
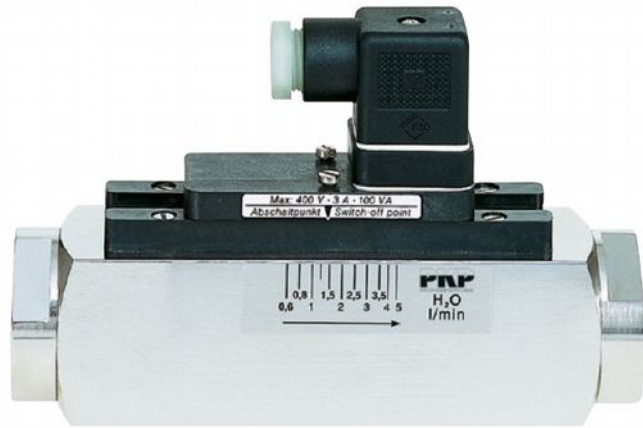


# DS06

## Variable Area Flowmeter and Switch for High Pressure Applications, mounting independent

- applicable for low viscosity liquids
- small mounting dimensions, any mounting position
- brass (nickel plated) or stainless steel version
- high switching accuracy
- robust design without a measuring glass tube
-  optional Ex- version acc. to ATEX
- analogue transmitter 4...20 mA optional
- $P_{\max}$ : 300 bar,  $T_{\max}$ : 160 °C



### Description:

The flowmeter and switch model DS06 works according to a modified variable area principle.

The float is guided in a cylindrical measuring tube by means of a slotted nozzle. The flowing medium moves the float in the flow direction. An externally mounted pointer indicator is magnetically coupled to the float and thus, following the float position, indicates the flow rate on a scale.

A Reed contact is mounted outside the meter in a sealed housing. When the float reaches the position of the Reed contact the switch will close. With higher flows the float moves further upward until it reaches a built-in float stop, still keeping the switch closed. This ensures a bistable switch function at any time.

The Reed contact is adjustable over the full switching range of the meter.

### Typical application:

The variable area flowmeters and monitors DS02 are used to measure and monitor continuous flow rates of low-viscosity liquids or gaseous media.

Areas of applications are:

- cooling systems
- engineering
- medical technology
- pharmaceutical and chemical industries
- research and development

## Models:

**Measuring ranges:** 0,2–4 l/min ... 35–250 l/min water

**Materials:** brass (nickel plated) or stainless steel versions

## Technical Data:

**Max. pressure:** brass version: 200 bar  
stainless steel version: 300 bar

**Pressure loss:** 0,02–0,8 bar

**Max. media-temperature:** 100 °C (optional 160 °C)  
Ex-devices acc. to. ATEX-marking

**Operating temp.:** 70 °C with analogue transmitter AZ06

**Electr. Connection:** angle plug acc. to EN 155301-803, Form A (DIN 43650),  
Ex-contact with 2 m cable,  
**optional:** cable connection  
round plug M12 x 1 acc. to EN 50044  
angle plug with LED or glow lamp

**Mounting position:** ± 5 % of full scale  
(for vertical installation)

## Materials:

### Brass version (nickel plated):

Wetted parts:  
threaded rings: brass  
spring: stainless steel 1.4571  
gaskets: NBR (optional FKM, EPDM)

all other wetted parts: brass nickel plated

### Stainless steel version 1.4571:

Wetted parts:  
gaskets: FKM (optional NBR, EPDM)

all other wetted parts: stainless steel 1.4571

## Order Code:

**Order Number:** DS06.3.1.1.09.1.1.1.0

**variable area flow meter-  
and switch**

**Connection female thread:**

1 = G 1/4 female 1N = 1/4" NPT  
1A = G 3/8 female 1AN = 3/8" NPT  
2 = G 1/2 female 2N = 1/2" NPT  
3 = G 3/4 female 3N = 3/4" NPT  
4 = G 1 female 4N = 1" NPT  
5 = G 1 1/4 female 5N = 1 1/4" NPT  
6 = G 1 1/2 female 6N = 1 1/2" NPT

