



Series UV In-Line and Panel Mount Polysulfone Flowmeters

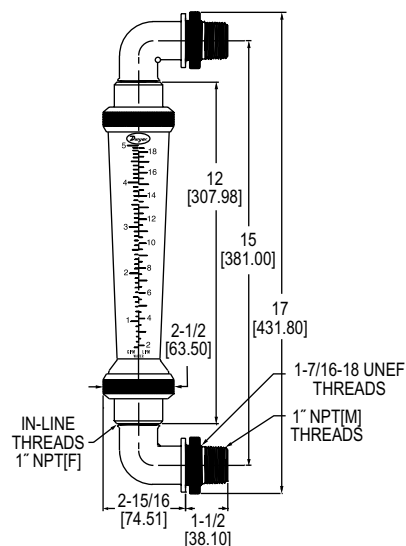
Specifications - Installation and Operating Instructions



Shown with optional polysulfone fittings



Shown with optional polycarbonate shield



Shown with optional polysulfone fittings

The **Series UV Ultra-View™ Polysulfone Flowmeters** are an ultra-pure, laboratory grade flowmeter with a dual scale that measures flow in GPM and LPM of water, air and other compatible media. The Series UV is designed to withstand high temperatures up to 212°F (100°C) and pressures up to 150 psi (10.34 bar).

INSTALLATION

1. Select an indoor (only) location that is free from excess vibration, within the specified temperature limits, and away from direct sunlight. (Polysulfone is adversely affected by ultraviolet light.)
2. Remove hollow plastic shipping tube from inside flow body.
3. Handle carefully. Hand-tighten aluminum ring. O-rings will seal if hand tightened only. Do not overtighten the adaptors and fittings.
4. Install the flowmeter in an exact vertical plane, one that is in proper alignment with the existing plumbing. Use wall or other structural supports at the top and bottom of the unit. Do not allow the instrument to support the weight of pipes or tubing.
5. Use pipe thread sealant tape. Do not use pipe dope compounds, which can craze and crack the polysulfone housing. Hand tighten system pipe fitting to adaptor fitting. If additional torque is needed to seal pipe joint, use strap wrench on adaptor fitting. Maximum torque is 22 ft to lb.
6. If using solvent-based glues like PVC cement, in the piping system, do so with the meter's body removed until glue has cured, then purge the system before re-installing. Do not solder brass fittings with the body installed, because the heat generated to solder the brass fittings will damage the flowmeter.

SPECIFICATIONS

Service: Compatible liquids and gases.

Wetted Materials: Polysulfone body and fittings, fluoroelastomer O-rings and virgin PTFE float.

Temperature Limits: 35 to 212°F (2 to 100°C); 35 to 130°F (2 to 54°C) for PVC fitting option.

Pressure Limit: 150 psi (10.34 bar).

Accuracy: ±2% FS @ 70°F ±2°F (21.1°C) and 14.7 psia (in line connection rating only).

Repeatability: ±1% FS @ 70°F ±2°F (21.1°C) and 14.7 psia (in line connection rating only).

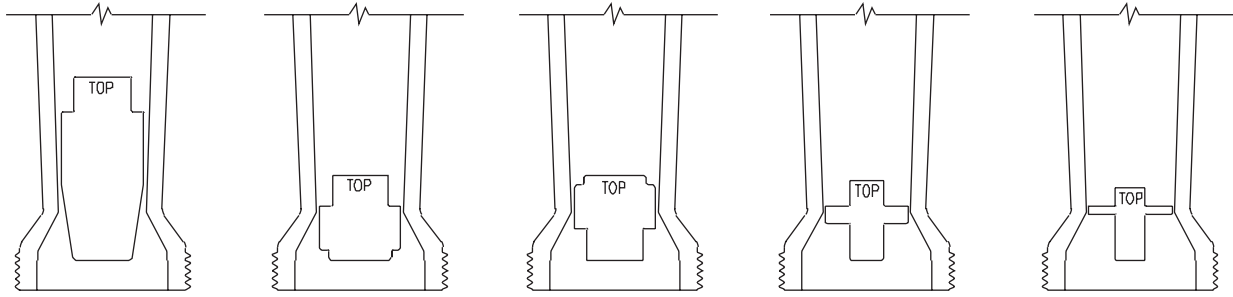
Process Connections: 1" female NPT. Optional 90° polysulfone elbow - 1" male NPT.

