



# SightLine

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APPLICATIONS

## **EAN-Tamron Camera MP1010M**

PN: EAN-Tamron-Camera-MP1010M

1/2/2019

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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

This document describes how to install and configure the 1500-OEM and 1500-Tamron interface board with the Tamron MP1010M-VC and MP1110M-VC cameras.

### 1.1 Associated Documents

[EAN-Camera Compatibility](#): Lists all third-party cameras that are currently supported by SightLine software. It also covers 1500 FPGA driver support and lens control through the SightLine Command and Control (IDD) protocol.

[EAN-Digital Video Input](#): Describes how to configure the SLA-Hardware for digital video input.

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

[ICD-1500-OEM](#): Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 1500-OEM.

[ICD-1500 Adapter Boards](#): Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 1500-OEM associated camera interface boards.

[ICD-3000-OEM](#): Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 3000-OEM.

[ICD-3000 Adapter Boards](#): Describes power requirements, thermal management, interface specifications, and connector pin-outs for the 3000-OEM associated camera interface boards.

[EAN-Lens Focus Control.pdf](#): Describes how to configure the SLA-hardware for controlling motorized lenses.

[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: 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

The 1500-OEM requires firmware version 2.21.13 or later and FPGA firmware version 7.

The 3000-OEM requires firmware version 2.22.10 or later. REV C requires firmware 2.24.xx and higher.

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

### 1.3 Third Party Software

Contact your Tamron representative to obtain the camera control application (mp1010-vc\_ver1.\*\*x.exe).

[HW VSP3-Virtual Serial Port](#) from the HW group.



### 1.4 FPGA - 1500-OEM

Version 7 is required for the camera to operate correctly with the 1500-OEM. This information is located on the *Connect* tab. FPGA version 7 does not support other digital cameras.

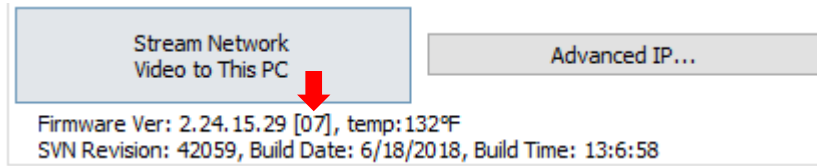


Figure 1: FPGA Version Number Location

## 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 connector information.

*The Tamron and Sony block cameras share the same camera interface board.*

**IMPORTANT:** The 1500-OEM board and the Tamron board should be connected first before connecting to the camera and 1500-AB board.

### 2.1 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 2](#) and [Figure 3](#) prior to making power connections.

- ⚠ **CAUTION:** Power to the 1500-OEM board is provided through the 1500-Tamron interface board using the SLA-PWR-B12V power supply shown in [Figure 3](#). Powering the OEM through the J3 power pins and through the 1500-Tamron 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 2](#) (AB board power ON / 1500-OEM power OFF). Long term over powering will permanently damage the 1500-OEM board.

