



SLA-1500-HDMI Interface Control Documentation

Part Number: ICD-SLA-1500-HDMI

DATE: 19. July 2017

Overview

Document describes the **SLA-1500-HDMI** Adapter Board. The purpose of this board is to provide an interface to digital HDMI cameras.

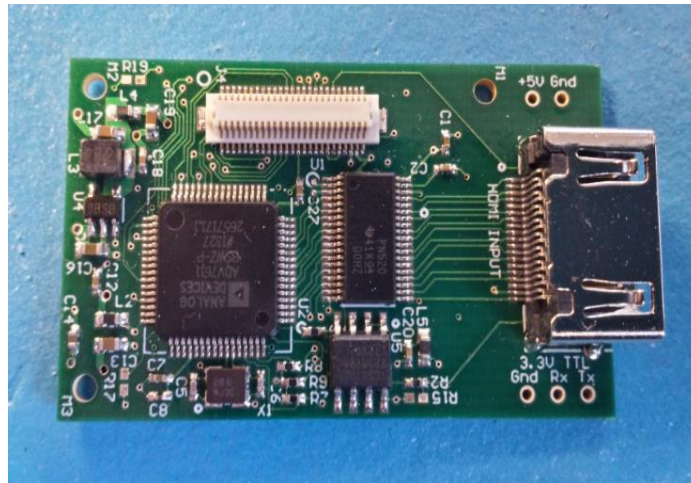


Figure 1: SLA-1500-HDMI board



Figure 2: SLA-1500-HDMI board with SLA-1500-OEM

Important Note:

Many older **SLA-1500-OEM** boards did not have the I²C driver chip installed. This chip is necessary for communication between the **SLA-1500-OEM** and the **SLA-1500-HDMI** board.

The board on the left has the I²C Driver (U7) installed, the board on the right does not.

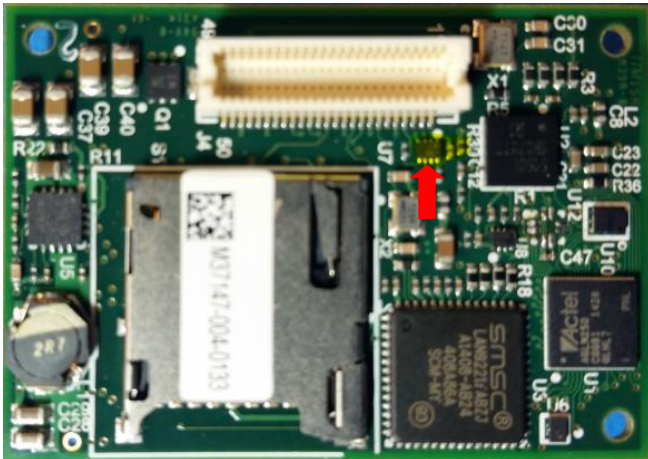


Figure 1: I²C Driver Installed (REQUIRED)

