

We touch your **electricity** everyday!

CSFPI-V3

Short Circuit & Earth Fault Passage Indicator

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Catalogue



PMD Division

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CSFPI-V3 (SC+EFPI)

Introduction

CSFPI-Self Powered Fault Passage Indicator is designed to detect and indicate Earth Fault and Short Circuit on a cable system in RMU networks with one input/open ring arrangement. The product is powered by the Internal Battery only. The unit will Indicate a fault condition when current is detected above set trip current settings. Fault current is sensed by cable mounted sensor, which gives signal to indication unit. Sensors must be mounted on screened cables and can be retrofitted on the cable.

Features

- ❖ Programmable Short circuit pickup level (wide range 100A to 1200A).
- ❖ Programmable Earth fault pickup level (wide range 10A to 100A).
- ❖ Indication of permanent earth-faults by blinking of Earth-fault LED.
- ❖ Indication of a short-circuit by blinking of the Short-circuit LEDs.
- ❖ Programmable response delay for short-circuits and Earth-faults (individually).
- ❖ Up-to Three potential free contacts to indicate earth-fault, short-circuits & low battery remote indication.
- ❖ Various Reset option for Fault Reset.
- ❖ Reset through Potential free input & AC/DC voltage.
- ❖ Reset manually by push button.
- ❖ Reset automatically by a field configurable timer (hour).

Functional Description

If the Phase /Earth current exceeds programmed set current for programmed response time the fault (Affected Phase in case of short circuit) will be indicated by red flashing LEDs and a relay contact will be activated. Reset occurs automatically by preset time passage or by a external potential free input or by recovering of 230V AC (Not a Aux. Supply) Voltage or by manually via push button. A Functional Test can also be carried out on field by pressing for more than 3 Sec and Battery Test by pressing the Push button for more than 6 Sec.

Programmable parameters can be set through DIP switches which are accessible by opening the Front Cover of the CSFPI indication unit. Exit (Disable) option is available for Short Circuit & Earth Fault detection.

DIP SWITCH-1

Switch 1				
OFF	OFF	OFF	OFF	100
OFF	OFF	OFF	ON	200
OFF	OFF	ON	OFF	300
OFF	OFF	ON	ON	400
OFF	ON	OFF	OFF	500
OFF	ON	OFF	ON	600
OFF	ON	ON	OFF	700
OFF	ON	ON	ON	800
ON	OFF	OFF	OFF	900
ON	OFF	OFF	ON	1000
ON	OFF	ON	OFF	1100
ON	OFF	ON	ON	1200
ON	ON	x	x	EXIT

Short Circuit Pickup (Amp)

DIP SWITCH-2

Switch 2						
OFF	OFF	OFF	OFF	OFF	OFF	40
OFF	OFF	ON	OFF	OFF	ON	60
OFF	ON	OFF	OFF	ON	OFF	80
OFF	ON	ON	OFF	ON	ON	100
ON	OFF	OFF	OFF	ON	OFF	120
ON	OFF	ON	OFF	ON	OFF	160
ON	ON	ON	OFF	ON	ON	200
ON	ON	ON	ON	ON	ON	240
ON	ON	ON	ON	ON	ON	EXIT

Earth Fault Pickup (Amp)	Short Circuit Response Time (ms)
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DIP SWITCH-3

