

# User's Guide



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**PSW18H SERIES**  
**HYDRAULIC, PISTON-STYLE PRESSURE SWITCH**



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TEL: (203) 359-1660 FAX: (203) 359-7700  
e-mail: info@omega.com

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976 Bergar  
Laval (Quebec) H7L 5A1  
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Info@omega.com.mx

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Toll Free in Benelux: 0800 0993344  
e-mail: nl@omega.com

**Czech Republic:**

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**France:**

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Toll Free in Germany: 0800-TC-OMEGA  
e-mail: germany@omega.com

**United Kingdom:**  
ISO 9002 Certified

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Northbank, Irlam, Manchester  
M44 5EX, United Kingdom  
Tel: +44 (0)161 777 6611 FAX: +44 (0)161 777 6622  
Toll Free in the United Kingdom: 0800 488 488  
e-mail: info@omega.co.uk

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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.

## PSW18H Series

### APPLICATION

Ideal for Control of Hydraulic, Lubricating and Light Fuel Oils

### FEATURES

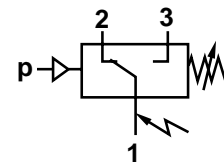
- Rugged Compact Design
- Convenient Setpoint Adjustments
- High Cycle Life
- Vibration Resistant to 15g
- UL and CSA Approved Microswitch
- Gold Plated Contacts



### SPECIFICATIONS

<b>Ports</b>	1/4" NPT or 7/16-20 UNF (SAE-4)
<b>Adjustment Range</b>	70 to 1015 PSI (5 to 70 bar) and 150 to 2320 PSI (10 to 160 bar)
<b>Proof Pressure*</b>	5800 PSI (400 bar)
<b>Temperature Rating</b>	
<b>Ambient</b>	-13° to 175° F (-25° to 80° C)
<b>Media</b>	-13° to 175° F (-25° to 80° C)
<b>Max. Viscosity</b>	450 SSU (1000 mm <sup>2</sup> /s)
<b>Switching Element</b>	SPDT Microswitch
<b>Max. Switching Rate</b>	100 cycles/minute
<b>Repeatability</b>	±3%
<b>Electrical Connector</b>	DIN Style Plug with Removable Cable Plug Adapter

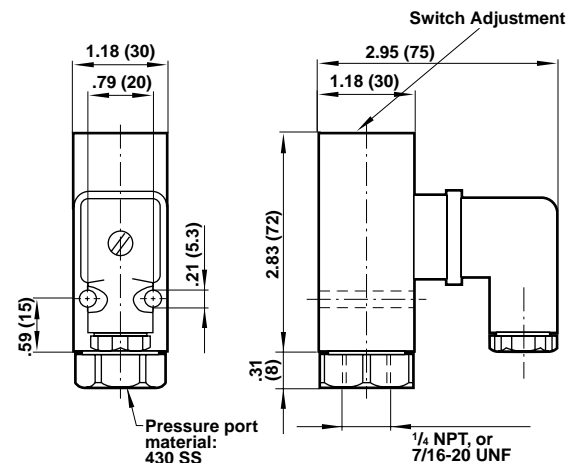
\*Note: Do not subject switch to proof pressure during normal operation. Even short pressure peeks must not exceed proof pressure.



Terminals 1 - 2: Contacts open on rising pressure.  
Terminals 1 - 3: Contacts close on rising pressure.

### MATERIALS OF CONSTRUCTION

<b>Housing</b>	Aluminum / Steel
<b>Seal</b>	
<b>Dynamic</b>	PTFE
<b>Static</b>	Buna-N



All dimensions in inches (mm)

### PART NUMBER IDENTIFICATION

PART NUMBER	PRESSURE RANGE PSI	HYSTERESIS* PSI		PORTS Female
		Lower Range	Upper Range	
PSW18HA	70 - 1015 (5 - 70)	260 (18)	290 (20)	1/4" NPT
PSW18HB	150 - 2320 (10 - 160)	260 (18)	435 (30)	1/4" NPT
PSW18HC	70 - 1015 (5 - 70)	260 (18)	290 (20)	7/16 - 20 UNF
PSW18HD	150 - 2320 (10 - 160)	260 (18)	435 (30)	7/16 - 20 UNF

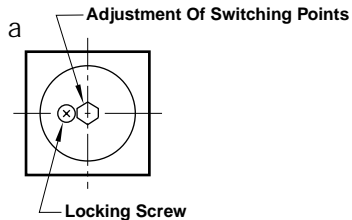
Numbers in parentheses indicate measurement in bar.

\*Note: Hysteresis is not adjustable. Maximum values are shown.

# HYDRAULIC, PISTON-STYLE PRESSURE SWITCH

## SWITCH SELECTION AND MOUNTING INSTRUCTIONS

- Select a switch such that the desired switching point falls roughly in the middle of the adjustment range.
- Do not exceed switch electrical ratings. Use an appropriately sized relay when switching larger electrical loads.
- For liquid media with pressure spikes and/or pulsating pressures, install a pressure snubber.
- For outdoor applications, sufficient protection must be provided.



## ADJUSTMENT OF SWITCHING POINT

Either the upper **or** the lower switching point may be adjusted. The opposite one is then fixed by the hysteresis characteristics of the switch. Use a pressure gauge for exact adjustment. Proceed as follows:

1. Loosen locking screw.
2. Adjust the switching point using a 5-mm hexagon wrench. Clockwise rotation increases switching pressure and counter-clockwise rotation decreases switching pressure. Low-end of adjustment range is reached when top of adjustment barrel is approximately level with top of switch housing. High-end of adjustment range is reached when adjustment barrel is fully CW.
3. Re-tighten locking screw.

## MAKING AND BREAKING CAPACITY

LOAD LEVEL *	TYPE OF CURRENT	TYPE OF LOAD	V <sub>MIN</sub> [V]	MAXIMUM PERMANENT CURRENT I <sub>MAX</sub> [A] AT V			CONTACT LIFE	
				24 V	125 V	250 V	ELECTRICAL AT I <sub>MAX</sub>	MECHANICAL AT I ≈ 0
Standard (relays, solenoids)	AC	Resistive	12	5	5	5	5 x 10 <sup>4</sup> switching cycles	approx 10 <sup>7</sup> switching cycles
	AC	Inductive PF ≈ .7	12	3	3	3		
	DC	Resistive	12	5	.4	–		
	DC	Inductive L/R ≈ 10 ms	12	3	.05	–		
Low (electronic circuits)	AC	Resistive	5	.34	.08	.04	2 x 10 <sup>5</sup> switching cycles	approx 10 <sup>7</sup> switching cycles
	DC	Inductive L/R ≈ 10 ms	5	.1	–	–		

### \*Load Level Explanation

PSW18H Series pressure switches have microswitch contacts with gold plating over silver base metal. The gold plating remains intact when "low level" voltage / current levels are observed. This feature assures highly reliable switching in low-level electronic circuits.

Standard applications do **not** require the gold plating – which will decay naturally when switching larger electrical loads.

### Notes:

1. Reference conditions: 30 cycles per min and 86°F (30°C) ambient.
2. Reducing load current to 50% of I<sub>max</sub> approximately doubles contact life.

# N O T E S

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## 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.

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## RETURN REQUESTS / INQUIRIES

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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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M-3348/0700



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