

# SEC-8000 Series

## ● Digital/Analog communication models

MODEL	Mass flow controller	SEC-8440F	SEC-8450F	SEC-8455F	SEC-8460F	SEC-8470F	SEC-8440F	SEC-8450F	SEC-8455F	SEC-8460F	SEC-8470F
	Mass flow meter	SEF-8440F	SEF-8450F	SEF-8455F	SEF-8460F	SEF-8470F	SEF-8440F	SEF-8450F	SEF-8455F	SEF-8460F	SEF-8470F

## ● DeviceNet™ communication models

MODEL	Mass flow controller	SEC-8440D	SEC-8450D	SEC-8455D	SEC-8460D	SEC-8470D	SEC-8440D	SEC-8450D	SEC-8455D	SEC-8460D	SEC-8470D
	Mass flow meter	SEF-8440D	SEF-8450D	SEF-8455D	SEF-8460D	SEF-8470D	SEF-8440D	SEF-8450D	SEF-8455D	SEF-8460D	SEF-8470D

## ● EtherCAT® communication models

MODEL	Mass flow controller	SEC-8440E	SEC-8450E	SEC-8455E	SEC-8460E	SEC-8470E	SEC-8440E	SEC-8450E	SEC-8455E	SEC-8460E	SEC-8470E
	Mass flow meter	SEF-8440E	SEF-8450E	SEF-8455E	SEF-8460E	SEF-8470E	SEF-8440E	SEF-8450E	SEF-8455E	SEF-8460E	SEF-8470E

Wetted materials	316L Stainless Steel					316L Stainless Steel (Polished surface)	316L Stainless Steel					316L Stainless Steel (Polished surface)	
Valve Type	Normally open					Normally close	Normally open					Normally close	
Full-scale flow rate (N <sub>2</sub> conversion flow rate)	5/10/20/30 50/100/200 300/500 SCCM 1/2 SLM	3/5/10 SLM	10/20 SLM	20/30/ 50 SLM	100 SLM	5/10/20/30 50/100/200 300/500 SCCM 1/2/3/5 SLM	10/20 SLM	30/50 SLM	50/100 SLM	150 SLM			
Flow rate control range	2-100% of F.S.												
Flow rate measuring range(SEF)	0-100% of F.S.												
Response	≤1 second												
Accuracy *1	±1.0% S.P. (Flow rate > 30% F.S.), ±0.3% F.S. (Flow rate ≤ 30% F.S.)												
Linearity	≤ ±0.5% F.S.												
Repeatability	≤ ±0.2% F.S.					≤ ±0.3% F.S.		≤ ±0.2% F.S.					≤ ±0.3% F.S.
Operating differential pressure *2	50-300kPa(d)	100-300kPa(d)		20/30 SLM 100-300kPa(d) 50 SLM 150-300kPa(d)	100-300kPa(d)	50-300kPa(d)	100-300kPa(d)	30 SLM 100-300kPa(d) 50 SLM 150-300kPa(d)	50 SLM 100-300kPa(d) 100 SLM 150-300kPa(d)	100-300kPa(d)	100-300kPa(d)		
Operating differential pressure(SEF)	≤300kPa(d)												
Pressure resistance	1000kPa(g)												
Leak integrity	≤5×10 <sup>-12</sup> Pa·m <sup>3</sup> /s(He)												
Operating temperature(Sensor unit)	HL: 80-100°C HM: 100-120°C					AMB: 15-35°C MM: 35-60°C MH: 60-80°C							
Operating temperature(Amp unit)	5-45°C												
Standard fitting *3	1/4 inch VCR equivalent			3/8 inch VCR equivalent	1/2 inch VCR equivalent 3/4 inch VCR equivalent	1/4 inch VCR equivalent			3/8 inch VCR equivalent	1/2 inch VCR equivalent 3/4 inch VCR equivalent			
Mounting orientation	Free												

## ● Digital/Analog communication models

Flow rate setting signal	0.1 to 5 V DC (input impedance 1MΩ or higher)/2 to 100% F.S.										
Flow rate output signal	0 to 5 V DC (minimum load resistance 2kΩ)/0 to 100% F.S.										
Digital interface	With address function: RS-485 (transmission speed 38400bps), F-Net Protocol										
Power supply	+15VDC ±5% 150mA, -15VDC ±5% 150mA										

## ● DeviceNet™ communication models

Digital interface	DeviceNet™ Protocol										
Power supply	Comforming to ODVA standards, DC 24V, 4.0VA										

## ● EtherCAT® communication models

Digital interface	EtherCAT® Protocol										
Power supply	24VDC ±4V, 6.8VA										

\*1: "Accuracy" is guaranteed within ±2°C at the center of operating temperature of sensor unit. \*2: Operating pressure may change depending on use conditions. Contact us separately.  
\*3: SEC(F)-8440F/D/E is compatible with an integrated gas system fitting. (Option) - SCCM and SLM are notations indicating the gas flow rate (mL/min, L/min, at 0°C and 101.3kPa).