

# Industrial Monitoring Hardware

Environmental sensing, equipment condition and data acquisition

**SG-coded hardware for clear industrial model selection.**

Environmental sensing, equipment monitoring, safety detection, local display, gateways and metering in one model-selection catalog.



**SG-THS-102:** Temperature and humidity measurement unit



**SG-PRS-141:** Industrial differential pressure transmitter



**SG-GW-127:** Breaker communication gateway with local display



**SG-AQM-120:** Five-in-one CO2 and ambient environment sensor

Representative family visual; exact housing may vary by configuration.

| PRODUCT AREA | CATALOG COVERAGE                               |
|--------------|------------------------------------------------|
| Environment  | Temperature, humidity and ambient sensing      |
| Equipment    | Temperature, vibration and pressure monitoring |
| Safety       | Gas, smoke and flame detection                 |
| Data         | Recorders, displays, gateways and metering     |

## SCOPE

Model-selection catalog. Use only the data printed on the selected SG-code row.

**SunGene**

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# Product families and page guide

Use this page to move from the required measurement to the relevant SG-code model tables.

| PRODUCT FAMILY                                               | PAGES | PRODUCT FAMILY                                               | PAGES |
|--------------------------------------------------------------|-------|--------------------------------------------------------------|-------|
| Industrial temperature and humidity sensors (19 models)      | 4-7   | Paperless recorders, panels and indicator boards (13 models) | 18-20 |
| Contact temperature sensors and transmitters (8 models)      | 8-9   | Gateways and communication management units (36 models)      | 21-26 |
| Vibration and non-contact temperature monitoring (10 models) | 10-11 | Power monitoring and power quality instruments (18 models)   | 27-29 |
| Pressure and differential pressure transmitters (9 models)   | 12-13 | Energy metering and current sensing (22 models)              | 30-33 |
| Gas, particulate, smoke and open-flame detection (20 models) | 14-17 |                                                              |       |

## NOTE

Selection guide: page 2 | System architecture: page 3 | Interface, application and ordering guides follow the model tables.

# One SG code, one product record

Each row is model-specific. Do not combine a range from one SG code with the interface or enclosure of another.

| STEP | SELECTION INPUT              | RESULT               |
|------|------------------------------|----------------------|
| 1    | Measured parameter and range | Product family       |
| 2    | Mounting and environment     | Mechanical form      |
| 3    | Host input and network       | Electrical interface |
| 4    | Quantity and destination     | Order configuration  |

READ THE ROW

- Keep values with their SG code
- Use only printed interfaces
- Treat source-limited fields as non-numeric selection boundaries

CATALOG MAP

- Environment
- Equipment
- Safety
- Data

# From measurement point to customer software

Build the data path only from compatible interfaces printed in the model tables.

| LAYER             | ROLE                                           | COMMON INTERFACES                    |
|-------------------|------------------------------------------------|--------------------------------------|
| Sensor            | Measures a physical or environmental condition | Analogue, RS-485, IEPE or radio      |
| Local interface   | Displays, records or alarms                    | RS-485, Ethernet or digital output   |
| Gateway           | Aggregates field channels                      | Ethernet, cellular, Wi-Fi or LoRaWAN |
| Customer software | Stores and uses the data                       | MQTT, Modbus or HTTP where listed    |

| ELECTRICAL MATCH                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Signal</li><li>• Supply</li><li>• Isolation</li><li>• Input capacity</li></ul> |

| SITE MATCH                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Mounting</li><li>• Cable</li><li>• Environment</li><li>• Coverage</li></ul> |

# Industrial temperature and humidity sensors (1/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-THS-105: Panel-mount temperature and humidity controller

Representative family visual; exact housing may vary by configuration.

MODEL SELECTION

| SG code    | Form and mounting                                          | Sensing                                                                | Interface                                                                                                           |
|------------|------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| SG-THS-102 | Temperature and humidity measurement unit                  | 1 temperature + 1 humidity channel                                     | Not quote-ready: interface, protocol, power and environmental rating must be confirmed for the exact configuration. |
| SG-THS-103 | DIN-rail controller                                        | 1 temperature + 1 humidity channel, measured, displayed and controlled | RS-485 and fault-alarm contact optional                                                                             |
| SG-THS-105 | Panel-mount controller, cut-out 56 x 110 mm in 60 x 120 mm | 1 temperature + 1 humidity channel, measured, displayed and controlled | RS-485 and fault-alarm contact optional                                                                             |
| SG-THS-115 | Indoor battery radio node                                  | -20 to +50 C +/-0.3 C, 0-99 %RH +/-3 %, external probe                 | LoRaWAN, 2 x AAA                                                                                                    |
| SG-THS-118 | Wide-range battery radio node                              | -40 to +80 C +/-0.3 C, 0-96 %RH +/-3 %, external probe                 | LoRaWAN, 2400 mAh lithium-thionyl                                                                                   |

# Industrial temperature and humidity sensors (2/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-THS-122: Cellular temperature and humidity node with e-ink display

Representative family visual; exact housing may vary by configuration.

