ELRD-L / ELRD-L2m
ELRC-BL EARTH LEAKAGE RELAY

MICROENER

DIN RAIL MOUNTING. WITH AUTOMATIC TRIP AND RECLOSING FOR CONTROLLING THE EARTH LEAKAGE IN PUBLIC LIGHTING,REFRIGERATION ROOMS,TRAFFIC LIGHTS AND SIMILAR UNATTENDED INSTALLATIONS.

GENERALITY

MODELS	
ELRC-BL	230 Vac
ELRD-L	230 Vac
ELRD-L2m	230 Vac

OPTIONS	
T	tropicalisation

The **ELRC-BL, ELRD-L** and **ELRD-L2M** are devices, which maintain the wide range of current and time settings of the ELR series, being in a 6 modules DIN enclosures for single and three phase installations. They are fitted with special filters at the input for avoiding external disturbance, with following alternatives:
ELRD-L2M: With pre-alarm at 70% of the rated current.
ELRC-BL: With built- in toroidal (inner diameter of 28mm).
The logical working principles of these relays controls the earth leakage of electrical installations, discriminating between transitory and permanent leakages and allowing, therefore, the reclosing or definitive disconnection of the line under control, depending on the type of leakage.
Their most common application is on the Public Lighting Installations and generally unattended installations as Refrigerated Rooms . Sometimes the reason of a section being out of order is due to a lightning which has influenced in a defined area, rebounding to their sections of the line, through the earthing connections.
These devices will react as an earth leakage, but in the next control, 40 seconds later approximately, will verify the disappearance of the leakage and if so they'll proceed to the reclosing of the lighting system, under control. It will avoid that the system remains out of order, with the corresponding intervention of labour hand for the manual reclosing
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A)The first leakage situation is occurring between the relays and the contactor, commanded by the first output relay (R1). A typical case for such anomaly, always within the Public Lighting, can be the photo-cell which is earthen through its column.
Under these conditions, if the leakage current (ID) is over the set value, the R1 relay will be energized and the (B1) contactor de-energized, after the elapsing of the time delay (t) programmed, disconnecting the supply to the line.
B)The second leakage situation and the most common, is the one happening at the contactor's end. Under such given situation, the R1 relay will be energized and the (B1) contactor de-energized, after the elapsing of the time delay (t) programmed, disconnecting the supply to the line.
Simultaneously, with the option ELRD-L2M, the mechanical signalisation will come on, even in case of definitive disconnection, due to a permanent earth leakage situation, which might imply the total switch off in the Distribution Board.
In this particular case, as the leakage disappears when the contactor is de-energized, the device is not blocked but it starts an automatic reclosing cycle, 40 seconds after approximately, the R1 is de-energized and the contactor reclosed, supplying to the load again.
The relay will remain blocked, memorizing the intervention, until the manual reset of the unit by the personnel in charge, either directly on the relay or by remote control system. The ELRD-L2M option, with the mechanical signalling, can only be reset manually with the push button at the front plate of the relay. This allows to maintain the earth leakage tripping information although the remote reset of the unit.
After 30 seconds of correctly working time of the line under control, after an automatic reclosing cycle, the device will reset itself the interventions memory and the full cycle may start again.
On top of the above the ELRD-L2M is fitted with an alarm threshold of 70% the tripping current set. It is a very useful information to prevent the tripping due to the cables lack of insulation or at the setting operations of the device.

