



# FTMG-ISD20AXX

FTMg

FLOW SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type          | part no. |
|---------------|----------|
| FTMG-ISD20AXX | 1100212  |

Other models and accessories → [www.sick.com/FTMg](http://www.sick.com/FTMg)

Detailed technical data

Features

|                              |                                                                                                  |
|------------------------------|--------------------------------------------------------------------------------------------------|
| Measurement principle        | Calorimetric (flow, temperature), piezoresistive (pressure)                                      |
| Medium                       | Compressed air (air quality ISO 8573-1:2010 [3:4:4]), Argon, nitrogen, carbon dioxide            |
| Measured values              | Mass, volume, Mass flow rate, Volumetric flow rate, Energy, Flow velocity, pressure, Temperature |
| Nominal width measuring tube | DN 20                                                                                            |
| Measuring range              |                                                                                                  |
|                              | Standard                                                                                         |
|                              | 9.4 l/min ... 1,884.9 l/min <sup>1)</sup>                                                        |
|                              | 0.5 m/s ... 100 m/s <sup>1)</sup>                                                                |
|                              | Enhanced                                                                                         |
|                              | 1,884.9 l/min ... 2,827.4 l/min <sup>1)</sup>                                                    |
|                              | 100 m/s ... 150 m/s <sup>1)</sup>                                                                |
| Process temperature          | -20 °C ... +60 °C                                                                                |
| Process pressure             | 0 bar ... 16 bar <sup>2)</sup>                                                                   |
| Communication interface      | IO-Link, IO-Link V1.1                                                                            |
| Temperature measurement      | ✓                                                                                                |
| Pressure measurement         | ✓                                                                                                |
| Display                      | ✓                                                                                                |
|                              | 128 x 128 pixels, adjustable rotary OLED display (90° steps) and 4 pushbuttons                   |

<sup>1)</sup> Reference conditions according to DIN 1343 (atmospheric pressure 1,013 mbar, compressed air temperature 0 °C).

<sup>2)</sup> Evaluation according to DIN EN 61298-2 best fit straight line.

## Performance

|                                |                                    |                                                                                                                    |
|--------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Measurement accuracy</b>    | Standard                           | $\pm 3\%$ of the measured value + 0.3% of the measuring range limit value (extended measuring range) <sup>1)</sup> |
|                                | Enhanced                           | $\pm 8\%$ of the measured value + 1% of the measuring range limit value (extended measuring range) <sup>1)</sup>   |
| <b>Repeatability</b>           |                                    | $\pm 1.5\%$ From measured value <sup>1)</sup>                                                                      |
| <b>Response time</b>           |                                    | < 0.3 s                                                                                                            |
| <b>Temperature measurement</b> |                                    |                                                                                                                    |
|                                | Measurement accuracy (temperature) | $\pm 2\text{ }^{\circ}\text{C}$ <sup>2)</sup>                                                                      |
|                                | Repeatability (temperature)        | $\pm 0.5\text{ }^{\circ}\text{C}$ <sup>2)</sup>                                                                    |
| <b>Pressure measurement</b>    |                                    |                                                                                                                    |
|                                | Measurement accuracy (pressure)    | $\pm 1.5\%$ of measuring range end value                                                                           |
|                                | Non-linearity (pressure)           | $\pm 0.5\%$ from measuring range                                                                                   |
|                                | Repeatability (pressure)           | $\pm 0.2\%$ from measuring range                                                                                   |

<sup>1)</sup> Reference conditions during measurement: media conditions: air according to ISO 8573-1:2010 [3:4:4] or better; static pressure =  $7 \pm 0.2$  bar (abs.); medium temperature  $22 \pm 3\text{ }^{\circ}\text{C}$ ; straight inlet zone > 250xDN; average filter can be parameterized by customer: 10 seconds / ambient conditions: ambient temperature  $15\text{ }^{\circ}\text{C}$  ...  $25\text{ }^{\circ}\text{C}$ ; ambient pressure: 1013 mbar / measured value via digital interface.

<sup>2)</sup> When flow rate  $\geq 10\%$  of the measuring range limit value (standard measuring range).

