Cordonel® Static Flow Meter for Potable Water

Main Characteristics

- Uses ultrasonic technology with no moving parts or obstruction to the flow.
- Maintenance-free over its operational lifetime.
- Large measuring range; Q3/Q1 R1000
- Advanced U0D0 capability
- Meter with MID pattern approval according to annex MI001
- Meter conforms to OIML R49:2013 and ISO 4064:2017
- Constant accuracy over a lifetime, no degradation as components age
- Installation in horizontal and vertical pipe orientations
- LCD for consumption, flow, temperature, pressure (optional) and status information
- Integrated radio communication and data logger
- Secure encrypted data transmission
- Meter can be submerged; meets protection class IP68 acc. to 60529:2014
- NFC wireless interface for readout of the last volume reading.
- 20-year average meter lifetime incl. battery under standard usage conditions.
- Optional pulse output with programmable values and lengths

Applications

- Measurement for billing of potable water up to 50 °C
- Radio-equipped flow meter for walk-by/drive-by readout applications.
- Metering endpoint in radio-based fixed Smart Water Networks.
- Measurement of high flow rates, for example, in pumped pipes for irrigation.
- Measurement of low flow, for example, in light load periods
- Leakage detection.
- Flow meter for controlling industrial processes using a pulse output.
- Flow meter supplying rich data for DMA analysis.

Available Options

- Integrated pressure sensor
- Radio communication on alternative frequencies
- Pulse output with different pulse modes

Environmental Conditions

- According to ISO 4064-1:2017
- Environmental class O acc. to OIML R49-1:2013
- Environmental temperature: -10 °C ... 70 °C
- Mechanical environmental conditions: class M2
- Electromagnetic environmental conditions: class E2

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Performance Data

Metrological Characteristics. Directive 2004/22EC (MID) & EN 14154:2007

	Size	DN	40	50	65	80	100
Qs	Max. Peak Flow	m3/h	78	90	125	200	310
Q4	Overload Flowrate acc. to MID	m3/h	50	50	78.75	125	200
Q3	Permanent Flow rate acc. to MID	m3/h	40	40	63	100	160
Q2	Transitional Flow rate acc. to MID	m3/h	0.06	0.06	0.1	0.06	0.25
Q1	Minimum Flowrate horizontal acc. to MID	m3/h	0.04	0.04	0.06	0.1	0.16
Q3/Q1	Max. Ratio		1000	1000	1000	1000	1000
	Starting Flow	m3/h	0.012	0.012	0.02	0.033	0.054

Materials

| Body	Cast Iron
Measuring Transducers	High grade Polymer
Inner tube	High grade Polymer; stainless steel
Battery	Lithium
Gaskets	EPDM
Other materials	Glass fiber reinforced polymer; stainless steel

Dimensions and Weight
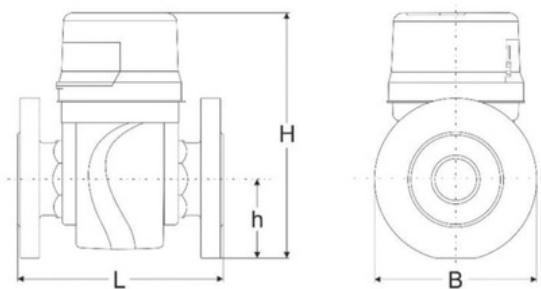
Nominal Diameter		DN	40	50	50	50	65	65	80
Overall length	L	mm	220	200	270	300	200	300	200
Height	H	mm	238	238	238	238	258	258	297
Height to pipe axis	h	mm	69	73	73	73	85	85	95
Width	B	mm	166	166	166	166	186	186	201
Meter Weight	-	kg	7.8	9.0	9.7	10.1	11.0	12.8	13.4
Meter Weight w/ pressure sensor	-	kg	7.9	9.1	9.8	10.2	11.1	12.9	13.5

Nominal Diameter		DN	80	80	80	100	100	100
Overall length	L	mm	225	300	350	250	350	360
Height	H	mm	297	297	296	315	315	315
Height to pipe axis	h	mm	95	95	95	105	105	105
Width	B	mm	201	201	201	220	220	220
Meter Weight	-	kg	13.9	15.9	16.8	17.9	20.4	20.7
Meter Weight w/ pressure sensor	-	kg	14.0	16.0	16.9	18.0	20.5	20.8

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Display
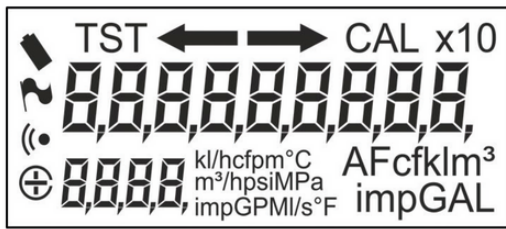
	Alarm is triggered
	Low battery level is reached
((•	Radio is activated (flashing)
TST	System is setup for hydraulic testing mode
⊕⊖	Indicates positive or negative flow

|	Smallest reading	Maximum reading
Working Mode DN 40 ... 100	0.001 m³	999999.999 m³
Test Mode DN 40 ... 100	000.000001 m³	999.999999 m³

