SightLine APPLICATIONS

# ICD-1500 Adapter Boards

**PN:** ICD-1500-Adapter-Boards

1/4/2019

**Contact:**

Web: sightlineapplications.com

Sales: sales@sightlineapplications.com

Support: support@sightlineapplications.com

Phone: +1 (541) 716-5137

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⚠ **CAUTION:** Alerts to a potential hazard that may result in personal injury, or an unsafe practice that causes damage to the equipment if not avoided.

ⓘ **IMPORTANT:** Identifies crucial information that is important to setup and configuration procedures.

*Used to emphasize points or reminds the user of something. Supplementary information that aids in the use or understanding of the equipment or subject that is not critical to system use.*

## Contents

**List of Tables**

## Revision History

| Date | Description |
|---|---|
| 1/4/2019 | Removed 1500-RAB and 1500-RABn Microhard radio interface boards. |
| 10/23/2018 | Add Serial Port name and voltage levels for 1500-FPC and 1500-Sony. |
| 10/10/2018 | Added 1500-FPC connector callout diagram. |
| 10/1/2018 | Added test points table to 1500-AB board section. |
| 9/19/18 | Added FFC connecter tables to 1500-AB board and 1500-mAB board. Added J6 connector tables to 1500-AB Connector Descriptions and 1500-nAB Connector Descriptions. |
| 9/10/18 | Added connector description tables for SLA-1500-HDMI, SLA-1500-HIT, SLA-1500-nAB. |
| 8/9/2018 | Added Operating Temperature section. |
| 8/1/2018 | Added caution statement in the Sony / Tamron section for powering up the interface boards. |
| 7/12/2018 | Added KEL cable length specification to SLA-1500-Sony / Tamron board section. |
| 5/1/2018 | Standardized board specifications. Added the SLA-1500-HIT, and SLA-1500-RABn adapter boards. Added new board revisions: SLA-1500-AB, SLA-1500-HDMI, SLA-1500-mAB. |
| 4/18/2018 | Updated 1500-Sony board photo to REV D. |
| 4/12/2018 | Fixed 1500-CL REV A notes. |
| 4/3/2018 | Fixed Connector J8: Power + RS-232 diagram. |
| 3/14/2018 | Added Tamron camera reference to Sony board section. |
| 2/1/2018 | Added 1500-HDMI, 1500-CL, 1500-RAB, 1500-RABn boards. |
| 12/5/2017 | Created new document for 1500 adapter boards. Added new 1500-OEM adapter board photos. |

# 1 Overview

This document describes power requirements, thermal management, interface specifications, and connector pin-outs for 1500-OEM adapter boards. Adapter boards provide different IO, camera inputs, or digital outputs. The boards can be attached directly to the 1500-OEM or through a secondary adapter allowing customers to swap out modules for custom configurations. Design files are also available for customers to build their own boards. Contact Sales for the latest boards available.

## 1.1 Available Adapter Boards

| | | |
|---|---|---|
| SLA-1500-AB | SLA-1500-HIT | SLA-1500-FPC |
| SLA-1500-HDMI | SLA-1500-mAB | SLA-1500-FFC |
| SLA-1500-Sony / Tamron | SLA-1500-nAB | SLA-1500-CL |

*The 1500-RAB and 1500-RABn Microhard radio interface boards have been discontinued. Contact Support for legacy documentation and third-party Microhard radio interface board recommendations.*

## 1.2 Associated Documents

ICD-1500-OEM: Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 1500-OEM and 1500-AB accessory board.

ICD-FFC-Camera-Interfaces: Describes interface specifications, and connector pin-outs for camera specific SLA-FFC adapter boards for the 1500-OEM and 3000-OEM.

EAN-Startup Guide 1500-OEM: Describes steps for connecting, configuring, and testing the 1500-OEM video processing board on the 1500-AB accessory board.

Interface Command and Control (IDD): Describes the native communications protocol used by the SightLine Applications product line. The IDD is also available as a local download on the Software Download page.

EAN-Panel Plus User Guide: Provides descriptions of all the settings in the Panel Plus application. (Located in the Panel Plus application in the *Help* menu.)

*Links to additional associated board EANs are in each section.*

## 1.3 Sightline Software Requirements

**IMPORTANT:** The Panel Plus software version should match the firmware version running on the board.

# 2 Safe Device Handling

**CAUTION:** To prevent damage to hardware boards, use a conductive wrist strap attached to a good earth ground. Before picking up an ESD sensitive electronic component, discharge built up static by touching a grounded bare metal surface or approved antistatic mat.

# 3 Operating Temperature

The electrical components specified in the design of all adapter boards defined in this document are rated at an operating temperature range of -40°C to 85°C. Simple convective cooling of the adapter board is sufficient in most cases. Integrators should analyze their thermal environment to ensure that it stays within the recommended component operating temperature range. OEM boards require conducted cooling to maintain proper operation. See the ICD-1500-OEM for details.

# 4 SLA-1500-AB

**Revision:** J

**Dimensions:** 4.4 in x 2.9 in (111.76 mm x 73.66 mm)

**Weight:** 51.3 grams

**EAN:** EAN-Startup Guide 1500-OEM

**Drawing:** SLA-1500-AB

**STEP File:** SLA-1500-AB STEP

**Rev History:** E: Improved labeling and hole spacing.

H: Corrections and layout improvements.

J: Manufacturability improvement.

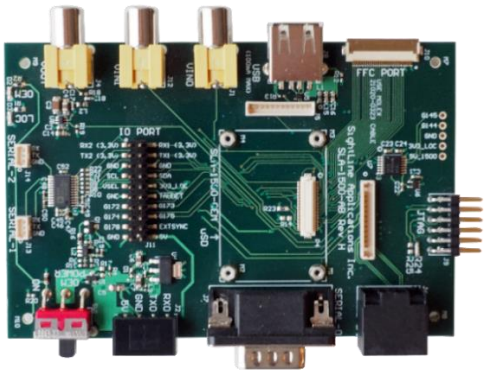


**Figure 1: 1500-AB Board**

*Due to the different revisions of the 1500-AB board, contact Support for help in determining the right board for your application.*

