Protector Trip Relays
373-GFR Ground Fault Relay

GENERAL GUIDELINES

The product should be fastened to a standard 35mm DIN rail (DIN50022) and is also suitable for panel mounting when installed in an enclosure conforming to DIN43880. Consideration should be given to the space around the unit to allow for bends in the connecting cables. The connection terminals on this product are rated to IP20, and as such, should be protected from liquids. The unit must not be mounted where it can be subjected to direct sunlight, and vibration should be kept to a minimum. Connection wires must be sized to comply with local regulations. The product has no internal fuse; therefore, an external auxiliary supply fuse must be used for safety protection under fault conditions.

WARNING

- Hazardous voltages may be present on the terminals.
- Fuses and supply switches must be fitted to protect against safety hazards.
- This equipment must be installed and maintained by a suitably qualified person.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- For permanent connection it is recommended that a switch or circuit breaker is mounted near the equipment and not in a position that is difficult to operate.
- Consult the circuit diagram on this sheet for wiring details.
- When practical, screened measuring leads should be earthed at one point only, at the protector end.

SAFETY SPECIFICATION

This product complies with International standards IEC1010-1 and BS EN 61010-1

Product

- Permanently connected use
- Normal condition
- Basic insulation
- Installation category III (Aux Supply)
- Pollution degree 2
- This Product is intended as part of a permanent installation
- For use in altitudes up to 2000m
- Temperature –10°C to +60°C
- Maximum relative humidity 95% (non condensing)
- Front Panel Sealing to IP50
- Terminal Sealing to IP20
- Max System working Voltage to ground is 600 Volts rms or dc.
- See product's data label for operating Voltage

Relays

- Relay protection class II (VDE0700)
- Dielectric Strength, coil-contacts 5kV RMS
- Dielectric Strength, open contact circuit 1kV RMS
- Insulation to VDE0110b (2/79)
- Insulation category/reference Voltage C/250.B/400

ELECTROMAGNETIC COMPATIBILITY (EMC) INSTALLATION REQUIREMENTS

This product has been designed to meet the certification requirements of the EU directives when installed to a good code of practice for EMC and SAFETY for the appropriate industrial environments. eg.

1. **Where practical, screen all leads. In the event of RF fields causing a problem where screened leads cannot be used, provision for the fitting of RF suppression components, such as ferrite absorbers, line filters etc., must be made. N.B. It is good practice to install sensitive electronic instruments that are performing a critical function in an enclosure that protects against electrical interference causing a disturbance in function.**

2. **Avoid routing leads alongside cables and products that are, or could be, a source of interference.**

3. **To protect the product against permanent damage, surge transients must be limited to 2kV peak.**

4. **Electro Static Discharge (ESD) precautions must be taken when handling this product.**

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COMMISSIONING THE PRODUCT

Install the Neutral to Ground shunt resistor in a suitable location. Connect the shunt sense wires directly to terminals N (Neutral side) and G (Ground side) on the relay.

IMPORTANT: Cabling between the shunt resistor and the ground fault relay should be kept as short as possible. For longer cable runs or in electrical environments with high interference levels, screened cable is preferred, with the screen terminated at the product.

A trip condition can be reset locally with the front panel reset switch and, remotely, by interrupting the auxiliary supply to the product. See connection diagram.

The product contains a switch mode power supply which has a very wide input range. For products with a DC auxiliary, ensure correct polarity. Default relay operation is de-energise on trip, this configuration is fail safe and cannot be changed.

Trip Setting: Always select the most appropriate trip current for the installation. If in doubt, start at the most sensitive (100A) setting, and make use of LED bar graph indicator or 0 to 1 mA output to determine the approximate level of ground fault current in the installation. When the product is set correctly, any abnormal ground fault current should cause a trip. In environments of high electrical noise, it may be necessary to select a higher trip setting to avoid nuisance tripping.

Time Delay: The time delay feature can be used for several purposes, for example:

1) To disregard a nuisance trip, which could occur due to high inrush currents, such as motor start up or noise pickup. Increase the delay setting to overcome the problem. The trip level setting should not be adjusted to overcome this, since this will degrade the level of protection.
2) For fault grading – where more ground fault relays are installed downstream. The time delay setting must be greater than those relays downstream to avoid cascade tripping.

