EAN-Decoder

2022-06-03

Exports: Export Summary Sheet

EULA: End User License Agreement

Web: sightlineapplications.com

⚠ **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 3000-OEM or 4000-OEM can function as a decoder for SightLine generated compressed video, either live streams or recorded streams. This document covers how to setup the 3000-OEM/4000-OEM as a decoder.

📄 *Ensure that the encoder is setup to stream H.264 or MPEG4. Currently these are the only compression options that are supported by the decoder. The 4000-OEM additionally supports decoding of H.265.*

Any SightLine hardware can be used as the encoder as shown in Figure 1. The 3000-OEM or 4000-OEM can be used as the decoder.
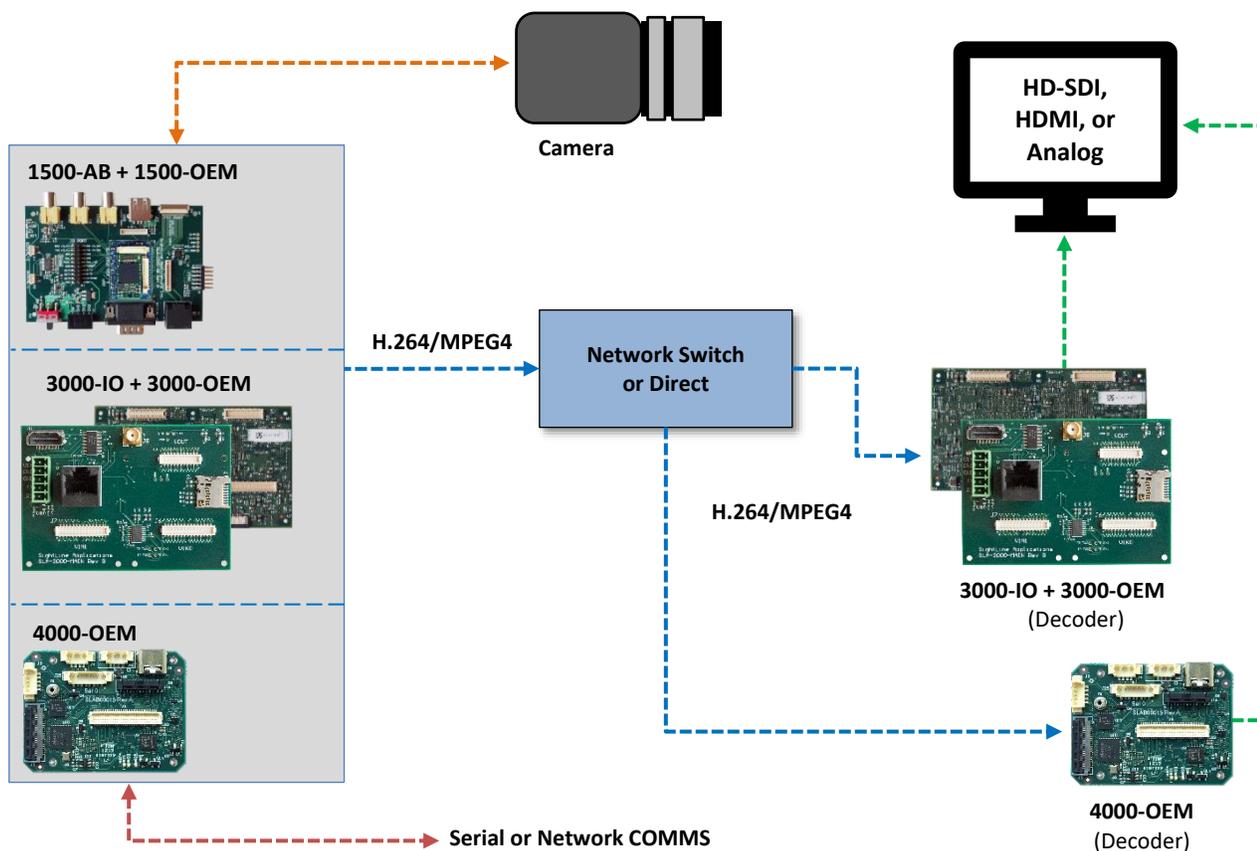

Figure 1: Network Decoder Setup Example

1.1 Additional Support Documentation

Additional Engineering Application Notes (EANs) can be found on the Documentation page of the SightLine Applications website.

