

Weatherproof type differential pressure switch

Model: P946 series

Spec. sheet no. **PD09-06**

Service intended

P946 diaphragm type differential pressure switch can be used in a variety of process lines. Internal micro switch is operated by pressure of various fluids, such as atmospheric pressure and water pressure. The pressure sensing part is a force balanced and piston actuated assembly.

Fluid

Gas and oil

Repeatability

±1.0 % of adjustable range

Adjustable range (mbar, kPa, bar, MPa)

1 kPa to 0.4 MPa

Dead band

Fixed

One SPDT : Approx. 5 % of adjustable range

Two SPDT : Approx. 10 % of adjustable range

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP65



Standard features

Process connection

Stainless steel (316SS), Monel and Hastelloy-C

Element

Stainless steel (316L SS)

Case and cover

ALDC 12.1 (Silver gray finished)

Contact

Micro contact type

One SPDT

Two SPDT (Only available with single setpoint)

Contact rating

SPDT contact rating

AC 125 V / 250 V, 15 A

DC 125 V, 0.4 A for resistance load

DC 125V, 0.03 A for inductive load

Conduit connection

¾" NPT (F)

Process connection

¼" NPT (F)

Option

Bracket : 304SS and 316SS

Wall mounting bracket

Remote diaphragm seal

WISE

1. Base model**P946** Differential switch**2. Deadband****F** Fixed**3. Switch form**

- 1** One SPDT
- 2** Two SPDT (Only available with setpoint)

4. Process connection**C** 1/4"**5. Connection type****D** NPT (F)**6. Unit**

- H** bar
- I** MPa
- J** kPa
- S** mbar

7. Setting range**XXX** Refer to pressure range table**8. Element and flange material**

- 3** 316SS / 316L SS
- V** 316SS / Viton
- L** 316SS / Hastelloy-C
- K** 316SS / Monel
- Z** Monel / Monel
- H** Hastelloy-C / Hastelloy-C

9. Options

- 0** None
- 1** Mounting bracket

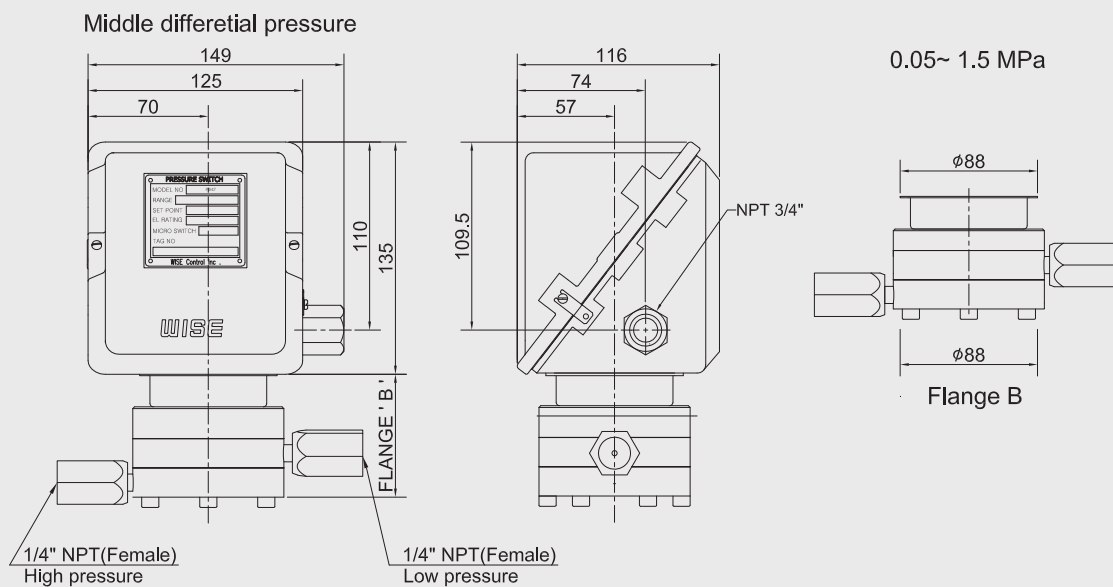
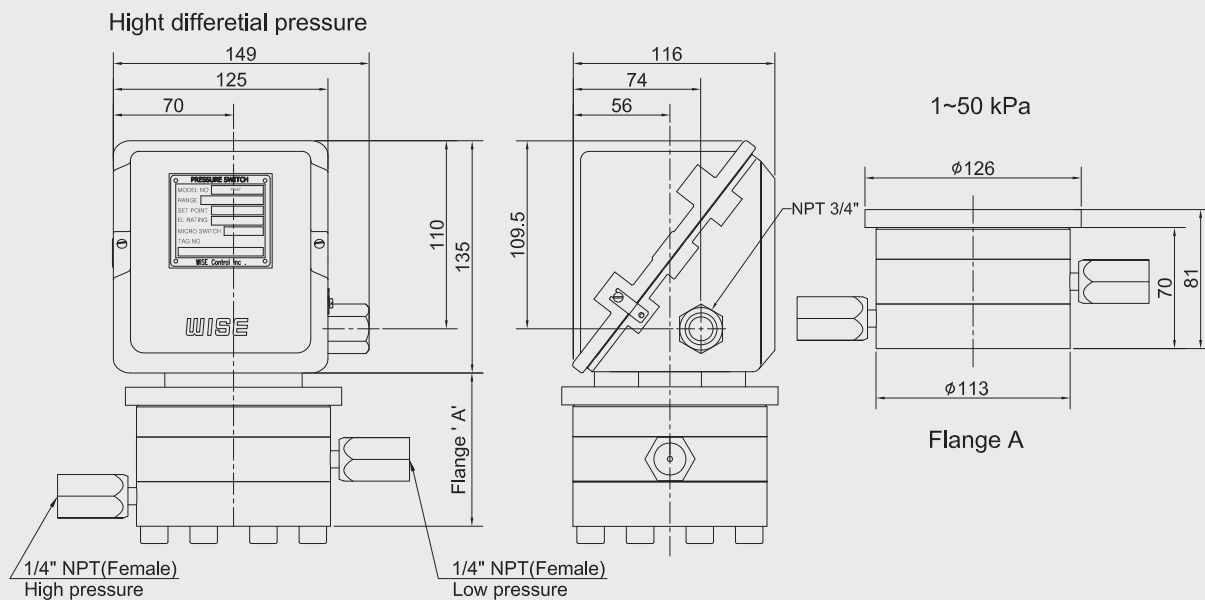
Sample ordering code