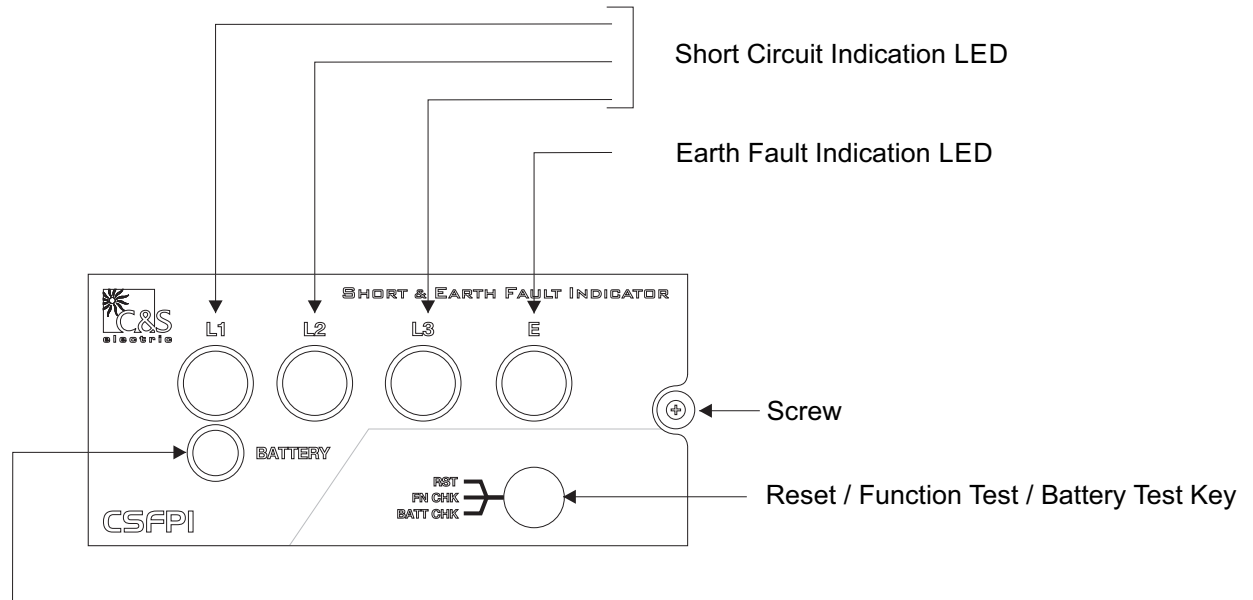
Switch 3						
OFF	OFF	OFF	OFF	OFF	OFF	1
OFF	ON	OFF	OFF	ON	OFF	2
ON	OFF	OFF	ON	OFF	OFF	4
ON	ON	OFF	ON	ON	ON	8
ON	ON	ON	x	x	EXIT	

Earth Fault Response Time (ms)	Auto Reset Timer (Hour)
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6th position is not in use

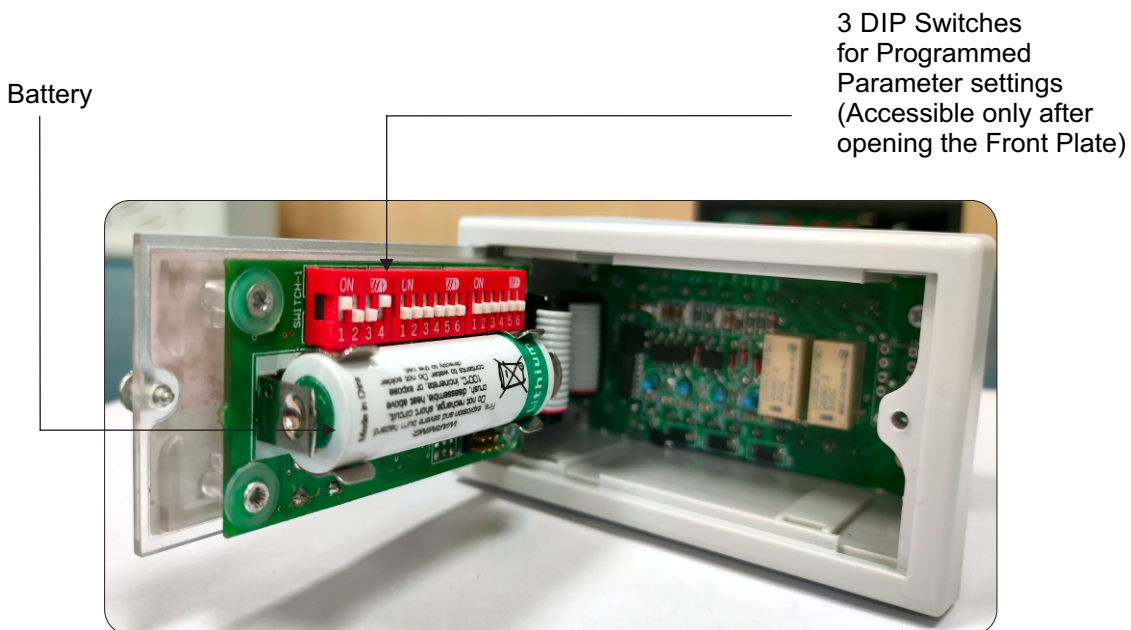
x : Don't Care (Not in Use)

