



Mass flow controller for gases (MFC)

- Nominal flow ranges from 20 l/min up to 1500 l/min
- High measuring accuracy and repeatability
- Fast settling times
- IP65 protection class
- Optional: Fieldbus interface

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

Can be combined with



Type 0330

Direct-acting 2/2 or 3/2-way pivoted armature valve



Type 6027

Direct-acting 2/2-way plunger valve

Type description

The mass flow controller (MFC) Type 8626 is suitable for controlling the mass flow of high gas quantities. The thermal inline sensor is located directly in the gas stream and therefore achieves very fast response times. A direct-acting proportional valve from Bürkert guarantees, as the actuator, high response sensitivity. The integrated PI controller ensures excellent control characteristics of the MFC. The 8626 can optionally be calibrated for two different gases; the user can toggle between these two gases. As electrical interfaces both, analogue standard signals and fieldbuses are available. The mass flow controller Type 8626 is especially designed for use in harsh environments due to a low sensitivity to contamination and the high IP protection class. The MFC is ideal for various applications, e.g. burner controls, heat treatment, metallurgy, the food and beverage industry, environmental technology, material coatings, fuel cell technology or test benches.

Phase out

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1. General technical data

Product properties	
Dimensions	Further information can be found in chapter "4. Dimensions" on page 6.
Materials	
Seal	FKM or EPDM
Housing	Aluminium (coated)
Base block	Aluminium (black anodised) or stainless steel
Total weight	2.5 kg (aluminium, with 16 W valve) 4.5 kg (stainless steel, with 16 W valve)
LED display	Status indication: 1. Power 2. Communication 3. Limit 4. Error
Performance data	
Nominal flow range ¹⁾ (Q_N)	20...1500 l/min (N_2) ²⁾ (higher flow rates on request) Further information can be found in chapter "6.1. Nominal flow range of typical gases" on page 12.
Operating pressure ³⁾	Max. 10 bar (145 psi) (depending on the nominal valve size)
Measuring accuracy	$\pm 1.5\%$ of reading $\pm 0.3\%$ FS (under calibration conditions and after < 1 min warm-up time to achieve the best measuring conditions)
Repeatability	$\pm 0.1\%$ FS
Turndown ratio	1:50 (with vertical installation position with flow from top to bottom, the turndown ratio is 1:10)
Response time ($t_{95\%}$)	< 500 ms
Actuator (normally closed)	
Nominal valve sizes	0.8...12 mm
K_{VS} values	0.02...2.8 m ³ /h
Electrical data	
Operating voltage	24 V DC
Power consumption	Max. 12.5...37 W (with analogue variant: depending on proportional valve)
Residual ripple	< 2 %
Voltage tolerance	$\pm 10\%$
Electrical connection	
Standard	M16 socket, round, 8-pin and D-Sub HD15 socket, 15-pin
Additionally with PROFIBUS DP	M12 socket, 5-pin or D-Sub socket, 9-pin
Additionally with CANopen	M12 socket, 5-pin
With RS485 variant only	D-Sub plug, 9-pin
Medium data	
Operating medium	Neutral, pure gases (others on request)
Calibration medium	Operating gas or air (with conversion factor)
Medium temperature	-10...+70 °C (-10...+60 °C for oxygen)
Process/Port connection & communication	
Analogue interfaces	4...20 mA, 0...20 mA, 0...10 V or 0...5 V Input impedance > 20 k Ω (voltage) resp. < 300 Ω (current) Maximum current: 10 mA (voltage output) Maximum load: 600 Ω (current output)
Digital outputs	2 relay outputs: 1. Limit (desired value cannot be reached) 2. Error (i.e. sensor fault) Loading capacity: max. 60 V, 1 A, 60 VA
Digital inputs	3 digital inputs: 1. Start Autotune 2. Not assigned, e.g. for switching between 2 calibrated gases 3. Not assigned
Digital communication interfaces	RS232, Modbus RTU (via RS adapter), RS485, RS422 or USB (via adapter) Fieldbus option: PROFIBUS DP, CANopen (see "8.4. Ordering chart accessories" on page 13)
Port connection	G or NPT 1/4, 3/8, 1/2, 3/4, 1 (screw-in fitting on request)

Approvals and conformities

Protection class (with connected cables)	IP50 (RS485, RS422 variant), IP65
North America (USA/Canada)	Further information can be found in chapter "2.4. North America (USA/Canada)" on page 4.
Oxygen	Further information can be found in chapter "2.5. Oxygen" on page 4.

