



LIGHTNING AND
SURGE PROTECTION


PRODUCT CATALOGUE




ICON LEGEND

TYPE OF PROTECTION

 Surge protection device for **power supply systems (SPD)**
 Surge protection device for **telecom and signalling networks**


 **Power frequency overvoltage protection for power supply systems (POP)**

 **Monitoring**





TYPE OF OVERVOLTAGE PROTECTION

 **Transient voltage surge protection devices (SPD)**



 **Combined transient and power frequency overvoltage protection device (SPD+POP)**

 **Power frequency overvoltage protection device (POP)**




DISCHARGE CAPACITY

 Maximun
 High
 Standard
 Fine

PROTECTOR FORMAT

 Plug-in format
 Monobloc format

FEATURES OF PROTECTION

 Includes MCB
 With automatic reconnection
 Complies with EN 50550

- IR:** Remote indication
- PLC:** Compatible with PLC (power line communications)
- ELV:** Versions for extra low voltages
- POP:** Power frequency overvoltage protection devices
- SPD:** Surge protection devices. Transient overvoltages



You can find all the technical and commercial product information you need at www.cirprotec.com, including: Installation instructions, CAD data, specification text, standards, declarations of conformity, a full table of technical specifications, as well as product range and/or application flyers.

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Why Cirprotec?

CIRPROTEC, SPECIALISTS IN LIGHTNING AND OVERVOLTAGE PROTECTION

Pioneers in the **design and manufacture of lightning and overvoltage protection devices**, Cirprotec has been manufacturing high quality solutions and products for over 20 years using the most innovative technologies.

This range is completed with consultancy services based on our experience and knowledge; proximity and commitment to achieve success in every project.

SAFETY & RELIABILITY FOR SURGE PROTECTION

- **Bringing together the experience** of the principal international **manufacturing and test standards** for SPDs (IEC and UL)
- **Innovative ranges combining surge protection and ground monitoring** to provide full safety and continuity of service. SAFEGROUND®.
- **World-class surge test platform**, with laboratories holding accreditations for both IEC/EN 61643-11, UL 1449 4th edition, EN 50550 and UNE 21186.
- **A high degree of internationalisation**, with an extensive network of sales offices and a presence in over 60 countries.
- **Leadership in POP** (Power-frequency Overvoltage Protection) and combined devices **SPD+POP**. EN 50550.
- Wide range of solutions targeting **industrial, commercial and residential applications**.

COMPREHENSIVE PROTECTION

An effective overvoltage protection must combine the following protection systems:

- **External protection** (ESE lightning rods and faradization). System for protection against direct lightning strike. These capture the lightning within the protected area and lead it, in a controlled manner, safely to ground.
- **Internal protection** (power frequency overvoltage and surge protection devices). Equipment designed to protect against the effects of overvoltages in equipment connected to the power supply systems and/or communications networks.
- **Grounding systems** (grounding and insulation monitoring). Systems that allow atmospheric discharge currents to be dispersed into the ground. The need for monitoring the grounding system.

Cirprotec offers a **wide range of products** for each of these systems. It also develops custom products, provides advice and consulting services and the best possible after-sales service.



1993

Cirprotec founded in Terrassa (Spain)

1994

Global innovation. First power frequency overvoltage protection device on the market.

1997

Range ESE nimbus® lightning rod

1999

Creation of the CPT Lab, the embryo of what is today one of the world's leading reference overvoltage laboratories.

2004

Patent V-CHECK, the first combined protection device against power frequency overvoltages and surges.

2005

Driving EN 50550 POP standard, as a member of the working committees.

Your partner in surge protection

WORLD-CLASS SURGE TEST PLATFORM

Cirprotec is committed to **innovation**. More than 30.000 tests in 20 years are the proof of that quest for continual improvement.

In the field of lightning and surge protection Cirprotec has a highly specialized team, test laboratories, high investment in R+D, international patents and presence on standards committees.

Cirprotec has **two state of the art overvoltage testing laboratories** for the development and test quality assurance of lightning and surge protection systems. The two are complementary, in terms of the available resources, to be able to offer **the widest possible range of tests to IEC, UL and NFC standards.**

CIRPROTEC GUARANTEES THE SAFETY OF ITS SYSTEMS

Cirprotec designs and manufactures all of its solutions according to the strictest quality procedures and certifies its products in accordance with the most demanding codes and standards (**IEC, EN, EN, NFC, etc.**) through independent certifying organisations such as **ENAC, UL, Dekra, etc.**



2006

Patent **G-CHECK®**, continuous grounding system monitor.

2006

Expansion of the CPT Lab to over **1.000 m²**

2010

Consolidation of internationalisation (international certifications and approvals).

2012

NS range for LED lighting solutions (partner of the leading outdoor lighting manufacturers).

2014

Strategic agreement with **Mersen** to promote internationalisation.

2016

SAFEGROUND® patent, a revolution in surge protection.

Risk of voltage surges

EXPOSURE TO OVERVOLTAGES: DAMAGE AND COSTS

Electrical and electronic equipment is indispensable in the daily activities of today's businesses and individuals. Such devices are connected to the electricity grid, often exchanging data and signals through communication lines and are usually sensitive to disturbances. These **interconnecting networks provide a propagation path for overvoltages**.

Protection against lightning and overvoltages not only ensures the **safety of people, goods and equipment**, but also ensures **continuity of installation services**.

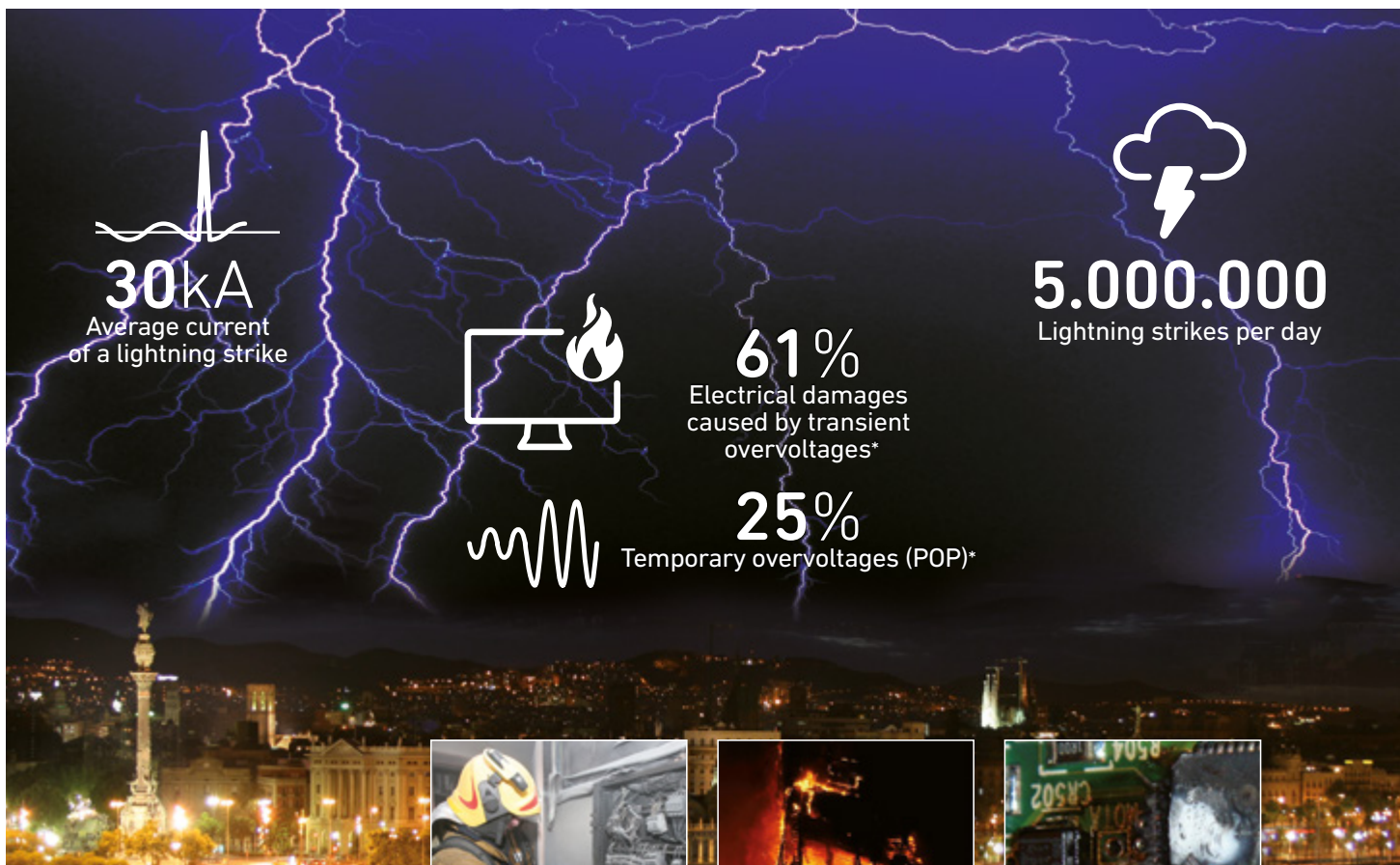
Overvoltage protection **extends the life of the equipment by more than 20%**, which significantly reduces the **volume of electronic waste**. It also reduces the power consumption of the installations, all of **which translates into cost savings** and environmental sustainability.

NOT ALL PROTECTION DEVICES PROTECT. CHOOSING WELL IS YOUR RESPONSIBILITY

The various players in the chain of sale need to ensure that protection devices comply with the product standards, as this will result in **greater installation safety and reliability**.

It is important to check and demand the following information:

- Product CE marking and declaration
- Testing in accordance with national and international product codes and standards
- Product certifications
- Integrated quality and environmental management system
- Audited production



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Surge protection

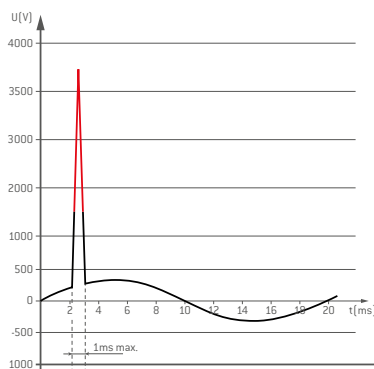
TRANSIENT VOLTAGE SURGES IN LV POWER LINES

Transient overvoltages are voltage surges that **can reach tens of kilovolts** with a duration of the order of **microseconds**.

Despite their short duration, the high energy content can cause serious problems to equipment connected to the line, from **premature aging to destruction, causing disruptions to service and financial loss**.

This type of surge can have various different causes, including **atmospheric lightning directly striking** the external protection (lightning rods) on a building or transmission line or the associated induction of **electromagnetic fields on metallic conductors**. Outdoor and longer lines are the most exposed to these fields, which often receive high levels of induction.

It is also common for **non-weather phenomena, such as transformer centre switching or the disconnection of motors or other inductive loads** to cause voltage spikes in adjacent lines.



When the peak voltage reaches a value higher than the equipment can withstand, it causes its destruction.

SURGES IN TELECOM AND SIGNALLING NETWORKS

Surges tend to induce currents in all metal conductors; **not only are the power lines affected**, but so are all cables to a greater or lesser extent, depending on the distance to the focus of the surge.

Although a lower current is induced, the effect produced is **equally or more destructive**, due to the **greater sensitivity of electronic equipment connected to communications lines** (telephone, Ethernet, RF, etc.).



Power supply systems

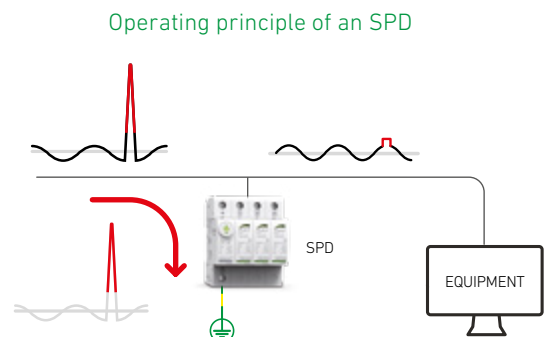
Telecom and signalling networks

IMPORTANCE OF THE GROUND CONNECTION

Overvoltage protectors (SPD) **divert excess energy to ground**, so limiting the peak voltage to an acceptable value for connected electrical equipment.

A ground connection in adequate condition is, therefore, a key aspect for effective protection against overvoltages.

Monitoring ground connection condition guarantees proper operation of surge protection devices.



RISK ASSESSMENT

There are around **5000 storms around the world at any time**, with an average lightning current of **20-30 kA**.

The level of risk to a facility due to the effects of lightning depends on the **density of lightning strikes**. Isokeraunic maps show their geographical distribution based on historical strike data. Design of the protection then needs to be consistent with the facility location and the associated risk (see page 8).

Surge protection

Parameters and selection of an SPD according to IEC 61643

PROTECTION PARAMETERS ACCORDING TO IEC 61643-11

I_{imp}

Impulse current

Peak current in 10/350 μ s waveform which the protection device can withstand.

I_{max}

Maximum discharge current

Peak current in 8/20 μ s waveform which the protection device can withstand.

I_n

Nominal current

Peak current in 8/20 μ s waveform the protection device can withstand at least 20 times.

U_p

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 (I_n).

U_c

Maximum continuous operating voltage

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

U_{oc}

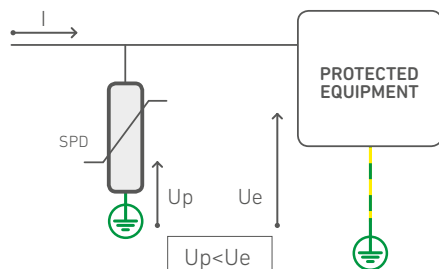
Open circuit voltage (combined voltage pulse)

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

I_{fi}

Follow current extinction capability

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



I: peak current
U_p: voltage protection level. Residual voltage at I_n.
U_e: impulse voltage the equipment can withstand

SELECTION OF SPDs

When selecting an SPD, several points must be considered:

1- Network typology: TNS, TNC, TT, IT, PV and No. of conductors (see page 10).

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

3- Voltage withstand rating (U_e) of the equipment in the installation. The protection device should be selected so that the **voltage protection level (U_p)** is compatible with the value of U_e (U_p < U_e). IEC/HD standard 60364-4-443 classifies equipment into four categories, based on the impulse voltage they are capable of withstanding. Items of electronic equipment to be protected are typically part of surge Category 1, withstanding up to 1.5 kV, which means they require a dedicated Type 3 or the very least a Type 2 protection device no more than 10 m away.

4- Exposure of the installation to atmospheric and non-weather phenomena.

The actual exposure of an installation depends on the combination of 3 basic criteria: **1 electrical service system**, **2 external (and internal) switching of loads** and **3 lightning strike density** (isokeraunic level).

Factors **1** and **2** generate three possible situations:



Direct impact exposure of an installation fitted with external lightning protection system or close to a tower or element susceptible to receive a strike.



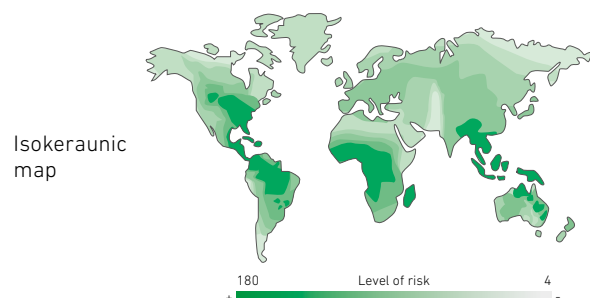
High exposure of an installation fed by long overhead service lines or situated in large industrial or commercial premises.



Medium exposure of installations with an underground service and not subject to switchings of industrial loads in the vicinity.

Factor **3** the **isokeraunic level** of a certain country.

Density of lightning strikes on the ground N_g (strikes/year · km²)



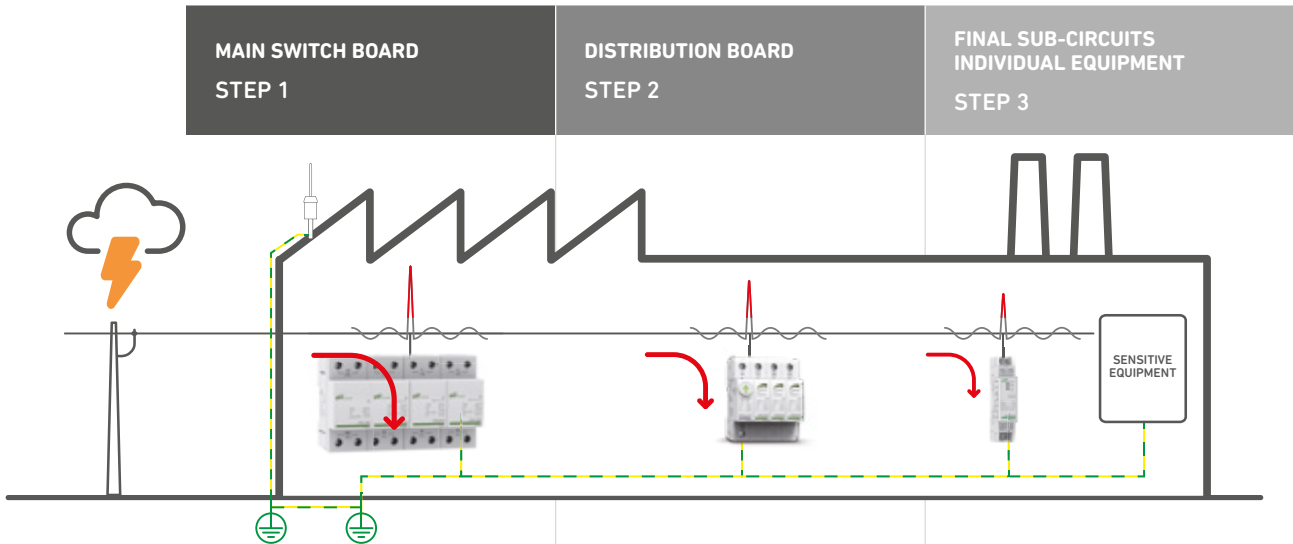
Protection system of coordinated stages: Type 1, 2 and 3 SPDs

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.

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 system of protection 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.



Overvoltage category IEC/HD 60364-4-443	IV, III, II	IV, III, II, I if <10 m	I
Overvoltage withstand (U_e) values for equipment at 230/400V	6 kV / 4 kV / 2,5 kV	6 kV / 4kV / 2,5 kV / 1,5 kV si <10 m	1,5 kV
IEC/EN 61643-11	Type 1/Class I	Type 2/Class II	Type 3/Class III
Definition	Designed for use in incoming power supply panels where the risk of lightning strike is high, in particular in buildings with an external lightning protection system. Must be accompanied by downstream Class II protectors.	Designed for use in distribution panels located downstream of class I protectors or in incoming power supply panels in areas with low exposure to lightning strikes, where the building is not fitted with an external LPS.	Always installed downstream of a Class II protection designed to protect sensitive equipment or equipment located more than 10m downstream of the Class II SPD.
LPZ IEC 62305-4 protection zone	LPZ 1	LPZ 2	LPZ 3
Class test to IEC/EN 61643-11	10/350 μ s waveform, Class I test.	8/20 μ s waveform, Class II test.	Combined 1.2/50 μ s-8/20 μ s waveform Class III test.
Surge	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.
Discharge capacity (I_{imp} , I_{max})	High	Medium	Low
Voltage protection level (U_p)	\surd (Coarse)	$\surd\surd$ (Fine)	$\surd\surd\surd$ (Very Fine)

MAIN SPDs SERIES	CSH		
	PSC; PSC PV		
		PSM; PSM PV	
	PSM; PSL; CSF; NS; DM2		

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.

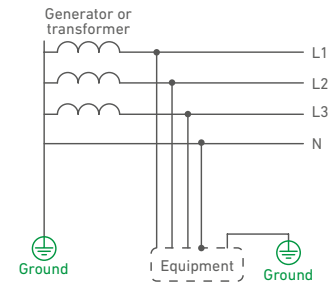
As we will see, **there are several systems** for making this ground connection, depending on the interconnection between the installation components.

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.

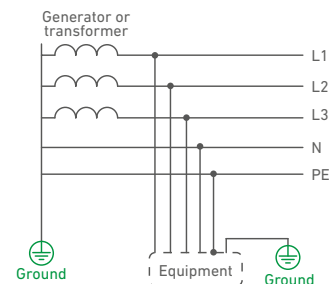


TN-S (OR TNC-S) ARRANGEMENT

- 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.

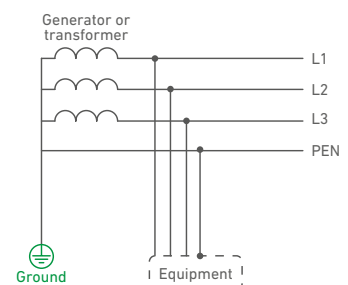


TN-C ARRANGEMENT

- 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 breaks are safety critical. High electromagnetic interference. Need for oversizing cable.

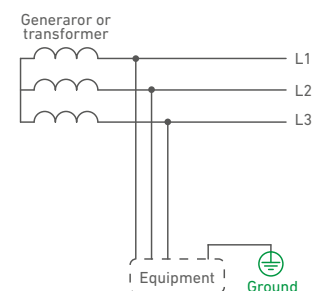


IT ARRANGEMENT

- 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.



Power frequency overvoltage protection

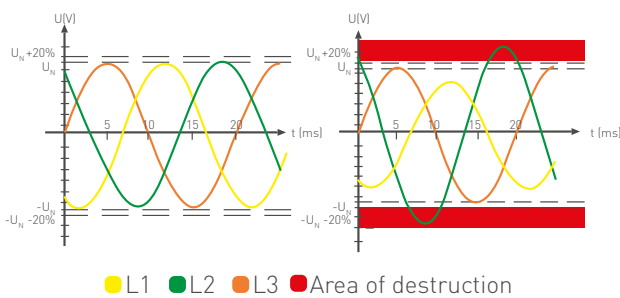
EN 50550 standard for POP

POWER FREQUENCY OVERVOLTAGE

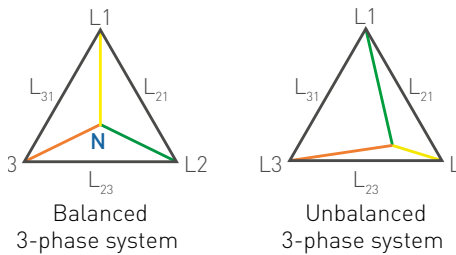
Power frequency overvoltages are voltage increases of hundreds of volts, caused by phase imbalances and lasting for an indefinite period.

