

EAN-Sony Compatible Block Cameras

2024-07-19

Exports: [Export Summary Sheet](#)

EULA: [End User License Agreement](#)


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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 remind the user of something. Supplementary information aids in the use or understanding of the equipment or subject, which is not critical to system use.*



1 Overview

This document describes how to set up and configure the SightLine OEM video processing boards to receive video from Sony compatible block cameras.

See [camera configuration tables](#) for the complete list of supported Sony compatible block cameras.

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).

ⓘ 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, please contact [SightLine Support](#).

1.1 Additional Support Documentation

The Panel Plus User Guide provides a complete overview of settings and dialog windows. It can be accessed from 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. It is also available as a PDF from the [Software Downloads](#) page.

Additional Engineering Application Notes (EANs) and ICDs are available on the [Documentation](#) page.

1.2 SightLine Software Requirements

See the [camera configuration tables](#) for specific OEM Sightline software version requirements for supported cameras.

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

Table 1: SightLine OEM Software Requirements

OEMs	Initial Software Release	Provisions
4100-OEM	3.7.x	
1750-OEM	3.6.x	Dual channel processing requires 3.7.x and above.
4000-OEM	3.00.xx	
Legacy OEMs are supported up to 3.5.x		
1500-OEM	2.20.xx	
3000-OEM	2.22.xx	REV C requires 2.24.xx and above.

1.3 Third Party Software

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

1.4 KEL Ribbon Cables

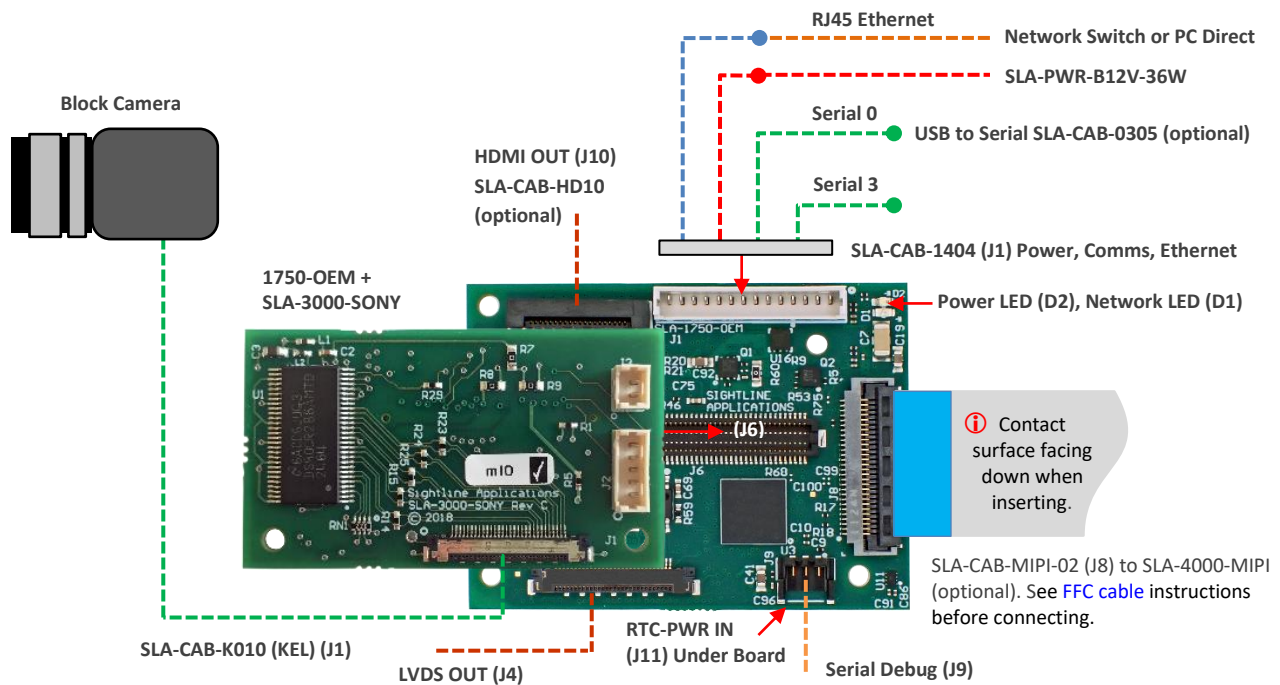
The KEL ribbon cable supplies power to the camera and should be as short as possible to ensure video quality and reduce EMI susceptibility.



