

IMPORTANT: Please read these instructions carefully. Whilst straightforward, the installation of these devices is critical to their performance. Installation must be performed by a suitably qualified person in accordance with applicable wiring standards.

1. Introduction

1.1 These installation instructions apply to Novaris MULTIMOV surge diverters with the following catalog numbers:

- Cat No: SDx-y/z
- x Number of phases 1, 2, 3
- y Surge rating 80, 120, 160, 200
- z Options N Neutral-Earth protection
- EV Extended voltage
- 110V 110V L-N version
- 440V 440V L-N version
- E Metal enclosure
- P Polycarbonate enclosure

1.2 These products are surge diverters, generally installed at main switchboards and distribution boards.



Figure 1: SD3-200

2. Before installation

2.1 The appropriate model and installation method depend on the wiring system and the point of installation. Please refer to the diagrams on pages 3 and 4 before commencing the installation.

2.2 Ensure that the phase-to-neutral and phase-to-earth (L-N & L-E) supply voltages are within the working range of the unit:

- SDx-y: 200 280 V_{AC} RMS
- SDx-y/EV: 200 415 V_{AC} RMS
- SDx-y/110V: 90 130 V_{AC} RMS
- SDx-y/EV/110V: 90 240 V_{AC} RMS
- SDx-y/440V: 380 440 V_{AC} RMS

2.3 Ensure that the neutral-to-earth (N-E) voltage is less than 10V_{RMS}.

2.4 Turn the power off before beginning the installation.

3. Installation

3.1 **Wiring:** MULTIMOV surge diverters may be shunt or series connected.

Shunt connection (Figure 2) may be used regardless of the load current of the installation. However, the inductance of shunt-connected leads adversely affects the level of protection. In order to minimise this effect leads should be kept together (in a cable for example) for as much of their length as possible. Most importantly, **all lead lengths must be kept as short as possible.**

Shunt-connected leads may be eliminated altogether by wiring the units in series (Figure 3). This achieves optimal protection, however it is limited to load currents of 32A per phase or less.

3.2 **Point of Connection:** The unit should be connected on the load side of the incoming isolator (e.g. main switch).

Units should be installed on the **line side of earth leakage protective devices**, failure to do so may cause nuisance tripping.

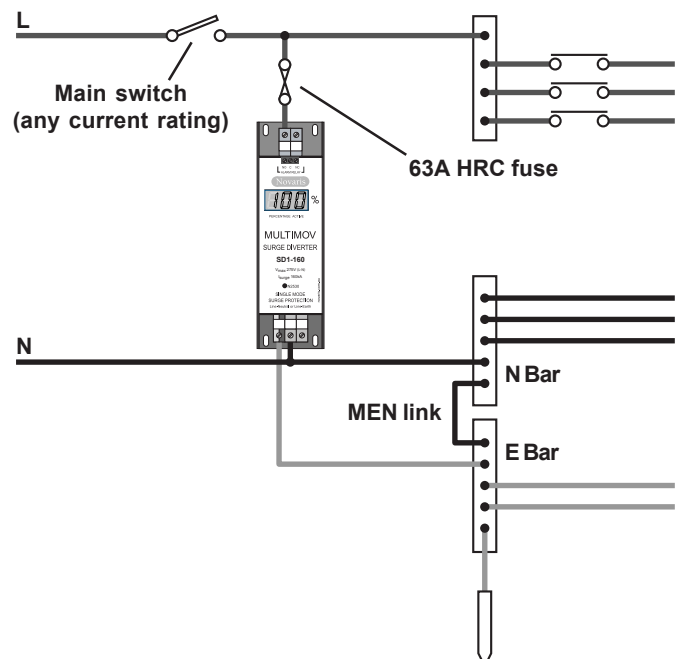


Figure 2: Shunt connected installation

3.3 Mounting: When shunt connected, the unit should be positioned such that connecting leads can be made as short as possible. This means mounting the unit as close to the point of connection as possible.

If the unit is to be positioned external to the switchboard it should be mounted in an enclosure (i.e. /E or /P models).

Single-phase **MULTIMOV** surge diverters can be either panel mounted by the existing M4 screw slots or DIN rail mounted using their integral clips. Three-phase units may be panel mounted or wall mounted.

3.4 Isolation: The unit must be isolated by a circuit breaker or HRC fuses. Novaris recommend 63A HRC fuses. Lower current ratings may be used, however this introduces the chance of nuisance tripping in the event of a large surge.

3.5 Connecting leads: The terminals of the surge diverters have a capacity of 16mm². Multistranded conductor of at least 10mm² should be used. Ensure that the leads are capable of handling the rated current of the installation or HRC fuse or circuit breaker where present.

