



# FlowX3 F9.00 Flow Monitor & Transmitter

900



FLS FlowX3 F9.00 Flow Monitors & Transmitters are designed to convert the signal from all FlowX3 flow sensors into a display indication and a 4-20 mA signal for long distance transmission. A very simple and complete choice of options are granted by single or dual input/output, one open collector output and two optional open collector or relay outputs. The high flexibility is also maximized with only one packaging for compact pipe mount, panel or wall installation. Self explaining calibration menus allow a customized setup of all measuring parameters and the state of the art electronic design ensures long-term reliable and stable signals.

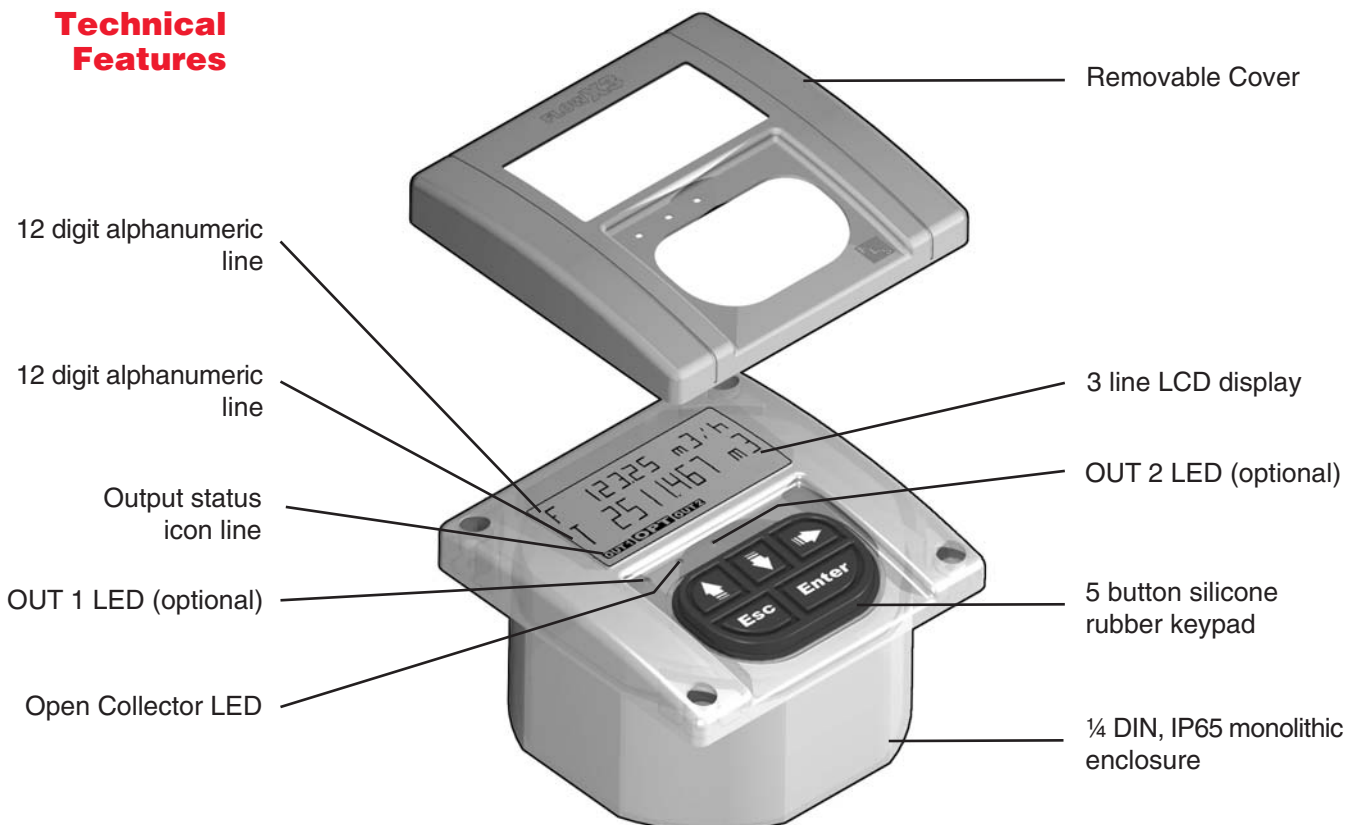
## Main Features


- Permanent and resettable totalizer.
- Adjustable outputs.
- Relay and Open Collector options.
- Installation flexibility.
- 3 line alphanumeric LCD.
- IP65 monolithic packaging.
- 5 button keypad.
- Output simulation for system testing.
- One packaging for compact/pipe, panel or wall installation.
- Self explaining calibration menus.
- Auto-calibration.

