SIEMENS

SENTRON circuit protection devices with measuring and communication function

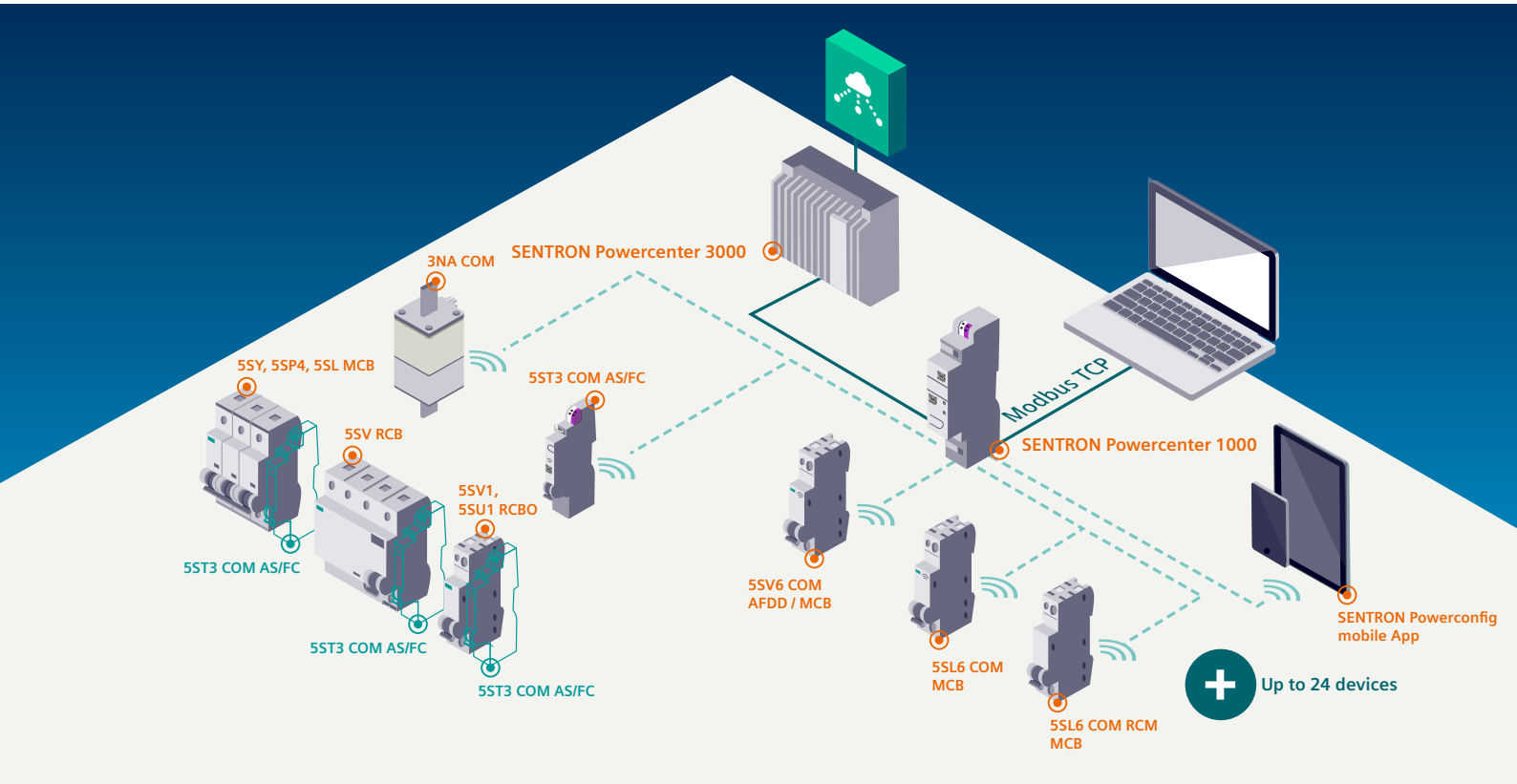
A reliable choice. Now even smarter.

