

# SXGA1012-SD/SD+ SXGA OLED Driver Board Datasheet (Rev 1.8)

## Features and Benefits

### Multiple Video Inputs

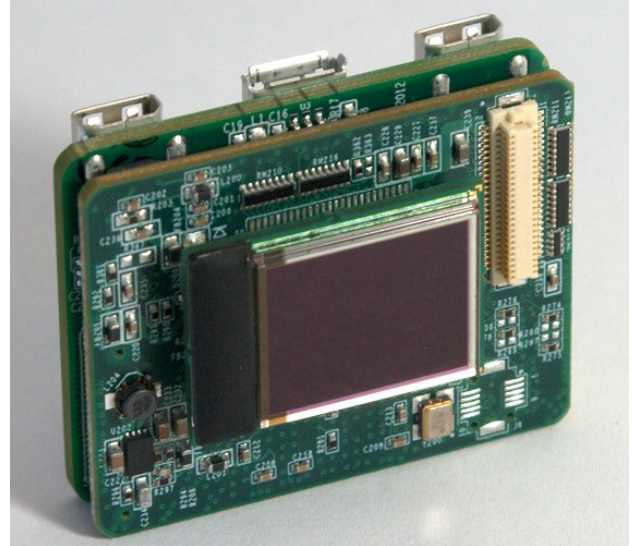
- Supports eMagin SXGA096 and SXGA120 OLEDs
- Dual HDMI
- Display Port
- Dual DVI
- Dual Analog RGB
- HDSDI
- RS170, NTSC, PAL
- Digital RGB

### OLED Brightness and Color Control

Built in EDID

Built-in DC/DC Power Conversion

Low Input Voltage Range



## SXGA –1012 SD/SD+ OLED Driver

The SXGA-1012SD OLED driver board for the eMagin SXGA OLED is designed for monocular, binocular and stereoscopic applications where each display engine must move independently and/or receive a different video signal.

The SXGA-1012SD is designed such that when the OLED is installed, the center of the OLED relative to the visible pixels is located exactly in the center of the PCB. This allows for a relatively simple mechanical board placement and mounting within the optical cavity. A 50 pin 3mm stacking height Hirose DF12 micro connector provides the input video and power signals.

The SXGA-1012SD is designed such that the OLEDs can be located up to 5 feet away from the main driver board. The interface board for the OLEDs is the same as the OLED and thus, allows the SXGA-1012SD to solve the most challenging packaging and space limited requirements.

The SXGA-1012SD is also with a plus options which includes the following capabilities:

1. Image cropping and shifting (up to 250 pixels each side)
2. Content viewable screen saver
3. Video Scaling
4. Test Images
5. Custom Video Processing (Picture-in-Picture, Split Screen, etc)

The SXGA-1012 driver is available with a micro controller to allow for custom applications features, such as the addition of dials, push buttons etc. Our USB base PC application and configuration cable provides calibration adjustment for, color gain/offset, brightness, image orientation, firmware upgrades and other register values.

## Power Consumption

Input Voltage	3.5 – 5.5 V DC
Power Consumption	<a href="#">See Tables 1, 2, 3, &amp; 4</a>

## Input Video Format

HDMI, DVI, Analog RGB,	1280 x 1024 @ 60-85 Hz
Digital RGB	1280 x 720 @ 60- 85 Hz
	1024 x 768 @ 60-85Hz
Display Port	1280 x 1024 @ 60-120Hz
RS 170, NTSC, PAL	Interlace or Progressive

## EDID

Default	1280 x 1024 @ 60Hz
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## Supported OLEDs

eMagin	SXGA096, SXGA120
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## Software Configuration

USB - PC Application	Control Brightness
	Gamma Updates
	Firmware Upgrades
	Auxiliary Input/Outputs

## Mechanicals

Dimension (L x W )	1.2 x 1.5 inches
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## Auxiliary Features

3 Analog/ Digital Inputs/Outputs

Additional Software Features via On board Micro-controller.

MicroHDMI connector – Pinout	
Pin #	Description
1	Hot Plug Detect
2	Not connected
3	Data 2 P
4	GND
5	Data 2 N
6	Data 1 P
7	GND
8	Data 1 N
9	Data 0 P
10	GND
11	Data 0 N
12	CLK P
13	GND
14	CLK N
15	Not connected
16	GND
17	SCL
18	SDA
19	5v Power

MicroHDMI as Analog VGA Input	
Pin #	Description
1	Not connected
2	Not connected
3	Red
4	GND
5	Not connected
6	Green
7	GND
8	Not connected
9	Blue
10	GND
11	Not connected
12	Hsync
13	GND
14	Vsync
15	Not connected
16	GND
17	SCL
18	SDA
19	5v Power

Micro USB Pinout	
Pin #	Description
1	5 Volts
2*	<b>Tx or Digital/Analog IO</b>
3*	<b>Rx or Digital/Analog IO</b>
4	N/C
5	Ground
<b>*Note</b>	<b>Pins 2 and 3 are multiplexed with Digital/Analog IO ports. Therefore if they are used for communication then they are not available as Digital/Analog IO. If they are used as Digital/Analog IO they are not available as UART lines.</b>



