Orion INSTRUNENTS MD Low Range Compound Switches Installation Guide

Contents

Orion INSTRUNENTS MD Low Range Compound Switches

Product Usage Instructions

- Ensure all wetted parts are correctly assembled as per the installation drawing provided.
- Mount the compound switch securely in the desired location using the appropriate mounting hardware.
- Connect the pressure ports as required for your application.

Operation

1. Set the desired pressure range using the range selection table and configure the microswitch type accordingly.
2. Adjust the differential settings based on your application requirements.
3. Monitor the pressure readings and switch actuation points for proper functionality.

Maintenance

1. Regularly inspect all components for wear or damage and replace if necessary.
2. Calibrate the compound switch periodically to ensure accurate pressure readings.

FAQ

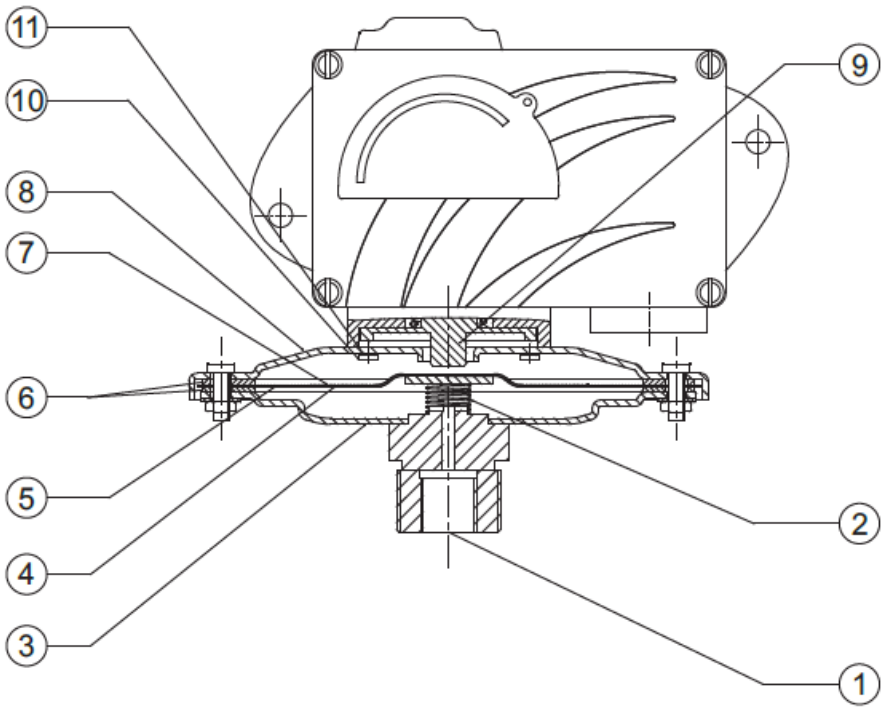
- **How do I select the appropriate range code for my application?**
  - You can refer to the Range Selection Table provided in the manual to choose a range code that suits your pressure requirements.
- **What is the significance of differential settings in the compound switch?**
  - The differential settings determine the pressure range within which the microswitch will actuate or deactivate. It is crucial for precise control in various industrial processes.

