



## ENERGY AUTOMATION PRODUCTS

# SICAM FSI V2.0 – Keep an eye on your medium-voltage overhead line grids

[siemens.com/sicam-fsi](http://siemens.com/sicam-fsi)

**Optimize your overhead line monitoring with SICAM FSI (Fault Sensor Indicator) from Siemens.**

**SICAM FSI localizes, and signals short-circuits and earth faults in your medium-voltage overhead line grid – reliably, of course!**

SICAM FSI V2.0 family consists of the following variants and ordering codes:

### Non-Communicable (local LED)

- B-Sensor (Basic) – Offers visual LED indications.
  - SICAM FSI V2.0 B-Sensor Type 1: 6MD2314-2BB20  
Indication visibility: 100 m day, 500 m night
  - SICAM FSI V2.0 B-Sensor Type 2: 6MD2314-2BC30  
Indication visibility: 400 m day, 800 m night

### Communicable (local LED and communication)

- C-Sensor (Communicable) – Offers integrated short range radio communication in addition to the LED indication.
  - SICAM FSI V2.0 C-Sensor Type 1: 6MD2314-2CC21  
Indication visibility: 100 m day, 500 m night, short range radio
  - SICAM FSI V2.0 C-Sensor Type 2: 6MD2314-2CC31  
Indication visibility: 400 m day, 800 m night, short range radio

- D-Sensor (Directional) – Directional fault indication and conductor temperature measurement capabilities built upon C-Sensor features.

- SICAM FSI V2.0 D-Sensor: 6MD2314-2DC31  
Directional fault, conductor temperature measurement, indication visibility: 400 m day, 800 m night, short range radio

- M-Sensor (Master) – Encompasses all communicable sensor features as above and serves as a gateway. It gathers data from communicable sensors in the location and transmits to the control center or cloud using an inbuilt cellular interface that supports LTE and 2G fallback.

- SICAM FSI V2.0 M-Sensor Type 1: 6MD2314-2MC21  
Indication visibility: 100 m day, 500 m night, short range radio, LTE radio, gateway function.

Used with SICAM FSI V2.0 C-Sensor Type 1

- SICAM FSI V2.0 M-Sensor Type 2: 6MD2314-2MC31  
Directional fault, conductor temperature measurement, indication visibility: 400 m day, 800 m night, short range radio, LTE radio, gateway function.

Used with SICAM FSI V2.0 C-Sensor Type 2 and SICAM FSI V2.0 D-Sensor

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## Benefits

- Higher availability and reduced downtime – With various features in FSI V2.0; fast localization of fault (with direction option), unbalance detection and identification of hotspots
- Ease of Installation - Mount and walk away solution. Line mounted using hot stick  
Line mounted Gateway (M sensor) with Inbuilt LTE Cat1 interface for communicable fault indicator offering
- Ease of Use – With single switch activation and auto threshold function, it takes not more than 5 min from unboxing to be ready for installation / service
- Suitable for outdoor application – Robust design with IP68 rated and UV stabilized housing. Conformal coating of electronic modules increases protection against harmful environmental influences
- Reliable detection of faults from 10 A for resistive grids and last mile installations
- Easy configuration – USB based configurations for all variants. Remote OTA configuration for communicable
- Remote asset management, diagnostics, firmware and configuration updates using SICAM FSI Manager
- Fault Simulation mode to simulate and verify end to end fault indication healthiness, from LED indication to communication sequence
- Maintenance free design – 10 years of battery life with 1500 hours of flashing
- Long Visibility – Effective fault localization with enhanced LED indication visibility up to 400 m day and 800 m night (distance)
- Substantial short-term current withstands of 40 kA RMS for 1s

## Application Area

- Detects the phase fault and ground fault in medium voltage overhead line grids from 6.6 kV to 69 kV
- Suitable for application on solidly grounded or resistive star point grounded systems
- Suitable for power grids operating at 50 Hz or 60 Hz
- Supports installation on both insulated and bare conductors
- Fault detection based on configured settings of Trip threshold and di/dt
- Settable time delays for inrush conditions or auto reclose sequences to avoid wrong indications
- Local LED annunciation application as well as remote communication application
- Compliant with IEC 62689-1 standard

## Fault Detection

- Trip threshold setting range 10 A to 1500 A  
10 A to 100 A (steps of 10 A)  
100 A to 300 A (steps of 25 A)  
300 A to 800 A (steps of 50 A)  
800 A to 1500 A (steps of 100 A)
- Auto threshold Feature – Self-adjustment of trip threshold based on phase current
- Directional Fault Feature (D-Sensor) – Forward fault with RED LED and reverse fault with GREEN LED
- $\Delta I$  trigger setting 5 A to 160 A –  $dI/dt$  setting is user configurable in steps of 5 A up to 80 A, 120 A, 160 A
- Presence/absence of voltage detection for permanent fault confirmation
- Inrush and Auto Reclose Restraint function

## Communication (Communicable)

- MQTT (JSON), IEC104 & DNP3.0  
(Via SICAM FSI Manager)

## Configuration

- Local Configuration: SICAM FSI V2.0 can be parameterized using "SDA Configurator" software
- Remote configuration: For communicable variants, configuration and asset management are possible with SICAM FSI Manager

## Reset mechanisms

User configurable mechanisms:

- Manual Reset: Using a magnet
- Automatic Reset: Upon system voltage restoration
- Time-Based Reset: User-configurable time period
- SCADA Command Reset: Through M-Sensor via FSI Manager for communicable variants

## Power Source

- B-Sensor: Lithium Thionyl Chloride batteries (3.6V)
- C-Sensor, D-Sensor, M-Sensor: Energy harvesting with rechargeable Lithium batteries (4.1V)
- Battery service life - Approximately 10 years

## Environment Condition

- Operating temperature: -40 °C to +75 °C
- Maximum altitude: 5000 m
- Wind speed withstand up to 200 km/h
- Rainfall withstands: Avg rainfall 3500 mm
- Exposure to solar radiation: 1000 W/m<sup>2</sup>

## Housing

- Polycarbonate, UV-resistant, Protection class: IP68 IK09

## Mounting

SICAM FSI is clamped onto the overhead line using hot stick

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