Switzer™
A division of the WIKA group

INSTRUCTIONS FOR PRESSURE SWITCHES

DM SERIES 600

SWITZER Pressure Switch is a simple electro mechanical device operating on basic principles of Levers and opposing forces.Three essential elements, various combinations of which form the basics for presenting hundreds of variants to suit a variety of industrial applications. They are :

1. Sensing element diaphragm (metallic or elastomeric)
2. Stable spring to determine the range setpoint and
3. Snap-acting microswitch available in a wide variety.

1.0 GENERAL

The instrument is manufactured, checked and supplied in accordance with our published specification,and when installed and used in normal or prescribed applications with the lid in place and within the parameters set for mechanical and electrical performance, will not cause danger or hazard to life or limb.

1.1 HEALTH AND SAFETY WARNINGS:

a) The USER'S attention is drawn to the fact that, when the unit is live with respect to ELECTRICAL OR PRESSURE supplies, a hazard may exist if the unit is opened or dismantled.

b) Units must be selected and installed by suitably trained and qualified personnel in accordance with appropriate codes of practice so that possibility of failure resulting in injury or damage caused by misuse or misapplications is avoided.

Note: The instrument is calibrated within the claimed accuracy with precision and skill. Therefore tampering of adjustments of striker screw or any other component where there is red paint seal will lead to malfunctioning

1.2 General remarks on the operating instructions

These guidelines show how the instrument can be installed and operated safely. If difficulties arise, which cannot be solved with this instruction sheet and product information, further data should be ascertained from us. Switzer reserves all rights for making technical changes / improvements on a continual basis.

1.3 General fundamental principles

Switzer pressure control switches mainly operate on electro-mechanical basics. Process pressure is sensed by the sensing element that generates a force proportional to the applied pressure. This force is opposed by an adjustable spring force which at the point of equilibrium permits a movement of the balancing beam to operate the micro switch/ microswitches.The general installation and operating instructions and product data are based on these basics.

2.0 USAGE

2.1 Storage

- Storage temperature –10°C to +60°C, dry and free of contamination.
- In damp areas drying agents or heating is required against the formation of water condensation.

2.2 Transport

- Transport temperature –10°C to +60°C, dry and free of contamination.
- Protect from external effects such as shock, vibration and impact.

2.3 Handling prior to fitting

- Remove the plastic cover / protective cap only just before the installation.
- Protect against the effects of weather, e.g. wet conditions.
- Check the connection thread size and specification to avoid mismatch of pressure adaptor & pressure port.

3.0 MOUNTINGS / CONNECTIONS / PRECAUTIONS

3.1 The Instruments are meant for vertical mounting with process connection beneath. However mounting upto 45 Deg. tilt from vertical is acceptable though a small shift may occur.

3.2 Mount the instrument firmly and rigidly either directly on the pressure piping or on a vibration free wall or panel. Select the mounting position so as to avoid excessive shock , vibration or temperature fluctuation. Instrument shoud be mounted to avoid excessive heat transfer from the process lines or adjacent equipment.

3.3 For steam application use a condenser coil or a syphon.

3.4 For air and gas application, use proper filters (dust collectors) to ensure that the process line is not clogged with accumulation of dust/ foreign particles.

3.5 If process temperature is higher than the following permissible maximum temperature at the instrument end, it can be brought down by using longer pressure piping. Ask factory for piping nomogram.

DM 600 : **Diaphragm sealed piston** operated

–20 to 80°C

(–20 to 60°C for ranges above 100 bar)

3.6 For applications with pressure fluctuations, install a dampener to eliminate chattering of microswitch and excessive pressure cycling.

3.7 The weatherproof cable gland fitted to the instrument is suitable for 8.0mm to 11.0 cable OD.Ensure its tightness. So also ensure that the cover gasket is in place, while fixing the cover to the instrument.These are essential to meet the weatherproof protection of the instrument.

3.8 If outdoor Installation is envisaged, provide sufficient protection against aggression of air, dust, very high or very low temperature, solar radiation, water penetration etc.

3.9 Read the name plate data carefully and do not exceed maximum working pressure and electrical ratings.

4.0 INSTALLATION GUIDELINES

Attention should be paid to the following :

Flush the pipe system before fitting. Ensure that no stress is produced and fittings are sealed without leak.

Do not exceed the stated maximum working pressure. The sensing element will get permanently damaged if the pressure exceeds EVEN ONCE.

DANGER : Note operating pressure, maximum pressure and temperature range.

WARNING : Thermal expansion of the pipe work must be taken up by compensators.

CAUTION :

- **Hold the pressure connection hex. with a spanner and tighten the process connector to avoid strain on the plastic sensor housing.**
- Use the device only for the medium specified while ordering
- Bleed the system before putting into operation.
- Avoid pressure shocks and excess deflections on the measurement systems.

5.0 DESCRIPTION

5.1 SWITZER **DM 600** Instruments are suitable for Air, Gas, Water, Steam, Oil and the like. The sensing element is 316L SS Diaphragm Sealed Piston fixed external to the switch housing.

5.2 **DM 600** is supplied in a pressure **Die Cast Aluminium** weatherproof enclosure certified for IP 66.

