



CCTV & Data Surge Protection Information Pack



“For All Your Surge Solutions”

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About Us

We are a leader in the design and manufacture of a wide range of products & solutions to protect against damage from lightning and transient over-voltages.

With over 50 years of experience as a UK manufacturer of surge arrester elements, our product range has continuously expanded and we now supply Surge Protection Components, Arresters and Modules for applications in numerous markets including; Rail and Tram transport, Buildings and Construction, office and Home Protection, Telecom and Data Networks, Defence and Security.

We believe that we are unique because we:

- **Are the only UK MOV manufacturer – and one of very few in Europe**
- **Have our own research and test laboratory**
- **Have our own design and manufacturing capabilities**
- **Offer customised product design and manufacture at standard product prices**
- **Respond speedily and positively to customer needs**



A diverse, worldwide customer platform, supported by local Sales & Distribution organisation has been vital in the development of our global supply capability. We ensure that all our Product Designs, Test & Manufacturing Processes and Facilities comply with all relevant International Standards and Qualification Procedures.

- **All our products are RoHS Compliant and we are WEEE registered.**
- **Our Design, Manufacturing & Quality Assurance Systems meet ISO 9001-2008**
- **We supply products to meet National & International Standards & Recognitions including UL, CEE, BS, IEC.**



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YOUR BUILDING IS A TARGET

Over 30% of ALL electronic equipment damage is caused by LIGHTNING STRIKES

Millions of pounds of electronic equipment is destroyed within buildings every year by lightning or other surge phenomena.

Most electronic systems and equipment connected to the AC mains supply, telecom and datalines, are at risk from the damaging effects of surges or transient over voltages.

Over 400,000 incidents of damage are reported to insurance companies each year.

**DON'T BE A STATISTIC,
GET PROTECTED!**



An Introduction To Surge Protection

Surges or Transient Overvoltages

Surges or Transients are short duration increases in voltage measured between 2 or more conductors. These potentially harmful voltages can be induced into a building from a direct strike or the secondary effects of lightning, and can reach up to 6000 Volts.

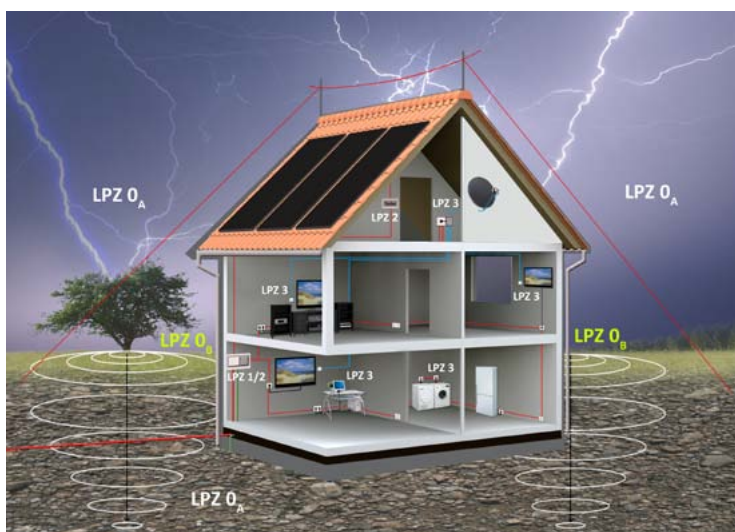
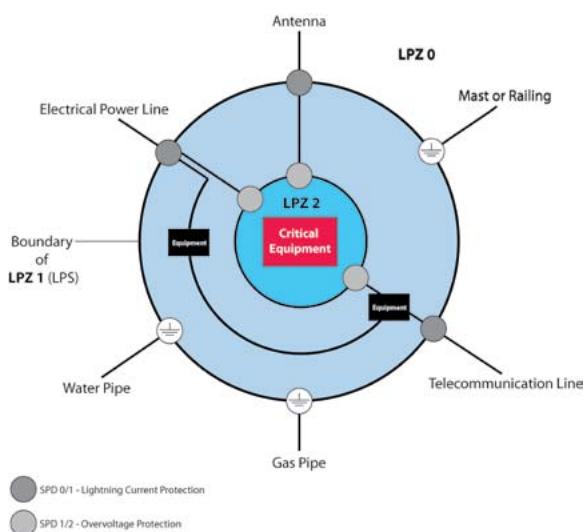
Overvoltages can arise from lightning activity or switching transients generated from within a building, although these effects tend to be of a lower magnitude.

Type of protection unit or SPD

In order to protect equipment, you need to select SPD units that can deal with these effects.

A **Type I SPD** will deal with a direct strike

A **Type II and III SPD** will deal with the indirect effects or locally generated surges, such as switching events. A combination of these (co-ordinated SPD's) can provide full protection to equipment within a building.



Low let-through voltage

An effective SPD should have a low let-through voltage as this is the amount of voltage the equipment being protected will be subjected to. The greater the overvoltage the greater the risk of disruption, degradation and damage to equipment connected to the electrical system. As technology moves on, components within electronic equipment continue to become smaller and therefore more sensitive to these types of influence.

Application

As a general guide, all cables that enter or leave a building should be protected being as these conductive lines offer pathways within.

Most buildings will have at least a main power supply and a copper telephone line. At the very least, power protection and telephone protection should be applied at the main distribution board and main telephone line jack or main distribution point (DP).

CCTV Surge Protection

CCTV or any kind of video surveillance is designed to protect you, but how do YOU protect your CCTV? Interestingly enough, many strange things often happen that affect your CCTV surveillance systems both indoors and especially outdoors; anything from interference noise on the image, to the system completely stopping and never to work again.

Why does this keep happening? Well....interference can be caused by a multitude of elements, from other electrical equipment nearby or even natural occurrences which can arise from many sources - cosmic noise as well as lightning and other atmospheric types of noise can all contribute. This is known as EMI (Electromagnetic Interference) or also called RFI (Radio-Frequency Interference).

So to sum this up in to simple terms, it is an unwanted signal at the signal receiver end that causes a level of unwanted interference. So as our homes and business's become filled with more electronic technology and gadgets, the likelihood of electronic interference increases, making your own items more susceptible to damage.

So ask yourself "Am I putting my valuable cutting edge technology at risk from surges and other energy phenomenon"

There are many parts within the CCTV cameras themselves that are susceptible to surges, spikes and transients; even the recording devices that the cameras plug into or the monitor / screen that the recording device is displaying on, the list is endless...

Any sort of power surge is more than likely enough to disable your equipment altogether, so really your system needs surge protection.

Most of us plug our household electronics into a power strip, but be aware, not all power strips are surge protected to a great standard, if they are even protected at all – and we wouldn't want you to lose that expensive 3D HD television you just bought! Well with all this in mind, you should apply the same principle to your CCTV surveillance system which is a much larger investment.

Quite a lot CCTV systems will not just be plugged in, unless it's wireless (remember just because it is wireless still does not mean you are out of the woods; sockets will still need protecting).

If you have a typical installation where your surveillance system is connected to your building's electrical service panel, data lines and coax cables are ALL equally vulnerable to surges and/or transients. This can be as a result of induced surges from closely run power cabling.

Your entire CCTV system could be compromised without any surge protection installed. Surge protection devices need to be installed on every component you have that is connected to any wiring entering or exiting your building.

Remember, any electrical equipment or device that is connected to your building's main electrical service panel is potentially at risk, and therefore should have some sort of protection. It is best practice to install surge protection devices on the electrical service panel itself and also to any of your other equipment, including inside CCTV cameras, lighting, sockets, routers, coax cables, etc.

For protection and peace of mind get surge protected today! After all, the cost of installing surge devices nearly always outweighs the expense of replacing damaged equipment.

Can you afford not to have it?


Surge Protective Devices (SPD's) Selection Flow Chart

***ALL SECTIONS SHOULD BE CHECKED TO ENSURE PROTECTION OF ALL EQUIPMENT**

Is the Mains Incoming Power supplied by overhead power line and / or, does the building have a Lightning Protection System (LPS) installed?

NO →


YES → Type I, Class I 10/350 SPD's are required e.g:-
(Single Phase) – [T1SP1/12.5/25/230R](#)
or
(Three Phase) [T1SP3/12.5/50/230R](#)



Is there sensitive electronic equipment in the building e.g. PC's, Servers, Routers, Fax, Telecom equipment etc?

NO →


YES → Type II, Class II 8/20 SPD's are also required e.g.
[DSP Series](#) or [SPM Series](#)



Is there a requirement for 'redundant two stage' back up surge protection?

NO →


YES → Type II, Class II 8/20 DSP Series SPD's are required e.g:-
(Single Phase) [DSP1/600](#)
or
(Three Phase) [DSP3/600](#)



Is there a requirement for surge protection modules to be 'hot wire' replaceable?

NO →


YES → Type II, Class II 8/20 SPM Series SPD's are required e.g:-
(Single Phase) [A1SPM/40/230N](#)
or
(Three Phase) [A3SPM/40/230N](#)



Is there a requirement for 'Fine' local Plug-In protection?

NO →


YES → Type III Class III SPD's are required e.g:-
[Surge Protected Adaptors](#), [Socket Strips](#) and
[T3SP1/1.5/3.0/230S](#)



Is surge protection already installed at all incoming and outgoing Telecom and Datacom points entering and leaving the building?

NO →

YES → Data and Telecom line SPD's are required e.g:-
[DBP Series](#) or [TLP Series](#)



DSP Series Type II Class II



DSP3L/600 INSTALLED

The [DSP Series](#) surge arrestors are a robust class 2 arrestor (8/20µs) available in single and three phase configurations. The units feature a two stage arrestor that gives your system double the protection of normal “plug in” surge arrestors. This allows identification of the possible lack of protection to be caught early and preparations made for the replacement unit to be installed (all while the system is still protected)

Ideally suited to all Industrial/Commercial projects including Hospitals, Schools etc.



DSP1

DSP1A

DSP1N

DSP3

DSP3N

DSP3L

Datasheets are available on our website:
<http://www.pddevices.co.uk/mains-cable-entry.html>



The DSP600 requires no maintenance but the LED's should be checked at regular intervals to ensure that full protection is present.

The remote monitoring unit connector version “L” Type, allows the DSP600 to be installed in areas that are inaccessible for regular inspection.

PQ DEVICES

Distribution Surge Protector 600 Series

Ideal for industrial, commercial and domestic applications, the Distribution Surge Protector 600 (DSP600) provides an economic means of preventing damage to electrical distribution systems from mainsborne transient voltages. These transients may occur as the result of nearby lightning strikes or surges derived from the switching of inductive or capacitive loads.

Fusing:
The DSP600 is suitable for direct connection to a line rated up to 100A (4mm² min. connecting cables), but can be connected to lines of higher rating by the provision of series fuses rated 50A min – 100A max (BS HD 60269-2:2010, BS 88-2:2010). If MCBs are used in place of fuses they should be of type C.

Maintenance:
The DSP600 requires no maintenance but the LEDs should be checked at regular intervals to ensure that full protection is present. The remote signalling facility version allows the DSP600 to be installed in areas that are inaccessible for regular inspection.

Surge Test:
The test waveform – 8kV 1.2/50µs O/C, 3kA, 8/20µs S/C – applied to the DSP600 gives the resultant let through voltage. See tabulation below. (The “let through voltage” will vary due to the parasitic inductance of the associated mains cable.) Values given are at protector terminals.

Quality Assurance:
Approved to BS EN 60900

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PQ DEVICES

Distribution Surge Protector 600 Series L and N Types

Ideal for industrial, commercial and domestic applications, the Distribution Surge Protector 600 Series provides an economic means of preventing damage to electrical distribution systems from mainsborne transient voltages. These transients may occur as the result of nearby lightning strikes or surges derived from the switching of inductive or capacitive loads.

The DSP600 “L” and “N” types should be installed at the point of cable entry to a building and at the distribution point for each floor of a multi-storey building containing sensitive electroelectronic equipment.

They are normally used as part of a fully integrated surge protection system and as such should be considered as the first line of defence. Local distribution points and equipment connected downstream should also be protected in order to achieve a systematic and co-ordinated approach to surge protection.

