



SightLine

APPLICATIONS

EAN- Startup Guide 3000-OEM

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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.*



Contents

1	Overview	1
1.1	Additional Support Documentation	1
1.2	SightLine Software Requirements	1
2	Network Configuration	1
3	Serial Communications	2
4	3000-EVAL Kit	2
5	Hardware Bench Setup	3
5.1	Additional SightLine Adapter Boards	3
6	Panel Plus	4
6.1	Camera Setup and Network Selection	6
6.2	Direct Serial Connection (optional)	7
7	Summary	8
7.1	Demo Mode	8
8	Troubleshooting	9
8.1	Questions and Additional Support	10

List of Figures

Figure 1:	Network Configuration Options	1
Figure 2:	Serial COM and Power Connection	2
Figure 3:	Typical Bench Hardware Setup	3
Figure 4:	3000-OEM Serial Port and Connector Reference	4
Figure 5:	Windows Security Alert Prompt	4
Figure 6:	Network Connection to Board	5
Figure 7:	Firmware Version and Enabled Features	5
Figure 8:	Status Bar Operating Information	5
Figure 9:	Compression Tab	6
Figure 10:	Direct Serial Connection	7
Figure 11:	Panel Plus Connection to Board	8

List of Tables

Table 1:	3000-EVAL Kit	2
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1 Overview

The 3000-OEM Startup Guide provides the steps for connecting, configuring, and testing the 3000-OEM video processing board on the 3000-IO interface board. The IO board provides the standard connections for power and communication with the 3000-OEM processing board. Boards with SLE options enabled use the same startup procedure.

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


ⓘ 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.

2 Network Configuration

The 3000-OEM board can be connected directly to the host PC or through a network switch. During startup, the board sends three DHCP discover requests in three second intervals. It will self-assign the link-local address of 169.254.1.181 if it does not receive a response.

 Refer to [EAN-Network Configuration](#) for more network configuration information.

 SightLine recommends assigning a static IP on the PC when a DHCP server is not present on the network.

 If you require additional assistance with assigning a static IP address to the host PC, contact your network administrator or search online for procedures that corresponds with your current PC operating system.

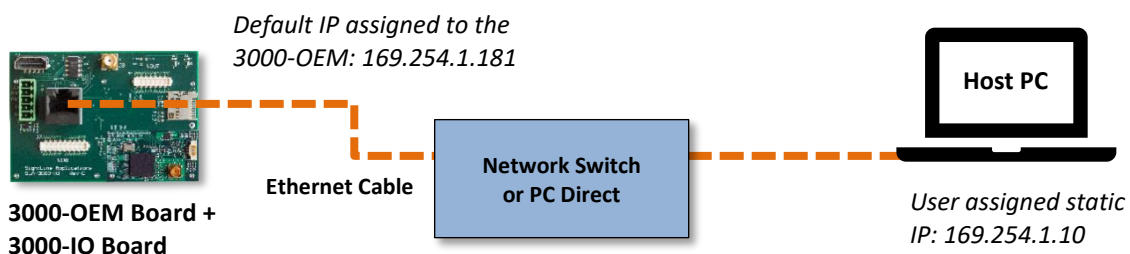


Figure 1: Network Configuration Options



Configuration notes:

- If a wireless adapter is active on the host PC it should be disabled.
- If using the link local address, assign a static IP address to the host PC of 169.254.X.X, where X is 1-254 (do not use 181). Use a subnet mask of 255.255.0.0.
- Problems with outbound streaming are often related to setting/assigning IP addresses and ports. See the Encoding Configuration settings in [EAN-Encoding](#) for advanced settings.

3 Serial Communications

For a direct serial connection use the 9-pin serial connection. A serial COM connector is included in the EVAL kit and must be wired to the board power adapter as shown in [Figure 2](#). The pinout for this cable can be found in the [ICD-3000-OEM](#) document. Connecting to the serial COM port on the 3000-IO board from a host PC requires a null modem adapter or null modem serial cable.

Use a direct serial connection for troubleshooting or if a network connection cannot be established.