## Electronics

|                           |                                                                                                                                                                                                                               |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supply voltage</b>     | 17 V DC ... 30 V DC <sup>1)</sup>                                                                                                                                                                                             |
| <b>Power consumption</b>  | < 4.5 W at 24 V DC without output load                                                                                                                                                                                        |
| <b>Switch-on time</b>     | $\leq 10$ s                                                                                                                                                                                                                   |
| <b>Protection class</b>   | ✓                                                                                                                                                                                                                             |
| <b>Connection type</b>    | M12 x 1 round connector, 5-pin, A-coded                                                                                                                                                                                       |
| <b>Output signal</b>      | 1x analog output 4 mA ... 20 mA + 1x digital/analog output (PNP, NPN, push-pull, 4 mA ... 20 mA / switchable), frequency pulse output + 1x digital output (PNP, NPN, push-pull, switchable), IO-Link V1.1 (COM3 / 230K4 baud) |
| <b>Output load</b>        | 4 mA ... 20 mA, max. 500 ohm                                                                                                                                                                                                  |
| <b>Lower signal level</b> | 3.5 mA ... 3.8 mA                                                                                                                                                                                                             |
| <b>Upper signal level</b> | 20.5 mA ... 21.5 mA                                                                                                                                                                                                           |
| <b>Inaccuracy</b>         | QA Pin2: < 0.5% full-range (20 mA)<br>Q2 Pin5: < 0.5% full-range (20 mA)                                                                                                                                                      |
| <b>Digital output</b>     | $\leq 100$ mA                                                                                                                                                                                                                 |
| <b>Inductive load</b>     | $\leq 1$ H                                                                                                                                                                                                                    |
| <b>Capacitive load</b>    | $\leq 100$ nF (2.5 nF, IO-Link mode)                                                                                                                                                                                          |
| <b>Enclosure rating</b>   | IP65 (IEC 60529) <sup>2)</sup><br>IP67 (IEC 60529) <sup>2)</sup>                                                                                                                                                              |
| <b>MTTF</b>               | > 100 years                                                                                                                                                                                                                   |

<sup>1)</sup> All connections are reverse polarity and overload protected. Q1 and Q2 are short-circuit protected. Use an energy-limited circuit for the voltage supply as per UL61010-1 3. Outp.

<sup>2)</sup> Not UL-tested.

## Mechanics

|                           |                                              |
|---------------------------|----------------------------------------------|
| <b>Process connection</b> | G $\frac{3}{4}$ (according to DIN ISO 228-1) |
|---------------------------|----------------------------------------------|

|                         |                                                                                       |
|-------------------------|---------------------------------------------------------------------------------------|
| <b>Wetted parts</b>     | Probe: stainless steel 1.4305, PA6; seal: FKM (Viton®); measurement channel: aluminum |
| <b>Housing material</b> | PC+ABS, PA66+PA6I GF50, PC, TPE, stainless steel 1.4301                               |
| <b>Weight</b>           | Approx. 755 g                                                                         |

### Ambient data

|                                      |                                 |
|--------------------------------------|---------------------------------|
| <b>Ambient operating temperature</b> | -20 °C ... +60 °C <sup>1)</sup> |
| <b>Ambient temperature, storage</b>  | -40 °C ... +80 °C               |

<sup>1)</sup> According to the UL approval: degree of contamination 3 (UL61010-1: 2012-05); air humidity: 80% at temperatures up to 31 °C; installation altitude: max. 3,000 m above sea level.

