Film-Tech

EPRAD
INCORPORATED

Model eCNA-5
D-Cinema Automation

Installation and Operation Manual

Version 1.060-01   May 5, 2010

EPRAD Incorporated
6979 Wales Road
Northwood, OH 43619-1015 USA
Telephone 419-666-3266
Fax 419-666-8109
www.eprad.com

Warranty

Automation products, sold by EPRAD Incorporated, are warranted against defects in materials and workmanship for one year from the date of purchase. There are no other express or implied warranties and no warranty of merchantability or fitness for a particular purpose.

During the warranty period, EPRAD Incorporated will repair or, at its option, replace components that prove to be defective, provided the unit is shipped prepaid to the manufacturer directly or via an authorized distributor. Not covered by this warranty are defects caused by modification, misuse or accidents and any further damage caused by inadequate packing for service return.

EPRAD Incorporated's obligation is restricted to the repair or replacement of defective parts and under no circumstances will EPRAD Incorporated be liable for any other damage, either direct or consequential.

Trademark Notice

All trademarks referenced in this document and in the product software are the sole property of their respective owners. EPRAD Incorporated is in no way affiliated with the owners of the trademarks. The information contained in this document is provided by EPRAD solely to assist the users of EPRAD products in interfacing with third party cinema equipment. EPRAD assumes no responsibility for any discrepancies or inaccuracies in the information provided in this document as third party products are beyond the control of EPRAD Incorporated.

Table of Contents

Table of Contents (continued)

1. Product Description

The eCNA-5 is a Cinema Automation system designed specifically for D-Cinema control applications. It integrates the digital cinema components with the booth and auditorium equipment to provide automatic control of pre-show, feature and intermission functions. The system is modular to accommodate a variety of installation requirements and expandable for flexibility into the future. It features Digital I/O, Ethernet and RS-232 connectivity. The system is fully programmable using common cinema industry terminology. An integrated web services GUI provides a user-friendly browser interface for set up, control and monitoring of key theatre functions.

System Diagram
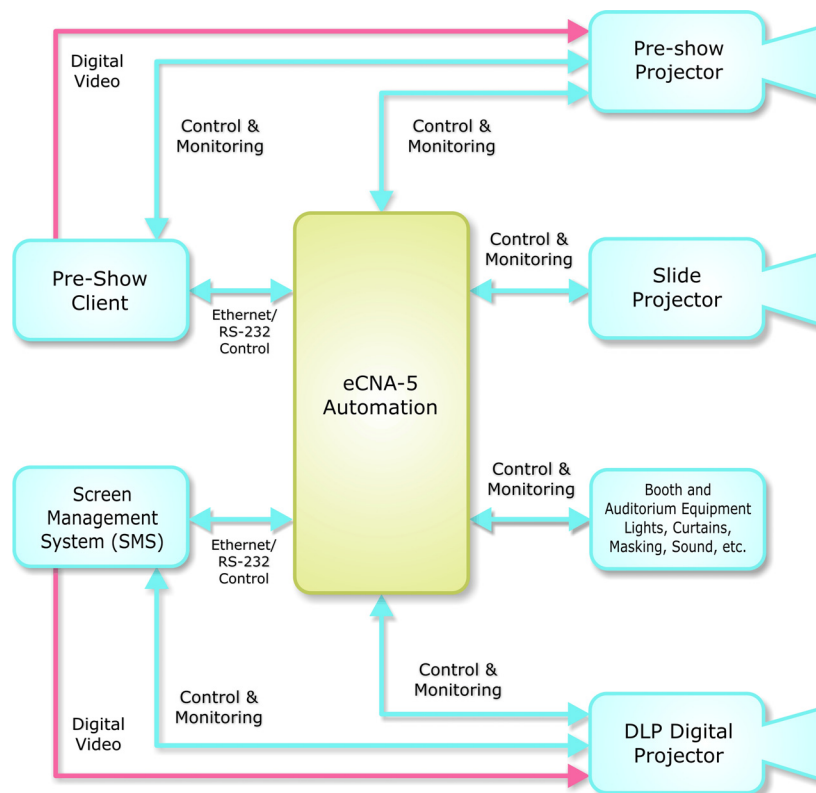
Client components can interface to the eCNA-5 via RS-232, Ethernet and Digital I/O. Serial Communication channels are available at any of three physical serial interfaces. This allows simultaneous connectivity for multiple clients to exchange real time status and control data in order to automate the presentation.

The eCNA-5 provides TCP Ethernet connectivity to all popular Screen Management Systems, Digital Cinema Projectors, Sound Processors and other cinema equipment. This eliminates much of the costly and tedious wiring required for digital I/O points and provides a greater amount of flexibility.

2. Enclosures

To accommodate a variety of installation requirements, the eCNA-5 is available in three different packages.

Each package supports up to eight (8) manual control switches generally used for emergency manual override. These switches circumvent the electronic circuitry giving the operator the ability to control major functions in the event of a control system failure. Switches are optional.

Wall Mount

Part No: eCNA5W-Cxxxx
xxxx = Configuration Number (Call Factory)

Material: 18 Gage Steel
Finish: Black Powder

Height: 14.00 in. (356 mm)
Width: 14.25 in. (362 mm)
Depth: 3.00 in. (76.2 mm)

Weight: 10.4 lbs. (4.7 kg)

Power Requirements:
85 to 264 volts AC @ 0.25 A

Shown without Front Cover

Panel Mount
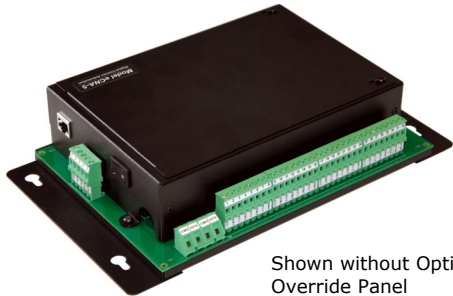
Shown without Optional
Override Panel

Part No: eCNA5P-Cxxxx
xxxx = Configuration Number (Call Factory)

Material: 18 Gage Steel
Finish: Black Powder

Height: 6.5 in. (165 mm)
Width: 11.5 in. (292 mm)
Depth: 2.5 in. (63.5 mm)

Weight: 3.7 lbs. (1.68 kg.)

Power Requirements: Included AC adapter
(Universal Input, 90 to 264 AC)

Rack Mount

Part No: eCNA5R-Cxxxx
xxxx = Configuration Number (Call Factory)

Material: 18 Gage Steel
Finish: Black Powder

Height: 3.5 in. (88.9 mm)
Width: 19 in. (482.6 mm)
Depth: 15 in. (381 mm)

Weight: 10.8 lbs. (4.9 kg.)

Power Requirements: Included AC adapter
(Universal Input, 90 to 264 AC)

19 inch - 2RU

3. Configuring the Unit

The eCNA-5 must be configured to operate on a network with various network devices and with the peripheral booth and auditorium equipment.

3.1 Configuring the Main CPU Board

The Main CPU board (P/N 39425-2) incorporates several serial communication ports including an Ethernet port. Each of these ports have specific purposes. There are 3 banks of DIP switches used for basic system configuration. The LEDs provide an indication of power supply and serial communications status.
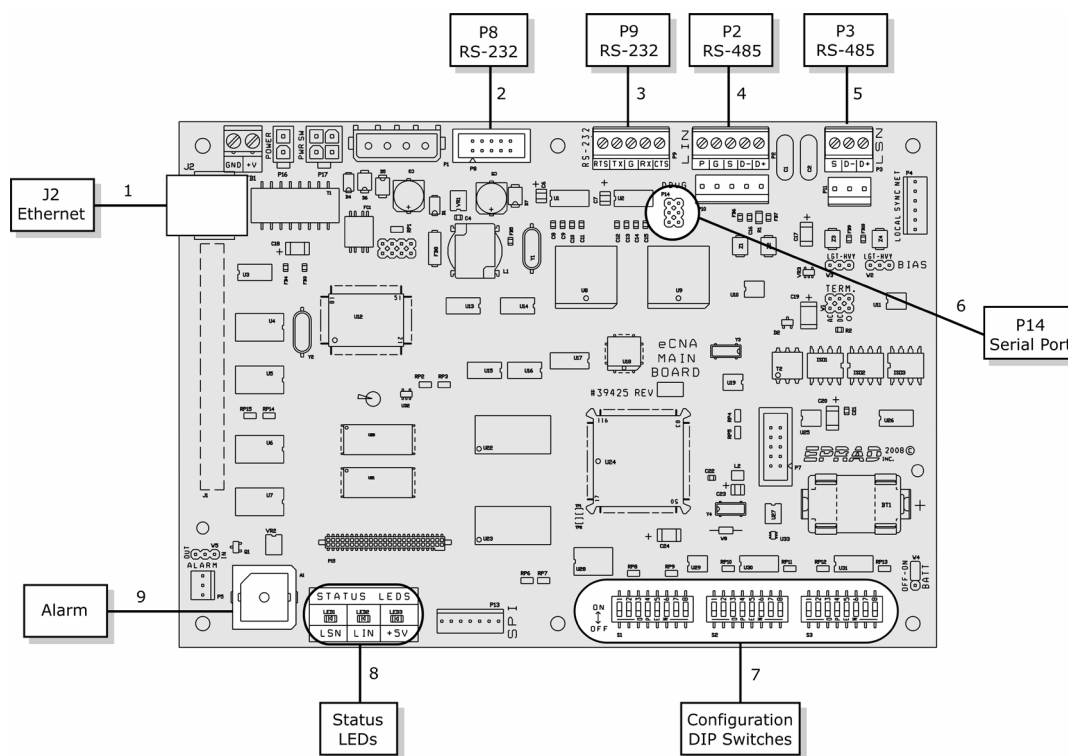
1) **Ethernet** J2 a 10Base-T Ethernet RJ-45 connector.

Ethernet Interface signals

Signal Name	Direction	Contact	Primary Function
TxD+	Out	1	Differential Ethernet Transmit Data +
TxD-	Out	2	Differential Ethernet Transmit Data -
RxD+	In	3	Differential Ethernet Receive Data +
n/c		4	Not Connected
n/c		5	Not Connected
RxD-	In	6	Differential Ethernet Receive Data -
n/c		7	Not Connected
n/c		8	Not Connected
Shield			Chassis Ground

2) **RS-232** P8 is an RS-232 port used to set up the Ethernet parameters. The same parameters can be set up from the web browser interface.

3) **RS-232** P9 is an RS-232 port used for CAI channel 1 communications.

4) **RS-485** P2 and P10 are the LIN (Local I/O Network) connections. Serial data and power support the termination boards, dimmer control and any other LIN devices.

5) **RS-485** P3 and P11 are connectors for the isolated RS-485 port.