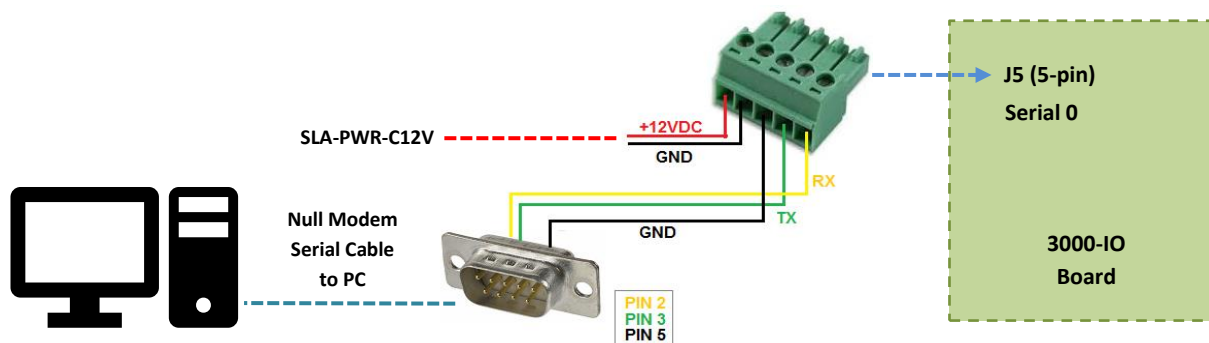


Figure 2: Serial COM and Power Connection

4 3000-EVAL Kit

Parts listed below are included in the 3000-OEM kit. If your application calls for other options and interface boards please contact [Sales](#). To review all the interface board options, see the [3000-OEM Accessories](#) page on the SightLine Applications website.

Table 1: 3000-EVAL Kit

Part Number	Qty	Description
3000-OEM (Rev C)	1	Video processing board
3000-IO (Rev D)	1	Main interface board with standard connections for the 3000-OEM
3000-HDSDI-IN (Rev C)	1	HD-SDI Interface board (connected to 3000-IO board)
SLA-PWR-C12V	1	12V power supply w/5-pin connector for 3000-IO board
SLA-CAB-SMA2BNC	1	Analog out cable
SLA-CAB-MCX2BNC	1	Cable, MCX (RA) to BNC(M) for HDSDI-IN
SLA-CAB-ETH0	1	Ethernet cable CAT 5e 3ft
SLA-CAB-S001	1	9-pin Serial adapter
MSD-ADPT	1	SD Card adapter
MSD-32GB	1	SD Card for recording clips and snapshots
SLA-3000-HSNK	1	3000-OEM test bench heatsink (recommended for benchtop testing)
SLA-CAM-HDSDI	1	HD-SDI 1080p Camera
SLA-PWR-A12V	1	12V power supply for camera



5 Hardware Bench Setup

ⓘ IMPORTANT: To prevent damage to the 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 anti-static mat.

The 3000-HDSDI-IN board is connected to VIN1 on the 3000-IO board. The 3000-IO board is used as the serial and network interface board.

ⓘ IMPORTANT: To prevent voltage spikes to the board, plug in the power adapter (SLA-PWR-C12V) to an AC power source first and then connect to the board.

Cable connections:

- SLA-CAB-MCX2BNC: Connects to the 3000-HDSDI-IN board and to the 1080p camera.
- SLA-CAB-SMA2BNC: Connects to VOUT on the 3000-IO board and to the analog monitor (optional).
- SLA-CAB-ETH0: Connects to the Ethernet port on the 3000-IO board and to the network switch or host PC.
- SLA-PWR-A12V: Connects to an AC power source and to the 1080P camera.
- SLA-PWR-C12V: Connects to J5 on SLA-3000-IO board and AC power source.

