



Flowmeter for gases

- Depth scale for accurate installation in existing pipes
- Usable in pipes from 1/2" up to 12" (DN 300)
- Easy installation under pressure
- Integrated Display
- Standard and Heavy Duty version available

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

Can be combined with

	Type 3280 2-way motor valve ▶
	Type 3285 2/2 way Proportional Valve (motor-driven) ▶
	Type 8611 eCONTROL - Universal controller ▶
	Type 8802 ELEMENT continuous control valve systems - overview ▶

Type description

This flowmeter series is made for the measurement of especially large flow rates and use the calorimetric measuring principle. A heated sensor element is cooled down by the gas flow. This cooling effect which depends on the flow velocity and the gas characteristics serves as a flow indication, the kind of cooling directly depends on the flow velocity and the kind of gas. This kind of mass flow measurement is independent of pressure and temperature. The flowmeter can be used for monitoring air supplies, but also qualifies for the measurement of other gases, see technical data.

Type 8007 is available in two versions: - Standard - Heavy Duty (with a robust aluminium die casting electronics housing).

In the Heavy Duty version the sensor is encapsulated in stainless steel.

Table of contents

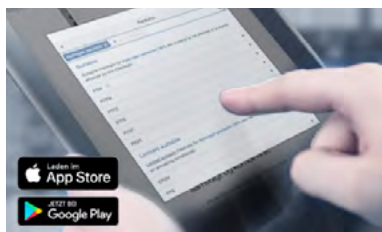
1. General technical data	3
<hr/>	
2. Materials	3
2.1. Chemical Resistance Chart – Bürkert resistApp.....	3
3. Dimensions	4
3.1. Standard version.....	4
3.2. Heavy Duty version.....	4
4. Device/Process connections	5
4.1. Standard version.....	5
4.2. Heavy Duty version.....	6
5. Product installation	7
5.1. Mounting options.....	7
5.2. Installation notes.....	7
6. Product operation	8
6.1. Measuring principle	8
7. Ordering information	8
7.1. Bürkert eShop – Easy ordering and quick delivery.....	8
7.2. Bürkert product filter.....	9
7.3. Ordering chart for air with operating pressure of 6 bar(g) - Standard version.....	9
7.4. Ordering chart for air with operating pressure of 6 bar(g) - Heavy Duty version	9
7.5. Ordering chart accessories - Standard version.....	9

1. General technical data

Product properties	
Materials	
Body	Stainless steel 1.4301 (standard), stainless steel 1.4571 (Heavy Duty)
Electronics housing	Polycarbonat (standard), aluminium Die casting (Heavy Duty)
Seal	NBR, FKM (for oxygen)
Dimensions	Detailed information can be found in chapter "3. Dimensions" on page 4.
Operating pressure	Up to max. 16 bar; optional to PN 40 (standard) Up to max. 50 bar (Heavy Duty)
Options	Other probe lengths Oxygen conformity declaration Cleaned, free of oil and fat
Performance data	
Full scale range (Q_{Nom})	Up to 44030 Nm ³ /h (air), see "6.1. Measuring principle" on page 8.
Pulse output	1 Impulse per m ³
Measuring accuracy	± 1.5 % o.R. ± 0.3 % F.S. (o.R.: of reading; F.S.: full scale) (based on air and in consideration of the inlet and outlet sections; only when properly installed)
Measuring range	1:50
Electrical data	
Operating voltage	18...36 V DC, 5 W
Output signal (Actual value)	4...20 mA
Load (current output)	Maximum < 500 Ω
Medium data	
Operating medium	Air, nitrogen, oxygen, natural gas, methane, argon
Temperature of gas	-30 °C...+110 °C (higher temperatures on request)
Calibration medium	Air, zero point adjustment with operating gas
Process/Port connection & communication	
Digital inputs	1 input 10...30 V DC, 2 outputs 24 V DC
Digital outputs	RS 485 Interface, Modbus-RTU
Pulse output	1 pulse per m ³
Environment and installation	
Assembling screw	G ½" (others on request)
Ambient temperature	-30 °C...+80 °C (higher temperatures on request)
Degree of protection	IP65

