



Cold
water



Ultramis 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 Q₃ 2,5 – 16, up to R500 for Q₃ 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 Q₃) 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, Q₄
- Doesn't require 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 (Q₃ 25 only) or R800 (Q₃ 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; 7/8 → 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	m ³ /h	2,5		2,5		4		4		6,3		10		16		25
Overload flow rate	Q ₄	m ³ /h	3,125		3,125		5		5		7,875		12,5		20		31,25
Transitional flow rate ±2%	Q ₂	m ³ /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		m ³	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 ≤ Q ≤ Q ₄	ε	%	± 2 for cold water T ≤ 30 °C ± 3 for water T > 30 °C														
Maximum permissible error in the range: Q ₁ ≤ 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														

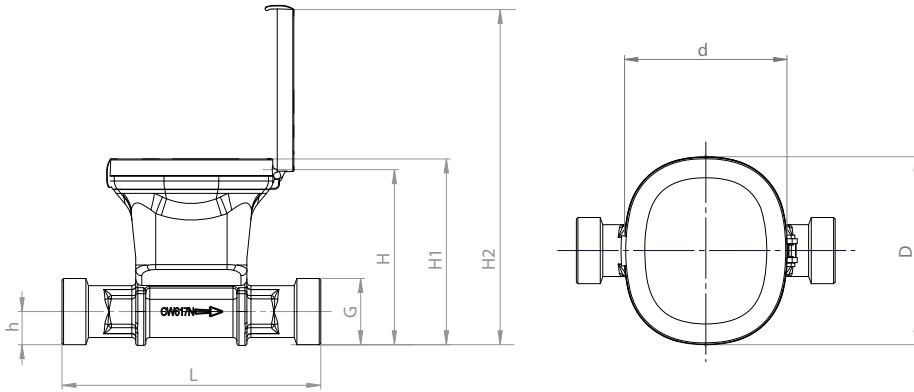
* for 115 mm long versions only

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	80	110	105	115	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
Meter head	h	mm	14; 15**		14		17,5		17,5		21		25		30,5		72
	d	mm	87														
Flange size	D	mm	94,5														
	Dz	mm	-														165
Weight		app. Kg	0,48	0,52	0,29	0,31	0,61	0,63	0,33	0,34	1,05	1,39	1,68	2,15	6,29	6,75	6,95
			0,53	0,6			0,66	0,77									

