

# Weatherproof type pressure switch

## Model: P945 series

Spec. sheet no. PD09-05

### Service intended

P945 diaphragm 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)

-0.9 to 300 bar

### 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

### Pressure connection

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

### Contact rating

#### SPDT contact rating

AC 125 V / 250 V, 15 A

DC 125 V, 0.5 A for resistance load

DC 125V, 0.03 A for inductive load

### Element

Stainless steel (316L SS)

Monel and Hastelloy-C

### Case and cover

ALDC 12.1 (Silver gray painted)

### Conduit connection

¾" NPT (F)

### Contact

Micro contact type

One SPDT

Two SPDT (Only available with single setpoint)

### Process connection

½" NPT(F)

**WISE**<sup>®</sup>

## Main order

## Ordering information

### 1. Base model

P945 Weatherproof type pressure switch

### 2. Deadband

F Fixed

### 3. Switch form

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

### 4. Process connection

E 1/2"

### 5. Connection type

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 / 316L SS
- Z Monel / Monel
- H Hastelloy-C / Hastelloy-C

### 9. Options

- 0 None
- 1 Wall mounting bracket
- 2 2" mounting bracket
- 4 1/2" NPT (F) conduit connection

#### Sample ordering code

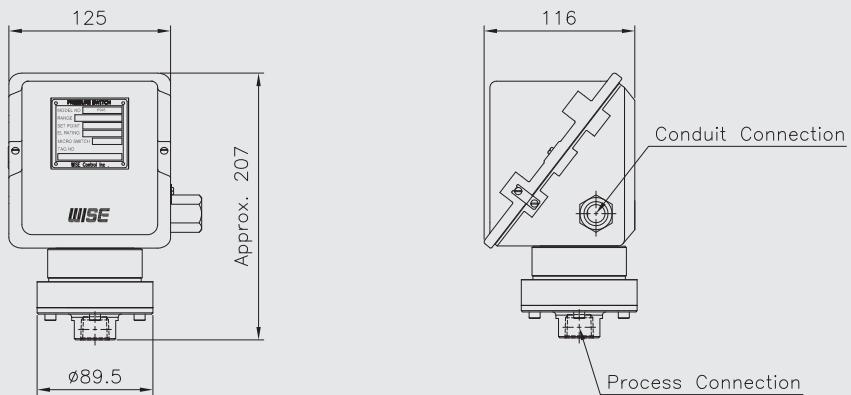
1	2	3	4	5	6	7	8	9
P945	F	1	E	E	H	XXX	3	0



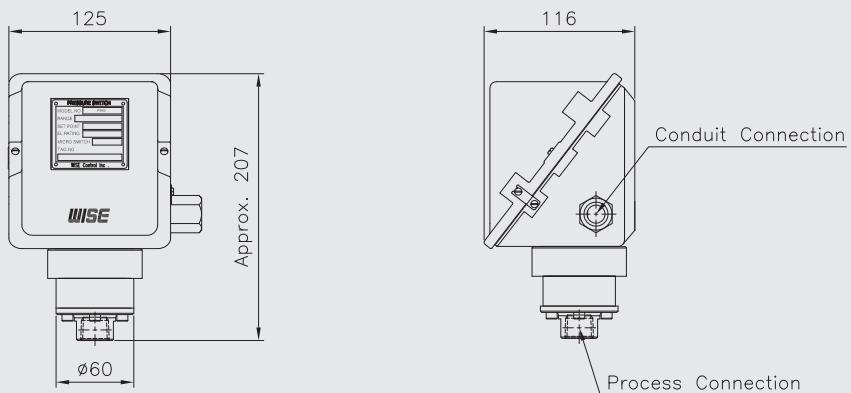
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## P945 : Type of mounting (1/3)

