# NICKEL PLATED ZINC CASE ELECTRIAL CONTACT PRESSURE GAUGE

## Model: P542, P543 series

Spec. sheet no. PD05-07

### Service intended
P542 and P543 series are designed for a local reading of measured pressure and equipped with the electrical contact block which allows all the combinations of contacts to be used. The contact block is mounted on the dial. The window is fitted with a knob for external adjustment of the set points. These are also designed to direct the leakage of insulating oil inside the electric cable.

### Nominal diameter
100 and 150 mm

### Accuracy
±1.0 % of full scale

### Scale range (MPa, kPa, bar)
-0.1 ~ 0.6 MPa to -0.1 ~ 1 MPa
-0.1 ~ 0.3 MPa

### Working pressure
Steady : 75 % of full scale value
Over range protection : 130% of full scale

### Working temperature
Ambient : -40 ~ 65 °C
Fluid : Max. 100 °C

### Degree of protection
EN60529/IEC529/IP67

### Temperature effect
Accuracy at temperature above and below the reference temperature (20 ℃) will be effected by approximately ±0.4 % per 10 ℃ of full scale




## Standard features

### Pressure connection
Stainless steel (316SS)
Threaded entry, radial

### Element
Stainless steel (316SS)
C type bourdon tube

### Case
Nickel plated zinc for 100 mm (P542)
Triple setpoint only 316SS 100 and 150 mm (P543)

### Cover
Nickel plated zinc for 100 mm
Triple setpoint only 316SS 150 mm (P543)

### Window
Safety glass

### Movement
Stainless steel

### Dial
White aluminium with black graduations

### Pointer
BsT3 alloy, black painted pointer with gold plated

### Contact
Contact : Dual set point or triple set point
Contact rating : AC 110 V, 0.5 A/AC 220 V, 0.25 A
Dielectric strength : AC 2,000 V/min insulation
Insulation resistance : More than 100 MΩ at DC 500 V

### Process connection
⅜" PF

## Main order — Ordering information

### 1. Base model

| | |
|---|---|
| **P542** | Electrical contact type pressure gauge (Dual contact) |
| **P543** | Electrical contact type pressure gauge (Triple contact) |

### 2. Nominal diameter (mm)

| | |
|---|---|
| **4** | 100 |
| **6** | 150 |

### 3. Type of mounting

| | |
|---|---|
| **B** | Bottom entry and surface mounting flange |

### 4. Accuracy

| | |
|---|---|
| **3** | ±1.0 % of full scale |

### 5. Process connection

| | |
|---|---|
| **D** | ⅜" |

### 6. Connection type

| | |
|---|---|
| **B** | PF |

### 7. Unit

| | |
|---|---|
| **H** | bar |
| **I** | MPa |
| **J** | kPa |

### 8. Range

| | |
|---|---|
| **029** | -0.1 ~ 0.3 MPa (-1 ~ 3 bar) |
| **031** | -0.1 ~ 0.6 MPa (-1 - 6 bar) |
| **032** | -0.1 ~ 1 MPa (-1 ~ 10 bar) |