Front Interface

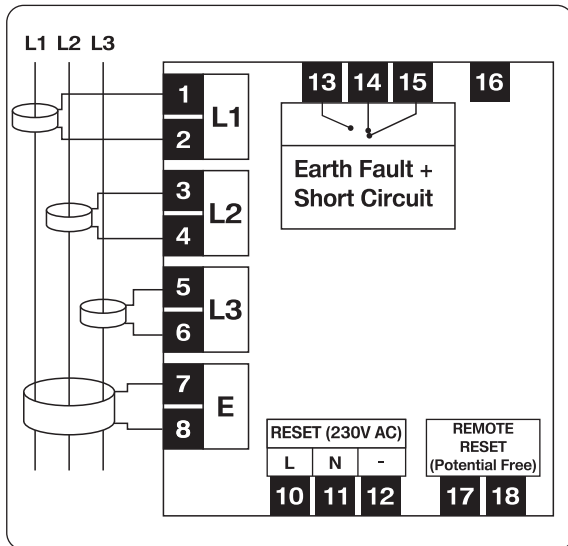


Battery Low Indicator
(During Battery Test)

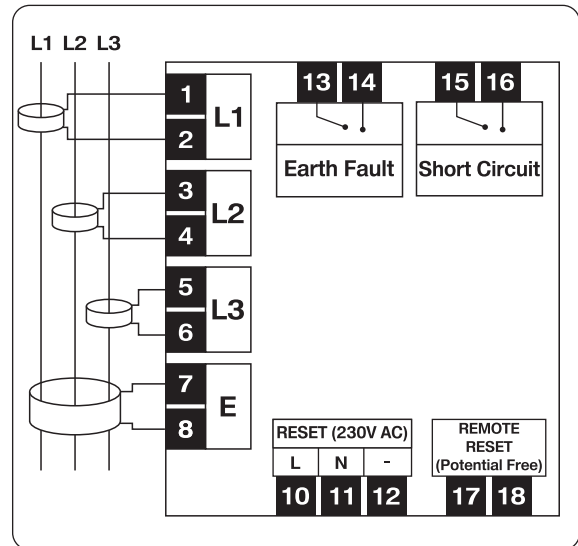
Note: open the Front plate by removing the front screw to access the DIP switch setting.