Environment and installation

Installation position	Horizontal or vertical
Ambient temperature	-10...+45 °C (higher temperatures on request)

1.) The nominal flow rate is the maximum calibrated and measurable flow rate value. The nominal flow range indicates the range of possible nominal flow rates.

2.) Index N: flow rates with respect to 1.013 bar abs and 0 °C, alternatively: Index S with respect to 1.013 bar abs and +20 °C

3.) 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.

2.4. North America (USA/Canada)

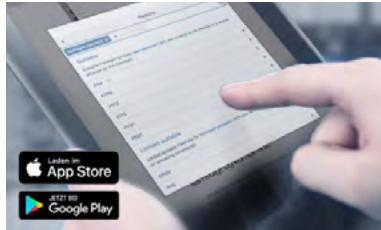
Approval	Description
	Optional: UL Listed for the USA and Canada The products are UL Listed for the USA and Canada according to: • UL 61010-1 (ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE – Part 1: General Requirements) • CAN/CSA-C22.2 No. 61010-1

2.5. Oxygen

Conformity	Description
	Optional: Suitability for oxygen (valid for the variable code NL02) The products are suitable for use with gaseous oxygen, according to the manufacturer's declaration.

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.

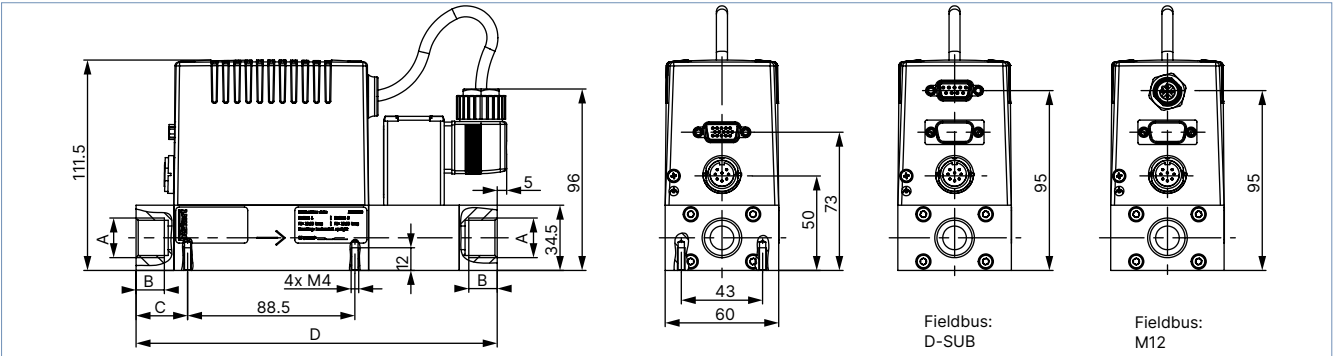
[Start chemical resistance check](#)

