



## EAN-HDMI Input

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Exports: [Export Summary Sheet](#)

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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*



## 1 Overview

This document describes how to set up and configure the SightLine OEM boards and camera adapter boards to receive video from HDMI cameras.

### 1.1 Additional Support Documentation

Additional Engineering Application Notes (EANs) can be found on the [Documentation](#) page of the SightLine Applications website.

The [Panel Plus User Guide](#) provides a complete overview of settings and dialog windows located in the Help menu of the Panel Plus application.

The Interface Command and Control (IDD) describes the native communications protocol used by the SightLine Applications product line. The IDD is also available as a PDF download on the [Documentation](#) page under Software Support Documentation.

### 1.2 SightLine Software Requirements

1500-OEM: Version 2.22.19 and higher and FPGA version 12.

3000-OEM (REV C): Version 2.24.xx and higher.

**ⓘ IMPORTANT:** The Panel Plus software version should match the firmware version running on the board. Firmware and Panel Plus software versions are available on the [Software Download](#) page.

#### 1.2.1 FPGA - 1500-OEM

Version 12 of the FPGA driver firmware is required for the camera to operate correctly with the 1500-OEM. Version information is located on the *Connect* tab under the *Video Output* section. See the [EAN-FPGA Firmware Update 1500-OEM](#) for updating instructions.



Firmware Ver: 3.3.1.6 FPGA:12, temp: 98°F [37°C]  
SVN Revision: 58309, Build Date: 01/11/2021, Build Time: 4:48:51

**Figure 1: FPGA Version Number Location**

## 2 Connection and Configuration Notes

**ⓘ IMPORTANT:** The HDMI camera must be powered separately from the SightLine boards. Camera power is not supplied through the 3000-HDMI input board.

The HDMI input board allows acquisition of HDMI video. Acquisition parameters are setup in the Panel Plus application. Settings include 720P/1080P resolution and frame step. They are persisted on the 1500-OEM and 3000-OEM through subsequent restarts.

At power up, the board reads the acquisition parameters and generates EDID data corresponding to the user specified resolution. If the user selects 720P, the EDID data only contains 720P. If the user selects 1080P, the EDID data only contains 1080P. The board programs the HDMI receiver chip with the corresponding EDID data.



There is no flash memory on the HDMI receive chip. The EDID data is only programmed and available after the board has fully booted. Booting can take 20 to 30 seconds from power up.

The HDMI HPD signal is a Hot Plug Detect (HPD). This tells the HDMI source (the camera) that it has been plugged into an HDMI sink (monitor) and that the source can read EDID data from the sink. Both 1500 and 3000 HDMI boards have pull-ups to pull this line high. When the 1500/3000 programs the EDID data into the HDMI receiver, the HDMI boards automatically pull the HPD line low when starting to program EDID, and then release it to high once the EDID data is valid. This lets the HDMI source (camera) know that the EDID has been programmed and that it should reconnect to the sink.

The board receives video with the resolution set up in the Acquisition Settings dialog window of Panel Plus. The HDMI board does not require that the EDID data be read, only that correct resolution HDMI video is sent to the receiver chip.

The HDMI camera may do one of the following:

- If the camera is set in automatic mode and supports the resolution in the EDID data, it can send video at the requested resolution.
- If the camera is in manual mode, it will remain in 720p or 1080p mode. If this mode does not match the settings in the Acquisition Settings dialog window in Panel Plus, then no video will display (or possibly misaligned video)
- If the camera does not support the requested resolution in the EDID data, it can output a different resolution.

Cameras can support various frame rates at different resolutions. Currently, the EDID data output by the HDMI board supports the following modes:

- 720p30 or 720p60 - camera determines frame rate
- 1080p30 or 1080p60 - camera determines frame rate

Configuring the resolution on a GoPro camera with the GoPro menus does not configure the HDMI format. If the board is power cycled and the HDMI camera is not, there may be issues with video acquisition. See the [Video Acquisition After Power Cycling](#) section.

HDMI cameras generally output the highest frame rate configurable. When running in 1080p/60 mode (or at 60fps), we recommend lowering the frame rate to 30fps using the *Frame Step* parameter in the *Acquisition Settings* dialog window. It is possible that the camera will output 1080p/30 or 720p30. In this case, the *Frame Step* setting should remain at 0.

### 3 Interface Boards and Adapters

System interface boards provide options for network interfacing, serial ports, and GPIO. Camera interface and adapter boards provide an interface from the camera to OEM. See the [ICD-1500 Adapter Boards](#) and [ICD-3000-4000 Adapter Boards](#) for complete specifications and pinouts.

**ⓘ IMPORTANT:** All boards should be connected and secured with the included cables and hardware fasteners first before applying power.



## 4 Hardware Connections

### 4.1 1500-OEM HDMI Camera Bench Setup

#### Interface and adapter boards:

- [SLA-1500-HDMI](#): HDMI camera and [1500-OEM](#) interface.
- [SLA-1500-AB](#): Provides serial and network interfaces.

