



**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
- Two separate relays with NO or NC operation selectable
- Test and Reset via Front / Remote

**SPECIFICATIONS**

**DISPLAY**

3 Digits, Liquid Crystal Display with backlight

**DISPLAY CURRENT RANGE :** 15mA - 33A

**NETWORK CONNECTION**

1Ø-2 wire, 3Ø-3 wire, 3Ø-4 wire

**AUXILIARY SUPPLY**

230V AC (±15%)

**FREQUENCY RANGE**

50 - 60Hz

**VA RATING**

3VA max

**TRIP SETTINGS**

Leakage Current Range: 30mA - 30A

**INSTANTANEOUS TRIP FOR CURRENT**

ON / OFF (5 times of set current)

**TIME SETTINGS**

Power ON Delay : 0.5 - 99.9sec

Trip Time : 0 - 99.9sec (NA for 33mA RNG)

Recovery Time : 0 - 99.9sec

Response Time :

< 30ms (if trip current  $\geq$  5 x set value & Instantaneous trip is ON)

< 50ms (if trip current = 1 x set value)

**HYSTERESIS**

5 to 40%

For eg., If set HYS is 10% & SV is 100mA

Unit will allow untrip at 90mA

**RESOLUTION**

0.1mA, 1mA, 0.01A, 0.1A (Depends on trip Setting)

**CBCT DETECTION**

Yes, when CBCT absent or short

**ACCURACY**

Current : ±5% of Setting

Time Parameters : ±5% of setting ± 100ms

**OUTPUT SPECIFICATIONS**

No. of Relay Contacts : Relay1 : 1C/O (SPDT)

Relay2 : 1C/O (SPDT)

**RELAY RATING**

5A @250V AC(NO)

3A @250V AC(NC)

**LED INDICATION**

LED1 (Red): Relay 1

LED2 (Red): Relay 2

**ENVIRONMENTAL SPECIFICATIONS**

- Indoor use

- Altitude of up to 2000 meters

- Pollution degree II

- Impulse withstand voltage(Uimp) : 4kV

Degree of protection : IP20 : Terminals

IP30 : Housing

IP50 : Faceplate

Temperature : Operating : 0°C to +50°C

Storage : -20°C to +70°C

Humidity : Up to 95% RH, non-condensing

**MECHANICAL SPECIFICATIONS**

No. of Push Buttons : 3

Size : 35mm width

Mounting : 35mm Din Rail Mount

Wire Size (max) : 4sq.mm

Screw tightening torque : 0.5N.m

**WEIGHT**

217gms

**CE CERTIFICATION :** IEC60947-2

**SAFETY PRECAUTIONS**

All safety related codifications, 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.

**WIRING GUIDELINES**

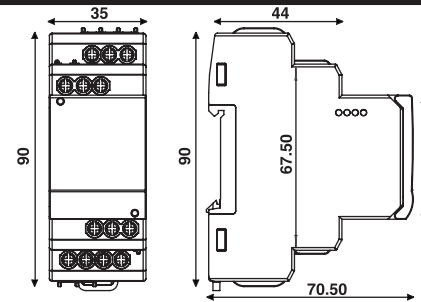
**WARNING**

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**

1. To ensure the safe operation of unit, check the wiring and connections.
2. It is recommended to test the unit periodically to satisfy the regulations.

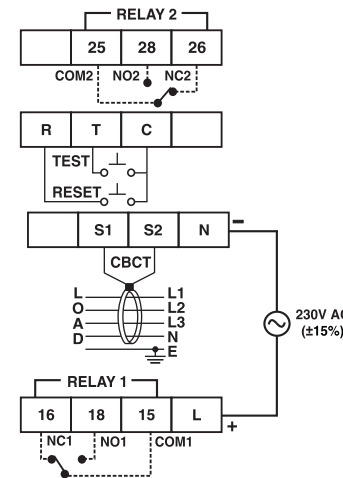
**DIMENSIONS ( All dimensions in mm )**



**LED INDICATION CHART**

Conditions	'R1' LED	'R2' LED
No fault	OFF	OFF
Trip (if RLY2 Programmed for RLY1)	ON	ON
Pre-Alarm (if RLY2 Programmed for PRE)	OFF	ON
CBCT error	BLINKING	BLINKING

**TERMINAL CONNECTIONS**

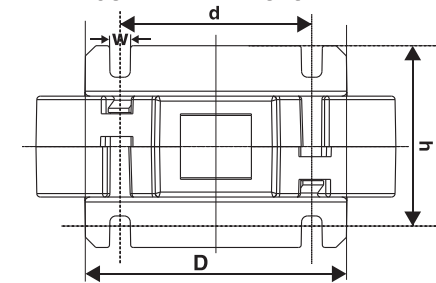


**NOTE FOR CONNECTION**

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).

