Water Wastewater



SONICO® EDGE

Water measurement

Your benefits

- GWF 4D technology® measures best in class high and low flows (DN50: Start flow down to 5 l/h and up to > 90 m^3/h):
  Immediate detection of leakages and network errors, suitable for fire flow
- Maximum installation flexibility:
  Reliable measurements over the full flow range, independent of installation conditions. No straight runs needed even with 90° elbows, valves or pumps
- Accuracy by design: GWF 4D technology® maximizes turndown ratio up to R1000:
  Highest accuracy across the entire flow profile leads to a cutting edge dynamic range
- Homogeneous 4D-shape measuring pipe with dry sensors and no obstacles or cavities:
  Minimal pressure loss enhances high flow capability and minimizes operating costs. Dry sensors lead to increased meter life-time, reliability and dirt resistance

Properties

- Minimal pressure loss <0.04 bar
- U0/D0, no need for flow conditioners
- Pressure ratings up to PN 16
- Bidirectional flow measurement
- Medium temperature up to 50 °C
- Protection class IP68
- Ambient temperatures from -20 °C up to 70 °C
- Tamper-proof
- Integrated medium temperature measurement
- Air detection
- External power supply
- Approved automatic detection of the direction of flow according to WELMEC 7.2 European Legal Metrology

Applications

- Water measurement, e.g. drinking water or utility water (reservoirs, pumping stations, etc.)
- Suitable for difficult installation conditions such as placement directly before or after 90° elbows, valves or pumps
- The time-reverse acoustic measuring principle enables a new level of measuring repeatability unaffected by flow perturbations, electromagnetic or grounding interference and water conductivity

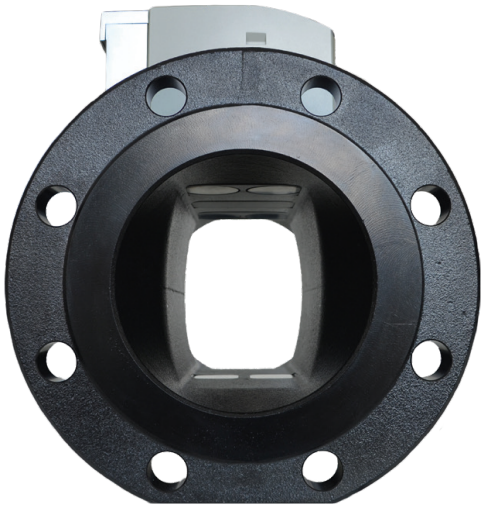
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4D-shape measuring core



Due to the unique 4D-shape pipe design and the implemented GWF 4D technology®, the measurement is independent of the flow profile. Dry sensors guarantee a highly accurate and reliable measurement performance over the entire meter lifetime.

The 4D-shape measuring core allows for installation of the meter directly behind a 90° bend or a valve. This flexibility results in minimal installation costs, since no additional on-site work has to be considered.

sonico® EDGE – in Germany and Switzerland developed and produced. The patented time reverse acoustic measuring principle enables a new level of measuring repeatability unaffected by flow perturbations, electromagnetic or grounding interference and water conductivity.

Ultimate communication



The GWF 4D technology® platform supports a Near Field Communication (NFC) interface that ensure sustained connectivity during the entire product lifetime.

Maximum two of the following available communication module can be attached to the flexible NFC communication interface in parallel:

- Pulse: Pulse output (0.1 l; 1 l; 10 l; 100 l; 1000 l) configurable
- Current: 4-20 mA output configurable for uni- or bidirectional measurements.
- ECO E1 or E2: Low Power serial data interface (e.g. to connect a NB-IoT Modem)
- Modbus: Modbus RTU/ASCII protocol with extended flowmeter data

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Technical data acc. to MID/OIML certification