#### Cable connections:

- HDMI cable (not included): Connects the HDMI camera and the 1500-HDMI board.
- SLA-CAB-1514: Connects to J3 (14-pin) on the 1500-OEM connector and to the 1500-AB J3 (14-pin) connector. Provides analog video, network, and serial connections to the 1500-OEM board.
- SLA-PWR-B05V (110-250VAC input / 5VDC output): Connects to J2 on the SLA-1500-AB board.

 For GoPro cameras, power to the camera is provided by a standard USB cable to a 5-volt USB wall adapter. Do not power the camera from a PC USB port.

#### Power and network connectivity LEDs:

A green light indicates the 1500-AB board is powered on. A blue light on the 1500-AB and a green light on the 1500-OEM board indicate that all the boards are powered on. A second flashing green light on the 1500-OEM indicates network connectivity.

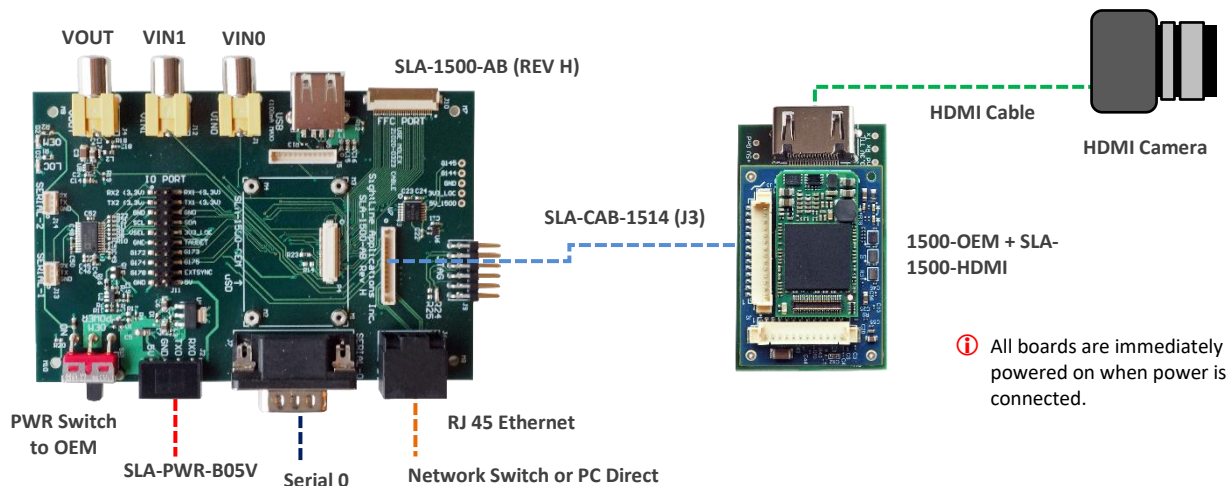


Figure 2: 1500-OEM HDMI Camera Bench Setup



## 4.2 3000-OEM HDMI Camera Bench Setup

### Interface and adapter boards:

- [SLA-3000-HDMI](#): HDMI camera and [3000-OEM](#) interface.
- [SLA-3000-IO](#): Provides serial and network interfaces. Adapter boards can be connected to one of two available video input connectors (VIN1 or VIN0). See the 3000-OEM [exploded assembly](#) drawing for more connection layout information.

*VIN0 has camera channels 0 and 1 assigned. VIN1 has camera channels 2 and 3 assigned. If the configuration includes an analog board with a digital adapter board the analog board must be installed on VIN0.*

- [SLA-3000-mIO](#) (optional smaller IO board): Provides serial and network interfaces. This board allows SLA-3000-HITACHI board to be connected directly to the OEM board.

### Cable connections:

- HDMI cable (not included): Connects the HDMI camera and the 3000-HDMI board.
- SLA-CAB-0403: Connects to J4 on SLA-3000-mIO board. Provides an RJ45 Ethernet connection.
- SLA-PWR-C12V(110-250VAC input / 12VDC output): Connects to J5 on the SLA-3000-IO board.
- SLA-CAB-1504 / SLA-PWR-B12V (110-250VAC input / 12VDC output): Connects to J9 on the SLA-3000-mIO board.

*For GoPro cameras, power to the camera is provided by a standard USB cable to a 5-volt USB wall adapter. Do not power the camera from a PC USB port.*

### Power and network connectivity LEDs:

A green light on the 3000-IO or 3000-mIO board indicates that all boards are powered on. An amber light on the 3000-OEM board verifies network connection.

