



SightLine

APPLICATIONS

EAN- Startup Guide 1550-eAB

PN: EAN-Startup-Guide-1550-eAB

3/20/2019

**Contact:**

Web: sightlineapplications.com

Sales: sales@sightlineapplications.com

Support: support@sightlineapplications.com

Phone: +1 (541) 716-5137

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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

The 1550-eAB Startup Guide provides the steps for connecting, configuring, and testing the 1550-eAB networking board. This networking-focused board has an integrated 1500-SOM for video processing, along with a 5 port 10/100 Base-T network switch, serial ports breakout, dual analog inputs and FFC interface for connection to Tau, Quark and Tamarisk cameras.

The network switch is an unmanaged Layer 2 switch. This switch is similar to switches used to manage ports on a desktop that connect a number of other devices together on a Local Area Network (LAN). The network switch does not have an IP address or interface for configuration.

The 1500-SOM integrated into this board occupies one port of this switch, which leaves the four remaining ports for user-provided devices (one port provides magnetics). Typically, the 1500-SOM will be assigned a static IP address and netmask compatible with the network.

1.1 Associated Documents

[EAN-Network Configuration](#): Describes how to assign a static IP address to the board, set telemetry destinations and ports, and provide configuration information for both the 3000-OEM and the 1500-OEM video processing boards.

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

[ICD-1550-eAB](#): Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 1550-eAB networking board.

[EAN-Parameter File](#): Outlines the differences between dynamic and non-dynamic parameter file settings and how to correctly save them to the board.

[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: A complete overview of settings and dialog windows in Panel Plus. Located in the Help menu of the Panel Plus application.

1.2 SightLine Software Requirements


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



2 Network Configuration

The 1550-eAB board can be connected directly to the host PC or through a network switch. Both connections require assigning a static IP address to the host PC.

In the following discussion, *assigning a network address to the 1550-eAB* refers to assigning a network address to the 1500-SOM that is connected to one of the 5 network ports on the switch.

 *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.*

Once the 1550-eAB is connected, it defaults to its pre-defined IP address of 169.254.1.180.

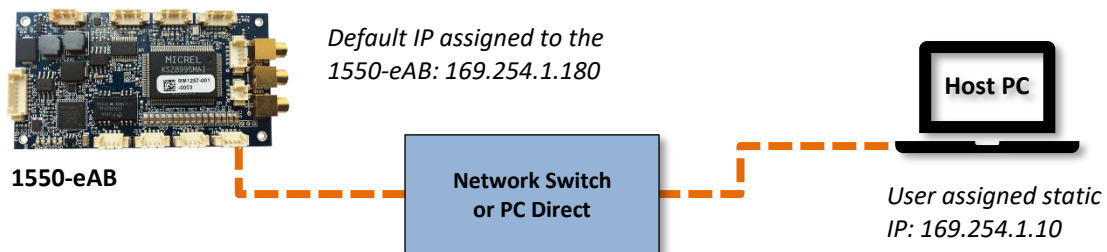



Figure 1: Network Configuration Options

IMPORTANT:

- If a wireless adapter is active/present on the host PC it should be disabled.
- The default IP address of the 1550-eAB (when no DHCP server is available) is the local-link address of 169.254.1.180.
- Assign a static IP address to the host PC of 169.254.X.X, where X is 1-254 (do not use 180). Use a subnet mask of 255.255.0.0.
- If the host PC is restarted with no connected network, it will default to this same local-link network and subnet mask (unless the host PC has already been assigned a static address).

3 Serial Communications

For a direct serial connection, use the SLA-CAB-0503 Molex to DB-9 serial cable included in 1550-eAB kit. This cable connects to the 5-pin serial connector on the board ([Figure 2](#)). A null modem cable or adapter is required to use this connection.

 *A direct serial connection should be used for troubleshooting or if a network connection cannot be established.*



4 1550-eAB Kit

Parts listed below are included in the 1550-eAB kit. If your application calls for other options and/or interface boards, please [contact](#) us.

To review all the interface board options see the [1500-OEM Accessories](#) page on the SightLine Applications website.

ⓘ IMPORTANT: To prevent damage to hardware boards, use the following Electro Static Discharge (ESD) guidelines:

- 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.

