Operating Manual

Flow switch

Product line VK 3..M and VK 3..MKU

SIKA® gegr. 1901
Dr. Siebert & Kühn GmbH & Co. KG

(GB) **This manual is also available in German and French upon request.**

(D) **Diese Betriebsanleitung ist auf Anfrage auch in deutscher und französischer Sprache erhältlich.**

(F) **Ces instructions d'opération sont livrable en francais et en allemand sur demande.**

0 Table of Contents

1 Operating Manual, Description

SIKA flow switches are designed for minimum or maximum monitoring of fluid flows. The designation of the flow switches consists of the name of product lines VK as well as of the latter type name 308 to 350 for installation with pipe section (inline type) and type marking 305, 306, and 307 for direct installation (insertion type) into existing piping systems.

Read carefully the corresponding instructions before you start work and stick to the described sequence of work.

Read chapter 'Safety Instructions' very carefully.

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2 Safety Instructions

Flow switches of the product lines VK 3..M are technically advanced with time. This applies to switching accuracy, function, and safe operation of the instrument.
To ensure safe operation of the instrument requires competent and safety-observing personnel.

- To avoid damages to the flow switch and to the system to be monitored, take into consideration that these SIKA flow switches are only designed for minimum or maximum monitoring of fluid and air flows.
- Follow strictly the instructions for installation of the flow switch.
- Check before installation whether the material of the flow switch is suitable for the medium to be monitored.
- Due to material resistance, grease, oil etc. must not be applied during installation of VK... instruments
- Make sure that the maximum pressure rating is not exceeded.
- Never remove a flow switch or its upper section if the pipe system is under pressure.
- If the medium to be monitored is very hot, the flow switches and their fittings are also extremely hot. Do not touch them and do not place heat sensitive objects in their vicinity.
- Screen the flow switch in near distance to the magnetic fields, as the function of the instrument could be affected.
- **Caution: Danger to life through electrical voltage !**
  Switch off the voltage supply before you connect leads of the mains cable.

ATTENTION: The maximum electrical contact capacity indicated onto the type shield must not be exceeded, otherwise the reed contact, which is integrated in the switching unit, will be damaged.
The switching capacity is reduced with inductive loads. Information about the protective system can be ordered at the manufacturer.
The technical data of products in special designs (special designs on customer request) can differ from the data in this instruction. Please read the instructions on the type sign.

With problems or questions, please contact your supplier or SIKA directly:

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3 Material Specification of Components which are in Contact with the Medium

component description	VK 3 . M	VK 3 . MKU
upper section, screwed plug	PPO (NORYL GFN3)	PPO (NORYL GFN3)
paddle system	PPO (NORYL GFN3)	PPO (NORYL GFN3)
bushings	PPO (NORYL GFN3)	PPO (NORYL GFN3)
axle	1.4571 / PPO	1.4571 / PPO
pipe section, threaded nipple	brass, 2.0402*	PVC
o-ring seal	N B R	EPDM
V - seal	EPDM / PPO	EPDM / PPO
magnet	hard ferrite	hard ferrite

* optional copper pipe section for solder connection

4 General Installation Instructions

- At first clean the piping system where the flow switch should be installed and remove any magnetic particles such as weld spatters.
- Straight pipe upstream and downstream of the flow switch must be at least 5 x pipe diameter.
- The norminal fitting position of the flow switch is upright in the horizontal pipe.
- Contact the manufacturer for deviating positions.
- Install the switch only vertically, max. deviation is 45° (fig.1).

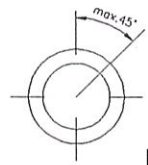

Fig.1

- Make sure that there are no magnetic fields close to the flow switch. Such fields can affect the proper function of the instrument (fig. 2).
- There is an arrow on the flow switch. Make absolutely sure that this arrow is parallel with the pipe axis and points into flow direction (fig.2).

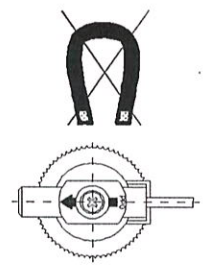
Fig.2

- Screw on the union nut ¾" made of plastic with a maximum torque of 8 Nm.

