



SightLine

APPLICATIONS

EAN-Decoder

PN: EAN-Decoder

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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 3000-OEM or 4000-OEM can act 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.

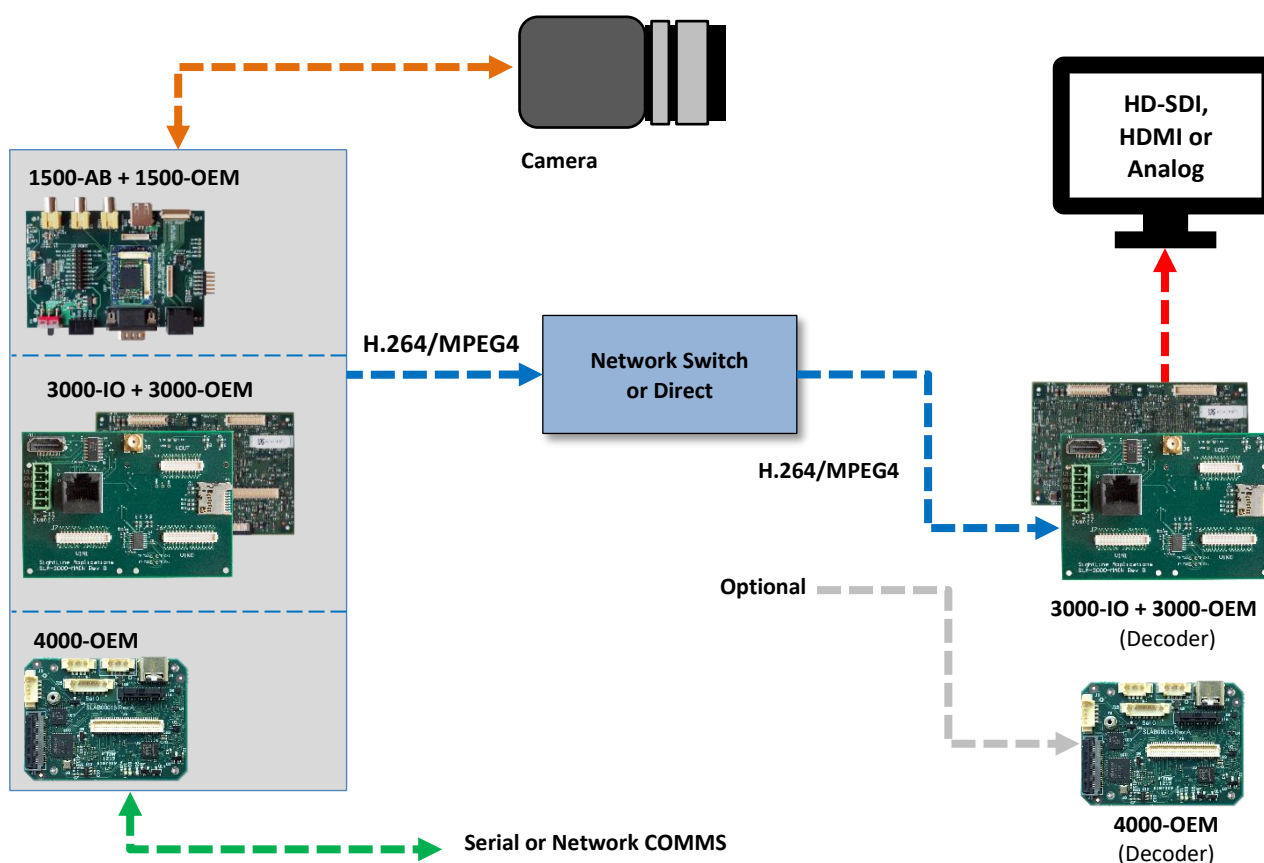


Figure 1: 3000-OEM Network Decoder Setup Example



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.

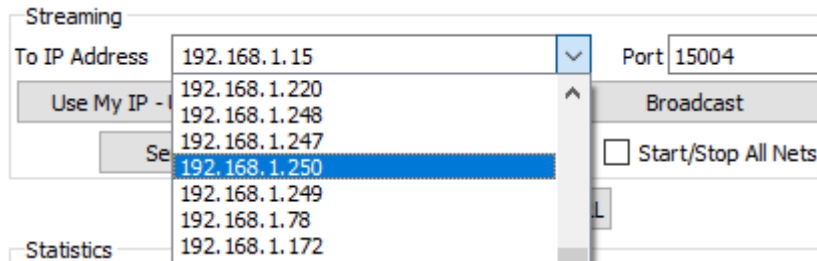
2.1 Encoder Setup

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 [EAN-Digital-Video-Configuration](#).
3. From the Panel Plus Multi-Camera tab enable Network Display for Network Index 0.
4. Go to the *Compression* tab.
5. Select MPEG2-TS: H.264, MPEG2-TS: MPEG4, or MPEG2-TS: H.265 as the codec/transport.



- 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 dropdown menu¹.



Optionally, a multicast IP address (e.g., 224.10.10.10) can also be used to send encoded video to multiple receivers.