SightLine provides a 10 cm cable with camera interface kits. Lengths greater than 15 cm are not recommended. Bending the cable during insertion can cause the micro-coax connections to break, which can lead to poor or no video. See [KEL cable](#) instructions and precautions before connecting.

2 1750-OEM Block Camera Bench Setup

- CAUTION:** To prevent damage to hardware boards, disconnect all input power to OEMs and adapter boards before connecting or disconnecting cables including all FFC, FPC, KEL, HDMI, MIPI, and round wire (Molex) cables.
- 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.



- i** A green LED (D2) will come on when power is applied, which indicates that all boards are powered on. The LED (D2) will turn off after approximately 8 seconds. A blinking amber LED (D1) verifies network connection.

Cables and PWR:

- i** SLA-CAB-K010 (KEL): 10 cm KEL cable. Serial and video to camera. See [KEL cable](#) instructions and precautions before connecting.
- SLA-CAB-1404: Power / Comms / Ethernet
 - SLA-PWR-B12V-36W (110-250VAC input / 12VDC output) to SLA-CAB-1404
- i** SLA-CAB-0305 (optional) can connect to SLA-CAB-1404 to facilitate a PC/USB connection to serial port 0 on the 1750-OEM. See [Serial Communications](#) in [EAN-Startup-Guide-1750-OEM](#).

Interface and Adapter Boards:

[SLA-3000-SONY](#) (supports a max resolution of 1080P30)

- i** Additional camera adapter boards can be connected using the SLA-4000-MIPI. See [FFC cable](#) instructions before connecting.

Recommended Additional Documentation:

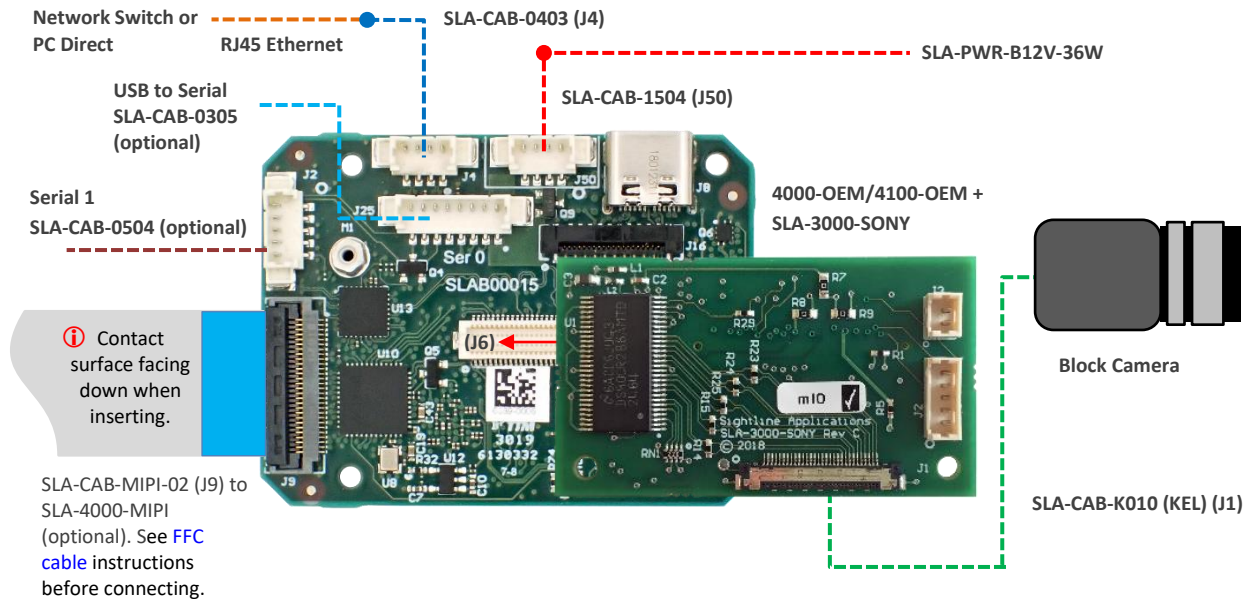
- [ICD-1750-OEM](#)
- [ICD-Adapter-Boards](#)
- [1750-OEM Dimensional Drawing](#)
- [EAN-Startup-Guide-1750-OEM](#)
- [Camera Configuration Tables](#)
- [EAN-SLA-Product-Kits](#)

