



F3.00 Paddlewheel Flow Sensor

INSTRUCTION MANUAL

EN 10-11

Table of Contents

1. Introduction.....	2
1.1. Safety Instructions.....	2
1.2. Unpacking.....	2
2. Description.....	3
2.1. Design.....	3
2.2. Technical Features.....	3
2.3. Operating Principle.....	3
2.4. Connection to FlowX3 Instruments.....	4
2.5. Output Devices.....	4
2.5.1. K315 – Frequency Output and MIN Alarm KIT.....	4
2.5.2. K330 – 4...20mA Output KIT.....	4
2.5.3. Installation.....	4
3. Specifications.....	5
3.1. Technical Data.....	5
3.2. Maximum Operating Pressure/Temperature.....	6
3.3. Dimensions.....	6
4. Installation.....	7
4.1. Location.....	7
4.2. Mounting Position.....	7
4.3. Process Connection.....	8
4.4. Wiring.....	8
5. Installation Fittings.....	11
6. K-Factor Tables.....	12
7. Ordering Data.....	18

1. Introduction



CAUTION

1.1. Safety Instructions

General Statements

- ❑ The sensor F3.00.X.XX has only been designed to measure the flow of liquids.
- ❑ Do not install and service the sensor without following the Instruction Manual.
- ❑ This sensor is designed to be connected to other instruments which can be hazardous if used improperly. Read and follow all associated instrument manuals before using with this sensor.
- ❑ Sensor installation and wiring connections should only be performed by qualified staff.
- ❑ Do not modify product construction.

Installation and Commissioning Statements

- ❑ Remove power to the sensor before wiring any connection.
- ❑ Depressurize and vent the system before installing or removing the sensor.
- ❑ Check and confirm the chemical compatibility of the materials in contact with the liquid.
- ❑ Do not exceed maximum temperature/pressure data.
- ❑ To clean the sensor, use only chemical compatible products.

1.2. Unpacking

Please verify that the product is complete and without any damage. The following items must be included:

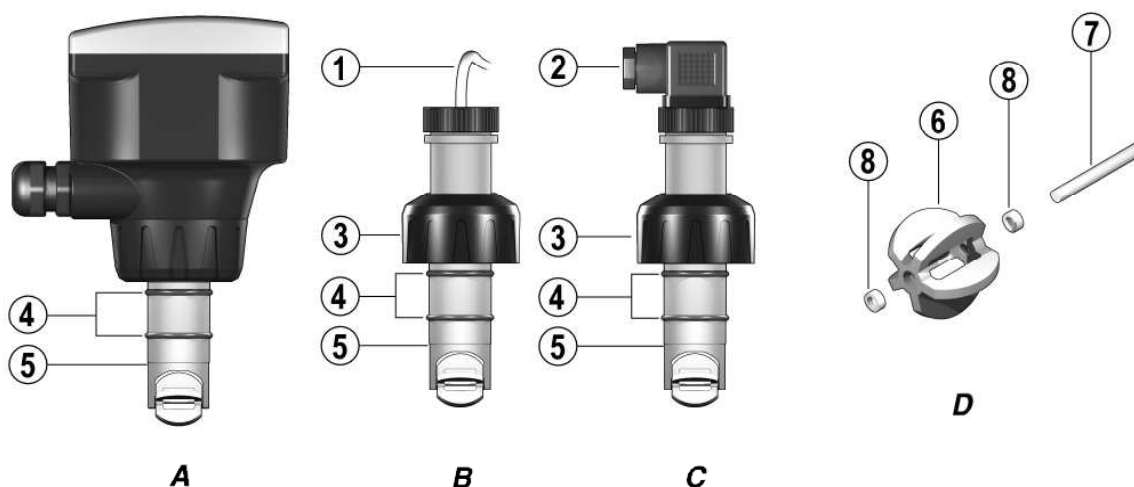
- F3.00 Paddlewheel Flow Sensor
- Instruction Manual for F3.00 Flow Sensor
- Instruction Manual for K330 or K315 Output KIT (only for F3.30 or F3.15 version)

2. Description

2.1. Design

The simple and reliable paddlewheel flow sensor type F3.00 is designed for use with every kind of solid-free liquids. The sensor can measure flow from 0.15 m/s (0.5 ft/s) producing a frequency output signal highly repeatable. A rugged construction and a proven technology guarantee exceptional performances with little or no maintenance required. A specially designed family of fittings ensures an easy and quick installation into all pipe materials in sizes from DN15 to DN600 (0.5 to 24 in.).

2.2. Technical Features



- A. Sensor for compact installation (F3.01) with field-mount transmitter (sold separately)
- B. Sensor for remote installation in IP68 configuration
- C. Sensor for remote installation in IP65 configuration
- D. Paddlewheel system
- 1) Electrical cable: 8 m. (26.4 ft) standard
- 2) 4-pole cable plug according to DIN 43650-B/ISO 6952
- 3) PVC cap for installation into fittings
- 4) O-Ring seals available in EPDM or FPM
- 5) CPVC, PVDF or Stainless Steel sensor body
- 6) ECTFE (Halar®) Open-cell rotor
- 7) Ceramic shaft
- 8) Ceramic bearings

Halar® is a registered trademark of Ausimont-Solvay.

2.3. 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 is installed into the pipe using a wide range of insertion type fittings supplied by the flow sensor manufacturer.

2.4. Connections to FlowX3 Instruments

FlowX3 Sensors	FlowX3 Instruments					F9.50	F9.51	PLC
	F9.00	F9.01	F9.02	F9.30	F9.20			
F3.00.H	X	X	X	X		X	X	
F3.00.C					X			
F3.00.P								X
F3.01.H	X	X	X	X		X	X	
F3.01.C					X			
F3.15.H*		X	X	X		X	X	
F3.30.H*								

* with Output KIT mounted

2.5. Output Devices

2.5.1. K315 – Frequency Output & MIN alarm KIT



This Kit consists of an additional IP65 housing plugged on the sensor. It is equipped with an open collector frequency output and a mechanical SPDT contact. The MIN alarm set-point can be freely set by a potentiometer from 0.15 to 1 m/s (0.5 to 3.3 ft/s). When the flow velocity drops below the adjusted limit the relay output opens and the Local Status Indicator changes colour. It has been designed to protect a pump from running dry or pumping against a closed valve in the main pipeline.

2.5.2. K330 – 4-20 mA Output KIT



This Kit consists of an additional IP65 housing plugged on the sensor. It is a blind transmitter designed to convert the signal from the sensor into a 4...20 mA signal for long distance transmission.

2.5.3. Installation

The K315 and K330 Kits can be ordered directly mounted on top of the flow sensor or separately and then simply installed on the proper sensor. Please refer to the Instruction Manual of the Output KIT for proper installation and calibration.

3. Specifications

3.1. Technical Data

General (for both F3.00.H, F3.00.C & F3.00.P)

Pipe Size Range: DN15 to DN600 (0.5 to 24 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

Enclosure: IP68 or IP65

Wetted Materials:

Sensor Body: CPVC or PVDF or 316L SS

O-rings: EPDM or FPM

Rotor: ECTFE (Halar[®])

Shaft: Ceramic (Al_2O_3)

Bearings: Ceramic (Al_2O_3)

Standards & Approvals

Manufactured under ISO 9002

CE

Specific for F3.00.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 F3.00.C

Supply voltage: 3 to 5 VDC regulated or 3.6 Volt Lithium battery

Supply current: < 10 μ A

Output signal: square wave

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

Min. input impedance: 100 K Ω

Cable length: 8 m (26.4 ft) standard, 16 m (52.8 ft) maximum

Specific for F3.00.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.