The Panel Plus User Guide provides a complete overview of settings and dialog windows located in 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. The IDD is also available as a PDF download on the Documentation page under Software Support Documentation.

1.2 SightLine Software Requirements

The decoder is supported in software version 3.2.xx and higher and is only compatible with the 3000-OEM and 4000-OEM.

ⓘ **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.

1.3 Application Bit Requirements

The functions described in this EAN require Application Bits (app bits) purchased from SightLine. App bits are enabled with a license file provided by SightLine at initial unit purchase or during a license upgrade process. License files use a hardware ID that is applicable to a specific hardware serial number. For questions and upgrade support contact Sales.

Table 1: Application Bits Requirement Table

Function	Initial Software Release	Required Application Bit(s) v7 License
Decoding	2.25.xx	None required for decoding HD app bits required for input and output video depending on specific application

2 Setup

📄 *Set up the encoder first before setting up the decoder. This step is required for both IP video and microSD card playback. For more details on how to set up the encoder, see the EAN-Encoding document.*

2.1 Encoder Setup

Before starting, it is important to know the IP address of the encoder and the IP address of the decoder.

1. Connect Panel Plus to the board acting as the encoder (1500-OEM, 3000-OEM, or 4000-OEM).

2. Set up the camera using the corresponding camera EAN or see camera configuration tables in the IDD.

3. From the Panel Plus *Display* tab enable *Network Display* for *Network Index 0*.

4. Go to the *Compress* tab.

5. Select MPEG2-TS: H.264, MPEG2-TS: MPEG4, or MPEG2-TS: H.265 as the codec/transport.

6. In the *Streaming* section, enter the IP address of the 3000-OEM or 4000-OEM acting as the decoder or select the IP address from the drop-down menu[1].
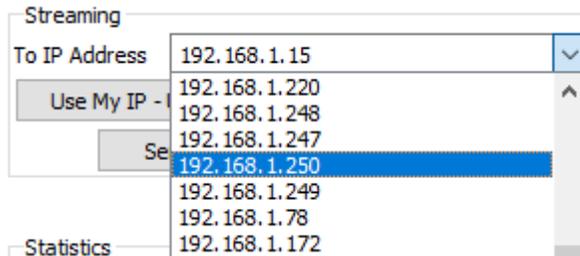
 Optionally, a multicast IP address (e.g., 224.10.10.10) can also be used to send encoded video to multiple receivers.

7. In the *Port* field enter the network port number the decoder will use to listen for encoded video (15004 is the default port used by the decoder).

8. Click *Send* when complete. The encoder will begin sending video to the IP address and port selected.

9. To persist the settings through restarts, from the main menu » *Parameters* » *Save to Board*.

 Since these are dynamic settings, a board restart is not necessary.

2.2 Decoder Setup

1. Connect to the board using the Panel Plus application. See the corresponding startup guide for connection instructions.

2. From the main menu, go to *Configure » Acquisition Settings.*

3. Set the Camera Index. Any *Camera Index* may be set with the *Camera Type IP Camera*. *Cam 2* is used in this example.

ⓘ **IMPORTANT:** On the 3000-OEM <u>do not</u> use Cam 1 with the IP Camera.

4. Select *IP Camera* from the *Camera Type* drop-down menu for the desired camera index. The *Apply* button will turn red indicating input field changes have been detected.

Figure 2: 3000-OEM IP Camera Configuration

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[1] IP addresses of SightLine OEM units are made available to Panel Plus using the SightLine Discover Protocol.

5. 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.

