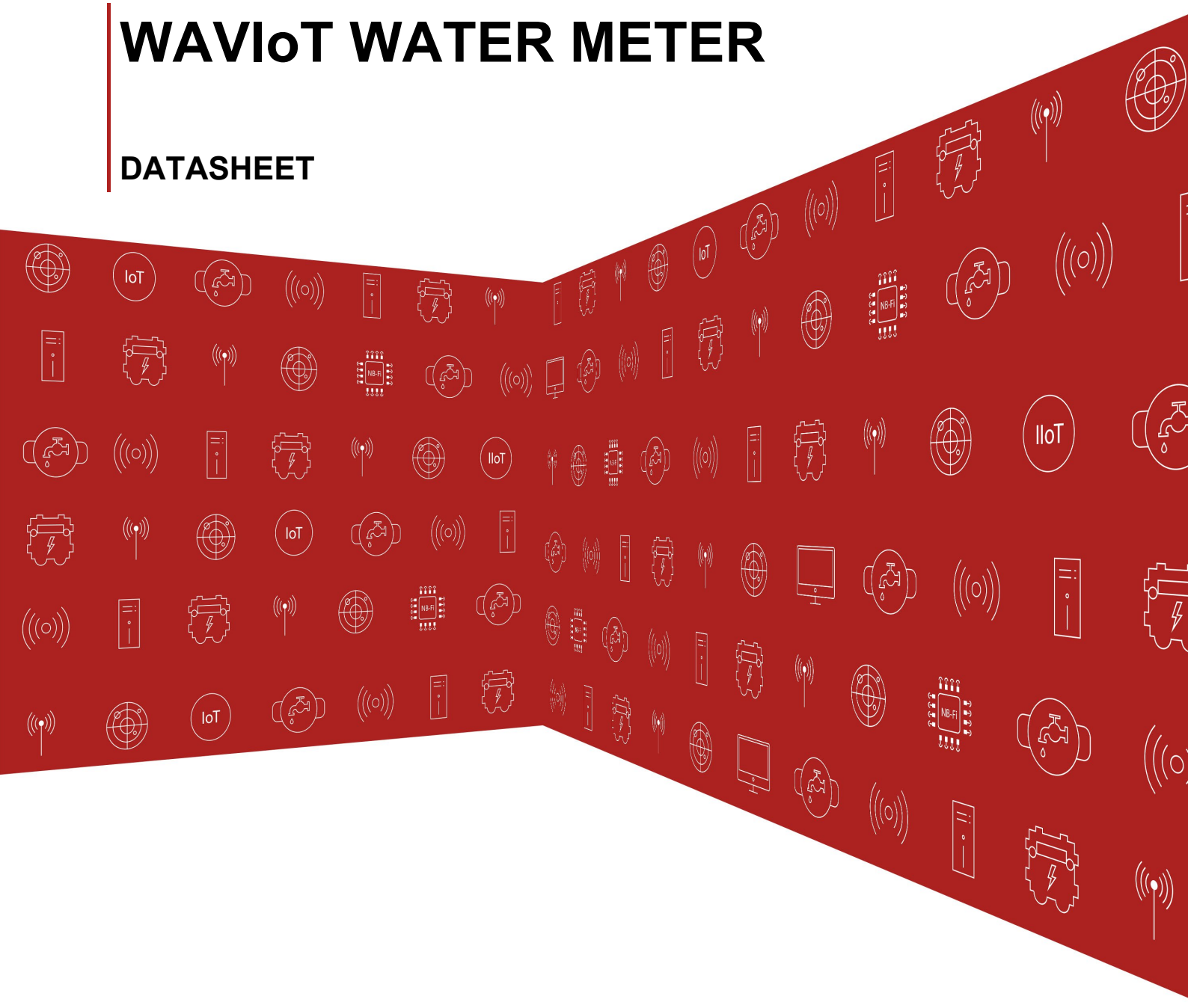
WAVIOT

NB-Fi

WAVIoT WATER METER

DATASHEET



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1. Introduction

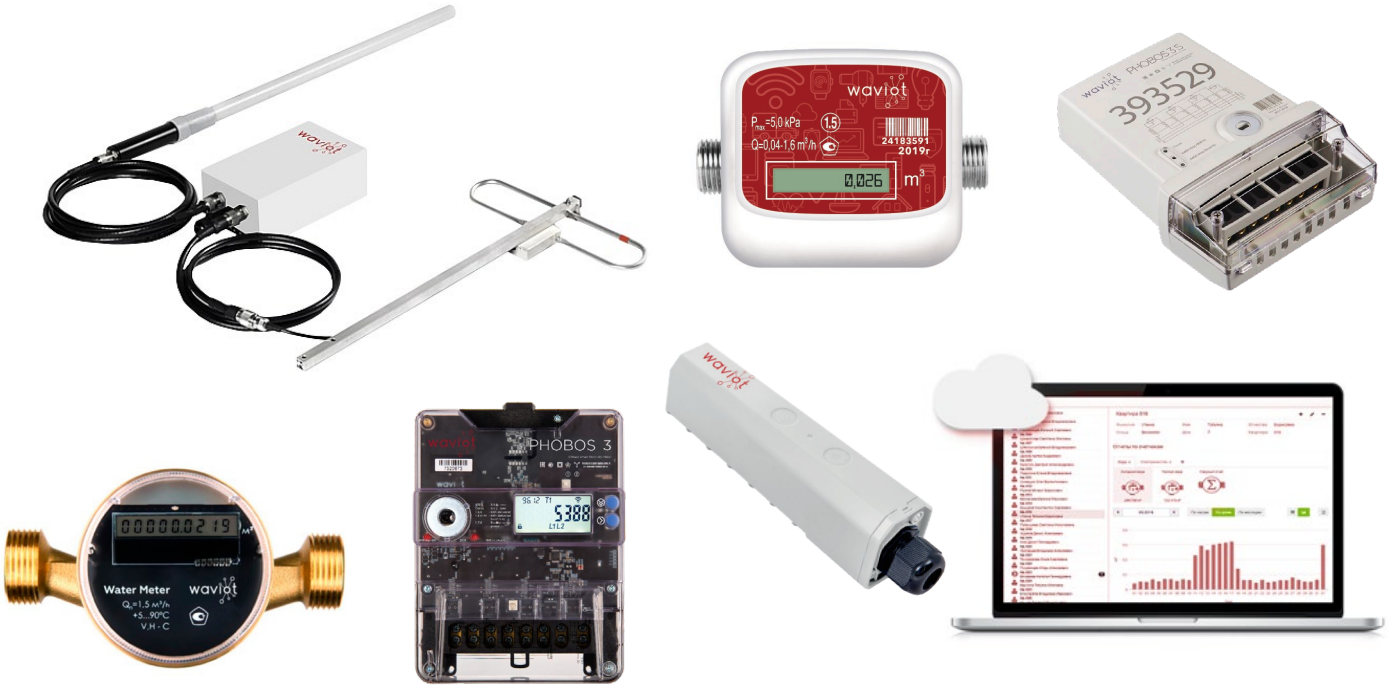
WAVIoT is an innovator in low-power wide-area network (LPWAN) technologies that power the M2M telemetry and Internet of Things. WAVIoT uses the NB-Fi standard that is based on Narrow Band radio technology and operates in the license-free Sub-1 GHz frequency bands.

WAVIoT devices connected to the WAVIoT IoT Platform via the NB-Fi protocol use significantly less power and operate over larger distances compared to other wireless technologies which require more power and work best in short range. Numerous devices send data through bi-directional NB-Fi base stations. The base stations then detect, demodulate and transfer received messages to the WAVIoT Head-End System (HES) which is a part of the WAVIoT IoT Platform. WAVIoT Meter Data Management (MDM) system is a WAVIoT IoT Platform application that requests or collects, validates and processes data (e.g. consumption data or events and alarms) and shares it with suppliers, utility management companies and consumers. The HES and MDM systems have API that allows exchanging data with the customer applications such as billing systems, customer care systems and solutions for data analytics.

Plug-and-play IoT devices, NB-Fi modems with pulse, ADC or RS-232/485 inputs and high-performance bi-directional base stations allow deploying NB-Fi networks for IoT applications rapidly (sometimes within hours) in any part of the world. WAVIoT technology and the NB-Fi standard may be applied for Automated Meter Reading (AMR) systems, Advanced Metering Infrastructure (AMI) solutions, wireless alarm and security systems, industrial monitoring and control, smart agriculture and other wireless sensor network solutions.

The WAVIoT team has extensive practical experience in the rollout of large systems with hundreds of NB-Fi devices within a single project, and as a result, all our R&D activities are focused on the challenges that we meet in numerous use scenarios.

This document describes the WAVIoT Water Meter and also provides a general overview of WAVIoT technology and the NB-Fi standard for IoT communication.