3.6 External Alarm: All **MULTIMOV** surge diverters are fitted with external alarms (voltage free changeover contacts) for remote monitoring of unit status. The terminals have a capacity of 2.5mm² and are configured as follows (refer to Figure 5):

NC = Normally Closed: Closed under fault conditions or when power is off, otherwise open

NO = Normally Open: Open under fault conditions or when power is off, otherwise closed

C = Common

3.7 Digital display: The digital display operates as follows:

When the unit is switched on the surge rating is displayed for three seconds.

During normal operation the percentage of MOVs remaining active is continuously displayed.

If the unit experiences a thermal overload the display flashes 000.

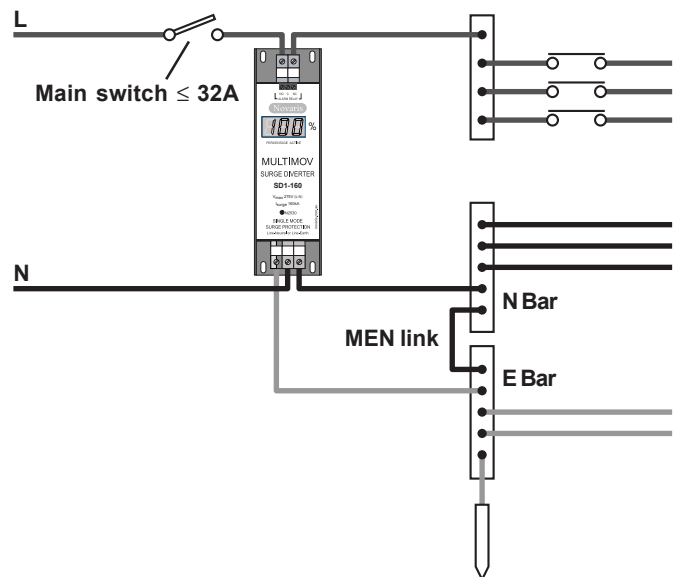


Figure 3: Series connected installation

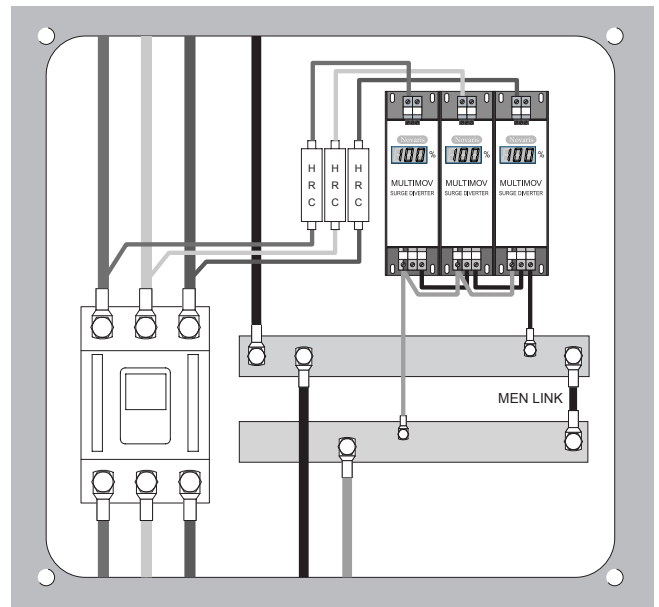


Figure 4: Typical main switchboard installation

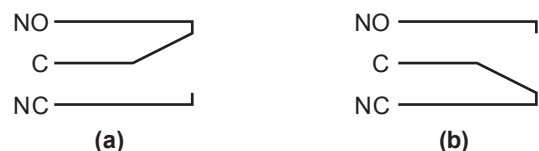


Figure 5: Alarm contacts...

