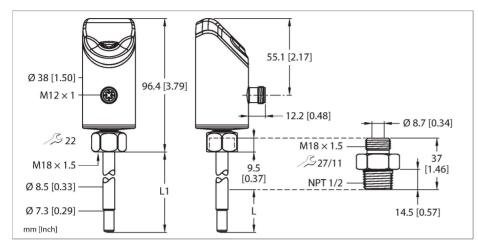


FS100-300L-16-2UPN8-H1141 Flow Sensor





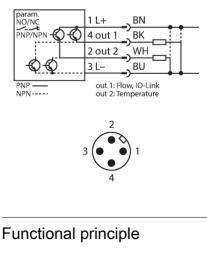
Technical data

Туре	FS100-300L-16-2UPN8-H1141	
ID	100001007	
Medium temperature	-25+85 °C	
Application area		
Mounting	Immersion sensor	
Application area	liquids	
Bar length (L1)	45 mm	
Immersion depth (L)	16.9 mm, When using the supplied adapter	
Process Pressure	300 bar	
Flow Monitoring		
Standard flow range	3300 cm/s	
	Any axial alignment of the sensor rod in the medium	
Extended flow range	1300 cm/s	
Extended flow range comment	Directed inflow to punch mark ±20 $^\circ$	
Switching point accuracy	130 cm/s; for water 3300 cm/s	
Reproducibility	0.25 cm/s ; for water 3100 cm/s; 1080 °C	
Response time T09	6 s	
Response time T05	3 s	
Temperature drift	0.5 cm/s × 1/K	
Temperature gradient	≤ 300 K/min	
Hysteresis	3 25 % of the switching point	

Features

- Screw-in adaptor with process connection NPT 1/2" male thread included in delivery
- Electronics housing material/medium contact 1.4404 (316L)/1.4571 (316Ti)
 Immersion depth 16.9 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
- 10...33 VDC
- NO/NC contact, PNP/NPN output, IO-Link Connector, M12 × 1

