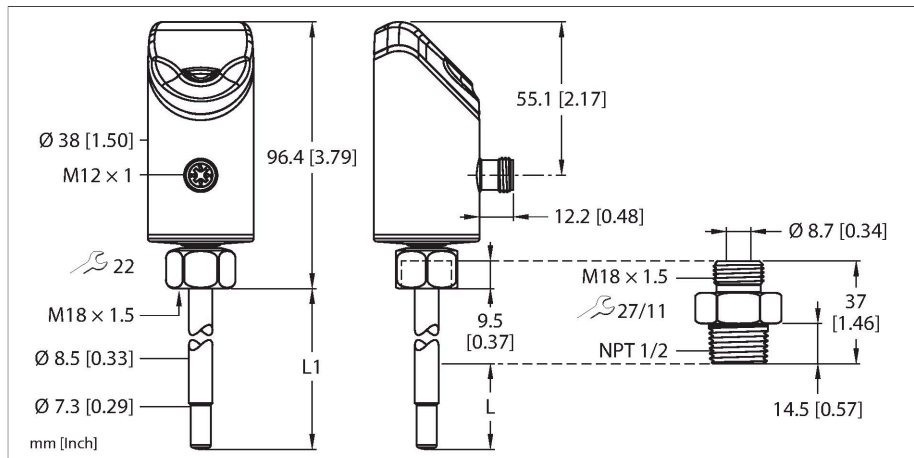


FS100-300L-58-2LI-H1141

Flow Sensor



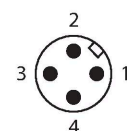
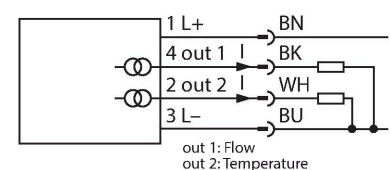
Technical data

| | |
|-------------------------------|---|
| Type | FS100-300L-58-2LI-H1141 |
| ID | 100029676 |
| Medium temperature | -25...+85 °C |
| Application area | |
| Mounting conditions | Immersion sensor |
| Application area | liquids |
| Bar length (L1) | 93 mm |
| Immersion depth (L) | 64.9 mm, When using the supplied adapter |
| Pressure resistance | 300 bar |
| Flow Monitoring | |
| Standard flow range | 3...300 cm/s |
| | Any axial alignment of the sensor rod in the medium |
| Extended flow range | 1...300 cm/s |
| Extended flow range comment | Directed inflow to punch mark ±20 ° |
| Reproducibility | 0.2...5 cm/s ; for water 3...100 cm/s; 10...80 °C |
| Response time T09 | 6 s |
| Response time T05 | 3 s |
| Temperature drift | 0.5 cm/s × 1/K |
| Temperature gradient | ≤ 300 K/min |
| Temperature monitoring | |
| Measuring range | -25...85 °C |
| Switching point accuracy | ± 2 K; for water >3 cm/s |
| Reproducibility | ≤ 0.5 K |
| Resolution | 0.5 K |
| Response time T09 | 12 s |

Features

- Screw-in adapter with process connection NPT 1/2" male thread included in delivery
- Electronics housing material/medium contact 1.4404 (316L)/1.4571 (316Ti)
- Immersion depth 64.9 mm
- Process value display with bar graph
- Flow monitoring for liquid media
- Protection classes IP66, IP67 and IP69K
- Adjustment of flow speed via teach function
- 17...33 VDC
- Analog output 4...20 mA
- M12 × 1 male connector

Wiring diagram



Functional principle

The flow sensor functions according to the calorimetric principle. The distinctive feature of this principle is that the flow rate correlates directly to the thermal loss of energy in the probe. The increased loss of energy is therefore a direct measure of an increased flow rate.

