bürkert
FLUID CONTROL SYSTEMS

Liquid flowmeter (LFM)

- High dynamic flow measurement
- Applicable for liquid flow measurement up to 600 ml/min (36 l/h)
- No moving parts in medium
- Option: fieldbus interface
- Compact variant

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

Type 6606
2/2 or 3/2 way Rocker-Solenoid Valve with separating diaphragm

Type 8611
eCONTROL – Universal controller

Type 8619
multiCELL - multi-channel/ multi-function transmitter/ controller

Type BUPLUS
Service, Maintenance and Commissioning

Type description

Type 8708 is an instrument for liquid flow control in process technology. The actual value supplied by the sensor is transmitted through the digital electronics and over a standard signal output or a field bus interface. In the device you can save two calibration curves and you can switch between them.

Phase out

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Visit product website

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1. General technical data

Product properties	
Dimensions	Standard variant: 107 × 115.5 × 28 mm (width × height × depth) Sub-base variant: 107 × 115.5 × 43 mm (width × height × depth) Further information can be found in chapter "4. Dimensions" on page 5.
Material	
Seal	FKM, EPDM or FFKM
Housing	PC (polycarbonate)
Base block	Stainless steel 1.4404
Total weight	Approx. 900 g
LED display	Status indication: 1. Power 2. Communication (only in fieldbus variant), limit (only in analogue variant) 3. Error
Performance data	
Nominal flow range (Q_N)	1.5...36 l/h (25...600 ml/min) regarding water
Operating pressure [1.)]	Max. 10 bar (145 psi) (depending on the nominal diameter of the proportional valve)
Measuring accuracy	± 1.5 % of reading ± 0.5 % FS (under calibration conditions to achieve best measurement results)
Repeatability	± 0.5 % FS
Measuring span	1:10
Response time ($t_{95\,\%}$)	< 500 ms
Electrical data	
Operating voltage	24 V DC
Power consumption	Max. 2.5 W (5 W with fieldbus variant)
Residual ripple	< 2 %
Voltage tolerance	± 10 %
Electrical connection	Plug D-Sub 15-pin With PROFIBUS DPV1: M12 socket, 5-pin With CANopen: M12 plug, 5-pin
Medium data	
Operating medium	Clean and low-viscosity liquids
Calibration medium	Water (conversion to operating medium with correction function)
Medium temperature	- 10 °C...+ 40 °C
Viscosity	0.4...4 cSt
Process/Port connection & communication	
Digital outputs	1 relay output: 1. Limit (desired value cannot be reached) Loading capacity: max. 25 V, 1 A, 25 VA
Digital inputs	2 switching inputs: 1. not assigned 2. not assigned
Digital communication interface	Digitally via fieldbus: • PROFIBUS DPV1 • CANopen
Analogue interfaces	4...20 mA, 0...20 mA, 0...10 V or 0...5 V Input impedance > 20 kΩ (voltage) resp. < 300 Ω (current) Maximum current: 10 mA (voltage output), Maximum load: 600 Ω (current output)
Port connection	G ⅛, NPT ⅛, G ¼, NPT ¼, sub-base
Approvals and conformities	
Protection class	IP40
Environment and installation	
Installation position	Horizontal or vertical
Ambient temperature	0 °C...+ 55 °C
Accessories	
Software	Mass Flow Communicator

1.) Overpressure to atmospheric pressure)

2. Approvals and conformities

2.1. General notes

- The approvals and conformities listed below must be stated when making enquiries. This is the only way to ensure that the product complies with all required specifications.
- Not all available variants can be supplied with the below mentioned approvals or conformities.

2.2. Conformity

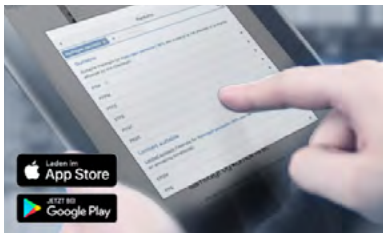
In accordance with the Declaration of Conformity, the product is compliant with the EU Directives.

