



# SightLine

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APPLICATIONS

## **EAN-Sony Block Cameras**

PN: EAN-Sony-Block-Cameras

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**Alerts**

The following notifications are used throughout the document to help identify important safety and setup information to the user:

**⚠ 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.*



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## 1 Overview

This document describes how to install and configure the 1500-OEM and 1500-Sony interface board with the Sony block cameras.

### 1.1 Associated Documents

[EAN-Camera Compatibility](#): Lists all third-party cameras that are currently supported by SightLine software. It also covers 1500 FPGA driver support and lens control through the SightLine Command and Control (IDD) protocol.

[EAN-Digital Video Input](#): Describes how to configure the SLA-Hardware for digital video input.

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

[EAN-Ethernet-and-Serial-Communication](#): Describes how to set up serial communications for cameras or other payload devices from SLA-hardware.

[ICD-1500-OEM](#): Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 1500-OEM.

[ICD-1500 Adapter Boards](#): Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 1500-OEM associated camera interface boards.

[ICD-3000-OEM](#): Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 3000-OEM.

[ICD-3000 Adapter Boards](#): Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 3000-OEM associated camera interface boards.

[EAN-Lens Focus Control.pdf](#): Describes how to configure the SLA-hardware for controlling motorized lenses.

[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.

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.)

### 1.2 SightLine Software Requirements

Panel Plus and Firmware 2.20.xx or higher

1500-OEM: Firmware 2.20.xx or higher. FPGA firmware version 12. FPGA version 5 is acceptable in 1500-OEM REV C.

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

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

### 1.3 Third Party Software

Camera control software from [Sony](#). [HW VSP3-Virtual Serial Port](#) from the HW group.



## 2 Interface Boards

The interface board kits for the 1500-OEM and 3000-OEM come with screws, nuts, and stand-offs for connecting to the video processing boards and the camera. See the [1500-Sony exploded drawing](#) and the [3000-Sony exploded drawing](#) on the SightLine website for mechanical connection information. See the [ICD-1500 Adapter Boards](#) and [ICD-3000 Adapter Boards](#) for power requirements, thermal management, interface specifications, and connector pin-outs.

### ⓘ IMPORTANT:

- All boards should be attached together before applying power. The 1500-OEM board and the Sony board should be attached together before connecting to the camera and 1500-AB board.
- The 1500-Sony board is known to work with several Sony FCB-EX and FCB-EH cameras. Although they all use the same KEL connector, there are some differences between cameras. The FCB-EX7500 does not provide analog video over the KEL cable. See the [EAN-Camera Compatibility](#) document for more camera compatibility information.
- The KEL ribbon cable length should be as short as possible to ensure video quality and reduce EMI susceptibility. SightLine provides a 10cm cable within 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.

### 2.1 1500-AB Power Connection

REV H and later 1500-AB boards have a single power switch. REV E and earlier boards have a dual power switch. REV H and later boards are immediately powered on when power is connected. If using the 1500-AB board in a bench setup, review [Figure 1](#) and [Figure 2](#) prior to making power connections.

- ⚠ **CAUTION:** Power to the 1500-OEM board is provided through the 1500-Sony interface board using the SLA-PWR-B12V power supply shown in [Figure 2](#). Powering the OEM through the J3 power pins and through the 1500-Sony board can damage the OEM.
- ⚠ **CAUTION:** DO NOT power up the 1500-OEM board from the 1500-AB interface board. The power switches should be set to the positions shown in [Figure 1](#) (AB board power ON / 1500-OEM power OFF). Long term over powering will permanently damage the 1500-OEM board.

