PU	Part No.
MS DPA	pc(s)	
	1	929 199



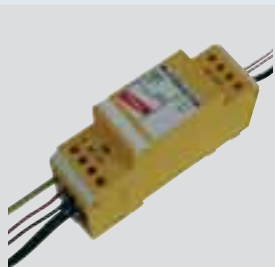
- Ideal for DIN rail mountable modems or gateways
- Allows for easier installation due to RJ sockets
- Adaptable to the environment of the installation with additional screw terminals



Surge arrester for telecommunications terminal devices and telephone systems with RJ plug-in connection for DIN rail mounting.

Surge arrester for use as DIN rail mountable device for telecommunications terminal devices and telephone systems with RJ plug-in connection for DIN rail mounting. They are often used in installations upstream of

residential gateways (TK/EiB interface) or for protecting industrial DIN rail mountable modems.



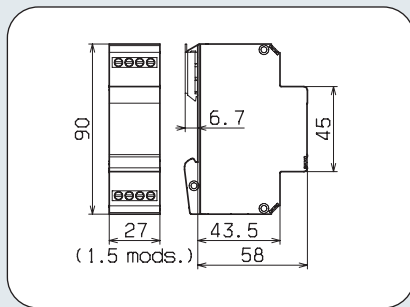
RJ sockets and screw terminals at the input and output of BVT TC 1 allow for universal use, e.g. for installation upstream of NTBAs with screw wiring or screw/plug-in connection upstream of modems and telecommunication systems.

BLITZDUCTOR VT TC1

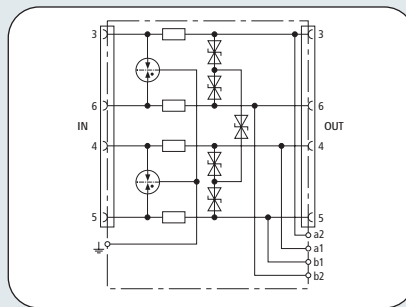


The DIN rail mountable SPD was developed for installation-friendly protection of the S₀ input of residential gateways. The integrated distribution function at the protected output allows for wiring of two protected outgoing ISDN bus circuits.

BLITZDUCTOR VT ISDN



Dimension drawing BVT ISDN



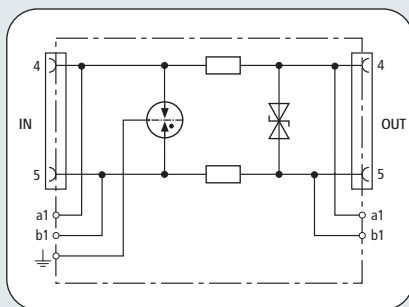
Energy-coordinated ISDN 4-wire protective circuit with additional protection for the remote power supply.



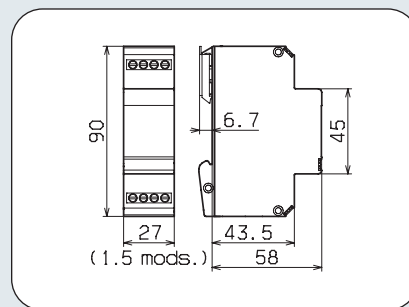
- RJ45 sockets
- Additional screw terminals for the ISDN lines
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

For ISDN S_0 buses with RJ45 connections. The additional screw terminal connection at the protected output allows for double wiring of the S_0 bus (distribution function).

BVT ISDN	
SPD class	TYPE 2/P1
Nominal voltage U_N	5 V
Nominal voltage pa-pa U_N	40 V
Max. continuous operating d.c. voltage U_C	7.5 V
Max. continuous operating d.c. voltage pa-pa U_C	60 V
Nominal current I_L	200 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	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 pa-pa for I_n C2 U_p	≤ 130 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 17 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 600 V
Voltage protection level pa-pa for 1 kV/ μ s C3 U_p	≤ 100 V
Series impedance per line	1.0 ohm
Bandwidth line-line f_G	1.7 MHz
Capacitance line-line C	≤ 3.3 nF
Capacitance line-PG C	≤ 15 pF
Capacitance pa-pa C	≤ 600 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 10
For mounting on	35 mm DIN rail according 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 by	terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21
Ordering information	
Type	BVT ISDN
Part No.	918 410
Packing unit	1 pc(s).



Energy-coordinated protective circuit, free of leakage currents to earth.



Dimension drawing BVT TC

- RJ sockets, compatible with RJ12 pins
- Additional screw terminals for the a/b lines
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

For a/b lines, ISDN U_{k0} or ADSL with RJ45 connections and additional screw terminal connections. The pinning of the RJ45 sockets is compatible with RJ11/12. The parallel screw terminals are more robust than the RJ45 sockets and increase I_n to 10 kA.

BVT TC 1	
SPD class	TYPE 2P2
Nominal voltage U_N	130 V
Max. continuous operating d.c. voltage U_C	170 V
Nominal current I_L	200 mA
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	≤ 275 V
Voltage protection level line-PG for I_n C2 U_p	≤ 600 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 240 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 600 V
Series impedance per line	4.7 ohms
Bandwidth line-line f_G	17 MHz
Capacitance line-line C	≤ 300 pF
Capacitance line-PG C	≤ 15 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 10
For mounting on	35 mm DIN rail according 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 by	screw terminal
Enclosure material	thermoplastic, UL 94 V-0
Colour	yellow
Test standards	IEC 61643-21
Ordering information	
Type	BVT TC 1
Part No.	918 411
Packing unit	1 pc(s).



Surge arrester for flush mounting used in LAN interfaces.

DSM TM is a surge arrester close to terminal devices and designed for Touch Manager wave (Siemens). The SPD is usually integrated into flush-mounted or small-sized distribution boards and connected with the local equipotential bonding of the terminal device. Because of the universal

- Surge arrester for ISDN or Ethernet applications
- Minimum space required for flush mounting
- Ideal for Touch Manager wave (Residential Gateway)

reservation of the pluggable RJ45 output, it can be used for protecting both ISDN S_0 and Ethernet 10 BT (class C cabling) applications. As screw terminals are available at the input, they can be connected with both rigid and flexible conductors or shields.

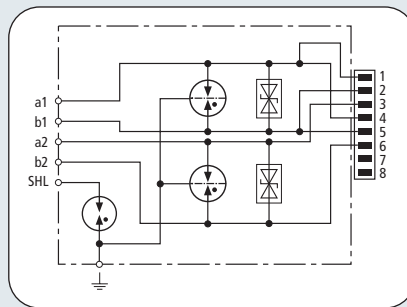


The delivery includes additionally a self-adhesive fixing stripe and a 4-pole plug-in distribution terminal.

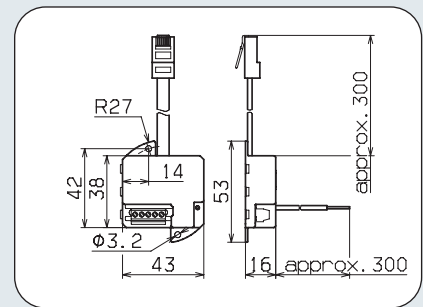
Delivery of DSM TM



- Indirect shield earthing
- Installation accessories included
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher



Low-capacitance design with high discharge capacity and low protection level between the signal lines.



Dimension drawing DSM TM

For IT installations, class C, or services like Ethernet 10 BT or ISDN S_0 interfaces. Transition from screw terminal to RJ45 plug. No leakage pickups are generated due to the indirect shielding.

DSM TM	
SPD class	TYPE 2P1
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
C1 Nominal discharge current (8/20 μ s) line-line I_n	500 A
C2 Nominal discharge current (8/20 μ s) line-PG I_n	5 kA
C2 Total nominal discharge current (8/20 μ s) line-PG I_n	10 kA
Voltage protection level line-line for I_n C1 U_p	≤ 28 V
Voltage protection level line-PG for I_n C2 U_p	≤ 600 V
Voltage protection level shield-PG for I_n C2 U_p	≤ 600 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 11 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 380 V
Voltage protection level shield-PG for 1 kV/ μ s C3 U_p	≤ 600 V
Bandwidth f_C	55 MHz
Capacitance line-line C	≤ 75 pF
Capacitance line-PG C	≤ 20 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Connection input/output	screw terminal / RJ45 connecting lead
Pinning	Ethernet 1/2, 3/6 or ISDN 4/5, 3/6
Cross-sectional area, solid	0 - 1.0 mm ²
Cross-sectional area, flexible	0 - 1.0 mm ²
Tightening torque (terminal)	0.3 Nm
Earthing by	lead 1.0 mm ²
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21
Accessories	adhesive pad, socket terminal
Ordering information	
Type	DSM TM
Part No.	924 274
Packing unit	1 pc(s).



Surge arrester for telecommunications terminal devices and telephone systems with RJ plug-in connection for surface mounting.

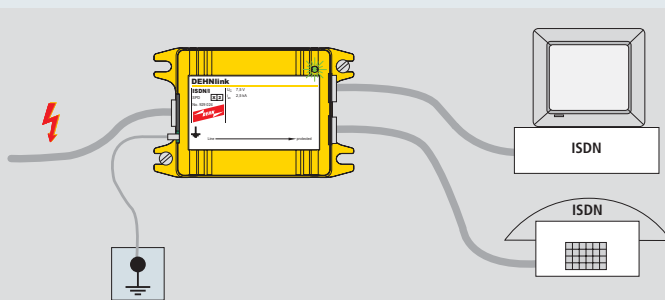
Surge arrester for surface mounting in modern design. It protects especially modems and telephone systems with RJ plug-in connections. The plug-in connections allow for easy installation.

- Surface-mountable surge protective device for telecommunication systems
- Quick installation due to plug-in terminals
- Different types specified for interfaces



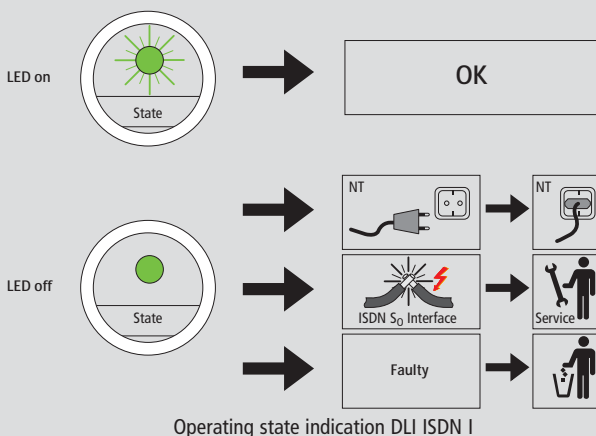
Devices with and without operating state indication

Compared to conventional devices (... ECO), the different SPD units with ...I type designation have an additional LED indication of the supply voltage. This helps to immediately recognise interferences on the installation. Furthermore, they provide a wide range of accessories like connecting cables or fixing material.



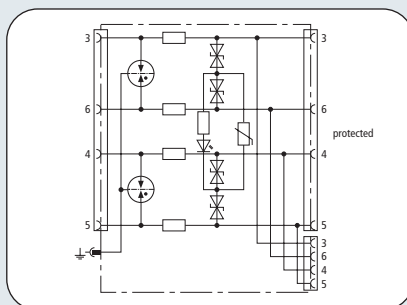
Wiring of DLI ISDN I

DLI ISDN I can protect two terminal devices at the same time due to the integrated distribution function. The operating state indication is only illuminated, if the NTBA is also connected to the power supply and not in case of emergency operation (remote supply of telecommunication network operators).

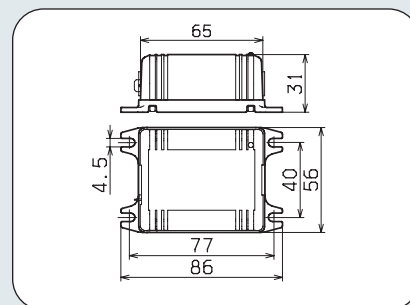


Operating state indication DLI ISDN I

The operating state indication informs about the operating condition of the device. In case of faults, the connections and cables have to be checked. If no installation fault can be detected, the SPD has been overloaded and has to be replaced.



Energy-coordinated ISDN 4-wire protective circuit with additional protection and indication of the remote power supply.



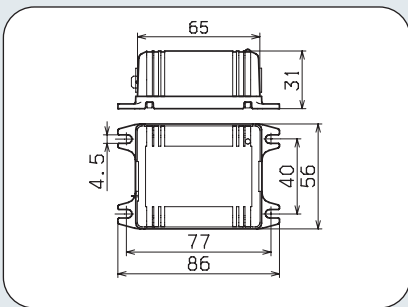
Dimension drawing DLI ISDN I

- 2 protected outputs
- Surge protection and LED indication for the remote supply included
- For use according to the lightning protection zones concept at boundaries $0_B - 2$ and higher

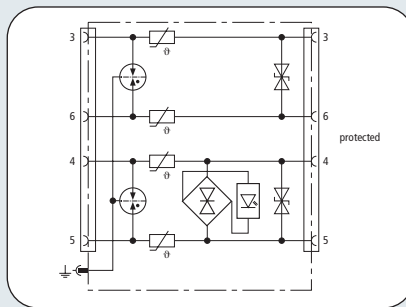
SPD with two protected ISDN S_0 outputs (distribution function) and operating state indication (LED) of the remote supply voltage. No indication during emergency operation (supply from telephone system only). Connecting cable and mounting material included.

DLI ISDN I

DLI ISDN I	
SPD class	TYPE 2 P1
Nominal voltage U_N	5 V
Nominal voltage pa-pa U_N	40 V
Max. continuous operating d.c. voltage U_c	7.5 V
Max. continuous a.c. voltage U_c	5.2 V
Max. continuous d.c. voltage pa-pa U_c	45 V
Nominal current I_L	200 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	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 pa-pa for I_n C2 U_p	≤ 180 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 17 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 600 V
Voltage protection level pa-pa for I_n C2 U_p	≤ 100 V
Series impedance per line	1 ohm
Bandwidth line-line	2 MHz
Capacitance line-line C	≤ 3 nF
Capacitance line-PG C	≤ 15 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Connection input/output	RJ45 / 2 x RJ45
Pinning	3/6, 4/5
Earthing by	flat connector 6.3 mm
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21
Accessories	connecting cable, mounting material
Ordering information	
Type	DLI ISDN I
Part No.	929 024
Packing unit	1 pc(s).



Dimension drawing DLI TC I



2-stage protective circuit with overcurrent protection and system voltage indication of DLI TC 2 I.



- LED indicates supply voltage
- Protection against power crossing integrated
- For use according to the lightning protection zones concept at boundaries 0_B – 2 and higher

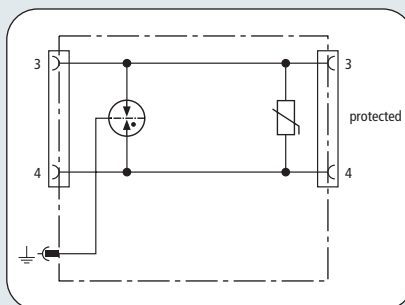
Protective device for analogue telephony or system telephony with operating state indication (LED). Protects even against a.c. current interferences. Compatible with pins of RJ11/12 plugs. Connecting cable and mounting material included.

DLI TC 2 I	
SPD class	TYPE 2P2
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_L	150 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	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 for 1 kV/ μ s C3 U_p	≤ 230 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 600 V
Series impedance per line	10 ohms
Bandwidth line-line	10 MHz
Capacitance line-line C	≤ 0.3 nF
Capacitance line-PG C	≤ 15 pF
Operating temperature range	-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 by	flat connector 6.3 mm
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21
Accessories	connecting cable, mounting material

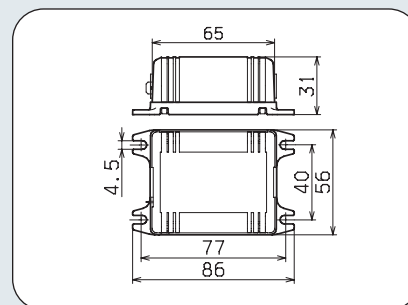
Ordering information	
Type	DLI TC 2 I
Part No.	929 028
Packing unit	1 pc(s).



- Economical protection for 1 pair
- Modern design
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher



Using a high-capacity varistor makes decoupling to the gas discharge tube unnecessary.



Dimension drawing DLI TC

Protective device for analogue telephony or system telephony, RJ12 unit.

DLI TC ECO RJ12

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_L	200 mA
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 for 1 kV/ μ s C3 U_p	≤ 280 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 600 V
Bandwidth line-line	10 MHz
Capacitance line-line C	≤ 0.7 nF
Capacitance line-PG C	≤ 15 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Connection input/output	RJ12 / RJ12
Pinning	3/4
Earthing by	flat connector 6.3 mm
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21
Accessories	mounting material

Ordering information	
Type	DLI TC ECO RJ12
Part No.	929 081
Packing unit	1 pc(s).



Surge arrester for telecommunications terminal equipment and telephone systems with BT plug-in connection for surface mounting.

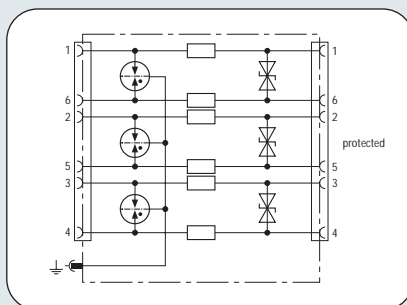
Surge arrester for telecommunications terminal equipment and telephone systems with BT plug-in connection for surface mounting. The device corresponds to requirements by Ofcom NS/G/23/L/100005 on connections

- Surface-mountable protective device for telecommunication systems
- Quick installation due to plug-in terminals
- Device according to British Telecom requirements

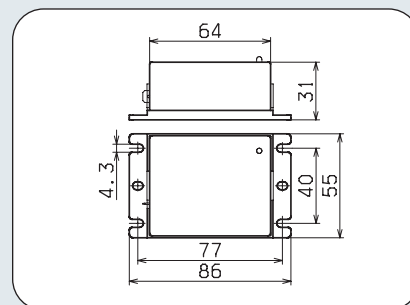
between a terminal point of a public telephone installation and any telecommunications terminal equipment. Fulfills BS6651:1992, Appendix C, Category C-High and CCITT K17.



- Device according to British Telecom requirements
- Protection for all lines
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher



Energy-coordinated protective circuit for all pairs, free of leakage currents to earth.



Dimension drawing DLI TC BT

Protective device for analogue telephony or system telephony in accordance with British Telecom requirements. Pluggable terminals for easy installation.

DLI TC BT

SPD class	TYPE 2 P2
Nominal voltage U_N	130 V
Max. continuous operating d.c. voltage U_C	145 V
Nominal current I_L	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 line-PG for I_n C2 U_p	≤ 550 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 185 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 450 V
Series impedance per line	4.7 ohms
Bandwidth f_C	13 MHz
Capacitance line-line C	≤ 400 pF
Capacitance line-PG C	≤ 10 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Connection input/output	BT jack / BT jack
Pinning	1/6, 2/5, 3/4
Earthing by	flat connector 6.3 mm
Enclosure	thermoplastic
Colour	black
Test standards	IEC 61643-21
Accessories	connecting cable, mounting material

Ordering information

Type	DLI TC BT
Part No.	929 026
Packing unit	1 pc(s).



- Plug-in surge protective adapter for easy retrofitting
- Integrated indirect shield earthing avoids leakage pickups

Surge arrester for use as cable adapter for coaxial systems like video and camera systems.

UGKF BNC is a shielded surge arrester for plugging into coaxial terminal devices or connections. Frequent application fields are protection for outdoor or central video surveillance systems. In order to avoid leakage pick-

ups, the cable shield is earthed indirectly by a gas discharge tube. The SPD inputs are used as sockets and the protected outputs as plugs.



UGKF BNC types

Devices for protecting of video systems with higher supply voltage or with a two-sided socket connection are also available on request.

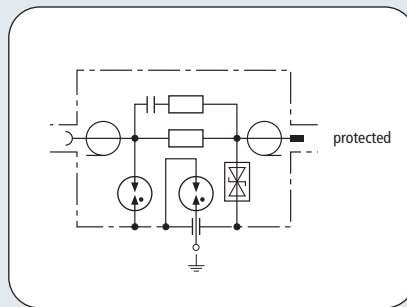


DGA BNC VC ...

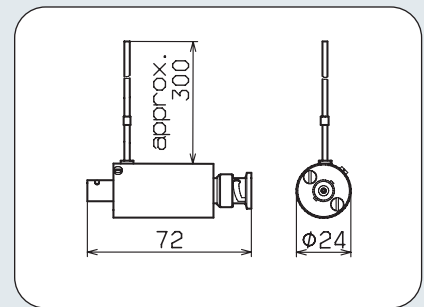
DGA BNC VC ... surge arresters allow for easy installation on supporting rails. They belong to the DEHNgate product line.



- Easily adaptable
- Avoids leakage pickups
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher



Low-capacitance, 2-stage protective circuit with indirect shield earthing for avoiding leakage pickups.



Dimension drawing UGKF BNC

UGKF BNC is suitable for video cameras and Arcnet with BNC connection. Special devices for video cameras with higher nominal voltage available on request.

UGKF BNC

UGKF BNC	
SPD class	TYPE 2 P1
Nominal voltage U_N	5 V
Max. continuous operating d.c. voltage U_C	8 V
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 for 1 kV/ μ s C3 U_p	≤ 15 V
Voltage protection level shield-PG for 1 kV/ μ s C3 U_p	≤ 600 V
Series impedance per line	10 ohms
Bandwidth f_G	300 MHz
Return loss ≥ 20 dB up to	40 MHz
Connection input/output	BNC socket / BNC plug
Earthing by	outgoing earth conductor 0.75 mm ²
Shield earthing by	indirectly by an integrated spark gap
Test standards	IEC 61643-21

Ordering information	
Type	UGKF BNC
Part No.	929 010
Packing unit	1 pc(s).



Lightning current and surge arrester for use as a cable adapter for coaxial systems such as CCTV, cell sites and antenna systems.

- Application-specific SPD designs
- SPD for use in satellite and cable TV systems with measuring output
- Combined lightning current and surge arrester for high discharge capacity and low protection level
- Contact materials with extremely high endurance

DEHNgate is a family of lightning current and surge arresters with cable adapter design for coaxial systems such as cell sites and antenna systems.

According to application, different mechanical and electrical types are available.



DGA arrester family

The coaxial DGA arrester family provides different types for different applications. Different types of plugs and arrester technologies allow for optimised solutions. Further types available on request.



Delivery of DGA FF TV

DGA FF TV can be mounted on DIN rails in a space-saving way for protecting satellite systems with several outputs. For single applications such as cable TV, the wall-mounting adapter, which the device can be clicked into, is helpful. 2 F cable connectors are also included.



Principle of Lambda/4

The Lambda/4 surge arresters type DGA L4 provide an internal coaxial connection of the inner conductor as a bandpass. Only frequencies within this band are transmitted. For low-frequency impulses, such as lightning currents, they form a short circuit. This makes them mechanically very robust and maintenance-free. Due to their low protection levels and high discharge capacity, they can be used as combined lightning current and surge arresters.

If high partial lightning currents can couple into antenna lines or if very high transmission performances are required, Lambda/4 surge arresters provide the best protection. If additional remote supply is needed for the antenna, a combination of a gas discharge tube and Lambda/4 technology (DGA LG) should be used. The surge arresters are made of top-quality material and provide excellent endurance.

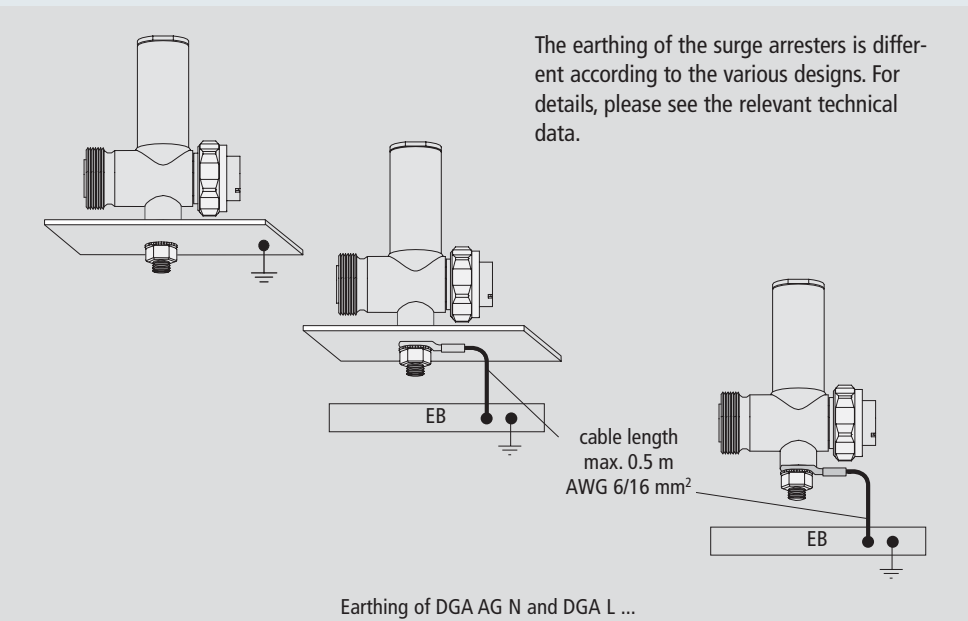
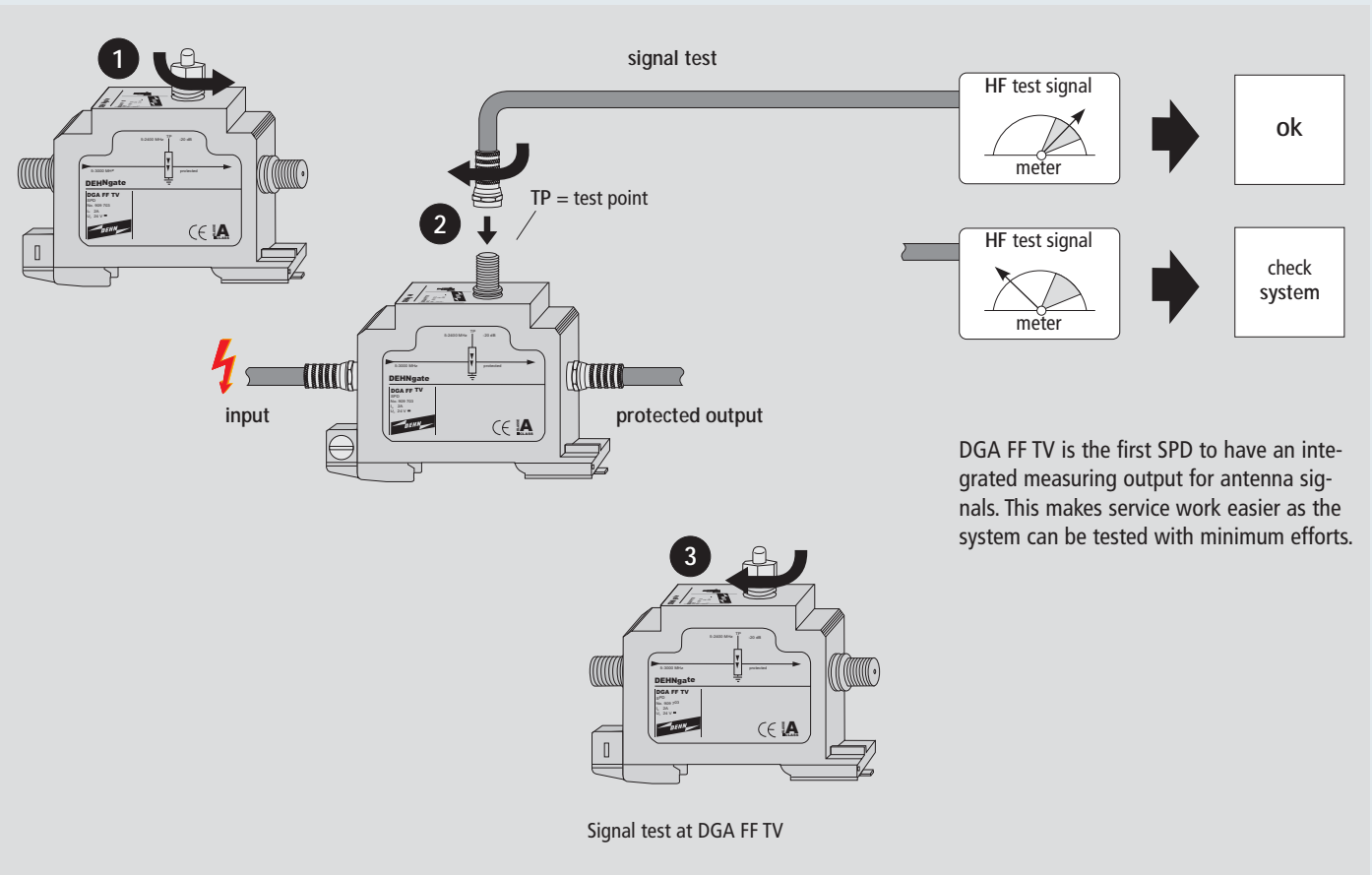


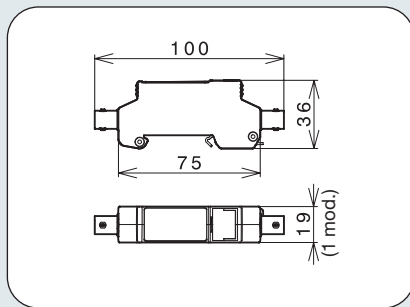
Principle of a spark-gap-based SPD

Spark-gap-based surge arresters have an internal gas-filled surge arrester and can be defined as a low pass. This also allows for d.c. transmission (antenna supply). Peak voltages exceeding the threshold value of the gas discharge tube are discharged. These surge arresters provide extensive contact surfaces from the inner conductor to the gas discharge tube. This minimises the burn-off of the material during the discharge and ensures a constant transmission performance.

