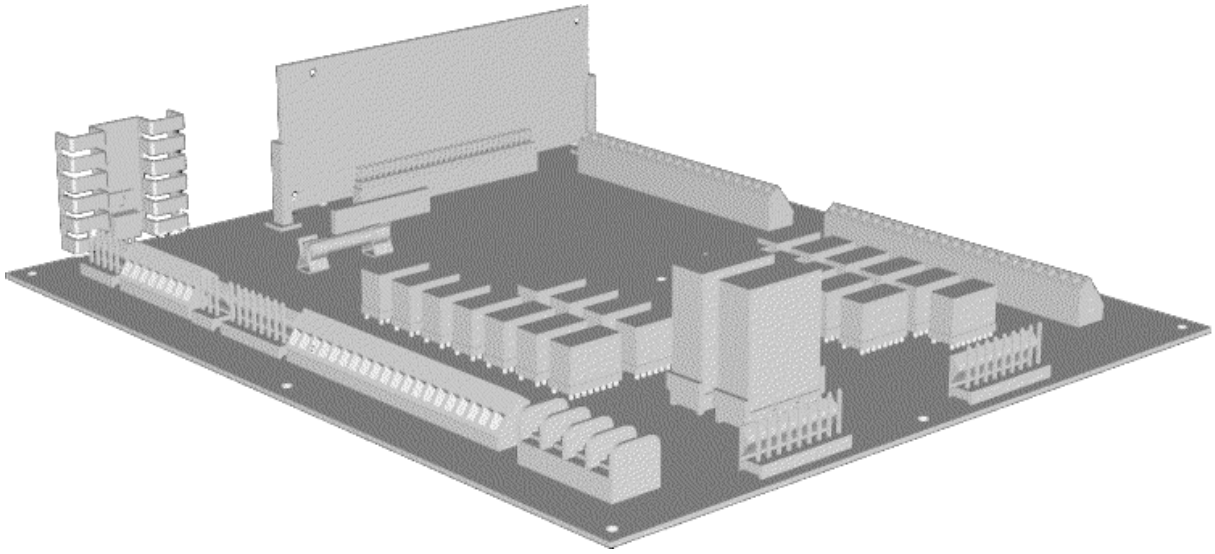
Film, House/Aux, and Combination Termination Panel User Manual

(39432-2, 39431, 39432-1, and 39434)



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EPRAD Inc.

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Section 1

Quick Start Guide

Whether you are installing a new system, or upgrading/repairing an existing installation, this section is intended to provide the user with the essential information to get up and running quickly. The quick start guide is for those who are familiar with the previous versions of Strong termination panels (39330, 39331, 39332, and 39334).

Overview of 394xx termination panel application

Strong's 39432-1, 39431, 39432-2, and 39434 termination panels have been designed to replace the 39330, 39331, 39332, and 39334. These units have new features that were designed for mixed Digital and Film formats. They function similar to the older style boards with few exceptions.

Old Part Number	*Upgrade Equivalent*
39330 (Console)	39432-2 (Film)
39331 (Booth)	39431 (House/Aux)
39332 (Combo)	39432-1 (Combo)
39334 (I/O CPU)	39434 (I/O CPU)

As can be seen in the table, each previous model of termination board has an equivalent. The 39434 I/O CPU card will function exactly the same in an older termination board as the 39334. The inverse is however not true, the 39334 I/O CPU card will not function in a newer termination board.

The new termination panels have also been designed with existing installations in mind, consequently they are physically similar (mounting, screw terminals, LIN/LSN connectors, and overrides) to their older counterparts. Changing over to an improved upgrade board has been made as easy as possible.

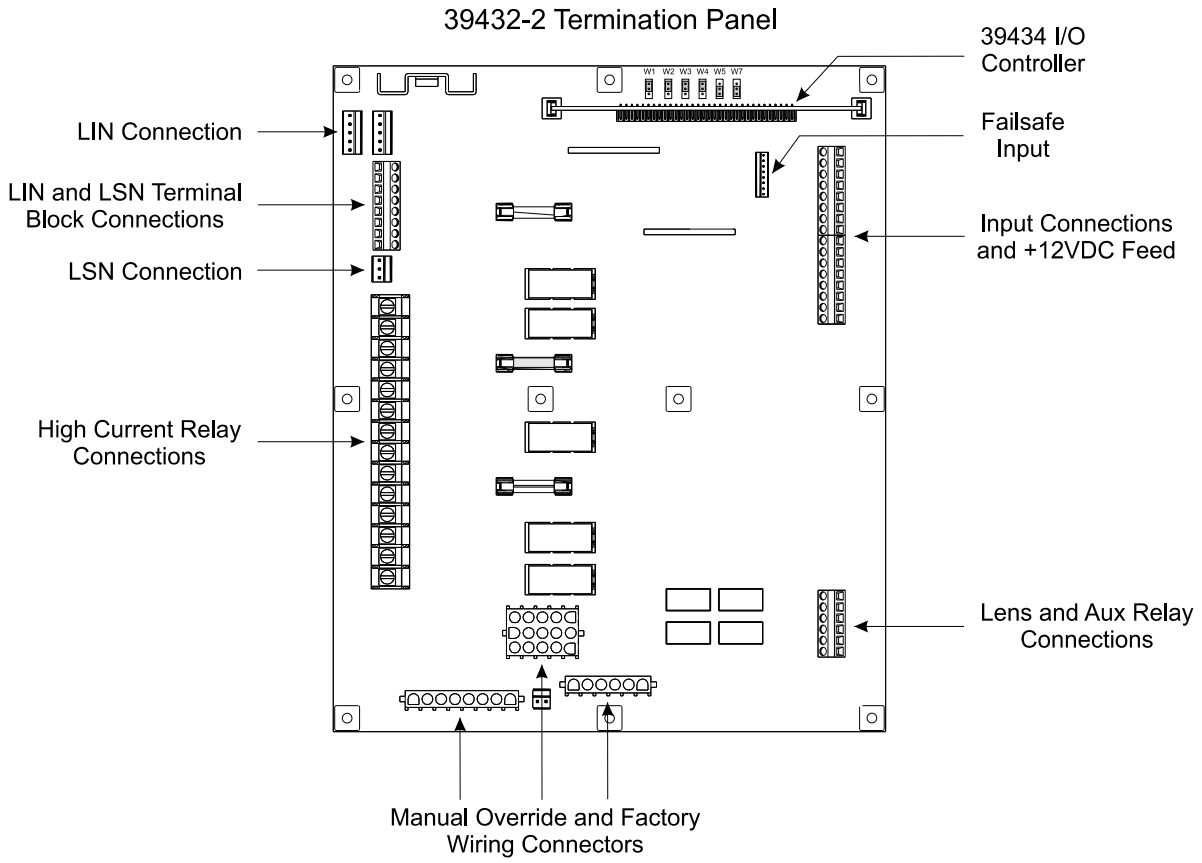
The 39432-2 Film Termination Panel

Refer to the illustration in this section for connector and terminal block locations. The 39432-2 has two onboard LED indicators, one for power (LED1) which shows that the voltage regulator is functioning properly and one for the +12Vdc source to the external inputs (LED2), this indicates that the fuse has not blown. Additionally each relay has an LED near its base that indicates when the coil is energized.

J2 and J3 are provided for optional plug-in modules currently under development. J3 can be used for the 39436 I/O expansion board. The 39434 I/O CPU board has a LIN status LED onboard that flashes rapidly in sync with the LIN status indicator on the eCNA mainboard. Please note that if you are using an older CNA or an eCNA-100, 150, or eCNA-200 with a version of firmware before v2.011, the jumper at the top of the termination panel labeled W4 must be in the 2-3 position. The W4 jumper configures the termination panel for Compatibility mode.

For systems using the eCNA-200, any outputs that have been eliminated can be re-assigned to the user defined "Aux" contacts previously mentioned or any other relay on the termination board. Simply wire

your old connections to the desired output on the termination board, make a note of it, and re-assign it at the eCNA. (See section on output re-assignment). All major changes have been listed below:



Console Termination to Film Termination Interchange:

- J1 at the top of the 39432-2 is for installing the 39434 I/O CPU board

- On the 39432-2, TB1 now features screw terminal contacts for an LSN connection. Previously these connections were made at the bottom right-hand corner of the board, they have been moved. There is a single screw terminal contact set and a header for a cable connection.

As was the case before, the LSN connection is not used by the termination board, headers and screw terminals are solely connection points added for your convenience during installation

- The LIN connections have changed, the headers formerly in the upper center of the board have been moved out to the upper left corner for easier access.

- TB2 has remained mostly unchanged except for the following areas. The terminals labeled “Feed” are now labeled as “Com”.

Please note that the terminal labeled “Com” is not an electrical “Neutral” connection or ground, it is intended to be a supply or feed connection for the relay contacts

- The terminal labeled “Xenon” is now called Xenon N.O., “Projector” is now known as Projector N.O., and Changeover close and open terminals are labeled Close N.O. and Open N.O.

- All Neutral lines have been consolidated for the Projector power section into position 12 labeled Neutral. Previously they were individualized for Projector, Changeover and Turret.

- The Framing lamp output has been replaced with Slide Projector N.O. and Com connections previously found on the right edge of the board.

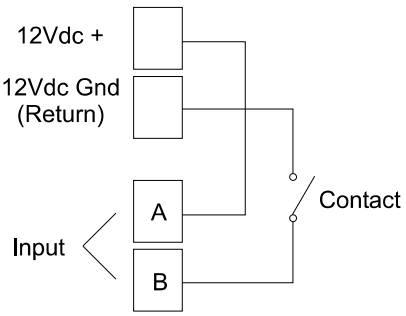
- P8 framing lamp header is provided and is connected directly to the P7 factory connector.

- TB3 is located on the right edge of the 39432-2 board. Position 1 is an input for Film Motion, position 2 is an input for Film Presence, Position 3 is an input for Film Cue, position 4 is an input for Xenon Fault, and position 5 is an input for Film Tension.