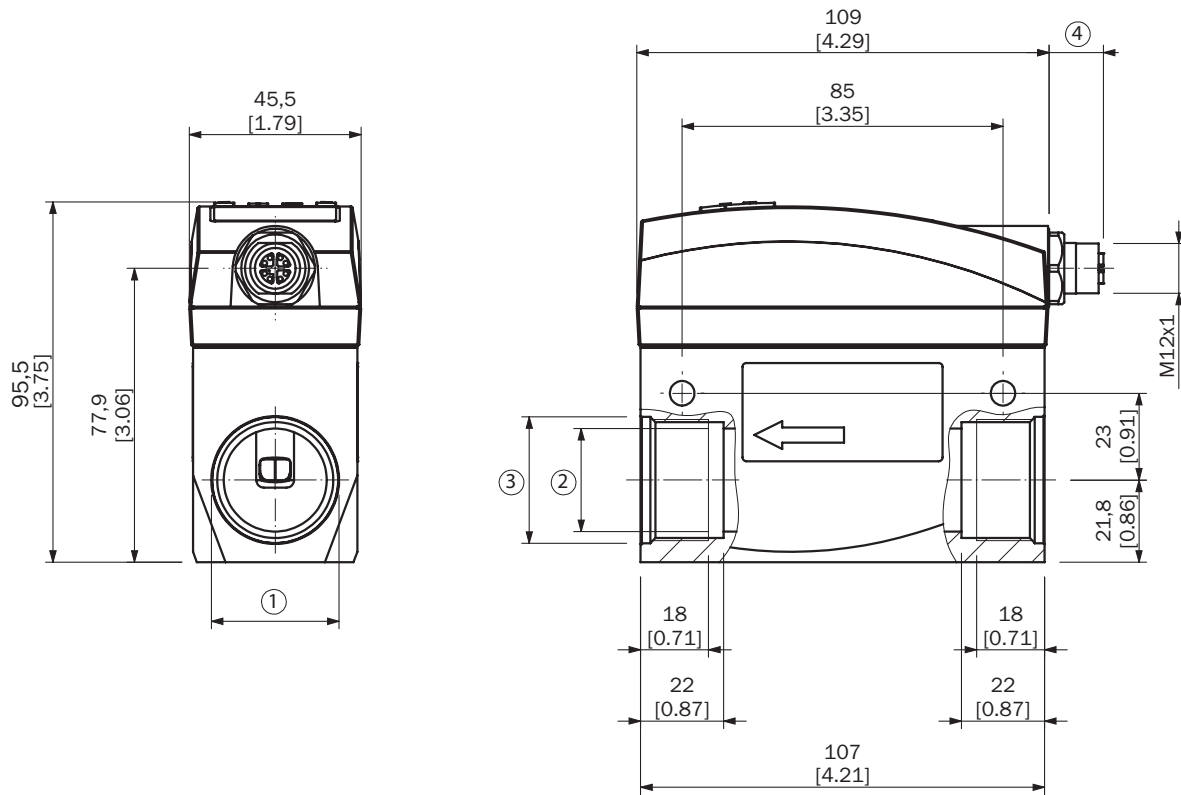
### Certificates

|                                                                              |   |
|------------------------------------------------------------------------------|---|
| <b>EU declaration of conformity</b>                                          | ✓ |
| <b>UK declaration of conformity</b>                                          | ✓ |
| <b>ACMA declaration of conformity</b>                                        | ✓ |
| <b>Moroccan declaration of conformity</b>                                    | ✓ |
| <b>China RoHS</b>                                                            | ✓ |
| <b>cULus certificate</b>                                                     | ✓ |
| <b>IO-Link certificate</b>                                                   | ✓ |
| <b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b> | ✓ |

### Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27200403 |
| <b>ECLASS 5.1.4</b>   | 27200403 |
| <b>ECLASS 6.0</b>     | 27200403 |
| <b>ECLASS 6.2</b>     | 27200403 |
| <b>ECLASS 7.0</b>     | 27200403 |
| <b>ECLASS 8.0</b>     | 27200403 |
| <b>ECLASS 8.1</b>     | 27200403 |
| <b>ECLASS 9.0</b>     | 27200403 |
| <b>ECLASS 10.0</b>    | 27200403 |
| <b>ECLASS 11.0</b>    | 27200403 |
| <b>ECLASS 12.0</b>    | 27200403 |
| <b>ETIM 5.0</b>       | EC002580 |
| <b>ETIM 6.0</b>       | EC002580 |
| <b>ETIM 7.0</b>       | EC002580 |
| <b>ETIM 8.0</b>       | EC002580 |
| <b>UNSPSC 16.0901</b> | 41112501 |