MODEL SELECTION

| SG code    | Form and mounting                | Sensing                                                  | Interface                                |
|------------|----------------------------------|----------------------------------------------------------|------------------------------------------|
| SG-THS-122 | Cellular node with e-ink display | 0-60 C +/-0.2 C, 0-99.9 %RH +/-4 % over 20-95 %RH        | LTE-M / NB-IoT, 8000 mAh lithium-thionyl |
| SG-THS-123 | Solar-assisted node, 3 m probe   | -40 to +80 C, +/-0.2 C over 0 to 90 C, 0-99.9 %RH +/-2 % | Solar with 8500 mAh pack                 |
| SG-THS-127 | Wide-range integrated unit       | -40 to +125 C +/-0.3 C, 0-95 %RH +/-2 %                  | RS-485 / LoRa / LoRaWAN / Cat.1          |
| SG-THS-129 | High-humidity environment sensor | -50 to +150 C +/-0.5 C, 0-100 %RH +/-3 %                 | RS-485 / LoRa                            |
| SG-THS-130 | Battery humidity node            | Relative humidity; AA, coin cell or industrial enclosure | Radio uplink                             |

## Industrial temperature and humidity sensors (3/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code    | Form and mounting                    | Sensing                                                              | Interface                                               |
|------------|--------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------|
| SG-THS-134 | PoE-powered node                     | Relative humidity +/-3 % over 10-90 %RH, temperature and dew point   | PoE                                                     |
| SG-THS-136 | Low-power radio node                 | -40 to +85 C +/-1 C, 0-99.9 %RH +/-5 %                               | 2.4 GHz low-power                                       |
| SG-THS-148 | Sintered-housing wired sensor        | +/-0.2 C, +/-2 %RH                                                   | Isolated RS-485 Modbus, 9-28 V DC                       |
| SG-THS-149 | Sintered-housing probe with 1 m lead | -40 to +125 C +/-0.2 C, 0-99.9 %RH +/-2 %                            | I2C                                                     |
| SG-THS-154 | Radiation-shelter atmospheric set    | -40 to +60 C +/-0.5 C, 0-100 %RH +/-3 %, 300-1100 hPa +/-1 hPa, IP65 | 4-20 mA / 0-5 V / 0-10 V / RS-485 Modbus / SDI-12 / I2C |

# Industrial temperature and humidity sensors (4/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-THS-159: Wall-mount temperature and humidity sensor

Representative family visual; exact housing may vary by configuration.

MODEL SELECTION

| SG code    | Form and mounting                                       | Sensing                                                               | Interface                                                                                                           |
|------------|---------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| SG-THS-155 | Radiation-shelter atmospheric set with user calibration | -40 to +80 C +/-0.2 C, barometric channel, IP65 with radiation shield | 0-2.5 V / RS-485 Modbus / SDI-12, 12-24 V DC                                                                        |
| SG-THS-156 | Outdoor temperature and humidity sensor                 | Temperature and humidity                                              | RS-485; protocol, power and environmental rating vary by selected option.                                           |
| SG-THS-159 | Wall-mount temperature and humidity sensor              | Temperature and humidity                                              | Not quote-ready: interface, protocol, power and environmental rating must be confirmed for the exact configuration. |
| SG-THS-161 | Wall-mount multi-parameter unit                         | Temperature, humidity, barometric pressure, CO2                       | Not quote-ready: interface, protocol, power and environmental rating must be confirmed for the exact configuration. |

# Contact temperature sensors and transmitters (1/2)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-TMP-120: Handheld food-grade temperature probe instrument

Representative family visual; exact housing may vary by configuration.

MODEL SELECTION

| SG code    | Type                                         | Measurement                                                                         | Output                            |
|------------|----------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------|
| SG-TMP-120 | Handheld food-grade temperature instrument   | Food probe -20 to +120 C<br>+/-0.5 C; ambient 0 to +300 C<br>+/-3 C                 | LoRaWAN, Bluetooth, 3000 mAh      |
| SG-TMP-122 | Handheld PT100 temperature instrument        | Class A PT100, -50 to +260 C,<br>+/- (0.15 + 0.002 t ) C, 0.01 C<br>resolution, LCD | LoRaWAN                           |
| SG-TMP-123 | Wireless PT100 transmitter, up to 2 channels | 3-wire PT100, pre-loaded or third-party probe, factory calibrated                   | LoRaWAN, 8500 mAh lithium-thionyl |
| SG-TMP-127 | Probe buffer housing                         | Thermal damping accessory for a probe                                               | Mechanical accessory              |

## Contact temperature sensors and transmitters (2/2)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code    | Type                                                 | Measurement                                                         | Output                   |
|------------|------------------------------------------------------|---------------------------------------------------------------------|--------------------------|
| SG-TMP-158 | Induction-powered busbar strap temperature sensor    | -40 to +125 C, +/-0.5 C, 3 A starting current                       | 2.4 GHz low-power        |
| SG-TMP-160 | Battery contact temperature sensor, waterproof probe | -40 to +125 C, +/-0.5 C, AA alkaline                                | LoRa / LoRaWAN           |
| SG-TMP-171 | Paste / surface probe                                | PT100 class A; -50 to +100 C and -20 to +50 C; +/-0.5 C or +/-0.3 C | 4-20 mA / 0-5 V / RS-485 |
| SG-TMP-172 | Immersion liquid probe                               | PT100 class A; -40 to +80 C; +/-0.5 C; <1 s; IP68                   | 4-20 mA / 0-5 V / RS-485 |

