

EAN-Startup Guide 3000-OEM

2024-03-19

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 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

The 3000-OEM Startup Guide provides the steps for connecting, configuring, and evaluating the 3000-OEM video processing board on the SLA-3000-mIO interface board. The mIO is optimized for connections in an integrated assembly. Compared to the SLA-3000-IO the mIO is smaller, uncomplicated, has small round wire interfaces and supports a two-board stack height.

Boards with SLE options enabled use the same startup procedure.

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

IMPORTANT: The 3000 platform requires 2.22.x software and above. REV C requires 2.24.x and above. The 3000 platform is not supported in 3.6.x and above. It will continue to be supported in 3.5.x.

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 Safe Device Handling

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, 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.

3 3000-EVAL Kit with 3000-mIO

Provides a complete laboratory bench/development interface with standard connectors. For additional options and interface boards, please contact [Sales](#). To review all the interface board options, see the products pages on the SightLine Applications [website](#).

Table 1: 3000-EVAL Kit with 3000-mIO

| Part Number | Qty | Description | Part Number | Qty | Description |
|---------------|-----|---------------------------------------|--------------|-----|---|
| 3000-OEM | 1 | Video processing board | SL00764 | 1 | HDMI Type A male connector standard |
| SLA-3000-mIO* | 1 | Main interface board for the 3000-OEM | SLA-CAB-0303 | 1 | 3-pin PicoBlade to DB9 |
| 4000-OEM-MP | 1 | 4000-OEM mounting base | SLA-CAB-0403 | 1 | 6-inch cable, 4-Pin PicoBlade to modular jack |



(3000-EVAL Kit with 3000-mIO continued)

| | | | | | |
|---------------|---|--|-------------------|---|--|
| SLA-DIST | 1 | PWR/ENET distribution board | SLA-CAB-P103 | 1 | RF179 cable assy, BNC bulkhead jack to MCX |
| 3000-HDSDI-IN | 1 | HD-SDI interface board | SLA-CAB-0302 | 2 | 3-pin PicoBlade pigtail |
| SLA-CAB-0404 | 1 | 4-pin Molex PicoBlade, 3.0 inches, GEN (WHT) | SLA-CAB-0402 | 2 | 4-pin PicoBlade pigtail |
| SLA-CAB-0405 | 1 | 4-pin Molex PicoBlade, 3.0 inches, PWR (BLK/RED) | SLA-CAB-HD10 | 1 | 10cm Length FPC ribbon flat cable for HDMI |
| SLA-PAD-010 | 1 | Thermal pad 1.0-inch x 1.0-inch x 0.010 inch | SLA-CAB-MCX2BNC | 1 | Cable, MCX (RA) to BNC(M) for HDSDI-IN |
| SLA-PAD-020 | 1 | Thermal pad 0.75-inch X 0.75-inch x 0.020 inch | SLA-CAB-ETH0 | 1 | Ethernet cable CAT 5e 3ft |
| SLA-PAD-125 | 1 | Thermal pad 0.250-inch x 0.250-inch x 0.125 inch | SLA-CAM-HDSDI | 1 | HD-SDI 1080p camera |
| SLA-PWR-B12V | 1 | 12V power supply w/2-pin connector | SLA-PWR-A12V | 1 | 12V Power supply for camera |
| SLA-CAB-1504 | 1 | 12V power cable to PicoBlade | SLA-MSD-ADPT | 1 | SD adapter |
| SLA-MSD-32GB | 1 | 32 GB microSD memory card (class 10 SDHC) | SLA-DOC-LICENSE | 1 | Hardware license |
| SLA-CAB-S001 | 1 | Serial adapter (stripped) | Mounting hardware | - | Spacers and mounting screws |

*The SLA-3000-IO board is alternate interface board for the 3000-OEM that comes in the standard 3000-EVAL kit.

4 Hardware Bench Setup

ⓘ IMPORTANT: To prevent damage to hardware boards, disconnect the power before connecting or disconnecting all cable connections.

📄 The 3000-HDSDI-IN is connected to J4 on the 3000-OEM or VIN1 on the SLA-3000-IO. The SLA-DIST provides power switch and standard bench interface connections for power and ethernet.