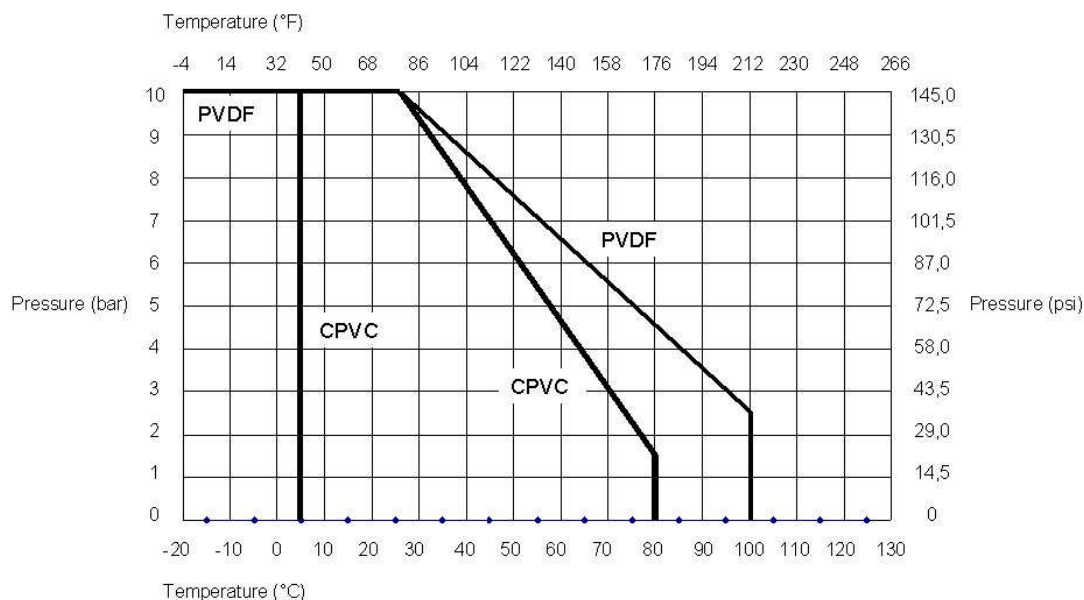
3.2. Maximum Operating Pressure / Temperature (25 years lifetime)

F3.00.H Sensor

CPVC body: 10 bar (145 psi) @ 25°C (77°F)
 1,5 bar (22 psi) @ 80° C (176°F)
 PVDF body: 10 bar (145 psi) @ 25°C (77°F)
 2,5 bar (36 psi) @ 100°C (212°F)
 SS body: 25 bar (363 psi) @ 120°C (248°F)

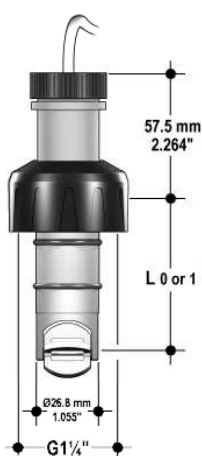
F3.00.C Sensor

CPVC body: 10 bar (145 psi) @ 25°C (77°F)
 1,5 bar (22 psi) @ 80° C (176°F)
 PVDF body: 10 bar (145 psi) @ 25°C (77°F)
 2,5 bar (36 psi) @ 100°C (212°F)
 SS body: 25 bar (363 psi) @ 100°C (212°F)

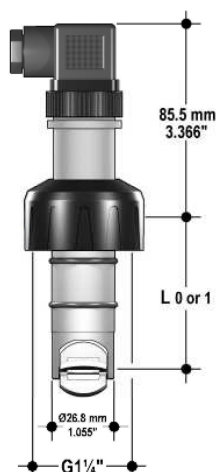


3.3. Dimensions

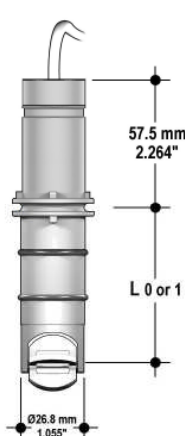
F3.00 IP68 Remote Sensor



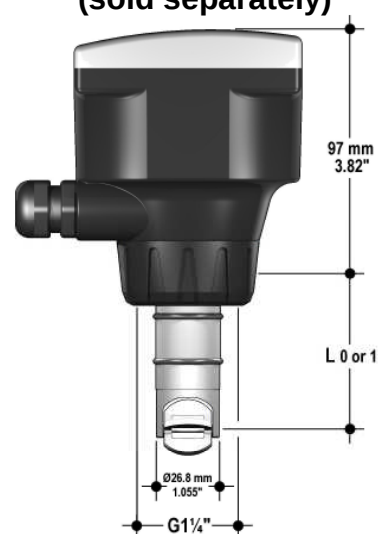
F3.00 IP65 Remote Sensor



F3.01 Compact Sensor



F3.01 + transmitter (sold separately)

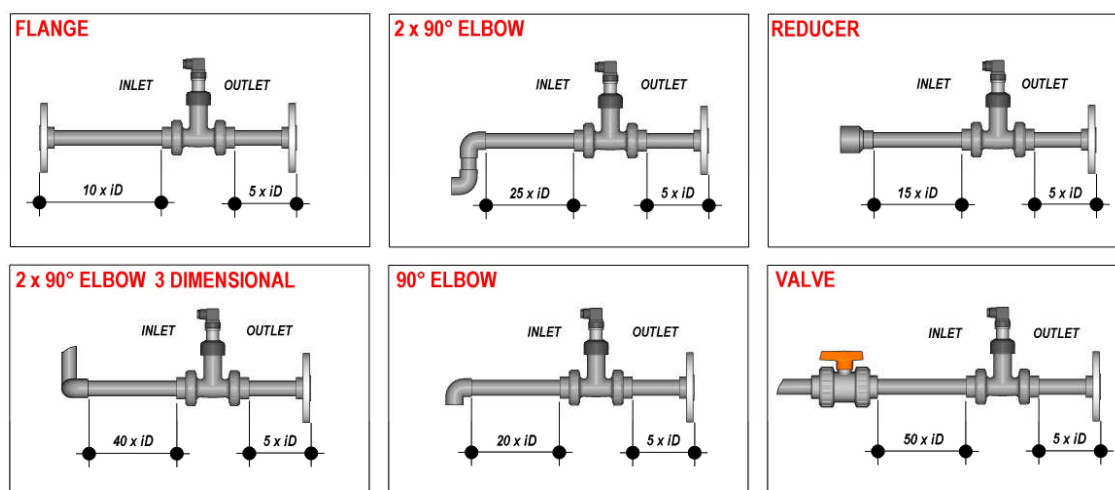


L0 = 68.3 mm (2.69")
 L1 = 98.5 mm (3.88").

4. Installation

4.1. 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.

4.2. 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.

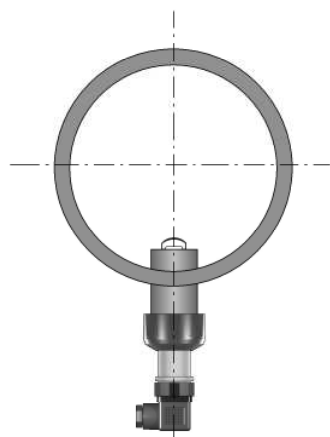


Fig. 1

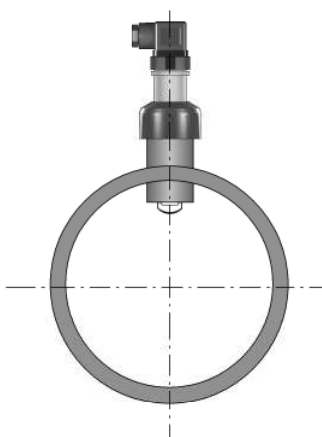


Fig. 2

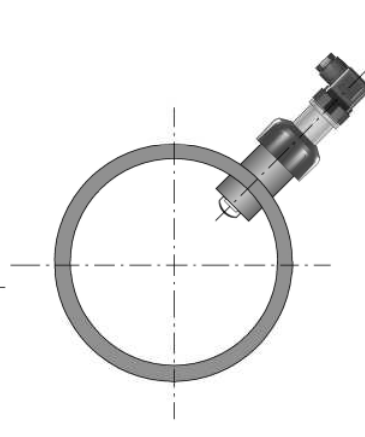
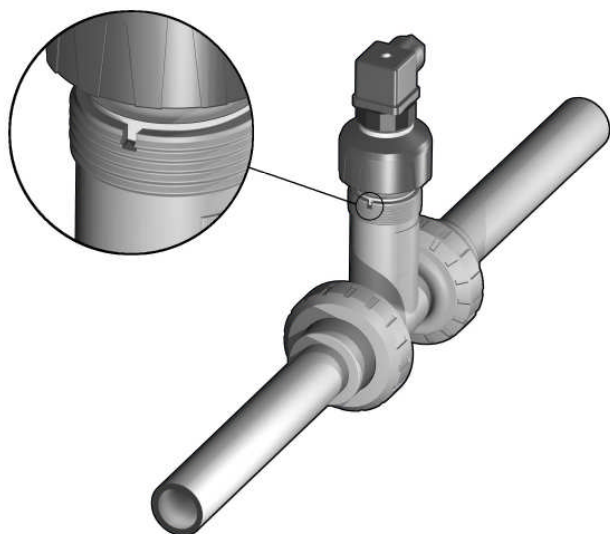


