DS09

Angle Seat Variable Area Flow Meter

- **high measuring range spans: 2,5...25 l/min and 10...100 l/min**
- **can be replaced without complete dismantling due to angled seat**
- **any mounting position without recalibration**
- **compact design even for high flow rates**
- **high switching accuracy**
- **made of brass (nickel plated)**
- **analogue transmitter 4...20 mA available**

Description:

The flowmeter and switch model DS09 works according to a modified variable area principle. The float is guided by the flowing medium into an angled seat measuring chamber. Together with the float, the flow indicator, in which a magnet is integrated, is also moved.
A reed contact or an analogue transmitter can be mounted outside the device. The reed contact is encapsulated in a continuously adjustable housing and thus protected from external influences.
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 functional reliability:

The device can be used in any mounting position by installing a spring which pushes the float back into its initial position against the flow.
The spring force and magnetic float guarantee absolute functional reliability.
Due to the angled seat of the measuring chamber, the device can be removed for maintenance work without complete removal. In addition, the angled seat ensures a large flow rate in a small space.

Typical application:

The DS09 variable area flowmeters and monitors are used to measure and monitor low-viscosity liquids in the following areas:

Cooling systems, mechanical engineering, medical technology, research and development

PKP Prozessmesstechnik GmbH
Borsigstr. 24 • D-65205 Wiesbaden
+49 (0) 6122-7055-0 • +49 (0) 6122 7055-50
info@pkp.de • www.pkp.de

PKP Process Instruments Inc.
10 Brent Drive • Hudson, MA 01749
+1-978-212-0006 • +1-978-568-0060
info@pkp-usa.com • www.pkp-usa.com

Models:

Connection / measuring range:

G ½ female, 2,5...25 l/min water
G 1 female, 10...100 l/min water

(referenced to 1,013 bar abs, 20 °C, medium density 1,0 kg/dm³, vertical installation, flow from button to top)

Technical Data:

Max. pressure:	10 bar
Pressure loss:	ca. 0,3 bar
Max. media temperature:	100 °C
Operating temp.:	70 °C with analogue transmitter SU20
Accuracy:	± 10 % of FS (referenced to 1,013 bar abs, 20 °C, density 1,0 kg/dm³, vertical mounting, flow from button to top)
Electr. connection:	angle plug acc. to EN 175301-803, form C (DIN 43650) round plug M12 x 1 acc. to EN 50044,
optional:	angle plug with LED or glow lamp (on request)
Protection class:	IP65

Materials:

Protective housing:
(non-wetted parts) aluminium anodized

Wetted parts:

Float:	PEEK (DS09.15) brass (DS09.25)
Spring:	stainless steel 1.4571
Sight glass:	borosilicate glass
Gaskets:	NBR, optional FKM, EPDM
Magnet:	ferrite

all other wetted parts: brass, nickel plated

Order Code:

Order Code:	DS09.	15.	1.	1.	C.	0

Angle seat variable area flow meter

Connection / Measuring range:
15 = G ½ female, 2,5...25 l/min water
25 = G 1 female, 10...100 l/min water

Material:
1 = brass nickel plated

Contact function / Analogue output:
(contact or analogue transmitter available)
0 = without
1 = 1 N/O
2 = 1 SPDT
SU20 = analogue transmitter 4...20 mA and 0...10 V

Electrical connection:
0 = without
C = angle plug DIN 43650, Form C
(not with analogue transmitter)
M12 = round plug M12 x 1 (Tmax. 85 °C)

Options:
0 = without
1 = please specify in plain text

Contacts:

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

Switching capacity:

Contact function	Angle plug	M12x1 plug
1 = N/O	140 VAC, 0,7 A, 20 VA 200 VDC, 1 A, 20 VA	125 VAC, 0,7 A, 20 VA 125 VDC, 1 A, 20 VA
2 = SPDT	150 VAC/DC, 1 A, 20 VA	125 VAC/DC, 1 A, 20 VA

PKP PROZESSMESSTECHNIK

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info@pkp.de • www.pkp.de

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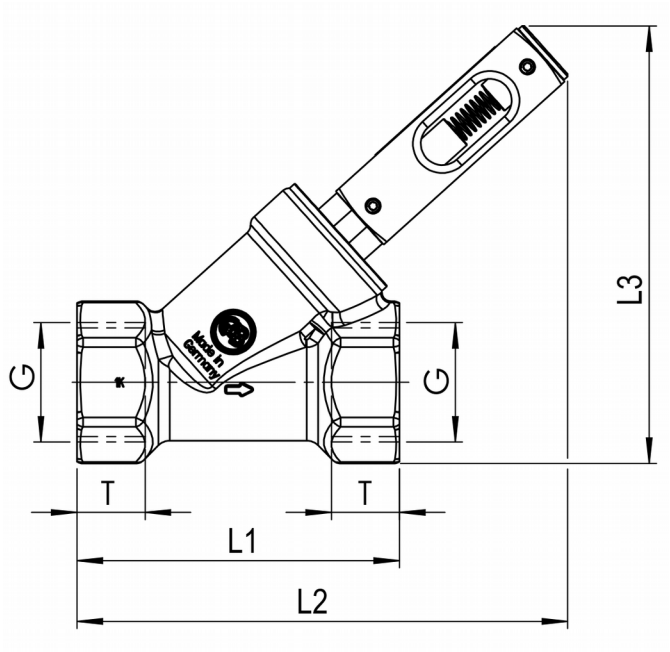
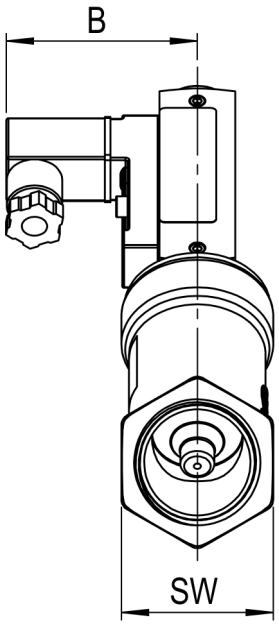
+1-978-212-0006 • +1-978-568-006
info@pkp-usa.com • www.pkp-usa.com

Dimensions:





Dimension table:

Type	Dimensions [mm]						Weight
	SW	L1	L2	L3	T	B	[g]
DS09.15	27	65	117	101	14	50	300
DS09.25	41	90	137	122	19	50	700

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Analogue transmitter SU20:

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

Technical Data:

Accuracy*:	+/- 10 % of full scale
Operating temperature:	-20…+70 °C
Storage temperature:	-20...+80 °C
Repeatability:	+/- 3 % of full scale
Material housing:	aluminium, blue anodized
Protection class:	IP67

* Higher calibration accuracy when calibrated individually. Available on request.

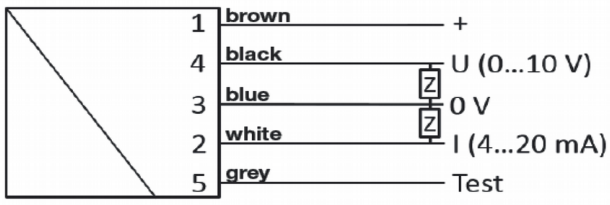
Electrical Data:

Analogue output:	4...20 mA and 0...10 V
Power supply:	24 VCD (19...30 VDC)
Power consumption:	< 1 W
Current output:	Max. load 600 Ω
Voltage output:	Max. current 10 mA
Connection:	For round plug M12x1, 5 pin

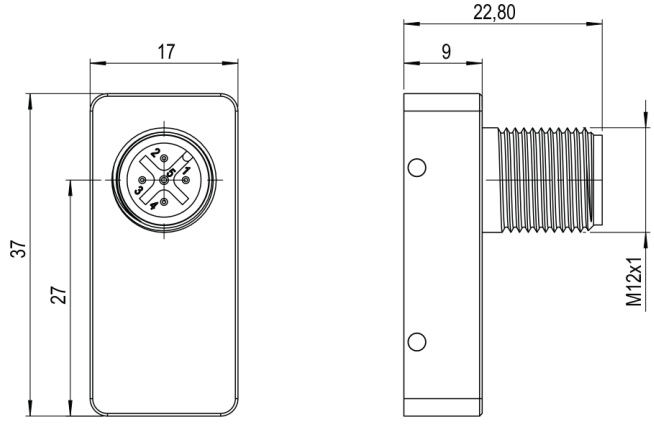
Note:

Please note that the flowmeter and the analogue transmitter have been optimally adjusted to each other and may not be exchanged!

Electrical connection:



Dimensions:

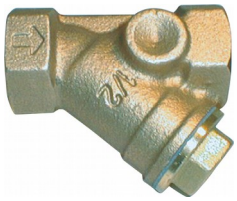


Accessories (see separate data sheets):

- **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!

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