## Applications

- Flow control and measuring.
- Water treatment and regeneration.
- Industrial wastewater treatment and recovery.
- Water distribution.
- Leak detection.
- Processing and manufacturing industry.
- Textile finishing.
- Filtration systems.
- Chemical Industry.
- Liquid delivery systems.
- Auxiliary plants.
- Swimming pools & Spas.

## Technical Features



Flow Monitor & Transmitter	Part No.	Wire Power Tech.	Associated Flow Sensor	Sensor Input	4-20 mA Output	Open Collector Output	Relay Output
	<b>F9.00</b>	2 wire	Hall Effect	1	1	1 - MIN, MAX, Pulse, Freq, Off	----
	<b>F9.01</b>	3/4 wire	Hall Effect	1	1	3 - MIN, MAX, Pulse, Freq, Off	----
	<b>F9.02</b>	3/4 wire	Hall Effect	1	1	1 - MIN, MAX, Pulse, Freq, Off	2 - MIN, MAX, Pulse, Off

## Engineering Data

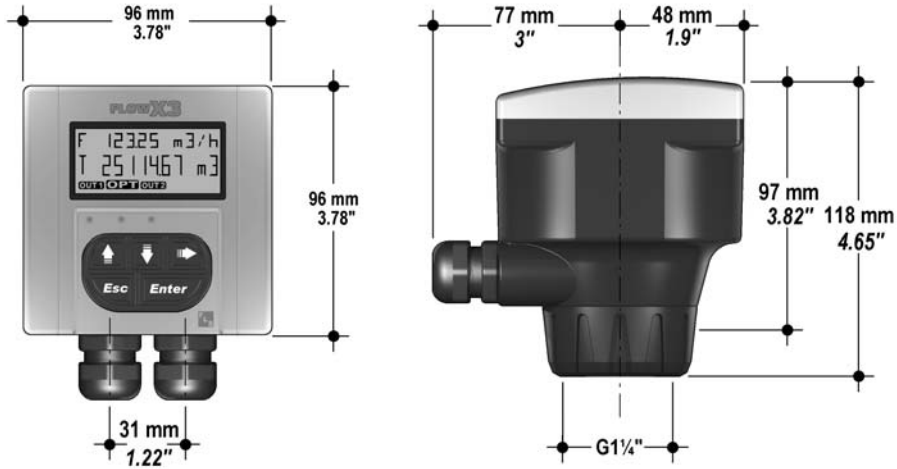
- The flow transmitter is designed with only one packaging for compact/pipe, panel or wall installation.
- The flow transmitter has ¼ DIN panel mount standard dimensions: 96 x 96 mm (3.8 x 3.8 inch).
- The instrument meets IP65 standards.
- The instrument provides flow rate indication and dual totalization with fully scaleable engineering units.
- The flow transmitter is equipped with a 3 line LCD: 2 x 12 alphanumeric lines and 1 icon line
- The flow transmitter is equipped with a silicone rubber 5 button keypad.
- The flow transmitter is compatible with all FLS FlowX3 Hall Effect Flow Sensor.
- The instrument provides auto-calibration and simulation options.

## Connections to FlowX3 Sensors

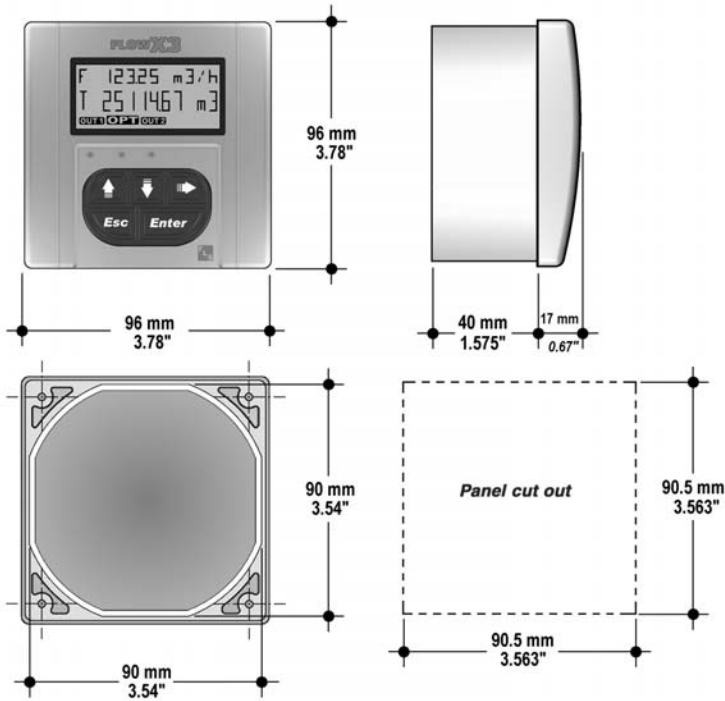
Flow X3 Monitors	Flow X3 Sensors											
	F3.00.H	F3.00.C	F3.01.H	F3.01.C	F3.15.H*	F3.30.H*	ULF.H	ULF.R	ULF3.15*	ULF3.30*	F111.H	F111.C
<b>F9.00</b>	■		■		■		■		■		■	
<b>F9.01</b>	■		■		■		■		■		■	
<b>F9.02</b>	■		■		■		■		■		■	

\* with Output Kit mounted.