Table 1: 1550-eAB Kit

Part Number	Qty	Description
1550-eAB (Rev D)	1	Video processing and Ethernet board
SLA-CAB-1504	1	4-pin Molex to 2pos term blk (green)
SLA-CAB-0403	2	4-pin Molex to modular jack (socket) - 3 inch
SLA-CAB-0503	1	5-pin Molex to DB-9 (male) - 3 inch
SLA-CAB-P103	1	MCX to BNC, video cable - 6 inch
SLA-1500-SHDW	1	Kit of screws (3 M1.6 x 8 mm) and standoffs (3 mm nylon)
SLA-CAB-1515	1	14-pin Molex 1.25 inch
SLA-PWR-B12V	1	12V power
SLA-CAB-0502	1	Pig-tail power cable
SLA-CAB-FF06 (optional)*	1	FFC ribbon cable

*Contact [Sales](#).



5 Hardware Bench Setup

This section describes the connection for the 1550-eAB interface board to the supporting components. The 1550-eAB board is used as a serial and network interface board.

1. Connect the SLA-CAB-0403 to the first Ethernet port on the board. Use a normal Ethernet patch cable to the Host PC or network.

Optional direct serial connection: Connect the SLA-CAB-0503 serial cable to the 5-pin serial connector on the board. A null modem cable or adapter is required to use this connection.

2. Connect the SLA-CAB-P103 to the VIN0 port on the board. Connect the analog video source to the BNC connector.

Optional FFC ribbon connection: An FFC ribbon cable connector is available on the back of the board for supported FFC cameras. This connection requires an additional SLA-CAB-FF06 cable from SightLine.

3. Once all camera sources and network connections have been made, connect the SLA-CAB-1504 Molex three pin power lead to the board.
4. Connect the two-position green phoenix connector to the SLA-PWR-B12V power adapter.
5. Connect the SLA-PWR-B12V to a support power source.

