



Differential pressure flow sensor for liquids

- High sampling rate of 100 Hz
- Bidirectional flowmeter in the millilitre range
- No interference from air bubbles
- Viscosity compensation via simple parameterisation or teach-in
- Integrated temperature and pressure measurement

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

Can be combined with

	Type TVU003 ▶ Fittings for UNF connections with PTFE hose for analysis valves with UNF 1/4"-28 connection
	Type 7615 ▶ Micro Dosing Unit for precise dosing in microlitre-range
	Type 6650 ▶ 2/2-way flipper solenoid valve with media separation
	Type 6732 ▶ 2/2-way Whisper Valve with media separation

Type description

Type 8084 is a compact and versatile flow sensor for liquids, based on differential pressure technology. It has been specially developed for dynamic dosing processes and is particularly suitable for applications involving relatively high-pulsation peristaltic pumps or syringe pumps, as well as for dosing applications that require extreme precision and therefore sensor feedback. Thanks to its high sampling rate of 100 Hz, the sensor reliably detects even brief fluidic events such as pulses or air bubbles. Flow rates in the millilitre range can be monitored continuously and in both directions, and volume integrals from 20 µl upwards are detected with precision. The measurement remains stable even in media containing gas bubbles; only the liquid component is taken into account. To adjust the flow sensor to the operating medium, the density and viscosity can be configured or calibrated using a teach-in procedure. The integrated temperature and pressure measurement enables comprehensive process control using a single product.

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1. General technical data

Product properties

Dimensions Further information can be found in chapter [“4. Dimensions” on page 5.](#)

Material

Make sure the device materials are compatible with the fluid you are using.

Further information can be found in chapter [“3.1. Bürkert resistApp” on page 4.](#)

Medium channel (wetted) PEEK
 Sensor elements (wetted) FKM, stainless steel 1.4301, silicone

Performance data

Flow rate measurement

Measurement principle Differential pressure measurement
 Total measuring range - 10...+ 10 ml/min
 - 30...+ 30 ml/min
 - 100...+ 100 ml/min
 - 2000...+ 2000 ml/min
 Calibrated measuring range + 1...+ 10 ml/min
 + 3...+ 30 ml/min
 + 10...+ 100 ml/min
 + 50...+ 2000 ml/min
 Measuring accuracy ± 2 % FS (within the calibrated measuring range)
 Repeatability ± 1 % MV
 Pressure loss Further information can be found in chapter [“6.2. Pressure loss diagram” on page 8.](#)

Pressure measurement

Measurement range 0...1.8 bar abs
 Resolution 0.1 mbar
 Accuracy ± 5 mbar (± 0.3 FS ¹⁾)

Temperature measurement ²⁾

Measurement range 0...+ 100 °C
 Resolution 0.05 °C
 Accuracy ± 1 °C

Electrical data

Operating medium Pure, neutral liquids
 Further information can be found in chapter [“3.2. Qualified mediums” on page 4.](#)
 Operating voltage 5 V DC ± 5 %
 Power consumption Max. 0.5 W
 Electrical connection RS- 232, on request: digital output 5 V (PWM, PPM), I²C

Medium data

Operating pressure 0...1.8 bar abs, on request: 0...4 bar abs
 Overpressure ³⁾ 4 bar abs, on request: 6 bar abs
 Viscosity Max. 50 mPas, recommended range for viscosity parameterisation without teach-in: max. 10 m-Pas

Product connections

Pipe connection Up to variant 100 ml/min: UNF ¼...28 thread
 Variant 2000 ml/min: G ¼
 Electrical connection Molex 2 mm 6-pin female connector, matching plug: Molex Micro-Latch 51065 - 0600
 M8 connector, 6-pin

Environment and installation

Degree of protection according to IEC/ EN 60529 Variant with Molex connector: IP20
 Variant with M8 connector: IP65
 Ambient temperature Operation: 0...+ 50 °C
 Storage: - 10...+ 80 °C

Accessories

Software Compatible with Bürkert GUI or RS- 232 terminal software
 Further information can be found in chapter [“7.4. Ordering chart accessories” on page 10.](#)

1.) Of full scale

2.) Important: the temperature measurement captures the sensor temperature, not the medium temperature. As a result, sudden temperature changes of the medium can only be detected with a delay.

3.) The sensor will not be damaged by overpressure, but the signals will no longer be meaningful.

