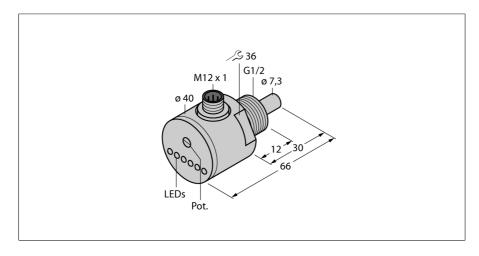


## Flow Monitoring Immersion Sensor with Integrated Processor FCS-G1/2A4-AP8X-H1141/D030

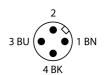


Type		
Special version  D030 Corresponds to:Kompaktgeräte mit Schutzisolierung  Mounting conditions  Immersion sensor  Water Operating Range  1150 cm/s  Oil Operating Range  3300 cm/s  Stand-by time  typ. 8 s (215 s)  Switch-on time  typ. 2 s (115 s)  Switch-off time  typ. 2 s (115 s)  Temperature jump, response time  Temperature gradient  4 250 K/min  Medium temperature  -20+80 °C  Ambient temperature  -20+80 °C  Electrical data  Operating voltage U <sub>n</sub> 19.228.8 VDC  Current consumption  A TO mA  Output function  Rated operational current  0.4 A  Voltage drop at I <sub>n</sub> \$ 1.5 V  Short-circuit protection  yes  Reverse polarity protection  yes  Protection class  IP67  Insulation class  Protective insulation acc. to DIN 57106 part 1/VDE  0106, part 1  Mechanical data  Design  Immersion  Housing material  Stainless steel, 1.4571 (AISI 316Ti)  Sensor material	ID	6870019
Mounting conditions	Туре	FCS-G1/2A4-AP8X-H1141/D030
Mounting conditions         Immersion sensor           Water Operating Range         1150 cm/s           Oil Operating Range         3300 cm/s           Stand-by time         typ. 8 s (215 s)           Switch-on time         typ. 2 s (115 s)           Switch-off time         typ. 2 s (115 s)           Temperature jump, response time         max. 12 s           Temperature gradient         ≤ 250 K/min           Medium temperature         -20+80 °C           Ambient temperature         -20+80 °C           Electrical data         0           Operating voltage U₀         19.228.8 VDC           Current consumption         ≤ 70 mA           Output function         PNP, NO contact           Rated operational current         0.4 A           Voltage drop at I₀         ≤ 1.5 V           Short-circuit protection         yes           Reverse polarity protection         yes           Protection class         IP67           Insulation class         Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1           Mechanical data         Design           Immersion           Housing material         Stainless steel, 1.4571 (AISI 316Ti)	Special version	D030 Corresponds to:Kompaktgeräte mit
Water Operating Range         1150 cm/s           Oil Operating Range         3300 cm/s           Stand-by time         typ. 8 s (215 s)           Switch-on time         typ. 2 s (115 s)           Switch-off time         typ. 2 s (115 s)           Temperature jump, response time         max. 12 s           Temperature gradient         ≤ 250 K/min           Medium temperature         -20+80 °C           Ambient temperature         -20+80 °C           Electrical data         Operating voltage U <sub>a</sub> Operating voltage U <sub>a</sub> 19.228.8 VDC           Current consumption         ≤ 70 mA           Output function         PNP, NO contact           Rated operational current         0.4 A           Voltage drop at I,         ≤ 1.5 V           Short-circuit protection         yes           Reverse polarity protection         yes           Protection class         IP67           Insulation class         Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1           Mechanical data         Immersion           Housing material         Stainless steel, 1.4571 (AISI 316Ti)           Sensor material         Stainless steel, 1.4571 (AISI 316Ti)		Schutzisolierung
Water Operating Range         1150 cm/s           Oil Operating Range         3300 cm/s           Stand-by time         typ. 8 s (215 s)           Switch-on time         typ. 2 s (115 s)           Switch-off time         typ. 2 s (115 s)           Temperature jump, response time         max. 12 s           Temperature gradient         ≤ 250 K/min           Medium temperature         -20+80 °C           Ambient temperature         -20+80 °C           Electrical data         Operating voltage U <sub>a</sub> Operating voltage U <sub>a</sub> 19.228.8 VDC           Current consumption         ≤ 70 mA           Output function         PNP, NO contact           Rated operational current         0.4 A           Voltage drop at I,         ≤ 1.5 V           Short-circuit protection         yes           Reverse polarity protection         yes           Protection class         IP67           Insulation class         Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1           Mechanical data         Immersion           Housing material         Stainless steel, 1.4571 (AISI 316Ti)           Sensor material         Stainless steel, 1.4571 (AISI 316Ti)		
