ChemTec

Flow Monitors
Excess Flow Valves
Flow Meters

ChemTec.com | 1.954.420.6174

Table of Contents

LPH Series

Non-Adjustable Flow Monitor

Key Features

Compact, Dependable, Economical

Features

- Close On-Off Differential
- Visual Indication of Flow with Acrylic Model
- No Seals
- In Line Vertical Plumbing
- Materials: Acrylic, Brass, 316SS or Teflon®
- Confirms: Normal Flow Conditions
- Senses: High Flow and Low Flow Conditions
- Output: Switch Contact

Applications

- Analyzers
- Kidney Dialysis Machines
- Micro Biomedical Machines
- Laser Cooling Systems
- Bubbler Systems
- Pollution Sampling Equipment

FNPT Port Sizes

- LPH 125 - 1/8”
- LPH 250 - 1/8”
- LPH 375 - 1/4”

Operation

When air/water flows through the unit it causes the magnetic piston to move up at the calibration point. This displacement is caused by the pressure differential from the air/water flowing through the unit. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path. Decreasing the flow below the calibration point causes the reed switch to de-actuate.

- Actuation points for air at 68°F and 14.7 PSIA with increasing flow.
- Deactuation (decreasing flow) averages 10% less than actuation (increasing flow).
- Calibration accuracy ±10% of calibration points shown.
- Repeatability ±1%.
- Unit will pass greater flows.

Pressure Loss

ΔP AT SET POINT
MBARS (INCHES OF WATER)
ALL UNITS 11.2 (4.5)

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

Specifications

Body Material	Weight OZ (gm)	Max Working Pressure PSIG (barg)	Wetted Parts
Acrylic	4 (113.4)	100 (6.89)	Acrylic, 316SS, Epoxy
Brass	8 (226.8)	1500 (103.42)	Brass, 316SS, Epoxy
316SS	8 (226.8)	3000 (206.84)	316SS, Epoxy
Teflon	4 (113.4)	80 (5.52)	Teflon®

Temperature Operating Range

- 0˚ to 220˚F (-17˚ to 104˚C) for 316SS, Brass and Teflon®
- 32˚ to 160˚F (0˚ to 71˚C) for Acrylic

For other temperature ranges consult factory.

Calibration Table

Model	Air SCC/M (SCFH)	Water ML/M (GPH)
LPH-125		
0	50 (0.105)	1 (0.016)
-1	120 (0.254)	2 (0.03171)
-2	560 (1.187)	16 (0.25369)
-3	750 (1.589)	30 (0.47567)
-4	1300 (2.755)	45 (0.71350)
-5	1400 (2.966)	50 (0.79278)
-6	1900 (4.026)	65 (1.0306)
-7	2500 (5.297)	85 (1.3477)
-8	2700 (5.721)	90 (1.4270)
-9	3300 (6.992)	105 (1.6648)
-10	3600 (7.628)	120 (1.9027)
-11	5200 (11.02)	170 (2.6955)
-12	6000 (12.71)	200 (3.1711)
LPH-250		
-1	350 (0.742)	7 (0.111)
-2	6000 (12.71)	200 (3.171)
-3	7500 (15.89)	250 (3.964)
-4	9500 (20.12)	315 (4.994)
-5	10500 (22.25)	346 (5.486)
-6	12500 (26.49)	400 (6.342)
-7	15200 (32.21)	500 (7.928)
-8	24000 (50.85)	760 (12.05)
LPH-375		
-1	3000 (6.36)	70 (1.110)
-2	15200 (32.21)	475 (7.531)
-3	30300 (64.20)	950 (15.06)
-4	37000 (78.40)	1425 (22.59)**
-5	45300 (95.99)	2200 (34.88)**

**Teflon® encapsulated piston not available

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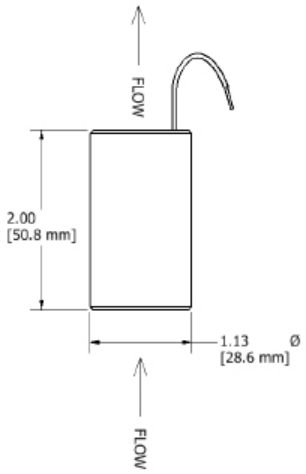
LPH Series

Non-Adjustable Flow Monitor

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	250	175
AC (V)	265	120
Contact Rating		
DC (W)	50	5
AC (VA)	50	5
Maximum Switching Current (A)		
DC (A)	1.5	0.25
AC (A)	1.1	0.18

Leads	SPST UL File #E471070	SPDT UL File #E471070
	leads 18 in. min. from body 22 AWG, TFE insulation	 leads 18 in. min. from body 24 AWG, TFE insulation • green - N.C. • blue - N.O. • white - Common



Installation

Mount with the inlet port down vertically. A 10 micron filter is recommended.

Leads Up;	Normally Open
Leads Down;	Normally Closed
Conduit;	N.O. Conduit Offset Down
	N.C. Conduit Offset Up

How to Order

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Model	Size	Calibration	Materials	Electrical Conduit	Media	Switch	Options
LPH	125 250 375	See Cal. Table	A Acrylic B Brass S 316SS T Teflon® (TFE piston standard in Teflon units)	C (Metallic Bodies Only) (1/2" FNPT)	W Water A Air	N.O. Single Pole Single Throw Normally Open N.C. Single Pole Single Throw Normally Closed SPDT Single Pole Double Throw DSNONO Double Switch N.O./N.O. DSNONC Double Switch N.O./N.C. DSNCNC Double Switch N.C./N.C. DCNONO Double Conduit N.O./N.O. DCNONC Double Conduit N.O./N.C. DCNCNC Double Conduit N.C./N.C.	TFE Teflon® Encapsulated Piston (Standard in Teflon Units) 02 Oxygen Cleaned HT High Temperature Options 340˚F (171˚C) metallic body only HV High Voltage Switch (220 VAC)

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FS Series

Non-Adjustable Flow Monitor

Key Features

Economical Liquid Flow Sensor

Features

- Non-Adjustable Flow Monitor
- Low Maintenance
- Close On-Off Differential
- No Seals
- Single Moving Part
- In Line Vertical Plumbing
- Materials: 316 SS, Brass or PVC
- Confirms: Normal Flow Condition
- Senses: High Flow or Low Flow Conditions
- Output: Switch Contact

Applications

- Laser Cooling Systems
- Heat Pumps
- Cooling Systems

Operation

As flow is established upward through the unit and continues to increase, the pressure differential across the magnetic piston increases until it overcomes the magnetic piston's resistance (mass). The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path. This is a snap action and occurs in the decreasing mode as well.

- Actuation Points for increasing flow
- Calibration Accuracy ±10% of actuation point
- Deactuation (decreasing flow) averages 10% less than actuation (increasing flow)
- Repeatability ±2%
- Unit will pass greater flows

Temperature Operating Range

- 0° to 228°F (-17° to 104°C) for Brass and Stainless Steel
- 32° to120° F (0° to 49°C) for PVC

For other temperature ranges consult factory.

Specifications

Body Material	Weight	Max Working Pressure PSIG (barg)	Wetted Parts
PVC	1/2" 0.2lb	100 (6.89)	PVC, Epoxy
Brass	1/2" 0.7lb	250 (17.22)	Brass, Epoxy
316SS	1/2" 0.7lb	500 (34.45)	316SS, Epoxy
PVC	3/4" 0.3lb	100 (6.89)	PVC, Epoxy
Brass	3/4" 1.0lb	250 (17.22)	Brass, Epoxy
316SS	3/4" 0.1lb	500 (34.45)	316SS, Epoxy
PVC	1" 0.4lb	100 (6.89)	PVC, Epoxy
Brass	1" 1.2lb	250 (17.22)	Brass, Epoxy
316SS	1" 1.2lb	500 (34.45)	316SS, Epoxy

Calibration Table

Model	PVC LPM (GPM)	Brass or 316SS LPM (GPM)
FS-50		
-A	0.57 (0.15)	0.95 (0.25)
-B	0.95 (0.25)	1.89 (0.50)
-C	1.89 (0.50)	3.79 (1.00)
-D	2.84 (0.75)	5.68 (1.50)
-E	3.79 (1.00)	7.57 (2.00)
-F	4.73 (1.25)	9.46 (2.50)
FS-75		
-A	0.76 (0.20)	1.89 (0.50)
-B	1.89 (0.50)	3.79 (1.00)
-C	2.84 (0.75)	7.57 (2.00)
-D	3.79 (1.00)	11.4 (3.00)
-E	3.68 (1.50)	15.1 (4.00)
-F	7.57 (2.00)	21.8 (5.75)
FS-1		
-A	0.95 (0.25)	7.57 (2.00)
-B	2.84 (0.75)	9.46 (2.50)
-C	3.79 (1.00)	11.4 (3.00)
-D	7.57 (2.00)	15.1 (4.00)
-E	11.4 (3.00)	22.7 (6.00)
-F	15.1 (4.00)	32.2 (8.50)

Pressure Loss

ΔP to atmosphere at set point PSID (BARD)

Water PVC Units
All set points - 0.50 (0.034)

Metal Units
All set points - 1.00 (0.069)

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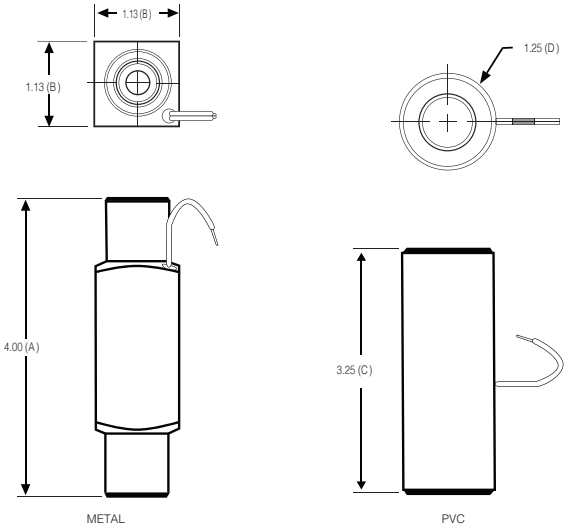
FS Series

Non-Adjustable Flow Monitor

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	250	175
AC (V)	265	120
Contact Rating		
DC (W)	50	5
AC (VA)	50	5
Maximum Switching Current (A)		
DC (A)	1.5	0.25
AC (A)	1.1	0.18

Leads	SPST UL File #E471070	SPDT UL File #E471070
 leads 18 in. min. from body 22 AWG, TFE insulation		leads 18 in. min. from body 24 AWG, TFE insulation • green - N.C. • blue - N.O. • white - Common



Installation

Mount vertically, inlet down.
Filtration - 100 Micron Filter Recommended.

Fluid	Ports: Inlet/Outlet	Ports Inches
Model	FNPT (PVC)	MNPT (Brass or 316SS)
FS-50	1/2”	1/2”
FS-75	3/4”	3/4”
FS-1	1”	1”

Dimensions Inches (mm)				
		FS-50	FS-75	FS-I
METAL	A	4.00 (101.6)	4.50 (114.3)	4.50 (114.3)
METAL	B	1.125 (28.70)	1.25 (31.75)	1.50 (38.10)
PVC	C	3.25 (88.52)	3.75 (95.25)	4.50 (114.3)
PVC	D	1.25 (31.75)	1.50 (38.10)	1.75 (44.45)

How to Order

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Model	Size	Calibration	Materials	Switch	Options
FS	-50 -75 -1	A B C D E F	P PVC B Brass S 316SS	N.O. Single Pole Single Throw Normally Open SPDT Single Pole Double Throw	HT High Temperature Option 340˚F (171˚C) (metallic body only)

Note: All dimensions are subject to change for quality improvement. Not responsible for printing errors.

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LFS Series

Non-Adjustable Flow Monitor

Key Features

Chemically inert, Non-restrictive at higher flows.

Features

- Close On-Off Differential
- In Line Vertical Plumbing
- Confirms: Normal Flow Conditions
- Senses: High Flow or Low Flow Conditions
- Material: Polypropylene
- Output: Switch Contact

Applications

- Deionized Water
- Chemical Process Systems
- Cooling Systems
- Heat Pump Systems
- Laser Cooling Systems

Operation

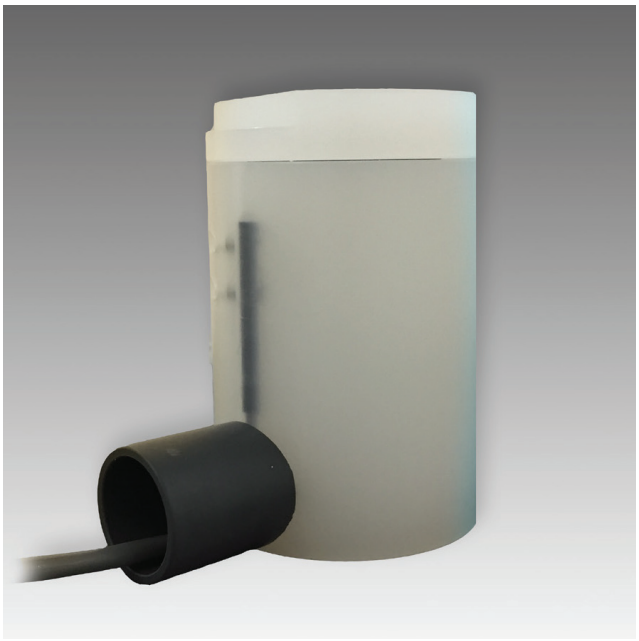
As flow is established upward through the unit and continues to increase, the pressure differential across the magnetic piston increases until it overcomes the magnetic piston's resistance (mass). The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path.This is a snap action and occurs in the decreasing mode as well.

