SightLine APPLICATIONS

EAN-Imperx-Cameras

1500-OEM and 3000-OEM

PN: EAN-Imperx-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.

Contents

1 Overview 1
1.1 Associated Documents 1
1.2 SightLine Software Requirements 1
1.3 FPGA 1
2 Interface Boards 2
3 Hardware Connections 2
3.1 Hardware Bench Setup 1500-OEM 2
3.2 Hardware Bench Setup 3000-OEM 3
4 Configuration Settings 4
4.1.1 TCP Passthrough Setup - 1500-OEM 5
5 Questions and Additional Support 7

List of Figures

Figure 1: FPGA Version Number 1
Figure 2: 1500-OEM Imperx Camera Bench Setup 2
Figure 3: 3000-OEM Imperx Camera Bench Setup 3
Figure 4: 3000-OEM Serial Port and Connector Reference 3

List of Tables

Table 1: Panel Plus Basic Camera Configuration Settings 4

1 Overview

This document describes how to configure the 1500-OEM and 3000-OEM to receive video from the Imperx B1921C camera.

1.1 Associated Documents

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-Startup Guide 3000-OEM: Describes steps for connecting, configuring, and testing the 3000-OEM video processing board on the 3000-IO interface board.

EAN-Digital Video Configuration: Describes how to configure the SLA-Hardware for digital video input.

EAN-Ethernet and Serial Communication: Describes how to setup serial communications for cameras or other payload devices from SLA-hardware.

EAN-FPGA-Firmware-Update-1500-OEM: Describes how to upgrade the FPGA driver firmware on the 1500-OEM 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.

EAN-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

1500-OEM and 3000-OEM - Firmware version 2.24.xx and higher.

1.3 FPGA

Version 10 is required for the camera to operate correctly. This information is located on the *Connect* tab. FPGA version 10 does not support other digital cameras.

ⓘ **IMPORTANT:** If the 1500-OEM board is not running version 2.24.xx firmware and version 10 FPGA code, the camera will not operate correctly.

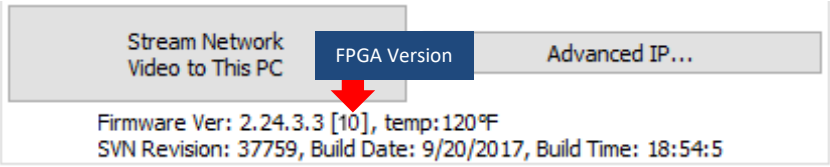


Figure 1: FPGA Version Number

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 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 connected first before applying power.

- 1500-CL interface board (connects to 1500-OEM)
- 1500-AB board (serial and network interface)
- Camera Link Cable
- 3000-CL interface board (connects to 3000-OEM)
- 3000-IO board (serial and network interface)

3 Hardware Connections

3.1 Hardware Bench Setup 1500-OEM

This section describes the connection for the 1500-OEM and the 1500-CL interface board to the supporting components. The 1500-AB board is used as the serial and network interface board.

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 Camera Link cable to the 1500-CL interface board and the Camera Link interface on the Imperx B1921C camera.
4. Connect the SLA-PWR-B05V to the 1500-AB board. A green light indicates the 1500-AB is powered on.
5. Slide the switch to the left to power-on the 1500-OEM board. A blue light on the 1500-AB board and a green light on the 1500-OEM indicate that all the boards are powered on.