Phase out

4. Dimensions

4.1. MFC with valve Type 2873 (9 W coil)

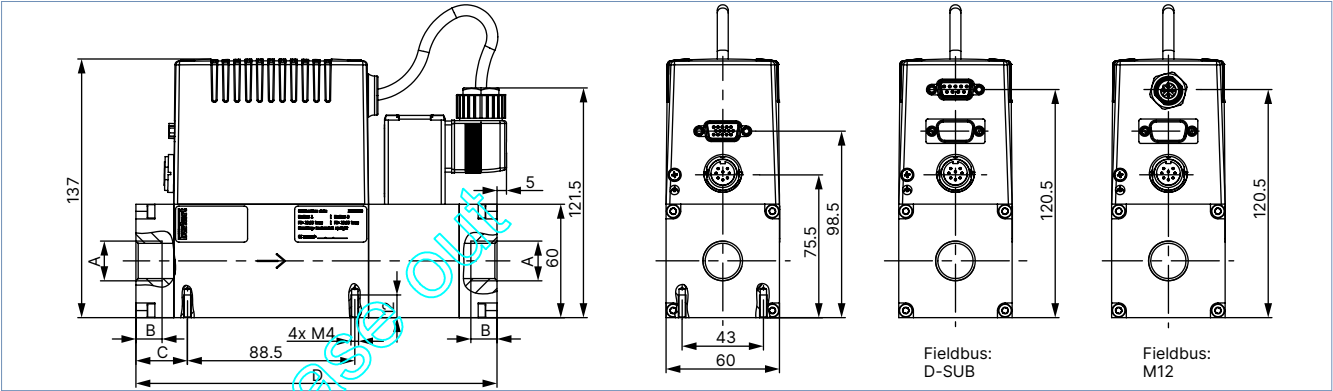
Note:
Dimensions in mm



A	B	C	D
G ¼, NPT ¼	10	22.25	181
G ⅜, NPT ⅜	11	22.25	181
G ½, NPT ½	14	27.25	191
G ¾, NPT ¾	15	27.25	191

4.2. MFC with valve Type 2873 (9 W coil) and base block for large nominal flow rates

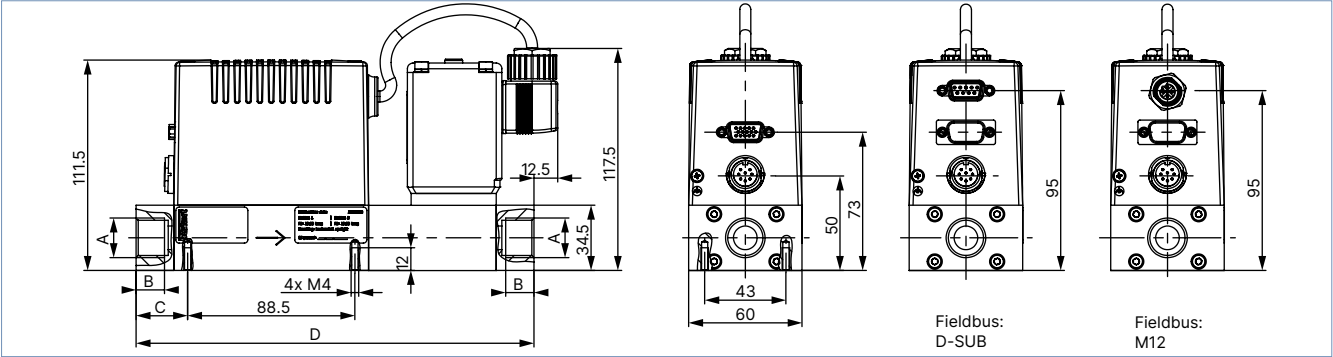
Note:
Dimensions in mm



A	B	C	D
G ⅜, NPT ⅜	12	27.25	191
G ½, NPT ½	14	27.25	191
G ¾, NPT ¾	15	27.25	191
G 1	17	27.5	191

4.3. MFC with valve Type 2875 (16 W coil)

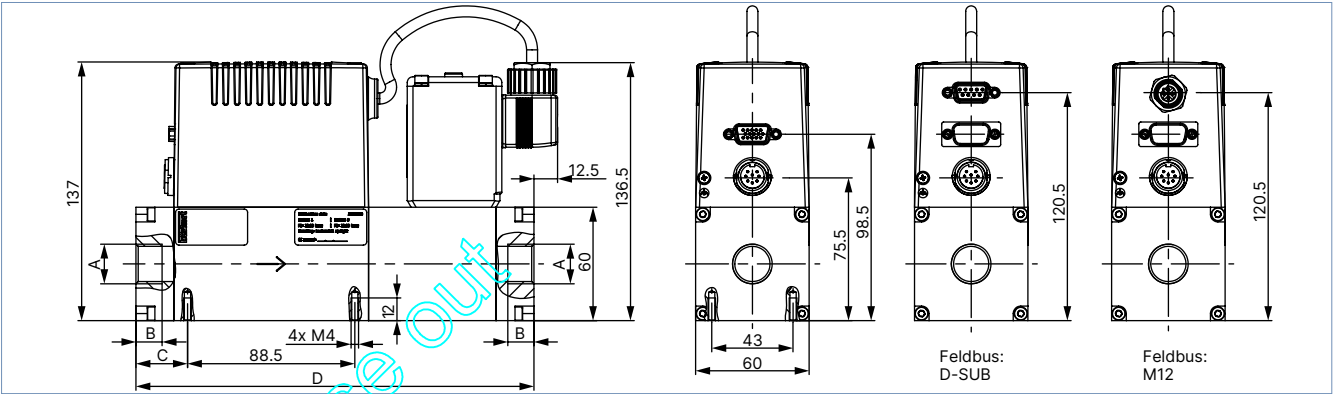
Note:
Dimensions in mm



A	B	C	D
G ¼, NPT ¼	10	22.25	200.5
G ⅜, NPT ⅜	11	22.25	200.5
G ½, NPT ½	14	27.25	210.5
G ¾, NPT ¾	15	27.25	210.5

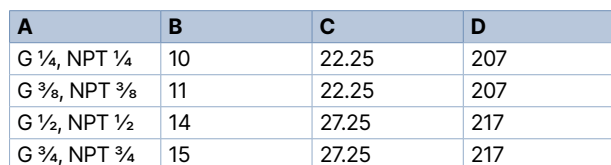
4.4. MFC with valve Type 2875 (16 W coil) and base block for large nominal flow rates

