We touch your electricity everyday!

CSFPI-V3

Short Circuit & Earth Fault Passage Indicator

Catalog

C&S electric

PMD Division

CONTENT

1) Introduction

CSFPI, 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.

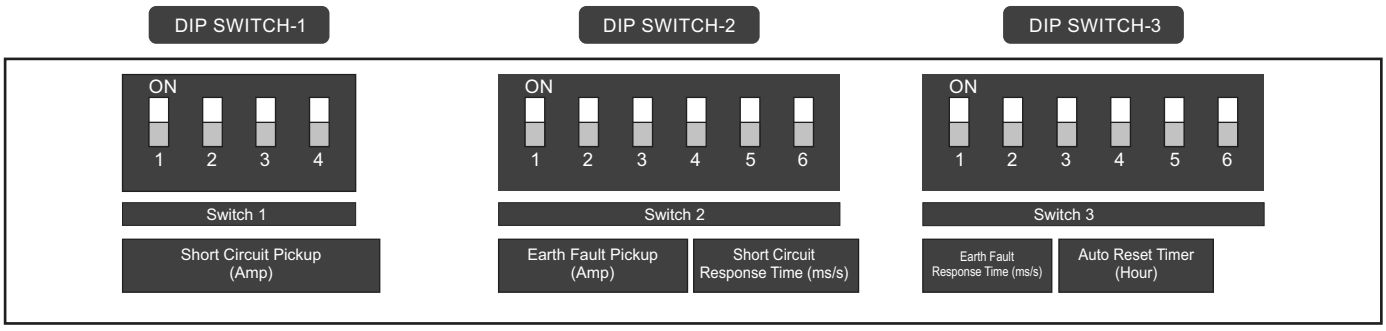
2) Features

- Programmable Short circuit pickup level (wide range) *
- Programmable Earth fault pickup level (wide range) *
- 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 (Please refer specification table on page 9, 10)

3) 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 voltage (Not an Aux. Supply) or by manually via push button depending on the CSFPI variants. 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.

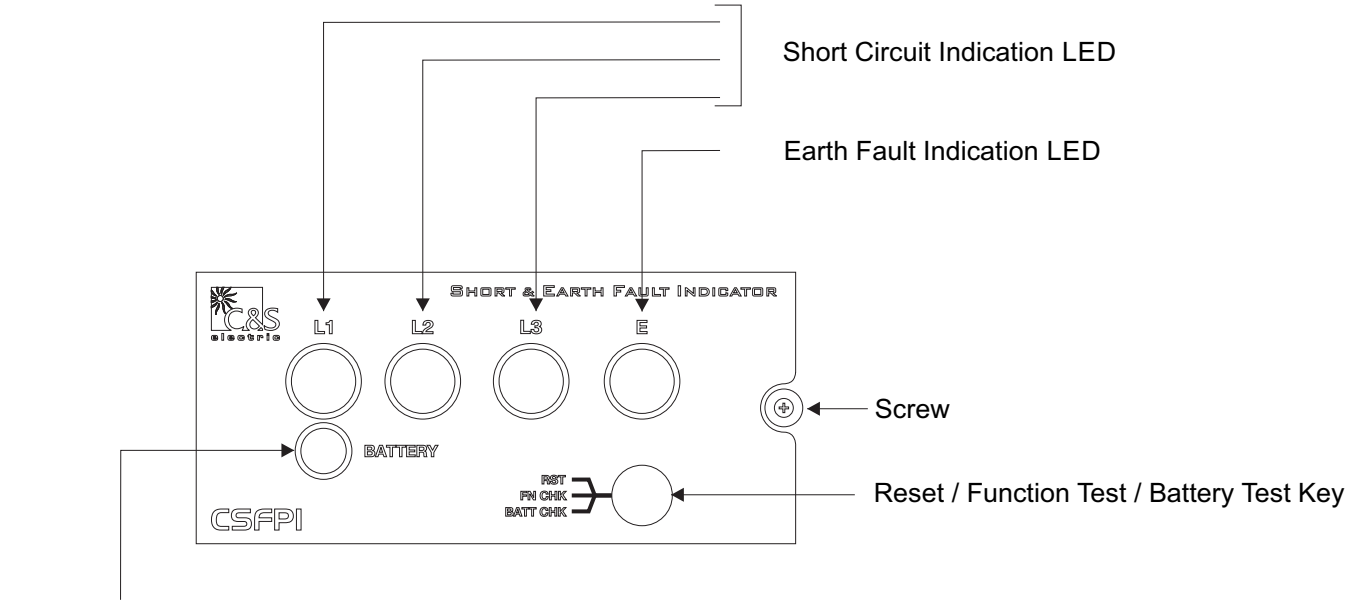
Programmable parameters can be set through DIP switches which are accessible by opening the Front Cover of the CSFPI indicator unit.



