



## FFU

Non-contact flow measurement

FLOW SENSORS

**SICK**  
Sensor Intelligence.



### Technical data overview

<b>Measurement principle</b>	Ultrasonic sensor
<b>Medium</b>	Fluids
<b>Output signal</b>	<p>Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type) <sup>1)</sup></p> <p>Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature2 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring1 switching input for dosing and counter reset <sup>1)</sup></p> <p>Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)1 switching input for dosing and counter reset <sup>1)</sup></p>
<b>Nominal width measuring tube</b>	DN 10 DN 15 DN 20 DN 25 DN 32 DN 40 DN 50 (depending on type)
<b>Maximum adjustable measuring range</b>	0 l/min ... 900 l/min (depending on type)

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

### Product description

The non-contact FFU ultrasonic flowmeter detects the flow volume of conductive and non-conductive liquids. Swimming against the current requires more strength than with the current – this is the simple fact on which ultrasonic flow measurement according to the phase difference process is based. Its compact design enables the device to be used in a wide range of applications, including those with limited space. This sensor with an enclosure rating of IP67 features a seal-free sensor design with high-quality polysulfone (Ultrason S), which not only makes it possible to use the device in harsh ambient conditions, but also ensures high process reliability. The large cleartext display also helps provide simple, fast, and hassle-free commissioning.

### 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 empty tube detection

### Your benefits

- Maintenance-free flow sensor; reduces maintenance costs
- Adjustable measuring ranges, reduced number of variants
- Can be used for conductive and non-conductive liquids, reducing both the number of variants and storage costs
- Straight measuring tube reduces pressure loss, thus reducing energy costs
- Sensor without seals increases process reliability and availability
- Flexible measuring device for all industries

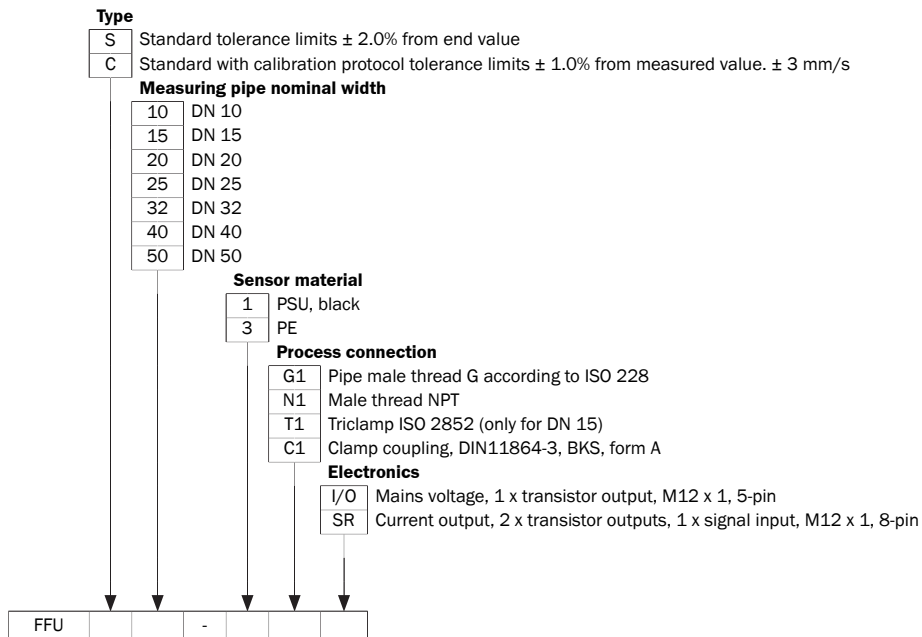
## Fields of application

- Flow measurement in cooling circuits
- Flow monitoring in rinsing circuits with demineralized water
- Flow control in rinsing systems
- Use in CIP systems

## Type code

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

### Type code



Not all variants of the type code can be combined!

## Ordering information

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

- **Nominal width measuring tube:** DN 10
- **Maximum flow:** ≤ 21 l/min
- **Wetted parts:** PPSU, EPDM
- **Process temperature:** 0 °C ... +80 °C
- **Process pressure:** ≤ 16 bar

Process connection	Output signal	Type	Part no.
Clamp (DIN 11864-3)	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	FFUC10-1C1IO	6051498
		FFUS10-1C1IO	6049101
	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 2 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, 1 switching input for dosing and counter reset	FFUC10-1C1SR	6053120
		FFUS10-1C1SR	6066448
G ½	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	FFUC10-1G1IO	6049016
		FFUS10-1G1IO	6041737
	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 2 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, 1 switching input for dosing and counter reset	FFUC10-1G1SR	6052236
		FFUS10-1G1SR	6043743
½" NPT	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	FFUC10-1N1IO	6058261
		FFUS10-1N1IO	6047868
	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 2 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, 1 switching input for dosing and counter reset	FFUS10-1N1SR	6050786