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

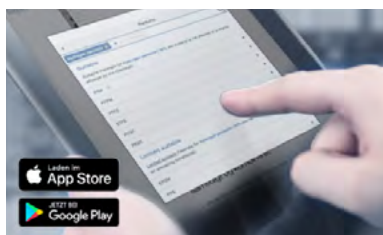
In accordance with the Declaration of Conformity, the product is compliant with the EU Directives.

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](#)

3.2. Qualified mediums

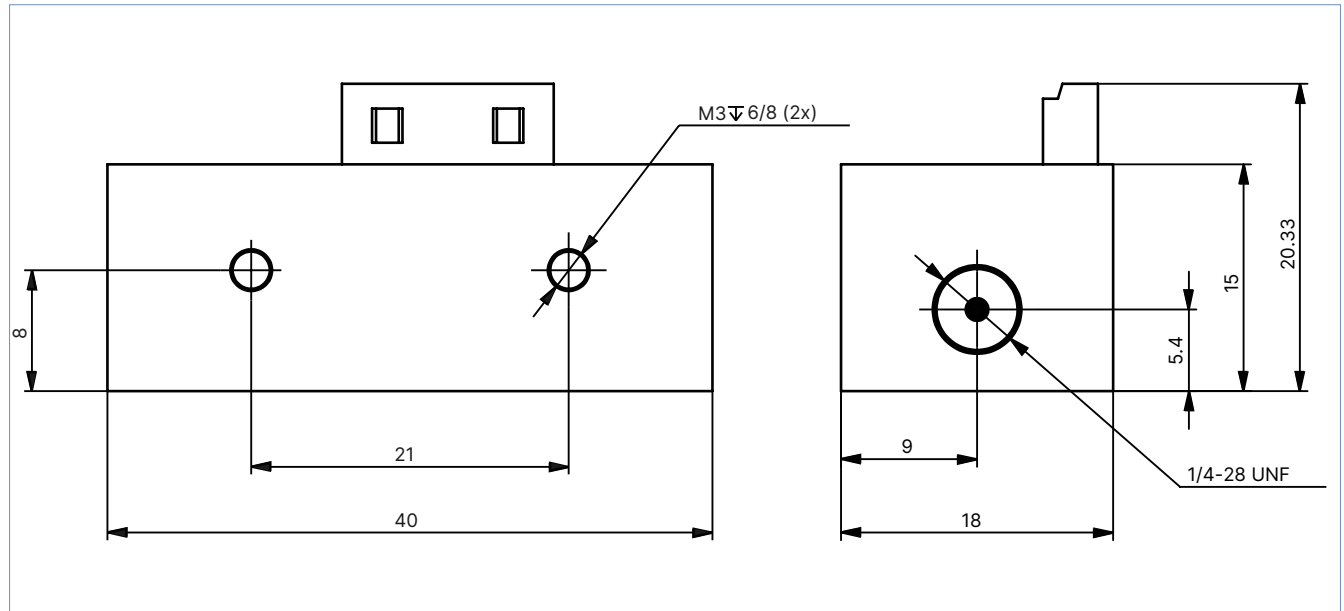
Medium	Concentration [%]	Temperature [° C]
Water	–	0...50
Ethanol	70	0...50
Hydrogen peroxide (H ₂ O ₂)	3	Room temperature
Glucose	50	0...50
Isopropanol	–	0...50
Peracetic acid	0.15	35

4. Dimensions

4.1. Flow sensor with Molex connector and UNF 1/4...28 thread

Note:

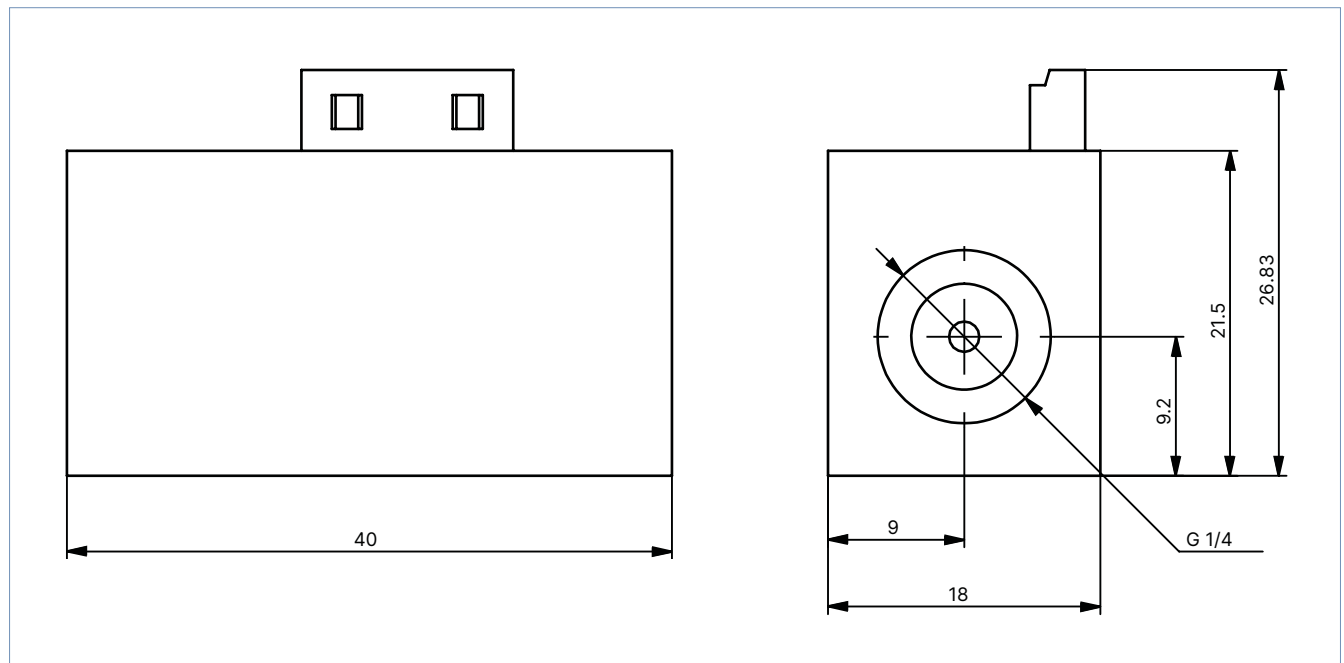
Dimensions in mm, unless otherwise stated



4.2. Flow sensor with Molex connector and G 1/4 thread

Note:

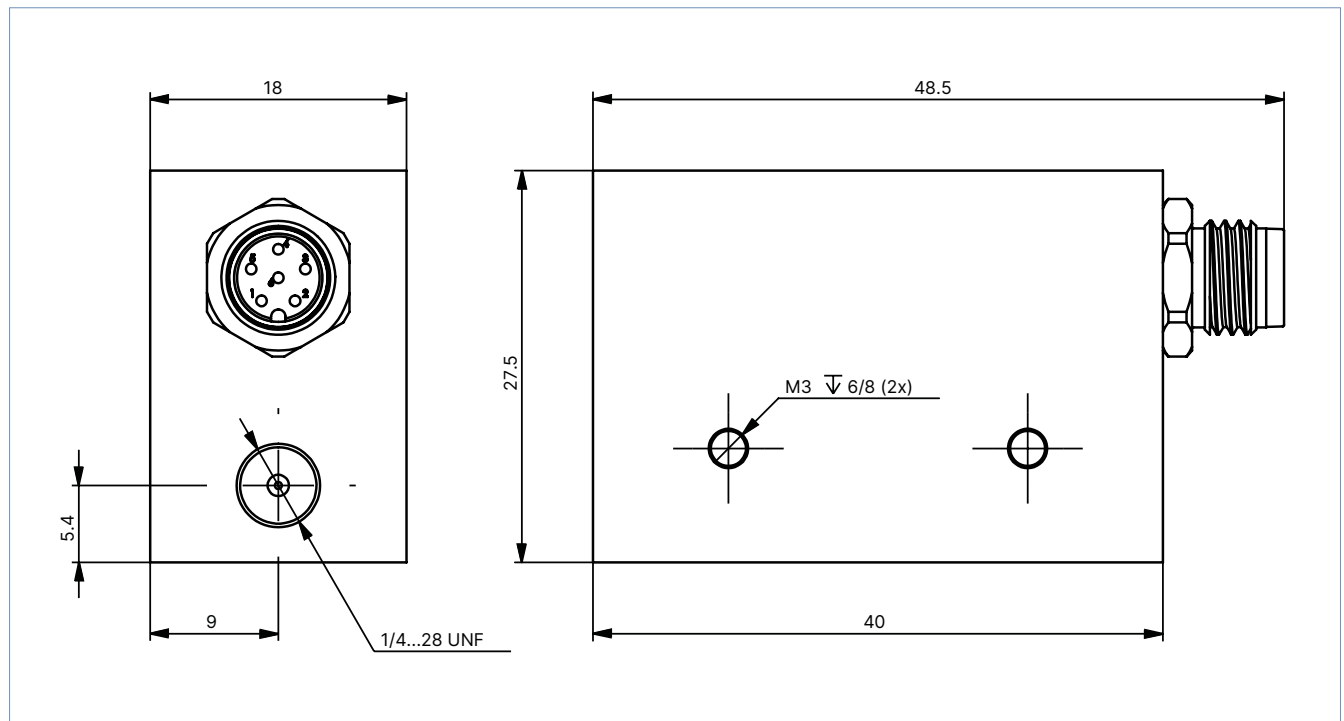
Dimensions in mm, unless otherwise stated