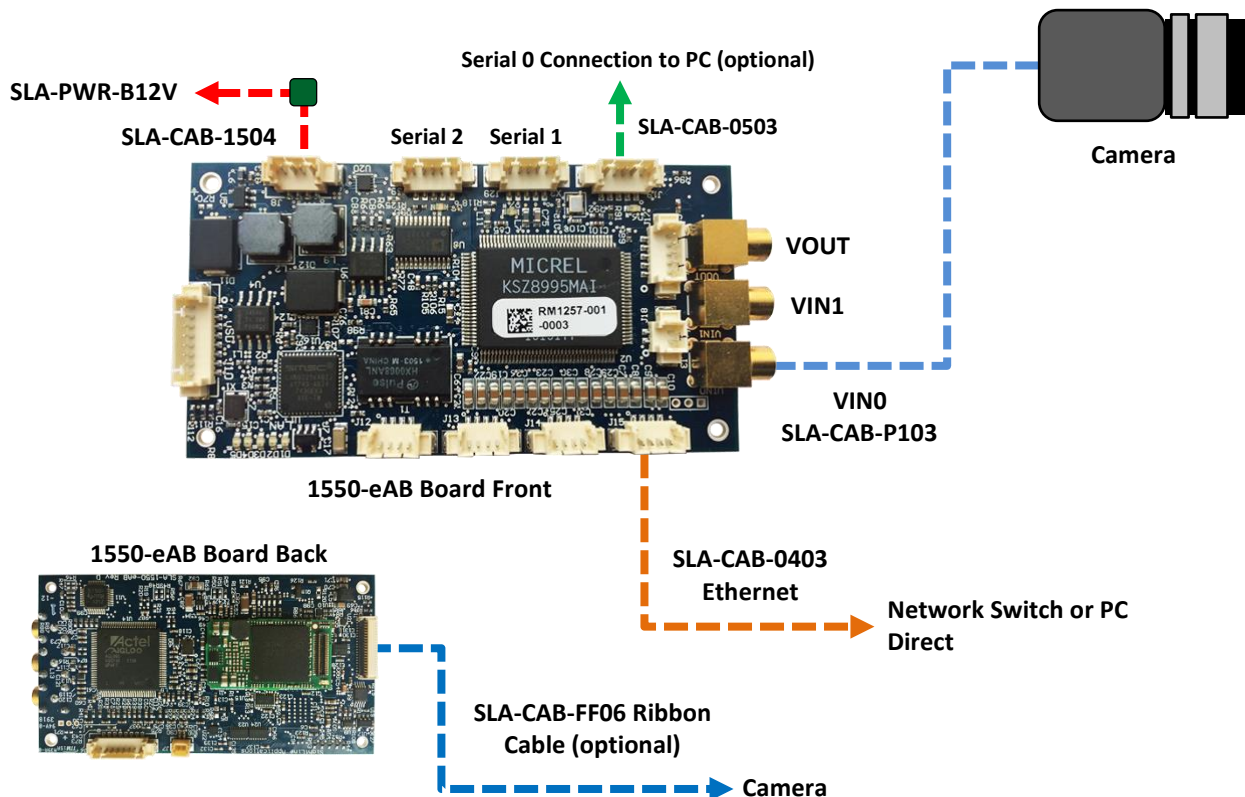


Figure 2: Typical Bench Hardware Setup



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 1550-eAB board.

Before connecting with the Panel Plus software, the 1550-eAB should be powered up and connected through:

- a network switch or directly to the host PC (preferred) or,
 - a 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. Approving private network access is sufficient in most cases. Check public networks if directly connecting to the board.



❗ **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, please 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 board:

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

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

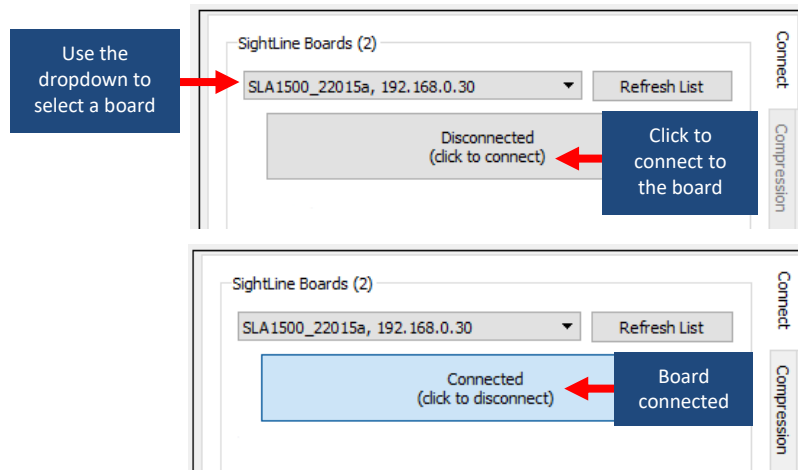


Figure 3: Network Connection to Board

5. Direct serial connection:

- a. From the *Connect* tab, click the *Refresh List* button to get a list of available COM ports.
- b. Use the dropdown menu and click on a COM port to select it.
- c. Click the *Disconnected (click to connect)* button.

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

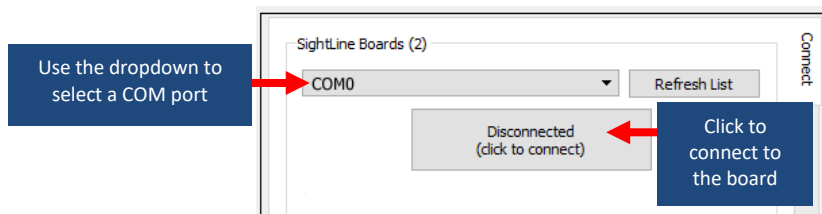


Figure 4: Direct Serial Connection



- Verify the connection. When the Panel Plus has connected to the 1550-eAB board, the firmware version and the enabled features will be displayed.

Licensed enabled features in the configuration are indicated with a check.

Video Output:
 Cam 0 Analog

Stream Network Video to This PC Advanced IP...

Firmware Ver: 2.23.8.1 [06], temp:179°F
 SVN Revision: 34850, Build Date: 4/4/2017, Build Time: 11:59:44

Enabled Features (✓ if licensed): 0xFFFF

- Stabilization Blend
- Video Compression Recording
- Tracking Stab and Track Telemetry
- Baseline Detect Focus
- Advanced Detect HD Input
- KLV HD Output
- Landing Telemetry Base
- Tracking Base
- Enhance + High Depth + Temp

Firmware version, appbit code with

- 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.

