

**Operating Instructions  
for  
Electronic Pressure Switch**

**Model: PDL**



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## 2. Note

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Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EWG-machine guidelines.

## 3. Instrument Inspection

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Instruments are inspected before shipping and sent out in perfect condition. Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

### Scope of delivery:

The standard delivery includes:

- Electronic Pressure Switch      model: PDL
- Operating Instructions

## 4. Regulation Use

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Any use of the Electronic Pressure Switch, model: PDL, which exceeds the manufacturer's specification may invalidate its warranty. Therefore, any resulting damage is not the responsibility of the manufacturer. The user assumes all risk for such usage.

Pressure-switches are employed for the regulation and monitoring of pressure in containers, hydraulic and pneumatic systems and the refrigeration industry etc.



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**During installation, commissioning and operation of these devices, please ensure to observe appropriate national safety regulations (e.g. VDE 0100).**

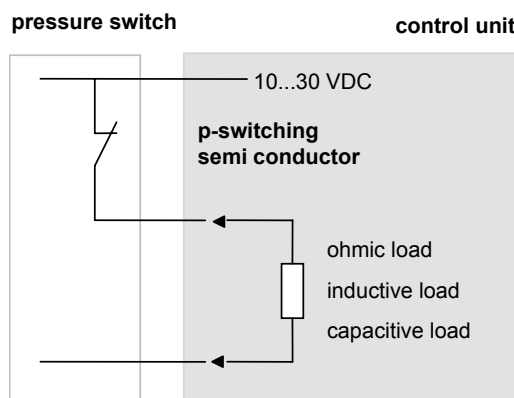
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## 5. Operating Principle

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By employing a spring-loaded elastic measuring component, along with application of Hall effect, up to 2 switching outputs are produced for a given pressure value. The ventilation of the pressure-switch is carried out via an air-permeable diaphragm located in the upper section of the housing. The switching output can be supplied on choice; either N.O. or N.C. The switching output can be adjusted locally, by means of an adjustment-screw.

Pressure-switch with p-switching output



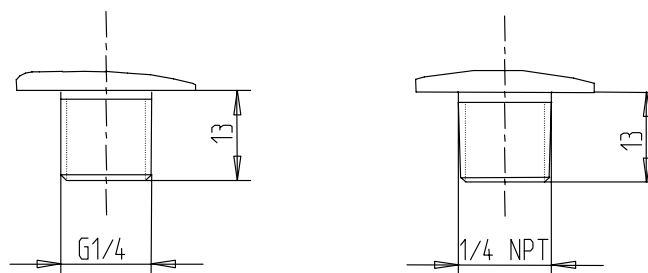
### Pressure-switch - N.O. and N.C.

Without pressure the switch is open; if the pressure increases the switch closes as soon as the existing pressure exceeds the switching point. This switching function is called **"Normally Open"**. Accordingly, if the pressure decreases the switch will be opened as soon as the existing pressure drops below the switching point.

Without pressure the switch is closed; if the pressure increases the switch opens as soon as the existing pressure exceeds the switching point. This switching function is called **"Normally Close"**. Accordingly, if the pressure decreases the switch will be closed as soon as the existing pressure drops below the switching point.

## 6. Mechanical Connection

The mounting position of the pressure-switch is arbitrary. The pressure tapplings should be prepared in accordance with the connection diagram shown below. For the purpose of sealing choose appropriate gaskets according to DIN 16,258 or profile seals. The correct torque depends on material and type of the gasket used, as well as on the pressure connection of the pressure-switch. The starting torque should not exceed 40 Nm. The assembly place should be free from strong vibrations and radiant heat. The admissible environmental conditions for the pressure-sensors are to be maintained. After making the pressure connection and the electrical connection, the sensors are ready for use.



## 7. Electrical Connection



**Attention! Make sure that the voltage values of your system correspond with the voltage values of the measuring unit.**

- Make sure that the supply wires are de-energised.
- A non stabilised DC-supply within the given limit is sufficient as power supply.
- Pressure switches with M12x1 connector may not be used with connecting cables with integrated LEDs.
- Suitable couplings with different cable lengths are optional available.



