

## Flow Monitor & Flow Indicator

# DUG



## OVERVIEW

### Operation

- Float measuring principle

### Application

- Cooling systems and cooling circuits
- Mechanical engineering
- Medical engineering
- Pharmaceutical industry
- Chemical industry
- Research & Development

### Features

- Universal orientation
- High reliability
- High switch accuracy
- Wide switch range
- Infinitely variable switch point adjustment by operator
- EX-version according to ATEX directive available
- UL Recognized version available
- Scales are burned onto the sight glass
- Threaded connection, special thread on request

### Installation information

- The operating instructions for DUG Module BASICS / ...ATEX must be observed!
- **Download: [www.meister-flow.com](http://www.meister-flow.com)**

## OPERATING DATA

<b>Operating pressure, max.</b>	10 bar
<b>Pressure drop</b>	0,02 – 0,8 bar
<b>Temperature, max.</b>	100 °C (optional 160 °C)
<b>Measuring accuracy</b>	±5 % of full scale

Changed operating data apply to the devices in explosion-proof design according to ATEX directive. Refer to the Operating Instructions for DUG Module ATEX.

For UL Recognized devices, changed operating data apply. Refer to the Operating Instructions for DUG Module BASICS.

Download: [www.meister-flow.com](http://www.meister-flow.com)

## MEASURING RANGES

Type	Switch range for H <sub>2</sub> O at 20 °C <sup>(1)</sup>		
	l/min	gph	gpm
DUG-4	0,2 – 4	3 – 63	
DUG-6	0,5 – 6	8 – 95	
DUG-8	0,5 – 8	8 – 127	
DUG-14	0,5 – 14	8 – 222	
DUG-22	2 – 22	32 – 350	
DUG-28	1 – 28	16 – 444	
DUG-45	1 – 45	15 – 710	
DUG-80	2 – 80		0,5 – 21
DUG-90	6 – 90		1,6 – 23,8
DUG-110	6 – 110		1,6 – 29
DUG-150	15 – 150		4 – 39,5
DUG-220	50 – 220		13 – 58
DUG-250	50 – 250		13 – 66

<sup>(1)</sup> The specified measuring- / switch ranges are valid for water having a density of 1.00 kg/dm<sup>3</sup>, vertical installation of the device and flow direction from bottom to top.

Other installation positions or deviation from the operating densities will increase the measurement error specified in the data sheet.

Operating density for water at 20 °C and 1.013 bar (absolute value): 1.00 kg/dm<sup>3</sup>.

Upon request, special scales for deviating media, different operating conditions and installation positions (only for devices which can be installed in any position) are available.

The specified switch values are switch-off points, i.e. switch values by decreasing flow.

Other measuring- /switch ranges are available upon request.

## MATERIALS

### Brass version, wetted parts

Spring:	1.4571
Sight glass:	DURAN® 50
Gaskets:	NBR (optional FKM, EPDM) <sup>(2)</sup>
all other wetted parts:	Brass, nickel-plated

### Brass version, non-wetted parts

Device housing:	Aluminium, anodized
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### Stainless steel version, wetted parts

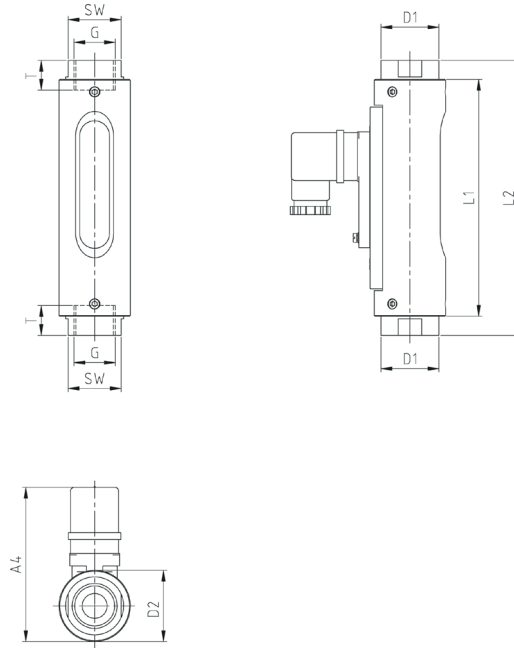
Spring:	1.4571
Sight glass:	DURAN® 50
Gaskets:	FKM (optional NBR, EPDM) <sup>(2)</sup>
all other wetted parts	1.4571