6) **Serial Port** P14 supports the CAI channel 3. It requires the optional 39446 RS-232 adapter board.

7) **Configuration DIP Switches** S1 through S3 are used for eCNA configuration.

8) **Status LEDs** LED1 displays the status of the LSN and LED2 displays the status of the LIN. A fast blink indicates that the eCNA is communicating with a network device. LED3 is the +5 volt computer voltage.

9) **Alarm** The internal alarm is used to alert booth personnel that a show has stopped due to an equipment malfunction. The alarm is configured from the *System Parameters* screen.

Configuration DIP Switches

S1	Function	ON	OFF
S1-1	Boot Loader	Force Boot Loader on Power Up	Application on Power Up *
S1-2	Supervisory Defaults	Force Factory Defaults on Power Up	Do Not Overwrite *
S1-3	Screen Id 20H bit	Value = 20H (32 Decimal)	Value = 00H (0 Decimal) *
S1-4	Screen Id 10H bit	Value = 10H (16 Decimal)	Value = 00H (0 Decimal) *
S1-5	Screen Id 08H bit	Value = 08H (8 Decimal)	Value = 00H (0 Decimal) *
S1-6	Screen Id 04H bit	Value = 04H (4 Decimal)	Value = 00H (0 Decimal) *
S1-7	Screen Id 02H bit	Value = 02H (2 Decimal)	Value = 00H (0 Decimal) *
S1-8	Screen Id 01H bit	Value = 01H (1 Decimal) *	Value = 00H (0 Decimal)

S2	Function	ON	OFF
S2-1	Manual Control Screen	Enable *	Disable
S2-2	Password	Enable *	Disable
S2-3	Check Focus Delay Alarm	Enable	Disable *
S2-4	Fire Stop	Enable	Disable *
S2-5	*Not Defined*	*Not Defined*	*Not Defined* *
S2-6	*Not Defined*	*Not Defined*	*Not Defined* *
S2-7	Host Event Log	Enable *	Disable
S2-8	Cinema Automation Interface	Enable *	Disable

S3	Function	ON	OFF
S3-1	*Not Defined*	*Not Defined*	*Not Defined* *
S3-2	*Not Defined*	*Not Defined*	*Not Defined* *
S3-3	*Not Defined*	*Not Defined*	*Not Defined* *
S3-4	*Not Defined*	*Not Defined*	*Not Defined* *
S3-5	*Not Defined*	*Not Defined*	*Not Defined* *
S3-6	Check Focus Delay Alarm (Remote)	Disable RCM / RSM Alarm on Start *	Enable RCM / RSM Alarm on Start
S3-7	Host Select	TCP/IP Host Support *	LSN Gateway Host Support
S3-8	IP Defaults	Force Defaults on Power Up	Do Not Overwrite *

* Default

✔ Note: All DIP switches are read by the application once at power up. Changing the switches while the unit is powered on will not have an effect until the power is cycled.

S1-1 Force Boot Loader on Power Up
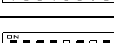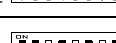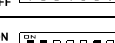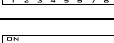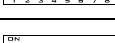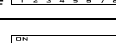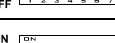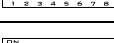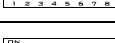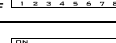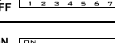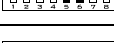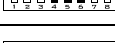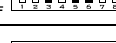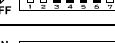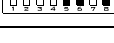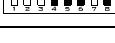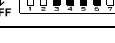
The boot loader is a program that supports the firmware download. It is protected and cannot be erased by the user. This ensures that the boot loader can always be reloaded even if the application software in flash memory is corrupted due to an incomplete download. If the unit won't boot due to a corrupted application, setting this switch to ON will force the boot loader to run on a power up. After a successful application upgrade, be sure to set this switch back to the OFF position.

S1-2 Supervisory Defaults

When this switch is ON, Supervisory factory defaults will be restored on power up overwriting any user configuration.

S1-3 - **S1-8** Screen Id

These six switches set the Screen Id number. It is suggested that each unit have these switches set to the corresponding screen or house number.

S2-1 Manual Control Screen Enable

This switch enables the Output Control and Status screens.

S2-2 Local Password Enable

This switch enables the Local password. There is currently no local password protected functions. This switch has no effect.

S2-3 Check Focus Delay Alarm Enable

This switch enables the 'Check Focus Delay' function. When this switch is ON the local and RSM/RCM remote station alarm will sound prior to the show starting. This feature alerts the operator that the show is about to start. The alarm will sound seven seconds before the show starts. This gives the operator time to make any quick adjustments.

S2-4 Fire Stop Option Enable

This switch enables the Fire Stop option. This only applies to the older 39331 Booth and 39332 Single termination boards that did not have a dedicated fire stop input. When this switch is ON the remote stop input on these boards was treated as a fire stop.

S2-5 Undefined.

S2-6 Undefined.

S2-7 Event Logging Enable

This switch enables the Event Logging to Host function. When this switch is ON events are automatically sent to the Host program as they occur. This applies only to the Host port 16000.

S2-8 Cinema Automation Interface (CAI) Enable

This switch enables the three CAI communications channels. When this switch is off, the CAI is Disabled and the eCNA ignores incoming control data.

S3-1 Undefined.

S3-2 Undefined.

S3-3 Undefined.

S3-4 Undefined.

S3-5 Undefined.

S3-6 Defeat Check Focus Delay Alarm at Remote

This switch disables the 'Check Focus Delay' alarm at the RSM/RCM remote stations.

S3-7 Ethernet TCP/IP Host Enable

The Host software program can connect to the unit via either the LSN Gateway Interface or Ethernet TCP/IP port 16000. This switch selects which communications port the unit will send the unsolicited status data.

S3-8: Ethernet IP Defaults

This switch forces the default Ethernet TCP/IP settings. When this switch is ON, factory defaults will be restored on a power up overwriting the user configured settings.

Ethernet default settings:
Duplex: Half
IP Address: 192.168.0.254
Subnet Mask: 255.255.255.0
Gateway IP: 0.0.0.0

3.2 Configuring Ethernet via the Serial Port

The eCNA-5's IP address must be configured before a network connection is available. The Ethernet communications can be configured via the RS-232 port, P8, on the Main CPU board. This is a dumb terminal interface and will work with almost any terminal emulation software program running on a PC. A 9 pin D-sub adapter is required to connect the PC to the P8 connector.

RS-232 Communication Parameters

Baud Rate: 19,200 bps
Data Length: 8 bits
Parity Bit: Even
Stop Bits: 1 bit
Flow Control: Hardware (RTS-CTS)

The following example uses Windows® HyperTerminal to setup the Ethernet TCP/IP parameters.

Configure HyperTerminal to connect to the eCNA with the communications parameters described above. With power off, connect the cable from the PC to P8. On power up, you should see the Main Menu screen.
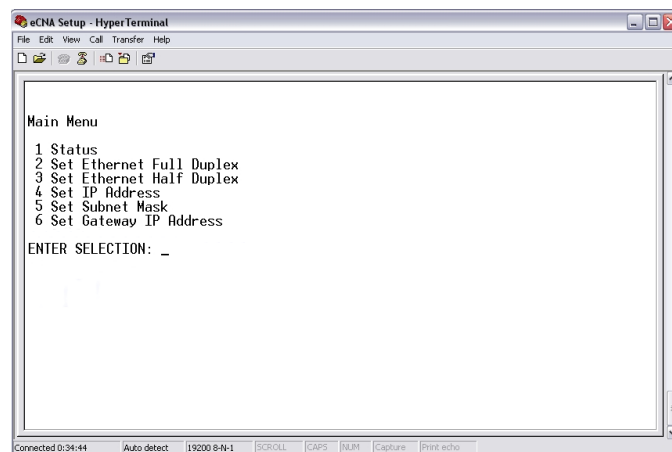
Status Press 1 to view the current status of the network settings.
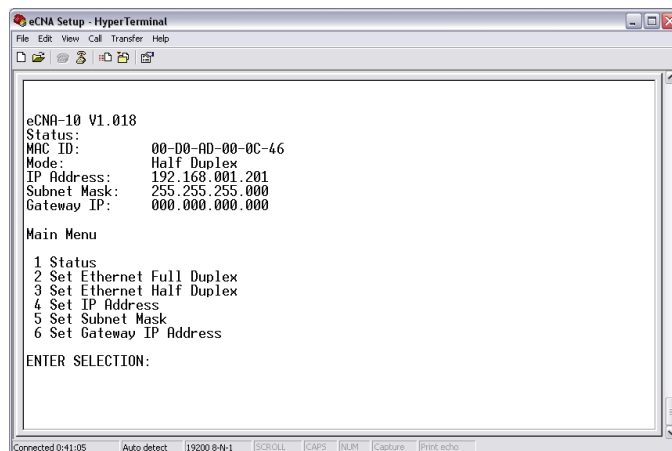
Duplex Ethernet communications can operate in Half or Full Duplex mode. This setting will depend on the device that is connected to the eCNA-5 (network switch, PC, etc.). Press 2 to set Ethernet Full Duplex. Press 3 to set Ethernet Half Duplex.

```
eCNA Setup - HyperTerminal
File  Edit  View  Call  Transfer  Help


Main Menu

 1 Status
 2 Set Ethernet Full Duplex
 3 Set Ethernet Half Duplex
 4 Set IP Address
 5 Set Subnet Mask
 6 Set Gateway IP Address

ENTER SELECTION: 3

Setting Full Duplex

<<<You must cycle power to activate this new parameter.>>>

Press any key to continue_


Connected 0:43:13    Auto detect    19200 8-N-1    SCROLL    CAPS    NUM    Capture    Print echo
```

IP Address The IP address assigned to the unit can be modified. Press 4 and enter the new address in the same format (as the current address) as it appears inside the parenthesis.

```
eCNA Setup - HyperTerminal
File  Edit  View  Call  Transfer  Help


Main Menu

 1 Status
 2 Set Ethernet Full Duplex
 3 Set Ethernet Half Duplex
 4 Set IP Address
 5 Set Subnet Mask
 6 Set Gateway IP Address

ENTER SELECTION:

IP Address(192.168.001.201):
          192.168.001.1_


Connected 0:46:10    Auto detect    19200 8-N-1    SCROLL    CAPS    NUM    Capture    Print echo
```

Subnet Mask The Subnet Mask assigned to the unit can be modified. Press 5 and enter the new mask in the same format (as the current mask) as it appears inside the parenthesis.

```
eCNA Setup - HyperTerminal
File  Edit  View  Call  Transfer  Help


Main Menu

 1 Status
 2 Set Ethernet Full Duplex
 3 Set Ethernet Half Duplex
 4 Set IP Address
 5 Set Subnet Mask
 6 Set Gateway IP Address

ENTER SELECTION:

Subnet Mask(255.255.255.000):
          255.255.2


Connected 0:48:05    Auto detect    19200 8-N-1    SCROLL    CAPS    NUM    Capture    Print echo
```

