



## High Resolution LCOS Light Modulation Panel

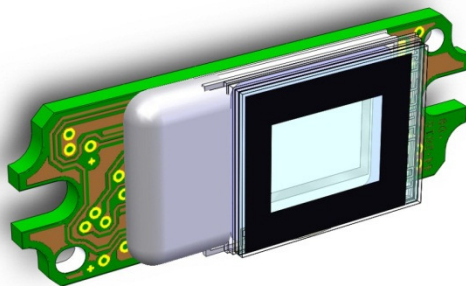
### Features

#### LCOS Panel

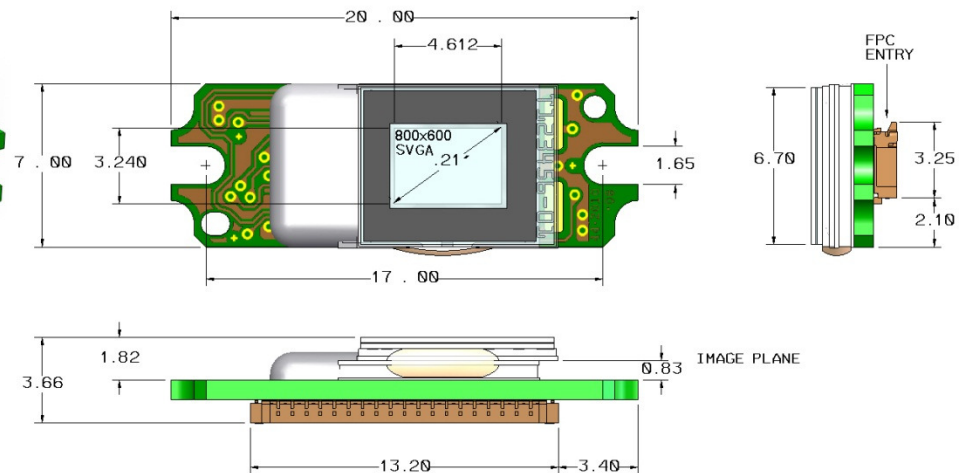
- Single panel field-sequential color Liquid Crystal On Silicon (LCOS) with digital drive
- 0.21" active display diagonal
- Dual mode 800 x 600 array of 5.4  $\mu\text{m}$  mirrors – accepts SVGA (800x600) or WVGA (800x480)
- Displays sequential colors at up to 5 Color Fields per Frame (CF/F) with variable color field duration
- Color depth up to 10-bits
- Compatible with LED or Laser illumination
- Low power: 105 mW average power (WVGA 800x480 @ 3 CF/F)
- Fast TN (Twisted Nematic) liquid crystal
- Mature 0.18  $\mu\text{m}$  digital CMOS process

#### LCOS Controller

- SYA1022 LCOS controller
- Converts video signals into efficient formats used by Syndiant panels
- Up to 24 bit RGB Video Input
- BT656 input
- Supports “weave” or “bob” de-interlace
- Integrated controllers for DRAM, FLASH, and illumination devices
- I2C interface
- SSTL2 output drivers
- 1.8 V, 2.5 V I/O, 1.2 V core



42-2010-22 panel shown  
Dimensions in mm



### Specifications

<b>Resolution</b>	SVGA / WVGA	<b>Reflectivity</b>	65%
<b>Display Diagonal</b>	0.21"	<b>Package Height</b>	7 mm
<b>Contrast Ratio</b>	500:1 QWP Compensated	<b>Package Type</b>	Panel on mini PCB
<b>Pixel Pitch</b>	5.4 $\mu\text{m}$	<b>Operating Temperature</b>	-10°C to 70°C
<b>Fill Factor</b>	92.7%	<b>Storage Temperature</b>	-40°C to 80°C