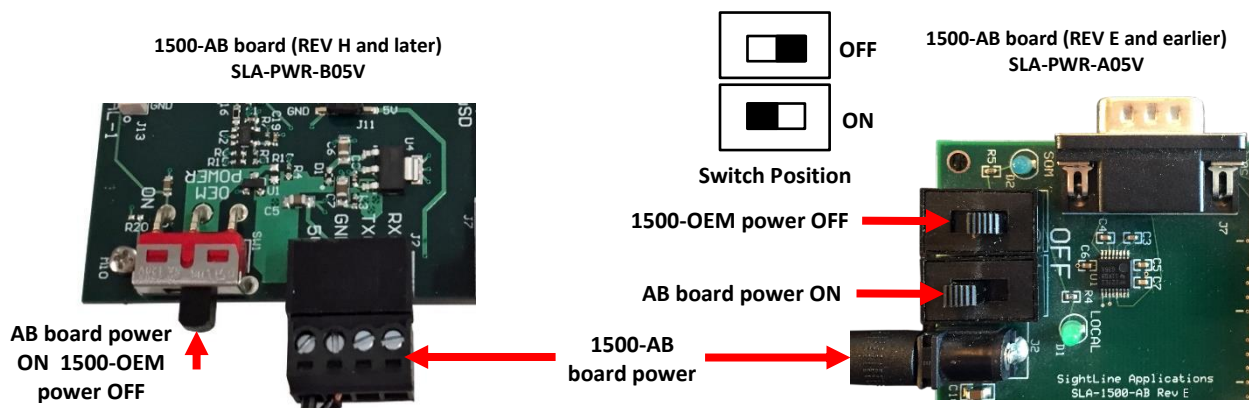


Figure 2: 1500-AB Board Power Connections



### 3 Hardware Connections

#### 3.1 Hardware Bench Setup 1500-OEM


This section describes the connection for the 1500-OEM and the 1500-Tamron interface board to the supporting components.

The 1500-AB board is used as the serial and network interface board. The digital IO connector on the Tamron camera connects to the 1500-Tamron board with a KEL cable. The connector provides serial communication to the camera in addition to the digital video. 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 Tamron command-and-control interface directly with the camera.

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 SLA-CAB-K010 (KEL) cable to the 1500-Tamron interface board and the Tamron camera. The gold contacts on the KEL cable ends must be facing up for both connections.
4. Connect the SLA-PWR-B12V to the J2 Pin on the 1500-Tamron using the SLA CAB-1504 power adaptor cable.
5. Connect the SLA-PWR-B05V to the 1500-AB board. This 5V power is only required if supporting the analog input/output and Serial 0 connections. Plug in the AB board PWR-B05V to an AC power source.

 *REV H and later AB boards are immediately powered on when power is connected.*

6. Connect the SLA-PWR-B12V supply (12V) to an AC power source. This will power the camera, Tamron adaptor board and the OEM assembly. **Do not** apply power the 1500-OEM from the AB board (see Figure 2).

 **IMPORTANT:** Do not attach the 1500-OEM and Tamron adaptor board to the 1500-AB board. They should remain separate.

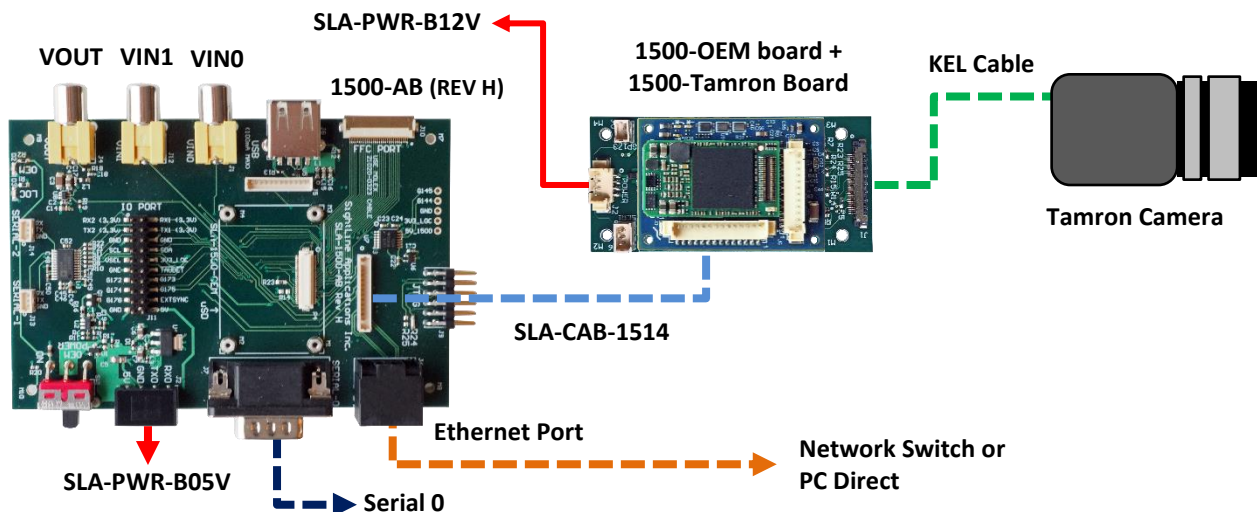


Figure 3: 1500-OEM Tamron Camera Bench Setup




### 3.2 Hardware Bench Setup 3000-OEM

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

The 3000-IO board provides power to the camera through the Tamron interface board. It is supplied via the KEL cable that is used between the interface board and the camera. The camera's serial communications port is also available over this same KEL cable. Serial passthrough is supported by the 3000-OEM board to allow connection to the camera from a network controlling host.