LOW RANGE COMPOUND SWITCHES

MD

CE

PRESSURE CAPSULE DETAILS



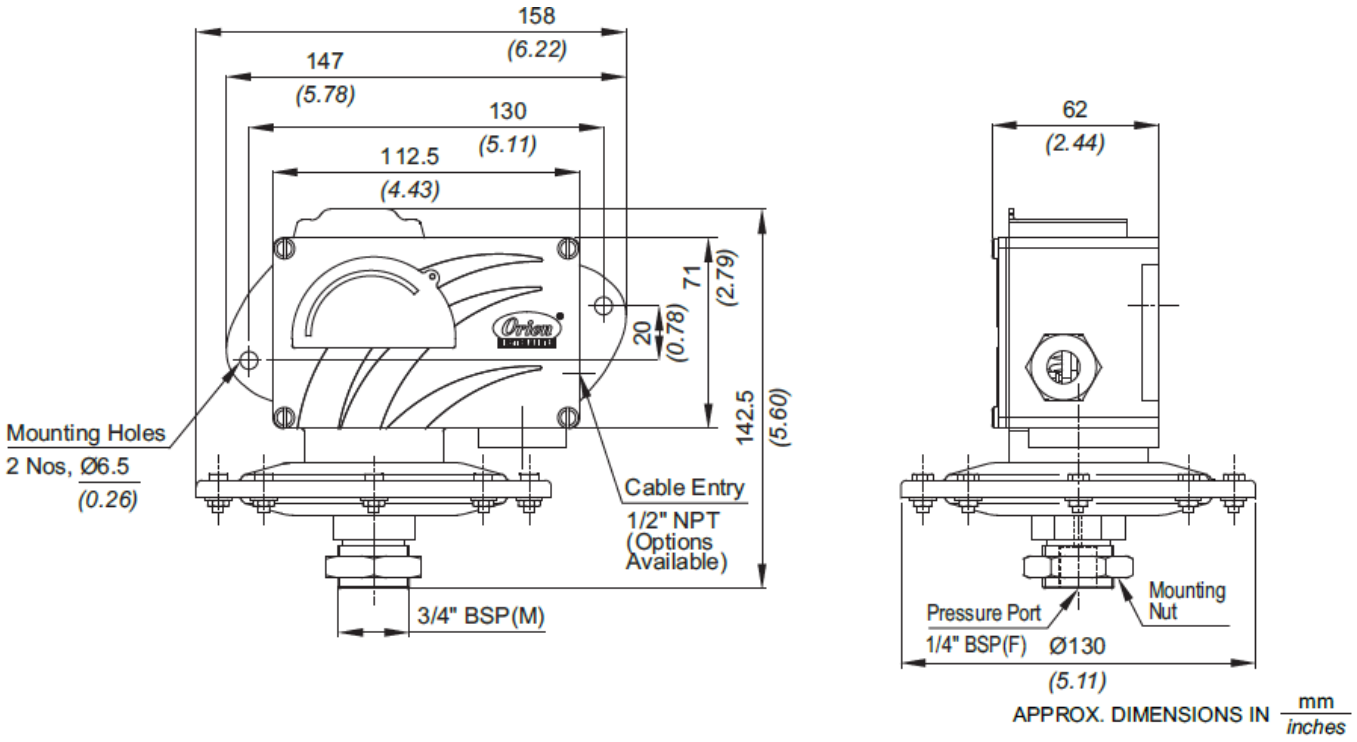
No. Description

1. Pressure Port (SS)
2. Support Spring (SS)
3. Bottom Flange (SS)
4. Support Plate (Al)
5. Diaphragm (Neoprene)
6. Gasket (PTFE)
7. Top plate (Aluminium)
8. Top flange (SS)
9. Plunger (SS)
10. Top flange screw (SS)
11. Sealing O-ring (Nitrile)

Note: wetted parts are mentioned in italics.

- Pressure ports are brazed with flange

INSTALLATION DRAWING



RANGE SELECTION TABLE

Range Code	Range mm wc *("wc)*	Differential* mm wc *("wc)*	Maximum Working Pressure bar *(psi)*
		Approximate Maximum for "A1" microswitch	
CL2	-150 to 150	40.0	2.0
	(-5.905 to 5.905)	*(1.605)*	*(29.00)*
CL3	-250 to 250	60.0	2.0
	(-9.842 to 9.842)	*(2.410)*	*(29.00)*
CL5	-500 to 500	100.0	2.0
	(-19.685 to 19.685)	*(3.937)*	*(29.00)*
CLX	-100 to 100	150.0	2.0
	(-3.937 to 3.937)	*(5.90)*	*(29.00)*

Note

1. The minimum differential increases with the setpoint. The differential values mentioned in the above table are the approximate maximum for FSR. The differential value will vary according to the pressure range selected and the microswitch type. For actual values of differential please contact the sales office.
2. When using a 2SPDT switching arrangement, both microswitches may not actuate and/or deactivate at the same point. A small stage gap, normally upto +/- 5% FSR (depending on range code) may be observed. The On-Off differential (hysterisis) typically tends to be atleast double those published for 1SPDT pressure switches.