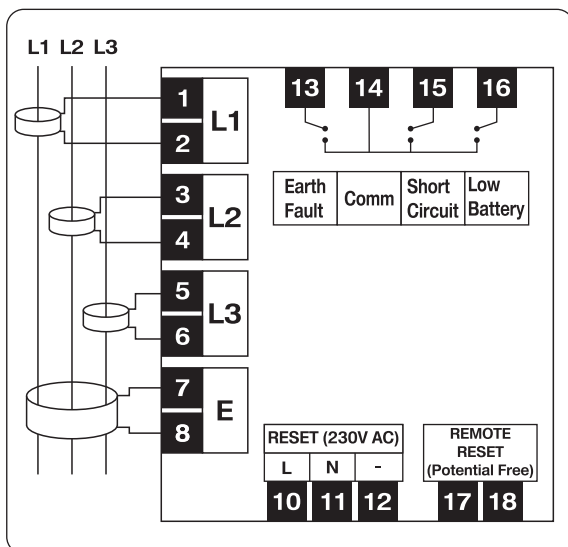
Connection Diagram



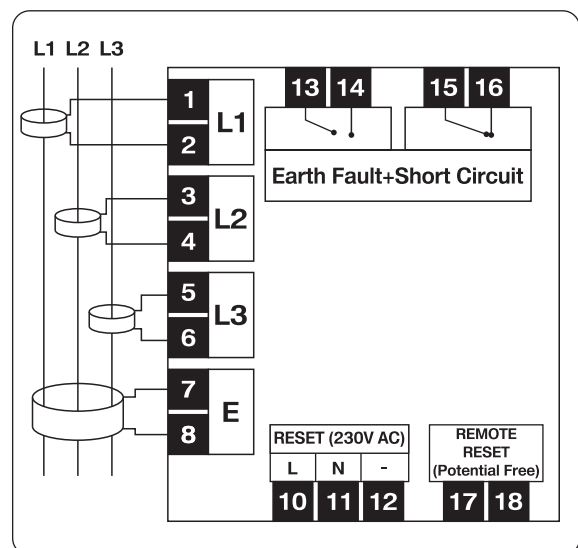
CSFPI-E-B-x



CSFPI-E-C-x



CSFPI-E-D-x



CSFPI-E-G-x

General Data

Subject	Value
Short-Circuit Trip Current (Phase to Phase)	: Adjustable: 100/ 200/ 300/ 400/ 500/ 600/ 700/ 800/ 900/ 1000/ 1100/ 1200 A ($\pm 10\%$) **
Earth-Fault Trip Current (Phase to Ground)	: Adjustable: 10/ 20/ 30/ 40/ 60/ 80/ 100 A ($\pm 10\%$) **
Short-circuit Response Time	: Adjustable: 40 / 60 / 80 / 100 / 120 / 160 / 200 / 240 ms ($\pm 100\text{mSec}$)
Earth Fault Response Time	: Adjustable 40 / 60 / 80 / 160 ms ($\pm 100\text{mSec}$)
Indication Unit	: Suitable for panel installation
Indication of	
a) Short-Circuit	: a) One Red LED for each Phase
b) Earth-Fault	: b) One Red LED for Earth-Fault
c) Battery	: c) One Yellow LED for Battery Low
Reset of the Indicator	: a) Manual by push-button : b) Remote Reset (Potential Free Input) : c) Automatic Reset by Time : 1 / 2 / 4 / 8 ($\pm 5\%$) hours after fault : d) Self-acting after recovering of 230V AC/DC (Range: 22V - 260V AC/DC)
On Site Function Test	: By Push-Button
Dimensions	: Indication Unit : 97.75 mm x 51.75 mm x 92.0 mm (WxHxD)
Protection Class	: Indication Unit - IP50 : Sensors - IP67
Type Test	: According to IEEE 495-2007
Operation Temperature Range	: -25°C to $+70^{\circ}\text{C}$
Power Supply	: Lithium Battery 3.6V / 2.7 Ah (Mandatory)
SCADA Contact *	: Max. 3 Latch Contacts : Nominal Switching Capacity : 2A 30V DC, 0.5A 125V AC (Resistive Load) : Max. Switching Power : 60W, 60VA (Resistive Load) : Max. Switching Voltage : 220V DC, 250V AC
Short-Circuit Sensor (CT)	: Three Short Circuit Sensors Type CS-x-PS-x-x for Three Core Cable (One Sensor for each core) : Diameter : various option available (Based on ordering information)
Earth-Fault Sensor (CT)	: One Earth-Fault Sensor Type CS-x-ES-x-x for a Three-Core Cable : Diameter : various option available (Based on ordering information)
Connection & Mounting	: Screwed Terminal Connector at the rear side of the Unit. Panel mount.

