

COMPACT, RUGGED, ADJUSTABLE PRESSURE AND VACUUM SWITCHES

PSW21 Series PSW22 Series



- ✓ Adjustable Setpoint
- ✓ 1/8 NPT or Center Spout for 1/8 ID Tubing
- ✓ Pressure and Vacuum Models Available
- ✓ UL Recognized, CSA Certified Up to 25 A

These compact pressure and vacuum switches are designed and manufactured to exacting standards to meet the needs of OEM manufacturers and instrument makers for a low-cost, stable, repeatable switch. Plastic mechanisms and housings are acetal to minimize moisture absorption and maintain dimensional stability. Plastic welding is accomplished using advanced microprocessor-controlled, ultrasonic welding equipment. All switches are 100% tested at high and low settings and at the proof pressure. Units are delivered with the setpoint at approximately the midpoint of the adjustable range.

SPECIFICATIONS

Approval: UL-recognized, CSA-certified switches; microswitches bear the CE and ENEC mark

Temperature Range: -10 to 70°C (14 to 158°F)

Setpoint Accuracy: ±10% of setting at 21°C (70°F)

Note: Pressure settings may change over the temperature range.

Hysteresis (Deadband): 15 to 25% of the setpoint

Electrical: See table (page H-8) for the switch amp rating, 250 Vac

Terminals: 6.35 mm (0.25") standard "slide-on" male

Materials of Construction

Body and Mechanism: Acetal

Diaphragm: EPDM (ethylene-propylene diene monomer)

Screws: Stainless or zinc-plated steel

Springs: Stainless steel

Media Compatibility: Air, water and many other fluids and gases that are compatible with EPDM and acetal

Note: Mineral oil and similar fluids are not compatible with EPDM. Request nitrile diaphragm (see "Custom Switches" on next page).

Weight: 50 g (1.8 oz)

Overall Dimensions: Approx 54 x 76 x 45 mm (2.125 x 3 x 1.75")



PSW22(*)D



PSW21(*)

Shown larger than actual size.

Setting: The pressure switch is field adjustable using the hex head set screw at the center of the pressure switch (PSW 21/22-WRENCH). The vacuum switch is field adjustable using the Phillips head screw on the switch carrier.

Dual Pressure Switch: The DPDT (2 switches) will both change state at approximately the same setpoint. On DPDT units, one switch may be set to lead or lag the other (see "Custom Switches" on next page).

To Order

PRESSURE SWITCHES PSW21, 1/8 MNPT with 1/16" Threaded Mounting Nut Included

MODEL NO.	ADJUSTABLE RANGE	PROOF PRESSURE	SPDT SWITCH RATING
PSW21A	3 to 7 inH ₂ O	20 psig	3 A (resistive)
PSW21B	5 to 35 inH ₂ O	20 psig	5 A (resistive)
PSW21C	1 to 6 psig	50 psig	21 A (resistive)
PSW21D	4 to 11 psig	50 psig	25 A (resistive)
PSW21E	9 to 18 psig	50 psig	25 A (resistive)
PSW21F	15 to 28 psig	50 psig	25 A (resistive)
PSW21G	25 to 40 psig	200 psig	25 A (resistive)
PSW21H	35 to 65 psig	200 psig	25 A (resistive)
PSW21J	50 to 100 psig	200 psig	25 A (resistive)
PSW21K	75 to 120 psig	200 psig	25 A (resistive)

ADJUSTABLE PRESSURE AND VACUUM SWITCHES



PSW21(*)D



PSW22(*)

All products shown smaller than actual size.

ACCESSORIES

PSW21/22-WRENCH

Allen wrench for adjusting pressure switches only, \$1; vacuum switch is adjusted with a Phillips head screwdriver

CUSTOM SWITCHES

Custom pressure switches are available—50 piece minimum order; consult Pressure Engineering for price and delivery

Custom Options:

Factory setting available at specified setpoint

DPDT: Switch can be factory set so that each switch operates at a different pressure setting.

