

PS81 – Ultra-Long Life Vacuum Switches

- ▶ 1.5" to 15" Hg (51 to 508 mbar)
- ▶ Sensitive Diaphragm for Lower Set Points
- ▶ Factory Fixed or Adjustable Set Points

For low vacuum applications, the longevity of our PS81 Series is hard to beat. A life expectancy of 1 million cycles means long-term reliability. Their brass housing and choice of four diaphragm materials ensures chemical compatibility with your system. PS81 series switches have a field adjustable set point or can be factory set.

Specifications

Switch*	5A @ 125/250 VAC, 3 Amp inductive @ 24 VDC (Std)
Repeatability	See Table 1
Wetted Parts	
Diaphragm and O-Ring	Nitrile standard (optional EPDM, Viton® or Kapton® with o-ring)
Fitting	Brass
Housing	Brass
Spring	300 Series SS
Spring Guide	Delrin®
Ingress Protection**	DIN 43650A IP00; Terminals IP00; Flying Leads IP00
Proof Pressure	0 psia to 150 psig (-1 bar to 10.3 bar)
Burst Pressure	500 psi (34.5 bar)
Approvals	CE, UL Approved units available
Weight, Approximate	0.31 lbs. (0.14 kg)

* Gold contacts (option G) may be required for less than 12 VDC and 20 mA.
 ** Plastic housing is vented to atmosphere. Consult factory for sealed versions.

Recommended Operating Temperature Limits

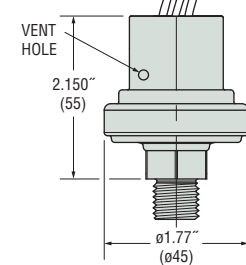
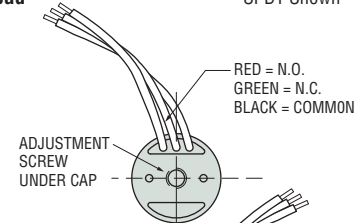
Diaphragm Material	Range
Nitrile	15°F to 250°F (-9°C to +121°C)
Viton®	0°F to 250°F (-18°C to +121°C)
EPDM	-20°F to +250°F (-29°C to +121°C)
Kapton®	-40°F to +250°F (-40°C to +121°C)

Note: Switches may function below the cold temperature limit but the set points and deadband will increase. Consult factory for details.

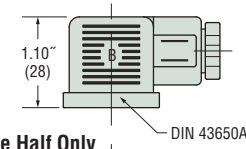


Dimensions

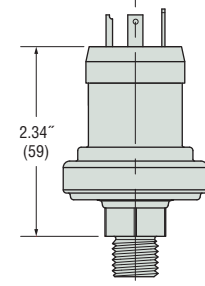
Flying Lead SPDT Shown



DIN 43650A with Calbe Clamp



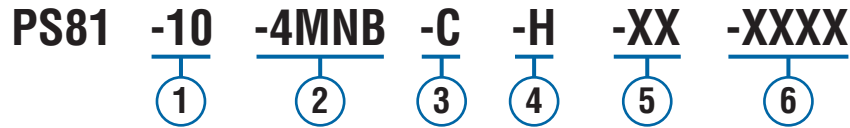
DIN 43650A Male Half Only



PRESSURE SWITCHES

How To Order

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



1 Pressure Range Code

Insert Pressure Range Code from Table 1, below.

2 Pressure Fitting¹

- 2MNB = 1/8" NPTM Brass
- 4MNB = 1/4" NPTM Brass
- 4MGB = 1/4" BSPM Brass (G type)
- 4MSB = 7/16"-20 SAE Male, Brass

3 Circuit

- A = SPST/N.O.
- B = SPST/N.C.
- C = SPDT

4 Electrical Termination

- FLXX = Flying Leads²
- ELXX = 1/2" NPT Male Conduit w/Flying Leads³
- H = DIN 43650A Male Half Only⁴
- HC = DIN 43650A 9mm Cable Clamp⁴
- HN = DIN 43650A with 1/2" Female NPT Conduit⁴

5 Options

- V = Viton® Diaphragm
- E = EPDM Diaphragm
- K = Kapton® Diaphragm (Nitrile O-ring)
- G = Gold Contacts
(for loads less than 12 mA @ 12 VDC)
- OF = Oil Free Cleaned

6 Fixed Set Point (optional)

- A. Specify set point **-FS**
(in Inches Hg or mBAR, see example)⁵
- B. Set Point Actuation
R on Rising Vacuum
F on Falling Vacuum
Example: **-FS100MBARF** for 100 mBAR Falling
or **-FS2INHGR** for 2" Hg Rising

Notes:

1. Other fittings available. Consult factory.
2. 18" is standard. Specify lead length in inches (max. 48"). e.g. **-FL18** or **-FL30**.
3. 18" is standard. Specify lead length in inches (max. 48"). e.g. **-EL18** or **-EL30**.
4. DIN connectors require **-C** SPDT circuit.
5. Set Point must be within Pressure Range selected in Step 1.

