SightLine APPLICATIONS

EAN-DRS Tamarisk Camera

PN: EAN-DRS-Tamarisk-Camera

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Export Controls

Exports of SightLine products are governed by the US Department of Commerce, Export Administration Regulations (EAR); classification is ECCN 4A994. The export summary sheet located on the support/documentation page of our website outlines customers responsibilities and applicable rules. SightLine Applications takes export controls seriously and works to stay compliant with all export rules.

Copyright and Use Agreement

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 configure the SightLine OEM video processing boards to receive video from DRS cameras. This covers the Tamarisk 320 and 640, as well as the Superframe (temperature) version.

SightLine OEM boards configured in this document: 1500-0EM and 3000-OEM.

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 Configuration: Describes how to configure the SightLine hardware for digital video input.

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

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 Software Download page.

Panel Plus User Guide: A complete overview of settings and dialog windows located in the Help menu of the Panel Plus application.

Additional support documentation EANs can be found on the Documentation pages of the SightLine Applications website.

1.2 SightLine Software Requirements

Licensing: The 14 and 16-bit mode requires license for feature Enhance + High Depth + Temp.

1500-OEM: Version 2.22.06 and later for DRS Superframe and FPGA firmware version 5 or 12.

3000-OEM: Version 2.22.13 and later for DRS Superframe. (REV C) requires firmware 2.24.xx and higher.

ⓘ **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.

1.2.1 FPGA - 1500-OEM

Version 5 of the FPGA driver firmware is required for the camera to operate correctly with the 1500-OEM. Version information is located on the *Connect* tab under the *Video Output* section. See the EAN-FPGA Firmware Update 1500-OEM for updating instructions.

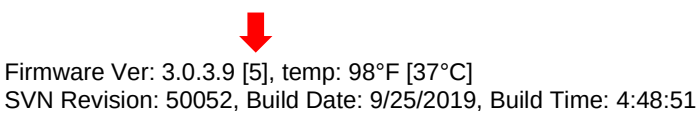


Figure 1: FPGA Version Number Location

2 Interface Boards and Adapters

System interface boards provide options for network interfacing, serial ports, and GPIO. Camera interface and adapter boards provide an interface from the camera to OEM. See the ICD-1500 Adapter Boards and ICD-3000-4000 Adapter Boards for complete specifications and pinouts.

ⓘ **IMPORTANT:** All boards should be connected and secured with the included cables and hardware fasteners first before applying power.

3 Hardware Connections

3.1 1500-OEM Tamarisk Camera Bench Setup

Interface and adapter boards:

- SLA-FFC-DRS: Tamarisk camera and SLA-1500-FFC interface.
- SLA-1500-FFC: Tamarisk camera and 1500-OEM interface. The 1500-OEM supplies power to the camera through the SLA-1500-FFC board.
- SLA-1500-AB: Provides serial and network interfaces.

Cable connections:

- SLA-CAB-1514: Connects to the 1500-OEM J3 (14-pin) connector and to the 1500-AB J3 (14-pin) connector. Provides analog video, network, and serial connections to the 1500-OEM board.
- SLA-CAB-FF06: Connects to the SLA-1500-FFC board and to the Tamarisk camera. Provides serial communication and video to the camera. See FFC cable instructions and precautions.
- SLA-PWR-B05V: Connects to the 1500-AB board and AC power source.

Power and network connectivity LEDs:

A green light indicates the 1500-AB board is powered on. A blue light on the 1500-AB and a green light on the 1500-OEM board indicate that all the boards are powered on. A second flashing green light on the 1500-OEM indicates network connectivity.

