Liquid Crystal Based Spatial Light Modulator

Reflective Spatial Light Modulator (standard model) / SLM-200

Santec spatial light modulator (SLM) is based on reflective liquid crystal on silicon (LCOS) microdisplay technology. The SLMs enable optical phase modulation freely and generate arbitrary 2D phase patterns on a LCOS pixel-by-pixel basis.
SLM-200 series are suitable for various scientific and industrial applications, including beam shaping, wavefront correction and optical manipulations.

Separate model

Features

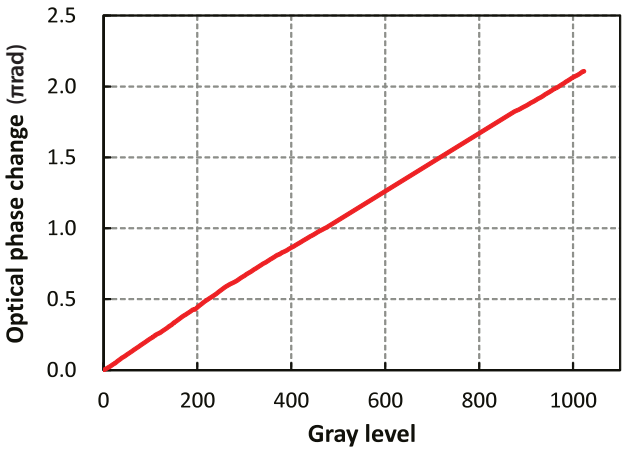
- WUXGA (1920 x 1200) resolution
- 10-bit (1024 gray levels)
- Excellent phase stability (~0.001π rad.)
- Frame rate, x2 (120 Hz)
- Memory function
- Triggers-input & output

Applications

- Beam steering
- Wavefront correction
- Pulse/Beam shaping
- Diffractive optics
- Optical manipulation
- Programmable phase pattern

All-in-one model

Measurement



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Specifications

Item	min.	max.	Units	Notes
Wavelength range	400	1600	nm	See Ordering code for more details.
Panel size	(H)15.36 x (V)9.60		mm	Active area
Pixel resolution 1)	(H)1920 x (V)1200		pixel	
Pixel size / pitch	7.8 / 8.0		μm	
Panel reflectivity 2)	Typ. > 70@532 nm		%	
Aperture ratio	95		%	
Gray level	10 (1024 levels)		bit	
Frame rate	60 or 120		Hz	Factory setting, default 60 Hz
LCOS drive frequency	1200		Hz	
Phase depth	2π	-	rad.	
Phase stability	Typ. < 0.001 π		rad.	
Response time 3)	Typ. 200		ms	
Interface	DVI* / USB3.0		-	*10-bit using RGB 8-bit, 3 colors
Operating temperature	15	35	°C	No condensation
Storage temperature	0	40	°C	No condensation
Optical power handling 4)	Typ. 10		W/cm^2	@1550 nm, CW, 2.0 mm beam diameter
Control software	GUI software and SDK for Windows		-	C#, Python, Matlab, Labview

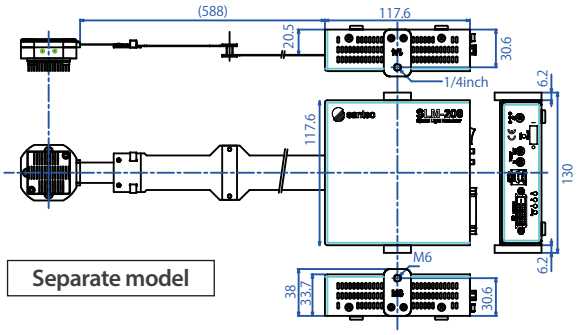
1) Specification on the defect pixels are no object.
2) Zero-order reflection.
Depending on specified wavelength range.
3) Response time is a typical value and is not affected by frame rate.
Tr: Rise time between 10% and 90% levels in a phase change of 0 to 1023 bit (2π rad.) at 25°C.
Tf: Fall time between 90% and 10% levels in a phase change of 1023 to 0 bit (2π rad.) at 25°C.
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.

Ordering code

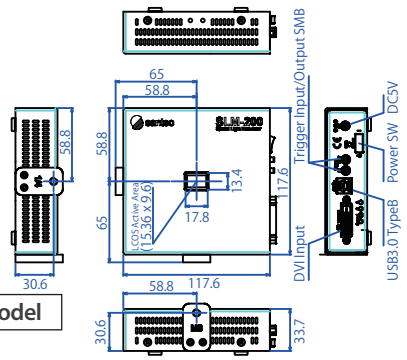
Ordering code	Model type	Response time (ms)	AR coating range 5) (nm)	AR coating reflectance 6) (%)
SLM-200-01-0001-00	All-in-one model	Typ. 200	no coating	4
SLM-200-01-0001-01			450-550	<0.5
SLM-200-01-0001-12			400-700	<1.5
SLM-200-01-0001-02			750-850	<0.5
SLM-200-01-0001-03			1000-1100	<0.5
SLM-200-01-0001-04			1500-1600	<0.5
SLM-200-01-0001-14			450-550/1500-1600	<0.6
SLM-200-01-0001-21			450-1600	<2.5
SLM-200-01-0002-00	Separate model		no coating	4
SLM-200-01-0002-01			450-550	<0.5
SLM-200-01-0002-12			400-700	<1.5
SLM-200-01-0002-02			750-850	<0.5
SLM-200-01-0002-03			1000-1100	<0.5
SLM-200-01-0002-04			1500-1600	<0.5
SLM-200-01-0002-14			450-550/1500-1600	<0.6
SLM-200-01-0002-21			450-1600	<2.5

5) We support custom AR coating request. Please contact us for detail.
6) Angle of incidence = 0 degree

Dimensions Unit [mm]



Separate model



All-in-one model

www.santec.com/en/

Santec Japan Corporation
5823 Ohkusa-Nenjozaka, Komaki, Aichi 485-0802, Japan Tel. +81-568-79-3536 Fax +81-568-79-1718

Santec USA Corporation
400 Kelby Street Suite 1501, Fort Lee, NJ 07024, USA Toll Free +1-800-726-8321(santec-1) Tel. +1-201-488-5505 Fax +1-201-488-7702

Santec Europe Ltd.
99 Park Drive Milton Park, Abingdon Oxfordshire, OX14 4RY, U.K. Tel. +44-20-3176-1550

Santec (Shanghai) Co., Ltd.
21F Room H, Hua Du Bldg., No.838 Zhangyang Road, Pudong District, Shanghai 200122 China Tel: +86-21-58361261