



## Flow sensor

**QVE3000.0xx**  
**QVE3100.0xx**

for liquids in DN10...25 pipes

- Vortex flow sensor made from robust red brass
- 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 (QVE3100...) or 11.5...33 V (QVE3000...)
- Temperature-insensitive measuring principle
- No moving parts
- Low pressure loss
- Insensitive to soiling

### 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 |                      | Output signal DC |
|-------------|----------------------|-------------------------|-----------------|----------------------|------------------|
|             |                      |                         | [l/min]         | [m <sup>3</sup> / h] |                  |
| QVE3000.010 | S55720-S211          | DN 10                   | 1.8...32        | 0.1...1.92           | DC 0...10 V      |
| QVE3000.015 | S55720-S212          | DN 15                   | 3.5...50        | 0.2...3.0            | DC 0...10 V      |
| QVE3000.020 | S55720-S213          | DN 20                   | 5.0...85        | 0.3...5.1            | DC 0...10 V      |
| QVE3000.025 | S55720-S214          | DN 25                   | 9.0...150       | 0.5...9.0            | DC 0...10 V      |
| QVE3100.010 | S55720-S215          | DN 10                   | 1.8...32        | 0.1...1.92           | DC 4...20 mA     |
| QVE3100.015 | S55720-S216          | DN 15                   | 3.5...50        | 0.2...3.0            | DC 4...20 mA     |
| QVE3100.020 | S55720-S217          | DN 20                   | 5.0...85        | 0.3...5.1            | DC 4...20 mA     |
| QVE3100.025 | S55720-S218          | DN 25                   | 9.0...150       | 0.5...9.0            | DC 4...20 mA     |

## Ordering

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

| Type        | Stock number | Designation         |
|-------------|--------------|---------------------|
| ASN         | SSN          | Product designation |
| QVE3000.010 | S55720-S211  | Flow sensor         |

Example:

1 flow sensor QVE3000.010

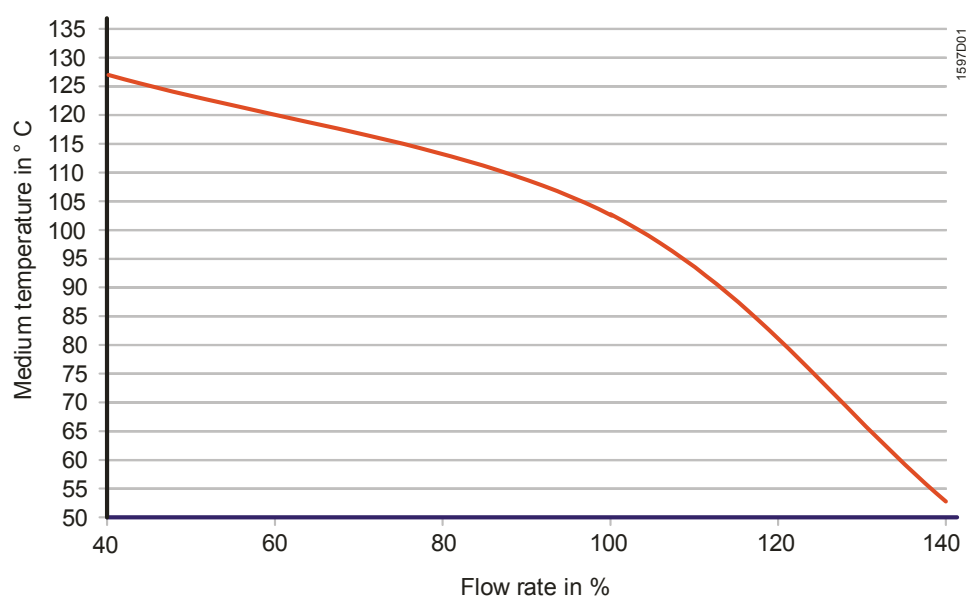
## Delivery

Scope of delivery:

- Flow sensor with external thread connection
- 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

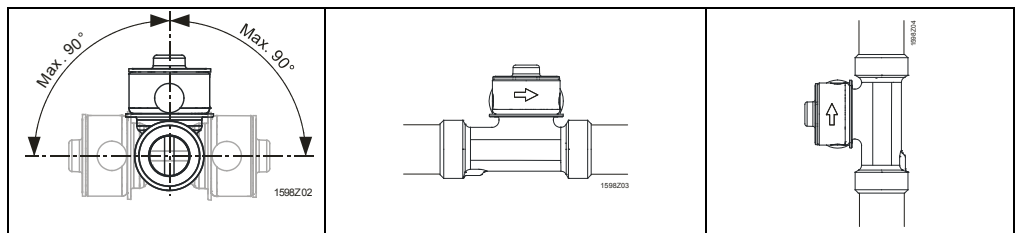
Smooth operation of the flow sensor is guaranteed only if the mounting instructions delivered with the product are adhered to completely. See also the following notes.

### 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.
- When mounting red brass-type flow sensors, use flat seals at the inlet and outlet of the red brass pipe.

## 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 sensor or its body from a piping system under pressure.
- The flow sensor is maintenance-free and cannot be repaired by the user.

## Disposal

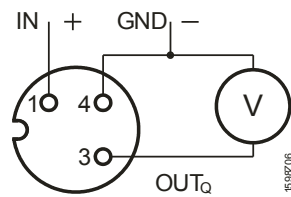


In terms of disposal, the QVE3x00.0xx flow sensor is an electronic device that cannot be disposed of together with domestic waste. Observe all relevant national regulations and dispose of the unit via appropriate channels. Local and currently valid legislation applies accordingly.