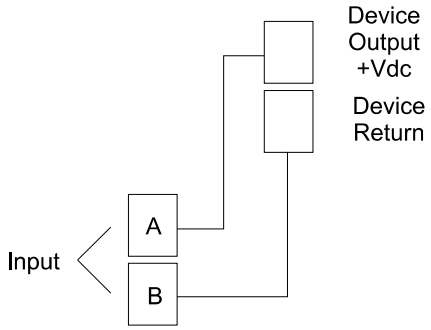
- Positions 7 thru 10 are for a fused 12Vdc voltage source used to feed external equipment's dry relay contacts in the event that your input device cannot supply the appropriate signal.

- Positions 11 and 12 are used for a Remote Start Input, positions 13 and 14 are used for a Remote Stop Input, and positions 15 and 16 are used for a Digital Cue Input. Each optically isolated input can be fed directly from an external device with a 5 to 24V AC or DC source or from the 12Vdc outputs.

Onboard Feed Configuration
(Senses Contact Closure)



External Input Feed Configuration
(Device drives input)



- Positions 41 thru 44 are outputs for Lens controls, they are Flat, Scope, Special, and Com. Positions 45 and 46 give an additional Aux output, this set of Normally Open relay contacts is user defined.

- P4 is included for connection to your failsafe, its function has remained unchanged and is the equivalent of the old P2.

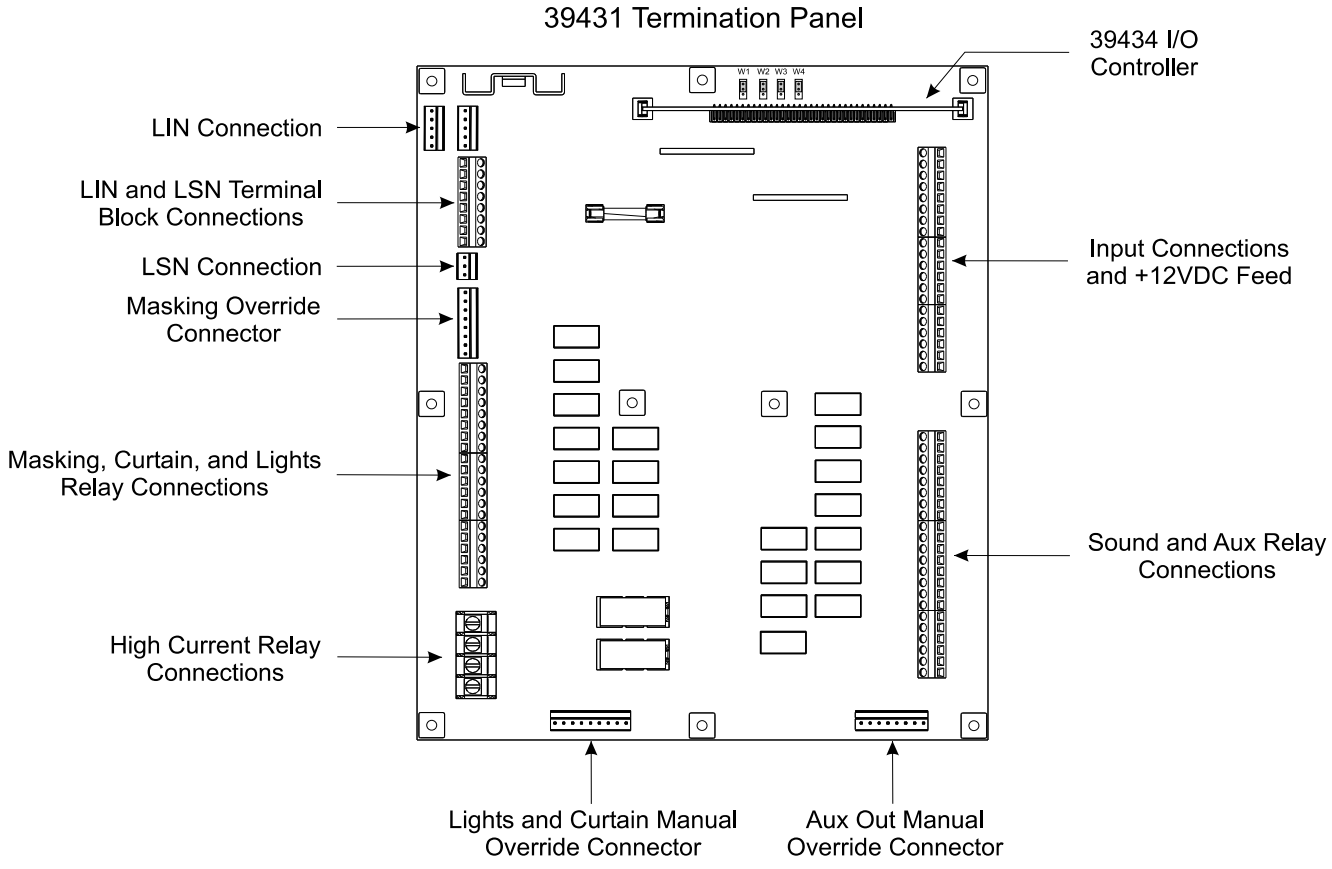
39432-2	
Output Name	Relay Name
Slide Proj. C	Slide Projector

The 39431 House/Aux Termination Panel

Refer to the illustration in this section for connector and terminal block locations. The 39431 has two onboard LED indicators, one for power (LED1) which shows that the voltage regulator is functioning properly and one for the +12Vdc source to the external inputs (LED2), this indicates that the fuse has not blown. Additionally each relay has an LED near its base that indicates when the coil is energized.

J2 and J3 are provided for optional plug-in modules currently under development. J3 can be used for the 39436 I/O expansion board. The 39434 I/O CPU board has a LIN status LED onboard that flashes rapidly in sync with the LIN status indicator on the eCNA mainboard. Please note that if you are using an older CNA or an eCNA-100, 150, or eCNA-200 with a version of firmware before v2.011, the jumper at the top of the termination panel labeled W4 must be in the 2-3 position. The W4 jumper configures the termination panel for Compatibility mode.

For systems using the eCNA-200, any outputs that have been eliminated can be re-assigned to the user defined "Aux" contacts previously mentioned or any other relay on the termination board. Simply wire your old connections to the desired output on the termination board, make a note of it, and re-assign it at the eCNA. (See section on output re-assignment) All major changes have been listed below:



Booth Termination to House/Aux Termination Interchange:

- J1 at the top of the 39431 is for installing the 39434 I/O CPU board.

- TB1 now features screw terminal contacts for an LSN connection. Previously these connections were made at the bottom right-hand corner of the board, they have been moved and altered. Instead of two screw type terminals, there is a single screw terminal contact set and a header for a cable connection.

As was the case before, the LSN signals are not used by the termination board, they are solely there for your convenience during installation.

- The 39431 has a second LIN header for LIN cable connections.

- The "Manual Overrides" (P2) header has been moved about 2 inches to the left placing it closer to the edge of the board. It has been rotated 180 degrees, the header is polarized so the cable connector will only fit in one direction.

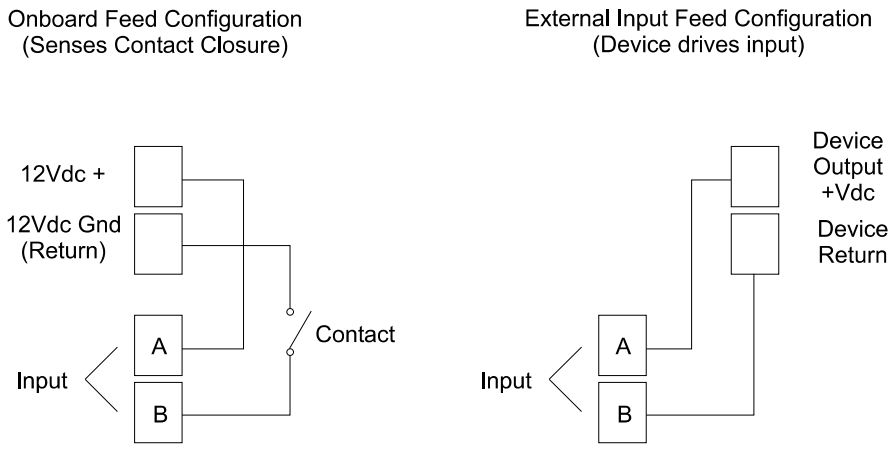
- Masking: The positions for the top mask and side mask relays have been reversed, the "Feed" connection is now designated "Com"

- Lights: The positions for the House light controls have been changed to "Up, Mid1, Mid2, and Down" from the former "Mid1, Mid2, Up, Down". The "Feed" connection is now designated "Com".

Please note that the terminal labeled "Com" is not an electrical "Neutral" connection or ground, it is intended to be a supply or feed connection for the relay contacts.

- The "environment" output has been renamed "Aux (Out 5)" and has been reversed in location with the Slide Projector output.

- Beginning on the right side of the board, the Remote start and Stop inputs have been removed as have the Fader (digital pot) contacts. This whole section has been replaced by remote inputs. This TB4 input features a fused 12Vdc source at positions 1 and 2 and 12Vdc return at positions 3 and 4. This 12Vdc source can be used to feed external devices with "Dry" relay contacts that are then wired to various inputs in this section. Each optically isolated input can optionally be fed directly from a device with a 5 to 24Vdc or ac output.



- Positions 5 and 6 are used for a Remote Start Input, positions 7 and 8 are used as a remote Stop Input

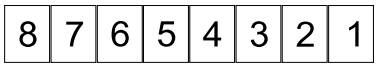
- Positions 9 and 10 are for a Fire Stop Input, this input functions the same as the original Fire Stop Input and initiates the shutdown sequence.
- Positions 11 and 12 are Digital Cue Inputs, this input functions as a remote digital cue input for the eCNA. Positions 13 thru 20 are associated with four user-defined inputs.