## Vibration and non-contact temperature monitoring (1/2)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code    | Type                             | Key parameter                                                                          | Interface                                           |
|------------|----------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------|
| SG-VIB-101 | Battery radio vibration node     | Built-in -40 to +80 C +/-0.3 C, 0-96 %RH +/-3 %, external 3-axis acceleration probe    | LoRaWAN, 2400 mAh lithium-thionyl                   |
| SG-VIB-103 | Wireless g-force node            | Maximum and average g-force on three axes, configurable delta thresholds and data rate | Radio uplink                                        |
| SG-VIB-106 | Wireless tilt / inclination node | Inclination, pitch and roll with deviation alerting                                    | Radio uplink                                        |
| SG-VIB-112 | Wireless load / tension sensor   | 100 kN, +/-0.2 % of span, IP67                                                         | LoRa / LoRaWAN                                      |
| SG-VIB-114 | IEPE accelerometer, top exit     | 100 mV/g, +/-80 g, 0.7-10000 Hz, IP68, 86 g                                            | IEPE constant current, built-in temperature channel |

## Vibration and non-contact temperature monitoring (2/2)

Model-specific selection data. Use only the values printed on the selected SG-code row.



**SG-IRT-109: Non-contact infrared temperature transmitter**

Representative family visual; exact housing may vary by configuration.

### MODEL SELECTION

| SG code    | Type                                   | Key parameter                                                          | Interface                                           |
|------------|----------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------|
| SG-VIB-115 | IEPE accelerometer, side exit          | 100 mV/g, +/-80 g, 0.7-7000 Hz, adjustable direction, 126 g            | IEPE constant current, built-in temperature channel |
| SG-VIB-116 | Low-frequency IEPE accelerometer       | 500 mV/g, +/-10 g, 0.2-5000 Hz, 102 g                                  | IEPE constant current, built-in temperature channel |
| SG-IRT-109 | Infrared temperature transmitter       | -70 to +380 C, +/-0.5 C, 12:1 distance-to-spot, 3 degree field of view | RS-485 / RS-232 / LoRa                              |
| SG-IRT-110 | Infrared thermal matrix                | 32 x 32 elements, -30 to +300 C, 0-200 cm, 75 degree angle             | RS-485 / USB / RJ45                                 |
| SG-TMP-161 | Four-channel infrared temperature node | -20 to +120 C; plus or minus 2 C                                       | LoRa / LoRaWAN                                      |

## Pressure and differential pressure transmitters (1/2)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-PRS-141: Differential pressure transmitter

### MODEL SELECTION

| SG code    | Measurement type                                 | Range / accuracy                                                                 | Output                                                       |
|------------|--------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------|
| SG-PRS-141 | Differential pressure transmitter                | 0-3.5 MPa                                                                        | 4-20 mA / 0-10 V / 0-5 V / 0.5-4.5 V / RS-485 / 4-20 mA+HART |
| SG-PRS-145 | Wind and differential pressure transmitter       | 0-600 kPa; optional display                                                      | 4-20 mA / 0-5 V / 0.5-4.5 V / RS-485                         |
| SG-PRS-153 | Monocrystalline silicon differential transmitter | 0-200 Pa to 40 MPa; 0.05 % / 0.075 %; liquid, gas and steam                      | 4-20 mA+HART                                                 |
| SG-PRS-155 | Monocrystalline silicon pressure transmitter     | 0-40 MPa; 0.05 % / 0.075 %; M20 x 1.5 thread                                     | 4-20 mA+HART                                                 |
| SG-PRS-157 | Cellular field pressure transmitter              | Multi-range selectable; +/-0.5 % of span; segment display; 19 Ah lithium-thionyl | Cat.1 uplink                                                 |

## Pressure and differential pressure transmitters (2/2)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-PRS-173: Display pressure transmitter with digital indicator

### MODEL SELECTION

| SG code    | Measurement type                | Range / accuracy                                                         | Output                                           |
|------------|---------------------------------|--------------------------------------------------------------------------|--------------------------------------------------|
| SG-PRS-159 | LoRa field pressure transmitter | Multi-range selectable; +/-0.5 % of span; segment display; AA alkaline   | LoRa / LoRaWAN                                   |
| SG-PRS-173 | Display pressure transmitter    | 0 to +/-0.1 up to +/-100 kPa; 0.1 / 0.2 / 0.5 % FS; LCD or LED indicator | 4-20 mA / 4-20 mA+HART / RS-485 / 0-5 V / 0-10 V |
| SG-PRS-174 | Compact pressure transmitter    | 0 to +/-0.1 up to +/-100 kPa; 0.1 / 0.2 / 0.5 % FS; no display or LCD    | 4-20 mA / 4-20 mA+HART / RS-485 / 0-5 V / 0-10 V |
| SG-PRS-175 | Process pressure transmitter    | -100 kPa to 60 MPa; 0.5 % FS; <=90 ms; IP65; 316L diaphragm              | 4-20 mA / 0-5 V / 0-10 V / 0.5-4.5 V             |

