

# Ultrimis W

## Ultrasonic water meter

### DN15-DN50



Ultrimis W, a state-of-the-art ultrasonic water meter with the latest patented design features the W-Sonic Technology, a unique metering method. The W-Sonic Technology enables meter readings in the R800 range with the starting flow already from 0.75 l/h (at DN15).

The meter is made to the highest quality standards and all materials in contact with water are free from heavy metals (for the composite meter body). The water meter is rated at IP68 and with a high resistance to hydraulic shock and magnetic interference. The measurement chamber is designed to provide the water meter with insensitivity to hydraulic shock. The ultrasonic measurement technology of the water meter is completely impervious to interference from magnetic fields.

### APPLICATION

Cold water supply systems with the maximum water temperature of 50°C, requiring reliable water consumption metering and reliable data communication methods, including remote meter reading over NFC or RF. The water meter can be installed in any orientation and does not require upstream and downstream sections of straight piping.

# ULTRIMIS W

Counter with a mineral glass cover: standard protection rating IP68

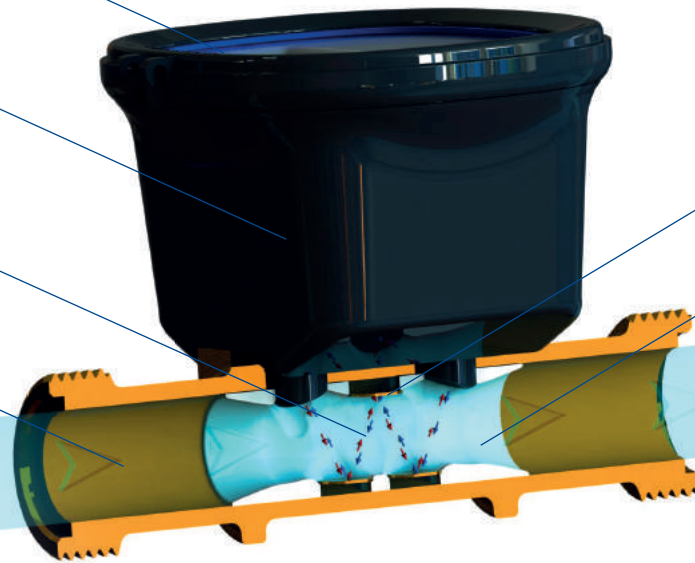
RF (radio-frequency) data communication (wM-Bus or OMS)

Unique ultrasonic beam pattern W-Sonic Technology

Body material: composite or brass

Full bore for undisturbed flow of water

Patented measurement chamber geometry



## ADVANTAGES

### PROVIDES SAVINGS

- High-precision measurement improve **efficiency** of water use: the water meter can detect all leaks in the supply system
- No **moving parts** for a 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 water meter systems)
- Extremely **low pressure loss** (and a low resistance to flow)



### CONVENIENT IN OPERATION

- 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,  $Q_4$

### MEASUREMENT ACCURACY

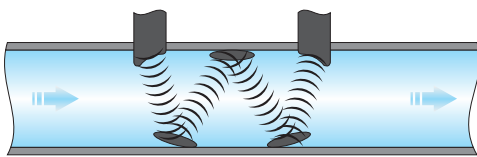
- Optimized measurement range: up to **R800** in every operating orientation (H, V, and H/V)
- Starting flow already from **0.75 l/h** at DN15
- **Stable** measurement system performance by insensitivity to fouling
- Back flow **measurement** enabled by a symmetrical structure and the applied measurement algorithms

## ENVIRONMENTALLY FRIENDLY

- Extremely **low power usage** when in operation
- Very low lithium content: **Li < 1.5 g**
- Maximum design 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 water meter is **0.17 bar** at DN40 for  $Q_3$ )
- A measurement range up to R800 is also available for the water meter installation length **L = 80 mm**
- **Very low weight**: low costs of transport
- Low carbon footprint



## INNOVATIVE



The Ultrimis W water meter features a unique measurement system: it emits an ultrasonic beam across the measurement chamber, which results in steady indications and errors in the whole measurement range. This is the W-Sonic Technology which includes distinctive characteristics:

- With its unique ultrasonic beam pattern, the Ultrimis W can be much more compact than other ultrasonic metering systems
- The full-bore design does not entrap any fouling or solids
- Insensitive to measurement bias from water contamination
- Sophisticated control algorithms of the ultrasonic beam system provide compensation for component ageing
- Requires no filters or check valves

## 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) – Water meters for cold potable water and hot water
- OIML R49:2013 – Water 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)s
- PZH (NIH) approval (all materials of the Ultrimis W ultrasonic water 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
- IP68 body proof testing

## Communication

- Water meter data reading over NFC (Near Field Communication)
- RF (radio-frequency) reading of indications compatible with WMBUS OMS T1
- RF indication reading for walk-by and drive-by reading systems and stationary reading systems without any reconfiguration required
- Secondary verification at any suitable location with the Testbox module and a dedicated application

### NFC CONFIGURATION

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

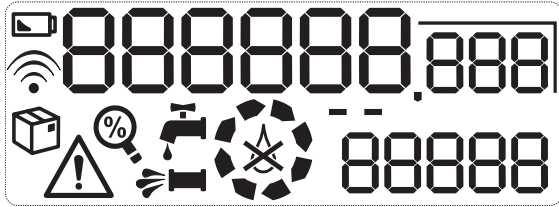
The Ultrimis W water meter has a dedicated data communication interface which comprises a mobile app and the Testbox module. The data communication interface enables re-verification by secondary verification operators.

### RF READING

- The water meter has an integrated RF data communication module for easy and efficient remote reading.
- Device-level RF data frame encryption (OMS-compliant)
- Data transmission: previous month's consumption, current month's consumption, And actual (live) consumption data
- Alarms:
  - Back flow
  - Meter leak
  - Water main leak
  - Zero flow
  - Tampering detected
  - No water
  - Low battery



## LCD DISPLAY FUNCTIONS



888888

Water meter indication in m<sup>3</sup>

888

Water meter indication in dm<sup>3</sup>

88888

Actual flow (water meter primed with water)  
Software version number and CRC\* (no water detected)



Low battery



RF transmission on



Shipping mode

Shipping mode disabled when the minimum flow rate detected is:  
5L at DN15; 8L at DN20; 12.6L at DN25; 20L at DN32; 32L at DN40;  
50L at DN50; or disabled on command via NFC



Tampering detected



Test mode



Back flow

Alarm triggered after > 45 s of back flow time  
The flow direction indicator is animated clockwise.



Water meter leak

Alarm trigger: flow > 0.3 x Q<sub>2</sub> for 240 min



Water main leak (bypass flow)

Alarm trigger: flow > Q<sub>4</sub> for 30 s



Animated water flow direction indicator

The flow direction indicator is animated clockwise.



No water

Alarm triggered after 30 s



Metering online



Zero flow

Alarm triggered after > 8 s of zero flow  
The flow direction indicator is steady.

## EVENTS NOT INDICATED ON THE LCD

Overtemperature  
<2°C or >50°C switchover

\*1) CRC: a control checksum value which verifies if the software source code is correct.

