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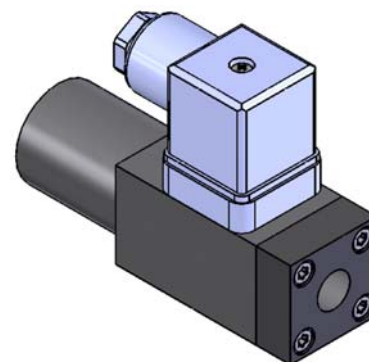
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**.1 YEAR  
WARRANTY**



## User's Guide

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**Compact Pressure Switches  
PSW9 series**



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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.

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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.

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## NOTES


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## Intended Applications

The pressure switches are specifically applied for monitoring and controlling of operations using maximum and minimum pressures. A limit switch triggers an electrical signal when minimum or maximum pressure is reached.

	<b>DANGER</b>
<p>The switch may only be used in the specified fields of application (see nameplate).</p> <p>The temperature has to be within the specified ranges, the pressure values and the electrical rating must not exceed the values specified.</p> <p>Observe also the applicable national safety instructions for assembly, commissioning and operation of the switch.</p> <p>The switch is not designed to be used as the only safety relevant element in pressurized systems according to DGR 97/23/EC.</p>	


## Safety Instructions

The safety instructions are intended to protect the user from dangerous situations and/or material damage.

In the operating instructions the seriousness of the potential risk is designated by the following signal words:

( Blank Page )

	<b>DANGER</b>
<p>Refers to imminent danger to humans.</p> <p>Non-observance may result in fatal injuries.</p>	
	<b>WARNING</b>
<p>Refers to a recognizable danger.</p> <p>Non-observance may result in fatal injuries, and destroy the equipment or plant parts.</p>	

	<b>CAUTION</b>
<p>Refers to a danger.</p> <p>Non-observance may result in light injuries and material damage to the equipment and/or to the plant.</p>	

## Ordering code with technical information

OMEGA NUMBER CODING SYSTEM													
PSW9-	A	B	10	D	V								
						SEAL MATERIAL							
					V	VITON (FKM)							
					B	BUNA N (NBR)							
					ELECTRICAL CONNECTION								
				D	DIN EN 175301-803(DIN 43650) SIZE A, 5-8mm CABLE, WITH FEMALE CONNECTOR								
					LIMIT SWITCH								
				10	SILVER CONTACTS								
				PRESSURE RANGES									
				ADJUSTABLE RANGE				MAX. HYSTERESIS AT FULL RANGE MAX %	MAX. OPERATING PRESSURE		PROOF PRESSURE		
				DECREASING		INCREASING			PSI	BAR	PSI	BAR	
				PSI	BAR	PSI	BAR						
				A	90-630	6-44	145-725	10-50	10%	3620	250	4350	300
				B	220-2680	15-185	290-2900	20-200		3620	250	4350	300
				C	510-5220	35-360	580-5800	40-400		7250	500	8700	600
				PROCESS CONNECTION									
				2	G 1/4" FEMALE, (DIN ISO 228-1)								
				A	1/4" NPT FEMALE								
				E	7/16-20 UNF SAE 4 O-RING BOSS								

Example: PSW9-AB10DV : Pressure Switch with ¼ NPT Female, Pressure Range (220-2900 psi range)[15-200 Bar] with Viton Material



## IMPORTANT

Refers to important information essential to the user.



## Disposal

The equipment must be disposed correctly in accordance with the local regulations for electric/electronic equipment.

The equipment must not be disposed of with the household trash

## Standards

The standards applied during development, manufacture and configuration are listed in the CE conformity and manufacturer's declaration.


## Transport/Storage





## CAUTION


Severe shock and vibrations should be avoided during transport. Storage should be dry and clean.


