

## Diaphragm Switch

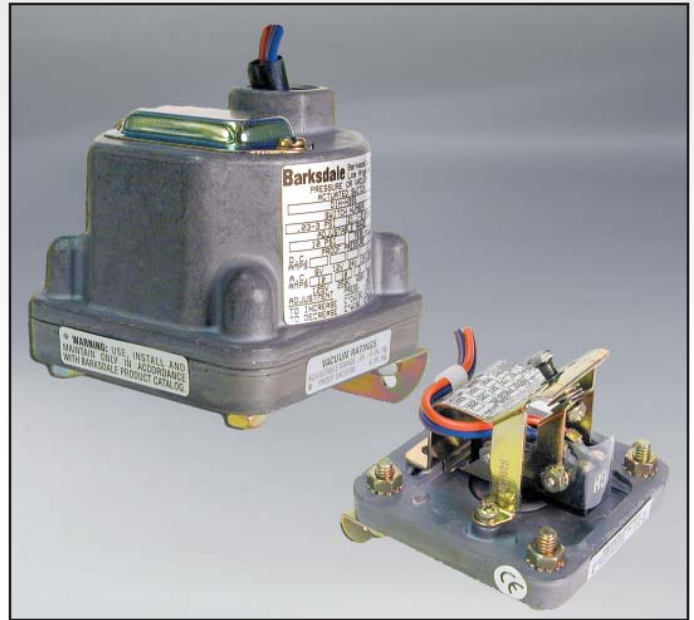
## D1S, D2S, D1H, D2H Series

### Features

- ▶ Stripped and housed versions available
- ▶ High accuracy
- ▶ Ideal for pressure or vacuum
- ▶ Easy setpoint adjustment
- ▶ NEMA 4 (Housed Models)
- ▶ Up to 3 setpoints available in one switch

### Applications

- ▶ Pump & compressor monitoring
- ▶ Engine monitoring
- ▶ Machine tools
- ▶ Hydraulic power units
- ▶ Medical equipment
- ▶ Waste management
- ▶ Food & beverage
- ▶ Factory automation
- ▶ Metal working



### General Specifications\*

|  |   |
|--|---|
| <b>Accuracy:</b>   | ± 0.5% of the adjustable range  |
| <b>Switch:</b><br>Type:<br>Rating:                                   | Single pole double throw (SPDT) Snap Action; single or dual circuit<br><br>10 amps @ 125/250 VAC; 3 amps @ 480 VAC (Class A or H limit switch). Consult sales drawing for ratings of optional limit switches. |
| <b>Wetted Parts:</b><br>Process Fitting:<br>Diaphragm:<br>Enclosure: | 304 stainless steel<br><br>17-7 PH stainless steel<br><br>Anodized aluminum (housed models)   |
| <b>Electrical Connection:</b>  | Free leads approximately 18" long, #16 AWG and 1/2" NPT conduit connection for housed models  |
| <b>Enclosure Ratings:</b>  | Housed Models: NEMA 4<br>Stripped Models: NEMA 1  |
| <b>Pressure Connection:</b>  | 1/4" NPT Female   |
| <b>Approvals:</b><br>UL (optional):                                  | Stripped (D1S and D2S) models may be ordered as UL Recognized components (UR) on request. Housed (D1H and D2H) models may be ordered as UL Listed on request (UL File No. E42816).                            |

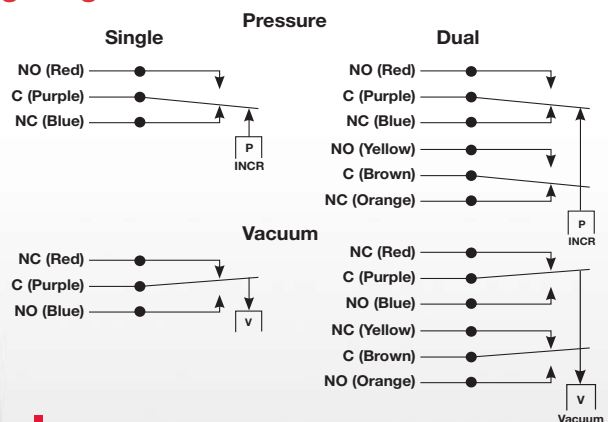
|   |   |
|---|---|
| <b>Approvals (cont.):</b><br>CSA (optional):                | All models may be ordered as CSA listed under Class 3231 02, File LR22355 on request.   |
| PED (European):   | Compliant to PED 97/23/EC   |
| <b>Temperature Range:</b><br>Operating:<br>Storage:         | -65° to +165°F (-54° to +74°C)<br><br>-65° to +200°F (-54° to 93°C)   |
| <b>Adjustment Instructions:</b><br>Pressure:<br><br>Vacuum: | Turn adjustment screw counterclockwise to raise actuation point.<br><br>Turn adjustment screw clockwise to increase setpoint (higher vacuum). |
| <b>Options:</b>   | - NEMA 4X enclosure (housed models only)<br>- Cleaned for oxygen service<br>- Factory pre-set   |
| <b>Shipping Weight:</b>                                     | Stripped Versions: 1.5 lbs. approximate<br>Housed Versions: 1.75 lbs. approximate   |

