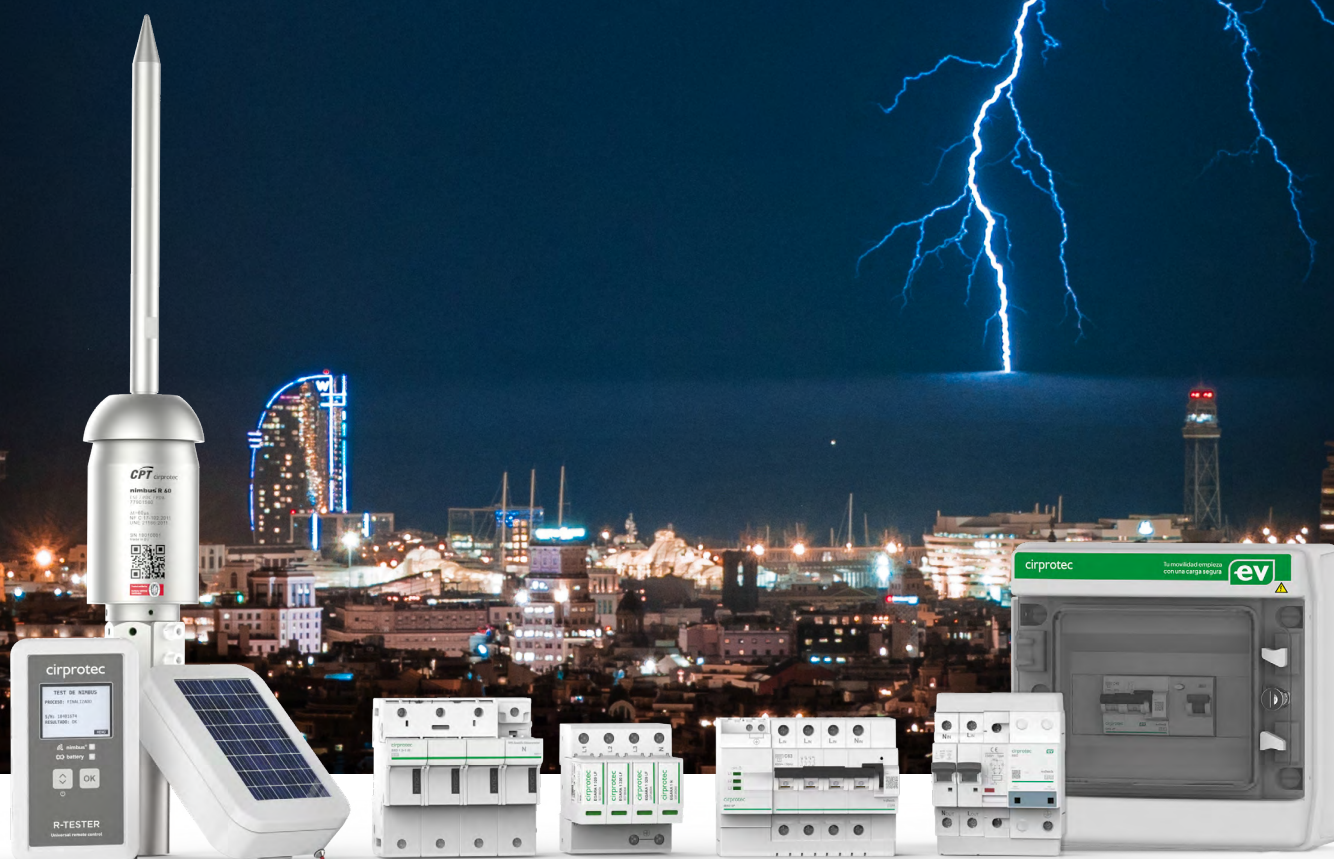


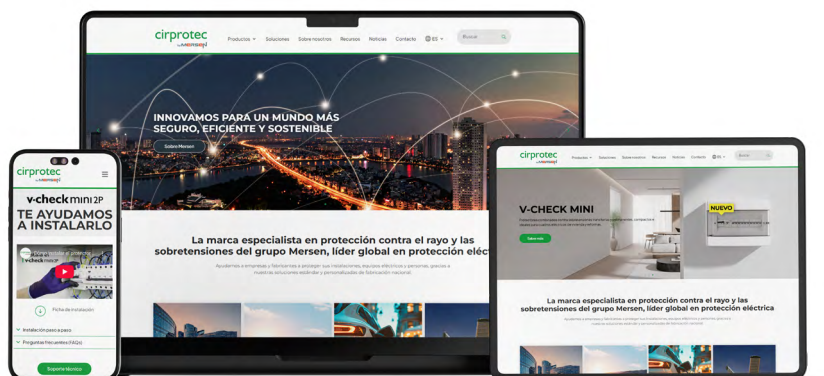
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LIGHTNING AND SURGE
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WHY CHOOSE CIRPROTEC



The specialist brand
in lightning and surge
protection

We protect electrical installations with reliable, certified,
and easy-to-install solutions that ensure maximum safety.



We design.

We manufacture.

We protect.

50
INDUSTRIAL
PLANTS

21
R+D+I
CENTERS

4
TESTING
LABORATORIES

MERSEN

CIRPROTEC
TERRASSA

MERSEN CENTRE OF EXCELLENCE IN
SURGE PROTECTION

As part of the Mersen Group, a global leader in electrical protection and a benchmark in surge and overcurrent protection, we strengthen our ability to provide safe, comprehensive, and high-quality solutions. Being part of the group gives us greater technological strength, industrial capacity, and a long-term strategic vision.

Reliability

Experience that powers trust

More than 30 years of manufacturing surge protection devices support our track record focused on technical excellence and performance.

Our production relies on highly automated processes that ensure strict control and full traceability at every stage. In addition, we actively participate in international standardization committees, enabling us to anticipate regulatory developments and deliver solutions aligned with the most demanding standards.

Peace of mind

In every installation

We act as a single, trusted partner ensuring technical consistency and full compatibility within the electrical panel.

All products are tested in the group's certified laboratories and backed by third-party certifications, guaranteeing compliance with major international standards and facilitating technical specification and approval in both national and international projects.

Sustainability

A responsible partner wherever we operate

We design and manufacture in Europe, with strategic production centers that ensure proximity, industrial control and high-quality standards.

We proactively address regulatory and environmental challenges and have received international recognition for corporate social responsibility, reflecting responsible management and a commitment to positive impact.

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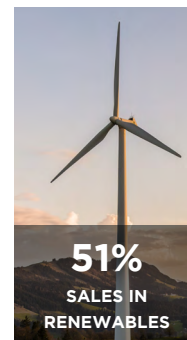
+9%
INVESTMENT
IN R+D+i



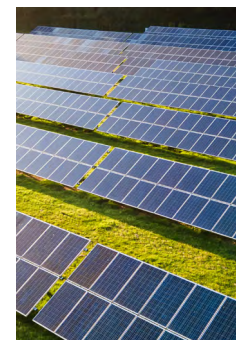
+30
YEARS OF
EXPERTISE



100%
QUALITY
CONTROLS



51%
SALES IN
RENEWABLES



ENERGY TO INNOVATE

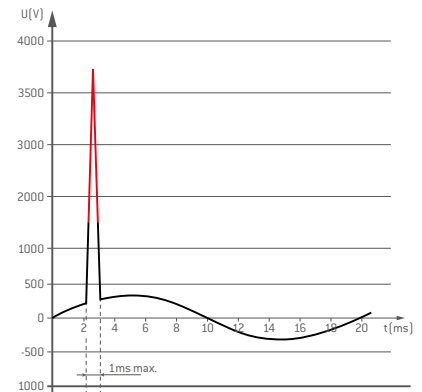
INTRODUCTION TO Surge protection

What are surges?

Surges are transient overvoltages that can reach tens of kilovolts with durations in the order of microseconds. Despite their short duration, the high energy content can cause serious problems to equipment connected to the line like premature ageing of electronic components, equipment failure or disruptions to service and financial loss.

Origin of surges

- **Lightning:** The most destructive source of surge. Based on the IEC 61643-12 standard, energy from lightning can reach up to 200 kA. However for reference, estimates indicate 65% are less than 20 kA and 85% are less than 35 kA.
- **Induction:** Sources include cloud-to-cloud lightning or nearby lightning impacts where the current flow induces an overvoltage on supply lines or other metallic conductors.



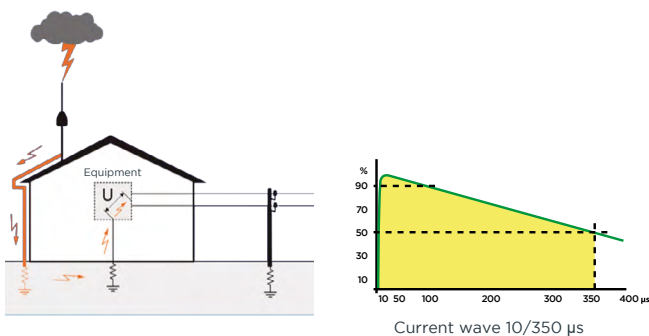
When the peak voltage exceeds the withstand capability of the equipment, permanent damage may occur.

Types of surges

It is impossible to predict the exact timing, location, magnitude or waveform of a surge event. Therefore, within the Standards, some assumptions have been made and 2 main waveforms have been chosen to simulate different surge events.

Conduction

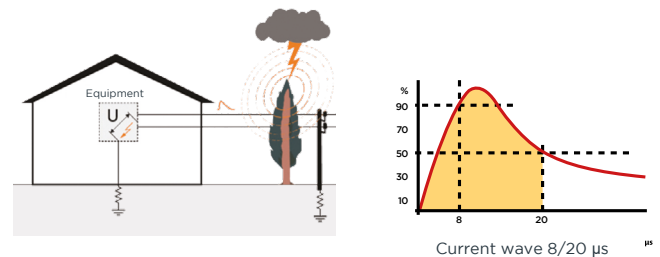
Conduction or 10/350 μ s simulates energy from direct lightning impact



Lightning is the most destructive source of surges. According to the International Electrotechnical Commission IEC 61643-12 standard, the energy of a lightning strike can reach up to 200 kA. However, as a reference, estimates indicate that 65% of lightning currents are below 20 kA and 85% are below 35 kA.

Induction

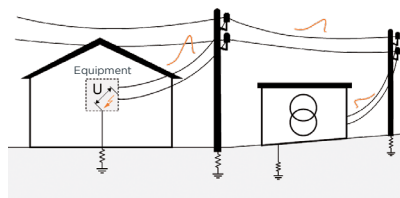
Induction or 8/20 μ s simulates energy from indirect lightning impact.



These surges can originate from cloud-to-cloud discharges or nearby lightning strikes, where the induced current generates an overvoltage in power lines or other metallic conductors.

Internal surges:

These are the main sources of surge in real life. They come from utility grid switching, disconnection of motors or other inductive loads. Energy from these sources is also analysed with the 8/20 μ s waveform.

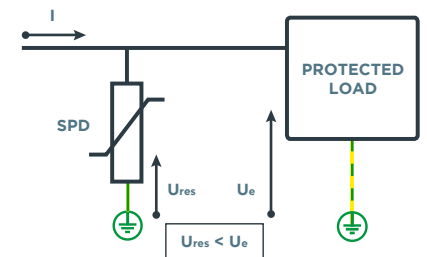


Transient overvoltages do not occur solely in power distribution lines, they are also common in any line formed by metal conductors, such as telephony, communications, measurement and data.

SPD (Surge Protection Device)

A surge protection device acts as a voltage controlled switch and is **installed between the active conductors and ground in parallel with the equipment to be protected**. When the supply voltage is lower than its activation voltage, the protector acts as a high-impedance element so that no current flows through it. When the supply voltage is higher than the activation voltage, the protector acts as an element with an impedance close to zero, diverting the overvoltage to earth and preventing it from affecting equipment downstream.

Nevertheless, in the terminals of the SPD **there will always be a residual voltage (U_{res})**. This is not a fixed value. Because of the surge current, there will be a residual voltage across the SPD, this means, **the higher the surge current, the higher the residual voltage**. To protect your electrical equipment the residual voltage across the SPD, including the wires and connections, needs to be less than the overvoltage withstand of the equipment.



I : peak current

U_{res} : voltage protection level (Residual voltage at In)

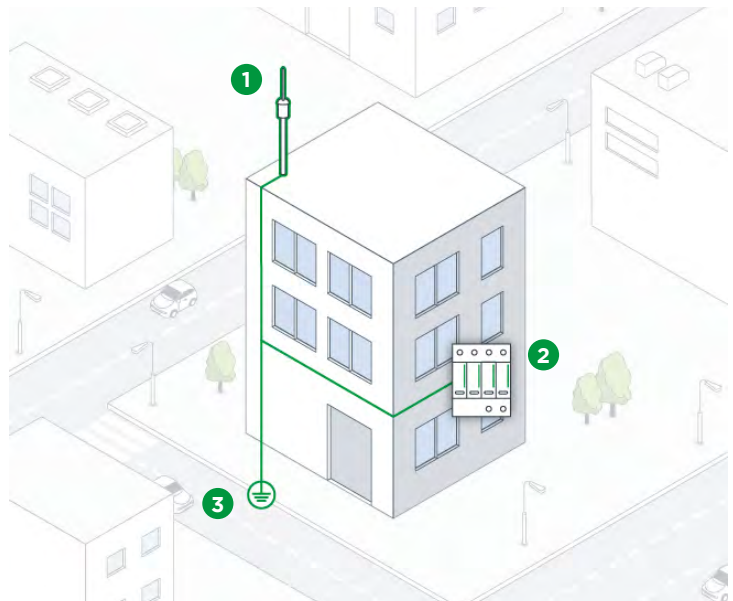
U_e : impulse voltage the equipment can withstand

What is the best way of protecting an installation against surges?

Effective protection does not depend on a single device, but on a comprehensive system with three key elements:

- 1. External protection:** captures and safely channels lightning to earth.
- 2. Internal protection:** protects equipment against transient and permanent power surges.
- 3. Earthing system:** dissipates energy to earth.

If one of these elements is missing or incorrectly sized, the protection will not be effective.



SPD features based on the IEC 61643 standard

Classification of SPDs

Protection devices are classified into types according to discharge capacity:

T1 Type 1:

Tested with a 10/350 μ s waveform (Class I test), which simulates the current produced by a direct lightning strike.

Ability to discharge very high currents to earth, providing a high Up - voltage protection level.

Must be accompanied by downstream Type 2 protectors. Designed for use in incoming power supply panels where the risk of lightning strike is high, for example in buildings with an external protection system.

T2 Type 2:

Tested with an 8/20 μ s waveform (Class II test), which simulates the current produced in the event of a switching or lightning strike on the distribution line or its vicinity.

Ability to discharge high currents to earth, providing a medium Up - voltage protection level. Designed for use in distribution panels located downstream of Type 1 protectors or in incoming power supply panels in areas with low exposure to lightning strikes.

T3 Type 3:

Tested with a combined 1.2/50 μ s - 8/20 μ s waveform (Class III test), which simulates the current and voltage that can reach the equipment to be protected.

Ability to discharge medium currents to earth, providing a low Up voltage protection level.

Always installed downstream of a Type 2 protection, it is designed to protect sensitive equipment or equipment located more than 20 m downstream of the Type 2 device.

The technology can provide protection solutions that combine different types of protection: Type 1+2 and Type 2+3.

Protection parameters according to IEC 61643

Iimp

Impulse current

Peak current with 10/350 μ s waveform that the protection device can withstand without reaching end of life

Itotal

Total discharge current

Current with 10/350 μ s waveform that flows through the earth conductor of a multipole SPD during the total discharge current test.

Imax

Maximum discharge current

Peak current with 8/20 μ s waveform that the protection device can withstand.

In

Nominal current

Peak current in 8/20 μ s waveform that the protection device can withstand 20 times without reaching end of life.

Up

Voltage protection level

Maximum residual voltage between the terminals of the protection device during the application of a peak current equal to the nominal current (In).

Uc

Maximum continuous operating voltage

Maximum effective voltage that can be applied permanently to the terminals of the protection device.

Uoc

Open circuit voltage (combined voltage pulse)

This parameter is used only for the Class III test and is applicable to a Type 3 SPD. It consists of the application of a combination wave (1.2/50 μ s in open circuit - 8/20 μ s in short circuit).

Ifi

Follow current extinction capability

This parameter is only devoted to surge protectors using "air gap" technology. Once they have "switched", these surge protectors conduct part of the network current (follow current) and need to interrupt it.

Typical current (I_{typ})

Typical current (I_{typ})

SPD performance that guarantees the surge protection in real-world conditions

I_{imp} , I_{max} and I_n show the one-off maximum robustness of the SPDs in heavy conditions. However, most surge currents are in practice lower and repetitive because of network switching or because of lightning inductions onto the power grid.

The Typical Surge Current (I_{typ}) is the value that statistically the SPD faces in real life. The value depends on the level of exposure.

I_{imp}	I_{max}	I_n	I_{typ}
Maximum current the SPD is able to withstand 1 time in 10/350 μs	Maximum current the SPD is able to withstand 1 time in 8/20 μs	Maximum current the SPD is able to withstand 20 times in 8/20 μs	Maximum current the SPD is able to withstand 200 times in 8/20 μs (depending on the level of exposure)

Lifetime of the SPDs

The lifetime is defined by the number of hits that the SPD is able to withstand at Typical Surge Current (I_{typ}). Estimating the lifetime of the SPD is essential to guarantee protection.

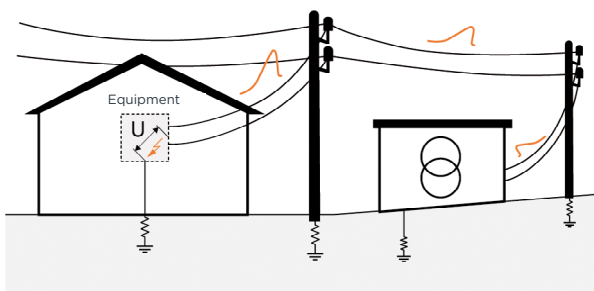
The minimum lifetime values that we can expect are:

High exposed locations:

200 peaks

Type 1+2 SPD requirement; usually installed in the highest exposed locations.

$I_{typ} = 10 \text{ kA } 8/20 \mu\text{s}$

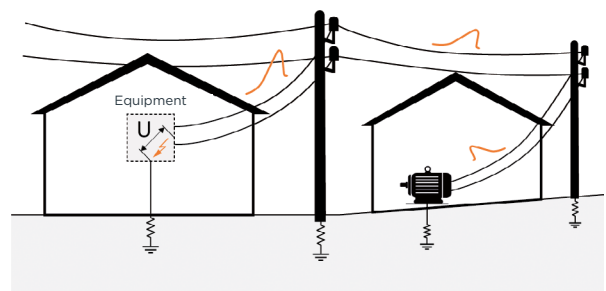


Low exposed locations or internal surges:

200 peaks

Type 2 SPD requirement; usually installed in medium or lower exposed locations.

$I_{typ} = 5 \text{ kA } 8/20 \mu\text{s}$



The SPD must be designed in order to pass the test of the standards, but furthermore to guarantee a great performance in real life.

Cascade protection

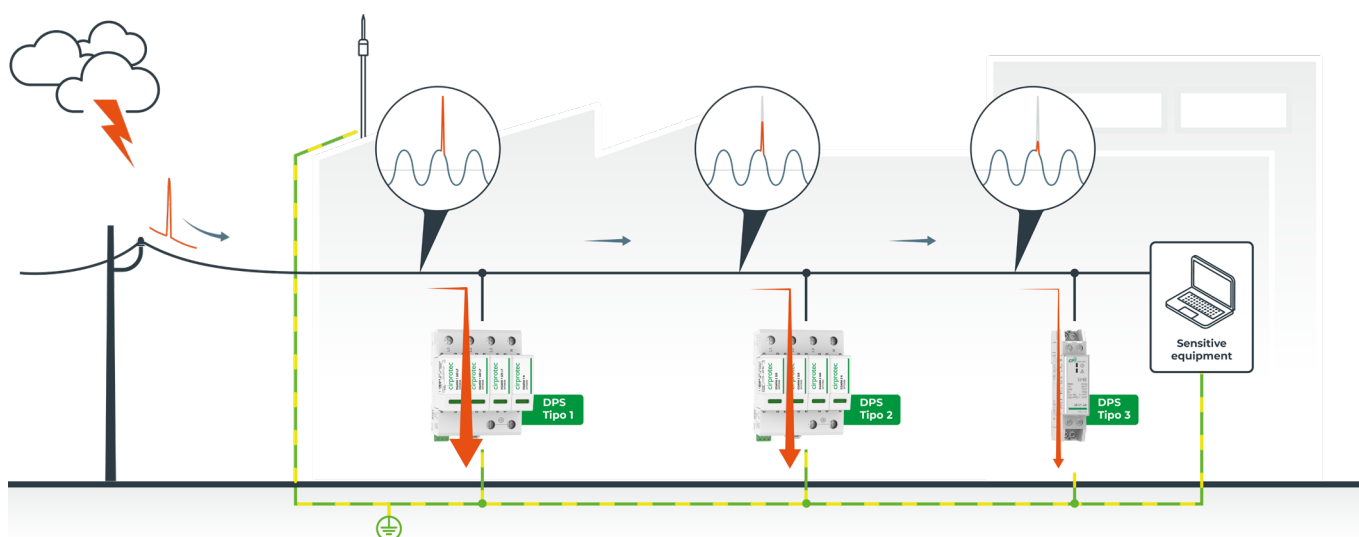
Protection system of coordinated stages

Type 1, Type 2 and Type 3 SPDs

The SPDs of a surge protection system must be able to withstand the discharged current and provide a U_{res} level (residual voltage) lower than the U_e peak voltage that the equipment can withstand.

As explained, most of the times it is not possible to achieve this with just one SPD, especially because the intensity of the surge is not known, and because of the induction of overvoltages when conductors exceed 10 m.

The optimal protection system is the 3-STEP approach, in which successive stages are combined in the performance of high discharge capacity devices and devices with an optimal voltage protection level (low). This is addressed by the definition of “Types” or “Classes” of SPDs according to the type of transient pulses to which each protected zone in the installation is subject to.



	STAGE 1	STAGE 2	STAGE 3	
	Direct impact of a lightning strike (current).	Indirect impact of a lightning strike on the distribution line (overhead lines) or its vicinity (rise of ground potential or induction by coupling of electromagnetic radiation of the strike) or in the event of a switching.	Indirect impact simulated by the current and voltage that can reach the long-distance circuits and individual equipment to be protected.	
Location	Main switch board	Distribution board	Final sub-circuits Individual equipment	
IEC/EN 61643-11	Type 1 / Class I	Type 2 / Class II	Type 3 / Class III	
Overvoltage category IEC 60364-4-443	IV	III	II	I
Overvoltage withstand (U_e) values for equipment at 230/400 V	6 kV	4 kV	2,5 kV	1,5 kV
LPZ IEC 62305-4 protection zone	LPZ 1	LPZ 2	LPZ 3	
Discharge capacity (I_{imp} , I_{max})	High	Medium	Low	
Voltage protection level (U_p)	✓ (Coarse)	✓✓ (Fine)	✓✓✓ (Very fine)	

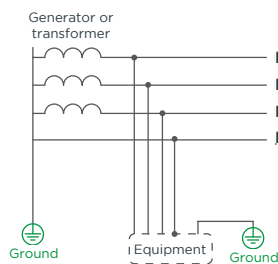
Grounding systems

All national codes on the generation, transmission and distribution of electricity require **grounding of all the elements of the installation**.

This ground connection ensures a sufficiently low impedance path for **protection devices to protect people and equipment**, and to prevent hazardous step and touch voltages.

As we will see, there are **several systems** for making this ground connection, depending on the interconnection between the installation components.

TT arrangement

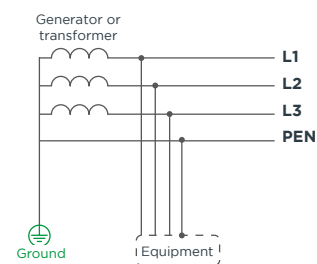


- Individual ground connection at the consumer level, separated from the transformer. Without distributed ground conductor (PE).
- The protective ground is the physical ground connection itself.

Advantages: Less interference. More reliable.

Disadvantages: High impedance L-PE fault loop, hence it requires a differential protection device.

TN-C arrangement

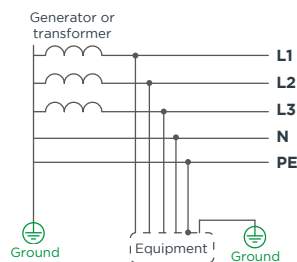


- The PEN conductor performs the functions of neutral and ground wire from transformer to the consumer.
- The protective ground connection is through the PEN conductor, generally to the transformer ground.

Advantages: Minimum costs for both wiring and installation.

Disadvantages: Cable failure may create critical safety risks. High electromagnetic interference. Need for oversizing cable.

TN-S (or TNC-S) arrangement

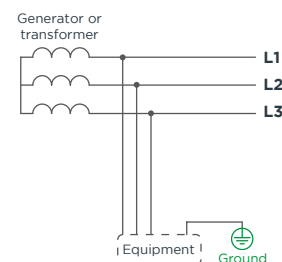


- Neutral and ground wires distributed from the installation origin (one cable performs both functions in TNC-S distribution).
- The protective ground connection is through the protection conductor itself, generally to the transformer ground.

Advantages: Maximum safety against cable breaks and L-PE faults.

Disadvantages: The most expensive system, both for cable and for installation and maintenance.

IT arrangement



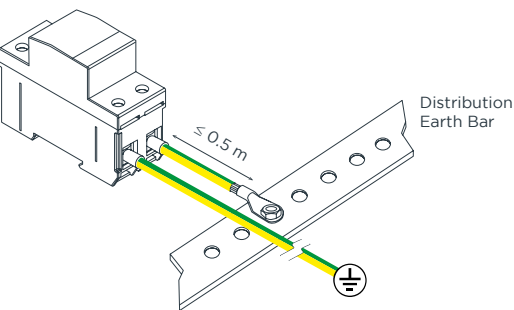
- The transformer neutral is isolated from ground. Optional distributed neutral conductor. Local ground connection at the consumer level.
- The protective ground is made via the local ground connection. There is no risk at the first L-PE fault due to the high loop impedance.

Advantages: No neutral breakage risk. Continuity of service in case of L-PE incidents.

Disadvantages: Requires connected devices to be able to work at line voltages. Needs insulation monitoring to act at the first fault.

Installation and wiring

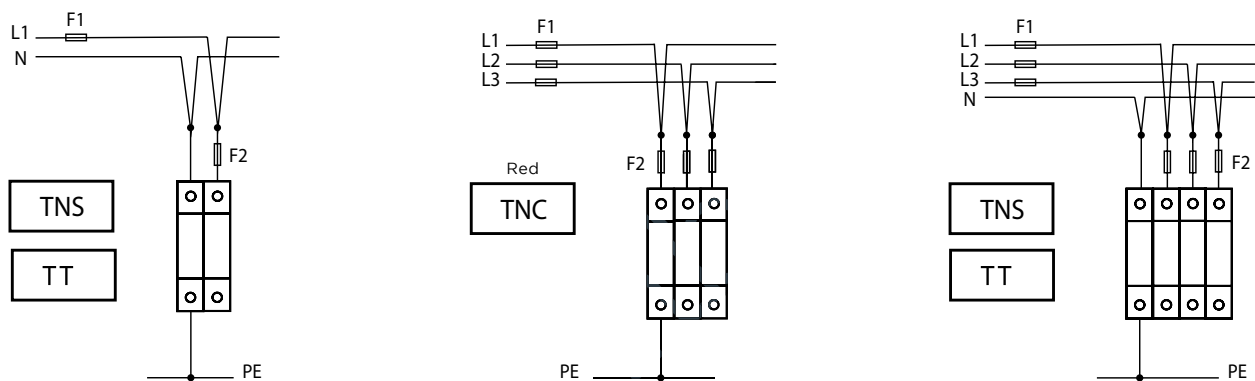
Recommended lengths and connection types according to IEC 61643-12



In order to achieve optimum overvoltage protection, connecting conductors of SPDs shall be as short as possible. Long lead lengths will degrade the protection offered by the SPD.

When connecting an SPD in parallel, the optimal connection is a “V-type” (see image below). Whenever this is not feasible, **the maximum derivation cable length should be less than 0.5 m.**

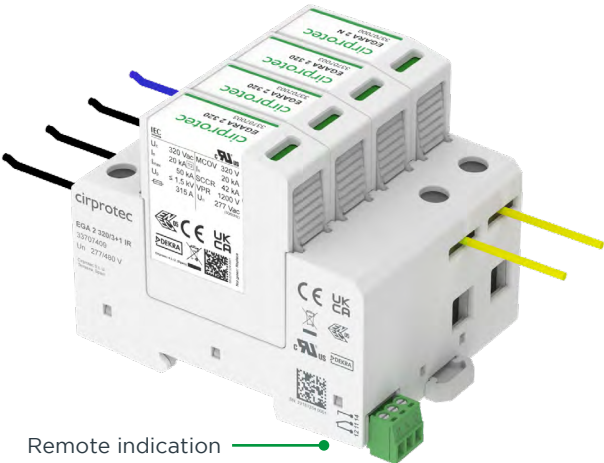
Wiring, general considerations (lengths and sections)



TYPE OF WIRE	Ø min L, N	Ø min PE	Ø max L, N, PE
STRANDED	6 mm ²	16 mm ² (Type 1)	25 mm ²
RIGID		6 mm ² (Type 2)	35 mm ²

Remote indication

U _{max} / I _{max}	
	AC: 50 V / 1 A DC: 125 V / 0.2 A
max 1.5 mm ² min 0.05 mm ²	



Remote indication

SPD placement in your design

When selecting an SPD, several points must be considered:

1. Where to start the protection design?

At the origin of the installation, the main switchboard is the place to start the design of SPDs on the network.

2. Network typology

TNS, TNC, TT, IT, PV and No. of conductors.

3. Nominal voltage rating (Un) of the supply

Both features will condition **the maximum continuous operating voltage (Uc)**. IEC/HD standard 60364-5-534 sets the minimum allowed value of Uc depending on the system configuration, taking into account a safety margin of the device above the nominal voltage.

4. Type 1, Type 2, Type 3 which one has to be selected?

As previously stated, the SPD protection design does not depend on the fault ratings given by the transformer, it only depends on the level of exposure to surges.

Example: Which SPD do we have to install in the main switchboard?

See the diagram below from IEC 62305-1 standard which displays the dispersion of the highest lightning considered: 200 kA at 10/350 μ s.

In the worst case scenario, 50% of this energy is conducted away to earth leaving 100 kA potential across the networks 3 phase and neutral. Here a **25 kA at 10/350 μ s (Iimp) Type 1 SPD is recommended** for insulated installations in extremely exposed locations to lightning.