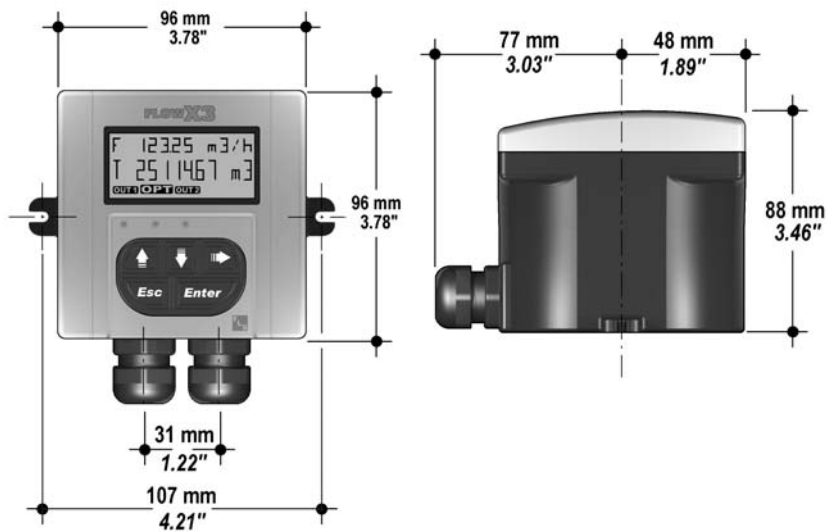
## Dimensions Compact Mount



## Panel Mount



## Wall Mount

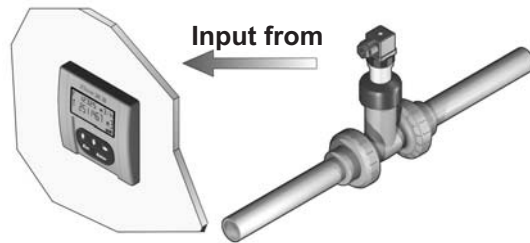


## Installation

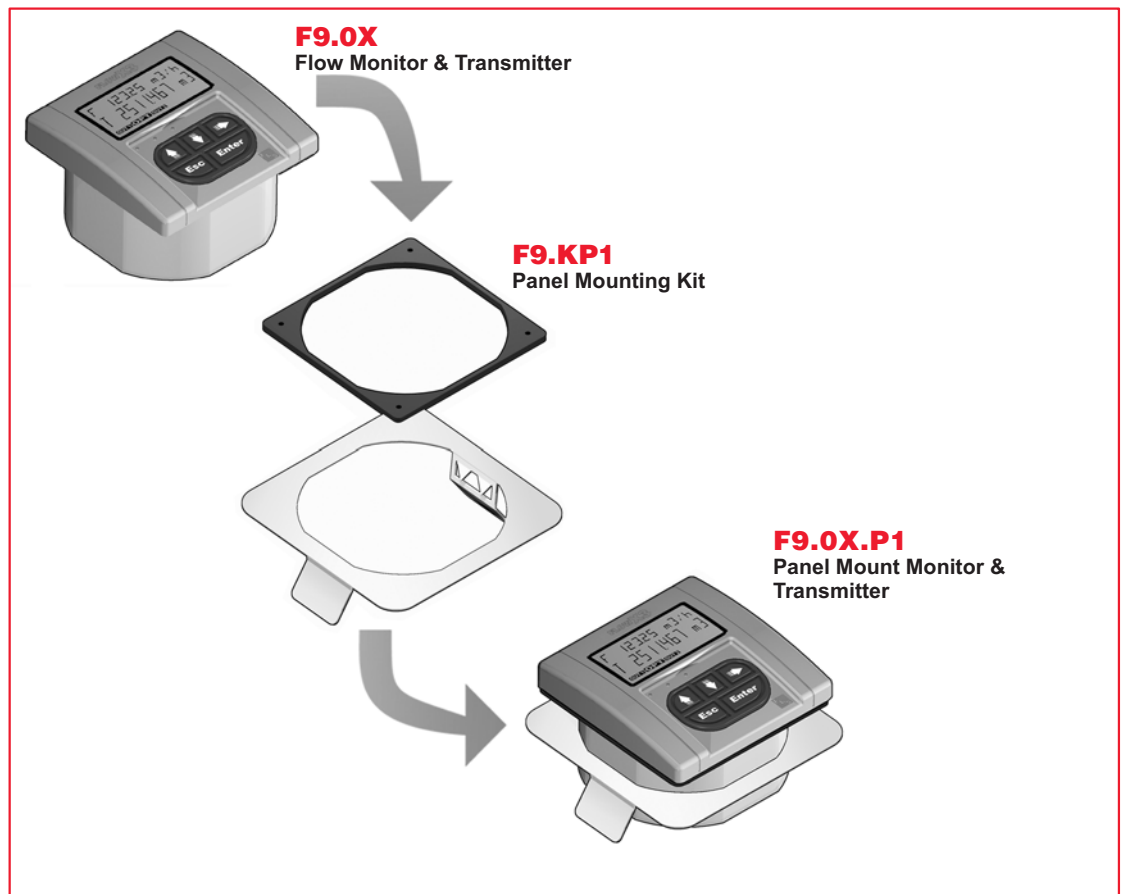
The flow monitor & transmitter is available just in one packaging for compact field version, panel or wall installation. The compact field version is mounted on top of the sensor using the compact mounting kit (F9.KC1), the panel version is installed using the panel mounting kit (F9.KP1), while the wall mounting version is fixed to the wall by the mounting kit (F9.KWX).

