

FLOWX3 F3.20 High Pressure Paddlewheel Flow Sensor



FlowX3 F3.20 is a paddlewheel flow sensor suitable for system at high pressure and at critical temperature. F3.20 is designed for use with every kind of solid-free liquids in compliance with chemical compatibilities of wetted materials. First quality materials used, as SS for body/shaft and Halar for rotor, grant high mechanical performances and an appreciated reliability. Sensor needs a very limited maintenance and, in those cases, it's easy to perform due to a 4 screws system and to a flat gasket in graphite.

F3.20 sensor is available for connection to FlowX3 monitors and for PLC connection directly.

SS weld on adapter is available for sensor installation on pipe range from 1 ½" to 8" (DN40 to DN200).

MAIN FEATURES

- _ Working range up to 110 bar (1600 PSI) and up to 248°F (120 °C);
- _ Wide operating range (from 0,15 to 8 m/s);
- _ One sole sensor and one sole fitting for a wide range of pipe dimensions (from 1 ½" to 8");
- _ High linearity and repeatability;
- _ Limited maintenance needed and easy execution;
- _ Available special version for direct connection to PLC

APPLICATIONS

- _ Heat Exchangers;
- _ Reverse osmosis;
- _ Cooling systems;
- _ HVAC systems (heating, ventilation and air conditioning);
- _ Boiler feedwater;

OPERATING PRINCIPLE

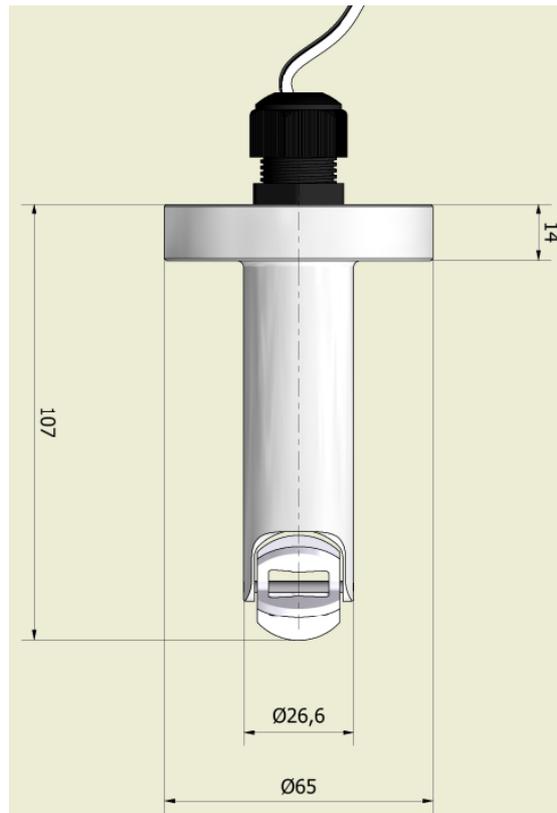
The flow sensor consists of a transducer and a five-blade open cell paddlewheel using insertion technology. The paddlewheel is equipped with a permanent magnet integrated into each blade. As the magnet passes close to the transducer a pulse is generated. When liquid flows into the pipe, the paddlewheel is set in rotation producing a square wave output signal. The frequency is proportional to the flow velocity. The sensor combined with the proper insertion fitting guarantees a high reliability and appreciated linearity.

CONNECTIONS TO FLOWX3 INSTRUMENTS

FlowX3 sensor	F9.00	F9.02	F9.03	F9.20	F9.50	F9.51
F3.20.H.01	X	X	X		X	X

Special version F3.20.P for direct connection to PLC (for digital inputs NPN/PNP).