Fig. 3

4.3. Process Connection

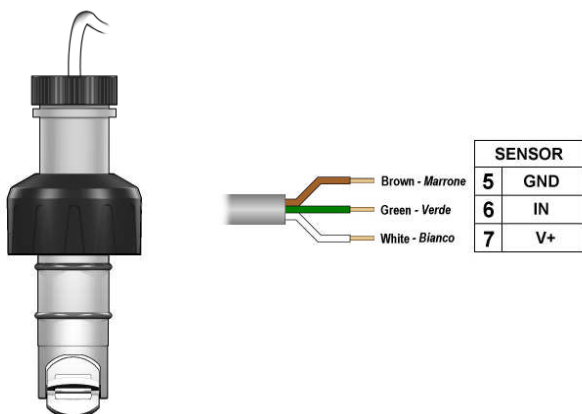


1. Lubricate the sensor O-rings with a silicone lubricant. Do not use any petroleum based lubricant that may damage the O-rings.
2. Lower the sensor into the fitting making sure the alignment tab is seated in the fitting notch.
3. Hand tighten the sensor cap. Do not use any tool otherwise cap and/or fitting threads may be damaged.

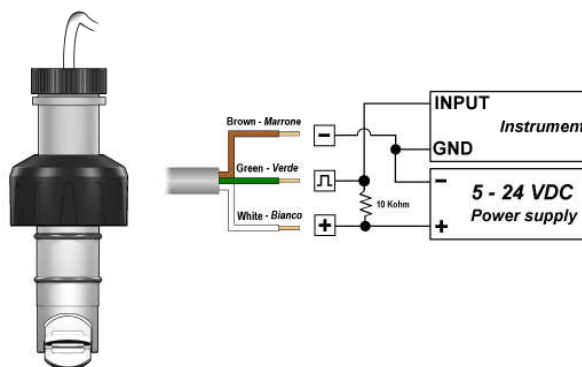
4.4. Wiring

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

F3.00.H IP68 Sensor Connection to FlowX3 Instruments

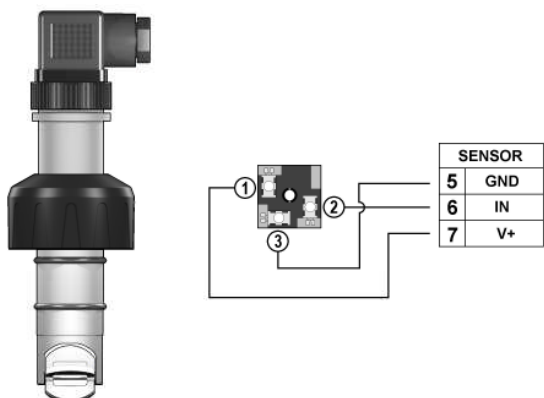


F3.00.H IP68 Sensor Connection to Other Brand Instruments

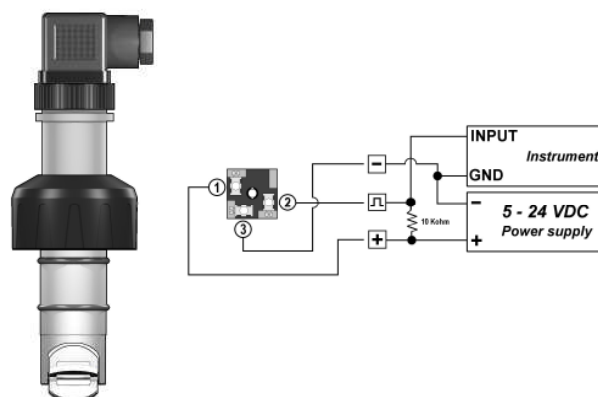


- 2.7Kohm Pull-up resistor may be required.

F3.00.H IP65 Sensor Connection to FlowX3 Instruments

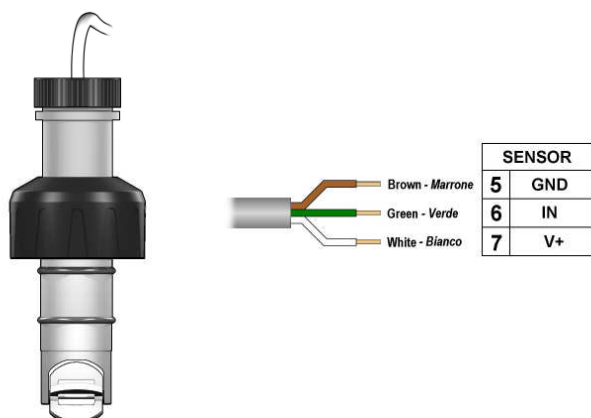


F3.00.H IP65 Sensor Connection to Other Brand Instruments

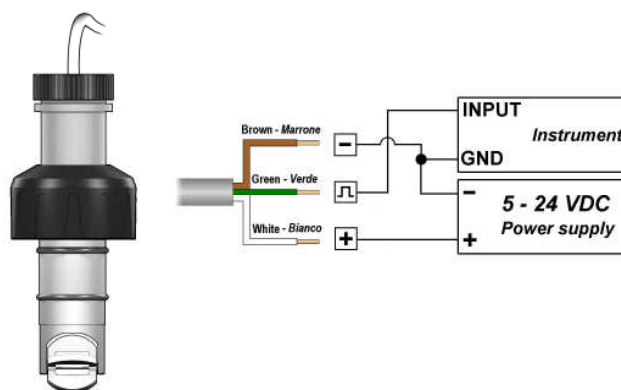


- 2.7Kohm Pull-up resistor may be required

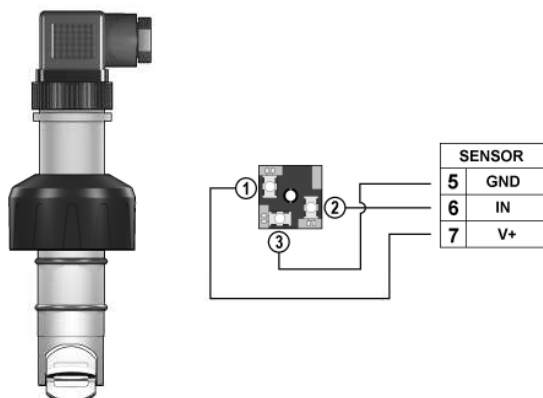
F3.00.C IP68 Sensor Connection to FlowX3 Instruments



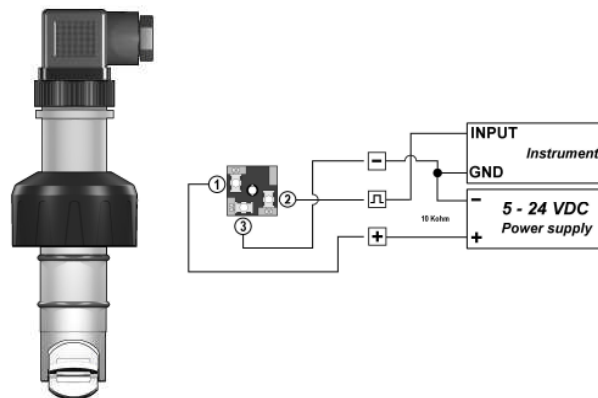
F3.00.C IP68 Sensor Connection to Other Brands Instruments



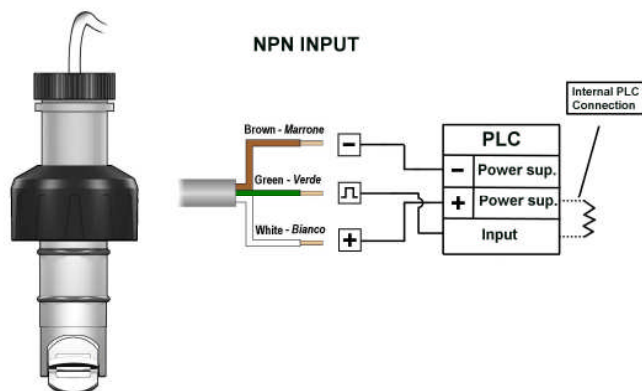
F3.00.C IP65 Sensor Connection to FlowX3 Instruments