Power and network connectivity LEDs:

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

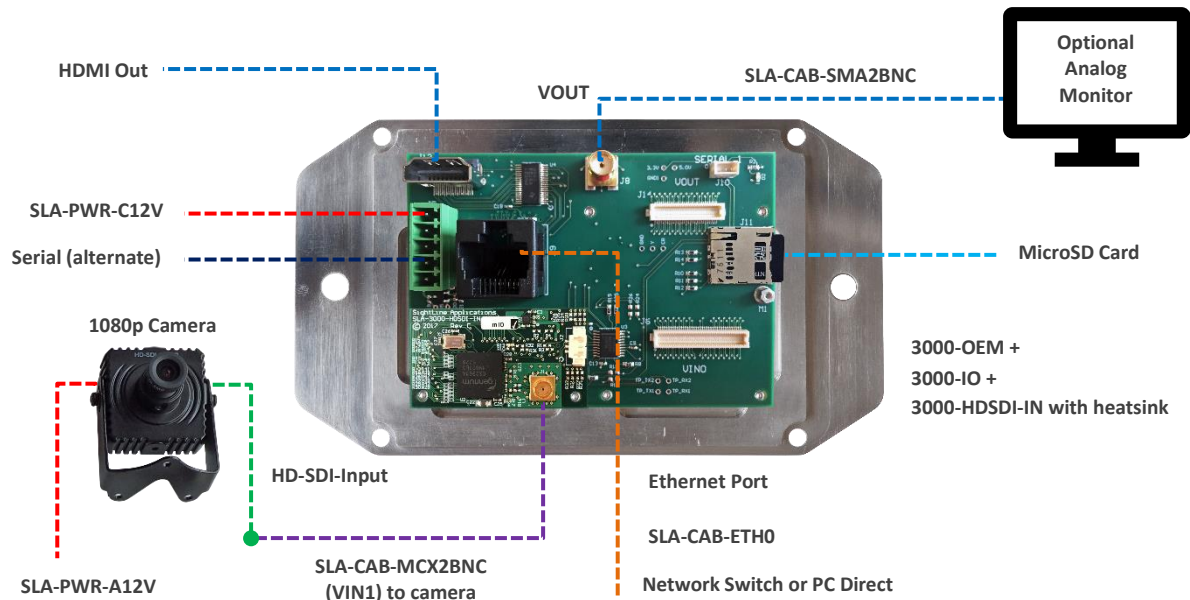


Figure 3: Typical Bench Hardware Setup

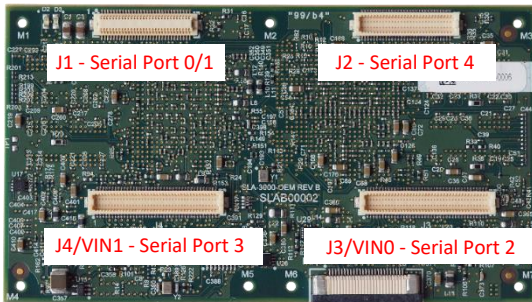
5.1 Additional SightLine Adapter Boards

SightLine adapter boards provide different I/O, camera inputs, or digital outputs. The boards can be attached directly to the 3000-OEM or through a secondary adapter allowing customers to swap out modules for custom configurations. This setup guide assumes the initial use of the EVAL kit and the HDSDI input. Customer specific configurations with other camera input boards is fully supported.



On the 3000-IO board, VIN0 has camera channels 0 and 1 assigned. VIN1 has camera channel 2 assigned. The 3000-IO board supports installing all SightLine interface boards onto either of these connectors.

ⓘ IMPORTANT: 3000-AB board only - If the 3000-AB board is installed on VIN0, both analog inputs can be used. If it is installed on VIN1, only the J3 (input 0) can be used.



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

6 Panel Plus

This section covers the Panel Plus setup and configuration process. Panel Plus provides a basic graphical interface to the features and functions of the 3000-OEM and 3000-IO board.

Before connecting with the Panel Plus software, the 3000-OEM and 3000-IO boards 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).

1. Go to the [Software Downloads](#) page on the SightLine website and download the Panel Plus application installer. Older releases are available under the *Previous Versions* section.

ⓘ IMPORTANT: The firmware version number and Panel Plus Software version number should match. If the board firmware version is initially unknown, reference the SightLine invoice that came with the board when it was purchased.

2. Launch the installer file and follow the prompts. After installation open the Panel Plus application.

3. The first time that Panel Plus is launched, a Windows Security Alert prompt should appear. Select *Allow Access* to create a firewall exception (Figure 5).