**IMPORTANT:** The supply voltage level must be compatible with the camera adapter board and connected cameras.

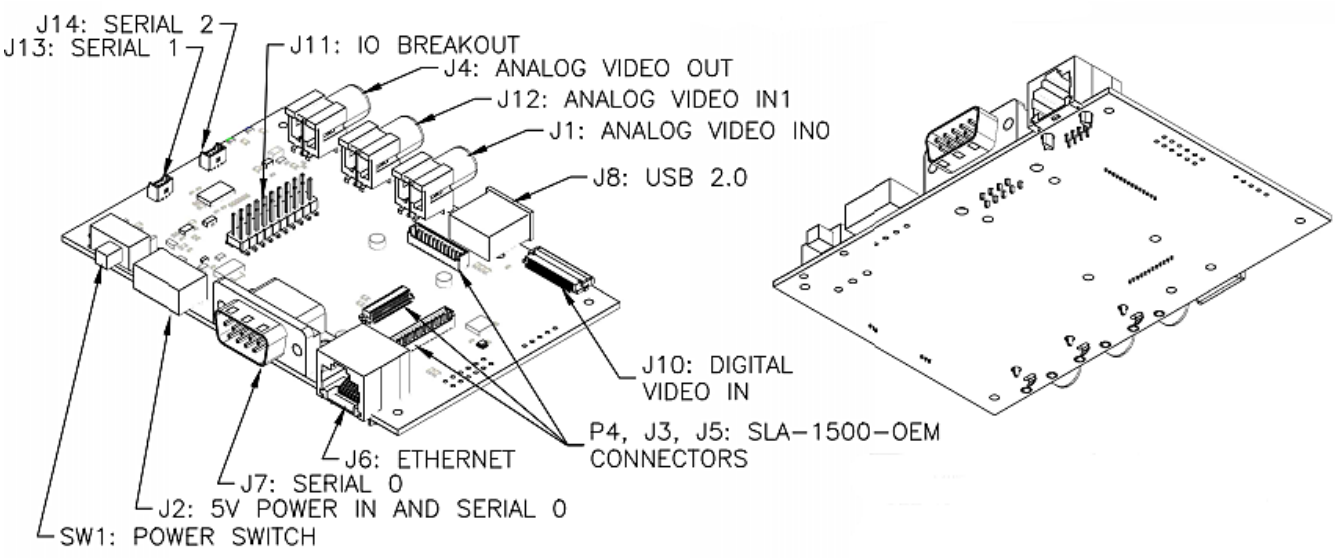



**Figure 2: 1500-AB Connector Callouts**

**Table 1: 1500-AB Connector Summary**

| Label | MFG Part Number | Function | Mates with: |
|---|---|---|---|
| J1 | RCJ-044 (yellow RCA jack) | Analog video input 0 | RCA cable |
| J2 | 39502-1004 | 5VDC power and RS232 serial 0 | 39500-0004 |
| J3 | Molex 53398-1471 (14-pin) mates with J3 on OEM | Analog video, power, serial, Ethernet | SLA-CAB-1514 |
| J4 | RCJ-044 (yellow RCA jack) | Analog video output | RCA cable |
| J5 | Molex 53398-1271 mates with J5 on OEM | JTAG, USB | Molex 51021-1200 |
| J6 | 5520251-4 Modular Jack | 10/100 Base-T Ethernet | Ethernet cable |
| J7 | 182-009-113R531 DB-9 Male | RS232 serial 0 | DB9 cable |
| J8 | FCI 87583-2010BLF | Type-A USB port | Type-A USB cable |
| J9 | 12-Pin 2-row Male Header | JTAG (unpopulated connector) | 12-Pin ribbon cable |
| J10 | FH12-30S-0.5SH(55) | Digital video FFC connector | AB-FF06 |
| J11 | 20-Pin Male Header | Digital connector breakout (Rev C+) | Female header |
| J12 | RCJ-044 (yellow RCA jack) | Analog video input 1 | RCA cable |
| J13 | 53047-0310 | Serial port 1 at RS-232 levels (see below) | SLA-CAB-0303 |
| J14 | 53047-0310 | Serial port 2 at RS-232 levels (see below) | SLA-CAB-0303 |
| P4 | Hirose DF12B-50DS-0.5V(86) | Digital video connector | SLA-1500-OEM J4 DF12B-50DP-0.5V(86) |

**Table 2: 1500-AB Connector Descriptions**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Connector J1: Analog Video Input 0** | NTSC and PAL analog video input 0. | | | | | |
| **Connector J2: 5VDC Power and Serial 0** | Provides 5V power to 1500-OEM, as well as access to serial port 0 at RS232 levels.<br>*If the 1500-SONY or 1500-HITACHI board is also connected, do not turn on switch SW1.* | | | | | |
| **Connector J3: Analog Video, Power, Serial, Ethernet** | This port uses the standard pinout defined in Appendix - Standard Connector #5 | | | | | |
| **Connector J4: Analog Video Output** | NTSC analog video output. | | | | | |
| **Connector J5: FPGA JTAG, USB** | **Pin** | **Signal** | | **Pin** | **Signal** | |
| | 1 | USB VBUS | | 7 | FPGA TMS | |
| | 2 | USB- | | 8 | FPGA TDI | |
| | 3 | USB+ | | 9 | GPIO145 at 1.8V IO | |
| | 4 | USBID | | 10 | FPGA TRST | |
| | 5 | GND | | 11 | FPGA TDO | |
| | 6 | FPGA TCK | | 12 | GPIO144 at 1.8V IO | |
| **Connector J6: 10/100 Base-T Ethernet** | Provides 10/100Base-T access using a standard Ethernet modular jack. | | | | | |
| | **Pin** | **Signal** | **Description** | **Pin** | **Signal** | **Description** |
| | 1 | TX+ | ORANGE + WHITE | 5 | NC | |
| | 2 | TX- | ORANGE | 6 | RX- | GREEN |
| | 3 | RX+ | GREEN + WHITE | 7 | NC | |
| | 4 | NC | | 8 | NC | |
| **Connector J7:RS-232C Serial Port** | Allows for serial port console to PC at RS232 levels. Converted on board to 3.3V TTL needed by 1500-OEM. | | | | | |
| **Connector J9: JTAG** | Provides FPGA JTAG Access. Unpopulated by default. | | | | | |

*(Table 2 continued)*

<table>
<tr><td rowspan="15">Connector J10: FFC Digital Video Connector<br><br>* VIOSEL out must match the camera voltage level for Digital Data, Pixel Clock, Line Valid and Frame Valid signals. This is +3.3V level for most cameras. This is used by the 1500-OEM for level translation.</td><td colspan="4">This connector is used to connect the board to various cameras using an FFC cable with a custom FFC-XXX board on the other side, where XXX stands for the individual camera being used.</td></tr>
<tr><td>Pin</td><td>Description</td><td>Pin</td><td>Description</td></tr>
<tr><td>1</td><td>Camera TX</td><td>2</td><td>Camera RX</td></tr>
<tr><td>3</td><td>NC</td><td>4</td><td>NC</td></tr>
<tr><td>5</td><td>Ground</td><td>6</td><td>Digital Data 13</td></tr>
<tr><td>7</td><td>Digital Data 12</td><td>8</td><td>Digital Data 11</td></tr>
<tr><td>9</td><td>Digital Data 10</td><td>10</td><td>Digital Data 9</td></tr>
<tr><td>11</td><td>Digital Data 8</td><td>12</td><td>Digital Data 7</td></tr>
<tr><td>13</td><td>Digital Data 6</td><td>14</td><td>Digital Data 5</td></tr>
<tr><td>15</td><td>Digital Data 4</td><td>16</td><td>Digital Data 3</td></tr>
<tr><td>17</td><td>Digital Data 2</td><td>18</td><td>Digital Data 1</td></tr>
<tr><td>19</td><td>Digital Data 0</td><td>20</td><td>Ground</td></tr>
<tr><td>21</td><td>Pixel Clock Out</td><td>22</td><td>Frame Valid</td></tr>
<tr><td>23</td><td>Line Valid</td><td>24</td><td>NC</td></tr>
<tr><td>25</td><td>NC</td><td>26</td><td>VIOSEL out (to OEM)*</td></tr>
<tr><td>27</td><td>+5V Camera power in</td><td>28</td><td>+5V Camera power in</td></tr>
<tr><td>29</td><td>Ground</td><td>30</td><td>Ground</td></tr>
<tr><td rowspan="12">Connector J11: Digital Connector Breakout</td><td>Pin</td><td>Signal</td><td>Pin</td><td>Signal</td></tr>
<tr><td>1</td><td>RX2</td><td>2</td><td>RX1</td></tr>
<tr><td>3</td><td>TX2</td><td>4</td><td>TX1</td></tr>
<tr><td>5</td><td>GROUND</td><td>6</td><td>GROUND</td></tr>
<tr><td>7</td><td>I2C2SCL</td><td>8</td><td>I2C2SDA</td></tr>
<tr><td>9</td><td>VIOSEL</td><td>10</td><td>3.3VDC</td></tr>
<tr><td>11</td><td>GROUND</td><td>12</td><td>TAUDET (Active Low)</td></tr>
<tr><td>13</td><td>GPIO172</td><td>14</td><td>GPIO173</td></tr>
<tr><td>15</td><td>GPIO174</td><td>16</td><td>GPIO175</td></tr>
<tr><td>17</td><td>GPIO178</td><td>18</td><td>EXTSYNC</td></tr>
<tr><td>19</td><td>GROUND</td><td>20</td><td>5VDC</td></tr>
<tr><td>Connector J12: Analog Video Input 1</td><td colspan="4">NTSC and PAL analog video input 1.</td></tr>
<tr><td>Connector J13: Serial Port 1 Connector</td><td colspan="4">This serial port uses the standard pinout defined in Appendix - Standard Connector #1. The voltage levels are RS232.</td></tr>
<tr><td>Connector J14: Serial Port 2 Connector</td><td colspan="4">This serial port uses the standard pinout defined in Appendix - Standard Connector #1. The voltage levels are RS232.</td></tr>
<tr><td>Connector P4: Digital Video Connector</td><td colspan="4">This serial port uses the standard pinout defined in Appendix - Standard Connector #3. The 1500-OEM plugs directly onto this connector.</td></tr>
</table>

## 4.1 Test Points

GPIO 144 and 145 are also available at 3.3V as test points.

**Table 3: 1500-AB Test Points**

| Label | Description |
|---|---|
| G145 | GPIO 145 |
| G144 | GPIO 144 |
| GND | Ground |
| 3V3_LOC | 3.3V Supply for IO and VIOSEL |
| 5V_1500 | Switched 5V Supply to 1500-OEM |

# 5 SLA-1500-HDMI

The 1500-HDMI board provides an interface to digital HDMI cameras.

**Revision:** D

**Dimensions:** 1.83 in x 1.09 in (46.45 mm x 27.69 mm)

**Weight:** 7.63 grams

**EAN:** EAN-HDMI-Input

**Drawing:** SLA-1500-HDMI

**STEP File:** SLA-1500-HDMI STEP

**Rev History:** C: PEM nuts added to ease assembly.

D: Added I2C and GPIO connectors.

