

GA Earth Leakage Protection Relays

INSTALLATION AND SETTING UP PROCEDURE

1. Protection Features

Possible applications:

- The protection of individual motors.
- The protection of main incomers / sub-stations with grading possibilities.
- Earth leakage protection and attenuation of harmonics on variable speed drive applications.
- Instantaneous earth leakage protection for large kW motors started by D.O.L without desensitising the earth leakage detection level threshold because of the harmonic attenuation feature of the GA Relay.

2. Description of Operation

The NewElec range of flush door-mounted GA earth leakage protection relays is designed for user flexibility in that it permits the selection of either an instantaneous trip curve OR an IDMT trip curve to be selected on site. By default, the relay will be in the instantaneous trip curve selection mode. In order to select the IDMT trip curve it is necessary to bridge terminals 3 and 4 on the relay. Terminals 1 and 2 need to be connected to a NewElec earth leakage core balance CT which are available in different internal diameters BUT which may be used in conjunction with either instantaneous OR time delay curves selected on the relay. The GA range require a power supply of either 110 OR 220 Volt a.c to be connected to terminals 5 and 6 OR 5 and 7 respectively. It is important to insure that the power source is retained on the relay even after a trip condition has occurred.

Four LED indications are mounted on the relay control panel. These are:

- * A red LED serving as a trip indication.
- * A green LED indicating that the relay is healthy and that the supply power is present.
- * Two yellow LEDs to indicate which of the user selectable trip curves is active.

Upon detection of an earth leakage fault current the main trip contact will energise and close across terminals 9 and 10. This condition will be latched for as long as the fault current exists but will automatically reset once the earth leakage fault current has been interrupted to permit the closure of the main circuit breaker after the MCCB has cleared the earth fault. At the same time the red "relay tripped" LED will illuminate while the green "relay healthy" LED will extinguish. The red "relay tripped" LED will remain illuminated until such time as the control panel mounted reset button is pressed OR the remote reset button which should be connected across terminals 13 and 14 is pressed. On this activation the trip LED will extinguish while the green LED "relay healthy" will once again be illuminated.

3. Information required for Initial Settings

Since the GA earth leakage protection relay may be supplied with individual earth leakage sensing thresholds, you will need to know the sensing threshold desired for your own particular application and whether you wish to use an IDMT or instantaneous trip curve. You will also need to establish the desired core balance ID size.

4. Setting up Procedure

After having door-mounted the GA relay, check to ensure that the connections S1 and S2 have been terminated with the core balance current transformer and check that the correct auxiliary power supply has been connected across terminals 5 and 6 (110Volt a.c) or 5 and 7 (220 Volt a.c) and that the power supply to the GA relay is sourced from up stream of the current interrupting circuit breaker. If it is required to have an IDMT tripping curve characteristic, provide a bridge conductor across terminals 3 and 4 of the GA relay. A remote reset N.O pushbutton may be installed across terminals 13 and 14 of the GA relay if desired.

Now apply the auxiliary supply. The relay is ready for operation.

5. Adding or Removing Features on Site

An IDMT trip curve characteristic may be favoured instead of an instantaneous trip curve by bridging terminals 13 and 14 on the GA relay. The converse is also true.

6. Specifications

CORE BALANCE CURRENT TRANSFORMER

NewElec : C.B.C.T
Material : MHO
Ratio : 1000:1
Insulation : 660 Volt to earth

OVERLOAD WITHSTAND RATING

Primary current

50 Amps : Continuous
500 Amps : 1 sec

CALIBRATION LEVELS

GA 250 : 250mA \pm 3%
GA 375 : 375mA \pm 3%
GA 500 : 500mA \pm 3%
GA 1000 : 1000mA \pm 3%

MEASUREMENT FILTER

Cut off frequency : 50 Hz
Attenuation : -24 db/octave
2nd Harmonic : 24 to 1

TRIP DELAY CURVES

Instantaneous
Trip delay : See thermal trip curves diagram
Min time : 0,150 sec
Accuracy : \pm 0,010 sec
IDMT
Trip delay : See thermal trip curves diagram
Accuracy : \pm 5%

