



Flow sensors  
Ultrasonic flowmeter

FFUS20-1C110



**Model Name** > **FFUS20-1C110**  
**Part No.** > **6049061**



*Illustration may differ*

**At a glance**

- Flow sensor for conductive and non-conductive liquids
- Compact design with no moving parts
- Process temperature up to 80 °C, process pressure up to 16 bar
- High chemical resistance due to seal-free sensor design
- Large display with membrane keyboard
- Integrated teaching tube detection

**Your benefits**

- Reduced maintenance costs
- Adjustable measuring ranges reduces the number of variants
- Ability to be used with conductive and non-conductive liquids reduces variants and lowers storage costs
- Straight measuring tube reduces pressure loss, thus reducing energy costs
- Sensor without seals increases process reliability and availability
- Flexible measurement system for all industries



**Features**

Medium:	Fluids
Nominal width measuring tube:	NW 20
Process temperature:	0 °C ... +80 °C
Process pressure:	Max. 10 bar

**Performance**

Minimum flow:	3.5 l/min
Maximum flow:	60 l/min
Inlet zone:	50 cm
Outlet zone:	10 cm
Conductivity:	No limitation
Accuracy of sensor element:	2 % (of final value) <sup>1)</sup>
Repeatability:	≤ 0.5 %
Resolution:	0.012 l/min

<sup>1)</sup> Reference condition: water, gas-free, fully-filled measuring tube, no cavitation, Medium temperature 20 °C, ambient temperature 20 °C ... 25 °C, compliance with the inlet zone and outlet zone, warm-up time electronic: 30 min

## Mechanical data

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Process connection:	Clamp (DIN 11864-3)
Wetted parts:	PSU
Housing material:	PSU
Weight:	420 g
Enclosure rating:	IP 67

## Electrical data

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Supply voltage:	18 V DC ... 30 V DC <sup>1)</sup>
Residual ripple:	$\leq 5$ Vpp <sup>2)</sup>
Power consumption:	$\leq 180$ mA <sup>3)</sup>
Initialization time:	$\leq 5$ s
Protection class:	III
Electrical connection:	Round connector M12 x 1, 5-pin
Output signal:	Analog output: 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature 1 pulse/status output: transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (depending on type)
Impuls/frequency output:	0 kHz ... 10 kHz
Puls width:	$\leq 1$ s
Signal voltage HIGH:	Vs - 2 V
Signal voltage LOW:	$\leq 2$ V
Output current:	$< 100$ mA <sup>5)</sup>
Inductive load:	1 H
Capacitive load:	100 nF
Response time:	Filter off 100 ms, filter low 300 ms, filter medium 1 s, filter strong 4.2 s <sup>6)</sup>
Output load:	$< 500$ Ohm
Lower signal level:	3.8 mA ... 4 mA
Upper signal level:	20 mA ... 20.5 mA

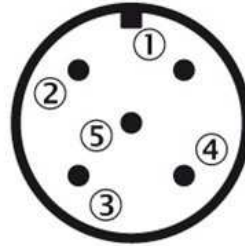
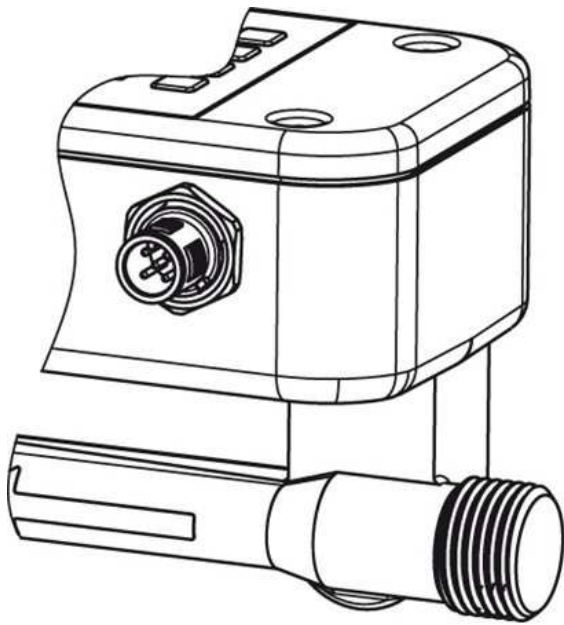
<sup>1) 4)</sup> All connections are polarity protected. All outputs are overload and short-circuit protected. <sup>2)</sup> May not exceed or fall below  $U_v$  tolerances <sup>3)</sup> Without load <sup>5)</sup> There are 100 mA for each output pnp and npn available. <sup>6)</sup> Analog output and display

## Ambient data

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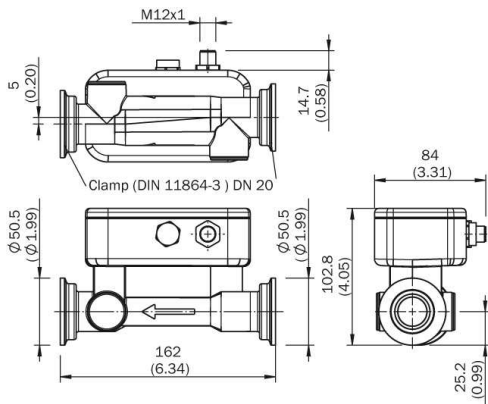
Ambient temperature operation:	0 °C ... +60 °C
Ambient storage temperature:	-20 °C ... +70 °C

## Connection type



- |1| L+: Supply voltage
- |2| Q1: Digital output PNP/NPN
- |3| M: Ground
- |4| C/Q1: With IO-Link: Communication/ switching output 1
- |5| QA: Analog current output

## Dimensional drawing



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