



## ***Instruction Manual***

### ***DPS10***

#### ***Paddle-Bellows Flow Switch***



PKP Prozessmesstechnik GmbH  
Borsigstraße 24  
D-65205 Wiesbaden-Nordenstadt  
Tel.: ++49-(0)6122-7055-0  
Fax: ++49-(0)6122-7055-50  
Email: [info@pkp.de](mailto:info@pkp.de)

## **Table of Contents**

---

Safety Information.....	2
Functional Description.....	3
Installation and Commissioning.....	3
Mounting Positions and Electrical Connection.....	3
Switching Point Adjustment.....	4

## **Safety Information**

---

### **General Instructions**

To ensure safe operation, the device should only be operated according to the specifications in the instruction manual. The requisite Health & Safety regulations for a given application must also be observed. This statement also applies to the use of accessories. Every person who is commissioned with the initiation or operation of this device must have read and understood the operating instructions and in particular the safety instructions!

The liability of the manufacturer expires in the event of damage due to improper use, non-observance of this operating manual, use of insufficiently qualified personnel and unauthorized modification of the device.

### **Proper Usage**

The flow switches of the DPS10 series are used for flow monitoring of liquid and gaseous, non-aggressive media in pipelines and hydraulic systems. All other usage is regarded as being improper and outside the scope of the device.

In particular, applications in which shock loads occur (for example, pulsed operation) should be discussed and checked in advance with our technical staff.

The devices of the DPS10 series should not be deployed as the sole agents to prevent dangerous conditions occurring in plant or machinery. Machinery and plant need to be designed in such a manner that faulty conditions and malfunctions do not arise that could pose a safety risk for operators.

### **Dangerous substances**

For dangerous media such as e.g. Oxygen, Acetylene, flammable or toxic substances as well as refrigeration systems, compressors, etc. must comply with the relevant regulations beyond the general rules.

### **Qualified Personnel**

The DPS10 devices may only be installed by trained, qualified personnel who are able to mount the devices correctly. Qualified personnel are persons, who are familiar with assembling, installation, placing in service and operating these devices and who are suitably trained and qualified.

## ***Inward Monitoring***

Please check directly after delivery the device for any transport damages and deficiencies. Additional with reference to the accompanying delivery note the number of parts must be checked.

Claims for replacement or goods which relate to transport damage can only be considered valid if the delivery company is notified without delay.

## ***Functional Description***

---

The DPS10 series paddle flow switches mechanically transmit a flow-proportional movement of the paddle installed in the pipeline to a powerful microswitch via a bellows and a spring-loaded rocker. The switching point can be changed by adjusting the spring preload.

## ***Installation and Commissioning***

---

The device can be mounted in any position, but must always be in the direction of the air flow.

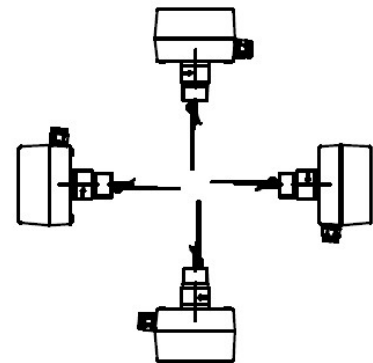
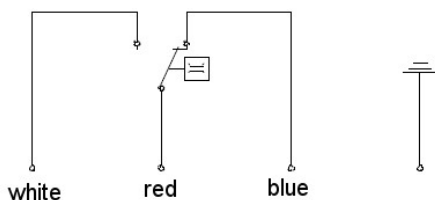
For mounting on vertical pipes, the unit must be adjusted to compensate for the weight of the paddle.

A gasket is also supplied which must be in contact with the mounting plate.