1. Attached the 3000-IO board to the 3000-OEM board.
2. Attach the 3000 Tamron interface board to one of the available video input connectors on the 3000-IO board. The 3000-IO board has two connectors for the Tamron board (VIN1 and VIN0). See [Figure 5](#) for serial port and connector references. 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-Tamron camera 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.*

3. Connect the SLA-CAB-K010 (KEL) cable to the 3000-Tamron interface board and the Tamron camera.

**ⓘ IMPORTANT:** The gold contacts on the KEL cable ends must be facing up for both connections.

4. Connect the Ethernet, serial, and power cables to the 3000-IO board.
5. 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.

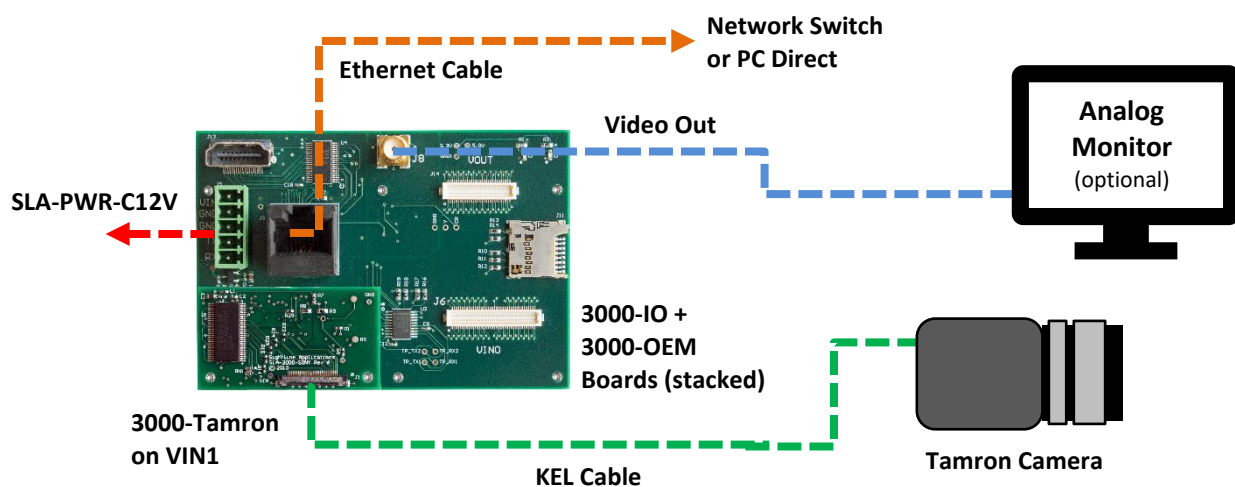
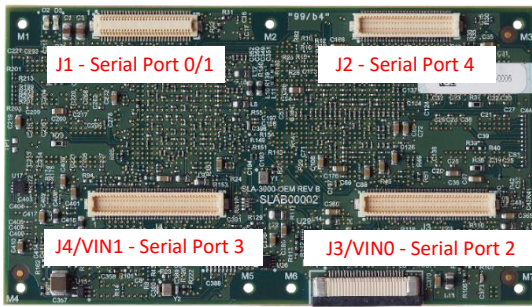


Figure 4: 3000-OEM Tamron Camera Bench Setup





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 5: 3000-OEM Serial Port and Connector Reference

## 4 Configuration Settings

This section covers how to configure the video processing board to support the Tamron camera input. The 3000-OEM and 1500-OEM configuration procedures are similar. The following steps reference the Panel Plus software.