**Material:**

1 = brass nickel plated  
2 = stainless steel 1.4571

**Scale:**

1 = for water

**Measuring ranges:**

**DS06.1, DS06.1A and DS06.2:**

01 = 0,2–4 l/min (water)  
03 = 0,6–5 l/min (water)  
04 = 0,5–8 l/min (water)  
05 = 1–14 l/min (water)  
06 = 1–28 l/min (water)

**DS06.2 and DS06.3:**

07 = 2–40 l/min (water)  
08 = 4–55 l/min (water)

**DS06.3 and DS06.4**

09 = 1–70 l/min (water)  
10 = 8–90 l/min (water)  
11 = 5–110 l/min (water)

**only DS06.5**

12 = 10–150 l/min (water)

**DS06.5 and DS06.6**

13 = 35–220 l/min (water)  
14 = 35–250 l/min (water)

**Addition S...= special scale**

**Flow indicator:**

0 = switch only, without flow indicator  
1 = flow meter and -switch, with flow indicator

**Number of contacts:**

0 = without contact (only for devices with indication and/or AZ06)  
1 = 1 contact  
2 = 2 contacts

**Contact function / analogue output:**

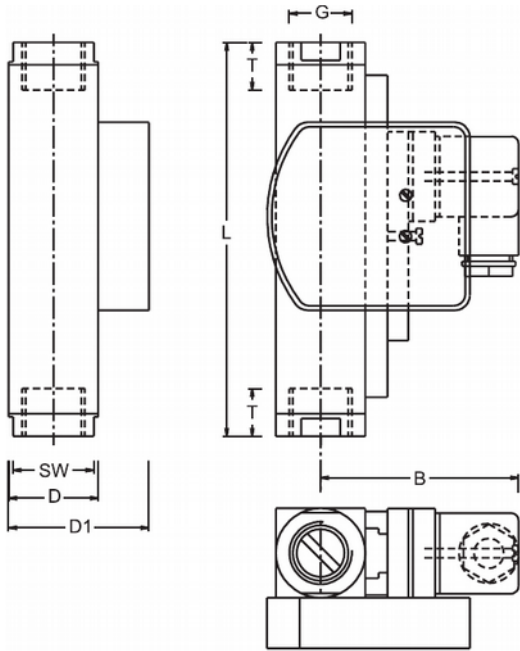
(contact or analogue transmitter available)

0 = without  
1 = N/O  
2 = SPDT  
2X = SPDT for SPS application (not for DS06.5, DS06.6)  
3ST5 = Ex-N/O, T5 (100 °C), with 2 m cable  
3ST6 = Ex-N/O, T6 (80 °C), with 2 m cable  
3UT5 = Ex-SPDT, T5 (100 °C), with 2 m cable  
3UT6 = Ex-SPDT, T6 (80 °C), with 2 m cable  
SU20 = analogue transmitter 4...20 mA and 0...10 V

**Options:**

0 = without  
1 = please specify in plain text  
HT = high temperature version 160 °C (for liquids only)  
M12 = round plug M12 x 1 acc. to EN 50044 (Tmax. 85 °C)  
Kx = cable version 1 m, 2 m, 5 m, or 10 m

## Dimensions:



## Dimensions:

| Type             | Dimensions [mm] |    |    |    |       |    |     | Weight<br>appr. [g] |
|------------------|-----------------|----|----|----|-------|----|-----|---------------------|
|                  | SW              | D  | D1 | B  | G     | T  | L   |                     |
| DS06.1.x.x.x     | 27              | 30 | 47 | 71 | G ¼   | 14 | 131 | 850/900             |
| DS06.2.x.x.x     | 27              | 30 | 47 | 71 | G ½   | 14 | 130 | 850/900             |
| DS06.2.x.x.07/08 | 27              | 30 | 47 | 71 | G ½   | 14 | 146 | 900/950             |
| DS06.3.x.x.07/08 | 32              | 35 | 47 | 21 | G ¾   | 20 | 174 | 900/950             |
| DS06.3.x.x.x     | 34              | 40 | 57 | 76 | G ¾   | 18 | 152 | 1400/1450           |
| DS06.4.x.x.9-11  | 40              | 40 | 57 | 76 | G 1   | 19 | 156 | 1100/1150           |
| DS06.5.x.x.12    | 50              | 50 | 57 | 76 | G 1 ¼ | 21 | 200 | 2750/2800           |
| DS06.5.x.x.x     | 50              | 50 | 67 | 81 | G 1 ¼ | 21 | 200 | 3000/3050           |
| DS06.6.x.x.x     | 60              | 60 | 77 | 82 | G 1 ½ | 24 | 200 | 3800/3850           |