- Actuation Points for increasing flow
- Calibration Accuracy ±10% of actuation point
- Deactuation (decreasing flow) averages 10% less than actuation (increasing flow)
- Repeatability ±2%
- Unit will pass greater flows

Temperature Operating Range

- 0° to 228°F (-17° to 104°C) for Brass and Stainless Steel
- 32° to 120°F (0° to 49°C) for Polypropylene

For other temperature ranges consult factory.



Calibration Table

Model	Water LPM (GPM)
LFS-500-PP-C	
-1	0.38 (0.10)
-2	1.89 (0.50)
-4	3.78 (1.00)
-6	5.68 (1.50)
-8	7.57 (2.00)

Corrections must be made for other liquids, line pressures and temperatures. Please consult your representative or the factory.

Specifications

Unit	Weight OZ (gm)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Polypropylene	10.469 (0.213)	100 (6.89)	PP, Epoxy	Viton

Pressure Loss

ΔP at 5 GPM (18.925) PSID (BARD)
All set points - 1.00 (0.069)

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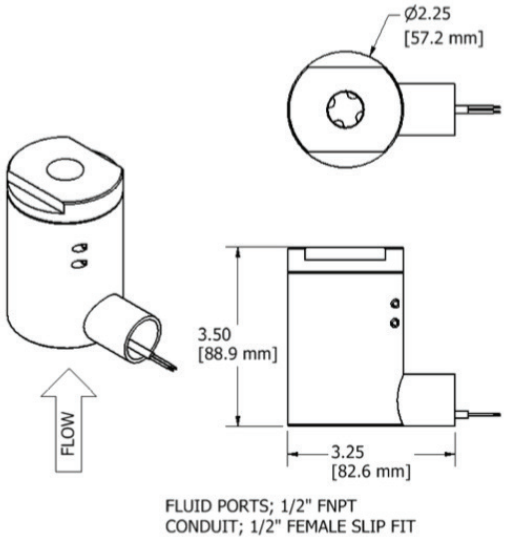
LFS Series

Non-Adjustable Flow Monitor

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	250	175
AC (V)	265	120
Contact Rating		
DC (W)	50	5
AC (VA)	50	5
Maximum Switching Current (A)		
DC (A)	1.5	0.25
AC (A)	1.1	0.18

Leads	SPST UL File #E471070	SPDT UL File #E471070
	leads 39 in. min. from body 22 AWG, PVC jacketed wire, red, black		leads 39 in. min. from body 22 AWG PVC jacketed wired, • red - N.C. • black - N.O. • white - Common



Fluid	Ports: Inlet/Outlet	Ports Inches
Model	FNPT	Electrical Conduit
LFS	1/2”	1/2” Female Slip Fitting

Installation

Mount with inlet port down vertically. A 100 micron filter is recommended.

How to Order

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Model	Calibration	Switch
LFS 500 PPC	-1 -2 -4 -6 -8	N.O. Single Pole Single Throw Normally Open SPDT Single Pole Double Throw

Note: All dimensions are subject to change for quality improvement. Not responsible for printing errors.
Viton®

125 Series

Standard Unobtrusive Adjustable Flow Monitor

Key Features

Best for applications where the ratio (Normal Flow/Set Point) is 10:1 or greater, minimal pressure drop.

Features

- Broad Range of Adjustability
- Compact Size
- High Resolution
- Materials: 316SS, Brass or Teflon®
- Confirms: Normal Flow Conditions
- Senses: High Flow and Low Flow Conditions
- Output: Switch Contact

Applications

- Welding Systems
- Analyzers
- Vacuum Systems
- Cooling Systems
- Chillers
- Biochemical Instruments
- Process Flows

Operation

A magnetic piston is suspended by the repulsion of a fixed magnet. When fluid flows through the unit it causes the magnetic piston to move against the repulsion of the fixed magnet. The magnet piston actuates an encapsulated hermetically-sealed reed switch out of the fluid path. Decreasing the flow below the calibration point causes the reed switch to de-actuate. Set point is adjustable.

- Actuation Points for air at 68°F and 14.7 PSIA with increasing flow
- Deactuation (decreasing flow) averages 30% less than actuation (increasing flow).
- Repeatability ±2%
- Unit will pass greater flows

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

Temperature Operating Range

- 0° to 220°F (-17° to 104°C)

For other temperature ranges consult factory.

Specifications

Unit	Weight OZ (gm)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Teflon®	4 (113.4)	80 (5.52)	Teflon®	Teflon®
Brass	12 (340.2)	1500 (103.42)	Brass, Epoxy	Viton®
316SS	12 (340.2)	3000 (206.84)	316SS, Epoxy	Viton®

Calibration Table

Model		Air SCC/M (SCFH)	Water ML/M (GPH)	Ports FNPT
125	Minimum	30 (0.063)	1 (0.016)	1/8”
	Minimum	16000 (33.90)	500 (7.93)	

Pressure Loss

Air Flowrate SCC/M (SCFH)	Water Flowrate ML/M (GPH)	ΔP to Atmosphere MBARS (Inches of Water)
30 (.064)	1 (0.016)	8.71 (3.50)
310 (.657)	30 (0.48)	25.8 (10.38)
1500 (3.178)	300 (4.76)	29.7 (11.92)
16000 (33.9)	500 (7.93)	63.8 (25.63)

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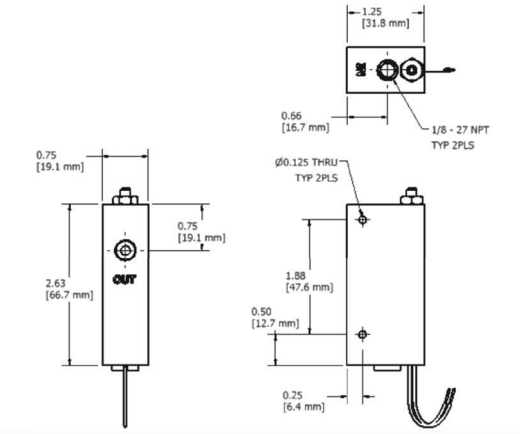
125 Series

Standard Unobtrusive Adjustable Flow Monitor

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	250	175
AC (V)	265	120
Contact Rating		
DC (W)	50	5
AC (VA)	50	5
Maximum Switching Current (A)		
DC (A)	1.5	0.25
AC (A)	1.1	0.18

Leads	SPST UL File #E471070	SPDT UL File #E471070
	leads 18 in. min. from body 22 AWG, TFE insulation		leads 18 in. min. from body 24 AWG, TFE insulation • green - N.C. • blue - N.O. • white - Common



Installation

Mount with the inlet port up vertically. Inlet port down changes the adjustable range of the unit. A 10 micron filter is recommended.

How to Order

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Model	Materials	Electrical Conduit (Optional)	Switch	Options
125	T Teflon® B Brass 316 Stainless	C (Metallic Bodies Only) (1/2" FNPT)	N.O. Single Pole Single Throw Normally Open SPDT Single Pole Double Throw	TFE Teflon Encapsulated Piston** 02 Oxygen Cleaned HT High Temperature Options 340°F (171°C) metallic body only KZ FFKM Perfluoroelastomer EPR EPR Seals BN Buna N Seals FP Factory Preset

*Consult Factory **Standard with Teflon unit | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

125 BP Series

Bypass Adjustable Flow Monitor

Key Features

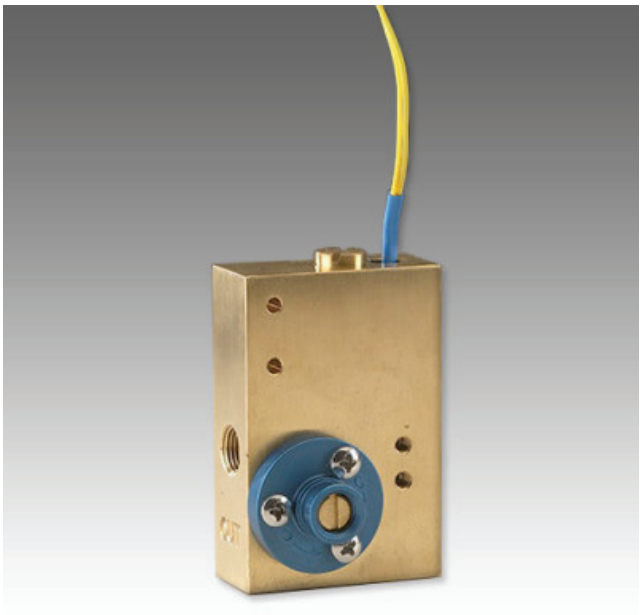
Best for applications where the ratio (Normal Flow/Set Point) is 10:1 or less.

Features

- Broad Range of Adjustability
- Compact Size
- High Resolution
- Close On-Off Differential
- Ease of Customer Setting
- Monitors Gases or Liquids
- Materials: 316SS, Brass or Teflon®
- Confirms: Normal Flow Conditions
- Senses: High Flow and Low Flow Conditions
- Output: Switch Contact

Applications

- Vacuum Systems
- Wet Stations
- Gas Analyzers
- Cooling Systems
- Industrial Fluid Lines
- Process Flows



Operation

When no flow is present the free magnetic piston rests on the bottom of the bore, which is in a bypass off the main line. Adjustment of the orifice in the main line creates a small bypass flow to lift the magnetic piston and actuate the reed switch. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path. When flow decreases, the piston moves downward and the reed switch deactuates.

- Actuation Points for air at 68°F and 14.7 PSIA with increasing flow
- Deactuation (decreasing flow) averages 10% less than actuation (increasing flow)
- Repeatability ±2%
- Unit will pass greater flows

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

Temperature Operating Range

- 0° to 220°F (-17° to 104°C)

For other temperature ranges consult factory.

Specifications

Unit	Weight OZ (gm)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Teflon®	4.4 (123.5)	100 (6.89)	Teflon®	Teflon®
Brass	16 (453.6)	1500 (103.42)	Brass, Epoxy	Viton®
316SS	16 (453.6)	3000 (206.84)	316SS, Epoxy	Viton®

Calibration Table

Model		Air SCC/M (SCFH)	Water ML/M (GPH)	Ports FNPT
125 BP	Minimum	100 (0.21)	3 (0.048)	1/8”
	Maximum	20000 (42.4)	500 (7.93)	
125 BPHF	Minimum	200 (0.42)	5 (0.079)	1/8”
	Maximum	60000 (127)*	950 (15.105)	

Pressure Loss

Air Flowrate SCC/M (SCFH)	Water Flowrate ML/M (GPH)	ΔP to Atmosphere MBARS (Inches of Water)
100 (.21)	3 (0.048)	1.2 (0.5)
5500 (11.7)	200 (3.17)	9.3 (3.71)
7000 (14.8)	400 (6.34)	11.7 (4.71)
20000 (42.4)	500 (7.93)	24.7 (9.93)
60000 (127.1)	950 (15.10)	69.7 (28.0)

*At 60 PSIG (4.137 BARG)

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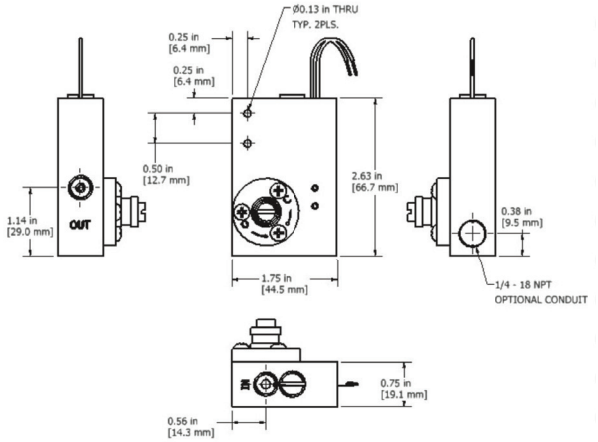
125 BP Series

Bypass Adjustable Flow Monitor

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	250	175
AC (V)	265	120
Contact Rating		
DC (W)	50	5
AC (VA)	50	5
Maximum Switching Current (A)		
DC (A)	1.5	0.25
AC (A)	1.1	0.18

Leads	SPST UL File E471070	SPDT UL File #E471070
	leads 18 in. min. from body 22 AWG, TFE insulation	 leads 18 in. min. from body 24 AWG, TFE insulation • green - N.C. • blue - N.O. • white - Common



Installation

Mount vertically with the inlet port at bottom.
A 10 micron filter is recommended.