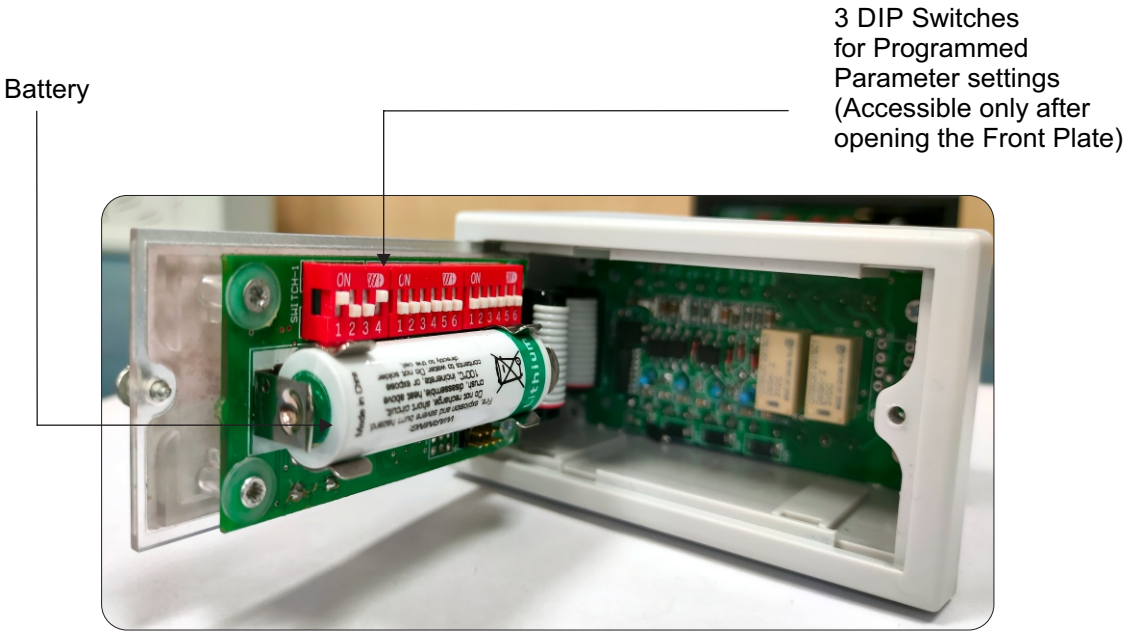
(Setting based on Model. Refer Specification Table on Page - 9, 10)

* Model Dependent

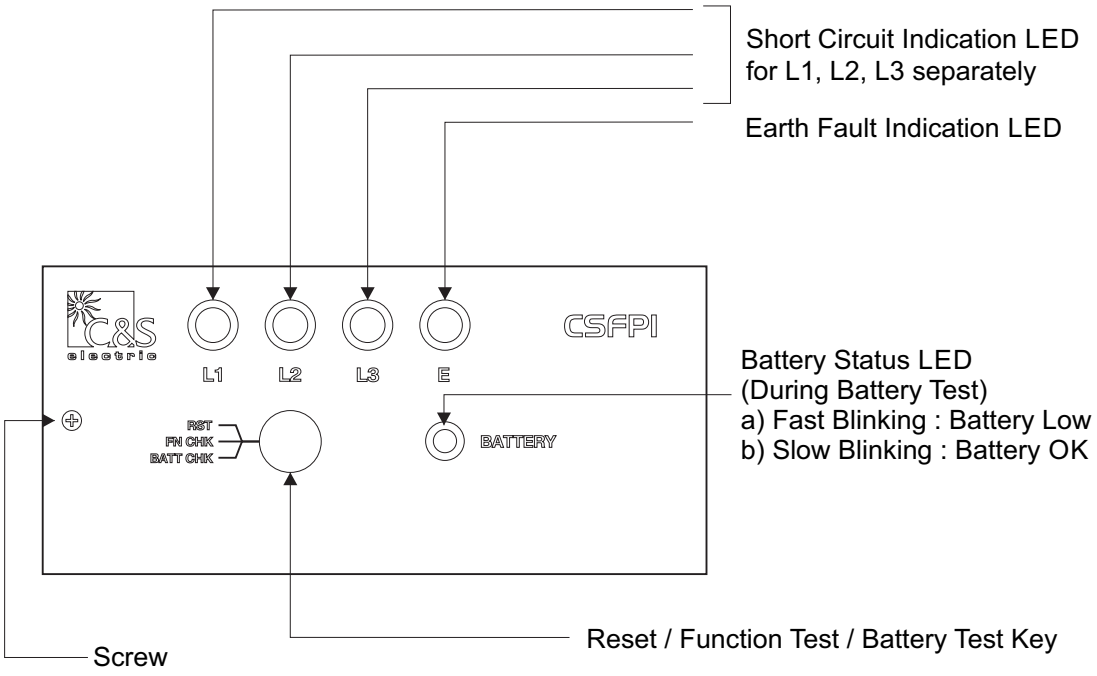
4a) Front Interface - CSFPI variants without Aux Supply (Standard / C1 / C5 / C6 / C7 / C13 / C16)



