

# **Logitek Electronic Systems**

## *JetStream MINI Reference Manual*



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# Document Revisions

<b>Date</b>	<b>Revision</b>	<b>Author</b>	<b>Notes</b>
October 2010	1.0	John Davis, CBNT	First release of JetStream MINI v1.0 Reference Manual
December 2011	1.1	John Davis, CBNT	Corrected Appendix D to add command for HSM-MIC-DB

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# 1 Introduction

## About this Manual

This manual describes the installation and operation of the **Logitek** JetStream MINI.

### Intended Audience

This manual is aimed at Engineers and Technical Operators responsible for installing, configuring and supporting a **Logitek Networked Console System**.

In the context of a system installation, or to become familiar with the entire **Logitek Networked Console System**, the reader should also reference:

- Surface Reference Manual for each surface you are installing
- AEConfig Reference Manual
- JetStream Server Reference Manual (JetNet equipped systems)

It is assumed the person responsible for installing and configuring any PC application has a solid understanding of Microsoft Windows desktop operating systems, or has ready access to IT support.

### Manual Conventions

The following conventions are used in this manual:

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*This text indicates a menu choice to be made, with an arrow separating a multi-level selection, eg Control Panel ➤ Users & Passwords. This can be a menu choice in a Logitek application, or within Windows.*



*Indicates a “see-also” section in this manual, or another Logitek manual.*



The exclamation symbol signifies an important note or critical information.

This text represents a command, script block example, instruction to be typed, or directory path.

 **TIP:** A useful tip from our knowledge base!

## About the JetStream MINI

The heart of every **Logitek** digital console is the **JetStream** audio router. With 8 slots for microphone input cards, analog input cards, analog output cards, digital input cards, and digital output cards, one **JetStream Mini** easily handles all audio channels in a typical studio and is capable of mixing, routing, creating mix minuses, and all other functions of traditional consoles.

With the addition of **JetNet** audio networking, the **JetStream Mini** becomes an Audio over IP router, which allows for direct network transfer of audio to other **JetStream** devices, hard-disk playout systems, and other **Logitek JetNet** partners without using computer sound cards. Using standard IP protocols, **JetNet** is the simplest way to connect IP accessible devices to the audio network.

The **JetStream Mini** provides seamless integration of analog and digital sources or destinations. The **JetStream** can accept both digital and/or analog inputs and provide digital and/or analog outputs.

**Logitek** consoles retain the look and feel of traditional broadcast audio boards, adding input routing, multiple mix minus buses, dynamics, EQ controls, and more. Consoles supported by the **JetStream** as of this writing include the *Pilot*, *Remora*, and *Mosaic* surfaces. The **JetStream** can also drive multiple utility panels such as the *COM-12* intercom panel, *RTE-3* and *RTE-XY* rack-mount router control heads, *BTN-12* button panels, and *GST-20* and *GST-22* guest headphone amplifiers.

With the addition of the **JetNet** audio networking module, remote IP control of the **JetStream** is possible using the **Logitek vTools** software suite.

StudioHub+ wiring allows for rapid installation of the **JetStream** using standard CAT-5 cabling.

The following cards may be installed in a JetStream Mini's 8 I/O slots:

- JSM-MIC-RJ            4 channel microphone pre-amp card with StudioHub+ connectors
- JSM-MIC-DB            8 channel microphone pre-amp card with DB-25 connector
- JSM-AIN-RJ            4 stereo/8 mono analog input card with StudioHub+ connectors
- JSM-AIN-DB            4 stereo/8 mono analog input card with DB-25 connector
- JSM-AOUT-RJ           4 stereo/8 mono analog output card with StudioHub+ connectors
- JSM-AOUT-DB           4 stereo/8 mono analog output card with DB-25 connector
- JSM-DIN-RJ            4 AES/EBU or S/PDIF digital input card with StudioHub+ connectors
- JSM-DIN-DB            8 AES/EBU or S/PDIF digital input card with DB-25 connector
- JSM-DOUT-RJ           4 AES/EBU or S/PDIF digital output card with StudioHub+ connectors
- JSM-DOUT-DB           8 AES/EBU or S/PDIF digital output card with DB-25 connector

## System Requirements

The JetStream Mini is designed to be installed in a standard 19" equipment rack. It is two rack-units high. The unit is convection-cooled without a fan, therefore it is suitable for mounting inside a studio near operators and microphones. For best performance, leave at least one rack-unit empty above the JetStream for proper cooling and design the rack to allow air to circulate.

## System Architecture

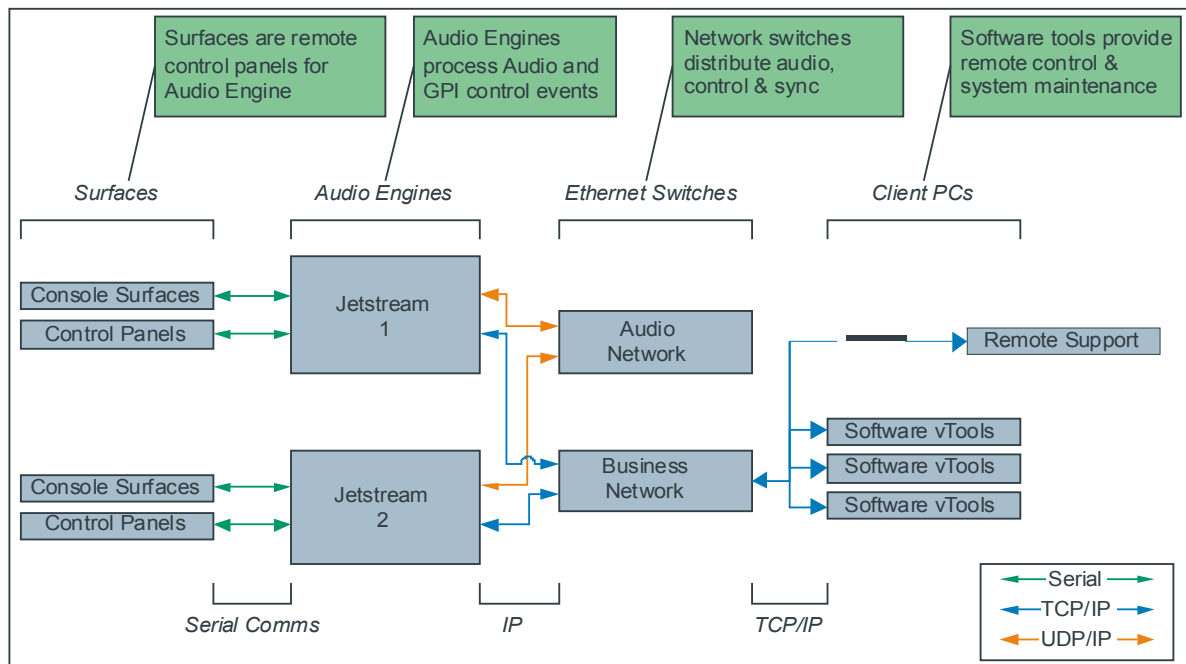


Figure 1 - Logitek System Architecture (v4.x)

Audio I/O cards plug into slots A-H on the JetStream. That audio is mixed on the JSM-DSP card (labeled "Surface") Consoles and utility panels connect directly to the JSM-DSP card via RS-485. All audio mixing, equalization, and dynamics processing is done on the DSP card. Local audio from the JetStream MINI is ready within two seconds of power-up.

The optional JetNet Audio Networking module is an embedded PC equipped with an Intel Atom processor and 1GB of RAM with a server-class dual Gigabit Ethernet card. Audio from the I/O cards is processed by the JSM-DSP card and streamed via USB 2.0 internally to the PC and sent to the network.

The PC runs Windows Embedded Standard and has been optimized for audio networking. No other applications should be installed on the PC.

JetNet networked audio is available within 90 to 120 seconds of power-up.

## 2 Unpacking

This section details what you should do when unpacking your newly arrived JetStream MINI.

### Parts List

The exact list of parts received will vary depending on your order, but should generally include:

- 1x fully assembled *JetStream MINI* frame, containing cards and Power Supply/Supplies as ordered.

You will receive a parts list with the system that is specific to the JetStream and cards on your order.

### Unpacking

Carefully unpack the cartons whilst looking for any signs of shipping damage. You may wish to save the shipping cartons until the operation of the system is verified.

Report any damage to the shipping carrier immediately. Verify that the contents of each box match the packing list and report any discrepancies immediately to **Logitek** in writing.

### Contacting Logitek

In the event of a shipping problem, you can contact **Logitek Electronic Systems** in several ways:

<b>U.S. Mail</b>	Logitek Electronic Systems, Inc. 5622 Edgemoor Drive Houston, Texas 77081 USA
<b>Telephone</b>	877-231-5870 +1-713-664-4470 (outside U.S. and Canada)
<b>Fax</b>	+1-713-664-4479
<b>Email</b>	support@logitekaudio.com
<b>Website</b>	www.logitekaudio.com



## 3 Physical Installation

This chapter covers basic installation and cabling information, and details some cabling examples. As preferences and techniques for installation vary widely, this information should primarily be used as a starting point for planning your install.

### Installation

The JetStream MINI is designed to be mounted in a standard 19" rack, and occupies two rack units.

The main power supply is mounted internally. A redundant 12 volt, 40 watt DC power supply, PSU-40W connects to the rear of the unit.

The *JetStream* should be mounted in a clean, dry and well-ventilated area. Because the unit is convection cooled and there is no cooling fan, leave at least one rack unit empty above and preferably one empty rack unit below the JetStream for best performance,

### Cabling

All cables to the *JetStream* enter at the rear of the cabinet.

#### Audio Cable

Be sure to use properly rated digital cable for digital audio connections. For twisted pair, this is normally 110 ohm low capacitance cable such as **Belden 1800A** or **Gepeco 5524EZ**.

These cable types are also excellent for analog audio so using digital cable for all audio connections would be an acceptable and wise choice, negating the need to order separate types of cable.

For a neater installation, a multi-pair cable may be preferred. CAT5 cable is a popular alternative, due to its high availability and low cost. The impedance range of CAT5 cable fits entirely within the range allowed by the AES/EBU specification. The tightly matched wire resistance also makes CAT5 an excellent analog cable.

For installations where an intense AM RF field is present, shielded CAT5 cable may also be used.

