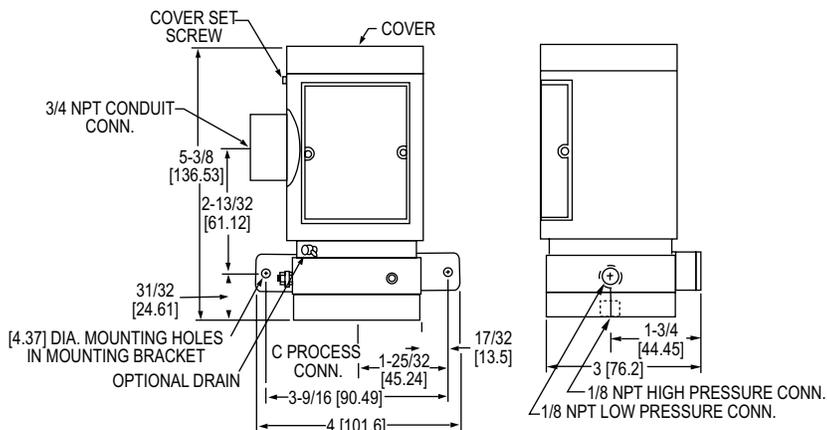




# Series H3 Differential Pressure Switches

## Specifications - Installation and Operating Instructions



**Series H3 Differential Pressure Switches** actuate one or two single pole, double throw (SPDT) snap switches in response to increasing or decreasing pressure of compatible gases or liquids. Four field adjustable operating ranges are available allowing set-points up to 200 psid. All models are suitable for hazardous locations and also include weatherproof housings as detailed in the chart below. Read and understand instructions completely before proceeding with installation or operation.

### MODEL NUMBER DEFINITIONS

H3 1 - 2 3 4 - 5

- 1 Wetted Materials**  
A - Aluminum/Nitrile  
S - 316 SS/Fluoroelastomer
- 2 Operating Range**  
1 - 10 to 180 in. w.c. (2.48 to 44.78 kPa)  
2 - 0.5 to 15 psid (0.03 to 1 bar)  
3 - 5 to 70 psid (0.34 to 4.8 bar)  
4 - 10 to 200 psid (0.7 to 13.8 bar)
- 3 Circuit**  
S - SPDT  
D - DPDT
- 4 Electrical Connections**  
C - Terminal block(s) ATEX Compliant Construction  
T - Terminal block(s) UL and CSA approved  
L - Wire leads
- 5 Options**  
MV - Gold contacts  
DRAIN - Drain/Breather  
VIT - Fluoroelastomer diaphragm/O-ring option where not standard.

### SPECIFICATIONS

**Wetted Materials:** See pressure chamber and diaphragm material in model chart.  
**Temperature Limit:** -4 to 220°F (-20 to 104°C), ATEX: -20 to 90°C (-4 to 194°F).  
**Pressure Limit:** 1500 psig (103 bar).  
**Enclosure Rating:** See ratings chart.  
**Switch Type:** SPDT or DPDT snap switch.  
**Electrical Rating:** 5A @ 125/250 VAC (V~), 30 VDC (V=). MV option: 1A @ 125 VAC (V~); 1A res., .5A ind. @ 30 VDC (V=).  
**Electrical Connections:** See model chart.  
**Conduit Connection:** 3/4" female NPT.  
**Process Connection:** 1/8" female NPT.  
**Mounting Orientation:** Vertical.  
**Set Point Adjustment:** Internal screw.  
**Weight:** 4 lb, 2 oz (2 kg).  
**Deadband:** Approximately 5% of range.

### HAZARDOUS LOCATION WEATHERPROOF RATINGS

Model	UL	CSA	Directive 2014/34/EU ATEX Compliant
H3 _ _ _ C	-	-	CE 2813 Ex II 2 G Ex d IIB -20°C ≤ T amb ≤ 75°C T6 EC-Type Certificate No. KEMA 03ATEX 2584 IP66
H3 _ _ _ L	Cl. I, Gr.B, C & D	Cl. I, Gr.B, C & D	-
H3 _ _ _ T	Cl. II, Gr.E, F & G NEMA 4X	Cl. II, Gr.E, F & G NEMA 4	-
H3 _ _ _ C-DRAIN	-	-	CE 2813 Ex II 2 G Ex d IIB -20°C ≤ T amb ≤ 75°C T6 EC-Type Certificate No. KEMA 03ATEX 2584 IP54
H3 _ _ _ L-DRAIN	Cl. I, Gr.B, C & D Cl. II, Gr.E, F & G NEMA 3	-	-

**Attention:** Units without the "C" suffix are not Directive 2014/34/EU (ATEX) compliant. These units are not intended for use in potentially hazardous atmospheres in the EU. These units may be CE marked for other Directives of the EU.

