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RI-ELR80 Series

Earth Leakage Relay with LCD Display

- Two module width DIN rail mounted
- True RMS Earth leakage monitoring
- Type A leakage detection
- Digital indication of leakage current
- Separate test and reset function (remote or by front push-buttons)
- For use with RI-CBCT core balanced transformers
- Single phase or three phase network compatible
- Transformer error detection (Open and short circuit)
- Two SPDT 5A relay outputs (Trip and pre-trip)
- Automatic or manual reset
- Optional password protection

Application

The ELR80 is an Earth leakage relay with Digital settings and backlit LCD display of leakage current. Provided with two setpoints, the first setpoint is the trip level and can be set between 10mA and 30A (IΔN). The second setpoint is the pre-trip alarm and can be set between 50-100% of IΔN. Each setpoint operates its own SPDT contact. Both relays can be programmed for fail-safe operation if required. Time delay functions include power-ON delay (0.5…99 seconds), Trip time delay (0…99 seconds) and recovery delay (0…99 seconds).

Note: When the trip level is set <30mA the trip time is instantaneous irrespective of set trip time delay.

Relay hysteresis may be selected between 5…40% of set value (IΔN).

Designed to detect low level leakage currents and to operate the contact(s) if the selected trip/pre-trip level is exceeded. All phase conductors and neutral of the circuit being monitored are passed through the aperture of the RI-CBCT, core balanced transformer. The transformer secondary is connected to the relay which monitors the proportional leakage current. LEDs on the front of the relay provide visual indication of Relay 1 trip, Relay 2 trip and transformer error.

Parameters

Adjustable trip level (IΔN): 10mA…30A

Adjustable Pre-trip: 50…100% of IΔN

Adjustable hysteresis: 5…40% of IΔN

Adjustable power on delay: 0.5…99seconds

Adjustable trip delay: 0…99seconds

Adjustable recovery delay: 0…99seconds

Test/reset facility:-

1. **Front panel push button**
2. **Remote through normally open push button contact**
3. **By removal and re-applying auxiliary supply**

Note: The relay will remain in trip state until reset as above (alternatively the unit can be configured for Auto reset).

Standard Type A to IEC/EN60947-2

Response time:-

<30mS if leakage current ≥ 5 x set point
<50mS if leakage current ≥ 1 x set point

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Display

Display type	High definition LCD display with white back-light
Digit height	9mm (displayed parameter)
LED indication	Indication of trip & pre-trip (both will flash if transformer error)
Displayed parameters	Leakage current CBCT error status Set trip level Trip condition (pre-alarm/trip)
Measured resolution	0.1mA, 1mA, 0.01A, 0.1A dependant on trip setting

Programming

Programmable parameters	Trip current range Set trip value Instantaneous trip selection Relay operation mode (fail-safe operation) Output latch (Automatic or manual reset Trip time delay (ignored for <30mA selection) Recovery time delay Power ON delay Output 2 function (trip or pre-alarm function) Pre-alarm trip value Pre-alarm time delay Hysteresis User password (ON/OFF) Set user password Perform factory reset
Programming access	By front keys (optionally password protection can be enabled)
Memory retention	Non Volatile memory

Input

Connection (1ph, 3ph etc., configurable)	Single phase , Three phase four wire, Three phase three wire
Current transformer connection	Yes - 1000:1
Monitored leakage current	4mA…30A
Trip level	Pre-trip : 50…100% of IΔN (selectable) Trip : 10mA…30A (selectable)
Accuracy	±5% of set value
Hysteresis	5…40% (selectable)
Trip time delay	<30mA (setpoint) = Instantaneous >30mA (setpoint) 0…99.9seconds (user selectable)
Reset	Front push-button or remote connection
Test	Front push-button or remote connection
Rated current	Determined by connected CBCT
Trip characteristic	Class A (IEC/EN60947-2)
Impulse voltage withstand	4kV 1.2/50us 0.5J
AC voltage withstand	2.5kV 50Hz 1min
Frequency	45…65Hz

