

# Indicating type pressure switch

## Model: P535, P536 series

Spec. sheet no. PD05-06

### Service intended

P535 and P536 series are micro contact type switches, and suitable for a corrosive fluid and a high pressure measurement. Deadband is fixed.



### Nominal diameter

100 and 150 mm

### Accuracy

Indicator :  $\pm 1.0$  % of full scale

Alarm setting :  $\pm 3.0$  % of full scale

### Repeatability

$\pm 1.0$  % of adjustable range

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

-0.1 ~ 0 to -0.1 ~ 2 MPa

0 ~ 0.1 to 0 ~ 35 MPa

### Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

### Degree of protection

EN60529/IEC529/IP55 (Only Diameter 150 mm)

### Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately  $\pm 0.4$  % per 10 °C of full scale



## Standard features

### Pressure connection

Stainless steel (316SS)

### Element

C type bourdon tube

Stainless steel (316SS)

### Case and cover

ALDC 12.1, silver gray painted for 150 mm

ALDC 12.1, black painted for 100 mm

### Contact

Micro contact type

One SPDT or two SPDT

### Contact rating

150 mm - **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

100 mm - AC 250 V, 3 A / AC 125 V, 5 A

DC 250 V, 0.2 A / DC 125 V, 0.4 A

DC 30 V, 4 A

Dielectric strength : AC 500 V/min

### Conduit connection

150 mm :  $\frac{3}{4}$ " PF

100 mm : M20 x 1.5

### Process connection

$\frac{3}{8}$ ",  $\frac{1}{2}$ " PT, NPT and PF

### Certificates

Pressure equipment directive (2014/68/EU) Annex III Module H

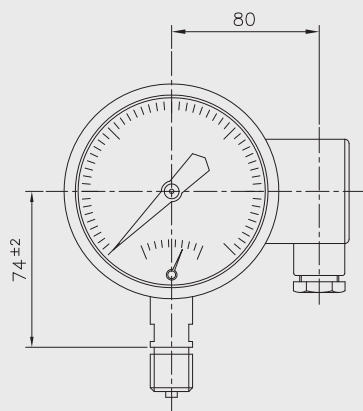
**WISE**<sup>®</sup>

**1. Base model****P535** Indicating type pressure switch (Single setpoint)**P536** Indicating type pressure switch (Dual setpoint)**2. Nominal diameter (mm)****4** 100**6** 150**3. Type of mounting****A** Bottom connection, direct, only available with diameter 100 mm**B** Bottom connection, surface, case mounting plate**L** Lower back connection, flush, case center mounting plate, only available with diameter 100 mm**4. Accuracy****3** ±1.0 % of full scale**5. Process connection****D** 3/8"**E** 1/2"**6. Connection type****B** PF**C** PT**D** NPT**7. Unit****H** bar**I** MPa**J** kPa**8. Range****XXX** Refer to pressure unit and range table**9. Pressure connection material and dial color****3** 316SS and 2 colors**7** 316SS and 3 colors**10. Option****0** None**1** Accessories**Sample ordering code**

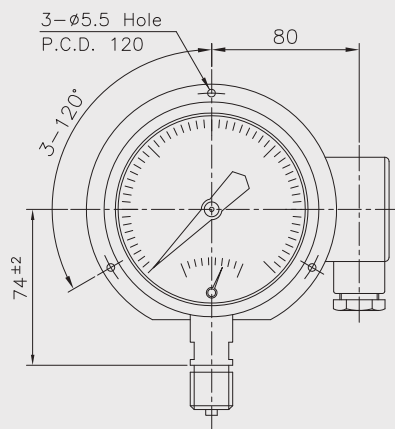
1	2	3	4	5	6	7	8	9	10
<b>P535</b>	<b>6</b>	<b>B</b>	<b>3</b>	<b>D</b>	<b>D</b>	<b>H</b>	<b>XXX</b>	<b>3</b>	<b>0</b>

