

# PS41 – Economical Miniature Pressure Switches

▶ 3 to 100 psi (0.2 to 7 bar) – formerly PS-E series

These miniature pressure switches are designed for demanding applications where space and/or price are strong concerns. The switches utilize a piston/diaphragm design, which incorporates the high proof pressure of piston technology with the sensitivity of diaphragm designs. Switches are field adjustable via an Allen head screw that is hidden to protect against unauthorized tampering.

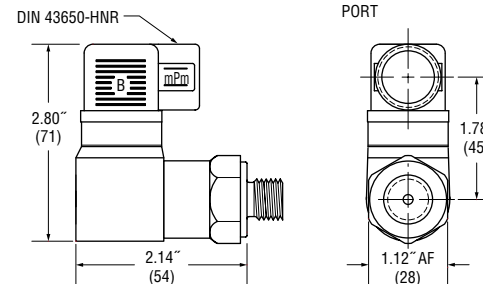
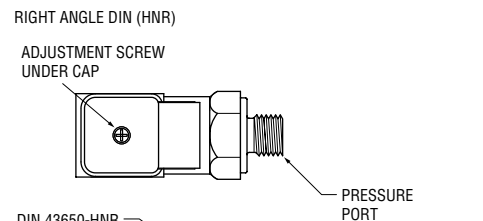
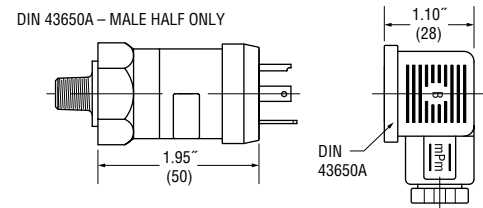
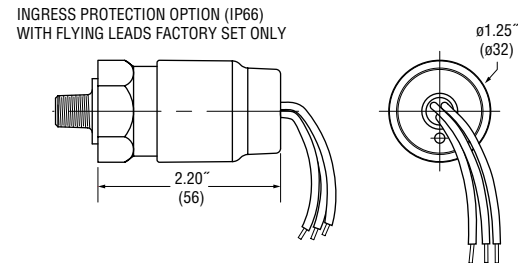
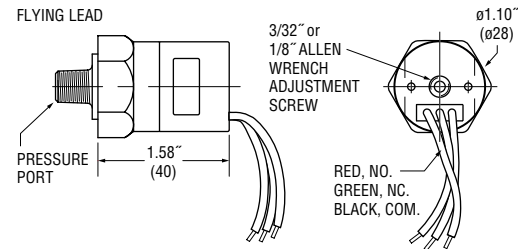
## Specifications

<b>Operating Temperature</b>	-40°F to +180°F (-40°C to +80°C)
<b>Switch*</b>	5 Amp at 12/24 VDC and 125/250 VAC (optional 10 Amp or 1 Amp Gold Contacts)
<b>Repeatability</b>	±2% of Full Set Point Range @ 70°F (20°C)
<b>Wetted Parts</b>	
<b>Diaphragm Material</b>	Nitrile (optional EPDM, Viton® or Neoprene)
<b>Fitting</b>	Brass (optional 316 Stainless Steel)
<b>Electrical Termination</b>	DIN 43650A IP65; Terminals IP00; Flying Leads IP65; Option IP: IP66
<b>Proof Pressure</b>	350 psi (25 bar)
<b>Approvals</b>	CE, UL Approved units available
<b>Weight, Approximate</b>	0.3 lbs. (0.14 kg)

\*Gold contacts (option G) may be required for less than 12 VDC and 20 mA. Viton® is a registered trademark of Dupont.



## Dimensions



## How To Order

Use the **Bold** characters from the chart below to construct a product code.