## Installation/Commissioning

 <b>DANGER</b>
<p>Only install or uninstall the switch when de-energized (electrically and hydraulically/pneumatically).</p> <p>Pressure connection and electrical connection must be carried out by trained or instructed personnel according to relevant standards.</p> <p>The switch must only be installed in systems where the maximum operation pressure <math>P_{max}</math> is not exceeded (see the name plate).</p>

 <b>WARNING</b>
<p>Pressure peaks and pressure shocks exceeding the maximum operating pressure are inadmissible.</p> <p>The maximum operating pressure is the upper final value of the adjustable range or, if specified, the pressure indicated as maximum operating pressure (see Fig. 8 or the nameplate). Exceeding the max. Operating pressure affects the performance and the life span of the product and may damage it.</p> <p>Pressure switches must be mounted vibrationless.</p>

 <b>WARNING</b>
<p>Check the switch regularly to ensure it functions properly</p> <p>If the switch does not work properly, stop operation immediately!</p>

 <b>IMPORTANT</b>
<p>The standard G1/4" female thread can be mounted directly on the pipe connection. The mounting with a screw-wrench (SW30 (width across flats 1.18")) (only on the thread block (see Fig. 7).</p> <p>Torque: max. 30 Nm (22 ft- lb)</p>

 <b>IMPORTANT</b>
<p>All pressure switches are 100% tested before they leave the factory. Factory proof pressure is stated on the typed nameplate (see Fig.8).</p>

### Contact Protection


The micro switches used are normally suitable for both direct and alternating current operation. Inductive, capacitive and lamp loads may, however, considerably reduce the life expectancy of a micro switch and, under extreme circumstances, even damage the contacts.

Depending on the application spark suppression and current limiting is recommended (see figures 1 to 4).

## Electrical Ratings Silver Contacts

Silver contacts	Inductive load	Resistive load
250 V AC	2.5 A	10.0 A
24 V DC	1.0 A	6.0 A
Minimum load values: 20 mA at 24 V DC		

**Fig. 9: Electrical ratings**

 <b>IMPORTANT</b>
<p>We recommend using a fuse of the maximum current rating from the table above according to the load switched.</p>

### Operating life time

Normal expected service life (expressed in the number of cycles over the full adjustment range) is approximately 1 million for the pressure switch. This may be extended to 2.5 million cycles maximum if only a part of the adjustment range is used (about 20%).

Switch sensor life may also be effected negatively by:

Media not compatible with the wetted materials.

Rapid pressure changes in the system, or in case of diaphragm switches >30 cycles/minute, in case of piston switches >60 cycles/minute.

System cycling pressure exceeding the top of the adjustable range.

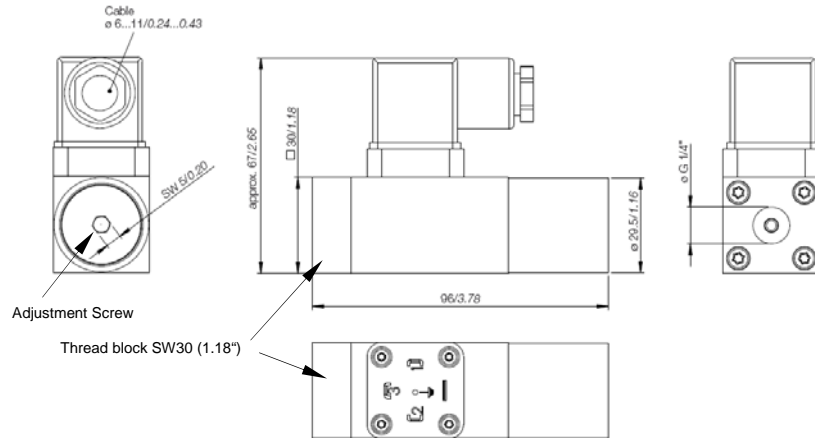
The proof pressure may not be exceeded; otherwise the switch may be damaged. Careful selection of the pressure range can have a positive effect on the service life of the switch.



## Technical Data

See data sheet

Dimensions in mm (inch)



**Fig. 7: Compact pressure switch PSW9 Series**

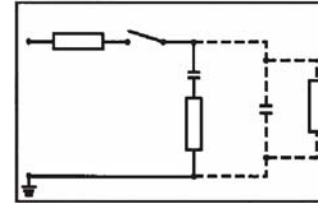
The thread block can be mounted directly on the pipe connection. Use an open-wrench (SW30 (width across flats 1.18") only on the thread block (see Fig. 7).

The electrical mating connector may include in the delivery if proper option is selected.