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

- Connect to the board using the Panel Plus application. See the corresponding startup guide for connection instructions.
- From the main menu, go to *Configure* » *Acquisition Settings*.
- Set the Camera Index. Any *Camera Index* may be set with the *Camera Type IP Camera*. *Cam 2* is used in this example.
- 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

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).

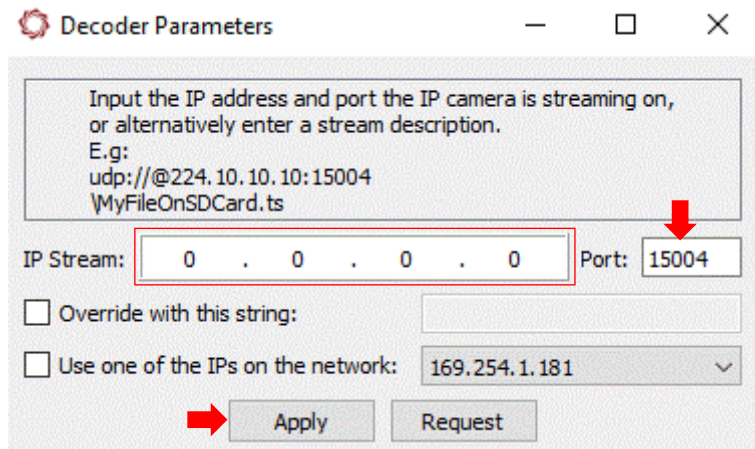


Figure 3: Decoder Parameters

- 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) open the *Multi-Camera* tab and select the radio buttons adjacent to the desired output.
 10. To display video in Panel Plus select the *Multi-Camera* 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.

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 type="radio"/>	<input checked="" type="radio"/>	Out=In
	Analog	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	NTSC
	HDMI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	720p60
	HD-SDI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	720p60

Figure 4: Output Display Options 2.25 Software

Index	Video Source	Network Display		Physical Display			Decode @ P+	
		Enable	Resolution	Ana	HDMI	HDSDI		Resolution
0	Cam 2	<input checked="" type="radio"/>	Out=In	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	720p60	<input checked="" type="radio"/>
1	None	<input type="radio"/>	N/A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	720p60	<input type="radio"/>

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.

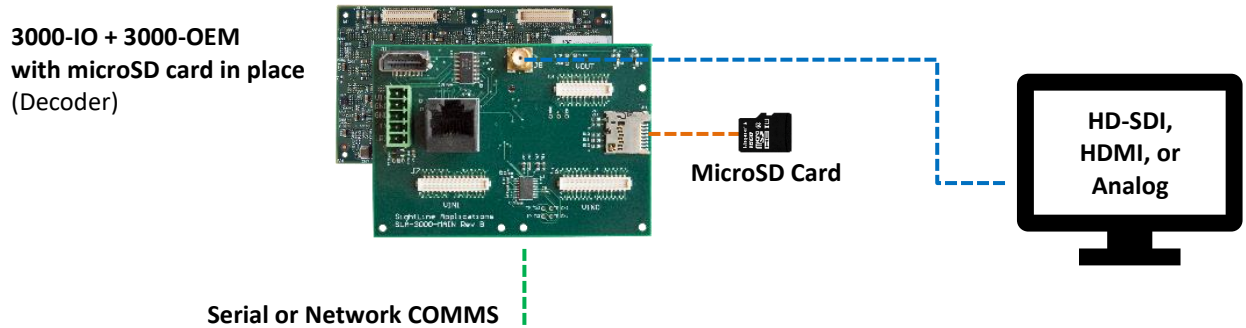


Figure 6: MicroSD Card Configuration

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*

4. Click *Apply* when complete.

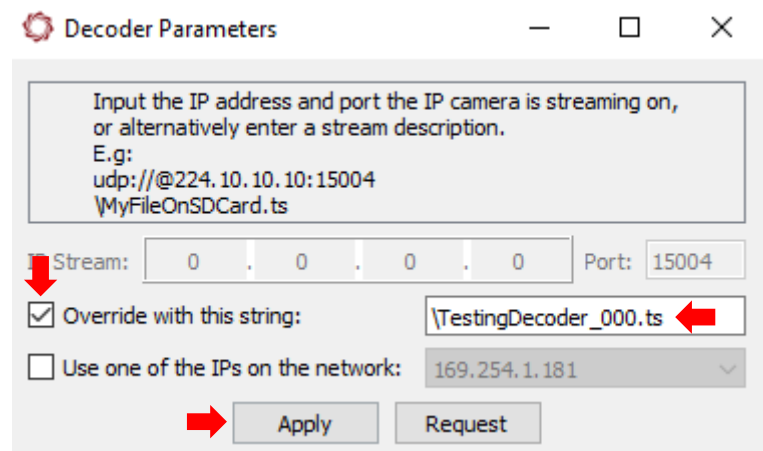


Figure 7: Decoder Parameters



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
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 as shown: <pre>ffmpeg.exe -i input.mp4 -f mpegts -vcodec h264 -bf 0 -qp 24 -g 10 output.ts</pre>
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.
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, however it is currently limited to 1080P30 video from the 3000-OEM, 720p30 video doesn't work at this time.

4.1 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 [Documentation](#) page of the SightLine Applications website.