6. From the main menu in Panel Plus, go to *Configure » Decoder Parameters.*

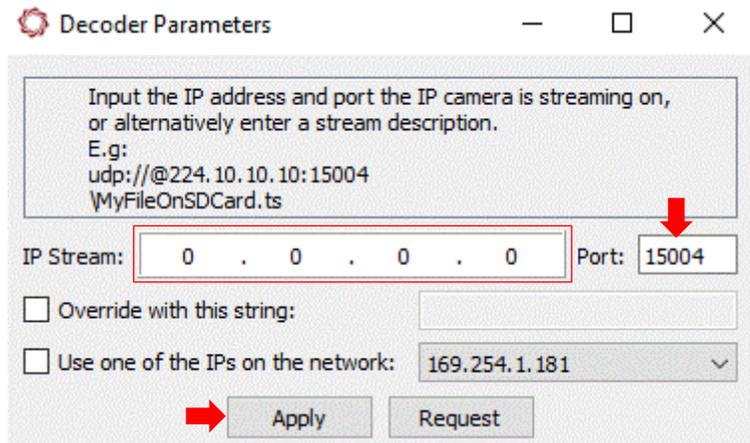7. Set the *IP Stream* to *0.0.0.0*. Set the *Port* number to the port specified in the encoder setup (*15004*).

Figure 3: Decoder Parameters

📖 *If an encoder is sending to a multicast IP address (e.g., 224.10.10.10), enter that IP address in the IP Stream.*

8. Click *Apply* when complete.

9. To display video on any of the 3000-OEM outputs (*Analog*, *HDMI*, or *HD-SDI*) or the 4000-OEM output (*HDMI*) select the *Display* tab and select the radio buttons adjacent to the desired output.

10. To display video in Panel Plus select the *Display* tab and select the radio button adjacent to *Network 0*.

📖 *Only one network output (Network 0) is supported when using the IP Camera input on the 3000-OEM. Simultaneous decoding and encoding 1080P30 video on the 3000 can result in packet loss and degraded video.*