How to Order

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Model	Materials	By Pass Design	Electrical Conduit	Switch	Options
125 BP	T Teflon® B Brass 316 Stainless	BP Bypass BPHF Bypass High Flow	C (1/4 FNPT) Blank for Standard Unit	N.O. Single Pole Single Throw Normally Open SPDT Single Pole Double Throw	TFE Teflon Encapsulated Piston** 02 Oxygen Cleaned HT High Temperature Options 340°F (171°C) metallic body only KZ FFKM Perfluoroelastomer EPR EPR Seals BN Buna N Seals FP Factory Preset

*Consult Factory **Standard with Teflon unit | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

500 BP Series

Bypass Adjustable Flow Monitor

Key Features

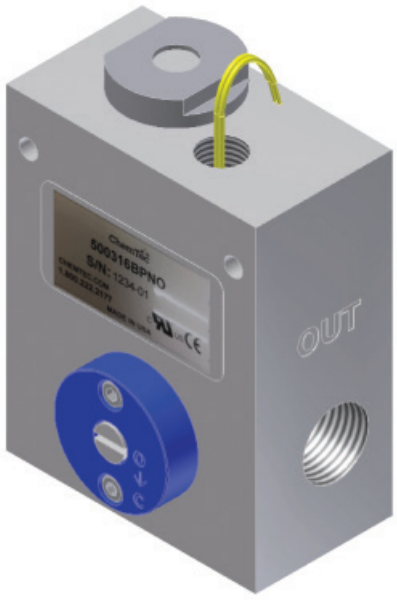
Best for applications where the ratio (Normal Flow/Set Point) is 10:1 or less.

Features

- Low Minimum Operating Pressure
- Close On-Off Differential
- Ease of adjustability
- In Line 180 Degree Porting
- Monitors Gases or Liquids
- Confirms: Normal Flow Conditions
- Senses: High Flow and Low Flow Conditions
- Materials: 316SS, Brass
- Output: Switch Contact

Applications

- Vacuum Systems
- Wet Stations
- Shipboard Water Systems
- CVD Furnaces Cooling Water
- Biomedical Instruments
- Coolant Failure Alarm



Operation

With no flow present, the magnetic piston rests on the bottom of the bypass bore. When flow is established the piston is forced upward by the bypass flow and actuates the reed switch. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path. The bypass flow is controlled by manual adjustment of the flow control vane. When flow decreases the piston moves downward and the reed switch deactuates.

- Actuation Points for air at 68° F and 14.7 PSIA with increasing flow
- Deactuation (decreasing flow) averages 10% less than actuation (increasing flow)
- Repeatability ±2%
- Unit will pass greater flows

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

Temperature Operating Range

- 0° to 220°F (-17° to 104°C)

For other temperature ranges consult factory.

Specifications

Unit	Weight Lb (kg)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Teflon®	1.5 (0.68)	80 (5.51)	Teflon®	Teflon®
Brass	4 (1.81)	1500 (103.42)	Brass, Epoxy	Viton®
316SS	4 (1.81)	3000 (206.84)	316SS, Epoxy	Viton®

Calibration Table

Model		Air SLPM (SCFM)	Water LPM (GPM)	Ports FNPT
500 BP	Minimum	6 (0.20)	0.11 (0.03)	1/2”
	Maximum	991 (35)	15.14 (4)	
500 BPHF	Minimum	23 (0.80)	0.38 (0.10)	1/2”
	Maximum	2124 (75)	37.85 (10)	

Pressure Loss

Air Flowrate SLPM (SCFM)	Water Flowrate LPM (GPM)	ΔP to Atmosphere MBARS (PSID)
84.9 (3)	3.8 (1)	17.2 (0.25)
566 (20)	15.1 (4)	51.7 (0.75)
1,557 (55)	30.3 (8)	233 (3.38)
1925.5 (68)	37.9 (10)	362 (5.25)
2265.3 (80)	64.4 (17)	517 (7.50)

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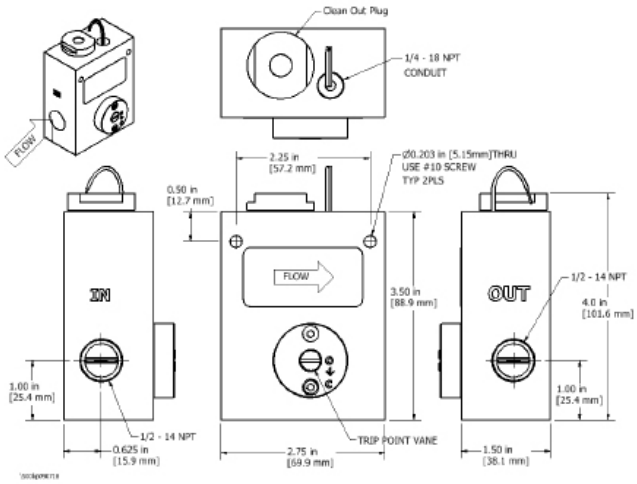
500 BP Series

Bypass Adjustable Flow Monitor

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	250	175
AC (V)	265	120
Contact Rating		
DC (W)	50	5
AC (VA)	50	5
Maximum Switching Current (A)		
DC (A)	1.5	0.25
AC (A)	1.1	0.18

Leads	SPST UL File #E471070	SPDT UL File #E471070
	leads 18 in. min. from body 22 AWG, TFE insulation	 leads 18 in. min. from body 24 AWG, TFE insulation • green - N.C. • blue - N.O. • white - Common



Installation

Mount vertically (leads up) with horizontal piping.
A 100 micron filter is recommended.

How to Order

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Model	Size	Materials	By Pass Design	Switch	Options
500	T B 316	Teflon®** Brass 316SS	BP Bypass BPHF Bypass High Flow	N.O. Single Pole Single Throw Normally Open SPDT Single Pole Double Throw	TFE Teflon® Encapsulated Piston ** 02 Oxygen Cleaned HT High Temperature Options 340°F (171°C) metallic body only KZ FFKM Perfluoroelastomer EPR EPR Seals BN Buna N Seals FP Factory Preset

*Consult Factory **Standard with Teflon unit | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

LCA Series
Adjustable Flow Monitor

Key Features
Best for applications where the ratio (Normal Flow/ Set Point) is 10:1 or Greater, Minimal Pressure Drop.

Features
- Broad Range of Adjustability
- Compact Size
- High Resolution
- Materials: 316S S, Brass or Teflon®

Applications
- Welding Systems
- Analyzers
- Vacuum Systems
- Cooling Systems

Operation
When flow is increased, the magnetic piston is forced against a bias spring. As the magnet comes near the adjustable reed switch it actuates, indicating proper flow. When flow decreases the spring forces the piston in the opposite direction deactuating the reed switch an indicating a reduced or no flow situation. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path.

- All models field adjustable
- Deactuation (decreasing flow) averages 40% less than actuation (increasing flow)
- Repeatability ± 2%
- Correction must be made for attitudes other than horizontal
- Unit will pass greater flows

Specifications

Model	Weight Lbs (kg)	Max Working Pressure PSIG (barg)	Wetted Parts
LCA-250-P	0.375 (0.17)	100 (6.89)	PVC, Epoxy, 316SS
LCA-250-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS
LCA-250-S	1.4 (0.635)	3000 (206.84)	316SS, Epoxy
LCA-375-P	0.375 (0.17)	100 (6.89)	PVC, Epoxy, 316SS
LCA-375-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS
LCA-375-S	1.4 (0.635)	3000 (206.84)	316SS, Epoxy
LCA-500-P	0.375 (0.17)	100 (6.89)	PVC, Epoxy, 316SS
LCA-500-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS
LCA-500-S	1.4 (0.635)	3000 (206.84)	316SS, Epoxy
LCA-750-P	0.625 (0.283)	100 (6.89)	PVC, Epoxy, 316SS
LCA-750-B	1.7 (0.771)	1500 (103.42)	Brass, Epoxy, 316SS
LCA-750-S	1.7 (0.771)	3000 (206.84)	316SS, Epoxy

Calibration Range

Model	Air LPM (SCFM)	Adjustable Range Increasing Flow Water LPM (GPM)	Inlet/Outlet FNPT Port Inches
LCA-250*	14.16 (0.5) 1416 (50)	0.38-15.1 (0.10 - 4)	1/4”
LCA-375*	14.16 (0.5) 1416 (50)	1.89-15.1 (0.5 - 4)	3/8”
LCA-500*	28.32 (1) 2124 (75)	1.89 - 37.9 (0.5 - 10)	1/2”
LCA-750*	141.6 (5) 3398 (120)	3.79 - 56.8 (1 - 15)	3/4”

Pressure Loss

Model	Air LPM (SCFM)	Water LPM (GPM)	ΔP BARD (PSID)
LCA-250/375			
Minimum	14.16 (0.5)	0.38 (0.10)	0.34 (0.5)
Maximum	1416 (50)	15.14 (4)	0.21 (3)
LCA-500			
Minimum	28.32 (1)	1.89 (0.5)	0.069 (1)
Maximum	2124 (75)	37.85 (10)	0.689 (10)
LCA-750			
Minimum	141.6 (5)	3.79 (1)	0.10 (1.5)
Maximum	3398 (120)	56.8 (15)	0.62 (9)

Temperature Operating Range
- 0° to 228°F (-17° to 104°C) for Brass and Stainless Steel
- 32° to120°F (0° to 49°C) for PVC
- 32° to120°F for Acrylic

For other temperature ranges consult factory

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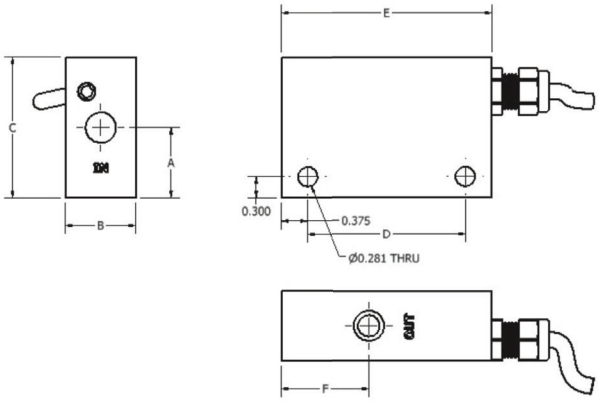
LCA Series
Adjustable Flow Monitor

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	250	175
AC (V)	265	120
Contact Rating		
DC (W)	50	5
AC (VA)	50	5
Maximum Switching Current (A)		
DC (A)	1.5	0.25
AC (A)	1.1	0.18

Leads	SPST UL File #E471070	SPDT UL File #E471070
 leads 39 in. min. from body 22 AWG, PVC Jacketed Wired		leads 39 in. min from body 22 AWG PVC jacketed wired • red - N.C. • green - N.O. • black - Common



Installation
Mount with the inlet port on the side horizontally. Other attitudes change the adjustable range of the unit. A 100 micron filter is recommended.

Dimensions						
Model	A	B	C	D	E	F
LCA-250	1.00 (25.4)	1.00 (25.4)	2.00 (50.8)	2.25 (57.15)	3.0 (76.2)	1.25 (31.8)
LCA-375	1.00 (25.4)	1.00 (25.4)	2.00 (50.8)	2.25 (57.15)	3.0 (76.2)	1.25 (31.8)
LCA-500	1.00 (25.4)	1.00 (25.4)	2.00 (50.8)	2.25 (57.15)	3.0 (76.2)	1.25 (31.8)
LCA-750	1.63 (41.4)	1.25 (31.8)	2.75 (69.9)	3.25 (82.55)	4.0 (101.6)	1.63 (41.4)

How to Order

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Model	Materials	Type of Service	Switch
LCA 250 375 500 750	P PVC A Acrylic B Brass S 316SS	W Water G Gas	N.O. Normally Open SPDT Single Pole Double Throw FP* Factory Preset

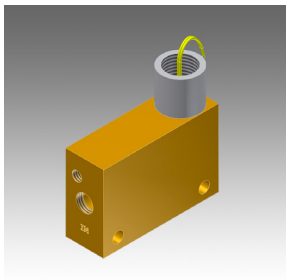
*Consult Factory
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

FAV Series
Adjustable Flow Monitor

Key Features
Best for applications where the normal flow to set point is 10:1 or greater.

Features
- Adjustable Flow Monitor
- Monitors both Gases and Liquids
- Materials: Brass or 316SS
- Confirms: Normal Flow Conditions
- Senses: High Flow or Low Flow Conditions
- Output: Switch Contact

Applications
- Process Controls
- Fire Control Systems
- Water Treatment Chemicals
- Cooling Systems
- Heat Pumps
- Hydraulic Lifts
- Industrial Analyzers
- Plant Safety



Operation
When flow is increased, the magnetic piston is forced against a bias spring. As the magnet comes near the adjustable reed switch it actuates, indicating proper flow. When flow decreases the spring forces the piston in the opposite direction deactuating the reed switch and indicating a reduce or no flow condition. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path.