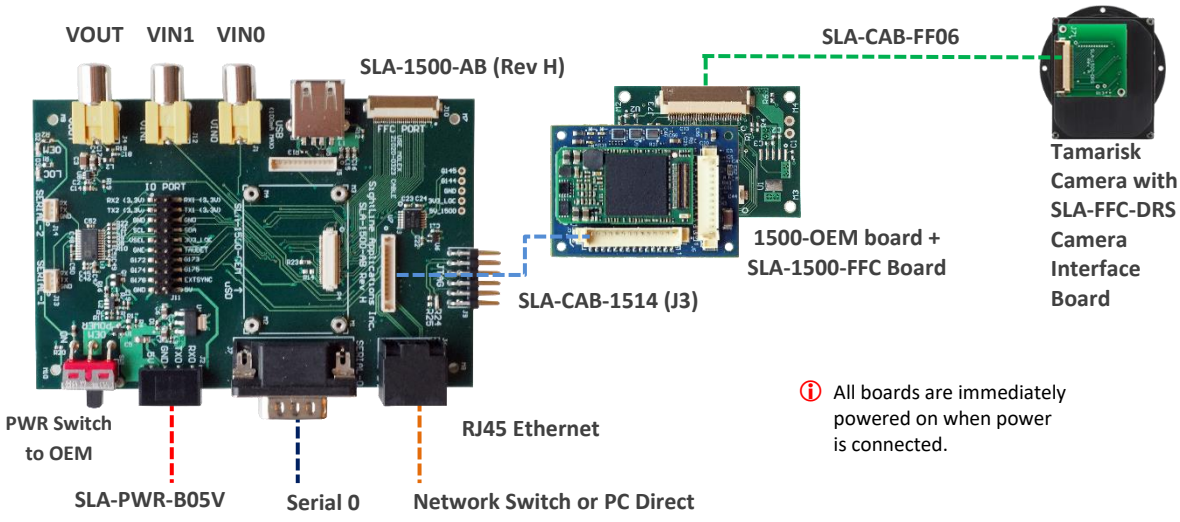


Figure 2: 1500-OEM Tamarisk Camera Bench Setup

3.2 3000-OEM Tamarisk Camera Bench Setup

Interface and adapter boards:

- SLA-FFC-DRS: Tamarisk camera and SLA-3000-FFC interface.
- SLA-3000-FFC: Tamarisk camera and 3000-OEM interface. Provides serial and network interfaces. The 3000-OEM supplies power to the camera through the SLA-3000-FFC board.
- SLA-3000-IO: Provides serial and network interfaces. Adapter boards can be connected to one of two available video input connectors (VIN1 or VIN0). See the 3000-OEM exploded assembly drawing for more connection layout information.

  VIN0 has camera channels 0 and 1 assigned. VIN1 has camera channels 2 and 3 assigned. If the configuration includes an analog board with a digital adapter board the analog board must be installed on VIN0.
- SLA-3000-mIO (optional smaller IO board): Provides serial and network interfaces. This board allows SLA-3000-HITACHI board to be connected directly to the OEM board.

Cable connections:

- SLA-CAB-FF06: Connects to the SLA-3000-FFC board and to the Tamarisk camera. Provides serial communication and digital video to the camera. See FFC cable instructions and precautions.
- SLA-CAB-0403: Connects to J4 on SLA-3000-mIO board. Provides an RJ45 Ethernet connection.
- SLA-PWR-C12V: Connects to J5 on SLA-3000-IO board and AC power source.
- SLA-CAB-1504 / SLA-PWR-B12V: Connects to J9 on the SLA-3000-mIO board and AC power source.

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.

