SIEMENS

1 597

Flow sensor

QVE2000.0xx
QVE2100.0xx

for liquids in DN 10…25 pipes

- **Vortex flow sensor made from fiber-glass-reinforced plastic**
- **Output signal: DC 0…10 V or 4…20 mA**
- **Flow range: 1.8 …150 l/min**
- **Used for temperature ranges: -15…+125 °C**
- **Operating voltage: DC 18…33 V (QVE2100…) or 11.5…33 V (QVE2000…)**
- **Temperature-insensitive measuring principle**
- **No moving parts**
- **Low pressure loss**
- **Insensitive to soiling**

CM1N1597en
2014-07-30

Building Technologies

Use

The flow sensor is suited to continuously measure flow or monitor liquids such as hot water, heating water, or standard water-glycol mixes in HVAC plants and applications. The sensors can be used in automation and control systems as control sensor or measured value sensor.

Type summary

Type / ASN	Product number (SSN)	Nominal width dia [mm]	Measuring range [l/min]	Measuring range [m^3/h]	Output signal DC
QVE2000.010	S55720-S189	DN 10	1.8…32	0.1…1.92	0…10 V
QVE2000.015	S55720-S190	DN 15	3.5…50	0.2…3.0	0…10 V
QVE2000.020	S55720-S191	DN 20	5.0…85	0.3…5.1	0…10 V
QVE2000.025	S55720-S192	DN 25	9.0…150	0.5…9.0	0…10 V
QVE2100.010	S55720-S193	DN 10	1.8…32	0.1…1.92	4…20 mA
QVE2100.015	S55720-S194	DN 15	3.5…50	0.2…3.0	4…20 mA
QVE2100.020	S55720-S195	DN 20	5.0…85	0.3…5.1	4…20 mA
QVE2100.025	S55720-S196	DN 25	9.0…150	0.5…9.0	4…20 mA

Ordering

When ordering, please specify the quantity, type, and product name.

Type	*Stock number*	*Designation*
ASN	SSN	Product designation
QVE2000.010	S55720-S189	Flow sensor

Example:
1 flow sensor QVE2000.010

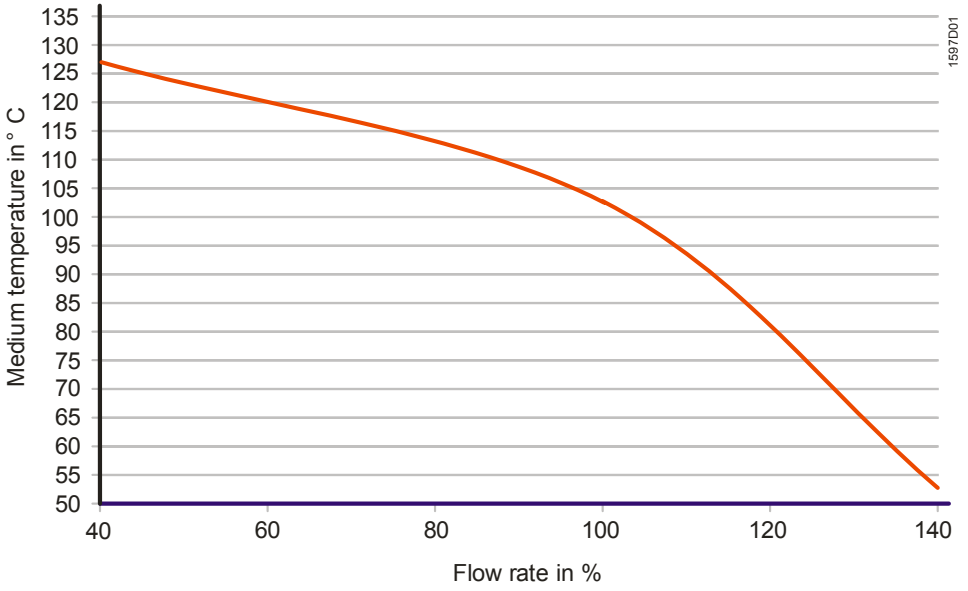
Delivery

Scope of delivery:

- Flow sensor with external thread connection
- 2 x inserted O-ring
- Straight, 3-pin plug M12x1 with cable, 2 m
- Mounting instructions

Service life

10 year curve as related to flow and media temperature



Engineering notes

⚠ Warning

Operational safety of the supplied device is only guaranteed when used properly (flow measurement of liquids). Do not exceed under no circumstances the indicated limit values (see "Technical data").

