

SMARTFLOW®

IceCube™ Flowmeter

1/4" thru 3/4"NPT and BSPP

Installation and Operating Instructions

General

The Smartflow small flowmeter provides visual indication of flow through a clear polysulfone viewing body. The vane indicator is physically pushed by the liquid indicating the flow rate printed on the viewing body. Available options:

- Flow Rate in gallons per minute (gpm) or liters per minute (lpm)
- Temperature Gauge (Dual Scale)
- Pressure Gauge (Dual Scale 30 psi, 60 psi, 100 psi unfilled, or 100 psi liquid-filled)
- Quick disconnect fittings (NPT threads 1/2" or less)

Specifications

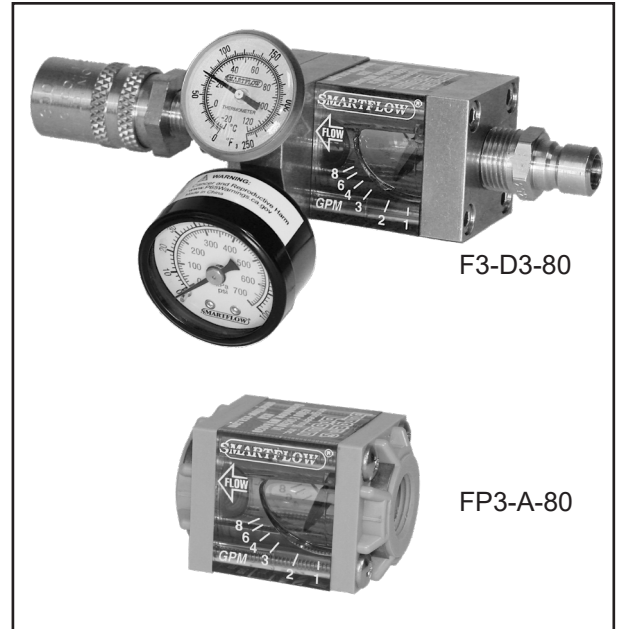
Flow Ranges (max.)..... 1.5 gpm, 2.5 gpm, 8.0 gpm
..... 10 lpm, 20 lpm, 30 lpm
Connection sizes (NPT or BSPP)..... 1/4", 3/8", 1/2" or 3/4"
Quick disconnect fittings (NPT only)..... 1/4", 3/8" or 1/2"
Operating Temperature (max.)..... 210°F (99°C)
Operating Pressure (max.) 100 psi (6.9 bar)
Accuracy ±10% of full scale

Component Materials

Viewing Body Polysulfone
End Caps Brass or SS reinforced Nylon
Sensing Vale..... Glass-Filled Nylon 6/6
Hinge Pin SS
Torsion Spring..... SS
Corner Screws..... SS
O-Rings EPDM

Replacement Parts

Hinge Pin	FP-10	Springs	
O-Ring.....	568-214-5601-70	0-1.5 gpm	FSP-15
Vane.....	FV-10	0-2.5 gpm (10 lpm)	FSP-25
Temp Gauge	FMT-1	0-20 lpm	FSP-200
Pressure Gauges		0-8 gpm (30 lpm)	FSP-80
0-30 psi.....	FPG-30	Bodies	
0-60 psi.....	FPG-60	0-1.5 gpm	F-15
0-100 psi.....	FPG-100	0-2.5 gpm	F-25
Liquid-Filled (0-100 psi)		0-8 gpm	F-80
.....	FPGL-100	0-10 lpm	F-100
		0-20 lpm	F-200
		0-30 lpm	F-300



Cleaning

Debris in the circulating system may cause the sensing vane to stick or discolor the inside of the clear plastic body. Contact Burger & Brown Engineering for replacement parts or repair service. Clean the flow meter as follows:

1. Remove the screw in each corner.
2. Remove the two end caps.
3. Remove the sensing vane from the body by pushing gently against the back of the vane.
4. Clean the body with a soft cloth or paper towel. Novus #2 plastic polish may be used. *Do not clean with acetone. Do not clean with abrasives such as scouring powder, sandpaper or emery cloth which will scratch the clear finish.*
5. Remove the torsion spring and hinge pin. Wipe clean with a soft cloth or paper towel. *Do not lubricate the spring or hinge pin.*
6. Examine the o-rings and replace if they are hard, brittle or flattened. Add a thin layer of Parker Super-O-Lube or equivalent to the o-rings before replacing them. *Do not use petroleum-based lubricants on EPDM o-rings.*
7. Re-assemble parts in reverse order of disassembly. Do not over-tighten the screws as this may crack the viewing body.



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Caution

- Use at temperatures above 130°F poses a serious personal injury hazard. Use extreme caution, protective clothing, or shielding around the system to minimize risk to personnel and nearby equipment.
- Accelerated chemical attack will result if flowmeters are used at elevated pressures and temperatures. Frequently inspect the body for cracking or crazing which may indicate chemical attack. Sudden failure and leakage can result from chemical attack. Consult the chemical compatibility list at right for substances that attack the polysulfone flowmeter body.
- Any liquid system offers the potential for accidental leakage. Leakage onto electrical or computer equipment could result in costly damage or personal injury. Do not locate piping systems where leakage might damage equipment or pose personal injury hazards. If it is impossible to avoid piping in such locations, use shielding to protect equipment and personnel.

Chemical Compatibility

The following is a list of chemicals that are not compatible with the UDEL Polysulfone used in the Smartflow small flowmeter. Contact Burger & Brown Engineering for more detailed information.

Acetone, Methyl Ethyl Ketone	Freon TA
Benzene	Methylene Chloride
Carbon Tetrachloride	Tetrachloroethylene
Chlorobenzene	1,1,2,2-Tetrachloroethane Toluene
Chloroform	1,1,1-Trichloroethane
Cyclohexanone	Trichloroethylene
Esters	Xylene

Please contact us for further information.

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Limited Warranty

Seller warrants that Smartflow® products supplied will conform to the description stated in published literature, and that the product will be of standard quality. The seller warrants manufactured components for 90 days and electronic components within the Tracer® line for one year. This is the sole warranty made by Seller with respect to this product. Seller expressly disclaims any other express or implied warranties, including, but not limited to, the implied warranty of merchantability and the implied warranty of fitness for a particular purpose.

Seller shall not be liable for any cost or damages, whether direct, incidental or consequential, including, but not limited to, any injury, loss or damage resulting from the use of this product, regardless of whether any claim for such cost or damages is based on warranty, contract, negligence, tort or strict liability. The sole liability of Seller is limited to repairing or replacing this product.

This warranty shall not apply to any products that have been repaired or altered by anyone other than Seller. The warranty shall not apply to any products subject to misuse due to common negligence or accident, nor to any products manufactured by Seller which are not installed or operated in accordance with the printed instructions of Seller or which have been operated beyond the rated capacity of the goods. Seller states that the product's useful safe life is 5 years. Actual life may vary widely depending on operating environment such as temperature, pressure, and chemical exposure.