They are usually caused by breakage of the neutral, leading to a reduced service life in the affected equipment, or to their immediate destruction and even fires.

The use of these protectors is essential in areas where fluctuations occur in the mains voltage values.



● L1 ● L2 ● L3 ● Area of destruction



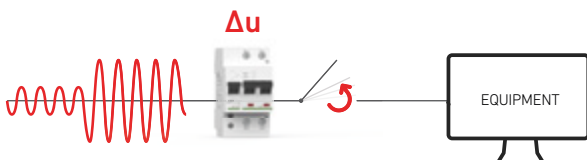
POP PROTECTOR

From the power supply point of view, the electricity grid is formed by a 3-phase system with balanced phases. A fourth conductor called **Neutral** is used for compensation or as a **common point** for devices connected to the supply network.

An accidental loss of the neutral conductor or compensator leads to a voltage drop in the phases with the highest load and an increase in voltage above that which can be withstood in the phase with the lowest load.

POP protection devices monitor each of the single voltages upstream. When they detect an **increase in voltage of 20% or more**, the **supply is interrupted** by a built-in circuit breaker device or by an external one.

Operating principle of a POP protection device



POP DEVICE STANDARD EN 50550

EN 50550 "Power frequency overvoltage protective devices for household and similar applications (POP)" published March 16, 2011, is the first standard for power frequency overvoltage protection devices.

Objective: **To regulate the design of equipment for power frequency overvoltage protection.**

Field of application: Overvoltage protection devices (POP) for household and similar applications.

THE PROTECTOR SHALL MEET

- **Progressive Voltage/Time tripping curve**. The tripping time depends on the magnitude of the overvoltage, ensuring quick tripping in the case of severe disturbances while avoiding unwanted activation in the event of small voltage increases.
- **Common manufacturer** of the power frequency overvoltage protector and the **circuit-breaker** component (MCB).
- **Impossibility of using earth leakage** or current differential as operating principles.

BENEFITS

- Ensures high standards of quality and reliability.
- Guarantees operation and power frequency overvoltage protection.
- Avoids untimely tripping.








STANDARDS

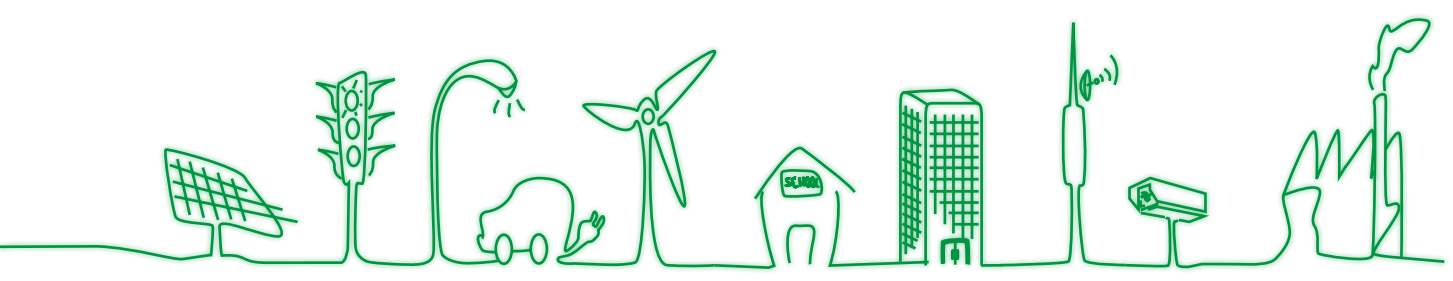
Before the publication of EN 50550, there was no standard covering power frequency overvoltage protection. The design of such protection devices is now standardised.

In Spain, in certain areas, the use of power frequency protection devices is obligatory, depending on particular electricity company technical standards. These reinforce compliance with Article 16.3 of the Spanish Low Voltage Electrical Regulations (REBT) 2002, stressing the obligation of installing overvoltage protection devices.

Quick guide to selection of product ranges

Overvoltage protection for applications

	WITH EXTERNAL LIGHTNING PROTECTION	WITHOUT EXTERNAL LIGHTNING PROTECTION	
RESIDENTIALS BLOCKS 	METERS CENTER (A) CSH-50 Type 1 (50 kA) monobloc lightning current arrester		HOME PROTECTION BOARD (A) V-CHECK MPT mini Combined (SPD+POP) compact EN 50550 POP (B) V-CHECK MR Combined (SPD+POP) with automatic reclosure (C) PSM-20 (+) V-CHECK MP Type 2+3 (20 kA) POP pre-cabled system EN 50550 POP
	SINGLE-FAMILY HOME (URBAN) 	HOME PROTECTION BOARD (A) PSC-12,5 (+) V-CHECK MP Type 1+2 (12,5 kA) pluggable POP pre-wired device EN 50550 POP (B) PSC-12,5 (+) V-CHECK 4RP Type 1+2 (12,5 kA) pluggable POP actuates shunt release	(A) V-CHECK MPT mini Combined (SPD+POP) compact EN 50550 POP (B) V-CHECK MR Combined (SPD+POP) with automatic reclosure (C) PSM-20 (+) V-CHECK MP Type 2+3 (20 kA) POP pre-wired device EN 50550 POP
SINGLE-FAMILY HOME (RURAL) 	HOME PROTECTION BOARD (A) PSC-12,5 (+) V-CHECK MP Type 1+2 (12,5 kA) pluggable POP pre-wired device EN 50550 POP (B) PSC-12,5 (+) V-CHECK 4RP Type 1+2 (12,5 kA) pluggable POP actuates shunt release	(A) V-CHECK MPT mini Combined (SPD+POP) compact EN 50550 POP (B) V-CHECK MR Combined (SPD+POP) with automatic reclosure (C) PSM-40 (+) V-CHECK MP Type 2 (40 kA) POP pre-wired device EN 50550 POP	EQUIPMENT CT-10 TV Coaxial TV protection DIN ADSL ADSL lines protection
INDUSTRY (multiple boards) 	MAIN SWITCH BOARD CSH-50 Type 1 (50 kA) monobloc lightning current arrester	PSC-12,5 Type 1+2 (12,5 kA) pluggable	DISTRIBUTION BOARDS (A) PSM-40 Type 2 pluggable (40 kA) (B) V-CHECK 4RPT Combined (SPD+POP) actuates shunt release
COMMERCIAL (a single board) 	MAIN SWITCH BOARD PSC-25 (+) V-CHECK 4RP Type 1+2 (25 kA) pluggable POP actuates shunt release	(<63A) PSM (+) V-CHECK 4RP Type 2 (20/40 kA) pluggable POP actuates shunt release (<63A) V-CHECK MPT mini Combined (SPD+POP) compact EN 50550 POP	EQUIPMENT DM2 EMI Type 2+3 fine protection with EMI filter DIN ADSL ADSL lines protection
PHOTOVOLTAIC 	INVERTER COMBINER BOX (DC) PSC PV Type 1+2 (5 kA) pluggable for DC systems (AC) PSC Type 1+2 (12,5 kA) pluggable	PSM PV Type 2 (40 kA) pluggable up to 1500V for DC systems PSM Type 2 (40 kA) pluggable	OTHERS DIN 485 RS 485 communications protection ISOCHECK PV Insulation monitoring devices
OUTDOOR LED LIGHTING 	SWITCH BOARD V-CHECK 4RC Combined (SPD+POP) actuation on contactor	POLE (A) NSB IP66 Type 2+3 (10 kV) IP66 (B) CSF FB Type 2+3 (10 kV) DIN rail	LUMINAIRE (A) NSS-10 Type 2+3 (10 kV) limited space (B) NSB-10 Type 2+3 (10 kV) versatile (C) NSB-20 Type 2+3 (20 kV) special LED luminaires



OTHERS

CT-10 F

Coaxial protection

DIN ADSL

ADSL lines protection

SOLUTIONS AND SERVICES. HOW CAN WE HELP YOU?

We have been working since 1993 to offer our customers value **solutions in lightning and overvoltage protection**, adapted to the specific needs of each customer and sector.

This **extensive experience**, combined with close collaboration with significant companies in the main industrial **sectors (photovoltaic, wind, telecoms, electric vehicles, water treatment, automation, etc.)** enable us to offer a wide range of product solutions, as well as **advice and/or consultancy services** from our sales engineers.

Furthermore, Cirprotec's R&D department and our network of laboratories are at your disposal for joint **development of specific product solutions** or official approval of protection equipment.

EQUIPMENT

DM2 EMI

Type 2+3 fine protection with EMI filter

PSL

Type 3 fine protection pluggable

OTHERS

G-CHECK

Continuous monitoring of the installation's grounding system

OTHERS






G-CHECK

Continuous monitoring of the installation's grounding system



www.cirprotec.com/applications

PROTECTORS LEGEND

-  SPD
-  POP
-  COMBINED (SPD+POP)
-  OTHER DEVICES
-  SELECT AN OPTION

SLIM
Compact combined device
 (Type 2+3) for fine protection.
 Ideal for **confined spaces**.

HIGH PERFORMANCE PLUG-IN PLATFORM

- Multistandard products **IEC 61643 and UL 1449.**
- Specific solutions for **photovoltaic** that comply with **EN 50539-11** and **UL 1449, up to 1500 Vdc**, type 2 and type 1+2.
- Solutions for 12 V, 24 V, 48 V, 60 V, 120 V, 230 V, 400 V, 690 V.

EMI / RFI FILTER
 Available versions that include a **high performance electromagnetic filter** to attenuate network noise.



COMPACT SOLUTION FOR LED LUMINAIRES

Suitable for all network configurations and voltages (including IT systems).
 CB Scheme Certified to IEC, and also UL.

Solutions available for Class I and Class II luminaires.

STAGED PROTECTION (T1, T1+2, T2, T2+3)

Cirprotect offers robust solutions for the **first stage of protection** against direct lightning strike (Type 1), protectors for a **second protection stage (T2)** and **fine protection** devices to locate near the equipment to be protected.

SAFEGROUND®

Monitoring the ground connection from within the actual overvoltage protection device.

- Confirmation of proper installation
- Efficient surge protection
- Safety information in the event of indirect contact

The **premium solution** for the most demanding installations.

Surge protection devices

POWER SUPPLY SYSTEMS

Comprehensive range of solutions in protection



FIRST STEP OF PROTECTION 50 kA

CSH
See page 18



COMBINED TYPE 1+2

PSC
See page 19



PV EN 50539-11

PSC PV
See page 24



PV EN 50539-11 UL 1449

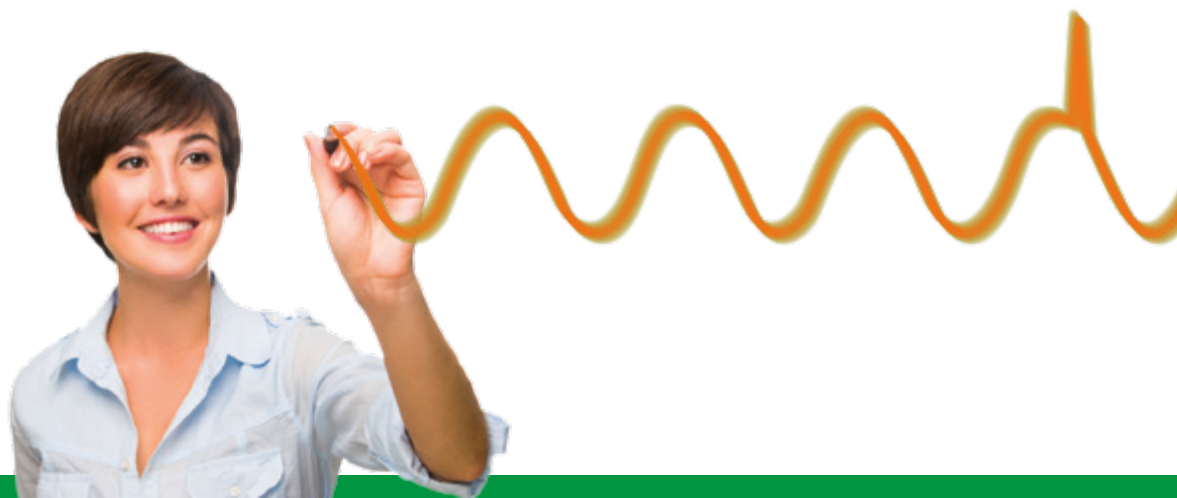
PSM PV
See page 25



WIDE RANGE UL 1449

PSM-40
See page 26

Location	First step of protection	First step of protection	First step of protection for DC PV applications	Second step of protection for DC PV applications	Second step of protection
SPD Type	Type 1 lightning current arrester to IEC/EN 61643-11	Type 1+2 SPD to IEC/EN 61643-11	Type 1+2 DC to EN 50539-11	Type 2 DC to EN 50539-11 UL 1449 4 th Ed. Certified	Type 2 SPD to IEC/EN 61643-11 UL 1449 4 th Ed. Certified (available)
I_{imp} (10/350µs)	50kA (phase) / 100kA (N-PE)	12,5 kA, 25 kA	5 kA		
I_{max} (8/20µs)		65 kA, 100 kA	40 kA	40 kA	40 kA
I_n (8/20µs)	50kA (phase) / 100kA (N-PE)	20 kA, 25 kA	20 kA	20 kA	20 kA
U_{oc} (1,2/50µs)					
Special features	I _{fi} = 50kA follow current interrupt rating. Multi-spark gap technology. Leakage current free.	ELV: Extra Low Voltage models available. Reversible & coded cartridges.	I _{scpv} = 10 kA (no back-up fuse needed). Reversible & coded cartridges.	I _{scpv} = 10 kA (no back-up fuse needed). SCCR 50 kA to 100 kA. Reversible & coded cartridges.	ELV: Extra Low Voltage models available. PLC: Friendly versions Power Line Communication Reversible & coded cartridges.
Supply voltage U_n (L-N/L-L)	120/208V, 230/400V, 277/480V	60 V (ELV) 120/208 V, 230/400 V, 277/480 V 400/690 V	1060 Vdc	65 Vdc, 80 Vdc 660 Vdc, 1060 Vdc, 1500 Vdc	48 V, 60 V (ELV) 120/208 V, 230/400 V, 277/480 V 400/690 V + above
Network configuration	TNS, TNC, TT, IT	TNS, TNC, TT, IT	PV (DC side)	PV (DC side)	TNS, TNC, TT, IT
Format	DIN-rail mountable. Monobloc format.	DIN-rail mountable. Pluggable format.	DIN-rail mountable. Pluggable format.	DIN-rail mountable. Pluggable format.	DIN-rail mountable. Pluggable format.
Type according to EN 61643-11	TYPE 1	TYPE 1+2		TYPE 2	



A solution for each STEP of protection

World premiere



GROUND MONITORING

SAFEGROUND®

See page 29



FINE PROTECTION

PSM-20

See page 30



POWERFUL EMI FILTER

DM2 EMI

See page 35



2 IN 1: SPACE SAVING

CSF

See page 36

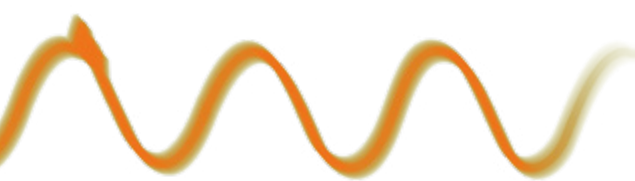


LED STREET-LIGHT 10 kV

NS LED

See page 38

Second step of protection (most demanding installations)	Final stage of protection (very fine)	Final stage of protection (very fine)	Final stage of protection (very fine)	For installation in the pole or OEM in the luminary of outdoor LED lighting systems
Type 2 SPD to IEC/EN 61643-11 with ground connection monitoring	Type 2+3 SPD to IEC/EN 61643-11	Type 2+3 SPD to IEC/EN 61643 -11	Type 2+3 SPD to IEC/EN 61643 -11	Type 2+3 SPD to IEC/EN 61643-11, with CB scheme. Luminary "surge tested" and certified (optional)
40 kA	20 kA	20 kA	6 kA, 10 kA, 20 kA	10 kA, 20 kA
20 kA	10 kA	10 kA	3 kA, 5 kA, 10 kA	5 kA, 10 kA
		6 kV	6 kV, 10 kV	10 kV, 20 kV
SAFEGROUND® technology for loop impedance monitoring.	PLC: Friendly versions Power Line Communication Reversible & coded cartridges.	Filter attenuation up to 82dB (common mode) vs electromagnetic disturbances. Rated current load up to 20A.	Ideal for limited spaces (1 module). Special model for fuse boxes.	Class 1 and Class 2 luminaires. Miniature size and easy to install. IP66 Models.
230 V	120/208 V, 230/400 V, 227/480 V + above	120 V, 230 V	12 V, 24 V, 48 V, 60 V, 120 V, 230 V Also for use in CC voltage applications	230 V
TT, TNS	TNS, TNC, TT, IT	Single Phase TT, TNS	Single phase TT, TNS	Solutions for all types of electrical grids (configurations and voltages)
DIN-rail mountable. Pluggable format.	DIN-rail mountable. Pluggable format.	DIN-rail mountable. Monobloc format.	DIN-rail mountable. Monobloc format.	Series and parallel connection. Terminal/wires.
TYPE 2 📶	TYPE 2+3 📶			



Certifications/Standards



Type 1 SPDs

CSH

CSH is the range of single pole Type 1/Class I lightning current arresters, able to shunt energy (current) from a direct lightning strike (10/350 μ s) on an external lightning protection system (LPS) or overhead supplies, in accordance with the IEC/EN 61643-11 standard.

Suitable for the first step of protection at the service entrance (meters center or main switch board) and in areas of high atmospheric exposure where installations are usually provided with an external protection system against direct lightning strikes.

RATINGS AND FEATURES

- Lightning impulse current (10/350 μ s): 50 kA
- Follow current quenching capacity (Ifi): 50kA
- Leakage current free (LCF)
- Multidischarge technology
- Single pole devices for TNS, TNC, TT and IT systems.
- Un (L-N/L-L): 120/208 V, 230/400 V, 277/480 V, 400/690 V
- Monobloc DIN rail format

limp

50 kA

TECH INFO

cirprotec.com/CSH

Standards

- IEC/EN 61643-11
- CE

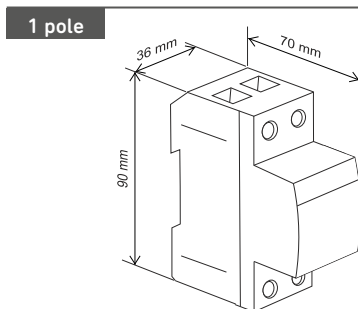
PART NUMBERS

ORDERING CODE	PART NUMBER	Network		Un [V]	Uc [V]	limp (10/350) [kA]	In (8/20) [kA]	Up@In(8/20) [kV]
		SYSTEM TYPE	Electrical diagram					
77738010	CSH1-50/120	L-N (1Ph)	A	120	150	50	50	≤2
77738012	CSH1-50/230	L-N (1Ph)	A	230	275	50	50	≤2
77738016	CSH1-50/277	L-N (1Ph)	A	277	320	50	50	≤2
77738014	CSH1-50/400	L-N (1Ph)	A	400	440	50	50	≤2,5
77738030	CSH1-100N	N-PE (N)	B	Neutral	255	100	100	≤2
77739710**	PCL-BP	-	-	-	-	-	-	-

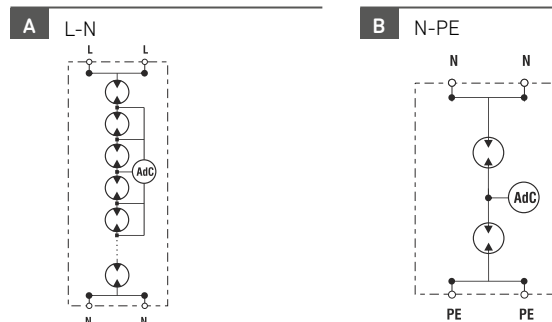
* Consult Cirprotec for dimensions and diagrams.

** Feed-through terminal for busbar wiring.

DIMENSIONS



ELECTRICAL DIAGRAMS



Type 1+2 SPDs

PSC 12,5

PSC 12,5 is the range of combined Type 1+2/Class I+II devices intended for discharging lightning currents (10/350 μ s) and protecting against induced voltage surges (8/20 μ s), in accordance with the IEC/EN 61643-11 standard.

Suitable for the first step of protection in the main switchboard and in areas of high atmospheric exposure, where installations are often provided with external protection against direct lightning strikes.