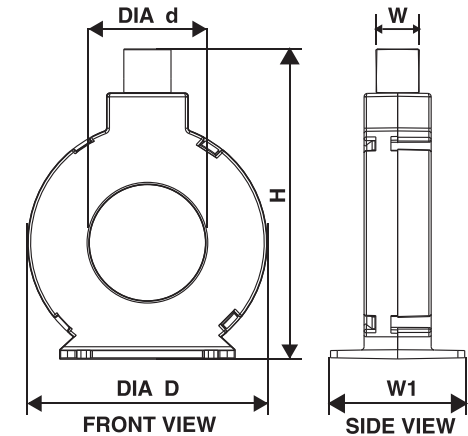
**ACCESSORY**

**CORE BALANCED CURRENT TRANSFORMER**



**TOP VIEW**

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
<b>TOLERANCE</b>	<b>Linear Tolerance : ±0.1mm</b>			



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
<b>TOLERANCE</b>	<b>Linear Tolerance : ±0.1mm</b>				

**CT TYPE** ZPC (Zero Phase Current)

# CONFIGURATION MENU

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

### MAIN MENU

TO SCROLL THROUGH MAIN MENU PRESS ● + ▲ OR ● + ▼ KEYS

- Relay 1 settings  
**RL1**
- Time Setting for Relay 1  
**TM1**
- Relay 2  
**RL2**
- Time Setting for Relay 2  
**TM2**
- Hysteresis  
**HYS**
- Password  
**PW**
- Factory set  
**RSt**

### SUB MENU

- Range  
**RNG**
- Set Value (Earth leakage)  
**SV**
- Instantaneous trip Setting  
**INS**
- Relay operation mode  
**MOD**
- Latch  
**LCH**
- Trip time delay  
**TRP**
- Recovery time  
**REC**
- Power ON delay  
**P.ON**
- Relay Functions  
**RLY**
- Pre-Alarm  
**PRE**
- Relay operation mode  
**MOD**
- Latch  
**LCH**
- Hysteresis Setting  
**HYS**
- Password Enable / Disable  
**PW**
- Set password  
**SPW**
- Factory set Yes / No  
**RSt**

**Note :** Appearance of shaded menus depends on selection of parent parameter.

## SUB MENU

Relay 1 (RL1) settings				
		Press ▲ to enter sub menu from main menu		
Press ▲ or ▼ to scroll through sub menu		Press ● + ▲ or ● + ▼ to change parameter value & then press ▲ to set value		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
<b>RNG</b>	Trip Current Range	550 <sup>mA</sup>	33.0mA / 550mA / 5.50A / 30.0A	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.
<b>SV</b>	Set trip value for earth leakage	100 <sup>mA</sup> <small>R1</small>	SV can be programmed between 30.0mA to 30A irrespective of the selected range. Default SV for different ranges are : 33.0mA : 30.0mA 550mA : 100mA 5.50A : 1.00A 30.0A : 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.
<b>INS</b>	Instantaneous trip selection	ON <small>R1</small>	OFF / ON (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
<b>MOD</b>	Relay operation mode	ON <small>R1</small>	ON / OFF (In ON mode, contact will be in changed over state in normal condition )	In Healthy condition, ON : NO OFF : NC
<b>LCH</b>	Latch	OFF <small>R1</small>	ON / OFF	If Latch is ON, user has to reset the unit manually when fault is removed

Time Setting for Relay 1 (TM1)				
		Press ▲ to enter sub menu from main menu		
Press ▲ or ▼ to scroll through sub menu		Press ● + ▲ or ● + ▼ to change parameter value & then press ▲ to set value		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
<b>TRP</b>	Trip Time Delay	0.0 <sup>s</sup> <small>R1 t</small>	0.0 - 99.9 Sec.	(NA for 33mA range)
<b>REC</b>	Recovery Time Delay	0.5 <sup>s</sup> <small>R1 t off</small>	0.0 - 99.9 Sec.	
<b>P.ON</b>	Power ON Delay	5.0 <sup>s</sup> <small>R1 ton</small>	0.5 - 99.9 Sec.	Applicable for Relay 1 & Relay 2

Relay 2 (RL2) <span style="float: right;">Press ▲ to enter sub menu from main menu</span>				
Press ▲ or ▼ to scroll through sub menu		Press ● + ▲ or ● + ▼ to change parameter value & then press ▲ to set value		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
RLY	Relay 2 Functions	PRE <sub>R2</sub>	RL1 / PRE	If RL1 is selected, all the settings done for RL1 will be automatically set for RL2 and no other parameter of RL2 will be prompted.
PRE	Pre-Alarm	90 <sub>R2</sub> %	50 to 100% for 33.0mA range & 60 to 100% for all other ranges	Will be prompted only when RL2 = PRE
MOD	Relay operation mode	OFF <sub>R2</sub>	ON / OFF	In Healthy condition, ON : NO OFF : NC
LCH	Latch	OFF <sub>R2</sub>	ON / OFF	If Latch is ON, user has to reset the unit manually when fault is removed