Approving private network access is sufficient in most cases. Check public networks if directly connecting to the board.

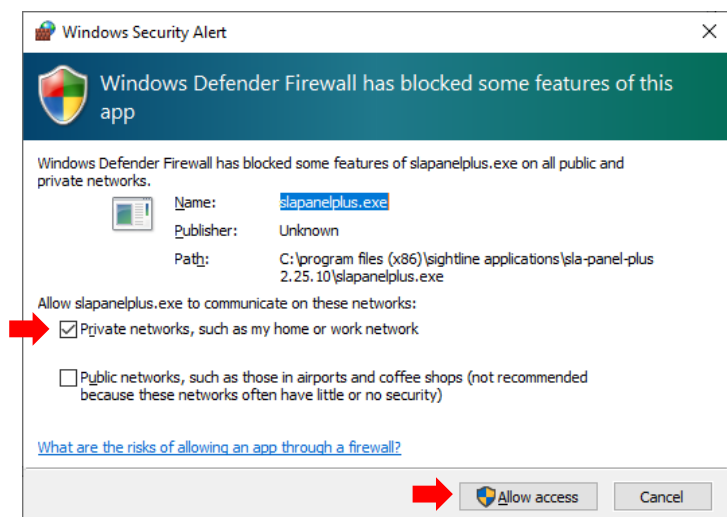


Figure 5: Windows Security Alert Prompt



IMPORTANT:

- Do not cancel this prompt. Failure to allow access at this point will not allow the Panel Plus application to connect to the board. See the [Troubleshooting](#) section for more information.
 - Before using the Panel Plus program, review the Panel Plus User Guide in the Help section of the Panel Plus application for additional user and setup information.
4. Network connection to the board:
- From the *Connect* tab, click the *Refresh List* button to get a list of boards on the network.
 - Use the dropdown menu and click on the appropriate board to select it.
 - Click the *Disconnected (click to connect)* button.

Once the connection is successful, the button changes to *Connected*.

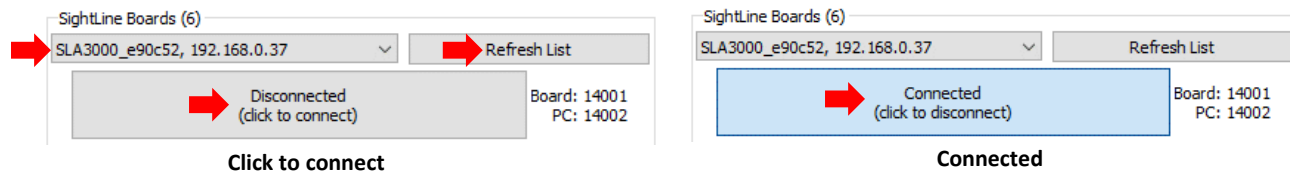


Figure 6: Network Connection to Board

5. Verify the connection:

- When the Panel Plus has connected to the 4000-OEM board, the firmware version and the enabled features will be displayed in the *Connect* tab.

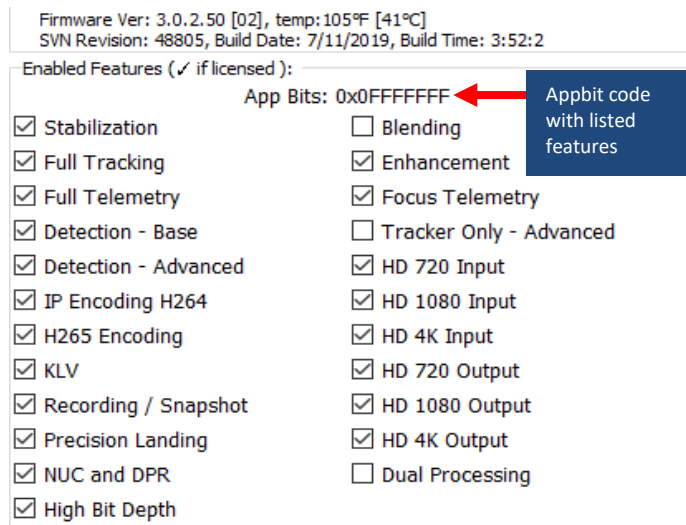


Figure 7: Firmware Version and Enabled Features

- After connecting the operating information is displayed in the bottom status bar. If the connection was not successful, this information will not be present or incomplete.