- Actuation points for air at 68 F and 14.7 PSIA with increasing flow.
- Deactuation (decreasing flow) averages 40% less than actuation (increasing flow)
- Repeatability ±2%
- Unit will pass greater flows

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

Calibration Range

Model	Air SLPM (SCFM)	Water LPM (GPM)	Inlet/Outlet FNPT Port Inches
FAV-250			1/4”
Minimum	14.16 (0.5)	0.38 (0.10)	
Maximum	1416 (50)	15.14 (4)	
FAV-375			3/8”
Minimum	14.16 (0.5)	0.38 (0.10)	
Maximum	1416 (50)	15.14 (4)	
FAV-500			1/2”
Minimum	28.32 (1)	1.89 (0.5)	
Maximum	2124 (75)	37.85 (10)	
FAV-750			3/4”
Minimum	141.6 (5)	3.78 (1)	
Maximum	3398 (120)	75.7 (20)	

Specifications

Model	Weight Lbs (kg)	Max Working Pressure PSIG (barg)	Wetted Parts
FAV-250-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS
FAV-250-S	1.4 (0.635)	3000 (206.84)	316SS, Epoxy
FAV-375-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS
FAV-375-S	1.4 (0.635)	3000 (206.84)	316SS, Epoxy
FAV-500-B	1.4 (0.635)	1500 (103.42)	Brass, Epoxy, 316SS
FAV-500-S	1.7 (0.635)	3000 (206.84)	316SS, Epoxy
FAV-750-B	1.7 (0.771)	1500 (103.42)	Brass, Epoxy, 316SS
FAV-750-S	1.7 (0.771)	3000 (206.84)	316SS, Epoxy

Pressure Loss

Model	Air Flow Rate SLPM (SCFM)	Water Flowrate LPM (GPM)	ΔP to Atmosphere BARD (PSID)
FAV-250/375			
Minimum	14.2 (0.5)	0.38 (0.10)	0.34 (0.5)
Maximum	1416 (50)	15.14 (4)	0.21 (3)
FAV-500			
Minimum	28.32 (1)	1.89 (0.5)	0.069 (1)
Maximum	2124 (75)	37.85 (10)	0.689 (10)
FAV-750			
Minimum	141.6 (5)	3.78 (1)	0.10 (1.5)
Maximum	3398 (120)	75.7 (20)	0.62 (9)

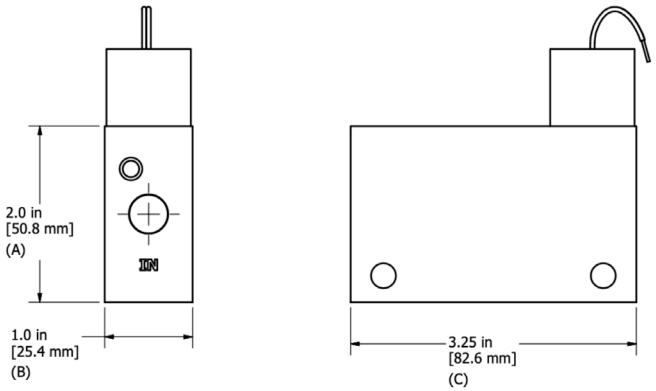
Temperature Operating Range
- 0° to 220°F (-17° to 104°C) for Brass and Stainless Steel

For other temperature ranges consult factory.

FAV Series
Adjustable Flow Monitor

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	250	175
AC (V)	265	120
Contact Rating		
DC (W)	50	5
AC (VA)	50	5
Maximum Switching Current (A)		
DC (A)	1.5	0.25
AC (A)	1.1	0.18

Leads	SPST UL File #E471070	SPDT UL File #E471070
	leads 18 in. min. from body 22 AWG, TFE insulation		leads 18 in. min. from body 24 AWG, TFE insulation • green - N.C. • blue - N.O. • white - Common



Installation
Mount with the inlet port on the side horizontally. Other attitudes change the adjustable range of the unit. A 100 micron filter is recommended.

Dimensions

Model	A	B (Metal)	B (Plastic)	C
FAV-250	2.0 (50.8)	1.00 (25.4)	1.25 (31.75)	3.25 (82.6)
FAV-375	2.0 (50.8)	1.00 (25.4)	1.25 (31.75)	3.25 (82.6)
FAV-500	2.0 (50.8)	1.00 (25.4)	1.375 (34.925)	3.25 (82.6)
FAV-750	2.75 (69.9)	1.25 (31.8)	1.50 (38.1)	4.25 (108)

How to Order

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Model		Materials		Type of Service		Switch		Options	
FAV	250 375 500 750	B S	Brass 316SS	W G	Water Gas	N.O. SPDT	Normally Open Single Pole Double Throw	HT FP*	High Temperature Options 340 ° F (171°C) Factory Preset

*Consult Factory | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

CCM Series

Standard Unobtrusive Adjustable Flow Monitor

Key Features

Best for applications where the ratio (Normal Flow/Set Point) is 10:1 or Greater, Minimal Pressure Drop.

Features

- Adjustable Flow Monitor
- High Resolution
- Works in Very Low Flow Environments
- Minimal Pressure Drop
- Gas and Liquid Flow Sensor
- Materials: PVC
- Confirms: Normal Flow Conditions
- Senses: High Flow, Low Flow
- Output: Switch Contact

Applications

- Gas Chromatography
- Analyzers
- Filter Maintenance
- Metering Equipment
- Corrosive Chemicals
- Gas Generators

Operation

With no flow present, the magnetic piston is held at the flow tube inlet by magnetic repulsion of the fixed magnet at the opposite end. As flow is established the piston is displaced toward the magnetic end plug and a major portion of the flow is bypassed through the flow tube orifice into the annular space. At the adjustment point the magnetic piston actuates the reed switch. On decreasing flow the switch deactuates. The magnetic piston actuates a hermetically sealed reed switch, which is encapsulated in the body of the unit, out of the air/water path.

- Actuation points for air at 68°F and 14.7 PSIA with increasing flow
- Deactuation (decreasing flow) averages 40% less than actuation (increasing flow)
- Repeatability ±2%
- Unit will pass greater flows

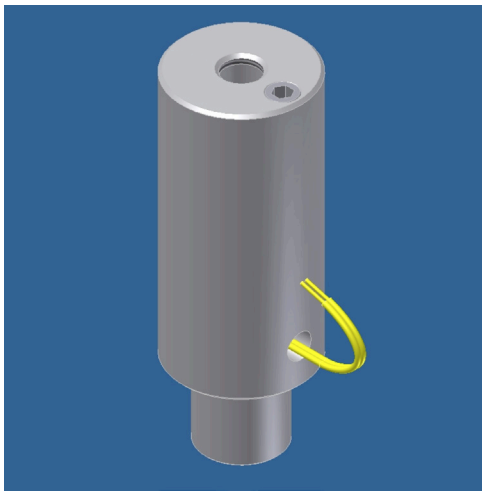
Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

Operation

Inlet 1/8" FNPT|Outlet 1/4" FNPT

Temperature Operating Range

• 32° to 140°F (0° to 60°C) for PVC
For other temperature ranges consult factory.



Calibration Range

Model	Air SCC/M (SCFH)	Water ML/M (GPH)	ΔP to Atmosphere MBARS (Inches in Water)
CCM-00			
Minimum	10 (0.021)	1 (0.016)	2.49 (1.0)
Maximum	150 (0.32)	5 (0.08)	19.0 (8.0)
CCM-010			
Minimum	150 (0.32)	8 (0.13)	0.99 (0.4)
Maximum	1000 (2.12)	180 (2.9)	17.4 (7.0)
CCM-015			
Minimum	500 (1.06)	20 (0.32)	1.74 (0.7)
Maximum	6000 (12.7)	370 (5.9)	19.9 (8.0)
CCM-125			
Minimum	6000 (12.7)	65 (1.03)	3.73 (1.5)
Maximum	16000 (33.9)	5000 (7.9)	12.4 (5.0)

Specifications

Body Material	Weight OZ (gm)	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
PVC	6oz (170 gm)	100 (6.89)	PVC, Epoxy	Buna N

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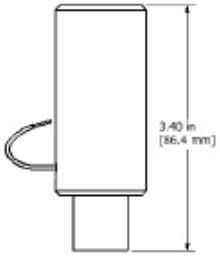
CCM Series

Standard Unobtrusive Adjustable Flow Monitor

Switch Data	SPST	SPDT
Maximum Switching Voltage		
DC (V)	250	175
AC (V)	265	120
Contact Rating		
DC (W)	50	5
AC (VA)	50	5
Maximum Switching Current (A)		
DC (A)	1.5	0.25
AC (A)	1.1	0.18

Leads	SPST UL File #E471070	SPDT UL File #E471070
	leads 18 in. min. from body 22 AWG, TFE insulation	 leads 18 in. min. from body 24 AWG, TFE insulation • green - N.O. • blue - N.C. • white - Common



Installation

Mount with the inlet port up vertically. A 10 micron filter is recommended

How to Order

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Model	Size	Switch		Options	
CCM	-00 -010 -015 -125	N.C. SPDT	Normally Closed Single Pole Double Throw	TFE KZ EPR FP	Teflon® Encapsulated Piston FFKM Perfluoroelastomer EPR Seals Factory Preset

*Consult Factory | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

MAO Series

125/250 Flow Meter

Key Features

All Teflon® wetted parts model available. No seals. Undamaged by over ranging.

Features

- No Bearings
- Single Moving Part
- In Line Metering
- No Rotating internals
- Materials:316SS, Brass or Teflon®
- Output: Analog, Digital and Current loop
- Measures Low Flows

Applications

- Wet Benches
- Cooling Systems
- Corrosive Chemical Dispensing
- Materials Consumption Measurement
- Process Controls

Patent No's
4,858,647
4,905,844
5,033,311
Others may apply.

Operation

When fluid flows through the unit it displaces the Teflon encapsulated magnetic piston. This displacement is proportional to the volumetric flow through the unit. A transducer, encapsulated in the body outside the fluid path, senses the displacement of the piston. The transducer's signal is converted by a microprocessor-based conditioning circuit then sends the signal to three types of outputs: voltage, pulse and current loop.

- Total accuracy: ±5%
- Repeatability: ±2% full scale
- Linearity: ±2% full scale

Temperature Operating Range

- Ambient: 0° to 125°F (-18° to 52°C)
- Media: 0° to 180°F (-18° to 82°C)

Specifications

Model	Weight Lbs. (Kg.)	Max Working Pressure PSIG (barg)	Wetted Parts
MAO-125/250-T	0.63 (0.29)	80 (5.51)	Teflon®
MAO-125/250-B	1.30 (0.59)	1500 (103.42)	Brass, Teflon®
MAO-125/250-S	1.30 (0.59)	3000 (206.84)	316SS, Teflon®

Pressure Loss

Model	Min/Max	Linear Range ML/M (GPH)	ΔP MBARS (PSID)
MAO-125-AA	Minimum	20 (0.32)	24.82 (0.36)
	Maximum	70 (1.11)	42.06 (0.61)
MAO-125-BB	Minimum	50 (0.79)	8.27 (0.12)
	Maximum	150 (0.79)	10.34 (0.15)
MAO-250-AA	Minimum	100 (1.59)	8.27 (0.12)
	Maximum	500 (7.93)	9.65 (0.14)
MAO-250-BB	Minimum	260 (4.12)	10.34 (0.15)
	Maximum	1800 (28.54)	20 (0.29)

Calibration in Water

Model	ML/MIN (GPH)	VDC	Hz	mA	Ports FNPT
MAO-125XAA	0	0	0	0	1/8"
	20 (0.317)	1	40	4	
	32.5 (0.5151)	2	80	8	
	45 (0.7133)	3	120	12	
	57.5 (0.9114)	4	160	16	
	70 (1.1095)	5	200	20	
MAO-125XBB	0	0	0	0	1/8"
	50 (0.7925)	1	40	4	
	75 (1.1888)	2	80	8	
	100 (1.585)	3	120	12	
	125 (1.9813)	4	160	16	
	150 (2.3775)	5	200	20	
MAO-250XAA	0	0	0	0	1/4"
	100 (1.585)	1	40	4	
	200 (3.1701)	2	80	8	
	300 (4.7551)	3	120	12	
	400 (6.3401)	4	160	16	
	500 (7.9252)	5	200	20	
MAO-250XBB	0	0	0	0	1/4"
	250 (3.9626)	1	40	4	
	638 (10.1125)	2	80	8	
	1025 (16.2466)	3	120	12	
	1413 (22.3965)	4	160	16	
	1800 (28.5306)	5	200	20	

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Electrical Specifications

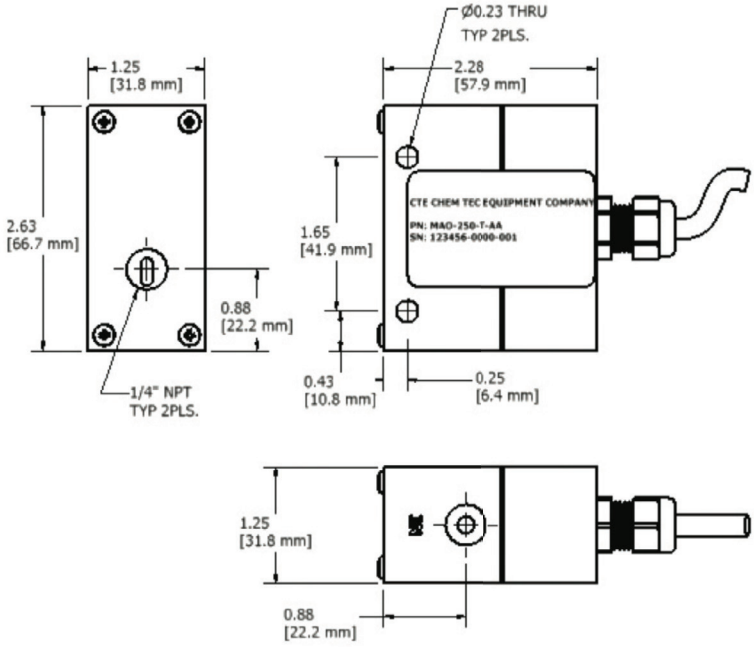
POWER REQUIREMENTS:
Voltage: Regulated 15 – 30 VDC
Current: 250 mA

OUTPUTS:
ANALOG: 0 – 5 VDC
Minimum Load Impedance: 5k ohm in parallel with 250pf

DIGITAL:
200 Hz, Square wave 50% duty cycle TTL compatible output.

