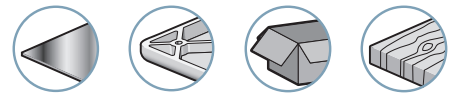# PSD 100
## Vacuum Switch with 3-color Display

The new PSD100 series mini-vacuum switch with display offers easy reading thanks to the size of its screen and its 3-color display.

Its compactness and lightness facilitate its integration on all machines. Easily adjustable, it is equipped with an extremely precise electronic vacuum level sensor and has an adjustable digital output as well as an analog output. The PSD100 has mounting accessories on option, making it very easy to install.
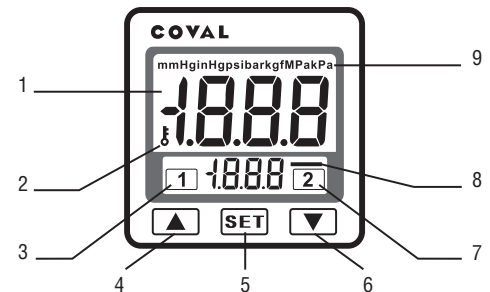
Industry-specific applications

## Specifications

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pressure rating range | 0.0 ~ -101.3 kPa | | | | | | | |
| Pressure setting range | 10.0 ~ -101.3 kPa | | | | | | | |
| Max. pressure | 300 kPa | | | | | | | |
| Fluid | Air, non-corrosive/non-flammable gas | | | | | | | |
| Pressure setting resolution | kPa 0.1 | MPa / | kgf/cm² 0.001 | bar 0.001 | psi 0.01 | inHg 0.1 | mmHg 1 | |
| Power supply voltage | 12 to 24 V DC ±10%, ripple (P-P) 10% or less | | | | | | | |
| Current consumption | ≤ 40 mA (without load) | | | | | | | |
| Switch output | 1 PNP digital output (2x on PNP2 version) Max. load current: 125 mA Max. supply voltage: 24 VDC Residual voltage: ≤ 1.5 V | | | | | | | |
| Repeatability (Switch output) | ≤ ± 0.2% F.S. ±1 digit | | | | | | | |
| Hysteresis — Threshold mode | Adjustable (1 to 8 digits) | | | | | | | |
| Hysteresis — Hysteresis mode | Adjustable | | | | | | | |
| Hysteresis — Window comparator mode | Adjustable (1 to 8 digits) | | | | | | | |
| Response time | ≤ 2.5ms (anti-vibration function: 25 ms,100 ms, 250 ms, 500 ms, 1000 ms and 1500 ms selection) | | | | | | | |
| Output short circuit protection | Yes | | | | | | | |
| 7 segment LCD display | Two colour (red / green) main display, orange sub-display (refresh rate: 5 times / 1sec.) | | | | | | | |
| Indicator accuracy | ≤ ± 2% F.S. ± 1 digit (ambient temperature: 25 ± 3°C) | | | | | | | |
| Switch ON indicator | Orange OUT 1 / OUT 2 (PNP2 only) | | | | | | | |
| Analog output (voltage power) (PNP version only) | Output voltage: 1 to 5 V ≤ ± 2.5% F.S. (within rated pressure range), linearity: ≤ ± 1% F.S. / Output impedance: approx. 1 kΩ | | | | | | | |
| Environnement — Enclosure | IP40 | | | | | | | |
| Environnement — Ambient temp. range | operation: 0 – 50° C / storage: -10 – 60° C (no condensation or freezing) | | | | | | | |
| Environnement — Ambient humidity | Operation / Storage: 35-85% RH (no condensation) | | | | | | | |
| Environnement — Permissible voltage | 1000 V AC in 1-min (between case and lead wire) | | | | | | | |
| Environnement — Insulation resistance | 50 M Ohm min. (at 500 V DC, between case and lead wire) | | | | | | | |
| Environnement — Vibrations | Total amplitude 1.5 mm or 10 G, 10 Hz-150 Hz-10 Hz scan for 1 minute, two hours in each direction of X, Y and Z | | | | | | | |
| Environnement — Shocks | 100 m/s² (10 G), 3 times each in direction of X, Y and Z | | | | | | | |
| Temperature characteristic | ≤ ± 2% FS. of detected pressure (25°C) at temp. range of 0~50°C | | | | | | | |
| Port size | G1/8", M5-F | | | | | | | |
| Lead wire | Oil-resistance cable (0.15 mm²) | | | | | | | |
| Weight | Approx. 45 g (with M8, 4-pin male connector) | | | | | | | |

