



Surge protection for LED mast lights

White Paper



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LED mast lights for street, walkway and open space lighting are mounted at light point heights of several metres to ensure a large field of illumination. This, however, is only possible if the luminous flux of the light source is sufficiently high which is no problem for today's highly efficient LEDs. Their long service life, a low temperature sensitivity and individual settings of different scenes make them cost-effective and environmentally-friendly.

LED mast lights stand out due to the following special characteristics:

- ➔ High luminous efficacy up to 110 lm/W
- ➔ The light distribution can be easily adapted to the relevant illumination task by using different lenses
- ➔ Different light colours / colour temperatures
- ➔ LEDs have a service life between 50,000 and 100,000 h depending on the operating current
- ➔ The temperature-dependent luminous flux of the LEDs varies only slightly and is e.g. 115 % at -30 °C and 95 % at 40 °C
- ➔ Individual scenes (e.g. luminous flux, operating times, dusk dependence) can be pre-set via the LED drivers
- ➔ In some cases, individual scenes can be set via a 1–10 V or DALI interface
- ➔ LEDs are ideally suited for safety lighting systems due to their high luminous flux without switch-on delay

In practice, different LED mast lights are used. All fixture bodies are typically made of metal independent of whether LED mast lights with "double or reinforced insulation" (previously class II) or "automatic disconnection of supply" (previously class I) as per IEC 60364-4-41 (HD 60364-4-41) are used. The metal housing of the LED mast light dissipates the resulting heat loss over a large area.

The mast frequently consists of metal and the supply voltage flows through a buried cable into the mast. A terminal compartment that can be opened using tools is situated in the lower section of small masts. A rubber hose which is relieved of any strain on both ends connects the terminal compartment with the mast light. This terminal compartment houses the terminals and the overcurrent protective device. Large masts are fitted with a supply distributor and, if this distributor feeds the mains and equivalent power supply, it is physically divided according to the relevant normative requirements.

If LED mast lights or PVC masts are used, electrostatic charge must be observed. This, however, will not be described here.

If you compare the surge-related replacement costs of previously used mast lights with high-pressure lamps with the replacement costs of today's LED mast lights, it can be seen that the illuminant, ignition device and inductive control unit of the

previously used high-pressure lamps are damaged while the LED drivers, their parameterisation devices and the LEDs of today's LED mast lights entail high costs. Although amortisation is to be expected over a transparent time frame due to the long service life of LED mast lights, the question arises whether the manufacturer accepts the warranty for the overall system (LED drivers and LEDs) since surges negatively affect the system-specific service life. The lighting industry has already responded to this with a higher dielectric strength of the LED drivers and an impulse current withstand capability of 2 kA and a dielectric strength of 4 kV for new LED mast lights, however, the impulse currents and surges occurring in the mains can exceed these values many times over. It has to be particularly observed that the dielectric strengths L to N considerably differ from that of L/N to PE.

A metal mast in conjunction with a metal LED mast light minimises the probability of field-based injection. Consequently, only surges extending over the cable network must be considered. To this end, a surge arrester can be installed in the terminal compartment/distributor of the mast (**Figure 1**). This

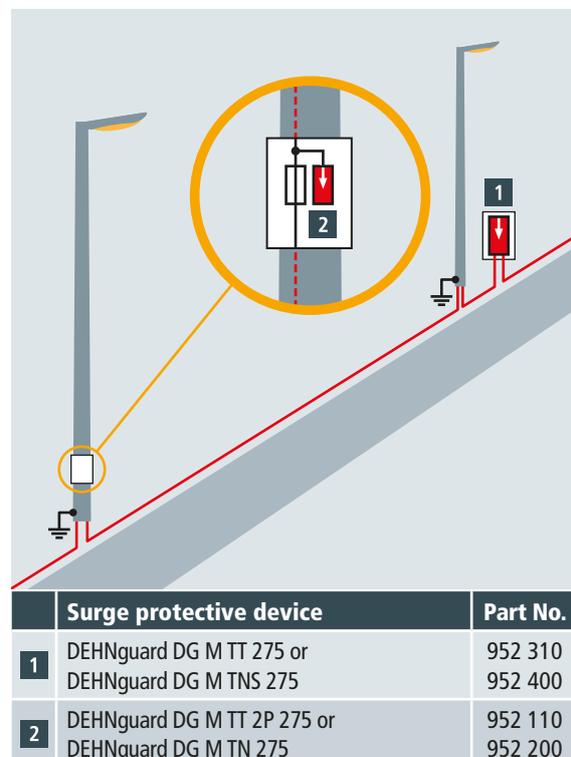


Figure 1 Surge arrester installed in the terminal compartment/distributor of the metal mast for protecting the metal LED mast light from conducted surges caused by distant atmospheric events and switching operations

