

# SERIES AP 74 B

## FLOW SWITCH FOR HIGH FLOW

Excess Flow Switch (EFS) for Bulk Specialty Gas Systems (BSGS)

- Bypass design utilizing standard AP 74 flow switch. Switch resides in bypass leg with a mainline orifice between the legs to create a pressure drop for tripping.
- Available with horizontal or vertical main line.
- Eleven reference trip points:
  - 1/2 inch – 225, 350, 500 & 950 slpm
  - 3/4 inch – 1100, 1650 & 2600 slpm
  - 1 inch – 3,000 & 4,000 slpm
  - 1-1/2 inch – 5,000 & 6,000 slpm
 (trip points nominal at 100 psig [7 bar] of N<sub>2</sub>)
- Minimal pressure drop through device.
- Online sizing calculator for ease of selection.
- Reed switch is hermetically sealed.
- Installation and operating instructions available at [www.aptech-online.com](http://www.aptech-online.com) in the Tech Briefs section.

### Operating Parameters

Source pressure	1/2 inch	vacuum to 3,500 psig (241 bar)
	3/4 inch	vacuum to 3,000 psig (207 bar)
	1 inch	vacuum to 2,200 psig (152 bar)
	1-1/2 inch	vacuum to 1,300 psig (90 bar)
Flow trip reference points*		
	1/2 inch	225, 350, 500 & 950 slpm N <sub>2</sub>
	3/4 inch	1100, 1650 & 2600 slpm N <sub>2</sub>
	1 inch	3,000 and 4,000 slpm N <sub>2</sub>
	1-1/2 inch	5,000 and 6,000 slpm N <sub>2</sub>
Accuracy		± 20% of trip point
Pressure drop at trip point		1/2 psi (0.035 bar) differential
Proof pressure		150% of operating pressures
Burst pressure		300% of operating pressures

\* @ 100 psig (7 bar)

### Other Parameters

Inlet/outlet connectors	1/2 or 3/4 inch face seal or tube weld 1 and 1-1/2 inch tube weld
Operating temperature	-10° to +175°F (-23° to +80°C)
Surface finish	10 µin. (0.25 µm) Ra max standard
Inboard/outboard leakage	2 x 10 <sup>-10</sup> sccs

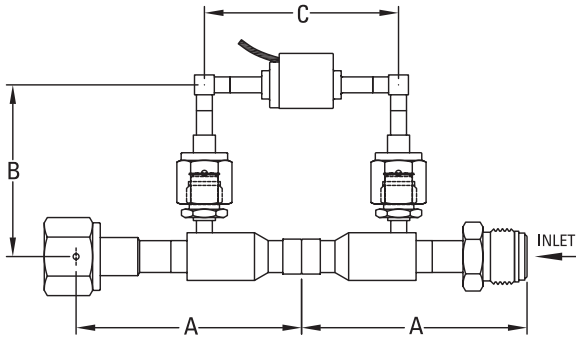
### Materials

Wetted Parts	
Body and Float	SS 316L
Face seal gaskets	nickel 200
Finish	electropolished and passivated
Reed Switch	
Type	SPDT, 3 wire / 2 position
Power	30 VDC / 3 W max
Switching current	0.2 A max
Carrying current	0.5 A max
Initial contact resistance	0.1 Ohm max
Cable	
Wire gauge	Stranded #24 awg, PVC jacket
Cable length	10 ft (3 meters)
Lead Color	Blue: common Brown: normally closed Black: normally open

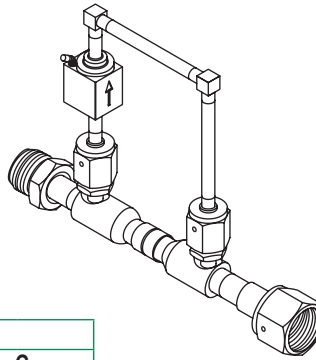
All specifications subject to change without notice.

