

Type: ELRM44-30V Earth Leakage Relay (Variable) Type A



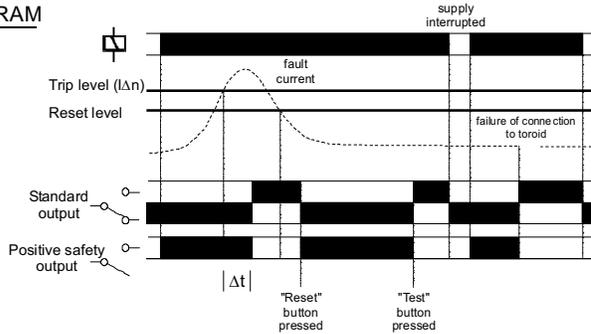
- 44mm (2.5 modules) wide DIN rail housing
- Designed to monitor and detect true RMS earth fault currents (to 30A) using a separate toroid
- LED bar graph provides constant indication of any leakage current
- Microprocessor controlled with internal monitoring (self-checking)
- Adjustable Sensitivity ($I_{\Delta n}$) - 30mA to 30A
- Adjustable Time Delay (Δt) - 0 (instantaneous)* to 10 seconds
- Separate "Test" and "Reset" push buttons
- Connection facility for remote "Test" and "Reset" push buttons or N.O. contacts
- Toroid open circuit detection forces unit to trip (Red LED flashes during this condition)
- 2 Relay outputs - Standard Output (S.O.) and Positive Safety Output (P.S.O.)
- LED indication of supply status and fault condition after unit has tripped



Dimensions:
to DIN 43880
W. 44mm

Terminal Protection to IP20

FUNCTION DIAGRAM



INSTALLATION



Installation must be carried out by qualified personnel

BEFORE INSTALLATION, ISOLATE THE SUPPLY

Connect the unit as shown in the diagram below (N.B. certain features may not be required and therefore do not need to be connected).

Apply power, the green "supply on" LED will illuminate and the "positive safety output" relay will energize. The relay will de-energize if:

- the fault current level exceeds the set trip level ($I_{\Delta n}$) **
- there is a failure of the connection between the relay and the toroid
** (Note the red "tripped" LED will flash during this condition)
- the supply to the unit is removed
- the relay fails internally

** causes the "standard output" relay to energize in response to the fault condition.

Prior to a fault occurring, the LED bar graph will indicate the % of $I_{\Delta n}$ being detected (the display is scaled between 25, 50, and 75% of the actual trip level). After all 3 LED's have illuminated and the unit trips due to an excessive fault current, the red "tripped" LED will illuminate. The unit will now remain in a latched condition.

Fault simulation (Test mode)

The unit can be placed into a fault condition by pressing the "Test" button on the front of the unit (or by pressing the remote "Test" button if fitted). The output relays operate accordingly.

Press the "Reset" button on the front of the unit (or remotely if fitted) to reset the unit. The output relays revert back to their "non tripped" state.

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.

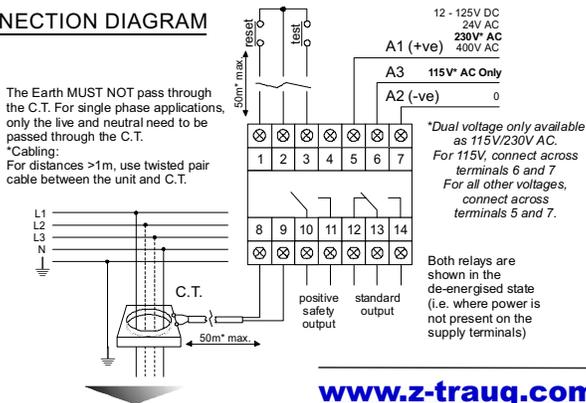
Troubleshooting

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 (IEE, etc).

CONNECTION DIAGRAM



TECHNICAL SPECIFICATION

Please state Supply voltage when ordering.