Surge protection for LED mast lights

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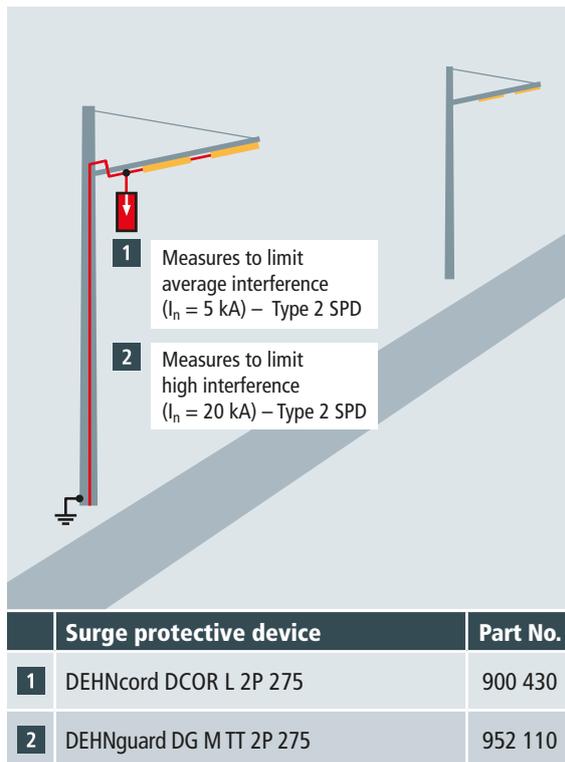


Figure 2 Surge arrester installed next to the LED mast light with the feeder cable of the mast light being installed in open space for protecting the LED mast light from field-based injection or as sole protection from conducted surges caused by distant atmospheric events and switching operations

has the advantage that the surge arrester can be tested without forklift.

If, however, a metal LED mast light and its metal mast do not form a closed system since the feeder cable of the LED mast light was placed in free space at the mast exit point and several LED mast lights are located on a mast arm, a surge arrester must be installed next to the LED mast light (Figure 2). If the probability of surges is expected to be low, no additional surge protective devices have to be installed. The relevant protection measure used for the LED mast light must be considered when installing a surge arrester in the LED mast light. Surge arresters with basic insulation (insulation of dangerous live parts as basic protection), for example, must not interfere with the "double or reinforced insulation" (previously class II) of the LED mast light according to IEC 60364-4-41 (HD 60364-4-41).

It is advisable to use DEHNcord to limit average interference ($I_n = 5 \text{ kA}$). DEHNguard modular DG M TT 2P 275 should be installed to limit high interference ($I_n = 20 \text{ kA}$).

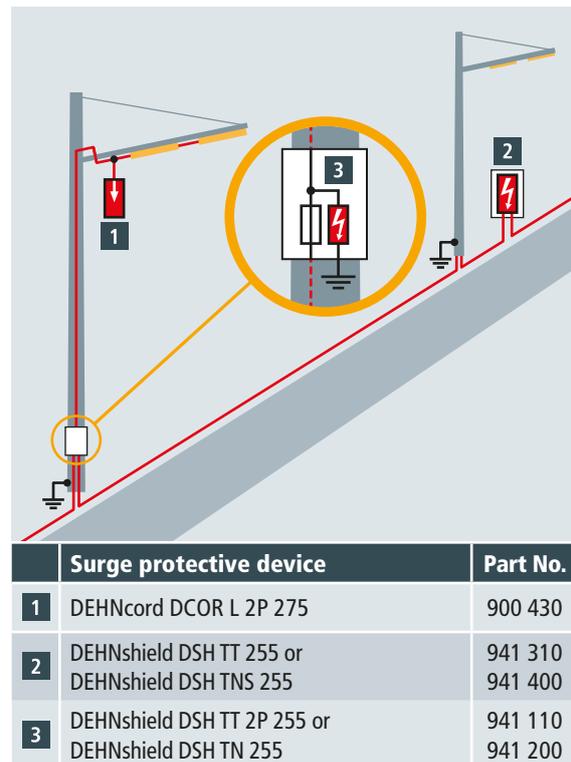


Figure 3 Combined arrester installed in the terminal compartment/distributor of the metal mast in conjunction with a surge arrester for protecting the LED mast light from nearby atmospheric events and conducted surges caused by switching operations

