Ultrimis W

Ultrasonic Flow Meter
DN 15, 20, 25, 32, 40, 50

Your benefits

- Constructive meter features designed to meet customer requirements (robust and compact brass or composite housing, universal installation, no upstream and downstream sections of straight piping required):
  High operational reliability and long-term measurement stability as well as low installation costs

- Optimized measurement range, up to R800 in every operating orientation:
  Increase of economic efficiency through reduction of water losses

- Powerful communication options (mobile, fixed network / smart metering – AMR):
  Covering a wide range of applications

- No obstacles in the measuring tube / no moving parts:
  Very low head loss maximizes high flow capability and saves pumping costs. Increased meter lifetime, reliability and reduced maintenance costs

- Extensive additional functions for monitoring the measuring points (leak, air, backflow, etc.):
  Development of new services possible

- Optimized, environmentally friendly design:
  Certainty of a sustainable recycling process

Application

- Cold water supply systems (water temperature up to 50 °C) requiring reliable and accurate water consumption metering

- Reliable data communication on site (NFC) and integrated radio technology (RF) for mobile or fixed network / smart metering collection systems (AMR)

Features

- State-of-the-art ultrasonic flow meter with the patented W-Sonic technology

- Starting flow already from 0,75 l/h at DN 15

- Measurement range up to R800 for Q_3 2,5 – 16, up to R500 for Q_3 25 (default R250) in any operating orientation (H, V, H/V)

- All materials in contact with water are free of heavy metal (composite meter body)

- Flood proof meter (IP68 / mineral glass cover) with integrated data interface NFC and RF (434 or 868 MHz, wireless M-Bus / OMS)

- High resistance to hydraulic shock and insensitive to magnetic fields

- Maximum operating pressure PN 16 bar

- Maximum operating temperature 50 °C

- No upstream and downstream sections of straight piping required, U0/D0

- Battery lifetime up to 16 years (depending on the configuration and environmental conditions)

- Wide measurement range is independent of the electrical conductivity of the water

- Simple, powerful, future-proof

- Extremely low pressure loss (only 0,17 bar at DN 40 for Q_3) and a low resistance to flow

- CE Conformity according to European Measuring Instruments (MID)

- No wear of the measuring chamber components, even during continuous operation at high flow rates

- Highly resistant to overload flow rate, Q_4

- Doesn't requires any filters or backflow preventer

- Environmentally friendly: Very low lithium content, no heavy metals in contact with water (composite meter body), very low weight (transportation), low carbon footprint

- Backflow measurement

- Intelligent alarms: Leakage, backflow, zero flow, air, low battery and tampering detection

Options

- Body material: brass or composite

- Measurement range: R250 (standard), R400, R500 (Q_3 25 only) or R800 (Q_3 2,5 - 16)

Technical Data

| Execution			UL2,5 Brass	UL2,5-01 Composite	UL4 Brass	UL4-01 Composite	UL6,3 Brass	UL10 Brass	UL16 Brass	UL25 Brass
Nominal diameter	DN	mm	15 15	15	20 20	20	25	32	40	50 50 50
Connection thread on meter	G...B	Inch	¾; ⅞ → ¾*	¾	1	1	1¼	1½	2	Flange or thread 2½**
Connection thread on coupling	R...	Inch	½	½	¾	¾	1	1¼	1½	2
Operating pressure EN	PN	bar	16							
Operating pressure OIML	PN	bar	0,3 to 16							
Pressure loss class at Q_3 EN	ΔP	bar	0,4	0,4	0,4	0,4	0,4	0,4	0,25	0,25
Pressure loss class at Q_3 OIML	ΔP	bar	0,4	0,4	0,4	0,4	0,4	0,4	0,25	0,25
Pressure loss class at Q_3 Mfr-specified	ΔP	bar	0,3	0,3	0,4	0,4	0,28	0,26	0,17	0,24
Nominal flow rate	Q_3	m³/h	2,5	2,5	4	4	6,3	10	16	25
Overload flow rate	Q_4	m³/h	3,125	3,125	5	5	7,875	12,5	20	31,25
Transitional flow rate ±2%	Q_2	m³/h	16	16	25,6	25,6	40,32	64	102,4	160
Minimum flow rate ±5%	Q_1	l/h	10	10	16	16	25,3	40	64	10
Starting flow rate		l/h	0,75	0,75	1,2	1,2	1,89	3	4,8	12
Smallest readable volume		l	1							
Maximum register reading		m³	1'000'000							
Temperature class (EN and OIML)		°C	T30, T50							
Measuring range	R	Q_3/Q_1	250 (also available with: R400, R500 (Q_3 25 only) or R800 (Q_3 2,5 - 16))							
Range		Q_2/Q_1	1,6							
Flow disturbance immunity class (EN)			U0/D0							
Maximum permissible error in the range: $Q_2 \leqslant Q \leqslant Q_4$	ε	%	± 2 for cold water T ≤ 30 °C ± 3 for water T > 30 °C							
Maximum permissible error in the range: $Q_1 \leqslant Q < Q_2$	ε	%	± 5							
Batteries			2x integrated 3,6 V DC lithium AA batteries							
Integrated radio technology (RF)			wM-Bus / OMS Transmission interval: 20 seconds 868 MHz, up to 25 mW e.r.p. (effective radiated power) 434 MHz, up to 10 mW e.r.p. (effective radiated power)							
Installation orientation			H, V, H/V							
IP rating			IP68							
Relative humidity		%	≤ 100							
Ambient temperature range		°C	5 - 55 (other temperature range on request)							
Backflow, manufacturer-specified			Supports backflow measurement by design							