4.3. Flow sensor with M8 connector and UNF 1/4...28 thread

Note:

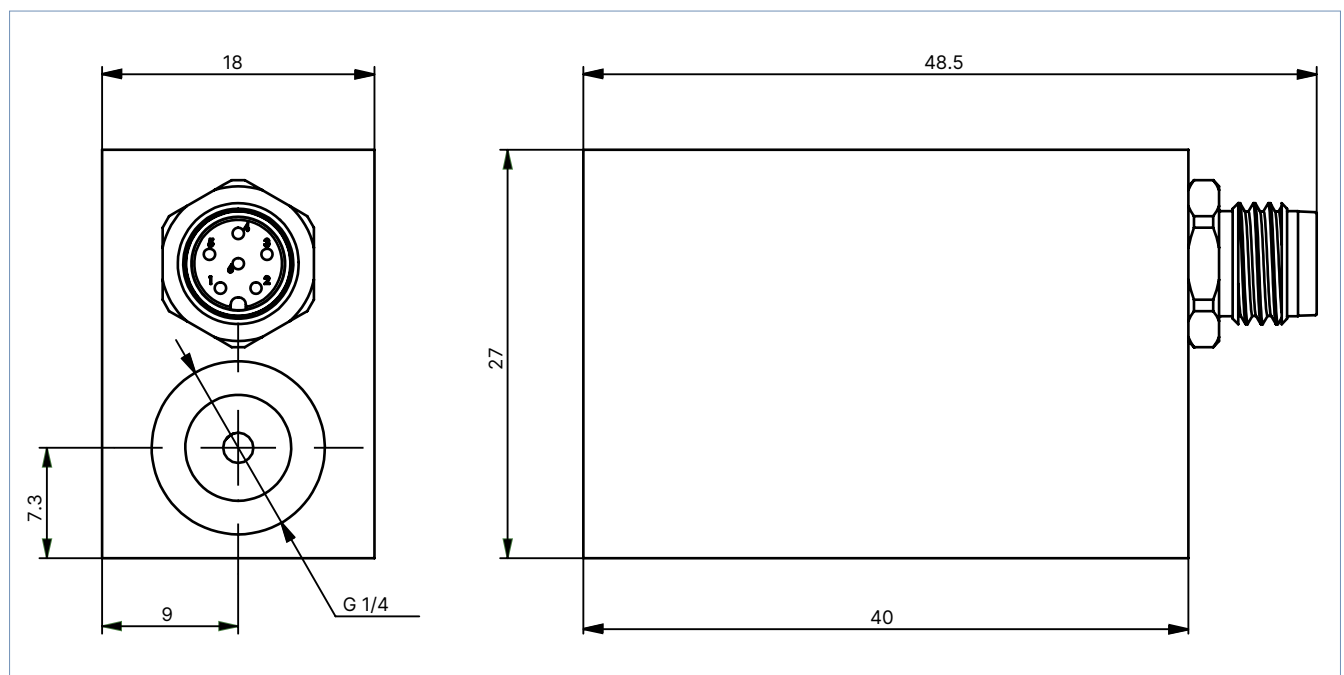
Dimensions in mm, unless otherwise stated



4.4. Flow sensor with M8 connector

Note:

Dimensions in mm, unless otherwise stated



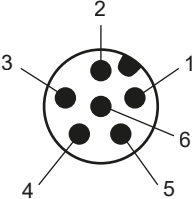
5. Product connections

5.1. Variant with Molex connector

Molex female connector 6-pin, 2 mm	Pin	Assignment
	1	VIN+ (5 V DC)
	2	VIN- (GND) ^{1.)}
	3	RS-232 RX
	4	RS-232 TX
	5	GND ^{1.)}
	6	DOUT