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

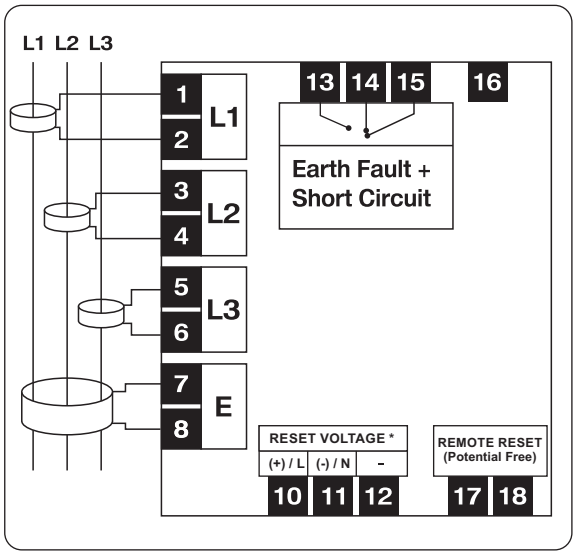


4b) Front Interface - CSFPI variants with Aux Supply (C2 / C8 / C14)

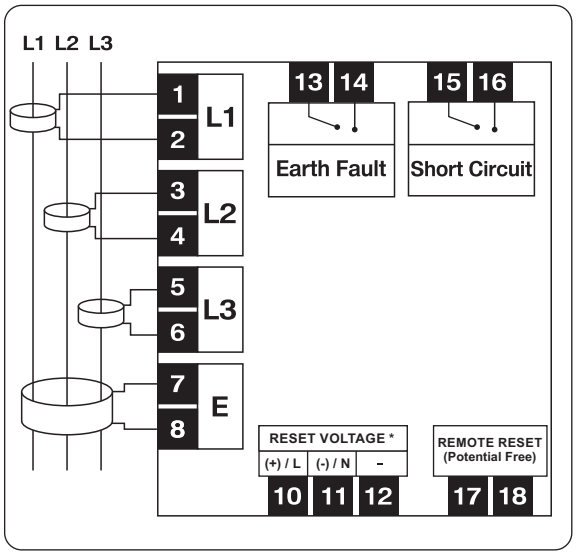


Note: open the Front plate by removing the front screw to access the DIP switch setting.

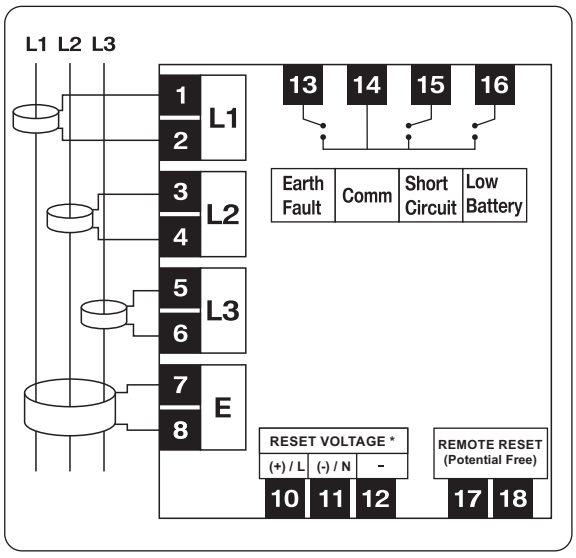
5a) Connection Diagram - CSFPI variants without Aux Supply (H Model)



