



F3.10 MINIFLOW Sensor



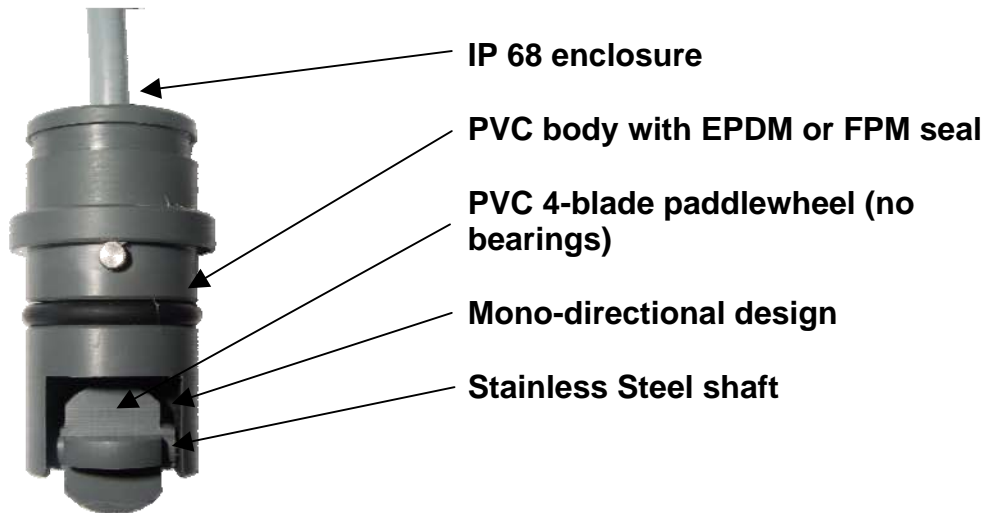
EN 01-06

1. Description

1.1. Design

The simple and reliable paddlewheel technology has been moved into this new MINIFLOW sensor type F3.10, designed for use with every kind of solid-free liquids. The sensor can measure flow from 0.25 m/s producing a frequency output signal highly repeatable. A rugged construction and a proven technology guarantee exceptional performances with little or no maintenance required. The very small dimension and a special design make it suitable for installation on FIP standard Tee-fittings up to DN50 (1.5 in.).

1.2. Technical Features



1.3. Operating Principle

The flow sensor consists of a transducer and a four-blade paddlewheel using insertion technology. The paddlewheel is equipped with a permanent magnet integrated into the rotor blades. 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.

1.4. Connections to FlowX3 Instruments

FlowX3 Sensors	FlowX3 Instruments						
	F9.00	F9.01	F9.02	F9.03	F9.10	F9.50	F9.51
F3.10.H	X	X	X	X	X	X	X

2. Specifications

2.1. Technical Data

General

Pipe Size Range: DN15 to DN50 (0.5 to 1.5 in.).
Flow Rate Range: 0.25 to 4 m/s (0.8 to 12.5 ft./s)
Linearity: ± 1 % of full scale
Repeatability: ± 0.5 % of full scale
Minimum Reynolds Number Required: 4500
Working Pressure: 5 bar (75 psi) @ 25°C (77°F)
Enclosure: IP68
Wetted Materials:
 Sensor Body: PVC
 O-rings: EPDM or FPM
 Rotor: PVC
 Shaft: AISI 316L

Electric

Supply voltage: 5 to 24 VDC regulated
Supply current: < 30 mA @ 24 VDC
Output signal: square wave
Output frequency: 15 Hz per m/s nominal (4.6 Hz per ft/s nominal)
Output type: transistor NPN open collector
Output current: 10 mA max.
Cable length: 2 m (6.6 ft) standard, 300 m (990 ft) maximum

Standards & Approvals

Manufactured under ISO 9002
Manufactured under ISO 14000 (Environmental Management)
CE