JetStream I/O cards with RJ-45 connectors utilize the StudioHub+ wiring standard made popular by Radio Systems. Using a variety of dongles that connect to standard CAT5 network cable, installing a JetStream is as simple as plugging the cable into the I/O card, plugging the matching dongle into the other end, and connecting the studio equipment.

The StudioHub+ wiring standard calls for shielded CAT5 cable, and all Logitek StudioHub+ wiring kits come with a short length of pre-made shielded CAT5 cable for each input and output. Non-shielded CAT5 cable can work for most analog and digital connections. However, shielded CAT5 cable must be used with the JSM-MIC-RJ card without exception.

## Data Cable

Recommended cable for the **Control Surface** data is CAT5 cable. The maximum length cable for **Control Surface** connections is 1000 feet (300 meters). Shielded cable can also be used if there is a risk of heavy interference to the signals, however this is normally not required.

Recommended cable for the **JetNet Audio Networking** module is CAT5e or CAT6 cable. The maximum length cable for network connections is 100 meters (roughly 328 feet). Shielded cable can be used if there is a risk of heavy interference to the signals, however this is normally not required.



*See Appendix C for pinouts of all cards.*

## Pre Assembled Cables

**Logitek** offers pre-made cable assemblies to M-66 block, Krone block, XLR connectors, BNC connectors, or bare ends.

## 4 System Components

### Power Supply Unit

A switching 110/220 volt power supply is mounted internally inside the **JetStream MINI**. Connect the mains to the standard IEC power inlet on the rear of the unit.



For redundancy, the optional PSU-40W power supply may be connected to the 12v DC power connector on the rear of the JetStream. This is a standard external power “brick.” The connector is wired with tip positive and sleeve negative.

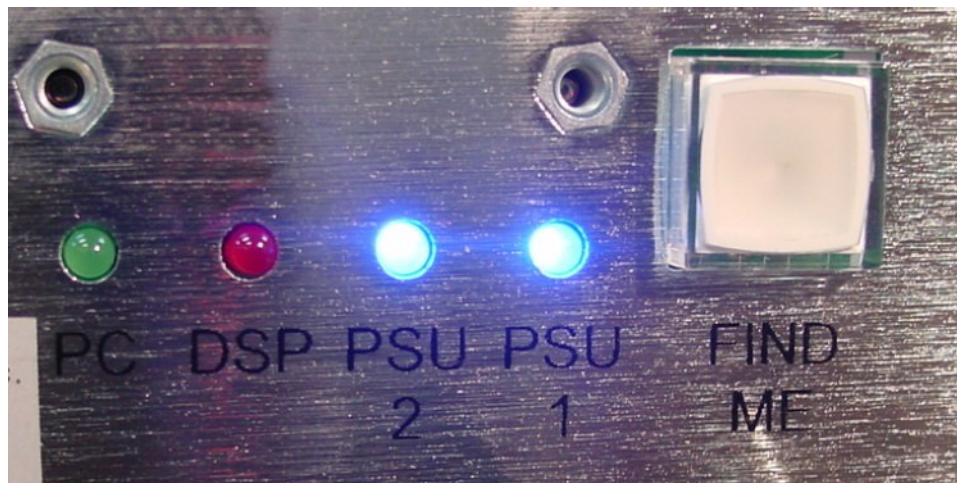
Each supply has a blue LED that lights on the front and rear of the *JetStream* when it is operating.

- 🔊 **TIP:** The use of an uninterruptible power supply (UPS) to power the *JetStream* is highly recommended to preserve stable operation and to avoid audio interruptions. Power consumption of the *JetStream* is approximately 20 watts. Size the UPS according to the length of time needed to protect against outage.

## LED Display

The **JetStream MINI** has an LED display on the front and rear of the unit.

These LEDs show the status of the unit, and information is displayed on front and rear simultaneously.



**PS1/PSU 1** – Main power supply. This blue LED lights when the power supply is operating.

**PS2/PSU 2** – Redundant power supply. This blue LED lights when the redundant 12 volt power brick is connected and operating.

**DSP** – This red LED will blink when the JetStream is in an idle state and waiting for a configuration file to be uploaded.

**PC** – This green LED is reserved for future use.

## Rear Panel Connections



**VGA** – (installed with purchase of *JetNet Audio Networking* option) Allows for connection of a computer monitor to the JetStream for configuration or for running Logitek vTools applications on the embedded PC.

**NET 1** – (installed with purchase of *JetNet Audio Networking* option) Gigabit Ethernet port for primary audio network. Connect this port to an appropriate Ethernet switch or directly to another JetStream if connecting two units as an audio snake.

**NET 2** – (Installed with purchase of *JetNet Audio Networking* option) Gigabit Ethernet port for administrative LAN or for secondary (redundant) audio network. Connect this port to an appropriate Ethernet switch.

**USB** – (Installed with purchase of *JetNet Audio Networking* option) 4 USB 2.0 ports for the embedded PC. Use for connecting a keyboard, mouse, or portable media.



Before removing a portable disk drive or flash drive from the JetStream Mini, make sure to click the Eject icon in the Windows system tray and wait for Windows to stop the drive. Networked audio will be interrupted if the drive is removed before Windows has stopped the drive and marked it as "safe to remove."

### **If *JetNet Audio Networking* is not installed:**


One USB port will be populated. A laptop or other PC may be connected here to configure the JetStream MINI.

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**RS-232** – (Installed on selected units only) Used in special installations for serial control of a video router.

## GPI Inputs & Outputs

The **JetStream MINI** provides 12 logic input connections along with 16 relay closures for external device control. Three GPI inputs and four GPI outputs are on each of four DB-15 connectors.

-  **TIP:** The 4 GPIO connectors on the back panel plug into a circuit card with electronic relays on it inside of the JetStream. It is possible to pull the back of the frame away so the card with the relays does not make good contact with the card with the connectors if the JetStream is mounted in a rack without its top lid. We recommend that the lid always be fastened with all screws tightened down.



*See Appendix C for connector pinouts.*

## External Sync

The **JetStream MINI** may be synchronized to an external sample clock, which is connected to the **Ext Sync** port. The external clock is an alternative to the internally set sample rate. For example, this would be used if all devices in a facility were to be tied to the same sample-rate and clock.

The **JetStream MINI** will accept a variety of sync signals, including Word Clock, AES Silence, and GPS 1 second pulse.

The **JetStream MINI** automatically matches any sample rate of digital inputs from approximately 25 KHz to over 50 KHz. The outputs can be set to sample rates of 32 KHz, 44.1 KHz, and 48 KHz or locked to an external clock source (at one of these frequencies).



*See Appendix C for connector pinouts.*

## Find Me Button

The **Find Me** button is used to put the JetStream into Idle mode, where the JetStream stops processing audio and waits for a new configuration to be uploaded to the DSP card.



*See Chapter 6 for further details on Resets*

## “Open” Control Protocol

The control protocol of the **JetStream MINI** is “open”. If a user wishes to write software control or to interface other devices through software control, contact **Logitek Electronic Systems, Inc.** for a copy of the protocol.

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## Surface Connections

**Control Surfaces** (Audio Consoles) and **Control Panels** (Guest Turrets and router control heads) connect via RS-485 to the JSM-DSP card, which is labeled as Surface. The ports are labeled 1 to 4, with the first port at the top.



Although RJ-45 connectors are used for surface connections, these are NOT Ethernet connections. Use the CAT5 cable to connect the **JetStream MINI** directly to the control surface or panel. Do NOT connect the CAT5 cable from a *Surface* port to an Ethernet Switch.



*See Appendix C for connector pinouts.*

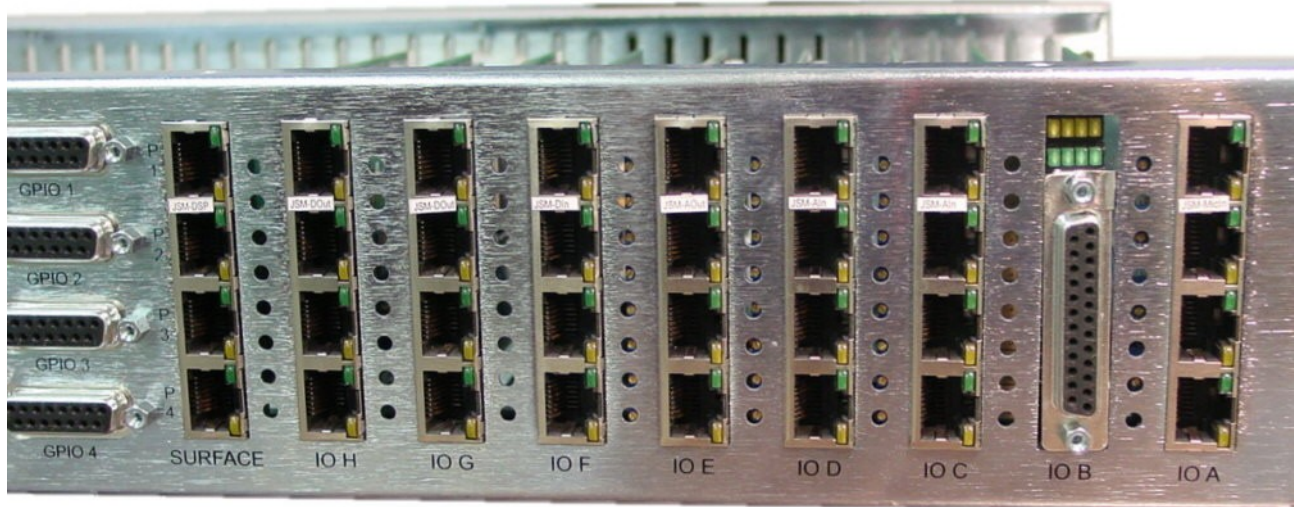
## Communication verification

You can verify communications between the **JetStream Mini** and **Control Surface**, by watching the LED lamps on the Surface port. The top green LED is transmit and the bottom yellow LED is receive.




## Audio Cards

The JetStream MINI will accept from one to eight audio cards in slots A-H, which can be either analog or digital.