Time Setting for Relay 2 (TM2) <span style="float: right;">Press ▲ to enter sub menu from main menu</span>				
Press ▲ or ▼ to scroll through sub menu		Press ● + ▲ or ● + ▼ to change parameter value & then press ▲ to set value		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
TRP	Trip time delay	00 <sub>R2 t</sub>	0.0 - 99.9 Sec.	(NA for 33mA range)
REC	Recovery time delay	05 <sub>R2 t off</sub>	0.0 - 99.9 Sec.	

Hysteresis (HYS) <span style="float: right;">Press ▲ to enter sub menu from main menu</span>				
Press ▲ or ▼ to scroll through sub menu		Press ● + ▲ or ● + ▼ to change parameter value & then press ▲ to set value		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
HYS	Hysteresis	10 <sub>H %</sub>	5 to 40%	

Password (PW) <span style="float: right;">Press ▲ to enter sub menu from main menu</span>				
Press ▲ or ▼ to scroll through sub menu		Press ● + ▲ or ● + ▼ to change parameter value & then press ▲ to set value		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
PW	Password	di 5	ENB / DIS	Enable / Disable password protection option
S.PW	Set password	0	0-999	Will be prompted only when Password option is enabled
PW	Main Menu Password			<b>NOTE</b> : PW option will be asked when the user enter the config. menu if PW option is enabled in the config menu and the user has to enter the password which he has set in the S.PW (set password) option.




Factory set (RST) <span style="float: right;">Press ▲ to enter sub menu from main menu</span>				
Press ▲ or ▼ to scroll through sub menu		Press ● + ▲ or ● + ▼ to change parameter value & then press ▲ to set value		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
RST	Reset (Factory set)	NO	YES / NO	

TRIP VALUE SETTING <span style="float: right;">Press ▲ key for 3 sec. to enter or exit Trip Value Setting menu :</span>				
Press ▲ or ▼ to scroll through main menu		Press ● + ▲ or ● + ▼ to change parameter value & then press ▲ to set value		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
LCK	LOCK	YES	YES / NO	This option will prompted first when the user enters the trip setting menu. User has to set NO after which he can access the trip setting menu.
SV	Set trip value for earth leakage	100 <sub>R1</sub> mA	SV can be programmed between 30.0mA to 30A irrespective of the selected range. Default SV for different ranges are : 33.0mA : 30.0mA 550mA : 100mA 5.50A : 1.00A 30.0A : 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.
PRE	Pre-Alarm	90 <sub>R2</sub> %	50 to 100% for 33.0mA range & 60 to 100% for all other ranges	This option will be prompted only when PRE is selected for Relay2 in the config. menu.
TRP	Trip time delay for Earth Leakage	00 <sub>R1 t</sub>	0.0 - 99.9 Sec.	(NA for 33mA range)

DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
	Trip time delay for Pre Alarm.		0.0 - 99.9 Sec.	This option will not be prompted if RL1 is selected for RL2 in config. menu. (NA for 33mA range)
	LOCK		YES / NO, (In this option if YES is selected by the user, then whenever the user enters the Trip Value Setting, initially LOCK option will be prompted. The user will have to set NO after which he can access the trip setting menu. If the user wants to disable LOCK option, he can set NO when LOCK option is prompted after TRP option.)	

### TEST & RESET FUNCTION

LED ON  LED OFF

KEY	DESCRIPTION	DISPLAY (For 1sec.)	LED's	CONDITION
For TEST	Press TST key for >2 Sec.		<input type="radio"/> R1 <input type="radio"/> R2	Applicable only when unit is in healthy condition.
Test passed			<input checked="" type="radio"/> R1 <input checked="" type="radio"/> R2	If test is passed, OK will be displayed till reset button is pressed.
Test Failed			<input type="radio"/> R1 <input type="radio"/> R2	----
RST	Press RST key for >2 Sec.	Actual Value	<input type="radio"/> R1 <input type="radio"/> R2	If current is in mA then "mA" will be indicated.

### CBCT DETECTION

If CBCT error is there, display will show CT.E and all LED's will be blinking.

### TRIP INDICATION

Trip Indication on press of ▲ key : Trip value will be displayed till the key is pressed.

### RESET

Press ● key for 3sec. to reset manually

Master Password : 753

### 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.

### ORDER CODE INFORMATION

PRODUCT	SUPPLY	CERTIFICATION	
		CE	
900ELR-2-230V-CE	230VAC (±15%)	▪	—

(Specifications subject to change as development is a continuous process.)

### Selec Controls Pvt. Ltd., India

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