## Advantages

- 3-colour digital LCD display, easy readability.
- 6 pressure units available (kPa, bar, psi, inHg, mmHg, kgf/cm²).
- PNP version:
  - 1 PNP digital output (NO or NC).
  - 1 analog output (1-5V).
- PNP2 version:
  2 PNP digital outputs (NO or NC).
- Double display showing the measured value and threshold value at the same time.
- "Key lock function" with indicator light, «Lock» mode with light indicator to prevent an accidental misadjustment.
- "Power-save function" with indicator light.
- 3 mounting solutions.

## Panel Description

**1** - 2-colour main display
**2** - Lock indicator
**3** - Output 1 indicator
**4** - Button
**5** - Setting button
**6** - Button
**7** - Output 2 indicator (PNP2 version)
**8** - Setting mode (sub-display section)
**9** - Pressure unit display section

### For all orders, please specify:
**Model.**
**Example: PSD100CPNP**

| 1: Model | 2: Electrical connection | 3: Outputs |
|---|---|---|
| PSD100CPNP | M8 connector | 1 digital output PNP 1 analog output |
| PSD100LPNP2 | 2 m cable | 2 digital outputs PNP |

## Accessories

- CDM8: M8 Female connector – 4 poles, 2 m.
- PSDFIXA: Vertical attachment bracket.
- PSDFIXB: Horizontal attachment bracket.
- PSDFIXC: Front attachment kit.
- PSDFIXD: Front attachment kit + front protective lid.

COVAL vacuum managers

# PSD 100
## Vacuum Switch with 3-color Display

## Electrical connections - Dimensions

■ M8 Connector-4 poles

PSD100CPNP_

2 4
1 3

1 = Brown (+)
2 = White (analog output)
3 = Blue (-)
4 = Black (OUT 1)

150

"Vacuum" connection
G1/8"-M; M5-F

🔧12

23.9    15.5

30

30

■ 2 m. cable

PSD100LPNP_

2xM3

20

20

1 = Brown (+)
2 = White (OUT2)
3 = Blue (-)
4 = Black (OUT 1)

2000

"Vacuum" connection
G1/8"-M; M5-F

🔧12

## Electrical Diagrams

PSD100_PNP

Switch main circuit

1KΩ

DC (+) (brown)

Analog output
(white)

OUT (black)    $R_L$

DC (-) (blue)

DC
12~24V

PSD100_PNP2

Switch main circuit

DC (+) (brown)

OUT1 (black)

OUT2 (white)    $R_L$

DC (-) (blue)

$R_L$

DC
12~24V

## Mounting Solutions

### Mounting brackets
■ **PSDFIXA**, vertical attachment.

M3

M3

20
⌀4
20
20
29.5
5
4.2
1.6
45
13

■ **PSDFIXB**, horizontal attachment.

M3

M3

⌀4
20
20
29.5
4.2
5
1.6
20
45

### Panel mounting kits
■ **PSDFIXC**: front attachment kit.
■ **PSDFIXD**: front attachment kit + front protective lid

t≤4.5

$31^{+0}_{-0.4}$

$31^{+0}_{-0.4}$

33
30.2
33
30.2
54.4

Front protective lid

34.4

8.5

34.4

34.4

34.4

4

Panel opening (max. thickness: 4.5 mm)

For 1 vacuum switch

$31^{+0}_{-0.4}$

$31^{+0}_{-0.4}$

For multiple vacuum switches:
A = (34.4 x n) -3.4
n = number of switches

$31^{+0}_{-0.4}$

A

Dimensions after installation
n = number of switches

34.4 x n

34.4

Note: all dimensions shown in (mm)

**PSD 100**

**12**

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vacuum managers