\* See product configurator for additional options.

### Wiring Code

| Lead            | Circuit #1 |        | Circuit #2 |        |
|-----------------|------------|--------|------------|--------|
|                 | Pressure   | Vacuum | Pressure   | Vacuum |
| Normally Closed | Blue       | Red    | Orange     | Yellow |
| Common          | Purple     | Purple | Brown      | Brown  |
| Normally Open   | Red        | Blue   | Yellow     | Orange |

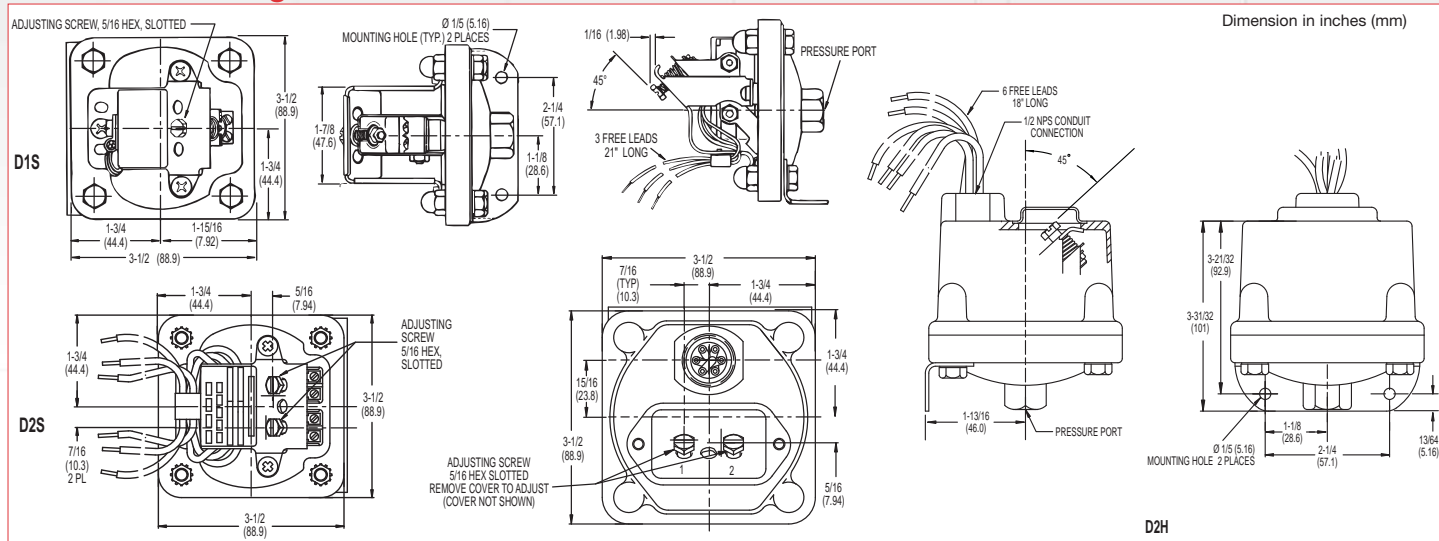
### Wiring Diagram



# Diaphragm Switch

# D1S, D2S, D1H, D2H Series

## Technical Drawing



## Product Configurator

Example **D1H -A 80SS -CS**

**H** Hermetically sealed limit switch option - Class I, Division II (requires AA, CC, GH or HH limit switch, Not available on vacuum models)

### Base Configuration

|                  |                                  |
|------------------|----------------------------------|
| D1H              | Single setpoint housed version   |
| D1S              | Single setpoint stripped version |
| D2H              | Dual setpoint housed version     |
| D2S              | Dual setpoint stripped version   |
| D3H <sup>4</sup> | Triple setpoint housed version   |

