

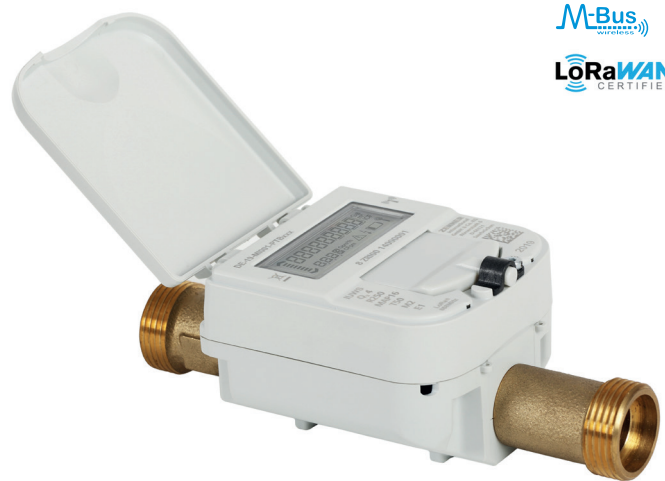
IUWS

Ultrasonic apartment water meter / residential water meter for cold water

The IUWS ultrasonic water meter guarantees a reliable collection of meter data for individual consumption billing in both apartments and the residential sector.

The IUWS is factory fitted with a 9-digit LCD and an integral wM-Bus or LoRaWAN® radio interface.

All the materials used in the drinking water sector correspond to the required standards, directives and current Drinking Water Ordinance (German environmental ministry recommendation of hygienically suitable metal materials for drinking water, KTW guidelines and DVGW worksheet W270).



Performance characteristics at a glance

- Any installation position (even "head down") also suitable for riser and downpipes
- Highest precision and reliability even in case of low flow rates
- Protection class IP68
- No moving parts in the flow sensor
- No straight inlet or outlet needed (U0/D0) according to OIML R49 and DIN EN ISO 4064
- Battery-powered electronic LCD register with NFC interface
- Smart functions
- Alarm and statistic functions
- Battery life 10 to max. 15 years (depending on configuration and ambient conditions)
- Operating pressure MAP 16
- Approved in accordance with MID

Applications

- For the consumption measurement of cold and clean drinking water or service water up to 50 °C

AMR options

- Integral wM-Bus or LoRaWAN® radio interface
- NFC interface (= Near Field Data Capture) for connecting an external NDC-module

Readout options of the measuring device via the NFC interface (Near Field Communication)

- Measuring instrument ID (serial number)
- Current (net) consumption value or total volume in the case of an overrun
- Date / Time
- Firmware version
- Up to 15 previous month's values
- Temperature
- Due date / due date volumes
- Supply / return volumes
- Alarms or error messages
- Battery end

Technical data

Permanent Flowrate	Q ₃	m ³ /h	2.5	4	2.5	4	4
Attainable measuring range	Q ₃ /Q ₁	R	500	500	500	315	500
Standard measuring range ¹	Q ₃ /Q ₁	R	250	250	250	250	250
Overload Flowrate	Q ₄	m ³ /h	3.13	5.00	3.13	5.00	5.00
Minimum flowrate ²	Q ₁	l/h	10.00	16.00	10.00	16.00	16.00
Transitional flowrate ²	Q ₂	l/h	16.00	25.60	16.00	25.60	25.60
Lower measuring limit	-	l/h	2.0	3.2	2.0	3.2	3.2
Upper measuring limit	-	m ³ /h	5.7	8.0	5.7	8.0	8.0
Display range	min.	l	1	1	1	1	1
	max.	m ³	999.999.999	999.999.999	999.999.999	999.999.999	999.999.999
Temperature range	-	°C	0.1 - 50	0.1 - 50	0.1 - 50	0.1 - 50	0.1 - 50
Operating pressure	MAP	bar	0.3 - 16	0.3 - 16	0.3 - 16	0.3 - 16	0.3 - 16
Pressure loss class at Q ₃	Δp	bar	0.1	0.25	0.25	0.16	0.25
Mechanical environmental condition	-	-	M1	M1	M1	M1	M1
Electromagnetic ambient class	-	-	E1	E1	E1	E1	E1
Climatic condition ³	-	°C	5 - 55	5 - 55	5 - 55	5 - 55	5 - 55
Flow profile sensitivity	-	-	U0/D0	U0/D0	U0/D0	U0/D0	U0/D0