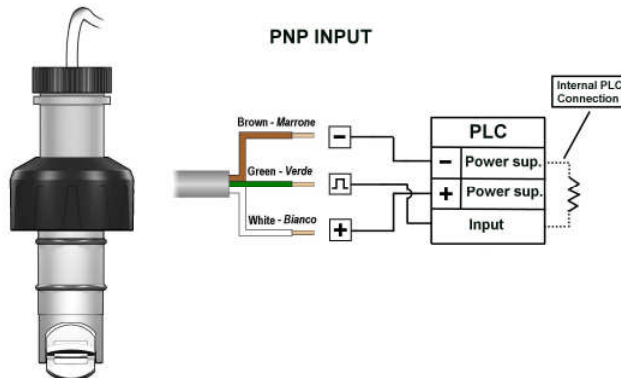
F3.00.C IP65 Sensor Connection to Other Brands Instruments



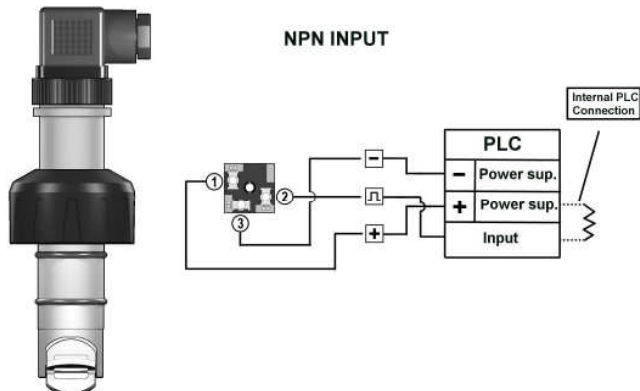
F3.00.P IP68 Sensor Connection to PLC with NPN Input



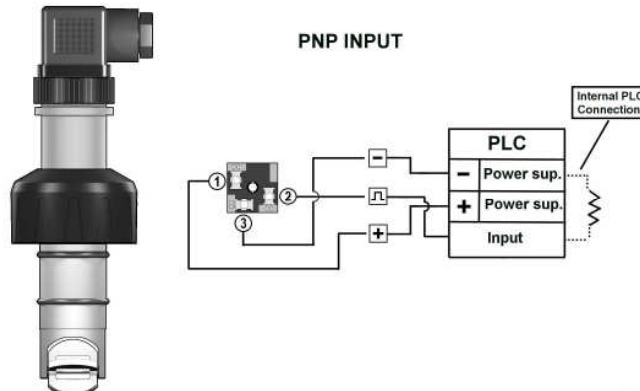
F3.00.P IP68 Sensor Connection to PLC with PNP Input



F3.00.P IP65 Sensor Connection to PLC with NPN Input



F3.00.P IP65 Sensor Connection to PLC with PNP Input



5. Installation Fittings

	Type	Description
	Plastic Tees	- Size: D20 to D50 (0.5" to 1.5") - Materials: PVC, CPVC, PP, PVDF
	CPVC Clamp Saddles	- Size: D63 to D225 (2" to 8") - Insert Materials: CPVC, PVDF
	PP Clamp Saddles	- Size: D250 to D315 (10" to 12") - Insert Material: CPVC
	PVC Wafer Fittings	- Size: D280 and D315 (10" and 12") - Insert Material: CPVC
	GR-PP Wafer Fittings	- Size: D280 and D315 (10" and 12") - Insert Material: CPVC
	Plastic Weld-on Adapters	- Size: D63 to D315 - Materials: PVC, CPVC, PP, PE
	316L SS Tees	- Size: D25 to D40 - BSP Female Threaded
	Metal Strap-on Saddles	- Size: DN80 to DN450 - Insert Material: CPVC - Special order for other sizes
	316L SS Weld-on Adapters	Size: D50 to D600 (1.5" to 24")

6. K-Factor Tables

K-Factor is the number of pulses a sensor produces for one liter of fluid measured. Here all K-Factors for water at ambient temperature are listed.

K-Factor values can depend upon the installation conditions.

Please contact your dealer for K-Factor values not included in the tables.

Installation on PVC pipes

ISO Metric PVC Tee Fittings for ISO SDR 21 pipes
(female ends for solvent welding)

Part No.	DN	d	K-Factor
TFIV20B	15	20	235,45
TFIV25B	20	25	142,46
TFIV32B	25	32	91,53
TFIV40B	32	40	51,57
TFIV50B	40	50	42,89
TFIV20D	15	20	235,45
TFIV25D	20	25	142,46
TFIV32D	25	32	91,53
TFIV40D	32	40	51,57
TFIV50D	40	50	42,89

PVC Glue-on Fittings

Part No.	DN	d	K-Factor
WAIV063	50	63	on request
WAIV075	65	75	on request
WAIV090	80	90	on request
WAIV110	100	110	on request
WAIV125	110	125	on request
WAIV140	125	140	on request
WAIV160	150	160	on request
WAIV200	180	200	on request
WAIV225	200	225	on request
WAIV250	225	250	on request
WAIV280	250	280	on request
WAIV315	280	315	on request

BSP Female Threaded PVC Tee Fittings for BS PN12 pipes
(parallel threaded female ends)

Part No.	DN	R	K-Factor
TFFV20B	15	1/2"	235,45
TFFV25B	20	3/4"	142,46
TFFV32B	25	1"	91,53
TFFV40B	32	1 1/4"	51,57
TFFV50B	40	1 1/2"	42,89
TFFV20D	15	1/2"	235,45
TFFV25D	20	3/4"	142,46
TFFV32D	25	1"	91,53
TFFV40D	32	1 1/4"	51,57
TFFV50D	40	1 1/2"	42,89

ISO Metric Clamp Saddles for ISO SDR 21 pipes

(PN10 up to d 90mm, PN12,5 from d 110mm)

Part No.	DN	d	K-Factor
SCIC063BVC	50	63	21,69
SCIC075BVC	65	75	14,98
SCIC090BVC	80	90	9,88
SCIC110BVC	100	110	6,06
SCIC125BVC	110	125	4,59
SCIC140BVC	125	140	3,59
SCIC160BVC	150	160	2,69
SCIC200BVC	180	200	1,65
SCIC225BVC	200	225	1,28
SCIC063DVC	50	63	21,69
SCIC075DVC	65	75	14,98
SCIC090DVC	80	90	9,88
SCIC110DVC	100	110	6,06
SCIC125DVC	110	125	4,59
SCIC140DVC	125	140	3,59
SCIC160DVC	150	160	2,69
SCIC200DVC	180	200	1,65
SCIC225DVC	200	225	1,28
SMIC250IVC	225	250	1,01
SMIC280IVC	250	280	0,79
SMIC315IVC	280	315	0,61

BS Solvent Welding PVC Tee Fittings for BS PN12 pipes
(female ends for solvent welding)

Part No.	DN	d	K-Factor
TFLV20B	15	1/2"	235,45
TFLV25B	20	3/4"	142,46
TFLV32B	25	1"	91,53
TFLV40B	32	1 1/4"	51,57
TFLV50B	40	1 1/2"	42,89
TFLV20D	15	1/2"	235,45
TFLV25D	20	3/4"	142,46
TFLV32D	25	1"	91,53
TFLV40D	32	1 1/4"	51,57
TFLV50D	40	1 1/2"	42,89

NPT Female Threaded PVC Tee Fittings for ASTM SCH. 80 pipes
(NPT threaded female ends)

Part No.	SIZE	R	K-Factor
TFNV20B	0.50"	1/2"	235,45
TFNV25B	0.75"	3/4"	142,46
TFNV32B	1.00"	1"	91,53
TFNV40B	1.25"	1 1/4"	51,57
TFNV50B	1.50"	1 1/2"	42,89
TFNV20D	0.50"	1/2"	235,45
TFNV25D	0.75"	3/4"	142,46
TFNV32D	1.00"	1"	91,53
TFNV40D	1.25"	1 1/4"	51,57
TFNV50D	1.50"	1 1/2"	42,89

ASTM SCH. 80 PVC Tee Fittings for ASTM SCH. 80 pipes
(female ends for solvent welding)

