

Surface-mounted water meter M-Bus

Residential water meter based on the single-jet principle, equipped with an M-Bus module with return flow detection.

The M-Bus surface-mounted water meters are dry-running and operate according to the single-jet principle. Thanks to their ingenious design principle, these devices guarantee accurate measurement results while at the same time offering a high degree of reliability.

high reliability. The totalizer can be rotated. They can therefore be aligned so that they are easy to read both when installed horizontally and vertically. Connection to M-Bus systems for wired remote transmission is possible via the integrated interface.

To the point

- Integration into the Techem M-Bus system
- High measuring accuracy combined with high reliability
- 8-roller counter
- Fully dry rotor with rotating counter
- For cold water up to 30 °C or hot water up to 90 °C
- Removable M-Bus module
- Approval according to MID



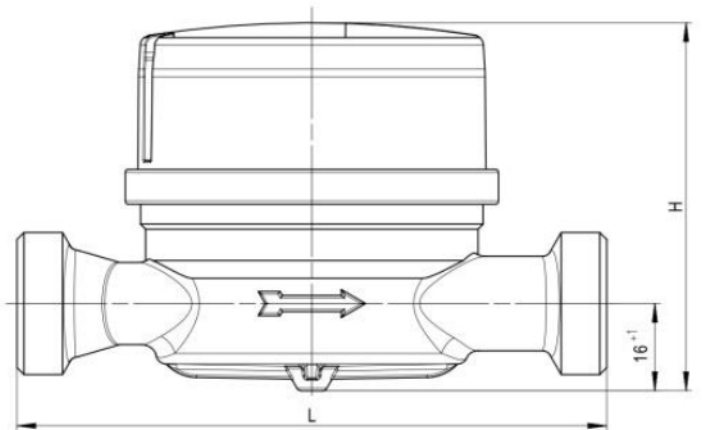
Surface-mounted water meter M-Bus

DATA SHEET

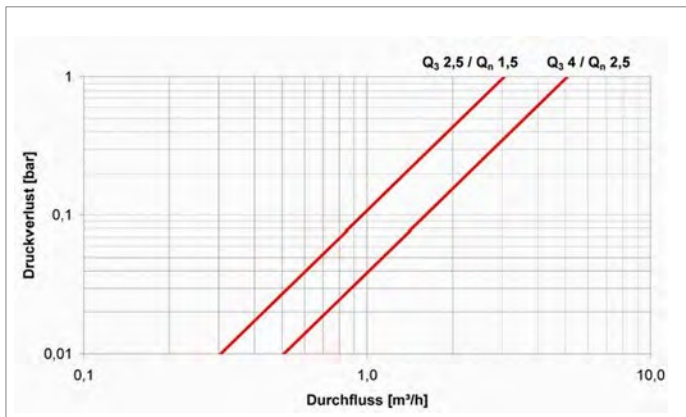
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Technical data

Nominal temperature	to (°C)			
Cold water meter	30			
Hot water meter	90			
Connection thread on the meter				
according to ISO 2281/1	AGZ	G3/4B	G1D	G1B
Overall length L	(mm)	130	130	130
Height H: AP M-Bus	(mm)	69	69	69
Nominal flow Q3	(m³/h)	2.5	2.5	4.0
KVS values	(m³/h)	3.2	3.2	5.0
Metrolog. Class horizontal		R80	R80	R80
Vertical		R50	R50	R50
Start-up approx.	l/h	8	8	15
Small flow rate Q1				
horizontal	(m³/h)	0.030	0.030	0.050
Vertical		0.050	0.050	0.080
Nominal pressure PN	(bar)	16	16	16
Display range	1 liter to 99'999.999 m³/h			
Overhead installation		X	X	X
Protection class	IP 65			



Dimensioned drawing Single-beam meter Modularis



Pressure loss curve



AP water meter M-Bus

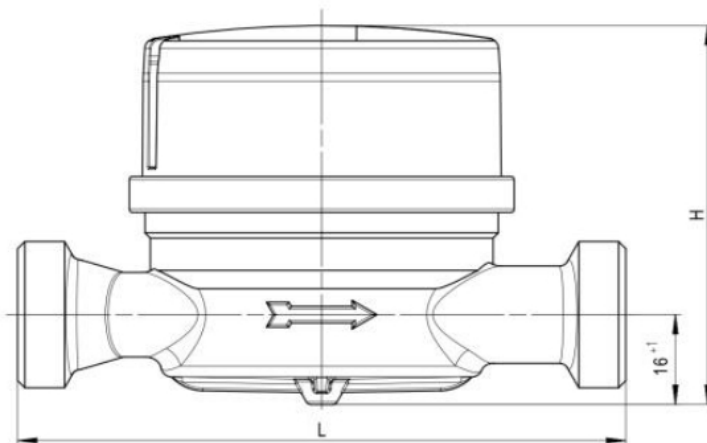
Important notes

Target group

These installation instructions are intended for trained personnel. - We therefore do not address basic work steps.

Intended use

Water meters are used to record the consumption of drinking water. Depending on the design, they are suitable for cold or hot water. The water meters are intended exclusively for this purpose. Any other use or conversion of the water meter beyond this purpose is considered improper and is not permitted. The applicable (national) legal regulations must be observed for the period of use (in particular the calibration regulations).