## Gas, particulate, smoke and open-flame detection (1/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code    | Measured parameter                                     | Range / accuracy                                                                                                 | Interface                                              |
|------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| SG-AQM-104 | CO <sub>2</sub> , temperature, humidity, pressure node | Alarm and datalog, 4000 mAh lithium-thionyl                                                                      | LoRaWAN, Bluetooth Low Energy 5.1, over-the-air update |
| SG-AQM-105 | CO <sub>2</sub>                                        | 0-5000 ppm; +/- (50 ppm + 5 % of reading); resolution 1 ppm                                                      | RS-485 / LoRa / LoRaWAN / Cat.1                        |
| SG-AQM-106 | Confined-space multi-gas monitor                       | Methane, oxygen, hydrogen sulfide, carbon monoxide and combustibles selectable; pump 0.6-18 L/min                | RS-485 / 4G / LoRa, 220 V AC                           |
| SG-AQM-108 | Indoor air quality terminal                            | Temperature, humidity, PM <sub>2.5</sub> , PM <sub>10</sub> , TVOC, formaldehyde, CO <sub>2</sub> ; -10 to +65 C | RJ45 + 4G Cat.1, MQTT, relay output                    |
| SG-AQM-109 | Formaldehyde                                           | 0-1 ppm; +/- 0.025 ppm below 0.1 ppm; -10 to +60 C                                                               | RS-485 / LoRa / LoRaWAN / Cat.1                        |

# Gas, particulate, smoke and open-flame detection

## (2/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-AQM-117: Wireless industrial gas concentration sensor with external antenna

Representative family visual; exact housing may vary by configuration.

MODEL SELECTION

| SG code    | Measured parameter        | Range / accuracy                                     | Interface                  |
|------------|---------------------------|------------------------------------------------------|----------------------------|
| SG-AQM-113 | Particulate matter sensor | PM1 / PM2.5 / PM10; line powered with battery backup | Radio uplink               |
| SG-AQM-116 | Hydrogen sulfide node     | Gas presence for hazardous areas                     | Radio uplink               |
| SG-AQM-117 | SF6, wireless             | 0-5000 ppm; +/-5 % FS; infrared                      | Wireless, external antenna |
| SG-AQM-118 | Ozone, wireless           | 0-20 ppm; +/-12 % FS; electrochemical                | Wireless, external antenna |
| SG-AQM-119 | Noise, wireless           | 30-130 dB; 20 Hz to 12.5 kHz                         | Wireless, external antenna |

# Gas, particulate, smoke and open-flame detection

## (3/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-AQM-120: Five-in-one CO2 and ambient environment sensor with segment display

Representative family visual; exact housing may vary by configuration.

MODEL SELECTION

| SG code    | Measured parameter              | Range / accuracy                                               | Interface                               |
|------------|---------------------------------|----------------------------------------------------------------|-----------------------------------------|
| SG-AQM-120 | Five-in-one environment sensor  | CO2 0-5000 ppm, 0-50 C, 0-90 %RH, 0.01-83000 lux, 300-1100 hPa | Isolated RS-485 Modbus, segment display |
| SG-AQM-121 | Four-in-one environment sensor  | CO2 with temperature, humidity and light                       | Isolated RS-485 Modbus, segment display |
| SG-AQM-122 | CO2 with external climate probe | CO2 with external temperature and humidity probe               | Isolated RS-485 Modbus, 9-28 V DC       |
| SG-AQM-123 | CO2 sensor with local display   | NDIR CO2 with real-time segment display                        | Isolated RS-485 Modbus, 9-28 V DC       |
| SG-AQM-124 | SF6, wired                      | 0-5000 ppm; +/-5 % FS; infrared                                | Isolated RS-485 Modbus, 9-28 V DC       |

# Gas, particulate, smoke and open-flame detection

## (4/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.



**SG-SMK-102:** Wired photoelectric smoke detector with local alarm

Representative family visual; exact housing may vary by configuration.

MODEL SELECTION

| SG code    | Measured parameter                   | Range / accuracy                                                     | Interface                                              |
|------------|--------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------|
| SG-AQM-125 | Ozone, wired                         | 0-20 ppm; +/-12 % FS; electrochemical                                | RS-485 Modbus, 9-28 V DC                               |
| SG-AQM-126 | Noise, wired                         | 30-130 dB; 20 Hz to 12.5 kHz                                         | Isolated RS-485 Modbus, 9-28 V DC                      |
| SG-SMK-102 | Smoke detection                      | Dual-channel photoelectric                                           | Isolated RS-485 Modbus, local audible and visual alarm |
| SG-SMK-103 | Smoke detection with climate channel | Dual-channel photoelectric; -10 to +55 C +/-0.2 C, 0-95 %RH +/-2 %RH | RS-485 Modbus, local audible and visual alarm          |
| SG-SMK-104 | Open-flame detection                 | Pyroelectric infrared; 10-30 m detection distance                    | Isolated RS-485 Modbus, 9-28 V DC                      |

# Paperless recorders, panels and indicator boards

## (1/3)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-DAQ-112: 10.1 inch paperless sensor data recorder

Representative family visual; exact housing may vary by configuration.