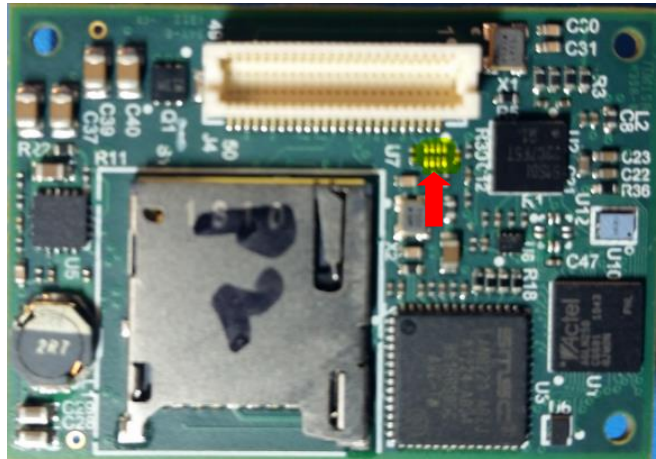
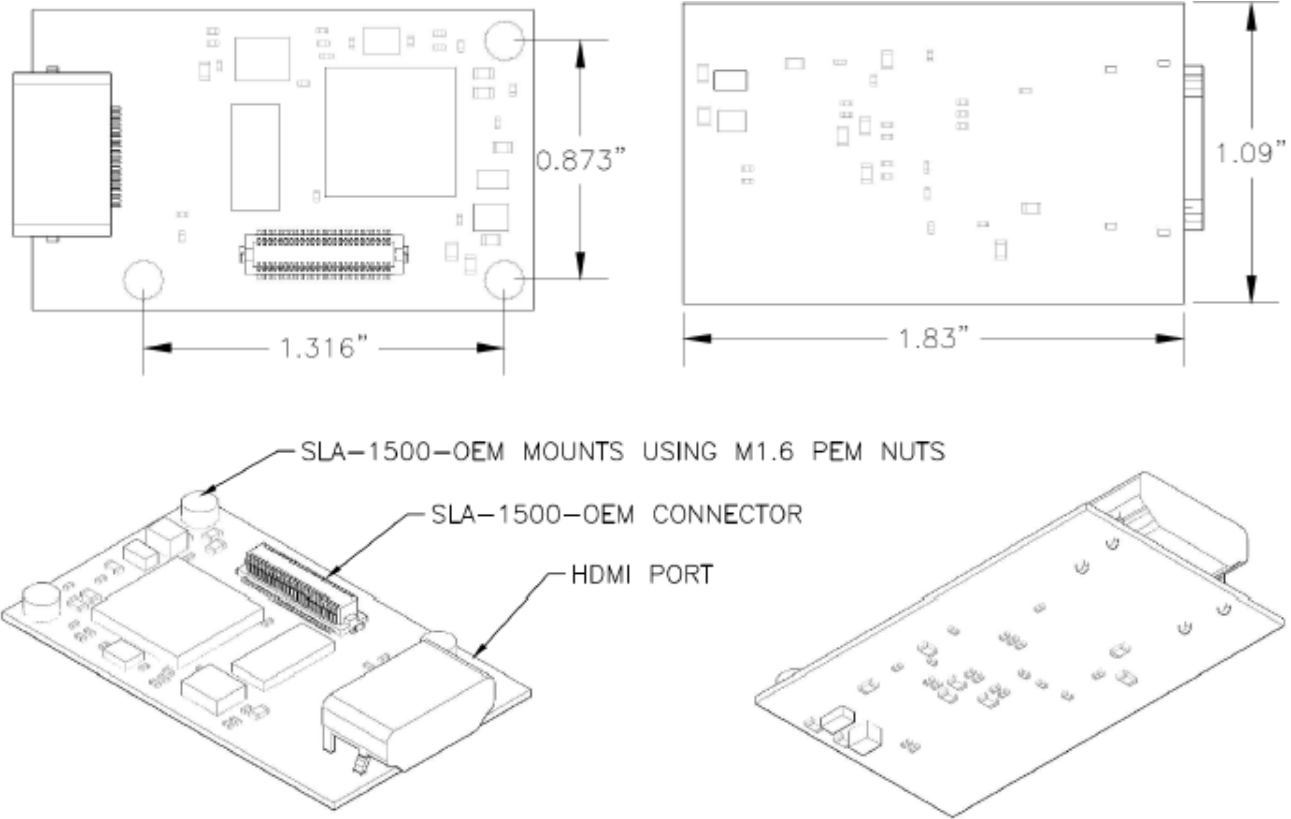


Figure 2: I²C Driver Not Installed

Board Summary

Dimensions	1.83" x 1.09" x 0.14" (approx.)
Weight	0.3oz (~8grams)
Electrical	Power supplied by SLA-1500-OEM OEM supply voltage must be 6.0V max when using the HDMI adaptor board. Camera powered separately
Operational Temp Range	-40°C to 55°C
Current Revision	C

Table 1: SLA-1500- HDMI Physical Characteristics



Mounting Holes:

The SLA-1500-OEM mounts to the SLA-1500-HDMA using M1.6 machine screws.

Connectors

Connector	Description	Part Number	Mates With...
J4		DF12B-50DS-0.5V(86)	SLA-1500-OEM J4
J2	HDMI receptacle (TYPE A)	10029449-001RLF	

Test Points

Label	Name	Description	SLA-1500-OEM
TP1	RX	3.3V TTL	Serial Port 2
TP2	TX	3.3V TTL	
TP3	GROUND	Ground	