DSP600 “N” & “L” Types
They provide suppression from mainsborne voltage spikes and surges that can occur between phases, phase to neutral, phase to earth and earth to earth. Full protection is in all modes. This protection is achieved by using carefully matched high energy absorbing elements.

Units feature high surge current handling capability which operates in two stages to ensure continuity of transient suppression. The DSP600 “N” type is provided with an on-board system of protection status monitoring (Light Emitting Diode LED), while the DSP600 “L” type is supplied with a remote monitoring unit, which allows the unit to be installed in areas that are inaccessible for regular inspection.

Under normal conditions both types will automatically reset after clearing smaller, more commonly occurring surges, and a green LED indicates that full protection is present. However, should a surge current in excess of 25kA appear on the line it will be clamped by the unit but the first protection stage may possibly suffer damage and fail over.

In this instance the red LED will be illuminated in addition to the green and although the system will still be adequately protected, the unit should be replaced before a further surge surge can remove the second protection stage. There is no protection present when only the red LED is illuminated, although unswitched power is still supplied.

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Part Codes:	
No remote signalling	DSP1/600
With remote signalling	DSP1A/600
Site Fault Condition Indicator	DSP1N/600
No remote signalling	DSP3/600
With remote signalling	DSP3A/600
Site Fault Condition Indicator	DSP3N/600
Remote Monitoring Unit Connectors	DSP3L/600
Single Phase Enclosure	2IP-7-0243
Three Phase Enclosure	2IP-7-0244

Distribution Surge Protector 600 Series

Ideal for industrial, commercial and domestic applications, the Distribution Surge Protector 600 (DSP600) provides an economic means of preventing damage to electrical distribution systems from mainsborne transient voltages. These transients may occur as the result of nearby lightning strikes or surges derived from the switching of inductive or capacitive loads.

Fusing:

The DSP600 is suitable for direct connection to a line rated up to 100A (6mm² min. connecting cables), but can be connected to lines of higher rating by the provision of series fuses rated 50A min – 100A max (BS HD 60269-2:2010, BS 88-2:2010). If MCBs are used in place of fuses they should be of type C.

Maintenance:

The DSP600 requires no maintenance but the LEDs should be checked at regular intervals to ensure that full protection is present. The remote signalling facility version allows the DSP600 to be installed in areas that are inaccessible for regular inspection.

Surge Test:

The test waveform – 6kV 1.2/50µs O/C, 3kA 8/20µs S/C – applied to the DSP600 gives the resultant let through voltage. See tabulation below. (The 'let through voltage' will vary due to the parasitic inductance of the associated mains cable.) Values given are at protector terminals.



Quality Assurance:

Approved to BS EN ISO 9001



Single Phase: DSP1/600



Three Phase: DSP3/600

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Information subject to change
without notice.

Specification	Single Phase 	Three Phase 
Voltage rating (Nominal)	230V rms	400V rms
Operating voltage range	200 - 300V rms	L-N 200 - 300 V rms L-L 350 - 500 V rms
Maximum current rating	Unlimited (Parallel Connection)	Unlimited (Parallel Connection)
Maximum surge current handling (8/20 μs)	30kA	30kA per phase
Response time	<10 ns	<10 ns
Power consumption (nominal)	10mA	10mA per phase
Leakage current to earth	200μA	600μA
Terminals	16mm ² max - Line, Neutral, Earth 2.5mm ² max - Remote Signalling	16mm ² max - Line, Neutral, Earth 2.5mm ² max - Remote Signalling
Operating temperature	-40° to +70° Celcius	-40° to +70° Celcius
Light emitting diodes status indication	Green - Full Protection Red & Green - Reduced Protection Red - No Protection	Green - Full Protection Red & Green - Reduced Protection Red - No Protection
Case	Steel - Epoxy Paint	Steel - Epoxy Paint
Type according to BS EN 61643-11	2	2
Dimensions (in mm)		
L	176	176
W	42	110
D	72	72
Weight (in grams)	650	1110
Part Code without remote signalling	DSP1/600	DSP3/600
Part Code with remote signalling	DSP1A/600	DSP3A/600

LET THROUGH VOLTAGE

Test simulating the effects of lightning and switching transients	Phase/Neutral Phase/Earth
6kV 1.2/50μs open circuit voltage; 3kA 8/20μs short circuit current	600V
4kV 1.2/50μs open circuit voltage; 2kA 8/20μs short circuit current	560V
5kA 8/20μs	670V
6kV 0.5μs 100kHz ring wave, 500A	520V



All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct and reliable. Users, however, should independently evaluate the suitability of each product for the desired application.

Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale.

Distribution Surge Protector 600 Series L and N Types

Ideal for industrial, commercial and domestic applications, the Distribution Surge Protector 600 Series provides an economic means of preventing damage to electrical distribution systems from mainsborne transient voltages. These transients may occur as the result of nearby lightning strikes or surges derived from the switching of inductive or capacitive loads.

The DSP600 'L' and 'N' types should be installed at the point of cable entry to a building and at the distribution point for each floor of a multi-storey building containing sensitive electrical/electronic equipment.

They are normally used as part of a totally integrated surge protection system and as such should be considered as the first line of defence. Local distribution panels and equipment connected 'downstream' should also be protected in order to achieve a systematic and co-ordinated approach to surge protection.



DSP600 'N' & 'L' Types



DSP600 'N'
Three Phase

They provide suppression from mainsborne voltage spikes and surges that can occur between phases, phase to neutral, phase to earth and neutral to earth, thus ensuring protection in all modes. This protection is achieved by using carefully matched high energy absorbing elements.

Units feature high surge current handling capability which operates in two stages to ensure continuity of transient suppression. The **DSP600 'N'** type is provided with an on-board system of protection status monitoring Light Emitting Diode's (LED's), while the **DSP600 'L'** type is supplied with a remote monitoring unit, which allows the unit to be installed in areas that are inaccessible for regular inspection.

Under normal conditions both types will automatically reset after clamping smaller, more commonly occurring surges, and a green LED indicates that full protection is present. However, should a surge current, in excess of 30kA, appear on the line it will be clamped by the unit but the first protection stage may possibly suffer damage and fail safe.

In this instance the red LED will be illuminated in addition to the green and although the system will still be adequately protected, the unit should be replaced before a further large surge can remove the second protection stage. There is no protection present when only the red LED is illuminated, although unprotected power is still supplied



DSP600 'L'
Three Phase



DSP600 'N'
Single Phase

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Information subject to change
without notice.

Both the DSP600 'N' and 'L' types are supplied with a site fault condition indicator. Should the light on this indicator flash or be permanently illuminated at anytime, it is to warn of a high voltage between neutral and earth lines and therefore potentially hazardous site conditions. The DSP600 'N' and 'L' types are supplied with a remote signalling facility where volt free terminals (which can be connected as either normally open or normally closed), open or close when the first protection stage is lost, (Red and Green LEDs on), and these can be used to activate a remote indicator such as a lamp or an audible alarm. The switching contacts are completely isolated from the supply and may be used for AC mains voltage 230V RMS 200mA or 30V DC 2 Amp loads.

Features

- Maximum surge current rating of 30kA far exceeds the 10kA requirements of BS6651: 1999 Annex C, to provide long life, and low maintenance.
- Meets the requirements of BS EN62305-4:2006 (which replaced BS6651:1999 Annex C in August 2008) and BS EN61643-11/12 – Type II, Class II
- Tested to IEEE C62.41
- BS6651:1999 Annex C location category C
- Low "let through" voltage of 600 volts.
- Two stage (redundant) protection, with pre-failure indication.
- Full protection status indication, with remote signalling.
- Remote Monitoring Unit model ('L' type) allows the unit to be installed in areas that are inaccessible for regular inspection.
- Site fault condition indicator.
- Remote Monitoring Unit is provided with a 1 metre cable and appropriate plug and socket connectors (other lengths are available on request).
- Easy installation and field serviceability.
- Rugged construction (steel enclosure).
- Compact size and small footprint.

Applications

- Front end of building protection.
- Individual protection of critical and costly equipment such as computer systems.
- Sub-distribution panel protection.

Installation:

Designed to be easily installed alongside the incoming electrical supply panel or at the sub distribution board of a multi-storey block, the 600 Series is connected in parallel with the supply, thus eliminating complicated bypass wiring associated with series suppressors. Connected in this manner the 600 Series carries only the current associated with the transient being discharged.

The 600 Series should be installed as close as possible to the Bus Bars/Equipment being protected, with as large a conductor as possible (16mm² max). The connecting wires should be routed, avoiding looping, and secured together with ties. The Distribution Surge Protector must be connected in parallel to the supply via an isolating switch if the mains supply cannot be switched off for 600 Series replacement.

If RCDs are used on the supply the 600 Series must be fitted in front of such devices to avoid nuisance tripping. Provision should be made for safe replacement of the 600 Series should this become necessary. The DSP600 'N' type may be installed in an existing cubicle with viewing window or in a housing with transparent cover, available separately, whereas the DSP600 'L' type supplied with remote monitoring unit is ideal for installations that do not allow for regular inspection of the unit itself.

Fusing:

The 600 Series is suitable for direct connection to a line rated up to 100A (6mm² min. connecting cables), but can be connected to lines of higher rating by the provision of series fuses rated 50A min – 100A max (BS HD 60269-2:2010, BS 88-2:2010). If MCBs are used in place of fuses they should be of type C.

Maintenance:

The 600 Series requires no maintenance but the LED's should be checked at regular intervals to ensure that full protection is present. The remote signalling facility of the 'L' and 'N' types is provided for remote indication of the units protection status, for instance in control rooms, mimic panels etc.

Quality Assurance:

Approved to BS EN ISO 9001

Specification	Single Phase 	Three Phase 
	Voltage rating (Nominal)	230V rms
Operating voltage range	200 - 300V rms	L-N 200 - 300 V rms L-L 350 - 500 V rms
Maximum current rating	Unlimited (Parallel Connection)	Unlimited (Parallel Connection)
Maximum surge current handling (8/20 μs)	30kA	30kA per phase
Response time	<10 ns	<10 ns
Power consumption (nominal)	18mA	18mA per phase
Leakage current to earth	200μA	600μA
Terminals	16mm ² max - Line, Neutral, Earth 2.5mm ² max - Remote Signalling	16mm ² max - Line, Neutral, Earth 2.5mm ² max - Remote Signalling
Remote signalling terminals	Rated at 230V rms 0.2 Amp or 30V DC 2 Amp	Rated at 230V rms 0.2 Amp or 30V DC 2 Amp
Remote Monitoring Unit Connectors ('L' type only)	N/A	15 Way 'D'
Operating temperature	-40° to +70° Celcius	-40° to +70° Celcius
Light emitting diodes status indication	Green - Full Protection Red & Green - Reduced Protection Red - No Protection	Green - Full Protection Red & Green - Reduced Protection Red - No Protection
Site Fault Condition Indicator	Red Lit / Flashing Check Neutral / Earth supply voltage	Red Lit / Flashing Check Neutral / Earth supply voltage
Case	Steel - Epoxy Paint	Steel - Epoxy Paint
Type according to BS EN 61643-11	2	2
Dimensions (in mm)		
L	176	176
W	42	110
D	72	72
Weight (in grams)	650	1110
Part Code	DSP1N/600	DSP3L/600 DSP3N/600

Let Through Voltage	
Test simulating the effects of lightning and switching transients	Phase/Neutral Phase/Earth
6kV 1.2/50µs open circuit voltage; 3kA 8/20µs short circuit current	600V
4kV 1.2/50µs open circuit voltage; 2kA 8/20µs short circuit current	560V
5kA 8/20µs	670V
6kV 0.5µs 100kHz ring wave, 500A	520V

Surge Test:

The 600 Series complies with, or is tested to, the requirements of: BS EN62305-4:2006, BS EN61643-11/12, IEEE C62.41, UL1449.1985, BS6651:1999 Annex C. The test waveform – 6kV 1.2/50µs O/C, 3kA 8/20µs S/C – applied to the 600 series gives the resultant let through voltage. See tabulation below.

(The 'let through voltage' will vary due to the parasitic inductance of the associated mains cable.) Values given are at protector terminals.