Wiring diagram



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



Technical data

Measuring range -2585 °C Switching point accuracy ± 2 K; for water >3 cm/s Reproducibility ≤ 0.5 K Resolution 0.5 K Response time T09 12 s Response time T09 12 s Response time T05 3 s Electrical data	Temperature monitoring	
Reproducibility \$ 0.5 K Resolution 0.5 K Response time T09 12 s Response time T05 3 s Electrical data	Measuring range	-2585 °C
Resolution0.5 KResponse time T0912 sResponse time T053 sElectrical dataOperating voltage U,1033 VDCShort-circuit/reverse polarity protectionyes, cyclic / yes (voltage supply)Power consumption≤ 1.6 W, Typ. 1.3 WVoltage drop≤ 1.8 VDCContinuous current carrying capacity of the DC switching output250 mAOverload protectionYesInsulation classIIIStandby delay time1830 sOutputsOutputOutput 1Flow: Switching output or IO-LinkOutput 2Temperature: Switching outputCommunication protocolIO-LinkOutput functionNO/NC programmable, PNP/NPNIO-LinkUotput functionIO-Link specificationV 1.1IO-Link port typeClass ATransmission physicsCOM 2 (38.4 kBaud)Frame type2.2Included in the SIDI GSDMLYesProgrammingProgramming logic recognition, easy switching logic recognition, easy switching pointadjustment via touchpadsMechanical dataStainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A332G5Adapter materialStainless steel 1.4571 (AISI 316Ti), FKM O-ring	Switching point accuracy	± 2 K; for water >3 cm/s
Response time T0912 sResponse time T053 sElectrical data33 VDCOperating voltage Un1033 VDCShort-circuit/reverse polarity protectionyes, cyclic / yes (voltage supply)Power consumption≤ 1.6 W, Typ. 1.3 WVoltage drop≤ 1.8 VDCContinuous current carrying capacity of the DC switching output250 mAOverload protectionYesInsulation classIIIStandby delay time1830 sOutputsOutput 1Output 1Flow: Switching output or IO-LinkOutput 2Temperature: Switching outputCommunication protocolIO-LinkOutput functionNO/NC programmable, PNP/NPNIO-LinkUO-LinkIO-Link specificationV 1.1IO-Link nort type2.2Included in the SIDI GSDMLYesProgrammingYesProgramming optionsAutomatic switching logic recognition, easy switchi	Reproducibility	≤ 0.5 K
Response time T05 3 s Electrical data 33 VDC Operating voltage U _a 1033 VDC Short-circuit/reverse polarity protection yes, cyclic / yes (voltage supply) Power consumption ≤ 1.6 W, Typ. 1.3 W Voltage drop ≤ 1.8 VDC Continuous current carrying capacity of the DC switching output 250 mA Overload protection Yes Insulation class III Standby delay time 1830 s Outputs Output 1 Output 2 Temperature: Switching output or IO-Link Output 1 Flow: Switching output or IO-Link Output 2 Temperature: Switching output Communication protocol IO-Link Output function NO/NC programmable, PNP/NPN IO-Link UO-Link IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming potions Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Stainless-steel/Plastic, 1.4404 (AISI	Resolution	0.5 K
Electrical data Operating voltage U ₈ 1033 VDC Short-circuit/reverse polarity protection yes, cyclic / yes (voltage supply) Power consumption ≤ 1.6 W, Typ. 1.3 W Voltage drop ≤ 1.8 VDC Continuous current carrying capacity of the DC switching output 250 mA Overload protection Yes Insulation class III Standby delay time 1830 s Outputs Output 1 Output 2 Temperature: Switching output or IO-Link Output 3 Io-Link Output 4 NO/NC programmable, PNP/NPN IO-Link Uoutput function NO/NC programmable, PNP/NPN IO-Link IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming potions Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Utramid A3X2G5 Adapter material Stainless steel 1.4571 (AISI 316Ti)	Response time T09	12 s
Operating voltage U, 1033 VDC Short-circuit/reverse polarity protection yes, cyclic / yes (voltage supply) Power consumption ≤ 1.6 W, Typ. 1.3 W Voltage drop ≤ 1.8 VDC Continuous current carrying capacity of the DC switching output 250 mA Overload protection Yes Insulation class III Standby delay time 1830 s Outputs Output Output 1 Flow: Switching output or IO-Link Output 2 Temperature: Switching output Communication protocol IO-Link Output function NO/NC programmable, PNP/NPN IO-Link specification V 1.1 IO-Link specification V 1.1 IO-Link specification V 1.1 IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming pointadjustment via touchpads Mechanical data Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Utramid A3X2G5 Adapter material Stainless steel 1.4571 (AISI 316Ti)	Response time T05	3 s
Short-circuit/reverse polarity protection yes, cyclic / yes (voltage supply) Power consumption \$ 1.6 W, Typ. 1.3 W Voltage drop \$ 1.8 VDC Continuous current carrying capacity of the DC switching output 250 mA Overload protection Yes Insulation class III Standby delay time 1830 s Outputs Output Output 1 Flow: Switching output or IO-Link Output 2 Temperature: Switching output Communication protocol IO-Link Output function NO/NC programmable, PNP/NPN IO-Link UO-Link IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming options Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Electrical data	
Power consumption ≤ 1.6 W, Typ. 1.3 W Voltage drop ≤ 1.8 VDC Continuous current carrying capacity of the DC switching output 250 mA Overload protection Yes Insulation class III Standby delay time 1830 s Outputs Output 1 Output 2 Temperature: Switching output or IO-Link Output 4 Flow: Switching output or IO-Link Output 5 IO-Link Output 6 IO-Link Output 7 Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming logic recognition, easy switching pointadjustment via touchpads Mechanical data Mechanical data Housing material Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Operating voltage U _в	1033 VDC
Voltage drop ≤ 1.8 VDC Continuous current carrying capacity of the DC switching output 250 mA Overload protection Yes Insulation class III Standby delay time 1830 s Outputs 0utput 1 Output 2 Temperature: Switching output or IO-Link Output 4 Output 2 Communication protocol IO-Link Output function NO/NC programmable, PNP/NPN IO-Link IO-Link Output type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming pointadjustment via touchpads Mechanical data Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Short-circuit/reverse polarity protection	yes, cyclic / yes (voltage supply)
Continuous current carrying capacity of the DC switching output 250 mA Overload protection Yes Insulation class III Standby delay time 1830 s Outputs Output 1 Output 2 Temperature: Switching output or IO-Link Output 4 Flow: Switching output or IO-Link Output 5 IO-Link Output 6 IO-Link Output 7 Class A IO-Link 10-Link specification V 1.1 IO-Link specification V 1.1 IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming logic recognition, easy switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Stainless-steel/Plastic, 1.4404 (AISI 316L)/Griamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Power consumption	≤ 1.6 W, Typ. 1.3 W