Gateway IP Address The Gateway IP Address assigned to the unit can be modified. The Gateway address allows communications to other LAN segments. The gateway address should be the IP address of the router connected to the same LAN segment as the eCNA. The gateway address must be within the local network. Press 6 and enter the new address in the same format (as the current address) as it appears inside the parenthesis.
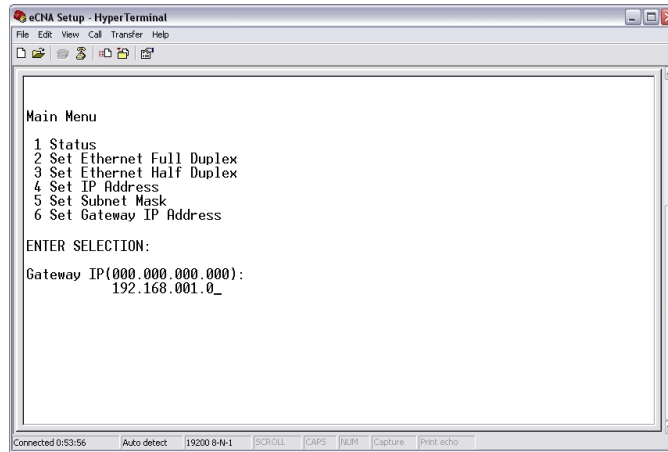
3.3 Configuring via the Web Browser

This section covers the steps required to configure the eCNA-5 for the network. Open your Java enabled web browser and enter http://192.168.0.254 into the *address* bar. Press the **Enter** key and the *HOME* screen will appear followed by the *Password* screen.
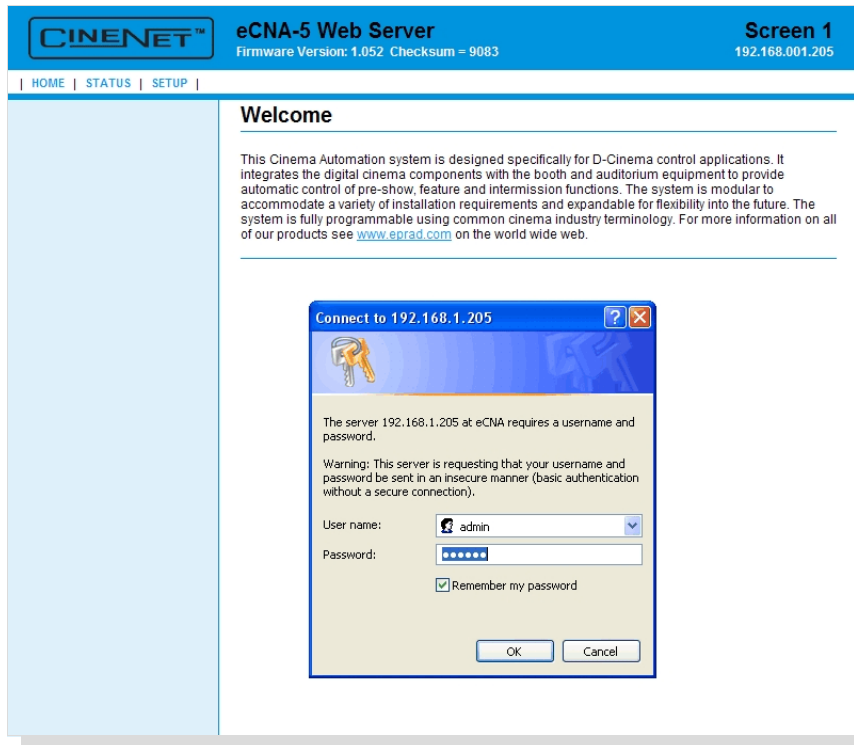
✔ Note: The unit ships with a default IP address of 192.168.0.254. If this address has been changed, enter the assigned IP address instead of the default. If you do not know the address, it can be found from the eCNA-5 front panel display in the *Ethernet TCP/IP* settings menu.
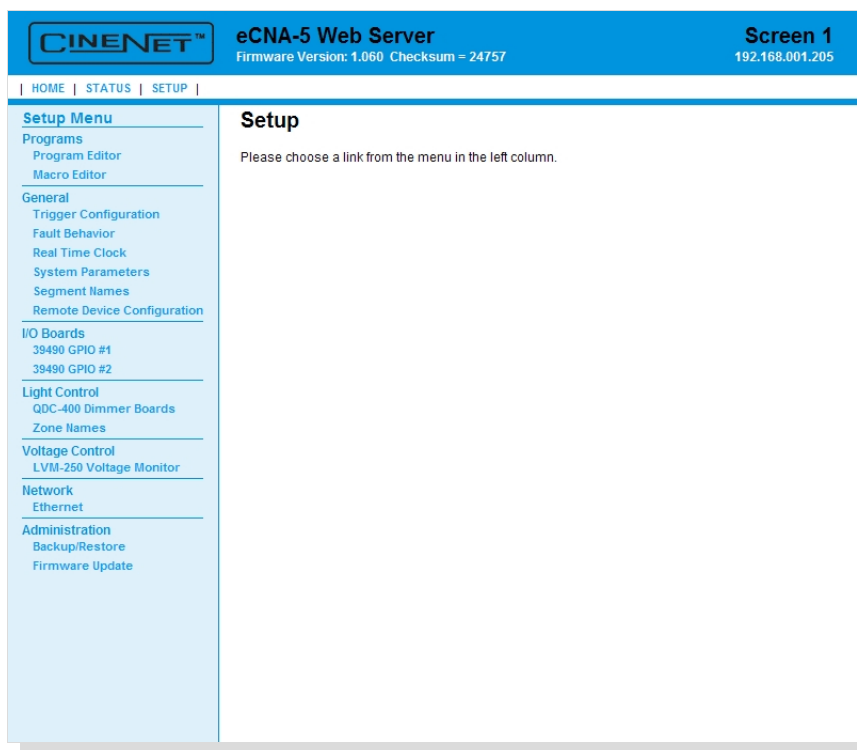
Enter **admin** in the *User name* field and **314159** in the *Password* field. Click on the **OK** button.

The first screen displayed upon login is the *HOME* screen. The Firmware Version, Screen Id Number and IP Address are displayed in the screen header. There are three menu options across the top of the screen: **HOME**, **STATUS** and **SETUP**.
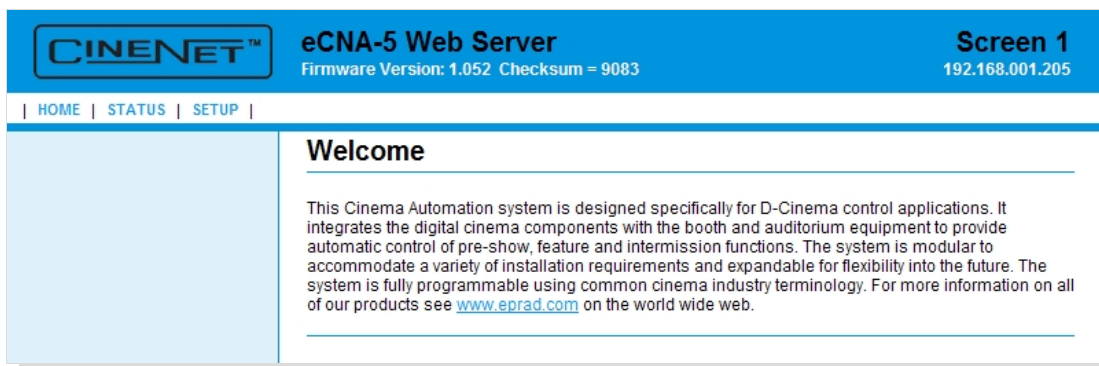
3.3.1 Setup

Click *SETUP* to get to the *Setup Menu*. The *Setup Menu* is along the left side of the screen: **Programs**, **General**, **I/O Boards**, **Light Control**, **Voltage Control**, **Network** and **Administration**. Each option contains screens that will help to configure the eCNA-5.

3.3.2 Setup: Ethernet Network

Click on *Ethernet* under *Network* from the *Setup Menu*. This screen displays information about the current Ethernet settings. The settings can be modified from this screen.

Duplex Mode The Ethernet supports half or full duplex communications. This setting will depend on the device that is connected to the eCNA-5 (network switch, PC, etc.).

IP Address The IP address assigned to the unit can be modified. Change each octet of the address by using the list box to select the desired number.

Subnet Mask The Subnet Mask assigned to the unit can be modified. Change each octet of the mask by using the list box to select the desired number.

Gateway IP Address The Gateway IP address assigned to the unit can be modified. Change each octet of the address by using the list box to select the desired number.

Multicast IP Multicast allows the eCNAs that belong to the multicast group to exchange status and control information. The network infrastructure between all eCNAs must be multicast capable, including intermediate routers. Multicast can be **Enabled** or **Disabled**. Multicast must be enabled and configured in order to use the *Network Monitor* screen.

Multicast Time to Live Each IP Multicast packet uses a time-to-live (TTL) parameter. This parameter controls the number of hops that a Multicast packet is allowed to propagate. Each time a router forwards a packet it's TTL is decremented. A Multicast packet whose TTL has expired (is 0) is dropped, without an error notification to the sender. This mechanism prevents messages from needless transmission to regions of a network that lie beyond the subnets containing the multicast group members. This setting will depend on the physical network. You can adjust the range of multicast propagations from 0 to 62.

Multicast Group IP Base Address Multicast addresses are in the range from 224.0.0.0 to 239.255.255.255. All eCNAs that are to belong to the same multicast group must have the same Multicast Group IP Starting Address. A block of 30 addresses should be reserved for current and future communications between eCNAs. For example, if you were to assign a starting address of 239.255.100.0, be sure that 239.255.100.0 to 239.255.100.30 are not being used for any other multicast enabled devices. Change each octet of the address by using the list box to select the desired number.

IP Multicast Address Ranges and Uses

Range Start Address	Range End Address	Description
224.0.0.0	224.0.0.255	Reserved for special "well-known" multicast addresses.
224.0.1.0	238.255.255.255	Globally-scoped (internet-wide) multicast addresses.
239.0.0.0	239.255.255.255	Administratively-scoped (local) multicast addresses.

Click on the **Reset** button to put the original data back. Click the **Submit** button to save new settings to the eCNA-5.

✔ Note: Changes to the **Duplex Mode**, **IP Address**, **Subnet Mask** and **Gateway IP Address** will not take effect until the eCNA-5 is re-booted. The eCNA can be re-booted locally by cycling power with the front panel power switch or from the web browser by clicking on the **Start RTOS** button from the *Firmware Update* screen.

