

Differential pressure gauge with reed switch

Model: P680 series

Spec. sheet no. **PD06-06**

Service intended

P680 series differential pressure gauge is designed to measure differential pressure from 25 kPa to 2.0 MPa at Max. working pressure 10 MPa. A set of two stainless steel bellows mounted on a force balance allows direct reading of the actual differential pressure. The contacts use a reed switch for warning and control applications.



Nominal diameter

150 mm

Accuracy

±1.0 % of full scale

±1.5 % of full scale

Scale range (MPa, kPa, bar, mbar)

0 ~ 25 kPa to 0 ~ 0.25 MPa (P681 model)

0 ~ 0.4 MPa to 0 ~ 2.0 MPa (P682 model)

Max. working pressure (Static pressure)

Max. 10 MPa

Working temperature

Ambient : -20 ~ 65 °C

Fluid : Max. 100 °C

Degree of protection

EN60529/IEC529/IP65

Temperature effect

Accuracy at temperature above and below the reference temperature (20 °C) will be effected by approximately ±0.5 % per 10 °C of full scale



Standard features

Pressure connection

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

Element

Bellows

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

Case and cover

ALDC12.1, black painted

Screwed type

Window

Safety glass

Dial

White aluminium with black graduations

Filling liquid for differential cell

Silicone oil

Pointer

Black painted aluminium alloy (Zero adjustable)

Contact

Reed switch, One and two SPST

Conduit connection

3/4" PF(F)

Process connection

1/4" NPT(F)

1/2" NPT(F) at 3-way and 5-way manifold valve

Standard accessories

Mounting bracket for 2" pipe
mounting with silver gray finished steel

Option

- Remote seal - Not available with less than 40 kPa of differential pressure range
- Mounting bracket with 316SS for 2" pipe
- 3-way and 5-way manifold valve
- 3-way and 5-way manifold valve (Monel)

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| P680_01

1. Base model

P681 Differential pressure gauge with reed switch
(0 ~ 25 kPa to 0 ~ 0.25 MPa)

P682 Differential pressure gauge with reed switch
(0 ~ 0.4 MPa to 0 ~ 2.0 MPa)

2. Contact function

- 1 High alarm
- 2 Low alarm
- 3 High and low alarm
- 4 Two high alarm
- 5 Two low alarm

3. Type of mounting

- D Bottom connection, mounting bracket for 2" pipe

4. Accuracy

- 3 ±1.0 % of full scale (Optional)
- 4 ±1.6 % of full scale (Standard)

5. Process connection

- C ¼" NPT(F)
- E ½" NPT(F), only at 3-way and 5-way manifold valve

6. Mounting bracket

- D Standard bracket
- E 304SS mounting bracket
- F 316SS mounting bracket
- W Wall mounting bracket (316SS)
- N None

7. Unit

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

8. Range

XXX Refer to pressure unit and range table

9. Element and flange material

- 1 316L SS
- 2 Monel
- 3 Hastelloy-C

10. Option

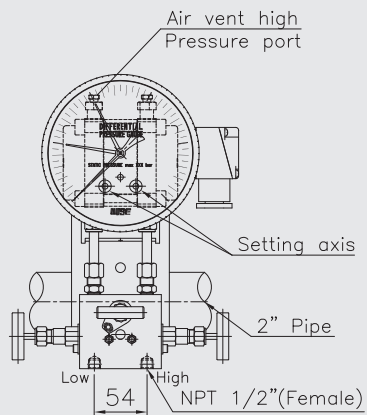
- 0 None
- 1 Manifold valve
- 8 ½" or ¾" NPT(F) conduit connection

| | | | | | | | | | |
|------|---|---|---|---|---|---|-----|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| P681 | 1 | D | 4 | C | D | H | XXX | 1 | 0 |

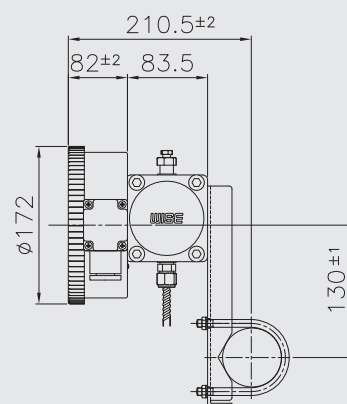
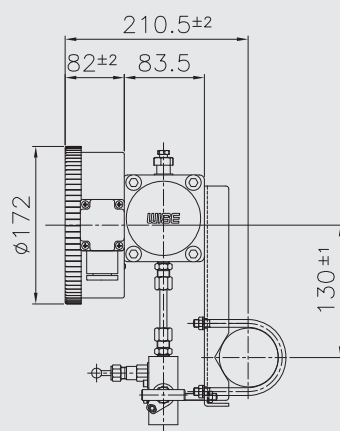
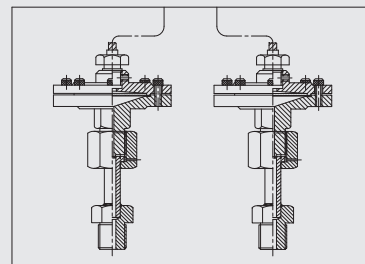
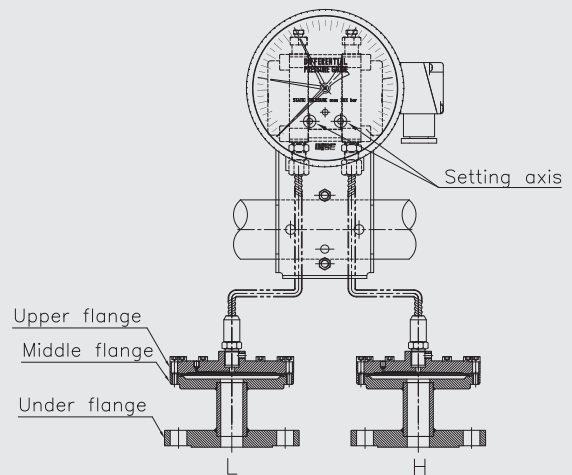
Sample
ordering code