Technical data

| | |
|---|---|
| Response time T05 | 3 s |
| Electrical data | |
| Operating voltage U _B | 17...33 VDC |
| Short-circuit/reverse polarity protection | yes |
| Power consumption | ≤ 3 W, Typ. 1.3 W |
| Overload protection | Yes |
| Insulation class | III |
| Standby delay time | 18...30 s |
| Outputs | |
| Output 1 | Flow: Analog (non-linear) |
| Output 2 | Temperature: Analog |
| Output function | Analog output |
| Current output | 4...20 mA |
| Current output note | 4...20 mA corresponds to -40...180 °C |
| Load resistance current output | ≤ 0.5 kΩ |
| Mechanical data | |
| Housing material | Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultradid A3X2G5 |
| Adapter material | Stainless steel 1.4571 (316Ti) |
| Materials (contact with media) | Stainless steel 1.4571 (AISI 316Ti), FKM O-ring |
| Process connection | 1/2" NPT male thread |
| Process connection sensor | M18 x 1.5 female thread |
| Process connection adapter | M18 x 1.5 male thread; 1/2" NPT male thread |
| Electrical connection | Connector, M12 x 1 |
| Protection class | IP66 IP67 IP69K |
| Electromagnetic compatibility (EMC) | DIN EN 61326-2-3: 2007 |
| Environmental conditions | |
| Ambient temperature | -40...+80 °C (UL: -25...+80 °C) |
| Storage temperature | -40...+80 °C |
| Shock resistance | 50 g (11 ms) DIN EN 60068-2-27 |
| Vibration resistance | 20 g (55...2000 Hz) DIN EN 60068-2-6 |
| Tests/approvals | |
| Approvals | CE cULus |
| UL registration number | E516036 |
| Display | LED display functions for status of supply voltage and teach processes. Process indicators via bar graph. |

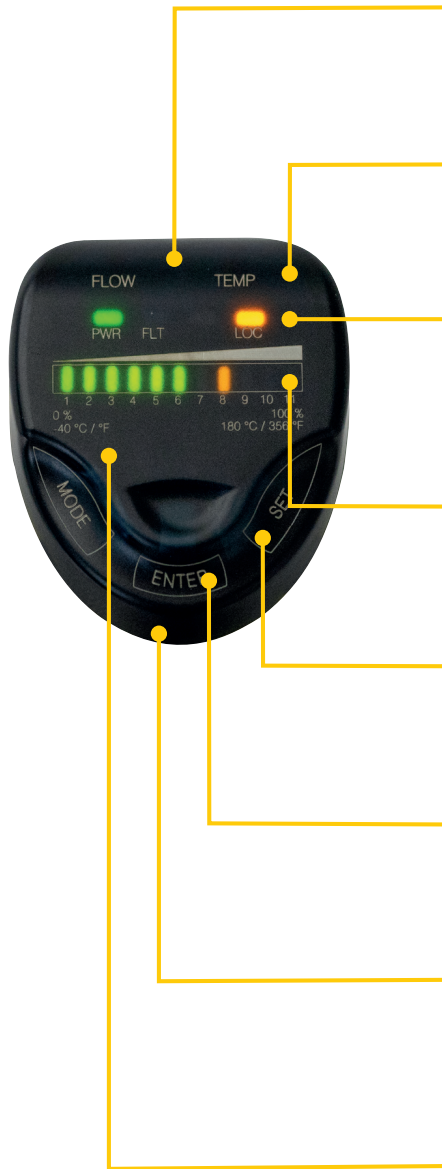
Technical data

MTTF

120 years acc. to SN 29500 (Ed. 99) 40 °C

Mounting instructions

Product features



Inclined display

The user interface is tilted by 45°, offering a high level of comfort when operating and reading values.

FLOW and TEMP LEDs

Two LED displays which are visible from almost all directions indicate the status of the outputs and the active teach mode.

Status LEDs

Additional LED displays provide information about the status of the power supply, faults and the locking function and—if available—IO-Link communication.

Process value display

The generous 11-segment bicolor LED bar displays either the flow or temperature values in an easy-to-read manner.

Label

The translucent front cap and the metal housing are scratch-resistant and are inscribed in a contrasting color using a laser.

MODE, ENTER and SET

Touch pads allow menus to be navigated reliably — without wear and tear and with no need for additional sealing.

Alignment

The sensor head can be freely rotated within a range of 340°, simplifying the alignment of the electrical connection and user interface following installation.

Translucent front cap

The front cap is made from scratch-resistant, temperature-resistant, translucent plastic.

Modular Concept

The portfolio exhibits a variable and modular mechanical concept. The neutral M18 coupling nut on the sensor and the various screw-in adapters allow a variable process connection based on the usage requirements. Fast and flexible thanks to using neutral stock and spare parts as required.

