Digital Earth Leakage Relay



Operating Instruction

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96 x 96mm

Salient features

- **Leakage current monitoring in 1Ø and 3Ø systems**
- **RMS value measurement (AC)**
- **CBCT detection**
- **User selectable power ON delay, Trip delay and Recovery delay**
- **Adjustable hysteresis**
- **Pre-alarm indication selectable**
- **Test and Reset via Front / Remote**
- **Trip relay with NO or NC operation selectable**

Ordering information

Product code	Supply voltage	Certification
ELR-341-1	90-270V AC/DC	—

SAFETY RECOMMENDATION

All safety related modifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.
If the equipment is not used in a manner specified by the manufacturer it might impair the protection provided by the equipment. If there is physical damage to the unit then do not use it.
Read complete instructions prior to installation and operation of the unit.

Warning guidelines

1. To prevent the risk of electric shock power supply to the equipment must be kept OFF while doing the wiring arrangement
2. Wiring shall be done strictly according to the terminal layout with shortest connections. Confirm that all connections are correct

Caution

- To ensure the safe operation of unit, check the wiring and connections

Note for connection

- For single phase applications, only the live and neutral needs to be passed through the CBCT
- The Earth MUST NOT pass through the CBCT
- The distance between relay and CBCT should be kept as short as possible
- Use screen, shielded cable or twisted pair cable between the unit and CBCT for long distance (Greater than 1m)

Technical specifications	
HMI	3 digits, 7 segment display
Electrical connection	1Ø-2 wire, 3Ø-4 wire, 3Ø-3 wire
Auxiliary supply	90-270V AC/DC
Frequency range	50/60 Hz
VA rating	4VA max
Display current range	15mA - 33A
Trip setting	Leakage current range: 30mA - 30A
Instantaneous trip for current	ON / OFF (5 times of set current)
Time setting	Power ON delay: 1 - 999sec Trip time delay: 0 - 999sec Recovery time: 1 - 99min Response time: <30ms (if trip current = 5 x set value & Instantaneous trip is ON) <50ms (if trip current = 1 x set value) *For 30mA range, trip time will not be applicable, only response time will be applicable
Hysteresis	5 to 40% {for eg., If set HYS is 10% & SV is 100mA; unit will allow untrip at 90mA}
Resolution	Depends on trip setting as per range resolution will be, 33mA = 0.1mA 550mA = 1mA 5.50A = 0.01A 30A = 0.1A
CBCT detection	Yes, when CBCT absent or short
Accuracy	Current: ±5% of setting Time: ±5% of setting ±100ms
Output specifications	Relay: 1C/O (SPDT)
Relay rating	NO (5A, 250V AC / 28V DC) NC (5A, 250V AC / 28V DC)
LED Indication	LED1 (red): mA indication ('ON' only when mA range is displayed) LED2 (red): Relay (continuously ON after trip & blinking for alarm)
Reset conditions	- Power ON reset - Terminal reset (Y1 & Y2 short) - Press RST key for 3 sec. - Auto reset (as per setting)
Test / Reset function	Test / Reset function is used to check proper functioning of product. It includes - Relay contact switching - LED check
Test mode	- Press TST key for 3 sec. - Test through terminal (Y1 & Y2 short)
Reset mode	- Press RST key for 3 sec. - Reset through terminal (Y1 & Y2 short)

Environmental specifications	- Indoor use - Altitude of up to 2000 meters - Pollution degree II
Temperature	Operating: 0 °C to 55 °C Storage: -20 °C to 70 °C
Humidity	Up to 95% RH, non-condensing
Mechanical specifications	No. of Push Buttons: 3 Size: 96 x 96 mm Mounting: Panel mount Wire size (max): 4 sq.mm Screw tightening torque: 0.5 N-M
Weight	290 gm approx

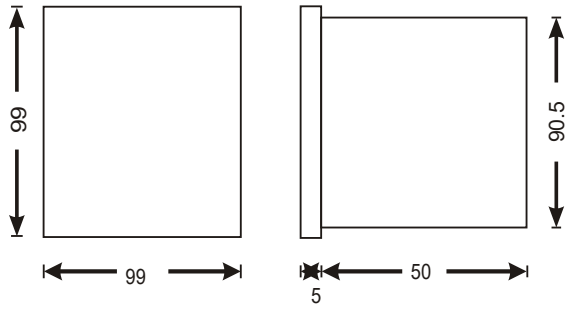
LED Indication chart

Various conditions	'mA' LED	'R' LED
No fault	OFF*	OFF*
Trip	OFF*	ON
Pre-Alarm	OFF*	Blinking
CBCT error	OFF*	ON

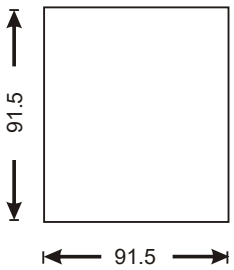
* = 'ON' only when 33mA / 550mA range is selected.