SELECT	PS41	-10	-4MNB	-C	-H	-XX	-XXXX
1. Pressure Range Code _____ Insert Pressure Range Code from table below							
2. Pressure Fitting <sup>1</sup> _____ Brass <u>316 Stainless Steel</u> -2MNB 1/8" NPTM      -2MNS 1/8" NPTM -4MNB 1/4" NPTM      -4MNS 1/4" NPTM -2MGB 1/8" BSPM      -4MGS 1/4" BSPM -4MGB 1/4" BSPM      -4MSS 7/16"-20 SAE Male -4MSB 7/16"-20 SAE Male -6MSB 9/16"-18 SAE Male							
3. Circuit _____ -A SPST/NO; -B SPST/NC; -C SPDT							
4. Electrical Termination _____ -SP Spade Terminals <sup>2</sup> ; -FLXX Flying Leads <sup>3</sup> ; -FLSXX Flying Leads w/PVC Shrink Tubing <sup>3</sup> ; -ELXX 1/2" NPT Male Conduit w/Flying Leads <sup>4</sup> ; -CABXX 18 AWG PVC Cable <sup>5</sup> ; -H DIN 43650A Male Half Only <sup>6</sup> ; -HR Right Angle DIN 43650A Male Half Only <sup>6</sup> ; -HC DIN 43650A 9mm Cable Clamp <sup>6</sup> ; -HCR Right Angle DIN 43650A 9mm Cable Clamp <sup>6</sup> ; -HN DIN 43650A with 1/2" Female NPT Conduit <sup>6</sup> ; -HNR Right Angle DIN 43650A with 1/2" Female NPT Conduit <sup>6</sup> ; -HM Micro (9.4mm Spacing) DIN Style Male Half Only <sup>6</sup>							
5. Options <sup>7</sup> _____ -V Viton Diaphragm; -N Neoprene Diaphragm; -E EPDM Diaphragm; -10A 10A @ 125/250 VAC Max. Rating; -G Gold Contacts (for loads less than 12 mA @ 12 VDC); -RD Reduced Differential (50% reduction typical); -IP Ingress Protection <sup>8</sup> ; -OXY Oxygen Cleaned; -WF Weather Pack Connector, Female; -WM Weather Pack Connector, Male; -DE Deutsch Connector, Male, DT04 Series							
6. Fixed Set Point (optional) A. Specify set point -FS (in PSI or BAR, see example) <sup>9</sup> _____ B. Set Point Actuation _____ <b>R</b> on Rising Pressure; <b>F</b> on Falling Pressure Example: -FS0.5BARF for 0.5 BAR Falling or -FS5PSIR for 5 PSI Rising							

Notes:

- Other connectors available. Consult factory.
- Requires -10A or -G option.
- 18" is standard. Specify lead length in inches (max. 48"). e.g. -FL18 or -FLS30.
- 18" is standard. Specify lead length in inches (max. 48"). e.g. -EL18 or -EL30.
- 36" is minimum. Specify cable length in inches. e.g. -CAB36 or -CAB120.
- DIN connectors require -C SPDT circuit.
- Options -10A, -G or -RD cannot be combined.
- Ingress Protection is available only with -FL, -FLS or -CAB Electrical Termination choices. Ingress Protection requires Fixed Set Point -FS.
- Set Point must be within Pressure Range selected in Step 1 above.

## Pressure Range Table

Pressure Range Code	Pressure Range	Average Dead Band
10	3-7 psi (0.2-0.5 bar)	1-2 psi (0.07-0.14 bar)
20	5-30 psi (0.35-2.1 bar)	2-4 psi (0.14-0.28 bar)
30	25-100 psi (1.7-6.9 bar)	3-12 psi (0.21-0.85 bar)

## **WARRANTY:**

We guarantee this instrument against faulty workmanship and materials for a period of one year from date of delivery. The Company will undertake to repair, free of charge, ex-works any instrument found to be defective within the specified period; providing the instrument has been used within the specifications, in accordance with these instructions, and has not been misused in any way.

Detailed notice of such defects and satisfactory proof thereof must be given to the Company immediately after the discovery. The goods are to be returned free of charge to the Company, packed and accompanied by a detailed failure report.

## **RETURN TO FACTORY:**

To comply with health and safety requirements, the instrument must be clean and safe to handle and accompanied by a formal statement to that effect; duly signed by an authorized officer of the Company. Any instrument returned without certification will be quarantined and no action will occur until cleared. It may ultimately be returned to you, subject to a transportation charge.

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### **Gems Sensors GrnbH**

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# **Pressure Switches - Adjustable**

**Instruction Bulletin No. 208687**

## **INSTALLATION**

To install the switches, use a suitable wrench on the port and plumb into place with the proper sealant. For electrical wiring, refer to wiring codes on page 3 and to the specification sheet for the switch ratings. All switches are maintenance-free.

