

**SIEMENS**



Feeder Condition Monitoring

# SICAM FCM

Keeping your finger on the pulse of your distribution network

# Feeder Condition Monitoring: SICAM FCM tracks it all down ...

## Short circuits and ground faults

*Aimed at detecting*

- Fast fault localization
- High availability

## Network condition monitoring

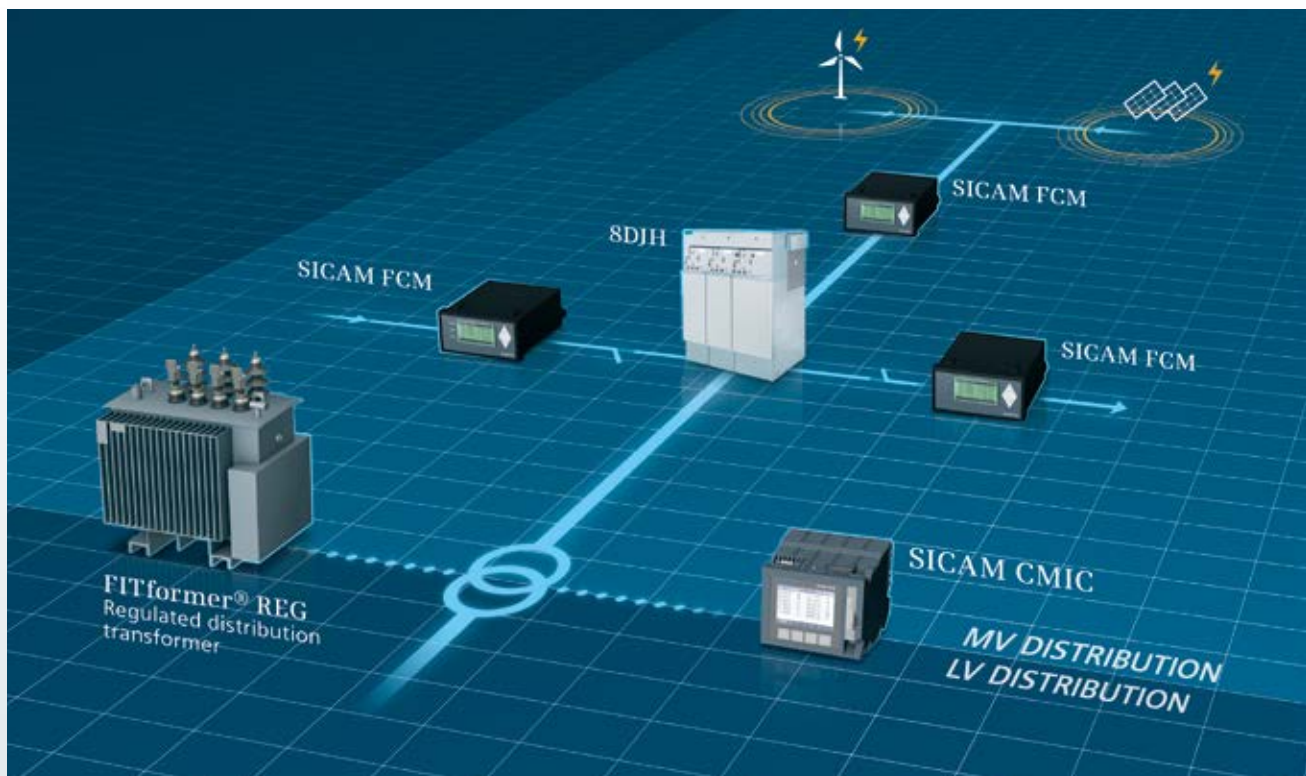
*Voltage, current, active/reactive/apparent power, power factor, frequency*

- Early detection of overload situations
- Safe operation

## Load flow monitoring

*Maximum, minimum and mean values every 15 minutes*

- Load curves for planning network expansion
- Optimum investment planning



# All facts at a glance: SICAM FCM is always the right choice ...

## Unit in the distribution station

A look at different distribution stations makes it clear: The number of short circuit indicators and transformers reflects the diversity of distribution stations in terms of power, station size and cable feed. SICAM FCM, with low-power sensors according to IEC 60044\*, has everything under control. This device is the right choice for any

station. It covers all switchgear types up to 1,250 A as well as grounded, isolated and compensated distribution systems. Thanks to the low-power sensors and high quality measuring technology, the device delivers reliable values with 99 percent accuracy – a true power meter.

