

Electronic Pressure Switch with Display Model PSD-30

WIKA Data Sheet PE 81.67



Applications

- Machine-building
- Machine tools
- Hydraulics / pneumatics
- Pumps and compressors

Special features

- Easily-readable, robust 14-segment LED display; electronically 180° rotatable
- User-friendly 3-key operation
- Easy menu navigation (according VDMA Standard)
- Flexible installation with independent rotation between the M12 connection (320°) and the display (330°)

Award-winning in Design and Functionality

The successful design and outstanding functionality have already been honoured with the award of the iF product design award 2009. The display, with its 9 mm high digits, was designed to be as large as possible and was made at a slight angle, so that the displayed pressure can be easily read from a distance. Proven and robust LED technology has been used, with a 14-segment display employed so that alphanumeric messages are well represented.

The buttons used to set the switch parameters have been maximised in their size and ergonomically arranged. Their tactile feedback supports, and thus enables, usage without additional assistance. The three keys ensure easy, intuitive menu navigation. This menu navigation is in accordance with the new VDMA Standard. This VDMA Standard Form for fluid sensors (24574-1, Part 1, pressure switch) has the aim of simplifying the use of pressure switches by standardising the menu navigation and display.



Fig. Pressure Switch PSD-30

Flexible and adaptable

During commissioning the PSD-30 can be adapted, flexibly, to the mounting conditions. Due to the dual rotatability of the housing through more than 300°, the display can be adjusted independently of the electrical connection. The display, therefore, can always be aligned towards the operator while the M12 connection can always be aligned to suit the desired cable run. If the equipment is to be installed overhead, the display can also be turned electronically through 180°.

High Quality

During development, great importance was attached to providing a robust design and an appropriate choice of materials. For this reason, both the housing and the threaded connector for the electrical plug are made from stainless steel. Overtightening or breaking the plug is thus almost impossible.

Our own sensor technology, tested over many years, is used. Whether metal thin film or piezoresistive sensors, they are hermetically welded and implemented without additional internal seals.

