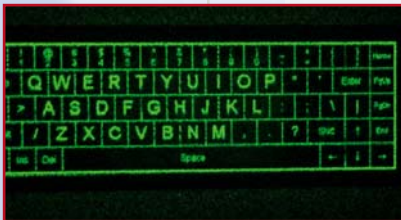


PLUTO

>> Phase Only Spatial Light Modulators



Phase Modulating LCOS Microdisplays

HOLOEYE developed high resolution, pure phase modulating microdisplays with very small pixels and high light efficiency. Applications range from holographic applications (holographic projection), lithography, optical metrology, interferometry, optical networking applications, holographic security systems, wavefront correction to optical tweezing, trapping and micro manipulation applications.

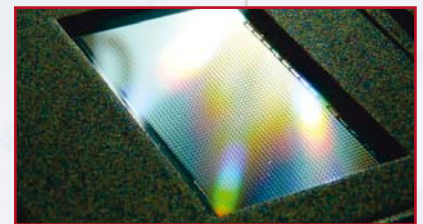
PLUTO - Phase Only Spatial Light Modulator Series

The PLUTO phase modulator models are based on reflective LCOS microdisplays with 1920 x 1080 pixel resolution. The PLUTO devices are packaged in a very small housing to ensure an easy integration into optical setups and applications. The PLUTO phase modulator series will include 3 versions optimized for the visible (420 - 850 nm), the near infrared (850-1100 nm) as well as for typical telecommunication wavelengths (1550 nm) to ensure optimal results for specific requirements.

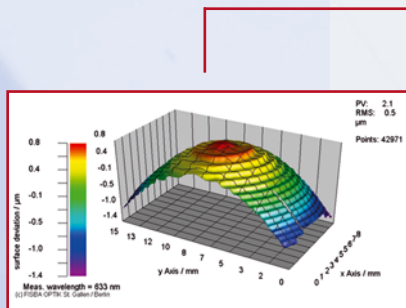


PLUTO - High Efficiency and Easy Addressing

The displays show a reflectivity of approx. 60% and diffraction efficiencies of more than 80%. Thereby a total light efficiency of more than 50% per addressable diffractive device is possible. The driving of the PLUTO devices is as easy as with all HOLOEYE Spatial Light Modulators. A HDTV graphics card is sending HDTV resolution images to the device (via DVI) with a frame rate of 60 Hz. The Pluto modulators are easily addressed as an external monitor.



Pioneers in Photonic Technology



Applications

- + Phase Shift Applications
- + Holographic Applications
- + Lithography
- + Optical Metrology - Interferometry
- + Optical Networking Applications
- + Holographic Security Systems
- + Wave Front Correction
- + Optical Tweezers

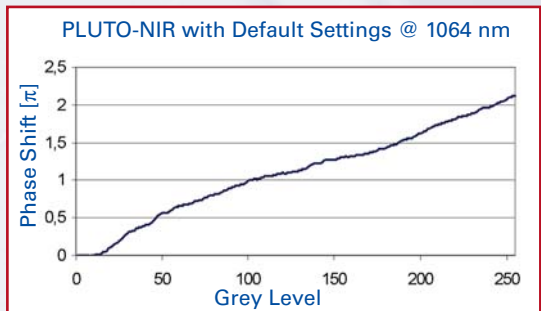
PLUTO – Comprehensive software package to tailor the device performance

The PLUTO devices are highly programmable and come with a driver software to control all settings and relevant image parameters. The software provides a very easy gamma control to configure the modulator for different applications which is a comfortable tool to tailor the performance of the device to the desired result. Besides geometry and gamma corrections different sequences can also be addressed to the drive board. In addition, tailored SLM application software allows easy generation of diverse dynamic optical functions like gratings, lenses, axicons and apertures, as well as the calculation of diffractive optical elements (DOE) based on user defined images.

PLUTO - Optimized for Different Wavelengths Ranges

HOLOEYE provides 3 versions of the PLUTO modulator:

- **PLUTO-VIS:** This version is optimized for 420 - 850 nm (The display has a broadband AR (anti reflection) coating for 420 – 850 nm).
- **PLUTO-NIR:** This version is optimized for 850 - 1100 nm (AR coating for 1064 nm and a thicker LC layer guarantee a phase modulation of 2π still at 1064 nm).
- **PLUTO-TELCO:** This version is optimized for common telecommunication wavelengths ranges up to 1550 nm.



PLUTO - Compact, High Resolution, Small Pixel

With a pixel pitch of only 8.0 µm, HDTV resolution (1920 x 1080 pixel), a high light efficiency (due to the reflective structure of the microdisplay) and an image refresh frame rate of 60 Hz via DVI, the PLUTO phase only modulators are suitable for a wide range of applications. Additionally the easy addressing and the small proportions of the PLUTO devices (housing only 121 x 73 x 22 mm) ensure an easy integration.



Display Type	Resolution	Pixel Pitch	Fill Factor	Addressing	Frame Rate	Signal Format
Reflective LCoS	1920 x 1080 Pixel	8.0 µm	87 %	8 Bit	60 Hz	DVI - HDTV Res.

HOLOEYE Photonics AG
 Albert-Einstein-Str. 14
 12489 Berlin, Germany
 Phone +49 (0)30 63 92 36 60
 Fax +49 (0)30 63 92 36 62
 contact@holoeye.com
 www.holoeye.com



Pioneers in Photonic Technology