The bottom line displays flow, temperature or optionally pressure in an automatic loop.
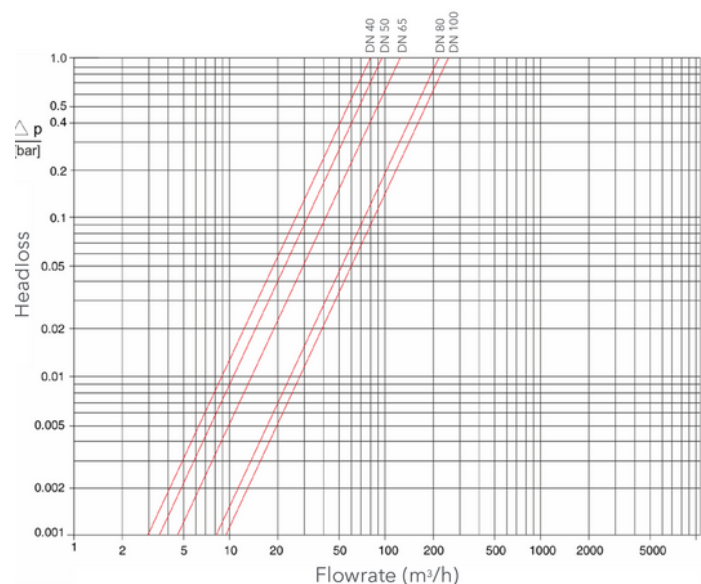
Installation

- Unrestricted straight pipe upstream and downstream 0 x DN U0D0 acc. to OIML R 49-1:2013.
- Meter display should not be installed with the display pointed downwards.

Typical Accuracy Curve
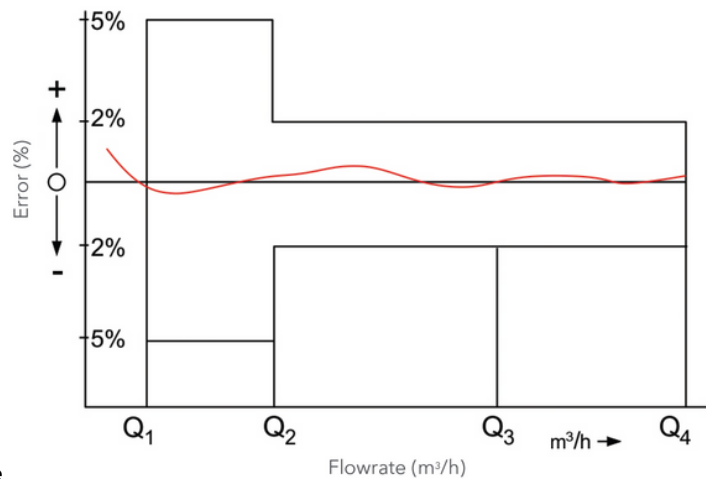
Typical Head Loss Curve

Approvals

Metrology	DE-19-MI001-PTB008
Marking	CE M-XX* 0102 (*year of conformity assessment)
Potable Water	KTW / DVGW WRAS ACS KIWA

Sensus RF Infrastructure

The Sensus product range with SensusRF integrated technology provides the advantages of both uniand bidirectional system architecture as described below. SensusRF is the optimized license-free radio system for battery-driven endpoints and repeaters. Scalable for mobile and remote reading without exchange of components, it is available in 433 MHz and is OMS compatible.

SensusRF offers two communication modes.

1. Fixed Radio Network

- Autoconfiguration wizard (gateway sniffing for endpoints and repeaters).
- Integrating repeaters (up to 7 hops in a chain)
- Self-healing network (using alternative routes)
- Meter reading is transparent, and local Fast track alarms.
- DMA snapshot (snapshot of a water network for evaluation)
- TCP/IP technology for the WAN communication
- High level of data security (end-to-end encryption)
- Enables cloud technologies, FTP and other remote database applications.

2. Mobile read - Walk-by / Drive-by

- Unidirectional telegrams
- Bidirectional communication
- Spontaneous reception is possible without a route
- Configuration of the endpoint

SIRT (Sensus Interface Radio Tool)

SIRT is a radio modem for SensusRF radio, connected to a handheld via Bluetooth and using DIAVASO Mobile Reading software with the following features:

- Installation and readout of devices
- Reception of frequently transmitted radio messages from Sensus RF radio endpoints.
- Request additional information on radio endpoints (alarm, level settings, etc.).
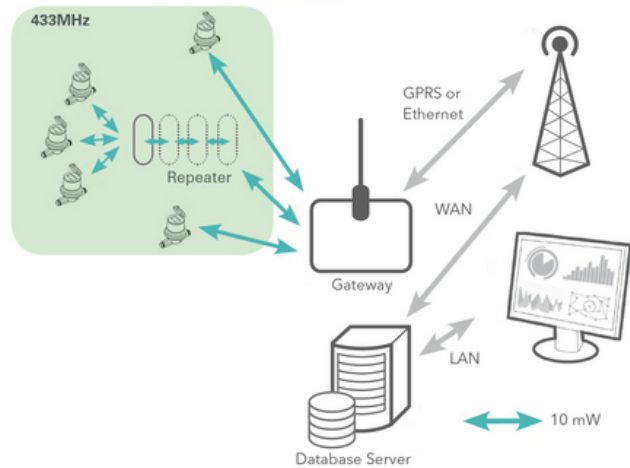
Unidirectional/Bidirectional Communication