### JSM-AIN-RJ Analog Input Card

The JSM-AIN-RJ card provides 8 mono or 4 stereo inputs using RJ-45 connectors, following the StudioHub+ wiring standard. Trim pots to the left of the slot provide precise level adjustment. All JSM-AIN-RJ cards ship from the factory calibrated to a reference of +4 dBu. The reference level may also be set using AE Config software, although adjustments made to the analog cards in AE Config may not be as clean or as precise as by using the trim pots. The top LED on each connector will blink as an audio meter when audio is present on the left channel and the bottom LED will blink when audio is present on the right.


 **TIP:** The trim pots must be used for gain changes of more than 4 dB to preserve the signal to noise ratio!



*See Appendix C for connector pinouts.*

### JSM-AIN-DB Analog Input Card

The JSM-AIN-DB card provides 8 mono or 4 stereo inputs using a DB-25 connector. Trim pots to the left of the slot provide precise level adjustment. All JSM-AIN-RJ cards ship from the factory calibrated to a reference of +4 dBu. The reference level may also be set using AE Config software, although adjustments made to the analog cards in AE Config may not be as clean or as precise as by using the trim pots. LED lamps above the connector will flash as a meter to show audio presence.


 **TIP:** The trim pots must be used for gain changes of more than 4 dB to preserve the signal to noise ratio!



*See Appendix C for connector pinouts.*

### **JSM-MICIN-RJ Analog Input Card**

The JSM-MICIN-RJ card provides 4 microphone pre-amplified inputs using RJ-45 connectors, following the StudioHub+ wiring standard. Trim pots to the left of the slot provide precise level adjustment. The top LED will blink like a meter when audio is present and the bottom LED will turn on when Phantom Power is turned on.


 **TIP:** The trim pots must be used for gain changes of more than 4 dB to preserve the signal to noise ratio!



*See Appendix C for connector pinouts.*

### **JSM-MICIN-DB Analog Input Card**

The JSM-MICIN-DB card provides 8 microphone pre-amplified inputs using DB-25 connectors, following the StudioHub+ wiring standard. Trim pots to the left of the slot provide precise level adjustment. LED lamps above the connector will flash as a meter to show audio presence.

 **TIP:** The trim pots must be used for gain changes of more than 4 dB to preserve the signal to noise ratio!



*See Appendix C for connector pinouts.*

### **JSM-DIN-RJ Digital Input Card**

The JSM-DIN-RJ card provides 4 AES/EBU or S/PDIF digital inputs using RJ-45 connectors, following the StudioHub+ wiring standard. The reference level may only be set using AE Config software. The top LED will blink like a meter when audio is modulating; the bottom LED will turn on solid when a valid digital signal is present.



*See Appendix C for connector pinouts.*

### **JSM-DIN-DB Digital Input Card**


The JSM-DIN-DB card provides 8 AES/EBU or S/PDIF digital inputs using a DB-25 connector. The reference level may only be set using AE Config software. LED lamps above the connector will flash as a meter to show audio presence.



*See Appendix C for connector pinouts.*

## JSM-AOUT-RJ Analog Output Card

The JSM-AOUT-RJ card provides 8 mono or 4 stereo inputs using RJ-45 connectors, following the StudioHub+ wiring standard. Trim pots to the left of the slot provide precise level adjustment. All JSM-AOUT-RJ cards ship from the factory calibrated to a reference of +4 dBu. The reference level may also be set using AE Config software, although adjustments made to the analog cards in AE Config may not be as clean or as precise as by using the trim pots. The top LED on each connector will blink as an audio meter when audio is present on the left channel and the bottom LED will blink when audio is present on the right.


 **TIP:** The trim pots must be used for gain changes of more than 4 dB to preserve the signal to noise ratio!



*See Appendix C for connector pinouts.*

## JSM-AOUT-DB Analog Output Card

The JSM-AOUT-DB card provides 8 mono or 4 stereo outputs using a DB-25 connector. Trim pots to the left of the slot provide precise level adjustment. All JSM-AIN-RJ cards ship from the factory calibrated to a reference of +4 dBu. The reference level may also be set using AE Config software, although adjustments made to the analog cards in AE Config may not be as clean or as precise as by using the trim pots. LED lamps above the connector will flash as a meter to show audio presence.

 **TIP:** The trim pots must be used for gain changes of more than 4 dB to preserve the signal to noise ratio!



*See Appendix C for connector pinouts.*

## JSM-DOUT-RJ Digital Output Card

The JSM-DOUT-RJ card provides 4 AES/EBU or S/PDIF digital outputs using RJ-45 connectors, following the StudioHub+ wiring standard. The reference level may only be set using AE Config software. The top LED will blink like a meter when audio is modulating; the bottom LED will turn on solid when a valid digital signal is present.



*See Appendix C for connector pinouts.*

## JSM-DOUT-DB Digital Output Card

The JSM-DOUT-DB card provides 8 AES/EBU or S/PDIF digital inputs using a DB-25 connector. The reference level may only be set using AE Config software. LED lamps above the connector will flash as a meter to show audio presence.



*See Appendix C for connector pinouts.*

# 5 Configuration

## JetStream Configuration

Configuration of the Control Surface port is accomplished in conjunction with configuration of the JetStream MINI. Configuration of the JetStream takes place using the **Logitek** Configuration Software, *AEConfig*. Systems with the JetNet Audio Networking module have AE Config preinstalled. Systems without JetNet will use a customer supplied laptop and connect via USB.

➔ *AEConfig was written for the Logitek Audio Engine. See Appendix A to learn how to use AE Config with the JetStream.*

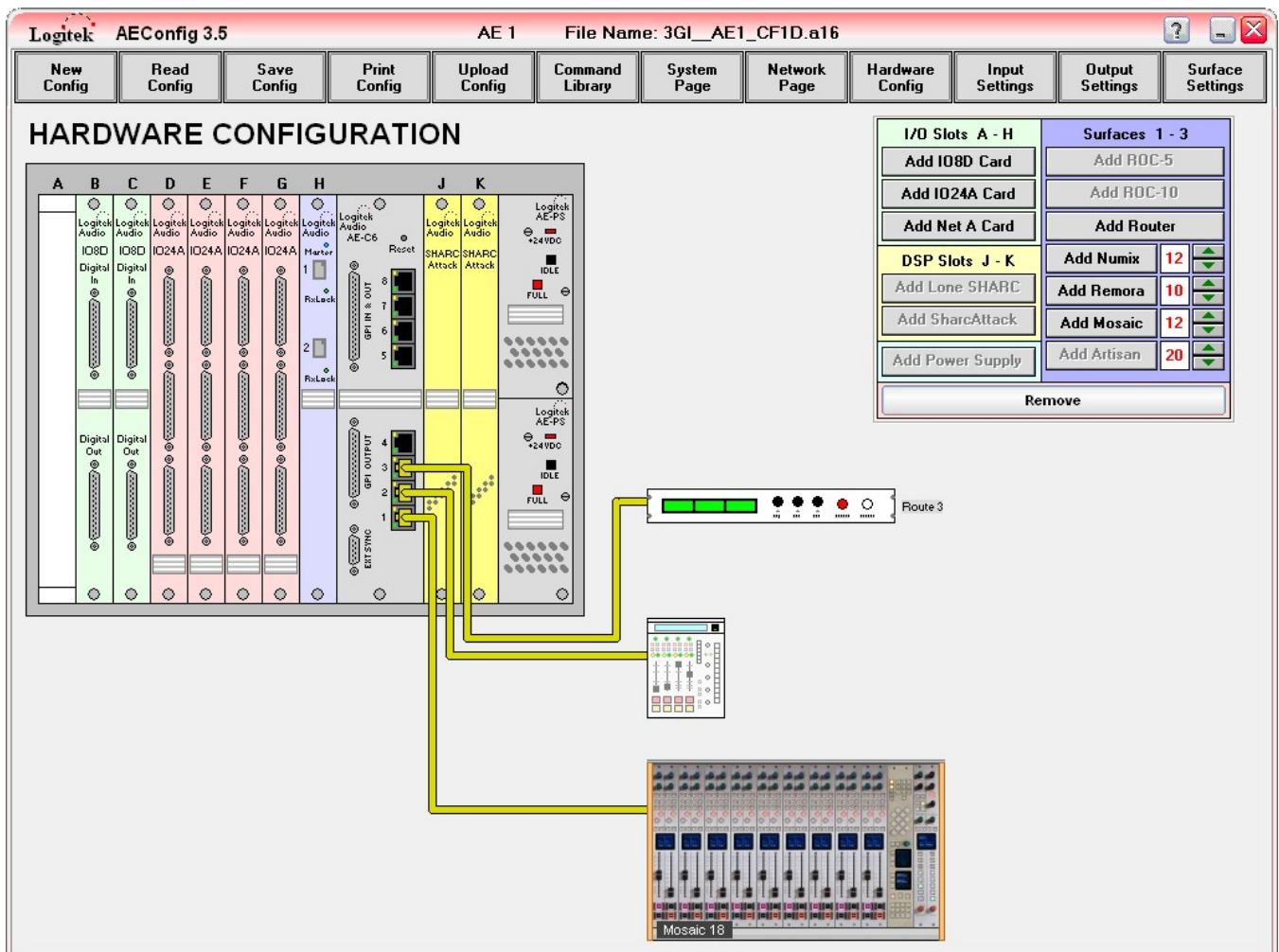


Figure 1 - AEConfig - Hardware Configuration Page

## 6 Operation

This chapter covers the basic operation of the **JetStream Mini**.

### Initial Power-Up

Depending on your distance from **Logitek Electronic Systems'** factory, your **JetStream** may have had a long journey to get to you. It's always a good idea to re-seat all I/O cards prior to powering on your unit.

### Power Loss at Audio Engine

In the event of loss of power at the **JetStream**, upon the resumption of power, it will return to the same state it was in prior to the power failure.

Audio from local sources will begin to play within 3 seconds of power up. It can take up to two minutes for networked JetStreams to find each other and begin streaming after a power failure. Networked sources will remain silent until they automatically restore the connection..

### Recovering From a Bad Upload

If the configuration stored on the JetStream is corrupted for any reason, the DSP will refuse to start. When this occurs, all LED lamps on all I/O cards and on the DSP (Surface) card will light simultaneously and no audio will be present. After a few seconds, the DSP will restart; the lamps will shut off and turn back on again, and the process will repeat every few seconds. You may hear a popping noise in your monitor speakers as the unit resets.