Part No.	SIZE	d	K-Factor
TFAV20B	0.50"	0,85"	235,45
TFAV25B	0.75"	1,06"	142,46
TFAV32B	1.00"	1,33"	91,53
TFAV40B	1.25"	1,67"	51,57
TFAV50B	1.50"	1,91"	42,89
TFAV20D	0.50"	0,85"	235,45
TFAV25D	0.75"	1,06"	142,46
TFAV32D	1.00"	1,33"	91,53
TFAV40D	1.25"	1,67"	51,57
TFAV50D	1.50"	1,91"	42,89

BS Clamp Saddles for BS PN12 pipes

Part No.	DN	d	K-Factor
SCLC2.0BVM	50	2"	24,10
SCLC3.0BVM	80	3"	10,29
SCLC4.0BVM	100	4"	5,72
SCLC6.0BVM	150	6"	2,48
SCLC8.0BVM	200	8"	1,34
SCLC2.0DVM	50	2"	24,10
SCLC3.0DVM	80	3"	10,29
SCLC4.0DVM	100	4"	5,72
SCLC6.0DVM	150	6"	2,48
SCLC8.0DVM	200	8"	1,34

ASTM SCH. 80 Clamp Saddles for ASTM SCH. 80 pipes

Part No.	SIZE	d	K-Factor
SCAC2.0BVM	2.00"	2,375"	29,74
SCAC2.5BVM	2.50"	2,875"	20,25
SCAC3.0BVM	3.00"	3,500"	12,36
SCAC4.0BVM	4.00"	4,500"	6,47
SCAC5.0BVM	5.00"	5,520"	4,00
SCAC6.0BVM	6.00"	6,625"	2,68
SCAC8.0BVM	8.00"	8,625"	1,46
SCAC2.0DVM	2.00"	2,375"	29,74
SCAC2.5DVM	2.50"	2,875"	20,25
SCAC3.0DVM	3.00"	3,500"	12,36
SCAC4.0DVM	4.00"	4,500"	6,47
SCAC5.0DVM	5.00"	5,520"	4,00
SCAC6.0DVM	6.00"	6,625"	2,68
SCAC8.0DVM	8.00"	8,625"	1,46

Installation on C-PVC pipes

ISO Metric CPVC Tee Fittings for ISO SDR 21 pipes (female ends for solvent welding)			
Part No.	DN	d	K-Factor
TFIC20B	15	20	235,45
TFIC25B	20	25	142,46
TFIC32B	25	32	91,53
TFIC40B	32	40	51,57
TFIC50B	40	50	42,89
TFIC20D	15	20	235,45
TFIC25D	20	25	142,46
TFIC32D	25	32	91,53
TFIC40D	32	40	51,57
TFIC50D	40	50	42,89

CPVC Glue-on Fittings			
Part No.	DN	d	K-Factor
WAIC063	50	63	on request
WAIC075	65	75	on request
WAIC090	80	90	on request
WAIC110	100	110	on request
WAIC125	110	125	on request
WAIC140	125	140	on request
WAIC160	150	160	on request
WAIC200	180	200	on request
WAIC225	200	225	on request
WAIC250	225	250	on request
WAIC280	250	280	on request
WAIC315	280	315	on request

ISO Clamp Saddles for ISO SDR 21 pipes			
Part No.	DN	d	K-Factor
SCIC063BVC	50	63	21,69
SCIC075BVC	65	75	14,98
SCIC090BVC	80	90	9,88
SCIC110BVC	100	110	6,06
SCIC125BVC	110	125	4,59
SCIC140BVC	125	140	3,59
SCIC160BVC	150	160	2,69
SCIC200BVC	180	200	1,65
SCIC225BVC	200	225	1,28
SCIC063DVC	50	63	21,69
SCIC075DVC	65	75	14,98
SCIC090DVC	80	90	9,88
SCIC110DVC	100	110	6,06
SCIC125DVC	110	125	4,59
SCIC140DVC	125	140	3,59
SCIC160DVC	150	160	2,69
SCIC200DVC	180	200	1,65
SCIC225DVC	200	225	1,28
SMIC250IVC	225	250	1,01
SMIC280IVC	250	280	0,79
SMIC315IVC	280	315	0,61

Installation on PP pipes

ISO Metric PP Tee Fittings for ISO SDR 11 pipes (female ends for socket welding)			
Part No.	DN	d	K-Factor
TFIM20B	15	20	212,17
TFIM25B	20	25	135,32
TFIM32B	25	32	89,36
TFIM40B	32	40	48,94
TFIM50B	40	50	42,10
TFIM20D	15	20	212,17
TFIM25D	20	25	135,32
TFIM32D	25	32	89,36
TFIM40D	32	40	48,94
TFIM50D	40	50	42,10

BSP Female Threaded PP Tee Fittings for BS pipes (parallel threaded female ends)			
Part No.	DN	R	K-Factor
TFFM20B	15	1/2"	212,17
TFFM25B	20	3/4"	135,32
TFFM32B	25	1"	89,36
TFFM40B	32	1 1/4"	48,94
TFFM50B	40	1 1/2"	42,10
TFFM20D	15	1/2"	212,17
TFFM25D	20	3/4"	135,32
TFFM32D	25	1"	89,36
TFFM40D	32	1 1/4"	48,94
TFFM50D	40	1 1/2"	42,10

ISO Clamp Saddles for ISO SDR 21 pipes			
Part No.	DN	d	K-Factor
SCIC063BME	50	63	27,50
SCIC075BME	65	75	18,56
SCIC090BME	80	90	12,44
SCIC110BME	100	110	7,59
SCIC125BME	110	125	5,77
SCIC140BME	125	140	4,49
SCIC160BME	150	160	3,38
SCIC200BME	180	200	2,07
SCIC225BME	200	225	1,60
SCIC063DME	50	63	27,50
SCIC075DME	65	75	18,56
SCIC090DME	80	90	12,44
SCIC110DME	100	110	7,59
SCIC125DME	110	125	5,77
SCIC140DME	125	140	4,49
SCIC160DME	150	160	3,38
SCIC200DME	180	200	2,07
SCIC225DME	200	225	1,60
SMIC250IME	225	250	1,27
SMIC280IME	250	280	0,99
SMIC315IME	280	315	0,77

PP Glue-on Fittings			
Part No.	DN	d	K-Factor
WAIM063	50	63	on request
WAIM075	65	75	on request
WAIM090	80	90	on request
WAIM110	100	110	on request
WAIM125	110	125	on request
WAIM140	125	140	on request
WAIM160	150	160	on request
WAIM200	180	200	on request
WAIM225	200	225	on request
WAIM250	225	250	on request
WAIM280	250	280	on request
WAIM315	280	315	on request

NPT Female Threaded PP Tee Fittings for ASTM SCH.80 pipes (NPT threaded female ends)			
Part No.	DN	R	K-Factor
TFNM20B	0.50"	1/2"	212,17
TFNM25B	0.75"	3/4"	135,32
TFNM32B	1.00"	1"	89,36
TFNM40B	1.25"	1 1/4"	48,94
TFNM50B	1.50"	1 1/2"	42,10
TFNM20D	0.50"	1/2"	212,17
TFNM25D	0.75"	3/4"	135,32
TFNM32D	1.00"	1"	89,36
TFNM40D	1.25"	1 1/4"	48,94
TFNM50D	1.50"	1 1/2"	42,10

ASTM SCH. 80 Clamp Saddles for ASTM SCH. 80 pipes			
Part No.	SIZE	d	K-Factor
SCAC2.0BME	2.00"	2,375"	29,83
SCAC2.5BME	2.50"	2,875"	20,37
SCAC3.0BME	3.00"	3,500"	12,36
SCAC4.0BME	4.00"	4,500"	6,47
SCAC5.0BME	5.00"	5,520"	3,92
SCAC6.0BME	6.00"	6,625"	1,53
SCAC8.0BME	8.00"	8,625"	1,44
SCAC2.0DME	2.00"	2,375"	29,83
SCAC2.5DME	2.50"	2,875"	20,37
SCAC3.0DME	3.00"	3,500"	12,36
SCAC4.0DME	4.00"	4,500"	6,47
SCAC5.0DME	5.00"	5,520"	3,92
SCAC6.0DME	6.00"	6,625"	1,53
SCAC8.0DME	8.00"	8,625"	1,44

