

# ELR-8V | ELR-8tcs | ELR-8mVtcs

EARTH LEAKAGE RELAY - FLUSH-MOUNT VERSION DIN 96x96 mm



## GENERAL CHARACTERISTICS

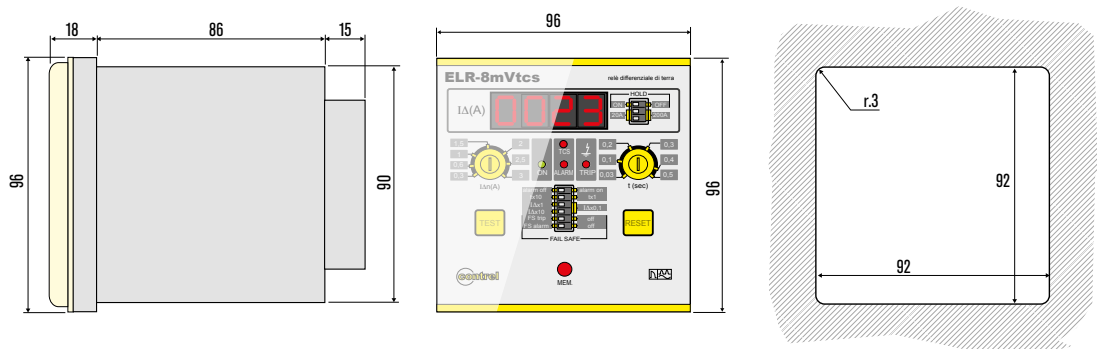
- Earth leakage relay type A
- 2 output relays each with changeover contact, configurable 2 tripping or 1 tripping and 1 alarm
- Configurable fail safe prealarm and operation
- Automatic toroid connection control
- Green power LED indicator (ON)
- Red relay tripped LED indicator (TRIP)
- Red tripping prealarm LED indicator (ALARM)
- Front TEST button
- Manual resetting by front RESET button or remote contact closing
- Automatic resetting by remote contact closing or rear jumper connection
- Constant toroid-relay circuit control
- Flag indicator (TRIP MEMORY) (ELR-8mVtcs only)
- Digital fault current measurement and display with configurable tripping value memory (ELR-8mVtcs only)
- Shunt tripping circuit operating test (TCS) (ELR-8tcs, ELR-8mVtcs only)
- Flush mount 96x96mm housing with transparent cover
- IEC degree of protection: IP20 terminals, IP40 on front with cover.

ADJUSTMENTS	
Configurable tripping set-point ( $I_{\Delta n}$ )	0.03...30A 30A...300A (with external multiplier CT1-M)
Prealarm set-point	fixed 70%
Configurable tripping delay time (t)	0.02...0.5s   0.2...5s.

ORDER CODE	RATED AUXILIARY SUPPLY VOLTAGE	OUTPUTS CONTACTS	WT [kg]
ELR-8V 48	24-48 VAC/DC	2	0,570
ELR-8V 110	110 VDC	2	0,570
ELR-8V 415	110 VAC/DC-240-415 VAC	2	0,570
ELR-8Vtcs 48	24-48 VAC/DC	2	0,570
ELR-8Vtcs 110	110 VDC	2	0,570
ELR-8Vtcs 415	110 VAC/DC-240-415 VAC	2	0,570
ELR-8mVtcs 48	24-48 VAC/DC	2	0,570
ELR-8mVtcs 110	110 VDC	2	0,570
ELR-8mVtcs 415	110 VAC/DC-240-415 VAC	2	0,570