The mounting kits can be ordered directly connected to the monitor or separately and then simply installed on it. Please refer to Ordering Data section for a complete listing of part numbers.

### Panel Mount



The panel mounting version consists of the monitor and the mounting bracket kit F9.KP1 with gasket for IP65 watertight panel installation. The monitor perfectly fits into a standard ¼ DIN panel cutout. The instrument and the kit can be ordered separately (code F9.0X for the monitor and code F9.KP1 for the mounting bracket) or together using the code F9.0X.P1.



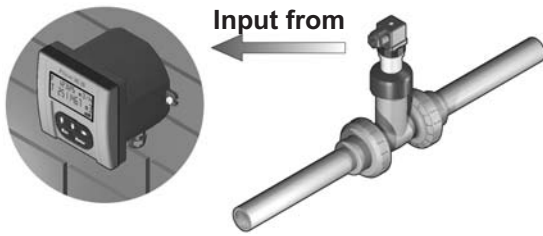
Input from



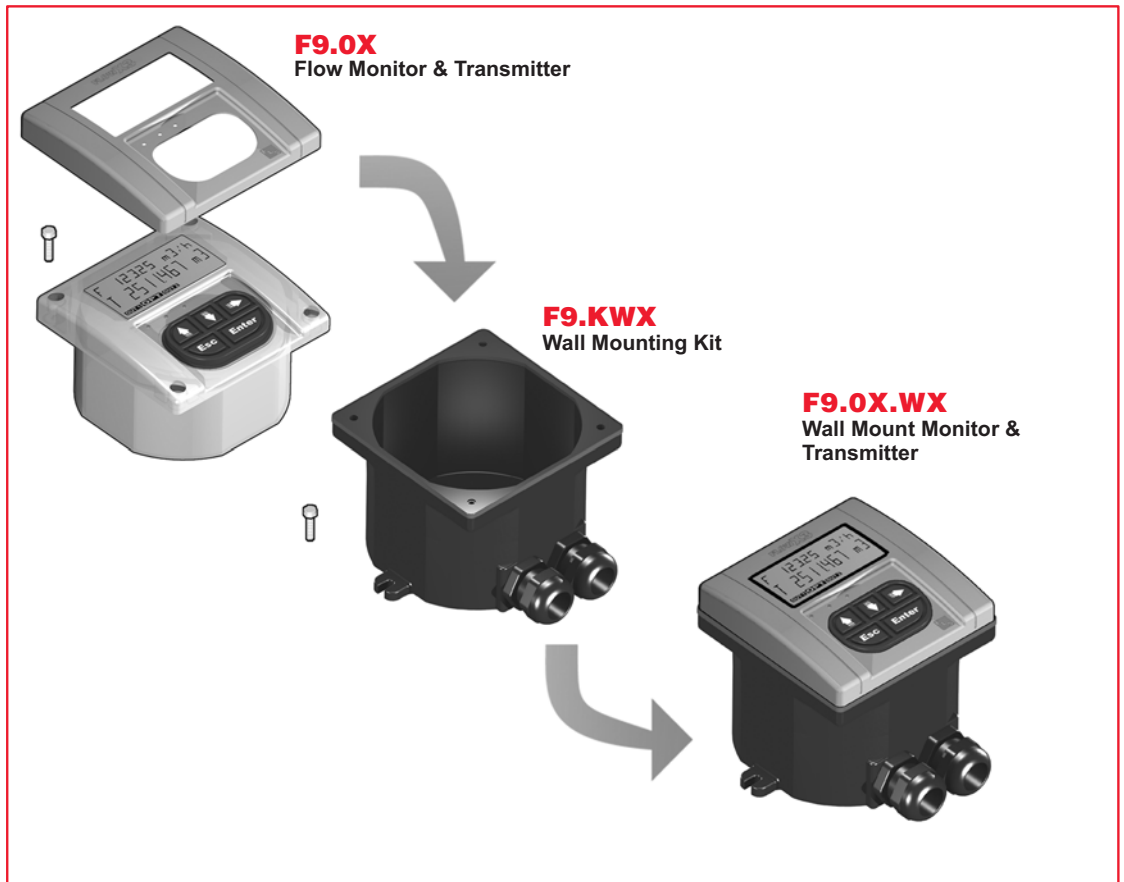
**FLS FlowX3 Flow Sensor  
(sold separately)**