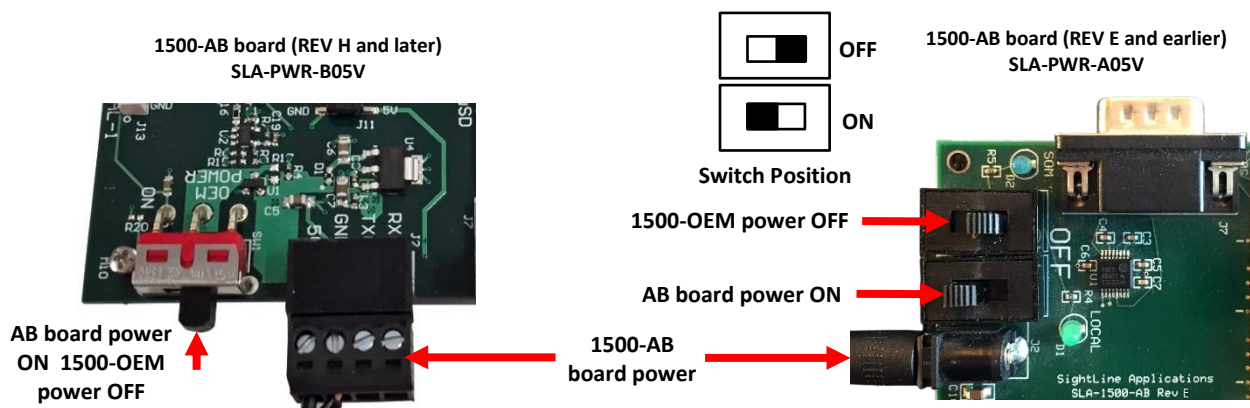


Figure 1: 1500-AB Board Power Connections



### 3 Hardware Connections

#### 3.1 Hardware Bench Setup 1500-OEM

This section describes the connection for the 1500-OEM and the 1500-Sony interface board to the supporting components.

The 1500-AB board is used as the serial and network interface board. The digital IO connector on the Sony cameras connects to the 1500-Sony board with a KEL cable. The connector provides serial communication to the camera in addition to the digital video. This serial connection shows up as Serial 2 through the 1500-OEM and allows access to the lens control tools in Panel Plus. Serial 2 can also be configured for TCP passthrough to use the Sony command-and-control interface directly with the camera.

1. Connect SLA-CAB-1514 Molex cable to the 1500-OEM J3 (14-pin) connector and to the 1500-AB J3 (14-pin) connector. This provides analog video, network, and serial connections to the 1500-OEM.
2. Connect a network cable to the 1500-AB Ethernet port.
3. Connect the SLA-CAB-K010 (KEL) cable to the 1500-Sony interface board and the Sony camera. The gold contacts on the KEL cable ends must be facing up for both connections.
4. Connect the SLA-PWR-B12V to J2 on the 1500-Sony using the SLA-CAB-1504 power adaptor cable.
5. Connect the SLA-PWR-B05V to the 1500-AB board. This 5V power is only required if supporting the analog input/output and Serial 0 connections.
6. Plug in the AB board SLA-PWR-B05V to an AC power source.

 *REV H and later AB boards are immediately powered on when power is connected.*

7. Connect the SLA-PWR-B12V supply (12V) to an AC power source. This will power the camera, Hitachi adaptor board and the OEM assembly. **Do not** apply power the 1500-OEM from the AB board (see [Figure 2](#)).

**ⓘ IMPORTANT:** Do not attach the 1500-OEM and Sony adapter board to the 1500-AB board. They should remain separate.

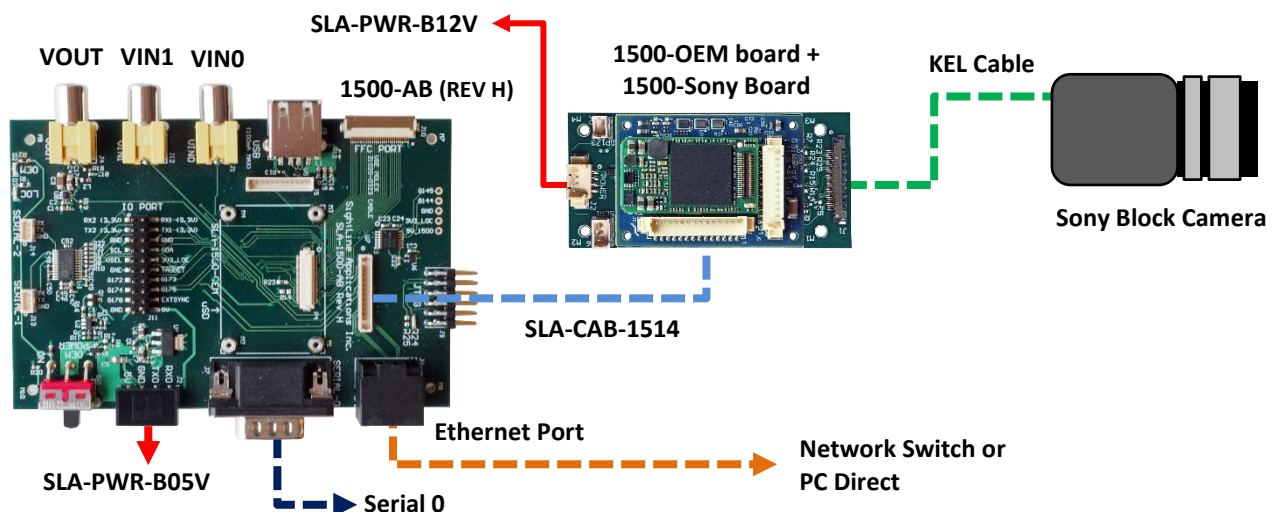


Figure 2: 1500-OEM Sony Block Camera Bench Setup



### 3.2 Hardware Bench Setup 3000-OEM

This section describes the connections for the 3000-OEM and the Sony interface board to the supporting components and equipment.

