

# Flow Sensor

## FFAF002

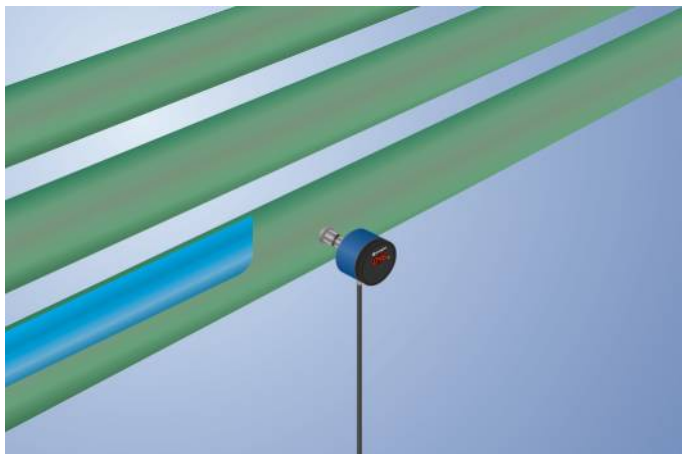
Part Number

UniFlow



- Display can be switched between flow and medium temperature
- Highest precision of its class
- Measurement independent of flow direction
- Selectable measuring range
- Simple operation via the display
- 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 integrated display. The highly visible switching status display enables the rapid localization of affected sensors for maintenance processes.



### 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 (U <sub>b</sub> = 24 V)	60 mA
Switching Outputs	1
Analog Output	4...20 mA Flow
Response Time	1...5 s
Switching Output/Switching Current	< 250 mA
Switching Output Voltage Drop	< 2 V
Current Output Load Resistance	< 500 Ohm
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Protection Class	III

#### Mechanical Data

Setting Method	Menu
Housing Material	PBT; PC; FKM
Material Control Panel	Polyester
Material in contact with media	1.4435; 1.4404; FKM
Degree of Protection	IP67 *
Connection	M12 × 1; 4-pin
Process Connection	Sealing cone M18 × 1,5
Process Connection Length (PCL)	64 mm
Probe Length (PL)	44 mm

#### Safety-relevant Data

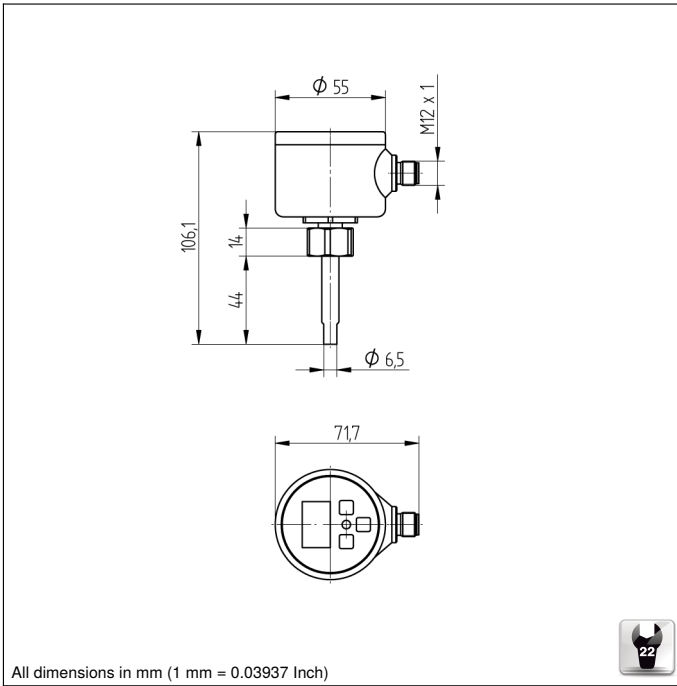
MTTFd (EN ISO 13849-1)	1194,55 a
Diagnostic Coverage (DC)	0 %
Service Life TM (EN ISO 13849-1)	20 a

Analog output flow	●
PNP NO/NC switchable	●
Connection Diagram No.	533
Control Panel No.	A03
Suitable Connection Technology No.	21
Suitable Mounting Technology No.	900   901

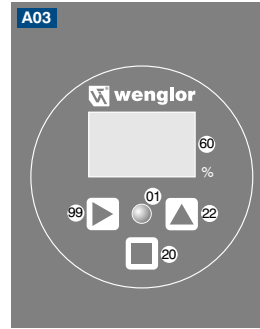
\* Tested by wenglor

### Complementary Products

Software

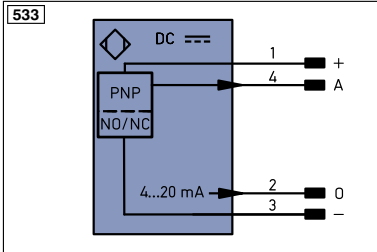


All dimensions in mm (1 mm = 0.03937 Inch)

**Ctrl. Panel**


- 01 = Switching Status Indicator
- 20 = Enter Button
- 22 = UP Button
- 60 = Display
- 99 = Right button

533


**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)	U	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
ṽ	Contamination/Error Output (NC)	O-	Ground for the Analog Output	SY OUT	Synchronization OUT
E	Input (analog or digital)	BZ	Block Discharge	Out	Brightness output
T	Teach Input	AW	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		
TxD	Interface Send Path	E+	Receiver-Line		
RDY	Ready	S+	Emitter-Line		
GND	Ground	≡	Grounding		
CL	Clock	SnR	Switching Distance Reduction		
E/A	Output/Input programmable	Rx+/-	Ethernet Receive Path		
	IO-Link	Tx+/-	Ethernet Send Path		
PoE	Power over Ethernet	Bus	Interfaces-Bus A(+)/B(-)		
IN	Safety Input	La	Emitted Light disengageable		
OSSD	Safety Output	Mag	Magnet activation		
Signal	Signal Output	RES	Input confirmation		
Bl..D +/-	Ethernet Gigabit bidirect. data line (A-D)	EDM	Contacting Monitoring		
EN0 r542	Encoder 0-pulse 0-0 (TTL)	ENAr542	Encoder A/Ā (TTL)		
		ENBr542	Encoder B/B̄ (TTL)		

**Wire Colors according to DIN IEC 757**

BK	Black
BN	Brown
RD	Red
OG	Orange
YE	Yellow
GN	Green
BU	Blue
VT	Violet
GY	Grey
WH	White
PK	Pink
GNYE	Green/Yellow