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5 Special Installation Instructions

Flow switches for direct installation (insertion types)

Types VK 305 M, VK 306 M and VK 307 M are suitable for installation into screw sockets with female thread connection ½" BSP.
Note strictly installation height dimensions.

Type VK 306 M must only be vertically installed into a horizontal pipe.

Install the control switch in such a way that the paddle does not touch the pipe wall.

Flow switches with pipe section (inline types)

- Install the brass pipe section of the flow switch into the pipe like any other valve.
- Sealing the brass pipe sections must be done by sealing the thread (Teflon tape, surface coatings etc.) or by sealing rings at the faces of the tube.
- Flow switches equipped with an optional copper fitting, are soldered into the pipe. During soldering, remove the flow switch (upper section) and the O-ring to avoid overheating.
- The versions VK.. MKU are sealed at the PVC fitting with a suitable bonding.

6 Type of Contact

The reed switch unit of the switch provides 2 different types of contact:

1. working contact (make contact): „RED" arrow to switch unit
2. break contact (breaker): „WHITE" arrow to switch unit

The following table explains the two types of contacts:

type of contact	flow volume	electrical contact
working contact (RED arrow)	increasing	making
	decreasing	breaking
break contact (WHITE arrow)	increasing	breaking
	decreasing	making

If not requested otherwise, the switch unit is set to 'working contact' on delivery, i.e. the reed contact breaks when the flow rate decreases under the adjusted set point.

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7 Adjusting the Reed Switch Unit

- To adjust the reed switch unit loosen the locking screw (Allen key).
- Move the reed switch unit so far that with set 'working contact' (fig. 3) the red arrow (or with set 'break contact' the white arrow, fig. 4) is visible at the entry of the switch units guide.
- After adjustment tighten the locking screw again.
- We recommend to secure the locking screw additionally with varnish after each adjustment.

When a fixed switch point was set at work, then there is no adjustment of reed switch unit.

working contact (red arrow)

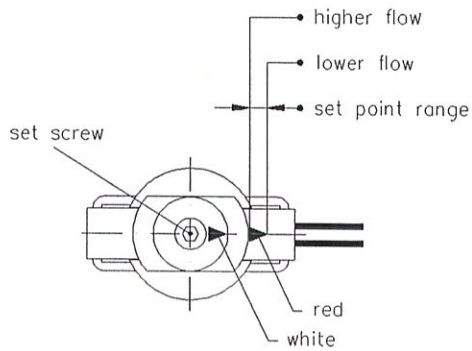

Fig. 3

break contact (white arrow)

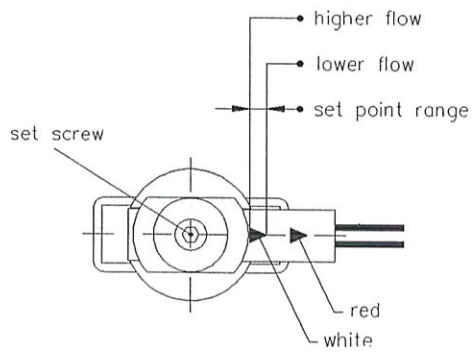

Fig 4

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8 Electrical Connection

- **Caution:** Risk to life through electrical voltage !
  Switch off the electrical system before you connect leads of the supply cable.

brown / blue = connections for Reed contact

The reed contact is electrically insulated (protection class II) and integrated into a plastic sleeve.

ATTENTION: The maximum electrical contact capacity indicated onto the type shield must not be exceeded, otherwise the reed contact, which is integrated in the switching unit, will be damaged.
The switching capacity is reduced with inductive loads. Information about the protective system can be ordered at the manufacturer.

9 Technical data*

nominal pressure	PN 10
max. temperature of medium: VK 3..M	100°C
VK 3..MKU	20°C (PN 10) 60°C (PN 2,5)
max. ambient temperature: VK 3..M	100°C
VK 3..MKU	60°C
protection class	IP 65
max. switch current	1 A
max. switch voltage	230 VAC, 48 VDC
max. switch capacity	26 VA, 20 W
tolerance of switch point ranges	± 15%

*There are special customer designs that may differ from the standard data listed in these instructions – always consider the specifications noted on the type plate.

SIKA flow switches are approved by TÜV Rheinland, certification n° R 9611016, issued 1996-08-28.

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