MODEL SELECTION

| SG code    | Type                                 | Display                                                                     | Interface                              |
|------------|--------------------------------------|-----------------------------------------------------------------------------|----------------------------------------|
| SG-DAQ-112 | Paperless sensor recorder            | 10.1 inch TFT 1024 x 600 capacitive, Linux                                  | 4G/5G + Ethernet + LoRa / RS-485, MQTT |
| SG-DAQ-113 | Compact sensor recorder              | 3.5 inch TFT 320 x 480; one year local storage                              | RS-485 / LoRa, USB, 12 V DC            |
| SG-DAQ-114 | Paperless sensor recorder            | 7 inch TFT 1024 x 600 capacitive, Linux                                     | 4G/5G + Ethernet + LoRa / RS-485, MQTT |
| SG-DAQ-117 | Industrial climate display           | High-brightness digit tubes, constant-current static drive, aluminium alloy | RS-485 / LoRa, infrared remote         |
| SG-HMI-102 | Wireless temperature monitoring host | 21.5 inch, industrial grade                                                 | RS-485                                 |

# Paperless recorders, panels and indicator boards

## (2/3)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-HMI-113: 5 inch wireless operator touch panel

MODEL SELECTION

| SG code    | Type                                           | Display                                     | Interface                                 |
|------------|------------------------------------------------|---------------------------------------------|-------------------------------------------|
| SG-HMI-106 | Industrial touch panel                         | 7 inch touch                                | RS-485 Modbus RTU, 24 V DC                |
| SG-HMI-109 | Industrial touch panel with temperature module | 10 inch touch, high-temperature alarm       | RS-485 Modbus RTU                         |
| SG-HMI-112 | Touch panel monitoring station                 | 17 inch touch with wireless receiver module | 12 V DC                                   |
| SG-HMI-113 | Wireless touch panel                           | 5.0 inch, IP52                              | RS-485, LoRa, Wi-Fi, Bluetooth Low Energy |

## Paperless recorders, panels and indicator boards (3/3)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code    | Type                           | Display                                                                                | Interface     |
|------------|--------------------------------|----------------------------------------------------------------------------------------|---------------|
| SG-HMI-114 | LED dot-matrix indicator board | 64 x 16 dot matrix, text and graphics, wall mount                                      | RS-485 / LoRa |
| SG-HMI-115 | Industrial data display board  | High-brightness digit tubes, aluminium alloy                                           | RS-485 / LoRa |
| SG-HMI-116 | Industrial data display board  | Multi-sensor data display, aluminium alloy                                             | RS-485 / LoRa |
| SG-HMI-117 | Climate data display board     | 3.5 inch or dot matrix; CO <sub>2</sub> , particulate, formaldehyde and climate inputs | RS-485 / LoRa |

# Gateways and communication management units

## (1/6)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code   | Type                          | Ports / capacity             | Uplink        |
|-----------|-------------------------------|------------------------------|---------------|
| SG-GW-101 | Communication management unit | 1 Ethernet + 1 RS-485        | Ethernet      |
| SG-GW-102 | Communication management unit | 1 Ethernet + 1 RS-485        | Ethernet + 4G |
| SG-GW-103 | Communication management unit | 1 Ethernet + 1 RS-485 + LoRa | Ethernet + 4G |
| SG-GW-105 | Communication management unit | 1 Ethernet + 1 RS-485        | Ethernet      |
| SG-GW-106 | Communication management unit | 1 Ethernet + 1 RS-485        | Ethernet + 4G |
| SG-GW-108 | Communication management unit | 1 Ethernet + 2 RS-485        | Ethernet      |

## Gateways and communication management units (2/6)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code   | Type                                                | Ports / capacity                       | Uplink        |
|-----------|-----------------------------------------------------|----------------------------------------|---------------|
| SG-GW-112 | Communication management unit                       | 1 Ethernet + 2 RS-485                  | Ethernet      |
| SG-GW-114 | Communication management unit                       | 1 Ethernet + 2 RS-485 + LoRa + 6DI/4DO | Ethernet + 4G |
| SG-GW-115 | Communication management unit                       | 2 Ethernet + 4 RS-485                  | Ethernet      |
| SG-GW-116 | Communication management unit                       | 2 Ethernet + 4 RS-485                  | Ethernet      |
| SG-GW-117 | Communication management unit with power-loss alarm | 2 Ethernet + 4 RS-485                  | Ethernet      |
| SG-GW-118 | Communication management unit                       | 2 Ethernet + 4 RS-485 + LoRa           | Ethernet      |

## Gateways and communication management units (3/6)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code   | Type                                                | Ports / capacity              | Uplink          |
|-----------|-----------------------------------------------------|-------------------------------|-----------------|
| SG-GW-119 | Communication management unit with power-loss alarm | 2 Ethernet + 4 RS-485 + LoRa  | Ethernet        |
| SG-GW-120 | Communication management unit                       | 2 Ethernet + 8 RS-485         | Ethernet        |
| SG-GW-121 | Expansion slave                                     | 4x RS-485                     | Via master unit |
| SG-GW-122 | Expansion slave                                     | 4G, full-network              | Via master unit |
| SG-GW-123 | Expansion slave                                     | 2G / 3G / 4G global           | Via master unit |
| SG-GW-124 | Expansion slave                                     | 4x M-Bus, 500 mA maximum load | Via master unit |

# Gateways and communication management units

## (4/6)

Model-specific selection data. Use only the values printed on the selected SG-code row.