the DC switching output Overload protection Yes Insulation class III Standby delay time 1830 s Outputs Output 1 Output 1 Flow: Switching output or IO-Link Output 2 Temperature: Switching output Communication protocol IO-Link Output function NO/NC programmable, PNP/NPN IO-Link IO-Link IO-Link specification V 1.1 IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming Programming options Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Voltage drop	≤ 1.8 VDC
Insulation classIIIStandby delay time1830 sOutputsOutput 1Output 1Flow: Switching output or IO-LinkOutput 2Temperature: Switching outputCommunication protocolIO-LinkOutput functionNO/NC programmable, PNP/NPNIO-LinkIO-LinkIO-Link port typeClass ATransmission physicsCOM 2 (38.4 kBaud)Frame type2.2Included in the SIDI GSDMLYesProgrammingProgramming potionsAutomatic switching logic recognition, easy switching pointadjustment via touchpadsMechanical dataStainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5Adapter materialStainless steel 1.4571 (316Ti)Materials (contact with media)Stainless steel 1.4571 (AISI 316Ti), FKM O-ring		250 mA
Standby delay time 1830 s Outputs Output 1 Output 2 Temperature: Switching output or IO-Link Output 2 Temperature: Switching output Communication protocol IO-Link Output function NO/NC programmable, PNP/NPN IO-Link IO-Link IO-Link specification V 1.1 IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming options Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Housing material Housing material Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Overload protection	Yes
Outputs Output 1 Flow: Switching output or IO-Link Output 2 Temperature: Switching output Communication protocol IO-Link Output function NO/NC programmable, PNP/NPN IO-Link IO-Link IO-Link specification V 1.1 IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming options Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Insulation class	III
Output 1 Flow: Switching output or IO-Link Output 2 Temperature: Switching output Communication protocol IO-Link Output function NO/NC programmable, PNP/NPN IO-Link IO-Link IO-Link specification V 1.1 IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming lopions Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Standby delay time	1830 s
Output 2 Temperature: Switching output Communication protocol IO-Link Output function NO/NC programmable, PNP/NPN IO-Link IO-Link IO-Link specification V 1.1 IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming options Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Outputs	
Communication protocolIO-LinkOutput functionNO/NC programmable, PNP/NPNIO-LinkIO-Link specificationIO-Link specificationV 1.1IO-Link port typeClass ATransmission physicsCOM 2 (38.4 kBaud)Frame type2.2Included in the SIDI GSDMLYesProgrammingProgramming optionsAutomatic switching logic recognition, easy switching pointadjustment via touchpadsMechanical dataHousing materialStainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5Adapter materialStainless steel 1.4571 (316Ti)Materials (contact with media)Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Output 1	Flow: Switching output or IO-Link
Output functionNO/NC programmable, PNP/NPNIO-LinkIO-Link specificationV 1.1IO-Link port typeClass ATransmission physicsCOM 2 (38.4 kBaud)Frame type2.2Included in the SIDI GSDMLYesProgrammingProgramming optionsProgramming optionsAutomatic switching logic recognition, easy switching pointadjustment via touchpadsMechanical dataHousing materialStainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5Adapter materialStainless steel 1.4571 (AISI 316Ti), FKM O-ring	Output 2	Temperature: Switching output
IO-Link V IO-Link specification V IO-Link port type Class A Transmission physics COM 2 (38.4 kBaud) Frame type 2.2 Included in the SIDI GSDML Yes Programming Yes Programming options Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Housing material Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Communication protocol	IO-Link
IO-Link specificationV 1.1IO-Link port typeClass ATransmission physicsCOM 2 (38.4 kBaud)Frame type2.2Included in the SIDI GSDMLYesProgrammingProgramming logic recognition, easy switching logic recognition, easy switching pointadjustment via touchpadsMechanical dataHousing materialHousing materialStainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5Adapter materialStainless steel 1.4571 (316Ti)Materials (contact with media)Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Output function	NO/NC programmable, PNP/NPN
IO-Link port typeClass ATransmission physicsCOM 2 (38.4 kBaud)Frame type2.2Included in the SIDI GSDMLYesProgrammingProgramming optionsProgramming optionsAutomatic switching logic recognition, easy switching pointadjustment via touchpadsMechanical dataHousing materialHousing materialStainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5Adapter materialStainless steel 1.4571 (316Ti)Materials (contact with media)Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	IO-Link	
Transmission physicsCOM 2 (38.4 kBaud)Frame type2.2Included in the SIDI GSDMLYesProgrammingProgramming logic recognition, easy switching logic recognition, easy switching pointadjustment via touchpadsMechanical dataStainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5Adapter materialStainless steel 1.4571 (316Ti)Materials (contact with media)Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	IO-Link specification	V 1.1
Frame type 2.2 Included in the SIDI GSDML Yes Programming Programming options Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Housing material Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	IO-Link port type	Class A
Included in the SIDI GSDML Yes Programming Programming options Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Housing material Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Transmission physics	COM 2 (38.4 kBaud)
Programming Programming options Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Housing material Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Frame type	2.2
Programming options Automatic switching logic recognition, easy switching pointadjustment via touchpads Mechanical data Housing material Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Included in the SIDI GSDML	Yes
easy switching pointadjustment via touchpads Mechanical data Housing material Stainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Programming	
Housing materialStainless-steel/Plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5Adapter materialStainless steel 1.4571 (316Ti)Materials (contact with media)Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Programming options	easy switching pointadjustment via
316L)/Grilamid TR90 UV/Elastollan C 65 A 15 HPM 000/Ultramid A3X2G5 Adapter material Stainless steel 1.4571 (316Ti) Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Mechanical data	
Materials (contact with media) Stainless steel 1.4571 (AISI 316Ti), FKM O-ring	Housing material	316L)/Grilamid TR90 UV/Elastollan C 65
O-ring	Adapter material	Stainless steel 1.4571 (316Ti)
Process connection 1/2" NPT male thread	Materials (contact with media)	
	Process connection	1/2" NPT male thread