CURRENT LOOP:
Current Loop: 4 - 20 mA
Loop Load : 100Ω ±1% 1/4 watt

WIRE CONNECTION:
Red – (+)
Black – (Common)
White – (Frequency)
Green – (Voltage)
Brown – (Current)



How to Order

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Model	Size	Switch	Options
MAO	125 250	T Teflon® B Brass S Stainless Steel	(See Chart) AA BB

*Consult Factory **Standard with Teflon unit | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

Installation

Control valves should be placed downstream of the MAO flow meter. The flow meter should never be installed so that it drains completely when flow ceases. When particles may be present in the media, a filter should be installed ahead of the flow meter. It is advisable to filter to 10 microns. The MAO flow meter should not be located near ferrous material or near strong electro-magnetic fields.

The MAO flow meter is sensitive to velocity prole disturbances in the flow stream. It is advisable that straight lengths of 10 inside diameters upstream and 5 inside diameters downstream be used. All lines should be completely purged of air before use. The use of pipe paste is not recommended. Use care when using Teflon tape to avoid shreds from entering the MAO flow meter.

Mounting

Mount with INLET vertical, port facing down. OUTLET port horizontal.

MAO Series

500 Flow Meter

Key Features

All Teflon® wetted parts model available. No seals. Undamaged by over ranging.

Features

- No Bearings
- Single Moving Part
- In Line Metering
- No Rotating internals
- Materials:316SS, Brass or Teflon®
- Output: Analog, Digital and Current loop
- Measures Low Flows

Applications

- Wet Benches
- Cooling Systems
- Corrosive Chemical Dispensing
- Materials Consumption Measurement
- Process Controls

Patent No's
4,858,647
4,905,844
5,033,311
Others may apply.

Operation

When fluid flows through the unit it displaces the Teflon encapsulated magnetic piston. This displacement is proportional to the volumetric flow through the unit. A transducer, encapsulated in the body outside the fluid path, senses the displacement of the piston. The transducer's signal is converted by a microprocessor-based conditioning circuit then sends the signal to three types of outputs: voltage, pulse and current loop.

- Total Accuracy: ±5%
- Repeatability: ±2% Full Scale
- Linearity: ±2% Full Scale

Temperature Operating Range

- AMBIENT: 0° to 125°F (-18° to 52°C)
- MEDIA: 0° to 180° F (-18° to 82°C)

Specifications

Model	Weight Lbs. (Kg.)	Max Working Pressure PSIG (barg)	Wetted Parts
MAO-500-T	1.3 (0.6)	80 (5.51)	Teflon®
MAO-500-B	3.4 (1.54)	1500 (103.42)	Brass, Teflon®
MAO-500-S	3.4 (1.54)	3000 (206.84)	316SS, Teflon®

Pressure Loss

Model	Linear Range LPM (GPM)	ΔP MBARS (PSID)
MAO-500-AA	1.89 (0.5)	247.58 (0.4)
	7.57 (2.0)	31.03 (0.45)
MAO-500-BB	3.79 (1.0)	27.58 (0.40)
	13.25 (3.5)	68.95 (1.0)

CE

Calibration in Water

Model	GPM (LPM)	VDC	Hz	mA	Ports FNPT
MAO-500XAA	0	0	0	0	1/2"
	0.5 (1.89)	1	40	4	
	0.75 (2.84)	2	80	8	
	1.25 (4.73)	3	120	12	
	1.75 (6.62)	4	160	16	
	2 (7.57)	5	200	20	
MAO-500XBB	0	0	0	0	1/2"
	1 (3.79)	1	40	4	
	1.6 (6.06)	2	80	8	
	2.2 (8.33)	3	120	12	
	2.8 (10.6)	4	160	16	
	3.5 (13.25)	5	200	20	

Electrical Specifications

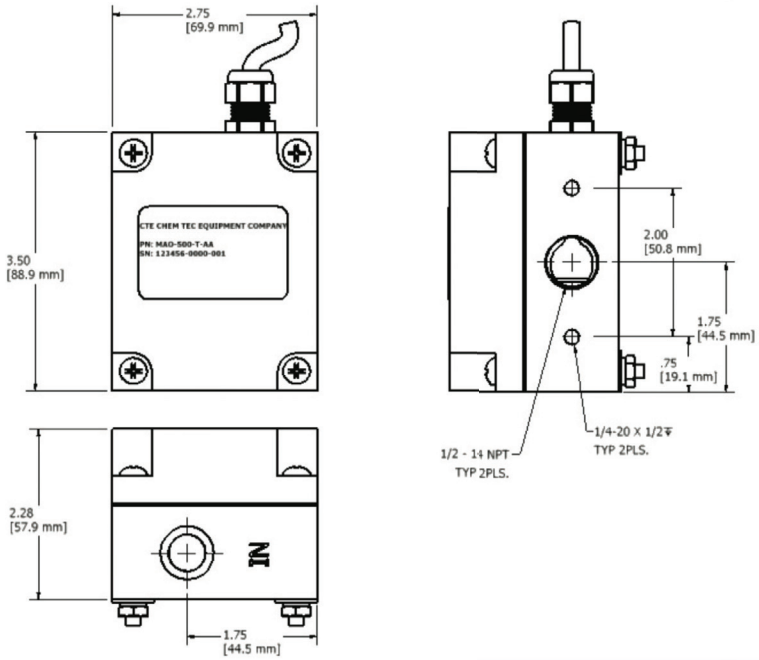
POWER REQUIREMENTS:
Voltage: Regulated 15 – 30 VDC
Current: 250 mA

OUTPUTS:
ANALOG: 0 – 5 VDC
Minimum Load Impedance: 5k ohm in parallel with 250pf

DIGITAL:
200 Hz, Square wave 50% duty cycle TTL compatible output

CURRENT LOOP:
Current Loop: 4 - 20 mA
Loop Load : 100Ω ±1% 1/ 4 watt

WIRE CONNECTION:
Red – (+)
Black – (Common)
White – (Frequency)
Green – (Voltage)
Brown – (Current)



How to Order

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Model	Size	Switch	Options
MAO	500	T Teflon® B Brass S Stainless Steel	(See Chart) AA BB

*Consult Factory **Standard with Teflon unit | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

Installation

Control valves should be placed downstream of the MAO flow meter. The flow meter should never be installed so that it drains completely when flow ceases.

When particles may be present in the media, a filter should be installed ahead of the flow meter. It is advisable to filter to 10 microns. The MAO flow meter should not be located near ferrous material or near strong electro-magnetic fields.

The MAO flow meter is sensitive to velocity profile disturbances in the flow stream. It is advisable that straight lengths of 10 inside diameters upstream and 5 inside diameters downstream be used.

All lines should be completely purged of air before use.

The use of pipe paste is not recommended. Use care when using Teflon tape to avoid shreds from entering the MAO flow meter.

Mounting

Mount with INLET vertical, port facing down. OUTLET port horizontal.

EFV Series

Adjustable Excess Flow Valve

Key Features

Controls excessive flows.

Features

- Controlled Bleed, Resets Automatically
- Field Adjustable
- Positive Shut-off
- Function: Restricts or Shuts Off Flow
- Output: Switch Contact Optional
- Materials: 316SS or Brass Body

Applications

- Fitting Failure
- Regulator failure
- Hydraulic control
- Gas Analyzers
- Toxic Gas and Liquid Releases

Operation

Flow enters the unit and makes a right angle to the outlet port across the nose of a magnetic piston. The piston is held in place by attraction to an adjusting screw magnet. A pressure differential is created by flow across the piston. When the differential is great enough, the piston slides to a seat at the outlet port. The flow rate at which the piston actuates can be changed externally by turning the adjusting screw, thereby changing the piston's relationship with the flow stream.
In this auto reset model after actuation, the piston rests on a metal to metal seat which allows a controlled bleed. To reset the unit, pressure must be equalized on both sides of the piston.
If the source is turned off, either upstream or downstream, the bleed will equalize the pressure and the valve will automatically reopen by magnetic repulsion from the fixed magnet located in the valve body.

For positive shut-off an elastomer is used on the nose of the piston. When it comes to rest on the seat it provides a bubble tight closure. To reopen the valve there are two options.

1. The upstream pipeline must be led to atmosphere if the line downstream is at atmosphere.
2. A by-pass line with an on/off valve must be installed to port the upstream pressure to the down-stream pipeline to equalize the pressure.
Our MRS series is available with the by-pass system as an integral part of the unit.

- Actuation points for air at 68°F and 14.7 PSIA.

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

Temperature Range

- 0° to 220°F (-17° to 104°C)
  For other temperature ranges consult factory.

CE

Calibration Range

Model	Adjustable Range Air SLPM (SCFM)	Adjustable Range Water LPM (GPM)	PORT FNPT
EFV-125	0.5 to 155.7 (0.018 to 5.5)	0.015 to 4.5 (0.004 to 1.2)	1/8”
EFV-250	4 to 1132 (0.14 to 40)	0.100 to15.1 (0.026 to 4.0)	1/4”
EFV-375	85 to1840 (3.0 to 65)	0.380 to15.1 (0.100 to 4.0)	3/8”
EFV-500	142 to 2123 (5.0 to 75)	1.90 to 37.8 (0.50 to 10.0)	1/2”
EFV-750	425 to 3681 (15.0 to1 30)	3.80 to 75.7 (1.0 to 20.0)	3/4”

Pressure Loss

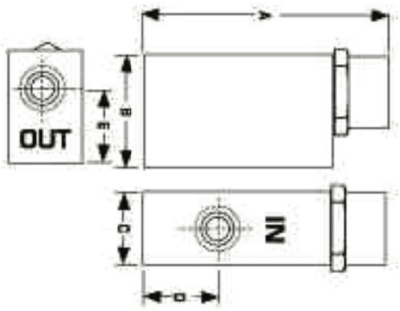
Model	Air SLPM (SCFM)	Water LPM (GPM)	ΔP to Atmosphere BARD (PSID)
EFV-125	0.50 (0.018) 75 (2.63) 155 (5.5)	0.015 (0. 004) 2.65 (0.70) 4.50 (1.20)	0.08 (1.2) 0.11 (1.6) 0.21 (3.0)
EFV-250	4 (0.14) 500 (17.50) 1132 (39.62)	0.1 (0.26) 5.0 (1.32) 15.1 (3.99)	0.21 (3.0) 0.41 (6.0) 0.83 (12.0)
EFV-375	85 (2.98) 900 (31.50) 1840 (64.40)	0.38 (0.10) 10.0 (2.64) 15.1 (3.99)	0.10 (1.5) 0.28 (4.0) 0.83 (12.0)
EFV-500	142 (4.97) 1000 (35.00) 2123 (74.31)	1.9 (0.50) 25.0 (6.60) 37.8 (9.98)	0.07 (1.0) 0.28 (4.0) 0.48 (7.0)
EFV-750	425 (14.88) 1800 (63.00) 3681 (128.84)	3.8 (1.00) 4.7 (1.24) 75.7 (19.98)	0.14 (2.0) 0.21 (3.0) 0.34 (5.0)

EFV Series

Adjustable Excess Flow Valve

ES - Option

Switch Data	SPST UL File #E471070	LEADS
Maximum Switching Voltage		
DC (V)	250	
AC (V)	265	
Contact Rating		
DC (W)	50	leads 18 in. min. from body 22 AWG, TFE insulation
DC (VA)	50	
Maximum Switching Current (A)		
DC (A)	1.5	
AC (A)	1.1	



Body Material	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Brass	1500 (103.42)	Brass, Epoxy, Delrin (Brass Piston in 125 Unit)	Viton ®
316SS	3000 (206.84)	316SS, Epoxy	Viton ®

Installation

We suggest the unit be calibrated in the attitude in which it will be installed. An actuation point approximately 3 or 4 times normal flow rate should be chosen to avoid the valve actuating from initial pressurization of the system and normal surges. If flow is kept constant, an actuation point 10% above the normal rate may be used.