If actuation and/or deactivation at the same point is a critical part of the operation, then it can be achieved by using

a separate DPDT relay. This relay will need a separate power supply for its coil.

HOW TO ORDER INDUSTRIAL LOW-RANGE COMPOUND SWITCHES

<table>
<tr><th colspan="3">Group 1 Group 3 Group 2</th><th>Group 4</th><th>Group 5</th><th>Group 6</th><th>Group 7</th><th>Group 8</th></tr>
<tr><td>Nonstandard allocation</td><td>Gas Group Classification</td><td>Cable Entry Size</td><td>Switch Type</td><td>Range Code (values in mm wc)</td><td>Microswitch Type</td><td>Pressure Port Material / Size</td><td>Diaphragm</td></tr>
<tr><td>A prefix “N” is used in the model code in case of any nonstandard options/accessories that are provided with the switches. Will be given by manufacturer, only after agreement of supply details with customer.

The prefix is subject to change as per specific requirements.</td><td>MD =
Industrial pressure switch with IP66-rated enclosure as per IS/IEC 60529
MT =
Industrial pressure switch with IP66-rated enclosure as per IS/IEC 60529</td><td>1 = Al. enclosure
½” NPT threads
*2 = Al. enclosure
¾” NPT threads
3 = Al. enclosure M20 X 1.5 threads
7 = SS enclosure,
½” NPT threads
*8 = SS enclosure,
¾” NPT threads
9 = SS enclosure, M20 X 1.5 threads</td><td>= CF1
Compound switch, fixed differential without scale
CF2 =
Compound switch, fixed differential with scale in bar
*CA1 = compound switch, adjustable differential without scale
*CA2 = compound switch, adjustable differential with scale in bar

*Available with A6, A7</td><td>CL2 =
(-150 to 150)
CL3 =
(-250 to 250)
CL5 =
(-500 to 500)
CLX =
(-100 to 100)</td><td>A1 = General purpose microswitch, rated at 15 A; 250 V AC
*A6 = Adjustable dead band
*A7 = 2SPDT
switching elements
*A8 = General purpose microswitch
*A9 = General purpose microswitch
*B7 = 2SPDT
Switching Elements
*B9 = 2SPDT
Switching Elements for adjustable differential

* Please refer to page nos. 290 & 291 for opti</td><td>S1 =
SS316 / ¼” BSP(F)
S2 =
SS316 / ¼” NPT(F)

More options available, please contact the sales office</td><td>= 0
Neoprene
1 = PTFE
2 =
SS 316L</td></tr>
<tr><td colspan="3">Approx. switch weight in Kgs
Enclosure | MD | MT
Aluminium | 1.500 | 1.904</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

	SS		3.080	3.510		*Not available for MT model For dual cable entry contact the Sales Office	, A9 & B9 (in group 6) only		ons and specifications of micro switches Please contact the sales office for additional information	For additional please contact	wetted parts t sales office

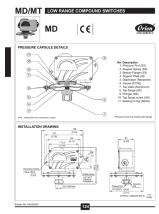
eg. An industrial switch for gas group IIC, with ½" NPT cable entry in aluminum housing as 1SPDT pressure switch, having -150 to 150 mm wc pressure range, with 15 Amp. microswitch, SS316 pressure housing with ¼" BSP port size & neoprene diaphragm shall be specified by

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
☐	MD	1	CF1	CL2	A1	S1	0

Please specify a full model number to avoid ambiguity. If only the first two groups are specified while ordering, uncalibrated switches with standard wetted parts and enclosures will be supplied.

Bulletin No. KA240928

Documents / Resources

	Orion INSTRUNENTS MD Low Range Compound Switches [pdf] Installation Guide MD, MT, MD Low Range Compound Switches, MD, Low Range Compound Switches, Range Compound Switches, Compound Switches, Switches

References

- User Manual