Cable connections:

- SLA-CAB-MCX2BNC: Connects to J1 (MCX jack) on the 3000-HDSDI-IN board and to the green BNC connector of the 1080p camera. The yellow BNC connector is for analog use only.
- SLA-CAB-SMA2BNC: Analog monitor cable (optional). Connects to J8 on the SLA-3000-mIO (VOUT on the SLA-3000-IO).
- SLA-CAB-ETH0: Connects to the Ethernet port and to the network switch or host PC.
- SLA-CAB-0404: Connects to J3 on the SLA-DIST and J4 on the SLA-3000-mIO. Provides Ethernet to the 3000-OEM.
- SLA-CAB-0405: Connects to J2 on the SLA-DIST and J9 on the SLA-3000-mIO. Provides power to the 3000-OEM.
- SLA-PWR-A12V (110-250VAC input / 12VDC output): Connects to the red power connector on the 1080p camera.
- SLA-PWR-B12V (110-250VAC input / 12VDC output): Connects to J4 on the SLA-DIST (SLA-3000-mIO).
- SLA-PWR-C12V (110-250VAC input / 12VDC output): Connects to J5 on the SLA-3000-IO.



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.
- To prevent voltage spikes to the board, plug in the power adapter to an AC power source first and then connect to the board.

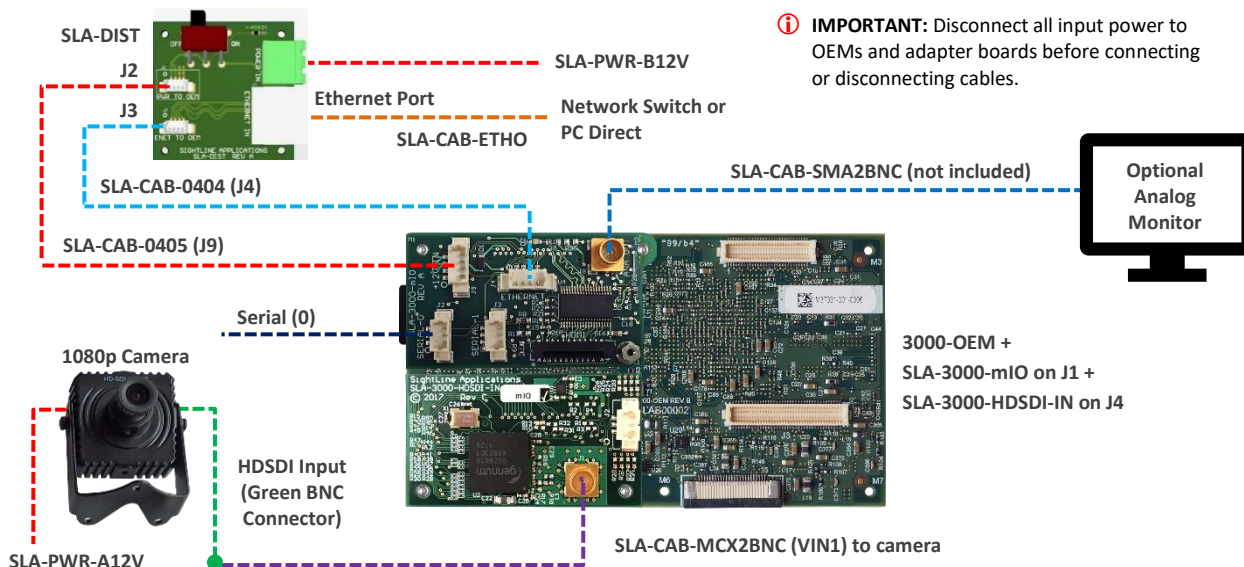


Figure 1: Typical Bench Hardware Setup - SLA-3000-mIO

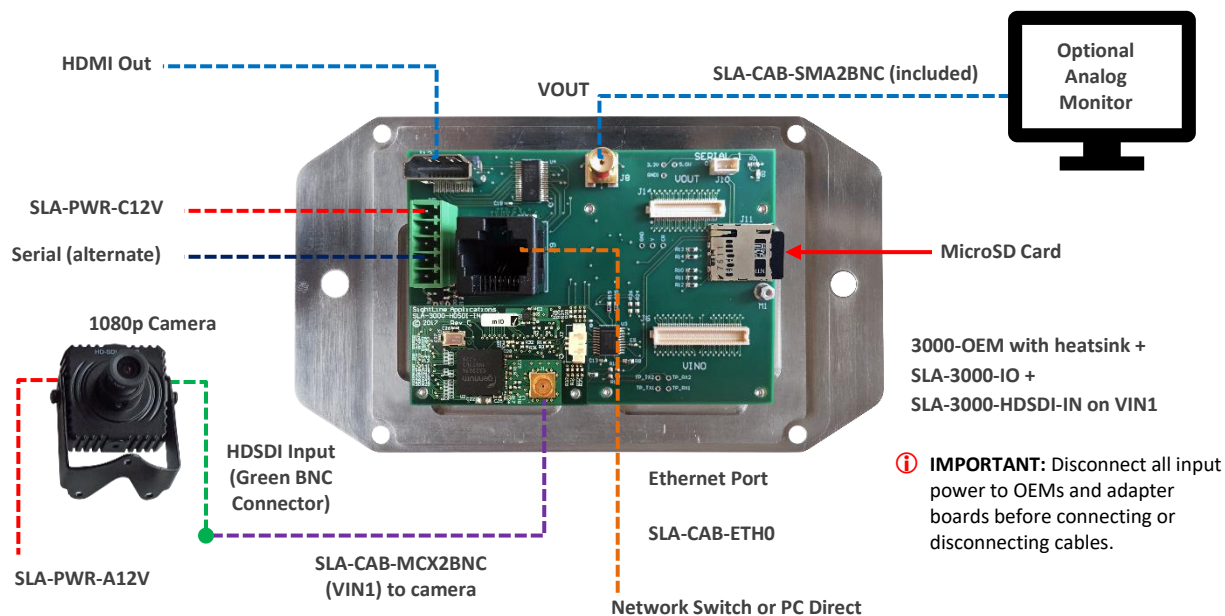


Figure 2: Alternate Bench Hardware Setup - SLA-3000-IO

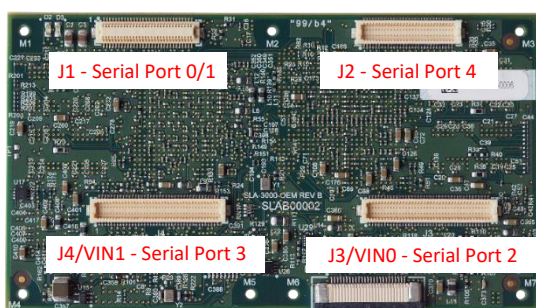