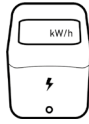
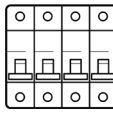
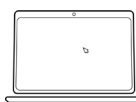
In the "Normal Scenario" it is assumed any direct lightning strike to the network will be at such a distance from the installation that another 50% of the energy is dispersed to earth via other conductors before entering your point of connection. In this scenario a device with **12.5 kA at 10/350 μ s (Iimp) Type 1 is recommended**. Furthermore, based on the **IEC 61643-12 standard and even stated in section 534.4, 12.5 kA is the minimum kA rate when a Type 1 is required**. If the level of exposure of the installation is lower than the scenarios described above. Type 2 SPD (Imax) may be considered along with risk and cost of equipment and downtime.



Do we have to consider more SPDs?

The IEC 60364-4-443 standard classifies electrical devices in categories, depending on how sensitive they are to surge overvoltage (U_e).

Category 1 devices (electronic receivers) are the most sensitive, U_e has to be at least 1.5 kV. Whereas category 4 devices can withstand 6 kV or more. Generally, components in main switchboards are category 4 devices ie ACB, MCCB etc.

Category	IV	III	II	I
230/400 lines	Counters / MCCB / ACB	MCBs and RCCDs	Electrical devices	Electronic receivers
Example				
Impulse voltage withstand	6 kV	4 kV	2,5 kV	1,5 kV

Example: How will a SPD Type 1+2 act against different surges?

Then, let's consider an example below, where a Type 1+2 SPD is installed in the main distribution board of an installation. The following chart analysis the status of the SPD, the status of the category 1 loads (the most sensitive U_e : 1.5 kV) in front of different surge scenarios:

SURGE EVENT			
 I_{imp} = 12.5 kA I_{max} = 50 kA I_n = 20 kA U_p ≤ 1.5 kV In accordance with the IEC 61643-11	≤ 20 kA 	50 kA 	> 50 kA 
	 U_e = 1.5 kV Robustness classification for electric and electronic devices according to IEC 60364-4-443		

According to the IEC 61643-1 declared U_p rate is related to I_n . Although the SPD is able to withstand I_{max} probably U_p level will be higher than U_e .

Statements:

1. For discharges over the maximum capacity (**I_{max}**) of the SPD, the loads and the SPD itself will be damaged.
2. I_{imp} and I_{max} define the maximum surge level the SPD itself can withstand but does not describe the protection.
3. Only I_n defines the level of protection as at I_n the residual voltage seen by the equipment being protected is U_e .
4. As surges may be induced in cable between the main switchboard and distribution board, or by the final loads themselves, the switchboard may not be close enough to direct a surge in time to protect other final loads.

Conclusions:

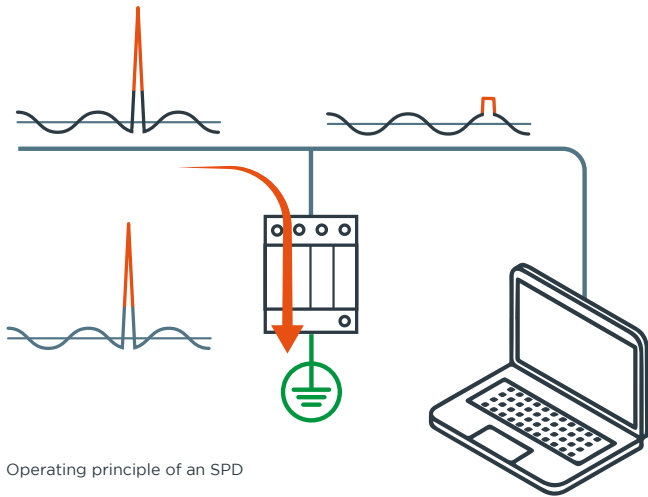
- With just one stage of protection only equipment close to the SPD is protected and only up to a surge of I_n .
- To improve the protection possibilities, at least a second stage of protection in a distribution board is a must. This SPD design is called cascading protection.
- **Further SPDs (Type 2 and Type 3) are required to protect sensitive and critical equipment downstream of the origin of the installation when a Type 1 is fitted at the origin of installation (534.4.1.1)**

Effectiveness of an SPD depending on the earth connection

The importance of the earth connection

Surge protection devices discharge excess energy to earth, thus limiting the peak voltage to a value acceptable for the electrical equipment connected.

An **earth in proper conditions** is therefore an aspect not to overlook when it comes to **effective surge protection**. **Continuously monitoring the state of the earth connection** ensures proper operation of surge protection devices.



Operating principle of an SPD

Impedance loop method

The loop impedance method is a system for checking the entire earthing system by acting physically not on earth rods, but solely on the low voltage line.

Sending pulses and measuring the voltage response makes it possible to measure the impedance of the path, which usually includes the earthing system and wiring and the return path through the transformer coil.

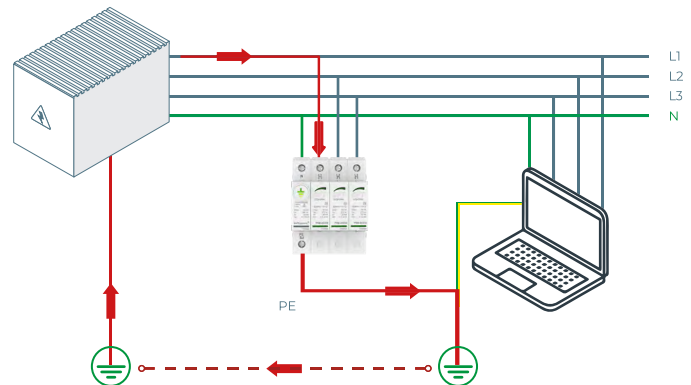
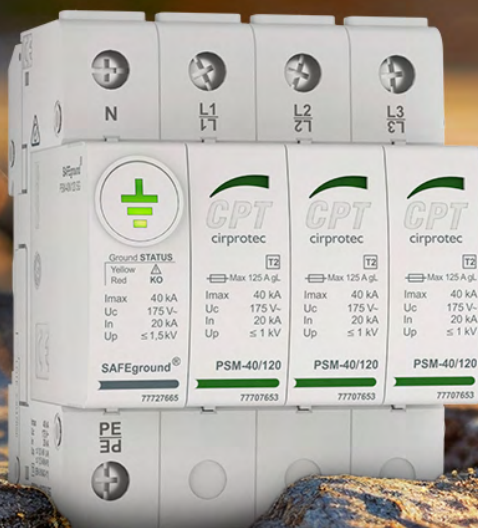


Diagram of loop impedance measuring used by SAFEGROUND



SAFE GROUND®

no earth, no protection

No earth, no protection

If the surge protection device does not have an adequate path to earth for discharging voltage peaks, the protector will be forced to operate under sub-optimal conditions.

The effectiveness of surge protectors is indeed closely linked to the earthing system, since a high impedance path may increase the exposure of sensitive equipment to the effects of the overvoltage.

Hydraulic simile

To understand the relationship between the quality of the earth connection and the effectiveness of overvoltage protection, people often use a very intuitive hydraulic simile.

If we equate the energy of the overvoltage to a specific volume of liquid, the earth connection may be thought of like a funnel. There is a direct relationship between the diameter of the funnel opening and the quality of the earth connection. Once the funnel has drained the entire volume of liquid, the overvoltage will have been shunted to earth and the equipment will see a completely normal voltage.

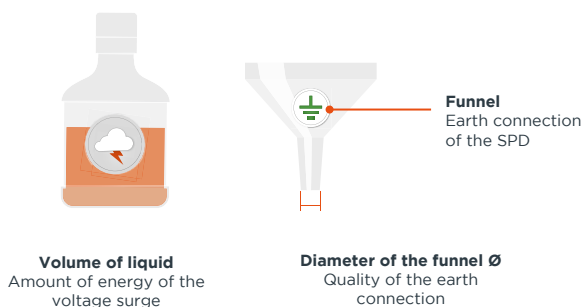
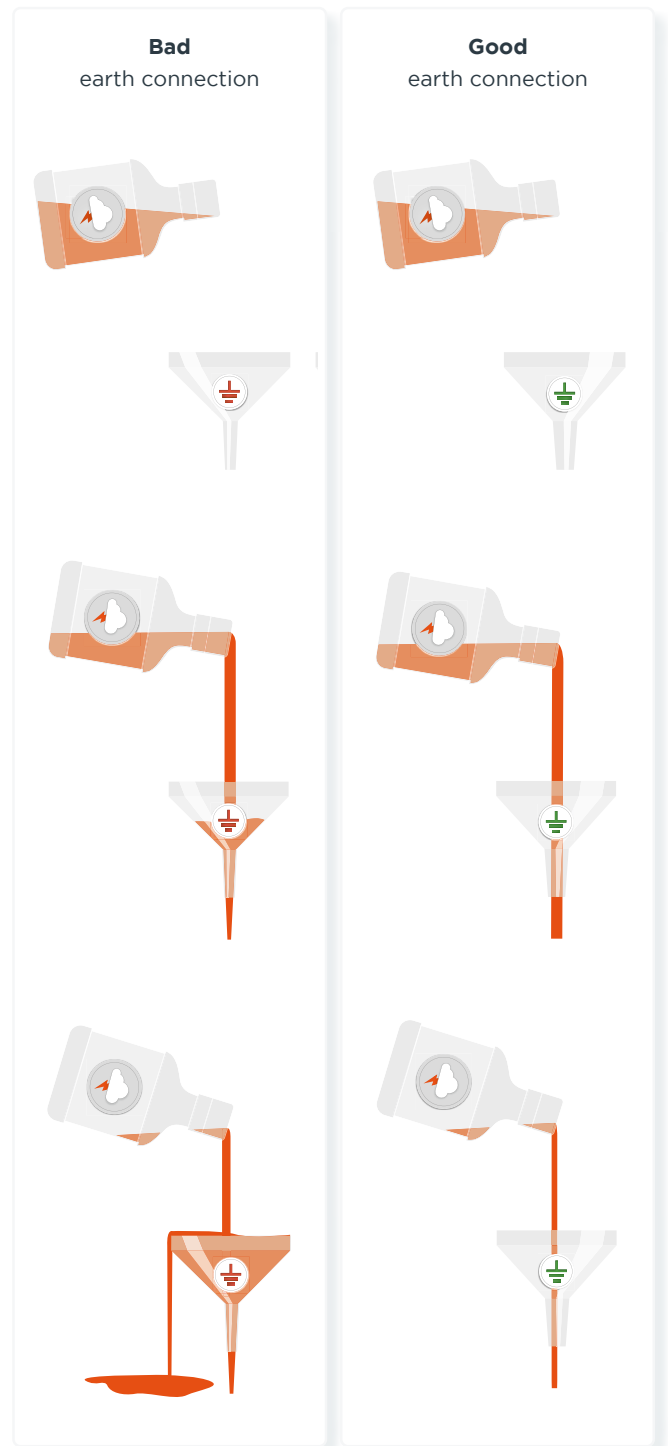


Figure 2 compares what happens to a bad earth connection (funnel on the left - small opening) to what happens to a good one (funnel on the right - big opening) in the event of an overvoltage. We can see how an earth connection with higher resistance (funnel on the left) is saturated with the energy of the discharge (the funnel overflows because it is incapable of draining fast enough). Intuitively, **this prolongs the time during which the equipment to be protected is subjected to the effects of overvoltage**, and which therefore suffer more wear (the funnel takes longer to empty due to its smaller opening).

Since all the equipment is referenced to earth, this can even lead to **the current, unable to find a better escape route**, doing direct **damage to the equipment** and rendering the protection ineffective.

In the extreme case of loss or **lack of an earth connection**, the **surge protection device becomes totally ineffective**.

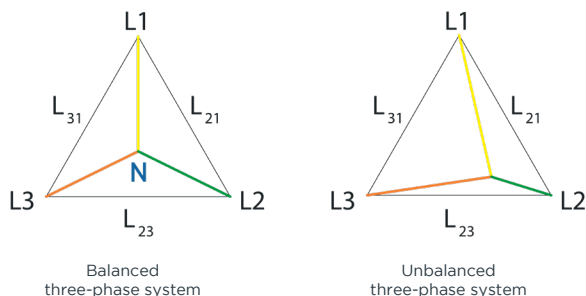
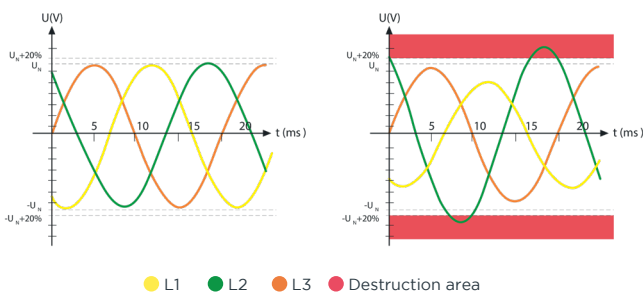


A poor earth connection means reduced capacity to discharge the overvoltage compared to a good connection. Slower dissipation of the overvoltage means the equipment is exposed to its effects for longer. In the absence of an optimum discharge path, the voltage surge will overwhelm sensitive equipment.

What they are and how to protect against them

How is a power frequency overvoltage generated?

Power frequency overvoltages (POP) are increases in power-frequency voltage (50/60 Hz) that reach values between 300 and 400 V in 230 V networks. Unlike transient surges, these overvoltages persist for a prolonged period, from several seconds to indefinitely, and therefore require the disconnection of the power supply to prevent damage to the installation. Their most common origin lies in anomalies in the electrical distribution network, with a broken or poor neutral conductor connection being especially critical.



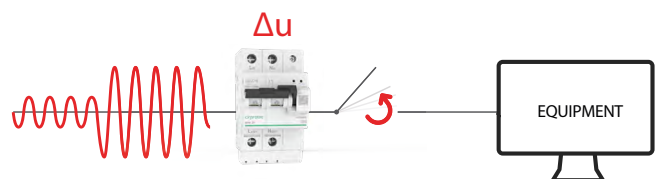
What happens when a neutral conductor breaks?

In a properly balanced 400/230 V three-phase network, the neutral conductor acts as a reference point that keeps phase voltages stable with respect to the connected loads. However, when this conductor is accidentally interrupted, the system loses its balance and a neutral point shift occurs, directly affecting the voltage distribution throughout the installation.

This imbalance causes the phase voltages to become unstable, resulting in lower loads rising to values close to 350–400 V, while more heavily loaded phases experience a significant voltage drop. As a result, connected equipment may suffer immediate damage, a drastic reduction in service life, or even severe failures associated with overheating, with the consequent risk of fire. This phenomenon is especially critical in installations with multiple single-phase loads distributed across the phases.

Operation of the POP protector

Power frequency overvoltage protectors (POP) are designed to protect the installation against this type of anomaly by continuously monitoring the network voltage. When a voltage increase above safe levels is detected — typically more than 20% above the nominal voltage — they automatically disconnect the power supply, either through an integrated disconnection system or by acting on an external device. In this way, the overvoltage is prevented from reaching the equipment, ensuring the safety of the installation.



Operating principle of a POP protector

UNE-EN IEC 63052 Standard

Regulatory evolution: From UNE-EN 50550 to UNE-EN IEC 63052

The regulations applicable to permanent overvoltage protection devices have evolved to ensure the safety of electrical installations.

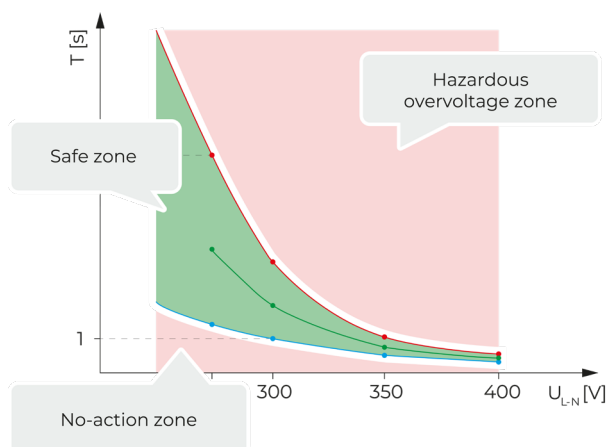
The UNE-EN 50550 standard has been replaced by the new International Electrotechnical Commission UNE-EN IEC 63052 standard, which introduces updated requirements and aligns with international standards. Published on March 30, 2022, this standard is already in force, following a period of coexistence with the previous one.

Changes introduced by the new standard

The main change and improvement introduced by the new UNE-EN IEC 63052 standard is its alignment with international standards, facilitating the global certification of protection devices.

The new standard now distinguishes four types of protectors according to their construction

- POP unit assembled by the manufacturer together with the main protective device as a single device.
- POP unit with a tripping unit mechanically coupled on site to a main protective device.
- POP unit electrically coupled on site, with the tripping unit connected to the main protective device.
- POP as a standalone device intended to be connected in series with a short-circuit protective device, as specified by the manufacturer.



What does the standard imply? Main requirements and criteria

The application of the UNE-EN IEC 63052 standard has a direct impact on the manufacturing and installation of permanent overvoltage protection devices, which are generally used in residential and industrial environments. Its main implications are:

Voltage/Time operating curve

The standard defines the operating times according to the magnitude of the overvoltage, establishing when the protection must be activated. This curve has been determined based on empirical data and validated through extensive laboratory testing, with the aim of defining a precise, safe, and effective operating range against permanent overvoltages.

Permanent overvoltage protectors must be designed to comply with the operating times specified in the standard:

- Responding quickly and effectively to severe overvoltages.
- Avoiding nuisance tripping during small voltage variations to ensure service continuity.

Incorporation of a disconnection element

The protector must operate through a disconnection element. This disconnection element typically performs the function of a main circuit breaker (MCB/IGA).

Technical characteristics and testing methods to ensure effective and safe protection in residential environments.

- Compliance with operating times, verifying that the device disconnects correctly in response to overvoltages within the established limits.
- Overstress and endurance tests: the device is subjected to different overvoltage cycles and durations to evaluate its resistance and continuous operation.
- Electromagnetic compatibility (EMC): ensuring compliance with the International Electrotechnical Commission IEC 61000-4 standard without generating or suffering electromagnetic interference.

	Standardized operating and non-operating time values at a voltage (U_n) equal to				
	255 V	275 V	300 V	350 V	400 V
Maximum operating time	No tripping	15 s	5 s	0.75 s	0.20 s
Minimum non-operating time		3 s	1 s	0.25 s	0.07 s

Technical characteristics and testing methods to ensure effective and safe protection in residential environments.



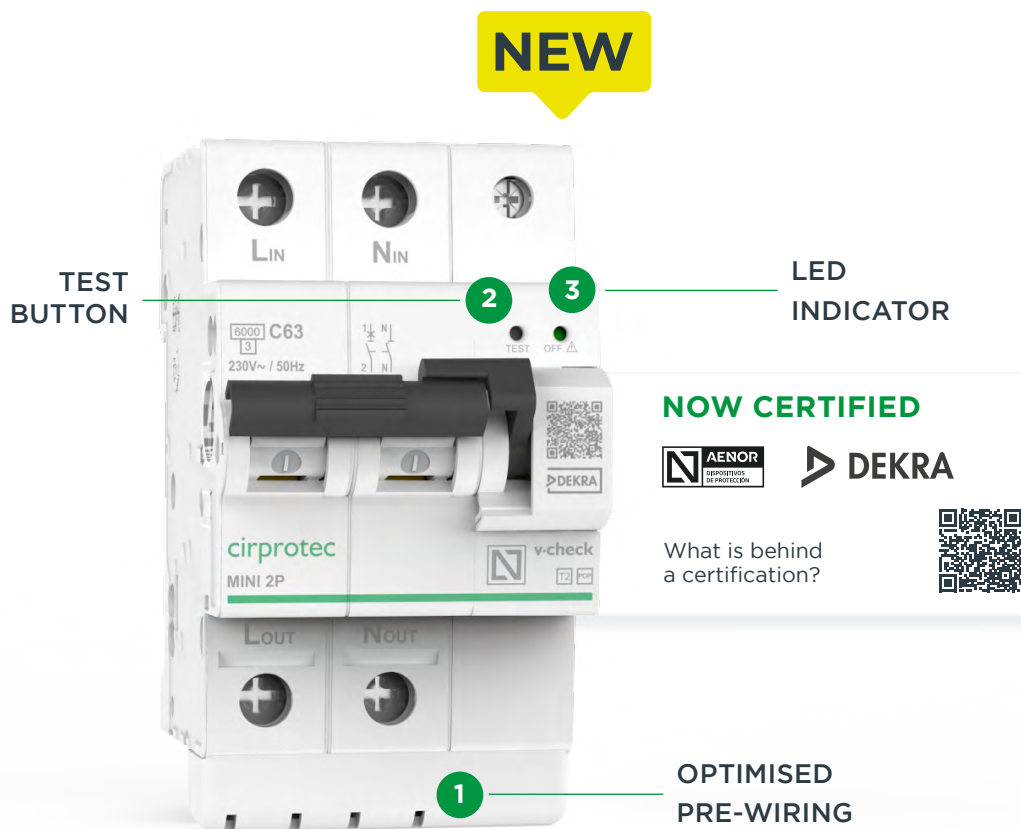
SURGE PROTECTION DEVICES

POWER FREQUENCY OVERVOLTAGE PROTECTION DEVICES (POP)

v-check mini

The safest, easiest, and **most** ⁺ reliable protector

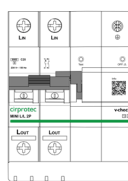
Combined protection against transient and power frequency overvoltage in a compact design, specifically engineered for panels inside homes and common service panels with limited space. An efficient solution that combines safety, regulatory compliance, and ease of installation in the smallest possible space.



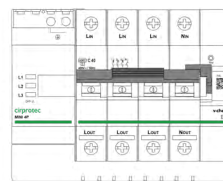
The most complete range



SINGLE-PHASE



TWO-PHASE



THREE-PHASE



The safest protector

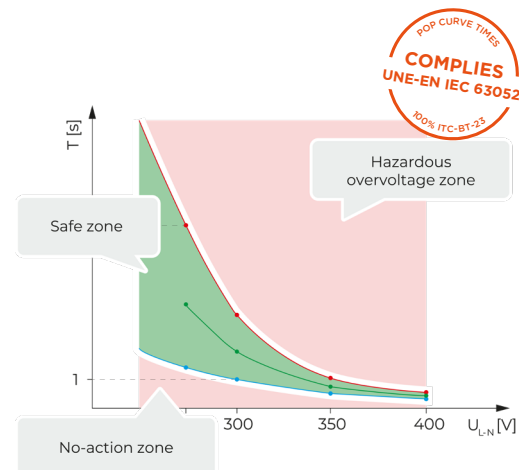
Complies with the POP standard (UNE-EN IEC 63052)

V-CHECK MINI is the only protector tested in an ENAC-accredited laboratory, ensuring trip times that comply with regulations. This prevents false tripping and ensures proper protection of equipment.

Complies with the DPS standard (IEC 61643-11)

Designed in accordance with international standards, it guarantees high levels of safety and reliability.

COMPLY = PROTECT



	Standardized operating and non-operating time values at a voltage (U_n) equal to				
	255 V	275 V	300 V	350 V	400 V
Maximum operating time	No tripping	15 s	5 s	0.75 s	0.20 s
Minimum non-operating time		3 s	1 s	0.25 s	0.07 s

Technical characteristics and testing methods to ensure effective and safe protection in residential environments.



The easiest protector to install

A compact design that includes status indicators for your peace of mind after installation.

- **Optimised pre-wiring:** Designed to facilitate cable entry and reduce installation time.
- **LED indicator:** Visually confirms that protection is active.
- **Test button:** Allows you to easily verify that the device's protective features are working properly.



The most reliable protector

Entirely designed in our R&D lab and manufactured locally to ensure maximum traceability and quality control. 100% of units are electronically, mechanically, and electrically tested in accordance with the most stringent international standards.

Responsible design and manufacturing

With an eco-design approach and a carbon footprint 40% lower than equivalent products on the market with PEP Ecopassport environmental certification (EPD), it offers a 20-year service life, and is fully recyclable.



V-CHECK MINI



Combined protector against permanent (POP) and Type 2 transient overvoltages (SPD), prewired and compact design. The V-CHECK MINI range is a prewired and compact solution, with MCB included, for the protection of low-voltage installations against permanent and transient overvoltages.

Standards

- EN IEC 63052
- EN IEC 61643-11

More info



Part numbers

Single-phase

Item number	Item description	N° poles+ conf	N° DIN rail modules	In (IGA) [A]	Breaking capacity EN 60898 - Icn [A]	Uc (L-N) [V]	Un [V]	I _{max} [kA]	In (L-N) [kA]
79706102	V-CHECK MINI 2P - 10	2 Poles, 1P+N	3	10	6000	320	230	15	5
79706103	V-CHECK MINI 2P - 16	2 Poles, 1P+N	3	16	6000	320	230	15	5
79706104	V-CHECK MINI 2P - 20	2 Poles, 1P+N	3	20	6000	320	230	15	5
79706105	V-CHECK MINI 2P - 25	2 Poles, 1P+N	3	25	6000	320	230	15	5
79706106	V-CHECK MINI 2P - 32	2 Poles, 1P+N	3	32	6000	320	230	15	5
79706107	V-CHECK MINI 2P - 40	2 Poles, 1P+N	3	40	6000	320	230	15	5
79706108	V-CHECK MINI 2P - 50	2 Poles, 1P+N	3	50	6000	320	230	15	5
79706109	V-CHECK MINI 2P - 63	2 Poles, 1P+N	3	63	6000	320	230	15	5

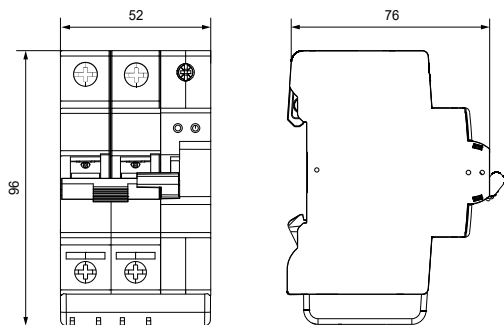
Three-phase

Item number	Item description	N° poles+ conf	N° DIN rail modules	In (IGA) [A]	Breaking capacity EN 60898 - Icn [A]	Uc (L-N) [V]	Un [V]	I _{max} [kA]	In (L-N) [kA]
79706111	V-CHECK MINI 4P - 10	4 Poles, 3P+N	7	10	6000	255	230/400	15	5
79706112	V-CHECK MINI 4P - 16	4 Poles, 3P+N	7	16	6000	255	230/400	15	5
79706113	V-CHECK MINI 4P - 20	4 Poles, 3P+N	7	20	6000	255	230/400	15	5
79706114	V-CHECK MINI 4P - 25	4 Poles, 3P+N	7	25	6000	255	230/400	15	5
79706115	V-CHECK MINI 4P - 32	4 Poles, 3P+N	7	32	6000	255	230/400	15	5
79706116	V-CHECK MINI 4P - 40	4 Poles, 3P+N	7	40	6000	255	230/400	15	5
79706117	V-CHECK MINI 4P - 50	4 Poles, 3P+N	7	50	6000	255	230/400	15	5
79706118	V-CHECK MINI 4P - 63	4 Poles, 3P+N	7	63	6000	255	230/400	15	5

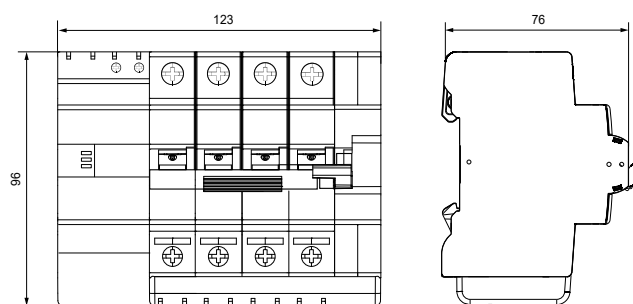
V-CHECK MINI

Dimensions

Single-phase

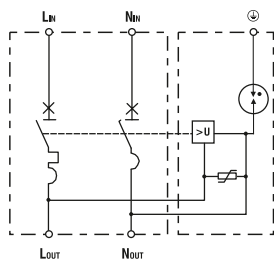


Three-phase

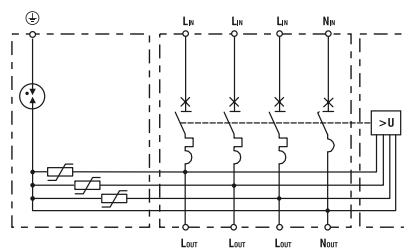


Internal configuration

Single-phase



Three-phase



V-CHECK MP T12



Combined protector against permanent (POP) and Type 1+2 transient overvoltages (SPD) with 12.5kA Iimp. The V-CHECK MP T12 range is a solution with MCB included, suitable as a first level of protection against overvoltages in low-voltage installations with lightning protection systems.

Standards

- EN IEC 63052
- EN IEC 61643-11

More info



Part numbers

Single-phase

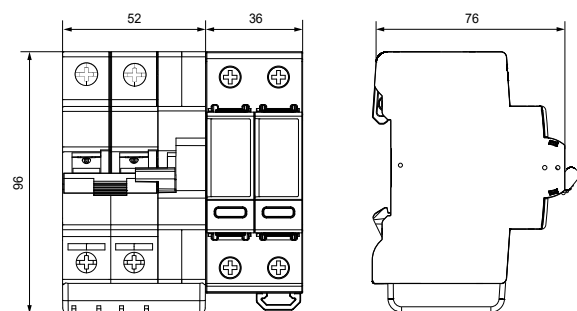
Item number	Item description	N° poles+ conf	N° DIN rail modules	In (IGA) [A]	Breaking capacity EN 60898 - Icn [A]	Uc (L-N) [V]	Un [V]	Iimp (L-N) [kA]	I _{max} [kA]
79706345	V-CHECK MP T12 2P-25	2 Poles, 1P+N	5	25	6000	275	230	12.5	50
79706347	V-CHECK MP T12 2P-40	2 Poles, 1P+N	5	40	6000	275	230	12.5	50

Three-phase

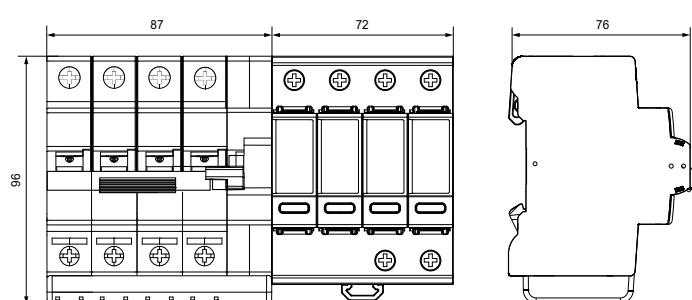
Item number	Item description	N° poles+ conf	N° DIN rail modules	In (IGA) [A]	Breaking capacity EN 60898 - Icn [A]	Uc (L-N) [V]	Un [V]	Iimp (L-N) [kA]	I _{max} [kA]
79706354	V-CHECK MP T12 4P-25	4 Poles, 3P+N	9	25	6000	275	230/400	12.5	50
79706356	V-CHECK MP T12 4P-40	4 Poles, 3P+N	9	40	6000	275	230/400	12.5	50

Dimensions

Single-phase



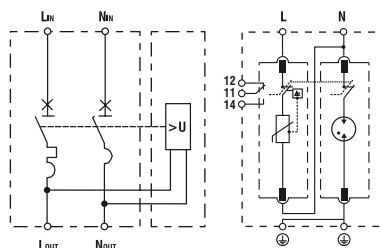
Three-phase



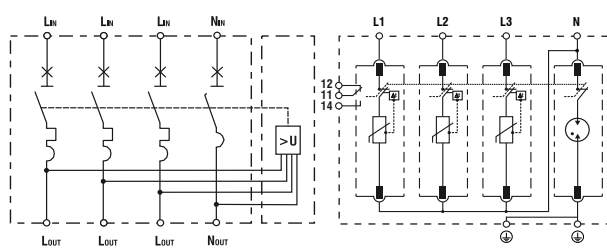
V-CHECK MP T12

Internal configuration

Single-phase



Three-phase



POWER FREQUENCY OVERVOLTAGE PROTECTION DEVICES

V-CHECK MINI L/L



Combined protector against permanent (POP) and Type 2 transient overvoltages (SPD). The V-CHECK MINI L/L range is a prewired and compact solution, with integrated main circuit breaker (MCB), for the protection of 230V two-phase (L/L) low-voltage installations, including a POP test button.