### Stainless steel version, non-wetted parts

Device housing:	Aluminium, anodized
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<sup>(2)</sup> Other gasket materials on request

# TECHNICAL DRAWING



## SUMMARY OF TYPES

Type	Overall dimensions [mm]												Weight approx. [g]
	G	DN	SW	L1	L2	T	D1	D2	A1	A2	A3	A4	
DUG-4													625
DUG-6	1/4"	8	32	121	132	10	35	43	-	-	-	~96	625
DUG-8	3/8"	10	32	121	135	11	35	43	-	-	-	~96	625
DUG-8	1/2"	15	32	121	135	14	35	43	-	-	-	~96	625
DUG-14													625
DUG-22	1/2"	15	32	121	135	14	35	43	-	-	-	~96	650
DUG-28	1/2"	15	32	121	135	14	35	43	-	-	-	~96	650
DUG-45	1/2"	15	32	143	161	14	35	43	-	-	-	~96	850
DUG-45	3/4"	20	32	143	166	15	35	43	-	-	-	~96	850
DUG-80	3/4"	20	41	143	163	15 <sup>(3)</sup>	45	50	-	-	-	~104	1000
DUG-80	1"	25	41	143	181	17	45	50	-	-	-	~104	1000
DUG-90	3/4"	20	41	143	163	15	45	50	-	-	-	~104	1000
DUG-90	1"	25	41	143	181	17	45	50	-	-	-	~104	1000
DUG-110	1"	25	41	143	181	17	45	50	-	-	-	~104	1000
DUG-150	1"	25	50	174	222	17	55	55	-	-	-	~109	1300
DUG-150	1 1/4"	32	50	174	222	20	55	55	-	-	-	~109	1300
DUG-220	1 1/4"	32	55	159	209	20	60	60	-	-	-	~113	1700
DUG-250	1 1/4"	32	50	174	222	20	55	55	-	-	-	~109	1400

<sup>(3)</sup> 14 mm in NPT version

## ELECTRICAL DATA

<b>Change over (CO)</b>	250V · 1,5A · 50VA <sup>(4)</sup>
<b>Normally open (NO)</b>	250V · 3A · 100VA
<b>Change over M12x1 (-20 °C – 85 °C)</b>	250V · 1,5A · 50VA <sup>(4)</sup>
<b>Normally open M12x1 (-20 °C – 85 °C)</b>	250V · 3A · 100VA
<b>Change over PLC</b>	250V · 1A · 60VA

### EX-version in compliance with ATEX directive

<b>ATEX II 2 G Ex mb II T6 &amp; ATEX II 2 D Ex tD A21 IP67 T80 °C</b>	
<b>ATEX II 2 G Ex mb II T5 &amp; ATEX II 2 D Ex tD A21 IP67 T100 °C</b>	
<b>Change over</b>	250V · 1A · 30VA <sup>(4)</sup>
<b>Normally open</b>	250V · 2A · 60VA

### UL Recognized switch contacts

<b>Change over</b>	240V · 1,5A · 50VA <sup>(4)</sup>
<b>Normally open</b>	250V · 3A · 100VA

<sup>(4)</sup> Minimum load 3VA

## ELECTRICAL CONNECTION

- Connector in compliance with EN 175301-803, Form A (DIN 43650, Form A)
- Connector M12x1
- Cable (1 m)

### EX-version in compliance with ATEX directive

- Cable (2 m)

### UL Recognized switch contacts

- Connector in compliance with EN 175301-803, Form A
- Cable (1 m)

### Ingress Protection

IP65: Connector in compliance with EN 175301-803, Form A  
IP67: Cable or connector M12x1

### Output signal

The contact opens / changes when the flow decreases below the set point.

### Power supply

Not required (potential-free reed contacts)

### Connector types

Other connector types or cable lengths on request

## CONNECTION DIAGRAM