Recover from this condition with an idle reset.

#### Idle Reset

Unplug the power to the unit. Press and hold the **Find Me** button on the back of the JetStream and apply power. Release the **Find Me** button when you see the DSP lamp begin to blink. You may now upload a good configuration to the JetStream to resume operation.

- 🔊 **TIP:** If the JetStream is constantly rebooting, you can often force an Idle Reset by pressing and holding Find Me while it reboots without pulling the power. If you're not successful doing an Idle Reset with this method, pulling the power cord and holding Find Me during a power up will definitely work.

## Resets from AEConfig & JetStream Server

The following resets are performed from the JetStream Server and AEConfig PC applications:

### Soft Reset

A **Soft Reset** is executed by clicking *Soft Reset* from the *JetStream Log* page in *JetStream Server* or during the upload process in *AEConfig*. This reset will tell JetStream to read its current routing table and perform every route again. This reset will also ask JetNet to refresh its list of network routes.



A **Soft Reset** will NOT read the default route table. (A default route is anything in Surface Settings or Output Selections in AE Config with an I mark on the grid.) Therefore, if you are changing a default route, it will not take effect until a full reset is performed. Also, any changes made to the Mix Minus grid on AEConfig's *System Page* will not take effect until a Full Reset.

🔊 **TIP:** A **Soft Reset** does not interrupt audio. Therefore, if you need to change default routes but do not wish to interrupt programming, do a Soft Reset, then force the routing change manually using the JetStream State page in *JetStream Server*.

### Full Reset

A **Full Reset** is executed by clicking **Full Reset** from the *JetStream Log* page in *JetStream Server* or during the upload process in *AEConfig*.

A **Full Reset** copies the default startup state of the last configuration saved, erasing any routing, level or on/off information currently held in memory. This function is required to activate the routing portion of a new configuration file or to clear the current state memory if it becomes corrupted.



A **Full Reset** will tell *JetNet* to remove all of its network routes, unplug the USB connection to the DSP card, and then restore all of its network routes. It can take up to 30 seconds for this process to take place before network routes are restored.

🔊 **TIP:** As a **Full Reset** will reset to default routes and turn off all faders, audio interruption will likely result.

## 7 Maintenance

The **Audio Engine** uses multi-layer boards with surface mount technology. As such, the majority of the engine and its cards are not user-serviceable. However, there are some basic tasks that can be performed by suitably qualified technical personnel.

### Warranty

**Logitek Electronic Systems, Inc.** will honor the warranty of the system when conducting field maintenance, provided:

- Repairs or updates only relate to recommended and documented procedures
- Care is taken and procedures are followed
- Repairs are conducted by suitably trained or experienced service personnel

If you do not feel comfortable performing maintenance or repairs, please do not proceed. If you would like advice prior to attempting a repair, please contact **Logitek Electronic Systems** or your reseller.

### Firmware Updates

Each card has a firmware chip that is field upgradeable. **Logitek Electronic Systems, Inc.** or your value-added reseller may from time-to-time supply firmware updates to add new features or fix bugs.

Firmware is uploaded via the embedded JetNet PC or via a PC connected by USB for non-JetNet systems. **Logitek Support** will contact you if your system's cards need an update.

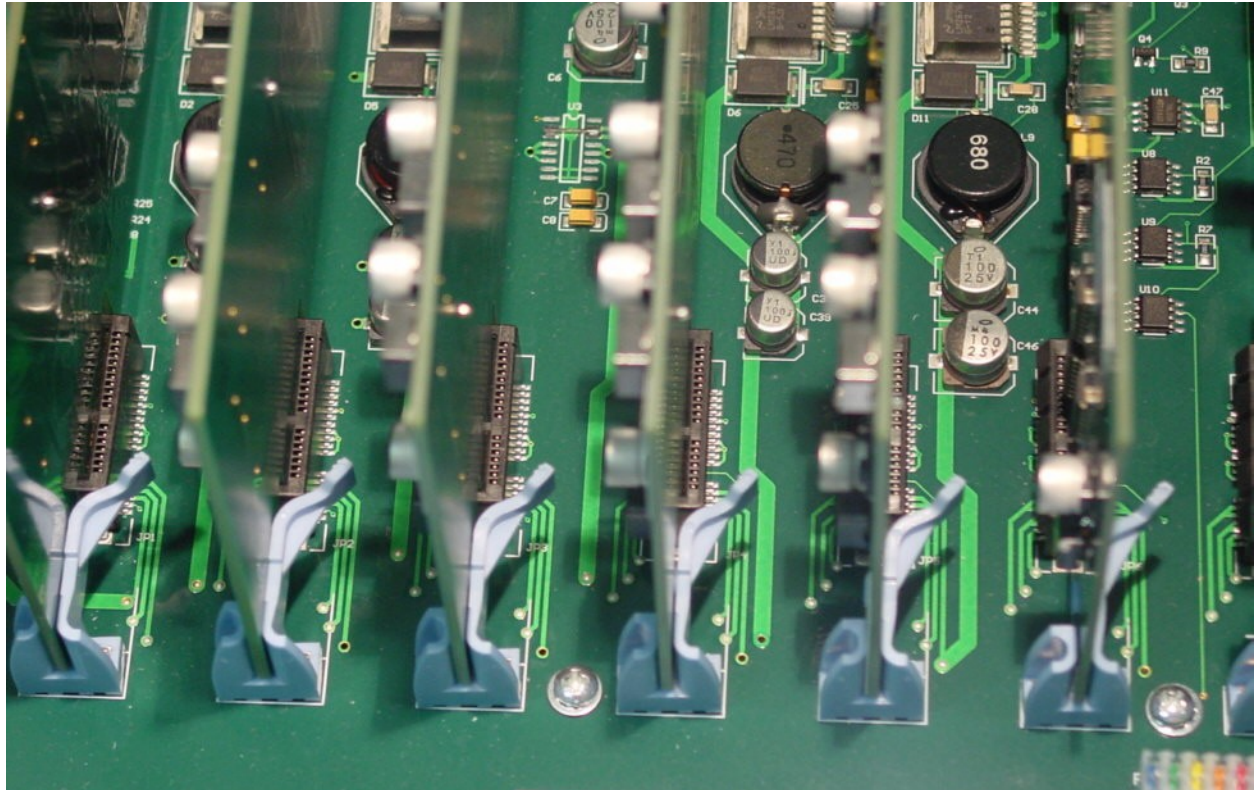
### LogMeIn Access

Logitek installs the LogMeIn utility to the JetNet embedded PC prior to shipping in order to provide remote support. Please contact **Logitek Support** if you would like to be granted remote access to your machines.

## Component Replacement

### Card swap-out

If you need to swap a card with an on-site spare, you can simply unhook the blue tab from the card, pull up on the card to remove it, insert the replacement and snap it in. Be sure to push the RJ-45 or DB-25 connector firmly through the rear panel slot prior to inserting the card into the edge connector.



Cards are fully hot-swappable. Rack rails are available from Logitek to make maintenance easier.



As the Engine config is stored within the JSM-DSP (“Surface”) card, when swapping a JSM-DSP, the config will need to be reloaded before normal operation can be resumed.



## **Contacting Support**

### **North America**

Contact the factory directly via phone: (877) 231-5870 Toll Free or +1-713-664-4470 or email [support@logitekaudio.com](mailto:support@logitekaudio.com)

### **Outside of North America**

Contact your local Logitek dealer for factory-trained assistance.

## Appendix A Using AEConfig

The JetStream Audio over IP (AoIP) router has been designed to largely configure itself using Multicast DHCP and Multicast DNS technology, an internal web server, and a navigator application.

However, this self-configuring system is still under development. Until it is complete and fully tested, Logitek will hand-configure every JetStream using its existing AE Config software before it ships.

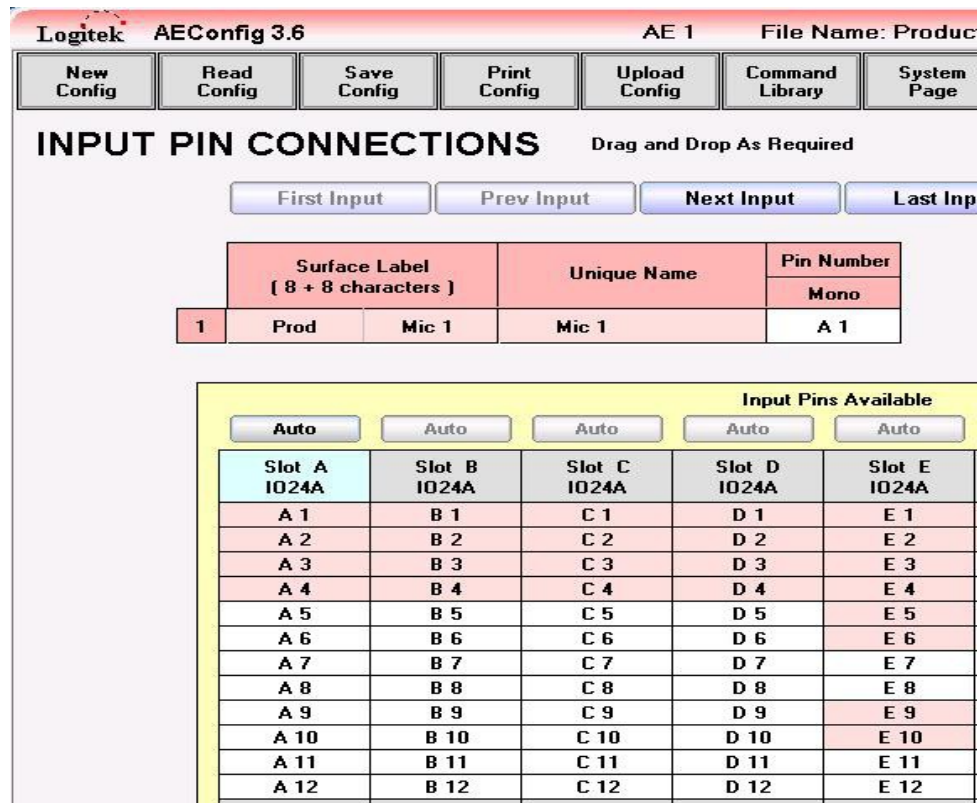
This guide is intended for use by Logitek staff for creating a JetStream configuration in AE Config v3.6.3.1(31 December 2009) and for use by station personnel who wish to make minor modifications to their JetStreams. Please note that during this transition period from the AE-32 Audio Engine platform to the JetStream platform, Logitek support will create and modify a JetStream configuration at no charge.

