EECC Smart Earth Fault Indicator

Datasheet V1.0

WWW.EECL.SA

General description of devices

The EECC-EFI is an Earth Fault Indicator widely utilized in various ring main unit (RMU) equipment. These underground fault indicator devices play a crucial role in electrical power systems by detecting and pinpointing earth (ground) faults in underground cables. By a sharp identification of trip current faults, it enhances the reliability and safety of electrical distribution networks, minimize blackouts, and enable faster repairs.
The EECC-EFI employs electromagnetic induction technology processed through a high-performance MCU. It features AC power loss indication, a low-battery power alarm, and a low-power design supported by a high- capacity lithium battery, ensuring a long service life of over 10 years. Its external structure includes a specially designed bracket for easy installation and mounting.

- **Earth Fault Alarm Indication:**

  The device triggers a RED LED blinking when an earth fault is detected, indicating that the ground current is higher than or equal to the set tripping current threshold.

- **Low Voltage Battery Indication:**

  Battery status can be checked by pressing the Test/Reset button for 5 seconds, which will cause a BLUE LED blinking to indicate low battery status.

- **Power Loss Indication:**

  When the AC supply is lost, the EFI activates a YELLOW LED blinking to indicate the Power Loss Alarm.

- **Automatic Time Fault Reset:**

  After an earth fault occurs, the EFI automatically resets the alarm after a settable period if the fault is no longer active, helping to reset the system without manual intervention.

- **Automatic Power Restoration Fault Reset:**

  After an earth fault occurs causing the power supply to be lost, the EFI automatically resets the alarm after the power supply has been restored, helping to reset the system without manual intervention.

- **Automatic Reset Upon Transients:**

  In Automatic mode, the EFI performs automatic transient fault rest within 10s by observing the availability of AC power supply.

- **Manual Reset:**

  The earth fault indication can be manually reset by pressing the Test/Reset button once, allowing for easy reset after the fault has been cleared.

- **Remote Control Features:**

  The EECC-EFI Earth Fault Indicator allows for manual fault test/reset and battery status check remotely by connecting the EFI DI/DO signal ports to a remote-control system or SCADA Monitor.

- **Long Battery Life:**

  The device is equipped with a high-capacity lithium battery that provides more than 10 years of battery life, offering long-term reliability and reducing the need for frequent maintenance.

- **Low Power Design:**

  The EECC-EFI is designed with low-power consumption, ensuring efficient use of energy over time, especially in remote or hard-to-reach installations.

- **External Mounting Bracket:**

  The device's external structure is designed with a bracket for easier and more flexible mounting in various setups.

Smart Communication:

- **LAN and WAN Connectivity**: The device supports both **wired LAN** (via Ethernet port) and **wireless LAN** (using Static-IP SIM cards with private APN), allowing remote monitoring and control.
- **SMS Communication**: Enables remote management via SMS, where operators can send commands (configure, test, reset) and receive updates, enhancing fault management flexibility.

Power Management:

- **Low Power Design**: The device uses a high-capacity lithium battery, providing over **10 years** of life with **maintenance-free backup power** technology.

Solar Power Option:

- **Solar Power Kit (EECC-SLR-KIT)**: For locations without auxiliary power (e.g., RMU units without transformers), the solar power kit ensures continuous operation by providing reliable energy

Technical Specifications

Voltage Range		**AC110V-40.5KV**	**Battery life**		**≥10 year**
Frequency		**50Hz/60Hz**	**Low Voltage Alarm of Battery**		**≤2.9V**
Earth Fault Alarm Current		**10-25-50-75-100-125-250A.**	**Earth Fault Sensor Cable Length**		**5m, 10m, 15m.**
Alarm current accuracy		**±10%**	**Response Time**	**Earth Fault**	**20-40-60-80-100 ms.**
Rated Frequency withstand Voltage		**2KV/1min**			
Reset Time		**1-2-4-8-12H**	**Work Environment**	**Temperature**	**-40℃~ +75℃**
				Humidity	**≤95%RH**
Backup Supply Technology		**Super Capacitors**	**Ratings**		**2*2.7V82F**
Battery Type	**ER14505**	**(LiSOCl2) 3.6V/2700mAh**	**Earth Fault Sensor (Cable, Diameter)**		**CT100 (Special Order)**
Power Consumption	**Standby**	**≤300mA@5V**			**CT150 Standard**
	Working	**≤700mA@5V**			
Protection Level	**Display Unit**	**IP 65**			**CT300 (Special Order)**
	Sensor CT	**IP 67**			

CT Over Current Protection	**800A Over Current Threshold Protection**		
CT Encapsulation	Taking A, B epoxy resin sealing with durable, chemically inert, UV	CT Belt Material	**Stainless steel SS430.**
Indication Visibility Distance	Night: 80 m Day: 10 m	Voltage Surge Protection	**Opto-Coupler isolation between Display Unit and CT for 45KV**
CT Voltage	**45KV Max.**		