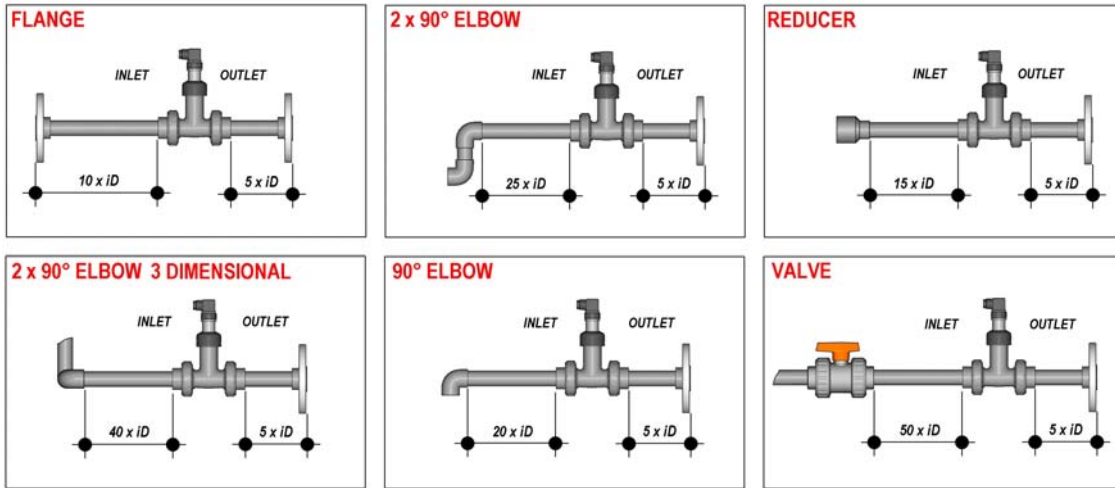
Dimensions



3. Installation

3.1. Location

Different pipe configurations and obstacles in the flow line such as valves, elbows, pipe bends and strainers create variations on the flow profile. Whenever possible follow the EN ISO 5167-1 installation recommendations to locate the sensor.



Always maximize distance between flow sensor and pump.

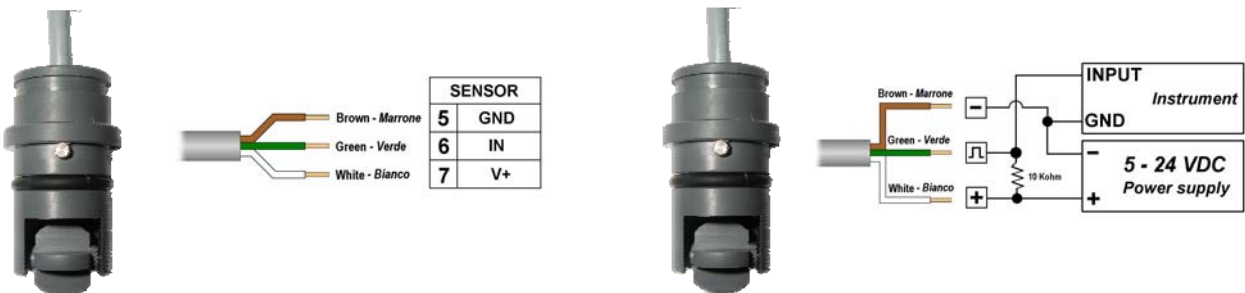
3.2. Mounting Position

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.


3.3. Wiring

- ❑ Always ensure the power supply is switched off before working on the sensor.
- ❑ Always use a high quality (regulated) DC voltage supply.



- 2 KΩ to 10KΩ Pull-up resistor may be required.

4. Installation Fittings

	Type	Description
	FIP Standard Plastic Tees	<ul style="list-style-type: none">Size: D20 to D50 (0.5" to 1.5")

5. Ordering Data

FlowX3 F3.10.H.XX

Part No.	Version	Power supply	Length	Body	O-rings	Enclosure
F3.00.H.01	Hall	5 - 24 VDC	41mm	PVC	EPDM	IP68
F3.00.H.02	Hall	5 - 24 VDC	41mm	PVC	FPM	IP68



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