### Differences in Hardware between the AE-32 and JSM

The AE-32 uses the IO24A for analog input and output and the IO8D for digital input & output. It uses up to two LS-DSP or SA-DSP cards. There are 8 slots for I/O cards (A-H). A fiber network card (NETA) may be installed in place of an I/O card in slot H. A control card is installed in slot I. The DSP cards are installed in slots J & K.

The JetStream uses 5 different I/O cards, which are installed in slots A - H. There is one combination control/DSP card which is installed in the DSP slot. Networking is handled by an optional embedded computer.

When setting up a JetStream, make the following substitutions on the Hardware Configuration page in AE Config:



**JSM-MIC IN:** 4/8 input Microphone Preamp card. Assign an IO24A in AE Config to the slot where this is installed and only assign the first 4 input pins in the software to inputs for a RJ card and 8 input pins for a DB card. Do not assign any outputs in the software to this slot.

To enable phantom power on the input, turn on the “Cue at Infinity” checkmark on the input in AE Config. When phantom power is enabled on the input, the yellow LED on the input jack will turn on. The green LED on the input jack will light when audio is present as confidence metering.

**TIP:** If you choose to enable phantom power by using Cue at Infinity, the microphones will turn cue on when potted down, which may engage monitor muting in some studios. To avoid this, phantom power may be turned on by adding some assembly language code in Command Builder or Command Library. The command is documented in Appendix D, however we strongly recommend that only **Logitek Support** add this to your system as assembly language programming is meant for advanced users only.

**JSM-AIN:** 4 stereo/8 mono Analog Input card. Assign an IO24A in AEConfig to the slot where this is installed and only assign the first 8 input pins in the software to inputs. Do not assign any outputs in the software to this slot. The green LED will light when audio is present on the left and yellow LED will light when audio is present on the right.

**JSM-DIN:** 4 or 8 (depending upon RJ or DB card type) AES/SPDIF Digital Input card. Assign an IO8D in AE Config to the slot where this is installed and assign the matching input pins in the software to inputs. Do not assign any outputs to this card. [Note: A stereo source connected to an input should be set to 2 channels with the L/R pins. A mono source connected to an input should be set to 1 channel with the appropriate L/R pin.]

Examples: A stereo CD player connected to input 1 should be set as 2 channels, 1L & 1R; if connected to input 2, set it to 2 channels, 2L & 2R; if connected to input 3, set it to 2 channels, 3L & 3R; if connected to input 4, set it to 2 channels, 4L & 4R. If you have a phone hybrid that puts out 2 discrete mono outputs on the same AES wire, then create 2 inputs, each set to one channel. The first input would be set as 1L and the second input would be set to 1R if it were plugged into the first jack.]

### Notes pertaining to all input cards:

1. As with the AE-32, to have a group of microphones mute when on, set Monitor Muting to Yes and select the bus that should be muted when the mics are on (most commonly Monitor In) from the drop-down menu. Up to three mute tallies may be set to latch on while the monitors are muted by entering in the appropriate GPI output number in the Mute Tally 1/2/3 box. AE Config will write the mute tally command based on the last microphone it finds in the mute group, so make sure you enter the same tally numbers for all microphones in the group for best results.
2. Multiple inputs can be created using the same input pins. This way, the same audio would appear yet different GPI, muting, or mix minus bus information may be entered in for the different inputs. Make sure that the unique names are different for each input in order for Command Builder to tell them apart and that the surface labels are different so your operators can tell them apart.
3. The JetStream supports 12 GPI inputs and 16 GPI outputs on the back of the unit. To assign a GPI input or Output, enter the GPI number into the appropriate box in AE Config's Input Settings Editor. You have the following choices:

#### GPI INPUT

Audio On – when the specified GPI input turns on, the fader for this source will turn on.

Audio Off – when the specified GPI input turns on, the fader for this source will turn off.

Cue – when the specified GPI input turns on, the fader for this source will be put into cue.

#### GPI OUTPUT

Audio Start – when the fader for this source turns on, the specified GPI output will be pulsed.

Audio Stop – when the fader for this source turns off, the specified GPI output will be pulsed.

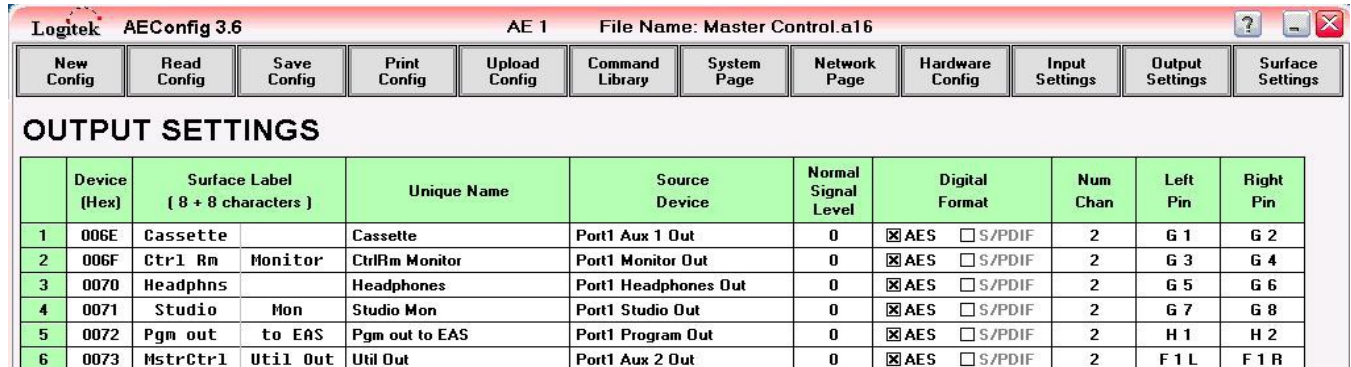
Audio Tally – when the fader for this source turns on, the specified GPI output will latch on and remain on until the fader turns off.

In addition, GPI connections are available on the control surfaces. When entering the number for a GPI connected on the back of the JetStream, enter the number only. (GPI 1 = 1, GPI 2 = 2, etc.) When entering the number for a GPI connected to surface 1, add 100. (Surface 1 GPI 1 = 101, Surface 1 GPI 2 = 102, etc.) When entering the number for a GPI connected to surface 2, add 200. (Surface 2 GPI 1 = 201, Surface 2 GPI 2 = 202, etc.)

4. The Normal Input Level box in AE Config is only recognized by JetStreams with DSP v1.34 and higher. This is the only way to adjust levels for digital inputs. In addition, analog cards have trim-pot adjustable gains. Using the trimpots provides better noise and headroom performance for analog inputs.

5. Mix minus busses are assigned as in the AE-32. See the AE Config manual for a full discussion of Mix Minus

**JSM-AOUT:** 8 mono/4 stereo Analog Output card. Assign an IO24A to the slot where this is plugged in and use the first 8 channels in the software. Do not assign any inputs to this slot. The green and yellow LEDs will light when audio is present on the left and right channels, respectively.



	Device (Hex)	Surface Label ( 8 + 8 characters )	Unique Name	Source Device	Normal Signal Level	Digital Format	Num Chan	Left Pin	Right Pin
1	006E	Cassette	Cassette	Port1 Aux 1 Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 1	G 2
2	006F	Ctrl Rm Monitor	CtrlRm Monitor	Port1 Monitor Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 3	G 4
3	0070	Headphns	Headphones	Port1 Headphones Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 5	G 6
4	0071	Studio Mon	Studio Mon	Port1 Studio Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 7	G 8
5	0072	Pgm out to EAS	Pgm out to EAS	Port1 Program Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	H 1	H 2
6	0073	HstrCtrl Util Out	Util Out	Port1 Aux 2 Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	F 1 L	F 1 R

**JSM-DOUT:** 4 or 8 AES/SPDIF Digital Output card (depending upon RJ or DB connector). Assign an IO8D to the slot where this is plugged in and use the matching pins in the software. For stereo sources, assign 2 channels and set them to L+R. For mono sources, assign one channel and choose the appropriate L/R side. Do not assign any inputs to this card.

### Notes pertaining to all output cards:

1. The Normal Output Level box in AE Config is only recognized by DSP v1.34 and higher. This is the only way to adjust levels for digital outputs. In addition, analog cards have trimpot adjustable gains. Using the trimpots provides better noise and headroom performance for analog outputs.
2. When connecting an output to a consumer (S/PDIF) device, change the format box from AES to S/PDIF. This suppresses some bits used by AES that consumer devices do not support. Most consumer grade CD, DAT and minidisk machines will not record unless the S/PDIF format is selected.
3. Output pins may not be duplicated for the I/O cards. Duplicate output pins are allowed only for creating network outputs, which will be discussed later in this document. Please take care to not duplicate your pins when setting up the I/O cards.
4. As with the AE-32, output routing is done on the surface settings page on the yellow Output Selections tab. This process is outlined on the following page.

Logitek AECConfig 3.6 AE 1 File Name: Master Control.a16

New Config Read Config Save Config Print Config Upload Config Command Library System Page Network Page Hardware Config Input Settings Output Settings Surface Settings

### SURFACE SETTINGS

Port 1 - Mosaic 18 0 ticks Surface1 Port 2 0 ticks Port 3 0 ticks Output Selections 8 ticks

RED = Local & Network Sources  
GREEN = DSP Sources  
Blue = RouteXY Allowed Destinations

Surface Label	Unique Name	Cassette	CtrlRm Monitor	Headphones	Studio Mon	Pgm out to EAS	Util Out	Pgm to net	Mackie to net
Prod Line 3	Prod Line 3								
Robo	Robo								
Program Port 1	Port1 Program Out					I		I	
Aux 1 Port 1	Port1 Aux 1 Out	I							
Aux 2 Port 1	Port1 Aux 2 Out						I		
Aux 3 Port 1	Port1 Aux 3 Out								
Studio Port 1	Port1 Studio Out				I				
Monitor Port 1	Port1 Monitor Out		I						
Phones Port 1	Port1 Headphones Out			I					
TalkBk 1 Port 1	Port1 Talkback 1 Out								
TalkBk 2 Port 1	Port1 Talkback 2 Out								
MM 1 Port 1	Port1 Mix Minus 1								
MM 2 Port 1	Port1 Mix Minus 2								
MM 3 Port 1	Port1 Mix Minus 3								
Pgm Mono Port 1	Port1 Mono Program								
Aux1Mono Port 1	Port1 Mono Aux 1								
Cue Port 1	Port1 Cue Out								
PhonesPF Port 1	Port1 Phones PF Out								
Mixer A Port 1	Port1 Mixer A Out								
Route 1 Port 1	Port1 Router 1 Out								

The columns in the grid represent the outputs; the pink rows represent inputs, green rows represent DSP outputs. Right click to create an I (Initial Route) mark in the column to connect the desired DSP or input signal to the output.