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 camera adapter board is connected on VIN1 of the 3000-IO board use Cam 2. If the board is connected on VIN0, use Cam 0.*

*The AutoFill dropdown menu populates the relevant fields with the correct settings.*

3. Click the *Apply* button

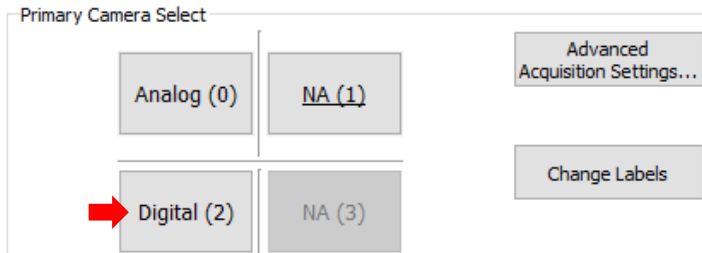
Table 1: Panel Plus Basic Camera Configuration Settings

Acquisition Settings	1500-OEM	3000-OEM	
	720P Resolution	720P Resolution	1080P Resolution
<b>Camera Index:</b>	Digital	Cam 0 / Cam 2	Cam 0 / Cam 2
<b>Camera Type:</b>	Generic Digital	Generic Digital	Generic Digital
<b>Frame Step:</b>	4	2	0
<b>AutoFill:</b>	MP1010M 720P	MP1010M 720P	MP1010M 1080P
<b>Height:</b>	720	720	1080
<b>Width:</b>	1280	1280	1920
<b>Vertical Front Porch:</b>	0	0	0
<b>Horizontal Front Porch:</b>	0	0	0
<b>Bit Depth:</b>	8	16	16
<b>Resulting Flag Bits:</b>	0x841	0x841	0x841
<b>Input:</b>	YUV color	YUV color	YUV color
<b>Sync/Crop:</b>	Embedded sync	Embedded sync	Embedded sync
<b>Camera Init Code:</b>	InitVISCS	InitVISCS	InitVISCS





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 camera adapter 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.

Decode @ P+	Display	Cameras				Multi	Blend	None	Resolution
		0	1	2	3				
<input checked="" type="radio"/>	Network 0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Out=In ▼
<input type="radio"/>	Network 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Out=In ▼
	Analog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	NTSC ▼
	HDMI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	720p60 ▼
	HD-SDI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	720p60 ▼

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.

## 5 Camera Control

This section describes how to configure TCP passthrough and set up a virtual COM port to allow camera control through the Tamron GUI. The [HW VSP3-Virtual Serial Port](#) from the HW group is used to set up a virtual COM port.

Alternatively, the lens focus and zoom can be controlled through Panel Plus - see the [EAN-Lens Focus Control](#) document for setup instructions.

*Enabling TCP passthrough will disable lens control in Panel Plus (or SightLine protocol) for the camera and lens attached to that port. SightLine's lens control implementation requires that the port protocol is set to Port Not Used.*



## 5.1 TCP Passthrough Setup

Configure TCP passthrough on the SLA hardware.

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

- 3000-OEM: Select the serial port number. If the camera interface board is connected to VIN1, select *Serial Port 3*. If the interface board is connected to VIN0, select *Serial Port 2*.
- 1500-OEM: Select *Serial Port 2*.
- For *Protocol*, select *TCP Pass Through*.
- Enter the desired inbound port number. This example uses port 4001.
- Select 9600 *Baud*.
- Leave *Data Bits*, *Stop Bits*, and *Parity* at the default values shown.

*The destination port and IP address are automatically determined from the TCP protocol.*

- After configuring the settings, changed fields will be highlighted in red. Click *Save*.
- The *Apply New Settings* dialog window opens. Select *Yes, Apply settings* to save parameters and reset the board.

