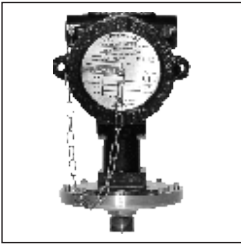
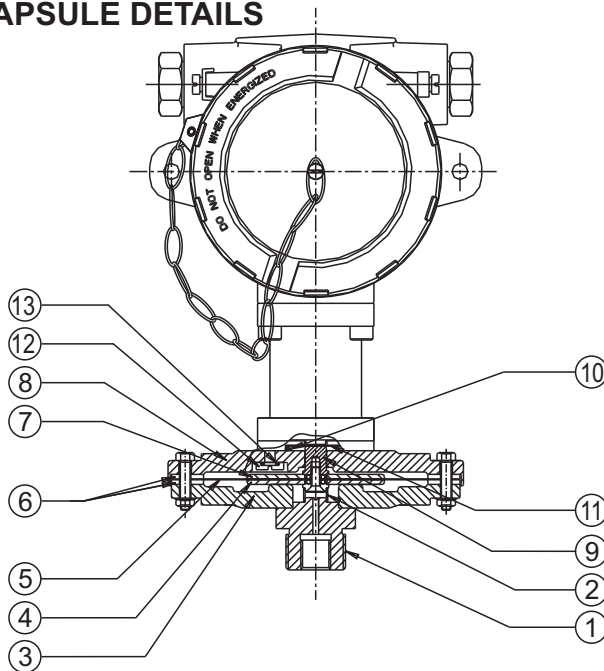