HARDWARE SETUP

- The SLA-1500-HDMI converts HDMI camera signals to parallel digital video that can be acquired by the SLA-1500-OEM board.
- The SLA-1500-OEM board must be configured to accept the converted parallel digital video signal. This configuration will be used to set the HDMI camera format.
- Configuration uses the generic digital setup to specify the timing parameters of parallel digital camera input data. See the SightLine Applications document **EAN-DigitalVideo.pdf** for more details.
- Pixel Clock rates are limited to 74.25MHz by the SLA-1500-OEM hardware: this limits us to maximum input formats of 1080P30 and 720P60. Additionally, image processing limits frame rate to 30 Hz. 720P60 format video can be supported by using the Skip Frames feature described below. 1080P60 video cannot be acquired as the pixel clock rate is above 74.25 MHz.
- The HDMI board will send EDID data to the attached camera with the desired format (e.g. 720P30). The camera can still send whatever format data it chooses.
- It has been found that the GoPro and other cameras will generally ignore the frame rate portion of the request (P30) and generate (P60) video. This is acceptable for 720P modes, but 1080P60 cannot be acquired. For this reason, it is suggested to purchase an HDMI camera that only supports 1080P30 if you are interested in 1080 resolution.

CAMERA SUPPORT

The following cameras have been tested and verified to work with the SLA-1500-HDMI board:

- When changing camera settings, cycle power on the camera
- Selecting a resolution through camera setup will not necessarily result in matching HDMI output. GoPro Hero white setup in 720P30 will still output 720P60 HDMI video. However it will record 720P30 to it's internal MicroSD Card.
- Cameras can require an installed MicroSD card to enable output HDMI. Test settings with an HDMI capable computer monitor.
- Turn off auto-chop

GoPro Hero3+ Black (CHDHX-302)

- This camera can only be run in 720P and 480P modes. The 1080P mode defaults to P60 frame rate and cannot be acquired.
- The following values will generate 720P30 and 480P30 video.

H	V	D	VFP	HFP	Flags	Skip Frames	Camera Setting
480	720	8	30	60	1	1	WVGA 240 FPS
720	1280	8	20	222	1	1	720 60 FPS

GoPro Hero3 White (CHDHE-302)

- This camera can be run in 1080P, 720P and 480P modes. The 1080P mode defaults to 1080I60 and the HDMI board de-interlaces the video.
- The following values will generate 180P30, 720P30 and 480P30 video.

H	V	D	VFP	HFP	Flags	Skip Frames	Camera Setting
480	720	8	30	60	1	1	WVGA 60 FPS
720	1280	8	20	222	1	1	720 60 FPS
1080	1920	8	38	148	1	0	1080 30 FPS

Canon HD CMOS PRO Camcorder (XA-25)

- This camera can be run in 720P and 480P modes.
- The following values will generate 720P30 and 480P30 video.

H	V	D	VFP	HFP	Flags	Skip Frames	Camera Setting
480	720	8	30	60	1	1	Auto HDMI
720	1280	8	20	222	1	1	Auto HDMI

Sony Handycam Camcorder (HDR-CX220)

- This camera can be run in 720P and 480P modes.
- The following values will generate 720P30 and 480P30 video.

H	V	D	VFP	HFP	Flags	Skip Frames	Camera Setting
480	720	8	30	60	1	1	Auto
720	1280	8	20	222	1	1	Auto

DVI

Many HDMI to DVI converters exist. These are often cables that transmit the digital video lines from HDMI connector to the DVI connector (DVI-D). If you plan to convert from HDMI to DVI be aware that not all monitors or devices will be able to convert from the YUV 4:2:0 (YCbCr) format provided by the SLA-1500-HDMI to an RGB video format typically expected by DVI.

SightLine Product Export Controls

Exports of SightLine products are governed by the US Department of Commerce, Export Administration Regulations (EAR); classification is ECCN 4A994. The [export summary sheet](#) located on the support/documentation page of our website outlines customers responsibilities and applicable rules. SightLine Applications takes export controls seriously and works to stay compliant with all export rules.

Copyright and Use Agreement

© Copyright 2017, SightLine Applications, Inc. All Rights reserved. The SightLine Applications name and logo and all related product and service names, design marks and slogans are the trademarks, and service marks of SightLine Applications, Inc.

Before loading, downloading, installing, upgrading or using any Licensed Product of SightLine Applications, Inc., users must read and agree to the license terms and conditions outlined in the [End User License Agreement](#).

All data, specifications, and information contained in this publication are based on information that we believe is reliable at the time of printing. SightLine Applications, Inc. reserves the right to make changes without prior notice

FILES

Additional files such as 3D models, Schematics, Gerbers, etc. may be available for some products. Contact your Sales Engineer for more information.

ERRATA

Please contact your Sales Engineer often as new versions of the product (new schematics, etc.) may be available.

Contacts

Web: sightlineapplications.com

Sales: sales@sightlineapplications.com

Support: support@sightlineapplications.com

Phone: +1 (541) 716-5137