### Technical data



- ① LC display
- ② 4 function keys
- ③ 3 status LEDs

Controls and displays	<ul style="list-style-type: none"> <li>● LC display with 4 function keys for operation</li> <li>● Fault (field faults), Run and Status LED for communication</li> </ul>
Supply voltage	<ul style="list-style-type: none"> <li>● DC 24–60 V / AC 230 V, battery for 2,000 hours</li> <li>● Battery life approx. 20 years</li> </ul>
Protection class	<ul style="list-style-type: none"> <li>● IP20</li> </ul>
Ambient temperature	<ul style="list-style-type: none"> <li>● –30 to +70 °C</li> </ul>
Housing, dimensions, installation and connections	<ul style="list-style-type: none"> <li>● Plastic, 96 x 48 x 119.5 mm (W/H/D), snaps into cutout, screw and spring-loaded terminals</li> </ul>
Interface and protocol	<ul style="list-style-type: none"> <li>● 1 x RS485, Modbus RTU</li> </ul>
Measurands	<ul style="list-style-type: none"> <li>● TRMS (True RMS) measurands</li> <li>● Phase voltages and currents, ground fault current, line frequency and <math>\cos \varphi</math>, active power, reactive power and apparent power</li> <li>● Minimum and maximum values every 15 minutes for all phase currents and as a drag pointer function</li> </ul>
Inputs and outputs	<ul style="list-style-type: none"> <li>● 3 inputs for AC voltage can be set for <math>100\text{ V} / \sqrt{3}</math> or low-power sensors with <math>3.25\text{ V} / \sqrt{3}</math> (according to IEC 60044-7)</li> <li>● 3 inputs for AC current, low-power sensors with 225 mV @ 300 A (according to IEC 60044-8)</li> <li>● Alternative: L2 power input configured for sensitive ground fault detection with low-power sensor with 225 mV @ 60 A (according to IEC 60044-8)</li> <li>● 2 output relays for the fault direction (forward / backward)</li> <li>● 1 digital input for resetting the fault status</li> </ul>

\* IEC 61869-10 New Proposal



# ... to connect any process



High measurement accuracy for switchgear types up to 1,250 A



Resistive voltage dividers facilitate precise and linear measurements



Can also be used to connect 1 A transformers in existing systems

Order combinations	MLFB number	Devices for use ...			
		... with existing sensors	... in grounded networks	... in isolated / compensated networks	... with conventional transformers (1 A)
<b>SICAM FCM</b> Directional short circuit / ground-fault indicator, including monitoring	6MD2320-1AA00-1AA0	1 x	1 x	1 x	1 x
<b>Sensor for phase current</b> Low-power sensor 225 mV @ 300 A, IEC 60044-8 Split core transformer, 55 mm inner diameter	6MD2320-0GA00-1AA0		3 x	2 x	
<b>Sensitive core balance sensor</b> Sensitive low-power sensor 225 mV @ 60 A, IEC 60044-8 Split core transformer, 110 mm inner diameter	6MD2320-0AF00-1AA0			1 x	
<b>1 A adapter</b> Transformer for 3 inputs (1 A) in low-power signal	6MD2320-0AA10-1AA0				1 x
<b>Voltage sensor, 12 kV</b> 10 kV / $\sqrt{3}$ → 3.25 V / $\sqrt{3}$ , IEC 60044-7 for T connector with C cone	6MD2320-0AA04-1AA0		3 x*	3 x	
<b>Voltage sensor, 24 kV</b> 20 kV / $\sqrt{3}$ → 3.25 V / $\sqrt{3}$ , IEC 60044-7 for T connector with C cone	6MD2320-0AA07-1AA0		3 x*	3 x	

\* Optional for measuring function



# ... innovative and highly accurate

- Reliable measurands
- High-quality measuring technology

99% accuracy

- Flexible applications
- IEC 60044-7/-8

Standardized sensors  
*for current and voltage*

- Efficient installation and startup

No adjustment to primary variables

## First for sensors

SICAM FCM leads the way with a good example. It's the first short circuit indicator to use standardized sensors for measuring current and voltage according to IEC 60044-7/-8. And the results are excellent: This approach delivers a highly accurate measurement without calibration or adjustment to the primary variables.



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Siemens AG  
Energy Management  
Humboldtstr. 59  
90459 Nuremberg  
Germany  
[www.siemens.com/distributionautomation](http://www.siemens.com/distributionautomation)

For more information,  
please contact our  
Customer Support Center.  
Phone: +49 180 524 84 37  
Fax: +49 180 524 24 71  
(Charges depending on the provider)  
E-mail: [support.energy@siemens.com](mailto:support.energy@siemens.com)

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