DIGWM

SENTERA WI-FI INTERNET GATEWAY FOR DIN RAIL MOUNTING

Mounting and operating instructions

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SAFETY AND PRECAUTIONS

Read all the information in this manual, in the datasheet and in the Modbus Register Map before working with the product. For personal and equipment safety and for optimum product performance, make sure you fully understand the content before installing, using or servicing this product.

For safety and licensing (CE) reasons, unauthorised conversions and / or modifications of the product are inadmissible.

The product should not be exposed to abnormal conditions, such as extreme temperatures, direct sunlight or vibrations. Long-term exposure to chemical vapours in high concentration can affect the product performance. Make sure the work environment is as dry as possible and avoid condensation.

All installations must comply with local health and safety regulations and local electrical standards and approved codes. This product should only be installed by an engineer or a technician with expert knowledge of the product and safety precautions.

Avoid contact with energised electrical parts. Always disconnect the power supply before connecting, servicing or repairing the product.

Always check that you are connecting the correct power supply to the product and use wires of the correct characteristics and cross-section. Make sure all screws and nuts are properly tightened and fuses (if any) are in place.

Consideration should be given to recycling the equipment and packaging. These should be disposed of in accordance with local and national laws and regulations.

If there are questions that are not answered, contact your technical support or consult a professional.

PRODUCT DESCRIPTION

DIGWM is an internet gateway to connect a stand-alone Sentera device or a network of devices to the Internet in order to configure or monitor them via SenteraWeb. The DIGWM allows wireless connection to an existing Wi-Fi network. The unit has 2 Modbus RTU channels - a Master channel to communicate with the connected Slave devices, and a Slave channel to make the unit accessible for a Master controller or a BMS.

ARTICLE CODES

Code	Supply voltage	Imax
DIGWM	24 VDC (PoM)	35 mA

INTENDED AREA OF USE

- Connect your HVAC installation to the online SenteraWeb portal
- Gateway for application dedicated firmware and/or standard firmware updates via SenteraWeb
- Update setpoints, ranges and other parameters in the connected Sentera slave devices
- Data monitoring and data logging via SenteraWeb
- Receive warnings and notifications (e.g. clogged filter notification, motor failure alarm, etc.)

TECHNICAL DATA

- 24 VDC supply voltage, via Power over Modbus (PoM)
- Sentera devices and different non-Sentera devices can be connected via Modbus RTU communication
- Gateway for data transmission to and from the Internet via Wi-Fi
- Internal backup memory for firmware updates
- Backup battery for real time clock, in case the power supply is interrupted
- Enclosure: DIN rail mounted, plastic ABS, UL94-V0, grey RAL 7035
- Protection class: IP20
- Operating ambient conditions:
  - Temperature: -10—60 °C
  - Rel. humidity: 5—95 % rH (non-condensing)

STANDARDS

- Electromagnetic compatibility (EMC) directive 2014/30/EU: CE
  - EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
  - EN 55011:2016 Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement Amendment A1:2017 and A11:2020 to EN 55011:2016
  - EN 55024:2010 Information technology equipment - Immunity characteristics - Limits and methods of measurement
  - EN 50561-1:2013 Power line communication apparatus used in low-voltage installations – Radio disturbance characteristics – Limits and methods of measurement – Part 1: Apparatus for in-home use
- Low voltage (LVD) directive 2014/35/EU:
  - EN 60950-1:2006 Information technology equipment - Safety - Part 1: General requirements Amendments AC:2011, A11:2009, A12:2011, A1:2010 and A2:2013 to EN 60950-1:2006

- EN 62311:2008 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz—300 GHz)

- Radio equipment directive 2014/53/EU:
  - EN 300 328 V2.1.1 Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
- ETSI EN 301 489-1 V2.1.1 (2017-02) Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
- ETSI EN 301 489-17 V3.1.1 (2017-02) Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
- RoHs Directive 2011/65/EC:
  - EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

WIRING AND CONNECTIONS

RJ45 sockets (Power over Modbus)		
Pin 1 Pin 2	24 VDC	Supply voltage
Pin 3 Pin 4	A	Modbus RTU communication, signal A
Pin 5 Pin 6	/B	Modbus RTU communication, signal /B
Pin 7 Pin 8	GND	Ground, supply voltage

MOUNTING INSTRUCTIONS IN STEPS

Before you start mounting the unit, read carefully ***"Safety and Precautions"*** and follow these steps:

1. Slide the unit along the guides of a standard 35 mm DIN rail and fix it to the rail by means of the black locking clip on the enclosure. Mind the correct position and mounting dimensions shown in **Fig. 1** *Mounting dimensions* and **Fig. 2** *Mounting position*.