* for 115 mm long versions only

Dimensions and weights			UL2,5 Brass	UL2,5-01 Composite	UL4 Brass	UL4-01 Composite	UL6,3 Brass	UL10 Brass	UL16 Brass	UL25 Brass
Length	L	mm	80 110 115 165	80 110	105 115 130 190	105 130	165 260	260	300	200 270 300
Height	G1	mm	–							155
	H	mm	83; 84**	83	88,5	88,5	95	102,5	111	158
	H1	mm	88	88	94	94	100	107	117	164
	H2	mm	163	163	169	169	175	182	192	240
	h	mm	14; 15**	14	17,5	17,5	21	25	30,5	72
Meter head	d	mm	87							
	D	mm	94,5							
Flange size	Dz	mm	–							165
Weight		app. Kg	0,48 0,52 0,53 0,6	0,29 0,31	0,61 0,63 0,66 0,77	0,33 0,34	1,05 1,39	1,68	2,15	6,29 6,75 6,95

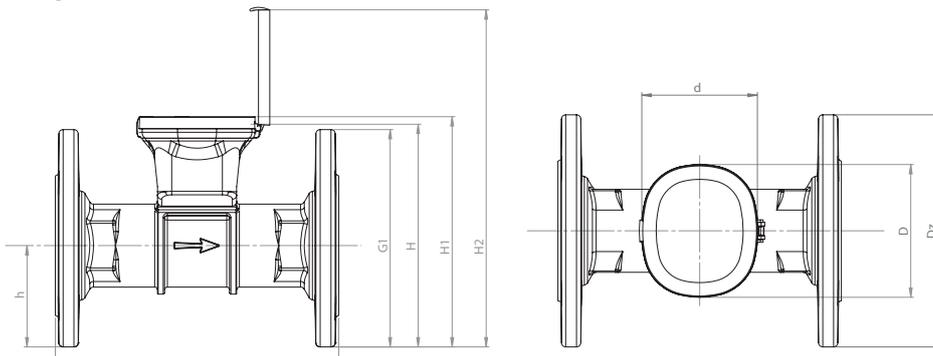** Applies to ⅞ → ¾" thread size

Dimension Diagram

Threaded connection
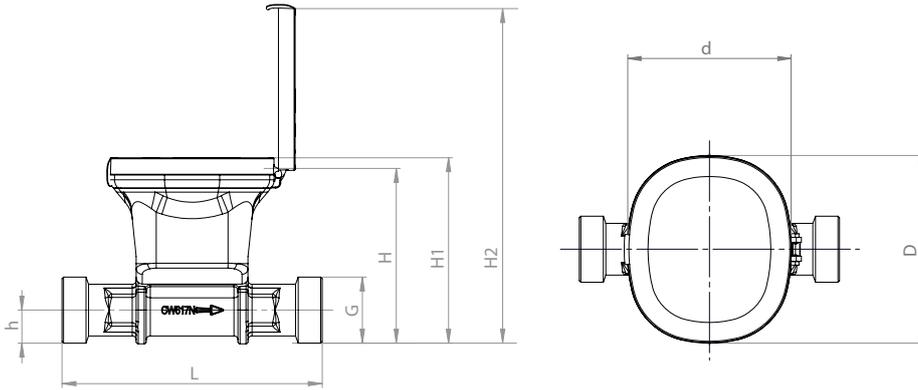
Flanged connection

Regulatory and Standard Compliance

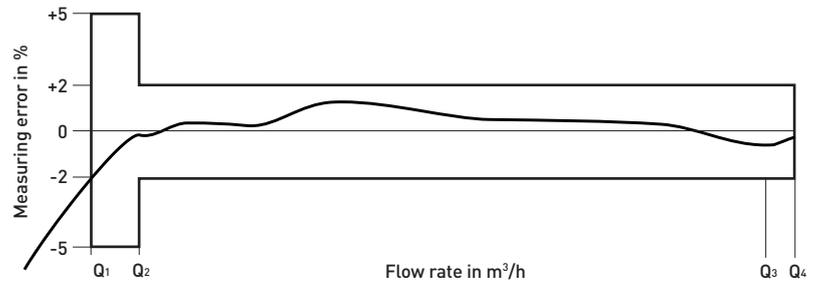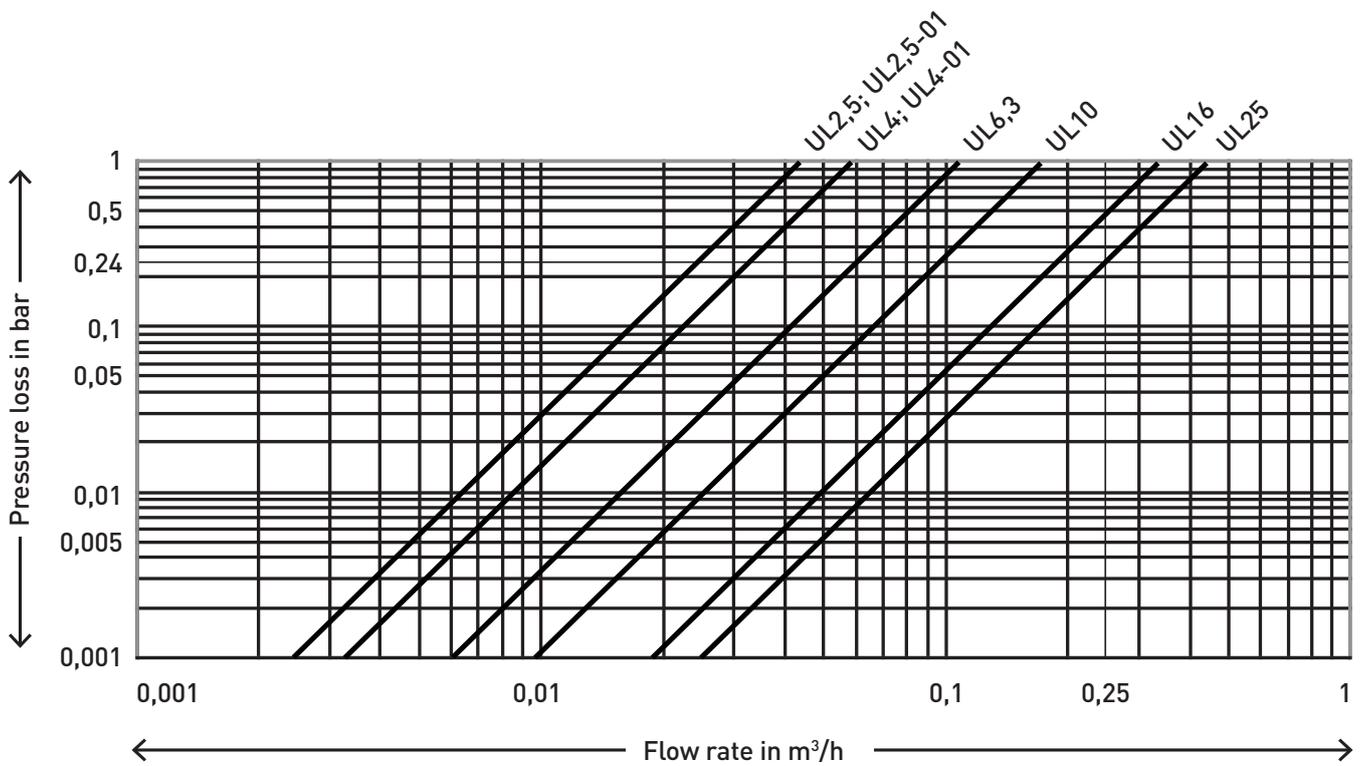| |
|---|
| Directive 2014/32/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of measuring instruments |
| Polish Act of 13 April 2016 on conformity assessment and market control systems |
| EN-ISO 4064-1 to 5:2014(E) – Flow meters for cold potable water and hot water |
| OIML R49:2013 – Flow meters for cold potable water and hot water |
| EC Type Test Certificate TCM 142/16-5405 for cold water applications |
| Classification of climate and environmental requirements – Class B (EN-ISO 4064:2014) |
| Classification of environmental and mechanical requirements – Class M1 (Directive 2014/32/EU of 26 February 2014) |
| Classification of environmental and electromagnetic requirements – Class E1, E2 (EN-ISO 4064:2014; Directive 2014/32/EU of 26 February 2014) |
| PZH (NIH) approval (all materials of the Ultrimis W ultrasonic flow meter have the appropriate Hygiene Approvals for contact with potable water) |
| Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC |
| WELMEC 7.2 edition 5 |
| WRAS certified |
| KIWA U certified |
| DVGW certified |
| ACS certified |
| IP68 body proof testing |