Note:
Dimensions in mm

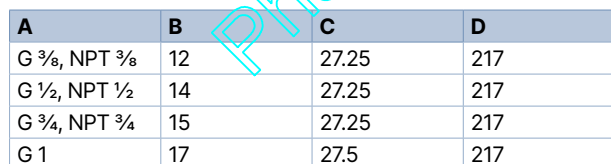


A	B	C	D
G ⅜, NPT ⅜	12	27.25	210.5
G ½, NPT ½	14	27.25	210.5
G ¾, NPT ¾	15	27.25	210.5
G 1	17	27.5	210.5

Dimensions in mm



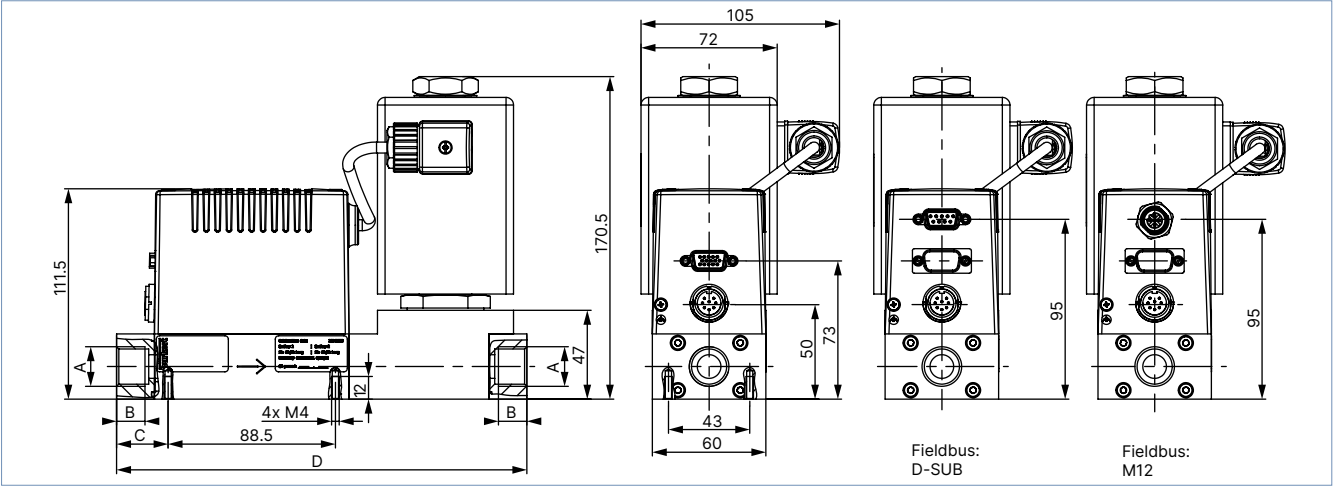
Dimensions in mm



Type 8626

4.7. MFC with valve Type 2836 (24 W coil)

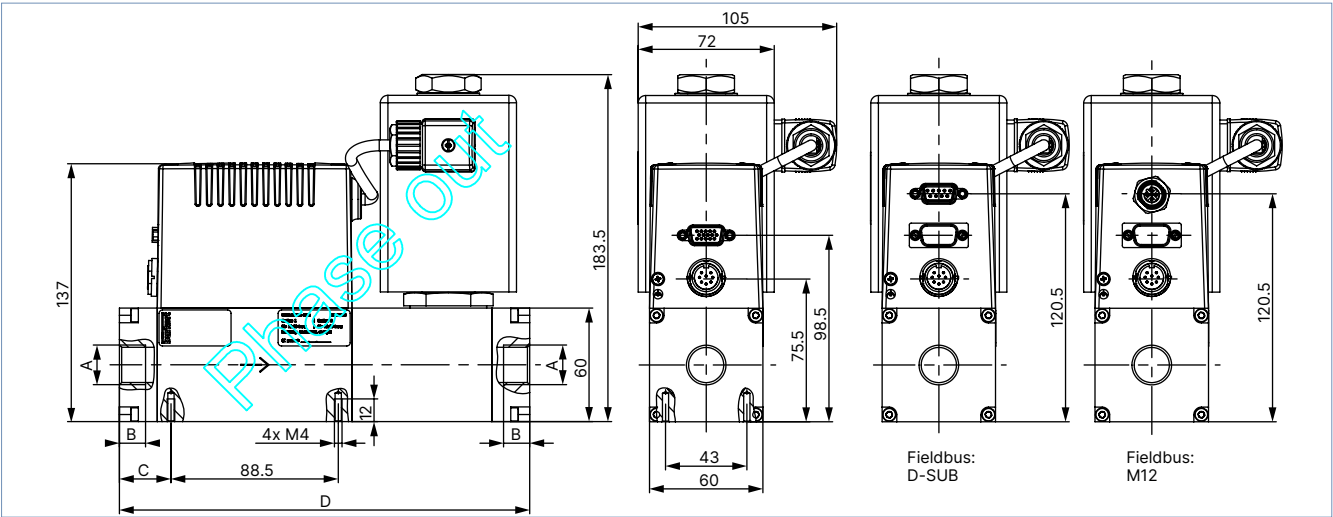
Note:
Dimensions in mm



A	B	C	D
G ¼, NPT ¼	10	22.25	207
G ⅜, NPT ⅜	11	22.25	207
G ½, NPT ½	14	27.25	217
G ¾, NPT ¾	15	27.25	217

4.8. MFC with valve Type 2836 (24 W coil) and base block for large nominal flow rates

Note:
Dimensions in mm



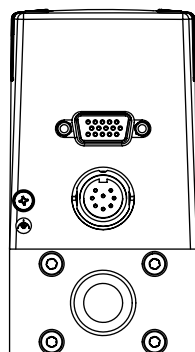
A	B	C	D
G ⅜, NPT ⅜	12	27.25	217
G ½, NPT ½	14	27.25	217
G ¾, NPT ¾	15	27.25	217
G 1	17	27.5	217

5. Device / process connections

5.1. Analogue variant

Note:

The cable length for RS232/actual value signal is limited to 30 meters.

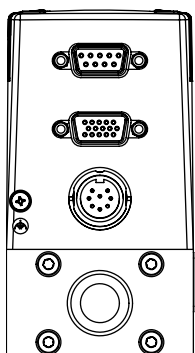


Standard