### Limit Switch<sup>1</sup>

|     |  |
|-----|--|
| -A  | 10 amps @ 125/250 VAC; 3 amps @ 480 VAC; (standard for pressure range 3SS, 80SS or 150SS)          |
| -B  | 10 amps @ 125/250/480 VAC; 2 amps @ 600 VAC; 0.05 amps @ 125 VDC; 0.03 amps @ 250 VDC              |
| -C  | 10 amps @ 125/250/480 VAC; 2 amps @ 600 VAC; 0.1 amps @ 125 VDC; 0.05 amps @ 250 VDC               |
| -H  | 10 amps @ 125/250 VAC; 3 amps @ 480 VAC; (standard for pressure range 2SS or 18SS)                 |
| -M  | 10 amps @ 125/250 VAC; 3 amps @ 480 VAC; 0.5 amps @ 125 VDC; 0.25 amps @ 250 VDC (not UL approved) |
| -GH | 1 Amp @ 125 VAC; 1 Amp @ 24 VDC with gold contacts (not UL approved)                               |
| -AA | Hermetically sealed; 4 amps @ 125/250 VAC (not available on 2SS or vacuum models)                  |
| -CC | Hermetically sealed; 10 amps @ 125/250 VAC (not available on 2SS or vacuum models)                 |
| -GH | Hermetically sealed; 1 Amp @ 125 VAC with gold contacts (not available on 2SS or vacuum models)    |
| -HH | Hermetically sealed; 5 amps @ 125/250 VAC (not available on 2SS or vacuum models)                  |

### Options

|       |                                   |
|-------|-----------------------------------|
| -FX   | NEMA 4X enclosure                 |
| -Z1   | Oxygen cleaned                    |
| -U    | UL Approved (Industrial Control)  |
| -CS   | CSA Approved Model                |
| -Wxxx | Extra wire length (XXX = inches)  |
| -Sxxx | Factory pre-set (consult factory) |

### Pressure Connection

|       |   |
|-------|---|
| Blank | Std 1/4" NPT female pressure connection |
| -P2   | 1/2" NPT female pressure connection     |

### Adjustable Range

|                  | Adjustable Range (PRESSURE) |             |                        |            | Approx. Deadband <sup>2</sup><br>(Actuation Value)<br>psi (bar) | Proof Pressure<br>psi (bar) |
|------------------|-----------------------------|-------------|------------------------|------------|---|-----------------------------|
|                  | Decreasing - psi (bar)      |             | Increasing - psi (bar) |            |   |                             |
|                  | Min                         | Max         | Min                    | Max        |   |                             |
| 2SS <sup>3</sup> | 0.018 (.0)                  | 1.65 (.1)   | 0.068 (.0)             | 1.7 (.1)   | .02 - .05 (.0 - .0)   | 3 (.2)                      |
| 3SS              | .03 (.00)                   | 2.85 (.2)   | .18 (.02)              | 3 (.2)     | .07 - .15 (.0 - .01)  | 10 (.7)                     |
| 18SS             | .4 (.03)                    | 17.74 (1.2) | .66 (.05)              | 18 (1.2)   | .12 - .26 (.01 - .02)   | 60 (4.1)                    |
| 80SS             | .5 (.03)                    | 76.6 (5.3)  | 3.9 (.3)               | 80 (5.5)   | 1.6 - 3.4 (.1 - .2)   | 160 (10.9)                  |
| 150SS            | 1.5 (.1)                    | 144 (9.9)   | 7.5 (.5)               | 150 (10.3) | 2.3 - 6 (.2 - .4)   | 300 (20.4)                  |

|      | Adjustable Range (VACUUM) |      |                     |     | Approx. Deadband <sup>2</sup><br>(Actuation Value)<br>In. Hg | Proof Pressure<br>In. Hg |
|------|---------------------------|------|---------------------|-----|--|--------------------------|
|      | Decreasing - In. Hg       |      | Increasing - In. Hg |     |  |                          |
|      | Min                       | Max  | Min                 | Max |  |                          |
| 3SS  | 0.06                      | 5.72 | 0.34                | 6   | .14 - .28  | 20                       |
| 18SS | 0.8                       | 29.2 | 1.6                 | 30  | .4 - .8  | 30                       |

### NOTES:

- Consult Supplemental Guide for specific deadband values
- Deadband values indicated when used with the "standard" limit switch
- Not available with hermetically sealed limit switches
- Available only with AA (not hermetically sealed) limit switch