Single / Three Phase Optional Enclosure	
Optional Enclosure Case	Polycarbonate
IP Rating (before installation)	56
Dimensions (mm)	
L	245
W	195
D	100
Part Code	
Single Phase	2IP-7-0243
Three Phase	2IP-7-0244

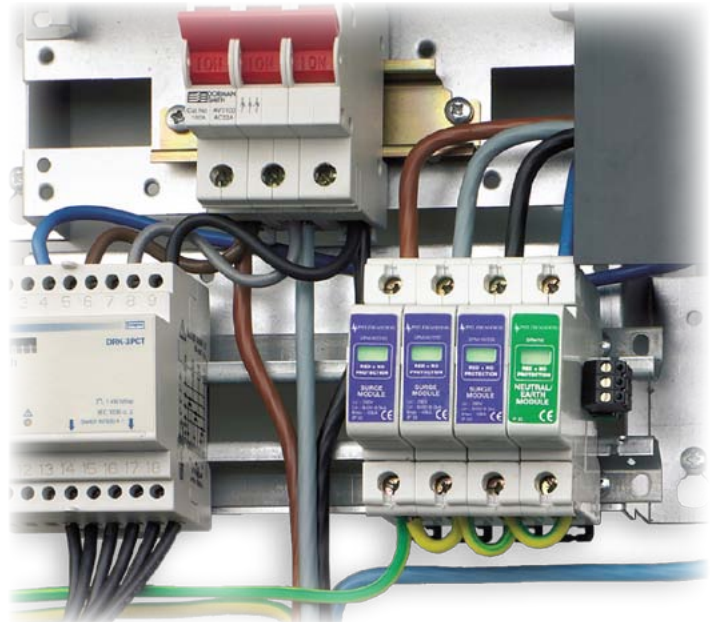
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Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale.

SPM Series Type II Class II

Featuring a Plugable Surge protection module, the **SPM series** of Arrestors are ideally suited for most industrial / commercial applications. The plugable aspect allows the replacement of the modules without having to disconnect cabling.

The units are rated at class 2 protection levels (8/20µs) and can be configured in various formats to cater for most earthing systems (TNS/TNC) With a din rail mount and each module being DIN width, placement of arrestors in Consumer units and Type B distribution boards is easily achieved.



A3SPM/40/230NR INSTALLED



A1SPM/40/230



A1SPM/40/230N



A3SPM/40/230N

Part Codes: 6kA SAD Plug-In Surge Protection Modules & Base Assemblies

6kA Single Phase (L-N, L-E)	A1SPM/6/230
6kA Single Phase with Remote Indication (L-N, L-E)	A1SPM/6/230R
6kA Single Phase with Neutral/Earth	A1SPM/6/230N
6kA Single Phase with Neutral/Earth & Remote Indication	A1SPM/6/230NR
6kA Three Phase (L-N, L-E)	A3SPM/6/230
6kA Three Phase with Remote Indication (L-N, L-E)	A3SPM/6/230R
6kA Three phase with Neutral/Earth	A3SPM/6/230N
6kA Three Phase with Neutral/Earth & Remote Indication	A3SPM/6/230NR
6kA Neutral/Earth	A1SPM/NE/6/230

Part Codes: 40kA MOV Plug-In Surge Protection Modules & Base Assemblies

40kA Single Phase (L-N, L-E)	A1SPM/40/230
40kA Single Phase with Remote Indication (L-N, L-E)	A1SPM/40/230R
40kA Single Phase with Neutral/Earth	A1SPM/40/230N
40kA Single Phase with Neutral/Earth & Remote Indication	A1SPM/40/230NR
40kA Three Phase (L-N, L-E)	A3SPM/40/230
40kA Three phase with Remote Indication (L-N, L-E)	A3SPM/40/230R
40kA Three Phase with Neutral/Earth	A3SPM/40/230N
40kA Three Phase with Neutral/Earth & Remote Indication	A3SPM/40/230NR
40kA Neutral/Earth	A1SPM/NE/40/230

Part Codes: Replacement Plug-In Surge Protection Modules

6kA SAD Module	SPM/6/230
6kA SAD Neutral/Earth Module	SPM/NE/6/230
40kA MOV Module	SPM/40/230
40kA MOV Neutral/Earth Module	SPM/NE/40/230

Datasheets are available on our website:

<http://www.pddevices.co.uk/mains-cable-entry.html>



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SPM Series Plug-in Surge Protection

The SPM series of modular surge protection devices provides protection of equipment connected to incoming low voltage AC power supplies against the damaging effects of transient over-voltages caused by fault lightning strikes, or the switching of inductive, inductive or capacitive loads.

SPM devices are ideally suited for the protection of electrical distribution systems in buildings, generation set standby power supplies, combined heat and power, and co-generation applications against transient static and software, equipment failure and structural damage.

The SPM comprises separate 1, 2, 3 or 4 module DIN rail connection bases, and a comprehensive range of 6kA or 40kA replaceable plug-in protection modules with integral mechanical alpha indication, which simply plug-in.

Connection bases are available with or without an additional remote indication facility for the communication of status information into building management or SCADA systems. The provision of remote indication allows the selection and configuration of any number of modules to suit individual applications, or complete assemblies of the most popular configurations.

Description

The SPM series provides protection of expensive power assets against the damaging effects of mainsborne transients through carefully matched high energy absorbing elements. Each base of plug-in protection module has a colour coded label to enable easy identification; eg. 6kA modules are purple, 40kA modules are blue and neutral/earth modules are green. The highly flexible characteristics of the SPM allow the selection and configuration of any number of modules to suit the surge protection requirements of individual applications.

DIN Rail Modular Connection Bases

The SPM series offers DIN rail mount connection bases in 1, 2, 3 or 4 modules, 280 which the chosen surge protection module simply plugs-in. Connection bases can be supplied either with or without additional remote indication facility for communication of alpha information into building management or SCADA systems.

6kA SAD Plug-in Surge Protection Modules

2000V surge protective device (SPD) modules provide excellent clamping of transients within <100 nano seconds and are suitable for high inrush current applications, as detailed in BS EN 61643-11.

6kA modules are available in phase, and neutral to earth versions.

40kA and 40kA Neutral to Earth Plug-in Surge Protection Modules

SPM series offers neutral to earth protection for use in conjunction with 6kA SAD or 40kA MOV surge protection modules. Surge clamping effect is up to 1000V and is available in a wider range than the most common AC supply, but should be protected against damaging transients.

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SPM Series Plug-in Surge Protection

The SPM series of modular surge protection devices provides protection of equipment connected to incoming low voltage AC power supplies against the damaging effects of transient over voltages caused by local lightning strikes, or the switching of electrical inductive or capacitive loads.

SPM devices are ideally suited for the protection of electrical distribution systems in buildings, generator set standby power supplies, combined heat and power, and co-generation applications against corrupted data and software, equipment failure and structural damage.

The SPM comprises separate 1, 2, 3 or 4 modular DIN rail connection bases, and a comprehensive range of 6kA or 40kA replaceable plug-in protection modules with integral mechanical status indication, which simply plug in.

Connection bases are available with or without, an additional remote indication facility for the communication of status information into building management or SCADA systems. For installation convenience the SPM series allows the selection and configuration of any number of modules to suit individual applications, or complete assemblies of the most popular configurations.

Description

The SPM series provides protection of expensive power assets against the damaging effects of mainsbourne transients through carefully matched high energy absorbing elements. Each type of plug-in protection module has a colour coded label to enable easy identification, eg: 6kA modules are purple, 40kA modules are blue, and neutral/earth modules are green. The highly flexible characteristics of the SPM allow the selection and configuration of any number of modules to suit the surge protection requirements of individual applications.

DIN Rail Modular Connection Bases

The SPM series offers DIN rail mount connection bases in 1, 2, 3 or 4 modules, into which the chosen surge protection module(s) simply plug-in. Connection bases can be supplied either with, or without, additional remote indication facility for communication of status information into building management or SCADA systems.

6kA SAD Plug-in Surge Protection Modules

Silicon avalanche diode (SAD) models conduct maximum current without any increase in clamping voltage. They offer extremely low clamping of <500 volts and an exceptionally fast response time of <5 nano seconds. The robust nature of this component technology offers long product life expectancy, ideally suited for high risk mobile telecom or other mission critical applications. 6kA modules are available in phase, and neutral to earth versions.

40kA MOV Plug-in Surge Protection Modules

Metal oxide varistor (MOV) models provide excellent clamping of transients within <10 nano seconds and are ideally suited for high/medium/low risk applications, as detailed in BS EN61643-11. 40kA modules are available in phase, and neutral to earth versions.

6kA and 40kA Neutral to Earth Plug-in Surge Protection Modules

SPM series offers neutral to earth protection for use in conjunction with 6kA SAD or 40kA MOV surge protection modules. Surge voltages affect system earth to neutral to a lesser degree than the main incoming AC supply, but should be protected against damaging transients.



Complete Assemblies

For installation convenience, the SPM series offers the most popular configurations of connection bases and surge protection modules as complete protection assemblies.

- 1, 2, 3 or 4 modular connection bases
- With or without remote indication facility
- 6kA or 40kA protection
- Single or three phase
- With or without neutral/earth protection

Features

- 1, 2, 3 or 4 modular DIN rail mount connection bases.
- 6kA SAD and 40kA MOV plug-in protection modules.
- Neutral to earth plug-in modules,
- Meets the requirements of BS EN62305-4:2006 (which replaced BS6651:1999 Annex C in August 2008) and BS EN61643-11/12 – SPD Type II, Class II (MOV models) and SPD Type III, Class III (SAD models)
- Tested to IEEE C62.41
- BS6651:1999 Annex C location category C (MOV models) and B (SAD models)
- Complete assemblies of the most popular configurations.
- Hot working replaceable plug-in modules.
- Thermal and current overload fusing.
- Protection status indication, Remote status indication option.

Benefits

- Protection of expensive power assets
- 6kA SAD models provide low clamping of <500V and <5 nano second response time
- Single and three phase options
- Remote monitoring into building management or SCADA systems
- Nuisance tripping avoidance of RCD's
- Simple installation
- Maintenance free
- Suitable for new or retrofit applications

Applications

- LV switchboards
- Sub distribution boards
- Generator sets
- Mobile telecommunications
- Windfarms
- PV Systems
- Railways

Approvals

- BS EN 61643-11

Quality Assurance

Approved to BS EN ISO9001

Operation

SPM surge protection devices offer 6kA or 40kA surge handling capabilities, which automatically reset after clamping lesser, more frequent surges. In the event of a surge exceeding the maximum capability of the chosen SPM device, the integral suppressor will fail, and the internal fusing will safely isolate the unit to protect the equipment connected to the supply. The mechanical status indicator, incorporated on the front face of every protection module, appears green when full protection is present. When the indicator shows red, there is no protection present, and the affected plug-in protection module must be replaced.

The DIN rail connection bases offer an additional remote indication option, where volt free terminals can be used to activate an alarm, or communicate the fault condition directly into a building management system. The switching contacts are completely isolated from the internal circuitry of the SPM device and may be used for AC mains voltage 230V RMS 1 Amp or 30V DC 2 Amp loads. Provided the live terminals of the connection base have been safely isolated, the plug-in modules can be installed or replaced without switching off the main supply.

