OP611-V02

selec

900ELR-2-230V-CE

Operating Instructions

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 ≥ 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

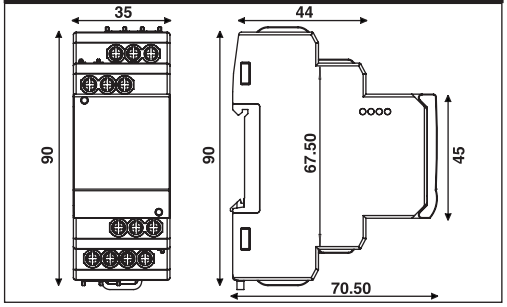
WARNING

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.

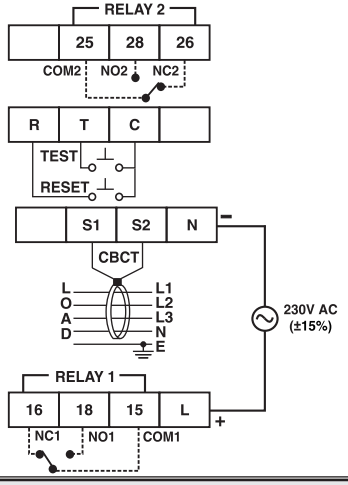
DIMENSIONS (All dimensions in mm)



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

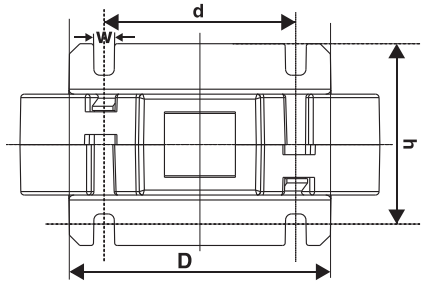


NOTE FOR CONNECTION

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).

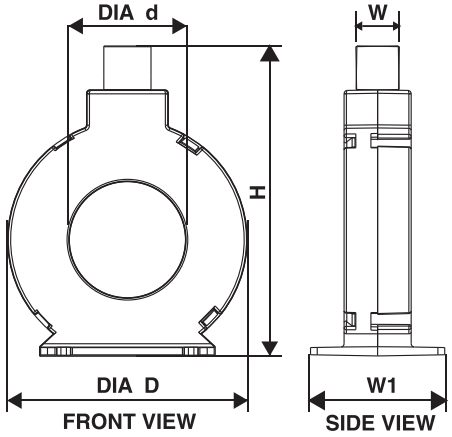
ACCESSSORY

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
TOLERANCE	Linear Tolerance : ±0.1mm			



