

**PRESSURE SWITCHES
PRESSURE DIFFERENCE SWITCHES
VACUUM SWITCHES**
From 1.5 mbar to 600 bar



MZ Pressure Switches

INSTALLATION AND OPERATING INSTRUCTIONS



Certificate No.: FM 72815

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INSTALLATION AND OPERATING INSTRUCTIONS FOR MZ SERIES PRESSURE SWITCHES

CONSTRUCTION:

The pressure switch is housed in a transparent tough polycarbonate cover, conforming to IP 66 protection factor. The pressure capsule comprises an SS316 pressure housing, a disc and a plunger, sealed with a nylon reinforced rubber diaphragm, protected from the working medium with Teflon. For hydraulic ranges the sensing element is an O ring sealed piston. The electrical changeover is through a snap action microswitch. A cable gland is provided for wiring.

PRINCIPLE OF OPERATION:

The pressure in the pressure capsule is converted into force by means of a reinforced rubber diaphragm and a calibrated piston, which is balanced by a compression spring from above. When the force generated by the pressure in the pressure capsule exceeds/falls beyond the balancing spring force, an element is actuated.

MOUNTING:

Refer figure 1:

- Pressure switches can be mounted directly in case the mounting is rigid.
- For panel mounting, L-shape bracket is provided. Use M5 bolts of appropriate length through the 2 mounting holes as shown in the figure. If the equipment is subject to vibration, please use the rubber washers/ pads between the panel and the switch.

(Special mounting can be provided on request.)

- Connect the pressure tubing to the pressure port. The pressure port size is generally 1/4" BSP Female, unless specifically ordered otherwise. Other sizes can be obtained via adaptors.

Fig 1A

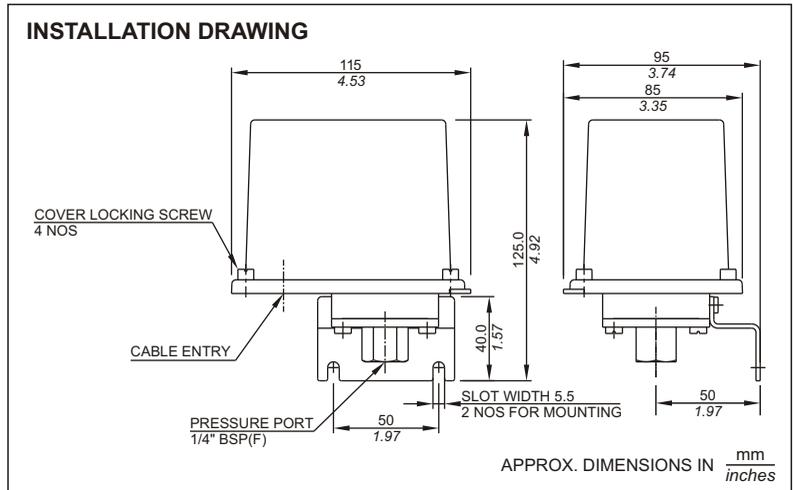
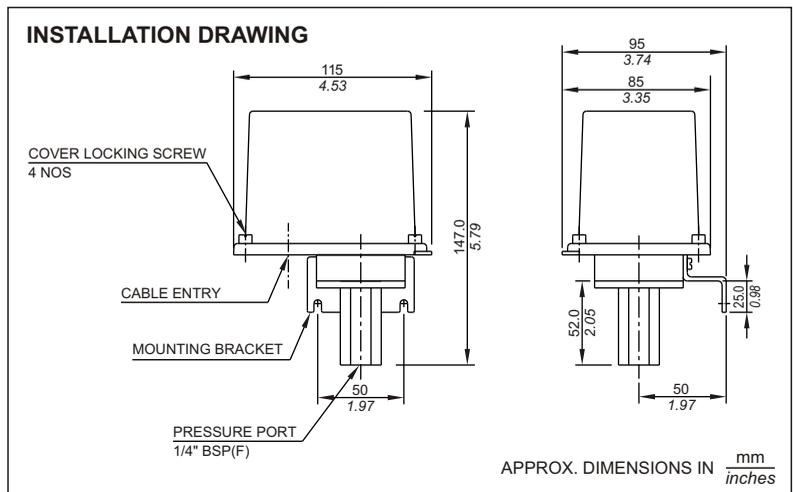
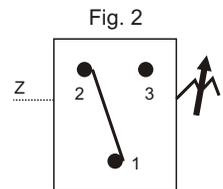


Fig 1B



ELECTRICAL CONNECTIONS:

Pressure switches will generally have only one SPDT microswitch.



WIRING:

- a) Remove the cover.
- b) Pass the cable through the cable gland and connect the wiring to the terminal strip as per your wiring diagram.