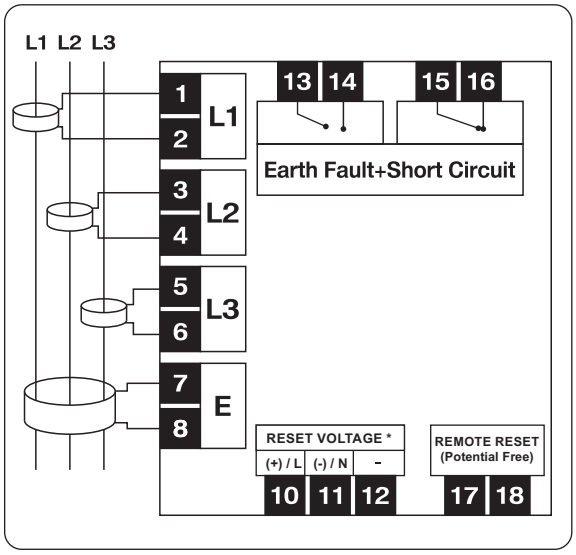
CSFPI-E-B-x



CSFPI-E-C-x



CSFPI-E-D-x



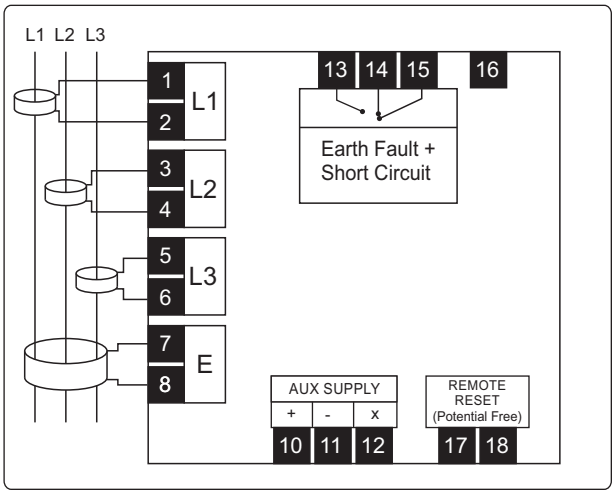
CSFPI-E-G-x

* Model Dependent

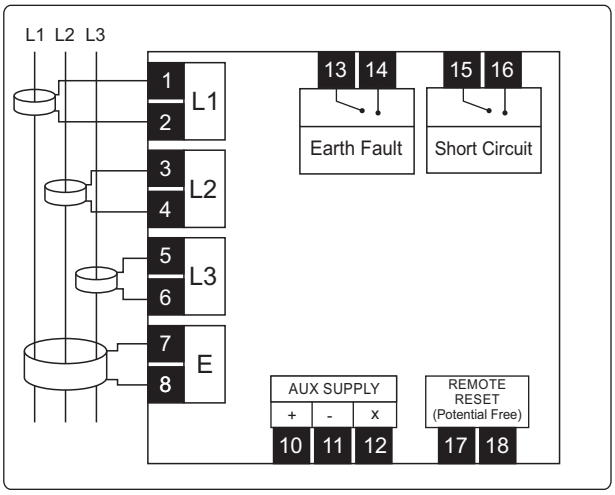
Note: Conn. diagram B, C, D, G are applicable for Standard, C1, C5, C6, C7, C13, C16 Models only

CAUTION : Remote Reset Signal requires 200msec pulse. Continuous signal can reduce battery life.

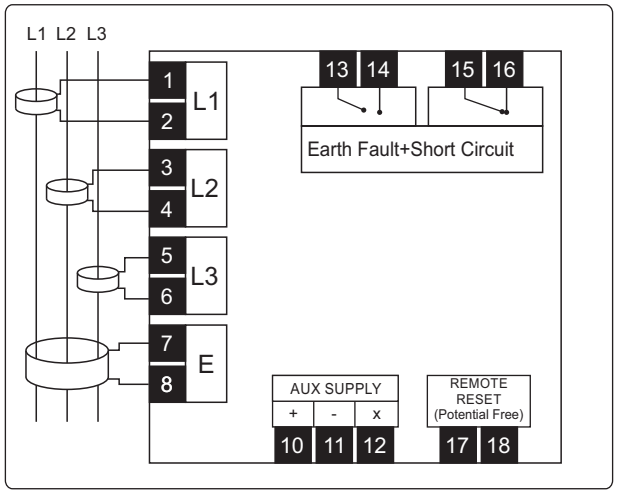
5b) Connection Diagram - CSFPI variants with Aux Supply (L Model)



CSFPI-E-B-x



CSFPI-E-C-x



CSFPI-E-G-x

* Model Dependent

Note: Conn. diagram B, C, G are applicable for C2, C8, C14 Models only

CAUTION : Remote Reset Signal requires 200msec pulse. Continuous signal can reduce battery life.

6) General Data

Subject		Value
Short-Circuit Trip Current	:	Adjustable:
(Phase to Phase)	:	For Range : Refer Table on Page - 9, 10 (±15%) **
Earth-Fault Trip Current	:	Adjustable:
(Phase to Ground)	:	For Range : Refer Table on Page - 9, 10 (±15%) **
Short-Circuit Response Time	:	Adjustable:
	:	For Range : Refer Table on Page - 9, 10 (±100msec) **
Earth Fault Response Time	:	Adjustable
	:	For Range : Refer Table on Page - 9, 10 (±100msec) **
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) Automatic Reset by Time : For Range : Refer Table on Page - 9, 10
	:	c) Other Reset Function - Refer Table on Page - 9, 10
	:	d) Remote Reset (Potential Free Input) - **Remote Reset Signal requires 200msec pulse. Continuous signal can reduce battery life.**
On Site Function Test	:	By Push-Button
Dimensions	:	Refer Page No. 12 & 13 for dimension details
Protection Class	:	Indication Unit - IP50
	:	Sensors - IP67
Type Test	:	According to IEEE 495-2007
Operation Temp. Range	:	-25°C to +70°C
Aux Power Supply (model dependent)	:	18-40V DC
Aux Supply burden value (model dependent)	:	<1 Watt@24V DC
Power Supply	:	Lithium Battery 3.6V / 2.7 Ah (Mandatory)
SCADA Contact «	:	Max. 3 Latch Contacts (Model Dependent)
	:	Nominal Switching Capacity:2A/30V DC, 0.25A/240V 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.