Figure 1: 1750-OEM Block Camera Bench Setup



3 4000-OEM and 4100-OEM Block Camera Bench Setup

- ⚠ **CAUTION:** To prevent damage to hardware boards, disconnect all input power to OEMs and adapter boards before connecting or disconnecting cables including all FFC, FPC, KEL, HDMI, MIPI, and round wire (Molex) cables.
- ⚠ **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.



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

Cables and PWR:

- ⓘ SLA-CAB-K010 (KEL): 10 cm KEL cable. Serial and video to camera. See [KEL cable](#) instructions and precautions before connecting.
 - SLA-CAB-0403: 4-Pin PicoBlade to RJ45 Ethernet
 - SLA-CAB-1504 / SLA-PWR-B12V-36W (110-250VAC input / 12VDC output)
- 📄 *The SLA-CAB-0305 cable can be used to facilitate a PC/USB connection to serial port 0 on the 4000-OEM. See [Serial Communications](#) in [EAN-Startup-Guide-4000-OEM](#) or [EAN-Startup-Guide-4100-OEM](#).*

Interface and Adapter Boards:

[SLA-3000-SONY](#) (supports a max resolution of 1080P30)

📄 *Additional camera adapter boards can be connected using the SLA-4000-MIPI. See [FFC cable](#) instructions before connecting.*

Recommended Additional Documentation:

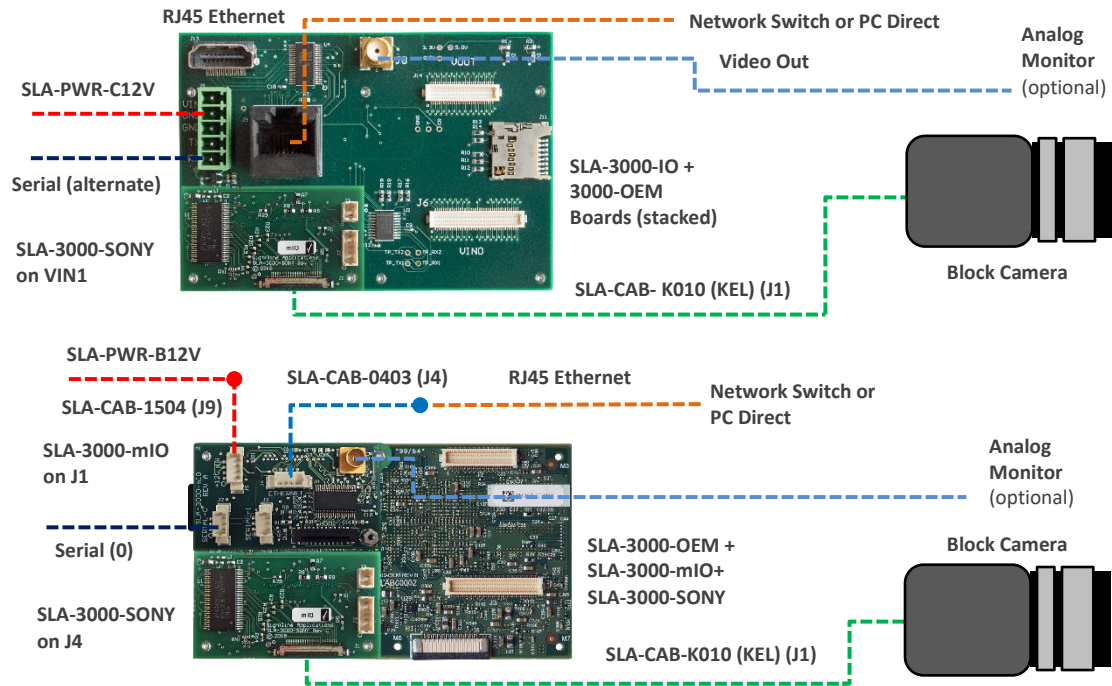
- [ICD-4000-OEM](#) or [ICD-4100-OEM](#)
- [ICD-Adapter-Boards](#)
- [4000-OEM Dimensional Drawing](#) or [4100-OEM Dimensional Drawing](#)
- [EAN-Startup-Guide-4000-OEM](#) or [EAN-Startup-Guide-4100-OEM](#)
- [Camera Configuration Tables](#)
- [EAN-SLA-Product-Kits](#)

