



**INSTRUCTION MANUAL
FOR
INDICATING GAUGES
MODEL 501**



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INSTRUCTIONS



FOR

INDICATING GAUGES — MODEL 501

Introduction

The Switzer Indicators are single unit gauges with 5 inch vertical scales. The compact size makes them ideal for graphic panels or console boards. Scale readability makes the gauges suitable for conventional instrument panels.

These indicators are manufactured as individual units. Each unit has its own case, multiple units can be mounted compactly side-by-side. Zero adjustment of the indicator may be accomplished while the unit is in its case by removing the rear cover alone.

General Information

Unpacking

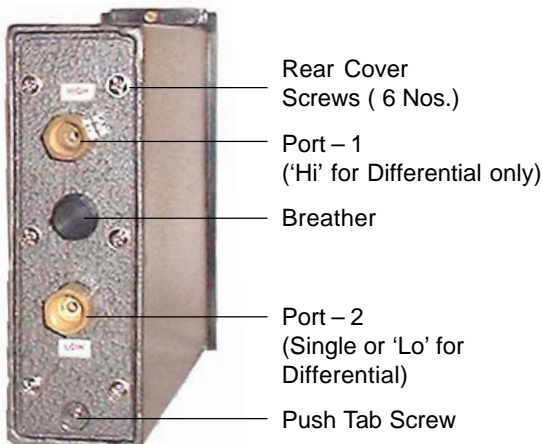
After unpacking the instrument, check the packing slip to make sure that all items listed are present. Report any missing items to Works. If there is damage due to improper handling, notify the insurance firm and any damage claims should be negotiated with the carrier responsible. In such cases it is advisable to retain packing and carton for the claim surveyor's inspection.

Important : A good packing material to restrain movement and cushion shocks should be used in the carton or crate whenever the instrument is to be returned to the factory for repair.

Mounting

Provisions are for flush-type panel mounting only; panels may be up to 6 mm thick. Normally, the indicators are mounted so that the scales are in a vertical plane. They may however, be tilted from an upright position to a maximum of 15° to the horizontal. Refer drawing for panel cut out details.

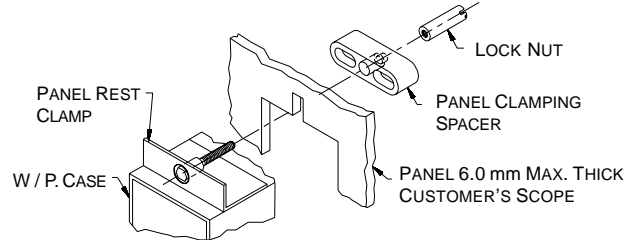
A clearance of 12 inches is required behind the gauge for access and removal. All adjustments can be made from the rear of the unit while it is in the case.



Case Rear View

Installation

The gauge is installed in the panel from the front through the panel cutout. Secure the gauge to the panel, using the panel clamp spacer and lock screw, provided at the top and bottom of the case.



Panel Mounting Details

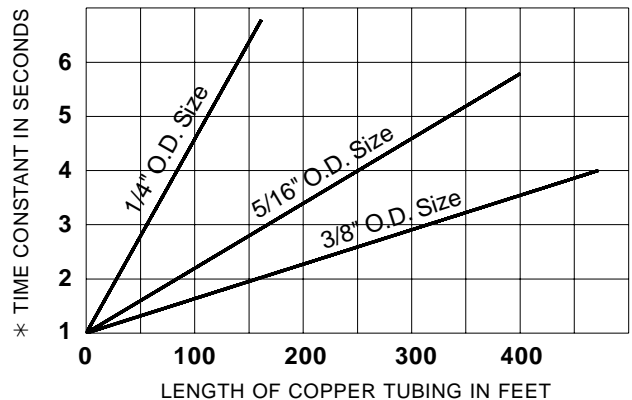
Pneumatic and Direct – Pressure Indicators

Description

Model 501 Pressure Indicating Gauges are slack diaphragm type. Diaphragms are available for pressure and differential pressures from range spans 25 mmWC minimum to 1500 mmWC maximum.

