

# SIGNAL CONDITIONERS



FP90-1, field mount flow transmitter shown larger than actual size.

- ✓ Permanent and Resettable Totalizers
- ✓ Scalable Outputs
- ✓ Relay Options
- ✓ Mounting Versatility
- ✓ Simulate Function
- ✓ 2 x 16 Character Dot Matrix LCD
- ✓ Chemical Resistant Enclosure and Self-Healing Window
- ✓ Large Pushbuttons
- ✓ Clearly Marked Terminal Labels Application
- ✓ Flow Control and Monitoring
- ✓ Filtration or Softener Regeneration
- ✓ Effluent Totalization
- ✓ Pump Protection
- ✓ Feed Pump Pulsing
- ✓ Ratio Control
- ✓ Water Distribution
- ✓ Leak Detection

## FP90 Series



The FP90 Series flow transmitter is an advanced solution that converts the signal from many flow sensors into a 4 to 20 mA signal for long distance transmission. Configuration flexibility is maximized with two optional relays for process control, two packaging options for integral/pipe mount or panel installation, and scalability for virtually any flow range or engineering unit. State-of-the-art electronic design ensures long-term reliability, signal stability, and simple user setup and operation. The FP90 can be integrally mounted to FP8500 Series paddlewheel sensors utilizing a mounting kit.

The FP90 can be remotely used with the OMEGA® FP-5100, FP-5200, FP-5300, FP-5060, FP-2541, FP-5600, FP-3-1500 or FP-6000 flow sensors and an FP90UM mounting kit. The FP90-XP units are designed to be panel mounted. The three front keys control all programming and scaling of the FP90—there are no pots to tweak or internal adjustments to make. Simply enter the K-factor and the FP90 displays rate with field-adjustable decimal point, mA output value, total (field selectable for resettable or non-resettable operation) and the date of the last reprogramming. The 8-digit alphanumeric LCD shows every program step in clear language, allowing display in any engineering units and timebase in seconds, minutes, hours or days. A special pushbutton sequence permits entry into the programming, thus providing security against unauthorized reprogramming.

## SPECIFICATIONS

**Compatibility:** Flow Sensors with frequency outputs

**Accuracy:** ±0.5% of reading @ 25°C

### Enclosure

**Rating:** NEMA 4X (IP65) front

**Case:** PBT

**Window:** Polyurethane coated polycarbonate

**Keypad:** Sealed 4-key silicone rubber

**Weight:** Approx. 325 g (12 oz)

**Display:** Alphanumeric 2 x 16 LCD

**Update Rate:** 1 second

**Contrast:** User selected, 5 levels

### 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

### Electrical

**Sensor Input:**

**Range:** 0.5 to 1500 Hz

**Sensor Power:**

**2-Wire:** 1.5 mA @ 5 Vdc ±1%

**3 or 4 Wire:** 20 mA @ 5 Vdc ±1%

Optically isolated from current loop  
short circuit protected

**Current Output:** 4 to 20 mA, isolated, fully adjustable and reversible

**Power:** 12 to 24 Vdc ±10%, regulated

**Maximum Loop Impedance:**

50 Ω max @ 12V, 325 Ω max @ 18V,

600 Ω max @ 24V

**Update Rate:** 100 ms

**Accuracy:** ±0.03 mA

**Relay Output:** Mechanical SPDT

contacts: Hi, Lo, Pulse, Off

**Maximum Voltage Rating:**

5 A @ 30 Vdc, 5 A @ 250 Vac

resistive load

**Hysteresis:** User adjustable;

max 300 pulses/min

**Open-Collector Output:**

Hi, Lo, Pulse, Off Open-collector,

optically isolated, 50 mA maximum,

sink, 30 Vdc max pull-up voltage.

Maximum 300 pulses/minimum



FP8501  
paddlewheel  
flow sensor  
shown  
actual size.



FP90-2P flow transmitter  
shown actual size.

### Accessories

| Model No. | Description   |
|-----------|---|
| FP90UM    | Universal mounting kit for remote wall or pipe mount        |
| FP90-4X   | NEMA 4X rear cover (panel mount)                            |
| FP90IM    | Integral mounting kit for mounting on top of FP85XX sensors |
| FP90RC    | RC filter (for relay use)                                   |

**Standard Paddlewheel Sensors (1 fps minimum) for integral mounting (requires FP90IM integral mounting hardware and OMEGA fitting) ±0.2 fps accuracy**

| Model No. | Description                                     |
|-----------|---|
| FP8501    | ½ to 4" pipe, polypropylene body/titanium shaft |
| FP8502    | 5 to 8" pipe, polypropylene body/titanium shaft |
| FP8503    | ½ to 4" pipe, PVDF body/Hastelloy C shaft       |

**Low flow paddlewheel sensors (0.3 fps minimum) for integral mounting (requires FP90IM integral mounting hardware and OMEGA fitting) ±0.1 fps accuracy**

| Model No. | Housing Material | Shaft Material | Rotor        | Pipe Size |
|-----------|------------------|----------------|--------------|-----------|
| FP8501A   | Polypropylene    | Titanium       | Black PVDF   | 0.5 to 4" |
| FP8502A   | Polypropylene    | Titanium       | Black PVDF   | 5 to 8"   |
| FP8503A   | Natural PVDF     | Hastelloy C    | Natural PVDF | 0.5 to 4" |