If lightning strikes the metal mast, the mast shields the cable installed in it and the application-optimised combined arrester located at the base of the mast discharges the lightning current (total current up to 50 kA ($10/350 \mu\text{s}$)) across the distribution network and protects the LED mast light by means of its low voltage protection level (Figure 3). This always requires a vertical or horizontal earth electrode and an additional surge arrester must be installed on the LED mast light according to Figure 2, depending on the cable routing.

Basically, the described protection of the LED mast light by means of a combined arrester must be used if a risk analysis requires a higher protection goal than a surge arrester can achieve. This is the case with extremely high masts with large-area LED mast lights on the mast arms (e.g. large parking lots, stadiums, etc.) and LED mast lights that are fed by a building with a lightning protection system since the lightning current is discharged via the lightning equipotential bonding system to the LED mast light.

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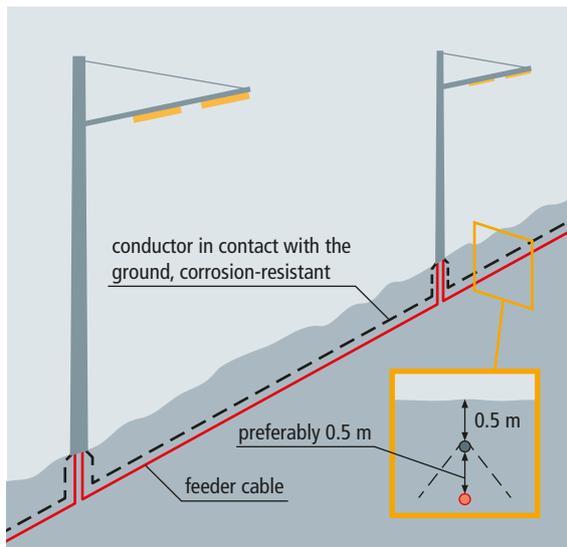


Figure 4 Earthing conductor for protecting the cable route and earthing the mast

In case of new installations where the masts and cables have not been installed yet, a bare earthing conductor is to be installed above the cable route.

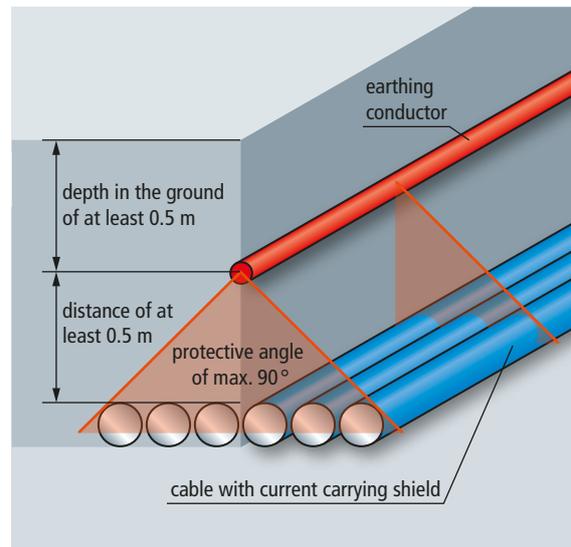


Figure 5 Protected volume of a cable route

If lightning hits the mast (not the mast light itself) or the ground, the earthing conductor assumes the function of the required earth electrode and linearises the potential drop, thus preventing flashover to the cable (**Figures 4 and 5**).

