Spatial Light Modulator Supplier

Article Overview

Key vendors of spatial light modulators include Thorlabs, Meadowlark Optics, and Digital Light Innovations (DLi), offering LCOS and DMD-based devices for research and industrial applications.

Overview of SLM Types

Spatial light modulators (SLMs) are devices that modulate light spatially, controlling amplitude, phase, or polarization. The main types are:

o Electrically Addressed SLMs (EASLMs): Convert electrical signals into spatially modulated light, commonly using Liquid Crystal on Silicon (LCOS) or Digital Micromirror Devices (DMDs). LCOS is preferred for precise phase modulation, while DMDs are used for high-speed binary amplitude modulation .
o Optically Addressed SLMs (OASLMs): Convert incoherent light into modulated light using a photoconductor and liquid crystal modulator, though they are less common due to lower sensitivity and manufacturing challenges .

Notable Vendors

o Thorlabs: Offers Exulus(R) LCOS SLMs with high-resolution reflective phase modulation, supporting applications like computer-generated holography, diffraction, and laser beam shaping. Devices feature HDMI/USB input, software GUI control, and high-power handling up to 200 W/cm .
o Meadowlark Optics: Provides LCOS SLMs with high birefringence, low-voltage operation, and fast pixel switching. Their devices are suitable for optical processing, adaptive optics, and holography, with custom solutions available .
o Digital Light Innovations (DLi): Specializes in DMD-based SLMs, focusing on high-speed light modulation and integration of hardware/software for advanced applications .
o Other Suppliers: RP Photonics lists additional SLM suppliers and provides a buying guide for comparing LCOS and DMD devices, including criteria for adaptive optics, holography, optical tweezers, and pulse shaping . ThomasNet also lists U.S. and Canadian manufacturers, including Amperite Co., which produces custom light modulators for automotive and industrial applications .

Applications

SLMs are widely used in:

o Laser beam shaping for flat-top or complex intensity profiles
o Adaptive optics in microscopy, retinal imaging, and free-space optical communications
o Holography and 3D displays for computer-generated holograms

o Optical tweezers for particle manipulation
o Pulse shaping for ultrafast laser control

Selection Considerations

When choosing a vendor or SLM model, consider:

o Modulation type: Phase vs. amplitude
o Resolution and pixel count
o Wavelength range and power handling
o Speed and refresh rate
o Software and interface support
o Customizability for specific applications These factors help ensure the selected SLM meets the technical requirements of your optical system or research project.

Spatial Light Modulator Market Size and Share Forecast Outlook From 2025 to 2035 The global spatial light modulator

LCOS-SLM are reflective spatial light phase modulators that freely modulates optical phases and optical

12 suppliers for spatial light modulators (SLM) are listed in the RP Photonics Buyer"s Guide, out of which

SLMs - Delivering the highest quality optics for over 40 years: polarizers, photonics, spatial light modulators, and more.

Due to the increasing miniaturization and complexity in the semiconductor industry, but also

Find the right Spatial Light Modulator (SLM) for your project. Our experts will advise you individually so that

The PLUTO-2.1 LCOS Spatial Light Modulator is the all-rounder within our product range. It is the best qualified and diversified SLM

Spatial Light Modulators - Delivering the highest quality optics for over 40 years: polarizers, photonics, spatial light modulators, and

HOLOEYE is providing products in the fields of Spatial Light Modulators, Diffractive Optical Elements and

Industrial, biomedical, and display technologies are spurring spatial light modulators into an era of speed,

Spatial Light Modulator Supplier

Finden Sie den passenden Spatial Light Modulator (SLM) für Ihr Projekt. Unsere Experten beraten Sie individuell, sodass Ihr SLM

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We develop custom spatial light modulators with segmented micromirror arrays and a high pixel

HOLOEYE´s Spatial Light Modulator systems are based on translucent (LCD) or reflective (LCOS) liquid

The Meadowlark SLMs are high-performance liquid crystal spatial light modulators designed for precise, programmable control of

Learn about Spatial Light Modulators (SLMs), including optically addressed and electrically addressed types, their drawbacks, and a

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