PRESSURE SWITCHES PSW21 1/8 MNPT with 9/16 Threaded Mounting Nut Included			
MODEL NO.	ADJUSTABLE RANGE	PROOF PRESSURE	DPDT SWITCH RATING
PSW21BD	10 to 35 inH ₂ O	250 inH ₂ O	5 A (resistive)
PSW21CD	1 to 6 psig	50 psig	21 A (resistive)
PSW21DD	4 to 11 psig	50 psig	25 A (resistive)
PSW21ED	9 to 18 psig	50 psig	25 A (resistive)
PSW21FD	15 to 28 psig	50 psig	25 A (resistive)
PSW21GD	25 to 40 psig	200 psig	25 A (resistive)
PSW21HD	35 to 65 psig	200 psig	25 A (resistive)
PSW21JD	50 to 100 psig	200 psig	25 A (resistive)
PSW21KD	75 to 120 psig	200 psig	25 A (resistive)

PRESSURE SWITCHES PSW22 Center Spout for 1/8 ID tubing with 9/16 Threaded Mounting Nut & Tube Lock Nut Included			
MODEL NO.	ADJUSTABLE RANGE	PROOF PRESSURE	SPDT SWITCH RATING
PSW22A	3 to 7 inH ₂ O	250 inH ₂ O	3 A (resistive)
PSW22B	5 to 35 inH ₂ O	250 inH ₂ O	5 A (resistive)
PSW22C	1 to 6 psig	50 psig	21 A (resistive)
PSW22D	4 to 11 psig	50 psig	25 A (resistive)
PSW22E	9 to 18 psig	50 psig	25 A (resistive)
PSW22F	15 to 28 psig	50 psig	25 A (resistive)

PRESSURE SWITCHES PSW22 Center Spout for 1/8 ID tubing with 9/16 Threaded Mounting Nut & Tube Lock Nut Included			
MODEL NO.	ADJUSTABLE RANGE	PROOF PRESSURE	DPDT SWITCH RATING
PSW22BD	10 to 35 inH ₂ O	250 inH ₂ O	5 A (resistive)
PSW22CD	1 to 6 psig	50 psig	21 A (resistive)
PSW22DD	4 to 11 psig	50 psig	25 A (resistive)
PSW22ED	9 to 18 psig	50 psig	25 A (resistive)
PSW22FD	15 to 28 psig	50 psig	25 A (resistive)

VACUUM SWITCHES PSW21 1/8 MNPT with 9/16 Threaded Mounting Nut Included			
MODEL NO.	ADJUSTABLE RANGE	PROOF PRESSURE	SPDT SWITCH RATING
PSW21L	3 to 7 inWC Vac	350 inWC Vac	3 A (resistive)
PSW21M	6 to 16 inWC Vac	350 inWC Vac	10 A (resistive)
PSW21N	13 to 25 inWC Vac	350 inWC Vac	21 A (resistive)
PSW21P	20 to 40 inWC Vac	350 inWC Vac	21 A (resistive)
PSW21Q	35 to 80 inWC Vac	350 inWC Vac	21 A (resistive)
PSW21R	75 to 150 inWC Vac	350 inWC Vac	21 A (resistive)
PSW21T	145 to 300 inWC Vac	350 inWC Vac	21 A (resistive)

VACUUM SWITCHES PSW21 1/8 NPT with 9/16 Threaded Mounting Nut Included			
MODEL NO.	ADJUSTABLE RANGE	PROOF PRESSURE	DPDT SWITCH RATING
PSW21MD	6 to 16 inWC Vac	350 inWC Vac	10 A (resistive)
PSW21ND	13 to 25 inWC Vac	350 inWC Vac	21 A (resistive)
PSW21PD	20 to 40 inWC Vac	350 inWC Vac	21 A (resistive)
PSW21QD	35 to 80 inWC Vac	350 inWC Vac	21 A (resistive)
PSW21RD	75 to 150 inWC Vac	350 inWC Vac	21 A (resistive)
PSW21TD	145 to 300 inWC Vac	350 inWC Vac	21 A (resistive)

Ordering Example: PSW21D, adjustable pressure switch for setpoints between 4 and 11 psig, with 25 A SPDT switch.