Connection

Typical pressure connections should include piping and valving that is adequate for the pressure service and provisions for shut-off and line venting. Time constants for various lengths and sizes of tubing are presented in figure below. In liquid applications line size must be large enough to prevent errors due to capillary action (static friction). An I.D. of 1/2" is a good rule of thumb, although slightly smaller sizes can give satisfactory results on short runs.



* The time constant of a pneumatic system is the time required to transmit the initial 62.3% of any pressure change. This value holds for any magnitude of change.

Calibration

Instruments sent from the factory are calibrated to the customer's specifications, minor installation adjustments may be required, for which the following procedure may be

followed. Refer to "Diaphragm and Sub Assembly" details overleaf.

Remove the Indicating Unit from the case. Unscrew the 2 screws of the front bezel and take it out. Remove the 6 screws of the rear cover, remove it and pull out the silicone tubing from the process connector. Loosen the recessed screw of the PUSH tab and push out the assembly.

1. Pointer Movement

Remove front bezel and remove the **sponge** kept beneath the pointer. Check for the free movement of the pointer over the full scale. If it rubs the scale or case adjust the thumb nut (12) to pull out or pull in at the tip. If there is friction in the movement itself due to lack of vertical / horizontal play, then either adjust the pivot screw (10) for vertical play and the yoke adj. screw (7) for horizontal play adjustment.

2. Zero Adjustment

To bring the pointer to zero, adjust the thumb nut (8) and manually move the pointer 2 or 3 times to ensure pointer returning to zero.

3. Span Adjustment

Apply pressure equivalent to full range. If the pointer reads less, loosen the two lever screws (9a) holding

the vertical lever and adjust the span screw (9) to **push down** the vertical lever a bit. Similarly if the pointer travel exceeds scale **push up** the vertical lever to obtain correct span. If the adjustment is correct tighten both lever screws (9a).

If the instrument cannot be aligned the entire assembly should be returned to the factory service department for repair.

Parts Repairs and Scales

Customer Repairs

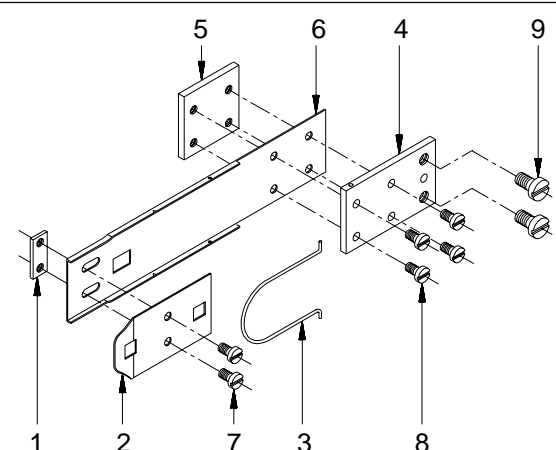
The factory maintains a complete in-house repair and refurbishment facility as a supplement to its Field Service. Complete information stating the malfunction, Serial number and Purchase Order number **MUST** accompany any instrument returned to the factory for repair or re-calibration. Address all instruments and correspondence to **Customer Service Department**.

NOTE :

A minor repair can become a major one if the instrument is improperly packed for shipment to the factory.

A good packing material to restrain movement and cushion shocks should be used in the carton or crate.

RANGE SPRING ASSEMBLY



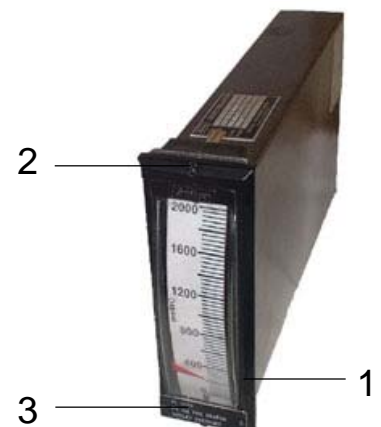
Item	Description
1	Shoe Clamp Plate
2	Shoe Pick Up
3	Pin Connector
4	Anchor Plate
5	Spring Clamp Plate
6	Calibrating Spring
7	Screw (2 Nos.)
8	Screw (4 Nos.)
9	Set Screw (2 Nos.)

