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SICAM FPI

Fault Passage Indicator – the guardian for your underground cable network

www.siemens.com/distributionautomation

Description

The efficient operation of modern distribution grids requires quick fault detection, message packing and provision for further processing.

The SICAM Fault Passage Indicator (FPI) is one component for that.

The FPI is used for phase fault detection and indication and for detection of earth faults in radial or open ring medium-voltage cable networks.

4 external current sensors detect phase faults (L1, L2, L3) and earth faults (E).

The current sensors detect phase fault and earth fault currents based on the set current threshold detection, and communicate them to SICAM FPI via an optical signal. The rotary switch on each sensor is used to set the fault current threshold for phase sensors from 200 A to 1200 A (Type 1), 200 A to 800 A (Type 2) and for earth sensors from 10 A to 100 A (Type 1), 40 A to 300 A (Type 2).

If the current exceeds the set threshold level, the current sensor will send an input to SICAM FPI via plastic fiber-optic cable. In this condition, the corresponding LEDs are flashing and the binary contacts are picking up.

In normal operating conditions, there is no LED indication.

Benefits

- Self sustained; continues functioning using internal lithium battery even after the main incomer feeder has tripped
- Safe, complies with the IEC 61010-1 safety standards
- Simple setting via DIP switch
- Configurable binary outputs, for remote indication to SCADA for faults/diagnostics via RTU
- Enhanced diagnostics functions, supporting self and sensor cable diagnostics
- Local indication, 3 red LEDs for phase fault, 1 red LED for earth fault, 1 yellow LED for battery health condition
- Binary outputs can be individually configured for phase and ground faults
- Several reset functions, auto reset (via time stages), remote reset via binary input or external front button
- User configurable momentary fault override function
- Extended battery life with enhanced power management enabling more than 2,000 hours of operation under fault conditions (flashing)
- IP 67-conforming, self sustained sensors
- Isolated, plastic fiber-optic connections between sensors and SICAM FPI are noise immune



Self-sufficient and safe

Device characteristic

Application

Medium-voltage cable distribution systems up to 36 kV, 50 Hz/60 Hz

Signalization

Fault indication via LEDs

- 3 red LEDs – phase fault
- 1 red LED – earth fault
- 1 yellow LED – Run: battery health condition

Inputs / outputs, measuring ranges

- Current sensor inputs: Phase current (L1, L2, L3) and earth current (E) via a plastic fiber-optic cable
- 2 binary inputs: 1x AC 230 V reset input, 1x remote reset input from dry contact
- 2 binary outputs, potential-free (max. switching voltage: AC 250 V / DC 220 V)
- 1 binary output for external LED flashing light
- Phase fault current pickup values
 - Type 1: AC 200/400/500/600/800/1000/1200 A
 - Type 2: AC 200/300/400/500/600/700/800 A

- Earth fault current Pickup values
 - Type 1: AC 10/20/30/40/60/80/100 A
 - Type 2: AC 40/80/120/160/200/260/300 A
- Accuracy
 - Type 1: < 10% of selected range
 - Type 2: < 15% of selected range

Auxiliary voltage

- Battery for 2,000 hours, service life of 10 years min

Temperature range

- From -30 °C to +70 °C

Housing

- Polycarbonate, for panel flush mounting
- Dimensions: 96 x 48 x 45 mm (W x H x D)
- Protection class: Front IP50, rear IP20, sensors IP67



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For all products using security features of OpenSSL, the following shall apply:

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (www.openssl.org) and cryptographic software written by Eric Young (eay@cryptsoft.com).