EECC Smart Fault Passage Indicator

Datasheet V1.0

WWW.EECL.SA

General description of devices

The EECC-FPI series overhead Fault Indicator system utilizes advanced sensor technology to monitor current signals (<70kV) on power lines through CTs (Current Transformers). A smart MCU processes these signals by calculating, analyzing, and identifying short circuits or earth faults.
When a fault is detected, the Fault Indicator alerts maintenance personnel by blinking different LED lights. Additionally, it communicates the fault status to the SCADA system or sends SMS notifications to registered mobile numbers. This system is highly beneficial for power management users, enabling them to quickly locate and diagnose faults, resolve issues efficiently, and restore power promptly.

- **Fault Type Identification**:

- Accurately identifies faults and sends fault details via **SMS** and **GIS mapping**, helping maintenance teams quickly locate and address issues.

- **Reset Functions**:

- **Automatic Reset:** System resets automatically when voltage and current return to normal.
- **Timing Interval:** Resets after a defined time interval.
- **SMS Alarms:** Fault Status Report via SMS.
- **SMS Configuration:** Configurable fault detection settings via SMS.
- **Direct TCP/IP Communication:** Direct IEC104 Connection with SCADA systems.
- **Remote Reset via Android App:** Allows remote reset using a mobile app.
- **Remote Reset via SCADA:** Integrates remote reset functionality with the SCADA system.

- **Power Management System**:

- **Battery**: Powered by two **3.7V, 1200mAh rechargeable batteries** (total 2400mAh).
- **Solar Panels**: Four **5V solar panels** (300mAh total) for continuous battery charging.
- **CT-Recharge**: Additional power recharge through a **current transformer (CT)**.

- **Energy-Saving Features**:

- **Bluetooth & 4G Module Activation**: Energy-saving mechanism using a **magnet** to control Bluetooth and 4G module activation. These modules turn on when grid power is detected.

- **Communication Standards**:

- **Network Compatibility**: Works with **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.
- **Bluetooth Communication**: Operates on **2.4G frequency** for wireless communication.
- **Protocol**: Uses **IEC60870-5-104** protocol, with the fault indicator as **Master** and SCADA as **Slave**.

- **Short Message Service (SMS)**:

- **SMS Operator Registration**: Register up to **10 mobile numbers** for receiving system updates and control.
- **Heartbeat Message**: Periodic SMS to ensure the system is operational.
- **Fault Notification**: Sends an SMS alert when a fault occurs, enabling quick response.
- **AT Commands**: Allows operators to send commands via SMS for **configuration**, **testing**, or **resetting** the device remotely.

Technical Specifications:

Category	Specifications
Products name	Smart OHL Fault indicator integrated with communication Module
Model	EECC-SFPI
Installation	1)outdoor installation 2)Naked/skinned conductor.
Conductor cable diameter	10mm up to 27mm
Operation voltage	<70KV
Operation frequency	50HZ/60hz
FPI Dimension	Length:200xwidth:92mm
FPI Weight	<1kg
Indicator group	3pcs as a group. No.1 work as Master, install with Static IP SIM card No.2, No.3 work as Slave.
SIM card size	Standard size
Communication model Frequency Bands	LTE-FDD B1/B2/B3/B4/B5/B7/B8/B28/B66 GSM/GPRS/EDGE 850/900/1800/1900MHz
Max.measure current	1500A
Effective measure current	Min. 1A, Max.1000A
Min load requirement	Zero load
Trip current setting	1-1000A configurable, step 1A
Short circuit fault current delta setting	1-1000A configurable, step 1A
Grounding fault current increment delta setting	1-1000A configurable, step 1A
Response (delay) time	40-60----1000ms, configurable, step 20ms
Re-closing time (Breaker waiting time)	1s to 900s, configurable, step 1seconds
Indicate fault method	Led blinking indicates fault. Blinking interval 2seconds: two blinking --2seconds--two blinking. * permanent short circuit fault: A Ultra_light of Red color led blinking *Transient short circuit fault: A ultra_light of Red color led Blinking+ A green color led blinking * Earth fault: A ultra_light,red color Led blinking + A blue color Led blinking * 360° visibility, distance >1000m in day time. >100m in night time
Faults detection types	Phase to phase
	Phase to ground
Reset time	1 min 2880 min (1min to 48hr), configurable, step 1minutes
Reset	1) voltage and current restore, Automatic reset

	2) Timing interval, Automatic reset 3) Remote reset via Android App 4)Remote Reset via SCADA
power supply	1) Design with 3.7V, 1200mAh, 16500/17500 rechargeable battery,2pcs, total:2400mAh. 2) Design with 4pcs , 5V, total 75x4=300mAh solar panel to charge the batteries, make sure the battery can supply uninterrupted power. 3) Design with a CT-recharge resource for FPI at same time.
Smart to Turn on/Off of the indicator battery supply	It can use a magnet to turn on or turn off the Bluetooth and 4G module. It can save energy consumption in warehouses and delivery. When the indicator measures the grid line power on, then it will be directly turned on the Bluetooth and 4G module.
Network communication	GPRS/GSM,2G/4G network
Radio Communication	2.4G, Bluetooth
Protocol	IEC60870-5-104. Indicator as a Master, SACAD Side as a Slave.
SMS function	*Max. 10 phone number registered *Periodically transmit an SMS “heartbeat” * Transmit indicating message when fault create
Android App	Available, 2.4G Bluetooth
Current withstands	25KV/160ms
Battery life	>10years
Indicating time	>1500 hours
Working temperature	-10 °C to +75°C
Protection grade	IP68
STANDARDS/TESTS	01-SDMS-01 / 38-SDMS-05 IEEE 495 IEC 60068-2-11 IEC 61000-4-2 IEC 61000-6-2 IEC 62689 IEC 60870-5 IEC 61850