4.1 Additional SightLine Adapter Boards

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 SLA-3000-IO board, VIN0/(J3) has camera channels 0 and 1 assigned. VIN1/(J4) has camera channel 2 assigned. Both the SLA-3000-mIO and SLA-3000-IO supports SightLine interface boards on either of these connectors.

IMPORTANT: 3000-AB board only - If the SLA-3000-AB board is installed on VIN0/J3, both analog inputs can be used. If it is installed on VIN1/J4, 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 3: 3000-OEM Serial Port and Connector Reference

5 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 additional assistance is needed to assign a static IP address to the host PC, contact a network administrator or search online for procedures that corresponds with the current PC operating system.

3000-OEM + SLA-3000-mIO + SLA-3000-HDSDI-IN

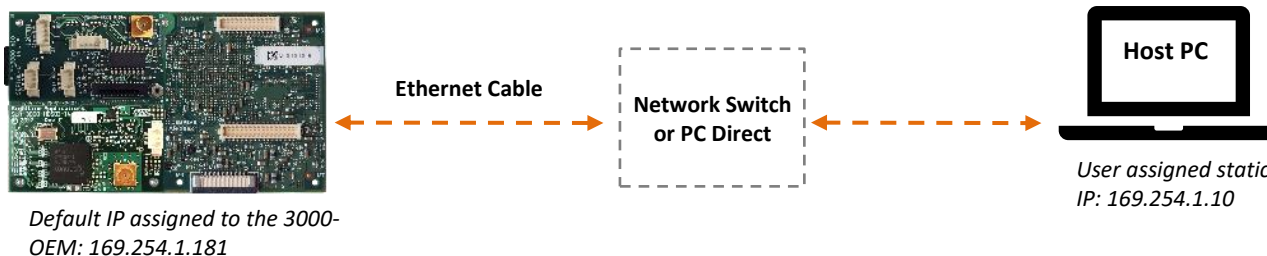


Figure 4: Network Configuration Options



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.

6 Serial Communications

For a direct serial connection use the 9-pin serial connection. A serial COM connector is included in the EVAL kits for both the SLA-3000-mIO and the SLA-3000-IO boards. Connecting to the serial COM port on both boards from a host PC requires a null modem adapter or null modem serial cable.