Standards

- EN IEC 63052
- EN IEC 61643-11



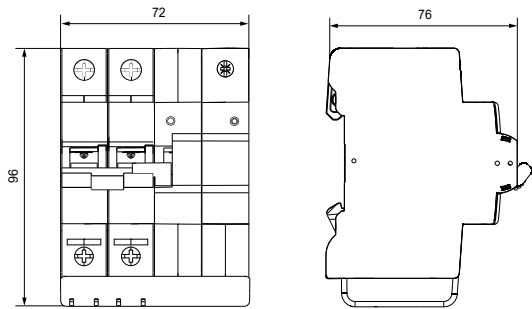
Part numbers

Single-phase

Item number	Item description	N° poles+ conf	N° DIN rail modules	In (IGA) [A]	Breaking capacity EN 60898 - Icn [A]	Uc (L-N) [V]	Un (L-L) [V]	I _{max} [kA]	In (L-N) [kA]
79706132	V-CHECK MINI L/L 2P - 25	2 Poles, 2P	4	25	6000	350	230	15	5
79706133	V-CHECK MINI L/L 2P - 32	2 Poles, 2P	4	32	6000	350	230	15	5
79706134	V-CHECK MINI L/L 2P - 40	2 Poles, 2P	4	40	6000	350	230	15	5

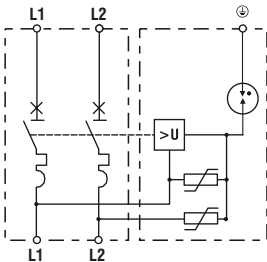
Dimensions

Single-phase



Internal configuration

Single-phase



V-CHECK MP



Power Frequency Overvoltage Protection devices (POP). The V-CHECK MP range, with integrated main circuit-breaker (MCB) and prewired, is suitable for protecting low-voltage installations against overvoltages.

Standards

- EN IEC 63052



More info



Part numbers

Single-phase

Item number	Item description	N° poles+conf	N° DIN rail modules	In (IGA) [A]	Breaking capacity EN 60898 - Icn [A]	Un [V]
79706202	V-CHECK MP 2P-10	2 Poles, 1P+N	3	10	6000	230
79706203	V-CHECK MP 2P-16	2 Poles, 1P+N	3	16	6000	230
79706204	V-CHECK MP 2P-20	2 Poles, 1P+N	3	20	6000	230
79706205	V-CHECK MP 2P-25	2 Poles, 1P+N	3	25	6000	230
79706206	V-CHECK MP 2P-32	2 Poles, 1P+N	3	32	6000	230
79706207	V-CHECK MP 2P-40	2 Poles, 1P+N	3	40	6000	230
79706208	V-CHECK MP 2P-50	2 Poles, 1P+N	3	50	6000	230
79706209	V-CHECK MP 2P-63	2 Poles, 1P+N	3	63	6000	230

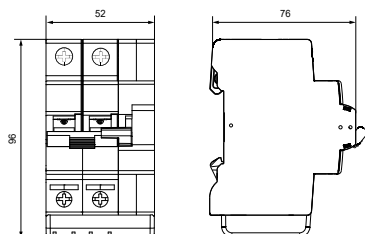
Three-phase

Item number	Item description	N° poles+conf	N° DIN rail modules	In (IGA) [A]	Breaking capacity EN 60898 - Icn [A]	Un [V]
79706211	V-CHECK MP 4P-10	4 Poles, 3P+N	5	10	6000	230/400
79706212	V-CHECK MP 4P-16	4 Poles, 3P+N	5	16	6000	230/400
79706213	V-CHECK MP 4P-20	4 Poles, 3P+N	5	20	6000	230/400
79706214	V-CHECK MP 4P-25	4 Poles, 3P+N	5	25	6000	230/400
79706215	V-CHECK MP 4P-32	4 Poles, 3P+N	5	32	6000	230/400
79706216	V-CHECK MP 4P-40	4 Poles, 3P+N	5	40	6000	230/400
79706217	V-CHECK MP 4P-50	4 Poles, 3P+N	5	50	6000	230/400
79706218	V-CHECK MP 4P-63	4 Poles, 3P+N	5	63	6000	230/400

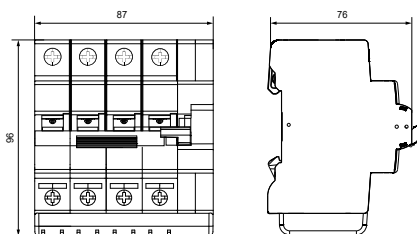
V-CHECK MP

Dimensions

Single-phase

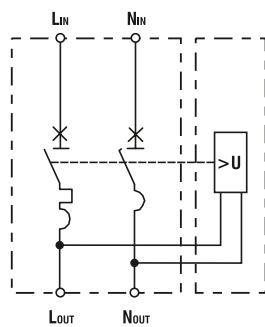


Three-phase

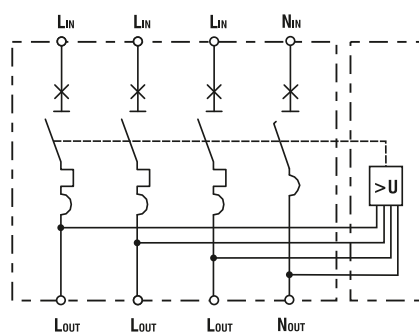


Internal configuration

Single-phase



Three-phase



POWER FREQUENCY OVERVOLTAGE PROTECTION DEVICES

V-CHECK 4RPT



Combined protector against permanent (POP) and Type 2 transient overvoltages (SPD) with I_{max} 40 kA. V-CHECK 4RPT range is a solution with operation on shunt or undervoltage coils, designed to protect low-voltage installations against permanent and transient overvoltages.

Standards

- EN IEC 61643-11

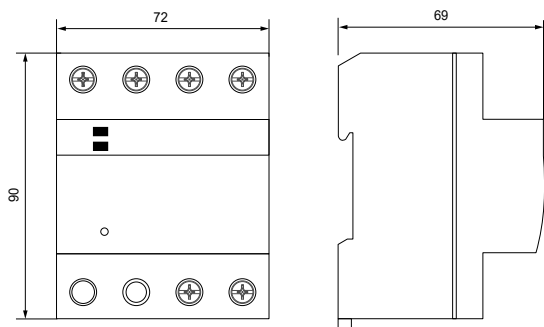


Part numbers

Item number	Item description	Nº poles+ conf	Nº DIN rail modules	Actuation method	Uc (L-N) [V]	Un [V]	I _{max} [kA]	I _n (L-N) [kA]	IR
77706415	V-CHECK 4RPT	4 Poles, 3P+N	4	Shunt release	275	230/400	40	15	

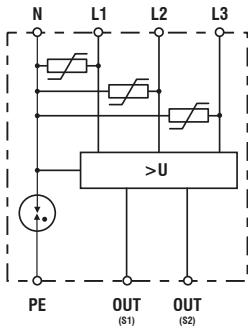
Dimensions

Three-phase



Internal configuration

Three-phase



POWER FREQUENCY OVERVOLTAGE PROTECTION DEVICES

V-CHECK 4RP T12



Combined protector against permanent (POP) and Type 1+2 transient overvoltages (SPD) with limp 12,5 kA. V-CHECK 4RP T12 range is a solution with operation on shunt or undervoltage coils, designed to protect low-voltage installations against permanent and transient overvoltages.

Standards

- EN IEC 61643-11

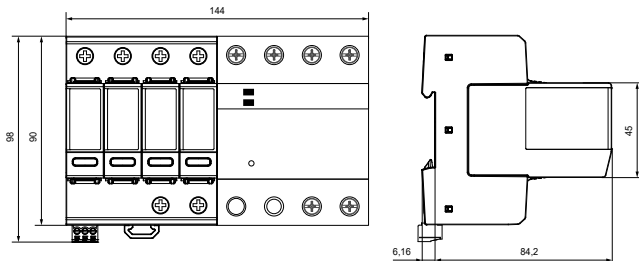


Part numbers

Item number	Item description	N° poles+ conf	N° DIN rail modules	Actuation method	Uc (L-N) [V]	Un [V]	I _{max} [kA]	In (L-N) [kA]	IR
77706591	V-CHECK 4RP T12	4 Poles, 3P+N	8	Shunt release	275	230/400	50	20	
77706593	V-CHECK 4RP T12 IR	4 Poles, 3P+N	8	Shunt release	275	230/400	50	20	✓

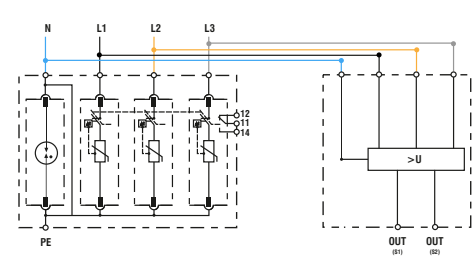
Dimensions

Three-phase



Internal configuration

Three-phase



POWER FREQUENCY OVERVOLTAGE PROTECTION DEVICES

V-CHECK 4RC



Combined protector against permanent (POP) and Type 2 transient overvoltages (SPD) with I_{max} 40 kA. V-CHECK 4RC range is suitable for protecting tertiary/commercial low-voltage installations against overvoltages.

Standards

- EN IEC 61643-11

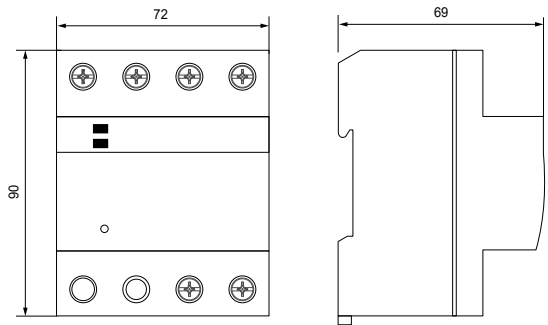


Part numbers

Item number	Item description	N° poles+ conf	N° DIN rail modules	Actuation method	Uc (L-N) [V]	Un [V]	I _{max} [kA]	In (L-N) [kA]	IR
77706417	V-CHECK 4RC	4 Poles, 3P+N	4	Contactor	275	230/400	40	15	
77706418	V-CHECK 4RC IR	4 Poles, 3P+N	4	Contactor	275	230/400	40	15	✓

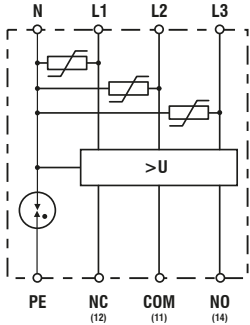
Dimensions

Three-phase



Internal configuration

Three-phase



POWER FREQUENCY OVERVOLTAGE PROTECTION DEVICES

V-CHECK 4RCP T12



Combined protector against permanent (POP) and Type 1+2 transient overvoltages (SPD) with limp 12,5 kA. V-CHECK 4RCP T12 range is suitable for protecting tertiary/commercial low-voltage installations against overvoltages.

Standards

- EN IEC 61643-11



More info

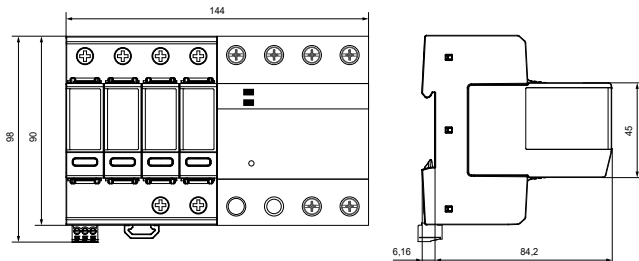


Part numbers

Item number	Item description	N° poles+ conf	N° DIN rail modules	Actuation method	Uc (L-N) [V]	Un [V]	I _{max} [kA]	I _n (L-N) [kA]	IR
77706590	V-CHECK 4RCP T12	4 Poles, 3P+N	8	Contactor	275	230/400	50	20	
77706592	V-CHECK 4RCP T12 IR	4 Poles, 3P+N	8	Contactor	275	230/400	50	20	✓

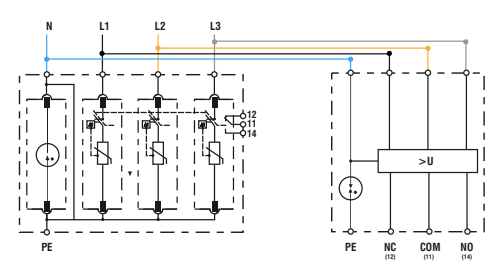
Dimensions

Three-phase



Internal configuration

Three-phase



V-CHECK MR



Combined protector against permanent (POP) and Type 2 transient overvoltages (SPD), with integrated main circuit breaker (MCB) and automatic reclosing, suitable for installations requiring continuity of service.

Standards

- EN IEC 63052
- EN IEC 61643-11

More info



Part numbers

Single-phase

Item number	Item description	N° poles+ conf	N° DIN rail modules	In (IGA) [A]	Breaking capacity EN 60898 - Icn [A]	Uc (L-N) [V]	Un [V]	I _{max} [kA]	In (L-N) [kA]
77706257	V-CHECK 2MR-10	2 Poles, 1P+N	5	10	10000	255	230	15	5
77706295	V-CHECK 2MR-16	2 Poles, 1P+N	5	16	10000	255	230	15	5
77706296	V-CHECK 2MR-20	2 Poles, 1P+N	5	20	10000	255	230	15	5
77706250	V-CHECK 2MR-25	2 Poles, 1P+N	5	25	10000	255	230	15	5
77706297	V-CHECK 2MR-32	2 Poles, 1P+N	5	32	10000	255	230	15	5
77706255	V-CHECK 2MR-40	2 Poles, 1P+N	5	40	10000	255	230	15	5

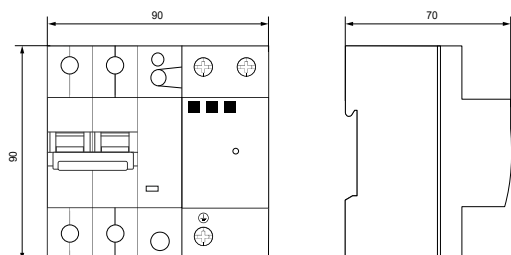
Three-phase

Item number	Item description	N° poles+ conf	N° DIN rail modules	In (IGA) [A]	Breaking capacity EN 60898 - Icn [A]	Uc (L-N) [V]	Un [V]	I _{max} [kA]	In (L-N) [kA]
77706267	V-CHECK 4MR-10	4 Poles, 4P	9	10	6000	275	230/400	20	5
77706268	V-CHECK 4MR-16	4 Poles, 4P	9	16	6000	275	230/400	20	5
77706266	V-CHECK 4MR-20	4 Poles, 4P	9	20	6000	275	230/400	20	5
77706261	V-CHECK 4MR-25	4 Poles, 4P	9	25	6000	275	230/400	20	5
77706262	V-CHECK 4MR-32	4 Poles, 4P	9	32	6000	275	230/400	20	5
77706263	V-CHECK 4MR-40	4 Poles, 4P	9	40	6000	275	230/400	20	5
77706264	V-CHECK 4MR-50	4 Poles, 4P	9	50	6000	275	230/400	20	5
77706265	V-CHECK 4MR-63	4 Poles, 4P	9	63	6000	275	230/400	20	5

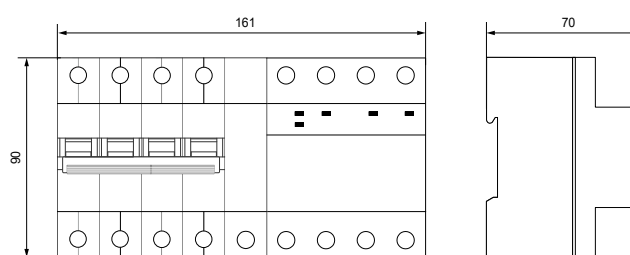
V-CHECK MR

Dimensions

Single-phase

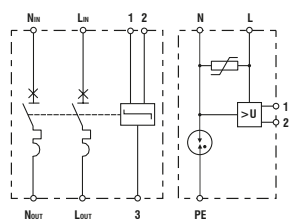


Three-phase

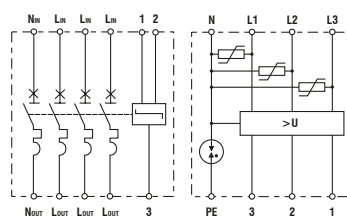


Internal configuration

Single-phase



Three-phase



POWER FREQUENCY OVERVOLTAGE PROTECTION DEVICES

V-CHECK RP



Power Frequency Overvoltage Protection devices (POP). The V-CHECK RP range is a solution with operation on shunt trip coils in moulded case circuit breakers (MCCB), suitable for industrial and tertiary installations with risk of permanent overvoltages.



Part numbers

Single-phase

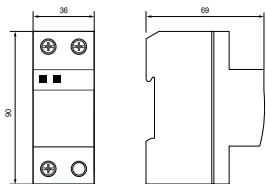
Item number	Item description	Nº poles+conf	Nº DIN rail modules	Actuation method	Un [V]
77706641	V-CHECK 2RP	2 Poles, 1P+N	2	Shunt release	230

Three-phase

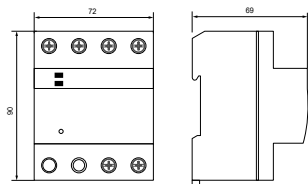
Item number	Item description	Nº poles+conf	Nº DIN rail modules	Actuation method	Un [V]
77706640	V-CHECK 4RP	4 Poles, 3P+N	4	Shunt release	230/400

Dimensiones

Monofásico

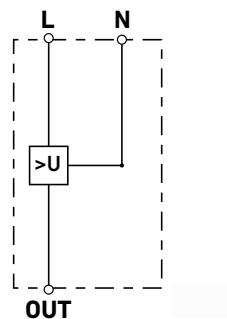


Trifásico

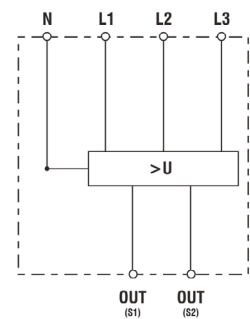


Configuración interna

Monofásico



Trifásico





SURGE PROTECTION DEVICES

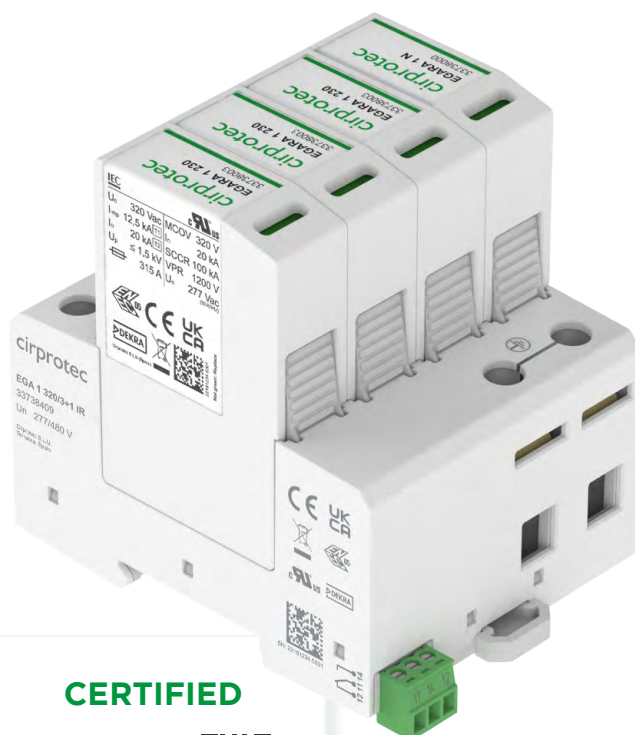
POWER LINE SPDs

LEADING THE STANDARD IN SURGE PROTECTION

egara

The new generation of Surge Protection Devices

EGARA is the new generation of Surge Protection Devices from the Cirprotec brand, developed to address today's electrical protection and safety requirements in residential, commercial, and industrial buildings. Patented worldwide.

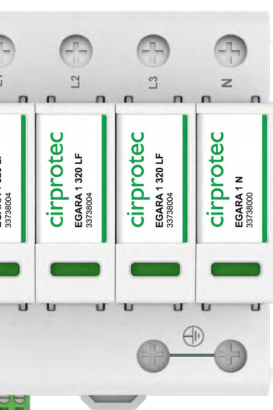


Complete range



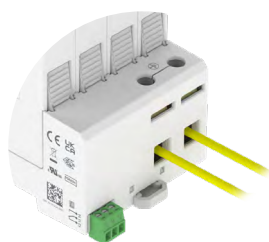
CERTIFIED

Check me

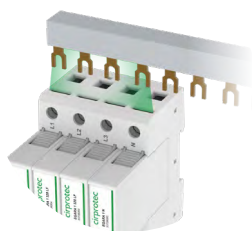


- Certified range IEC & UL
- Extended back-up protection (up to 315 A)
- LCF Leakage current free options
- Manufactured in Europe with sustainable criteria

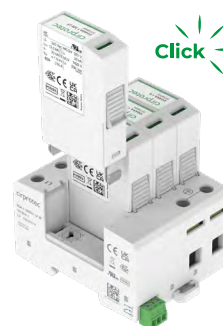
Fast and easy installation



Double PE connection



Assembly compatibility with busbar



Ergonomic pluggable cartridge

How to back-up SPDs?

EGARA has been specifically engineered to operate as a fully coordinated system with its **NEW dedicated back-up solution, the SSD (SPD Specific Disconnecter)**.

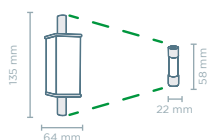
- ✓ High system robustness
- ✓ Easy and safe dimensioning of back-up protection
- ✓ Continuity of protection during surge event
- ✓ Continuity of service if back-up blows
- ✓ Compliant with current and upcoming standards
IEC 61643-11 & prIEC TS 61643-06

NEW

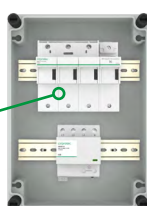
Iscr 100 kA



Designed to save space on the panel

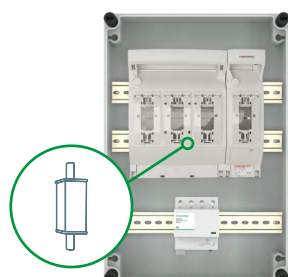


**SMALL
BEST**



Save up to 50% space

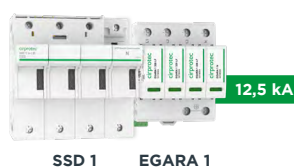
New Solution
SPD Specific Disconnecter



Standard Solution
Fuse technology

Easy and safe back-up dimensioning

	DPS	SSD
12,5 kA	EGARA 1 series	SSD 1 series
25 kA	EGARA 1H series	SSD 1H series

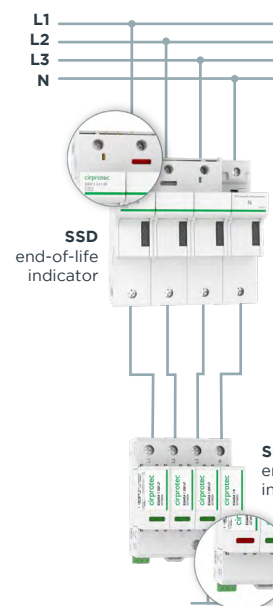


SSD 1 EGA 1



SSD 1H EGA 1H

Complete diagnosis at the end-of-life



SSD
end-of-life
indicator

SPD
end-of-life
indicator

The most reliable solution from the **unique** manufacturer mastering both overvoltage and overcurrent protection

POWER LINE SPDs

EGARA 1H LF



Type 1+2 surge protection device (SPD) for transient overvoltages monobloc design leakage current free with limp 25 kA. The multi-certified EGARA 1H LF range is suitable for installations with lightning rods or Aerial line entries.

Standards

- EN IEC 61643-11



Part numbers

2 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	In [kA]	Up at In [kV]	IR
33738239	EGA 1H 255/1+1 LF IR	1+1	TT, TNS	255	230	25	25	≤1.5	✓

3 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	In [kA]	Up at In [kV]	IR
33738343	EGA 1H 255/3+0 LF IR	3+0	TNC	255	230/400	25	25	≤1.5	✓

4 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	In [kA]	Up at In [kV]	IR
33738451	EGA 1H 255/3+1 LF IR	3+1	TT, TNS	255	230/400	25	25	≤1.5	✓

NEW Dedicated back-up solution

SPD Specific Disconnecter (SSD)

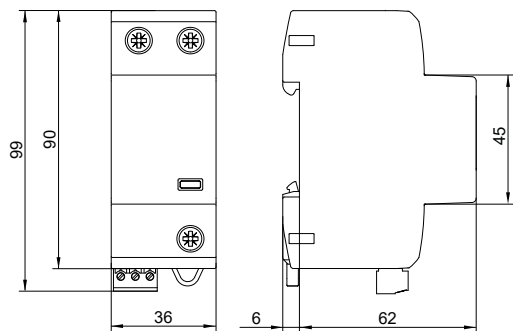
SPD		SSD	
SPD range	Number of poles	Item number	Description
Egara 1H LF Series	2 Poles	34001202	SSD 1H 1+1 IR
	3 Poles	34001302	SSD 1H 3+0 IR
	4 Poles	34001402	SSD 1H 3+1 IR

POWER LINE SPDs

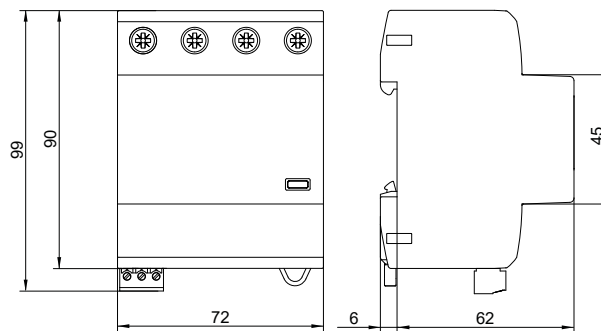
EGARA 1H LF

Dimensions

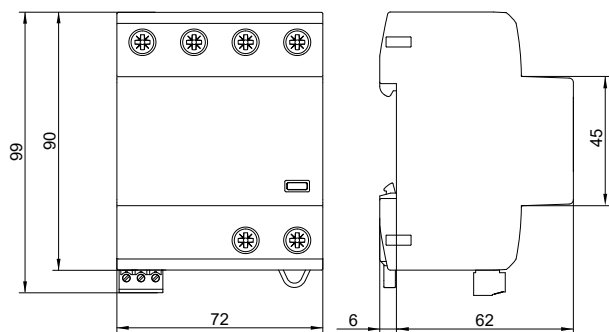
2 Poles



3 Poles

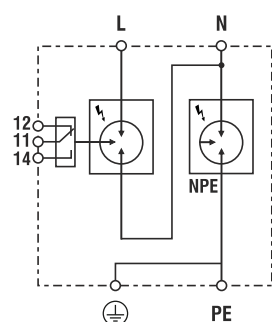


4 Poles

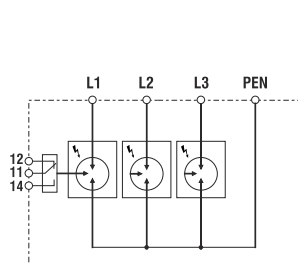


Internal configuration

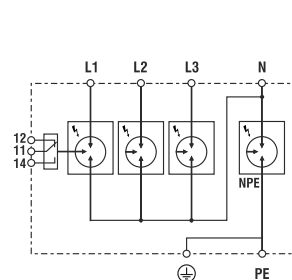
TT, TNS (1+1)



TNC (3+0)



TT, TNS (3+1)



SSD 1H



SPD Specific disconnect (SSD) for EGARA 1H LF. SSD 1H has been designed and validated together with EGARA 1H LF, ensuring continuity of protection and service. Suitable for applications with high short-circuit currents.