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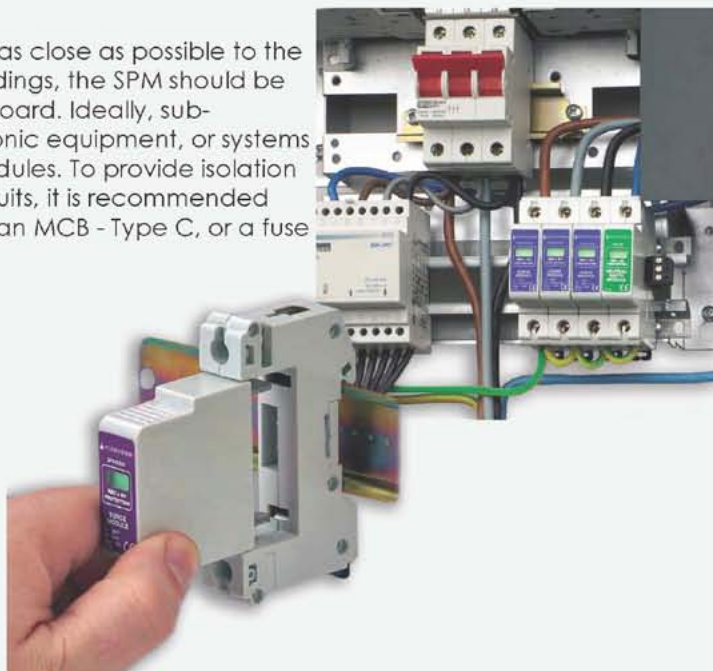
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Installation

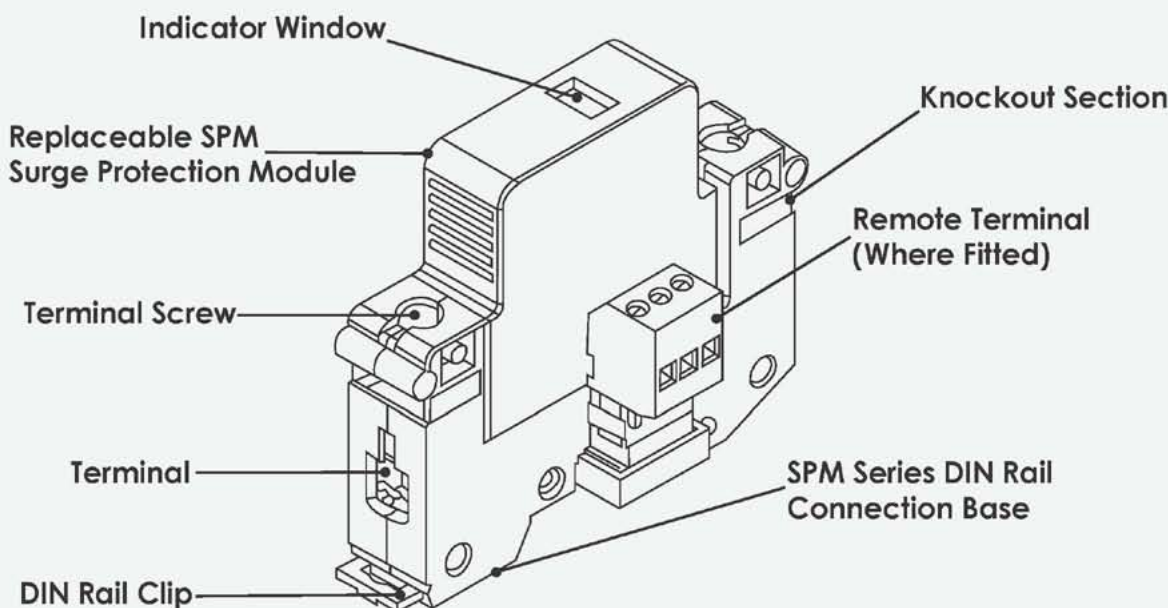
SPM surge protection devices should be installed as close as possible to the incoming AC supply position. For example, in buildings, the SPM should be installed at the supply side of the main LV switchboard. Ideally, sub-distribution panels servicing specific areas, electronic equipment, or systems should also incorporate SPM surge protection modules. To provide isolation for maintenance and protection in high load circuits, it is recommended that SPM devices be installed on the load side of an MCB - Type C, or a fuse disconnecter 63A.

The modular connection bases are easily fitted onto a standard 35mm DIN rail for single or three phase system connection. The system rating or the peak current rating of the system to be protected will dictate the number and type of protection modules required, and therefore the number of connection bases used. The remote indication facility offered within connection bases is ideally suited for applications where inspection is restricted, allowing status information of SPM devices to be monitored through building management systems via volt free contacts.



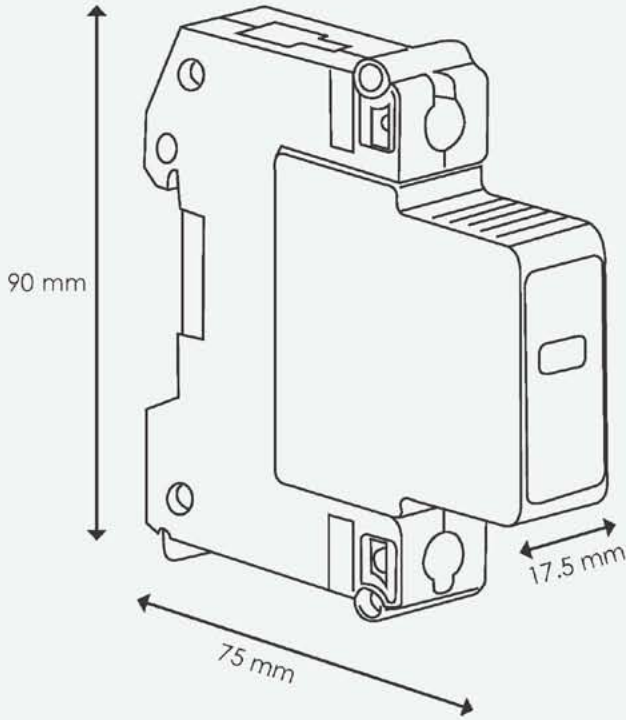
The replaceable surge protection modules simply plug-in to the connection bases, and should be connected in parallel across the supply, either as multiples per phase or as a common neutral. Provided the live terminals of the connection base have been safely isolated, the plug-in modules can be installed or replaced without switching off the main supply. SPM surge protection devices are maintenance free, however, status indicators incorporated within the protection modules should be checked regularly to ensure full protection is present, particularly following local lightning activity

SPM Composition



Specification	
Surge Handling Capabilities	6kA or 40kA
Surge Protection Technologies	6kA: SAD 40kA: MOV
Nominal Voltage Rating	Single phase: 230V RMS Three phase: 400V RMS
Operating Voltage Range	Single phase: 200-300 Volts Three phase: 380-515 Volts
Frequency	48/62 Hz
Maximum Current Rating	Not applicable (parallel connected)
Nominal Discharge Current (8/20µs) [In]	6kA SAD 20kA MOV
Max Surge Current Handling (8/20µs) [Imax]	6kA SAD 40kA MOV
Response Time	6kA SAD Models: <5ns 40kA MOV Models: <10ns
Short-circuit Withstand Capability	40kA with backup fuse 100A gL/gG max
Thermal Overload Fusing	120°C
Nominal Power Consumption	<10 µA
Operating Temperature	-40 to +70°C
Protection at 5kA Up (8/20µs)	6kA SAD: <550V peak 40kA MOV: <1100V peak
Protection at Imax (8/20µs)	6kA SAD: <550V peak 40kA MOV: <1600V peak
Tested or Compliant With	BS EN 61643-11 BS EN 62305-4:2006 BS6651:1999 Annex C
Replaceable Plug-in Modules	2 pin connection to base
Protection Status Indicators	Mechanical flag mechanism Full protection present: Green No protection: Red
Remote Status Indication Option	Hard wired
Remote Indication Connections	Volt free N/O or N/C contacts
Terminals	Base: 1.6-35mm ² Remote: 2.5mm ² max
Remote Signalling Terminals	Rated at 230V RMS 1A or 30V DC 2A
Module and Base Material	Flame retardant ABS
Device Style	35mm DIN Rail mounted to EN 50022
Type According to BS EN 61643-11	SPD Type II, Class II (MOV models) and SPD Type III, Class III (SAD models)
Protection Rating	IP20
Dimensions (Single Module Assembly)	90mm high x 17.5mm wide x 75mm deep

Dimensions (mm)



Assembly	High	Wide	Deep
1 Module	90	17.5	75
2 Module	90	35	75
3 Module	90	52.5	75
4 Module	90	70	75

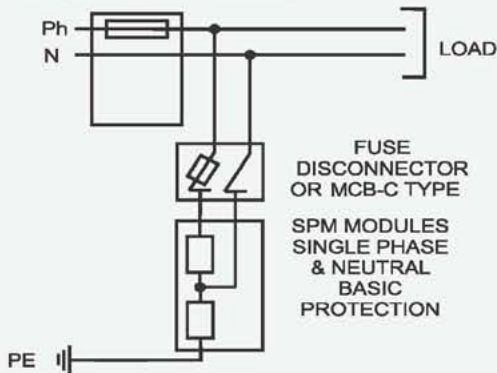
Add 15mm to width if remote indication facility required



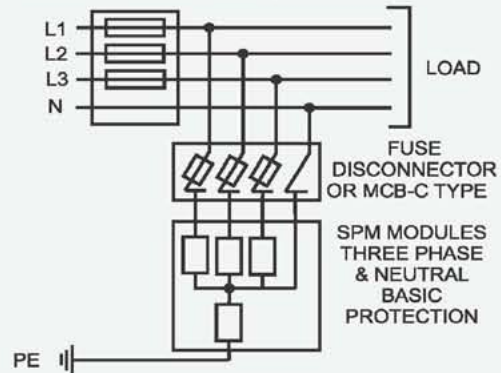
Wiring Connections

SPM connection bases should be connected in parallel across the supply to be protected. The connecting cable does not carry the supply current, only the current associated with suppressing the transient overvoltage. SPM surge protection devices should be installed on the load side of an MCB or fuse disconnecter, enabling isolation for maintenance if required, and protection of high load circuits. Each module is internally fused for both thermal and over current protection and will discriminate with the supply MCB or fuse disconnecter. If RCD's are used, the SPM must be fitted in front of the device to avoid nuisance tripping.

Single Phase Wiring

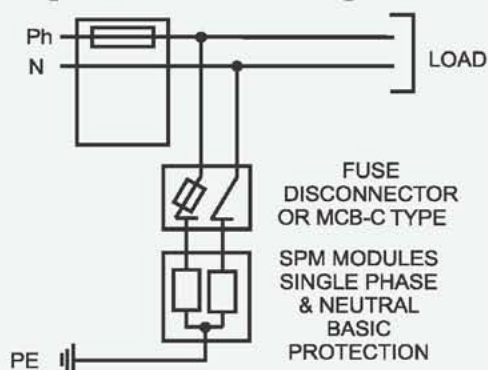


Three Phase Wiring

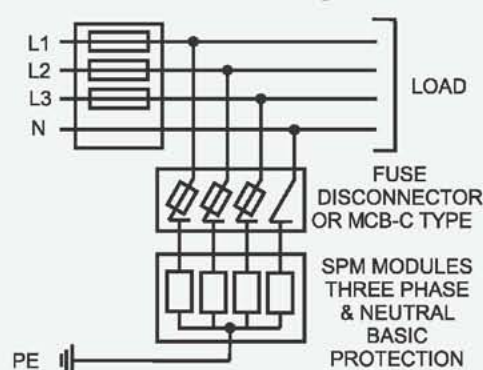


TNS wiring: the neutral conductor and the earth conductor are separated.

Single Phase TNS Wiring

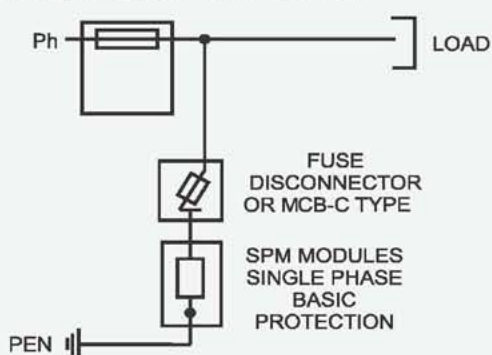


Three Phase TNS Wiring

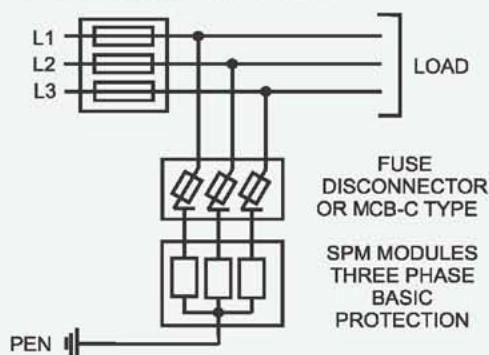


TNC wiring: the neutral conductor and the protective conductor merge into one (PEN) conductor

Single Phase TNC Wiring



Three Phase TNC Wiring




Fusing

SPM surge protection devices are suitable for direct connection to a system with line protection rated up to 100A using 16mm² min connecting cables, or above 100A providing in-line over current protection is fitted. In the event of a surge exceeding the maximum surge capability of the chosen SPM device, additional in-line disconnecting fuses will prevent rupture of the main fuse and disconnection of the supply. In order to discriminate with the supply fuse, the in-line fuse should be in the ratio of 1:2. The in-line fuses can be replaced by MCB's Type C.