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Auxiliary Supply

Voltage range	230V, 110V ±20%
Operating frequency	47…63Hz
Power consumption	<3VA

Outputs

Number of relay outputs	Two SPDT changeover contact
Relay output function	Relay 1 : trip relay Relay 2 : configurable pre-alarm or trip relay
Relay contact rating	AC 250V/5A (AC1), 250V/3A (AC3) DC 25V/5A (DC1)
Contact life expectancy	>100,000 operations

Insulation

Installation category	III
Pollution degree	2
Insulation voltage rating	300V (L-N)

Environmental Conditions

Reference temperature	23°C ± 2°C
Specified temperature operating range	–20…50°C
Storage temperature	–20…75°C
Relative humidity	0…95%, non condensing
Installation type	Indoors

Mechanical

Housing	
Housing	2 module DIN 43880
Mounting	Snap-on 35mm rail
Tamper sealing	Device housing (by means of a tamper evident seal) sealable front cover
Housing material	Self-extinguishing polycarbonate (UL94 V-0)
Protection degree (IEC/EN60529)	IP20 (terminals), IP50 (front of housing)
Weight	<217g
Termination	
Current input terminal type	Rising clamp
Max wire size	4mm^2
Auxiliary supply terminal type	Rising clamp
Max. wire size	4mm^2
Relay output terminal type	Rising clamp
Max. wire size	4mm^2
Screw tightening torque	0.5Nm

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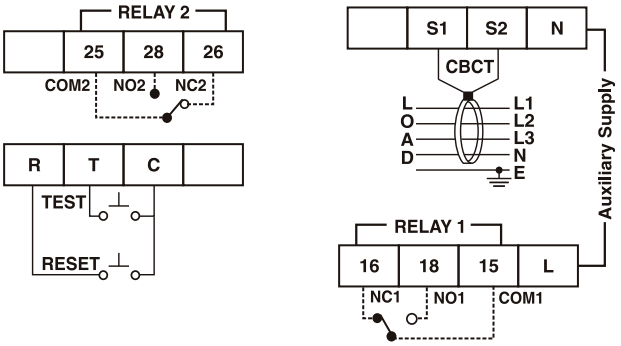
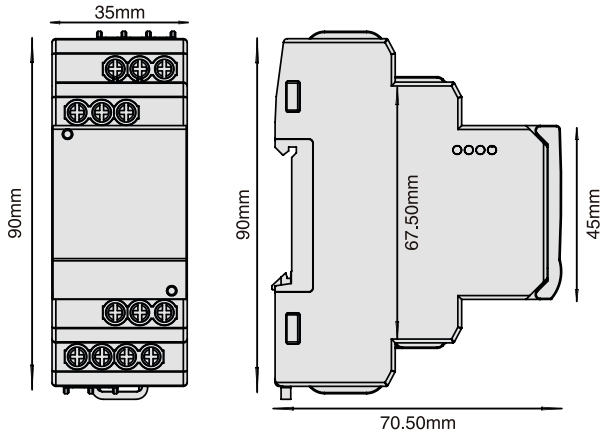
Conformity

Electromagnetic compatibility	IEC/EN61326-1, IEC/EN55011 Class A, IEC/EN61000-4-2, -3, -4, -5, -6, -8, -11
Accuracy and functionality	IEC/EN60947-2, IEC/EN60755, IEC/EN62020
Safety	IEC/EN61010, IEC/EN60947-1

Terminal Connections



Dimensions



Model Selection Table

Supply	Certification	Model
230Vac	CE and RoHS	RI-ELR80-230V
110Vac	CE and RoHS	RI-ELR80-110V
24Vdc	CE and RoHS	RI-ELR80-24VDC

CBCT Accessories

Inner Diameter	Turns Ratio	Nominal Current	Model
35mm	1000:1	100A	RI-CBCT35
70mm	1000:1	200A	RI-CBCT70
120mm	1000:1	600A	RI-CBCT120
210mm	1000:1	1600A	RI-CBCT210
310mm	1000:1	2000A	RI-CBCT310

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