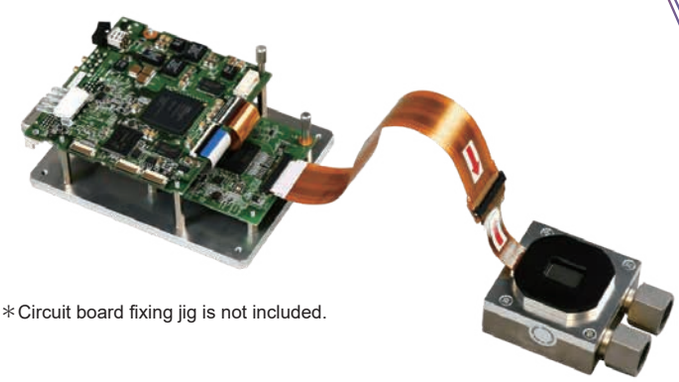
Embedded Module – High Power (200 W Power Handling)

Liquid Crystal on Silicon Based Spatial Light Modulator

SLM-30

Product Overview

The SLM-30 is a spatial light modulator for high-power lasers that is compatible with 200 W class lasers by optimizing the liquid crystal and heat dissipation structure. The LCOS-SLM head and drive circuit are connected by a flexible cable for easy integration into equipment. The LCOS-SLM head is equipped with a water-cooled heat sink for high cooling performance.



＊Circuit board fixing jig is not included.

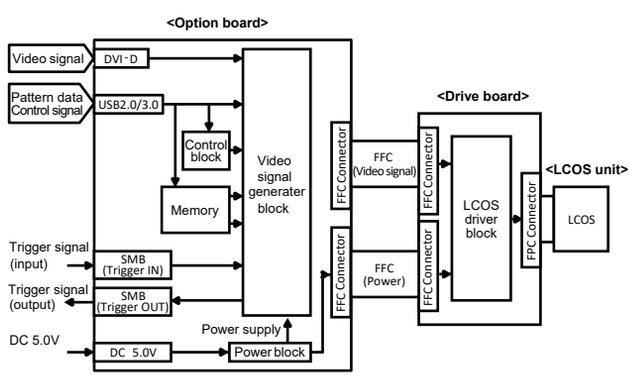
Features

- Center Wavelength 532, 800, 1064 nm
- High-power durability up to CW 200 Watts
- Small-sized and reasonable price for equipment integration
- WUXGA (1920 x 1200) resolution
- High Phase Resolution 10bit (1024) Gray Level
- Ultra Low Phase Noise ~0.003π rad.(Typ.)

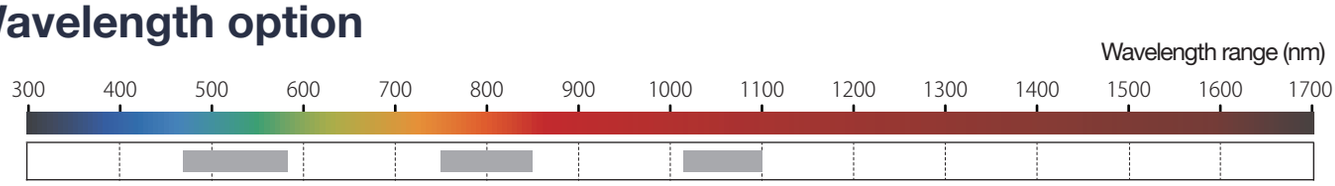
Applications

- Laser Processing
- 3D-Printing
- IC Trimming
- Wavefront adaptive optics
- Pulse / Spectral shaping

Block diagram



Wavelength option

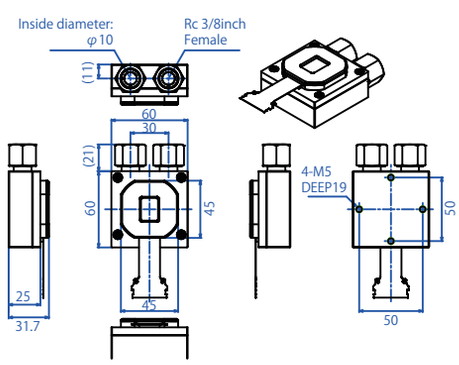


Specifications

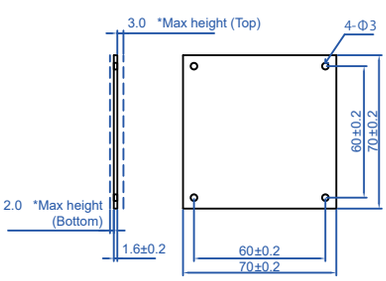
Parameter		Min	Max	Unit	Notes
Wavelength range	Type 01	485	580	nm	
	Type 02	750	850		
	Type 03	1020	1110		
Phase depth	Type 01	2π	-	rad.	At 580 nm
	Type 02				At 850 nm
	Type 03				At 1110 nm
Response time [1] (Tr / Tf)	Type 01	37 / 72		ms	
	Type 02	171 / 324			
	Type 03	163 / 330			
AR coat reflectance		-	1.0	%	Angle of incidence = 0 degree
Frame rate		60		Hz	
Panel reflectivity [2]		Typ. >80		%	
Aperture ratio		95		%	
Pixel size / pitch		7.8 / 8.0		μm	
Panel size		(H)15.36 x (V)9.60		mm	Active area
Panel resolution [3]		(H)1920 x (V)1200		pixel	
LCOS drive frequency		1200		Hz	
Phase stability		Typ. < 0.003π		rad.	
Gray level		10 (1024 levels)		bit	
Optical power handling [4]		-	200	W/cm²	CW@1064 nm
Water flow		1～10		L/min.	15～25 ℃(Cooling water temperature)
Water inlet and outlet		Pipe fitting Rc(PT) 3/8 inch female		-	
Operation temperature		15	35	°C	No condensation
Storage temperature		0	40	°C	No condensation
Interface		DVI*/ USB 3.0 / Trigger IN, OUT (SMB)		-	*10-bit using RGB 8-bit, 3 colors
Control software		GUI software and SDK for Windows		-	C#, Python, Matlab, Labview

1) Response time is a typical value and is not affected by frame rate.
Tr: Rise time between 10% and 90% levels in a phase change of 0 to 1023 bit (2π rad.) at 25 °C.
Tf: Fall time between 90% and 10% levels in a phase change of 1023 to 0 bit (2π rad.) at 25 °C.
2) Zero-order reflection. Depending on wavelength range.
3) Pixel defects are not warranted.
4) The value is not guaranteed.Depending on the conditions of the laser oscillator used, the product's life may be significantly shortened due to accumulated exposure time.

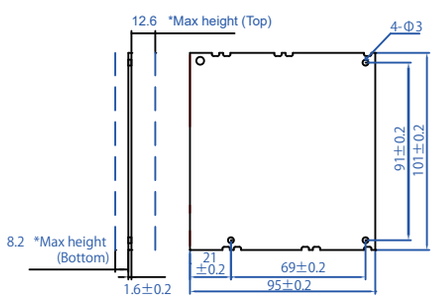
Dimensions Unit [mm]



<LCOS unit>



<Drive board>



<Option board>

Santec Japan Corporation
Tel: +81-568-79-3536

Santec USA Corporation
Toll-Free: +1-800-726-8321

Santec Europe Ltd.
Tel: +44-20-3176-1550

Santec (Shanghai) Corporation Limited
Tel:+86-21-58361261

SLM-30-C-E / Ver.1.9 CODE-202507-HN-HN-CPY