Figure 2: 4000-OEM and 4100-OEM Block Camera Bench Setup



4 3000-OEM Block Camera Bench Setup

- ⚠ **CAUTION:** To prevent damage to hardware boards, disconnect all input power to OEMs and adapter boards before connecting or disconnecting cables including all FFC, FPC, KEL, HDMI, MIPI, and round wire (Molex) cables.
- ⚠ **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.



- ⓘ A green light (D2) on the 3000-IO or 3000-mIO board indicates that all boards are powered on. An amber light (D3) on the 3000-OEM board verifies network connection.
- ⓘ 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.

Cables and PWR:

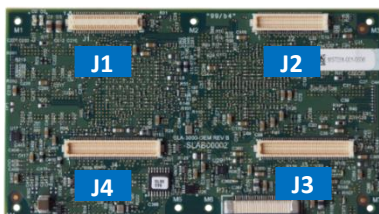
- ⓘ SLA-CAB-K010 (KEL): 10 cm KEL cable. Serial and video to camera. See [KEL cable](#) instructions and precautions before connecting.
 - SLA-CAB-0403: 4-Pin PicoBlade to RJ45 Ethernet
 - SLA-PWR-C12V (110-250VAC input / 12VDC output) - SLA-3000-IO
 - SLA-CAB-1504 / SLA-PWR-B12V (110-250VAC input / 12VDC output) - SLA-3000-mIO

Recommended Additional Documentation:

- [ICD-3000-OEM](#)
- [ICD-Adapter-Boards](#)
- [3000-OEM Dimensional Drawing](#)
- [EAN-Startup-Guide-3000-OEM](#)
- [Camera Configuration Tables](#)
- [EAN-SLA-Product-Kits](#)

Interface and Adapter Boards:

- [SLA-3000-mIO](#)
- [SLA-3000-IO](#)
- [SLA-3000-SONY](#) (supports a max resolution of 1080P30)



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

Figure 3: 3000-OEM Block Camera Bench Setup



5 1500-OEM Block Camera Bench Setup

The 1500-Sony camera adapter is compatible with several Sony FCB-EX and FCB-EH cameras. Although they all use the same KEL connector, there are some differences between the cameras. The FCB-EX7500 does not provide analog video over the KEL cable.

5.1.1 1500-OEM FPGA Versions

The FPGA firmware version must be compatible with the selected camera to operate correctly with the 1500-OEM. See the [camera configuration tables](#) or for the correct FPGA version to use for each specific camera.

Firmware and FPGA 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 4: FPGA Version Number Location

5.2 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 5](#) and [Figure 6](#) 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 6](#). 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 5](#) (AB board power ON / 1500-OEM power OFF). Long term overpowering will permanently damage the 1500-OEM board.

