AJA Io X3 Capture Display Convert User Manual

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AJA Io X3 Capture Display Convert

Introduction

Overview

- AJA Io X3 is perfect for high quality HDR or SDR work with HD/2K signals or files up to 60p. Connecting with a single Thunderbolt 3 cable and providing a second Thunderbolt connector for flexibility, Io X3's compact and quiet form factor is ideal for on set, in the studio, at an event or in the edit suite.
- For Editorial, VFX, Grading, Mastering and Graphic workflows, Io X3 enables input, output and monitoring for both single and dual-link SDI sources and destinations, plus a dedicated reference connector and RS 422 serial interface.
- For Audio Workflows Io X3 supports 16 channels of embedded audio per SDI channel, 8 channels of embedded audio per HDMI channel, 8 channels of Analog Audio Input or Output (or 4 in plus 4 out), stereo headphone connector and discrete LTC Input and Output connectors.
- For Switching and Streaming workflows Io X3 simultaneously provides up to 4 channels for Input, and a single channel for Output, plus a MultiView feature that enables viewing up to four SDI input sources via HDMI out (when the application Program Out is not assigned).

Features

- Two Thunderbolt 3 ports
- Four bidirectional SDI BNCs configurable for up to four inputs, or four outputs, or two inputs and two outputs.
- Dual Link I/O for 1.5G-SDI and 3G-SDI (2 x BNC)
- Quad Link I/O for 1.5G-SDI, 3G-SDI (4 x BNC)
- HDMI 1.4b (using HDMI 2.0 implementation)
- VPID signaling for SDR/HDR Transfer Characteristics, Colorimetry and Luminance via SDI
- PQ, HLG and HDR10 Supported
- MultiView feature, able to display up to four Io X3 SDI video inputs on a single HDMI UltraHD capable output monitor.
- Eight-channel Embedded HDMI audio
- Choice of Eight-Channel In, Eight-Channel Out, or Four-Channel In/Out analog audio (DB25 cable, Line Level)
- Front panel LED VU meters and Headphone output w/level control
- Dedicated Reference In BNC
- Individual LTC Input and Output BNCs
- RS-422 control via 9-pin
- Rugged Chassis, Small Size
- 12V DC, 4-pin XLR Power (AC adapter included)

Video Formats
For a list of supported video formats, see “Appendix A Specifications” on page 49.

Io X3 Audio
Io X3 provides up to 16 channels of SDI embedded audio, and up to eight channels of embedded HDMI audio. Eight channels of analog audio I/O is supported via a DB25 industry standard Tascam style audio breakout cable. The eight analog audio channels can be configured as either Ch 1-8 input, Ch 1-8 output, Ch1-4 input with Ch 5-8 output or, Ch 1-4 output with Ch 5-8 input.

AJA Software & Utilities
Io X3 operates with AJA's Desktop software package, developed for powerful integrated video/audio capture, editing, and production with a variety of 3rd-party software. AJA software is distributed as a unified package which includes all the software, firmware, plugins, and utility programs for the Io X3, as well as AJA's Io, KONA, and T-

TAP products.
Two retail packages are available, one for Mac and one for Windows.

Mac and Windows Packages

These packages include:

Drivers
AJA device drivers for tightly integrated hardware/software operation.

AJA Control Panel
The Control Panel provides:

- Source selection and control of your AJA hardware.
- A block diagram to show visually what routing and processing is being performed.

AJA Control Room
Control Room is a cross-platform software application for capture, playback and output with AJA products.

AJA System Test
AJA System Test is a utility for measuring system performance. The application includes:

- System Disk Test
- AJA Device Test
- System Report

  The application tests Read and Write, Capture and Playback speeds tests in both Megabytes per second and Frames per second. The disk speed tests differ from standard disk I/O performance applications in that they specifically test the system under conditions typically encountered with video capture, playback, and editing.
  NOTE: Theoretically the best test is to fill your storage disk to 80% and then test capture at the highest data rate you will use.

