Wenglor Flow Sensors

FXFF901

FXFF906

Wenglor Flow Sensor Measuring Principle

The Wenglor weFlux2 Flow Sensor delivers simultaneous flow velocity and temperature measurement in a single, compact unit purpose-built for closed pipe systems. No matter the position or direction of flow, the weFlux2 gives you accurate, reliable data every time.

Powered by the calorimetric measuring principle, the weFlux2 detects subtle changes in both temperature and flow parameters, converting them into precise electrical signals. The result: fewer process measuring points without sacrificing an ounce of flexibility.

Everything you need is built right in. The robust, all-stainless-steel housing and dual analog 4–20 mA outputs make integration seamless.

One sensor. Two measurements.

Applications

- Water flow or no flow detection
- Flow rate monitoring for process control
- Special-purpose mechanical engineering
- Heavy mechanical engineering
- Food industry
- Packaging industry
- Pharmaceuticals industry
- Plastics industry
- Consumer goods industry
- Paper industry
- Electronics industry
- Glass industry
- Steel industry
- Aviation industry
- Chemicals industry
- Alternative energies
- Raw materials extraction
- Pump run dry protection
- Cooling water

IO-Link

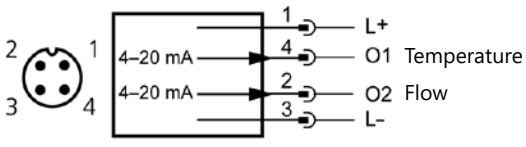
UK CA CE RoHS c UL us LISTED

Wenglor Flow Sensors Selection Guide

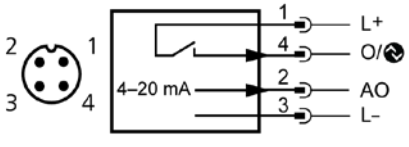
Model	Price	Process Connection	Probe Length	Probe Diameter	Flow Range	Temperature Range	Media	Output 1	Output 2
FXFF901	$300.00	None. Use CF06-25N for mounting (purchased separately)	75mm [2.95in]	6mm [0.24]	10–400 cm/s See Note 1	0–125 °C [32–257 °F]	Water	4–20 mA	4–20 mA
FXFF902	$300.00		100mm [3.94in]						
FXFF903	$300.00		200mm [7.87in]						
I/O LINK									
FXFF904	$300.00	None. Use CF06-25N for mounting (purchased separately)	75mm [2.95in]	6mm [0.24]	10–400 cm/s See Note 1	0–125 °C [32–257 °F]	Water	PNP, NPN, Push-Pull, IO Link	NO, NC, 4–20 mA, 0–10 VDC
FXFF905	$300.00		100mm [3.64in]						
FXFF906	$300.00		200mm [7.87in]						

Note: 1. See chart on following page for flow rates in Sch40 pipe (gpm).

Wiring Diagrams



P/N FXFF901, FXFF902, and FXFF903



P/N FXFF904, FXFF905, and FXFF906

Wenglor Flow Sensors

General Specifications

Wenglor Flow Sensors General Specifications	
Medium	Water
Measuring Range	10–400 cm/s [0.33–13.12 ft/s]
Measuring Error	≤2%
Temperature Error	±1 °C; 1.8 °F
MTTFd	1210.41 years
Supply Voltage	18–30 VDC
Current Consumption	<40 mA @ 24V
Analog Output	4–20 mA; 0–10 VDC
Response Time	1–5s
Operating Delay	<10s
Switching Current	±100 mA
Pressure Resistance	100 bar [1450 psi]
Ambient /Storage Temperature	−25 to +80 °C [-13 to +176 °F]
Probe Diameter	6mm [0.24in]
Probe Material	SS V4A 1.4404/316L
Housing Material	SS V4A 1.4404/316L
Protection	IP68/IP69K
Communication Connection	4-pin M12
Short-circuit & Reverse Polarity Protection	Yes
EMC	DIN EN 61326-1
Shock/Vibration Ratings	30*g* / 11 ms

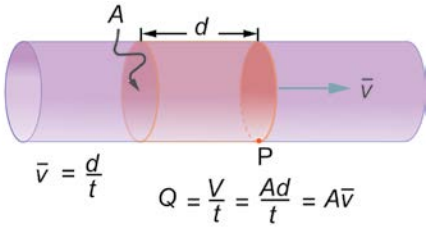
Flow Rates for Nominal Pipe Sizes at Specified Velocities

The weFlux2 is designed to work where fluid velocities are between 10 and 400 cm/s. To ensure functionality, the fluid velocity must be more than 10 cm/s and less than 400 cm/s for a given pipe size.

The table below shows water flow rates in gallons per minute (GPM) for various nominal pipe sizes (Schedule 40) at fluid velocities of 10 cm/s and 400 cm/s.

Velocity vs Flow Rate Guide (Schedule 40 Pipe)			
Nominal Pipe Size (in)	***Internal Diameter (in)***	***Flow Rate at 10 cm/s [0.329 ft/s] (gpm)***	***Flow Rate at 400 cm/s [13.123 ft/s] (gpm)***
1/2	0.622	0.31	12.37
3/4	0.824	0.54	21.73
1	1.049	0.88	35.16
1.5	1.61	2.07	82.73
2	2.067	3.41	136.42
3	3.068	7.51	300.39
4	4.026	12.92	516.91
6	6.065	29.36	1174.45
8	7.981	50.8	2032.06
10	10.02	80.03	3201.36
12	11.938	113.58	4543.21

Flow rate is the volume of fluid per unit time flowing past a point through an area *A*. Here the shaded cylinder of fluid flows past point P in a uniform pipe in time *t*. The volume of the cylinder is *Ad* and the average velocity is $v = d/t$ so that the flow rate is $Q = Ad/t = Av$.



- Q = flow rate
- A = area - crossectional area of pipe
- d = distance - length of pipe section
- t = time - elapsed time
- V = Volume of cylinder (Ad)
- $\bar{v}$ = average velocity of fluid