DN08, DN15, DN20, DN25; unit: mm (inch), decimal separator: period

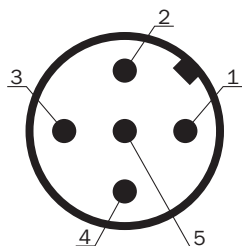


Dimensions in mm (inch)

| Type           | DN | 1     | 2               | 3               | 4           | 5           | 6           | 7           | 8           |
|----------------|----|-------|-----------------|-----------------|-------------|-------------|-------------|-------------|-------------|
| FT-MG-ISD08AXX | 08 | G 1/4 | Ø 8.8 (Ø 0.35)  | Ø 13.5 (Ø 0.53) | 18.5 (0.73) | 17.5 (0.69) | 20.3 (0.80) | 70.9 (2.79) | 88.5 (3.17) |
| FT-MG-ESD08AXX | 08 | G 1/4 | Ø 8.8 (Ø 0.35)  | Ø 13.5 (Ø 0.53) | 13.4 (0.53) | 17.5 (0.69) | 20.3 (0.80) | 70.9 (2.79) | 88.5 (3.17) |
| FT-MG-ISD08AXC | 08 | G 1/4 | Ø 8.8 (Ø 0.35)  | Ø 13.5 (Ø 0.53) | 18.5 (0.73) | 17.5 (0.69) | 20.3 (0.80) | 70.9 (2.79) | 88.5 (3.17) |
| FT-MG-ESD08AXC | 08 | G 1/4 | Ø 8.8 (Ø 0.35)  | Ø 13.5 (Ø 0.53) | 13.4 (0.53) | 17.5 (0.69) | 20.3 (0.80) | 70.9 (2.79) | 88.5 (3.17) |
| FT-MG-ISD15AXX | 15 | G 1/2 | Ø 16.1 (Ø 0.63) | Ø 20.0 (Ø 0.79) | 18.5 (0.73) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |
| FT-MG-ESD15AXX | 15 | G 1/2 | Ø 16.1 (Ø 0.63) | Ø 20.0 (Ø 0.79) | 13.4 (0.53) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |
| FT-MG-ISD15AXC | 15 | G 1/2 | Ø 16.1 (Ø 0.63) | Ø 20.0 (Ø 0.79) | 18.5 (0.73) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |
| FT-MG-ESD15AXC | 15 | G 1/2 | Ø 16.1 (Ø 0.63) | Ø 20.0 (Ø 0.79) | 13.4 (0.53) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |
| FT-MG-ISD20AXX | 20 | G 3/4 | Ø 21.7 (Ø 0.85) | Ø 27.5 (Ø 1.08) | 18.5 (0.73) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |
| FT-MG-ESD20AXX | 20 | G 3/4 | Ø 21.7 (Ø 0.85) | Ø 27.5 (Ø 1.08) | 13.4 (0.53) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |
| FT-MG-ISD20AXC | 20 | G 3/4 | Ø 21.7 (Ø 0.85) | Ø 27.5 (Ø 1.08) | 18.5 (0.73) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |
| FT-MG-ESD20AXC | 20 | G 3/4 | Ø 21.7 (Ø 0.85) | Ø 27.5 (Ø 1.08) | 13.4 (0.53) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |

| Type           | DN | 1   | 2               | 3               | 4           | 5           | 6           | 7           | 8           |
|----------------|----|-----|-----------------|-----------------|-------------|-------------|-------------|-------------|-------------|
| FT-MG-ISD25AXX | 25 | G 1 | Ø 27.3 (Ø 1.07) | Ø 33.5 (Ø 1.32) | 18.5 (0.73) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |
| FT-MG-ESD25AXX | 25 | G 1 | Ø 27.3 (Ø 1.07) | Ø 33.5 (Ø 1.32) | 13.4 (0.53) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |
| FT-MG-ISD25AXC | 25 | G 1 | Ø 27.3 (Ø 1.07) | Ø 33.5 (Ø 1.32) | 18.5 (0.73) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |
| FT-MG-ESD25AXC | 25 | G 1 | Ø 27.3 (Ø 1.07) | Ø 33.5 (Ø 1.32) | 13.4 (0.53) | 21.8 (0.86) | 23.0 (0.91) | 77.9 (3.06) | 95.5 (3.75) |

### Connection type



- ① L<sup>+</sup>: Supply voltage, brown
- ② QA: analog current output 4 mA ... 20 mA (scalable), white
- ③ M: ground, reference potential for current output, blue
- ④ C/Q1: IO-Link communication or digital switching output 1 (NO/NC programmable), black
- ⑤ Q2: Digital switching output 2 (NO/NC programmable or current output B 4 mA ... 20 mA, frequency or pulse output) gray

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is “Sensor Intelligence.”**

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)