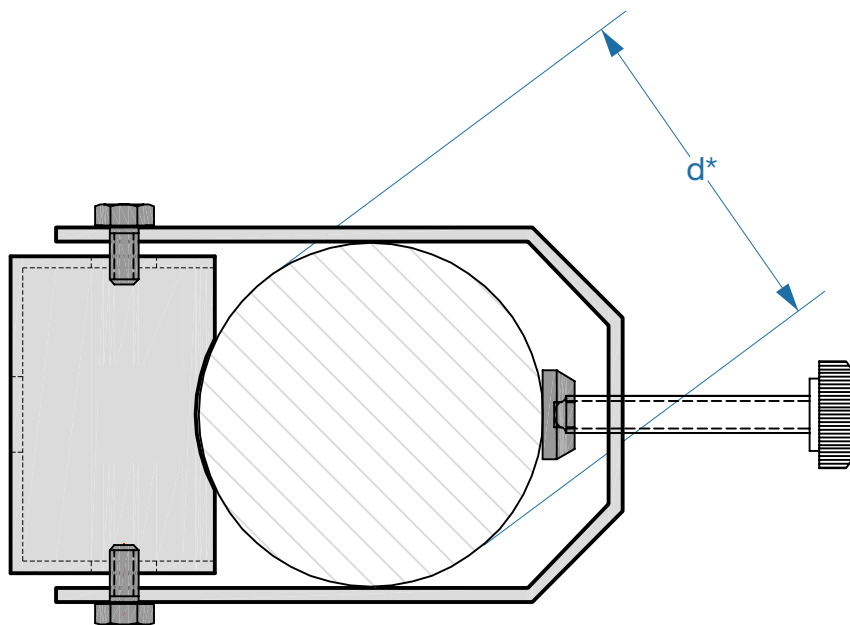
CSFPI-V3 (SC+EFPI)

Specification Table

Description	Standard	C1	C4	C5	C6	C7	C9	C13
Short-Circuit Trip Current (P-P)	100-1200 A	100-1200 A	100-1200 A	100-1200 A	100-1200 A	200-625 A	100-1200 A	100-1200 A
Earth-Fault Trip Current (P-GND)	10-100 A	10-100 A	5-50 A	10-100 A	20-200 A	40-100 A	100-300 A	10-150 A
Short-Circuit Response Time	40-240 ms	40-500 ms	30-100 ms	40-240 ms	40-300 ms	40-500 ms	40-240 ms	1-5 sec
Earth Fault Response Time	40-160 ms	40-500 ms	30-100 ms	40-160 ms	40-300 ms	40-500 ms	30-100 ms	1-5 sec
Indication of LEDs for								
Short-Circuit - 3 RED LED	✓	✓	✓	✓	✓	✓	✓	✓
Earth-Fault - 1 RED LED	✓	✓	✓	✓	✓	✓	✓	✓
Battery Low - 1 YELLOW LED	✓	✓	✓	✓	✓	✓	✓	✓
Reset Option								
Manual by push-button	✓	✓	✓	✓	✓	✓	✓	✓
Remote Reset (Potential Free Input)	✓	✓	✓	✓	✓	✓	✓	✓
Automatic Reset by time	1/2/4/8	1/2/4/8	0.5/1/2/4	1/2/4/8	2/4/8/16	1/2/4/8	0.5/1/2/3/4	1/2/4/8
Automatic Reset after recovery of voltage	230V AC/DC	230V AC/DC	230V AC/DC	24V DC	230V AC/DC	230V AC/DC	230V AC/DC	230V AC/DC
Automatic Reset if current doesn't cut off within 3 sec after fault	x	✓	x	x	x	x	x	x
Automatic Reset recovering of operating current after fault	x	✓	x	x	✓	x	x	x
On Site Function Test By push button								
	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temp. Range -25°C to +70°C								
	✓	✓	✓	✓	✓	✓	✓	✓
Power Source "Li Battery 3.6V / 2.7 Ah (Mandatory)								
	✓	✓	✓	✓	✓	✓	✓	✓
SCADA Contact (Latch contact)								
	3	3	3	3	3	3	3	3
Contact : 2A, 30V DC / 0.5A 125V AC	✓	✓	✓	✓	✓	✓	✓	✓
Max. Switching Volt : 220V DC, 250V AC	✓	✓	✓	✓	✓	✓	✓	✓
SENSOR INFORMATION								
Short-Circuit Sensor - 03 nos.	✓	✓	✓	✓	✓	✓	✓	✓
Earth-Fault Sensor - 01 no.	✓	✓	✓	✓	✓	✓	✓	✓
Phase Sensor Model	P1/P2/P3	P1/P2/P3	P1/P2/P3	P1/P2/P3	P1/P2/P3	P1/P2/P3	P1/P2/P3	P1/P2/P3
Earth Sensor model	E1/E2/E3/E4	E1/E2/E3/E4	E1/E2/E3	E1/E2/E3/E4	E1/E2/E3	E1/E2/E3	E1/E2/E3	E1/E2/E3/E4
Wire Length (Meter) Sensor to Indicator	3	3	3	3	3	3	3	3

