

3A400 – Solkor system configuration

Overview

This Application Note provides system set up and configuration information for employing 3A400 pilot wire supervision systems in conjunction with Reyrolle Solkor pilot wire protection systems.

It relates to **5A** Solkor units employed in “Rf” mode.

External system components

The following components are required as part of the overall system

- 3A400's to be used in conjunction with Reyrolle Solkor units must be fitted with 3K3 ohm 30W shunt Resistors fitted across 3A400 terminals 30 & 31
Note: These are supplied fitted to the rear of the 3A400's
- Line isolation Capacitors (50 μ F/250V) must be fitted at both ends of the pilot wire scheme between the 3A400 and the Solkor – 3A400 terminals 29 & 31
Note: These are supplied with the 3A400's - refer to the 3A400 Technical Bulletin
- Pilot wire
The distance/impedance of the pilot wire must be measured/known to enable the Line Compensation Resistors of the Solkor Relays to be correctly set.

Sensitivity – Current imbalance

Solkor Relays are specified based on their nominal current imbalance value - I_s .

For example: $I_s = 5A$

The Solkor relays, when used alone in a pilot scheme without 3A400 supervision, will typically trip from around 75% to 100% of this nominal value.

The current balance sensitivity for an integrated 3A400 – Solkor scheme is nominally 100% I_s

The Solkor relays in an integrated system with 3A400 supervision will typically trip from around 95% to 110% of the nominal I_s value for varying pilot wire lengths up to 20km.

Line Compensation Resistors

The Solkor Line Compensation Resistance must still be set on the front of the Solkor units to compensate for the pilot wire impedance.

The method for determining the values for this Resistance is defined below.

Note: These values are different to those specified for Solkor units working alone.

Pilot Wire length	Pilot Wire Impedance	“Ra” at each Solkor
0 km	0 ohm	1000 ohm
5 km	300 ohm + 0.34 uF	890 ohm
10 km	600 ohm + 0.68 uF	500 ohm
15 km	900 ohm + 1.02 uF	100 ohm
20 km	1200 ohm + 1.36 uF	0 ohm

Note: Distances are expressed as the typical equivalent per/unit impedance model as detailed in the RMS 3A400 Technical Bulletin. That is:

60ohm series Resistance and 60nF shunt Capacitance per kilometre of wire.

Particular pilot wire installations may have characteristics that are different to this model. Equivalent ‘Length’ should be scaled in accordance with the specific pilot wire parameters.

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