



EnergyMetering

Residential Water Meters

Multi-jet wet dial meters

Multi-jet dry dial meters

Positive displacement meters

AMR-technology



ZENNER
All that counts.

Certified quality

ZENNER International GmbH & Co. KG is DIN EN ISO 9001:2008 and DIN EN ISO 14001:2004 certified.

All ZENNER meters correspond to the design and connection dimensions of DIN ISO 4064 and/or DIN ISO 19684 Part 3, DIN EN 1434, and other national and international standards and guidelines.

MID compliant

Before we ship our water and heat meters, we calibrate them in our state-approved testing site for measurement instruments according to 75/33/ EWG or declare them compliant with MID European Measurement Instruments Directive 2004/22/ EG.

We have successfully implemented approvals and procedures as per the guidelines of the MID since 2006.



INTERSEROH

Technology of the highest standard

Quality and reliability for the best measurement results

Customers around the world have relied on our experience and the quality and reliability of our products for more than 100 years. We sell more than three million water meters each year, which places us among the leading providers of innovative measurement technology on all five continents.

We have the right products and custom solutions for all technological requirements available, in particular for our customers in the residential and commercial area as well as in utilities and water suppliers.

Along with multi-jet meters for cold or hot water this includes positive displacement meters, plastic water meters and AMR-technologies.

Technology derived from experience

The technology in our products reflects our experience of over 100 years of development and production. We are constantly pushing the functionality of our meters forward in our on-going development process. This enables us to offer our customers products that will be functional for years to come.

AMR-technology

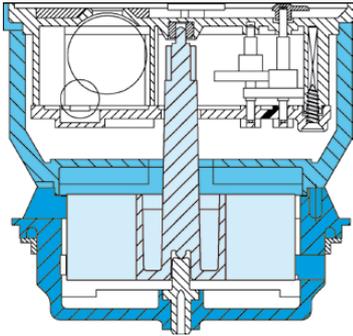
The prerequisite for the integration of water meters, heat meters, gas and electricity meters into modern remote reading systems is the ability of the meters to communicate. All ZENNER residential water meters are retrofittable with pulser for remote readout systems.

AMR-technology by ZENNER provides modular structured solutions for smart metering systems via suitable interfaces, adapted to individual customer requirements. Our portfolio includes both wired bus systems and wireless radio solutions, as well as the associated software for activation and for taking readings with the systems.



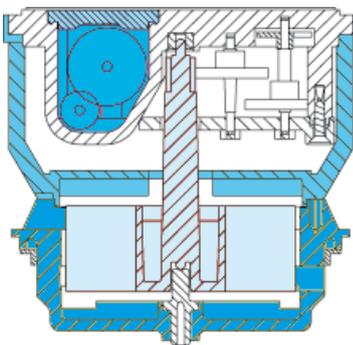
Residential water meters

Construction multi-jet wet dial meters



Our multi-jet turbine meters as wet dial model are characterised by the fact that the impeller shaft is connected directly with the register. The register's rollers and pointers are surrounded by the measuring fluid. The advantage here is that the power transmission from the measuring chamber takes place directly in the register and thus, no friction losses occur. The result is a very low starting flow. In contrast to dry dial meters, this meter model cannot be influenced magnetically and metallic pollution cannot deposit itself on the impeller shaft or the coupling. We recommend this meter for all potable water qualities where pollution of the register through fine particles can be ruled out as far as possible.

Construction "Roller Protect"

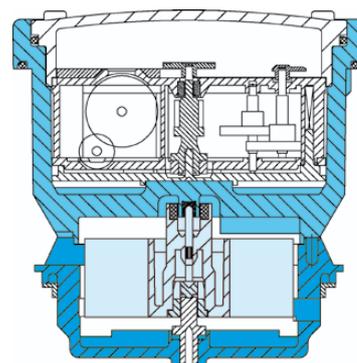


With the model "Roller Protect" (-RP) we refer to a special type of register which is a further development of the classic wet dial meter. Under conditions, over the years, fine deposits may set themselves on the register rollers and the entire dial area of the MNK-meters, despite the encapsulated rollers in the registers. At worst, it becomes extremely difficult to read the meters. This can be avoided with the hermetically encapsulated register developed by ZENNER. The digit rollers are located in their own chamber, which is filled with a special protective fluid. No water and thus, no fine particles can enter the dial area. This way, the meter can be read even in polluted or highly ferrous water and thus, the meter is often referred to as a "semi-dry dial". Meters from the model MNK-RP are the ideal alternative in all situations where readings were often no longer possible.

We recommend this model for all potable water qualities where the danger of deposits due to rust or other fine particles exists or where the meter will remain in use much longer than the calibration period applicable in Germany.

Construction multi-jet dry dial meters

With this meter, only the turbine functions in the wet chamber. The register with the digit rollers is hermetically encapsulated and does not come into contact with the measuring fluid. Both parts of the measuring insert are connected by way of a state-of-the-art magnetic coupling. Malfunctions due to polluted water don't affect the encapsulated, evacuated and rotating register. We especially recommend cold water meters (MTK) for use in places where water quality varies. They can be used up to an operating temperature of 30°C and are safe up to 50°C. The hot water meters (MTW) can be used in calciferous water. The temperature limit for this model is 90°C.



Construction positive displacement meters

Positive displacement meters record the flow by means of volumetric measuring method. Based on the known defined volume of the measuring chamber of the rotary piston meter a precise recording of consumption is given. As a result, this leads by the water supply companies to the reduction of the so-called network losses and allows to present a more accurate billing of consumption to the customer. The advantage of positive displacement meters, namely more precise measurement can be observed in the main area of application, in the private household. Positive displacement meters have a high measuring range and measurement stability. Their good stability helps to increase the possible operating time and therefore efficiency as well.

The new ZENNER D-register

The newly developed D-register for dry dial and positive displacement meters makes possible non-reactive, electronic scanning with a variable resolution and is the basis for remote reading via radio, M-Bus or pulse module.



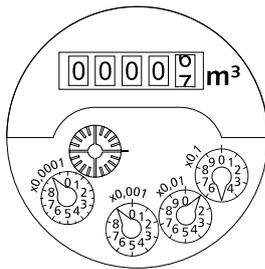
MNK and MNK-N

Multi-jet wet dial meters for cold water

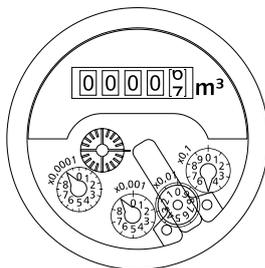
The multi-jet wet dial meter MNK is an ideal domestic water meter for tamper-proof, high-precision consumption measurement. MNK is an MID-compliant water meter, proven by the million, for service connection. Continuous further development guarantees the most precise measurement results and the best long-term stability.

Its construction, thought out right down to the last detail, guarantees outstanding performance characteristics, minimum bearing loads and a long service life for the MNK water meter.

Version MNK-N is retrofittable with pulser (reed) for remote readout.



MNK



MNK-N



Performance characteristics in overview

- Wet dial register construction
- Rotatable and individually inscribable lidring
- High-quality mineral glass inspection window
- Optional: UV-resistant plastic (MNK-N)
- Operating temperature up to 30°C, optional up to 50°C
- Operating pressure PN 16
- Water meter for horizontal and vertical installation
- Display range from 0.1 l to 99999 cubic metres
- Version MNK-N is retrofittable with pulser (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 100 l/pulse available
- Approved in accordance with MID

MNK-L and MNK-L-N

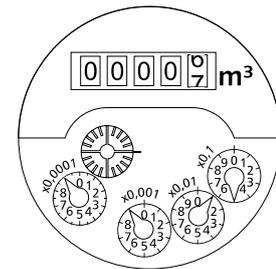
Multi-jet wet dial meters for cold water in a plastic housing

Our new range of multi-jet wet dial meter models is a further development of the classic MNK. Our engineers have successfully combined the high-precision MNK measuring insert with an innovative polymer composite housing. The result is the new MNK-L/MNK-L-N plastic water meter. Its exceptional product characteristics are its low weight, its low starting flow and its reliable measurement characteristics.

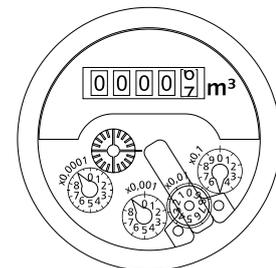
The MNK-L-N can be retrofitted with a pulser and is therefore ready for all future AMR-applications.

Performance characteristics in overview

- Light, robust and well-designed
- Almost 50% lighter than a meter with a brass housing
- High-quality mineral glass inspection window
- Optional: UV-resistant plastic (MNK-N)
- Operating temperature up to 30°C
- Operating pressure PN 16
- Water meter for horizontal and vertical installation
- Display range from 0.1 l to 99999 cubic metres
- Version MNK-L-N is retrofittable with pulser (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 100 l/pulse available
- Approved in accordance with MID

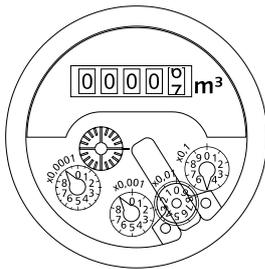


MNK-L

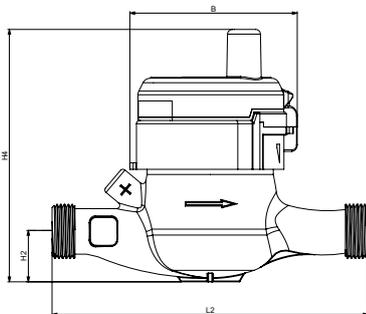


MNK-L-N





MNK-RDM



Dimensions MNK-RDM

MNK-RDM and MNK-RP-RDM

Multi-jet wet dial meters with an integrated radio module for cold potable water

The compact ZENNER MNK-RDM radio water meter has been specially developed for mobile remote readout of domestic water meters. Thanks to the integrated bi-directional radio technology, the radio water meters can be individually addressed, queried or parameterised using a hand-held device. Since the range can be increased using repeaters if necessary, the radio water meters are reliably accessible by "walk by" or from a vehicle by "drive by".

Regardless of whether they are built into the building or into a shaft, the IP68 protection class makes the MNK-RDM water meter robust and protects it from attempted tampering. Thanks to its compact design, installation and start-up are no problem. The direct electronic recording of the consumption data and the digital transfer to accounting systems ensure a reliable, fast and economical reading process.

The ZENNER radio water meter MNK-RDM is also available as version with protected rollers (MNK-RP-RDM).

Performance characteristics in overview

- Version MNK-RP-RDM with specially protected digit rollers
- High range on the licence-free ISM band 868 Mhz
- Secure, reliable radio transmission
- Internal, configurable data logger with 24 memory locations
- Various tampering detection options
- Protection class IP68
- Operating temperature up to 30°C, optional up to 50°C
- Operating pressure PN 16
- Approved in accordance with MID

For informations about the ZENNER Mobile Radio System see page 44/45.

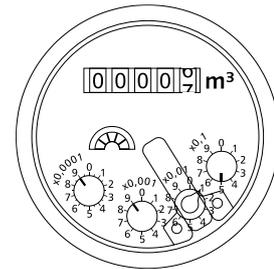
MNK-MF-N Manifold

Multi-jet wet dial cartridge meter for cold potable water

The ZENNER MNK-MF-N is a manifold water meter for cold potable water. The MNK-MF-N combines a multi-jet register in a robust brass housing. The MNK-MF-N is suitable for water temperatures up to 30°C. The MNK-MF-N is retrofittable with pulser (reed) for remote readout.