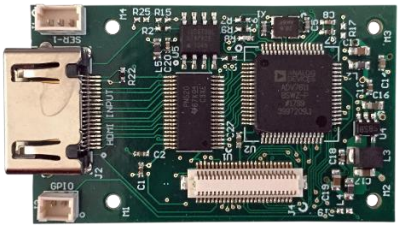


**Figure 3: 1500-HDMI Board**

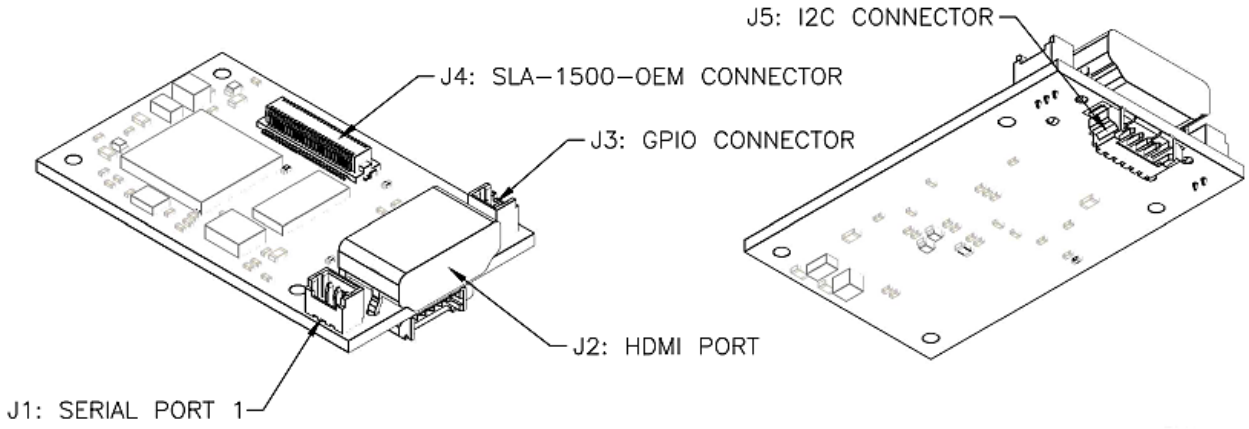



**Figure 4: 1500-HDMI Connector Callouts**

## 5.1 Driver Chip Not Installed - 1500-OEM (old board)

Many older 1500-OEM boards do not have the I2C driver chip (U7) installed. This chip is necessary for communication between the 1500-OEM and the 1500-HDMI board. The board on the left has the chip installed, the board on the right does not. If the chip is not installed, contact sales for more information.

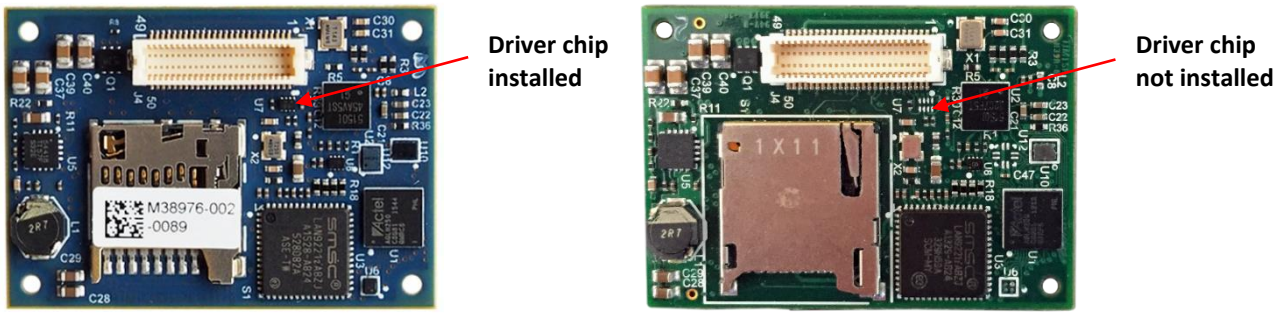



**Figure 5: Driver Chip Location 1500-OEM**

**Table 4: 1500-HDMI Connector Summary**

| Label | MFG Part Number | Function | Mates with: |
|---|---|---|---|
| J1 | 3-Pin Molex 53047-0310 | Serial port 1 | Molex 051021-0300<br>SLA-CAB-0303 |
| J2 | 10029449-001RLF | HDMI receptacle (TYPE A) | HDMI plug (TYPE A) |
| J3 | 2-Pin Molex 53047-0210 | GPIO connector | Molex 051021-0200 |
| J4 | DF12B-50DS-0.5V(86) | Digital Video Connector | SLA-1500-OEM J4 DF12B-50DP-0.5V(86) |
| J5 | 5-Pin Molex 53261-0571 | I2C connector | Molex 051021-0500 |

**Table 5: 1500-HDMI Connector Descriptions**

| Connector | Description |
|---|---|
| **Connector J1: Serial Port 1 Connector** | This port uses the standard pinout defined in Appendix - Standard Connector #1. |
| **Connector J2: HDMI** | This port uses the standard pinout defined in Appendix - Standard Connector #6. |
| **Connector J3: GPIO Port** | This port uses the standard pinout defined in Appendix - Standard Connector #4. |
| **Connector J4: Digital Video Connector** | This port uses the standard pinout defined in Appendix - Standard Connector #3. |
| **Connector J5: I2C Port** | This port uses the standard pinout defined in Appendix - Standard Connector #2. |

## 5.2 Hardware Setup

See the EAN-HDMI-Input and EAN-Digital Video Configuration documents for setup and configuration information.

1500-HDMI converts HDMI camera signals to parallel digital video that can be acquired by the 1500-OEM board.

The 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 associated documents for more details.

Pixel Clock rates are limited to 74.25MHz by the 1500-OEM hardware. This limits the maximum input formats of 1080P30 and 720P60. Image processing limits frame rate to 30 Hz. 720P60 format video can be supported by using the Skip Frames feature. 1080P60 video cannot be acquired as the pixel clock rate is above 74.25MHz.

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.

The GoPro and other cameras 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, an HDMI camera should be used that only supports 1080P30.

## 5.3 Camera Support

The cameras shown in Table 6 have been tested and verified to work with the 1500-HDMI board.

When changing camera settings, cycle power on the camera. Make sure Auto-Chop is turned off.

Selecting a resolution through camera setup may not result in matching HDMI output. GoPro Hero white setup in 720P30 will still output 720P60 HDMI video. However, it will record 720P30 to the internal MicroSD Card.

Some cameras may require an installed MicroSD card to enable HDMI output. Test settings with an HDMI capable computer monitor.

**Table 6: Supported HDMI Cameras**

| **GoPro Hero3+ Black (CHDHX-302)** | | | | | | | |
|---|---|---|---|---|---|---|---|
| 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)** | | | | | | | |
| 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 1080P30, 720P30 and 480P30 video. | | | | | | | |
| 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)** | | | | | | | |
| Can be run in 720P and 480P modes. The following values will generate 720P30 and 480P30 video. | | | | | | | |
| 480 | 720 | 8 | 30 | 60 | 1 | 1 | Auto HDMI |
| 720 | 1280 | 8 | 20 | 222 | 1 | 1 | Auto HDMI |
| **Sony Handycam Camcorder (HDR-CX220)** | | | | | | | |
| Can be run in 720P and 480P modes. The following values will generate 720P30 and 480P30 video. | | | | | | | |
| 480 | 720 | 8 | 30 | 60 | 1 | 1 | Auto |
| 720 | 1280 | 8 | 20 | 222 | 1 | 1 | Auto |

### 5.3.1 DVI

There are a number of HDMI-to-DVI converters on the market. Most of them consist of cables that transmit the digital video lines from HDMI connector to the DVI connector (DVI-D).

ⓘ **IMPORTANT:** If converting from HDMI to DVI be aware that not all monitors or devices are able to convert from the YUV 4:2:0 (YCbCr) format provided by the 1500-HDMI to an RGB video format typically expected by DVI.

# 6 SLA-1500-Sony / Tamron

*The Sony block cameras and the Tamron MP1010M-VC camera share the same camera interface board.*

The 1500-Sony / Tamron board routes digital video from the camera to the 1500-OEM J4. The 1500-OEM can be configured to passthrough commands using Serial Port 2. Users can also directly control the camera using the J3 connector on this board.

**CAUTION:** Power to the 1500-OEM board is provided through the 1500-Sony interface board through the J2 12 VIN connector. Powering the OEM through the J3 power pins and through the 1500-Sony board can damage the OEM.

For some Sony cameras, such as the 6300, it will also provide the analog output from the camera to Video Port 1 on the 1500-OEM. This can be useful for debugging.

See the EAN-Sony Block Cameras document for setup and configuration information for Sony block cameras.

See the EAN-Tamron-Camera-MP1010M document for setup and configuration information for Tamron MP1010M-VC camera.