** Accuracy claimed at 50Hz

7a) Specification Table

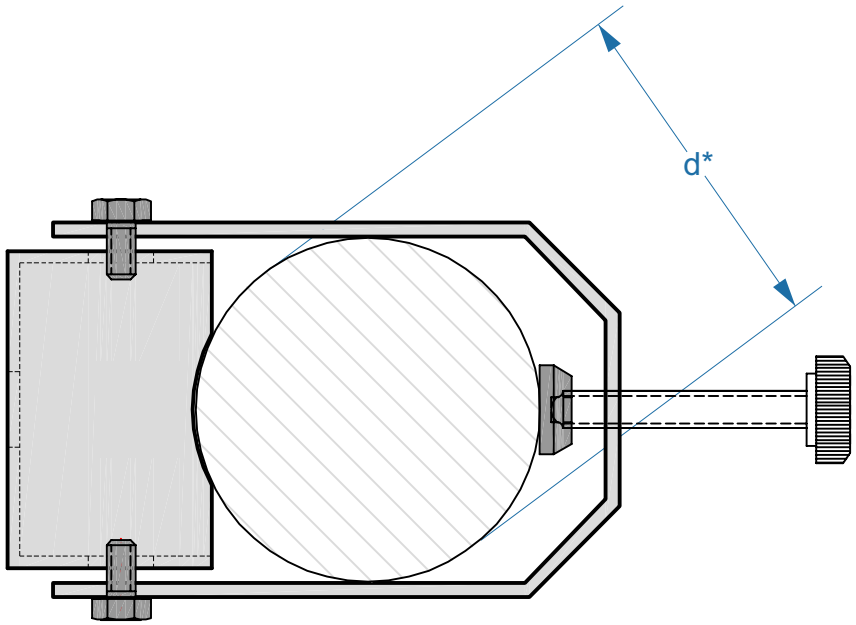
	CSFPI VARIANTS WITHOUT AUX SUPPLY						
Description	**Standard**	**C1**	**C5**	**C6**	**C7**	**C13**	**C16**
Short-Circuit Trip Current (P-P) (A)	100/200/300 400/500/600 700/800/900 1000/1100/1200	100/200/300 400/500/600 700/800/900 1000/1100/1200	100/200/300 400/500/600 700/800/900 1000/1100/1200	100/200/300 400/500/600 700/800/900 1000/1100/1200	200/300/500/625	100/200/300 400/500/600 700/800/900 1000/1100/1200	100/200/300 400/500/600 700/800/900 1000/1100/1200
Earth-Fault Trip Current (P-GND) (A)	10/20/30/40 60/80/100	10/20/30/40 60/80/100	10/20/30/40 60/80/100	20/40/60/80 100/150/200	40/60/80/100	10/20/40/80/ 100/120/150	10/20/40/80/ 100/120/150
Short-Circuit Response Time setting	40/60/80/100 120/160/200 240 (ms)	40/60/80/100 120/160/200 500 (ms)	40/60/80/100 120/160/200 240 (ms)	40/60/80/100 150/200/250 300 (ms)	40/60/80/100/120/140/160/180/ 200/220/240/260/280/300/320/340/ 360/380/400/420/440/460/500 (ms)	1/1.5/2/2.5/ 3/3.5/4/5 (sec)	40/60/80/100 150/200/250 300 (ms)
Earth Fault Response Time	40/60/80/160 (ms)	40/80/200/500 (ms)	40/60/80/160 (ms)	40/80/200/300 (ms)	40/60/80/100/120/140/160/180 200/220/240/260/280/300/320/340/ 360/380/400/420/440/460/500 (ms)	1/2/3/5 (sec)	40/80/200/300 (ms)
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 ± 5%	1/2/4/8 Hr	1/2/4/8 Hr	1/2/4/8 Hr	2/4/8/16 Hr	1/2/4/8 Hr	1/2/4/8 Hr	2/4/8/16 Hr
Automatic Reset after recovery of voltage	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
Automatic Reset recovering of operating current after fault	x	✓	x	✓	x	x	x
On Site Function Test By push button	✓	✓	✓	✓	✓	✓	✓
Power Source "Li Battery 3.6V / 2.7 Ah (Mandatory)	✓	✓	✓	✓	✓	✓	✓
Aux Supply	x	x	x	x	x	x	x
SENSOR INFORMATION							
Short-Circuit Sensor - 03 nos.	✓	✓	✓	✓	✓	✓	✓
Earth-Fault Sensor - 01 no.	✓	✓	✓	✓	✓	✓	✓
Phase Sensor Model	Refer Ordering Information for Sensor Selection						
Earth Sensor model	Refer Ordering Information for Sensor Selection						

7b) Specification Table

	CSFPI VARIANTS WITH AUX SUPPLY		
Description	**C2**	**C8**	**C14**
Short-Circuit Trip Current (P-P) (A)	100/200/300/400/500/600/700/800/900/ 1000/1100/1200	100/200/300/400/500/600/700/800/900/ 1000/1100/1200	100/200/300/400/500/600/ 700/800/900/1000/1100/1200
Earth-Fault Trip Current (P-GND)	100/130/160/ 180/200/240/300	10/20/30/40/ 60/80/100A	50/100/150/ 200/300/350/400
Short-Circuit Response Time setting	30/40/50/60/ 70/80/90/100 (ms)	40/60/80/100/ 120/160/200/240 (ms)	30/50/70/80/ 90/100/110/120 (ms)
Earth Fault Response Time	30/60/80/100 (ms)	40/60/80/160 (ms)	30/60/80/120 (ms)
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 ± 5%	0.5/1/2/4 Hr	1/2/4/8 Hr	0.5/1/2/3/4 Hr
On Site Function Test By push button	✓	✓	✓
Power Source "Li Battery 3.6V / 2.7 Ah (Mandatory)	✓	✓	✓
Aux Supply	18-40 V DC	18-40 V DC	18-40 V DC
SENSOR INFORMATION			
Short-Circuit Sensor - 03 nos.	✓	✓	✓
Earth-Fault Sensor - 01 no.	✓	✓	✓
Wire Length from Sensor to Indicator (Meter)	3	3	3
Phase Sensor Model	Refer Ordering Information for Sensor Selection		
Earth Sensor model	Refer Ordering Information for Sensor Selection		