Performance characteristics in overview

- High-quality UV-resistant plastic inspection window
- Operating temperature up to 30°C, optional up to 50°C
- Operating pressure PN 16
- Retrofittable with pulser (reed) for remote readout systems
- Pulse value either 10l/ Imp. or 100 l/Imp.
- Approved in accordance with MID

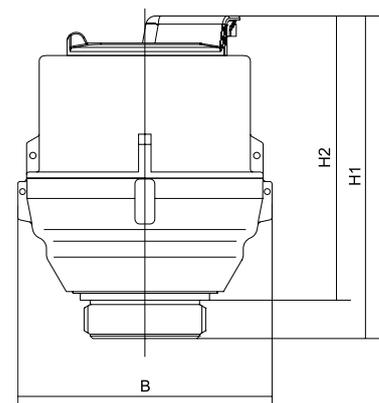


MNK-MF-N

Technical data MNK-MF-N

Permanent flow	Q ₃	m ³ /h	2,5	4
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1,5	2,5
Attainable measuring range	Q ₃ /Q ₁	Ratio	R80H	R160H
Standard measuring range (*)	Q ₃ /Q ₁	Ratio	R80H	R160H
Comparable to metrological class (EWG)	class		B-H	C-H
Overload flow	Q ₄	m ³ /h	3,13	5
Minimum flow	Q ₁	l/h	50	50
Start-up flow rate		l/h	5	5
Display range	min	l	0,1	0,1
	max	m ³	99999	99999
Maximum temperature		°C	30	30
Operating pressure, max.	PN	bar	16	16
Pulse value		l/pulse	10 or 100	10 or 100
Pressure loss at	Q ₄	bar	<0,25	<0,55
Dimensions:				
Nominal diameter	DN	mm	20	20
		inch	¾"	¾"
Thread meter G x B	D1	inch	1 ½"	1 ½"
Width approx.	B	mm	103	103
Height approx.	H1	mm	128	128
		H2	mm	113
Weight approx.		kg	1,4	1,4

(*) other measuring ranges on request.

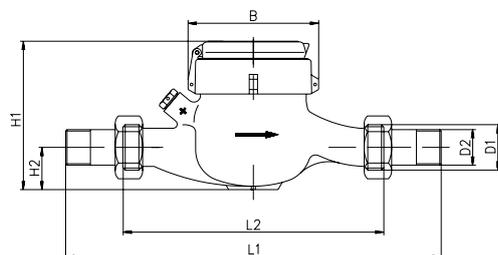


Dimensions MNK-MF-N

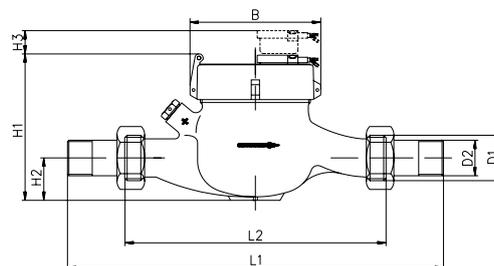
Technical data MNK, MNK-N, MNKI-N, MNK-RDM

Permanent flow	Q ₃	m ³ /h	2,5	2,5	2,5	4	4	4	6,3
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1,5	1,5	1,5	2,5	2,5	2,5	3,5
Attainable measuring range	Q ₃ /Q ₁	R	200H/50V	200H/50V	200H/50V	200H/80V	200H/80V	200H/80V	200H/80V
Standard measuring range (*)	Q ₃ /Q ₁	R	80H/40V						
Comparable to metrological class (EWG)	class		B-H/A-V						
Overload flow (**)	Q ₄	m ³ /h	3,13	3,13	3,13	5	5	5	7,88
Minimum flow (**)	Q ₁	l/h	31H/63V	31H/63V	31H/63V	50H/100V	50H/100V	50H/100V	79H/158V
Start-up flow rate	-	l/h	<4	<4	<4	<5	<5	<5	<10
Display range	min	l	0,1	0,1	0,1	0,1	0,1	0,1	0,1
	max	m ³	99999	99999	99999	99999	99999	99999	99999
Maximum temperature	-	°C	30	30	30	30	30	30	30
Operating pressure, max.	PN	bar	16	16	16	16	16	16	16
Pulse value		l/pulse	10/100	10/100	10/100	10/100	10/100	10/100	10/100
Dimensions:									
Nominal diameter	DN	mm	15	25	20	20	20	25	25
		inch	½"	1"	¾"	¾"	¾"	1"	1"
Overall length without connectors (*)	L2	mm	165/170	175	190	190	220	175	175/260
Overall length with connectors approx.	L1	mm	245/250	293	286	286	316	293	293/378
Thread meter G x B	D1	inch	¾"	1 ¼"	1"	1"	1"	1 ¼"	1 ¼"
Thread connector R x	D2	inch	½"	1"	¾"	¾"	¾"	1"	1"
Width approx.	B	mm	95	95	95	95	95	95	95
Height (plastic glass) approx.	H1 k*	mm	120	120	120	120	120	120	120
Height (mineral glass) approx.	H1 m*	mm	125	125	125	125	125	125	125
	H2	mm	~35	~35	~25	~25	~35	~35	~35
	H3	mm	15	15	15	15	15	15	15
Height of MNK-RDM	H4		160	-	160	160	-	-	-/160
Weight approx.	-	kg	1,3	1,8	1,4	1,4	1,6	1,7	1,7/2,1

(*) Other measuring ranges (R) and overall lengths on request. (**) The data refer to the standard measuring range
k* plastic glass (MNK-N, MNKI-N, MNK-L-N) / m* mineral glass (MNK, MNK-L)



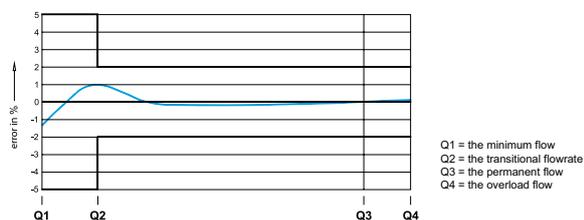
Dimensions MNK, MNK-L



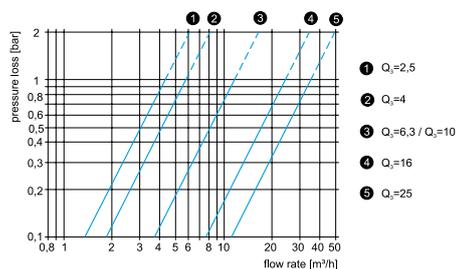
Dimensions MNK-N, MNK-L-N with pulser

Technical data MNK, MNK-N, MNKI-N, MNK-RDM										MNK-L, MNK-L-N, MNKI-L-N		
Permanent flow	Q ₃	m ³ /h	10	10	16	25	25	25	25	2,5	4	
Comparable to nominal flow (EWG)	Q _n	m ³ /h	6	6	10	15	15	15	15	1,5	2,5	
Attainable measuring range	Q ₃ /Q ₁	R	200H/80V	200H/80V	200H/63V	160H	160H	160H	160H	200H/50V	200H/80V	
Standard measuring range (*)	Q ₃ /Q ₁	R	80H/40V	80H/40V	80H/40V	80H	80H	80H	80H	80H/40V	80H/40V	
Comparable to metrological class (EWG)	class		B-H/A-V	B-H/A-V	B-H/A-V	B-H	B-H	B-H	B-H	B-H/A-V	B-H/A-V	
Overload flow (**)	Q ₄	m ³ /h	12,5	12,5	20	31,3	31,3	31,3	31,3	3,13	5	
Minimum flow (**)	Q ₁	l/h	125H/250V	125H/250V	200H/400V	313H	313H	313H	313H	31H/63V	50H/100V	
Start-up flow rate	-	l/h	<10	<10	<20	<25	<25	<25	<25	<4	<5	
Display range	min	l	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	
	max	m ³	99999	99999	99999	99999	99999	99999	99999	99999	99999	
Maximum temperature	-	°C	30	30	30	30	30	30	30	30	30	
Operating pressure, max.	PN	bar	16	16	16	16	16	16	16	10	10	
Pulse value		l/pulse	10/100	10/100	10/100	10/100	10/100	10/100	10/100	10/100	10/100	
Dimensions:												
Nominal diameter	DN	mm	25	32	40	50	50	50	50	15	20	
		inch	1"	1 ¼"	1 ½"	2"	---	---	---	½"	¾"	
Overall length without connectors (*)	L2	mm	260	260	300	300	270	300	300	165/170/190	190	
Overall length with connectors approx.	L1	mm	378	384	428	444	---	---	---	245/250/270	286	
Thread meter G x B	D1	inch	1 ¼"	1 ½"	2"	2 ½"	flange	flange	flange	¾"	1"	
Thread connector R x	D2	inch	1"	1 ¼"	1 ½"	2"	---	---	---	½"	¾"	
Width approx.	B	mm	95	95	110	110	165	165	165	99	99	
Height (plastic glass) approx.	H1 k*	mm	120	120	---	---	---	---	---	115	115	
Height (mineral glass) approx.	H1 m*	mm	125	125	150	150	175	175	175	---	120	
		H2	mm	~40	~40	~50	~60	~75	~75	~75	~30	~30
		H3	mm	15	15	15	15	15	15	15	15	15
Height of MNK-RDM	H4		-	160	-	-	-	-	-	-	-	
Weight approx.	-	kg	2,1	2,2	3,6	4	9,5	9,5	9,5	0,6	0,6	

(*) Other measuring ranges (R) and overall lengths on request. (**) The data refer to the standard measuring range
 k* plastic glass (MNK-N, MNKI-N, MNK-L-N) / m* mineral glass (MNK, MNK-L)



Typical accuracy curve



Typical pressure loss curve



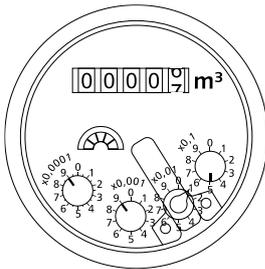
MNK-RP and MNK-RP-N

Multi-jet wet dial meters with protected digit rollers

The digit rollers of the register of the MNK-RP water meter series are housed in their own chamber, which is filled with a special protective fluid. Thanks to the protected digit rollers, the water meters deliver optimum measurement results, even in difficult conditions.

As well, no water, and hence also no suspended particles, can reach the dial level of the water meter. Accordingly, the MNK-RP water meter is always legible, even in heavily contaminated water or in water containing ice.

Version MNK-RP-N is retrofittable with pulser (reed) for remote readout.



MNK-RP-N



Performance characteristics in overview

- Specially protected encapsulated digit rollers
- High-quality mineral glass or UV-resistant plastic inspection window
- Operating temperature up to 30°C, optional up to 50°C
- Operating pressure PN 16
- Water meter for horizontal and vertical installation
- Display range from 0.1 l to 99999 cubic meters
- Version MNK-RP-N is retrofittable with pulser (reed)
- Standard pulse value 10 l/pulse, optional 100 l/pulse available
- Approved in accordance with MID

MNK-L-RP and MNK-L-RP-N

Multi-jet wet dial meters for cold water with protected digit rollers in a plastic housing

The new series of our multi-jet wet dial meter are an improvement of the classical MNK-RP. Our developers succeeded in combining the millionfold proven and high-precise measuring insert of the MNK-RP with a body of pressure-tight polymer composite, suitable for use with potable water. The result is the innovative MNK-L-RP.

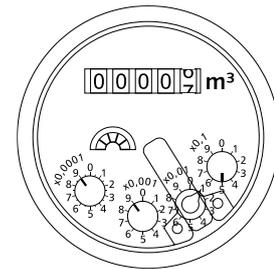
Its main features are a low starting flow and reliable performance even with aggressive water qualities or dezincification effects. The protected roller register is reliably readable even under demanding climatic conditions.

The construction principle of the MNK-L-RP with direct transmission from the measuring chamber to the register ensures by standard protection against manipulation attempts or interference.

Version MNK-L-RP-N is retrofittable with pulser (reed) for remote readout.

