



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

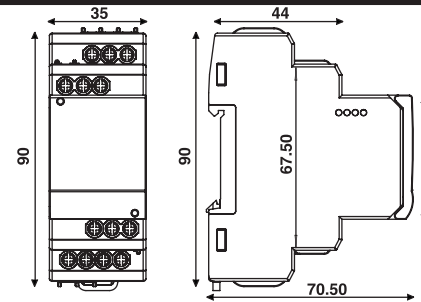
WARNING

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.

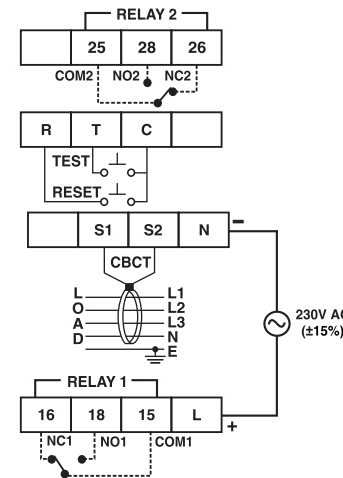
DIMENSIONS (All dimensions in mm)



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

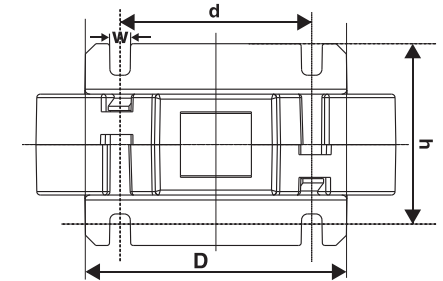


NOTE FOR CONNECTION

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).

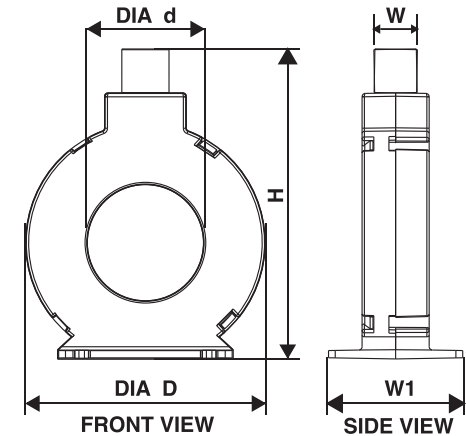
ACCESSORY

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 |
| 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 |
| TOLERANCE | Linear Tolerance : ±0.1mm | | | | |

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
PON
- Relay Functions
RLY
- Pre-Alarm
PRE
- Relay operation mode
MOD
- Latch
LCH
- Trip time delay
TRP
- Recovery time
REC
- 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 |
|--------------------|----------------------------------|-------------------------|--|--|
| 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 | 00 _{R2 t} | 0.0 - 99.9 Sec. | (NA for 33mA range) |
| REC | Recovery time delay | 05 _{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 | 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 | | | 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 _{R1} 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 _{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 | 00 _{R1 t} | 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.)

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