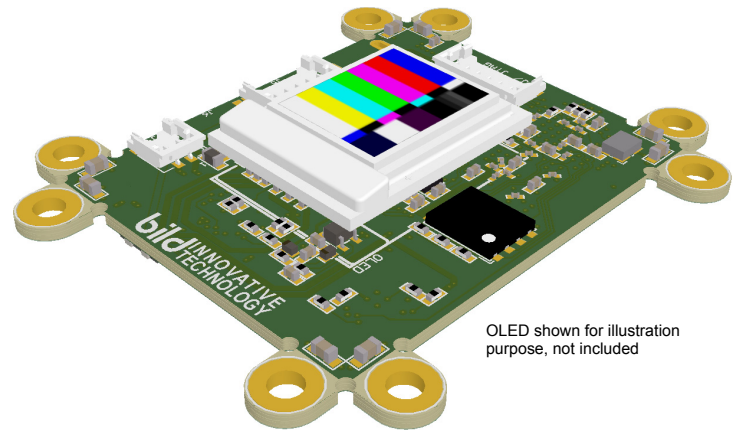
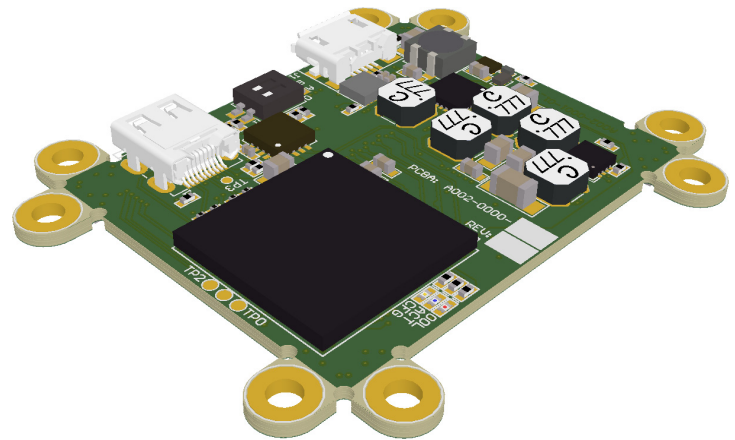


## Features

- Supports all Variants of EMA-101204 (SXGA096)
- Low Power: < 1W (less OLED)
- Digital RGB Video Interface  
DVI, HDMI (no HDCP): 24bRGB
- Monocular: 1 OLED Channel
- Supported Video Timing Format  
SXGA
- User-selectable Control Options  
USB, UART, Discrete
- Continuous Image Optimization
- Mechanically Centered OLED Image
- Power Enable / Disable Feature  
Rapid start-up  
Ultra-Low-power disable
- User-configurable Mounting Features (Tabs)
- Industrial Temperature Range (-40 ~ 70C)



OLED shown for illustration purpose, not included



## Applications

- Head Mounted Displays (HMD)
- Wearable Devices
- Virtual / Augmented Reality
- Embedded Viewers
- Electronic Viewfinder
- Instrumentation
- Hobby

## General Description

The BIT1012A is a high-performance low-cost full-featured driver supporting all variants of the eMagin SXGA096 OLED. Integrated dual-mode DVI / HDMI digital video input and multiple control interface options enable a compact single-board design suitable for virtually any application including binocular HMDs for users with narrow interpupillary distance (IPD).

## Product Highlights

Lightweight low-profile compact design is optimized for both monocular and binocular display devices for both direct-view and reflective eyepiece designs. Symmetrical layout placing the OLED image centroid in the exact center of the Driver supports easy monocular left/right eye switching as well as binocular side-by-side mounting. Image position and orientation controls facilitate rotation and binocular convergence adjustments / fine-tuning.

With all connectors located on a common edge directly supports plenum style end-product wire harnessing. This is especially helpful for routing wires along the upper edge of a binocular display assembly to minimize look-down obscuration of the mechanical structure.

Eight configurable #2 mounting tabs strategically arranged in 90-degree pairs at each corner provide a flexible easily customizable attachment system suitable for a variety of mechanical configurations. Unused mounting tabs can be simply snapped off and discarded.

The user selectable control interface supports easy adaptation to the most popular serial and discrete control interfaces. The 3.3V UART control option features a unique chip-select allowing multiple OLED drivers to be controlled by a common Tx/Rx pair, a unique feature intended specifically for binocular configurations. Combining the BIT1012A OLED Driver with the BIT1100A discrete control module yields a complete standalone monocular display driver solution with convenient 3-button user controls.