Performance characteristics in overview

- Light, robust and well-designed
- Almost 50% lighter than a meter with a brass housing
- Housing made from high-quality UV-resistant polymer composite
- High-quality mineral glass or UV-resistant plastic inspection window
- Operating temperature up to 30°C
- Operating pressure PN 16
- Water meter for horizontal installation
- Display range from 0.1 l to 99999 cubic meters
- Version MNK-L-RP-N is retrofittable with pulser (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 100 l/pulse available
- Approved in accordance with MID



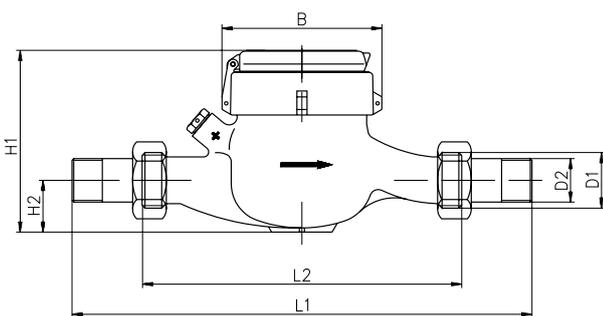
MNK-L-RP-N



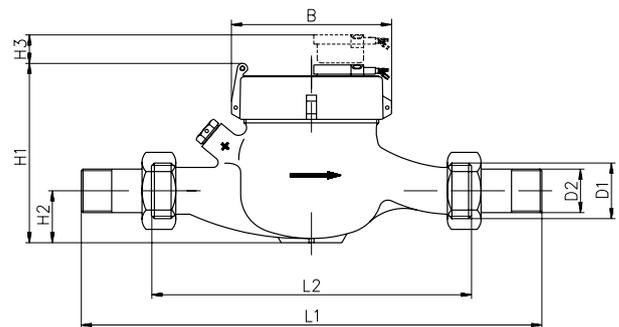
Technical data MNK-RP, MNK-RP-N, MNK-RP-I-N									
Permanent flow	Q ₃	m ³ /h	2,5	2,5	2,5	4	6,3	10	10
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1,5	1,5	1,5	2,5	3,5	6	6
Attainable measuring range	Q ₃ /Q ₁	R	200H/50V	200H/50V	200H/50V	200H/80V	200H/80V	200H/80V	200H/80V
Standard measuring range (*)	Q ₃ /Q ₁	R	80H/40V	80H/40V	80H/40V	80H/40V	80H/40V	80H/40V	80H/40V
Comparable to metrological class (EWG)	class		B-H/A-V	B-H/A-V	B-H/A-V	B-H/A-V	B-H/A-V	B-H/A-V	B-H/A-V
Overload flow (**)	Q ₄	m ³ /h	3,13	3,13	3,13	5	7,88	12,5	12,5
Minimum flow (**)	Q ₁	l/h	31H/63V	31H/63V	31H/63V	50H/100V	79H/158V	125H/250V	125H/250V
Start-up flow rate	-	l/h	<4	<4	<4	<5	<10	<10	<10
Display range	min	l	0,1	0,1	0,1	0,1	0,1	0,1	0,1
	max	m ³	99999	99999	99999	99999	99999	99999	99999
Maximum temperature	-	°C	30	30	30	30	30	30	30
Operating pressure, max.	PN	bar	16	16	16	16	16	16	16
Pulse value		l/pulse	10/100	10/100	10/100	10/100	10/100	10/100	10/100
Dimensions:									
Nominal diameter	DN	mm	15	15	20	20	25	25	32
		inch	½"	½"	¾"	¾"	1"	1"	1 ¼"
Overall length without connectors (*)	L2	mm	110	165/170	190	190	260	260	260
Overall length with connectors approx.	L1	mm	190	245/250	286	286	378	378	384
Thread meter G x B	D1	inch	¾"	¾"	1"	1"	1 ¼"	1 ¼"	1 ½"
Thread connector R x	D2	inch	½"	½"	¾"	¾"	1"	1"	1 ¼"
Width approx.	B	mm	95	95	95	95	95	95	95
Height approx.	H1	mm	110	110	110	110	110	110	110
	H2	mm	~30	~35	~25	~25	~35	~35	~35
	H3	mm	15	15	15	15	15	15	15
Weight approx.	-	kg	1,1	1,2	1,3	1,3	2	2	2,1

(*) Other measuring ranges (R) and overall lengths on request.

(**) The data refer to the standard measuring range



Dimensions MNK-RP, MNK-L-RP

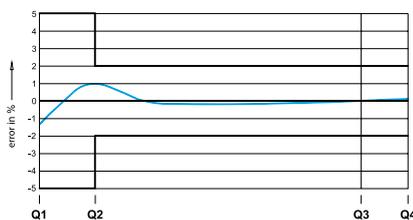


Dimensions MNK-RP-N, MNK-L-RP-N with pulser

Technical data MNK-RP, MNK-RP-N, MNK-RP-I-N								MNK-L-RP, MNK-L-RP-N	
Permanent flow	Q ₃	m ³ /h	16	16	25	25	25	2,5	4
Comparable to nominal flow (EWG)	Q _n	m ³ /h	10	10	15	15	15	1,5	2,5
Attainable measuring range	Q ₃ /Q ₁	R	200H/63V	200H/63V	160H	160H	160H	200H/50V	200H/80V
Standard measuring range (*)	Q ₃ /Q ₁	R	80H/40V	80H/40V	80H	80H	80H	80H/40V	80H/40V
Comparable to metrological class (EWG)	class		B-H/A-V	B-H/A-V	B-H	B-H	B-H	B-H/A-V	B-H/A-V
Overload flow (**)	Q ₄	m ³ /h	20	20	31,3	31,3	31,3	3,13	5
Minimum flow (**)	Q ₁	l/h	200H/400V	200H/400V	313H	313H	313H	31H/63V	50H/100V
Start-up flow rate	-	l/h	<20	<20	<25	<25	<25	<4	<5
Display range	min	l	0,1	0,1	0,1	0,1	0,1	0,1	0,1
	max	m ³	99999	99999	99999	99999	99999	99999	99999
Maximum temperature	-	°C	30	30	30	30	30	30	30
Operating pressure, max.	PN	bar	16	16	16	16	16	16	16
Pulse value		l/pulse	10/100	10/100	10/100	10/100	10/100	10/100	10/100
Dimensions:									
Nominal diameter	DN	mm	40	50	50	50	50	15	20
		inch	1 ½"	2"	2"	---	---	½"	¾"
Overall length without connectors (*)	L2	mm	300	300	300	270	300	165/170/190	190
Overall length with connectors approx.	L1	mm	428	444	444	---	---	245/250/270	286
Thread meter G x B	D1	inch	2"	2 ½"	2 ½"	flange	flange	¾"	1"
Thread connector R x	D2	inch	1 ½"	2"	2"	---	---	½"	¾"
Width approx.	B	mm	110	110	110	165	165	99	99
Height approx.	H1	mm	150	150	150	175	175	115	115
	H2	mm	~50	~50	~60	~75	~75	~30	~30
	H3	mm	15	15	15	15	15	15	15
Weight approx.	-	kg	3,5	3,9	3,9	9,4	9,4	0,6	0,6

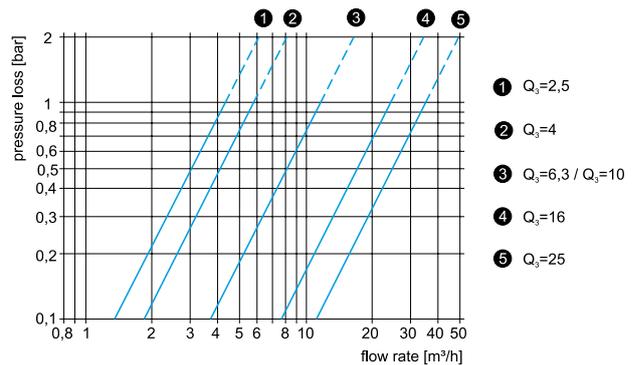
(*) Other measuring ranges (R) and overall lengths on request.

(**) The data refer to the standard measuring range

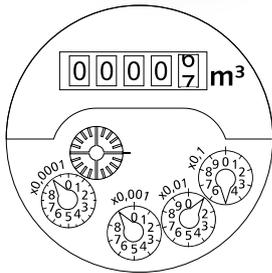


Typical accuracy curve

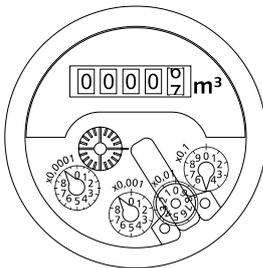
Q1 = the minimum flow
Q2 = the transitional flowrate
Q3 = the permanent flow
Q4 = the overload flow



Typical pressure loss curve



MNK-ST



MNK-N-ST



MNK-ST and MNK-N-ST

Multi-jet wet dial meters for cold water in a riserpipe design

For installation in vertical pipelines with an upwards flow direction, the high-quality MNK wet dial measuring insert is available in a riserpipe housing. The MNK-ST water meter fits perfectly into all installation locations provided for riserpipe meters and guarantees uncomplicated calibration replacement.

In comparison with a vertically installed standard water meter, the register keeps on functioning, even in a horizontal position. Thanks to the resulting decrease in bearing load, a significant improvement in the long-term measuring result stability can be achieved.

Version MNK-N-ST is retrofittable with pulser (reed) for remote readout.

Performance characteristics in overview

- High-quality mineral glass inspection window
- Optional: UV-resistant plastic (MNK-N-ST)
- Rotatable and individually inscribable lidring
- Operating temperature up to 30°C, optional up to 50°C
- Operating pressure PN 16
- Water meter for vertical installation (riserpipe)
- Horizontal register position
- Display range from 0.1 l to 99999 cubic meters
- Version MNK-N-ST is retrofittable with pulser (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 100 l/pulse available
- Approved in accordance with MID

MNK-FA and MNK-N-FA

Multi-jet wet dial meters for cold water in a downpipe design

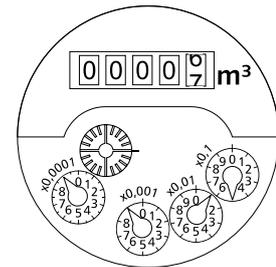
Flexibility and long-term stability - the MNK-FA is ideally suitable for operation in the downpipe. For vertical installation positions with a downward flow direction, the proven MNK wet dial measuring insert is available in a downpipe housing. The MNK-FA water meter fits perfectly in all installation locations provided for downpipe meters and makes calibration replacement uncomplicated.

In comparison with a vertically installed standard water meter, the register keeps on functioning, even in a horizontal position. Thanks to the resulting decrease in bearing load, a significant improvement in the long-term measuring result stability can be achieved.

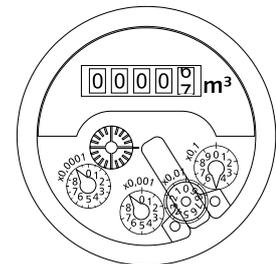
Version MNK-N-FA is retrofittable with pulser (reed) for remote readout.

Performance characteristics in overview

- High-quality mineral glass inspection window
- Optional: UV-resistant plastic (MNK-N-FA)
- Rotatable and individually inscribable lidring
- Operating temperature up to 30°C, optional up to 50°C
- Operating pressure PN 16
- Water meter for vertical installation (downpipe)
- Horizontal register position
- Display range from 0.1 l to 99999 cubic meters
- Version MNK-N-FA is retrofittable with pulser (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 100 l/pulse available
- Approved in accordance with MID



MNK-FA



MNK-N-FA



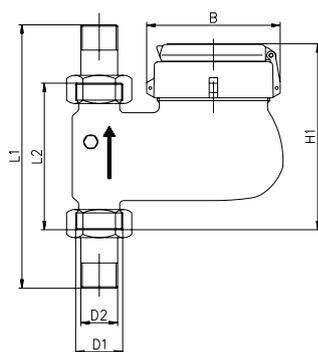
Technical data MNK-ST, MNK-N-ST, MNKI-N-ST

Permanent flow	Q ₃	m ³ /h	2,5	4	6,3	10	10	16
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1,5	2,5	3,5	6	6	10
Attainable measuring range	Q ₃ /Q ₁	R	200H	200H	200H	200H	200H	200H
Standard measuring range (*)	Q ₃ /Q ₁	R	80H	80H	80H	80H	80H	80H
Comparable to metrological class (EWG)	class		B-H	B-H	B-H	B-H	B-H	B-H
Overload flow (**)	Q ₄	m ³ /h	3,13	5	7,88	12,5	12,5	20
Minimum flow (**)	Q ₁	l/h	31H	50H	79H	125H	125H	200H
Start-up flow rate	-	l/h	<4	<5	<10	<10	<10	<20
Display range	min	l	0,1	0,1	0,1	0,1	0,1	0,1
	max	m ³	99999	99999	99999	99999	99999	99999
Maximum temperature	-	°C	30	30	30	30	30	30
Operating pressure, max.	PN	bar	16	16	16	16	16	16
Pulse value		l/pulse	10/100	10/100	10/100	10/100	10/100	10/100
Dimensions:								
Nominal diameter	DN	mm	20	20	25	25	32	40
		inch	¾"	¾"	1"	1"	1¼"	1½"
Overall length without connectors (*)	L2	mm	105	105	150	150	150	150
Overall length with connectors approx.	L1	mm	201	201	268	268	274	278
Thread meter G x B	D1	inch	1"	1"	1¼"	1¼"	1½"	2"
Thread connector R x	D2	inch	¾"	¾"	1"	1"	1¼"	1½"
Width approx.	B	mm	95	95	95	95	95	110
Height (plastic glass) approx.	H1 k*	mm	140	140	160	160	160	165
Height (mineral glass) approx.	H1 m*	mm	140	140	160	160	160	165
	H3	mm	15	15	15	15	15	15
Weight approx.	-	kg	1,7	1,7	2,6	2,6	2,7	4,4

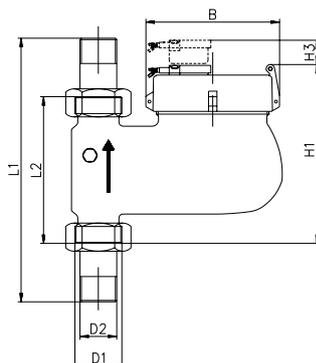
(*) Other measuring ranges (R) and overall lengths on request.