### 9. Dial color

| | |
|---|---|
| **6** | 3 colors |

### 10. Option

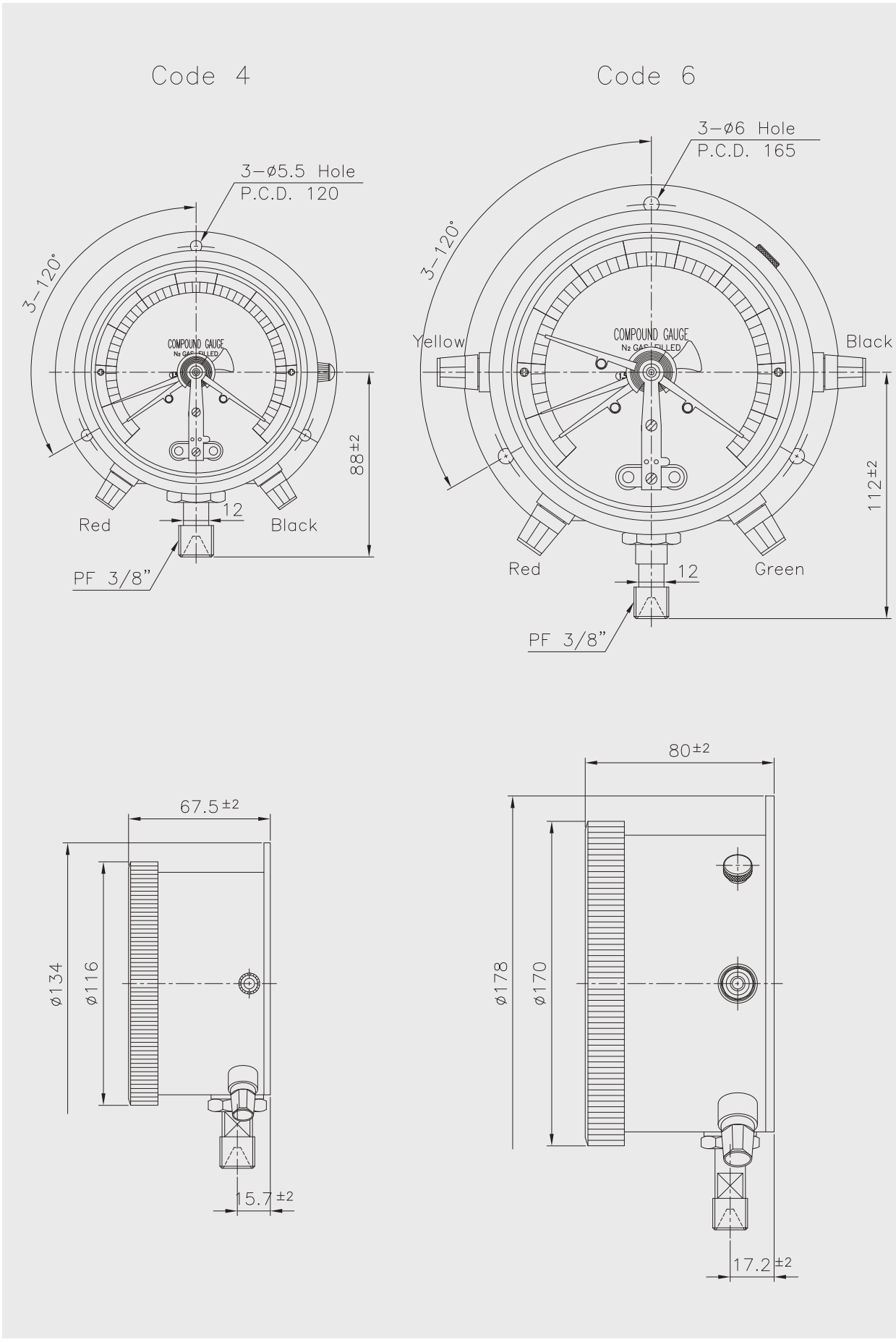
| | |
|---|---|
| **0** | None |
| **1** | Accessories |

**Sample ordering code**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| **P542** | **6** | **B** | **3** | **D** | **B** | **H** | **029** | **6** | **0** |

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## P542 : Type of mounting



# Snap - action contacts

## General

Electromechanical limit switches in pointer type measuring instruments are auxiliary current switches which open or close electrical circuits at set limit values by means of a contact arm which is moved by the actual value pointer.
The snap action contact is a mechanical contact for switching capacities up to 30 W 50 VA max.
Contact making will be delayed and or advanced in relation to the movement of the actual value pointer.
To closed the circuit, the contact pin of the movable contact arm is attracted in a jump by the permanent magnet fastened to the supporting arm shortly before the set value has been reached.
Due to the retention force of the magnet, snap action contacts are more resistant against shock and vibration.
The switching safety is increased by the increased contact pressure.
When the citcuit is opened, the magnet keeps the contact arm in its place until the restoring force of the measuring element exceeds the magnetic force, and the contact opens in a jump.