Verify operating information

Board: SLA1500_280137, 192.168.0.26 Firmware Ver: 2.24.7.17 [06], temp:213°F Commanded Camera: 0
 SVN Revision: 39064, Build Date: 12/1/2017, Build Time: 14:27:57 This PC: 192.168.0.25 Frame Rate: 25.02[frames/sec]. Data rate: 1564.44[Kb/sec] KLV rate: 34.63[Kb/sec]

Figure 5: Status Bar Operating Information



8. 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. Use the dropdown menu to select the *Output Frame Size*.
 - d. Bit Rate and I-Frames can be adjusted for lower bandwidth applications. The I-Frame Interval controls the number of full (complete) frames per second: 30 = 1 per second, 15 = 1 every 2 seconds, 10 = 1 every 3 seconds.
 - e. Click *Save Output Settings* to save these settings to the parameter file for subsequent restarts.
 - f. In the *Streaming* parameters section, define the destination IP address and port.

The screenshot shows the 'Compression' tab of the software interface. It is divided into several sections:

- CODEC / TRANSPORT:** Contains radio buttons for RTP (MJPEG, RTP H.264, RTP MPEG2-TS MPEG4, RTP MPEG2-TS H.264) and MPEG2-TS (H.264, MPEG4). The H.264 option is selected.
- Output Properties:** Includes sliders for Quality (set to 80) and Foveal (set to 0), and dropdown menus for Frame Step (1), Down Sample (1), Output Frame Size (SD), Bit Rate (1.500 Mbps), I-Frame Interval (30 frames), Block Refresh (0 frames), Slice Refresh Size (0 rows), and Deblocking (Filter all edges).
- Streaming:** Features an IP Address field (192.168.1.123), a Port field (15004), and buttons for Use My IP - Unicast, Use Multicast, and Broadcast. There are also buttons for Send, Stop Streaming, Export SDP File..., and Stream RTSP URL.
- Statistics:** A table showing performance metrics:

Frames	29.84	[1/sec]	Video	2096.13	[Kb/sec]
Profile:	High		KLV	41.29	[Kb/sec]
Encapsulation:	mpegts		Codec:	h264	

Figure 6: Compression Tab

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.

- g. Click *Send* to dynamically set the desired IP Address, UDP Port, and UDP delivery format (Unicast, Multicast, or Broadcast).
- h. 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.

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



6.1.1 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. Select the *Camera Index* and *Camera Type*.
3. After changes have been made, the *Apply* button will turn red indicating that a change has been detected. Click *Apply* to apply the changes.
4. 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.