Protecting and monitoring branch circuits

Circuit protection devices such as miniature circuit breakers or arc fault detection devices are used close to the consumer in branch circuits. In case of overload, short circuit or arcing faults, they disconnect the affected circuit from the network. Measuring and communication capable 5SL6 COM (RCM = residual current monitoring) miniature circuit breakers and 5SV6 COM AFDD/MCBs collect information on the switching status and faults in the circuit. With the 5ST3 COM auxiliary switches and fault signal contacts, standard 5SY, 5SP4 and 5SL miniature circuit breakers as well as 5SV3 and 5SU1/5SV1 residual current operated circuit breakers (RCBOs) can be expanded with little effort and small space requirement with measurement and communication functions. Communication capable devices can be connected wirelessly to the SENTRON Powercenter 1000 data transceiver. This collects the measured values and transmits them for visualization and evaluation to mobile devices, PCs or higher-level IoT interfaces, making them available for cloud applications. Transparency and system safety are enhanced.

Bundling and forwarding measured values

SENTRON Powercenter 1000 data transceivers collect the data for communication and measurement capable 5SL6 COM (RCM) miniature circuit breakers, 5SV6 COM AFDD/MCBs, 5ST3 COM auxiliary switches and fault signal contacts. They communicate wirelessly within a power distribution board or distribution board, each with up to 24 circuit protection devices. The measured values are saved for a period of up to 30 days in the SENTRON Powercenter 1000. The data can be accessed via Bluetooth with mobile devices on-site or transmitted to higher-level systems by means of Modbus TCP. With the SENTRON Powermanager power monitoring system, energy flows, for example, can be visualized and optimized. Via the IoT data platform SENTRON Powercenter 3000, the detected data can be directly transmitted to a web server or also to cloud applications and evaluated.



Capture measured values directly in the branch circuit and transmit them wirelessly

5SL6 COM miniature circuit breakers, 5SV6 COM AFDD/MCBs and 5ST3 COM auxiliary switches and fault signal contacts detect the switching position and can count operating cycles as well as operating hours. They differentiate between intentional tripping and tripping caused due to faults. 5SL6 COM miniature circuit breakers differentiate between overload and short circuit, 5SV6 COM AFDD/MCBs additionally between serial and parallel arc faults. They also measure current, voltage, energy and power, power frequency and temperature.

SENTRON Powercenter 1000 data transceivers can collect measured values from up to 24 communication capable circuit protection devices. They receive the data wirelessly, saving it for up to 30 days. The data can be visualized and processed via mobile devices or higher-level systems.

Alarm signals when exceeding a limit value	• Prevention of failure through early responses / countermeasures
Integrated operating-cycles counter, operating hour and trip counter	• Planned replacement of circuit protection devices • Predictive maintenance
Measurement of energy and power values	• Overview of energy consumption levels in buildings, right down to the branch circuit
Detection of current, voltage, mains frequency and temperature	• Conclusions with regard to malfunctions of equipment in the branch circuit
Differentiation between conscious disconnection and tripping caused due to faults	• Streamlined, targeted and time-saving trouble-shooting
Measurement of residual currents in a large frequency range	• Premature detection and prevention of downtimes and failures

Functions of the components

		SENTRON Powercenter 1000	5ST3 COM AS/FC	5SL6 COM MCB	5SL6 COM RCM MCB	5SV6 COM AFDD/MCB
						
Communication interfaces	Wireless	■	■	■	■	■
	Modbus TCP	■	–	–	–	–
	Bluetooth	■	–	–	–	–
	Gateway function	■	–	–	–	–
Type of mounting	DIN rail	■	■	■	■	■
Measured values	Temperature	–	■	■	■	■
	Current	–	–	■	■	■
	Voltage	–	–	■	■	■
	Frequency	–	–	■	■	■
	Apparent, reactive and active power, power factor	–	–	■	■	■
	Active and reactive energy	–	–	■	■	■
Monitoring functions	Overload detection	–	–	■	■	■
	Short circuit detection	–	–	■	■	■
	Arc fault detection	–	–	–	–	■
	Operating hours counter	■	■	■	■	■
	Operating hours counter with load current	–	–	■	■	■
	Operating cycle counter	–	■	■	■	■
	Trip counter	–	■	■	■	■
	Short circuit trip counter	–	–	■	■	■
	Detection of residual currents	–	–	–	■	–
	Limit value monitoring	■	■	■	■	■

