EARTH LEAKAGE RELAYS *RANGE*

GENERAL

The leakage relays are designed to measure the leakage or unbalance currents caused by conductors or appliances insulation losses and to react, in case the set limits are exceeded, switching off the power supply to the defective system.
It is used with toroidal current transformer.

MOUNTING

Earth leakage relays is mounted with din rail and toroidal current transformer is mounted in a special support.

CHARACTERISTICS

Main features:

- Wide range of trip currents and delays
- Continuous check of the good connection with the toroidal transformer
- Manual or automatic reset
- Remote reset

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OPERATION

EARTH LEAKAGE RELAYS

1) **Push button operations**
   a) Reset button
      - The reset button resetting light indicator and the trip contact after earth leakage tripped
      - To reset press the reset button

   b) Test button
      - Press the test button to simulate earth leakage trip condition
      -

2) **Remote control input**
   a) Remote test input
      - This digital input is similar to the TEST PUSH BUTTON.

   b) Remote reset input
      - The digital input is to remotely reset the relay when tripped.

TOROIDAL CURRENT TRASFORMER

They detect fault currents, even of very low values.
In order that the measurement of the toroid is correct, it is necessary:

a) Put the cables in the center of the toroid
b) The toroid must be not positioned in proximity of a curve zone of the cables that cross it
c) Use a toroid with an internal diameter at least double the diameter of the cable or of the plait of cables.
d) In very critical cases it is necessary to install a ferromagnetic sleeve around the cables in the intern of the toroid
e) The toroid must be crossed ,in the same sense by all the active cables of the line, neutral included (if present). The neutral cable must not connected to the earth after the Toroid
f) In case that the protected line has a metallic protection, it must be connected to the earth, after the toroid

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GENERAL CHARACTERISTICS		
Supply voltage	[V_{ac}]	110, 220
Frequency	[Hz]	50, 60
Weight	[Kg]	~ 0.3
Sensitive settings	[A]	0,03-0,05-0,075-0,1-0,125-0,15-0,2-0,25-0,3-0,5-0,75-1-1,25-1,5-2-2,5-3-5-7,5-10-12.5-15-20-25-30
Time delay setting	[s]	Instantaneous, 0,05-0,1-0,15-0,25-0,35-0,5-1-3
Contact rating		6A, 250 V_{ac}
Contact material		Silver alloy
Operating time		15 ms max
Expected electrical life		100000 operations at rated current
Expected electrical life		5 million operation
Auxiliary supply indicators		Green light indicator
Time delay indicators		Red light indicator
Trip indicators		Red light indicator

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DIMENSIONS

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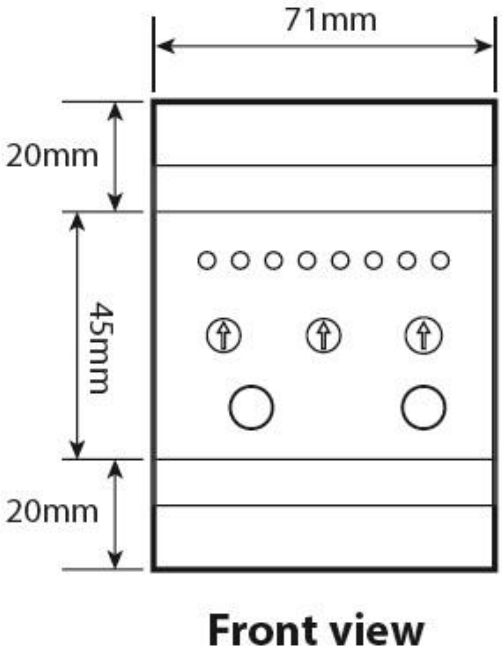
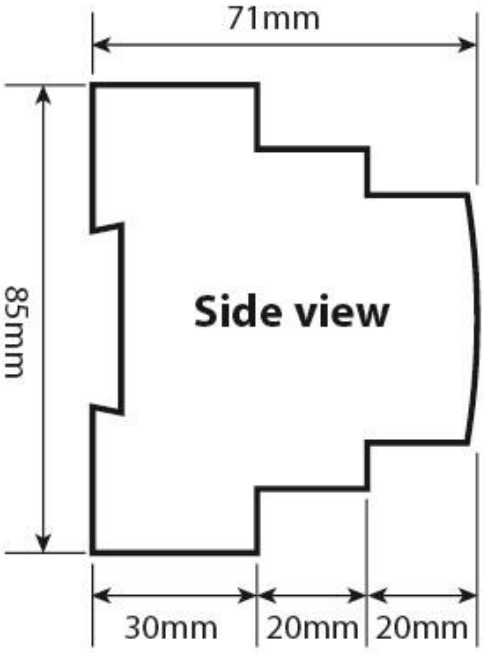
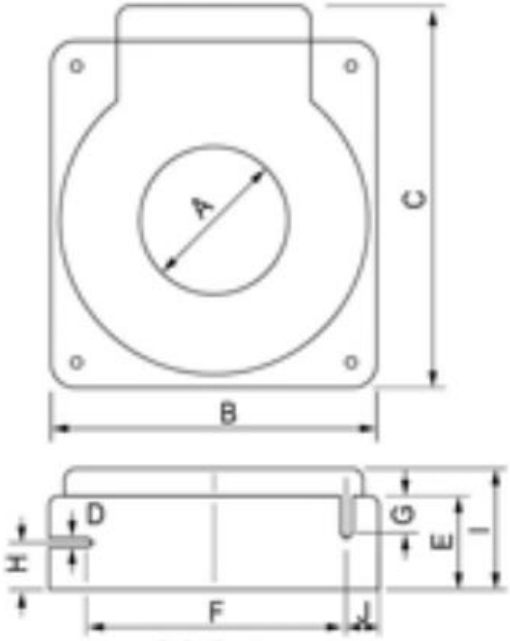




