

# PADDLEWHEEL FLOW AND TEMPERATURE SENSOR TRANSMITTER SYSTEM



## FP7002 Series



- ✓ Measures Both Flow and Temperature
- ✓ Wide Chemical Compatibility
- ✓ 4 to 20 mA or 1 to 5 Vdc Field-Selectable Output
- ✓ NEMA 4 (IP65) Housing
- ✓ Compact Industrial Design Includes Both Paddlewheel Flow Sensor/Transmitter and Temperature Sensor/Transmitter in One Assembly
- ✓ Factory Calibrated—Easy to Install

The FP7002 Series is a combination paddlewheel flow and temperature sensor with integral signal conditioner/transmitter in a rugged NEMA-4 aluminum housing.

Omega's FP7002 Series is ideal for applications that require a remote long-distance flow and temperature sensor. When ordered with an FP7000 Series installation fitting, the sensor/transmitter is factory calibrated to match the flow rate of the fitting selected. For example, if the user orders an FP7002 sensor/transmitter with an FP7010 PVC fitting, the analog output of the transmitter will be factory calibrated to give 20 mA output at the max flow rate of 50 GPM and 4 mA out at 0 GPM. The user can also convert an analog output to a 1 to 5 Vdc output without recalibrating the system.

The FP7002 also features an independent temperature sensor/transmitter with an industry-standard 2-wire, 4 to 20 mA loop output scaled over a 0 to 100°C (32 to 212°F) temperature range.



Built-in signal conditioner/transmitter

Metal protection head (cap removed for detail)

FP7002, shown close to actual size.

Includes Built-In Temperature Sensor with Analog Output!

An OMEGA Exclusive

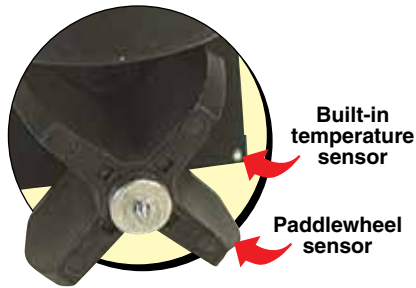
Built-in temperature sensor

Paddlewheel sensor

SYS/FP7002A/FP7010-GI system includes an FP7002A flow/temperature sensor with FP7010-GI fitting, calibrated for 3 to 50 GPM flow.

# Provides Two Independent Analog Outputs For Flow and Temperature Measurement

**CONNECT AN FP7002 TRANSMITTER TO OMEGA'S iSeries METERS WITH EMBEDDED INTERNET AND MONITOR A PROCESS FROM ANYWHERE VIA THE INTERNET!**



Built-in temperature sensor

Paddlewheel sensor

## PADDLEWHEEL OUTPUT SPECIFICATIONS

**Accuracy:** ±2% FS  
**Repeatability:** ±1% FS  
**Power:** 12 to 18 Vdc @ 50 mA maximum  
**Output:** 3-wire, 4 to 20 mA (1 to 5 Vdc with external 250 Ω resistor)  
**Maximum Loop Resistance:**  
 $\Omega = (V \text{ supply} - 12V) / 0.02 \text{ A}$

### FP7002 Wetted Materials:

**Sensor Body:** Polypropylene  
**O-Ring:** FKM  
**Paddle:** PVDF  
**Locking Nut:** PVC

### FP7002A Wetted Materials:

**Sensor Body:** Polypropylene  
**O-Ring:** FKM  
**Paddle:** PVDF  
**Locking Nut:** Brass

### Fluid Temperature/Pressure Range:

Do not exceed maximum ratings of the piping. Depending on the material of the fitting, the operating temperature/pressure may be limited by the piping and not by the sensor. For all PVC tee fittings, do not exceed 150 psig @ 27°C (80°F), 100 psig @ 38°C (100°F), 60 psig @ 49°C (120°F) or 30 psig @ 60°C (140°F), owing to the insert in the tee. FP7000 sensor: 0 to 26°C (32 to 80°F) up to 150 psig; max pressure decreases 1.1 psig per each 0.56°C (1°F) above 27°C (80°F) for a max temperature of 93°C (200°F) at 18 psig maximum

### Weight:

**FP7002:** 0.3 kg (0.75 lb)  
**FP7002A:** 0.4 kg (1 lb)

**Max Viscosity:** 5 cps

## TEMPERATURE OUTPUT SPECIFICATIONS

**Temperature Range:** 0 to 100°C (32 to 212°F)  
**Accuracy:** ±1.7°C (3.1°F)  
**Power:** 12 to 18 Vdc @ 30 mA  
**Output:** 2-wire, 4 to 20 mA (1 to 5 Vdc with external 250 Ω resistor)  
**Maximum Loop Resistance:**  
 $\Omega = (V \text{ supply} - 12V) / 0.02 \text{ A}$



SYS/FP7002/FP7007 system includes an FP7002 flow/temperature sensor with FP7007 fitting, calibrated for 2 to 30 GPM flow.

### MEASURES FLOW!



Program a DPI8-EI to accept the 4 to 20 mA signal from the FP7002 and to display the flow rate in the engineering units of your choice.

### MEASURES TEMPERATURE!



Program a DPI8-EI to accept the 4 to 20 mA signal from the FP7002 and to display the temperature in the engineering units of your choice.

DPI8-EI indicator shown. Visit us online for complete details.

## To Order

Model No.	Description
FP7002	Paddlewheel flow and temperature sensor/transmitter for PVC fittings (includes PVC locking nut)
FP7002A	Paddlewheel flow and temperature sensor/transmitter for galvanized iron fittings (includes brass locking nut)

## Required Installation Fittings

PVC, Schedule 40*		Galvanized Iron Tee		
Model No.	Lay Length meter (inch)	Model No.	Pipe Size (NPT)	Range (GPM)
FP7007	0.53 (21)	FP7007-GI	¾	2 to 30
FP7010	0.66 (26)	FP7010-GI	1	3 to 50
FP7012	0.79 (31.3)	FP7012-GI	1¼	5 to 90
FP7015	0.95 (37.5)	FP7015-GI	1½	7 to 125
FP7020	1.27 (50)	FP7020-GI	2	11 to 205
FP7025	1.59 (62.5)	FP7025-GI	2½	15 to 285
FP7030	1.91 (75)	FP7030-GI	3	25 to 460

\*All PVC fittings include 36" of PVC pipe on the flow inlet and 12" of PVC pipe on the flow outlet.

## Accessories

Model No.	Description
PSS-12	12V single-output power supply
TX4-100	4-conductor shielded cable, 30 meter (100')

Each transmitter/fitting system comes factory calibrated with operator's manual.

**Note:** Your transmitter and fitting must be ordered as a system; see examples below.

**Ordering Examples:** FP7002 sensor/transmitter with the FP7007 PVC fitting—use model number SYS/FP7002/FP7007.

SYS/FP7002A/FP7007-GI, sensor/transmitter with ¾" galvanized fitting.