



INSTRUCTIONS FOR PRESSURE SWITCHES

Prince SERIES GH 901 / 902 / 903 / 921 / 924

1.0 GENERAL

1.1 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. The use of the instrument and the operating instructions requires the user to be suitably qualified. The operating personnel must be instructed according to the operating instructions.

1.2 General fundamental principles

Switzer pressure control switches mainly operate on electro-mechanical basics. 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 $+60^{\circ}\text{C}$, 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 $+60^{\circ}\text{C}$, 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.

3.0 INSTALLATION GUIDELINES

Attention should be paid to the following points :

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.

CAUTION : The pressure sensing bellows is mounted in a plastic housing. **Ensure to 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.
- Bleed the system before putting into operation.
- Avoid pressure shocks and excess deflections on the measurement systems.

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

4.0 INTRODUCTION

4.1 SWITZER Prince Series 900 Instruments are suitable for Air, Gas, Water, Steam, Oil, etc. The sensing element is either a hydraulically formed seamless Phosphor Bronze or 316L SS Bellows or a Diaphragm Sealed Piston fixed external to the switch housing.

4.2 **GH 900** is supplied in a pressure **Die Cast Aluminium** weatherproof enclosure.

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

5.0 MOUNTINGS / CONNECTIONS / PRECAUTIONS

5.1 Mount the instrument firmly and rigidly either directly on the pressure piping or on a vibration free wall or panel.

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

5.3 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.

901, 902 & 903 : 110°C for PB Bellows
 170°C for SS Bellows

921 & 924 : **Diaphragm sealed piston**

-20 to 80°C

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

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

5.5 Use a proper weatherproof cable gland and 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.

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

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

6.0 SETTING OF THE SWITCHING POINTS

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

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

6.1.2 Markings provided on the range scale are for approximate setting only. To set switching points precisely use a master Pressure Gauge.

6.1.3 The switching point can be set, either for fall in pressure or rise in pressure.

6.2 Unscrew and remove the locking device to unlock the range adjuster.

6.3 Fixed Differential Model 901, 921, 924

6.3.1 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.

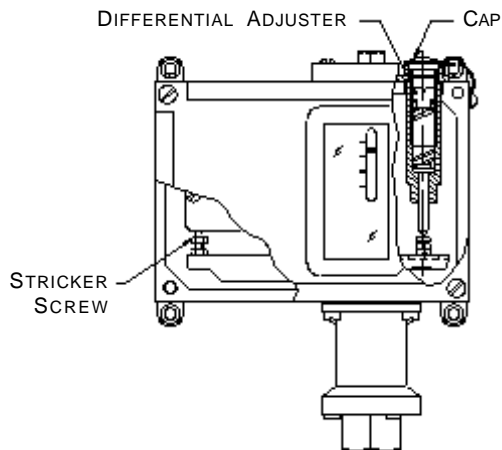
6.3.2 After setting, refix the locking device back in position to prevent unauthorised adjustment of the setpoint.

6.4 Adjustable Narrow Band Differential Model 902

(Not available in Diaphragm Sealed Piston versions 921 & 924)

It is possible to adjust the on-off differential to a limited extent in this version i.e., from 6 to 20%. Referring to the figure below, remove the protective cap and insert a SCREW DRIVER through the cap hole and turn the differential adjuster screw inwards to increase the differential and outwards to decrease. Keep the spring free to give minimum on-off differential.

The tension in the spring decides the increase in on-off differential as the balancing beam has to overcome this spring force while moving the microswitch striker screw during on-off movement.



6.5 Adjustable Wide Band Differential Model 903

(Not available in Diaphragm Sealed Piston versions 921 & 924)

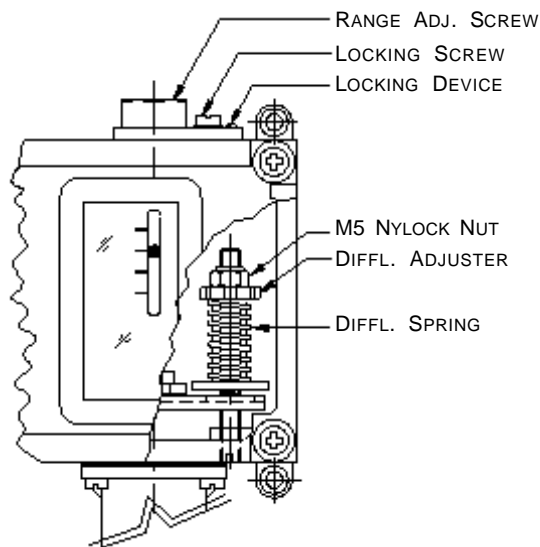
6.5.1 In adjustable differential model set the lower switching point first using the range adjuster and then adjust the differential adjust knob inside the enclosure to set the upper switching point.

6.5.2 Adjusting the differential adjuster will shift only the upper switching point i.e. the switching pressure difference (on-off differential) alone changes. A clockwise rotation will increase upper switching point and anti-clockwise rotation will decrease it.

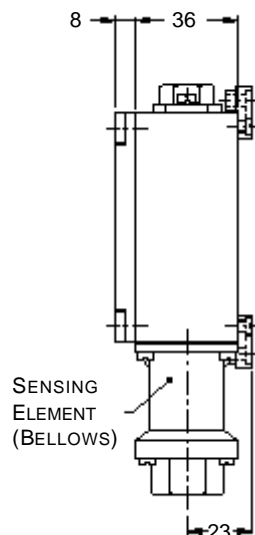
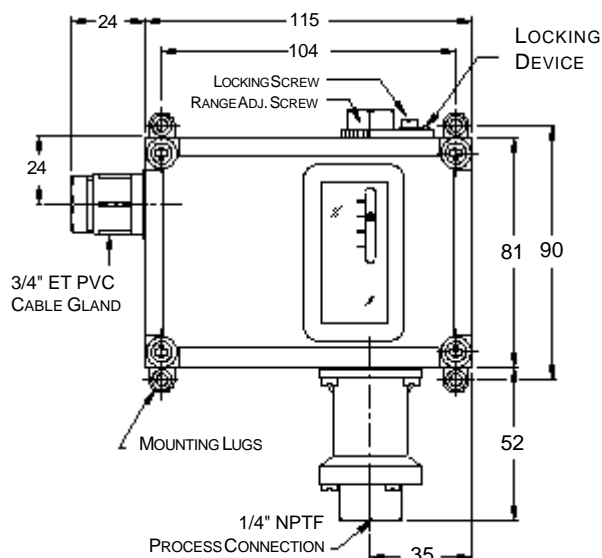
6.5.3 The upper switching point should not exceed maximum range value.

6.5.4 After setting the differential, tighten the Nylok nut to lock the differential adjuster to prevent loosening during operation.

6.5.5 In Instruments with two SPDT switches for DPDT action, the synchronization of actuation is done within practical limits. The switches are synchronized as per customer preference, either on "falling" or on "rising" pressure. If no preference is indicated, synchronization is done for FALL in pressure at factory.



MOUNTING DIMENSIONS



- NOTE :**
1. Dimension 52 mm will be 42 mm for certain ranges.
 2. Other process connections are possible through adaptor.
 3. For GH 921 & 924, ask factory for mounting dimension drawing.

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