**Revision:** D

**Dimensions:** 2.25 in x 1.05 in (57.2 mm x 26.7 mm)

**Weight:** 8.1 grams

**EAN:** EAN-Sony-Block-Cameras

**Drawing:** SLA-1500-Sony
SLA-1500-Sony Exploded

**STEP File:** SLA-1500-Sony STEP

**Rev History:** C: Improved hole spacing.
D: Added serial and GPIO ports.

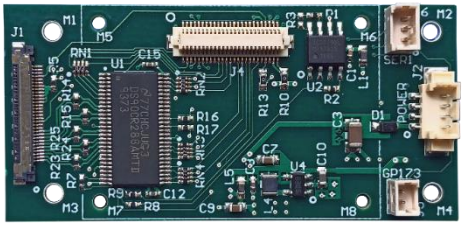


**Figure 6: 1500-Sony / Tamron Board**

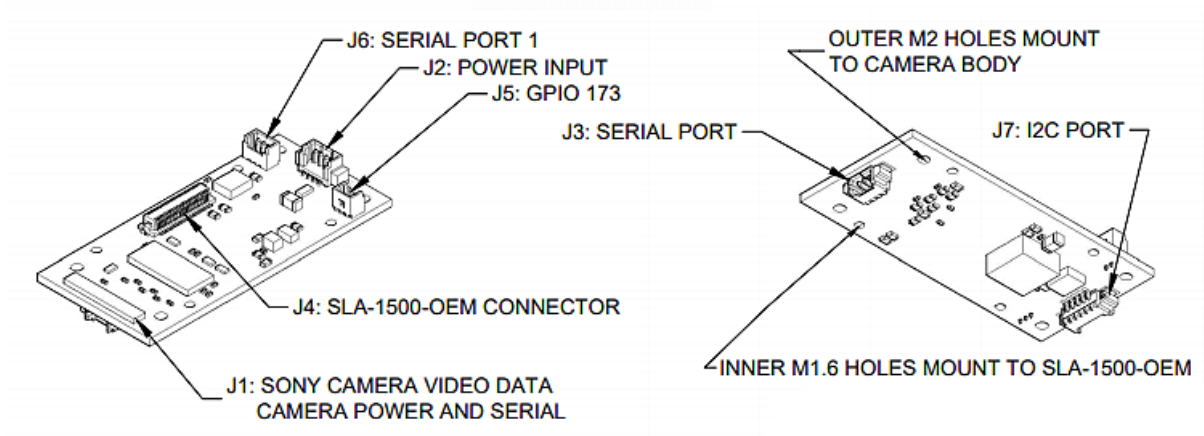



**Figure 7: 1500-Sony / Tamron Connector Callouts**

**Table 7: 1500-Sony / Tamron Connector Summary**

| Label | MFG Part Number | Function | Mates with: |
|---|---|---|---|
| J1 | KEL USL00-30L-A | Digital camera data to Sony | USL20-30SS-010.0-C[1] |
| J2 | 4-Pin Molex 53398-0471 | Power | Molex 51021-0400<br>CAB-0401 |
| J3 | 3-Pin Molex 53048-0310 | 3.3V TTL Serial 2 direct to Sony | Molex 051021-0300 / CAB-0302 |
| J4 | Hirose DF12B-50DS-0.5V(86) | Digital video connector | SLA-1500-OEM J4 DF12B-50DP-0.5V(86) |
| J5 | 2-Pin Molex 53047-0210 | 3.3V GPIO | Molex 051021-0200 |
| J6 | 3-Pin Molex 53047-0310 | 3.3V TTL Serial 1 to 1500-OEM | Molex 051021-0300 / CAB-0303 |
| J7 | 5-Pin Molex 53261-0571 | 3.3V TTL I2C connector | Molex 051021-0500 |

*[1]The KEL ribbon cable length should be as short as possible to ensure video quality and reduce EMI susceptibility. SightLine provides a 10cm cable with camera interface kits. A KEL cable length greater than 15cm is not recommended. There are COTS sources for alternate length KEL cables to help with custom integrations.*

**Table 8: 1500-Sony / Tamron Connector Descriptions**

<table>
<tr><td>Connector J1: Digital Camera Data to Sony</td><td colspan="3">See Sony or Tamron technical reference manuals for more information and pinout details. See KEL ribbon cable note in Table 7 above.</td></tr>
<tr><td rowspan="5">Connector J2: Power and Ground</td><td colspan="3">Use with CAB-1504 or similar.</td></tr>
<tr><td>Pin</td><td>Signal</td><td>Description</td></tr>
<tr><td>1</td><td rowspan="2">Power +12V</td><td rowspan="2">Provides power to the camera and the 1500-OEM. Powering the OEM through the J3 power pins and through the 1500-Sony board can damage the OEM.</td></tr>
<tr><td>2</td></tr>
<tr><td>3<br>4</td><td>Ground</td><td></td></tr>
<tr><td>Connector J3: Serial Port 2</td><td colspan="3">This port uses the standard pinout defined This serial port uses the standard pinout defined in Appendix - Standard Connector #1. This connector allows serial commands to be sent directly to the camera. When using this connector to talk directly to the camera, in Panel Plus set Serial Port 2 to Port Not Used.</td></tr>
<tr><td>Connector J4: Mates to 1500-OEM J4</td><td colspan="3">This port uses the standard pinout defined in Appendix - Standard Connector #3. The 1500-OEM plugs directly onto this connector.</td></tr>
<tr><td>Connector J5: GPIO Port</td><td colspan="3">This port uses the standard pinout defined in Appendix - Standard Connector #4. Connects to GPIO173.</td></tr>
<tr><td>Connector J6: Serial Port 1</td><td colspan="3">This port uses the standard pinout defined in Appendix - Standard Connector #1. The voltage levels are 3.3V TTL.</td></tr>
<tr><td>Connector J7: I2C Port</td><td colspan="3">This port uses the standard pinout defined in Appendix - Standard Connector #2. The voltage levels are 3.3V TTL. This port can be used for controlling accessories such as lenses.</td></tr>
</table>

# 7 SLA-1500-HIT

**Revision:** C

**Dimensions:** 1.81 in x 1.90 in (46.0 mm x 48.3 mm)

**Weight:** 10.6 grams

**EAN:** EAN-Hitachi-Block-1500-OEM

**Drawing:** SLA-1500-Hitachi

**STEP File:** SLA-1500-HITACHI STEP

**Rev History:** B: FFC pinout changed.

C: Serial port 1 (C) connector added. One mounting hole added.

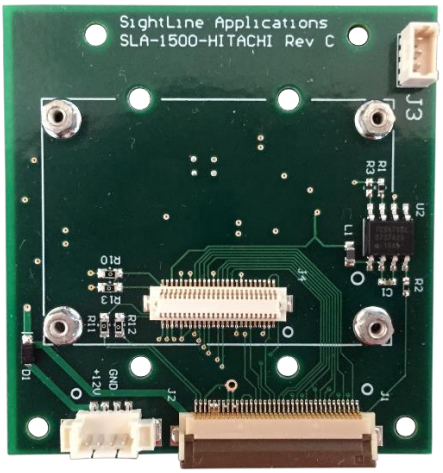



**Figure 8: 1500-HIT**

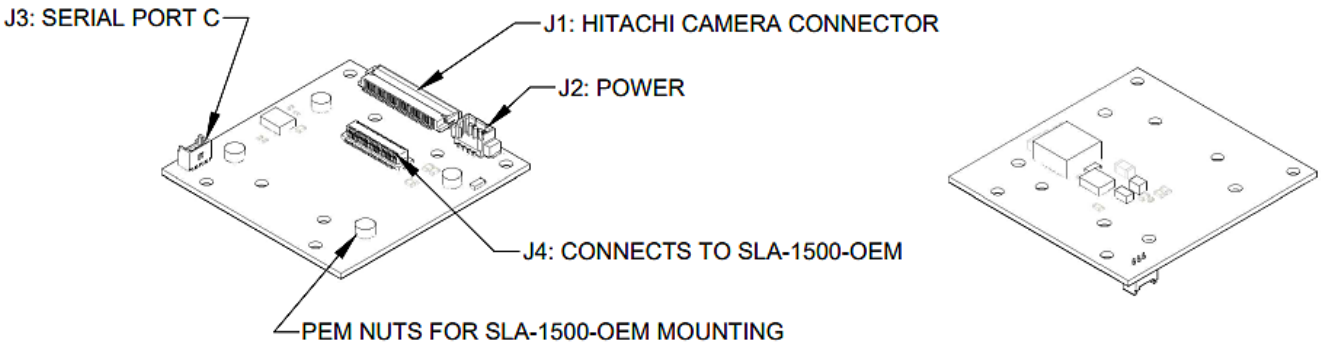



**Figure 9: SLA-1500-HIT Connector Callouts**

**Table 9: 3000-HIT Connector Summary**

| Label | MFG Part Number | Function | Mates with: |
|---|---|---|---|
| J1 | 36-Pin Hirose FH12-36-0.5SH(55) | Hitachi Camera connector | SLA-CAB-HC36 (MFG: 15266-0387) |
| J2 | 4-Pin Molex 53398-0471 | Power | Molex 51021-0400 / CAB-0401 |
| J3 | 3- Pin Molex 53047-0310 | Serial port 1 (C) | Molex 051021-0300 / CAB-0303 |
| J4 | 50-Pin Hirose DF12B-50DS-0.5V(86) | Digital video connector | SLA-1500-OEM J4 DF12B-50DP-0.5V(86) |