Height H: 69 mm
Overall length (L) G 3/4 B: 130 mm
Overall length (L) G 1 B: 130 mm

Safety and hazard information

- **Screw connection:**
Excessive tightening of the screw connection leads to damage, especially to threads and seals.
 - ↪ Do not overtighten the screws.
- **Test water residues:**
Damage due to frozen water meters is possible.
 - ↪ Defrost in a temperature-controlled room.
- **Sealing parts:**
Damage or leaks are possible.
 - ↪ Clean and check the sealing surfaces.
 - ↪ Check thread and coat with a KTW/TVO-compliant lubricant (e.g. Tap grease, Techem article no. 160958).
- **Billing error:**
 - ↪ Do not install water meters in circulation pipes.
 - ↪ Pay attention to the direction of flow!

Delivery, transportation and storage

Scope of delivery

The water meter is supplied as standard:

- the assembly instructions,
- 1 water meter,
- 2 seals,
- Sealing agent.

Transportation

The water meter should not be exposed to strong shocks, impacts, jolts or vibrations. It should therefore be transported in its original packaging or other suitable packaging if possible.

Storage

The following storage conditions must be observed:

- Max. temperature: + 50 °C
- dry and frost-free.



Assembly

Reassembly

New installations may only be carried out by qualified installers.

The applicable national regulations (in Germany DIN 1988) for the installation of drinking water systems must be observed.

- 1** Shut-off devices for subsequent meter replacement must be taken into account during installation.

The rest of the meter installation procedure corresponds to step 7 of the meter replacement section.

Meter replacement

Meter replacement refers to activities that are possible without installation work. For example:

- Necessary calibration exchange
- Replacement of competitor meters of the same size
- Exchange of meter spare parts for a meter

When replacing the meter, the applicable national regulations (in Germany DIN 1988) for the installation of drinking water systems must be observed!

- 1** Take precautions to ensure that any appliances connected to the mains supply are not damaged (e.g. switch off boilers, water heaters, etc. beforehand).
- 2** Close the valve upstream of the water meter. **3** Relieve the pressure in the pipes.
- 4** Close the valve behind the water meter and empty the pipes if the valve is missing.
- 5** Loosen the water meter screw connection with a suitable tool.
- 6** Remove the old water meter.
- 7** Remove the protective caps from the connection threads of the new water meter.
- 8** Clean and check the sealing surfaces.
- 9** Check the thread and coat with a KTW/TVO-compliant lubricant (e.g. tap grease, Techem article no. 160 958). Always use seals approved for drinking water applications.

When **installing in plastic pipes** (e.g. Friatherm), always use the EPDM seals specially designed for this purpose:

- Part no. 199 133 for threaded connection $\frac{3}{4}$ "
- Part no. 199 134 for threaded connection 1"

- 10** Mount the meter with the totalizer facing upwards or forwards (observe the direction of flow). Overhead installation is not permitted. Do not overtighten the screw connections.

When using **EPDM gaskets**, **tighten** the union nut **by hand** and **turn it an additional $\frac{1}{2}$ to 1 turn**. - Otherwise the seal and possibly also the plastic pipe will be damaged.

- 11** Open the valve behind the water meter. Open
- 12** the taps.
- 13** Slowly open the valve in front of the meter so that the water meter and the pipe network are not damaged.
- 14** Carry out a function test.
- 15** Close the taps and check the system for leaks. Seal the connection fittings.
- 16** Switch on any appliances connected to the mains again.
- 17** **When replacing the meter, be sure to also replace the installed seals with the new ones.**

M-Bus connection

Before connecting the M-Bus module, observe the corresponding electrical diagram.



Operation and maintenance

Meter reading

The black number scrolls show the full m³, the red decimal places show the full liters (100L/10L/1L).

Maintenance and cleaning

The water meter is maintenance-free over its service life if used as intended.

The surface of the hood can be cleaned with standard household cleaners without solvents. - Do not use abrasive cleaners.

Dismantling and disposal

At the end of use, Techem will dispose of all devices properly.



CE conformity

If required, you can request the complete declaration of conformity from Techem (Schweiz) AG.

CMa11

Indoor temperature/humidity sensor, M-Bus

CMa11w is a two-way M-Bus temperature and humidity sensor for indoor use. The sensor offers high accuracy, reliability and user-friendliness, which makes it the optimal choice for tenant owners. Readout and configuration are easily performed via M-Bus or by using a mobile phone (via NFC).



Technical specification

Mechanics

Protection class	IP30
Dimensions (w x h x d)	80 x 80 x 25 mm
Mounting	Wall-mount
Weight	75 g

Electrical connections

Supply voltage	From M-Bus
M-Bus slave port	Screw terminal, Cable 0.25-1.5 mm ²

Electrical characteristics

Nominal voltage	21-42 VDC
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Environmental characteristics

Operating temperature	-20 °C to +55 °C
Operating humidity	0 to 95 %, no condensation
Operating altitude	0-2000 m
Pollution degree	Degree 2
Usage environment	Indoors
Storage temperature	-40 °C to +85 °C

Approvals

EMC	EN 61000-6-2, EN 61000-6-3
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Sensor characteristics

Measurement range, temperature sensor	-20 °C to +55 °C
Measurement range, humidity sensor	0 % to 100 % RH
Temperature sensor, margin of error	Temperature: 10 °C to 30 °C: ±0.2°C Temperature: 0 °C to 10 °C: ±0.4°C Temperature: -10 °C to 0 °C: ±0.5°C Temperature: below -10 °C or above 30 °C: ±1.5°C
Humidity sensor, margin of error	Humidity: 10 % RH to 90 % RH: ±2% RH Humidity: below 10 % RH or above 90 % RH: ±4% RH

User interface

LCD-display	No
Momentary values	Temperature, humidity, status
Historic values	Average value over the last hour and last day

M-Bus

Interfaces	M-Bus slave
M-Bus standard	EN 13757
M-Bus baud rate, slave port	300 and 2400 bit/s