

# High-grade Mass Flow Controller

## MODEL 3200 SERIES

Model 3200 Series Mass Flow Controller is an advanced model designed as a successor of the 3910 Series that enjoys a wide use for diverse applications such as manufacture of semiconductors, LCDs, combustion equipment, analytical devices, and biotechnology fields. Its high performance is equal to a new standard of KOFLOC.

### Features

- Equipped with a temperature follow-up type current difference detection flow sensor (patent applied for) to ensure high accuracy and high-speed response
- Use of a normally closed valve to ensure safety
- Can be used for control of various types of gases thanks to the incorporated CF switching feature.
- Reduced dead volume thanks to the diaphragm seat valve
- Control of small quantities of flows available up to 1 SCCM full scale (SR option)
- Low differential pressure type control available for combustible gases (LP option)

### Standard Specifications

Flow range (at N <sub>2</sub> calibration conditions)	10SCCM-20SLM
Valve type	Normally closed, Solenoid, Diaphragm seat valve
Control range	2%-100%F.S.
Response	1 sec. or less to within ±2% of full scale of final value typical for 0-100% response
Accuracy	Within ±1.0% F.S.(@20°C)
Linearity	Within ±0.5% F.S.(@20°C)
Repeatability	Within ±0.2% F.S.(@20°C)
Operating differential pressure	F.S.≤5SLM 49kPa-294kPa * Low differential pressure specification depends on types of gas and flow rates to be used. 5<F.S.≤20SLM 98kPa-294kPa
Proof pressure	980kPa
Leak rate	1x10 <sup>-6</sup> Pa·m <sup>3</sup> /s or less
Working temperature range	0-50°C (Accuracy guarantee: 15-35°C)
Materials of parts in contact with gases	Body: SUS 316L Diaphragm: SUS 316 Valve seat: PTFE Seals: Viton® (Optional: Neoprene® or NBR)
Joint	Standard: 1/4SWL® Optional: 1/8SWL®, 1/4VCR®, Rc 1/4, etc.
Electrical connections*	Dsub 9-pin male connector per KFC standard (SEMI standard)
Flow rate input signals	0-5VDC
Flow rate output signals*	0-5VDC
Required power supply *	+15VDC (±5%) 100mA, -15VDC (±5%) 200mA
Weight	Approx. 1000 g

### Harness Layout

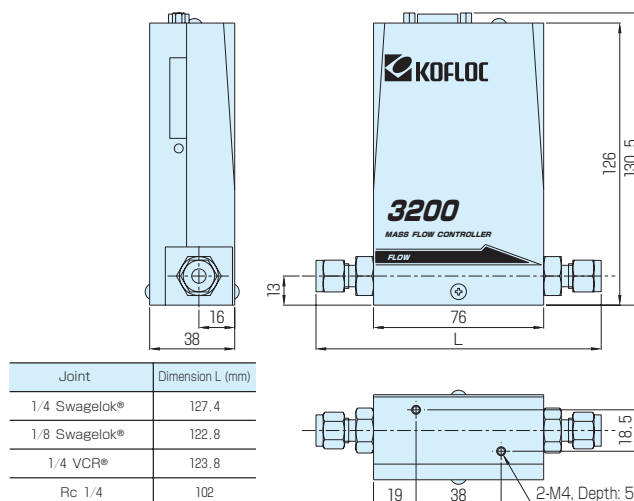
Pin Assignment of Dsub 9-pin Connector per KFC Standard

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	NC
5	-15 VDC Power source		

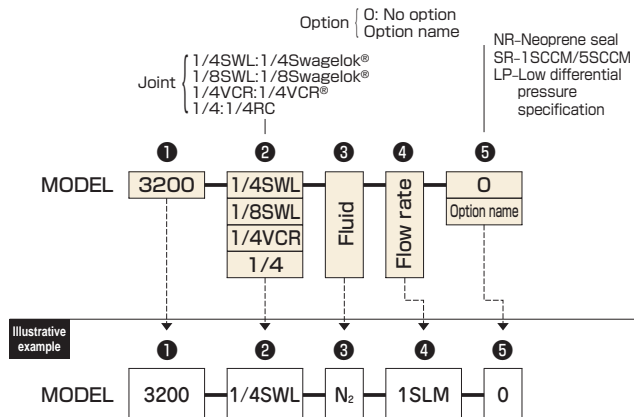
\* Because a differential input system is used for the product, pin 4 (Power source COM) and pin 7 (Flow output COM) are connected inside the mass flow controller while pin 8 (Flow input Lo) is isolated. In case of a single-ended connection, connect pin 8 to pin 4.



### 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.