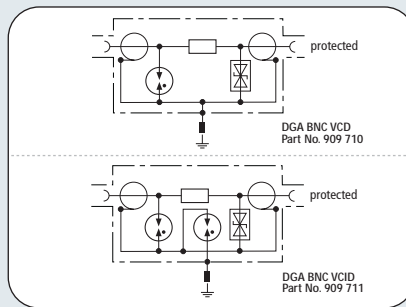


Application of Lambda/4 arresters





Dimension drawing DGA BNC VC ...



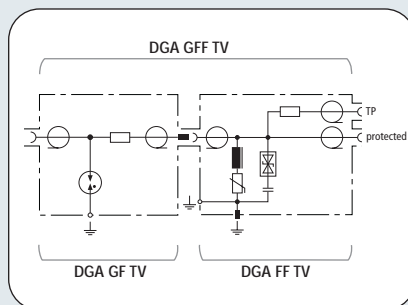
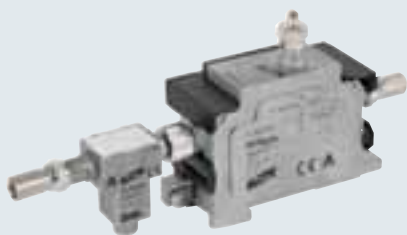
2-stage protective circuit with low capacitance. DGA BNC VCD with direct shield earthing and DGA BNC VCID with indirect shield earthing.



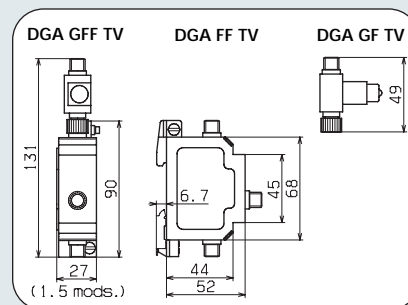
- Easily adaptable due to BNC socket connectors
- Available with direct or indirect shield earthing, according to type
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

Space-saving surge arrester with BNC socket connector for mounting on supporting rails for protecting video and camera systems. Available with direct (VCD) or indirect shield connection (VCID), according to type, to avoid ground loops.

	DGA BNC VCD	DGA BNC VCID
SPD class	TYPE 2 P1	TYPE 2 P1
Nominal voltage U_N	5	5
Max. continuous operating d.c. voltage U_C	6.4	6.4
Nominal current I_L	0.1	0.1
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 for 1 kV/ μ s C3 U_p	≤ 13 V	≤ 13 V
Voltage protection level shield-PG for 1 kV/ μ s C3 U_p	—	≤ 600 V
Frequency range	0 - 300 MHz	0 - 300 MHz
Insertion loss	for 160 MHz ≤ 0.4 dB	for 160 MHz ≤ 0.4 dB
Return loss	for 130 MHz ≥ 20 dB	for 130 MHz ≥ 20 dB
Capacitance line-shield C	≤ 25 pF	≤ 25 pF
Operating temperature range	-40°C...+80°C	-40°C...+80°C
Degree of protection	IP 10	IP 10
For mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Connection input/output	BNC socket / BNC socket	BNC socket / BNC socket
Earthing by	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	bare
Test standards	IEC 61643-21	IEC 61643-21
Ordering information		
Type	DGA BNC VCD	DGA BNC VCID
Part No.	909 710	909 711
Packing unit	1 pc(s).	1 pc(s).



Schematic diagram of the protective circuit of DGA GFF TV consisting of lightning current arrester type DGA GF TV and terminal equipment protection DGA FF TV.

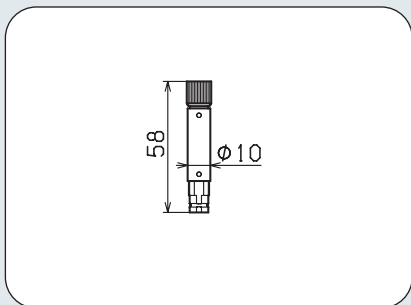


Dimension drawing DGA GFF TV – Combination of DGA GF TV and DGA FF TV

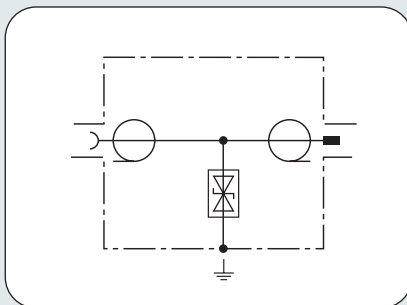
- Frequency range for analogue and digital TV, can also be used with reverse LAN channels
- Integrated measuring output in SPDs type FF and GFF
- 3 types for adapted use according to the lightning protection zones concept at boundaries
 - 0_A – 2 (combined lightning current and surge arresters type GFF),
 - 0_A – 1 (lightning current arresters type GF)
 - 1 – 2 (surge arresters type FF)

DGA ... TV are SPDs for remote supply for 75-ohm satellite and cable TV systems. The SPDs fulfil the high shielding requirements of class A according to EN 50083-2. They allow for space-saving installation into 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.

	DGA FF TV	DGA GF TV	DGA GFF TV
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 _L	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 for 1 kV/μs C3 U _p	≤ 60 V	≤ 600 V	≤ 60 V
Frequency range	d.c., 5-3000 MHz	d.c. - 2400 MHz	d-c., 5-2400 MHz
Insertion loss	—	0.5 dB	—
Insertion loss 5 - 862 MHz	1.2 dB	—	1.7 dB
Insertion loss 862 - 2400 MHz	1.4 dB	—	1.9 dB
Insertion loss 2400 - 3000 MHz	2 dB	—	—
Return loss	≥ 14 dB	≥ 18 dB (-1.5 dB/octave) dB	—
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
Impedance Z	75 ohms	75 ohms	75 ohms
Operating temperature range	-40°C...+80°C	-20°C...+55°C	-20°C...+55°C
Degree of protection	IP 30	IP 30	IP 30
For mounting on	35 mm DIN rail acc. to EN 60715 or wall mounting	earthing bracket	35 mm DIN rail acc. to EN 60715 or wall mounting
Connection input/output	F socket / F socket	F socket / F plug	F socket / F socket
Earthing by	DIN rail or screw connection	earthing bracket with screw connection	DIN rail or screw connection
Enclosure material	metal	metal	metal
Colour	bare	bare	bare
Test standards	IEC 61643-21	IEC 61643-21	IEC 61643-21
Accessories	2 x F plug	earthing bracket and 2 x F plug	2 x F plug
Ordering information			
Type	DGA FF TV	DGA GF TV	DGA GFF TV
Part No.	909 703	909 704	909 705
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).



Dimension drawing DGA F



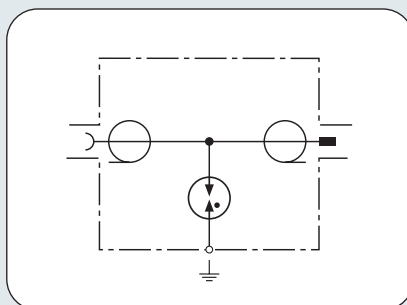
Low-capacitance diode matrix for optimised transmission performance.



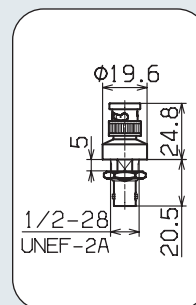
- For easy retrofitting
- For high transmission rates
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

Surge arrester with quick response for G.703 interfaces. Earthing by enclosure. 1.6/5.6 connection.

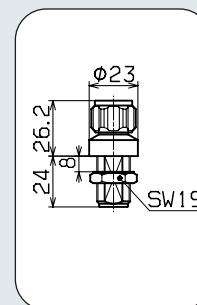
DGA F 1.6 5.6	
SPD class	TYPE 3 P1
Nominal voltage U_N	5 V
Max. continuous operating d.c. voltage U_c	6
Nominal current I_L	0.25
C2 Nominal discharge current (8/20 μ s) I_n	0.3 kA
Voltage protection level for I_n C2 U_p	≤ 30 V
Voltage protection level for 1 kV/ μ s C3 U_p	≤ 12 V
Frequency range	d.c. -80 MHz
Insertion loss	≤ 0.2 dB
Impedance Z	75 ohms
Capacitance line-shield C	50 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Connection input/output	1.6/5.6 plug / 1.6/5.6 socket
Earthing by	externally by shield earthing
Enclosure material	metal
Colour	bare
Test standards	IEC 61643-21
Ordering information	
Type	DGA F 1.6 5.6
Part No.	929 040
Packing unit	1 pc(s).



Fixed coaxial gas discharge tube.



Dimension drawings
DGA G BNC

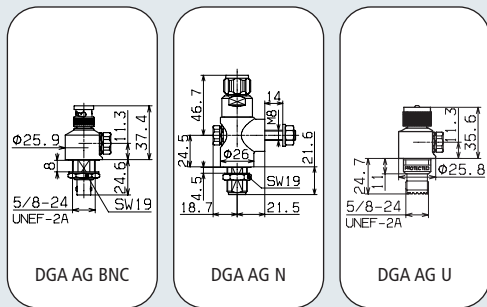


Dimension drawings
DGA G N

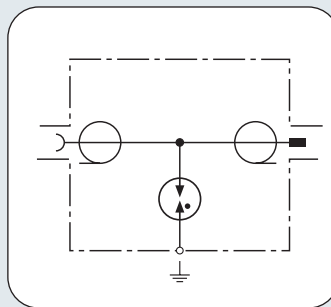
- Minimal dimension
- Extremely wide transmission range
- For use according to the lightning protection zones concept at boundaries $O_B - 1$ and higher

Surge arrester for remote power supply with integrated gas discharge tube. Especially adapted to Wireless LAN and Wireless Local Loop applications in BNC, N or 1.6/5.6 connections for bushing installation.

	DGA G BNC	DGA G N
SPD class	TYPE 2	TYPE 2
Max. continuous operating d.c. voltage U_c	135 V	135 V
Nominal current I_L	3.5 A	6 A
Max. transmission capacity	25 W	25 W
D1 Lightning impulse current (10/350 μ s) I_{imp}	1 kA	1 kA
C2 Nominal discharge current (8/20 μ s) I_n	5 kA	5 kA
Voltage protection level for I_n C2 U_p	≤ 500 V	≤ 500 V
Frequency range	d.c. - 4 GHz	d.c. - 5.8 GHz
Insertion loss	< 0.2 dB	< 0.2 dB
Return loss	≥ 20 dB	≥ 20 dB
Impedance Z	50 ohms	50 ohms
Operating temperature range	-40°C...+85°C	-40°C...+85°C
Degree of protection	IP 20	IP 65
Connection input/output	BNC socket / BNC plug	N socket / N plug
Earthing by	bushing $\varnothing 12.9$ mm	bushing $\varnothing 16.2$ mm
Enclosure material	brass, refined surface with trimetal plating	brass, refined surface with trimetal plating
Colour	gold	gold
Test standards	IEC 61643-21	IEC 61643-21
Ordering information		
Type	DGA G BNC	DGA G N
Part No.	929 042	929 044
Packing unit	1 pc(s).	1 pc(s).



Dimension drawings DGA AG



Exchangeable gas discharge tube



- Support with large surface for connecting gas discharge tubes
- Long service life due to minimum contact burn-off at the inner conductor
- For use according to the lightning protection zones concept at boundaries $O_A - 1$ and higher

Surge arrester suitable for remote supply with exchangeable gas discharge tube. Excellent RF endurance performance due to minimum contact burn-off and great contact surface of the gas discharge tube in a special cage.

	DGA AG BNC	DGA AG N	DGA AG U
SPD class	TYPE 1	TYPE 1	TYPE 1
Max. continuous operating d.c. voltage U_c	180 V	180 V	180 V
Nominal current I_n	3.5 A	6 A	10 A
Max. transmission capacity	150 W	150 W	150 W
D1 Lightning impulse current (10/350 μ s) I_{imp}	5 kA	5 kA	5 kA
C2 Nominal discharge current (8/20 μ s) I_n	20 kA	20 kA	20 kA
Voltage protection level for I_n C2 U_p	≤ 750 V	≤ 750 V	≤ 750 V
Frequency range	d.c. - 1 GHz	d.c. - 2.5 GHz	dc - 300 MHz
Insertion loss	< 0.1 dB	< 0.2 dB	< 0.1 dB
Return loss	≥ 20 dB	≥ 20 dB	≥ 20.8 dB
Impedance Z	50 ohms	50 ohms	50 ohms
Operating temperature range	-40°C...+85°C	-40°C...+85°C	-40°C...+85°C
Degree of protection	IP 20	IP 65	IP 20
Connection input/output	BNC socket / BNC plug	N socket / N plug	UHF socket / UHF plug
Earthing by	bushing $\varnothing 16.1$ mm	bushing $\varnothing 16.1$ mm or earthing screw	bushing $\varnothing 19.3$ mm
Enclosure material		brass, refined surface with trimetal plating	
Colour	bare	bare	bare
Replaceable gas discharge tube	yes	yes	yes
Test standards	IEC 61643-21	IEC 61643-21	IEC 61643-21
Ordering information			
Type	DGA AG BNC	DGA AG N	DGA AG U
Part No.	929 043	929 045	929 057
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for DEHNgate

Gas discharge tube

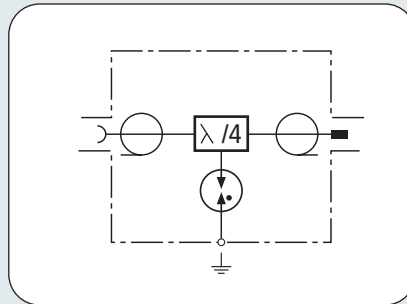
Spare gas discharge tubes for DEHNgate, with lightning current carrying capability. Selected quality with especially low capacitance.

Type	GDT DGA 230		
Lightning impulse current carrying capability (10/350 μ s)	5 kA		
Design	H 8 x 6 mm		
Type	PU	Part No.	
GDT DGA 230	1	929 498	

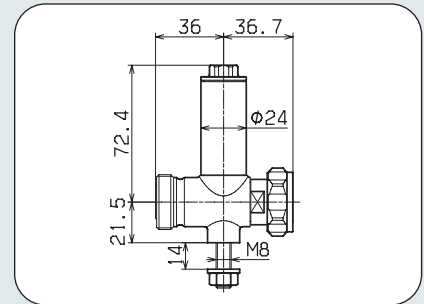




- For multi-frequency applications with d.c. power supply
- Best transmission and PIM performance
- For use according to the lightning protection zones concept at boundaries $O_A - 1$ and higher



Quarterwave arrester combined with gas discharge tube



Dimension drawing DGA LG

Surge arrester suitable for remote supply with combined spark-gap-based quarterwave technology for multi-frequency applications (multi-carrier systems) due to minimum passive intermodulation. Broad-band device especially for all 4+3G services.

DGA LG 7 16

SPD class	TYPE 1
Max. continuous operating d.c. voltage U_c	65 V
Nominal current I_L	13 A
Max. transmission capacity	500 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	≤ 600 V
Frequency range	d.c., 806 MHz - 2.2 GHz
Insertion loss	< 0.15 dB
Insertion loss 2176 MHz	0.1 dB
Return loss	≥ 20 dB
Return loss 2176 MHz	20.0 dB
Impedance Z	50 ohms
Intermodulation	typically -150 dB @ 2*43 dBm
Degree of protection	IP 65
Connection input/output	7/16 socket / 7/16 plug
Earthing by	earthing screw
Enclosure material	brass, refined surface with trimetal plating
Colour	bare
Replaceable gas discharge tube	yes
Test standards	IEC 61643-21

Ordering information	
Type	DGA LG 7 16
Part No.	929 046
Packing unit	1 pc(s).

Accessory Part for DEHNgate

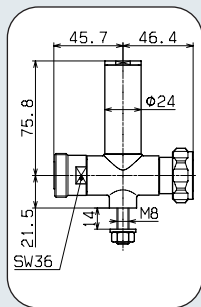
Gas discharge tube

Spare gas discharge tubes for DEHNgate, with lightning current carrying capability. Selected quality with especially low capacitance.

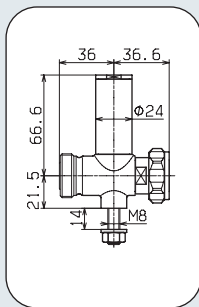
Type	GDT DGA 90
Lightning impulse current carrying capability (10/350 μ s)	5 kA
Design	H 8 x 6 mm



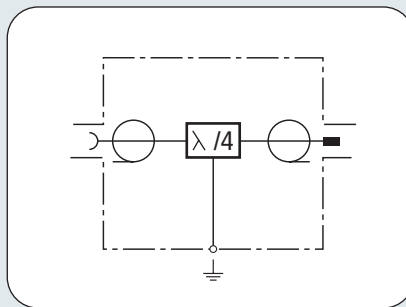
Type	PU pc(s)	Part No.
GDT DGA 90	1	929 497



Dimension drawing
DGA L4 7 16 S



Dimension drawing
DGA L4 7 16 B



Maintenance-free quarterwave SPD without discrete components.



- Maintenance-free combined lightning current and surge arrester (high discharge capacity and low voltage protection level)
- Best transmission and PIM performance
- For use according to the lightning protection zones concept at boundaries $O_A - 2$ and higher

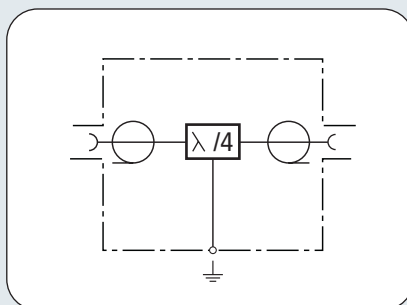
Combined lightning current and surge arrester with maintenance-free quarterwave technology with coordinated frequency band. The SPDs can also discharge high partial lightning currents. No remote supply possible as the SPD represents as an electrical short circuit for low-frequency signals.

	DGA L4 7 16 S	DGA L4 7 16 B
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	1700 W
D1 Lightning impulse current (10/350 μ s) I_{imp}	25 kA	40 kA
C2 Nominal discharge current (8/20 μ s) I_n	50 kA	80 kA
Voltage protection level for I_n C2 U_p	≤ 130 V	≤ 180 V
Frequency range	380 MHz - 512 MHz	880 MHz - 2.2 GHz
Insertion loss	< 0.1 dB	< 0.15 dB
Return loss	≥ 20 dB	≥ 20 dB
Impedance Z	50 ohms	50 ohms
Intermodulation	—	typically -150 dBc @ 2*43 dBm
Operating temperature range	-40°C...+85°C	-40°C...+85°C
Degree of protection	IP 65	IP 65
Connection input/output	7/16 socket / 7/16 plug	7/16 socket / 7/16 plug
Earthing by	earthing screw	earthing screw
Enclosure material	brass, refined surface with trimetal plating	brass, refined surface with trimetal plating
Colour	bare	bare
Test standards	IEC 61643-21	IEC 61643-21
Ordering information		
Type	DGA L4 7 16 S	DGA L4 7 16 B
Part No.	929 047	929 048
Packing unit	1 pc(s).	1 pc(s).

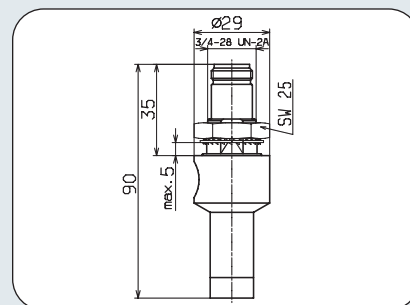
NEW



- Maintenance-free combined lightning current and surge arrester, optimised in bandwidth and dimension
- Best transmission performance for WiMax and Wi-Fi applications
- For use according to the lightning protection zones concept at boundaries $O_A - 2$ and higher



Maintenance-free SPD with quarterwave technology without discrete components.



Dimension drawing DGA L4 N EB

Especially wide-banded combined lightning current and surge arrester with maintenance-free quarterwave technology with adapted frequency band for Broadband Wireless Access applications and small dimension of the enclosure. No remote supply possible as the SPD represents an electrical short circuit for low-frequency signals.

DGA L4 N EB


SPD class	TYPE 1P1
Nominal voltage U_N	0 V
Max. continuous operating d.c. voltage U_C	0 V
Nominal current I_L	0 A
Max. transmission capacity	300 W
D1 Lightning impulse current (10/350 μ s) I_{imp}	25 kA
C2 Nominal discharge current (8/20 μ s) 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 GHz - 6.0 GHz
Insertion loss	≤ 0.2 dB
Return loss	≥ 20 dB
Impedance Z	50 ohms
Operating temperature range	-40°C...+85°C
Degree of protection	IP 65
Connection input/output	N socket / N plug
Earthing by	bushing $\varnothing 19.3$ mm
Enclosure material	aluminium
Colour	bare
Test standards	IEC 61643-21

Ordering information	
Type	DGA L4 N EB
Part No.	929 059
Packing unit	1 pc(s).

Accessory Part for DEHNgate

Gas discharge tube

Spare gas discharge tubes for DEHNgate, with lightning current carrying capability. Selected quality with especially low capacitance.

Type	GDT DGA 90	GDT DGA 230	GDT DGA 470
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	929 043, 929 045	—
Type	PU pc(s)	Part No.	
GDT DGA 90	1	929 497	
GDT DGA 230	1	929 498	
GDT DGA 470	1	929 499	

Accessory Part for DEHNgate

Cable lug with earth conductor

Cable lug with black highly flexible copper earth conductor for earthing DEHNgate, Part No. 929 043, 929 044 or 929 045.

Type	PU pc(s)	Part No.
EL 16 B17	1	929 096




Accessory Part for DEHNgate

Earthing block 4xF

Earthing block, 4-pole, with F sockets, for equipotential bonding of satellite cable shields or DGA GF TV lightning current arresters.

Type	EB 4 F	
Max. continuous operating d.c. voltage	65 V	
D1 Lightning impulse current (10/350 µs)	10 kA	
Frequency range	d.c. - 2400 MHz	
Type	PU pc(s)	Part No.
EB 4 F	1	929 095

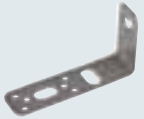


Accessory Part for DEHNgate

Angled fixing plate

Made of stainless steel, suitable for installation of DEHNgate, Part No. 929 045 – 929 049.

Type	PU pc(s)	Part No.
	20	106 310




Accessory Part for DEHNgate

Angled fixing plate

Made of stainless steel, with 3 mounting holes for 3 different sizes of DEHNgate, e. g. 1x 929 042 + 1x 929 057 + 1x (929 043, 929 044 or 929 045).

Type	PU pc(s)	Part No.
	1	106 329



Accessory Part for DEHNgate

Equipotential bonding bars for industrial installations

Made of stainless steel, suitable for direct screwing of 3x DEHNgate, Part No. 929 045 – 929 049.

Type	PU pc(s)	Part No.
PAS I 6AP M10 V2A	1	472 209




Accessory Part for DEHNgate

Earth conductor, open / closed cable lugs

Cable lug, 1x open M8/M10 and 1x closed M8, suitable for combination with Part No. 106 310, 106 329 and 472 209.

Type	PU pc(s)	Part No.
	1	416 411



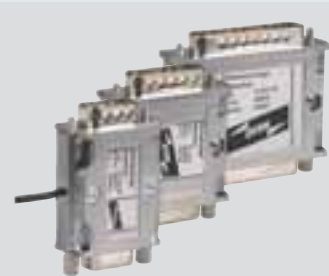


- Surge protective adapter for easy retrofitting
- 9-pole, 15-pole or 25-pole types available with shielding
- Adapter with single-stage (FS) and 2-stage (USD) protective circuit

Surge protective adapter, D-SUB plug-in connection, socket-pin type.

Surge protective adapter available in shielded enclosure with D-SUB plug-in connection, socket-pin type. The UNC screws of the protection for terminal equipment (FS) can be exchanged in any way. The thread is thus situated either on the pin or socket side, according to application. For use

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.



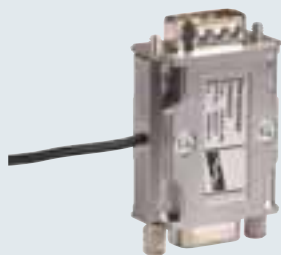
FS 9-pole, 15-pole and 25-pole unit

The surge arresters are available in three different designs covering the most frequent applications. Due to their small size, they can be easily integrated into the cabling.

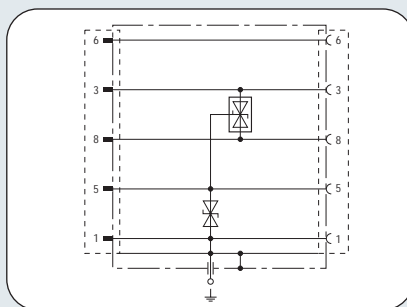


USD 9-pole, 15-pole and 25-pole

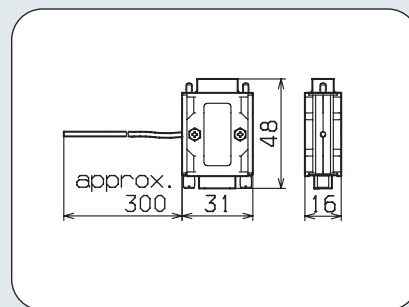
USD devices can be snapped onto a DIN rail, which is supposed to discharge upcoming surges. Three plug-in types are available.



- Adapted to Profibus-DP
- Transmission possible up to 12 MBit/s
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher



Diode protective circuit with very low capacity.
Pins 5 and 6 without protection for programming interface.



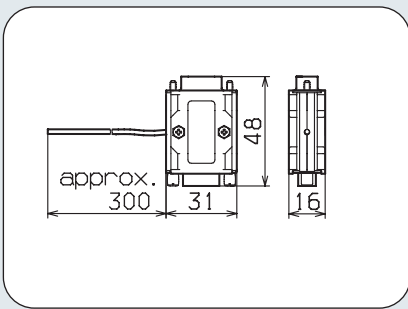
Dimension drawing FS 9E PB

D-SUB, 9-pole device, for Profibus-DP applications.

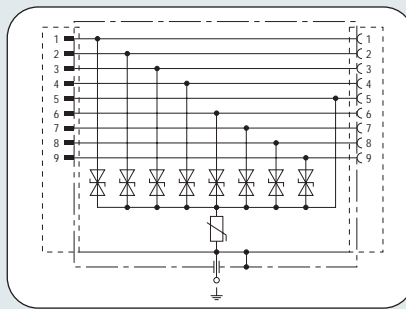
FS 9E PB 6

SPD class	TYPE 4 P1
Nominal voltage U_N	6 V
Max. continuous operating d.c. voltage U_c	7 V
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 C2 U_p	≤ 25 V
Voltage protection level line-SG for I_n C2 U_p	≤ 25 V
Voltage protection level SG-PG for I_n C2 U_p	≤ 25 V
Voltage protection level line-line for 1 kV/ μ s C3 U_c	≤ 18 V
Voltage protection level line-SG for 1 kV/ μ s C3 U_p	≤ 18 V
Voltage protection level SG-PG for 1 kV/ μ s C3 U_p	≤ 18 V
Bandwidth f_G	90 MHz
Capacitance line-line C	25 pF
Capacitance line-SG C	35 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 40
For mounting on	D-Sub (2 threaded screws 4/40 UNC)
Connection input/output	D-Sub 9 plug / D-Sub 9 socket
Pinning	Line: 3/8, SG: 5, PG: 1, 6: unprotected
Earthing by	outgoing earth conductor 0.75 mm ² , 0.3 m long (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21

Ordering information	
Type	FS 9E PB 6
Part No.	924 017
Packing unit	1 pc(s).



Dimension drawing FS 9E HS



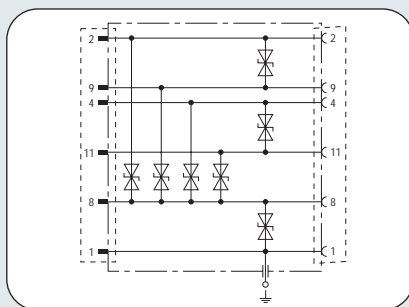
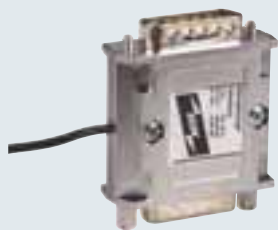
8-pole fine protection against common SG.



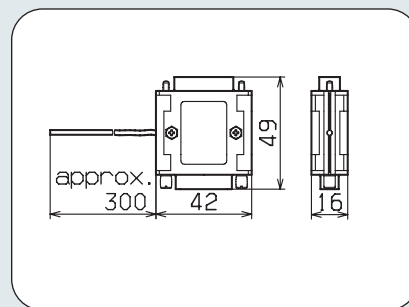
- All pins protected
- Low voltage protection level
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

D-SUB, 9-pole device. V-24 unit with handshake function.

