

INTEGRAL EARTH LEAKAGE RELAY

ORDERING CATALOG NOS.:

ELR3A2030
ELR3A2100
ELR3A2300





FEATURES:

- Monitors True RMS Earth Leakage Current
- Integral toroid-35mm Ø
- Earth Leakage Relay with Inbuilt CBCT of three variant available:30mA,100mA,300mA
- "Test" and "Reset" push buttons
- SPDT Output Relay with Energized to trip
- Green LED indicates presence of power supply
- Red LED flashing indicates when fault current is >50% of I_{Δn} & fault current is >75% LED ON as relay has tripped
- Base or DIN rail mounting
- Easy to install and Compact size
- Protected against the nuisance tripping

CAUTION:

- Always follow instructions stated in this product leaflet.
- Before installation, ensure that specifications agree with intended application.
- Suitable dampers should be provided in the event excess vibration during installation.
- Installation to be done by skilled electrician.
- Automation and control devices must be installed so that they are protected against any risk of involuntary actuation.
- Disconnect power before working on equipment.

TERMINAL DETAILS:

	0.40 N.m (3.5 Lb.in) Terminal screw - M2.6
	1 x 2.5mm ² Solid Wire
AWG	1 x 22 to 12

Use Cu Wire of 60/75°C only.

NOTES:

- Product innovation being a continuous process, we reserve right to alter any specifications without prior notice.
- To satisfy regulations, it is recommended that the device be tested periodically to ensure correct operation.

TECHNICAL SPECIFICATIONS:

ORDERING CAT. NOS.:	ELR3A2030	ELR3A2100	ELR3A2300
Rated Leakage Current (I _{Δn})	30mA	100mA	300mA
SUPPLY CHARACTERISTICS:			
Supply Voltage (E)	240 VAC, 50/60Hz		
Supply Variation	-15% to +15%		
Power Consumption (Max.)	8 VA		
LED Indication	Green	ON :Power On	
	Red	Blink :Leakage current is greater than 50% of rated value ON :Leakage current is greater than 75% of rated value	
FEATURE CHARACTERISTICS:			
Trip Recovery	<50% of I _{Δn} (nominal)		
Trip Level	75% of I _{Δn} (nominal)		
Hysteresis	8% of I _{Δn} (nominal)		
Reset Enable	Below 50% of rated current		
Memory	Storage of the leakage fault and reset with "Reset" push button.		
Reset Time	<200ms		
Response time	Non delayed		Delayed
	"instantaneous" is <25ms when fault current @5x I _{Δn}		100 ms when fault current @3XI _{Δn}
			100 ms when fault current @3XI _{Δn}
Type Class	'A' True RMS measurement (as per IEC 60947/60755) 'AC' True RMS measurement 30mA, 100mA, 300mA(as per IEC 60947/60755)		
Max. Crest Factor	5		
Accuracy	± 10%		
RELAY O/P CHARACTERISTICS:			
Contact Rating	5A(NO) and 3A(NC) Resistive load @ 250 VAC / 30 VDC		
Contact Arrangement	1C/O		
Utilization Category (AC-15)	3.0 A at 120 V & 1.5 A at 240 V		
Utilization Category (DC-13)	0.22 A at 125 V & 0.10 A at 250 V		
Mechanical Life Expectancy	5X10 ⁶		
Electrical Life Expectancy	1X10 ⁵		
Contact Material	Ag Alloy		
AMBIENT CONDITIONS:			
Storage Temperature	-20°C to+60°C		
Operating Temperature	-5°C to+55°C		
Relative Humidity	95% Rh (without condensation)		
Max. Operating Altitude	2000 m		
Degree of Protection	IP-20		
Pollution Degree	II		
OTHERS:			
Mounting	Base / Din Rail		
Dimensions in mm (H X W X D)	110 X 74 X 37		
Weight Approx. (Un-packed)	120 g		
Enclosure	Flame retardant UL94-V0		
Enclosure colour	RAL 7016		
Applicable wire sizes	3-wire:35mm ² (167A-Rated current),4-wire:25mm ² (136A-Rated current)		

TRIP CHARACTERISTICS:

Standard IEC 60947/60755 indicates the operating characteristic for a non-time-delay(ELR3A2030) type in table 1.