(**) The data refer to the standard measuring range

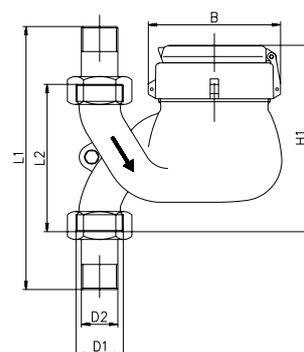
k* plastic glass (MNK-N-ST, MNKI-N-ST) / m* mineral glass (MNK-ST)



Dimensions MNK-ST



Dimensions MNK-N-ST with pulser



Dimensions MNK-FA

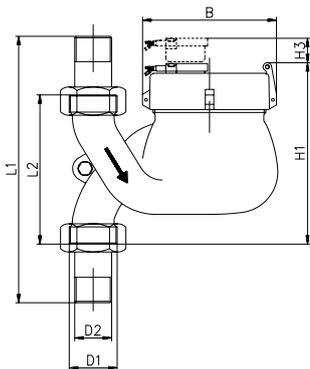
Technical data MNK-FA, MNK-N-FA, MNKI-N-FA

Permanent flow	Q ₃	m ³ /h	2,5	4
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1,5	2,5
Attainable measuring range	Q ₃ /Q ₁	R	200H	200H
Standard measuring range (*)	Q ₃ /Q ₁	R	80H	80H
Comparable to metrological class (EWG)	class		B-H	B-H
Overload flow (**)	Q ₄	m ³ /h	3,13	5
Minimum flow (**)	Q ₁	l/h	31H	50H
Start-up flow rate	-	l/h	<4	<5
Display range	min	l	0,1	0,1
	max	m ³	99999	99999
Maximum temperature	-	°C	30	30
Operating pressure, max.	PN	bar	16	16
Pulse value		l/pulse	10/100	10/100
Dimensions:				
Nominal diameter	DN	mm	20	20
		inch	¾"	¾"
Overall length without connectors (*)	L2	mm	105	105
Overall length with connectors approx.	L1	mm	201	201
Thread meter G x B	D1	inch	1"	1"
Thread connector R x	D2	inch	¾"	¾"
Width approx.	B	mm	95	95
Height (plastic glass) approx.	H1 k*	mm	140	140
Height (mineral glass) approx.	H1 m*	mm	140	140
	H3	mm	15	15
Weight approx.	-	kg	1,7	1,7

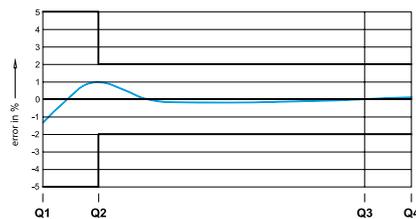
(*) Other measuring ranges (R) and overall lengths on request.

(**) The data refer to the standard measuring range

k* plastic glass (MNK-N-FA, MNKI-N-FA) / m* mineral glass (MNK-FA)

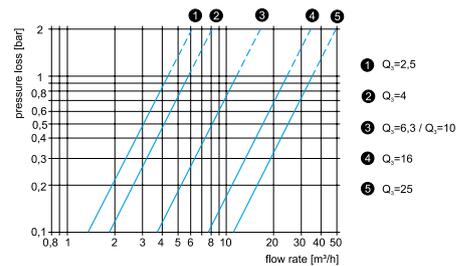


Dimensions MNK-N-FA with pulser



Typical accuracy curve

Q1 = the minimum flow
Q2 = the transitional flowrate
Q3 = the permanent flow
Q4 = the overload flow



Typical pressure loss curve

- 1 Q₃=2,5
- 2 Q₃=4
- 3 Q₃=6,3 / Q₃=10
- 4 Q₃=16
- 5 Q₃=25

Options of the D-register at a glance

Register and smart metering options



7- or 8-digit rollers register

The ZENNER D-register is available as 7- or 8-digit roller register. The version with 7-digit rollers and a magnetic pointer can be scanned by reed pulser. The 8-digit rollers version is equipped with a modulator disc.



Modulator disc

With the modulator disc, the D-register is prepared for electronic and non-reactive scanning and has the optimum features for reliable and error-free data transfer via radio, M-Bus or pulse. Other features are protection against tampering and water flow direction detection.



Pulse output-ready

Both the 7-digit rollers model with magnet pointer and the 8-digit rollers model with modulator disc provide the option of reading the register data remotely.



M-Bus-ready

Using a special add-on M-Bus module, the 8-digit rollers register model with modulator disc can be integrated into an M-Bus system, in which all registers on a property are connected together and can be read centrally.



Radio-ready

With the addition of an add-on radio module, the model with modulator disc can be read via radio (wM-Bus as per OMS). A radio module transmits the register data to a radio modem and these are relayed to a PC or hand-held computer via Bluetooth.



D-register with magnet pointer

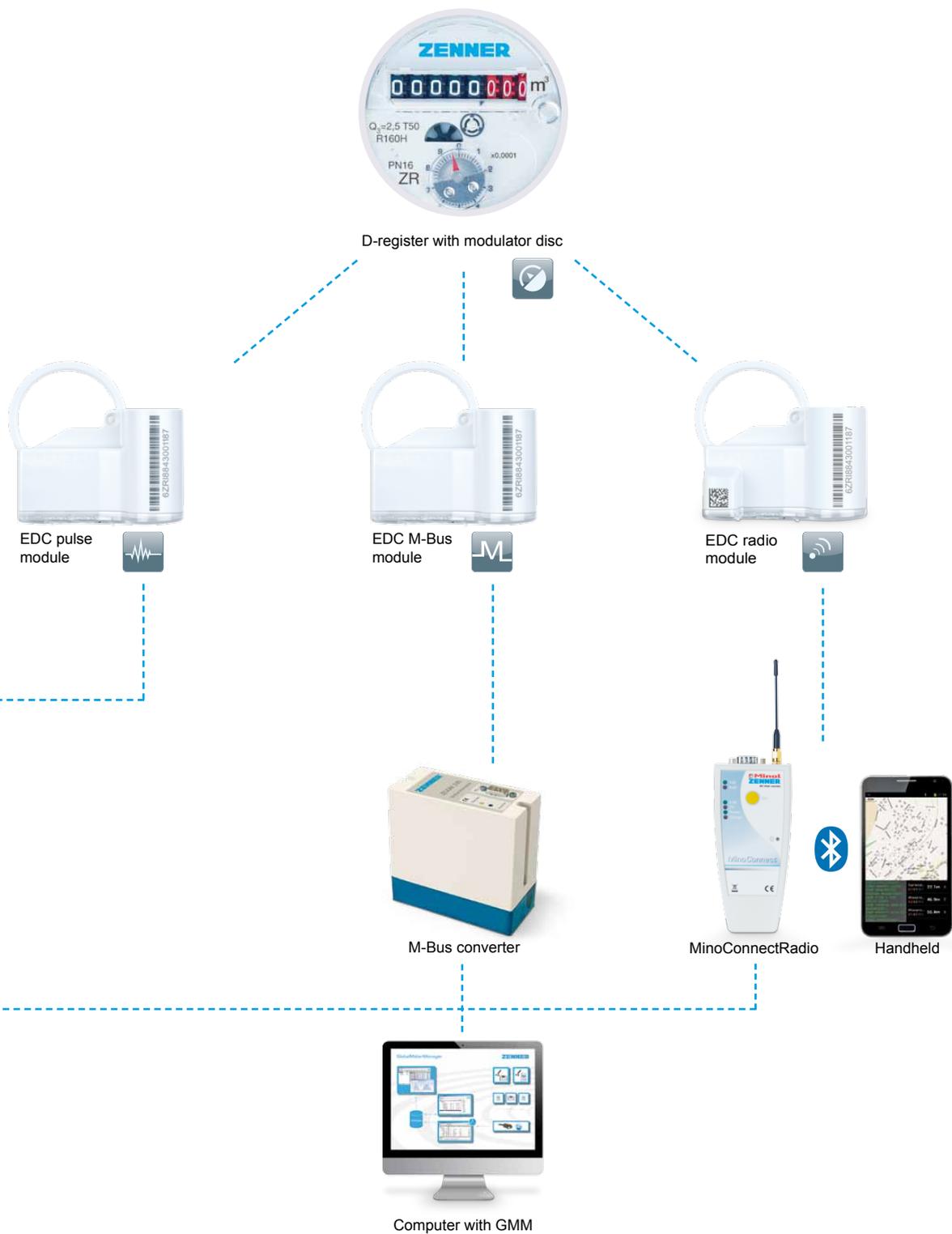


Pulser ring



Pulse counter
IZM multipulse

Remote readout with the D-register



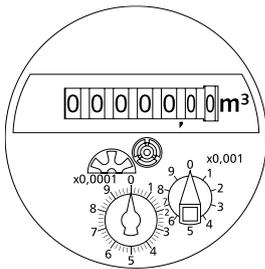


MTKD-N and MTKD-M

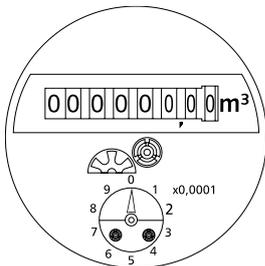
Multi-jet dry dial meter for cold water

In use by the million worldwide the MTK will convince you thanks to their high technical standard and high-quality workmanship. The MTKD is equipped with the new ZENNER D-register. MTKD is available in two versions: MTKD-N with 7-digit rollers and magnet pointer for pulse output. MTKD-M with 8-digit rollers register and modulator disc for non-reactive scanning for radio (wireless M-Bus), M-Bus or pulse.

Precise measurement results are achieved, even where the water quality varies or in the most difficult installation situations.



MTKD-N



MTKD-M



Performance characteristics in overview

- High-quality UV-resistant plastic inspection window
- Dry dial register with shielded magnetic coupling
- Rotatable and individually inscribable lidring
- Operating temperature up to 30°C, optional up to 50°C
- Operating pressure PN 16
- Water meter for horizontal and vertical installation
- Register available as copper can version (IP 68)
- Version MTKD-N with pulse output (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 1 l/pulse available
- Version MTKD-M with modulator disc for non-reactive scanning
- Approved in accordance with MID

MTKD-L-N and MTKD-L-M

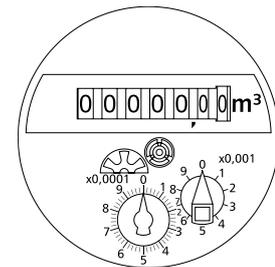
Multi-jet dry dial meter with an innovative plastic housing

The new series of our multi-jet dry dial meter are an improvement of the classical MTK. Its main features are a low starting flow and reliable performance even with aggressive water qualities or dezincification effects. Constant development guarantees accurate measuring results and the best long-term stability.

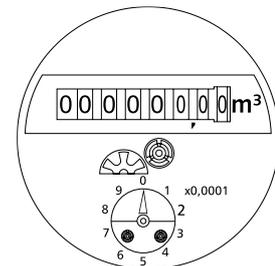
The MTKD-L is equipped with the new ZENNER D-register and ready for all future AMR-applications. MTKD-L is available in two versions: MTKD-L-N with 7-digit rollers and magnet pointer for pulse output. MTKD-L-M with 8-digit rollers register and modulator disc for non-reactive scanning for radio, M-Bus or pulse.

