Operating Instructions

for

Polysulfone Paddle Monitor

Model: PPS-..

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2. Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.
The instruction manuals on our website www.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

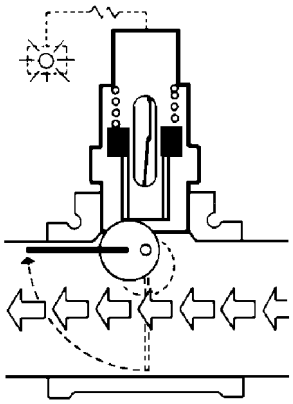
The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

By usage in machines, the measuring unit should be used only when the machines fulfil the EC-machine guidelines.

3. Regulation Use

The Model PPS-... is installed for the purposes of monitoring flow throughputs of liquids in nominal pipe sizes greater than NW 32. The paddle switch is available with a factory set limit switch (N/O, N/C or SPDT). It is suitable for low viscosity fluids which have no effects on the instrument materials used. The flow throughput switching point is determined by the length of the paddle. During installation the paddle length may be reduced by cutting to adjust the set point.

4. Operating Principle



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.

5. Instrument Inspection

Instruments are inspected before shipping and sent out 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.

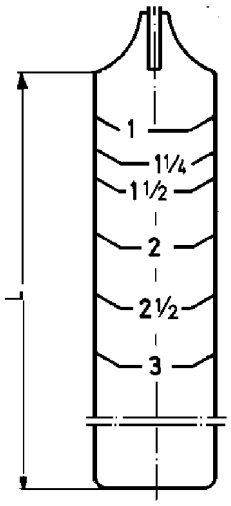
Scope of delivery:

- Paddle Monitor model: PPS

6. Mechanical Connection

Before installation:

- Check the nominal pipe size and adapt by cutting at the paddle marking according the following table the paddle monitor to your nominal pipe size and the determined switching point.
  Shorter paddle as specified in the table = higher switching point
  Longer paddle as specified in the table = lower switching point
  (Please note that the paddle length is not allowed to be longer than the nominal pipe size).



Nominal pipe size (customer side)	Cutting mark (L) approx. mm	Switching point L/min rising	Switching point L/min falling
32	28	36	18
40	35	54	36
50	47	72	36
65	60	90	54
80	73	108	72

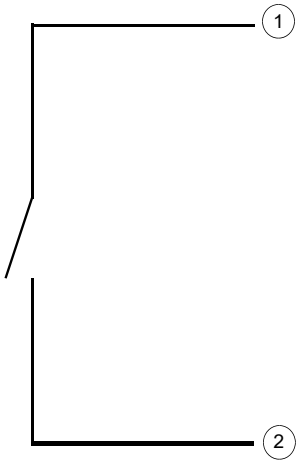
- Please ascertain whether the allowable maximum operating pressure and operating temperature of the instruments will not be exceeded.
- Remove all transport packing and ascertain that no packing material is left in the instrument.

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. The paddle must be able to swing in the inner pipe and should not hit against the inside wall of the sleeve. Therefore, we recommend a max. length of the socket of 20 mm.
- Please take care that the broad dimension of the paddle has to show against the flow direction. The arrow must show 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 in regular intervals (see maintenance).
- If possible, check right after the mechanical installation that the connection thread to the pipe is fully sealed.

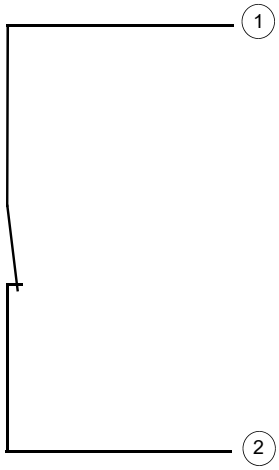
7. Electrical Connection

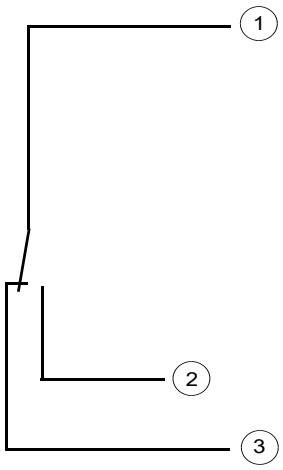
Caution! Make sure that the voltage and current values of your system correspond with the voltage values of the measuring unit (see name plate). Possibly make shroud arrangements.



- Make sure that the supply wires are de-energised.
- 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.

- **Model PPS-1203 and model PPS-3203, changeover contact**
  The contact 1-2 is closed and the contact 1-3 is opened when the flow increases and the set point value is reached or exceeded. The switch backspaces 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 11/4" 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. (e. g. model MSR 10).

8. Technical Information

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

9. Order Codes

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

10. Dimensions

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

11. Recommended Spare Parts

1) Replacement paddle made of polysulfone

12. 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 lead to clamping of the paddle and of the magnet ring.
be deposited on the beam.
Depending on the amount of dirt present in the medium, we recommend that the instrument is checked at regular intervals.

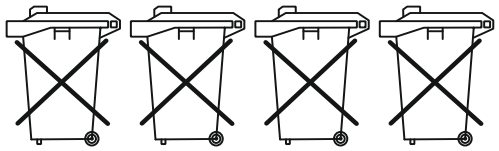
13. Entsorgung

Hinweis!

- Umweltschäden durch von Medien kontaminierte Teile vermeiden
- Gerät und Verpackung umweltgerecht entsorgen
- Geltende nationale und internationale Entsorgungsvorschriften und Umweltbestimmungen einhalten.

Batterien

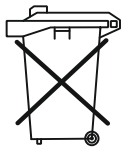
Schadstoffhaltige Batterien sind mit einem Zeichen, bestehend aus einer durchgestrichenen Mülltonne und dem chemischen Symbol (Cd, Hg, Li oder Pb) des für die Einstufung als schadstoffhaltig ausschlaggebenden Schwermetalls versehen:



Cd[1] Hg[2] Pb[3] Li[4]

1. „Cd" steht für Cadmium.
2. „Hg" steht für Quecksilber.
3. „Pb" steht für Blei.
4. „Li" steht für Lithium

Elektro- und Elektronikgeräte



14. EU Declaration of Conformance

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Polysulfone Paddle Monitor **Model: PPS-..**

to which this declaration relates is in conformity with the following EU directives stated below:

2014/35/EU	**Low Voltage Directive**
2011/65/EU	**RoHS** (category 9)
2015/863/EU	Delegated Directive (RoHS III)

Also, the following standards are fulfilled:

EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements

EN 60529:2014
Protection type through case (IP code)

EN IEC 63000:2018
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Hofheim, 22 Feb. 2024

H. Volz
General Manager

J. Burke
Compliance Manager

15. UK Declaration of Conformity

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Polysulfone Paddle Monitor **model: PPS -...**

to which this declaration relates is in conformity with the following UK directives stated below:

S.I. 2016/1101 **Electrical Equipment (Safety) Regulations 2016**
S.I. 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

Also, the following standards are fulfilled:

BS EN 61010-1:2010+A1:2019
Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements

BS EN 60529:1992+A2:2013
Degrees of protection provided by enclosures (IP Code)

BS EN IEC 63000:2018
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Hofheim, 22 Feb. 2024

H. Volz
General Manager

J. Burke
Compliance Manager