SERIES OF SMART GATEWAYS
SG-E1 / SG-W1 / SG-W1A

- **DIN-RAIL** MOUNTING ACCORDING TO EN60715.
- **AC** MAINS POWER SUPPLY.
- **RS485** SERIAL COMMUNICATION.
- **IR** SERIAL COMMUNICATION (2 PORTS).
- **ETHERNET** COMMUNICATION (only for SG-E1).
- **WI-FI** COMMUNICATION.
- **PULSE INPUT** AND **TEMPERATURE SENSOR INPUT**.
- **SG-W1A** CAN ONLY OPERATE WITH AN EXTERNAL ANTENNA.

Iskra®

FEATURES

o   AC mains power supply.
o   Nominal supply voltage (U_n) from 85 V to 265 V AC or 85 to 300 V DC.
o   Nominal frequencies 50 Hz and 60 Hz.
o   Multifunctional front green (operational mode), red (error and upgrade) and orange (provisioning mode) LED.
o   RS485 serial communication.
o   IR serial communication (2 ports).
o   Wi-Fi communication (can operate with or without an external antenna).
o   Ethernet communication (valid only for SG-E1)
o   1-DIN rail width mounting communication gateway according to EN 60715.
o   Pulse and temperature input.
o   SG-W1A can only operate with an external antenna.

DESCRIPTION

The SG series of smart gateways are intended to connect various equipment into communication network. The gateway has built-in two optical (IR) communication ports and the RS485 serial communication with the MODBUS protocol. RS485 communication enables data transmission and consequently the connection of communication gateway into the RS485 network and communication with various equipment, consisting of RS485 communication (e.g. energy meters, latching switches, power monitoring devices, etc.), via MODBUS.

The SG series also consist of pulse input and temperature sensor (Pt1000) input.

The SG-W1 version is equipped with Wi-Fi communication. This type also has an alternative version with an external antenna (SG-W1A).

The SG-E1 version is equipped with Ethernet communication. Activation of Wi-Fi communication (via parameter) is also possible with this device, but in that case, the Ethernet will not be active on RJ45.
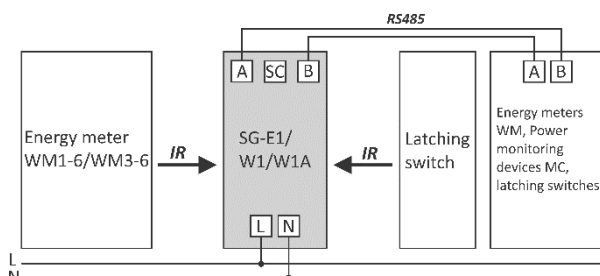

Figure 1: *Diagram of various devices wired to SG.*

INSTALLATION

The SG series are intended only for DIN-rail mounting.

The SG series should be connected to power supply voltage. Two IR communication ports are assembled into the gateway, one on each side. The left one communicates with energy meter, the right one is meant to connect to the latching switch.

NOTE: For proper operation of the IR communication, avoid a powerful external source of light.
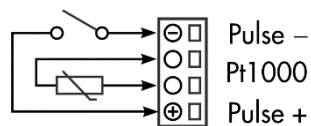

Figure 2: *Diagram of pulse input.*

The SG series could be connected to pulse input and to temperature sensor (Pt1000) input.

Connection of modules:

The gateways can be equipped with different modules. Table below is showing equipped combinations.

Terminals

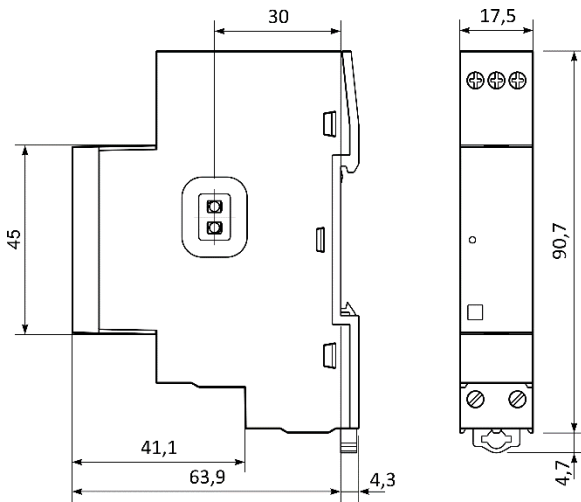| Power supply	N		L
RS485 communication	A	SC	B
Pulse input	Pulse -		Pulse +
Temperature sensor	Pt1000		Pt1000

