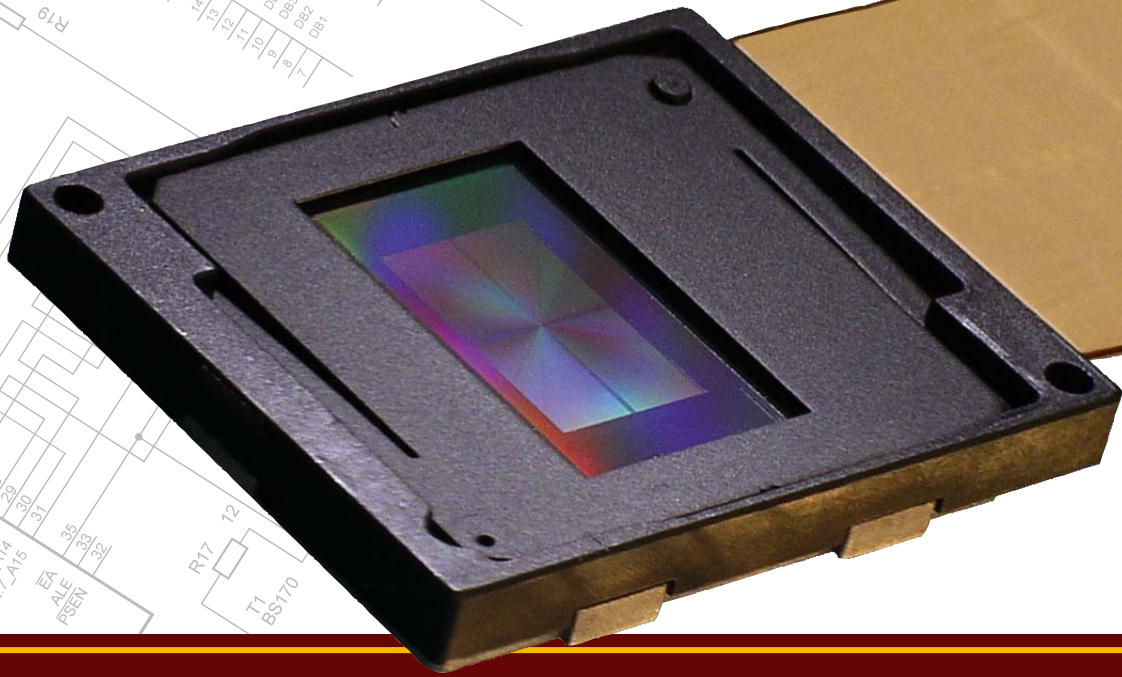


PLUTO

Holographic Projection Technology



Systems, Inc.

Phase Modulating Microdisplays for Holographic Projection

The rapid development of liquid crystal microdisplays for projector and TV applications also enables the use of LCOS technology for several other industrial applications. A high resolution phase modulating liquid crystal microdisplay coupled with a laser source produces a very light efficient projection system. With holographic projection it is possible to reduce the overall size of a projection system to enable use in applications where space for a projector is limited, e.g. HUDs.

PLUTO - Phase Modulator Developer Kit

HOLOEYE has developed the first pure phase modulating devices based on liquid crystal on silicon (LCOS) technology. These pure phase modulators provide HDTV resolution (1920 x 1080 pixels) with 8 μm pixel pitch. Currently there are 4 panel versions available:

PLUTO-VIS: This version is optimized for the visible because of a broadband AR (anti reflection) coating for this spectral range.

PLUTO-NIR: This version is optimized for the near infrared around 1064 nm because of an AR coating for 1064 nm and a thicker LC layer.

PLUTO-NIR-2: This version is usable for a broad wavelength band around 850 nm and in the lower visible.

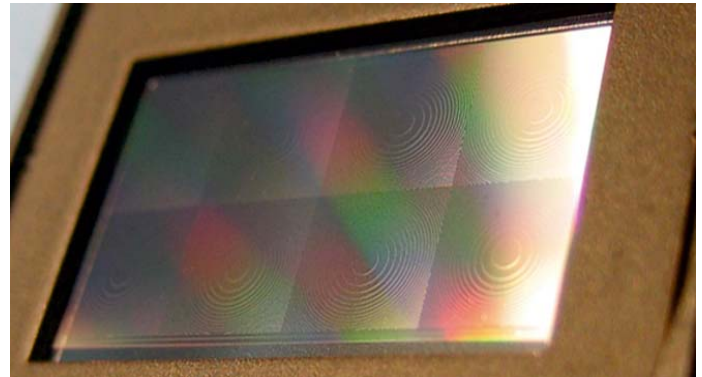
PLUTO-TELCO: This version is optimized for common telecommunication wavelengths ranges around 1550 nm.



Applications

- + Holographic Applications
- + Holographic Projection
- + Holographic HUDs
- + Optical Metrology / Interferometry
- + Laser Steering

The PLUTO device is controlled by HOLOEYE driver software, which is delivered with the kit - that runs on all Windows platforms. This software allows controlling all relevant image parameters and provides very easy gamma control to configure the modulator for different applications. 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.



Main Features:

LCOS Microdisplay (Reflective)
Resolution 1920 x 1080 Pixels
60 Hz Image Frame Rate
Full Developers Kit (easy to run using a personal computer)
Microsoft Windows Driver Software
Application Software

Display Features:

Pixels: 1920 x 1080
Pixel Pitch: 8.0 μm
Depolarisation: <1%
Panel Size: 0,7"
Addressing: 8 Bit



Special Optical Features:

Phase Only Modulation
 2π Phase Shift up to 1550 nm

Software Features:

Driver: Brightness / Contrast / Geometry / Gamma Control
Application: Basic DOE computations; Generation of optical functions (Circular Aperture, Fresnel Zone Lens, Axicon, Single and Double Slit ...); Gratings (incl. Blazed and Sinusoidal)

The devices 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 device is as easy as with all HOLOEYE Spatial Light Modulators. A HDTV graphics card is sending HDTV resolution images to the device with a frame rate of 60 Hz. The PLUTO is easily addressed as an external monitor.