2. Technical characteristics for WAVIoT Water Meter

Parameter	Value			
Principle of operation	Single-jet water meter			
Nominal bore (DN), mm	15		20	
Fitting	G¾ B		G1 B	
Accuracy class	B	C	B	C
Flow-points, m^3/h:				
- Minimum flowrate (Q_{min})	0.03	0.015	0.05	0.025
- Transitional flowrate (Q_t)	0.12	0.0225	0.2	0.0375
- Maximum flowrate (Q_{max})	3	3	5	5
Daily consumption limitations, m^3:	37.5		62.5	
Monthly consumption limitations, m^3:	1125		1875	
Maximum permissible errors, %				
- From Q_{min} (including) to Q_t	± 5			
- From Q_t (including) to Q_{max} (including)	± 2			
Pressure rating				
- Max. operating pressure, Bar	10			
- Max. tested pressure, Bar	32			
Head loss at max flow	0.6 Bar			
Temperature tolerance, ºC	From +5 to +90			
Display	9 digits LCD			
Reverse flow	Observed but not registered Registered (on request)			
Dimensions, mm (length×width×height)	110×75×75		130×75×75	
Weight, kg, not more	0.75		1.5	

Parameter	Value
Long Range Communications - Wireless protocol - Network topology - Frequency - Maximum RF TX Power - Distance range	 NB-Fi Star 868.1 MHz (for Europe) adjustable, 860-925 MHz (for other countries) 25mW, duty cycle 1% Up to 10 km (urban), up to 30 km (rural)
Battery lifetime, years, not less	7
Data encryption	AES-256

Figure 1 – WAVIoT Water Meter

We are continuously developing the technology used within our product range delivering outstanding innovative solutions, therefore the specification may change from time to time.

3. WAVIoT water meter installation

3.1. Installation Overview

Installation of the WAVIoT water meter does not differ from the installation process of other commonly used water meters.

WAVIoT Water Meter is a radio device capable of transmitting in the unlicensed frequency bands. Because the WAVIoT Water Meter operates in the unlicensed radio frequency bands it is susceptible to interference that can reduce throughput and range.

3.2. Place of installation

The majority of our water meters are located inside the house or business. In some instances, the meters are below ground in concrete or plastic meter boxes with lids. Meter boxes are typically located near the sidewalk or curb or just off the roadway in the yard in front of the house.

3.3. Logging into the WAVIoT MDM system

WAVIoT Meter Data Management system (MDM system) is a web based IoT platform which provides easy access to all data collected by NB-Fi devices. WAVIoT MDM system provides customizable monthly, daily and hourly reports for each WAVIoT Water Meter.

Default address for the WAVIoT MDM system is https://mdm.waviot.com.

To get your access credentials fill in the registration form at https://auth.waviot.com or get them from your supplier of the WAVIoT equipment.

You can find the detailed information about MDM system in the User Guide for the WAVIoT IoT Platform.

4. Packing list

The following components are included in your package:

#	Item			Quantity	Comment
1	WAVIoT Water Meter	D _____ (DN)	_____ (Accuracy class B or C)	1	Required

Check this packing list before installation to ensure that you have received each item. If you are missing any items, contact your supplier.

The packaging information section is filled by the manufacturer:

Packaging information

WAVIoT Water Meter

Serial # _____ (factory number) _____ (security seal number)

Produced by:

Employee: QA engineer (position)

_____ (signature) _____ (full name)

Date of packing: _____ (day, month, year)

5. Warranty statement

WAVIoT warrants to the original end user (purchaser) that the WAVIoT Water Meter is free from any defects in materials or workmanship under normal use for a period of two (2) years from the date of purchase. During the warranty period, and upon proof of purchase, if the product fails due to faulty workmanship and/or materials, WAVIoT will, at its sole discretion, repair or replace the defective product or components. However, when repair or replacement is not practical, WAVIoT may, at its sole discretion elect to refund the original purchase price of the defective product. Any replacement may consist of a new or re-manufactured functionally equivalent product of equal value, and will be made solely at the discretion of WAVIoT. Repaired or replaced hardware is warranted only for the remainder of the original warranty period or 60 days from the date of replacement, whichever is longer, and is subject to the same exclusions and limitations as the original product. Unless expressly stated otherwise within this document, the purchaser is responsible for all shipping, labor, installation, and other costs associated with the repair and/or replacement. All hardware or part thereof that is replaced by WAVIoT, or for which the purchase price is refunded, shall become the property of WAVIoT upon replacement or refund.

The following are excluded from the warranty:

- Product defects that result from improper operating, mounting, maintenance, or use of the device
- Unauthorized modifications made by parties other than the manufacturer, of if the original security seal or security ring have been defaced, altered, or removed
- Damages during transportation or storage
- Catastrophes caused by external influences and force majeure
- Vandalism from persons or animals
- Exposure to environmental conditions outside of the device’s rated specifications

6. Contact Information

info@waviot.com

Technical support

Once the WAVIoT Water Meters are properly installed, you may contact our technical support for any assistance. Please use the following contact details for technical support and troubleshooting: support@waviot.com.