- TB5 is used for various outputs. Positions 1 thru 13 are assigned to four user-defined outputs labeled “Aux”. Outputs 1 and 2 are simple Normally Open relay contacts, Output 3 has two sets of Normally Open contacts in a DPST configuration. Output 4 is a combination DPDT (Normally Open/Normally Closed) and SPST (Normally Open) that are actuated simultaneously.

- The Sound relays are different in that the Digital 1 and 2 have been consolidated to just one output labeled “Digital”, the Aux 1 and 2 have been consolidated to just one output labeled “Aux”, and the Preamp 1 and 2 outputs have been eliminated.

- P4 is an additional header used for manually overriding the Aux 1 thru 4 output relays.

39431 P4 Aux 1 thru 4 Override Connections



Pin	Function
1	Aux 1 N.O.
2	Aux 1 Com
3	Aux 2 N.O.
4	Aux 2 Com
5	Aux 3A N.O.
6	Aux 3A Com
7	Aux 4A N.O.
8	Aux 4A Com

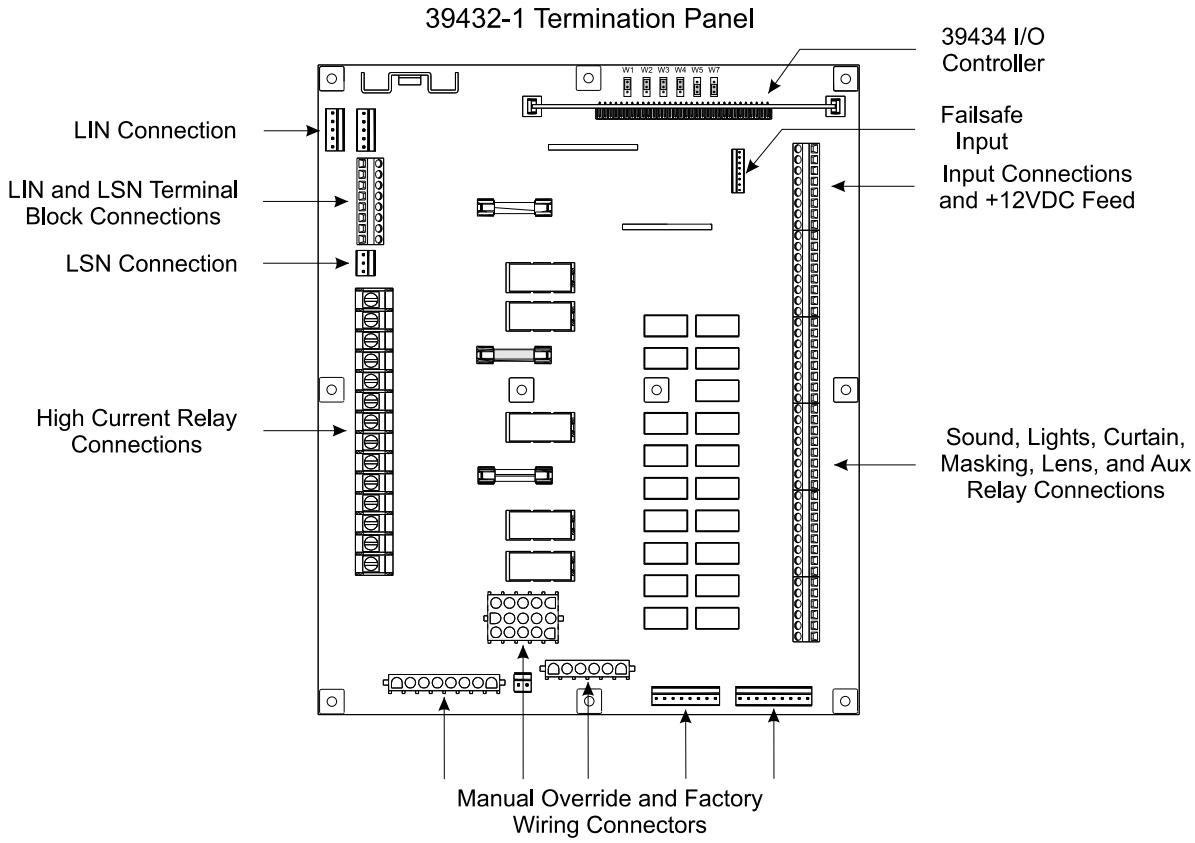
39431	
Output Name	Relay Name
Preamp 1	Out 2
Preamp 2	Out 3
Environment	Out 5
Sound Aux 1	Aux
Sound Aux 2	Out 1
Sound Digital 1	Digital
Sound Digital 2	Out 4

The 39432-1 Combination Termination Panel

Refer to the illustration in this section for connector and terminal block locations. The 39431 has two onboard LED indicators, one for power (LED1) which shows that the voltage regulator is functioning properly and one for the +12Vdc source to the external inputs (LED2), this indicates that the fuse has not blown. Additionally each relay has an LED near its base that indicates when the coil is energized.

J2 and J3 are provided for optional plug-in modules currently under development. J3 can be used for the 39436 I/O expansion board. The 39434 I/O CPU board has a LIN status LED onboard that flashes rapidly in sync with the LIN status indicator on the eCNA mainboard. Please note that if you are using an older CNA or an eCNA-100, 150, or eCNA-200 with a version of firmware before v2.011, the jumper at the top of the termination panel labeled W4 must be in the 2-3 position. The W4 jumper configures the termination panel for Compatibility mode.

For systems using the eCNA-200, any outputs that have been eliminated can be re-assigned to the user defined "Aux" contacts previously mentioned or any other relay on the termination board. Simply wire your old connections to the desired output on the termination board, make a note of it, and re-assign it at the eCNA. (See section on output re-assignment) All major changes have been listed below:



Combo. (Single) Termination Interchange:

- J1 at the top of the 39432-1 is for installing the 39434 I/O CPU board.

- TB1 has remained essentially the same. The two LIN headers have been moved from the center top of the board to the upper left hand corner. The LSN connector has been moved as well, it is now located directly next to the TB1 terminal block where previously it was found near the LIN connections.

As was the case before, the LSN signals are not used by the termination board, they are solely there for your convenience during installation.

- The designation of "Feed" is now labeled Com for all outputs.

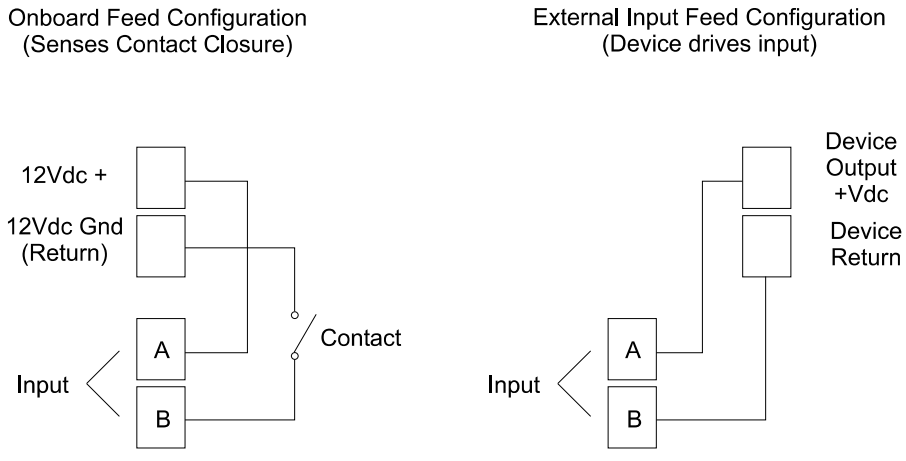
Please note that "Com" is not an electrical "Neutral" connection or ground, it is intended to be a supply or feed connection for the relay contacts.

- TB2 has remained the same for both the 39332 and the 39432-1. Factory wiring and Override connections have remained unchanged.

- TB3 failsafe inputs have been changed in that the film tension input has been eliminated and a Fire Stop input added.

- TB3 is located on the right edge of the 39432-2 board. Position 1 is an input for Film Motion, position 2 is an input for Film Presence, Position 3 is an input for Film Cue, position 4 is an input for Xenon Fault, and position 5 is an input for a Fire Stop/ Film Tension (dependent on W1's setting).

- Positions 7 thru 10 are for a fused 12Vdc voltage source used to feed external equipment's dry relay contacts in the event that your input device cannot supply the appropriate signal.



- Each optically isolated input can optionally be fed directly from a device with a 5 to 24Vdc output.

- Positions 11 and 12 are used for a Remote Start Input, positions 13 and 14 are used for a Remote Stop Input, and positions 15 and 16 are used for a Digital Cue Input.

- Positions 17 thru 25 are used for Sound outputs, Position 23 is the Sound Com (Feed) input, position 25 is the Mute Com (Feed). Positions 26 thru 30 are House Light Outputs, Position 30 is the Com for the house lights. Positions 31 thru 33 are for the Stage Lights, Position 33 is the Com for the Stage lights. Positions 34 thru 36 are for controlling the Curtain, Position 36 is Com. Positions 37 thru 40 are for Masking control, position 40 is the Com connection. Positions 41 thru 44 are outputs for Lens controls, they are Flat, Scope, Special, and Com. Positions 45 and 46 give an additional Aux output, this set of Normally Open relay contacts is user defined.

- P4 is included for connection to your failsafe, its function has remained unchanged and is the equivalent of the old P4.

- The P5, P6, P7, P8, P9, and P10 connections remain unchanged except for their locations relative to the 39332.