Standards

- prIEC TS 61643-06



More info



Part numbers

2 Poles

Item number	Item description	Internal conf.	Network configuration	Ue [V]	Itrip [A]	Iimp [kA]	In [kA]	IR
34001202	SSD 1H 1+1 IR	1+1	TT, TN, IT	500	1100	25	25	✓

3 Poles

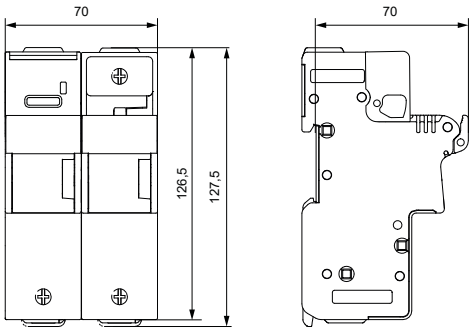
Item number	Item description	Internal conf.	Network configuration	Ue [V]	Itrip [A]	Iimp [kA]	In [kA]	IR
34001302	SSD 1H 3+0 IR	3+0	TT, TN, IT	500	1100	25	25	✓

4 Poles

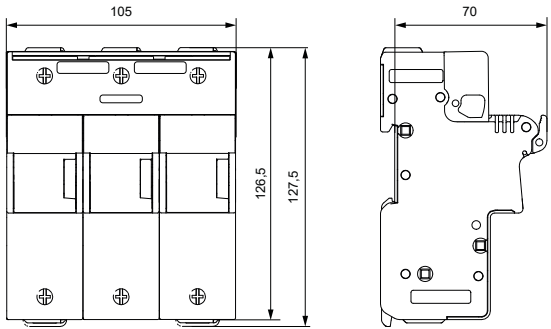
Item number	Item description	Internal conf.	Network configuration	Ue [V]	Itrip [A]	Iimp [kA]	In [kA]	IR
34001402	SSD 1H 3+1 IR	3+1	TT, TN, IT	500	1100	25	25	✓

Dimensions

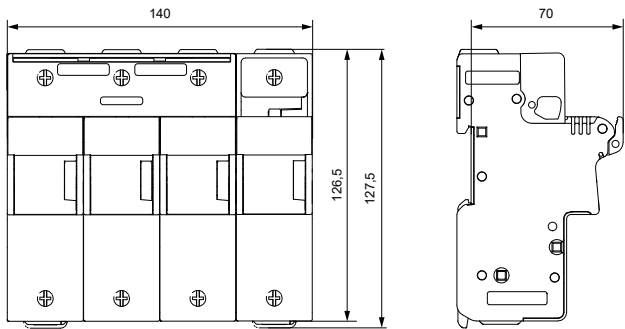
2 Poles



3 Poles

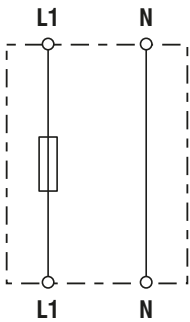


4 Poles

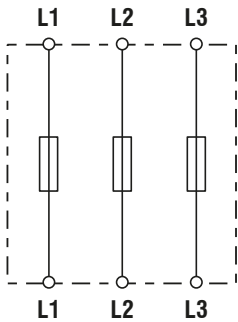


Internal configuration

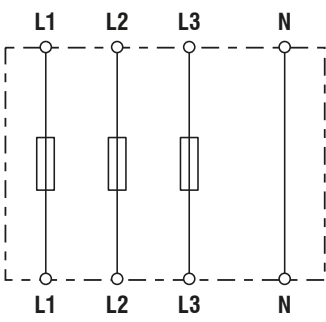
2 Poles



3 Poles



4 Poles



EGARA 1



Type 1+2 surge protection device (SPD) for transient overvoltages pluggable with limp 12.5 kA. The multi-certified EGA 1 range is suitable as a first level of protection in the main distribution board.

Standards

- EN IEC 61643-11
- UL 1449 5th Edition

More info



Part numbers

1 Pole

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
33738114	EGA 1 175/1+0	1+0	TNS, TNC, TT (only L-N)	175	120	12.5	50	20	≤1	
33738115	EGA 1 175/1+0 IR	1+0	TNS, TNC, TT (only L-N)	175	120	12.5	50	20	≤1	✓
33738100	EGA 1 N/0+1	0+1	TT, TNS	255	Neutral	50	100	50	≤1.5	
33738101	EGA 1 N/0+1 IR	0+1	TT, TNS	255	Neutral	50	100	50	≤1.5	✓
33738102	EGA 1 275/1+0	1+0	TNS, TNC, TT (only L-N)	275	230	12.5	50	20	≤1.5	
33738103	EGA 1 275/1+0 IR	1+0	TNS, TNC, TT (only L-N)	275	230	12.5	50	20	≤1.5	✓
33738106	EGA 1 320/1+0	1+0	TNS, TNC, TT (only L-N)	320	277	12.5	50	20	≤1.5	
33738107	EGA 1 320/1+0 IR	1+0	TNS, TNC, TT (only L-N)	320	277	12.5	50	20	≤1.5	✓

2 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
33738224	EGA 1 175/1+1	1+1	TT, TNS	175	120	12.5	50	20	≤1	
33738225	EGA 1 175/1+1 IR	1+1	TT, TNS	175	120	12.5	50	20	≤1	✓
33738200	EGA 1 275/1+1	1+1	TT, TNS	275	230	12.5	50	20	≤1.5	
33738201	EGA 1 275/1+1 IR	1+1	TT, TNS	275	230	12.5	50	20	≤1.5	✓
33738208	EGA 1 320/1+1	1+1	TT, TNS	320	277	12.5	50	20	≤1.5	
33738209	EGA 1 320/1+1 IR	1+1	TT, TNS	320	277	12.5	50	20	≤1.5	✓
33738228	EGA 1 175/2+0	2+0	TNS	175	120	12.5	50	20	≤1	
33738229	EGA 1 175/2+0 IR	2+0	TNS	175	120	12.5	50	20	≤1	✓
33738204	EGA 1 275/2+0	2+0	TNS	275	230	12.5	50	20	≤1.5	
33738205	EGA 1 275/2+0 IR	2+0	TNS	275	230	12.5	50	20	≤1.5	✓
33738212	EGA 1 320/2+0	2+0	TNS	320	277	12.5	50	20	≤1.5	
33738213	EGA 1 320/2+0 IR	2+0	TNS	320	277	12.5	50	20	≤1.5	✓
33738220	EGA 1 440/2+0 *	2+0	TNS	440	400	12.5	50	20	≤2	
33738221	EGA 1 440/2+0 IR *	2+0	TNS	440	400	12.5	50	20	≤2	✓

*Also suitable for 230 V IT network configuration

3 Poles

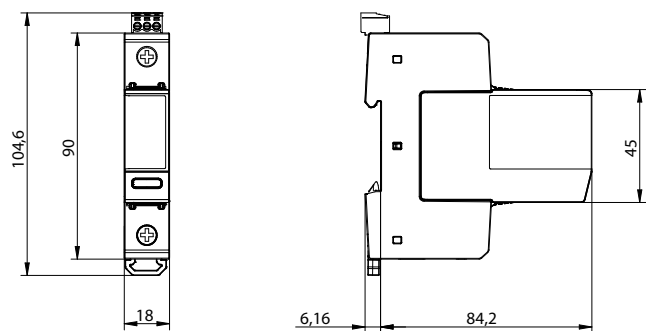
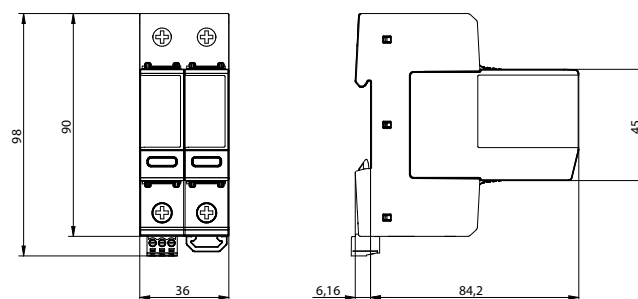
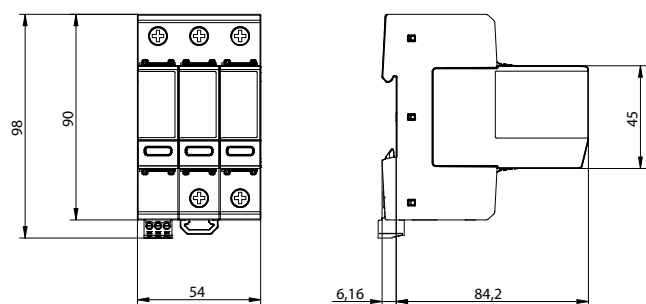
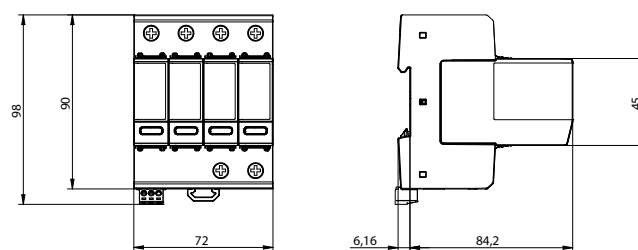
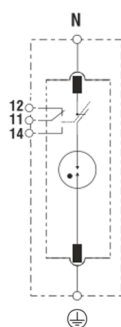
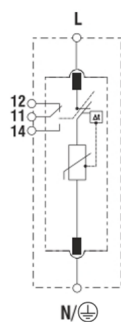
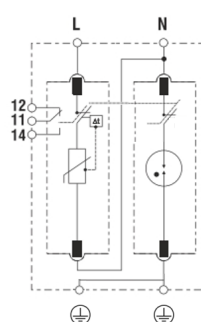
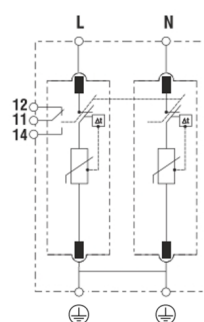
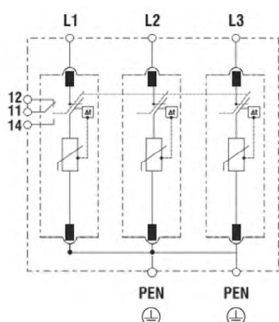
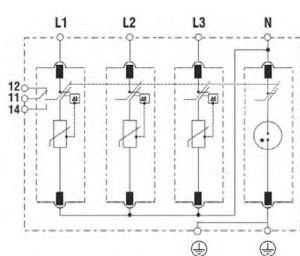
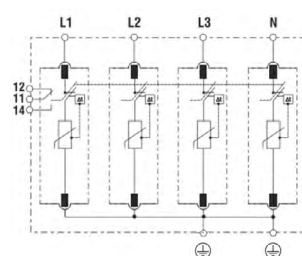
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Iimp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
33738320	EGA 1 175/3+0	3+0	TNC	175	120/208	12.5	50	20	≤1	
33738321	EGA 1 175/3+0 IR	3+0	TNC	175	120/208	12.5	50	20	≤1	✓
33738300	EGA 1 275/3+0	3+0	TNC	275	230/400	12.5	50	20	≤1.5	
33738301	EGA 1 275/3+0 IR	3+0	TNC	275	230/400	12.5	50	20	≤1.5	✓
33738304	EGA 1 320/3+0	3+0	TNC	320	277/480	12.5	50	20	≤1.5	
33738305	EGA 1 320/3+0 IR	3+0	TNC	320	277/480	12.5	50	20	≤1.5	✓
33738308	EGA 1 440/3+0 *	3+0	TNC	440	400/690	12.5	50	20	≤2	
33738309	EGA 1 440/3+0 IR *	3+0	TNC	440	400/690	12.5	50	20	≤2	✓

*Also suitable for -/400 V IT network configuration

4 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Iimp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
33738424	EGA 1 175/3+1	3+1	TT, TNS	175	120/208	12.5	50	20	≤1	
33738425	EGA 1 175/3+1 IR	3+1	TT, TNS	175	120/208	12.5	50	20	≤1	✓
33738400	EGA 1 275/3+1	3+1	TT, TNS	275	230/400	12.5	50	20	≤1.5	
33738401	EGA 1 275/3+1 IR	3+1	TT, TNS	275	230/400	12.5	50	20	≤1.5	✓
33738408	EGA 1 320/3+1	3+1	TT, TNS	320	277/480	12.5	50	20	≤1.5	
33738409	EGA 1 320/3+1 IR	3+1	TT, TNS	320	277/480	12.5	50	20	≤1.5	✓
33738428	EGA 1 175/4+0	4+0	TNS	175	120/208	12.5	50	20	≤1	
33738429	EGA 1 175/4+0 IR	4+0	TNS	175	120/208	12.5	50	20	≤1	✓
33738404	EGA 1 275/4+0	4+0	TNS	275	230/400	12.5	50	20	≤1.5	
33738405	EGA 1 275/4+0 IR	4+0	TNS	275	230/400	12.5	50	20	≤1.5	✓
33738412	EGA 1 320/4+0	4+0	TNS	320	277/480	12.5	50	20	≤1.5	
33738413	EGA 1 320/4+0 IR	4+0	TNS	320	277/480	12.5	50	20	≤1.5	✓
33738420	EGA 1 440/4+0 *	4+0	TNS	440	400/690	12.5	50	20	≤2	
33738421	EGA 1 440/4+0 IR *	4+0	TNS	440	400/690	12.5	50	20	≤2	✓

*Also suitable for 230/400 V IT network configuration

EGARA 1**Dimensions****1 Pole****2 Poles****3 Poles****4 Poles****Internal configuration****TT, TNS (0+1)****TNS, TNC, TT (only L-N) (1+0)****TT, TNS (1+1)****TNS (2+0)****TNC (3+0)****TT, TNS (3+1)****TNS (4+0)**

EGARA 1 L



Type 1+2 surge protection device (SPD) for transient overvoltages, pluggable, with limp 12.5 kA. The compact EGA 1 L Series range is suitable as a first level of protection in the main distribution board in low-voltage installations with space limitations.

Standards

- EN IEC 61643-11
- UL 1449 5th Edition

More info



Part numbers

1 Pole

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
33738122	EGA 1 N/0+1 L	0+1	TT, TNS	255	Neutral	50	100	50	≤1.5	
33738123	EGA 1 N/0+1 L IR	0+1	TT, TNS	255	Neutral	50	100	50	≤1.5	✓
33738124	EGA 1 275/1+0 L	1+0	TNS, TNC, TT (only L-N)	275	230	12.5	50	20	≤1.5	
33738125	EGA 1 275/1+0 L IR	1+0	TNS, TNC, TT (only L-N)	275	230	12.5	50	20	≤1.5	✓

2 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
33738234	EGA 1 275/1+1 L	1+1	TT, TNS	275	230	12.5	50	20	≤1.5	
33738235	EGA 1 275/1+1 L IR	1+1	TT, TNS	275	230	12.5	50	20	≤1.5	✓
33738236	EGA 1 275/2+0 L	2+0	TNS	275	230	12.5	50	20	≤1.5	
33738237	EGA 1 275/2+0 L IR	2+0	TNS	275	230	12.5	50	20	≤1.5	✓

3 Poles

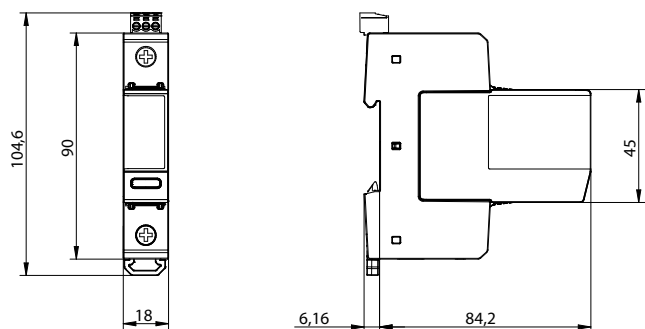
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
33738340	EGA 1 275/3+0 L	3+0	TNC	275	230/400	12.5	50	20	≤1.5	
33738341	EGA 1 275/3+0 L IR	3+0	TNC	275	230/400	12.5	50	20	≤1.5	✓

4 Poles

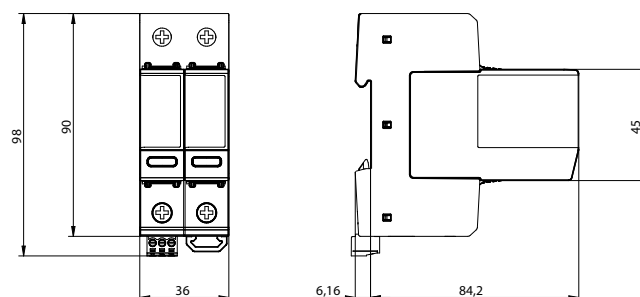
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
33738446	EGA 1 275/3+1 L	3+1	TT, TNS	275	230/400	12.5	50	20	≤1.5	
33738447	EGA 1 275/3+1 L IR	3+1	TT, TNS	275	230/400	12.5	50	20	≤1.5	✓
33738448	EGA 1 275/4+0 L	4+0	TNS	275	230/400	12.5	50	20	≤1.5	
33738449	EGA 1 275/4+0 L IR	4+0	TNS	275	230/400	12.5	50	20	≤1.5	✓

Dimensions

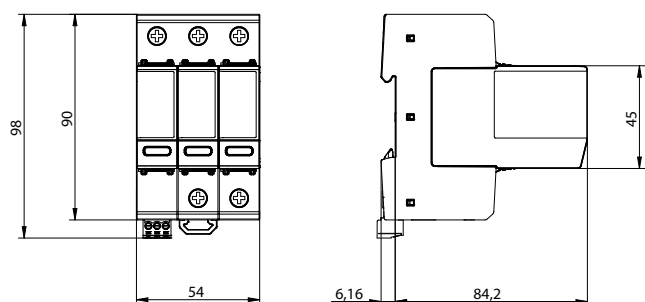
1 Pole



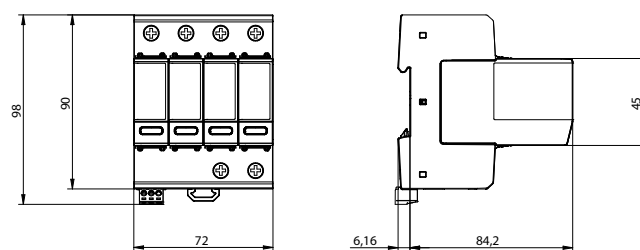
2 Poles



3 Poles

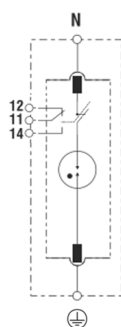


4 Poles

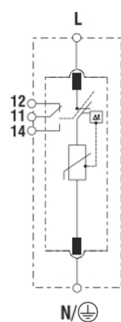


Internal configuration

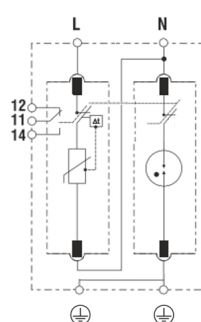
TT, TNS (0+1)



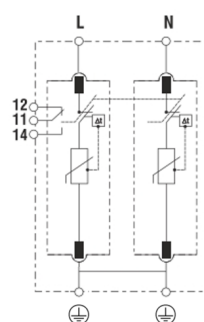
TNS, TNC, TT (only L-N) (1+0)



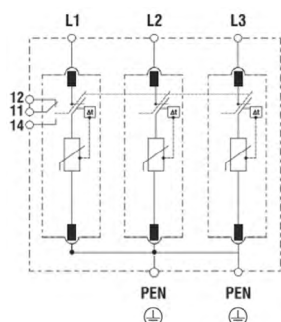
TT, TNS (1+1)



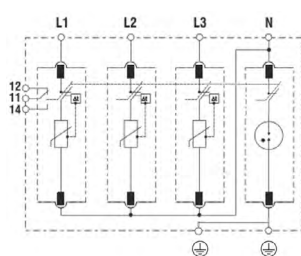
TNS (2+0)



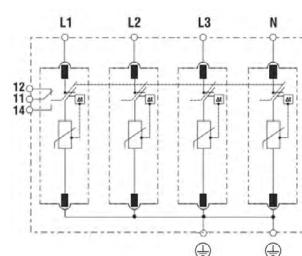
TNC (3+0)



TT, TNS (3+1)



TNS (4+0)



POWER LINE SPDs

EGARA 1 LF



Type 1+2 surge protection device (SPD) for transient overvoltages pluggable leakage current free with limp 12.5 kA. The multi-certified EGARA 1 LF range is suitable as a first level of protection in the main distribution board.

Standards

- EN IEC 61643-11
- UL 1449 5th Edition

More info



Part numbers

1 Pole

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	Imax [kA]	In [kA]	Up at In [kV]	IR
33738108	EGA 1 320/1+0 LF	1+0	TNS, TNC, TT (only L-N)	320	230	12.5	50	20	≤1.5	
33738109	EGA 1 320/1+0 LF IR	1+0	TNS, TNC, TT (only L-N)	320	230	12.5	50	20	≤1.5	✓

2 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	Imax [kA]	In [kA]	Up at In [kV]	IR
33738210	EGA 1 320/1+1 LF	1+1	TT, TNS	320	230	12.5	50	20	≤1.5	
33738211	EGA 1 320/1+1 LF IR	1+1	TT, TNS	320	230	12.5	50	20	≤1.5	✓
33738214	EGA 1 320/2+0 LF	2+0	TNS	320	230	12.5	50	20	≤1.5	
33738215	EGA 1 320/2+0 LF IR	2+0	TNS	320	230	12.5	50	20	≤1.5	✓

3 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	Imax [kA]	In [kA]	Up at In [kV]	IR
33738306	EGA 1 320/3+0 LF	3+0	TNC	320	277/480	12.5	50	20	≤1.5	
33738307	EGA 1 320/3+0 LF IR	3+0	TNC	320	277/480	12.5	50	20	≤1.5	✓

4 Poles

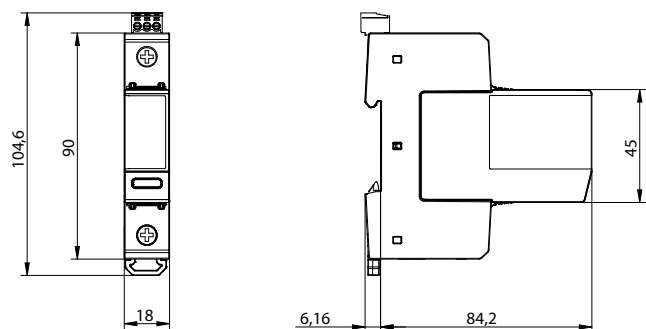
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	Imax [kA]	In [kA]	Up at In [kV]	IR
33738410	EGA 1 320/3+1 LF	3+1	TT, TNS	320	230/400	12.5	50	20	≤1.5	
33738411	EGA 1 320/3+1 LF IR	3+1	TT, TNS	320	230/400	12.5	50	20	≤1.5	✓
33738414	EGA 1 320/4+0 LF	4+0	TNS	320	230/400	12.5	50	20	≤1.5	
33738415	EGA 1 320/4+0 LF IR	4+0	TNS	320	230/400	12.5	50	20	≤1.5	✓

POWER LINE SPDs

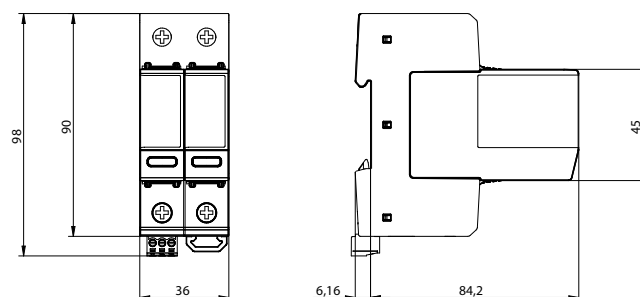
EGARA 1 LF

Dimensions

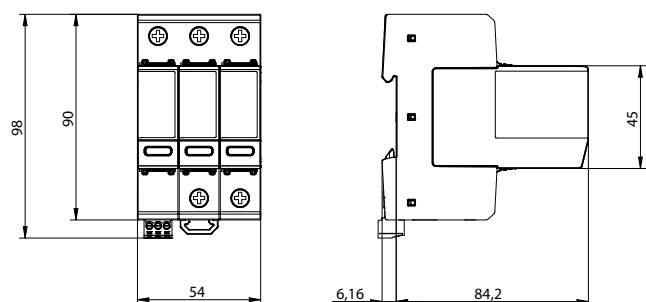
1 Pole



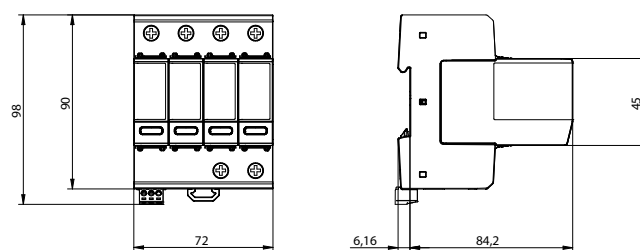
2 Poles



3 Poles

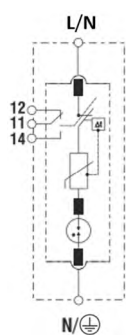


4 Poles

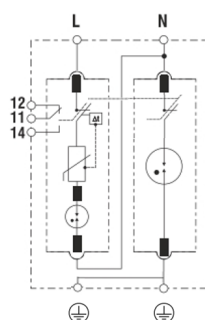


Internal configuration

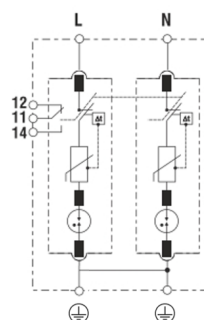
TNS, TNC, TT (only L-N) (1+0)



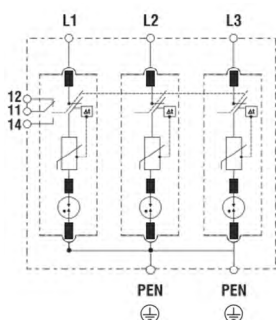
TT, TNS (1+1)



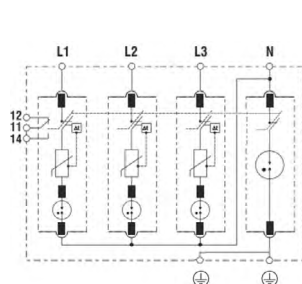
TNS (2+0)



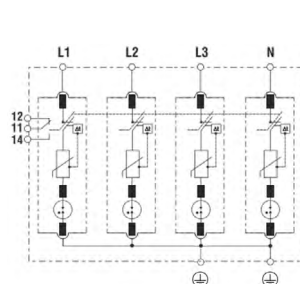
TNC (3+0)



TT, TNS (3+1)



TNS (4+0)



POWER LINE SPDs

SSD 1



SPD Specific disconnect (SSD) for EGARA 1. SSD 1 has been designed and validated together with EGARA 1, ensuring continuity of protection and service. Suitable for applications with high short-circuit currents.

Standards

- prIEC TS 61643-06



Part numbers

2 Poles

Item number	Item description	Internal conf.	Network configuration	Ue [V]	Itrip [A]	Iimp [kA]	In [kA]	IR
34001201	SSD 1 1+1 IR	1+1	TT, TN, IT	500	500	12.5	20	✓

3 Poles

Item number	Item description	Internal conf.	Network configuration	Ue [V]	Itrip [A]	Iimp [kA]	In [kA]	IR
34001301	SSD 1 3+0 IR	3+0	TT, TN, IT	500	500	12.5	20	✓

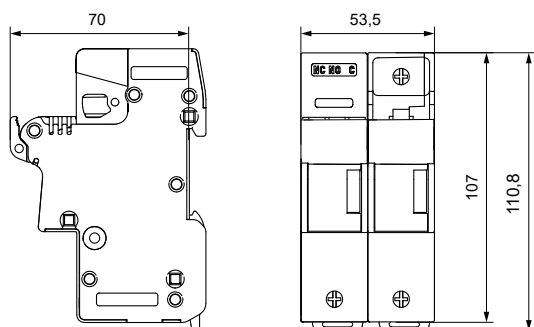
4 Poles

Item number	Item description	Internal conf.	Network configuration	Ue [V]	Itrip [A]	Iimp [kA]	In [kA]	IR
34001401	SSD 1 3+1 IR	3+1	TT, TN, IT	500	500	12.5	20	✓

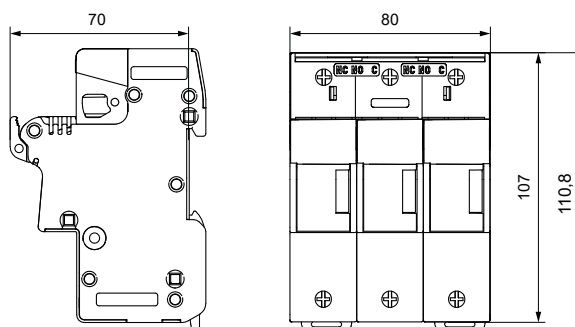
SSD 1

Dimensions

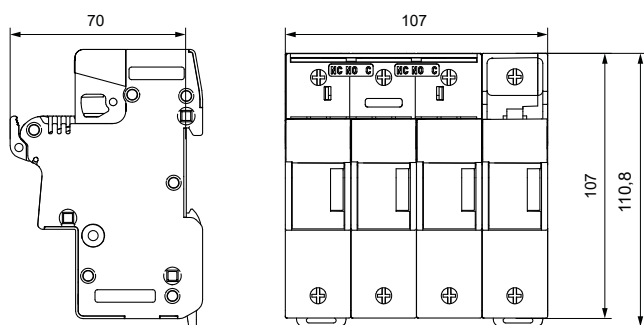
2 Poles



3 Poles

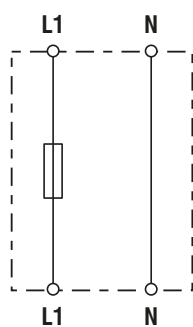


4 Poles

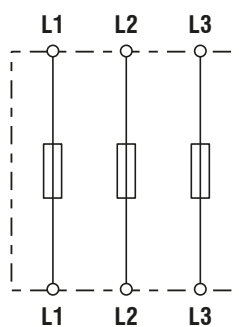


Internal configuration

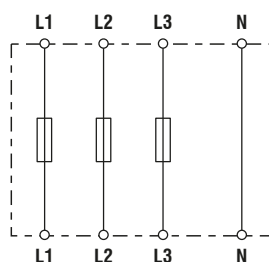
2 Poles



3 Poles



4 Poles





Type 2 surge protection device (SPD) for transient overvoltages pluggable with I_{max} 50 kA. The multi-certified EGA 2 range is suitable for protecting low-voltage installations against overvoltages.

Standards

- EN IEC 61643-11
- UL 1449 5th Edition

More info



Part numbers

1 Pole

Item number	Item description	Internal conf.	Network configuration	U_c [V]	U_n [V]	I_{max} [kA]	I_n [kA]	Up at I_n [kV]	IR
33707116	EGA 2 175/1+0	1+0	TNS, TNC, TT (only L-N)	175	120	50	20	≤ 1	
33707117	EGA 2 175/1+0 IR	1+0	TNS, TNC, TT (only L-N)	175	120	50	20	≤ 1	✓
33707100	EGA 2 N/0+1	0+1	TT, TNS	255	Neutral	50	50	≤ 1.5	
33707101	EGA 2 N/0+1 IR	0+1	TT, TNS	255	Neutral	50	50	≤ 1.5	✓
33707102	EGA 2 275/1+0	1+0	TNS, TNC, TT (only L-N)	275	230	50	20	≤ 1.5	
33707103	EGA 2 275/1+0 IR	1+0	TNS, TNC, TT (only L-N)	275	230	50	20	≤ 1.5	✓
33707106	EGA 2 320/1+0	1+0	TNS, TNC, TT (only L-N)	320	277	50	20	≤ 1.5	
33707107	EGA 2 320/1+0 IR	1+0	TNS, TNC, TT (only L-N)	320	277	50	20	≤ 1.5	✓
33707110	EGA 2 440/1+0	1+0	TNS, TNC, TT (only L-N)	440	400	50	20	≤ 2	
33707111	EGA 2 440/1+0 IR	1+0	TNS, TNC, TT (only L-N)	440	400	50	20	≤ 2	✓

2 Poles

Item number	Item description	Internal conf.	Network configuration	U_c [V]	U_n [V]	I_{max} [kA]	I_n [kA]	Up at I_n [kV]	IR
33707228	EGA 2 175/1+1	1+1	TT, TNS	175	120	50	20	≤ 1	
33707229	EGA 2 175/1+1 IR	1+1	TT, TNS	175	120	50	20	≤ 1	✓
33707200	EGA 2 275/1+1	1+1	TT, TNS	275	230	50	20	≤ 1.5	
33707201	EGA 2 275/1+1 IR	1+1	TT, TNS	275	230	50	20	≤ 1.5	✓
33707208	EGA 2 320/1+1	1+1	TT, TNS	320	277	50	20	≤ 1.5	
33707209	EGA 2 320/1+1 IR	1+1	TT, TNS	320	277	50	20	≤ 1.5	✓
33707216	EGA 2 440/1+1	1+1	TT, TNS	440	400	50	20	≤ 2	
33707217	EGA 2 440/1+1 IR	1+1	TT, TNS	440	400	50	20	≤ 2	✓
33707230	EGA 2 175/2+0	2+0	TNS	175	120	50	20	≤ 1	
33707231	EGA 2 175/2+0 IR	2+0	TNS	175	120	50	20	≤ 1	✓
33707202	EGA 2 275/2+0	2+0	TNS	275	230	50	20	≤ 1.5	
33707203	EGA 2 275/2+0 IR	2+0	TNS	275	230	50	20	≤ 1.5	✓
33707210	EGA 2 320/2+0	2+0	TNS	320	277	50	20	≤ 1.5	
33707211	EGA 2 320/2+0 IR	2+0	TNS	320	277	50	20	≤ 1.5	✓
33707218	EGA 2 440/2+0 *	2+0	TNS	440	400	50	20	≤ 2	
33707219	EGA 2 440/2+0 IR *	2+0	TNS	440	400	50	20	≤ 2	✓

*Also suitable for 230 V IT network configuration.