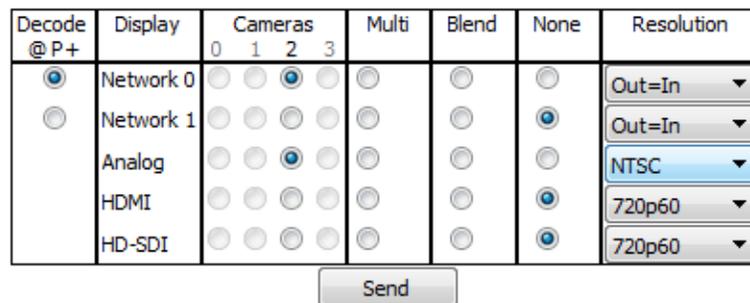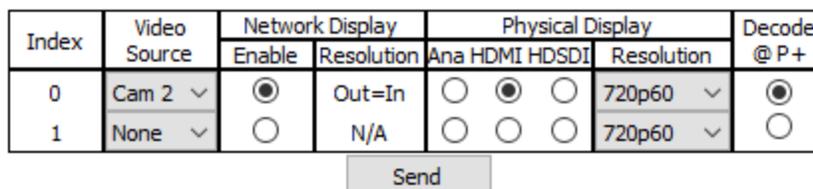

Figure 4: Output Display Options 2.25 Software

Figure 5: Output Display Options 3.00 Software

3   Decoding Video from MicroSD Card

This section covers playback of recorded video from a microSD card. The following diagram outlines a typical setup. The microSD card is inserted into the slot on the video processing board and acts as a simulated camera. See the EAN-File Recording document for more information on recoding and viewing files on a microSD card.
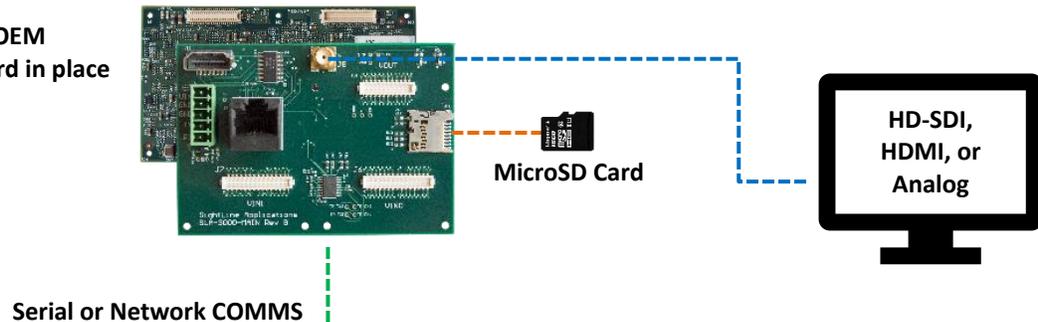

Figure 6: MicroSD Card Configuration

📄 *Video played back from a microSD card may play back slower or faster than frame rate depending on the size of the video.*

3.1   MicroSD Card Setup

ⓘ **IMPORTANT:** The Decoder must be setup first before completing the following steps (see Decoder Setup).

1.   From the main menu in Panel Plus go to *Configure » Decoder Parameters.*

2.   Check the *Override with this string* box.

3.   Enter the name of the file on the microSD card being used. Start the name with a backward slash (\). The backslash (\) is a special character that is automatically replaced with the microSD card path.

📄 *The full path to the SD card can also be used in the Override with this string field, e.g., /media/mmcblk0p1/TestingDecoder _000.ts*

Figure 7: Decoder Parameters
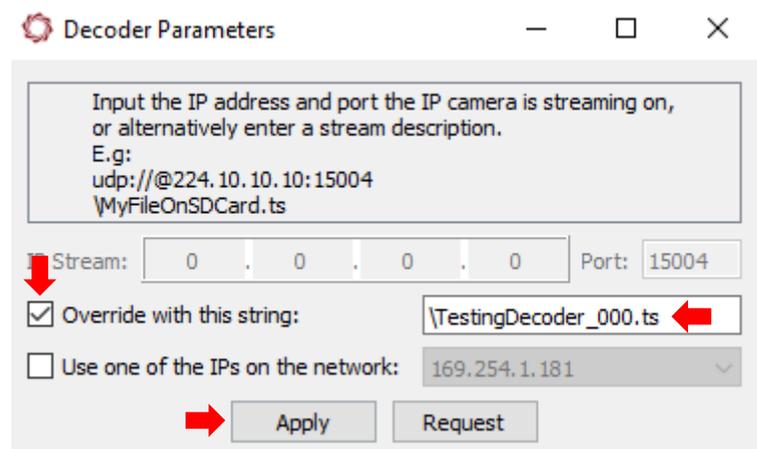
4.   Click *Apply* when complete.

