

Счетчики воды Minolist, Minomuk, Minomos, Minotec

Технические характеристики

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Minolist, Minomuk, Minomoc, Minotec, Minomet - measuring capsule meter with radio module

LoRaWAN® or wireless M-Bus interface

The ZENNER flush-mounted meters are coaxial measuring capsule water meters with rotatable register. The meters can be used both in the initial equipment as well as the exchange outstanding. The current connection dimension allows for use in both flush-mounted connection interfaces as well as in surface-mounted fittings. The insert is intended for the vertical installation position, for the connection interfaces according to DIN EN ISO 4064.

All types have a 7-digit roller register with modulator disc and are equipped ex works with a LoRaWAN® or wireless M-Bus radio module and can be integrated into LoRaWAN® or wireless M-Bus readout systems.

All materials, which are used in the drinking water section, comply with the required standards, guidelines and the current German drinking water approval (other country specific drinking water approvals on request).



Picture similar

Performance characteristics in overview

- Multi-jet dry dial meter with protected magnetic coupling
- With 7-digit-rollers register and modulator disc (1 l/pulse) for non-reactive scanning for radio
- For vertical installation
- Register cap made of high-quality UV-resistant polymer plastic
- Battery life 10 years after radio activation
- Register rotatable 360 °
- Operating pressure MAP 10
- Approved according to MID

Applications

- For the consumption measurement of cold and clean drinking water or service water up to 30 °C
- For the consumption measurement of hot and clean drinking water or service water up to 90 °C

AMR options

- Equipped with a radio module as standard:
 - LPWAN radio module (868 MHz) for LoRaWAN®
 - wireless M-Bus radio module (868 MHz) with C1 mode

Smart Metering functions

- Self monitoring
- Tampering detection
- Reverse water flow detection
- Leakage detection
- Meter stop detection
- Meter oversized detection
- Meter undersized respectively pipe burst detection

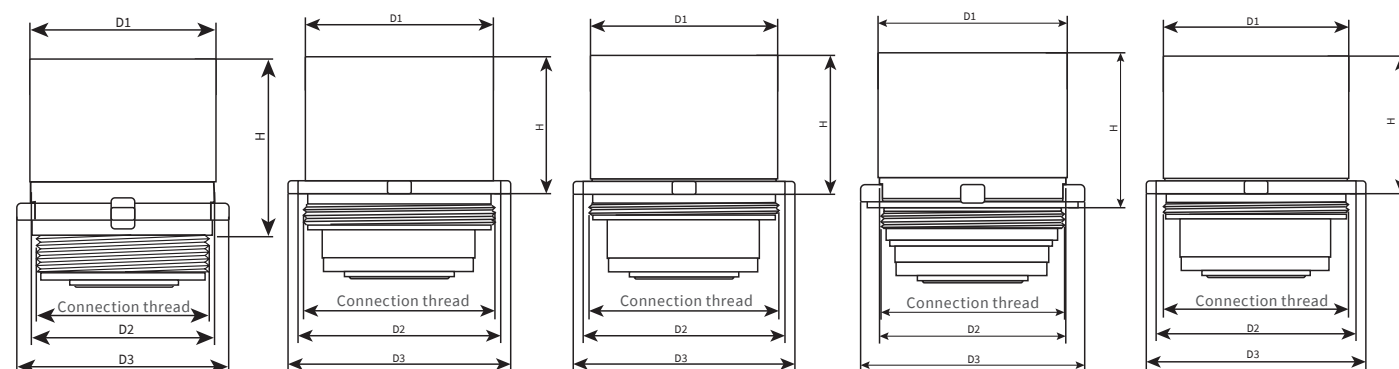
Minolist, Minomuk, Minomoc, Minotec, Minomet with LoRaWAN® or wM-Bus interface

Nominal technical data			
Permanent Flowrate	Q_3	m^3/h	2.5
Overload Flowrate	Q_4	m^3/h	3.125
Transitional Flowrate	Q_2	l/h	100
Minimum Flowrate	Q_1	l/h	62.5
Standard measuring range	Q_3/Q_1	ratio	40V
Starting flow approx.	-	l/h	24
Operating pressure	MAP	bar	0,3 - 10
Display range	min.	L	0.05
	max.	m^3	9,999
Temperature range	Cold water	$^{\circ}C$	0.1-30
	Hot water	$^{\circ}C$	0.1-90
Pressure loss class at Q_3		bar	$\Delta 0.63$
Mechanical environmental conditions		-	M2
Climatic ambient conditions ¹		$^{\circ}C$	5 - 70
Flow profile sensitivity		-	U0/D0
Measurement accuracy class			$\pm 5\% (Q_1 \leq Q < Q_2)$
			$\pm 2\% (Q_2 \leq Q \leq Q_4)$
			$\pm 3\% (Q_2 \leq Q \leq Q_4)$

¹ Condensation possible

Dimensions/Weight			Minolist	Minomuk	Minomoc	Minotec	Minomet
Connection interface DIN EN ISO 4064			IST	MUK	MOC/MOE	TE1	MET
Connection thread			G2"	G2 1/4"	M65x2	M62x2	M64x2
Nominal size	DN	mm	15	15	15	15	15
Height	H	mm	63	47	51.4	54.6	51.4
Diameter	D1	mm	64	64	64	64	64
	D2	mm	66,5	69	69	63	69
	D3	mm	73	79	78	75,8	78
Weight		kg	0.36	0.32	0.31	0.33	0.30