## INSTALLATION

- 1. LOCATION:** Select a location where the temperature limit of 220°F (104°C) will not be exceeded. Locate the switch as close as possible to the pressure source for best response. Longer lengths of tubing will not affect the accuracy of the actuation point but can increase response time slightly.
- 2. MOUNTING:** Avoid mounting surfaces with excess vibration which could cause false actuation when pressure is near set-point. Attach switch with two 3/16" screws or bolts (not included) through mounting bracket. Normal position is with housing vertical.
- 3. PRESSURE CONNECTION:** Connect source(s) of pressure, vacuum or differential pressure to the 1/8" NPT ports as follows:
  - A. Differential Pressures:** Connect higher pressure to High Pressure port (bottom) and lower pressure to Low Pressure port (side).
  - B. Pressure Only:** Connect a single positive pressure to High Pressure port on bottom and leave Low Pressure port on side vented to atmosphere.
  - C. Vacuum Only:** Connect a single negative (vacuum) pressure to Low Pressure port on side and leave High Pressure port on bottom vented to atmosphere.
- 4. ELECTRICAL CONNECTIONS:** Either one or two SPDT snap switches are provided with normally open contacts closing and normally closed contacts opening when pressure or vacuum increases beyond the set-point.
  - A. Wire in accordance with local electrical codes.**
  - B. Wire lead models:** Thread wires through conduit and connect to leads from snap switch(es).  
Black=Common, Red=Normally Closed, Blue=Normally Open
  - C. Terminal block models:** Loosen screws on terminal block(s), insert stripped and tinned wires in side openings and tighten screws.  
Black=Common, Red=Normally Closed, Blue=Normally Open

## EC-Type Certificate Installation Instructions:

### Cable connection

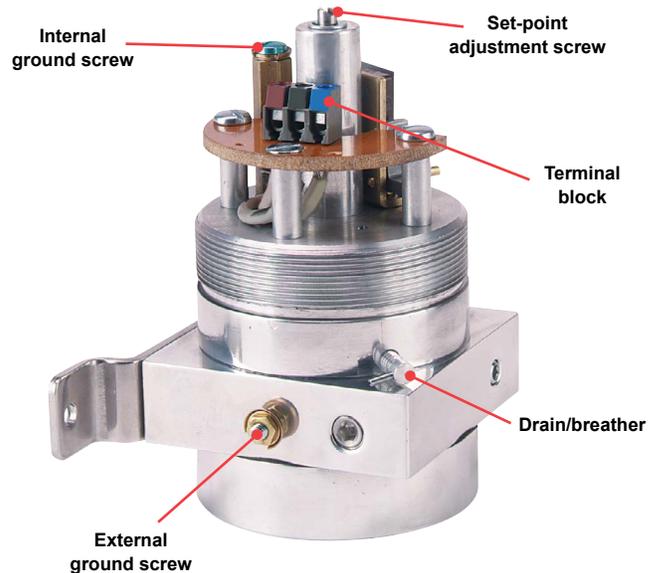
The cable entry device shall be certified in type of explosion protection flameproof enclosure "d", suitable for conditions of use and correctly installed. For ambient temperatures over 70°C, cable and cable glands suitable for at least 95°C shall be used.

### Conduit connection

An Ex d certified sealing device such as a conduit seal with setting compound shall be provided immediately to the entrance of the valve housing. For ambient temperatures over 70°C, the wiring and setting compound in the conduit seal shall be suitable for at least 95°C.

- D. Ground Screws:** Three grounding connections are furnished; one inside housing with green headed machine screw, one on the exterior housing directly below the conduit entry with green headed machine screw, and the third is opposite the low pressure connection on the exterior with threaded stud and nut. Use any one.
- E. ATEX units only:** The "T" class is dependent upon the media or ambient temperature, whichever is higher. The approved ratings are  $-20^{\circ}\text{C} \leq T_{\text{amb}} \leq 75^{\circ}\text{C}$  T6.

Replace cover after wiring connections are complete.



## ADJUSTMENT

- To change the set-point, connect tubing or piping from high pressure port on bottom to one leg of a tee. Connect the second leg to a pressure gage of known accuracy and in an appropriate range. The third leg should be connected to a controllable pressure source.
- Connect a V/Q meter or other circuit tester to snap switch to indicate when switching occurs.
- Slowly apply pressure to the system and note the pressure at which switching occurs. If adjustment is necessary, turn the adjustment screw (located internally at center next to snap switch) clockwise to raise or counterclockwise to lower the actuation point. When the required setting has been reached, exercise the switch through two or three additional cycles to verify consistent operation.

## MAINTENANCE

The moving parts of these switches need no maintenance or lubrication. The set-point is the only user adjustment. On models with optional drain fitting, periodically rotate small captive screw from side to side several times to keep drain path clear. Repairs to be conducted by Dwyer Instruments, Inc. Units in need of repair should be returned to the factory prepaid.

**CAUTION** Make sure conduit or cable are properly sealed. Electrical components must be kept free of moisture, including condensation, at all times. To prevent ignition of hazardous atmosphere, disconnect the device from the supply circuit before opening. Keep assembly tightly closed when in operation.

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