OPTIONS	
T	Tropicalisation

## MECHANICAL DIMENSIONS

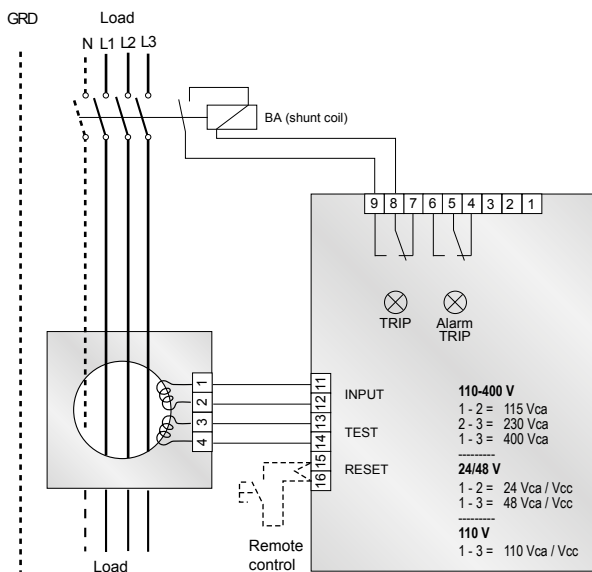


# ELR-8V | ELR-8tcs | ELR-8mVtcs

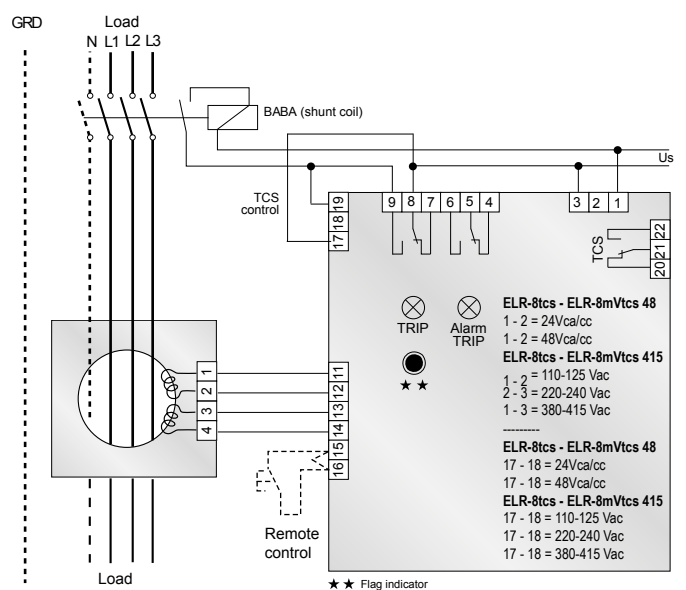
EARTH LEAKAGE RELAY - FLUSH-MOUNT VERSION DIN 96x96 mm

TECHNICAL CHARACTERISTICS	ELR-8V	ELR-8tcs / ELR-8mVtcs
<b>CONTROL CIRCUIT</b>		
Toroidal transformer	External	External
Adjustments tripping set-point (I $\Delta$ )	0.03÷30A (30÷300A with external multiplier)	0.03÷30A (30÷300A with external multiplier)
Adjustments tripping time (t)	0.02÷5s	0.02÷5s
Shunt tripping control	-	Yes
<b>AUXILIARY SUPPLY</b>		
Auxiliary voltage (Us)	24-48 VAC/DC   110 VDC   110-240-415 VAC	24-48 VAC/DC   110 VDC   110-240-415 VAC
Rated frequency	50-60 Hz	50-60 Hz
Maximum power consumption	5,5 VA	5,5 VA
<b>OUTPUT RELAYS</b>		
Contact arrangement	1 changeover (trip)	2 changeovers (1 trip, 1 alarm)
Rated contact capacity Ith	5 A (240 VAC)	5 A (240 VAC)
<b>INDICATIONS</b>		
Auxiliary voltage available (ON)	Green LED	Green LED
Relay tripping (TRIP)	Red LED	Red LED
Alarm advance (ALARM)	Red LED	Red LED
Mechanical flag (TRIP)	Flag indicator (version ELR-8mVtcs)	Flag indicator (version ELR-8mVtcs)
Display	Display a 4 digit (version ELR-8V, ELR-8mVtcs)	Display a 4 digit (version ELR-8V, ELR-8mVtcs)
Shunt tripping circuit	Red LED (version ELR-8tcs, ELR-8mVtcs)	Red LED (version ELR-8tcs, ELR-8mVtcs)
<b>INSULATION</b>		
Insulation test	2.5kV for 1 minute	2.5kV for 1 minute
<b>AMBIENT OPERATING CONDITIONS</b>		
Operating temperature	-10÷60 °C	-10÷60 °C
Storage temperature	-20÷80 °C	-20÷80 °C
Relative humidity	≤90%	≤90%
<b>ENCLOSURE</b>		
Version	96x96mm	96x96mm
Degree of protection	IP20 terminals   IP40 with protective cover	IP20 terminals   IP40 with protective cover
<b>CERTIFICATIONS AND COMPLIANCE</b>		
Reference standards	IEC/EN 61010, IEC/EN 61000-6-2   IEC/EN 61000-6-3, IEC/TR 60755	CEI EN 60947-2 Annex M

