

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

8745

Nominal flow ranges from 20 I_N/min to 2500 I_N/min

- High accuracy and repeatability
- Communication via standard signals or Industrial Ethernet
- Easy device exchange through configuration memory



The MFC / MFM type 8745 is suitable for the mass flow control of high flow rates. Type 8745 can be configured as MFM or MFC. Optional, four different gases can be calibrated. The thermal inline sensor is located directly in the main 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. Available in two versions: with electromagnetic proportional valve and with motor-driven proportional valve.

Technical Data

General data	
Operating medium	Neutral, non-contaminated gases, others on request
Calibration medium	Operating gas or air with correction function
Medium temperature	14°F ¹⁾ to 158°F (-10°C to 70°C) (-10 °C ¹⁾ to +60 °C with oxygen)
Ambient temperature	14°F to 122°F (-10°C to 50°C) higher temperatures on request
Fluidics body materials	Aluminium
Seals materials	FKM or EPDM (depending on gas) ²⁾
Port connection	G or NPT 1/4", 3/8", 1/2", 3/4", 1" Sub-base
Operating voltage	24 V DC
Voltage tolerance	±10%
Configuration memory	EEPROM
(included in delivery)	(µSIM card: būs relevant data and information about spec. control loop in order to ease replacement)
Electrical connection	
Industrial Ethernet	PROFINET, Ethernet/IP, EtherCAT, Modbus-TCP via 2 x RJ45 (Switch) ³⁾
Analog	4-20 mA, 0-20 mA, 0-10 V or 0-5 V via D-Sub 9 ⁴⁾ or terminal block
Input impedance	>20 kΩ (voltage), <300 Ω (current)
Max. current (voltage output)	10 mA
Max. load (current output)	600 Ω

Type 8745 with solenoid proportional valve: Type 8745 can be configured as MFM or MFC. For MFCs the direct-acting proportional valves of Types 287x are used. These solenoid proportional valves are normally closed and stand for highest accuracy and repeatability with settling/response times of a few hundred milliseconds.

Type 8745 with motor-driven proportional valve: The Type 8745 with motor-driven valves is especially designed for applications with high inlet pressures. The motor's power consumption to hold a specific opening position is nearly zero. This key feature can reduce the energy consumption of a plant dramatically. Without electrical power the valve remains in its current position. The maximum duty cycle of the motor depends on the ambient temperature. The duty cycle does not refer to the duty cycle of the device but to the duty cycle of the motor.

¹⁾ When using a motor valve the minimum medium temperature is 0 °C.

²⁾ When using a motor valve additionally:

- Type 3280 DN4: Seat seal in PEEK

- Type 3285: Seat seal in Al₂O₃

³⁾ Supply voltage via separate terminal block.

⁴⁾ The analog version with D-Sub9 features an additional digital input and a relay output.

Technical Data Continued (see datasheet for details)

Type 8745	With solenoid proportional valve	With motor-driven proportional valve
Turndown ratio		50:1 ¹⁾
Max. operating pressure Data in overpressure to atmospheric pressure	10 bar (with MFCs the max. pressure depends on the orifice of the valve) optional up to 25 bar for MFM	22 bar (with MFCs the max. pressure depends on the orifice of the valve)
Accuracy (after 15 min. warm up time)	±1.5 % o.R. ±0.3 % F.S.	±2 % o.R. ±0.5 % F.S.
Repeatability	±0.1 % F.S.	±0.5 % F.S.
Settling/Response time (t95 %)	<500 ms	<5 sec.
Proportional valve	(solenoid) normally closed, valve orifice range: 0.8...12mm, Kvs value range: 0.02...2.5m ³ /h	(motor-driven) normally persisten, valve orifice range: 2...20mm, Kvs value range: 0.5...7.8m ³ /h

¹⁾ With vertical installation and flow downwards the turndown ratio is 10:1