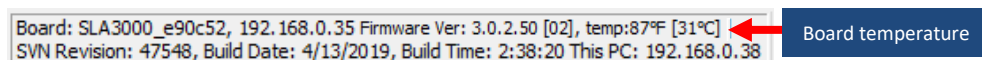


Figure 8: Status Bar Operating Information

IMPORTANT: For optimal performance, monitor the board temperature. Board temperatures should be below 185°F (85°C). To keep boards within the optimal temperature range, use the included heatsink during bench testing. For more information about thermal management, see the [ICD-3000-OEM](#).



6. Select the *Compression* tab:
 - a. Use the H.264 encoding options to get started.
 - b. In the *Output Properties* section, use the default values for *Frame Step* and *Down Sample*.
 - c. In the *Streaming* parameters section, define the destination IP address and port.

To set these parameters quickly, click the *Use My IP - Unicast* button. This sets the outbound destination IP address to the network interface card on the PC.

- d. Click *Send* to dynamically set the desired IP Address, UDP Port, and UDP delivery format (Unicast, Multicast, or Broadcast).
- e. To save the settings and make them recurrent through restarts, main menu » *Parameters* » *Save to board*.

See [EAN-Parameter File](#) for a comprehensive guide to saving parameter settings.

The screenshot shows the 'Compression Tab' interface. At the top, 'Network 0' is selected. Under 'CODEC / TRANSPORT', 'RTP' options are 'MJPEG', 'RTP H.264', and 'RTP MPEG2-TS H.264'. 'MPEG2-TS' options are 'H.264' (selected with a red arrow) and 'Pad UDP packets so all packets are the same size (MPEG2-TS only)'. The 'Output Properties' section includes 'Frame Step: 1', 'Down Sample: None', 'Output Frame Size: Out=In', 'Quality: 80', and 'Foveal: 0'. Below this are settings for 'H.264 Profile: Baseline', 'Bit Rate: 1,500 [Mbps]', 'I-Frame Interval: 30 [frames]', 'Block Refresh: 0 [blocks]', 'Slice Refresh Size: 0 [rows]', 'Deblocking: Filter all edges', and 'Bit Rate Control: Legacy'. A 'Save Output Settings' button with a red arrow is at the bottom of this section. The 'Streaming' section shows 'To IP Address: 192.168.0.31' and 'Port: 15004'. It has three buttons: 'Use My IP - Unicast' (with a red arrow), 'Use Multicast', and 'Broadcast'. Below these are 'Send' (with a red arrow), 'Stop Streaming', and 'Start/Stop All Nets' (checkbox). At the bottom are 'Export SDP File...' and 'Stream RTSP URL' buttons. The 'Statistics' section shows a table with columns for Frames, Profile, Encapsulation, Video, KLV, and Codec, with values like 0.00 [1/sec] and 0.00 [Kb/sec].

Figure 9: Compression Tab

6.1 Camera Setup and Network Selection

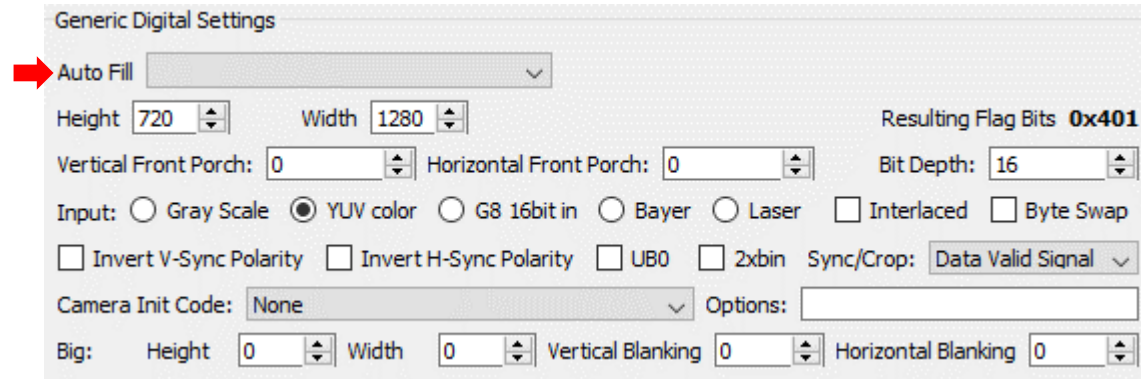
1. From the main menu go to *Configure* » *Aquisition Settings*. This dialog window allows changes to the camera configurations.
2. Since the HD-SDI board is on VIN 1 of the 3000-IO board, set the *Camera Index* to *Cam 2*. Set the *Camera Type* to *Generic Digital*.

