

HUB-WMBUS-BAT

HUB-WMBUS-230

NAXOM WMBUS Hub

A hub is one of the basic devices in network telemetry. Its function is to collect measurements transmitted from various utility metering devices. HUB-WMBUS collects the data compliant with the Wireless M-Bus OMS protocol regardless of the meter's manufacturer and for all utilities. The collected data are uploaded to the SPIDAP Cloud system via the Internet over the GSM.

The device can read data from up to 1,600 devices and transmit it to a telemetry server. Communication in the FXN network happens via radio waves in the Wireless M-Bus protocol using the ISM 868 MHz band.

The hub is available in two versions: battery-powered (HUB-WMBUS-Bat) and mains-powered (HUB-WMBUS-230). Once connected to power supply, the device automatically connects to the manufacturer's server from which it downloads the address of the target server. From the server level, it is possible to configure the GSM transmission, time, and filters defining which devices are to be included and which are to be omitted based on the frame header.



GSM transmission frequency

In the mains-powered model, the hub connects to the GSM server at every full hour with 1 frame from each supported device – the default setting;

In the battery-powered model, the hub connects to the GSM server with the frequency of:

- once a day with 1 frame from each device, daily at 12:00:00 - default setting;
- once a week with 1 frame from each device, every Monday at 12:00:00;
- once a month with 1 frame from each device, every first day of the month at 12:00:00.
- Transmission after power failure: once the power supply is restored, the device automatically initiates communication with the SPIDAP cloud system.

Application

HUB-WMBUS is used to build ISM - FXN fixed radio network systems in urban and industrial settings. The device is installed indoors and can collect readings from metering devices such as water meters, heat meters, heat cost allocators, gas meters, and electricity meters.

Key features

- IP-54 rated case
- Compact size
- Fast and simple installation
- Detection and alerting of significant events such as:
 - dismantling,
 - breached/closed case,
 - power failure – for the mains-powered model,
 - low battery – for the battery-powered model,
 - battery over-discharge – for the battery-powered model,
 - the CPU reset,
 - minimum operating temperature exceeded,
 - maximum operating temperature exceeded.

Start-up process

The start-up process is the same for battery- and mains-powered hubs. The process can be carried out in a simplified form or by going through all the steps of verifying the GSM range and server access. The hub can be added to the customer's SPIDAP Cloud account before or after setting up the device in the field. However, collecting data from the meters will ONLY be possible after successfully adding the device to the customer's SPIDAP Cloud account. Installation and start-up do not require any device programming in the field.

The simplified process bypasses the testing stage and consists solely of installation at the selected location and the sealing of the device (the completion of the installation process). The device is ready to operate right away.

To carry out the full procedure with range tests it is necessary to:

- ensure that the hub has been located at a potential installation location,
- remove the seal to access the button and three RGB LEDs.

1. Starting the GSM range test:

- a) press and hold the button inside the case,
- b) when there is a beep sound (for 0.5s) and all the RGB LEDs are lit, the device enters the GSM range test mode,
- c) the device checks the range for 3 minutes.

If the device is not located at the right location at that time (signalled by the LEDs switching off and no beep sound), the process needs to be repeated:

- a) move the hub to a different location,
- b) press and hold the button again.

2. Choosing the right location

When an acceptable location (with stable GSM connection) has been found:

- a) press and hold the button until you hear a double beep: One beep (1 second), a break (1 second), the second beep (1 second),
- b) the device will complete the GSM range test and will automatically start testing the Internet connection.

3. The Internet and server connection test

The hub will automatically test the connection to the Internet and the server.



After the test has been successfully completed, the device generates a sequence of three (3) beeps signalling readiness for installation.

4. Installation completion

If the test has been successfully completed:

- a) install the device at the chosen location,
- b) snap the seal to block access to the fixing screw, button and RGB LEDs.

5. Communication test failure

If the hub does not generate the sequence of three beeps:

- a) choose another location,
- b) repeat the entire process.

6. Configuration – the customer's SPIDAP Cloud account

The following configuration parameters can be set from the client server:

- the frequency of communications with the server,
- admission filters,
- blocking filters,
- time,
- event types to trigger an additional GSM transmission,
- GSM configuration (server address and port).

7. Final notes

- Only carry out the installation process at the location where both the GSM and Internet tests have been successfully completed.
- Make sure the device is correctly installed and sealed.
- In case of failure to connect to the GSM network and/or the server, the hub will retry to establish the connection once a day for at least one week.
- A successful connection to the provisioning server automatically downloads the basic configuration parameters, i.e. the address of the client server and the SSL root CA certificate.

Adding comments to the SPIDAP Cloud

Open the browser and log in to your SPIDAP Cloud account.

1. Moving on to device configuration:

- after logging in, expand the "Devices and networks" menu,
- choose "HUB-WMBUS Hubs" from the drop-down list.