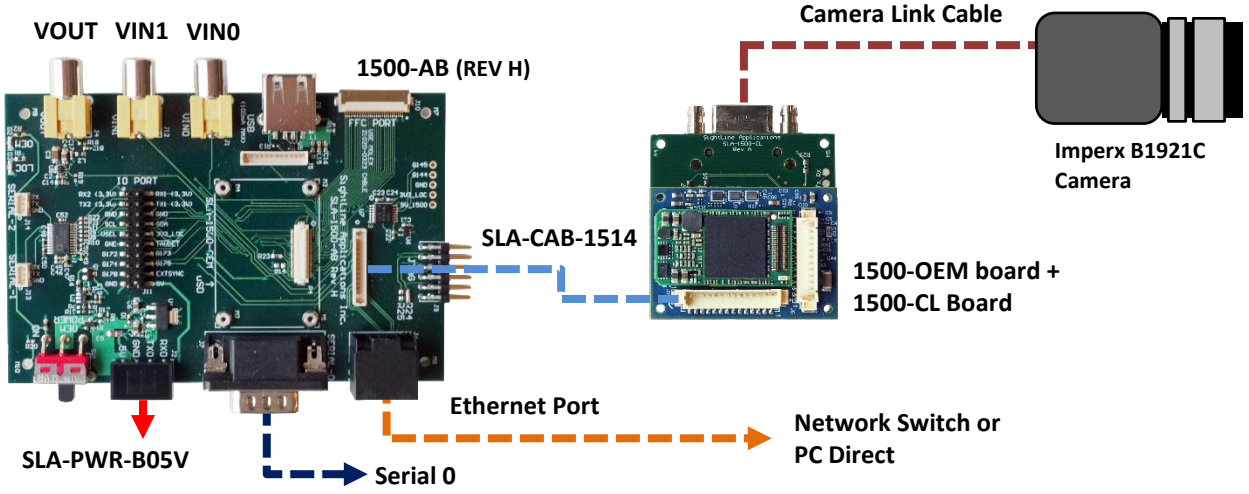


Figure 2: 1500-OEM Imperx Camera Bench Setup

3.2 Hardware Bench Setup 3000-OEM

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

The 3000-CL interface board may be used to supply power to camera using the 2-pin Molex connector (J2). Refer to the and ICD-3000 Adapter Boards for more information.

1. Attach the 3000-CL interface board to one of the available video input connectors on the 3000-IO board. The 3000-IO board has two connectors for the 3000-CL 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-CL 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.

2. Connect the Camera Link cable to the 3000-CL interface board and the Camera Link interface on the Imperx B1921C camera.
3. Connect the Ethernet, serial, and power cables to the 3000-IO board.
4. Plug in the power adapter (SLA-PWR-C12V) to an AC power source. A green light on the 3000-IO board indicates that all boards are powered on.

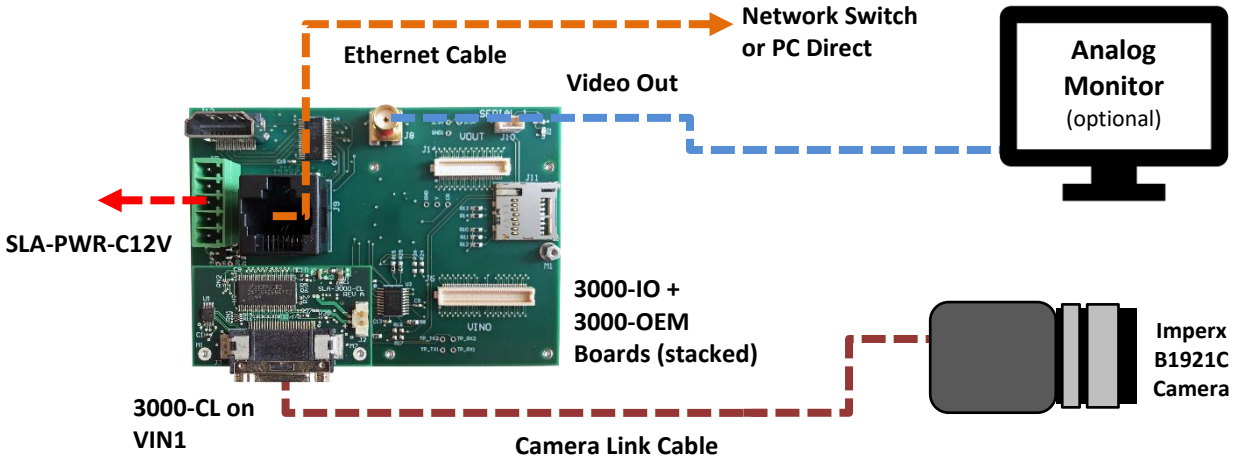
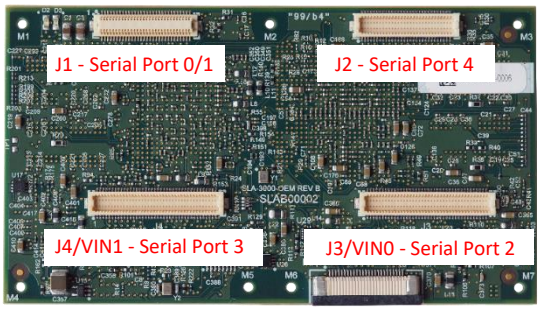


Figure 3: 3000-OEM Imperx Camera Bench Setup



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 1500-OEM and 3000-OEM video processing boards to support the Imperx camera. The following steps reference the Panel Plus software.

The 3000-OEM and 1500-OEM HDMI configuration procedures are similar.

For other detailed camera configuration settings and options, see the User Configuration section in the camera user manual (available on the Imperx website).

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. From the main menu » *Configure* » *Acquisition Settings.* Set the *Camera Index* and *Camera Type* according to Table 1. The *Apply* button will turn red indicating input field changes have been detected.

