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.

water&heat

DVGW
CERT
DW-4715CU0111

SONIC
TECHNOLOGY

ULTRIMIS W

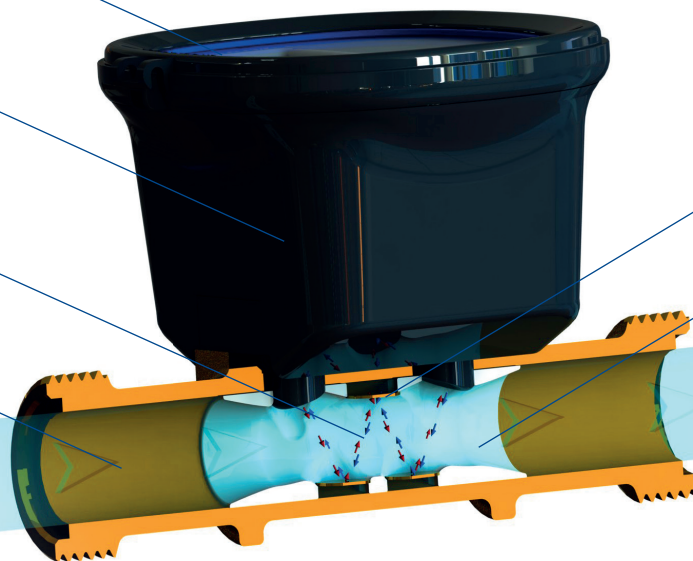Counter with a mineral glass cover: standard protection rating IP68

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

water&heat

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
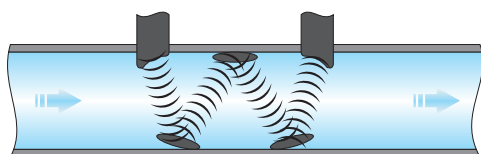
SONIC
TECHNOLOGY

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

ULTRIMIS W

UL2,5-01
DN15, L80
DN15, L110

UL4-01
DN20, L130
DN20, L105

UL2,5
DN15, L80
DN15, L110
DN15, L115
DN15, L165

UL4
DN20, L130
DN20, L105
DN20, L115
DN20, L190

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
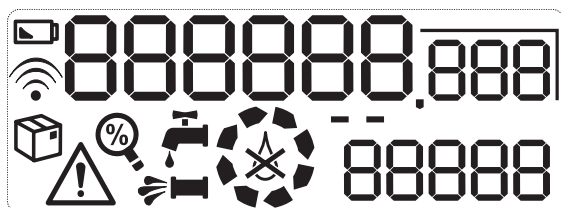 - Low battery

water&heat

UL6,3
DN25, L260
DN25, L165

UL10 - DN32, L260
UL16 - DN40, L300

UL25 - DN50, L200
UL25 - DN50, L270
UL25 - DN50, L300

LCD DISPLAY FUNCTIONS

888888.888

88888

888888 Water meter indication in m³

888 Water meter indication in dm3

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_2 for 240 min

Water main leak (bypass flow)
Alarm trigger: flow > Q_4 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

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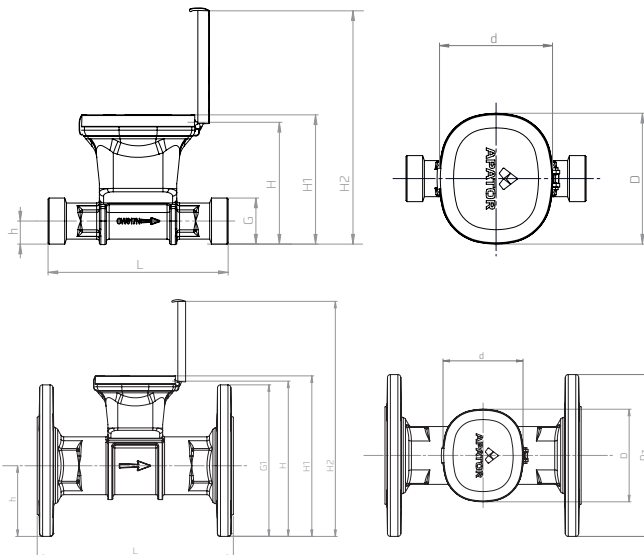
Table 1. TECHNICAL SPECIFICATIONS

| Specification			Ultrimis W							
			UL2,5	UL2,5-01	UL4	UL4-01	UL6,3	UL10	UL16	UL25
Nominal diameter	DN	mm	15	15	20	20	25	32	40	50
Continuous 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
Instantaneous flow rate	Q_2	dm³/h	16	16	25.6	25.6	40.32	64	102.4	160
Minimum flow rate	Q_1	dm³/h	10	10	16	16	25.2	40	64	100
Starting flow	–	dm³/h	0.75	0.75	1.2	1.2	1.89	3	4.8	12
Measurement range	R	Q_3/Q_1	R250* in standard							
Range	–	Q_2/Q_1	1.6							
Temperature class (EN and OIML)	–	°C	T30, T50							
Flow disturbance immunity class (EN)	–	–	U0, D0							
Counter indication range	–	m³	999999							
Actual scale interval	–	m³	0.001							
Maximum permissible error in the range: $Q_2 \le Q \le Q_4$	ε	–	± 2 for cold water T ≤ 30°C / ± 3 for water T > 30°C							
Maximum permissible error in the range: $Q_1 \le Q < Q_2$	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							
Water pressure class (OIML)	–	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)	–	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	–	–	0.3	0.3	0.4	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	brass	brass	brass
Connection end thread size	G	inch	3/4"; 7/8 -> 3/4" **	3/4"; 7/8 -> 3/4" **	1"	1"	1 1/4"	1 1/2"	2"	flanged ends ****
Connection end thread size	G1	mm	-	-	-	-	-	-	-	155
Water meter length	L	mm	80; 115 / 110; 165	80; 110	105; 115 / 130; 190	105; 130	165; 260	260	300	200; 270; 300
Height	H	mm	83; 84***	83	88.5	88.5	95	102.5	111	158
Height	H1	mm	88	88	94	94	100	107	117	164
Height	H2	mm	163	163	169	169	175	182	192	240
Height	h	mm	14; 15***	14	17.5	17.5	21	25	30.5	72
Counter size	d	mm	87							
Counter size	D	mm	94.5							
Flange size	Dz	mm	-	-	-	-	-	-	-	165
Weight	–	kg	0.48; 0.53 / 0.52; 0.6	0.29; 0.31	0.61; 0.66 / 0.63; 0.77	0.33; 0.34	1.05; 1.39	1.68	2.15	6.29; 6.75; 6.95