Supply voltage U_n (5,6,7):	12-125vdc (8 - 110% of U) (see connection diagram) 24, 115/230, 400V AC (85 - 115% of U_n) All AC supplies are galvanically isolated between the supply and the toroid and remote test/reset connections.
Frequency range:	50/60/400Hz (AC supplies)
Isolation:	Over voltage cat. III
Rated impulse withstand voltage:	800V (24V AC supplies), 2.5kV (115V AC supplies) (1.2 / 50ms) IEC 60664kV (230V, 400V AC supplies)
Power consumption (max.):	6VA (AC supplies) 5W (DC supplies)

Monitored leakage current: 0 to 30A (15-400Hz) through external toroid with 1000:1 ratio and connected to terminals 8 and 9

Sensitivity I_n (see Accessories):	30, 100, 300, 500mA, 1, 3, 5, 10, 20, 30A (user selectable)
Trip level limits:	80 - 90% I_n
Reset Value:	>85% of tripped level
Time delay Δt :	0*, 60, 150, 250, 500, 800ms, 1, 2.5, 5, 10 sec. (user selectable)

*Actual delay for "0" or "Instantaneous" is <25ms when fault current @ 5 x I_n

Note:

- For $I_{\Delta n}$ setting of 30mA, the time delay is fixed to 0 (instantaneous) and is not adjustable (i.e. any other time delay cannot be selected when 30mA is set).
- The unit is factory set to 30mA trip and instantaneous delay. Adjustment of these settings can be made if necessary to suit the requirements of the installation. A seal is supplied allowing the user to secure the clear window and hence prevent any unauthorized adjustment of the settings.

Reset time:	>2S (from supply interruption)	
Power supply present:	Green LED lit	
Bar graph:	Green x 3 (25, 50 and 75% of actual trip level)	
Tripped:	Red LED lit	
Memory:	storage of leakage fault and reset with the "Reset" push button	
Ambient temp:	-20 to +55°C (-5 to 40°C in accordance with IEC60755	
Relative humidity:	95% non condensing	
Output:	1 x SPNO, 1 x SPDT relays	
Output rating:	S.O. (12, 13, 14)	P.S.O. (10, 11)
	AC1 (250V)	8A (2000VA)
	AC15 (250V)	2.5A
	DC1 (25V)	8A (200W)
		6A (1500VA)
		4A
		6A (150W)

Electrical life:	≥150,000 ops at rated load
Dielectric voltage:	2kV AC (rms) IEC 60947
Rated impulse withstand voltage:	4kV (1.2 / 50μs IEC60664
Remote "Test" / "Reset"	(1, 2, 3) Requires N.O. contacts. (i.e. push buttons)
Minimum trigger time:	>80ms (Trigger time = 80ms + Δt setting for remote "test")
Housing:	Grey flame retardant Lexan UL94 V0
Weight:	≈190g (AC power supplies) ≈110g (DC power supply)
Mounting option:	Onto 35mm symmetric DIN rail
Terminal conductor size:	≤2.5mm ² stranded, ≤4mm ² solid
Approvals:	Conforms to IEC60755, 60947, 62020, 61543, 61000-2-3-4-5-6-12 & 16 CISPR 22 CE & compliant.

() Numbers in brackets shown above refer to terminal numbers on the relay housing.

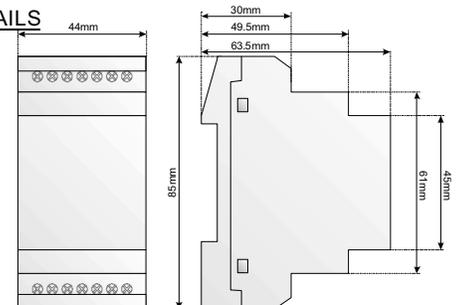
Options:

For other supply voltages, alternative trip levels or time delays, please consult the sales office.

ACCESSORIES - Toroids

Toroid Type:	Internal diameter	$I_{\Delta n}$ (min.)/A
BZCT035	35mmØ	0.03
BZCT070	70mmØ	0.03
BZCT120	120mmØ	0.1
BZCT210	210mmØ	0.3

MOUNTING DETAILS



The information provided in this literature is believed to be accurate (subject to change without prior notice); however, use of such information shall be entirely at the user's own risk.