

Type: ELRP48V-30

Earth Leakage Relay (Variable) - Type A

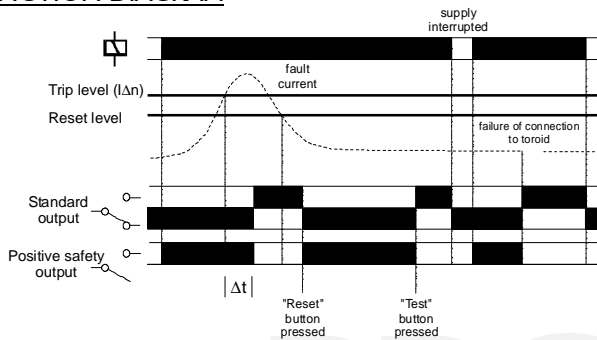
- 76mm length¹, 48 x 48mm Panel mount housing - Supplied complete with retaining clips and screws
- Pluggable connectors located at the rear of the unit and supplied with mating, re-wireable sockets
- Designed to monitor and detect true RMS earth fault currents (up to 30A) in conjunction with a separate C.T.
- LED bargraph provides constant indication of any leakage current
- Microprocessor controlled with internal monitoring (self-checking)
- Adjustable Sensitivity (I_{Δn}) - 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
- 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



Front Panel Protection to IP40

¹ behind panel and excluding pluggable connectors.

FUNCTION DIAGRAM



TECHNICAL SPECIFICATION

Supply voltage U _n (6, 7):	12 - 125V DC (85 - 110% of U)	Please state Supply voltage when ordering.
(see connection diagram)	24, 115, 230V 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 / 50μs) IEC 60664	4kV (230V AC supplies)	
Power consumption (max.):	6VA (AC supplies) 5W (DC supplies)	
Monitored leakage current:	0 to 30A (1.5 - 400Hz) (through external toroid with 1000:1 ratio and connected to terminals 4 and 5)	
Sensitivity I _{Δn} (see Accessories)	30, 100, 300, 500mA, 1, 3, 5, 10, 20, 30A (user selectable)	
Trip level limits:	80 - 90% of I _{Δn}	
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 _{Δn} .		

Note:

- For I_{Δn} 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 unnecessary adjustment of the settings.

Reset time:	≈ 2S (from supply interruption)
LED indication:	
Power supply present:	Green
Bargraph:	Green x 3 (25, 50 and 75% of actual trip level)
Tripped:	Red (see "INSTALLATION" to the left)
Memory:	storage of the leakage fault and reset with the "Reset" push button
Ambient temp:	-20 to +55°C (-5 to +40°C in accordance with IEC 60755)
Relative humidity:	+95%
Output:	1 x SPDT, 1 x SPNO relays
Output rating:	S.O. (8, 9, 10) P.S.O. (11, 12)
	AC1 (250V) 8A (2000VA) 6A (1500VA)
	AC15 (250V) 2.5A 4A
	DC1 (25V) 8A (200W) 6A (150W)
Electrical life:	≥ 150,000 ops at rated load
Dielectric voltage:	2kV AC (rms) IEC 60947-1
Rated impulse withstand voltage:	4kV (1.2 / 50μs) IEC 60664
Remote "Test" / "Reset" (1, 2, 3)	Requires N.O. contacts. (i.e. push buttons)
Minimum trigger time:	>80ms (Actual trigger time = 80ms + Δt setting for remote "test")
Housing:	Black, self-extinguishing noryl UL94 VO (ABS for front plate and rear clip)
IP Protection:	Terminals: IP20. Housing: IP30 (when clips are inserted)
Weight:	≈ 190g (AC power supplies) ≈ 110g (DC power supply)
Mounting:	Through 45 x 45mm panel cut-out and secured to panel using retaining clips and screws (2 of each supplied). Panel thickness typically 4mm
Terminal conductor size:	≤ 2.5mm ²
Approvals:	Conforms to: IEC60755, 60947, 62020, 61543, IEC 61000-4-2, -3, -4, -5, -6, -12 and -16. CISPR 22. CE and 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 (C.T.)

Toroid Type:	Internal diameter:	I _{Δn} (min.) A
BZCT035	35mm Ø	0.03
BZCT070	70mm Ø	0.03
BZCT120	120mm Ø	0.1
BZCT210	210mm Ø	0.3

INSTALLATION

- BEFORE INSTALLATION, ISOLATE THE SUPPLY.** Installation work must be carried out by qualified personnel.
- 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 energise. The relay will de-energise if:
 - the fault current level exceeds the set trip level (I_{Δn})**
 - 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 energise in response to the fault condition.
- Prior to a fault occurring, the LED bargraph will indicate the % of I_{Δn} 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.

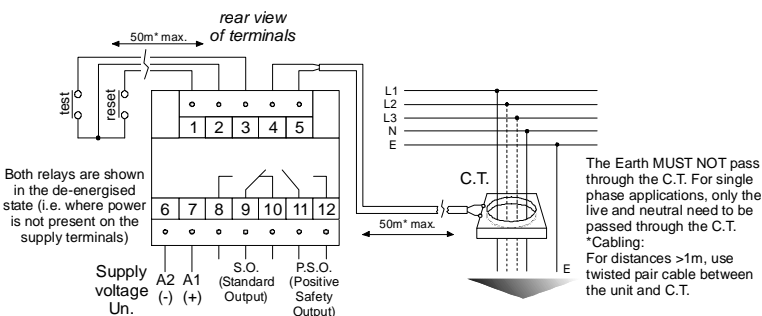
Troubleshooting

- If the unit fails to operate correctly check that all wiring and connections are good.
- For the DC supply version, ensure the polarity to terminals 6 and 7 (A1 and A2) are correct.

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 \int . This unit will also satisfy the requirements for Type AC devices which only need to detect residual alternating currents.

CONNECTION DIAGRAM



MOUNTING DETAILS