Fig. 1 Mounting dimensions

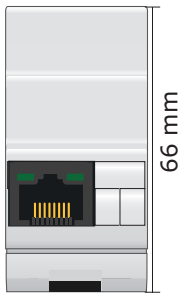
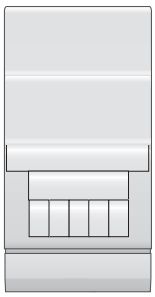
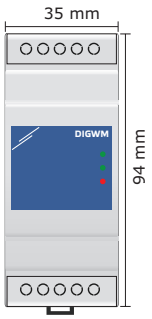
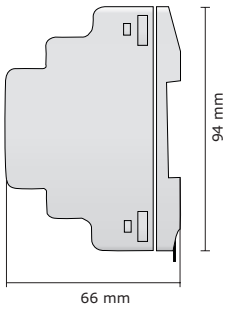
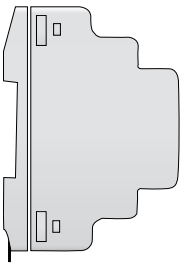
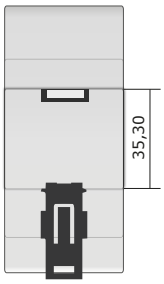
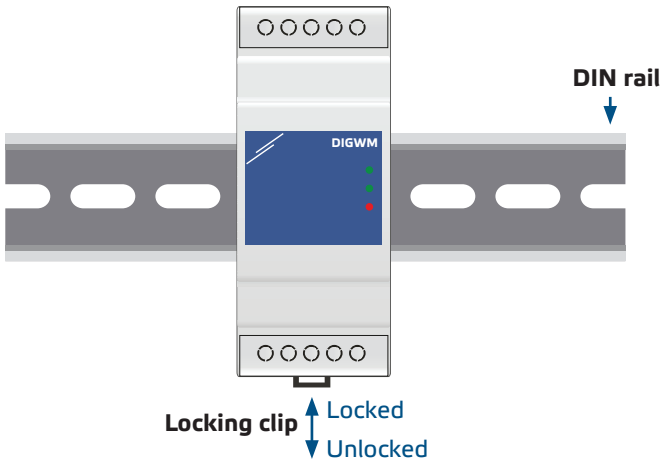
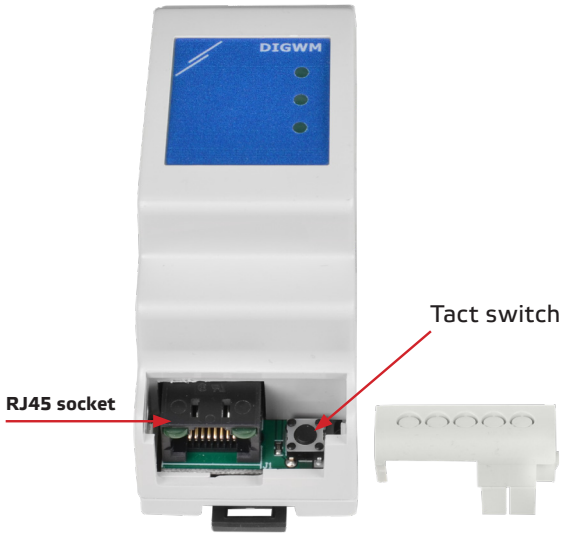
Bottom view	Top view	Front view
		
Side view	**Side view**	**Rear view**
		

Fig. 2 Mounting position



2. Connect the (Sentera) slave devices and 24 VDC via Power over Modbus to the RJ45 socket (see "***Wiring and connections***").

Fig. 3 Wiring and connections



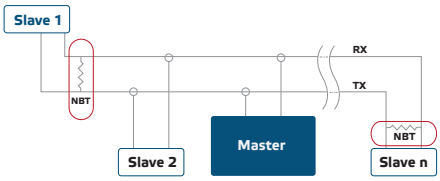
RJ45 socket: Modbus RTU and 24 VDC power supply

3. The red LED indicates that the unit is supplied, but that there is no Wi-Fi connection available.
4. Consult the User Guide, available on the Sentera website to connect the unit to the Wi-Fi network and to SenteraWeb.

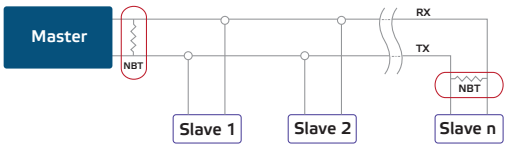
Optional settings

If your unit starts or terminates the network (see **Example 1** and **Example 2**), enable the NBT resistor via 3SModbus. If your device is not an end device, leave the NBT disabled (default Modbus setting).

Example 1



Example 2



NOTE

Connect the NBT terminator only in the two most distant units on the network line!

