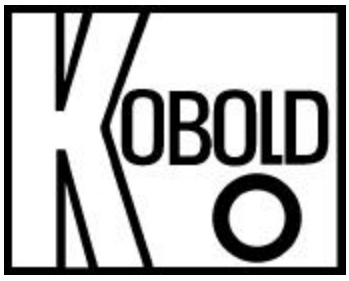
Service Manual

for

Electronic Pressure-switch

Type: PDL



1. Instructions

Please read this service manual carefully before unpacking and setting the unit for operation, and follow the instructions precisely as described herein.
These devices may only be installed, used and maintained by skilled personnel who are familiar with this service manual and can observe applicable regulations regarding industrial safety and accident-prevention.

2. Contents

Manufactured and Marketed by:

Kobold Messring GmbH
Nordring 22-24
D-65719 Hofheim
Tel.: 06192-2990
Fax: 06192-23398
e-mail: info.de@kobold.com
Internet: http://www.kobold.com

3. Unit Check-up

These devices are checked before despatch and sent away in perfect condition. Should the damage to a device be visible, we recommend a thorough inspection of the delivery packing. In case of damage, please inform your parcel service/ forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:

- Electronic Pressure-switch
- Service Manual

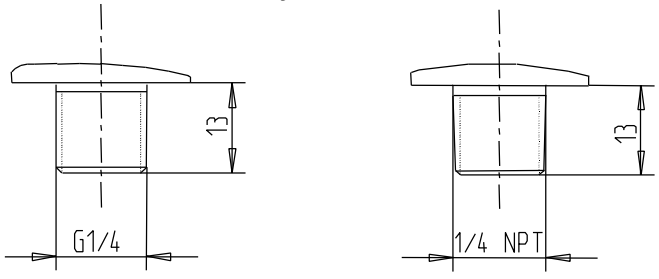
4. Intended Application

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

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

5. Mechanical Connection

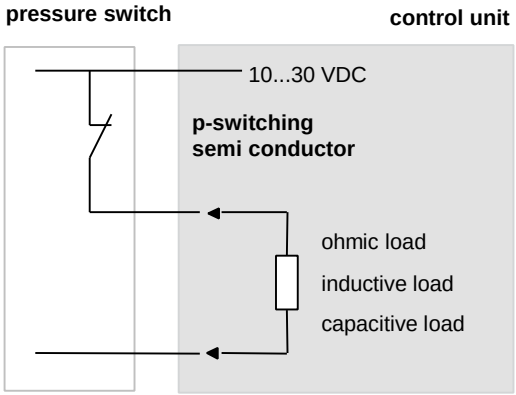
The mounting position of the pressure-switch is arbitrary. The pressure tappings should be prepared in accordance with the connection diagram shown below. For the purpose of sealing choose appropriate gaskets according to DIN 16,258 or profile seals. The correct torque depends on material and type of 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.



6. Functional Description

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.

7. Electrical Connection

Attention! Please ensure that the voltage of your power supply corresponds with the admissible voltage level for this device.

The electrical connection is established either via connector or by cable. The exact wiring scheme is shown in the tables and scetches hereafter. They are valid for all pressure switches described in this brochure. In addition, the wiring scheme, the output signal and the required power supply are shown on the identification plate.

Terminal markings:
+Positive pole of the supply voltage
- Negative pole of the supply voltage
S1 Signal output 1
S2 Signal output 2

The ventilation of the pressure switches is made by a diaphragm pervious to air in the top of the case.

A non stabilized 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.

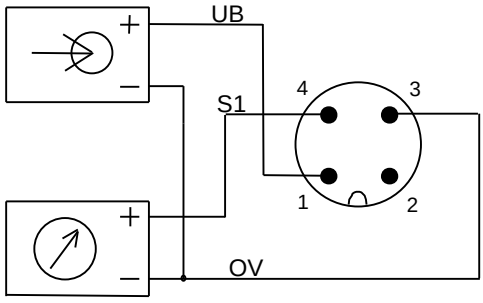
Warning! A wrong connection can result in the destruction of device's electronics.

Terminal Connections:
Round plug connector M12x1 (4-PIN)

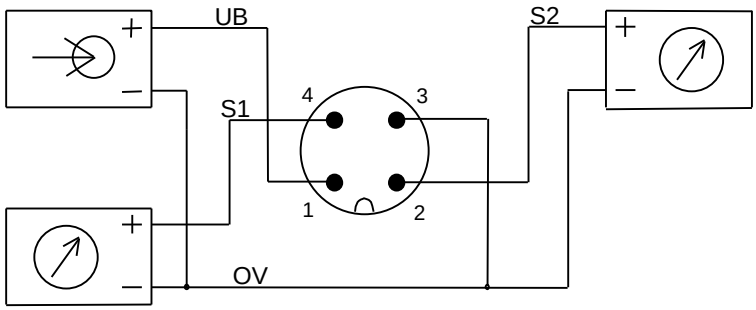
Terminal	Description
1	**+** (plus terminal of power supply)
3	**-** (minus terminal of power supply)
4	Switching output 1
2	Switching output 2