For the SLA-3000-IO the serial COM connector must be wired to the board power adapter as shown in [Figure 5](#). The pinout for this cable can be found in the [ICD-Adapter-Boards](#) document.

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

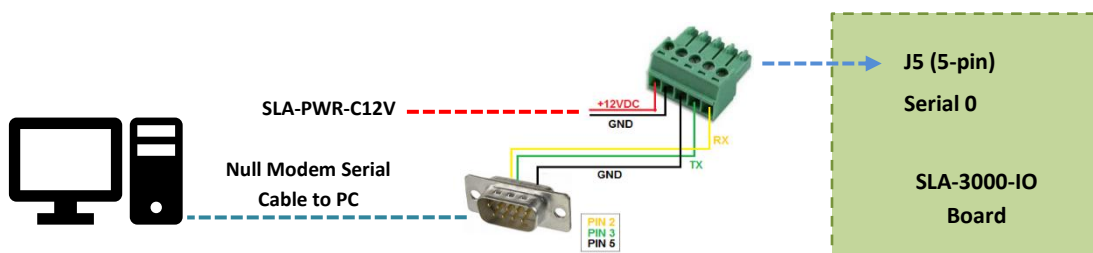


Figure 5: Serial COM and Power Connection-SLA-3000-IO

6.1 Direct Serial Connection (optional)

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

IMPORTANT: Video cannot be streamed over a serial connection.

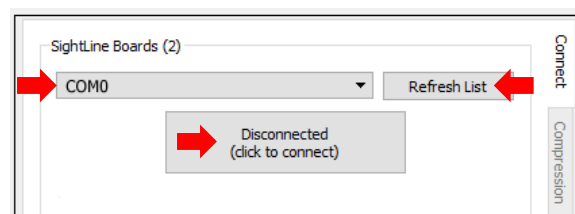


Figure 6: Direct Serial Connection



7 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-mIO board.

Before connecting with the Panel Plus software, the 3000-OEM and 3000-mIO 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 7](#)).

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

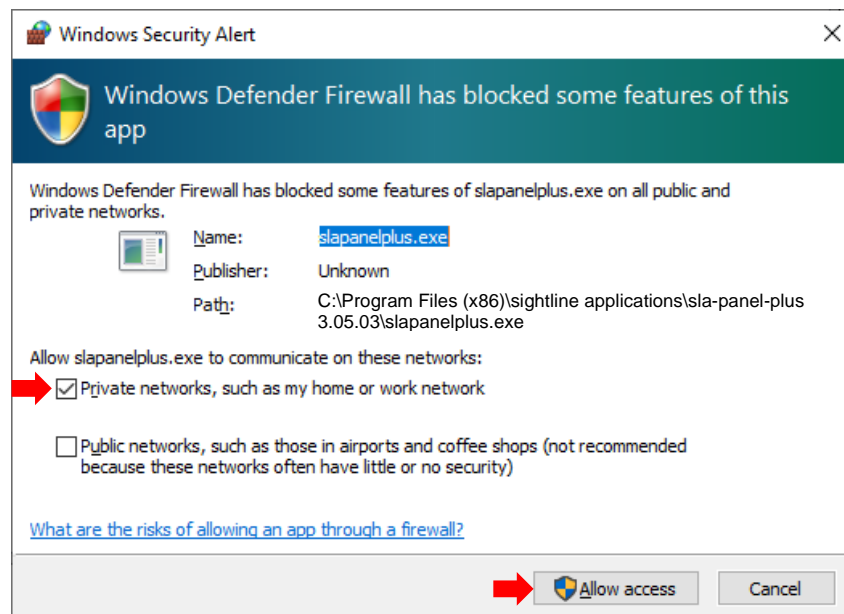


Figure 7: Windows Security Alert Prompt

ⓘ 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:
 - a. From the *Connect* tab, click the *Refresh List* button to get a list of boards on the network.
 - b. Use the drop-down menu and click on the appropriate board to select it.
 - c. Click the *Disconnected (click to connect)* button.

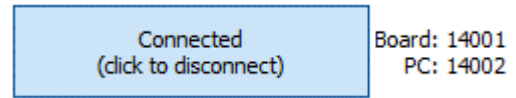


Figure 8: Network Connection to the OEM Board

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

5. Verify the connection. When Panel Plus has successfully connected to the 3000-OEM board, operating information is displayed under the *Video Output* section and the bottom status bar in Panel Plus. If the connection was not successful, this information will not be present or incomplete.

ⓘ 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](#).