Performance characteristics in overview

- Almost 50% lighter than a meter with a brass housing
- Housing made from high-quality UV-resistant polymer composite
- Dry dial register with shielded magnetic coupling
- High-quality UV-resistant plastic inspection window
- Operating temperature up to 30°C
- Operating pressure PN 16
- Water meter for horizontal installation
- Register available as copper can version (IP 68)
- Version MTKD-L-N with pulse output (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 1 l/pulse available
- Version MTKD-L-M with modulator disc for non-reactive scanning
- Approved in accordance with MID



MTKD-L-N

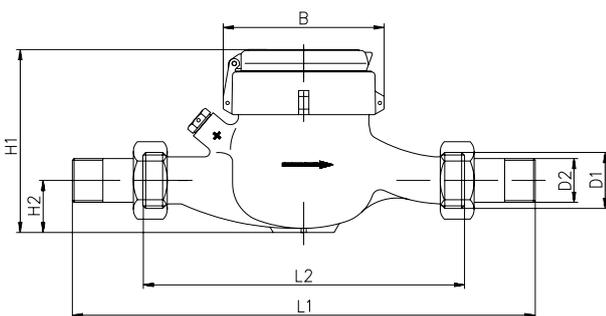


MTKD-L-M

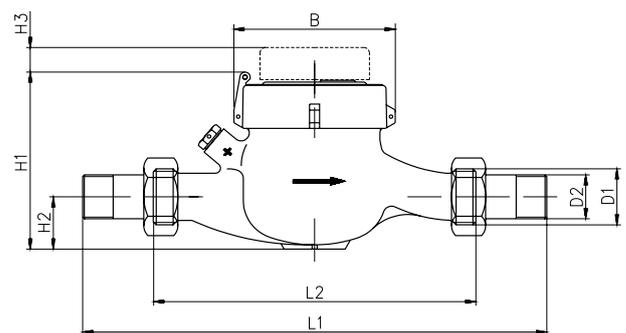


Technical data MTKD-N, MTKDI-N, MTKD-M							
Permanent flow	Q ₃	m ³ /h	2,5	4	6,3	10	10
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1,5	2,5	3,5	6	6
Attainable measuring range	Q ₃ /Q ₁	R	100H/31,5V	160H/40V	125H/50V	160H/50V	160H/50V
Standard measuring range (*)	Q ₃ /Q ₁	R	R25 R80H	R25 R80H	R40 R80H	R40 R80H	R40 R80H
Comparable to metrological class (EWG)	class		A / B-H				
Overload flow (**)	Q ₄	m ³ /h	3,13	5	7,88	12,5	12,5
Minimum flow (**)	Q ₁	l/h	100 / 31H	160 / 50H	158 / 79H	250 / 125H	250 / 125H
Start-up flow rate	-	l/h	<10	<10	<18	<18	<18
Display range	min	l	0,02	0,02	0,02	0,02	0,02
	max	m ³	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99
Maximum temperature	-	°C	30	30	30	30	30
Operating pressure, max.	PN	bar	16	16	16	16	16
Pulse value		l/pulse	1/10	1/10	1/10	1/10	1/10
Dimensions:							
Nominal diameter	DN	mm	15	20	25	25	32
		inch	½"	¾"	1"	1"	1 ¼"
Overall length without connectors (*)	L2	mm	165/170	190	260	260	260
Overall length with connectors approx.	L1	mm	245/250	286	378	384	384
Thread meter G x B	D1	inch	¾"	1"	1 ¼"	1 ¼"	1 ½"
Thread connector R x	D2	inch	½"	¾"	1"	1"	1 ¼"
Width approx.	B	mm	95	95	95	95	95
Height (plastic glass) approx.	H1 k*	mm	120	120	120	120	120
	H2	mm	35	25	35	40	40
	H3	mm	15	15	15	15	15
Weight approx.	-	kg	1,2	1,3	2,1	2,1	2,1

(*) Other measuring ranges (R) and overall lengths on request. (**) The data refer to the standard measuring range
k* plastic glass



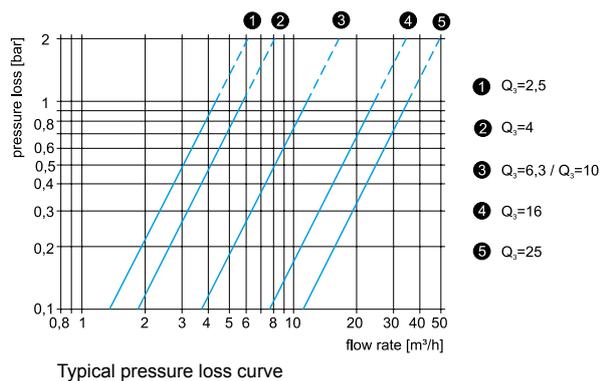
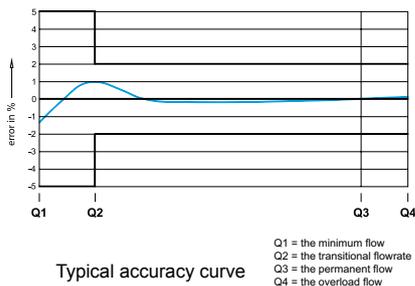
Dimensions MTKD-N/ -M, MTKD-L-N/ -M



Dimensions MTKDI-N, MTKDI-L-N with pulser

Technical data MTKD-N, MTKDI-N, MTKD-M						MTKD-L-N, MTKDI-L-N, MTKD-L-M	
Permanent flow	Q ₃	m ³ /h	16	25	25	2,5	4
Comparable to nominal flow (EWG)	Q _n	m ³ /h	10	15	15	1,5	2,5
Attainable measuring range	Q ₃ /Q ₁	R	160H 25any	125H/40V	125H/40V	100H/31,5V	160H/40V
Standard measuring range (*)	Q ₃ /Q ₁	R	R25 R80H	80H/40V	80H/40V	R25 R80H	R25/R80H
Comparable to metrological class (EWG)	class		A / B-H	B-H	B-H	A / B-H	A/B-H
Overload flow (**)	Q ₄	m ³ /h	20	31,3	31,3	3,13	5
Minimum flow (**)	Q ₁	l/h	640 / 200H	313H	313H	100 / 31H	160/50H
Start-up flow rate	-	l/h	<40	<25	<25	<10	<10
Display range	min	l	0,1	0,1	0,1	0,02	0,02
	max	m ³	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99
Maximum temperature	-	°C	30	30	30	30	30
Operating pressure, max.	PN	bar	16	16	16	16	16
Pulse value		l/pulse	1/10	1/10	1/10	1/10	1/10
Dimensions:							
Nominal diameter	DN	mm	40	50	50	15	20
		inch	1 ½"	2"	---	½"	¾"
Overall length without connectors (*)	L2	mm	300	300	270	165/170	190
Overall length with connectors approx.	L1	mm	428	444	---	245/250	286
Thread meter G x B	D1	inch	2"	2 ½"	flange	¾"	1"
Thread connector R x	D2	inch	1 ½"	2"	---	½"	¾"
Width approx.	B	mm	110	110	110	99	99
Height (plastic glass) approx.	H1 k*	mm	150	150	175	120	120
	H2	mm	50	60	75	35	30
	H3	mm	15	15	15	15	15
Weight approx.	-	kg	4,0	4	9,5	0,6	0,6

(*) Other measuring ranges (R) and overall lengths on request. (**) The data refer to the standard measuring range
k* plastic glass





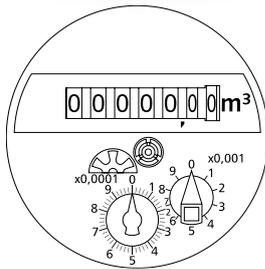
MTKD-N-ST and MTKD-M-ST

Multi-jet dry dial meter in a riserpipe design

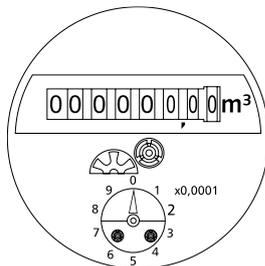
The proven MTK dry dial measuring insert is available in a riserpipe housing for water meter installation in vertical pipelines with an upwards flow direction. This water meter fits perfectly into all installation locations designated for riserpipe meters and makes calibration replacement uncomplicated.

The MTKD-ST is equipped with the new ZENNER D-register. MTKD-ST is available in two versions: MTKD-N-ST with 7-digit rollers and magnet pointer for pulse output. MTKD-M-ST with 8-digit rollers register and modulator disc for non-reactive scanning for radio, M-Bus or pulse.

In comparison with a vertically installed standard water meter, the register keeps on functioning, even in a horizontal position. Thanks to the resulting decrease in bearing load, a significant improvement in the long-term measuring result stability can be achieved.



MTKD-N-ST



MTKD-M-ST



Performance characteristics in overview

- Dry dial register with shielded magnetic coupling
- Rotatable and individually inscribable lidring
- High-quality UV-resistant plastic inspection window
- Operating temperature up to 30°C, optional up to 50°C
- Operating pressure PN 16
- Water meter for vertical installation (riserpipe)
- Register available as copper can version (IP 68)
- Version MTKD-N-ST with pulse output (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 1 l/pulse available
- Version MTKD-M-ST with modulator disc for non-reactive scanning
- Approved in accordance with MID

MTKD-N-FA and MTKD-M-FA

Multi-jet dry dial meter in a downpipe design

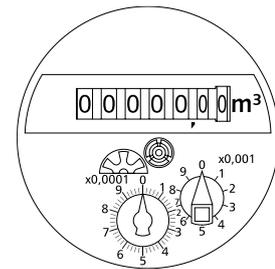
The proven MTK water meters dry dial measuring insert is available in a downpipe housing for vertical installation positions with a downward flow direction. This water meter fits perfectly into all installation locations designated for downpipe meters and makes calibration replacement uncomplicated.

The MTKD-FA is equipped with the new ZENNER D-register. MTKD-FA is available in two versions: MTKD-N-FA with 7-digit rollers and magnet pointer for pulse output. MTKD-M-FA with 8-digit rollers register and modulator disc for non-reactive scanning for radio, M-Bus or pulse.

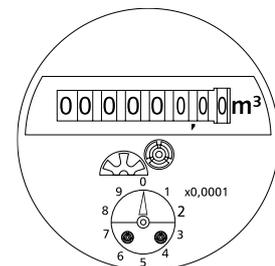
In comparison with a vertically installed standard water meter, the register keeps on functioning, even in a horizontal position. Thanks to the resulting decrease in bearing load, a significant improvement in the long-term measuring result stability can be achieved.