M16 socket, round, 8-pin	Pin	Assignment
	1	24 V supply +
	2	Relay 1 – reference contact
	3	Relay 2 – reference contact
	4	Relay 1 – normally closed
	5	Relay 1 – normally open
	6	24 V supply GND
	7	Relay 2 – normally open
	8	Relay 2 – normally closed

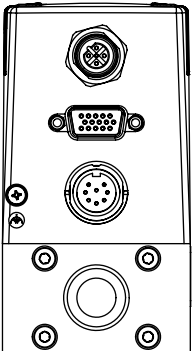
D-Sub HD15 socket, 15-pin (not used with fieldbus variant)	Pin	Assignment	
		Analogue control unit	Bus control
	1	Set value input +	Not connected
	2	Set value input GND	Not connected
	3	Actual value output +	Not connected
	4	Binary input 2	
	5	12 V output (only for in-plant use)	
	6	RS232 TxD (direct connection to computer)	
	7	Binary input 1	
	8	GND (for binary inputs)	
	9	Only for in-plant use (do not connect)	
	10	12 V output (only for in-plant use)	
	11	12 V output (only for in-plant use)	
	12	Binary input 3	
	13	Actual value output GND	Not connected
	14	RS232 RxD (direct connection to computer)	
	15	DGND (for RS232 interface)	

