

Cirprotec

CPS block & CPS nano

UL 1449 3rd Ed. Surge protective devices (SPD)



Transient voltage surge suppressors (TVSS)

Cirprotec, more than just protection



Cirprotec, specialists in lightning and surge protection.

Your protection partner.

Cirprotec is a pioneer in the design and manufacture of lightning, surge and overvoltage protection devices.

It has an extensive network of sales offices and is present in over 60 countries.

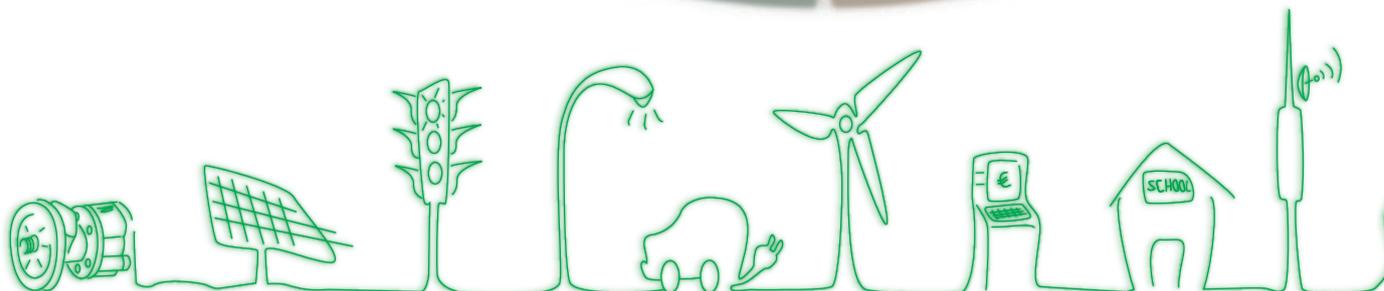
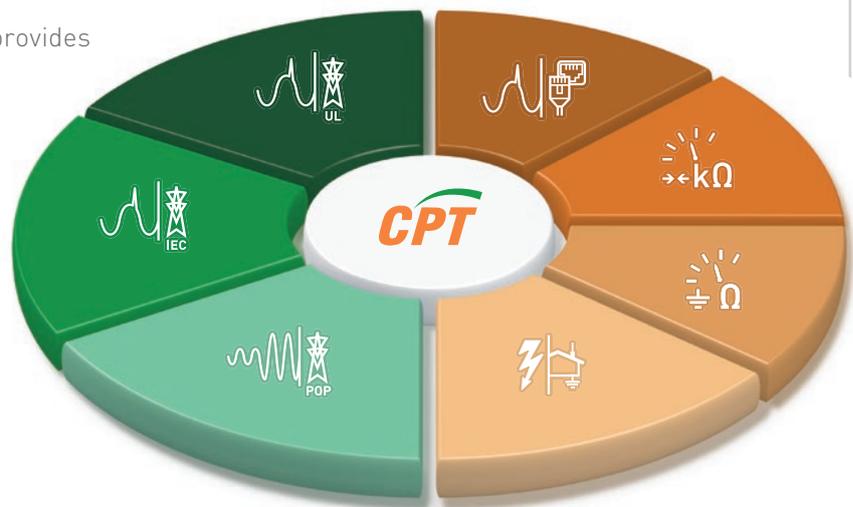
We have everything you need.

Total solution: protection, monitoring and safety.

Cirprotec offers a wide range of lightning and overvoltage protection solutions:

- Internal protection (transient and power frequency overvoltage protectors)
- External protection (ESE lightning rods and Faradization).
- Grounding system and insulation monitors.

It also develops one-off products, provides advice and consulting services and an excellent after sale service.

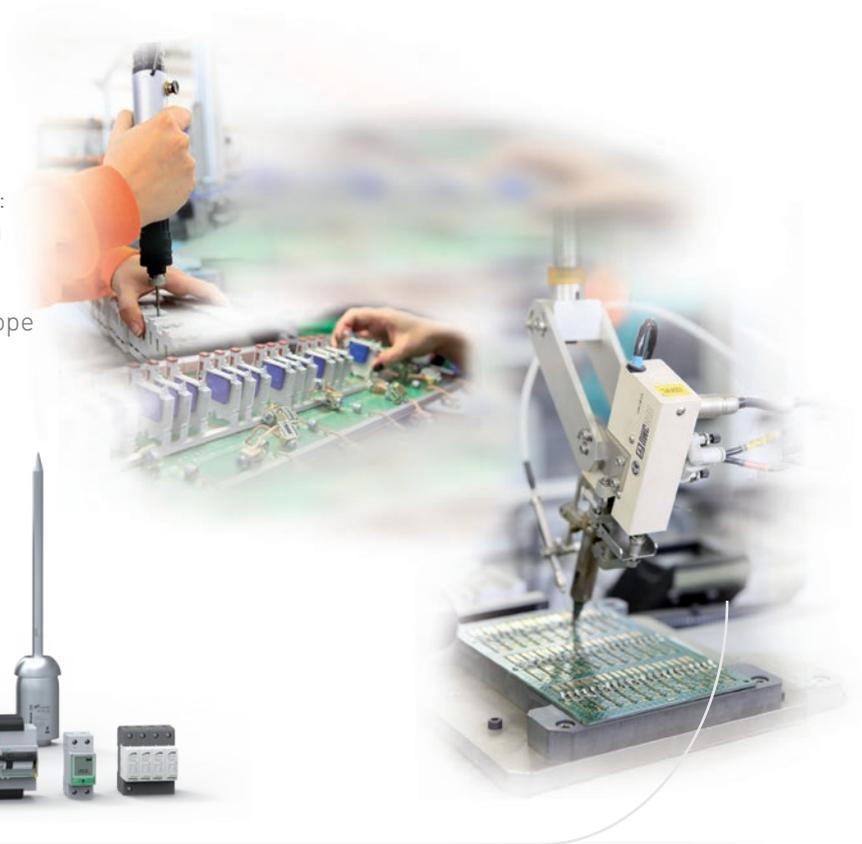


We are manufacturers.