Table 1. TECHNICAL SPECIFICATIONS

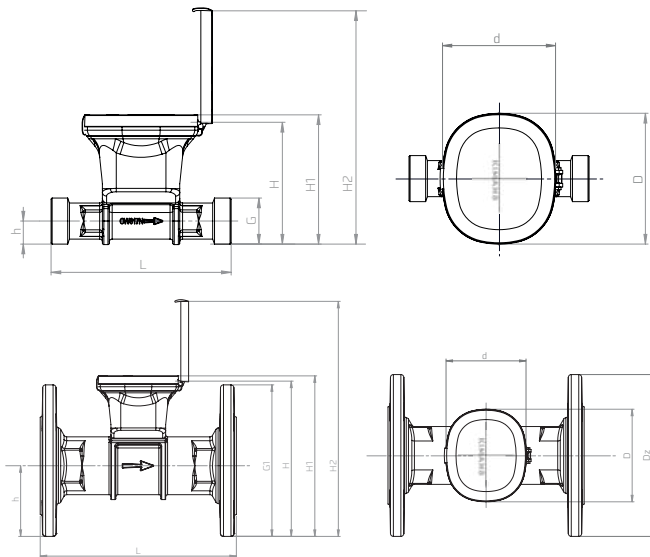
Specification			Ultrimis W																			
			UL2,5		UL2,5-01		UL4		UL4-01		UL6,3		UL10		UL16		UL25					
Nominal diameter	DN	mm	15			20			25		32		40		50							
Continuous flow rate	Q <sub>3</sub>	m <sup>3</sup> /h	2.5			4			6.3		10		16		25							
Overload flow rate	Q <sub>4</sub>	m <sup>3</sup> /h	3.125			5			7.875		12.5		20		31.25							
Instantaneous flow rate	Q <sub>2</sub>	dm <sup>3</sup> /h	16			25.6			40.32		64		102.4		160							
Minimum flow rate	Q <sub>1</sub>	dm <sup>3</sup> /h	10			16			25.2		40		64		100							
Starting flow	-	dm <sup>3</sup> /h	0.75			1.2			1.89		3		4.8		12							
Measurement range	R	Q <sub>3</sub> /Q <sub>1</sub>	R250* in standard																			
Range	-	Q <sub>2</sub> /Q <sub>1</sub>	1.6																			
Temperature class (EN and OIML)	-	°C	T30, T50																			
Flow disturbance immunity class (EN)	-	-	U0, D0																			
Counter indication range	-	m <sup>3</sup>	999999																			
Actual scale interval	-	m <sup>3</sup>	0.001																			
Maximum permissible error in the range: Q <sub>2</sub> ≤ Q ≤ Q <sub>4</sub>	ε	-	± 2 for cold water T ≤ 30°C ± 3 for water T > 30°C																			
Maximum permissible error in the range: Q <sub>1</sub> ≤ Q < Q <sub>2</sub>	ε	-	± 5																			
Battery	-	-	2x integrated 3.6 V DC lithium AA batteries																			
RF	-	-	868 MHz up to 25 mW E.R.P. 434 MHz up to 10 mW E.R.P.																			
Water pressure class	(EN)	-	bar		MAP16																	
	(OIML)	-			0.3 to 16																	
Pressure loss class at Q <sub>3</sub>	(EN)	ΔP	bar		0.4						0.25											
	(OIML)	-			0.4						0.25											
	Mfr-specified	-			0.3		0.4		0.28		0.26		0.17	0.24								
Installation orientation	-	-	H, V, H/V																			
Back flow, manufacturer-specified	-	-	Supports back flow metering by design																			
Relative humidity	-	%	≤ 100																			
IP rating	-	-	IP68																			
Body material			brass		composite		brass		composite		brass											
Connection end thread size	G	inch	¾"; 7/8 -> ¾" **			1"			1 ¼"		1 ½"		2"		flanged ends ****							
	G1	mm	-									155										
Water meter length	L	mm	80		110		80		105		130		105		165		200; 270; 300					
			115		165		110		115		190		130		260							
Height	H	mm	83; 84***		83		88.5			95		102.5		111		158						
	H1	mm	88			94			100		107		117		164							
	H2	mm	163			169			175		182		192		240							
	h	mm	14; 15***		14		17.5			21		25		30.5		72						
Counter size	d	mm	87																			
	D	mm	94.5																			
Flange size	Dz	mm	-									165										
Weight	-	kg	0.48		0.52		0.29		0.61		0.63		0.33		1.05		1.68		2.15		6.29; 6.75; 6.95	
			0.53		0.6		0.31		0.66		0.77		0.34		1.39							

\*) Also available with: R400, R800

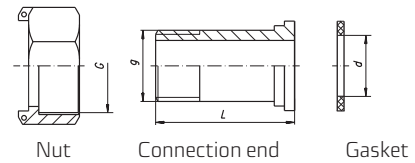
\*\*) Thread size 7/8 -> ¾" available for 115 mm long versions only.

\*\*\*) Applies to 7/8 -> ¾" thread size

\*\*\*\*) Also available in G2 1/2 version.