The blue section below the green DSP outputs is used for filtering on the Route X-Y and is not part of the output selection process. Refer to the Utility Panels manual to learn more about the Route X-Y.

When you have successfully routed an input or DSP source to an output, you will see it listed under Source Devices on the Output Settings page.

Logitek AECConfig 3.6 AE 1 File Name: Master Control.a16

New Config Read Config Save Config Print Config Upload Config Command Library System Page Network Page Hardware Config Input Settings Output Settings Surface Settings

### OUTPUT SETTINGS

	Device (Hex)	Surface Label ( 8 + 8 characters )	Unique Name	Source Device	Normal Signal Level	Digital Format	Num Chan	Left Pin	Right Pin
1	006E	Cassette	Cassette	Port1 Aux 1 Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 1	G 2
2	006F	Ctrl Rm	CtrlRm Monitor	Port1 Monitor Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 3	G 4
3	0070	Headphns	Headphones	Port1 Headphones Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 5	G 6
4	0071	Studio Mon	Studio Mon	Port1 Studio Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 7	G 8
5	0072	Pgm out to EAS	Pgm out to EAS	Port1 Program Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	H 1	H 2
6	0073	MstrCtrl Util Out	Util Out	Port1 Aux 2 Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	F 1 L	F 1 R

## Important note on slots G & H

If slots G&H have cards installed, they must both be inputs or both be outputs. If the directions are mixed, the output card will not function.

## Independent Bus Switching, Pre-Fader Aux Bus, Mix Minus Setup

Independent Bus Switching, Pre-Fader Aux busses, and Mix Minus busses are set up exactly the same way as in 3.x Audio Engines. See page 28 of the AE Config Reference Manual (Rev. 3.6) for an explanation of these features and how to enable them on the System Page.

As with the Audio Engine, to tell the JetStream to remove a certain input from a mix minus bus, enter the mix minus bus number in the Input Settings Editor. (In other words, the JetStream won't know to mix out the phone from mix minus 1 until you go to the phone input and put a 1 in the Mix Minus Bus box.)

## Surface Settings

In order for a source to appear on a console's fader, it must be assigned in Surface Settings. See page 45 of the AEConfig v3.6 Reference Manual.

## JetNet JetStream Networking

Before we begin with AE Config, let's review how the network cards have been set up prior to shipping.

NET 1 is the primary audio network. It is set up with a static IP address of 192.168.87.xxx, where xxx represents the unit's serial number.

NET 2 is most often used for connection to the facility's administrative LAN. It is set up to receive an IP address automatically via DHCP.

When it's time to plug in the JetStreams, all of the NET 1 cables will go into the same switch or VLAN for the audio network. (Also, two JetStreams may be connected back to back as an audio snake. The network cards are auto-sensing, so a crossover cable is not required when setting up a snake.)

## Streaming Audio – The Executive Summary

Networked audio is sent out as multicast IP streams. Each stream is assigned a different IP address automatically by the JetStream. The JetStreams on the audio network communicate to each other so each JetStream becomes aware of what sources are available.

In addition, JetStreams can send and receive audio to other Audio over IP devices that follow standard RTP over UDP protocols. However, because those other devices are not JetStreams, they cannot announce their presence to a JetStream (nor can the JetStream announce its presence to a non-Logitek box, therefore a common table is kept for the JetStreams to send and receive audio to non-Logitek AoIP devices.

## Overview

The first step in setting up a JetStream MINI for JetNet Networking is to configure all of the local inputs and outputs in AEConfig and assigning the appropriate Surface Settings checkmarks.

The second step is to create network outputs, either for individual sources that you wish to share with other devices or for mix busses (Program, Aux 1, Aux 2, Mix Minus 1, etc.) that you wish to share with other devices. When uploading this initial configuration to each JetStream, do a Full Reset at the end of the upload.

The third step is to connect the JetStreams on the network and let them discover each other's network outputs. The JetStream Server application, which runs on each embedded PC, caches a list of these sources as well as the local sources that you uploaded with AE Config.

In JetStream Server, under the JetStream State tab is another tab labeled Surface Settings. This tab will show a similar grid to the Surface Settings in AEConfig, and it will show the checkmarks and I markers that were uploaded from AEConfig. As the JetStream discovers the network sources from other devices, they will be added as rows in the grid. Then, add check and/or I markers as desired to assign those network sources to the surface; they will then be available for the surface to route and control.

JetStream Server will keep these network source names and checkmarks in its cache and store it to a local file. The JetStream will keep this cache, even though power cycles, until a Full Reset is performed. After the Full Reset, the cache-building process begins again and the network sources will need to be added to the Surface Settings again.

Non-Logitek AoIP devices are kept in a text file called `JSM_Net_Def.txt`. This file is placed in `D:\Logitek` of each JetStream and should be identical on all machines.



## Assigning an Output to the Network

In AE Config, create a new output. Assign it the appropriate number of channels (1 for mono, 2 for stereo). Give it a Unique Name and surface label. For example, let's put program out on the network for another studio to listen to:

First Line	Previous Line	Next Line	Last Line
<p>Line <input type="text" value="7"/></p> <p>Unique Name <input type="text" value="Pgm to net"/></p> <p>Surface Label <input type="text" value="Pgm to"/> <input type="text" value="net"/></p> <p>Number of Channels <input type="text" value="2"/></p>			

The **Unique Name** and **Surface Label** will be transmitted to all other JetStreams on the network. The Surface Label will appear on the control surface (console) and the Unique Name will appear in the *JetStream Server* software where you are assigning the sources to the faders and destinations. The Unique Name is a good place to put studio names (ie "Studio 1 Mic 1" whereas on the console

**OUTPUT PIN CONNECTIONS** Drag and Drop As Required

	Surface Label ( 8 + 8 characters )		Unique Name	Pin Number	
				Left	Right
7	Pgm to	net	Pgm to net	G 9	G 10

**Output Pins Available**

Slot A IO24A	Slot B IO24A	Slot C IO24A	Slot D IO8D	Slot E IO8D	Slot F IO8D	Slot G IO24A	Slot H IO24A
A 1	B 1	C 1	D 1 L	E 1 L	F 1 L	G 1	H 1
A 2	B 2	C 2	D 1 R	E 1 R	F 1 R	G 2	H 2
A 3	B 3	C 3	D 2 L	E 2 L	F 2 L	G 3	H 3
A 4	B 4	C 4	D 2 R	E 2 R	F 2 R	G 4	H 4
A 5	B 5	C 5	D 3 L	E 3 L	F 3 L	G 5	H 5
A 6	B 6	C 6	D 3 R	E 3 R	F 3 R	G 6	H 6
A 7	B 7	C 7	D 4 L	E 4 L	F 4 L	G 7	H 7
A 8	B 8	C 8	D 4 R	E 4 R	F 4 R	G 8	H 8
A 9	B 9	C 9	D 5 L	E 5 L	F 5 L	G 9	H 9
A 10	B 10	C 10	D 5 R	E 5 R	F 5 R	G 10	H 10
A 11	B 11	C 11	D 6 L	E 6 L	F 6 L	G 11	H 11
A 12	B 12	C 12	D 6 R	E 6 R	F 6 R	G 12	H 12

itself you may only want to call it "Mic 1." The Unique Name should be unique throughout the entire system. It is acceptable to have identical surface labels so long as they don't both appear on the same control surface.

In our example, "Pgm to net" will appear on the other JetStreams. In your environment, you would probably want to have your call letters or studio name there: "Studio A Program" "KUHF Program" or "WKDF Aux 1."

In *Number of Channels*, put 1 for mono and 2 for stereo.

Now, to assign the pins. The JetStream will look for any output that is assigned a pin with an invalid number and know that it is destined for the network. So, if outputs 1-8 are valid for an analog output card, assign this to outputs 9 and 10.

Logitek handles mono AoIP differently than other vendors. Some companies do not have a special mono packet type and transmit mono sources as left channel only with the right channel silent; their consoles know to then take left channel only. If you are integrating JetNet into an existing Livewire installation, set up mono network outputs as stereo and assign the left side to both channels in order for everything to match on their consoles as with ours. In this example, a mono network output would be assigned to a stereo pair as G9/G9. A stereo network output would go to G9/G10.

Assign all subsequent network outputs to the same pins. AEConfig 3.6 from 31 December 2009 and later will allow you to repeat output pins. (Just take care to not repeat output pins to a physical output; use this feature only for the “virtual” network outputs.

To send an input source to the network, create a network output and route the input to that output on Surface Settings/Output Selections, just as you would if you were routing an input to a physical output.

When you’re done, your output settings page will look like this:

	Device (Hex)	Surface Label ( 8 + 8 characters )		Unique Name	Source Device	Normal Signal Level	Digital Format	Num Chan	Left Pin	Right Pin
1	006E	Cassette		Cassette	Port1 Aux 1 Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 1	G 2
2	006F	Ctrl Rm	Monitor	CtrlRm Monitor	Port1 Monitor Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 3	G 4
3	0070	Headphns		Headphones	Port1 Headphones Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 5	G 6
4	0071	Studio	Mon	Studio Mon	Port1 Studio Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 7	G 8
5	0072	Pgm out	to EAS	Pgm out to EAS	Port1 Program Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	H 1	H 2
6	0073	MstrCtrl	Util Out	Util Out	Port1 Aux 2 Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	F 1 L	F 1 R
7	0074	Pgm to	net	Pgm to net	Port1 Program Out	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 9	G 10
8	0075	Mackie	to net	Mackie to net	Mackie	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 9	G 10
9	0076	Air Mon	to net	Air Monitor to net	Air Monitor	0	<input checked="" type="checkbox"/> AES <input type="checkbox"/> S/PDIF	2	G 9	G 10

## Defining Non-Logitek Network Sources

A small text file is kept in `D:\Logitek` named `JSM_Net_Def.txt`. Multicast information about AoIP sources from non-Logitek JetNet partners is placed in this file in order for JetStream Server to know it is available on the network.