PRESSURE, VACUUM, AND DIFFERENTIAL SWITCHES

PRINTED CIRCUIT BOARD MOUNTABLE

PSW23 Series
PSW24 Series
PSW25 Series



- ✓ UL Recognized, CSA Certified
- ✓ Printed Circuit Board Mountable
- ✓ Leads Available as an Option
- ✓ Several Fitting Styles Available
- ✓ Pressure, Vacuum, and Differential Models Available
- ✓ Fixed Setpoint

These miniature single-pole switches are used in pressure and vacuum applications in which moderate accuracy is sufficient. The fixed setpoint is factory set.

SPECIFICATIONS

Temperature Range:

-10 to 75°C (14 to 167°F)

Setpoint Accuracy:

±10% of setting at 21°C (70°F)

Note: Pressure settings may change over the temperature range.

Materials of Construction

Lower Body: Rynite plastic (with pin terminals molded in)

Upper Body: Acetal plastic

Diaphragm: EPDM (ethylene-propylene diene monomer)

Internal Parts: Acetal plastic

Screws: Stainless steel or zinc-plated steel, flash

Contacts: SPST (normally open); gold flash over silver-plated copper alloy

Pins: Gold flash over silver-plated copper alloy

Leads [Optional (-L)]: 8", 20 AWG stranded PVC-insulated wire fastened to the switch terminals



Electrical: SPST (NO), 1 A resistive 250 Vac; ratings are dependent on actuation pressure and must be derated at lower pressures (under 1 psi).

Pressure Connection

PSW23: 1/8 MNPT

PSW24: Center spout for 1/8 ID tubing; provided with 3/16-18 mounting nut.

PSW25: Radial spout for 1/8 ID tubing

Proof Pressure: See table

Hysteresis (Deadband): Negligible

Media Compatibility: Air, water and many other fluids and gases that are compatible with EPDM acetal plastic

Note: Mineral oil and similar fluids are not compatible with EPDM. Request nitrile diaphragms (see "Custom Switches" on next page). Contacts are exposed to media on base spout.

Overall Dimensions:

38 x 25 mm (1.5 x 1")

Pin Spacing: 12.7 mm (0.5") centers

Weight: 6 g (0.2 oz)

Approvals: UL-recognized, CSA-certified switches

To Order		
PRESSURE MODELS PSW23 1/8 MNPT with 3/16 Threaded Mounting Nut Included		
MODEL NO.	FIXED SETPOINT	PROOF PRESSURE
PSW23-10W	10 inH ₂ O	250 inH ₂ O
PSW23-20W	20 inH ₂ O	250 inH ₂ O
PSW23-1P	1 psig	40 psig
PSW23-2P	2 psig	40 psig
PSW23-10P	10 psig	40 psig
PSW23-20P	20 psig	40 psig
PSW23-30P	30 psig	60 psig

Ordering Example: PSW23-10P, fixed setpoint of 10 psig.

PRESSURE, VACUUM, AND DIFFERENTIAL SWITCHES



VACUUM MODELS PSW23V 1/8 MNPT with 1/16 Threaded Mounting Nut Included		
MODEL NO.	FIXED SETPOINT	PROOF PRESSURE
PSW23V-10W	10 inWC Vac	300 inWC Vac
PSW23V-20W	20 inWC Vac	300 inWC Vac
PSW23V-50W	50 inWC Vac	300 inWC Vac
PSW23V-100W	100 inWC Vac	300 inWC Vac
PSW23V-200W	200 inWC Vac	400 inWC Vac



PRESSURE MODELS PSW24 Center Spout for 1/8 ID Tubing, with 1/16 Threaded Mounting Nut and Tube Lock Nut Included		
MODEL NO.	FIXED SETPOINT	PROOF PRESSURE
PSW24-10W	10 inH ₂ O	250 inH ₂ O
PSW24-20W	20 inH ₂ O	250 inH ₂ O
PSW24-1P	1 psig	40 psig
PSW24-2P	2 psig	40 psig
PSW24-10P	10 psig	40 psig
PSW24-20P	20 psig	40 psig