Scale Length: 6" (152.40 mm) - 7" (177.80 mm), depending on model.

Fitting Torque: Maximum 22 ft - lb.

Weight: 1 lb (457 g) for 20 GPM range.

CAUTION: Ball valves can have a "water cannon" effect on opening, creating pressure that exceeds the warranty ratings will damage the flowmeter. Series UV Flowmeters are for indoor use only or areas without direct sunlight. Polysulfone is adversely affected by ultraviolet light.



2 to 20 GPM
3 to 30 GPM
4 to 40 GPM
14 to 100 SCFM

1 to 10 GPM

5 to 50 SCFM

0.5 to 5 GPM
2.5 to 28 SCFM

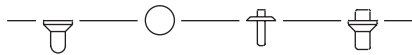
0.25 to 2.5 GPM
1 to 13 SCFM

OPERATION AND MAINTENANCE

Once installed, the Series UV Ultra-View™ Polysulfone Flowmeter is self-operating and requires no maintenance other than an occasional cleaning with mild soap and a bottle brush. For this purpose, the unit has been designed so that its body can be removed quickly and easily while leaving all fittings intact.

When removing float for cleaning, note the floats "up" position. The float is a precision part and must be reassembled without adverse treatment, i.e. dropping, denting, and surface abrasion.

The standard technique for reading a Variable Area Flowmeter is to locate the highest point of greatest diameter on the float, and then align that with the theoretical center of the scale graduation. In the event that the float is not aligned with a grad, an extrapolation of the float location must be made by the operator as to its location between the two closest grads. The following are some sample floats shown with reference to the proper location to read the float.



MODEL CHART

Model	Range (GPM water)	Model	Range (SCFM air)
UV-0112	0.25 to 2.5 (1 to 9.5 LPM)	UV-A112	1 to 13 (30 to 370 LPM)
UV-1112	0.5 to 5.0 (2 to 19 LPM)	UV-B112	2.5 to 28 (70 to 780 LPM)
UV-2112	1.0 to 10.0 (4 to 38 LPM)	UV-C112	5 to 50 (70 to 1400 LPM)
UV-3112	2.0 to 20.0 (8 to 76 LPM)	UV-D112	14 to 100 (400 to 2800 LPM)
UV-4112	3.0 to 30.0 (12 to 112 LPM)		
UV-5112	4.0 to 40.0 (20 to 150 LPM)		

Note: For PVC 1" female NPT fittings, change 12 to 22.

Variable Area Flowmeters used for gases are typically labeled with the prefix "S" or "N", which represents "Standard" for English units or "Normal" for metric units. Use of this prefix designates that the flowmeter is calibrated to operate at a specific set of conditions, and deviation from those standard conditions will require correction for the calibration to be valid. In practice, the reading taken from the flowmeter scale must be corrected back to standard conditions to be used with the scale units. The correct location to measure the actual pressure and temperature is at the exit of the flowmeter, except under vacuum applications where they should be measured at the flowmeter inlet. The equation to correct for nonstandard operating conditions is as follows:

$$Q_2 = Q_1 \times \sqrt{\frac{P_1 \times T_2}{P_2 \times T_1}}$$

Where: Q1 = Actual or Observed Flowmeter Reading
 Q2 = Standard Flow Corrected for Pressure and Temperature
 P1 = Actual Pressure (14.7 psia + Gage Pressure)
 P2 = Standard Pressure (14.7 psia, which is 0 psig)
 T1 = Actual Temperature (460 R + Temp °F)
 T2 = Standard Temperature (530 R, which is 70°F)

Example: A flowmeter with a scale of 10 to 100 SCFH Air. The float is sitting at the 60 grad on the flowmeter scale. Actual Pressure is measured at the exit of the meter as 5 psig. Actual Temperature is measured at the exit of the meter as 85°F.

$$Q_2 = 60.0 \times \sqrt{\frac{(14.7 + 5) \times 530}{14.7 \times (460 + 85)}}$$

Q2 = 68.5 SCFH Air