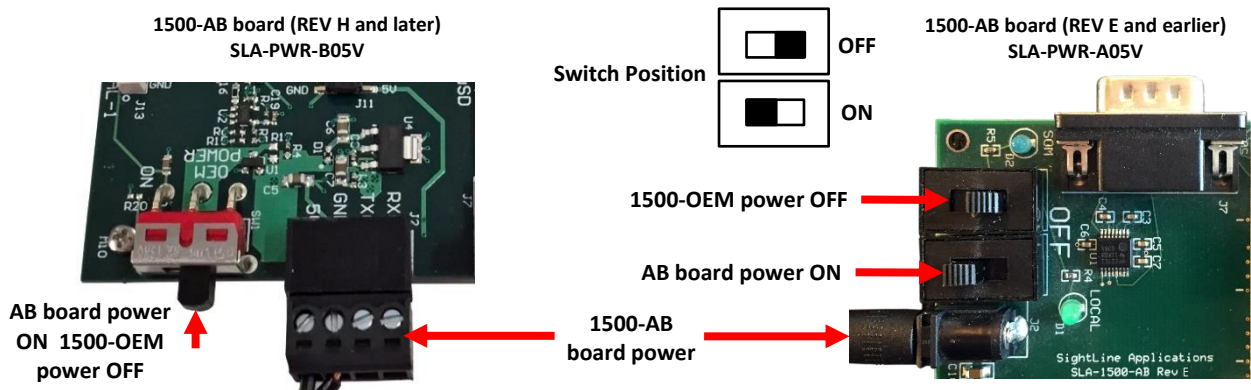
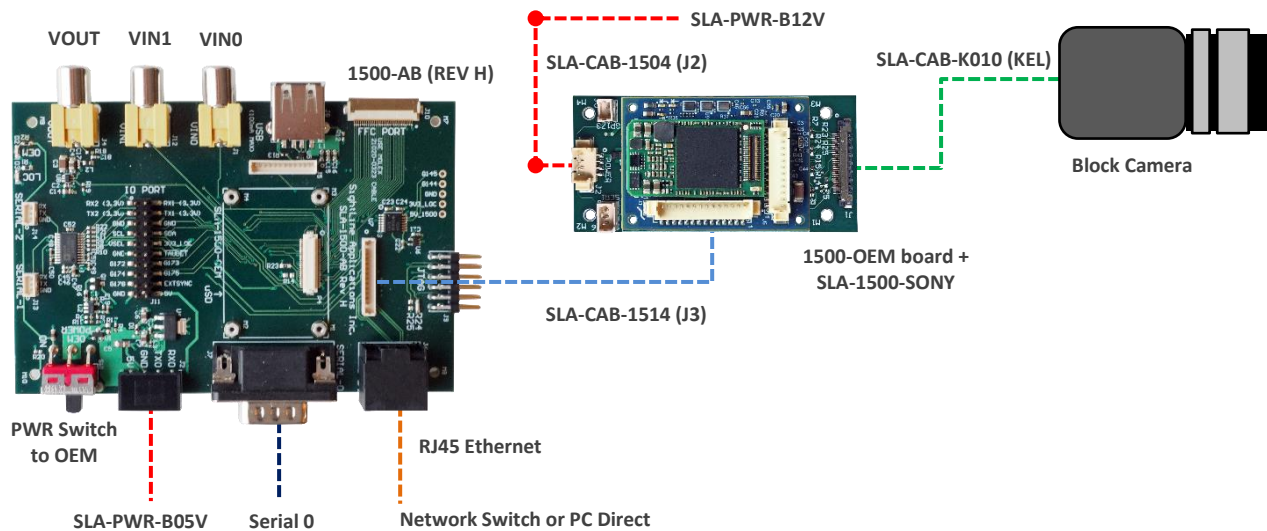


Figure 5: 1500-AB Board Power Connections



⚠ CAUTION: To prevent damage to hardware boards, disconnect all input power to OEMs and adapter boards before connecting or disconnecting cables including all FFC, FPC, KEL, HDMI, MIPI, and round wire (Molex) cables.

⚠ 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.



- ⓘ** Do not attach the 1500-OEM and Sony adapter board to the 1500-AB board. They should remain separate.
- ⓘ** Do not apply power to the 1500-OEM board from the 1500-AB board. Power on the 1500-AB board (first), then connect the SLA-PWR-B12V to an AC power source to power up the 1500-OEM and block camera.
- ⓘ** A green light (D3) indicates the 1500-AB board is powered on. A blue light (D2) on the 1500-AB and a green light (D1) on the 1500-OEM board indicate that all the boards are powered on. A second flashing green light (D3) on the 1500-OEM indicates network connectivity.