Dimensions and weights:

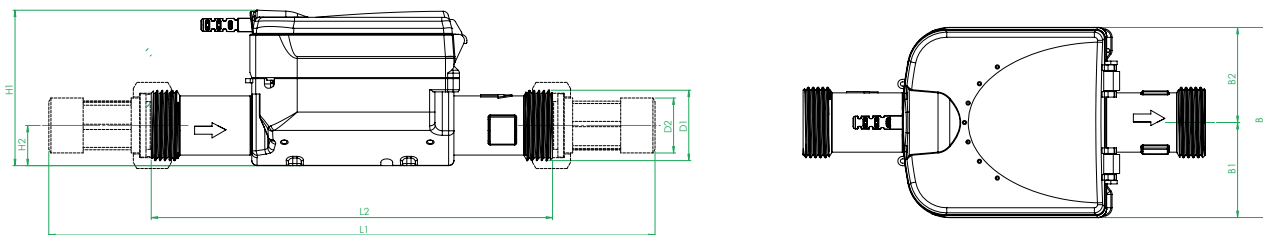
Nominal diameter	DN	mm	15	20	15	25	20
		inch	1/2"	3/4"	1/2"	1"	3/4"
Overall length without connectors ¹	L2	mm	110	130	165	175	190
Overall length with connectors approx.	L1	mm	190	226	245	293	286
Thread meter G x B	D1	inch	3/4"	1"	3/4"	1 1/4"	1"
Thread connector R x	D2	inch	1/2"	3/4"	1/2"	1"	3/4"
Width	B	mm	90	90	90	89.8	90
Width	B1	mm	45	45	45	47.5	45
Width	B2	mm	45	45	45	42.3	45
Height (overall)	H1	mm	73.4	73.4	73.4	78.60	73.4
Height	H2	mm	19	19	19	20.8	19
Weight approx.	-	kg	0.70	0.70	0.75	0.77	0.80

¹ Other measuring ranges and overall lengths on request

² The data refer to the standard measuring range

³ Condensation possible

Attention: not all versions are available in all markets



Dimensions

Technical data

Permanent Flowrate	Q_3	m ³ /h	6.3	10	10	10	16	25
Attainable measuring range	Q_3/Q_1	R	500	800	800	800	500	800
Standard measuring range ¹	Q_3/Q_1	R	250	250	250	250	250	250
Overload Flowrate	Q_4	m ³ /h	7.88	12.50	12.50	12.50	20.00	31.25
Minimum flowrate ²	Q_1	l/h	25.20	40.00	40.00	40.00	64.00	100.00
Transitional flowrate ²	Q_2	l/h	40.32	64.00	64.00	64.00	102.40	160.00
Lower measuring limit	-	l/h	5.1	5.1	5.1	5.1	13.0	20.0
Upper measuring limit	-	m ³ /h	13.8	13.8	13.8	13.8	27.3	34.5
Display range	min.	l	1	1	1	1	1	1
	max.	m ³	999.999.999	999.999.999	999.999.999	999.999.999	999.999.999	999.999.999
Temperature range	-	°C	0.1 - 50	0.1 - 50	0.1 - 50	0.1 - 50	0.1 - 50	0.1 - 50
Operating pressure	MAP	bar	0.3 - 16	0.3 - 16	0.3 - 16	0.3 - 16	0.3 - 16	0.3 - 16
Pressure loss class at Q_3	Δp	bar	0.16	0.25	0.25	0.25	0.1	0.25
Mechanical environmental condition	-	-	M1	M1	M1	M1	M1	M1
Electromagnetic ambient class	-	-	E1	E1	E1	E1	E1	E1
Climatic condition ³	-	°C	5 - 55	5 - 55	5 - 55	5 - 55	5 - 55	5 - 55
Flow profile sensitivity	-	-	U0/D0	U0/D0	U0/D0	U0/D0	U0/D0	U0/D0

Dimensions and weights:

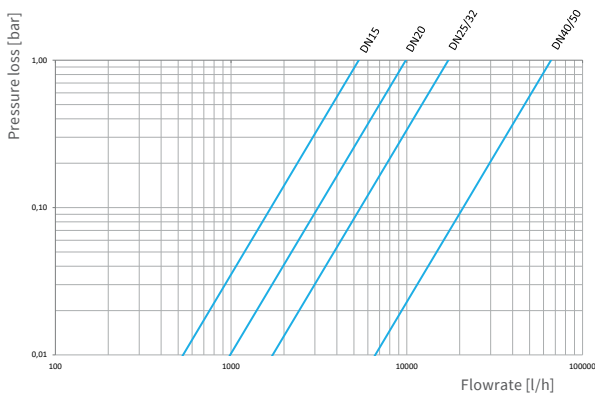
Nominal diameter	DN	mm	25	25	25	32	40	50
		inch	1"	1"	1"	1 1/4"	1 1/2"	2"
Overall length without connectors ¹	L2	mm	260	175	260	260	300	300
Overall length with connectors approx.	L1	mm	268/378	293	378	384	428	444
Thread meter G x B	D1	inch	1 1/4"	1 1/4"	1 1/4"	1 1/2"	2"	2 1/2"
Thread connector R x	D2	inch	1"	1"	1"	1 1/4"	1 1/2"	2"
Width	B	mm	89.8	89.8	89.8	89.8	105.30	105.30
Width	B1	mm	47.5	47.5	47.5	47.5	53.20	53.20
Width	B2	mm	42.3	42.3	42.3	42.3	52.10	52.10
Height (overall)	H1	mm	78.60	78.60	78.60	78.60	92.00	92.00
Height	H2	mm	20.8	20.8	20.8	20.8	28.40	28.40
Weight approx.	-	kg	1.20	0.77	1.20	1.30	1.80	2.20

¹ Other measuring ranges and overall lengths on request

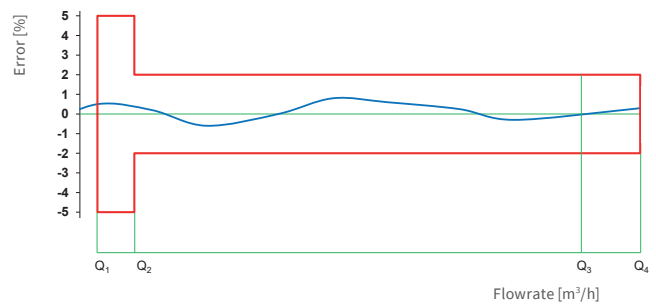
² The data refer to the standard measuring range

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Typical pressure loss curve

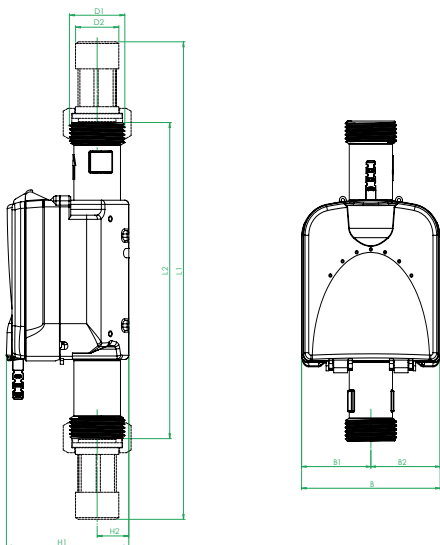


Typical error curve

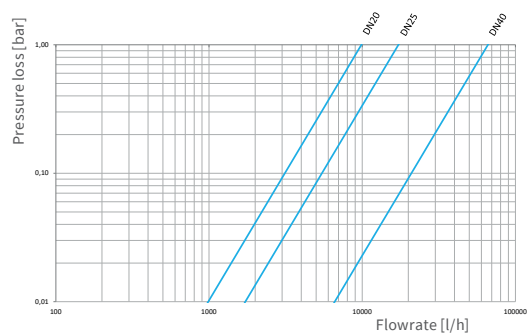
Technical data						
Permanent Flowrate	Q_3	m^3/h	4	6.3	10	16
Attainable measuring range	Q_3/Q_1	R	400	500	800	500
Standard measuring range ¹	Q_3/Q_1	R	250	250	250	250
Overload Flowrate	Q_4	m^3/h	5.00	7.88	12.50	20.00
Minimum flowrate ²	Q_1	l/h	16.00	25.20	40.00	64.00
Transitional flowrate ²	Q_2	l/h	25.60	40.32	64.00	102.40
Lower measuring limit	-	l/h	5.1	5.1	5.1	13.0
Upper measuring limit	-	m^3/h	5.7	13.8	13.8	27.3
Display range	min.	l	1	1	1	1
	max.	m^3	999.999.999	999.999.999	999.999.999	999.999.999
Temperature range	-	°C	0.1 - 50	0.1 - 50	0.1 - 50	0.1 - 50
Operating pressure	MAP	bar	0.3 - 16	0.3 - 16	0.3 - 16	0.3 - 16
Pressure loss class at Q_3	Δp	bar	0.4	0.16	0.25	0.1
Mechanical environmental condition	-	-	M1	M1	M1	M1
Electromagnetic ambient class	-	-	E1	E1	E1	E1
Climatic condition ³	-	°C	5 - 55	5 - 55	5 - 55	5 - 55
Flow profile sensitivity	-	-	U0/D0	U0/D0	U0/D0	U0/D0