1.) Pin 2 and 5 are internally connected

5.2. Variant with M8 connector

M8 round connector, 6-pin, A-coded	Pin	Assignment
	1	VIN+ (5 V DC)
	2	VIN- (GND) ^{1.)}
	3	RS-232 RX
	4	RS-232 TX
	5	GND ^{1.)}
	6	DOUT

1.) Pin 2 and 5 are internally connected

5.3. Notes on RS-232 communication

Settings:

- Baud rate: 115200, data bits: 8, stop bits: 1, parity: none, handshake: off
- All commands are transmitted as ASCII characters.
- Each command is terminated with LF (hex 0×0 A).
- Commands and parameters are separated by a space (hex 0×20).

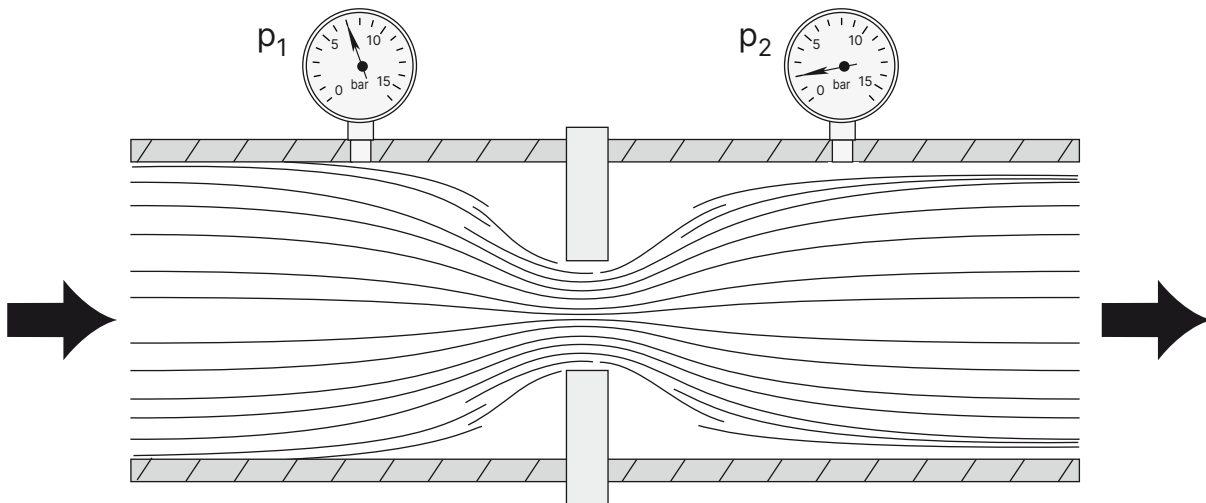
DTS 1000734965 EN Version: C Status: RL (released | freigegeben | valide) printed: 08.06.2026