3.3.3 Setup: Trigger Configuration

Click on *Trigger Configuration* under *General* in the *Setup Menu*. This screen displays information about the trigger assignments.

Triggers are used to initiate macros from internal and external events such as a power up, a fault, a key press or an input.

The following events can be assigned to triggers:

Event	Initiated by
Program Abort	Abort key or Abort command
Fault Set	Fault command, Fault input
Fault Clear	Cancel key, Cancel command
Fire Stop	Fire Stop input
Idle	Transition from In Progress (running a program) to the Idle state
In Progress	Start key, Start command
Power Up in Idle	eCNA-5 power up (in Idle state)
Resume	Start key, Start command
Stop	Stop key, Stop command
User-Defined Key 1 - 8	Front panel keys, Browser Status screen Web Keys
In 1 - 16	Input control flags
Timer 1 - 10	General Purpose Timer Expiration
Line Voltage Low	Line voltage dropped below Low Voltage Threshold
Line Voltage OK 1	Line voltage restored inside Voltage Low Window
Line Voltage OK 2	Line voltage restored outside Voltage Low Window

Macros can be assigned to any of these events. For example, the Fire Stop event could trigger a Fire Stop macro. First, create the Fire Stop macro from the Macro Editor screen and name it anything you want. "Fire Stop" would probably be a good name.

Next, assign the Fire Stop macro to be controlled by the Fire Stop event. Finally, name the trigger anything you want. Save the changes.

On a fire stop input, the eCNA will run the Fire Stop macro.

It is possible to assign more than one macro to an event or more than one trigger to a macro. To assign more than one macro to an event, just add another trigger (see trigger 1 and 3 or 2 and 4). To assign more than one trigger to a macro, just add another trigger (see trigger 1 and 2 or 3 and 4).

Click on the **Reset** button to put the original data back. Click the **Submit** button to save new settings to the eCNA-5.

3.3.4 Setup: Fault Behavior

Click on *Fault Behavior* under *General* in the *Setup Menu*. This screen displays information about the behavior of the output control state flags.

Setup: Fault Behavior

Warning: This form will change the configuration of the target device!

Fault Behavior	
Output Control Flag	**When to Memorize / Restore the Instruction Timer and Output State**
Digital Proj 1 Power	On Stop or Fault Set / On Resume or Fault Clear
Digital Proj 1 Video	On Stop or Fault Set / On Resume or Fault Clear
Digital Proj 2 Power	On Stop or Fault Set / On Resume or Fault Clear
Digital Proj 2 Video	On Stop or Fault Set / On Resume or Fault Clear
House Lights	On Stop or Fault Set / On Resume or Fault Clear
Stage Lights	On Stop or Fault Set / On Resume or Fault Clear
Curtain	On Stop or Fault Set / On Resume or Fault Clear
Masking	On Stop or Fault Set / On Resume or Fault Clear
Lens	On Stop or Fault Set / On Resume or Fault Clear
Sound	On Stop or Fault Set / On Resume or Fault Clear
Slide Projector	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 1	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 2	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 3	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 4	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 5	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 6	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 7	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 8	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 9	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 10	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 11	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 12	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 13	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 14	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 15	On Stop or Fault Set / On Resume or Fault Clear
Aux Out 16	On Stop or Fault Set / On Resume or Fault Clear

[Submit] [Reset]

By default, the eCNA-5 memorizes the state of the output control flags when a fault or a stop is received and restores the state when a program is resumed or when the fault is cleared in the idle state. When the eCNA-5 receives a fault from the client, the outputs can be driven to a fault state (see Trigger Configuration).

When this occurs during a program, the eCNA-5 suspends all active instruction delay timers and saves the current state of the outputs. When the program is resumed, the timers resume and the outputs are returned to their previous memorized state. When this occurs in the idle state (not running a program), the eCNA-5 saves the current state of the outputs. When the fault is cleared, the outputs are returned to their previous memorized state.

This is normally the preferred method of operation. However, if the default operation is not desirable, the *Fault Behavior* screen allows you to modify this behavior for individual output flags.

When to Memorize/Restore the Instruction Timer and Output State:

On Stop or Fault Set/On Resume or Fault Clear - (Default) The state of the output and the timer are memorized on a stop or a fault. The timer resumes and the output is returned to the memorized state when the program is resumed or when the fault is cleared in the Idle state.

On Fault Set/On Fault Clear - The state of the output is memorized on a fault. The timer resumes and the output is returned to the memorized state when the fault is cleared.

Never - The timer is not suspended (continues to tick) on a fault or a stop and the output fires when the timer expires. In this case the output is not effected unless it is overridden.

Click on the **Reset** button to put the original data back. Click the **Submit** button to save new settings to the eCNA-5.

Output Control Flag Definitions

Digital Projector Power/Video These are the four Digital Projector output control flags, **Digital Proj 1 Power**, **Digital Proj 1 Video**, **Digital Proj 2 Power** and **Digital Proj 2 Video**. These flags are controlled with a Program or Macro instruction. The client can also control these flags directly with the **Output (OUT)** serial command and can read the status of these flags with the **Status (STS)**, **Exchange Status (XST)** and **Request Status (RST)** Commands. These flags can also be sent, unsolicited, to the client in the **Report (RPT)** Message. If relay control is required, these flags can be assigned to any of the relays on the termination boards.

House Lights These are the house lights **Up**, **Down**, **Mid 1**, and **Mid 2** output control flags. By default, these are assigned to the house lights relays. Only one of these flags can be active at a time. These flags are controlled with a Program or Macro instruction. The client can also control these flags directly with the **Output (OUT)** serial command.

Stage Lights These are the stage lights **Up** and **Down** output control flags. By default, these are assigned to the stage lights relays. Only one of these flags can be active at a time. These flags are controlled with a Program or Macro instruction. The client can also control these flags directly with the **Output (OUT)** serial command.

Curtain These are the **Open** and **Close** output control flags. By default, these are assigned to the curtain relays. Only one of these flags can be active at a time. These flags are controlled with a Program or Macro instruction. The client can also control these flags directly with the **Output (OUT)** serial command.

Masking These are the masking **Flat**, **Scope** and **Special** output control flags. By default, these are assigned to the masking relays. Only one of these flags can be active at a time. These flags are controlled with a Program or Macro instruction. The client can also control these flags directly with the **Output (OUT)** serial command.

Lens These are the lens **Flat**, **Scope** and **Special** output control flags. By default, these are assigned to the lens relays. Only one of these flags can be active at a time. These flags are controlled with a Program or Macro instruction. The client can also control these flags directly with the **Output (OUT)** serial command.

Sound These are the sound **Non-Sync**, **Mono**, **SVA**, **Digital 1**, **Aux 1**, **Digital 2**, **Aux 2**, and **Mute** output control flags. By default, these are assigned to the sound relays. Only one of these flags can be active at a time. These flags are controlled with a Program or Macro instruction. The client can also control these flags directly with the **Output (OUT)** serial command.

Slide Projector This is the Slide (or Auxiliary) Projector output control flag. By default, this is assigned to the slide projector relay. These flags are controlled with a Program or Macro instruction. The client can also control these flags directly with the **Output (OUT)** serial command and can read the status of this flag with the **Status (STS)**, **Exchange Status (XST)** and **Request Status (RST)** commands.

Aux Out 1 - 16 These are the 16 Aux Out output control flags. These flags are controlled with a Program or Macro instruction. The client can also control these flags directly with the **Output (OUT)** serial command and can read the status of these flags with the **Status (STS)**, **Exchange Status (XST)** and **Request Status (RST)** Commands. If relay control is required, these flags can be assigned to any of the relays on the termination boards.

3.3.5 Setup: Real Time Clock

The eCNA-5 uses an internal clock/calendar to put time and date stamps on logged events. Time and date is displayed on the local *Run Status* screen and the *Main Status* web screen.

Click on *Real Time Clock* under *General* from the *Setup Menu*. This screen is used to setup the internal clock. The time is displayed in 24 hour format. This screen is not automatically refreshed. You must click on the **Refresh** button to get the current the time and date from the eCNA-5. Click on the **Submit** button to save your changes to the eCNA-5.

If the eCNA-5 is configured to use network (NTP) time, the **Submit** button is disabled and the clock cannot be changed. A message is displayed to indicate this condition.

3.3.6 Setup: System Parameters

Click on *System Parameters* under *General* in the *Setup Menu*. This screen displays information about global system settings. The settings can be modified from this screen. Click on the **Reset** button to put the original data back. Click the **Submit** button to save new settings to the eCNA-5.

Remote Stop Alarm This function serves as a remote network alarm. When set to a non-zero time, the alarm will 'pulse' if another eCNA on the network has sounded it's alarm due to a fault condition. Setting this time to 0 will disable this feature. Setting the time to 99 will sound the alarm until it is cancelled at the eCNA that initiated the alarm.

Digital Fault Input Latched This function configures the Digital 1 Fault and Digital 2 Fault input flags.

Value	Function
Yes	The Fault remains latched until the Cancel Keys is pressed.
No	The Fault is cleared when the corresponding input turns off.

Fire Stop Input Latched This function configures the Fire Stop input flags.

Value	Function
Yes	The Fault remains latched until the Cancel Keys is pressed.
No	The Fault is cleared when the Fire Stop input turns off.

Local Alarm Time (MM:SS) This function configures the local alarm.

Time (mm:ss)	Function
00:00	Disables the local alarm.
99:59	Alarm will sound until cancelled
00:01 to 99:58	Alarm will sound until time expires or cancelled.

User Defined Keys This allows the user to customize the front panel controls. The eight front panel keys can be assigned to any of the functions in the table below.

Key	Function
<<blank>>	Key has no function.
Start	Starts or Resumes a program.
Stop	Stops a Program. Press and hold for 5 seconds to abort a program.
Cue	Forces a cue event.
Cancel	Cancels the alarm or clears any 'latched' faults.
Bypass	Not used.
Volume Up	Ramps volume up.
Volume Down	Ramps volume down.
Mute	Mutes the sound.
Proj 1 Video	Toggles Projector 1 Video output.
Proj 1 Power	Toggles Projector 1 Power output.
Proj 2 Video	Toggles Projector 2 Video output.
Proj 2 Power	Toggles Projector 2 Power output.
Set Program 1	Sets the program to 1.
Set Program 2	Sets the program to 2.
Set Program 3	Sets the program to 3.
Set Program 4	Sets the program to 4.
Set Program 5	Sets the program to 5.
Set Program 6	Sets the program to 6.
Set Program 7	Sets the program to 7.
Set Program 8	Sets the program to 8.
Set Program 9	Sets the program to 9.
F1	F1 key will be displayed on the Main Status screen if *Web Keys* are enabled.
F2	F2 key will be displayed on the Main Status screen if *Web Keys* are enabled.
F3	F3 key will be displayed on the Main Status screen if *Web Keys* are enabled.
F4	F4 key will be displayed on the Main Status screen if *Web Keys* are enabled.
F5	F5 key will be displayed on the Main Status screen if *Web Keys* are enabled.
F6	F6 key will be displayed on the Main Status screen if *Web Keys* are enabled.
F7	F7 key will be displayed on the Main Status screen if *Web Keys* are enabled.
F8	F8 key will be displayed on the Main Status screen if *Web Keys* are enabled.
Program Abort	Aborts a program (back to idle state). Outputs are not changed.
Pause	Pauses a Program.