## **LOCATING AND ACCESSING THE ADJUSTER**

### **PS31, PS32, PS51, PS52, PS61, PS83, and PS91:**

The slotted adjustment screw is located on top of the unit. Using a flat bladed screwdriver, turn the screw clockwise to increase the set point and counter-clockwise to decrease the set point.

### **PS93:**

The 5/64" Allen head screw is located inside the low-pressure port.

### **PS77:**

Remove the front cover to reveal a hex adjuster nut, locking nut and the electrical switch dead band thumbwheel.

### **PS11, PS41, PS71, PS75, and PS81:**

Remove the plastic cover to reveal a 1/8" Allen head screw.

### **All Other Models with HC or HN Option:**

Remove the screw in the center of the DIN adaptor. Remove the DIN adapter.

### **All Other Models without HC or HN Option:**

Remove the 1/8" Allen head set screw at the top of the unit which serves as a cover for the actual 1/8" Allen head adjustment screw.



## **ADJUSTING THE SET POINT**

All adjustments except for the PS93 are performed while applying a known pressure (or vacuum) and monitoring the electrical contacts. The PS93 must be removed from the system for adjustment and reinstalled to verify the setpoint.

### **PS31, PS32, PS51, PS52, PS61, and PS91:**

Using a flat bladed screwdriver, turn the screw clockwise to increase the setpoint and counterclockwise to decrease the setpoint.

### **PS83:**

Using a flat bladed screwdriver, turn the screw clockwise to decrease the vacuum setpoint and counterclockwise to increase the vacuum setpoint.

### **PS93:**

Using a 5/64" Allen key, turn the screw clockwise to increase the differential setpoint and counterclockwise to decrease the differential setpoint.

### **PS77:**

**Pressure Adjustment:** Using a 3/4" open-ended wrench, loosen the locknut. Using a 5/8" open-ended wrench, turn the adjuster clockwise to increase the setpoint and counterclockwise to decrease the setpoint. Once the desired setting is obtained tighten the locknut with the 3/4" open-ended wrench while holding the adjuster with the 5/8" open-ended wrench.

**Deadband Adjustment:** Turn the thumbwheel clockwise to increase the deadband and counterclockwise to decrease the deadband. Deadband is the difference in pressure between the increasing pressure setpoint and decreasing pressure setpoint.

### **PS82:**

Using a 1/8" Allen key, turn the screw clockwise to decrease the vacuum setpoint and counterclockwise to increase the vacuum setpoint.

### **PS11 and All Other Models**

Using a 1/8" Allen key, turn the screw clockwise to increase the setpoint and counterclockwise to decrease the setpoint.

## **VERIFICATION OF SETPOINT**

Verify the new setpoint by slowly increasing and decreasing the pressure (or vacuum) while monitoring the electrical contacts. Repeat the adjustment procedure if necessary to obtain the desired setpoint.

## **REASSEMBLY (IF APPLICABLE)**

### **PS77:**

Install the front cover by tightening the four slotted screws.

### **PS41,PS71,PS75:**

Snap the plastic cover onto the electrical housing.

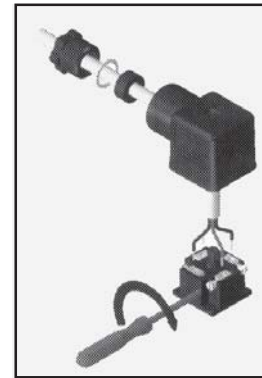
### **All Other Models with HC or HN Option:**

Install the DIN adapter. Install and tighten the screw.

### **All Other Models without HC or HN Option:**

Install the 1/8" Allen adjustment screw cap at the top of the unit.

### **How To Wire a DIN**



### **Wiring Code**

Lead Color	DIN Pin #	Electrical Terminal
Black	#1	Common
Green	#2	Normally closed
Red	#3	Normally open

## **PRESSURE EQUIPMENT DIRECTIVE**

The pressure switch is designed and manufactured in accordance with Sound Engineering Practice as defined by the Pressure Equipment Directive 97/23/EC. This pressure switch must not be used as a "safety accessory" as defined by the Pressure Equipment, Article 1, Paragraph 2.1.3.

The CE Mark on the unit does not relate to the Pressure Equipment Directive.