Quality assurance.

Cirprotec answers for its products. This by controlling all stages of the process: we have a number of design, manufacturing and production centers and laboratories.

Designed and manufactured entirely in Europe in accordance with local and international standards such as IEC, UL, EN, IEEE, NFC, VDE, UNE always under the control of ISO 9001 and 14001 quality assurance.



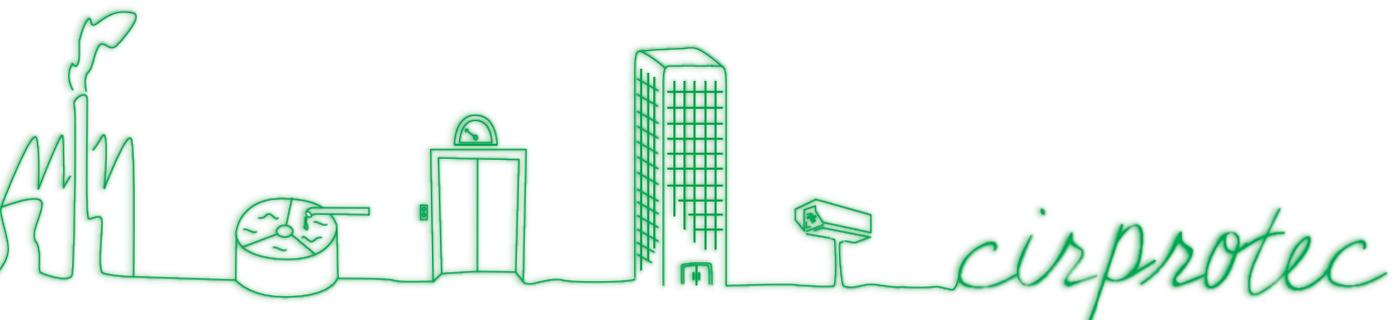
Serving energy efficiency.

Innovations for new applications.

Cirprotec is committed to innovation: A highly specialized team, test laboratories, high investment in R&D&i, international patents and presence on standards committees.

More efficient solutions to increase device service life and avoid excessive current consumption.

We innovate to provide protection to the new technology sectors, providing specific solutions for any type of application.





Why protect

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

This type of surge can have various different causes, including atmospheric lightning directly striking the external protection (lightning rod) on a building or transmission line or the associated induction of electromagnetic fields on metallic conductors.

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

Voltage surges are not exclusive to power distribution lines but are also common in any line made of metal conductors, such as telephone, communication, measurement and data lines.

The development of technology towards the miniaturization and generalization of electronics in equipment and devices raise the potential risk of surges. In some cases these destroy equipment immediately and in other cases they gradually deteriorate it, shortening its service life.

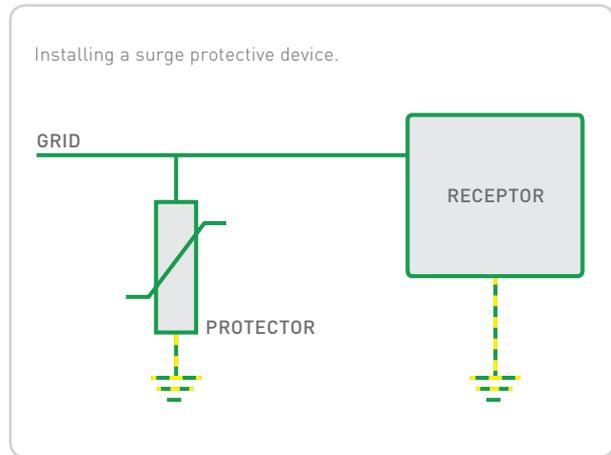
Overvoltage protection is a highly beneficial investment in terms of improvement of equipment life, continuity of service and savings on maintenance costs.



General operation and selection

How a protector works.

A surge protective device acts as a voltage-controlled selector switch and is installed between the active conductors and earth in parallel to the equipment to be protected. When the network voltage is lower than the activation voltage, the protector acts as a high-impedance element, so that no current passes through it. On the other hand, when the network voltage exceeds the activation voltage, the protector acts as a near-zero impedance element, deriving the surge to earth and preventing it affecting the receivers.



Selecting a protector.

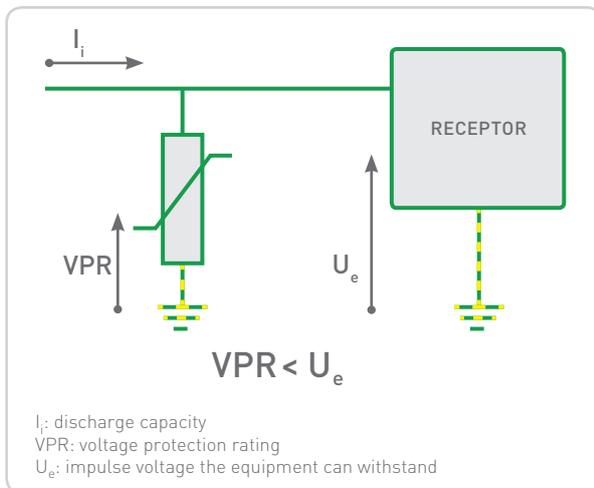
When selecting a surge protective device, the **electricity network's topology and nominal voltage rating** must be taken into consideration. As well as the protection polarity, these characteristics will condition the maximum service voltage and the safety margin, which must be higher than the nominal network voltage.

