EN

IWM-TX5

User manual

This manual is intended to offer a basic guide to getting started with the module, but also how configuration support for advanced users. The **IWM-TX5** module is developed with particular attention to ease of use and reliability in the WM-Bus system.
The device is delivered in sleep mode. All functions, radio transmission included, are deactivated.
The module is activated once mounted on the meter and after the inductive index of the water meter completes 5 clockwise turns.

The following safety precautions must be observed during all operating phases, of use, service and repair of this product.

- **Read the manual**
- **Do not modify the device**
- **The device must not be exposed to extreme heat conditions or open flames**
- **The device must not be exposed to chemicals or solvents.**
- **The labeling of the device must not be changed, removed or made unrecognizable**

PACKING CONTENT

- IWM-TX5 Module
- Locking seal
- Adhesive seal

ENVIROMENTAL CONDITIONS

- Storage and transport: from -20°C to +70°C
- Operating: from +1°C to +55°C
- The storage period must not exceed 1 year
- The radio modules are precision devices and must be protected from shocks and vibration

SAFETY INSTRUCTIONS

Warning: this symbol highlights the instructions to be strictly followed for the correct functioning of the radio module.

Danger: Items marked with this symbol contain information that must be followed carefully to avoid dangerous situations.

Notes: the notes indicated by this symbol contain suggestions to keep in mind when using the radio module.

Read all the instructions carefully before proceeding with the installation! Failure to comply with one or more procedures contained in the manual can be dangerous and cause damage to things and people.
It is recommended to comply with all applicable safety and accident prevention laws.

	Follow nationwide regulations regarding water measurement.
	Follow the technical requirements relating to the installation of electrical equipment.
	The instrument complies with the requirements of the European Council Directive 2014/30/EU on electromagnetic compatibility, the Directive 2014/35/EU on electrical safety and the RED Directive 2014/53/EU.
	The warranty and correct functioning are void if the identification plate and seals applied to the instrument are removed or damaged.
	It is forbidden to transport instruments with an active radio interface by air.
	To clean the instrument externally, use a soft cloth moistened with water. Do not wash with high pressure jets or immerse the device in water. Avoid contact with oils and solvent. Do not use alcohol or detergents.
	Remove the instrument from the packaging only at the time of installation to protect it from damage and dirt.
	If multiple instruments are installed in a unit, the installation conditions must be the same for all instruments in order to ensure the most equitable billing of consumption possible.
	Carefully observe the instructions in the data sheet, instruction manual, application notes and lid. Failure to comply with the operating conditions may lead to situations of danger and forfeiture of all claims for liability for defects as well as liability based on any warranty. For more information visit www.bmeters.com.
	Dispose of replaced instruments and defective components in accordance with the environmental regulations in force.

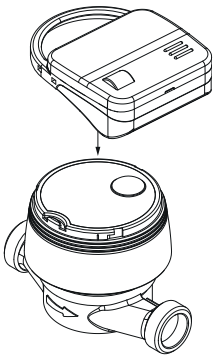
⚠	Do not damage the device casing. In case of impact with external objects, the device can be irreparably damaged and lose the IP65 degree of protection. Install in areas protected against impact. In case of breakage of the protective casing, contact customer support.
⚠	Pay attention to sharp or edgy protrusions in threads, flanges and measuring tubes. In this regard, it is recommended to wear protective gloves.
⚠	Do not expose the instrument to sunlight and other heat sources. Do not throw in the fire.
⚠	The device must be used in a way that minimizes the potential for human contact during normal operation. In order to avoid the possibility of exceeding the RF exposure limits, human proximity to receivers with an integrated antenna should not be less than 20 cm (8 inches) during normal operation.
→	Keep out of the reach of children.
→	The device does not require special protection against electrical interference; however, electromagnetic interference must be avoided.
→	If transmission network interfaces are used, especially when cables are routed outside the building, use increased protection against electrical interference.
→	The device may only be installed in frost-free areas.

