Water GWF

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GWF 4D technology®

SONICO® EDGE

THE WORLD'S MOST ADVANCED FLOWMETER

Your benefits

- 4D technology® measures best in class high and low flows (DN50: Start flow down to 0.005 m^3/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: 4D technology® maximizes turndown ratio 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.

Features

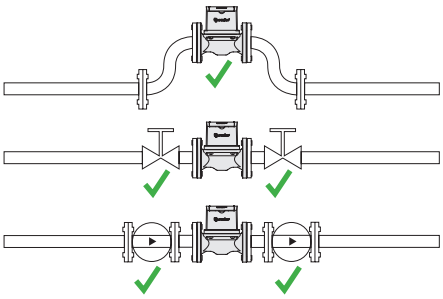
- Minimal pressure loss < 0.04 bar
- U0/D0, no need for flow conditioners
- Pressure ratings up to PN 16
- Bidirectional flow measurement
- Medium temperature range 0.1 °C to + 50 °C
- Degree of protection IP68
- Tamper-proof
- Integrated medium temperature measurement
- Air detection
- External power supply
- Approved automatic detection of the direction of flow according to WELMEC 7.2 European Legal Metrology

Applications

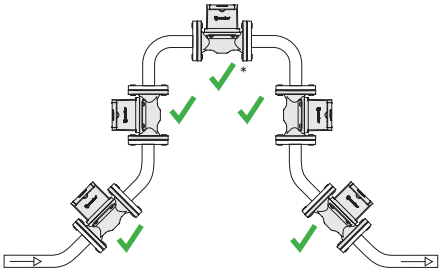
- Water measurement, e.g. drinking water or utility water (reservoirs, pumping stations, etc.)
- Suitable for difficult installation conditions such as placement directly before or after 90 ° elbows, valves or pumps
- The time-reverse acoustic principle enables a new level of measuring repeatability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

Reliable measurements independent of installation condition

The 4D technology® certified R1000 turndown ratio is independent of the flow profile as well as meter direction or orientation.

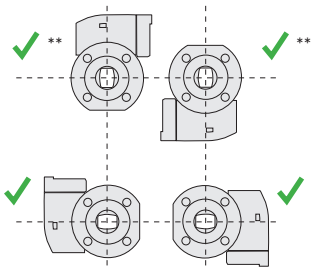


> Directly after or before 90 ° elbows, valves or pumps for meters sizes DN50-DN300 and water temperatures < 30 °C



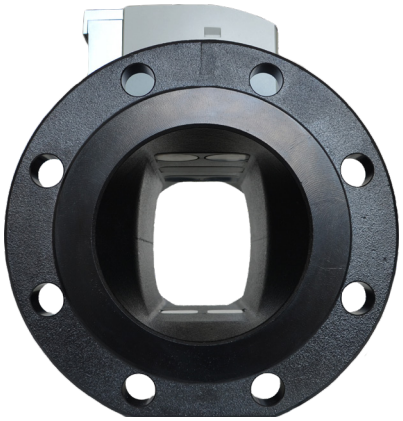
> In any direction for DN50-DN150 and water temperatures < 30 °C

* For water temperatures > 30 °C, horizontal installation direction is mandatory for all sizes.
* For sizes DN200 & DN300, horizontal installation direction is mandatory.



> In any orientation for DN50-DN150 and water temperatures < 50 °C

** For sizes DN200 & DN300, up or down display orientation is mandatory.

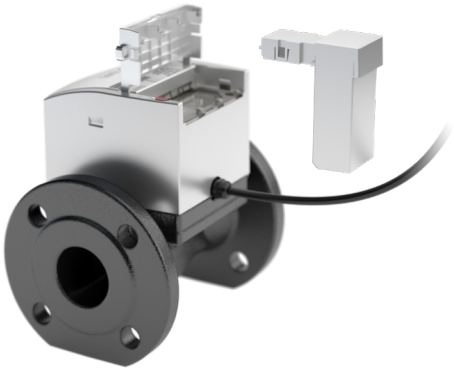


4D-shape measuring core

Due to the unique 4D-shape pipe design and the implemented 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 without straight inlet or outlet runs. 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 principle enables a new level of measuring repeatability unaffected by flow perturbations, electromagnetic or grounding interference and water conductivity.



