



FEATURES

- Leakage current monitoring in 1Ø and 3Ø systems
- RMS value measurement (AC)
- CBCT detection
- User selectable power ON delay, response delay and delay on release
- Adjustable hysteresis
- Two separate alarm relays with NO or NC operation selectable
- Test and Reset via front / remote

SPECIFICATIONS

DISPLAY

3 Digits, Liquid Crystal Display with backlight
1Ø-2 wire, 3Ø-4 wire

AUXILIARY SUPPLY (Factory Set)

230V AC / 110V AC / 10 - 28V DC

FREQUENCY RANGE

45 - 65Hz

VA RATING

3VA max

TRIP SETTINGS

Leakage Current : 10mA - 30A

INSTANTANEOUS TRIP FOR CURRENT

OFF / ON (5 times of set current)

TIME SETTINGS

Power ON Delay : 0.5 - 99.9sec
Response Delay (Trip time delay) : 0 - 99.9sec
Delay ON Release : 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%

RESOLUTION

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

CBCT DETECTION

Every 3sec. when leakage current < 5mA

ACCURACY

Current : ±5% of Setting
Recovery Time, Trip Delay,
Power ON Delay : ±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): Alarm (Continuously ON after trip)
LED2 (Red): Pre - Alarm
(Continuously ON during pre alarm condition)

NOTE - LED1 and LED2 blink during CBCT error
ENVIRONMENTAL SPECIFICATIONS

- Indoor use
- Altitude of up to 2000 meters
- Pollution degree II

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) : 4 sq.mm
Screw tightening torque : 0.5 N-m

WEIGHT

217gms.

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

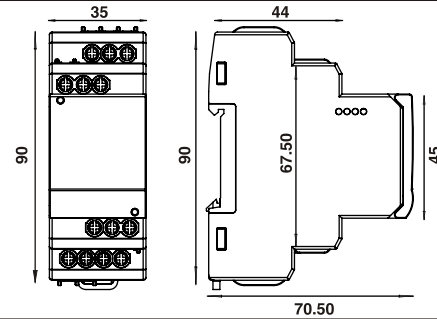
WARNING

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.

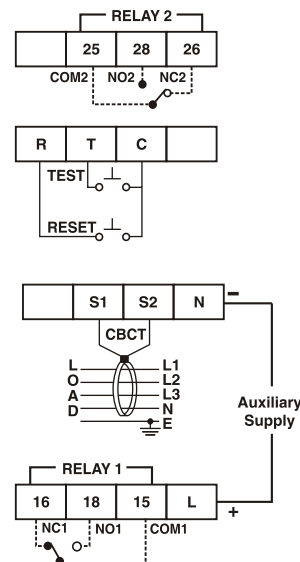
DIMENSIONS (All dimensions in mm)



LED INDICATION CHART

Various Conditions	'R1' LED	'R2' LED
No fault	OFF	OFF
Trip (if Programmed for Relay 1)	ON	ON
Pre-Alarm	OFF	ON
Trip (if Programmed for both relays)	ON	ON
CBCT error	BLINKING	BLINKING

TERMINAL CONNECTIONS



NOTE FOR CONNECTION

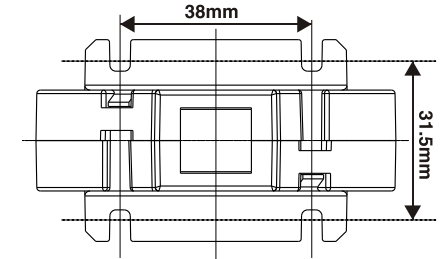
For single phase applications, only the live and neutral needs to be passed through the CBCT. The Earth MUST NOT pass through the CBCT.

The distance between relay and CBCT should be kept as short as possible

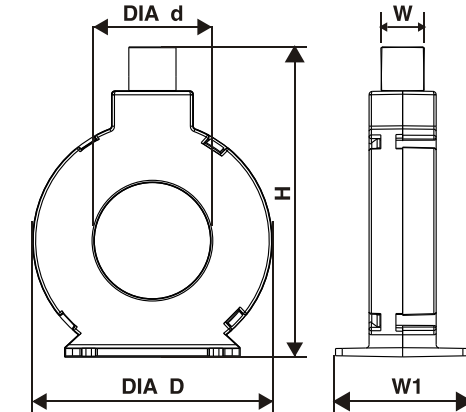
Use screen, shielded cable or twisted pair cable between the unit and CBCT for long distance (Greater than 1m).