3rd-Party Plugins
Plugins for popular 3rd-party Professional Video Applications from Adobe, Avid, Apple, OBS, Telestream, and others.

System Requirements

NOTE: On macOS, the Io X3 supports Apple's M1 chip, as well as earlier Intel processors.

AJA Video recommends that your system meet minimum hardware and software requirements to achieve a satisfactory level of performance. Updates to system requirements are subject to change.
See the Release Notes for your AJA Card or Device, available on the AJA website and also installed with the software package, for minimum and recommended system requirements including OS, CPU, RAM, and GPU.

NOTE: Also see Software Vendor system requirements for GPU recommendations and additional hardware requirements and recommendations.
NOTE: For large scale installations with shared storage, IP, or for very high performance requirements, AJA recommends consultation with an experienced system integrator. A consultant will be able to assist with many important variables.

What's In The Box?

As you unpack the shipping box, carefully examine the contents. Ensure you received everything and that nothing was damaged during shipment.
If you find any damage, immediately notify the shipping service and supply them with a complete description of the damage, and contact your dealer or distributor for details on how to have your Io X3 repaired or replaced.
Save packing materials and the shipping box for future use should you need to transport your system or return it for service.
Inside the box you'll find the following components:

- Io X3
- 12V power adapter and power cord

In This Manual

- Chapter 1 – Introduces the product briefly, listing features and system requirements.
- Chapter 2 – Provides complete instructions for installing and configuring the product.
- Chapter 3 – Discusses operational aspects and how to work with 3rd-party software.
- Appendix A – Presents a list of technical specifications for the product.
- Appendix B – Provides important Safety and Compliance information.

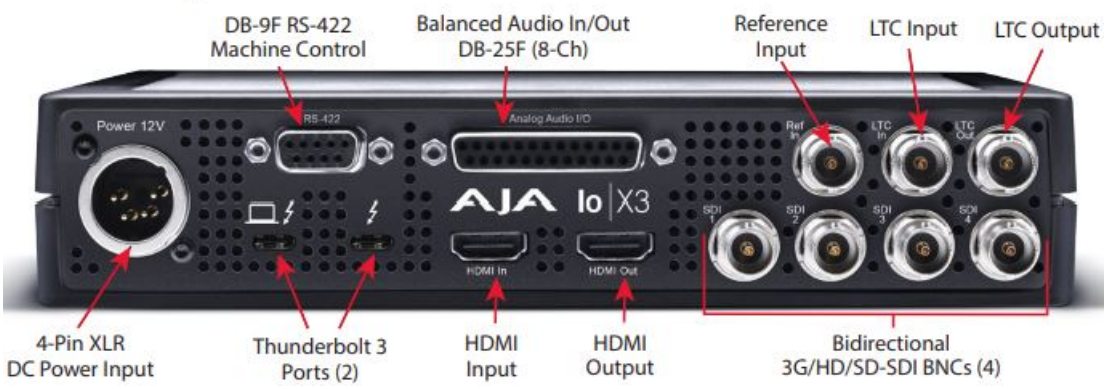
Installation

Installation Overview

1. If not previously installed on your Thunderbolt equipped computer, ensure that appropriate third party application software is installed as detailed in its user documentation.
2. Download and install the latest Io X3 software from: **https://www.aja.com/en/support/downloads**
3. Connect your Io X3 to your computer using an appropriate Thunderbolt cable.
4. Connect the video and audio inputs and outputs.
5. Power up the unit (AC supply or battery). The Io X3 will startup automatically.
6. AJA recommends that you now run AJA Control Panel, as this allows you to verify that the installation has completed successfully.
   NOTE: AJA Control Panel will prompt you to update firmware (if the new software package contained a firmware update for your AJA device).

Cable Connections

Figure 1. Io X3 Connectors



Connector Descriptions

Thunderbolt 3
The Io X3 provides the third-generation Thunderbolt 3 (USB-C) ports to support increased bandwidth between host computer and I/O device. Two ports are provided for daisy-chained network configurations.
The left port with the special logo is meant to identify the downstream Thunderbolt 3 port. The port on the right with the standard logo is meant to indicate the upstream port that is to be connected to the host computer. Despite a regulatory need to label one of these ports as downstream, the Io X3 actually has a fully symetric Thunderbolt implementation. Either port can be used for either an upstream or downstream connection.