FS 9E HS 12	
SPD class	TYPE 4 P1
Nominal voltage U_N	12 V
Max. continuous operating d.c. voltage U_c	15 V
C2 Nominal discharge current (8/20 μ s) line-SG I_n	0.1 kA
C2 Nominal discharge current (8/20 μ s) SG-PG I_n	0.1 kA
Voltage protection level line-SG for I_n C2 U_p	≤ 24 V
Voltage protection level SG-PG for I_n C2 U_p	≤ 200 V
Voltage protection level line-SG for 1 kV/ μ s C3 U_p	≤ 21 V
Voltage protection level SG-PG for 1 kV/ μ s C3 U_p	≤ 90 V
Bandwidth f_G	10 MHz
Capacitance line-SG C	300 pF
Capacitance SG-PG C	700 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 40
For mounting on	D-Sub (2 threaded screws 4/40 UNC)
Connection input/output	D-Sub 9 plug / D-Sub 9 socket
Pinning	line: 1/2/3/4/6/7/8/9, SG: 5
Earthing by	outgoing earth conductor 0.75 mm ² , 0.3 m long (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21
Ordering information	
Type	FS 9E HS 12
Part No.	924 019
Packing unit	1 pc(s).



Fine protection for 2 pairs to common SG.

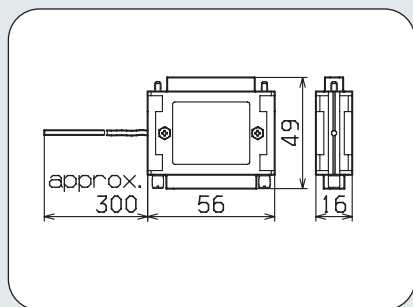


Dimension drawing FS 15E

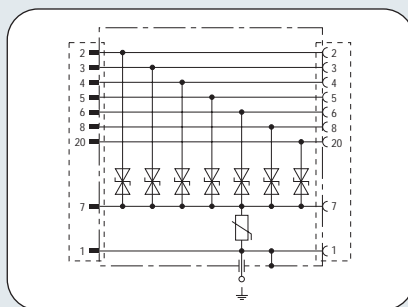
- For 4-wire interfaces
- Low voltage protection level
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

D-SUB, 15-pole device. RS-422, V.11 unit.

FS 15E 5	
SPD class	TYPE 4 P1
Nominal voltage U_N	5 V
Max. continuous operating d.c. voltage U_c	8 V
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	0.8 kA
Voltage protection level line-line for I_n C2 U_p	≤ 16 V
Voltage protection level line-SG for I_n C2 U_p	≤ 16 V
Voltage protection level SG-PG for I_n C2 U_p	≤ 16 V
Voltage protection level line-line for 1 kV/ μ s C3 U_c	≤ 11 V
Voltage protection level line-SG for 1 kV/ μ s C3 U_p	≤ 11 V
Voltage protection level SG-PG for 1 kV/ μ s C3 U_p	≤ 11 V
Bandwidth f_G	4 MHz
Capacitance line-line C	1500 pF
Capacitance line-SG C	1500 pF
Capacitance line-PG C	800 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 40
For mounting on	D-Sub (2 threaded screws 4/40 UNC)
Connection input/output	D-Sub 15 plug / D-Sub 15 socket
Pinning	line: 2/9, 4/11, SG: 8, PG: 1
Earthing by	outgoing earth conductor 0.75 mm ² , 0.3 m long (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21
Ordering information	
Type	FS 15E 5
Part No.	924 016
Packing unit	1 pc(s).



Dimension drawing FS 25E HS



8-pole fine protection to common SG.



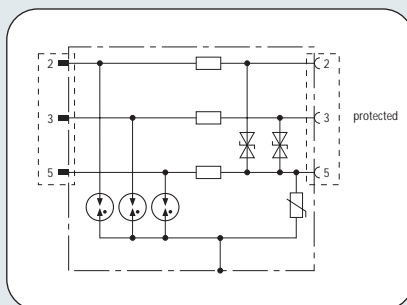
- All lines interconnected
- Low voltage protection level
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

D-SUB, 25-pole device. V.24 unit with handshake function.

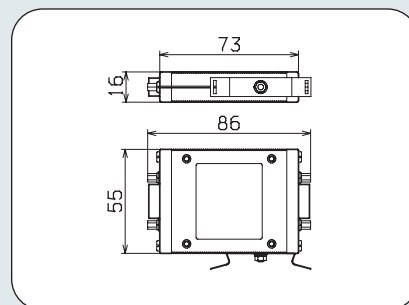
FS 25E HS 12	
SPD class	TYPE 4 P1
Nominal voltage U_N	12 V
Max. continuous operating d.c. voltage U_c	15 V
C2 Nominal discharge current (8/20 μ s) line-SG I_n	0.1 kA
C2 Nominal discharge current (8/20 μ s) SG-PG I_n	0.1 kA
Voltage protection level line-SG for I_n C2 U_p	≤ 24 V
Voltage protection level SG-PG for I_n C2 U_p	≤ 200 V
Voltage protection level line-SG for 1 kV/ μ s C3 U_p	≤ 21 V
Voltage protection level SG-PG for 1 kV/ μ s C3 U_p	≤ 90 V
Bandwidth f_G	10 MHz
Capacitance line-SG C	300 pF
Capacitance SG-PG C	700 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 40
For mounting on	D-Sub (2 threaded screws 4/40 UNC)
Connection input/output	D-Sub 25 plug / D-Sub 25 socket
Pinning	line: 2/3/4/5/6/8/20, SG: 7, other lines are unprotected
Earthing by	outgoing earth conductor 0.75 mm ² , 0.3 m long (PG)
Enclosure material	plastic, metallised
Colour	silver
Test standards	IEC 61643-21
Ordering information	
Type	FS 25E HS 12
Part No.	924 018
Packing unit	1 pc(s).



- Plug-in surge arrester with 2-stage protective circuit
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher



Combination of gas discharge tubes, decoupling resistors and diodes to PG.

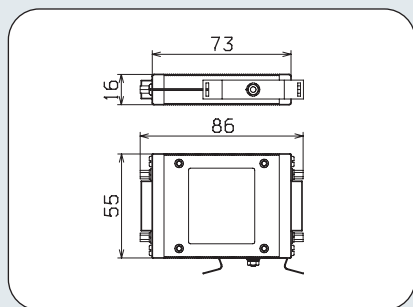


Dimension drawing USD 9 V24

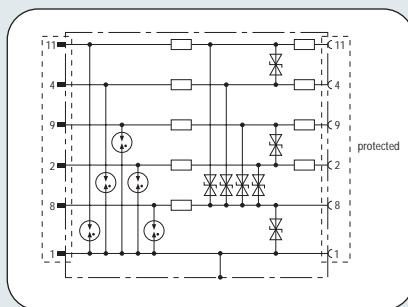
D-SUB 9-pole device. V.24 unit.

USD 9 V24 S B

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	≤ 20 V
Voltage protection level SG-PG for I_n C2 U_p	≤ 250 V
Voltage protection level line-SG for 1 kV/ μ s C3 U_p	≤ 18 V
Voltage protection level SG-PG for 1 kV/ μ s C3 U_p	≤ 180 V
Series impedance per line	15 ohms
Operating temperature range	-40°C...+80°C
For mounting on	D-Sub or 35 mm DIN rail according to EN 60715
Connection input/output	D-Sub 9 plug / D-Sub 9 socket
Pinning	Line: 2/3, SG: 5
Earthing by	earthing screw or DIN rail
Test standards	IEC 61643-21
Ordering information	
Type	USD 9 V24 S B
Part No.	924 061
Packing unit	1 pc(s).



Dimension drawing USD 15 V11



The resistors at the output of the circuit protect optocoupler and protective diodes in the terminal equipment against overloads.



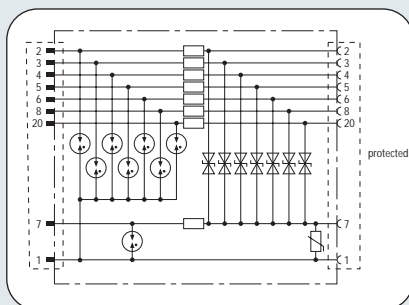
- Plug-in surge arrester with 2-stage protective circuit
- Integrated decoupling of the protective circuit to the terminal equipment
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

D-SUB 15-pole device. RS 422, V.11 unit.

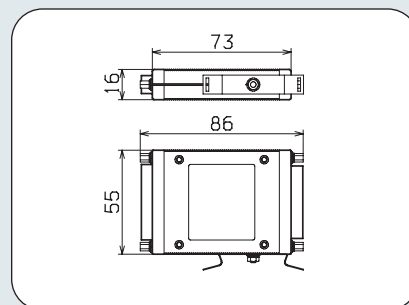
USD 15 V11 S B

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/line-SG C2 U_p	≤ 15 V
Voltage protection level SG-PG for I_n C2 U_p	≤ 20 V
Voltage protection level line-line/line-SG for 1 kV/ μ s C3 U_p	≤ 11 V
Voltage protection level SG-PG for 1 kV/ μ s C3 U_p	≤ 15 V
Series impedance per line	37 ohms
Operating temperature range	-40°C...+80°C
For mounting on	D-Sub or 35 mm DIN rail according to EN 60715
Connection input/output	D-Sub 15 plug / D-Sub 15 socket
Pinning	Line: 2/9/4/11, SG: 8, PG: 1
Earthing by	earthing screw or DIN rail
Test standards	IEC 61643-21

Ordering information	
Type	USD 15 V11 S B
Part No.	924 051
Packing unit	1 pc(s).



Combination of gas discharge tubes, decoupling resistors and diodes to signal ground (SG).



Dimension drawing USD 25 V24

- Plug-in surge arrester with 2-stage protective circuit
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

D-SUB 25-pole device. V.24 unit, type HS with handshake function.

USD 25 V24 HS S B

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	≤ 20 V
Voltage protection level SG-PG/line-PG for I_n C2 U_p	≤ 250 V
Voltage protection level line-SG for 1 kV/ μ s C3 U_p	≤ 18 V
Voltage protection level SG-PG for 1 kV/ μ s C3 U_p	≤ 180 V
Series impedance per line	15 ohms
Operating temperature range	-40°C...+80°C
Connection input/output	D-Sub 25 plug / D-Sub 25 socket
Pinning	Line: 2/3/4/5/6/8/20, SG: 7, PG: 1
Earthing by	earthing screw or DIN rail
Test standards	IEC 61643-21

Ordering information	
Type	USD 25 V24 HS S B
Part No.	924 046
Packing unit	1 pc(s).



- SPD for telecommunications devices
- For space-saving flush mounting
- Easy installation due to plug-in terminals

Surge arrester for protection of telecommunications devices for installing into flush-type boxes or small-sized distribution boards. Plug-in terminals provided at the input.

DSM surge arresters are usually integrated into the distribution socket downstream of the socket outlet of the terminal equipment or into the cable duct. This makes them independent from the switch or box programme and protect, invisibly for the user, telecommunications systems or

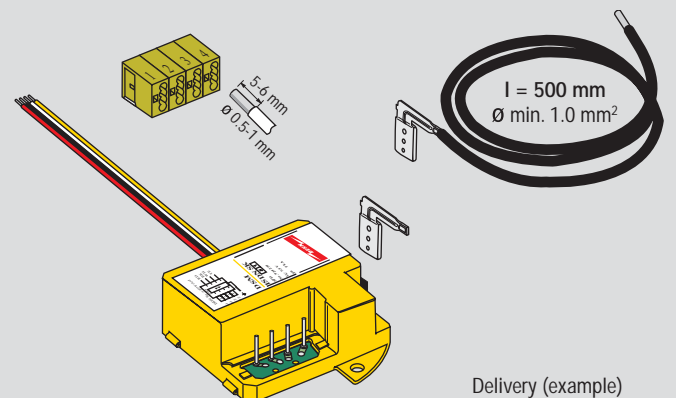
devices. Of course, the SPDs can also be integrated into small-sized distribution boards. The removable plug-in terminals make the installation of DSM easier. As each plug-in terminal is designed for four leads, an S₀-bus, for example, can immediately be wired further.



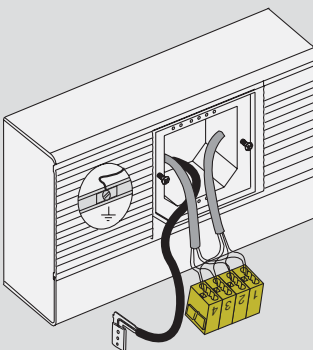
DSM installed into a surface-mounted distribution board

DSM is compact enough to allow for the types to be installed easily even into small-sized distribution boards situated in damp rooms.

Apart from plug-in terminals, the delivery includes also a prewired earth conductor.



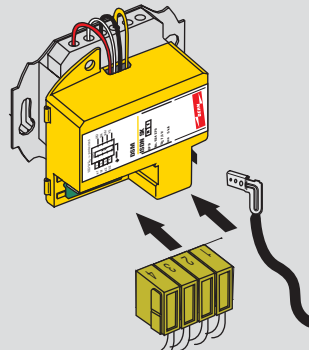
Delivery (example)



Installation – Step 1

Prewired cables

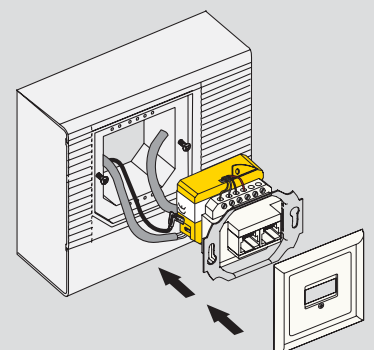
The plug-in connectors are prewired. The ISDN bus can be wired further.



Installation – Step 2

Connecting DSM ... SK to the telecommunications box

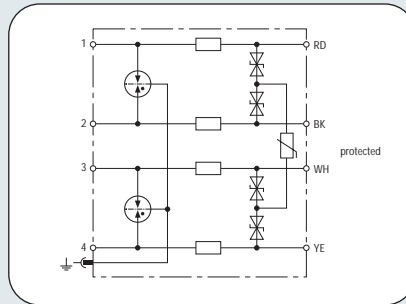
The lines fixed at DSM are connected to the telecommunications box and DSM is laid to the rear panel of the box. Then, the prewired connectors can be plugged in.



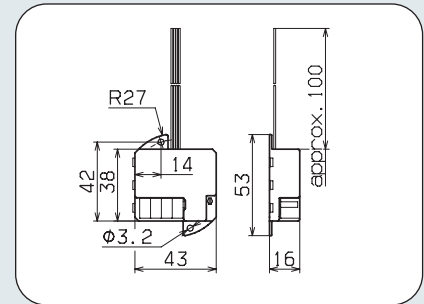
Installation – Step 3

Final installation

The telecommunications box is inserted into the mounting panel together with DSM. Now, only the cover needed has to be mounted.



Energy-coordinated ISDN 4-wire protective circuit with additional protection of the remote supply.



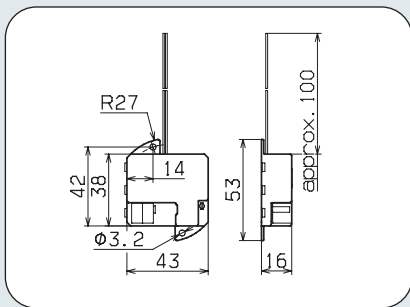
Dimension drawing DSM ISDN

- Optional further wiring of the ISDN bus via plug-in terminals
- Integrated protection for the remote supply
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

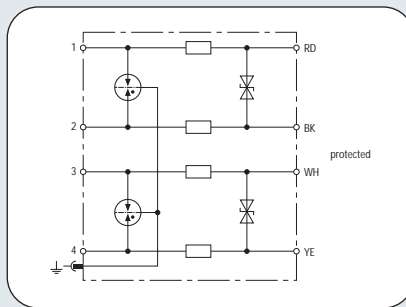
For ISDN S_0 interfaces. Further wiring of the ISDN bus possible with quad terminal.

DSM ISDN SK

DSM ISDN SK	
SPD class	TYPE 2P1
Nominal voltage U_N	5 V
Nominal voltage pa-pa U_N	40 V
Max. continuous operating d.c. voltage U_C	7.5 V
Max. continuous operating d.c. voltage pa-pa U_C	45 V
Nominal current I_L	200 mA
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 pa-pa for I_n C2 U_P	≤ 180 V
Voltage protection level line-line for 1 kV/ μ s C3 U_P	≤ 17 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_P	≤ 600 V
Voltage protection level pa-pa for 1 kV/ μ s C3 U_P	≤ 100 V
Series impedance per line	4.7 ohms
Bandwidth f_C	4 MHz
Capacitance line-line C	≤ 1.5 nF
Capacitance line-PG C	≤ 15 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Connection input/output	quad pillar terminals / stranded conductors 0.25 mm ²
Pinning	2 pairs
Cross-sectional area, solid	0.5 - 1.0 mm
Earthing by	flat connector 2.8 mm
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21
Accessories	flat connector, earth conductor 500 mm
Ordering information	
Type	DSM ISDN SK
Part No.	924 270
Packing unit	1 pc(s).



Dimension drawing DSM TC



Energy-coordinated protective circuit, free of leakage currents to earth.



- Excellent transmission performance
- Also suitable for installation into distribution boards
- For use according to the lightning protection zones concept at boundaries 0_B – 2 and higher

For (system) telephony, U_{k0}, ADSL, for use with 2 pairs.

DSM TC 2 SK	
SPD class	TYPE 2/P2
Nominal voltage U _N	110 V
Max. continuous operating d.c. voltage U _C	170 V
Nominal current I _N	200 mA
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 for 1 kV/μs C3 U _p	≤ 220 V
Voltage protection level line-PG for 1 kV/μs C3 U _p	≤ 600 V
Series impedance per line	4.7 ohms
Bandwidth f _C	17 MHz
Capacitance line-line C	≤ 300 pF
Capacitance line-PG C	≤ 10 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Connection input/output	quad pillar terminals / stranded conductors 0.25 mm ²
Pinning	2 pairs
Cross-sectional area, solid	0.5 - 1.0 mm
Earthing by	flat connector 2.8 mm
Enclosure material	polyamide PA 6.6
Colour	yellow
Test standards	IEC 61643-21
Accessories	flat connector, earth conductor 500 mm
Ordering information	
Type	DSM TC 2 SK
Part No.	924 272
Packing unit	1 pc(s).

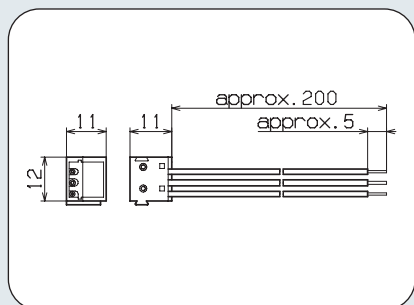
- Minimum space requirements due to EIB / KNX bus terminal design
- System-tested with EIBA certification
- Also suitable for KNX bus

BUSstector is a surge arrester with discharge capacity, protective effect and mechanical design adapted to the installation environment of EIB / KNX buses. Like a bus terminal it can be plugged onto the bus terminal pins of

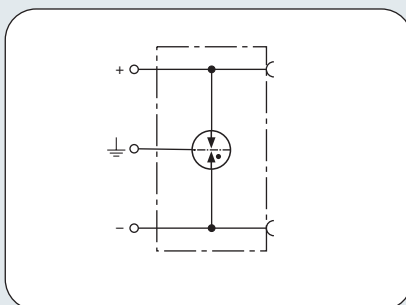


Surge arrester for EIB / KNX buses with connecting leads.

a terminal device and can be wired with the existing connecting cables. It protects especially cable and area couplers as well as gateways and sensors at external building walls.



Dimension drawing BT



Powerful gas discharge tube, adapted to the withstand capability of the equipment of KNX systems.



- Minimum space requirements
- For use according to the lightning protection zones concept at boundaries $O_B - 1$ and higher

SPD with design of a bus terminal. Approved by EIBA.

BT 24	
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
C2 Nominal discharge current per line I_n	5 kA
Voltage protection level for I_n C2	≤ 1200 V
Voltage protection level line-PG for I_n C2	≤ 650 V
Voltage protection level line-line for 1 kV/ μ s C3	≤ 750 V
Voltage protection level line-PG for 1 kV/ μ s C3	≤ 500 V
Bandwidth line-line	70 MHz
Capacitance line-line	≤ 10 pF
Capacitance line-PG	≤ 10 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
Connection input/output	spring contacts $\varnothing 1$ mm / connecting leads $\varnothing 0.8$ mm
Earthing by	lead 0.75 mm ² , length 200 mm
Enclosure material	thermoplastic
Colour	blue
Test standards	IEC 61643-21
Approvals, Certifications	EIBA Certification No. Z 32/1399/95
Ordering information	
Type	BT 24
Part No.	925 001
Packing unit	1 pc(s).

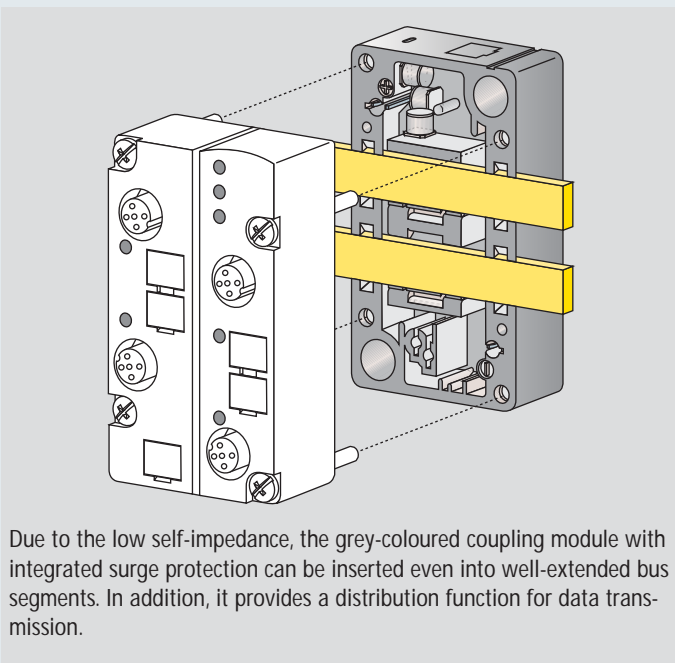
Surge arrester

- Protects the data line of the AS interface
- No bus address required
- Easy installation for use as coupling module

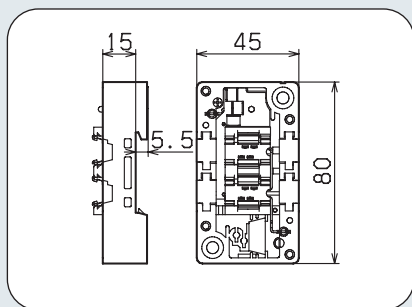


Surge arrester for devices with AS interface connection.

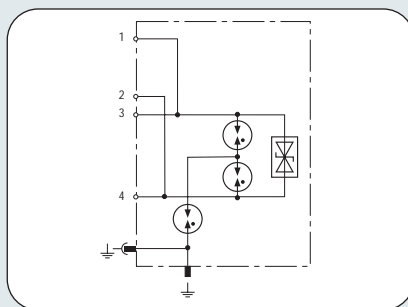
Surge arrester for devices with AS interface connection according to requirements of AS interface buses. The surge arresters are adapted to the installation environment of the bus systems and require no bus address.



Due to the low self-impedance, the grey-coloured coupling module with integrated surge protection can be inserted even into well-extended bus segments. In addition, it provides a distribution function for data transmission.



Dimension drawing of coupling module



The especially low-capacitance protective circuit hardly stresses the AS interface (1/6 bus equivalent).



- Protects also against ESD and switching peak voltages
- Replaces coupling module with distribution function
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

The coupling module protects the yellow data line of the AS interface. Additionally, it provides a distribution function. Earthing by DIN rail or plug-in contact.

AS IBAS YE	
SPD class	TYPE 2 P1
Max. continuous operating d.c. voltage U_c	36 V
Nominal current I_n	0.3 A
C2 Nominal discharge current (8/20 μ s) line-line I_n	0.15 kA
C2 Nominal discharge current (8/20 μ s) line-PG I_n	5 kA
Voltage protection level line-line for I_n C2 U_p	≤ 60 V
Voltage protection level line-PG for I_n C2 U_p	≤ 1100 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≥ 50 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 900 V
Capacitance line-line C	< 13 pF
Operating temperature range	-40°C...+80°C
Degree of protection for coupling module	construction with AS interface module IP 67
For mounting on	DIN rail or plane surface
Connection input/output	yellow AS interface line
Test standards	IEC 61643-21
Ordering information	
Type	AS IBAS YE
Part No.	925 013
Packing unit	1 pc(s).

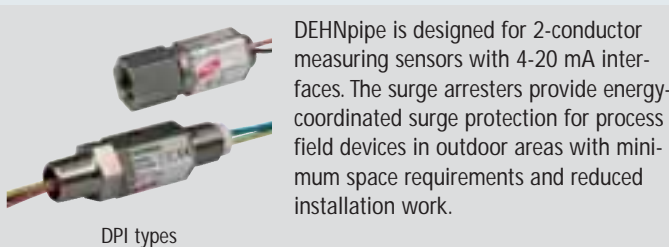


Surge arrester for outdoor use for screwing into 2-conductor process field devices. Stainless steel, IP 67.

- Maximum protection due to installation into the cable run
- Surges are discharged by the enclosure of the process field device
- For nearly all types of 2-conductor process field devices with suitable cable gland

DEHNpipe is made of corrosion-resistant stainless steel and is screwed into process field devices instead of common cable glands. Its fixed conductors are then connected to the terminals of the process field device. The protective components are thus installed directly into the cable run. This allows for energy-coordinated surge protection. The SPD protects the

inside of the process field device consequently from hazardous surges as the interfering impulses are discharged by the metal enclosure only and not by the inside of the device. Earthing accessories are also available for plastic field enclosures.



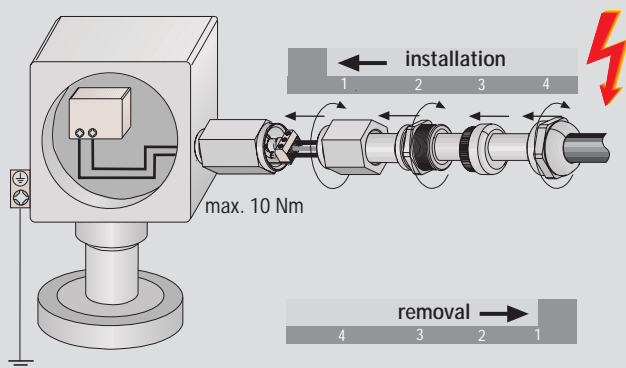
DPI types

DEHNpipe is designed for 2-conductor measuring sensors with 4-20 mA interfaces. The surge arresters provide energy-coordinated surge protection for process field devices in outdoor areas with minimum space requirements and reduced installation work.

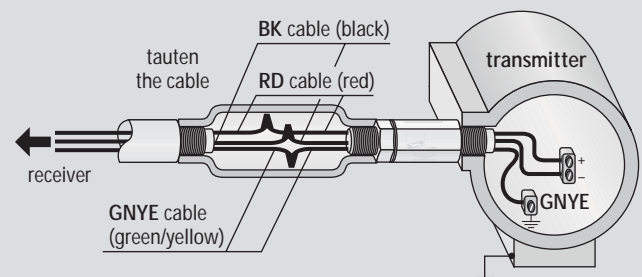


Advantages for installation

The universal surge arrester is even suitable for applications allowing only for a single assignment of the terminals of process field devices, or providing only one terminal for cable glands.



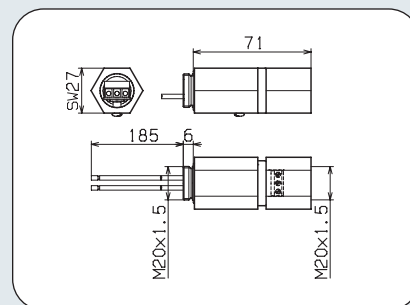
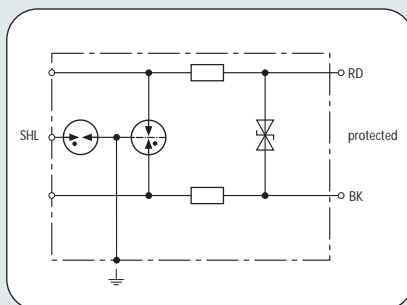
Installation of DPI MD 24 M 2S



Installation of DPI ME 24 N A2G

Due to the 2-part design of the SPD, the field cable can be connected as usually, just like being connected to a measuring sensor. The cable gland ensures an IP 67 degree of protection. DEHNpipe supports the common earthing concepts for cable shield treatment of field cables. According to the used cable gland, the cable shield is directly or indirectly earthed or not earthed. The indirect earthing integrates the shield into the protective concept – without leakage pickups.

The type of device for installation into pipes provides 1/2" npt male threads and fixed conductors. The device is installed as shown in the above figure.



- Easy installation due to 2-part design
- Suitable for 3 shielding concepts
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

Energy-coordinated protective circuit, free of leakage currents to earth, with gas discharge tube for indirect shield earthing.