Performance characteristics in overview

- Dry dial register with shielded magnetic coupling
- Rotatable and individually inscribable lidring
- High-quality UV-resistant plastic inspection window
- Operating temperature up to 30°C, optional up to 50°C
- Operating pressure PN 16
- Water meter for vertical installation (downpipe)
- Register available as copper can version (IP 68)
- Version MTKD-N-FA with pulse output (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 1 l/pulse available
- Version MTKD-M-FA with modulator disc for non-reactive scanning
- Approved in accordance with MID



MTKD-N-FA



MTKD-M-FA

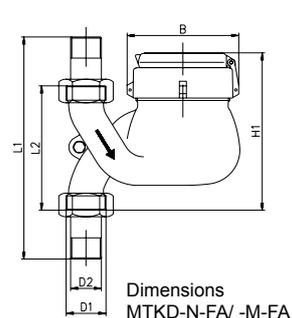
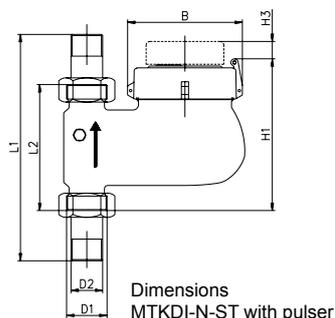
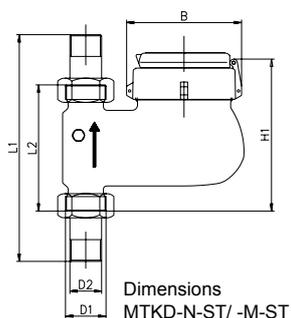


Technical data MTKD-N-ST, MTKDI-N-ST, MTKD-M-ST							
Permanent flow	Q ₃	m ³ /h	2,5	4	6,3	10	16
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1,5	2,5	3,5	6	10
Attainable measuring range	Q ₃ /Q ₁	R	100H	160H	100H	125H	125H
Standard measuring range (*)	Q ₃ /Q ₁	R	R80H	R80H	R80H	R80H	R80H
Comparable to metrological class (EWG)	class		B-H	B-H	B-H	B-H	B-H
Overload flow (**)	Q ₄	m ³ /h	3,13	5	7,88	12,5	20
Minimum flow (**)	Q ₁	l/h	31H	50H	79H	125H	200H
Start-up flow rate	-	l/h	<10	<10	<18	<18	<40
Display range	min	l	0,02	0,02	0,02	0,02	0,02
	max	m ³	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99
Maximum temperature	-	°C	30	30	30	30	30
Operating pressure, max.	PN	bar	16	16	16	16	16
Pulse value		l/pulse	1/10	1/10	1/10	1/10	1/10
Dimensions:							
Nominal diameter	DN	mm	20	20	25	25	40
		inch	¾"	¾"	1"	1"	1 ½"
Overall length without connectors (*)	L2	mm	105	105	150	150	150
Overall length with connectors approx.	L1	mm	201	201	268	268	278
Thread meter G x B	D1	inch	1"	1"	1 ¼"	1 ¼"	2"
Thread connector R x	D2	inch	¾"	¾"	1"	1"	1 ½"
Width approx.	B	mm	95	95	95	95	110
Height (plastic glass) approx.	H1 k*	mm	140	140	160	160	165
	H3	mm	15	15	15	15	15
Weight approx.	-	kg	1,7	1,7	2,1	2,1	4,0

(*) Other measuring ranges (R) and overall lengths on request.

(**) The data refer to the standard measuring range

k* plastic glass

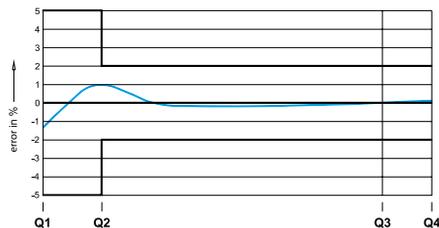
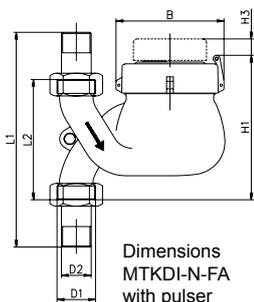


Technical data MTKD-N-FA, MTKDI-N-FA, MTKD-M-FA				
Permanent flow	Q ₃	m ³ /h	2,5	4
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1,5	2,5
Attainable measuring range	Q ₃ /Q ₁	R	100H	160H
Standard measuring range (*)	Q ₃ /Q ₁	R	R80H	R80H
Comparable to metrological class (EWG)	class		B-H	B-H
Overload flow (**)	Q ₄	m ³ /h	3,13	5
Minimum flow (**)	Q ₁	l/h	31H	50H
Start-up flow rate	-	l/h	<10	<10
Display range	min	l	0,02	0,02
	max	m ³	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99
Maximum temperature	-	°C	30	30
Operating pressure, max.	PN	bar	16	16
Pulse value		l/pulse	1/10	1/10
Dimensions:				
Nominal diameter	DN	mm	20	20
		inch	¾"	¾"
Overall length without connectors (*)	L2	mm	105	105
Overall length with connectors approx.	L1	mm	201	201
Thread meter G x B	D1	inch	1"	1"
Thread connector R x	D2	inch	¾"	¾"
Width approx.	B	mm	95	95
Height (plastic glass) approx.	H1 k*	mm	140	140
	H3	mm	15	15
Weight approx.	-	kg	1,7	1,7

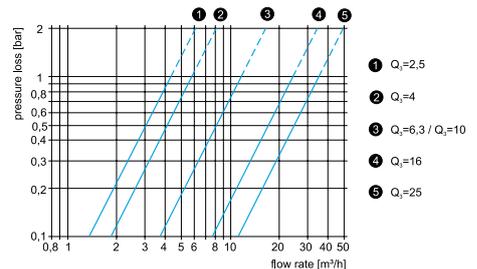
(*) Other measuring ranges (R) and overall lengths on request.

(**) The data refer to the standard measuring range

k* plastic glass



Q1 = the minimum flow
Q2 = the transitional flowrate
Q3 = the permanent flow
Q4 = the overload flow

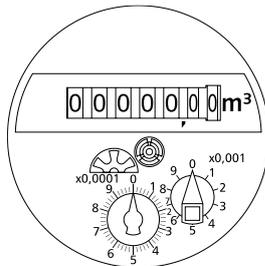




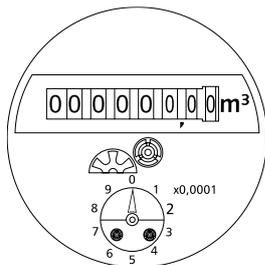
MTKD-S

Multi-jet dry dial meter for cold water

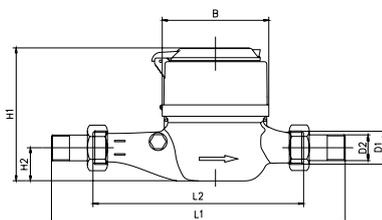
Equipped with the new ZENNER D-register, the MTKD-S is a compact dry dial multi-jet meter for cold potable water with a lightweight brass body. Our developers succeeded in reducing substantially the weight of the brass body - with positive effects on the measuring quality. The innovation is called MTKD-S. „S“ stands for small body. It's almost 25% lighter than a WVG brass housing.



MTKD-S-N



MTKD-S-M



Dimensions MTKD-S

Technical data MTKD-S, MTKD-S-N, MTKD-S-M

Permanent flow	Q ₃	m ³ /h	1,6	2,5	4
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1,0	1,5	2,5
Attainable measuring range	Q ₃ /Q ₁	R	100H/25V	160H/40V	160H/40V
Standard measuring range (*)	Q ₃ /Q ₁	R	R80H	R80H	R80H
Comparable to metrological class (EWG)	class		B-H	B-H	B-H
Overload flow (**)	Q ₄	m ³ /h	2,0	3,13	5,0
Minimum flow (**)	Q ₁	l/h	20H	31H	50H
Start-up flow rate	-	l/h	<8	<8	<10
Display range	min	l	0,02	0,02	0,02
	max	m ³	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99
Maximum temperature	-	°C	30	30	30
Operating pressure, max.	PN	bar	16	16	16
Pulse value		l/pulse	1/10	1/10	1/10

Dimensions:

Nominal diameter	DN	mm	15	15	20
		inch	½"	½"	¾"
Overall length without connectors (*)	L2	mm	165/190	165/190	190
Overall length with connectors approx.	L1	mm	245/270	245/270	286
Thread meter G x B	D1	inch	¾"	¾"	1"
Thread connector R x	D2	inch	½"	½"	¾"
Width approx.	B	mm	85	85	85
Height (plastic glass) approx.	H1 k*	mm	105	105	105
Height (mineral glass) approx.	H1 m*	mm	30	30	30
	H3	mm	15	15	15
Weight approx.	-	kg	0,85/0,95	0,85/0,95	1,0

(*) Other measuring ranges (R) and overall lengths on request.

(**) The data refer to the standard measuring range
k* plastic glass / m* mineral glass

MTWD-N and MTWD-M

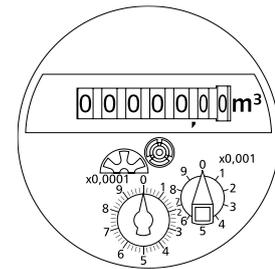
Multi-jet dry dial meter for hot water up to 90° C

The MTWD is a multi-jet dry dial meter for hot water up to 90° C. The MTWD water meter is ideally suited for measuring tasks at temperatures up to 90° C. By using special materials in the hot water version of the multi-jet dry dial meter, we can combine outstanding measurement readings with a high maximum temperature.

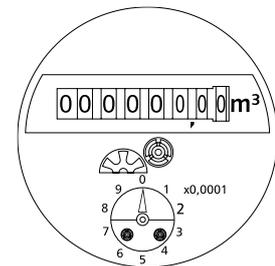
The MTWD is equipped with the new ZENNER D-register. MTWD is available in two versions: MTWD-N with 7-digit rollers and magnet pointer for pulse output. MTWD-M with 8-digit rollers register and modulator disc for non-reactive scanning for radio, M-Bus or pulse. MTWD is available in unpainted housing as standard.

Performance characteristics in overview

- Dry dial register with shielded magnetic coupling
- Rotatable and individually inscribable lidring
- High-quality UV-resistant plastic inspection window
- Operating temperature up to 90°C
- Operating pressure PN 16
- Water meter for horizontal and vertical installation
- Register available as copper can version (IP 68)
- Version MTWD-N with pulse output (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 1 l/pulse available
- Version MTWD-M with modulator disc for non-reactive scanning
- Approved in accordance with MID

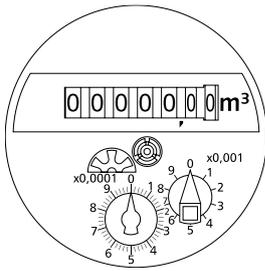


MTWD-N

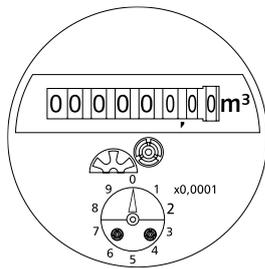


MTWD-M





MTWD-N-ST



MTWD-M-ST



MTWD-N-ST and MTWD-M-ST

Multi-jet dry dial meter for hot water in a riserpipe design

The MTW multi-jet measuring insert is available in a riserpipe housing for vertical installation positions with an upwards flow direction. This water meter fits perfectly into all installation locations designated for riserpipe meters and makes calibration replacement uncomplicated.

The MTWD-ST is equipped with the new ZENNER D-register. MTWD-ST is available in two versions: MTWD-N-ST with 7-digit rollers and magnet pointer for pulse output. MTWD-M-ST with 8-digit rollers register and modulator disc for non-reactive scanning for radio, M-Bus or pulse. MTKD-ST is available in unpainted housing as standard.

In comparison with a vertically installed standard water meter, the register keeps on functioning, even in a horizontal position. Thanks to the resulting decrease in bearing load, a significant improvement in the long-term measuring result stability can be achieved.

Performance characteristics in overview

- Dry dial register with shielded magnetic coupling
- Rotatable and individually inscribable lidring
- High-quality UV-resistant plastic inspection window
- Operating temperature up to 90°C
- Operating pressure PN 16
- Water meter for vertical installation (riserpipe)
- Register available as copper can version (IP 68)
- Version MTWD-N-ST with pulse output (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 1 l/pulse available
- Version MTWD-M-ST with modulator disc for non-reactive scanning
- Approved in accordance with MID

MTWD-N-FA and MTWD-M-FA

Multi-jet dry dial meter for hot water in a downpipe design

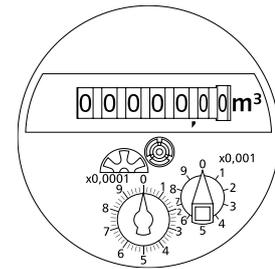
The MTW multi-jet measuring insert is available in a downpipe housing for vertical installation positions with an downwards flow direction. This water meter fits perfectly into all installation locations designated for downpipe meters and makes calibration replacement uncomplicated.

The MTWD-FA is equipped with the new ZENNER D-register. MTWD-FA is available in two versions: MTWD-N-FA with 7-digit rollers and magnet pointer for pulse output. MTWD-M-FA with 8-digit rollers register and modulator disc for non-reactive scanning for radio, M-Bus or pulse. MTKD-FA is available in unpainted housing as standard.

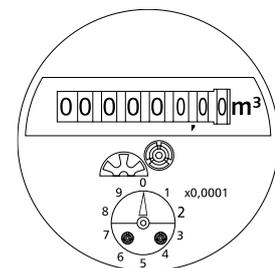
In comparison with a vertically installed standard water meter, the register keeps on functioning, even in a horizontal position. Thanks to the resulting decrease in bearing load, a significant improvement in the long-term measuring result stability can be achieved.