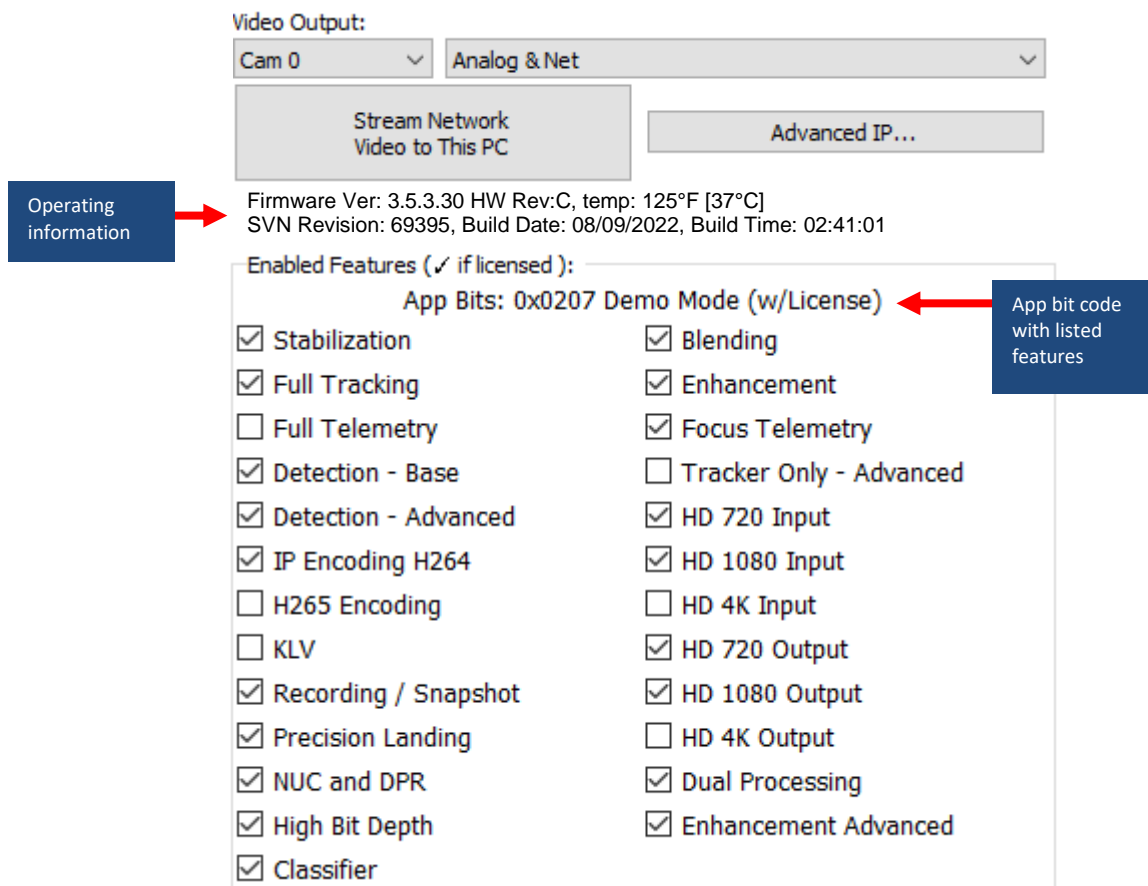


Figure 9: Firmware Version and Enabled Features

7.1 Camera Acquisition

1. From the main menu go to *Configure » Acquisition Settings*. This dialog window allows changes to the camera configuration.



- Since the SLA-3000-HDSI-IN board is on J4 on the 3000-OEM or VIN 1 on the 3000-IO, set the *Camera Index* to *Cam 2*. Set the *Camera Type* to *Generic Digital*.

- In the *Auto Fill* drop-down menu, select *HD-SDI 720p* from the *Auto Fill* menu or enter the *Height* and *Width* settings of the connected camera.

If using a camera that is not configured for 720P, choose the corresponding option under *Auto Fill* that matches the camera., e.g., *HD-SDI 1080p*.

If the camera is listed, the *Auto Fill* drop-down menu automatically populates the relevant fields with the correct settings as shown in *Figure 10*.

Figure 10: Camera Acquisition Auto Fill Settings Example - HD-SDI 720p

- 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 the [camera configuration tables](#) for all third-party cameras and lens assemblies that are currently supported by SightLine software. Includes configuration and setting support guidance.