4   Troubleshooting

Problem	Recommendation
Decoder does not play live stream.	Ensure that the system that is encoding video is a SightLine system and is setup to use MPEG2-TS H.264 MPEG2-TS MPEG4, or MPEG2-TS H.265 Set up both the encoder and decoder systems. Save parameters and power cycle both systems.
Decoder does not play back from the microSD card.	The system is designed to play back videos recorded from a SightLine system. Other videos will not work. If the video does not play, try converting it using FFMPEG: *ffmpeg.exe -i input.mp4 -f mpegts -vcodec h264 -bf 0 -qp 24 -g 10 output.ts* If this results in an error: *DLL amfrt32.dll failed to open* Try this instead: *ffmpeg.exe -I input.mp4 -f mpegts -vcodec h264_mf -bf 0 -b:v 3000000 output.ts*
Cannot see video from decoded source and another camera at the same time.	When using the 3000-OEM as a decoder there is only one output channel available. This can be used to output the video from the decoded source or another camera, but not both simultaneously.
Video played back from SD card looks corrupted.	Make sure that the system is <u>not</u> receiving network video from another system at the same time it is trying to decode from the microSD card. If it is receiving video from another system, turn off that system. Cycle power on the decoder and try again.
Video decoded on the 3000-OEM looks corrupted.	The 3000-OEM cannot keep pace with 1080P30 decoding and 1080P30 encoding. If this is a requirement, we recommend using the 4000-OEM. The 3000-OEM is capable of decoding 1080P30 video and displaying it to either the HDMI or HD-SDI output.
Video encoded on 4000-OEM after decoding is at a reduced frame rate.	Under certain conditions the 4000-OEM can enter a reduced frame rate state when decoding 4K video and re-encoding as 4K H265. This issue has been addressed in version 3.4.x software. It can also be solved by ensuring that the source video into the 4000-OEM is up and running before powering on the 4000-OEM that is being used as a decoder.
Questions	
Are changing input video types or sizes on-the-fly supported?	The decoder currently supports changing sizes on-the-fly, however changing input video types requires a power cycle of the decoder.
What is the maximum resolution the decoder supports?	The 3000-OEM supports up to 1920x1080 at 30 frames per second and the 4000-OEM supports up to 4K at 30 frames per second.
Can the 4000-OEM receive video from the 3000-OEM?	Yes

4.1   Questions and Additional Support

For questions and additional support, please contact Support. Additional support documentation and Engineering Application Notes (EANs) can be found on the Documentation page of the SightLine Applications website.

## Appendix - Setting CAM 0 for IP Input

If there is no hardware connected to VIN0, CAM0 can be set for be IP input.

This procedure uses the following setup: 3000-OEM with SLA-3000-HDSDI on VIN 1 (CAM 2). It also assumes that the customer has read the EAN-Startup Guide 3000-OEM 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 and work with our support team to establish basic connection and streaming fundamentals.*

1. From the *Connect* tab in Panel Plus, verify there is only one active camera.
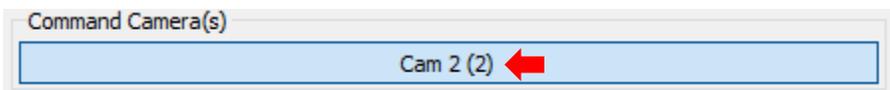
2. From the main menu in Panel Plus » *Configure* » *Acquisition Settings*.

3. Set *Camera Type* to *IP Camera*.
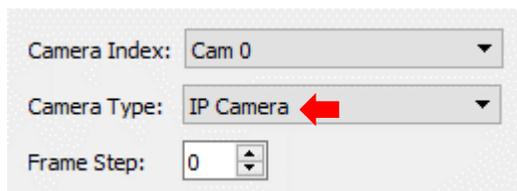
4. Click the *Apply* button.

5. Main menu » *Parameters* » *Save to Board*.

6. Main menu » *Reset* » *Board*. Wait for the system to boot, and then reconnect to the board.

7. In the *Connect* tab the new camera should now be available. Click the Cam 0 (0) button to designate it as the command camera.
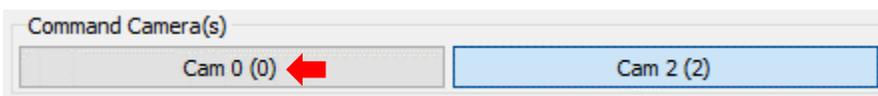
8.   From the Panel Plus main menu » *Configure* » *Decoder Parameters*. Click *Apply*.

9.   From the *Display tab* set Cam 0 to *Network 0* and click *Send*.

Network Index	Video Source	Network Display		Physical Display				Decode @ P+
		Enable	Resolution	Ana	HDMI	HDSDI	Resolution	
0	Cam 0 ⌄	◉	Out=In	◉	○	○	NTSC ⌄	◉
1	None ⌄	○	Out=In	○	○	○	720p60 ⌄	○

Send

10. Click *Stream Network Video to This PC*.

Video Output:

Cam 0 ▼	Network 0 ▼

Stream Network Video to This PC	Advanced IP...