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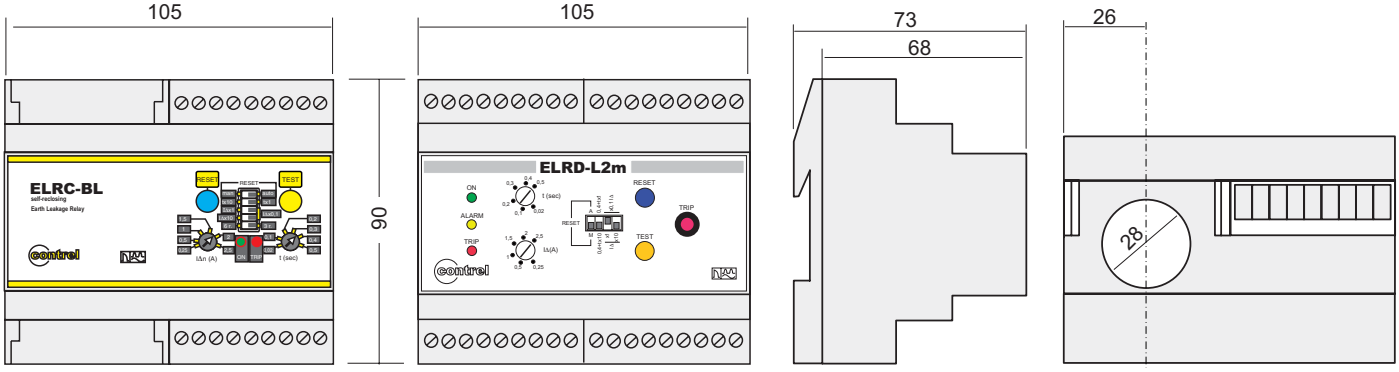
ELECTRICAL CHARACTERISTICS

models and value	ELRC-BL	ELRD-L	ELRD-L2m
Auxiliary Voltage supply	230 Vac		
Frequency	50 ÷ 60 Hz		
Maximum consumption	4 VA		
Setting range for current tripping IΔN	0,025÷0,25A K=0,1 - 0,25÷2,5A K=1 - 2,5÷25A K=10		
Setting range for current alarm	-	-	70% IΔN
Setting range for time delay R1	0,02 ÷ 0,5 sec. K=1 - 0,2 ÷ 5 sec. K=10		
Setting range for time delay R2	Delay for R1 + 0,4 sec.		
Self-closing	With micro switch in postion AUT		
Number of self-closing attempts	3 or 6 consecutive	max 3 consecutives	
Time elapsed between self-closings	25÷35 sec.	50÷70 sec.	
Memory reset	30 seconds after operating without any current leakage		
Mechanical tripping signal	-	-	It comes with the definitive blocking
Output relays	R1 NO-C-NC contact 5A 250V resistive load - R2 NO contact 5A 250V resistive load		
Hole's diameter for passing the cables	28 mm	-	
Working Temperature	-10 + 60°C		
Storing Temperature	-20 + 80°C		
Relative humidity	<90%		
Insulation Test	2,5 kV 60 sec.		
Standards	CEI 41-1/IEC 255/VDE 0664/IEC 755/CEI 64.8/ EN 61008-1(1999-11)/EN 62020 (1999-09) / EN 61543 (1996-09) /EN61326-1(1998-04) / EN 61326/A1 (1999-05)-IEC 60947-2 ANNEX M		
Wiring method	By terminal block with cross section cable of 2,5 mm2		
Mounting according with DIN 50022	Mounting on DIN rail 35 mm		
Protection degree	IP 40 front with closed cover - IP 20 enclosure		

DIMENSIONS



EARTH LEAKAGE RELAY

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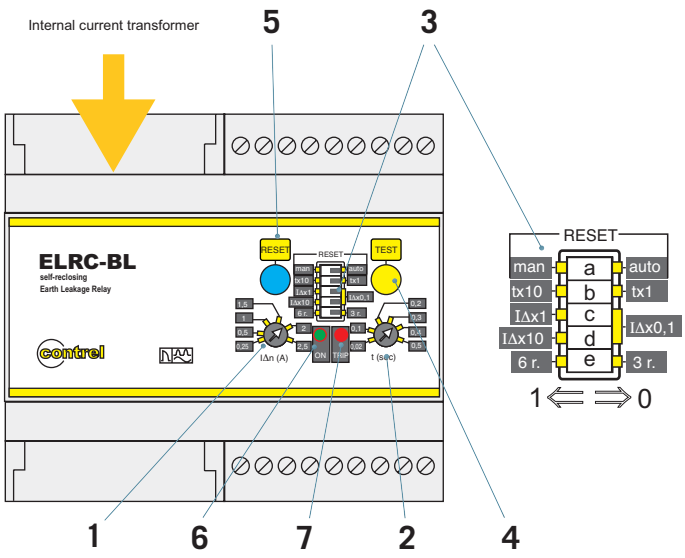
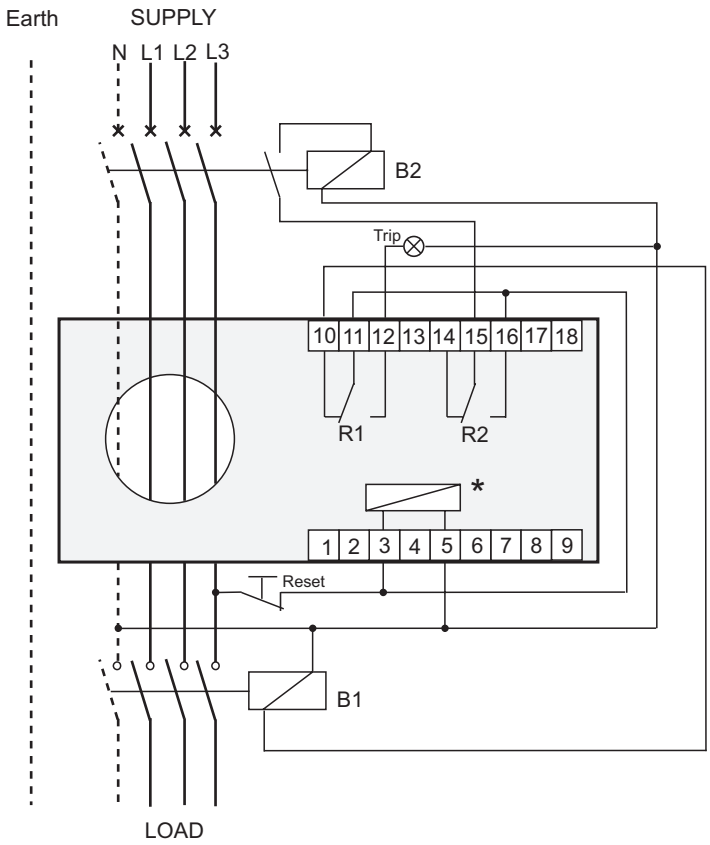
LEGEND - ELRC-BL



1	Current tripping setting potentiometer.
2	Tripping time setting potentiometer.
3	Micro switches for programming: • **a.** In position 1: manual reset, In position 0: automatic reset, • **b.** Selection of the multiplying constant for tripping time In position 1: K=10 In position 0: K=1 • **c,d.** Selection of the multiplying constant of tripping current: with c and d in position 0: K=0,1 with c in position 1 and d in position 0: K=1 with c and d in position 1: K=10 • **e** In position 1: 6 re-closings In position 0: 3 re-closings
4	Push button for Test
5	Push button for manual reset
6	Signalling green LED for Aux. Supply presence
7	Signalling red LED for relay tripped

WIRING DIAGRAM - ELRC-BL



LEGEND

B1
First intervention coil (for de-energising the contactor's coil etc.)

B2
Second intervention coil (for energising the shunt trip coil of the MCCB, etc.)

RESET
Remote reset push button (in serie with the relay's power supply)

TRIP
Eventual remote optical signal of tripped relay

* Auxiliary supply Uaux:
terminals [3-5] 220-240V 50-60Hz

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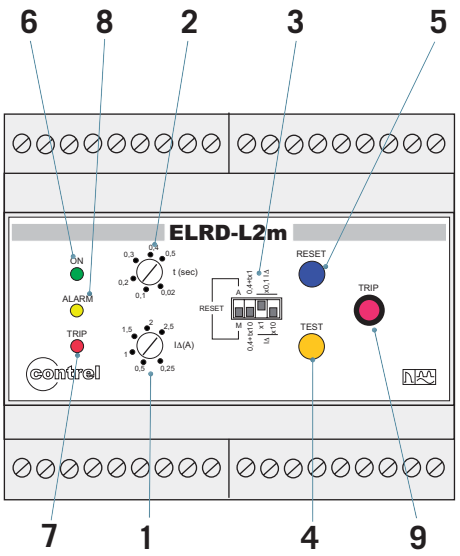
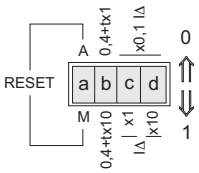
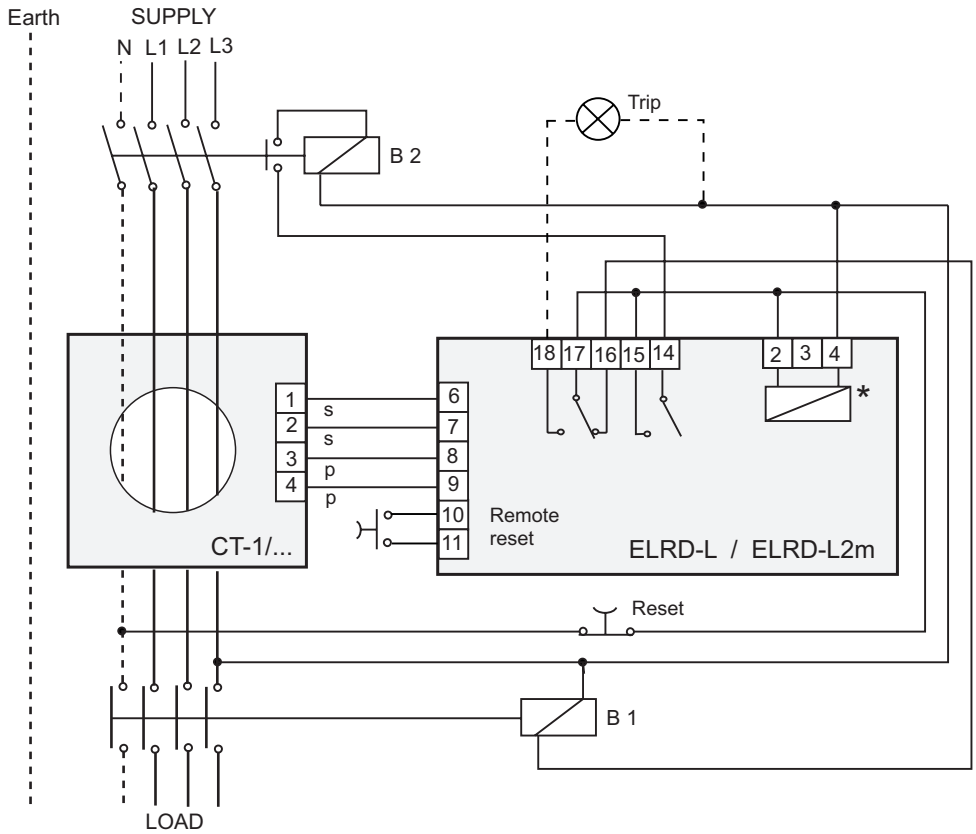
LEGEND - ELRD-L / ELRD-L2m





1	Tripping time setting potentiometer.
2	Earth leakage current setting potentiometer.
3	Micro switch for constants (K) choice: • **a.** automatic re-closing with micro switch in position 1 • **b.** constant selection for tripping time setting: K=1 micro switch in position 1 K = 10 micro switch in position 0 • c,d. constant selection for current tripping setting: K = 0,1 for micro switches in position 1 K = 1 for micro switch (c) in position 0 and micro switch (d) in position 1. K = 10 for micro switch (c) in position 1 and micro switch (d) in position 0.
4	Push button for Test
5	Manual reset push button
6	Signalling lamp for aux. supply presence (green LED)
7	Signalling lamp for relay tripped or in re-closing cycle (red LED)
8	Alarm signalling LED (only for ELRD-L2m)
9	Mechanical signal (only for ELRD-L2m)

WIRING DIAGRAM - ELRD-L / ELRD-L2m



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B1
First intervention coil (for de-energising the contactor's coil etc.)

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RESET
Remote reset push button (in serie with the relay's power supply)

TRIP
Eventual remote optical signal of tripped relay

s-s
measuring signal connection (use screened or twisted cable)

p-p
test signal connection (use screened or twisted cable)

* Auxiliary supply Uaux:
terminals [2-4] 220-240V 50-60Hz

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