therefore a direct measure of an increased flow rate.



Technical data

Process connection sensor	M18 x 1.5 female thread
Process connection adapter	M18 × 1.5 male thread; 1/2" NPT male thread
Electrical connection	Connector, M12 × 1
Protection class	IP66 IP67 IP69K
Electromagnetic compatibility (EMC)	DIN EN 60947-5-9: 2007
Environmental conditions	
Ambient temperature	-40+80 °C
	(UL: -25+80 °C)
Storage temperature	-40+80 °C
Shock resistance	50 g (11 ms) EN 60068-2-27
Vibration resistance	20 g (552000 Hz)DIN EN 60068-2-6
Tests/approvals	
Approvals	CE cULus
UL registration number	E516036
Display	LED display functions for status of supply voltage, switching states and teach processes. Process indicators via bar graph.
MTTF	120 years acc. to SN 29500 (Ed. 99) 40 °C

Mounting instructions

TURCK

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.

Auto Detection PNP/NPN

The automatic setting of the sensor output signal supports error-free configuration of the sensor on connection to the remote IO environment. The sensor automatically activates the output type that corresponds to the signal type of the input card connected. This function is activated by default and can also be configured specifically as required.

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		On	Operating voltage applied	
			Device is operational	
		Flashing	Operating voltage applied	
			IO-Link communication active	
			(inverted flash with T on 900 ms and T off 100 ms)	
FLT	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	/ Yellow On NO: Flow		NO: Flow switchpoint exceeded (output "high")	
			NC: Flow below minimum switchpoint (output "high")	
		Off	NO: Flow below minimum switchpoint (output "low")	
			NC: Flow switchpoint exceeded (output "low")	
		Flashing	Teach mode/display of diagnostic data	
			(see manual for specification)	
TEMP Yellow		On	NO: Temperature switchpoint exceeded (output "high")	
			NC: Temperature below minimum switchpoint (output "high")	
		Off	NO: Temperature below minimum switchpoint (output "low")	
			NC: Temperature switchpoint exceeded (output "low")	
		Flashing	Teach mode/display of diagnostic data	
			(see manual for specification)	

For detailed description of the display patterns and flashing codes, see manual D100002084

IO-Link process data image

Bit	15 14 13 12 11 10 9 8 7 6 5 4 3 2	1 0
Byte n	14 Bit Process Value (TEMP)	State Out 2 (TEMP) State Out 1 (FLOW)
Bit	31 30 29 28 27 26 25 24 23 22 21 20 19 18	B 17 16
Byte n+1	16 Bit Process Value (FLOW)	