

Operating Instructions
for
Paddle Flowswitch
Model: PPS-...



1. Note

Please read and take note of these operating instructions before unpacking and commissioning. The instruments may only be used, maintained and installed by personnel familiar with the operating instructions and the applicable Health and Safety Requirements.

2. Contents

1. Note	Page 2
2. Contents	Page 2
3. Declaration of Conformance	Page 2
4. Specific Application	Page 3
5. Operating Principles	Page 3
6. Instrument Inspection	Page 3
7. Mechanical Connection	Page 4
8. Electrical Connection	Page 5
9. Technical Specifications	Page 6
10. Maintenance	Page 6
11. Dimensions	Page 6
12. Recommended Spare Parts	Page 7

3. Declaration of Conformance

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

Paddle Flowswitch : PPS-..

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

EN 61010-1

Safety requirements for electr. equipment for measurement,
control and laboratory use.

EN 60529, DIN VDE 0470-1

Degrees of protection provided by enclosures (IP-code)

following the provision of European Directives:

73/23/EWG

Signed *H.-D. Nemyczuk*
H.D. Nemyczuk

Date: 23.01.1997

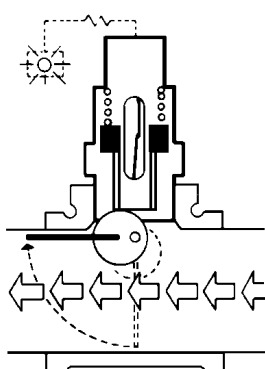
Manufactured and sold by:

Kobold Messring GmbH Tel.: 06192-2990
Nordring 22-24 Fax: 06192-23398
D-65719 Hofheim

4. Specific Application

The Model PPS-.. is installed for the purposes of monitoring flow throughputs of liquids. The units can be installed in pipelines of internal diameter of 1 1/4" and above. The instrument is provided with an factory set limit switch (N/O or N/C). It is suitable for low viscosity fluids which have no effects on the instrument materials used. The flow rate set point is determined by the length of the paddle. During installation the paddle length may be reduced to adjust the set point.

5. Operating Principles



Media flowing in any direction moves the paddle which rotates an eccentric which in turn raises an assembly within the unit. The assembly has a permanent magnet mounted within it. This enables the magnet to activate a hermetically sealed reed switch. The signal from the reed switch can be used to trigger an alarm or indicator. With the appropriate relay, it is possible to automatically control pumps, motors or valves.

6. Instrument Inspection

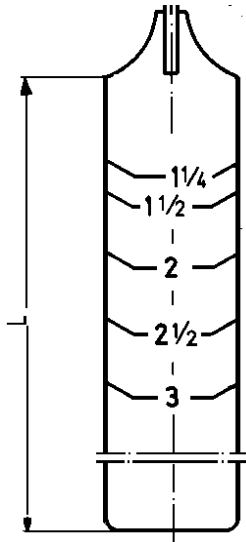
The instruments are inspected before dispatch and sent out in perfect condition. Should damage to the instrument be visible, we recommend close inspection of the delivery package. In cases of damage, please immediately inform the forwarder as he is liable for any damage in transit.

Scope of Supply

- All parts belonging to the standard scope of supply are attached to the instrument.

7. Mechanical Connection

Before installation:



Pipe DN	Cutting marke "L" approx mm	Swith point l/min. increasing	Swith point l/min. decreasing
32	28	36	18
40	35	54	36
50	47	72	36
65	60	90	54
80	73	108	72

- Please ascertain whether the allowable maximum operating pressure and operating temperature of the instruments will not be exceeded.
- Remove all transport packing and ascertain that no packing material is left in the instrument.

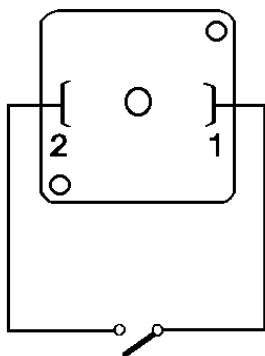
Installation

- For mounting in a horizontal pipe line you need a vertical G 1" (1" NPT) socket. Sealing of the connection threads should be carried out with Teflon tape or similar.
- Please pay attention, that the paddle could be moved over the whole possible angle. Therefore we recommend a max. length of the socket of 20 mm.
- The broad dimension of the paddle has to show against the flow direction. Please take care, that the arrow shows into the flow direction.
- To reduce the influence of dirt we recommend to mount the instrument on the top side of the pipe. This prevents a deposit of dirt. If a mounting on the top is not possible, we recommend to check and to clean the instrument of regular intervals.
- Check that the connection thread to pipe is fully sealed.

8. Electrical Connection

Warning! Make sure that the supply voltage to the instrument conforms with the value given on the equipment label.

- Ensure that the power is disconnected during connection of the cable.
- Loosen the screw of the plug cap and remove the cap.
- Connect the connection cable with the power supply cable in accordance with the connection diagram alongside.
- Plug the plug on to the plug socket and tighten the screw.
- After connection of your external equipment at the connection points the instrument is ready for operation.



Contact types

- **Model PPS-1201, Normally closed**
The contact is opened when the flow increases and the set point value is reached or exceeded. The switch closes again with falling flow at the minimum value influenced by the switch hysteresis.
- **Model PPS-1202, Normally open**
The contact is closed when the flow increases and the set point value is reached or exceeded. The switch opens again with falling flow at the minimum value influenced by the switch hysteresis.

Hysteresis

Defined as the difference between the opening and closing flow values of a contact.

For example, the model PPS-1202 in tube with 1 1/4" ID, set at about 36 l/min increasing set point will reset at about 18 l/min decreasing. Contact hysteresis = 18 l/min.

Contact protection

The reed contact may be damaged if the switch ratings are exceeded, especially while switching inductive or capacitive loads. This can cause dangerous situations. By the use of a contact protection relay, this problem can be overcome and the lifespan and switch rating of the reed contact can be greatly increased. (eg: Type MSR 10).

10. Technical Details

Material	Housing /paddle : Polysulfon (PSU) Case : PSU or PTFE Spring: St.steel 1.4310 Safty pin: St. steel 1.4305 Magnet: oxid ceramic
Connection	G 1 (1" NPT)
Max. medium temperature:	105° C
Max. operating pressure:	10 bar
Pressure drop	max. 0,1 bar
Adjustment accuracy	± 20 %
Repeat accuracy	± 3 %
Electrical connection	plug acc. to DIN 43 650
Protection:	IP 65
Power :	max. 40 W/VA
Switch current:	max. 2 A.
Switch voltage:	max. 230 VAC/DC
Inner resistance	max. 150 m Ohm

11. Maintenance

In cases where the flow medium is uncontaminated, the PPS will remain maintenance-free. In particular, any ferritic particles present in the medium may be deposited on the magnet, which can lead to problems. Large dirt particles can be deposited on the beam. In order to avoid such problems, we recommend the installation of a magnet filter, eg: Magnet Filter Type MF-R.

Depending on the amount of dirt present in the medium, we recommend that the instrument is checked at regular intervals.

12. Recommended Spare Parts

- 1) Paddle

13. Dimensions