Low operational power plus reduced-power standby and ultra-low-power disable modes provide flexible power control necessary to ensure long battery life for today's and future portable devices.

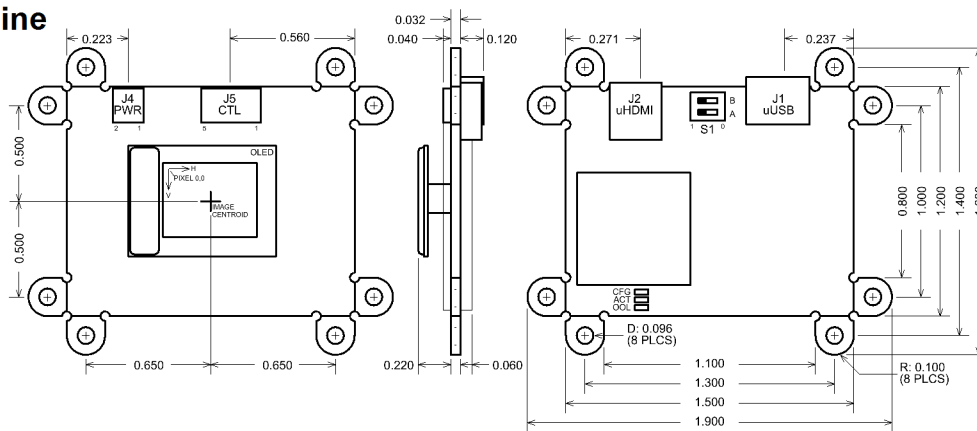
Additional features such as programmable brightness control steps, maximum brightness, built-in test patterns, user selectable gamma, video inversion, and video format query give the user all the necessary degrees of control to customize and diagnose the end-product – these user control features are unique to Bild's OLED Drivers.

## Technical Specifications

Parameter		min	typ	max	unit
Input Voltage		2.5	5.0	5.5	V
Power Consumption (less OLED)	Operating	-	850	1000	mW
	Reduced-Power Standby (input video active)		665		mW
	Power Disabled		1		mW
Temperature	Operating Industrial	-40	-	70	°C
	Storage	-40	-	85	°C
Video	Input Type 1: DVI	1.0			
	Input Type 2: HDMI	1.3a			
	Color Depth	24b RGB			
	Frame Resolution	1280x1024			HxV
	Frame Rate	60 ~ 85			Hz
Control Interface	Option 1: USB (UART protocol)	USB 2.0, 115.2kbps			
	Option 2: UART	3.3V, 115.2kbps			
	Option 3: Discrete	2-wire, integrated pullups			
Mass		7		g	

## Package Outline

Dimensions in inches



## Connector Pinouts

Video Input	Micro HDMI	Power Input	Molex 781710002	USB	Micro USB B
1 HPD	11 D0-	1 VIN		1 +5V	
2 <i>nc</i>	12 CK+	2 VIN_RTN (GND)		2 DN	
3 D2+	13 GND	<b>Control Molex 781710005</b>		3 DP	
4 GND	14 CK-	---- SERIAL ----		4 <i>nc</i>	
5 D2-	15 <i>nc</i>	USB    UART    DISC		5 GND	
6 D1+	16 GND	1 -	TX	PD1	
7 GND	17 DDC_SCL	2 -	RX	PD2	
8 D1-	18 DDC_SDA	3 -	CS\	-	
9 D0+	19 +5V	4	PWR_ENABLE		
10 GND		5	GND		

## Control Functions <sup>note1</sup>

Function	Ser	Disc	
Brightness	Inc/Dec	✓	✓
	Set	✓	-
	MaxSet	✓	note2
Image Orientation	H Flip	✓	✓
	V Flip	✓	✓
Image Position	H Pos.	✓	note3
	V Pos.	✓	note3
Gamma	Set	✓	note4
Test Patterns		✓	-
Reduced Pwr Standby		✓	-

- Notes: 1. Partial list for serial control, see datasheet guide for complete list  
 2. Factory preset to device maximum, custom setting available  
 3. Factory preset for mechanically centered image, custom setting available (ie: lateral offsets for binocular convergence)  
 4. Factory preset to 1.8, custom setting available

Contact Bild Innovative Technology for custom options, features, form-factors, etc.

## Contact

Bild Innovative Technology LLC  
 2656 W Montrose Ave Suite 203  
 Chicago, IL 60618  
 (773) 697-9345  
 (760) 450-6633  
 pbeerdeke@bildinnotech.com