**Table 10: 1500-HIT Connector Descriptions**

| **Connector J1: Hitachi Video Connector** | **Pin** | **Signal** | **Pin** | **Signal** | **Pin** | **Signal** |
|---|---|---|---|---|---|---|
| | 1 | Ground | 13 | COUT(1) | 25 | DIG_CLK |
| | 2 | YOUT(0) | 14 | COUT(2) | 26 | Ground |
| | 3 | YOUT(1) | 15 | COUT(3) | 27 | Ground |
| | 4 | YOUT(2) | 16 | Ground | 28 | Ground |
| | 5 | YOUT(3) | 17 | COUT(4) | 29 | Ground |
| | 6 | Ground | 18 | COUT(5) | 30 | Ground |
| | 7 | YOUT(4) | 19 | COUT(6) | 31 | DC_IN |
| | 8 | YOUT(5) | 20 | COUT(7) | 32 | DC_IN |
| | 9 | YOUT(6) | 21 | Ground | 33 | DC_IN |
| | 10 | YOUT(7) | 22 | VSYNC | 34 | Ground |
| | 11 | Ground | 23 | HSYNC | 35 | TX |
| | 12 | COUT(0) | 24 | Ground | 36 | RX |
| **Connector J2: Power Connector** | **Pin** | | **Signal** | | | |
| | 1 | | PWR_IN - 12V Nominal | | | |
| | 2 | | PWR_IN - 12V Nominal | | | |
| | 3 | | Ground | | | |
| | 4 | | Ground | | | |
| **Connector J3: Serial Port 1 (C)** | This port uses the standard pinout defined in Appendix - Standard Connector #1. | | | | | |
| **Connector J4: Digital Video Connector** | This port uses the standard pinout defined in Appendix - Standard Connector #3. | | | | | |

# 8 SLA-1500-mAB

**Revision:** F

**Dimensions:** 2.55 in x 2 in (64.8 mm x 50.8 mm)

**Weight:** 24.6 grams

**Drawing:** SLA-1500-mAB

**STEP File:** SLA-1500-mAB STEP

**Rev History:** F: Corrected routing.

G: Replaced EOL part. Changed SMA connectors. Added mounting hole.

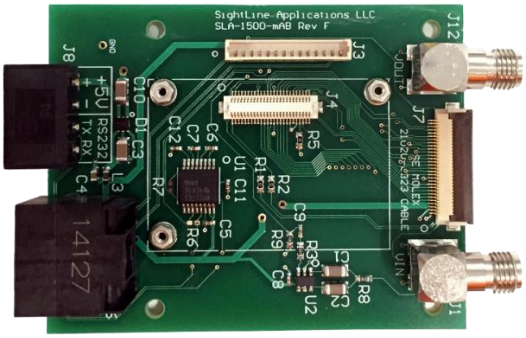



**Figure 10: 1500-mAB Board**

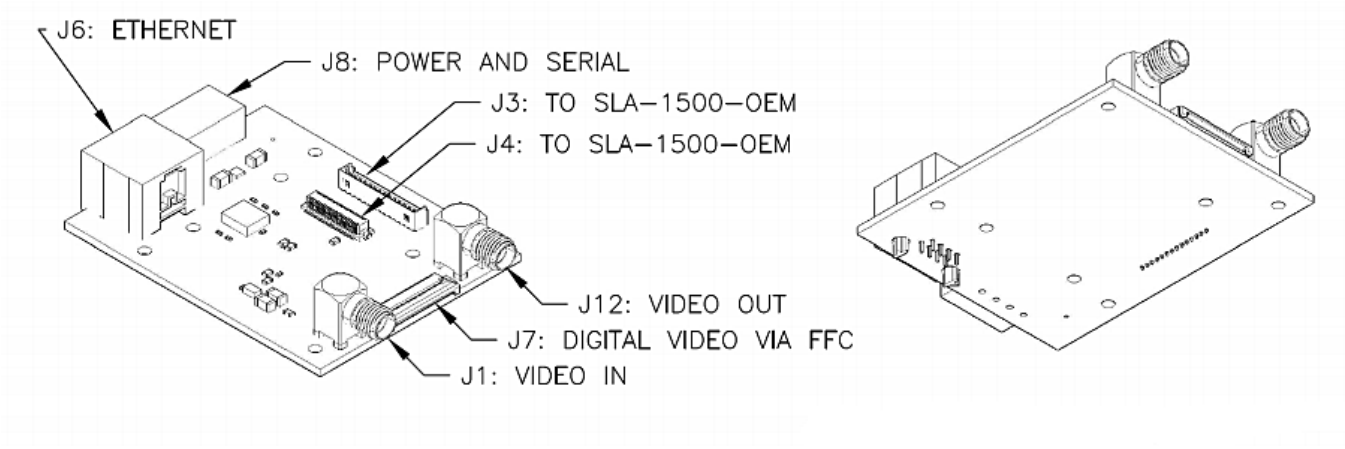
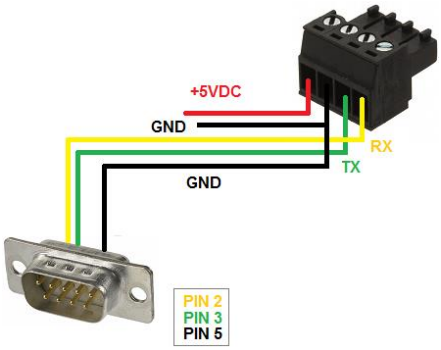



**Figure 11: 1500-mAB Connector Callouts**

**Table 11: 1500-mAB Connector Summary**

| Label | MFG Part Number | Function | Mates with: |
|---|---|---|---|
| J1 | CONSMA002 | Analog video input | Standard SMA |
| J3 | 14-Pin Molex 53047-1410 | 1500-OEM IO connector | CAB-1514 |
| J4 | 50-Pin Hirose DF12B-50DS-0.5V(86) | Digital video connector | SLA-1500-OEM J4 DF12B-50DP-0.5V(86) |
| J6 | 1-406525-1 | Ethernet | Standard CAT-5e cable |
| J7 | 30-Pin Hirose FH12-30S-0.5SH(55) | Digital video FFC connector | CAB-FF06 |
| J8 | Molex 39506-1004 | Power, RS-232C | Molex 039500-0004 |
| J12 | CONSMA002 | Analog video output | Standard SMA |

**Table 12: 1500-mAB Connector Descriptions**

<table>
<tr><td>Connector J1: Analog Video Input</td><td colspan="6">NTSC and PAL analog video input.</td></tr>
<tr><td>Connector J3: Analog Video, Power, Serial, Ethernet</td><td colspan="6">This port uses the standard pinout defined in Appendix - Standard Connector #5.</td></tr>
<tr><td>Connector J4: Analog Video Output</td><td colspan="6">NTSC analog video output.</td></tr>
<tr><td rowspan="6">Connector J6: 10/100 Base-T Ethernet</td><td colspan="6">Provides 10/100Base-T access using a standard Ethernet modular jack.</td></tr>
<tr><td>Pin</td><td>Signal</td><td>Description</td><td>Pin</td><td>Signal</td><td>Description</td></tr>
<tr><td>1</td><td>TX+</td><td>ORANGE + WHITE</td><td>5</td><td>NC</td><td></td></tr>
<tr><td>2</td><td>TX-</td><td>ORANGE</td><td>6</td><td>RX-</td><td>GREEN</td></tr>
<tr><td>3</td><td>RX+</td><td>GREEN + WHITE</td><td>7</td><td>NC</td><td></td></tr>
<tr><td>4</td><td>NC</td><td></td><td>8</td><td>NC</td><td></td></tr>
<tr><td rowspan="16">Connector J7: FFC Digital Video Connector<br><br>* VIOSEL out must match the camera voltage level for Digital Data, Pixel Clock, Line Valid and Frame Valid signals. This is +3.3V level for most cameras. This is used by the 1500-OEM for level translation.</td><td colspan="6">This connector is used to connect the board to various cameras using an FFC cable with a custom FFC-XXX board on the other side, where XXX stands for the individual camera being used.</td></tr>
<tr><td>Pin</td><td colspan="2">Description</td><td>Pin</td><td colspan="2">Description</td></tr>
<tr><td>1</td><td colspan="2">Camera TX</td><td>2</td><td colspan="2">Camera RX</td></tr>
<tr><td>3</td><td colspan="2">NC</td><td>4</td><td colspan="2">NC</td></tr>
<tr><td>5</td><td colspan="2">Ground</td><td>6</td><td colspan="2">Digital Data 13</td></tr>
<tr><td>7</td><td colspan="2">Digital Data 12</td><td>8</td><td colspan="2">Digital Data 11</td></tr>
<tr><td>9</td><td colspan="2">Digital Data 10</td><td>10</td><td colspan="2">Digital Data 9</td></tr>
<tr><td>11</td><td colspan="2">Digital Data 8</td><td>12</td><td colspan="2">Digital Data 7</td></tr>
<tr><td>13</td><td colspan="2">Digital Data 6</td><td>14</td><td colspan="2">Digital Data 5</td></tr>
<tr><td>15</td><td colspan="2">Digital Data 4</td><td>16</td><td colspan="2">Digital Data 3</td></tr>
<tr><td>17</td><td colspan="2">Digital Data 2</td><td>18</td><td colspan="2">Digital Data 1</td></tr>
<tr><td>19</td><td colspan="2">Digital Data 0</td><td>20</td><td colspan="2">Ground</td></tr>
<tr><td>21</td><td colspan="2">Pixel Clock Out</td><td>22</td><td colspan="2">Frame Valid</td></tr>
<tr><td>23</td><td colspan="2">Line Valid</td><td>24</td><td colspan="2">NC</td></tr>
<tr><td>25</td><td colspan="2">NC</td><td>26</td><td colspan="2">VIOSEL out (to OEM)*</td></tr>
<tr><td>27</td><td colspan="2">+5V Camera power in</td><td>28</td><td colspan="2">+5V Camera power in</td></tr>
<tr><td>29</td><td colspan="2">Ground</td><td>30</td><td colspan="2">Ground</td></tr>
<tr><td>Connector J12: Analog Video Output</td><td colspan="6">NTSC analog video output</td></tr>
<tr><td rowspan="6">Connector J8: Power + RS-232<br><br> 
</td><td>Pin</td><td>Signal</td><td colspan="4">Description</td></tr>
<tr><td>1</td><td>Power</td><td colspan="4">4.5V - 5.5V</td></tr>
<tr><td>2</td><td>GND</td><td colspan="4">Ground</td></tr>
<tr><td>3</td><td>TX</td><td colspan="4" rowspan="2">RS-232C level serial port. Share ground with PIN 2.</td></tr>
<tr><td>4</td><td>RX</td></tr>
<tr><td colspan="5"></td></tr>
</table>