- **Nominal width measuring tube:** DN 15
- **Maximum flow:** ≤ 36 l/min
- **Wetted parts:** PPSU, EPDM
- **Process temperature:** 0 °C ... +80 °C
- **Process pressure:** ≤ 16 bar

Process connection	Output signal	Type	Part no.
Clamp (DIN 11864-3)	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	FFUS15-1C1IO	6045162
		FFUC15-1C1SR	6050189
	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 2 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, 1 switching input for dosing and counter reset	FFUS15-1C1SR	6066449

Process connection	Output signal	Type	Part no.
G 3/4	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	FFUC15-1G1IO	6049017
		FFUS15-1G1IO	6041249
	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 2 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, 1 switching input for dosing and counter reset	FFUC15-1G1SR	6052237
		FFUS15-1G1SR	6043744
3/4" NPT	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	FFUS15-1N1IO	6047869
		FFUS15-1N1SR	6060235

- **Nominal width measuring tube:** DN 20
- **Maximum flow:** ≤ 60 l/min
- **Wetted parts:** PPSU, EPDM
- **Process temperature:** 0 °C ... +80 °C
- **Process pressure:** ≤ 10 bar

Process connection	Output signal	Type	Part no.
1" NPT	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	FFUC20-1N1IO	6058038
		FFUS20-1N1IO	6047870
	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 2 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, 1 switching input for dosing and counter reset	FFUS20-1N1SR	6058219
Clamp (DIN 11864-3)	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	FFUS20-1C1IO	6049061
		FFUC20-1C1SR	6053121
	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 2 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, 1 switching input for dosing and counter reset	FFUS20-1C1SR	6059009
G 1	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	FFUC20-1G1IO	6049018
		FFUS20-1G1IO	6041738
	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 2 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, 1 switching input for dosing and counter reset	FFUC20-1G1SR	6052238
		FFUS20-1G1SR	6043745

- **Nominal width measuring tube:** DN 25
- **Process pressure:** ≤ 10 bar

Maximum flow	Wetted parts	Process connection	Output signal	Process temperature	Type	Part no.	
≤ 180 l/min	HDPE (polyethylene), EPDM	GF connection G 1 ½	Analog output 4 mA ... 20 mA,	0 °C ... +50 °C	FFUC25-3G110	6075523	
≤ 240 l/min	PPSU, EPDM	1 ¼" NPT	0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	0 °C ... +80 °C	FFUC25-1N110	6054505	
					FFUS25-1N110	6044996	
				0 °C ... +80 °C	FFUC25-1N1SR	6056879	
					FFUS25-1N1SR	6049566	
		Clamp (DIN 11864-3)	0 °C ... +80 °C	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	FFUS25-1C110	6044523	
					0 °C ... +80 °C	FFUC25-1C1SR	6050188
						FFUS25-1C1SR	6052255
					G 1 ¼	0 °C ... +80 °C	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)
FFUS25-1G110	6041739						

- **Nominal width measuring tube:** DN 32
- **Maximum flow:** ≤ 300 l/min
- **Wetted parts:** HDPE (polyethylene), EPDM

Process connection	Output signal	Process temperature	Process pressure	Type	Part no.
GF connection G 2	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type)	0 °C ... +50 °C	≤ 10 bar	FFUC32-3G1I0	6072918

- **Nominal width measuring tube:** DN 40
- **Maximum flow:** ≤ 480 l/min
- **Wetted parts:** HDPE (polyethylene), EPDM

Process connection	Output signal	Process temperature	Process pressure	Type	Part no.
GF connection G 2 ¼	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type), 1 switching input for dosing and counter reset	0 °C ... +50 °C	≤ 10 bar	FFUC40-3G1I0	6072919

- **Nominal width measuring tube:** DN 50
- **Maximum flow:** ≤ 900 l/min
- **Wetted parts:** HDPE (polyethylene), EPDM

Process connection	Output signal	Process temperature	Process pressure	Type	Part no.
GF connection G 2 ¾	Analog output 4 mA ... 20 mA, 0 mA ... 20 mA current flow and temperature, 1 pulse/status output PNP/NPN-transistor output for flow rate meter, empty pipe detection, flow monitoring, dosing output, flow direction (dependent on type), 1 switching input for dosing and counter reset	0 °C ... +50 °C	≤ 10 bar	FFUC50-3G1I0	6072920

## 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)