39432-1	
Output Name	Relay Name
Environment	Xenon Lamp
Sound Digital 1	Digital
Sound Aux 1	Aux
Slide Proj. C	Slide Projector

The Optional 39436 Aux I/O Board

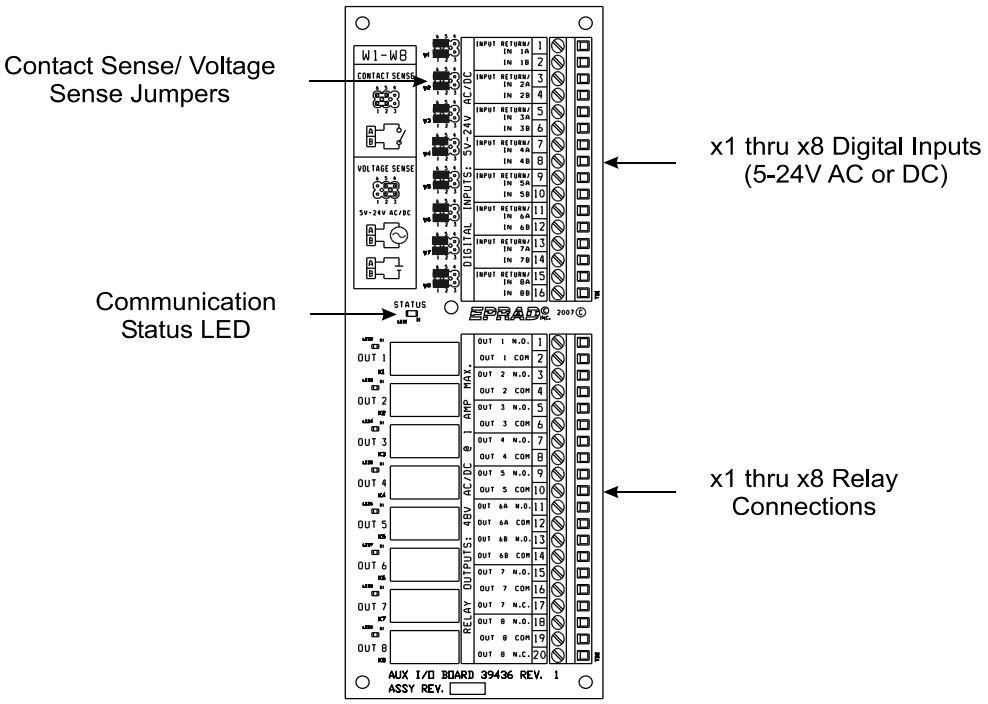
The 39436 Aux I/O board can be used with any of the above termination panels to provide eight additional inputs and outputs. These additional I/O features are currently utilized only by the eCNA-200 automation with version 2.011 firmware or newer. These are referred to as x1 thru x8 (both inputs and outputs) by the eCNA-200 supervisory setup screens. The illustration in this section shows the Aux I/O board as well as its installation on a typical termination panel.

- The digital inputs can be either externally driven by a 5-24 VAC/VDC source, or can source a 12VDC feed to an external dry contact path.

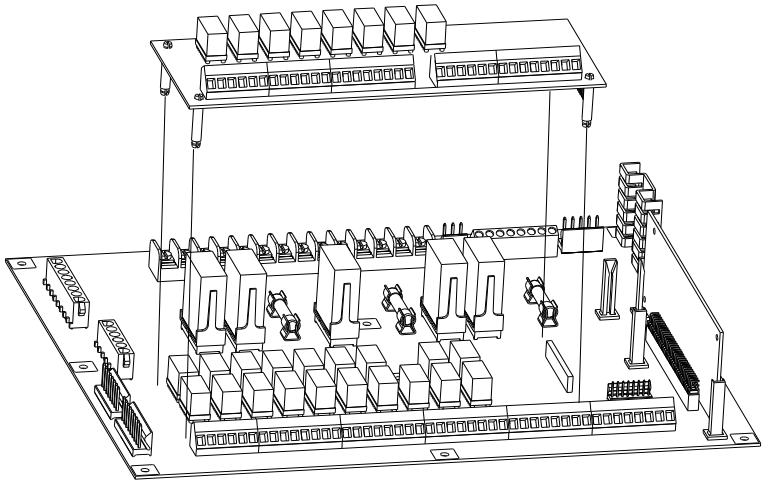
- Jumpers W1 thru W8 configure the board for either external or internal drive of the digital inputs. Select position 1-2 and 5-6 on any W1 thru W8 jumper to enable the voltage feed option where the only input needed is a contact closure. Select position 2-3 and 4-5 to set the auxiliary inputs to voltage sense operation.

- Eight assignable auxiliary relays onboard give flexible output options including five SPST contacts, one DPST contact, and two SPDT contacts.

- Aux I/O board features a status LED that flashes to indicate correct communication with the host board.



39436 Aux I/O



39436 Aux I/O Installation
(39432-1 Shown)

Section 2

Termination Panel Hardware and Software Configuration

This section of the manual will assist the installer with more detailed information about their new termination panel. You will find hardware configuration parameters, additional diagrams for each unit, and information about configuring your eCNA/CNA to operate efficiently with its new hardware.

Termination Board Jumpers and DIP Switches:

Once you are finished wiring your new termination panel you will need to configure your jumpers, DIP switches, and eCNA to work efficiently with your system.

39432-2 Jumpers: W1 thru W7

Position	Name	Function
W1	Opt 1	Undefined (Must remain in the 1-2 location)
W2	Opt 2	Undefined
W3	Opt 3	Undefined
W4	Opt 4	Select 1-2= 39432-2, 2-3= Compatibility Mode[2]
W5	Xenon Fault	Input Bypass 1-2= On, 2-3= Off
W7	Film Motion	Input Bypass 1-2= On, 2-3= Off

39432-1 Jumpers: W1 thru W7

Position	Name	Function
W1	Opt1	Select 1-2 Film Tension, 2-3 FireStop (TB 3 #5)[1]
W2	Opt2	Undefined
W3	Opt3	Undefined
W4	Opt4	Select 1-2= 39432-1, 2-3= Compatibility Mode[2]
W5	Xenon Fault	Input Bypass 1-2= On, 2-3= Off
W7	Film Motion	Input Bypass 1-2= On, 2-3= Off

39431 Jumpers: W1 thru W4

Position	Name	Function
W1	Opt1	Undefined
W2	Opt2	Undefined
W3	Opt3	Undefined
W4	Opt4	Select 1-2= 39431, 2-3= Compatibility Mode[2]

[1] Dip Switch on eCNA/CNA Mainboard needs to be configured for firestop when using this feature. Default is a Film Tension input. When configured for a film tension input, there must be a N.C. connection from firestop to input return.

[2] Defines how the termination panel is seen by the CNA, 3943x-x being the new House/Aux or film termination board functions. Compatibility Mode emulates the preceding model. This jumper is positioned at 2-3 when retrofitting a new termination board to an existing installation with older CNA and/or firmware.

W4 and LIN ID# :

Term. Model	W4 Pos 1-2	W4 Pos 2-3
39432-2	LIN ID# 1	LIN ID# 21 Film
39431	LIN ID# 3 Booth	LIN ID# 19 House
39432-1	LIN ID# 1 and LIN ID# 3 Console + Booth	LIN ID# 20 Combo

Compatibility Mode Configuration:

The eCNA-100 and 150, and earlier versions of the eCNA-200 cannot currently utilize the enhanced features found on the Film, House/Aux, Combination (394xx) termination boards. The older CNA models (without ethernet) cannot utilize these features either. The W4 jumper must be placed in the 2-3 position, this causes the automation to recognize the termination panel on the LIN as a Booth, Console, or Single termination (393xx) model and in turn retains its system compatibility. When wired according to the input and output labeling as described previously, there will be no difference in functionality.

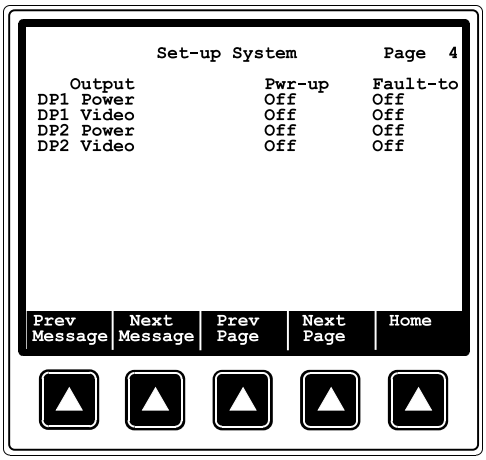
eCNA-200 Output Configuration:

If using the Film, House/Aux, or combination (394xx) board in an upgrade situation, the eCNA-200 with the latest firmware (currently 2.011) will provide new functions and flexibility for integration into a film, digital or mixed media environment. Leave the W4 jumper in the 1-2 position. You can now configure the board's outputs and inputs via the "Set up System" menus.

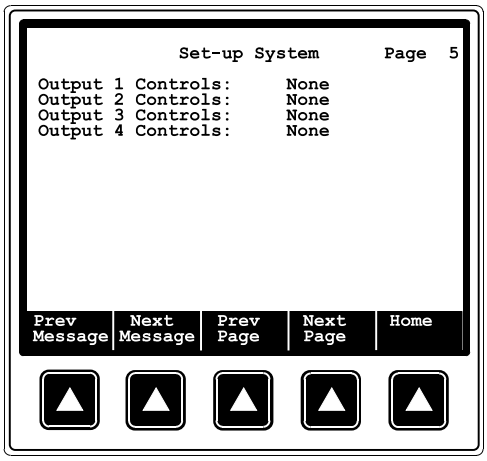
New features include the ability to reassign relay output functions to be controlled by other program steps, the integration of add-on Auxiliary I/O boards, digital specific inputs and outputs allowing the control of the film show or digital show depending on your system requirements.

From the main home screen press "Menu", then select "Set-up", Choose "Set-up Super", then "Set-up System". From this page, use the "Prev Page" and "Next Page" softkeys to navigate the configuration pages shown below.

From the supervisory setup menus navigate to pages 4 thru 15:



Page 4 configures the power-up and fault-to states for digital projector 1 and 2's power and video. Options include Off, On, No-Op, and None.



Page 5 is used to reassign outputs 1 thru 4.