TOROIDAL CURRENT TRASFORMER



MODEL DIMENSIONS (mm)

	TRASELEH40	TRASELEH55	TRASELEH80
A	40	55	80
B	79	126	120.5
C	97	151	138
D	3.5	4	3.5
E	35	37	35
F	53.5	100	94.5
G	17.5	14	17.5
H	17.5	19	17.5
I	32	44	37
J	10	12.5	10

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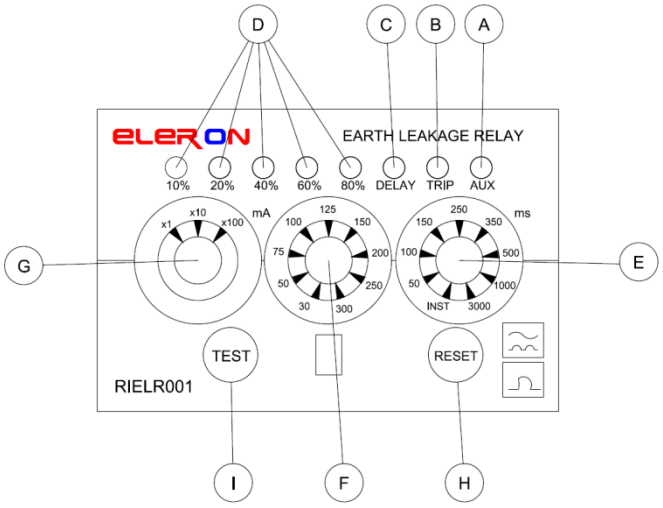
RIELR001 Earth Leakage Relay User's guide



A. Auxiliary power supply
B. Trip status indicator
C. Trip start indicator
D. Leakage current indicator
E. Time delay selector
F. Sensitivity selector
G. Sensitivity multiplier switch
H. Reset button
I. Test button

Light indicators

Status indicator

Indicator			Status
AUX (A)	TRIP (B)	DELAY (C)	
Off	Off	Off	No auxiliary power
On	Off	Off	System normal, no tripping
On	Off	Off	Trip start, time delay countdown started
On	On	Any	Earth leakage tripped
On	Off	Flash	Transformer not connected or press TEST

Leakage indicators (D)

The earth leakage Indicators indicate the amount of leakage current detected and are expressed as percentage of the set current.

- 10% - leakage current >10% of set current
- 20% - leakage current >20% of set current
- 40% - leakage current >40% of set current
- 60% - leakage current >60% of set current
- 80% - leakage current >80% of set current

When the RIELR001 detects absence of zero-phase current transformer connection, it will blink the leakage indicators.

Sensitivity Adjustment

The RIELR001 features 2 rotary selector switches for sensitivity (Idn) setting:

1) 9-position sensitivity selector (F) offers setting range of 30mA, 50mA, 75mA, 100mA, 125mA, 150mA, 200mA, 250mA and 300mA.
2) 3-posistion sensitivity multiplier selector(G) switch offers selection of 1x, 10x and 100x.