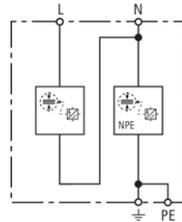
DEHNshield

DSH TT 2P 255 (941 110)

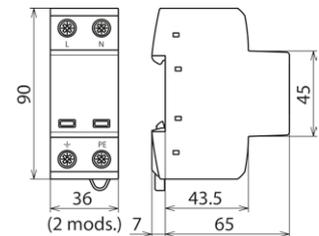
- Application-optimised and prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester
- Space-saving arrester for compact and simply equipped electrical installations with reduced technical requirements
- Capable of protecting terminal equipment



Figure without obligation



Basic circuit diagram DSH TT 2P 255



Dimension drawing DSH TT 2P 255

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

Type	DSH TT 2P 255
Part No.	941 110
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5 m)	type 1 + type 2 + type 3
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) [L+N-PE] (I_{total})	25 kA
Specific energy [L+N-PE] (W/R)	156.25 kJ/ohms
Lightning impulse current (10/350 μ s) [L-N]/[N-PE] (I_{imp})	12.5 / 25 kA
Specific energy [L-N]/[N-PE] (W/R)	39.06 / 156.25 kJ/ohms
Nominal discharge current (8/20 μ s) [L-N]/[N-PE] (I_n)	12.5 / 25 kA
Voltage protection level [L-N]/[N-PE] (U_p)	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability [L-N]/[N-PE] (I_{fl})	25 kA _{rms} / 100 A _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	160 A gL/gG
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – withstand
Temporary overvoltage (TOV) [N-PE] (U_T) – Characteristic	1200 V / 200 ms – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (L, N, PE, \pm) (min.)	1.5 mm ² solid / flexible
Cross-sectional area (L, N, PE, \pm) (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	2 module(s), DIN 43880
Approvals	KEMA, VDE, UL
Weight	275 g
Customs tariff number	85363030
GTIN	4013364137899
PU	1 pc(s)

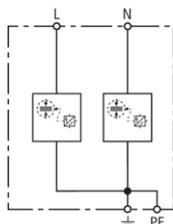
DEHNshield

DSH TN 255 (941 200)

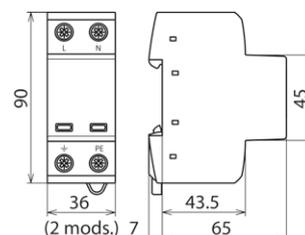
- Application-optimised and prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester
- Space-saving arrester for compact and simply equipped electrical installations with reduced technical requirements
- Capable of protecting terminal equipment



Figure without obligation



Basic circuit diagram DSH TN 255



Dimension drawing DSH TN 255

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

Type	DSH TN 255
Part No.	941 200
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5 m)	type 1 + type 2 + type 3
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) [L+N-PE] (I_{total})	25 kA
Specific energy [L+N-PE] (W/R)	156.25 kJ/ohms
Lightning impulse current (10/350 μ s) [L, N-PE] (I_{imp})	12.5 kA
Specific energy [L,N-PE] (W/R)	39.06 kJ/ohms
Nominal discharge current (8/20 μ s) [L/N-PE]/[L+N-PE] (I_n)	12.5 / 25 kA
Voltage protection level [L-PE]/[N-PE] (U_P)	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability a.c. (I_{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. mains-side overcurrent protection	160 A gL/gG
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (L, N, PE, \pm) (min.)	1.5 mm ² solid / flexible
Cross-sectional area (L, N, PE, \pm) (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	2 module(s), DIN 43880
Approvals	KEMA, VDE, UL
Weight	250 g
Customs tariff number	85363030
GTIN	4013364138209
PU	1 pc(s)

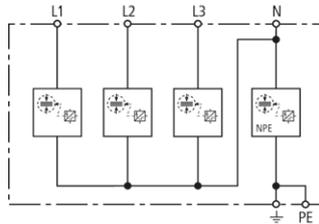
DEHNshield

DSH TT 255 (941 310)

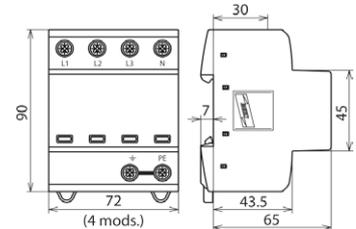
- Application-optimised and prewired spark-gap-based type 1 and type 2 combined lightning current and surge arrester
- Space-saving arrester for compact and simply equipped electrical installations with reduced technical requirements
- Capable of protecting terminal equipment