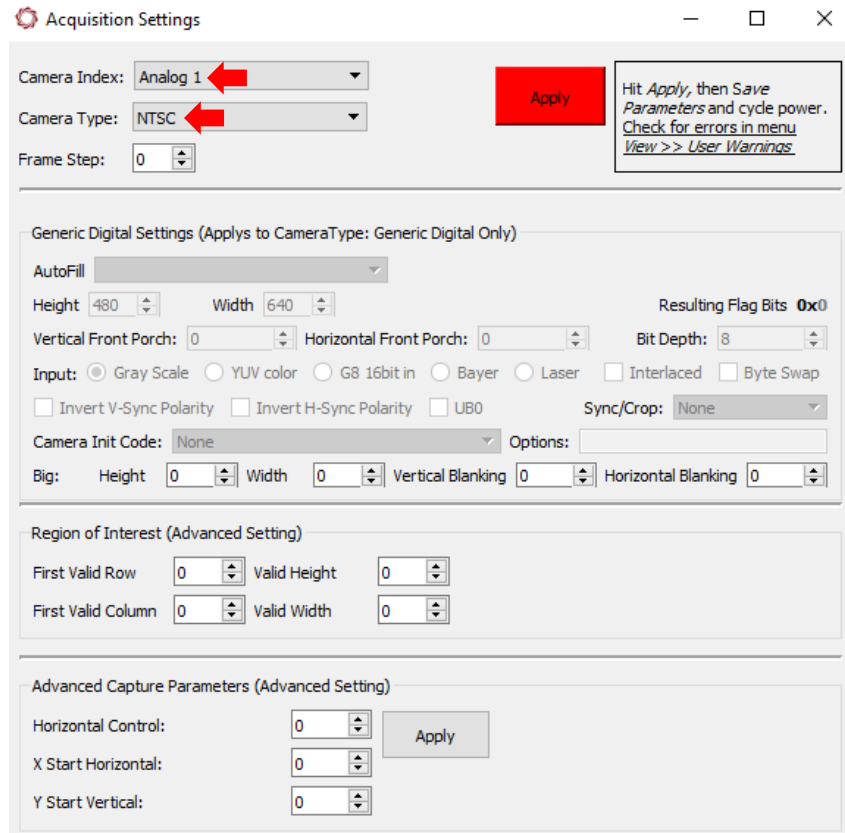


Figure 7: Acquisition Settings

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



7 Summary

This completes the startup guide for the 1550-eAB 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 / enabled functions are checked. To add additional features to 1550-eB board, contact [Sales](#).

ⓘ IMPORTANT: Not all 1550-eAB 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.

