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Communication module

APT-VERTI-1

User Manual

ISO 9001

PN-N-18001

ISO 14001

Table of contents

1. APPLICATION	3
2. REGULATORY AND STANDARD COMPLIANCE	4
3. DEVICE OVERVIEW	4
3.1. Device components	4
3.2. Device and standard accessory RF antenna dimensions	5
3.3. Specification	5
4. DEVICE OPERATION	6
4.1. First steps	6
4.2. Communication module powered on	6
4.3. Battery level	6
4.4. Bluetooth interface	6
4.5. Power saver mode	7
4.6. Battery charging and maintenance	7
5. OPERATING PRECAUTIONS	7
6. WARRANTY TERMS AND CONDITIONS	7

1. APPLICATION

The APT-VERTI-1 communication module is an RF intermediate transmission device between the RF data output meter modules and the meter-reading collector's app installed on a mobile device. The primary function of the communication module is to convert the data signals between an RF interface operating in the ISM 868 MHz band and a Bluetooth/USB interface.

When coupled with the meter-reading collector's app, the communication module can:

- receive RF data frames in areas of high RF meter output traffic.
- reconfigure meter RF module profile settings.

Table of APT-VERTI-1 communication module compatibility with Apator Powogaz RF modules

Device name	Meter name	Supported operating modes	
		Readout (T1)	Configuration (installation & servicing: T2)
APT-WMBUS-NA-1	All AP water meters with universal module pre-equipped counters	×	×
AT-WMBUS-16-2	JS1,6 to 4-02 smart	×	×
AT-WMBUS-19	JS6,3 to 16 master	×	×
APT-OMS-NA-1	JS1,6 to 4-02 smart	×	×
APT-OMS-NA-2	SV-RTK 2,5 to SV-RTK 16	×	×
APT-OMS-NA-3	JS6,3 to 16 master	×	×
APT-OMS-NA-4	MWN40 to 300	×	×
APT-OMS-NA-5	MWN40 to 300 IP68	×	×
APT-OMS-NA-6	JS1,6 to 4-02 smart, Metra version	×	×
AT-WMBUS-17	SV-RTK 2,5 to SV-RTK 16	×	×
AT-WMBUS-18-AH	MWN40 to 125 IP68	×	×
AT-WMBUS-18-BH	MWN150 to 300 IP68	×	×
AT-WMBUS-01	Legacy water meter versions	×	–
AT-WMBUS-04	All AP water meters with NK transmitters or water meters pre-equipped for an AT-WMBUS-NE pulse module	×	–
AT-WMBUS-07	Legacy water meter versions	×	–
AT-WMBUS-08	JS1,6 to 4-02 smart	×	–
AT-WMBUS-09	MWN40 to 125	×	–
AT-WMBUS-10	MWN150 to 300	×	–
AT-WMBUS-11	JS3,5 to 10; MP40 to 100; JS50 to 100	×	–
AT-WMBUS-11-2	JS6,3 to 16 master	×	–
AT-WMBUS-Mr-01	Elf compact heat meter	×	–
AT-WMBUS-Mr-01Z	Elf compact heat meter	×	–
AT-WMBUS-Mr-02	LQM	×	–
AT-WMBUS-Mr-02Z	LQM	×	–
AT-WMBUS-Mr-10	Faun calculator	×	–
E-ITN-30-5	Geat cost allocator	×	–
E-ITN-30-51	Geat cost allocator	×	–
E-ITN-30-6	Geat cost allocator	×	–
Apator Miitors ApS Ultrimis	Ultrasonic Water Meter	×	–
AT-WMBUS-05-1	Retransmitter	×	–
AT-WMBUS-05-2	Retransmitter	×	–

AT-WMBUS-05-3	Retransmitter	x	–
AT-WMBUS-05-4	Retransmitter	x	–

The APT-VERTI-1 enhances the success rate of RF communication data frame reading. This mode of operation gives up to a 10% improvement in conflicting data frame recovery (depending on the network traffic intensity).