Performance characteristics in overview

- Dry dial register with shielded magnetic coupling
- Rotatable and individually inscribable lidring
- High-quality UV-resistant plastic inspection window
- Operating temperature up to 90°C
- Operating pressure PN 16
- Water meter for vertical installation (downpipe)
- Register available as copper can version (IP 68)
- Version MTWD-N-FA with pulse output (reed) for remote readout
- Standard pulse value 10 l/pulse, optional 1 l/pulse available
- Version MTWD-M-FA with modulator disc for non-reactive scanning
- Approved in accordance with MID



MTWD-N-FA



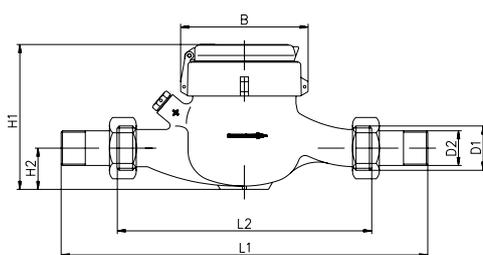
MTWD-M-FA



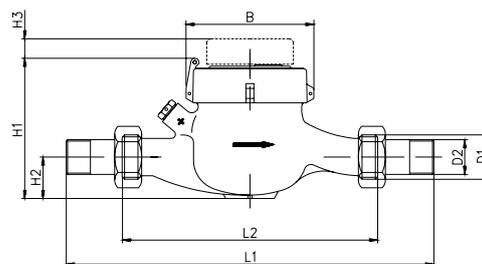
Technical data MTWD-N, MTWDI-N, MTWD-M								
Permanent flow	Q ₃	m ³ /h	2,5	4	6,3	10	10	16
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1,5	2,5	3,5	6	6	10
Attainable measuring range	Q ₃ /Q ₁	R	80H/25V	80H/40V	80H/25V	80H/40V	80H/40V	80H/40V
Standard measuring range (*)	Q ₃ /Q ₁	R	80H	80H	80H	80H	80H	80H
Comparable to metrological class (EWG)	class		B-H	B-H	B-H	B-H	B-H	B-H
Overload flow (**)	Q ₄	m ³ /h	3,13	5	7,88	12,5	12,5	20
Minimum flow (**)	Q ₁	l/h	31H/100V	50H/100V	79H/252V	125H/250V	125H/250V	200H/400V
Start-up flow rate	-	l/h	<10	<10	<18	<18	<18	<40
Display range	min	l	0,02	0,02	0,02	0,02	0,02	0,02
	max	m ³	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99
Maximum temperature	-	°C	90	90	90	90	90	90
Operating pressure, max.	PN	bar	16	16	16	16	16	16
Pulse value		l/pulse	1/10	1/10	1/10	1/10	1/10	1/10
Dimensions:								
Nominal diameter	DN	mm	15	20	25	25	32	40
		inch	½"	¾"	1"	1"	1¼"	1½"
Overall length without connectors (*)	L2	mm	165/170	190	260	260	260	300
Overall length with connectors approx.	L1	mm	245/250	286	378	378	384	428
Thread meter G x B	D1	inch	¾"	1"	1 ¼"	1 ¼"	1 ½"	2"
Thread connector R x	D2	inch	½"	¾"	1"	1"	1 ¼"	1 ½"
Width approx.	B	mm	95	95	95	95	95	110
Height approx.	H1	mm	120	120	120	120	120	145
	H2	mm	~35	~35	~35	~40	~40	~50
	H3	mm	15	15	15	15	15	15
Weight approx.	-	kg	1,3	1,6	2,1	2,1	2,2	3,6

(*) Other measuring ranges (R) and overall lengths on request.

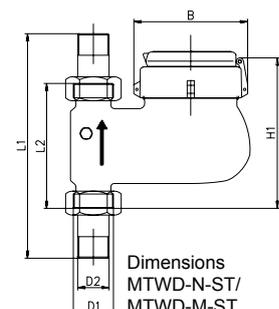
(**) The data refer to the standard measuring range



Dimensions MTWD-N/ -M



Dimensions MTWDI-N with pulser

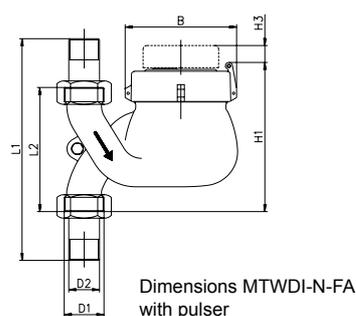
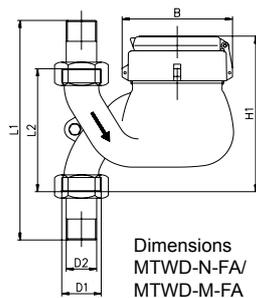
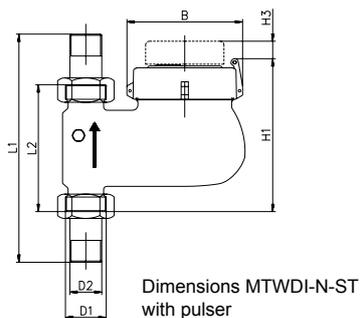


Dimensions
MTWD-N-ST/
MTWD-M-ST

Technical data MTWD-N-ST/FA, MTWDI-N-ST/FA, MTWD-M-ST/FA					
Permanent flow	Q ₃	m ³ /h	4	10	16
Comparable to nominal flow (EWG)	Q _n	m ³ /h	2,5	6	10
Attainable measuring range	Q ₃ /Q ₁	R	160H	125H	125H
Standard measuring range (*)	Q ₃ /Q ₁	R	R80H	R80H	R80H
Comparable to metrological class (EWG)	class		B-H	B-H	B-H
Overload flow (**)	Q ₄	m ³ /h	5	12,5	20
Minimum flow (**)	Q ₁	l/h	50H	125H	200H
Start-up flow rate	-	l/h	<10	<18	<40
Display range	min	l	0,02	0,02	0,02
	max	m ³	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99	R8 99999.999 R7 99999.99
Maximum temperature	-	°C	90	90	90
Operating pressure, max.	PN	bar	16	16	16
Pulse value		l/pulse	1/10	1/10	1/10
Dimensions:					
Nominal diameter	DN	mm	20	25	40
		inch	¾"	1"	1 ½"
Overall length without connectors (*)	L2	mm	105 ST/FA	150 ST	150 ST
Overall length with connectors approx.	L1	mm	201	268	278
Thread meter G x B	D1	inch	1"	1 ¼"	2"
Thread connector R x	D2	inch	¾"	1"	1 ½"
Width approx.	B	mm	95	95	110
Height approx.	H1	mm	135	160	170
	H3	mm	15	15	15
Weight approx.	-	kg	1,7	2,1	4,0

(*) Other measuring ranges (R) and overall lengths on request.

(**) The data refer to the standard measuring range





Options for multi-jet dry dial meters

Copper can (protection class IP 68)

Optionally all the dry dial multi-jet and positive-displacement meter models are also available with protection class IP68. In this variant, the register is flood-proof (IP68) due to hermetically sealed roller register made of glass/copper. Even in case of flooding, the register operates reliably.

Anti-magnet ring

Water meters and other measuring devices may slow down in the vicinity of a magnet or even stop. In order to prevent a reduction in the accuracy of measurement or manipulation by magnetic influences, all dry dial and positive displacement meter models are equipped as standard with an anti-magnetic ring.

Anti-fog tools (wiper option, nano coating)

Due to lack of insulation in the house connection or due to extreme climatic conditions, e.g. with high humidity, condensation may form on the lens of the water meter. ZENNER offers to provide the lenses with a nano coating, so that condensation can not occur.

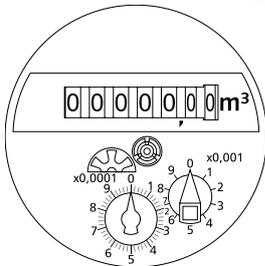
For optimal viewing in all conditions, the registers of the dry dial and positive displacement meters can also be optionally equipped with a wiper. The wiper allows the reading of the digit rollers even with condensation in the register.

Options in a glance

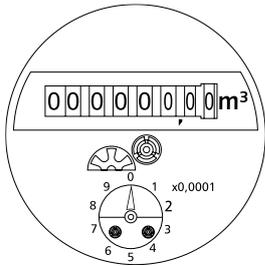
Multi-jet dry dial meters for cold and hot water

	Copper can	Anti-magnet	Nano coating	Wiper	Pulser	M-Bus	Radio (wM-Bus)
MTKD-N	✓	✓	✓	✓	✓	✗	✗
MTKD-N-ST, MTKD-N-FA	✓	✓	✓	✓	✓	✗	✗
MTKD-M	✓	✓	✓	✗	✓	✓	✓
MTKD-M-ST, MTKD-M-FA	✓	✓	✓	✗	✓	✓	✓
MTKD-L-N	✓	✓	✓	✓	✓	✗	✗
MTKD-L-M	✓	✓	✓	✗	✓	✓	✓
MTKD-S-N	✓	✓	✓	✓	✓	✗	✗
MTKD-S-M	✓	✓	✓	✗	✓	✓	✓
MTWD-N	✓	✓	✓	✓	✓	✗	✗
MTWD-N-ST, MTWD-N-FA	✓	✓	✓	✓	✓	✗	✗
MTWD-M	✓	✓	✓	✗	✓	✓	✓
MTWD-M-ST, MTWD-M-FA	✓	✓	✓	✗	✓	✓	✓

RTKD-S-N	✓	✓	✓	✓	✓	✗	✗
RTKD-S-M	✓	✓	✓	✗	✓	✓	✓



RTKD-N



RTKD-M



RTKD-L with composite housing.
Available from fall 2014

RTKD-N and RTKD-M

Positive displacement dry dial meter for cold water

Equipped with the newly developed dry dial D-register by ZENNER, the new RTKD positive displacement meter is a meter for all who place the highest demands on reliability and measuring accuracy.

The RTKD records the flow rate using the volumetric measuring principle and, in this way, guarantees extremely precise consumption recording and accounting. The RTKD positive displacement meter also has a high measuring range and a very good measurement stability. The reliable workmanship and durability of the RTKD increase the potential period of use and hence the cost-effectiveness of the meter.

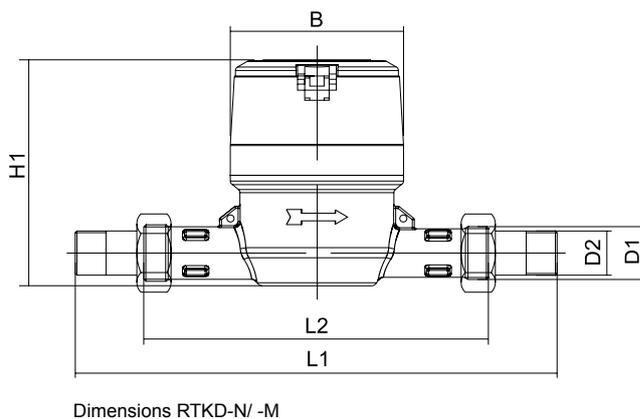
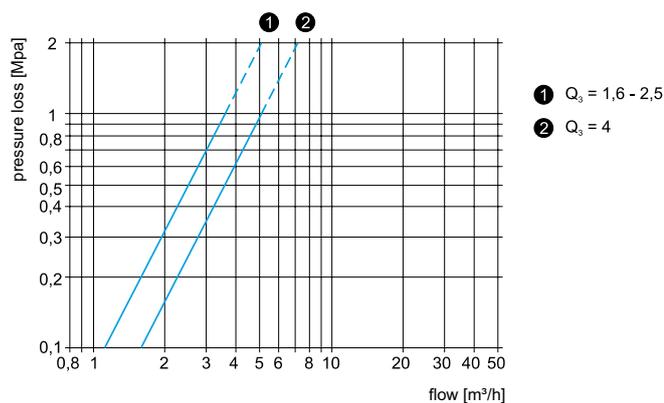
Due to a variety of technical options, the RTKD has been optimally equipped for the future. The newly developed modulator disc in combination with the new EDC communication module enables nonreactive electronic scanning with a variable resolution and is the basis for automated meter reading via radio, M-Bus or impulse module.