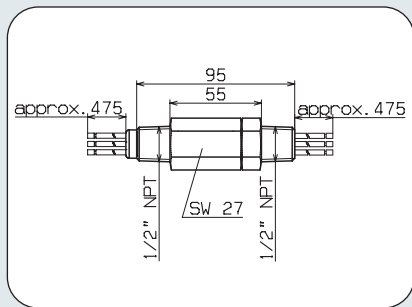
Dimension drawing DPI MD

For 4-20 mA interfaces with thread M20 x 1.5 (inside/outside). Option of direct, indirect or no shield earthing. Cable gland available as accessory part.

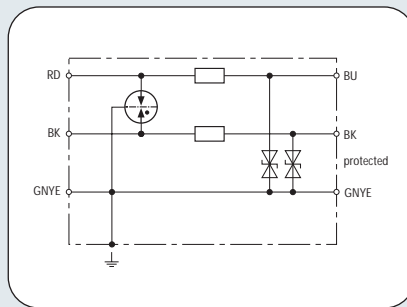
DPI MD 24 M 2S

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_L	0.5 A
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 for 1 kV/ μ s C3 U_p	≤ 50 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 500 V
Voltage protection level shield-PG for 1 kV/ μ s C3 U_p	≤ 600 V
Series impedance per line	2.2 ohms
Bandwidth line-line f_G	14 MHz
Capacitance line-line C	≤ 400 pF
Capacitance line-PG C	≤ 20 pF
Capacitance shield-PG C	≤ 15 pF
Operating temperature range	-40°C ... +80°C
Degree of protection	IP 67
For mounting on the process field/device side	M20 x 1.5 female thread / M20 x 1.5 male thread
Connection input/output	screw/connecting leads 1.5 mm ² , length 200 mm
Cross-sectional area, solid	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 1.5 mm ²
Earthing by	enclosure or earthing ring (accessories)
Enclosure material	V2A
Colour	bare
Test standards	IEC 61643-21

Ordering information	
Type	DPI MD 24 M 2S
Part No.	929 941
Packing unit	1 pc(s).



Dimension drawing DPI ME



Gas discharge tube and diodes, energy-coordinated to earth.



- Robust design
- Encapsulated protective circuit
- Single-ended type available on request
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

For unbalanced interfaces with thread npt 1/2" (phase/phase). Earth conductor led through.

DPI ME 24 N A2G

SPD class	TYPE 2P1	
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_L	0.5 A	
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	
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 for 1 kV/ μ s C3 U_p	≤ 98 V	
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 49 V	
Series impedance per line	4.7 ohms	
Capacitance line-line C	≤ 250 pF	
Capacitance line-PG C	≤ 450 pF	
Operating temperature range	-40°C...+80°C	
Degree of protection	IP 67	
For mounting on the process field/device side	1/2" 14 npt male thread / 1/2" 14 npt male thread	
Connection input/output	connecting leads AWG 16, length 500 mm	
Earthing by	enclosure and connecting lead	
Enclosure material	V2A	
Colour	bare	
Test standards	IEC 61643-21	

Ordering information	
Type	DPI ME 24 N A2G
Part No.	929 921
Packing unit	1 pc(s).

EMC cable gland



- For direct shield earthing
- Tested with DPI

Brass gland with shield connection.

KV S M20 MS 9.5	
Sealing range Rd	6.5 - 9.5 mm
Shield diameter	3.2 - 6.5 mm
Mounting on	M20 x 1.5
Degree of protection	IP 68
Material	nickel-plated brass
Ordering information	
Type	KV S M20 MS 9.5
Part No.	929 982
Packing unit	1 pc(s).

Cable gland



- Without direct shield connection
- Tested with DPI

Brass gland without shield connection.

KV M20 MS 10.5	
Sealing range Rd	7.0 - 10.5 mm
Mounting on	M20 x 1.5
Degree of protection	IP 68
Material	nickel-plated brass
Ordering information	
Type	KV M20 MS 10.5
Part No.	929 984
Packing unit	1 pc(s).

MS earthing ring



- Recommended for mounting of DPI in an insulating enclosure

Earthing ring of nickel-plated brass, for external earthing of DPI.

ER DPI M20	
Mounting on	DPI M20 x 1.5
Material	nickel-plated brass
Ordering information	
Type	ER DPI M20
Part No.	929 996
Packing unit	1 pc(s).



Surge arrester for outdoor use for screwing into 2-conductor process field devices. Stainless steel. Allows for mounting up to IP 67.

- Maximum protection due to installation into the cable run
- For all process field devices with suitable cable gland
- 2-part design for easy installation
- Tested according to ATEX and FISCO requirements

DEHNpipe is made of corrosion-resistant stainless steel and is screwed into process field devices instead of common cable glands. Its fixed conductors are then connected to the terminals of the process field device. Thus, the protective components are installed directly into the cable run.

This allows for energy-coordinated surge protection. The SPD protects the inside of the process field device consequently against surges as the interfering impulses are discharged by the metal enclosure only not by the inside of the device. For use in Ex zone 1 or 2.



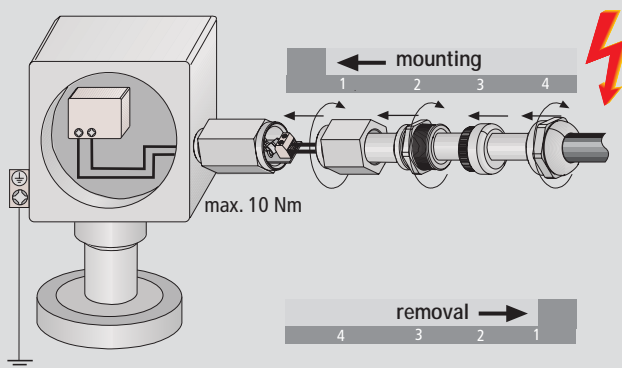
DPI MD EX

DEHNpipe is designed for intrinsically safe 2-wire measuring sensors with 4-20 mA or Profibus PA interfaces. The surge arresters provide energy-coordinated surge protection for process field devices in outdoor areas with minimum space requirements and less installation work.



Advantages for installation

The surge arrester for universal use covers even applications allowing for only a single assignment of the terminals for process field devices, or providing only one terminal for cable glands.



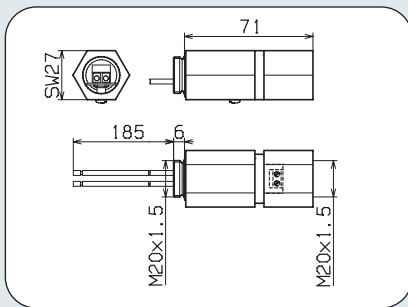
Installation of DPI MD EX

Due to the 2-part design of the protective device, the field cable can be connected as usually, like being connected to a measuring sensor. The cable gland ensures an IP 67 degree of protection. DEHNpipe supports the common earthing concepts for cable shield treatment at field cables. According to the cable gland used, the cable shield is earthed directly or not earthed.

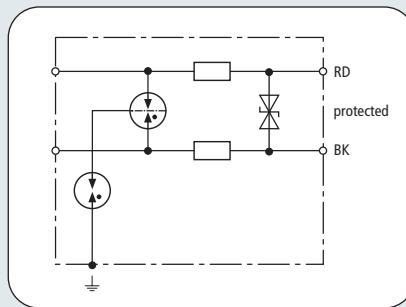


EC Type Examination Certificate DPI MD EX





Dimension drawing DPI MD EX



Low-capacitance, energy-coordinated protective circuit with insulation resistance > 500 V to earth.



- Easy installation due to 2-part design
- Self-capacitance and self-inductance negligibly small
- For use according to the lightning protection zones concept at boundaries 0_B – 2 and higher

Surge arrester for protecting intrinsically safe circuits and bus systems. PTB 03 ATEX 2088 II 2 (1) G EEx ia IIC T4/T5/T6, meets FISCO requirements. Cable gland has to be ordered separately.

DPI MD EX 24 M 2

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 according to EN 50020 U _i	30 V
Max. input current according to EN 50020 I _i	0.5 A
Nominal current I _N	0.5 A
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 _n C2 U _p	≤ 55 V
Voltage protection level line-PG for I _n C2 U _p	≤ 1100 V
Voltage protection level line-line for 1 kV/μs C3 U _p	≤ 49 V
Voltage protection level line-PG for 1 kV/μs C3 U _p	≤ 1000 V
Series impedance per line	1.8 ohms
Bandwidth 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 leads 1.5 mm ² , length 200 mm
Cross-sectional area, solid	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 1.5 mm ²
Earthing by	enclosure
Enclosure material	V2A
Colour	bare
Test standards	IEC 61643-21
Approvals, Certifications	ATEX

Ordering information	
Type	DPI MD EX 24 M 2
Part No.	929 960
Packing unit	1 pc(s).

EMC cable gland



- For direct shield earthing
- Tested with DPI

Brass gland with shield connection.

KV S M20 MS 9.5	
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
Ordering information	
Type	KV S M20 MS 9.5
Part No.	929 982
Packing unit	1 pc(s).

Cable gland



- Without direct shield connection
- Tested with DPI

Brass gland without shield connection.

KV M20 MS 10.5	
Sealing range Rd	7.0 - 10.5 mm
For mounting on	M20 x 1.5
Degree of protection	IP 68
Material	nickel-plated brass
Ordering information	
Type	KV M20 MS 10.5
Part No.	929 984
Packing unit	1 pc(s).



Surge arrester for outdoor use for screwing into 2-wire process field devices. Stainless steel, allows for installation up to IP 67.

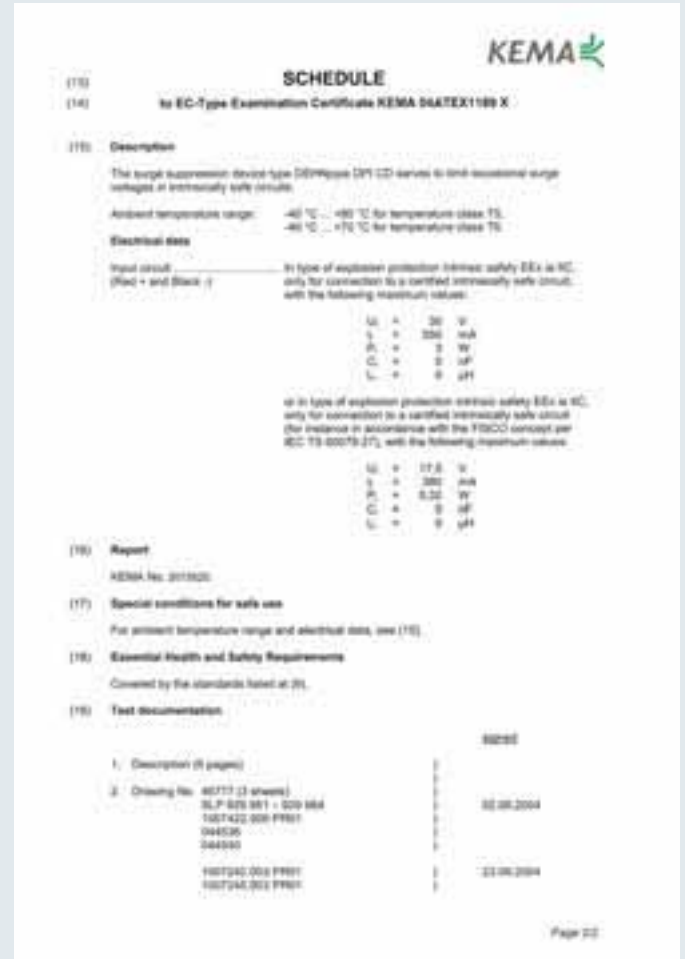
DEHNpipe C is made of corrosion-resistant stainless steel and is screwed directly into the process field device. Its integrated lines are connected to the terminals of the process field device like a field cable. The protective components are thus situated in parallel to the cabling. The device can be easily connected both to metal and plastic enclosures as the earth conductor of the protective device can be connected to the earth terminal of the process field device.

- Economical SPD for process field devices with spare cable gland
- Easy retrofitting and minimum space required
- Tested in according to ATEX and FISCO requirements

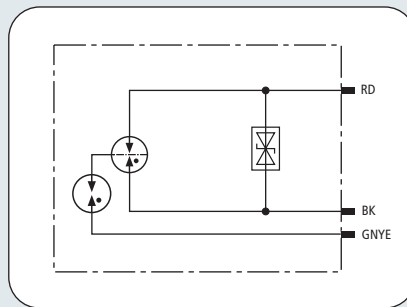
The device is designed for an IP 67 degree of protection. Typical applications for the intrinsically safe surge arresters are 4-20 mA measuring circuits or bus systems up to 30 V. According to the type, DEHNpipe C is designed for measuring sensors with M20 x 1.5 or 1/2" npt 14 cable gland terminal. For installation in Ex zones 1 or 2.



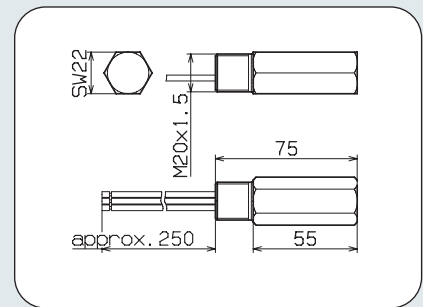
EC Type Examination Certificate DPI CD Ex(i)



DPI CD EXI



Low-capacitance protective circuit with insulation resistance > 500 V to earth.



Dimension drawing DPI CD EXI 24 M

- Easy installation into process field devices with unused cable gland
- Self-capacitance and self-inductance negligibly small
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

Surge arrester for protecting of intrinsically safe circuits and bus systems. Approved by ATEX, KEMA 04ATEX1189 X II 2(1) G EEx ia IIC T5 ... T6, FISCO surge protector.

DPI CD EXI 24 M

DPI CD EXI 24 N

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 according to EN 50020 U_i	30 V	30 V
Max. input current according to EN 50020 I_i	0.55 A	0.55 A
Nominal current I_L	0.55 A	0.55 A
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 for 1 kV/ μ s C3 U_p	≤ 50 V	≤ 50 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 1200 V	≤ 1200 V
Bandwidth, line-line f_G	67 MHz	67 MHz
Capacitance line-line C	≤ 25 pF	≤ 25 pF
Capacitance line-PG C	≤ 15 pF	≤ 15 pF
Operating temperature range	-40°C...+80°C	-40°C...+80°C
Degree of protection	design in IP 67	design in IP 67
For mounting on field/equipment side	M20 x 1.5 male thread	1/2" 14 npt male thread
Connection input/output	connecting leads 1.3 mm ² , length 250 mm	connecting leads 1.3 mm ² , length 250 mm
Earthing by	connecting lead	connecting lead
Enclosure material	V4A	V4A
Colour	bare	bare
Test standards	IEC 61643-21	IEC 61643-21
Approvals	ATEX	ATEX
Ordering information		
Type	DPI CD EXI 24 M	DPI CD EXI 24 N
Part No.	929 961	929 963
Packing unit	1 pc(s).	1 pc(s).



Surge arrester for outdoor use for screwing into 2-conductor process field devices. Stainless steel. Allows for installation up to IP 67.

Flameproof DEHNpipe C is made of corrosion-resistant stainless steel and is designed for screwing directly into process field devices. Its fixed lines are connected to the terminals of the process field devices like the field cable. The protection components are thus installed in parallel to the cable run. The device can be easily installed into metal or plastic field enclosures as the earth conductor of the protective device can be con-

- Economical SPD for process field devices with gland for unused cables or field bus distribution for hazardous areas
- Easy retrofitting and minimum space required
- Certified by ATEX

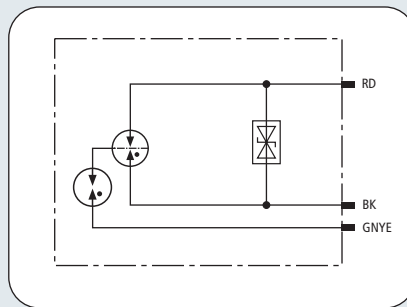
nected to an earth terminal for process field devices. Due to their design, the devices have an IP 67 degree of protection. Typical applications of these flameproof SPDs are 4-20 mA measuring circuits or bus systems up to 30 V. Depending on the type, DEHNpipe C is designed for measuring sensors with an M20 x 1.5 or 1/2" npt 14 cable gland connection. Its flameproof design is suitable for installation in Ex zone 1 or 2.



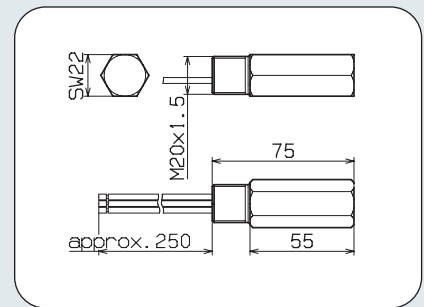
EC Type Examination Certificate DPI CD Ex (d)



- Easy installation into process field devices with an unused cable gland
- Type Ex(d) for universal use
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher



Protective circuit with low capacitance and insulation resistance > 500 V to earth.



Dimension drawing DPI CD EXD 24 M

Flameproof surge arrester for installation into hazardous areas for protecting of intrinsically safe circuits and bus systems. ATEX certification KEMA 04ATEX2190 X II 2 G EEx d IIC T5 or T6.

DPI CD EXD 24 M

DPI CD EXD 24 N

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
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 for 1 kV/ μ s C3 U_p	≤ 50 V	≤ 50 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 1200 V	≤ 1200 V
Bandwidth 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	-40°C...+80°C	-40°C...+80°C
Degree of protection	design in IP 67	installation in IP 67
For mounting on field/device side	M20 x 1.5 male thread	1/2" 14 npt male thread
Connection input/output	connecting leads 1.3 mm ² , length 250 mm	connecting leads 1.3 mm ² , length 250 mm
Earthing by	connecting lead	connecting lead
Enclosure material	V4A	V4A
Colour	bare	bare
Test standards	IEC 61643-21	IEC 61643-21
Approvals, Certifications	ATEX	ATEX

Ordering information		
Type	DPI CD EXD 24 M	DPI CD EXD 24 N
Part No.	929 962	929 964
Packing unit	1 pc(s).	1 pc(s).



- Effective protection with minimum space requirements (only 3.0 mm per pole)
- For use in 2-pole, 3-pole or 4-pole intrinsically safe interfaces
- Function-optimised design for easy installation and safe handling
- Allows for quick testing of SPD modules with LifeCheck
- Certified by ATEX and FISCO

Pluggable multi-pole universal surge arrester for use in intrinsically safe systems. The SPD modules with integrated LifeCheck element allow for quick testing by means of the portable DRC LC reader or stationary DRC CMC condition monitoring device in non-explosive atmospheres. SPD module and base part have to be ordered separately.

BLITZDUCTOR XT EX is a universal pluggable 4-pole surge arrester for DIN rail mounting for maximum requirements on the availability of intrinsically safe measuring and control circuits and bus systems. For intrinsic safety, the SPD is considered earth-free and the self-inductance and self-capacitance are negligibly small. The high impulse current discharge capacity (min. 10x) and low voltage protection level are supported by the low-impedance design of the device.

LifeCheck allows for quick and easy testing of SPDs. However, the SPD modules may be read out with the hand-held DRC LC reader in non-explosive atmospheres only.

Being integrated into the SPD modules, LifeCheck permanently controls

the operating state of the SPD. Like an early warning system, LifeCheck detects reliably prospective electrical and thermal overloads affecting the protection components. The LifeCheck status can be read out in a second by means of non-contact RFID technology with portable DEHNrecord LC reader and shows also the date when the SPD module was tested last time. A stationary condition monitoring device supports the operating-state-based maintenance of 10 BXT.

To ensure safe operation, the SPD can withstand vibrations and shock loads up to 30x acceleration of gravity. The function-optimised design of the devices allows for both quick and easy replacing of SPD modules where all relevant protection elements are installed.



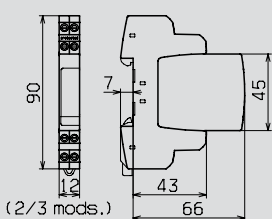
BLITZDUCTOR XT EX

BLITZDUCTOR XT EX installed completely. Two-part device with universal base part and application-specific SPD module in especially space-saving design for DIN rail mounting.



Base part

Universal base part for all SPD modules. Optimises storage and favours prewiring and service. No signal interruption when replacing the modules.



Dimension drawing

Dimension drawing of BLITZDUCTOR XT EX base part with plugged-in SPD module. Width: 2/3 mods. (12 mm), for use in distribution boards with DIN rails.



2 Basic types

BXT ML4 BD EX 24

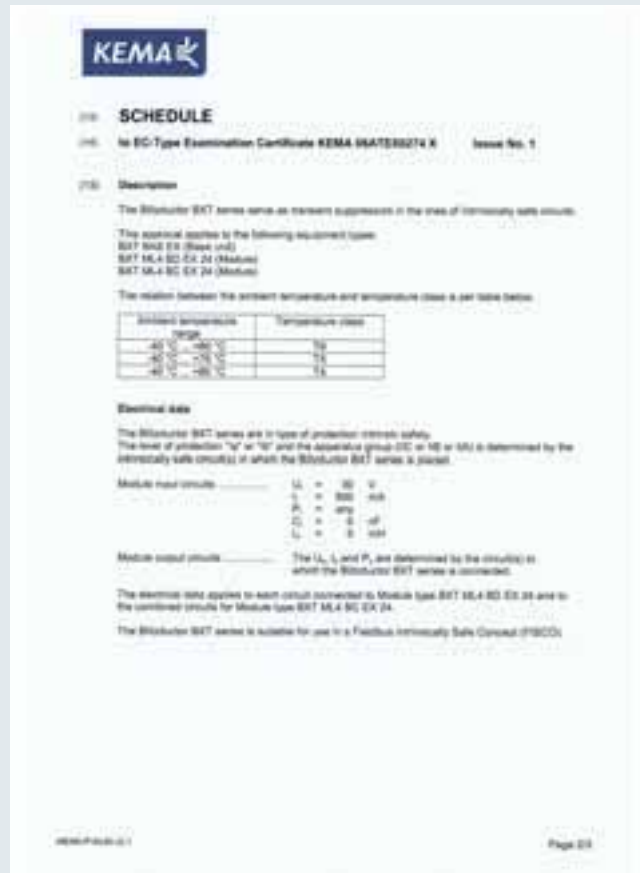
Universal surge arrester module with LifeCheck for 2 intrinsically safe circuits such as 4-20 mA, HART, PROFIBUS-PA, FF, NAMUR.

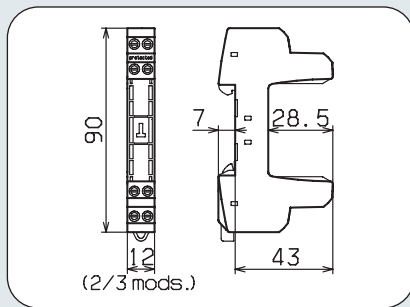
BXT ML4 BC EX 24

For protection of e.g. 3-wire or 4-wire temperature measurements.

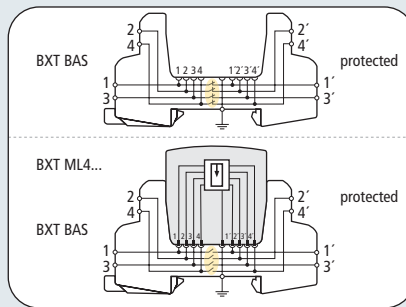


EC Type Examination Certificate BXT EX





Dimension drawing BXT BAS EX



Basic circuit diagram with and without plugged-in module



BLITZDUCTOR XT base part for use as very space-saving 4-pole universal feed-through terminal for intrinsically safe circuits for supporting SPD modules without signal interruption. The SPD module is safely earthed by the supporting foot of the DIN rail with a snap-in fixing device. As no components of the protective circuit are situated in the base part, maintenance work is required only for the protection modules.

- 4-pole and universal device for all types of intrinsically safe SPD modules
- Plugging in and removing without signal interruption
- Maintenance-free design without protection components

BXT BAS EX	
Operating temperature range	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rail according 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 by	35 mm DIN rail according to EN 60715
Enclosure material	polyamide PA 6.6
Colour	blue
Approvals, Certifications	ATEX, CSA
Ordering information	
Type	BXT BAS EX
Part No.	920 301
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT Ex (i) Base Part

Labelling system

2 x 50 labels for marking BXT base parts or modules with their current numbers, printed with numbers 1-50.

Type	PU pc(s)	Part No.
BS 1 50 BXT	1	920 399



Accessory Part for BLITZDUCTOR® XT Ex (i) Base Part

Earthing module

Being plugged in, the earthing module short-circuits all lines connected to the BLITZDUCTOR XT base part to PE. It directly earths initially unused cable conductors, which are already connected to the base part.

Type	PU pc(s)	Part No.
BXT M4 E	1	920 308



Accessory Part for BLITZDUCTOR® XT Ex (i) Base Part

EMC spring terminals

2 spring terminals for permanent low-impedant shield contacting of the protected and unprotected side of a BXT device. With integrated terminal coding for direct or indirect shield earthing, with cable ties and insulating strips.

NEW

Type	PU set	Part No.
SAK BXT LR	1	920 395



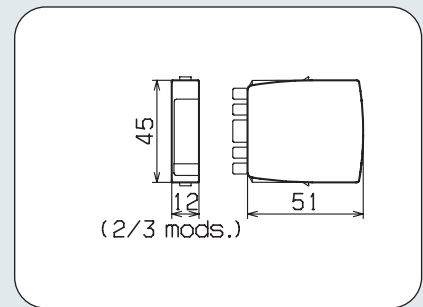
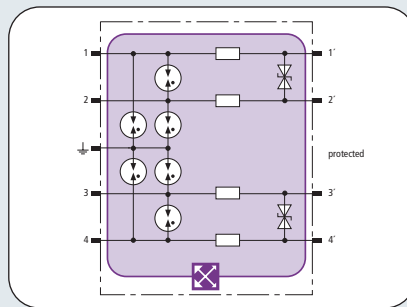
Accessory Part for BLITZDUCTOR® XT Ex (i) Base Part

Test / Disconnection module

Being plugged in, the test/disconnection module interrupts the cable run of the lines connected to the BLITZDUCTOR XT base part and leads them to a test socket at the front side of the module. This makes it possible to carry out measurements in the installation without removing the lines from the base part.

Type	PU pc(s)	Part No.
BXT M4 T	1	920 309





- For universal use, with LifeCheck SPD monitoring
- Self-capacitance and self-inductance negligibly small
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

The RFID chip of the LifeCheck SPD control can be read out with DEHNrecord LC without contact. Insulation resistance > 500 V line-earth.

Dimension drawing BXT ML4 BD EX

Space-saving surge arrester module with LifeCheck for protecting 2 pairs in intrinsically safe circuits and bus systems. KEMA 06 ATEX 0274 X II 2 (1) G EEx ia IIC T4/T5/T6, meets FISCO requirements.

BXT ML4 BD EX 24

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 V
Max. input voltage according to EN 50020 U_i	30 V
Max. input current according to EN 50020 I_i	0.5 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	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 for 1 kV/ μ s C3 U_p	≤ 45 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 1100 V
Series impedance per line	1.0 ohm
Bandwidth line-line f_G	7.7 MHz
Capacitance line-line C	≤ 0.8 nF
Capacitance line-PG C	≤ 16 pF
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
For plugging into	base part
Earthing by	base part
Enclosure material	polyamide PA 6.6
Colour	blue
Test standards	IEC 61643-21, UL 497B
Approvals, Certifications	ATEX, CSA

Ordering information	
Type	BXT ML4 BD EX 24
Part No.	920 381
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT Ex(i) LifeCheck® Module

BXT BAS EX

BLITZDUCTOR XT base part for use as very space-saving 4-pole universal feed-through terminal for intrinsically safe circuits for supporting SPD modules without signal interruption.



Type	PU pc(s)	Part No.
BXT BAS EX	1	920 301

Accessory Part for BLITZDUCTOR® XT Ex(i) LifeCheck® Module



DRC MCM XT

DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck.



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT Ex(i) LifeCheck® Module



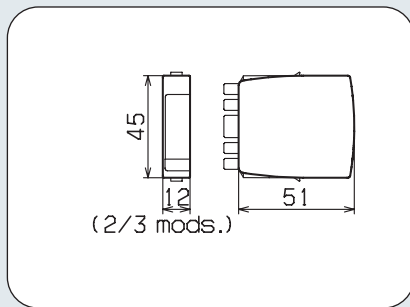
DRC LC M3

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

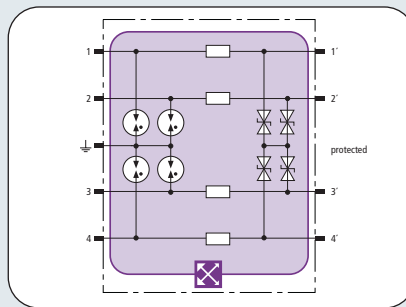


Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

For further technical details about "Accessories for BLITZDUCTOR® XT LifeCheck® modules" please also refer to pages 273 / 316 / 319.



Dimension drawing BXT ML4 BC EX



The RFID chip of the LifeCheck SPD monitoring device can be read out by non-contact DEHN-record LC. Insulation resistance > 500 V line-earth.



Space-saving surge arrester module with LifeCheck for protecting up to 4 earth-potential-free single lines with common reference potential in intrinsically safe circuits.
KEMA 06 ATEX 0274 X II 2 (1) G EEx ia IIC T4/T5/T6, meets FISCO requirements.

