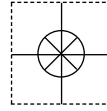


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PSW-850 SERIES **Pressure Switches**



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The information contained in this document is believed to be correct, but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, patient-connected applications.

Pressure Controls

Part Numbers: PSW-852, 853, 855, 856 Series

Please read all instructional literature carefully and thoroughly before starting.

GENERAL

Pressure variations are sensed by a bellows, diaphragm or piston sensor which either actuates or de-actuates one, two or three snap-acting switches at a pre-determined set point(s). Set point(s) is adjusted by turning an internal knob and pointer or internal screw

Part I - Installation

Tools Needed

Screwdriver
Hammer
Adjustable wrench

MOUNTING

INSTALL UNIT WHERE SHOCK, VIBRATION AND TEMPERATURE FLUCTUATIONS ARE MINIMAL. ORIENT UNIT SO THAT MOISTURE IS PREVENTED FROM ENTERING THE ENCLOSURE. IF UNIT IS BEING INSTALLED WHERE HEAVY CONDENSATION IS EXPECTED, VERTICAL MOUNTING (PRESSURE CONNECTION DOWN) IS REQUIRED. DO NOT MOUNT UNIT IN AMBIENT TEMPERATURES EXCEEDING PUBLISHED LIMITS.

PSW-850 Series pressure controls can be mounted in any position, provided the electrical conduit is not facing up. The preferred mounting position is vertical (pressure connection down).

The cast-in knockouts for 3/4" electrical conduit are located on the side and rear of the enclosure. These can easily be knocked out by placing the blade of a screwdriver in the groove and rapping sharply with a hammer.

Mount the unit via the (2) 1/4" screw clearance holes on the enclosure. See Dimensions. Units may also be mounted via the NPT pressure connection.

ALWAYS HOLD A WRENCH ON THE PRESSURE HOUSING HEX WHEN MOUNTING UNIT. DO NOT TIGHTEN BY TURNING ENCLOSURE. THIS WILL DAMAGE SENSOR AND WEAKEN SOLDER OR WELDED JOINTS.

WIRING

DISCONNECT ALL SUPPLY CIRCUITS BEFORE WIRING.

ELECTRICAL RATINGS STATED IN LITERATURE AND ON NAMEPLATE SHOULD NEVER BE EXCEEDED. OVER-LOAD ON A SWITCH CAN CAUSE FAILURE ON THE FIRST CYCLE.

WIRE UNITS ACCORDING TO LOCAL AND NATIONAL ELECTRICAL CODES. MAXIMUM RECOMMENDED WIRE SIZE IS 14 AWG.

Connect conduit to the case and wire directly to the switch terminals according to local and national electrical codes. Bring the wires up to terminals from the rear of the case. (See fig. 1.) If manual reset switch or DPDT options are used, lead wires are supplied, color coded as follows:

| | Switch 1 | Switch 2 |
|-----------------|----------|----------|
| Common | Violet | Yellow |
| Normally Open | Blue | Orange |
| Normally Closed | Black | Red |

ALLOW ENOUGH SLACK SO AS NOT TO AFFECT SWITCH MOVEMENT WHEN MAKING SETTING ADJUSTMENTS AND ENSURE THAT THE WIRES ARE NOT TOUCHING THE COVER WHEN INSTALLED.

NOTE: For larger wire gauges, a one time shift may be experienced or expected due to space limitations within the enclosure. Verify setpoint after installation.

NOTE: The middle switch assembly is omitted for dual switch controllers. The outer switch assemblies are omitted for single switch controllers. Type PSW-852, 853 controls have internal screw adjustments and type PSW-855, 856 have cam assemblies for internal calibrated adjustments.

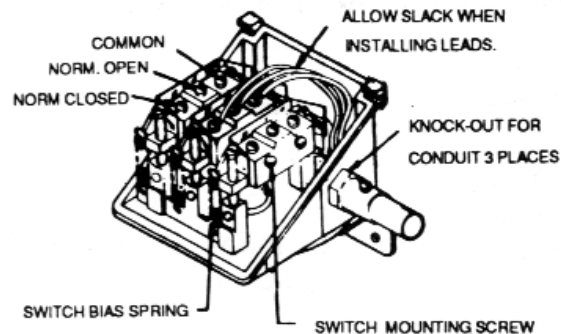


Figure 1

Special Instructions For Vacuum Ranges

On vacuum ranges, the C-NO circuit is closed at sea level conditions. Therefore, increasing vacuum will cause the C-NC circuit to close while decreasing vacuum will cause the C-NO circuit to close. Please make a note of this and wire/adjust the unit accordingly.