The 3000-IO board provides power to the camera through the SONY interface board. It is supplied via the KEL cable that is used between the interface board and the camera. The camera's serial communications port is also available over this same KEL cable. Serial passthrough is supported by the 3000-OEM board to allow connection to the camera from a network controlling host.

1. Attached the 3000-IO board to the 3000-OEM board.
2. Attach the 3000 Sony interface board to one of the available video input connectors on the 3000-IO board. The 3000-IO board has two connectors for the Sony board (VIN1 and VIN0). See the [3000-OEM](#) exploded assembly drawing for more physical connection layout information.

*On the 3000-IO board, VIN0 has camera channels 0 and 1 assigned. VIN1 has camera channels 2 and 3 assigned. The 3000-IO board supports installing the 3000-Sony camera interface board onto either of these connectors. If the configuration includes an analog board with a digital interface board, the analog board must be installed onto VIN0.*

3. Connect the SLA-CAB-K010 (KEL) cable to the 3000-Sony interface board and the Sony camera.
- IMPORTANT:** The gold contacts on the KEL cable ends must be facing up for both connections.
4. Connect the Ethernet, serial, and power cables to the 3000-IO board.
5. Plug in the power adapter (PWR-C12V) to an AC power source. A green light on the 3000-IO board indicates that all boards are powered on.

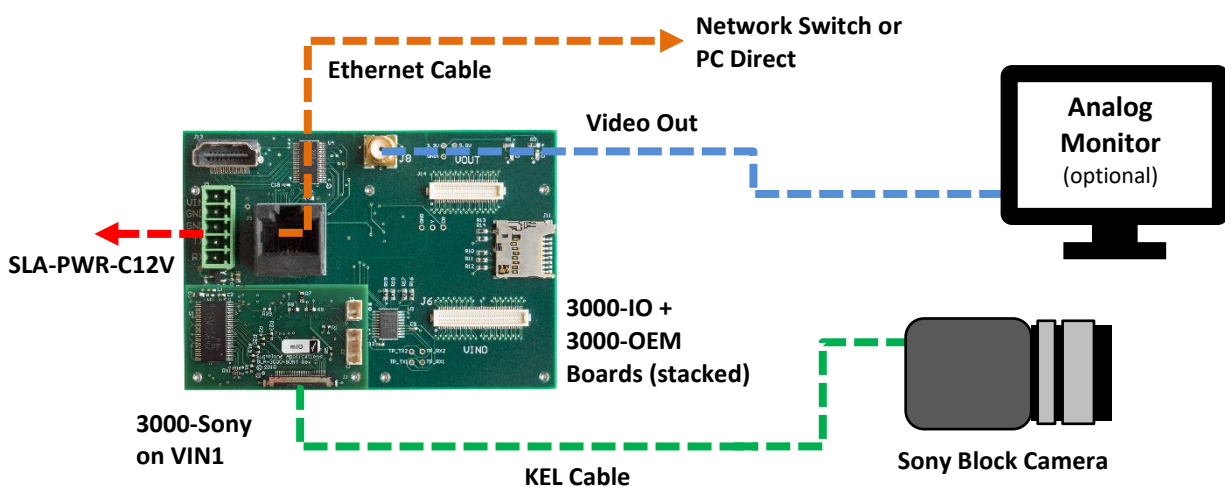
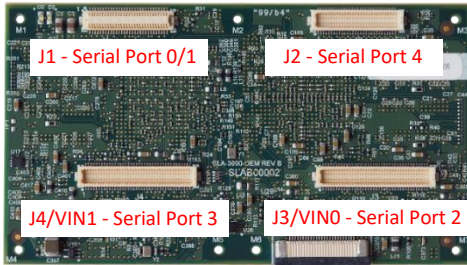