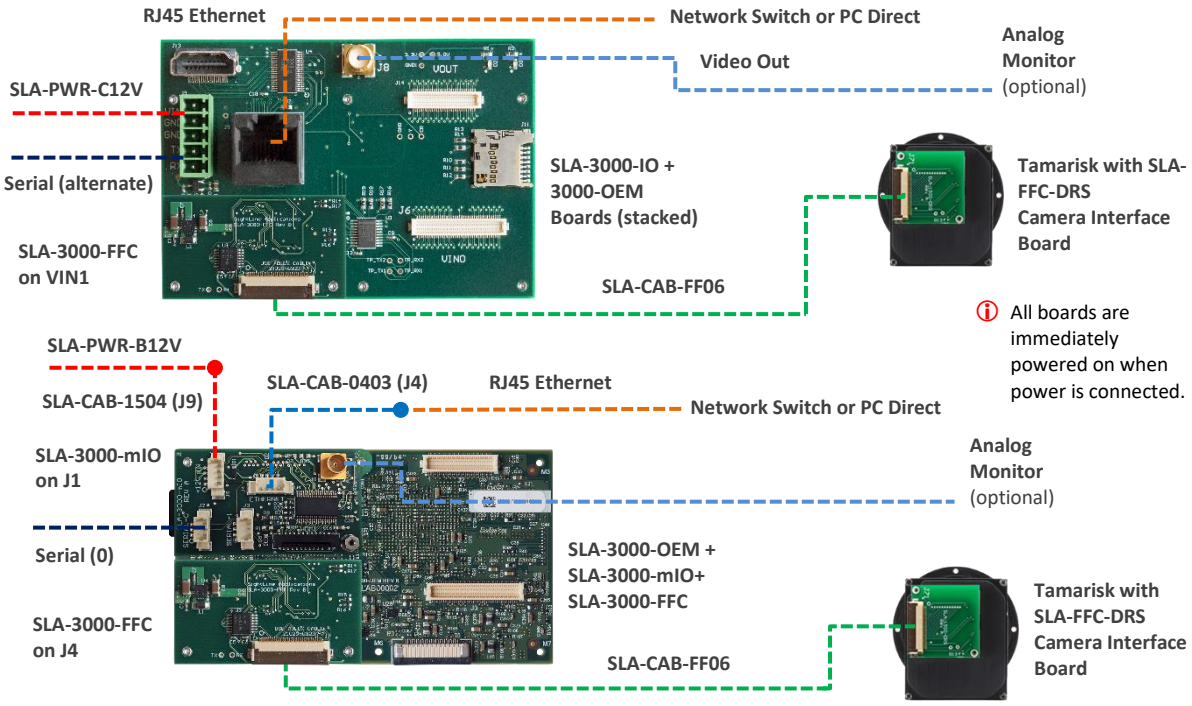
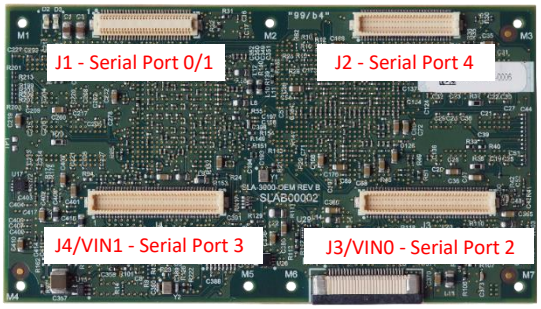


Figure 3: 3000-OEM Tamarisk Camera Bench Setup



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 the basic camera configuration settings in Panel Plus for the OEM video processing boards.

Before connecting with the Panel Plus software, the OEM board 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).

See the one of the corresponding OEM startup guides for connection and video streaming instructions:

- EAN-Startup Guide 1500-OEM
- EAN-Startup Guide 3000-OEM

IMPORTANT: This procedure makes the assumption that the customer has read the OEM startup guide(s) and has a basic understanding of the following fundamentals:

- Completed a functional connection between the SightLine video processing board and Panel Plus application
- Familiar with Panel Plus controls
- Successfully streamed video in Panel Plus

If you do not have a strong basic system setup and familiarity, we recommend reviewing the OEM startup guide(s) and work with our support team to establish basic connection and streaming fundamentals.

4.1 Acquisition Settings

From the main menu in Panel Plus go to *Configure* » *Acquisition Settings*.

If available, use the *AutoFIll* drop down menu in the *Acquisition Settings* dialog to automatically populate the relevant fields with the correct settings. The settings can also be manually entered as shown in Table 1 or Table 2.

For information about Acquisition fields in Panel Plus see EAN-Digital Video Configuration.

Save parameters and reset the board when changing parameters. Cycle system power when changing resolution.

If video does not display, try saving and activating the settings again. Check the encoding settings on the Compression tab and review the network addresses for the destination video.