Ultimate communication

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

One of the following available communication module can be attached to the flexible NFC communication interface:

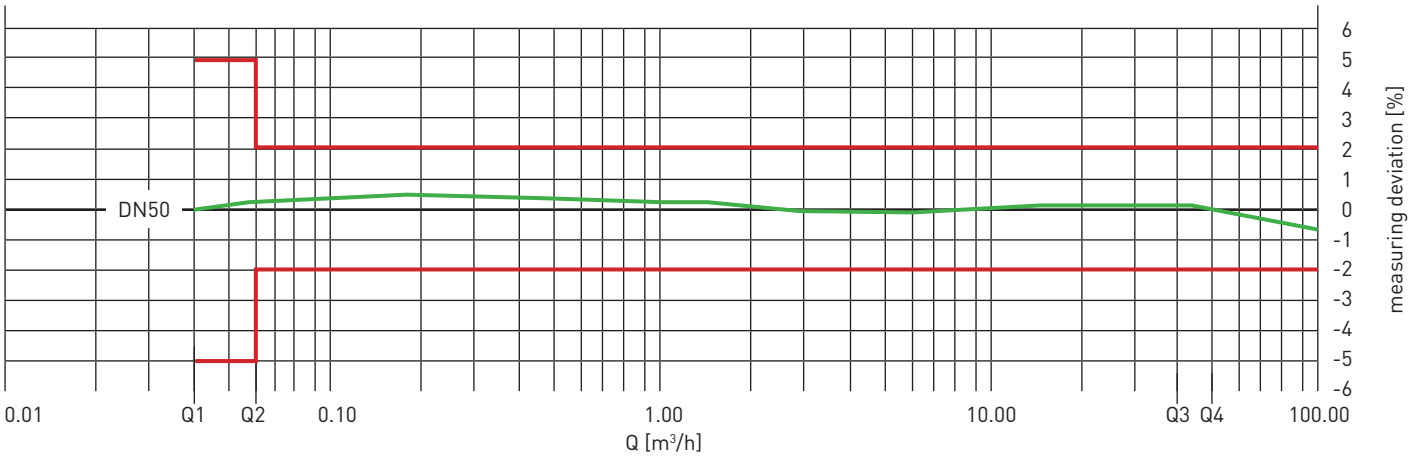
> Pulse:	Pulse output (0.1 l; 1 l; 10 l; 100 l; 1000 l) configurable
> Current:	4-20 mA output configurable for uni- or bidirectional measurements
> ECO E1 or E2:	Low Power serial data interface (e.g. to connect a NB-IoT Modem)

Technical data as acc. to MID/OIML certification

Nominal flow rate	DN	mm	50	80	100	150	200	300
Q3 / Q1			1000	1000	1000	1000	1000	1000
Starting flow rate	Q_{start}	l/h	25	50	80	200	300	600
	V_{start}	m/s	0.0035	0.0014	0.0014	0.0016	0.0027	0.0020
Minimum flow rate ± 5 %	Q_1	m^3/h	0.04	0.10	0.16	0.40	0.63	1
	V_1	m/s	0.0057	0.0055	0.0057	0.0063	0.0056	0.0039
Transitional flow rate ± 2 %	Q_2	m^3/h	0.06	0.16	0.26	0.64	1.01	1.60
	V_2	m/s	0.0091	0.0088	0.0091	0.0101	0.0089	0.0063
Nominal flow rate ± 2 %	Q_3	m^3/h	40	100	160	400	630	1000
	V_3	m/s	5.7	5.5	5.7	6.3	5.6	3.9
Maximal flow rate	Q_4	m^3/h	50	125	200	500	788	1250
	V_4	m/s	7.1	6.9	7.1	7.9	7.0	4.9
Overload flow rate	Q_{max}	m^3/h	90	200	300	600	1100	1500
	V_{max}	m/s	12.7	11.1	10.6	9.4	9.7	5.9
Maximum water temperature	T	°C	50	50	50	50	30	30
Nominal pressure	PN	bar	16	16	16	16	16	16