2.3. Standards

The applied standards which are used to demonstrate compliance with the EU Directives are listed in the EU-Type Examination Certificate and/or the EU Declaration of Conformity.

3. Materials

3.1. Bürkert resistApp



Bürkert resistApp – Chemical resistance chart

You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

Start chemical resistance check

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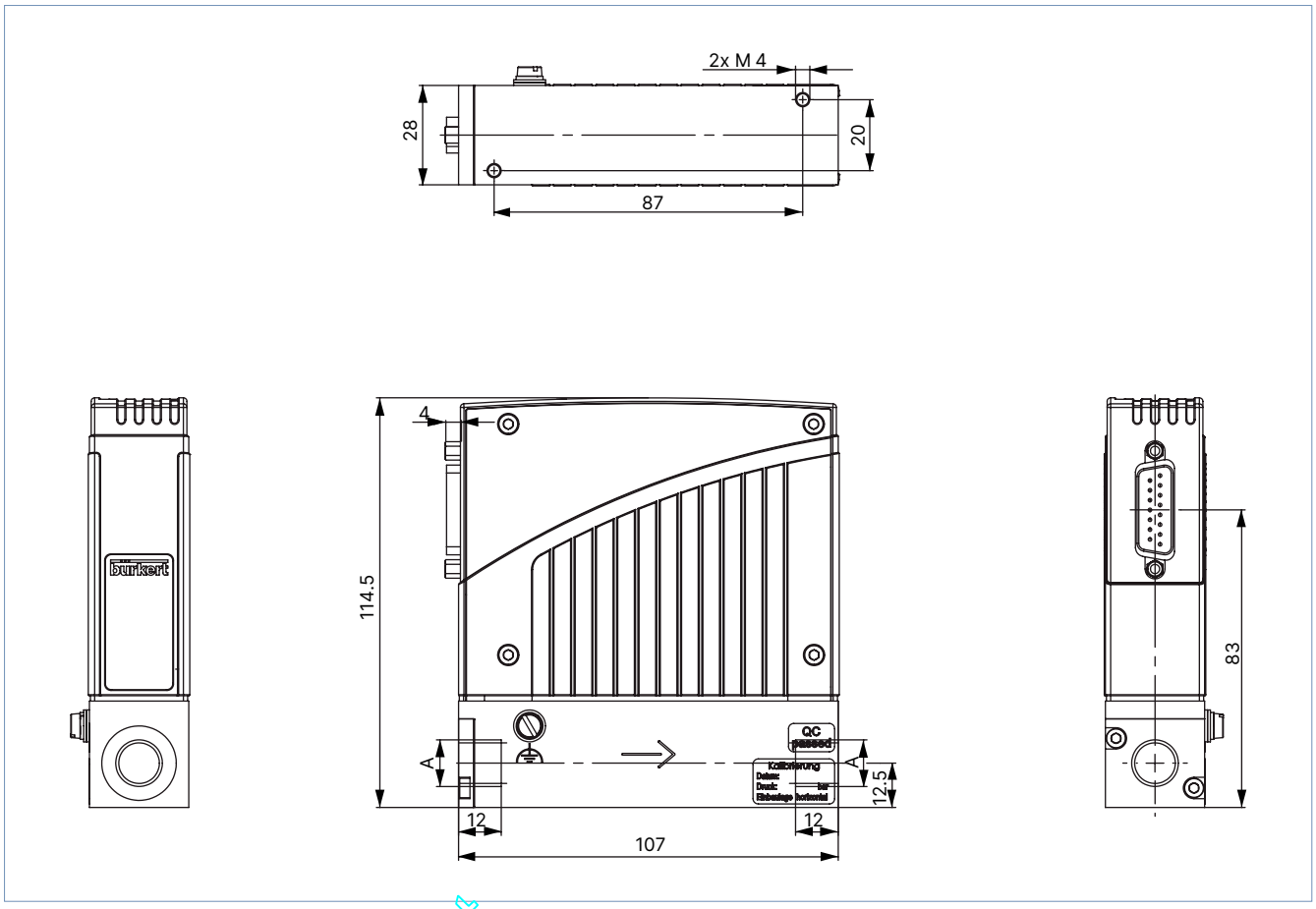
4. Dimensions

4.1. Threaded variant

Note:

- Dimensions in mm
- In devices without fieldbus communication there is no electrical M12 connector in the upper housing part.

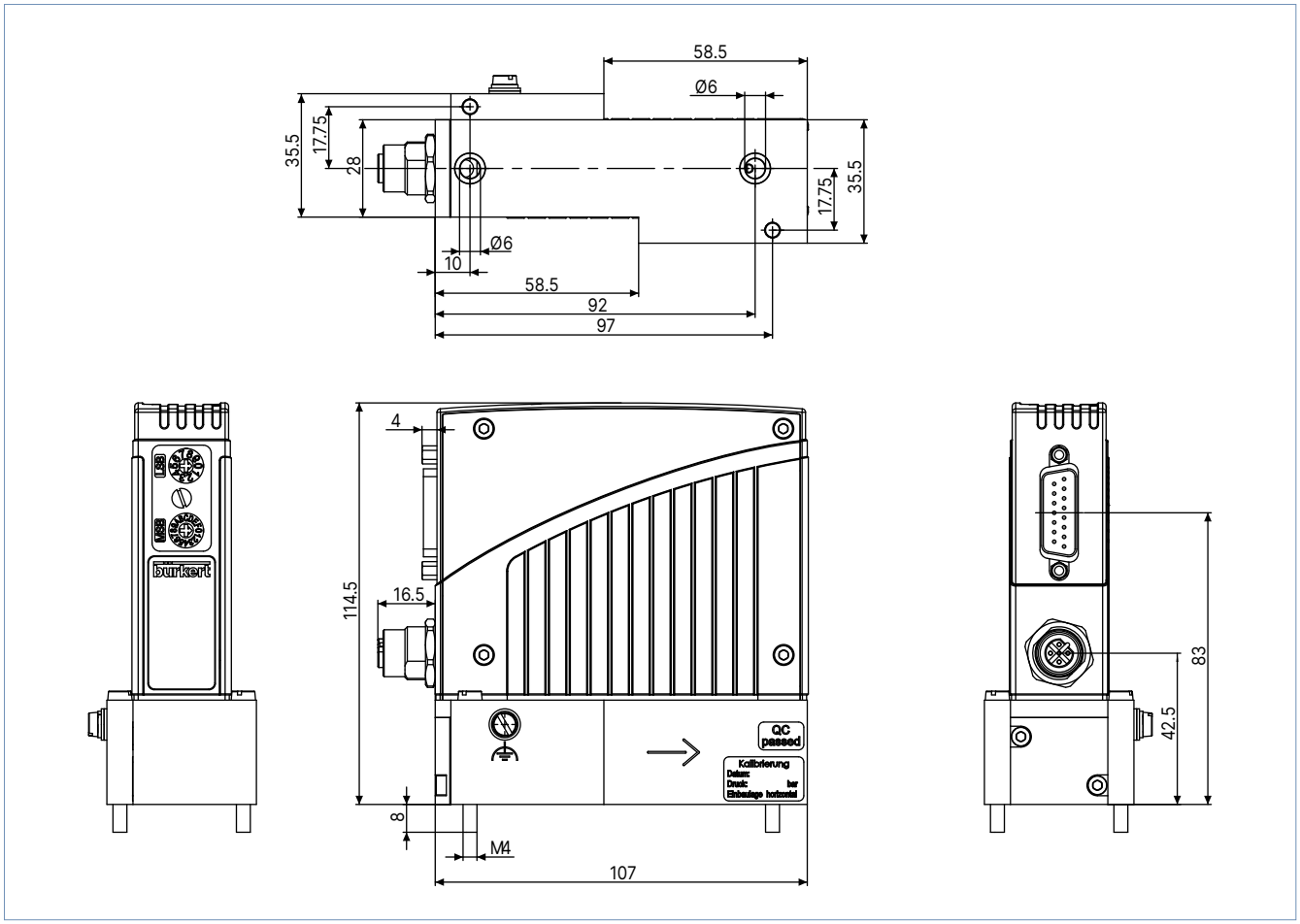


Size A	
G ⅛	G ¼
NPT ⅛	NPT ¼

4.2. Sub-base variant

Note:

- Dimensions in mm
- In devices without fieldbus communication there is no electrical M12 connector in the upper housing part.