Performance characteristics in overview

- Dry dial register with shielded magnetic coupling
- Register can be turned through 355°
- Water meter for horizontal and vertical installation
- Register available as copper can version (IP 68)
- Version RTKD-N with pulse output (reed) for remote readout
- Version RTKD-M with modulator disc for non-reactive scanning
- Approved in accordance with MID

Technical data RTKD-N, RTKD-M								
Permanent flow	Q ₃	m ³ /h	1,6	1,6	2,5	2,5	2,5	4
Comparable to nominal flow (EWG)	Q _n	m ³ /h	1	1	1,5	1,5	1,5	2,5
Attainable measuring range	Q ₃ /Q ₁	R	250	250	400	400	400	400
Standard measuring range (*)	Q ₃ /Q ₁	R	160	160	160	160	160	160
Comparable to metrological class (EWG)	class		C-H/V	C-H/V	C-H/V	C-H/V	C-H/V	C-H/V
Overload flow (**)	Q ₄	m ³ /h	2	2	3,13	3,13	3,13	5
Minimum flow (**)	Q ₁	l/h	10	10	16	16	16	10
Start-up flow rate	-	l/h	1	1	1	1	1	1
Maximum temperature	-	°C	30	30	30	30	30	30
Operating pressure, max.	PN	bar	16	16	16	16	16	16
Pressure loss at	Q ₄	bar	0,3	0,3	0,75	0,75	0,75	0,6
Dimensions:								
Nominal diameter	DN	mm	15	15	15	15	20	20
		inch	½"	½"	½"	½"	1"	1"
Overall length without connectors (*)	L2	mm	110/115	165/170	110/115	165/170	165/190	165/190
Overall length with connectors approx.	L1	mm	190/195	245/250	190/195	245/250	261/286	261/286
Thread meter G x B	D1	inch	¾"	¾"	¾"	¾"	¾"	¾"
Width	B	mm	89,5	89,5	89,5	89,5	90	90
Height	H1	mm	114,5	114,5	114,5	114,5	128	128
Weight approx.	-	kg	0,86	0,98	0,86	0,98	1,10/1,15	1,10/1,15

(*) Other measuring ranges (R) on request.
 (**) The data refer to the standard measuring range





RNK-RP-N



RNK-RP-N

Volumetric rotary-piston meter for cold potable water with protected dial and brass body

Our series of RNK-RP volumetric piston meters with protected dial are an improvement of the classical RTK. The millionfold proved and high-precise measuring insert in combination with the rugged casing performs perfectly the measurement of potable water. A very low starting flow and reliable performance are its main features.

The protected roller register is reliably readable even under demanding climatic conditions. Filter is including. The construction principle of the RNK-RP-N with direct transmission from the measuring chamber to the register ensures by standard protection against magnetic or other manipulation attempts or interference.

Performance characteristics in overview

- Rugged and intelligently conceived
- Register with protected encapsulated digit rollers
- Housing made from high-quality brass
- Working temperature 30°C, security up to 50°C
- Operating pressure PN16
- Display range 0,02 l to 9999 m³
- Proven accuracy in any installation position
- Optional with integrated tamperproof check valve
- Retrofittable with pulser 0,5 l/pulse (DN 40 5l/pulse)
- Other sizes of volumetric meters up to DN 40 available on request
- Approved in accordance with MID

RNK-L-RP-N

Volumetric rotary-piston meter for cold potable water with protected dial and plastic body

The new series of our volumetric rotary-piston meters with protected dial are an improvement of the classical RTK. Our developers succeeded in combining the millionfold proved and high-precise measuring insert with a body of pressure-tight plastics, suitable for use with potable water. The result is the innovative RNK-L-RP-N.

A very low starting flow and reliable performance even with aggressive or dezincification water qualities are its main features. The protected roller register is reliably readable even under demanding climatic conditions. The construction principle of the RNK-L-RP-N with direct transmission from the measuring chamber to the register ensures by standard protection against magnetic or other manipulation attempts or interference.

Performance characteristics in overview

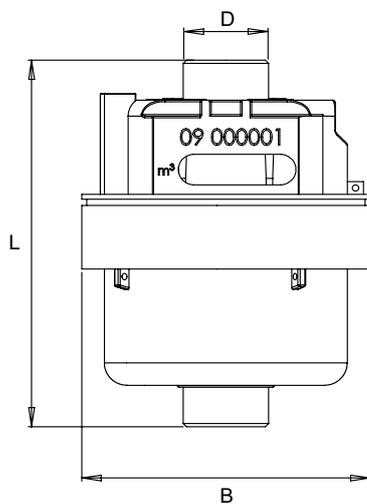
- Rugged, light and intelligently conceived
- Register with protected encapsulated rollers
- Approx. 50% lighter than meters with brass body
- Housing made from high-quality UV-resistant polymer composite
- Working temperature 30°C
- Operating pressure PN 16
- Display range 0,02 l to 9999 m³
- Proven accuracy in any installation position
- Optional with integrated tamperproof check valve
- Retrofittable with pulser 0,5 l/pulse
- Approved in accordance with MID



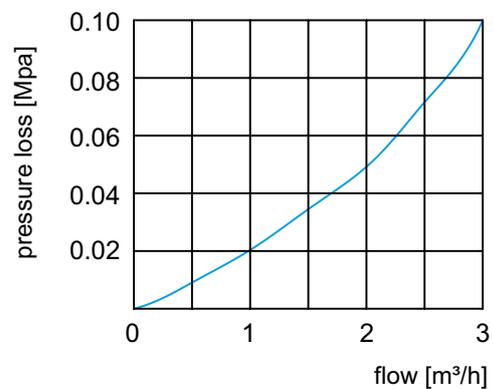
RNK-L-RP-N



Technical data RNK-RP-N, RNK-RPI-N					
Permanent flow	Q_3	m^3/h	2,5	4	6,3
Comparable to nominal flow (EWG)	Q_n	m^3/h	1,5	2,5	3,5
Attainable measuring range	Q_3/Q_1	R	160	200	200
Standard measuring range	Q_3/Q_1	R	160	160	160
Comparable to metrological class (EWG)	Class		C	C	C
Overload flow	Q_4	m^3/h	3,125	5	7,875
Minimum flow	Q_1	l/h	16	20	32
Start-up flow rate	-	l/h	< 3,5	< 4	< 7
Display range	min	l	0,02	0,02	0,02
	max	m^3	9999	9999	9999
Maximum temperature	-	$^{\circ}C$	30	30	30
Operating pressure, max.	PN	bar	16	16	16
Pulse value		l/pulse	0,5	0,5	0,5
Pressure loss at	Q_3	bar	< 0,6	< 0,6	< 0,6
Dimensions:					
Nominal diameter	DN	mm	15	20	25
		inch	½"	¾"	1"
Overall length without connectors	L	mm	110/115/165	165/190	260
Overall length with connectors approx.		mm	190/195/245	26½/86	378
Thread meter G x B	D	inch	¾"	1"	1 ¼"
Width	B	mm	88	100	117
Weight	-	kg	0,79/0,80/0,95	1,1/1,2	2,5

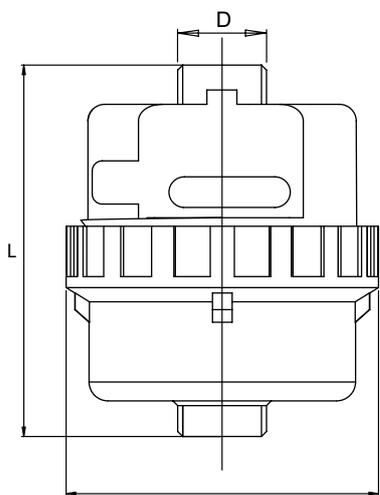


Dimensions RNK-RP-N

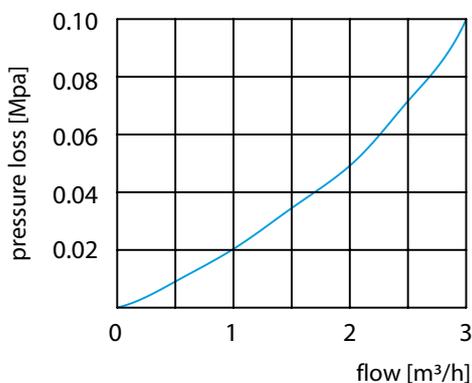


Typical pressure loss curve

Technical data RNK-RP-N, RNK-RPI-N					RNK-L-RP-N, RNK-L-RPI-N	
Permanent flow	Q ₃	m ³ /h	10	16	2,5	4
Comparable to nominal flow (EWG)	Q _n	m ³ /h	6	10	1,5	2,5
Attainable measuring range	Q ₃ /Q ₁	R	160	200	200	200
Standard measuring range	Q ₃ /Q ₁	R	160	160	160	160
Comparable to metrological class (EWG)	Class		C	C	C	C
Overload flow	Q ₄	m ³ /h	12,5	20	3,215	5
Minimum flow	Q ₁	l/h	50	80	16	20
Start-up flow rate	-	l/h	< 13	< 20	< 3	< 4
Display range	min	l	0,02	0,2	0,02	0,02
	max	m ³	9999	99999	9999	9999
Maximum temperature	-	°C	30	30	30	30
Operating pressure, max.	PN	bar	16	16	16	16
Pulse value		l/pulse	0,5	5	0,5	0,5
Pressure loss at	Q ₃	bar	< 0,6	< 0,6	< 0,6	< 0,6
Dimensions:						
Nominal diameter	DN	mm	32	40	15	20
		inch	1 ¼"	1 ½"	½"	¾"
Overall length without connectors	L	mm	260	300	115/165	165/190
Overall length with connectors approx.		mm	384	428	195/245	261/286
Thread meter G x B	D	inch	1 ½"	2"	¾"	1"
Width	B	mm	145	179	103	103
Weight	-	kg	3,6	5,9	0,43/0,45	0,49/0,50



Dimensions RNK-L-RP-N



Typical pressure loss curve

wireless M-Bus radio system



ZENNER developed a new mobile radio system especially for remote reading of water meters, heat meters and energy meters for heating and cooling. The new ZENNER radio system is perfectly adapted to the needs of the utility industry in terms of efficient readout processes and highest data quality.

Our mobile wireless M-bus radio system operates with unidirectional data transfer. The measuring devices send a data protocol at specified intervals. For data security reasons the data telegrams are AES-encrypted according to the up to date technology.



The MinoConnectRadio receiver will process the data telegrams to a handheld or tablet PC with the ZENNER readout software. The consumption data and additional information relating to the meters are stored on the mobile device. They are transmitted to the PC in the office to use it for billing or energy monitoring purposes.

Smart Metering Functions:

- Self-monitoring
- Tampering detection
- Dismounting of module and meter detection
- Reverse water flow detection
- Leakage detection
- Meter Stop detection
- Meter oversized detection
- Meter undersized respectively pipe burst detection



Your advantages in overview

- Convenient, reliable and time-saving data collection
- Easy handling
- Data security from the collection to invoicing as no errors are caused by incorrect on-site reading or by faulty copying of consumption values
- Time savings by eliminating the need of read-out appointments
- Reduction of human resources involved in data collection
- Cost-effective, reliable measurement of consumption values, especially with increasing number of meter reading (half-yearly, quarterly)
- Comfortable data collection with corresponding reading software even possible from the vehicle (drive-by)
- Depending on the reading software used for the handheld, the system can fully interact with conventional reading of standard meters without radio
- Particularly suitable for reading of the meters being installed in pits and other areas that are difficult to reach
- PulseRadioGateway device compatible with all types of pulse output meter (option of connecting 1-2 meters for one radio module)



wireless M-Bus radio system

Characteristic features

- Unidirectional technology according to EN 13757-4 and OMS-Specification
- Radio module available for all ZENNER water meters equipped with modulator disc
- IP68 version
- Walk-by reading, optional drive-by reading
- Compatible with several third-party software systems
- Frequency: 868MHz
- Power: 16mW at 868 MHz
- Operating time up to 15 years

The ZENNER product range

Apartment water meters



Bulk water meters



Heat and cooling meters



The smart way of metering

Walk-by radio system by ZENNER,
in accordance with the current
OMS Standard

EnergyTechnology

ZENNER supplies meters and communication modules with unidirectional data transfer. Here, the devices are in compliance with the standardised provisions according to the OMS specification (wireless M-Bus). Accompanying software packages for different customer requirements round off the portfolio.

www.zenner.com

ZENNER
All that counts.



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