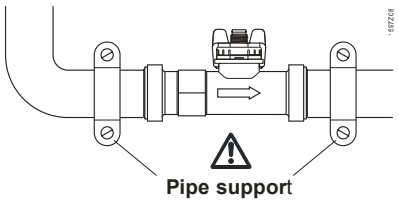
Mounting notes

Smooth operation of the flow sensor is guaranteed only if the mounting instructions delivered with the product are adhered to completely. See also the following notes.

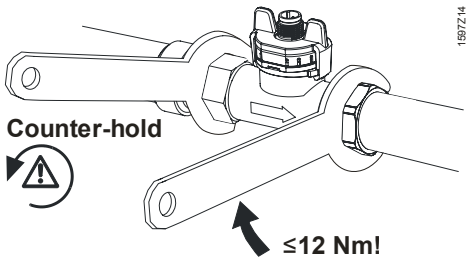
⚠ Important

Strictly observe the following notes to prevent sensor material damages when mounting:

- Mount the sensor only when **de-energized.** Thus, the connecting pipes must be supported by tube clamps as close to the sensor inlet and outlet as possible.



- When mounting the sensor, use suitable connection fittings. Do not exceed a **12 Nm** torque when tightening the union nut. To tighten, hold the union nut with a wrench against the tightening torque.

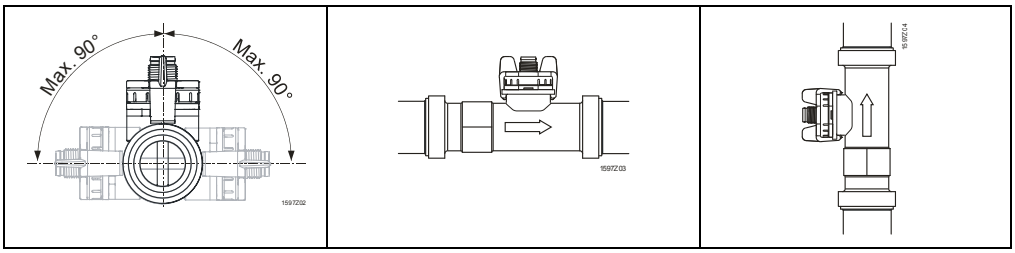


Avoid air bubbles in the medium

Install the flow sensor where the pipes are completely filled with the medium to be measured, and where gas bubbles and cavitation in the medium are avoided.

Note mounting position and flow direction

Mount the flow sensor only in the intended position or proper flow direction (note the arrow on the connecting pipe). The measured flow values will be wrong if the sensor is mounted in the wrong position or direction.



Further important notes

- The entire measuring path must be free of foreign bodies.
- Plan for sufficient settlement distance before the sensor inlet or outlet area to avoid eddying effects e.g. by curvatures, steps, changes to diameter, valves, pumps, etc..
- For this reason, strictly adhere to the recommended minimum distances as recommended in the mounting instructions.

Installation notes

- Comply with all local regulations on electrical systems.
- Use only qualified personnel for electrical installation.
- Always de-energize the system before connecting the wires of the mains cable.

Operating notes

Do not exceed maximum operating pressure as well as maximum medium temperature (see "Technical data").

Service notes

- Do not remove a flow switch or its body from a system under pressure.
- The flow sensor is maintenance-free and cannot be repaired by the user.

Disposal

The devices are considered electronics devices for disposal in term of European Directive 2012/19/EU and may not be disposed of as domestic waste.