7.2 Stream Network Video to This PC

To stream network video to the connected PC, click the *Connection* tab in Panel Plus and then click *Stream Network Video to this PC*.

Figure 11: Stream Network Video to PC



8 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](#).

To modify the encoder parameters of the OEM, see the [Modifying Encoder Parameters](#) section.

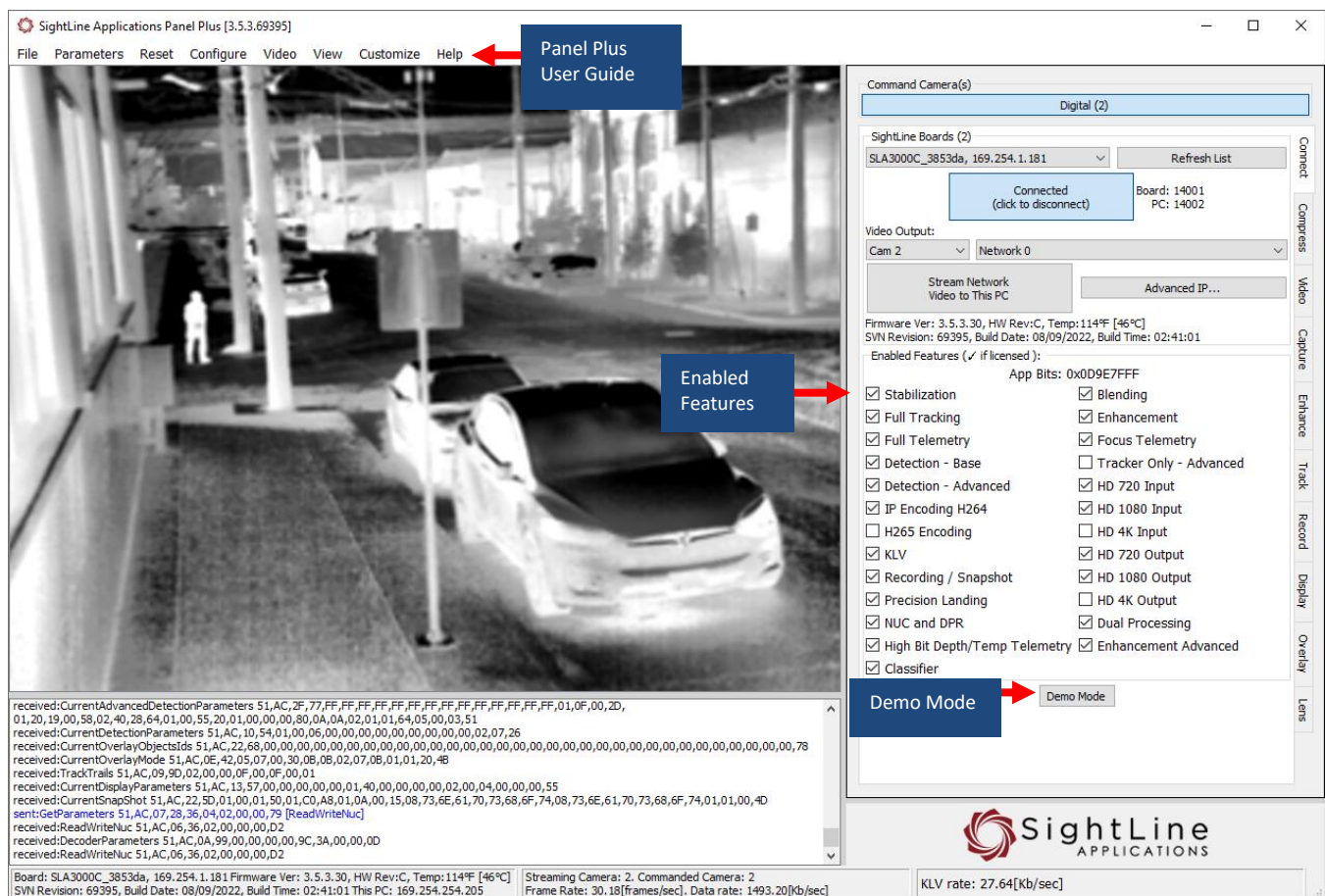


Figure 12: Panel Plus Connection to Board

ⓘ 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.



8.1 Demo Mode

SightLine offers a free demo mode for testing non-licensed features. To test and evaluate these features, click the *Demo Mode* button located in the *Connect* tab.

