

# SPDT60-255 SURGE DIVERTER

(Neutral-Earth equipotential coupler, 60/40kA)

## INSTALLATION INSTRUCTIONS

### FEATURES

- 1 mode plug-in protection (N-E)
- Compact solution for primary protection
- DIN43880 base, 35 mm DIN-rail mountable
- Thermally protected
- Includes dry-contact alarm

### Applications

- Any SWB remote from system M.E.N.
- For use with any 275-300V L-N SPD
- Ideal companion to Eaton SPDV60-300
- Pumps or other remotely-located plant

**DO NOT CONNECT TO LIVE OR ACTIVE LINES!**

SPECIFICATIONS	
Manufacturers name and model	Eaton Powerware SPDT60-255
Method of mounting	Fixed. DIN Rail mount
Input voltage	Neutral – Earth connection only. System voltage 220-250VAC (380-440V)
Maximum continuous operating voltage – MCOV (For this application, the maximum neutral swing allowed)	255VAC maximum (no conduction under load fault conditions).
Service type	Single and 3-phase with remotely- grounded neutral
Test classification	Class II
Supply current	<10mA
Initial sparkover voltage	600V
Maximum rated surge current - Ismax 8/20us	60kA
Nominal surge current - In 8/20us	40kA
Maximum limp – 10/350us	15kA
Residual voltage (Vpl) @ Ismax 40kA, 8/20uS	1.8kV
Nominal surge lifetime (In)	40kA (8/20uS), 20 times
Internal protection	Thermal disconnecter
External disconnecter requirements	None
Terminations	Power terminals 25mm <sup>2</sup> , Alarm terminals 1.5mm <sup>2</sup>
Alarms/indicators	Flag indicator, dry contact alarm relay – 250VAC/24VDC, 2A
Location Category	Indoor
Enclosure rating	IP20
Applicable standards.	IEC61643-1, IEC610006, ANSI/IEEE C62.41, AS1768-1991, AS3100
Dimensions	DIN43880, 1 units (17mm)
Weight	100g
Environment	-10 to 60C, 0-90%RH
Warranty	12 months, workmanship and materials

## FUNCTIONAL DESCRIPTION

The SPDT60-255 is designed to provide protection between Neutral and Earth circuits where Line-Neutral protection is installed remote from the M.E.N. link. Under normal conditions, the coupler does not conduct, preventing earth loops and inter-circuit coupling. Under surge conditions, the Line-Neutral SPD(s) will conduct surge currents to Neutral, resulting in a high Neutral voltage. At this point, the SPDT60-255 conducts, effectively interconnecting the circuits for the duration of the surge and shunting the high Neutral voltage to Earth. The unit is intended for point-of-entry or sub-board protection and may be directly connected without fuses. The unit features a plug-in module that may be replaced without rewiring in the event of a fault. Check that the model you have purchased is rated correctly for your power system.

**This model (SPDT60-255) is designed for Neutral-to-Earth connection only in single and 3-phase power systems, with a grounded neutral, in the range of 220-250V(380-440V). UNDER NO CIRCUMSTANCES MUST THIS DEVICE BE CONNECTED TO A LIVE OR ACTIVE LINE.**

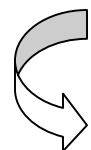
## OPERATION

The operational status of the unit is shown by a flag indicator on the front of the module. In normal operation, the flag is green. If the unit is damaged, the flag changes to red, indicating that replacement is necessary. A 'dry-contact' alarm output is fitted to the base unit and will change over if the module is faulty or not in place.

## WARRANTY

Eaton Power Quality warrants this unit against faulty parts and workmanship for a period of 12 months from the date of purchase. If this product fails to operate correctly, please contact your Eaton representative. This warranty doesn't cover neglect or intentional misuse. As this product is intended for use in electrically harsh environments no claim is made of suitability for purpose. This unit is designed to reduce the likelihood of damage, not prevent it. Please also note that an excessive surge, such as from a direct lightning strike to the site or a power system fault, may cause damage to the unit and render it inoperable. A unit that has been damaged in this way is not warrantable.

For installation details, see over page.



## INSTALLATION

Refer to the procedure and diagram shown to connect the SPDT60-255.

### PROCEDURE:

#### 1. CHECK

- Always work safely – disconnect power before making connections.
- All wiring must be carried out by suitably qualified personnel according to the applicable standards.
- Check for correct operating voltage and power system. This model (SPDT60-255) is designed for power systems in the range of 220-250V(380-440V). **If your power system is “delta” (i.e. ungrounded), or a different voltage, this model is not suitable. Please contact your supplier.**
- **Connect only between Neutral and Earth.**
- No fuse is necessary.

#### 2. INSTALL

- Locate a suitable position for the SPD, ensuring adequate space for cables. Do not install above heat-generating objects or in any position that is exposed to weather.
- Plan for cables as short as possible.
- Install unit to DIN-rail in switchboard or cabinet.

#### 3. CONNECT

- Connect wiring - refer to connection diagrams. If using stranded cable, always use wire ferrules for lowest resistance and to prevent damage to the wire.
- If connecting with Eaton SPDV60 SPDs, use supplied neutral linking bar.
- Use a suitably-rated cable for power connections. Cable should be rated for operation at the system voltage and should be 6mm<sup>2</sup> to 25mm<sup>2</sup>.
- Use short cables for all connections or protection will be reduced.
- Use a suitably-rated cable for alarm connections. Cable should be rated for operation at the system voltage and should be 0.5mm<sup>2</sup> to 1.5mm<sup>2</sup>.

#### 4. NOTES:

- Maximum alarm relay resistive load is 2A.
- Unplug the alarm connector for termination.
- It is recommended not to connect the alarm contacts to AC mains circuits if possible, to prevent flashover from surges on the AC line. Connect to a PLC or BMS if available.
- Do not Megger test cabling with unit connected.

## EARTHING

For proper operation, all surge diverters rely upon a good earth connection:

- The main earth wire (from earth link on switchboard to ground rod or system) **MUST** be as short and direct as possible. Extra cable must not be looped.
- Earth connections from the unit to neutral or earth link **MUST** be as short as possible.

**Failure to consider the above points can result in improper operation of the unit and possible damage to the installation.**