## P535, P536 : Type of mounting

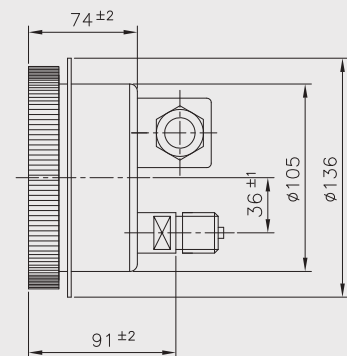
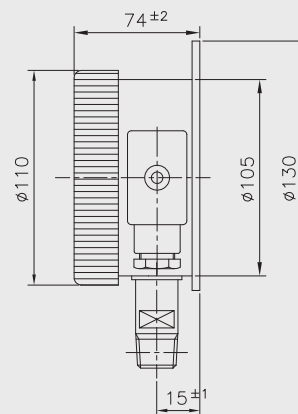
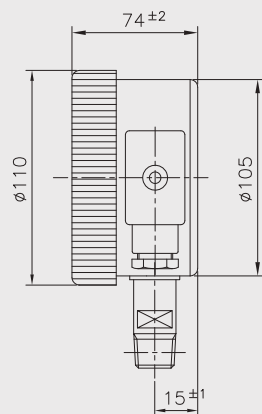
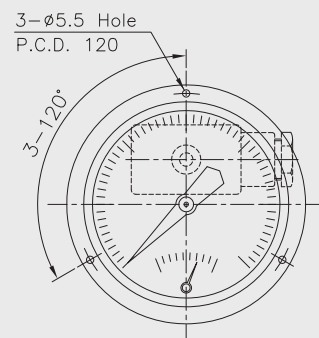
Code A ( $\phi 100$ )



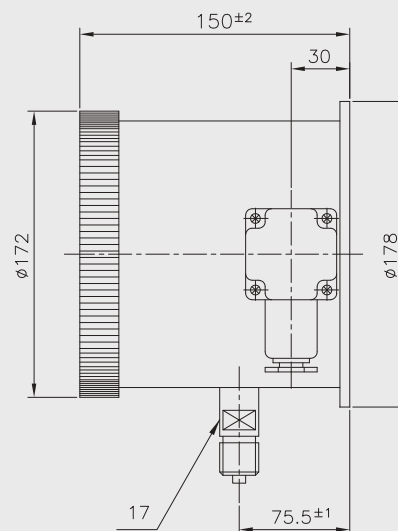
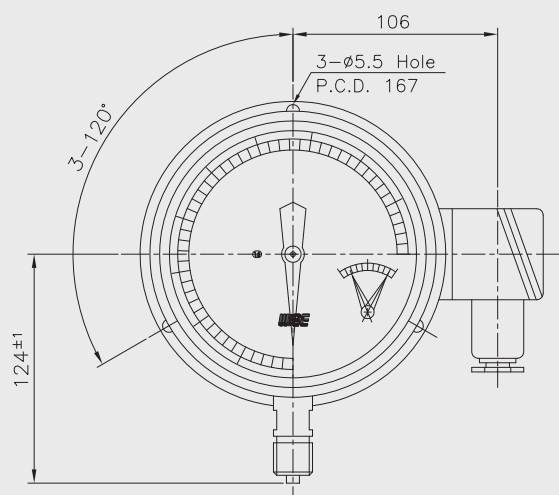
Code B ( $\phi 100$ )



Code L ( $\phi 100$ )



Code B\* ( $\phi 150$ )



