NEW ELEC
MOTOR PROTECTION & CONTROL TECHNOLOGY

UCR 80 Undercurrent Relay

Installation and Setting Up Procedure

About product

The OLR 8 relay monitor one phase of a 3-phase motor and permit a 1A secondary input from a suitably selected current transformer.

The relays are equipped with one main trip contact which energises after a user-selected time delay (provided the fault condition persists over the entire timing period) and one instantaneous changeover contact which energises upon the detection of the fault condition.

Protection Features Include

Possible applications:

- Sensing of blocked deliveries or loss of prime on pump applications
- Warning of low motor efficiency as a result of impellor wear
- Warning in respect of broken couplings, belts, or motors running idle
- Warning of broken V belts or blocked filters

Description of Operation

Congratulations on selecting the NewElec OLR 8 over-current detection relay. The unit has a detection level of + 1% and a repeatability of + 1%, making it one of the most accurate over-current detection devices on the market.

The NewElec OLR 8 over current detection relay is designed for monitoring current on one phase only and is a chassis -mounted unit. The relay consists of a detachable chassis mounted 12-pin plug-in base upon which the hard wiring is facilitated (refer diagram). Once the wiring is completed the actual relay is then pushed firmly into place. Securing screws on the top and bottom of the relay holds the relay body firmly in position. The relay is designed to accommodate an input current of 1 Amp across terminals 2 and 3 and an auxiliary supply voltage of either 110 OR 220 Volt a.c is required across terminals 10 and 12 OR 10 and 11 respectively.

Note that the load setting dial (top dial) is calibrated in percentage. The range being 30 to 120% of the current transformer ratio. It is therefore essential that the selected current transformer (xxx:1) be selected to cover the current range you desire to monitor.

For example, a 50:1 current transformer would permit the monitoring of currents from 15 Amp (30% of 50 Amp) to 60 Amp (120% of 50 Amp). Should your application require that lower or higher currents be monitored simply select suitable current transformer ratios. Should an existing installation already incorporate a current transformer with a 5 amp secondary output (xxx:5), it will become necessary to include an interposing current transformer of 5:1 in order to match the current input requirements of the relay.

The relay is designed fail safe so that disruption of the auxiliary supply voltage to the relay will cause the main normally closed change-over trip (terminals 9 and 7) contact to de-energise. The relay incorporates a separate immediate alarm change-over contact (terminals 4,5 and 6) which energises immediately the moment an overload condition is detected by the relay.

Note that the main Trip Delay Timer is calibrated from 1 to 10 seconds (bottom dial).

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After a trip condition, a control panel-mounted toggle switch will alternate between automatic or manual reset. Automatic reset will cause the main trip relay to re-energise after a 1 second delay while a control panel-mounted reset push-button will need to be pressed if left in the manual reset condition. Three LEDs are incorporated on the relay control panel. These, from top to bottom, serve to provide the following functions:

a. **Power LED** - Simply indicates the presence of auxiliary supply power on the relay and that the unit is either in use or ready for operation.
b. **Max Load % C.T. Ratio LED** - This LED indicates that the actual load current flowing in the current transformer primary is more than the set threshold on the Max Load % C.T. Ratio dial and that the trip delay timer has been initiated. The trip delay timer will be reset if the load current decreases below the set threshold prior to the "Trip Delay" period having expired. If this does not occur the main trip relay will be operated on expiry of the user selected timing out period (range 1 to 10seconds).
c. **Trip LED** - This LED is used to indicate that the "Main Trip" relay has operated. This LED is situated at the bottom of the relay control panel.

Under normal operation, terminals 9 and 7 of the main trip contact will be wired in series with the main contactor holding coil, while terminals 4 and 6 of the separate alarm relay would be connected to an alarm annunciating circuit. The power LED will be illuminated. Upon the detection of an overload condition, the alarm trip contact will be energised and the main trip delay timer will initiate. At the same time, the maximum load LED will illuminate. Should the motor load decrease below the user-selected over-current detection threshold before the main trip delay timer has timed out, the alarm contact will de-energise and the main trip delay timer will reset. At this point the maximum load LED would extinguish. If, however, the overload condition persists, the main trip contact will de-energise on completion of the user-selected time delay period and the main trip LED will be illuminated.