Installation

Measuring Error Curve

Typical Head Loss Curve

Ultrimis W

Mineral glass cover:
Standard protection
rating IP68

RF (radio-frequency)
data communication
(wM-Bus / OMS)

Unique ultrasonic
beam pattern:
W-Sonic Technology

Body material:
Composite or brass

Full bore for undisturbed
flow of water

Patented measurement
chamber geometry
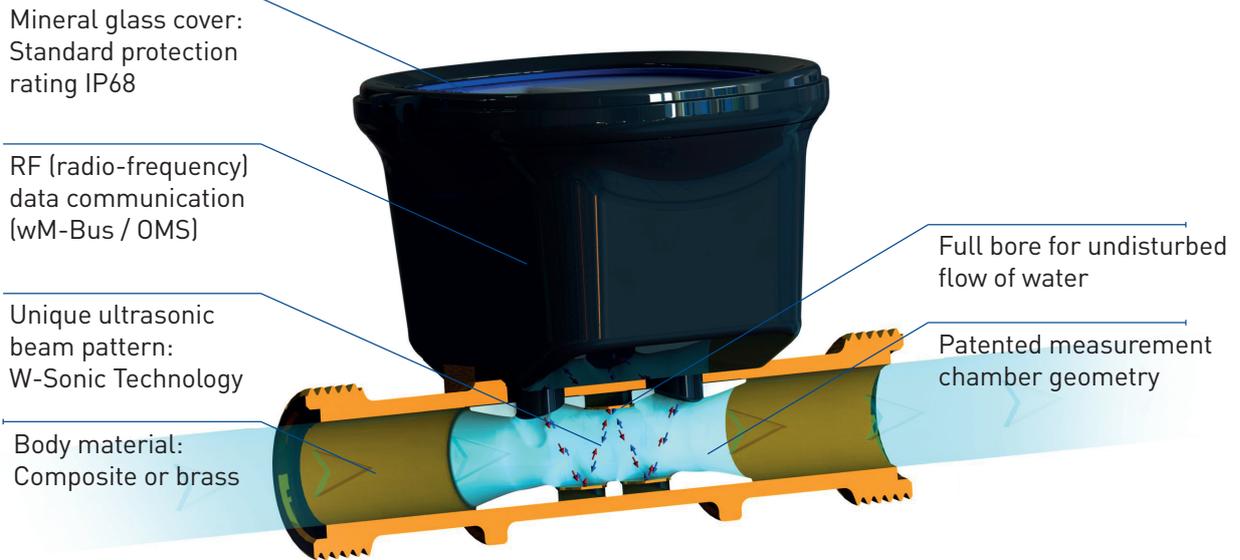
Efficient by design