Product Codes		
6kA SAD Plug-In Surge Protection Modules & Base Assemblies		Catalogue No
6kA Single Phase (L-N, L-E)		A1SPM/6/230
6kA Single Phase with Remote Indication (L-N, L-E)		A1SPM/6/230R
6kA Single Phase with Neutral/Earth		A1SPM/6/230N
6kA Single Phase with Neutral/Earth & Remote Indication		A1SPM/6/230NR
6kA Three Phase (L-N, L-E)		A3SPM/6/230
6kA Three Phase with Remote Indication (L-N, L-E)		A3SPM/6/230R
6kA Three phase with Neutral/Earth		A3SPM/6/230N
6kA Three Phase with Neutral/Earth & Remote Indication		A3SPM/6/230NR
6kA Neutral/Earth		A1SPM/NE/6/230

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Product Codes		
40kA MOV Plug-In Surge Protection Modules & Base Assemblies		Catalogue No
40kA Single Phase (L-N, L-E)		A1SPM/40/230
40kA Single Phase with Remote Indication (L-N, L-E)		A1SPM/40/230R
40kA Single Phase with Neutral/Earth		A1SPM/40/230N
40kA Single Phase with Neutral/Earth & Remote Indication		A1SPM/40/230NR
40kA Three Phase (L-N, L-E)		A3SPM/40/230
40kA Three phase with Remote Indication (L-N, L-E)		A3SPM/40/230R
40kA Three Phase with Neutral/Earth		A3SPM/40/230N
40kA Three Phase with Neutral/Earth & Remote Indication		A3SPM/40/230NR
40kA Neutral/Earth		A1SPM/NE/40/230

Product Codes		
Replacement Plug-In Surge Protection Modules		Catalogue No
6kA SAD Module		SPM/6/230
6kA SAD Neutral/Earth Module		SPM/NE/6/230
40kA MOV Module		SPM/40/230
40kA MOV Neutral/Earth Module		SPM/NE/40/230

Product Codes		
DIN Rail Modular Connection Bases		Catalogue No
Single Module Base		SPMB1
Single Module Base With Remote Indication		SPMB1/R
Two Module Base		SPMB2
Two Module Base With Remote Indication		SPMB2/R
Three Module Base		SPMB3
Three Module Base With Remote Indication		SPMB3/R
Four Module Base		SPMB4
Four Module Base With Remote Indication		SPMB4/R

All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct and reliable.

Users, however, should independently evaluate the suitability of each product for the desired application. Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale..

6651C Surge Protector



The 6651C unit is a Type 2 surge protector (BS EN 61643-11), suitable for use at the boundary of Lightning Protection Zones 1-2 (BS EN 62305). The protector provides an economical means of preventing damage to electrical installations from induced voltage transients caused by switching or nearby lightning strikes.

The 6651C unit provides three mode system protection from mainsborne voltage spikes and surges that can occur between phase and neutral, phase and earth, neutral and earth and additionally phase to phase for the three phase model. This protection is achieved by using high energy elements which absorb or redirect incoming mainsborne transients. Every unit has two stages of protection, the status of which are clearly indicated by lights incorporated in the front panel, thus ensuring continuity of protection by allowing time for replacement once the first stage has ceased to protect.

Installation:

Designed to be quickly and easily installed either alongside the incoming electrical supply or sub-distribution panels, the unit is connected in parallel with the mains supply, thus eliminating complicated by-pass wiring associated with series suppressors.

Connected in this manner the 6651C thereby carries only the current associated with the transient being discharged.

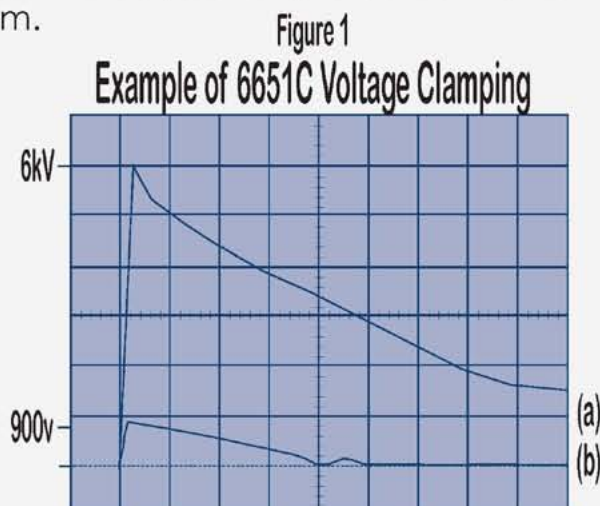
By connecting the 6651C ahead of a RCD the incidence of nuisance tripping may be reduced. The unit is suitable for direct connection to a line rated up to 60 Amps but can be connected via 60 Amp series fuses (BS HD 60269-2:2010, BS 88-2:2010) for lines up to 100 Amps (If MCBs are used in place of fuses they should be of type C). Since the 6651C should be installed as close as possible to the distribution panel the half metre cable supplied should be reduced in length if possible and as appropriate. The 6651C unit may be installed at any angle to achieve minimum cable length, so the cable entry may be at the top, bottom, right or left of the housing.

Operation

The 6651C will automatically reset after clamping surges up to the required 10kA level and the Green light(s) indicates that full protection is present. However, after clamping a number of 10kA surges the energy handling capability of the unit's first stage may be exceeded causing the 6651C's internal fuses to operate thus safely disconnecting this stage. The Red light(s) will then also be illuminated and, whilst the system will still be adequately protected, the unit should be replaced before a further large surge can remove the second protection stage. There is no protection present when only the Red light(s) is illuminated, but unprotected mains power will still be supplied to the system.

Let Through Voltage

The let-through voltage of the 6651C, including 0.5 metre of cable, is less than 900 volts in all modes when tested at 6kV 1.2/50µs o/c 3kA 8/20µs s/c



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Maintenance

The unit requires no maintenance other than a routine examination of the status of the lights and replacement if required.

Safety

The 6651C unit includes internal fuses to ensure that suppression components are adequately protected in the event of violent electrical discharge.

Specification	Single Phase 	Three Phase 
Voltage rating (Nominal)	230V rms	400V rms
Maximum Operating voltage	300V rms	L-N 300 V rms L-L 500 V rms
Maximum current rating	Unlimited (Parallel Connection)	Unlimited (Parallel Connection)
Maximum surge current handling (8/20 μ s)	10 kA	10 kA
Response time	<10 ns	<10 ns
Power consumption	Negligible	Negligible
Leakage current	0.15 mA	0.40 mA
Cable Supplied (0.5 m)	3 Core 2.5mm ²	5 Core 2.5mm ²
Operating temperature	-40° to +70° Celcius	-40° to +70° Celcius
Indicator Lights	Green - Full Protection Red & Green - Reduced Protection Red - No Protection	Green - Full Protection Red & Green - Reduced Protection Red - No Protection
Case	Powder Coated Mild Steel	Powder Coated Mild Steel
IP Rating	54	54
Type according to BS EN 61643-11	2	2
Dimensions (in mm)		
L	182	182
W	81	81
D	61	61
Weight (in grams)	900	1100
Part Code	6651C/1	6651C/3

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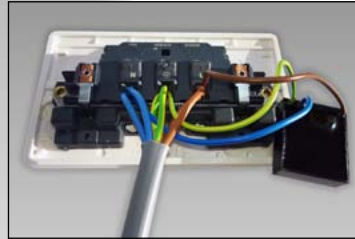
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T3SP1/1.5/3.0/230S Type III Class III

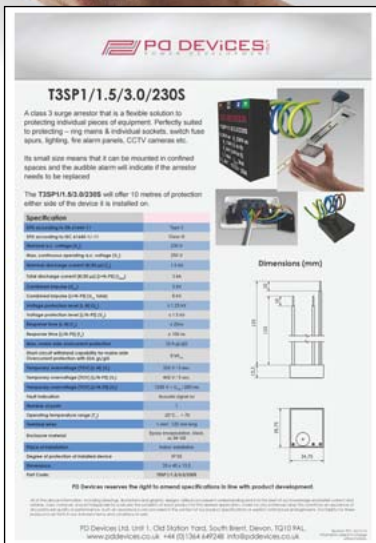
A class 3 surge arrester that is a flexible solution to protecting individual pieces of equipment. Perfectly suited to protecting – ring mains & individual sockets, switch fuse spurs, lighting, fire alarm panels, CCTV cameras etc.

Its small size means that it can be mounted in confined spaces and the audible alarm will indicate if the arrester needs to be replaced

The T3SP1/1.5/3.0/230S will offer 10 metres of protection either side of the device it is installed on.



T3SP1/1.5/3.0/230S INSTALLED



T3SP1/1.5/3.0/230S

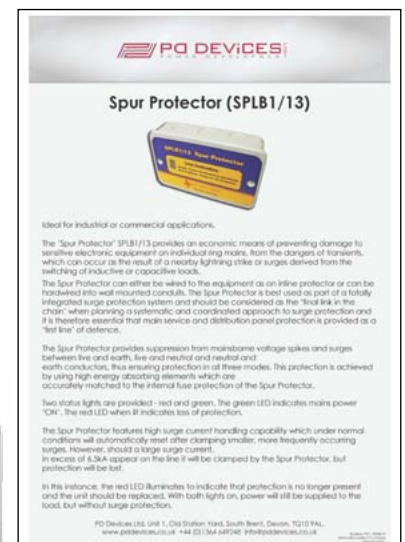


Datasheets are available on our website:

<http://www.pddevices.co.uk/mains-internal-distribution-and-spurs.html>

Spur Protector (SPLB1/13) Type III Class III

The 'Spur Protector' SPLB1/13 provides an economic means of preventing damage to sensitive electronic equipment on individual ring mains, from the dangers of transients, which can occur as the result of a nearby lightning strike or surges derived from the switching of inductive or capacitive loads.



SPLB1/13



Datasheets are available on our website:

<http://www.pddevices.co.uk/mains-internal-distribution-and-spurs.html>

For more information please go to: www.pddevices.co.uk

T3SP1/1.5/3.0/230S

A class 3 surge arrester that is a flexible solution to protecting individual pieces of equipment. Perfectly suited to protecting – ring mains & individual sockets, switch fuse spurs, lighting, fire alarm panels, CCTV cameras etc.

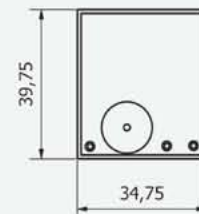
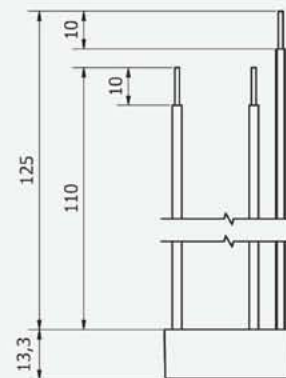
Its small size means that it can be mounted in confined spaces and the audible alarm will indicate if the arrester needs to be replaced

The T3SP1/1.5/3.0/230S will offer 10 metres of protection either side of the device it is installed on.



Specification	
SPD according to EN 61643-11	Type 3
SPD according to IEC 61643-1/-11	Class III
Nominal a.c. voltage (U_n)	230 V
Max. continuous operating a.c. voltage (U_c)	250 V
Nominal discharge current (8/20 μ s) (I_n)	1.5 kA
Total discharge current (8/20 μ s) [L+N-PE] (I_{total})	3 kA
Combined impulse (U_{oc})	3 kV
Combined impulse [L+N-PE] ($U_{oc, total}$)	6 kV
Voltage protection level [L-N] (U_p)	≤ 1.25 kV
Voltage protection level [L/N-PE] (U_p)	≤ 1.5 kV
Response time [L-N] (t_r)	≤ 25 ns
Response time [L/N-PE] ($t_{r\lambda}$)	≤ 100 ns
Max. mains-side overcurrent protection	32 A gL/gG
Short-circuit withstand capability for mains-side Overcurrent protection with 32A gL/gG	6 kA _{ms}
Temporary overvoltage (TOV) [L-N] (U_t)	335 V / 5 sec.
Temporary overvoltage (TOV) [L/N-PE] (U_t)	400 V / 5 sec.
Temporary overvoltage (TOV) [L+N-PE] (U_t)	1200 V + U_{cb} / 200 ms
Fault indication	Acoustic signal on
Number of ports	1
Operating temperature range (T_o)	-25°C... + 70
Terminal wires	1 mm ² , 125 mm long
Enclosure material	Epoxy encapsulation, black, uL 94 VØ
Place of installation	Indoor installation
Degree of protection of installed device	IP 50
Dimensions	35 x 40 x 13.5
Part Code:	T3SP1/1.5/3.0/230S

Dimensions (mm)



PD Devices reserves the right to amend specifications in line with product development.