DIMENSIONAL DRAWINGS

Figure 3: Dimensional drawing of SG-W1 and E1
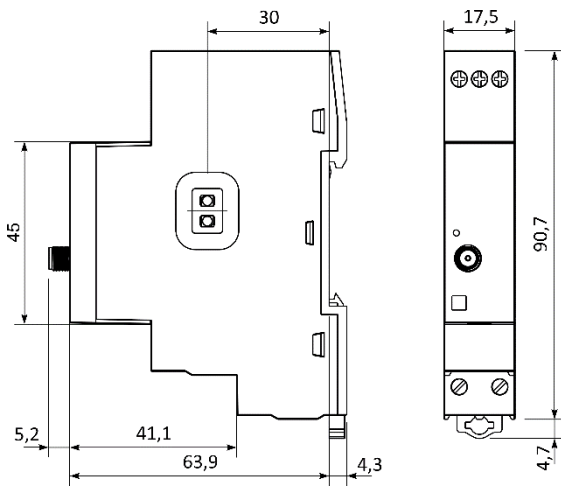

Figure 4: Dimensional drawing of SG-W1 with an external antenna

TECHNICAL DATA

Rail mounting according DIN EN 60715.

Mechanical characteristics of input:

Main inputs
- Contact capacity: 0.5 mm^2 ... 3 mm^2
- Connection screws: M3
- Max torque: 0.5 Nm
- Length or removed isolation: 6 mm

RS485 module
- Contact capacity: 0.5 mm^2... 3 mm^2
- Connection screws: M3
- Max torque: 0.5 Nm
- Length or removed isolation: 6 mm

Power Supply input:

Nominal voltage U_n:	from 85 V to 265 V AC or 85 V to 300 V DC
Power consumption:	< 3 W
Nominal frequency f_n:	50 Hz and 60 Hz
Length of removed isolation:	6 mm

LED:

Colour: green (operational mode)
red (error and upgrade)
orange (provisioning mode)

Wi-Fi:

Protocols: 802.11 b/g/n
Data rate: 150 Mbps
Adjustable transmitting power: 20.5 dBm
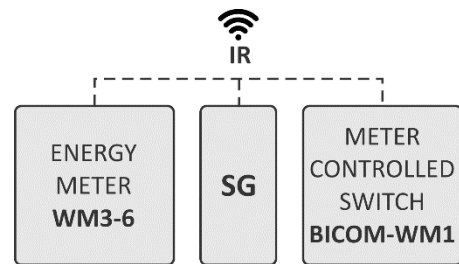
IR serial communication:

Type: IR
Speed: 19200 bit/s
Frame: 8, N, 1
Protocol: MODBUS RTU

IR serial communication feature is also intended for communicating with our other devices such as WM3-6, WM1, …

RS485 Serial communication:

Type: RS485
Speed: 1200 bit/s to 115.200 bit/s (default 115.200 bit/s)
Frame: 8, N, 1
Protocol: MODBUS RTU

Ethernet (only for SG-E1):

Compliant with IEEE 802.3/802.3u (Fast Ethernet)
Compliant with ISO 802-3/IEEE 802.3 (10 BASE-T)

Digital input:

Rated voltage: 230 V (-20 %...+15 %)
Input resistance: 450 kΩ

Temperature sensor (Pt1000) input:

Measuring method: two wire connection
Input range with programmable ratings:
RTD sensors limit values: 200 Ω - 10 kΩ
Measuring voltage: ≤ 1 V
Minimum temperature range: 100 K
Minimum differential resistance:
        400 Ω (1000 Ω -> 1400 Ω)
Lead resistance: < 10 Ω per lead
Consumption: < 0.5 VA

Safety and ambient conditions:

According to standards for IEC 60950.
Temperature and climatic condition according to EN 62052-11.

Dust/water protection	IP50
Operating temperature	-25 °C … +55 °C
Storage temperature	-40 °C … +70 °C
Enclosure	self-extinguish, complying UL94-V

EU DIRECTIVES CONFORMITY:

EU Directive on Measuring Instruments **2014/32/EU.**
EU Directive on EMC **2014/30/EU.**
EU Directive on LDV **2014/35/EU.**
EC Directive WEEE **2002/96/EC.**
EU RED Directive **2014/53/EU**

DISPOSAL

It is forbidden to deposit electrical and electronic equipment as municipal waste. The manufacturer or provider shall take waste equipment free of charge.