2. Adding a new device:

- Click the "+Hub HUB-WMBUS" button.
- Fill in the following fields in the dialog box:
 - serial number – you will find it printed on the side of the case,
 - HashID – also located on the side of the case,
 - location (installation address) – enter the correct installation address of the device.

3. Data storage:

- after filling in the form, click “Save”,
- the data will be uploaded to the provisioning server.

4. Assigning a device to the account:

- the first time the device is correctly connected to the server, it will be automatically added to the owner's account in the SPIDAP Cloud.

5. Remote management:

- Once the process is complete, the device will become available for remote control and configuration of operating parameters by the owner via the SPIDAP Cloud platform.

Notes:

- make sure the Serial number and HashID have been entered correctly,
- in case of problems with assigning the device, check the Internet connection and the correctness of the entered data.

Adding comments to the SPIDAP Cloud

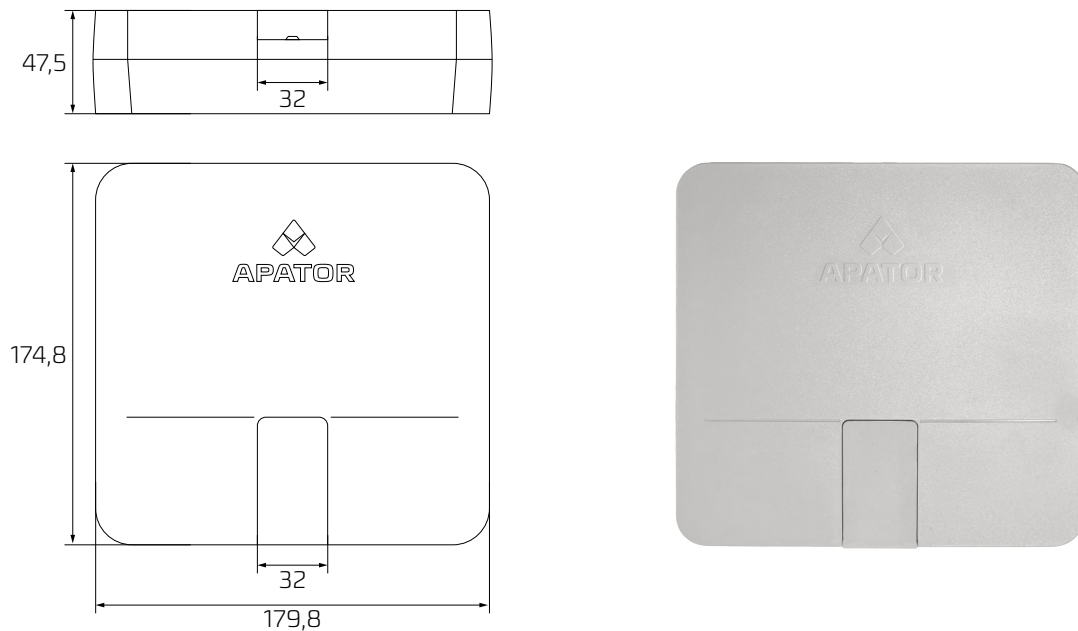
- M-Bus standard EN 13757:2013
- OMS Primary Communication, v. 4.0.2 (EU license-free area 868-870 MHz)

Basic specifications

Model	HUB-WMBUS-BAT HUB-WMBUS-230
Communication mode	Wireless M-Bus OMS modes C1 and T1 parallelly
Transmission frequency	868 MHz
Wireless MBus encryption	AES, key length 128 bit
Data security	TLS secured communication protocol Encrypted data in flash memory
Power supply	For the HUB-WMBUS-Bat model – two M20CV batteries (3VDC, battery capacity 25 Ah) For the HUB-WMBUS-230 model – 230 VAC/50Hz/10W
GSM module	EG915N-EU module Bands: 800, 900, 1800, 2100, 2600 MHz LTE cat. 1 class
SIM card	Mini SIM card 2FF
Sensitivity	-115 dBm
Transmitting power	14 dBm
Battery life (configuration-dependent) *	up to 6 years *with the GSM transmission once a day, maintaining the specified temperature profile

Temperature profile	80% of operating time below 30°C 10% of operating time between 30°C and 40°C 7% of operating time between 40°C and 50°C 3% of operating time over 50°C
Operating temperature	from 5°C to 55°C
Degree of protection	IP54
Conditions	For indoor use
Service module	USB type C connector
Firmware update	The hub allows remote software updates via the GSM
Case material	PC
Case dimensions	179,8 x 174,8 x 47,50 mm
Weight	620 g (HUB-WMBUS-Bat) 415 g (HUB-WMBUS-230)

Case dimensions



The data presented in the data sheet was correct on the date of publication.
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