

**LCOS Phase Modulators (Diffraction Applications):**  
**Optical Tweezers - Holographic Projection - Interferometry - Wavefront / Pulse Modulation**

**PLUTO - Phase Only Spatial Light Modulator Series**  
The PLUTO phase modulator models are based on reflective LCOS micro-displays 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 includes 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.

- Special Optical Features**
- + Phase Only Modulation
  - + 2  $\pi$  Phase Shift up to 1550 nm
  - + 8.0  $\mu$ m Small Pixel Size
  - + Optimized for 3 Wavelengths Ranges
  - + High Light Efficiency / High Fill Factor



Display Type	Resolution	Pixel Pitch	Fill Factor	Adressing	Frame Rate	Signal Format
Reflective LCOS	1920 x 1080 Pixel	8.0 $\mu$ m	87 %	8 Bit	60 Hz	DVI - HDTV Res.

**LC-R 2500: Allround Spatial Light Modulator**  
The LC-R 2500 Spatial Light Modulator is based on a refelctive LCOS microdisplay with a resolution of 1024 x 768 pixel. The advantages of the LC-R 2500 are the good phase shifting properties in the visible. Depending on the input polarisation, this spatial light modulator can be used for both, amplitude or phase modulation.



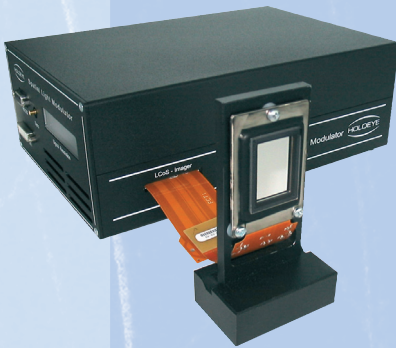
- Special Optical Features**
- + Amplitude or Phase Modulation
  - + 2  $\pi$  Phase Shift between 400 and 700 nm
  - + Intensity Ratio of 1000:1 @ 532 nm Coherent Light Source

Display Type	Resolution	Pixel Pitch	Fill Factor	Adressing	Frame Rate	Signal Format
Reflective LCOS	1024 x 768 Pixel	19 $\mu$ m	93 %	8 Bit	72 Hz	DVI - XGA Res.

**LCOS Amplitude Modulators (Projection Applications):**  
**Optical Metrology (Fringe Projection) - HMD/HUD - 3D Projection / Simulation - Imaging**

**LC-R 720: High Speed Spatial Light Modulator**  
The LC-R 720 Spatial Light Modulator is based on a reflective LCOS microdisplay with a resolution of 1280 x 768 pixel. Due to the high image frame rate of 180 Hz and the short response time (< 3 ms) the highest potential of the LC-R 720 Spatial Light Modulator are high speed applications such as one panel color sequential projection.

- Special Optical Features**
- + Amplitude or Phase Modulation
  - + 180 Hz Frame Rate
  - + Above 1  $\pi$  Phase Shift (in the Visible)
  - + Intensity Ratio of 1000:1 Typical
  - + Phase Modulation Mode
  - + High Light Efficiency / High Fill Factor
  - + Response Time < 3 ms
  - + Trigger Sync

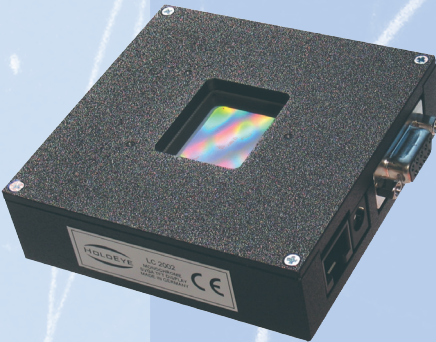


Display Type	Resolution	Pixel Pitch	Fill Factor	Adressing	Frame Rate	Signal Format
Reflective LCOS	1280 x 768 Pixel	20 $\mu$ m	92 %	8 Bit	Up to 180 Hz	DVI - WXGA Res.

**Translucent LC Spatial Light Modulators:**  
**Easy to implement (for use in various phase and amplitude applications)**

**LC 2002 Translucent Spatial Light Modulator**  
The LC 2002 is an easy-to-use Spatial Light Modulator system based on a translucent liquid crystal microdisplay with a max. resolution of 800 x 600 pixel. It can be used for phase and amplitude modulation. The compact design and the transmissive display make implementation into your setup very easy. Versions with higher resolution (e.g. XGA) are available on board level.

- Special Optical Features**
- + Amplitude or Phase Modulation
  - + 2  $\pi$  Phase Shift @ 532 nm
  - + Intensity Ratio of 1000:1 @ 633 nm Coherent Light Source
  - + Translucent



Display Type	Resolution	Pixel Pitch	Fill Factor	Adressing	Frame Rate	Signal Format
Translucent LC	800 x 600 Pixel	32 $\mu$ m	55 %	8 Bit	60 Hz	VGA, SVGA Res.