## ***Mounting Positions and Electrical Connection***

---

**Attention:** Mounting position has influence on the adjustment range

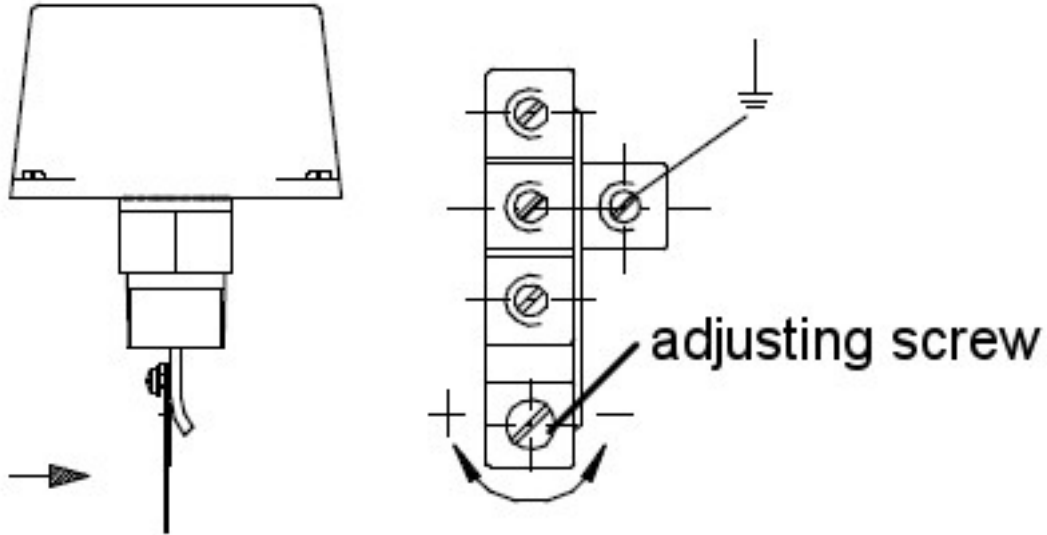


## Switching Point Adjustment

---

Approaches:

Loosen the screws and remove the hood. Use a suitable tool to adjustment screw to the desired value and then retighten the cover.



# DPS10

## Paddle-Bellows Flow Switch

- for liquids and gases
- proven technology
- easy mounting
- low pressure loss
- brass or stainless steel version
- installation in any position
- switching ranges: 0,6...2 m<sup>3</sup>/h to 38,6...90,8 m<sup>3</sup>/h
- P<sub>max</sub>: 30 bar, T<sub>max</sub>: 120 °C



### Description:

The flow switches of the DPS10 series mechanically transmit the flow-proportional movement of the paddle installed in the pipeline via a bellows and a spring-loaded rocker to a high-load microswitch.

The switching point can be changed by adjusting the spring preload. The three standard paddles supplied can be used for a nominal width range from 1" to 3".

A fourth paddle can be shortened to the desired length for larger nominal widths or to reduce the switching values.

### Typical applications:

The DPS10 paddle switches are used wherever reliable monitoring of liquid or air flows is required. The switches are used for both minimum and maximum flow monitoring.

Typical areas of application are the monitoring of cooling and lubrication circuits, the dry-running protection of pumps or as a deficiency protection. The robust design of the DPS10 series allows it to be used throughout industry.

## Models:

### Material combinations:

The standard device DPS10.1 is suitable for monitoring non-aggressive liquids. It has a process connection and bellows made of brass as well as four variable paddles made of stainless steel 1.4401.

The stainless steel version DPS10.2 is used for monitoring aggressive liquids.

The device has a connection and bellows made of stainless steel 1.4301, as well as four variable paddles made of stainless steel 1.4401.

The DPS10.3 version is suitable for monitoring air. It has a galvanized steel connection plate, a brass paddle holder and a stainless steel 1.4401 paddle suitable for flow velocities of 1-8 m/s. All versions have an ABS plastic housing.

**Adjustment range:** Measuring ranges for the standard version can be found in the table below

Pipe diameter [mm]	Type	Factory setting off / on [m³/h]	Max. setting off / on [m³/h]	Paddle
25	DPS10.1 and DPS10.2	0,6 / 1,0	2,0 / 2,1	1
32	DPS10.1 and DPS10.2	0,8 / 1,3	2,8 / 3,0	1
40	DPS10.1 and DPS10.2	1,1 / 1,7	3,7 / 4,0	1
50	DPS10.1 and DPS10.2	2,2 / 3,1	5,7 / 6,1	1 and 2
65	DPS10.1 and DPS10.2	2,7 / 4,0	6,5 / 7,0	1 and 2
80	DPS10.1 and DPS10.2	4,3 / 6,2	10,7 / 11,4	1 and 2 and 3
100	DPS10.1 and DPS10.2	6,1 / 8,0	17,3 / 18,4	1,2,3 and 4 (cut to 92 mm)
125	DPS10.1 and DPS10.2	9,3 / 12,9	25,2 / 26,8	1,2,3 and 4 (cut to 117 mm)
150	DPS10.1 and DPS10.2	12,3 / 16,8	30,6 / 32,7	1,2,3 and 4 (cut to 143 mm)
200	DPS10.1 and DPS10.2	38,6 / 46,5	90,8 / 94,2	1,2,3 and 4 (uncut)
25-300*	DPS10.3	1-8 m/s air 1 bar switching off		