SG-GW-128: Breaker communication gateway with local display, cellular uplink

Representative family visual; exact housing may vary by configuration.

MODEL SELECTION

| SG code   | Type            | Ports / capacity                      | Uplink          |
|-----------|-----------------|---------------------------------------|-----------------|
| SG-GW-125 | Expansion slave | 8DI / 4DO / 4AI                       | Via master unit |
| SG-GW-126 | Expansion slave | Hardware encryption                   | Via master unit |
| SG-GW-127 | Breaker gateway | Up to 32 smart breakers, LCD, 1DI/1DO | RS-485          |
| SG-GW-128 | Breaker gateway | Up to 32 smart breakers, LCD, 1DI/1DO | 4G              |
| SG-GW-129 | Breaker gateway | Up to 32 smart breakers, LCD, 1DI/1DO | Ethernet        |
| SG-GW-130 | Breaker gateway | Up to 32 smart breakers, LCD, 1DI/1DO | Wi-Fi           |

## Gateways and communication management units (5/6)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code   | Type                                       | Ports / capacity                                              | Uplink                            |
|-----------|--------------------------------------------|---------------------------------------------------------------|-----------------------------------|
| SG-GW-131 | KNX/IP gateway                             | Up to 50 modules, telegram filtering                          | IP tunnelling or multicast        |
| SG-GW-139 | Outdoor LoRaWAN gateway                    | IP65, surge protection, GPS, fibreglass antenna, -20 to +85 C | 802.3af PoE, optional cellular    |
| SG-GW-143 | Indoor LoRaWAN gateway                     | 49 demodulators, 10 parallel paths, local ABP decode to MQTT  | Ethernet, optional 3G/4G          |
| SG-GW-144 | Indoor LoRaWAN gateway                     | 10 parallel paths; built-in network server                    | Ethernet                          |
| SG-GW-150 | LoRaWAN gateway, indoor and outdoor        | IP66, CN470 / EU868 / US915, -10 to +60 C, Cat-5/5E           | PoE 44-57 V                       |
| SG-GW-172 | Converged industrial gateway, weatherproof | 8 LoRa channels, RS-485, CAN, HDMI, I2C, aluminium housing    | PoE, 4G/5G, Wi-Fi, GPS, Bluetooth |

## Gateways and communication management units (6/6)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code   | Type                                        | Ports / capacity                                                           | Uplink                          |
|-----------|---------------------------------------------|----------------------------------------------------------------------------|---------------------------------|
| SG-GW-173 | Multi-channel LoRaWAN gateway, weatherproof | 8 receive channels, 1 full-duplex transmit at 26 dBm, aluminium housing    | PoE, Ethernet or 4G             |
| SG-GW-169 | Edge gateway                                | 1 RS-232, 1 RS-485, 5 RJ45, USB, 2DI/2DO, GPS, SD, IP30                    | Ethernet, Wi-Fi                 |
| SG-GW-170 | Edge gateway                                | 4 RJ45, 2 RS-232, 3 RS-485, 2DI/2DO, 2 ADC, IP30                           | Ethernet                        |
| SG-GW-171 | Edge gateway                                | 2 RJ45, 3 RS-232, 3 RS-485, 4DI, 8 ADC, 4 relay, 1 GB + SD                 | Ethernet, optional 7 inch touch |
| SG-GW-179 | Modular edge gateway                        | 2x 100M Ethernet, 1 RS-232/485 + 1 RS-485, 2DI/2DO/2AI, IP30, -25 to +70 C | LTE Cat.4                       |
| SG-GW-187 | Industrial edge gateway                     | WAN/LAN + LAN, 2x RS-485, 2x CAN, RS-232, USB, 2DI/2DO                     | 4G, Wi-Fi, GPS                  |

# Power monitoring and power quality instruments (1/3)

Model-specific selection data. Use only the values printed on the selected SG-code row.

## MODEL SELECTION

| SG code   | Instrument type                          | Measurement depth                                                                                                                                              | Communication                                                                                    |
|-----------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| SG-PM-101 | Single-phase multifunction meter         | I, U, kW, kWh, Hz, power factor; 80 A direct                                                                                                                   | RS-485 Modbus, LCD                                                                               |
| SG-PM-116 | Three-phase network meter                | Full parameter set, four-quadrant energy                                                                                                                       | RS-485 Modbus, LCD                                                                               |
| SG-PM-120 | Three-phase network meter with harmonics | THDu, THDi and 2nd to 63rd harmonic content, four-quadrant energy                                                                                              | RS-485 Modbus, LCD                                                                               |
| SG-PM-200 | Power management meter                   | Three-phase measurement, zero-sequence current, four-quadrant energy, real-time and maximum demand, monthly extrema, current and voltage unbalance, class 0.2S | RS-485 Modbus, LCD, SD-card expansion, 2DI+2DO; 66 alarm types and external SOE, 16 records each |
| SG-PM-219 | Advanced monitoring meter                | Four-quadrant energy, demand, monthly extremes, load-current bar graph, 66 alarm and event types                                                               | RS-485 Modbus, 2DI+2DO, SD expansion                                                             |
| SG-PM-220 | Power quality instrument                 | 2nd-63rd harmonics, interharmonics, flicker, dip capture, SEMI F47 / IEC curves, COMTRADE                                                                      | 2x RS-485 + Ethernet, IEC 61850, web server                                                      |