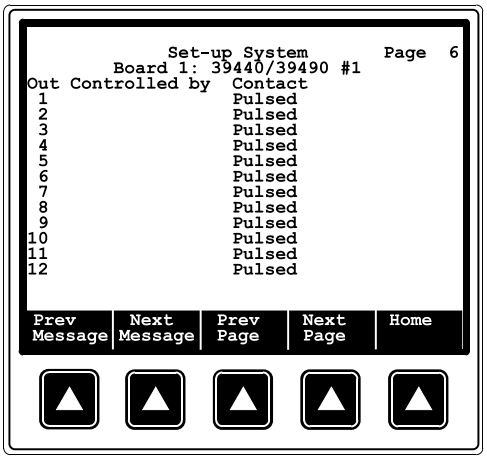
Target options:

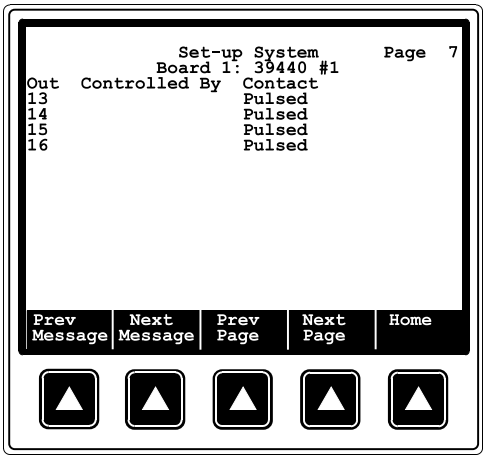
None	Curtain Close	Curtain Open	Environment
House Down	House Mid 1	House Mid 2	House Up
Lens Flat	Lens Scope	Lens Special	Mask Flat
Mask Scope	Mask Special	Preamp 1	Preamp 2
Slide Proj. B	Slide Proj. C	Sound Aux 1	Sound Aux 2
Sound Digital 1	Sound Digital 2	Sound Mono	Sound Mute
Sound Non-Sync	Sound SR	Sound SVA	Stage Down
Stage Up			

These outputs represent the software reassigned relays. The manual control screen and program instruction set feature four aux out controls that can be any of the above relays. When a relay is reassigned to one of these four aux controls, the original function is disabled in both the program step sequence and (When applicable) the manual control screen. The exception to this is when using the 39431 House/ Aux board. Reassigning a relay to a Aux Out will cause both the dedicated Out (1 thru 4) relay and the reassigned relay to actuate simultaneously. The original relay command function is disabled for both program steps and the manual control screen.

Eg (39432-1): If Aux Out 1 is assigned to the "House Down" relay, the House Down command will be rendered inoperative in both the program step and manual control, the manual control setting and program step for Aux Out 1 now control the House Down relay exclusively with the exception of the hard-wired front panel override rocker switch.

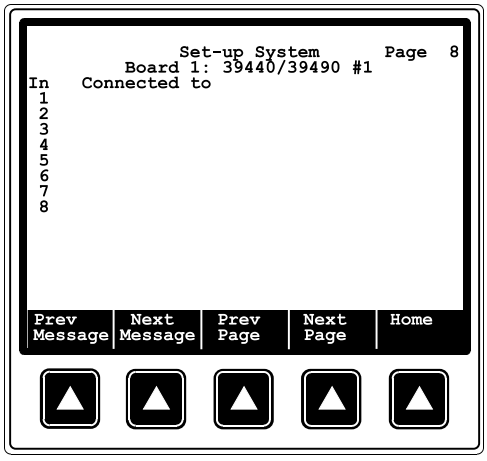
Eg (39431): If Aux Out 1 is assigned to the "House Down" relay, the House Down command will be rendered inoperative in both the program step and manual control, the manual control setting and program step for Aux Out 1 now control the House Down relay as well as the Out 1 relay exclusively with the exception of the hard-wired front panel rocker switch which will override the House Down relay contacts only. (see eCNA-200 Page 12 screen illustration)





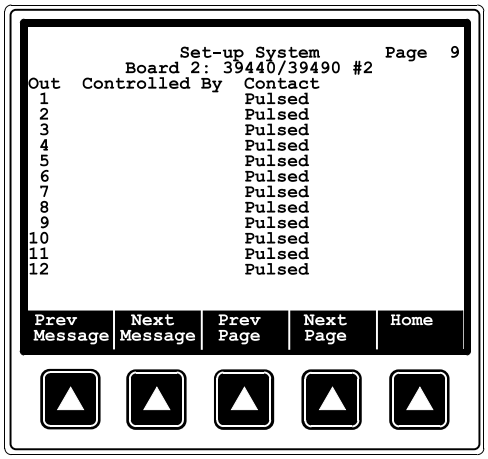
Page 6 and page 7 set up board #1 39440/ 39490 outputs 1 thru 16 to be either pulsed or maintained and controlled by the following commands:

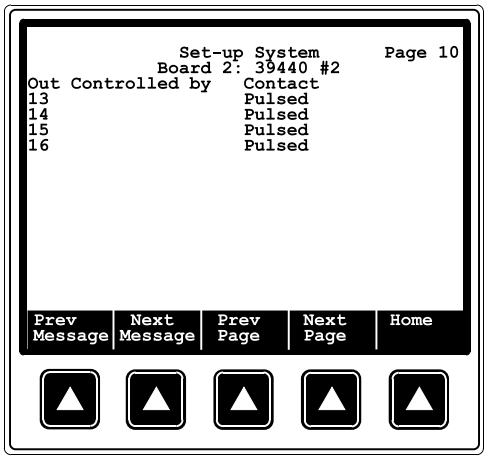
Nothing	DP1 Pwr Off	DP1 Power On	DP1 Vid Off
DP1 Vid On	DP2 Pwr Off	DP2 Power On	DP2 Vid Off
DP2 Vid On	In Progress	Fault	Fire Stop
H. Lights Down	H. Lights Mid 1	H. Lights Mid 2	H. Lights Up
S. Lights Down	S. Lights Up	Curtain Open	Curtain Close
Mask Flat	Mask Scope	Mask Special	Lens Flat
Lens Scope	Lens Special	Slide Projector	Sound Aux 1
Sound Aux 2	Sound Digital 1	Sound Digital 2	Sound Mono
Sound Mute	Sound Non-Sync	Sound SR	Sound SVA
Out 1	Out 2	Out 3	Out 4



Page 8 determines the board #1 39440/39490's input 1 thru 8 command associations they are:

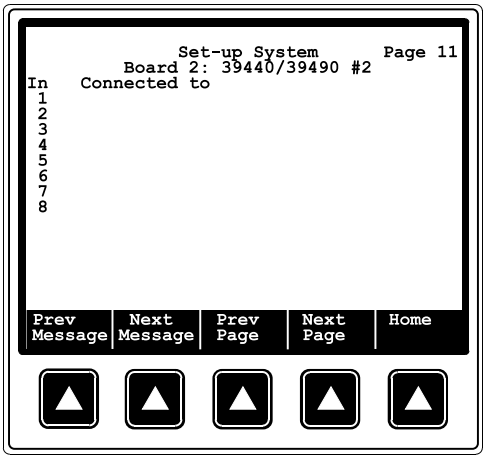
Digital 1 Cue	Digital 1 Fault	Digital 1 Stop	Digital 1 Start	Digital 2 Cue
Digital 2 Fault	Digital 2 Stop	Digital 2 Start	Bypass	Nothing





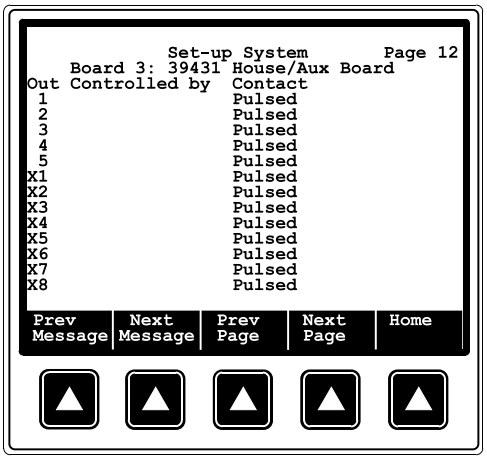
Page 9 and page 10 sets up board #2 39440/ 39490 #2 outputs 1 thru 16 to be either pulsed or maintained and controlled by the following commands:

Nothing	DP1 Pwr Off	DP1 Power On	DP1 Vid Off
DP1 Vid On	DP2 Pwr Off	DP2 Power On	DP2 Vid Off
DP2 Vid On	In Progress	Fault	Fire Stop
H. Lights Down	H. Lights Mid 1	H. Lights Mid 2	H. Lights Up
S. Lights Down	S. Lights Up	Curtain Open	Curtain Close
Mask Flat	Mask Scope	Mask Special	Lens Flat
Lens Scope	Lens Special	Slide Projector	Sound Aux 1
Sound Aux 2	Sound Digital 1	Sound Digital 2	Sound Mono
Sound Mute	Sound Non-Sync	Sound SR	Sound SVA
Out 1	Out 2	Out 3	Out 4



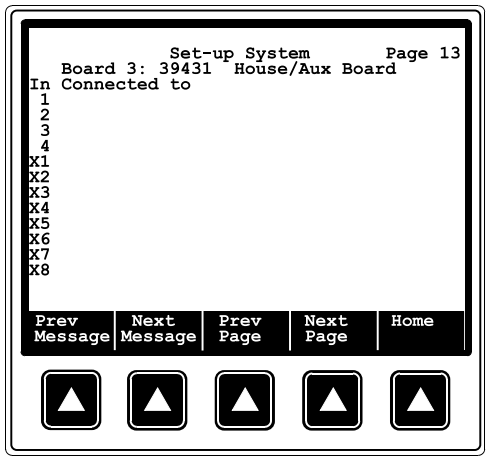
Page 11 determines the board #2 39440/39490's input 1 thru 8 command associations they are:

Digital 1 Cue	Digital 1 Fault	Digital 1 Stop	Digital 1 Start	Digital 2 Cue
Digital 2 Fault	Digital 2 Stop	Digital 2 Start	Bypass	Nothing