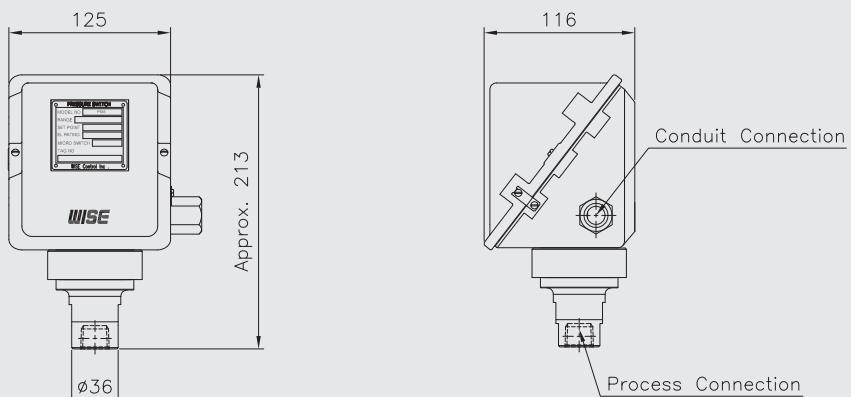
### P945-STANDARD



### LOW PRESSURE



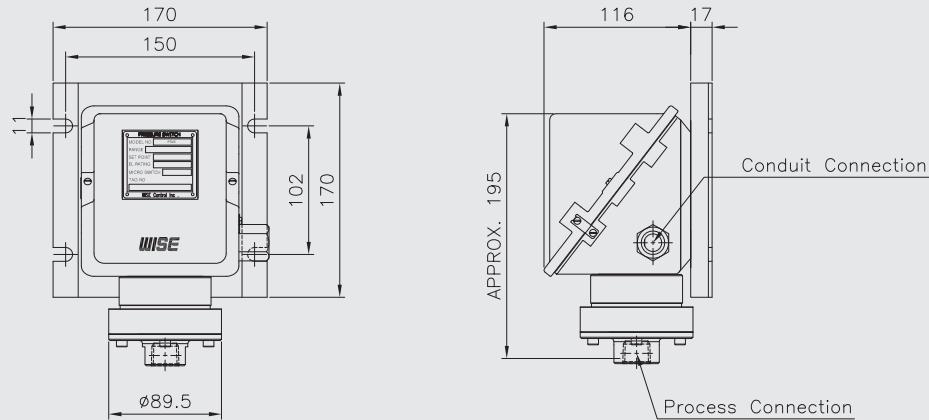
### MIDDLE PRESSURE



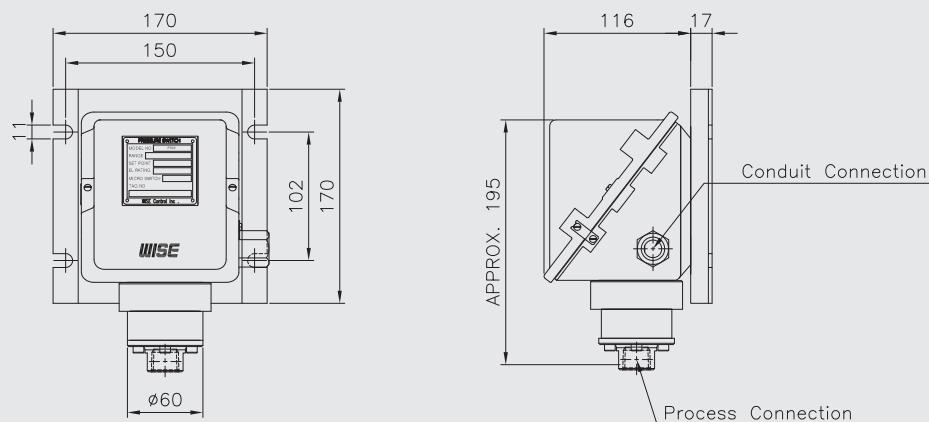
### HIGH PRESSURE

## P945 : Type of mounting (2/3)

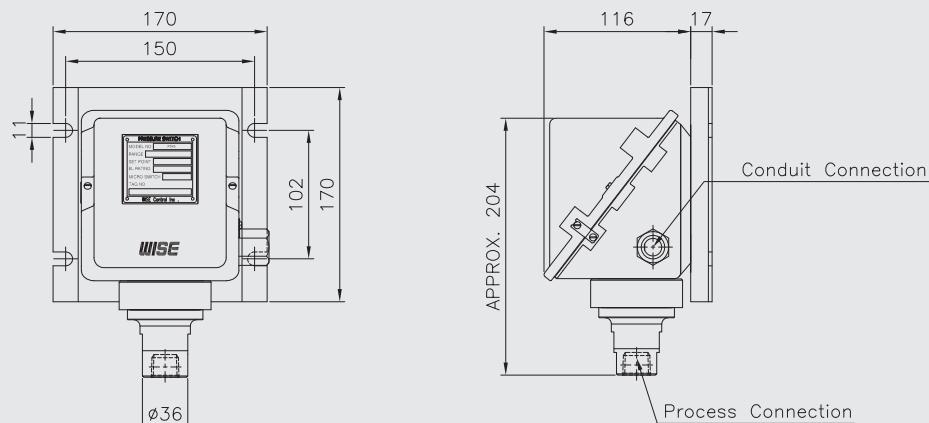
### P945—WALL MOUNTING TYPE



#### LOW PRESSURE



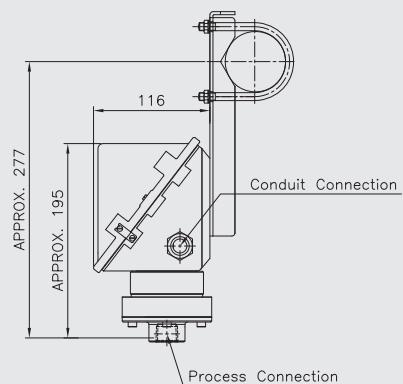
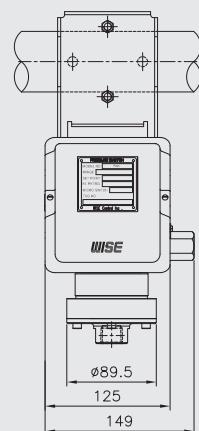
#### MIDDLE PRESSURE