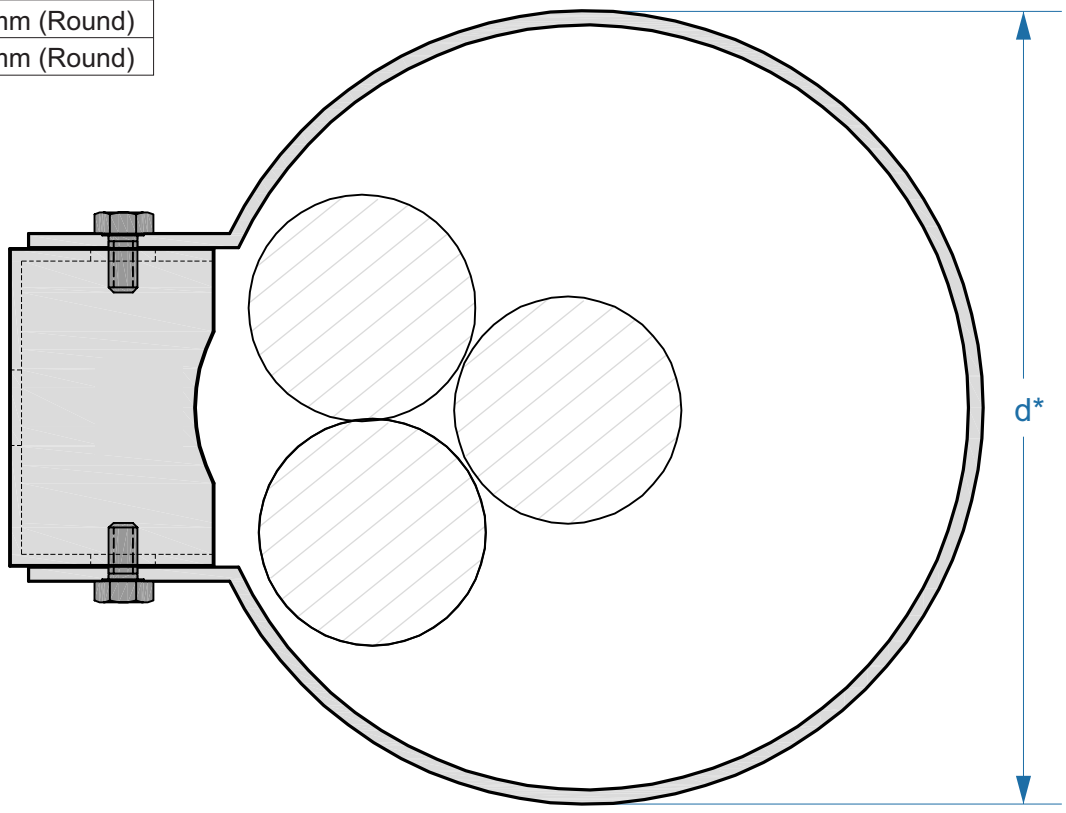
8) Short Circuit Sensor Type (CS-x-PS-x-x)

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



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

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



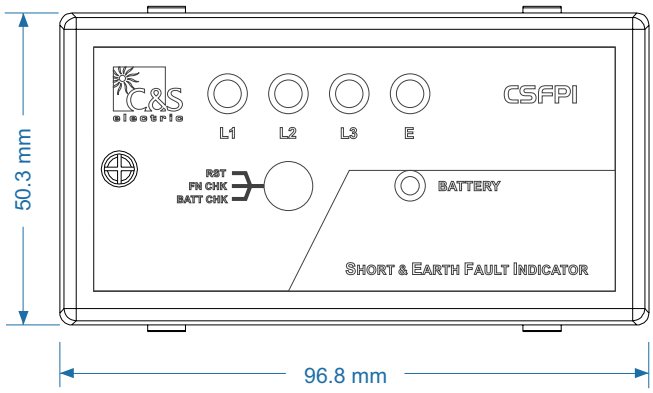
Sensor Diameter (d *) & Sensor Cable (2 Wire, 6mm dia, FR Grade type), Wire Length from Sensor to indicator is 3.0 Meter (based on ordering information)

10a) Dimension Details - CSFPI variants without Aux Supply

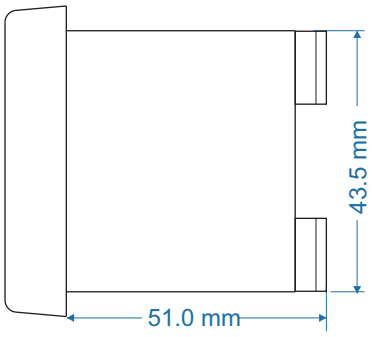
Overall Dimension	:	**WxHxD = 96.8x50.3x61.3 mm**
Panel cut out Dimension		
Width	:	$92.0^{+0.8}$
Height	:	$45.0^{+0.8}$
Installation Depth	:	52.0

Recommended panel sheet thickness "1mm to 1.6mm"