## WIRING CONNECTION ELR-8V

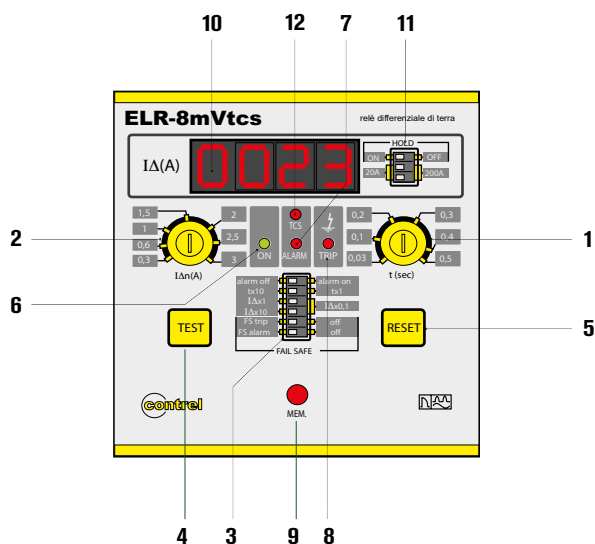
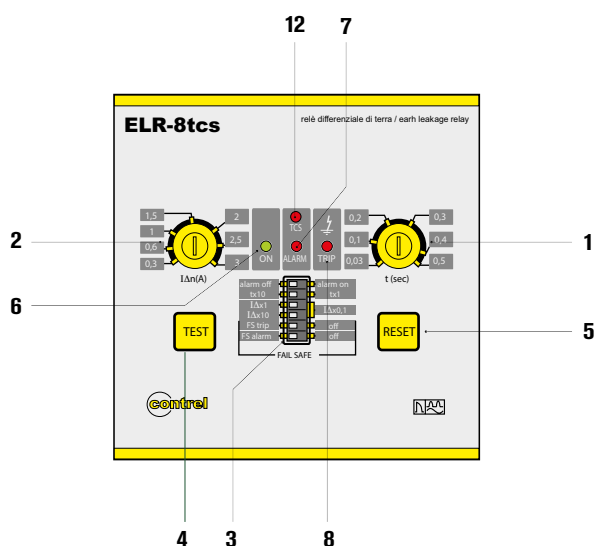
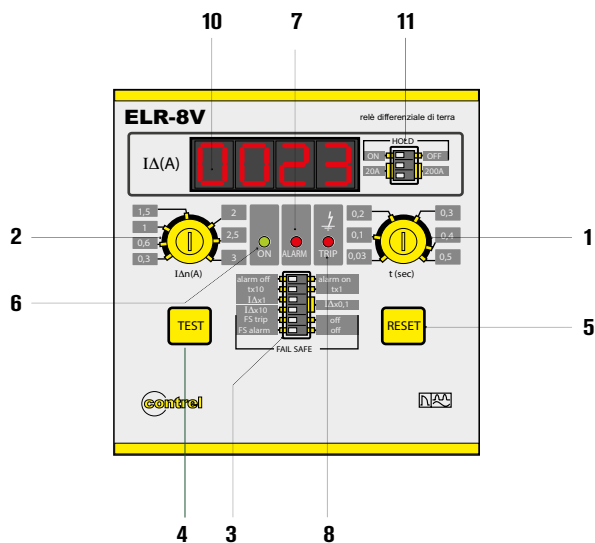