## 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.

## Proof pressure (Pmax)

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

## Burst 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 unit and range table

Range and code	Unit and code			P535	P536
	H : bar	I : MPa	J : kPa		
026	-1 ~ 0	-0.1 ~ 0	-100 ~ 0	O	O
041	0 ~ 1	0 ~ 0.1	0 ~ 100	O	O
042	0 ~ 2	0 ~ 0.2	0 ~ 200	O	O
043	0 ~ 3	0 ~ 0.3	0 ~ 300	O	O
044	0 ~ 4	0 ~ 0.4	0 ~ 400	O	O
045	0 ~ 6	0 ~ 0.6	0 ~ 600	O	O
047	0 ~ 10	0 ~ 1	0 ~ 1,000	O	O
050	0 ~ 15	0 ~ 1.5	X	O	O
143	0 ~ 16	0 ~ 1.6	X	O	O
051	0 ~ 20	0 ~ 2	X	O	O
052	0 ~ 25	0 ~ 2.5	X	O	O
054	0 ~ 35	0 ~ 3.5	X	O	O
151	0 ~ 40	0 ~ 4	X	O	O
055	0 ~ 50	0 ~ 5	X	O	O
056	0 ~ 60	0 ~ 6	X	O	O
057	0 ~ 70	0 ~ 7	X	O	O
058	0 ~ 100	0 ~ 10	X	O	O
059	0 ~ 150	0 ~ 15	X	O	O
060	0 ~ 160	0 ~ 16	X	O	O
062	0 ~ 250	0 ~ 25	X	O	O
064	0 ~ 350	0 ~ 35	X	O	O
065	0 ~ 400	0 ~ 40	X	O	O
027	-1 ~ 1	-0.1 ~ 0.1	-100 ~ 100	O	O
028	-1 ~ 2	-0.1 ~ 0.2	-100 ~ 200	O	O
029	-1 ~ 3	-0.1 ~ 0.3	-100 ~ 300	O	O
030	-1 ~ 4	-0.1 ~ 0.4	-100 ~ 400	O	O
031	-1 ~ 6	-0.1 ~ 0.6	-100 ~ 600	O	O
032	-1 ~ 10	-0.1 ~ 1	-100 ~ 1,000	O	O
033	-1 ~ 15	-0.1 ~ 1.5	-100 ~ 1.5 MPa	O	O
034	-1 ~ 20	-0.1 ~ 2	-100 ~ 2 MPa	O	O
035	-1 ~ 25	-0.1 ~ 2.5	-100 ~ 2.5 MPa	O	O

O : Available X : Not available

## Micro contact : 100 mm

### 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	0.1 mm to 1 m/s
Mechanical operating frequency	400 operations/min
Insulation resistance	100 MΩ at 500 VDC
Contact resistance	50 MΩ max
Shock resistance	200 m/sec <sup>2</sup> max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	85 % max

### Specifications

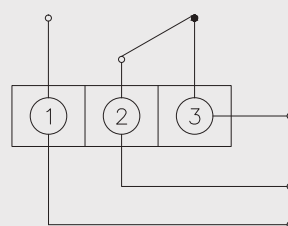
Rated voltage	Resistive load (A)	
	NC	NO
125 V AC		5
250 V AC		3
8 V DC		5
14 V DC		5
30 V DC		4
125 V DC		0.4
250 V DC		0.2

### 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

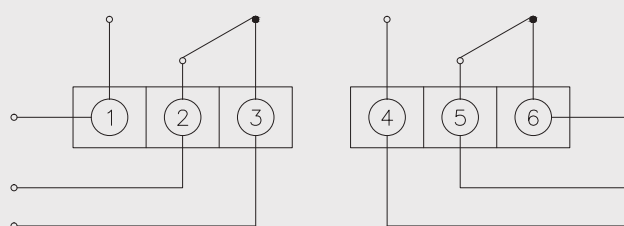
Pressure reach the upper or lower limit setpoint, circuit closed and opened.



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

## Micro contact : 150 mm

### 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	15 MΩ max
Shock resistance	100 m/sec <sup>2</sup> max
Ambient temperature	-25 ~ 80 °C
Ambient humidity	35 ~ 85 % RH

### Specifications

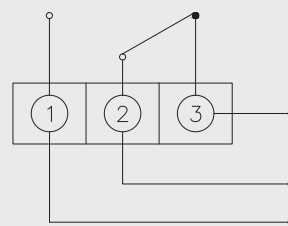
Rated voltage	Non inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 V AC	15		3	1.5	15		5	2.5
250 V AC	15		2.5	1.25	15		3	1.5
8 V DC	15		3	1.5	15		5	2.5
30 V DC	2		2	1.4	1		1	1
125 V DC	0.4		0.4	0.4	0.03		0.03	0.03
250 V DC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

#### One SPDT

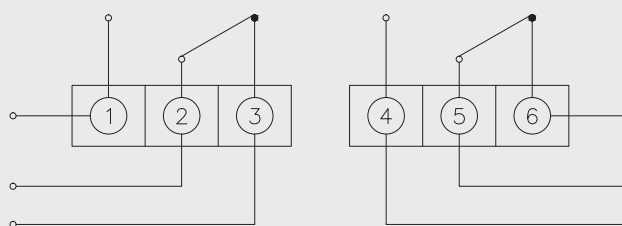
Pressure reach the upper or lower limit setpoint, circuit closed and opened.