- For multi-wire measuring systems, with LifeCheck SPD monitoring
- Self-capacitance and self-inductance negligibly small
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

BXT ML4 BC EX 24

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 V
Max. input voltage according to EN 50020 U_i	30 V
Max. input current according to EN 50020 I_i	0.5 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	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	≤ 1400 V
Voltage protection level line-line for 1 kV/ μ s C3 U_p	≤ 45 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 1100 V
Series impedance per line	1 ohm
Bandwidth line-line f_G	6.4 MHz
Capacitance line-line C	≤ 0.8 nF
Capacitance line-PG C	≤ 16 pF
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
For plugging into	base part
Earthing by	base part
Enclosure material	polyamide PA 6.6
Colour	blue
Test standards	IEC 61643-21, UL 497B
Approvals, Certifications	ATEX, CSA

Ordering information	
Type	BXT ML4 BC EX 24
Part No.	920 384
Packing unit	1 pc(s).

Accessory Part for BLITZDUCTOR® XT Ex(i) LifeCheck® Module

DRC LC M3
Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs.

NEW



Type	PU pc(s)	Part No.
DRC LC M3	1	910 653

Accessory Part for BLITZDUCTOR® XT Ex(i) LifeCheck® Module

DRC MCM XT
DIN rail mountable device with integrated LifeCheck sensor for operating-state-based monitoring of max. 10 BXT devices with LifeCheck.

NEW



Type	PU pc(s)	Part No.
DRC MCM XT	1	910 695

Accessory Part for BLITZDUCTOR® XT Ex(i) LifeCheck® Module

BXT BAS EX
BLITZDUCTOR XT base part for use as very space-saving 4-pole universal feed-through terminal for intrinsically safe circuits for supporting SPD modules without signal interruption.

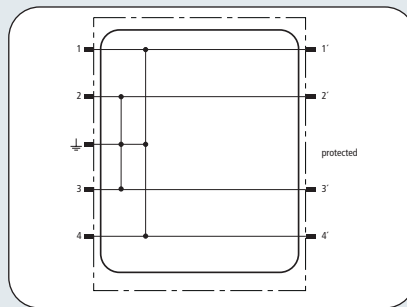


Type	PU pc(s)	Part No.
BXT BAS EX	1	920 301

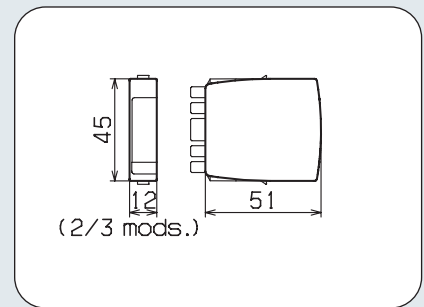
For further technical details about "Accessories for BLITZDUCTOR® XT LifeCheck® modules" please also refer to pages 273 / 316 / 319.

Earthing module

SPDs FOR POTENTIALLY EXPLOSIVE AREAS



Basic circuit diagram BXT M4 E



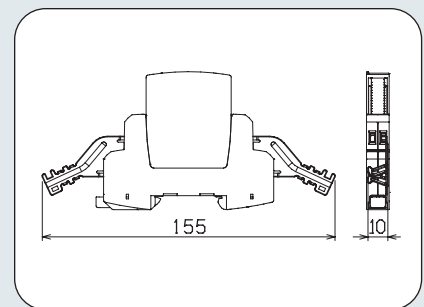
Dimension drawing BXT M4E

- For plugging onto BLITZDUCTOR XT base parts
- Easy handling
- Allows for quick replacing when retrofitting an SPD module

Being plugged in, the earthing module short-circuits all lines connected to the BLITZDUCTOR XT base part to PG. It earths initially unused cable conductors directly, which are already connected to the base part.

BXT M4 E	
D1 Total lightning impulse current (10/350 μs) I_{imp}	10 kA
Operating temperature range	-40°C...+80°C
Degree of protection (plugged-in)	IP 20
For plugging into	base part
Enclosure material	polyamide PA 6.6
Colour	grey
Ordering information	
Type	BXT M4 E
Part No.	920 308
Packing unit	1 pc(s).

EMC spring terminals

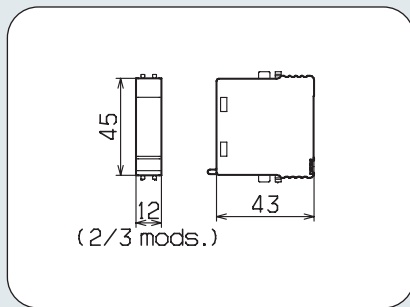


Dimension drawing SAK BXT LR

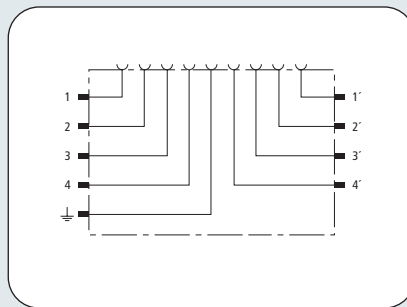
- Lightning current carrying capability
- Flat conductor with low impedance
- Flexible spring terminal

2 spring terminals for permanent low-impedant shield contacting of the protected and unprotected side of a BXT device. With integrated terminal coding for direct or indirect shield earthing, with cable ties and insulating strips.

SAK BXT LR	
D1 Lightning impulse current (10/350 μs)	5 kA
For plugging into	clamp connection BXT BAS
Clamping range	3 - 10 mm
Colour	bare
Accessories	cable tie, insulating strip
Ordering information	
Type	SAK BXT LR
Part No.	920 395
Packing unit	1 set



Dimension drawing BXT M4 T



Basic circuit diagram BXT M4 T



- For plugging into the BLITZDUCTOR XT base part
- Allows for easy maintenance and fault-finding
- Measuring lines included

Being plugged in, the test/disconnection module interrupts the cable run of the lines connected to the BLITZDUCTOR XT base part and leads them to a test socket at the front side of the module. This makes it possible to carry out measurements in the installation without removing the lines from the base part.

BXT M4 T	
Max. continuous operating d.c. voltage U_c	180 V
Max. continuous operating a.c. voltage U_c	127 V
Nominal current for 80° C I_L	1.0 A
Volume resistance	0.1 ohm
Operating temperature range	-40°C ... +80°C
Degree of protection (plugged-in)	IP 20
For plugging into	base part
Test sockets	gold-plated, 1 mm
Enclosure material	polyamide PA 6.6
Colour	grey
Accessories	2 measuring cables (1 m), protective bag
Ordering information	
Type	BXT M4 T
Part No.	920 309
Packing unit	1 pc(s).

Labelling system



2 x 50 labels for marking BXT base parts or modules with their current numbers, printed with numbers 1-50.

- Abrasion-proof
- Pre-printed

BS 1 50 BXT	
Dimension W x H	11 x 4 mm
Ordering information	
Type	BS 1 50 BXT
Part No.	920 399
Packing unit	1 pc(s).

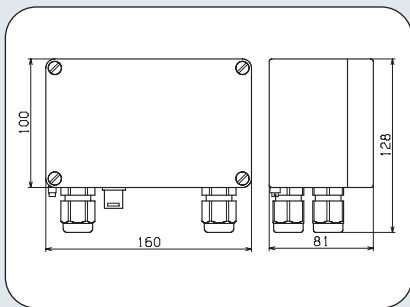
- Prewired unit
- With integrated SPD, tested according to ATEX and FISCO requirements
- Further customised types available on request



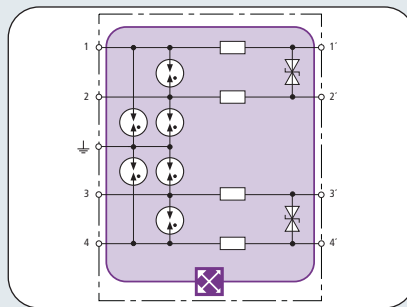
Example: ITAK for use in intrinsically safe circuits.

ITAK stands for the German designation "Informationstechnik-Anschaltkasten" [English: switchbox for information technology systems]. Generally, ITAKs are a combination of enclosure, SPDs and terminals or shield terminals. These switchboxes can be produced according to

customer specifications. Our standard product range offers e.g. ITAK EXI BXT 24, a combination of ALGA 5 X enclosure and BXT BD EX 24 for protecting intrinsically safe circuits in outdoor systems.



Dimension drawing ITAK EXI BXT



The RFID chip of the LifeCheck SPD monitoring system can be read out by means of non-contact DEHNrecord LC. Insulation resistance > 500 V line-earth.



- Prewired unit for 2 Ex(i) circuits
- Self-capacitance and self-inductance negligibly small
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

BXT ML4 BD EX 24 and BXT BAS EX – Complete assembly. SPD certified according to KEMA 06 ATEX 0274 X II 2 (1) G EEx ia IIC T4/T5/T6, meets FISCO requirements.

ITAK EXI BXT 24

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 according to EN 50020 U_i	30 V
Max. input current according EN 50020 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 for 1 kV/ μ s C3 U_p	≤ 45 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 1100 V
Series impedance per line	1.0 ohm
Bandwidth line-line f_c	7.7 MHz
Capacitance line-line C	0.8 nF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 65
For mounting on	wall in Ex zones 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 of equipotential bonding	4 mm ²
Tightening torque (terminal)	0.4 Nm
Earthing by	screw terminal
Enclosure material	grey aluminium
Test standards for installed BXT	IEC 61643-21, UL 497B
Approvals, Certifications of installed BXT	ATEX, CSA

Ordering information

Type	ITAK EXI BXT 24
Part No.	989 408
Packing unit	1 pc(s).

Accessory Part for ITAK Ex (i)

Mounting set

For ALGA 5 X enclosures for fixing at masts and pipes.

Type	PU pc(s)	Part No.
MS ALGA 5 X	1	906 059



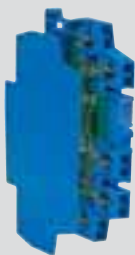
- Especially small space required (only 6 mm in width)
- Spring-pressure connection system
- Tested by PTB according to ATEX and FISCO requirements



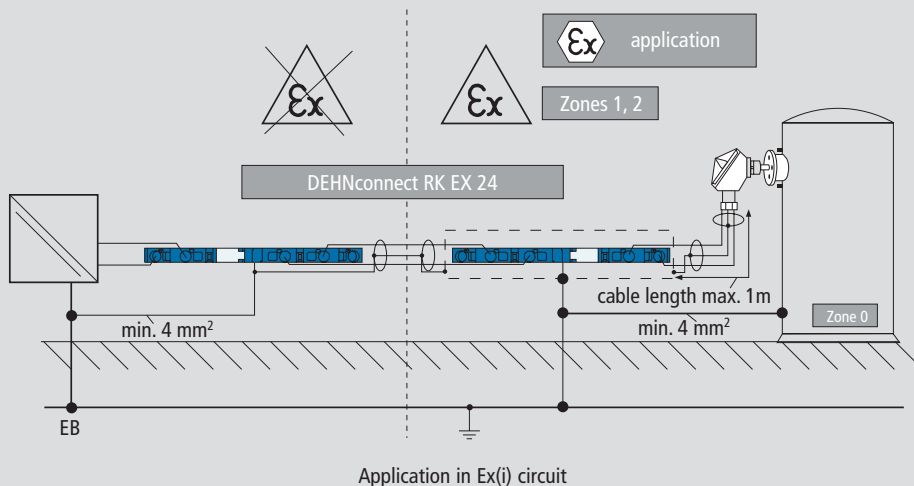
Surge protective terminal block, 6 mm wide, two-pole, with cage clamp terminal. Earthing by DIN rail or terminal.

DEHNconnect RK MD EX is a 6 mm wide surge protective terminal block for intrinsically safe circuits. Each of the 5 cage-clamp spring-pressure connections can protect 2 lines and establish an additional equipotential bonding to the terminal equipment. A self-locking device at the support-

ing foot ensures safe earthing by the DIN rail. As the SPDs are not enclosed on one side for space-saving purposes, a sealing cover at the end of each terminal block would provide further protection.



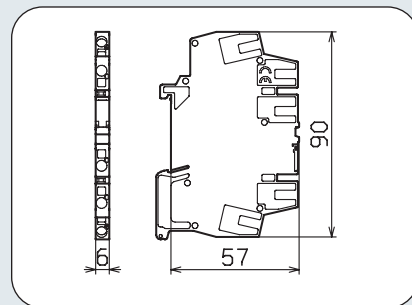
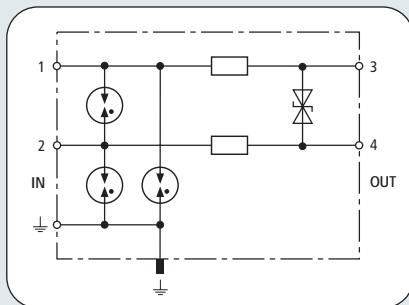
DCO RK MD EX with cover





EC Type Examination Certificate DCO RK MD EX

DCO RK MD EX



- For universal use
- Self-capacitance and self-inductance negligibly small
- For use according to the lightning protection zones concept at boundaries $0_B - 2$ and higher

Low-capacitance, energy-coordinated protective circuit with insulation resistance > 500 V to earth.

Dimension drawing DCO RK MD EX

Surge arrester for protecting intrinsically safe circuits and bus systems.
PTB 02 ATEX 2019 II 2 (1) G EEx ia IIC T4/T5/T6, meets FISCO requirements.

DCO RK MD EX 24

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 50020 U_i	30 V
Max. input current according to EN 50020 I_i	0.5 A
Nominal current I_L	0.5 A
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 for 1 kV/ μ s C3 U_p	≤ 45 V
Voltage protection level line-PG for 1 kV/ μ s C3 U_p	≤ 1400 V
Series impedance per line	1.8 ohms
Bandwidth line-line f_G	6 MHz
Capacitance line-line C	≤ 1 nF
Capacitance line-PG C	≤ 6 pF
Operating temperature range	-40°C...+80°C
Degree of protection	IP 00, with cover IP 20
For mounting on	35 mm DIN rail according to EN 60715
Connection input/output	spring / spring
Cross-sectional area, solid	0.08 - 2.5 mm ²
Cross-sectional area, flexible	0.08 - 2.5 mm ²
Earthing by	DIN rail / terminal
Enclosure material	polyamide PA 6.6
Colour	blue
Test standards	IEC 61643-21
Approvals, Certifications	ATEX

Ordering information	
Type	DCO RK MD EX 24
Part No.	919 960
Packing unit	1 pc(s).

Accessory Part for DEHNconnect RK Ex (i)

Accessory Part for DEHNconnect RK Ex (i)



Covering plate

For DCO RK

Type	Enclosure material	Colour	PU pc(s)	Part No.
AD DCO RK BL	polyamide PA 6.6	blue	1	919 978



Quick marking system

Two plates with plate Nos. 1-50 for DCO RK

Type	Material	PU pc(s)	Part No.
BS 1 50 DCO RK	plastic	1	919 977



- Tested with lightning impulse currents up to 10 kA (10/350 μ s)
- Corrosion-resistant stainless steel material
- Permanent shield connection by spring element

Shield connection system with lightning current carrying capability for anchor bars. The yield of the cable materials used is compensated by a slipping spring element.

Shield connection system, tested with lightning currents, for specific use on anchor bars. As, in the course of time, the conductor materials are subject to a yield, this yield is compensated with a slipping spring element.

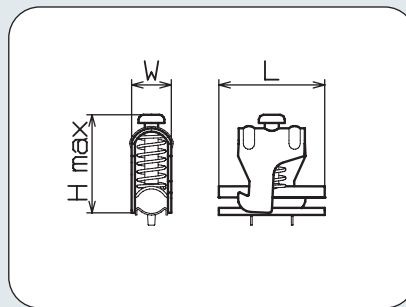
The shield connection of the rail types can also be installed using corresponding insulating elements after isolating it from local potential.



This very robust shield connection system is especially suitable for cables with medium-sized diameters. It has been tested with lightning currents and was approved for nuclear installations.

Application of anchor bars

Shield terminals



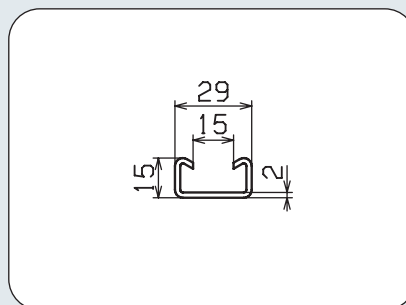
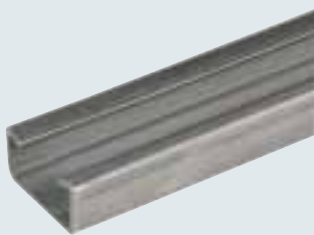
Dimension drawing SAK

- System with lightning current carrying capability, for anchor bars
- Shield support with wide surface
- Compensates the yield of cable materials

Shield terminals for earthing cable shields on anchor bars. Suitable for lightning equipotential bonding. Allows for subsequent use without interrupting the cable shield – no tools required for installation. Approved for use in nuclear facilities with test certificate ETL 10/PB 301/97 of the German Technical Inspectorate (TÜV).

	SAK 10 AS V4A	SAK 14 AS V4A	SAK 18 AS V4A	SAK 21 AS V4A	SAK 26 AS V4A	SAK 33 AS V4A
Lightning impulse current capacity (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
Mounting on	anchor bar	anchor bar	anchor bar	anchor bar	anchor bar	anchor bar
Dimension 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, Certifications	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
Ordering information						
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
Packing unit	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).

Anchor bar

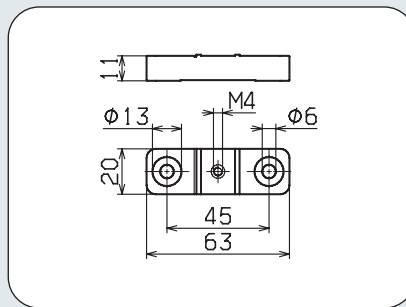


Dimension drawing AS SAK 1000 V2A

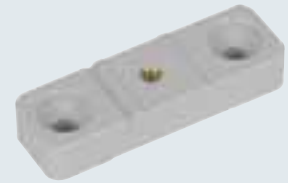
- Allows for cutting to length as required

Supporting bar for earthing and fixing the shield terminals.

AS SAK 1000 V2A	
Material	StSt
Dimension W x L x H	29 x 1000 x 15 mm
Approvals, Certifications	ETL 10/PB 301/97
Ordering information	
Type	AS SAK 1000 V2A
Part No.	308 421
Packing unit	10 pc(s).



Dimension drawing ST AS SAK K

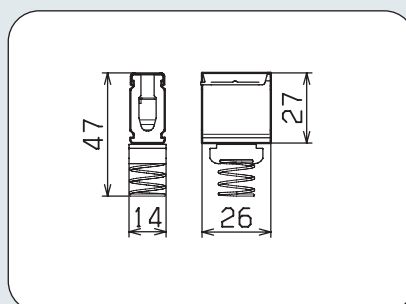


- Non-conductive connection of mounting plate and anchor bar
- Equipotential bonding to be performed by terminal AK 16 AS SAK MS

Busbar support for insulated fixing of the anchor bar AS SAK 1000 V2A, with threaded socket M4.

ST AS SAK K	
Material	plastic
Approvals, Certifications	ETL 10/PB 301/97
Ordering information	
Type	ST AS SAK K
Part No.	308 425
Packing unit	10 pc(s).

Terminal



Dimension drawing AK 16 AS SAK MS



- Space-saving
- 2 fixing screws included for conductor

For connecting of equipotential bonding conductors to anchor bar AS SAK 1000 V2A.

AK 16 AS SAK MS	
Cross-sectional area, solid	16 mm ²
Mounting on	anchor bar
Approvals, Certifications	ETL 10/PB 301/97
Ordering information	
Type	AK 16 AS SAK MS
Part No.	308 411
Packing unit	5 pc(s).

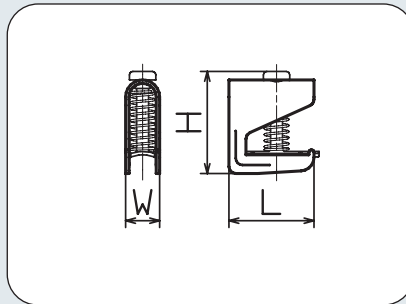
- Tested with lightning impulse currents up to 5 kA (10/350 μ s)
- Corrosion-resistant stainless steel material
- Permanent shield connection with spring element



Shield connection system, especially suitable for smaller cables, with lightning current carrying capability, for DIN rails with slipping spring element for compensating the yield of the cable materials.

Shield connection system, tested with lightning currents, for versatile applications in DIN rail installations. Suitable especially for smaller cable diameters such as bus cables. As, in the course of time, the conductor materials are subject to a yield, this is compensated with a slipping spring

element. The construction of the shield connection of the rail types can also be isolated from the local potential with corresponding insulating elements.



Dimension drawing SAK

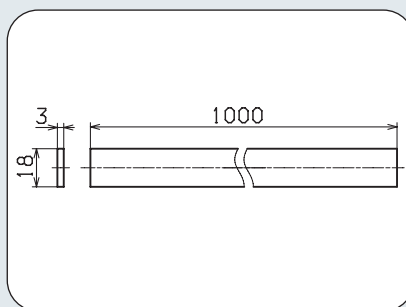


Shield terminals for earthing cable shields on busbars (18x3). Suitable for lightning equipotential bonding. Allows for subsequent use without interruption of the cable shield – no tools required for installation.

- System with lightning current carrying capability for DIN rail mounting
- Shield support with wide surface
- Compensates the yield of cable materials

	SAK 6.5 SN MS	SAK 11 SN MS
Lightning impulse current capacity (10/350 µs)	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
Mounting on	SN 18x3 CU 1000	SN 18x3 CU 1000
Dimension W x L x H	10 x 25 x 40 mm	17 x 25 x 47 mm
Ordering information		
Type	SAK 6.5 SN MS	SAK 11 SN MS
Part No.	919 010	919 011
Packing unit	10 pc(s).	10 pc(s).

Busbar



Dimension drawing SN 18X3 CU 1000

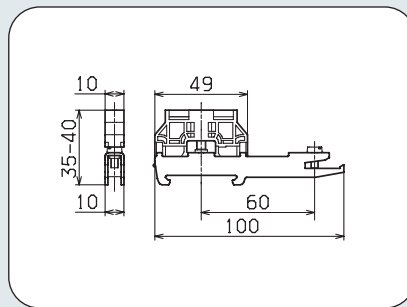


Busbar for supporting shield terminals. Suitable for mounting onto the busbar supports.

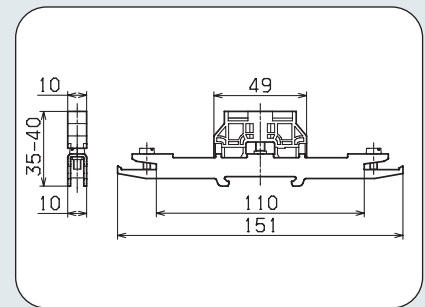
- Allows for cutting to length as required
- Suitable for busbar supports

	SN 18X3 CU 1000
Material	tin-plated copper
Mounting on	bar holder
Dimension W x L x H	18 x 1000 x 3 mm
Ordering information	
Type	SN 18X3 CU 1000
Part No.	919 016
Packing unit	1 pc(s).

Rail support



Dimension drawing SH1 18X3 ST



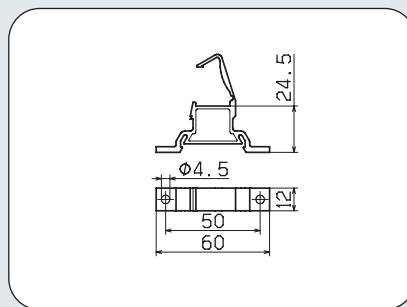
Dimension drawing SH2 18X3 ST

- Minimum space required
- With one or two shield terminals
- For 35 mm DIN rails according to EN 60715

Rail support for earthed construction, suitable for DIN rail mounting. Low-impedant connection of the shield terminals to the DIN rail via the busbar.

	SH1 18X3 ST	SH2 18X3 ST
Design	1 shield terminal	2 shield terminals
Material	tin-plated steel	tin-plated steel
Mounting on	35 mm DIN rail according to EN 60715	35 mm DIN rail according to EN 60715
Ordering information		
Type	SH1 18X3 ST	SH2 18X3 ST
Part No.	919 012	919 013
Packing unit	1 pc(s).	1 pc(s).

Insulated rail support

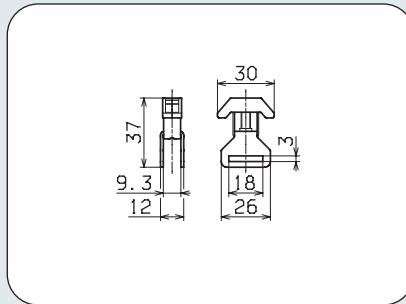


Dimension drawing SH 18X3 K

- No conductive connection from busbar to DIN rail
- Equipotential bonding to be performed by terminal AK 35 SN 18X3 GG

Rail support for insulated installation, for DIN rail mounting or screw connection.

	SH 18X3 K
Material	plastic
Colour	black
Mounting on	DIN rail or mounting plate
Ordering information	
Type	SH 18X3 K
Part No.	919 014
Packing unit	10 pc(s).



Dimension drawing AK 35 SN 18X3 GG

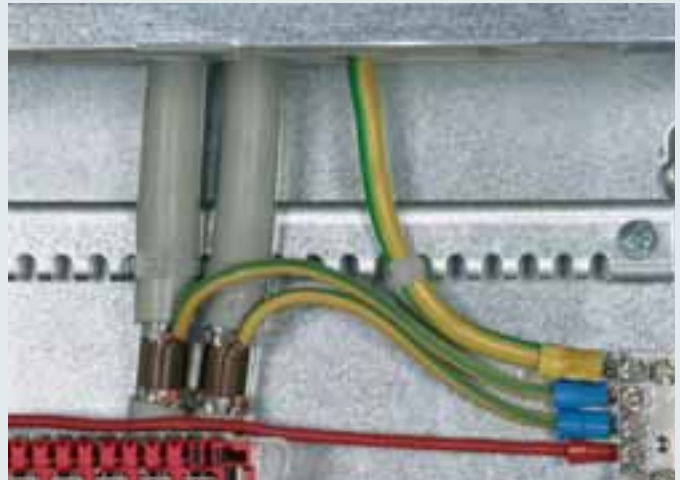


- Wide cross-sectional area
- For insulated shield construction with SH 18X3 K

Especially suitable for insulated busbar constructions, e.g. in case of indirect shield earthing.

AK 35 SN 18X3 GG	
Cross-sectional area, solid	35 mm ²
Mounting on	busbar
Ordering information	
Type	AK 35 SN 18X3 GG
Part No.	919 015
Packing unit	1 pc(s).

- Tested with lightning impulse currents up to 10 kA (10/350 μ s)
- Very space-saving design
- Permanent shield connection with spring element



Very space-saving shield connection system for use as constant force spring. A spring element compensates the yield of the cable materials used.

The shields of incoming IT and power supply lines can be contacted by means of constant force springs type SA KRF in a space-saving way and with lightning current carrying capability. As, in the course of time, the

conductor materials are subject to a yield, this can be compensated with a spring element. For permanent corrosion protection of the clamping unit, it is wrapped with a self-bonding SKB rubber tape.



Test certificate of constant force spring type SA KRF ...



Constant force springs allow for solderless shield connections for equipotential bonding or lightning equipotential bonding. They can be installed subsequentially without interrupting the conductor shield or requiring tools for installation. Approved for nuclear installations 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

SA KRF ...	10 V2A	15 V2A	22 V2A	29 V2A	37 V2A	50 V2A	70 V2A	94 V2A
Lightning impulse current capacity (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	bare	bare	bare	bare	bare	bare	bare
Mounting on	cable shield	cable shield	cable shield	cable shield	cable shield	cable shield	cable shield	cable shield
Approvals, Certifications	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
Ordering information								
Type	SA KRF 10 V2A	SA KRF 15 V2A	SA KRF 22 V2A	SA KRF 29 V2A	SA KRF 37 V2A	SA KRF 50 V2A	SA KRF 70 V2A	SA KRF 94 V2A
Part No.	919 031	919 032	919 033	919 034	919 035	919 036	919 037	919 038
Packing unit	20 pc(s).	20 pc(s).	20 pc(s).	10 pc(s).	10 pc(s).	25 pc(s).	20 pc(s).	10 pc(s).

Selfbonding rubber tape

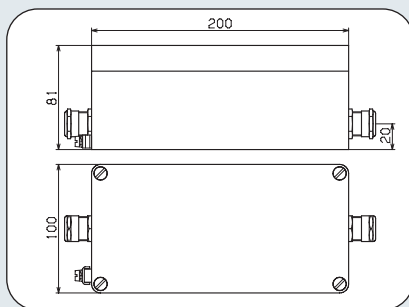


Reel with 9 m selfbonding rubber tape for wrapping around constant force springs for permanent protection against corrosion.

- Selfbonding
- Flexible

SKB 19 9M SW	
Colour	black
Dimension W x L x H	tape measure 9 m x 19 mm
Ordering information	
Type	SKB 19 9M SW
Part No.	919 030
Packing unit	1 pc(s).