Caution : *When the anchor plate (4) is to be re-fixed after removal it should not be reversed. This will lead to misalignment.*

INDICATOR CASE ASSEMBLY

Photo Item	Description
1 *	Acrylic Bezel
2	Bezel fixing screw -- 2 Nos.
3	Legend Plate

* Recommended Spare Part



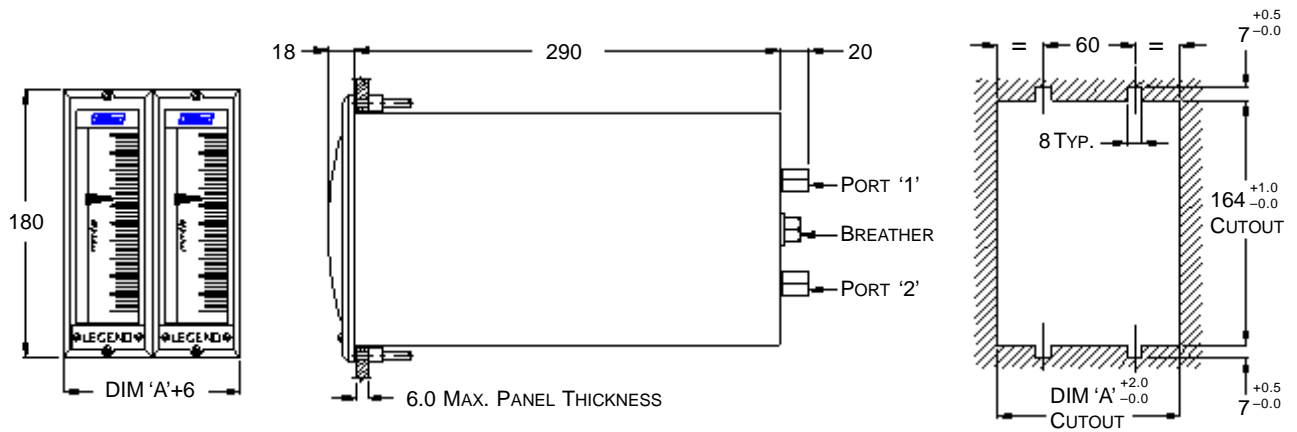
Item	Description
1 †	Scale
2 *	Pointer
3	Calibrating Spring Assembly
4	Anchor Pivot Screw
5 *	Silicone Tubing
6	Process Connection
7	Yoke Adjust Screw
8	Zero Adjust Thumb Nut
9	Span Adjust Screw
9 (a)	Lever Screw
10	Movement Pivot Screw
11	Diaphragm Sub-Assembly For Range 0-25 to 0-100 mmWC (Max. Working Pressure -- 400 mmWC) For Range 0-101 to 0-400 mmWC (Max. Working Pressure -- 800 mmWC) For Range 0-401 to 0-1500 mmWC (Max. Working Pressure -- 3000 mmWC)
12	Pointer Adjustment Thumb Nut
13	Tension Spring
14	Tube Connector
Parts Required for Differential and Vacuum Unit	
	Cover Plate – Differential (1) Gasket * Screws, set Movement Gasket Seal Assembly
	† Specify range and serial number while ordering * Recommended Spare Part

SPECIFICATION

Design	#501 HAYS-REPUBLIC, USA	Max. Over Pressure	200 mmWC for ranges upto 100 mmWC
Sensing Element	Silicone Elastomer Diaphragm		800 mmWC for ranges from 101 to 400 mmWC
Movement	Electro-polished 304SS pivots		3000 mmWC for ranges from 401 to 1500 mmWC
Range	0 to 25 mmWC minimum span 0 to 1500 mmWC max. span (Pressure, Suction or Differential)	Max. Process Temp.	60°C
Accuracy	± 2% for spans above 50 mmWC ± 1 mmWC for spans upto 50 mmWC	Case	Pressed sheet steel, weather-proof to IP:65, IS:13947
Process Connection	Back; 1/4" NPTF standard and 1/8" NPTF optional. Other connections through adaptors.	Mounting	Flush panel standard 2" pipe mounting optional
		Case Finish	Baked hammertone grey.