Figure without obligation



Basic circuit diagram DSH TT 255



Dimension drawing DSH TT 255

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

Type Part No.	DSH TT 255 941 310
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5 m)	type 1 + type 2 + type 3
Nominal a.c. voltage (U_N)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 V (50 / 60 Hz)
Lightning impulse current (10/350 μ s) [L1+L2+L3+N-PE] (I_{total})	50 kA
Specific energy [L1+L2+L3+N-PE] (W/R)	625.00 kJ/ohms
Lightning impulse current (10/350 μ s) [L-N]/[N-PE] (I_{imp})	12.5 / 50 kA
Specific energy [L-N]/[N-PE] (W/R)	39.06 / 625.00 kJ/ohms
Nominal discharge current (8/20 μ s) [L-N]/[N-PE] (I_n)	12.5 / 50 kA
Voltage protection level [L-N]/[N-PE] (U_p)	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability [L-N]/[N-PE] (I_f)	25 kA _{rms} / 100 A _{rms}
Follow current limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	160 A gL/gG
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – withstand
Temporary overvoltage (TOV) [N-PE] (U_T) – Characteristic	1200 V / 200 ms – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (L1, L2, L3, N, PE, \ominus) (min.)	1.5 mm ² solid / flexible
Cross-sectional area (L1, L2, L3, N, PE, \ominus) (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	4 module(s), DIN 43880
Approvals	KEMA, VDE, UL
Weight	480 g
Customs tariff number	85363030
GTIN	4013364131798
PU	1 pc(s)

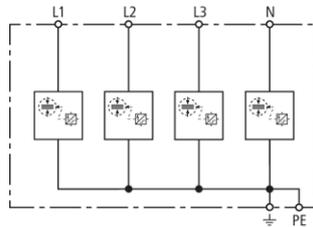
DEHNshield

DSH TNS 255 (941 400)

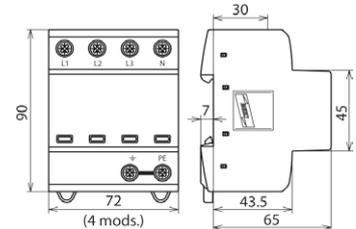
- Application-optimised and prewired type 1 and type 2 spark-gap-based combined lightning current and surge arrester
- Space-saving arrester for compact and simply equipped electrical installations with reduced technical requirements
- Capable of protecting terminal equipment



Figure without obligation



Basic circuit diagram DSH TNS 255



Dimension drawing DSH TNS 255

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

Type	DSH TNS 255
Part No.	941 400
SPD according to EN 61643-11 / IEC 61643-11	type 1 + type 2 / class I + class II
Energy coordination with terminal equipment (≤ 5 m)	type 1 + type 2 + type 3
Nominal a.c. voltage (U_N)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	255 (50 / 60 Hz)
Lightning impulse current (10/350 μ s) [L1+L2+L3+N-PE] (I_{total})	50 kA
Specific energy [L1+L2+L3+N-PE] (W/R)	625.00 kJ/ohms
Lightning impulse current (10/350 μ s) [L, N-PE] (I_{imp})	12.5 kA
Specific energy [L,N-PE] (W/R)	39.06 kJ/ohms
Nominal discharge current (8/20 μ s) [L/N-PE]/[L1+L2+L3+N-PE] (I_n)	12.5 / 50 kA
Voltage protection level [L-PE]/[N-PE] (U_P)	≤ 1.5 / ≤ 1.5 kV
Follow current extinguishing capability a.c. (I_{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. mains-side overcurrent protection	160 A gL/gG
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (L1, L2, L3, N, PE, \pm) (min.)	1.5 mm ² solid / flexible
Cross-sectional area (L1, L2, L3, N, PE, \pm) (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	4 module(s), DIN 43880
Approvals	KEMA, VDE, UL
Weight	525 g
Customs tariff number	85363030
GTIN	4013364133563
PU	1 pc(s)

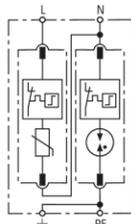
DEHNguard

DG M TT 2P 275 (952 110)

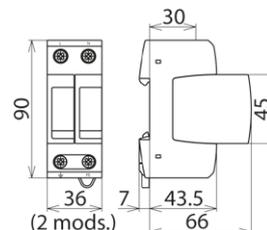
- Prewired complete unit consisting of a base part and plug-in protection modules
- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device