Web Keys This **Enables** or **Disables** the manual control buttons on the *Main Status* web screen. The button functions are the same as the User Defined front panel keys.

RTC: Time Format The clock can be set to display 12 or 24 hours time. Use the list box to change the time to **12 hour** or **24 hour** format.

RTC: Time Zone (UTC +/- HH:MM) When the eCNA-5 is configured to synchronize it's clock to an NTP Server, an offset time needs to be applied to the Coordinated Universal Time (UTC). For example, if you are in the Eastern Standard Time zone, set the value to -5:00.

Standard Time Zones in North America and Hawaii

Abbreviation	Full Name	Time Zone
NST	Newfoundland Standard Time	UTC - 3:30 hours
AST	Atlantic Standard Time	UTC - 4 hours
EST	Eastern Standard Time	UTC - 5 hours
CST	Central Standard Time	UTC - 6 hours
MST	Mountain Standard Time	UTC - 7 hours
PST	Pacific Standard Time	UTC - 8 hours
AKST	Alaska Standard Time	UTC - 9 hours
HAST	Hawaii-Aleutian Standard Time	UTC - 10 hours

RTC: Daylight Savings This applies the Daylight time adjustment to the clock. Select **Enabled** to automatically adjust for daylight savings.

RTC: Daylight Savings Start/RTC: Daylight Savings End If the Daylight Savings is **Enabled**, the daylight savings start and end time must be configured for your location.

Daylight Savings Time Rules

Location	DST Begins	DST Ends
North America	2 a.m. on the second Sunday in March	2 a.m. on the first Sunday in November
European Union	1 a.m. on the last Sunday in March	1 a.m. on the last Sunday in October
Australia	2 a.m. on the first Sunday in October	3 a.m. on the first Sunday in April
New Zealand	2 a.m. on the last Sunday in September	3 a.m. on the first Sunday in April

RTC: Daylight Savings Adjust (HH:MM) The DST adjustment time is in hours and minutes. This is the amount of time that the time will move forward at the beginning of DST and backward at the end of DST.

RTC: (NTP) Use Network Time Server The Network Time Protocol (N.T.P.) is an Ethernet TCP/IP protocol for distributing the universal time (U.C.) for the purpose of synchronizing the clocks of computer systems. The eCNA-5 implements SNTP and can be setup to be an NTP client. In order to use the NTP, a Network Time Server on the LAN or WAN must be available. Normally, a dedicated time server is installed inside the firewall of the LAN. Select **Enabled** to use the Network Time Server.

✔ Note: If the time server is on the other side of a router that is connected to the network subnet that the eCNA-5 belongs, remember to assign the router's IP address to the *Gateway IP Address* from the *Ethernet Network* setup screen.

RTC: (NTP) Time Server IP Address Select the IP address of the Network Time Server from which the eCNA-5 will get it's time.

Although the time server would normally be on the local network, here is a list of public time servers on the internet used by the NIST Internet Time Service (ITS). The table lists the IP address and location.

<p style="text-align:center">NIST Internet Time Servers</p>

IP Address	Location
129.6.15.28	NIST, Gaithersburg, Maryland
129.6.15.29	NIST, Gaithersburg, Maryland
132.163.4.101	NIST, Boulder, Colorado
132.163.4.102	NIST, Boulder, Colorado
132.163.4.103	NIST, Boulder, Colorado
128.138.140.44	University of Colorado, Boulder
192.43.244.18	NCAR, Boulder, Colorado
131.107.13.100	Microsoft, Redmond, Washington
69.25.96.13	Symmetricom, San Jose, California
206.246.118.250	WiTime, Virginia
64.125.78.85	WiTime, San Jose, California
207.200.81.113	Symmetricom, AOL facility, Sunnyvale, California
64.236.96.53	Symmetricom, AOL facility, Virginia
68.216.79.113	Columbia County, Georgia
71.13.91.122	Monroe, Michigan
64.113.32.5	Southfield, Michigan

When the eCNA-5 is correctly configured as an NTP client, but cannot connect or has lost it's connection to a time server, the **NTP Server Not Found** message is displayed on the local and web screen's *active message* line.

3.3.7 Setup: Segment Names

Click on *Segment Names* under *General* in the *Setup Menu*. This screen displays the Segment Names.

Segment names can be used to identify parts of a presentation. For example, a typical show could be divided into *Pre-show*, *Previews*, *Feature*, *Credits* and *Between Shows* segments. Use the Segment instruction in a program or a macro along with any other instructions that set up the auditorium for that particular show segment. The segment name will be displayed on the eCNA status screens and are available to the client with the XST, RST and STS commands.

Segment names can be edited with up to 14 text characters. Click inside the text box and type the segment name. Click the **Submit** button to save new names to the eCNA-5. The **Reset** button puts the original data back.

Setup: Segment Names

Warning: This form will change the configuration of the target device!

Seg	Seg Name
0	Between Shows
1	Pre-Show
2	Pre-Show Ends
3	Feature Start
4	Feature
5	Intermission
6	Feature Credit
7	Feature Ends
8	Trailers
9	Alt. Content
10	Feat. Flat 2D
11	Feat. Scope 2D
12	Feature 3D
13	Segment13
14	Segment14
15	Segment15
16	Segment16
17	Segment17
18	Segment18
19	Segment19
20	Segment20
21	Segment21
22	Segment22
23	Segment23
24	Segment24
25	Segment25
26	Segment26
27	Segment27
28	Segment28
29	Segment29

Submit   Reset

Segment names are saved to a separate file and not part of a program or macro file. Therefore, if a *backup* of a program or macro file from machine 1 is loaded into machine 2, the segment names from machine 2 are used. You must also load the segment names file into machine 2 if you want the names to be consistent.

3.3.8 Setup: Remote Device Configuration

Click on *Remote Device Configuration* under *General* in the *Setup Menu*. This screen is used to setup communications parameters and command messages for an Ethernet TCP connection to a device.

The eCNA-5 supports five Remote Device Interface (RDI) communication channels. These are used to control devices such as a projectors, sound processors, etc.

Configuration:

Device Communications Select **Enable** to enable communications to the remote device.

Device This is a list of supported devices including Raw. Select the device that the eCNA-5 will be controlling.

Device Name Enter the Device Name (up to 10 characters). This name is used in the *RemDev* macro and program instructions.

IP Address Enter the IP address of the remote device. See remote device documentation.

Port Number Enter the port number of the remote device. See remote device documentation.

Poll for Status   The eCNA can retrieve status information from some remote devices. This status can be made available to CAI clients (See Appendix B). Status messages can be viewed from the *CAI/RDI*

Status Messages status screen. Select **Enable** to enable polling the device for status.

Poll Interval   This is the time interval in seconds that the remote device is polled for status. The range is 2 to 60 seconds. 10 seconds is the default.

Messages:

Enter the **Message Name** of the command (up to 14 characters). This name is used in the *RemDev* macro/program instruction.

The **Message Command Code** is the actual command sent to the remote device. These are the commands supported by a particular device. Remote Device configuration files are available from EPRAD for supported devices.

Message Command codes can be added, deleted or edited as required. They can be entered in binary, ASCII or a combination of both.

Enter binary data using hex numbers (e.g. 0D0A). Only characters that represent hex numbers are allowed (0-9, A-F, a-f). It is okay to put spaces between data bytes for clarity. Except for spaces, if you submit the form with anything entered except for these characters, the web editor will prevent it from being saved to the eCNA. The "Error: Invalid character" message is displayed.

ASCII characters must be inside the curly braces { }. All 95 of the printable ASCII characters, numbered 32 through 126 (decimal) are supported. However there are some limitations to using the curly braces inside the curly braces.

The maximum length of a command code is 40 characters.

Examples of **valid** command code formats:

User Text	Data bytes actually sent	Comment
AB 12 {Hello} 0D 0A	AB 12 48 65 6C 6C 6F 0D 0A	Data bytes sent to device are the same.
AB 12 {Hello} D A	AB 12 48 65 6C 6C 6F 0D 0A	
ab12{Hello}0d0a	AB 12 48 65 6C 6C 6F 0D 0A	
22 {Hello} 2D {World} 22	22 48 65 6C 6C 6F 2D 57 6F 72 6C 64 22	Data bytes sent to device are the same.
22{Hello}2D{World}22	22 48 65 6C 6C 6F 2D 57 6F 72 6C 64 22	
{"Hello-World"}	22 48 65 6C 6C 6F 2D 57 6F 72 6C 64 22	
{abc{abc}abc}	61 62 63 7B 61 62 63 7D 61 62 63	Data bytes sent to device are the same.
6162637B6162637D616263	61 62 63 7B 61 62 63 7D 61 62 63	

Examples of **invalid** command code formats:

User Text	Comment
AB 12 {Hello} \0D \0A	Web editor prevents this message from being saved. The "\" character is not allowed outside of the curly braces. Only 0-9, A-F, a-f characters are allowed in hex (binary) mode.
AB 12 {Hello} \r \n	Web editor prevents this message from being saved. The "\", "r" and "n" characters are not allowed outside of the curly braces. Only 0-9, A-F, a-f characters are allowed in hex (binary) mode.
{Hello World}}	Web editor prevents this message from being saved. The first right curly brace "}" following the first left curly brace "{" terminates text mode. If you really wanted to send the message "Hello Word}", you would enter: **{Hello World}7D**

For unsupport devices, you must use the *Raw* device selection and the enter the entire command including a checksum (if required) as described the manufacturer's documentation.

For supported devices, select the appropriate device. For convenience, it is only necessary to enter the command itself. Any start byte, Id, checksum, etc. are automatically inserted into the message before it is sent to the device. See Appendix A for details about configuration and messages for supported devices .

Only use commands that force an action at the device (such as turning the lamp on). Status commands that request information from the device serve no purpose here. Status requests for some supported devices are handled automatically by the eCNA.

✔ Note: Remember, these are the actual command codes sent to the device, so be sure to enter them correctly. An incorrect command code could result in adverse behavior of the device.

It is also important that you understand very well what these commands do in the context of the overall operation of the device in order to use them properly.