On the other hand, depending on the **installation's exposure to the effects of lightning and surges**, protection devices with different discharge capacities will be required.

Another point to take into consideration when selecting the protection device is its level of voltage protection rating, which must be lower than **the maximum voltage the equipment to be protected can withstand**.

Generally speaking, **the optimum protection system is the stepped or cascade system**, in which the actions of devices with high discharge capacity are combined in successive stages with devices with a low (good) voltage protection rating.

The different local and international standards classify protection devices into types or categories in accordance with their discharge capacity and voltage protection rating.



Protection parameters according to UL 1449 3rd Ed

I_{max}

MAXIMUM DISCHARGE CAPACITY

Maximum peak current, per phase, in 8/20 μ s wave that the protection device is able to withstand.

I_n

NOMINAL DISCHARGE CURRENT RATING

Peak current in 8/20 μ s wave that the protection device can withstand on 15 occasions without reaching the end of its service life.

VPR

VOLTAGE PROTECTION RATING

This indicates the maximum residual voltage between the terminals of the protection device during application of an I_n peak current.

MCOV

MAXIMUM CONTINUOUS OPERATING VOLTAGE

This indicates the maximum effective or direct current voltage that can be permanently applied to the terminals of the protection device.

TYPE

Type 1

Permanently connected SPDs intended for installation between the secondary of the service transformer and the line side of the service equipment (main panel) overcurrent device, as well as the load side, including watt-hour meter socket enclosures and intended to be installed without an external overcurrent protective device.

Type 2

Permanently connected SPDs intended for installation on the load side of the service equipment (main panel) overcurrent device; including SPDs located at the branch panel.

Type 3

Point of utilization SPDs, installed at a minimum conductor length of 10 meters (30 feet) from the electrical service panel to the point of utilization. For example cord connected, direct plug-in, receptacle type and SPDs installed at the utilization equipment being protected. The distance (10 meters) is exclusive of conductors provided with or used to attach SPDs.

Implementing the protection

Selecting an SPD depends on two factors: the location category, which differentiates the parts of the installation according to the type of transient pulses to which they are subjected, and the exposure rating, which classifies installations based on the isokeraunic activity of the geographical area in which they are located and of the severity of the switching transients to which they are subjected.

Location category

Location category C

Parts of the installation subject to transient pulses originating in the atmosphere and to transient pulses generated by switching on the power grid and nearby industries or by faults in the distribution system.

Location category B

Parts of the installation subject to externally generated transient pulses and to internally generated ring wave transients due to industrial engine and machinery switching.

Location category A

Parts of the installation mainly subject to "ring wave" type transients caused by switching industrial engines and machinery.

The location categories concept is a simplified way of describing the environmental conditions governing surges.

According to this, location category A corresponds to the parts of the installation furthest away from the service entrance. Location category C corresponds to the outside of the structure, extending a certain distance inside it. Location category B lies between C and A. Given that overvoltage propagation is a continuous phenomenon, the precise distinction categories at conceptually defined limits would be an arbitrary process. However, the categories concept acknowledges the existence of transitional bands or overlaps between each.

Exposure ratings

Low exposure

Installations located in geographical areas with low isokeraunic activity and/or with little condenser battery switching and other loads.

Medium exposure

Installations located in geographical areas with medium isokeraunic activity and/or with a significant number of transients generated by switching.

High exposure

Installations with an exposure rating higher than those described in the above categories. This may be due to high isokeraunic activity and/or an unusually high amount of transients generated by switching.

Cirprotec has a wide range of devices for surge protection (transient suppressor), in accordance with UL 1449 3rd ed. and IEC 61643-11.

The various **CPS block**, **CPS block Plus**, **CPS nano** and **CPS nano plus** ranges provide comprehensive protection for a wide range of networks and voltages. They are suitable for installation in main or secondary

distribution panels and for the specific protection of critical loads.

The CPS family is the result of Cirprotec's extensive experience in the design and manufacture of SPDs (transient suppressors). Here are some of its most distinctive features:

Intelligent Aging Display (IAD)[®]

Each protection module of the CPS block range is made up of a set of several varistors (MOV), based on the multiple discharge system principle (MDS).

The surges lead to progressive deterioration of the varistors. The diagnostic system of the CPS range is the IAD, a visual information system which shows the percentage residual protection by module (MOV). The IAD[®] system shows the percentage (%) of protection available in each mode (L-G, N-G, L-N), rather than each phase.

This makes it very easy, as well as efficient, to decide on the need to replace the protection module, (when the % protection is critical and

only by replacing the affected module instead of replacing the entire protection of one phase) .

The Intelligent Aging Display (IAD) is available on the CPS nano plus, block and block plus ranges.