Figure 3: 3000-OEM Sony Block Camera Bench Setup



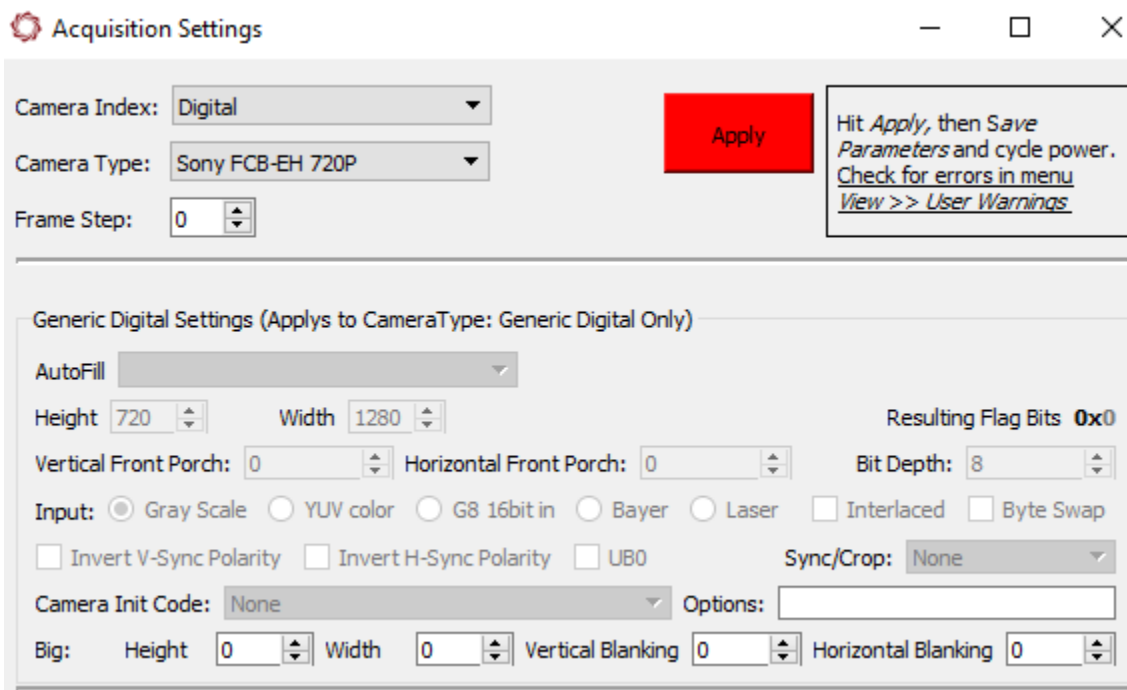
3000-OEM	SLA-3000-IO	Serial Port	Camera Index Panel Plus
J1		0/1	NA
J2	VOUT	4	NA
J3	VIN0	2	CAM0/CAM1
J4	VIN1	3	CAM2

Figure 4: 3000-OEM Serial Port and Connector Reference

## 4 Configuration Settings

This section covers how to configure the video processing board to support the Sony camera input. The 3000-OEM and 1500-OEM configuration procedures are similar. The following steps reference the Panel Plus software.

1. Connect to the board using the Panel Plus application. See the [1500-OEM Startup Guide](#) or the [EAN-Startup Guide 3000-OEM](#) for connection instructions.
2. Main menu » *Configure* » *Acquisition Settings*. Set the *Camera Index*:
  - a. 1500-OEM (shown below): *Digital*
  - b. 3000-OEM: If the camera adapter board is installed on VIN1 of the 3000-IO board, set the *Camera Index* to *Cam 2*. If the board is installed on VIN0, use *Cam 0*.
3. Set the *Camera Type* to match the camera. This populates the relevant fields with the correct settings. The *Apply* button will turn red indicating input field changes have been detected.



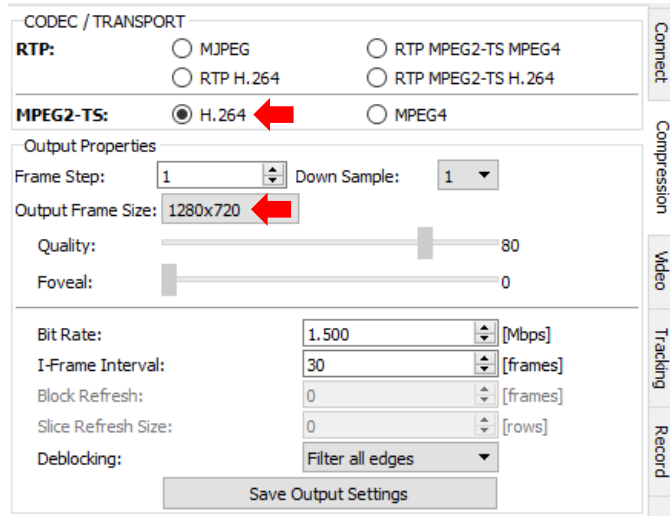
4. Select the *Apply* button, and then close the *Acquisition Settings* dialog window.