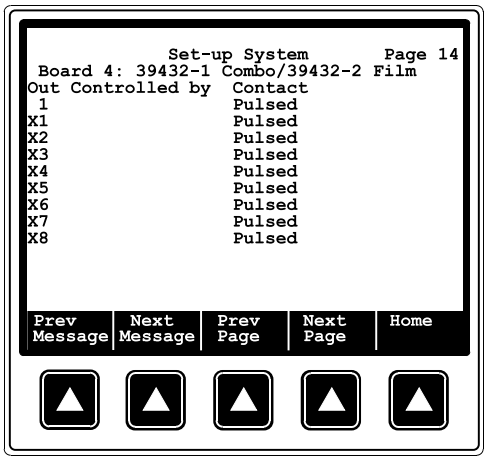
Page 12 is used to configure board 3, the 39431 House/Aux board's outputs 1 thru 5 and x1 thru x8 (x1 thru x8 are located on the 39436 Aux I/O board). Each output can be either pulsed or maintained, each can be assigned the functions listed below:

Nothing	DP1 Pwr Off	DP1 Power On	DP1 Vid Off
DP1 Vid On	DP2 Pwr Off	DP2 Power On	DP2 Vid Off
DP2 Vid On	In Progress	Fault	Fire Stop
H. Lights Down	H. Lights Mid 1	H. Lights Mid 2	H. Lights Up
S. Lights Down	S. Lights Up	Curtain Open	Curtain Close
Mask Flat	Mask Scope	Mask Special	Lens Flat
Lens Scope	Lens Special	Slide Projector	Sound Aux 1
Sound Aux 2	Sound Digital 1	Sound Digital 2	Sound Mono
Sound Mute	Sound Non-Sync	Sound SR	Sound SVA
Out 1	Out 2	Out 3	Out 4



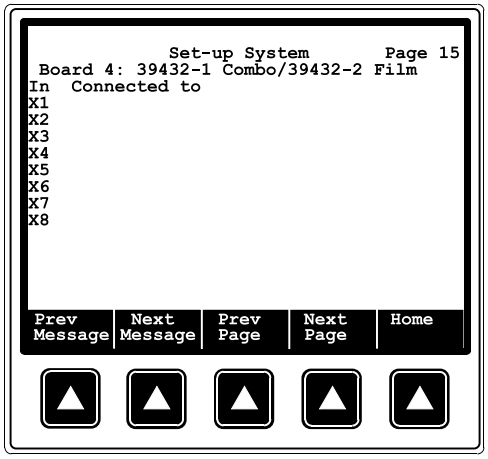
Page 13 is used to configure inputs 1 thru 4 and x1 thru x8 (x1 thru x8 are located on the 39436 Aux I/O board) on the 39431. They can be associated with:

Digital 1 Cue	Digital 1 Fault	Digital 1 Stop	Digital 1 Start	Digital 2 Cue
Digital 2 Fault	Digital 2 Stop	Digital 2 Start	Bypass	Nothing



Page 14 is used to configure the board #4 39432-1 Combo/39432-2 Film termination board outputs 1 and x1 thru x8. (1 is the Out 1 relay on the main termination PCB, x1 thru x8 are located on the 39436 Aux I/O board) The contacts can be set for pulsed or maintained operation. They can be routed as follows:

Nothing	DP1 Pwr Off	DP1 Power On	DP1 Vid Off
DP1 Vid On	DP2 Pwr Off	DP2 Power On	DP2 Vid Off
DP2 Vid On	In Progress	Fault	Fire Stop
H. Lights Down	H. Lights Mid 1	H. Lights Mid 2	H. Lights Up
S. Lights Down	S. Lights Up	Curtain Open	Curtain Close
Mask Flat	Mask Scope	Mask Special	Lens Flat
Lens Scope	Lens Special	Slide Projector	Sound Aux 1
Sound Aux 2	Sound Digital 1	Sound Digital 2	Sound Mono
Sound Mute	Sound Non-Sync	Sound SR	Sound SVA
Out 1	Out 2	Out 3	Out 4



Page 15 is used to configure the inputs x1 thru x8 on the board #4 39432-1 Combo/39432-2 Film boards, each can be associated with:

Digital 1 Cue	Digital 1 Fault	Digital 1 Stop	Digital 1 Start	Digital 2 Cue
Digital 2 Fault	Digital 2 Stop	Digital 2 Start	Bypass	Nothing

Input Assignments Defined

Name	Description
<<Blank>>	Not acted on by the eCNA. Can be use as general purpose input for use with KDI and CNI protocols
Digital 1 Cue	Auxiliary Cue Input from digital system 1 (Always active), Advances running show program steps if waiting for a cue
Digital 1 Fault	Major Fault input from digital system 1, if running a show, Sounds alarm and halts program on eCNA until fault input is cleared and show is re-started
Digital 1 Stop	Stop Input from digital system 1, Stops currently running show on eCNA
Digital 1 Start	Start Input from digital system 1, Starts Show sequence on eCNA
Digital 2 Cue	Auxiliary Cue Input from digital system 2 (Always active), Advances running show program steps if waiting for a cue
Digital 2 Fault	Major Fault input from digital system 2, if running a show, Sounds alarm and halts program on eCNA until fault input is cleared and show is re-started
Digital 2 Stop	Stop Input from digital system 2, Stops currently running show on eCNA
Digital 2 Start	Start Input from digital system 2, Starts Show sequence on eCNA
Bypass	De-activates Control Relays on 39440 Termination Board. (CNI use only.)

Output Assignments Defined

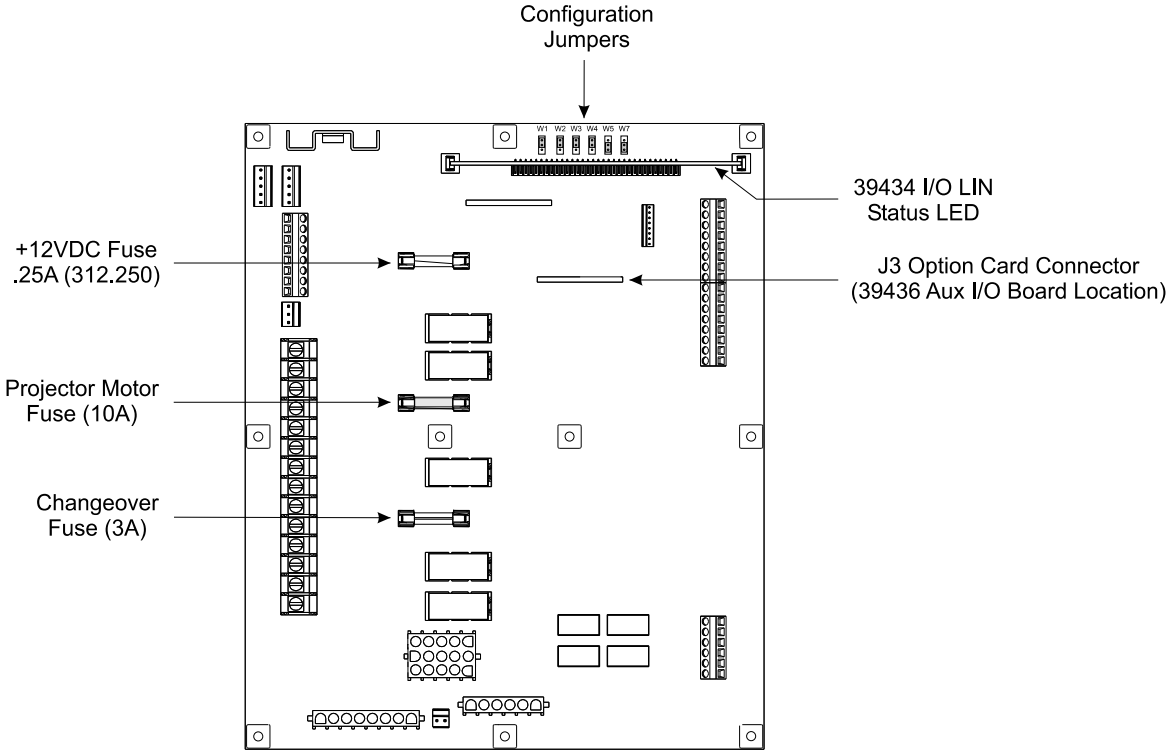
Name	Description
<<Blank>>	Controlled by External Serial Device (Ethernet/RS-232)
DP1 Pwr Off	Controlled by Digital Projector 1 Power Off program instruction
DP1 Pwr On	Controlled by Digital Projector 1 Power On program instruction
DP1 Vid Off	Controlled by Digital Projector 1 Video Off program instruction
DP1 Vid On	Controlled by Digital Projector 1 Video On program instruction
DP2 Pwr Off	Controlled by Digital Projector 2 Power Off program instruction
DP2 Pwr On	Controlled by Digital Projector 2 Power On program instruction
DP2 Vid Off	Controlled by Digital Projector 2 Video Off program instruction
DP2 Vid On	Controlled by Digital Projector 2 Video On program instruction
In Progress	Controlled by eCNA's In Progress Flag
Fault	Controlled by eCNA's Major Fault Flag
Fire Stop	Controlled by eCNA's Fire Stop Flag
H. Lights Down	Controlled by House Lights Down program instruction
H. Lights Mid 1	Controlled by House Lights Mid 1 program instruction
H. Lights Mid 2	Controlled by House Lights Mid 2 program instruction
H. Lights Up	Controlled by House Lights Up program instruction
S. Lights Down	Controlled by Stage Lights Down program instruction
S. Lights Up	Controlled by Stage Lights Up program instruction
Curtain Open	Controlled by Curtain Open program instruction
Curtain Close	Controlled by Curtain Close program instruction