DIMENSIONS

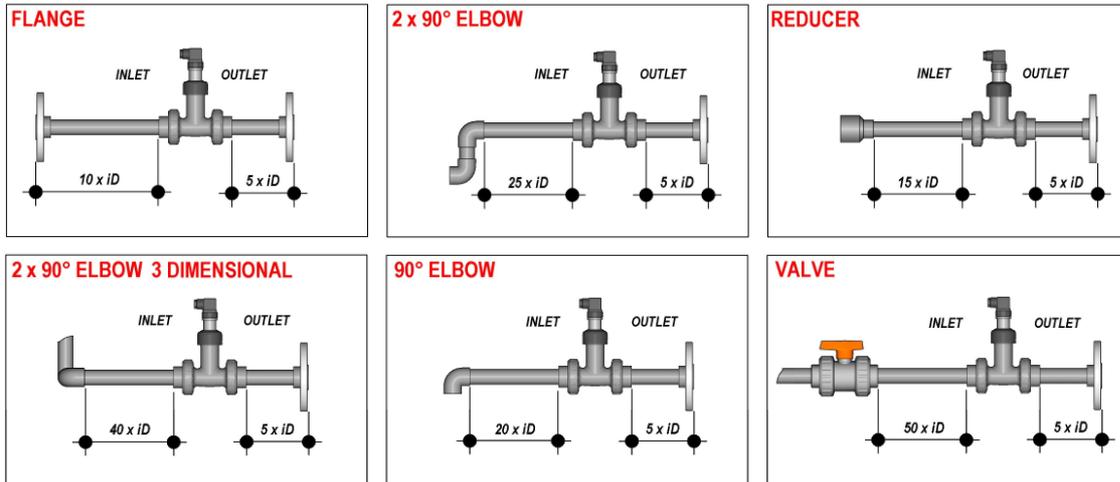


INSTALLATION FITTINGS

	TYPE	DESCRIPTION
	316L SS Weld-on adapter	Size: from D50 to D225

INSTALLATION GUIDELINES

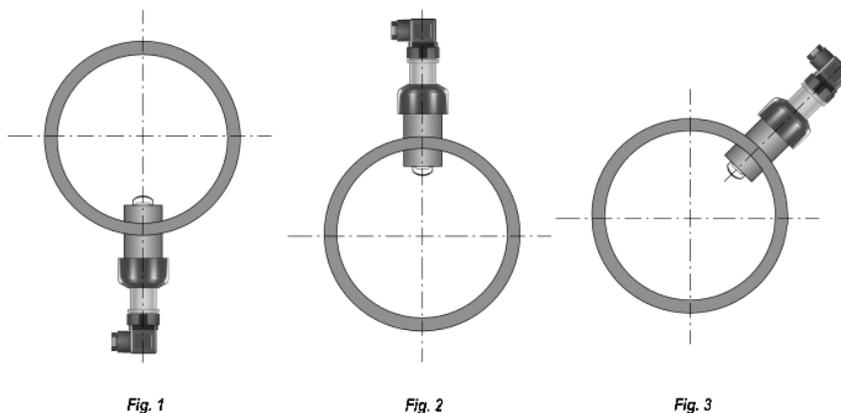
- _ Different pipe configurations and obstacles in the flow line such as valves, elbows, pipe bends and strainers create variations on the flow profile.
- _ The six most common installation configurations are shown to help in selecting the best location in the pipeline for paddlewheel flow sensor.
- _ For more information, please refer to EN ISO 5167-1.
- _ Always maximize distance between flow sensors and pumps.



MOUNTING POSITIONS

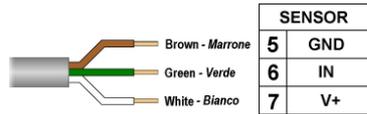
Make sure the pipeline is always full.

- Horizontal pipe runs:
 - Fig. 1: installation with no sediments present
 - Fig. 2: installation with no air bubbles present
 - Fig. 3: installation if sediments or air bubbles may be present
- Vertical pipe runs:
 - Install sensor in any orientation. Upward flow is preferred to ensure full pipe.

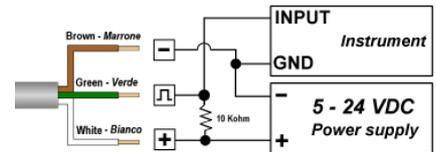


WIRING

F3.20.H IP68 Sensor Connection to FlowX3 Instruments

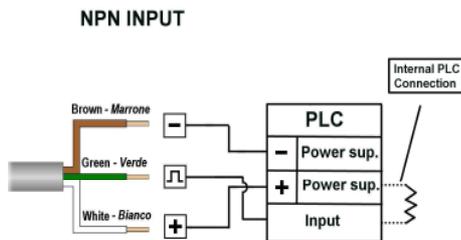


F3.20.H IP68 Sensor Connection to Other Brand Instruments

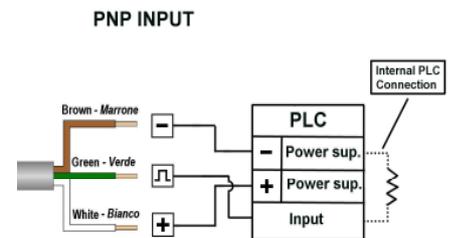


- A 2.7 KOhm Pull-up resistor may be necessary

F3.20.P IP68 Sensor to PLC with NPN Input



F3.20.P IP68 Sensor to PLC with PNP Input



TECHNICAL DATA

General (for F3.20.H and F3.20.P)

Pipe Size Range: DN40 to DN200 (1.5 to 8 in.). Refer to Installation Fittings section for more details

Flow Rate Range: 0.15 to 8 m/s (0.5 to 25 ft./s)

Linearity: ± 0.75 % of full scale

Repeatability: ± 0.5 % of full scale

Minimum Reynolds Number Required: 4500

Temperature : 120 °C (248 °F)

Pressure : 110 bar (1600 psi)

Enclosure: IP68

Wetted Materials:

Sensor Body: 316L SS

Sealing system:graphite flat gasket

Rotor: ECTFE (Halar[®])

Shaft: 316L SS

Specific for F3.20.H

Supply voltage: 5 to 24 VDC regulated

Supply current: < 30 mA @ 24 VDC

Output signal: square wave

Output frequency: 45 Hz per m/s nominal (13.7 Hz per ft/s nominal)

Output type: transistor NPN open collector

Output current: 10 mA max.

Cable length: 8 m (26.4 ft) standard, 300 m (990 ft) maximum

Specific for F3.20.P

Supply voltage: 12 to 24 VDC regulated

Supply current: < 30 mA @ 24 VCC

Output signal: square wave

Output frequency: 45 Hz per m/s nominal (13.7 Hz per ft/s nominal)

Output type : Push – Pull (digital input NPN or PNP)

Output current : I_{Out} Max < 20 mA

Cable length: 8 m (26.4 ft) standard, 300 m (990 ft) maximum

Standards & Approvals

Manufactured under ISO 9002

ISO 14001

CE

ORDERING DATA

FlowX3 F3.20.X.XX

Part No.	Version	Power Supply	Lenght	Body	Enclosure
F3.20.H.01	Hall	5 - 24 VCC	L0	Stainless Steel	IP68
F3.20.P.01	Push-Pull	12 - 24 VCC	L0	Stainless Steel	IP68

Spare Parts

Item	Part No.	Description
A-1	F3.SP4.3	ECTFE (Halar) rotor with SS shaft
A-2	F3.SP8	Flat gasket + screws