Specifications

Model PSD-30

| | | | | | | | | | | | |
|---|-----------------------|---|------|-------|-------|---------------------------------|-------|-------|------|--|--|
| Pressure ranges | bar | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | 25 | | |
| Over pressure safety | bar | 2 | 3.2 | 5 | 8 | 12 | 20 | 32 | 50 | | |
| Burst pressure | bar | 5 | 10 | 10 | 17 | 34 | 34 | 100 | 100 | | |
| Pressure ranges | bar | 40 | 60 | 100 | 160 | 250 | 400 | 600 | | | |
| Over pressure safety | bar | 80 | 120 | 200 | 320 | 500 | 800 | 1200 | | | |
| Burst pressure | bar | 400 | 550 | 800 | 1000 | 1200 | 1700 | 2400 | | | |
| MPa and kg/cm ² are available | | | | | | | | | | | |
| {Absolute pressure: 0 ... 1 bar bis 0 ... 25 bar} | | | | | | | | | | | |
| {Vacuum pressure: -1 ... 0 bar bis -1 ... 24 bar} | | | | | | | | | | | |
| Pressure ranges | psi | 15 | 25 | 30 | 50 | 100 | 160 | 200 | 300 | | |
| Over pressure safety | psi | 30 | 60 | 60 | 100 | 200 | 290 | 400 | 600 | | |
| Burst pressure | psi | 75 | 150 | 150 | 250 | 500 | 500 | 1500 | 1500 | | |
| Pressure ranges | psi | 500 | 1000 | 1500 | 2000 | 3000 | 5000 | 8000 | | | |
| Over pressure safety | psi | 1000 | 1740 | 2900 | 4000 | 6000 | 10000 | 17400 | | | |
| Burst pressure | psi | 2500 | 7975 | 11600 | 14500 | 17400 | 24650 | 34800 | | | |
| {Absolute pressure: 0 ... 15 psi bis 0 ... 300 psi} | | | | | | | | | | | |
| Fatigue life | | 10 Mio. max. load cycles | | | | | | | | | |
| Materials | | | | | | | | | | | |
| ■ Wetted parts | | | | | | | | | | | |
| » Pressure connection | | 316 L | | | | | | | | | |
| » Pressure sensor | | 316 L (up to 0 ... 10 bar rel 13-8 PH) | | | | | | | | | |
| ■ Case | | | | | | | | | | | |
| » Lower body | | 316 L | | | | | | | | | |
| » Plastic head | | Highly resistive, fibreglass-enforced plastic (PBT) | | | | | | | | | |
| » Keyboard | | TPE-E | | | | | | | | | |
| » Display disc | | PC | | | | | | | | | |
| ■ Internal transmission fluid | | Synthetic Oil (only for pressure ranges < 0 ... 10 bar and ≤ 0 ... 25 bar abs) | | | | | | | | | |
| Power supply U ₊ | U ₊ in VDC | 15 ... 36 | | | | | | | | | |
| Signal output and maximum ohmic load R _A | R _A in Ohm | 4 ... 20 mA, 3-wire | | | | R _A ≤ 0,5 k | | | | | |
| | | 0 ... 10 V, 3-wire | | | | R _A > 10 k | | | | | |
| | | Adjustment zero point offset, max. 3 % of span | | | | | | | | | |
| Setting time (Analogue signal) | ms | 3 | | | | | | | | | |
| Current consumption | mA | ≤ 100 | | | | | | | | | |
| Switch points | | Individually adjustable via external control keys | | | | | | | | | |
| ■ Type | | Transistor switching output PNP or NPN | | | | | | | | | |
| ■ Number | | 1 or 2 | | | | | | | | | |
| ■ Function | | normally open / normally closed; windows- and hysteresis function freely adjustable | | | | | | | | | |
| ■ Contact rating | VDC | Supply voltage U ₊ - 1 V | | | | | | | | | |
| ■ Switching current | mA | 250 | | | | | | | | | |
| ■ Response time | ms | ≤ 10 | | | | | | | | | |
| ■ Accuracy | % of span | ≤ 0.5 (setting accuracy) | | | | | | | | | |
| Insulationvoltage | VDC | 500 | | | | | | | | | |
| Display | | | | | | | | | | | |
| ■ Design | | 14-Segment-LED, red 4-digits, height 9 mm | | | | | | | | | |
| ■ Range | | -1999 ... 9999, electronic 180° rotatable | | | | | | | | | |
| ■ Accuracy | | ≤ 1.0 ± 1 Digit | | | | | | | | | |
| ■ Update | ms | 1000, 500, 200, 100 (adjustable) | | | | | | | | | |
| Accuracy | % of span | ≤ 1.0 *) | | | | | | | | | |
| *) Including non-linearity, hysteresis, zero point and full scale error (corresponds to error of measurement per IEC 61298-2) | | | | | | | | | | | |
| Non-linearity | % of span | ≤ ± 0.5 | | | | (BFSL) according to IEC 61298-2 | | | | | |
| Long-term drift | % of span | ≤ 0.2 | | | | according to IEC 61298-2 | | | | | |
| Permissible temperature of | | | | | | | | | | | |
| ■ Medium **) | | -20 ... +85 °C | | | | -4 ... +185 °F | | | | | |
| ■ Ambience **) | | -20 ... +80 °C | | | | -4 ... +176 °F | | | | | |
| ■ Storage **) | | -20 ... +80 °C | | | | -4 ... +176 °F | | | | | |
| **) Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3 | | | | | | | | | | | |

Specifications

Model PSD-30

| | | | |
|---|-----------|---|-----------------------------|
| Rated temperature range | | 0 ... +80 °C | +32 ... +176 °F |
| Temperature error within rated temperature range | | ≤ 1.0 typ., ≤ 2.5 max. | |
| Temperature coefficients within rated temperature range | | | |
| ■ Mean TC of zero | % of span | ≤ 0.2 / 10 K | |
| ■ Mean TC of span | % of span | ≤ 0.2 / 10 K | |
| Relative humidity | % | < 90 | |
| Approval | | cULus (in preparation) | |
| RoHS-conformity | | Yes | |
| CE-conformity | | | |
| ■ Pressure equipment directive | | This instrument is a pressure accessory as defined by the directive 97/23/EC | |
| ■ EMC directive | | 2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and Immunity (industrial locations) | |
| Shock resistance | g | 50 according to IEC 60068-2-27 | (mechanical shock) |
| Vibration resistance | g | 10 according to IEC 60068-2-6 | (vibration under resonance) |
| Wiring protection | | | |
| ■ Overvoltage protection | VDC | 40 | |
| ■ Short-circuit proofness | | S+/SP1/SP2 towards U- | |
| ■ Reverse polarity protection | | U+ towards U- | |
| Weight | kg | Approx. 0.2 | |