   3000-OEM Camera Index: If the 3000-CL adapter board is connected on VIN1 of the 3000-IO board use Cam 2. If the board is connected on VIN0, use Cam 0.

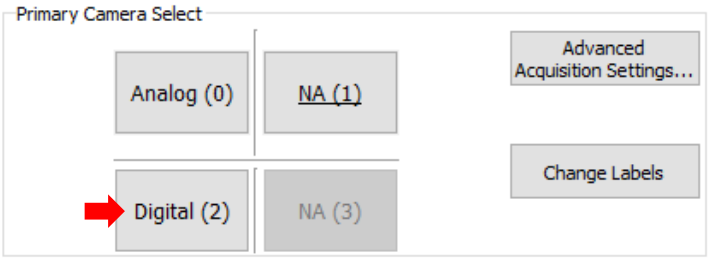
3. Click the *Apply* button.

Table 1: Panel Plus Basic Camera Configuration Settings

Acquisition Settings	1500-OEM	3000-OEM
Camera	**Imperx B1921C**	
Camera Index:	Digital	Cam 0 / Cam 2
Camera Type:	Generic Digital	Generic Digital
Frame Step:	0	0
AutoFill:	None	None
Height:	1080	1080
Width:	1920	1920
Vertical Front Porch:	0	0
Horizontal Front Porch:	1	0
Bit Depth:	8	8
Resulting Flag Bits:	0x243	0x3
Input:	Bayer	Bayer
Sync/Crop:	None	None
Camera Init Code:	InitCameraLink	None

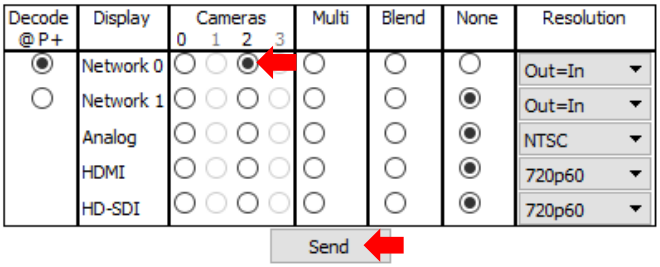
The default setup of the Imperx Bobcat camera is dual-tap 8-bit Bayer pattern. This setup will work for the 3000-OEM board.

4. Click the *Multi Camera* tab.
   a. 1500-OEM: Select the *Digital (2)* input as the primary camera to display the video in Panel Plus.



   b. 3000-OEM: Select *Network 0*.

Under Cameras, if the 3000-FPC board is connected on VIN0 on the 3000-IO board, select 0. If it is connected on VIN1, select 2. This enables video to display in Panel Plus.



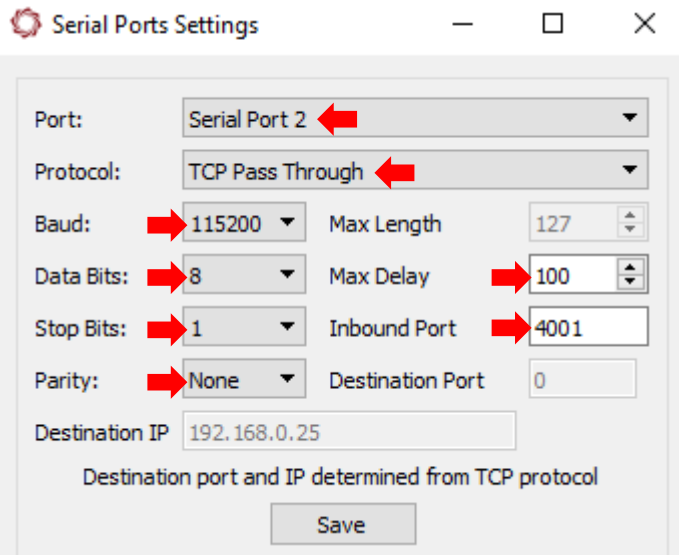
5. Click the *Send* button to save the settings to the parameter file.
6. Close the *Acquisition Settings dialog* window.
7. Save and activate the settings:
   a. Main menu » *Parameters* » *Save to Board*.
   b. Main menu » *Reset* » *Board*.
   c. After the system reboots reconnect to the board. Make sure the board connects.

