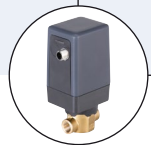




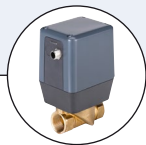
Flowmeter for gases

- Depth scale for accurate installation in existing pipes
- Usable in pipes from ½" up to 12" (DN300)
- Easy installation under pressure
- Integrated Display
- Standard and Heavy Duty version available

Type 8007 can be combined with...



Type 3280
Proportional valve



Type 3285
Proportional valve



Type 8611
eCONTROL



Type 8802
ELEMENT



Type BUPLUS

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.

| Technical Data | |
|--|--|
| Full scale ranges (Q_{nom})¹⁾ | up to 44030 Nm ³ /h (air), see page 2 |
| Operating gases | air, nitrogen, oxygen, natural gas, methane, argon |
| Max. operating pressure | Up to 16 bar; optional up to PN40 (Standard) Up to 50 bar (Heavy Duty) |
| Calibration gas | Air, zero point adjustment with operating gas |
| Gas temperature | -30 up to +110 °C (higher temperatures on request) |
| Ambient temperature (Electronics) | -30 up to +80 °C (higher temperatures on request) |
| Accuracy | ± 1.5 % o.R. ²⁾ ± 0.3 % F.S. ³⁾ (based on air and in consideration of the inlet and outlet sections; only when properly installed) |
| Span | 1:50 |
| Body material | Stainless steel 1.4301 (standard) Stainless steel 1.4571 (heavy duty) |
| Electronics housing material | Polycarbonate (standard), Aluminium die casting (heavy duty) |
| Sealing material | NBR, FKM (for oxygen) |
| Assembling screw | G ½" (others on request) |
| Electrical connection | see pages 4 – 5 |
| Power supply | 18 – 36 V DC, 5 W |
| Output signal (actual value output) | 4 – 20 mA |
| Max. load (current output) | <500 Ω |
| Digital output | RS 485 interface, Modbus-RTU |
| Pulse output | 1 pulse per m ³ |
| Protection class | IP65 |
| Dimensions [mm] | See drawing on page 6 |
| Options | - Other probe lengths - Oxygen conformity declaration - Cleaned, free of oil and fat |

¹⁾ At ref. conditions acc. to DIN 1343 (0 °C and 1013 mbar)

²⁾ o.R.: of reading

³⁾ F.S.: full scale (full scale values see page 2: "Flow range" table)

Flow Ranges (for Air) ⁴⁾acc. to DIN 1343: 0 °C and 1013 mbar(a)⁵⁾

| Type 8007 | | | | | | | |
|---------------|-----------------------------|-------------------------------|--------------------------|----------|--------------------------|----------|--------------------------|
| Pipe [inches] | Inner diameter of pipe [mm] | 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 | | | |

Note: For other internal pipe diameters [mm] see instruction manual

⁴⁾ 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.

⁵⁾ 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.

The sensor can be installed in every given pipe size. The default sensor setting is for a 2" pipe (53.1 mm inner pipe diameter).

Every version is calibrated for a velocity range:

- Basic version up to 92.7 m/s
- Extended version up to 185 m/s
- Maximum version up to 224 m/s

The 20 mA output is equivalent to this highest velocity, which is assigned to a maximum flow depending on pipe diameter.

1) Type 8007 without display:

The scaling of the 4 – 20 mA output is done in the signal receiver, for example the PLC, according to the table of flow ranges.

2) Type 8007 with display:

For scaling of the 4 – 20 mA output it is possible to adjust the specific pipe size (internal diameter) by the display and the buttons. Furthermore, you can choose your desired units of flow.

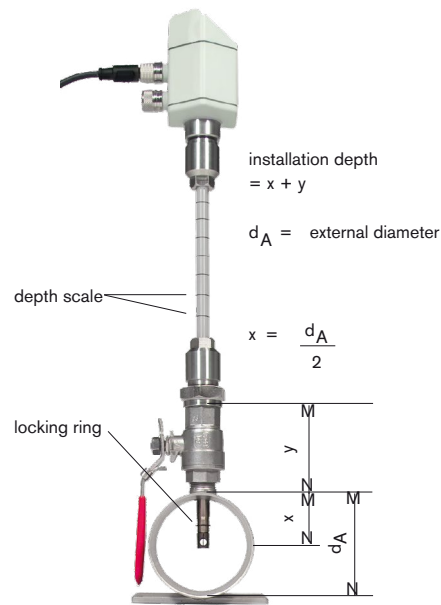
Determining the Point of Installation

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.

