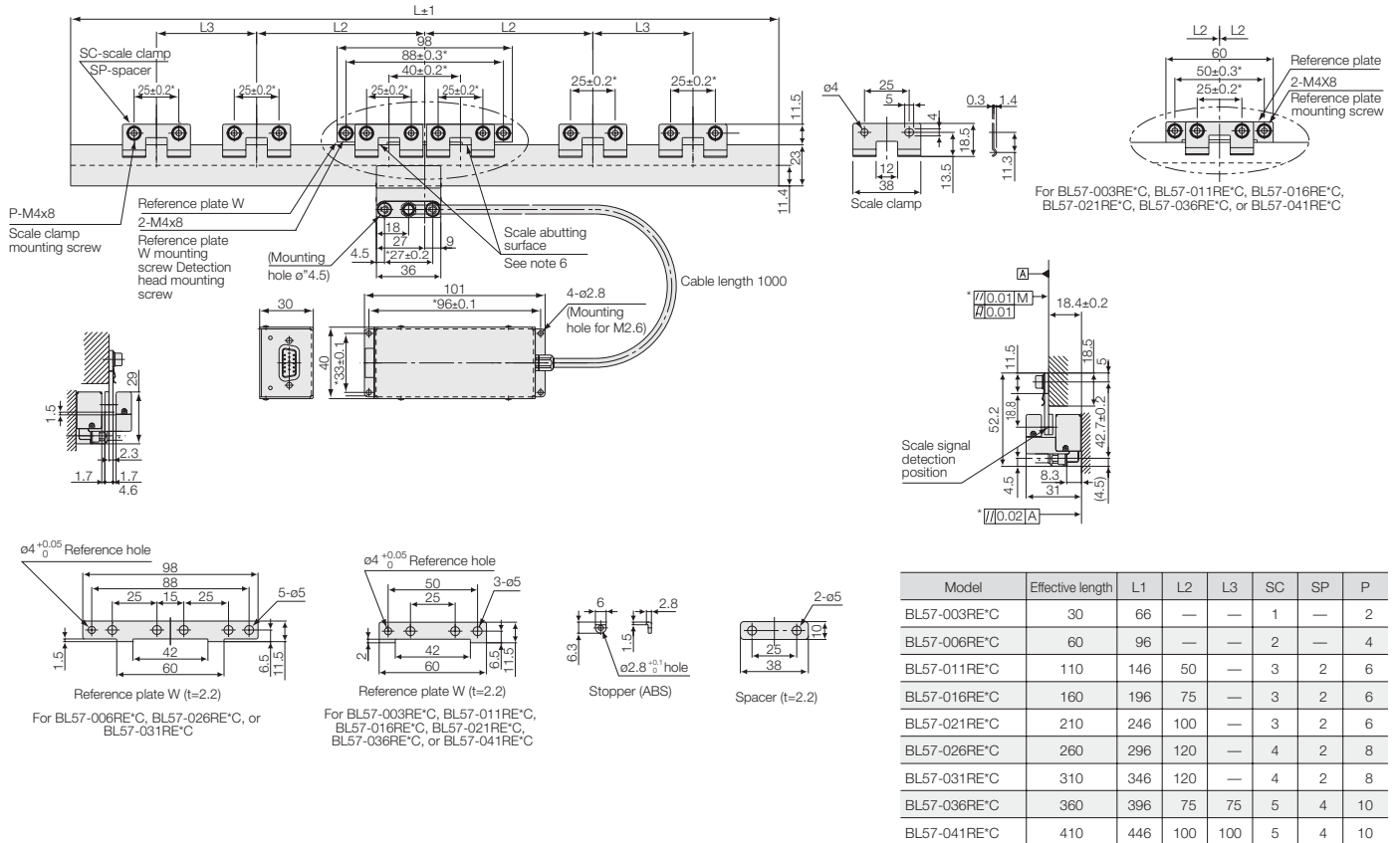


External Dimensions

● BL57-xxxRE*C (Effective length: 003/006/011/016/021/026/031/036/041)



Unit: mm

Note 1: The items marked by an asterisk indicate the machining dimensions on the mounting surface. Note 2: The surface roughness of the scale mounting surface is $R_{max} = 6.3 S (250\mu\text{inch})$.

