

# Adjustable dead band weatherproof type pressure switch

## Model: P947

Spec. sheet no. PD09-07

### Service intended

P947 bellows type 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 piston actuated assembly.

### Fluid

Gas and oil

### Repeatability

±1.0 % of adjustable range

### Adjustable range (mbar, kPa, bar, MPa)

-0.1 ~ - 0.15 bar to 1.5 ~ 15 MPa

### Dead band

Within 8 to 20 % of adjustable range

### Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

### Degree of protection

EN60529/IEC529/IP65



## Standard features

### Pressure connection

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

### Element

Bellows

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

### Case and cover

ALDC 12.1

Silver gray finished aluminium

### Contact

Micro contact type

One SPDT

One DPDT

### 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

#### DPDT contact rating

##### Resistance load

AC 125 V / 250 V, 10 A

DC 125 V, 0.5 A

DC 8 V, 10 A

DC 14 V, 10 A

DC 30 V, 10 A

##### Inductive load

AC 125 V, 6 A / AC 250 V, 4 A

DC 125 V, 0.05 A

DC 8 V, 6 A

DC 14 V, 6 A

DC 30 V, 4 A

### Conduit connection

3/4" PF (F)

### Process connection

1/4", 3/8", 1/2" PT, NPT and PF

### Option

Bracket : Wall mounting, 304SS and 316SS

±0.5 % of adjustable range

**WISE®**

**1. Base model****P947** Adjustable dead band weatherproof type pressure switch**2. Dead band****A** Adjustable (Within 8 ~ 20 % of adjustable range)**3. Switch form**

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

**4. Process connection**

- C** 1/4"  
**D** 3/8"  
**E** 1/2"

**5. Connection type**

- B** PF  
**C** PT  
**D** NPT  
**E** NPT (F)

**6. Unit**

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

**7. Setting range****XXX** Refer to pressure range table**8. Process connection and element material**

- 3** 316SS and 316L SS  
**Z** Monel and Monel  
**H** Hastelloy-C and Hastelloy-C

**9. Options**

- 0** None  
**1** Mounting bracket  
**4** 1/2" NPT (F) conduit connection

**Sample ordering code**

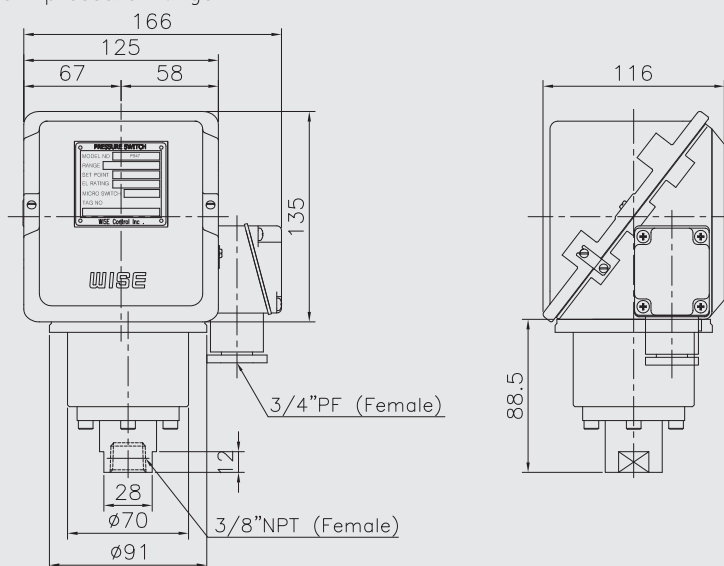
1	2	3	4	5	6	7	8	9
P947	A	1	C	B	H	XXX	3	0



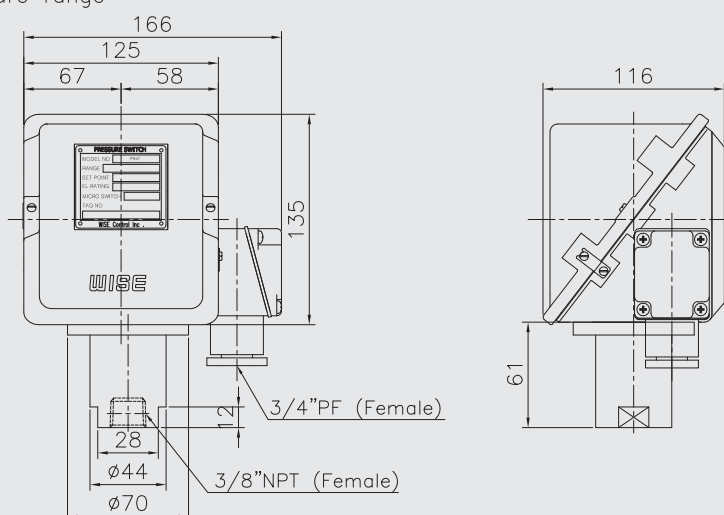
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## P947 : Type of mounting