The table below displays the troubleshooting procedures:

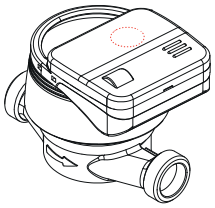
Problem	Cause	Solution
It does not transmit via radio	Failure to pass 5 liters forwards or the battery may be damaged or discharged	Report to the after-sales service
Damaged casing	Possible external impact or fall to the ground	Report to the after-sales service
Open and visible electronic unit	Tampering by third parties or strong external impacts	Report to the after-sales service
Consumption is not accounted	Tampering by third parties, strong external impacts that have damaged the sensing coils or incorrect assembly	Report to the after-sales service
'Removal' alarm	Tampering by third parties or incorrect assembly	Report to the after-sales service
'Leakage' alarm	Possible leaks in the water network/ system/ taps	Check for leaks in the water supply/ system/ tap
'Maximum flow rate' alarm	Range higher than Q4 for 10 consecutive minutes	Check the water supply and the installation of the meter
'Reverse flow' alarm	Continuous reverse flow higher than the set threshold	Check the water supply and the installation of the meter

INSTALLATION

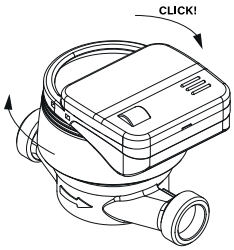
The installation of the **IWM-TX5** module is allowed on the **GSD8-I** meters only.
It is recommended to install the **IWM-TX5** module away from metal objects or any potential radio shielding, in a place protected from tampering.
The device could be configured by using the **BMetering NFC Config App**. The installer has the task of checking the propagation conditions of the radio signal during installation.



Step 1

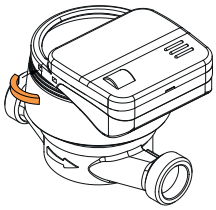


Step 2



Step 3

Seal application:



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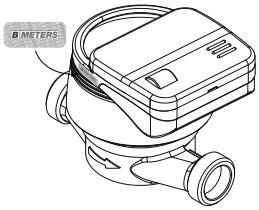

Step 2

OPERATING MODES - RADIO ACTIVATION

Once the module is installed, the radio transmission is activated automatically, after that 5 liters of water have passed through the meter.
It is possible to force the activation and deactivation of radio transmission through the NFC app.

RADIO PARAMETERS

Wireless M-BUS compatible

As soon as the radio operating mode is activated, the device sends a radio telegram according to Wireless M-BUS, T1 mode (one-way transmission).

Preconfigured radio parameters

Walk-by mode:

- Transmission frequency: every 60 seconds.
- Transmission interval: 5/7 days (no weekend), every month
- Encryption: disabled (default)
- 12 monthly historical data
- No sending of internal date and time

AMR mode (Default):

- Transmission frequency: every 200 seconds
- Transmission interval: 7/7 days, every month
- Encryption: disabled (default)
- No historical data
- No sending of internal date and time

The configuration and setting of further parameters / thresholds can be done via NFC and its app (BMetering NFC App). An 'Active' field is provided in the **BMetering NFC Config App** that allows you to 'force' the radio transmission by ignoring the passage of the 5 liters.

ALARMS

The IWM-TX5 module has several built-in alarm functions:

Alarm	Description	Activation	Troubleshooting	Reset	Radio telegram
Reverse flow alarm	Reverse flow detected, a flow in the opposite direction was detected	The error is triggered after a continuous reverse flow greater than the set value. Settable values (liters): 20/50/200	Check the water supply and meter installation	Reset the alarm via NFC	The payload contains the alarm status and the total of reverse flow. After the reset, the status is updated
Qmax overflow alarm	Water meters were used in improper conditions, the flow rate exceeded the operating conditions. The manufacturer's warranty is invalidated	The error is triggered after the meter operates at a flow rate above Q4 for 10 consecutive minutes. Settable values (m3 / h): 1.25 / 1.5 / 2/3 / 3.125 / 5	Check the water supply	Reset the alarm via NFC	The payload contains the alarm status. After the reset, the status is updated
NFC fraud alarm	The presence of an NFC field has been detected	The presence of an NFC field is checked at regular intervals to prevent fraud	Check for extraneous NFC fields	Reset the alarm via NFC	The payload contains the alarm status and the alarm activation date. After the reset, the status is updated
Low battery alarm	A battery voltage of less than 2.65V has been detected	It is activated when the battery voltage drops below the 2.65V threshold	Permanent error	Permanent error	The payload contains the alarm status and activation date
Leakage alarm	Continuous flow greater than 3l/h is detected for a certain period of time	The counter detects a flow continuous of 3 l/h for X hours. (Default: 12) Settable values (hours): 12/24/48/72	Check the absence of leaks in the water network / system	It automatically restores when the initial conditions are restored (flow <3 l/ h)	The payload contains the alarm status and the alarm activation date. After the reset, the status is updated
Removal alarm	Removal of the module from the counter is detected	A periodic check of the state of the plastic button is carried out	Check the correct mounting of the module on the meter	Reset the alarm via NFC	The payload contains the alarm status and the alarm activation date. After the reset, the status is updated
Magnetic fraud alarm	The presence of a magnetic field has been detected	The presence of a magnetic field is checked at regular intervals to prevent fraud	Check for the presence of a external magnetic field	Reset the alarm via NFC	The payload contains the alarm status and the alarm activation date. After the reset, the status is updated

BATTERY AND REPLACEMENT PROCEDURES

The radio module constantly monitors the battery status (maximum duration: 10 years) and reports the upcoming discharge via NFC or WM-BUS radio. The notification occurs one year before the total discharge. For replacement, contact the manufacturer.

→ The instrument is equipped with a non-rechargeable battery, which can be dangerous if used improperly. To reduce the risks, the following precautions must be observed:

⚠	Do not recharge or replace the battery;
⚠	Do not open, puncture or damage the batteries;
⚠	Do not short-circuit the battery;
⚠	Do not expose the battery to temperatures above 85° C;
⚠	Do not insert into ovens, crush or cut: these actions could cause an explosion or leakage of flammable gases or liquids;
⚠	Do not use naked flames near the device;
⚠	Do not put in contact with water;
⚠	Do not expose the battery to an extremely low pressure environment which could cause an explosion or a leak of gases or flammable liquids;
⚠	Always dispose of batteries in compliance with current regulations;
⚠	Always use original spare parts authorized by the manufacturer.

TECHNICAL DATA

Version
IWM-TX5 Wireless M-BUS module

Operations

Operating temperature	from +1°C to +55°C
Storage and transport	from -20°C to +70°C

Connectivity

Network	WM-BUS
Frequency bands	868 MHz
Mode	T1

Security

Algorithms	AES-128
Hardware	Co-processor cryptographic

Battery life	max. 10 years *
Primary cell	Lithium 3.0V 1.8 Ah **
Meter readout method	Inductive
Maximum reading error	0,5%
Weight	124 g

Allarm functions
1. Removal alarm
2. Low battery alarm
3. Magnetic fraud alarm
4. Reverse flow alarm
5. Qmax overflow alarm
6. Leakage alarm
7. NFC fraud alert

Protection class
IP65 (on request IP68 ***)

Certifications
CE

***** The battery life strongly depends on the working time window, set during the configuration process, and on the environmental conditions. Estimation of the battery life is given by the configuration software
****** Batteries are not replaceable, **DO NOT ATTEMPT TO REPLEACE**. Any attempt will void the warranty, moreover, will irreversibly damage the device
******* IP68: maximum 24 hours of continuous submersion at 1 m depth

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