Table 1 — Pressure Range Codes

Pressure Range Code	Pressure Range	Accuracy*	Average Deadband**
10	1.5-5" Hg (51-169 mbar)	±0.2" Hg (7 mbar) +3% of setting	0.3" Hg (10 mbar) +9% of setting
20	4-15" Hg (136-508 mbar)	±0.35" Hg (12 mbar) +4% of setting	0.6" Hg (20 mbar) +11% of setting

* Accuracy and set point of units may change due to the effects of temperature.

** In certain applications deadband can be tailored and controlled to customer specifications. Consult factory for details.

PS82 – Economical Miniature Vacuum Switches

► 5" to 28" Hg (169 to 948 mbar)

These miniature vacuum switches, based on our proven PS41 series, are designed for demanding applications where space and/or price are strong concerns.

Specifications

Switch	SPST; SPDT
Repeatability	See Table 1
Wetted Parts	
Diaphragm Material	Nitrile standard (optional EPDM, Viton® and Neoprene)
Fitting	Brass (optional 316 Stainless Steel)
Spring	316 Stainless Steel
Electrical Termination	DIN 43650A IP65; Male Conduit with Flying Leads IP65; Flying Leads IP00; IP option IP66
Proof Pressure	0 psia to 350 psig (-1 bar to 24 bar)
Burst Pressure	700 psi (48 bar)
Approvals	CE
Weight, Approximate	Brass: 0.4 lbs. (0.18 kg)

Recommended Operating Temperature Limits

Diaphragm Material	Options Selected		
	No option, -10A, -SP or -RD	-RD or -RD and -G	-SP or -10A
Nitrile	15°F to 185°F (-9°C to +85°C)	15°F to 250°F (-9°C to +121°C)	15°F to 212°F (-9°C to +100°C)
Viton®	0°F to 185°F (-18°C to +85°C)	0°F to 250°F (-18°C to +121°C)	0°F to 212°F (-18°C to +100°C)
EPDM	-10°F to +185°F (-23°C to +85°C)	-10°F to +250°F (-23°C to +121°C)	-10°F to +212°F (-23°C to +100°C)
Neoprene	-10°F to +185°F (-23°C to +85°C)	-10°F to +250°F (-23°C to +121°C)	-10°F to +212°F (-23°C to +100°C)

Note: Switches may function below the cold temperature limit but the set points and deadband will increase. Consult factory for details.

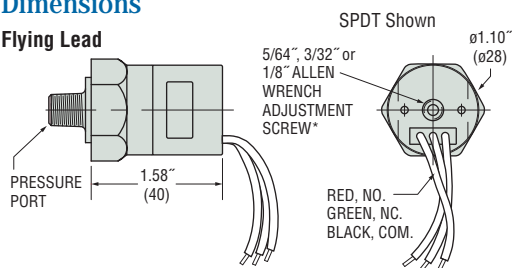
Electrical Switch Ratings

Options Selected	AC	DC
No option or -RD	5 amps @ 125/250 Volts	5 amps resistive, 3 amps inductive @ 28 Volts
-G only or -RD with -G	1 amp @ 125 Volts	1 amp resistive, 0.5 amp inductive @ 28 Volts
-10A only or -SP without -G	10.1 amps @ 125/250 Volts	—
-SP with -G	2 amps @ 125/250 Volts	—



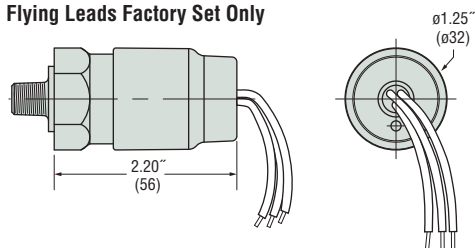
Dimensions

Flying Lead

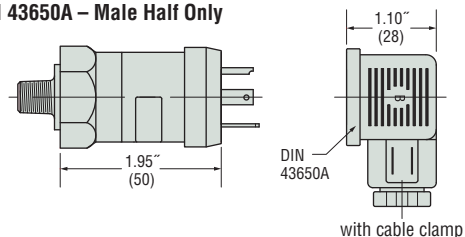


* Adjustment screw is located under protective screw.