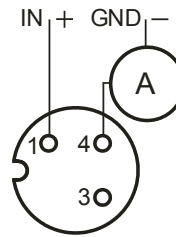
## Technical data

|                             |                                                                                                                                                                            |                                                                                         |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 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)                                                                                                                                                         | <1% FS (Full Scale)                                                                     |
|                             | at >50% FS (water)                                                                                                                                                         | <2% measured value                                                                      |
|                             | Dynamic response:                                                                                                                                                          |                                                                                         |
|                             | Response time                                                                                                                                                              | <500 ms                                                                                 |
|                             | Switch-on delay                                                                                                                                                            | <2 s                                                                                    |
|                             | Flow media                                                                                                                                                                 | Heating water with standard additives<br>Potable water (hot / cold)                     |
|                             | Admissible medium temperature                                                                                                                                              | Non-freezing ...+100 °C<br>(short-term to +125 °C, <4 bar)                              |
| Electrical data             | Max. pressure at medium temperature during life                                                                                                                            | 12 bar at +40 °C<br>6 bar at +100 °C                                                    |
|                             | Types with voltage output                                                                                                                                                  | Supply: DC 11.5...33 V<br>Output: DC 0...10 V (loads up to ±1 mA)                       |
|                             | Types with current output                                                                                                                                                  | Supply: DC 18...33 V<br>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        | Housing                                                                                                                                                                    | IP 65 as per IEC 60529, mounted and screwed                                             |
|                             | Protection class                                                                                                                                                           | III                                                                                     |
| Environmental conditions    | Permitted ambient temperature                                                                                                                                              |                                                                                         |
|                             | Transport and storage                                                                                                                                                      | – 15...+85 °C                                                                           |
|                             | Operation                                                                                                                                                                  | – 30...+85 °C                                                                           |
| Environmental compatibility | The product environmental declaration                                                                                                                                      | ISO 14001 (environment)                                                                 |
|                             | CE1E1598en contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal) | ISO 9001 (quality)<br>SN 36350 (environmentally comp. products)<br>RL 2002/95/EC (RoHS) |
|                             |                                                                                                                                                                            |                                                                                         |
|                             |                                                                                                                                                                            |                                                                                         |
| Standards, guidelines       | Electro-magnetic compatibility for electrical measuring, control and laboratory devices                                                                                    | EN 61326-2-3                                                                            |
|                             | CE - Conformity as per EMC directive                                                                                                                                       | 2004/108/EC                                                                             |
|                             |                                                                                                                                                                            |                                                                                         |
| Materials                   | Housing under pressure                                                                                                                                                     | Red brass                                                                               |
|                             | Sealing material                                                                                                                                                           | EPDM ethylene-propylene-rubber (peroxide linked)                                        |
|                             | Sensor                                                                                                                                                                     | ETFE                                                                                    |
| Dimensions (weight)         | Including packaging                                                                                                                                                        | See Dimensions                                                                          |
|                             |                                                                                                                                                                            |                                                                                         |

### QVE3000.0xx



### QVE3100.0xx

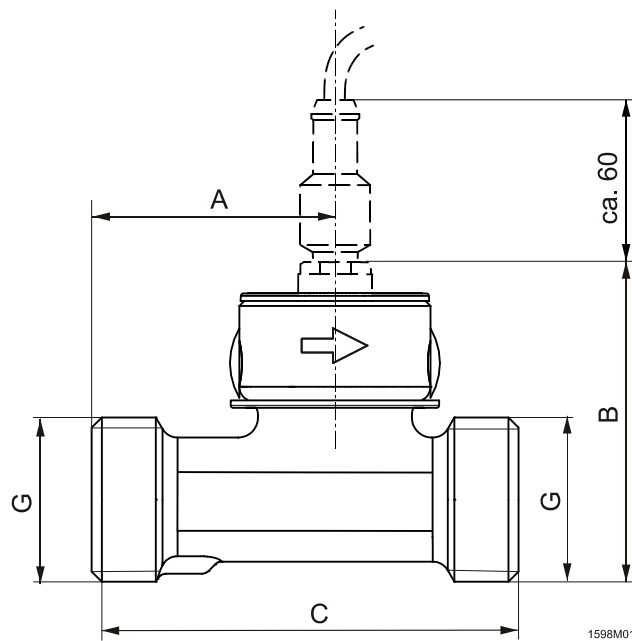


### Pin assignment

| Plug pin | Wire color |
|----------|------------|
| 1        | brown      |
| 3        | blue       |
| 4        | black      |

## Dimensions

Dimensions in mm



| Type (ASN)  | Nominal width dia. | A [mm] | B [mm] | C [mm] | G [inch]         | Weight [g] |
|-------------|--------------------|--------|--------|--------|------------------|------------|
| QVE3x00.010 | DN 10              | 32     | 57     | 65     | G $\frac{3}{4}$  | 230        |
| QVE3x00.015 | DN 15              | 40     | 59     | 75     | G $\frac{3}{4}$  | 240        |
| QVE3x00.020 | DN 20              | 49     | 65     | 86     | G1               | 340        |
| QVE3x00.025 | DN 25              | 70     | 71     | 109    | G1 $\frac{1}{4}$ | 510        |