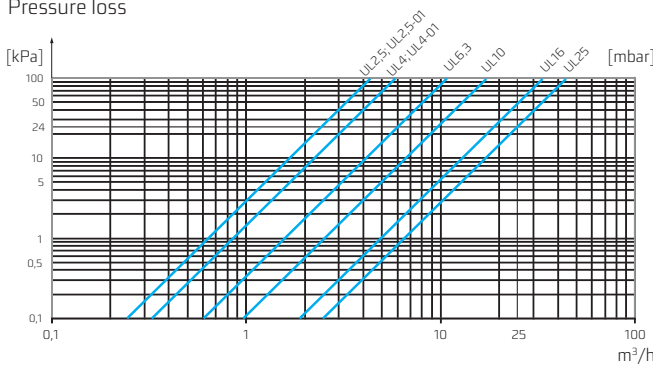
### Connection fittings



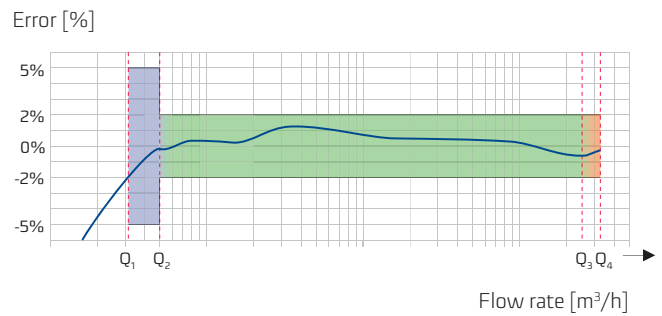
DN	G	g	d	L
	inch	inch	mm	mm
15	3/4"	1/2"	17	37.5
20	1"	3/4"	23	45.5
25	1 1/4"	1"	29	46.5
32	1 1/2"	1 1/4"	36	56
40	2"	1 1/2"	43	70

### PRESSURE LOSS CHART

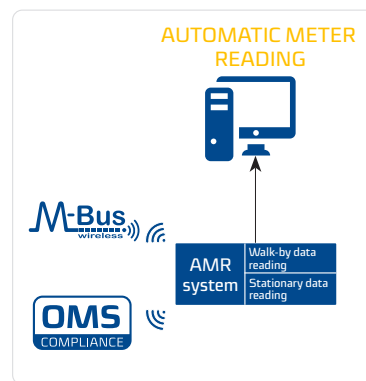
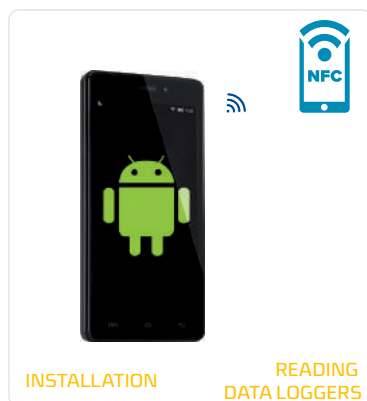
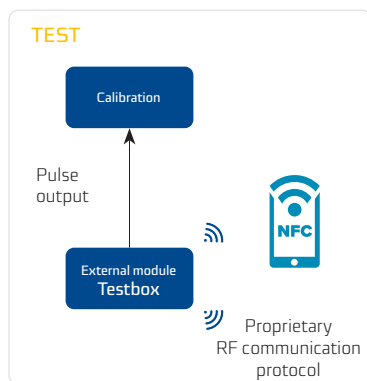
Pressure loss



### TYPICAL ERROR CHART



## Installation, configuration and remote reading



## Ordering specification example

UL Q3 - 01 - L

- Water meter length
- Type: composite body
- Flow rate Q3

Brass body is the standard version for all sizes.

Delivery options on request:

- Water meter connections without a check valve installed.
- Tamper-seal clamps with plastic snap seals made marked with unique ID numbers

The information presented in the data sheet was correct on the date of publication.  
The manufacturer reserves the right to make changes and improvements to its products without prior notice.  
This publication is intended for information purposes only and shall not be construed as a commercial offer under the Polish Civil Code.

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