Dimensions

Model	Weight	A	B	C	D	E
EFV-125	0.25 (113.4)	2.5 (64)	1 (25)	0.75 (19)	0.7 (17)	0.63 (16)
EFV-250	0.50 (226.8)	3.3 (84)	1.50 (38)	1 (25)	1 (25)	1 (25)
EFV-375	0.50 (226.8	3.3 (84)	1.50 (38)	1 (25)	1 (25)	1 (25)
EFV-500	1 (453.6)	4.0 (102)	2 (50)	1.25 (31)	1.25 (31)	1.38 (35)
EFV-750	1.50 (680.4)	4.9 (124)	2.25 (57)	1.25 (31)	1.25 (31)	1.63 (41)

How to Order

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Model	Size	Materials	Positive Shut-Off	Options
EFV	125 250 375 500 750	B Brass S 316SS (Other Material available on request)	PSO (Blank for Controlled Bleed Model)	ES Reed Switch (Not available on 125 models) O2 Oxygen Cleaned KZ FFKM Perfluoroelastomer EPR EPR Seals FP 3X Max Flow (SLPM) / Gas / Line Pressure (PSIG)) ESFP Normally Open Reed Switch Option Requires Factory Presetting

*Consult Factory | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

EFV MRS Series

Manual Reset Adjustable Excess Flow Valve

Key Features

Controls excessive flows.

Features

- Field Adjustable
- Manual Reset
- Materials: 316SS
- Detects Excess Flows
- Function: Shuts Off Flow
- Output: Switch Contact (Optional)

Applications

- Plant Lines
- Regulator Failure
- Fitting Failure
- Toxic Gases & Liquids
- Gas Distribution Systems
- Gas Analyzers
- Loss Controls

Operation

Flow enters the unit and makes a right angle to the outlet port across the nose of a magnetic piston. The piston is held in place by attraction to an adjusting screw magnet. A pressure differential is created by flow across the piston. When the differential is great enough, the piston slides to a seat at the outlet port. The flow rate at which the piston actuates can be changed by turning the adjusting screw, thereby changing the piston's relationship with the flow stream. The piston makes a bubble tight seal when it comes in contact with the seat. To reopen the unit, turn the balancing valve handle on the side. This ports the upstream pipeline to the downstream pipeline. When the pressure is equalized on each side of the piston, it will reset. The unit is returned to normal operation by closing the balancing valve.

- Actuation points for air at 68° F and 14.7 PSIA.

Corrections must be used for other gases, line pressure and temperatures.* Please consult your representative or the factory.

Temperature Range

- AMBIENT: 0° to 125°F (-18° to 52° C)
- MEDIA: 0° to 180°F (-18° to 82° C)

For other temperature ranges, consult the factory.

CE

Calibration Range

Model	Adjustable Range Air SLPM (SCFM)	Adjustable Range Water LPM (GPM)	PORT FNPT
EFV-125	0.5 to 155.7 (0.018 to 5.5)	0.015 to 4.5 (0.004 to 1.2)	1/8"
EFV-250	4 to 1132 (0.14 to 40)	0.100 to 15.1 (0.026 to 4.0)	1/4"
EFV-375	85 to 1840 (3.0 to 65)	0.380 to 15.1 (0.100 to 4.0)	3/8"
EFV-500	142 to 2123 (5.0 to 75)	1.90 to 37.8 (0.50 to 10.0)	1/2"
EFV-750	425 to 3681 (15.0 to130)	3.80 to 75.7 (1.0 to 20.0)	3/4"

Pressure Loss

Model	Air SLPM (SCFM)	Water LPM (GPM)	ΔP to Atmosphere BARD (PSID)
EFV-125	0.50 (0.018) 75 (2.63) 155 (5.5)	0.015 (0. 004) 2.65 (0.70) 4.50 (1.20)	0.08 (1.2) 0.11 (1.6) 0.21 (3.0)
EFV-250	4 (0.14) 500 (17.50) 1132 (39.62)	0.1 (0.26) 5.0 (1.32) 15.1 (3.99)	0.21 (3.0) 0.41 (6.0) 0.83 (12.0)
EFV-375	85 (2.98) 900 (31.50) 1840 (64.40)	0.38 (0.10) 10.0 (2.64) 15.1 (3.99)	0.10 (1.5) 0.28 (4.0) 0.83 (12.0)
EFV-500	142 (4.97) 1000 (35.00) 2123 (74.31)	1.9 (0.50) 25.0 (6.60) 37.8 (9.98)	0.07 (1.0) 0.28 (4.0) 0.48 (7.0)
EFV-750	425 (14.88) 1800 (63.00) 3681 (128.84)	3.8 (1.00) 4.7 (1.24) 75.7 (19.98)	0.14 (2.0) 0.21 (3.0) 0.34 (5.0)

**Users are solely accountable for product selection, regardless of any recommendations or suggestions provided by ChemTec Equipment Company, Inc. Users should base product selection on their own analysis and testing to determine functionality and material compatibility in relation to their application. To ensure safe and trouble-free performance, it is essential to adhere to proper installation, operation, and maintenance procedures.*

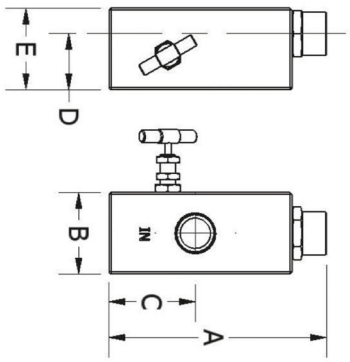
EFV MRS Series

Manual Reset Adjustable Excess Flow Valve

ES - Options

Switch Data	SPST UL File #E471070	LEADS
Maximum Switching Voltage		
DC (V)	250	
AC (V)	265	
Contact Rating		
DC (W)	50	leads 18 in. min. from body 22 AWG, TFE insulation
DC (VA)	50	
Maximum Switching Current (A)		
DC (A)	1.5	
AC (A)	1.1	

Body Material	Max Working Pressure PSIG (barg)	Wetted Parts	Seals
Brass	1500 (103.42)	Brass, Epoxy, Delrin (Brass Piston in 125 Unit)	Viton®
316SS	3000 (206.84)	316SS, Epoxy	Viton®



Installation

We suggest the unit be calibrated in the attitude in which it will be installed. An actuation point approximately 3 or 4 times the normal Maximum flow rate at the lowest line pressure should be chosen to avoid the valve actuating from initial pressurization of the system and normal surges. If flow is kept constant, an actuation point 10% above the normal rate may be used.

Dimensions

Model	316SS Weight (lbs/gm)	Brass Weight (lbs/gm)	A	B 316SS	B Brass	C	D	E
EFV-125	1.5 (680)	1.6 (726)	2.72 (69)	1.5 (38)	1.5 (38)	0.95 (24)	1.12 (28)	1.62 (41)
EFV-250	3.5 (1588)	3.3 (1497)	3.71 (95)	2 (50)	1.75 (45)	1.5 (38)	1.38 (35)	2 (51)
EFV-375	3.5 (1588)	3.2 (1452)	3.71 (95)	2 (50)	1.75 (45)	1.5 (38)	1.38 (35)	2 (51)
EFV-500	4 (1814)	3.6 (1633)	4.46 (114)	2 (50)	1.75 (45)	1.75 (45)	1.38 (35)	2 (51)
EFV-750	4.8 (2177)	4.4 (1996)	5.35 (136)	2 (50)	1.75 (45)	2.13 (54)	1.38 (35)	2 (51)

How to Order

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Model	Size	Materials	Manual Reset	Options
EFV	125 250 375 500 750	B Brass S 316SS (Other Material available on request)	MRS	ES* Reed Switch (Not available on 125 models) O2 Oxygen Cleaned HT High Temperature Unit 340°F (171°C) KZ FFKM Perfluoroelastomer EPR EPR Seals FP 3X Max Flow (SLPM) / Gas / Line Pressure (PSIG)) ESFP Normally Open Reed Switch Option Requires Factory Presetting

*Consult Factory | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co

All dimensions are subject to change for quality improvement. Not responsible for printing errors.

HPEFV Series

Adjustable High Pressure Safety Excess Flow Valve

Key Features

Controls high pressure excessive flows.

Features

- Controlled Bleed Resets Automatically
- Field Adjustable
- Positive Shut-off Option
- Materials: 316SS
- Maximum Pressure 6000 PSIG
- Detects Excess Flows
- Output: Switch Contact (Optional)
- Function: Restricts or Shuts Off Flow

Applications

- CNG Delivery
- High Pressure Plant Lines
- Hydraulic Systems

Operation

Flow enters the unit and makes a right angle to the outlet port across the nose of a magnetic piston. The piston is held in place by attraction to an adjusting screw magnet. A pressure differential is created by flow across the piston. When the differential is great enough, the piston slides to a seat at the outlet port. The flow rate at which the piston actuates can be changed externally by turning the adjusting screw, thereby changing the piston's relationship with the flow stream.
In the auto reset model after actuation, the piston resets on a metal to metal seat that allows a controlled bleed. To reset the unit, pressure must be equalized on both sides of the piston.

For positive shut-off an elastomer is used on the nose of the piston. When it comes to rest on the seat it provides a bubble tight closure. To reopen the valve there are two options.

1. The upstream pipeline must be bled to atmosphere if the line downstream is at atmosphere.
2. A by-pass line with an on/off valve must be installed to port the upstream pressure to the down-stream pipeline to equalize the pressure.

- Actuation points for air at 68°F and 14.7 PSIA.

Correction must be made for other fluids, line pressure and temperatures. Please consult your representative or the factory.

Temperature Range

- 15° to 400°F (-26° to 204°C)

For other temperature ranges, consult the factory.

Calibration Range

Model	Adjustable Range Air SLPM (SCFM)	Adjustable Range Water LPM (GPM)	PORT FNPT
HPEFV-250	4 to 1132 (0.14 to 40)	0.100 to15.1 (0.026 to 4)	1/4"
HPEFV-500	142 to 2123 (5 to 75)	1.9 to 37.8 (0.5 to 10)	1/2"
HPEFV-750	425 to 3681 (15 to 130)	3.8 to 75.7 (1 to 20)	3/4"

Pressure Loss

Model	Air SLPM (SCFM)	Water LPM (GPM)	ΔP to Atmosphere BARD (PSID)
HPEFV-250	4 (0.14) 500 (17.5) 1132 (39.62)	0.1 (0.26) 5 (1.32) 15.1 (3.99)	0.21 (3.0) 0.41 (6) 0.83 (12)
HPEFV-500	142 (4.97) 1000 (35) 2123 (74.31)	1.9 (0.5) 25 (6.6) 37.8 (9.98)	0.07 (1) 0.28 (4) 0.48 (7)
HPEFV-750	425 (14.88) 1800 (63) 3681 (128.84)	3.8 (1) 4.7 (12.4) 75.7 (19.98)	0.14 (2) 0.21 (3) 0.34 (5)

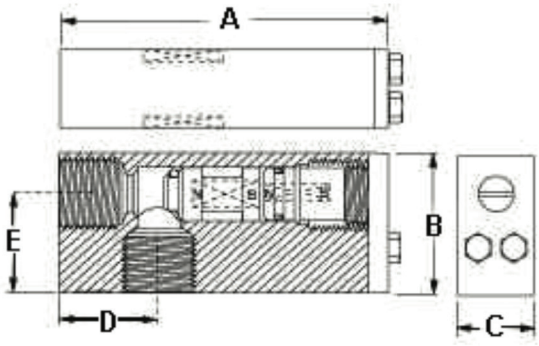
CE

HPEFV Series

Adjustable High Pressure Safety Excess Flow Valve

ES - Option

Switch Data	SPST UL File #E471070	LEADS
Maximum Switching Voltage		
DC (V)	250	
AC (V)	265	
Contact Rating		
DC (W)	50	leads 18 in. min. from body 22 AWG, TFE insulation
DC (VA)	50	
Maximum Switching Current (A)		
DC (A)	1.5	
AC (A)	1.1	



Specifications

Body Material	Max Working Pressure PSIG (barg)	Wetted Parts	Seal
316SS	6,000 (414)	316SS, Epoxy	Viton ®

Installation

We suggest the unit be calibrated in the attitude in which it will be installed. An actuation point approximately 3 or 4 times the normal Maximum flow rate at the lowest line pressure should be chosen to avoid the valve actuating from initial pressurization of the system and normal surges. If flow is kept constant, an actuation point 10% above the normal rate may be used.