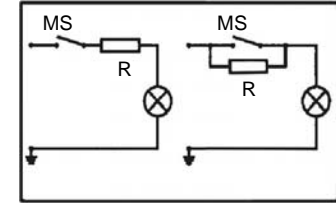
Torque on the thread block: max. 30 Nm (22 ft lb(f))

Code	Adjustment ranges		Hysteresis end of range max. %	Max. operat. pressure psi	Proof pressure psi
Pressure range psi	falling psi	rising psi			
A	90 - 630	145 - 725	10%	3620	4350
B	220 - 2680	290 - 2900		3620	4350
C	510 - 5220	580 - 5800		7250	8700

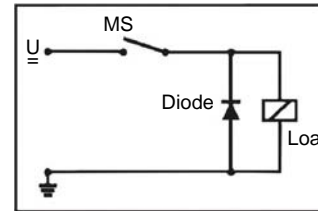
**Fig. 8: Compact pressure switch PSW9 Series**



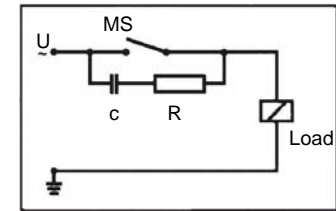
**Fig. 1: Protection in case of capacitive loads R1: Protection against starting current rushes R2,R3: Protection against high discharge currents**



**Fig. 2: Lamp load provided with resistance in parallel or series connection to switch of condensators**



**Fig. 3: Protection in case of continuous current and inductive load by recovery diode**



**Fig. 4: Protection in case of alternating current and inductive load by RC-link**

## Set point adjustment

IMPORTANT
<p>Factory-Provided: pressure switch point setting</p> <p>For pressure switches that have been factory set the setting will be printed on the nameplate</p> <p>Warranty is not applicable for any changes that may occur due to transportation or installation.</p> <p>For critical applications we recommend the setting is checked and re-set if necessary after installation and wiring of the pressure switch.</p>


In pressure switches, a displacement of the pressure sensing element (piston) occurs with a change in pressure. Following the displacement of the pressure sensing element operates a microswitch.

Upon delivery of the product, the set points are likely to be found in the middle of the adjustable range. On request, factory-set points may be set at our factory. In this event, the set point will be indicated on the nameplate, i = increasing, d = decreasing.

The set point is adjusted by turning the captive adjustment screw (see Fig. 7).

Allow pressure switch to reach the desired switch pressure.

Turn adjustment screw clockwise or counter-clockwise to activate the micro switch

	<b>IMPORTANT</b>
Please consult the wiring diagram for the contact status at atmospheric pressure (see).	

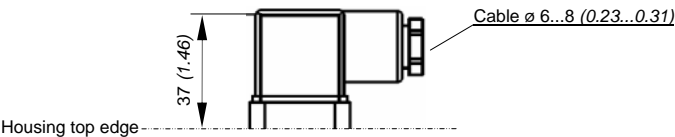
**Precise adjustment of set point to actuate on increasing pressure**

- 1. Lower system pressure to 0 psi.
- 2. Increase pressure slowly and check if micro switch is actuated at desired switch pressure.
- 3. If necessary, readjust by turning the adjustment screw
- Repeat preceding steps (1. to 3.) until microswitch operates at desired switch pressure.

**Precise adjustment of set point to actuate on decreasing pressure**

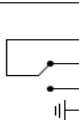

- 4. Increase pressure up to a point clearly above the desired switch pressure (at least, switch pressure plus max. hysteresis; not above max. operating pressure).
- 5. Lower pressure slowly and check if micro switch is actuated at desired switch pressure.
- 6. If necessary, readjust by turning the adjustment screw
- Repeat preceding steps (4. to 6.) until microswitch operates at desired switch pressure.

**Electrical connections**, dimensions in mm (*inch*)



**Fig. 5: Standard Mating Connector**

**Wiring code (contact status at atmospheric pressure)**

WIRE COLOR CODE / PIN ASSIGNMENTS		
	C	1
	NC	2
	NO	3
	PE	

**Fig. 6: Pin Call-Outs**

**Maintenance/Cleaning**

**Maintenance**

The pressure switch is maintenance free. Checking the set points lies within the discretion of the user. The usual preventive maintenance work in accordance with the PED guidelines must always be carried out.

Please note that small set point drifts may occur during the initial use of the switch (run-in period). Larger or continuing set point drifts during the normal use of the switch may indicate that the measuring system is not used correctly within the specified limits, exceeding the design criteria or is worn-out. This might lead to metal fatigue of the measuring system and it therefore should be replaced before an ultimate rupture of the metal might take place. Please consult OMEGA for guidelines.