## To Order

| Model No. | Description                  | Mounting     | Output(s)                                  |
|-----------|------------------------------|--------------|--|
| FP90-1    | Flow transmitter             | Field mount* | 4 to 20 mA and open collector output       |
| FP90-2    | Flow transmitter             | Field mount* | 4 to 20 mA and dual relays                 |
| FP90-3    | Flow transmitter, dual input | Field mount* | 4 to 20 mA and dual open collector outputs |
| FP90-1P   | Flow transmitter             | Panel mount  | 4 to 20 mA and open collector output       |
| FP90-2P   | Flow transmitter             | Panel mount  | 4 to 20 mA and dual relays                 |
| FP90-3P   | Flow transmitter, dual input | Panel mount  | 4 to 20 mA and dual open collector outputs |

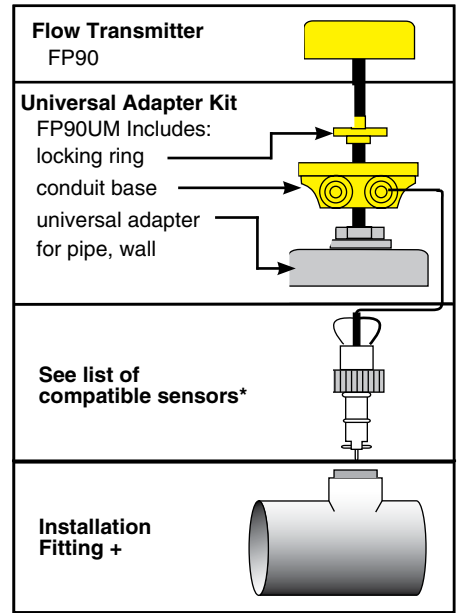
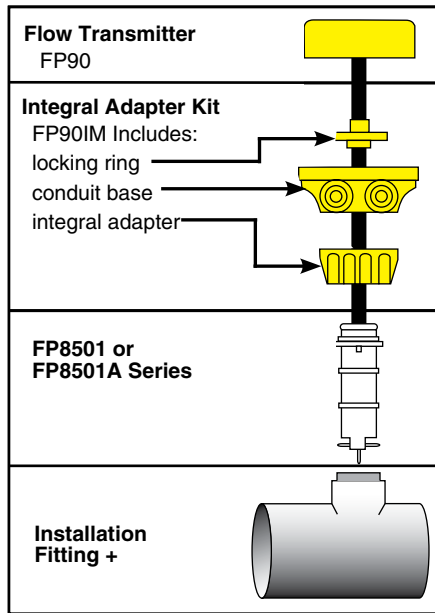
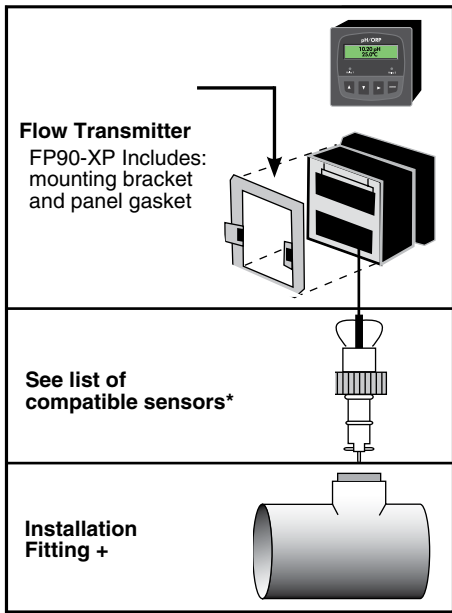
FP90-x comes complete with operator's manual.

FP90-xP comes complete with mounting bracket, panel gasket, and operator's manual.

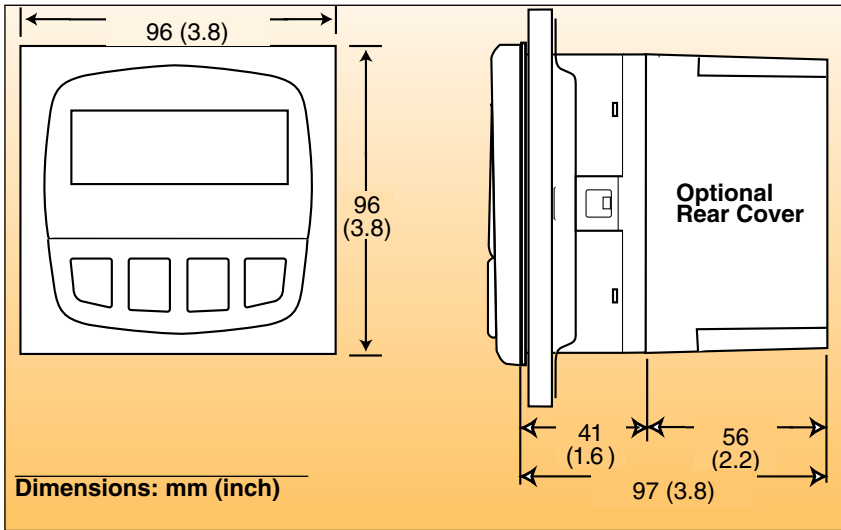
\* Field mount transmitters require FP90IM internal mounting kit for FP8500 or FP8500A sensor or FP90UM for all other compatible sensors.

**Ordering Examples:** FP90-1 field mount flow transmitter, FP90IM integral mounting kit, FP8501A paddlewheel sensor, FP-5310M installation fitting for 1" PVC pipe.

FP90-1 field mount flow transmitter and OCV-3, OMEGACARE<sup>SM</sup> extended warranty program. OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equipment loaners.



**Panel Mount**



*\*The panel mount and universal mount units are compatible with the following sensors:  
FP-5060, FP-5100, FP-5200, FP-5300,  
FP-2540, FP-5600, FP-3-1500 and FP-6000.  
+Fittings purchased separately.  
See FP Series fittings.*