- High-precision measurement improves the efficiency of water use: The flow meter can detect all leaks in the supply system
- No moving parts for high resistance to fouling: Cost-free inspection and maintenance
- No upstream or downstream straight sections of piping required
- Compact size for easy installation in confined spaces
- Robust design and minimum electrical power demand for a stable, long-term operation
- A wide measurement range with immunity to electrical conductivity of metered water (as required for electromagnetic flow meter systems)
- Extremely low pressure loss (and low resistance to flow)

Innovation by design

W-Sonic through the measurement chamber, ensuring flow stability across the entire measurement range. The distinctive characteristics of this technology are:

SONIC TECHNOLOGY

- With its unique ultrasonic beam pattern, the Ultrimis W is much more compact than other ultrasonic metering systems
- The full-bore design does not entrap any fouling or solids
- No impact of impurities on the measurement
- Sophisticated control algorithms of the ultrasonic beam system provide compensation for component ageing
- No need to use additional equipment for the flow meter, such as a strainer or check valve

Accuracy by design

- Optimized measurement range: Up to R800 in every operating orientation (H, V, and H/V)
- Starting flow already from 0,75 l/h at DN 15
- Stable measurement system performance by insensitivity to fouling
- Backflow measurement enabled by a symmetrical structure and the applied measurement algorithms

Green by design

- Extremely low power usage when in operation
- Very low Lithium content: Li < 1,5 g
- Extended battery life of 16 years (depending on the configuration and environmental conditions)
- No heavy metals in the materials in contact with potable water (for the composite meter body)
- Low energy output at the water supply side (the unit pressure drop across the flow meter is 0,17 bar at DN 40 for Q_3)
- Very low weight: Low costs of transport
- Minimal carbon footprint

Convenience by design

- Standard IP68-rated hermetically sealed body
- No risk of physical wear of the measurement chamber components, even during continuous operation at high flow rates
- MAP: 16 bar
- Body material: Brass or composite
- Resistant to strong magnetic fields
- Resistant to hydraulic shock
- Highly resistant to overload flow rate Q_4

Simple, fast and reliable remote reading

- Flow meter data reading over NFC (Near Field Communication)
- RF (radio-frequency) reading acc. to the wM-Bus / OMS T1 standard
- RF reading: Mobile (walk-by / drive-by) or fixed network / smart metering stationary reading systems (AMR) without the need of any reconfiguration
- Secondary verification at any suitable location with the test module and a dedicated application

NFC Configuration

The Ultrimis W flow meters feature standard NFC data communication which enables configuration of the operating mode, reading of actual parameter values and downloading the historical meter data (values, status, errors), even at a low battery voltage or meter failure.

The Ultrimis W flow meter has a dedicated data communication interface which comprises a mobile app and the test module. The data communication interface enables re-verification by secondary verification operators.

RF Reading

- The Ultrimis W flow meter has an integrated RF data communication module for easy and efficient remote reading.
- AES-128-bit encryption (OMS-compliant)
- Data transmission: previous month's consumption, current month's consumption, actual (live) consumption data and alarms: backflow, meter leak, water main leak, zero flow, tampering detected, no water (air) and low battery

LCD Display Functions
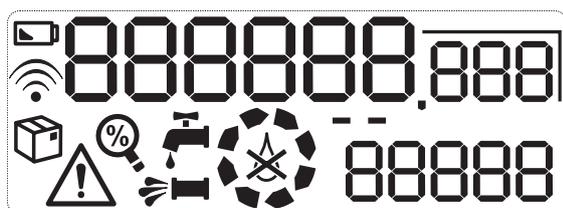
Meter index in m³

Meter index in liter

Actual flow rate

	Low battery		Flow meter leak Alarm trigger: Flow > 0.3 x Q_2 for 240 min
	RF transmission on		Water main leak (bypass flow) Alarm trigger: Flow > Q_4 for 30 s
	Shipping mode Will bi disabled at minimum flow rate		Animated water flow direction indicator The flow direction indicator is animated clockwise
	Tampering detected		No water / Air Alarm triggered after 30 s
	Test mode		Measurement ongoing
	Backflow Alarm triggered after 45 s of backflow time The flow direction indicator is animated counterclockwise		Zero flow Alarm triggered after > 8 s of zero flow The flow direction indicator is steady

Events not indicated on the LCD:
Temperature alarm: If temperature <2°C or >50°C