



EECC Smart Fault Indicator

Datasheet V1.1
WWW.EECL.SA

General description of devices

EECC-SFI, is a Smart Fault Indicator developed by EECC, widely used in various ring main unit (RMU) equipment for underground power cables. Underground fault indicator devices are essential tools used in electrical power systems to detect and locate earth faults (ground faults) and short circuit faults in underground cables. These devices help in maintaining the reliability and safety of the electrical distribution network by quickly identifying fault locations, thereby reducing downtime, and facilitating faster repair times.

EECC-SFI technology uses electromagnetic induction signal processed using an intelligent MCU. It is equipped with AC power loss indication, battery low power alarm indication; low-power design, high-capacity lithium battery power supply, long battery life (more than 5 years); external structure designed with external bracket for easier mounting.

- ▶ **Earth Fault Alarm Indication:** When an earth fault current is detected, where the zero-sequence current is higher than equal to or equal to the tripping current threshold, the display unit will indicate the event using Earth Fault LED blinking.
- ▶ **Short Circuit Fault Alarm Indication:** When a short circuit fault current is detected, the display unit will indicate the event using the corresponding Phase RED LED blinking.
- ▶ **Power Loss Alarm Indication:** When the AC supply is lost, the Fault Indicator activates a YELLOW colored blinking LED to indicate the Power Loss Alarm.





- ▶ **Low battery Alarm Indication:** When the battery voltage is low, while the AC supply is available, the Fault Indicator activates a **BLUE** colored blinking LED to indicate the Low Battery Alarm.

- ▶ **Test Mode:** If no fault is active, press the "Test/Reset" button and hold for at least 2 seconds, to check the LED indicators, and relay output.

- ▶ **Reset Mode:** If any fault is active, press the " Test/Reset " button and hold for at least 2 seconds, to clear the active faults and release the flip the relay pins.

- ▶ **Phases Current Measurements:** Phases Current Measurements reported through IEC104 Protocol.

- ▶ **Communication Standards:**
 - **WIFI:** Operates on **2.4Ghz** frequency for wireless Parameters Configuration.
 - **Network Compatibility:** GPRS/GSM, 2G, and 4G networks.
 - **Cellular Bands:**
 - GSM/EDGE:850,900,1800MHz.
 - WCDMA:B1,B2,B5,B8.
 - FDD-LTE:B1,B3,B4,B5,B7,B8,B28.
 - TDD-LTE:B40.
 - **Protocol:** Uses **IEC60870-5-104**, where the indicator serves as the **Master** and the SCADA system as the **Slave**.





► **Technical Specifications:**

Parameters	Specifications
Types of recorded Faults	<ul style="list-style-type: none"> - Earth Fault. - Double & triple phase short-circuit.
Earth Fault Detection Range	10 – 2000 A
Short Circuit Detection Range	10 – 2000 A
Current Measurement Range	1 ~ 6000 A
Current Measurement Accuracy	Calibrated: +/- 0.5% Uncalibrated: +/- 5%
Voltage Ratings	0.11-70 kV
Visual indication	– High Intensity LED
Main Power supply	<ul style="list-style-type: none"> – 100~270 VAC. – 9~14VDC (Power Supply / 20W Solar Panel).
Power Consumption	Idle: 3mA@12V / TX/RX: 20mA@12V
Battery Type	– 2 PCS 3.7V 3000mAh 18650 Size
Indication Backup Supply	> 900 hours of Indication

Resetting the fault indication options	<ul style="list-style-type: none"> – Remotely From SCADA – Timer Reset. (Configurable time). – Automatic Voltage Restoration Reset. – Automatic Transient Reset (Can be switched off). – Manual Test/Reset Button.
Trigger control	<ul style="list-style-type: none"> – Visual. – Relay output.
Connection	IEC104
Trip Current Delay	60 - 300 ms
Installation Location	At the side of switchgear, Ring Main Unit (RMU), and Substation (Distribution Transformer)
Sensors Type	– Rogowski coil 85mV/kA 50Hz.
Temperature range	Standard from –40 °C to +85 °C
Device protection degrees	IP 65 by GOST14254-2015 (IEC 60529:2013)
Impact of mechanical factors	M7 version according to GOST 17516.1 version group N2 with GOST 52931-2008