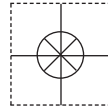


CE



# User's Guide



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## DSW490B and DSW790B Pressure Control 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.

# INSTALLATION AND MAINTENANCE OF THE DSW490B AND DSW490B SERIES OMEGA® SNAP ACTION SWITCHES FOR DIFFERENTIAL PRESSURE CONTROL

## INTRODUCTION

The OMEGA differential pressure switch is a precision built U.L. approved control device which features a mechanical snap action switch. Controllers are available for operation on various pressure differentials with fixed or variable switching differentials. The standard electrical switch is SPDT and is available with various electrical characteristics.

Two SPDT switch elements mounted together are available. Various wetted material constructions for compatibility with a wide range of pressure media may be obtained.

The snap action differential pressure switch is furnished in the standard NEMA 4/4X and explosion proof NEMA 7 and 9 enclosure styles. Both enclosures are epoxy coated aluminum castings.

## INSTALLATION

These controls are precision instruments and should never be left with internal components exposed. During installation insure that covers are in place and conduit openings are closed except when actually working on the control.

## MOUNTING DSW490 AND DSW790 SERIES

There are three holes external to the enclosure for surface mounting. Location of these holes is shown on the general dimension drawing. They may also be mounted directly on pressure line using the pressure connections.

## ELECTRICAL CONNECTIONS

Remove cover

DSW490 Series – two screws hold cover to enclosure

DSW790 Series – cover unscrews

## CONDUIT CONNECTIONS

Note – It is recommended that Teflon® tape or other sealant be used on conduit, bushing or plug threads to ensure integrity of the enclosure.

DSW490 series standard – one ¾ NPT conduit hole right side.

DSW790 series standard – two ¾ NPT conduit holes with one permanent plug. NEMA 7 & 9 enclosures require proper conduit seals and breathers as per the National Electrical Code.

## DSW490 SERIES

**SPDT** – Wire directly to the switch according to circuit requirements.

**2-SPDT** – Dual switching elements consist of two SPDT switches mounted together in a bracket. Switches are calibrated to have simultaneous operation within 1% of range either on increasing or decreasing pressure but not in both directions. Wire directly to the front and rear switch according to circuit requirements. Leads are provided on rear switch color coded as follows:

Common	– White
Normally Closed	– Red
Normally Open	– Blue

When hermetically sealed switch element(s) are supplied, the lead color coding is as follows:

Common	– White
Normally Closed	– Red
Normally Open	– Blue

## DSW790 SERIES

**SPDT** – Wire directly to the switch according to circuit requirements.

**2-SPDT** – Wire to front switch terminal block (left) and rear switch terminal block (right) as marked. Strip insulation 5/16", insert in proper terminal connector and tighten clamping screw to secure.

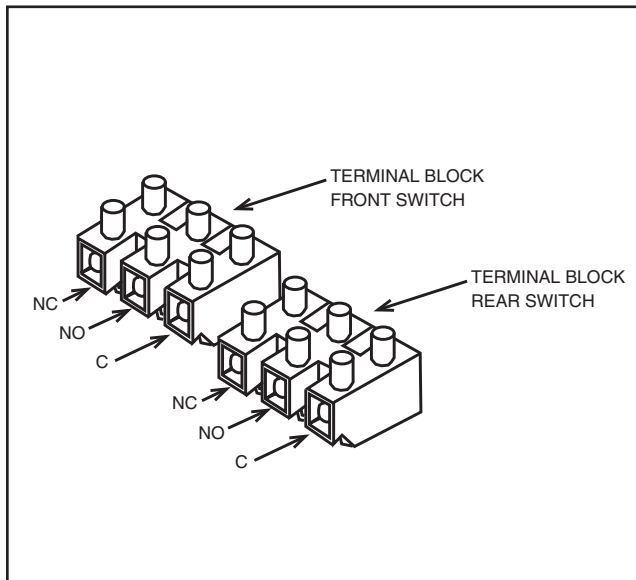
## ADJUSTMENT OF SETPOINT

DSW490 & DSW790 Series – A single setpoint adjustment nut (7/8") is located centrally at the bottom on the inside of the enclosure.

For accurate setpoint calibration, mount the switch on a calibration stand, a pump or catalog Omega DWT 1305 deadweight gauge tester. A suitable reference standard such as a Test Gauge is necessary to observe convenient changes in pressure.