VACUUM MODELS PSW24V Center Spout for 1/8 ID Tubing, with 1/16 Threaded Mounting Nut and Tube Lock Nut Included		
MODEL NO.	FIXED SETPOINT	PROOF PRESSURE
PSW24V-10W	10 inWC Vac	300 inWC Vac
PSW24V-20W	20 inWC Vac	300 inWC Vac
PSW24V-50W	50 inWC Vac	300 inWC Vac
PSW24V-100W	100 inWC Vac	300 inWC Vac
PSW24V-200W	200 inWC Vac	400 inWC Vac



PRESSURE MODELS PSW25 Radial Spout for 1/8 ID Tubing		
MODEL NO.	FIXED SETPOINT	PROOF PRESSURE
PSW25-10W	10 inH ₂ O	250 inH ₂ O
PSW25-20W	20 inH ₂ O	250 inH ₂ O
PSW25-1P	1 psig	40 psig
PSW25-2P	2 psig	40 psig
PSW25-10P	10 psig	40 psig
PSW25-20P	20 psig	40 psig

To order with 8" 20 AWG leads; add suffix "-L" to model number for additional cost.
Ordering Example: PSW23V-10W-L, vacuum switch with a fixed setpoint of 10 inH₂O vacuum, 1/8 NPT pressure port, 8" 20 AWG leads.

CUSTOM SWITCHES

Custom pressure switches are available—50 piece minimum order; consult Pressure Engineering for price and delivery
Custom Options: Pre-fixed setpoints other than those in the tables

Leads: Custom length

Electrical: SPST, normally closed

Vacuum Switches: Vacuum port at top instead of back side spout (NC only)

All products shown smaller than actual size.

PRESSURE AND VACUUM SWITCHES

COMPACT, RUGGED, PRE-FIXED SETPOINT

PSW27 Series PSW28 Series PSW29 Series



- ✓ UL Recognized, CSA Certified Up to 21 A
- ✓ Fixed Setpoint
- ✓ Pressure and Vacuum Models Available
- ✓ 1/8" NPT or Spout for 1/8" ID Tubing

These reliable, compact, single-pole switches are used in pressure and vacuum applications in which moderate accuracy is sufficient. The fixed setpoint is factory set.

SPECIFICATIONS

Approvals: UL recognized, CSA certified; microswitches bear the ENEC and CE mark

Temperature Range:
-10 to 75°C (14 to 167°F)

Setpoint Accuracy:
±10% of setting at 21°C (70°F)

Note: Pressure settings may change over the temperature range.