## Contacts:

The contact opens/changes, if the flow level has fallen under the adjusted value.

| Type    | Size   | Contact function                         | Switching capacity                         |                 |                                 |
|---------|--------|--|--|-----------------|---------------------------------|
|         |        |  | Angle plug IP65                            | M12x1 plug IP67 | cable connection (1 m) IP67     |
| DS06.1  | 1/4"   | 1 = N/O                                  | 250 V / 3 A / 100 VA                       |                 |                                 |
| DS06.1A | 3/8"   | 2 = SPDT                                 | 250 V / 1,5 A / 50 VA, min. load: 3 VA     |                 |                                 |
| DS06.2  | 1/2"   |  |  |                 |                                 |
| DS06.3  | 3/4"   | 2X = SPDT for SPS**                      | 250 V / 1 A / 60 VA                        | -/-             | -/-                             |
| DS06.4  | 1"     | 3ST5 = Ex-N/O, T5*<br>3ST6 = Ex-N/O, T6* | -/-  | -/-             | 250 V / 2 A / 60 VA (2 m cable) |
| DS06.5  | 1 1/4" |  | 3UT5 = Ex-SPDT, T5*<br>3UT6 = Ex-SPDT, T6* | -/-             | -/-                             |
| DS06.6  | 1 1/2" |  |  |                 |                                 |

\* Exact max. switching capacity: see ATEX documents

\*\* not available for DS06.5 and DS06.6

## ATEX-designations:

### Contacts 3ST5, 3ST6, 3UT5, 3UT6:

ATEX II 2 G Ex mb IIC T6 Gb, ATEX II 2 D Ex tb IIIC T80 °C Db  
ATEX II 2 G Ex mb IIC T5 Gb, ATEX II 2 D Ex tb IIIC T100 °C Db  
(with cable connection, Standard 2 m only)

## Analogue Transmitter SU20:

The position of a magnetic float / piston is detected by means of Hall sensors and converted into an analogue signal. .

- analogue signal 4...20 mA and 0...10 V
- operating temperature: -20... +70 °C
- accuracy: +/- 10 % of full scale
- Aluminium housing, anodized



### Technical Data:

|                               |                          |
|-------------------------------|--------------------------|
| <b>Accuracy*:</b>             | +/- 1 % of full scale    |
| <b>Operating temperature:</b> | -20...+70 °C             |
| <b>Storage temperature:</b>   | -20...+80 °C             |
| <b>Repeatability:</b>         | tbd.                     |
| <b>Housing material:</b>      | Aluminium, blue anodized |
| <b>Protection class:</b>      | IP67                     |

\* The actual accuracy depends on the flow sensor used. On request the accuracy of the flow sensor used can be significantly increased by a customized calibration.

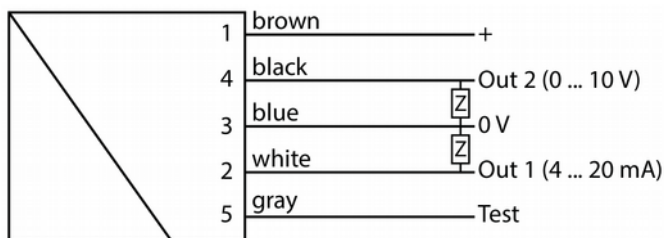
### Electrical Data:

|                           |   |
|---------------------------|---|
| <b>Analogue output:</b>   | 4...20 mA and<br>0...10 V                     |
| <b>Power supply:</b>      | 24 V <sub>CD</sub> (19...30 V <sub>DC</sub> ) |
| <b>Power consumption:</b> | < 1 W   |
| <b>Current output:</b>    | max. load 600 Ohm                             |
| <b>Voltage output</b>     | max. current 10 mA                            |
| <b>Connection:</b>        | round plug M12x1,<br>5-pole                   |