Contact the manufacturer of the device or EPRAD for additional support.

The **Resp** checkbox tells the eCNA whether or not to expect a response from the Remote Device. Some devices send an acknowledgment to the command, so this box must be 'checked' if the device sends a response.

Click **Submit** to save configuration to the eCNA. Click **Reset** to abort any changes.

The **Prev** and **Next** buttons take you to another device setup screen.

3.3.9 I/O Boards

The eCNA-5 uses the 39490 termination board to provide digital inputs and outputs. This board features 16 outputs and 8 inputs. The software supports two termination boards to provide a total 32 outputs and 16 inputs.

Outputs are controlled by Program/Macro Instructions and Serial Commands. The relays can be configured for **Pulsed** or **Maintained**. The pulse duration is about two seconds.

Inputs only require a momentary pulse in order to set the input control flag. The duration of an input pulse should be at least 0.5 seconds.

3.3.10 Setup: 39490 GPIO

Click on *39490 GPIO #1* under *I/O Boards* from the *Setup Menu*. This screen is used to setup the board's outputs and inputs.

Relay control can be assigned by using the 'Controlled by' column in the Outputs table. A relay can be controlled by any of the output control flags in the list box.

Any relay can be configured for **Pulsed** or **Maintained**. Click on the **Reset** button to put the original data back. Click the **Submit** button to save new settings to the eCNA-5.

The relay **Outputs** can be assigned to any of the control flags in the table.

Name	Description
<<Blank>>	
DP1 Pwr Off	Controlled by *Digital Projector 1 Power Off* output control flag
DP1 Pwr On	Controlled by *Digital Projector 1 Power On* output control flag
DP1 Vid Off	Controlled by *Digital Projector 1 Video Off* output control flag
DP1 Vid On	Controlled by *Digital Projector 1 Video On* output control flag
DP2 Pwr Off	Controlled by *Digital Projector 2 Power Off* output control flag
DP2 Pwr On	Controlled by *Digital Projector 2 Power On* output control flag
DP2 Vid Off	Controlled by *Digital Projector 2 Video Off* output control flag
DP2 Vid On	Controlled by *Digital Projector 2 Video On* output control flag
In Progress	Controlled by eCNA-5's *In Progress* control flag
Fault	Controlled by eCNA-5's *Major Fault* control flag
Fire Stop	Controlled by eCNA-5's *Fire Stop* control flag
H. Lights Down	Controlled by *House Lights Down* output control flag
H. Lights Mid 1	Controlled by *House Lights Mid 1* output control flag
H. Lights Mid 2	Controlled by *House Lights Mid 2* output control flag
H. Lights Up	Controlled by *House Lights Up* output control flag
S. Lights Down	Controlled by *Stage Lights Down* output control flag
S. Lights Up	Controlled by *Stage Lights Up* output control flag
Curtain Open	Controlled by *Curtain Open* output control flag
Curtain Close	Controlled by *Curtain Close* output control flag
Mask Flat	Controlled by *Format* or *Masking* output control flag
Mask Scope	Controlled by *Format* or *Masking* output control flag
Mask Special	Controlled by *Format* or *Masking* output control flag
Lens Flat	Controlled by *Format* or *Lens* output control flag
Lens Scope	Controlled by *Format* or *Lens* output control flag
Lens Special	Controlled by *Format* or *Lens* output control flag
Sound Aux 1	Controlled by *Format* or *Sound* output control flag
Sound Aux 2	Controlled by *Format* or *Sound* output control flag
Sound Digital 1	Controlled by *Format* or *Sound* output control flag
Sound Digital 2	Controlled by *Format* or *Sound* output control flag
Sound Mono	Controlled by *Format* or *Sound* output control flag
Sound Mute	Controlled by *Format* or *Sound* output control flag
Sound Non-Sync	Controlled by *Format* or *Sound* output control flag
Sound SR	Controlled by *Format* or *Sound* output control flag
Sound SVA	Controlled by *Format* or *Sound* output control flag
Slide Projector	Controlled by *Slide Projector* output control flag
Film Projector	Controlled by *Projector* output control flag
Xenon Lamp	Controlled by *Projector* output control flag
Changeover Close	Controlled by *Changeover Close* output control flag
Changeover Open	Controlled by *Changeover Open* output control flag
Aux Out 1 - Aux Out 16	Controlled by *Aux Out* output control flags
In 1 - In 16	Controlled by the *Input* input control flags

Use the 'Connected to' list box to assign an input to an input control flag. The 'invert' flag allows the user to individually configure inputs to be either positive true or negative true.

Inputs can be assigned to any of the control flags in the table.

Name	Description
<<Blank>>	
Film Motion	Stops a program after 2 seconds if not satisfied.
Film Presence	Stops or prevents a start if not satisfied.
Xenon Fault	Stops a program after 10 seconds if not satisfied.
Stop	Program stop input
Start	Program start input
Digital 1 Cue	Cue Input from digital system 1 (Always active)
Digital 1 Fault	Major Fault input from digital system 1
Digital 1 Stop	Stop Input from digital system 1
Digital 1 Start	Start Input from digital system 1
Digital 2 Cue	Cue Input from digital system 2 (Always active)
Digital 2 Fault	Major Fault input from digital system 2
Digital 2 Stop	Stop Input from digital system 2
Digital 2 Start	Start Input from digital system 2
Bypass	De-activates the Bypass Control Relays on 39440 Termination Board.
Program Abort	Aborts a program (back to idle state). Outputs are not changed.
Pause	Pauses a program.
Firestop	Fire Alarm Input
In 1 - In 16	Input control flags 1 through 16.
Cancel	Cancels the alarm or clears any 'latched' faults.

Stop This input control flag is used to stop the program. This is the same as pushing the stop on the front panel. Resume the program with Start.

Start This input control flag is used to start or resume the program. This is the same as pushing the start key on the front panel.

Digital Cue This input control flag is used to step a program. The eCNA-5 currently supports up to 20 cues per program. This input is leading edge sensitive.

Digital Fault This input control flag will cause a *Major Fault* in which the eCNA-5 will stop it's program and sound the alarm (if enabled). This could be used by the client in the event of a digital system error or fault. The alarm would notify the operator that manual intervention is required. This input is level sensitive.

Digital Start This input control flag is used to start or resume the program. This is the same as pushing the start key on the front panel.

Digital Stop This input control flag is used to stop the program. This is the same as pushing the stop on the front panel. Resume the program with the Digital Start.

Program Abort This input aborts the user program (back to show idle). All outputs remain in their current state. This input is leading edge sensitive so the input must be de-asserted before it will work again.

Pause This input will stop all program timers if the eCNA program is in progress and not "stopped" or "faulted". Any start (resume) input command will cancel the pause condition and restart the timers. Note: This works like a stop/resume except the outputs do not switch to the "Fault-to" state.

Firestop This input control flag causes the firestop event which can be assigned to a trigger to initiate a fire alarm macro.

In1 - In16 The inputs can be connected to input control flags. These control flags can be used to activate Triggers or can be connected directly to relay outputs.

For example, input IN 1 can be configured to control the Out 1 relay. Configure IN 1 to be connected to the In 1 control flag and configure the Out 1 relay to be controlled by the In 1 control flag.

Click on the **Reset** button to put the original data back. Click the **Submit** button to save new settings to the eCNA-5.

Cancel This input control flag cancels the alarm or clears any 'latched' faults.

Invert Flag

The inputs can be individually configured for positive true or negative true. Click on the **Inv** check box next to the input you want to invert.

3.3.11 Setup: Light Control

The eCNA-5 software supports up to four QDC-400 4-channel dimmer control boards for a total of sixteen channels. If the QDC-400 is installed on the LIN use the following two screens to set up the QDC-400.

✔ Note: This board is powered by the Local I/O Network (LIN). If more than one QDC-400 dimmer control board is to be installed on the LIN, make sure the eCNA-5's power supply is of sufficient size. See *Power Supply* section.

3.3.12 Setup: Zone Names

Click on *Zone Names* under *Light Control* in the *Setup Menu*. Up to sixteen different light zones are supported by the QDC dimmer. Each zone name can be can be named to indicate it's particular function. *Zone* 1 is fixed for **House** lights and *Zone* 2 is fixed for **Stage** lights. Zones 3 through 16 can be named with up to eight characters of text. Click in the *Zone Name* text box and enter the zone name. These names are used in the *QDC-400 Dimmer Boards* setup screen and the *Lights* instruction.

Click on the **Reset** button to put the original data back. Click the **Submit** button to save new settings to the eCNA-5.

Setup: Zone Names

Warning: This form will change the configuration of the target device!

Zone	Zone Name
1	House
2	Stage
3	Sconce
4	ZONE 4
5	ZONE 5
6	ZONE 6
7	ZONE 7
8	ZONE 8
9	ZONE 9
10	ZONE 10
11	ZONE 11
12	ZONE 12
13	ZONE 13
14	ZONE 14
15	ZONE 15
16	ZONE 16
Submit	Reset

3.3.13 Setup: QDC-400 Dimmer Boards

QDC-400 dimmer control board channels must be configured for the desired lighting zone. The 'physical' wiring of the dimmer power modules and lights will determine how the zones are configured. The eCNA-5 supports up to four QDC-400 dimmer control boards. The channels are assigned to the dimmer boards as follows:

QDC-400 Dimmer Board	Channels
1	1, 2, 3, 4
2	5, 6, 7, 8
3	9, 10, 11, 12
4	13, 14, 15, 16

Click on *QDC-400 Dimmer Boards* under *Light Control* in the *Setup Menu*. Use the *Zone* list box to select a zone to assign to a channel. Four light levels, **Up**, **Down**, **Mid 1** and **Mid 2** can be configured from 0% to 100% for each channel. The *Fade-in Time* controls how long it takes to ramp to that level from any other light level. The range is 0 to 99 seconds.

Click on the **Reset** button to put the original data back. Click the **Submit** button to save new settings to the eCNA-5.

3.3.14 Setup: LVM-250 Voltage Monitor

Click on *LVM-250 Voltage Monitor* under *Voltage Control* in the *Setup Menu*. Use this screen to configure the eCNA-5 for the optional LVM-250 Voltage Monitor.

The LVM-250 is an LIN device that can monitor the power line voltage for power interruptions. The eCNA-5 must be powered from the load side of the UPS (Uninterruptible Power Supply).

