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Operating Instructions

DS06

*Variable Area Flowmeter and Switch
Mounting Independent*

General

1. Before installation, make sure that the materials of the flowmeter are suitable for the medium to be measured.

Installation

A spring, which pushes the float back towards its zero position against the flow makes it possible to use the meter in any mounting position. Flow is always from the lowest to the highest scale value.

The medium must be free of particles (especially ferrous particles which may cause a clogging of the measuring tube. If this is not the case we recommend the use of filters, in case of ferrous particles with a magnetic insert with a max. mesh size of 0,02" / 0.6 mm.

All applications which deviate from the standard conditions (monitoring of continuous flow) should be discussed first with our technical personnel.

Flow meters with Reed contact may not be used within an inductive or strong magnetic field.

All standard threads are made according to DIN 2999 Part 1. Please make sure that only appropriate counter threads and sealing material is used for installation, in order to ensure proper function and tightness.

To avoid measurement errors, straight pipe runs of 10 x D upstream and 5 x D downstream of the meter should be installed.

While mounting the flowmeter the fittings have to be countered by means of a suitable wrench. If this is not done the fitting may rotate within its housing which in turn may cause the flowmeter to leak.

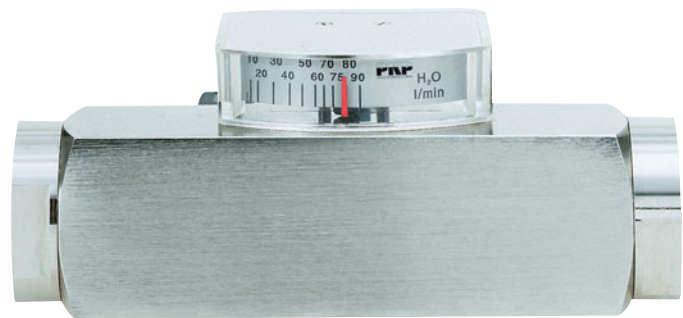
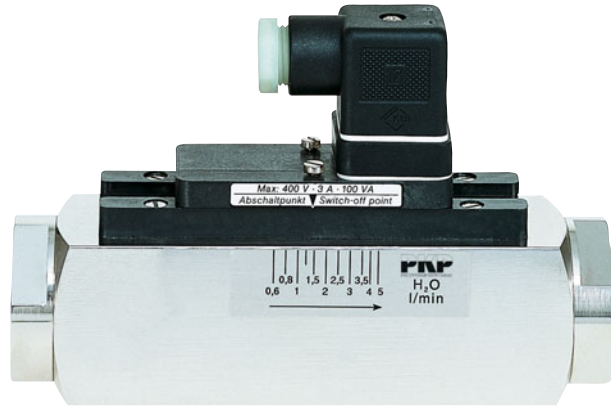
While connecting the Reed contact make sure that the max. contact ratings of the unit are not exceeded (not even for short times), as Reed contact are very sensitive to overloads. This especially applies when inductive loads are connected. When switching inductive loads current surges of up to 10 times the rated value of the coil may occur. In such cases we recommend the use of a contact protection relay.

The Reed contacts are coated with tungsten, gold or rhodium and may therefore be connected directly to a PLC without any problems.

DS06

Variable Area Flowmeter And Switch For High Pressure Applications, Mounting Independent

- any mounting position without recalibration
- small mounting dimensions
- materials brass or stainless steel
- high switching accuracy
- very small switch hysteresis
- robust design without glass measuring tube
- suitable for pressures up to 4350 psi / 300 bar



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.

Mounting Position and Reliability:

The built-in spring and the magnetic float guarantee an absolute reliability of the meter. This spring, which pushes the float back towards its zero position against the flow makes it possible to use the meter in any mounting position. The spring is artificially aged, thus eliminating the need for recalibration to the different mounting positions.

Application:

The variable area flowmeter and switch model DS06 is used for measuring and monitoring the flow of low viscosity liquids and gases, i. e. in cooling circuits of welding machines and laser systems, for pump monitoring, compressors and many other applications.

Versions:

- flow switch only with Reed contact
- optionally as flow meter and switch with external pointer indicator and contact

Measuring ranges:

3.0 - 63.5 GPH ... 9 - 66 GPM
0.2 - 4 l/min ... 35 - 250 l/min

Materials: brass or stainless steel

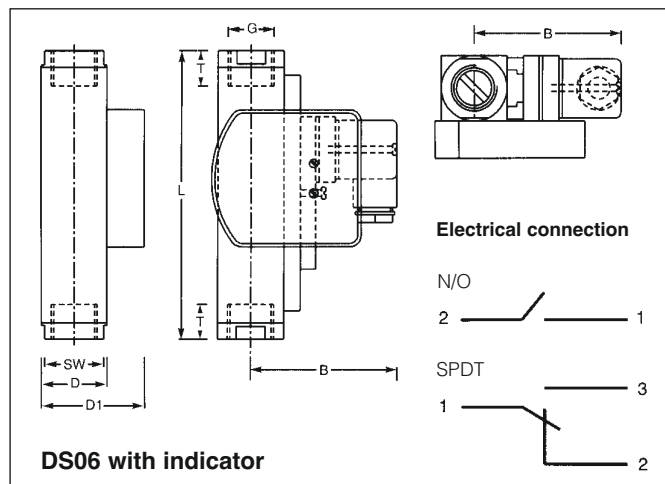
Contacts:

N/O: 250 V, 3 A, 100 VA
SPDT: 250 V, 1.5 A, 50 VA
Ex-N/O*: 250 V, 2 A, 60 VA
Ex-SPDT*: 250 V, 1 A, 30 VA

* according to Atex 100a Ex II 2 G, EEx m II T6

Dimensions:

Model	Mounting dimensions in inch / mm							Weight (lbs / g)	
	SW	D	D1	B	G	T	L	without indication	with indication
DS06.1.x.x.x	1.06 / 27	1.18 / 30	1.85 / 47	2.80 / 71	1/4"	0.55 / 14	5.12 / 130	1.67 / 800	1.87 / 850
DS06.2.x.x.x	1.06 / 27	1.18 / 30	1.85 / 47	2.80 / 71	1/2"	0.55 / 14	5.12 / 130	1.87 / 850	1.98 / 900
DS06.2.x.x.07/08	1.06 / 27	1.18 / 30	1.85 / 47	2.80 / 71	3/4"	0.63 / 16	5.83 / 148	1.98 / 900	2.09 / 950
DS06.3.x.x.x	1.34 / 34	1.57 / 40	2.24 / 57	2.99 / 76	3/4"	0.71 / 18	5.98 / 152	3.08 / 1400	3.19 / 1450
DS06.4.x.x.9-11	1.42 / 36	1.42 / 36	2.09 / 53	2.99 / 76	1"	0.75 / 19	6.14 / 156	2.42 / 1100	2.53 / 1150
DS06.5.x.x.x	1.97 / 50	1.97 / 50	2.64 / 67	2.95 / 75	1 1/4"	0.83 / 21	7.87 / 200	6.61 / 3000	6.72 / 3050
DS06.6.x.x.x	2.17 / 55	2.17 / 55	2.83 / 72	3.07 / 78	1 1/2"	0.94 / 24	7.87 / 200	8.37 / 3800	8.48 / 3850



Technical Specifications:

max. pressure:

brass version: 2900 psi / 200 bar
st. steel version: 4350 psi / 300 bar
pressure drop: 0.29-11.6 psi / 0.02-0.8 bar
max. temperature: 212 °F / 100 °C,
(320 °F / 160 °C on request)

materials:

wetted parts:
brass: nickel plated brass
st. steel: st. steel 316 Ti / 1.4571
O-rings: Buna (opt. Viton, EPDM)

electr. connection:

plug acc. DIN 43650
(optionally: 1m cable connection)

accuracy:

± 5% f. s.

analog output:

see model DSxx-A in section
"accessories"

Ordering Code:

Order number DS06. 3. 1. 1. 09. 1. 1. 1. 0

Variable area flowmeter and switch

Connection:

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

Material:

1 = brass, spring st. steel 304 / 1.4310
2 = all st. steel 316 Ti / 1.4571

Scale:

1 = for water

Measuring ranges:

DS06.1 and DS06.2:

01U = 3.0 - 63.5 GPH
03U = 9.5 - 79 GPH
04U = 8 - 127 GPH
05U = 15 - 222 GPH
06U = 15 - 445 GPH

01 = 0.2 - 4 l/min water
02 = 0.4 - 4.5 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:

07U = 30 - 635 GPH
08U = 60 - 870 GPH

DS06.2 and DS06.3:

07 = 2 - 40 l/min water
08 = 4 - 55 l/min water

DS06.3 and DS06.4:

09U = 0.30 - 18.5 GPM
10U = 2.1 - 23.8 GPM
11U = 1.3 - 29 GPM

DS06.3 and DS06.4:

09 = 1 - 70 l/min water
10 = 8 - 90 l/min water
11 = 5 - 110 l/min water

DS06.5 only:

12U = 2.6 - 39.5 GPM

DS06.5 only:

12 = 10 - 150 l/min water

DS06.5 and DS06.6:

13U = 9 - 58 GPM
14U = 9 - 66 GPM

DS06.5 and DS06.6:

13 = 35 - 220 l/min water
14 = 35 - 250 l/min water

Version:

0 = switch only, without flow rate indication
1 = flow meter and switch, with side indicator

No. of contacts:

0 = without contact
1 = 1 contact
2 = 2 contacts

Contact function:

0 = without contact
1 = N/O
2X = SPDT for SPS application
3S = Ex-N/O (EEx m II T6)
3U = Ex-SPDT (EEx m II T6)

Options:

0 = without
1 = please indicate

attention: please indicate flow-direction and mounting position.