# ULTRACLEAN ~ ULTRA HIGH FLOW ~ ULTRA SAFE

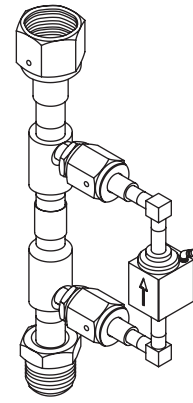
DIMENSIONAL INFORMATION



AP 74 B – Horizontal



AP 74 B – Vertical



Connection Type	Dimension							
	A		B				C	
	inch	mm	Horizontal		Vertical		inch	mm
<b>FV8, MV8</b>	3.55	90.1	4.55	115.6	2.70	68.9	3.05	77.5
<b>TW8</b>	2.59	65.8	4.55	115.6	2.70	68.9	3.05	77.5
<b>FV12, MV12</b>	5.51	140.0	5.44	138.2	3.59	91.2	3.05	77.5
<b>TW12</b>	3.53	89.6	5.44	138.2	3.59	91.2	3.05	77.5
<b>TW16</b>	3.90	99.1	5.57	141.5	3.72	94.5	3.05	77.5
<b>TW24</b>	4.15	105.4	5.82	147.8	3.97	100.8	3.05	77.5

All dimensions in inches (mm). Metric dimensions are for reference only.

## Correcting Trip Point for Temperature

$$F_T = \sqrt{\frac{530}{OT}}$$

OT = (460 + operating temperature °F)

SIZING FORMULA

## Correcting Trip Point for Other Pressures

To obtain the nominal trip point for operating pressures other than 100 psig, multiply the nominal trip point by the pressure correction factor ( $F_p$ ).

$$F_p = \sqrt{\frac{OP}{114.7}}$$

Where OP is the operating pressure in psia.

## Correcting Trip Point for Other Gases

To obtain the nominal trip point in process gases other than nitrogen, multiply the nominal trip point in nitrogen by the gas correction factor ( $F_G$ ).

$$F_G = \sqrt{\frac{28}{MW}}$$

Where MW is the molecular weight g/mol of the process gas.

**CAUTION:** Product selection is the sole responsibility of the user, regardless of any recommendations or suggestions made by the factory. The user shall make selections based upon their own analysis and testing with regard to function, material compatibility and product ratings. Proper installation, operation and maintenance are also required to assure safe, trouble free performance.

ORDERING INFORMATION

Sample Order Number	<b>AP 74 B V 500 SM FV8 MV8</b>	
<b>AP 74 B   Series</b>	AP 74 B	
<b>V   Position</b>	H = Horizontal V = Vertical	
<b>500   Switch Size</b>	1/2 inch size only	225 = 225 slpm 350 = 350 slpm 500 = 500 slpm 950 = 950 slpm
	3/4 inch size only	1100 = 1100 slpm 1650 = 1650 slpm 2600 = 2600 slpm
	1 inch size only	3000 = 3000 slpm 4000 = 4000 slpm
	1-1/2 inch size only	5000 = 5000 slpm 6000 = 6000 slpm
<b>S   Material</b>	S = Stainless steel (SS)	
<b>M   Surface Finish</b>	M = 10 µin. Ra max standard	
<b>FV8 MV8   Connections Inlet / Outlet</b>	<p>1/2 inch connections for 1/2 inch switch sizes FV8 = 1/2 inch face seal female MV8 = 1/2 inch face seal male TW8 = 1/2 inch tube stub weld</p> <p>3/4 inch connections for 3/4 inch switch sizes* FV12 = 3/4 inch face seal female* MV12 = 3/4 inch face seal male* TW12 = 3/4 inch tube stub weld</p> <p>1 inch connections for 1 inch switch sizes TW16 = 1 inch tube stub weld</p> <p>1-1/2 inch connections for 1-1/2 inch switch sizes TW24 = 1-1/2 inch tube stub weld</p>	
	*Caution: Verify mating fittings are of proper pressure rating for application.	

AP Tech has product options and variations which are not documented in data sheets. If you have a model number that is not defined by the ordering information, please consult the factory or your local representative.