

APT-03A-1

for Wireless M-Bus connectivity

The APT-03-1 is designed for apartment block water meter reading and wireless data transmission. Data is transmitted by Wireless M-Bus radio connectivity in accordance with the PN-EN 13757 standard. APT-03A-1 cooperates with devices working in OMS standard. The open communication protocol provides compatibility with a wide range of devices forming the remote data readout and transmission structure. The device is based on a microprocessor system, while the use of optical sensors enables, for example, data readout from water meters and detection of water flow direction, which provides complete consistency of radio-based readouts and water meter readings. The device is resistant to strong external magnetic fields, and the battery power enables continuous operation for up to 12 years. The device uses a data encryption method based on the AES-CBC algorithm with a 128 bit encryption key, which protects against unauthorised access to the measurement data and guarantees the integrity of data sent to the system.


















Application

The device is intended for installation on apartment water meters of the following types: JS 1,6-02 Smart+, JS90 1,6-02 Smart+, JS 2,5-02 Smart+, JS90 2,5-02 Smart+, JS 2,5-G1-02 Smart+, JS90 2,5-G1-02 Smart+, JS 4,0-02 Smart+, JS90 4,0-02 Smart+, JS 1,6-02 Smart C+, JS90 1,6-02 Smart C+, JS 2,5-02 Smart C+, JS 2,5-G1-02 Smart C+, JS90 2,5-02 Smart C+, JS90 2,5-G1-02 Smart C+, JS 4,0-02 Smart C+, and JS 90 4,0-02 Smart C+, manufactured by Apator Powogaz S.A.

Features

- Non-integrating and easy to install on water meters
- Quick and easy setting with mobile devices
- Operates in the 868 MHz unlicensed ISM band
- Data transmission encrypted using the AES – CBC encryption algorithm with 128 bit encryption keys, compliant with the PN-EN-13757-3 standard
- Real time clock with winter/summer time and leap year features
- Water meter type selection and configurable water meter-related properties
- Five operating modes enable adjustment of the data transmission interval to the user's individual requirements
- Detection, recording and signalling of irregularities in water consumption measurements and clip-on module operation using event signalling
- Option of storing and reading the volume from 1 to 16 months
- Water consumption readout using mobile terminals in a mobile data collection system or using a telemetry network in a fixed system
- Measurement data readouts from water meters are completely resistant to all interference caused by external magnetic fields
- Cooperates with devices working in OMS standard
- Optimum range achieved using an external omnidirectional antenna with counterweighting on the antenna track (for model 1.65.H.1.07)

Event signalling

| | |
|---|----------------------------------|
|  | Maximum flow |
|  | Minimum flow |
|  | Backflow |
|  | No change in measurement |
|  | Leakage |
|  | Device disconnection |
|  | Magnetic field detection |
|  | Strong light detection |
|  | Low battery |
|  | Battery work time exceeded |
|  | Battery usage threshold exceeded |
|  | Tip error |
|  | Instruction completed |
|  | Processor reset |
|  | Incorrect log value in processor |
|  | Access error |

Device operating mode

- First hourly mode
- Second hourly mode
- Days of the week mode
- Days of the month mode
- Months mode

Configuration options

- Measurement device factory number
- ID number
- UID number
- Measuring device positioning
- Volume
- Reading memorisation day
- Metering threshold unchanged
- Minimum flow threshold
- Maximum flow threshold
- Reverse flow threshold
- Leak threshold
- Auto-reset of events



Technical data

| Model | 1.65.1.1.01 | 2.65.1.1.12 | 1.65.H.1.07 |
|---|-------------------------------|-----------------------------|--|
| Communication protocol | Wireless M-Bus | Wireless M-Bus | Wireless M-Bus |
| Transmission frequency | 868 MHz | 868 MHz | 868 MHz |
| Consumption detection | optical | optical | optical |
| Power supply | lithium battery 3,6 V; 1/2 AA | lithium battery 3,6 V; AA | lithium battery 3,6 V; 1/2 AA |
| Ingress protection rating | IP65 | IP65 | IP65 |
| Signal lead | internal antenna | internal antenna | external antenna on 2 m long antenna track |
| Power output | 10 mW / 50 Ω | 10 mW / 50 Ω | 10 mW / 50 Ω |
| Power output level stability | +1 dB ÷ -3 dB | +1 dB ÷ -3 dB | +1 dB ÷ -3 dB |
| Sensitivity | -102 dBm | -102 dBm | -102 dBm |
| Battery life (depending on configuration) | up to 12 lat* | up to 12 lat* | up to 12 lat* |
| Mounting | directly on the water meter | directly on the water meter | directly on the water meter |
| Dimensions | h = 26,2 mm; s = 65,5 mm | h = 34 mm; s = 65,5 mm | h = 26,2 mm; s = 65,5 mm |
| Weight | 0,033 kg | 0,065 kg | 0,033 kg |
| Operating temperature | 0°C ÷ 55°C | 0°C ÷ 55°C | 0°C ÷ 55°C |

*for devices operating at 25°C ambient temperature