### Notes:

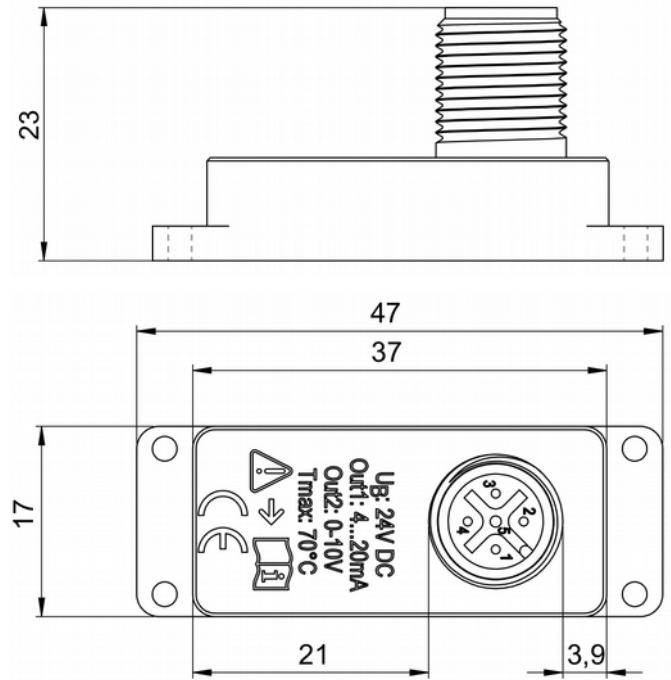
Flowmeter and analogue transmitter SU20 have been optimally adjusted to each other and may not be exchanged.

### Electrical Connection:



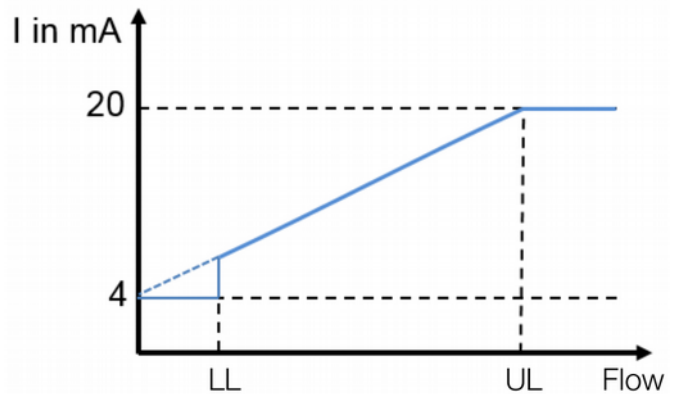
Attention: Pin 5 must not be electrically connected! We strongly recommend use of a four core cable.

### Dimensions:

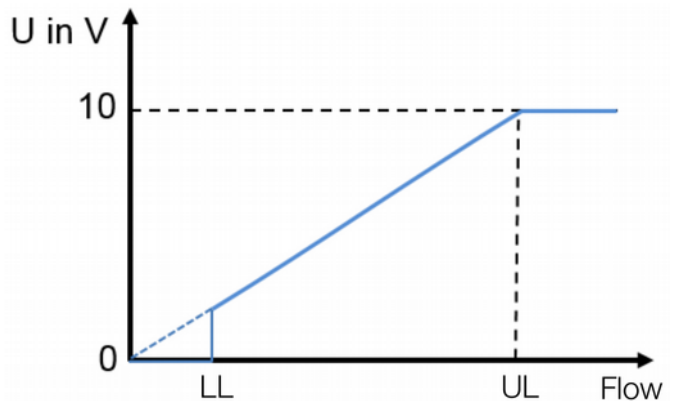


### Characteristics:

#### Current-Flow characteristic:



#### Voltage-Flow characteristic:



LL: lower limit of measuring range  
UL: upper limit of measuring range

## Accessories (see separate data sheets):

- Needle valves SNV01, SNV02



- Ball valves SKG01, SKG02



- Dirt traps SF00, SF01



- Protection relay MSR01



- M12 Plug connector PVC-cable SM12



## Notes:

The specified measuring/switching ranges apply when the instrument is installed vertically and the flow rate is from bottom to top.

Other installation positions or operating densities deviating from the specified specifications increase the specified measuring error.

Special scales for different media and operating conditions are available on request.

The specified switching points are shut-off points at falling flow rates. Please note that the switch-on points are higher due to the hysteresis.

For applications where pressure surges are to be expected, please contact PKP!