ELRC-L
ELRD-L
ELRD-L2M

Earth Leakage Relays

With automatic trip and reclosing for controlling the earth in Public Lighting,Refrigeration Rooms,Traffic Lights and similar unattended installations.
"COMPACT" , with built-in toroidal transformer, and DIN rail mounting Versions.

GENERAL

The logical working principles of the ELRC-L, ELRD-L and ELRD-L2M controls the earth leaking 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.
Its most common application is on the **Public Lighting Installations**. Sometimes the reason of a section being out of order is due to to a lightning which has influenced in a defined area, rebounding to ther sections of the line, through the earthing connections.
These devices will react as an earth leakage, but in the next control, 60 seconds later approximately, will verify the disappearance of the 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.
Other common applications are those of the Traffic Lights, Refrigeration Rooms and other normally unattended installations.

HOW IT WORKS

As far as its operation is concerned, we can study two leakage types, as follows:

A)The first leakage situation is occurring between the ELRC-L or ELRD-L(2M) 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 the post.
Under these conditions, if the leakage current ($I\Delta$) 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.
Simultaneously (with the option ELRD-L2M), the mechanical signallisation 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.
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.
In this particular case, as the leakage disappears when the contactor is de-energized, the device is not blcked but it starts an automatic reclosing cycle. 60 seconds after approximately, the R1 is de-energized and the contactor reclosed, suplyingto the load again.
At this point, if the earth leakage has disappeared, the contactor remains energized and everything goes normally. But if there is an earth leakage otherwise, the described cycle is repeated. At the end of the second cycle, if the earth leakage is still there the contactor will be de-energized and the load without supply definitively. The ELRC-L or ELRD-L devices 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 resetted 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 usefull information to prevent the tripping due to the cables lack of insulation or at the setting operations of the device.

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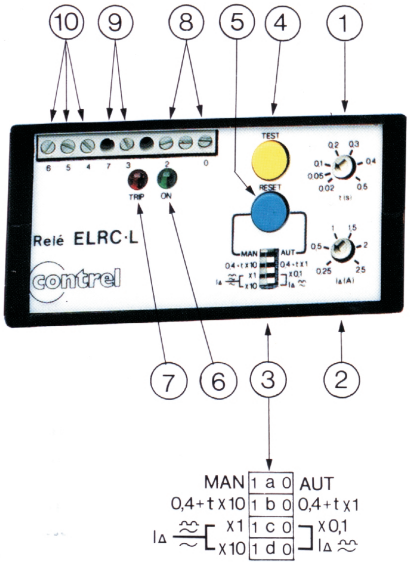
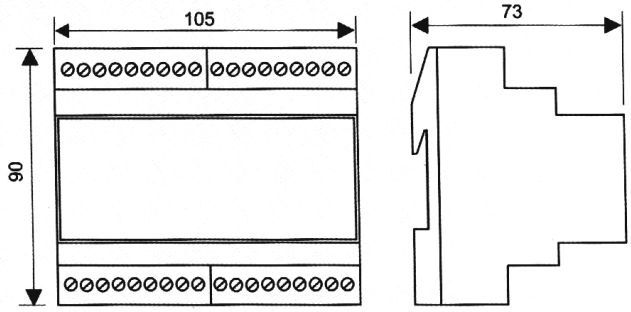
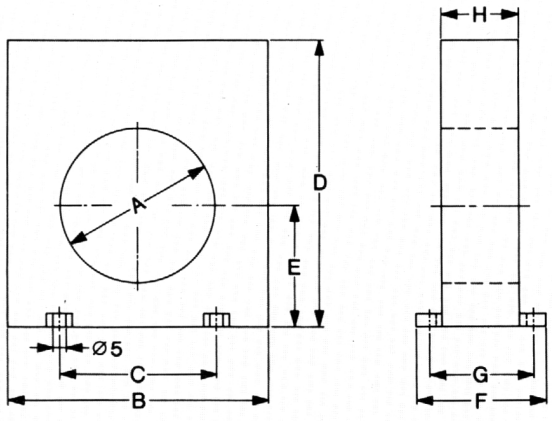