Nominal flow rate	DN	mm	50	80	100	150	200	250	300
Dynamic	Q_3 / Q_1	R	up to R1000	up to R1000	up to R1000	up to R1000	up to R1000	up to R1000	up to R1000
Starting flow rate	Q_{start}	l/h	25	50	80	200	300	450	600
Starting flow rate	V'_{start}	m/s	0,0047	0,0042	0,0042	0,0045	0,0040	0,0060	0,0050
Minimum flow rate ± 5 %	Q_1	m^3/h	0,04	0,10	0,16	0,40	0,63	0,63	1
Minimum flow rate ± 5 %	V_1	m/s	0,0076	0,0084	0,0083	0,0089	0,0084	0,0084	0,0084
Transitional flow rate ± 2 %	Q_2	m^3/h	0,06	0,16	0,26	0,64	1,01	1,0	1,60
Transitional flow rate ± 2 %	V_2	m/s	0,012	0,013	0,013	0,014	0,013	0,013	0.013
Nominal flow rate ± 2 %	Q_3	m^3/h	40	100	160	400	630	630	1000
Nominal flow rate ± 2 %	V_3	m/s	7,57	8,41	8,35	8,91	8,37	8,37	8,35
Overload flow rate	Q_4	m^3/h	50	125	200	500	788	788	1250
Overload flow rate	V_4	m/s	9,47	10,51	10,44	11,14	10,46	10,46	10,44
Maximal flow rate	Q_{max}	m^3/h	90	200	300	600	1100	1100	1500
Maximal flow rate	V_{max}	m/s	17,04	16,82	15,66	13,37	14,61	14,61	12,53
Nominal pressure	PN	bar	16	16	16	16	16	16	16

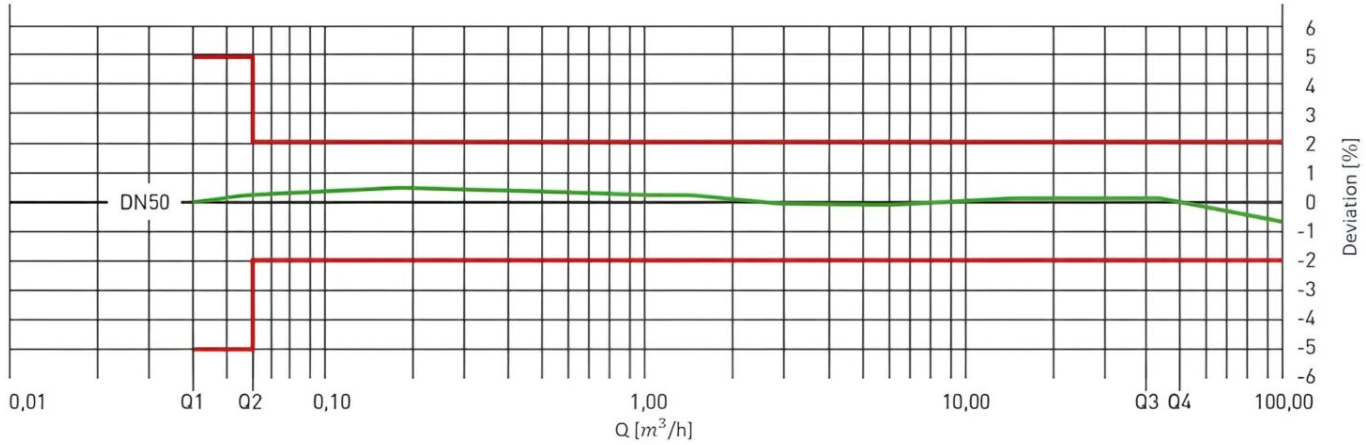
Dynamic Range

Installation direction	Temperature	DN 50	DN 80	DN 100	DN 150	DN 200	DN 250	DN 300
Horizontal	T30	R1000	R1000	R1000	R1000	R1000	R1000	R1000
Vertical	T30	R630	R630	R630	R630	R630	R630	R630
Horizontal	T50	R1000	R1000	R630	R630	R630	R630	R630

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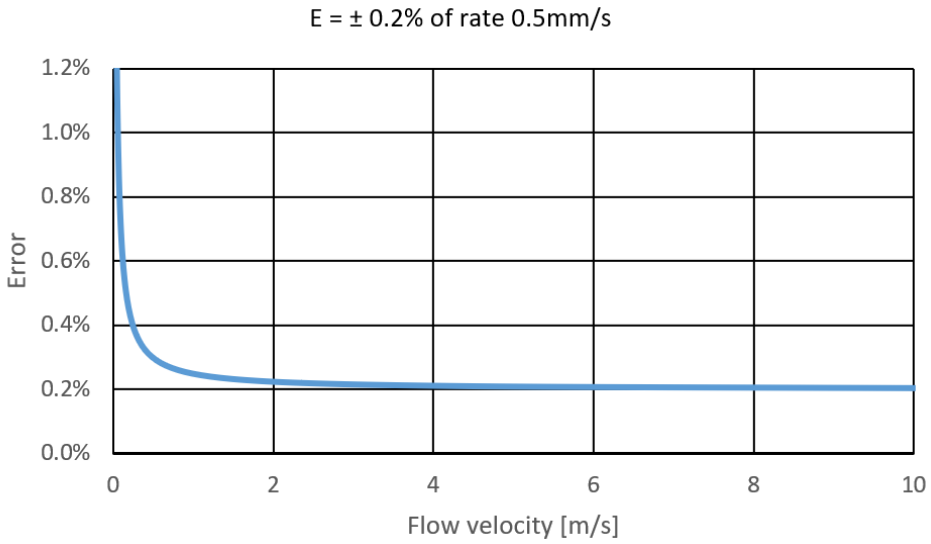
MID/OIML measuring accuracy