Temperature measurement

Based on the calorimetric principle, the sensor also offers the option, in addition to monitoring the flow rate, of measuring the medium temperature. If in addition to the flow rate the medium temperature is also important, both process variables can be determined and evaluated independently of each other.

DeltaFlow

The implemented DeltaFlow monitoring supports error-free teaching by only enabling all teach processes once the flow rate to be monitored has settled at a constant level.

Programmable NO/NC

The switching outputs can optionally be used as normally open or normally closed. If the sensors have more than one switching output, these can be configured differently. Each switching output is configured as normally open by default.

Back to pre- and factory settings

Both Back to functions offer the option of resetting the current settings. Back to Pre-Settings replaces the current settings with the previous settings. Back to Factory Settings resets the sensor to the factory settings.

Lock function (Loc/unLoc)

The touch buttons can be locked/unlocked. When the key lock is activated, a teach-in process cannot be initiated. This prevents parameters from being modified accidentally, for example.

Teach functions (Quick and MAX/MIN)

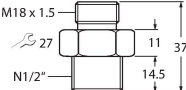
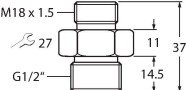
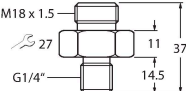
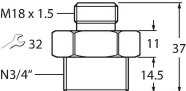
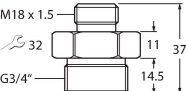
Quick Teach allows quick teaching in of the switchpoint without teaching in a separate MAX/MIN range. With MAX/MIN Teach on the other hand, the flow range to be monitored is scaled to two limit values to be taught and the switchpoint is set within these two limits. Sensors with a switching output have both modes, whereas sensors without a switching output only have MAX/MIN Teach.

LED display

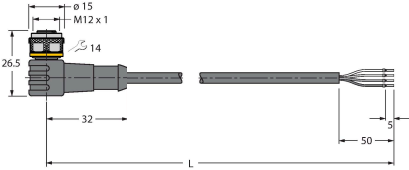
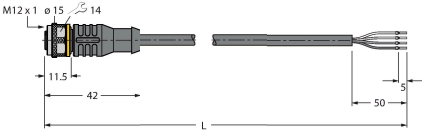
| LED | Color | Status | Description |
|------|--------|----------|--|
| PWR | Green | On | Operating voltage applied Device is operational |
| FLT | Red | On | Error displayed (for error pattern in combination with LEDs see manual) |
| | | Off | No errors displayed |
| LOC | Yellow | On | Device locked |
| | | Off | Device unlocked |
| | | Flashing | Locking/unlocking process active |
| FLOW | Yellow | Flashing | Teach mode/display of diagnostic data (see manual for specification) |
| TEMP | Yellow | Flashing | Teach mode/display of diagnostic data (see manual for specification) |

For a detailed description of the display patterns and flashing codes see manual/operating instructions FS100 — compact flow sensors (D100002658)

Accessories

| | | | | | |
|--|-----------|---|---|-----------|---|
| FAA-A1-1.4571 | 100001987 | Screw-in adapter for immersion sensors from the series FS.. , FP..; material: Stainless steel 1.4571 (316Ti); process connection: N1/2" | FAA-80-1.4571 | 100001988 | Screw-in adapter for immersion sensors from the series FS.. , FP..; material: Stainless steel 1.4571 (316Ti); process connection: G1/2" |
|  | | |  | | |
| FAA-04-1.4571 | 100001989 | Screw-in adapter for immersion sensors from the series FS.. , FP..; material: Stainless steel 1.4571 (316Ti); process connection: G1/4" | FAA-34-1.4571 | 100001990 | Screw-in adapter for immersion sensors from the series FS.. , FP..; material: Stainless steel 1.4571 (316Ti); process connection: N3/4" |
|  | | |  | | |
| FAA-81-1.4571 | 100001991 | Screw-in adapter for immersion sensors from the series FS.. , FP..; material: Stainless steel 1.4571 (316Ti); process connection: G3/4" | | | |
|  | | | | | |

Accessories

| Dimension drawing | Type | ID | |
|---|---------------|---------|---|
|  | WKC4.4T-2/TEL | 6625025 | Connection cable, M12 female connector, angled, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval |
|  | RKC4.4T-2/TEL | 6625013 | Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval |