

800 Series Metering Flow Switches

Flow rates from 0.05 to 60 GPM / 0.2 to 225 LPM
Accurately select from 16 trip points
Compact design – volume reduced by up to 50%
Calibrated 0-5 VDC output
Reliability underwritten by a 5-year warranty

It's a switch.

Proteus 800 Series flow switches measure and monitor liquid flow. You can accurately select from 16 trip points with an easily-accessed switch. Trip points can be incremented in steps of 6% of the full flow range. Because you can set the flow switch set point yourself, you can maintain strict control over your flow parameters without additional instrumentation.

It's a meter.

800 Series flow switches are calibrated to provide a 5VDC output for their maximum rated flows. This output is accurate to within $\pm 2\%$ of range, assuring you that your liquid flow is within your specification. The actual flow rate can be displayed on a digital voltmeter. Scaled digital display meters are available to provide direct flow readout in GPM or LPM.

It's a switch and a meter in a single unit.

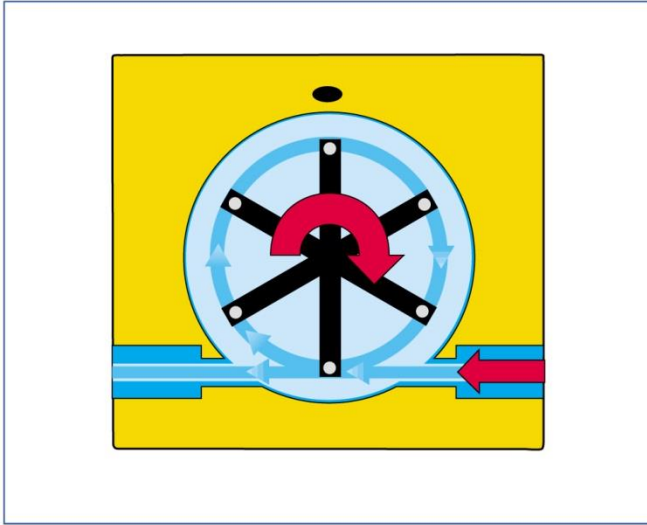
A flow switch combined with a metering function permits display of the flow rate while providing an accurate and predictable set of trip points. A three-color LED indicator that acts like a traffic signal shows actual flow status. When green, flow rate is more than 15% above your selected trip point. An amber light shows that flow is within 15% of your trip point. When flow falls below your trip point, a red light is displayed. As flow falls below your selected trip point, the built-in relay contacts open, indicating the alarm condition to your control system.

Even if your application doesn't require continuous feedback of the actual liquid flow rate, the calibrated output affirms that your process is being properly managed. Guess work is eliminated. And if control parameters do need to be changed you can make exact and repeatable changes as required.



How it works

The rotor spins when liquid flows through the meter. Magnets in the rotor switch a Hall-Effect sensor mounted in the meter body. The resulting pulse train is converted by the 800 Series electronics to a flow rate that is output as a 0–5 VDC signal.



Switching

The measured output voltage is continuously compared to a user-selected trip point voltage. When the measured voltage is above the trip point, the built-in relay remains in its active state. If the measured voltage falls below the trip point due to reduced or stopped flow, the relay contacts open, signaling an alarm condition to your control system.

Metering

Accuracy of calibration to $\pm 2\%$ of range is established against a flow standard with a certified accuracy of $\pm 0.5\%$. Calibration is traceable to a NIST reference. Linearity is better than $\pm 0.5\%$.

Flow switching is fail safe

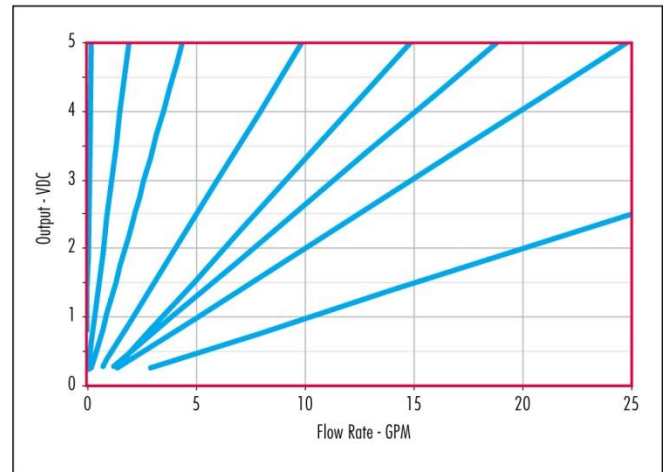
The Proteus flow sensor's active design combats particle build-up that can jam other types of flow switches. Because the rotor spins constantly, it cleans itself of most buildup. In the unlikely event that an object in the line does interfere with the rotor, the rotor stops turning and the switch goes to alarm condition. When a Proteus flow switch indicates that liquid is flowing, there is always flow through the switch.

Need help choosing the right flow meter?

Call (650) 964-4163 and ask for Technical Support, or e-mail tech@proteusind.com. Let our application experts help you choose the very best solution for your measurement task!

Accurate flow outputs

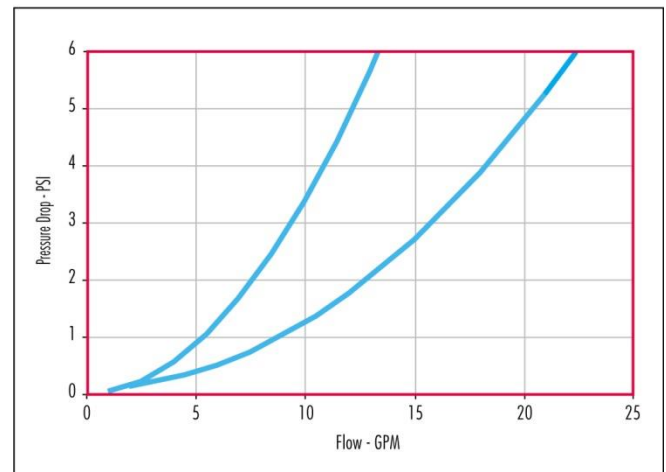
The remarkably linear response of the Proteus flow sensor is transformed to an accurate flow measurement by our calibration process. Flow output is normally calibrated to 5.00 VDC for the maximum flow of each sensor type. Custom calibrations are available.



Flow response of 800 Series

Use pressure drop curves to size your sensor

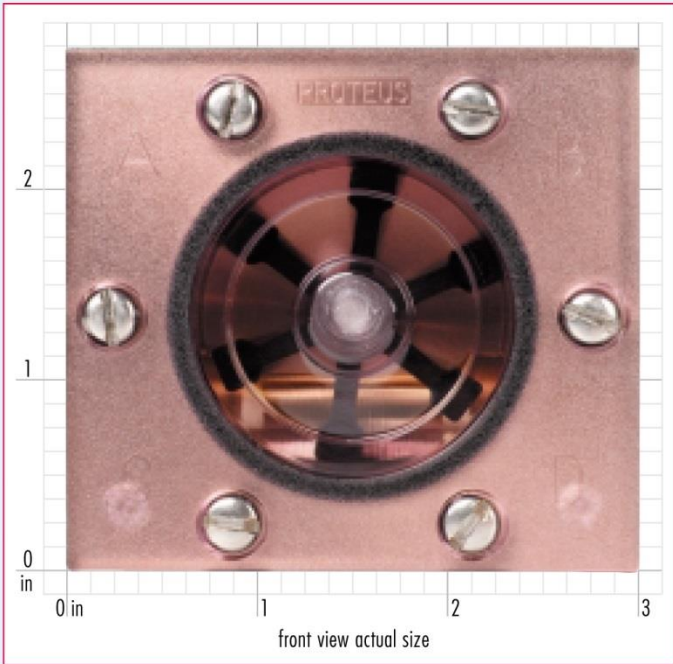
We suggest that you select a sensor for which your normal flow condition is about half the sensor's range. In this region pressure drop is low, yet accuracy and response of the meter is still amazingly reproducible. Performance of all 800 Series sensors has been established with our traceable standards.



Pressure drop vs flow of 800 Series

Upgrade now!

Now you can increase the capability of your instrumentation by adding switching and metering functions in the space previously occupied by only a switch. You achieve enhanced flow control and the service advantages of an accurate flow meter.