Figure without obligation



Basic circuit diagram DG M TT 2P 275



Dimension drawing DG M TT 2P 275

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

Type	DG M TT 2P 275
Part No.	952 110
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U_C)	275 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U_C)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	20 kA
Max. discharge current (8/20 μ s) (I_{max})	40 kA
Lightning impulse current (10/350 μ s) [N-PE] (I_{imp})	12 kA
Voltage protection level [L-N] (U_P)	≤ 1.5 kV
Voltage protection level [L-N] at 5 kA (U_P)	≤ 1 kV
Voltage protection level [N-PE] (U_P)	≤ 1.5 kV
Follow current extinguishing capability [N-PE] (I_n)	100 A _{rms}
Response time [L-N] (t_A)	≤ 25 ns
Response time [N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	125 A gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	50 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [N-PE] (U_T) – Characteristic	1200 V / 200 ms – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	2 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS
Weight	242 g
Customs tariff number	85363030
GTIN	4013364108417
PU	1 pc(s)

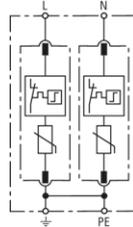
DEHNguard

DG M TN 275 (952 200)

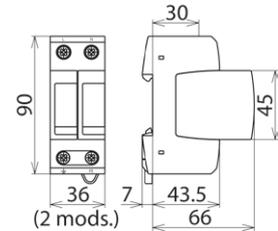
- Prewired complete unit consisting of a base part and plug-in protection modules
- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device



Figure without obligation



Basic circuit diagram DG M TN 275



Dimension drawing DG M TN 275

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

Type	DG M TN 275
Part No.	952 200
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	275 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	20 kA
Max. discharge current (8/20 μ s) (I_{max})	40 kA
Voltage protection level (U_P)	≤ 1.5 kV
Voltage protection level at 5 kA (U_P)	≤ 1 kV
Response time (t_A)	≤ 25 ns
Max. mains-side overcurrent protection	125 A gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	50 kA _{rms}
Temporary overvoltage (TOV) (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U_T) – Characteristic	440 V / 120 min. – safe failure
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	2 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS
Weight	229 g
Customs tariff number	85363030
GTIN	4013364108394
PU	1 pc(s)

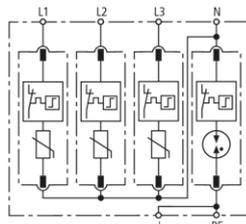
DEHNguard

DG M TT 275 (952 310)

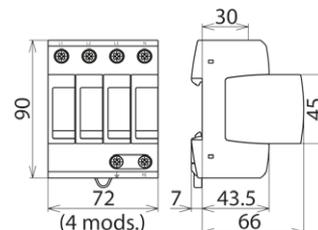
- Prewired complete unit consisting of a base part and plug-in protection modules
- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device



Figure without obligation



Basic circuit diagram DG M TT 275



Dimension drawing DG M TT 275

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

Type	DG M TT 275
Part No.	952 310
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II
Nominal a.c. voltage (U_N)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U_C)	275 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U_C)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	20 kA
Max. discharge current (8/20 μ s) (I_{max})	40 kA
Lightning impulse current (10/350 μ s) [N-PE] (I_{imp})	12 kA
Voltage protection level [L-N] (U_P)	≤ 1.5 kV
Voltage protection level [L-N] at 5 kA (U_P)	≤ 1 kV
Voltage protection level [N-PE] (U_P)	≤ 1.5 kV
Follow current extinguishing capability [N-PE] (I_n)	100 A _{rms}
Response time [L-N] (t_A)	≤ 25 ns
Response time [N-PE] (t_A)	≤ 100 ns
Max. mains-side overcurrent protection	125 A gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	50 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [N-PE] (U_T) – Characteristic	1200 V / 200 ms – withstand
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	4 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS
Weight	450 g
Customs tariff number	85363030
GTIN	4013364108479
PU	1 pc(s)

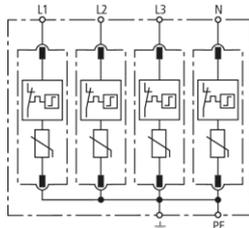
DEHNguard

DG M TNS 275 (952 400)

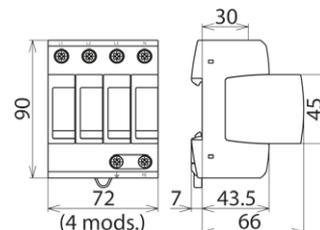
- Prewired complete unit consisting of a base part and plug-in protection modules
- High discharge capacity due to heavy-duty zinc oxide varistors / spark gaps
- High reliability due to "Thermo Dynamic Control" SPD monitoring device



Figure without obligation



Basic circuit diagram DG M TNS 275



Dimension drawing DG M TNS 275

Modular surge arrester for use in TN-S systems.