Part II - Adjustments

Tools Needed

Screwdriver

NOTE: For set point adjustments and re-calibration, connect control to a calibrated pressure gauge.

PSW-852, PSW-853

Remove cover, follow same procedure as paragraph above. Switches may be set together or apart, up to 100% of range scales (maximum separation on models PSW-852A* is defined in Table 1). On dual switch, either switch may be set high. On triple switch models, the third (middle) switch has no over-travel mechanism and must always be set to the highest pressure when switches are set apart. Altering the setting of one switch will usually have little effect on the other(s), however re-calibration may be desired at a critical pressure setting and after changing switch(es) or sensor.

Table 1

| Model & Range | Switch Separation (% of Range Span) |
|-------------------------------|--|
| PSW-852AA (-300 to 0 "wc VAC) | 25% |
| PSW-852AB (-10 to +10 "wc) | 35% |
| PSW-852AC (-50 to +50 "wc) | 35% |
| PSW-852AD (0.5 to 5 "wc) | 50% |
| PSW-852AE (2.5 to 50" wc) | 50% |
| PSW-852AF (10 to 250 "wc) | 20% |

Special Instructions for Models PSW-852A*

When calibrating the Models PSW-852A*, Switch 2 (the right switch as viewed from the front of the control) must be set to the lower pressure value. Use a screwdriver to turn the adjustment screw and obtain the desired actuation pressure for Switch 2. Switch 1 can then be set following the procedure outlined above for other products. Maximum separation between Switch 1 and 2 is defined in Table 1.

PSW-855, 856

Controls are factory calibrated for maximum accuracy at the dial midpoint. Switches may be set together or apart up to 100% of the range scale. On dual switch models either switch may be set high. On triple switch models, the third (middle) switch has no over-travel mechanism and must always be set to the highest pressure when the switches are set apart. Altering the setting of one switch will usually have little effect on the other(s), however re-calibration may be desired at a critical setting or after changing switch(es) or sensor.

To re-calibrate, turn pointer to desired set point and add gauge pressure until switch transfers. If gauge pressure and set point pressure do not agree, turn zero adjust screw clockwise to raise. Counter-clockwise to lower setting.