Cables and PWR:

- ⓘ** SLA-CAB-K010 (KEL): Serial and video to camera. See [KEL cable](#) instructions and precautions.
 - SLA-CAB-1514: analog video, network, serial.
 - SLA-CAB-1504 / SLA-PWR-B12V (110-250VAC input / 12VDC output)
 - SLA-PWR-B05V (110-250VAC input / 5VDC output)

Interface and Adapter Boards:

- [SLA-1500-SONY](#) (supports a max resolution of 1080P30)
- [SLA-1500-AB](#)


Recommended Additional Documentation:


- [ICD-1500-OEM](#)
- [ICD-1500-Adapter-Boards](#)
- [1500-OEM Dimensional Drawing](#)
- [EAN-Startup-Guide-1500-OEM](#)
- [1500-Sony Exploded](#)
- [Camera Configuration Tables](#)
- [EAN-SLA-Product-Kits](#)


Figure 6: 1500-OEM Block Camera Bench Setup



6 Camera Connection and Configuration Notes


 See [camera configuration tables](#) for the complete list of supported cameras and configuration settings.


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


 If the 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.

6.1 Camera Control – Sony, Tamron and KT&C, Intertest Cameras

This section describes how to set up a TCP passthrough and virtual COM port to allow camera control through the Sony and KT&C control applications. The [HW VSP3-Virtual Serial Port](#) application 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 setup steps.

 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.

 Enabling TCP passthrough will disable lens control in Panel Plus (or SightLine protocol) for the camera and lens attached to that port.


 **IMPORTANT:** Do not use *Raw Pass Through*, it may conflict with commands sent to the camera by the SightLine software.

6.1.1 TCP Passthrough Setup

Configure TCP passthrough on the SightLine hardware.

1. From the Panel Plus main menu » *Configure* » *Serial Ports*:

- 4000-OEM, 4100-OEM, 1750-OEM: *Serial Port 2* (Cam0 / J6)
 - 4000-MIPI: *Serial Port 6* (Cam1 / J10)
- 3000-OEM: *Serial Port 2* (Cam0 / VIN0) or *Serial Port 3* (Cam2 / VIN1).
- 1500-OEM: Select *Serial Port 2*.
- *Protocol: TCP Pass Through*.
- Enter the desired inbound port number. This example uses port *4001*.
- *Baud*:
 - Sony and Tamron cameras (*9600*).
 - KT&C and Intertest cameras: *4800*

 Some KT&C/Intertest cameras may use a default serial port configuration of 9600/8N1 under certain firmware versions.

- *Data Bits, Stop Bits, Parity* set at default values shown.

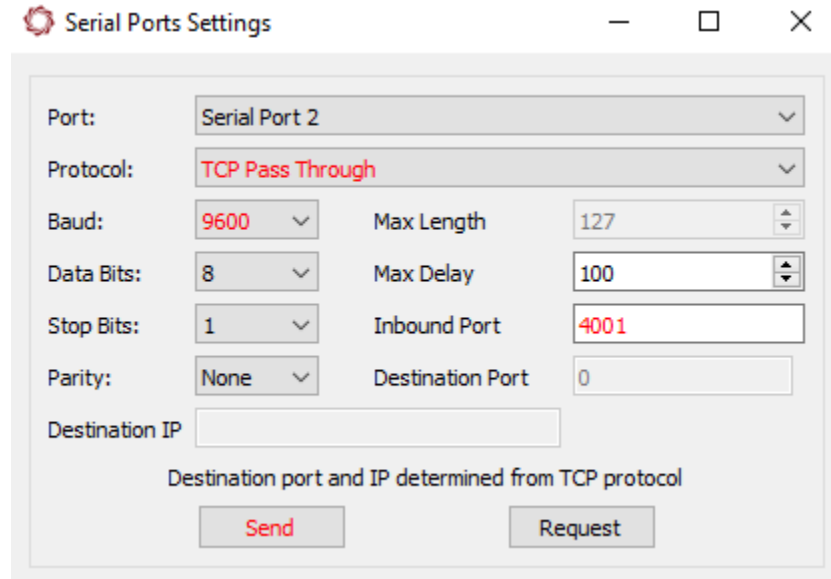



Figure 7: TCP Passthrough Setup

2. After configuring the settings, changed fields will be highlighted in red. Click *Send*.
3. To save the configuration to the parameter file, from the Panel Plus main menu » *Parameters* » *Save to board*.