1	2	3	4	5	6	7	8	9
P946	F	1	C	D	H	XXX	3	0



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P946 : Type of mounting



Pressure switch

A bi-stable electro mechanical device than actuates/ deactuates one or more electrical switching element at a predetermined discrete pressure upon rising or falling.

Adjustable range

The span of pressure between upper and lower limits within which the pressure switch can be adjusted to actuate/deactuate. It is expressed for increasing pressure.

Setpoint

That discrete pressure at which the pressure switch is adjusted to actuate/deactuate on rising or falling pressure. It must fall with the adjustable range and be called out as increasing.

Dead band

The difference in pressure between the increasing set point and the decreasing set point.

Working range

The maximum input pressure that can be continuously applied to the pressure switch without causing permanent change of set point, leakage or material failure.

Repeatability

The ability of a pressure switch to successively operate at a set point that is approached from a starting point in the same direction and returns to the starting point over three consecutive cycles to establish a pressure profile.

The closeness of the measures set point values is normally expressed as a percentage of full scale (maximum adjustable range pressure).

Pressure range table

Code	Adjustable setting range			Working range	Flange size
	H : bar	I : MPa	J : kPa	bar	Diameter (mm)
994	0.01 ~ 0.15		1 ~ 15	5	113
907	0.1 ~ 0.25		10 ~ 25		
909	0.2 ~ 0.35		20 ~ 35		
910	0.3 ~ 0.5		30 ~ 50		
922	0.4 ~ 2	0.04 ~ 0.2		50	89
905	1.5 ~ 4	0.15 ~ 0.4			

Micro contact

General

The micro contact has a large switching capacity with high repeat accuracy. The contact mechanism is a crossbar type with gold alloy contacts, which ensures highly reliable operations for micro loads.

Characteristics

Item	Micro switch
Operating speed	0.01 mm to 1 m/s
Mechanical operating frequency	240 operations/min
Insulation resistance	100 MΩ 1 min at 500 VDC
Contact resistance	0.015 Ω max
Shock resistance	100 m/sec ² max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

Specifications

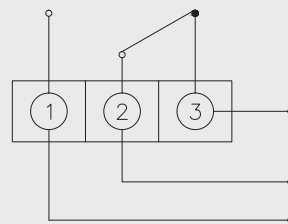
Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	15		3	1.5	15		5	2.5
250 V AC	15		2.5	1.25	15		3	1.5
8 V DC	15		3	1.5	15		5	2.5
30 V DC	2		2	1.4	1		1	1
125 V DC	0.4		0.4	0.4	0.03		0.03	0.03
250 V DC	0.2		0.2	0.2	0.02		0.02	0.02

SPDT switching element

Single-pole, double throw (SPDT) has three connection : C-common, NO-normally open and NC-normally close, which allows the switching element to be electrically to the circuit NO or NC state.

One SPDT

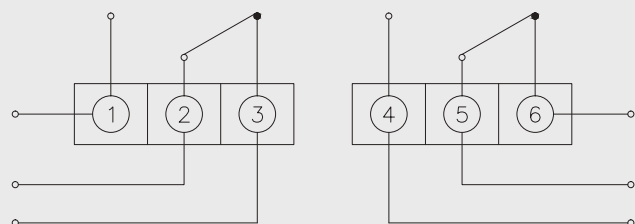
Pressure reach the upper or lower limit setpoint, circuit closed and opened.



①:NO ②:COM ③:NC

Two SPDT

Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



①,④:NO ②,⑤:COM ③,⑥:NC

NO : Normal open
NC : Normal close

