APATOR METRA

Electronic radio module for residential water meters Apator Powogaz

OP-O4-1B (NAXOM-1B)

Description

OP-O4-1b (Naxom-1b) radio frequency module is intended for reading and wireless output transmission of the meterign data from Apator Powogaz S.A. water meters over the Wireless M-Bus communication protocol. The module is compatible with OMS equipment. This module also features a uniquely extensive local and remote configuration of the operating parameters. The communication module scans the indicator of the connected water meter's counter by detecting the direction of the indicator revolutions. This detection enables remote transmission of the actual indications of the water meter counter. The specified battery life is 12 years maximum, with the standard transmission configuration for a predefined data transmission schedule and environmental conditions (class T50)

Module OP-O4-1b is equipped with ⅔ AA battery.

Application

The OP-O4-1b communication module is intended for installation ovelay on all JS/JS90 1,6÷4 Smart+ series water meters; JS1,6÷4 Smart C+; JS/JS90 1,6÷ Smart D+ single jet water meters form Apator Powogaz.

Module	Water meter type		
OP-O4-1b (NAXOM-1b)	JS 1,6-02 Smart+ JS 1,6-03 Smart+ JS 2,5-02 Smart+ JS 2,5-03 Smart+ JS 2,5-G1-02 Smart+ JS 4-02 Smart+ JS90 1,6-02 Smart+ JS90 1,6-0,3 Smart+ JS90 2,5-02 Smart+ JS90 2,5-03 Smart+ JS90 2,5-G1-02 Smart+ JS90 4-02 Smart +	JS 1,6-02 Smart C+ JS 1,6-03 Smart C+ JS 2,5-02 Smart C+ JS 2,5-03 Smart C+ JS 2,5-G1-02 Smart C+ JS 4-02 Smart C+	JS 1,6-05 Smart D+ JS 2,5-05 Smart D+ JS 2,5-G1-05 Smart D+ JS 4-05 Smart D+ JS90 1,6-05 Smart D+ JS90 2,5-05 Smart D+ JS90 2,5-G1-05 Smart D+ JS90-05 Smart D+ JS 1,6-07 Smart D+ JS 2,5-07 Smart D+ JS 2,5-G1-07 Smart D+ JS 4-07 Smart D+ JS90 1,6-07 Smart D+ JS90 2,5-07 Smart D+ JS90 2,5-G1-07 Smart D+ JS90 4-07 Smart D+

Features

- Compatible with wide range of single-jet water meters from Apator Powogaz S.A.
- Easy and tamper-free installation on the water meter, even if it has already been deployed for operation
- Quick configuration with mobile equipment
- Real time clock with winter/summer time and leap years features
- Water meter type selection and configurable water meter-related properties
- Five operating modes to neable adjustment of the data transmission interval to the user's individual requirements
- Detection, logging and indication of water usage measurement abnormalities and module performance abnormalities by indication of all events
- Storing and reading the measured volume data from 1 to 16 months
- Supports custom configuration of the data transmission interval
- Water consumption readout with mobile terminals in the readout collector system or using a telemetry network in a staionary system
- Measurement data readouts form water meters are fully immune to all interference from external magnetic fields
- Wireless data transmission driven by the Wireless M-Bud communication protocol
- Compatible with AMR and data transmission structure equipment in compliance with Open Metering System Vol. 3 or Vil. 4
- Data transmission ecryption with 128-bit AES-CBC mode 5 or OMS3 or mode 5 or 7 for OMS 4
- Operates on the 868 MHz unlicensed ISM band

Data reading and writing

It enables reading and writing the following data over RF communication:

- Water meter number
- Current date
- Operating days
- Operation/transmission times
- Transmission frame contents configuration
- Day of recording the monthly volume
- Current volume
- Volume history
- Current flow rate
- Event details and theshold values
- Event outo-delete ceonfiguration

Event information and historical volume values can be deleted; the communication module can be switched over to storage mode (all possible events are defined at the events point).

Transmission encryption (AES keys)

To ensure confidentiality of the metering data, the RF-transmitted consumption data is protected with the AES-128+CBC encryption algorithm (which guarantees of the transmitted data when there are no changes in the measured volume). The received data can be decrypted if the encryption key is known. The key is 32 aplhanumerical characters. The encryption key can be set upt if the current key of the communication module is known.

Volume history

The communication module collects and saves historical volume data for the last 16 months. The volume written day can be configured (day 1 to 28, or the last day of the month). The data frame contain the historical data form 1 to 16 months back. The service mode allows accessing the whole historical content (irrespective of the months configured to be stranmitted in an RF frame).

Events

The communcation module can detect, log and show water usage measurement abnormalities, and module performance abnomralities by the indication of events. In the communication module's configuration, the custom events are selected where the details should be output on a spontaneous data frame whenever such an event accurs. The events are appedned periodically to the data frames. Each next frame holds the details for the successive, logged event.

