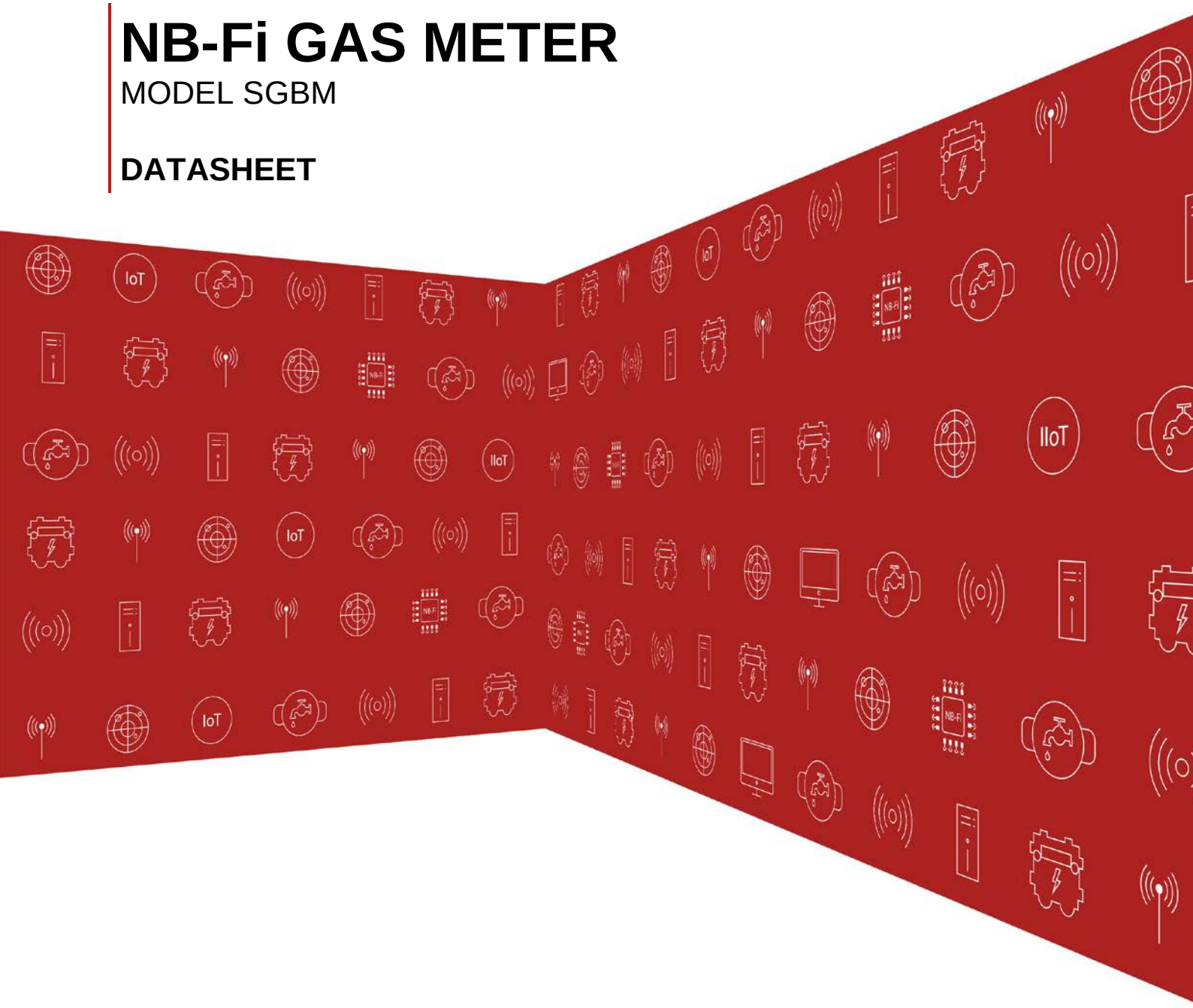
June 2020

NB-Fi GAS METER

MODEL SGBM

DATASHEET



LPWAN SOLUTIONS

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1. Description

NB-Fi Gas Meter SGBM is a smart and compact domestic gas meter equipped with an NB-Fi transceiver and designed to measure natural gas consumption volumes by individual consumers.

