# Flow Sensor

FFXF011

Part Number

- **CIP-capable**
- **FDA compliant**
- **Highest precision of its class**
- **Hygienic design makes it easy to clean**
- **Measurement independent of flow direction**
- **Temperature of the medium: 0 ... 100° C (140° C for 24 hours without current measurement)**

wenglor UniFlow flow sensors measure the flow rate of aqueous and oily media in closed piping systems.

UniFlow flow sensors are very easy to operate thanks to the removable cover on the integrated display. The highly visible switching status display enables the rapid localization of affected sensors for maintenance processes.

Thanks to the metallic sealing edge on the process connection, no further seals are required.
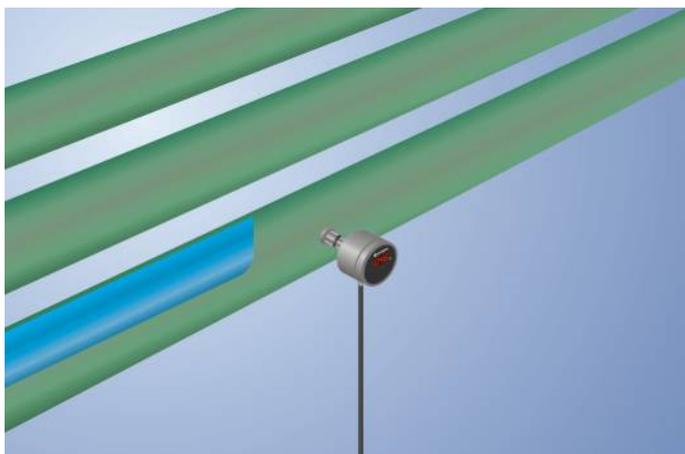
Technical Data

| Sensor-specific data	
Selectable measuring range	10...300 cm/s
Measuring range 1	10...150 cm/s
Adjustable range 1	15...150 cm/s
Measuring range 2	20...300 cm/s
Adjustable range 2	30...300 cm/s
Medium	Water
Measuring error	2 %
Switching Hysteresis	5 %
Temperature gradient	30 K
Response time in case of temperature jump	10 s
Environmental conditions	
Temperature of medium	0...100 °C
Temperature of the medium, short-term	140 °C
Ambient temperature	-20...70 °C
Mechanical Strength	60 bar
EMC	DIN EN 60947-5-9
Shock resistance per DIN IEC 68-2-27	30 g / 11 ms
Vibration resistance per DIN IEC 60068-2-6	20 g (10...2000 Hz)
Electrical Data	
Supply Voltage	16...32 V DC
Current Consumption (Ub = 24 V)	60 mA
Switching Outputs	1
Analog Output	4...20 mA Flow
Response Time	1...5 s
Relay Output/Switching Current (24 VDC)	< 1 A
Current Output Load Resistance	< 500 Ohm
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III
Mechanical Data	
Setting Method	Menu
Housing Material	1.4404; PC; EPDM
Material Control Panel	Polyester
Material in contact with media	1.4435; 1.4404
Degree of Protection	IP67/IP69K *
Connection	M12 × 1; 4-pin
Process Connection	G 1/2" CIP-capable
Process Connection Length (PCL)	98 mm
Probe Length (PL)	60 mm
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	766,91 a
Diagnostic Coverage (DC)	0 %
Service Life TM (EN ISO 13849-1)	20 a
Analog output flow	●
Relay NO/NC switchable	●
Connection Diagram No.	1002
Control Panel No.	A12
Suitable Connection Technology No.	35
Suitable Mounting Technology No.	906

* Tested by wenglor

Complementary Products

Software

1 = Rotatable relative to housing at 340°
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel

A12
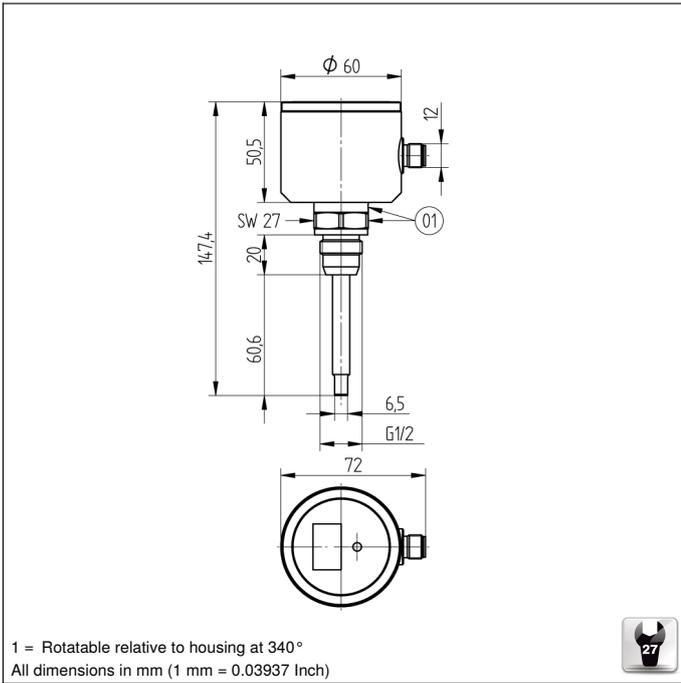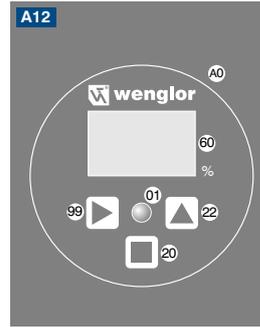
01 = Switching Status Indicator
0A = Detachable lid
20 = Enter Button
22 = UP Button
60 = Display
99 = Right button

1002
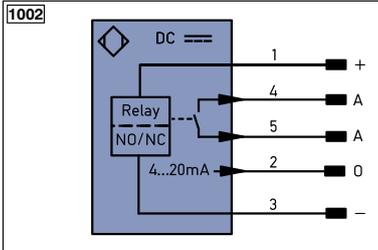
Legend

+	Supply Voltage +	PT	Platinum measuring resistor	ENA	Encoder A
−	Supply Voltage 0 V	nc	not connected	ENB	Encoder B
~	Supply Voltage (AC Voltage)	U	Test Input	AMIN	Digital output MIN
A	Switching Output (NO)	Ū	Test Input inverted	AMAX	Digital output MAX
Ā	Switching Output (NC)	W	Trigger Input	AOK	Digital output OK
V	Contamination/Error Output (NO)	O	Analog Output	SY In	Synchronization In
V̄	Contamination/Error Output (NC)	O−	Ground for the Analog Output	SY OUT	Synchronization OUT
E	Input (analog or digital)	BZ	Block Discharge	OLT	Brightness output
T	Teach Input	AMW	Valve Output	M	Maintenance
Z	Time Delay (activation)	a	Valve Control Output +	rsv	reserved
S	Shielding	b	Valve Control Output 0 V		
RxD	Interface Receive Path	SY	Synchronization		Wire Colors according to DIN IEC 757
TxD	Interface Send Path	E+	Receiver-Line		
RDY	Ready	S+	Emitter-Line	BK	Black
GND	Ground	⏚	Grounding	BN	Brown
CL	Clock	SnR	Switching Distance Reduction	RD	Red
E/A	Output/Input programmable	Rx+/−	Ethernet Receive Path	OG	Orange
⊘	IO-Link	Tx+/−	Ethernet Send Path	YE	Yellow
PoE	Power over Ethernet	Bus	Interfaces-Bus A(+)/B(−)	GN	Green
IN	Safety Input	La	Emitted Light disengageable	BU	Blue
OSSD	Safety Output	Mag	Magnet activation	VT	Violet
Signal	Signal Output	RES	Input confirmation	GY	Grey
BI_D+/−	Ethernet Gigabit bidirect. data line (A-D)	EDM	Contactor Monitoring	WH	White
EN0RS422	Encoder 0-pulse 0-0̄ (TTL)	ENARS422	Encoder A/Ā (TTL)	PK	Pink
		ENBRS422	Encoder B/B̄ (TTL)	GNYE	Green/Yellow