To exit the demo mode power cycle the OEM. The *Demo Mode* screen overlay will continue to display until the *Demo Mode* function is turned off. Certain features are unavailable for testing in *Demo Mode*.

Telemetry outputs are not enabled in Demo Mode.

9 Modifying Encoder Parameters

The encoder parameters can be modified from the *Compress* tab in Panel Plus.

- The H.264 encoding option is a good choice to get started.
- In the *Output Properties* section, use the default values for *Frame Step* and *Down Sample*.
- The *Streaming* parameters section defines 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.
- Click *Send* to dynamically set the desired IP Address, UDP Port, and UDP delivery format (Unicast, Multicast, or Broadcast).
- 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 'Compress Tab' interface. At the top, 'Network 0' is selected. The 'CODEC / TRANSPORT' section has 'RTP:' with options for MJPEG, RTP H.264, and RTP MPEG2-TS H.264. Below that, 'MPEG2-TS:' has 'H.264' selected (indicated by a red arrow) and 'KLV Only'. A button for 'Advanced Compression Settings...' is present. The 'Output Properties' section includes 'Frame Step: 1', 'Down Sample: None', 'Output Frame Size: Out=In', 'Quality: 80', 'Foveal: 0', 'Custom Width: 0', and 'Custom Height: 0'. The 'H.264 Profile' section has 'Baseline' selected, with fields for '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 is at the bottom of this section (indicated by a red arrow). The 'Streaming' section shows 'To IP Address: 169.254.254.205' and 'Port: 15004'. It has buttons for 'Use My IP - Unicast' (indicated by a red arrow), 'Use Multicast', and 'Broadcast'. There are also 'Send' (indicated by a red arrow), 'Stop Streaming', and 'Start/Stop All Nets' buttons. At the bottom, there are buttons for 'Export SDP File...' and 'Stream RTSP URL'.

Figure 13: Compress Tab



10 Troubleshooting

10.1 Network Connection

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 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 the addressing scheme of the current network.

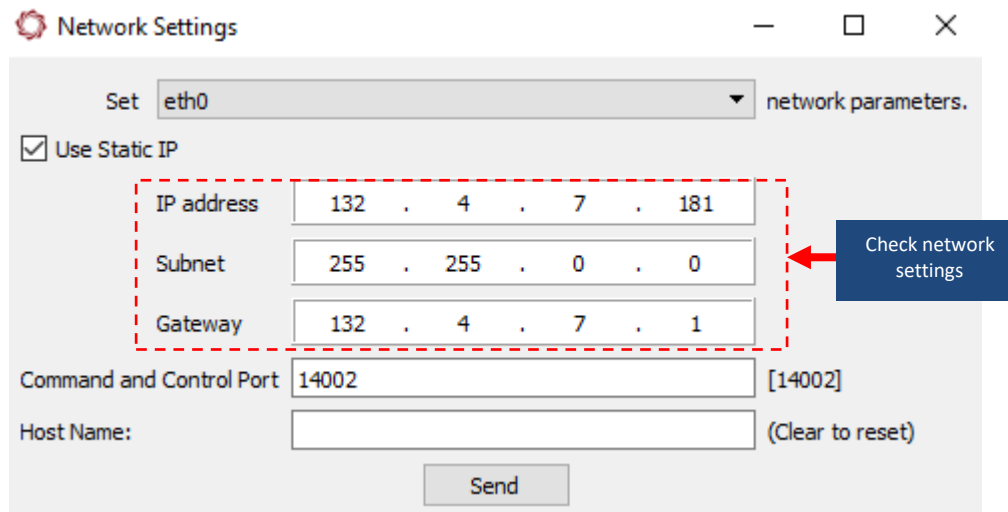


Figure 14: Check Network Settings

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.