Intelligent Aging Display (IAD)



100% protection



66% protection



33% protection

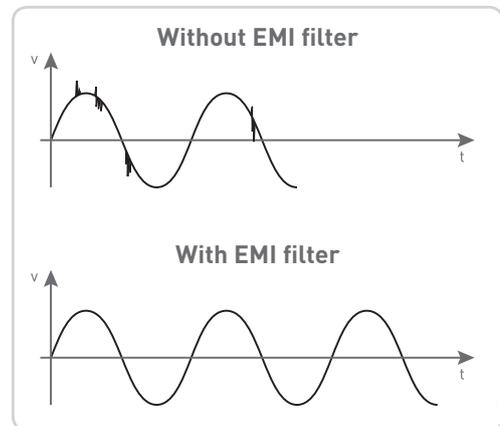


Replace SPD

EMI/RFI Filter

Electric currents are subject to many disturbances which generate noise in the signal. This noise may lead to some devices not functioning properly, so an EMI/RFI filter should be fitted. The filter is used for the suppression of variations in the form of electrical noise and low level transients. The CPS devices are thus featured with "sine-wave tracking".

The CPS nano plus, CPS block and CPS block plus range have a built-in EMI/RFI filter.



Discharge counter

How many voltage spikes has the installation withstood? Checking the protection device is just as important as the actual protection device. The discharge counter shows the number of surges discharged by the SPD. The meter uses energy induced by a current pulse shunted to earth to update the digit displayed.

The CPS block plus model has a built-in counter.

Power supply network configuration

For the selection and application of the best possible protection device, it is essential to know in which electrical network it will be installed connected, since each model is designed for a different earthing system.

These are the various configurations of the modules in the CPS family:

| Type of network | Grid diagram | Protection diagram | Voltage |
|--|--------------|--------------------|--|
| 1 Ph; 2 W + G Single-phase 3 conductors | | | 110 V / 120 V 220 V / 240 V |
| 1 Ph; 3 W + G Split-phase Single-phase or Edison 4 conductors | | | 120 V / 240 V |
| 3 Ph Y; 4 W + G 3 phase WYE 3 phases 5 conductors | | | 120 V / 208 V 277 V / 480 V |
| 3 Ph Δ; 4 W + G Highleg DELTA 3 phases 5 conductors | | | 120 V / 240 V |
| 3 Ph Δ; 3 W + G 3 phase DELTA 3 phases DELTA "under-grounded" 4 conductors | | | 240 V / 480 V |

CPS block & block plus



UL & IEC Duality

The CPS nano range brings together Cirprotec's experience of the principal international manufacturing and test standards for SPDs

MDS

Redundant Multi Discharge System varistor technology with individual disconnection of each MOV



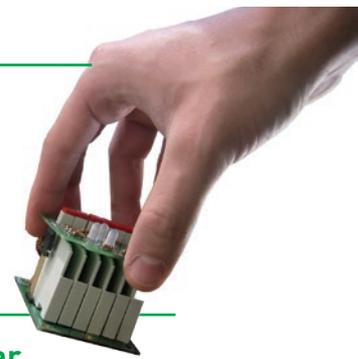
IAD®

The *intelligent aging display* (IAD®) provides visual information about the remaining percentage of protection available in each mode of the CPS block and CPS block plus (100%, 66%, 33%, 0% each mode).



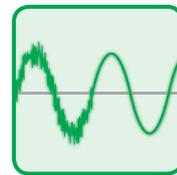
Remote indication

The IR Remote indication provides an end-of-life signal via a double-throw relay.



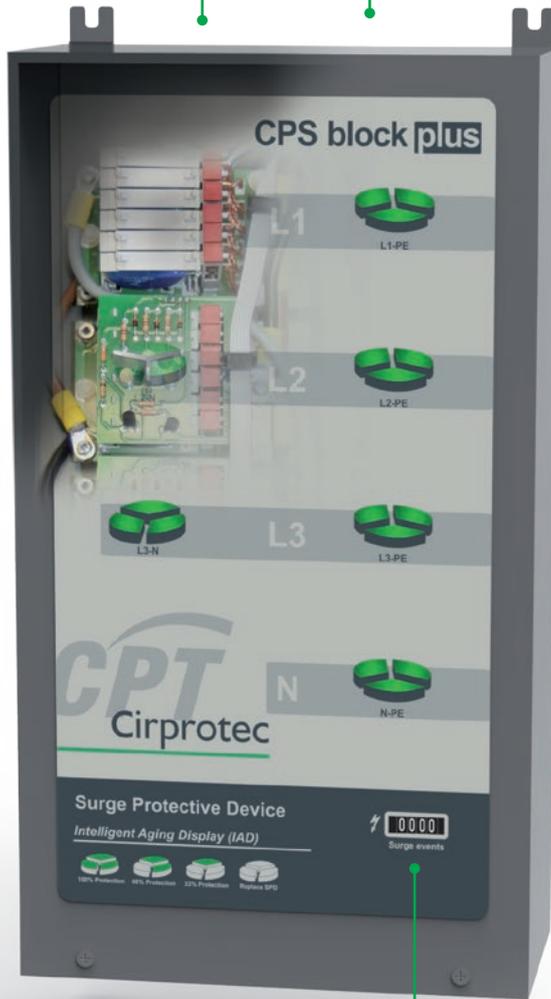
Modular

Each protection mode can be individually replaced if it reaches end of life. This allows for efficient preventive maintenance.



EMI / RFI Filter

All models include an electromagnetic filter for network noise.



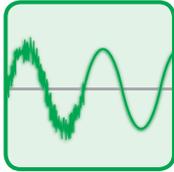
Surge counter

CPS block plus includes a surge event counter which displays the number of arrested voltage peaks.