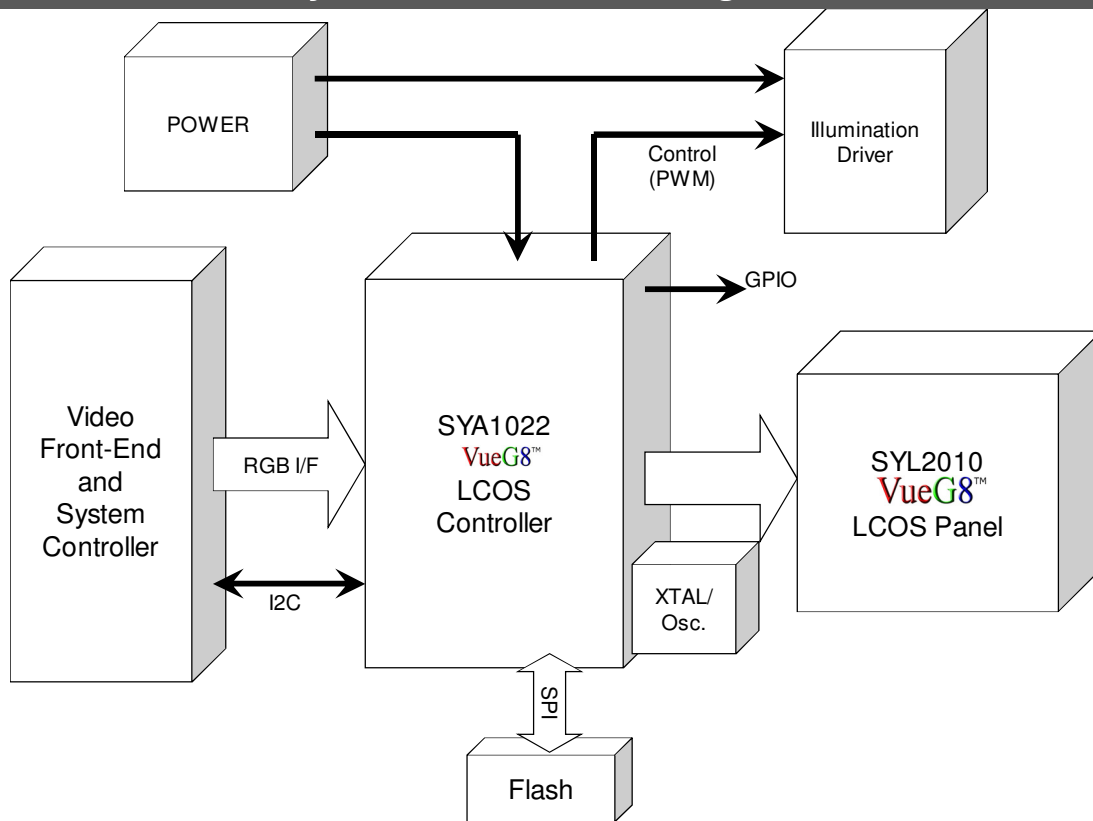
## Overview

The Syndiant SYL2010 provides the highest resolution available in a 0.21" diagonal panel, enabling ultra-portable applications to deliver up to SVGA resolution in a tiny form-factor. The SYL2010 also provides excellent image quality with vivid colors while meeting the low cost and power efficiency requirements for battery operated devices.

Syndiant's patented LCOS microdisplay architecture integrates all-digital smart electronics onto the display panel. An application specific SIMD processor performs bit serial data manipulation to control each pixel. The intelligence is divided between the controller and the panel; the controller formats and arbitrates data flow to the panel, and the panel logic computes new pixel values and updates the pixels. This efficient methodology enables high bit depth liquid crystal drive while requiring minimal data bandwidth to the panel.

With Syndiant, it is unnecessary to sacrifice image quality in your pico projector applications.

## System Block Diagram



## Syndiant Advantages

- High resolution: Offers a rich user experience by supporting a full range of content including reading email attachments, web browsing, text, graphics, multimedia, and full-motion video
- Low power: Great for mobile, battery powered products
- Ultra-small: Form factor meets requirements for embedded applications
- High brightness: Fast LC enables saturated colors and high illumination on time
- Smooth gray scale at all brightness levels, matching the visual response of the eye