Configuration settings for the Tamarisk cameras include the 640 and 320 in 8-bit or 14-bit mode. In 8-bit mode autogain is controlled through the Tamarisk camera. The contrast and brightness controls in Panel Plus have no effect on the video. In 14-bit mode, autogain is controlled through the video processing board. The video contrast and brightness can be used to bias the autogain output. These values can be set and persisted through Panel Plus.

Table 1: 1500-OEM Panel Plus Basic Acquisition Settings

Digital Cameras	Camera Index = Digital		Camera Type = Generic Digital									
Acquisition Settings	**Auto Fill**	**Height**	**Width**	**VFP**	**HFP**	**Bits**	**Input**	**Invert VSync**	**Invert HSync**	**Sync/Crop**	**Init Code**	**Flags**
DRS												
Tamarisk 320	No	240	320	0	0	8	Gray	None	None	None	InitDRS	0x80
	DRS Tamarisk 320	240	320	0	0	14	Gray	None	None	None	InitDRS	0x80
Configuration notes: Requires software version 2.19.xx and above and FPGA version 5.												
Tamarisk 320 Precision Series	No	240	320	0	0	16	Gray	None	None	None	InitDRS	0x80
Configuration notes: Requires 2.22.05 and above and FPGA version 5. InitDRS *requires DRS Superframe.*												
Tamarisk 640	No	480	640	0	0	8	Gray	None	None	None	InitDRS	0x80
	DRS Tamarisk 640	480	640	0	0	14	Gray	None	None	None	InitDRS	0x80
Configuration notes: Requires software version 2.19.xx and above and FPGA version 5.												
Zafiro 640 Micro	No	480	640	0	0	8/14	Gray	None	None	None	Reserved	0x1C0
Configuration notes: Requires software version 2.22.xx and above.												

Table 2: 3000-OEM Panel Plus Basic Acquisition Settings

Digital Cameras	Camera Index = Cam 0 (VIN0) / Cam 2 (VIN1)					Camera Type = Generic Digital						
Acquisition Settings	**Auto Fill**	**Height**	**Width**	**VFP**	**HFP**	**Bits**	**Input**	**Invert VSync**	**Invert HSync**	**Sync/Crop**	**Init Code**	**Flags**
DRS												
Tamarisk 320	No	240	320	0	0	8	Gray	None	None	None	InitDRS	0x80
	DRS Tamarisk 320	240	320	0	0	14	Gray	None	None	None	InitDRS	0x80
Configuration notes: Requires software version 2.21.xx and above.												
Tamarisk 320 Precision Series	No	240	320	0	0	16	Gray	None	None	None	InitDRS	0x80
Configuration notes: Requires software version 2.23.xx. InitDRS requires DRS Superframe.												
Tamarisk 640	No	480	640	0	0	8	Gray	None	None	None	InitDRS	0x80
	DRS Tamarisk 640	480	640	0	0	14	Gray	None	None	None	InitDRS	0x80
Configuration notes: Requires software version 2.21.xx and above.												

In the Compression tab, video protocol MPEG2-TS: H.264 is recommended.

4.2 Tamarisk Camera with Superframe Configuration Notes

- Superframe is supported in firmware 2.22.15 and later.
- Data output is 16-bits. There are no programmable ranges.
- Each 16-bit pixel value represents Kelvin temperature as 11.5 fixed point binary.
- To get Celsius, use the 16-bit pixel value as the integer, divide by 32.0F, and then subtract 273.15.

4.3 Serial Passthrough

Serial passthrough is supported by the SightLine OEM boards to allow connection to the camera from a network controlling host. Serial Passthrough for the Tamarisk cameras defaults to:

Baud: 57600 Data Bits: 8 Stop Bits: 1 Parity: None

When using the DRS Camera Controller GUI with serial passthrough, it may be necessary to unplug any USB-to-serial adapters plugged into the host PC. The DRS Camera Controller GUI may not be compatible with these adapters and stop working. Restart the PC after unplugging the devices, and then run the DRS Camera Control GUI.

5 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.