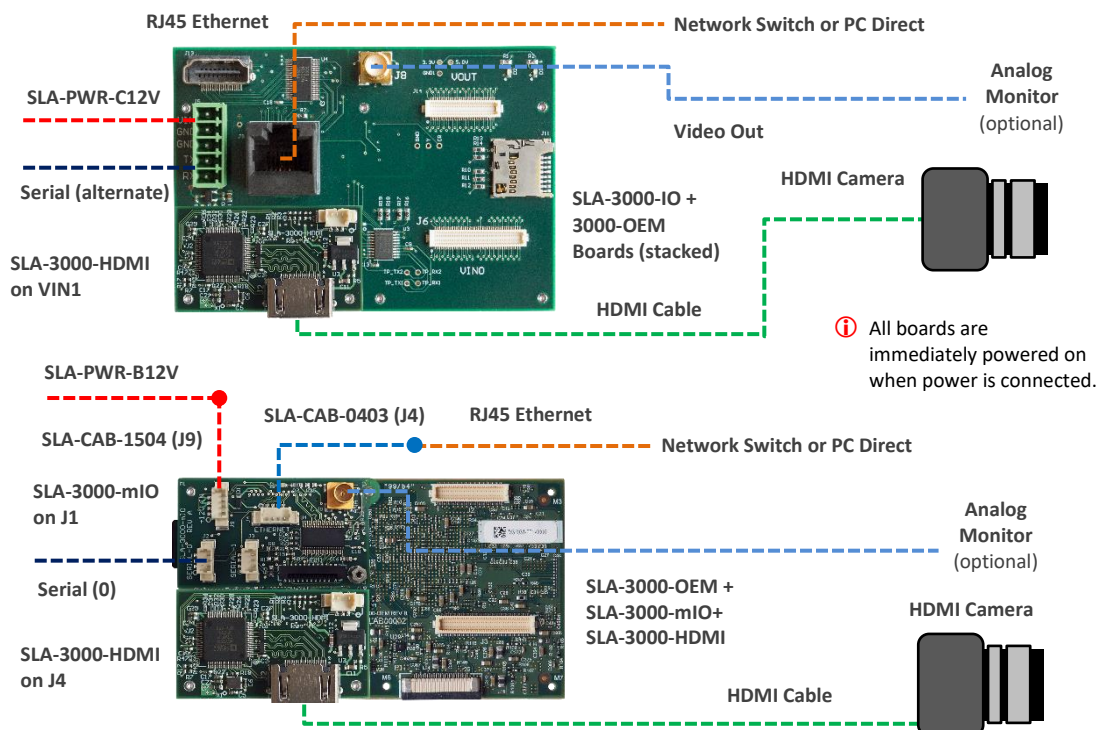
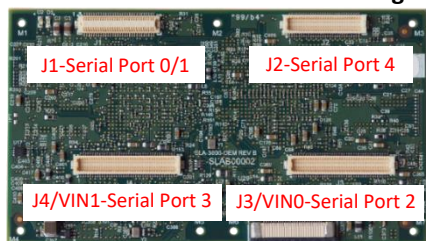




Figure 3: 3000-OEM HDMI Camera Bench Setup



3000-OEM	SLA-3000-IO	Serial Port	Camera Index Panel Plus
J1		0/1	NA
J2	VOUT	4	NA
J3	VIN0	2	CAM0/CAM1
J4	VIN1	3	CAM2

Figure 4: 3000-OEM Serial Port and Connector Reference

### 4.3 4000-OEM HDMI Camera Bench Setup

#### Interface and adapter boards:

- **SLA-3000-HDMI:** HDMI camera and 4000-OEM interface. Serial and network interfaces are provided on the 4000-OEM board.
- The SLA-3000-HDMI board can be connected to J6 on the 4000-OEM. Additional camera adapter boards can be connected using the SLA-4000-MIPI board on J9. See the **ICD-3000-4000 Adapter Boards** for specific MIPI board power requirements.

#### Cable connections:

- HDMI cable (not included): Connects to the 3000-HDMI interface board and the HDMI camera.
- SLA-CAB-0403: Connects to J4 on 4000-OEM board. Provides an RJ45 Ethernet connection.
- SLA-CAB-1504 / SLA-PWR-B12V-36W (110-250VAC input / 12VDC output): Connects to J50 on the 4000-OEM board.

*For GoPro cameras, power to the camera is provided by a standard USB cable to a 5-volt USB wall adapter. Do not power the camera from a PC USB port.*

#### Power and network connectivity LEDs:

A green light (D1) on the 4000-OEM board indicates that all boards are powered on. An amber light (D5) verifies network connection.

