

FLUX®



CE FLUX USM G1.6 - G2.5 - G4

SMART ULTRASONIC
RESIDENTIAL GAS METER

Description

The Flux USM smart gas meter is based on a proven ultrasonic sensor technology, providing high precision measurement for the modern gas networks. The FLUX USM Smart Gas Meter is designed and manufactured to measure the volume of natural gas (NG) as well as future mixture with hydrogen and liquefied petroleum gas (LPG). The solid state metering sensor has no moving parts, thus avoiding the accuracy drift spoiling of the mechanical meters; therefore there's no need to replace any worn out parts over time. The measurement technology, based on the latest ultrasonic sensor one, integrates the temperature sensor for volume conversion and it permits to obtain high precision measurement and performance at defined gas invoicing conditions. The Flux USM smart gas meter is part of the new generation devices; it manages the latest modern smart gas networks and it supports the traditional gas distributors in the transition to the new digital approach of IoT networks. The Flux USM smart gas meter fulfills the requirements of European and International standard MID-OIML and is manufactured under the CE mark. Its quality is guaranteed by a design made in Italy of the core part (HW+FW), in accordance to the very strict requirements of the Italian smart metering regulation UNI TS 11291 – which is becoming a *de facto* international adopted standard for smart gas meters. The FLUX USM G4 is part of FLUX Smart Gas Smart metering solutions, including central Head End System and Meter Data Management system - to optimize the management of modern smart gas networks.

Integrated smart supervision

The FLUX USM offers continuous checks through a system of safety alerts, hardware alarms, battery management alerts, network quality signal and fraud alerts. The base LCD offers reading volume, alarms and setting. The FLUX USM logs hourly data and it can store up to 90 days at a time.

Integrated transmission module

The FLUX USM has a modular remote communication interface which is available with GPRS or with the newest communication technology NB-IoT. The antenna is integrated with the meter.

Integrated shut-off valve

The integrated valve with minimum pressure loss is positioned on the meter's inlet, inside the casing; it can be controlled remotely for both closing and re-opening (in this case, after remote enabling and on-site activation). Valve position (open-close) can be detected remotely in any time.

Long lifetime Value

The FLUX USM offers an extended metrological battery life up to 15 years, while transmission module battery life can reach up to 10 years life. Planning the maintenance and asset management costs has never been so easy and cheap! The FLUX USM has a reduced footprint enabling utilities to place it where other traditional gas meters cannot fit. Moreover its small sizes increase shipping and storage efficiency.

Technical Data

Gas meter model	FLUX USM (For residential applications)
Operating pressure	Max 0,5 Bar
Operating temperature	- 25°C ÷ +55°C
Temperature measurement range	- 25°C ÷ +55°C
Display	Display LCD icons and chars, Cubic Metres indications 8 digits
Control panel	2 keypad buttons
Maximum capacity Qmax (m ³ /h)	2.5 - 4 -6
Minimum capacity Qmin (m ³ /h)	0,016 - 0,025 - 0,04
Class	1,5
Transitional flow Range Qt (m ³ /h)	0,25 - 0,4 - 0.6
Communication interface	optical interface (IEC 62056-21), modem GPRS or NB-IoT, wired MBus
Battery power supply (metrology)	Lithium battery life up to 16 years
Battery power supply (modem)	GPRS and NB-IoT, lithium battery life up to 10 years
Applied standards	<ul style="list-style-type: none"> • Compliance with European Standards EN14236:2018 and OIML R137 • Compliance with Italian Standard UNI-TS 11291 • Installation in ATEX Zone 2 area (II 3G Ex ic IIB T3 Gc)
Class protection	IP 65
Firmware	remotely upgradeable in compliance with WELMEC 7.2
Approval and marking	under EU MID Directive 2014/32/eu with CE mark; H3 mark; "T" mark
Communication protocol	DLMS Cosem
G size	G1.6 - G2.5 - G4