F3.00.H.XX - F3.15.H.XX  
ULF01.H.X - ULF3.15.XX.X  
ULF03.H.X  
F111.H

## Installation Wall Mount



The wall mounting version consists of the monitor and the wall mounting kit. The F9.KW1 kit includes the plastic adapter, the gasket for IP65 watertight wall installation and the fixing screws. The F9.KW2 includes also a 110/230 VAC to 24 VDC power supply directly mounted into the plastic adapter to provide a low voltage regulated output to the flow monitor. The instrument and the kit can be ordered separately (code F9.0X for the monitor and code F9.KWX for the kit) or together using the code F9.0X.WX.



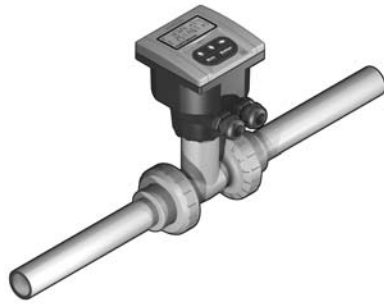
**Input from**



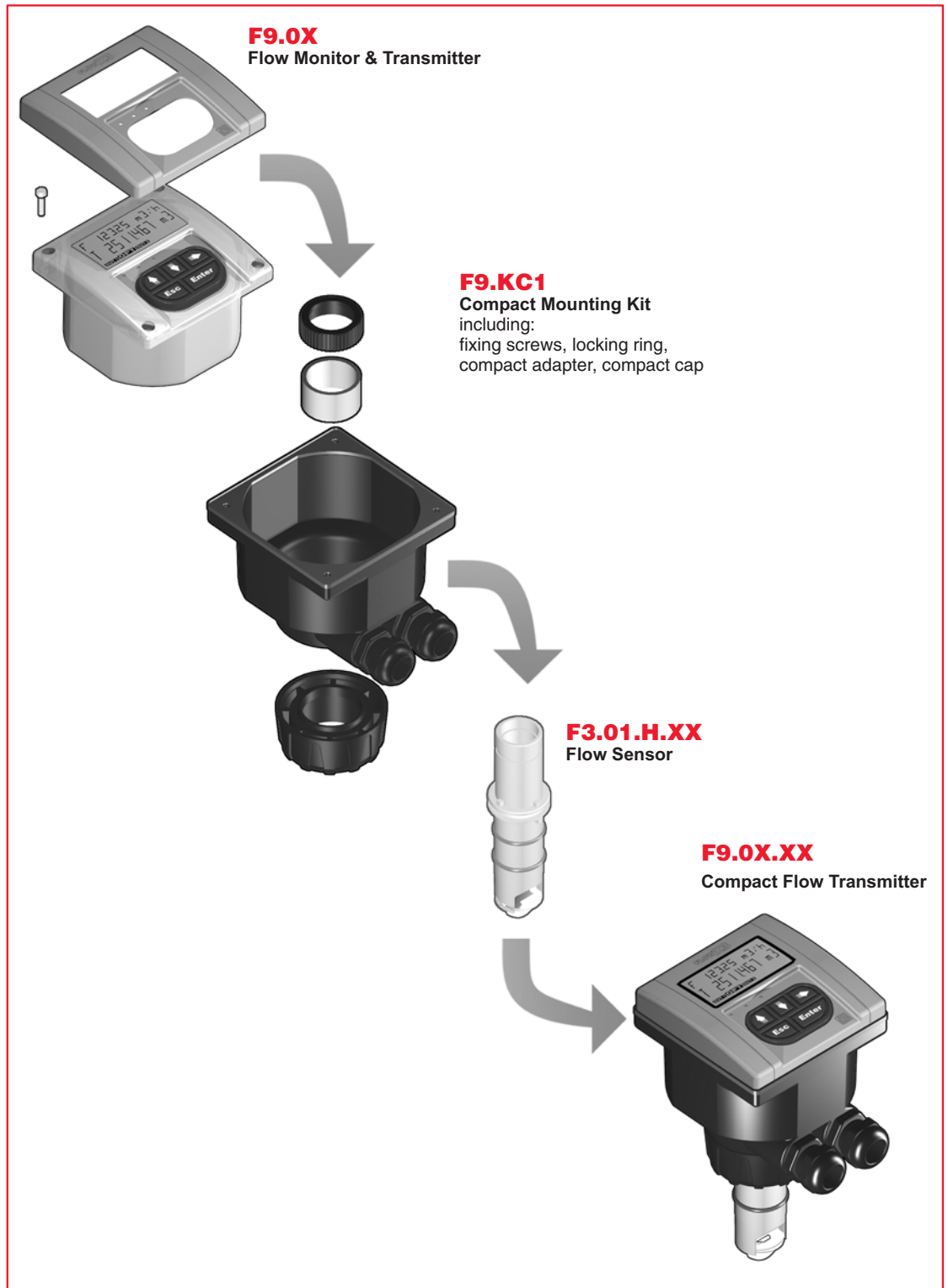
**FLS FlowX3 Flow Sensor  
(sold separately)**