 In 3.01.xx and earlier software versions, saving the Serial Port settings will prompt an additional dialog window (Figure 8). Some setting changes require the board to be restarted for the settings to take effect. In the Apply New Settings dialog window, select an option to save the port configuration.

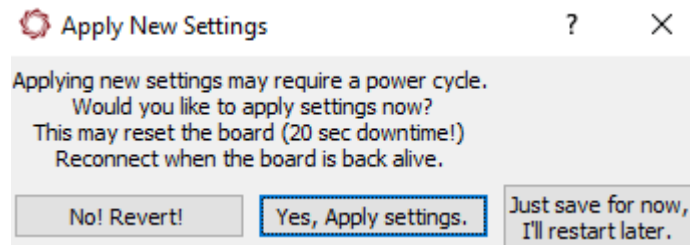


Figure 8: Apply New Settings Dialog - 3.01.xx and Earlier

4. See *Appendix C - Virtual Com Port Setup* in [EAN-Ethernet-and-Serial-Communication](#) to set up the virtual COM port.



6.1.2 Specific Configuration Notes for KT&C Control Application

When setting up the virtual com port use these steps for configuring the *Port* and *Baud Rate* in the KT&C control application.

1. Select *File » RS232 SET* to open the *Serial Communication Setting* dialog to
2. Set the *Port* and *Baud Rate*.
3. Check *Even Parity (MAV)*
4. Click *Save*.
5. Click the connect button.

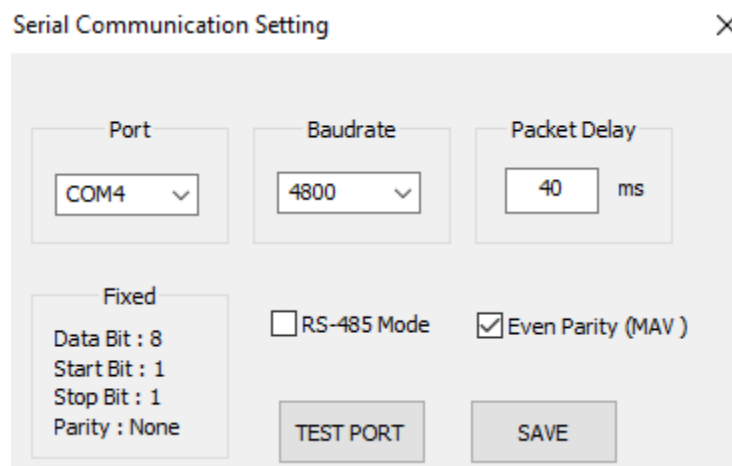


Figure 9: KT&C - Serial Communications Setting Dialog

If the connection is successful, the camera model and firmware version will be displayed under the Key Action tab.

Key Action	Protocol	EEPROM R/W	Adjust	Download
[HZ5533M]	V3.0.1	ID:001	2019.05.09	

Figure 10: Key Action Tab - Successful Connection



7 Troubleshooting

Problem	Recommendation
The camera stops working or has inconsistent video.	The KEL cable should be replaced, as it is composed of micro-coax cables that are susceptible to breakage when bent. This cable is responsible for supplying power to the camera as well, which can lead to low power and cause the camera to reset, especially during operation of the zoom or focus mechanisms.
Green and purple video - objects have correct aspect ratio.	<p>The Sony camera could be outputting a resolution that is different from the resolution that the SightLine hardware is setup to acquire.</p> <p>The SightLine 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"> 1. Main menu » <i>Parameters</i> » <i>Save to Board</i>. 2. Main menu » <i>Reset</i> » <i>Board</i>. 3. Wait for the system to boot, and then reconnect to the board using Panel Plus. Make sure the board connects. 4. Power cycle the Sony camera. This should correct the issue.
Green and purple video - aspect ratio wrong right, half of video blank.	<p>Sony EV series cameras support dual channel LVDS. This is enabled for some camera models. SightLine hardware only supports single channel LVDS.</p> <p>Connect the Sony camera to the SightLine hardware. Disable the dual channel LVDS using Panel Plus by sending a Sony VISCA command to the camera. This will use the Sightline CommandPassthrough (0x3D) 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 EAN-Ethernet-and-Serial-Communication. Once this setup is done, the above commands should work.</p>
Poor video quality.	Long cables can change video timing and result in poor video quality. Use a shorter KEL cable (10 cm recommended).
Unsupported baud rate in Sony Camera.	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 SightLine Support .