Information required for Initial Settings

A knowledge of the value of the no load current condition so as to select an appropriate current transformer.

The trip delay period appropriate for the protection of the motor/ application.

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Setting up Procedure

- Check that the motor full load current is less that 120% of the sensing current transformer.
  Now set the Min Load % C.T. Ratio to either:
  (a) The calculated % current value desired or
  (b) Continue as described below ……
- Set the Max Load % C.T. Ratio to the maximum value of (120%).
- Set the Trip Delay Timer to a time period corresponding with one second longer than the existence of the motor starting inrush current time.
- Apply power to terminals 10 and 11 OR 10 and 12 as appropriate. (Power LED switches on and output relay energizes).
- Start machine or device. Once the motor has settled to the normal running load decrease (turn anticlockwise) the Max Load % C.T. Ratio dial until the LED switches on. Increase the setting by 5% or higher depending on the current level you wish to detect and leave as a final setting.

Adding or Removing Features on Site

No additional features can be set OR disabled on site.

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Specifications

INPUT CONVERTER

Overload	: 600% Load setting 5 min.
Capacity	: 800% Load setting 1min.

LOAD LEVEL SETTING

Span	: 30% to120%
In Level setting accuracy	: 4%
Linearity	: 4%
Detection level	: 4%
Repeatability	: 1%

TRIP DELAY

UCR 80	5 to 10sec
Level setting	: 4%
Linearity	: 4%
Time accuracy	: 10%

AUXILIARY AND MAIN TRIP RELAY CONTACTS

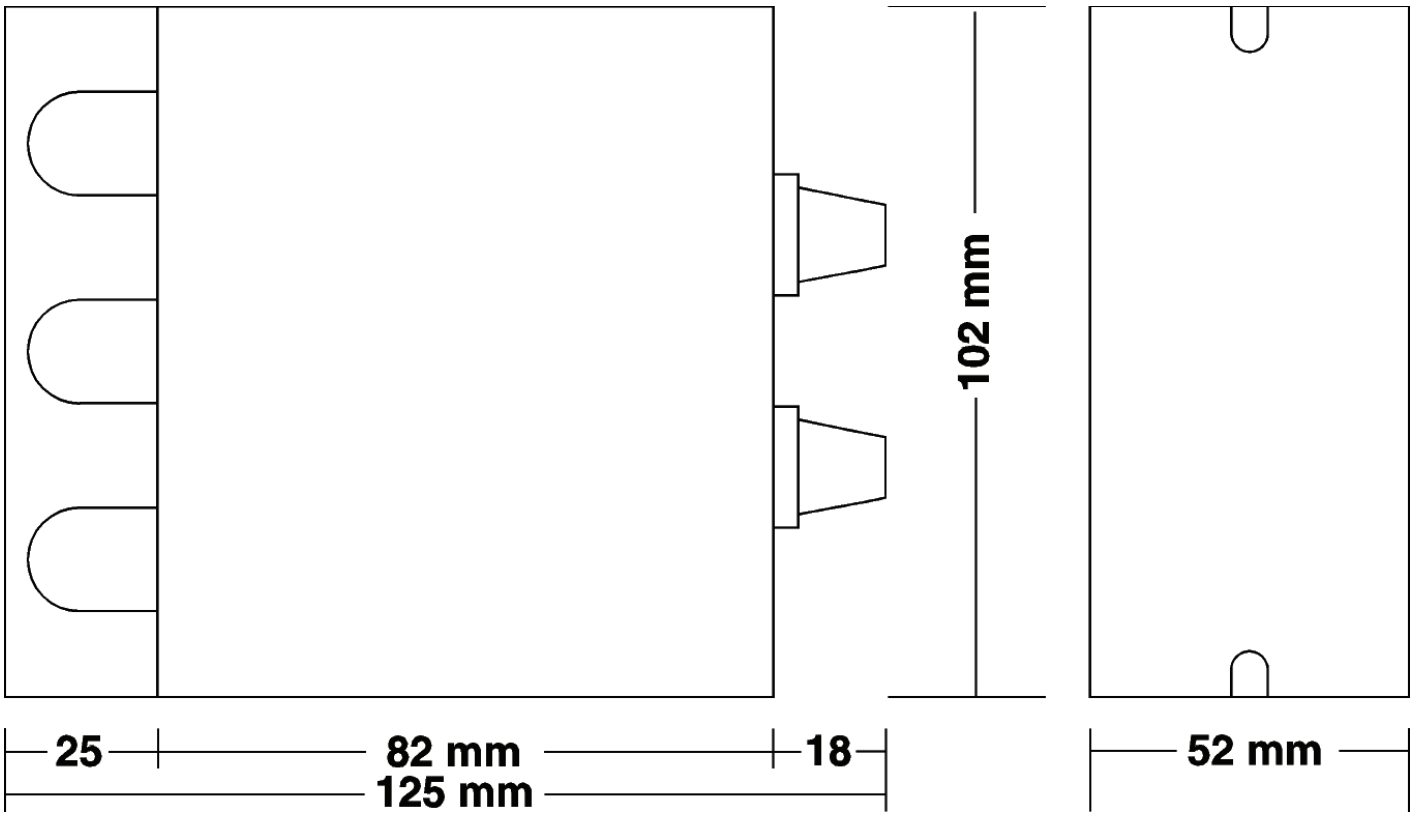
Rating	: 6 amps 220Vac
Configuration	: 1 x Form C