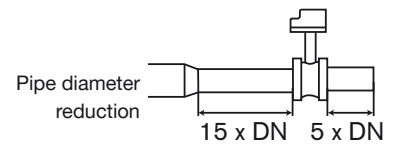
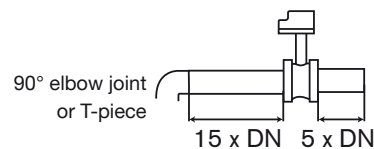
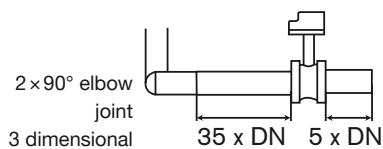
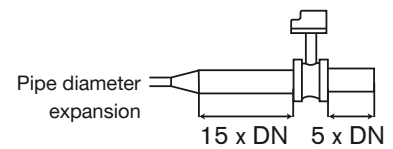
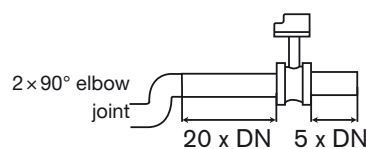
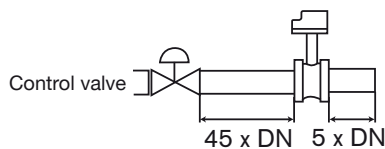
Installation in pipes at pressures > 10 bar requires a high pressure safety device.



Installation

DN = pipe diameter

Flow direction ►



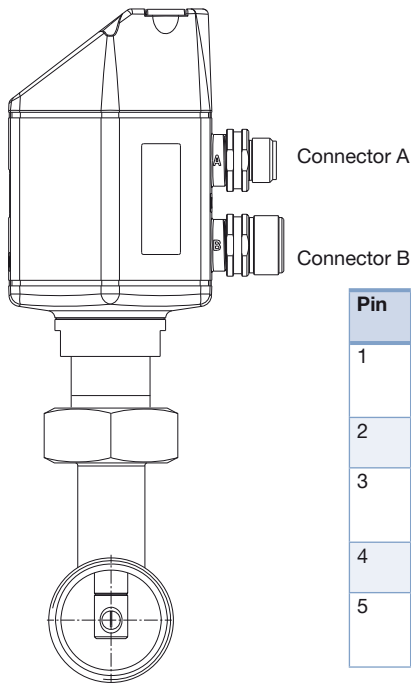
Ordering chart for air with operating pressure of 6 barg - standard version

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

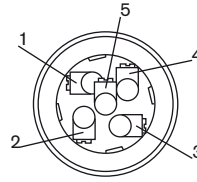
Calibration for other gases on request; probe lengths 120 mm, 160 mm, 300 mm, 400 mm on request.

Pin Assignment - standard version

Attention: The Pin assignment was changed with the new device generation. For questions, please contact the responsible Bürkert facility.