# 9 SLA-1500-nAB

**Revision:** B

**Dimensions:** 1.48 in x 1.04 in (37.6 mm x 26.4 mm)

**Weight:** 10 grams (unverified)

**Drawing:** SLA-1500-nAB

**STEP File:** SLA-1500-nAB STEP

**Rev History:** B: Silkscreen improvements.

**Figure 12: 1500-nAB Board**

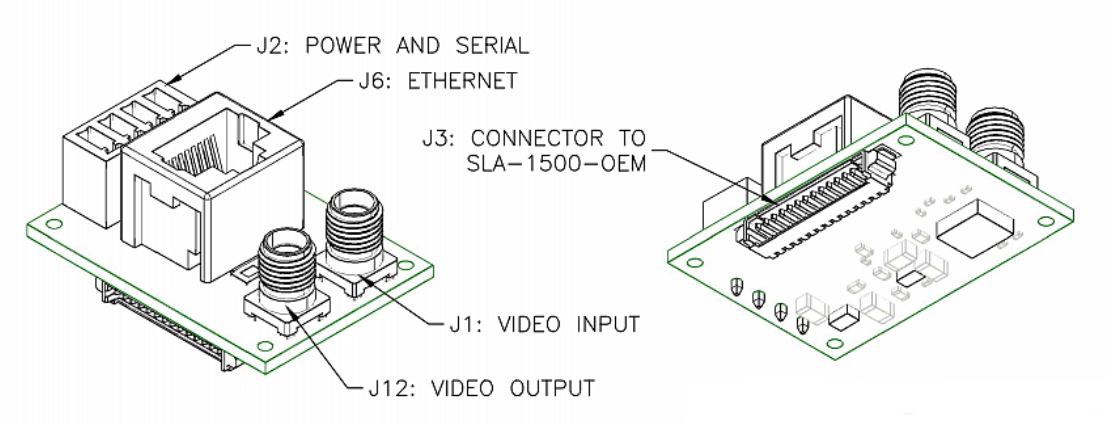



**Figure 13: 1500-nAB Connector Callouts**

**Table 13: 1500-nAB Connector Summary**

| Label | MFG Part Number | Function | Mates with: |
|---|---|---|---|
| J1 | CONSMA0012 | Analog video input | Standard SMA |
| J2 | 4-Pin Molex 39501-1004 | Power, RS-232C | Molex 039500-0004 |
| J3 | 14-Pin Molex 53261-1471 | 1500-OEM IO connector | CAB-1514 |
| J6 | 1-338088-3 | Ethernet | Standard CAT-5e cable |
| J12 | CONSMA001 | Analog video output | Standard SMA |

**Table 14: 1500-nAB Connector Descriptions**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Connector J1: SMA IN** | 75 Ohms, SMA vertical jack receptacle coax connector | | | | | |
| **Connector J2: Power Connector** | **Pin** | **Signal** | | | | |
| | 1 | PWR_IN - 12V Nominal | | | | |
| | 2 | PWR_IN - 12V Nominal | | | | |
| | 3 | Ground | | | | |
| | 4 | Ground | | | | |
| **Connector J3: Analog Video, Power, Serial, Ethernet** | This port uses the standard pinout defined in Appendix - Standard Connector #5. | | | | | |
| **Connector J6: 10/100 Base-T Ethernet** | Provides 10/100Base-T access using a standard Ethernet modular jack. | | | | | |
| | **Pin** | **Signal** | **Description** | **Pin** | **Signal** | **Description** |
| | 1 | TX+ | ORANGE + WHITE | 5 | NC | |
| | 2 | TX- | ORANGE | 6 | RX- | GREEN |
| | 3 | RX+ | GREEN + WHITE | 7 | NC | |
| | 4 | NC | | 8 | NC | |
| **Connector: J12: SMA OUT** | 75 Ohms, SMA vertical jack receptacle coax connector | | | | | |

## 10 SLA-1500-FPC

**Revision:** B

**Dimensions:** 1.49 in x 1.04 in (37.8 mm x 26.4 mm)

**Weight:** 4.2 grams

**Drawing:** SLA-1500-FPC

**STEP File:** SLA-1500-FPC STEP

**Rev History:**

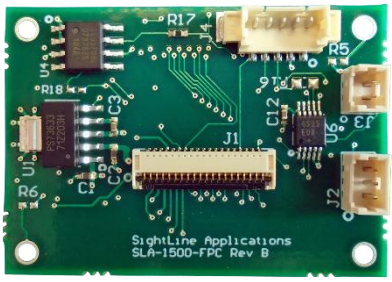



**Figure 14: 1500-FPC Board**

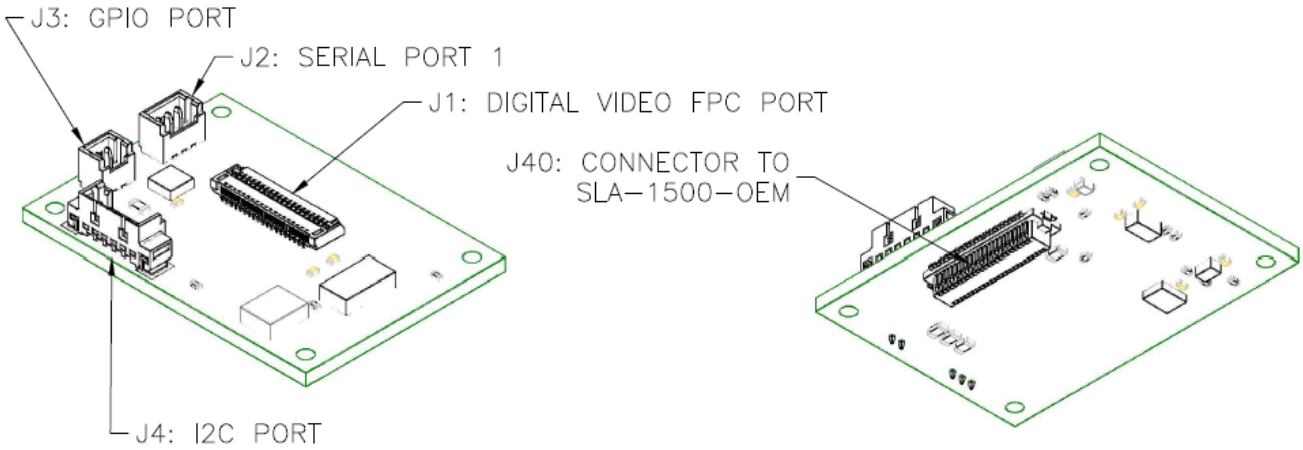



**Figure 15: 1500-FPC Connector Callout**

**Table 15: 1500-FPC Connector Summary**

| Label | MFG Part Number | Function | Mates with: |
|---|---|---|---|
| J1 | 501912-3990 | Camera FPC Connector | Molex 0150150239 |
| J2 | Molex 53047-0310 | Serial Port 1 (C) 3.3V TTL | Molex 051021-0300 / CAB-0303 |
| J3 | Molex 53047-0210 | GPIO172 | Molex 051021-0200 |
| J4 | Molex 53398-0571 | I2C/Power Connector | Molex 51021-0500 (housing) and 0500588000 (terminals) |
| J40 | DF12B-50DS-0.5V(86) | Digital Video Connector | SLA-1500-OEM J4 DF12B-50DP-0.5V(86) |