5.3 The range screw is **externally accessible.** Locking arrangement is provided to avoid tampering.

6.0 SETTING OF THE SWITCHING POINTS

Pressure switches are normally set at factory for "Falling Pressure" unless specified otherwise.

6.1 **Switching point should preferably lie in the mid 50% of the adjustable range span.**

6.2 Markings provided on the range scale are for approximate setting only. Use a master Pressure Gauge for precise setting.

6.3 Switching point can be set, either for fall or rise in pressure.

6.4 Unscrew and remove locking device to unlock range adjuster.

6.5 Rotating the range adjustment screw to compress the spring will increase the switching point. Rotating it to de-compress the spring will decrease the switching point.

6.6 After setting, refix the locking device back in position to prevent unauthorised adjustment of the setpoint.

7.0 OPERATION

Process pressure when applied to the sensing element creates a force which overcomes that of a pre-tensioned spring, and in turn moves a balancing arm to effect a minimal movement that is required to actuate the microswitch(es)

7.1 General Remarks on the Operating Instructions

All the above guidelines on installation explained herein show how the instrument can be installed and operated safely. If difficulties arise, which cannot be solved with this instruction sheet and product information, furhter data should be ascertained from factory. Switzer reserves all rights for making technical changes/ improvements on a continual basis.

8.0 MAINTENANCE

Inspections should be carried out at quaterly to yearly intervals depending upon operating conditions.

Process lines are to be periodically checked for accumulation of dust/ foreign particles to avoid clogging. Clogging would render the instrument non functioning as the sensing element shall not have free movement during pressure fluctuations

Isolate unit from process and power and remove lid. Check the terminals for tightness. Check that cable tails are not fouled or chafed. Check for internal condensation and rectify.

It is recommended that instruments used in alarm circuits are operated periodically to ensure correct functioning. Follow the wiring Diagram Fig. 1A / Fig. 1B / Fig. 2 as appropriate

Fig 1A

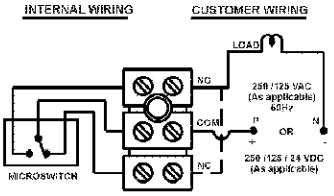


Fig 1B

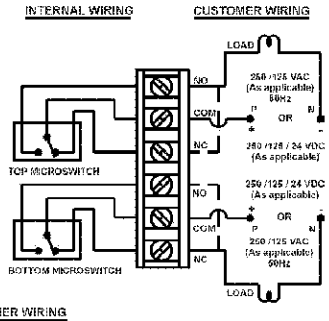
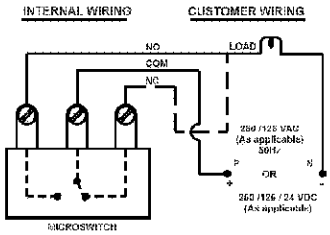


Fig 2

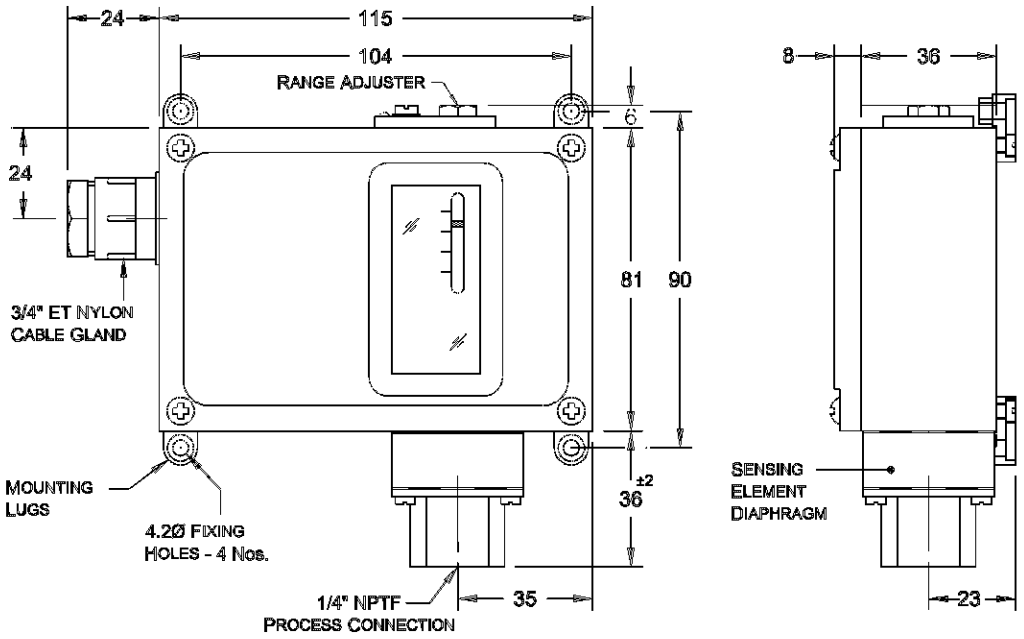


Note:

1.The terminals can accept 0.75sq mm wire (5A) & 1.5sq.mm wire 15A)

2.Limit terminal screw tightening torque to 4in/lbs.

MOUNTING DIMENSIONS



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