FTB2000 Series

Turbine Flow Rate Sensor

M3236/0602

Operating and Installation Instructions

Prior to installation, confirm system versus sensor specifications and media compatibility of sensor. The system needs to be filtered to 50 microns prior to the sensor, and pulses/water hammer effects should be minimized to prevent unit damage. Observe arrow on bottom of unit for correct inlet and outlet port. Sensor can be mounted in any horizontal, vertical, or skewed orientation. Correctly installed, the sensor works maintenance-free.

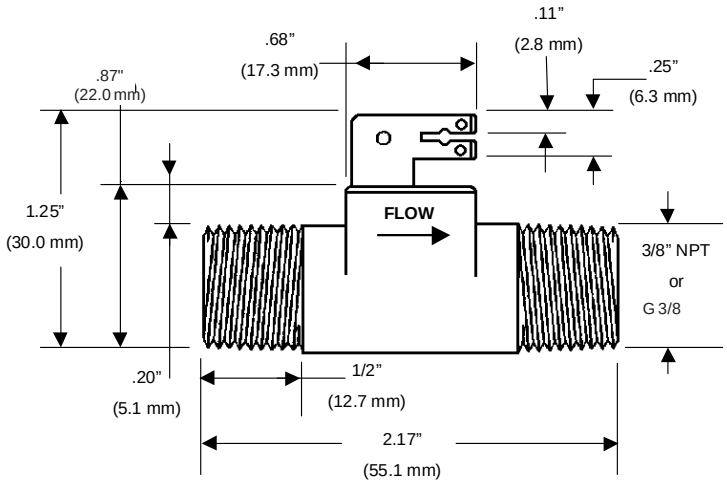
Installation

Apply a sparse amount of thread sealant *(Permatex "No More Leaks" ®)* or Teflon® tape to male threads. Insure that sealant does not enter into the turbine and bearing internal area. Hand-tighten unit in place. Turn an additional 1/4 turn to provide seal. If seal leaks, turn an additional 1/4 turn until leak stops.
Do not exceed one additional turn total.

Specifications

Wetted Parts	**Body:** Nylon 12/**Turbine:** Nylon 12 Composite/**Bearings:** PTFE/ 15% Graphite
Operating Pressure	200 psi
Burst Pressure	2500 psi
Operating Temperature	-4° to 212°F (-20° to 100°C)
Viscosity	32 to 81 SSU (.8 - 16 Centistokes)
Filter	< 50 Microns
Input Power	5-24 VDC @ 8 mA
Output	NPN Sinking Open Collector @ 50 mA, Max.
Accuracy	± 3% of Rdg. Normal Range
Repeatability	0.5% FS Normal Range
Electrical Connection	Spade Terminals .110/.248 X .031" (2.8/6.3 X .8 mm)

Dimensions



Part Numbers	Flow Ranges				Pulses		Frequency
	Normal		Extended				
3/8" NPT	GPM	LPM	GPM	LPM	Per Gallons	Per Liters	Output
FTB2001	.13 - 1.3	.5 - 5	.07 - 2.6	.25 - 10	26100	6900	58 - 575 Hz
FTB2002	.26 - 2.6	1 - 10	.07 - 2.6	.25 - 10	12500	3300	55 - 550 Hz
FTB2003	.26 - 4	1 - 15	.07 - 4	.25 - 15	17400	4600	76 - 1150 Hz
FTB2004	.26 - 4	1 - 15	.07 - 5.3	.25 - 20	8300	2200	37 - 550 Hz
FTB2005	.53 - 7.9	2 - 30	.13 - 7.9	.5 - 30	3800	1000	33 - 500 Hz

Electrical/Output Signal (⎍⎍)

The output signal is a square wave signal, whose frequency varies linearly with flow rate. An external pull-up resistor ***(user-supplied)*** is required to insure that the open collector will sink less than 50 mA.

Cable and connector can be ordered as follows:

Part #FTB173941: 3 Ft. Cable Assembly

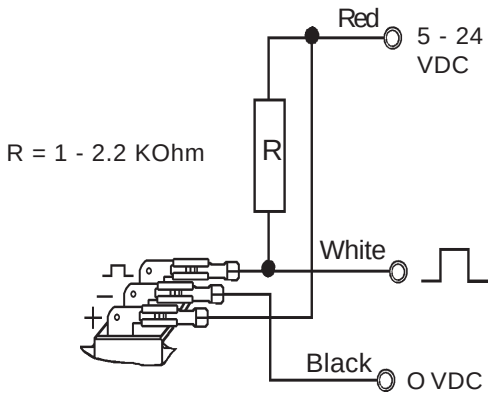
Part #FTB173942: 10 Ft. Cable Assembly

These assemblies use:

(3) Amp Contact #927936-2 and

(1) HSU Plastic Case: #03-B1663

Wiring Diagrams



Important Points!

Product must be maintained and installed in strict accordance with the National Electrical Code and product technical brochure and instruction bulletin. Failure to observe this warning could result in serious injuries or damages.

Pressure and temperature limitations shown on individual catalog pages and drawings for the specified flow sensors must not be exceeded.

Selection of materials for compatibility with the media is critical to the life and operation of these flow sensors. Take care in the proper selection of materials of construction; particularly wetted materials.

Flow sensors have been designed to resist shock and vibration; however, shock and vibration should be minimized.

Liquid media containing particulate and/or debris should be filtered to ensure proper operation of these products.

Flow sensors must not be field repaired.

Physical damage sustained by the product may render it unserviceable.

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MADE IN USA

WARRANTY

OMEGA warrants this unit to be free of defects in materials and workmanship and to give satisfactory service for a period of **13 months** from date of purchase. OMEGA Warranty adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that our customers receive maximum coverage on each product. If the unit should malfunction, it must be returned to the factory for evaluation. Our Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective it will be repaired or replaced at no charge. However, this WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of being damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear or which are damaged by misuse are not warranted. These include contact points, fuses, and triacs.

We are glad to offer suggestions on the use of our various products. Nevertheless OMEGA only warrants that the parts manufactured by it will be as specified and free of defects.

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RETURN REQUESTS /INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA ENGINEERING Customer Service Department. Call toll free in the USA and Canada: 1-800-622-2378, FAX: 203-359-7811; International:203-359-1660,FAX: 203-359-7807.

BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, YOU MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OUR CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS).

The assigned AR number should then be marked on the outside of the return package and on any correspondence. Please have the following information available BEFORE contacting OMEGA:

1. P.O. number under which the product was PURCHASED,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems you are having with the product.

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