Oil Operating Range         3300 cm/s           Stand-by time         typ. 8 s (215 s)           Switch-on time         typ. 2 s (115 s)           Switch-off time         typ. 2 s (115 s)           Temperature jump, response time         max. 12 s           Temperature gradient         ≤ 250 K/min           Medium temperature         -20+80 °C           Ambient temperature         -20+80 °C           Electrical data         Operating voltage U <sub>a</sub> Operating voltage U <sub>a</sub> 19.228.8 VDC           Current consumption         ≤ 70 mA           Output function         PNP, NO contact           Rated operational current         0.4 A           Voltage drop at I,         ≤ 1.5 V           Short-circuit protection         yes           Reverse polarity protection         yes           Protection class         IP67           Insulation class         Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1           Mechanical data         Design         Immersion           Housing material         Stainless steel, 1.4571 (AISI 316Ti)           Sensor material         Stainless steel, 1.4571 (AISI 316Ti)	Mounting conditions	Immersion sensor
Stand-by time         typ. 8 s (215 s)           Switch-on time         typ. 2 s (115 s)           Switch-off time         typ. 2 s (115 s)           Temperature jump, response time         max. 12 s           Temperature gradient         ≤ 250 K/min           Medium temperature         -20+80 °C           Ambient temperature         -20+80 °C           Electrical data         0           Operating voltage U₀         19.228.8 VDC           Current consumption         ≤ 70 mA           Output function         PNP, NO contact           Rated operational current         0.4 A           Voltage drop at I₀         ≤ 1.5 V           Short-circuit protection         yes           Reverse polarity protection         yes           Protection class         IP67           Insulation class         Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1           Mechanical data         Design           Housing material         Stainless steel, 1.4571 (AISI 316Ti)           Sensor material         Stainless steel, 1.4571 (AISI 316Ti)	Water Operating Range	1150 cm/s
Switch-on time         typ. 2 s (115 s)           Switch-off time         typ. 2 s (115 s)           Temperature jump, response time         max. 12 s           Temperature gradient         ≤ 250 K/min           Medium temperature         -20+80 °C           Ambient temperature         -20+80 °C           Electrical data         19.228.8 VDC           Current consumption         ≤ 70 mA           Output function         PNP, NO contact           Rated operational current         0.4 A           Voltage drop at I,         ≤ 1.5 V           Short-circuit protection         yes           Reverse polarity protection         yes           Protection class         IP67           Insulation class         Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1           Mechanical data         Design           Housing material         Stainless steel, 1.4571 (AISI 316Ti)           Sensor material         Stainless steel, 1.4571 (AISI 316Ti)	Oil Operating Range	3300 cm/s
Switch-off time         typ. 2 s (115 s)           Temperature jump, response time         max. 12 s           Temperature gradient         ≤ 250 K/min           Medium temperature         -20+80 °C           Ambient temperature         -20+80 °C           Electrical data         Operating voltage U <sub>s</sub> Operating voltage U <sub>s</sub> 19.228.8 VDC           Current consumption         ≤ 70 mA           Output function         PNP, NO contact           Rated operational current         0.4 A           Voltage drop at I <sub>s</sub> ≤ 1.5 V           Short-circuit protection         yes           Reverse polarity protection         yes           Protection class         IP67           Insulation class         Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1           Mechanical data         Design           Housing material         Stainless steel, 1.4571 (AISI 316Ti)           Sensor material         Stainless steel, 1.4571 (AISI 316Ti)	Stand-by time	typ. 8 s (215 s)
Temperature jump, response time  Temperature gradient  ≤ 250 K/min  Medium temperature  -20+80 °C  Ambient temperature  -20+80 °C  Electrical data  Operating voltage U <sub>0</sub> 19.228.8 VDC  Current consumption  ≤ 70 mA  Output function  PNP, NO contact  Rated operational current  0.4 A  Voltage drop at I <sub>0</sub> ≤ 1.5 V  Short-circuit protection  Reverse polarity protection  yes  Reverse polarity protection  yes  Protection class  IP67  Insulation class  Protective insulation acc. to DIN 57106 part 1/VDE  0106, part 1  Mechanical data  Design  Immersion  Housing material  Stainless steel, 1.4571 (AISI 316Ti)  Sensor material	Switch-on time	typ. 2 s (115 s)