(a) when power is on and unit is okay

(b) under fault conditions OR when power is off

4. After installation

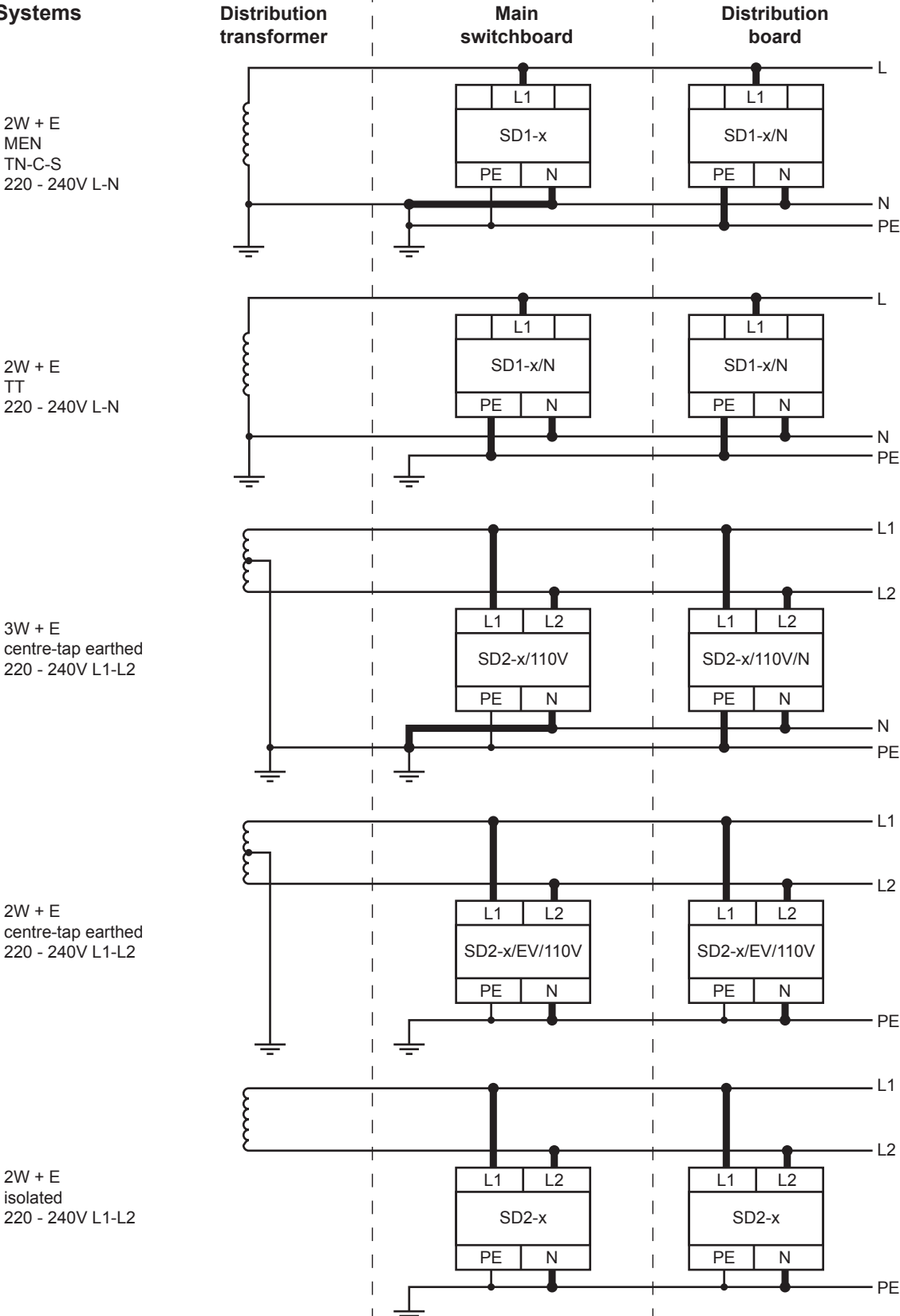
4.1 Check the installation by switching the power on and observing the digital display on the unit. Check the unit every six months and after lightning activity. If the digital display shows less than 100% or is flashing 000, or the external alarm is activated, the unit should be replaced as soon as possible.

The following diagrams show correct configuration of Novaris **MULTIMOV** surge diverters at both main switchboards and distribution boards in various wiring systems used throughout the world.

Note that the bold lines (▬) represent shunt-connected lead lengths that must be kept as short as possible in order to maximise the protection provided by the surge diverter. In some instances this includes the distance from the neutral connection point back to the MEN link (the connection between neutral and earth at the main switchboard, which is used in some wiring systems).

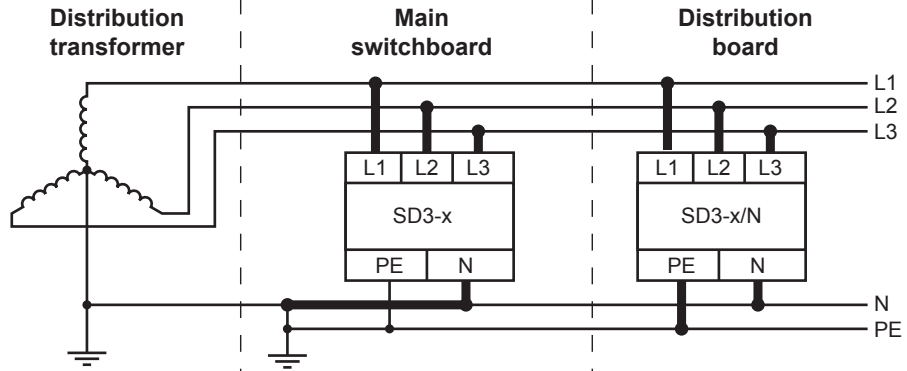
If the wiring system being used is not shown in these diagrams, please contact Novaris for advice.