Dimensions

Model	Weight	A	B	C	D	E
HPEFV-250	1.47 (0.667)	3.75 (149)	1.5 (38)	1 (25)	1 (25)	1 (25)
HPEFV-500	2.625 (1.19)	4.25 (108)	2 (50)	1.25 (32)	1.25 (32)	1.37 (35)
HPEFV-750	3.44 (1.56)	5.25 (133)	2.25 (57)	1.25 (32)	1.625 (45)	1.625 (41)

How to Order

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Model	Size	Materials	Positive Shut-Off	Factory Preset	Options
HPEFV	200 500 750	S 316SS (Other Material available on request)	PSO (Blank for controlled bleed model)	Required with all units (FP = 3X Max Flow (SLPM) / Gas / Line Pressure (PSIG))	O2 Oxygen Cleaned KZ FFKM Perfluoroelastomer EPR EPR Seals ESFP Normally Open Reed Switch Option; Factory Preset Required

*Consult Factory | Viton® - E.I. Dupont & Co | Teflon® - E.I. Dupont & Co | Kalrez® - E.I. Dupont & Co
All dimensions are subject to change for quality improvement. Not responsible for printing errors.

ChemTec's Ultra High Purity Teflon® LPH Series Flow Monitors	
Flow Range	50 ML to 5000 ML
Flared Fitting Ports	1/4", 3/8", 1/2"
Super-300 Type Nippon Pillar Fitting®	1/8", 1/4", 3/8", 1/2", 3/4"

**More Custom Options Available, please contact the factory

Flared Fitting

NPS300

ChemTec's Ultra High Purity Teflon® MAO Flow Meter					
Calibration in Water Tables		VDC	Hz	mA	Ports FN
MAO 125/250	0 ML - 1800 ML	0-5	0-200	0-20	1/8" - 1/4"
MAO 500	0.5 GPM - 3.5 GPM	0-5	0-200	0-20	1/2"

MAO 125/250

MAO 500

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LPH UHP 250 Series

for Ultra High Purity

Applications

- Ultra High Purity Gases

Key Features

- Compact Size
- Tube Stub

Features

- Close On/Off Differential
- No Seals
- EP to 10RA
- 316L Stainless Steel Materials
- Senses High/Low Flow Conditions
- Switch Contact Output
- In-Line Vertical Plumbing
- Confirms Normal Flow Conditions

Operations

As flow is established upward through the unit and continues to increase, the pressure differential across the grooved magnetic piston increases until it overcomes the small piston's resistance. This causes it to progress fully upward which actuates a hermetically sealed reed switch.

Features

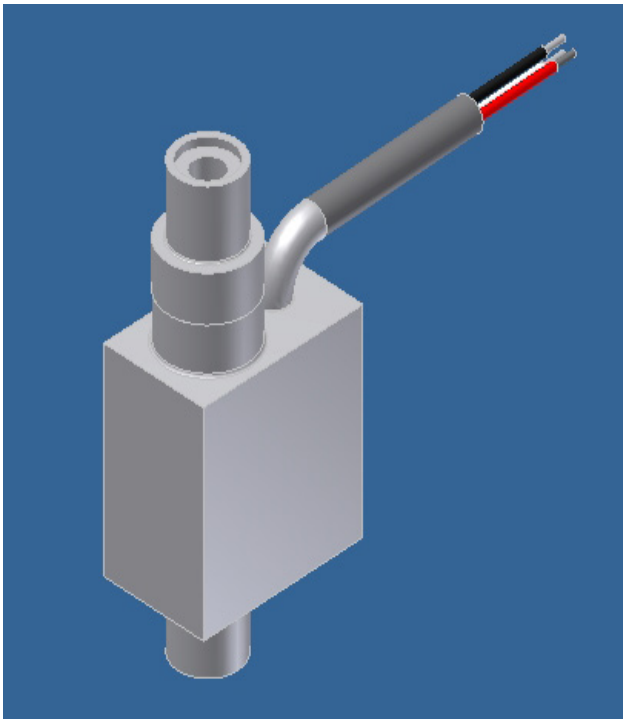
- Actuation Points for Nitrogen on increasing flow (see graph)
- Deactuation Points averages 10% less than actuation point
- Flow Setting Accuracy ±10% of actuation points shown
- Repeatability ±1%
- Unit will pass greater flows

Switch Data	SPDT
Maximum Switching Voltage	
DC (V)	175
AC (V)	120
Contact Rating	
DC (W)	5
AC (VA)	5
Maximum Switching Current (A)	
DC (A)	0.25
AC (A)	0.18

Leads

- SPDT - 36" min. from body; 24 AWG PVC jacketed wire - black: N.O., red: N.C., white: common

**Above values for resistive loads only. For inducive oads, surge current & rush current contact protection is required.*



Temperature Operating Range

- -40° to 220°F; (-40° to 105°C)

  For other temperature ranges consult factory.

Calibration Range					
Model	Weight Lbs. (Kg)	Max Working Pressure PSIG (barg)	Wetted Parts	Fluid Ports	Leak Check
LPH-UHP-8	0.25 lb/ 0.14 kg	3000 PSIG (206.8 barg)	316L Stainless Steel	3/8" O.D. Tube	1x10 atm. ccHe/sec in board

Installation

Mount vertical with inlet port down.

How to Order		
Model	Calibration Range	
LPH UHP 250	A B C	

**Contact factory for more options.*

LPH UHP 250/375 Series

for Ultra High Purity

Applications

- Ultra High Purity Gases

Key Features

- Compact Size
- Tube Stub

Features

- Close On/Off Differential
- No Seals
- Internal finish: EP
- 316L Stainless Steel Materials
- Senses High/Low Flow Conditions
- Switch Contact Output
- In-line vertical plumbing and hermetically sealed, epoxy encapsulated reed switch
- Confirms Normal Flow Conditions

Operations

As flow is established upward through the unit and continues to increase, the pressure differential across the magnetic piston increases until it overcomes the small piston's resistance. This causes it to progress fully upward which actuates a hermetically sealed reed switch.

Features

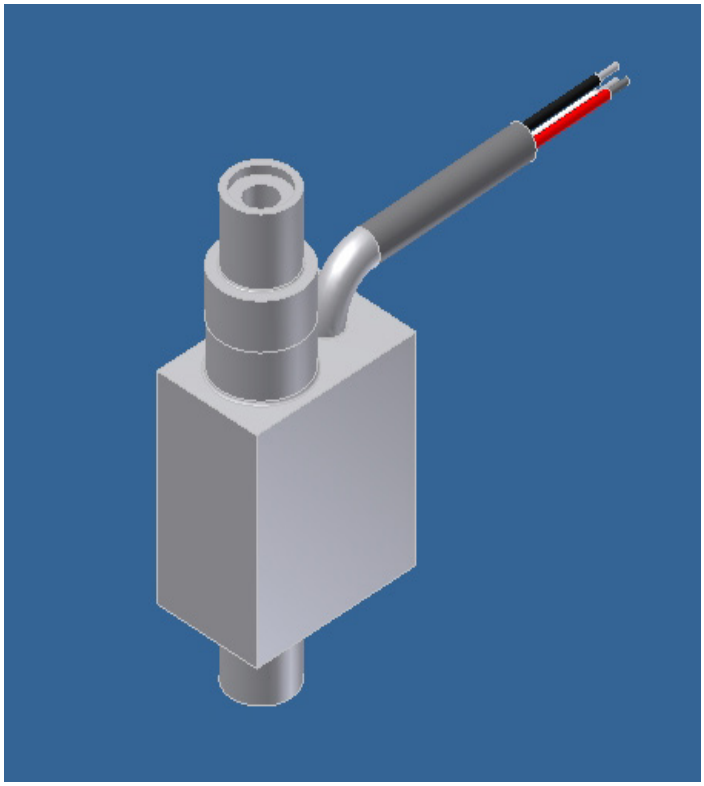
- Actuation Points for Nitrogen on increasing flow (see graph)
- Deactuation Points averages 10% less than actuation point
- Flow Setting Accuracy ±10% of actuation points shown
- Repeatability ±1%
- Unit will pass greater flows

Specifications

Model	Weight Lbs. (Kg)	Max Working Pressure PSIG (barg)	Wetted Parts	Leak Check
LPH-UHP	0.3 lb/ 0.134 kg	4000 PSIG (275.8 barg)	316L Stainless Steel	1x10(-9) atm. ccHe/sec in board

Installation

Mount vertical with inlet port down.



Switch Data	SPDT UL File #E471070
Maximum Switching Voltage	
DC (V)	175
AC (V)	120
Contact Rating	
DC (W)	5
AC (VA)	5
Maximum Switching Current (A)	
DC (A)	0.25
AC (A)	0.18

**Above values for resistive loads only. For inducive loads, surge current & rush current contact protection is required.*

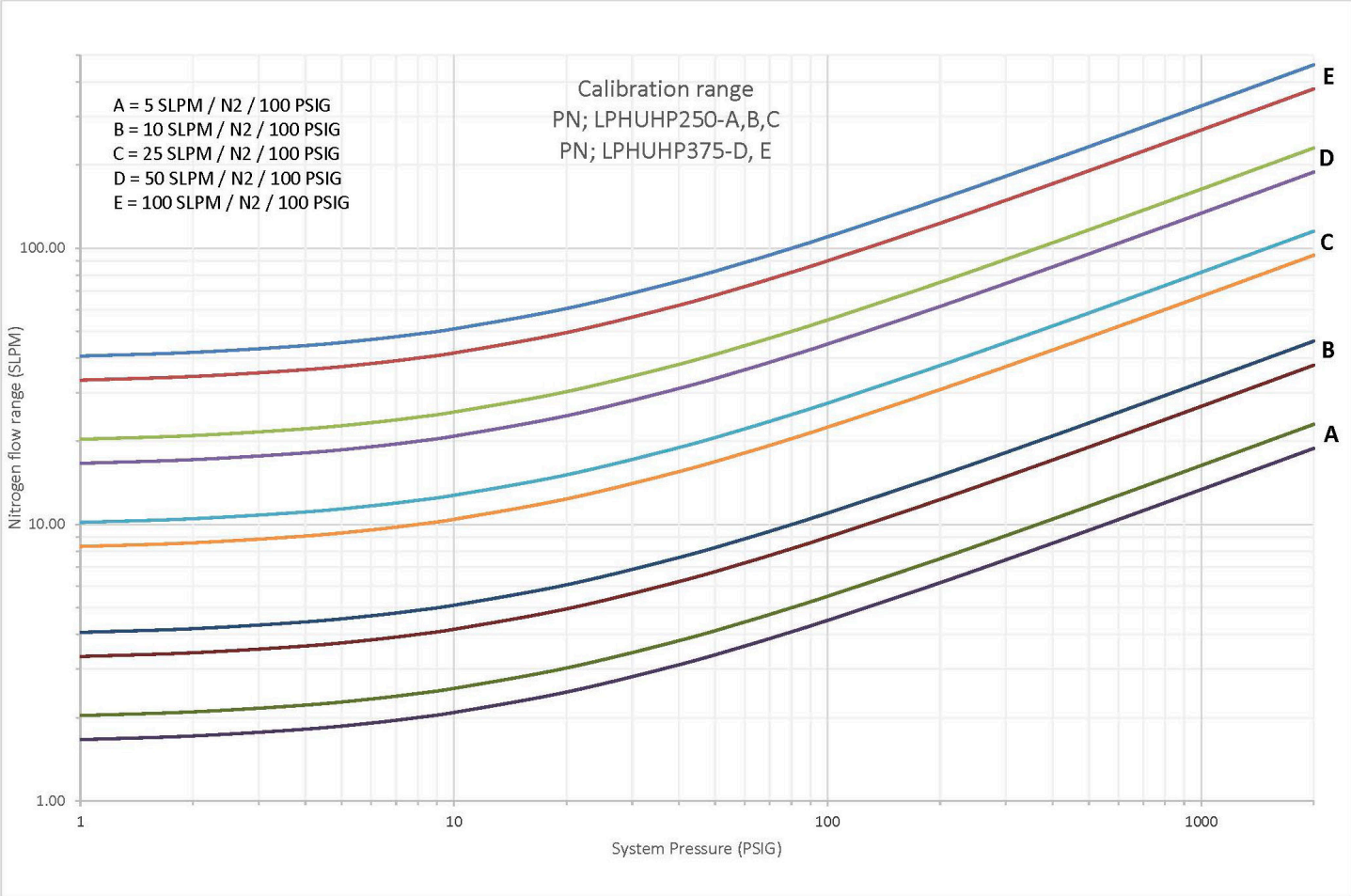
Leads

- 36" min. from body; 22 AWG PVC jacketed wire
  - black: N.O., red: N.C., white: common

Temperature Range

- -40° to 220°F; (-40° to 105°C)

LPH UHP 250/375 Series



How to Order		
Model	Calibration Range	Ports
LPH UHP 250	A, B or C	T4 - 1/4 OD TUBE T6 - 3/8 OD TUBE
LPH UHP 375	D or E	T4 - 1/4 OD TUBE T6 - 3/8 OD TUBE