Installation on PVDF pipes

ISO Metric PVDF Tee Fittings for ISO SDR 33 pipes (female ends for socket welding)			
Part No.	DN	d	K-Factor
TFIF20B	15	20	225,06
TFIF25B	20	25	139,38
TFIF32B	25	32	94,66
TFIF40B	32	40	51,37
TFIF50B	40	50	43,07
TFIF20D	15	20	225,06
TFIF25D	20	25	139,38
TFIF32D	25	32	94,66
TFIF40D	32	40	51,37
TFIF50D	40	50	43,07

ISO Clamp Saddles for ISO SDR 33 pipes			
Part No.	DN	d	K-Factor
SCIC063BF	50	63	20,58
SCIC075BF	65	75	14,09
SCIC090BF	80	90	9,29
SCIC110BF	100	110	5,69
SCIC125BF	110	125	4,31
SCIC140BF	125	140	3,36
SCIC160BF	150	160	2,52
SCIC200BF	180	200	1,55
SCIC225BF	200	225	1,20
SCIC063DF	50	63	20,58
SCIC075DF	65	75	14,09
SCIC090DF	80	90	9,29
SCIC110DF	100	110	5,69
SCIC125DF	110	125	4,31
SCIC140DF	125	140	3,36
SCIC160DF	150	160	2,52
SCIC200DF	180	200	1,55
SCIC225DF	200	225	1,20

Installation on PE pipes

ISO Metric PVC Tee Fittings for PE SDR 11 pipes (PE end connectors for electrofusion or butt welding)			
Part No.	DN	d	K-Factor
TFIV20BE	15	20	193,70
TFIV25BE	20	25	134,07
TFIV32BE	25	32	85,29
TFIV40BE	32	40	48,68
TFIV50BE	40	50	41,68
TFIV20DE	15	20	193,70
TFIV25DE	20	25	134,07
TFIV32DE	25	32	85,29
TFIV40DE	32	40	48,68
TFIV50DE	40	50	41,68

PE Glue-on Fittings			
Part No.	DN	d	K-Factor
WAIE063	50	63	on request
WAIE075	65	75	on request
WAIE090	80	90	on request
WAIE110	100	110	on request
WAIE125	110	125	on request
WAIE140	125	140	on request
WAIE160	150	160	on request
WAIE200	180	200	on request
WAIE225	200	225	on request
WAIE250	225	250	on request
WAIE280	250	280	on request
WAIE315	280	315	on request

ISO Clamp Saddles for PE SDR 11 pipes			
Part No.	DN	d	K-Factor
SCIC063BME	50	63	27,39
SCIC075BME	65	75	18,75
SCIC090BME	80	90	12,41
SCIC110BME	100	110	7,57
SCIC125BME	110	125	5,76
SCIC140BME	125	140	4,49
SCIC160BME	150	160	3,37
SCIC200BME	180	200	2,02
SCIC225BME	200	225	1,60
SCIC063DME	50	63	27,39
SCIC075DME	65	75	18,75
SCIC090DME	80	90	12,41
SCIC110DME	100	110	7,57
SCIC125DME	110	125	5,76
SCIC140DME	125	140	4,49
SCIC160DME	150	160	3,37
SCIC200DME	180	200	2,02
SCIC225DME	200	225	1,60
SMIC250IVC	225	250	1,27
SMIC280IVC	250	280	0,99
SMIC315IVC	280	315	0,77

Special Installation on DN 250 and DN 300 pipes

PVC Wafer Fittings			
Part No.	DN	d	K-Factor
WVIC280B	250	280	on request
WVIC315B	300	315	on request
WVIC280D	250	280	on request
WVIC315D	300	315	on request

PP Wafer Fittings			
Part No.	DN	d	K-Factor
WFIC280B	250	280	on request
WFIC315B	300	315	on request
WFIC280D	250	280	on request
WFIC315D	300	315	on request

Metal Fittings

316L SS Threaded Tees (BSP Female Threads)			
Part No.	DN	R	K-Factor
TFFX25	20	3/4"	157,06
TFFX32	25	1"	92,84
TFFX40	32	1 1/4"	51,52

Metal Strap-on Saddles mounted on Cast Iron pipes		
Part No.	DN	K-Factor
SZIC080I	80	10,22
SZIC100I	100	6,01
SZIC125I	125	3,64
SZIC150I	150	2,46
SZIC200I	200	1,28
SZIC250I	250	0,79
SZIC300I	300	0,53
SZIC350I	350	0,4
SZIC400I	400	0,31
SZIC450I	450	0,24

Metal Strap-on Saddles mounted on Other Metal pipes		
Part No.	DN	K-Factor
SZIC080I	80	9,61
SZIC100I	100	5,22
SZIC125I	125	3,31
SZIC150I	150	2,22
SZIC200I	200	1,23
SZIC250I	250	0,75
SZIC300I	300	0,52
SZIC350I	350	0,43
SZIC400I	400	0,32
SZIC450I	450	-----

316L SS Weld-on Adapters mounted on Cast Iron pipes		
Part No.	DN	K-Factor
WAIXL0	40	-----
WAIXL0	50	-----
WAIXL0	60	19,78
WAIXL0	65	-----
WAIXL0	80	10,22
WAIXL0	100	6,01
WAIXL0	110	-----
WAIXL0	125	3,64
WAIXL0	150	2,46
WAIXL0	175	-----
WAIXL0	200	1,28
WAIXL1	225	-----
WAIXL1	250	0,79
WAIXL1	300	0,53
WAIXL1	350	0,40
WAIXL1	400	0,31
WAIXL1	450	0,24
WAIXL1	500	0,20
WAIXL1	600	0,14

316L SS Weld-on Adapters mounted on Other Metal pipes		
Part No.	DN	K-Factor
WAIXL0	40	36,17
WAIXL0	50	23,71
WAIXL0	60	-----
WAIXL0	65	13,93
WAIXL0	80	9,61
WAIXL0	100	5,22
WAIXL0	110	-----
WAIXL0	125	3,31
WAIXL0	150	2,22
WAIXL0	175	-----
WAIXL0	200	1,23
WAIXL1	225	-----
WAIXL1	250	0,75
WAIXL1	300	0,52
WAIXL1	350	0,43
WAIXL1	400	0,32
WAIXL1	450	-----
WAIXL1	500	0,20
WAIXL1	600	-----

7. Ordering Data

FlowX3 F3.00.H.XX (Remote version)

Part No.	Version	Power supply	Length	Body	O-rings	Enclosure
F3.00.H.01	Hall	5 - 24 VDC	L0	CPVC	EPDM	IP68
F3.00.H.02	Hall	5 - 24 VDC	L0	CPVC	FPM	IP68
F3.00.H.03	Hall	5 - 24 VDC	L1	CPVC	EPDM	IP68
F3.00.H.04	Hall	5 - 24 VDC	L1	CPVC	FPM	IP68
F3.00.H.05	Hall	5 - 24 VDC	L0	PVDF	EPDM	IP68
F3.00.H.06	Hall	5 - 24 VDC	L0	PVDF	FPM	IP68
F3.00.H.07	Hall	5 - 24 VDC	L1	PVDF	EPDM	IP68
F3.00.H.08	Hall	5 - 24 VDC	L1	PVDF	FPM	IP68
F3.00.H.09	Hall	5 - 24 VDC	L0	316SS	EPDM	IP68
F3.00.H.10	Hall	5 - 24 VDC	L0	316SS	FPM	IP68
F3.00.H.11	Hall	5 - 24 VDC	L1	316SS	EPDM	IP68
F3.00.H.12	Hall	5 - 24 VDC	L1	316SS	FPM	IP68
F3.00.H.25	Hall	5 - 24 VDC	L0	BRASS	EPDM	IP68
F3.00.H.26	Hall	5 - 24 VDC	L0	BRASS	FPM	IP68
F3.00.H.27	Hall	5 - 24 VDC	L1	BRASS	EPDM	IP68
F3.00.H.28	Hall	5 - 24 VDC	L1	BRASS	FPM	IP68
F3.00.H.13	Hall	5 - 24 VDC	L0	CPVC	EPDM	IP65
F3.00.H.14	Hall	5 - 24 VDC	L0	CPVC	FPM	IP65
F3.00.H.15	Hall	5 - 24 VDC	L1	CPVC	EPDM	IP65
F3.00.H.16	Hall	5 - 24 VDC	L1	CPVC	FPM	IP65
F3.00.H.17	Hall	5 - 24 VDC	L0	PVDF	EPDM	IP65
F3.00.H.18	Hall	5 - 24 VDC	L0	PVDF	FPM	IP65
F3.00.H.19	Hall	5 - 24 VDC	L1	PVDF	EPDM	IP65
F3.00.H.20	Hall	5 - 24 VDC	L1	PVDF	FPM	IP65
F3.00.H.21	Hall	5 - 24 VDC	L0	316SS	EPDM	IP65
F3.00.H.22	Hall	5 - 24 VDC	L0	316SS	FPM	IP65
F3.00.H.23	Hall	5 - 24 VDC	L1	316SS	EPDM	IP65
F3.00.H.24	Hall	5 - 24 VDC	L1	316SS	FPM	IP65
F3.00.H.29	Hall	5 - 24 VDC	L0	BRASS	EPDM	IP65
F3.00.H.30	Hall	5 - 24 VDC	L0	BRASS	FPM	IP65
F3.00.H.31	Hall	5 - 24 VDC	L1	BRASS	EPDM	IP65
F3.00.H.32	Hall	5 - 24 VDC	L1	BRASS	FPM	IP65