Part III - Replacements

Tools Needed

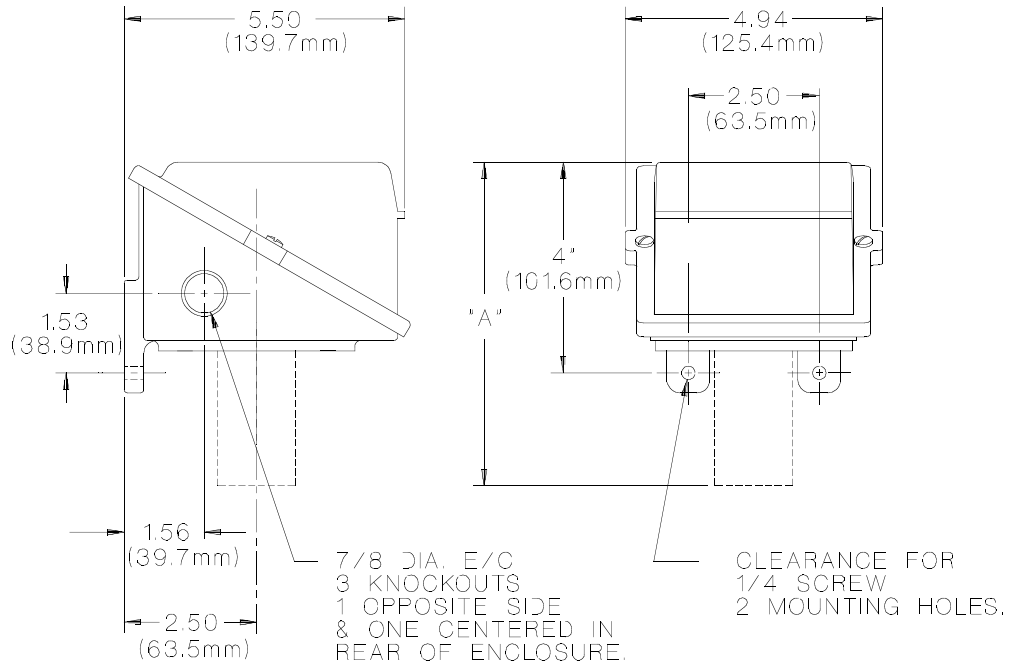
Screwdriver

USE ONLY FACTORY AUTHORIZED REPLACEMENT PARTS AND PROCEDURES. DISCONNECT ALL LIVE CIRCUITS BEFORE PROCEEDING. COMPONENTS AVAILABLE FOR REPLACEMENT ARE THE SWITCHES. OTHER COMPONENTS FACTORY REPLACEABLE ONLY.

REPLACEMENT OF SWITCH(ES)

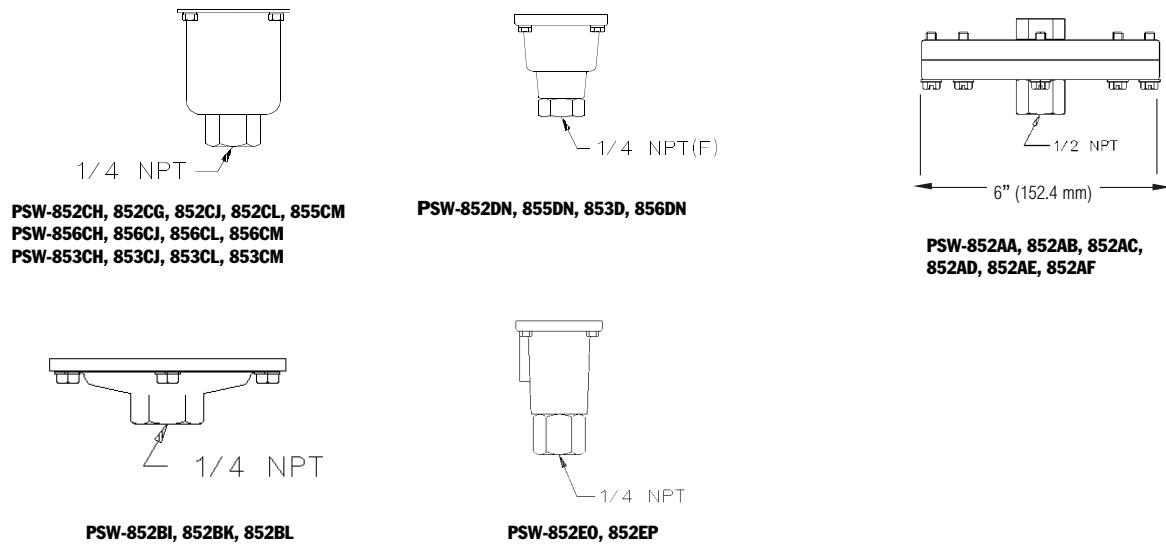
- 1) Disconnect leadwires.
- 2) Remove the two mounting screws. On multi-switch controls, first remove switch bias springs (See Figure 1.)
- 3) Insert replacement switch and replace screws and bias springs.
- 4) Check switch set point and re-calibrate per PART II if necessary.

Dimensions



| Dimension A | | | |
|---|--------|--------|-----|
| Models | Inches | mm | NPT |
| Pressure | | | |
| PSW-852CH, 852CG, 852CJ, 852CL, 855CM & PSW-856CH, 856CJ, 856CL, 856CM & PSW-853CH, 853CJ, 853CL, 853CM | 5.81 | 146.84 | 1/4 |
| PSW-852AA, 852AB, 852AC, 852AD, 852AE, 852AF | 8.25 | 209.6 | 1/2 |
| PSW-852BI, 852BK, 852BL | 4.56 | 115.8 | 1/4 |
| PSW-852DN, 855DN, 856DN | 5.5 | 139.70 | 1/4 |
| PSW-852EO, 852EP | 6.44 | 163.58 | 1/4 |

Pressure





WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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