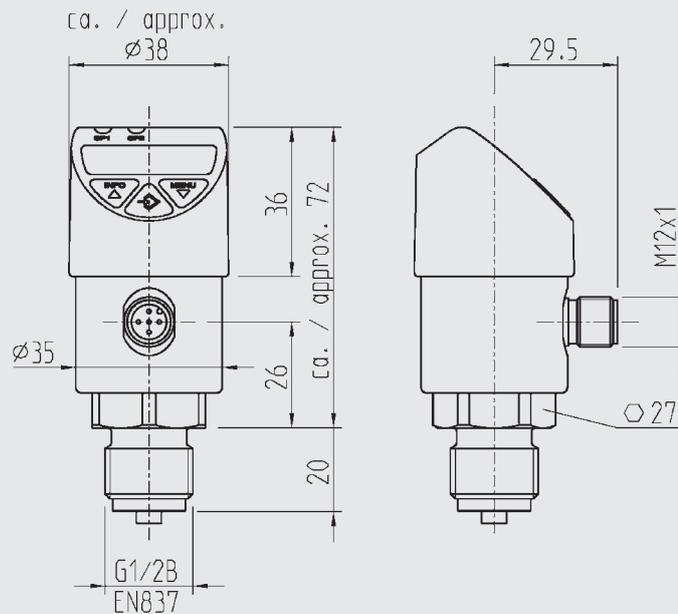
Dimensions in mm

Electrical connections

Circular connector *)
M 12x1

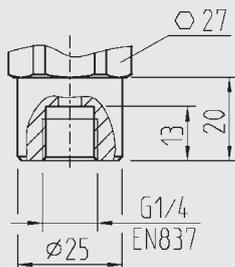
Pressure connections

G 1/2
EN 837

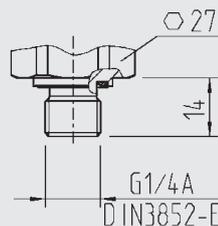


Pressure connections

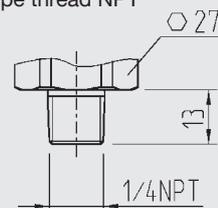
G 1/4
EN 837



G 1/4
DIN 3852-E



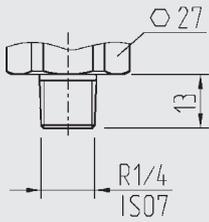
1/4 NPT
per „Nominal size for US
standard tapered
pipe thread NPT“



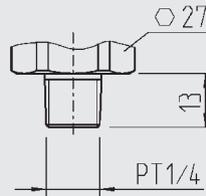
*) Mating connectors are not included in delivery.

Further Pressure connections

R 1/4 ISO7



PT 1/4



Others on request

For installation and safety instructions see the operating instructions for this product.

For tapped holes and welding sockets please see Technical Information IN 00.14 for download at www.wika.de

Wiring details

| | Circular connector M12x1, 4-pin | | | | Circular connector M12x1, 5-pin | | | | |
|-----------------------------------|---|--------|---------|---------------------|---|--------|---------|---------|--------|
| | | | | | | | | | |
| | 2 switching outputs or 1 switching output + 1 analogue output | | | | 2 switching outputs + 1 analogue output | | | | |
| | U+ = 1 | U- = 3 | SP1 = 4 | SP2 = 2 / S+ = 2 | U+ = 1 | U- = 3 | SP1 = 4 | SP2 = 2 | S+ = 5 |
| Ingress Protection per IEC 60 529 | IP 65 and IP 67 | | | | IP 65 and IP 67 | | | | |
| | The ingress protection classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding ingress protection. | | | | | | | | |

Legend:

| | |
|-----|----------------------------|
| U+ | Positive supply connection |
| U- | Negative supply connection |
| SP1 | Switching point 1 |
| SP2 | Switching point 2 |
| S+ | Analogue output |

Accessories

| | Order No. |
|----------------|-----------|
| Mounting clamp | 11467887 |

Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.