Example 1: To set Idn=100mA
Step 1: Set sensitivity selector = 100mA
Step 2: Set sensitivity multiplier selector = 1x
Idn=100mA x 1 =100mA

Example 2: To set Idn=25A
Step 1: Set sensitivity selector = 250mA
Step 2: Set sensitivity multiplier selector = 100x
Idn=250mA x 100 =25A

Tripping Delay Time Adjustment

- The 9 positions time delay selector (E) provides additional delay for fault discrimination.
- Selectable delays are: Instantaneous (no delay), 50ms, 100ms, 150ms, 250ms, 350ms, 500ms, 1s, 3s.

Push button operations

a) Reset button (H)

The reset button is for resetting the light indicator and the trip contact after an earth leakage tripped.
To reset, press the reset button once.

b) Test button (I)

Press the test button to simulate an earth leakage trip condition.

Remote Control Input

a) Remote Test Input

This digital input is similar to the TEST push-button.
To remotely test the relay, make a connection between terminals 3 and 5 of the relay

b) Remote Reset Input

This digital input is to remotely reset the relay when tripped. To reset the relay, make a connection between terminals 3 and 4 of the relay.

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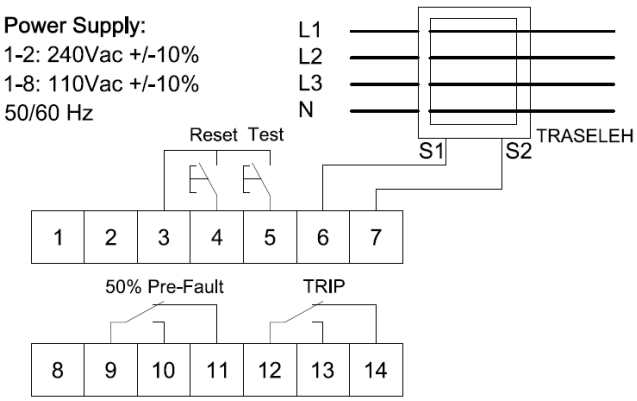
Output Contacts

A. Trip contact

This is a latching type contact. It operates when tripped.

B. 50% Pre Fault Contact

Operates when leakage current reaches 50% of the sensitivity setting.



TRASELEH Zero Phase Current Transformer

Technical Data

Rated frequency	50/60Hz
Accuracy Class	5P, 10P
Rated turns ratio	1/210
Residual current input / output voltage sensing parameters	Primary/Secondary 300mA/80mV 3A/80mV 30A/80mV
Rated primary current	0.3A
Rated accuracy limit primary current	3A
Accuracy limit factor ALF	10
Highest voltage for equipment	0.72kV
Rated power-frequency withstand voltage	3kV
Operating Temperature	-25 +40°C

Ordering information

Model	Inner diam	Max. Current	Mounting thread size
TRASELEH40	40mm	250A	M3.5
TRASELEH55	55mm	400A	M4
TRASELEH80	80mm	630A	M3.5

RIELR001 EARTH LEAKAGE RELAY

Technical Data

Auxiliary Supply

Supply Voltage	110Vac +/-10% or 240Vac +/-10%
Frequency	50Hz or 60Hz
VA rating	Less than 3VA
Setting	
Sensitivity setting	30mA, 50mA, 75mA, 100mA, 125mA, 150mA, 200mA, 250mA, 300mA, 500mA, 750mA, 1A, 1.25A, 1.5A, 2A, 2.5A, 3A, 5A, 7.5A, 10A, 12.5A, 15A, 20A, 25A, 30A.
Time delay setting	Instantaneous, 50ms, 100ms,150ms, 250ms, 350ms, 500ms, 1s, 3s.

Inputs

Remote test / reset inputs:	N.O. dry contacts
Sensor	TRASELEH model

Outputs

Contacts	(TRIP / 50% Pre-Fault)
Contact Arrangement	Change over
Contact rating	6A, 250Vac
Contact material	Silver alloy
Operating time	15ms max
Expected electrical life	100000 operations
Expected mechanical life	Expected mechanical life
Approval	UL/CSA,VDE,TUV,SEMKO

Indicators

Auxiliary supply	Green light indicator
Time delay	Red light indicator
Trip	Red light indicator
Leakage current	5 red lights indicator
Mechanical	
Mounting method	Din rail mounted
Approximate weight	0.3 kg

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