RATINGS AND FEATURES

- Lightning impulse current (10/350 μ s): 12.5 kA per phase
- Maximum discharge current (8/20 μ s): 65 kA per phase
- Nominal discharge current (8/20 μ s): 20 kA per phase
- TNS, TNC, TT and IT networks
- U_n (L-N/L-L): 60 V, 120/208 V, 230/400 V, 277/480 V and 400/690 V
- Plug-in DIN rail format
- Visual and remote end of life indication
- Reversible chassis to allow cable entry from above or below
- Mechanically coded cartridges to avoid replacement errors

limp

12,5 kA

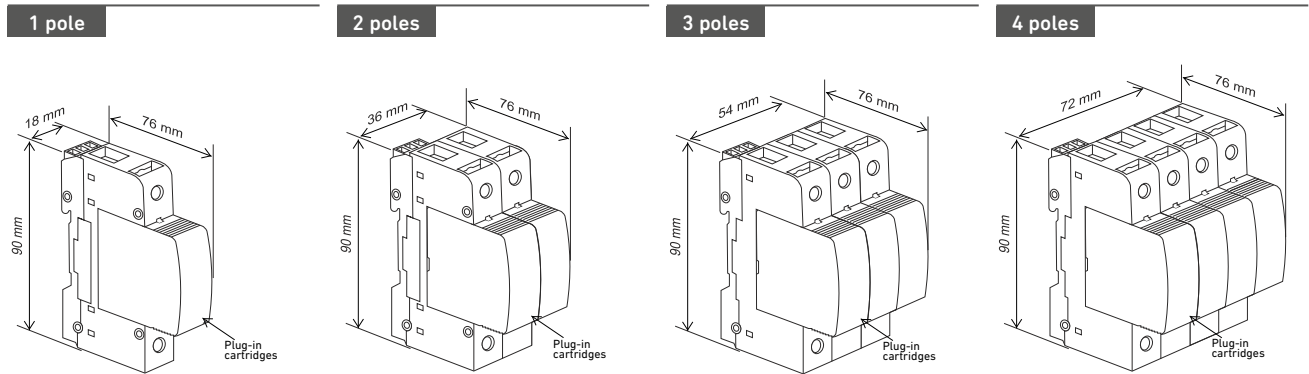
TECH INFO

cirprotec.com/PSC

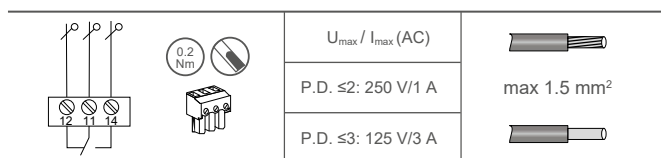
Standards

- IEC/EN 61643-11
- CE

DIMENSIONS



MICROSWITCH DIAGRAM (IR)



Type 1+2 SPDs | PSC 12,5

PART NUMBERS

1 pole

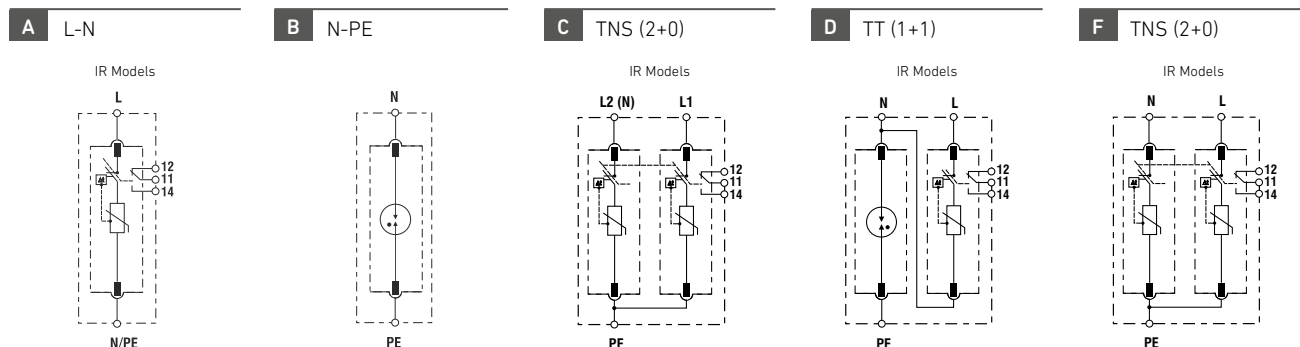
ORDERING CODE	PART NUMBER	Network								Cartridges		
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	Iimp (10/350) [kA]	I _{max} (8/20) [kA]	In (8/20) [kA]	Up@In (8/20) [kV]	IR	L	N
77738100	PSC1-12,5/120	L-N (1Ph)	A	120	150	12,5	65	20	≤1		C02	-
77738101	PSC1-12,5/120 IR	L-N (1Ph)	A	120	150	12,5	65	20	≤1	√	C02	-
77738105	PSC1-12,5/230	L-N (1Ph)	A	230	275	12,5	65	20	≤1,3		C03	-
77738106	PSC1-12,5/230 IR	L-N (1Ph)	A	230	275	12,5	65	20	≤1,3	√	C03	-
77738112	PSC1-12,5/277	L-N (1Ph)	A	277	320	12,5	65	20	≤1,4		C04	-
77738113	PSC1-12,5/277 IR	L-N (1Ph)	A	277	320	12,5	65	20	≤1,4	√	C04	-
77738110	PSC1-12,5/400	L-N (1Ph)	A	400	440	12,5	65	20	≤1,8		C05	-
77738111	PSC1-12,5/400 IR	L-N (1Ph)	A	400	440	12,5	65	20	≤1,8	√	C05	-
77738180	PSC1-25N	N-PE (N)	B	Neutral	255	25	65	25	≤1,5		-	C06
77738182	PSC1-50N	N-PE (N)	B	Neutral	255	50	65	50	≤1,5		-	C07

2 poles

ORDERING CODE	PART NUMBER	Network								Cartridges		
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	Iimp (10/350) [kA]	I _{max} (8/20) [kA]	In (8/20) [kA]	Up@In (8/20) [kV]	IR	L	N
77738094	PSC2-12,5/60 ELV	TNS (1Ph+N); PV	C	60/-	75; 80 Ucpv	12,5	65	20	≤0,65			C01
77738095	PSC2-12,5/60 ELV IR	TNS (1Ph+N); PV	C	60/-	75; 80 Ucpv	12,5	65	20	≤0,65	√		C01
77738200	PSC2-12,5/120 TT	TT (1Ph+N)	D	120/-	150	12,5 (L-N) 25 (N-PE)	65	20	≤1 (L-N) ≤1,5 (N-PE)		C02	C06
77738201	PSC2-12,5/120 TT IR	TT (1Ph+N)	D	120/-	150	12,5 (L-N) 25 (N-PE)	65	20	≤1 (L-N) ≤1,5 (N-PE)	√	C02	C06
77738205	PSC2-12,5/230 TT	TT (1Ph+N)	D	230/-	275	12,5 (L-N) 25 (N-PE)	65	20	≤1,3 (L-N) ≤1,5 (N-PE)		C03	C06
77738206	PSC2-12,5/230 TT IR	TT (1Ph+N)	D	230/-	275	12,5 (L-N) 25 (N-PE)	65	20	≤1,3 (L-N) ≤1,5 (N-PE)	√	C03	C06
77738250	PSC2-12,5/120 TNS	TNS (1Ph+N)	F	120/-	150	12,5	65	20	≤1		C02	-
77738251	PSC2-12,5/120 TNS IR	TNS (1Ph+N)	F	120/-	150	12,5	65	20	≤1	√	C02	-
77738255	PSC2-12,5/230 TNS	TNS (1Ph+N)	F	230/-	275	12,5	65	20	≤1,3		C03	-
77738256	PSC2-12,5/230 TNS IR	TNS (1Ph+N)	F	230/-	275	12,5	65	20	≤1,3	√	C03	-
77738257	PSC2-12,5/277 TNS	TNS (1Ph+N)	F	277/-	320	12,5	65	20	≤1,4		C04	-
77738258	PSC2-12,5/277 TNS IR	TNS (1Ph+N)	F	277/-	320	12,5	65	20	≤1,4	√	C04	-

ELV Extra Low Voltage, also for use in DC photovoltaic self-consumption/off-grid applications.

ELECTRICAL DIAGRAMS



Type 1+2 SPDs | PSC 12,5

3 poles

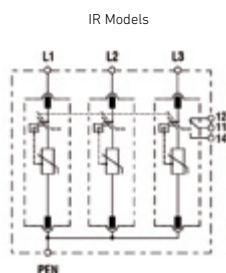
ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	Iimp (10/350) [kA]	Imax (8/20) [kA]	In (8/20) [kA]	Up@In (8/20) [kV]	IR	L	N
77738320	PSC3-12,5/230 TNC	TNC (3Ph)	H	-/208	150	12,5	65	20	≤1		C02	-
77738321	PSC3-12,5/230 TNC IR	TNC (3Ph)	H	-/208	150	12,5	65	20	≤1	√	C02	-
77738325	PSC3-12,5/400 TNC	TNC (3Ph)	H	-/400	275	12,5	65	20	≤1,3		C03	-
77738326	PSC3-12,5/400 TNC IR	TNC (3Ph)	H	-/400	275	12,5	65	20	≤1,3	√	C03	-
77738329	PSC3-12,5/480 TNC	TNC (3Ph)	H	-/480	320	12,5	65	20	≤1,4		C04	-
77738330	PSC3-12,5/480 TNC IR	TNC (3Ph)	H	-/480	320	12,5	65	20	≤1,4	√	C04	-

4 poles

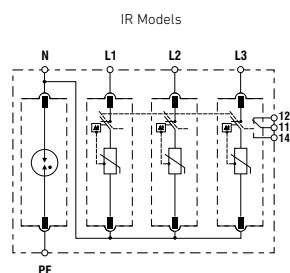
ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	Iimp (10/350) [kA]	Imax (8/20) [kA]	In (8/20) [kA]	Up@In (8/20) [kV]	IR	L	N
77738400	PSC4-12,5/230 TT	TT (3Ph+N)	J	120/208	150	12,5 (L-N) 50 (N-PE)	65	20	≤1 (L-N) ≤1,5 (N-PE)		C02	C07
77738401	PSC4-12,5/230 TT IR	TT (3Ph+N)	J	120/208	150	12,5 (L-N) 50 (N-PE)	65	20	≤1 (L-N) ≤1,5 (N-PE)	√	C02	C07
77738405	PSC4-12,5/400 TT	TT (3Ph+N)	J	230/400	275	12,5 (L-N) 50 (N-PE)	65	20	≤1,3 (L-N) ≤1,5 (N-PE)		C03	C07
77738406	PSC4-12,5/400 TT IR	TT (3Ph+N)	J	230/400	275	12,5 (L-N) 50 (N-PE)	65	20	≤1,3 (L-N) ≤1,5 (N-PE)	√	C03	C07
77738450	PSC4-12,5/230 TNS	TNS (3Ph+N)	L	120/208	150	12,5	65	20	≤1		C02	-
77738451	PSC4-12,5/230 TNS IR	TNS (3Ph+N)	L	120/208	150	12,5	65	20	≤1	√	C02	-
77738455	PSC4-12,5/400 TNS	TNS (3Ph+N)	L	230/400	275	12,5	65	20	≤1,3		C03	-
77738456	PSC4-12,5/400 TNS IR	TNS (3Ph+N)	L	230/400	275	12,5	65	20	≤1,3	√	C03	-
77738457	PSC4-12,5/480 TNS	TNS (3Ph+N)	L	277/480	320	12,5	65	20	≤1,4		C04	-
77738458	PSC4-12,5/480 TNS IR	TNS (3Ph+N)	L	277/480	320	12,5	65	20	≤1,4	√	C04	-

ELECTRICAL DIAGRAMS

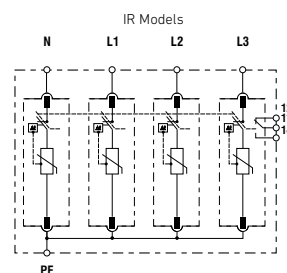
H TNC (3+0)



J TT (3+1)



L TNS (4+0)



Consult Cirprotec for specific models for IT isolated networks.

Replacement cartridges

ORDERING CODE	PART NUMBER	SYSTEM TYPE	Un [V]	Uc [V]	Iimp (10/350) [kA]	Imax (8/20) [kA]	In (8/20) [kA]	Up@In (8/20) [kV]	Cartridges
77738606	PSC-12,5/60	L-N (1Ph)	60	75	12,5	65	20	≤0,65	C01
77738600	PSC-12,5/120	L-N (1Ph)	120	150	12,5	65	20	≤1	C02
77738601	PSC-12,5/230	L-N (1Ph)	230	275	12,5	65	20	≤1,3	C03
77738603	PSC-12,5/277	L-N (1Ph)	277	320	12,5	65	20	≤1,4	C04
77738602	PSC-12,5/400	L-N (1Ph)	400	440	12,5	65	20	≤1,8	C05
77738613	PSC-25N	N-PE (N)	Neutral	255	25	65	25	≤1,5	C06
77738614	PSC-50N	N-PE (N)	Neutral	255	50	65	50	≤1,5	C07

Type 1+2 SPDs

PSC 25

PSC 25 is the range of combined Type 1+2/Class I+II devices intended for discharging lightning currents (10/350 μ s) and protecting against induced voltage surges (8/20 μ s), in accordance with the IEC/EN 61643-11 standard.

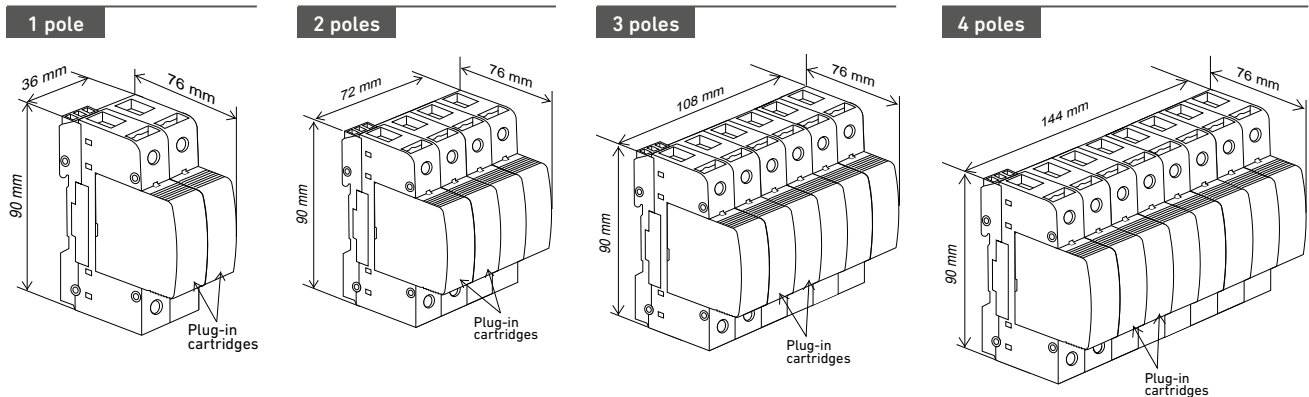
Suitable for the first step of protection in the main switchboard and in areas of high atmospheric exposure, where installations are often provided with external protection against direct lightning strikes.

RATINGS AND FEATURES

- Lightning impulse current (10/350 μ s): 25 kA per phase
- Maximum discharge current (8/20 μ s): 100 kA per phase
- Nominal discharge current (8/20 μ s): 25 kA per phase
- TNS, TNC, TT and IT networks
- Un (L-N/L-L): 120/208 V, 230/400 V, 400/690 V
- Plug-in DIN rail format
- Visual and remote end of life indication
- Reversible chassis to allow cable entry from above or below
- Mechanically coded cartridges to avoid replacement errors



DIMENSIONS



PART NUMBERS

1 pole

ORDERING CODE	PART NUMBER	Network								Cartridges		
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	limp (10/350) [kA]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _p [kV]	IR	L	N
77738121	PSC1-25/120	L-N (1Ph)	A	120	150	25	100	25	<1		C70	-
77738121	PSC1-25/120 IR	L-N (1Ph)	A	120	150	25	100	25	<1	√	C70	-
77738125	PSC1-25/230	L-N (1Ph)	A	230	275	25	100	25	≤ 1,5		C66	-
77738126	PSC1-25/230 IR	L-N (1Ph)	A	230	275	25	100	25	≤ 1,5	√	C66	-
77738131	PSC1-25/400	L-N (1Ph)	A	400	440	25	100	25	<2		C71	-
77738131	PSC1-25/400 IR	L-N (1Ph)	A	400	440	25	100	25	<2	√	C71	-
77738183	PSC1-100N	N-PE (N)	B	Neutral	255	100	100	50	≤ 1,5		-	C67

Type 1+2 SPDs | PSC 25

2 poles

ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	Iimp (10/350) [kA]	I _{max} (8/20) [kA]	In (8/20) [kA]	Up [kV]	IR	L	N
77738225	PSC2-25/230 TT	TT (1Ph+N)	D	230/-	275	25	100	25	≤ 1,5		C66	C68
77738226	PSC2-25/230 TT IR	TT (1Ph+N)	D	230/-	275	25	100	25	≤ 1,5	✓	C66	C68

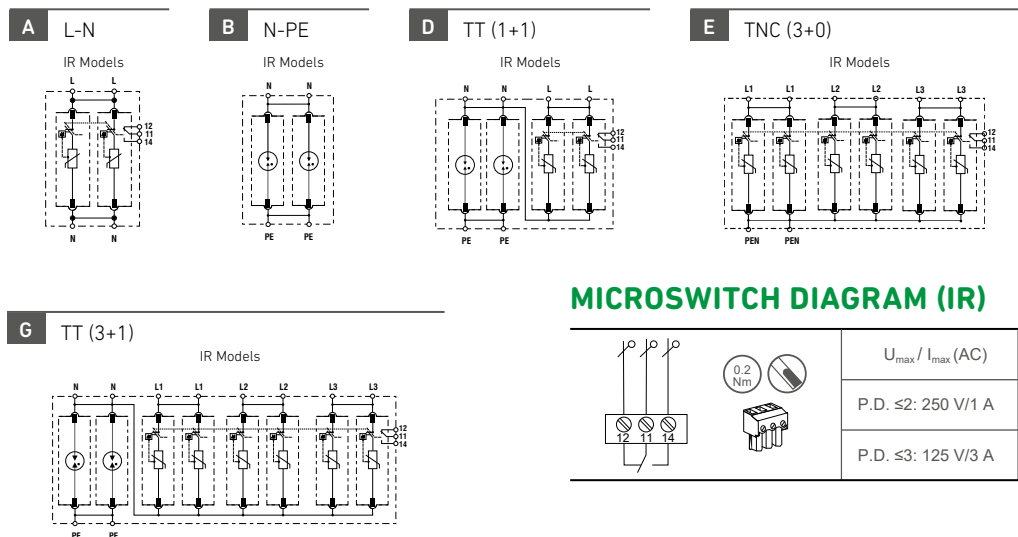
3 poles

ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	Iimp (10/350) [kA]	I _{max} (8/20) [kA]	In (8/20) [kA]	Up [kV]	IR	L	N
77738345	PSC3-25/400 TNC	TNC (3Ph)	E	-/400	275	25	100	25	≤ 1,5		C66	-
77738346	PSC3-25/400 TNC IR	TNC (3Ph)	E	-/400	275	25	100	25	≤ 1,5	✓	C66	-

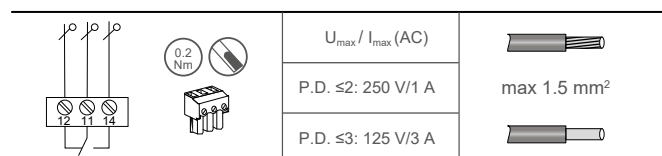
4 poles

ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	Iimp (10/350) [kA]	I _{max} (8/20) [kA]	In (8/20) [kA]	Up [kV]	IR	L	N
77738425	PSC4-25/400 TT	TT (3Ph+N)	G	230/400	275	25	100	25	≤ 1,5		C66	C68
77738426	PSC4-25/400 TT IR	TT (3Ph+N)	G	230/400	275	25	100	25	≤ 1,5	✓	C66	C68

ELECTRICAL DIAGRAMS



MICROSWITCH DIAGRAM (IR)



Consult Cirprotec for other configurations (TNS) and voltages (120/208 V, 400/690 V)

Replacement cartridges

ORDERING CODE	PART NUMBER	SYSTEM TYPE	Un [V]	Iimp (10/350) [kA]	I _{max} (8/20) [kA]	In (8/20) [kA]	Up [kV]	Cartridges
77738610	PSC-25/120	L-N (1Ph)	120	25	100	25	<1	C70
77738611	PSC-25/230	L-N (1Ph)	230	25	100	25	≤ 1,5	C66
77738612	PSC-25/400	L-N (1Ph)	400	25	100	25	<2	C71
77738616	PSC-50N2	N-PE (N)	Neutral	50	100	25	≤ 1,5	C67
77738619	PSC-100N	N-PE (N)	Neutral	100	100	50	≤ 1,5	C68

Type 1+2 Photovoltaic SPD

PSC 5 PV

PSC 5 PV is the PHOTOVOLTAIC range of combined Type 1+2/ Class I+II devices intended for discharging lightning currents (10/350 μ s) and protecting against induced voltage surges (8/20 μ s), in accordance with EN 50539-11 and IEC 61643-31 standards.

Cirprotec uses its dynamic thermal disconnection system with high breaking capacity, optimised for DC voltages. This means there is no need to install a backup fuse to interrupt the typical short-circuit currents of any photovoltaic installation.

These lightning current and surge protection devices are suitable for all photovoltaic applications: large-scale, rooftop and self-consumption (off-grid) DC installations; especially in facilities provided with external LPS.

RATINGS AND FEATURES

- Lightning impulse current (10/350 μ s): 5 kA
- Maximum discharge current (8/20 μ s): 40 kA
- Nominal discharge current (8/20 μ s): 20 kA
- U_{cpv} : 1060 Vdc
- I_{scpv} : 10 kA (EN 50539-11), no back-up fuse required
- Plug-in DIN rail format
- Visual and remote end of life indication
- Reversible chassis to allow cable entry from above or below
- Mechanically coded cartridges to avoid replacement errors



Watch the video on www.youtube.com/cptcirprotec



PART NUMBERS

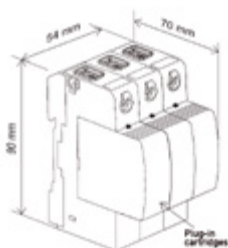
ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	U_{cpv} [Vdc]	I_{limp} (10/350) [kA]	I_{scpv} [kA]	I_{max} (8/20) [kA]	I_n (8/20) [kA]	$U_p@I_n$ (8/20) [kV]	IR	L	
77738377	PSC3-5/1000 PV	"Y" PV	A	1060	5	10	40	20	≤ 4		C69	
77738378	PSC3-5/1000 PV IR	"Y" PV	A	1060	5	10	40	20	≤ 4	\checkmark	C69	

Replacement cartridges

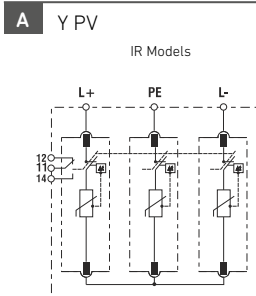
ORDERING CODE	PART NUMBER	SYSTEM TYPE	U_{cpv} (Vdc)	I_{limp} (10/350) [kA]	I_{max} (8/20) [kA]	I_n (8/20) [kA]	$U_p@I_n$ (8/20) [kV]	Cartridges
77738643	PSC-5/1000 PV	PV	1060	5	40	20	≤ 2	C69

DIMENSIONS

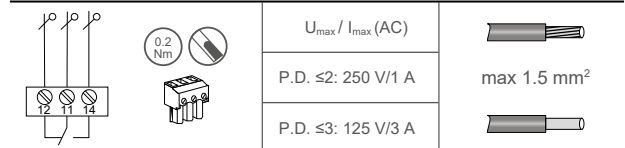
3 modules



ELECTRICAL DIAGRAMS



MICROSWITCH DIAGRAM (IR)



Type 2 Photovoltaic SPD

PSM 40 PV

PSM 40 PV is the PHOTOVOLTAIC range of Type 2/Class II devices intended for protecting against induced voltage surges (8/20 μ s), in accordance with EN 50539-11 and IEC 61643-31 standards.