Aluminium enclosure



- DIN rail integrated
- Different types available on request

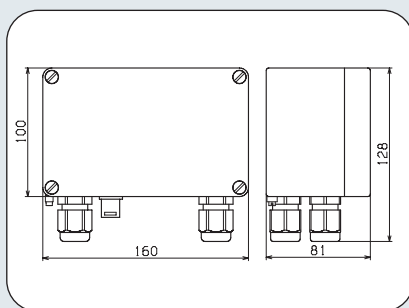
Dimension drawing of aluminium enclosure

For installing DIN rail mountable devices. With 2 brass glands PG 11.

ALGA 5

Degree of protection	IP 65
Mounting on	wall
Dimension W x H x D	100 x 200 x 81 mm
Installation space	6 mods.
Enclosure material	aluminium
Ordering information	
Type	ALGA 5
Part No.	906 055
Packing unit	1 pc(s).

Aluminium enclosure for Ex(i) surge arresters



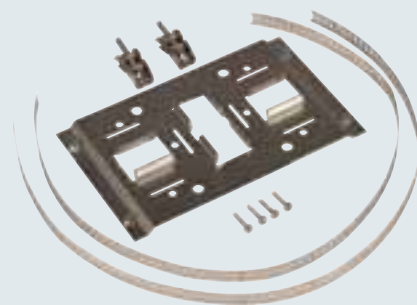
- DIN rail integrated
- All cables entering from below

Dimension drawing of aluminium enclosure for Ex(i) surge arresters

With 4 plastic glands M20 x 1.5, sealable, pressure compensating membrane.

ALGA 5 X

Degree of protection	IP 65
Mounting on	wall
Dimension W x H x D	160 x 100 x 85 mm
Installation space	6 mods., DIN 43880
Enclosure material	aluminium
Ordering information	
Type	ALGA 5 X
Part No.	906 058
Packing unit	1 pc(s).

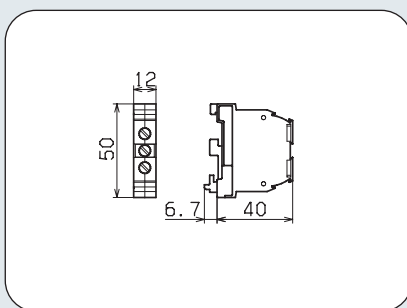


For ALGA 5 X enclosures for fixing at masts and pipes.

- Stainless steel
- For rough environmental conditions

MS ALGA 5 X	
Mounting on	mast, pipe for diameters 25 - 140 mm
Enclosure material	StSt
Ordering information	
Type	MS ALGA 5 X
Part No.	906 059
Packing unit	1 pc(s).

Protective conductor terminal



Dimension drawing of PE terminal



- With lightning current carrying capability

For installing of DIN rail mountable devices. For earthing mounting channels, width: 12 mm.

SLK 16	
Cross-sectional area, flexible	6 - 16 mm ²
Cross-sectional area, solid	6 - 25 mm ²
Mounting on	DIN rail according to EN 60715
Enclosure material	green-yellow polyamide 6.6
Ordering information	
Type	SLK 16
Part No.	910 099
Packing unit	1 pc(s).



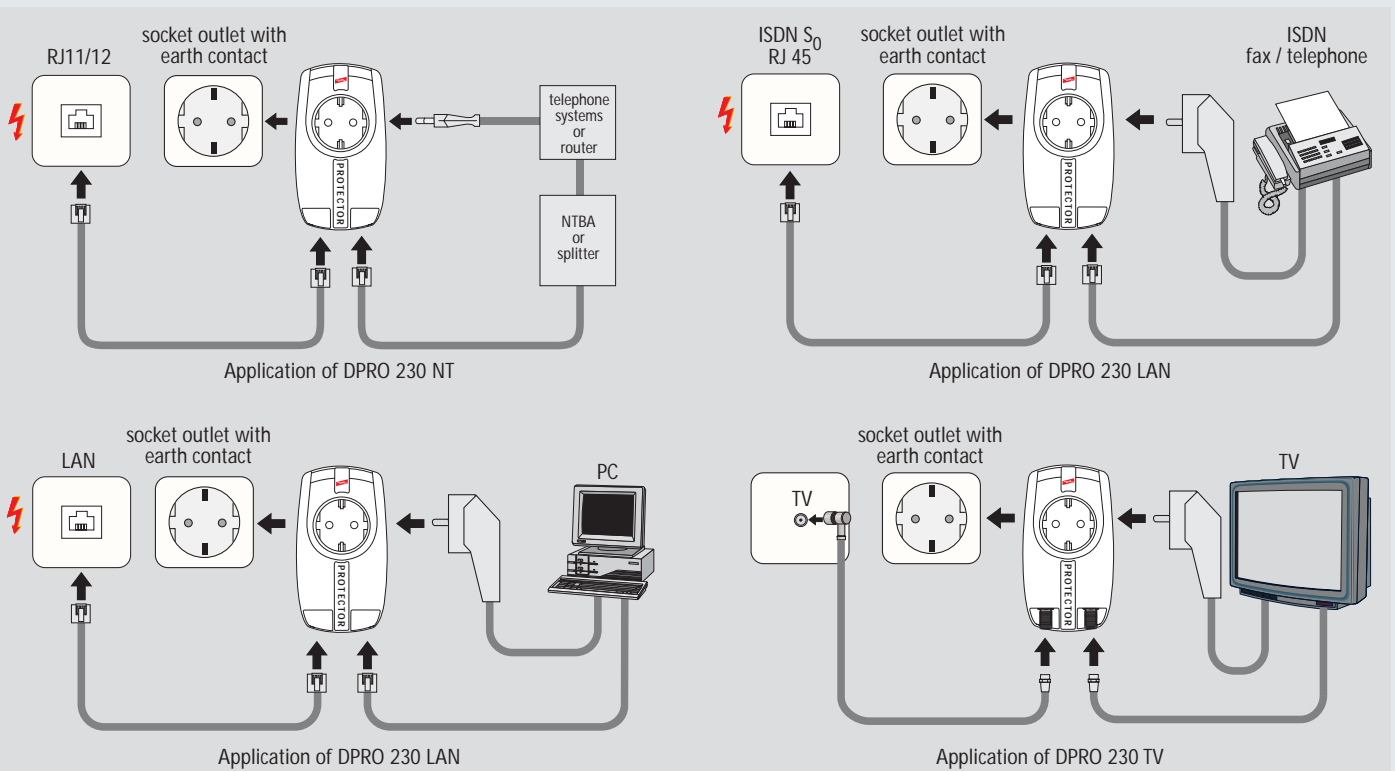


Combined surge protective adapter for plugging into socket outlets with earth contact, with visual operating state and fault indication.

- Surge protective adapter in modern design for quick retrofitting
- Allows to easily integrate the power supply and data side of a terminal device into the equipotential bonding

The SPDs of the Protector family for plugging into socket outlets with earth contact protect consumers with additional data interfaces. The surges will be discharged via the PE pin of the socket outlet. The plug-in

installation makes retrofitting with SPDs easier. The surge protection of the power supply side provides a visual operating state and fault indicator. This underlines the easy maintenance.



Note:
For further types of surge protective adapters for protecting the power supplies of electronic devices please also refer to pages 116-118.

Protective adapter for TV/radio applications

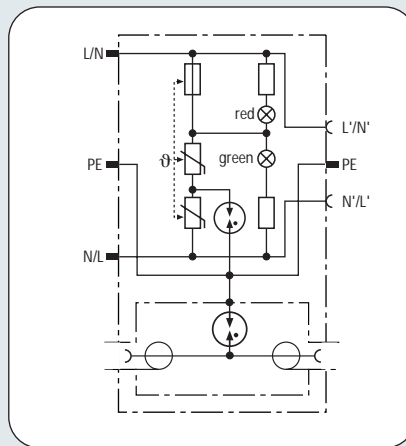
COMBINED ADAPTERS

Available from midyear 2008

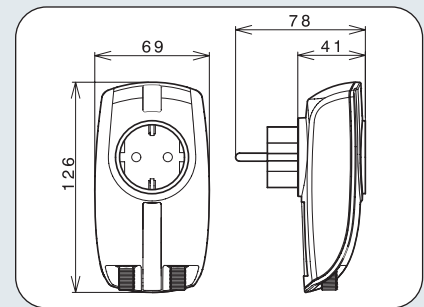
NEW



- Protection for TV or radio applications with a modern design
- Includes adapter for F sockets to IEC terminals
- For use according to the lightning protection zones concept at boundaries 2 – 3 and higher



Protection for the data side:
A gas discharge tube discharges potential surges to PE.



Dimension drawing DPRO 230 TV

Combined surge protection for power supply and antenna sides of TV-systems, radio systems or video systems. With visual operating state and fault indication.

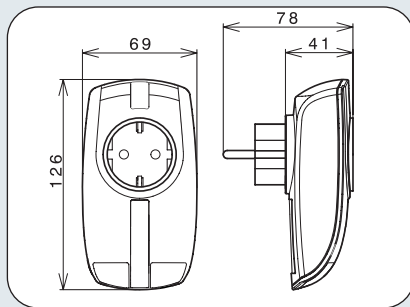
Protection for the data side	DPRO 230 TV	DPRO 230 SE TV
SPD class	TYPE 2	TYPE 2
Max. continuous operating d.c. voltage U_c	60 V	60 V
C2 Nominal discharge current (8/20 μ s) line-shield (PE) I_n	5 kA	5 kA
Voltage protection level line-shield (PE) for 1 kV/ μ s C3 U_p	≤ 600 V	≤ 600 V
Insertion loss 0-2400 MHz	≤ 1.5 dB	≤ 1.5 dB
Operating temperature range	-25°C...+40°C	-25°C...+40°C
Degree of protection	IP 20	IP 20
Connection input / output	F socket / F socket	F socket / F socket
Enclosure material	pure white thermoplastic, UL 94 V-2	pure white thermoplastic, UL 94 V-2
Test standards	IEC 61643-21	IEC 61643-21
Protection for the power supply side	DPRO 230 TV	DPRO 230 SE TV
SPD according to EN 61643-11	Type 3	Type 3
SPD according to IEC 61643-1	Class III	Class III
Nominal a.c. voltage U_N	230 V	230 V
Max. continuous operating a.c. voltage U_c	255 V	255 V
Nominal load current I_L	16 A	16 A
Nominal discharge current (8/20 μ s) L-N I_n	3 kA	3 kA
Nominal discharge current (8/20 μ s) L/N-PE I_n	5 kA [(L+N)-PE]	5 kA [(L+N)-PE]
Combined impulse (1.2/50 μ s - 8/20 μ s) L-N U_{oc}	6 kV	6 kV
Combined impulse (1.2/50 μ s - 8/20 μ s) L/N-PE U_{oc}	10 kV [(L+N)-PE]	10 kV [(L+N)-PE]
Voltage protection level L-N U_p	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level L/N-PE U_p	≤ 1.5 kV	≤ 1.5 kV
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 max. mains-side overcurrent protection	6 kA _{rms} a.c.	6 kA _{rms} a.c.
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_0 /200 ms	1200 V+ U_0 /200 ms
Indication of disconnecter / Operating state indication	red light / green light	red light / green light
For mounting on	plug-in system with earth contact DIN 49440/DIN 49441	centre earthing contact system according to CEE 7, standard sheet V
Test standards	IEC 61643-11	IEC 61643-11
Ordering information		
Type	DPRO 230 TV	DPRO 230 SE TV
Part No.	909 300	909 305
Packing unit	1 pc(s).	1 pc(s).

COMBINED ADAPTERS

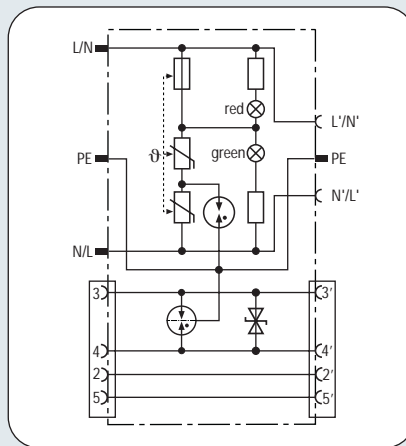
Protective adapter for NTBA/DSL splitter applications

Available from midyear 2008

NEW



Dimension drawing DPRO 230 NT



Protection for the data side:
Also suitable for digital interfaces due to low-capacitance circuit design



- Protection for a terminal telecommunication device with a modern design
- Includes accessories, suitable for RJ 11/12 connections and TAE connections (only for Part No. 909 310)
- For use according to the lightning protection zones concept at boundaries 2 – 3 and higher

Combined surge protection for power supply and data sides of digital network terminations. Also for use with telephone and fax systems. With visual operating state and fault indication.

Protection for the data side	DPRO 230 NT	DPRO 230 SE NT
SPD class	TYPE 2 P2	TYPE 2 P2
Max. continuous operating d.c. voltage U_c	180 V	180 V
C2 Nominal discharge current (8/20 μ s) per line C2 I_n	2.5 kA	2.5 kA
Voltage protection level line-line for I_n C2 U_p	≤ 300 V	≤ 300 V
Voltage protection level line-PE for I_n C2 U_p	≤ 500 V	≤ 500 V
Bandwidth line-line f_c	50 MHz	50 MHz
Operating temperature range	-25°C...+40°C	-25°C...+40°C
Degree of protection	IP 20	IP 20
Connection input / output	RJ12 socket / RJ12 socket	RJ12 socket / RJ12 socket
Pinning	3/4	3/4
Enclosure material	pure white thermoplastic, UL 94 V-2	pure white thermoplastic, UL 94 V-2
Test standards	IEC 61643-21	IEC 61643-21
Protection for the power supply side	DPRO 230 NT	DPRO 230 SE NT
SPD according to EN 61643-11	Type 3	Type 3
SPD according to IEC 61643-1	Class III	Class III
Nominal a.c. voltage U_N	230 V	230 V
Max. continuous operating a.c. voltage U_c	255 V	255 V
Nominal load current I_L	16 A	16 A
Nominal discharge current (8/20 μ s) L-N I_n	3 kA	3 kA
Nominal discharge current (8/20 μ s) L/N-PE I_n	5 kA [(L+N)-PE]	5 kA [(L+N)-PE]
Combined impulse (1.2/50 μ s - 8/20 μ s) L-N U_{oc}	6 kV	6 kV
Combined impulse (1.2/50 μ s - 8/20 μ s) L/N-PE U_{oc}	10 kV [(L+N)-PE]	10 kV [(L+N)-PE]
Voltage protection level L-N U_p	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level L/N-PE U_p	≤ 1.5 kV	≤ 1.5 kV
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 max. mains-side overcurrent protection	6 kA _{rms} a.c.	6 kA _{rms} a.c.
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_0 /200 ms	1200 V + U_0 /200 ms
Indication of disconnector / Operating state indication	red light / green light	red light / green light
For mounting on	plug-in system with earth contact DIN 49440/DIN 49441	centre earthing contact system according to CEE 7, standard sheet V
Test standards	IEC 61643-11	IEC 61643-11
Ordering information		
Type	DPRO 230 NT	DPRO 230 SE NT
Part No.	909 310	909 315
Packing unit	1 pc(s).	1 pc(s).

Protective adapter for ISDN/Ethernet applications

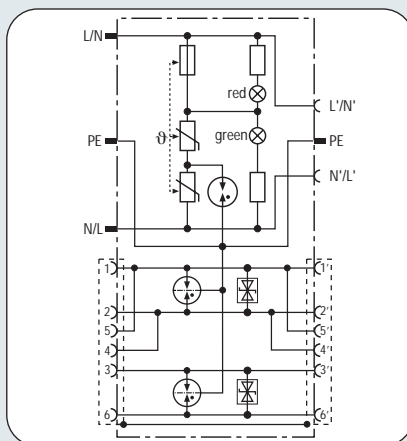
COMBINED ADAPTERS

Available from midyear 2008

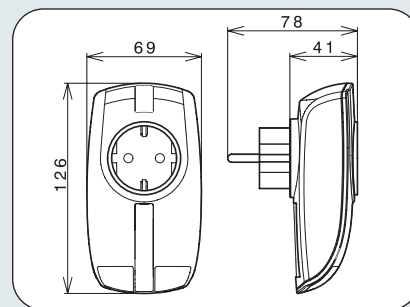
NEW



- Protection for ISDN or Ethernet applications in a modern design
- Shielded patch cable (1.5 m) included
- For use according to the lightning protection zones concept at boundaries 2 – 3 and higher



Protection for the data side:
Low-capacitance 4-wire protective circuit
for ISDN and Ethernet pin reservation.



Dimension drawing DPRO 230 LAN

Combined surge protection for power supply and ISDN S_0 side of ISDN devices and systems. Shielded port allows for protection of Ethernet 10 BT. With visual operating state and fault indication.

Protection for the data side	DPRO 230 LAN	DPRO 230 SE LAN
SPD class	TYPE 2 P1	TYPE 2 P1
Max. continuous operating d.c. voltage U_c	48 V	48 V
C2 Nominal discharge current (8/20 μ s) line-line I_n	120 A	120 A
C2 Nominal discharge current (8/20 μ s) line-PE I_n	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20 μ s) I_n	10 kA	10 kA
Voltage protection level line-line for I_n C2 U_p	≤ 100 V	≤ 100 V
Voltage protection level line-PE for I_n C2 U_p	≤ 500 V	≤ 500 V
Insertion loss for 100 MHz	≤ 3 dB	≤ 3 dB
Operating temperature range	-25°C...+40°C	-25°C...+40°C
Degree of protection	IP 20	IP 20
Connection input / output	RJ45 shielded socket / RJ45 shielded socket	RJ45 shielded socket / RJ45 shielded socket
Pinning	1(5)/2(4), 3/6	1(5)/2(4), 3/6
Enclosure material	pure white thermoplastic, UL 94 V-2	pure white thermoplastic, UL 94 V-2
Test standards	IEC 61643-21	IEC 61643-21
Protection for the power supply side	DPRO 230 LAN	DPRO 230 SE LAN
SPD according to EN 61643-11	Type 3	Type 3
SPD according to IEC 61643-1	Class III	Class III
Nominal a.c. voltage U_N	230 V	230 V
Max. continuous operating a.c. voltage U_c	255 V	255 V
Nominal load current I_L	16 A	16 A
Nominal discharge current (8/20 μ s) L-N I_n	3 kA	3 kA
Nominal discharge current (8/20 μ s) L/N-PE I_n	5 kA [(L+N)-PE]	5 kA [(L+N)-PE]
Combined impulse (1.2/50 μ s - 8/20 μ s) L-N U_{oc}	6 kV	6 kV
Combined impulse (1.2/50 μ s - 8/20 μ s) L/N-PE U_{oc}	10 kV [(L+N)-PE]	10 kV [(L+N)-PE]
Voltage protection level L-N U_p	≤ 1.25 kV	≤ 1.25 kV
Voltage protection level L/N-PE U_p	≤ 1.5 kV	≤ 1.5 kV
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 max. mains-side overcurrent protection	6 kA _{rms} a.c.	6 kA _{rms} a.c.
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_0 /200 ms	1200 V+ U_0 /200 ms
Indication of disconnecter / Operating state indication	red light / green light	red light / green light
For mounting on	plug-in system with earth contact DIN 49440/DIN 49441	centre earthing contact system according to CEE 7, standard sheet V
Test standards	IEC 61643-11	IEC 61643-11
Ordering information	DPRO 230 LAN	DPRO 230 SE LAN
Type	DPRO 230 LAN	DPRO 230 SE LAN
Part No.	909 320	909 325
Packing unit	1 pc(s).	1 pc(s).

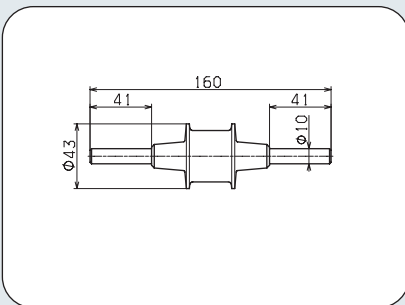


- For indirect connection/earthing of functionally separate parts of installations when being affected by lightning
- For use in correspondence with lightning equipotential bonding according to IEC 62305
- With corrosion-resistant stainless steel connections
- For mounting inside of buildings, outdoors, in damp rooms as well as for underground installation
- Extremely loadable devices

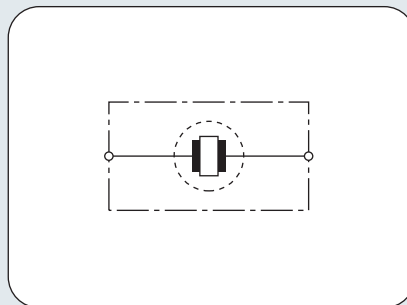
For lightning equipotential bonding according to IEC 62305 as well as for use in IT installations according to IEC 60364-5-54.

TFS: High-capacity isolating spark gap
 KFSU: Isolating spark gap

TFS / KFSU



Dimension drawing TFS / KFSU



Basic circuit diagram TFS / KFSU



TFS / KFSU: Isolating spark gaps with plastic coating and 2 connections (Rd 10 mm) made of stainless steel

	TFS	KFSU
Lightning impulse current (10/350 μs) I_{imp}	100 kA	—
Classification of lightning current carrying capability according to EN 50164-3	H	—
Nominal discharge current (8/20 μs) I_n	100 kA	100 kA
Rated power-frequency withstand voltage (50 Hz) $U_{W/AC}$	300 V	300 V
100% Lightning impulse sparkover voltage U_{rimp}	≤ 4 kV	≤ 4 kV
Power frequency sparkover voltage (50 Hz) U_{aw}	≤ 2.5 kV	≤ 2.5 kV
Operating temperature range T_U	-20°C...+80°C	-20°C...+80°C
Degree of protection	IP 65	IP 65
Length	160 mm	160 mm
Diameter of enclosure	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
Ordering information		
Type	TFS	KFSU
Part No.	923 023	923 021
Packing unit	1 pc(s).	1 pc(s).



ATEX-certified isolating spark gap for lightning equipotential bonding according to IEC 62305 with low sparkover voltage

- For indirect connection/earthing of functionally separate parts of installations when being affected by lightning
- Device for lightning equipotential bonding according to IEC 62305 in hazardous areas
- For bridging insulating pieces, insulating flanges etc. in cathodic protected pipe sections
- For safe application in explosion protection zone 1 (gases) or 21 (dust)
- Considerably low sparkover voltage
- Considerably high a.c. current withstand capability

EXFS 100: Isolating spark gap for use in hazardous areas with plastic coating and threaded M10 sockets

EXFS 100 KU: Isolating spark gap for use in hazardous areas with 2 m connecting cables for underground installation



Type examination certificate

The Ex isolating spark gaps of the EXFS 100 / EXFS 100 KU product family are used when conductive parts of installations situated in hazardous areas cannot be connected directly with each other.

The low sparkover voltages of the spark gaps have proved themselves for protection especially for separate installation parts with only low insulation resistance against each other.

No special regulations have to be observed for safe application in zone 1 with gas atmospheres or zone 21 with combustible dust.

With a tested maximum lightning impulse current of 100 kA (10/350 μs), EXFS 100 and EXFS 100 KU meet class H, i.e. the maximum class of lightning impulse current strength according to EN 50164-3 "Lightning Protection Components (LPC) - Part 3: Requirements for isolating spark gaps".

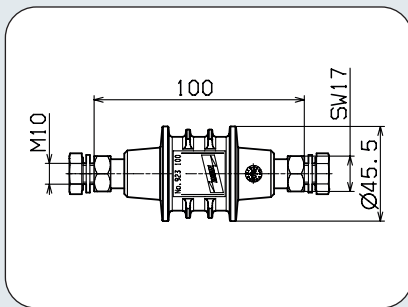
The ATEX-certified spark gaps EXFS 100 and EXFS 100 KU provide approved safety according to harmonised European standards.

For connecting EXFS 100 spark gaps, prewired connecting cables with different lengths are available as accessories.

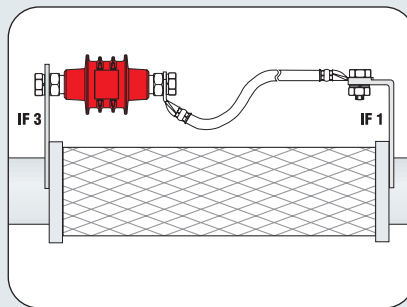
Flat and angled connection brackets (IF) make it easier to connect the spark gaps to pipe flanges.

EXFS 100 KU types are enclosed by a damp-proof plastic coating and can therefore be ideally used for underground installation for insulating couplings.





Dimension drawing EXFS 100



Installation of EXFS 100



NEW

EXFS 100: Isolating spark gap for use in hazardous zones with plastic coating and threaded M10 sockets

EXFS 100	
Lightning impulse current (10/350 μ s) I_{imp}	100 kA
Class of lightning impulse current strength according to EN 50164-3	H
Nominal discharge current (8/20 μ s) I_n	100 kA
Rated power-frequency withstand voltage (50 Hz) $U_{W/AC}$	250 V
100% Lightning impulse sparkover voltage U_{rimp}	≤ 1.25 kV
Power-frequency sparkover voltage (50 Hz) U_{aw}	≤ 0.5 kV
Rated discharge current (50 Hz) I_{max}	500 A / 0.5 sec. ($T_U: \leq 45^\circ C$)
(Ex) Marking according to EN 60079 (gas atmospheres)	Ex II 2G Ex d IIC T6
(Ex) Marking according to EN 61241 (combustible dust)	Ex II 2D Ex tD A21 IP67 T 80°C
Operating temperature range T_U	-20°C...+60°C
Degree of protection	IP 67
Approvals, Certifications	BVS 06 ATEX E 099
Length of enclosure	100 mm
Diameter of enclosure	45,5 mm
Enclosure material	plastic coating
Connection of enclosure	threaded M10 socket, 2x M10x25 mm, 2x spring washer
Ordering information	
Type	EXFS 100
Part No.	923 100
Packing unit	1 pc(s).

Accessory Part for EXFS 100

EXFS 100: Connecting cable, Cu 25 mm²

Connecting cable for EXFS 100;

2 x cable lug $\varnothing 10.5$ mm, hexagon screw and nut (M10), StSt (V2A) and spring washer

NEW

Type	Cable lug material	Cross section	Cable length	PU pc(s)	Part No.
AL EXFS L100 KS	Cu/gal Sn	25 mm ²	100 mm	1	923 025
AL EXFS L200 KS	Cu/gal Sn	25 mm ²	200 mm	1	923 035
AL EXFS L300 KS	Cu/gal Sn	25 mm ²	300 mm	1	923 045



Accessory Part for EXFS 100 / EXFS 100 KU

Pair of angled connection brackets – IF 1 –

Pair of angled connection brackets for EXFS ...;

Diameter corresponds to bolt diameter of the flange screw joint (allows for max. 60 mm for d1, please confirm the diameter required when placing your order)

Type	Material	PU pc(s)	Part No.
IF1	St/tZn	1	923 011



Pair of flat connection brackets – IF 3 –

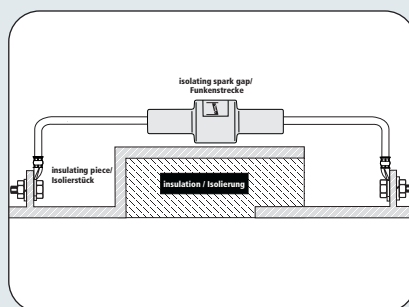
Pair of flat connection brackets for EXFS ...;

Diameter corresponds to bolt diameter of the flange screw joint (allows for max. 60 mm for d1, please confirm the diameter required when placing your order)

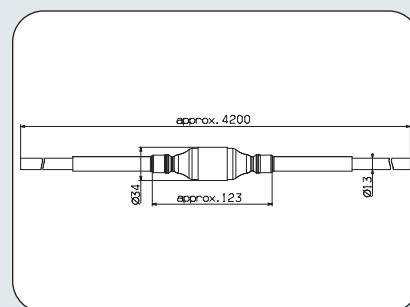
Type	Material	PU pc(s)	Part No.
IF3	St/tZn	1	923 016



NEW



Installation of EXFS 100 KU



Dimension drawing EXFS 100 KU

EXFS 100 KU: Ex isolating spark gap with connecting cable for aboveground and underground installation

EXFS 100 KU

Lightning impulse current (10/350 μ s) I_{imp}	100 kA
Class of lightning impulse current strength according to EN 50164-3	H
Nominal discharge current (8/20 μ s) I_n	100 kA
Rated power-frequency withstand voltage (50 Hz) $U_{W/AC}$	250 V
100% Lightning impulse sparkover voltage U_{rimp}	≤ 1.25 kV
Power-frequency sparkover voltage (50 Hz) U_{aw}	≤ 0.5 kV
Rated discharge current (50 Hz) I_{max}	500 A / 0.5 sec. ($T_U \leq 45^\circ\text{C}$)
(Ex) Marking according to EN 60079 (gas atmospheres)	Ex II 2G Ex d IIC T6
(Ex) Marking according to EN 61241 (combustible dust)	Ex II 2D Ex tD A21 IP 67 T 80°C
Operating temperature range T_U	-20°C...+60°C
Degree of protection	IP 67
Approvals, Certifications	BVS 06 ATEX E 099
Length of enclosure	123 mm
Diameter of enclosure	34 mm
Enclosure material	plastic coating; water-proof coating
Connection of enclosure	NYY-J-1x25 mm ² , approx. 2 m long

Ordering information

Type	EXFS 100 KU
Part No.	923 101
Packing unit	1 pc(s).