\* for ventilation ducts

## Technical Data:

**Max. pressure:** 11 bar (brass), 30 bar (st. steel)  
**Max. medium temp.:** 120 °C (DPS10.3: 85 °C)  
**Max. environment temp.:** 85 °C  
**Mounting position:** any  
**Process connection:** DPS10.1 and DPS10.2: R 1 A, DPS10.3: mounting plate  
**Pressure loss:** 0,06 to 0,08 bar  
**Hysteresis:** depending on switching value at least 0,1 l/min

## Order Code:

**Order number:**

**DPS10. 1. 1**

**Paddle-bellows flow switch**

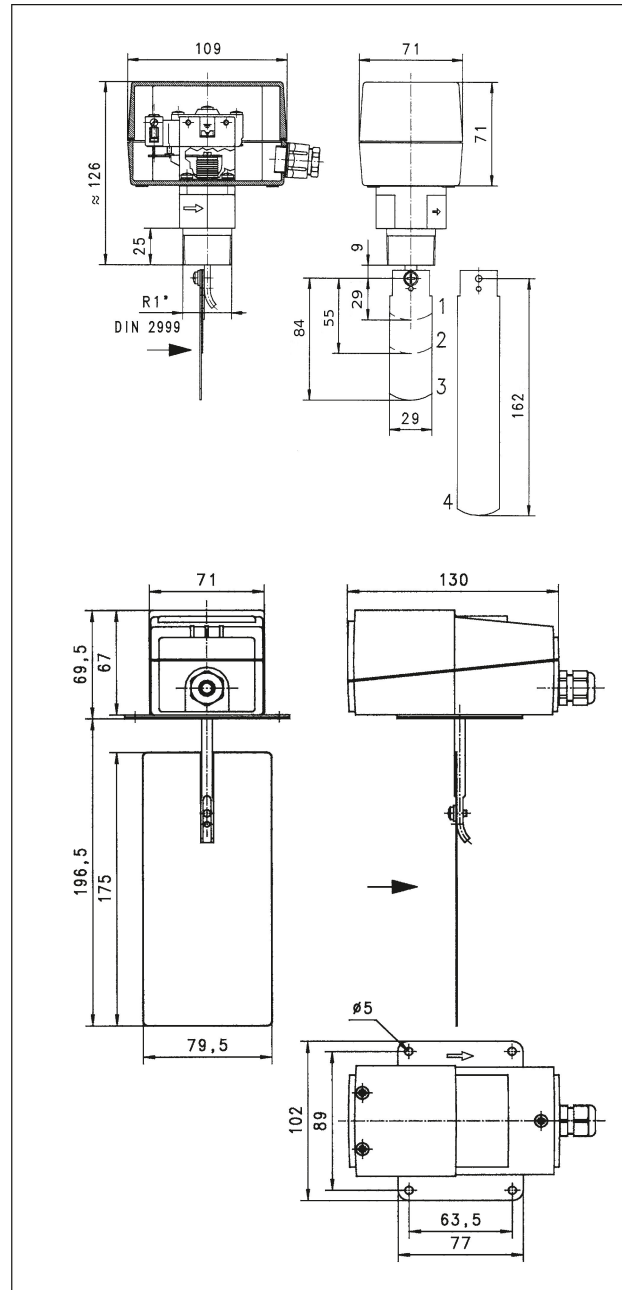
### Material combinations:

1 = brass connection. R 1 male, 4 st. steel paddle for liquids  
 2 = st. steel connection. R 1 male, 4 st. steel paddle for liquids  
 3 = connection plate made of galv. steel, st. steel paddle for air

### Models:

1 = standard

## Dimensions:



## Electrical Data:

**Switch output:** micro switch, SPDT, 250 VAC, 15 A (8 A inductive)  
**Screwing:** M20 x 1,5  
**Prot. class:** IP65