



FM-200K-H

Float-Type Flow Meter Series FM®

Version FM-2K: heatable up to 180 °C,
Version FM-200K-H: electrically heated up to 180 °C
with needle valve at the inlet

Special Features

- Heatable version, max 180 °C [356 °F]
- Electrically heated version, max. 180 °C [356 °F]
- Needle valve integrated in the inlet
- Large scaling
- Reliable connection technique
- No cold bridges
- Integrated thermostat
- Status contact output
- Maintenance-friendly design
- Optionally with flow alarm FA

Application

The M&C flow meters FM-2K and FM-200K-H are used in analysis technique to control gas flow up to an operating temperature of 180 °C [356°F].

Six available measuring tubes and a floating ball out of glass cover a flow range from 16 to 800 NI/h.

The electrically heated sample lines type 3/4/5-N/M/H (see data sheet "Electrically Heated Sample Lines Type 3/4/5-N/M/H") are fixed with two mounting brackets.

Description

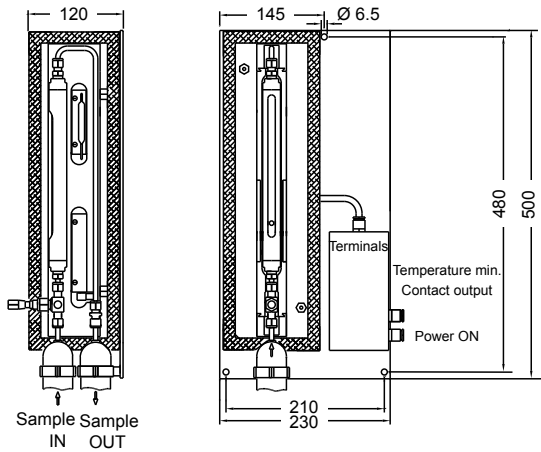
The M&C float-type flow meters FM-2K and FM-200K-H consist of an upright glass tube conically widening towards the top, in which a floating ball can move freely up and down. The medium flows from the bottom to the top through the tube and lifts the floating ball until there is a ring-shaped gap between the tube wall and the floating body so that the forces acting on the body are in equilibrium. Each height position of the floating body corresponds to a certain flow rate, which can then be read on a scale.

The FM-2K is the non-heated basic version for installation in heated systems. The FM-200K-H is supplied as an electrically completely heated version with integrated needle valve. It is mounted on a heat-decoupled mounting plate. Heating is provided by a high-performance heating element. The control temperature can be adjusted up to 180 °C [356 °F] via the integrated control thermostat with high-temperature limiter and low-temperature alarm contact.

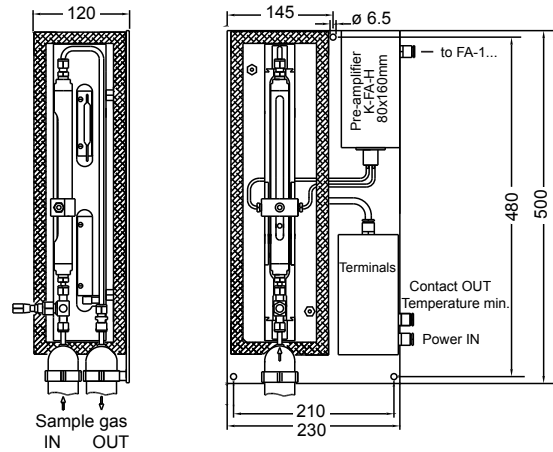
The thermally insulated cover has an inspection window. Outside the cover, there is the electrical connection box with integrated thermostat and the optional flow monitoring, consisting of the sensor head FA2-H, fiber-optical light guide FO1 and the pre-amplifier K-FA-H. The required electronic controller FA-1... to be mounted externally must be ordered as an option. - See data sheet "Electronic Controller Series FA®" -

To avoid cold bridges, the connection fittings are also heated by means of two-part heat-conducting jaws.