2. Materials

2.1. Chemical Resistance Chart – 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.

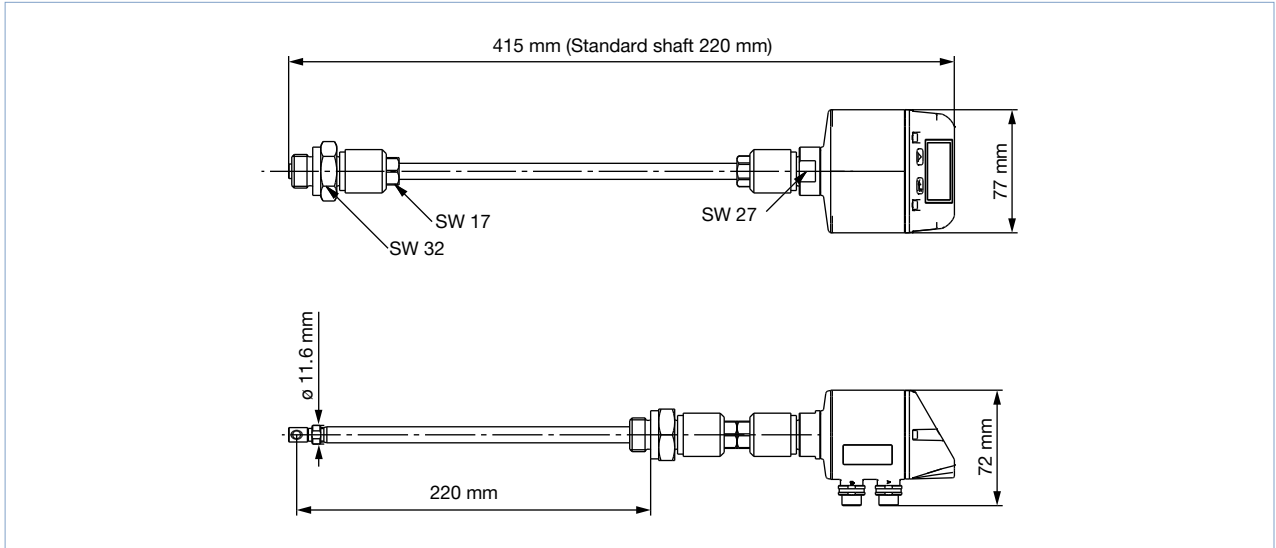
[Start Chemical Resistance Check](#)

3. Dimensions

3.1. Standard version

Note:

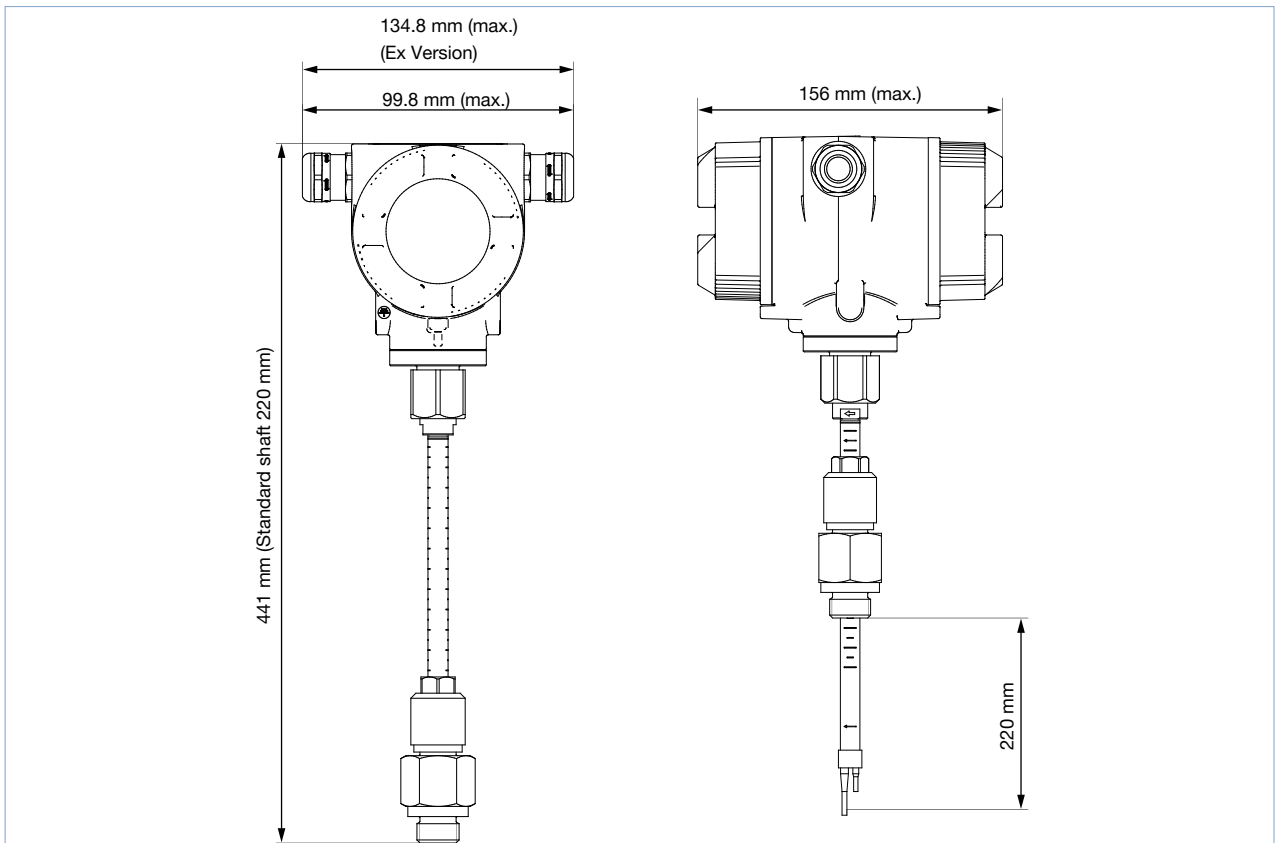
Dimensions in mm



3.2. Heavy Duty version

Note:

Dimensions in mm

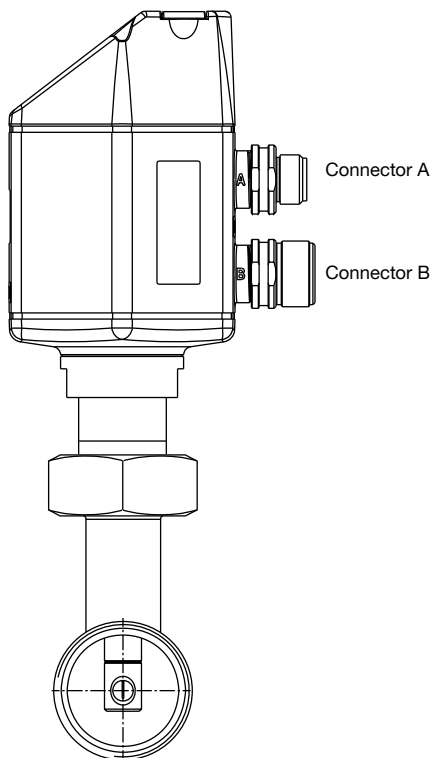


4. Device/Process connections

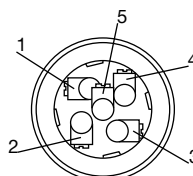
4.1. Standard version

Note:

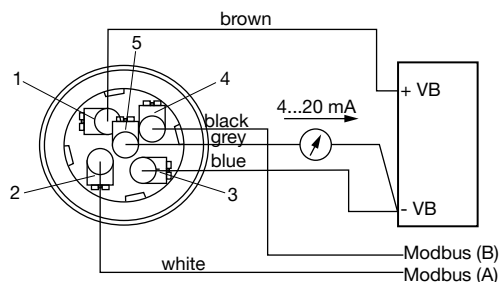
- The Pin assignment was changed with the new device generation. For questions, please contact the responsible Bürkert facility.
- If the sensor is placed at the end of the Modbus system a termination is required. The sensors have an internal switchable termination. To use that the 6 fastening screws from the lid must be released and the internal DIP switch must be set to “On”. Please ensure that the connection plugs are still plugged and the gasket is installed correctly. Alternatively, a 120R resistor can be installed in the plug between pin 2 and pin 4.



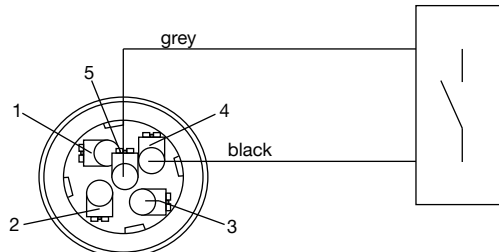
M12 connector



M12 connector A



M12 connector B



Pin	Connector A (connection port)	Connection cable A	Connector B (pulse port)	Connection cable B
1	VB + Positive power supply 12...36 V DC smoothed	brown	1.)	brown
2	RS 485 (A) Modbus-RTU A	white	GND	white
3	VB - Negative power supply 12...36 V DC smoothed	blue	DIR Direction input	blue
4	RS 485 (B) Modbus-RTU b	black	P Pulse for usage	black
5	I + Current signal 4...20 mA, selected measurement signal	grey	P Pulse for usage	grey

1.) Not connected. It is not allowed to put to potential and/or earth.

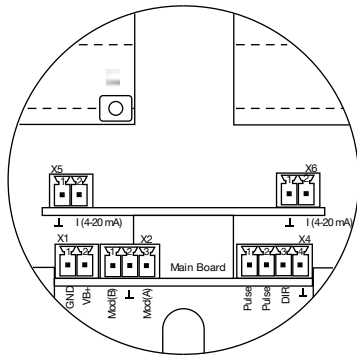
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4.2. Heavy Duty version

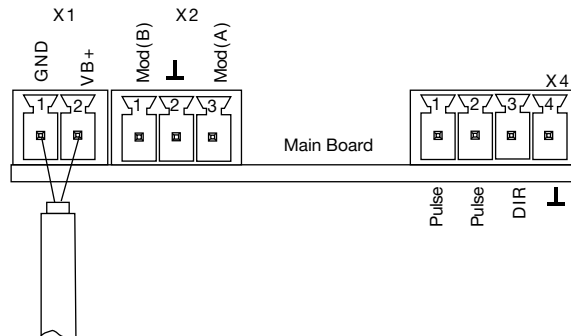
Note:

If the sensor is used at the end of the Modbus system a bus termination is required. Please connect the enclosed 120R resistor to the terminals, Pin 1 and 3 of “X2” connector.

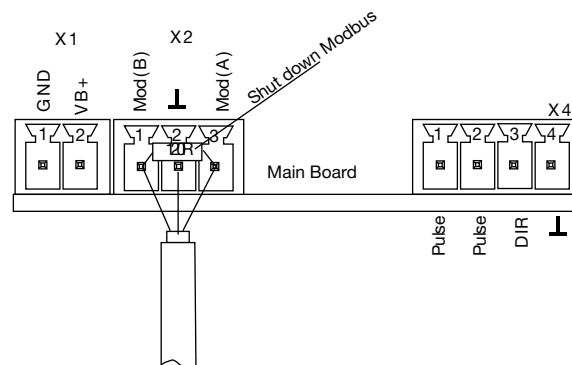
Plug layout



Voltage supply



Modbus



Pin	Plug	Description
1	X1 Voltage supply	VB - (negative supply voltage GND)
2		VB + (positive supply voltage 12 V...36 V DC)
1	X2 Modbus	Modbus (B)
2		Modbus shield
3		Modbus (A)
1	X4 Direction / impulse	Pulse / Alarm ^{1.)}
2		Pulse / Alarm ^{1.)}
3		Direction input
4		GND
1	X5 Power output 1	I- Active ^{1.)}
2		I+ Active ^{1.)}
1	X6 Power output 2	I- Active ^{1.)}
2		I+ Active ^{1.)}

1.) All analogue outputs are galvanic isolated.