The color code is as per the details given below:

- Terminal 1 (Common) : Red
Terminal 2 (Normally closed): Black
Terminal 3 (Normally open) : Yellow

SET POINT ADJUSTMENT:

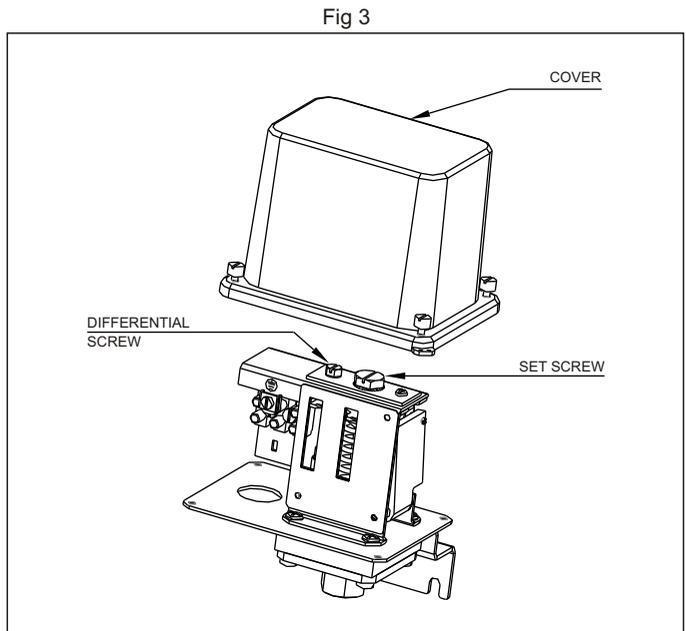
Please refer Fig. 3

For adjusting the setting, remove the cover and rotate the set screw clockwise / anticlockwise to increase / decrease the pressure setting, respectively.

TROUBLE SHOOTING TIPS:

Generally no problems are observed if the pressure switch selection, wiring and the setpoint is proper. For a pressure switch selection procedure, please contact our sales office.

For properly selected pressure switches, if following symptoms are observed, the likely causes and remedies are as stated below.



SYMPTOM 1: SWITCH DOES NOT OPERATE

- 1) Wiring may not be correct. Check electrical connections to the pressure switch, if they are as per the wiring diagram.
- 2) Pressure does not reach the pressure port.
 - a) Check if the entry to the pressure capsule is not blocked by frozen process or scales or impurities in the process.
 - i) If this is the case, try freeing the blocked path by a blunt tool in case of scales and impurities.
 - ii) For frozen process, it is advisable to use chemical seals.

DO NOT OPEN THE PRESSURE CAPSULE IN ANY EVENT.

If the cause is none of the above mentioned probabilities, proceed as per the following steps.

 - c) Check the system pressure & set point of pressure switch. For use of pressure switch for falling setpoints, system pressure has to be greater than the cutout point.
 - d) If the switch still does not operate, remove the pressure switch physically form the system. There should be continuity between terminals 1 & 2. If no continuity is observed the pressure switch should be returned to the factory.

SYMPTOM 2 : SHORT WIRING:

Isolate the switch electrically. Check the continuity between terminals and the screws fitted to the body. If no continuity is observed between any of the terminals and the screws fitted to the body, check the short connection elsewhere in the circuit. If continuity is observed, the wires of the pressure switch have internally touched the body, if so, then the switch should be returned to the factory.

SYMPTOM 3: LEAKAGE:

In case leakage is observed, the pressure switch has to be returned to the factory without opening the pressure capsule. Check for the following likely causes and use a new switch taking proper precautions.

- a) System pressure is greater than working pressure: Use an over range protector or a switch with appropriate maximum working pressure.
- b) Incompatible wetted parts : The working medium may not be compatible with wetted parts, which damages the sealing of the process from working parts. Use a chemical seal for the pressure switch or use proper compatible wetted parts.

SYMPTOM 4 : CHATTERING:

- 1) Check the system pressure for surges. Chattering is observed where the system pressure is close to the cutint/cutout point and the surge pressure exceeds the on/off differential. Use a pressure switch with adjustable differential or use surge dampers in your system.
- 2) If there is a relay in the circuit, check if it is properly plugged in. Chattering may be due to loose contacts. ■

WARRANTY :

Our products are warranted against defect in specified material and workmanship under specified normal service conditions for 12 months after being placed in service but not more than 18 months from the date of shipment, provided such items are returned free to our works at PUNE.

Company's liability in respect of defective parts is limited to making good by replacement, or repair defects, to be determined by the company. This is, provided the purchaser has given immediate written notice upon discovery of such defects, but within the time specified above. The replaced / repaired parts will be supplied exworks.

The company will be relieved of it's obligation if any arbitrary attempt to rectify has been undertaken by purchaser/user. This warranty does not cover normal wear and tear and damage due to corrosion or erosion.

The company's liability is limited to making good the part or parts which are defective and excludes any and every other obligation for loss or damage, direct or consequential.

The foregoing is in lieu of all other expressed and implied warranties(except of title), including those of merchantability and fitness for a particular purpose.

Although we provide application assistance, either through our literature or personally, it is the responsibility of the customer to determine the suitability of the product in the application. Customer's interpretation and implementation of application suggestions and recommendation by Kaustubha Udyog, general or specific, transmitted verbally or in writing, published or unpublished, is strictly at the buyer's own risk.

Note : As efforts are made constantly to improve both design and method of manufacture, the apparatus supplied may differ in detail from illustration and data printed. Please check the specifications while ordering