Cirprotec uses its dynamic thermal disconnection system with high breaking capacity, optimised for DC voltages. This means there is no need to install a backup fuse to interrupt the typical short-circuit currents of any photovoltaic installation.

These surge protection devices are suitable for all photovoltaic applications: large-scale, rooftop and self-consumption (off-grid) DC installations.

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 40 kA
- Nominal discharge current (8/20 μ s): 20 kA
- Ucpv: 65, 80, 660, 1060 Vdc and 1500 Vdc
- Iscpv: 10 kA (EN 50539-11), no back-up fuse required
- SCCR: 50 kA, 100 kA (UL 1449 4th Ed)
- Plug-in DIN rail format
- Visual and remote end of life indication
- Reversible chassis to allow cable entry from above or below
- Mechanically coded cartridges to avoid replacement errors

Imax **40 kA**

TECH INFO
↓
cirprotec.com/PSM-PV

No back-up fuse required

Standards

- IEC 61643-31
- EN 50539-11
- UL 1449 4th Ed., File No. E468946
- CE

IEC C UL US CE

Watch the video on
www.youtube.com/cptcirprotec



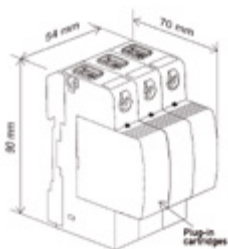
PART NUMBERS

ORDERING CODE	PART NUMBER	Network							Cartridges	
		SYSTEM TYPE	Electrical diagram	Ucpv [Vdc]	Iscpv [kA]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{p@I_n} (8/20) [kV]	IR	L
77707850	PSM3-40/600 PV	"Y" PV	A	660	10	40	20	≤2,6		C40
77707851	PSM3-40/600 PV IR	"Y" PV	A	660	10	40	20	≤2,6	✓	C40
77707852	PSM3-40/1000 PV	"Y" PV	A	1060	10	40	20	≤4		C41
77707853	PSM3-40/1000 PV IR	"Y" PV	A	1060	10	40	20	≤4	✓	C41
77707840	PSM3-40/1500 PV	"Y" PV	A	1500	10	40	15	≤5		C42
77707841	PSM3-40/1500 PV IR	"Y" PV	A	1500	10	40	15	≤5	✓	C42

Remark: see also page 27 "2 poles" for DC self-consumption "off-grid" applications (extra low voltage). Consult us for other voltages.

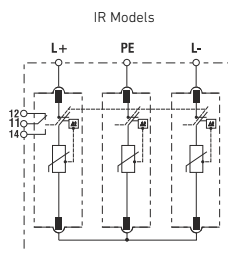
DIMENSIONS

3 modules



ELECTRICAL DIAGRAMS

A Y PV



MICROSWITCH DIAGRAM (IR)

U _{max} / I _{max} (AC)	
P.D. ≤2: 250 V/1 A	max 1.5 mm ²
P.D. ≤3: 125 V/3 A	

Replacement cartridges

ORDERING CODE	PART NUMBER	SYSTEM TYPE	Ucpv [Vdc]	I _{max} (8/20) [kA]	I _n (8/20)	U _{p@I_n} (8/20) [kV]	Cartridges
77707656	PSM-40/600 PV	PV	330	40	20	≤1,3	C40
77707657	PSM-40/1000 PV	PV	530	40	20	≤2	C41
77707683	PSM-40/1500 PV	PV	750	40	15	≤2,5	C42

Type 2 SPDs

PSM 40

PSM 40 is the range of Type 2/Class II devices intended for protecting against induced voltage surges (8/20 μ s), in accordance with the IEC/EN 61643-11 standard.

Suitable for the second step of protection in distribution boards in which Type 1 protectors are installed upstream or for the first step of protection in commercial installations, homes or other applications not exposed to direct strikes and with no external lightning protection system.

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 40 kA per phase
- Nominal discharge current (8/20 μ s): 20 kA per phase
- TNS, TNC, TT and IT networks
- U_n (L-N/L-L): 48 V, 60 V, 120/208 V, 230/400 V, 277/480 V, 400/690 V and higher
- Plug-in DIN rail format
- Visual and remote end of life indication
- Reversible chassis to allow cable entry from above or below
- Mechanically coded cartridges to avoid replacement errors
- UL 1449 4th Ed. certified models

I_{max}

40 kA

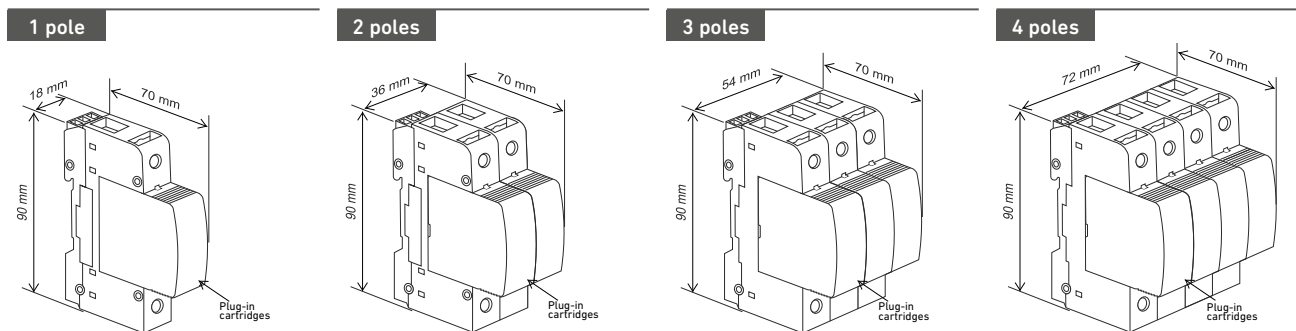
TECH INFO

cirprotec.com/PSM

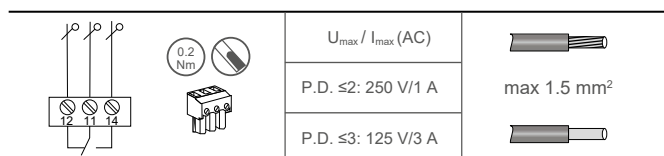
Standards

- IEC/EN 61643-11
- UL 1449 4th Ed., File No. E468946
- CE

DIMENSIONS



MICROSWITCH DIAGRAM (IR)



Type 2 SPDs | PSM 40

PART NUMBERS

1 pole

ORDERING CODE	PART NUMBER	Network								Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{p@I_n} (8/20) [kV]	IR	L	N
77707706	PSM1-40/120	L-N (1Ph)	A	120	150	40	20	≤1		C22	-
77707707	PSM1-40/120 IR	L-N (1Ph)	A	120	150	40	20	≤1	√	C22	-
77707708	PSM1-40/230	L-N (1Ph)	A	230	275	40	20	≤1,3		C23	-
77707709	PSM1-40/230 IR	L-N (1Ph)	A	230	275	40	20	≤1,3	√	C23	-
77707734	PSM1-40/277	L-N (1Ph)	A	277	320	40	20	≤1,5		C24	-
77707735	PSM1-40/277 IR	L-N (1Ph)	A	277	320	40	20	≤1,5	√	C24	-
77707710	PSM1-40/400	L-N (1Ph)	A	400	440	40	20	≤2		C25	-
77707711	PSM1-40/400 IR	L-N (1Ph)	A	400	440	40	20	≤2	√	C25	-
77707714	PSM1-30/750	L-N (1Ph)	A	690	750	30	15	≤3		C26	-
77707715	PSM1-30/750 IR	L-N (1Ph)	A	690	750	30	15	≤3	√	C26	-
77707746	PSM1-40N	N-PE (N)	B	Neutral	277	40	20	≤1,5		-	C27

2 poles

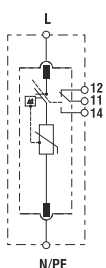
ORDERING CODE	PART NUMBER	Network								Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{p@I_n} (8/20) [kV]	IR	L	N
77707926	PSM2-40/48 ELV	TNS (1Ph+N); PV	C	48/-	60; 65 U _{cpv}	40	20	≤0,7		C20	-
77707927	PSM2-40/48 ELV IR	TNS (1Ph+N); PV	C	48/-	60; 65 U _{cpv}	40	20	≤0,7	√	C20	-
77707928	PSM2-40/60 ELV	TNS (1Ph+N); PV	C	60/-	75; 80 U _{cpv}	40	20	≤0,8		C21	-
77707929	PSM2-40/60 ELV IR	TNS (1Ph+N); PV	C	60/-	75; 80 U _{cpv}	40	20	≤0,8	√	C21	-
77707754	PSM2-40/120 TT	TT (1Ph+N)	D	120/-	150	40	20	≤1 (L-N) ≤1,5 (N-PE)		C22	C27
77707755	PSM2-40/120 TT IR	TT (1Ph+N)	D	120/-	150	40	20	≤1 (L-N) ≤1,5 (N-PE)	√	C22	C27
77707756	PSM2-40/230 TT	TT (1Ph+N)	D	230/-	275	40	20	≤1,3 (L-N) ≤1,5 (N-PE)		C23	C27
77707757	PSM2-40/230 TT IR	TT (1Ph+N)	D	230/-	275	40	20	≤1,3 (L-N) ≤1,5 (N-PE)	√	C23	C27
77707760	PSM2-40/277 TT	TT (1Ph+N)	D	277/-	320	40	20	≤1,5 (L-N) ≤1,5 (N-PE)		C24	C27
77707761	PSM2-40/277 TT IR	TT (1Ph+N)	D	277/-	320	40	20	≤1,5 (L-N) ≤1,5 (N-PE)	√	C24	C27
77707904	PSM2-40/120 TNS	TNS (1Ph+N)	F	120/-	150	40	20	≤1		C22	-
77707905	PSM2-40/120 TNS IR	TNS (1Ph+N)	F	120/-	150	40	20	≤1	√	C22	-
77707906	PSM2-40/230 TNS	TNS (1Ph+N)	F	230/-	275	40	20	≤1,3		C23	-
77707907	PSM2-40/230 TNS IR	TNS (1Ph+N)	F	230/-	275	40	20	≤1,3	√	C23	-
77707914	PSM2-40/277 TNS	TNS (1Ph+N)	F	277/-	320	40	20	≤1,5		C24	-
77707915	PSM2-40/277 TNS IR	TNS (1Ph+N)	F	277/-	320	40	20	≤1,5	√	C24	-

ELV Extra Low Voltage, also for use in DC Photovoltaic self-consumption/off-grid applications.

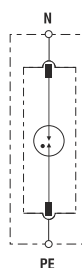
ELECTRICAL DIAGRAMS

A L-N

IR Models

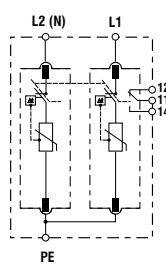


B N-PE



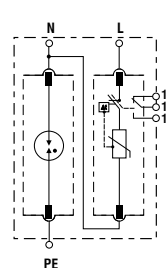
C TNS (2+0)

IR Models



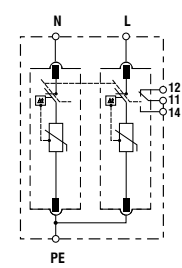
D TT (1+1)

IR Models



F TNS (2+0)

IR Models



Type 2 SPDs | PSM 40

3 poles

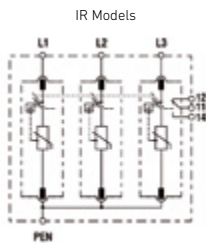
ORDERING CODE	PART NUMBER	Network							Cartridges		
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	Up@In (8/20) [kV]	IR	L	N
77707864	PSM3-40/230 TNC	TNC (3Ph)	H	-/208	150	40	20	≤1		C22	-
77707865	PSM3-40/230 TNC IR	TNC (3Ph)	H	-/208	150	40	20	≤1	√	C22	-
77707866	PSM3-40/400 TNC	TNC (3Ph)	H	-/400	275	40	20	≤1,3		C23	-
77707867	PSM3-40/400 TNC IR	TNC (3Ph)	H	-/400	275	40	20	≤1,3	√	C23	-
77707882	PSM3-40/480 TNC	TNC (3Ph)	H	-/480	320	40	20	≤1,5		C24	-
77707883	PSM3-40/480 TNC IR	TNC (3Ph)	H	-/480	320	40	20	≤1,5	√	C24	-
77707870	PSM3-30/750 TNC	TNC (3Ph)	H	-/690; -/1000	750	30	15	≤3		C26	-
77707871	PSM3-30/750 TNC IR	TNC (3Ph)	H	-/690; -/1000	750	30	15	≤3	√	C26	-

4 poles

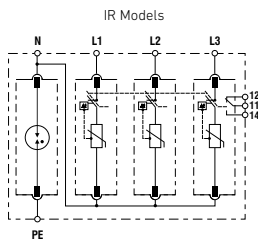
ORDERING CODE	PART NUMBER	Network							Cartridges		
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	Up@In (8/20) [kV]	IR	L	N
77707804	PSM4-40/230 TT	TT (3Ph+N)	J	120/208	150	40	20	≤1 (L-N) ≤1,5 (N-PE)		C22	C27
77707805	PSM4-40/230 TT IR	TT (3Ph+N)	J	120/208	150	40	20	≤1 (L-N) ≤1,5 (N-PE)	√	C22	C27
77707806	PSM4-40/400 TT	TT (3Ph+N)	J	230/400	275	40	20	≤1,3 (L-N) ≤1,5 (N-PE)		C23	C27
77707807	PSM4-40/400 TT IR	TT (3Ph+N)	J	230/400	275	40	20	≤1,3 (L-N) ≤1,5 (N-PE)	√	C23	C27
77707810	PSM4-40/480 TT	TT (3Ph+N)	J	277/480	320	40	20	≤1,5 (L-N) ≤1,5 (N-PE)		C24	C27
77707811	PSM4-40/480 TT IR	TT (3Ph+N)	J	277/480	320	40	20	≤1,5 (L-N) ≤1,5 (N-PE)	√	C24	C27
77707954	PSM4-40/230 TNS	TNS (3Ph+N)	L	120/208	150	40	20	≤1		C22	-
77707955	PSM4-40/230 TNS IR	TNS (3Ph+N)	L	120/208	150	40	20	≤1	√	C22	-
77707956	PSM4-40/400 TNS	TNS (3Ph+N)	L	230/400	275	40	20	≤1,3		C23	-
77707957	PSM4-40/400 TNS IR	TNS (3Ph+N)	L	230/400	275	40	20	≤1,3	√	C23	-
77707989	PSM4-40/480 TNS	TNS (3Ph+N)	L	277/480	320	40	20	≤1,5		C24	-
77707990	PSM4-40/480 TNS IR	TNS (3Ph+N)	L	277/480	320	40	20	≤1,5	√	C24	-

ELECTRICAL DIAGRAMS

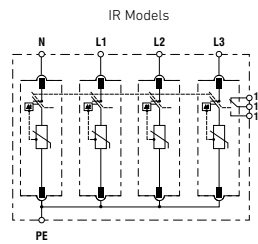
H TNC (3+0)



J TT (3+1)



L TNS (4+0)



Consult Cirprotec for specific models for IT isolated networks.

Replacement cartridges

ORDERING CODE	PART NUMBER	SYSTEM TYPE	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	Up@In (8/20) [kV]	Cartridges
77707680	PSM-40/48	L-N (1Ph)	48	60	40	20	≤0,7	C20
77707681	PSM-40/60	L-N (1Ph)	60	75	40	20	≤0,8	C21
77707653	PSM-40/120	L-N (1Ph)	120	150	40	20	≤1	C22
77707654	PSM-40/230	L-N (1Ph)	230	275	40	20	≤1,3	C23
77707671	PSM-40/277	L-N (1Ph)	277	320	40	20	≤1,5	C24
77707655	PSM-40/400	L-N (1Ph)	400	440	40	20	≤2	C25
77707668	PSM-30/750	L-N (1Ph)	690	750	30	15	≤3	C26
77707664	PSM-40N	N-PE (N)	Neutral	277	40	20	≤1,5	C27

Type 2 SPD with grounding status monitoring

SAFEGROUND®

SAFEGROUND® is the first range of Type 2/Class II devices intended for protecting against induced voltage surges (8/20 μs) according to IEC/EN 61643-11, which incorporate a special LED for indication of proper installation and monitoring of the earth loop, so providing information on the effectiveness of the protection offered.

SAFEGROUND® is Cirprotec's premium solution, especially suitable for the most demanding installations, which by their nature require continuous monitoring of the state of the grounding system. Installation should be as close possible to the equipment to be protected to allow for a complete loop impedance measurement.

RATINGS AND FEATURES

- Patented SAFEGROUND® technology for loop impedance monitoring
- Checking of correct device wiring at installation time
- Continuous indication of the effectiveness of the protection offered
- Additional safety information in the event of indirect contacts
- Maximum discharge current (8/20 μs): 40 kA per phase
- Nominal discharge current (8/20 μs): 20 kA per phase
- TT and TNS networks
- Un (L-N/L-L): 230/400 V
- Plug-in DIN rail format
- Further information on page 60 of this catalogue or at www.cirprotec.com/safeground

Imax

40 kA

TECH INFO
cirprotec.com/SAFEGROUND

GROUND STATUS

WORLD PREMIERE

Standards

- IEC/EN 61643-11
- CE

IEC CE

Watch the video on www.youtube.com/cptcirprotec



PART NUMBERS

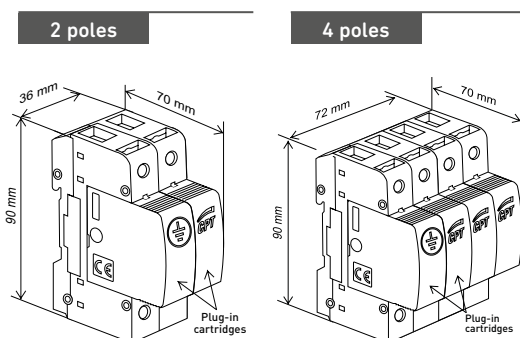
ORDERING CODE	PART NUMBER	Network							Cartridges
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	Imax (8/20) [kA]	In (8/20) [kA]	Up@In (8/20) [kV]	L
77727756	PSM2-40/230 SG	1Ph+N	A	230	275	40	20	≤1,3	C23
77727806	PSM4-40/400 SG	3Ph+N	B	230/400	275	40	20	≤1,3 (L-N) ≤1,5 (N-PE)	C23

Consult Cirprotec for other models.

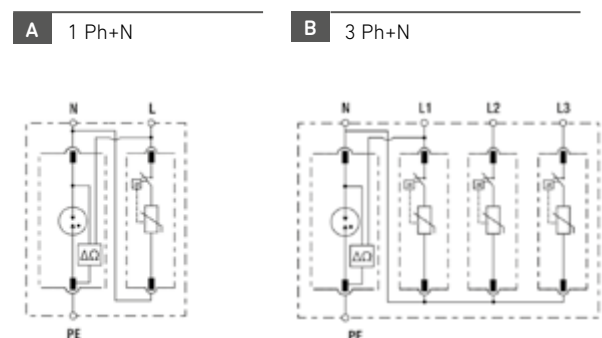
Replacement cartridges

ORDERING CODE	PART NUMBER	SYSTEM TYPE	Un [V]	Uc [V]	Imax (8/20) [kA]	In (8/20) [kA]	Up@In (8/20) [kV]	Cartridges
77707654	PSM-40/230	L-N (1Ph)	230	275	40	20	≤1,3	C23

DIMENSIONS



ELECTRICAL DIAGRAMS



Type 2+3 SPDs

PSM 20

PSM 20 is the range of Type 2+3/Class II+III devices intended for protecting against induced voltage surges (8/20 μ s), in accordance with the IEC/EN 61643-11 standard.

Suitable for the second and final steps of protection in panels with Type 2 protection devices installed upstream, such as PSM 40. These systems should be installed as close as possible to the equipment to be protected.