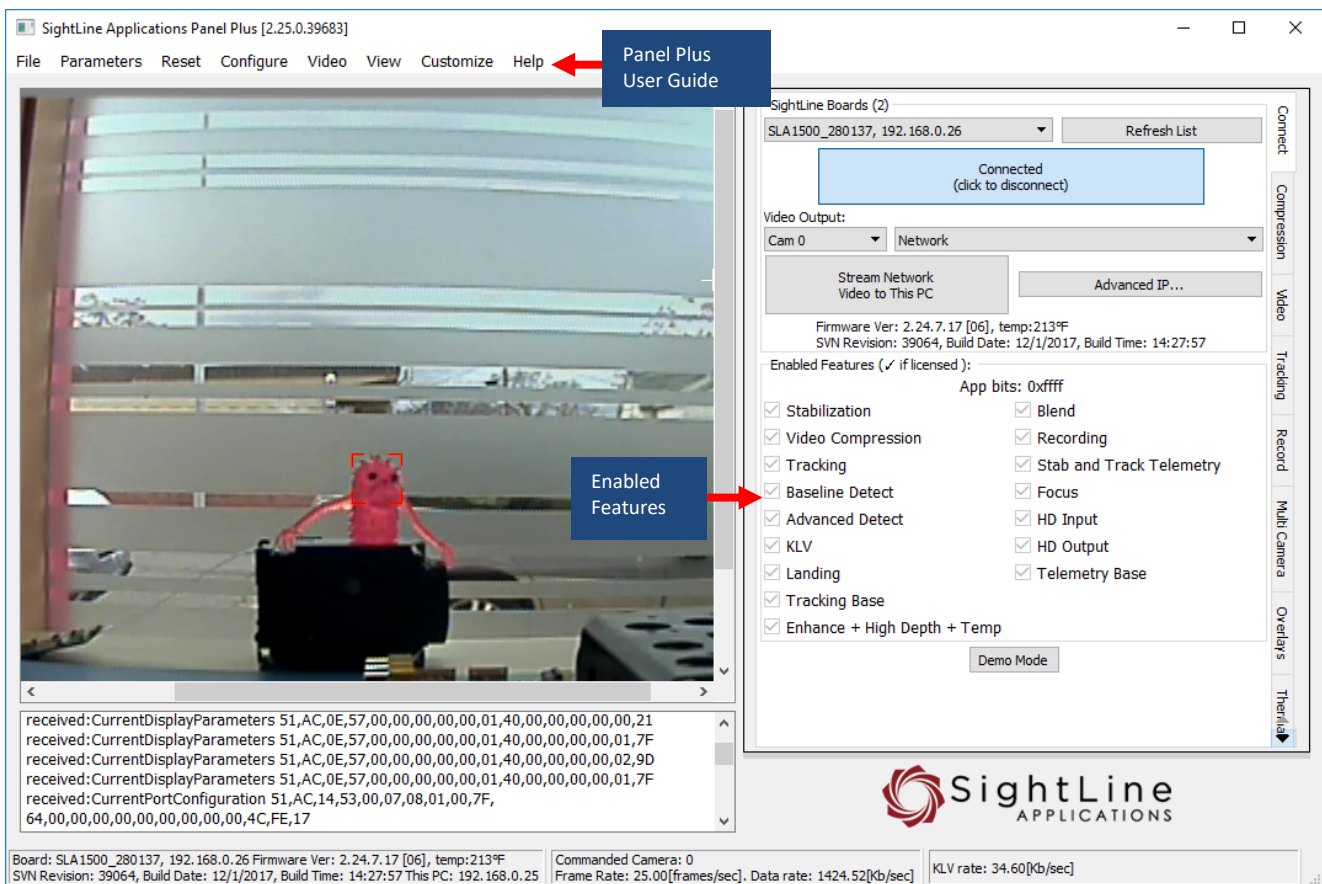


Figure 8: Panel Plus Connection to Board

7.1 Demo Mode

To enable all features for testing and evaluation purposes, click the *Demo Mode* button from the *Connect* tab.

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 1550-AB board over a standard network connection.

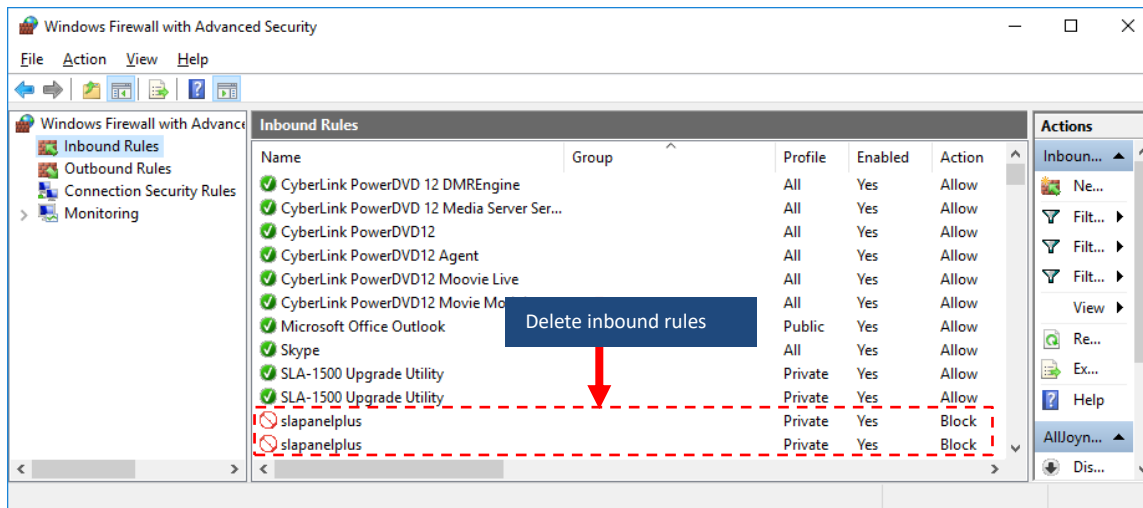
Check static IP address:

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:

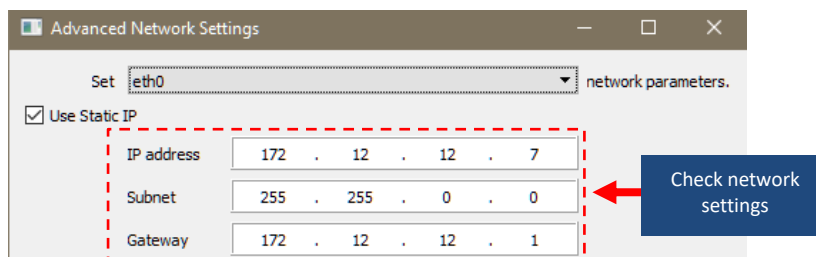
Failure to allow access in the Windows Security Alert prompt upon initial startup of the Panel Plus application can cause connection issues.

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 network configuration:


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.



**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 1550-AB board from a host PC requires a null modem adapter or null modem serial cable for proper communications.*

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 Support pages of the SightLine Applications [website](#).