## Specifications

| **Maximum contact rating with non-inductive (ohmic) load** | | **Electrical contacts type pressure gauge model P540 series** | |
|---|---|---|---|
| | | **Dry gauges** | **Liquid filled gauges** |
| **Maximum voltage** | | 250 V | 250 V |
| **Current ratings** | **Make ratings** | 1.0 A | 1.0 A |
| | **Break ratings** | 1.0 A | 1.0 A |
| | **Continuos load** | 0.6 A | 0.6 A |
| **Maximum load** | | 30 W 50 VA | 20 W 20 VA |
| **Material of contact points** | | Silver-Nickel alloy (80% Ag / 20%Ni / 10µm) gold-plated | |
| **Ambient operating temperature** | | -20 °C...+70 °C | |
| **Max. no. of contacts** | | 2 | |
| **Voltage test** | | Circuit / protective earth conductor - 2,000 vac 1 minute | |
| | | Circuit /circuit - 2,000 vac 1 minute | |

## Recommended contact ratings with ohmic and inductive load

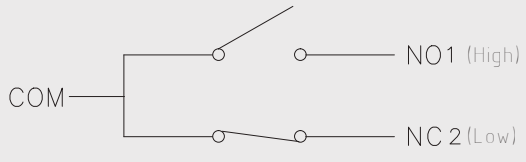
| **Voltage (DIN IEC 38) DC / AC** | **Electrical contacts type pressure gauge model P540 series** | | | | | |
|---|---|---|---|---|---|---|
| | **Dry gauges** | | | **Liquid filled gauges** | | |
| | Ohmic load | | Inductive load | Ohmic load | | Inductive load |
| | DC | AC | | DC | AC | |
| | | | cosØ > 0.7 | | | cosØ > 0.7 |
| **V** | mA | mA | mA | mA | mA | mA |
| **220 / 230** | 100 | 120 | 65 | 65 | 90 | 40 |
| **110 / 110** | 200 | 240 | 130 | 130 | 180 | 85 |
| **48 / 48** | 300 | 450 | 200 | 190 | 330 | 130 |
| **24 / 24** | 400 | 600 | 250 | 250 | 450 | 150 |

In order to ensure a high switching reliability of the contacts the switching voltage should not be below 24 V, also taking environmental influences in the long term into account.

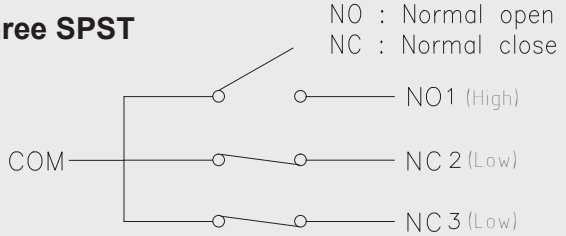
## SPST switching element

Single-pole, single throw (SPST) has two connection : C-common, NO-normally open, which allows the switching element to be electrically to the circuit NO state.

**Two SPST**




**Three SPST**



## Conversion table

**Pressure conversion chart**

| psi | atm | kgf/cm² | inH₂O | mmHg | inHg | kPa | bar | mmH₂O |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.068046 | 0.070307 | 27.7276 | 51.715 | 2.03602 | 6.835 | 0.06895 | 704.28104 |
| 14.696 | 1 | 1.0332 | 407.484 | 760 | 29.921 | 101.325 | 1.01325 | 10350.0936 |
| 14.2233 | 0.96784 | 1 | 394.38 | 735.559 | 28.959 | 98.096 | 0.98067 | 10,000 |
| 0.036092 | 0.002454 | 0.00253 | 1 | 1.8651 | 0.07343 | 0.249 | 0.00249 | 25.4 |
| 0.019336 | 0.001315 | 0.001359 | 0.53616 | 1 | 0.03937 | 0.1333 | 0.001333 | 13.618464 |
| 0.491154 | 0.0033421 | 0.03453 | 13.6185 | 25.4 | 1 | 3.3864 | 0.033864 | 345.9099 |
| 0.145 | 0.00987 | 0.010197 | 4.0186 | 7.5006 | 0.2953 | 1 | 0.01 | 102.07244 |
| 14.5038 | 0.98692 | 1.01972 | 402.156 | 750.062 | 29.53 | 100 | 1 | 10214.7624 |
| 0.00142 | 0.000097 | 0.0001 | 0.03937 | 0.0734 | 0.0029 | 0.0098 | 0.000098 | 1 |

## Memo

## Memo