ACCESSORY

CORE BALANCED CURRENT TRANSFORMER



TOP VIEW



FRONT VIEW

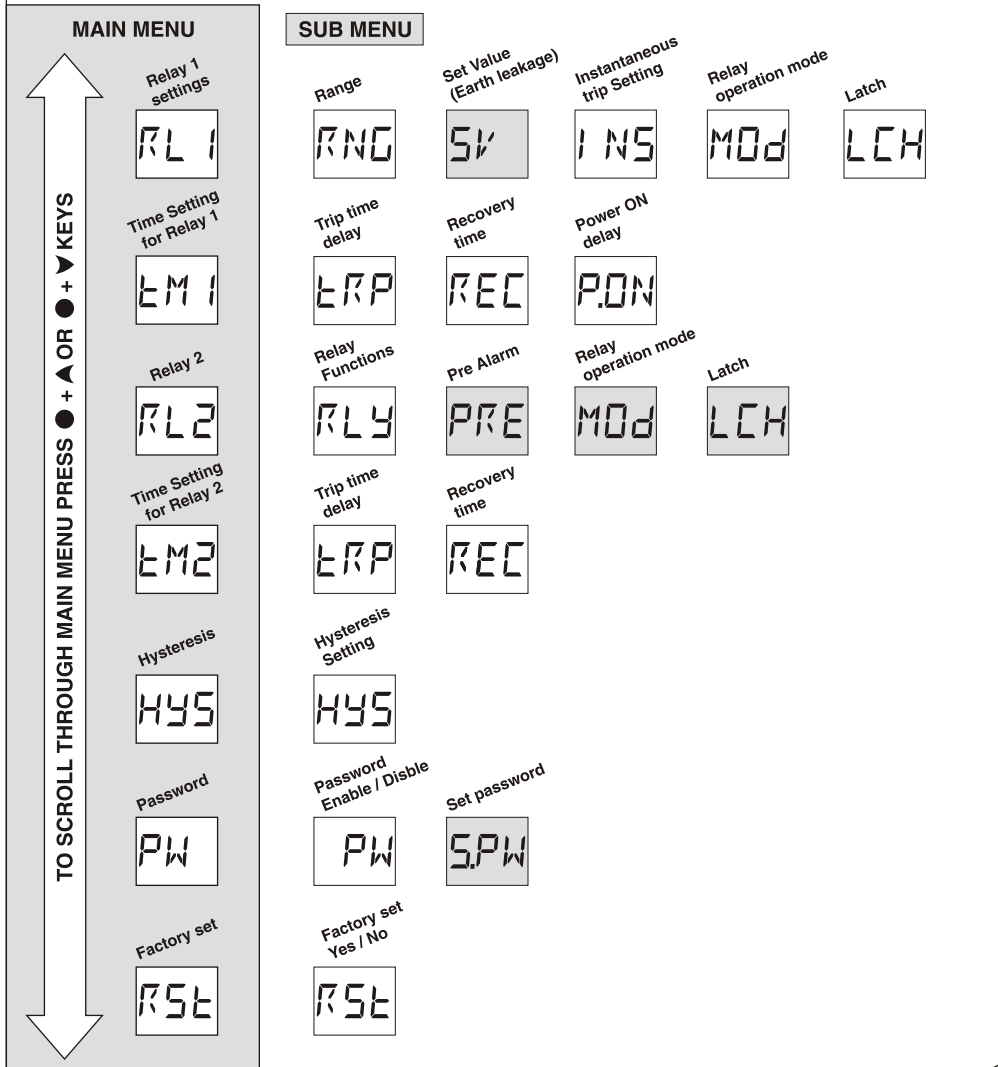
SIDE VIEW

CBCT TYPE	Dimensions (mm)				
	D	d	H	W	W1
35	70	35	96	10	40
70	107	70	131	10	40
120	157	120	184	10	40
STD. TOL.	2 - 3	5 - 6	-	1.5 - 2	-

CT TYPE ZPC (Zero Phase Current)

CONFIGURATION MENU

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



Note : Appearance of shaded menus dependant on selection of other parameters

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		
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
SV	Set trip value for earth leakage	100 ^{mA} R1	SV can be programmed between 10.0mA 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	
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)	ON : NC OFF : NO
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		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
TRP	Trip Time Delay	30 ^s R1 t	0.0 - 99.9s	
REC	Recovery Time	05 ^s R1 t _{off}	0.0 - 99.9s	
P.ON	Power ON Delay	50 ^s R1 t _{on}	0.5 - 99.9s	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		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
	Relay 2 Functions		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 Alarm		50 to 100%	Will be prompted only when RL2 = PRE
	Relay operation mode		ON / OFF	ON : NC OFF : NO
	Latch		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		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
	Trip time delay		0.0 - 99.9s	
	Recovery time		0.0 - 99.9s	

Hysteresis (HYS) Press ▲ to enter sub menu from main menu				
Press ▲ or ▼ to scroll through sub menu		Press ● + ▲ or ● + ▼ to change parameter value		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
	Hysteresis		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		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
	Password		ENB / DIS	Enable / Disable password protection option
	Set password		0-999	Will be prompted only when Password option is enabled
	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		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
	Reset (Factory set)		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		
DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
	LOCK		YES / NO	This option will be prompted first when the user enters the trip setting menu. User has to set NO after which he can access the trip setting menu.
	Set trip value for earth leakage		SV can be programmed between 10.0mA 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	
	Pre Alarm		50 to 100%	This option will be prompted only when PRE is selected for Relay2 in the config. menu.
	Trip time delay for earth leakage		0.0 - 99.9sec.	

DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
	Trip time delay for Pre Alarm.		0.0 - 99.9sec.	This option will not be prompted if RL1 is selected for RL2 in config. menu.
	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 >2sec.		○ R1 ○ R2	Test is in Process.
Test passed			● R1 ● R2	If test is passed, OK will be displayed till reset button is pressed. If CBCT error is there, display will show C.T.E and all LED's will be blinking.
Test Failed			○ R1 ○ R2	----
RST	Press RST key for >2sec.	Actual Value	○ R1 ○ R2	If current is in mA then "mA" will be indicated.

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

(Specifications are subject to change, since development is a continuous process)

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