OP413-V02

selec 900EFR-BL-U-CE-RoHS

Operating Instructions



FEATURES

- Earth Fault current monitoring in 1Ø & 3Ø systems.
- True RMS value measurement (AC)
- User selectable Trip time delay, Recovery time delay, Power ON delay.
- Adjustable hysteresis.
- Alarm relays with NO and NC operation selectable.
- Test and Reset via front / remote.

SPECIFICATIONS

DISPLAY
3 Digit, LCD with backlight
ELECTRICAL CONNECTION
1Ø-2 wire, 3Ø-3 wire, 3Ø-4 wire
AUXILIARY SUPPLY
85 - 270V AC/DC
50 / 60Hz
VA RATING
4VA max
TRIP SETTINGS
10% to 80% of selected MCCB frame rating
TIME SETTINGS
Response Time : < 100ms
Trip time delay : 0 - 99.9sec.
Recovery Time : 0 - 99.9sec.
Power ON delay : 0.5 - 99.9sec.
HYSTERESIS
1 – 10% of Fault current setting
RESOLUTION
0.1A when fault current is less than or equal to 99.9A
1A when fault current is greater than 100A
ACCURACY
Current : ±5% of the setting ± 2 digits
Time : ±5% of the setting ±100ms
OUTPUT SPECIFICATIONS
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)
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
150gms.

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

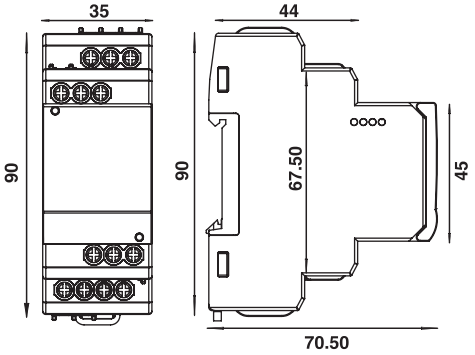
WARNING

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.

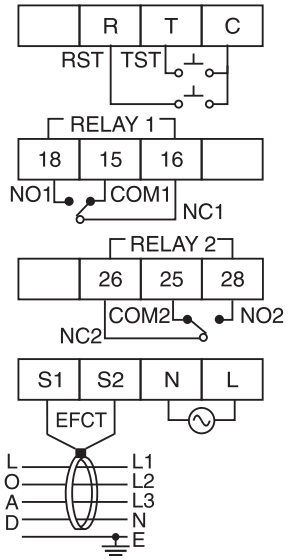
DIMENSIONS (All dimensions in mm)



LED INDICATION CHART

Various Conditions	'R1' LED	'R2' LED
No fault (Healthy)	OFF	OFF
Pre-Alarm	OFF	ON
Trip	ON	ON

TERMINAL CONNECTIONS



NOTE FOR CONNECTION

For single phase and three phase applications.
For single phase system pass L & N through EFCT.
For 3P4W system pass L1, L2, L3 and N through EFCT.
For 3P3W system pass L1, L2, L3 through EFCT.

The Earth MUST NOT pass through the EFCT.

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

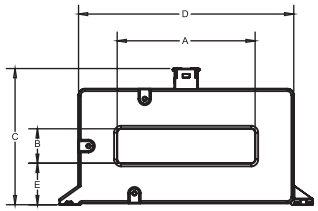
Use screen, shielded cable or twisted pair cable between the unit and EFCT for long distance (Greater than 1m).