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 20 kA per phase
- Nominal discharge current (8/20 μ s): 10 kA per phase
- Combined voltage pulse U_{oc} (1.2/50 μ s): 10 kV
- TNS, TNC, TT and IT networks
- U_n (L-N/L-L): 120/208 V, 230/400 V, 277/480 V and 400/690 V
- Models compatible with PLC Power Line Communications
- Plug-in DIN rail format
- Visual and remote end of life indication
- Reversible chassis to allow cable entry from above or below
- Mechanically coded cartridges to avoid replacement errors

I_{max}

20 kA

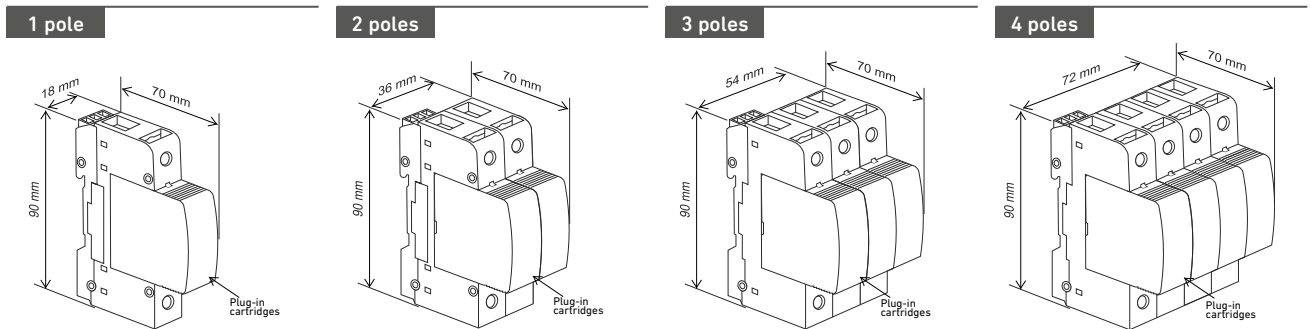
TECH
INFO

cirprotec.com/PSM

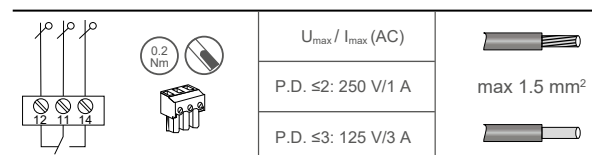
Standards

- IEC/EN 61643-11
- CE

DIMENSIONS



MICROSWITCH DIAGRAM (IR)



Type 2+3 SPDs | PSM 20

PART NUMBERS

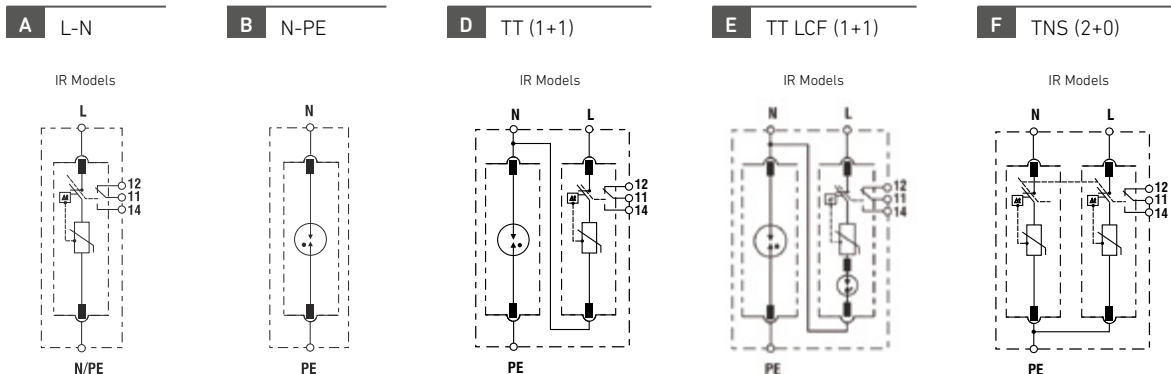
1 pole

ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{oc} [kV]	U _{p@I_n} (8/20) [kV]	IR	L	N
77707700	PSM1-20/120	L-N (1Ph)	A	120	150	20	10	10	≤0,8		C60	-
77707701	PSM1-20/120 IR	L-N (1Ph)	A	120	150	20	10	10	≤0,8	✓	C60	-
77707702	PSM1-20/230	L-N (1Ph)	A	230	320	20	10	10	≤1,4		C62	-
77707703	PSM1-20/230 IR	L-N (1Ph)	A	230	320	20	10	10	≤1,4	✓	C62	-
77707732	PSM1-20/277	L-N (1Ph)	A	277	320	20	10	10	≤1,4		C65	-
77707733	PSM1-20/277 IR	L-N (1Ph)	A	277	320	20	10	10	≤1,4	✓	C65	-
77707704	PSM1-20/400	L-N (1Ph)	A	400	440	20	10	10	≤2		C63	-
77707705	PSM1-20/400 IR	L-N (1Ph)	A	400	440	20	10	10	≤2	✓	C63	-
77707745	PSM1-20N	N-PE (N)	B	Neutral	255	20	10	10	≤1,5		-	C64

2 poles

ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{oc} [kV]	U _{p@I_n} (8/20) [kV]	IR	L	N
77707750	PSM2-20/120 TT	TT (1Ph+N)	D	120/-	150	20	10	10	≤0,8 (L-N) ≤1,5 (N-PE)		C60	C64
77707751	PSM2-20/120 TT IR	TT (1Ph+N)	D	120/-	150	20	10	10	≤0,8 (L-N) ≤1,5 (N-PE)	✓	C60	C64
77707752	PSM2-20/230 TT	TT (1Ph+N)	D	230/-	320	20	10	10	≤1,4 (L-N) ≤1,5 (N-PE)		C62	C64
77707753	PSM2-20/230 TT IR	TT (1Ph+N)	D	230/-	320	20	10	10	≤1,4 (L-N) ≤1,5 (N-PE)	✓	C62	C64
77707980	PSM2-20/230 PLC TT	TT (1Ph+N)	E	230/-	275	20	10	10	≤1,5 (L-N) ≤1,5 (N-PE)		C61	C64
77707981	PSM2-20/230 PLC TT IR	TT (1Ph+N)	E	230/-	275	20	10	10	≤1,5 (L-N) ≤1,5 (N-PE)	✓	C61	C64
77707758	PSM2-20/277 TT	TT (1Ph+N)	E	277/-	320	20	10	10	≤1,4 (L-N) ≤1,5 (N-PE)		C65	C64
77707759	PSM2-20/277 TT IR	TT (1Ph+N)	E	277/-	320	20	10	10	≤1,4 (L-N) ≤1,5 (N-PE)	✓	C65	C64
77707900	PSM2-20/120 TNS	TNS (1Ph+N)	F	120/-	150	20	10	10	≤0,8		C60	-
77707901	PSM2-20/120 TNS IR	TNS (1Ph+N)	F	120/-	150	20	10	10	≤0,8	✓	C60	-
77707902	PSM2-20/230 TNS	TNS (1Ph+N)	F	230/-	320	20	10	10	≤1,4		C62	-
77707903	PSM2-20/230 TNS IR	TNS (1Ph+N)	F	230/-	320	20	10	10	≤1,4	✓	C62	-
77707912	PSM2-20/277 TNS	TNS (1Ph+N)	F	277/-	320	20	10	10	≤1,4		C65	-
77707913	PSM2-20/277 TNS IR	TNS (1Ph+N)	F	277/-	320	20	10	10	≤1,4	✓	C65	-

ELECTRICAL DIAGRAMS



Type 2+3 SPDs | PSM 20

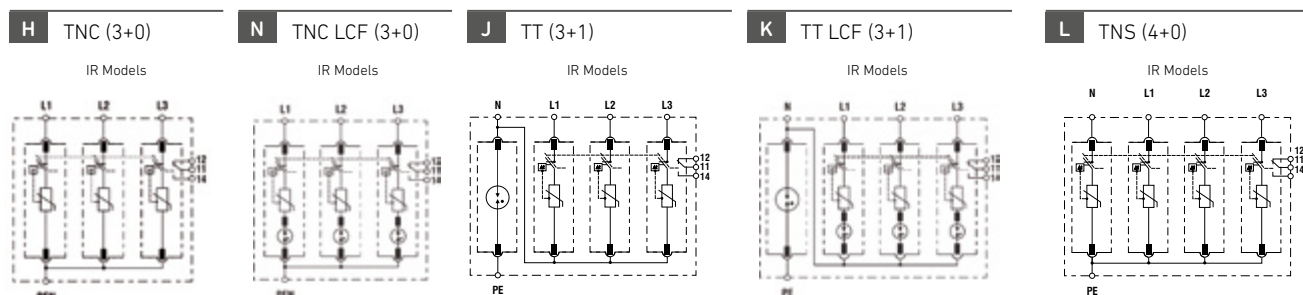
3 poles

ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	Imax (8/20) [kA]	In (8/20) [kA]	Uoc [kV]	Up@In (8/20) [kV]	IR	L	N
77707860	PSM3-20/230 TNC	TNC (3Ph)	H	-/208	150	20	10	10	≤0,8		C60	-
77707861	PSM3-20/230 TNC IR	TNC (3Ph)	H	-/208	150	20	10	10	≤0,8	✓	C60	-
77707862	PSM3-20/400 TNC	TNC (3Ph)	H	-/400	320	20	10	10	≤1,4		C62	-
77707863	PSM3-20/400 TNC IR	TNC (3Ph)	H	-/400	320	20	10	10	≤1,4	✓	C62	-
77707880	PSM3-20/480 TNC	TNC (3Ph)	H	-/480	320	20	10	10	≤1,4		C65	-
77707881	PSM3-20/480 TNC IR	TNC (3Ph)	H	-/480	320	20	10	10	≤1,4	✓	C65	-
77707982	PSM3-20/400 PLC TNC	TNC (3Ph)	N	-/400	275	20	10	10	≤1,5		C61	-
77707983	PSM3-20/400 PLC TNC IR	TNC (3Ph)	N	-/400	275	20	10	10	≤1,5	✓	C61	-

4 poles

ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	Imax (8/20) [kA]	In (8/20) [kA]	Uoc [kV]	Up@In (8/20) [kV]	IR	L	N
77707800	PSM4-20/230 TT	TT (3Ph+N)	J	120/208	150	20	10	10	≤0,8 (L-N) ≤1,5 (N-PE)		C60	C64
77707801	PSM4-20/230 TT IR	TT (3Ph+N)	J	120/208	150	20	10	10	≤0,8 (L-N) ≤1,5 (N-PE)	✓	C60	C64
77707802	PSM4-20/400 TT	TT (3Ph+N)	J	230/400	320	20	10	10	≤1,4 (L-N) ≤1,5 (N-PE)		C62	C64
77707803	PSM4-20/400 TT IR	TT (3Ph+N)	J	230/400	320	20	10	10	≤1,4 (L-N) ≤1,5 (N-PE)	✓	C62	C64
77707985	PSM4-20/400 PLC TT	TT (3Ph+N)	K	230/400	275	20	10	10	≤1,5 (L-N) ≤1,5 (N-PE)		C61	C64
77707986	PSM4-20/400 PLC TT IR	TT (3Ph+N)	K	230/400	275	20	10	10	≤1,5 (L-N) ≤1,5 (N-PE)	✓	C61	C64
77707808	PSM4-20/480 TT	TT (3Ph+N)	K	277/480	320	20	10	10	≤1,4 (L-N) ≤1,5 (N-PE)		C65	C64
77707809	PSM4-20/480 TT IR	TT (3Ph+N)	K	277/480	320	20	10	10	≤1,4 (L-N) ≤1,5 (N-PE)	✓	C65	C64
77707950	PSM4-20/230 TNS	TNS (3Ph+N)	L	120/208	150	20	10	10	≤0,8		C60	-
77707951	PSM4-20/230 TNS IR	TNS (3Ph+N)	L	120/208	150	20	10	10	≤0,8	✓	C60	-
77707952	PSM4-20/400 TNS	TNS (3Ph+N)	L	230/400	320	20	10	10	≤1,4		C62	-
77707953	PSM4-20/400 TNS IR	TNS (3Ph+N)	L	230/400	320	20	10	10	≤1,4	✓	C62	-
77707987	PSM4-20/480 TNS	TNS (3Ph+N)	L	277/480	320	20	10	10	≤1,4		C65	-
77707988	PSM4-20/480 TNS IR	TNS (3Ph+N)	L	277/480	320	20	10	10	≤1,4	✓	C65	-

ELECTRICAL DIAGRAMS



Replacement cartridges

ORDERING CODE	PART NUMBER	SYSTEM TYPE	Un [V]	Uc [V]	Imax (8/20) [kA]	In (8/20) [kA]	Uoc [kV]	Up@In (8/20) [kV]	Cartridges
77707650	PSM-20/120	L-N (1Ph)	120	150	20	10	10	≤0,8	C60
77707670	PSM-20/230 PLC	L-N (1Ph)	230	275	20	10	10	≤1,5	C61
77707651	PSM-20/230	L-N (1Ph)	230	320	20	10	10	≤1,4	C62
77707669	PSM-20/277	L-N (1Ph)	277	320	20	10	10	≤1,4	C65
77707652	PSM-20/400	L-N (1Ph)	400	440	20	10	10	≤2	C63
77707663	PSM-20N	N-PE (N)	Neutral	255	20	10	10	≤1,5	C64

Type 3 SPDs

PSL

PSL is the range of Type 3/Class III devices which provide very fine protection (1,2/50 μ s) from induced voltage surges to sensitive equipment, in accordance with the IEC/EN 61643-11 standard

Suitable for the final step of protection in panels with Type 2 protection devices installed upstream as a second step, such as PSM 40 or PSM 20. These systems should be installed as close as possible to the equipment to be protected.

RATINGS AND FEATURES


- Maximum discharge current (8/20 μ s): 8 kA per phase
- Nominal discharge current (8/20 μ s): 3 kA per phase
- Combined voltage pulse Uoc (1.2/50 μ s): 6 kV
- TT and TNS networks
- Plug-in DIN rail format
- Visual and remote end of life indication
- Reversible chassis to allow cable entry from above or below
- Mechanically coded cartridges to avoid replacement errors

I_{max}

8 kA

TECH INFO

cirprotec.com/PSL

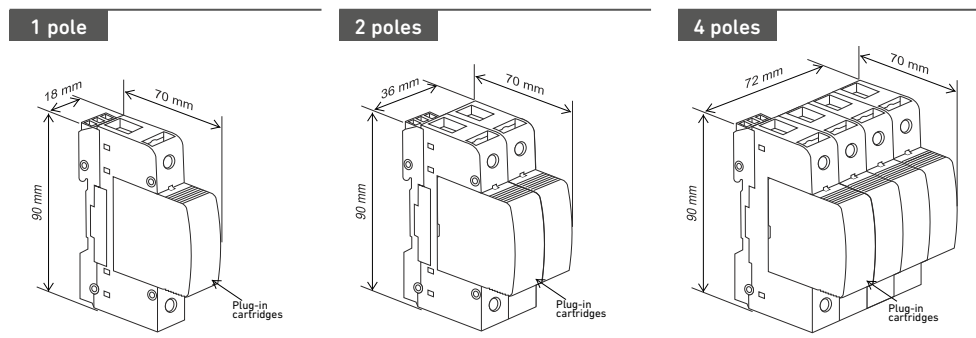


Standards

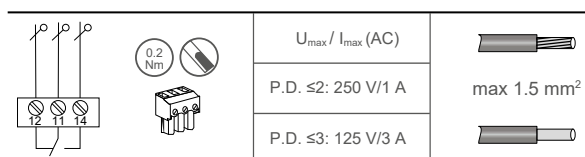
- IEC/EN 61643-11
- CE



DIMENSIONS



MICROSWITCH DIAGRAM (IR)



Type 3 SPDs | PSL

PART NUMBERS

1 pole

ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{oc} [kV]	U _{p@I_n} (8/20) [kV]	IR	L	N
77708110	PSL1-8/120	L-N (1Ph)	A	120	150	8	3	6	≤0,8		L03	-
77708111	PSL1-8/120 IR	L-N (1Ph)	A	120	150	8	3	6	≤0,8	✓	L03	-
77708112	PSL1-8/230	L-N (1Ph)	A	230	320	8	3	6	≤1,1		L01	-
77708113	PSL1-8/230 IR	L-N (1Ph)	A	230	320	8	3	6	≤1,1	✓	L01	-
77708130	PSL1-8N	N-PE (N)	B	Neutral	255	8	3	6	≤1,5		-	L02

2 poles

ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{oc} [kV]	U _{p@I_n} (8/20) [kV]	IR	L	N
77708155	PSL2-8/230 TT	TT (1Ph+N)	D	230/-	320	8	3	6	≤1,1 (L-N) ≤1,5 (N-PE)		L01	L02
77708156	PSL2-8/230 TT IR	TT (1Ph+N)	D	230/-	320	8	3	6	≤1,1 (L-N) ≤1,5 (N-PE)	✓	L01	L02
77708173	PSL2-8/120 TNS	TNS (1Ph+N)	F	120/-	150	8	3	6	≤0,8		L03	-
77708174	PSL2-8/120 TNS IR	TNS (1Ph+N)	F	120/-	150	8	3	6	≤0,8	✓	L03	-
77708175	PSL2-8/230 TNS	TNS (1Ph+N)	F	230/-	320	8	3	6	≤1,1		L01	-
77708176	PSL2-8/230 TNS IR	TNS (1Ph+N)	F	230/-	320	8	3	6	≤1,1	✓	L01	-

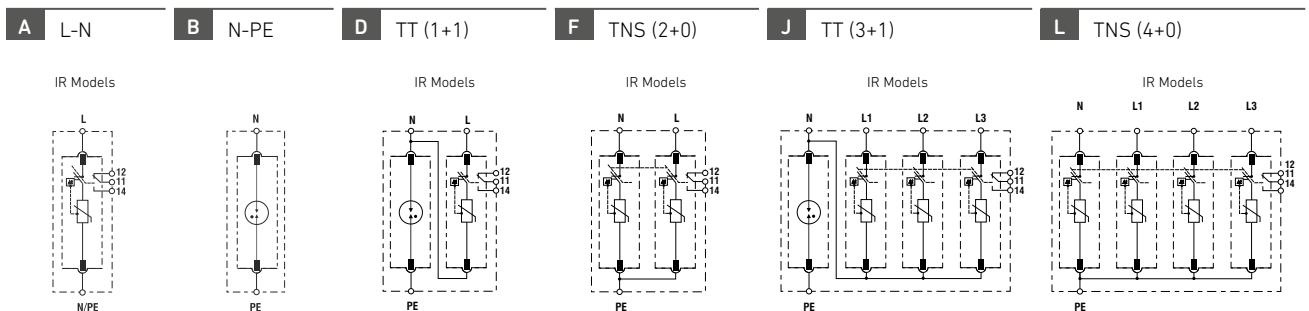
4 poles

ORDERING CODE	PART NUMBER	Network									Cartridges	
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{oc} [kV]	U _{p@I_n} (8/20) [kV]	IR	L	N
77708205	PSL4-8/400 TT	TT (3Ph+N)	J	230/400	320	8	3	6	≤1,1 (L-N) ≤1,5 (N-PE)		L01	L02
77708206	PSL4-8/400 TT IR	TT (3Ph+N)	J	230/400	320	8	3	6	≤1,1 (L-N) ≤1,5 (N-PE)	✓	L01	L02
77708223	PSL4-8/230 TNS	TNS (3Ph+N)	L	120/208	150	8	3	6	≤0,8		L03	-
77708224	PSL4-8/230 TNS IR	TNS (3Ph+N)	L	120/208	150	8	3	6	≤0,8	✓	L03	-
77708225	PSL4-8/400 TNS	TNS (3Ph+N)	L	230/400	320	8	3	6	≤1,1		L01	-
77708226	PSL4-8/400 TNS IR	TNS (3Ph+N)	L	230/400	320	8	3	6	≤1,1	✓	L01	-

Replacement cartridges

ORDERING CODE	PART NUMBER	SYSTEM TYPE	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{oc} [kV]	U _{p@I_n} (8/20) [kV]	Cartridges
77708102	PSL-8/120	L-N	120	150	8	3	6	≤0,8	L03
77708100	PSL-8/230	L-N	230	320	8	3	6	≤1,1	L01
77708105	PSL-8N	N-PE	Neutral	255	8	3	6	≤1,5	L02

ELECTRICAL DIAGRAMS



Type 2+3 SPDs

DM2

DM2 is the range of combined Type 2+3/Class II+III devices intended for protecting against induced voltage surges (8/20 μ s) while providing a very fine protection (1,2/50 μ s) to sensitive equipment, in accordance with the IEC/EN 61643-11 standard. Supplied with built-in high attenuation EMI filter.

Suitable for the final step of protection in installations with electromagnetic disturbances which could interrupt, degrade or limit system performance.

Series connection for applications up to 20 A rated current.

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 20 kA
- Nominal discharge current (8/20 μ s): 10 kA
- Combined voltage pulse (1.2/50 μ s): 6 kV
- Attenuation filter up to 82 dB (common mode)
- Nominal phase current (IL): 20 A
- Single phase TT and TNS networks
- Un: 120 V, 230 V
- Monobloc DIN rail format
- Visual (LED) and remote (IR) end-of-life indicators
- External power indicator (LED)

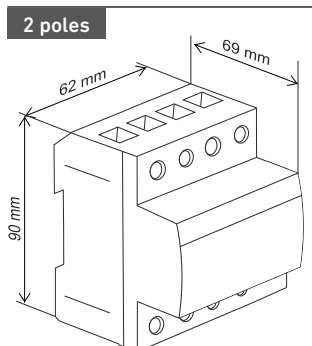


PART NUMBERS

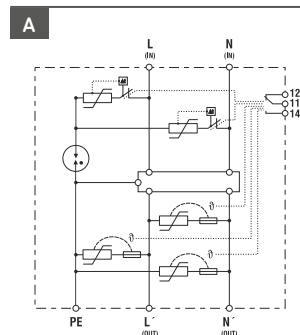
2 poles

ORDERING CODE	PART NUMBER	Network									
		SYSTEM TYPE	Electrical diagram	Un [V]	Uc [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{oc} [kV]	U _{p@I_n} [kV]	I _L [A]	IR
77702840	DM2-20A/120 IR	TT/TNS (1Ph+N)	A	120	150	20	10	6	$\leq 0,8$	20	✓
77702830	DM2-20A/230 IR	TT/TNS (1Ph+N)	A	230	275	20	10	6	$\leq 1,2$	20	✓

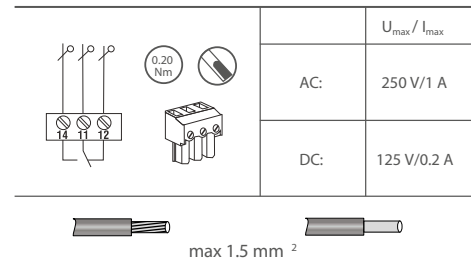
DIMENSIONS



ELECTRICAL DIAGRAMS



MICROSWITCH DIAGRAM (IR)



Type 2+3 SPDs

CSF

CSF is the range of combined Type 2+3/Class II+III devices intended for protecting against induced voltage surges (8/20 μ s) while providing a very fine protection (1,2/50 μ s) to sensitive equipment, in accordance with the IEC/EN 61643-11 standard.