P680 : Type of mounting

Code:(D) P680



Code:(D) P680(Remote seal)



Electrical



| Switch | Rating | Withstand voltage | Insulation resistance |
|-------------|-------------------|---------------------------------|-------------------------------------------------------|
| Reed switch | 125 V AC 0.2 A | Between noncontiguous terminals | 500 V DC 100 MΩ or over Between terminals and case |
| | 200 V DC 0.25 A | 400 V AC for 1 minute | |
| | 100 V DC 0.7 A | Between terminals and case | |
| | (Resistance load) | 600 V AC for 1 minute | |

Withstand voltage

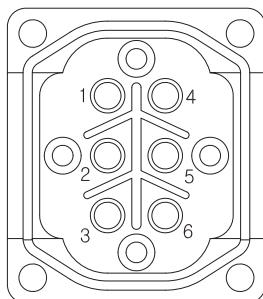
* A contact protection circuit is required when using an inductive load or a load (Capacitive load, long cable, etc) through which a surge current (Inrush current) flows as the reed switch load.

* These gauges cannot be used with 220 V AC.

Contact function

| Code | Type of contact | Mark | Operation system and operation diagram | Connection terminal number | Setting pointer |
|------|--------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------|
| 1 | High alarm | H | When the differential pressure increases (decreases) to the set pressure, the contacts operate and turn ON(OFF) the circuit.  | ①-② | Red pointer |
| 2 | Low alarm | L | When the differential pressure increases (increases) to the set pressure, the contacts operate and turn ON(OFF) the circuit.  | ④-⑤ | Yellow pointer |
| 3 | High and Low alarm | H L | Combines the upper limit type (reverse lower limit type) and lower limits type (reverse upper limit type). Each type operates independently. | ①-② ④-⑤ | Red pointer Yellow pointer |
| 4 | Two high alarm | 2 H | Combines two upper limit type (reverse lower limit type). Each type operates independently. | ①-② ④-⑤ | Red pointer Yellow pointer |
| 5 | Two low alarm | 2 L | Combines two lower limit type (reverse upper limit type). Each type operates independently. | ①-② ④-⑤ | Red pointer Yellow pointer |

Terminal block arrangement



1. High alarm

- ① Normal open
- ② Common

2. Low alarm

- ④ Normal close
- ⑤ Common

3. High and low alarm

High alarm

- ① Normal open
- ② Common

Low alarm

- ④ Normal close
- ⑤ Common

4. Two high alarm

No.1 High alarm

- ① Normal open
- ② Common

No.2 High alarm

- ④ Normal close
- ⑤ Common

5. Two low alarm

No.2 Low alarm

- ① Normal open
- ② Common

No.1 Low alarm

- ④ Normal close
- ⑤ Common

Pressure unit and range table

| Range and code | Unit and code | | | | Model | Max. static pressure | |
|----------------|---------------|----------|---------|----------|-------|----------------------|--|
| | J : kPa | S : mbar | H : bar | I : MPa | | | |
| 118 | 0 ~ 25 | 0 ~ 250 | X | X | P681 | 10 MPa | |
| 121 | 0 ~ 40 | 0 ~ 400 | X | X | | | |
| 125 | 0 ~ 60 | 0 ~ 600 | X | X | | | |
| 041 | 0 ~ 100 | X | 0 ~ 1 | 0 ~ 0.1 | | | |
| 133 | 0 ~ 160 | X | 0 ~ 1.6 | 0 ~ 0.16 | | | |
| 042 | 0 ~ 200 | X | 0 ~ 2 | 0 ~ 0.2 | | | |
| 134 | 0 ~ 250 | X | 0 ~ 2.5 | 0 ~ 0.25 | | | |
| 044 | 0 ~ 400 | X | 0 ~ 4 | 0 ~ 0.4 | P682 | | |
| 045 | 0 ~ 600 | X | 0 ~ 6 | 0 ~ 0.6 | | | |
| 047 | 0 ~ 1,000 | X | 0 ~ 10 | 0 ~ 1 | | | |
| 143 | X | X | 0 ~ 16 | 0 ~ 1.6 | | | |
| 051 | X | X | 0 ~ 20 | 0 ~ 2 | | | |

X : Not available