WSP415M1 & M1R

Three Phase
Distribution Surge Protectors
Type 1/2/3 (Test Class I/II/III)

The **WSP415M1** (Remote) and **WSP415M1R** (Remote & Additional Lead Indicator) are general purpose, hardwired three phase distribution panel protectors with 40kA of surge capacity and two stage (*redundant*) protection provide pre-failure indication.

This device has a site fault condition indicator and relay contacts, which provide remote indication of protection status. They are Ideal for industrial, commercial and domestic applications, they provide 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.

This device 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.

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.

These units feature high surge current handling capability which operates in two stages to ensure continuity of transient suppression.

This device is provided with arrester status monitoring LED's and are also supplied with a site fault condition indicator. Should the light on this indicator flash or be permanently illuminated at anytime, this is to warn of a high voltage between neutral and earth lines and therefore potentially hazardous site conditions.

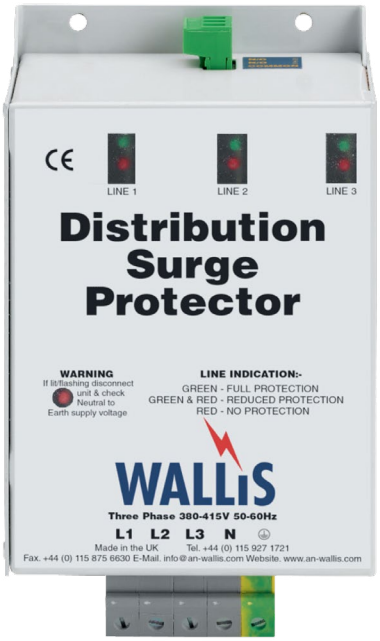
The **WSP415M1R** has all the same features, but these are featured on the supplied remote monitoring unit, which allows the unit to be installed in areas that are inaccessible for regular inspection.

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 40kA, 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

The **WSP415M1** and **WSP415M1R** are both 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.



WSP415M1

WSP415M1R

Quality Assurance:

Approved to BS EN ISO 9001

Revision: **ANW-v5, 07/01/20**
Information subject to change without notice.

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Three Phase
Distribution Surge Protectors
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Features and Benefits
- Full mode (All mode) protection.
- Low let through voltage.
- Protects against transient overvoltages without interruption of supply.
- Pre-failure warning and reserve protection stages allow for continous protection of equipment.
- Proven technology for safe disconnection of the device from abnormal supply conditions or at end of life.
- Per-phase visual indication of surge protection status.
- Remote changeover contacts can be used for intergration into a building management system or other remote warning system.
- Visual indication of high neutral to earth voltages.

High neutral to earth voltages are indicative of potentially dangerous site conditions / faults.

- Robust epoxy coated steel construction.
- The compact design allows the unit to be installed in any convenient location, minimising the length of connecting cables and let-through votalge (U_p)

Installation:
Designed to be easily installed alongside the incoming electrical supply panel or at the sub distribution board of a multi-storey block, these SPD devices are connected in parallel with the supply, thus eliminating complicated by-pass wiring associated with series suppressors. Connected in this manner these units carry only the current associated with the transient being discharged.

They should be installed as close as possible to the Bus Bars / Equipment being protected, with as large a conductor as possible (*10mm² max*). The connecting wires should be routed, avoiding looping, and secured together with ties. This unit must be connected in parallel to the supply via an isolating switch if the mains supply cannot be switched off for the devices replacement.

If RCDs are used on the supply these devices must be fitted in front of such devices to avoid nuisance tripping. Provision should be made for safe replacement of the unit should this become necessary.

The **WSP415M1** may be installed in a housing with transparent cover, available separately (**WBX003 shown below)**, whereas the **WSP415M1R** type is supplied with an additional Indicator monitoring lead unit and is ideal for installations that do not allow for regular inspection of the unit itself.

WSP415M1 Optional Enclosure	
Optional Enclosure Case	Polycarbonate
IP Rating (before installation)	56
Max Dimensions (mm)	
L	245
W	195
D	110
Part Code	**WBX003**

WBX003

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

Fusing:
These devices are 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.

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Maintenance:

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

Surge Test:

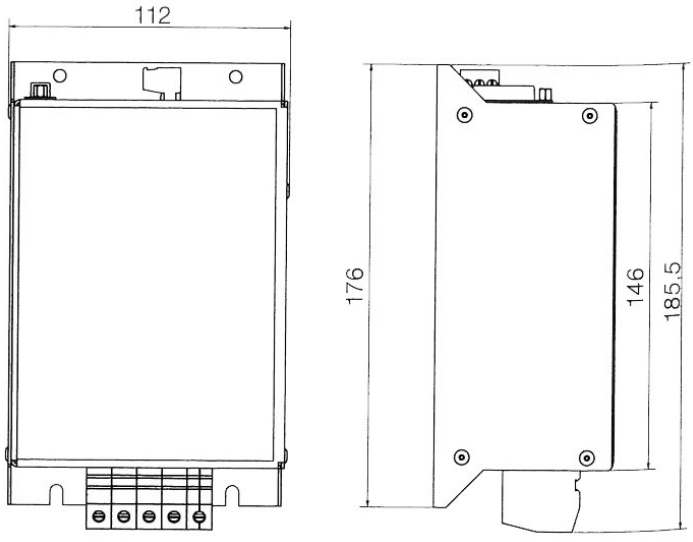
These SPD devices comply with, or is tested to, the requirements of: BS EN62305-4, BS EN61643-11, CLC/TS 61643-12, ANSI/IEEE C62.41, UL1449. The test waveform – 6kV 1.2/50µs O/C, 3kA 8/20µs S/C – applied to the WSP-M1 series gives the resultant let through voltage. ***See tabulation below***.

(*The 'let through voltage' will vary due to the parasitic inductance of the associated mains cable.*)

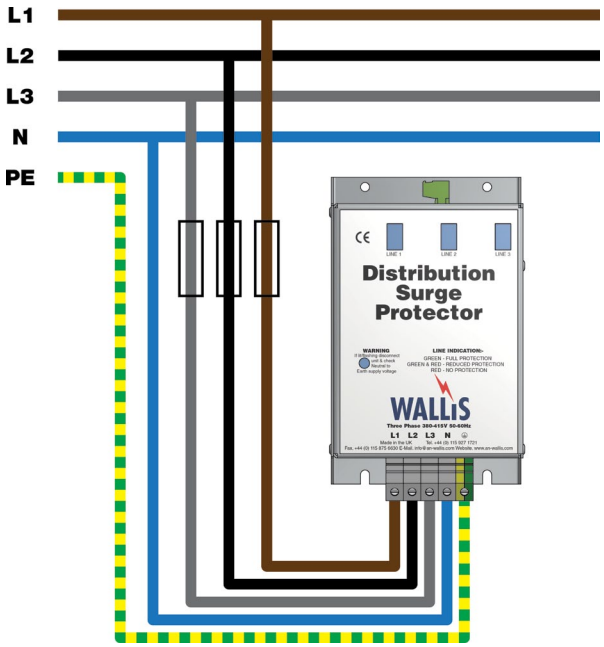
Values given are at protector terminals.

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

WSP415M1 Dimensions in mm



Wiring Diagram WSP415M1



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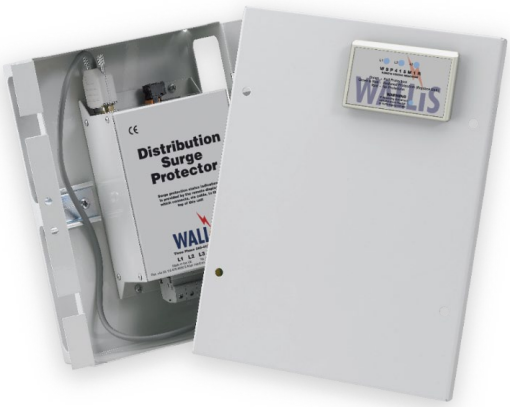
Specification	Three Phase
Voltage rating (Nominal)	400V rms
Operating voltage range	L-N 200 - 300 V rms L-L 350 - 500 V rms
Temporary overvoltage, TOV, L-N	335V
Maximum current rating	Unlimited (Parallel Connection)
Maximum surge current handling (8/20 µs)	40kA per phase
Nominal disharge current, I_n	20kA per phase
Voltage protection level at I_n	<900V
Response time	<10 ns
Max: back-up fuse (gL/gG; MCB - 'C' Curve)	100A
Short circuit current rating, I_{SCCR}	6kA
Power consumption (nominal)	10-18mA per phase
Leakage current to earth	600µA
Terminals	10mm² max (Stranded Cable) 16mm² max (Solid Cable) - Line, Neutral, Earth 2.5mm² max - Remote Signalling
Remote signalling terminals	Rated at 230V rms 0.2 Amp or 30V DC 2 Amp
Remote Monitoring Unit Connectors ('L' type only)	15 Way 'D'
Operating temperature	-40 °C to +70 °C
Light emitting diodes status indication	Green - Full Protection
	Red & Green - Reduced Protection
	Red - No Protection
Site Fault Condition Indicator	Red Lit / Flashing
	Check Neutral / Earth supply voltage
Case	Steel - Epoxy Paint
Type according to: BS EN 61643-11 & IEC 61643-11	SPD Type 1/2/3 (Test Class I/II/III)
Max Dimensions (in mm)	
L	185.5
W	112
D	72
Weight (in grams)	1110g
Part Codes:	
- with remote signalling & on board fault indicator	**WSP415M1**
- with remote signalling / Additional Panel Indicator lead	**WSP415M1R**



WSP415M1R Placed in a cabinet with indicator on face plate

WSP415M1R

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