①:NO ②:COM ③:NC

#### Two SPDT

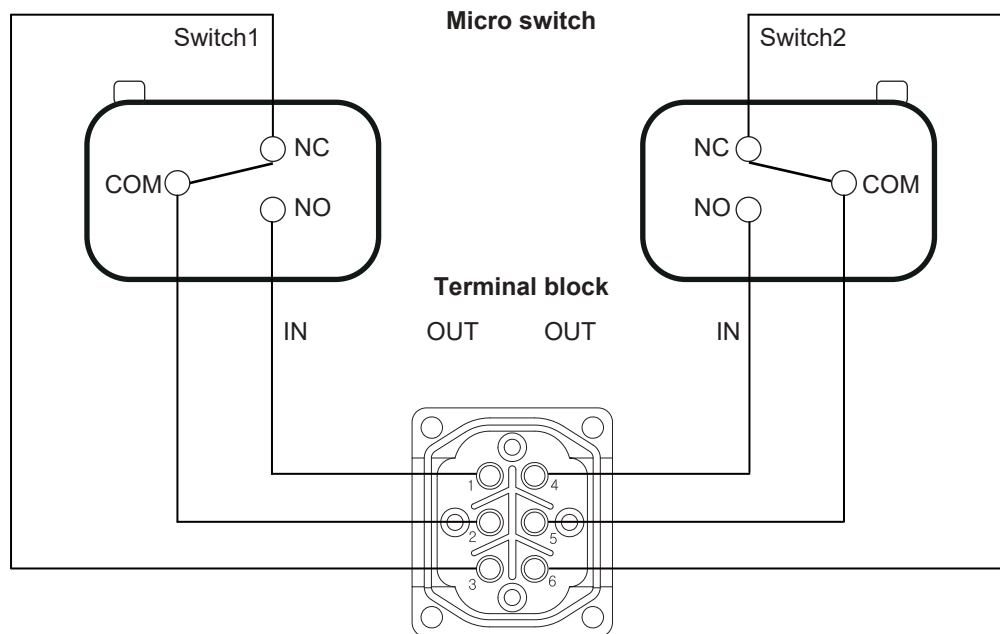
Pressure reach the upper or lower limit setpoint, two circuit simultaneous closed and opened.



①,④:NO ②,⑤:COM ③,⑥:NC

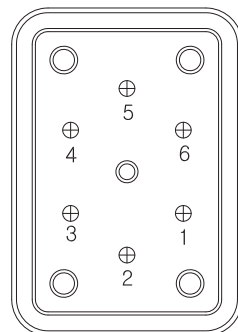
NO : Normal open  
NC : Normal close

## Terminal block arrangement

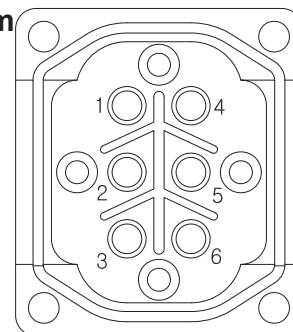


	NO	COM	NC
Switch 1	1	2	3
	NC	COM	NO
Switch 2	4	5	6

100 mm



150 mm



### 1. High alarm

- ① Normal open
- ② Common
- ③ Normal close

### 2. High and low alarm

#### High alarm

- ① Normal open
- ② Common
- ③ Normal close

#### Low alarm

- ④ Normal open
- ⑤ Common
- ⑥ Normal close

### 3. Low alarm

- ① Normal open
- ② Common
- ③ Normal close

### 4. Two high alarm

#### No.1 High alarm

- ① Normal open
- ② Common
- ③ Normal close

#### No.2 High alarm

- ④ Normal close
- ⑤ Common
- ⑥ Normal open

### 5. Two low alarm

#### No.2 Low alarm

- ① Normal open
- ② Common
- ③ Normal close

#### No.1 Low alarm

- ④ Normal open
- ⑤ Common
- ⑥ Normal close

