



# FFUC20-1G1IO

FFU

FLOW SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type         | part no. |
|--------------|----------|
| FFUC20-1G1IO | 6049018  |

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

Detailed technical data

Features

|                              |                   |
|------------------------------|-------------------|
| Measurement principle        | Ultrasonic sensor |
| Medium                       | Fluids            |
| Nominal width measuring tube | DN 20             |
| Process temperature          | 0 °C ... +80 °C   |
| Process pressure             | ≤ 10 bar          |
| Communication interface      | -                 |

Performance

|                         |                                                                                                       |
|-------------------------|-------------------------------------------------------------------------------------------------------|
| Minimum flow            | ≥ 3.5 l/min <sup>1)</sup>                                                                             |
| Maximum flow            | ≤ 60 l/min                                                                                            |
| Inlet zone              | 40 cm                                                                                                 |
| Output zone             | 10 cm                                                                                                 |
| Conductivity            | No limitation                                                                                         |
| Measurement accuracy    | ± 1 % of measured value +/- 0.15% of measuring range limit value (with calibration log) <sup>2)</sup> |
| Repeatability           | ≤ 0.5 %                                                                                               |
| Resolution              | 0.012 l/min                                                                                           |
| Response time           | 100 ms <sup>3)</sup><br>300 ms <sup>3)</sup><br>1 s <sup>3)</sup><br>4.2 s <sup>3)</sup>              |
| Calibration certificate | ✓                                                                                                     |

<sup>1)</sup> At constant flow rate.  
<sup>2)</sup> Reference condition: Water, zero gas, measuring tube completely full, no cavitation, temperature of medium 20 °C, ambient temperature 20 °C ... 25 °C, compliance with inlet and outlet zones, warm-up time for electronics: 30 min.  
<sup>3)</sup> Analog output and display.

## Electronics

|                                |                                                                                                                                                                                                                                                          |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supply voltage</b>          | 18 V DC ... 30 V DC <sup>1)</sup>                                                                                                                                                                                                                        |
| <b>Residual ripple</b>         | $\leq 5 V_{pp}$ <sup>2)</sup>                                                                                                                                                                                                                            |
| <b>Power consumption</b>       | $\leq 180 \text{ mA}$ <sup>3)</sup>                                                                                                                                                                                                                      |
| <b>Switch-on time</b>          | $\leq 5 \text{ s}$                                                                                                                                                                                                                                       |
| <b>Protection class</b>        | ✓                                                                                                                                                                                                                                                        |
| <b>Connection type</b>         | Round connector M12 x 1, 5-pin                                                                                                                                                                                                                           |
| <b>Output signal</b>           | Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature <sup>1)</sup><br>1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type) |
| <b>Output current</b>          | $< 100 \text{ mA}$ <sup>4)</sup>                                                                                                                                                                                                                         |
| <b>Output load</b>             | $< 500 \text{ Ohm}$                                                                                                                                                                                                                                      |
| <b>Lower signal level</b>      | 3.8 mA ... 4 mA                                                                                                                                                                                                                                          |
| <b>Upper signal level</b>      | 20 mA ... 20.5 mA                                                                                                                                                                                                                                        |
| <b>Impuls/frequency output</b> | 0 kHz ... 10 kHz                                                                                                                                                                                                                                         |
| <b>Puls width</b>              | $\leq 1 \text{ s}$                                                                                                                                                                                                                                       |
| <b>Inductive load</b>          | 1 H                                                                                                                                                                                                                                                      |
| <b>Capacitive load</b>         | 100 nF                                                                                                                                                                                                                                                   |
| <b>Enclosure rating</b>        | IP67                                                                                                                                                                                                                                                     |

<sup>1)</sup> All connections are polarity protected. All outputs are overload and short-circuit protected.

<sup>2)</sup> May not fall below or exceed  $U_y$  tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> There are 100 mA for each output PNP and NPN available.

## Mechanics

|                           |              |
|---------------------------|--------------|
| <b>Process connection</b> | G 1          |
| <b>Wetted parts</b>       | PPSU<br>EPDM |
| <b>Housing material</b>   | PPSU         |
| <b>Weight</b>             | 420 g        |

## Ambient data

|                                      |                   |
|--------------------------------------|-------------------|
| <b>Ambient operating temperature</b> | 0 °C ... +60 °C   |
| <b>Ambient temperature, storage</b>  | -20 °C ... +70 °C |

## Certificates

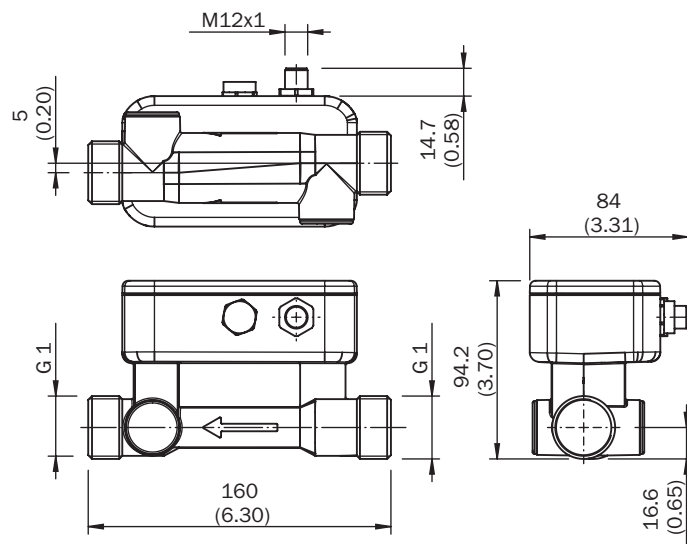
|                                       |   |
|---------------------------------------|---|
| <b>EU declaration of conformity</b>   | ✓ |
| <b>UK declaration of conformity</b>   | ✓ |
| <b>ACMA declaration of conformity</b> | ✓ |
| <b>China RoHS</b>                     | ✓ |

## Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27200412 |
| <b>ECLASS 5.1.4</b> | 27200412 |
| <b>ECLASS 6.0</b>   | 27200412 |

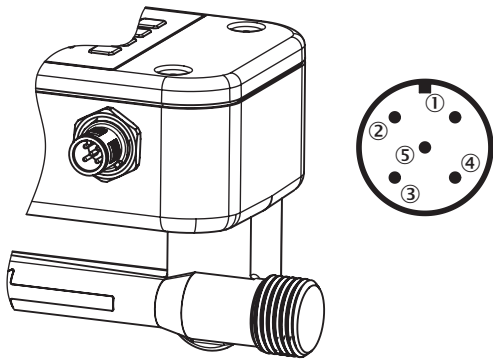
|                       |          |
|-----------------------|----------|
| <b>ECLASS 6.2</b>     | 27200412 |
| <b>ECLASS 7.0</b>     | 27200412 |
| <b>ECLASS 8.0</b>     | 27200412 |
| <b>ECLASS 8.1</b>     | 27200412 |
| <b>ECLASS 9.0</b>     | 27200412 |
| <b>ECLASS 10.0</b>    | 27200412 |
| <b>ECLASS 11.0</b>    | 27200412 |
| <b>ECLASS 12.0</b>    | 27200412 |
| <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 |

### Dimensional drawing DN 20, G 1



Dimensions in mm (inch)

## Connection type



- ①  $L^+$ : Supply voltage
- ②  $Q_1$ : Digital output PNP/NPN
- ③ M: Ground
- ④ C: Communication
- ⑤  $Q_A$ : Analog current output

## 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)