Dimensions and weights:						
Nominal diameter	DN	mm	20	25	25	40
		inch	3/4"	1"	1"	1 1/2"
Overall length without connectors ¹	L2	mm	105	150	150	150/200
Overall length with connectors approx.	L1	mm	201	268/378	268	278/328
Thread meter G x B	D1	inch	1"	1 1/4"	1 1/4"	2"
Thread connector R x	D2	inch	3/4"	1"	1"	1 1/2"
Width	B	mm	90	89.8	89.8	105.30
Width	B1	mm	45	47.5	47.5	53.20
Width	B2	mm	45	42.3	42.3	52.10
Height (overall)	H1	mm	73.4	78.60	78.60	92.00
Height	H2	mm	19	20.8	20.8	28.40
Weight approx.	-	kg	0.65	0.90	0.90	1.20/1.40

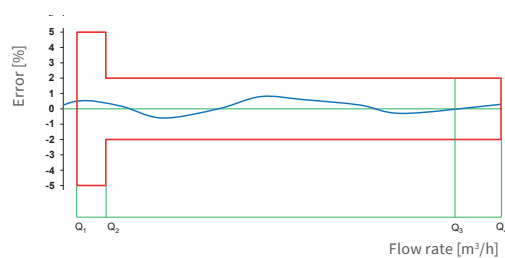
¹ Other measuring ranges and overall lengths on request
² The data refer to the standard measuring range
³ Condensation possible
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Dimensions



Pressure loss curve



Accuracy curve

Technical data for LoRaWAN® radio interface

Operating frequency	868 MHz
Max. Transmission power	approx. 14 dBm, 25 mW
Duration of transmission telegrams	Up to 1.5 s (depending on spreading factor)
Transmission interval	Dependent on the respective meter configuration, e.g. daily; optional: monthly or 8 telegrams with three hourly values each
Data transmission procedure	LoRaWAN® class A (bi-directional communication)
Encoding of radio protocols	yes
Error detection	CRC
Battery status monitoring	yes
CE conformity	according to directive 2014/53/EU (RED)
Activation of the radio interface	- automatic after the meter has been filled with water; - Via the NFC interface using the related ZENNER NFC Coupler, MinoConnectUSB and MSS configuration software

LoRaWAN® radio telegram

Protocol content	Interval
Serial number	once when logging into the LoRaWAN® network
Device-specific information (firmware version, LoRaWAN® version, device type)	six-monthly
Due date value and date [01.01.]	every year on due date
Changes of status (manipulation, battery warning, ...)	event-driven

Szenario 201 (monthly)

Protocol content	Interval
Monthly value (previous month) [liter], status information, actual date and time	monthly (beginning)
Monthly value (previous month) [liter], mid-month value, actual date and time	monthly (middle)

Szenario 202 (daily)

Protocol content	Interval
Daily value (previous day) [liter]	daily
Status information, actual date and time	monthly

Technical data for wireless M-Bus interface

Operating frequency	868 MHz
Transmission power	approx. 14 dBm, 25 mW
Duration of transmission telegram	approx. 10-15 ms
Sending interval	Depending on meter configuration
Data transmission procedure	Wireless M-Bus (standard C1 mode)
Encoding of radio protocols	Dependent on meter configuration; Standard Security Profile A, Encryption Mode 5; Security Profile B, Mode 7 on request
CRC error detection	CRC
Battery status monitoring	yes
CE conformity	according to directive 2014/53/EU (RED)
Activation of the radio interface	- automatic after the meter has been filled with water; - Via the NFC interface using the related ZENNER NFC Coupler, MinoConnectUSB and MSS configuration software
Telegram content	Dependent on the meter configuration, e.g. serial number, date, meter status, (current or daily values), previous month's values (max. 15), radio module status information

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