**Contact factory for more options.*

LPH UHP 8 Series

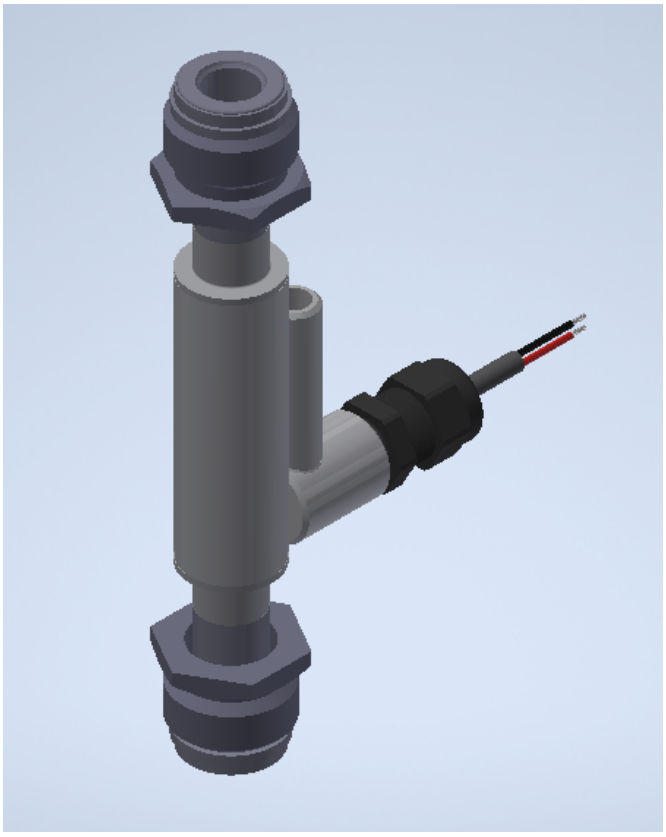
Applications
- Semi-Conductor Gases

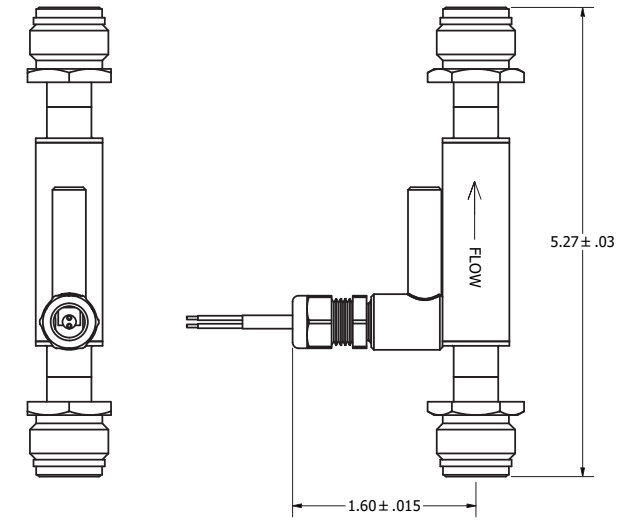
Key Features
- Compact Size
- Ultra High Purity

Features
- Close On/Off Differential
- No Seals
- Internal finish: EP
- 316L Stainless Steel Materials
- Senses High/Low Flow Conditions
- Switch Contact Output
- In-line vertical plumbing and hermetically sealed, epoxy encapsulated reed switch
- Confirms Normal Flow Conditions

Operations
As flow is established upward through the unit and continues to increase, the pressure differential across the magnetic piston increases until it overcomes the small piston's resistance. This causes it to progress fully upward which actuates a hermetically sealed reed switch. This is a snap action and occurs in the decreasing mode as well.

Features
- Actuation Points for Nitrogen on increasing flow (see graph)
- Deactuation Points averages 10% less than actuation point
- Flow Setting Accuracy ±10% of actuation points shown
- Repeatability ±1%
- Unit will pass greater flows





PN; LPHUHP-8

Specifications				
Model	Weight Lbs. (Kg)	Max Working Pressure PSIG (barg)	Wetted Parts	Leak Check
LPH-UHP 8	0.5 lb/ 0.23 kg	3000 PSIG (206.8 barg)	316L Stainless Steel	1x10 atm. ccHe/sec in board

Temperature Range
- -40° to 220°F; (-40° to 105°C).

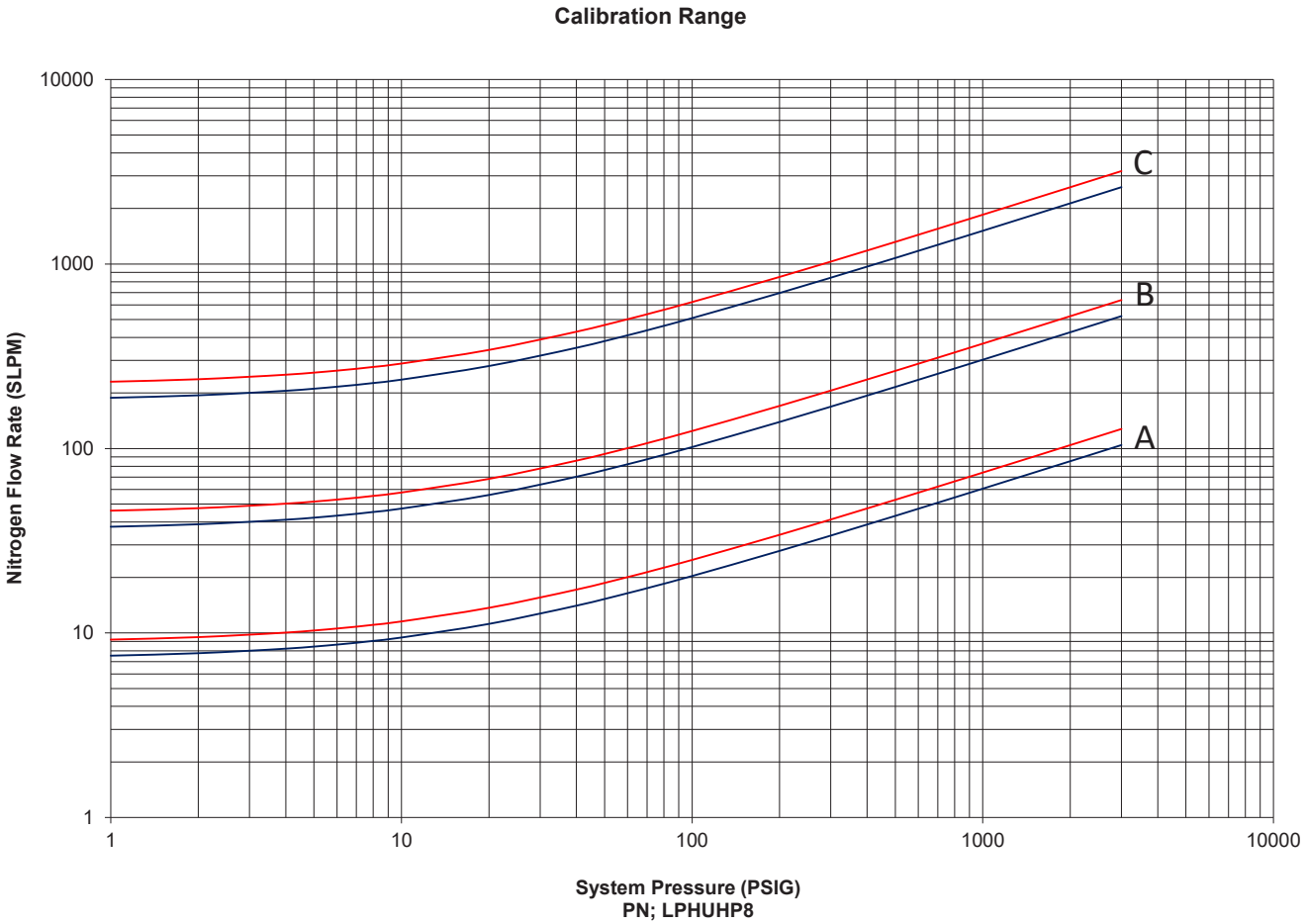
Fluid Ports
- 1/2" MVCR (8)

Installation
Mount vertical with inlet port down.

How to Order

Model	*Calibration Range*	*Switch*
LPH-UHP-8	A, B, or C	N.C. or SPDT

**Users are solely accountable for product selection, regardless of any recommendations or suggestions provided by ChemTec Equipment Company, Inc. Users should base product selection on their own analysis and testing to determine functionality and material compatibility in relation to their application. To ensure safe and trouble-free performance, it is essential to adhere to proper installation, operation, and maintenance procedures.*



Switch Data	SPST	SPDT UL File #E471070
Maximum Switching Voltage		
DC (V)	250	175
AC (V)	265	120
Contact Rating		
DC (W)	50	5
AC (VA)	50	5
Maximum Switching Current (A)		
DC (A)	1.5	0.25
AC (A)	1.1	0.18

**Above values for resistive loads only. For inducive loads, surge current & rush current contact protection is required.*

Leads

- SPST: 36” min. from body; 22 AWG PVC red, black jacketed wire
- SPDT: 36” min. from body; 22 AWG PVC jacketed wire- black: N.O., red: N.C.; white: common

XE-1201 Arc Suppressor

Contact Protection Requirements

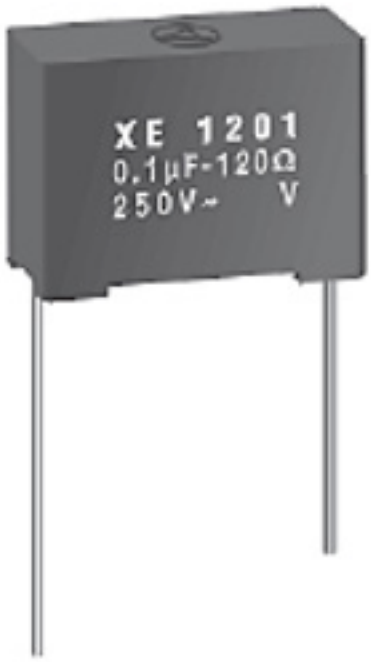
When switching inductive loads such as relays, solenoids and transformers,reed switch contacts require protection in order to insure long dependable life. When current is interrupted, the inductance or electrical inertia of the load generates a large high frequency voltage, which spreads across the switch contacts. If the voltage is large enough, it can break down the medium in the gap between them, making a conductive path. This phenomenon, called “arcing” is the spark you see. Arcing can cause the contacts to bum, weld together or stick; thus, giving unreliable performance. The purpose of protection circuits is to prevent arcing; by shortening this voltage through an alternate path.

Recommended Protection - D.C.

A 1N4004 diode (or equivalent) connected cathode-to-positive, as shown in Figure I (see below), is recommended. The diode does not conduct when the load is energized, but conducts and shorts out the generated voltage when the switch opens. The generated voltage always acts in series with the applied voltage.

Recommended Protection - A.C.

A resistor and capacitor, connected in parallel with the switch, as shown in Figure 2 (see below), is recommended. The capacitor is a high impedance to 60 hertz, but is essentially a short circuit to high frequencies of generated voltages.Transient suppressors or varistors may also be used to dissipate the transient and protect the switch contacts.



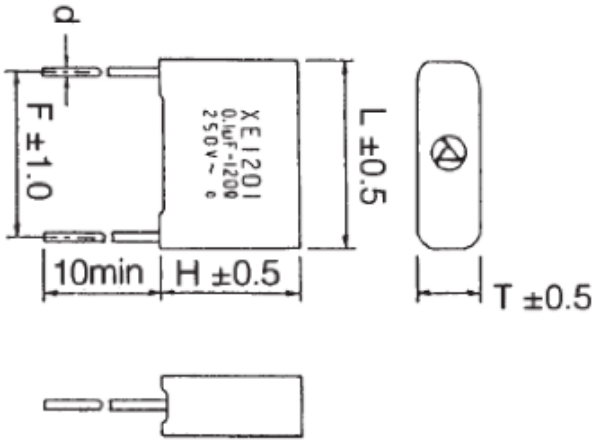


Figure 1

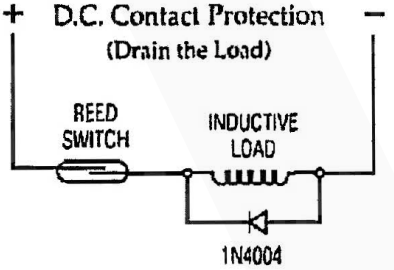
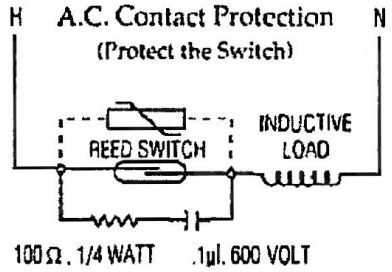


Figure 2



Flow Monitors,
Flow Meters,
Excess Flow Valves