Installation and operating instructions

Radio add-on module OMS radio 868 MHz for water meters with system shaft (Modularis)

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2 Revision directory

REVISION	DATE	MODIFICATION
1.0	17th of June 2019	First edition
1.1	10th of January 2020	revision
1.2	04th of Dez 2020	revision

3 Usage

The electronic radio water meter attachment is used to record and transmit consumption data from mechanical water meters with a Modularis system shaft. Wireless-MBUS is used as the radio standard (OMS-compliant). Single-jet and multi-jet dry rotors as well as rotary piston and measuring capsule water meters can be equipped.

4 Assembly Instructions

4.1 Remove the blind cover

The Modularis system shaft is factory-fitted with a blind cap. Remove the cap with a small screwdriver by levering it out through the cable duct provided. The blind cap is no longer required.

4.2 Clean the interior

If necessary, clean the inside of the open counter with water without the addition of solvents. Pay special attention to the spot above the silver semicircle.

4.3 Insert the module and screw it on

For assembly, the radio add-on module is inserted into the opening of the counter and fixed with the enclosed screw (2.2x25mm). Please make sure that the screw is not overtightened.

4.4 Attach security mark

The security mark supplied (adhesive seal) is used to indicate unauthorized access. Attach the security tag so that the screw head is completely covered.

4.5 Activation of the radio

The radio add-on module is delivered ready for operation, ie the flow rate measurement is already active. The radio is deactivated for the transport. There are 3 ways to activate the radio: a) with the activation head, can be obtained from Innotas) with an IrDa opto head and the MDC (Meter Device Commander) software from Innotas) via a predefined water flow, in usually about 120 liters

5 Configuration of the radio add-on module

5.1 Parameterization via IrDa opto head

The water meter attachment can be parameterized using a standard IrDa optical head. The following parameters can be changed in connection with the MDC (Meter Device Commander) software:

- Date and Time
- Meter reading
- Due date (monthly, yearly)
- Due date month
- Protocol type (T-Mode / S-Mode), with and without monthly values
- Encryption (yes / no)
- Send mask:
    - Months (January to December)
    - Weekdays (Monday to Sunday)
    - Broadcast times (00:00 to 23:59)
    - Send interval (in seconds)

5.2 Factory configuration

The radio add-on modules are delivered configured according to customer specifications. To do this, the customer fills out an order form. The following settings can be specified:

- Time zone
- Telegram type, T or S mode, short or long telegram
- Deadline, monthly or yearly
- Reference month if annually
- Encryption (AES key) switched on, yes or no
- Transmission mask
    - Months, January to December
    - Weekdays, Monday to Friday
    - Broadcast times from 00:00 to 24:00, in full hours
    - Send cycle and variance in seconds
    - Manufacturer identification (flag ID according to DLMS)
- Parameters for activation flow, standstill limit, return flow limit and leak detection

5.3 Customized configuration

The factory configuration can be changed in some points by the customer. The MDC program and an IrDa optical head are required for this.

- Date and Time
- Transmission mask
- AES key on / off
- Due date

6 Monitoring functions

The radio add-on module monitors the most important basic functions and settings during operation in order to ensure proper operation and to signal possible errors in good time.

6.1 Sabotage detection

The sabotage detection is used to register attempts at manipulation with magnets. An error bit is set and transmitted via wM-BUS and can be read out via the interface. The module continues to work independently. A detected sabotage error can be reset via the interface.

6.2 Battery monitoring

The battery of the radio add-on module has a service life of 12/10 years in normal operation (cold water / hot water meter) and a power reserve. A “Batt low” error is set after 12 years of factory operation or if the battery voltage falls below the limit in radio mode. From this point on, the water meter attachment still has a power reserve that can vary depending on the battery load (due to radio frequency, low or high ambient temperature, etc.). The error bit is transmitted via wM-BUS and can be read out via the interface. The error can be reset via the optical interface. The battery monitoring is activated at the factory.

6.3 RESET monitoring

The radio add-on module registers a restart of the software in the event of an error. The error is communicated via radio and the interface.

6.4 Storage monitoring

The radio add-on module monitors the consistency of the set parameters. If it detects an error, a checksum error is set. The error is communicated via radio and the interface.

6.5 Standstill detection

If a preset number of days without flow is exceeded, an error bit is set. The error is communicated via radio and the interface.

6.6 Backflow detection

If a preset number of liters of reverse flow is exceeded, an error bit is set. The error is communicated via radio and the interface.
Backflow (also below the backflow limit) is recognized and measured so that the mechanical and electronic meter reading always match.

6.7 Leak detection

Flows above an adjustable minimum flow (start-up flow) are recorded over time. If this flow exceeds an adjustable number of hours, an error bit is set.
The error is communicated via radio and the interface.

6.8 HF error

This is an internal diagnostic function.
The controller monitors the correct function of the radio chip. If faults are found, an error bit is set which can be read out via the optical interface.

7 Technical specifications

Norms	EN 61000-4-2, EN 61000-4-3, EN 55011
Measuring principle	inductive
resolution	1 liter
operating temperatur	0 ° C to +60 ° C
Storage temperature	-25 ° C to +60 ° C
service	optical interface
Tamper detection	mechanically via seal / magnetic
Power supply	3 V DC lithium battery
delivery	Storage mode (radio not active)
Operating time on one battery	12/10 years (cold / warm)
storage	last 18 monthly values
Radio interface	wM-BUS with S1 / T1 according to DIN EN13757-4, OMS compliant 868 MHz
Radiated power	< 14 dBm
Radio data encryption	AES 128 mode 5
Self-monitoring	Sabotage, leakage, return, standstill, operating time, reset, data
Certification mark	CE according to directive 2014/53 / EU (RED)
Degree of protection according to DIN 40050	IP 67

8 Warning and safety information

The water meter attachment is intended exclusively for the recording and forwarding of consumption values. The specified environmental conditions must be observed. The product must be installed properly and in accordance with the installation guidelines and may therefore only be installed by trained specialist personnel.

The water meter attachment contains a battery and must be disposed of properly.