

Novaris[®]

PART OF THE POWERCOM GROUP

Spark Gap Arresters

Installation Instructions



IMPORTANT: Please read these instructions carefully. Whilst straightforward, the installation of these devices is critical to their performance. Installation should only be carried out by a suitably qualified person in accordance with all relevant standards.

1. Introduction

- 1.1 These installation instructions apply to the Novaris range of spark gap arresters:

Cat No: **SG1 - 50 - 275 - N**
 Phases ——— | ——— Options
 I_{max} (kA) ——— | ——— U_c (V)

- 1.2 These products have a high surge ratings suitable for point of entry power line protection in installations with highly exposed overhead LV power lines. These are triggered spark gap arresters resulting in relatively low let through voltages sufficient to protect switchgear in main switch boards.



Figure 1: SG1-50-255

2. Before Installation

- 2.1 Novaris sell a range of spark gaps for both single phase and three phase installations and for both MEN and non-MEN systems. The appropriate model and installation method depend on the wiring system being used and the point of installation. Please ensure a suitable model has been selected. If unsure please contact Novaris with any concerns.
- 2.2 Ensure that the supply voltages are within the working range of the unit. For all models with U_c of 275V, the normal operating range is 230 - 275 Vac at 50-60Hz.
- 2.3 For models with neutral earth protection, ensure the neutral earth voltage does not exceed 10V under normal working conditions.
- 2.4 Turn the power off before beginning the installation.

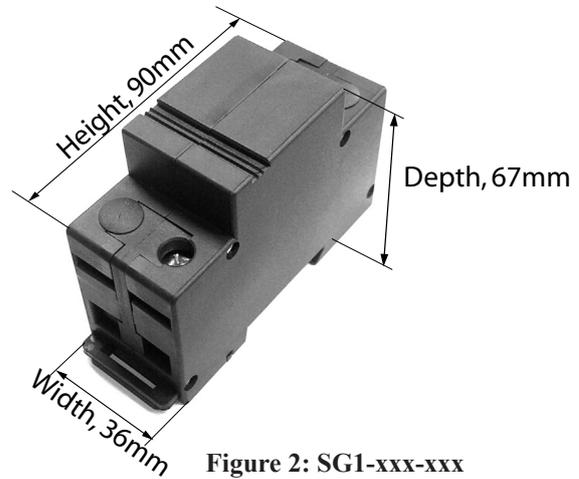


Figure 2: SG1-xxx-xxx and SGN-xxx-xxx Dimensions

3. Installation

- 3.1 **Wiring:** Novaris spark gaps are ideal for point of entry protection. The SG1-xxx-xxx models are designed to be shunt connected between line and neutral (Figure 4). The SGN-xxx-xxx models are designed to be shunt connected between neutral and earth in non-MEN situations (Figure 5).

Three phase models should be shunt connected between the three phases and neutral (Figure 6). Three phase models are available with separate neutral earth protection for non-MEN systems (option -N). On all 3 phase models, all connections should be made via the terminal block on the bottom of the back plane.

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

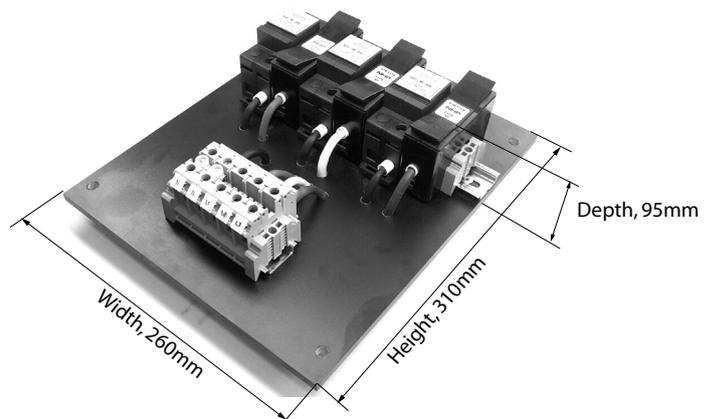


Figure 3: SG3-xxx-xxx Dimensions

3.2 Point of Connection: The unit should be connected on the load side of the incoming isolator.

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

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. Models are available in suitable metal enclosures (-M option), alternatively suitable polycarbonate enclosures are available from Novaris.

Single-phase units are easily mounted on T35 DIN rail via their integral Din rail clips. Three-phase units may be panel mounted or wall mounted.

