Type: ELRM44V-M

Earth Leakage Relay – Type A

Terminal Protection to IP20

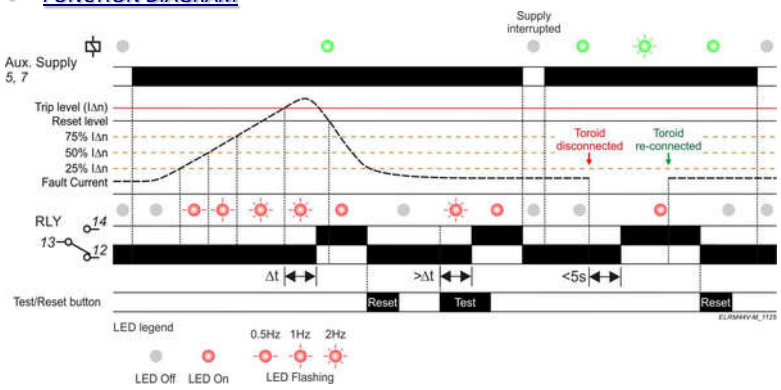


Dims: to DIN 43880
W. 44mm

- IEC 60947-2 Annex M compliant Earth Leakage Relay
- Type A monitoring and tripping characteristics and protected against nuisance tripping
- Trus R.M.S. measurements
- 230V AC Isolated Power Supply
- Relay normally de-energised and energises on trip (non-failsafe)
- Selectable trip level: 0.03 – 5A
- Selectable time delay: 0 – 5s
- Combined "Test" and "Reset" push button
- SPDT relay output 8A
- Green LED indicates power supply status or a disconnected toroid
- Red LED indicates leakage current level and tripped status
- DIN Rail mounted 44mm wide housing

Citation ISO Certification — Quality management — ISO 9001: 2015 — REGISTERED
Certificate No: 156532009

FUNCTION DIAGRAM



INSTALLATION AND SETTING

Installation work must be carried out by qualified personnel.

- BEFORE INSTALLATION, ISOLATE THE SUPPLY.
- Connect the unit as shown in the diagram below.
  Please note that the size of the externally connected toroid (connected to terminals "**8**" and "**9**") will have a minimum recommended trip/sensitivity (please refer to separate toroid data sheet) so the trip level should be set bearing this in mind.
- DO NOT install the unit in close proximity to equipment generating high magnetic fields.
- Ensure the voltage to be applied to terminals "**5**" and "**7**" corresponds with the voltage marked on the unit.

Applying power

- Apply power, the green "**supply on**" ❶ LED will illuminate. The output relay will remain de-energised.

Tripping

- Prior to tripping, when the fault current increases, the red LED ❷ will flash to indicate the % level of leakage current present. The different flash rates are:
  - **0.5Hz** *1 flash every 2s* (**25…50%** of actual trip level)
  - **1Hz** *1 flash every 1s* (**50…75%** of actual trip level)
  - **2Hz** *2 flashes every 1s* (**75…<100%** of actual trip level)
- When the fault current does exceed the trip setting, the output relay will energise, and red LED stay illuminated. The relay will now remain in a latched condition until reset.

Fault simulation (Test mode)

- The unit can be placed into a fault condition by pressing the "**Test/Reset**" ❺ button on the unit. The output relay will energise.
- Press the same button again on the front of the unit to reset the unit. The output relay will de-energise.
- The unit can also be reset by interrupting the power supply.
- To satisfy regulations, it is recommended that the device be tested periodically to ensure correct operation.

Troubleshooting

- If the unit fails to operate correctly check that all wiring and connections are good.

