Operating Instructions

for

Plastic Flow Meter

Model: KSM

1. Contents

Manufactured and sold by:

Kobold Messring GmbH
Nordring 22-24
D-65719 Hofheim
Tel.: +49(0)6192-2990
Fax: +49(0)6192-23398
E-Mail: info.de@kobold.com
Internet: www.kobold.com

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.

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

PED 2014/68/EU
For devices in accordance with Article 4, Paragraph 3, " Sound Engineering Practice", Directive 2014/68/EU, the device does not receive a CE marking.

	Pipe	
	Table 6 Group 1 dangerous fluids	Table 7 Group 2 no dangerous fluids
KSM-x001 – KSM-x010	Art. 4, § 3	Art. 4, § 3
KSM-x020 – KSM-x600	Kat. I, module A2	Art. 4, § 3

3. Regulation Use

Any use of the Plastic Flow Meter, model: KSM, 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.

4. Operating Principle

The Plastic Flow Meter model: KSM operates according to the variable area principle, in which the float is free to move without friction inside the measuring tube. The reading edge corresponds to the larger diameter of the float. The standard flow meter is equipped with a scale for water (+20°C), a percentage scale, O-rings, 2 adjustable set-point indicators and a rail for accessories; on each end, two threaded cap-screws accommodate various connectors (see Section 9: Technical Data; Connections). For the operation with bistable reed switches the float will be supplied with internal magnets.

5. Instrument Inspection

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:

- Plastic Flow Meter model: KSM

6. Mechanical Connection

Before Installation:

- Remove all transportation safety locks and ensure that no packing material remains within the unit.
- Be sure that the maximum allowable operating pressure and temperature is not exceeded (see Technical Data).
- Install the flow meter in the piping system, making certain the instrument is under no mechanical stress/tension (install support bracing if necessary).
- Protect the measuring tube from external damage.
- Avoid pressure peaks in the measuring tube, e.g. from sudden surges or stoppage of flow.
- The units with bistable reed switch may not be installed within an inductive field.
- If possible, immediately after making mechanical connections, check whether the connections are properly sealed with no evidence of leakage.

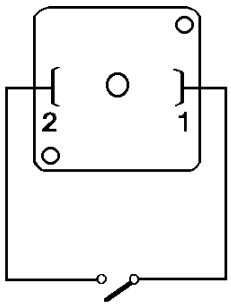
Detailed information regarding installation of float flow meters is available in VDI/VDE guidelines 3513.

7. Electrical Connection

Reed contact, bistable (option)

- Ensure that the electrical supply lines are disconnected from power.
- Loosen the plug-cap holding screw and remove the cap from the switch housing.
- Connect the supply lines inside the plug-cap in accordance with the connection diagram opposite.
- If the set point has not yet been adjusted, it may be done at this point. (see section 8, 'Operation').
- Set the plug to the socket and fix it with the safety screws.

N/O contact



Attention! The stated electrical parameters of the reed switch may not be exceeded, even for a short period of time. For switching higher power ratings, we recommend a contact protection relay (e.g. our model MSR) or any other interposing relay.

After connecting the external devices, and adjusting the switch housing to the desired switch points, all the connection work is completed. The unit is ready for operation.

8. Operation

In order to initialise the bistable switching function, it is essential that the float-travel activates the contact once in each direction.

Adjustment of limit-values
The switch-point can be adjusted to the desired levels by using both red sliders as reference points.

Reference edge for falling flow: bottom-edge, switch housing
Reference edge for rising flow: approx. 5 mm above the bottom-edge of switch housing.

Slide the switch housing up or down until the reference edge coincides with the desired switch-point scale reading.

Hysteresis
Hysteresis is the difference between the level at which “switch-on” occurs during rising flow and the level at which “switch-off” occurs during decreasing flow. The hysteresis is approximately 5 mm on the float scale.

Overranging
With non-pulsating flow, the maximum flow rate can be exceeded. Only an increase in pressure loss will result (max. permissible operating pressure must not be exceeded!)

9. Maintenance

If the medium to be measured is clean, the series KSM is virtually maintenance-free. If deposits form on the inner housing or parts, periodic cleaning of the unit is recommended. Remove the units from the piping with a suitable tool; clean the flow meter with a suitable cleaning agent or make use of an ultrasonic bath.

If using the setpoint switch, it is particularly important to guard against contamination by ferritic (metal) contaminants. These can be eliminated by using the KOBOLD model MF magnetic filter (or equivalent).

10. Technical Data

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

11. Order Codes

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

12. Dimensions

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

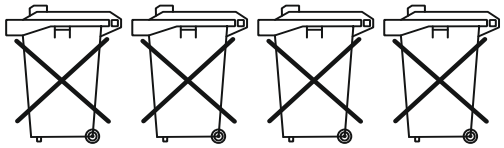
13. Disposal

Note!

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

Batteries

Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



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

1. „Cd" stands for cadmium
2. „Hg" stands for mercury
3. „Pb" stands for lead
4. „Li" stands for lithium

Electrical and electronic equipment

14. EU Declaration of Conformance

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

Plastic Flow Meter with Contact **Model: KSM -...R1/R2**

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)
2014/68/EU **PED** (pipes)

	Pipe	
	Table 6 Group 1 dangerous fluids	Table 7 Group 2 no dangerous fluids
KSM-x001 – KSM-x010	Art. 4, § 3	Art. 4, § 3
KSM-x020 – KSM-x600	Cat. I, module A2	Art. 4, § 3

Also, the following standards are fulfilled:

EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019
Safety regulations for electrical measurement, control, regulation and Laboratory equipment

EN 60529:2014
Protection through housing (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, 25 March 2024

H. Volz
General Manager

J. Burke
Compliance Manager