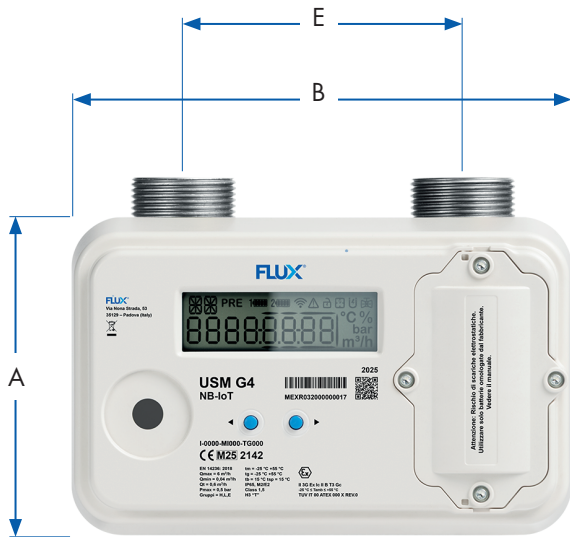
Main Features

- Ultrasonic flow sensor
- Integrated temperature sensor
- Integrated antenna
- Electronic circuit designed for severe environmental areas
- Integrated valve to manage customized applications (i.e. prepayment)
- Low pressure loss and low flow measurement
- Hydrogen ready
(mixture with Natural Gas and Hydrogen over 20% of H₂)
- Biomethan ready
(mixture with Natural Gas and Biogas according to UNI/TS 11537)
- Indoor and outdoor installation (IP65 and H3 mark)
- Designed with cybersecurity in mind
- Various anti-tamper alarms:
 - Protection from external magnetic fields
 - Electronic box cover opening alarm
 - Battery door opening alarm
 - Magnetic tamper alarm (optional)
- Transmission battery freely purchasable on the market not tied to electronics
- AES128 data encryption standard

Dimension

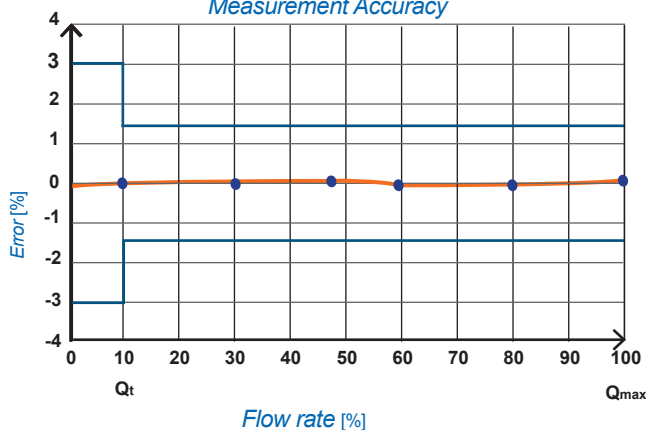
Model	Dimension (mm)					Connections*
	A	B	C	D	E	
FLUX USM G1.6	115	194	121	89	110	1" 1/4
FLUX USM G2.5	115	194	121	89	110	1" 1/4
FLUX USM G4	115	194	121	89	110	1" 1/4

* other connections available on request



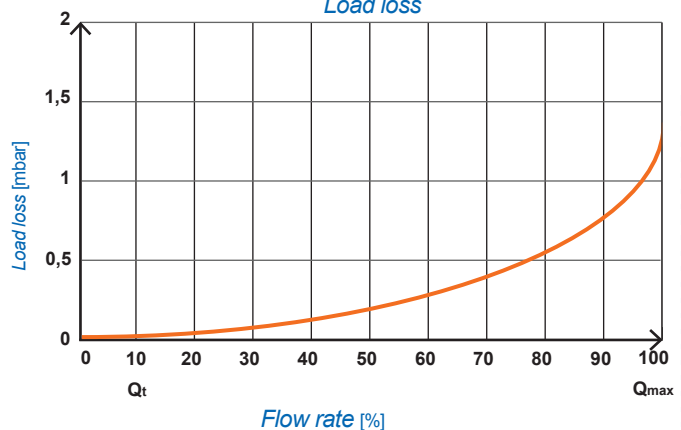
TYPICAL ERROR CURVE

Measurement Accuracy



PRESSURE LOSS CURVE

Load loss



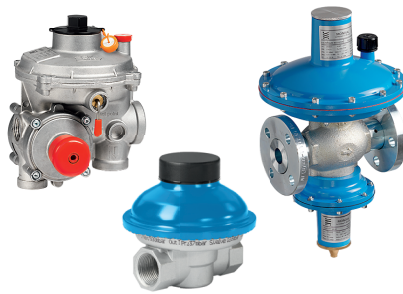
Product range



Rotary gas meters



Turbine gas meters



Gas pressure regulators



Smart electronic volume converter



Diaphragm gas meters



USM Residential and C&I smart gas meters

The new era in gas smart metering

FLUX[®]
Brand of **Metrix Italia**