Either spaces or tabs may be used as delimiters in the file. Text following two forward slashes `//` will be treated as a comment and ignored.

The following information is kept in the file:

**Stream Name:** Two sets of 8 character fields. This is the 16 character surface label that will be sent to the console. Text should be enclosed in quotes. If a blank field is desired, put a space between quote marks.

**Destination IP:** Enter the multicast address of the stream coming from the Non-Logitek device.

**Host Name:** One 14 character field. Computer Name used in some IGMP implementations. The host need not be specified; if you do not want to list the host you must enter a space between quotation marks.

**Host IP:** Used in some IGMP implementations. If not needed, enter 0.0.0.0.

**Net 1:** Y or N. For most JetNet installations, this will be Y, as audio is transmitted on this LAN.

**Net 2:** Y or N. For most JetNet installations, this will be N, as we will not transmit audio on this LAN.

A sample `JSM_Net_Def.txt` follows:

```
// JetStream Manual Channel Guide File
//
//   Stream Name           Destination IP   Host Name   Host IP   Net 1   Net 2
//   16-char 2x8           0.0.0.0       14-char    0.0.0.0   Y / N   Y / N
//-----
//  "12345678""12345678" 239.193.1.1  "12345689901234" 0.0.0.0   Y       N
//
//  "Phone""1"           239.192.0.1   " "        0.0.0.0   Y       N
//  "SS-32""A"           239.192.0.2   "LiveIO"   0.0.0.0   Y       N
//  "A-Serv 1""Out 1"    239.192.8.32  "RCS1"     0.0.0.0   Y       N
//  "A-Serv 1""Out 2"    239.192.8.33  " "        0.0.0.0   Y       N
```

## Appendix B Specifications

### General

Card slots: 1 Audio processor, 1 Network processor, 1 GPIO, 8 Audio I/O  
Local audio I/O: 64 channels max (mono RJ-45) on 8 I/O cards  
112 channels max (mono DB-25) on 8 I/O cards  
Power: 95 - 120 volt or 220-240 volt, 47-63 Hz single phase (25 watts maximum)  
Backup power: Connection for external backup PSU  
Start up time: 3 sec to local audio, 120 sec to networked audio  
Cooling: Convection only, requires 1RU empty space above unit  
Environmental: 10°C – 38°C, 10 – 90% RH (non-condensing)  
Dimensions Actual - 19" w x 11.5" d x 3.5" h (2RU) (48.2 cm w x 29.2 cm d x 8.9 cm h)  
Weight fully loaded - 10 lbs.

### Audio Processor Card

DSP: 32 bit floating point processing  
Mixing: 36 channels (stereo) shared between 1 to 4 consoles  
EQ & Dynamics: 24 channels allocated to either inputs or outputs  
Profanity delay: 2x delays, 9 sec stereo each  
Mix-Minus outputs: 24 channels mono, may be combined for stereo  
0 VU Reference Level: -20 or -18 dBFs  
Factory default reference: 0VU = +4 dBu = -20 dBFs (+20 VU = +24 dBu = 0 dBFs)  
Internal sampling rate: User selectable 32K, 44.1K, or 48K (Sample/Sec)  
External sync input: AES3-1992 or word\_clock, 44.1k or 48K (Sample/Sec)  
Console connections: 4 serial ports with activity indicators

### GPIO Card

Inputs: 12 channels  
Input level: +3.3 volts, ground to activate, reverse voltage and over voltage protected  
Outputs: 16 channels  
Outputs format: optical isolated relay, non-polarized (50 volt, 500 milliamp max load)  
Functionality: assigned in setup program

### Microphone Input Cards

Number of Channels: 4 microphones (RJ) or 8 microphones (DB)  
Connectors: 4 StudioHub format RJ-45 sockets with audio presence & phantom power indicators  
or 1 DB-25 with audio presence indicators  
Phantom power: +48 volts switched via software  
Normal input level: -65 to -30 dBu, rear panel trim-pot adjustable  
Input impedance: 4k ohms balanced  
Common mode rejection ratio: -90 dB (1 kHz)  
THD+N: .01% (-35 dBu input, +4 dBu output, 20 Hz to 20 kHz)  
Frequency response: +/- .2 dB (20 Hz to 20 kHz)  
Equivalent input Noise: < -124 dB (-60 dBu input, +4 dBu output, 20 Hz to 20 kHz)  
Conversion resolution: 24 bits

## Analog Input Card

Number of Channels: 8 mono inputs, may be combined for stereo  
Connectors: 4 StudioHub format RJ-45 sockets with audio presence indicators  
or 1 DB-25 with audio presence indicators  
Signal format: Balanced or unbalanced  
Maximum input level: +24 dBu  
Normal input level: -20 to +8 dBu, rear panel trim-pot adjustable  
Factory preset level: +4 dBu, +20 dB headroom  
Input impedance: 50k ohms balanced or 25k ohms unbalanced  
Common mode rejection ratio: -90 dB @ 1 kHz  
THD+N: < .01% (0 dBu input, +4 dBu output, 20 Hz to 20 kHz)  
THD+N: < .008% (+4 dBu input, -20 dBFs output, 20 Hz to 20 kHz)  
Frequency response: +/- .2 dB (20 Hz to 20 kHz)  
Signal to Noise Ratio: > 80 dB (+4 dBu input, +4 dBu output, 20 Hz to 20 kHz)  
Conversion resolution: 24 bits

## Analog Output Card

Number of Channels: 8 mono outputs, may be combined for stereo  
Connector: 4 StudioHub format RJ-45 sockets with audio presence indicators  
or 1 DB-25 with audio presence indicators  
Signal format: Balanced or unbalanced  
Maximum output level: +24 dBu into 600 Ohms  
Normal output level: -20 to +8 dBu, rear panel trim-pot adjustable  
Factory preset level: +4 dBu, +20 dB headroom  
Output impedance: 60 Ohms  
THD+N: < .01% (+0 dBu input, +4 dBu output, 20 Hz to 20 kHz)  
THD+N: < .008% (-20 dBFs input, +4 dBu output, 20 Hz to 20 kHz)  
Frequency response: +/- .2 dB (20 Hz to 20 kHz)  
Signal to Noise Ratio: > 80 dB (+4 dBu input, +4 dBu output, 20 Hz to 20 kHz)  
Conversion resolution: 24 bits  
Stereo Separation: > 80 dB (+23 dBu input, +23 dBu output, 20 Hz to 20 kHz)  
Inter-Channel Crosstalk: > 90 dB (+23 dBu input, +23 dBu output, 20 Hz to 20 kHz)

## Digital Input Card

Number of channels: 4 inputs (RJ) or 8 inputs (DB) (stereo input may be split into 2 mono)  
Connector: 4 StudioHub format RJ-45 sockets with audio presence & sync indicators  
or 1 DB-25 with audio presence indicators  
Digital format: AES3-1992 or S/PDIF  
Rate conversion: All inputs, 24 bit resolution, 24kHz to 96kHz, switchable in or out  
Input sample rate: same as audio processor card when rate conversion turned off  
Precision: up to 24 bits  
Input impedance: 110 ohms, transformer balanced and isolated  
THD+N: < .004% (-20 dBFs input, -20 dBFs output, 20 Hz to 20 kHz)  
Frequency response: +/- .1 dB (20 Hz to 20 kHz)  
Dynamic range: 140 dB  
Subcode detection: validity bit, audio/no audio bit

## Digital Output Card

Number of channels: 4 outputs (RJ) or 8 outputs (DB) (2 mono may be combined into 1 output)

Connector: 4 StudioHub format RJ-45 sockets with audio presence indicators  
or 1 DB-25 with audio presence indicators

Digital format: AES3-1992 or S/PDIF, user switchable

Sample rate: same as audio processor card

AES output compliance: 24 bits

Output impedance: 110 ohms, transformer balanced and isolated

THD+N: < .004% (-20 dBFs input, -20 dBFs output, 20 Hz to 20 kHz)

Frequency response +/- .1 dB (20 Hz to 20 kHz)

