

# DS01

## Miniature Variable Area Flowmeter And Switch

- small mounting dimensions
- materials brass or stainless steel
- scales for water and air
- universal mounting position
- high switching accuracy
- very small switch hysteresis



### Description:

The flowmeter and switch model DS01 works according to a modified variable area principle.

The float is guided in a cylindrical measuring glass by means of a spring. The flowing medium moves the float in the flow direction. The upper edge of the float shows the momentary flow via a burnt-in scale on the measuring glass. 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.

### Application:

The variable area flowmeter and switch model DS01 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.

### Switching hysteresis:

By careful selection of the Reed contacts the switching hysteresis could be reduced to only 0.02" - 0.06" / 0.5 - 1.5 mm float movement.

## Measuring Ranges:

Water: 0.08 - 0.95 GPH ... 16 - 40 GPM  
5 - 60 ml/min ... 60-150 l/min  
Air: 0.4 - 2.75 SCFH ... 7.0 - 22.0 SCFM  
0.2 - 1.3 NI/min ... 200 - 625 NI/min  
(at 14.7 psia / 1.013 bar abs. and 68 °F / 20 °C)

## Materials:

brass or stainless steel

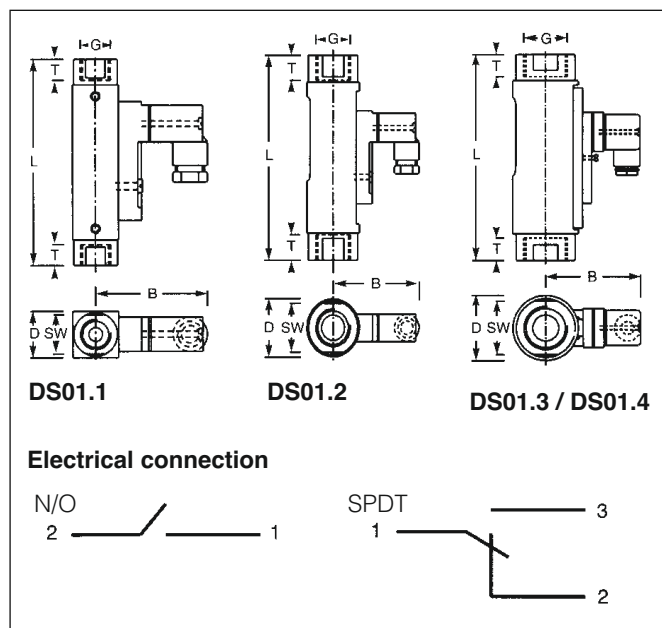
## Contacts:

Contact function	DS01.1	DS01.2	DS01.3 / DS01.4 DS01.5
N/O	200V, 1A, 20VA	230 V, 3A, 60 VA	250 V, 3A, 100 VA
SPDT	200 V, 1A, 20VA	250 V, 1.5A, 50 VA	250 V, 1.5A, 50 VA
N/O*			250 V, 2A, 60VA
SPDT*			250 V, 1A, 30VA

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

## Dimensions:

Model	Mounting dimensions in inch / mm						Weight (lbs / g)
	SW	D	B	NPT / G	T	L	
DS01.1	0.67 / 17	0.79 / 20	1.93 / 49	1/4	0.39 / 10	3.54 / 90	0.31 / 140
DS01.2	1.06 / 27	1.26 / 32	2.09 / 53	1/2	0.55 / 14	4.89 / 114	0.66 / 300
DS01.3	1.61 / 41	1.97 / 50	3.03 / 77	3/4	0.67 / 17	5.47 / 139	1.98 / 900
DS01.4	1.61 / 41	1.97 / 50	3.03 / 77	1	0.67 / 17	6.22 / 158	1.98 / 900
DS01.5	1.61 / 41	1.97 / 50	3.03 / 77	1 1/4	0.67 / 17	6.54 / 166	2.03 / 920



## Technical Specifications:

**max. pressure:** DS01.1: 230 psi / 16 bar  
DS01.2 / DS01.3 / DS01.4: 145 psi / 10 bar

**pressure drop:** DS01.1: 0.29-2.9 psi / 0.02-0.2 bar  
DS01.2: 0.29-4.35 psi / 0.02-0.3 bar  
DS01.3 / DS01.4: 0.29-5.8 psi / 0.02-0.4 bar

**max. temperature:** 212 °F / 100 °C (optionally 320 °F / 160 °C)  
for liquids, 194 °F / 90 °C for gases

**materials:** measuring glass: Duran 50  
housing: anodized alumin

**O-rings:** Buna, (optionally: Viton, EPDM)

**electr. connection:** plug acc. to DIN 43650 (optionally: 1 m cable connection for DS01.1, N/O only)

**accuracy:** ± 10% f.s.

**analog output:** see model DSxx-A in section "accessory"

## Ordering Code:

Order number: **DS01. 1. 1. 1. W13. 1. 1. 0**

## Miniature variable area flowmeter and switch

### Connection:

1N = 1/4" NPTF	1 = G 1/4 female
2N = 1/2" NPTF	2 = G 1/2 female
3N = 3/4" NPTF	3 = G 3/4 female
4N = 1" NPTF	4 = G 1 female
5N = 1 1/4" NPTF	5 = G 1 1/4 female

