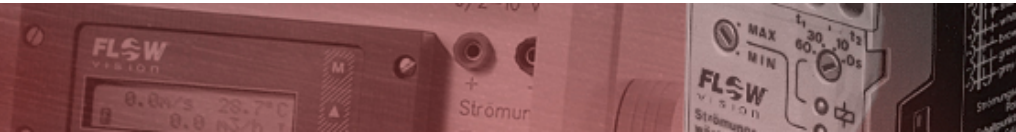


Flow | Velocity | Sensors



1. Overview
2. Technology - Details



Flow Meter FC50

1. Overview

heavy duty

- established housing (the same as FS10 and FS20)
- All parts in contact with fluid made from stainless steel
- Extremely durable



compact

- 4...20 mA analogue output signal, Power-FET switching output signal, 10 x LED bar in a very small housing – probably unique on the market



Flow Meter FC50

1. Overview

cost-effective

- Very good cost-to-benefit ratio due to state-of-the-art technology

easy to handle

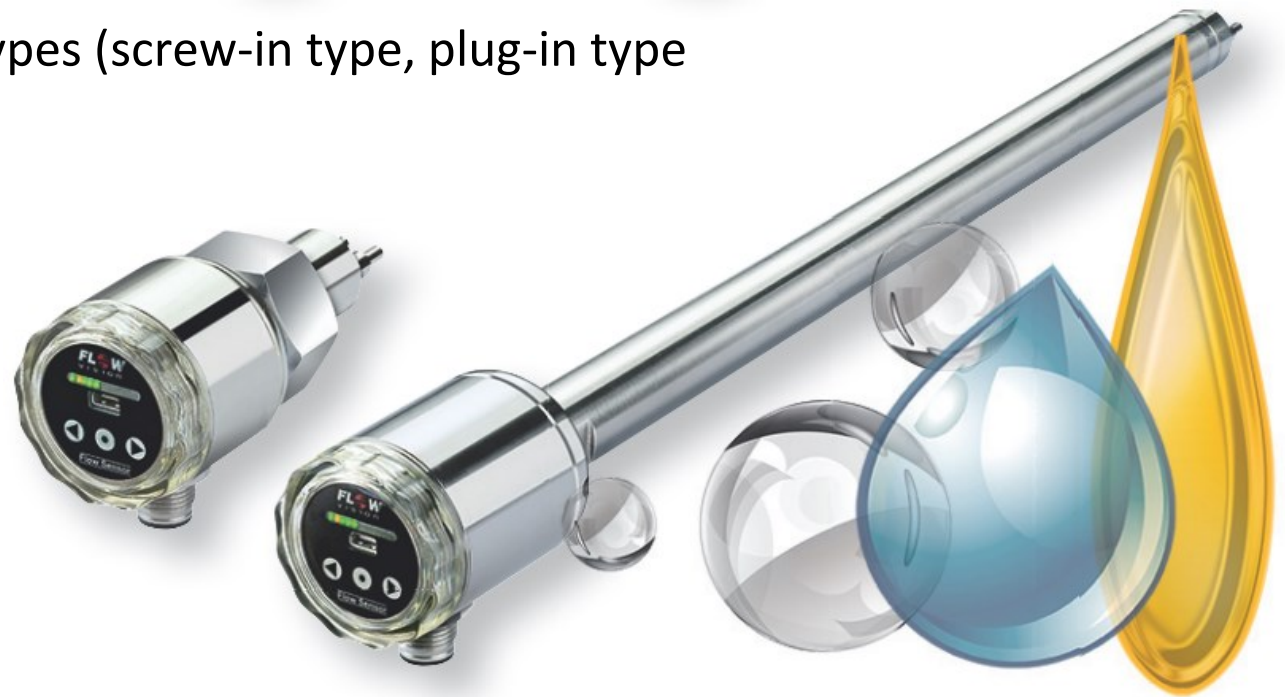
- Easy installation – e.g. plug-in type in combination with sensor adapter TP
- Fast configuration due to 10 predefined switching points
- High illuminated display of the measured value via the 10 x LED bar
- Intuitive operation and handling with 3 buttons



1. Overview

versatile

- Suitable for air, water, oil and further special fluids
- Designed for applications in pipes from 15 mm (½“) up to > 1000 mm (40“)
- Totally made from stainless steel 1.4571 (AISI 316 Ti) as standard, special materials as titanium or Hastelloy are available on request
- Three process connection types (screw-in type, plug-in type and push-in type)



Flow Meter FC50

2. Technology - Details

Operating voltage

- 24 V DC (18 ... 32 V)

4...20 mA analogue output signal

- **12 bit resolution** => 4096 steps (4 μ A/step), max. load 500 Ω
- 4 mA $\hat{=}$ 0 m/s, 20 mA $\hat{=}$ operating range final value