The following events have been defined:

Custom events that are relevant to the customer and concern the flow, battery status or operating conditions:

- Magnetic field: en external magnetic field was detected
- Disconnected: the communication module has been separated from its water meter
- Zero flow threshold: maximum daily volume, tal volume over a preset number if days, number of days, a zero flow condition is detected when the maximum daily volume is not exceeded on any of the preset days
- Minimum flow rate (thresholds: flow rate, minimum volume): this event is detected when the device records the minimum volume (or higher volume) at a flow that is velow the treshold
- Maximum flow rate (thresholds: flow rate, successive instances of flow over the threshold): this event is detected when a flow above the threshold is recorded over the succeisve 10-seconds periods, and the number of those instances is at least the one defnded for the threshold
- Reverse flow (threshold: reverse flow volume): this is a reverse flow with a volume that exceeds th threshold
- Water leak (thresholds: water meter start flow, leak time (multiple of 10 minutes)): this events occurs when a continuous flow is detected with a value above the threshold for a preset duration
- Batter operating time exceeded (threshold: min. count of operating days): this event occurs when the number of the communication module operating days exceeds the threshold
- Acces error (threshold: number of failed attempts to communicate with the module): this event occures when the number of failed communication attempts exceeds the defnded threshold

Service events that are relevant to the manufacturer. The event emergance and specifics are available to the manufacturer only and not displayed in meter readout apps.

Module	OP-O4-1b NAXOM-1b
Cooperation with water meters	Pro všechny vodoměry: JS/JS90 1,6÷4 Smart+; JS 1,6÷4 Smart C+; JS/JS90 1,6÷4 Smart D+
Model	16.65.1.1.21
Communication standard	OMS gen. 3 en. mode 5 or no security, and IMS gen. 4 en. mode 5 or 7
Power supply	3 V battery, size 2/3 AA
Operating temperature	0°C to 55°C
Signal output	Internal antenna
Transmission frequency	868 MHz
Communication protocol	Wireless M-Bus
Consumption detection	Optical
Power output	10 mW / 50 Ω
Power output level stability	+1 dB / -3 dB
Sensitivity	-108 dBm
Operating time	Up to 12 years*
Outdoor range	350 m
Ingress protection	IP 65
Installation method	Directly on water meter
Weight	43 g

*Configuration dependent:

Configuration example: spontaneous data frame standard transmission interval: 60 seconds for 10 hours a day, 5 days a week; 768 secondsa at all other hours; transmission data frame contents; closk time, volume, event flags, water meter number, last 12 of history, event details. The battery operating may vary with the actual configuration settings. Contact the manufacturer for detailed information about the specific configuration.

Temperature dependent:

Module operation in the foloowng temperature ranges: 80% of operating time at 30°C maximum; 10% of operating time at 30-40°C; 10% of operating time at 55°C maximum. The applied temperature profile matches the average temperuter profule of the housing sector.

Parameter	Units	OP-O4-1b
h	mm	16,5
H	mm	95,5
H_2	mm	67,6
H_3	mm	44,1
L	mm	110 (G3/4"); 130 (G1")

OP-O4-1b (⅔ AA battery)
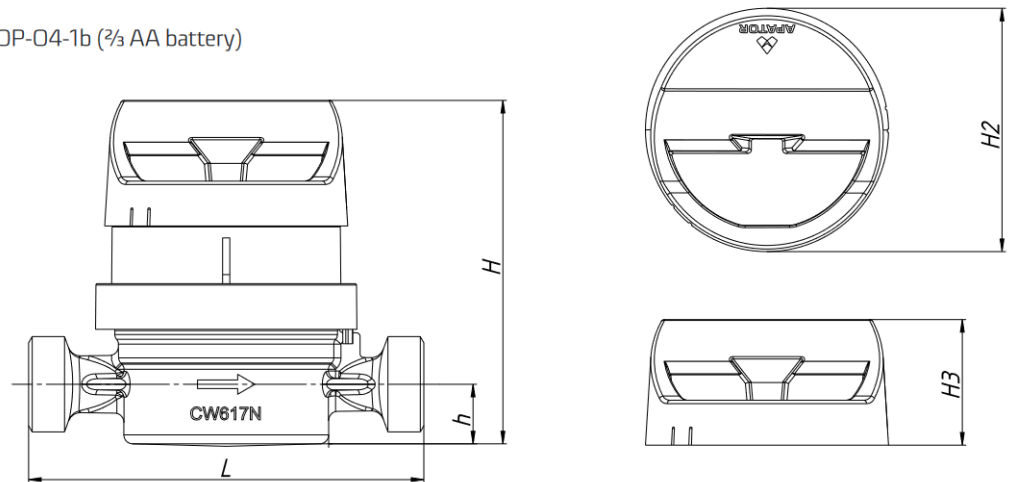
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Your distributor:

The manufacturer reserves the right to change design, technical specifications and accesories wihtout prior notice.

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