Specification

Auxiliary Supply:	Nominal 24 Volts d.c., Burden less than 1.5 Watts	
Working Range:	12V to 48V d.c. (+25%, -15%)	
Trip current setpoint:	100A, 150A, 200A, 250A, 300A, 450A, 600A, 750A, 800A, 1200A using one 10-position switch	
Time delay setpoint:	0ms, 50ms, 100ms, 200ms, 300ms, 400ms, 500ms, 600ms, 700ms, 800ms, 900ms, 1·0s, 2·0s, 5·0s, 10·0s using one 16-position switch.	
Response time:	Guaranteed to be less than 200ms	
Relay contacts:	One SPCO contact,rated (Single Pole Change Over)	8A @ 250Vac 8A @30Vdc resistive 0·3A @ 250Vdc resistive
	electrical life	$>10^5$ operations @ 8A, 250Vac
	mechanical life	30×10^6 operations
Temperature	Operating	-10°C to +60°C
	Storage	-20°C to +70°C

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Ref: IW373GFR – Rev 2 – March 02

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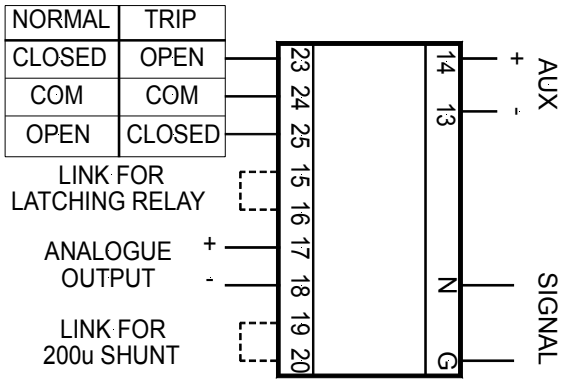
CONNECTION DIAGRAM



Product Approvals:

Terminal No.

N **Neutral Input**
G **Ground Input**

13 **Fused Auxiliary Supply (-)**
14 **Fused Auxiliary Supply (+)**

15 **Default operation is non-latching**
16 **Fit link to enable relay latch on trip.**

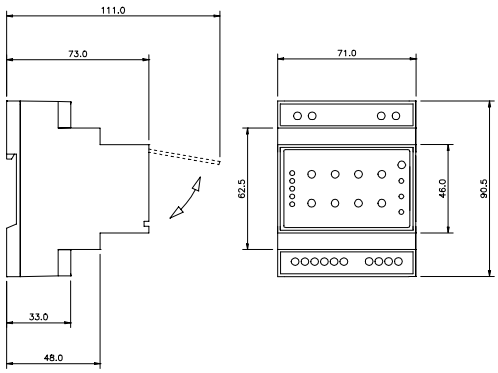
17 **Analogue output 0/1 mA**
18

19 **Default input range is for 2mΩ Shunt**
20 **Link to select 200μΩ Shunt input.**

23 **Relay (NO)**
24 **Relay (COM)**
25 **Relay (NC)**

Dimensions

To DIN 43880



Testing the Relay

Once the product is installed, an electronic confidence check can be performed by pressing and holding the Test / Reset button. This will force the product to trip, so the relay contacts will change state, and all LEDs will illuminate. Releasing the button restores normal operation.

Maintenance

All units are fully calibrated before despatch and therefore no adjustments are required. During routine servicing and inspection of equipment the unit should be inspected to normal standards for this class of equipment. For example, remove accumulations of dust and check connections for tightness and corrosion. In the event of a fault occurring and repair being necessary, it is recommended that the instrument be returned to the factory or to the nearest Crompton Instruments Sales and Service Centre. Repair should not be attempted, since the product contains no adjustable components. With any enquiry, please quote the full Type Number and Serial Number found on the side label. Cleaning: Make sure that the supply is disconnected before attempting cleaning. Use a damp cloth impregnated with anti static solution to clean the product, and avoid using abrasive materials and solvents that are not suitable for polycarbonate surfaces.

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