UL & IEC Duality

The CPS nano range brings together Cirprotect's experience of the principal international manufacturing and test standards for SPDs



EMI / RFI Filter

All models include an electromagnetic filter for network noise.



IAD®

The *intelligent aging display* (IAD®) provides visual information about the percentage of protection available from CPS nano plus (100%, 50% early alert, 0%)



MDS

Redundant Multi Discharge System varistor technology with individual disconnection of each MOV



Nema 4

Both models are highly watertight (Nema 4 / IP66)



Remote indication

The IR Remote indication provides an end-of-life signal via a double-throw relay.

CPS nano

Non-modular Surge Protective Device (SPD) designed according to standards UL 1449 3rd ed. and IEC 61643-11 for installation in main panels or distribution panels and for the specific protection of critical loads.

Compact and easy to install, the CPS nano provides comprehensive protection for a wide range of networks and voltages.



Features

- Type 2, “Permanently connected” SPDs intended for installation on the load side of the service equipment (main panel) overcurrent device; including SPDs located at the branch panel.
- Maximum 8/20 discharge capacity (I_{max}) from 40 to 120 kA per phase.
- Nominal 8/20 discharge current rating (I_n) from 10 to 20 kA per phase.
- Redundant *Multi Discharge* System varistor technology with individual disconnection of each MOV.
- Common and differential mode protection.
- Voltage presence LED.
- Status LED of the device.
- Nema 4.
- Remote indication of end of life.

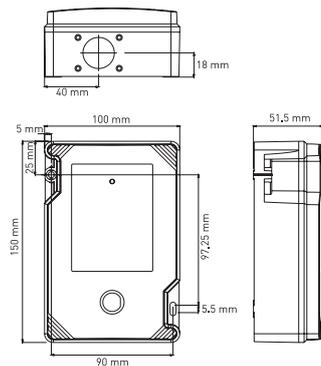


Specifications

| Models | | Split Phase | 1 Phase | | | 3 Phase WYE | | | 3 Phase Delta | | | High leg Delta |
|--|--|---|---------|------|---------|-------------|---------|------|---------------|------|---------|----------------|
| Classification according to UL 1449-3rd Edition | | Type 2 | | | | | | | | | | |
| Classification according to IEC 61643-11 | | Class II | | | | | | | | | | |
| Protection modes | | Common and differential mode protection | | | | | | | | | | |
| Nominal voltage rating AC 50-60 Hz | Un [V] | 120 | 120 | 230 | 120/208 | 230/400 | 277/480 | 240 | 400 | 480 | 120/240 | |
| Maximum continuous operating voltage AC 50-60 Hz | MCOV [V] | 175 | 175 | 320 | 175 | 320 | 385 | 275 | 420 | 510 | 175/320 | |
| Maximum discharge capacity per phase / Nominal discharge capacity per phase | I _{max} /phase [kA] I _n /phase [kA] | 40/10 | | | | | | | | | | |
| | | 60/10 | | | | | | | | | | |
| | | 80/10 | | | | | | | | | | |
| | | 120/20 | | | | | | | | | | |
| Voltage protection rating (L-N/L-G/N-G) | VPR [V] | 600 | 600 | 1000 | 600 | 1000 | 1200 | 900 | 1500 | 1800 | 600 | |
| Voltage protection rating (L-L) | | 1200 | ---- | ---- | 1200 | 2000 | 2400 | 900 | 1500 | 1800 | 1200 | |
| Voltage protection rating (L _{HL} -N/L _H -G) | | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 1000 | |
| Voltage protection rating (L _{HL} -L) | | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 1200 | |
| Maximum back-up fuse | [A gL] | 63 | | | | | | | | | | |
| Short-circuit current rating | SCCR [kA] | 100 | | | | | | | | | | |
| Response time | t _A [ns] | 1 | | | | | | | | | | |
| Multi-Discharge System (MDS) | | Yes | | | | | | | | | | |
| Dynamic thermal disconnection | | Yes | | | | | | | | | | |
| Remote indication (RI) | | Yes | | | | | | | | | | |
| Voltage LED | | Yes | | | | | | | | | | |
| Status indicator LED | | Yes | | | | | | | | | | |
| Enclosure type | | IP 66/NEMA 4 | | | | | | | | | | |
| Insulating material and class | | PC; V-0 | | | | | | | | | | |



Dimensions



Certification



Selection Guide

Code: **777976 Y Z**

| Y | I _{max} / phase |
|---|--------------------------|
| 1 | 40 kA |
| 2 | 60 kA |
| 3 | 80 kA |
| 4 | 120 kA |

| Z | Grid | V (L-N) |
|---|----------------|---------|
| 1 | 1 Phase | 120 V |
| 2 | 1 Phase | 230 V |
| 3 | Split Phase | 120 V |
| 4 | 3 Phase WYE | 120 V |
| 5 | 3 Phase WYE | 230 V |
| 6 | 3 Phase WYE | 277 V |
| 7 | 3 Phase Delta | 240 V |
| 8 | 3 Phase Delta | 400 V |
| 9 | 3 Phase Delta | 480 V |
| 0 | High leg Delta | 120 V |

CPS nano plus

Non-modular Surge Protective Device (SPD) designed according to standards UL 1449 3rd ed. and IEC 61643-11 for installation in main panels or distribution panels and for the specific protection of critical loads.

Compact and easy to install, the CPS nano plus provides comprehensive protection for a wide range of networks and voltages and incorporates several advanced functions previously only available on larger devices.



