

SMARTenergy gate

Wireless transmission of energy data

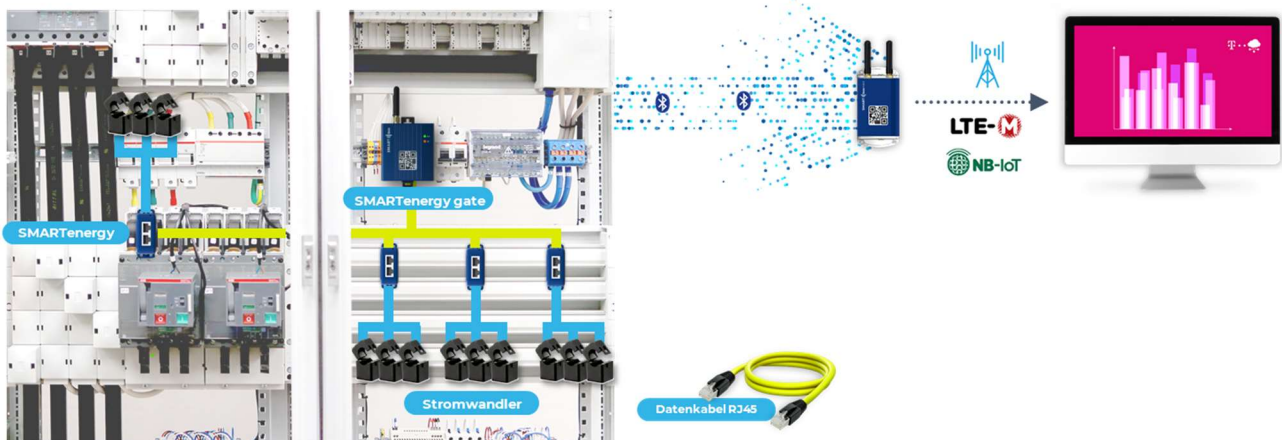
The SMARTenergy gate for industrial applications serves as the central energy node in the distribution cabinet, transmitting all energy data wirelessly from the cabinet. Together with additional distribution cabinets and the SMARTbox BLE, a wireless mesh system is automatically configured throughout the building—without any further configuration required!

The SMARTenergy gate offers the connection of 3 current transformer sensors, the option to expand measurement points with SMARTenergy sensors, and a wireless interface for other wireless beacons such as temperature/humidity and presence sensors. Devices from third-party manufacturers can be connected and wirelessly transmitted through additional interfaces such as Modbus D0 S0 D0.

The autodetect function of the SMARTenergy gate ensures that all wired and wireless sensors are automatically detected.

Key features

- Energy data collection and wireless transmission from the distribution cabinet
- 3 x current transformer connections, pluggable via RJ10 (Types: 20A-50A-100A-250A-400A and 800A)
- Energy consumption in kWh, active power, and load profiles in 15-minute intervals
- Connection of temp/humidity/presence wireless sensors
- Autodetect function for sensors
- Connection of up to 8 x SMARTenergy sensors
- Additional interfaces (Modbus D0 S0)
- DIN rail mounting





SPEZIFIKATION



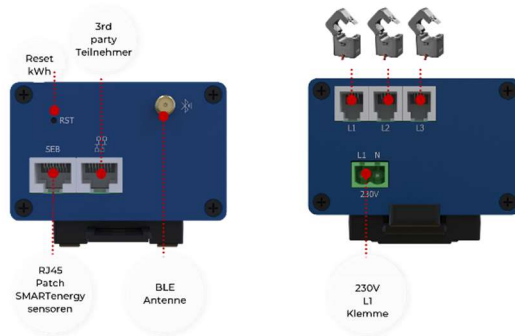
General	Material	Aluminum die-cast housing
	Protection class	IP40, terminal connections: IP20
	Terminals	Removable type, maximum cross-section: 15 mm ² , tightening torque: 0.2/0.25 Nm
	Overvoltage category	Kat. III (EN 61000-4-5)
	Pollution degree	2
	Protection class	Class II (61010-1) double insulation, test voltage: 42 kV AC for 1 minute + impedance limitation
	Mounting	DIN rail
	Weight	220g
	Diagnostic LED	RUN Led, IoT LED
	Identification code	QR code on the device
Environmental conditions	Operating temperature	-25 to +55°C (-13 to +131°F), relative humidity <90% non-condensing at 40°C (104°F)
	Storage temperature	-30 to +70°C (-22 to 158°F), relative humidity <90% non-condensing at 40°C (104°F)
Electrical system and circuits	Controlled electrical installation	Single-phase (2-wire), three-phase without neutral (3-wire), three-phase with neutral (4-wire)
	Number of monitored circuits	Single-phase systems: up to 3 single-phase loads, three-phase systems: 1x three-phase load
Spannungsmess eingang	Voltage measurement input	Direct or via VT
	Nominal voltage L1-N (from Un min. to Un max.)	100Vac to 240Vac Attention: It is mandatory to use L1 for voltage measurement
	Voltage tolerance	-10% to +10%
	Continuous overload	Continuous: 1,1 Un max.
	Frequency	47 to 63 Hz
Current measurement input	Phase-neutral voltage measurement accuracy	From (Un min. -10%) to (Un max. +10%) ±(2% rdg)
	Current connection	via PSCTxxx current transformer block over RJ10
	Nominal current (In)	20A 50A 100A 250A 400A 800A 680A (Rugowski coil)
	Minimum current (Imin)	0,05 In
	Maximum current (Imax)	1,2 In
	Continuous overload	1.2 In, for 100ms: 2 In
	Insertion impedance	< 0,2 VA
Current measurement accuracy	From 0.05 In to Imax ±(0.5% rdg)	