F3.00.H.XX - F3.15.H.XX  
ULF01.H.X - ULF3.15.XX.X  
ULF03.H.X  
F111.H

## Installation Compact Mount

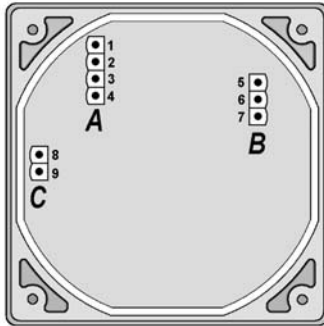


The compact mounting kit F9.KC1 includes the compact plastic adapter with gasket for IP65 watertight installation, the compact cap, the locking ring and four fixing screws for mounting the monitor directly onto the sensor. The instrument and the kit can be ordered separately (code F9.0X for the monitor and code F9.KC1 for the kit) or together using the code F9.0X.XX.



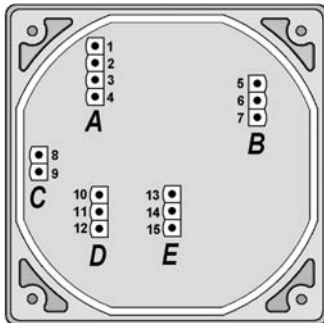
## Rear Terminal View

### Terminal F9.00



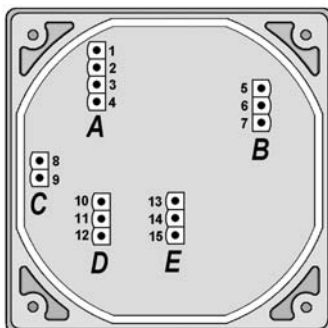
Power Supply <b>A</b>	1	+ VDC
	2	+ LOOP
	3	- LOOP
	4	- VDC
SENSOR		
Sensor <b>B</b>	5	GND
	6	IN
	7	V+
Open collector output <b>C</b>	8	O.C.+
	9	O.C.-

### Terminal F9.01



Power Supply <b>A</b>	1	+ VDC
	2	+ LOOP
	3	- LOOP
	4	- VDC
SENSOR		
Sensor <b>B</b>	5	GND
	6	IN
	7	V+
Open collector output <b>C</b>	8	O.C.+
	9	O.C.-
Open collector OUT 1 <b>D</b>	10	OUT 1+
	11	
	12	OUT 1-
Open collector OUT 2 <b>E</b>	13	OUT 2+
	14	
	15	OUT 2-

### Terminal F9.02



Power Supply <b>A</b>	1	+ VDC
	2	+ LOOP
	3	- LOOP
	4	- VDC
SENSOR		
Sensor <b>B</b>	5	GND
	6	IN
	7	V+
Open collector output <b>C</b>	8	O.C.+
	9	O.C.-
OUT 1 RELAY <b>D</b>	RELAY 1	
	10	NC
	11	COM
OUT 2 RELAY <b>E</b>	RELAY 2	
	13	NC
	14	COM
15	NO	



## Technical Data

### General

- Associated flow sensor:
  - FLS FlowX3 Hall effect with frequency output.
- Materials:
  - Case: PC
  - Panel gasket: Neoprene
  - Wall and Field gasket: EPDM
  - Keypad: 5 button silicone rubber.
- Display:
  - 3 line LCD: 2 x 12 alphanumeric lines and 1 icon line
  - Update rate: 1 second
  - Contrast: User adjustable with 5 levels.
- Enclosure: IP65 front.