Name	Description
Mask Flat	Controlled by Format or Masking program instructions
Mask Scope	Controlled by Format or Masking program instructions
Mask Special	Controlled by Format or Masking program instructions
Lens Flat	Controlled by Format or Lens program instructions
Lens Scope	Controlled by Format or Lens program instructions
Lens Special	Controlled by Format or Lens program instructions
Slide Projector	Controlled by Slide Projector program instructions
Sound Aux 1	Controlled by Format or Sound program instructions
Sound Aux 2	Controlled by Format or Sound program instructions
Sound Digital 1	Controlled by Format or Sound program instructions
Sound Digital 2	Controlled by Format or Sound program instructions
Sound Mono	Controlled by Format or Sound program instructions
Sound Mute	Controlled by Format or Sound program instructions
Sound Non-Sync	Controlled by Format or Sound program instructions
Sound SR	Controlled by Format or Sound program instructions
Sound SVA	Controlled by Format or Sound program instructions
Out 1	Controlled by Aux Out program instruction
Out 2	Controlled by Aux Out program instruction
Out 3	Controlled by Aux Out program instruction
Out 4	Controlled by Aux Out program instruction

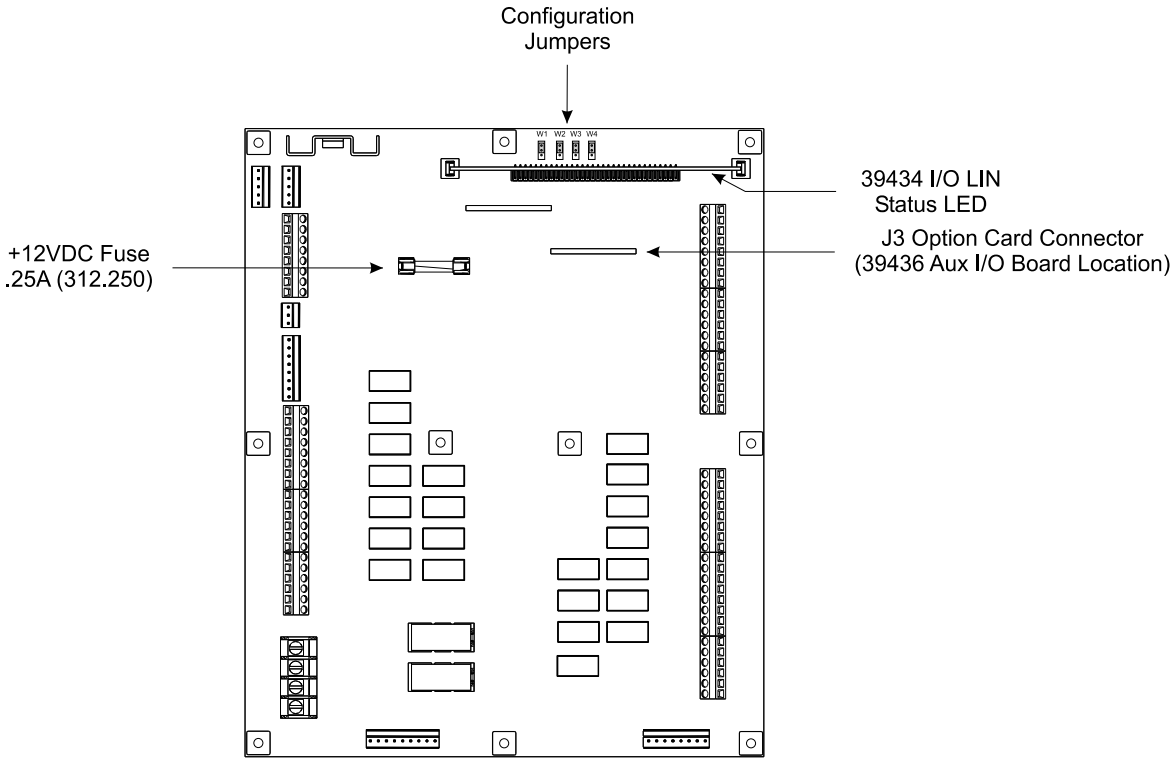
Section 3

Additional Information and Diagrams:

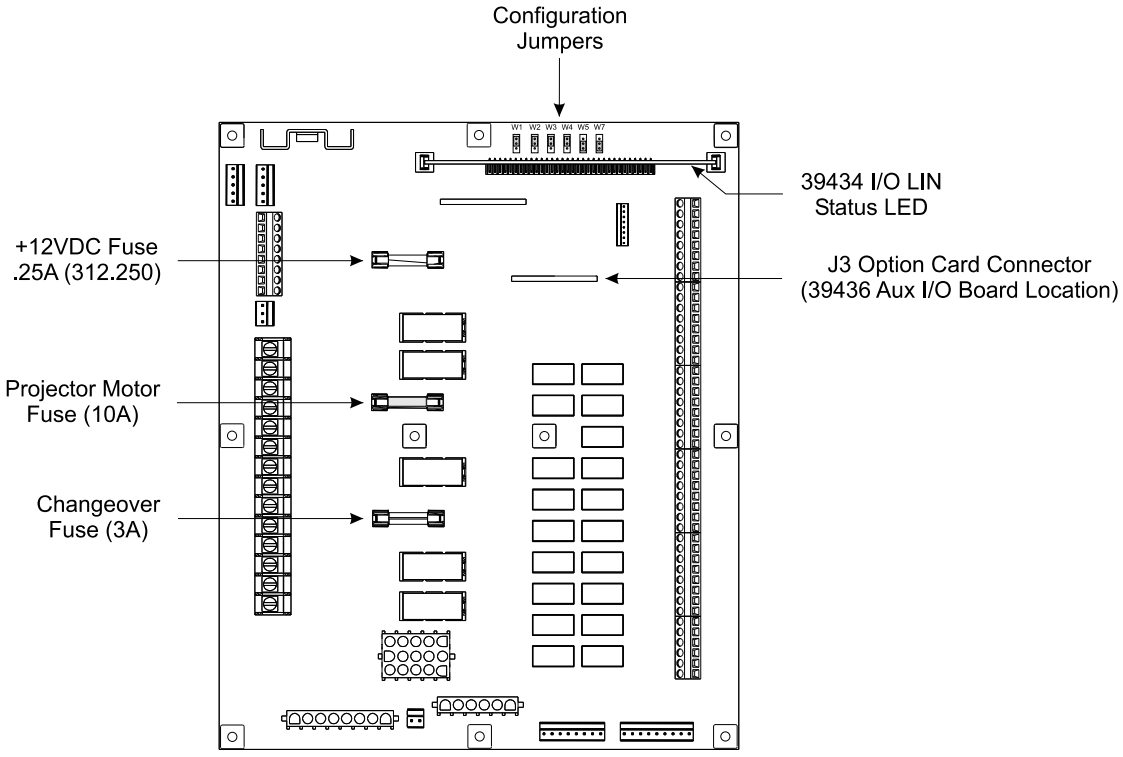
Fuse Locations and configuration jumpers are shown in the following diagrams



39432-2 Termination Panel



39431 Termination Panel



39432-1 Termination Panel

Fuses

The 39432-2 termination panel has 3 main fuses, F1 is the projector motor fuse. If you find any fuse blown check for problems down-circuit before replacing the fuse. This fuse should be a 10A 250V Slo-Blo type 3AB (ceramic) Littelfuse# 326010. F2 is for the Changeover circuit. This fuse is a 3A 250V Slo-Blo type 3AG (Glass) Littelfuse# 313003. F3 is a .25A 250V Fast blow fuse used in the +12Volt source feed for the digital inputs. This fuse can be monitored as mentioned previously by observing the LEDs on either side of the fuse. If LED2 on the 12VDC fused side is not illuminated, the fuse is blown. If LED1 is not illuminated, there is a good chance that either there is a problem between the automation and the termination panel, or there is a problem with the termination panel itself.

The 39431 has a single fuse, the +12 Volt source fuse F1.

The 39432-1 Termination panel has the same fuse placement and values as the 39432-2.

Relays

The Film, House/Aux, and Combination termination boards all have two types of relays on them. First there is a High current type, these are used for controlling heavy loads such as Xenon Lamp, Projector Motor, Changeover Motor, Slide Projector, and on the House/aux board the Out 5 relay. These relays' SPDT contacts are rated for 10A @ 250VAC and 10A @ 30VDC. The second type of relay is a low current type, these are used for many different functions. These relays' DPDT contacts are rated for .5A @ 120VAC and 1A @ 24VDC. Although these low power relays are DPDT most relay positions only utilize one contact set for SPST or SPDT operation depending on the application. All relays are socketed and offer easy troubleshooting options in the event that a relay is suspected as the cause of a problem during operation. The technician can simply exchange a suspect relay for a known good unit.