5SL6 COM miniature circuit breaker with measuring and communication function

Mounting width 1 MW	1P+N (N pole right) 230 V AC / 6 kA

Rated current I_n	Characteristic B	Characteristic C
2 A	5SL6002-6MC	5SL6002-7MC
4 A	5SL6004-6MC	5SL6004-7MC
6 A	5SL6006-6MC	5SL6006-7MC
8 A	–	5SL6008-7MC
10 A	5SL6010-6MC	5SL6010-7MC
13 A	5SL6013-6MC	5SL6013-7MC
16 A	5SL6016-6MC	5SL6016-7MC
20 A	5SL6020-6MC	5SL6020-7MC
25 A	5SL6025-6MC	5SL6025-7MC
32 A	5SL6032-6MC	5SL6032-7MC

5SV6 COM AFDD/MCB with measuring and communication function

Mounting width 1 MW	1P+N (N pole right) 230 V AC / 6 kA

Rated current I_n	Characteristic B	Characteristic C
6 A	5SV6016-6MC06	5SV6016-7MC06
10 A	5SV6016-6MC10	5SV6016-7MC10
13 A	5SV6016-6MC13	5SV6016-7MC13
16 A	5SV6016-6MC16	5SV6016-7MC16
20 A	5SV6016-6MC20	5SV6016-7MC20
25 A	5SV6016-6MC25	5SV6016-7MC25
32 A	5SV6016-6MC32	5SV6016-7MC32

5SL6 COM RCM MCB with communication and metering functions

Baubreite 1 TE	1P+N (N-pole right) 230 V AC/6 kA

Rated current I_n	Characteristic B	Characteristic C
2 A	–	5SL6002-7MF
4 A	–	5SL6004-7MF
6 A	5SL6006-6MF	5SL6006-7MF
8 A	–	5SL6008-7MF
10 A	5SL6010-6MF	5SL6010-7MF
13 A	5SL6013-6MF	5SL6013-7MF
16 A	5SL6016-6MF	5SL6016-7MF
20 A	5SL6020-6MF	5SL6020-7MF
25 A	5SL6025-6MF	5SL6025-7MF
32 A	5SL6032-6MF	5SL6032-7MF

5ST3 COM auxiliary switch and fault signal contact with measuring and communication functions

Mounting width 0.5 MW

Article No.	5ST3062-0MC
Supply voltage	24 V DC

For combining with basic devices			
MCBs	**RCCBs**	**RCBOs**	**AFDD / MCBs**
5SY, 5SP4, 5SL	5SV	5SU1[1)], 5SV1	5SV6

[1)] Hand coupler 5ST3805-1 required

SENTRON Powercenter 1000 data transceiver

Mounting width 1 MW

Article No.	7KN1110-0MC00
Supply voltage	24 V DC
Applicable devices	24 wireless circuit protection devices
Interfaces	Bluetooth, Ethernet (Modbus TCP)

Use Cases
Industry and Buildings

Challenge: Find the cause when the production process is disconnected

Solution

- Protection of a multiphase circuit with multipole 5SY miniature circuit breaker / 5SV3 TYPE B residual current circuit-breaker
- 5ST3 COM auxiliary switch and fault signal contact
- SENTRON Powercenter 1000 data transceiver

Customer benefits

- Detection of a manual disconnection for safe maintenance
- Remote querying of the switching status
- Fast detection of disconnections due to a fault in the production process
- Retrofitting of existing plants possible at low cost and with little effort
- Notification of pending maintenance of the circuit protection device

Challenge: Cost savings of power monitoring

Solution

- Protection with communication capable 5SL6 COM MCB or 5SV6 COM AFFD/MCB
- SENTRON Powercenter 1000 data transceiver

Customer benefits

- Identification of energy saving measures, e.g., stand-by consumption levels
- Evaluation of data, optionally via mobile end devices, SENTRON Powercenter 3000 data concentrator, Mindsphere applications
- Measures for optimization of consumption levels, including within the framework of operational energy management according to ISO 50001

Challenge: Alternative for recurring insulation tests

Solution

- Protection and residual current monitoring with the 5SL6 COM MCB RCM
- SENTRON Powercenter 1000 data transceiver
- SENTRON Powercenter 3000 IoT gateway

Customer benefits

- Permanent residual current monitoring instead of periodic testing reduces costs for tests
- Early detection of emerging isolation failures allows timely reaction and creates permanently increased security
- Trend detection of electric measured values allows for precise detection of condition changes in an early stage

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