Suitable for the second and final steps of protection in panels with Type 2 protection devices installed upstream, such as PSM 40.

These systems should be installed as close as possible to the equipment to be protected. Ideal for small spaces. Wide range of rated voltages.

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 20 kA, 6 kA
- Nominal discharge current (8/20 μ s): 10 kA, 3 kA
- Combined voltage pulse (1.2/50 μ s): 10 kV, 6 kV
- Single phase TT and TNS networks
- Un: 12 V, 24 V, 48 V, 60 V, 120 V, 230 V
- Also applicable to DC installations
- Monobloc DIN rail format
- Visual (LED) and remote (IR) end-of-life indicators
- External power indicator (LED)
- Space-saving "slim" format
- UL 1449 4th Ed. certified models

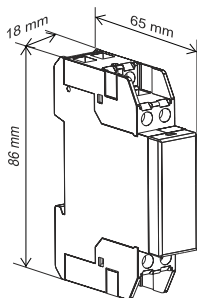
PART NUMBERS

2 poles

ORDERING CODE	PART NUMBER WITHOUT IR	PART NUMBER WITH IR	Network		Un [V]	Uc [V]	Imax (8/20) [kA]	In (8/20) [kA]	Uoc [kV]	Up@In (8/20) [kV]
			SYSTEM TYPE	Electrical diagram						
77704101 77704102	CSF21-12	CSF21-12 IR	TT/TNS (1Ph+N)	A	12	20	6	3	6	$\leq 0,22$ (L1-L2) 0,7 (L1/L2-PE)
77704103 77704104	CSF21-24	CSF21-24 IR	TT/TNS (1Ph+N)	A	24	30	6	3	6	$\leq 0,22$ (L1-L2) 0,7 (L1/L2-PE)
77704105 77704106	CSF21-48	CSF21-48 IR	TT/TNS (1Ph+N)	A	48	60	6	3	6	$\leq 0,33$ (L1-L2) 0,7 (L1/L2-PE)
77704107 77704108	CSF21-60	CSF21-60 IR	TT/TNS (1Ph+N)	A	60	75	6	3	6	$\leq 0,5$ (L1-L2) 0,9 (L1/L2-PE)
77704109 77704110	CSF21-120	CSF21-120 IR	TT/TNS (1Ph+N)	A	120	150	6	3	6	$\leq 0,7$ (L1-L2) 0,9 (L1/L2-PE)
77704115 77704116	CSF21-230	CSF21-230 IR	TT/TNS (1Ph+N)	A	230	275	20	10	10	$\leq 1,4$ (L1-L2) 1,4 (L1/L2-PE)

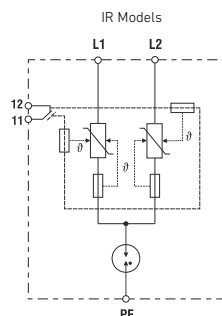
DIMENSIONS

2 poles



ELECTRICAL DIAGRAMS

A



MICROSWITCH DIAGRAM (IR)

		U _{max} / I _{max}
	AC:	250 V/1 A
	DC:	125 V/0.2 A

Imax

20 kA

TECH INFO

cirprotec.com/CSF

Standards

- IEC/EN 61643-11
- UL 1449 4th Ed., File No. E468946
- CE

LED lighting SPDs Type 2+3

CSF FB

CSF FB is the range of combined Type 2+3/Class II+III devices intended for protecting against induced voltage surges (8/20 μ s) while providing a very fine protection (1,2/50 μ s) to sensitive equipment, in accordance with the IEC/EN 61643-11 standard.

Suitable for the protection of outdoor LED luminaires (street lighting), due to exposure of the LED electronics which are extremely sensitive to surges induced by lightning. This range has been designed to be installed in the pole within the fuse box, where there are DIN rails.

RATINGS AND FEATURES

- Combined voltage pulse (1.2/50 μ s): 10 kV (Uoc)
- Maximum discharge current (8/20 μ s): 10 kA
- Nominal discharge current (8/20 μ s): 5 kA
- Installation in series or parallel
- Compact size and easy to install
- Dual end-of-life indication: disconnection (wired in series) and local (status LED)
- No leakage current
- Nominal phase current (I_n): 2,5 A (series)
- For fuse boxes with DIN rail (in the lamp pole)

Imax

10 kA

TECH INFO

cirprotec.com/CSF

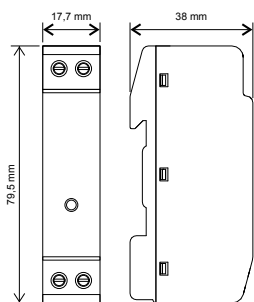
Standards

- IEC/EN 61643-11
- CE

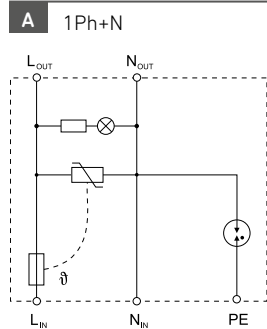
PART NUMBERS

ORDERING CODE	PART NUMBER	Network		Un [V]	Uc [V]	Imax (8/20) [kA]	In (8/20) @Up [kA]	Uoc [kV]	Up [kV]	IL [A]
		SYSTEM TYPE	Electrical diagram							
77704120	CSF21-10/230 FB	TT/TNS (1Ph+N)	A	230	320	10	5	10	≤ 1,5 (L-N) ≤ 1,8 (N-PE)	2,5

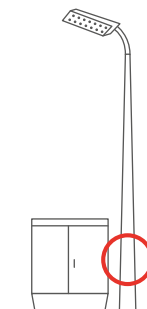
DIMENSIONS



ELECTRICAL DIAGRAMS



LOCATION



LED lighting SPDs Type 2+3

NS 10

The **NS 10** series consists of 2 ranges: NSS 10 and NSB 10. Both are combined Type 2+3/Class II+III devices of 10 kA (8/20 μ s) and 10 kV (1,2/50 μ s) intended for protecting outdoor LED luminaires from induced voltage surges, in accordance with IEC/EN 61643-11.

Suitable for protection of outdoor LED luminaires (street-lighting). Due to the exposure of LED electronics, which are extremely sensitive to surges induced by lightning, NSS-10/230 and NSB-10/230 are market standard solutions for manufacturers of LED lighting systems. See the features before choosing between NSS and NSB.

RATINGS AND FEATURES

- Combined voltage pulse (1.2/50 μ s): 10 kV (Uoc)
- Maximum discharge current (8/20 μ s): 10 kA
- Nominal discharge current (8/20 μ s): 5 kA
- Rated load current (IL): 2,5 A (series)
- Class 1 and Class 2 luminaires
- Wired in series and parallel
- Dual end-of-life indication: disconnection (wired in series) and local (status LED)
- No leakage current
- NSS: miniature size, "universal" models
- NSB: compact size, IP66 models
- Optional: luminaire with overvoltage protection (NSS-10 or NSB-10) tested and certified by accredited laboratory



Watch the video on
www.youtube.com/cptcirprotec

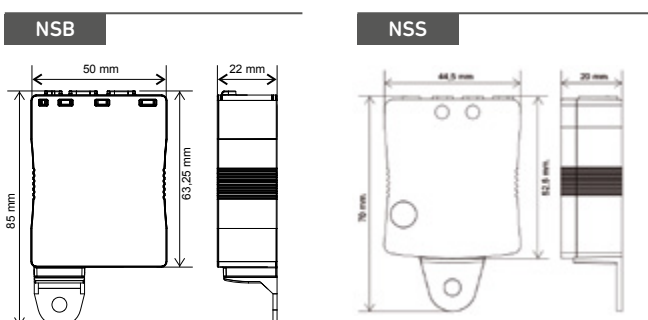


PART NUMBERS

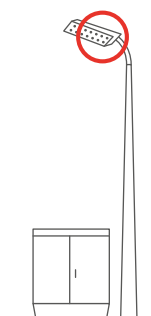
ORDERING CODE	PART NUMBER	Network		Un [V]	Uc [V]	Imax (8/20) [kA]	In (8/20) [kA]	Uoc [kV]	Up@In [kV]	IL [A]	IP
		SYSTEM TYPE	Luminaires Class								
77705868	NSS-10/230-C12-P	Universal*	1,2	230	320	10	5	10	≤1,5 (L1-L2) ≤1,8 (L1/L2-GND)	10	IP20
77705646	NSB-10/230-C4-DD	TT, TN	1,2	230	320	10	5	10	≤ 1,5 (L-N) ≤ 1,8 (L/N-GND)	2,5	IP20
77705754	NSB-10/230-C4-WD	TT, TN	1,2	230	320	10	5	10		2,5	IP20
77705644	NSB-10/230-C4-WW-IP	TT, TN	1,2	230	320	10	5	10		2,5	IP66

* Guarantees luminaire universality and safety:
 - Compatible with all TT, TN & IT network configurations
 - LN/NL reversible wiring safety
 - Universality L-N 230 V, L-L 230 V
 Consult Cirprotec for other models: electrostatic discharge, L-L-N, UL 1449, only L-N.

DIMENSIONS



LOCATION



LED lighting SPDs Type 2+3

NS 20

NS 20 is a combined Type 2+3/Class II+III device of 20 kA (8/20 μ s) and 20 kV (1,2/50 μ s) intended for protecting outdoor LED luminaires from induced voltage surges, in accordance with IEC/EN 61643-11.

Suitable for protection of special LED luminaire applications in sports stadiums, parks, green areas and other facilities where the voltage and discharge capacity needed are 20 kV and 20 kA, or rather, reinforced values.

RATINGS AND FEATURES

- Combined voltage pulse (1,2/50 μ s): 20 kV (Uoc)
- Maximum discharge current (8/20 μ s): 20 kA
- Nominal discharge current (8/20 μ s): 10 kA
- Rated load current (I_L): 2,5 A (series)
- Rated voltage: up to 230 V
- Luminaires Class 1 and 2
- Wired in series and parallel
- Double end-of-life indication: disconnection (connected in series) and local (status LED)
- No leakage current
- Optional: luminaire with overvoltage protection (NS-20) tested and certified by accredited laboratory



Watch the video on
www.youtube.com/cptcirprotec

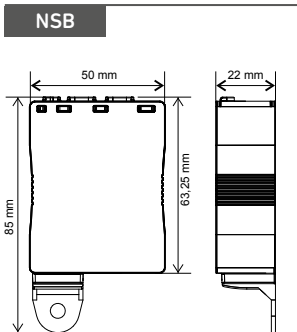


PART NUMBERS

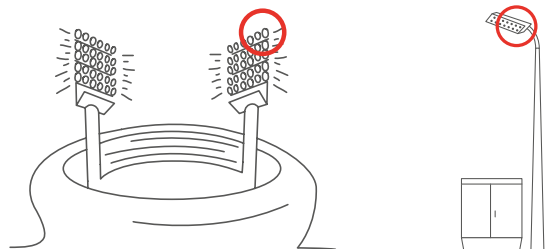
ORDERING CODE	PART NUMBER	Network		U _n [V]	U _c [V]	I _{max} (8/20) [kA]	I _n (8/20) [kA]	U _{oc} [kV]	U _{p@I_n} [kV]	I _L [A]	IP
		SYSTEM TYPE	Luminaires Class								
77705891	NSB-20/230-C4-DD	TT, TN	1,2	230	275	20	10	20	≤1,5 (L-N) ≤1,8 (L/N-GND)	2,5	IP20

Check for availability and delivery terms.

DIMENSIONS



LOCATION



COMPACT SOLUTION

Total protection in just 3 modules*
(surge, power frequency overvoltage
and MCB)

*Single phase version

QUICK AND EASY INSTALLATION (PREWIRED)

The internal prewiring system
reduces installation time by over
50% compared to versions not
prewired.

AUTOMATIC RECLOSURE

Equipment with reconnection is
suitable for installations that require
continuity of service (remote or with
little maintenance) or second homes.



EN 50550, CERTIFIED SAFETY

The entire Cirprotec power
frequency overvoltage protection
device range meets the EN 50550
standard "Power frequency
overvoltage protective devices, POP".

SOLUTION FOR INDUSTRY AND THE COMMERCIAL SECTOR

Cirprotec has a range of specific
solutions for industrial and
commercial sector applications, which
act on undervoltage release, shunt
release or contactor.

COMBINED (POP+SPD) AND TESTABLE PROTECTORS

Cirprotec has a wide range of combined
protection devices against power frequency
overvoltages and surges.

They incorporate a POP test button (checking
that the device is working properly).

Power frequency overvoltage protection

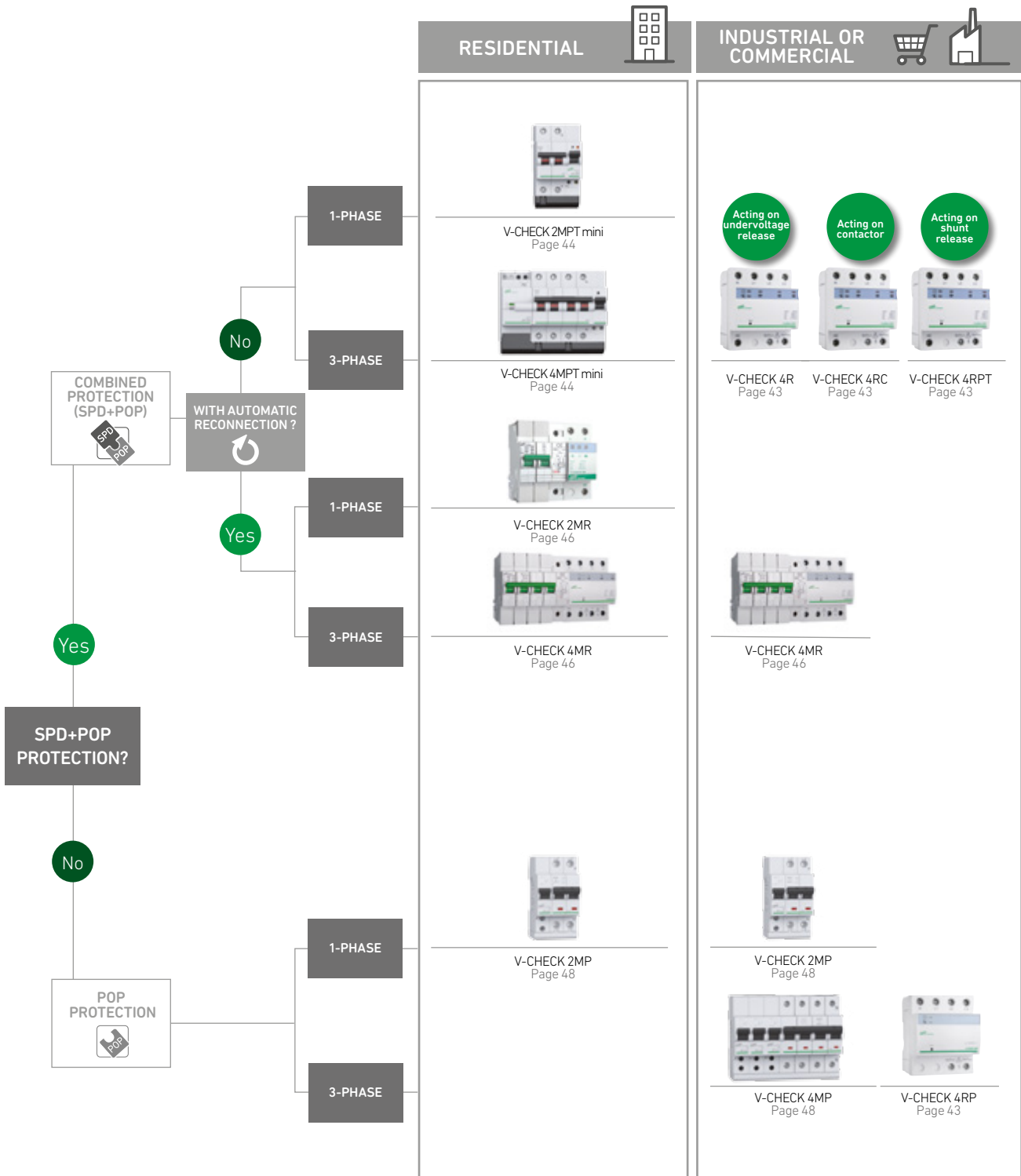
POWER SUPPLY SYSTEM

Comprehensive solution for power frequency overvoltage protection

COMBINED PROTECTION (SPD + POP)

RANGE TESTED IN A EN 50550 ACCREDITED LABORATORY

EN
50550
POP



Industrial POP+SPD devices

V-CHECK 4R

V-CHECK 4R is the range of combined surge and power frequency overvoltage protection devices (SPD+POP), which act on a release or contactor (MCCB). Type 2/Class II 40 kA (8/20 μ s) for 230 V, 3-phase (3Ph+N).

Suitable for industrial installations, on-site panels (V-CHECK 4R), commercial facilities (4RPT) and as a first protection step in street lighting panels (V-CHECK 4RC).

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 40 kA per phase
- Nominal discharge current (8/20 μ s): 15 kA per phase
- Un (L-N/L-L): 230/400 V
- Visual and remote end of life indication of SPD
- Monobloc DIN rail format, 4 modules (3Ph+N)
- POP test button
- Acting on shunt release, undervoltage release or contactor

Imax
40 kA

TECH INFO
cirprotec.com/4R

Standards

- EN 50550
- IEC/EN 61643-11
- CE

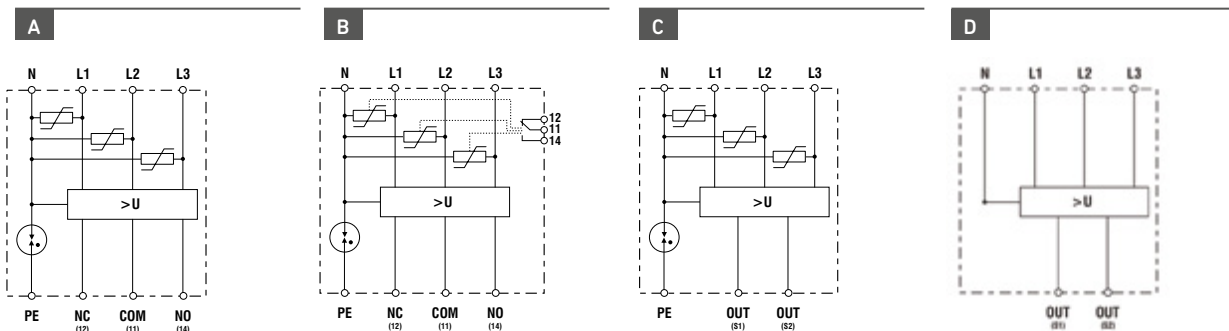
EN 50550 POP IEC CE

PART NUMBERS

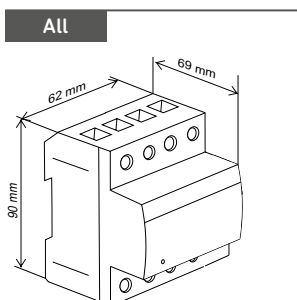
3Ph+N

ORDERING CODE	PART NUMBER	Electrical diagram	No. DIN modules	Un [V]	POP		SPD type 2			Actuation method	IR
					Ua [V]	Imax [kA]	In [kA]	Up [kV]			
77706400	V-CHECK 4R	A	4	230/400	> 275	40	15	≤ 1,8	Undervoltage release		
77706415	V-CHECK 4RPT	C	4	230/400	> 275	40	15	≤ 1,8	Shunt release		
77706417	V-CHECK 4RC	A	4	230/400	> 275	40	15	≤ 1,8	Contactor		
77706418	V-CHECK 4RC IR	B	4	230/400	> 275	40	15	≤ 1,8	Contactor	✓	
77706640	V-CHECK 4RP	D	4	230/400	> 275	-	-	-	Shunt release		

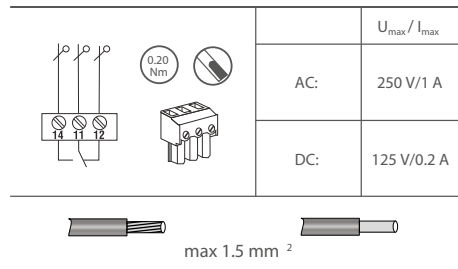
ELECTRICAL DIAGRAMS



DIMENSIONS



MICROSWITCH DIAGRAM (IR)



Compact POP+SPD devices

V-CHECK MPT MINI

V-CHECK MPT mini is the range of compact, prewired, combined surge and power frequency overvoltage protection devices (SPD+POP), complete with MCB, Type 2/Class II 15 kA (8/20 μ s) for 230 V, single phase (1Ph+N) and 3-phase (3Ph+N) models.

Compact solution, ideal for interior residential protection panels and common service panels with limited space (suitable for retrofitting). Quick and easy installation.