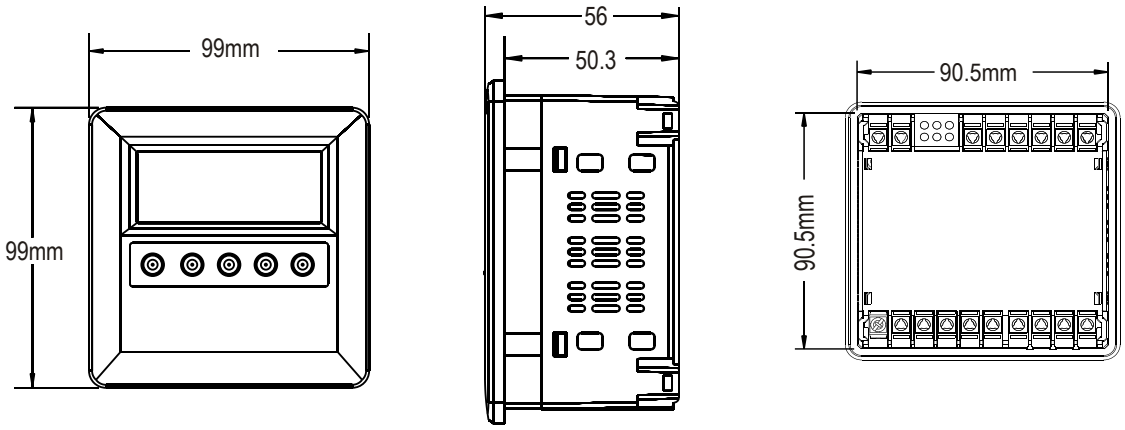
Dimensions (All dimensions in mm)

Outline

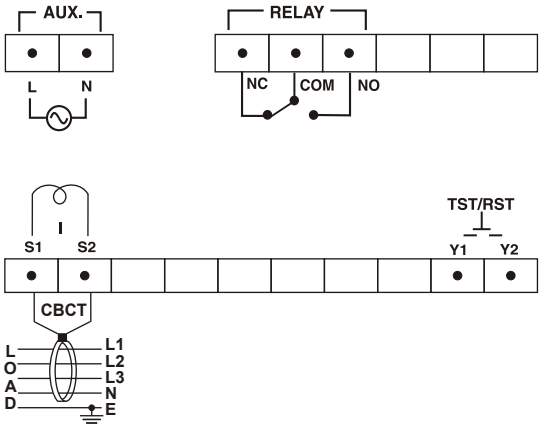


Panel cutout

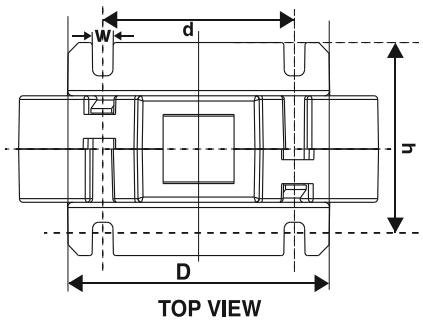




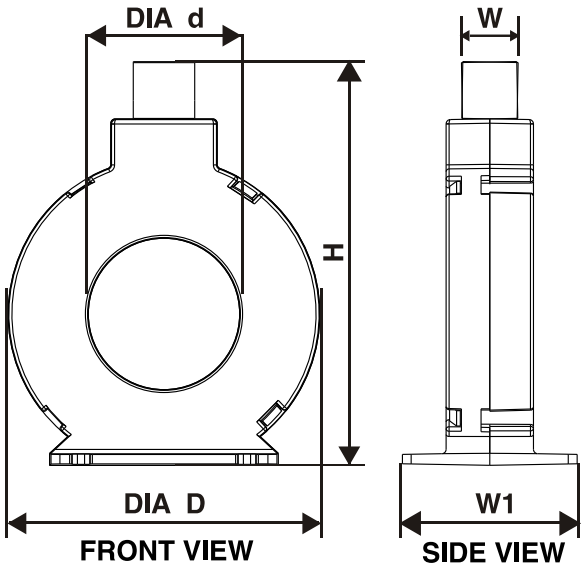
Terminal connections



Core balanced current transformer



CBCT TYPE	Dimensions (mm)			
	D	d	h	w
35-1	52.50	38	40	4
70-1	87	38	40	4
120-1	122	38	40	4
210-1	199.80	120	55	6.60
310-1	300	200	66	6.60
TOLERANCE	**Linear Tolerance :** ±0.1mm			