Electrical: SPDT; see To Order chart on next page for amp rating, 250 Vac

Electrical Connection

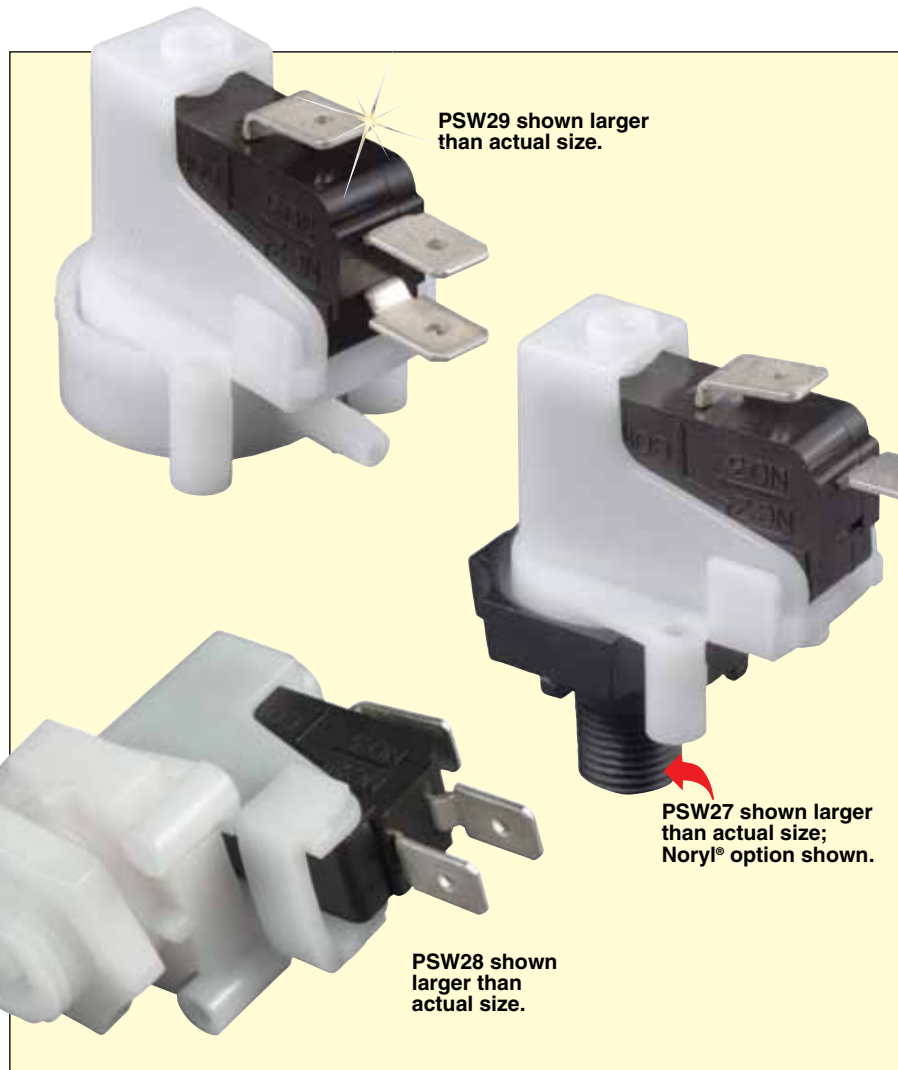
Terminals: 6.35 mm (0.25") standard "slide-on" male

Proof Pressure: Maximum system pressure, see To Order chart on next page

Materials of Construction

Body: Acetal

Diaphragm: EPDM (ethylene-propylene diene monomer)



Pressure Connection

PSW27: 1/8" MNPT

PSW28: Center spout for 1/8" ID tubing; provided with 1/8"-18 threaded mounting and tube lock nut

PSW29: Radial spout for 1/8" ID tubing; through-hole legs for mounting bolt

Proof Pressure: See To Order chart on next page

Hysteresis (Deadband)

Pressure Switches:

Approximately 25% of the setpoint

Vacuum Switches:

Approximately 30% of the setpoint

Note: Mineral oil and similar fluids are not compatible with EPDM. Request nitrile diaphragm (see "Custom Switches").

Media Compatibility: Air, water and many other fluids and gases that are compatible with EPDM and acetal

Weight: 0.6 oz (17 g)

Overall Dimensions:

45 x 51 x 25 mm (1.75 x 2 x 1")

CUSTOM SWITCHES

Custom pressure switches are available; 50 piece minimum order; consult Pressure Engineering for price and delivery

Custom Options:

Pre-fixed setpoints other than those in the tables

Body: Noryl® available on custom order (see photo of PSW27 above)

Diaphragm: Nitrile is available on custom order

PRESSURE AND VACUUM SWITCHES

To Order			
PRESSURE SWITCHES PSW27 1/8 MNPT			
MODEL NO.	FIXED SETPOINT	PROOF PRESSURE	SPDT SWITCH RATING
PSW27-1P	1 psig	30 psig	10 A (resistive)
PSW27-2P	2 psig	50 psig	21 A (resistive)
PSW27-5P	5 psig	50 psig	21 A (resistive)
PSW27-10P	10 psig	50 psig	21 A (resistive)
PSW27-20P	20 psig	50 psig	21 A (resistive)
PSW27-30P	30 psig	80 psig	21 A (resistive)
PSW27-40P	40 psig	80 psig	21 A (resistive)
PSW27-50P	50 psig	80 psig	21 A (resistive)