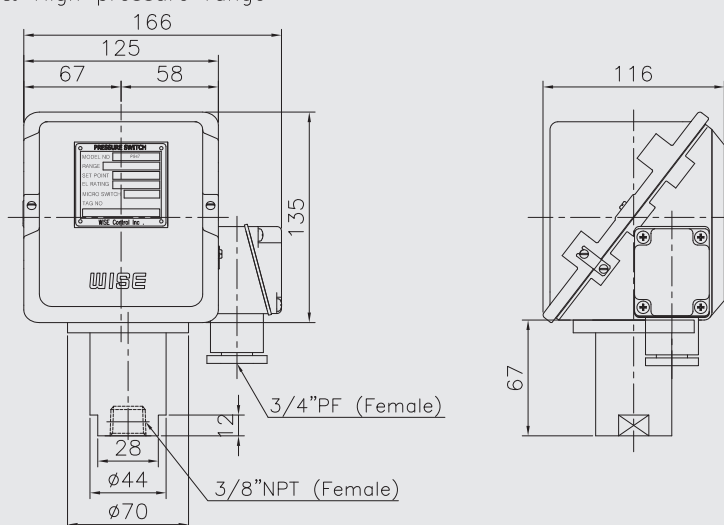
① Vacuum & Low pressure range



② Middle pressure range



③ Middle-High & High pressure range



## 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 setpoint.

## 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.

## Max.Working pressure

The maximum input pressure that can be continuously applied to the pressure switch without causing leakage or catastrophic material failure. Permanent change of set point may occur, or the device may be rendered inoperative.

## 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		Dead band		Working range	Flange size (mm)	Max.Working pressure	
			One SPDT Setpoint	One DPDT Setpoint				
	bar	kPa	bar		bar		bar	MPa
900	-0.1 ~ 1	-10 ~ 100	Within 5% Max adjustable range	Within 10% Max adjustable range	5	91	35	3.5
957	0.1 ~ 1	10 ~ 100						
928	0.2 ~ 2	20 ~ 200						
958	0.3 ~ 3	30 ~ 300						
959	0.4 ~ 4	40 ~ 400			10			
960	0.6 ~ 6	60 ~ 600				70	170	17
961	1 ~ 10	0.1 ~ 1 MPa						
962	1.5 ~ 15	0.15 ~ 1.5 MPa						
963	2 ~ 20	0.2 ~ 2 MPa						
964	3 ~ 30	0.3 ~ 3 MPa						
965	5 ~ 50	0.5 ~ 5 MPa						
966	7 ~ 70	0.7 ~ 7 MPa						
967	10 ~ 100	1 ~ 10 MPa						
968	15 ~ 150	1.5 ~ 15 MPa			200		200	20
							400	40

## 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 <sup>2</sup> 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.

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	10		2	1	6		3	1.5
250 V AC	10		1.5	0.7	4		2	1
8 V DC	10		3	1.5	6		5	2.5
30 V DC	10		3	1.5	4		3	1.5
125 V DC	0.5		0.5		0.05		0.05	
250 V DC	0.25		0.25		0.03		0.03	

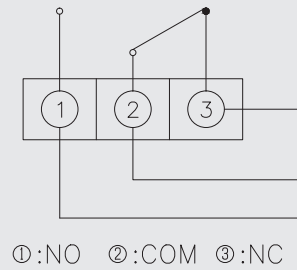
### DPDT switching element

Double-pole, double throw (DPDT) is two SPDT switching elements operated by a common lever assembly so simultaneous actuation / deactuation occurs at both the increasing and the decreasing set point.

Two independent electrical circuits can be switches, i.e. one AC and one DC.

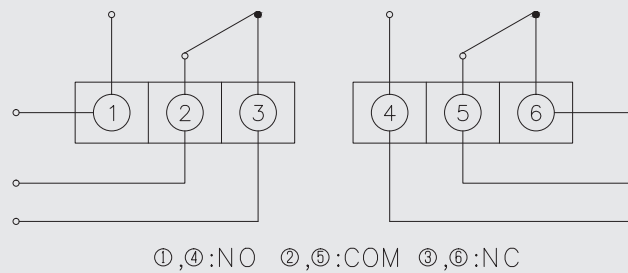
## One SPDT

When the input pressure reach the upper or lower limit setpoint.  
The circuit is colsed and opened.



## One DPDT

When the input pressure reach the upper or lower limit setpoint.  
The circuit are simultaneously closed and opened.



NO : Normal open  
NC : Normal close