

Selection guide for Sensirion mass flow controllers

This selection guide will help you find the right Sensirion mass flow controller (MFC), depending on your requirements.

The heart of Sensirion mass flow controllers (MFCs) is a high-precision sensor element with state-of-the-art signal processing on a single chip. Thanks to this technology, Sensirion MFCs achieve unmatched ratings for speed, accuracy and dynamic range. Sensirion technology reaches superior accuracy and repeatability, especially at low flow rates. The devices show no drift and hence never require recalibration. All MFCs are also available in flow meter configurations (SFM series).

Performance line

Best performance and configurability

- Highest accuracy
- Choice of interfaces and fittings
- Samples available via online distribution



SFC5500 and SFC5400

OEM line

OEM applications

- Optimized OEM performance
- Digital and downmount (manifold)
- From 50 pcs/year







SFC5300

		Performance		OEM
Interface	RS485/digital	SFC5500	SFC5400	SFC5300
	analog		SFC5400	
Fluidic connectors	Push-in (*exchangeable)	SFC5500*		
	Swagelock, VCR, VCO, W-Seal		SFC5400	
	Downmount		SFC5400	SFC5300

Full-scale flows available



Comparison table

	Models	Special feature	Availability	Accuracy/repeatability	Full-scale flow rates	Fluidic connectors	Settling time
Performance line	 SFC5500	Most versatile	via distributors	0.8%/ 0.08% set point	50 sccm 0.5 slm 2 slm 10 slm 200 slm	Push-in Exchangeable fittings	< 100 ms
	 SFC5400	Most customizable	Contact Sensirion		50 sccm 100 sccm 200 sccm 500 sccm 1 slm 2 slm 5 slm 10 slm 20 slm 50 slm 100 slm	Downmount (manifold) Swagelock VCR VCO	
	 SFC5460	Lowest profile	Contact Sensirion, MOQ: 50 pcs/yr		50 sccm 100 sccm 200 sccm 500 sccm 1 slm 2 slm 5 slm	Downmount (manifold)	
OEM line	 SFC5300 SFC5330	Smallest size	Contact Sensirion, MOQ: 50 pcs/yr	2%/ 0.2% set point	50 sccm 100 sccm 200 sccm 500 sccm 1 slm 2 slm 5 slm	Downmount (manifold)	

The **SFC5500** is the recommended product for initial evaluation. It is also the most convenient solution for small-volume projects. The SFC5500 is the **first MFC to be available through online distribution** and it is currently the **lowest-cost and fastest way to obtain an MFC** (with

overnight shipping from distributors). It is calibrated for multiple gases and available with pre-defined full-scale flow rates and exchangeable fittings. The other MFCs are configurable and can be ordered directly from Sensirion.

Evaluation kit EK-F5x for the SFX5xxx series

- Fastest and most convenient way to evaluate the SFC5XXX and SFM5XXX families
- Ideal for evaluation starting with SFC5500
- Available via distributors
- Kit contains a power supply and connection cable + plug-and-play SFC Viewer software
- RS485 USB interface



Additional information

	SFC5500	SFC5400	SFC5460	SFC5300	SFC5330
Size¹ W × H × L	29 × 91 × 115 mm	25 × 91 × 126 mm	29 × 51 × 105 mm	25 × 80 × 70 mm	25 × 66 × 48 mm
Weight	270 g	280 g	255 g	170 g	95 g
Electrical connector	DB9	DB9	JST 4-pin	DB9	JST 4-pin
Communication interface	RS485 IO-Link DeviceNet	RS485 Analog voltage Analog current IO-Link DeviceNet	RS485		
Calibration gas⁴	He, H ₂ , Ar, O ₂ , N ₂ , air, CO ₂ , N ₂ O, CH ₄	non-aggressive gases ^{2 3}			
Dynamic range	1000:1 (100% to 0.1% of full-scale flow)				
Pressure resistance	up to 10 bar				

¹ Size depends on the fittings. See datasheet for exact dimensions.

² Configured with different gasses/flow ranges: see MOQ in datasheet.

³ The gases used should be compatible with the wetted parts of the sensor. Typically, it should not be used with gases that attack silicon, or sealing materials. A detailed overview of wetted materials is available as a table in the datasheet.

⁴ A software tool is provided to manually calibrate the MFC for non-standard gases.

Definitions

Pressure drop is generated when a gas passes through a mass flow controller. It is important to verify that at the maximum required flow rate for a given gas, the inlet pressure is higher than the pressure drop; otherwise the desired maximum flow rate cannot be reached. Increasing the valve size lowers the pressure drop, trading off against the low flow accuracy/resolution. See the definition for valve size.

Valve size is selected by Sensirion based on the desired gas and flow range. However, Sensirion can take into account specific customer wishes, e.g. if a certain pressure drop has to be achieved. Valve size selection is a trade-off between low-flow control, pressure resistance and pressure drop across the MFC. A smaller valve allows for better flow control at low flow rates, but induces a

higher pressure drop across the MFC. On the other hand, a large valve induces a lower pressure drop across the MFC, but has worse flow control at low flow rates. In addition, smaller valves are more robust against differential pressure across the MFC (inlet vs outlet pressure).

Calibration gases can have different accuracies. For example, the SFC5500 sensor is factory-calibrated with air/N₂, He and CO₂, while the calibration of the remaining gases is derived from a gas property simulation (model). The accuracy for the calibrated gases is higher than for those derived from a model. More information can be found in the datasheet of each product or by contacting your sensor expert. A software tool is also provided to manually calibrate the MFC for gases that are not included in the library.