Lower Voltage Threshold Establishes the low voltage trip point. Range = 0 to 250 volts

Upper Voltage Threshold Establishes the upper voltage okay point. Range = 0 to 250 volts

Voltage Low Event Hold-Off Time Sets the delay from the line voltage not okay condition to the Line Voltage Low Event. Range = 0:00 to 59:59 mm:ss

Voltage Low Window Time Establishes a time period where the Voltage OK 1 Event can occur. Range = 0:00 to 59:59 mm:ss

Voltage OK Event Hold-Off Time Sets the delay from the from the line voltage okay condition to the Line Voltage OK 1 and OK 2 Events. Range = 0:00 to 59:59 mm:ss

Voltage Logging Period Sets the Voltage Logging interval. Range = 0:00 to 59:59 mm:ss. 0:00 disables logging.

Click on the **Reset** button to put the original data back. Click the **Submit** button to save new settings to the eCNA-5.

Note: See the LVM-250 Voltage Monitor Manual for a complete description of the monitor.

3.3.15 Administration

These screens are used for backing up and restoring system configuration files and upgrading the firmware and should be used only by technically qualified personnel.

3.3.16 Setup: Backup or Restore eCNA-5 Configuration

Click on *Backup/Restore* under *Administration* in the *Setup Menu*. This screen is used to backup the eCNA-5 settings to a disk file or restore the settings from a file or to the factory defaults.

Backup to a File Backup the eCNA-5 configuration to a disk file by selecting a file to backup from the list box. You can backup all files or individual files. After a file is selected, click on the **Backup** button to save the file. Most browsers will open a 'File Save' dialog box so you can browse to folder, rename and save the file. Files are saved as XML documents. The default name is *Backup.xml*.

Restore from a Backup Restore allows you to select one of your previous backup files and send it to the eCNA-5. This will overwrite the file or files at the eCNA-5 changing it's configuration.

Click on the **Browse** button to choose a file on the disk or click in the text box and type the path and filename. Click on the **Restore** button to send the file to the eCNA-5. A *Sending File* progress bar appears at the bottom of the screen. The screen is refreshed when finished.

Restore to Factory Defaults This resets the eCNA-5's configuration to the factory default parameters. All configuration in System Parameters, Fault Behavior, Segment Names, I/O Boards, Light Control and Sound Control are set to the defaults. It does not effect Ethernet settings, user Programs or Macros, however user configurable text will change in program instructions. Click on the **Restore to factory defaults** button to perform the operation.

Clear All This resets the eCNA-5's configuration to the factory default parameters. All configuration in System Parameters, Fault Behavior, Segment Names, I/O Boards, Light Control, Sound Control, Macros and Programs are set to the defaults. It does not effect Ethernet settings. Click on the **Clear All** button to perform the operation.

3.3.17 Setup: Device Firmware Update

Click on *Firmware Update* under *Administration* in the *Setup Menu*. This screen is used to upgrade the eCNA-5 application firmware. The screen shows status of the current application and boot loader programs. The screen is not automatically updated.

✔ Note: The firmware cannot be updated if the application is running a program. This is indicated by the *App Busy* flag. If a program is running, end or abort the program and click on the **Refresh Table** button to update the screen. The **Start Boot** and **Start RTOS** buttons should now be enabled.

Upgrading firmware will clear all user configurable data in the eCNA-5!

Before proceeding with the upgrade, the following is recommended:

a) Backup the eCNA-5 configuration files.
b) Make note of the version and checksum of the firmware currently installed.
c) Make sure the software to be installed is compatible with the eCNA-5.
d) Have the installation file of the software currently installed available.

The **Start Boot** button starts the boot loader program. The **Start RTOS** button just re-starts the application without making any changes to the eCNA-5.

Click on the **Start Boot** button to start the eCNA boot loader program. The eCNA-5 will restart after a short delay and you will see the *eCNABOOT Web Server* screen. Click on *DEVICE FIRMWARE UPDATE* to get to the Boot loader's Firmware Update screen.

Device Firmware Update

Upgrading the flash memory of CNA devices through the network should only be performed by those extremely experienced in the setup and operation of the CNA devices. It is possible to lose remote data and even lose functionality of the device. Be sure to perform the following:

A: BACKUP ALL the remote's setup data.
B: Write down the software version and checksum of the software currently installed in the device.
C: Make sure the new software to be installed is compatible with the device.
D: It is a good idea to have the installation file of the current version of software available.

Application Name	Version	Checksum	Running	App Valid	App Busy
eCNA-10	1.022	42788	No	Yes	No

Bootloader Name	Version	Checksum	Running	Force Boot	
eCNABOOT	2.070	6997	Yes	No	

Hardware Flags
4, Front Panel Type: eCNA-10

Refresh Table

1. Use the Browse button to select a file on the local disk.
2. Press the "Start Flash" button to send the file to the device.

C:\10V1022.S29   Browse...

Start Boot   Start RTOS   Start Flash

Click on the **Browse** button to choose a file on the disk or click in the text box and type the path and filename. Click on the **Start Flash** button to send the file to the eCNA-5. A progress bar appears at the bottom of the screen. The screen is refreshed when finished. When the upgrade is complete, click on the **Start RTOS** button to start the application program.

3.3.18 Programs

A program is a series of instructions that are executed as they are encountered. The **Wait Cue** instruction is a special instruction that causes the program to wait for a *cue* event before continuing. Many instructions have an associated offset time which allow time-delayed execution. The eCNA-5 can store up to nine programs. A macro is similar to a program but is used differently. The eCNA-5 can store up to thirty macros.

3.3.19 Program and Macro Instructions

This is a table of instructions available to build programs and macros. The highlighted instructions are not available in the macro editor.

Program and Macro Instructions

Instruction		Parameters / Offset Time
<< blank >>		n/a
Curtain Open	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Curtain Close	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Curtain None	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Slide Projector On	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Slide Projector Off	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
* Wait Cue *d*		*d* = 0 to 20
* Wait	*dd:dd*	*dd:dd* = 0:00 to 99:99 minutes:seconds
Aux *m1 m2*	*dd:dd*	*m1* = Out 1 to Out 16 *m2* = On, Off *dd:dd* = 0:00 to 99:99 minutes:seconds
m1 Lights *m2*	*dd:dd*	*m1* = House; Stage; Zone 3 to Zone 16 *m2* = Up; Down; Mid 1; Mid 2; None *dd:dd* = 0:00 to 59:59 minutes:seconds
Sound: *m*	*dd:dd*	*m* = Non-Sync; Mono; SVA; SR; Digital 1; Aux 1; Digital 2; Aux 2; Mute On; Mute Off; None *dd:dd* = 0:00 to 59:59 minutes:seconds
Masking: *m*	*dd:dd*	*m* = Flat; Scope; Special *dd:dd* = 0:00 to 59:59 minutes:seconds
Projector: *m*	*dd:dd*	*m* = Film Off; Film On; Changeover Close; Changeover Open; Digital 1 Pwr Off; Digital 1 Pwr On; Digital 1 Vid Off; Digital 1 Vid On; Digital 2 Pwr Off; Digital 2 Pwr On; Digital 2 Vid Off; Digital 2 Vid On *dd:dd* = 0:00 to 59:59 minutes:seconds
CAI Commands: *m1 m2*		*m1* = Ch 1; Ch 2; Ch3 *m2* = Allow; Block
Segment *m*		*m* = Seg 0 to Seg 9
* Wait Event: *m*		*m* = 0 to 20
Call Macro: *m*		*m* =0:No-op to 30:
CAI Report Event: *m*		*m* = SENDF1 to SENDF30
Lens/Masking: *m*	*dd:dd*	*m* = Flat; Scope; Special *dd:dd* = 0:00 to 59:59 minutes:seconds
Lens: *m*	*dd:dd*	*m* = Flat; Scope; Special *dd:dd* = 0:00 to 59:59 minutes:seconds
Set Timer: *d*	*dd:dd*	*d* = 1 to 10 *dd:dd* = 0:00 to 99:99 minutes:seconds
Timer: *d m*		*d* = 1 to 10 *m* = Pause; Resume
Display Timer: *d*		*d* = 1 to 10
** Exit If: *m*		*m* = In 1 to In 16; Aux Out 1 to Aux Out 16; Segment 0 to Segment 9
RemDev1: *m1 m2*		*m1* = Remote Device 1 Name *m2* = Message Name
RemDev2: *m1 m2*		*m1* = Remote Device 2 Name *m2* = Message Name
RemDev3: *m1 m2*		*m1* = Remote Device 3 Name *m2* = Message Name
RemDev4: *m1 m2*		*m1* = Remote Device 4 Name *m2* = Message Name
RemDev5: *m1 m2*		*m1* = Remote Device 5 Name *m2* = Message Name

d = decimal number
m = message
* Not available in the Macro Editor
** Not available in the Program Editor

Output Instructions

Instructions that control the **Standard Outputs** have an *offset* timer that allows delayed execution of the instruction. Standard Outputs are control output *types* listed in the following table.

Standard Outputs			
1	Curtain	22	Masking
2	Slide Projector	23	Digital Projector 1 Power
3	Aux Out 1	24	Digital Projector 1 Video
4	Aux Out 2	25	Digital Projector 2 Power
5	Aux Out 3	26	Digital Projector 2 Video
6	Aux Out 4	27	House Lights
7	Aux Out 5	28	Stage Lights
8	Aux Out 6	29	Zone 3 Lights
9	Aux Out 7	30	Zone 4 Lights
10	Aux Out 8	31	Zone 5 Lights
11	Aux Out 9	32	Zone 6 Lights
12	Aux Out 10	33	Zone 7 Lights
13	Aux Out 11	34	Zone 8 Lights
14	Aux Out 12	35	Zone 9 Lights
15	Aux Out 13	36	Zone 10 Lights
16	Aux Out 14	37	Zone 11 Lights
17	Aux Out 15	38	Zone 12 Lights
18	Aux Out 16	39	Zone 13 Lights
19	Sound	40	Zone 14 Lights
20	Sound Mute	41	Zone 15 Lights
21	Lens	42	Zone 16 Lights

There is one instruction offset timer for each of the Standard Outputs. An offset time of 00:00 (mm:ss) disables the timer and the instruction is executed immediately. An offset time greater than 00:00 (mm:ss) arms the timer and schedules the instruction to execute when the timer expires.

Since each Standard Output instruction has only one timer, the operation of the offset timer in a program or macro can be illustrated with the follow examples. The House Lights is a 1-of-5 state output type: *Up*, *Down*, *Mid 1*, *Mid 2* and *None*. Only one state can be active at a time.

Case 1:   The Up output flag is activated immediately and the Down output flag is activated after 10 seconds.

        1   Lights House Up   00:00
        2   Lights House Down   00:10

Case 2:   The Up output flag does nothing. The Down output flag is activated immediately. The last one writes a new timer value.

        1   Lights House Up   00:00
        2   Lights House Down   00:00

Case 3:   The Up output flag does nothing. The Down output flag is activated after 10 seconds. The last one writes a new timer value.