**Warning! Incorrect wiring will lead to damage of the unit's electronics.**

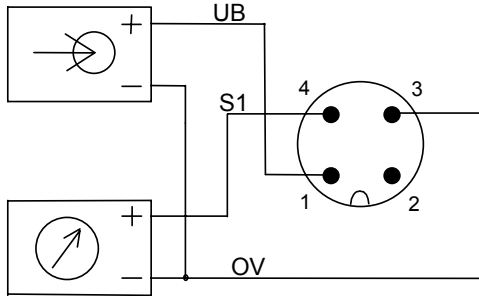
## Terminal Connections:

Round plug connector M12x1 (4-PIN)

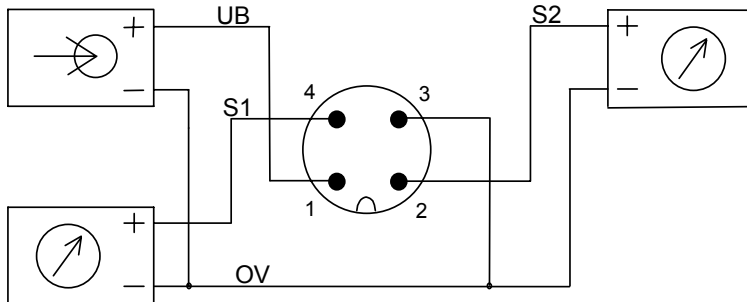
| Terminal | Description                        | Cable outlet |
|----------|------------------------------------|--------------|
| 1        | + (plus terminal of power supply)  | brown        |
| 3        | - (minus terminal of power supply) | blue         |
| 4        | Switching output 1                 | black        |
| 2        | Switching output 2                 | white        |

## Electrical Connection

### 1 Switching output

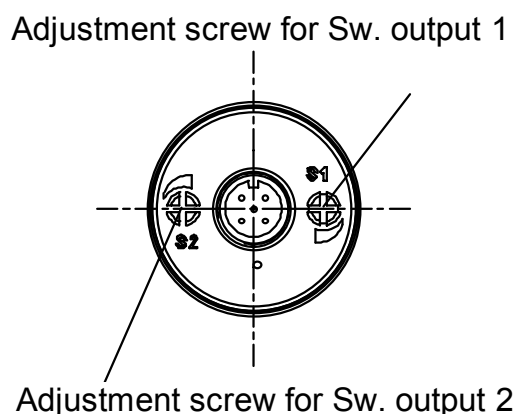


### 2 Switching outputs



## 8. Switching-Point Adjustment

The adjustment of the switching point is made under pressure. The switching point is set via the turning screw. By turning the screw clockwise the switching point is raised. The turning screw must not be protected against self movement.



## 9. Order Codes

| Model  | Description   | Output  | Connection                      | Switch point [bar]<br>increasing pressure  |
|--------|---|---|---------------------------------|--|
| PDL-01 | Electronic<br>pressure switch<br>Brass housing<br>With plug M12x1     | 31=1 N/O contact<br>32=2 N/O contacts<br>33=1 N/C contact<br>34=2 N/C contacts<br>35=1 N/O + 1N/C | R2 = G 1/4 male<br>N2 = 1/4 NPT | C315 = -0,9 to -0,05<br>B126 = 0,005 to 0,1<br>B025 = 0,05 to 1<br>B045 = 0,013 to 2,5<br>B055 = 0,2 to 4<br>B065 = 0,3 to 6<br>B075 = 0,5 to 10<br>A095 = 2,5 to 25 |
| PDL-11 | Electronic<br>Pressure switch<br>Aluminium housing<br>with plug M12x1 | 31=1 N/O contact<br>32=2 N/O contacts<br>33=1 N/C contact<br>34=2 N/C contacts<br>35=1 N/O + 1N/C | R2 = G 1/4 male<br>N2 = 1/4 NPT | A115 = 3 to 60<br>A125 = 5 to 100<br>A135 = 8 to 160<br>A145 = 13 to 250<br>A155 = 20 to 400<br>A165 = 30 to 600   |