The screenshot shows the 'Acquisition Settings' dialog. It has two dropdown menus: 'Camera Index' set to 'Cam 2' and 'Camera Type' set to 'Generic Digital'.



- In the *AutoFill* dropdown menu, select HD-SDI 720p from the AutoFill menu or enter the *Height* and *Width* settings of the connected camera.

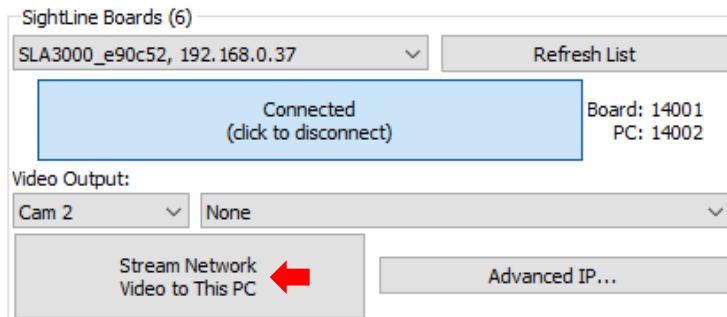
If the camera is listed, the AutoFill drop-down menu automatically populates the relevant fields with the correct settings.



- After changes have been made, the *Apply* button will turn red indicating that a change has been detected. Click *Apply* to apply the changes. Close the *Acquisition Settings* dialog window.
- Save and activate the settings:
 - Main menu » Parameters » Save to Board.
 - Main menu » *Reset* » Board.
 - After the system reboots reconnect to the board. Make sure the board connects.

See [EAN-Camera Compatibility](#) for all third-party cameras and lens assemblies that are currently supported by SightLine software. Includes configuration and setting support guidance.

- From the *Connection* tab, click *Stream Network Video to This PC*.



6.2 Direct Serial Connection (optional)

- Connect the serial cable to the 3000-OEM board and host PC as shown in [Serial Communications](#).
- From the *Connect* tab, click the *Refresh List* button to get a list of available COM ports.
- Use the dropdown menu and click on a COM port to select it.
- Click the *Disconnected (click to connect)* button.

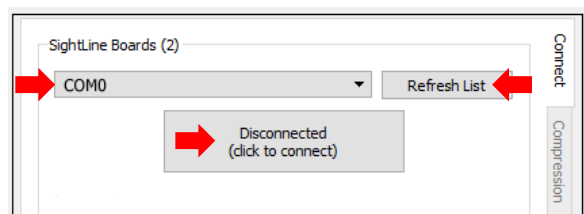


Figure 10: Direct Serial Connection



7 Summary

This completes the startup guide for the 3000-OEM board. See the Panel Plus User Guide (main menu » *Help* » *User Guide*) for additional user and setup information.

If the board has been connected to a camera and encoding functions are part of the configuration, video will be displayed in the main window. On the *Connect* tab of Panel Plus, the purchased functions are checked and enabled. To add additional features to 3000-OEM board, contact [Sales](#).