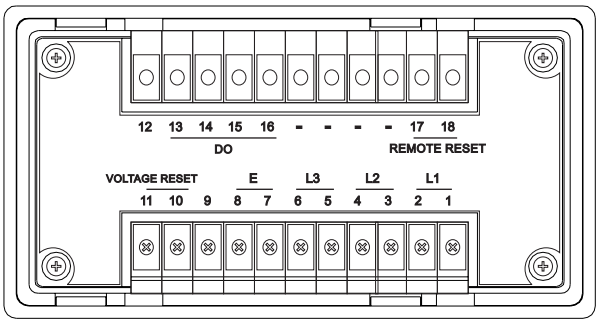
FRONT VIEW OF PHASE & EARTH FAULT INDICATOR



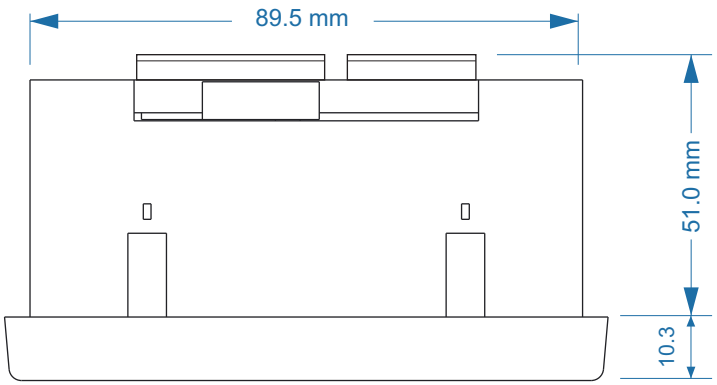
SIDE VIEW



BACK VIEW



TOP VIEW



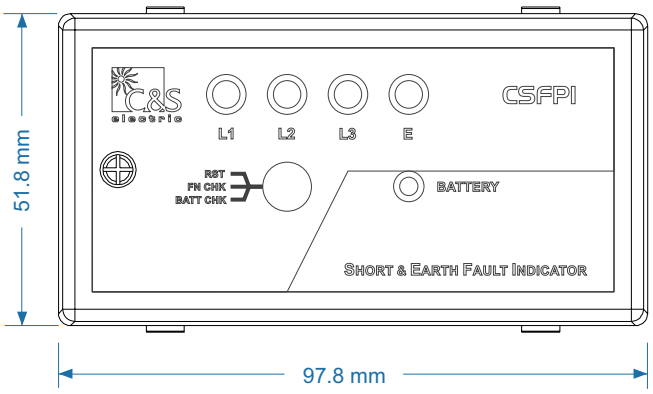
10b) Dimension Details - CSFPI variants with Aux Supply

Recommended panel sheet thickness "1mm to 1.6mm"

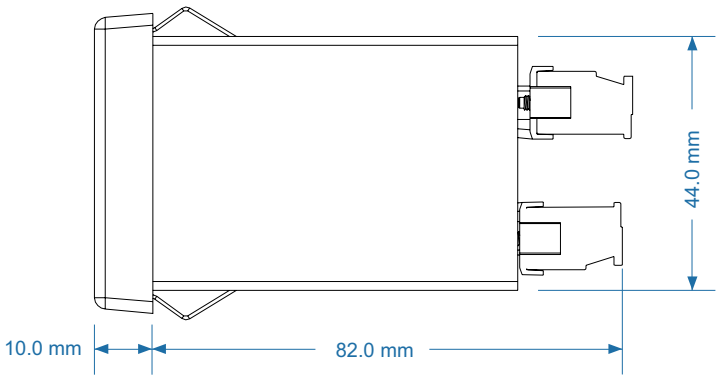
Overall Dimension	:	**WxHxD = 97.8x51.8x92 mm**
Panel cut out Dimension		
Width	:	91.0 mm
Height	:	46.0 mm
Installation Depth	:	84.0 mm

FRONT VIEW OF PHASE & EARTH FAULT INDICATOR

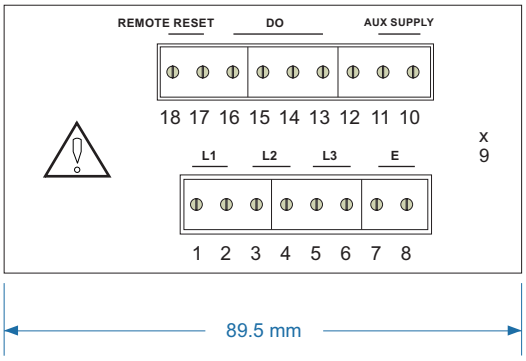
(Bezel Type - Standard, Refer ordering information)



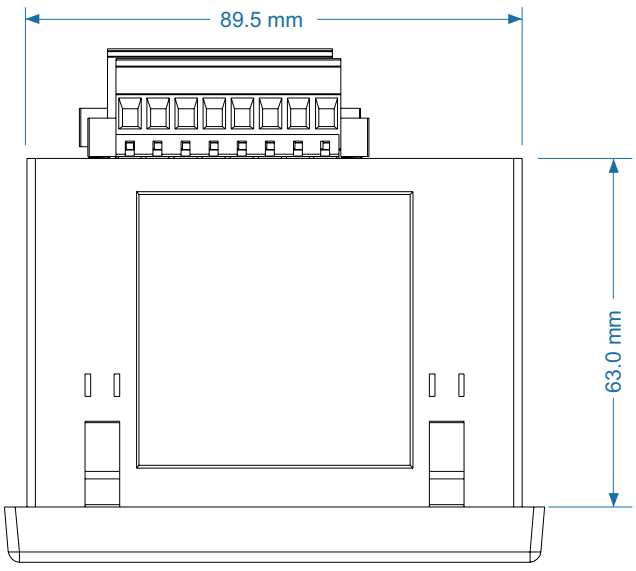
SIDE VIEW



BACK VIEW



TOP VIEW



11a) Ordering Information - CSFPI variants without Aux Supply

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 (Earth Fault)]
D : (Short ckt + Earth Fault) Indicator with 3 Digital Output [1 N/O Digital Output (Short ckt) + 1 N/O Digital Output (Earth Fault) + 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)