FlowX3 F3.00.C.XX (Remote version)

Part No.	Version	Power supply	Length	Body	O-rings	Enclosure
F3.00.C.01	Coil	3 - 5 VDC	L0	CPVC	EPDM	IP68
F3.00.C.02	Coil	3 - 5 VDC	L0	CPVC	FPM	IP68
F3.00.C.03	Coil	3 - 5 VDC	L1	CPVC	EPDM	IP68
F3.00.C.04	Coil	3 - 5 VDC	L1	CPVC	FPM	IP68
F3.00.C.05	Coil	3 - 5 VDC	L0	PVDF	EPDM	IP68
F3.00.C.06	Coil	3 - 5 VDC	L0	PVDF	FPM	IP68
F3.00.C.07	Coil	3 - 5 VDC	L1	PVDF	EPDM	IP68
F3.00.C.08	Coil	3 - 5 VDC	L1	PVDF	FPM	IP68
F3.00.C.09	Coil	3 - 5 VDC	L0	316SS	EPDM	IP68
F3.00.C.10	Coil	3 - 5 VDC	L0	316SS	FPM	IP68
F3.00.C.11	Coil	3 - 5 VDC	L1	316SS	EPDM	IP68
F3.00.C.12	Coil	3 - 5 VDC	L1	316SS	FPM	IP68
F3.00.C.25	Coil	3 - 5 VDC	L0	BRASS	EPDM	IP68
F3.00.C.26	Coil	3 - 5 VDC	L0	BRASS	FPM	IP68
F3.00.C.27	Coil	3 - 5 VDC	L1	BRASS	EPDM	IP68
F3.00.C.28	Coil	3 - 5 VDC	L1	BRASS	FPM	IP68
F3.00.C.13	Coil	3 - 5 VDC	L0	CPVC	EPDM	IP65
F3.00.C.14	Coil	3 - 5 VDC	L0	CPVC	FPM	IP65
F3.00.C.15	Coil	3 - 5 VDC	L1	CPVC	EPDM	IP65
F3.00.C.16	Coil	3 - 5 VDC	L1	CPVC	FPM	IP65
F3.00.C.17	Coil	3 - 5 VDC	L0	PVDF	EPDM	IP65
F3.00.C.18	Coil	3 - 5 VDC	L0	PVDF	FPM	IP65
F3.00.C.19	Coil	3 - 5 VDC	L1	PVDF	EPDM	IP65
F3.00.C.20	Coil	3 - 5 VDC	L1	PVDF	FPM	IP65
F3.00.C.21	Coil	3 - 5 VDC	L0	316SS	EPDM	IP65
F3.00.C.22	Coil	3 - 5 VDC	L0	316SS	FPM	IP65
F3.00.C.23	Coil	3 - 5 VDC	L1	316SS	EPDM	IP65
F3.00.C.24	Coil	3 - 5 VDC	L1	316SS	FPM	IP65
F3.00.C.29	Coil	3 - 5 VDC	L0	BRASS	EPDM	IP65
F3.00.C.30	Coil	3 - 5 VDC	L0	BRASS	FPM	IP65
F3.00.C.31	Coil	3 - 5 VDC	L1	BRASS	EPDM	IP65
F3.00.C.32	Coil	3 - 5 VDC	L1	BRASS	FPM	IP65

FlowX3 F3.00.P.XX (Remote version)

Part No.	Version	Power supply	Length	Body	O-rings	Enclosure
F3.00.P.01	Push-Pull	12 - 24 VDC	L0	CPVC	EPDM	IP68
F3.00.P.02	Push-Pull	12 - 24 VDC	L0	CPVC	FPM	IP68
F3.00.P.03	Push-Pull	12 - 24 VDC	L1	CPVC	EPDM	IP68
F3.00.P.04	Push-Pull	12 - 24 VDC	L1	CPVC	FPM	IP68
F3.00.P.05	Push-Pull	12 - 24 VDC	L0	PVDF	EPDM	IP68
F3.00.P.06	Push-Pull	12 - 24 VDC	L0	PVDF	FPM	IP68
F3.00.P.07	Push-Pull	12 - 24 VDC	L1	PVDF	EPDM	IP68
F3.00.P.08	Push-Pull	12 - 24 VDC	L1	PVDF	FPM	IP68
F3.00.P.09	Push-Pull	12 - 24 VDC	L0	316SS	EPDM	IP68
F3.00.P.10	Push-Pull	12 - 24 VDC	L0	316SS	FPM	IP68
F3.00.P.11	Push-Pull	12 - 24 VDC	L1	316SS	EPDM	IP68
F3.00.P.12	Push-Pull	12 - 24 VDC	L1	316SS	FPM	IP68
F3.00.P.25	Push-Pull	12 - 24 VDC	L0	BRASS	EPDM	IP68
F3.00.P.26	Push-Pull	12 - 24 VDC	L0	BRASS	FPM	IP68
F3.00.P.27	Push-Pull	12 - 24 VDC	L1	BRASS	EPDM	IP68
F3.00.P.28	Push-Pull	12 - 24 VDC	L1	BRASS	FPM	IP68
F3.00.P.13	Push-Pull	12 - 24 VDC	L0	CPVC	EPDM	IP65
F3.00.P.14	Push-Pull	12 - 24 VDC	L0	CPVC	FPM	IP65
F3.00.P.15	Push-Pull	12 - 24 VDC	L1	CPVC	EPDM	IP65
F3.00.P.16	Push-Pull	12 - 24 VDC	L1	CPVC	FPM	IP65
F3.00.P.17	Push-Pull	12 - 24 VDC	L0	PVDF	EPDM	IP65
F3.00.P.18	Push-Pull	12 - 24 VDC	L0	PVDF	FPM	IP65
F3.00.P.19	Push-Pull	12 - 24 VDC	L1	PVDF	EPDM	IP65
F3.00.P.20	Push-Pull	12 - 24 VDC	L1	PVDF	FPM	IP65
F3.00.P.21	Push-Pull	12 - 24 VDC	L0	316SS	EPDM	IP65
F3.00.P.22	Push-Pull	12 - 24 VDC	L0	316SS	FPM	IP65
F3.00.P.23	Push-Pull	12 - 24 VDC	L1	316SS	EPDM	IP65
F3.00.P.24	Push-Pull	12 - 24 VDC	L1	316SS	FPM	IP65
F3.00.P.29	Push-Pull	12 - 24 VDC	L0	BRASS	EPDM	IP65
F3.00.P.30	Push-Pull	12 - 24 VDC	L0	BRASS	FPM	IP65
F3.00.P.31	Push-Pull	12 - 24 VDC	L1	BRASS	EPDM	IP65
F3.00.P.32	Push-Pull	12 - 24 VDC	L1	BRASS	FPM	IP65

FlowX3 F3.01.X.XX (Compact version)