ORDERING CODE

022459160000	SG-W1	SG-W1 communication gateway, IR, RS485, Wi-Fi, PI, Pt1000
022459161000	SG-E1	SG-E1 communication gateway, IR, RS485, Ethernet, PI, Pt1000
022459164000	SG-W1A	SG-W1 communication gateway, IR, RS485, Wi-Fi external antenna, PI, Pt1000

DICTIONARY:

PI	Pulse input
MODBUS/DNP3	Industrial protocol for data transmission
AC	Alternating quantity
IR	Infrared (optical) communication
Pt1000	Temperature sensor
Ethernet	IEEE 802.3 data layer protocol
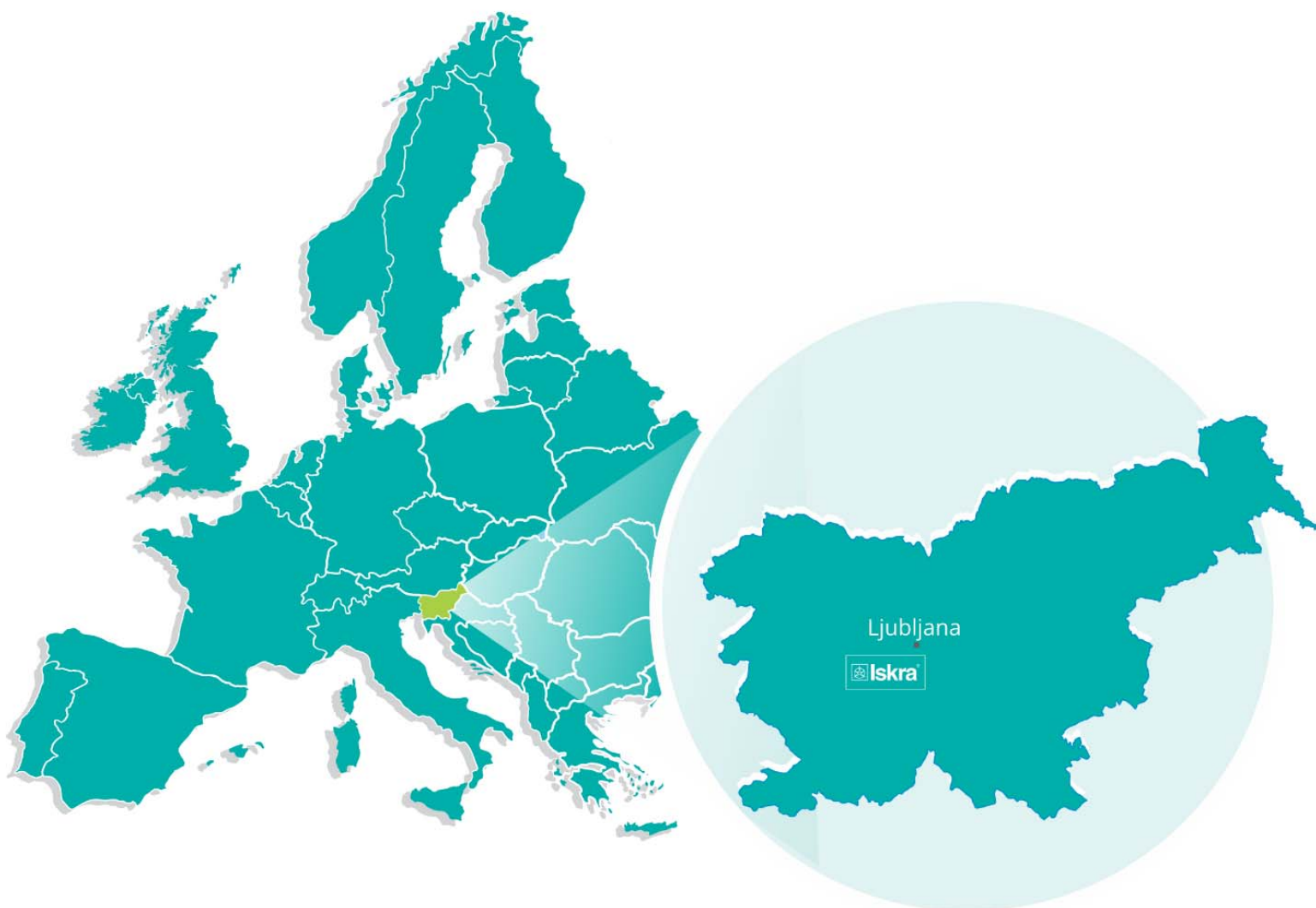
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