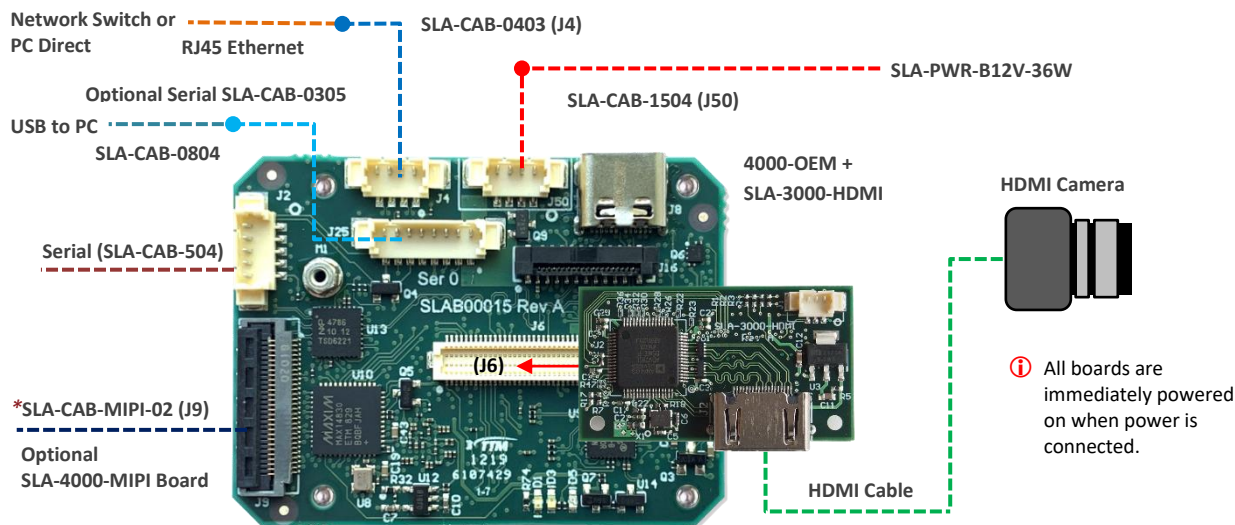


Figure 5: 4000-OEM HDMI Camera Bench Setup

\*SLA-CAB-MIPI-02 is an FFC cable and must be oriented and connected correctly. See **FFC cable** instructions and precautions before connecting the SLA-4000-MIPI board.



## 5 Configuration Settings

This section covers the basic camera configuration settings in Panel Plus for the SightLine OEM video processing boards.

Before connecting with the Panel Plus software, the OEM board should be powered up and connected through:

- a network switch or directly to the host PC (preferred) or,
- Direct serial connection (for troubleshooting or if a network connection cannot be established).

See the one of the corresponding OEM startup guides for connection and video streaming instructions:

- [EAN-Startup Guide 1500-OEM](#)
- [EAN-Startup Guide 3000-OEM](#)
- [EAN-Startup Guide 4000-OEM](#)

**IMPORTANT:** This procedure assumes that the customer has read the OEM startup guide(s) and has a basic understanding of the following fundamentals:

- Completed a functional connection between the SightLine video processing board and Panel Plus application
- Familiar with Panel Plus controls
- Successfully streamed video in Panel Plus

If you do not have a strong basic system setup and familiarity, we recommend reviewing the OEM startup guide(s) and work with our support team to establish basic connection and streaming fundamentals.

### 5.1 Acquisition Settings

From the main menu in Panel Plus go to *Configure » Acquisition Settings*.

If available, use the *Auto Fill* drop down menu in the *Acquisition Settings* dialog to automatically populate the relevant fields with the correct settings. The settings can also be manually entered as shown in [Table 1](#), [Table 2](#), or [Table 3](#).

For information about Acquisition fields in Panel Plus see [EAN-Digital Video Configuration](#).

Save parameters and reset the board when changing parameters. Cycle system power when changing resolution.

If video does not display, try saving and activating the settings again. Check the encoding settings on the *Compress* tab and review the network addresses for the destination video.



**Table 1: 1500-OEM Panel Plus Basic Acquisition Settings**

HDMI	Camera Index = Digital		Camera Type = Generic Digital									
Acquisition Settings	Auto Fill	Height	Width	VFP	HFP	Bits	Input	Invert VSync	Invert HSync	Sync/Crop	Init Code	Flags
HDMI 720p	HDMI 720p	720	1280	20	220	16	YUV	None	None	None	None	0x1
HDMI 1080p	HDMI 1080p	1080	1920	36	148	16	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 3.01.xx and above and FPGA version 12.</i>												
<b>FLIR</b>												
Duo Pro R 640	No	720	1280	21	240	8	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 2.25 and above and FPGA version 12.</i>												
<b>GoPro</b>												
Hero 3 White Hero 3+ Black Hero 5 Black	No	720	1280	20	220	8	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 2.20.13 and above. Frame Step 2 may be required for cameras that output P60 frame rate. Requires FPGA version 12.</i>												

**Table 2: 3000-OEM Panel Plus Basic Acquisition Settings**

HDMI	Camera Index = Digital		Camera Type = Generic Digital									
Acquisition Settings	Auto Fill	Height	Width	VFP	HFP	Bits	Input	Invert VSync	Invert HSync	Sync/Crop	Init Code	Flags
HDMI 720p	HDMI 720p	720	1280	20	220	16	YUV	None	None	None	None	0x1
HDMI 1080p	HDMI 1080p	1080	1920	36	148	16	YUV	None	None	None	None	0x1
HDMI 1600x1200	HDMI 1600x1200	1200	1600	32	40	16	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 3.01.xx and above.</i>												
<b>FLIR</b>												
Duo Pro R 640	No	720	1280	21	238	8	YUV	None	None	None	None	0x1
	No	1080	1920	36	148	8	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 2.25.xx and above.</i>												
<b>GoPro</b>												
Hero 3 White Hero 3+ Black Hero 5 Black	No	720	1280	20	220	8	YUV	None	None	None	None	0x1
	No	1080	1920	36	148	8	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 2.24.xx and above. Use Frame Step 2 for cameras that output P60 frame rates. Additional resolutions may be supported by the 3000-OEM (1024x768, 1280x800).</i>												
<b>Sentech</b>												
STC-HD223	No	1080	1920	36	148	8	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 2.23.xx and above</i>												