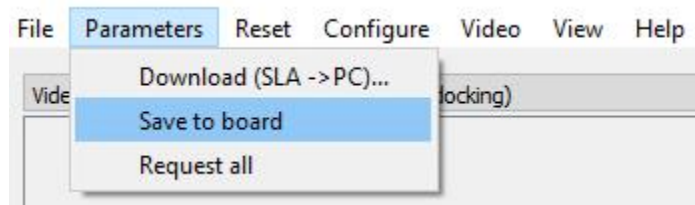
**1500-OEM settings:**

1. Click the *Compression* tab.
2. Select H.264.
3. Select an Output Frame Size. Use the dropdown menu to select an output frame size - 960/720 or 1280/720.

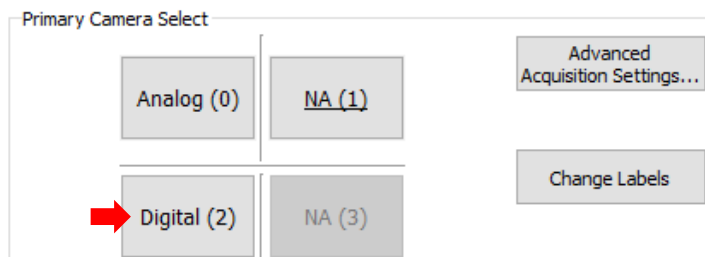


5. Save and activate the settings:

1. Main menu » *Parameters* » *Save to Board*.
2. Main menu » *Reset* » *Board*.
3. After the system reboots reconnect to the board. Make sure the board connects.



4. Click the *Multi Camera* tab and select the *Digital (2)* input as the primary camera to display the video in Panel Plus.





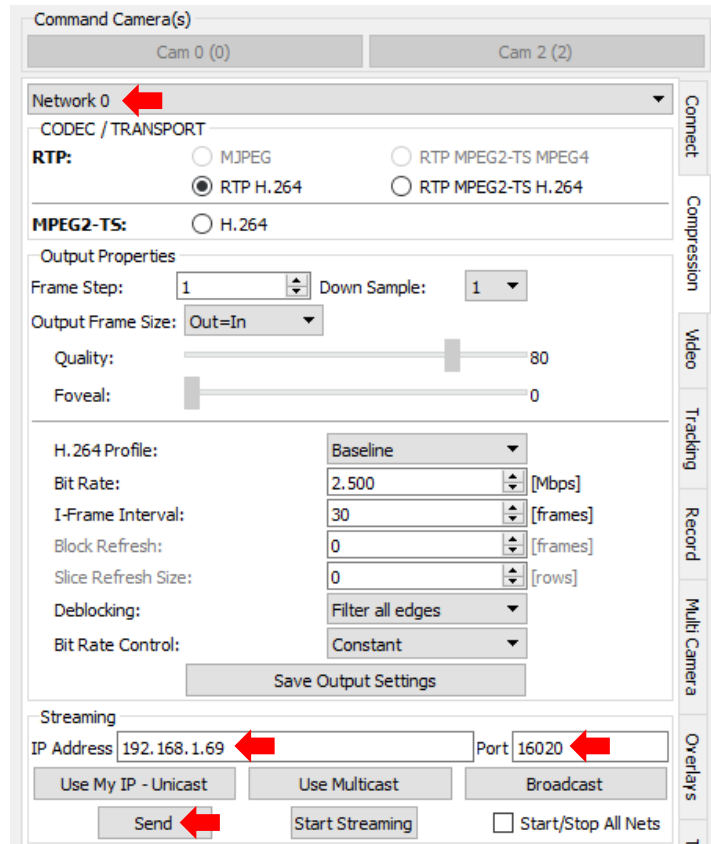
### 3000-OEM settings:

1. To define the network destination and IP address and port, click the *Compression* tab.
2. There are two logical output networks on the 3000-OEM. Each can have an independent destination addresses and ports. Assign a destination address and port for Network 0 and Network 1.

*If you are using the RTP streaming formats, choose an even port number.*

3. Click the *Send* button.

*If using identical destination IP addresses, make sure to enter a unique port number for each IP address.*



4. Select the *Multi Camera* tab.
5. Select *Network 0* and *Camera 2*. This enables video to display in Panel Plus. If the 3000-Sony board is connected to VINO, select *Camera 0*.
6. Click the *Send* button to save the settings to the parameter file.

Decode @P+	Display	Cameras				Multi	Blend	None	Resolution
		0	1	2	3				
<input checked="" type="radio"/>	Network 0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Out=In
<input type="radio"/>	Network 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Out=In
<input type="radio"/>	Analog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	NTSC
<input type="radio"/>	HDMI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	720p60
<input type="radio"/>	HD-SDI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	720p60

Send

7. Save and activate the settings:
  - a. Main menu » *Parameters* » *Save to Board*.
  - b. Main menu » *Reset* » *Board*.
  - c. Wait for the system to boot, and then reconnect to the board.