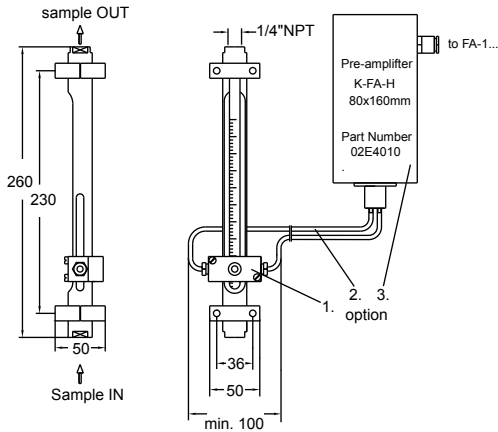
Version FM-200K-H



Version FM-200K-H/FA



Heatable version FM-2K



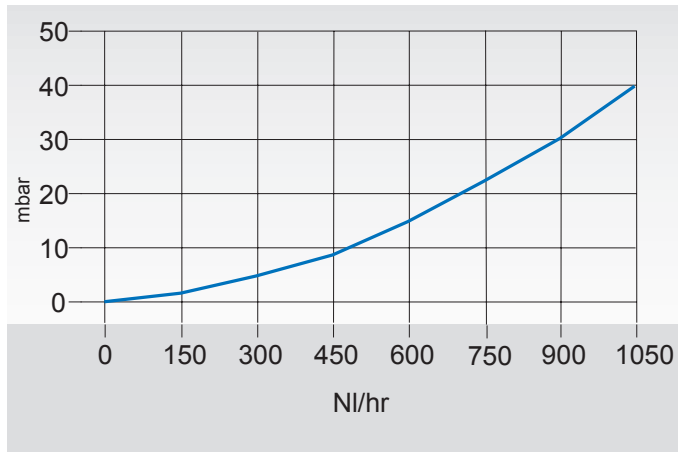
Optional flow monitoring

Dimensions in mm

Optional flow monitoring consisting of:

- | | | | |
|---|----------------------------|---------|--|
| 1 | Sensor head | FA2-H | 02E4002 |
| 2 | Fiber-optical light guides | FO1 | 02E4060/4065/4063 |
| 3 | Pre-amplifier | K-FA-H | 02E4010 |
| 4 | Electronic controller | FA-1... | 02E7300/7300b/7300d
02E7110/7110a/7110d |

Flow rate in NI/h air and differential pressure in mbar



Technical Data



	FM-2K	FM-200K-H	FM-200K-H/FA
Part No.	09F2105	09F2505(a)	09F2555**
Heated/needle valve in the inlet	No	Yes	
Optical flow control, mono-stable**	No		Fix between 20-50 % of scale
Standard measuring range, at 1.2 bar, 20 °C [68 °F]	25 to 250 NI/h air		
Measuring ranges available	Scale: 1.6-16; 6-60; 10-100; 25-250; 50-500; 80-800 NI/h air, 1.2 bar, 20 °C [68 °F]		
Operating pressure/operating temperature	Max. 2 bar g/max. +180 °C [356 °F]		
Ambient temperature	-40 to +180 °C [-34 to 356 °F]	-25 to +60 °C [-13 to 140 °F]	-25 to +50 °C [-13 to 122°F]
Storage temperature	-40 to +80 °C [-34 to 176 °F]	-25 to +80 °C [-13 to 176 °F]	
Gas connections	1/4" NPT i	Tube fittings Swagelok® ø 6 mm, optional ø 1/4"	
Temperature controller		Capillary thermostat, integrated in electrical connection box with high-temperature limiter and low-temperature alarm contact	
Operating temperature		Adjustable from 0 to 180 °C [32 to 356 °F], factory-set at 180 °C [356 °F]	
Low-temperature alarm contact		alarm point ΔT 30 °C, change-over contact, voltage-free; contact rating 250 V, 3 A~, 0.25A =	
Power supply		230 V/50 Hz, 220 VA; optional 115 V/60 Hz (a)	
Electrical connections		Terminals 4 mm ² , 2 x cable glands PG13	
Protection/electrical standard		IP54 EN 60529/EN 61010, EN 60519-1	
Dimensions (W x H x D)	50 x 290 x 50 mm [≈ 2" x 11.4" x 2"]	250 x 500 x 140 mm [≈ 9.8" x 19.7" x 5.5"]	
Weight	0.8 kg [≈ 1.8 lbs]	8 kg [≈ 17.6 lbs]	8.5 kg [≈ 18.7 lbs]
Stagnant space/mounting	Approx. 6 cm ³ /wall-mounting		
Material of sample-contacting parts	Glass, stainless steel 316Ti, PTFE		

** The optical flow alarm is only equipped with pre-amplifier K-FA-H, the electronic controller must be ordered separately.

Please note: NI/h and NI/min refer to the German standard DIN 1343 and are based on these standard conditions: 0 °C [32 °F], 1013 mbar.

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