- Dispose of the device via the channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

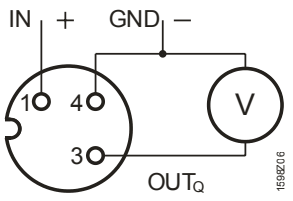
Technical data

Product data	Nominal width and measuring range	See "Type summary
General function data	Measuring principle	Vortex
	Sensing element	Piezo-ceramic sensor element
	Measuring accuracy at < 50 % FS (water) at > 50 % FS (water)	 < 1 % FS (Full Scale) < 2 % measured value
	Dynamic response: Response time Switch-on delay	 < 500 ms < 2 s
	Flow media	Heating water with standard additives Potable water (hot / cold)
	Admissible medium temperature	Non-freezing …+100 °C (short-term to +125 °C, < 4 bar)
	Max. pressure at medium temperature during life	12 bar at +40 °C 6 bar at +100 °C
Electrical data	Types with voltage output	Supply: DC 11.5…33 V, <6 mA (SELV) Output: DC 0…10 V (loads up <1 mA)
	Types with current output	Supply: DC 18…33 V (SELV) (for loads up to 500 Ω) Output: DC 4…20 mA (loads up to 500 Ω)
Connections	Electrical connection	Straight, 3-pin plug M12x1 with 2 m cable
	External thread on measuring pipe	See Dimensions
Degree of protection	Protection degree of housing	IP65 according to EN 60529, mounted and screwed
	Protection class	III according to EN 60730-1
Environmental conditions	Permitted ambient temperature Transport and storage Operation	 –15…85 °C –30…85 °C
Environmental compatibility	The product environmental declaration CE1E1597*) contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).	
Directives and Standards	Product standard	EN 61326-1 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements.
	EU Conformity (CE)	CE1T1597xx *)
Materials	Housing under pressure	Plastic PA6T / 6I
	Sealing material	EPDM ethylene-propylene-rubber (peroxide linked)
	Sensor	ETFE
Dimensions (weight)	Including packaging	See Dimensions

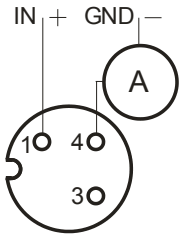
*) The documents can be downloaded from http://siemens.com/bt/download.

Device connection

QVE2000.0xx



QVE2100.0xx

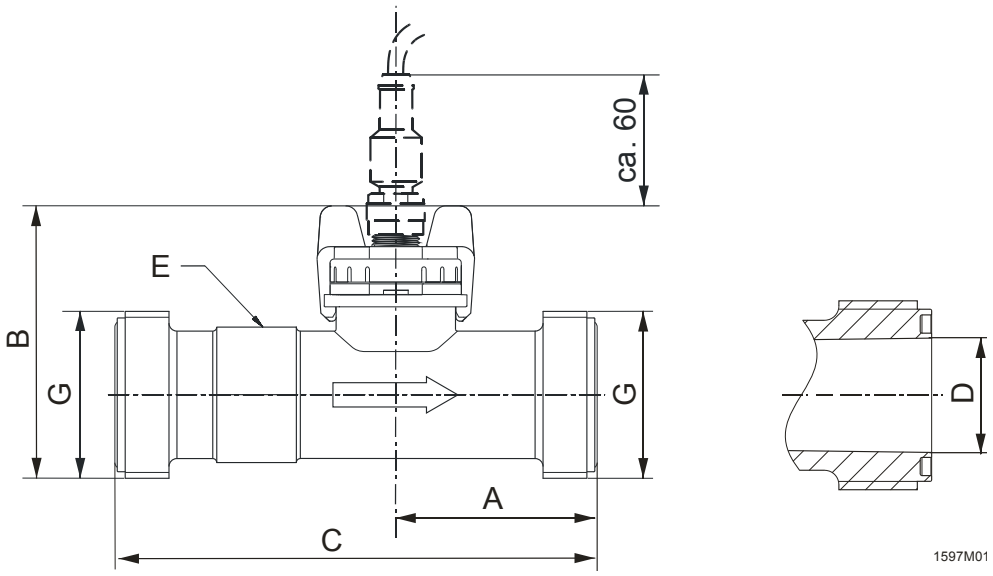


Pin assignment

Plug pin	Wire color
1	brown
3	blue
4	black

Dimensions

Dimensions in mm



Type (ASN)	Nom. width dia.	A [mm]	B [mm]	C [mm]	D [mm] Ø	E [mm]	Thread G [inch]	Weight [g]
QVE2x00.010	DN 10	35	41	81	12	⌀19	G½	57
QVE2x00.015	DN 15	36.6	43	87	16	⌀22	G¾	68
QVE2x00.020	DN 20	36.6	45	105	20	⌀27	G1	92
QVE2x00.025	DN 25	50	47	120	26	⌀34	G1¼	100

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