MOUNTING DIMENSIONS

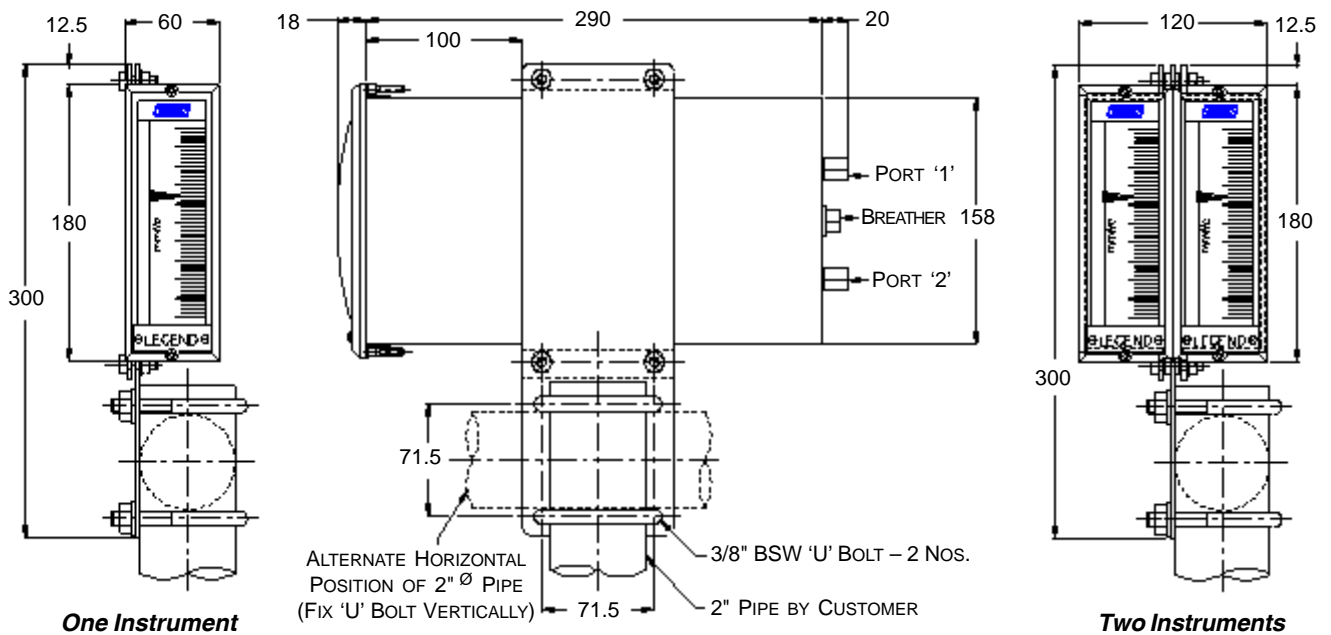
Panel Mounting



No. of Units	1	2	3	4	5	6	7	8
Dim 'A'	54	114	174	234	294	354	414	474

Cutout shown is typical for two instruments. For stacking additional instruments provide as many top & bottom 7.0 x 8.0 slots at 60 mm intervals.

Pipe Mounting



NOTES :

- Direct Pressure Unit :**
Port 2 alone is provided.
- Differential Pressure Unit**
Port 1 for **Hi** input and Port 2 for **Lo** input.
- While mounting in a 2" yoke, only two instruments can be stacked together and not more.

All dimensions are in mm