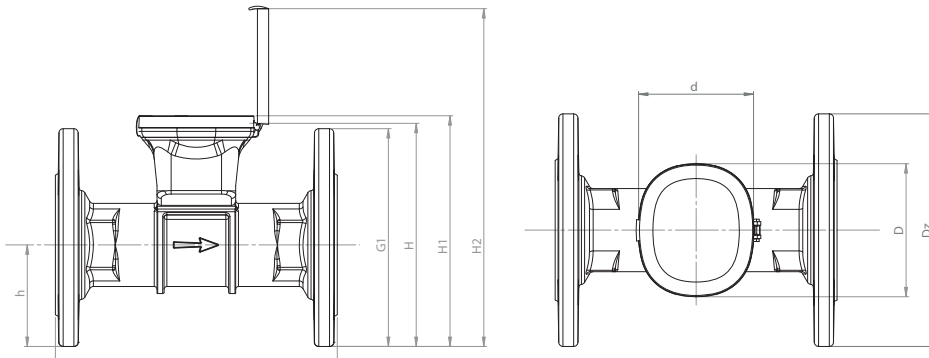
** Applies to 7/8 → ¾" thread size

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

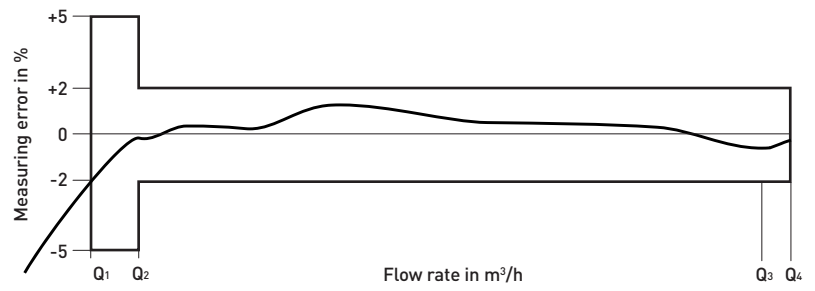
ACS certified

IP68 body proof testing

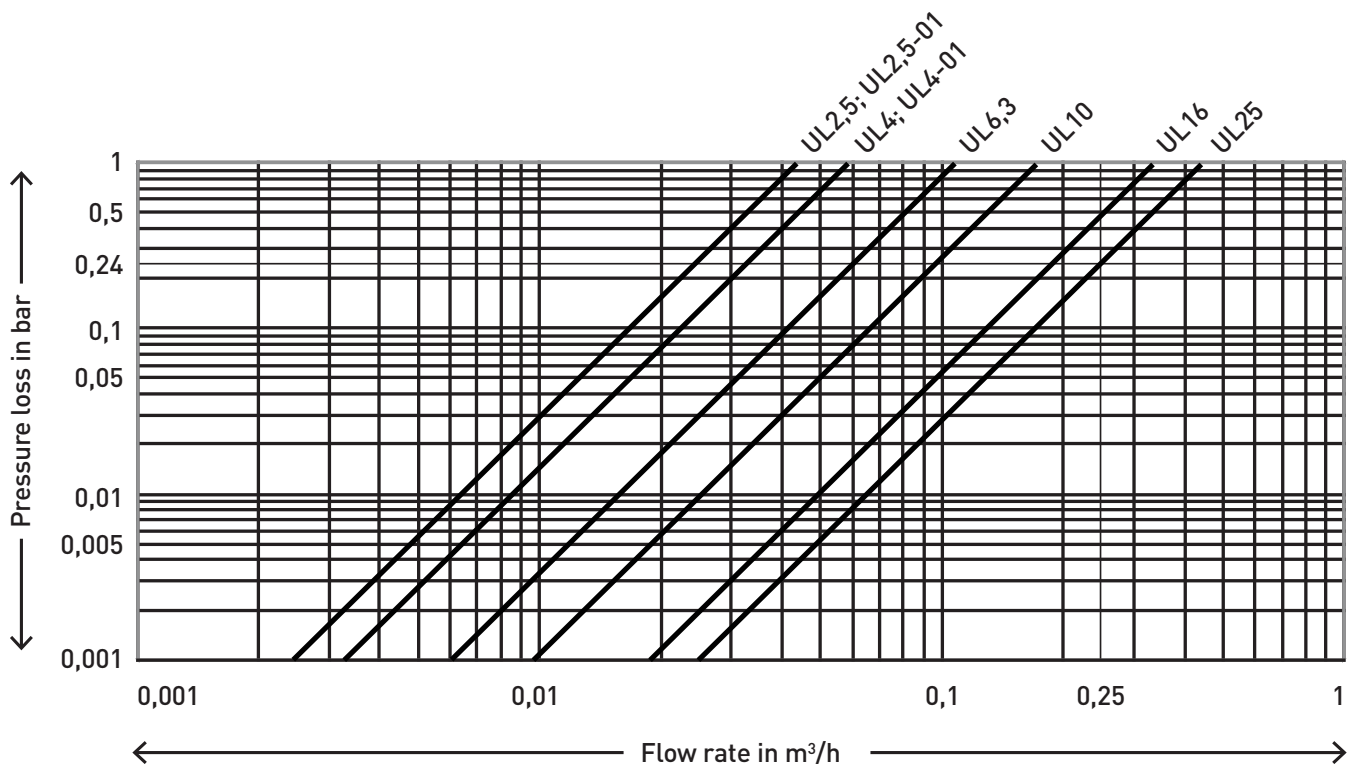
Installation

Pipeline:	horizontal	—
	vertical	
	diagonal	/
Meter head:	upwards	↕
	sideways	↔

Measuring Error Curve



Typical Head Loss Curve



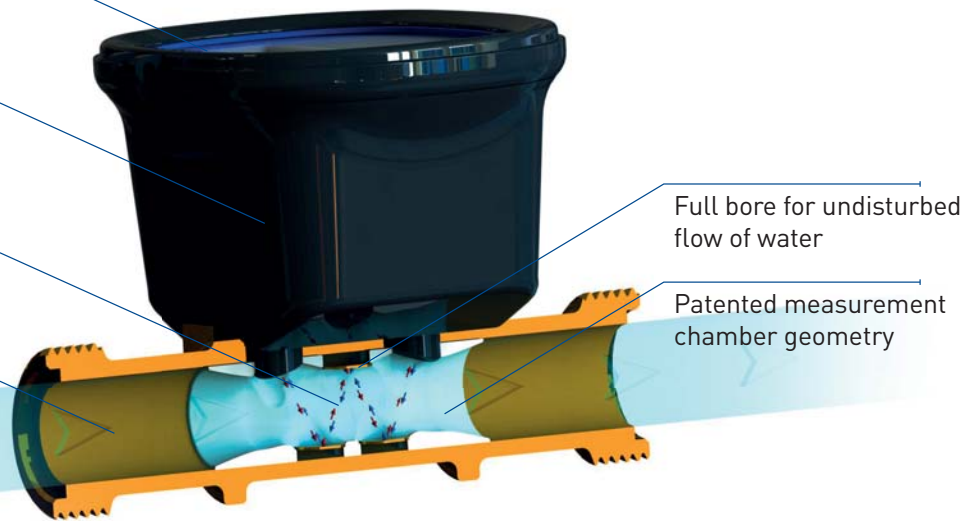
Ultrimis W

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



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:

- 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

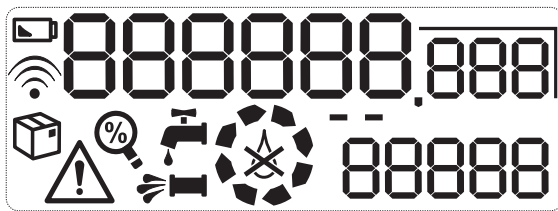
The Ultrimis W flow meters feature standard NFC data communication which enables configuration of the operating mode, reading of actual parameter values and downloading the historical meter data (values, status, errors), even at a low battery voltage or meter failure.

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



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Meter index in m³

888

Meter index in liter

88888

Actual flow rate



- Low battery
- RF transmission on
- Shipping mode
Will be disabled at minimum flow rate
- Tampering detected
- Test mode
- Backflow
Alarm triggered after 45 s of backflow time
The flow direction indicator is animated counterclockwise

- Flow meter leak
Alarm trigger: Flow > 0.3 x Q₂ for 240 min
- Water main leak (bypass flow)
Alarm trigger: Flow > Q₄ for 30 s
- Animated water flow direction indicator
The flow direction indicator is animated clockwise
- No water / Air
Alarm triggered after 30 s
- Measurement ongoing
- Zero flow
Alarm triggered after > 8 s of zero flow
The flow direction indicator is steady