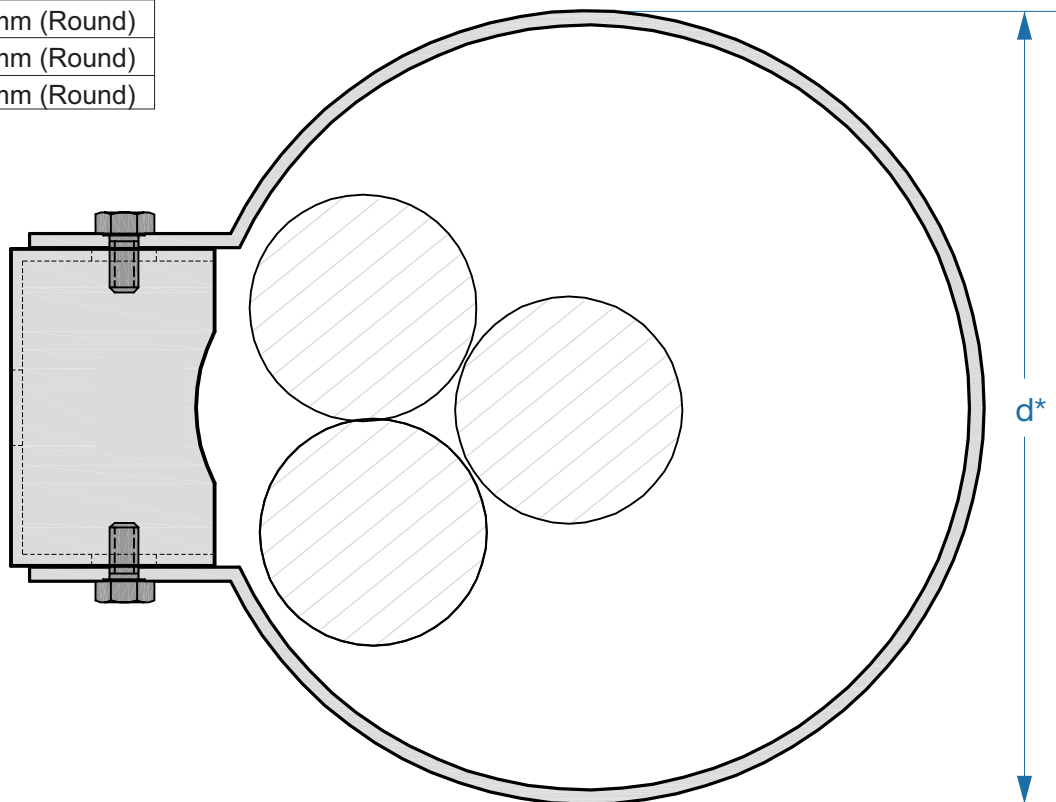
Short Circuit Sensor Type (CS-x-PS-x-x)

Sensor Dia (d)	Cable Dia
D1	15-25 mm (Round)
D2	18-44 mm (Round)
D3	40-60 mm (Round)



Earth Fault Sensor Type (CS-x-ES-x-x)

Sensor Dia (d)	Cable Dia
D1	80-100 mm (Round)
D2	100-120 mm (Round)
D3	120-140 mm (Round)
D4	180-200 mm (Round)



Sensor Diameter (d^*) & Sensor Cable (2 Wire, 6mm dia, FR Grade type), Wire Length from Sensor to indicator is 3.0 Meter

CSFPI-V3 (SC+EFPI)