### Material:

1 = brass, spring of st. steel 304 / 1.4310  
2 = all stainless steel 316 TI / 1.4571

### Scale:

1 = for water  
2 = for air (14.7 psia / 1.013 bar abs. and 68 °F / 20 °C)

### Measuring ranges:

#### DS01.1 only:

<b>Water:</b> WU101 = 0.08-0.95 GPH	W101 = 5-60 ml/min
WU102 = 0.4-2.0 GPH	W102 = 20-140 ml/min
WU106 = 1.6-9.5 GPH	W106 = 0.1-0.6 l/min
WU11 = 3-19 GPH	W11 = 0.2-1.2 l/min
WU12 = 0.1-0.5 GPM	W12 = 0.4-2 l/min
WU13 = 0.13-0.8 GPM	W13 = 0.5-3 l/min
WU15 = 0.25-1.3 GPM	W15 = 1.0-5 l/min
<b>Air:</b> LU1001 = 0.4-2.75 SCFH	L1001 = 0.2-1.3 NI/min
LU1002 = 1.05-4.25 SCFH	L1002 = 0.5-2.0 NI/min
LU1003 = 1.7-6.4 SCFH	L1003 = 0.8-3 NI/min
LU1005 = 3.5-10.5 SCFH	L1005 = 1.5-5.0 NI/min
LU1008 = 4.5-17.0 SCFH	L1008 = 2-8 NI/min
LU1012 = 6.5-25.0 SCFH	L1012 = 3-12 NI/min
LU1014 = 7.5-29.5 SCFH	L1014 = 3.5-14 NI/min
LU1020 = 12-42 SCFH	L1020 = 5.5-20 NI/min
LU1024 = 15-50 SCFH	L1024 = 7-24 NI/min
LU1035 = 21-74 SCFH	L1035 = 10-35 NI/min
LU1042 = 21-89 SCFH	L1042 = 10-42 NI/min

#### DS01.2 only:

<b>Water:</b> WU205 = 1.6-8 GPH	W205 = 0.1-0.5 l/min
WU21 = 3.2-16 GPH	W21 = 0.2-1 l/min
WU22 = 0.1-0.4 GPM	W22 = 0.4-1.6 l/min
WU24 = 0.25-1.0 GPM	W24 = 1-4 l/min
WU28 = 0.55-2.0 GPM	W28 = 2-8 l/min
WU215 = 1.1-4.0 GPM	W215 = 4-15 l/min
WU220 = 1.5-5.5 GPM	W220 = 5-22 l/min
WU228 = 1.5-7.5 GPM	W228 = 6-28 l/min
<b>Air:</b> LU2012 = 6.5-25.0 SCFH	L2012 = 3-12 NI/min
LU2030 = 15-64 SCFH	L2030 = 7-30 NI/min
LU2040 = 25-85 SCFH	L2040 = 12-40 NI/min
LU2125 = 1.0-4.4 SCFM	L2125 = 28-125 NI/min
LU2200 = 1.8-7.0 SCFM	L2200 = 50-200 NI/min
LU2420 = 3.5-14.8 SCFM	L2420 = 100-420 NI/min
LU2480 = 4.2-17 SCFM	L2480 = 120-480 NI/min

#### DS01.3, DS01.4 and DS01.5:

<b>Water:</b> WU3030 = 2.1-8.0 GPM	W3030 = 8 - 30 l/min
WU3045 = 4.0-12.0 GPM	W3045 = 15-45 l/min
WU3090 = 8.0-24.0 GPM	W3090 = 30-90 l/min
<b>Air:</b> LU30080 = 48-170 SCFH	L30080 = 22.5-80 NI/min
LU30130 = 105-275 SCFH	L30130 = 50-130 NI/min
LU30420 = 4.6-14.8 SCFM	L30420 = 130-420 NI/min
LU30625 = 7.0-22.0 SCFM	L30625 = 200-625 NI/min

#### DS01.4 or DS01.5:

<b>Water:</b> WU3150 = 16-40 GPM	W3150 = 60-150 l/min
----------------------------------	----------------------

### No. of contacts:

1 = 1 contact  
2 = 2 contacts

### Contact function:

1 = N/O  
2 = SPDT  
3S = Ex-N/O (EEx m II T6), DS01.3, DS01.4, DS01.5 only  
3U = Ex-SPDT (EEx m II T6), DS01.3, DS01.4, DS01.5 only

### Options:

0 = without  
1 = please indicate