Features

- Type 2, "Permanently connected" SPDs intended for installation on the load side of the service equipment (main panel) overcurrent device; including SPDs located at the branch panel.
- Maximum 8/20 discharge capacity (I_{max}) from 40 to 160 kA per phase.
- Nominal 8/20 discharge current rating (I_n) from 10 to 20 kA per phase.
- Redundant *Multi Discharge* System varistor technology with individual disconnection of each MOV.
- Common and differential mode protection.
- EMI / RFI Filter.
- Intelligent aging display (IAD®): end-of-life early alert LED for the entire system (full protection, early alert, replace).
- Voltage presence LED.
- Nema 4.
- Remote indication of end of life.

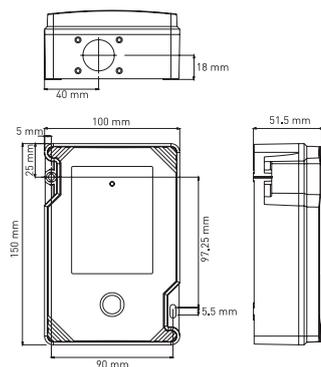


Specifications

| Models | | Split Phase | 1 Phase | 3 Phase WYE | | | 3 Phase Delta | | | High leg Delta | |
|--|--|---|---------|-------------|--------|---------|---------------|------|------|----------------|---------|
| Classification according to UL 1449-3rd Edition | | Type 2 | | | | | | | | | |
| Classification according to IEC 61643-11 | | Class II | | | | | | | | | |
| Protection modes | | Common and differential mode protection | | | | | | | | | |
| Nominal voltage rating AC 50-60 Hz | U_n [V] | 120 | 120 | 230/1 | 20/208 | 230/400 | 277/480 | 240 | 400 | 480 | 120/240 |
| Maximum continuous operating voltage AC 50-60 Hz | MCOV [V] | 175 | 175 | 320 | 175 | 320 | 385 | 275 | 420 | 510 | 175/320 |
| Maximum discharge capacity per phase / Nominal discharge capacity per phase | I_{max} /phase [kA] / I_n /phase [kA] | 40/10 | | | | | | | | | |
| | | 60/10 | | | | | | | | | |
| | | 80/10 | | | | | | | | | |
| | | 120/20 | | | | | | | | | |
| | | 160/20 | | | | | | | | | |
| Voltage protection rating (L-N/L-GN-G) | VPR [V] | 600 | 600 | 1000 | 600 | 1000 | 1200 | 900 | 1500 | 1800 | 600 |
| Voltage protection rating (L-L) | | 1200 | ---- | ---- | 1200 | 2000 | 2400 | 900 | 1500 | 1800 | 1200 |
| Voltage protection rating (L_{HL} -N/ L_{HL} -G) | | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 1000 |
| Voltage protection rating (L_{HL} -L) | | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 1200 |
| Maximum back-up fuse | [A gL] | 63 | | | | | | | | | |
| Short-circuit current rating | SCCR [kA] | 100 | | | | | | | | | |
| Response time | t_x [ns] | 1 | | | | | | | | | |
| Multi-Discharge System (MDS) | | Yes | | | | | | | | | |
| Dynamic thermal disconnection | | Yes | | | | | | | | | |
| Remote indication (RI) | | Yes | | | | | | | | | |
| Voltage LED | | Yes | | | | | | | | | |
| Status indicator LED | | Yes | | | | | | | | | |
| Intelligent aging display LED (IAD®) | | Yes (full protection, early alert, replace) | | | | | | | | | |
| EMI Filter | | < 40 dB | | | | | | | | | |
| Enclosure type | | IP 66/NEMA 4 | | | | | | | | | |
| Insulating material and class | | PC; V-0 | | | | | | | | | |



Dimensions



Certification



Selection Guide

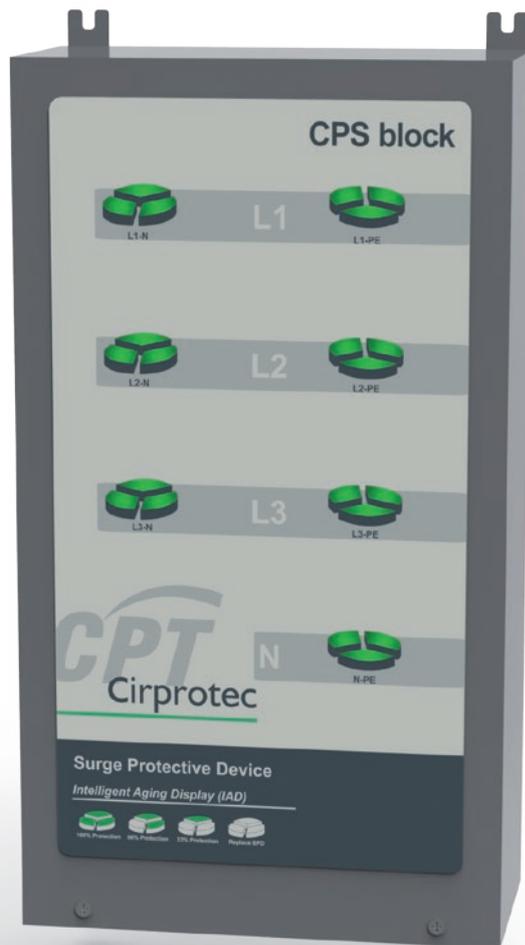
Code: 777977 Y Z

| Y | I_{max} / phase |
|---|-------------------|
| 1 | 40 kA |
| 2 | 60 kA |
| 3 | 80 kA |
| 4 | 120 kA |
| 5 | 160 kA |

| Z | Red | V(L-N) |
|---|----------------|--------|
| 1 | 1 Phase | 120 V |
| 2 | 1 Phase | 230 V |
| 3 | Split Phase | 120 V |
| 4 | 3 Phase WYE | 120 V |
| 5 | 3 Phase WYE | 230 V |
| 6 | 3 Phase WYE | 277 V |
| 7 | 3 Phase Delta | 240 V |
| 8 | 3 Phase Delta | 400 V |
| 9 | 3 Phase Delta | 480 V |
| 0 | High Leg Delta | 120 V |

