Instruction Bulletin No.
173926
Rev. F

Turbine Flow Rate Sensor
FT-110 Series–TurboFlow

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

3/8" 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 3/8 Units:

G 3/8 units mate with a flat face seal washer (90 shore EPDM, 0, 5 mm ID, 14, 5 mm OD, 2, 0 mm thick)

similar to a garden hose arrangement. This arrangement requires no sealants; hand-tightening should be sufficient for sealing.

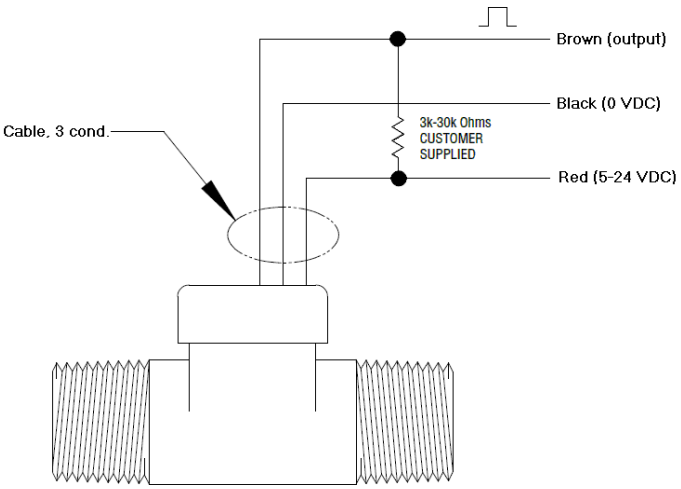
Specifications

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 @ 20 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 .8mm, 1 meter cable or DIN connector)

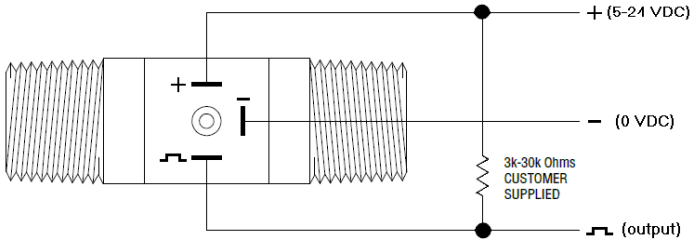
Electrical/Output Signal (⎍):

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

Wiring Diagrams:



Cable Output



DIN Output

The product is deigned 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:

- Gems products must be maintained and installed in strict accordance with the National Electrical Code and the applicable Gems product instruction Bulletin that covers installation, operation, and proper maintenance. Failure to observe this information may result in serious injury or damages.
- Please adhere to the pressure and temperature limitations shown throughout this catalog for our level and flow sensors. These limitations must not be exceeded. These pressures and temperatures take into consideration possible system surge pressures/ temperatures and their frequencies.
- Selection of materials for compatibility with the media is critical t the life and operation of Gems products. Take care in the proper selection of materials of construction, testing is required.
- Our sensors have been designed to resist shock and vibration. However, shock and vibration should be minimized.
- Filter liquid media containing particulate and/or debris to ensure the proper operation of our products.
- Electrical entries and mounting points in an enclosed tank may require liquid/vapor sealing.
- Our sensors must not be field-repaired.
- Physical damage sustained by product may render it unserviceable.
- See our website, (www.gemssensors.com) for additional technical specifications.