Passing through the flow generator sensor, gas generates acoustic vibrations therein with a frequency proportional to the gas flow rate. Acoustic vibrations are transmitted to an air-electric switch where they are converted into an electrical signal. The electrical signal arrives at the electronic unit, which amplifies the signal, generates pulses, counts them, converts the received number of pulses to the consumed gas volume and displays this value on the LCD.

The meters are available in four versions (G-1.6M, G-2.5, G-3.2, G-4) which differs in maximum flow rate.

The thermal correction function brings measured gas volume in balance with a temperature of 20°C, which enables to eliminate the influence of seasonal gas temperature on the measured volume.

NB-Fi Gas Meter transmits data via NB-Fi radio protocol to base stations, then base stations forward data packets to the WAVIoT IoT Platform. Processed data is displayed in WAVIoT Meter Data Management system and can be transferred to any third-party application via API.

The design of gas meters eliminates the possibility of unauthorized influence on the meter software and measurement information.

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

2. Metrological and technical characteristics

Parameters	Model types and their technical parameters			
	G-1.6M	G-2.5	G-3.2	G-4
Nominal diameter, DN, mm	15			20
Maximum flow rate Q_{max}, m^3/h	1.6	2.50	3.20	4.0
Nominal flow rate Q_{nom}, m^3/h	0.8	1.20	1.60	2.0
Minimum flow rate Q_{min}, m^3/h	0.04	0.04	0.04	0.04
Starting flow rate, m^3/h	0.025	0.04	0.04	0.04
Maximum permissible relative error under normal conditions, %, within the flow range: Q_{min} to $0.2 \cdot Q_{max}$ $0.2 \cdot Q_{max}$ to Q_{max}, inclusive for accuracy class 1.0 for accuracy class 1.5	 ±2.5 ±1.0 ±1.5			
Additional maximum permissible relative error caused by the deviation of the ambient temperature from the normal one for each 10 °C of temperature change within the operating temperature range, %	±1.5			
Pressure drop at maximum flow rate Q_{max}, mm WG (kPa), not more	160 (1.6)			
Operating pressure of the target medium, kPa, not more	5.0			
Maximum Index Reading	99999.999			
Gas temperature range, ºC	-10 to + 50			
Operation conditions: ▪ ambient temperature range, °C ▪ humidity at a temperature not exceeding 35 °C, %, not more. ▪ atmospheric pressure, kPa	 -10 to +50 95 84 to 106.7			
Weight, kg, max.	0.67			
Pipe distance, mm				
Gas meter dimensions (Height × Width × Length), mm	70×88×76			
Lifetime, years, min.	10			

Parameters	Model types and their technical parameters			
	G-1.6M	G-2.5	G-3.2	G-4
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)			
Data encryption	AES-256			

Figure 1 - General view of NB-Fi Gas Meters

3. NB-Fi Gas Meter installation

3.1. Installation Overview

Installation of the NB-Fi Gas Meter does not differ from the installation process of other commonly used gas meters.

NB-Fi Gas Meter is a radio device capable of transmitting in the unlicensed frequency bands. Because the NB-Fi Gas 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 gas meters are located inside the house or business. In some instances, the gas 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 NB-Fi Gas 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	NB-Fi Gas Meter _____ model	1	
2	T-piece with two coupling nuts and paronite gasket	1	

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

5. Warranty statement

WAVIoT warrants to the original end user (purchaser) that the NB-Fi Gas 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

Telematics Solutions, LLC

info@waviot.com

The NB-Fi Gas Meter is manufactured by SCF Betar, LLC, Russia.

Technical support

Once the NB-Fi Gas Meter and antennas 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.