Temperature gradient ≤ 250 K/min  Medium temperature -20+80 °C  Ambient temperature -20+80 °C  Electrical data Operating voltage U <sub>a</sub> 19.228.8 VDC  Current consumption ≤ 70 mA  Output function PNP, NO contact  Rated operational current 0.4 A  Voltage drop at I <sub>a</sub> ≤ 1.5 V  Short-circuit protection yes  Reverse polarity protection yes  Protection class IP67  Insulation class Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1  Mechanical data  Design Immersion  Housing material Stainless steel, 1.4571 (AISI 316Ti)  Sensor material Stainless steel, 1.4571 (AISI 316Ti)	Switch-off time	typ. 2 s (115 s)
Medium temperature         -20+80 °C           Ambient temperature         -20+80 °C           Electrical data         -20+80 °C           Operating voltage U₀         19.228.8 VDC           Current consumption         ≤ 70 mA           Output function         PNP, NO contact           Rated operational current         0.4 A           Voltage drop at I₀         ≤ 1.5 V           Short-circuit protection         yes           Reverse polarity protection         yes           Protection class         IP67           Insulation class         Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1           Mechanical data         Design           Housing material         Stainless steel, 1.4571 (AISI 316Ti)           Sensor material         Stainless steel, 1.4571 (AISI 316Ti)	Temperature jump, response time	max. 12 s
Ambient temperature  -20+80 °C  Electrical data  Operating voltage U <sub>s</sub> 19.228.8 VDC  Current consumption  ≤ 70 mA  Output function  PNP, NO contact  Rated operational current  0.4 A  Voltage drop at I <sub>s</sub> ≤ 1.5 V  Short-circuit protection  yes  Reverse polarity protection  Protection class  IP67  Insulation class  Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1  Mechanical data  Design  Immersion  Housing material  Stainless steel, 1.4571 (AISI 316Ti)  Sensor material	Temperature gradient	≤ 250 K/min
Electrical data  Operating voltage U <sub>B</sub> 19.228.8 VDC  Current consumption  ≤ 70 mA  Output function  PNP, NO contact  Rated operational current  0.4 A  Voltage drop at I <sub>B</sub> Short-circuit protection  yes  Reverse polarity protection  Protection class  IP67  Insulation class  Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1  Mechanical data  Design  Immersion  Housing material  Stainless steel, 1.4571 (AISI 316Ti)  Sensor material	Medium temperature	-20+80 °C
Operating voltage Un         19.228.8 VDC           Current consumption         ≤ 70 mA           Output function         PNP, NO contact           Rated operational current         0.4 A           Voltage drop at I.         ≤ 1.5 V           Short-circuit protection         yes           Reverse polarity protection         yes           Protection class         IP67           Insulation class         Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1           Mechanical data         Immersion           Housing material         Stainless steel, 1.4571 (AISI 316Ti)           Sensor material         Stainless steel, 1.4571 (AISI 316Ti)	Ambient temperature	-20+80 °C
Operating voltage Un         19.228.8 VDC           Current consumption         ≤ 70 mA           Output function         PNP, NO contact           Rated operational current         0.4 A           Voltage drop at I.         ≤ 1.5 V           Short-circuit protection         yes           Reverse polarity protection         yes           Protection class         IP67           Insulation class         Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1           Mechanical data         Immersion           Housing material         Stainless steel, 1.4571 (AISI 316Ti)           Sensor material         Stainless steel, 1.4571 (AISI 316Ti)		
Current consumption       ≤ 70 mA         Output function       PNP, NO contact         Rated operational current       0.4 A         Voltage drop at I,       ≤ 1.5 V         Short-circuit protection       yes         Reverse polarity protection       yes         Protection class       IP67         Insulation class       Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1         Mechanical data       Immersion         Housing material       Stainless steel, 1.4571 (AISI 316Ti)         Sensor material       Stainless steel, 1.4571 (AISI 316Ti)	Electrical data	
