



PROTEK

Surge Guard Protection Device



PS40

Application

PS40 Surge Protective Device (commonly known as Surge Guard™) provides protection against surge currents resulting from direct or indirect lightning strikes or other instantaneous overvoltages. Surge Guard is for use in circuits with a maximum operating voltage of 460v a.c. and operating frequencies of 50/60Hz.

Standards

The device complies to the following standards
GB18802.1 2002
IEC61643-1 1998

Operation

The Surge Guard unit uses a metal oxide varistor and is designed to protect both the phase and neutral in the event of a lightning strike. The unit offers a high resistance under normal load conditions and it is only when the device detects a lightning strike or a high current that it 'shunts' the current to earth. This is done within less than 25 ms resulting in no damage to the circuit it is protecting.

Once the fault is cleared the device returns to its normal operation. The display window in the Surge Guard unit is Green under normal operation and Red under a fault condition. The unit has a finite life and will display RED if the unit is no longer operational. At this point the plug in cartridge should be replaced.

Specification

Rated Voltage Un:	380v
Max. Continuous Operating Voltage Uc (V)	460v
Voltage Protection Level Up (kV)	2.3kv
Nominal Discharge Current In (kA)	40kA
Max Discharge Current I _{max} (kA) (8/20μS)	70kA
Response Time t (nS)	<25
Power withstanding (J)(2mS)	1500 Joules
Ambient Temperature	-40°C to +80°C
Colour of indicator under normal operation	Green
Colour of indicator under fault condition/failure	RED
Minimum cable size	Phase/Neutral 2.5mm Earth 4mm



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Using a Surge Guard Protection Devices

Choose a either a single, double, three or four pole device depending on the type of circuit that requires protecting

In TN-C-S Systems connect the device between the Line conductor and Earth

In TN-S and TT Systems connect the device between Line and both Neutral and Earth

Figures 1, 2 & 3 show typical SPD connections in mains positions of various earthing arrangements

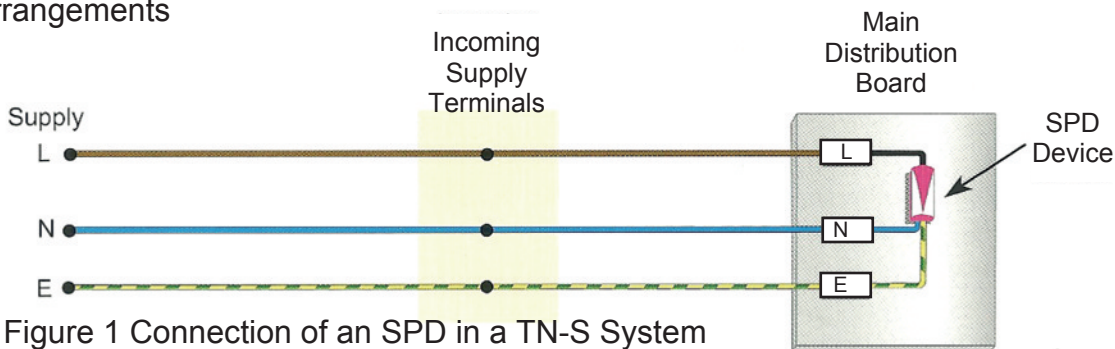


Figure 1 Connection of an SPD in a TN-S System

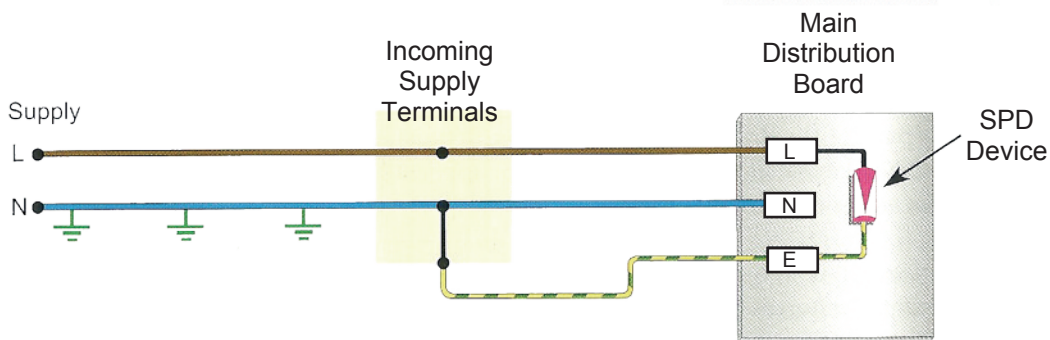


Figure 2 Connection of an SPD in a TN-C-S System (PME)

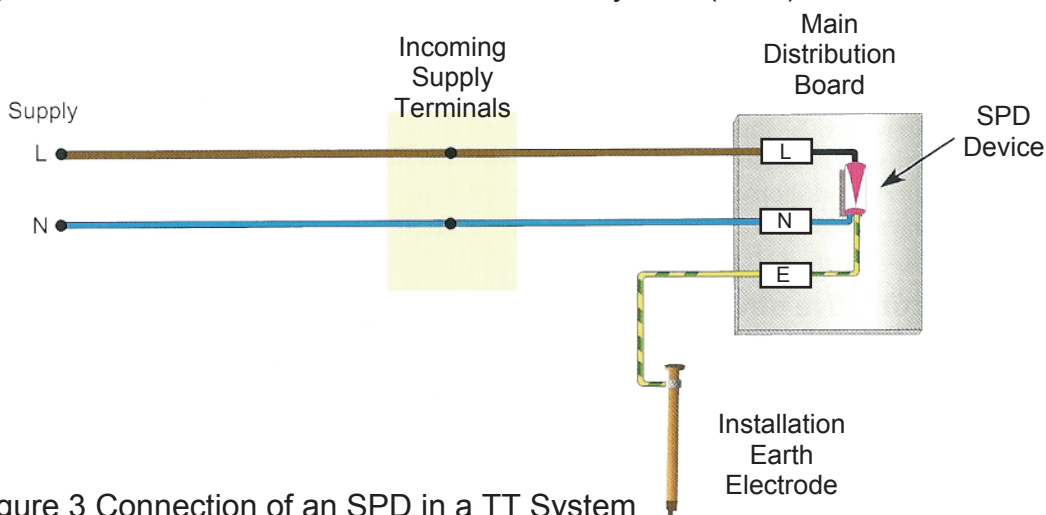


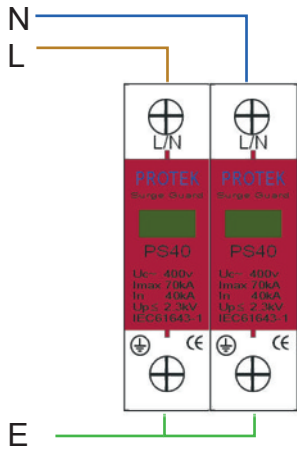
Figure 3 Connection of an SPD in a TT System



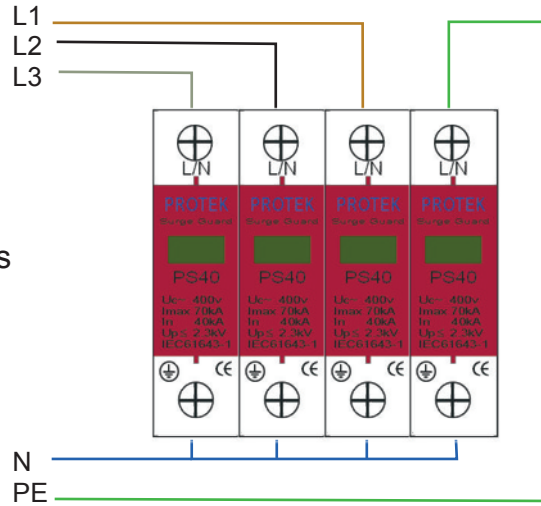
Application Examples

Single Phase

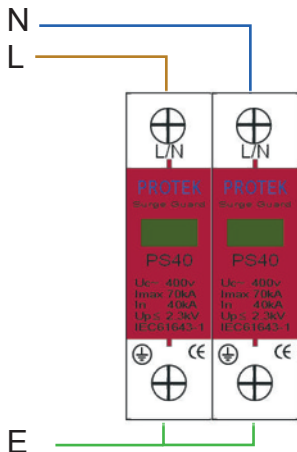
Three Phase



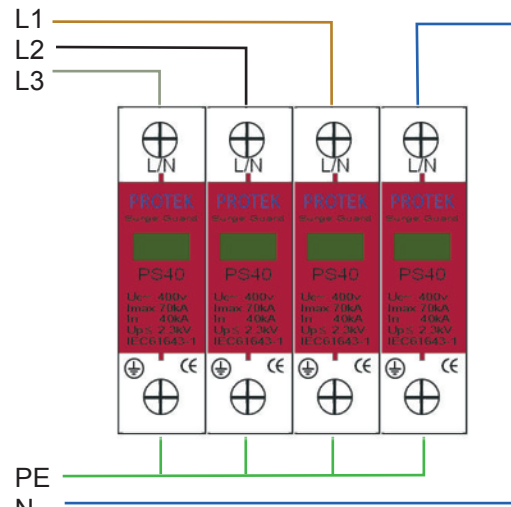
TT Systems



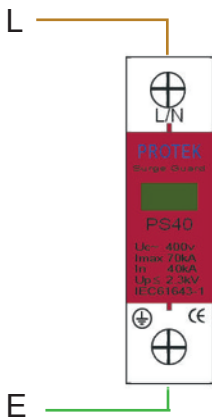
TT Systems



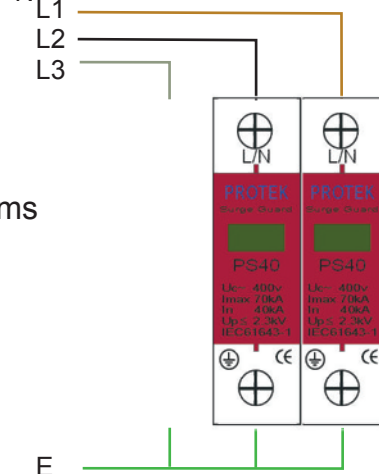
TN-S Systems



TN-S Systems



TN-C-S Systems



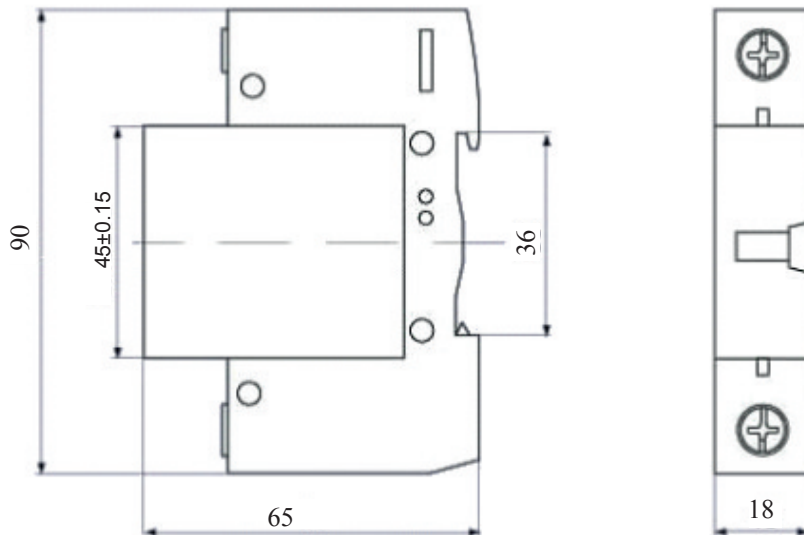
TN-C-S Systems
PME

When fitting a Surge Guard device, due to the magnitude of both the current and voltage that are generated when the device operates, it is recommended that the length of the tails should be limited to a length of 0.5m.



Surge Guard Protection Device

Dimensions of Surge Guard Unit



Features

Number of poles	1,2,3 or 4
Mains Frequency	50/60Hz
Maximum terminal capacity	25mm
Accepts busbar or stranded cable	YES
ON/OFF indication via window in cartridge unit	YES
DIN Rail mountable	YES
Plug In unit for easy replacement	YES

SG/RSP	Retrofitting kit for SP&N surge protection
SG/SP	Enclosed SP&N Surge protection
SG/TTSP	Enclosed SP&N Surge protection with RCD
SG/TN-C	Enclosed Three Phase 'TN-C' supply surge protection
SG/TN	Enclosed Three Phase 'TN' supply surge protection
SG/TN-S	Enclosed Three Phase 'TN-S' supply surge protection
SG/TT	Enclosed Three Phase 'TT' supply surge protection

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