TECHNICAL SPECIFICATION

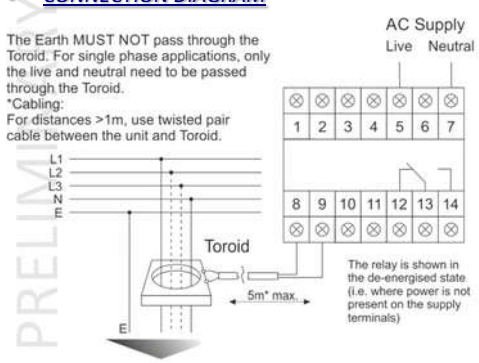
Auxiliary supply voltage Us **(5, 7):**	230V AC (80 – 120% of Us)	
Frequency range:	48 - 63Hz	
Overvoltage category:	III (IEC 60664)	
Altitude	Up to 2000m	
Rated impulse withstand voltage Uimp: (1.2/50µS) IEC 60947-2	4kV	
Power consumption (max.):	1W	
The auxiliary supply is galvanically isolated from the Toroid connection		
Monitored input **(8, 9)**:	Via external toroid	
Unit classification:	Type A	
External toroid ratio:	1000:1	
Monitored leakage current range:	0 to 5A	
Rated current In:	See BZCT data sheet for recommended toroids	
Trip level settings IΔn:	30mA, 100mA, 300mA, 500mA, 1A, 3A, 5A	
Time delay settings Δt: (>100ms = non-operate time delay)	0[1], 100ms, 300ms, 500ms, 1s, 3s, 5s	
	[1]*Actual delay is <25ms when fault current @ 5 x IΔn*	
Trip level:	85% of set IΔn (±5%)	
Reset level:	85% of actual trip level	
Reset time:	≈ 100ms (from supply interruption)	
Power on indication/toroid disconnected:	Green LED	
Tripped status/leakage current level:	Red LED	
Memory:	Storage of the leakage fault and reset with the front push button	
Ambient temperature:	-20 to +55°C	
Relative humidity:	+95% max.	
Output **(12, 13, 14)**:	SPDT relay	
Output rating:	AC1	250V 8A (2000VA)
	DC1	30V 8A (240W)
Electrical life:	≥ 100,000 ops at rated load	
Dielectric voltage:	1kV AC (rms) IEC 60947-1 (C to N.O. contact)	
Rated impulse withstand voltage:	4kV (1.2/50µS) IEC 60664	
Housing:	Grey flame-retardant Lexan UL94 V0	
Weight:	~150g	
Mounting option:	On to 35mm symmetric DIN rail to BS EN 60715	
Terminal conductor size:	2 x ≤ 2.5mm² solid or stranded	
Terminal screw:	M2.5	
Tightening torque:	0.4Nm Max.	
Product Standard:	IEC 60947-2 Annex M	
EMC:	IEC 61000 Series	
General:	CE, UKCA and RoHS Compliant. C-tick	

Note:

The operating function of this unit is classed as a Type A  for which tripping is ensured for residual sinusoidal alternating currents and residual pulsating direct currents, whether applied suddenly or slowly rising. Additionally, this unit is protected against nuisance tripping . This unit will also satisfy the requirements for Type AC devices which only need to detect residual alternating currents.

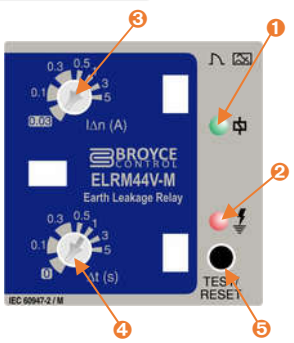
This unit should be installed in conjunction with the latest wiring regulations and practices (BS, IEC, etc).

CONNECTION DIAGRAM

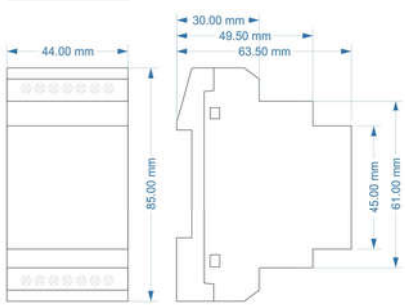


FRONT PANEL DESCRIPTION

1. "Power on" status LED (Green)
2. "Tripped/Leakage current level" status LED (Red)
3. IΔn Trip level selector
4. Δt Time delay selector
5. Combined "Test/Reset" button



DIMENSIONS



CAD drawings are available to download from the website (STP, IGES, etc).
Please click here: https://broycecontrol.com/downloads/ and navigate to the section **"CAD Models"**. Files are labelled **"44mm DIN Rail Enclosure"**

PRELIMINARY INFORMATION

HS Code: 85364900
Country of Origin: UK

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