**Table 3: 4000-OEM Panel Plus Basic Acquisition Settings**

HDMI	Camera Index = 0		Camera Type = Generic Digital									
Acquisition Settings	Auto Fill	Height	Width	VFP	HFP	Bits	Input	Invert VSync	Invert HSync	Sync/Crop	Init Code	Flags
HDMI 480i	HDMI 480i	480	720	0	0	8	YUV	Yes	Yes	Embed Sync	None	0x4809
HDMI 576i	HDMI 576i	576	720	0	0	8	YUV	Yes	Yes	Embed Sync	None	0x4809
<i>Configuration notes: Requires software version 3.2.x and above. Check Interlaced. Check Byte Swap.</i>												
HDMI 720p	HDMI 720p	720	1280	20	220	16	YUV	None	None	None	None	0x1
HDMI 1080p30	HDMI 1080p30	1080	1920	36	148	16	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 3.01.xx and above.</i>												
HDMI 1080p60	HDMI 1080p60	1080	1920	36	148	16	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 3.01.xx and above. Enter &lt;mipi_clk=200&gt; in the Options field.</i>												
<b>FLIR</b>												
Duo Pro R 640	No	720	1280	21	238	8	YUV	None	None	None	None	0x1
	No	1080	1920	36	148	8	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 3.00.04 and above.</i>												
<b>GoPro</b>												
Hero 3+ Black	No	720	1280	20	220	8	YUV	None	None	None	None	0x1
	No	1080	1920	36	148	8	YUV	None	None	None	None	0x1
<i>Configuration notes: Requires software version 3.00.04 and above. Does not support 1080P30 frame rate.</i>												





(4000-OEM Panel Plus Basic Acquisition Settings continued)

HDMI	Camera Index = 0		Camera Type = Generic Digital									
Acquisition Settings	Auto Fill	Height	Width	VFP	HFP	Bits	Input	Invert VSync	Invert HSync	Sync/Crop	Init Code	Flags
Sony FCB-ER Series	Camera Index = Cam 1		Camera Type = Generic Digital									
Sony FCB-ER8300, 8550, 8530 + TWIGA HDMI Adapter Board	HDMI 720p	720	1280	20	220	16	YUV	None	None	None	None	0x1
	HDMI 1080p	1080	1920	36	148	16	YUV	None	None	None	None	0x1

*Configuration notes: Requires software version 3.00.04 and above. Use Auto Fill HDMI 720P or HDMI 1080P.*

### 5.2 Setup Logical Networks - 3000-OEM

The 3000-OEM can be setup for two logical networks. Each can have independent destination addresses and ports. This can be setup from the *Streaming* section on the *Compress* tab.

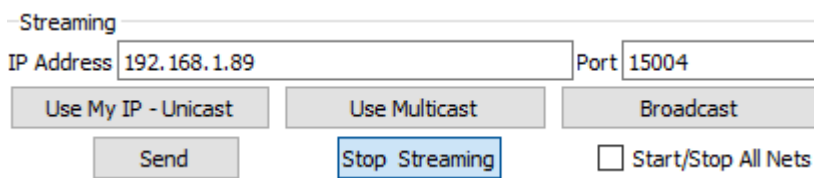


Figure 6: Setup Logical Networks

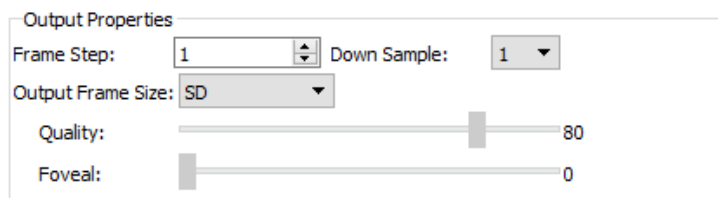
Assign a destination address and port for Network 0 or use the *Use My IP - Unicast* button to fill in the IP address. If using identical destination addresses, enter a unique port number for each.

Refer to the [EAN-Network Configuration](#) document for more information about setting up the two logical networks for the 3000-OEM. Panel Plus only displays video from logical Network 0.

### 5.3 Output Frame Size - 1500-OEM

1. Click the *Compress* tab and set the *Output Frame Size* in the *Output Properties* section. For HDMI select either 1280x720 or 960x720.

*Selecting SD allows for the best processed output frame rate (see the next section for more details).*



2. Save parameters. Reset the board or cycle system power.



## 5.4 Impacts of Frame Size on Frame Rate

When selecting input and output frame size, processor rates and latency should be considering factors. The 1500-OEM can run close to the frame rate when processing HDMI input of 720p with the 720x960 frame size selected.

Processing time will increase for each video processing function enabled. If adding stabilization, tracking, MTI, etc., there will be an impact to overall processing and latency, which is reflected in output frame rates. This is a result of increasing the amount of processing being placed on the encoder (encoding larger frames).

The output video streaming statistics can be viewed from the *Compress* tab. The statistics are averages of the outbound stream.