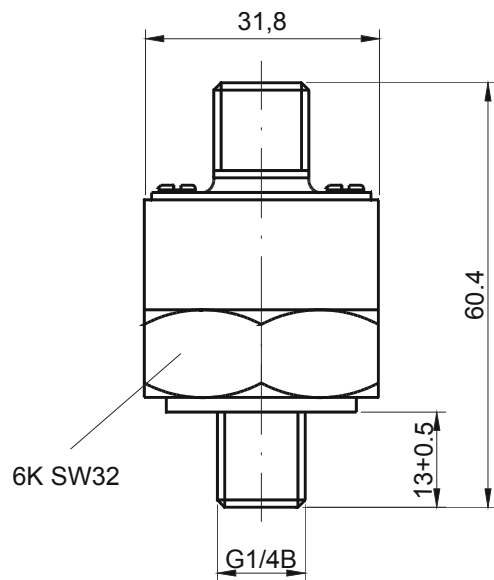
# PDL

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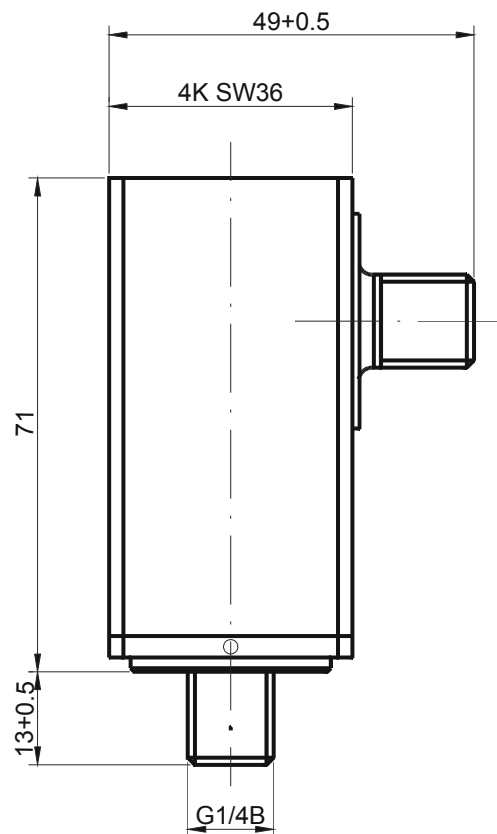
## 10. Dimensions

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PDL-0...



PDL-1...



## 11. Maintenance

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The described pressure sensors don't need any maintenance. They do not contain any components which may be repaired or exchanged locally. Repairs can only be performed in our factory.



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## 12. Technical Information

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|                                |   |
|--------------------------------|---|
| Housing:                       | PDL-0...: Brass<br>PDL-1...: Aluminium, anodised                            |
| Upper part:                    | Plastic   |
| Connections:                   | G 1/4 , male<br>Option: 1/4" NPT<br>other sizes, on request                 |
| Measuring element:             | PDL-0...: capsule, Copper-alloy<br>PDL-1...: Helical head, St. Steel 1.4571 |
| Max. Temperature:              | -20...+80 °C Media<br>-20...+80 °C Ambient<br>-30...+80 °C Storage          |
| Temperature comp. range:       | 0...+80 °C  |
| Temperature influence:         | 0,4% / 10K  |
| Over-load limit:               | 4-times (range ≤ 10 bar)<br>2-times (range ≥16 bar)                         |
| Load-change:                   | 1 x 10 <sup>6</sup>   |
| Electrical Connection:         | Plug M12x1 (4-pole)<br>Option: Cable  |
| Switching function:            | N.C. or N.O., P-switching   |
| Adjustment range:              | 10...100% of F.S.   |
| Adjustment of switching point: | via adjustment screw  |
| Reproducibility:               | < 1% of F.S.  |
| Switching hysteresis:          | ≤ 5% of F.S., ≤ 10% of F.S. at 16 and 25 bar                                |
| Power supply:                  | 10...30 VDC   |
| Switching capacity:            | max. 100 mA (max. 30 VDC)   |
| Protection Cat.:               | IP 65 (IP 67 with cable output)   |

## 13. Declaration of Conformance

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We, KOBOLD Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

**Electronic Pressure Switch      Model: PDL**

to which this declaration relates is in conformity with the standards noted below:

**EN 50081-1      1992**

Electromagnetic compatibility - Generic emission standard –  
Residential, commercial and light industry

**EN 50082-2      1995**

Electromagnetic compatibility - Generic emission standard –  
Industrial environment

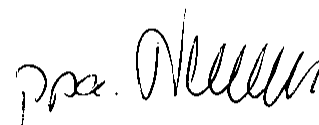
Also, the following EEC guidelines are fulfilled:

**2004/108/EC      EMC Directive**

Hofheim, 16. Jan. 2007



H. Peters  
General Manager



M. Wenzel  
Proxy Holder