## Power monitoring and power quality instruments (2/3)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code   | Instrument type                 | Measurement depth                                                       | Communication                                                                                              |
|-----------|---------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| SG-PM-221 | Online power quality instrument | As above plus swell capture and SD expansion                            | 2x RS-485 + 2x Ethernet, IEC 61850, web server                                                             |
| SG-PM-222 | Panel meter, LED                | Three-phase current, voltage, power, energy, frequency and power factor | Not quote-ready: communication option and auxiliary modules must be confirmed for the exact configuration. |
| SG-PM-223 | Panel meter with harmonics, LCD | Three-phase harmonic content, 2nd to 31st                               | Not quote-ready: communication option and auxiliary modules must be confirmed for the exact configuration. |
| SG-PM-235 | Panel meter with harmonics, LCD | THDu and THDi, 2nd to 31st harmonic content                             | Not quote-ready: communication option and auxiliary modules must be confirmed for the exact configuration. |
| SG-PM-236 | Panel meter, LED                | Three-phase current, voltage, power, energy, frequency and power factor | Not quote-ready: communication option and auxiliary modules must be confirmed for the exact configuration. |
| SG-PM-237 | Panel meter, LCD                | Three-phase current, voltage, power and energy                          | Not quote-ready: communication option and auxiliary modules must be confirmed for the exact configuration. |

## Power monitoring and power quality instruments (3/3)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code    | Instrument type                         | Measurement depth                                                                                     | Communication                                                  |
|------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| SG-PM-238  | Panel meter with wireless communication | Active and reactive energy; 2 and 4 digital channels                                                  | LoRa                                                           |
| SG-PM-240  | Three-phase power analyser              | 100 A direct; kWh, kvarh, W, var, VA, PF, Hz, demand, V, A, THD; bidirectional; multi-tariff; class 1 | RS-485 Modbus RTU 2400-38400 bps or M-Bus, 2 pulse outputs     |
| SG-PM-241  | Dual-circuit multifunction meter        | Two meters in one unit; 5 A or 333 mV CT; 3x230/400 V; class 1                                        | RS-485 Modbus RTU 2400-38400 bps, 2 configurable pulse outputs |
| SG-PM-242  | CT/PT multifunction analyser            | 5 A or 333 mV CT; 4 modules; full parameter set with THD; bidirectional; 2 tariffs; class 1           | RS-485 Modbus RTU 2400-38400 bps or M-Bus, 2 pulse outputs     |
| SG-MCM-145 | Branch monitoring module                | Single-phase 32 A direct; 44 x 18 x 17 mm; built-in temperature; optional residual current            | 2.4 GHz                                                        |
| SG-MCM-150 | DC combiner monitoring unit             | 12 channels DC 0-20 A; class 0.5; 3.5 kV surge isolation; 0-1000 V source; 3 external status inputs   | RS-485 Modbus-RTU                                              |

## Energy metering and current sensing (1/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code   | Type                                 | Rating / connection                                                                                                                 | Interface                                           |
|-----------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| SG-EM-129 | DIN single-phase energy meter        | 0.5-1(80) A direct; active class B                                                                                                  | LCD                                                 |
| SG-EM-131 | Single-phase kWh meter               | 80 A                                                                                                                                | RJ45 RS-485                                         |
| SG-EM-140 | Single-phase energy meter with Wi-Fi | 86 A                                                                                                                                | Wi-Fi                                               |
| SG-EM-157 | Modular smart energy meter           | Master unit with measurement modules                                                                                                | RS-485, 4G or Wi-Fi, 2DI/2DO                        |
| SG-EM-165 | Three-phase DIN energy meter         | Full parameter set; four-quadrant and apparent energy; real-time demand; 1st to 31st harmonics; active class 0.5S, reactive class 2 | RS-485 Modbus or DL/T645 optional, 2DI/2DO optional |
| SG-EM-176 | DC energy meter                      | To 1000 V; 0-75 mV shunt or Hall input; four-wire                                                                                   | LCD                                                 |

## Energy metering and current sensing (2/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code   | Type                               | Rating / connection                                                                     | Interface                                     |
|-----------|------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------|
| SG-EM-178 | DIN DC energy meter                | To 1000 V; multi-tariff; SOE recording; class 5; AC/DC 85-265 V                         | 1x RS-485, dot-matrix LCD                     |
| SG-EM-196 | DC power and energy meter          | DC voltage, current, power and energy; bidirectional                                    | LCD                                           |
| SG-EM-200 | Single-phase CT-connected meter    | CT 5-9999 A primary / 100 mA secondary; 120/230 V; 17.5 mm wide; bidirectional; class 1 | RS-485 Modbus or M-Bus, 2 pulse outputs       |
| SG-EM-206 | Three-phase DIN multi-tariff meter | 100 A direct; 3x230/400 V; 7 modules; class 1                                           | RS-485 Modbus or M-Bus, 2 pulse outputs       |
| SG-EM-208 | Three-phase CT-connected meter     | 5 A CT; 7 modules; 3x230/400 V; class 1                                                 | RS-485 Modbus or M-Bus, 2 pulse outputs       |
| SG-EM-212 | Three-phase DIN energy meter       | 100 A direct; 3x230/400 V; 4 modules; bidirectional and resettable; class 1             | RS-485 Modbus RTU 1200-9600 bps, pulse output |

