# Type: LELRF-0030, 0100 & 0300

## Earth Leakage Relay (Fixed) – Type A

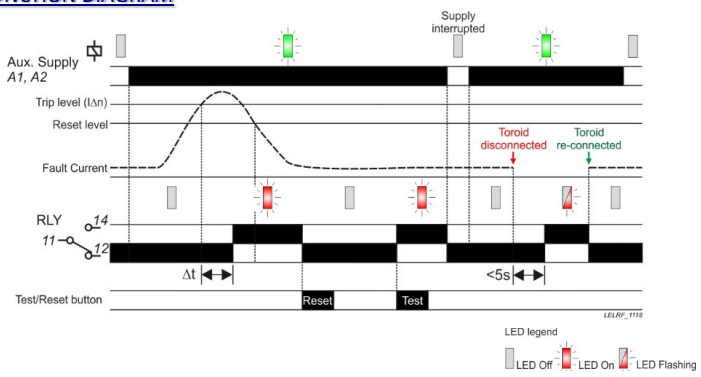
Terminal Protection to IP20


Dims: to DIN 43880
W. 17.5mm

- Compact 17.5mm wide DIN rail housing allows for product to be used where space is tight
- Designed to monitor and detect true RMS fault currents
- Protected against nuisance tripping
- Microprocessor controlled
- Relay normally de-energised and energises on trip
- Fixed trip level: 30, 100 or 300mA*
- Fixed time delay: inst.
- Combined "Test" and "Reset" push button
- SPDT relay output 7A
- Green LED indicates presence of power supply
- Red LED permanently illuminates indicating unit has tripped or flashes if external toroid has been disconnected
- Compliant with IEC 60947-2 Annex M

ISO 9001:2015
Cert. No. 14125771

## 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 "**CT1**" and "**CT2**") will have a minimum recommended trip/sensitivity (please refer to separate toroid data sheet) so the model of ELR should be chosen 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 "**A1**" and "**A2**" corresponds with the voltage marked on the unit itself.

### *Applying power*

- Apply power, the green "**supply on**" ❶ LED will illuminate. The output relay will remain de-energised.
- When a fault current exceeds the fixed IΔn trip setting, the output relay will energise and red "**tripped**" ❷ LED will illuminate. 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**" ❸ button on the unit. The output relay will energise.
- Press the same "**Test/Reset**" ❸ 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.

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.

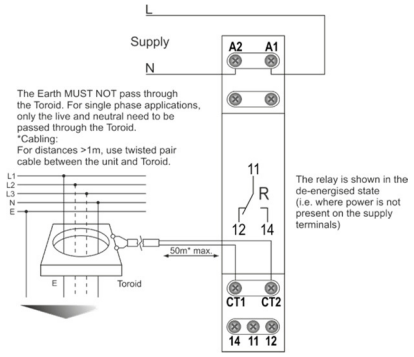
This unit should be installed in conjunction with the latest wiring regulations and practices (BS, IET, etc).

## TECHNICAL SPECIFICATION

| | | |
|---|---|---|
| Supply voltage Us^ **(A1, A2)**: | 24, 115, 230V AC (85 – 115% of Us) | ^ Please state supply voltage when ordering |
| Frequency range: | 48 - 63Hz | |
| Overvoltage category: | III (IEC 60664) | |
| Rated impulse withstand voltage Uimp: (1.2/50µS) IEC 60947-2 | 800V (Us = 24V AC)<br>2.5kV (Us = 115V AC)<br>4kV (Us = 230V AC) | |
| Power consumption (max.): | <10W | |
| Monitored input **(CT1, CT2)**: | Via external toroid connected | |
| Unit classification: | Type A | |
| External toroid ratio: | 1000:1 | |
| Monitored leakage current: | 0 to 1A | |
| Rated current In: | See BZCT data sheet for recommended toroids | |
| Sensitivity IΔn*: | 30, 100 or 300mA (*to be specified when ordering) | |
| Time delay Δt: | Instantaneous<br>** Actual delay is <25ms when fault current @ 5 x IΔn* | |
| Trip level: | 75% of IΔn | |
| Hysteresis: | 8% of IΔn | |
| Accuracy: | ±10% | |
| Reset time: | ≈ 100ms (from supply interruption) | |
| Power on indication: | Green LED | |
| Tripped: | Red LED (see "INSTALLATION" to the left) | |
| Memory: | Storage of the leakage fault and reset with the "Reset" push button | |
| Ambient temperature: | -20 to +55°C | |
| Relative humidity: | +95% max. | |
| Output **(11, 12, 14)**: | SPDT relay | |
| Output rating: | AC1 | 250V 7A (1750VA) |
| | AC15 | 250V 3A |
| | DC1 | 25V 10A (250W) |
| Electrical life: | ≥ 100,000 ops at rated load | |
| Dielectric voltage: | 750V AC (rms) IEC 60947-1 (C to N.O. contact) | |
| Rated impulse withstand voltage: | 1kV (1.2/50µS) IEC 60664 | |
| Housing: | Grey flame retardant Lexan UL94 | |
| Weight: | 62g | |
| Mounting option: | On to 35mm symmetric DIN rail to BS EN 60715 or direct surface mounting via 2 x M3.5 or 4BA screws using the black clips provided on the rear of the unit. | |
| Terminal conductor size: | 2 x ≤ 2.5mm² solid or stranded | |
| Terminal screw: | M3 (Designed for use with **PZ1** "pozi-driver") | |
| Tightening torque: | 0.6Nm Max. | |
| Approvals: | Conforms to: IEC 60947-2/Annex M<br>CE, and RoHS Compliant.<br>IEC 61000 (EMC) | |

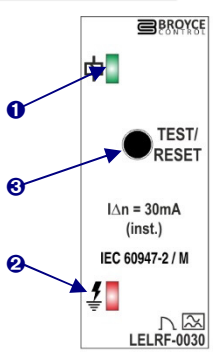
*Numbers/characters shown above in bold/within brackets refer to terminal printing on the housing.*

## CONNECTION DIAGRAM



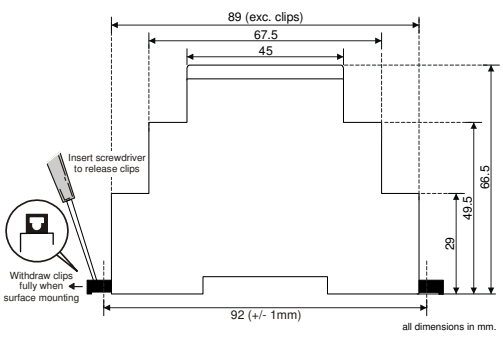

## INDICATION & BUTTON DETAILS

1. Power supply status (Green) LED
2. Tripped status (Red) LED
3. "Test/Reset" button




*Front panel layout shown for 30mA variant*

## DIMENSIONS





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