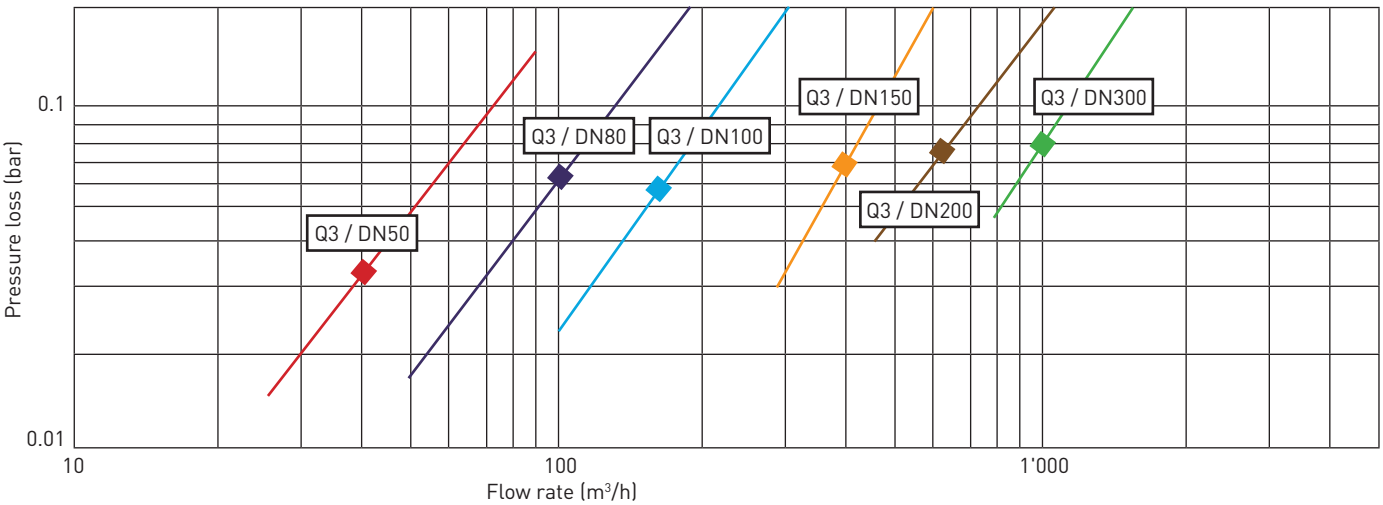
4D technology® measuring accuracy

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



Typical pressure loss curve

The homogeneous 4D-shape measuring pipe ensures minimal pressure loss (< 0.04 bar on DN50 @ Q3), offering highest reliability at lowest operational costs.



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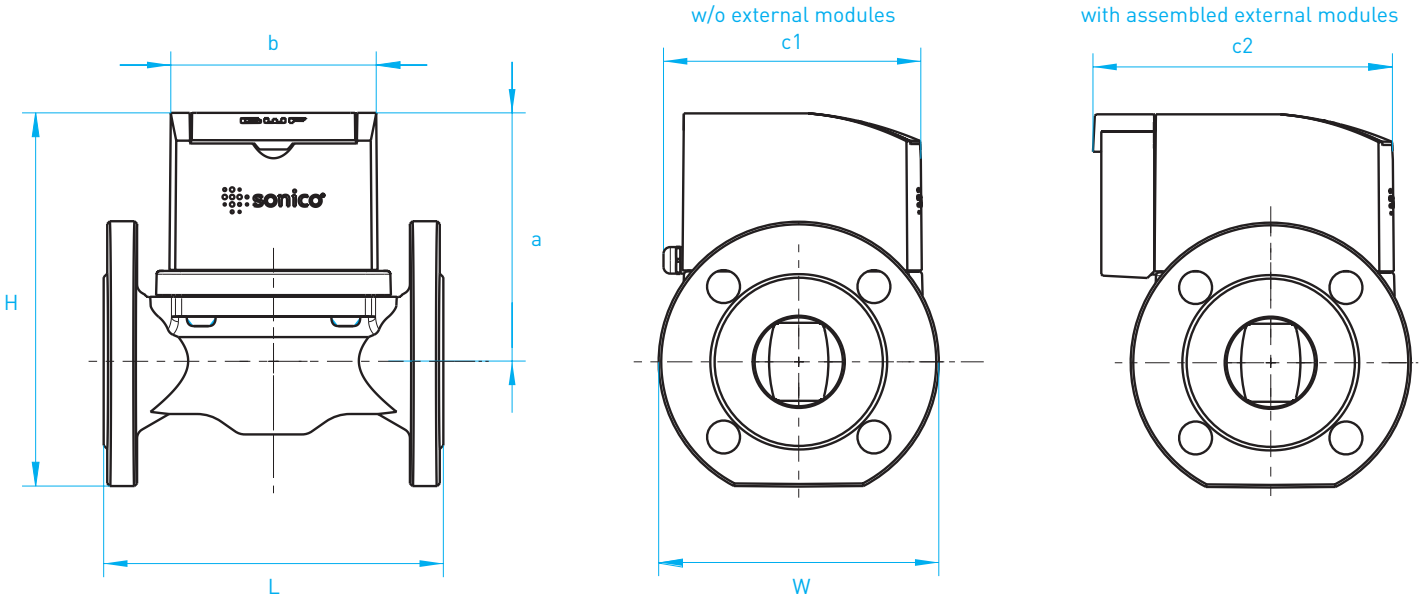
Dimensions and weight



Nominal size		L (mm)	H (mm)	W (mm)	a (mm)	b (mm)	c1 (mm)	c2 (mm)	Weight (kg)
mm	inch								
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
300	12	500	475	460	252	122	140	177	115
Connection		Flanges: EN1092-1 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 Design-examination Certificate in conformity with:
> 2014/32/EU (MID) (2019)
> OIML R49:2013 (2019)

Drinking water approvals:
> KTW / W270 (2019)
> SVGW
> NSF-61
> WRAS

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: 300 mA
> The integrated back-up battery (UPS[2]) ensures autonomous measurements for 48 h if external power supply is interrupted.

External battery requirements:
> Input voltage: 5-15 V DC
> Nominal current: 30 mA
> Max. peak current: 260 mA
> Battery life time: Depends on battery capacity

[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

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