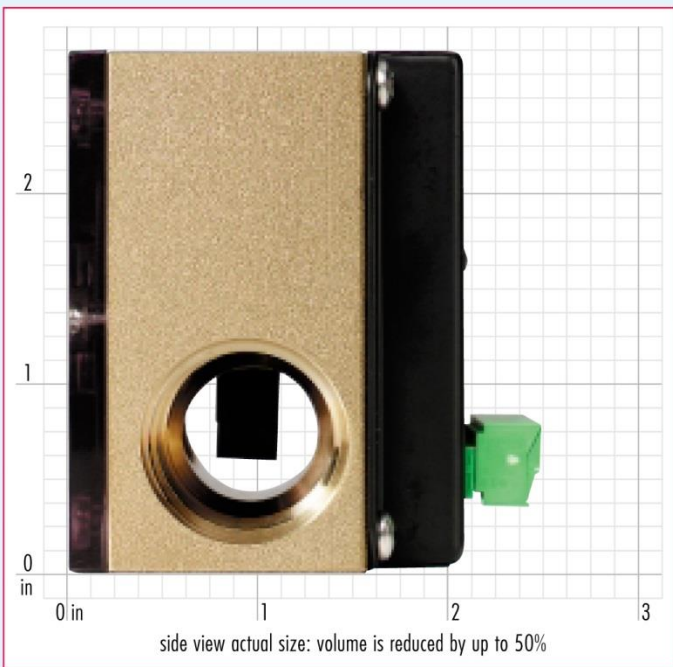


Compact design makes retrofitting easy!

800 Series units are completely retrofitable to your current system. They are mounted in the same manner as your existing Proteus flow switches, so you don't have to change your design.

Wide temperature range for leading-edge applications

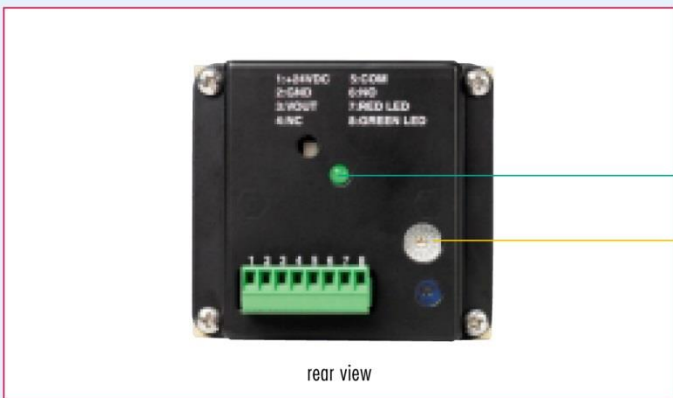
Brass and stainless steel versions of the 800 Series can be equipped with metal faceplates, enabling operation from -40° to 125°C. Flow response is remarkably constant across a 50°C range. All materials used in the 800 Series flow sensors are compatible with water, water-glycol mixes, Golden™, Fluorinert™ and other advanced heat transfer fluids required by new process technologies.



LED provides instant status information

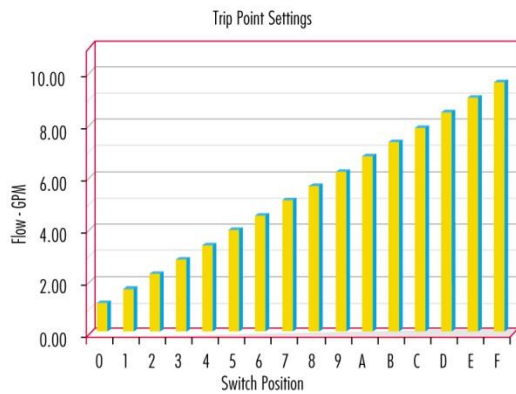
Like a traffic signal, the green, amber and red lights indicate flow status. Flow problems are instantly detectable. An optional LED display can be mounted at your control panel if required.

LED Color	Flow Rate
Red	Less than flow rate at selected trip point
Amber	Between 1 x and 1.15 x flow rate at selected trip point
Green	Greater than 1.15 x flow rate at selected trip point



Trip point is user-selectable

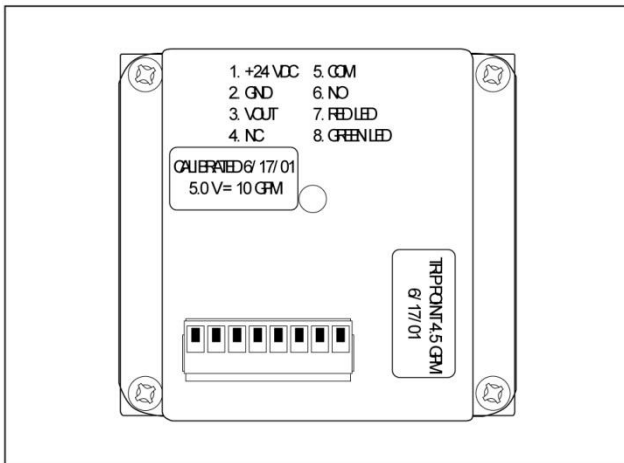
The trip point is set by adjusting a 16-position switch. This feature allows you to change trip point settings predictably, accurately and reproducibly without the use of complex instrumentation. An optional potentiometer can fine-tune your trip point selection.