# FR LOW RANGE HIGH PROOF PRESSURE SWITCHES



## PRESSURE CAPSULE DETAILS



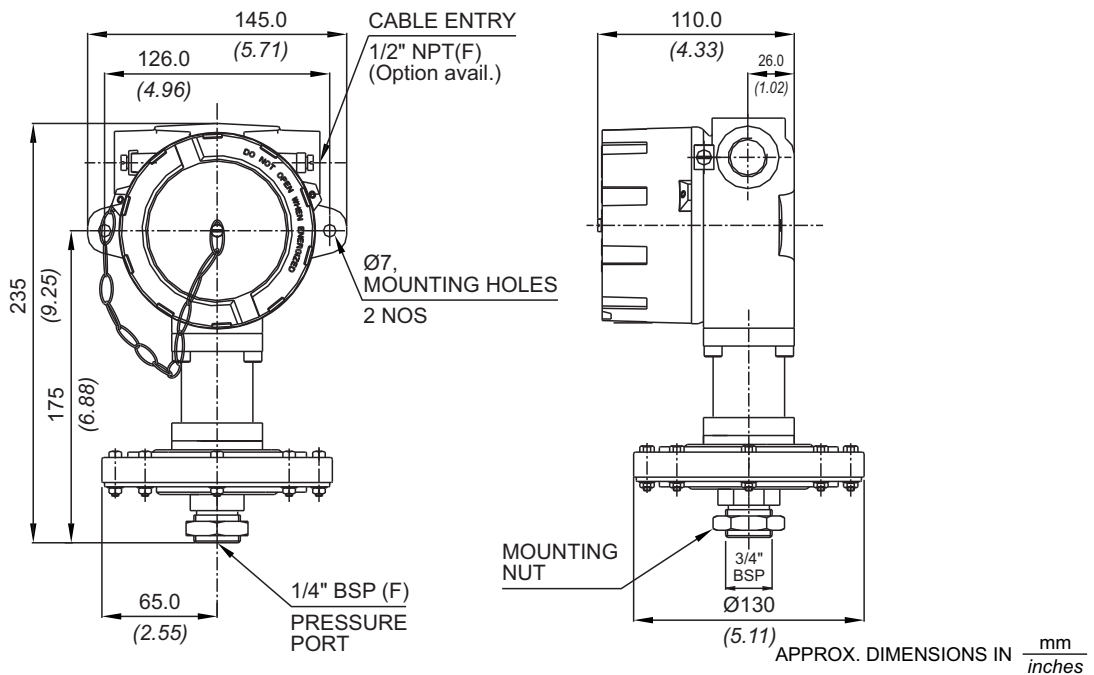
### No. Description

1. Pressure port (S.S.)\*
2. Support spring (S.S.)
3. Bottom flange (S.S.)\*
4. Support plate (S.S.)
5. Diaphragm (Neoprene)
6. Gasket (Silicone)
7. Top plate (S.S.)
8. Top flange (S.S.)\*
9. Transfer pin (S.S.)
10. 'O' ring (Silicone)
11. Sealing diaphragm (Silicone)
12. Top flange screw (S.S.)
13. Sealing 'O' ring (Silicone)

\*Pressure ports are welded with flange

Note : wetted parts are mentioned in italics.

## INSTALLATION DRAWING



## RANGE SELECTION TABLE

| Range Code | Range<br>mbar ("wc)              | Differential* mbar (" wc)                         | Maximum<br>Working Pressure<br>bar (psi) |
|------------|----------------------------------|---|--|
|            |                                  | Approximate<br>Maximum<br>for "A1"<br>microswitch |  |
| N02        | 1.5 to 15<br>(0.602 to 6.02)     | 3.0<br>(1.205)                                    | 20.0<br>(290.075)                        |
| N03        | 5 to 25<br>(2.009 to 10.046)     | 5.0<br>(2.009)                                    | 20.0<br>(290.075)                        |
| N05        | 10 to 50<br>(4.018 to 20.093)    | 5.0<br>(2.009)                                    | 20.0<br>(290.075)                        |
| N10        | 10 to 100<br>(4.018 to 40.186)   | 10.0<br>(4.018)                                   | 20.0<br>(290.075)                        |
| N15        | 10 to 150<br>(4.018 to 60.270)   | 10.0<br>(4.018)                                   | 20.0<br>(290.075)                        |
| N25        | 20 to 250<br>(8.03 to 100.460)   | 15.0<br>(6.027)                                   | 20.0<br>(290.075)                        |
| N35        | 50 to 350<br>(20.093 to 140.653) | 35.0<br>(14.060)                                  | 20.0<br>(290.075)                        |

## Note:

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are approximate maximum for FSR. The differential value will vary according to the pressure range selected and microswitch type. For actual values of differential please contact sales office.

2. When using 2SPDT switching arrangement, both microswitches may not actuate and/or deactuate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysteresis) typically tends to be atleast double of those published for 1SPDT pressure switches.

If actuation and/or deactuation at same point is critical part of operation, then it can be achieved by using a separate DPDT relay. This relay will need a separate power supply for it's coil.

**Intrinsic Safety (Exia)** : Pressure and temperature switches are classified as simple apparatus, as per IEC 60079-11, as they neither store or generate energy. Hence switches can be used in intrinsically safe systems provided the power source is IS certified. Because of low voltages and current it is recommended to use hermetically sealed microswitches / microswitches.