Note 3: The surface roughness of the detector head mounting surface is $R_{max} = 12.5 S (500\mu\text{inch})$. Note 4: "M" refers to the machine guide.

Note 5: When mounting the reference plate (reference plate W), adjust the plate so that the parallelism between the corresponding scale abutting surface and the machine guide is 0.01mm or less.

Main specifications [BL57-RE]

Model	F	G	H
Output signal form	A/B quadrature output		Analogue output
Detection system	Diffraction grating scanning system		
Scale length (Low expansion glass)	Measuring length(mm)	30, 60, 110, 160, 210, 260, 310, 360, 410	
	Maximum movable length	Measuring length + 10mm (5mm on each side)	
	Entire scale length	Measuring length + 36mm	
Scale length (Blue plate glass)	Measuring length(mm)	60, 160, 260, 360, 460, 560, 660, 760, 860, 960, 1060	
	Maximum movable length	Measuring length + 10mm (5mm on each side)	
	Entire scale length	Measuring length + 36mm	
Grating pitch	1.6 μm		
Signal pitch	0.4 μm		
Output signal	Differential (compliant with EIA-422)		Differential (only zero point output models are compliant with EIA-422)
Resolution	0.1/0.05 μm (switchable)	0.02/0.01 μm (switchable)	0.4 μm (1Vp-p)
Accuracy (at 20°C)	$\pm 0.5\mu\text{m}$ (30 to 170mm) / $\pm 1.0\mu\text{m}$ (220 to 370mm) / $\pm 1.5\mu\text{m}$ (420mm or more)		
Thermal expansion coefficient	Low expansion glass: $-0.7 \times 10^{-6}/^\circ\text{C}$ • Blue plate glass: $8 \times 10^{-6}/^\circ\text{C}$		
Maximum response speed	1,500mm/s (0.1 μm) 650mm/s (0.05 μm)	300mm/s (0.02 μm) 120mm/s (0.01 μm)	3000mm/s
	Minimum phase difference: 38ns	Minimum phase difference: 38ns	Max 7.5MHz

Note 1: There is a correlation between the maximum response speed and output cable length (the part beyond the interface box).

Note 2: A power supply line longer than 10m is incompatible with EN61000-6-2. Take surge protection measures upon use.

Note 3: Satisfy the required specifications at the connector input section.

Note 4: Special models can support up to 3m. However, the maximum response speed is limited depending on the cable length. (In a 3m cable, the maximum response speed is two-thirds that of a 1m cable.)

Note 5: Special models can support a measuring length of 1,070mm to 1,360mm.

Model	F	G	H
Alarm	High impedance, alarm by output signal when maximum response speed is exceeded or signal level error detected		None
Reference point position	User definable (within the range of effective length)		
Reference point accuracy (at 20°C)	$\pm 0.4\mu\text{m}$ (depending on machine movement accuracy)		
Reference point output signal	Unidirectional synchronous reference point (specify the position and detection direction)		
Head cable	Cable length	1m (Note 4)	
	Bending radius	When stationary: 10mm	
Output cable length	15m Max (Note 2) (to the electronic control section)	15m Max (Note 1) (Note 2)	
Power supply (Note 3)	+5V ($\pm 5\%$)		
Power consumption	450mA (no load) 600mA (with 120 ohm termination)		
Vibration resistance	100m/s ² (50 to 2000Hz)		
Impact resistance	200m/s ²		
Operating temperature range	0 to +40°C (No condensation)		
Storage temperature range	-10 to +50°C		
Light source	Semiconductor laser with power of 4mW and wavelength of 790nm		
Radiation power	JIS Class 1 equivalent, DHHS Class 1 equivalent		
Cable length (m)	Maximum response speed (mm/s)		
3	3000		
9	2330		
15	1660		