CBCT TYPE	Dimensions (mm)				
	D	d	H	W	W1
35-1	71.30	35	97	15	40
70-1	107.50	70	133	15.50	40
120-1	158	120	184.50	15.50	40
210-1	268	210	270	25	55
310-1	377	310	379	25.50	65
STD. TOL.	**Linear tolerence:** ±0.1mm				

CT type ZPC (Zero Phase Current)

Press ▲ + ▼ for 3sec. to enter or exit configuration menu.

			Press ● to save value	
Press ▲ or ▼ to scroll through menu		Press ● + ▲ or ● + ▼ to change parameter value		
Display (for 1sec)	**Description**	**Default value**	**Range**	**Condition**
P.ON	Power ON delay	1	1 to 999sec	
rNG	Range selection	5.50	33.0, 550, 5.50, 30.0	Depending upon this selection, the set trip value will be prompted. If this setting is changed the default trip value is loaded.'OVR' will be displayed; if input current is greater than selected Range.
SV	Set trip value	1.00	SV can be programmed between 30mA to 30A irrespective of the selected range. Default SV for different ranges are : 33.0: 30.0mA 550 : 100mA 5.50: 1.00A 30.0: 10.0A	If SV exceeds max limit of specified range then next range will automatically be made applicable. for eg. If SV is set 40mA, range will get changed from 33mA to 550mA automatically
INS	Instantaneous trip selection	ON	ON / OFF (5 times of set current)	If INS = ON and leakage current ≥ 5 times the set value, the relay trips instantaneously irrespective of trip time delay
trP	Trip time delay	1	0-999sec	(not applicable for 33mA range)
rEC	Recovery time delay	5	1-99Min	
PrE	Pre-Alarm	dIS	Enable / Disable	
		SEt	50 to 100%	This option will be prompted only if Pre-alarm enabled
rOd	Relay operation mode	ON	ON / OFF (for ON mode, contact will be in changed over state in normal condition).	
LCH	Latch	OFF	ON / OFF	If latch is ON, user has to reset the unit manually when fault is removed
HYS	Hysteresis	10	5 to 40%	
rSt	Reset	NO	YES / NO	

TEST & RESET FUNCTION

Key	Description	Display (for 1sec.)	LED's	Condition
For TEST	Press TST key for 3 Sec.	tSt	○ mA ○ R	Test function is applicable only when unit is in healthy condition.
Test passed		OK	● mA ● R	If test is passed, OK will be displayed till reset button is pressed.
Test Failed		nOK	○ mA ○ R	----
RST	Press RST key for 3 Sec.	Actual Value	○ mA ○ R	If current is in mA then "mA" LED will be ON.

RESET	Press ▼ key for 3sec. to reset manually
TRIP VALUE	On ▲ key press: Trip value will be displayed till the key is pressed

In configuration menu, if no key pressed for 30 sec. then unit resumes online mode

WARRANTY / LIMITATIONS OF LIABILITY

Selec warrants the products to be free from defects in the materials and workmanship for a period of one year (or other period specified, if any) from the date of sale by Selec.

The warranty does not apply to defects resulting from any action of the buyer, including but not limited to improper handling, operating the product outside the specification limits or unauthorized disassembling / altering of the product. The warranty shall be VOID if the product shows evidence of having been tampered or being damaged due to usage in corrosive environment; or current, heat, moisture or vibration; improper specification; wrong usage in an application; misuse or other operating conditions outside of Selec's control.

Selec shall not be responsible for special, indirect or consequential damages, loss of profits or commercial loss in any way connected with the products, whether such claim is based on contract, warranty, negligence or strict liability.

In no event shall the responsibility of Selec for any act exceed the individual price of the product on which liability is asserted.

In no event shall Selec be responsible for warranty or other claims regarding the products unless Selec's analysis confirms that the products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification or repair.

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