## Energy metering and current sensing (3/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code    | Type                          | Rating / connection                                                                                | Interface                                                |
|------------|-------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| SG-EM-214  | Three-phase smart meter       | 3x220/380 V to 3x240/415 V direct; active class 1, reactive class 2                                | DLMS/COSEM                                               |
| SG-EM-215  | Three-phase CT/PT smart meter | 3P4W or 3P3W; active class 0.5S, reactive class 1; up to 4 tariffs                                 | DLMS/COSEM                                               |
| SG-EM-218  | Single-phase AMI meter        | Direct connected 5/10 A basic, 60/80/100 A max; 220/230/240 V; active class 1; IP54 indoor         | Optical and RS-485 HDLC, hot-plug cellular or PLC module |
| SG-EM-220  | Three-phase CT AMI meter      | Indirect CT 1/5 A basic, 6/10 A max; 57.7/100 to 240/415 V; active class 0.5S or 0.2S; IP54 indoor | Optical and RS-485 HDLC, hot-plug cellular or PLC module |
| SG-CTD-101 | DC voltage sensor             | 12 V or 24 V DC supply                                                                             | 4-20 mA or DC 5 V / 10 V                                 |

## Energy metering and current sensing (4/4)

Model-specific selection data. Use only the values printed on the selected SG-code row.

### MODEL SELECTION

| SG code    | Type                                     | Rating / connection                                                    | Interface                                                                                                          |
|------------|------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| SG-CTD-109 | Current sensor with external supply lead | Aperture 20.5 x 10.5 mm; 3 m signal lead, 2 m supply lead              | Not quote-ready: current rating, output, supply and ordering suffix must be confirmed for the exact configuration. |
| SG-CTD-119 | Dual-channel Hall current sensor         | 22.5 mm aperture; channel 1 75 A, channel 2 750 A; 5 V DC              | 2 V output per channel                                                                                             |
| SG-CTD-152 | AC current sensor, true RMS              | 5 mm aperture; AC 0-(0.5-1) A and 0-(5-50) A                           | Isolated 4-20 mA or 0-5 V DC                                                                                       |
| SG-CTD-171 | Current coil, set of three               | 0-4000 A / 100 mV; 155 mm internal diameter                            | 100 mV output                                                                                                      |
| SG-CTD-192 | Split-core clip-on current sensor        | Installed without breaking the circuit; cumulative amp-hour totalising | Present-value and overcurrent alarms                                                                               |

## Interfaces used in this catalog

Use an interface only where it appears on the selected SG-code row.

| INTERFACE                   | TYPICAL ROLE                   | SELECTION CHECK                        |
|-----------------------------|--------------------------------|----------------------------------------|
| 4-20 mA / voltage           | Process transmitters           | Input range, loop supply and isolation |
| RS-485 Modbus-RTU           | Sensors, displays and gateways | Address, baud rate and cable length    |
| HART                        | Process pressure transmitters  | Host modem and loop arrangement        |
| IEPE                        | Vibration sensors              | Constant-current input and cable       |
| LoRaWAN / low-power radio   | Battery monitoring points      | Regional band and gateway              |
| Ethernet / cellular / Wi-Fi | Gateway backhaul               | Network, carrier and antenna           |

### DO NOT MIX

- Radio families
- Analogue ranges
- Supply voltage

### STATE ON THE ORDER

- SG code
- Output variant
- Regional radio band

## Match the monitoring need to the hardware path

Start with the measurement decision, then add only the data path required at the site.

| MONITORING NEED                | PRIMARY HARDWARE                |
|--------------------------------|---------------------------------|
| Room climate                   | Temperature and humidity sensor |
| Surface or process temperature | Contact temperature instrument  |
| Machine condition              | Vibration sensor                |
| Pressure or filter condition   | Pressure transmitter            |
| Air and fire indication        | Gas, smoke or flame sensor      |
| Local and remote data          | Display, recorder and gateway   |

| MEASUREMENT INPUTS                                                                                                |
|-------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Parameter</li><li>• Range</li><li>• Accuracy</li><li>• Mounting</li></ul> |

| SITE INPUTS                                                                                                   |
|---------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Power</li><li>• Cable</li><li>• Coverage</li><li>• Quantity</li></ul> |

## Turn a monitoring need into an order

The quotation records the selected SG codes and their ordered configuration.

| ORDER FIELD    | WHAT TO STATE                  |
|----------------|--------------------------------|
| Measurement    | Parameter, range and accuracy  |
| Mechanical     | Mounting, connection and cable |
| Electrical     | Supply and output              |
| Communications | Protocol and regional band     |
| Commercial     | Quantity and destination       |

### CATALOG USE

- Shortlist SG codes
- Keep each row intact
- State any required document

### ORDER USE

- Use the quoted configuration
- Record quantity by SG code
- Keep destination-specific radio details

### NOTE

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