Output function       PNP, NO contact         Rated operational current       0.4 A         Voltage drop at I₂       ≤ 1.5 V         Short-circuit protection       yes         Reverse polarity protection       yes         Protection class       IP67         Insulation class       Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1         Mechanical data       Design         Housing material       Stainless steel, 1.4571 (AISI 316Ti)         Sensor material       Stainless steel, 1.4571 (AISI 316Ti)	Operating voltage U <sub>B</sub>	19.228.8 VDC
Rated operational current  0.4 A  Voltage drop at I₂  Short-circuit protection  Reverse polarity protection  Protection class  IP67  Insulation class  Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1  Mechanical data  Design  Immersion  Housing material  Stainless steel, 1.4571 (AISI 316Ti)  Sensor material  Stainless steel, 1.4571 (AISI 316Ti)	Current consumption	≤ 70 mA
Voltage drop at I₀       ≤ 1.5 V         Short-circuit protection       yes         Reverse polarity protection       yes         Protection class       IP67         Insulation class       Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1         Mechanical data       Design         Housing material       Stainless steel, 1.4571 (AISI 316Ti)         Sensor material       Stainless steel, 1.4571 (AISI 316Ti)	Output function	PNP, NO contact
Short-circuit protection yes  Reverse polarity protection yes  Protection class IP67  Insulation class Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1  Mechanical data  Design Immersion  Housing material Stainless steel, 1.4571 (AISI 316Ti)  Sensor material Stainless steel, 1.4571 (AISI 316Ti)	Rated operational current	0.4 A
Reverse polarity protection  Protection class  IP67  Insulation class  Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1  Mechanical data  Design  Immersion  Housing material  Stainless steel, 1.4571 (AISI 316Ti)  Sensor material	Voltage drop at I <sub>e</sub>	≤ 1.5 V
Protection class IP67 Insulation class Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1  Mechanical data Design Immersion Housing material Stainless steel, 1.4571 (AISI 316Ti) Sensor material Stainless steel, 1.4571 (AISI 316Ti)	Short-circuit protection	yes
Insulation class  Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1  Mechanical data  Design  Immersion  Housing material  Stainless steel, 1.4571 (AISI 316Ti)  Sensor material  Stainless steel, 1.4571 (AISI 316Ti)	Reverse polarity protection	yes
0106, part 1	Protection class	IP67
Mechanical data  Design Immersion  Housing material Stainless steel, 1.4571 (AISI 316Ti)  Sensor material Stainless steel, 1.4571 (AISI 316Ti)	Insulation class	Protective insulation acc. to DIN 57106 part 1/VDE
Design Immersion  Housing material Stainless steel, 1.4571 (AISI 316Ti)  Sensor material Stainless steel, 1.4571 (AISI 316Ti)		0106, part 1
Design Immersion  Housing material Stainless steel, 1.4571 (AISI 316Ti)  Sensor material Stainless steel, 1.4571 (AISI 316Ti)		
Housing material Stainless steel, 1.4571 (AISI 316Ti) Sensor material Stainless steel, 1.4571 (AISI 316Ti)		
Sensor material Stainless steel, 1.4571 (AISI 316Ti)		
	Housing material	
Max. tightening torque of housing nut 30 Nm	Sensor material	Stainless steel, 1.4571 (AISI 316Ti)
	Max. tightening torque of housing nut	30 Nm

- Sensor for liquid media
- Calorimetric principle
- Adjustment via potentiometer
- Status indicated via LED chain
- Protective insulation acc. to DIN 57106 part 1/VDE 0106, part 1 The protective insulation prevents excessive touch voltages on the device surface as against the earth potential.
- DC 3-wire, 19.2...28.8 VDC
- NO contact, PNP output
- Connector device, M12 × 1

## Wiring Diagram





## **Functional principle**

The function of immersion flow sensors is based on the thermodynamic principle. The sensor is heated up by a few degrees Celsius compared to the flow medium. If the medium flows past the sensor, the heat generated in the sensor is dissipated. The resulting temperature is measured and compared with the temperature of the medium. The flow condition of each medium can be derived from the temperature difference obtained. Thus, TUR-CK flow sensors reliably and wear-free monitor the flow of liquid or gaseous media.

Electrical connection Pressure resistance

Process connection

Connector, M12 × 1

100 bar G 1/2"



Switching state	LED chain, Green/yellow/red
Flow state display	LED chain
Indication: Drop below setpoint	LED Red
Indication: Setpoint reached	LED Yellow
Indication: Setpoint exceeded	4 × LEDs Green
Tests/approvals	
Approvals	cULus