## WIRING CONNECTION ELR-8tcs | ELR-8mVtcs



# ELR-8V | ELR-8tcs | ELR-8mVtcs

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LEGENDA	
1	Tripping delay time adjustment
2	Fault current to earth adjustment
3	<p>Dip switches settings:</p> <p><b>3a</b> - alarm off - alarm on alarm off = trip prealarm deactivated; upon exceeding the set <math>I_{\Delta n}</math> rate, output contact changeover takes place and LEDs ALARM and TRIP light up. alarm on = trip prealarm activated; upon reaching 70% of the set <math>I_{\Delta n}</math> rate, LED ALARM lights up and signal contact changeover takes place. Upon exceeding the set <math>I_{\Delta n}</math> rate LED TRIP will light up and the TRIP contacts will change over</p> <p><b>3b</b> - tx10 - tx1 constant selection for tripping delay time adjustment. Examples: positioning the dip switch on tx10 and the potentiometer on 0.3 we will have a tripping delay upon exceeding the <math>I_{\Delta n}</math> threshold of <math>0.3 \times 10 = 3</math> seconds; positioning the dip switch on tx1 and the potentiometer on 0.3 we will have a tripping delay upon exceeding the <math>I_{\Delta n}</math> threshold of <math>0.3 \times 1 = 0.3</math> seconds</p> <p><b>3c</b> - <math>I_{\Delta n} \times 0.1</math> - <math>I_{\Delta n} \times 1</math> - <math>I_{\Delta n} \times 10</math> constant selection for fault current to earth adjustment. The constants in relation to the position of the 2 dip switches are the following:</p> <ul style="list-style-type: none"> <li>dip switch position <math>I_{\Delta n} \times 0.1</math> and <math>I_{\Delta n} \times 0.1</math> K = 0.1</li> <li>dip switch position <math>I_{\Delta n} \times 1</math> and <math>I_{\Delta n} \times 0.1</math> K = 1</li> <li>dip switch position <math>I_{\Delta n} \times 1</math> and <math>I_{\Delta n} \times 10</math> K = 10</li> </ul> <p><b>3d</b> - FS trip - off FS trip = positive safety activated on TRIP relay; in this condition the TRIP relay (terminals 7-8-9) is normally energised; therefore in the event of the lack of auxiliary voltage the output contacts move to the tripping condition (TRIP). Off = positive safety deactivated. TRIP relay normally deenergised.</p> <p><b>3e</b> - FS alarm- off FS alarm = positive safety activated on ALARM relay; in this condition the prealarm relay ALARM is normally energised; therefore in the event of the lack of auxiliary voltage the output contacts move to the trip condition (TRIP). Off = positive safety deactivated. ALARM relay normally deenergised.</p>
4	TEST key. Causes tripping of the relay.
5	RESET key. To reset the relay after tripping. For remote reset, simply shut off the auxiliary supply for about 1 second.
6	ON LED. Indicates the presence of auxiliary voltage.
7	ALARM LED. Lighting up depends on the dip switch programming; see the instructions of point 3a)
8	TRIP LED. Lighting up indicates the cutting in of the TRIP relay due to exceeding the $I_{\Delta n}$ set.
9	TRIP MEMORY ( <b>versions ELR-8mVtcs</b> ) Mechanical trip relay indicator for exceeding the $I_{\Delta n}$ set. It stores the indication also in the lack of auxiliary voltage. The flag indicator resetting can only be made with the RESET button.
10	4-digit display ( <b>versions ELR-8V, ELR-8mVtcs</b> ) for viewing the differential current.
11	<p>Display setting dip switches (<b>versions ELR-8V, ELR-8mVtcs</b>)</p> <p><b>11a)</b> hold on - hold off Earth leakage current display mode. hold on = the rate displayed is the one read in real time and the leakage current rate that caused tripping is kept on the display. hold off = the rate displayed is the one read in real time (the rate that caused tripping is not kept on the display).</p> <p><b>11b)</b> 20A-200A 20A = display scale to 19.99A 200A = display scale to 199.9A</p>
12	TCS LED ( <b>versions ELR-8tcs, ELR-8mVtcs</b> ). The indicator switches on when TCS control protection trips. This protection is used to monitor the trip shunt circuit operation when connected through the current shunt coil.