3 Poles

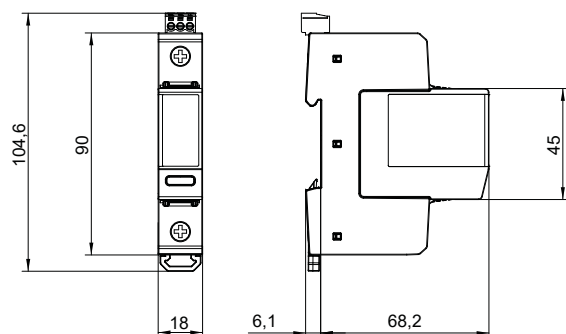
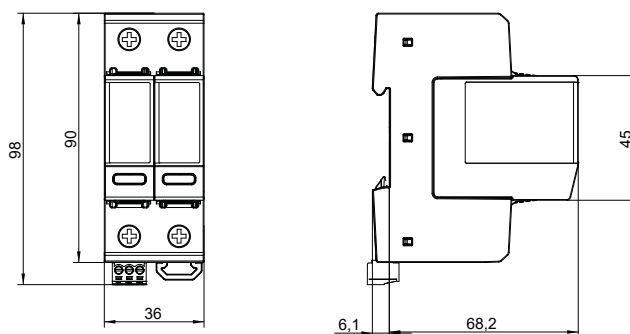
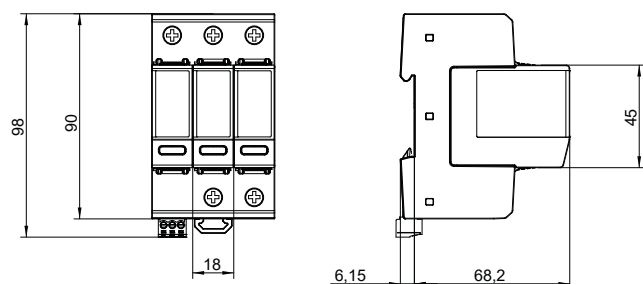
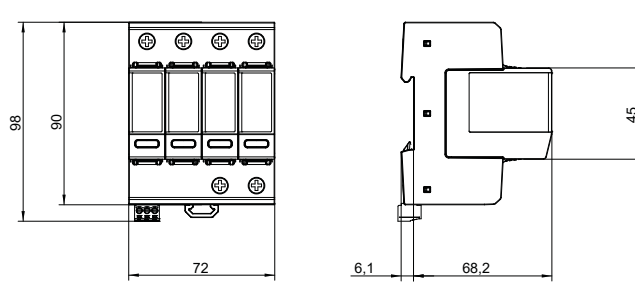
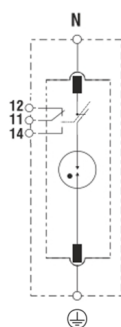
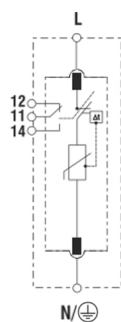
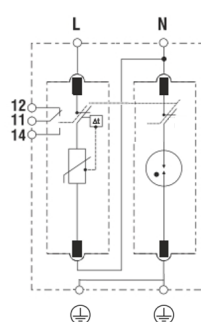
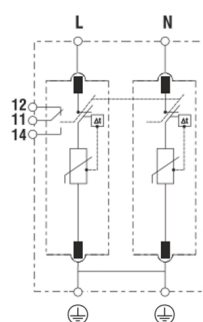
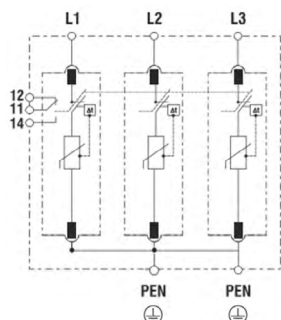
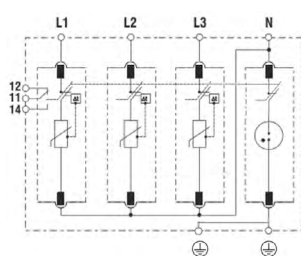
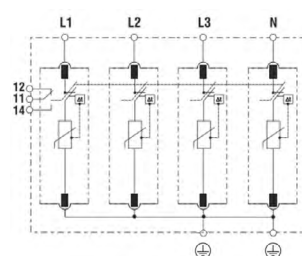
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
33707324	EGA 2 175/3+0	3+0	TNC	175	120/208	50	20	≤1	
33707325	EGA 2 175/3+0 IR	3+0	TNC	175	120/208	50	20	≤1	✓
33707300	EGA 2 275/3+0	3+0	TNC	275	230/400	50	20	≤1.5	
33707301	EGA 2 275/3+0 IR	3+0	TNC	275	230/400	50	20	≤1.5	✓
33707304	EGA 2 320/3+0	3+0	TNC	320	277/480	50	20	≤1.5	
33707305	EGA 2 320/3+0 IR	3+0	TNC	320	277/480	50	20	≤1.5	✓
33707308	EGA 2 440/3+0 *	3+0	TNC	440	400/690	50	20	≤2	
33707309	EGA 2 440/3+0 IR *	3+0	TNC	440	400/690	50	20	≤2	✓

*Also suitable for 230 V IT network configuration

4 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
33707426	EGA 2 175/3+1	3+1	TT, TNS	175	120/208	50	20	≤1	
33707427	EGA 2 175/3+1 IR	3+1	TT, TNS	175	120/208	50	20	≤1	✓
33707400	EGA 2 275/3+1	3+1	TT, TNS	275	230/400	50	20	≤1.5	
33707401	EGA 2 275/3+1 IR	3+1	TT, TNS	275	230/400	50	20	≤1.5	✓
33707408	EGA 2 320/3+1	3+1	TT, TNS	320	277/480	50	20	≤1.5	
33707409	EGA 2 320/3+1 IR	3+1	TT, TNS	320	277/480	50	20	≤1.5	✓
33707416	EGA 2 440/3+1	3+1	TT, TNS	440	400/690	50	20	≤2	
33707417	EGA 2 440/3+1 IR	3+1	TT, TNS	440	400/690	50	20	≤2	✓
33707428	EGA 2 175/4+0	4+0	TNS	175	120/208	50	20	≤1	
33707429	EGA 2 175/4+0 IR	4+0	TNS	175	120/208	50	20	≤1	✓
33707404	EGA 2 275/4+0	4+0	TNS	275	230/400	50	20	≤1.5	
33707405	EGA 2 275/4+0 IR	4+0	TNS	275	230/400	50	20	≤1.5	✓
33707412	EGA 2 320/4+0	4+0	TNS	320	277/480	50	20	≤1.5	
33707413	EGA 2 320/4+0 IR	4+0	TNS	320	277/480	50	20	≤1.5	✓
33707420	EGA 2 440/4+0 *	4+0	TNS	440	400/690	50	20	≤2	
33707421	EGA 2 440/4+0 IR *	4+0	TNS	440	400/690	50	20	≤2	✓

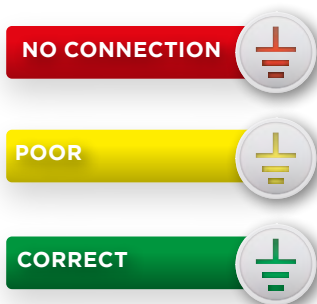
*Also suitable for 230/400 V IT network configuration

EGARA 2**Dimensions****1 Pole****2 Poles****3 Poles****4 Poles****Internal configuration****TT, TNS (0+1)****TNS, TNC, TT (only L-N) (1+0)****TT, TNS (1+1)****TNS (2+0)****TNC (3+0)****TT, TNS (3+1)****TNS (4+0)**

SAFEGROUND®

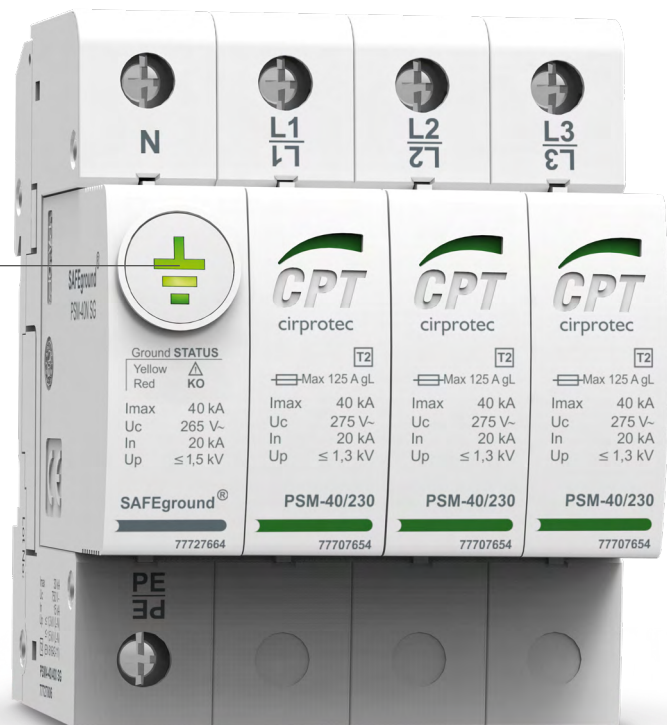
Monitoring the grounding system in the surge protection device itself

SAFEGROUND® is the first protection device on the market that, in addition to indicating that it is properly wired, guarantees that there is an adequate path to ground, which is essential if the protection device is to shunt the energy peaks to ground effectively.



GROUND STATUS INDICATOR

Continuous LED display of
ground status.



SAFEGROUND TECHNOLOGY

SAFEGROUND® is based on the impedance loop technology already patented, sold and implemented by Cirprotec in thousands of protection solutions.

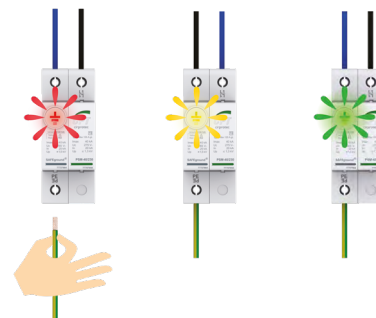
NO EARTH, NO PROTECTION



Confirmation of proper installation

Almost 30 years of experience in the sector confirm that it is relatively common for wiring errors to occur during the installation of surge protection devices. These errors result in the loss of protection or risks to the installation itself.

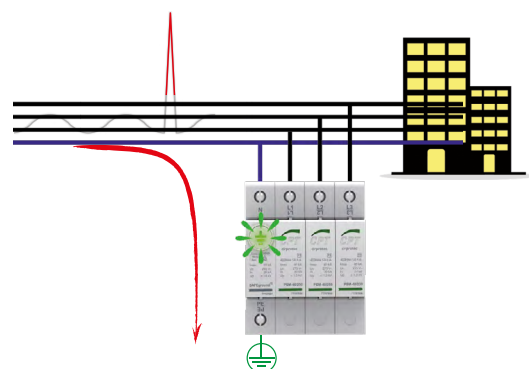
When the SAFEGROUND® LED is green, it means that the protection device is properly wired and powered up.



Effective surge protection

Even when equipped with surge protection devices, the electrical installation may still be subject to the effects of overvoltage if the ground connection is inadequate or in poor condition.

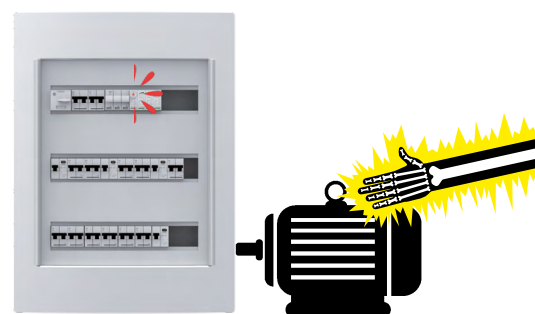
When the SAFEGROUND® LED is green, it indicates that the ground path is good enough to shunt the energy peaks to ground effectively..



Safety information in the event of indirect contact

Just as happens with surge protection devices, the safety of the electrical installation in the event of indirect contact is based on there being a grounding connection.

When SAFEGROUND® cannot detect any ground connection, it is advisable to check the installation status.



WIRING SAFETY

The only protection device on the market that tells you when it is properly installed, avoiding risks due to electrical wiring errors.

POWER LINE SPDs WITH GROUNDING MONITOR

SAFEGROUND®



Indicative product image

Type 2 surge protection device (SPD) for transient overvoltages with continuous monitoring of the earthing system pluggable with Imax 40 kA. The SAFEGROUND® range is suitable for protecting low-voltage installations against overvoltages.

Standards

- EN IEC 61643-11
- EN 61557-3
- EN 61010-1

More info



Part numbers

2 Poles

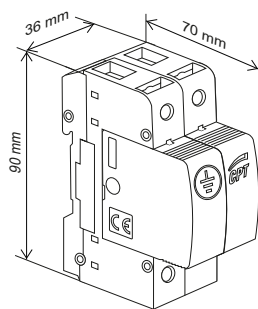
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Imax [kA]	In [kA]	Up at In [kV]
77727758	PSM2-40/120 SG	1+1	TT, TNS	150	120/208	40	20	≤1
77727756	PSM2-40/230 SG	1+1	TT, TNS	275	230/400	40	20	≤1.3

4 Poles

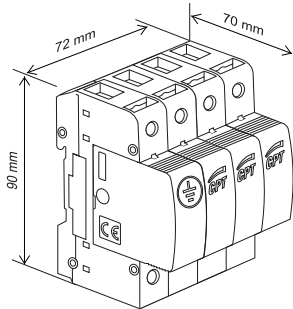
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Imax [kA]	In [kA]	Up at In [kV]
77727808	PSM4-40/230 SG	3+1	TT, TNS	175	120/208	40	20	≤1
77727806	PSM4-40/400 SG	3+1	TT, TNS	275	230/400	40	20	≤1.3

Dimensions

2 Poles

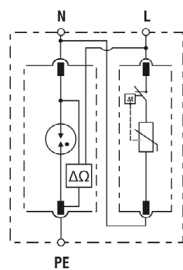


4 Poles

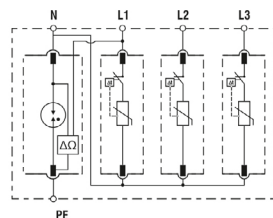


Internal configuration

TT, TNS (1+1)



TT, TNS (3+1)



POWER LINE SPDs

CS21



Type 2 surge protection device (SPD) for transient overvoltages monobloc design compact design with I_{max} 15 kA. The CS21 range is suitable for protecting low-voltage installations against overvoltages.

Standards

- EN IEC 61643-11



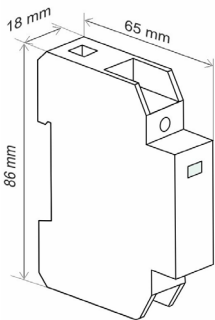
Part numbers

2 Poles

Item number	Item description	Internal conf.	Network configuration	U _c [V]	U _n [V]	I _{max} [kA]	I _n [kA]	U _p at I _n [kV]	IR
77705213	CS21-15/230	1+1	TT, TNS	275	230	15	5	≤1.2	

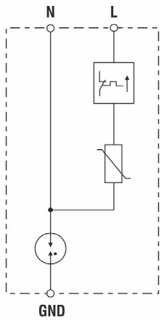
Dimensions

2 Poles



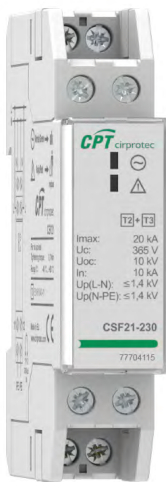
Internal configuration

TT, TNS (1+1)



POWER LINE SPDs

CSF



Indicative product image

Type 2+3 surge protection device (SPD) for transient overvoltages monobloc design slim monobloc design. The CSF range is suitable for fine protection of sensitive equipment.

Standards

- EN IEC 61643-11



More info



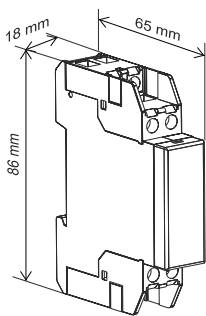
Part numbers

2 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	I _n [kA]	Up at I _n [kV]	Uoc [kV]	IR
77704101	CSF21-12	2+0	TT, TNS	20	12	6	3	≤0.22	6	
77704102	CSF21-12 IR	2+0	TT, TNS	20	12	6	3	≤0.22	6	✓
77704109	CSF21-120	2+0	TT, TNS	150	120	6	3	≤0.7	6	
77704110	CSF21-120 IR	2+0	TT, TNS	150	120	6	3	≤0.7	6	✓
77704115	CSF21-230	2+0	TT, TNS	275	230	20	10	≤1.4	10	
77704116	CSF21-230 IR	2+0	TT, TNS	275	230	20	10	≤1.4	10	✓
77704103	CSF21-24	2+0	TT, TNS	30	24	6	3	≤0.25	6	
77704104	CSF21-24 IR	2+0	TT, TNS	30	24	6	3	≤0.25	6	✓
77704105	CSF21-48	2+0	TT, TNS	60	48	6	3	≤0.33	6	
77704106	CSF21-48 IR	2+0	TT, TNS	60	48	6	3	≤0.33	6	✓
77704107	CSF21-60	2+0	TT, TNS	75	60	6	3	≤0.5	6	
77704108	CSF21-60 IR	2+0	TT, TNS	75	60	6	3	≤0.5	6	✓

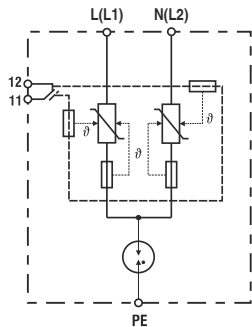
Dimensions

2 Poles



Internal configuration

TT, TNS (2+0)



PSM 20



Indicative product image

Type 2+3 surge protection device (SPD) for transient overvoltages pluggable with I_{max} 20 kA. The PSM 20 range is suitable for protecting low-voltage installations against overvoltages.

Standards

- EN IEC 61643-11

More info



Part numbers

1 Pole

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	Up at In [kV]	Uoc [kV]	IR
77707700	PSM1-20/120	1+0	TNS, TNC, TT (only L-N)	150	120	20	10	≤0.8	10	
77707701	PSM1-20/120 IR	1+0	TNS, TNC, TT (only L-N)	150	120	20	10	≤0.8	10	✓
77707745	PSM1-20N	0+1	TT, TNS	255	Neutral	20	10	≤1.5	10	
77707702	PSM1-20/230	1+0	TNS, TNC, TT (only L-N)	320	230	20	10	≤1.4	10	
77707703	PSM1-20/230 IR	1+0	TNS, TNC, TT (only L-N)	320	230	20	10	≤1.4	10	✓
77707704	PSM1-20/400	1+0	TNS, TNC, TT (only L-N)	440	400	20	10	≤2	10	

2 Poles

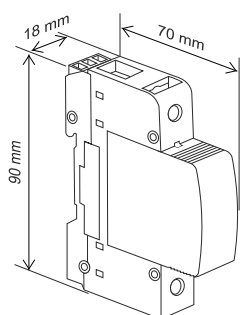
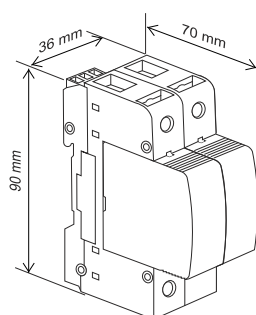
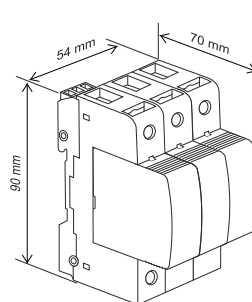
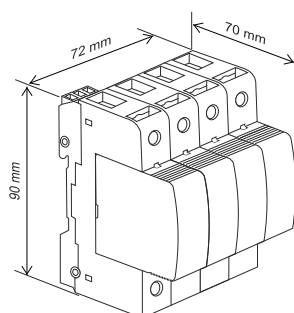
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	Up at In [kV]	Uoc [kV]	IR
77707751	PSM2-20/120 TT IR	1+1	TT, TNS	150	120	20	10	≤0.8	10	✓
77707752	PSM2-20/230 TT	1+1	TT, TNS	320	230	20	10	≤1.4	10	
77707753	PSM2-20/230 TT IR	1+1	TT, TNS	320	230	20	10	≤1.4	10	✓
77707758	PSM2-20/277 TT	1+1	TT, TNS	320	277	20	10	≤1.4	10	
77707900	PSM2-20/120 TNS	2+0	TNS	150	120	20	10	≤0.8	10	
77707901	PSM2-20/120 TNS IR	2+0	TNS	150	120	20	10	≤0.8	10	✓
77707902	PSM2-20/230 TNS	2+0	TNS	320	230	20	10	≤1.4	10	
77707903	PSM2-20/230 TNS IR	2+0	TNS	320	230	20	10	≤1.4	10	✓
77707912	PSM2-20/277 TNS	2+0	TNS	320	277	20	10	≤1.4	10	
77707913	PSM2-20/277 TNS IR	2+0	TNS	320	277	20	10	≤1.4	10	✓

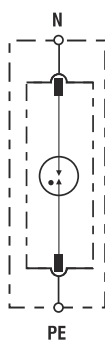
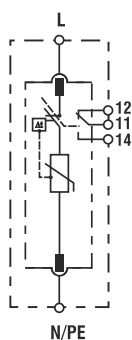
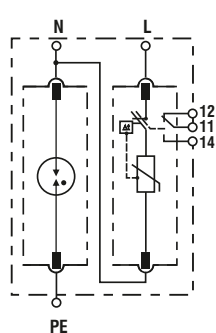
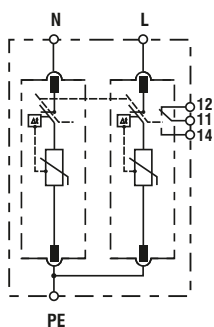
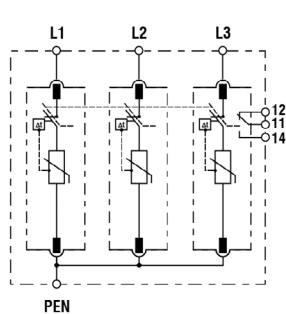
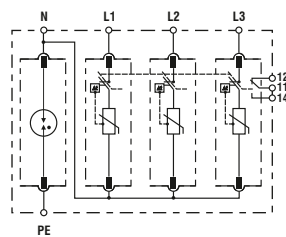
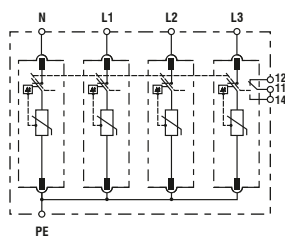
3 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	Up at In [kV]	Uoc [kV]	IR
77707860	PSM3-20/230 TNC	3+0	TNC	150	120/208	20	10	≤0.8	10	
77707861	PSM3-20/230 TNC IR	3+0	TNC	150	120/208	20	10	≤0.8	10	✓
77707862	PSM3-20/400 TNC	3+0	TNC	320	277/480	20	10	≤1.4	10	
77707863	PSM3-20/400 TNC IR	3+0	TNC	320	277/480	20	10	≤1.4	10	✓
77707880	PSM3-20/480 TNC	3+0	TNC	320	277/480	20	10	≤1.4	10	
77707881	PSM3-20/480 TNC IR	3+0	TNC	320	277/480	20	10	≤1.4	10	✓

4 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	I _n [kA]	Up at I _n [kV]	Uoc [kV]	IR
77707801	PSM4-20/230 TT IR	3+1	TT, TNS	150	120/208	20	10	≤0,8	10	✓
77707802	PSM4-20/400 TT	3+1	TT, TNS	320	230/400	20	10	≤1,4	10	
77707803	PSM4-20/400 TT IR	3+1	TT, TNS	320	230/400	20	10	≤1,4	10	✓
77707808	PSM4-20/480 TT	3+1	TT, TNS	320	277/480	20	10	≤1,4	10	
77707809	PSM4-20/480 TT IR	3+1	TT, TNS	320	277/480	20	10	≤1,4	10	✓
77707950	PSM4-20/230 TNS	4+0	TNS	150	120/208	20	10	≤0,8	10	
77707951	PSM4-20/230 TNS IR	4+0	TNS	150	120/208	20	10	≤0,8	10	✓
77707952	PSM4-20/400 TNS	4+0	TNS	320	230/400	20	10	≤1,4	10	
77707953	PSM4-20/400 TNS IR	4+0	TNS	320	230/400	20	10	≤1,4	10	✓
77707987	PSM4-20/480 TNS	4+0	TNS	320	277/480	20	10	≤1,4	10	
77707988	PSM4-20/480 TNS IR	4+0	TNS	320	277/480	20	10	≤1,4	10	✓

Dimensions**1 Pole****2 Poles****3 Poles****4 Poles**

Internal configuration**TT, TNS (0+1)****TNS, TNC, TT (only L-N) (1+0)****TT, TNS (1+1)****TNS (2+0)****TNC (3+0)****TT, TNS (3+1)****TNS (4+0)**

POWER LINE SPDs

PSM 20 PLC



Indicative product image

Type 2+3 surge protection device (SPD) for transient overvoltages pluggable with I_{max} 20 kA compatible with PLC networks. The PSM 20 PLC range is suitable for protecting low-voltage installations against overvoltages.

Standards

- EN IEC 61643-11

More info



Part numbers

2 Poles

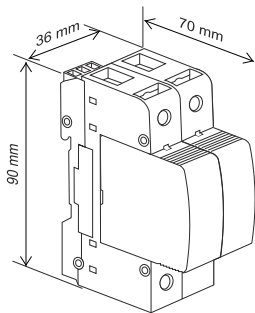
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	Up at In [kV]	Uoc [kV]	IR
77707980	PSM2-20/230 PLC TT	1+1	TT, TNS	275	230	20	10	≤1.5	10	
77707981	PSM2-20/230 PLC TT IR	1+1	TT, TNS	275	230	20	10	≤1.5	10	✓

4 Poles

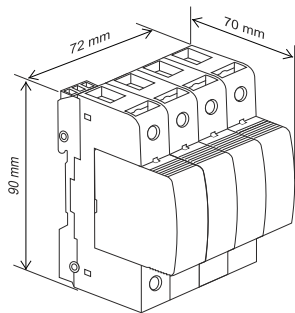
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	Up at In [kV]	Uoc [kV]	IR
77707985	PSM4-20/400 PLC TT	3+1	TT, TNS	275	230/400	20	10	≤1.5	10	
77707986	PSM4-20/400 PLC TT IR	3+1	TT, TNS	275	230/400	20	10	≤1.5	10	✓
77707994	PSM4-20/400 PLC TNS IR	4+0	TNS	275	230/400	20	10	≤1.5	10	✓

Dimensions

2 Poles



4 Poles

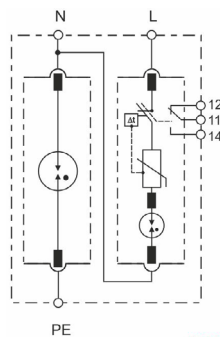


POWER LINE SPDs

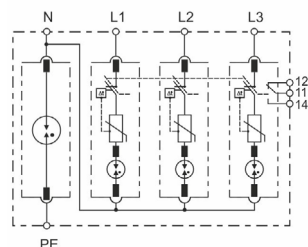
PSM 20 PLC

Internal configuration

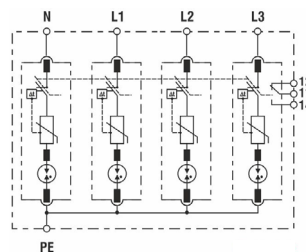
TT, TNS (1+1)



TT, TNS (3+1)



TNS (4+0)



POWER LINE SPDs

DM2



Type 2+3 surge protection device (SPD) for transient overvoltages monobloc design with EMI filter. The DM2 range is suitable for very fine protection of sensitive equipment.

Standards

- EN IEC 61643-11



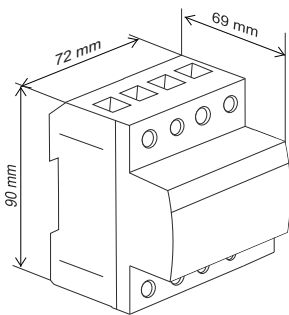
Part numbers

2 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	I _n [kA]	Up at I _n [kV]	Uoc [kV]	IR
77702840	DM2-20A/120 IR	1+1	TT, TNS	150	120	10	20	0.8	6	✓
77702830	DM2-20A/230 IR	1+1	TT, TNS	275	230	10	20	1.2	6	✓

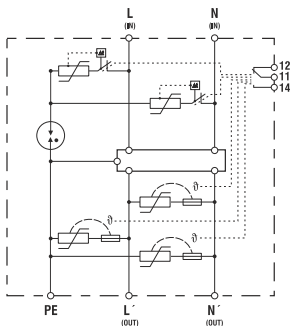
Dimensions

2 Poles



Internal configuration

TT, TNS (1+1)





SURGE PROTECTION DEVICES

PHOTOVOLTAIC SPDs

EGARA PV

High-performance protection for the DC side of PV installations

EGARA PV is the new range that delivers market-leading surge protection solutions for PV, ensuring robust protection across critical points in photovoltaic systems, including inverter DC inputs and combiner boxes. Engineered for demanding environments, it offers high discharge capacity without the need for backup fuses, simplifying installation while enhancing overall system robustness.