GWF 4D technology® offers a bidirectional turndown ratio R1000 acc. to MID/OIML and is extremely robust against changes in the flow profile caused by bends, valves or pumps. The patented time-reverse acoustic measuring principle enables a new level of measuring repeatability independent of flow conditions, electromagnetic or grounding interference and medium conductivity.



Industrial accuracy

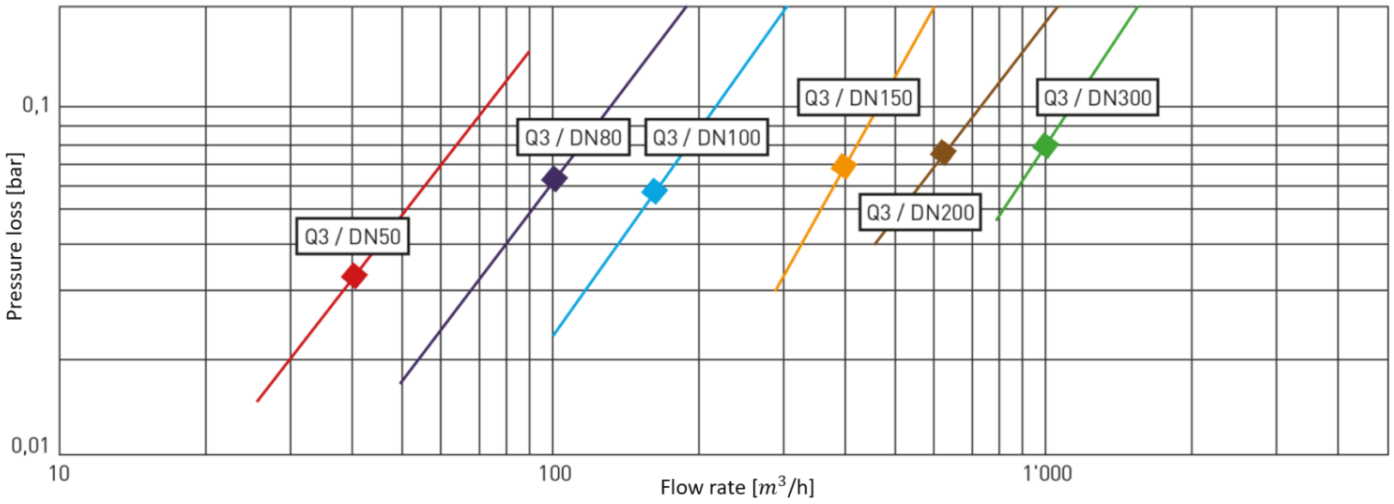
In addition to MID/OIML calibration, GWF offers accredited industrial calibrations in accordance with ISO 17025 in the flow rate range from 0.005 m^3/h to 600 m^3/h.
Based on the GWF 4D technology®, an industrial calibration results in a measurement uncertainty of up to ± 0.2 % of the measured velocity ± 0.5 mm/s.



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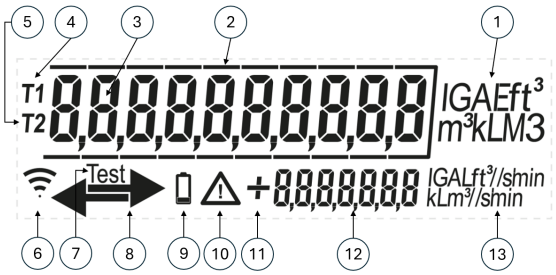
Typical pressure loss curve

The homogeneous 4D-shape measuring pipe ensures minimal pressure loss (< 0.04 bar on DN50 @ Q_3), offering highest reliability at lowest operational costs.