CPS block

Modular Surge Protective Device (SPD) designed according to standards UL 1449 3rd ed. and IEC 61643-11 for installation in main panels or distribution panels with high exposure ratings. The CPS block provides comprehensive protection for a wide range of networks and voltages and also reduces maintenance costs due to its modular construction and the IAD[®] function.



Features

- Type 2, “Permanently connected” SPDs intended for installation on the load side of the service equipment (main panel) overcurrent device; including SPDs located at the branch panel.
- Maximum 8/20 discharge capacity (I_{max}) from 120 to 200 kA per phase.
- Nominal Rated 8/20 discharge current rating (I_n) of 20 kA per phase.
- Redundant *Multi Discharge* System varistor technology with individual disconnection of each MOV.
- Common and differential mode protection.
- EMI / RFI Filter.
- Intelligent aging display (IAD[®]): end-of-life indication LEDs of the % of remaining protection available for each mode (100%, 66%, 33% or 0%).
- Replaceable protection modules.
- Nema 12.
- Remote indication of end of life.

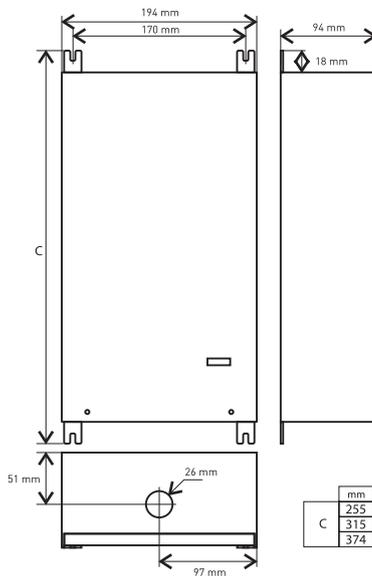


Specifications

| Models | | Split Phase | 1 Phase | | | 3 Phase WYE | | | 3 Phase Delta | | | High leg Delta |
|--|--|---|---------|------|---------|-------------|---------|------|---------------|------|---------|----------------|
| Classification according to UL 1449-3rd Edition | | Type 2 | | | | | | | | | | |
| Classification according to IEC 61643-11 | | Class II | | | | | | | | | | |
| Protection modes | | Common and differential mode protection | | | | | | | | | | |
| Nominal voltage rating AC 50-60 Hz | U_n [V] | 120 | 120 | 230 | 120/208 | 230/400 | 277/480 | 240 | 400 | 480 | 120/240 | |
| Maximum continuous operating voltage AC 50-60 Hz | MCOV [V] | 175 | 175 | 320 | 175 | 320 | 385 | 275 | 420 | 510 | 175/320 | |
| Maximum discharge capacity per phase / Nominal discharge capacity per phase | I_{max} /phase [kA] / I_n /phase [kA] | 120/20 | | | | | | | | | | |
| | | 160/20 | | | | | | | | | | |
| | | 200/20 | | | | | | | | | | |
| Voltage protection rating (L-N/L-G/N-G) | VPR [V] | 600 | 600 | 1000 | 600 | 1000 | 1200 | 900 | 1500 | 1800 | 600 | |
| Voltage protection rating (L-L) | | 1200 | ---- | ---- | 1200 | 2000 | 2400 | 900 | 1500 | 1800 | 1200 | |
| Voltage protection rating (L_{HL} -N/ L_{HL} -G) | | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 1000 | |
| Voltage protection rating (L_{HL} -L) | | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 1200 | |
| Maximum back-up fuse | [A gL] | 80 | | | | | | | | | | |
| Short-circuit current rating | SCCR [kA] | 200 | | | | | | | | | | |
| Response time | t_A [ns] | 1 | | | | | | | | | | |
| Multi-Discharge System (MDS) | | Yes | | | | | | | | | | |
| Dynamic thermal disconnection | | Yes | | | | | | | | | | |
| Remote indication (RI) | | Yes | | | | | | | | | | |
| Status indicator LED | | Yes | | | | | | | | | | |
| Intelligent aging display (IAD®) LEDs | | 100% - 66% - 33% - 0% of each protection mode | | | | | | | | | | |
| Enclosure type | | IP 55 /NEMA 12 | | | | | | | | | | |
| Material | | Sheet steel | | | | | | | | | | |



Dimensions



Certification



Selection Guide

Code: 777986 Y Z

| Y | I_{max} / phase |
|---|-------------------|
| 1 | 120kA |
| 3 | 160kA |
| 5 | 200kA |

| Z | Red | V[L-N] |
|---|----------------|--------|
| 1 | 1 Phase | 120 V |
| 2 | 1 Phase | 230 V |
| 3 | Split Phase | 120 V |
| 4 | 3 Phase WYE | 120 V |
| 5 | 3 Phase WYE | 230 V |
| 6 | 3 Phase WYE | 277 V |
| 7 | 3 Phase Delta | 240 V |
| 8 | 3 Phase Delta | 400 V |
| 9 | 3 Phase Delta | 480 V |
| 0 | High Leg Delta | 120 V |

CPS block plus

Modular Surge Protective Device (SPD) designed according to standards UL 1449 3rd ed. and IEC 61.643-11 for installation in main panels or distribution panels with high exposure ratings. The CPS block plus provides comprehensive protection for a wide range of networks and voltages and also reduces maintenance costs due to its modular construction, the IAD® function and the incorporation of a surge counter.