Firmware update

New functionalities and bug fixes are made available via a firmware update. In case your device does not have the latest firmware installed, it can be updated. SenteraWeb is the easiest way to update the firmware of the unit. In case no internet connection is available, a new firmware can also be installed via the RJ45 socket. To initiate this procedure, put a jumper on pins 3 and 4 of the P1 PROG header and restart the power supply. The unit is now ready to receive a firmware update from a computer, using the 3SM Boot application (part of the 3SM Center software suite, available on the Sentera website).

NOTE

Make sure the power supply does not get interrupted during "bootload" procedure, otherwise you risk losing unsaved data.

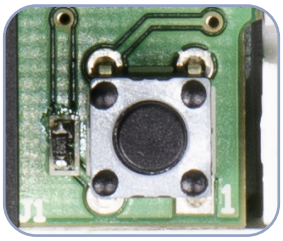
Tact switch

To access the tact switch, you only have to remove the small snap fit cover at the lower side of the device as shown in the **Fig. 3**.

Press and hold the tact switch for at least 5 seconds to reset the unit to its default values:

- default connection mode: DHCP
- default Modbus communication parameters: 19200 Bps, 8 bits, even parity, 1 stop bit (8,E,1)
- default gateway host page: 192.168.1.123

Fig. 4 Tact switch



Reset buttons

To access these two buttons, you need to remove the front cover of the enclosure by using a flat screwdriver to release the snap-fits.

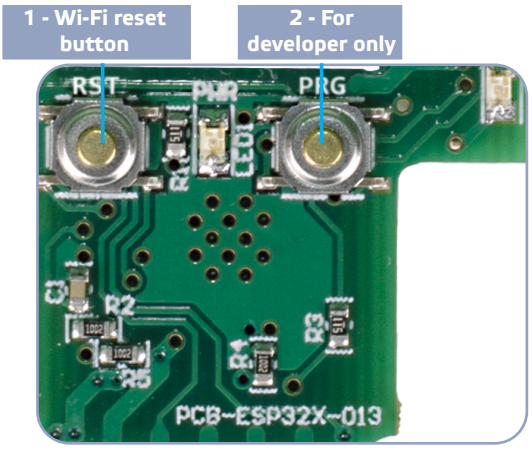
1. Left button - for Wi-Fi reset

In case of connection problems or in order to clean the memory of the Wi-Fi module, press and hold for 4 seconds until the blue LED (LED2) lights up (see **Fig. 5**). After this, the password inside the memory (to connect to a Wi-Fi Access point) has been erased and the default IP address 192.168.1.123 is restored. Now you can restart the installation procedure as explained in the User Guide that can be downloaded from the Sentera Website.

2. Right button - for developers only!

The 'Program' button (see **Fig. 5**) is only needed to restart the microcontroller of the unit for development or debug purposes, such as to enter bootloader mode to reprogram the module. You should NOT press this button in any other cases!

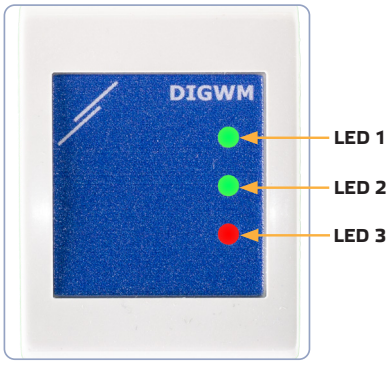
Fig. 5 Wi-Fi reset tact switch



VERIFICATION OF THE INSTALLATION INSTRUCTIONS

- Green LED1 indicates that the unit is supplied and connected to SenteraWeb via the internet.
- Green LED2 blinking indicates active communication with the Internet, i.e. the unit successfully communicates with SenteraWeb sending/receiving parameters to/from the Cloud.
- Green LED2 slowly blinking indicates that bootloader mode has been entered
- Slowly blinking red LED3 indicates system error (connection to the Cloud has been lost).
- Blinking LEDs on the RJ45 sockets indicate that packages are transmitted via Modbus RTU.
- If this is not the case, check the connections.

Fig. 6 LED indications



⚠ ATTENTION

The status of the LEDs can be checked only when the unit is energised. Take the relevant safety measures!

TRANSPORT AND STORAGE

Avoid shocks and extreme conditions; stock in original packing.

WARRANTY AND RESTRICTIONS

The warranty against manufacturing flaws is valid for two years starting from the date of delivery. Any alterations or adjustments to the product absolve the manufacturer of all liability. The manufacturer disclaims all liability for typographical or other errors in this document.

MAINTENANCE

In normal conditions this product is maintenance-free. If soiled, clean with a dry or damp cloth. In case of heavy pollution, clean with a non-aggressive product. In these circumstances the unit should be disconnected from the supply. Pay attention that no fluids enter the unit. Only reconnect it to the supply when it is completely dry.