5. Product installation

5.1. Mounting options

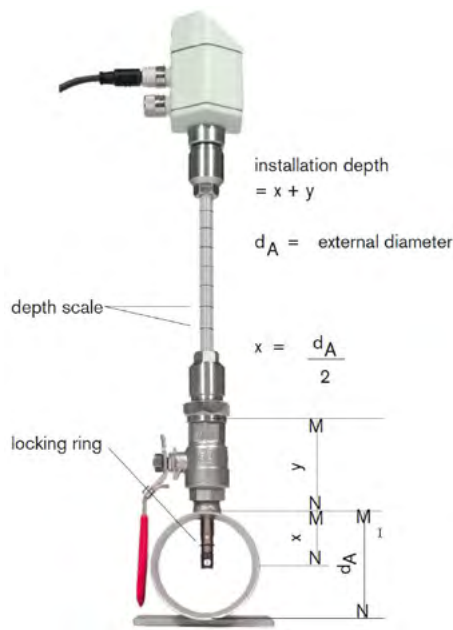
Note:

In order to get the accuracy specified in the data sheets, the sensor must be inserted in the centre of a straight pipe section with an undisturbed gas stream.

To obtain an undisturbed gas stream the sections in front of and behind the sensor must be straight, long enough and without any obstructions such as edges, seams, curves etc.

Careful attention must be paid to the design of the outlet section as obstructions can cause counter-flow turbulences as well as turbulences in the direction of the flow.

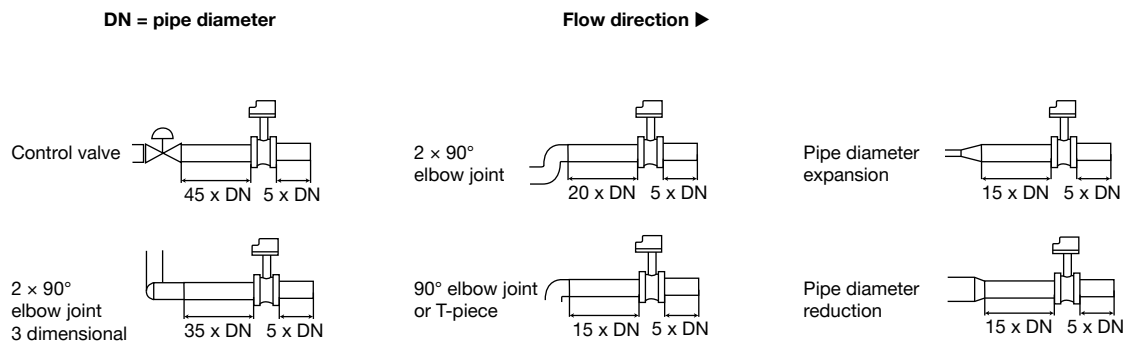
Installation in pipes at pressures > 10 bar requires a high pressure safety device.



5.2. Installation notes

Note:

In order to maintain the accuracies specified in the data sheets, the sensor must be inserted centrally in a straight piece of pipe at a point with undisturbed flow.