Type	DG M TNS 275
Part No.	952 400
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II
Nominal a.c. voltage (U_N)	230 / 400 V (50 / 60 Hz)
Max. continuous operating a.c. voltage (U_C)	275 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	20 kA
Max. discharge current (8/20 μ s) (I_{max})	40 kA
Voltage protection level (U_P)	≤ 1.5 kV
Voltage protection level at 5 kA (U_P)	≤ 1 kV
Response time (t_A)	≤ 25 ns
Max. mains-side overcurrent protection	125 A gG
Short-circuit withstand capability for max. mains-side overcurrent protection (I_{SCCR})	50 kA _{rms}
Temporary overvoltage (TOV) (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) (U_T) – Characteristic	440 V / 120 min. – safe failure
Operating temperature range (T_U)	-40 °C ... +80 °C
Operating state / fault indication	green / red
Number of ports	1
Cross-sectional area (min.)	1.5 mm ² solid / flexible
Cross-sectional area (max.)	35 mm ² stranded / 25 mm ² flexible
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material	thermoplastic, red, UL 94 V-0
Place of installation	indoor installation
Degree of protection	IP 20
Capacity	4 module(s), DIN 43880
Approvals	KEMA, VDE, UL, VdS
Weight	443 g
Customs tariff number	85363030
GTIN	4013364108455
PU	1 pc(s)

DEHNcord

DCOR L 2P 275 (900 430)

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

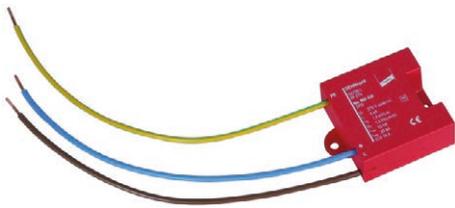
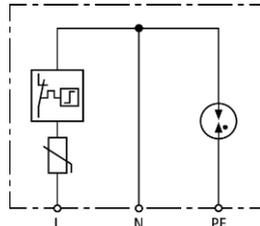
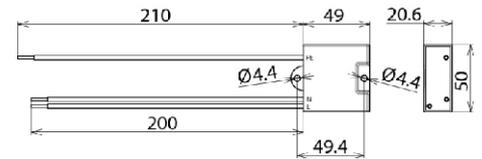


Figure without obligation



Basic circuit diagram DCOR L 2P 275



Dimension drawing DCOR L 2P 275

Surge arrester for all installation systems; compact design.

Type	DCOR L 2P 275
Part No.	900 430
SPD according to EN 61643-11 / IEC 61643-11	type 2 / class II
Nominal a.c. voltage (U_N)	230 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [L-N] (U_C)	275 V (50 / 60 Hz)
Max. continuous operating a.c. voltage [N-PE] (U_C)	255 V (50 / 60 Hz)
Nominal discharge current (8/20 μ s) (I_n)	5 kA
Max. discharge current (8/20 μ s) (I_{max})	10 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	20 kA
Voltage protection level [L-N] (U_p)	≤ 1.5 kV
Voltage protection level [L-N] at 3 kA (U_p)	≤ 1 kV
Voltage protection level [L-N] at 1.5 kA (U_p)	≤ 0.85 kV
Voltage protection level [N-PE] (U_p)	≤ 1.5 kV
Follow current extinguishing capability [N-PE] (I_n)	100 A _{rms}
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
Short-circuit withstand capability for mains-side overcurrent protection (I_{SCCR})	25 kA _{rms}
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	335 V / 5 sec. – withstand
Temporary overvoltage (TOV) [L-N] (U_T) – Characteristic	440 V / 120 min. – safe failure
Temporary overvoltage (TOV) [N-PE] (U_T) – Characteristic	1200 V / 200 ms – withstand
Operating state / fault indication	green / red
Number of ports	1
Operating temperature range (T_U)	-40 °C ... +80 °C
Connecting wires	1.5 mm ² , length: 200 mm
Enclosure material	thermoplastic, red, UL 94 V-2
Place of installation	indoor installation
Degree of protection of installed device	IP 20
Weight	59 g
Customs tariff number	85363010
GTIN	4013364157286
PU	1 pc(s)

www.dehn-international.com/partners



**Surge Protection
Lightning Protection
Safety Equipment
DEHN protects.**

DEHN + SÖHNE
GmbH + Co.KG.

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