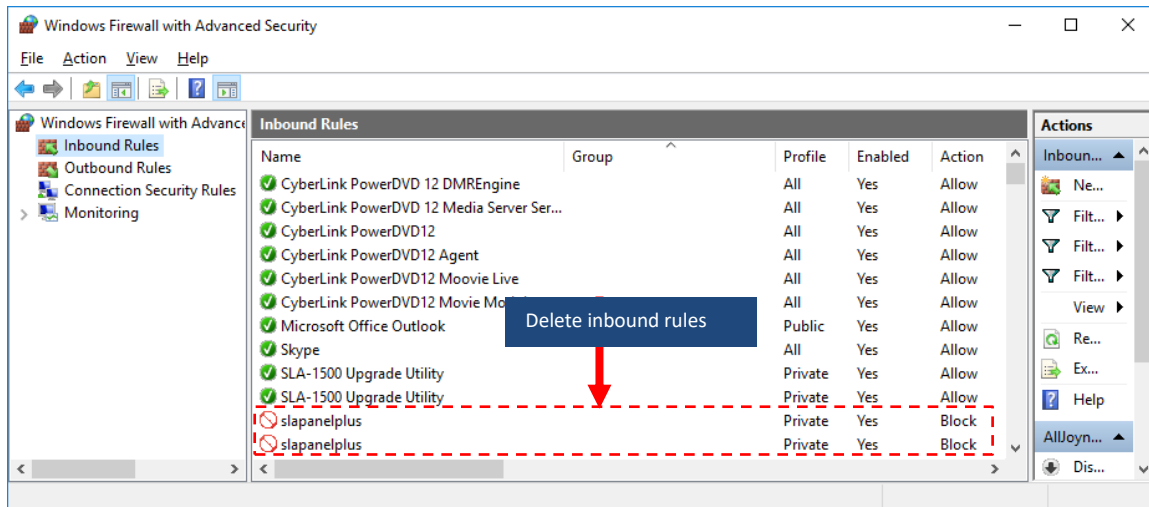


Figure 15: Windows Firewall Security Manager Fire - Delete Inbound Rules

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 drop-down 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.

10.2 3000-OEM HD-SDI Camera Input

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

Check camera output settings:

The camera could be set to output 720P. 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 EVAL kit, the camera resolution can be changed to 1080P30 using the small controller joystick on the cable included in the kit.

The menus are easier to read 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.



10.3 Send Diagnostic Files to SightLine Support

In the event of a system malfunction or other issue, use the *Get Diagnostic Files* feature in the SightLine upgrade utility application to download files and then send them to [Support](#).

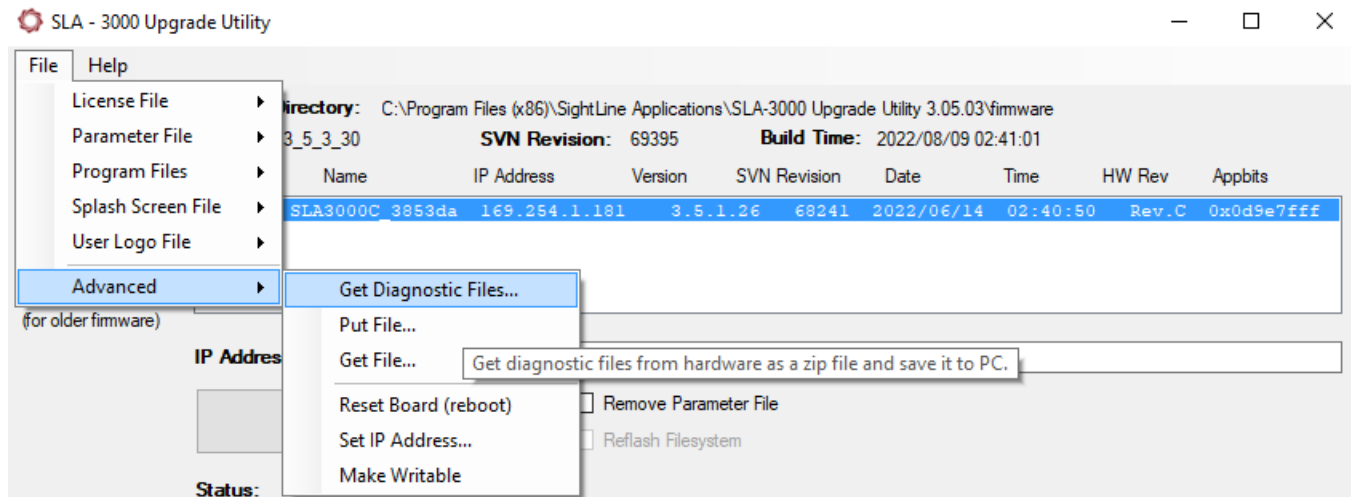


Figure 16: Get Diagnostic Files

Additional diagnostic information can also be obtained from the 3000-OEM by displaying the system log.

1. Establish an SSH session to the OEM with [Tera Term](#) (recommended) or similar application.
2. Login using the default username for the 3000-OEM: *root* (no password)
3. At the prompt, type:


```
dmesg
```
4. Copy the output and send it to [Support](#).

10.4 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.