**Table 16: 1500-FPC Connector Descriptions**

| Connector | Description | | | | | |
|---|---|---|---|---|---|---|
| **Connector J40: Digital Video Connector** | Port uses the standard pinout defined in Appendix - Standard Connector #3 | | | | | |
| **Connector J1: FPC Connector** | **Pin** | **Signal** | **Pin** | **Signal** | **Pin** | **Signal** |
| | 1 | CAM_GPIO178 | 14 | CAM_FSYNC | 27 | CAM_D2 |
| | 2 | GROUND | 15 | CAM_LSYNC | 28 | GROUND |
| | 3 | 5VDC | 16 | FLASH_RX | 29 | GROUND |
| | 4 | 3.3VDC | 17 | TRIG_TX | 30 | CAM_D1 |
| | 5 | 3.3VDC | 18 | CAM_D11 | 31 | CAM_D0 |
| | 6 | VIOSEL_IN | 19 | CAM_D10 | 32 | I2C2SCL |
| | 7 | 5VDC | 20 | CAM_D9 | 33 | I2C2SDA |
| | 8 | 5VDC | 21 | CAM_D8 | 34 | NC |
| | 9 | GROUND | 22 | CAM_D7 | 35 | CAM_D15 |
| | 10 | MCLK | 23 | CAM_D6 | 36 | CAM_GPIO174 |
| | 11 | GROUND | 24 | CAM_D5 | 37 | CAM_D14 |
| | 12 | CAM_PCLK | 25 | CAM_D4 | 38 | CAM_D13 |
| | 13 | AIRBORNE_DET | 26 | CAM_D3 | 39 | CAM_D12 |
| **Connector J3: I2C/Power Connector** | This port uses the standard pinout defined in Appendix - Standard Connector #2. The voltage levels are 3.3V TTL. This port can be used for controlling accessories such as lenses. | | | | | |
| **Connector J2: Serial Port Connector** | This serial port uses the standard pinout defined in Appendix - Standard Connector #1. The voltage levels are 3.3V TTL – 1500 Serial 1 (C) | | | | | |
| **Connector J3: GPIO Connector** | This port uses the standard pinout defined in Appendix - Standard Connector #4. Connects to GPIO172. | | | | | |

# 11 SLA-1500-FFC

- Connects Serial Port 2 to camera
- 5VDC supply from 1500-OEM powers 1500-FFC board and camera
- Digital video is passed from 1500-FFC to 1500-OEM
- Serial Port 1 is available for user applications

*The 1500-FFC board was previously known as the SLA-1500-uAB.*

**Revision:** C

**Dimensions:** 1.49 in x 1.04 in (37.8 mm x 26.4 mm)

**Weight:** 4.2 grams

**Drawing:** SLA-1500-FFC

**STEP File:** SLA-1500-FFC STEP

**Rev History:** C: Added FFC Connector for Airborne 720p camera.

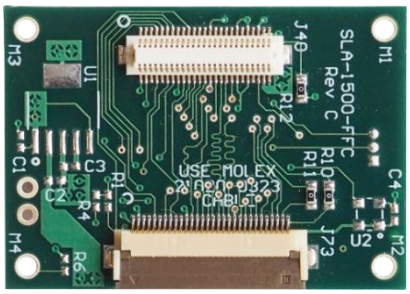



**Figure 16: 1500-FFC Board**

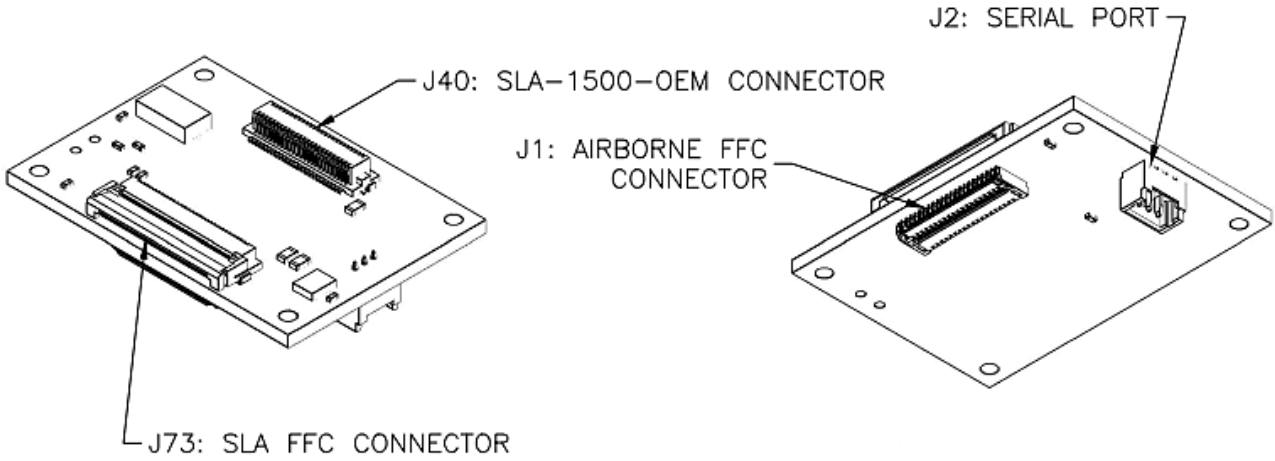



**Figure 17: 1500-FFC Connector Callouts**

**Table 17: 1500-FFC Connector Summary**

| Label | MFG Part Number | Function | Mates with: |
|---|---|---|---|
| J1 | 39-Pin Molex 501912-3990 | Airborne Camera FFC Connector | Molex 0150150239 |
| J40 | 50-Pin HIROSE DF12B-50DS-0.5V(86) | Digital video connector | SLA-1500-OEM J4 DF12B-50DP-0.5V(86) |
| J73 | 30-Pin HIROSE FH12-30S-0.5SH(55) | 5VDC, serial, digital video | FFC-xxxx USE MOLEX 21020-0323 or SIMILAR FFC cable |
| J2 | 3-Pin Molex 53047-0310 | Serial port 1 (passthrough) | Molex 051021-0300 / CAB-0303 |

**Table 18: 1500-FFC Connector Descriptions**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Connector J40: Mates to 1500-OEM** | This port uses the standard pinout defined in Appendix - Standard Connector #3. The 1500-OEM plugs directly onto this connector. | | | | | |
| **Connector J2: Serial Port 1** | See This serial port uses the standard pinout defined in Appendix - Standard Connector #1. The signal levels for this port vary based on which camera is connected. See the ICD-FFC-Camera-Interfaces for camera specific FFC board information. | | | | | |
| **Connector J73: FFC Digital Video** | **Pin** | **Signal** | | **Pin** | **Signal** | |
| | 1 | GND | | 16 | D04 | |
| | 2 | GND | | 17 | D05 | |
| | 3 | P5V | | 18 | D06 | |
| | 4 | P5V | | 19 | D07 | |
| | 5 | VIOSEL | | 20 | D08 | |
| | 6 | GPIO178 | | 21 | D09 | |
| | 7 | TAU_DET | | 22 | D10 | |
| | 8 | CAM_LSYNC | | 23 | D11 | |
| | 9 | CAM_FSYNC | | 24 | D12 | |
| | 10 | CAM_PCLK | | 25 | D13 | |
| | 11 | GND | | 26 | GND | |
| | 12 | D00 | | 27 | FRAME_VALID | |
| | 13 | D01 | | 28 | LINE_VALID | |
| | 14 | D02 | | 29 | UART_TX_CAM | |
| | 15 | D03 | | 30 | UART_RX_CAM | |

# 12 SLA-1500-CL

The 1500-CL (Camera Link ®) adapter board is designed to provide the 1500-OEM connectivity to third party Camera Link cameras. The 1500-CL allows the 1500-OEM to communicate over Serial Port 2 (/dev/ttyO2) to the camera for command and control.