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Spur Protector (SPLB1/13)



Ideal for industrial or commercial applications.

The 'Spur Protector' SPLB1/13 provides an economic means of preventing damage to sensitive electronic equipment on individual ring mains, from the dangers of transients, which can occur as the result of a nearby lightning strike or surges derived from the switching of inductive or capacitive loads.

The Spur Protector can either be wired to the equipment as an inline protector or can be hardwired into wall mounted conduits. The Spur Protector is best used as part of a totally integrated surge protection system and should be considered as the 'final link in the chain' when planning a systematic and coordinated approach to surge protection and it is therefore essential that main service and distribution panel protection is provided as a 'first line' of defence.

The Spur Protector provides suppression from mainsborne voltage spikes and surges between live and earth, live and neutral and neutral and earth conductors, thus ensuring protection in all three modes. This protection is achieved by using high energy absorbing elements which are accurately matched to the internal fuse protection of the Spur Protector.

Two status lights are provided - red and green. The green LED indicates mains power 'ON'. The red LED when lit indicates loss of protection.

The Spur Protector features high surge current handling capability which under normal conditions will automatically reset after clamping smaller, more frequently occurring surges. However, should a large surge current, in excess of 6.5kA appear on the line it will be clamped by the Spur Protector, but protection will be lost.

In this instance, the red LED illuminates to indicate that protection is no longer present and the unit should be replaced. With both lights on, power will still be supplied to the load, but without surge protection.

Specification	
Operating Voltage	230 Volts rms nominal 280 Volts rms max
Maximum Current Rating	13Amps
Leakage Current*	125µA at 230V rms
Maximum Surge Current (8/20us) [Per Element]	6.5kA
Response Time	<10ns
Let Through Voltage at 3kA 8/20µs	850 volts L-N, L-E, N-E
Type (BS EN 61643-11)	III
Status Indication	Green - Power 'ON' Protection Operational Green & Red - Power 'ON' No Protection
Case	Steel - epoxy paint
Dimensions in (mm) L	142
W	80
D	44
Weight (in grams)	431
Part Code	SPLB1/13

*The surge protection devices commence clamping surges as low as 450 volts and therefore appear as less than 2 MΩ resistance at 500V DC.

All of the above information, including drawings, illustrations and graphic designs, reflects our present understanding and is to the best of our knowledge and belief correct and reliable. Users, however, should independently evaluate the suitability of each product for the desired application.

Under no circumstances does this constitute an assurance of any particular quality or performance. Such an assurance is only provided in the context of our product specifications or explicit contractual arrangements. Our liability for these products is set forth in our standard terms and conditions of sale.

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WEB: www.pddevices.co.uk



DBP & MBP Series Type III Class III

The **DBP Series** is designed for business and industrial applications, these products provide protection for local area networks, CCTV/video equipment, computer serial communication interfaces and process control systems against the damaging effects of transient overvoltages caused by lightning, AC power systems and other electrically "noisy" sources.

PD DEVICES

DBP Series Data Barrier Protection

Designed for business and industrial applications, these products provide protection for local area networks, CCTV/video equipment, computer serial communication interfaces and process control systems against the damaging effects of transient overvoltages caused by lightning, AC power systems and other electrically "noisy" sources.

Low energy and low surge currents, however can cause gradual degradation of the sensitive integrated circuits used in network interfaces and CCTV hardware. This is related to the eventual failure of the equipment.

At the other end of the scale are the high energy surges induced by lightning and direct mechanical contact with power cables which can result in the immediate destruction of circuitry.

Computer network systems using coaxial or twisted pair cabling are subject to electrical interference pick-up from surges caused by earth conductive differences, a significant problem for data coming between buildings. Low energy transients can be the result of electrostatic discharge and power switching in electrical machinery.

Due to earth potential differences, impedance imbalances such as RFI and RFISS systems operating over large areas, are particularly susceptible to the effects of lightning strikes even when they are covered metal rods.

The DBP Series offers low cost and effective surge protection for applications where cables leave the security of the office and enter electrically noisy environments.

Features

- Exceeds high surge handling capability meets the 10KA requirements of BS4101:1991 Annex C, to provide long life and low maintenance.
- Meets the requirements of BS EN62305-4:2004 (part 4) (part 4) Annex C, to provide long life and low maintenance.
- Small form factor D-mount design.
- Rugged construction (polyester reinforced plastic).
- DIN rail mounting for modular installation.
- DIN rail mounting provides the ease of installation.
- 27 models provided with two port push in wire terminal connections for ease of installation or replacement.
- DIN rail mounting system fully compliant with BS EN 60715.
- Low "let through" voltages.
- Full surge protection.
- Highlighted effect on normal line operation.
- Robust earth stud provides for installation security.
- High surge handling capabilities.

Instant protection from surges caused by:

- Lightning
- Switching device systems
- Process control systems (switching with power cables)
- Electrical machinery
- Electrostatic discharge

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DBP-BNC-CCTV INSTALLATION

The **MBP Series** Mains Protectors are designed for business and industrial applications, these products are designed to provide protection as standalone modules or in combination with In-line Data Surge Protectors to protect any combination of data and power lines against the damaging effects of transient overvoltage caused by lightning, switching and electrically "noisy" sources.

PD DEVICES

MBP In-line Surge Protectors

PD Devices In-line Mains Protectors are designed for business and industrial applications, these products are designed to provide protection as standalone modules or in combination with In-line Data Surge Protectors to protect any combination of data and power lines against the damaging effects of transient overvoltage caused by lightning, switching and electrically "noisy" sources.

Applications

- Back-up for power supplies
- Long-range data acquisition and display systems, e.g. Sports centres
- Plant and process control systems
- Signalling and telemetry to remote sites
- "Intelligent" meter lighting
- Computerised cash registers (EPOS)
- Domestic central heating (CH) controls
- Closed circuit television (CCTV) security

Standard Features

- Rugged construction (polyester reinforced plastic)
- DIN rail mounting for modular installation
- Full surge protection for ease of installation or replacement
- Faults that provided for ease of multiple switching of calls
- Low "let through" voltages
- Full surge protection
- High surge handling capabilities

Specifications

Model	MBP-1/15	MBP-1/20	MBP-1/15	MBP-1/20
Description	In-line Mains Protector	In-line Mains Protector	In-line Mains Protector	In-line Mains Protector
Operating Voltage	230V ac	230V ac	230V ac	230V ac
Maximum Current Rating	15 amp	20 amp	15 amp	20 amp
Surge Current	10 kA	15 kA	10 kA	15 kA
Surge Voltage	25 kV	30 kV	25 kV	30 kV
Response Time	< 1 ns	< 1 ns	< 1 ns	< 1 ns
Surge Protection	Yes	Yes	Yes	Yes
Surge Current	10 kA	15 kA	10 kA	15 kA
Surge Voltage	25 kV	30 kV	25 kV	30 kV
Response Time	< 1 ns	< 1 ns	< 1 ns	< 1 ns
Surge Protection	Yes	Yes	Yes	Yes

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DBP Series Data Barrier Protection

Designed for business and industrial applications, these products provide protection for local area networks, CCTV/video equipment, computer serial communication interfaces and process control systems against the damaging effects of transient overvoltages caused by lightning, AC power systems and other electrically "noisy" sources.

Low energy and seemingly harmless transients can cause gradual degradation of the sensitive integrated circuits used in network interfaces and CCTV hardware. This will lead to the eventual failure of the equipment.

At the other end of the scale are the high energy surges induced by lightning and direct short-circuit contact with power cables which can result in the immediate destruction of circuitry.

Computer network systems using coaxial or twisted pair cabling are subject to electrical interference pick-up from surges caused by earth potential differences - a particular problem for LANs running between buildings. Low energy transients can be the result of electrostatic discharge and power switching in electrical machinery.

Due to earth potential differences, long-distance cables, such as RS422 and RS485 systems operating over large areas, are particularly susceptible to the effects of lightning strikes even when they are several miles away.

The DBP Series offers low cost and effective surge suppression for applications where cables leave the security of the office and enter electrically harsh environments.

Features

- Exceptionally high surge handling capability meets the 10kA requirements of BS6651:1999 Annex C, to provide long life and low maintenance
- Meets the requirements of BS EN62305-4:2006 (which replaced BS6651:1999 Annex C in August 2008) and BS EN61643 21/22
- BS6651:1999 Annex C location category C
- Rugged construction (grey moulded plastic).
- DIN rail mounting for modular installation.
- DIN rail earthing provided for ease of installation.
- ST models provided with two port push in screw terminal connectors for ease of installation or replacement.
- Panel mounting screw holes for permanent installation.
- Low "let through" voltages.
- Fast response times.
- Negligible effect on normal line operation.
- Additional earth stud provided for installation versatility.
- Many models offer lower line resistance and higher line current capability than most other competitors products.

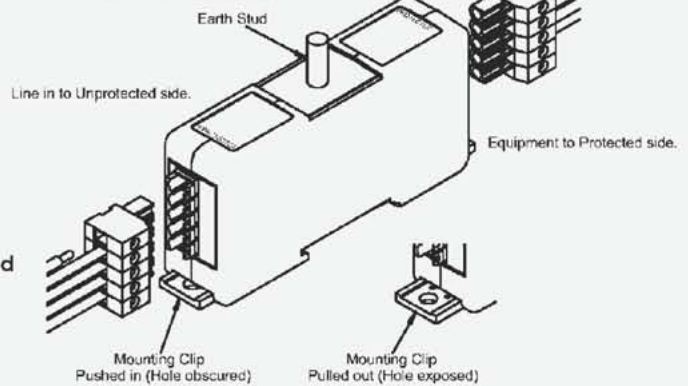
Instant protection from surges caused by:

- Lightning.
- Nearby power systems.
- Power-cross faults (direct contact with power cables).
- Electrical machinery.
- Electro-static discharge.

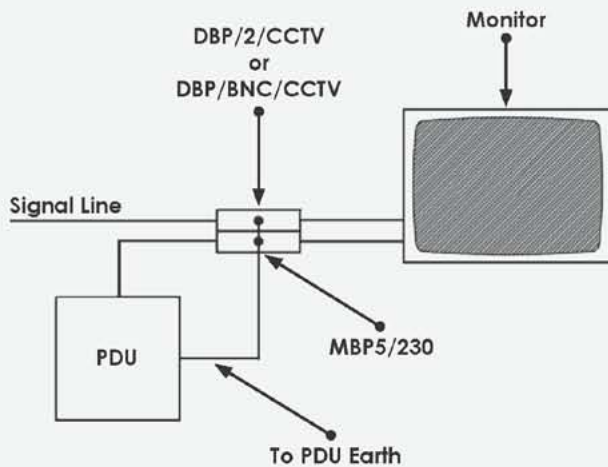
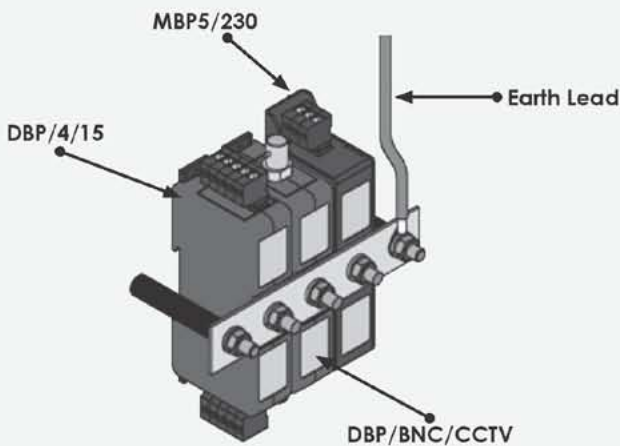


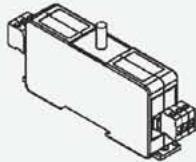
Applications

- Building-to-building serial communication.
- Long-range data acquisition and display systems at sports venues.
- Plant and process control systems.
- Signalling and telemetry to remote sites.
- "Intelligent" stage lighting.
- Local area networks (LAN)
- Office computer networks.
- Electronic cash registers (EPOS).
- Ethernet (10Base2, 10Base5 & 10BaseT), Cat 5, RS485, RS232, RS422 and Token Ring
- Closed circuit television (CCTV security).