Size A	
G ⅛	G ¼
NPT ⅛	NPT ¼

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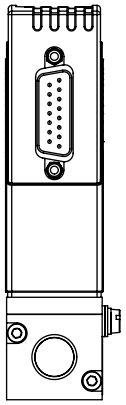
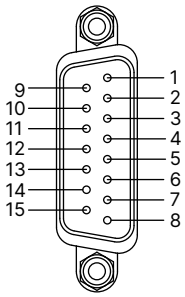
5. Device/Process connections

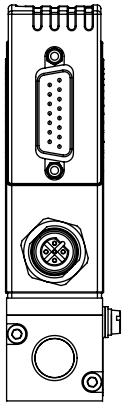
5.1. Analogue variant

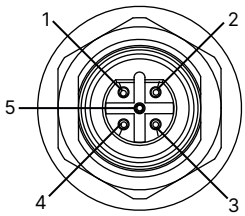


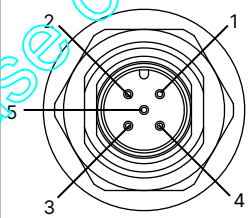
Plug D-Sub, 15-pin	Pin	Assignment	
		Analogue control unit	Bus actuation
	1	Relay – normally closed contact	
	2	Relay – normally open contact	
	3	Relay – middle contact	
	4	GND for 24 V supply and binary inputs	
	5	24 V supply +	
	6	Only for in-plant use	
	7	Not connected	Not connected
	8	Not connected	Not connected
	9	Actual value output GND	Not connected
	10	Actual value output +	Not connected
	11	DGND (for RS232) 1.)	
	12	Binary input 1	
	13	Binary input 2	
	14	RS232 RxD (without driver) 1.)	
	15	RS232 TxD (without driver) 1.)	

1.) RS232 communication is only possible when using an RS232 adapter, see "7.4. Ordering chart accessories" on page 9.

5.2. Fieldbus variant



PROFIBUS DPV1 – socket B-coded M12 (DPV1 max. 12 MBaud)	Pin	Assignment
	1	VDD (only for termination resistor)
	2	RxD/TxD – N (A-Line)
	3	DGND
	4	RxD/TxD – P (B-Line)
	5	Not connected

CANopen – Plug M12	Pin	Assignment
	1	Shielding
	2	Not connected
	3	DGND
	4	CAN_H
	5	CAN_L