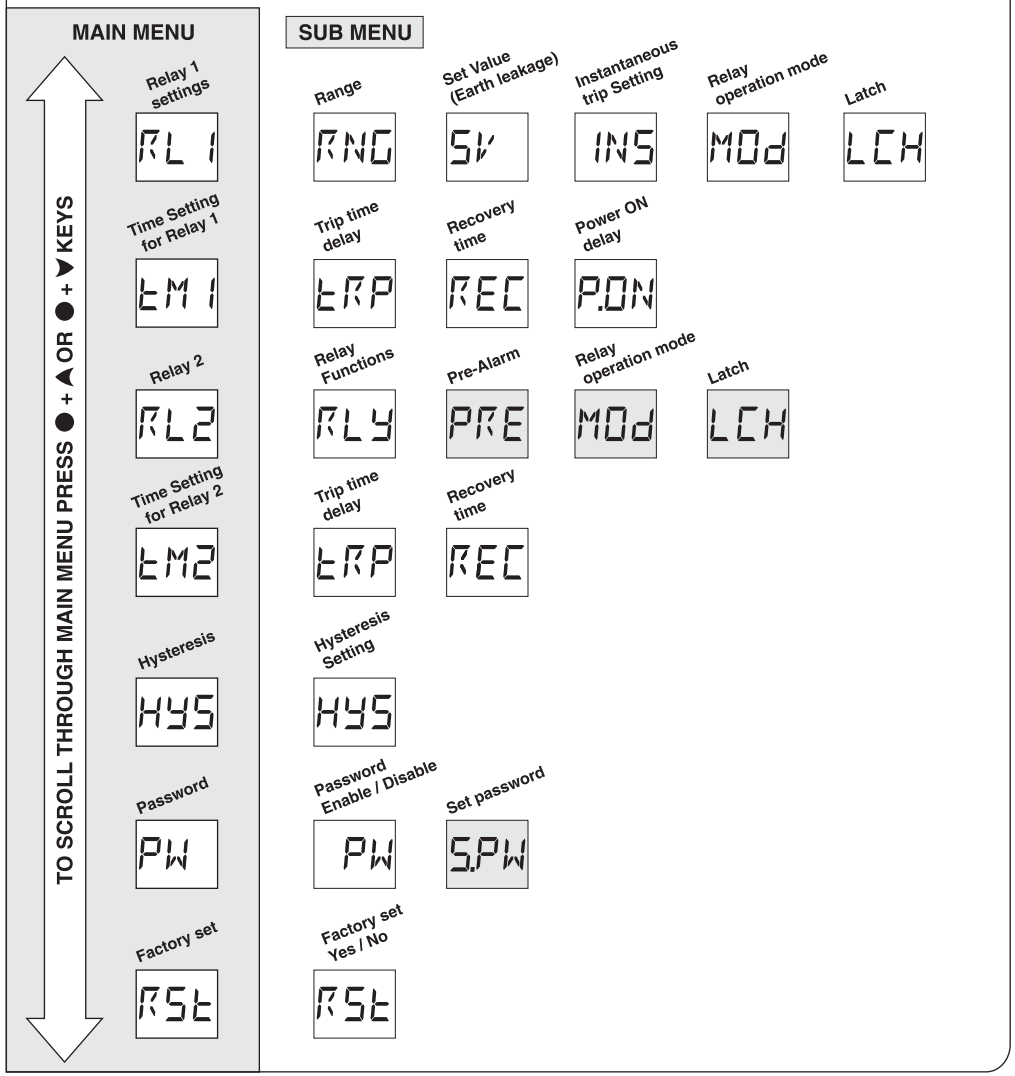
FRONT VIEW SIDE VIEW

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
TOLERANCE	Linear Tolerance : ±0.1mm				

CT TYPE ZPC (Zero Phase Current)

CONFIGURATION MENU

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



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**
RNG	Trip Current Range	550 mA	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.
SV	Set trip value for earth leakage	100 mA R1	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.
INS	Instantaneous trip selection	ON R1	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
MOd	Relay operation mode	ON R1	ON / OFF (In ON mode, contact will be in changed over state in normal condition)	In Healthy condition, ON : NO OFF : NC
LCH	Latch	OFF R1	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**
tRP	Trip Time Delay	0.0 s R1 t	0.0 - 99.9 Sec.	(NA for 33mA range)
REC	Recovery Time Delay	0.5 s R1 t off	0.0 - 99.9 Sec.	
P.ON	Power ON Delay	5.0 s R1 ton	0.5 - 99.9 Sec.	Applicable for Relay 1 & Relay 2

Relay 2 (RL2)		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**
RLY	Relay 2 Functions	PRE (R2)	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 (R2, %)	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 (R2)	ON / OFF	In Healthy condition, ON : NO OFF : NC
LCH	Latch	OFF (R2)	ON / OFF	If Latch is ON, user has to reset the unit manually when fault is removed

Time Setting for Relay 2 (TM2)		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**
tRP	Trip time delay	0.0 (s, R2 t)	0.0 - 99.9 Sec.	(NA for 33mA range)
REC	Recovery time delay	0.5 (s, R2 t off)	0.0 - 99.9 Sec.	

Hysteresis (HYS)		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**
HYS	Hysteresis	10 (H %)	5 to 40%	

Password (PW)		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**
PW	Password	dIS	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		**NOTE** : 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)		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**
RSt	Reset (Factory set)	NO	YES / NO	

TRIP VALUE SETTING **Press ▲ key for 3 sec. to enter or exit Trip Value Setting menu :**

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 (mA, R1)	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 (R2, %)	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	0.0 (s, R1 t)	0.0 - 99.9 Sec.	(NA for 33mA range)

DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
trP	Trip time delay for Pre Alarm.	0.0 (R2 t, s)	0.0 - 99.9 Sec.	This option will not be prompted if RL1 is selected for RL2 in config. menu. (NA for 33mA range)
LCK	LOCK	NO	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.	tSt	○ R1 ○ R2	Applicable only when unit is in healthy condition.
Test passed		OK	● R1 ● R2	If test is passed, OK will be displayed till reset button is pressed.
Test Failed		Er2	○ R1 ○ R2	----
RST	Press RST key for >2 Sec.	Actual Value	○ R1 ○ 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	c UL us LISTED
900ELR-2-230V-CE	230VAC (±15%)	▪	—

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

Selec Controls Pvt. Ltd., India

Factory Address :
EL-27/1, Electronic Zone, TTC Industrial Area,
MIDC, Mahape, Navi Mumbai - 400 710, INDIA.
Tel. No. : +91-22-28476443 / 1882
Fax No. : +91-22-28471733 I Toll free : 1800 227 353
Website: www.selec.com I Email: sales@selec.com