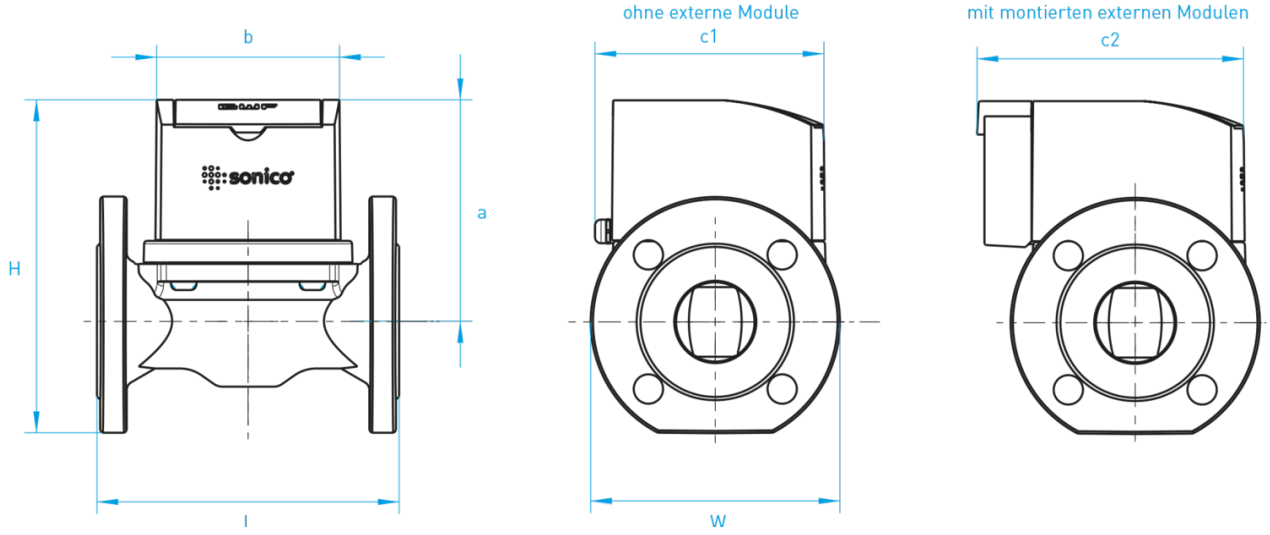
Display Information

1. Volume unit indicator (digital)	8. Main flow direction
2. Non-billing relevant lines	9. Battery level symbol
3. Volume	10. System alarm icon
4. Tariff zone 1	11. Actual flow direction arrow
5. Tariff zone 2	12. Flow rate
6. Radio connection status	13. Flow rate unit indicator (digital)
7. Test mode information	



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Dimensions and weight



Nominal size (mm)	Nominal size (inch)	L (mm)	H (mm)	W (mm)	a (mm)	b (mm)	c1 (mm)	c2 (mm)	Weight (kg)
50	2	200	220	165	147	122	152	177	13
80	3	200	250	200	158	122	152	177	16
100	4	250	270	220	169	122	152	177	21
150	6	300	336	285	202	122	152	177	33
200	8	350	395	340	234	122	140	177	60
250	10	450	425	410	241	122	152	177	82
300	12	500	475	460	252	122	152	177	115
Connection	Flanges: EN 1092-1 PN 16, others upon request								

Materials

Measuring channel:

- KTL- and powder-coated grey cast iron

Measuring adapter:

- KTL- and powder-coated grey cast iron

IP68 sealing:

- Screwed steel frame with glass and flat seal

Housing:

- ASA Luran plastic

Approvals

CE Type-examination certificate in conformity with:

- 2014/32/EU (MID) (2019)
- OIML R49:2013 (2019)
- MCERTS Class 1

Drinking water certificates:

- KTW / W270 (2019)
- SVGW
- NSF-61
- WRAS

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Power supply

sonico® EDGE can be powered either mains (with suitable DC adapter) or by an external battery source[1].

Mains power supply data:

- Input voltage: 24 V DC ± 10 %
- Max. charging current: 250 mA
- The integrated back-up battery (UPS[2]) ensures autonomous measurements for 24 h if external power supply is interrupted.

[1] The external battery source to be provided by the customer. Examples may include eg solar power or wind turbine.

[2] UPS – Uninterruptible Power Supply

External battery requirements:

- Input voltage: 5-15 V DC
- Nominal current: 30 mA (24 V)
- Max. peak current: 260 mA
- Battery life time: Depends on battery capacity

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