Proteus: Your customization experts

Proteus is an established ISO-9001 registered manufacturing company located in the heart of Silicon Valley. Our lean manufacturing processes and customization expertise place us in the forefront of our industry. We are accustomed to tight schedules and precision requirements – and to getting it right, first time and every time.

Your 800 Series metering flow switches arrive ready for integration into your system. You can rest assured that the fittings are properly positioned, your devices are leak tight and they will function to your requirements. We design according to your needs in collaboration with your engineers. Your cables are already installed and your device has been tested end-to-end. Trip points and output voltages are calibrated to your exact specifications. Precise calibrations are assured by NIST-traceable references. Our experts do the work for you.



Need a specialized flow sensor?

We'll create one for you. Our diverse list of customized options includes hoses, tubing, face-seal connections, scaled panel meters for direct display of flow rates, fitting of special cables and labeling with your part numbers and operating parameters. We welcome your inquiries. Call us for immediate assistance in fulfilling your specialized requirements.

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Specifications

Flow Ranges		Connections	
GPM	LPM	FNPT	SAE*
0.05 – 0.3	0.2 – 1.1	¼"	
0.06 – 0.6	0.3 – 2.3	¼"	
0.1 – 1.0	0.4 – 3.8	¼"	
0.2 – 2.5	0.75 – 9.5	¼"	¾-18
0.3 – 4.5	1.1 – 17	¼"	¾-18
0.6 – 9.0	2.3 – 34	¾"	
0.6 – 10 [†]	2.3 – 38	¾"	
0.8 – 10	3 – 38		¾-16
1.0 – 14	3.8 – 53	½"	
1.0 – 15 [†]	3.8 – 57	½"	
1.2 – 16	4.5 – 60	¾"	1½-12
1.5 – 19 [†]	6 – 72	¾"	
3 – 40	11 – 150	¾"	
4 – 40	15 – 150	1"	1½-12
4 – 50 [†]	15 – 190	1"	
5 – 60	19 – 225	1"	

*SAE fittings available for stainless steel units only.

[†]Polypropylene units only.

Liquid Operating Limits

Temperature -20 to 100 °C / -4 to 212 °F with clear plastic faceplate.
-40 to 140 °C / -40 to 284 °F for brass and stainless steel units fitted with optional metal faceplates.
Contact tech@proteusind.com for information on operation above 85 °C and below dew point.

Pressure To 690 kPa / 100 psi with clear plastic faceplate.
To 1720 kPa / 250 psi for brass and stainless steel units fitted with optional metal faceplates.

Kinematic Viscosity To 120 cSt

Wetted Materials

Flow Sensor Body	FNPT SAE	Brass • polypropylene • 316 stainless steel 316 stainless steel
Faceplate		Clear polysulfone (standard) Brass and 316 stainless steel optional
Sealing O-Ring		Viton®. Other materials optional.
Rotor		PPS
Rotor Shaft		316 stainless steel

Meter Performance

Calibrated Voltage Output	0– 5 VDC for the maximum rated flow for each sensor type
Accuracy	± 2% of range. Improved accuracy and linearity performance over smaller flow ranges can be achieved by specialized NIST-traceable calibration procedures.
Linearity	Better than ± 1% from 10 to 100% of nominal flow range
Repeatability	Better than ± 0.5% above 10% of nominal flow range

Switch Performance

Trip Point Selection	16-position switch changes trip points in steps of 6.6% of nominal flow range with fine adjustment between steps
Hysteresis	< 5% of actual flow rate
Switch	Relay Closure
Relay Rating	SPDT 48 VDC, 1.0A

Electrical

Power Requirements	24 VDC, 40mA
Electrical Connection	Plug type EDZ1550/8 with screw fastening of 8 conductors up to #16 gauge
Remote Electronics	Optional mounting locates electronics up to 30 ft from flow sensor. Required for operation above 85°C.
Certification	CE marked
Flow Certification	Standard products are provided with certificates of compliance. Specialized calibration certificates are optionally available.
Digital Display	Optional panel-mounted DVMs display flow rate in GPM or LPM on 3½ digits.