2. REGULATORY AND STANDARD COMPLIANCE

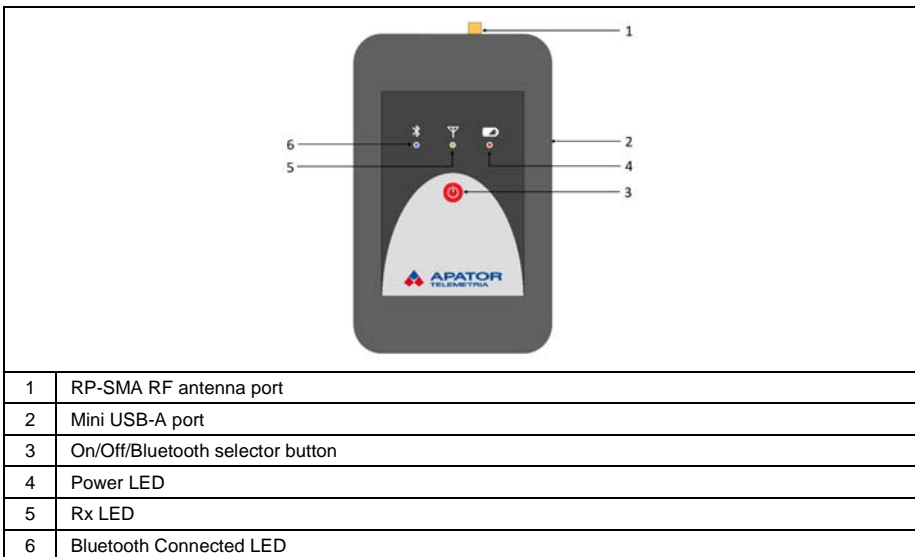
Apator Powogaz S.A. hereby declares that this product meets the requirements of the following reference regulations and standards:

- 2014/53/EU Radio Equipment Directive (RED)
- 2011/65/EU RoHS
- PN-EN 13757 – Communication systems for meters and remote reading of meters. Parts 1-4
- Supports Wireless M-BUS and OMS compliant devices
- This device has received the **CE** mark

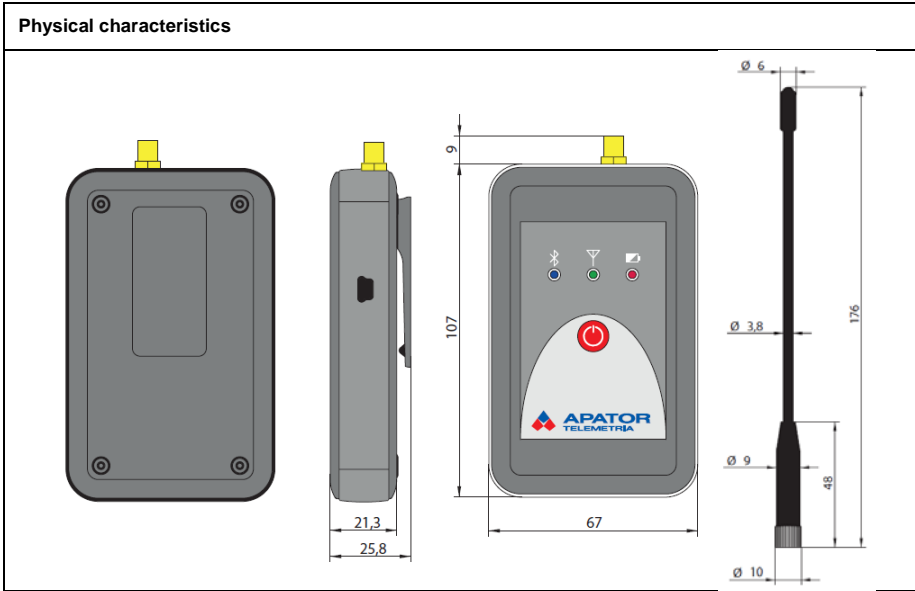
3. DEVICE OVERVIEW

The communication module comprises an electronic system and a power supply battery, both housed in a plastic enclosure. The communication module features the following data interfaces: Mini USB and an RP-SMA-compliant RF antenna; the communication module also features three LED indicators and an On/Off/Bluetooth selector button. The communication module works only with the RF antenna connected.