Part No.	Version	Power supply	Length	Body	O-rings	Enclosure
F3.01.H.01	Hall	5 - 24 VDC	L0	CPVC	EPDM	IP68
F3.01.H.02	Hall	5 - 24 VDC	L0	CPVC	FPM	IP68
F3.01.H.03	Hall	5 - 24 VDC	L1	CPVC	EPDM	IP68
F3.01.H.04	Hall	5 - 24 VDC	L1	CPVC	FPM	IP68
F3.01.H.05	Hall	5 - 24 VDC	L0	PVDF	EPDM	IP68
F3.01.H.06	Hall	5 - 24 VDC	L0	PVDF	FPM	IP68
F3.01.H.07	Hall	5 - 24 VDC	L1	PVDF	EPDM	IP68
F3.01.H.08	Hall	5 - 24 VDC	L1	PVDF	FPM	IP68
F3.01.H.09	Hall	5 - 24 VDC	L0	316SS	EPDM	IP68
F3.01.H.10	Hall	5 - 24 VDC	L0	316SS	FPM	IP68
F3.01.H.11	Hall	5 - 24 VDC	L1	316SS	EPDM	IP68
F3.01.H.12	Hall	5 - 24 VDC	L1	316SS	FPM	IP68
F3.01.H.25	Hall	5 - 24 VDC	L0	BRASS	EPDM	IP68
F3.01.H.26	Hall	5 - 24 VDC	L0	BRASS	FPM	IP68
F3.01.H.27	Hall	5 - 24 VDC	L1	BRASS	EPDM	IP68
F3.01.H.28	Hall	5 - 24 VDC	L1	BRASS	FPM	IP68
F3.01.C.01	Coil	3 - 5 VDC	L0	CPVC	EPDM	IP68
F3.01.C.02	Coil	3 - 5 VDC	L0	CPVC	FPM	IP68
F3.01.C.03	Coil	3 - 5 VDC	L1	CPVC	EPDM	IP68
F3.01.C.04	Coil	3 - 5 VDC	L1	CPVC	FPM	IP68
F3.01.C.05	Coil	3 - 5 VDC	L0	PVDF	EPDM	IP68
F3.01.C.06	Coil	3 - 5 VDC	L0	PVDF	FPM	IP68
F3.01.C.07	Coil	3 - 5 VDC	L1	PVDF	EPDM	IP68
F3.01.C.08	Coil	3 - 5 VDC	L1	PVDF	FPM	IP68
F3.01.C.09	Coil	3 - 5 VDC	L0	316SS	EPDM	IP68
F3.01.C.10	Coil	3 - 5 VDC	L0	316SS	FPM	IP68
F3.01.C.11	Coil	3 - 5 VDC	L1	316SS	EPDM	IP68
F3.01.C.12	Coil	3 - 5 VDC	L1	316SS	FPM	IP68
F3.01.C.25	Coil	3 - 5 VDC	L0	BRASS	EPDM	IP68
F3.01.C.26	Coil	3 - 5 VDC	L0	BRASS	FPM	IP68
F3.01.C.27	Coil	3 - 5 VDC	L1	BRASS	EPDM	IP68
F3.01.C.28	Coil	3 - 5 VDC	L1	BRASS	FPM	IP68

FlowX3 F3.15.H.XX
(with O.C. output & MIN alarm)

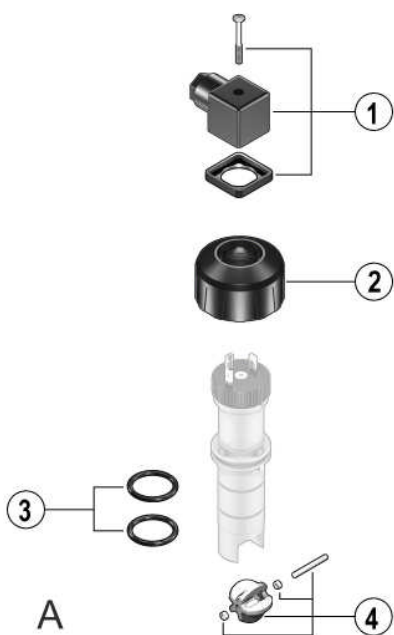
Part No.	Version	Power supply	Length	Body	O-rings	Enclosure
F3.15.H.01	Hall	12 - 24 VDC	L0	CPVC	EPDM	IP65
F3.15.H.02	Hall	12 - 24 VDC	L0	CPVC	FPM	IP65
F3.15.H.03	Hall	12 - 24 VDC	L1	CPVC	EPDM	IP65
F3.15.H.04	Hall	12 - 24 VDC	L1	CPVC	FPM	IP65
F3.15.H.05	Hall	12 - 24 VDC	L0	PVDF	EPDM	IP65
F3.15.H.06	Hall	12 - 24 VDC	L0	PVDF	FPM	IP65
F3.15.H.07	Hall	12 - 24 VDC	L1	PVDF	EPDM	IP65
F3.15.H.08	Hall	12 - 24 VDC	L1	PVDF	FPM	IP65
F3.15.H.09	Hall	12 - 24 VDC	L0	316SS	EPDM	IP65
F3.15.H.10	Hall	12 - 24 VDC	L0	316SS	FPM	IP65
F3.15.H.11	Hall	12 - 24 VDC	L1	316SS	EPDM	IP65
F3.15.H.12	Hall	12 - 24 VDC	L1	316SS	FPM	IP65
F3.15.H.13	Hall	12 - 24 VDC	L0	BRASS	EPDM	IP65
F3.15.H.14	Hall	12 - 24 VDC	L0	BRASS	FPM	IP65
F3.15.H.15	Hall	12 - 24 VDC	L1	BRASS	EPDM	IP65
F3.15.H.16	Hall	12 - 24 VDC	L1	BRASS	FPM	IP65

FlowX3 F3.30.H.XX (with 4...20 mA output)

Part No.	Version	Power supply	Length	Body	O-rings	Enclosure
F3.30.H.01	Hall	12 - 24 VDC	L0	CPVC	EPDM	IP65
F3.30.H.02	Hall	12 - 24 VDC	L0	CPVC	FPM	IP65
F3.30.H.03	Hall	12 - 24 VDC	L1	CPVC	EPDM	IP65
F3.30.H.04	Hall	12 - 24 VDC	L1	CPVC	FPM	IP65
F3.30.H.05	Hall	12 - 24 VDC	L0	PVDF	EPDM	IP65
F3.30.H.06	Hall	12 - 24 VDC	L0	PVDF	FPM	IP65
F3.30.H.07	Hall	12 - 24 VDC	L1	PVDF	EPDM	IP65
F3.30.H.08	Hall	12 - 24 VDC	L1	PVDF	FPM	IP65
F3.30.H.09	Hall	12 - 24 VDC	L0	316SS	EPDM	IP65
F3.30.H.10	Hall	12 - 24 VDC	L0	316SS	FPM	IP65
F3.30.H.11	Hall	12 - 24 VDC	L1	316SS	EPDM	IP65
F3.30.H.12	Hall	12 - 24 VDC	L1	316SS	FPM	IP65
F3.30.H.13	Hall	12 - 24 VDC	L0	BRASS	EPDM	IP65
F3.30.H.14	Hall	12 - 24 VDC	L0	BRASS	FPM	IP65
F3.30.H.15	Hall	12 - 24 VDC	L1	BRASS	EPDM	IP65
F3.30.H.16	Hall	12 - 24 VDC	L1	BRASS	FPM	IP65

Spare Parts

Item	Part No.	Name	Description
A-1	F3.SP1	4-pole Cable Plug	Cable Plug according to DIN 43650
A-2	F3.SP2.1	Sensor Cap	Black Sensor Cap, for Hall version
A-2	F3.SP2.2	Sensor Cap	Red Sensor Cap, for Coil version
A-3	F3.SP3.1	O-Rings	EPDM Sensor body O-rings
A-3	F3.SP3.2	O-Rings	FPM Sensor body O-rings
A-4	F3.SP4	Rotor KIT	ECTFE (Halar) rotor with Ceramic Shaft and Bearings
	F3.SP5.1	Sensor Plug	CPVC Sensor Plug
	F3.SP5.2	Sensor Plug	PVDF Sensor Plug
	F3.SP5.3	Sensor Plug	Stainless Steel Sensor Plug
	F3.SP6	Electrical cable	Cable (per meter), 3 cond., 22AWG



F.I.P. Formatura Iniezione Polimeri S.p.A.
Loc. Pian di Parata, 16015 Casella (GE) – Italy
Tel +39 010 96211 – Fax +39 010 9621209

www.flsnet.it