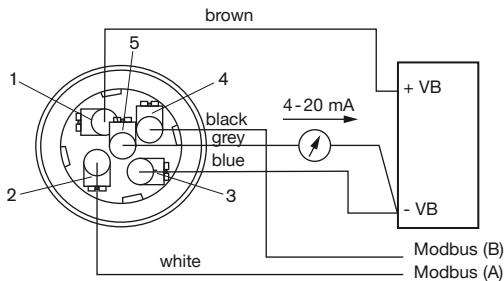
M12 connector



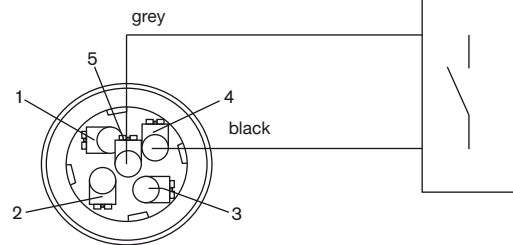
| Pin | Connector A (connection port) | Connection cable A | Connector B (pulse port) | Connection cable B |
|-----|---|--------------------|-------------------------------|--------------------|
| 1 | VB + Positive voltage supply 12-36 V DC | br | * | br |
| 2 | RS 485 (A) Modbus-RTU A | wh | GND | wh |
| 3 | VB- Negative voltage supply 12-36 V DC | bl | DIR Direction input | bl |
| 4 | RS 485 (B) Modbus-RTU b | sw | P Pulse for usage | sw |
| 5 | I+ Current signal 4-20 mA, selected measurement signal | gr | P Pulse for usage | gr |

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

M12 connector A



M12 connector B

**Note:**

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.

Ordering Chart for Accessories - standard version

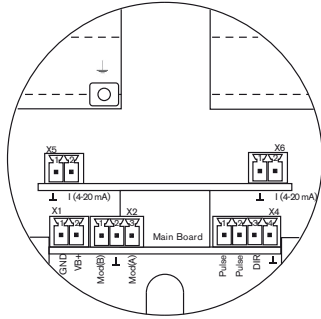
| Item | Article no. |
|---|-------------|
| 5 m cable, with 5 pin M12 plug at one end | 770217 |
| 10 m cable, with 5 pin M12 plug at one end | 770795 |
| Power supply Type 1573 for rail mounting, 100-240 V AC/ 24 V DC, 1.25A, NEC Class 2 (UL 1310) | 772438 |
| Power supply Type 1573 for rail mounting,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

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

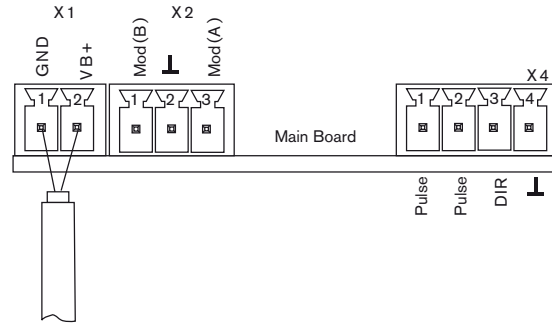
Pin assignment - heavy duty version

Electrical connection

Plug layout



Voltage supply

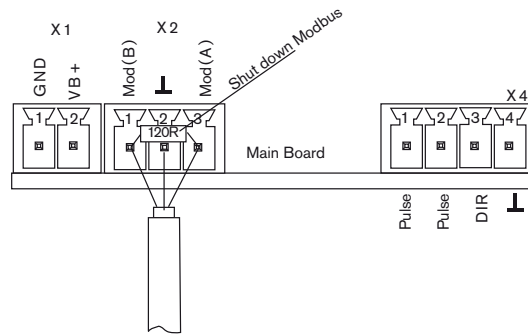


| Plug | Pin | Description |
|---------------------------|-----|---|
| X1 Voltage supply | 1 | VB - (negative voltage supply GND) |
| | 2 | VB + (positive voltage supply 12 V – 36 V DC) |
| X2 Modbus | 1 | Modbus (B) |
| | 2 | Modbus shield |
| | 3 | Modbus (A) |
| X4 Direction / impulse | 1 | Pulse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

* All analog outputs are galvanically isolated.

Modbus

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.



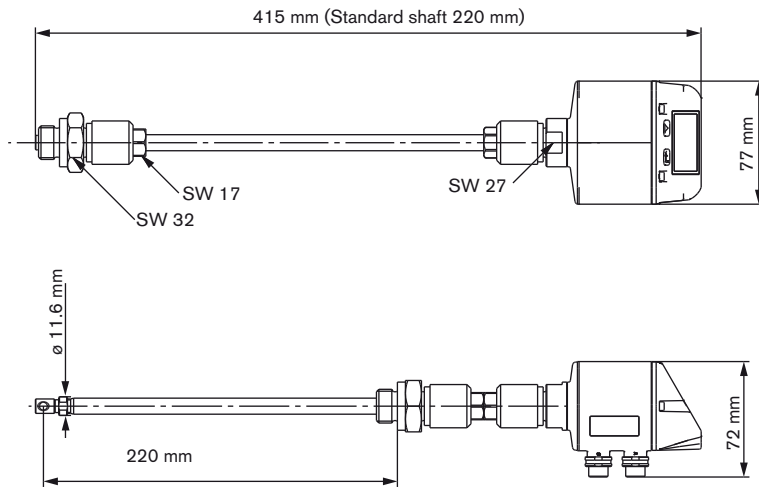
Ordering chart for air with operating pressure of 6 barg - heavy duty version

