Specifications of SEC-Z500X Series

▶ Digital/Analog communication models

Mass flow controller model *1	SEC-Z512KX	SEC-Z512MGX SEC-Z512X	SEC-Z522MGXN SEC-Z522XN	SEC-Z522MGX SEC-Z522X	SEC-Z532MGX	SEC-Z542MGX	SEC-Z552MGX	SEC-Z562MGX	Mass flow controller model *1
Mass flow meter model *1	SEF-Z512KX	SEF-Z512MGX SEF-Z512X	SEF-Z522MGXN SEF-Z522XN	SEF-Z522MGX SEF-Z522X	SEF-Z532MGXN	SEF-Z542MGXN	SEF-Z552MGX	SEF-Z562MGX	Mass flow meter model *1
Full-scale flow rate (N_2 conversion flow rate)	1/2 SCCM	MR/MG number #R01: 10 SCCM #R1.5: 17.5 SCCM #01: 30 SCCM #1.5: 55 SCCM #02: 100 SCCM #2.5: 175 SCCM #03: 300 SCCM #3.5: 550 SCCM #04: 1 SLM #4.5: 1.75 SLM #05: 3 SLM #5.5: 5.5 SLM #06: 10 SLM	MR/MG number #6.5: 22 SLM #07: 30 SLM #08: 50 SLM		MR/MG number #09: 100 SLM	MR/MG number #10: 200 SLM	MR/MG number #11: 300 SLM	MR/MG number #12: 500 SLM	Full-scale flow rate (N_2 conversion flow rate)
Valve Type	O: Normally open C: Normally close				O: Normally open C: Normally close		C: Normally close		Valve Type
Flow rate at fully closed control valve	≤ 2% F.S.				≤ 2% F.S.				Flow rate at fully closed control valve
Flow rate control range	2-100% of F.S.				2-100% of F.S.				Flow rate control range
Flow rate measuring range (SEF)	0-100% of F.S.				0-100% of F.S.				Flow rate measuring range (SEF)
Accuracy *2	±1.0% F.S.	±1.0% S.P. (Flow rate > 25% F.S.) ±0.25% F.S. (Flow rate ≤ 25% F.S.)			±1.0% S.P. (flow rate > 35% F.S.) ±0.35% F.S. (flow rate ≤ 35% F.S.)		±2% S.P. (flow rate > 50% F.S.) ±1% F.S. (flow rate ≤ 50% F.S.)		Accuracy *2
Operating temperature	5 to 50°C (recommended temperature range: 15 to 45°C)				5 to 50°C (recommended temperature range: 15 to 45°C)				Operating temperature
Response	≤ 1 second: over full flow rate range				≤ 1 second: over full flow rate range		≤ 2 second: over full flow rate range		Response
Linearity	≤ ±0.5% F.S.				≤ ±0.5% F.S.		±1% F.S.		Linearity
Repeatability	≤ ±0.2% F.S.				≤ ±0.2% F.S.		±0.5% F.S.		Repeatability
Operating differential pressure	50 to 300 kPa (d)	50 to 300 kPa (d) #5.5, #06: 100 to 300 kPa (d)	200 to 300 kPa (d)		100 to 300 kPa (d)	200 to 300 kPa (d)	150 to 350 kPa (d)	250 to 350 kPa (d)	Operating differential pressure
Operating differential pressure (SEF)	≤ 300 kPa (d)				≤ 300 kPa (d)		≤ 300 kPa (d)		Operating differential pressure (SEF)
MAX. Operating pressure	450 kPa (g)				450 kPa (g)				MAX. Operating pressure
Pressure resistance	1000 kPa (g)				1000 kPa (g)				Pressure resistance
Leak Integrity	≤ 5 x 10^{-12} Pa•m^3/s (He)				≤ 5 x 10^{-12} Pa•m^3/s (He)				Leak Integrity
Flow rate setting signal	0.1 to 5 V DC (2% to F.S.): input impedance 1 MΩ or higher				0.1 to 5 V DC (2% to F.S.): input impedance 1 MΩ or higher				Flow rate setting signal
Flow rate output signal	0 to 5 V DC (0% to F.S.): minimum load resistance 2 kΩ or higher				0 to 5 V DC (0% to F.S.): minimum load resistance 2 kΩ or higher				Flow rate output signal
Digital interface	With address function: RS-485 (transmission speed 38,400 bps) F-Net Protocol				With address function: RS-485 (transmission speed 38,400 bps) F-Net Protocol		With address function: RS-495 (transmission speed 38,400 bps) F-Net Protocol		Digital interface
Wetted materials	316L Stainless Steel (polished surface)				316L Stainless Steel (polished surface)				Wetted materials
Power supply	+15 V ±5% 150 mA -15 V ±5% 150 mA				+15 V ±5% 150 mA -15 V ±5% 150 mA		+15 V 150 mA -15 ±5% 150 mA		Power supply
Signal response	Analog: D-Sub 9-pin (TOP) Digital: 2 LAN jacks (TOP)				Analog: D-Sub 9-pin (TOP) Digital: 2 LAN jacks (TOP)		Analog: D-Sub 9-pin (TOP, SIDE) Digital: 2 LAN jacks (TOP)		Signal response
Standard Fitting *3	1/4 inch VCR equivalent Option: 1.125 inch IGS, 1.5 inch IGS		1/4 inch VCR equivalent Option: 1.125 inch IGS	1.5 inch IGS	1/2 inch VCR equivalent Option: 1. 5 inch IGS		1/2 inch VCR equivalent		Standard Fitting *3
Mounting orientation	Free				Free				Mounting orientation

*1 The gas type and full scale settings for the SEC(SEF)-Z512MGX, Z522MGX, Z522MGXN, Z532MGX, Z542MGX, Z552MGX and Z562MGX can be changed by the operator, using special software.
*2 The precision is that associated with the full-scale MR and MG number values. The flow rate precision guaranteed temperatures conform to SEMI standards. For details, please contact HORIBA STEC.
*3 IGS: Integrated Gas System
● SCCM and SLM are notations indicating the gas flow rate (mL/min, L/min, at 0°C and 101.3 kPa).