6. Product operation

6.1. Measuring principle

Acc. to DIN 1343, with 0 °C and 1013 mbar(a)¹⁾

Note:

- For other internal pipe diameters see User Manual.
- Flow ranges depend on the version of Type 8007 (Basic, Extended, Maximum) and the internal pipe diameter. Type 8007 is adjustable to different internal diameters through the mechanical depth scale.
- The sensor can be installed in any specified pipe size. The presetting of the sensor ex works applies to a 2" pipe (53.1 mm inner diameter).
- Each version is calibrated to a flow velocity range:
 - Basic version up to max. 92.7 m/s
 - Extended version up to max. 185 m/s
 - Maximum version up to max. 224 m/s

The 20 mA output corresponds to this highest speed, which in turn, depending on the pipe size, can be assigned a maximum flow rate, which in turn, depending on the pipe size, a max. flow rate can be assigned.

Type 8007 without display:

The scaling of the 4...20 mA output is carried out in the signal receiver, e.g. the PLC, using the measuring range table.

Type 8007 with display:

For the scaling of the 4...20 mA output, the specific pipe size (inner diameter) can be entered here via the display and the keys. Furthermore, the desired flow unit can be selected.

Pipe [Inch]	Inner diame- ter of pipe	DIN 1343 (0 °C, 1013 mbar(a))					
		Basic		Extended		Maximum	
		velocity	up to Nm ³ /h	velocity	up to Nm ³ /h	velocity	up to Nm ³ /h
½"	16.1	92.7 m/s	41	185 m/s	80	224 m/s	100
¾"	21.7		81		160		195
1"	27.3		136		270		325
1¼"	36.0		244		485		590
1½"	41.9		335		665		810
2"	53.1		550		1100		1330
2½"	71.1		1005		2010		2435
3"	84.9		1440		2880		3485
4"	110.0		2430		4850		5875
5"	133.7		3595		7180		8690
6"	159.3		5110		10200		12355
8"	200.0		8075		16120		19520
10"	250.0		12635		25220		30540
12"	300.0		18220		36360		44030

1.) Standard DIN 1945 (ISO 1217), at 20 °C and 1000 mbar = Standard DIN 1343, at 0 °C and 1013 mbar, multiplied by coefficient 1.087.

7. Ordering information

7.1. Bürkert eShop – Easy ordering and quick delivery



Bürkert eShop – Easy ordering and fast 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.

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7.2. Bürkert product filter



Bürkert product filter – Get quickly to the right product




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7.3. Ordering chart for air with operating pressure of 6 bar(g) - Standard version

Note:




Calibration for other gases on request; probe lengths 120 mm, 160 mm, 300 mm, 400 mm on request.

Description	Article no.
Type 8007 with integrated display, Basic [air 92.7 m/s], probe length 220 mm	773498 
Type 8007 with integrated display, Extended [air 185 m/s], probe length 220 mm	773499 
Type 8007 with integrated display, Maximum [air 224 m/s], probe length 220 mm	773500 

7.4. Ordering chart for air with operating pressure of 6 bar(g) - Heavy Duty version

Note:







Calibration for other gases on request; probe lengths 120 mm, 160 mm, 300 mm, 400 mm on request.

Description	Article no.
Type 8007 with integrated display, Basic [air 92.7 m/s], probe length 220 mm	773508 
Type 8007 with integrated display, Extended [air 185 m/s], probe length 220 mm	773509 
Type 8007 with integrated display, Maximum [air 224 m/s], probe length 220 mm	773510 

7.5. Ordering chart accessories - Standard version

Note:

Without ordering cables, the flowmeter comes with M12-connector for port A.

Description	Article no.
5 m cable, with 5 pin, M12 plug at one end	770217 
10 m cable, with 5 pin, M12 plug at one end	770795 
Power supply Type 1573 for rail mounting, 100...240 V AC / 24 V DC, 1.25 A, NEC Class 2 (UL 1310)	772438 
Power supply Type 1573 for rail mounting, 100...240 V AC / 24 V DC, 1 A, NEC Class 2 (UL 1310)	772361 
Power supply Type 1573 for rail mounting, 100...240 V AC / 24 V DC, 2 A, NEC Class 2 (UL 1310)	772362 
Power supply Type 1573 for rail mounting, 100...240 V AC / 24 V DC, 3.8 A, NEC Class 2 (UL60950 - 1)	772898 

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