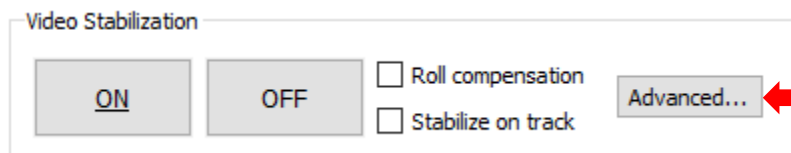
Statistics					
Frames	24.40	[1/sec]	Video	1203.43	[Kb/sec]
Profile:	Baseline		KLV	33.78	[Kb/sec]
Encapsulation:	mpegts		Codec:	h264	

Figure 7: Output Video Streaming Statistics

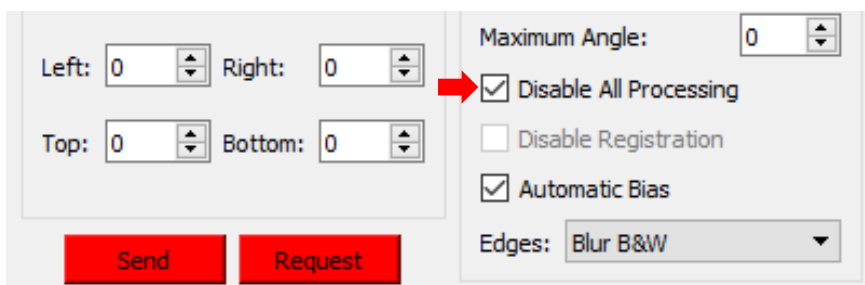
## 6 Improve Processing and Increase Frame Rate Output

There are different ways to allocate more processing to the encoding and increase the output frame rate. If the system is being used as an encoder only, one option is to disable the *Stabilization* processes.

1. In Panel Plus click on the *Video* tab. Click *Advanced*.



2. In the *Stabilization and Registration* dialog window, check the *Disabling All Processing*. Click *Send*. This will disable stabilization and telemetry tracking.



3. Click the *Compress* tab to review the output statistics.

While 1080p input to the 1500-OEM board is supported, we recommend 720p as the maximum input frame rate for the 1500-OEM when utilizing multiple video processing library functions simultaneously.



## 7 Camera and HDMI Board Compatibility

The following cameras have been tested and verified to work with the HDMI board. Refer to this section during camera setup. If a camera is not listed here, contact [Support](#) for more information.

### 7.1.1 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	Frame Step	Camera Setting
480	720	8	30	60	1	1	WVGA 240 FPS
720	1280	8	20	222	1	2	720 60 FPS

### 7.1.2 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 deinterlaces the video. The following values will generate 1080P30, 720P30 and 480P30 video.

H	V	D	VFP	HFP	Flags	Frame Step	Camera Setting
480	720	8	30	60	1	2	WVGA 60 FPS
720	1280	8	20	222	1	2	720 60 FPS
1080	1920	8	38	148	1	0	1080 30 FPS

### 7.1.3 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	Frame Step	Camera Setting
480	720	8	30	60	1	1	Auto HDMI
720	1280	8	20	222	1	1	Auto HDMI

### 7.1.4 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	Frame Step	Camera Setting
480	720	8	30	60	1	1	Auto
720	1280	8	20	222	1	1	Auto

### 7.1.5 LightDow Action Camera

This camera can be run in 720P and 1080P modes. The following values will generate 720P30 and 1080P30 video.

H	V	D	VFP	HFP	Flags	Frame Step	Camera Setting
720	1280	8	20	220	1	1	Auto
1080	1920	8	36	148	1	1	Auto




## 8 Additional Supported resolutions (other than 720P, 1080P)

It may be possible to acquire video from HDMI cameras in resolutions other than 720P and 1080P. While not widely tested, the following has been found to work on the 3000-OEM.

H	V	D	VFP	HFP	Flags	Frame Step	Camera Setting
768	1024	8	29	160	1	1	Auto
800	1280	8	24	200	1	1	Auto

### 8.1 VESA Signal Timing

For other resolutions, the VFP and HFP settings can be determined from the VESA signal timings for that resolution. For example, searching the web for VESA signal 1280x800 timing returns the settings shown below.

 *The SightLine Vertical and Horizontal Front Porch numbers shown above correspond to the Back porch numbers in the VESA timing results shown below.*

VESA Signal 1280 X 800 @ 60 Hz timing example:

#### General timing

Screen refresh rate: 60 Hz

Vertical refresh: 49.678571428571 kHz

Pixel frequency: 83.46 MHz

**Horizontal timing (line)** - Polarity of horizontal sync pulse is negative.

Scanline part	Pixels	Time [μs]
Visible area	1280	15.336688233884
Front porch	64	0.76683441169422
Sync pulse	136	1.6295231248502
Back porch	<b>200</b>	2.3963575365445
Whole line	1680	20.129403306973

**Vertical timing (frame)** - Polarity of vertical sync pulse is positive.

Frame part	Lines	Time [ms]
Visible area	800	16.103522645579
Front porch	1	0.020129403306973
Sync pulse	3	0.06038820992092
Back porch	<b>24</b>	0.48310567936736
Whole frame	828	16.667145938174



## 9 Troubleshooting

### Question

Does the HDMI input need to be only from a camera?

### Answer

No. The HDMI source can also be the HDMI output of a PC if the OEM-board is configured for the image size (resolution) that the PC is producing.

### 9.1 Video Not Displaying

There are several issues that can result in video not being displayed. The camera may not be connected properly, or the resolution does not match the SightLine hardware *Acquisition Parameters* configuration.