VACUUM SWITCHES PSW27V 1/8 MNPT			
MODEL NO.	FIXED SETPOINT	PROOF PRESSURE	SPDT SWITCH RATING
PSW27V-25W	25 inWC Vac	300 inWC Vac	10 A (resistive)
PSW27V-30W	30 inWC Vac	300 inWC Vac	10 A (resistive)
PSW27V-40W	40 inWC Vac	300 inWC Vac	21 A (resistive)
PSW27V-50W	50 inWC Vac	300 inWC Vac	21 A (resistive)
PSW27V-75W	75 inWC Vac	350 inWC Vac	21 A (resistive)
PSW27V-100W	100 inWC Vac	350 inWC Vac	21 A (resistive)
PSW27V-150W	150 inWC Vac	350 inWC Vac	21 A (resistive)
PSW27V-200W	200 inWC Vac	350 inWC Vac	21 A (resistive)

Note: PSW27V vacuum switches have $\pm 20\%$ field adjustment. Inside the 1/8 NPT fitting, locate the set screw. Turning the set screw will adjust the setpoint approx. $\pm 20\%$. The setting is considered "NO-Tamper", because when installed, there is no access to this adjustment.

PRESSURE SWITCHES PSW28 Center Spout for 1/8 ID Tubing with 1/16-18 Threaded Mounting and Tube Lock Nut Included			
MODEL NO.	FIXED SETPOINT	PROOF PRESSURE	SPDT SWITCH RATING
PSW28-1P	1 psig	30 psig	10 A (resistive)
PSW28-2P	2 psig	50 psig	21 A (resistive)
PSW28-5P	5 psig	50 psig	21 A (resistive)
PSW28-10P	10 psig	50 psig	25 A (resistive)
PSW28-20P	20 psig	50 psig	25 A (resistive)
PSW28-30P	30 psig	80 psig	25 A (resistive)
PSW28-40P	40 psig	80 psig	25 A (resistive)
PSW28-50P	50 psig	80 psig	25 A (resistive)

PRESSURE SWITCHES PSW29 Radial Spout for 1/8 ID Tubing			
MODEL NO.	FIXED SETPOINT	PROOF PRESSURE	SPDT SWITCH RATING
PSW29-1P	1 psig	30 psig	10 A (resistive)
PSW29-2P	2 psig	50 psig	21 A (resistive)
PSW29-5P	5 psig	50 psig	21 A (resistive)
PSW29-10P	10 psig	50 psig	21 A (resistive)
PSW29-20P	20 psig	50 psig	21 A (resistive)
PSW29-30P	30 psig	50 psig	21 A (resistive)

Ordering Example: PSW27-10P, pressure switch with fixed setpoint at 10 psig, deadband of approx. 2.5 psig (25% of the fixed setpoint) with a 1/8 MNPT pressure port.

SENSITIVE PRESSURE, VACUUM, OR DIFFERENTIAL PRESSURE SWITCHES

PSW20 Series



These sensitive single-pole switches can be used as pressure, vacuum, or differential switches.

SPECIFICATIONS

Approvals: UL recognized, CSA certified

Temperature: -30 to 65°C (-23 to 149°F)

Setpoint Accuracy: ±10% of setting at 21°C (70°F)

Note: Pressure settings may change over the temperature range.

Materials of Construction

Body: Acetal

Diaphragm: EPDM bonded to steel ring

Contacts: Gold-plated silver

Springs: Plated phosphor bronze

Terminals: Plated copper or brass

Pressure Connection:

Spout for 1/8" ID tubing

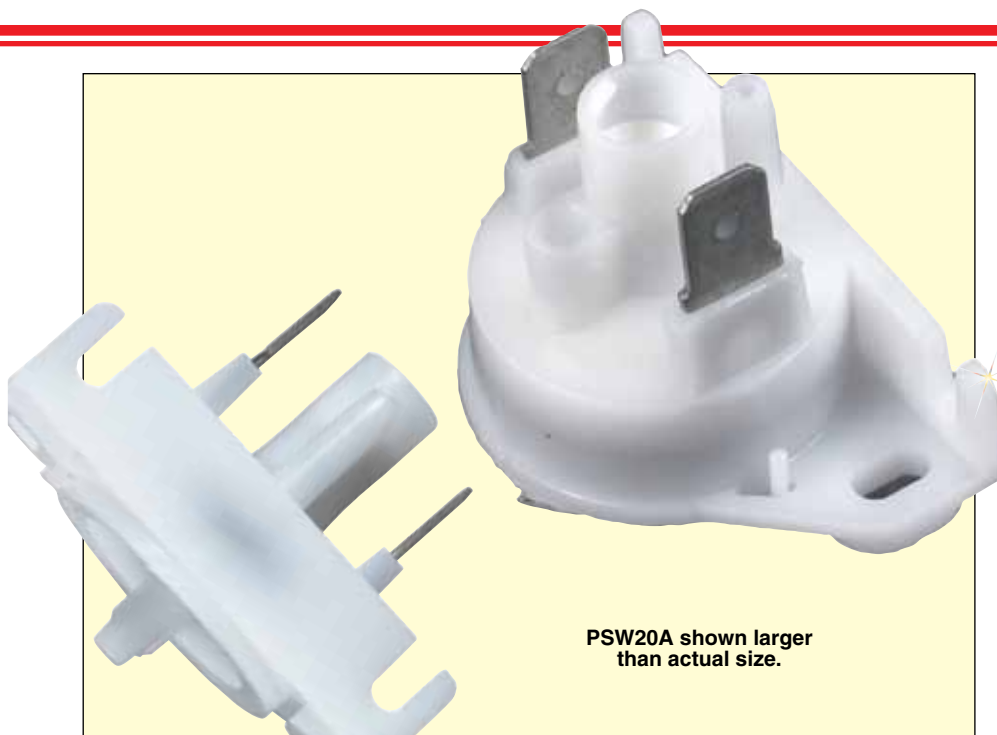
Adjusting Screw:

Stainless steel or zinc-plated steel; setting as shipped, 2 inH₂O negligible deadband

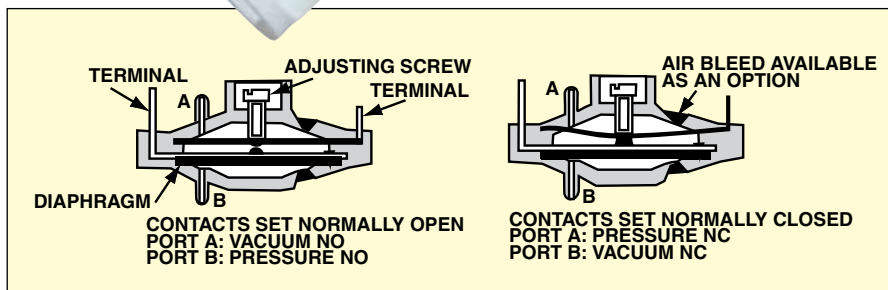
Media: Clean, dry, non-corrosive gases only

Note: The pressure media entering through port A are in direct contact with the electrical contacts in the switch. The media entering through port B are separated from the electrical contacts by the diaphragm.

Weight: 9 g (0.3 oz)



PSW20A shown larger than actual size.



Pressure Switching—Normally Open Contacts

Connect the pressure source to inlet port B, and set the adjusting screw to the desired pressure setpoint. Turning the screw clockwise narrows the gap between contacts and decreases the setpoint. Turning the screw counterclockwise increases the gap, thereby increasing the setpoint.

Pressure Switching—Normally Closed Contacts

Connect the pressure source to port A and monitor continuity across the terminals. Slowly turn the adjusting screw clockwise, narrowing the gap

between the contacts until the contacts are closed. Apply the setpoint pressure, which will open the contacts. Continue to turn the adjusting screw clockwise until the contacts make and break at the desired setpoint.

Vacuum Switching: Repeat above using port A for normally open contacts and port B for normally closed contacts.

To Order

MODEL NO.	PRESSURE RANGE	PROOF PRESSURE	SWITCH RATING 250 Vac
PSW20A	0.4 to 15 inH ₂ O	8 psig	750 mA (resistive)
PSW20B	1 to 20 inH ₂ O	8 psig	1 A (resistive)

Ordering Example: PSW20A, sensitive differential pressure switch adjustable from 0.4 to 15 inH₂O column. Custom switches and pre-fixed setpoint at customer-specified value available, 50 piece minimum order.