



High Grade Metal Seal Flow Controllers

MODEL 5100 SERIES

Model 5100 Series Mass Flow Controller/Meter features weldless structure, metal seals, accuracy of $\pm 1\%$, response of $\leq \pm 1$ second and other basic performance conditions required for semiconductor process control, and additionally, has achieved a significant price reduction.

Features

- High accuracy and high response are achieved by the flow sensor with temperature-following current difference detection.
- A normally-closed solenoid valve is employed.
- A low leak rate is achieved by the weldless structure and metal seal.
- The dead volume is reduced thanks to the diaphragm seat valve.
- The face-to-face and body dimensions and the wiring tie-in points are designed to facilitate replacement of devices made by other companies.

Standard Specifications

Flow range (N2 equivalent, 20°C/1 atm)	1 SCCM-20 SLM (The conditions are freely selectable)
Sensor	Thermal mass flow sensor
Valve type	Proportional solenoid valve (closed when not energized)
Control range	2-100% (F.S.)
Response	1 sec. or less (0-100% within $\pm 2\%$ typical)
Accuracy	$\pm 1\%$ F.S. (Accuracy guaranteed at 15-35°C)
Repeatability	$\pm 0.2\%$ F.S.
Operating differential pressure	F.S. ≤ 5 SLM: 50-300 kPa
	F.S. > 5 SLM: 100-300 kPa
	Option: Low differential pressure (LP) specification is available depending on conditions.
Allowable operating pressure	300 kPa (G) or less
Proof pressure	980 kPa (G)
Leak rate	1×10^{-11} Pa·m ³ /s or less
Allowable ambient temperature	0-50°C
Allowable ambient humidity	10-90% (No condensation allowed)
Materials of parts in contact with gases	Body: SUS316L
	Diaphragm: SUS316L
	Valve seat: PTFE
	Sealing: SUS316L, Ni, Au
	Option: SUS seal (SU), inner surface polish (KP)
Electric connection	Dsub 9-pin connector as per KFC Standard (Compliant with SEMI Standard)
Flow rate input signals	0-5 VDC (Input impedance: 1 M Ω or more)
Flow rate output signals	0-5 VDC (External load resistance: 250 k Ω or more)
Required power supply	+15 VDC ($\pm 5\%$) 100 mA, -15 VDC ($\pm 5\%$) 200 mA
Joint (Main unit bore)	Standard: 1/4 VCR equivalent Option: 1/4 SWL
Weight	Approx. 1000 g

Note
 Specifications relating to the flow range (e.g., flow range, accuracy and response) are expressed in N₂ or air equivalent. The product will be built with the primary pressure of 300 kPa or less and the secondary side open to the atmosphere. For details on the pressure requirements, please contact us.

Harness Layout

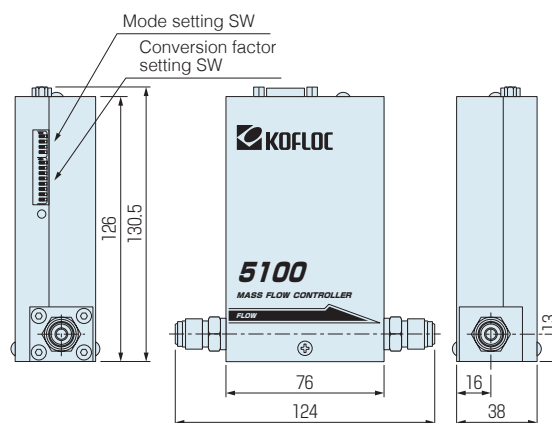
Pin Assignment of Dsub 9-pin Connector per KFC Standard

Pin No.	Signal	Pin No.	Signal
1	Input valve open/close operation	6	Flow input Hi
2	Flow output 0-5 V	7	Flow output COM
3	+15 VDC Power source	8	Flow input Lo
4	Power source COM	9	Output valve voltage
5	-15 VDC Power source		

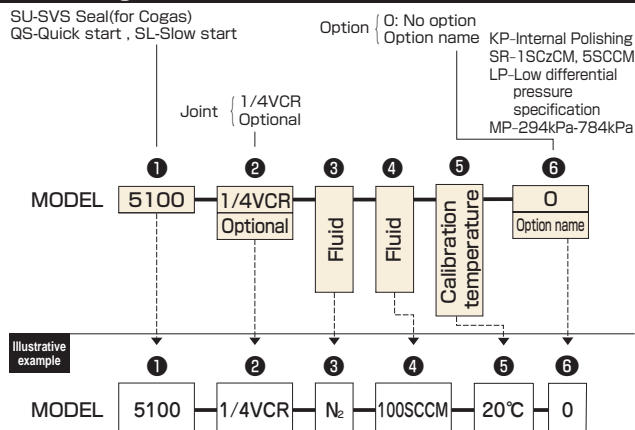
** Because a differential input system is used for the product, pin 4 (Power source COM) is connected inside the mass flow controller while pin 8 (Flow input Lo) is isolated. In case of a single-ended connection, connect pin 8 to pin 4.
 * For baking applications on Model 5100B, working temperature is specified up to 80°C.



Dimensions



Ordering



* Refer to "Ordering" and "Illustrative example" when placing an order or requesting a quotation. Fill in the blanks in the "Order/Quotation Request Card" at the end of the catalog, and send the card by fax.