# HOW TO ORDER FLAMEPROOF LOW RANGE HIGH PROOF PRESSURE SWITCHES

# LOW RANGE HIGH PROOF PRESSURE SWITCHES

# FR

| Group 1  | Group 2          | Group 3          | Group 4     | Group 5                     | Group 6          | Group 7                       | Group 8   |       |  |  |   |   |  |  |   |
|--|------------------|------------------|-------------|-----------------------------|------------------|-------------------------------|-----------|-------|--|--|---|---|--|--|---|
| Non standard allocation  | Model            | Cable Entry Size | Switch Type | Range Code (values in mbar) | Microswitch Type | Pressure Port Material / Size | Diaphragm |       |  |  |   |   |  |  |   |
| <p><input type="checkbox"/> A prefix "N" is used in the model code in case of any non standard options / accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer.</p> <p>The prefix is subject to change as per specific requirement.</p> <p>Approx. switch weight in Kgs</p> <table border="1"> <tr> <td><b>Enclosure</b></td> <td><b>FR</b></td> </tr> <tr> <td>Aluminium</td> <td>3.950</td> </tr> <tr> <td>Grey CI</td> <td>6.350</td> </tr> <tr> <td>SS</td> <td>6.450</td> </tr> </table> | <b>Enclosure</b> | <b>FR</b>        | Aluminium   | 3.950                       | Grey CI          | 6.350                         | SS        | 6.450 | <p><b>FR</b> = IP66 Flameproof pressure switch, EAC approved</p> | <p><b>1</b> = Al. head 1/2" NPT threads<br/> <b>2</b> = Al. head 3/4" NPT threads<br/> <b>3</b> = Al. head M20 x 1.5 threads<br/> <b>*4</b> = Grey CI head 1/2" NPT threads<br/> <b>*5</b> = Grey CI head 3/4" NPT threads<br/> <b>*6</b> = Grey CI head M20 x 1.5 threads<br/> <b>7</b> = SS head 1/2" NPT threads<br/> <b>8</b> = SS head 3/4" NPT threads<br/> <b>9</b> = SS head M20 x 1.5 threads</p> | <p><b>P1</b> = pressure switch, fixed differential without scale<br/> <b>P2</b> = pressure switch, fixed differential with scale in mbar<br/> <b>P3</b> = pressure switch, fixed differential with scale in "VVC</p> <p>For adjustable differential please select microswitch A6 in group 6</p> | <p><b>N02</b> = (1.5 - 15)<br/> <b>N03</b> = (5 - 25)<br/> <b>N05</b> = (10 - 50)<br/> <b>N10</b> = (10 - 100)<br/> <b>N15</b> = (10 - 150)<br/> <b>N25</b> = (20 - 250)<br/> <b>N35</b> = (50 - 350)</p> | <p><b>A1</b> = General purpose microswitch rated at 15 A; 250 VAC<br/> <b>*A6</b> = elements with adjustable deadband<br/> <b>*A7</b> = 2SPDT switching elements<br/> <b>A8</b> = General purpose microswitch rated at 5 A, 250 VAC; 5 A, 28 VDC<br/> <b>B1</b> = Low differential microswitch rated at 15 A, 250 VAC; 5 A, 28 VDC</p> <p>Please refer to page nos. 120 &amp; 121 for options and specifications of microswitches<br/> * Please contact sales office for additional information<br/> Please check the note under Range Selection Table for Exi applications.</p> | <p><b>S1</b> = SS316 / 1/4" BSP(F)<br/> <b>S2</b> = SS316 / 1/4" NPT(F)</p> <p>More options available, please contact sales office</p> | <p><b>*0</b> = Neoprene<br/> <b>*1</b> = PTFE<br/> <b>2</b> = SS316L</p> <p><b>*In case of non-metallic diaphragms the ambient temperature range should be (-)20° to 60° C.</b></p> |
| <b>Enclosure</b>   | <b>FR</b>        |                  |             |                             |                  |                               |           |       |  |  |   |   |  |  |   |
| Aluminium  | 3.950            |                  |             |                             |                  |                               |           |       |  |  |   |   |  |  |   |
| Grey CI  | 6.350            |                  |             |                             |                  |                               |           |       |  |  |   |   |  |  |   |
| SS   | 6.450            |                  |             |                             |                  |                               |           |       |  |  |   |   |  |  |   |
| <p><input type="checkbox"/></p>  | FR               | 1                | P1          | N03                         | A1               | S1                            | 0         |       |  |  |   |   |  |  |   |

eg. Flameproof switch for gas group, with 1/2" NPT cable entry in aluminium housing as 1SPDT pressure switch, fixed differential without scale, having 5 mbar to 25 mbar pressure range, with 15Amp. microswitch, SS316 pressure housing with 1/4" BSP port size & neoprene diaphragm shall be specified by

Please specify full model number to avoid ambiguity.