- Single Camera Link input (SDR)
- Provides access to 16-bit digital video data
- Various image size and bit-depth can be set using the Generic Digital Interface in the SLA protocol
- Provides serial command and control (SerTC+/-, SerTFG+/-)
- Connects to the 1500-OEM digital video connector (J4)

*When using the 1500-CL for digital video, analog video input is also available on the 1500-OEM through the J3 connector. Both digital video and analog video can be used. Various image sizes and bit depths can be accepted.*

**Revision:** B

**Dimensions:** 1.49 in x 1.49 in (37.7 mm x 37.7 mm)

**Weight:** 9.8 grams

**Drawing:** SLA-1500-CL

**STEP File:** SLA-1500-CL STEP

**Rev History:** B: Corrected signal routing.

**Figure 18: 1500-CL Board**

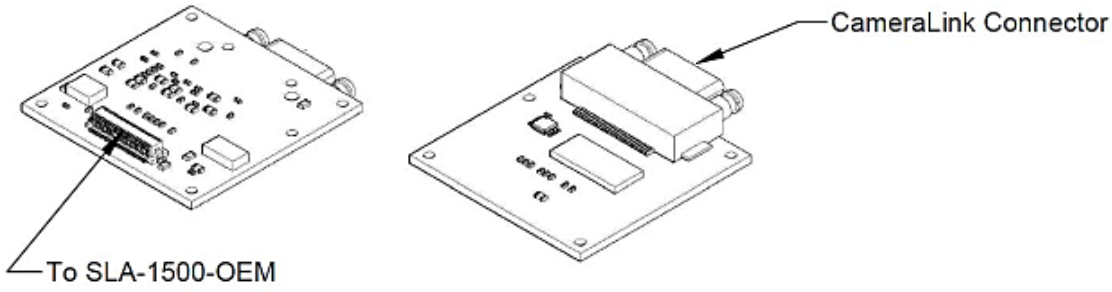



**Figure 19: 1500-CL Connector Callouts**

**Table 19: 1500-CL Connector Summary**

| Label | MFG Part Number | Function | Mates with: |
|---|---|---|---|
| J1 | 50-Pin Hirose DF12B-50DS-0.5v(86) | Digital video port + serial communications | Digital video connector |
| J2 | 26-Pin 12226-8250-00FR | SDR Camera Link connector | Cameras |

**Connector J1:** Digital Video Port and Serial communications. This connector is designed to mate with the 1500-OEM J4 connector. See the ICD-1500-OEM for the correct pin-out description.

**Connector J2:** 26-pin SDR Camera Link connector. This is a standard 26-pin Camera Link connector. Camera Link uses differential signal pairs for both video and serial communication. These signals are routed to an LVDS converter. The output is then routed to the J4 connector for use by 1500-OEM. The signals below are provided for reference use only. See the Camera Link specification for details when customizing a Camera Link adapter board.

**Table 20: Connector J2 Pin-Out**

| Pin | Signal | Pin | Signal |
|---|---|---|---|
| 1 | Ground | 14 | Ground |
| 2 | NC | 15 | NC |
| 3 | NC | 16 | NC |
| 4 | NC | 17 | NC |
| 5 | NC | 18 | NC |
| 6 | CAMTXOUT+ | 19 | CAMTXOUT- |
| 7 | CAMRXIN- | 20 | CAMRXIN+ |
| 8 | RXIN3+ | 21 | RXIN3- |
| 9 | RXINCLK+ | 22 | RXINCLK- |
| 10 | RXIN2+ | 23 | RXIN2- |
| 11 | RXIN1+ | 24 | RXIN1- |
| 12 | RXIN0+ | 25 | RXIN0- |
| 13 | Ground | 16 | Ground |

*NC = Not Connected. Pins 27 and 28 (SHIELD) are not shown. On the board they are tied to common ground.*

**Table 21: 1500-CL Test Points**

| Label | Signal |
|---|---|
| RX | SOMRXIN Serial port 2 |
| TX | SOMTXOUT Serial port 2 |

### Clock Divider

The 1500-OEM does not utilize the Data Valid (DV) signal to clock out video. There is an on-board clock divider available (U1) for this purpose. If the clock from the camera is less than 20 MHz, R34 (FLIR) should remain populated with a zero-ohm resistor, however if the clock from the camera is equal to or greater than 20MHz, R34 should be removed and R33 populated with a zero-ohm resistor instead.

## 13 Questions and Additional Support

For questions and additional support, please contact Technical Support. Additional support documentation and Engineering Application Notes (EANs) can be found on the Support pages of the SightLine Applications website.

# Appendix - Standard Connector Pinouts

| **Standard Connector #1:** | 3-Pin Serial Port | | |
|---|---|---|---|
| Connector Part Number: | Molex PicoBlade (53047-0310 or 53398-0371) | | |
| Mating Part Number: | CAB-0303 | | |
| *A custom mating cable can also be made using Molex 51021-0300 (housing) and 0500588000 (terminals).* | **Pin** | **Signal** | **Description** |
| | 1 | GND | Serial port, voltage levels are either RS232 or TTL, board dependent |
| | 2 | TX | |
| | 3 | RX | |

| **Standard Connector #2:** | 5-Pin I2C Connector | | |
|---|---|---|---|
| Connector Part Number: | Molex PicoBlade (53047-0510 or 53398-0571) | | |
| Mating Part Number: | Molex 51021-0500 (housing) and 0500588000 (terminals) | | |
| | **Pin** | **Signal** | **Description** |
| | 1 | Power | 3.3V Power Output |
| | 2 | Ground | Ground |
| | 3 | GPIO | GPIO pin (GPIO number is board dependent) |
| | 4 | SDA | I2C SDA |
| | 5 | SCL | I2C SCL |

| **Standard Connector #3:** | 50-Pin Digital Video Connector | | | | | |
|---|---|---|---|---|---|---|
| Connector Part Number: | DF12B-50DS-0.5V(86) | | | | | |
| Mating Part Number: | 1500-OEM J4 [DF12B(5.0)-50DP-0.5V(86)] | | | | | |
| | **Pin** | **Signal** | **Pin** | **Signal** | **Pin** | **Signal** |
| | 1 | Serial RX B | 19 | Cam GPIO 178 | 37 | Ground |
| | 2 | Serial TX B | 20 | Cam D13 | 38 | Ground |
| | 3 | Cam Clock A | 21 | Ext Sync | 39 | Cam PClk |
| | 4 | Cam Clock B | 22 | Cam D12 | 40 | Cam WEN |
| | 5 | Ground | 23 | Cam D11 | 41 | Ground |
| | 6 | Ground | 24 | Cam D10 | 42 | Ground |
| | 7 | I2C2SCL | 25 | Cam D09 | 43 | Video In 1 |
| | 8 | I2C2SDA | 26 | Cam D08 | 44 | Analog Gnd |
| | 9 | Cam GPIO175 | 27 | Ground | 45 | Ground |
| | 10 | Cam FLD | 28 | Ground | 46 | VIO Select |
| | 11 | Cam VS | 29 | Cam D07 | 47 | Ground |
| | 12 | Cam HS | 30 | Cam D06 | 48 | +5V Out |
| | 13 | Cam GPIO174 | 31 | Cam D05 | 49 | Ground |
| | 14 | Cam GPIO173 | 32 | Cam D04 | 50 | +5V Out |
| | 15 | Serial RX A | 33 | Cam D03 | | |
| | 16 | Serial TX A | 34 | Cam D02 | | |
| | 17 | Ground | 35 | Cam D01 | | |
| | 18 | $\overline{\text{TAUDET}}$ | 36 | Cam D00 | | |

*(Standard Connector Pinouts continued)*

| **Standard Connector #4:** | 2-Pin GPIO Connector | | |
|---|---|---|---|
| Connector Part Number: | Molex PicoBlade (53047-0210 or 53398-0271) | | |
| Mating Part Number: | Molex 51021-0200 (housing) and 0500588000 (terminals) | | |
| | **Pin** | **Signal** | **Description** |
| | 1 | GPIO | GPIO connection, voltage and GPIO number are board dependent |
| | 2 | Ground | Ground |

| **Standard Connector #5:** | 14-Pin IO Connector | | | | |
|---|---|---|---|---|---|
| Connector Part Number: | Molex PicoBlade (53047-1410 or 53398-1471) | | | | |
| Mating Part Number: | Molex 51021-1400 (housing) and 0500588000 (terminals) | | | | |
| | **Pin** | **Signal** | | **Pin** | **Signal** |
| | 1 | Video In0 | | 8 | +5V Input |
| | 2 | Ground | | 9 | +5V Input |
| | 3 | Video Out | | 10 | Ground |
| | 4 | Ground | | 11 | Ethernet RX - |
| | 5 | TX A | Serial Port 0 at 3.3V TTL | 12 | Ethernet RX + |
| | 6 | RX A | | 13 | Ethernet TX + |
| | 7 | Ground | | 14 | Ethernet TX - |

| **Standard Connector #6:** | HDMI Connector | | | | | |
|---|---|---|---|---|---|---|
| Connector Part Number: | 10029449-001RLF | | | | | |
| Mating Part Number: | HDMI TYPE-A connector | | | | | |
| | **Pin** | **Description** | **Pin** | **Description** | **Pin** | **Description** |
| | 1 | D2+ | 8 | DGND | 14 | Reserved |
| | 2 | DGND | 9 | D0- | 15 | SCL |
| | 3 | D2- | 10 | CLK+ | 16 | SDA |
| | 4 | D1+ | 8 | DGND | 17 | DGND |
| | 5 | DGND | 11 | DGND | 18 | +5V |
| | 6 | D1- | 12 | CLK- | 19 | Hot plug detect |
| | 7 | D0+ | 13 | CEC | Shield | DGND |