Dynamic range 140 dB

Subcode generation: copyright not asserted when in SPDIF mode

## Network & Video Processor Card

Embedded processor: 1.6 GHz, 1Meg DDR2

OS: XP embedded

Video: VGA, 1280 x 1024 resolution

Video application: vScreen user configurable meter bridge replacement GUI

USB: 2 ports for pointing devices or memory sticks

Ethernet: 2 wired Gigabit ports

Simultaneous audio streams: 64 per JetStream

System size: 2000 streams total

Network delay: 1 mSec max

Fault tolerance: dual redundant networks when using two network switches

Snake Mode: up to 3 JetStream units can be directly connected without a switch

Streaming protocols: RTP, multicast and unicast

Network sync: user settable address & port, packet rate 1 Hz to 3 KHz

Sync rate is independent of audio sample rate

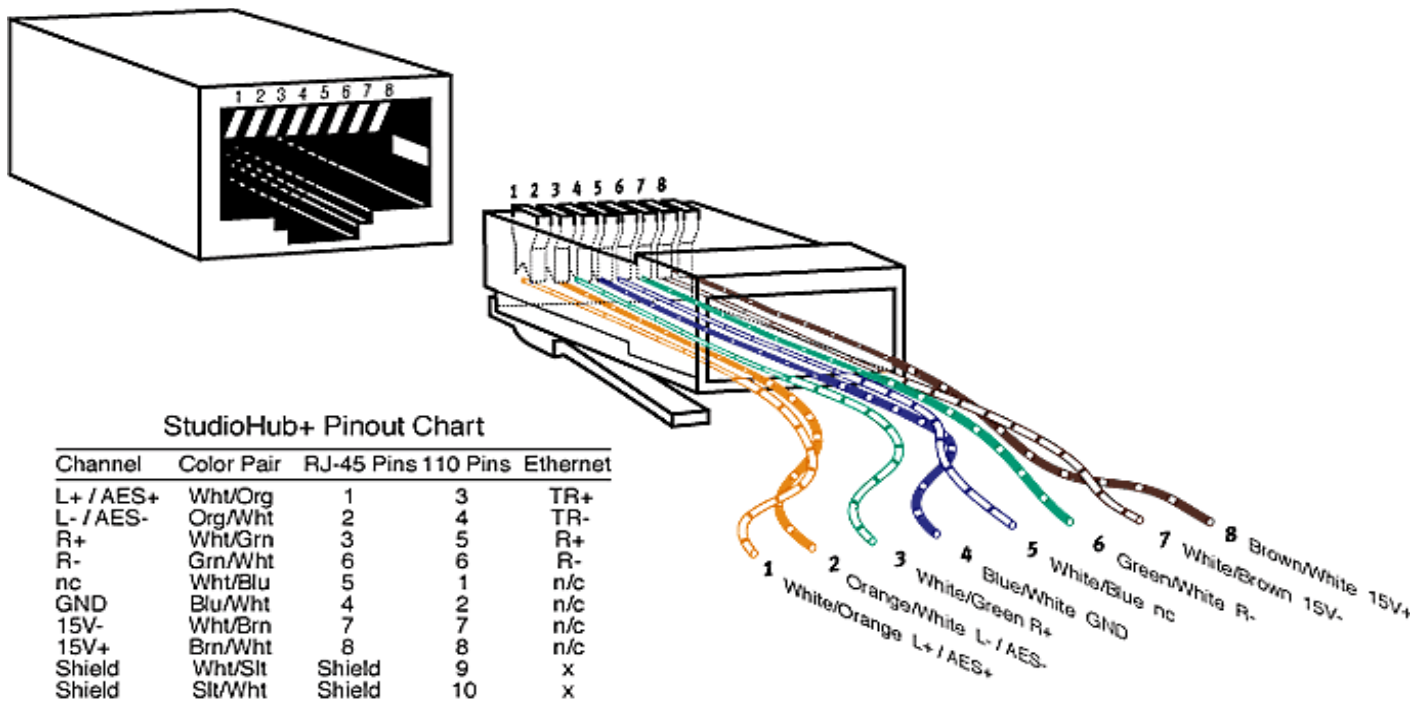
Network can be locked to house sync input via a single JetStream


Automatic system master selection, automatic failover

**\*\* Specifications are subject to change \*\***

# Appendix C Pinout Data

## Audio I/O with RJ-45 Connectors



 **TIP:** The StudioHub+ standard calls for all connections being electronically balanced.

 **TIP:** Pre-wired CAT-5 cables may swap the orange and green pairs.

## Audio I/O with DB Connectors

DB25M plugs are required.

### Audio Inputs/Outputs

Pin	Connection	Pin	Connection
1	I/O 1 +	14	I/O 2 +
2	I/O 1 -	15	I/O 2 -
3	Ground	16	Ground
4	I/O 3 +	17	I/O 4 +
5	I/O 3 -	18	I/O 4 -
6	Ground	19	Ground
7	I/O 5 +	20	I/O 6 +
8	I/O 5 -	21	I/O 6 -
9	Ground	22	Ground
10	I/O 7 +	23	I/O 8 +
11	I/O 7 -	24	I/O 8 -
12	Ground	25	Ground
13	No connect		

**TIP:** If using unbalanced input connections, jumper the negative pins to ground. For unbalanced output connections, leave the negative pins unconnected.



## GPIO

There are four DB-15 connectors, with 3 GPI inputs and 4 GPI outputs each. The contacts of the internal electronic relays are rated at 50 volts DC maximum and 500 milliamps maximum. Higher voltages should be connected to larger external relays.

### DB-15 Connector 1 (top)

Pin	Connection	Pin	Connection
1	IN 1-A (+)	9	IN 1-B (gnd)
2	IN 2-A (+)	10	IN 2-B (gnd)
3	IN 3-A (+)	11	IN 3-B (gnd)
4	Out 1 A	12	Out 1 B
5	Out 2 A	13	Out 2 B
6	Out 3 A	14	Out 3 B
7	Out 4 A	15	Out 4 B

### DB-15 Connector 2 (upper middle)

Pin	Connection	Pin	Connection
1	IN 4-A (+)	9	IN 4-B (gnd)
2	IN 5-A (+)	10	IN 5-B (gnd)
3	IN 6-A (+)	11	IN 6-B (gnd)
4	Out 5 A	12	Out 5 B
5	Out 6 A	13	Out 6 B
6	Out 7 A	14	Out 7 B
7	Out 8 A	15	Out 8 B

### DB-15 Connector 3 (lower middle)

Pin	Connection	Pin	Connection
1	IN 7-A (+)	9	IN 7-B (gnd)
2	IN 8-A (+)	10	IN 8-B (gnd)
3	IN 10-A (+)	11	IN 10-B (gnd)
4	Out 9 A	12	Out 9 B
5	Out 10 A	13	Out 10 B
6	Out 11 A	14	Out 11 B
7	Out 12 A	15	Out 12 B


### DB-15 Connector 4 (bottom)

Pin	Connection	Pin	Connection
1	IN 10-A (+)	9	IN 10-B (gnd)
2	IN 11-A (+)	10	IN 11-B (gnd)
3	IN 12-A (+)	11	IN 12-B (gnd)
4	Out 13 A	12	Out 13 B
5	Out 14 A	13	Out 14 B
6	Out 15 A	14	Out 15 B
7	Out 16 A	15	Out 16 B

## JSM-DSP (Surface)

### Port 1 to 4 – RJ45

Pin	Cable Color	Connection
1	White/Orange	Cue -
2	Orange	Cue +
3	White/Green	RS-485 Tx -
4	Blue	RS-485 Rx -
5	White/Blue	RS-485 Rx +
6	Green	RS-485 Tx +
7	White/Brown	No connect
8	Brown	Ground

 **TIP:** Pre-wired CAT-5 cables may swap the orange and green pairs.

## Control Surfaces & Utility Panels

Pinouts for **Logitek Control Surfaces** are also included below. For further information see the relevant manual for the **Surface** you are connecting.

### Artisan/Mosaic Surface RS-485 – RJ45


Pin	Connection
1	Cue -
2	Cue +
3	RS-485 Rx -
4	RS-485 Tx -
5	RS-485 Tx +
6	RS-485 Rx +
7	No connect
8	Ground

 **TIP:** Pre-wired CAT-5 cables will match the JetStream pin for pin.

### Remora Surface/BTN-12/RTE-3/RTE-XY/GST-20 Panel RS-485 – DB9

Pin	Connection
1	Cue +
2	RS-485 Tx +
3	RS-485 Rx +
4	No connect
5	Ground
6	Cue -
7	RS-485 Tx -
8	RS-485 Rx -
9	No connect

 **TIP:** There is no cue audio available on a RTE-3, RTE-XY, or GST-20, so pins 1 and 6 may be omitted on those panels.

 **TIP:** Using a pre-wired CAT-5 cable and a RJ-45 to DB 9 adapter is a fast way to wire these surfaces and panels.

## RJ-45 to DB-9 Adaptor Color Codes

Pin	Color
1	Orange
2	Yellow
3	Green
4	(no connect)
5	White
6	Blue
7	Black
8	Red
9	Brown



## Appendix D Microphone Phantom Power

Phantom Power on the JSM-MIC-DB or JSM-MIC-RJ cards may be enabled by selecting Cue @ Infinity in AEConfig. However, the Cue @ Infinity function remains active, so when the fader is brought down to zero (infinity mark) the channel will engage cue. If microphone muting is enabled for Monitor In, engaging cue will mute the control room monitors.

To avoid this situation, we need to send the same command to the MIC IN card that enabling Cue @ Infinity does without checking the box. This is accomplished using an ASM assembly language command in Command Builder.

Assembly language programming is an advanced function best performed by Logitek Support personnel. Please contact Support and have them implement this feature for you.

For the JSM-MIC-RJ card:

```
cmd ae1 asm "02 09 86 a1 cs 00 04 86 02 00 mi"
```

For the JSM-MIC-DB card:

```
cmd ae1 asm "02 0A 86 a1 cs 00 05 86 02 00 00 mi"
```

where **CS** = Card Slot and **MI** = Mic ID

Card Slot is defined as follows:

- Slot A = 01
- Slot B = 02
- Slot C = 03
- Slot D = 04
- Slot E = 05
- Slot F = 06
- Slot G = 07
- Slot H = 08

Mic ID is defined as follows:

- All Off = 00
- Mic 1 = 01
- Mic 2 = 02
- Mic 3 = 04
- Mic 4 = 08
- Mic 5 = 10
- Mic 6 = 20
- Mic 7 = 40
- Mic 8 = 80
- All Mics = FF

Add hex numbers together to enable several microphones on the same card. (8 mics = FF)

This command is best placed in the init trigger, ensuring that the phantom power is turned on when the unit boots up. (`trigger init`)

## Two Year Limited Warranty

Logitek Electronic Systems, Inc. warrants its professional equipment (excluding Logitek Software, which is covered by a separate warranty) against defects in materials and workmanship for two years pursuant to the following terms and conditions. The warranty extends to the original purchaser only.

LOGITEK will repair or replace, at its option, at its factory without charge professional equipment if a defect in materials or workmanship develops during the first two years following purchase, when the equipment is returned to the factory or LOGITEK authorized service centers freight prepaid with a description of the nature of the failure. No reimbursements can be made for repair charges that are not factory authorized. After repair or replacement, LOGITEK will return the equipment to the purchaser freight prepaid.

In the event that any part of this professional equipment becomes defective during the first two years following purchase, and purchaser wishes to attempt repair, purchaser may obtain a replacement part by notifying LOGITEK of the part of the equipment which has failed. LOGITEK will thereafter ship a replacement part, freight prepaid. LOGITEK may require the purchaser to return the defective part to LOGITEK freight prepaid as a condition of such replacement, either before or after LOGITEK ships the replacement part. LOGITEK shall not be responsible for any other charges or liabilities associated with purchaser-made repairs.

No part or equipment shall be considered defective if it fails to operate due to exposure to extreme temperatures or excessive moisture in the atmosphere.

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