5.2. Fieldbus variant

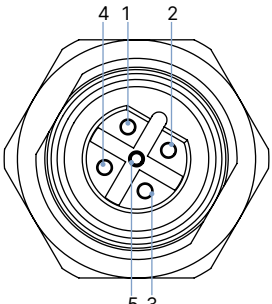


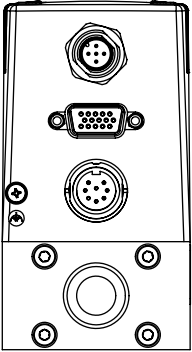
Fieldbus D-Sub

PROFIBUS DP: D-Sub socket, 9-pin	Pin	Assignment
	1	Shielding
	2	Not connected
	3	RxD/TxD - P (B-line)
	4	RTS (control signal for repeater)
	5	GND
	6	VDD (only for termination resistor)
	7	Not connected
	8	RxD/TxD - N (A-line)
	9	Not connected

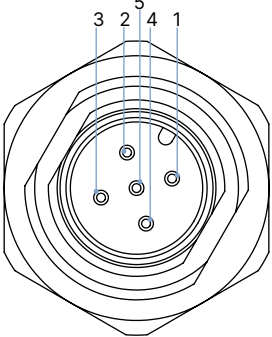


M12 PROFIBUS

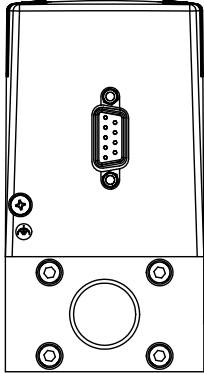
PROFIBUS DP: M12 socket, B-coded (DP max. 12 Mbaud)	Pin	Assignment
	1	VDD (only for termination resistor)
	2	RxD/TxD – N (A-line)
	3	DGND
	4	RxD/TxD – P (B-line)
	5	Not connected



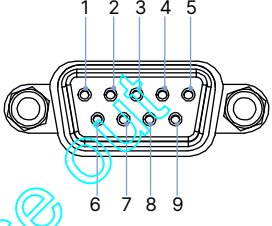
M12 CANopen

CANopen: M12 plug, A-coded	Pin	Assignment
	1	Shielding
	2	Not connected
	3	DGND
	4	CAN_H
	5	CAN_L

5.3. RS485 variant



RS485

D-Sub plug, 9-pin	Pin	Assignment
	1	Binary input (related to GND Pin 2)
	2	GND
	3	24 V supply +
	4	Relay, normally opened
	5	Relay, normally closed
	6	TX+ (RS485-Y) – bridge with pin 9 at half duplex
	7	TX- (RS485-Z) – bridge with pin 8 at half duplex
	8	RX- (RS485-B)
	9	RX+ (RS485-A)

6. Performance specifications

6.1. Nominal flow range of typical gases

Note:

All values regarding 1.013 bar abs and 0 °C (Index N)

Gas	Min. Q_N [l/min]	Max. Q_N [l/min]
Acetylene	20	975
Ammonia	20	1250
Argon	20	1500
Carbon dioxide	20	800
Air	20	2500
Methane	20	750
Propane	20	400
Oxygen	20	2500
Nitrogen	20	2500