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

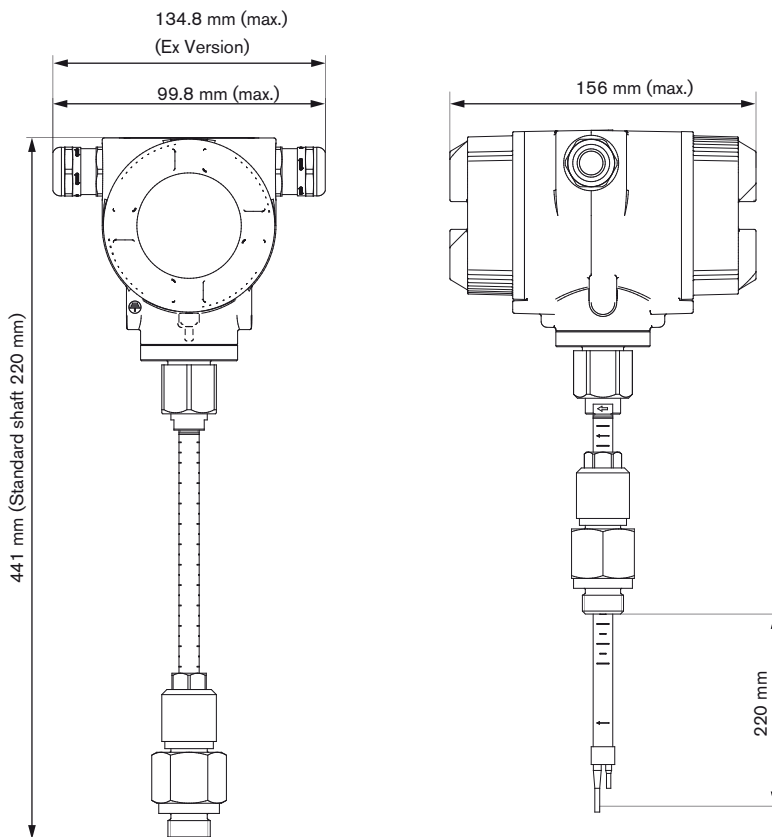
Calibration for other gases on request; probe lengths 120 mm, 160 mm, 300 mm, 400 mm on request.

Dimensions [mm]

Standard version



Heavy duty version



Note

You can fill out the fields directly in the PDF file before printing out the form.

Request for Quotation

▶ Please complete and send to your nearest Bürkert sales centre

| | |
|---------------|----------------|
| Company | Contact person |
| Customer no. | Department |
| Address | Phone/Fax |
| Postcode/Town | E-mail |

Quantity required delivery date

Version Standard Heavy duty

Operating Data

Gas: Air Argon Nitrogen Methane
 Oxygen Natural gas
 Other gas:

Max. flow rate: m³/h Referenzbedingungen: N: 0 °C, 1013 mbar(a)
 (Add-on price for special flow range) l/min S: 20 °C, 1000 mbar(a)
 Other unit

Operating pressure: bar(g)
 Ambient temperature: °C °F
 Gas temperature: °C °F

Options: High pressure safety device (for installation in pipes > 10 bar)
 Free of oil and fat, without O₂ certificate
 Free of oil and fat, with O₂ certificate
 Other probe length _____mm (see page 3, note ordering chart)

Comments / Sketch

To find your nearest Bürkert facility, click on the orange box →

www.burkert.com

In case of special application conditions, please consult for advice.

Subject to alterations
 © Christian Bürkert GmbH & Co. KG

1807/11_EU-en_00895236