CONTROL SUPPLY

220Vac	: ±10o
110Vac	: ±10o
Frequency	: 42 - 67Hz
Power	: 1,5Va.
Fail-safe operation	: Unit trips onloss of control supply

Installation and Setting Up Procedure

Dimensional Diagram



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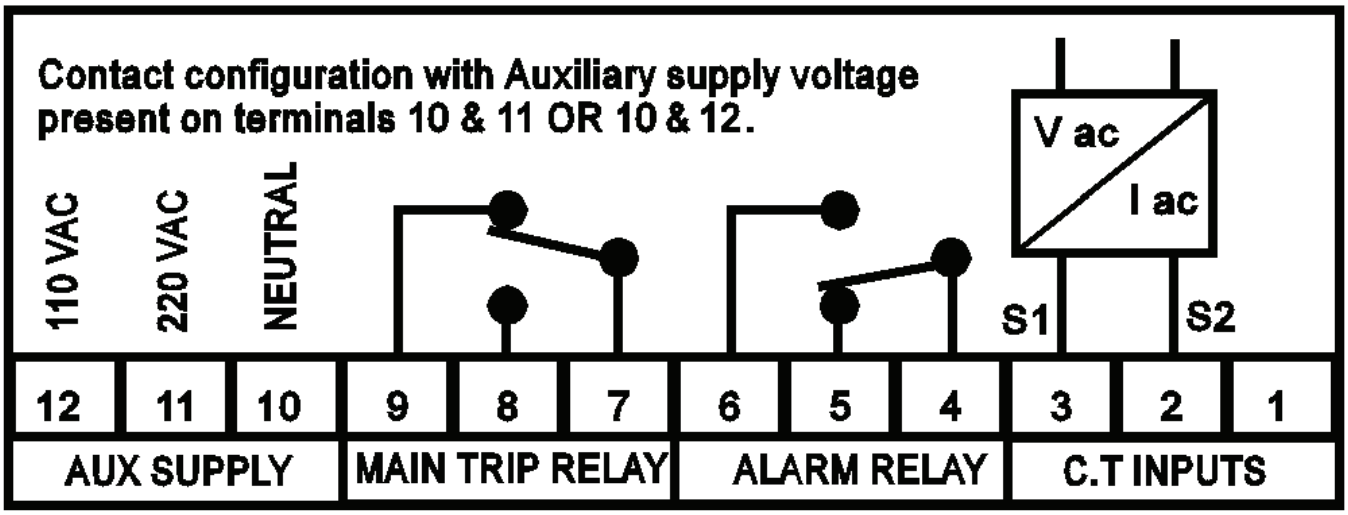
Wiring Diagram



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Ordering Information

MODEL	AMPERAGE RANGE
UCR 80	UCR 80/MC/1/S

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