4.1.1 TCP Passthrough Setup - 1500-OEM

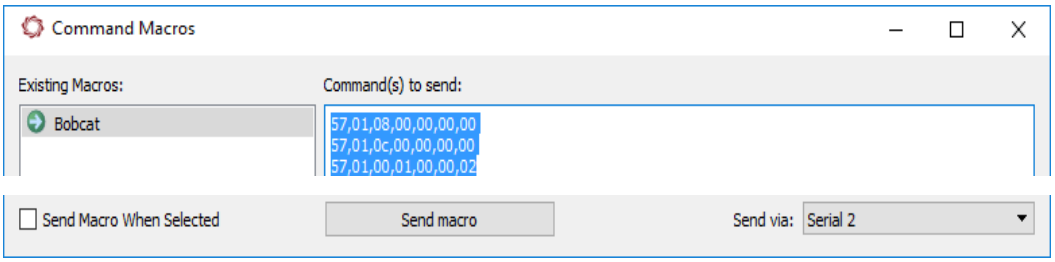
The Imperx camera must be setup as a 12-bit, single-tap camera for the 1500-OEM to capture video correctly. To configure the camera, use the Panel Plus application and the EAN-Ethernet and Serial Communication document to setup TCP passthrough on Serial Port 2.

1. From the Panel Plus main menu » *Configure* » *Serial Ports*.
2. Select *Serial Port 2*.
3. For *Protocol*, select *TCP Pass Through*.
4. Enter the desired inbound port number. This example uses port 4001.
5. Select 115200 *Baud*.

6. Leave *Data Bits*, *Stop Bits*, and *Parity* at the default values shown.

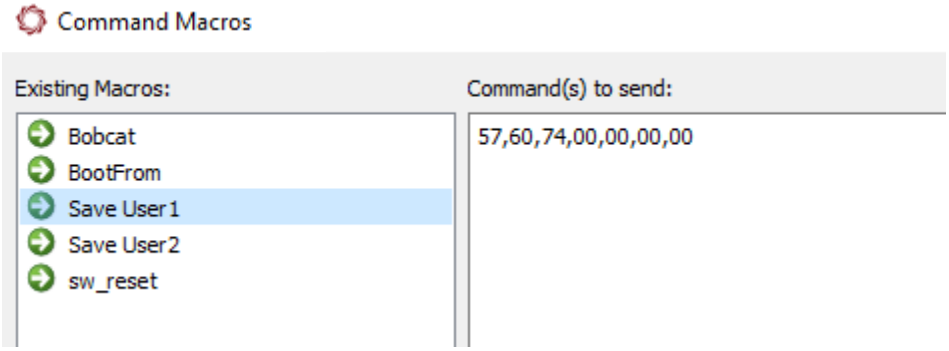


7. Save and activate the settings:
   a. Main menu » *Parameters* » *Save to Board*.
   b. Main menu » *Reset* » *Board*.
   c. After the system reboots reconnect to the board. Make sure the board connects.
8. From the main menu » *File* » *Macros*.
9. Add the following commands in the *Command(s) to send*: window.
   - 57,01,08,00,00,00,00
   - 57,01,0c,00,00,00,00
   - 57,01,00,01,00,00,02
10. Click *Save as a macro*.
11. In the *Send via:* drop down menu, select *Serial 2*.
12. Click *Send macro* to send the commands through Serial 2 TCP Passthrough. Once the command has been sent, a good image from the camera will be displayed.

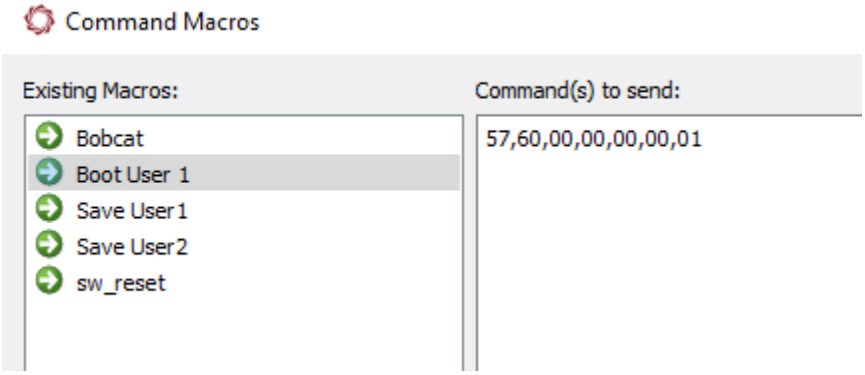


13. Panel Plus can also be used to save the settings camera settings and make them recurrent through restarts by adding and saving a macros command to boot from:

    For example, *Save User 1* command:



    Boot User 1 command:



14. After the camera has been setup and is displaying a suitable quality image, the Save User 1 and Boot User 1 macros commands can be used to display the same consistent image every time the camera is rebooted.

5 Questions and Additional Support

This completes the Imperx B1921C camera setup instructions. For questions and additional support, contact Technical Support. Additional support documentation and Engineering Application Notes (EANs) can be found on the Support pages of the SightLine Applications website.