Single-Phase Systems

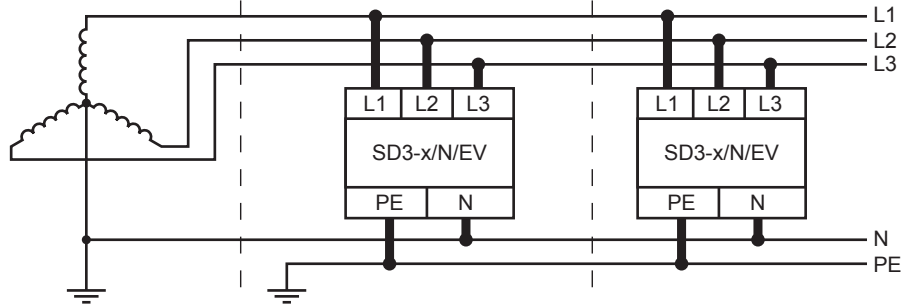


Three-Phase Wiring Systems

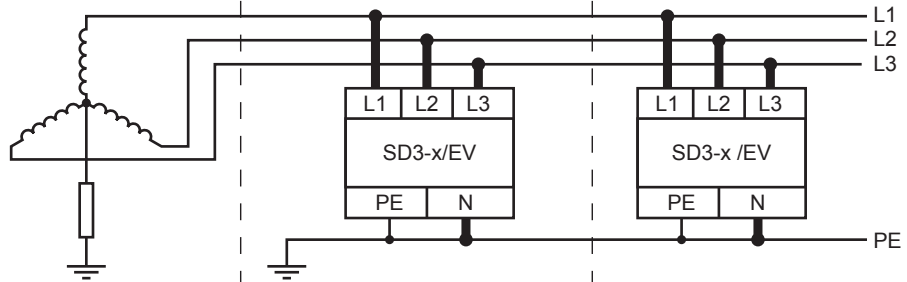
Wye
4W + E
MEN
TN-C-S
380 - 415V L-L
220 - 240V L-N/E



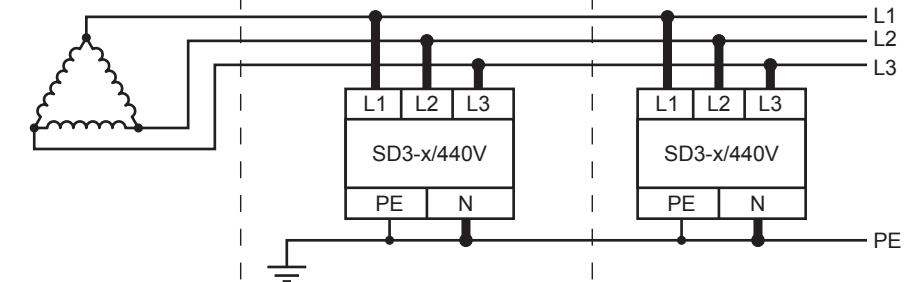
Wye
4W + E
TT
380 - 415V L-L
220 - 240V L-N/E



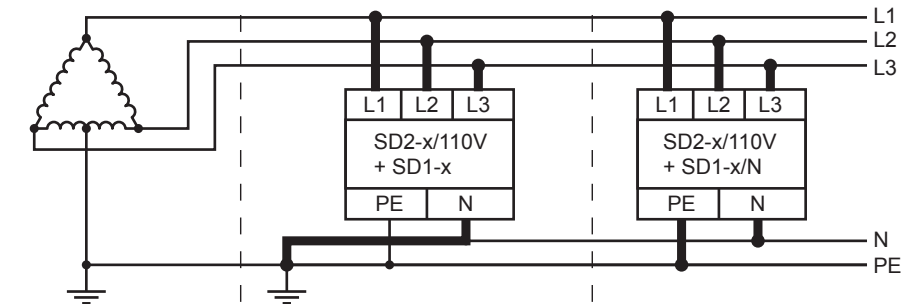
Wye
3W + E
IT
380 - 415V L-L
220 - 240V L-E



Delta
3W + E
isolated
380 - 415V L-L
220 - 240V L-E



Delta
3W + E
centre-tap earthed
240V L-L
120V L1-N/E, L2-N/E
208V L3-N/E



Delta
3W + E
corner earthed
240V L-L