Model variants
- : Standard
Cx : C1 / C5 / C6 / C7 / C13 / C16

Phase Sensor
P2 : Phase Sensor Dia D2 (18-44mm) with Teflon cable of 3 Meter
P3 : Phase Sensor Dia D3 (40-60mm) with Teflon cable of 3 Meter
P2C : Phase Sensor Dia D2 (18-44mm) with PVC cable of 3 Meter
P3C : Phase Sensor Dia D3 (40-60mm) with PVC cable of 3 Meter
P2S : Phase Sensor Dia D2 (18-44mm) with Teflon having shielded cable of 3 Meter
P3S : Phase Sensor Dia D3 (40-60mm) with Teflon having shielded cable of 3 Meter
Refer Sensor details

Earth Sensor
E1 : Earth Sensor Dia D1 (80-100mm) with Teflon cable of 3 Meter
E3 : Earth Sensor Dia D3 (120-140 mm) with Teflon cable of 3 Meter
E1C : Earth Sensor Dia D1 (80-100mm) with PVC cable of 3 Meter
E3C : Earth Sensor Dia D3 (120-140mm) with PVC cable of 3 Meter
E4C : Earth Sensor Dia D4 (180-200 mm) with PVC cable of 3 Meter
E1S : Earth Sensor Dia D1 (80-100mm) with Teflon having shielded cable of 3 Meter
E3S : Earth Sensor Dia D3 (120-140 mm) with Teflon having shielded cable of 3 Meter
Refer Sensor details

All the models have internally Battery for Power.

11b) Ordering Information - CSFPI variants with Aux Supply

CSFPI - E - X - L - 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)]
G : (Short ckt + Earth Fault) Indicator with 1 N/O+1 N/C Digital Output (Short Ckt+ Earth Fault)

Model variants
Cx : C2 / C8 / C14

Phase Sensor
P2 : Phase Sensor Dia D2 (18-44mm) with Teflon cable of 3 Meter
P3 : Phase Sensor Dia D3 (40-60mm) with Teflon cable of 3 Meter
P2C : Phase Sensor Dia D2 (18-44mm) with PVC cable of 3 Meter
P3C : Phase Sensor Dia D3 (40-60mm) with PVC cable of 3 Meter
P2S : Phase Sensor Dia D2 (18-44mm) with Teflon having shielded cable of 3 Meter
P3S : Phase Sensor Dia D3 (40-60mm) with Teflon having shielded cable of 3 Meter
Refer Sensor details

Earth Sensor
E1 : Earth Sensor Dia D1 (80-100mm) with Teflon cable of 3 Meter
E3 : Earth Sensor Dia D3 (120-140 mm) with Teflon cable of 3 Meter
E1C : Earth Sensor Dia D1 (80-100mm) with PVC cable of 3 Meter
E3C : Earth Sensor Dia D3 (120-140mm) with PVC cable of 3 Meter
E4C : Earth Sensor Dia D4 (180-200 mm) with PVC cable of 3 Meter
E1S : Earth Sensor Dia D1 (80-100mm) with Teflon having shielded cable of 3 Meter
E3S : Earth Sensor Dia D3 (120-140 mm) with Teflon having shielded cable of 3 Meter
Refer Sensor details

All the models have internally Battery for Power.

Revision History

S.No.	Rev.No.	Details	Date
01	01	Aux Supply Details & C2/C8 model removed from specification table	25.05.20
02	02	Change in ordering information for Phase & Earth sensor details	04.11.20
03	03	Change in Specification table and ordering information for Phase & Earth sensor details	23.12.20
04	04	Include pages for Front interface, Conn Diagram, Specification table	24.03.21
05	05	Include CAUTION remarks for Remote Reset Signal on S.no. 5a, 5b of conn diagram & 6 of General data	14..01.22
06	06	Added Aux supply burden value in general data section of the catalog	21.02.22
07	07	Added C16 model as per customer requirement	05.05.22
08	08	Include **Front Bezel Type** option in ordering information	08.09.22
09	09	Include **Recommended panel sheet thickness "1mm to 1.6mm"** in dimension details section of the catalog	19.05.23
10	10	Change in ordering information (corrected phase sensor & earth sensors variants) from page 14 & 15	19.09.24
11	11	Corrected bezel information. Removed bezel type selection from ordering information	06.11.24
12	12	Earth sensor E3C details, included in ordering information on page 14 & page 15	03.01.25
13	13	Change in dimension details on page 12, Tol. is + 0.8, -0.0 mm instead of ± 1.0 mm.	29.07.25
14	14	Include Phase Sensor P3C details in Ordering Information on page 15.	10.02.26

NOTE

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