Electrical Connection

1 Switching output

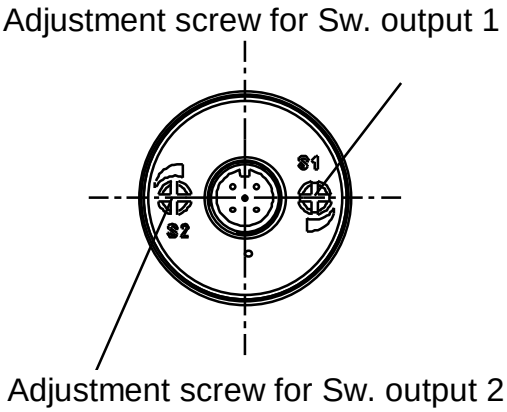


2 Switching outputs



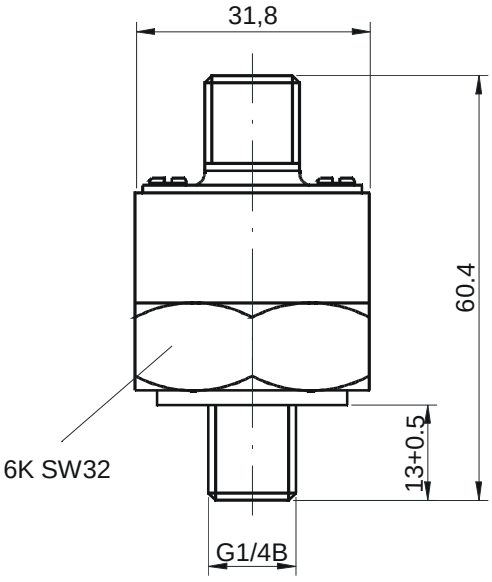
8. Switching-point Adjustment

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 selfmovement.

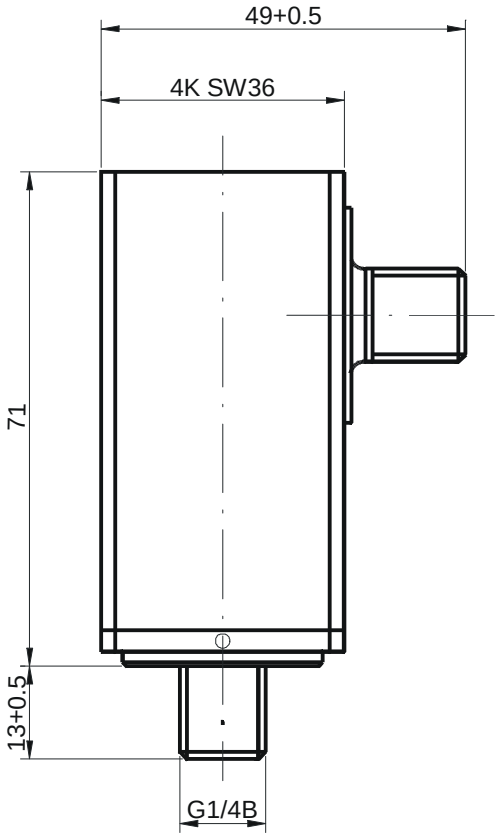


9. Dimensions

PDL-0...



PDL-1...



10. Technical Data

Housing:	PDL-0...: Brass PDL-1...: Aluminium, anodised
Upper part:	Plastic
Connections:	G 1/4 , male Option: 1/4" NPT other sizes, on request
Measuring element:	PDL-0...: capsule, Copper-alloy PDL-1...: Helical head, St. Steel 1.4571
Max. Temperature:	-20...+80°C Media -20...+80°C Ambient -30...+80°C Storage
Temperature comp. range:	0...+80°C
Temperature influence:	0,4% / 10K
Over-load limit:	5-times (range ≤ 10 bar) 2-times (range ≥10 bar)
Load-change:	1×10^6
Electrical Connection:	Plug M12x1 (4-pole) 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:	≤ 10% of F.S.
Power Supply:	10...30 VDC
Switching capacity:	max. 100 mA (max. 30 VDC)
Protection Cat.:	IP 65 (IP 67 with cable output)

11. Maintenance

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.

12. Declaration of Compliance

We, KOBOLD Messring GmbH, Hofheim/Ts., Federal Republic of Germany declare, that the product

Electronic Pressure-switch, Type PDL

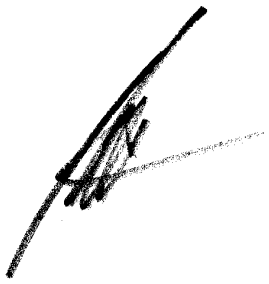
complies with the norms listed below:

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 EWG guidelines are fulfilled:

89/336 EWG



Signature Date: 21.08.00

K. Kobold