

Mass Flow Controller (MFC)/Mass Flow Meter (MFM) for Gases

8742

**Nominal flow ranges from
0.010 I_N/min to 160 I_N/min**

- High accuracy and repeatability
- Protection class IP65 and IP67
- Optional: ATEX II Kat. 3G/D
- Communication via fieldbus based on CANopen



The mass flow controller (MFC) / meter (MFM) Type 8742 for gases is suitable for a wide range of applications. Type 8742 communicates via the Bürkert system bus (büS). This CANopen based interface is suitable for the integration into existing CANopen networks, as well as Industrial Ethernet or fieldbus networks in combination with the fieldbus gateway of Type ME43. The second option is tailor-made for applications with many control loops. Up to 32 MFC / MFM can be connected to one fieldbus gateway. Type ME43 translates the internal CANopen based communication to industry standards for both Industrial Ethernet and fieldbuses. The mass flow controller / meter can always be switched between büS and CANopen communication. Type 8742 can be configured as MFM or MFC. Optional, up to four different gases calibrations can be stored in the device. The thermal MEMS sensor is located directly in the gas stream and therefore reaches very fast response times. A direct-acting proportional valve as regulating unit guarantees high sensitivity. The integrated PI controller ensures outstanding control characteristics of the MFC / MFM. Type 8742 is especially designed for use in harsh environments due to high protection class and explosion-proof.

Technical Data

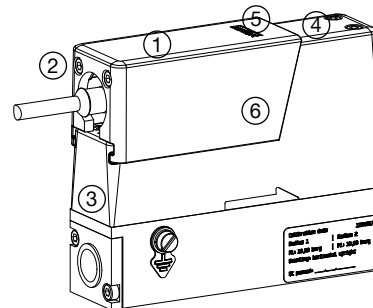
Turn-down ratio	50:1, optional 100:1
Operating medium	Neutral, non-contaminated gases, others on request
Calibration medium	Operating gas or air
Max operating pressure	145 PSI (10 bar), with MFCs the max. pressure depends on the orifice of the valve
Medium temperature	14°F to 158°F (-10°C to 70°C) (-10°C to 60°C with oxygen)
Ambient temperature	14°F to 122°F (-10°C to 50°C) (higher temperatures on request)
Accuracy (after 1 min. warm up time)	±0.8% o. R. ±0.3% F.S.
Repeatability	±0.1% F.S.
Settling(MFC)/ response (MFM) time (t_{95%})	<300 ms
Body material	Aluminium or stainless steel
Port connection	NPT 1/4", G 1/4", screw-in fitting or sub-base, others on request
Electr. connection	M12 plug, 5 pin
Power supply	24 V DC
Voltage tolerance	±10%
Power consumption¹⁾	1-3 W (as MFM), Max. 3-12 W (as MFC, depending on type of solenoid control valve)

¹⁾ Data refers to the typical power consumption (at 23 °C ambient temperature, nominal flow rate and 30 min control mode). The specifications according to UL 61010-1 can differ (see instruction manual).

Features to fulfill the ATEX requirements

Devices with ATEX conformity meet protection class IP65

- ① Impact protection cap prevents damage of the M12 plug and all connected elements if mechanical stress is applied. No particular ATEX sockets are required.
- ② Screws prevent uncoupling of the M12 connection under tension.
- ③ Diecast housing maintains IP protection under high mechanical stress.



- ④ Standard requirements for cable glands are fulfilled for versions with external valve.
- ⑤ LED display protected against mechanical stress.
- ⑥ M12 plug achieves protection class IP65 and IP67 with or without mounted counterpart.

Nom. Flow Ranges of Typical Gases

(see datasheet for more)

Gas	Min. Q _{nom} [I _N /min]	Max. Q _{nom} [I _N /min]
Carbon dioxide	0.02	80
Air	0.01	160
Oxygen	0.01	160
Nitrogen	0.01	160
Hydrogen	0.01	1000

Measuring Principle

The actual flow rate is detected by a sensor. This operates according to a thermal principle which has the advantage of providing the mass flow which is independent on pressure and temperature.