*) Also available with: R400, R800
**) Thread size 7/8 -> 3/4" available for 115 mm long versions only.
***) Applies to 7/8 -> 3/4" thread size
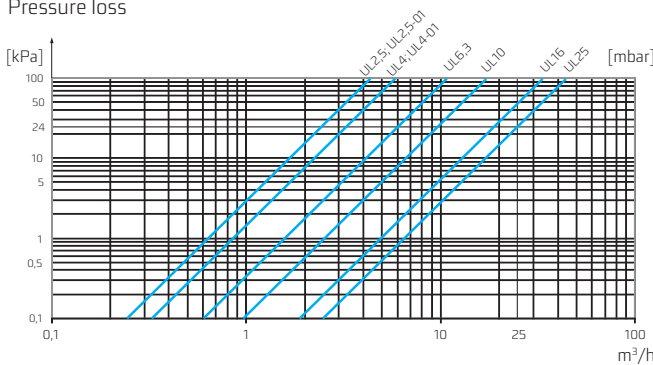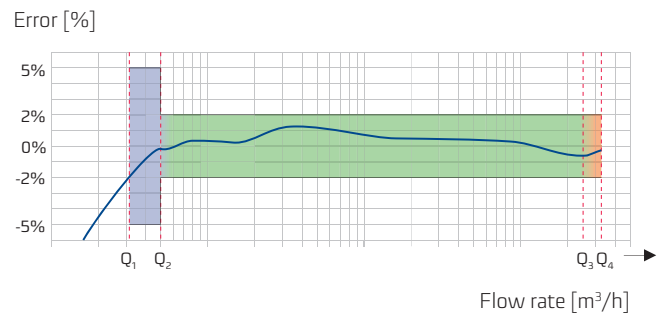****) Also available in G2 1/2 version.

water&heat

Connection fittings

Nut | Connection end | Gasket
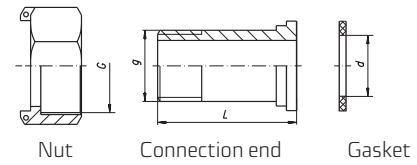
DN	G	g	d	L
	inch	inch	mm	mm
15	¾"	½"	17	37.5
20	1"	¾"	23	45.5
25	1¼"	1"	29	46.5
32	1½"	1¼"	36	56
40	2"	1½"	43	70

PRESSURE LOSS CHART

Pressure loss

TYPICAL ERROR CHART

Flow rate [m³/h]

Installation, configuration and remote reading

TEST

Calibration

Pulse output

External module Testbox

NFC

Proprietary RF communication protocol

INSTALLATION | **READING DATA LOGGERS**

AUTOMATIC METER READING

M-Bus wireless

OMS COMPLIANCE

AMR system | Walk-by data reading / Stationary data reading
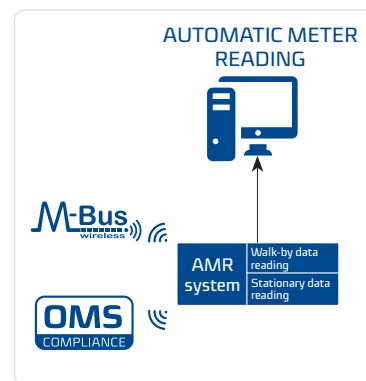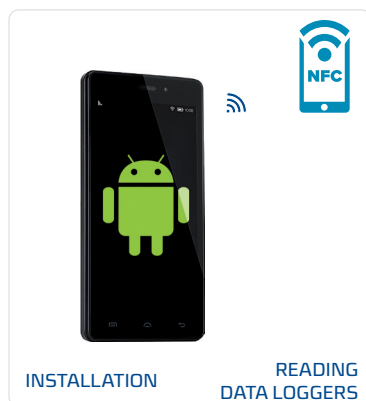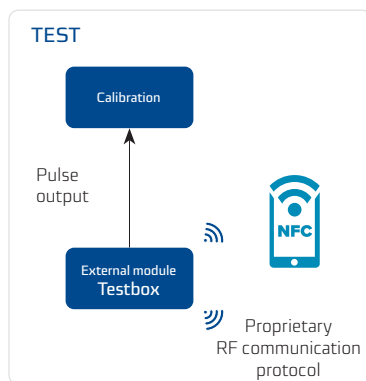
Ordering specification example

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.