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 15 kA per phase
- Nominal discharge current (8/20 μ s): 5 kA per phase
- Un (L-N/L-L): 230/400 V
- Monobloc DIN rail format, 3 modules (single phase) and 7 modules (3-phase)
- POP test button
- Models from 6 A to 63 A. Rated current of the MCB suitable for each installation rating
- Breaking capacity of the MCB: 6 kA.
- Prewired and compact



PART NUMBERS

1Ph+N

ORDERING CODE	PART NUMBER	No. DIN modules	Un [V]	POP	SPD type 2				MCB	
				Ua [V]	Uc [V]	I _{max} [kA]	I _n [kA]	U _p [kV]	I _n C curve [A]	Breaking capacity [kA]
77706512	V-CHECK 2MPT mini-10	3	230	> 275	275	15	5	≤ 1,2	10	6 *
77706513	V-CHECK 2MPT mini-16	3	230	> 275	275	15	5	≤ 1,2	16	6 *
77706514	V-CHECK 2MPT mini-20	3	230	> 275	275	15	5	≤ 1,2	20	6 *
77706515	V-CHECK 2MPT mini-25	3	230	> 275	275	15	5	≤ 1,2	25	6 *
77706516	V-CHECK 2MPT mini-32	3	230	> 275	275	15	5	≤ 1,2	32	6 *
77706517	V-CHECK 2MPT mini-40	3	230	> 275	275	15	5	≤ 1,2	40	6 *
77706518	V-CHECK 2MPT mini-50	3	230	> 275	275	15	5	≤ 1,2	50	6 *
77706519	V-CHECK 2MPT mini-63	3	230	> 275	275	15	5	≤ 1,2	63	6 *

Meets EN 50550 standard for POP

*In accordance with EN 60898-1

Compact POP+SPD | V-CHECK MPT mini

3Ph+N

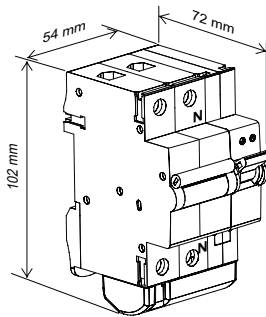
ORDERING CODE	PART NUMBER	No. DIN modules	Un [V]	POP	SPD type 2				MCB	
				Ua [V]	Uc [V]	I _{max} [kA]	I _n [kA]	U _p [kV]	In C curve [A]	Breaking capacity [kA]
77706522	V-CHECK 4MPT mini-10	7	230/400	> 275	275	15	5	≤ 1,5	10	6 *
77706523	V-CHECK 4MPT mini-16	7	230/400	> 275	275	15	5	≤ 1,5	16	6 *
77706524	V-CHECK 4MPT mini-20	7	230/400	> 275	275	15	5	≤ 1,5	20	6 *
77706525	V-CHECK 4MPT mini-25	7	230/400	> 275	275	15	5	≤ 1,5	25	6 *
77706526	V-CHECK 4MPT mini-32	7	230/400	> 275	275	15	5	≤ 1,5	32	6 *
77706527	V-CHECK 4MPT mini-40	7	230/400	> 275	275	15	5	≤ 1,5	40	6 *
77706528	V-CHECK 4MPT mini-50	7	230/400	> 275	275	15	5	≤ 1,5	50	6 *
77706529	V-CHECK 4MPT mini-63	7	230/400	> 275	275	15	5	≤ 1,5	63	6 *

Meets the EN 50550 standard for POP

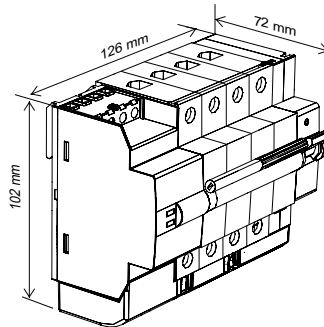
*In accordance with EN 60898-1

DIMENSIONS

1Ph+N

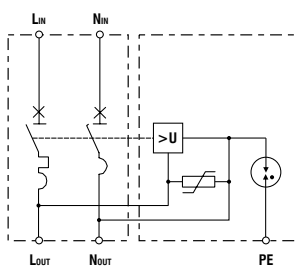


3Ph+N

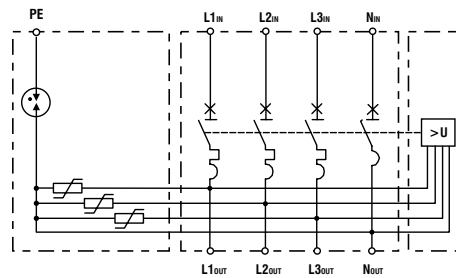


ELECTRICAL DIAGRAMS

1Ph+N



3Ph+N



POP+SPD devices with automatic reclosure

V-CHECK MR

V-CHECK MR is the range of combined surge and power frequency overvoltage protection devices (SPD+POP), complete with automatic reclosing MCB, Type 2/Class II, 20 kA (8/20 μ s) for 230V, single phase (1Ph+N) and 3-phase (3Ph+N) models.

Automatic reconnection makes it suitable for protection panels in systems requiring continuity of service and for second homes.

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 20 kA per phase
- Nominal discharge current (8/20 μ s): 5 kA per phase
- Un (L-N/L-L): 230/400 V
- Monobloc DIN rail format, 5 modules (single phase) and 9 modules (3-phase)
- POP test button
- Models from 6 A to 63 A. Rated current of the MCB suitable for each installation rating
- Breaking capacity of the MCB: 10 kA



PART NUMBERS

1Ph+N

ORDERING CODE	PART NUMBER	No. DIN modules	Un [V]	POP	SPD type 2				MCB	
				Ua [V]	Uc [V]	I _{max} [kA]	I _n [kA]	U _p [kV]	I _n C curve [A]	Breaking capacity [kA]
77706256	V-CHECK 2MR-6	5	230	> 275	400	20	5	≤ 1,8	6	10 *
77706257	V-CHECK 2MR-10	5	230	> 275	400	20	5	≤ 1,8	10	10 *
77706250	V-CHECK 2MR-25	5	230	> 275	400	20	5	≤ 1,8	25	10 *
77706255	V-CHECK 2MR-40	5	230	> 275	400	20	5	≤ 1,8	40	10 *

Meets the EN 50550 standard for POP

*In accordance with EN 60898-1

POP+SPD devices with reclosure | V-CHECK MR

3Ph+N

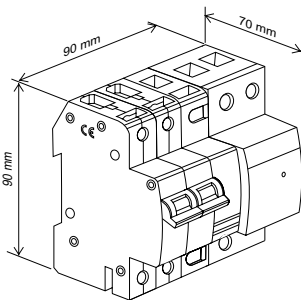
ORDERING CODE	PART NUMBER	No. DIN modules	Un [V]	POP	SPD type 2			MCB		
				Ua [V]	Uc [V]	I _{max} [kA]	I _n [kA]	U _p [kV]	In C Curve [A]	Breaking capacity [kA]
77706267	V-CHECK 4MR-10	9	230/400	> 275	400	20	5	≤ 1,5	10	10 *
77706268	V-CHECK 4MR-16	9	230/400	> 275	400	20	5	≤ 1,5	16	10 *
77706266	V-CHECK 4MR-20	9	230/400	> 275	400	20	5	≤ 1,5	20	10 *
77706261	V-CHECK 4MR-25	9	230/400	> 275	400	20	5	≤ 1,5	25	10 *
77706262	V-CHECK 4MR-32	9	230/400	> 275	400	20	5	≤ 1,5	32	10 *
77706263	V-CHECK 4MR-40	9	230/400	> 275	400	20	5	≤ 1,5	40	10 *
77706264	V-CHECK 4MR-50	9	230/400	> 275	400	20	5	≤ 1,5	50	10 *
77706265	V-CHECK 4MR-63	9	230/400	> 275	400	20	5	≤ 1,5	63	10 *

Meets the EN 50550 standard for POP

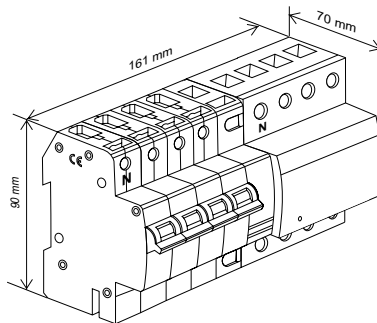
*In accordance with EN 60898-1

DIMENSIONS

1Ph+N

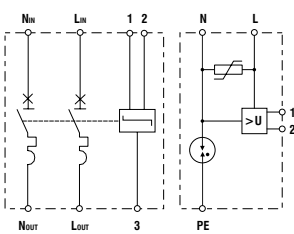


3Ph+N

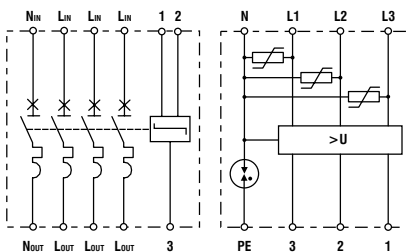


ELECTRICAL DIAGRAMS

1Ph+N



3Ph+N



POP prewired devices

V-CHECK MP

V-CHECK MP is the range of power frequency overvoltage protection devices (POP), complete with MCB, 230V, single phase (1Ph+N) and 3-phase (3Ph+N) models.

Equipment prewired for fast, safe installation. It is recommended to complement this with Type 2 surge protection (see PSM range).

RATINGS AND FEATURES

- Un (L-N/L-L): 230/400 V
- Monobloc DIN rail format, 3 modules (single phase) and 7 modules (3-phase)
- Models from 6 A to 63 A. Rated current of the MCB suitable for each installation rating
- Breaking capacity of the MCB: 6 kA
- Prewired



PART NUMBERS

1Ph+N

ORDERING CODE	PART NUMBER	No. DIN modules	Un [V]	POP	MCB	
				Ua [V]	In C curve [A]	Breaking capacity [kA]
77706361	V-CHECK 2MP-6	3	230	> 275	6	6 *
77706362	V-CHECK 2MP-10	3	230	> 275	10	6 *
77706363	V-CHECK 2MP-16	3	230	> 275	16	6 *
77706364	V-CHECK 2MP-20	3	230	> 275	20	6 *
77706365	V-CHECK 2MP-25	3	230	> 275	25	6 *
77706366	V-CHECK 2MP-32	3	230	> 275	32	6 *
77706367	V-CHECK 2MP-40	3	230	> 275	40	6 *
77706368	V-CHECK 2MP-50	3	230	> 275	50	6 *
77706369	V-CHECK 2MP-63	3	230	> 275	63	6 *

Meets the EN 50550 standard for POP

*In accordance with EN 60898-1

POP prewired devices | V-CHECK MP

3Ph+N

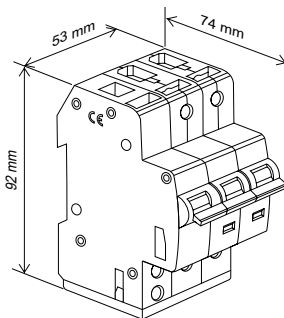
ORDERING CODE	PART NUMBER	No. DIN modules	Un [V]	POP	MCB	
				Ua [V]	In C curve [A]	Breaking capacity [kA]
77706371	V-CHECK 4MP-6	7	230/400	> 275	6	6 *
77706372	V-CHECK 4MP-10	7	230/400	> 275	10	6 *
77706373	V-CHECK 4MP-16	7	230/400	> 275	16	6 *
77706374	V-CHECK 4MP-20	7	230/400	> 275	20	6 *
77706375	V-CHECK 4MP-25	7	230/400	> 275	25	6 *
77706376	V-CHECK 4MP-32	7	230/400	> 275	32	6 *
77706377	V-CHECK 4MP-40	7	230/400	> 275	40	6 *
77706378	V-CHECK 4MP-50	7	230/400	> 275	50	6 *
77706379	V-CHECK 4MP-63	7	230/400	> 275	63	6 *

Meets the EN 50550 standard for POP

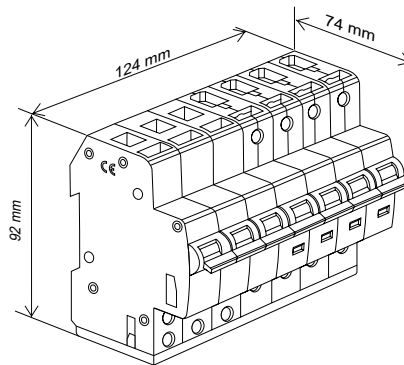
*In accordance with EN 60898-1

DIMENSIONS

1Ph+N

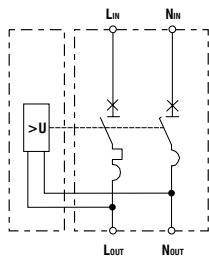


3Ph+N

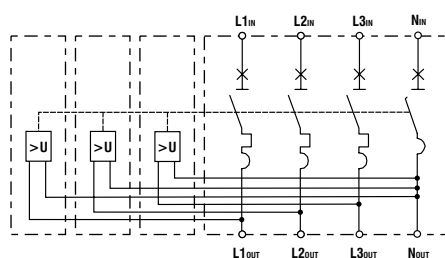


ELECTRICAL DIAGRAMS

1Ph+N



3Ph+N



EASY TO INSTALL

Products designed for installation on DIN rail or free-standing or in-line, and with cable terminals or the corresponding connectors depending on the characteristics of the application.

SLIM

Suitable for very restricted spaces. Suitable for protecting several analogue/digital inputs by placing multiple protectors in parallel.

VERY FINE PROTECTION

Extremely low residual voltage values for effective protection of particularly sensitive electronic equipment.



END-OF-LIFE INDICATION

Installation in series for protector end-of-life indication through line disconnection.

WIDE VARIETY OF PROTOCOLS AND APPLICATIONS

Wide range of solutions for different communications protocols: ADSL, Ethernet CAT6 (PoE), KNX, 4-20 mA, RS232, RS485, CCTV, etc.

Surge protection devices

TELECOM AND SIGNALLING NETWORKS

Selection Guide

TELECOM AND SIGNALLING NETWORKS

TRANSIENT OVERVOLTAGES (ACCORDING TO IEC STANDARD 61643-21)

APPLICATION	SIGNAL TYPE	PROTECTOR FORMAT	CPT MODEL	CPT PROTECTOR
DATA NETWORKS	Ethernet Cat. 5 E	1 Pole	NETPRO	 NETPRO 100 BT Page 53 NETPRO CG-1P M Page 53 NETPRO CG-24P (CAT6) Page 53
		Rack 18 Poles		
		Rack 24 Poles		
	Ethernet Cat. 6	1 Pole		
Rack 18 Poles				
Rack 24 Poles				
Power over Ethernet, POE	1 pole	NETPRO POE		
MEASUREMENT AND CONTROL	Modbus	DIN	DIN 6V	 DIN 12V-2C Page 54
	Profibus PA	DIN	DIN 24V	
		Sub-D 9	DB	
	RS 232	DIN	DIN 12V	 DB25-V24HS Page 55 DB9 12V/9HS Page 55
			Sub-D	
	RS 485 / 422	DIN	DIN 485	 DIN 24V-2G2 Page 55
	4-20 mA	DIN	DIN 24V-2G2	
	Binary signals	DIN	DIN 12V	 DIN 485-3 Page 55 DIN 12V-8 Page 54 BNV 30 Page 55
			DIN 24V	
			BNV 30	
Device Net	DIN	DIN 6V		
Temperature probe (PTC)				
TELEPHONE LINES	ADSL Telephony	DIN	DIN-ADSL	 DIN ADSL Page 56 MCH-ADSL Page 56 KPL1 Page 56
		Krone	KPL1	
		Aerial	MCH	
	ISDN Telephony	Aerial		
PP Telephony	Aerial	DIN-PP		
	DIN			
RADIO FREQUENCY	Coaxial signal antennas	Coaxial	CT 10	 NW TV TNC N BNC UHF F CCTV
	CCTV	Coaxial	CT 05	

Data network (Ethernet)

NETPRO

NETPRO is the range of surge protection devices for equipment connected to data networks. Depending on the structure of the network in which they are used, they are classified by Ethernet categories into Cat. 5E, Cat. 6 and Cat. 6 and with Power over Ethernet (using two pairs for communications and two for power supply). Available in versions for 18 or 24 position rack mounting.

These are protectors for a final step of very fine protection to be installed as close as possible to particularly sensitive equipment connected to these communications lines. Meets the IEC 61643-21 standard.

RATINGS AND FEATURES

- Rated discharge current C1 (8/20 µs): 250 A
- Uc: 6 V (55 V PoE)
- Bandwidth of 100 MHz Cat. 5E, 250 MHz Cat. 6
- RJ45 format and in multiple RJ45 rack
- Installation in series with the communications line
- End-of-life indication by communications line interruption
- Rated 100 mA line current (1A PoE)

IN

250 A

TECH INFO
↓
cirprotec.com/NETPRO

Standards

- IEC/EN 61643-21
- CE

IEC CE

PART NUMBERS

CATEGORY 5E

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	In C1 [kA]	IL [A]	Up@In [V]	Bandwidth [MHz]
77811900	NETPRO 100 BT	RJ45	4 PAIR	6	5	0,25	0,1	35	100
77811940*	NETPRO CG-24P (CAT.5.E) DIN	RJ45	24X4 PAIR	6	5	0,25	0,1	35	100

CATEGORY 6

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	In C1 [kA]	IL [A]	Up@In [V]	Bandwidth [MHz]
77811930	NETPRO CG-1P	RJ45	4 PAIR	6	5	0,25	0,1	35	250
77811945	NETPRO CG-1P M	RJ45	4 PAIR	6	5	0,25	0,1	35	250
77811933*	NETPRO CG18P (CAT.6)	RJ45	18X4 PAIR	6	5	0,25	0,1	35	250
77811935*	NETPRO CG-24P (CAT.6)	RJ45	24X4 PAIR	6	5	0,25	0,1	35	250

CATEGORY 6 POE

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	In C1 [kA]	IL [A]	Up@In [V]	Bandwidth [MHz]
77811934*	NETPRO 1P POE (CAT.6) DIN	RJ45	4 PAIR	6/55 POE	5/48 POE	0,25	0,1/1 POE	35/130	250
77811936	NETPRO CG-24P POE (CAT.6)	RJ45	24X4 PAIR	6/55 POE	5/48 POE	0,25	0,1/1 POE	35/130	250

*DIN: DIN Rail Installation

Measurement and control

DIN | BNV | DB

DIN | BNV | DB are three ranges of surge protection devices for equipment connected to measurement and control networks. They cover a wide variety of applications in communications signals, such as RS232, RS485, 4-20 mA, Binary, KNX, PTC or Modbus. The ranges offer a number of formats, voltages and numbers of lines protected and are designed especially for such applications.

These are protectors for a final step of very fine protection to be installed as close as possible to particularly sensitive equipment connected to these communications lines. Meets the IEC 61643-21 standard.

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 0,5 to 10 kA
- Rated discharge current C2 (8/20 μ s): 0,5 to 5 kA
- Uc: 7 V to 180 V
- Bandwidth from 0,5 to 12 MHz
- Formats: DIN rail, free-standing DB9-25, terminal block
- Installation in series with the communications line
- End-of-life indication by communications line interruption
- Rated line current 0,1 to 0,5 A

Imax

up to

10 kA

TECH INFO

cirprotec.com/MYC

Standards

- IEC/EN 61643-21
- UL 497B, File No. 496110
- CE

PART NUMBERS

DIN V RANGE

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	Imax [kA]	In C2 [kA]	IL [A]	Up@In [V]	Bandwidth [MHz]
77840710	DIN 12V-3	DIN RAIL	2+GND	16	12	10	5	0,1	≤45 (L-PE) / 27(L-GND)	3
77840721	DIN 12V-5N	DIN RAIL	4+GND	16	12	10	5	0,1	≤45 (L-PE) / 27(L-GND)	0,5
77840735	DIN 12V-8	DIN RAIL	7+GND	16	12	10	5	0,2	≤45 (L-PE) / 27(L-GND)	3
77840760	DIN 24V-3	DIN RAIL	2+GND	30	24	10	5	0,1	≤90 (L-PE) / 45(L-GND)	3
77840771	DIN 24V-5N	DIN RAIL	4+GND	30	24	10	5	0,1	≤90 (L-PE) / 45(L-GND)	0,5
77840785	DIN 24V-8	DIN RAIL	7+GND	30	24	10	5	0,2	≤90 (L-PE) / 45(L-GND)	3

DIN V-2C RANGE

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	Imax [kA]	In C2 [kA]	IL [A]	Up@In [V]	Bandwidth [MHz]
77840905	DIN 6V-2C	DIN RAIL	1 PAIR	7	6	10	5	0,1	≤10	1
77840910	DIN 12V-2C	DIN RAIL	1 PAIR	16	12	10	5	0,1	≤20	1,2
77840915	DIN 24V-2C	DIN RAIL	1 PAIR	27	24	10	5	0,1	≤40	4
77840920	DIN 48V-2C	DIN RAIL	1 PAIR	56	48	10	5	0,1	≤70	5
77840925	DIN 150V-2C	DIN RAIL	1 PAIR	180	150	10	5	0,1	≤200	5

Measurement and control



DIN V-G RANGE

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	I _{max} [kA]	In C2 [kA]	I _L [A]	Up@In [V]	Bandwidth [MHz]
77840905	DIN 24V-4G1	TERMINAL BLOCK	4	30	24	10	5	0,5	≤60(L-PE) / 120(L-L)	2
77840910	DIN 24V-2G2	TERMINAL BLOCK	2 PAIR	30	24	10	5	0,5	≤900 (L-PE) / 60(L-L)	2



BNV RANGE

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	I _{max} [kA]	In C2 [kA]	I _L [A]	Up@In [V]	Bandwidth [MHz]
77850655	BNV 30	TERMINAL BLOCK	2	30	24	5	5	0,3	≤45	3
77850660	BNV 110	TERMINAL BLOCK	2	130	110	5	5	0,3	≤260	3
77850670	BNV 30 2M-1PE	TERMINAL BLOCK	2	30	24	5	5	0,1	≤50 (L-L) / ≤950 (L-PE)	3
77850680	BNV 30 3M-1PE	TERMINAL BLOCK	2	30	24	5	5	0,35	≤40 (L-L) / ≤600 (L-PE)	3
77850682	BNV 30 3M- 3PE	TERMINAL BLOCK	2	30	24	5	5	0,3	≤80 (L-L) / ≤40 (L-PE)	3
77850690	TAPA BNV 30/110	TERMINAL BLOCK	2	-	-	-	-	-	-	-



DIN 485 RANGE

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	I _{max} [kA]	In C2 [kA]	I _L [A]	Up@In [V]	Bandwidth [MHz]
77840805	DIN 485-2C	DIN RAIL	1 PAIR	16	12	10	5	0,1	≤20	1,2
77840810	DIN 485-3	DIN RAIL	1 PAIR + GND	16	12	10	5	0,1	≤45 (L-PE) / 27(L-L)	3
77840816	DIN 485-5 N	DIN RAIL	2 PAIR + GND	16	12	10	5	0,1	≤45 (L-PE) / 27(L-L)	0,5
77840813	DIN 485-3 NI	DIN RAIL	1 PAIR + GND	15	12	10	5	0,25	≤45 (L-L) / 400(L-PE)	10



DB RANGE

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	I _{max} [kA]	In C2 [kA]	I _L [A]	Up@In [V]	Bandwidth [MHz]
77820135	DB25-232/8HS	DB	7+GND	16	12	0,5	0,5	0,5	≤100 (L-PE) / 25(L-GND)	2
77820140	DB25-12V/25HS	DB	23+GND	16	12	0,5	0,5	0,5	≤100 (L-PE) / 25(L-GND)	2
77820145	DB9-12V/9HS	DB	7+GND	16	12	0,5	0,5	0,5	≤500 (L-PE) / 25(L-GND)	2
77820153	DB9-PFB/2HS	DB	2+GND	6	5	5	2	0,5	≤20 (L-PE) / 50(L-GND)	12
77820160	DB25-V24HS	DB	17+GND	16	12	0,5	0,5	0,5	≤100 (L-PE) / 25(L-GND)	2
77820800	DB15-12V/15HS	DB	14+GND	16	12	0,5	0,5	0,5	≤100 (L-PE) / 25(L-GND)	2

Telephone lines

DIN | MCH | KPL

DIN | MCH | KPL are three ranges of surge protection devices for equipment connected to telephone lines. They are classified by format, depending on the application, into free-standing (in-line) on RJ12 cable, DIN rail, and Krone power strips. There are protectors for different protocols – ADSL, ISDN or PP – in turn within these categories.