### Electrical

- Supply Voltage: 12 to 24 VDC  $\pm 10\%$  regulated.
- Sensor Input (Frequency):
  - Sensor power: 3.8 - 12 VDC @ < 30 mA
  - Range: 0.5 to 1000 Hz
  - Optically isolated from current loop (only 4 wire version)
  - Short circuit protected.
- Current output:
  - 4-20 mA, isolated, fully adjustable and reversible
  - Max loop impedance: 150  $\Omega$  @ 12 VDC, 330  $\Omega$  @ 18 VDC, 600  $\Omega$  @ 24 VDC.

- Open Collector output:
  - User selectable as MIN alarm, MAX alarm, Pulse Out, Freq Out, Off
  - Optically isolated, 50 mA MAX sink, 24 VDC MAX pull-up voltage
  - Max pulse/min: 300
  - Hysteresis: User selectable.
- Relay output:
  - User selectable as MIN alarm, MAX alarm, Pulse Out, Off
  - Mechanical SPDT contact
  - Max voltage rating: 3A @ 30 VDC, 3A @ 250 VAC resistive load
  - Max pulse/min: 300
  - Hysteresis: User selectable.

### Environmental

- Operating temperature: -10 to +70°C (14 to 158°F).
- Storage temperature: -15 to +80°C (5 to 176°F).
- Relative humidity: 0 to 95% non condensing.

### Standards & Approvals

- Manufactured under ISO 9002.
- CE.

## Ordering Data

### Flow X3 F9.0X

Part No.	Description	Wire Power Tech.	Power Supply	Input	Output
<b>F9.00</b>	Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)
<b>F9.01</b>	Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)
<b>F9.02</b>	Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)

### FlowX3 F9.0X.P1 (Panel Mount version)

Part No.	Description	Wire Power Tech.	Power Supply	Input	Output
<b>F9.00.P1</b>	Panel Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)
<b>F9.01.P1</b>	Panel Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)
<b>F9.02.P1</b>	Panel Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)

### FlowX3 F9.0X.WX (Wall Mount version)

Part No.	Description	Wire Power Tech.	Power Supply	Input	Output
<b>F9.00.W1</b>	Wall Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)
<b>F9.01.W1</b>	Wall Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)
<b>F9.02.W1</b>	Wall Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)
<b>F9.00.W2</b>	Wall Mount Flow Monitor & Transmitter	2 wire	110 to 230 VAC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)
<b>F9.01.W2</b>	Wall Mount Flow Monitor	3/4 wire	110 to 230 VAC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)
<b>F9.02.W2</b>	Wall Mount Flow Monitor & Transmitter	3/4 wire	110 to 230 VAC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)

## Ordering Data

### FlowX3 F9.0X.XX (Compact Field Mount version)

Part No.	Description	Wire Power Tech.	Power Supply	Input	Output	Sensor Length	Sensor Body	Sensor O-rings
F9.00.01	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L0	CPVC	EPDM
F9.00.02	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L0	CPVC	FPM
F9.00.03	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L1	CPVC	EPDM
F9.00.04	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L1	CPVC	FPM
F9.00.05	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L0	PVDF	EPDM
F9.00.06	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L0	PVDF	FPM
F9.00.07	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L1	PVDF	EPDM
F9.00.08	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L1	PVDF	FPM
F9.00.09	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L0	316L SS	EPDM
F9.00.10	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L0	316L SS	FPM
F9.00.11	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L1	316L SS	EPDM
F9.00.12	Field Mount Flow Monitor & Transmitter	2 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector)	L1	316L SS	FPM
F9.01.01	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L0	CPVC	EPDM
F9.01.02	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L0	CPVC	FPM
F9.01.03	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L1	CPVC	EPDM
F9.01.04	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L1	CPVC	FPM
F9.01.05	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L0	PVDF	EPDM
F9.01.06	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L0	PVDF	FPM
F9.01.07	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L1	PVDF	EPDM
F9.01.08	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L1	PVDF	FPM
F9.01.09	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L0	316L SS	EPDM