In some instances, the SightLine hardware will display a full green/blue test pattern image as shown. If the SightLine hardware is configured to receive a higher resolution input than the camera is sending, then the hardware will display a black *No Video Source* message.

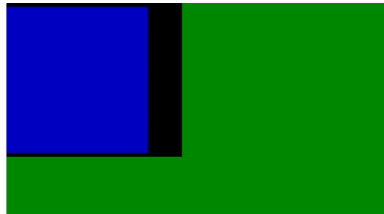



Figure 8: No Source Camera Input or Resolution Mismatch

#### Recommendations:

- Test the camera by plugging it into an HDMI monitor. If possible, use the monitor settings menus to find an information screen that shows the monitor's current display resolution. This will show the resolution the camera is sending.
- Check the resolution settings on the camera through the camera menu system. The menu resolution setting will affect the recording resolution, but not always affect the HDMI output resolution. For example, a GoPro set to record 4K resolution will output a different resolution when connected to an HDMI monitor that does not support 4K.
- If the camera has a rear screen and is connected to a valid HDMI monitor, the screen will generally go blank. Test this with an HDMI monitor and then see what happens when it is connected to the SightLine hardware. This will tell you if the camera recognizes the SightLine hardware as a valid HDMI device.
- Verify the camera is not in snapshot mode. If the camera is in snapshot mode, cycle through the modes to where the video camcorder icon displays on the camera display. Normally cameras in snapshot mode will not output video over HDMI as described in the previous monitor testing recommendations above.
- Remove the battery from the camera and power the camera externally (through USB) and then try to connect. Try to delay powering up the camera until the 1500-OEM is fully powered up and see if that resolves the issue.

 *It is possible that a power up sequence and timing may be causing the problem.*



## 9.2 Cropped Image

An incomplete image that appears cropped to the top left corner of the main window of Panel Plus as shown. This issue is common with Lightdow Action camera.

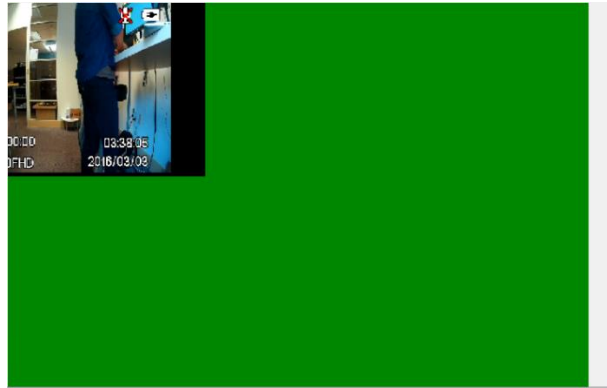


Figure 9: Cropped Image in Panel Plus

**Recommendation:** Unplug the HDMI cable from the 3000-HDMI adapter board and plug it back in. The image should refill the screen.

## 9.3 Poor Video Quality

Horizontal lines of color or vertical areas of black on the sides is an indicator of poor video quality.

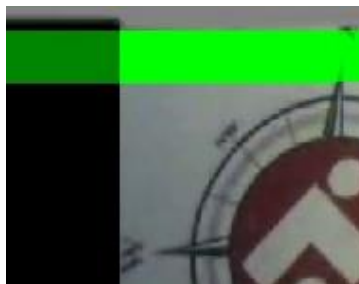


Figure 10: Horizontal Lines of Color

**Recommendation:** From the Panel Plus main menu » *Configure* » *Acquisition Settings*. In the Acquisition Settings dialog adjust the *Vertical* and *Horizontal Front Porch* values to ignore an appropriate number of lines.

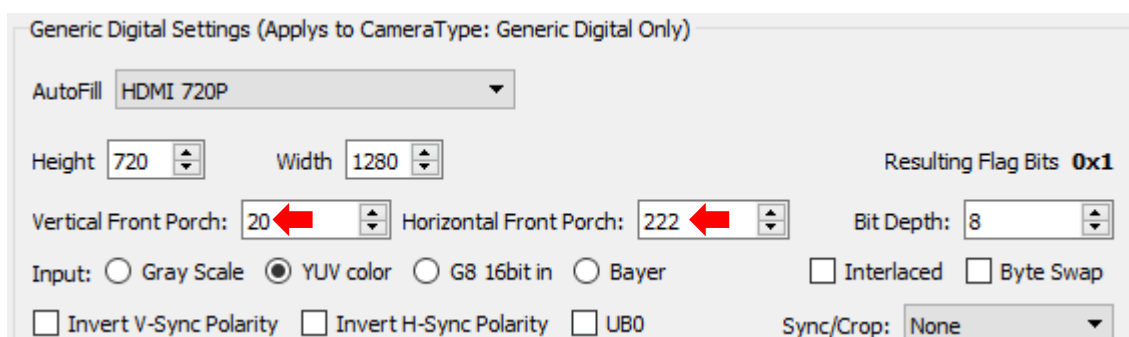


Figure 11: Adjust Vertical and Horizontal Front Porch



## 9.4 Video Displays in Gray Scale

From the Panel Plus main menu » *Configure* » *Acquisition Settings*. Verify the camera is set to YUV, not *Gray Scale*.