## 5 Camera Control

This section describes how to set up a TCP passthrough and virtual COM port to allow camera control through the Sony GUI. The [HW VSP3-Virtual Serial Port](#) from the HW group is used to set up a virtual COM port.

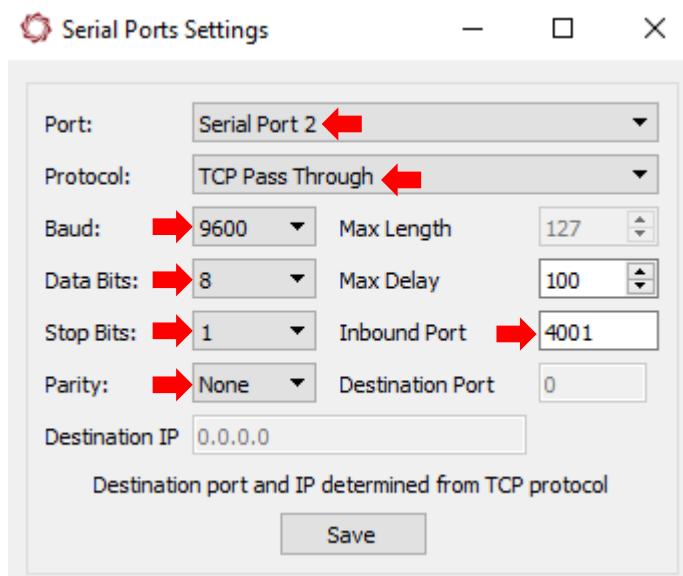
Alternately, the lens focus and zoom can be controlled through Panel Plus, see the [EAN-Lens Focus Control](#) document for steps on how to set this up.

*Enabling TCP passthrough will disable lens control in Panel Plus (or SightLine protocol) for the camera and lens attached to that port. SightLine's lens control implementation requires that the port protocol is set to Port Not Used.*

### 5.1 TCP Passthrough Setup

Configure TCP passthrough on the SLA hardware.

1. From the Panel Plus main menu » *Configure* » *Serial Ports*.
  - a. 3000-OEM: Select the serial port number. If the camera interface board is connected to VIN1, select *Serial Port 3*. If the interface board is connected to VINO, select *Serial Port 2*.
  - b. 1500-OEM: Select *Serial Port 2*.
  - c. For *Protocol*, select *TCP Pass Through*.
  - d. Enter the desired inbound port number. This example uses port 4001.
  - e. Select *9600 Baud*.
  - f. Leave *Data Bits*, *Stop Bits*, and *Parity* at the default values shown.

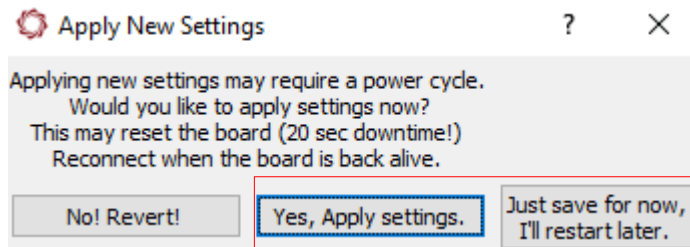


*The destination port and IP address are automatically determined from the TCP protocol.*



2. After configuring the settings, changed fields will be highlighted in red. Click *Save*.
3. The *Apply New Settings* dialog window opens. Select *Yes, Apply settings* to save parameters and reset the board.

