

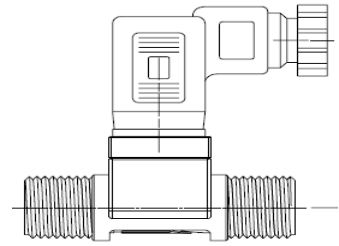


FTB-420 Series Low Flow Turbine



M-5171/1112

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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

1/4" NPT Units: 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.**

G 1/4 Units: G 1/4 units mate with a flat face seal washer (70 shore, 7 mm ID, 13 mm OD, 2, 0 mm thick) similar to a garden hose arrangement. This arrangement requires no sealants; hand-tightening should be sufficient for sealing.

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 20 mA.

The product is designed and manufactured in accordance with Sound Engineering Practice as defined by the Pressure Equipment Directive 97/23/EC. This product must not be used as a "safety accessory" as defined by the Pressure Equipment Directive, Article 1, Paragraph 2.1.3. The presence of a CE Mark on the unit does not relate to the Pressure Equipment Directive.

Important Points:

Product must be maintained and installed in strict accordance with the National Electrical Code and OMEGA 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 OMEGA 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 OMEGA products.

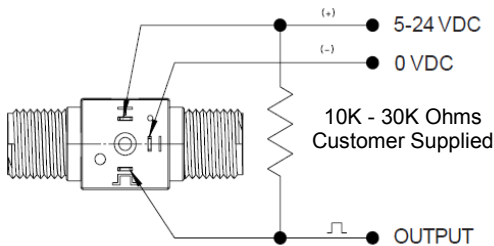
Flow sensors must not be field repaired.

Physical damage sustained by the product may render it unserviceable.

Specifications

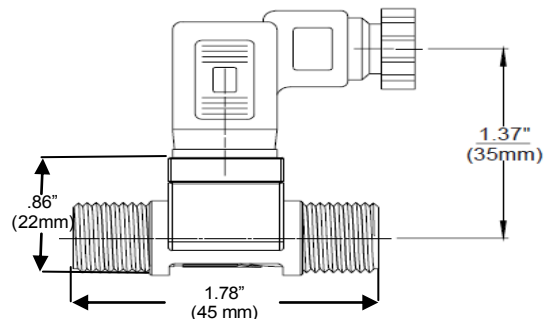
Wetted Parts	Body: Nylon 12 Turbine: Nylon 12 Composite Bearings: PTFE/15% Graphite
Operating Pressure	350 psi (24 Bar)
Burst Pressure	1400 psi (100 Bar)
Operating Temperature	-4° to 212°F (-20° to 100°C)
Viscosity	32 to 80 SSU (1-15 Centistokes)
Filter	< 50 Microns
Input Power	5-24 VDC @ 8 mA
Output	NPN Sinking Open Collector @ 20 mA, Max.
Accuracy	± 3% of Rdg. Normal Range
Repeatability	0.5% FS Normal Range
Electrical Connection	Din Connector (2 Poles + Ground)

Wiring Diagram



Function	Din Termination
V+	1
-	
Output	2

Dimensions



Part Number	Port	Flow Ranges		Pulses		Frequency	
		GPM	LPM	Per Gallons	Per Liters	Output	
FTB-421G	G 1/4	0.03 - 0.66	0.1 - 2.5	83200	22000	37 - 917 Hz	Nylon 12
FTB-421	1/4" NPT	0.03 - 0.66	0.1 - 2.5	83200	22000	37 - 917 Hz	Nylon 12
FTB-422G	G 1/4	0.03 - 0.66	0.1 - 2.5	83200	22000	37 - 917 Hz	Nylon 6
FTB-422	1/4" NPT	0.03 - 0.66	0.1 - 2.5	83200	22000	37 - 917 Hz	Nylon 6

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WARNING: These products are not designed for use in, and should not be used for, human applications.

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's 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 OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's 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. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been 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 in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S 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.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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