ATEX-certified isolating spark gap for lightning equipotential bonding according to IEC 62305, approved device with flexible conductor connection

- For indirect connection/earthing of functionally separate parts of installations when being affected by lightning
- Device for lightning equipotential bonding according to IEC 62305 in hazardous areas (Zone 2)
- Corresponds to "ATEX Directive" 94/9/EC
- Corrosion-resistant enclosure made of zinc die casting with plastic cover and flexible conductor connection
- For bridging insulating pieces, insulating flanges etc. in pipe sections with cathodic corrosion protection
- Highly loadable unit

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 1.5 m connecting cables for underground installation

The Ex isolating spark gaps of the EXFS L / EXFS KU product family are used for conductive parts of an installation which cannot be interconnected directly in hazardous areas. This affects, for example, pipe sections supplied with a cathodic corrosion protection system.

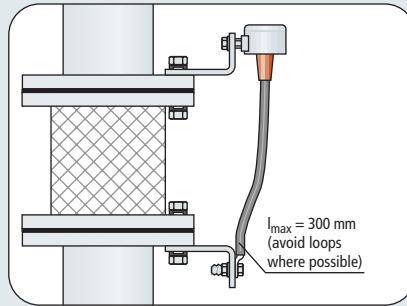
ATEX-certified EXFS L and EXFS KU spark gaps provide approved and tested safety in accordance with harmonised European standards.

The arc-resistant tungsten-copper electrodes ensure a long service life of the Ex spark gaps.

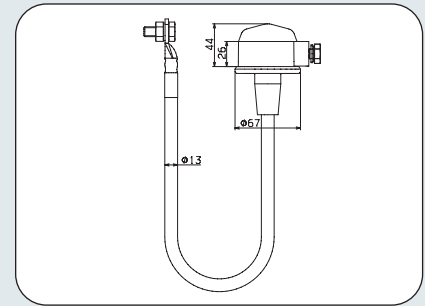
The approved type EXFS L with flexible conductor connection adjusts itself quickly to any application environment. The prewired spark gaps provide connecting cables with different lengths with cable lugs, M10 screws and nuts. The flat or angled connection brackets (IF), which are available as accessories, allow for easy connection of the spark gap to pipeline flanges.

Type EXFS KU is enclosed by a damp-proof PVC enclosure and can be ideally used for underground installation at insulating couplings.





Installation of EXFS



Dimension drawing EXFS

EXFS L ...: Ex isolating spark gap for aboveground installation

	EXFS L100	EXFS L200	EXFS L300
Lightning impulse current (10/350 µs) I_{imp}	50 kA	50 kA	50 kA
Classification of lightning current carrying capability according to EN 50164-3	N	N	N
Nominal discharge current (8/20 µs) I_n	100 kA	100 kA	100 kA
Rated power-frequency withstand voltage (50 Hz) $U_{W/AC}$	300 V	300 V	300 V
100% Lightning impulse sparkover voltage U_{rimp}	≤ 2.5 kV	≤ 2.5 kV	≤ 2.5 kV
Power frequency sparkover voltage (50 Hz) U_{aw}	≤ 1.2 kV	≤ 1.2 kV	≤ 1.2 kV
Type of protection according to EN 50014, EN 50021	⊕ Ex II 3 G EEx nC II T4	⊕ Ex II 3 G EEx nC II T4	⊕ Ex II 3 G EEx nC II T4
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
Approvals, Certifications	ZELM 03 ATEX 3192X	ZELM 03 ATEX 3192X	ZELM 03 ATEX 3192X
Length of enclosure	90 mm	90 mm	90 mm
Diameter of enclosure	63 mm	63 mm	63 mm
Enclosure material	zinc die casting, plastic	zinc die casting, plastic	zinc die casting, plastic
Connecting cable	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
Ordering information			
Type	EXFS L100	EXFS L200	EXFS L300
Part No.	923 060	923 061	923 062
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).

Accessory Part for EXFS L / EXFS KU

Pair of angled connection brackets – IF 1 –

Pair of angled connection brackets for EXFS ...;

Diameter corresponds to bolt diameter of the flange screw joint (allows for max. 60 mm for d1, please confirm the diameter required when placing your order)



Type	Material	PU pc(s)	Part No.
IF1	St/tZn	1	923 011

Accessory Part for EXFS L / EXFS KU

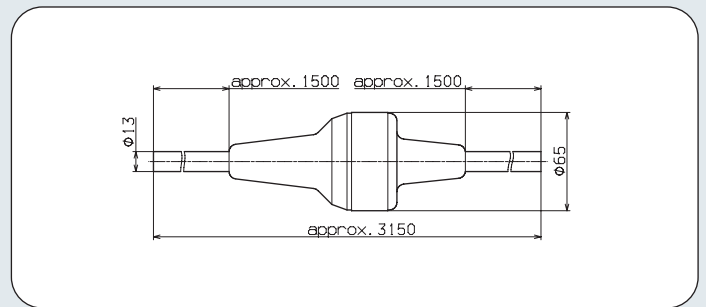
Pair of flat connection brackets – IF 3 –

Pair of flat connection brackets for EXFS ...;

Diameter corresponds to bolt diameter of the flange screw joint (allows for max. 60 mm for d1, please confirm the diameter required when placing your order)



Type	Material	PU pc(s)	Part No.
IF3	St/tZn	1	923 016



Dimension drawing EXFS KU

EXFS KU: Ex isolating spark gap with connecting cables for aboveground and underground installation

EXFS KU	
Lightning impulse current (10/350 μ s) I_{imp}	50 kA
Classification of lightning current carrying capability according to EN 50164-3	N
Nominal discharge current (8/20 μ s) I_n	100 kA
Rated power-frequency withstand voltage (50 Hz) $U_{W/AC}$	300 V
100% Lightning impulse sparkover voltage U_{rimp}	≤ 2.5 kV
Power frequency sparkover voltage (50 Hz) U_{aw}	≤ 1.2 kV
Type of protection according to EN 50014, EN 50021	Ex II 3 G EEx nC II T4
Operating temperature range T_U	-20°C...+80°C
Degree of protection	IP 67
Approvals, Certifications	ZELM 03 ATEX 3192X
Length of enclosure	90 mm
Diameter of enclosure	63 mm
Enclosure material	zinc die casting, plastic
Connecting cable	NYY-J-1x25 mm ²
Cable length	2 x approx. 1500 mm
Ordering information	
Type	EXFS KU
Part No.	923 019
Packing unit	1 pc(s).

For fixing at pipes installed in hazardous areas

- For use in potentially explosive areas, i.e. Ex zones 1 and 2 (gases, vapours, fog) and Ex zones 21 and 22 (dust)
- Tested according to explosion group IIB
- Considerable saving of time for installation – no more deactivation of the installation/zone required for welding or drilling work

Pipe clamp for use in hazardous areas from 1" to 3" and 3" to D = 300 mm.

Separate clamping element for continuous tightening strap (Part No. 540 901) from 1" to D = 300 mm.

So far, connections for equipotential bonding and lightning equipotential bonding in hazardous areas have often been welded or provided as threaded sockets. Using clamps was only permitted if their ignition-proofness had been verified before. DEHN + SÖHNE has now provided evidence of no ignition of a pipe clamp affected by lightning currents. By testing according to DIN EN 50164-1 (VDE 0185-201) (Requirements for connection components) in a potentially explosive atmosphere, no ignition of the test sample with a lightning current carrying capability up to 50 kA (10/350 µs) was verified. The design of this new pipe clamp takes



Pipe clamp for attaching to pipes in hazardous areas for lightning equipotential bonding according to EN 62305-3 (DIN VDE 0185-305-3)

- both a safe electrical contact by means of two contact clips into consideration as well as the mechanical fixation by an electrically insulated clamping element per clip. The pipe clamp can be attached by means of
- round conductors, Cu, St/tZn, Al, StSt with Ø8 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 Ø10.5 mm hole.



Attached to a StSt pipe

Accessory Part for Pipe Clamp for use in hazardous Areas



Tensioning strap

Continuous tensioning strap (100 m long)

Material	Strap dimension (l1 x w x d)	PU pc(s)	Part No.
StSt (V2A)	... x 25 x 0.3 mm	1	540 901

Pipe clamp for use in hazardous areas for ¾" to D = 300 mm



Pipe clamp for use in hazardous areas in zones 1 and 21;
Clamping ranges from ¾" to 3" and 3" to D=300 mm

Lightning impulse current (10/350 µs) for Cu I _{imp}	50 kA	50 kA
Lightning impulse current (10/350 µs) for St/tZn I _{imp}	50 kA	50 kA
Lightning impulse current (10/350 µs) for StSt I _{imp}	25 kA	50 kA
Lightning current carrying capability according to DIN EN 50164-1 (does not apply to StSt, 25 kA)	Class N	Class N
Pipe clamping range Ø	26.9-88.9 mm	88.9-300 mm
Clamping range	¾" – 3"	3" – Ø300 mm
Dimension of tightening strap (l1 x w x d)	410x25x0.3 mm	1100x25x0.3 mm
Clamping element material	polyamide	polyamide
Head/Strap material	StSt (V2A)	StSt (V2A)
Contact angle material	Cu/gal Sn	Cu/gal Sn
Ordering information		
Part No.	540 801	540 803
Packing unit	1 pc(s).	1 pc(s).

Separate clamping element for continuous tightening strap



Separate clamping element for combination with continuous tightening strap (Part No. 540 901) for use in hazardous zones 1 and 21; clamping range from ¾" to D=300 mm

Lightning impulse current (10/350 µs) for Cu I _{imp}	50 kA	
Lightning impulse current (10/350 µs) for St/tZn I _{imp}	50 kA	
Lightning impulse current (10/350 µs) for StSt I _{imp}	25 kA	
Lightning current carrying capability according to DIN EN 50164-1 (does not apply to StSt, 25 kA)	Class N	
Pipe clamping range Ø	max. 300 mm	
Clamping range	¾" – Ø300 mm	
Clamping element material	polyamide	
Head/Strap material	StSt (V2A)	
Contact angle material	Cu/gal Sn	
Ordering information		
Part No.	540 810	
Packing unit	1 pc(s).	

Voltage limiting device

ISOLATING SPARK GAPS

- Electrical isolation of insulated track sections and earthed parts of installations
- Safe equipotential bonding by heavy-current-resistant welding of the electrodes in case of a short circuit or earth fault at the overhead contact line
- Discharging of surges without generating short circuits due to lightning-resistant SDS ... voltage limiting device
- Short-circuit withstand capability
25 kA_{rms} / 100 ms; 36 kA_{rms} / 75 ms



SDS ...: SDS Spark gap unit, cylindrical design for supporting Siemens rail adapter No. 431.34

SDS ... NH00: SDS Spark gap unit for support in NH fuse holders, size 00

DIN EN 50122-1 defines the use of voltage limiting devices for d.c. and a.c. railways for so-called "open earthing of railways" for components of overhead contact lines and current collectors.

In order to prevent any upcoming of hazardous surges between the insulated rails or rail sections of electrical railways and earthed parts of the installation, voltage limiting devices (SDS ...) are used.

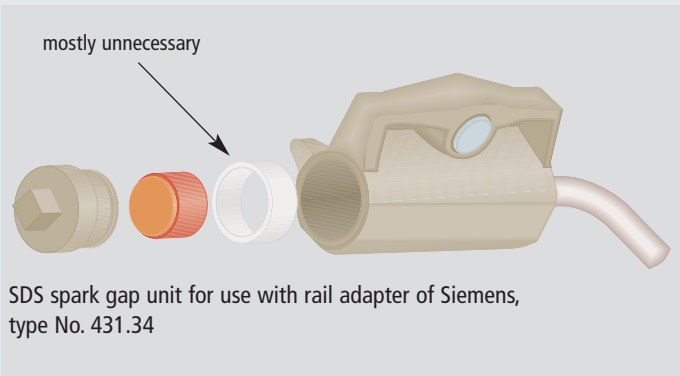
Their function is to connect parts of the installation in overhead contact lines and current collectors permanently with the return circuit, as soon as the threshold voltage is exceeded.

In case of atmospherical overvoltages, the lightning-resistant SDS ... voltage limiting device is capable of returning to the initial condition after discharging impulse currents. Only if the provided lightning current loads are exceeded, a permanent short circuit is initiated by heavy-current-resistant welding of the electrodes. Then, as a consequence, the fuse link has to be replaced.

The SDS voltage limiting device consists of a spark gap unit and the respective terminal set for direct connection with the rail or overhead contact line tower.

The spark gap unit type SDS 1, Part No. 923 110, developed by DEHN + SÖHNE, has also been approved by the German Federal Railway Authority (EBA).

Type SDS ... NH 00 is designed for installation into NH00 fuse holders or insulators. In connection with DEHNisola leakage current detecting device, the user can localise a short-circuited spark-gap unit quickly and easily.



SDS spark gap unit for use with rail adapter of Siemens, type No. 431.34



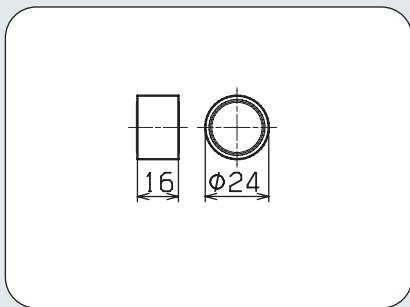
SDS 2 NH00 installed into a mains connection box with DEHNisola combined operating state monitoring device

LIGHTNING EQUIPOTENTIAL BONDING ISOLATING SPARK GAPS

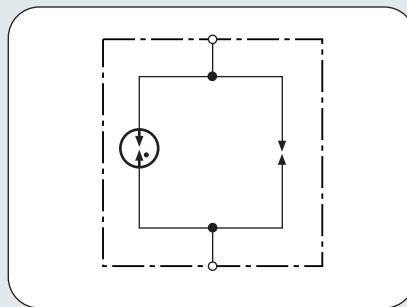
SDS

SDS ...

NEW



Dimension drawing SDS ...



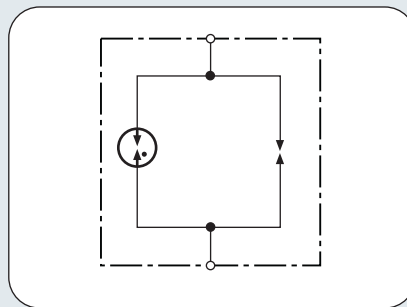
Basic circuit diagram SDS ...



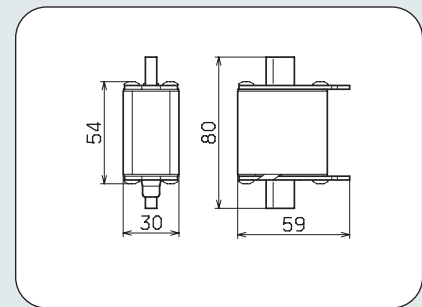
	SDS 1	SDS 2	SDS 3	SDS 4	SDS 5
Power frequency sparkover voltage U_{aw}	≤ 940 V	—	—	—	—
d.c. Sparkover voltage U_{ag}	600 V +/- 20 %	350 V +/- 20 %	550 V	230 V +/- 20 %	120 V +/- 20 %
Impulse sparkover voltage	≤ 1400 V (1 kV/μs)	≤ 900 V (1 kV/μs)	≤ 1000 V (1 kV/μs)	≤ 650 V (1 kV/μs)	≤ 600 V (1 kV/μs)
Self-extinguishing capability	300 A / 65 V	—	—	—	—
Lightning current discharge capacity (10/350 μs) 0.1; 0.5; 1 x I_{imp}	5 kA	2 kA	5 kA	3 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) 0.1; 0.5; 1 x	—	—	—	20 kA	20 kA
Safe short circuit due to welding of the electrodes for a.c. currents of 100 ms	≥ 1.5 kA / 1000 V / 100 ms	—	—	—	—
Safe short circuit due to welding of the electrodes for a.c. currents of 30 ms	≥ 2.5 kA / 1000 V / 30 ms	—	—	—	—
Safe short circuit due to welding of the electrodes for d.c. currents	≥ 750 A / 250 ms	≥ 600 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; 36 kA _{rms} / 75 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	1 kA _{rms} for t ≤ 120 s
Leakage current I_{lc}	< 1 μA for 100 V d.c.	< 1 μA for 100 V d.c.	< 1 μA for 100 V d.c.	< 1 μA for 100 V d.c.	< 1 μA for 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
For mounting on	allows for installation into voltage breakdown protector/rail adapter of SIEMENS No. 431.34				
Tightening torque of the fuse link in the busbar adapter	15 Nm	15 Nm	15 Nm	15 Nm	15 Nm
Approvals, Certifications	EBA	—	—	—	—
DB Drawing No.	4 Ebs 15.13.20 Blatt 2	—	—	—	—
Ordering information					
Type	SDS 1	SDS 2	SDS 3	SDS 4	SDS 5
Part No.	923 110	923 117	923 116	923 118	923 119
Packing unit	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).	10 pc(s).

SDS ... in NH 00 enclosure

NEW



Basic circuit diagram SDS ... NH00



Dimension drawing SDS ... NH00

	SDS 2 NH00	SDS 4 NH00	SDS 5 NH00
d.c. Sparkover voltage U_{ag}	350 V +/- 20 %	230 V +/- 20 %	120 V +/- 20 %
Impulse sparkover voltage	≤ 900 V (1 kV/ μ s)	≤ 650 V (1 kV/ μ s)	≤ 600 V (1 kV/ μ s)
Lightning current discharge capacity (10/350 μ s) 0.1; 0.5; 1x I_{imp}	2 kA	3 kA	2 kA
Lightning current withstand capability (10/350 μ s)	25 kA	25 kA	25 kA
Safe short circuit due to welding of the electrodes for d.c. currents	≥ 600 A / 250 ms	≥ 600 A / 250 ms	≥ 600 A / 250 ms
Short circuit withstand capability	10 kA / 50 ms	10 kA / 50 ms	10 kA / 50 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
Leakage current I_{lc}	< 1 μ A for 100 V d.c.	< 1 μ A for 100 V d.c.	< 1 μ A for 100 V d.c.
Operating temperature range T_U	-40°C...+80°C	-40°C...+80°C	-40°C...+80°C
For mounting on	NH fuse holder, size 00	NH fuse holder, size 00	NH fuse holder, size 00
Enclosure material	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0	red thermoplastic, UL 94 V-0
Min. degree of protection for enclosures	IP 54	IP 54	IP 54
Ordering information			
Type	SDS 2 NH00	SDS 4 NH00	SDS 5 NH00
Part No.	923 123	923 126	923 127
Packing unit	1 pc(s).	1 pc(s).	1 pc(s).

Equipotential Bonding Bars

K 12 Equipotential bonding bars with snap-on terminals

For main equipotential bonding according to DIN VDE 0100 Part 410/540 and lightning equipotential bonding according to EN 62305-3 (DIN VDE 0185-305-3)
Type K12 with 12 contact studs:
10 terminals for Rd 2.5 – 95 mm² conductors or
10 terminals for Rd 10 mm conductors and 1 terminal for FI -30x4 mm conductors

Type	Contact bar	Cross section	PU pc(s)	Part No.
PAS 11AK	Cu/gal Sn	30 mm ²	1	563 200



K 12 Equipotential bonding bars with snap-on terminals UV-stabilised device

UV-stabilised device

Type	Contact bar	Cross section	PU pc(s)	Part No.
PAS 11AK UV	Cu/gal Sn	30 mm ²	1	563 201



Accessories – Snap-on terminal for FI 40 conductors

Type	Connections FI mm	Material	Reservation of contact studs	PU pc(s)	Part No.
AK FL40 PAS	1x -40x5	St/gal Zn	3	50	563 222



MS Equipotential bonding bars

For main equipotential bonding according to DIN VDE 0100 Part 410/540
Connections for
7 Rd conductors 2.5 – 16 mm²
1 Rd conductor 7 – 10 mm
1 FI conductor -30x3.5 mm or Rd conductor 8 – 10 mm

Type	Contact bar	Cross section	PU pc(s)	Part No.
PAS 9AK	MS	50 mm ²	1	563 050



R15 Equipotential bonding bars with terminal block system

For main equipotential bonding according to DIN VDE 0100 Part 410/540 and lightning equipotential bonding according to EN 62305-3 (DIN VDE 0185-305-3)

Type A:
7 terminal blocks for Rd conductors 2.5 – 16 mm²
2 terminal blocks for Rd conductors 16 – 95 mm² or Rd conductors 8 – 10 mm
1 terminal block FI -30x4 mm

Type	Clamping bar	Cross section	PU pc(s)	Part No.
PAS 10RK	Ms/gal Sn	100 mm ²	1	563 010



Type B:
5 terminal blocks for Rd conductors 2.5 – 16 mm²
3 terminal blocks for Rd conductors 16 – 95 mm² or Rd conductors 8 – 10 mm
1 terminal block FI -30x4 mm

Type	Clamping bar	Cross section	PU pc(s)	Part No.
PAS 9RK	Ms/gal Sn	100 mm ²	1	563 020



Type C:
13 terminal blocks for Rd conductors 2.5 – 16 mm²
1 terminal block for Rd conductors 16 – 95 mm² or Rd conductors 8 – 10 mm

Type	Clamping bar	Cross section	PU pc(s)	Part No.
PAS 14RK	Ms/gal Sn	100 mm ²	1	563 030



Accessories / Construction Kit

Terminal blocks

Up to 16 mm²

Type	Material	Connection	Modules	PU pc(s)	Part No.
RK 16 PAS	StSt (V2A)- St/gal Zn	2.5-16 mm ²	1	200	563 011



Terminal blocks

Up to 95 mm² or Rd 8-10 mm

Type	Material	Connection	Modules	PU pc(s)	Part No.
RK 95 PAS	St/gal Zn	16-95 mm ²	2	100	563 013



Terminal blocks

Flat conductor 30 mm

Type	Material	Connection	Modules	PU pc(s)	Part No.
RK FL30 PAS	St/gal Zn	-30x4 mm ²	4	25	563 012



Terminal blocks

Flat conductor 40 mm

Type	Material	Connection	Modules	PU pc(s)	Part No.
RK FL40 PAS	St/gal Zn	-40x5 mm ²	5	25	563 019



Clamping bar

Type	Material	Length	PU Modules	Part pc(s)	No.
KS 198 PAS	MS/gal Sn	198 mm	15	10	563 016
KS 398 PAS	MS/gal Sn	398 mm	30	10	563 017
KS 798 PAS	MS/gal Sn	798 mm	60	10	563 018



Bar frame

Type	Material	Fixing holes	PU pc(s)	Part No.
SB PAS RK	plastic	6x4 mm	50	563 014



Covers

Snap-on devices

Type	Material	Modules	PU pc(s)	Part No.
AH PAS RK	plastic	15	10	563 015



Note: Our complete product range for earthing and equipotential bonding can be taken from our current Lightning Protection catalogue, which, of course, can also be requested from Export Department.

Equipotential Bonding Bars with terminal block system

Equipotential bonding bars with miniature/terminal block system

For main equipotential bonding according to DIN VDE 0100 Part 410/540 in small-sized installations
Miniature unit: For surface mounting without cover



Type	Clamping bar	Connections	Cross section	PU pc(s)	Part No.
PAS 6RK OH	Ms/gal Sn	6 x 2.5-16 mm ²	100 mm ²	10	563 105



For flush mounting: In box with plastic cover, white (sealable)

Type	Clamping bar	Connections	Cross section	PU pc(s)	Part No.
PAS 7RK UP	Ms/gal Sn	7 x 2.5-16 mm ²	100 mm ²	5	563 103

Equipotential Bonding Bars Industry

Equipotential bonding bars for industrial installations

For main equipotential bonding according to DIN VDE 0100 Part 410/540 and lightning equipotential bonding according to EN 62305-3 (DIN VDE 0185-305-3)

Also for use in hazardous zones (screws protected against self-loosening)

6 connections with insulators

Type	Material	Dimension (l x w x d)	Cross section	PU pc(s)	Part No.
PAS I 6AP M10 CU	Cu	295x40x5 mm	200 mm ²	1	472 207
PAS I 6AP M10 V2A	StSt (V2A)	295x40x6 mm	240 mm ²	1	472 209



8 connections with insulators

Type	Material	Dimension (l x w x d)	Cross section	PU pc(s)	Part No.
PAS I 8AP M10 CU	Cu	365x40x5 mm	200 mm ²	1	472 227
PAS I 8AP M10 V2A	StSt (V2A)	365x40x6 mm	240 mm ²	1	472 229



10 connections with insulators

Type	Material	Dimension (l x w x d)	Cross section	PU pc(s)	Part No.
PAS I 10AP M10 CU	Cu	435x40x5 mm	200 mm ²	1	472 217
PAS I 10AP M10 V2A	StSt (V2A)	435x40x6 mm	240 mm ²	1	472 219



12 connections with insulators

Type	Material	Dimension (l x w x d)	Cross section	PU pc(s)	Part No.
PAS I 12AP M10 CU	Cu	505x40x5 mm	200 mm ²	1	472 237
PAS I 12AP M10 V2A	StSt (V2A)	505x40x6 mm	240 mm ²	1	472 239



8 connections with terminal holes Ø13 mm, without insulators

Type	Material	Dimension (l x w x d)	Cross section	PU pc(s)	Part No.
PAS BW 8AP M10 CU	Cu	500x40x5 mm	200 mm ²	1	472 257



Accessories – Covers for EBB (Industry)

Covers for EBB with insulators

Type	Screw/Nut material	EB type	Dimension (l x w x d)	PU pc(s)	Part No.
AD PAS 6AP V2A	StSt (V2A)	6 connections	301x60x0.8 mm	1	472 279
AD PAS 8AP V2A	StSt (V2A)	8 connections	371x60x0.8 mm	1	472 269
AD PAS 10AP V2A	StSt (V2A)	10 connections	441x60x0.8 mm	1	472 289
AD PAS 12AP V2A	StSt (V2A)	12 connections	511x60x0.8 mm	1	472 299



Accessory – Fixing Set for EBB (Industry)

Type	Screw material	Screw type	Plastic dowel	PU pc(s)	Part No.
BS M10 PAS	St/tZn	45 mm	M10x20 mm	Ø 12x60 mm	1 472 201



Accessory – Insulator for EBB (Industry)

Type	Terminal thread	Dimension (d x h)	PU pc(s)	Part No.
IS PAS M10	M10	32x40 mm	1	472 210



Note: Our complete product range for earthing and equipotential bonding can be taken from our current Lightning Protection catalogue, which, of course, can also be requested from Export Department.

Earthing Busbars

Earthing busbars

For screwing or welding at steel structures

2x2 connections

Type	Material	Dimension (l x w x d)	Cross section	PU pc(s)	Part No.
PAS 2AP 10 ST	St/tZn	196x60x4 mm	240 mm ²	1	472 023
PAS 2AP 10 V2A	StSt (V2A)	196x60x5 mm	300 mm ²	1	472 109



2x3 connections

Type	Material	Dimension (l x w x d)	Cross section	PU pc(s)	Part No.
PAS 3AP 10 ST	St/tZn	242x60x4 mm	240 mm ²	1	472 022
PAS 3AP 10 V2A	StSt (V2A)	242x60x5 mm	300 mm ²	1	472 119



2x4 connections

Type	Material	Dimension (l x w x d)	Cross section	PU pc(s)	Part No.
PAS 4AP 10 ST	St/tZn	293x60x4 mm	240 mm ²	1	472 024
PAS 4AP 10 V2A	StSt (V2A)	293x60x5 mm	300 mm ²	1	472 129



2x6 connections

Type	Material	Dimension (l x w x d)	Cross section	PU pc(s)	Part No.
PAS 6AP 10 ST	St/tZn	393x60x4 mm	240 mm ²	1	472 021
PAS 6AP 10 V2A	StSt (V2A)	393x60x5 mm	300 mm ²	1	472 139



Components for foundation earthing electrodes

Distance holder

For installing earth conductors into the foundation level, includes safety device against loosening of the conductor Reinforced angled device

Type	Material	Support Fl	Support Rd	PU pc(s)	Part No.
AH FE RF V G	St/tZn	40 mm	8-10 mm	25	290 001



Straight unit

Type	Material	Support Fl	Support Rd	PU pc(s)	Part No.
AH FE RF	St/tZn	40 mm	8-10 mm	50	290 002



Wedge connector

For T-, cross and parallel connections for use in concrete foundations

With lock-in position in the wedge

Type	Material	Clamping range		PU pc(s)	Part No.
		Rd / Fl	Fl / Fl		
KV FE UNI	St/tZn *	10 /	30x3.5-40x4 /	25	308 001
		30x3.5-40x4 mm	30x3.5-40x4 mm		



* tested with 50 Hz currents

Expansion strap for foundation earthing electrodes

For leading the foundation earthing electrode in expansive foundations (several sections) through the expansion or isolating joints, without requiring the leading of the earthing electrode out of the base plate.

Strap material	Dimension (l x w x d)	Block material	PU pc(s)	Part No.
StSt (V2A)	approx. 700x30x(4x1) mm	styrene	1	308 150



Expansion straps

For compensating expansion joints outside of the concrete when installing foundation earthing electrodes, with flat washers and spring washer

Type	Material	Dimension (l x w x t)	PU pc(s)	Part No.
DB FE 235 AL	Al	235x45x5 mm	25	308 050



Note: Our complete product range for earthing and equipotential bonding can be taken from our current Lightning Protection catalogue, which, of course, can also be requested from Export Department.

