

Turbine Flow Transducers

Series 200

Description:

Series 200 Turbine Flow Transducers measure flows of hydrocarbon fuels such as gasoline, kerosene, and #2 diesel fuel and other light transmitting, non-corrosive liquids of similar viscosity. Typical fuel flow applications include aircraft fuel monitoring systems; gasoline, diesel, and gas turbine engine test stands; and industrial furnaces.

The transducers give repeatable signals on gasoline across a 100 to 1 flow range down to 0.3 GPH. The higher viscosity of diesel fuel reduces signal repeatability at flow rates below 2 GPH. Pressure drops are very low compared to other turbine flow transducers. The transducer bearing system is rated for continuous operation at the upper end of the flow range.

The transducers produce a current pulse signal from an opto-electronic pickup with a preamplifier.

Principal of Operation

Liquid enters the flow chamber tangentially, follows a helical flow path, and exits vertically, thereby venting any entrained vapor bubbles. The rotational velocity of the liquid is directly proportional to flow rate. A neutrally buoyant rotor spins with the liquid between V-jewel bearings. Rotor movement is sensed when notches in the rotor interrupt an infrared light beam between an LED and phototransistor.

The vapor venting design requires that the transducer be positioned with the electrical connectors pointing up. Turbulence caused by valves or sharp elbows mounted close to the transducer inlet can affect transducer K-Factor and should be minimized.

Performance Specifications

Model Number	201A-6	201B-6	201C-6
Flow Range, Gasoline	0.3 – 30 GPH	0.6 – 60 GPH	2.0 – 80 GPH
#2 Diesel	2.0 – 30 GPH	3.0 – 60 GPH	8.0 – 80 GPH
Approximate K Factor (Pulses/Gallon @ 16 GPH), Gasoline	32,000	28,000 – 31,000	24,000
#2 Diesel	33,000	28,000	25,000
Pressure Drop, Gasoline	0.6 psi @ 15 GPH	1.2 psi @ 30 GPH	1.4 psi @ 40 GPH
	2.4 psi @ 30 GPH	4.8 psi @ 60 GPH	5.8 psi @ 80 GPH
#2 Diesel	0.8 psi @ 15 GPH	1.5 psi @ 30 GPH	1.8 psi @ 40 GPH
	3.0 psi @ 30 GPH	6.0 psi @ 60 GPH	7.2 psi @ 80 GPH
Repeatability Between Measurements	¼% @ 16 GPH	¼% @ 16 GPH	¼% @ 16 GPH
Working Pressure	200 psi	200 psi	200 psi
Temperature Range	-65° / 100°C	-65° / 100°C	-65° / 100°C
Bearing Life Expectancy	10,000 hr. min.	10,000 hr. min.	10,000 hr. min.

NOTE: All flow transducers are tested and marked with K-factor at 16 GPH. Repeatability at 16 GPH is guaranteed to ¼%. Transducers are available with calibrated K-factors at additional cost.

Material Specifications:

Flow Transducer Body	Die-cast Aluminum, Cadmium Plated, Dichromate Finish
Rotor	Nylon 6/12
Rotor Pivot	Stainless Steel, Carpenter 420
Phototransistor	SD 1440
Light Emitting Diode	SE 1450
Connectors	22 Gauge Wire Leads (3)

Electrical Specifications:

12 to 15 VDC between RED (+) wire and BLACK (-) wire. 30 to 50 mA at 12 VDC.

Signal Specifications:

Open collector transistor output on WHITE wire. Sensor will pull-down to 1.0 volt with 10-15k ohm pull-up resistor installed.

Dimensions (inches)