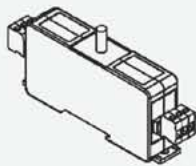
DBP Application





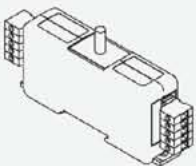
DBP/2/06
RS485 ST BARRIER

A barrier protector designed for RS485 lines providing screw terminals for secure connection. Intended for hardwired installation on remote computer controlled equipment.



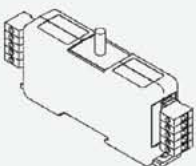
DBP/2/30
4-20mA ST LOOP BARRIER

This device provides protection for process control applications using 4-20mA current loop signalling. A pluggable terminal strip allows the unit to be readily disconnected once wired into the circuit.



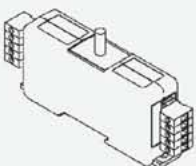
DBP/4/06
RS485 ST BARRIER

A barrier protector designed for RS485 lines providing screw terminals for secure connection. Intended for hardwired installation on remote computer controlled equipment.



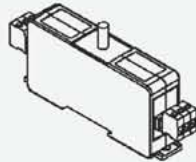
DBP/4/15
RS422 ST BI-POLAR BARRIER

A bi-polar RS422 surge barrier for long distance serial communication lines requiring hardwired installation. Applications include data collection and public display as well as process control



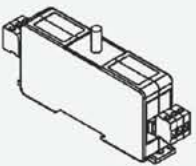
DBP/4/50
TWISTED PAIR BARRIER

A barrier protector designed for twisted pair data communication signal lines up to 50 volts. Intended for hardwired installation and provided with screw terminals for secure connection.



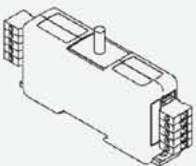
DBP/2/15
RS232 ST BARRIER

A barrier protector for RS232 serial communications requiring hardwired installation in low-risk situations. Ideal for short building-to-building cable runs and where cables pass through a factory area.



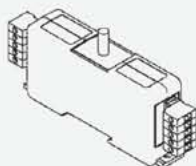
DBP/2/50
TWISTED PAIR BARRIER

A barrier protector designed for twisted pair data communication signal lines up to 50 volts. Intended for hardwired installation and provided with screw terminals for secure connection.



DBP/4/15
RS232 ST BARRIER

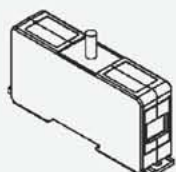
A barrier protector for RS232 serial communications requiring hardwired installation in low-risk situations. Ideal for short building-to-building cable runs and where cables pass through a factory area.



DBP/4/30
4-20mA ST 2-PAIR LOOP BARRIER

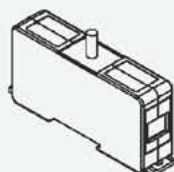
A version of the 4-20mA Current Loop Barrier provides dual-pair protection required on systems using bi-directional data transfer or process control signalling.





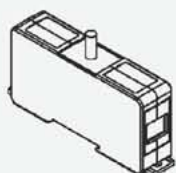
DBP/RJ45/100BT
CATEGORY 5 BARRIER

Provides primary level surge protection for category 5 cabling installations using RJ45 modular jack connectors.



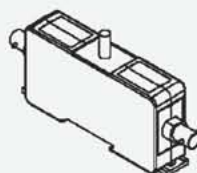
DBP/RJ45/100BT
TOKEN RING BARRIER

This barrier device provides protection for Token Ring systems using RJ45 modular jack connectors.



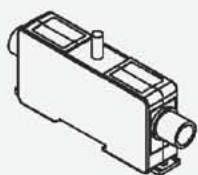
DBP/RJ45/100BT
10BASET BARRIER

Designed for Ethernet 10BaseT (twisted pair) systems with RJ45 modular jack connectors.



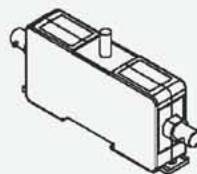
DBP/BNC/10B2
10BASE2 BARRIER

Provides primary level surge protection for Ethernet 10Base2 (ThinNet or CheaperNet) systems with BNC connectors.



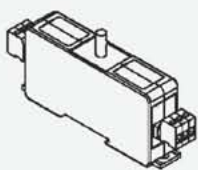
DBP/N/10B5
10BASE5 BARRIER

A barrier protector designed for Ethernet 10Base5 (ThickNet) systems with 'N' type connectors where "backbone" cables connect buildings.



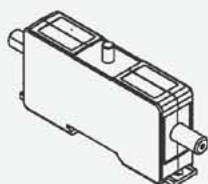
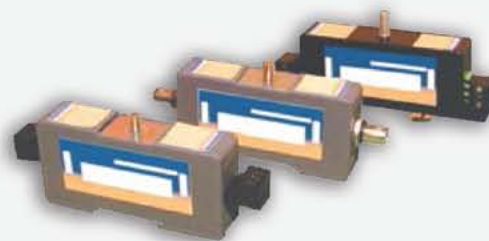
DBP/BNC/CCTV
CCTV & VIDEO BARRIER

Designed to protect CCTV video systems with coax connectors. Particularly ideal for remotely situated cameras with BNC connectors.



DBP/2/CCTV
CCTV & VIDEO ST BARRIER

Similar to the CCTV & VIDEO BARRIER, this unit is designed specifically for CCTV video systems requiring hardwired installation. Particularly ideal for systems using twisted pair or with no standard connection in remote areas.

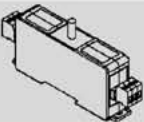
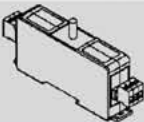
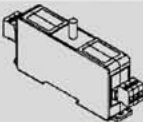
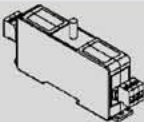


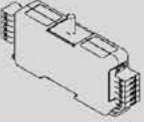
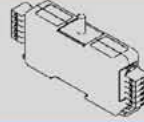
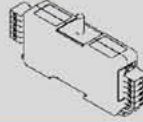
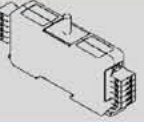
DBP/CATV

Cable TV / Satellite System Barrier

Provides surge protection for Cable TV and Satellite Systems. Protection is provided against the damaging effects of transient overvoltages caused by lightning, AC power sub systems and other electrically "noisy" sources.


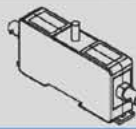

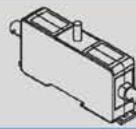


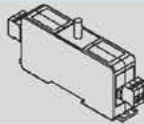
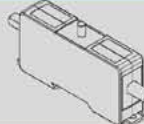
Specifications				
Part Code	DBP/2/06	DBP/2/15	DBP/2/30	DBP/2/50
Description	RS485 ST Barrier	RS232 ST Barrier	4-20mA ST Loop Barrier	Twisted Pair Barrier
Connectors	Screw Terminals 2-Wire	Screw Terminals 2-Wire	Screw Terminals 2-Wire	Screw Terminals 2-Wire
Nominal Working Voltage (DC)	6V	15V	30V	50V
Maximum Working Voltage (DC)	7.5V	6.5V	36.5V	58V
Current Rating (Signal)	1.25A	1.25A	1.25A	1.25A
Clamping Voltage ⁽¹⁾	11V	27V	45V	75V
Maximum Surge Current ⁽²⁾	10kA	10kA	10kA	10kA
Line Resistance ($\pm 10\%$)	1 Ω	1 Ω	1 Ω	1 Ω
Response Time	<10ns	<10ns	<10ns	<10ns
System Exposure Level ⁽³⁾	High	High	High	High
Operating Temperature	-25° to +70° C	-25° to +70° C	-25° to +70° C	-25° to +70° C
Dimensions (in mm) W	135	135	135	135
D	50	50	50	50
H	25	25	25	25

Specifications				
Part Code	DBP/4/06	DBP/4/15	DBP/4/30	DBP/4/50
Description	RS485 ST Barrier	RS232 ST Barrier	4-20 mA ST 2-pair Loop Barrier	Twisted Pair Barrier
Connectors	Screw Terminals 4-Wire	Screw Terminals 4-Wire	Screw Terminals 4-Wire	Screw Terminals 4-Wire
Nominal Working Voltage (DC)	6V	15V	30V	50V
Maximum Working Voltage (DC)	7.5V	16.5V	36.5V	58V
Current Rating (Signal)	1.25A	1.25A	1.25A	1.25A
Clamping Voltage ⁽¹⁾	11V	27V	45V	75V
Maximum Surge Current ⁽²⁾	10kA	10kA	10kA	10kA
Line Resistance ($\pm 10\%$)	1 Ω	1 Ω	1 Ω	1 Ω
Response Time	<10ns	<10ns	<10ns	<10ns
System Exposure Level ⁽³⁾	High	High	High	High
Operating Temperature	-25° to +70° C	-25° to +70° C	-25° to +70° C	-25° to +70° C
Dimensions (in mm) W	135	135	135	135
D	50	50	50	50
H	25	25	25	25

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Revision: PD2, 11/04/12
 Information subject to change without notice.

Specifications				
Part Code	DBP/RJ45/100BT	DBP/BNC/10B2	DBP/N/10B5	DBP/BNC/CCTV
Description	Category 5 Barrier	10Base2 Barrier	10Base5 Barrier	CCTV & Video Barrier
Connectors	Modular RJ45	BNC-Type Coaxial	N-Type Coaxial	BNC-Type Coaxial
Nominal Working Voltage (DC)	≤4.0V	-2.05V	-2.05V	2.0V
Maximum Working Voltage (DC)	4.0V	-4.5V	-4.5V	6.5V
Current Rating (Signal)	330mA	330mA	330mA	330mA
Clamping Voltage ⁽¹⁾	25V/600V	20V/325V	20V/325V	17V
Maximum Surge Current ⁽²⁾	10kA	10kA	10kA	10kA
Line Resistance (±10%)	1Ω	0.5Ω	0.5Ω	1Ω
Response Time	<10ns	<10ns	<10ns	<10ns
System Exposure Level ⁽³⁾	High	High	High	High
Operating Temperature	-25° to +70° C	-25° to +70° C	-25° to +70° C	-25° to +70° C
Dimensions (in mm) W	135	135	135	135
D	50	50	50	50
H	25	25	25	25

Specifications		
Part Code	DBP/2/CCTV	DBP/CATV
Description	CCTV & Video ST Barrier	Cable TV / Satellite System Barrier
Connectors	Screw Terminals 2-Wire	F Type Coaxial
Nominal Working Voltage (DC)	2.0V	50V
Maximum Working Voltage (DC)	6.5V	60V
Current Rating (Signal)	330mA	330mA
Clamping Voltage ⁽¹⁾	17V	20V
Maximum Surge Current ⁽²⁾	10kA	10kA
Line Resistance (±10%)	1Ω	0.5Ω
Response Time	<10ns	<10ns
System Exposure Level ⁽³⁾	High	High
Operating Temperature	-25° to +70° C	-25° to +70° C
Dimensions (in mm) W	135	135
D	50	50
H	25	25

Notes:

- (1) 'Let through' voltage when 5kV (10/700μs) @ 125A surge waveform applied
- (2) 8/20μs surge current applied without failure of unit
- (3) BS6651:1999 Annex C - Category C exposure level capability

Optional Extras

An extensive range of DIN rail mounting kits and IP rated enclosures are available for the above

For CCTV Video System applications take a look at our MBP series datasheet.