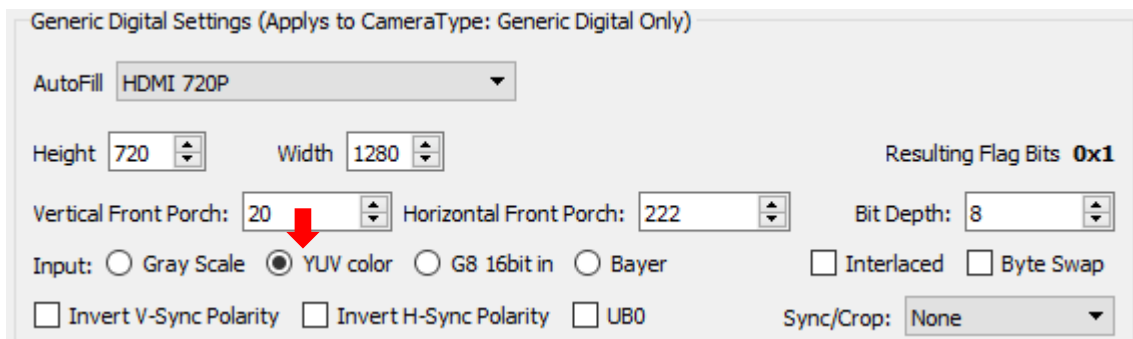
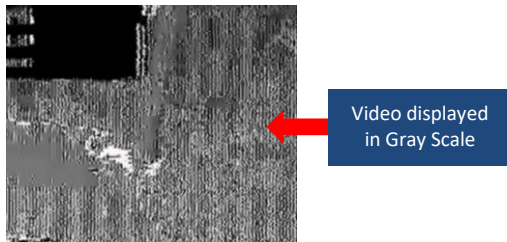


Figure 12: Acquisition Settings - YUV Color

## 9.5 Video Acquisition After Power Cycling

If the 1500/3000-OEM board is power cycled and the HDMI camera is not power cycled, there may be issues with video acquisition. This has been an issue with GoPro cameras.

### Recommendation:

- Remove and reinstall the battery from the GoPro.
- Remove and reinsert the USB cable supplying power to the camera.
- Power cycle both the 1500 / 3000-OEM and the GoPro at the same time.

In HDMI, the video source (GoPro) communicates with the display device to see what HDMI modes the display supports. When the power is cycled on the 1500/3000-OEM the GoPro thinks a new display device has been attached and communicates with it. Sometimes while the 1500/3000-OEM is booting this confuses the GoPro. The only workaround is to cycle power on the GoPro.

Typically, if a display is turned off, the GoPro will externally power up the HDMI section of the display to read HDMI formats. This does not work with the 1500/3000-OEM because the HDMI formats are stored in an externally readable flash memory. The 1500/3000-OEM must boot and program the supported HDMI formats into memory that can be read by the GoPro or other HDMI camera.

## 9.6 1500-HDMI Hot Plug Detect Issue

The Hot Plug Detect line does not rise to 5V (instead only going to about 2.6V). While this is within the HDMI spec (2.4V->5.3V), some cameras like the GoPro only detect the 1500-HDMI board when outputting the full 5V on the HPD line.



## 9.7 Missing Driver Chip - 1500-OEM

**ⓘ IMPORTANT:** Pre July 2014 builds without U7 chip installed.

Some pre-production REV C (green PCB) boards shipped prior to July 2014 did not have the U7 driver chip installed. These boards will not have I<sup>2</sup>C capability on J4, which prevents HDMI functionality.

Contact [Support](#) for more information.

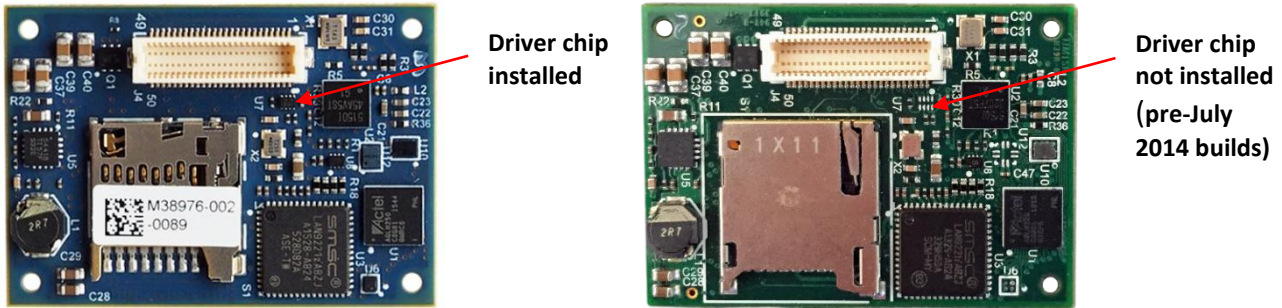


Figure 13: Driver Chip Location

## 10 Questions and Additional Support

For questions and additional support, please contact [Support](#). Additional support documentation and Engineering Application Notes (EANs) can be found on the Documentation page of the SightLine Applications [website](#).