	Active power measurement accuracy (PF=1)	From 0.05 In to I _{max} ±(2.5% rdg)
Available measurements	Measurement method	Digital sampling (active power: multiplication of sampled instantaneous current and voltage values and averaging in the MCU)
	Sampling	40,000 samples per second @50Hz
	Energy	Digital calculation as an integral of power over time
	Active power	Total load, average over the set interval, maximum in the set interval* (in next firmware version 1.03)
	Power supply	Self-powered between L1 and N
	Consumption	5W
Interface Wireless sensors	Temp/Humidity	emp/Humidity - PSsystemec Temp/Humidity Beacon: T: -30 to 60°C with a typical accuracy of ±0.3°C and long-term drift of <0.02°C per year H: 0 to 100% with a typical accuracy of ±3.0% and long-term drift of <0.25% per year
	Presence	PSsystemec PIR sensor: Motion detection using pyroelectric PIR (passive infrared), sensing range 7m
	Interface	BLE 2.4GHz interface
Radio	Bluetooth	v5.0 (Bluetooth Low Energy)
	Maximum range	1,400m
	Output power	8 dBm
	Sensitivity	-94 dBm (1 Mbit/s)
	Function	Scanning/Advertising/Open Mesh/Repeater
Dimensions	70 x 70 x 50 mm	
Approval		
Compliance	2014/53/EU (Radio Equipment Directive) Radio EN301511 v12.5.1 EN301908 v13.1.1 EMC (Electromagnetic Compatibility) EN 301489-1 v2.2.0 General Part EN 301489-52 v1.1.0 EN 301489-17 v3.1.1 for Bluetooth Low Energy DIN EN 61000-6-2 DIN EN 61000-6-3 DIN EN 61326-1 - 2018-09 Electrical safety DIN EN 61010-1:2020-03;VDE 0411-1:2020-03	
Warranty	2 years	

Electrical installation



Layout



Montage

DIN rail mounting

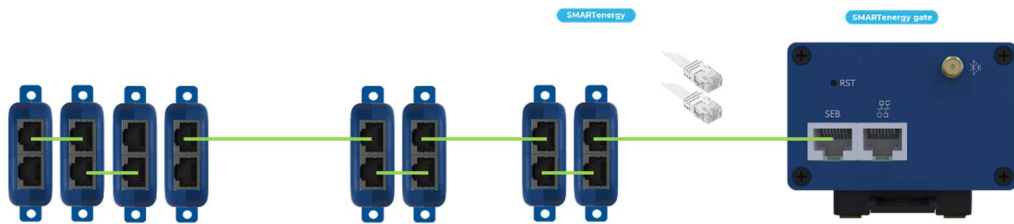
Connection of 230V

The 230V supply is connected to the SMARTenergy gate. It is important to use L1 of the sub- or main distribution. This reference voltage is then used for all SMARTenergy sensors connected via RJ45 to the hub.

Antenna connection

Screw the 2.4GHz antenna to the SMA antenna connection. Make sure the antenna is not mechanically stressed from the outside and is not confused with an LTE antenna. A 2.4GHz antenna is mandatory for proper function.

SMARTenergy connection



SMARTenergy sensors are connected via standard RJ45 network cables (AWG27). Up to 8 SMARTenergy sensors can be connected to the SEB terminal block. The maximum distance between the SMARTenergy gate and the last SMARTenergy sensor is 20m.