Table 1:




Residual current	I _{Δn}	2I _{Δn}	5I _{Δn}	>5I _{Δn}	
Maximum break time	s	0.3	0.15	0.04	0.04

For CBR's having limiting Delayed time(ELR3A2100,ELR3A2300) operating characteristic is given in table 2.

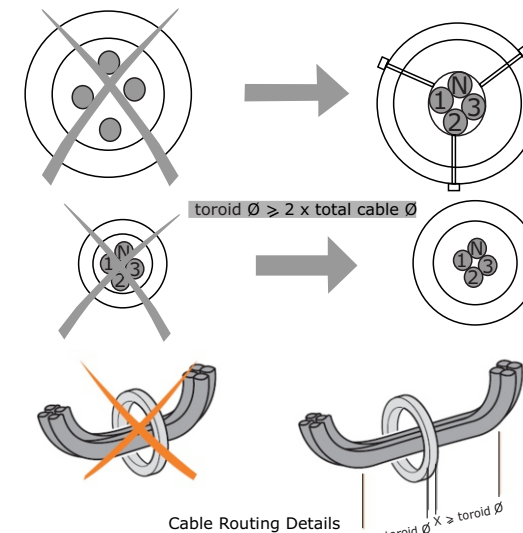
Table 2:

Residual current	I _{Δn}	2I _{Δn}	5I _{Δn}	10I _{Δn}	
Maximum break time	s	0.5	0.2	0.15	0.15

ELR OPERATING CONDITIONS:

ELR Operating condition	Contact Positions
No Auxiliary Supply	1 C/O (Non fail safe) 
Healthy / Reset State	
Trip state	

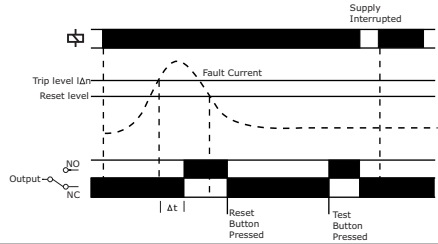
Centre the cables within the toroid



FUNCTIONAL DESCRIPTION:

The Integral earth leakage relay which having inbuilt CBCT. It monitors the fault current continuously and isolate the faulty circuit from the system when the leakage current exceeds the set level with a very fast response time of less than 25ms, the supply can be disconnected before serious damage can occur. This product becomes extremely important from the safety perspective. It is Highly Accurate Performance.

FUNCTION DIAGRAM:



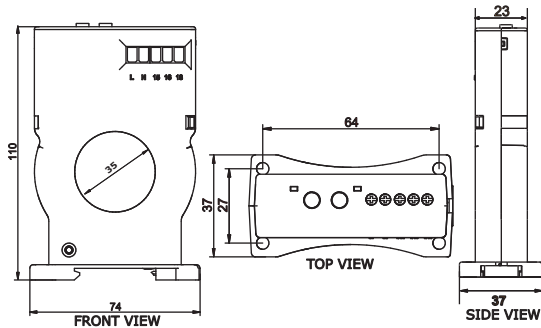
TYPE OF RESET:

Manual Reset (Press 'Reset' Button on front plate). The output relay will de-energise.

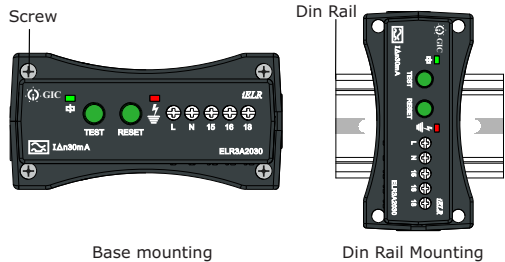
FAULT SIMULATION:

- The unit can be placed into fault condition by pressing & hold "Test" button for 100ms. The output relay will energise.
- Press & hold "Reset" button for 100ms 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 the correct operation.

OVERALL DIMENSIONS:



MOUNTING DETAILS AND OPERATING POSITION:



CONFORMITY TO STANDARDS EMI/EMC:

Harmonic Current Emission	IEC 61000-3-2	Class A
Voltage Flicker and Fluctuations	IEC 61000-3-3	Class A
ESD	IEC 61000-4-2	Level III
Radiated Susceptibility	IEC 61000-4-3	Level II
Electrical Fast Transients	IEC 61000-4-4	Level IV
Surge	IEC 61000-4-5	Level IV
Conducted Susceptibility	IEC 61000-4-6	Level III
Voltage Dips and Interruptions (AC)	IEC 61000-4-11	Level I, II, III, IV, & V
Conducted Emission	CISPR 11	Class B
Radiated Emission	CISPR 11	Class B

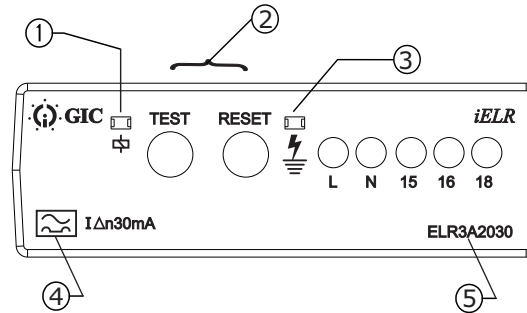
SAFETY:

Test Voltage Between I/P & O/P	IEC 60755	2.5 kV
Test Voltage Between all Terminals & Enclosure	IEC 60755	2.5 kV
Over Voltage Category	IEC 60947-1	IV
Impulse Voltage Between I/P & O/P	IEC 61008-1	4kV
Single Fault	IEC 61010-1	
Insulation Resistance	UL 508	>50KΩ
Leakage Current	UL 508	<3.0 mA

ENVIRONMENTAL:

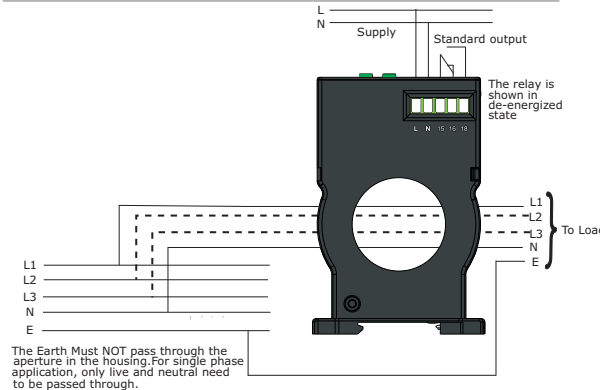
Cold Heat	IEC 60068-2-1	Ed. 6.0 (2007-03)
Dry Heat	IEC 60068-2-2	Ed. 5.0 (2007-07)
Vibration	IEC 60068-2-6	Ed. 7.0 (2007-12) 5 g

FRONT FACIA:



1. Power ON (⊕) LED Indication
2. Test / Reset function push button
3. Earth Leakage fault (⚡) LED indication.
4. Type A/AC indication.
5. Product cat ID.

CONNECTION DIAGRAM:



TEST REPORT:

Product CAT ID:

Sr.no	Cat ID	Leakage Current range
1	ELR3A2030	30mA
2	ELR3A2100	100mA
3	ELR3A2300	300mA

Test parameters:

Sr.no	Test Parameter	Result
1	Supply variation test	Pass
2	Current accuracy	Pass
3	Trip accuracy	Pass
4	Key functionality	Pass
5	Relay functionality	Pass
6	LED indication verification	Pass
7	Aesthetic verification	Pass

Checked By

Note:

- For single phase applications, only Live and Neutral need to be passed through CBCT.
- Do not pass Earth conductor through CBCT connected to Earth Leakage Relay.
- All conductors to be protected must pass through CBCT.
- This unit satisfies the requirements for Type A (⊕) devices which only need to detect residual alternating currents.

E-Waste Regulatory notice:

Kindly treat, recycle or dispose of this equipment in an environmentally sound manner after End of Life, as per WEEE (Waste Electrical and Electronic Equipment) regulations; or hand it over to General Industrial Ltd, through website <https://www.gicindia.com/get-in-touch>