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Input Voltage	Current without OLED & No Video (A)	Power (W)
5.02	0.0876	0.439752
4.05	0.1015	0.411075
3.05	0.1421	0.433405
<b>Table 1: Power measurements with No OLED and No Video</b>		

Input Voltage	Current without OLED & With Video (A)	Power (W)
5.02	0.2129	1.068758
4.05	0.2769	1.121445
3.05	0.3949	1.204445
<b>Table 2: Power measurements with No OLED and With Video</b>		

Input Voltage	Current OLED & Video (A)	Power (W)
5.02	0.2677	1.343854
4.05	0.3378	1.36809
3.3	0.4567	1.50711
<b>Table 3: Power measurements with OLED and with Video (White image displayed)</b>		

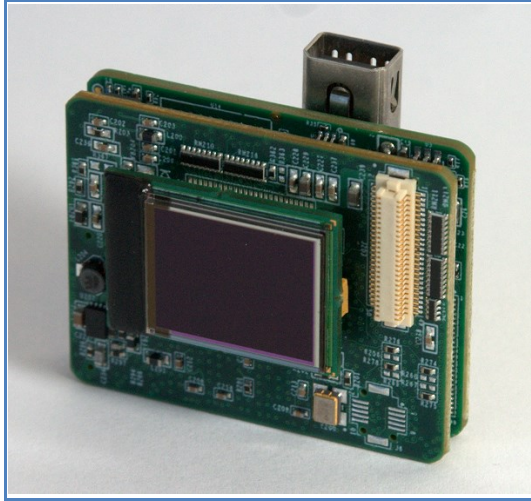
Input Voltage	Current OLED & Video (Sleep Mode) (A)	Power (W)
5.02	0.1137	0.570774
4.05	0.1274	0.51597
3.3	0.1481	0.48873
<b>Table 4: Power measurements with OLED and with Video in Sleep Mode</b>		



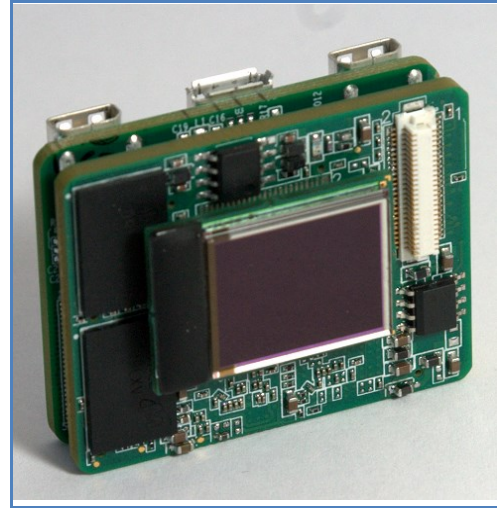
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### Display Port Video Input



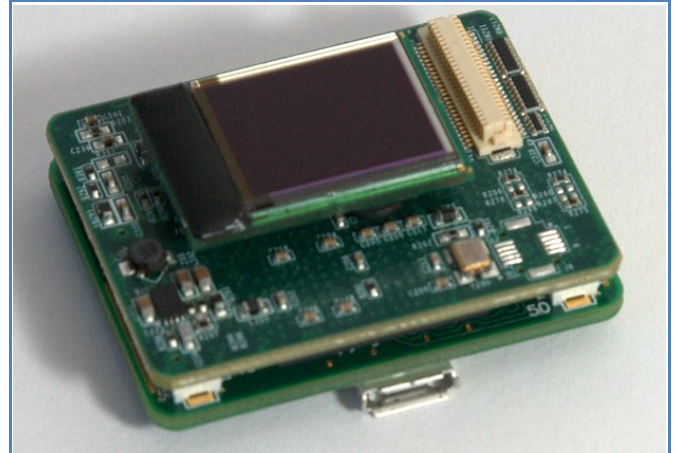
### Frame Buffer



### USB Power & Config Cable



### Digital RGB Video Input



## Wireless Low Latency Video (WLLV)

Wireless Low Latency Video – Make your OLED based product wireless by using MRA Digital wireless video technology. Transmitting up to 1080p with 1-2 frame of latency at ranges over 100 meters with Wi-Fi and miles using microwave or Wi-Max. Contact us for more info.

## Ordering Information (partial listing, see our [website](#) for more)

Part Number	Description
SXGA-1012SD-HDMI	Single Input OLED Driver (HDMI/DVI inputs)
SXGA-1012SD-ARGB	Single Input OLED Driver (Analog RGB input)
C-HDMI-ANALOG-ADPT-01	HDMI to Analog VGA Cable Adapter
C-USB-POWER-CONFIG-01	USB Power and Configuration Cable
C-uHDMI-DVI-01	Micro HDMI to DVI Cable
C-uHDMI-HDMI-01	Micro HDMI to Type A HDMI Cable
Options	Commercial Temp Option ( 0 — +70 C ) add “-CT” to Part number
	Industrial Temp Option ( -40 — +85 C ) add “-IT” to Part number

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