SPD Type T1+2 & T2

Complete range
up to 1500 Vdc

I_{max} 50 kA

High discharge
capability

I_{scpv} 20 kA

DC short-circuit
current

Multi-certified

UL & DEKRA

Maximum safety and
quality



- Multi-certified range IEC & UL
- No external back-up fuse required
- Designed for the most demanding PV environments
- European manufacturing with high-quality standards

No back-up
fuse required



All-in-one multi-MPPT protection

One device protects 2 or more MPPT inputs, replacing multiple SPDs

Faster and safer installation

Fewer wiring points speed up
assembly and reduce wiring errors

Space and wiring saving

Less DIN-rail space, fewer connections and
PE connections. Ideal for compact PV boxes

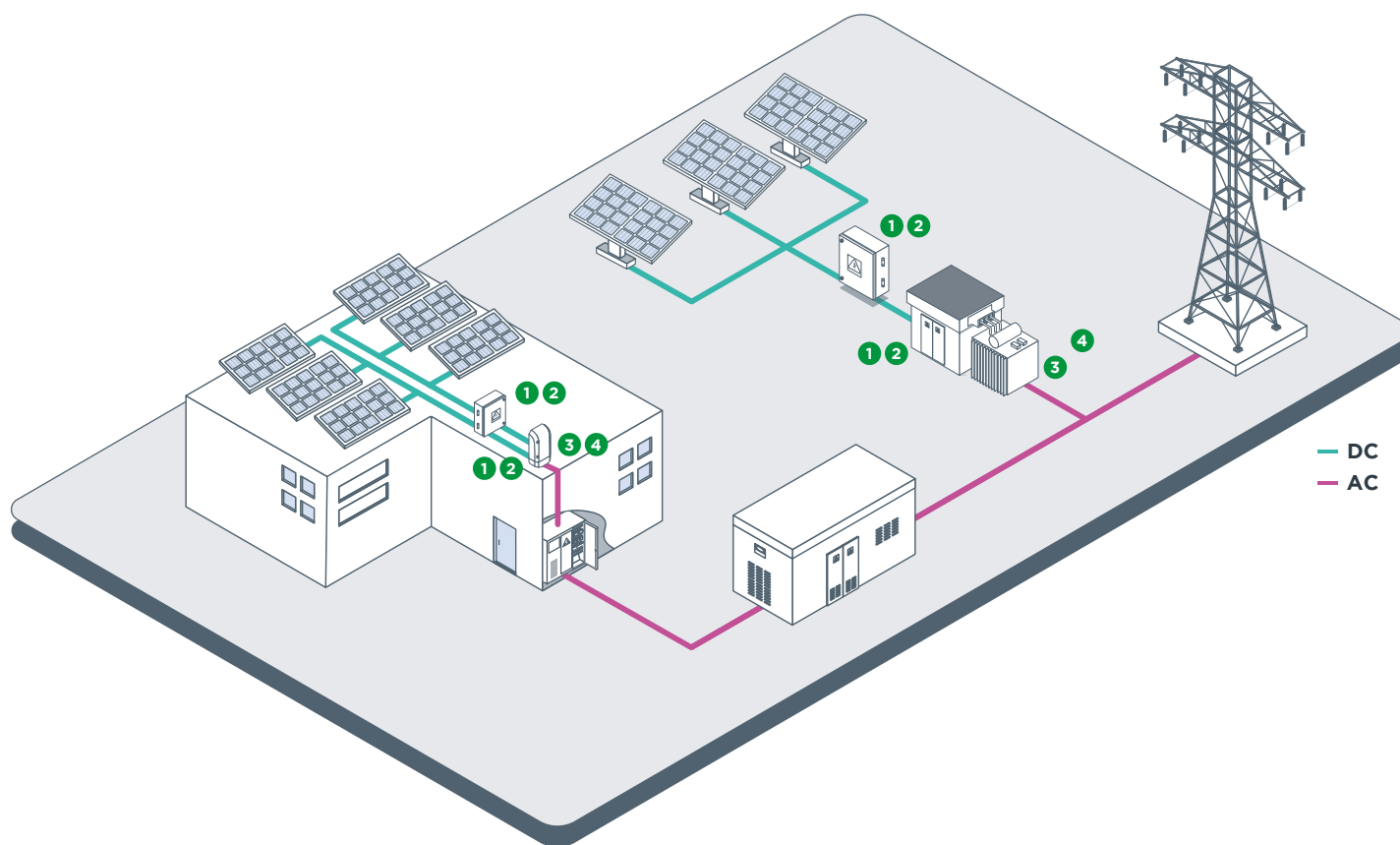
Across every photovoltaic installation

Photovoltaic systems are exposed to surges caused by direct and indirect lightning strikes, as well as switching surges generated within DC and AC circuits. A complete surge protection strategy must cover every critical point of the installation to ensure system reliability and safeguard sensitive equipment.

The EGARA PV range is specifically designed for this purpose, addressing the protection requirements of both rooftop and utility-scale installations.

Effective protection of photovoltaic systems requires coordinated surge protection on **both the DC and AC sides** of the installation.

SPDs installed should comply with the corresponding standards: **IEC 61643-11** for AC and **IEC 61643-31** for DC.



PV PROTECTION

1

EGARA 1 PV
SPD Type 1+2 PV
Pages 74-75



2

EGARA 2 PV
SPD Type 2 PV
Pages 76-77



AC PROTECTION

3

EGARA
SPD Type 1+2 & Type 2
Pages 46-57



4

PSC/PSM AC Reinforced
Type 1+2 & Type 2 AC SPD for high voltage outputs
Pages 78-79

PHOTOVOLTAIC & ENERGY STORAGE SPDs

EGARA 1 PV



Type 1+2 surge protection device (SPD) for transient overvoltages pluggable with I_{imp} 5-6.25 kA depending on the model. The EGARA 1 PV range is suitable for PV installations and certified according to IEC and UL standards.

Standards

- EN IEC 61643-31
- UL 1449 5th Edition

More info

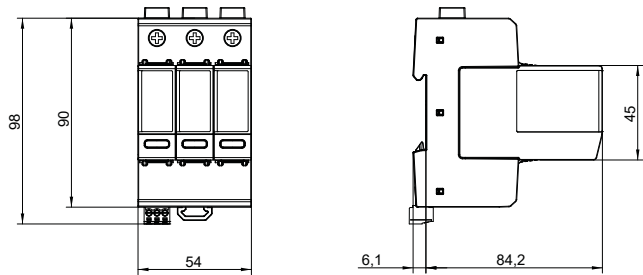


Part numbers

Item number	Item description	Ucpv [V]	Internal conf.	I_{imp} [kA]	I_{total} [kA]	I_{max} [kA]	I_n [kA]	Up at I_n [kV]	I_{scpv} [kA]	IR
33738312	EGA 1 1000/PV	1170	+, -, PE	6.25	12.5	50	20	≤ 4	20	
33738313	EGA 1 1000/PV IR	1170	+, -, PE	6.25	12.5	50	20	≤ 4	20	✓
33738316	EGA 1 1500/PV	1500	+, -, PE	5	10	50	20	≤ 5	20	
33738317	EGA 1 1500/PV IR	1500	+, -, PE	5	10	50	20	≤ 5	20	✓

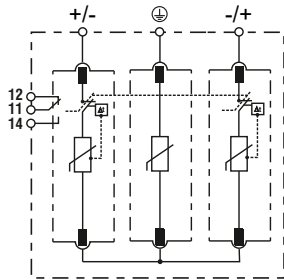
Dimensions

PV



Internal configuration

+, -, PE (PV)



PHOTOVOLTAIC & ENERGY STORAGE SPDs

EGARA 1 5PV



Type 1+2 surge protection device (SPD) for transient overvoltages with limp 5-6.25 kA depending on the model. The EGARA 1 5PV is suitable for PV installations and to protect multiple MPPT inputs, helping save space and wiring in compact PV combiner boxes. Certified according to IEC and UL Standards.

Standards

- EN IEC 61643-31
- UL 1449 5th Edition

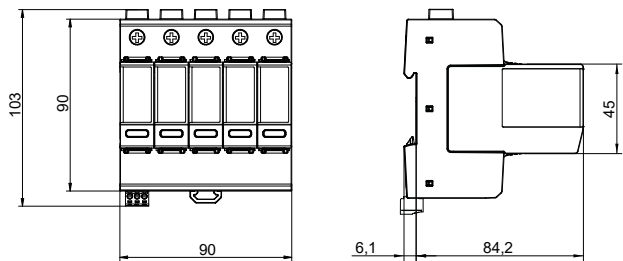


Part numbers

Item number	Item description	Ucpv [V]	Internal conf.	limp [kA]	Itotal [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	Iscpv [kA]	IR
33738500	EGA 11000/5PVA	1170	2+, 2-, PE	6.25	12.5	50	20	≤4	20	
33738501	EGA 11000/5PVA IR	1170	2+, 2-, PE	6.25	12.5	50	20	≤4	20	✓
33738502	EGA 11000/5PVB	1170	3+, 1-, PE	6.25	12.5	50	20	≤4	20	
33738503	EGA 11000/5PVB IR	1170	3+, 1-, PE	6.25	12.5	50	20	≤4	20	✓
33738504	EGA 11500/5PVA	1500	2+, 2-, PE	5	10	50	20	≤5	20	
33738505	EGA 11500/5PVA IR	1500	2+, 2-, PE	5	10	50	20	≤5	20	✓
33738506	EGA 11500/5PVB	1500	3+, 1-, PE	5	10	50	20	≤5	20	
33738507	EGA 11500/5PVB IR	1500	3+, 1-, PE	5	10	50	20	≤5	20	✓

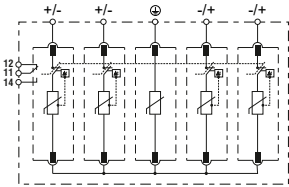
Dimensions

5PV

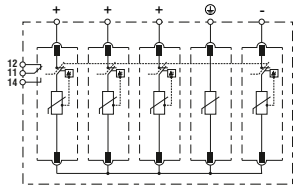


Internal configuration

2+, 2-, PE (5PVA)



3+, 1-, PE (5PVB)



PHOTOVOLTAIC & ENERGY STORAGE SPDs

EGARA 2 PV



Type 2 surge protection device (SPD) for transient overvoltages pluggable with I_{max} 50 kA. The EGARA 2 PV range is suitable for PV installations and certified according to IEC and UL standards.

Standards

- EN IEC 61643-31
- UL 1449 5th Edition

More info

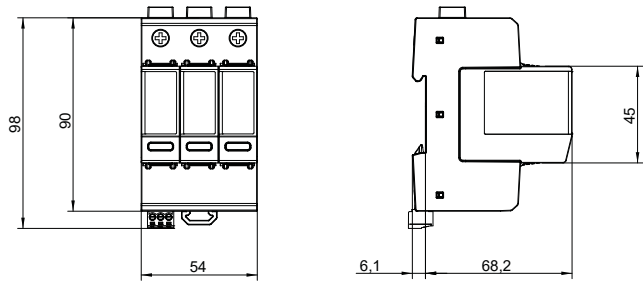


Part numbers

Item number	Item description	Ucpv [V]	Internal conf.	I _{max} [kA]	I _n [kA]	Up at I _n [kV]	Iscpv [kA]	IR
33707340	EGA 2 600/PV	660	+, -, PE	50	20	≤3	20	
33707341	EGA 2 600/PV IR	660	+, -, PE	50	20	≤3	20	✓
33707312	EGA 2 1000/PV	1170	+, -, PE	50	20	≤3.75	20	
33707313	EGA 2 1000/PV IR	1170	+, -, PE	50	20	≤3.75	20	✓
33707316	EGA 2 1500/PV	1500	+, -, PE	50	20	≤4.75	20	
33707317	EGA 2 1500/PV IR	1500	+, -, PE	50	20	≤4.75	20	✓

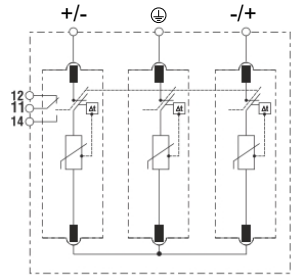
Dimensions

PV



Internal configuration

+, -, PE (PV)



PHOTOVOLTAIC & ENERGY STORAGE SPDs

EGARA 2 5PV



Type 2 surge protection device (SPD) for transient overvoltages pluggable with I_{max} 50 kA. The EGA 2 5PV range is suitable for PV installations and to protect multiple MPPT inputs, helping save space and wiring in compact PV combiner boxes. Certified according to IEC and UL standards.

Standards

- EN IEC 61643-31
- UL 1449 5th Edition

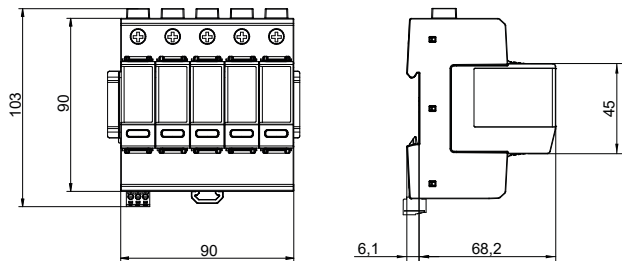


Part numbers

Item number	Item description	Ucpv [V]	Internal conf.	I _{max} [kA]	I _n [kA]	Up at I _n [kV]	Iscpv [kA]	IR
33707500	EGA 2 1000/5PVA	1170	2+, 2-, PE	50	20	≤3.75	20	
33707501	EGA 2 1000/5PVA IR	1170	2+, 2-, PE	50	20	≤3.75	20	✓
33707502	EGA 2 1000/5PVB	1170	3+, 1-, PE	50	20	≤3.75	20	
33707503	EGA 2 1000/5PVB IR	1170	3+, 1-, PE	50	20	≤3.75	20	✓
33707504	EGA 2 1500/5PVA	1500	2+, 2-, PE	50	20	≤4.75	20	
33707505	EGA 2 1500/5PVA IR	1500	2+, 2-, PE	50	20	≤4.75	20	✓
33707506	EGA 2 1500/5PVB	1500	3+, 1-, PE	50	20	≤4.75	20	
33707507	EGA 2 1500/5PVB IR	1500	3+, 1-, PE	50	20	≤4.75	20	✓

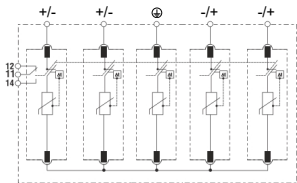
Dimensions

5PV

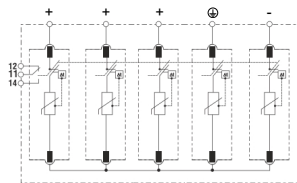


Internal configuration

2+, 2-, PE (5PVA)



3+, 1-, PE (5PVB)



PSC AC Reinforced



Indicative product image

Type 1+2 surge protection device (SPD) for transient overvoltages pluggable with Iimp 5 kA and reinforced design. The PSC AC Reinforced range is suitable for PV installations on the AC side, protecting inverters up to 800 Vac and special applications requiring high withstand voltage peaks.

Standards

- EN IEC 61643-11



More info

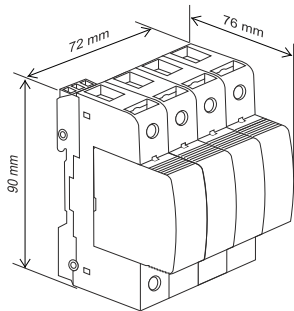


Part numbers

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Iimp [kA]	Imax [kA]	In [kA]	Up at In [kV]	U peak [V]	IR
77738674	PSC3-5/680R	3+0 R	TNC, IT	1360	-/800 (IT); -/1000 (TNC)	5	40	20	≤5	1700	
77738675	PSC3-5/680R IR	3+0 R	TNC, IT	1360	-/800 (IT); -/1000 (TNC)	5	40	20	≤5	1700	✓

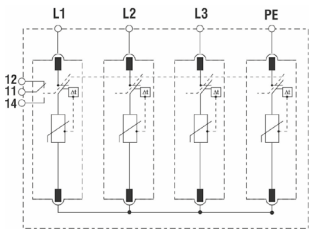
Dimensions

4 Poles



Internal configuration

TNC, IT (3+0 R)



PHOTOVOLTAIC & ENERGY STORAGE SPDs

PSM AC Reinforced



Indicative product image

Type 2 surge protection device (SPD) for transient overvoltages pluggable with I_{max} 30 kA and reinforced design. The PSM AC Reinforced range is suitable for PV installations on the AC side, protecting inverters up to 800 Vac and special applications requiring high withstand voltage peaks.

Standards

- EN IEC 61643-11
- UL 1449 5th Edition

More info

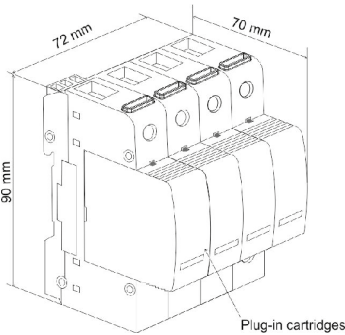


Part numbers

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Imax [kA]	In [kA]	Up at In [kV]	U peak [V]	IR
77707786	PSM3-30/850R	3+0 R	TNC, IT	1700	-/800 (IT); -/1000 (TNC)	30	15	≤6	2200	
77707787	PSM3-30/850R IR	3+0 R	TNC, IT	1700	-/800 (IT); -/1000 (TNC)	30	15	≤6	2200	✓

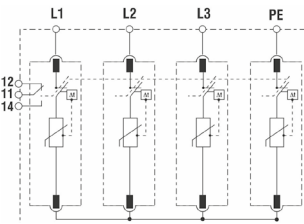
Dimensions

4 Poles



Internal configuration

TNC, IT (3+0 R)





SURGE PROTECTION DEVICES

LED LIGHTING SPDs

OUTDOOR LED LIGHTING INSTALLATIONS

Need for protection

Comprehensive protection

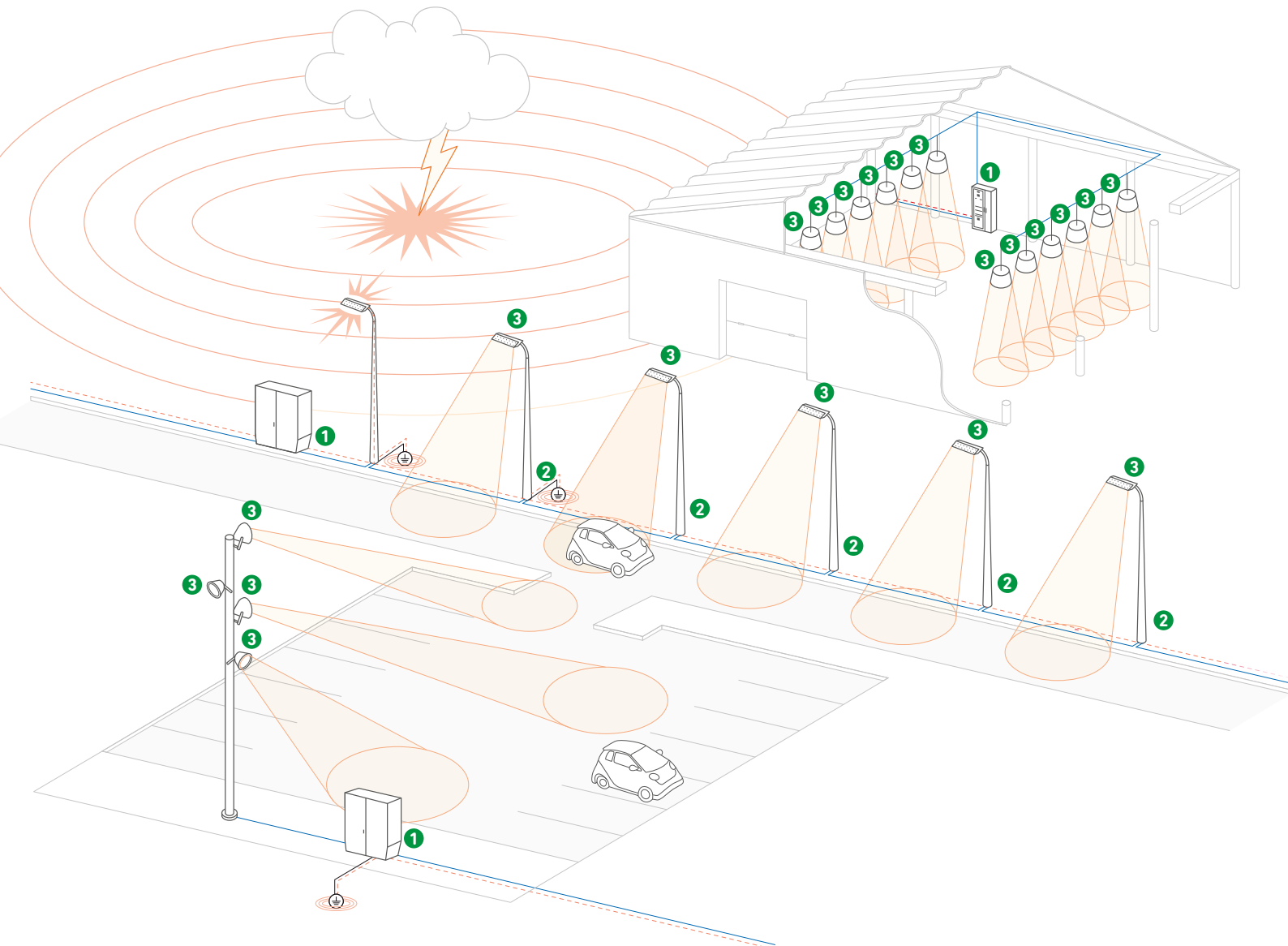
Surge protection devices (SPD) protect equipment by discharging the overvoltage to earth, thus limiting the voltage reaching the equipment (residual voltage).

An effective overvoltage protection design comprises of staggered protection, with stages for each of the sensitive components in the installation. With this method, part of the overvoltage is discharged in each protection stage until only a small residual voltage is left close to the luminaire.

Protection in the lighting panel ① although necessary, is by itself insufficient because overvoltages can also be induced in long cable runs, which means that the final **protection should always be as close as possible to the equipment being protected ② ③.**

Protection stages

- ① In the lighting panel
- ② In the mast (fuse box)
- ③ In the luminaire



In the luminaire:

NS range

Certified

- DEKRA certification to IEC 61643-11
- First SPD for lighting fixtures to have ENEC certification



Proven quality

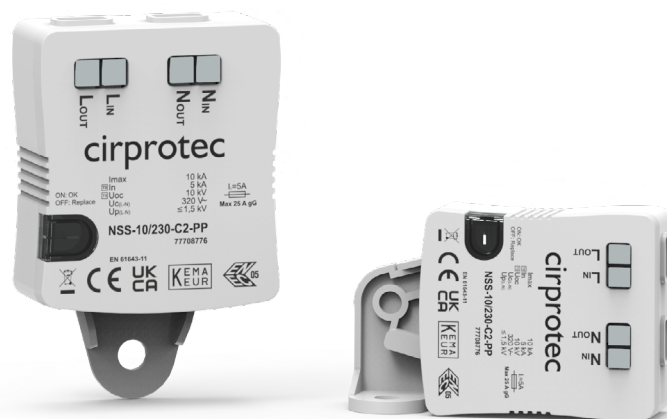
- STL series protects LED outdoor luminaires since 2011
- More than 8.000.000 effectively protected luminaires

Double end-of-life indication

- Disconnection, if installed in series, the SPD will turn the luminaire off when it reaches end-of-life.
- Visual LED indication.

No leakage current

- STL with common mode protection has no leakage current to earth.



Versatile assembly

The SPD can be installed upright or flat depending on the space constraints of the luminaire

In the mast (fuse box):

CSF range

- Design adapted for the **fuse box**
- Perfect for **retrofitting**
- Compact and robust (**10 kV / 10 kA**)
- **Ground** cable/Ground terminal options



In the lightning panel:

V-CHECK 4RC range

- Combined power frequency overvoltage protection and surge protection device
- First step of protection
- Remote and visual **indication of life status** of the protection device



LED LIGHTING SPDs

NSS PP



Type 2+3 surge protection device with I_{max} 10 kA, with push-in quick connection and hardwired. The NSS PP range is suitable for protecting LED lighting installations with extremely sensitive electronics.

Standards

- EN IEC 61643-11

Optional accessory providing maximum installation flexibility, allowing the SPD to be mounted in either a vertical or horizontal position depending on the available space inside the luminaire. Please contact our sales team for more information.

More info

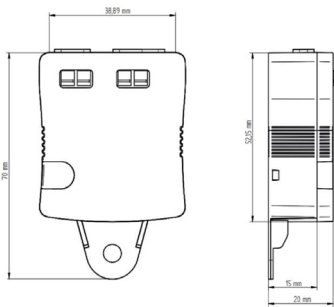


Part numbers

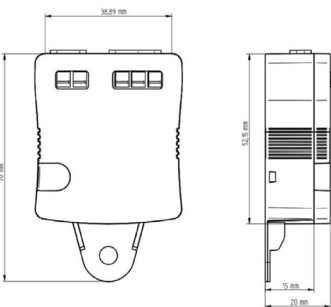
Item number	Item description	Internal conf.	Uc [V]	Un [V]	I _{max} [kA]	I _n [kA]	IL [A]	Up at I _n [kV]	Uoc [kV]
77705975	NSS-10/230-C4-PP	C4	320	230/400	10	5	5	≤1.5	10
77708776	NSS-10/230-C2-PP	C2	320	230/400	10	5	5	≤1.5	10

Dimensions

C2

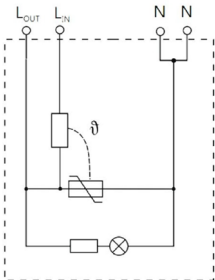


C4

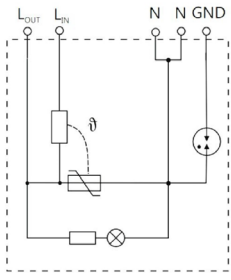


Internal configuration

TT, TN, IT (C2)



TT, TN (C4)



LED LIGHTING SPDs

NSB DD



Type 2+3 surge protection device (SPD) for transient overvoltages with I_{max} 20 kA, hardwired, with different connection options. NSB DD range is suitable for protecting LED lighting installations with extremely sensitive electronics.

Standards

- EN IEC 61643-11



More info

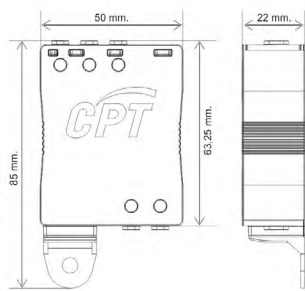


Part numbers

Item number	Item description	Internal conf.	Uc [V]	Un [V]	I _{max} [kA]	I _n [kA]	IL [A]	Up at I _n [kV]	Uoc [kV]
77705891	NSB-20/230-C4-DD	C4	275	230/400	20	10	2.5	≤1.5	20

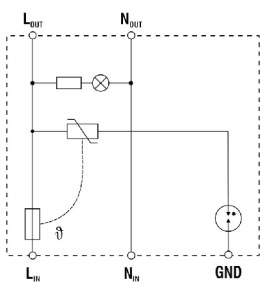
Dimensions

NSB C4



Internal configuration

TT, TN (C4)





Standards

- EN IEC 61643-11



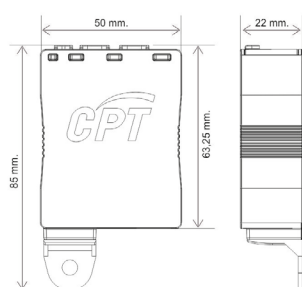
More info



Part numbers

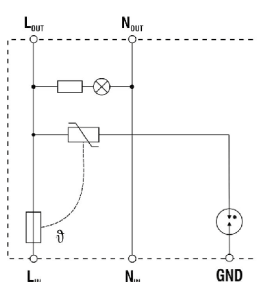
Item number	Item description	Internal conf.	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	IL [A]	Up at In [kV]	Uoc [kV]
77705644	NSB-10/230-C4-WW-IP	C4	320	230/400	10	5	2.5	≤1.5	10

Dimensions

NSB C4

Internal configuration

TT, TN (C4)



LED LIGHTING SPDs

CSF FB



Type 2+3 surge protection device (SPD) for transient overvoltages compact design for installation in fuse-holder enclosures with I_{max} 10 kA. The CSF FB range is suitable for LED lighting installations.

Standards

- EN IEC 61643-11



More info

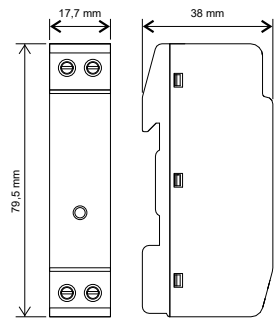


Part numbers

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	I _n [kA]	IL [A]	Up at I _n [kV]	Uoc [kV]
77704120	CSF21-10/230 FB	1+1	TT, TNS	320	230	10	5	2.5	≤1.5	10

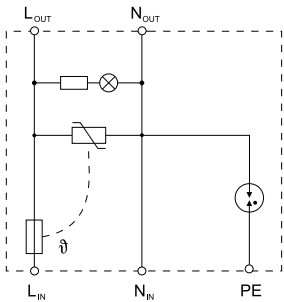
Dimensions

TT, TNS (1+1)



Internal configuration

TT, TNS (1+1)



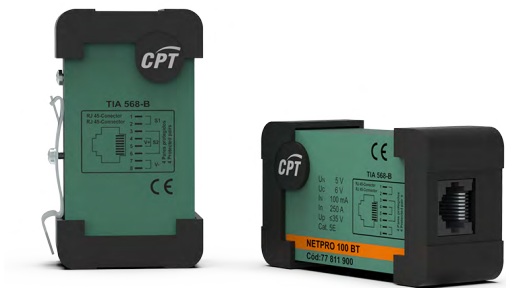


SURGE PROTECTION DEVICES

SIGNAL LINE SPDs

SIGNAL LINE SPDs

NETPRO - In line



Surge protection device (SPD) for transient overvoltages Aerial mounting design. The NETPRO-Aerial range is suitable for Power over Ethernet (NETPRO PoE) networks, Category 6 Ethernet networks (NETPRO 1P) and Category 5 Ethernet networks (NETPRO 100BT).