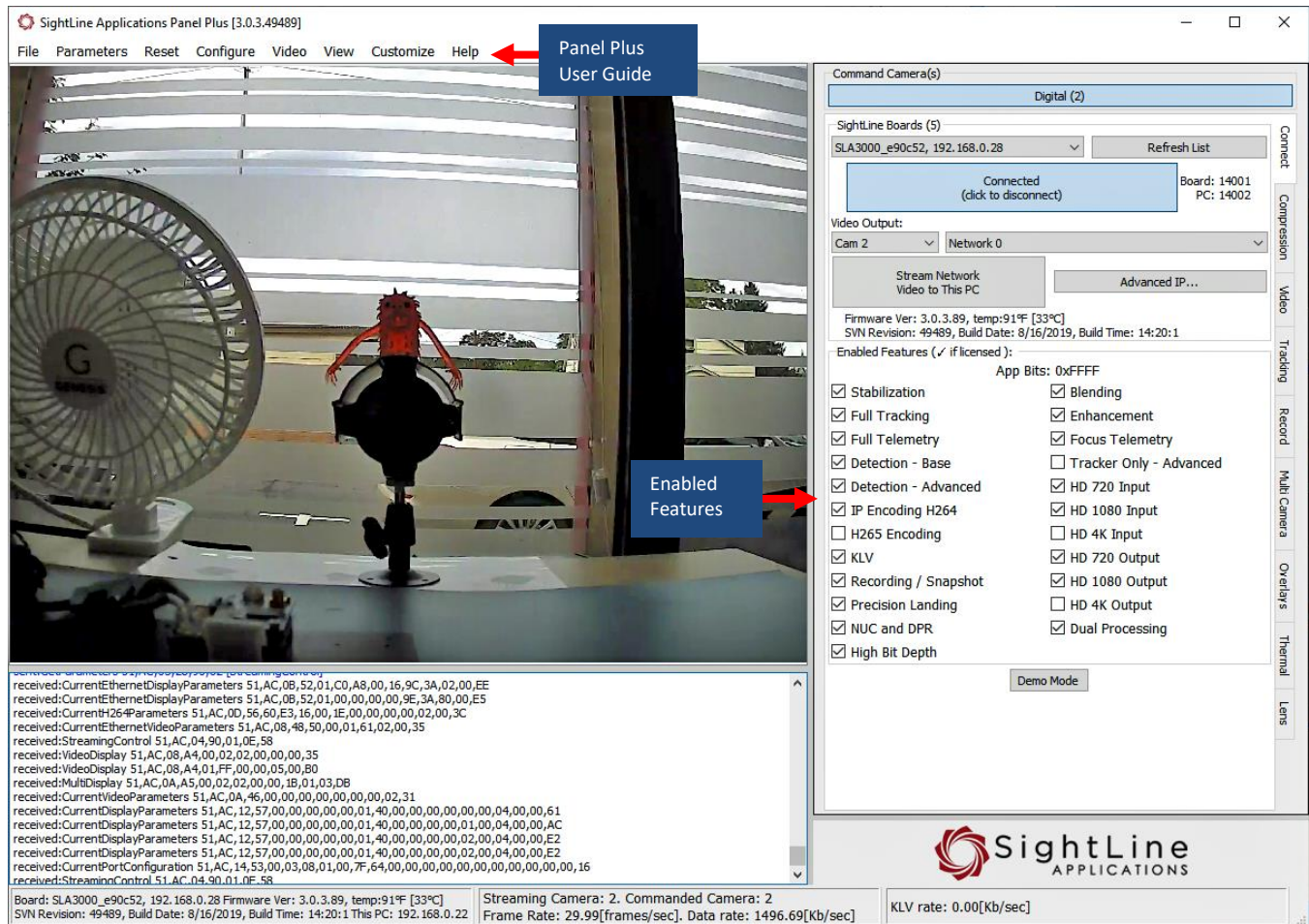


Figure 11: Panel Plus Connection to Board

IMPORTANT: Not all 3000-OEM purchased configurations include encoded IP video, e.g., the Tracker-only configuration. For configurations that include encoding, video will be displayed in the Panel Plus main window. Tracker-only configurations will display processed video on the analog output only. An analog monitor is required for viewing this output.

7.1 Demo Mode

To enable all features for testing and evaluation purposes, click the *Demo Mode* button from the *Connect* tab. All the features enabled on the board are now available for testing.