Introduction to the MBP Series

The MBP forms an important part of CCTV surge protection systems. Video circuit protection for cabling of CCTV, Consoles, Camera pan and tilt and Control Room Mains should also be installed.

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MBP In-line Surge Protectors

PD Devices In-line Mains Protectors are designed for business and industrial applications, these products are designed to provide protection as standalone modules or in combination with In-line Data Surge Protectors to protect any combination of data and power lines against the damaging effects of transient overvoltage caused by lightning, switching and electrically "noisy" sources.

Applications:

- Building-to-building power supplies.
- Long-range data acquisition and display systems. E.g. Sports venues.
- Plant and process control systems.
- Signalling and telemetry to remote sites.
- "Intelligent" stage lighting.
- Computer networks.
- Electronic cash registers (EPOS).
- Closed circuit television (CCTV security).

Standard Features:

- Rugged construction (powder coated steel).
- DIN rail mounting for modular installation.
- Two part push in terminal connectors for ease of installation or replacement.
- Earth stud provided for ease of multiple earthing of units.
- Low "let through" voltage.
- Fast response times.
- High surge handling capabilities



Specifications				
Part Code	MBP/5/110	MBP/5/230	MBP/16/110	MBP/16/230
Description	Mains Barrier Protector	Mains Barrier Protector	Mains Barrier Protector	Mains Barrier Protector
Operating Voltage	110 Volts rms nominal 135 Volts rms Max	230 Volts rms nominal 280 Volts rms Max	110 Volts rms nominal 135 Volts rms Max	230 Volts rms nominal 280 Volts rms Max
Maximum Current Rating	5 Amp	5 Amp	16 Amp	16 Amp
Response Time	<10ns	<10ns	<10ns	<10ns
Full Premium Three Mode Protection (L-N, L-E and N-E)	YES	YES	YES	YES
Power Consumption	Negligible	Negligible	Negligible	Negligible
Maximum Surge Current Handling (8/20µs)	10kA	10kA	10kA	10kA
Leakage Current	150µA	150µA	150µA	150µA
No system impairments auto reset after surge has occurred	YES	YES	YES	YES

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Terminals	3mm ² max - Line, Neutral, Earth	3mm ² max - Line, Neutral, Earth	3mm ² max - Line, Neutral, Earth	3mm ² max - Line, Neutral, Earth
Operating Temperature	-25° to +70°C	-25° to +70°C	-25° to +70°C	-25° to +70°C
Location Category BS6651:1999 Annex C	C	C	C	C
Enclosure	Steel - epoxy paint	Steel - epoxy paint	Steel - epoxy paint	Steel - epoxy paint
Response Time	<10ns	<10ns	<10ns	<10ns
Dimensions (in mm) W	130	130	130	150
D	45	45	45	50
H	25	25	25	23

LET THROUGH VOLTAGE OF MBP SERIES	
Tests simulating the effects of Lightning and switching transients	Phase/Neutral Phase/Earth
6kV 1.2/50µs open circuit voltage 3kA 8/20µs short circuit current	590V
4kV 1.2/50µs open circuit voltage 2kA 8/20µs short circuit current to IEC 801-5 (draft)	550V
5kA 8/20µs to NFC 61-740	660V
6kV 0.5µs 100kHz ring wave 500A	490V

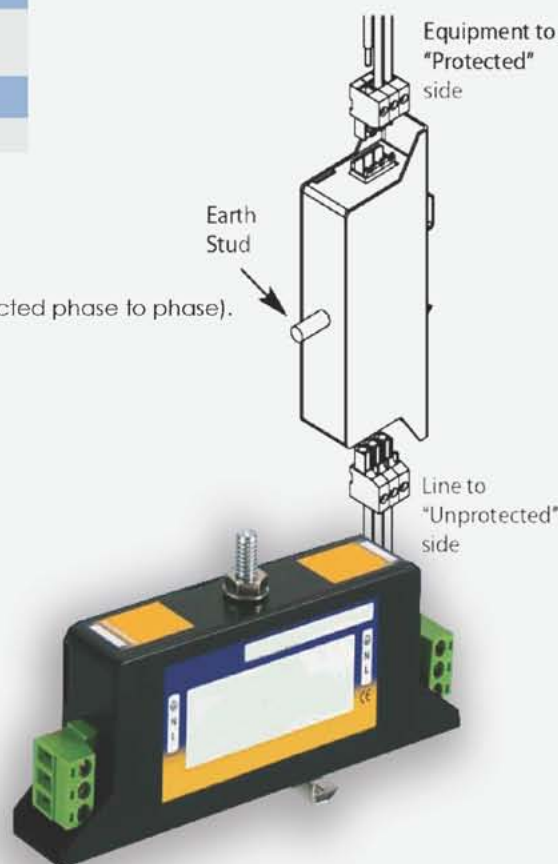
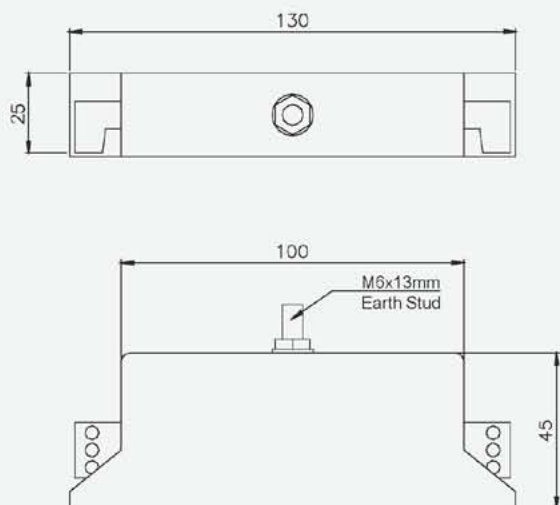
OPTIONAL EXTRAS:

An extensive range of DIN rail mounting kits and IP rated enclosures are available for the above.

Specifications:

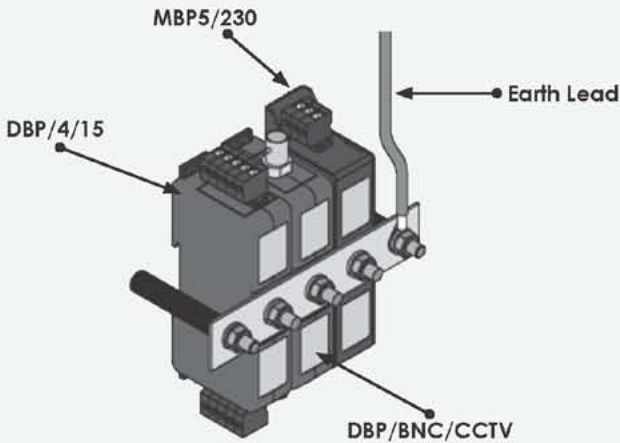
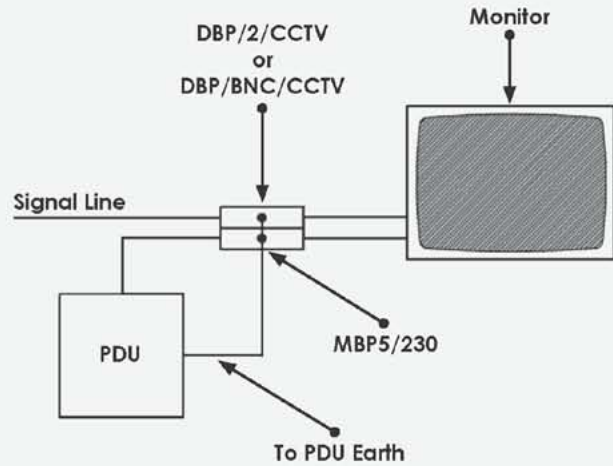
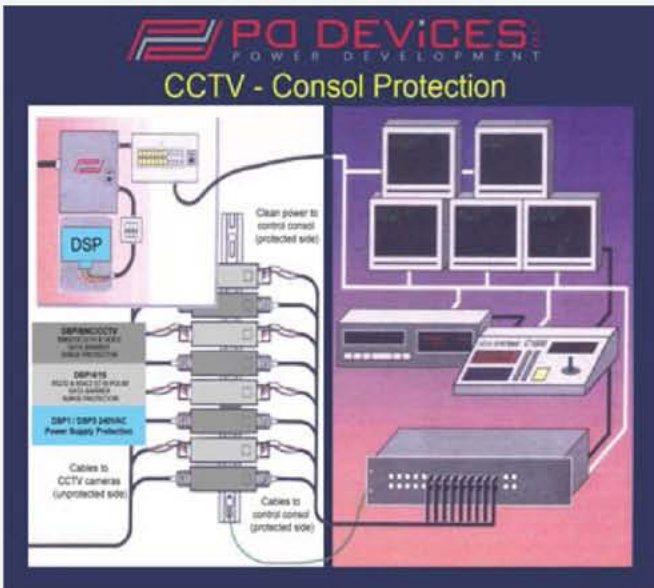
- 5 or 16A units available
- Can be fitted to single or 3 phase systems (NB cannot be connected phase to phase).
- Supply must be fused at or below rated current.

Dimensions

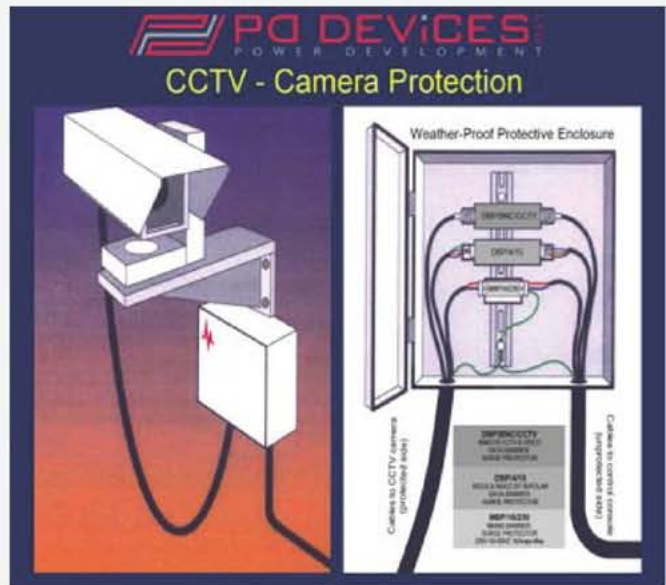


MBP SERIES FOR CCTV PROTECTION

Used with appropriate protectors from our extensive range as illustrated below, the MBP forms an important part of CCTV surge protection systems. Video circuit protection for cabling of CCTV, Consoles, Camera pan and tilt and Control Room Mains should also be installed.



MBP & DBP Application

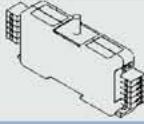
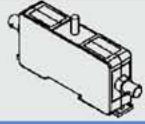
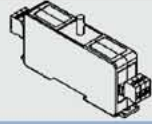


*The following are ideal for use with the MBP series for CCTV Video System applications, for our extensive range of DBP please look at our DBP series datasheet.



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Specifications			
Part Code	DBP/4/15	DBP/BNC/CCTV	DBP/2/CCTV
Description	RS422 ST Bi-polar Barrier	CCTV & Video Barrier	CCTV & Video ST Barrier
Connectors	Screw Terminals 4-Wire	BNC-Type Coaxial	Screw Terminals 2-Wire
Nominal Working Voltage	15V	2V	2V
Maximum Working Voltage	16.5V	6.5V	6.5V
Current Rating (Signal)	1.25A	330mA	330mA
Clamping Voltage ⁽¹⁾	27V	17V	17V
Maximum Surge Current ⁽²⁾	10kA	10kA	10kA
Line Resistance ($\pm 10\%$)	1 Ω	1 Ω	1 Ω
Response Time	<10ns	<10ns	<10ns
System Exposure Level ⁽³⁾	High	High	High
Operating Temperature	-25° to +70° C	-25° to +70° C	-25° to +70° C
Dimensions (in mm)			
W	135	135	135
D	50	50	50
H	25	25	25

Notes:

(1) 'Let through' voltage when 5kV (10/700 μ s) @ 125A surge waveform applied

(2) 8/20 μ s surge current applied without failure of unit

(3) BS6651:1999 Annex C - Category C exposure level capability

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“For All Your Surge Solutions”



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For more information please go to: www.pddevices.co.uk