

SIEMENS

Ingenuity for life

SICAM FCM

Feeder Condition Monitor –
Digital short circuit indicator with measuring
function for medium voltage switchgears

Medium voltage

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SICAM FCM – The Finger on the Pulse of your Medium Voltage Distribution System

The key to continuous improvement in the power supply is accurate knowledge about the relevant circumstances of the local energy supply system.

Functionality

The SICAM FCM (Feeder Condition Monitor) is a phase-fault and ground-fault indicator with directional indication that operates with protection algorithms and low-power current transformer technology as per IEC 60044-8/ IEC 61869-10 or the conventional 1 A/5 A instrument transformers.

As an alternative, the SICAM FCM can also be connected using a capacitive voltage tap, thus effecting economical directional fault detection in the cable network.

The SICAM FCM additionally offers the possibility of providing up-to-date measured values via the integrated Modbus RTU interface, thus ensuring a precise assessment of the distribution system.

- For grounded, isolated and resonant-grounded systems
- Integrated power-flow direction indicators
- Directional short-circuit and ground-fault detection
- Direct voltage measurement in low-voltage power systems
- Link to capacitive voltage-detecting systems
- Flexible ground-fault detection starting from 0.4 A



SICAM FCM with medium voltage sensors

Customer Benefit

- Cost savings due to precise and fast localization
- Selective fault information with directional indication as a basis for "self-healing" applications
- Resupply times in a minute or second range (depending on primary equipment) allow minimum power-system outages and minimum ultimate consumer payment losses
- Up-to-date measured values for operation and planning support the focused use of investment funds in power-system planning and expansion
- High-quality measurement technology with a high measuring accuracy in connection with low-power current transformers – no calibration or adaptation to primary values required
- Use of inexpensive wide-range low-power current transformers
- Telecontrol parameterization via SICAM A8000 and Modbus

Medium voltage use

Communication

- RS485 interface including Modbus RTU communication for all information and for remote parameterization/firmware updates, PC programming as an alternative

Signalization

- Display for presenting up-to-date measured values or fault information in the power distribution system, 4 function keys
- 3 LEDs for the operating state
- 2 binary outputs

Measured Quantities

- RMS measured values; accuracy class 0.5
- Phase-to-ground voltages and currents, ground current, power frequency and $\cos \varphi$, phase angle, active power, reactive power, and apparent power
- Energy meter
- Trailing pointer

Inputs

- 3 inputs for alternating voltage selectively adjustable for $100 \text{ V}/\sqrt{3}$, low-power sensors with $3.25 \text{ V}/\sqrt{3}$ (as per IEC 60044-7) or 3 direct inputs for AC 230 V
- Alternatively: 3 inputs for linking to LRM voltage-detecting systems (as per IEC 61243-5)
- 3 inputs for low-power current transformers with 225 mV at rated current (as per IEC 60044-8/61869-10), the rated primary current is adjustable in the SICAM FCM device from 50 A to 2500 A; L2 current input can be configured for sensitive ground-fault detection using low-power current transformers with

225 mV at rated current (as per IEC 60044-8/61869-10), the rated primary current is adjustable in the SICAM FCM device

- Alternatively: inputs for conventional instrument transformers 1 A/5 A via adaptors
- 1 binary input

Temperature Range

- From -40°C to $+70^\circ\text{C}$

Auxiliary Voltage

- DC 24 to 250 V, AC 230 V
- Battery with lifetime > 15 years

Housing

- Polycarbonate housing for panel flush mounting
- Dimensions: 96 x 48 x 109,5 mm (W/H/D)
- Protection class: front panel IP40, rear panel IP20

Low-Power Current Transformers for Medium Voltage

- Phase-current sensor, 225 mV@300 A, 225 mV@700 A, accuracy class 0.5, split core, narrow type of construction
- Core balance current sensor, 225 mV@60 A, accuracy class 1, split core, narrow type of construction
- Voltage sensor, 10 kV, $10 \text{ kV}/\sqrt{3} : 3.25/\sqrt{3}$, for symmetrical and asymmetrical T plugs, accuracy class 1
- Voltage sensor, 20 kV, $20 \text{ kV}/\sqrt{3} : 3.25/\sqrt{3}$, for symmetrical and asymmetrical T plugs, accuracy class 1



Siemens AG
Smart Infrastructure
Digital Grid
Humboldtstraße 59, 90459 Nuremberg, Germany

For the U.S. published by Siemens Industry Inc.
100 Technology Drive Alpharetta, GA 30005
United States

Customer Support: <http://www.siemens.com/csc>
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SICAM_FCM_MV_Profile.docx

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