The video screen will have a Demo Mode screen overlay until the Demo Mode function is turned off.



8 Troubleshooting

Issue: Unable to connect with the Panel Plus application to the 3000-OEM board over a standard network connection.

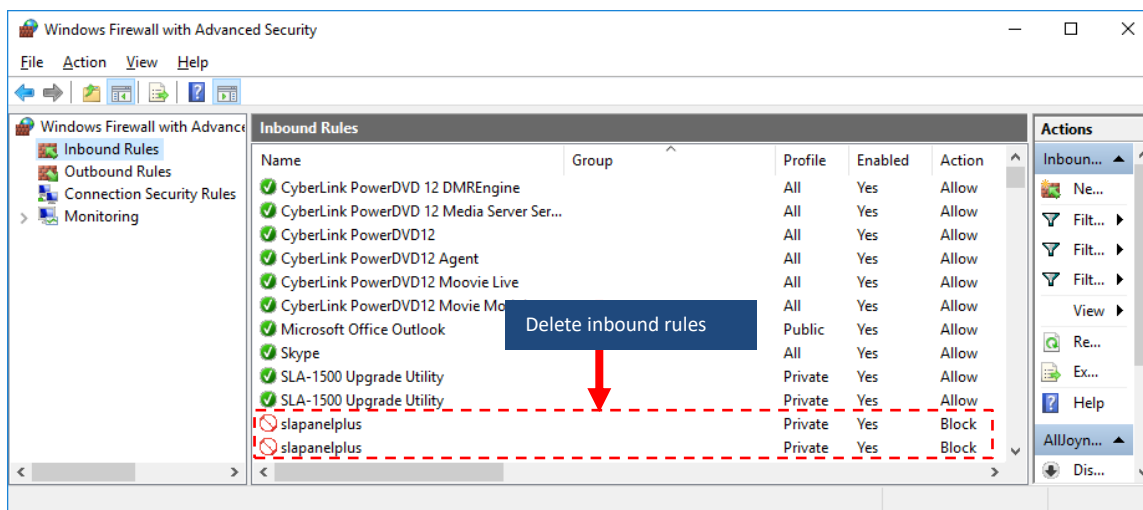
Check static IP address:

Check the static IP address configuration. Improper or unknown static IP address setup is a common connection problem. See the [Network Configuration](#) section and [EAN-Network Configuration](#) for more network configuration information.

Check Windows firewall:

Failure to allow access in the Windows Security Alert prompt upon initial startup of the Panel Plus application can cause connection issues.

1. Close the Panel Plus software application and open the Windows Firewall Security Manager on the host PC.
2. Go to Inbound rules and delete the two *slapanelplus* rules (TCP and UDP).
3. Re-start the Panel Plus application and allow access in the Windows Security Alert prompt window.



Check hardware connections:

Make sure that all the boards are powered on.

If connecting over the network, switch to a direct serial connection (see the [Serial Communications](#) section). The Panel Plus software will automatically recognize serial ports and list them in the dropdown menu for available connections.

Connecting to the serial COM port on the 3000-OEM board from a host PC requires a null modem adapter or null modem serial cable.



Check network configuration:

After communications have been established using the serial connection, networking settings can be corrected to allow proper network communications.


1. From the main menu, go to *Configure » Network Settings*.
2. If an unknown static IP address is assigned, remove it or update it to match your network's addressing scheme.

Issue: Network output video shows image in upper left corner of Panel Plus with a green background.

Check camera output settings:

The camera could be set to output 720P and the camera setting in *Acquisition Settings* is set to 1080P. Changing the camera to 720P in *Acquisition Setting* should correct this problem.

If the HD-SDI camera came with the 3000-OEM kit, the camera resolution can be changed to 1080P30 using the small controller joystick on the cable included in the kit.

 *It is easier to read the menus if the yellow output of the camera (analog out) is connected to an analog monitor.*

1. Press the joystick on the cable to bring up the menu.
2. Scroll down to *System*.
3. Press the joystick and scroll down to *Frame Rate*
4. Move the joystick right or left to select 1080P30

8.1 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 Documentation page of the SightLine Applications [website](#).