LED diagnostics



Kontrol LED1:

- 10 Hz Communication timeout
- 1 Hz Idle state (wait for address assignment)
- 2 Hz In Assignment Process
- 4sec Off/1sec On HW Fail
- Steady Run

Kontrol LED2:

- 10 Hz Sending
- Steady Device is active in the Network

The Control LED2 must remain constantly on. If it flashes at a 10Hz rate, a repeater must be installed between the gateway or another SMARTenergy gate. The Control LED1 must also be on for correct transformer operation.

Reset

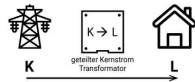
The kWh can be manually reset to 0 by holding the RESET button (RST) for 5 seconds. The sensor must be connected via the patch cable and have power.

Current transformer connection

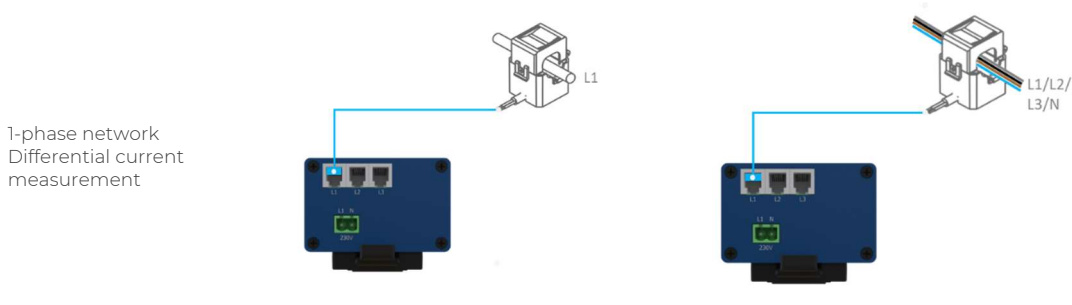
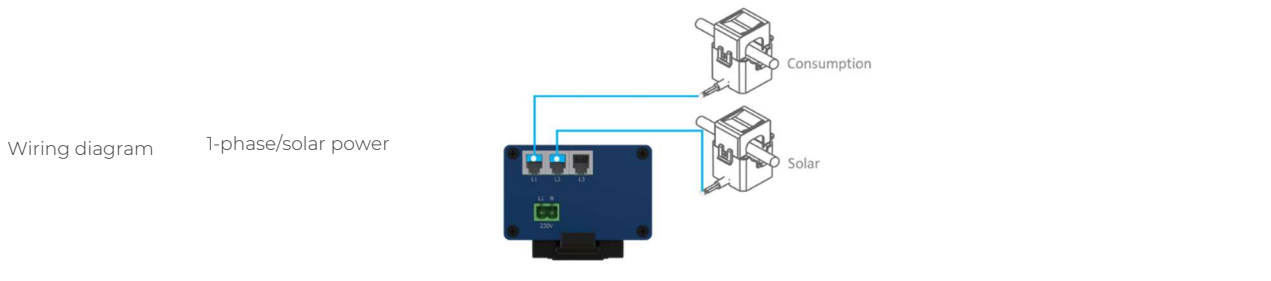
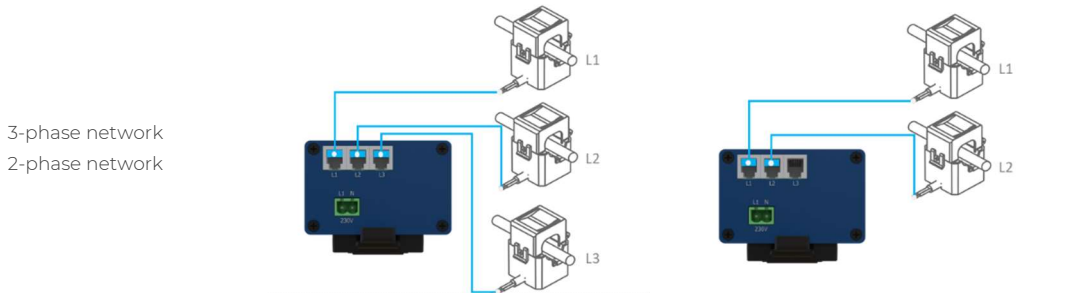
Compatible sensors PSsystem split-core transformers (20A, 50A, 100A, 250A, 400A, 800A)
No configuration required

Connection direction

On the underside of the split-core transformer, an arrow indicates the direction of energy flow, but it is **not** critical to follow.



Phase sequence	L1-L2-L3 phase sequence must be observed during sensor connection!
Connection order	If current is flowing in the conductor during installation, the CTs must be connected to the box first and then clamped to the conductor. Uninstallation follows the reverse order.



IDENTIFICATION CODE



The QR code is affixed on the side.

The QR code contains:

- The serial number
- The serial number of the BLE transmitter, if available
- The use case

Identification code

General structure
 ;;PSS06;[MACBLE];[MACSTM];[Messcase]

Example:

