Compact and high grade digital mass flow controller / mass flow meter

MODEL EX-250S SERIES

Digital mass flow device which is adopted the own developed both stable high speed thermal sensor and small proportional solenoid valve and is realized high accuracy and quick response with RS 485 communication in spite of compact.

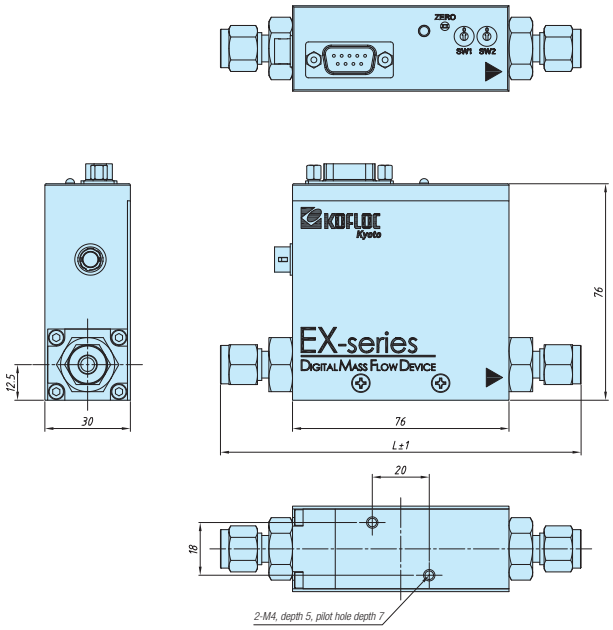
- ☐ Lower cost but high accuracy measurment
- ☐ High speed response and zero stability
- ☐ 0-5VDC or 4-20mA Input/output signal and +/-15VDC or 24VDC power supply
- ☐ Mediocrity D-sub 9pin
- ☐ Gases registered in EX-250S are usable by rotary-switch
  *Calculate the flow rate with conversion factor based on N_2 gas
- ☐ RoHS compliance, CE marked

EX-250S Standard Specifications

Model		Mass flow controller EX-250SC	Mass flow meter EX-250SM
Sensor type		Thermal sensor	
Valve type		Proportional solenoid valve (normally closed)	—
Applicable gases *1		N_2, Air, H_2, He, Ar, O_2, CO_2 (The other gases are N_2 gas conversion)	
Flow range *2		10SCCM-5SLM	
Control range		2-100% (F.S.)	
Response		Total flow rate control range ±1 sec (within ±2% F.S.)	
		L:50kPa-149kPa H:150kPa-300kPa	—
Accuracy *3		±1.0%F.S.	
Repeatability		±0.2%F.S.	
Operating differential pressure *4		50-300kPa (Ar, CO_2:100kPa-300kPa)	—
Inlet maximum pressure		500kPa (G)	
Proof pressure		980kPa (G)	
External leak rate *5		≦ 1×10^{-8}Pa·m^3/sec	
Temperature	Working temp.	5-50°C	
	Accuracy guaranteed temp.	15-35°C	
	Allovwable storage temp.	-10-60°C	
Allowable operating humidity		10-90% RH (without dew condensation)	
Materials of gas contact part		SUS316, SUS316L, Magnetic stainless steel (*6), PTFE, FKM	
Electrical connection		Dsub9 pin KFC Standard (SEMI standard) HR-10A	
Flow rate setting signal		0-5VDC (Input impedance approx.1MΩ) 4-20mA (Input impedance approx.250Ω)	—
Flow rate output signal		0-5VDC or 4-20mA	
Digital communication		RS485	
Required power supply (DC)		+15VDC (+/-5%) less than 100mA, -15VDC (+/-5%) less than 150mA Or +24VDC (+/-10%) less than 180mA (MFM: less than 100mA)	
Joint *7		1/4SWL type (standard)	
Mounting posture		Horizontal installation recommended.	
Weight *8		Approx. 500g	Approx. 440g

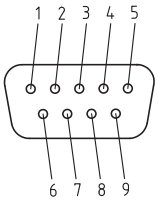
(*1) Dry gas and clean gas not included the corrosive particles and dust/mist.
(*2) SCCM: cc/min at 0°C, 1atm SLM: L/min at 0°C, 1atm
(*3) Accuracy of the full scale flow rate
(*4) Please tell us your supply and outlet pressure values before order.
(*5) Permeation is not included. The leakage by prolonged permeation shall not exceed 1×10^{-6}Pa/m^3/sec
(*6) No use of the magnetic stainless steel
(*7) Contact us about the connection.
(*8) Weight without the connections

Dimensions



Fitting	Dimension L (mm)
1/4F900	126.6
1/8F900	122.6
3/8F900	131.6
1/4UJR	123.0
Rc1/4	102.0
1/8SWL	122.8
1/4SWL	127.4
3/8SWL	130.4
1/4VCR	123.8

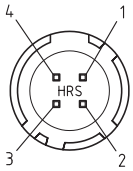
Wiring connections



①Dsub connector (male)

Pin #	±15V specification	±24V specification
	Signal Name	
1	Valve open/close *1	
2	Output signal	
3	Power +15V	Power +24V
4	Power COM	
5	Power -15V	N.C. *2
6	Set point Hi *1	
7	Signal COM	
8	Set point Lo *1	
9	N. C. *2	

*1. Only EX-250SC
*2. No Connection



②HR10A-7R-4S /HRS

Pin #	Signal Name
1	TR-(RS485)
2	TR+(RS485)
3	TRCOM(RS485)
4	TRCOM(RS485)

Rotary switch(SW1) position

No.	Gas
0	Callibration gas
1	N_2
2	Air
3	H2
4	He
5	Ar
6	O_2
7	CO_2
8	Converted value used by C.F (Unchangeable)
9	User custom mode (Changeable by software)

Ordering

	❶	❷	❸	❹	❺	❻	❼	❽	❾
MODEL	EX-250S	Controller /Meter	Power spply	Connection	Gas	Max.flow rate	Calibration temperature(℃)	Input signal *Controller only	Output signal	Differential pressure *Controller only
		C:Contoroller	15:±15V	1/4SWL type	Gas	Full scale flow rate	0℃	V: Voltage input	V: Voltage output	H:150-300kPa
		M:Meter	24:24V	1/4VCR type			20℃	I: Current input	I: Current output	L:50-149kPa
				RC1/4			25℃			
				Other						
Illustrative example	❶	❷	❸	❹	❺	❻	❼	❽	❾	
MODEL	EX-250S	C	15	1/4SWL	N_2	5SLM	0℃	I	I	H