NOTE: Io X3 does not support host computer charging through the standard logo 'upstream' Thunderbolt port.

Bi-directional SDI I/O
Four bidirectional BNC connectors can be configured in a variety of ways via the AJA Control Panel, including:

- Two HD/SD inputs (SDI 1 and SDI 2) and two outputs (SDI 3 and SDI 4)
- Four HD/SD inputs (SDI 1, SDI 2, SDI 3, SDI 4)
  NOTE: Some third-party applications (examples: OBS Studio, Wirecast, Vmix) may support other input/output configurations. Please see the relevant AJA Quick Start Guide document for the application you are using.

HDMI Input and Output

Two HDMI connectors provide input and output of HDMI video and multi-channel embedded audio.

- HDMI 1.4b input and output (using HDMI 2.0 implementation) supporting resolutions at up to 60p (4:2:2), 10-bit
- Supports two or eight channel HDMI audio input and output
  HDMI output also supports:
- HDR 10 Support – HDR Infoframe metadata, compatible with HDMI 2.0a/CTA-861.3
- HLG Support – compatible with HDMI 2.0b/CTA-861-G
  NOTE: HDCP is not supported on either input or output. HDMI output does not have HDCP, and input sources having HDCP are not supported.
  The HDMI input is designed to support long cable runs—up to 100 ft. when using 22 or 24AWG HDMI cable, or up to 50 ft. using 28 or 30AWG HDMI cable. The HDMI output supports standard HDMI cables only.

RS-422 Machine Control
A female DB-9 connector provides connection for VTRs, camcorders, disk media servers, and other devices using RS-422 SMPTE (Sony) protocol.

Reference Video
A dedicatec BNC connector provides reference Input. Supplying a reference signal to the Reference input allows you to synchronize Io X3 outputs to your house analog reference video signal (or black burst). When connecting a reference video source, the locking signal should be the same as the input format. It is possible in some circumstances to use an alternate format video signal as long as the basic frame rate is compatible.

LTC Input and Output
Two BNC connectors provide dedicated LTC input and output.

Balanced Analog Audio Input and Output
A 25-pin connector provides 8-channel balanced analog audio, 24-bit 48kHz sample rate D/A and A/D. This will require an industry standard 8x XLR on DB-25 breakout cable (not supplied). The eight analog audio channels can

be configured four different ways:

- Ch 1-8 Output
- Ch 1-4 Input and Ch 5-8 Output (default)
- Ch 1-4 Output and Ch 5-8 Input
- Ch 1-8 Input

12V Power Connector
A standard 4-pin XLR type connector is provided for either battery or line source power using the supplied AC power adapter.

Installing Software

NOTE: If your computer has previously had another video capture or multimedia device installed, ensure you uninstall any related software before installing Io X3. This will prevent any hardware or software conflicts.

Before installing the software package, ensure that your capture/editing application is installed as detailed in its user documentation. Before using Io X3 an NLE application, it is best practice to have installed and run the software at least once on your workstation. Next, install the AJA software package.
If at a later date you add any Io X3 supported applications that require drivers, you must run the AJA install program again to install them.

macOS Installations
macOS High Sierra (10.13), macOS Mojave (10.14), macOS Catalina (10.15), macOS Big Sur (11.x) and macOS Monterey (12.x) all have security requirements that may present dialogs during installation. Please refer to the Release Notes for guidance.

Io X3 Capture, Display, Convert v16.2

www.aja.com

Documents / Resources

	AJA Io X3 Capture Display Convert [pdf] User Manual Io X3 Capture Display Convert, Io X3, Capture Display Convert, Display Convert, Convert

References

- Affordable Broadcast, Production, Post, ProAV Tools
- AJA Product Support Downloads