Ingress Protection Option (IP66) with Flying Leads Factory Set Only

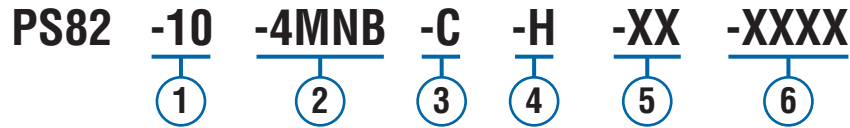


DIN 43650A – Male Half Only



How To Order

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



1 Pressure Range Code

Insert Pressure Range Code from Table 1, below.

2 Pressure Fitting¹

Brass

- 2MNB = 1/8" NPTM
- 4MNB = 1/4" NPTM
- 2MGB = 1/8" BSPM (G type)
- 4MGB = 1/4" BSPM (G type)
- 4MSB = 7/16"-20 SAE Male
- 6MSB = 9/16"-18 SAE Male

316 Stainless Steel

- 2MNS = 1/8" NPTM
- 4MNS = 1/4" NPTM
- 4MGS = 1/4" BSPM (G type)

3 Circuit

- A = SPST/N.O.
- B = SPST/N.C.
- C = SPDT

4 Electrical Termination

- FLXX = Flying Leads²
- FLSXX = Flying Leads w/PVC Shrink Tubing²
- ELXX = 1/2" NPT Male Conduit w/Flying Leads³
- CABXX = 18 AWG PVC Cable⁴
 - H = DIN 43650A Male Half Only⁵
 - HR = Right Angle DIN 43650A Male Half Only⁵
 - HC = DIN 43650A 9mm Cable Clamp⁵
 - HCR = Right Angle DIN 43650A 9mm Cable Clamp⁵
 - HN = DIN 43650A with 1/2" Female NPT Conduit⁵
 - HNR = Right Angle DIN 43650A with 1/2" Female NPT Conduit⁵
 - HM = Micro (9.4mm Spacing) DIN Style Male Half Only⁵
 - SP = Spade Terminals⁶

5 Options

- 10A = 10A @ 125/250 VAC Max. Rating⁷
- V = Viton[®] Diaphragm
- N = Neoprene Diaphragm
- E = EPDM Diaphragm
- G = Gold Contacts (for loads less than 12 mA @ 12 VDC)
- RD = Reduced Differential (25% reduction typical)
- IP = Ingress Protection⁸
- OF = Oil Free 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 Inches Hg or mBAR, see example)⁹
- B. Set Point Actuation
 - R** on Rising Vacuum
 - F** on Falling Vacuum
 Example: **-FS300MBARF** for 300 mBAR Falling or **-FS10INHGR** for 10" Hg Rising

Notes:

1. Other fittings available. Consult factory.
2. 18" is standard. Specify lead length in inches (max. 48"). e.g. **-FL18** or **-FLS30**.
3. 18" is standard. Specify lead length in inches (max. 48"). e.g. **-EL18** or **-EL30**.
4. 36" is minimum. Specify cable length in inches. e.g. **-CAB36** or **-CAB120**.
5. DIN connectors require **-C** SPDT circuit.
6. Requires **-10A**, **-G** options (50% increase in deadband typical).
7. Options **-10A**, **-G** or **-RD** cannot be combined.
8. Ingress Protection is available only with **-FL**, **-FLS**, **-ELS** or **-CAB** Electrical Termination choices. Ingress Protection requires Fixed Set Point **-FS**.
9. Set Point must be within Pressure Range selected in Step 1.

Table 1 — Vacuum Range Codes

The deadband values tabulated are for the standard microswitch. With either the -SP or -10A option, the deadband values are typically 50% greater than those listed. With the -RD option, the values will be typically 25% less than those listed. In certain applications deadband can be tailored and controlled to customer specifications. Consult factory for details.

Vacuum Range Code	Vacuum Range	Accuracy	Average Deadband*
10	5-15" Hg (169-508 mbar)	±0.71" Hg (24 mbar) +2% of setting	3.05" Hg (103 mbar) +7% of setting
20	12-28" Hg (406-948mbar)	±1.63" Hg (55 mbar) +2% of setting	6.1" Hg (207 mbar) +8% of setting

* -IP and -EL options are approximate gauge switches. Altitude and temperature changes will result in set point shifts.