Connecting Clamps

Connecting clamps

For building reinforcements, for connecting reinforced concrete mats or reinforcements with round and flat conductors
Arrangement: (II) = parallel (+) = cross
For T-, cross and parallel connections



Type	Material	Clamping range			PU pc(s)	Part No.
		Rd / Rd	Rd / Fl	Fl / Fl		
VK A UNI ST	St/tZn *	(+) 6-10 / 6-10 mm	(+) 6-10 / 30 mm	(II) 30 / 30 mm	50	308 025

For T-, cross and parallel connections



Type	Material	Clamping range		PU pc(s)	Part No.
		Rd / Fl	Fl / Fl		
VK A UNI V2 ST	St/tZn *	(+) 6-10 / 30 mm	(+/II) 30 / 30 mm	25	308 026

* tested with 50 Hz currents

For T- and cross connections



Type	Material	Clamping range Rd / Fl	PU pc(s)	Part No.

Maxi MV clamps for T-, cross and parallel connections



Type	Material	Clamping range Rd / Rd	PU pc(s)	Part No.
MMVK R16 R25 STBL	St/bare	(+/II) 8-16 / 15-25 mm	20	308 040

For T-, cross and parallel connections, no threading of the conductors required



Type	Material	Clamping range mm		PU pc(s)	Part No.
		Rd / Fl	Fl / Fl		
VK EH R10 F30 ST	St/tZn	(+) 10 / 30	(+/II) 30 / 30	25	308 120
VK EH R10 F30 V2A	StSt (V2A)	(+) 10 / 30	(+/II) 30 / 30	25	308 129

Components for ring equipotential bonding

Support for tape conductors with pressure plate

For wall mounting with M8 screw
For flat strip up to 6 mm



Type	CH material	Pressure plate/ Screw material	PU pc(s)	Part No.
FBH 6 ST	St/tZn	StSt (V2A)	25	277 230
FBH 6 CU	Cu	StSt (V2A)	25	277 237
FBH 6 V2A	StSt (V2A)	StSt (V2A)	25	277 239

For flat strip up to 11 mm



Type	CH material	Pressure plate/ Screw material	PU pc(s)	Part No.
FBH 11 CU	Cu	StSt (V2A)	25	277 247

Terminals

For universal connection with the ring equipotential bonding for St/tZn, copper or stainless steel (StSt)



Type	Material	CH Rd / Fl	Cross-sectional area	PU pc(s)	Part No.
AK RPA V2A	StSt (V2A)	8-10 / 30 mm	2.5-95 mm ²	50	563 169

Note: Our complete product range for earthing and equipotential bonding can be taken from our current Lightning Protection catalogue, which, of course, can also be requested from Export Department.



- Device for condition-based monitoring of SPDs with LifeCheck function
- Small dimension and minimum wiring requirements
- One DRC can monitor up to 10 BXT devices, i.e. max. 40 signal lines

Space-saving rail-mountable device with minimum wiring requirements for condition-based monitoring of up to 10 programmed SPDs type BXT with integrated LifeCheck monitoring circuit. A fault signal is generated visually and by means of a remote signalling contact already in case of a risk of prospective overloads on the SPD.

The SPDs can be programmed by means of a PC with an interface converter to RS 485 (not included in delivery) and the delivered terminal software or with DRC LC M3 (current version from April 2008). DRC MCM has a small power input and wide operating voltage range for universal use. Like an early warning system, the device generates an interference signal already in case of a prospective overload on the SPD, indicates it with the integrated 3-colour LED and transmits it via one of the two integrated fault signalling contacts. A failure of the monitoring device, e.g. due to a voltage power failure, will also be signalled via the remote signalling contacts.

The Show function integrated into the DRC MCM device allows for operating state indication of damaged SPDs. When using several Condition Monitoring units in one switchgear cabinet, these are connected by the integrated RS 485 interfaces in order to synchronise the monitoring cycles. Up to 15 DRC MCM devices can be connected to the RS 485 bus, spread over a bus length of max. 1000 m. Furthermore, the bus basically allows the user to "listen" in bus telegrams and convert these to a visualised operating state indication of the individual SPDs – For more details, please do not hesitate to contact us.



Being a 2-part device, DRC MCM allows for easy application. The configuration of the electronic module can be changed any time without interfering with the wiring levels.



Often required operating elements such as the 3-coloured LED for indicating operating states and the 3-way operating key are situated on the front of the module to ensure easy access. Unfrequently used operating elements were intentionally placed sideways on the module.



The bus addresses of the monitoring device requested and the number of SPDs to be monitored can be set by means of a DIP switch.



To ensure an optimal bus transmission, a bus terminator is already integrated into DRC MCM and can be activated by means of a plug-in jumper.

DRC MCM XT

NEW



The DRC MCM XT Status Display software is an example for PC-aided operating state indication of SPDs to be monitored.



Operating states, for example, can be enquired from the DRC MCM XT Service Console software by means of an interface converter.

DIN rail mountable device with integrated LifeCheck sensor for condition based monitoring of max. 10 BXT devices with LifeCheck. Visual SPD operating state indication combined with remote signalling device. Selectable break or make contact. BXT devices to be controlled can be programmed by means of DRC MCM via PC and common RS 485 adapter, or with DRC LC M3.

DRC MCM XT

For testing	up to 10 BLITZDUCTOR XT ML
	max. 10 BLITZDUCTOR XT ML EX; for use in non-hazardous atmospheres only! Observe thread measure!
Operating elements	multiway button, DIP switch
Indicator element	3-coloured LED (green, orange, red)
Input d.c. voltage range U_{IN}	18...48 V
Max. nominal current input I_{IN}	100 mA
RFID transmission frequency	125 kHz
Message: Replacing of SPD recommended	LED, remote signalling contact
Test cycle	continuous
Operating temperature range for monitoring 10 BXT devices	-20°C...+60°C
Operating temperature range for monitoring 8 BXT devices	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rail according to EN 60715
Connection	screw
Cross-sectional area, solid	0.08 - 4 mm ²
Cross-sectional area, 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
Type of remote signalling contact	break and make contact
Switching capacity d.c.	350 V/0.1 A
Switching capacity a.c.	250 V/0.7 A
Delivery includes	terminal software and numbering plates

Ordering information

Type	DRC MCM XT
Part No.	910 695
Packing unit	1 pc(s).



- RFID reader for testing SPDs with LifeCheck
- Very easy and considerably economical application
- Installation remains protected during the testing procedure

For quick and non-contact checking of SPDs with integrated LifeCheck monitoring circuit. If the RFID chip is recognised in the SPD module, a signal is generated. If the check-back signal of the RFID transmitting circuit within the SPD is not activated, the SPD has to be replaced.

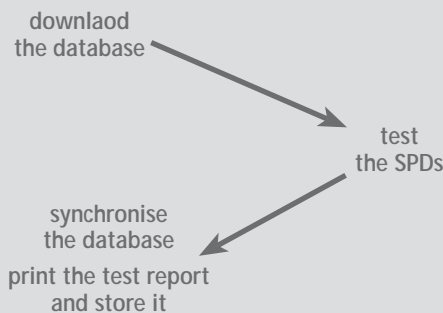
The RFID reader type DRC LC is designed for quick and non-contact testing of SPDs with integrated LifeCheck control circuit. As the SPDs have not to be removed during the testing procedure, the installation is still being completely protected. If DRC LC identifies the RFID chip in the SPD

module, it generates a signal. If the check-back signal of the RFID transmitting circuit within the SPD is not activated, it has to be assumed that the SPD was damaged. The SPD was overloaded and has therefore to be replaced.



Opposite to common test devices, DRC LC M... has not to be sent regularly to the manufacturer for calibration. To ensure that the device works properly, it has to be simply tested with the enclosed reference module. If the module is recognised, the test unit is alright.

DRC LC with reference test module



Test scheme with DRC LC M3



Testing SPDs with LifeCheck by means of a database can be easily performed. Up to 4 databases can be loaded on the hand-held reader at the

same time. After testing the SPDs on site, the original data base is matched with the data of DRC LC M3 and printed or stored for filing purposes.

DRC LC M2



- For quick testing of the SPDs with LifeCheck
- Visual and acoustic "OK" indication by LifeCheck
- Hand-held device, easy to transport and operate

Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication of identified LifeCheck circuits in SPDs. For safe positioning on the SPD modules, the adapted LifeCheck sensor is designed as a C shape. The enclosed test module can be used as a testing reference and has to be identified by DRC LC M2.

DRC LC M2

For testing	BLITZDUCTOR XT ML
	BLITZDUCTOR XT ML EX; for use in non-hazardous atmospheres only!
Battery supply (included in delivery)	Li-ion accumulator
RFID transmission frequency	125 kHz
Measured value indication	beeping tone and LCD
Testing period	typically 3 sec.
Operating temperature range	-10°C...+65°C
Battery test	automatical switch-off in case of low accumulator
Cable length to LifeCheck sensor	approx. 1000 mm
Dimension of LifeCheck sensor	90 x 51 x 12 mm
Dimension of test device	166 x 95 x 30 mm
Delivery includes	hand-held device, LifeCheck sensor BXT, charging device, test module for reference, storage case, USB cable
Dimension of storage case	340 x 275 x 83 mm

Ordering information	
Type	DRC LC M2
Part No.	910 651
Packing unit	1 pc(s).

Accessory Part for LifeCheck® SPD Test Device

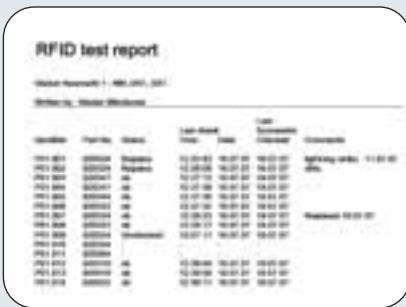
NEW

LifeCheck sensor for DRC LC M

LifeCheck sensor with test module for use as spare part or extension for hand-held LifeCheck test devices.



Type	For testing	PU pc(s)	Part No.
LCS DRC BXT	BLITZDUCTOR XT ML	1	910 652
LCS DRC BCT	BLITZDUCTOR CT MLC	1	910 654



Test reports can be printed in a second by means of the Print function.



The contents of the database can also be imported and exported in MS Excel.



Portable device with LifeCheck sensor for flexible use. Provides visual and acoustic "OK" indication for identified LifeCheck circuits in SPDs. With additional USB connection for PC-aided administration of test samples and documentation of the test results. DRC LC M3 can save the date of the last test on BXT and helps to program the same for DRC MCM XT Condition Monitoring System.

- Immediate visual and acoustic "OK" indication by LifeCheck
- PC-aided project management and documentation
- Hand-held device, allows for easy transport and operation

DRC LC M3	
For testing	BLITZDUCTOR XT ML
	BLITZDUCTOR XT ML EX; for use in non-hazardous atmospheres only!
Battery supply (included in delivery)	Li-ion accumulator
RFID transmission frequency	125 kHz
Measured value indication	beeping tone and LCD
Testing period	typically 3 to 10 sec.
Operating temperature range	-10°C...+65°C
Battery test	automatic switch-off in case of low accumulator
Cable length to LifeCheck sensor	approx. 1000 mm
Dimension of LifeCheck sensor	90 x 51 x 12 mm
Dimension of test device	166 x 95 x 30 mm
Delivery includes	hand-held device, LifeCheck sensor BXT, charging device, test module for reference, storage case, software CD, USB cable
Dimension of storage case	340 x 275 x 83 mm
Ordering information	
Type	DRC LC M3
Part No.	910 653
Packing unit	1 pc(s).

Accessory Part for LifeCheck® SPD Test Device

LifeCheck sensor for DRC LC M

LifeCheck sensor with test module for use as spare part or extension for hand-held LifeCheck test devices.

Type	For testing	PU pc(s)	Part No.
LCS DRC BXT	BLITZDUCTOR XT ML	1	910 652
LCS DRC BCT	BLITZDUCTOR CT MLC	1	910 654



- For routine tests of surge protective devices
- Compact dimension
- Suitable for mains and battery supply
- Low-battery indication
- Test cables included in delivery
- Test adapter included as accessory part, protected against accidental contact



For testing the sparkover voltage of surge arresters. The sample to be tested is connected with the included test cables or special test adapters.

The PM 20 SPD test device with integrated sparkover detection allows to test Yellow/Line or Red/Line surge arresters with integrated varistor technology, zener-diode technology or gas discharge technology. Both the response performance between the connections of the SPDs as well as the continuity can be tested. The results can be compared to reference values. In case of differences in values, the SPD or SPD module has to be replaced. Test adapters with a corresponding support make testing of the SPD modules easier.



Delivery of PM20 SPD test device



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 handling and flexible use
- For use with PA BXT and PA DRL test adapters

PM 20	
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, LCD 8-digit
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 cables, each 1 m long, 2 safety tapping test clips, 1 plug-in power supply unit 230 V a.c., 1 storage bag
Dimension of storage bag	300x 110 x 110 mm
Ordering information	
Type	PM 20
Part No.	910 511
Packing unit	1 pc(s).

Accessory Part for SPD Test Device

PA DRL test adapter

For connecting to PM 10 / PM 20 and for plugging and testing SPD modules

Type	Plug-in SPD modules	PU pc(s)	Part No.
PA DRL	DEHNrapid LSA and DPL	1	910 507



Accessory Part for SPD Test Device

PA BXT test adapter

For connecting to PM 10 / PM 20 and for plugging and testing SPD modules

Type	Plug-in SPD modules	PU pc(s)	Part No.
PA BXT	BLITZDUCTOR XT and BLITZDUCTOR CT	1	910 508



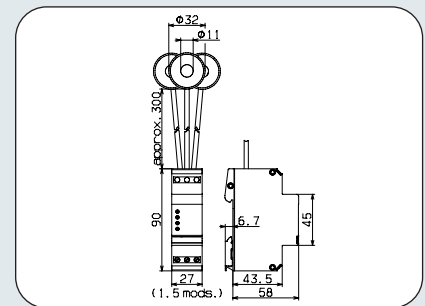
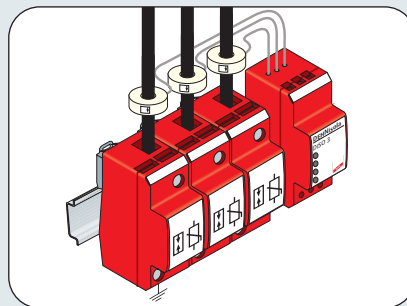
SPD monitoring device

- SPD monitoring device for potential-free measuring of leakage currents of surge arresters
- Measuring and evaluation device with DIN rail mountable enclosure (1.5 mods.)
- 3 hard-wired winding-type transformers
- Self-test and reset function
- Battery supply
- 2 limit values for the leakage currents to be monitored
- LED indication on site and remote signalling contact



DEHNisola: Measuring and evaluation device with 3 hard-wired winding-type transformers and fixing material

Continuous function test of installed lightning current and surge arresters by DEHNisola monitoring device.



DISO 3: Measuring and evaluation device with 3 transformers

Dimension drawing DISO 3

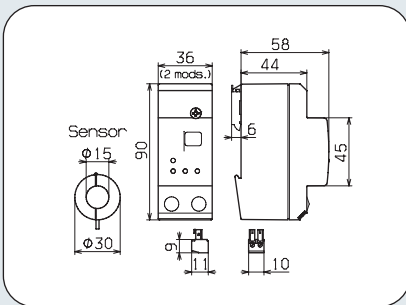
DISO 3	
Indication of limit value 1 I_L	0.5 mA _{rms} (indication only on site, will be reset when the value falls below)
Indication of limit value 2 I_L	5 mA _{rms} (indication on site and remote signalling, will be reset only by pushing the reset button at the device)
Measuring cycle	every hour or acyclically after every discharge of the protective device to be monitored
Self-test	generation of fault currents in each sensor for testing the measuring unit, "reset" > 2 sec.
Battery supply	service life: approx. 10 years, LowBatt indication and remote signalling
Remote signalling contact: Max. a.c. switching voltage	125 V
Remote signalling contact: Max. d.c. switching voltage	110 V
Remote signalling contact: Max. switching capacity	30 W
Remote signalling contact: Max. switching current	1 A
Remote signalling contact: Cross-sectional area	0.5 to 4 mm ²
Operating temperature range	-25°C...+60°C
For mounting on	35 mm DIN rail according to EN 60715
Enclosure material of measuring and evaluation device	red thermoplastic, UL 94 V-0
Degree of protection of measuring and evaluation device	IP 20
Dimension of measuring and evaluation device	1.5 mods., DIN 43880
Dimension of sensors	inner Ø11 mm, outer Ø33 mm
Length of the sensor lines	300 mm each
Weight	0.23 kg
Ordering information	
Type	DISO 3
Part No.	910 600
Packing unit	1 pc(s).



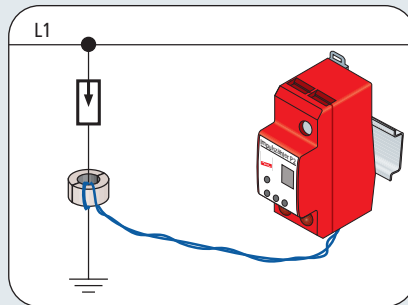
- Potential-free registration of discharge currents of surge protective devices
- Easy installation by enclosing the earth conductor of the arrester with an open toroidal core
- Counter in a DIN rail mountable enclosure (2 mods.)
- Twisted sensor cable, 1 m long

P2 Impulse Meter: Counter, sensor cable and toroidal core with fixing material

Counter with integrated battery supply (9 V) and battery charge control. Indication by 2-digit LCD display with setting and resetting buttons.



Dimension drawing P2



P 2	
Response wave for impulse currents (rise time $\geq 8 \mu\text{s}$)	> 1 kA
Sequence of impulses	> 1 s
LCD indicator	electronic meter 0...99
Power supply	Battery 9 V, IEC 6LR61 included in delivery, replaceable, service life > 1 year
Battery charge control	button and LED situated at device
Setting device	button at device for setting the meter reading (e.g. after replacing a battery)
Resetting device	button at device for resetting the meter reading to 0
Operating temperature range	-10°C...+50°C
For mounting on	35 mm DIN rail according to EN 60715
Enclosure material (meter)	red thermoplastic, UL 94 V-0
Enclosure material (sensor)	PA 6, grey colour
Degree of protection	IP 20
Dimension (meter)	2 mods., DIN 43880
Dimension: Sensor	inner \varnothing 15 mm, outer \varnothing 36 mm
Length of the connecting cable (sensor to meter)	max. 1 m, twisted
Weight (meter, sensor and connecting cable)	0.2 kg
Accessories included in delivery	battery 9 V, IEC 6LR61; cable tie (fixing of sensors)
Ordering information	
Type	P 2
Part No.	910 502
Packing unit	1 pc(s).



Publications

- DS103 DEHN protects Wind Turbines.
DS104 DEHN protects Cell Sites.
DS107 Surge Protection: Safety for Sewage Plants.
DS109 DEHN protects Photovoltaic Systems.
DS113 DEHN tests and analyses.
DS122 DEHN protects the Oil and Gas Industry.
DS125 DEHN protects Medium Voltage Systems.
DS137 DEHN protects Antenna Feeders.
DS143 BLITZDUCTOR® XT with LifeCheck®.
DS144 DEHN protects Biogas Plants.
DS145 LSA with Lightning Current Carrying Capacity.
DS150 Easy choice surge protection.
DS509 DEHN protects.
DS614 DEHN stops Surges.
DS641 Coordinated Surge Protection.
DS649 Surge Protection – Easy choice.
DS702 Lightning Protection Guide

Further main catalogues

- DS396 Safety Equipment
DS427 Lightning Protection

Price lists

- DS591 P2 Price list EB/UE
DS692 P3 Price list EK

DEHN CD

- DS707 DEHNTour
DEHN + SÖHNE –
Company Presentation
DS708 3D Animated films
– DEHNguard T H...LI with Pro-Active
Thermo Control
– New Red/Line – DEHNventil modular
– DEHN protects Cell Sites

Reprints

- 43 Follow current limiting lightning current arrester for application in main distribution systems.
Based on an article from Elektropraktiker, Issue 12/1997.55
61 Surge Protection – Practice-Oriented and Standard-Conform
Based on an article from etz, Issue 10/2006
63 Lightning and Surge Protection for Telecommunications and Signalling Networks

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DIN VDE 0110-1:2008-01

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DIN VDE 0141:2000-01

Earthing system for special power installations with nominal voltages above 1 kV

DIN EN 50178

DIN VDE 0160:1998-04

Electronic equipment for use in power installations German version EN 50178:1997

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VDE 0185-305-1:2006-10

Protection against lightning – Part 1: General principles (IEC 62305-1:2006); German version EN 62305-1:2006

DIN EN 62305-2

VDE 0185-305-2:2006-10

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DIN EN 62305-3

VDE 0185-305-3:2006-10

Protection against lightning – Part 3: Physical damage to structures and live hazard (IEC 62305-3:2006, modified); German version EN 62305-3:2006

DIN EN 62305-4

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DIN VDE 0675-1:2000-08

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DIN EN 41003

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E DIN VDE 0845-2:1993-10

Protection of information technology and telecommunication against lightning, electrostatic discharges and overvoltages from electric power installations; requirements and tests of overvoltage protection devices

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IEC 61643-1:2005-03

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IEC 62305-3:2006-01

Protection against lightning – Part 3: Physical damage to structures and life hazard

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- Hasse P.: (Co-author of the complete works) "Blitz- und Überspannungsschutz für elektrische Verbraucheranlagen" [Lightning and surge protection for electrical consumer's installations] Egyptien/Schliephacke (complete works) Title: "Die Elektrofachkraft in der betrieblichen Praxis" [Operating practice of electrical professionals] Sections 7.6.1 to 7.6.6) Edition of 2000 3-8111-1161-0 Edition of 2003 3-8111-1161-0

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6. Retention of Title, Assignment, Release of Securities

- 6.1 Delivered goods remain our property until the payment of all open business claims up to the point of invoicing. The claims of the customer including value-added tax from the resale of reserved goods, i.e., from a work performance using our goods, should already be transferred to us in the amount of the open invoice. In the case that the reserved goods from the customer are sold together with other goods that do not belong to us, whether it be without or after processing, or are delivered within the framework of a working contract, the assignment of the resulting claim of the reserve buyer is calculated in the amount of the value of the reserved goods.
- 6.2 Should the value of the granted securities exceed the claims by more than 20%, we are obliged to retransfer or release the securities upon request. We shall select the securities to be released.
- 6.3 Our goods may only be transferred within the framework of proper business activity. The customer is not allowed to pawn or transfer the ownership of goods that are still in our possession.
- 6.4 At our request, the customer is obliged to inform us of the purchaser and the arranged price and to show the assignment to its debtor.

7. Delivery Period and Appointment

- 7.1 The start of the delivery period presupposes the involvement of the customer for the clarification of all technical questions.
- 7.2 Delivery periods as well as delivery schedules will be appropriately extended if they cannot be adhered to as a result of military mobilization, war, uprising, strike or lockout, delayed delivery of raw and auxiliary materials, late delivery by our suppliers, or similar circumstances beyond our control. A lasting obstruction under these circumstances gives us the right to withdraw from the contract without liability for damages.

8. Liability for Material and Title Defects

- 8.1 Insofar as there exists a defect of the contract subject that was beyond our control, we can choose to fix the defect or provide a defect-free contract subject (replacement).
- 8.2 Should the replacement (No. 8.1) not function properly, or should it be unreasonable to the customer, or should we seriously and conclusively refuse it or unreasonably delay it, or if other circumstances exist that, upon weighing mutual interests, justify immediate resignation or compensation, then the customer is entitled to choose to lower the contract price or to withdraw from the contract (No. 8.3) or demand compensation (No. 8.4). The customer is not entitled to withdraw from the contract if only insignificant contract inconformities exist, especially insignificant defects.
- 8.3 Insofar as the customer declares its withdrawal from the contract due to material or title defects after proper replacement (No. 8.2), it cannot also claim damages for the defect.
- 8.4 Insofar as the customer declares its withdrawal from the contract due to material or title defects after proper replacement (No. 8.2), it cannot also claim damages for the defect.
- 8.5 Material and title defect claims, including claims for compensation due to material and title defects, with the exception of claims under the Product Liability Act, lapse 12 months after delivery of the goods.
- 8.6 Numbers 8.1 through 8.5 do not impair the customer's rights if we maliciously concealed a defect or if we offered a quality guarantee.

9. Liability for Other Reasons

- 9.1 Our liability is excluded for slightly negligent infringement of immaterial contractual obligations. Our liability is limited to the contractual, foreseeable damages for slightly negligent infringement of other obligations.
- 9.2 The above regulation does not apply to claims under the Product Liability Act. Insofar as the limitation on liability pursuant to No. 9.1 for claims from the producer's liability pursuant to § 823 of the German Civil Code does not interfere, our liability is limited to the replacement of the insurance. Insofar as this does not occur or does not occur in full, we are liable up to the insured amount.

9.3 Insofar as our liability is excluded or limited, this also applies for the personal liability of all of our employees, representatives, and vicarious agents.

9.4 Our liability is unrestricted if the customer loses his/her life or suffers a bodily or health injury due to an action or failure attributable to us.

10. Return of Goods without Legal Liability

- 10.1 If no legal claim to return exists, delivered goods will be accepted only with previous written agreement from us as well as the issuance of a return number. Returns without a return number will be sent back – postage-due – to the sender without inspection. The customer bears the shipping costs for the return delivery in No. 10.1.
- 10.2 The goods must still be in their original packaging. Special orders or deliveries, which date back more than three months or the net value of which is less than € 75.00, cannot be returned. A processing fee of 15% of the net value of the goods will be charged to cover the cost of the return. If the goods can no longer be resold at the list price at the time of the return, an additional deduction (old goods deduction) will be made in addition to the processing fee. If we make an exception and agree to accept the return of parts that are unpackaged or that are no longer in their original packaging, an expense remuneration of at least 15% will be charged for reworking and repackaging in addition to the processing fee and, if applicable, the old goods deduction.
- 10.3 Returned goods will only be credited to a new invoice. Credits cannot be used to clear invoices due at the time of the return.

11. Product Information, No Advisory Obligation

Our deliveries are intended only for specialty stores or skilled users. Our user information and instructions are limited to the details of each written product information (e.g., installation instructions, catalogs, data sheets). Further advisory obligations do not exist. Application, use, and processing of the products lie solely in the customer's realm of responsibility.

12. Use and Protection of Customer Data

We use customer data, which concern the business dealings with the customer, in terms of the Federal Data Protection Act.

13. Applicable Law, Jurisdiction

- 13.1 German law applies to the mutual contractual obligations, their materialization, interpretation, and implementation as well as all resulting contractual and business relationships. The application of the UN Agreement on Contracts on the International Purchase of Goods and the thereafter-enacted laws of the Federal Republic of Germany is excluded.
- 13.2 Place of performance and jurisdiction for delivery, payment, and for all obligations, including those from exchange and check payments, is exclusively Nuremberg. We reserve the right to file a complaint against the customer at its official location.

14. VAT Identification Number

VAT ID No. DE 133251475

DEHN + SÖHNE GmbH + Co. KG.
Nürnberg – Neumarkt

Update October 2005

Key to Symbols used in Basic Circuit Diagrams

Symbol	Description	Standard	Symbol	Description	Standard
	Creepage discharge spark gap, energy-controlled, encapsulated (DEHNventil® TNC/TNS/TT/2P/2P TT)			Gas discharge tube (single) $t_A \leq 100 \text{ ns}$	EN 60617 Part 7 07-22-04
	Creepage discharge spark gap, non-exhausting, encapsulated (DEHNbloc®, DEHNbloc® NH)			Gas discharge tube (balanced) $t_A \leq 100 \text{ ns}$	EN 60617 Part 7 07-22-05
	Creepage discharge spark gap			Resistor, Decoupling element, general	EN 60617 Part 4 04-01-01
	Varistor $t_A \leq 25 \text{ ns}$	EN 60617 Part 4 04-01-04		Capacitor	EN 60617 Part 4 04-02-01
	Thermal disconnect	EN 60617 Part 7 07-09-03		Inductor	
	Thermo Dynamic Control	EN 60617 Parts 7 + 11 07-09-03 111-07-02		Resistor, temperature-controlled	
	Spark gap, general	EN 60617 Part 7 07-22-01		Socket and plug connector	EN 60617 Part 3 03-03-05
	Fuse	EN 60617 Part 7 07-21-01		Break contact	EN 60617 Part 7 07-02-03
	Temperature fuse			Changeover contact	EN 60617 Part 7 07-02-04
	Filter, general	EN 60617 Part 10 10-16-03		Close contact	EN 60617 Part 7 07-02-01
	LED, general	EN 60617 Part 8 08-10-01		Enclosure with terminals	EN 60617 Parts 2 + 3 02-01-07 03-02-02
	Suppressor diode, bipolar $t_A \leq 1 \text{ ns}$	EN 60617 Part 5 05-03-07		Acoustic signal	EN 60617 Part 8 08-10-05
	Z diode, unipolar $t_A \leq 1 \text{ ns}$	EN 60617 Part 5 05-03-06			

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DEHN + SÖHNE

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Surge Protection
Safety Equipment

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