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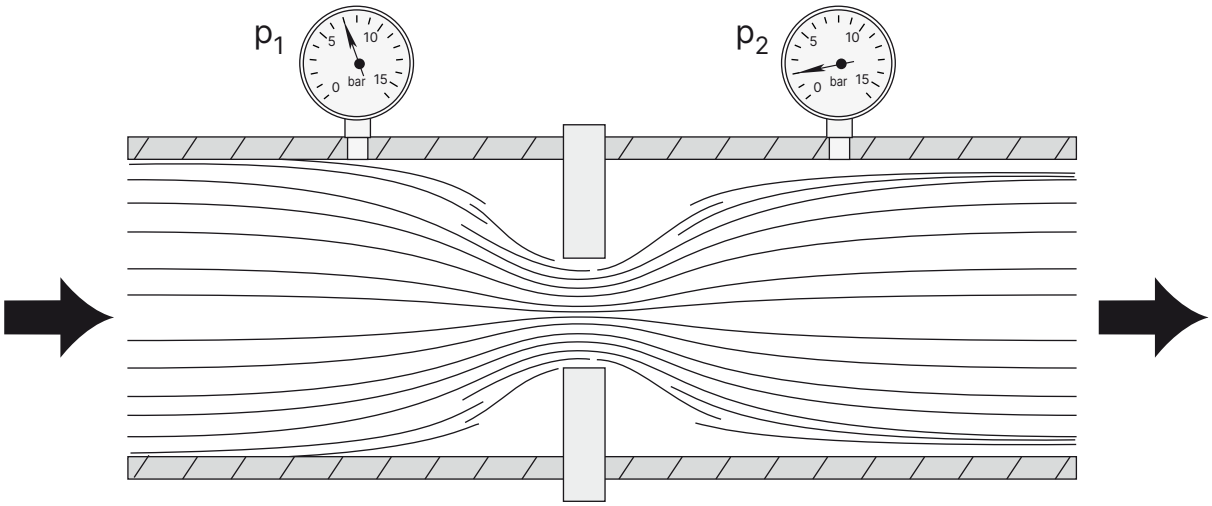
6. Product operation

6.1. Measuring principle

- The sensor measures the flow by means of differential pressure. An orifice in the main channel causes pressure loss at liquid flow which is measured by the differential pressure sensor. The sensor feedbacks a precise and temperature compensated signal out of which the electronics calculates the corresponding flow.
- To avoid a blockage of the aperture by contaminated mediums an upstream filter is recommended.



7. Ordering information

7.1. Bürkert eShop

Bürkert eShop – Easy ordering and quick delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

Order online now

7.2. Recommendation regarding product selection

Note:
Contact your Bürkert partner for device design.

The decisive factors for the perfect functioning of an LFM within the application are the fluid compatibility, the pressure range and the correct choice of the flow meter range. The pressure loss over the LFM averages in typical applications approx. 500 mbar, with up to 2 bar inlet pressure (overpressure to atmospheric pressure). The specification of the inlet pressure, $p_1$max, which can be expected is necessary for the selection of the suitable differential pressure sensor.

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7.3. Bürkert product filter

Bürkert product filter – Get quickly to the right product

You want to select products comfortably based on your technical requirements?
Use the Bürkert product filter and find suitable articles for your application quickly and easily.

Try out our product filter

7.4. Ordering chart accessories

Overview of accessories

Note:
The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.

Description	Article no.
Connections/cables	
D-Sub socket, 15-pin, soldered connection	918274
Bonnet for D-Sub socket, with screw lock	918408
D-Sub socket with cable, 15-pin, cable length: 5 m, assembled on one side	787737
D-Sub socket with cable, 15-pin, cable length: 10 m, assembled on one side	787738
Adapters	
RS232 adapter	654748
Extension cable for RS232, M12 socket and/or M12 plug, 9-pin cable length: 2 m	917039
RS422 adapter (RS485-compatible)	666371
USB adapter	670639
USB connection cable, cable length: 2 m	772299
Accessories for fieldbus	
PROFIBUS DPV1 (B-coded)	
M12 plug, 5-pin, straight, B-coded [2.]	918198
M12 socket (coupling), straight [2.]	918447
Y-distributor [2.]	902098
PROFIBUS terminating resistor, M12 plug, B-coded	902553
GSD file (PROFIBUS), EDS file (CANopen)	**LINK**
CANopen (A-coded)	
M12 plug, 5-pin, straight [2.]	917115
M12 circular socket with plastic threaded clamping ring, 5-pin, straight, to be wired [2.]	917116
Y push-in connector, M12, 5-pin, LUM [2.]	788643
Terminating resistor	On request
GSD file (PROFIBUS), EDS file (CANopen)	**LINK**

1.) The adapters serve mainly for initial operation or diagnosis. Those are not obligatory for continuous operation.
2.) For space reasons, M12 individual cable plugs may not be suitable for simultaneous use on the same side as a Y distributor. Use a commercially available covered cable in this case.

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Adapter sketch