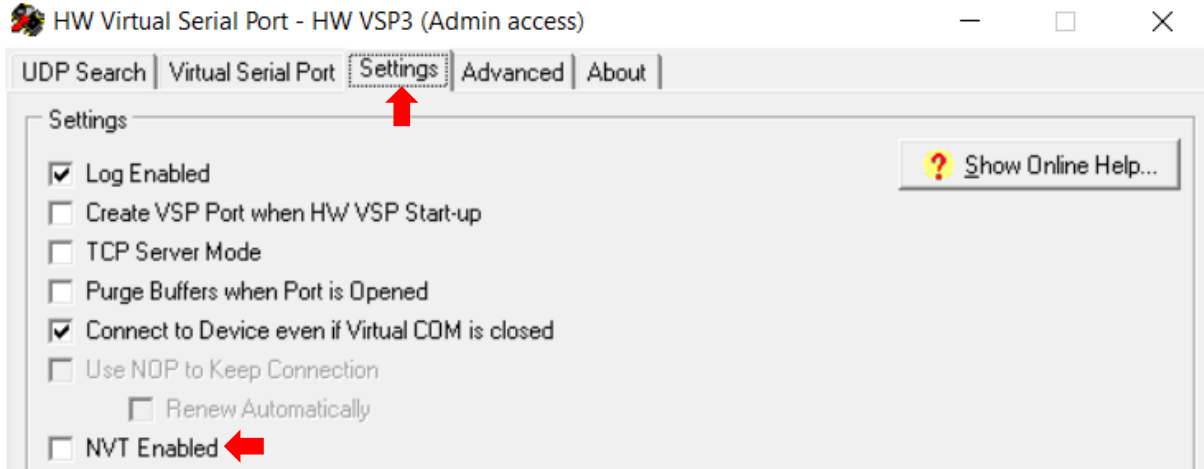
*Some settings changes require the board to be restarted for the settings to take effect. In the Apply New Settings dialog window, select one of the options highlighted below to save the port configuration.*

- Proceed to the next section to set up a virtual COM port.



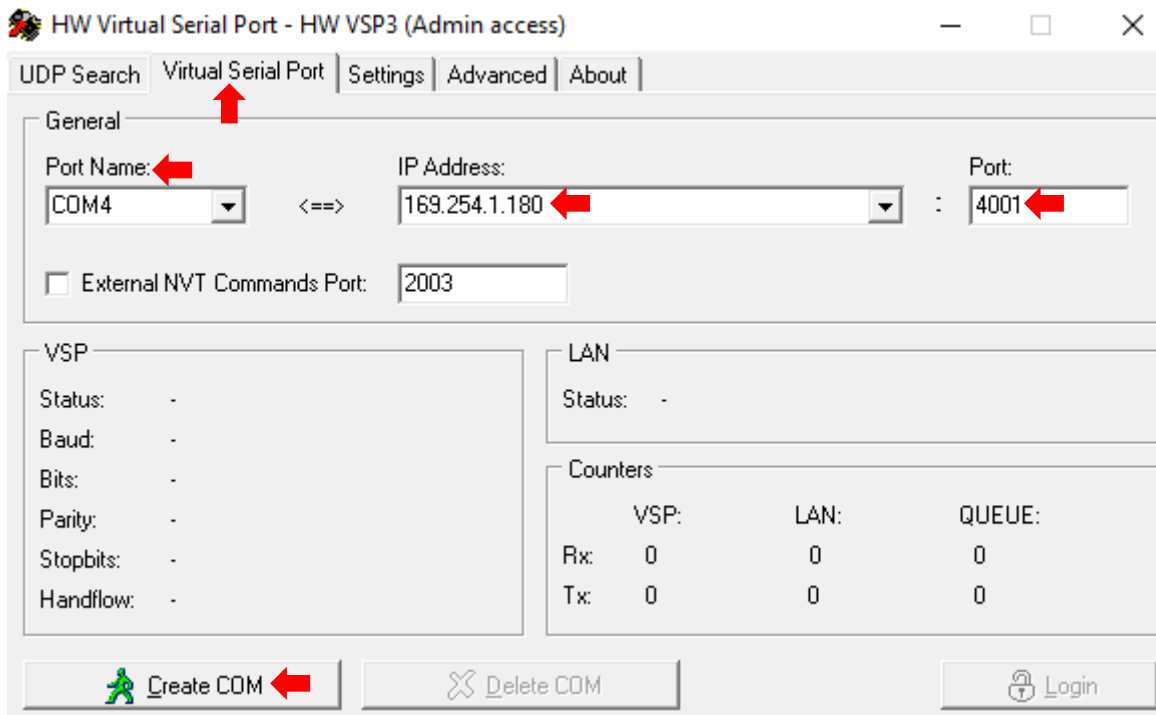
## 5.2 Virtual COM Port Setup

1. Launch the HW VSP3-Virtual Serial Port application.
2. Select the *Setting* tab. Make sure the *NVT Enabled* box is unchecked.