These are protectors for a final step of very fine protection to be installed as close as possible to particularly sensitive equipment connected to these communications lines. Meets the IEC 61643-21 standard.

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 2,4 to 10 kA
- Rated discharge current C2 (8/20 μ s): 1 to 5 kA
- Uc: 7 V (PP), 18/56 V (ISDN), 180 V (ADSL)
- Bandwidth up to 3 MHz
- Formats: DIN rail, free-standing (in-line) RJ12, Krone
- Installation in series with the communications line
- End-of-life indication by communications line interruption
- Rated 100 mA line current

Imax  
up to
10 kA

TECH INFO
↓
cirprotec.com/TEL

Standards

- IEC/EN 61643-21
- CE

IEC CE

PART NUMBERS

DIN RANGE

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	Imax [kA]	In C2 [kA]	IL [A]	Up@In [V]	Bandwidth [MHz]
77840115	DIN-ADSL	DIN RAIL	1 PAIR	180	50	10	5	0,1	≤200	3
77840120	DIN-PP	DIN RAIL	1 PAIR	7	5	10	5	0,1	≤10/20	1

MCH RANGE

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	Imax [kA]	In C2 [kA]	IL [A]	Up@In [V]	Bandwidth [MHz]
77834010	MCH-RDSI	RJ12	2 PAIR	18/56	12/48	10	5	0,1	≤25/75	2
77834020	MCH-ADSL	RJ12	1 PAIR	180	50	10	5	0,1	≤200	3
77834025	MCH-PP	RJ12	1 PAIR	7	5	10	5	0,1	≤10/20	1

KPL RANGE

ORDERING CODE	PART NUMBER	Format	No. protected wires	Uc [V]	Un [V]	Imax [kA]	In C2 [kA]	IL [A]	Up@In [V]	Bandwidth [MHz]
77830070	KPL1 CG	KRONE	1 PAIR	110	180	15	5	0,1	≤350	3
77830080	KPL1 SG	KRONE	1 PAIR	110	180	2,4	1	0,1	≤575	3

Radio frequency (Coaxial)

CT

The **CT** range of RF surge protection devices is used to protect equipment connected to coaxial cable lines. There are several different compatible products, depending on the type of cable and connector.

These are protectors for a final step of very fine protection to be installed as close as possible to particularly sensitive equipment connected to these communications lines. Meets the IEC 61643-21 standard.

RATINGS AND FEATURES

- Maximum discharge current (8/20 μ s): 2 to 20 kA
- Rated discharge current C2 (8/20 μ s): 1,5 to 10 kA
- Uc: 24 V to 230 V
- Bandwidth up to 3 MHz
- Suitable for BNC, TNC, N, F, TV and UHF connectors
- Installation in series with the communications line
- End-of-life indication by communications line interruption
- Permissible power of 100 to 150 W

Imax

20 kA

TECH INFO

cirprotec.com/COAX

Standards

- IEC/EN 61643-21
- CE

PART NUMBERS



ORDERING CODE	PART NUMBER	Connector	Uc [V]	Imax [kA]	In C2 [kA]	Power [W]	Impedance [Ω]	Up@In [V]	Bandwidth [MHz]
77801671	CT 05 CCTV	BNC(m)-BNC(h)	24	2	1,5	100	75	45	10
77801680	CT 10 TNC	TNC(m)-TNC(h)	120	20	10	100	50	600	3000
77801650	CT 10 N	N(m)-N(h)	230	20	10	100	50	600	3000
77801655	CT 10 BNC	BNC(m)-BNC(h)	230	20	10	100	50	600	3000
77801660	CT 10 F	F(m)-F(h)	230	20	10	100	75	600	2500
77801665	CT 10 TV	TV(m)-TV(h)	230	20	10	100	75	600	1000
77801685	CT 10 NW	N(h)-N(h)	230	20	10	150	50	600	3000
77801690	CT 10 UHF	UHF(m)-UHF(h)	230	20	10	150	50	600	3000

MONITORING THE GROUNDING SYSTEM FROM WITHIN THE SURGE PROTECTION DEVICE ITSELF

The only surge protection device on the market that tells you when it is properly installed, avoiding risks due to electrical wiring errors and/or poor ground connection.

PROGRAMMABLE

Allows for adjustment of alarm and action thresholds in terms of resistance values (grounding system / isolation).



24X7

Provides maximum continuity of service, making it ideal for 24x7 facilities at remote locations. Continuous network monitoring and control.

GROUNDING SYSTEM MONITORING

Devices for monitoring facility ground connection status.

Monitoring

Ground monitor inside protector (SPD)

SAFEGROUND®

For the protection to work properly, the correct status of the grounding system in an electrical installation is essential.

DID YOU KNOW that nobody knows what percentage of installed surge protection devices provide really good protection?

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.

THE PREMIUM SOLUTION FOR THE MOST DEMANDING INSTALLATIONS

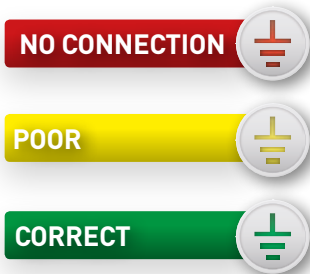
SAFEGROUND®'s simple information makes it the ideal ally for both unskilled personnel and maintenance professionals specialised in ground connections.

Helps avoid situations that might cause power cuts, repair costs, with the resultant damage to your brand image.

Provides additional information about the grounding system, with potential synergies for protection and safety in general, not just for surge protection.

GROUND STATUS INDICATOR

Continuous LED display of ground status.



SAFE GROUND® TECHNOLOGY

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

THE BEST SPD ON THE MARKET

SAFEGROUND® is the premium protection device in the Cirprotec PSM range, designed according to the most exacting standards. Intelligent protection.



WIRING SAFETY

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

SAFEGROUND®

MONITORING THE GROUNDING SYSTEM IN THE SURGE PROTECTION DEVICE ITSELF

CONFIRMATION OF PROPER INSTALLATION

Almost 25 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. Green for Go.

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. Green for Go.

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.



RATINGS AND FEATURES

- Patented SAFEGROUND® technology for loop impedance monitoring
- Checking of correct device wiring at installation time
- Continuous indication of the effectiveness of the protection offered
- Additional safety information in the event of indirect contacts
- Maximum discharge current (8/20 µs): 40 kA per phase
- Nominal discharge current (8/20 µs): 20 kA per phase
- TT and TNS networks
- Un (L-N/L-L): 230/400 V
- Plug-in DIN rail format
- Further information on page 29 of this catalogue or at www.cirprotec.com/safeground



cirprotec.com/SAFEGROUND

PART NUMBERS

ORDERING CODE	PART NUMBER	Network		Un [V]	Uc [V]	Imax (8/20) [kA]	In (8/20) [kA]	Up@In (8/20) [kV]
		SYSTEM TYPE	Electrical diagram					
77727756	PSM2-40/230 SG	1Ph+N	A	230	275	40	20	≤1,3
77727806	PSM4-40/400 SG	3Ph+N	B	230/400	275	40	20	≤1,3 (L-N) ≤1,5 (N-PE)

Consult Cirprotec for other models

Continuous grounding system monitor

G-CHECK®

G-CHECK® is a control device that continuously monitors the state of the ground connection:

- Ensures proper operation of surge protection devices (SPDs) that discharge energy through the facility ground connection.
- Provides additional safety information to avoid indirect contacts.
- Reduces preventive maintenance costs.

By the loop resistance calculation method, G-CHECK checks the impedance of the actual leakage path of an indirect contact, enabling it to **detect the following possible incidents**, both in the installation itself and in transformer centre to which it is connected:

- **Deterioration of the ground connection** due to ageing of the earth rods, due to theft or increased soil resistivity during dry periods.
- **Breakage or incorrect wiring of the neutral cable.**

RATINGS AND FEATURES

- The system of grounding measurement by loop impedance can be applied to the various neutral configurations: TT, TNS and TNC-S
- Un (L-N/L-L): 120/208 V, 230/400 V
- Monobloc DIN rail format
- Alarm function on the ground value (PE). Activates the output if it detects a value shown on the display exceeding a maximum preset by the user
- Consult www.cirprotec.com/g-check



cirprotec.com/G-CHECK

24x7

Grounding system monitoring

EASY TO INSTALL

Panel mounting

HELPS MAINTENANCE

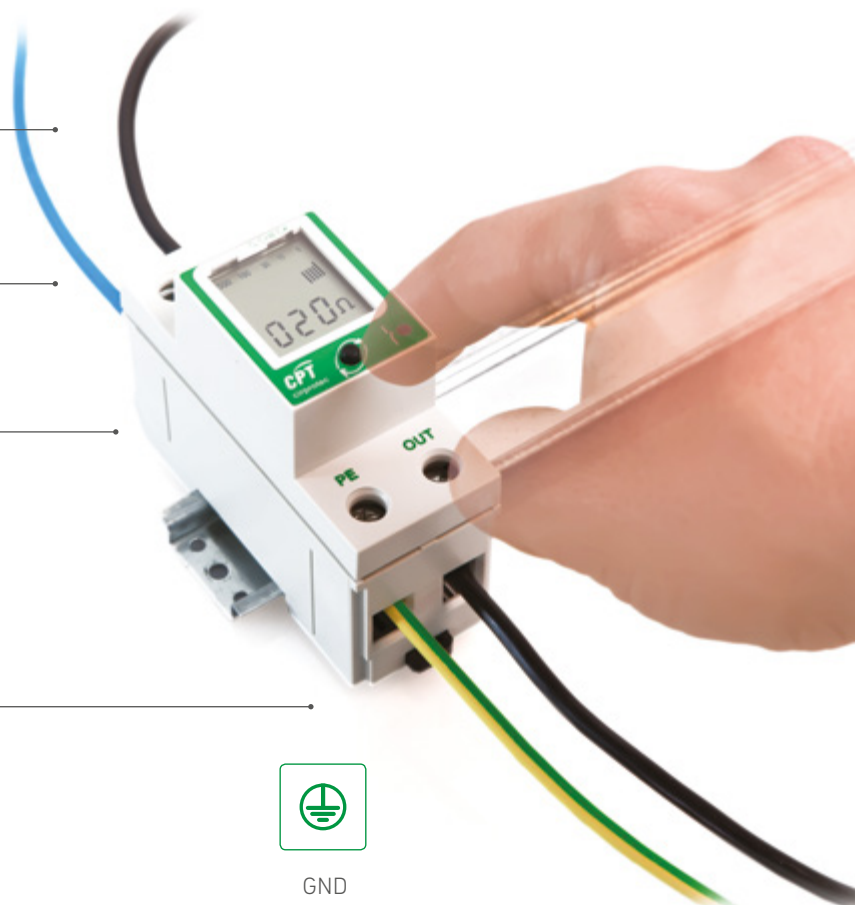
Complementary to regular grounding system maintenance

Real-time monitoring of grounding system condition

MONITORS

Cable theft / Soil resistivity


Cable breakage / poor connection



G-CHECK®

IMPORTANCE OF GROUNDING SYSTEMS

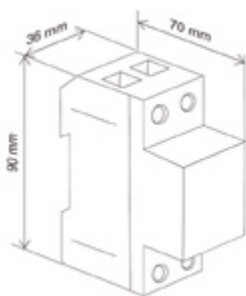
- Having proper grounding and checking it regularly is very important.
- A ground in proper condition avoids risk of death for people and destruction of property.
- A ground in proper condition ensures protection against voltage surges.



PART NUMBERS

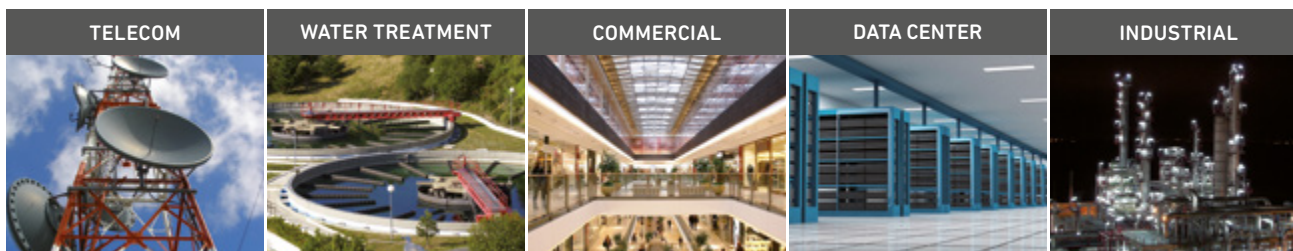
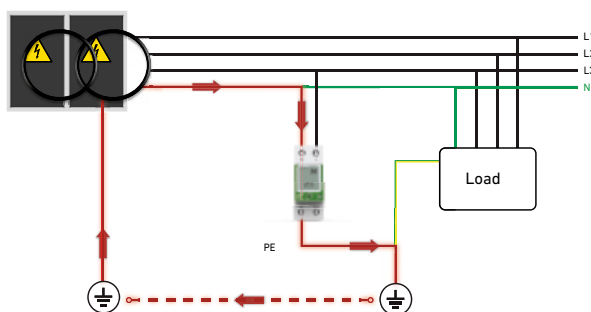
ORDERING CODE	PART NUMBER	Un [V]	Frequency [Hz]	Setting threshold	Output relay	Response time
77706550	G-CHECK 120V	120	50 / 60	1...500 Ω	1(OUT-N)	inst.
77706500	G-CHECK 230V	230	50 / 60	1...500 Ω	1(OUT-N)	inst.

DIMENSIONS



MEASUREMENT LOOP

Measurement loop or leakage current loop in TT systems.



Insulation monitor

ISO-CHECK

Isolated power supply networks guarantee maximum service continuity, because they are isolated from ground, an earth defect does not generate a dangerous current and so it can continue to work under these conditions. However, an earth fault is a situation to have under control and to rectify quickly to avoid major safety problems. This is performed using an insulation monitoring device.

ISO-CHECK is a device that continually checks the insulation resistance value between live conductors and ground for different applications:

- In alternating current for IT systems
- In the direct current part of fast chargers for electric vehicle (CHAdeMO protocol)
- In the direct current part of photovoltaic facilities in which both poles (positive and negative) are isolated from earth.

The insulation monitoring device is connected between any of the live conductors and earth by superimposing a measurement voltage between them. If an insulation defect occurs, the circuit is closed and a resistance measured, comparing this with the threshold set in the equipment.

RATINGS AND FEATURES

- There are solutions that are especially dedicated to certain applications: AC (IT), DC (Photovoltaic), DC (Electric vehicle)
- Un (L-N): 120V, 230V
- Activation threshold adjustable from 5 to 300 k Ω
- Alarm relay with volt-free contact
- Operation and alarm signalling LED
- Remote activation signal
- TEST buttons for fault simulation and remote signalling
- Consult: www.cirprotec.com/isocheck



cirprotec.com/ISOCHECK

24x7 —————→
Continuous insulation monitoring

ADJUSTABLE RESISTANCE THRESHOLD —————→
Manually adjustable activation value

VISUAL AND REMOTE SIGNALLING —————→
With remote signal and volt-free contact and operation and alarm LEDs



SPECIFIC SOLUTIONS FOR EVERY APPLICATION

- IT (AC)
- Photovoltaic (DC)
- Electric vehicle (DC)

ISO-CHECK

FOR IT INSTALLATIONS (AC)



ORDERING CODE	PART NUMBER	Nominal internal voltage	Auxiliary power supply voltage	Adjustment threshold	Output relay	Relay response
77706701	ISO-CHECK 120V	120-230 V AC	120-230 V AC	50...300 KΩ	1	inst.
77706700	ISO-CHECK 230V	230-380 V AC	230-380 V AC	50...300 KΩ	1	inst.

FOR PHOTOVOLTAIC INSTALLATIONS (DC)



ORDERING CODE	PART NUMBER	Nominal internal voltage	Auxiliary power supply voltage	Adjustment threshold	Output relay	Relay response time 1	Relay response time 2
77706703	ISO-CHECK PV 1000	500-1000 V DC	230 V AC	30...80 KΩ	2	inst.	1...10 s
77706704	ISO-CHECK PV 600	300-600 V DC	230 V AC	30...80 KΩ	2	inst.	1...10 s

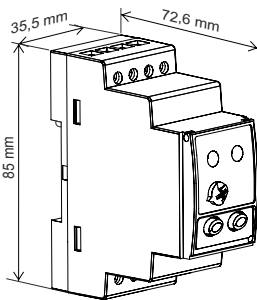
FOR ELECTRIC VEHICLE CHARGING FACILITIES (DC)



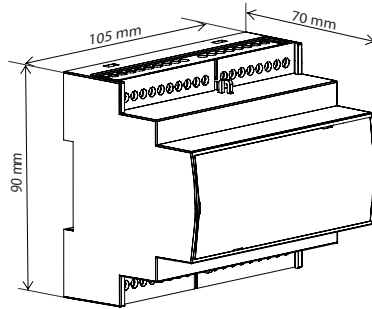
ORDERING CODE	PART NUMBER	Nominal internal voltage	Auxiliary power supply voltage	Adjustment threshold	Output relay	Relay response time 1	Relay response time 2
77706710	ISO-CHECK EV 500	50-500 V DC	230 V AC	40...80 KΩ	2	inst.	1...10 s

DIMENSIONS

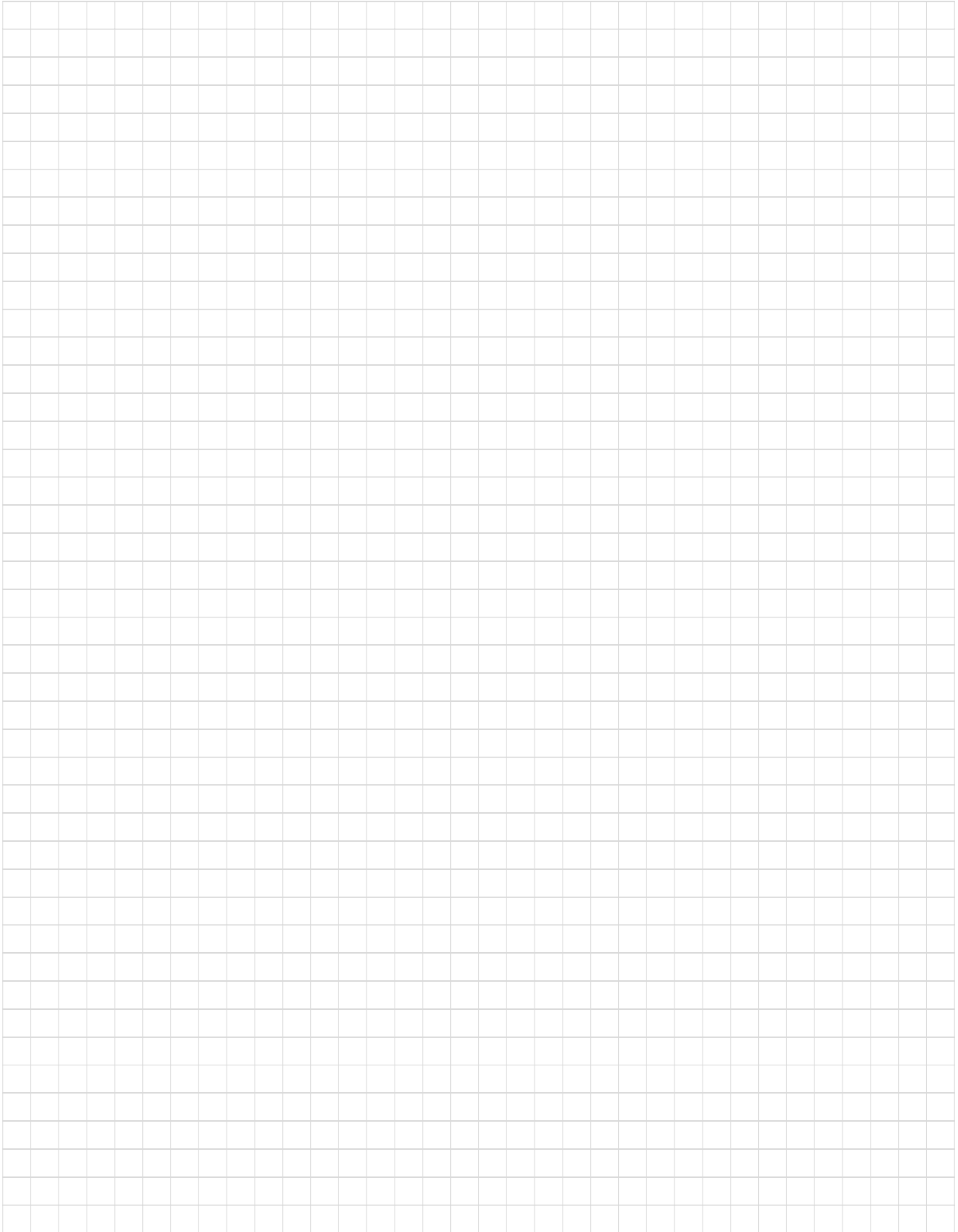
AC



Photovoltaic - Electric vehicle



NOTES







SPECIALISTS IN LIGHTNING
AND SURGE PROTECTION

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