



ENERGY AUTOMATION PRODUCTS

SICAM FCM **plus**

Scale transparency in distribution system with precision and quality

siemens.com/sicam-fcm

The key to continuous improving of power supply is an in-depth knowledge of the relevant conditions of the local power supply network. This is supported by IEDs which ensure unprecedented transparency. Siemens offers a complete portfolio for network monitoring, power quality recording, fault recording, phasor measurement and system software application for this requirement.

SICAM FCM plus

SICAM FCM plus (Feeder Condition Monitor) is a multifunctional short-circuit and ground-fault indicator which uses low-power sensors technology in accordance with IEC/EN 61869 to indicate the direction of fault. SICAM FCM plus offers additional features to provide up-to-date measured values via the integrated MODBUS RTU interface ensuring precise evaluation of the distribution system.

SICAM FCM plus is applicable for medium voltage distribution systems up-to 36kV voltage level. The device is suitable for resonant/compensated, isolated and solidly grounded neutral point systems. SICAM FCM plus is designed to use integrated Rogowski current sensor and capacitive divider voltage inputs in line with the IEC 61869-10 and IEC 61869-11 standard.

With the adaptive integrated temperature compensation algorithm which enables high-precision measurement without calibration and adjustment to the primary variables.

Take advantage of these benefits

- Easy installation and plug-in interface on RJ45 connectors - reverse polarity protected for connection to SiBushing sensors
- Reduced cost of installation, faster to troubleshoot and easy maintenance
- Suitable for grounded, isolated, and compensated networks
- Integrated load flow direction indicator
- Cost savings, thanks to precise and fast fault localization
- Selective fault information with direction indication used as a basis for „self-healing“ applications
- Service restoration times in the range of minutes or seconds
- Up-to-date measured values for operational management
- Self-test mode function for remote communication connection
- Maintenance free – no battery, fault status indication buffered by super capacitor

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Device characteristics

Salient features

- Front USB powered device, to configure and firmware update
- Current acquisition based on Rogowski sensor inputs
- Auto adaption of correction factors (CF) using JSON file
- Wide measurement range with accuracy of 0.5 % class
- Minimum 8 hours of fault status indication by super capacitor during auxiliary supply failure

Detection Features

- Directional and non-directional phase fault and earth fault detection (ANSI 67/67N)
- Multi-stage phase fault (ANSI 50/51) and earth fault (ANSI 50N/51N) detection
- Ground-fault detection methods supported are: Vector, Cos phi and Sin phi, Pulse location, Intermittent and directional transient methods
- Inrush detection and blocking (ANSI 81HBL2)
- Open-phase detection (ANSI 46BC)
- Multi-stage under/over-voltage and over current alerts
- Supports two setting groups

Archiving and logging

- Fault information - 50 faults are stored as event logs
- Trailing pointers function for measured values of current, voltage and power - I_{min}/I_{max} , V_{min}/V_{max} and P_{min}/P_{max} for 15/30/45min/1h/1d/30d/1Y
- Self-monitoring and supervision - watchdog functionality to indicate device health status

Auxiliary voltage

- Power supply range: AC 230 V, DC 24 V to 250 V

Analog inputs

- 3 x RJ45 interfaces for current and voltage inputs directly from the Siemens SIBushing sensors in accordance with IEC 61869
- Measured variables - RMS measured values of phase voltages and currents, power system frequency and cos phi phase angle
- Power meters - active, reactive, and apparent power
- Energy meters - Active and reactive energy, import and export

User interface and display

- Display for visualization of measured values, derived values, event fault log and fault screen
- 4 function keys for HMI navigation, information, and configuration
- 3 LEDs to indicate the operating mode – Fault, Com, and Run

Binary inputs/outputs (user configurable)

- 6 binary inputs
- 4 binary outputs

Device communication and protocol

- Serial interface on RS485 - Modbus RTU for data communication and remote configuration
- Supports device configurator tool for configuration/parameterization and firmware upload via front USB and rear RS485 port

Time synchronization

- Supported via Modbus RTU

Operating environment

- Temperature range: -40 °C to +70 °C
- Altitude: maximum 2000 m above sea level

Housing

- Polycarbonate casing, suitable for panel flush mounting
- Dimensions: 96 mm x 48 mm x 112.6 mm (W / H / D)
- Protection class: Front IP40, rear IP20