6. Product operation

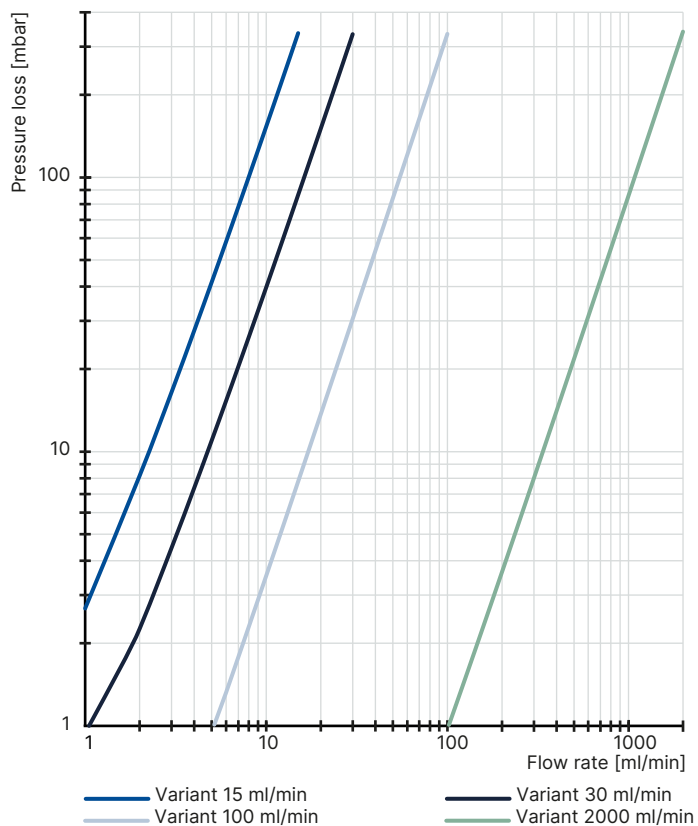
6.1. Measurement principle

For flow measurement using the differential pressure method, a restriction (orifice) is integrated into the flow channel. The liquid flowing through the orifice creates a pressure drop, which is measured by two pressure sensors. The flow rate is then calculated using the measured pressure drop, the factory calibration data, and the user-defined fluid parameters (viscosity and density). Additionally, the supply pressure and the sensor temperature can be queried.

To prevent clogging of the orifice, upstream filters (43 µm for variants up to 30 ml/min) are recommended for contaminated medias.

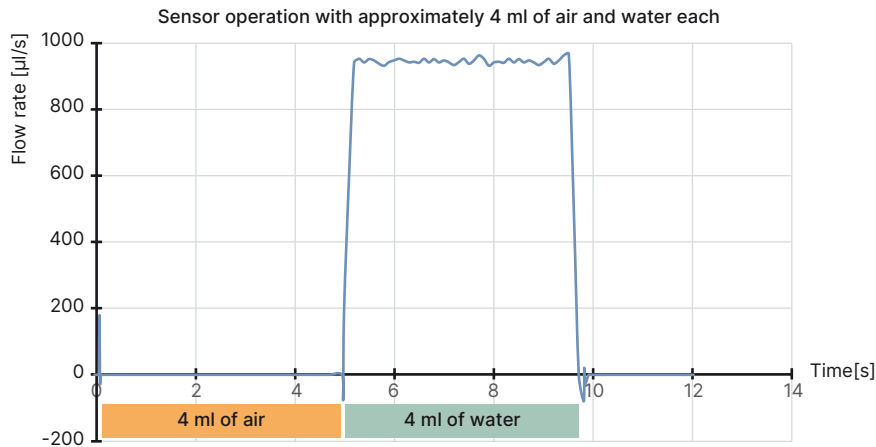


6.2. Pressure loss diagram



6.3. Operation with gas bubbles in the medium

The Type 8084 flow sensor is also suitable for applications with gaseous components in the medium, such as air bubbles or degassing liquids such as H_2O_2 . Due to their significantly lower density compared to the liquid, these are largely ignored by the sensor. In the following example, two syringe pumps are used to alternately push air and water through the sensor. In the first half of the measurement, air flows through the sensor, and in the second half, water flows through.



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. 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](#)

7.3. Ordering chart

Total measuring range	Pipe connection	Operating pressure	Output	Seal material	Function	Article no.
[ml/min]		[bar abs]				
Molex connector, IP20						
- 10...+ 10	UNF ¼...28 thread	1.8	RS- 232	FKM	Continuous flow measurement	20136253 
- 30...+ 30		1.8				20132924 
- 100...+ 100		1.8				20136256 
- 2000...+ 2000	G ¼ thread	1.8				20136262 
M8 connector, IP65						
- 10...+ 10	UNF ¼...28 thread	1.8	RS- 232	FKM	Continuous flow measurement	20136270 
- 30...+ 30		1.8				20136276 
- 100...+ 100		1.8				20136278 
- 2000...+ 2000	G ¼ thread	1.8				20136281 

7.4. Ordering chart accessories

Description	Article no.
RS-232-USB adapter for Molex connector	60026168 
RS-232-USB adapter for M8 connector	576531 
Bürkert GUI	Download from Type 8084 ▶
Straight basic fitting with UNF ¼...28 thread, ⅛" (3.2 mm), PP (see data sheet Type TVU003 ▶)	787062 
Straight basic fitting with UNF ¼...28 thread, ⅛" (3.2 mm), PEEK (see data sheet Type TVU003 ▶)	787061 
Ferrule ⅛" (3.2 mm), ETFE (see data sheet Type TVU003 ▶)	787059 
Tube Øa x Øi = 3.2 mm (⅛") x 1.6 mm, PTFE (see data sheet Type TVU003 ▶)	784362 