OUTPUT RELAY

Contacts : 1 x set changeover
Rating : 6 Amps 250 V a.c
: 3 Amps 550 V a.c

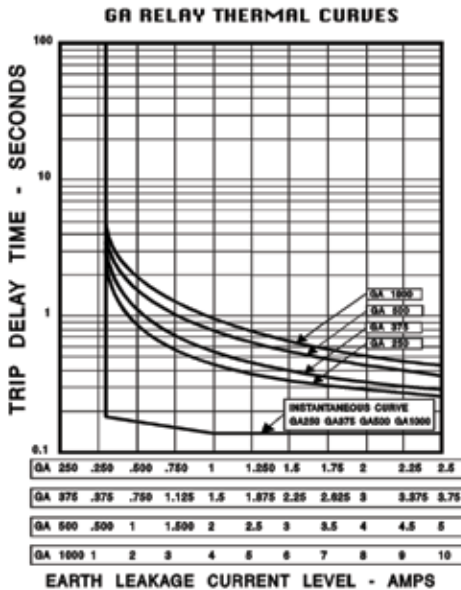
AUXILIARY SUPPLY

Range : 110 or 220 V a.c
 Tolerance : 85 to 120% of range
 Burden : 2 VA
 Frequency : 45 to 65 Hz

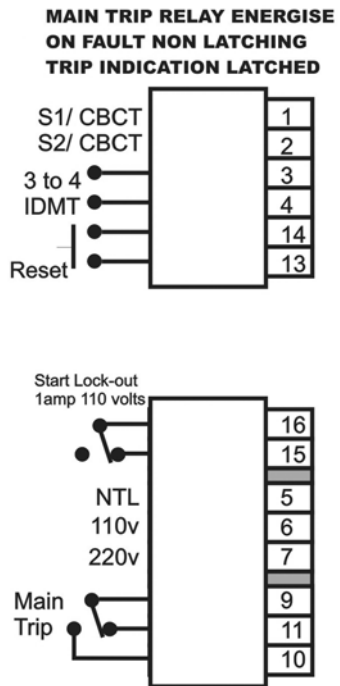
ENVIRONMENTAL

Isolation : IEC255-5 App A
 2 kV between separate circuits
 1kV across N.O contacts
 Impulse : IEC255-5 App D
 Transient 2,5kV between separate circuits

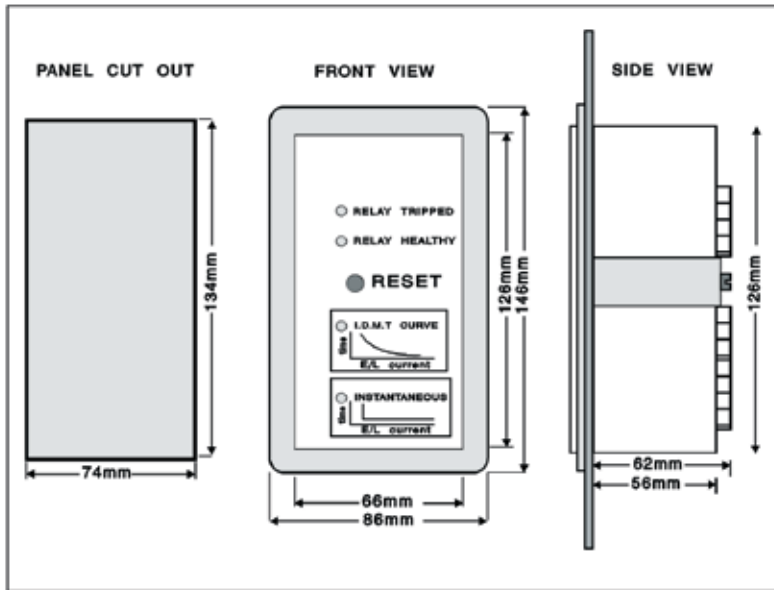
7. Thermal Trip Curves



8. Electrical Connection Diagram



9. Dimensional Diagram



10. Ordering Information

GA 250	250 mA earth leakage sensing threshold
GA 375	375 mA earth leakage sensing threshold
GA 500	500 mA earth leakage sensing threshold
GA 1000	1000 mA earth leakage sensing threshold

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