DIMENSIONS





TIPO	Dimensions mm.							
	A	B	C	D	E	F	G	H
ELRC-L	35	100	60	110	47	70	60	50

DESCRIPTION

1) Tripping time adjustment potentiometer.
2) Earth leakage current adjustment potentiometer.
3) Microswitch for constants choice:
   - automatic reclosing with microswitch (a) in position 0.
   - constant selection for tripping time adjustment:
   K=1 microswitch (b) in position 0
   K = 10 microswitch (b) in position 1
   - constant selection for current tripping adjustment:
   K = 0,1 for microswitches (c-d) in position 0
   K = 1 for microswitch (c) in position 1and microswitch (d) in position 0.
   K = 10 for microswitch (c) in position 0 and microswitch (d) in position 1.
4) Push button for Test
5) Manual reset push button
6) Signaling lamp for aux. supply presence (green LED)
7) Signaling lamp for relay tripped or in reclosing cycle (red LED)
8) Auxiliary supply terminals.
9) Output terminals for end relay R2
10) Output terminals for end relay R1

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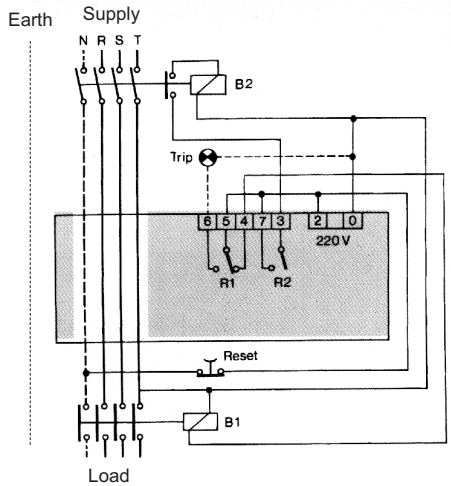
ELECTRICAL CHARACTERISTICS

	ELRC-L	ELRD-L	ELRD-L2M
Auxiliary Voltage supply	220 Vac		
Frequency	50 ÷ 60 Hz		
Maximum consumption	4 VA		
Tripping current setting range	0,025÷ 0,25A for K = 0,1 / 0,25÷ 2,5A for K=1 / 2,5 ÷ 25 A for K = 10		
Alarm current setting range	—	—	70 % IΔN
Tripping time delay setting for R1	0,02÷0,5 seg.para K=1 0,2 ÷ 5 seg. para K=10		
Tripping time delay setting for R2	Delay for RI + 0,4 segundos		
Reclosing	With microswitch in position AUT		
Number of reclosing attempts	Maximum of three consecutive times		
Waiting time between successive attempts	50 ÷ 70 seconds		
Zero made of tripping times	30 seconds after working without a leakage in the installation		
Tripping memory	—	—	It blocks definitively
Inner diameter for passage of cables	35 mm	35 mm35-60-80-110-160-210 mm with external T/T	
Output: Relay with voltage free contacts	R1 chage-over contact 5A 250V resistive load -R2 NOcontact 5÷250V resistive load		
Insulation Test	2,5 Kv 60 sec.		
Mounting position	Any		
Wiring method	Screw terminals for cross section cables 2,5 mm2		
Protection degree	IP 20	IP 20 enclosure and terminals - IP 40 front	
Mounting on panel accordig DIN 50022	panel	Snap on DIN rail 35 mm	
Standards	CEI 41-1 IEC 255 VDE0664		

WIRING DIAGRAM

ELRC-L



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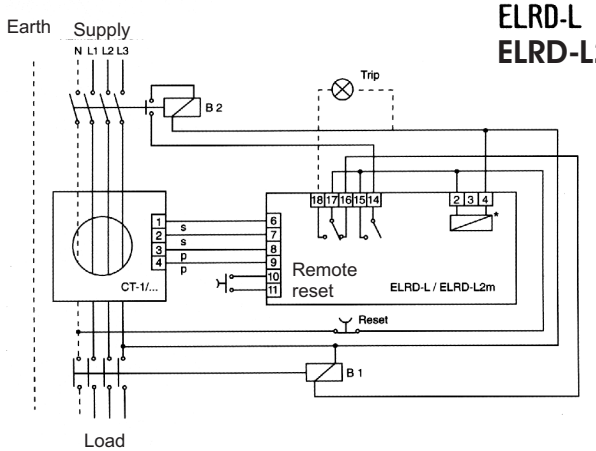

DESCRIPTION
B1 first tripping coil (de-energizing the contactor coil etc.)
B2 second tripping coil (energizing the MCCB's shunt trip etc.,)
RESET remote reset push button (in serie with the ELR's supply)

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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 supplyr Uaux: - terminals [2-4]
220-240V 50-60Hz