## Ordering Data

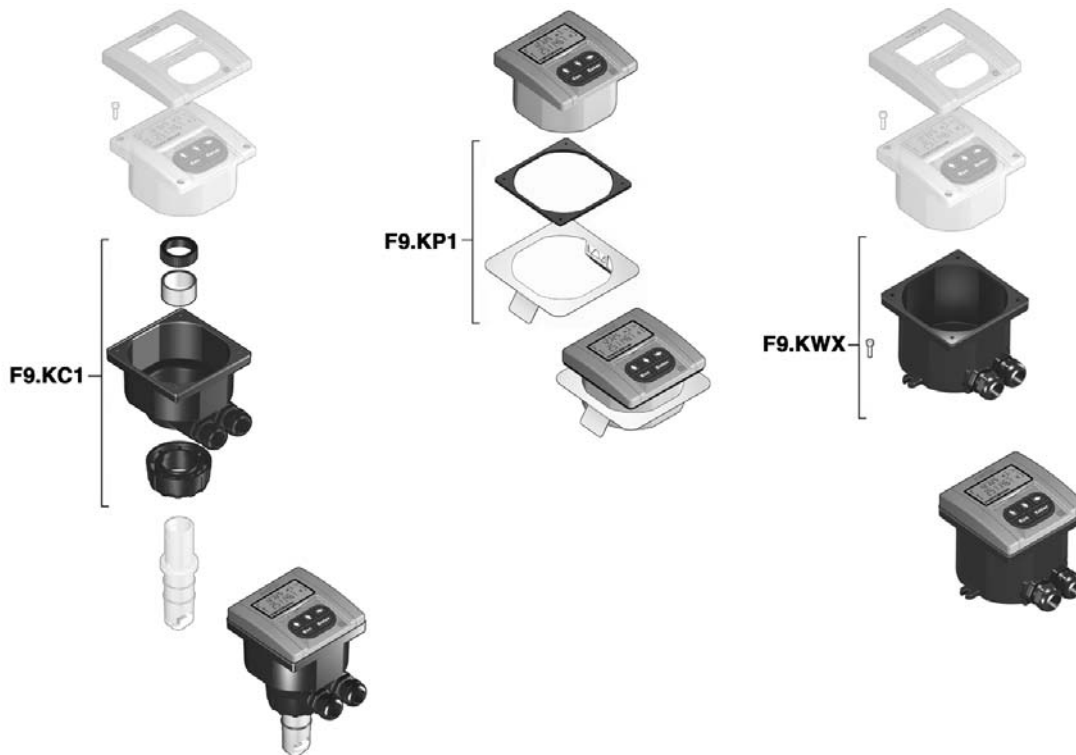
### FlowX3 F9.0X.XX (Compact Field Mount version)

Part No.	Description	Wire Power Tech.	Power Supply	Input	Output	Sensor Length	Sensor Body	Sensor O-rings
F9.01.10	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L0	316L SS	FPM
F9.01.11	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L1	316L SS	EPDM
F9.01.12	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 3 (Open Collector)	L1	316L SS	FPM
F9.02.01	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L0	CPVC	EPDM
F9.02.02	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L0	CPVC	FPM
F9.02.03	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L1	CPVC	EPDM
F9.02.04	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L1	CPVC	FPM
F9.02.05	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L0	PVDF	EPDM
F9.02.06	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L0	PVDF	FPM
F9.02.07	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L1	PVDF	EPDM
F9.02.08	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L1	PVDF	FPM
F9.02.09	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L0	316L SS	EPDM
F9.02.10	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L0	316L SS	FPM
F9.02.11	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L1	316L SS	EPDM
F9.02.12	Field Mount Flow Monitor & Transmitter	3/4 wire	12 to 24 VDC	1 (Freq.)	1 (4-20mA) 1 (Open Collector) 2 (Relay)	L1	316L SS	FPM

## Ordering Data

### Mounting Kits

Part No.	Name	Description
F9.KC1	Compact mounting Kit	Plastic adapter with gasket, compact cap, locking ring and 4 fixing screws
F9.KP1	Panel mounting Kit	Mounting bracket with gasket
F9.KW1	Wall mounting Kit	Plastic adapter with gasket and fixing screws
F9.KW2	Wall mounting Kit with Power Supply	Plastic adapter with gasket, fixing screws and 110/230VAC to 24VDC power supply included



### Spare Parts

Item	Part No.	Name	Description
1	F9.SP1	Cover	PC front cover, 1 LED
1	F9.SP2	Cover	PC front cover, 3 LED
2	F9.SP4.1	PG 13.5	PG13.5 Cable Gland for Compact or Wall mounting Kit
2	F9.SP4.2	PG 11	PG11 Cable Gland for Compact or Wall mounting Kit