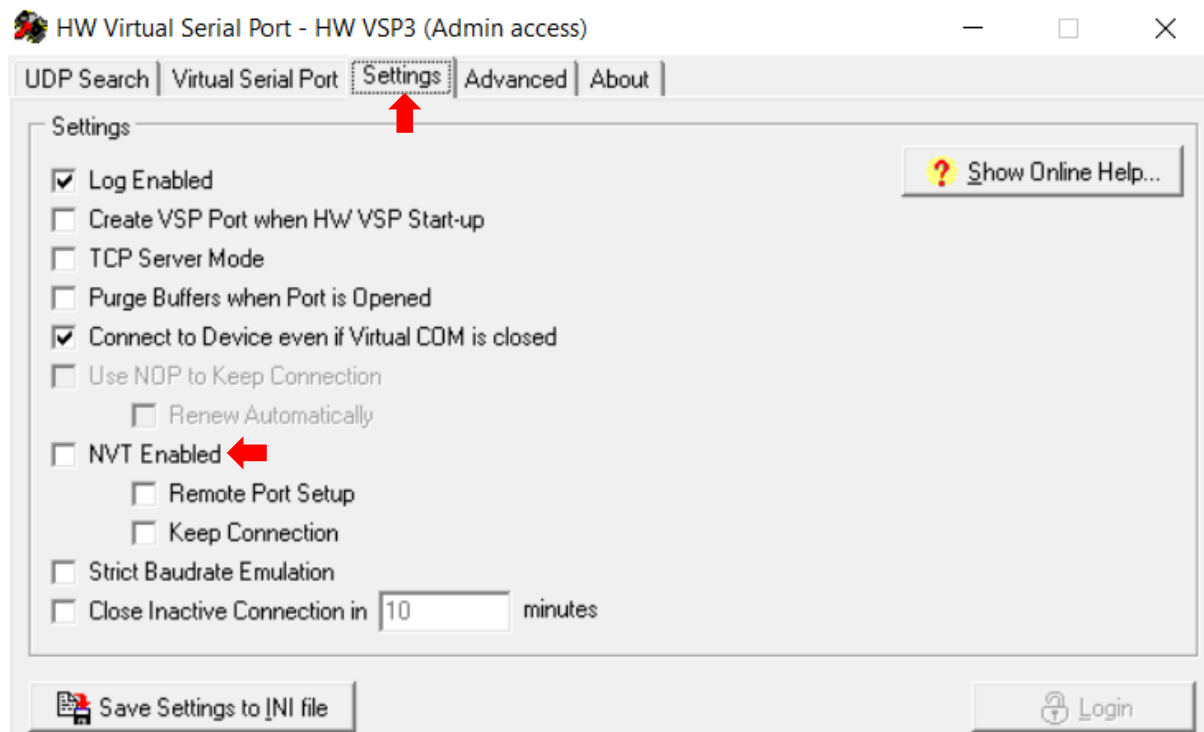
Some settings changes require the board to be restarted for the settings to take effect. In the *Apply New Settings* dialog window, select one of the options highlighted below to save the port configuration.



4. Proceed to the next section to set up a virtual COM port.

## 5.2 Virtual Com Port Setup

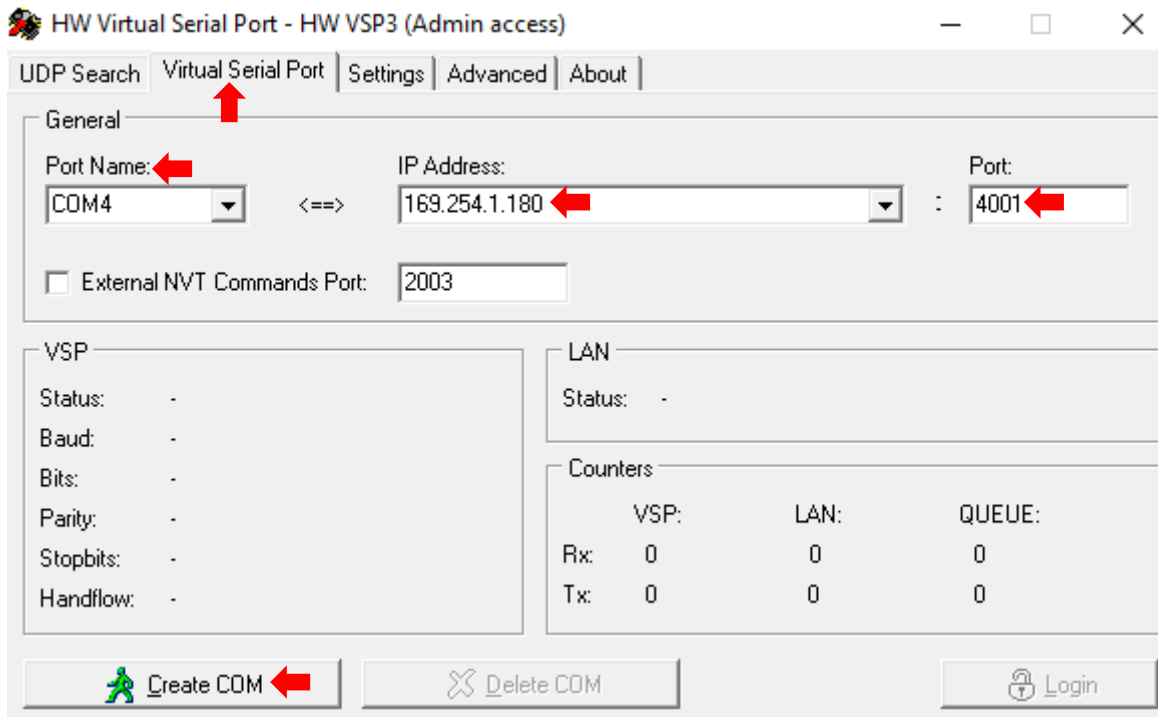
1. Launch the HW VSP3-Virtual Serial Port application.
2. Select the *Setting* tab. Make sure the *NVT Enabled* box is unchecked.