ORDER CODE INFORMATION

PRODUCT	SUPPLY	CERTIFICATION
900EFR-BL-U-CE	85 to 270V AC / DC	CE

ACCESORIES

EFCT



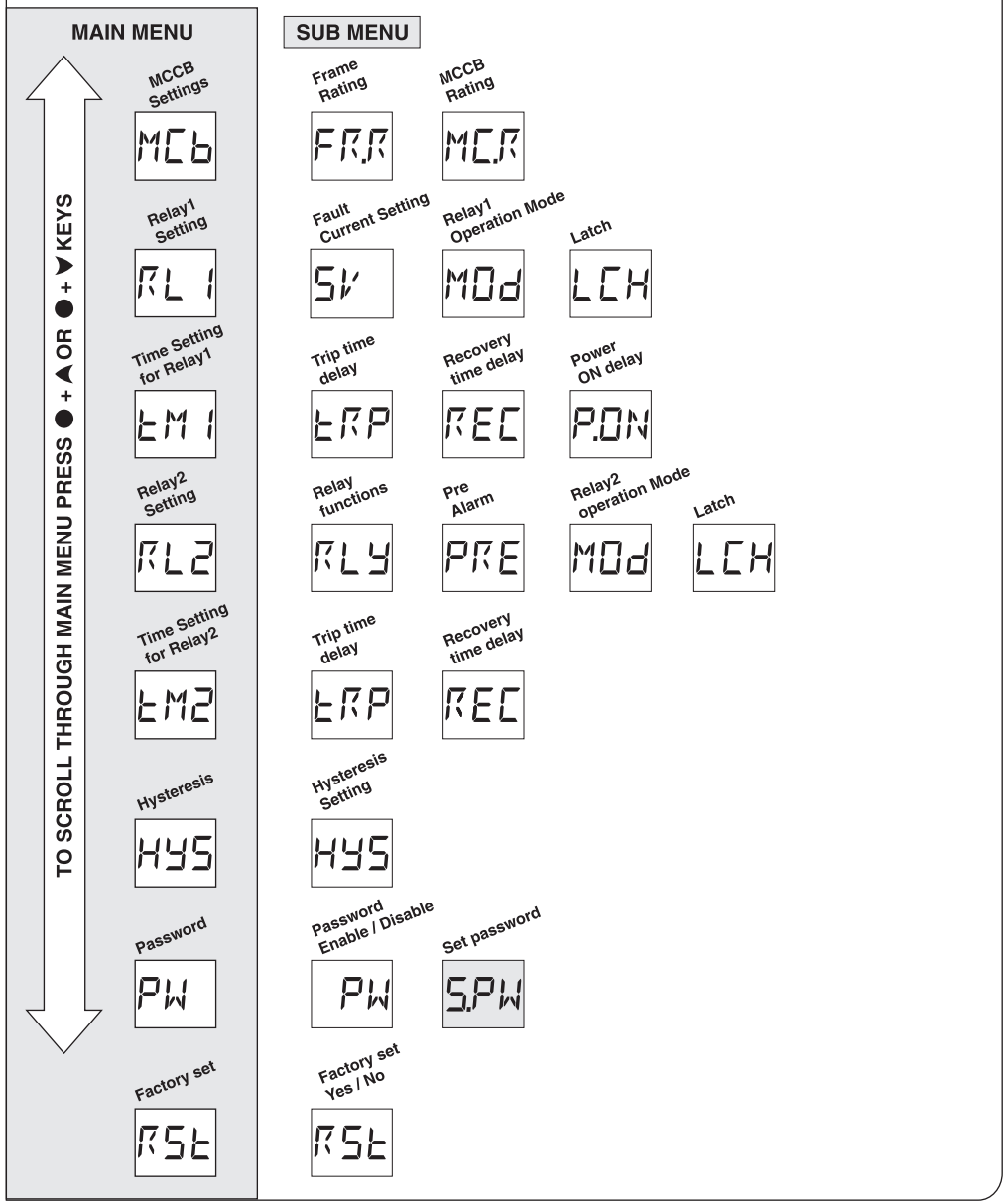
EFCT TYPE	Dimensions (mm)				
	A	B	C	D	E
EFCT 100X25	100	25	100	156	30
EFCT 140X35	140	35	114	201	32
EFCT 180X35	180	35	109	236	30
EFCT 220X50	220	50	128	276	32

Ordering Information

Product Code	Dimenssion in mm	Current Transformer Ratio
EFCT 100/25 160/1A VAL CL1	100 x 25	160/1A
EFCT 140/35 160/1A VAL CL1	140 x 35	160/1A
EFCT 140/35 250/1A VAL CL1	140 x 35	250/1A
EFCT 180/35 250/1A VAL CL1	180 x 35	250/1A
EFCT 180/35 630/1A VAL CL1	180 x 35	630/1A
EFCT 220/50 630/1A VAL CL1	220 x 50	630/1A

CONFIGURATION MENU

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



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

SUB MENU

MCCB Settings (MCb)

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
FR.R	Frame Rating	160 A	160, 250, 630	
MC.R	MCCB Rating	16 A	For different Frame rating the MCCB ratings are 160 : 16, 20, 25, 32, 40, 50, 63, 80, 100, 125, 160 250 : 40, 50, 63, 80, 100, 125, 160, 200, 250 630 : 250, 315, 400, 500, 630	For selected frame rating, the default value will be minimum MCCB rating of that particular frame.

Relay 1 Settings (RL1)

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
SV	Set trip value for fault current	1.6 A (R1)	10% to 80% of selected MCCB rating Steps of 0.1A from 0 to 99.9A and Steps of 1A beyond 100A	Eg. For MCCB rating of 160A Set value will be from 16.0A to 128A
MOd	Relay operation mode	ON (R1)	ON/OFF	ON : NC(During Trip) OFF : NO(During Trip)
LCH	Latch	OFF (R1)	ON/OFF	If latch is ON, user has to reset the unit manually when the 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	0.0 s (R1 t)	0.0 – 99.9 sec	
REC	Recovery time delay	0.5 s (R1 t off)	0.0 – 99.9 sec	
P.ON	Power ON delay	5.0 s (ton)	0.5 – 99.9 sec	Applicable for Relay1 and Relay2

Relay 2 Settings (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
RLY	Relay 2 Functions	PRE (R2)	RL1 / PRE	If RL1 is selected, all the settings done for RL1 & TM1 will be automatically set for RL2 and no other parameter of RL2 & TM2 will be prompted.
PRE	Pre Alarm	50 (R2, %)	50% – 100%	Will prompt only if PRE is selected for Relay 2
MOd	Relay operation mode	OFF (R2)	ON / OFF	ON : NC(During Trip) OFF : NO(During Trip)
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

DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
tRP	Trip time delay	0.0 (s, R2 t)	0.0 – 99.9 sec.	
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

DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
HYS	Hysteresis	1 (A, H %)	1% to 10% of Trip current setting (SV)	Fault condition is removed when fault is H% less than the Set Value

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
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

DISPLAY (For 1sec)	DESCRIPTION	DEFAULT VALUE	RANGE	CONDITION
RSt	Reset (Factory set)	NO	YES / NO	

TEST & RESET FUNCTION

● LED ON ○ LED OFF

KEY	DESCRIPTION	DISPLAY (For 1sec.)	LED's	CONDITION
For TEST	Press TST key for >2sec.	tSt	○ R1 ○ R2	Test is in Process.
Test passed		OK	● R1 ● R2	If test key is passed, OK will be displayed till reset button is pressed.
Test Failed		ER2	○ R1 ○ R2	----
RST	Press RST key for >2sec.	Actual Value	○ R1 ○ R2	----

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 subject to change as development is a continuous process.)

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