A typical calibration procedure would be as follows:

**Note** – As indicated above, adjustment of setpoint is made by use of  $\frac{7}{8}$ " nut. Precision switch element mounting screws and bracket adjusting screw are factory sealed and should not be tampered with.



Static Working Pressure

– 300 psi

Adjustable Differential Range

– 5-200 psid

Differential SetPoint

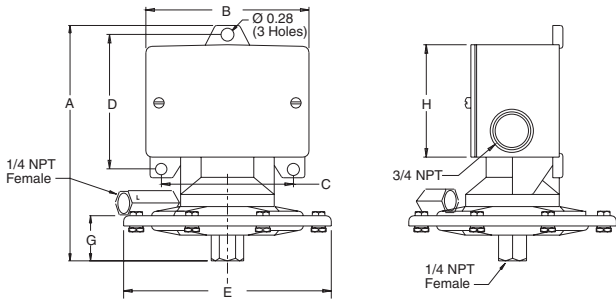
– 150 psi above static working pressure

Simultaneously raise the high and low side pressure to 300 psi. Maintain the low side pressure at 300 psi. Raise the high side pressure to 450 psi to obtain 150 psi differential.

Turn the adjustment nut until the switch changes mode at 150 psi differential. When the setpoint has been achieved, raise and lower the high side pressure to ensure that the differential setpoint is correct.

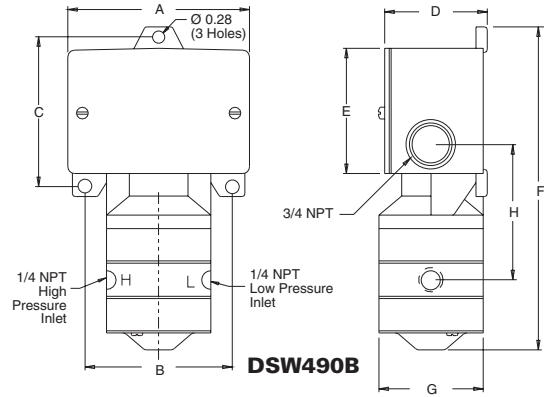
After installation of the control replace cover to insure electrical safety and to protect internal parts from the environment.

### DIFFERENTIAL PRESSURE SWITCH - INCHES OF WATER

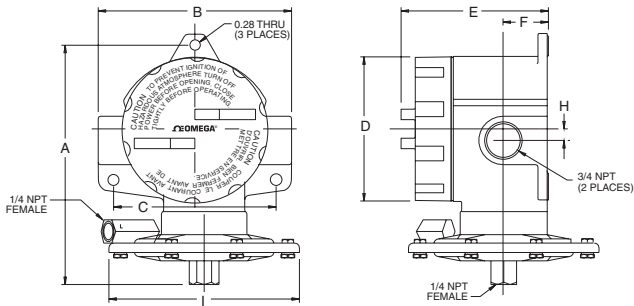


**DSW490B**

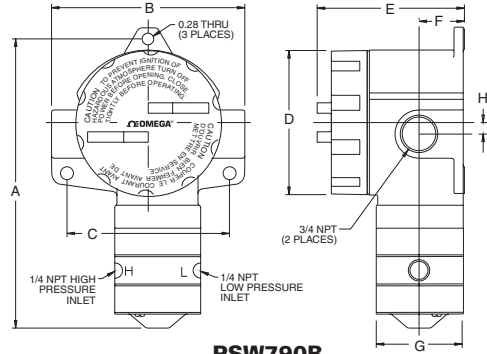
### DIFFERENTIAL PRESSURE SWITCH - PSID



**DSW490B**



**PSW790B**



**PSW790B**

### DIMENSIONS (Inches) – PSID Ranges

STYLE	A	B	C	D	E	F	G	H
DSW490B	4.0	3.25	3.31	2.75	2.31	1.19	2.31	2.27
DSW790B	7.78	5.20	4.38	3.88	3.58	1.22	2.31	.312

### DIMENSIONS (Inches) – "H<sub>2</sub>O Differential Ranges

STYLE	A	B	C	D	E	F	G	H	I
DSW490B	5.69	4.0	3.25	3.31	5.13	–	1.43	2.75	–
DSW790B	6.38	5.20	4.38	3.88	3.96	1.22	–	.312	5.13



## 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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