3. Select the *Virtual Serial Port* tab. Select an unused COM port from the *Port Name* drop-down menu. Enter the IP address of the SLA hardware and TCP passthrough inbound port. Click *Create COM* to create the virtual serial port.

*The virtual serial port parameters (baud rate, bits, parity, etc.) are configured automatically.*

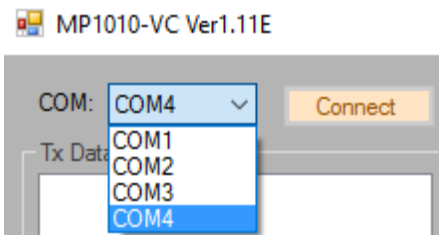




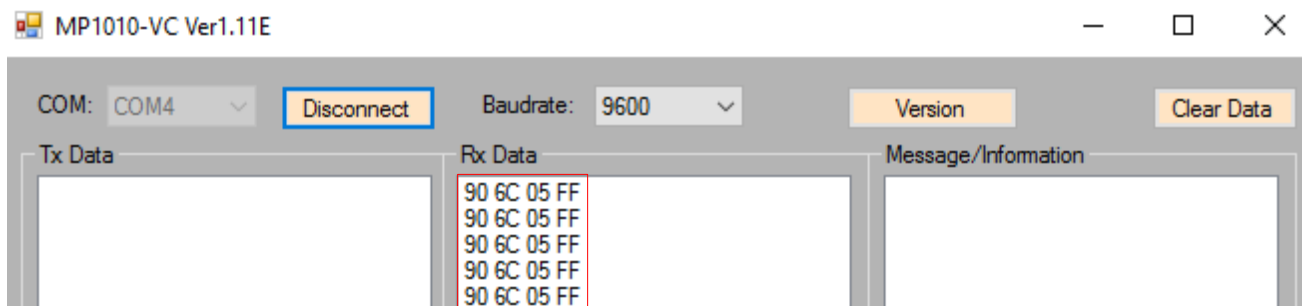
A successful connection will be shown in the LAN Status section of the dialog window.



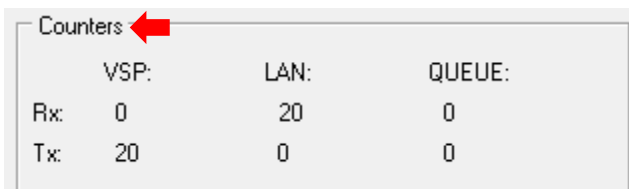
4. Launch the Tamron camera application.
5. Select the virtual port from the COM drop-down menu.



6. Click *Connect*. If the connection is successful, VISCA reply packets will appear in the Rx Data area.



In the HW VSP3 interface the total number of sent and received packets are shown in the Counters area of the Virtual Serial Ports tab. The Tamron control application is now ready to use.





## 6 Troubleshooting

For additional troubleshooting information see [EAN-Troubleshooting-Comms](#).

Problem	Possible Cause	Solution
<b>No video output, video is black, etc.</b>	Incompatible display	Try a known working input source (camera or DVD player, monitor) to verify that the display is working.
	No video source	Verify the camera (or other source) is functioning by connecting it directly into the display.
	No power to SLA hardware	Verify correct voltage (5V or 12V depending on unit) Look for status lights on the board (non-enclosure units)
	Wrong input source selected	Use Panel Plus to set the camera order.
	Analog Video Out disabled	System was configured for network output only. Use Panel Plus to enable NTSC output.
<b>Video appears blue (or other color). Image is scrolling, etc.</b>	Video synchronization	Unplug the video source and plug it back in. Cycle power to the SLA hardware after the video source is connected. Try a different video source. Verify video source by plugging it directly into a display. Configure the camera to generate a smaller video frame. Long cables can change video timing and result in poor video quality. Use a shorter KEL cable (10 cm recommended).



Figure 6: Poor Video Quality Example



## 6.1 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](#).