Switching output ($\hat{=}$ FS10)

- Power FET, High Side Switch, short circuit proof
- max. load 500 mA, inductive load max. 100 mA

Calibration ($\hat{=}$ FC01/FC100)

- Calibration reference: turbine-type flow meter (in air)
- Punctual flow speed measurement (no volume flow measurement)



Flow Meter FC50

2. Technology - Details

LED bar

- **10 x LED bar** which shows the actual measured flow speed
- Every LED represents 10 % of the operating range
- **Clear indication**, whether the switching point is exceeded or not:
green bar („good/o.k.“) or red bar („warning/bad“)
- Indication of the set switching point:
orange („good“) or red blinking („bad“)



„bad“

„good“



2. Technology - Details

Operation

- The ◀ and ▶ buttons are used for setting a predefined switching point. The operator **can set the switching point** to 5 %, 15 %, 25 %, ..., 85 % and 95 % of the operating range **regardless of the actual flow speed**.
- The actual measured value can be set as switching point by the ● button
- The **buttons can be locked** by pressing ● for at least five seconds. If the ● button is pressed again for at least five seconds the keyboard will be released.



2. Technology - Details

Measuring range and operating range (\triangleq FC01/FC100)

- air \rightarrow measuring range (operating range): 0 ... 20 m/s (0 ... 100 m/s)
- water \rightarrow measuring range (operating range): 0 ... 3 m/s (0 ... 4 m/s)

Accuracy (\approx FC01/FC100)

- air (0 ... 20 m/s):
 $\pm 2\%$ of measured value $\pm 2\%$ of measuring range final value
- water (0 ... 2 m/s):
 $\pm 1\%$ of measured value $\pm 3\%$ of measuring range final value
- water (2 ... 3 m/s):
 $\pm 8\%$ of measuring range final value



Flow Meter FC50

2. Technology - Details

Response delay (\triangleq FS10/20)

Delay measured after a sudden complete stop with the switching point set to 50% of the previously measured flow speed:

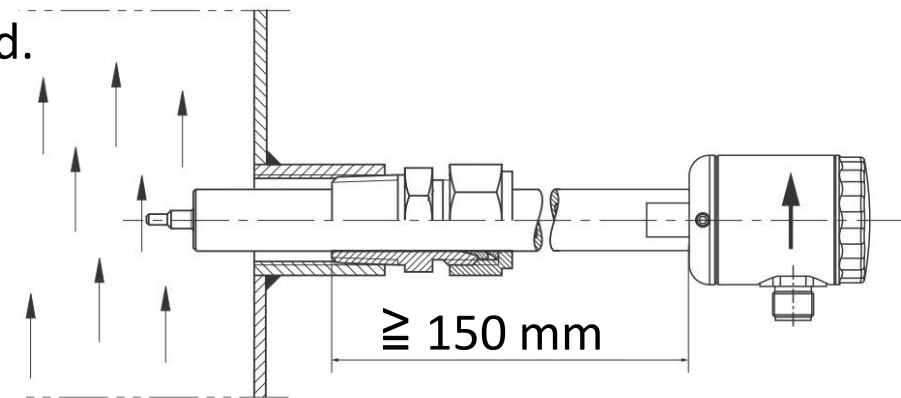
- air \rightarrow ca. 8 s
- water \rightarrow ca. 2 s
- oil \rightarrow ca. 5 s



2. Technology - Details

Temperature range (\approx FS10/20)

- ambience \rightarrow $-25 \dots 65 \text{ }^\circ\text{C}$
- fluid \rightarrow $-25 \dots 100 \text{ }^\circ\text{C}$
- The FC50...00... (push-in type) features an extended **temperature range up to $130 \text{ }^\circ\text{C}$ / $266 \text{ }^\circ\text{F}$** which is only allowed with a minimum distance of 15 cm (5.91 in) between electronic housing and fluid. In this case the max. ambient temperature must not exceed $50 \text{ }^\circ\text{C}$ ($122 \text{ }^\circ\text{F}$)
- **Protective shut-down** \rightarrow If the flow meter detects a fluid temperature of more than $130 \text{ }^\circ\text{C}$ ($266 \text{ }^\circ\text{F}$) the measurement will be paused.



Flow Meter FC50

2. Technology - Details

Temperature drift

- air $\rightarrow \pm 0,5 \%$ of measured value/ $^{\circ}\text{C}$ (twice as good as FS10/20)
- water $\rightarrow \pm 1 \%$ of measured value/ $^{\circ}\text{C}$

Mechanics

- Screw-in type (FC50...01...)
- Plug-in type (FC50...11...)
- Push-in type (FC50...00...)



Cable

- New cable type 25 – 5m (standard length)
- M12x1, 4-pole (24 V, GND, switching output, analogue output)