Features

- Type 2, “Permanently connected” SPDs intended for installation on the load side of the service equipment (main panel) overcurrent device; including SPDs located at the branch panel.
- Maximum 8/20 discharge capacity (I_{max}) from 120 to 240 kA per phase.
- Nominal 8/20 discharge current rating (I_n) of 20 kA per phase
Redundant *Multi Discharge* System varistor technology with individual disconnection of each MOV.
- Common and differential mode protection.
- EMI / RFI Filter.
- Intelligent aging display (IAD®): end-of-life indication LEDs of the % of remaining protection available for each mode (100%, 66%, 33% or 0%).
- Surge counter.
- Replaceable protection modules.
- Nema 12.
- Remote indication of end of life.

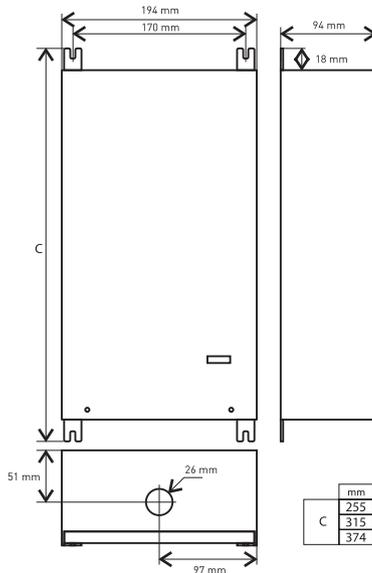


Specifications

| Models | Split Phase | 1 Phase | 3 Phase WYE | 3 Phase Delta | High leg Delta | | | | | | |
|--|--|---|-------------|---------------|----------------|---------|---------|------|------|------|---------|
| Classification according to UL 1449-3rd Edition | Type 2 | | | | | | | | | | |
| Classification according to IEC 61643-11 | Class II | | | | | | | | | | |
| Protection modes | Common and differential mode protection | | | | | | | | | | |
| Nominal voltage rating AC 50-60 Hz | U _n [V] | 120 | 120 | 230 | 120/208 | 230/400 | 277/480 | 240 | 400 | 480 | 120/240 |
| Maximum continuous operating voltage AC 50-60 Hz | MCOV [V] | 175 | 175 | 320 | 175 | 320 | 385 | 275 | 420 | 510 | 175/320 |
| Maximum discharge capacity per phase / Nominal discharge capacity per phase | I _{max} /phase[kA]/ I _n /phase [kA] | 120/20 | | | | | | | | | |
| | | 160/20 | | | | | | | | | |
| | | 200/20 | | | | | | | | | |
| | | 240/20 | | | | | | | | | |
| Voltage protection rating (L-N/L-G/N-G) | VPR [V] | 600 | 600 | 1000 | 600 | 1000 | 1200 | 900 | 1500 | 1800 | 600 |
| Voltage protection rating (L-L) | | 1200 | ---- | ---- | 1200 | 2000 | 2400 | 900 | 1500 | 1800 | 1200 |
| Voltage protection rating (L _{HL} -N/L _H -G) | | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 1000 |
| Voltage protection rating (L _{HL} -L) | | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 1200 |
| Maximum back-up fuse | [A gL] | 80 | | | | | | | | | |
| Short-circuit current rating | SCCR [kA] | 200 | | | | | | | | | |
| Response time | t _A [ns] | 1 | | | | | | | | | |
| Multi-Discharge System (MDS) | | Yes | | | | | | | | | |
| Dynamic thermal disconnection | | Yes | | | | | | | | | |
| Desconexión dinámica térmica | | Yes | | | | | | | | | |
| Remote indication (RI) | | Yes | | | | | | | | | |
| Status indicator LED | | Yes | | | | | | | | | |
| Intelligent aging display (IAD®) LED | | 100% - 66% - 33% - 0% of each protection mode | | | | | | | | | |
| EMI Filter | | < 40 dB | | | | | | | | | |
| Enclosure type | | IP 55 /NEMA 12 | | | | | | | | | |
| Material | | Sheet steel | | | | | | | | | |



Dimensions



Certification



Selection Guide

Code: **777987 Y Z**

| Y | I _{max} / phase |
|---|--------------------------|
| 1 | 120kA |
| 3 | 160kA |
| 5 | 200kA |
| 7 | 240kA |

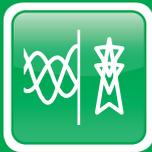
| Z | Red | V(L-N) |
|---|----------------|--------|
| 2 | 1 Phase | 230 V |
| 3 | Split Phase | 120 V |
| 4 | 3 Phase WYE | 120 V |
| 5 | 3 Phase WYE | 230 V |
| 6 | 3 Phase WYE | 277 V |
| 7 | 3 Phase Delta | 240 V |
| 8 | 3 Phase Delta | 400 V |
| 9 | 3 Phase Delta | 480 V |
| 0 | High Leg Delta | 120 V |



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protection
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of grounding
systems



Insulation
monitoring



Beacon
systems



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