Standards

- EN IEC 61643-21



Part numbers

Item number	Item description	Uc (L-PE) [V]	Un [V]	In (L-PE) [kA]	IL [A]	Up at In [V]	Bandwidth [MHz]	Protected Wires	Input connector	Output connector
77811900	NETPRO 100 BT	6	5	0.25	1	≤35	100	8	RJ45 (Female)	RJ45 (Female)
77811931	NETPRO 1P POE (CAT. 6)	6	5 (signal); 48 (power)	0.25	1	*	250	8	RJ45 (Female)	RJ45 (Female)
77811934	NETPRO 1P POE (CAT. 6) DIN	6	5 (signal); 48 (power)	0.25	1	*	250	8	RJ45 (Female)	RJ45 (Female)
77811930	NETPRO CG-1P	6	5	0.25	1	≤35	250	8	RJ45 (Male) UTP	RJ45 (Male) UTP
77811945	NETPRO CG-1P M	6	5	0.25	1	≤35	250	8	RJ45 (Male) UTP	RJ45 (Male) UTP

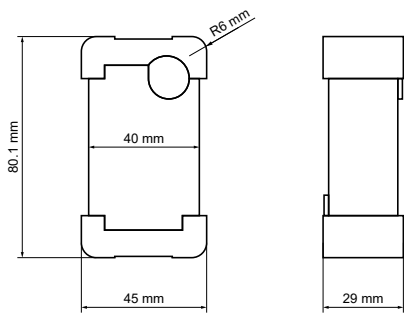
*≤ 130 (L-L/sig.); ≤ 35 (L-L/PE)

SIGNAL LINE SPDs

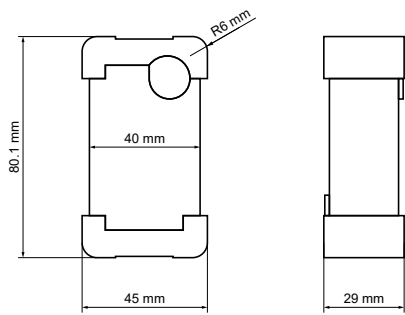
NETPRO - In line

Dimensions

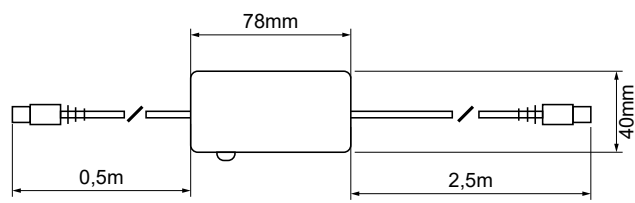
100BT



1P POE

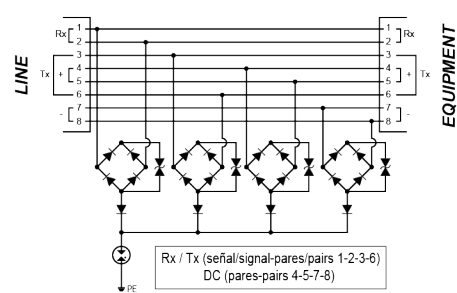


CG



Internal configuration

NETPRO - In line



SIGNAL LINE SPDs

NETPRO - Rack

Surge protection device (SPD) for transient overvoltages rack-mount design. The NETPRO-Rack range is suitable for Category 6 Ethernet networks and Power over Ethernet (NETPRO PoE) networks within the NETPRO series.



Standards

- EN IEC 61643-21

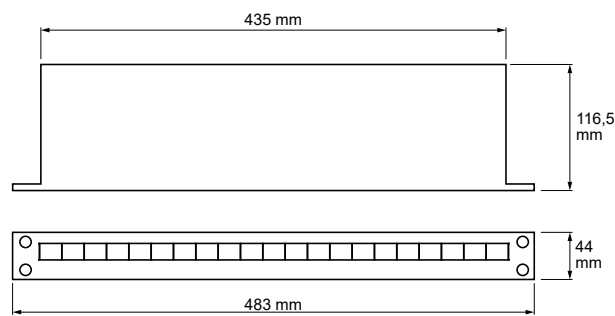


Part numbers

Item number	Item description	Uc (L-PE) [V]	Un [V]	In (L-PE) [kA]	IL [A]	Up at In [V]	Bandwidth [MHz]	Protected Wires	Input connector	Output connector
77811937	NETPRO CG-12P (CAT. 6)	6	5	0.25	1	≤35	250	4 Pairs	Crimp terminal	RJ45 (Female)
77811935	NETPRO CG-24P (CAT. 6)	6	5	0.25	1	≤35	250	4 Pairs	Crimp terminal	RJ45 (Female)
77811936	NETPRO CG-24P POE (CAT. 6)	6	5	0.25	1	≤35	250	4 Pairs	Crimp terminal	RJ45 (Female)

Dimensions

RACK



DIN V Analog signal



Surge protection device (SPD) for transient overvoltages for DIN rail mounting. The DIN V Analog signal range is suitable for communication equipment connected to RS 232 networks.

Standards

- EN IEC 61643-21



More info



Part numbers

DIN 12V-3/DIN 24V-3

Item number	Item description	Format	Uc (L-PE) [V]	Un [V]	Imax (L-PE) [kA]	In (L-PE) [kA]	Up at In [V]	Bandwidth [MHz]	Protected Wires
77840710	DIN 12V-3	DIN	16	12	10	5	≤45	3	2 Wires + GND
77840760	DIN 24V-3	DIN	30	24	10	5	≤90	3	2 Wires + GND

DIN 12V-5N/DIN 24V-5N

Item number	Item description	Format	Uc (L-PE) [V]	Un [V]	Imax (L-PE) [kA]	In (L-PE) [kA]	Up at In [V]	Bandwidth [MHz]	Protected Wires
77840721	DIN 12V-5N	DIN	16	12	10	5	≤45	0.5	4 Wires + GND
77840771	DIN 24V-5N	DIN	30	24	10	5	≤30	0.5	4 Wires + GND

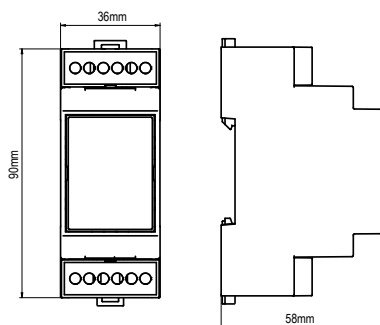
DIN 24V-2W

Item number	Item description	Format	Uc (L-PE) [V]	Un [V]	Imax (L-PE) [kA]	In (L-PE) [kA]	Up at In [V]	Bandwidth [MHz]	Protected Wires
77840954	DIN 24V-2W	DIN	27	24	10	5	≤40	4	2 Wires

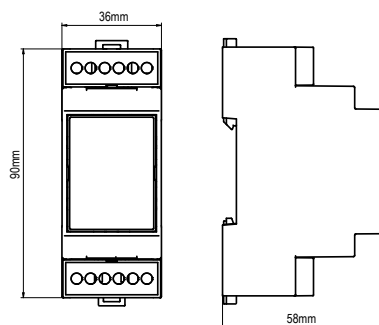
DIN V Analog signal

Dimensions

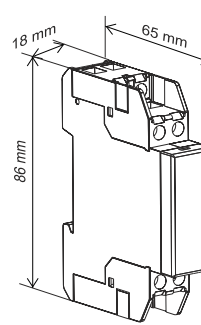
DIN 12V-3/DIN 24V-3



DIN 12V-5N/DIN 24V-5N

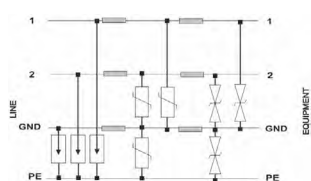


DIN 24V-2W

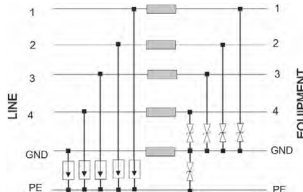


Internal configuration

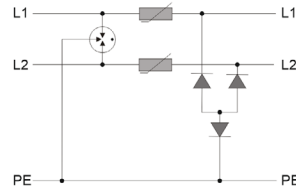
DIN 12V-3/DIN 24V-3



DIN 12V-5N/DIN 24V-5N



DIN 24V-2W



SIGNAL LINE SPDs

DIN V 2C Digital for RS485



Surge protection device (SPD) for transient overvoltages for DIN rail mounting. The DIN V 2C Digital for RS485 range is suitable for measurement and control equipment installed on RS 485/422 networks.

Standards

- EN IEC 61643-21



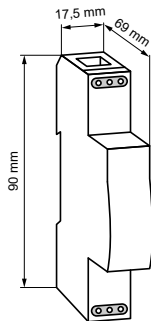
Part numbers

DIN V-2C

Item number	Item description	Format	U_c (L-PE) [V]	U_n [V]	I_{max} (L-PE) [kA]	I_n (L-PE) [kA]	Up at I_n [V]	Bandwidth [MHz]	Protected Wires
77840905	DIN 6V-2C	DIN	7	6	10	5	≤ 10	1	2 Wires
77840910	DIN 12V-2C	DIN	16	12	10	5	≤ 20	1.2	2 Wires
77840915	DIN 24V-2C	DIN	27	24	10	5	≤ 40	4	2 Wires
77840920	DIN 48V-2C	DIN	56	48	10	5	≤ 70	5	2 Wires
77840925	DIN 150V-2C	DIN	180	150	10	5	≤ 200	5	2 Wires

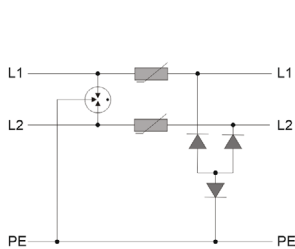
Dimensions

DIN V-2C



Internal configuration

DIN V-2C



SIGNAL LINE SPDs

DIN V G Digital for PLC



Surge protection device (SPD) for transient overvoltages for DIN rail mounting. The DIN V G Digital for PLC range is suitable for measurement and control equipment installed on digital networks.

Standards

- EN IEC 61643-21

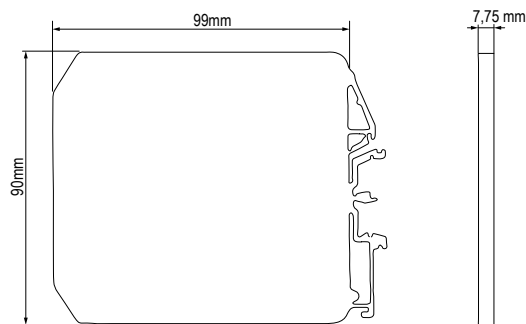


Part numbers

Item number	Item description	Format	Uc (L-PE) [V]	Un [V]	Imax (L-PE) [kA]	In (L-PE) [kA]	IL [A]	Up at In [V]	Bandwidth [MHz]	Protected Wires
77840565	DIN 24V-2G2	DIN	30	24	10	5	500	≤600	2	4 Wires
77840545	DIN 24V-4G1	DIN	30	24	10	5	500	≤60	2	4 Wires
77840566	DIN 48V-2G2	DIN	55	48	10	5	500	≤900	2	4 Wires

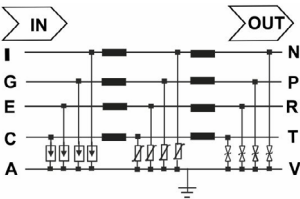
Dimensions

DIN V-2G2 / DIN V-4G1

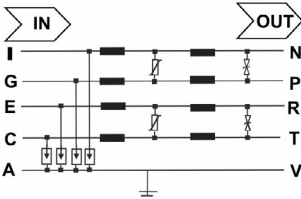


Internal configuration

DIN V-4G1

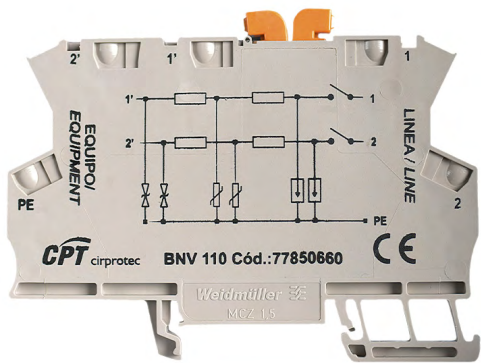


DIN V-2G2



SIGNAL LINE SPDs

BNV Digital for PLC



Surge protection device (SPD) for transient overvoltages for DIN rail mounting PLC compatible. The BNV Digital for PLC range is suitable for measurement and control equipment installed on PLC digital networks.

Standards

- EN IEC 61643-21

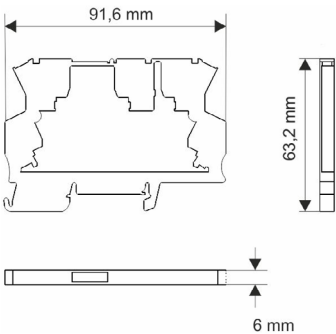


Part numbers

Item number	Item description	Format	Uc (L-PE) [V]	Un [V]	I _{max} (L-PE) [kA]	I _n (L-PE) [kA]	IL [A]	Up at I _n [V]	Bandwidth [MHz]	Protected Wires
77850660	BNV 110	DIN	130	110	5	5	300	≤260	3	2 Wires
77850655	BNV 30	DIN	30	24	5	5	300	≤45	3	2 Wires

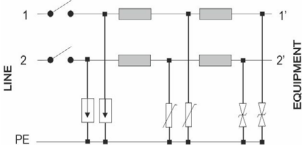
Dimensions

BNV



Internal configuration

BNV



SIGNAL LINE SPDs

DIN 485 Digital for RS485



Surge protection device (SPD) for transient overvoltages for DIN rail mounting. The DIN 485 Digital for RS485 range is suitable for measurement and control equipment installed on RS 485/422 networks.

Standards

- EN IEC 61643-21



More info



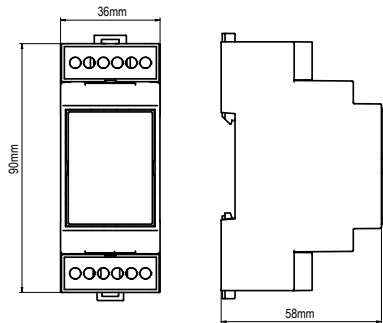
Part numbers

485

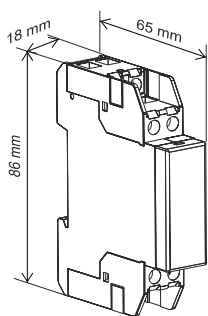
Item number	Item description	Format	Uc (L-PE) [V]	Un [V]	In (L-PE) [kA]	Up at In [V]	Bandwidth [MHz]	Protected Wires
77840805	DIN 485-2C	DIN	15	12	5	≤20	1.2	1 Pair
77840810	DIN 485-3	DIN	15	12	5	≤45	3	2 Wires + GND
77840816	DIN 485-5N	DIN	15	12	5	≤45	0.5	4 Wires + GND
77840817	DIN 485-5V-5N	DIN	15	12	10	≤15	60	4 Wires + GND
77840813	DIN 485-3NI	DIN	15	12	5	≤45	10	2 Wires + GND

Dimensions

485



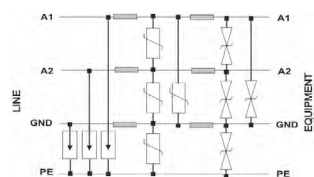
485-3NI



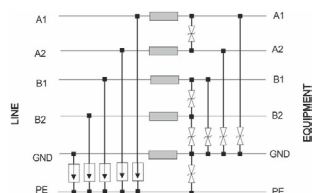
DIN 485 Digital for RS485

Internal configuration

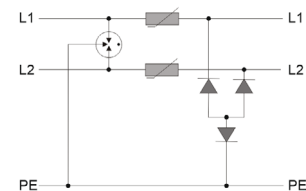
485-3



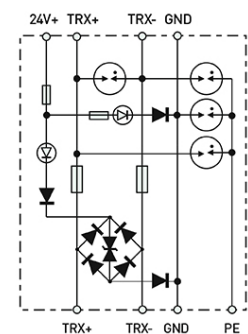
485-5N



485-2C



485-3NI



DB Digital for RS232 SUB-D connector



Surge protection device (SPD) for transient overvoltages Sub-D format. The DB Digital for RS232 SUB-D connector range is suitable for measurement and control equipment installed on RS 232 networks.

Standards

- EN IEC 61643-21



Part numbers

25HS

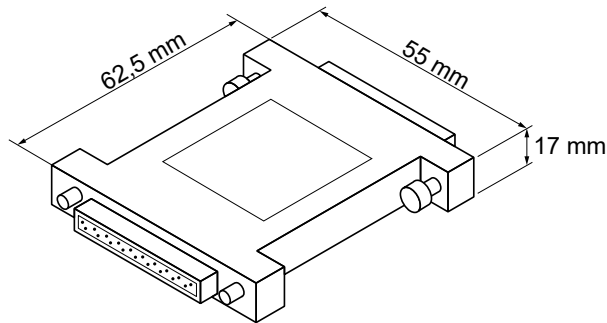
Item number	Item description	Format	Uc (L-PE) [V]	Un [V]	In (L-PE) [kA]	Up at In [V]	Bandwidth [MHz]	Protected Wires
77820140	DB25-12V/25HS	Sub-D	16	12	0.5	≤25	2	23 Wires + GND

9HS

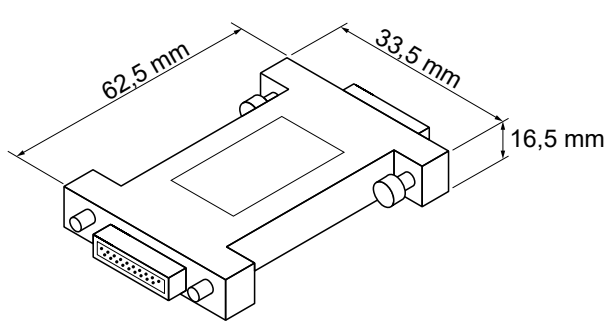
Item number	Item description	Format	Uc (L-PE) [V]	Un [V]	In (L-PE) [kA]	Up at In [V]	Bandwidth [MHz]	Protected Wires
77820145	DB9-12V/9HS	Sub-D	16	12	0.5	≤25	2	7 Wires + GND
77820153	DB9-PFB/2HS	Sub-D	6	5	2	≤20	12	2 Wires + GND

Dimensions

25HS



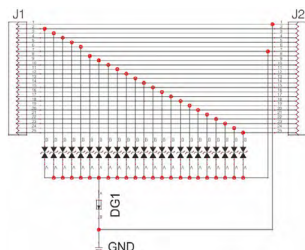
9HS



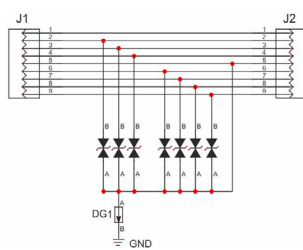
DB Digital for RS232 SUB-D connector

Internal configuration

25HS



9HS



DIN T Telephone Lines



Surge protection device (SPD) for transient overvoltages for DIN rail mounting. The DIN T Telephone Lines range is suitable for communication equipment connected to ADSL lines.

Standards

- EN IEC 61643-21

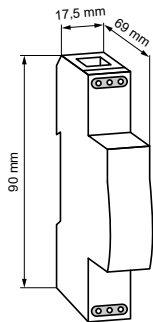


Part numbers

Item number	Item description	Format	Uc (L-PE) [V]	Un [V]	I _{max} (L-PE) [kA]	I _n (L-PE) [kA]	Up at I _n [V]	Bandwidth [MHz]	Protected Wires
77840115	DIN-ADSL	DIN	180	50	10	5	≤200	3	2

Dimensions

DIN-ADSL



SIGNAL LINE SPDs

MCH In-LINE Telephone Lines



Surge protection device (SPD) for transient overvoltages
Aerial mounting design. The MCH In-LINE Telephone Lines
range is suitable for analogue telephone lines (PP).

Standards

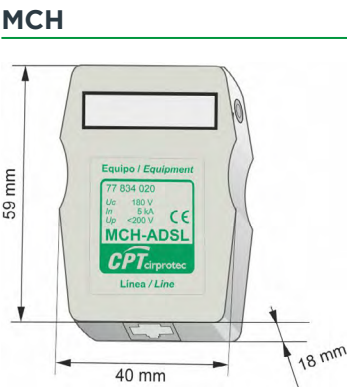
- EN IEC 61643-21



Part numbers

Item number	Item description	Format	Un [V]	I _{max} (L-PE) [kA]	In (L-PE) [kA]	Up at In [V]	Bandwidth [MHz]	Protected Wires
77834020	MCH-ADSL	Aerial format	180	10	5	≤200	3	4 Wires
77834025	MCH-PP	Aerial format	7	10	5	≤10	1	4 Wires
77834010	MCH-RDSI	Aerial format	18	10	5	≤27	2	2 Wires

Dimensions



KPL Krone Strips - Telephone Lines



Surge protection device (SPD) for transient overvoltages for mounting on KRONE / LSA-Plus disconnection and connection blocks. The KPL Krone Strips - Telephone Lines range is suitable for ADSL telephone lines.

Standards

- EN IEC 61643-21



More info

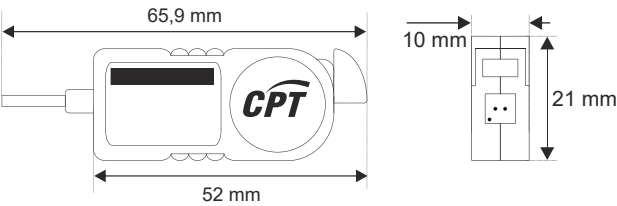


Part numbers

Item number	Item description	Format	Uc (L-PE) [V]	Un [V]	I _{max} (L-PE) [kA]	In (L-PE) [kA]	Up at In [V]	Bandwidth [MHz]	Protected Wires
77830070	KPL1 CG	Krone	180	110	15	5	≤350	3	2 Wires
77830080	KPL1 SG	Krone	180	110	2.4	1	≤575	3	2 Wires

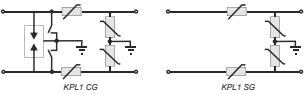
Dimensions

KPL1



Internal configuration

KPL1



CT Radiofrequency COAX



Surge protection device (SPD) for transient overvoltages coaxial format. The CT Radiofrequency COAX range is suitable for RF transmission and reception equipment.

Standards

- EN IEC 61643-21



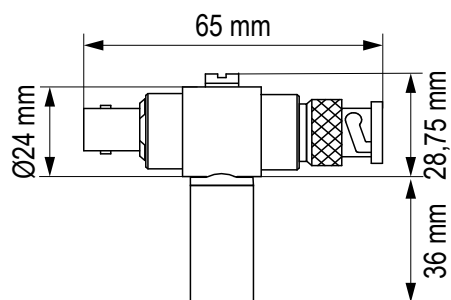
Part numbers

Item number	Item description	Uc (L-PE) [V]	I _{max} (L-PE) [kA]	I _n (L-PE) [kA]	Up at I _n [V]	Bandwidth [MHz]	Impedance [Ohm]	Peak power [W]	Input connector	Output connector
77801671	CT 05 CCTV	24	2	1.5	≤45	10	75	100	BNC (Female)	BNC (Female)
77801655	CT 10 BNC	230	20	10	≤600	3000	50	100	BNC (Female)	BNC (Female)
77801660	CT 10 F	230	20	10	≤600	2500	75	100	F (Female)	F (Female)
77801650	CT 10 N	230	20	10	≤600	3000	50	100	N (Female)	N (Female)
77801680	CT 10 TNC	120	20	10	≤600	3000	50	100	TNC (Male)	TNC (Female)
77801665	CT 10 TV	230	20	10	≤600	1000	75	100	CEI (Female)	CEI (Female)
77801690	CT 10 UHF	230	20	10	≤600	3000	50	150	UHF (Male)	UHF (Female)

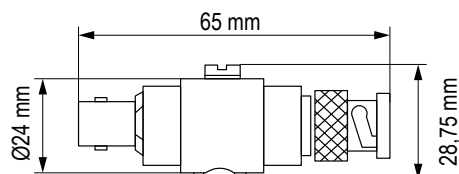
CT Radiofrequency COAX

Dimensions

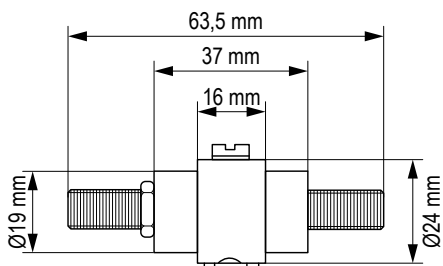
CT 05 CCTV



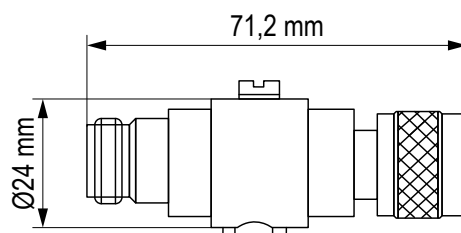
CT 10 BNC



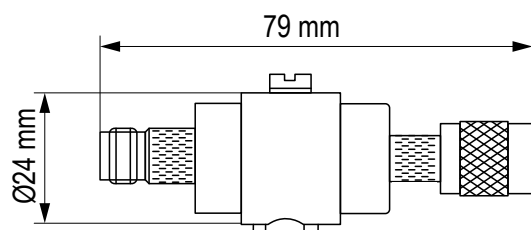
CT 10 F



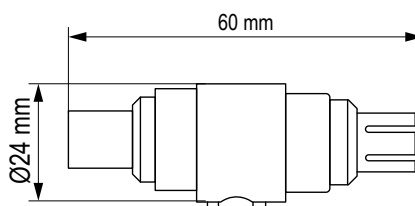
CT 10 N



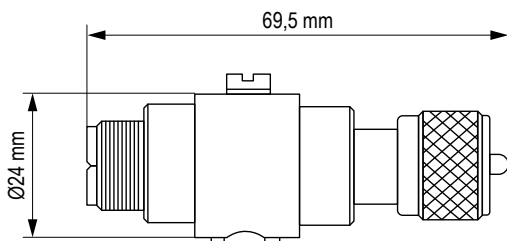
CT 10 TNC



CT 10 TV



CT 10 UHF





SURGE PROTECTION DEVICES

OTHER RANGES



Type 1+2 surge protection device (SPD) for transient overvoltages pluggable with limp 25 kA. The PSC 25 range is suitable for protection in low-voltage installations.

Standards

- EN IEC 61643-11



More info



Part numbers

1 Pole

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Iimp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77738120	PSC1-25/120	1+0	TNS, TNC, TT (only L-N)	150	120	25	100	25	≤0.9	
77738121	PSC1-25/120 IR	1+0	TNS, TNC, TT (only L-N)	150	120	25	100	25	≤0.9	✓
77738183	PSC1-100N	0+1	TT, TNS	255	Neutral	100	100	50	≤1.5	
77738125	PSC1-25/230	1+0	TNS, TNC, TT (only L-N)	275	230	25	100	25	≤1.5	
77738126	PSC1-25/230 IR	1+0	TNS, TNC, TT (only L-N)	275	230	25	100	25	≤1.5	✓
77738130	PSC1-25/400	1+0	TNS, TNC, TT (only L-N)	440	400	25	100	25	≤2	
77738131	PSC1-25/400 IR	1+0	TNS, TNC, TT (only L-N)	440	400	25	100	25	≤2	✓

2 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Iimp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77738225	PSC2-25/230 TT	1+1	TT, TNS	275	230	25	100	25	≤1.5	
77738226	PSC2-25/230 TT IR	1+1	TT, TNS	275	230	25	100	25	≤1.5	✓

3 Poles

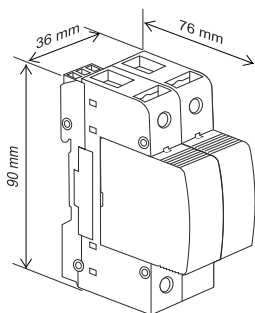
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Iimp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77738345	PSC3-25/400 TNC	3+0	TNC	275	230/400	25	100	25	≤1.5	
77738346	PSC3-25/400 TNC IR	3+0	TNC	275	230/400	25	100	25	≤1.5	✓

4 Poles

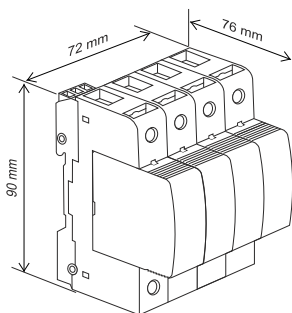
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Iimp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77738425	PSC4-25/400 TT	3+1	TT, TNS	275	230/400	25	100	25	≤1.5	
77738426	PSC4-25/400 TT IR	3+1	TT, TNS	275	230/400	25	100	25	≤1.5	✓
77738471	PSC4-25/230 TNS IR	4+0	TNS	150	120/208	25	100	25	≤0.9	✓

Dimensions

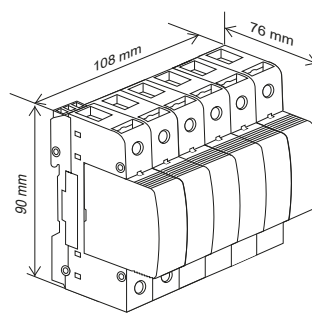
1 Pole



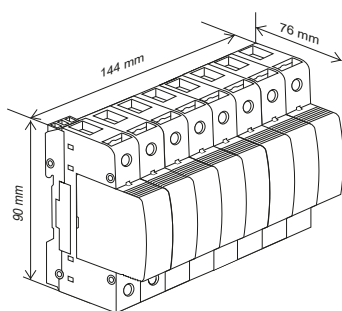
2 Poles



3 Poles

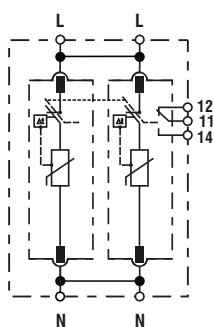


4 Poles

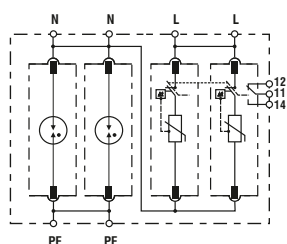


Internal configuration

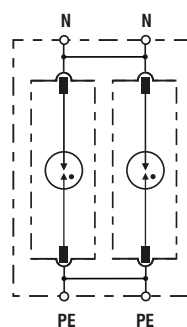
TNS, TNC, TT (only L-N) (1+0)



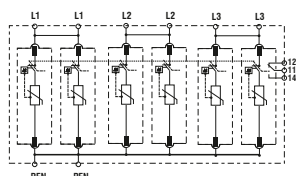
TT, TNS (1+1)



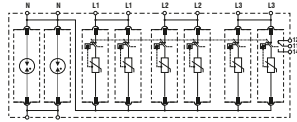
TT, TNS (0+1)



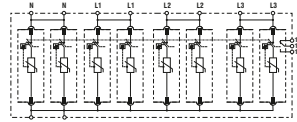
TNC (3+0)



TT, TNS (3+1)



TNS (4+0)





Type 1+2 surge protection device (SPD) for transient overvoltages pluggable with limp 12.5 kA. The PSC 12.5 range is suitable for protection in low-voltage installations.