Termination Schedules

39432-2 Film Termination Board

The Film termination board has output contacts for the following functions:

Output Name	Contact / Connection Type
Lamp	Com. / N.O. @10A and P6 Override Connector
Motor	Com. / N.O. @ 10A and P6 Override Connector
Changeover	Close N.O. @ 10A, P6 Override Connector, and P7 Factory Wiring Com. to Open and Close Relays, Changeover Douser Line, and P6 Override Connector Open N.O. @ 10A, P6 Override Connector, and P7 Factory Wiring
Ground	To P7 Factory Wiring Connector
Projector Motor	Line To Projector Com. and P6 Override Connector
Changeover Douser	Line To Changeover Com. and P6 Override Connector
Lens Turret	Line To P9 Factory Wiring Connector
Neutral	Neutral To P7 and P9 Factory Wiring Connectors
Slide Projector	Com. / N.O. @ 10A
Lens Flat	N.O. @ .5A and P6 Override Connector
Lens Scope	N.O. @ .5A and P6 Override Connector
Lens Special	N.O. @ .5A and P6 Override Connector
Lens Com.	Com. to All Lens Relays and P6 Override Connector
Aux *	Out 1 Com. / N.O. @ .5A

The Film termination board has the following input connections:

Input Name	Function
Film Motion	Failsafe Input, Active Low (enabled/ disabled by W7) Also Connects to P4
Film Presence	Failsafe Input, Active Low Also Connects to P4
Film Cue	Failsafe / Cue Detector Input, Active Low Also Connects to P4
Xenon Fault	Failsafe Input, Active Low (enabled/ disabled by W5) Also Connects to P4
Film Tension	Film Tension Input
Input Return	Common return for above Inputs (return path for switch closure) Also Connects to P4
+12 Volt DC	Optional Fused +12 VDC Feed for Start, Stop, and Digital 1 Cue
Return (+12 Volt DC)	Return Path for Optional Feed
Start A *	Senses 5-25 Volts AC or DC referenced to “Start B”
Start B	Return Path for Start Input
Stop A *	Senses 5-25 Volts AC or DC referenced to “Stop B”
Stop B	Return Path for Stop Input
Digital 1 Cue A *	Senses 5-25 Volts AC or DC referenced to “Digital 1 Cue B”
Digital 1 Cue B	Return Path for Digital 1 Cue Input

39431 House / Aux Termination Board

The House / Aux termination has output contacts for the following functions:

Output Name	Contact / Connection Type
Side Mask Flat	N.O. @ .5A and P2 Override Connector
Side Mask Scope	N.O. @ .5A and P2 Override Connector
Side Mask Special	N.O. @ .5A and P2 Override Connector
Side Mask Com.	Com. to Side Mask Relays and P2 Override Connector
Top Mask Flat	N.O. @ .5A and P2 Override Connector
Top Mask Scope	N.O. @ .5A and P2 Override Connector
Top Mask Special	N.O. @ .5A and P2 Override Connector
Top Mask Com.	Com. to Top Mask Relays and P2 Override Connector
Curtain	Close N.O. @ .5A and P3 Override Connector Com. to Open and Close Relays and P3 Override Connector Open N.O. @ .5A and P3 Override Connector
House Lights Up	N.O. @ .5A and P3 Override Connector
House Lights Mid 1	N.O. @ .5A
House Lights Mid 2	N.O. @ .5A
House Lights Down	N.O. @ .5A and P3 Override Connector
House Lights Com.	Com. to House Light Relays and P3 Override Connector
Stage Lights	Up N.O. @ .5A and P3 Override Connector Com. to Stage Light Relays and P3 Override Connector Down N.O. @ .5A and P3 Override Connector
Slide Projector	Com. / N.O. @ 10A
Aux Out 5	Com. / N.O. @ 10A
Aux Out 1	Com. / N.O. @ .5A and P4 Override Connector
Aux Out 2	Com. / N.O. @ .5A and P4 Override Connector
Aux Out 3	(A) Com. / N.O. @ .5A and P4 Override Connector (B) Com. / N.O. @ .5A
Aux Out 4	(A) Com. / N.O. @ .5A and P4 Override Connector (B) Com. / N.O. / N.C. @ .5A
Sound Mono	N.O. @ .5A
Sound SVA	N.O. @ .5A
Sound SR	N.O. @ .5A
Sound NonSync	N.O. @ .5A
Sound Digital	N.O. @ .5A
Sound Aux	N.O. @ .5A
Sound Com	Com. to Sound Relays
Sound Mute	Com. / N.O. @ .5A

The House / Aux termination board has the following input connections:

Input Name	Function
+ 12 Volt DC	Optional Fused +12 VDC Feed for all Inputs
Return (+12 Volt DC)	Return path for Optional Feed
Start A	Senses 5-25 Volts AC or DC referenced to “Start B”
Start B	Return Path for Start Input
Stop A	Senses 5-25 Volts AC or DC referenced to “Stop B”
Stop B	Return Path for Stop Input
Fire Stop A *	Senses 5-25 Volts AC or DC referenced to “Fire Stop B”, Initiates Fire Stop Routine on the Automation.
Fire Stop B *	Return Path for Fire Stop Input
Digital 1 Cue A *	Senses 5-25 Volts AC or DC referenced to “Digital 1 Cuet B”
Digital 1 Cue B *	Return Path for Digital 1 Cue Input
In 1 A *	Senses 5-25 Volts AC or DC referenced to “In 1 B”
In 1 B *	Return Path for In 1 Input
In 2 A *	Senses 5-25 Volts AC or DC referenced to “In 2 B”
In 2 B *	Return Path for In 2 Input
In 3 A *	Senses 5-25 Volts AC or DC referenced to “In 3 B”
In 3 B *	Return Path for In 3 Input
In 4 A *	Senses 5-25 Volts AC or DC referenced to “In 4 B”
In 4 B *	Return Path for In 4 Input

39432-1 Combination Termination Board

The Combo. termination panel has output contacts for the following functions:

Output Name	Contact / Connection Type
Lamp	Com. / N.O. @10A and P6 Override Connector
Motor	Com. / N.O. @ 10A and P6 Override Connector
Changeover	Close N.O. @ 10A, P6 Override Connector, and P7 Factory Wiring Com. to Open and Close Relays, Changeover Douser Line, and P6 Override Connector Open N.O. @ 10A, P6 Override Connector, and P7 Factory Wiring
Ground	To P7 Factory Wiring Connector
Projector Motor	Line To Projector Com. and P6 Override Connector
Changeover Douser	Line To Changeover Com. and P6 Override Connector
Lens Turret	Line To P9 Factory Wiring Connector
Neutral	Neutral To P7 and P9 Factory Wiring Connectors
Slide Projector	Com. / N.O. @ 10A
Sound Mono	N.O. @ .5A
Sound SVA	N.O. @ .5A
Sound SR	N.O. @ .5A
Sound Non-Sync	N.O. @ .5A
Sound Digital	N.O. @ .5A
Sound Aux	N.O. @ .5A

Sound Com.	Com. to Sound Relays
Sound Mute	Com. / N.O. @ .5A
House Lights Up	N.O. @ .5A and P5 Override Connector
House Lights Mid 1	N.O. @ .5A
House Lights Mid 2	N.O. @ .5A
House Lights Down	N.O. @ .5A and P5 Override Connector
House Lights Com.	Com. to House Light Relays and P5 Override Connector
Stage Lights	Up N.O. @ .5A and P5 Override Connector Com. to Stage Light Relays and P5 Override Connector Down N.O. @ .5A and P5 Override Connector
Curtain	Open N.O. @.5A and to P5 Override Connector Com. to Open and Close Relays and to P5 Override Connector Close N.O. @ .5A and to P5 Override Connector
Masking Flat	N.O. @ .5A and to P10 Override Connector
Masking Scope	N.O. @ .5A and to P10 Override Connector
Masking Special	N.O. @ .5A and to P10 Override Connector
Masking Com.	Com. to Masking Relays and to P10 Override Connector
Lens Flat	N.O. @ .5A and P6 Override Connector
Lens Scope	N.O. @ .5A and P6 Override Connector
Lens Special	N.O. @ .5A and P6 Override Connector
Lens Com.	Com. to Lens Relays and P6 Override Connector
Aux *	Out 1 Com. / N.O. @ .5A

The Combo. termination panel has the following input connections:

Input Name	Function
Film Motion	Failsafe Input, Active Low (enabled/ disabled by W7) Also Connects to P4
Film Presence	Failsafe Input, Active Low Also Connects to P4
Film Cue	Failsafe / Cue Detector Input, Active Low Also Connects to P4
Xenon Fault	Failsafe Input, Active Low (enabled/ disabled by W5) Also Connects to P4
Fire Stop	Fire Alarm/ Film Tension Input, initiates Fire Stop Routine on automation or Film Tension Fault (Toggled by W1), Active Low
Input Return	Common return for above Inputs (return path for switch closure) Also Connects to P4
+12 Volt DC	Optional Fused +12 VDC Feed for Start, Stop, and Digital 1 Cue
Return (+12 Volt DC)	Return Path for Optional Feed
Start A *	Senses 5-25 Volts AC or DC referenced to “Start B”
Start B *	Return Path for Start Input
Stop A *	Senses 5-25 Volts AC or DC referenced to “Stop B”
Stop B *	Return Path for Stop Input
Digital 1 Cue A *	Senses 5-25 Volts AC or DC referenced to “Digital 1 Cue B”
Digital 1 Cue B *	Return Path for Digital 1 Cue Input

* Not available or used when termination board is configured for compatibility mode.

39436 Optional Aux I/O Board

The Aux I/O board has the following output contacts:

Outputs	Contact / Connection Type
Out x1	Com. / N.O. @.5A
Out x2	Com. / N.O. @.5A
Out x3	Com. / N.O. @.5A
Out x4	Com. / N.O. @.5A
Out x5	Com. / N.O. @.5A
Out x6	Com. / N.O. and Com. / N.O. @.5A
Out x7	Com. / N.O. / N.C. @.5A
Out x8	Com. / N.O. / N.C. @.5A

The Aux I/O board has the following Input connections:

Inputs	Function
In 1A	Senses 5-25 Volts AC or DC referenced to “In 1B” or contact closure between A and B as determined by W1
In 1B	Return Path for Input 1
In 2A	Senses 5-25 Volts AC or DC referenced to “In 2B” or contact closure between A and B as determined by W2
In 2B	Return Path for Input 2
In 3A	Senses 5-25 Volts AC or DC referenced to “In 3B” or contact closure between A and B as determined by W3
In 3B	Return Path for Input 3
In 4A	Senses 5-25 Volts AC or DC referenced to “In 4B” or contact closure between A and B as determined by W4
In 4B	Return Path for Input 4
In 5A	Senses 5-25 Volts AC or DC referenced to “In 5B” or contact closure between A and B as determined by W5
In 5B	Return Path for Input 5
In 6A	Senses 5-25 Volts AC or DC referenced to “In 6B” or contact closure between A and B as determined by W6
In 6B	Return Path for Input 6
In 7A	Senses 5-25 Volts AC or DC referenced to “In 7B” or contact closure between A and B as determined by W7
In 7B	Return Path for Input 7
In 8A	Senses 5-25 Volts AC or DC referenced to “In 8B” or contact closure between A and B as determined by W8
In 8B	Return Path for Input 8

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