3.1. Device components



3.2. Device and standard accessory RF antenna dimensions



3.3. Specification

Wireless M-Bus	
T1 mode	868.950 MHz
T2 mode	868.300 MHz
Transmitter power output	14 dBm (25 mW)
Receiver sensitivity	-110 dBm
Bluetooth	
Transmitter power output	4 dBm (2.5 mW)
Range	max 10 m
Profile	Serial port
Class	2
Power supply and operation	
Battery pack	Li-ion
Battery support time at full charge	24 h
Battery charging time	6 h
Automatic power-off	
Minimum battery declared capacity life	2 years max.
Ambient temperature	
Operating temperature range	0°C to 55°C

Data interfaces	
RP-SMA	868 MHz RF antenna connector
Mini USB A	PC data communication & battery charging
Weight	
130 g	
Ingress protection rating	
IP30	

4. DEVICE OPERATION

4.1. First steps



To begin using the communication module, first switch it on. Press and hold the On/Off/Bluetooth selector button (3) for 1 second to do this. The communication module will be on after all three LEDs blink once.

4.2. Communication module powered on



The RF receiver is active when the green LED (5) is on. Each RF data frame successfully received via Wireless M-Bus is indicated by the same LED switching off for a brief moment.

4.3. Battery level



The battery level is indicated by the red LED (4) and directly proportional to the red LED light time in 1-second long cycles.

4.4. Bluetooth interface



Connecting a mobile terminal to the communication module requires a standard Bluetooth pairing procedure:

1. Keep the Bluetooth-enabled mobile terminal within 10 m of the APT-VERTI-1 communication module.
2. Switch on the APT-VERTI-1 Bluetooth interface. Briefly depress the On/Off/Bluetooth selector button (3). The blue LED (6) will flash when the Bluetooth interface is on.
3. Operate the mobile terminal menu to pair the device with the communication module. If unable to pair, see the mobile terminal operating manual. The default Bluetooth PIN is "0000".

The blue LED (6) will stay on steadily when the mobile terminal is paired with the communication module.

4.5. Power saver mode



The communication module features a power saver mode. If left on without the Bluetooth interface paired and/or the USB port connected to an external device, the communication module powers off automatically.

The time to automatic power off is 15 minutes.

4.6. Battery charging and maintenance



Due to the performance characteristics of lithium-ion battery packs, avoid leaving the APT-VERTI-1 communication module with the battery drained for too long. Otherwise, the battery service life will be reduced. The battery is deeply discharged when the red LED (4) blinks briefly every 10 seconds. The communication module cannot be powered on when this happens.



Recharge the battery by connecting the APT-VERTI-1 communication module to either of the following:

- a USB port of a PC;
- a USB car charger;
- a mains outlet via an USB power adapter.

The power source must output 5 V with a minimum charging current of 500 mA.



The battery recharging time from a deep discharge is up to 6 hours.

Caution: Use the battery strictly as specified here to enjoy its maximum service life. The battery can only be replaced by an authorized service centre of the manufacturer.

5. OPERATING PRECAUTIONS



Protect the product against shocks and damage during transport.

Store between 0°C and 25°C.

Verify that the battery has been fully charged before operating the product.

Switch on the product before use.

Switch off the product when not in use.

Operate the product at ambient temperatures and the conditions specified in this User Manual.



Do not dispose of with regular waste/trash. Return the product to a WEEE collection point for disposal. Help protect the natural environment.

6. WARRANTY TERMS AND CONDITIONS

The manufacturer guarantees proper performance of the communication module for the duration specified in § 2 of the Apator-Powogaz General Warranty Terms & Conditions only if the conditions for transport, storage and operation are followed.

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