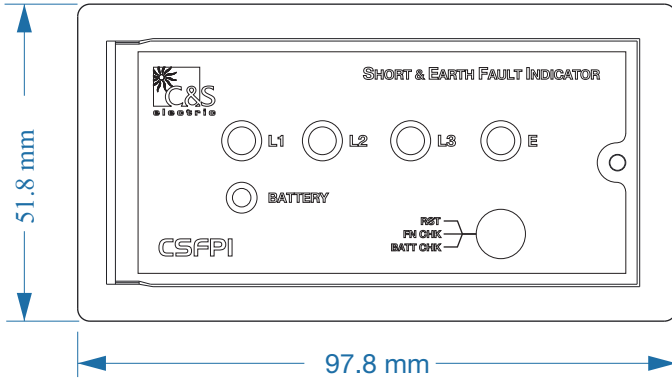
Dimension Details

All the dimensions are in mm (Tol.: ±1.0mm)

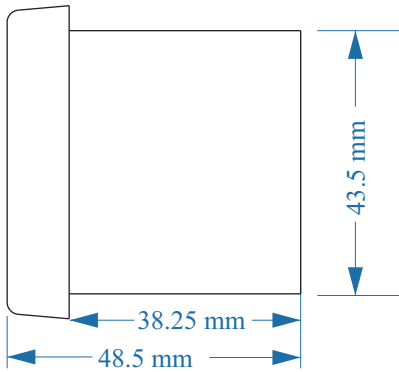
Panel cut out Dimension

Width	:	91.0 mm
Height	:	45.0 mm

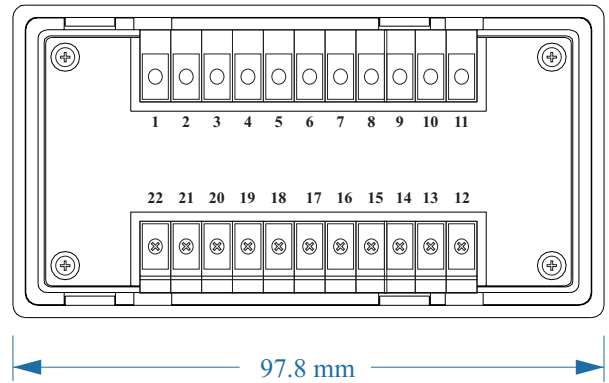
FRONT VIEW OF PHASE & EARTH FAULT INDICATOR



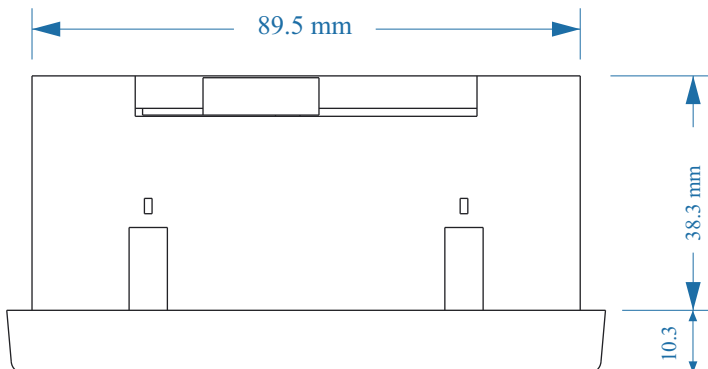
SIDE VIEW



BACK VIEW



TOP VIEW



Ordering Information

CSFPI - E - X - H - X - X - X - V3

- B : (Short ckt + Earth Fault) Indicator with 1 C/O Digital Output (Short Ckt+ Earth Fault)
- C : (Short ckt + Earth Fault) Indicator with 2 Digital Output [1 N/O Digital Output (Short Ckt) + 1 N/O Digital Output (EarthFault)]
- D : (Short ckt + Earth Fault) Indicator with 3 Digital Output [1 N/O Digital Output (Short Ckt) + 1 N/O Digital Output (EarthFault) + 1 N/O Digital Output (Low Battery)]
- G : (Short ckt + Earth Fault) Indicator with 1 N/O+1 N/C Digital Output (Short Ckt+ Earth Fault)

Cx : Customized model
 - : Standard Model

P1 : Phase Sensor Dia D1
 P2 : Phase Sensor Dia D2
 P3 : Phase Sensor Dia D3
 Refer Sensor details

E1 : Earth Sensor Dia D1
 E2 : Earth Sensor Dia D2
 E3 : Earth Sensor Dia D3
 E4 : Earth Sensor Dia D4
 Refer Sensor details

All the models have internally Battery for Power.