7. Product operation

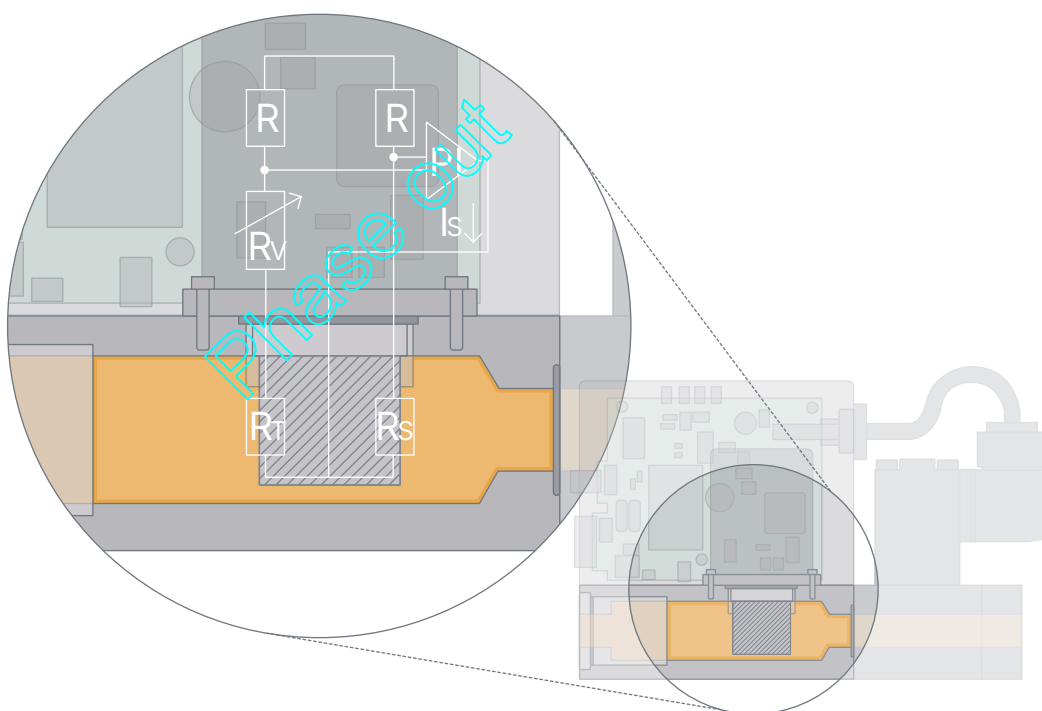
7.1. Measuring principle

This sensor works as a hot-film anemometer in the so-called CTA operational mode (Constant Temperature Anemometer). To do this, two resistors with precisely specified temperature coefficients located directly in the media flow and three resistors located outside the flow are connected together to form a bridge.

The first resistor in the gas flow (R_T) measures the fluid temperature, while the second, low-value resistor (R_S) is heated so that it is maintained at a fixed, predefined over-temperature with respect to the fluid temperature.

The heating current required to maintain this is a measure of the heat being removed by the flowing gas, and represents the primary measurement.

An adequate flow conditioning within the MFM and the calibration with high-quality flow standards ensure that the mass of gas flowing per time unit can be derived from the primary signal with high accuracy.



8. Ordering information

8.1. 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.

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8.2. Recommendation regarding product selection

Note:

Contact your Bürkert partner for device design.

The media compatibility, the maximum inlet pressure and the correct selection of the flow measuring span are decisive for the proper function of the device within the application. The pressure loss depends on the nominal flow rate and operating pressure.

8.3. 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.

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8.4. Ordering chart accessories

Overview over accessories

Note:

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

Description	Article no.
Connections/Cables	
M16 circular plug, 8-pin, soldered connection	918299 
M16 circular plug with cable, 8-pin, cable length: 5 m, assembled on one side	787733 
M16 circular plug with cable, 8-pin, cable length: 10 m, assembled on one side	787734 
D-Sub HD15 plug with cable, 15-pin, cable length: 5 m, assembled on one side	787735 
D-Sub HD15 plug with cable, 15-pin, cable length: 10 m, assembled on one side	787736 
Adapters	
RS232 adapter (for connecting a PC in combination with an extension cable)	654757 
Extension cable for RS232, M12 socket and/or M12 plug, 9-pin, cable length: 2 m	917039 
USB adapter	670696 
USB connection cable, cable length: 2 m	772299 
Adapter for manual bus address setting (instead of via AF)	667525 
Accessories for fieldbus	
PROFIBUS DP (B-coded)	
M12 plug, 5-pin, straight, B-coded ¹⁾	918198 
M12 socket (coupling), straight ¹⁾	918447 

Description	Article no.
Y-distributor ¹⁾	902098 𐀀
PROFIBUS T-distributor	918531 𐀀
PROFIBUS terminating resistor, M12 plug, B-coded	902553 𐀀
GSD file (PROFIBUS), EDS file (CANopen)	LINK ▶
CANopen (A-coded)	
M12 plug, 5-pin, straight ¹⁾	917115 𐀀
M12 circular socket with plastic threaded clamping ring, 5-pin, straight, to be wired ¹⁾	917116 𐀀
Y push-in connector, M12, 5-pin, LUM ¹⁾	788643 𐀀
T-distributor	On request
Termination resistor	On request
GSD file (PROFIBUS), EDS file (CANopen)	LINK ▶

1.) 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.

Adapter sketch