3.4 Isolation: Single phase spark gaps must be isolated by a circuit breaker or an HRC fuse. Novaris recommends 63A HRC fuses. Lower current ratings may be used, however this encourages the chance of nuisance tripping in the event of a large surge. Three phase spark gaps include 63A HRC fuses in their design.

3.5 Connecting Leads: The terminals of the single phase spark gaps have a capacity of 35mm². Multistranded conductor of at least 10mm² should be used. Ensure that the leads are capable of handling the rated current of the HRC fuse or circuit breaker where present.

To obtain optimum performance of the surge diverter, the inductance of all the connecting leads and connections should be kept to a minimum. **All lead lengths must be kept as short as possible.**

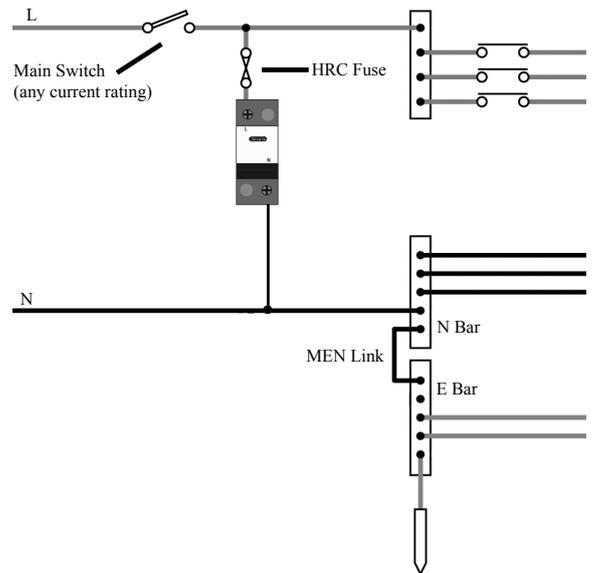


Figure 4: Typical 1 Phase Installation (MEN)

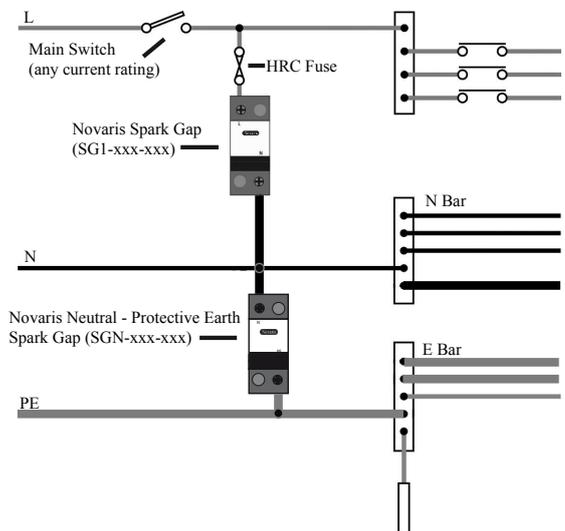


Figure 5: Typical 1 Phase Installation (non-MEN)

4. After Installation

- 4.1 Check the installation by turning the power back on and ensuring all equipment operates correctly.
- 4.2 Novaris spark gaps are extremely robust and require very little maintenance, however Novaris spark gaps should be inspected periodically.
- 4.3 Periodically check the HRC fuses in all three phase models and single phase installations if fitted. If the fuse is blown, the device will become ineffective, and equipment will not be protected.
- 4.4 If the Novaris spark gap appears defective or damaged in any way, please contact Novaris about a replacement.

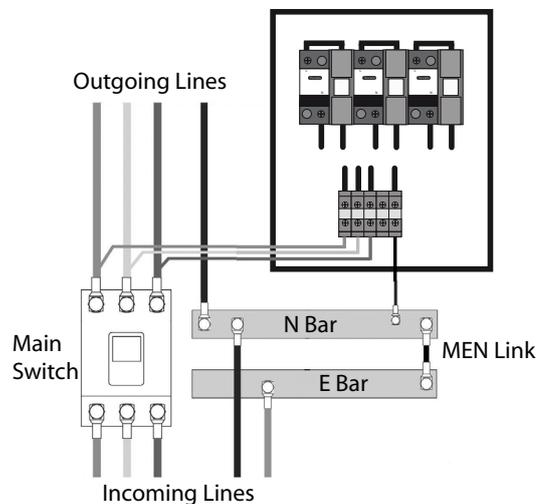


Figure 6: Typical Three Phase Installation (MEN)



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