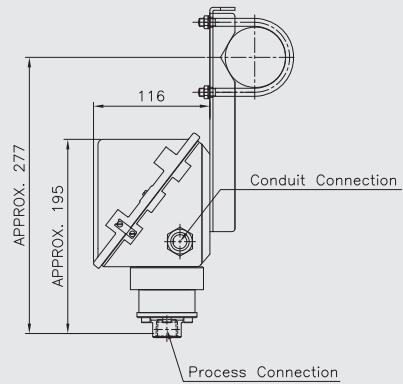
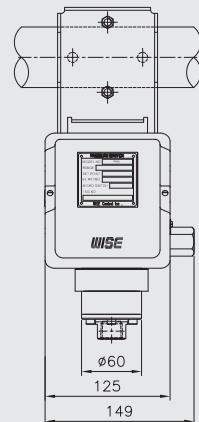
#### HIGH PRESSURE

## P945 : Type of mounting (3/3)

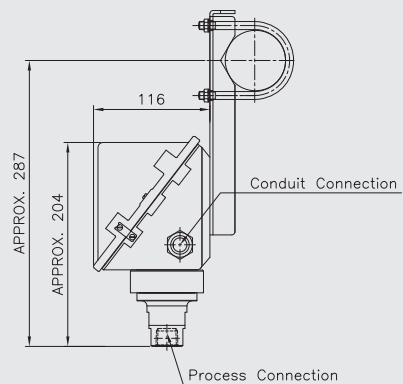
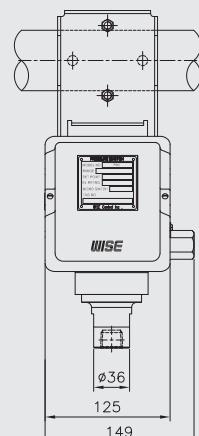
### P945-2" MOUNTING TYPE



LOW PRESSURE



MIDDLE PRESSURE



HIGH PRESSURE

## 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.

## 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

List	Adjustable setting range	Dead band		Working range	Max. Working pressure
	bar [mbar]	One SPDT Setpoint	Two SPDT Setpoint	bar	bar
Positive Pressure	[3.0 ~ 20]	Within 10 % adjustable range	X	14	28
	[8.5 ~ 120]				
	[65 ~ 300]				
	[75 ~ 600]				
	[110 ~ 900]				
	[200 ~ 650]				
	0.4 ~ 2.7	Within 5 % adjustable range	Within 10 % adjustable range	50	70
	0.8 ~ 4				
	2 ~ 12				
	3 ~ 24			100	170
	8 ~ 38				
	7.5 ~ 36				
	24 ~ 85			170	410
	35 ~ 120				
	70 ~ 275			340	410
Compound Pressure	[-50 ~ +50]	Within 10 % adjustable range	X	14	28
	[-100 ~ +100]				
	-0.5 ~ 0.1	Within 5 % adjustable range	Within 10 % adjustable range	50	70
	-0.9 ~ 0				
	-0.9 ~ 0.5				
	-0.9 ~ 4.8			100	170

## 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	0.5*		0.5*	0.5*	0.03		0.03	0.03
250 V DC	0.2		0.2	0.2	0.02		0.02	0.02

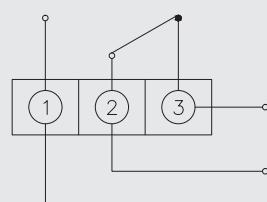
The DC current ratings marked with an asterisk have been verified by testing and experience.

### 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

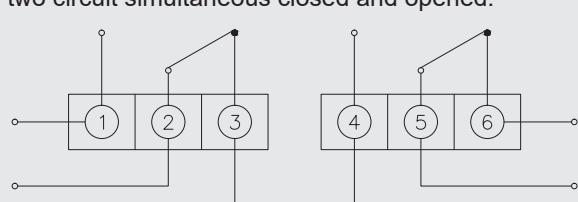
Pressure reach the upper or lower limit setpoint, circuit closed and opened.



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

## Memo