Dimensions:



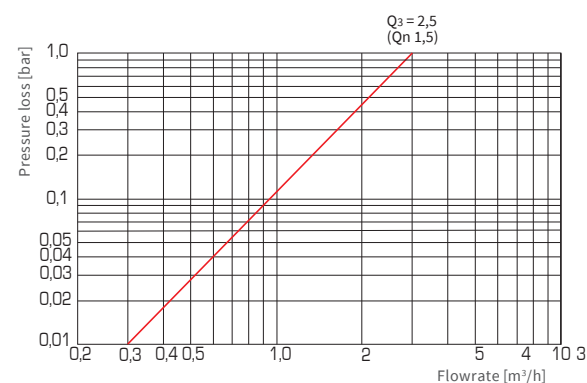
Minolist

Minomuk

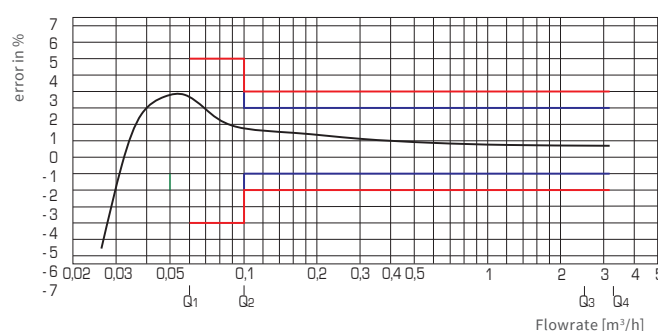
Minomoc

Minotec

Minomet



Pressure loss curve



Typical error curve

Minolist, Minomuk, Minomoc, Minotec, Minomet with LoRaWAN® interface

Technical data LoRaWAN® radio module	
Operating frequency	868 MHz
Transmission power	max. 25 mW
Duration of transmission telegrams	up to 1.5 s (depending on spreading factor)
Sending interval	Standard: daily (monthly or 8 telegrams per day, each with the last 3 hourly values on request)
Data transmission procedure	LoRaWAN® class A (bi-directional communication)
Encryption of radio protocols	yes
Error detection	CRC
Telegram content	Telegram contents depend on the communication scenario. Contents can be, for example: Daily-, monthly, half-monthly value, key date, date, time, status information (alarms), firmware version, identification number
Optical interface	yes
Energy supply	Lithium battery
Battery life	10 years + reserve (scenario 201 and 202), 6 years + reserve (scenario 203)
Battery status monitoring	yes
Display	no
Reverse flow detection	yes
Protection class	IP67
Ambient conditions	+5 °C to +55 °C
CE conformity	according to directive 2014/53/EU (RED)
Radio activation (compact device with radio module ex works)	- by means of illuminating the IR interface > 8 s (illuminant should not be an LED); - by means of the ZENNER opto-head, the universal interface MinoConnect (USB or Bluetooth) and the MSS-configuration software or the ZENNER Device Manager Basic app; - Autostart after flow rate of 100 L from firmware 1.41 possible

Datalogger (readable via optical IrDA interface) IrDA-Interface	
Annual due date values	max. 2
Monthly values	18 plus 18 half-monthly values
Daily values	32

Minolist, Minomuk, Minomoc, Minotec, Minomet with wireless M-Bus interface

Technical data wireless M-Bus-radio module	
Operating frequency	868 MHz
Transmission power	max. 25 mW
Duration of transmission telegrams	approx. 10-15 ms
Sending interval *	180 seconds (standard), others on request
Data transmission procedure	wireless M-Bus (standard: C1 mode) from firmware 1.78: C1 or T1 depending on scenario
Encryption of radio protocols	yes (Standard: Encryption Mode 5; Encryption Mode 7 on request)
Error detection	CRC
Telegram content	Telegram contents depend on the communication scenario. Contents can be, for example: Serial number, date, meter reading, mid-month value, previous month (max. 15), status information radio module
Optical interface	yes
Energy supply	Lithium battery
Battery life	up to 10 years plus reserve from radio activation, depending on scenario
Battery status monitoring	yes
Display	no
Reverse flow detection	yes
Protection class	IP67
Ambient conditions	+5 °C to +55 °C
CE conformity	according to directive 2014/53/EU (RED)
Radio activation (compact device with radio module ex works)	The activation of the radio and the coil scanning of the module can be carried out: - by means of illuminating the IR interface > 8 s (illuminant should not be an LED); - by means of the ZENNER opto-head, the universal interface MinoConnect (USB or Bluetooth) and the MSS-configuration software or the ZENNER Device Manager Basic app; - Autostart after flow rate of 100 L from firmware 1.41 possible

*After activation, the module transmits for a period of one hour with a quicker transmission interval of 20 s (commissioning scenario).

Datalogger (readable via optical IrDA interface)	
Annual due date values	max. 2
Monthly values	18 plus 18 half-monthly values
Daily values	32

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