Standards

- EN IEC 61643-11

More info



Part numbers

1 Pole

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77738100	PSC1-12,5/120	1+0	TNS, TNC, TT (only L-N)	150	120	12.5	65	20	≤1	
77738101	PSC1-12,5/120 IR	1+0	TNS, TNC, TT (only L-N)	150	120	12.5	65	20	≤1	✓
77738180	PSC1-25N	0+1	TT, TNS	255	Neutral	25	65	25	≤1.5	
77738182	PSC1-50N	0+1	TT, TNS	255	Neutral	50	65	50	≤1.5	
77738105	PSC1-12,5/230	1+0	TNS, TNC, TT (only L-N)	275	230	12.5	65	20	≤1.3	
77738106	PSC1-12,5/230 IR	1+0	TNS, TNC, TT (only L-N)	275	230	12.5	65	20	≤1.3	✓
77738112	PSC1-12,5/277	1+0	TNS, TNC, TT (only L-N)	320	277	12.5	65	20	≤1.4	
77738113	PSC1-12,5/277 IR	1+0	TNS, TNC, TT (only L-N)	320	277	12.5	65	20	≤1.4	✓
77738110	PSC1-12,5/400	1+0	TNS, TNC, TT (only L-N)	440	400	12.5	65	20	≤1.8	
77738111	PSC1-12,5/400 IR	1+0	TNS, TNC, TT (only L-N)	440	400	12.5	65	20	≤1.8	✓

2 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	limp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77738200	PSC2-12,5/120 TT	1+1	TT, TNS	150	120	12.5	65	20	≤1	
77738201	PSC2-12,5/120 TT IR	1+1	TT, TNS	150	120	12.5	65	20	≤1	✓
77738205	PSC2-12,5/230 TT	1+1	TT, TNS	275	230	12.5	65	20	≤1.3	
77738206	PSC2-12,5/230 TT IR	1+1	TT, TNS	275	230	12.5	65	20	≤1.3	✓
77738250	PSC2-12,5/120 TNS	2+0	TNS	150	120	12.5	65	20	≤1	
77738251	PSC2-12,5/120 TNS IR	2+0	TNS	150	120	12.5	65	20	≤1	✓
77738255	PSC2-12,5/230 TNS	2+0	TNS	275	230	12.5	65	20	≤1.3	
77738256	PSC2-12,5/230 TNS IR	2+0	TNS	275	230	12.5	65	20	≤1.3	✓
77738257	PSC2-12,5/277 TNS	2+0	TNS	320	277	12.5	65	20	≤1.4	
77738258	PSC2-12,5/277 TNS IR	2+0	TNS	320	277	12.5	65	20	≤1.4	✓
77738094	PSC2-12,5/60 ELV	2+0	TNS	75	60	12.5	60	20	≤0.65	
77738095	PSC2-12,5/60 ELV IR	2+0	TNS	75	60	12.5	60	20	≤0.65	✓

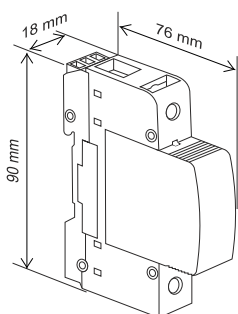
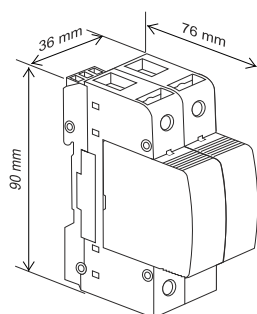
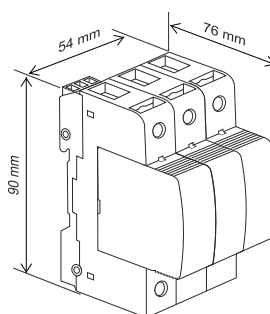
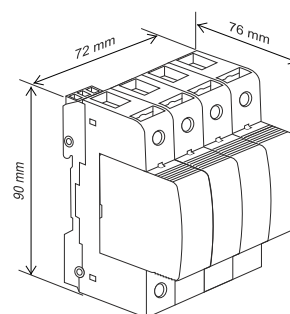
*ELV: Extra low voltage

3 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Iimp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77738328	PSC3-12,5/400 IT IR	3+0	IT	440	-/400	12.5	65	20	≤1.8	✓
77738320	PSC3-12,5/230 TNC	3+0	TNC	150	120/208	12.5	65	20	≤1	
77738321	PSC3-12,5/230 TNC IR	3+0	TNC	150	120/208	12.5	65	20	≤1	✓
77738325	PSC3-12,5/400 TNC	3+0	TNC	275	230/400	12.5	65	20	≤1.3	
77738326	PSC3-12,5/400 TNC IR	3+0	TNC	275	230/400	12.5	65	20	≤1.3	✓
77738329	PSC3-12,5/480 TNC	3+0	TNC	320	277/480	12.5	65	20	≤1.4	
77738330	PSC3-12,5/480 TNC IR	3+0	TNC	320	277/480	12.5	65	20	≤1.4	✓
77738327	PSC3-12,5/400 IT	3+0	IT	440	-/400	12.5	65	20	≤1.8	

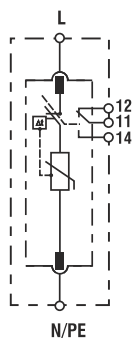
4 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	Iimp [kA]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77738400	PSC4-12,5/230 TT	3+1	TT, TNS	150	120/208	12.5	65	20	≤1	
77738401	PSC4-12,5/230 TT IR	3+1	TT, TNS	150	120/208	12.5	65	20	≤1	✓
77738405	PSC4-12,5/400 TT	3+1	TT, TNS	275	230/400	12.5	65	20	≤1.3	
77738406	PSC4-12,5/400 TT IR	3+1	TT, TNS	275	230/400	12.5	65	20	≤1.3	✓
77738407	PSC4-12,5/480 TT	3+1	TT, TNS	320	277/480	12.5	65	20	≤1.4	
77738408	PSC4-12,5/480 TT IR	3+1	TT, TNS	320	277/480	12.5	65	20	≤1.4	✓
77738450	PSC4-12,5/230 TNS	4+0	TNS	150	120/208	12.5	65	20	≤1	
77738451	PSC4-12,5/230 TNS IR	4+0	TNS	150	120/208	12.5	65	20	≤1	✓
77738455	PSC4-12,5/400 TNS	4+0	TNS	275	230/400	12.5	65	20	≤1.3	
77738456	PSC4-12,5/400 TNS IR	4+0	TNS	275	230/400	12.5	65	20	≤1.3	✓
77738457	PSC4-12,5/480 TNS	4+0	TNS	320	277/480	12.5	65	20	≤1.4	
77738458	PSC4-12,5/480 TNS IR	4+0	TNS	320	277/480	12.5	65	20	≤1.4	✓
77738432	PSC4-12,5/400 IT	4+0	IT	440	230/400	12.5	65	20	≤1.8	

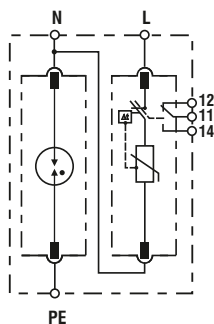
Dimensions**1 Pole****2 Poles****3 Poles****4 Poles**

Internal configuration

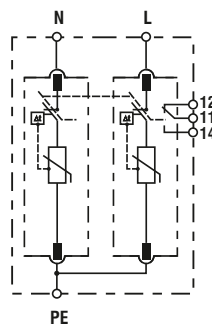
TNS, TNC, TT (only L-N) (1+0)



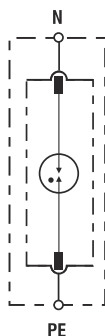
TT, TNS (1+1)



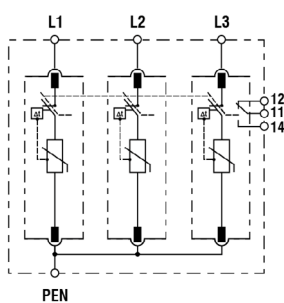
TNS (2+0)



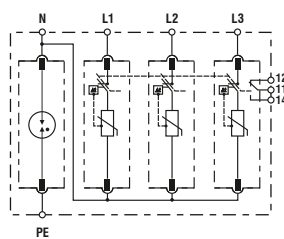
TT, TNS (0+1)



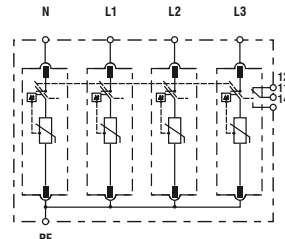
TNC (3+0)



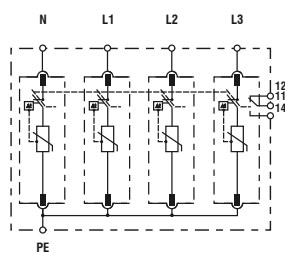
TT, TNS (3+1)



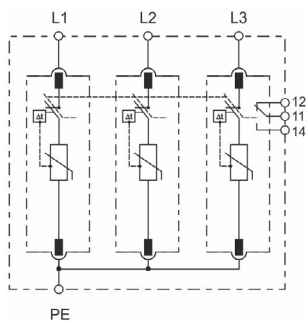
TNS (4+0)



IT (4+0)



IT (3+0)



PSM 40



Type 2 surge protection device (SPD) for transient overvoltages pluggable with I_{max} 40 kA. The PSM 40 range is suitable for protection in low-voltage installations.

Standards

- EN IEC 61643-11
- UL 1449 5th Edition

More info



Part numbers

1 Pole

Item number	Item description	Internal conf.	Network configuration	U_c [V]	U_n [V]	I_{max} [kA]	I_n [kA]	Up at I_n [kV]	IR
77707706	PSM1-40/120	1+0	TNS, TNC, TT (only L-N)	175	120	40	20	≤ 1	
77707707	PSM1-40/120 IR	1+0	TNS, TNC, TT (only L-N)	175	120	40	20	≤ 1	✓
77707746	PSM1-40N	0+1	TT, TNS	265	Neutral	40	20	≤ 1.5	
77707708	PSM1-40/230	1+0	TNS, TNC, TT (only L-N)	275	230	40	20	≤ 1.3	
77707709	PSM1-40/230 IR	1+0	TNS, TNC, TT (only L-N)	275	230	40	20	≤ 1.3	✓
77707734	PSM1-40/277	1+0	TNS, TNC, TT (only L-N)	320	277	40	20	≤ 1.5	
77707735	PSM1-40/277 IR	1+0	TNS, TNC, TT (only L-N)	320	277	40	20	≤ 1.5	✓
77707710	PSM1-40/400	1+0	TNS, TNC, TT (only L-N)	440	400	40	20	≤ 2	
77707711	PSM1-40/400 IR	1+0	TNS, TNC, TT (only L-N)	440	400	40	20	≤ 2	✓
77707740	PSM1-40/60 ELV	1+0	TNS	75	60	40	20	≤ 0.8	
77707741	PSM1-40/60 ELV IR	1+0	TNS	75	60	40	20	≤ 0.8	✓
77707714	PSM1-30/750	1+0	TNS, TNC, TT (only L-N)	750	480	30	15	≤ 3	
77707715	PSM1-30/750 IR	1+0	TNS, TNC, TT (only L-N)	750	480	30	15	≤ 3	✓

*ELV: Extra low voltage

2 Poles

Item number	Item description	Internal conf.	Network configuration	U_c [V]	U_n [V]	I_{max} [kA]	I_n [kA]	Up at I_n [kV]	IR
77707754	PSM2-40/120 TT	1+1	TT, TNS	175	120	40	20	≤ 1	
77707755	PSM2-40/120 TT IR	1+1	TT, TNS	175	120	40	20	≤ 1	✓
77707756	PSM2-40/230 TT	1+1	TT, TNS	275	230	40	20	≤ 1.3	
77707757	PSM2-40/230 TT IR	1+1	TT, TNS	275	230	40	20	≤ 1.3	✓
77707760	PSM2-40/277 TT	1+1	TT, TNS	320	277	40	20	≤ 1.5	
77707761	PSM2-40/277 TT IR	1+1	TT, TNS	320	277	40	20	≤ 1.5	✓
77707904	PSM2-40/120 TNS	2+0	TNS	175	120	40	20	≤ 1	
77707905	PSM2-40/120 TNS IR	2+0	TNS	175	120	40	20	≤ 1	✓
77707906	PSM2-40/230 TNS	2+0	TNS	275	230	40	20	≤ 1.3	
77707907	PSM2-40/230 TNS IR	2+0	TNS	275	230	40	20	≤ 1.3	✓
77707914	PSM2-40/277 TNS	2+0	TNS	320	277	40	20	≤ 1.5	
77707915	PSM2-40/277 TNS IR	2+0	TNS	320	277	40	20	≤ 1.5	✓
77707926	PSM2-40/48 ELV	2+0	TNS	60	48	40	20	≤ 0.7	

PSM 40

Continue 2 Poles

Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77707927	PSM2-40/48 ELV IR	2+0	TNS	60	48	40	20	≤0.7	✓
77707928	PSM2-40/60 ELV	2+0	TNS	75	60	40	20	≤0.8	
77707929	PSM2-40/60 ELV IR	2+0	TNS	75	60	40	20	≤0.8	✓

*ELV: Extra low voltage

3 Poles

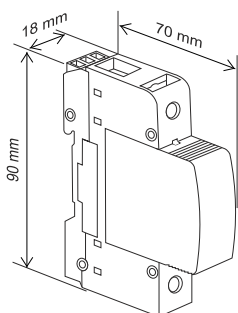
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77707865	PSM3-40/230 TNC IR	3+0	TNC	175	120/208	40	20	≤1	✓
77707864	PSM3-40/230 TNC	3+0	TNC	175	120/208	40	20	≤1	
77707866	PSM3-40/400 TNC	3+0	TNC	275	230/400	40	20	≤1.3	
77707867	PSM3-40/400 TNC IR	3+0	TNC	275	230/400	40	20	≤1.3	✓
77707882	PSM3-40/480 TNC	3+0	TNC	320	277/480	40	20	≤1.5	
77707883	PSM3-40/480 TNC IR	3+0	TNC	320	277/480	40	20	≤1.5	✓
77707878	PSM3-40/400 IT	3+0	IT	440	-/400	40	20	≤2	
77707879	PSM3-40/400 IT IR	3+0	IT	440	-/400	40	20	≤2	✓
77707870	PSM3-30/750 TNC	3+0	TNC	750	480/830	30	15	≤3	
77707871	PSM3-30/750 TNC IR	3+0	TNC	750	480/830	30	15	≤3	✓
77707887	PSM3-30/850 TNC IR	3+0	TNC	850	480/830	30	15	≤3	✓

4 Poles

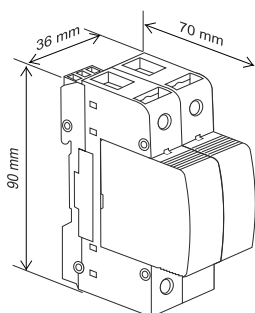
Item number	Item description	Internal conf.	Network configuration	Uc [V]	Un [V]	I _{max} [kA]	In [kA]	Up at In [kV]	IR
77707804	PSM4-40/230 TT	3+1	TT, TNS	175	120/208	40	20	≤1	
77707805	PSM4-40/230 TT IR	3+1	TT, TNS	175	120/208	40	20	≤1	✓
77707806	PSM4-40/400 TT	3+1	TT, TNS	275	230/400	40	20	≤1.3	
77707807	PSM4-40/400 TT IR	3+1	TT, TNS	275	230/400	40	20	≤1.3	✓
77707810	PSM4-40/480 TT	3+1	TT, TNS	320	277/480	40	20	≤1.5	
77707811	PSM4-40/480 TT IR	3+1	TT, TNS	320	277/480	40	20	≤1.5	✓
77707954	PSM4-40/230 TNS	4+0	TNS	175	120/208	40	20	≤1	
77707955	PSM4-40/230 TNS IR	4+0	TNS	175	120/208	40	20	≤0.9	✓
77707956	PSM4-40/400 TNS	4+0	TNS	275	230/400	40	20	≤1.3	
77707957	PSM4-40/400 TNS IR	4+0	TNS	275	230/400	40	20	≤1.3	✓
77707989	PSM4-40/480 TNS	4+0	TNS	320	277/480	40	20	≤1.5	
77707990	PSM4-40/480 TNS IR	4+0	TNS	320	277/480	40	20	≤1.5	✓

Dimensions

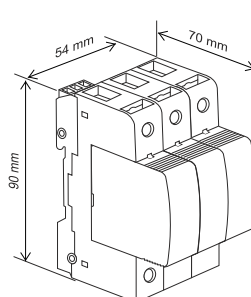
1 Pole



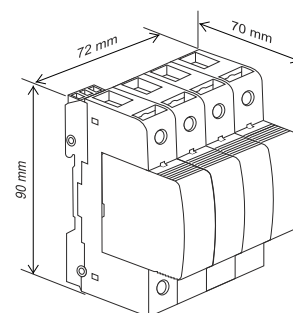
2 Poles

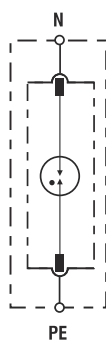
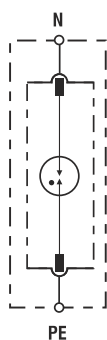
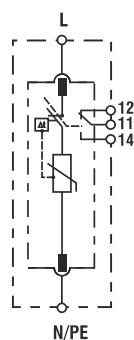
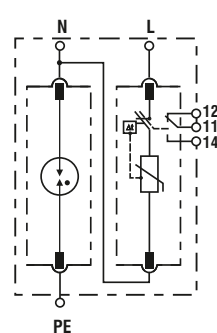
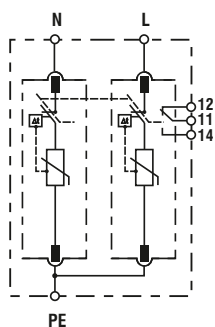
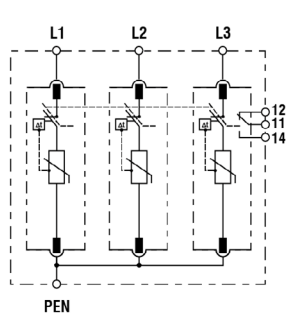
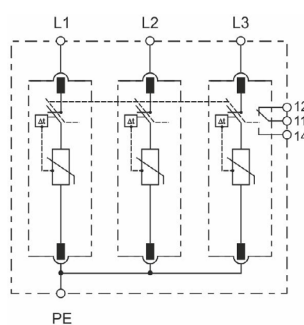
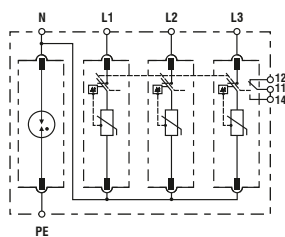
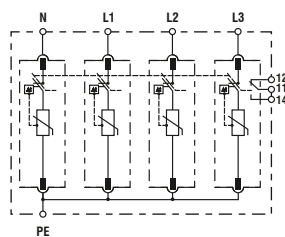


3 Poles



4 Poles



Internal configuration**TNS (1+0)****TT, TNS (0+1)****TNS, TNC, TT (only L-N) (1+0)****TT, TNS (1+1)****TNS (2+0)****TNC (3+0)****IT (3+0)****TT, TNS (3+1)****TNS (4+0)**

PHOTOVOLTAIC & ENERGY STORAGE SPDs

PSC YPV



Type 1+2 surge protection device (SPD) for transient overvoltages pluggable with limp 5 kA. The PSC YPV range is suitable for PV installations.

Standards

- EN IEC 61643-31
- UL 1449 5th Edition

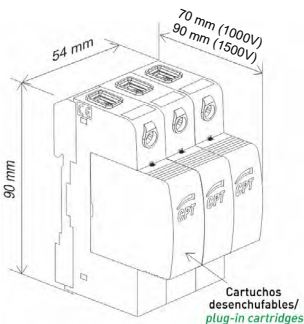


Part numbers

Item number	Item description	Ucpv [V]	Internal conf.	limp [kA]	Imax [kA]	In [kA]	Up at In [kV]	Iscpv [kA]	IR
77738377	PSC3-5/1000 PV	1060	+, -, PE	5	40	20	≤4	10	
77738378	PSC3-5/1000 PV IR	1060	+, -, PE	5	40	20	≤4	10	✓
77738652	PSC3-5/1500 PV	1500	+, -, PE	5	40	20	≤5	10	
77738653	PSC3-5/1500 PV IR	1500	+, -, PE	5	40	20	≤5	10	✓

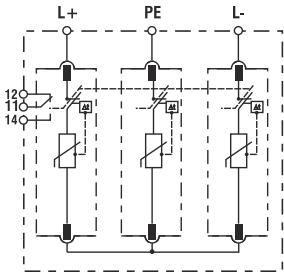
Dimensions

YPV



Internal configuration

+, -, PE (YPV)



PHOTOVOLTAIC & ENERGY STORAGE SPDs

PSM YPV



Type 2 surge protection device (SPD) for transient overvoltages pluggable with I_{max} 40 kA. The PSM YPV range is suitable for PV installations.

Standards

- EN IEC 61643-31
- UL 1449 5th Edition

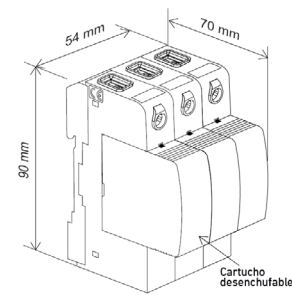


Part numbers

Item number	Item description	Ucpv [V]	Internal conf.	I _{max} [kA]	I _n [kA]	Up at I _n [kV]	Iscpv [kA]	IR
77707850	PSM3-40/600 PV	660	+, -, PE	40	20	≤2.6	10	
77707851	PSM3-40/600 PV IR	660	+, -, PE	40	20	≤2.6	10	✓
77707852	PSM3-40/1000 PV	1060	+, -, PE	40	20	≤4	10	
77707853	PSM3-40/1000 PV IR	1060	+, -, PE	40	20	≤4	10	✓
77707840	PSM3-40/1500 PV	1500	+, -, PE	40	15	≤5	10	
77707841	PSM3-40/1500 PV IR	1500	+, -, PE	40	15	≤5	10	✓

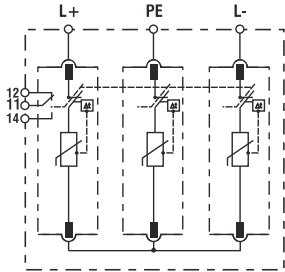
Dimensions

YPV



Internal configuration

+, -, PE (YPV)





LIGHTNING RODS & ACCESSORIES

EXTERNAL LIGHTNING PROTECTION SYSTEMS

LIGHTNING RODS (AIR TERMINATION SYSTEMS)

Lightning rods nimbus® type ESE

Early streamer emission lightning rod, in accordance with UNE 21186 v2011 and CTE SU8. Stainless steel AISI 316.



Item number	Item description	Early streamer emission time [μs]
77901115	nimbus 15	15
77901130	nimbus 30	30
77901145	nimbus 45	45
77901160	nimbus 60	60

Coverage radius according to UNE 21186:2011 / NF C 17-102:2011

NP →	Level I (D=20m)				Level II (D=30m)				Level III (D=45m)				Level IV (D=60m)			
↓ h(m)	nimbus® 15	nimbus® 30	nimbus® 45	nimbus® 60	nimbus® 15	nimbus® 30	nimbus® 45	nimbus® 60	nimbus® 15	nimbus® 30	nimbus® 45	nimbus® 60	nimbus® 15	nimbus® 30	nimbus® 45	nimbus® 60
5	32	48	63	79	37	55	71	86	45	63	81	97	51	71	89	107

*h: height (m) between the tip of the lightning rod and the highest point of the area to be protected.

nimbus® R | ESE lightning rod - remotely testable

Lightning rod with remote testing via the R-Tester universal controller (accessory). Complies with standards NF C 17-102:2011 and UNE 21186:2011, as well as the UNE 61000-6 series for radiated emissions.



Item number	Item description	Early streamer emission time [μs]	Remotely testable
77901401	nimbus® R 15	15	✓
77901403	nimbus® R 30	30	✓
77901404	nimbus® R 45	45	✓
77901406	nimbus® R 60	60	✓
77901410	R-Tester	-	-

Adapting piece nimbus® to mast

Adapting piece nimbus® to the mast.



Item number	Item description
77902610	P-ADAP D36,5
77902600	P-ADAP D39,5

Franklin top

Franklin top of stainless steel AISI 316, with piece of adjustment.



Item number	Item description
77900400	P-FRANKLIN

EXTERNAL LIGHTNING PROTECTION SYSTEMS

ACCESSORIES

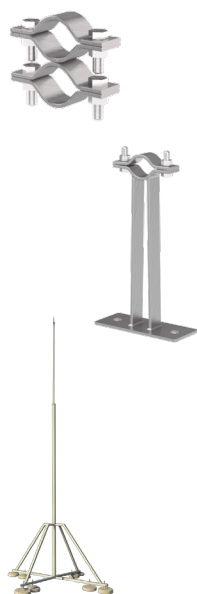
Mast

Galvanized iron mast.



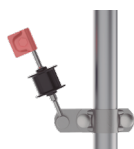
Item number	Reference	Item description
77903010	MAST 3M FEG	3m (1 section of 3 m)
77903110	MAST 6M FEG	6m (2 section of 3 m)
77903020	MAST 3M INOX	3m (1 section of 3 m)
77903120	MAST 6M INOX	6m (2 section of 3 m)
77904155	TRIP TEJ+MST 8M FEG+P ADP NIMB	Tripod + 8m mast + adapter piece
77903160	MAST 8M FEG + P ADAP D35	8m (3 section of 3, 3 and 2m) + adapter piece

Mast anchorages



Item number	Reference	Item description
77904100	PIE SOP MAST TEJ	Mast base support on flat roof or ground. 2 pieces
77904200	ANCLAJES EMPO 30 D 1 1/2" (MAST 3 Y 6M)	Set of 30 cm anchorages for recessed mounting or welding (2 pieces). Mast D 1 1/2" (3m and 6m)
77904202	ANCLAJES EMPO 30 D 2" (MAST 9M)	Set of 30 cm anchorages for recessed mounting or welding (3 pieces). Mast D 2" 9m
77904300	ANCLAJES PL 15 D 1 1/2" (MAST 3 Y 6M)	Set of 15 cm metal screw-plate anchorings (2 pieces). D 1 1/2" Mast 3 and 6m
77904400	ANCLAJES PL 30 D 1 1/2" (MAST 3 Y 6M)	Set of 30 cm metal screw-plate anchorings (2 pieces). Mast D 1 1/2" (3m and 6m)
77904700	ANCLAJES PL 60	Set of 60 cm metal screw-plate anchorings (2 pieces). Mast D 1 1/2" (3m and 6m)
77904311	ANCL-PLA-15-MAST-9M-3-UDS	Set of 15 cm metal screw-plate anchorings (3 pieces). Mast D 2" (8m or 9m)
77904403	ANCL-PLA-30-MAST-9M-3-UDS	Set of 30 cm metal screw-plate anchorings (3 pieces). Mast D 2" (8m or 9m)
77904500	ANCLAJES BARAN H	Pair of fixations for horizontal rail (2 pcs)
77904600	ANCLAJES BARAN V	Pair of fixations for vertical rail (2 pcs)

Antenna mast protection (spark gap)



Item number	Reference	Item description
77920500	VIA CHISPAS PVC	Spark gap (mast-to-antenna)
77920510	KIT VIA CHISPAS+MAST-ANTENA	Spark gap kit for mast-to-Antenna protection
77920310	EQUIPOT TIERRA	Spark gap (equipotential bonding of independent earthings)

ACCESSORIES

Roof cable support



Item number	Reference	Item description
776111630	SOP-COND TEJ HORM D8	Concrete roof conductor holder for 8 mm
779001161	SOP-CEM CABLE PLETINA	Pyramidal conductor holders for flat roofs filled in with concrete. Suitable for flat conductors 30x2 mm or cable
776111019	SOP-COND NIRO CLIP V2A D8 AI	Hook type clamp for roof tiles, for 8 mm cable
776111144	SOP-TEJ INOX NIRO-CLIP D8	Support- roof conductor holder - Stainless steel niro-clip. Diameter 8
776111397	SOP-COND TF ISO CABLE D10	Clamp metal. cable 8-10 mm

Wall-mounted down conductor support



Item number	Reference	Item description
77909100	SOP-CABLE Br M8 TIRAF 50/70	M8 bronze bracket with screw rings, for 50 and 70 mm ² cable
776110072	SOP-COND TR BR H-M8	M8 bronze bracket with thread, for 50 and 70 mm ² cable
776001155	SOP-COND TF NYLON D8MM	Nylon support for down conductor cable 8 mm with dowel
77600030	SOP-COND D-8/10 TF MET FeCG	Support in galvanized steel for cable 8-10 mm with dowel for metallic structure.
776001032	SOP-COND TF Cu/ PVC D8MM	Copper conductor bracket with dowel 8 mm

Lightning strike counters



Item number	Reference	Item description
77920130	CDR-401	Lightning strike counter for flat tape and cable

Connecting sleeves



Item number	Reference	Item description
77912000	MANGUITO-U C-70	Sleeve joint for cable 8-10 mm
776001270	BORNA MULTI-CLAMP FECG D8-10	Universal T joint in galvanized steel, Ø 8-10 mm
776001272	BORNA MULTI-CLAMP CU D8	Universal T-Multiclap, +, parallel copper and Ø 8 mm
776001273	BORNA MULTI-CLAMP INOX D8	Multiple cable joint in stainless steel, Ø 8-10 mm

Protection pipe



Item number	Reference	Item description
77920200	TUB-PROT BAJ 3M D32	3 m. down-conductor protection pipe of Ø 32 mm. Galvanized steel

EXTERNAL LIGHTNING PROTECTION SYSTEMS

ACCESSORIES

Earthing inspection pit and accessories



Item number	Reference	Item description
77930110	ARQUETA COMPLETA 300X300	Polypropilene inspection pit 300x300 mm. complete with equipotential terminal strip and 3 clamp terminals
77930100	ARQUETA REG 300X300	Polypropilene inspection pit 300x300 mm
77931100	REGL EQUIPOT ARQ	Equipotential terminal strip
77931000	TERM BRIDA CABLE-TRZ	Clamp terminal for braided cable
77930000	PLACA SEÑAL DE PUESTA A TIERRA	Earth connection sign
77938501	LOWPAT 25 KG	Long-lasting liquid activating compound for earth connections (25 kg)
77938300	SALES MINERALES 5 KG	5 kg. bag of mineral salts

Earth rods and grounding components



Item number	Reference	Item description
77932100	JAB Cu 2 D14	Copper earth rod 300 micras 2 m, Ø 14 mm
77932000	JAB INOX 2 D14	Stainless steel earth rod 2 m, Ø 14 mm
77940000	ELECTRODO GRAF R	Graphite rigid electrode
77936100	PLACA TT Cu 500X500X2	Copper earth plate 500 x 500 x 2 mm

Earth rod clamp



Item number	Reference	Item description
77934200	GRAPA-AB La /JAB	Earth rod U-bolt brass earth rod cable
77934300	GRAPA-AB INOX/JAB	Earth rod connection stainless steel U-bolt
77934400	GRAPA-AB La D-14/18	Brass U-bolt 14 and 18 mm. Ø (2 conductors)
77934500	GRAPA-AB INOX D-14/18	Stainless steel U-bolt 14 and 18 mm. Ø (2 conductors)

nimbus® project designer software

This software integrates all the tools needed for system design, risk analysis, geometric optimization of lightning rod placement, and the generation of technical documentation into a single platform.



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