7.1 Questions and Additional Support

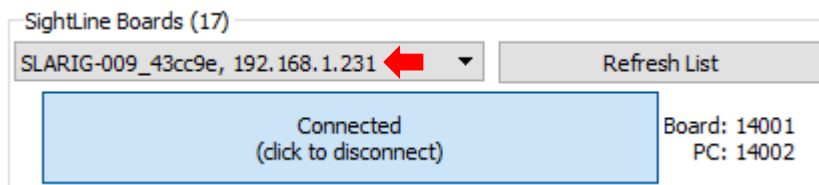
For questions and additional support, please contact [SightLine Support](#). Additional support documentation and Engineering Application Notes (EANs) can be found on the Documentation page of the SightLine Applications [website](#).

Appendix A - Changing the Sony Camera Baud Rate

This section describes how to change the Sony camera baud rate using the Sony FCB interface.

This process assumes that hardware connections have been correctly set up and the camera is configured to receive video from the Sony compatible block camera.

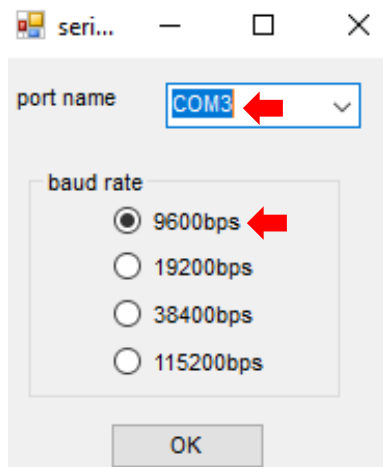
1. Connect to the target hardware with Panel Plus. Note the IP address of the OEM board.



2. Configure the serial ports and a virtual com port as shown in the [TCP Passthrough Setup](#) section.
3. For the virtual com port setup use the same IP address as the target OEM hardware. Use the *Port Name* drop-down menu and select the same port number that was used to configure TCP passthrough. In this example it is *COM3*.



4. Open the Sony FCB camera control software.
5. For the *port name* select the same port number used in the virtual com port configuration. Select the default baud rate of 9600.

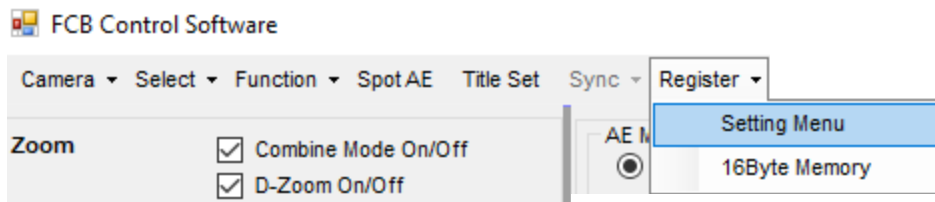




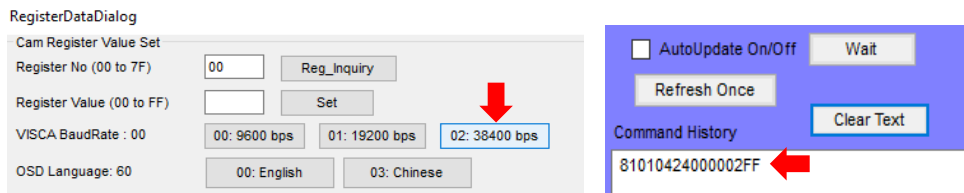
6. Verify that the Sony FCB camera control software is communicating with the camera.

Model	FCB-EH6300
ROM Version	0200
Baud Rate	9600 bps
System	HD
Camera ID	0 (decimal)
VISCA No.	1

7. From the FCB main menu » Register » Setting Menu.



8. Select the new baud rate and then verify the command has been sent.



9. Power cycle the camera.
 10. Close the Sony FCB software and the virtual serial port software.
 11. Repeat steps 1 through 6 using the new baud rate (38400).

The InitVisca camera configuration setting in Acquisitions Settings is not functional. Since most settings will already have been set this is not important.