3. Select the *Virtual Serial Port* tab.
4. Select an unused COM port from the *Port Name* drop-down menu.
5. Enter the IP address of the SLA hardware and TCP passthrough inbound port.
6. Click *Create COM* to create the virtual serial port.

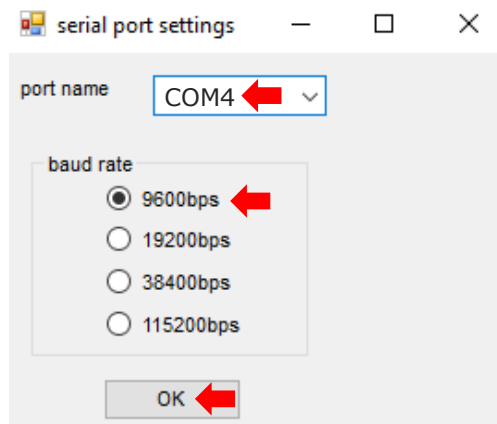
*The virtual serial port parameters (baud rate, bits, parity, etc.) are configured automatically.*




*A successful connection will be shown in the LAN Status section of the dialog window.*




7. Launch the Sony camera control application. Select the virtual port and the baud rate.







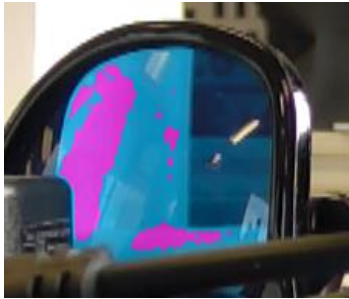
 The total number of sent and received packets are shown in the Counters area of the Virtual Serial Ports tab. The Sony control application is now ready to use.

Counters 			
	VSP:	LAN:	QUEUE:
Rx:	0	20	0
Tx:	20	0	0

## 6 Trouble Shooting

Problem	Recommendation
<p>Green and purple video - objects have correct aspect ratio.</p> 	<p>The Sony camera could be outputting a resolution that is different from the resolution that the SLA-hardware is setup to acquire.</p> <p>The SLA-hardware communicates with the Sony camera to automatically change its resolution based on user settings setup in the Acquisition Parameters dialog window in Panel Plus.</p> <p>Changing resolutions on the Sony cameras requires a power cycle to the camera:</p> <ol style="list-style-type: none"> <li>1. Main menu » <i>Parameters</i> » <i>Save to Board</i>.</li> <li>2. Main menu » <i>Reset</i> » <i>Board</i>.</li> <li>3. Wait for the system to boot, and then reconnect to the board using Panel Plus. Make sure the board connects.</li> <li>4. Power cycle the Sony camera. This should correct the issue.</li> </ol>
<p>Green and purple video - aspect ratio wrong right, half of video blank.</p> 	<p>Sony EV series cameras support dual channel LVDS. This is enabled for some camera models. SLA-hardware only supports single channel LVDS.</p> <p>Connect the Sony camera to the SLA-hardware. Disable the dual channel LVDS using Panel Plus by sending a Sony VISCA command to the camera. This will use the Sightline command <b>Passthrough (0x3D)</b> to send the message to the correct serial port. This command will only need to be sent once and will persist through power cycles.</p> <p>From the Panel Plus main menu, use the <i>File</i> » <i>Send Command</i> to send the following raw message (do not check insert header/checksum):</p> <p>For 1500 (serial 2) and 3000 Port VINO (Serial 2): 51,AC,0B,3D,04,81,01,04,24,74,00,00,FF,07</p> <p>For 3000 Port VIN1 (Serial 3): 51,AC,0B,3D,06,81,01,04,24,74,00,00,FF,56</p> <p>A hard power cycle on the camera is required to change this mode.</p> <p>If the command passthrough is not successful, try setting up serial port (2/3) to have the proper baud rate. This can be done by temporarily setting the serial port (2/3) to TCP passthrough mode as outlined in <a href="#">EAN-Ethernet-and-Serial-Communication</a>. Once this setup is done, the above commands should work.</p>



Problem	Recommendation
<p>Poor video quality.</p> 	<p>Long cables can change video timing and result in poor video quality. Use a shorter KEL cable (10 cm recommended). Configure the camera to generate a smaller video frame.</p>
<p>Unsupported baud rate in Sony Camera.</p>	<p>The Sony camera could have been set to an unsupported baud rate. Currently SightLine uses 9600. In this case the board cannot communicate with the camera to automatically change the Sony camera resolution. If a power cycle does not work, contact <a href="#">Technical Support</a>.</p>

### 6.1 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](#).