        1   Lights House Up   00:05
        2   Lights House Down   00:10

Curtain

These instructions control the **Curtain** output flags to operate the Curtain relays for one of three states: **Open**, **Close** and **None**. The offset time can be used to delay these instructions.

Curtain Open	Sets the open flag; clears the close flag
Curtain Close	Sets the close flag; clears the open flag
Curtain None	Clears both the open and close flags

Slide Projector

This instruction controls the **Slide Projector** output control flag to operate the Slide Projector relay. The offset time can be used to delay the execution of this instruction.

Slide Projector On	Sets the Slide Projector flag
Slide Projector Off	Clears the Slide Projector flag

Aux Out

This instruction controls the **Aux Out** output control flags. The Aux Out control flag can be assigned to any relay. The *I/O Board* screens are used to configure these outputs. This instruction will operate the assigned relay(s). The offset time can be used to delay the execution of these instructions.

Aux Out *d* On	Sets the Aux Out *d* flag
Aux Out *d* Off	Clears the Aux Out *d* flag

    * *d* = 1 through 16

Lights

This instruction controls the **Light** level output flags for each of the sixteen light zones. It operates the light relays for one of five states: **Up**, **Down**, **Mid 1**, **Mid 2** and **None**. This instruction also activates light levels on the QDC-400 dimmer control board. The offset time can be used to delay the execution of these instructions.

House Lights Up	Sets the House Lights Up flag. Clears the Mid 1, Mid 2 and Down flags
House Lights Mid 1	Sets the House Lights Mid 1 flag. Clears the Up, Mid 2 and Down flags
House Lights Mid 2	Sets the House Lights Mid 2 flag. Clears the Up, Mid 1 and Down flags
House Lights Down	Sets the House Lights Down flag. Clears the Up, Mid 1 and Mid 2 flags
House Lights None	Clears the Up, Mid 1, Mid 2 and Down flags
Stage Lights Up	Sets the Stage Lights Up flag. Clears the Mid 1, Mid 2 and Down flags
Stage Lights Mid 1	Sets the Stage Lights Mid 1 flag. Clears the Up, Mid 2 and Down flags
Stage Lights Mid 2	Sets the Stage Lights Mid 2 flag. Clears the Up, Mid 1 and Down flags
Stage Lights Up	Sets the Stage Lights Down flag. Clears the Up, Mid 1 and Mid 2 flags
Stage Lights None	Clears the Up, Mid 1, Mid 2 and Down flags
*Zone** Lights Down	Sets the *Zone* Lights Up flag. Clears the Mid 1, Mid 2 and Down flags
*Zone** Lights Mid 1	Sets the *Zone* Lights Mid 1 flag. Clears the Up, Mid 2 and Down flags
*Zone** Lights Mid 2	Sets the *Zone* Lights Mid 2 flag. Clears the Up, Mid 1 and Down flags
*Zone** Lights Up	Sets the *Zone* Lights Down flag. Clears the Up, Mid 1 and Mid 2 flags
*Zone** Lights None	Clears the Up, Mid 1, Mid 2 and Down flags

    * User-defined Zone names for Zones 3 through 16 will be displayed here in the editor.

Sound

This instruction controls the eight sound output control flags and which operate the sound relays. This instruction also controls the Mute control flag. This instruction is normally used to select the format and audio source on the Sound Processor. The offset time can be used to delay the execution of this instruction.

Sound: Non-Sync	Sets the Non-Sync flag. Clears all other sound flags
Sound: Mono	Sets the Mono flag. Clears all other sound flags
Sound: SVA	Sets the SVA flag. Clears all other sound flags
Sound: SR	Sets the SR flag. Clears all other sound flags
Sound: Digital 1	Sets the Digital 1 flag. Clears all other sound flags
Sound: Aux 1	Sets the Aux 1 flag. Clears all other sound flags
Sound: Digital 2	Sets the Digital 2 flag. Clears all other sound flags
Sound: Aux 2	Sets the Aux 2 flag. Clears all other sound flags
Sound: Mute On	Sets the Mute flag and memorizes the previous sound state
Sound: Mute Off	Clears the Mute flag and restores the previous sound state
Sound: None	Clears all sounds flags

When using this instruction, be aware of the following rules:

1. A **Sound Mute On** instruction will turn off any other sound output.
2. A **Sound Mute Off** instruction will cause the previous sound output to be restored.
3. Executing a new sound instruction, including **Sound None**, will not turn off the mute output. Only a **Sound Mute Off** instruction will turn off mute.
4. When mute is on, a **Sound Mute On** instruction will not cause the mute output to re-pulse.

Masking

This instruction controls the Masking output control flags which operate the masking relays. This instruction is normally used to control the screen masking curtains.

Masking: Flat	Sets the Flat flag. Clears the Scope and Special flags
Masking: Scope	Sets the Scope flag. Clears the Flat and Special flags
Masking: Special	Sets the Special flag. Clears the Flat and Scope flags
Masking: None	Clears the Flat, Scope and Special flags

Lens

This instruction controls the Lens output control flags which operate the lens relays.

Lens: Flat	Sets the Flat flag. Clears the Scope and Special flags
Lens: Scope	Sets the Scope flag. Clears the Flat and Special flags
Lens: Special	Sets the Special flag. Clears the Flat and Scope flags
Lens: None	Clears the Flat, Scope and Special flags

Lens/Masking

This instruction combines the Lens and Masking instructions to control the Lens and Masking output control flags which operate the lens relays.

Lens/Masking: Flat	Sets the Flat flag. Clears the Scope and Special flags
Lens/Masking: Scope	Sets the Scope flag. Clears the Flat and Special flags
Lens/Masking: Special	Sets the Special flag. Clears the Flat and Scope flags
Lens?Masking: None	Clears the Flat, Scope and Special flags

Projector

This instruction controls the Digital Projector **Power** and **Video** output control flags. These flags can be assigned any of the spare relays. These flags can also be sent, unsolicited, to the client in the **Report (RPT)** Message. The offset time can be used to delay the execution of these instructions.

Projector: Digital 1 Pwr On	Sets the Digital 1 Power On flag. Clears the Digital 1 Power Off Flag
Projector: Digital 1 Pwr Off	Sets the Digital 1 Power Off flag. Clears the Digital 1 Power On Flag
Projector: Digital 1 Vid On	Sets the Digital 1 Video On flag. Clears the Digital 1 Video Off Flag
Projector: Digital 1 Vid Off	Sets the Digital 1 Video Off flag. Clears the Digital 1 Video On Flag
Projector: Digital 2 Pwr On	Sets the Digital 2 Power On flag. Clears the Digital 2 Power Off Flag
Projector: Digital 2 Pwr Off	Sets the Digital 2 Power Off flag. Clears the Digital 2 Power On Flag
Projector: Digital 2 Vid On	Sets the Digital 2 Video On flag. Clears the Digital 2 Video Off Flag
Projector: Digital 2 Vid Off	Sets the Digital 2 Video Off flag. Clears the Digital 2 Video On Flag

Wait Instructions

These instructions cause the program to wait for an event.

Wait Cue

This instruction causes the program to wait for a cue event. This cue normally comes from a client or other equipment. This can be a digital input or a serial command. Each program supports up to 20 cues. A program should have at least one Wait Cue instruction.

Wait

This instruction provides a delay for the specified time. When the Wait instruction is encountered in a program, a timer starts. No other instructions in the program are executed until the timer reaches zero. When the time is set to the max value of 99:99, the program waits indefinitely. The Wait time is displayed on the local and web Main Status screens.

 A *Cue* input or a *Resume* will always abort a Wait instruction.

Wait Event

This instruction is designed to wait for the Start Exception Timer (SXT) command. The command starts the timer. If the timer is allowed to timeout, it generates a cue that will 'fall through' the next Wait Cue instruction.

This instruction will wait for one of the following:

1. Start Exception Timer (SXT) command.
2. A Start (from eCNA front panel, input or serial command).
3. A Cue (from eCNA front panel, input or serial command).

Miscellaneous Instructions

CAI Commands

This instruction is used to Allow or Block serial control commands on a CAI communications channel. This can be useful for blocking undesired control by a client during parts of a presentation, especially when more than one client is connected to the eCNA-5. This only blocks 'control' commands. Status commands are always accepted.

CAI Commands: Ch1 Block	Blocks serial control commands on CAI channel 1
CAI Commands: Ch1 Allow	Allows serial control commands on CAI channel 1
CAI Commands: Ch2 Block	Blocks serial control commands on CAI channel 2
CAI Commands: Ch2 Allow	Allows serial control commands on CAI channel 2
CAI Commands: Ch3 Block	Blocks serial control commands on CAI channel 3
CAI Commands: Ch3 Allow	Allows serial control commands on CAI channel 3

Segment

This instruction is used to identify the current part or segment of the presentation. The active segment name is displayed on the local and web status screens. The segment names are defined in the in *Segment Names* setup screen. The client can also request the active segment with the SEGIDX and SEGTXT Status commands.

Call Macro

This instruction is used in program to run a macro. Used this way, a macro could define a program segment. For example, suppose the following macros were defined:

Macro 1: Previews Flat
Macro 2: Previews Scope
Macro 3: Feature Flat
Macro 4: Feature Scope
Macro 5: Credits
Macro 6: Intermission
Macro 7: Between Shows

Each macro is a group of instructions used to set up the auditorium (lights, sound, screen, etc.) for a particular segment of the presentation. The macros are then used to construct a program. Using macros in this way makes a program look much simpler. Macros can be used as building blocks for any program.

CAI Report Event

This instruction is used to generate an EVENT Report message. The message is sent to the client when this instruction is encountered in a program or a macro.

Set Timer

This instruction is used to set or clear the general purpose timers.

Timer

This instruction is used to pause or resume a timer.

Display Timer

This instruction allows a timer to be displayed on the local and browser status screens.

Exit If

This instruction provides a conditional exit of a macro based on an input, an output or a segment flag. If the tested condition is true, the macro is immediately exited and any instructions following the Exit If instruction are not executed. If the tested condition is false, then the instructions following the Exit If instruction will be executed.

Remote Device

The RemDev1 though RemDev5 instructions are used to send commands to a remote Ethernet TCP device. Remote Devices and commands are set up from the Remote Device Configuration screen.

Unused Instructions

This is a table of instructions that are available in the editor, but are not recommended for use with the eCNA-5. These instructions may be obsoleted in a future version of software.

Instruction		Parameters / Offset Time
House Lights Up	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
House Lights Down	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
House Lights Mid 1	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
House Lights Mid 2	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
House Lights None	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Stage Lights Up	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Stage Lights Down	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Stage Lights None	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Curtain Call	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Curtain Close Early	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Cue Factor	*.ddd*	*.ddd* = .000 to .999
Format *d*: *m1 m2*		*d* = 1 to 9 *m1* = Non-Sync; Mono; SVA; SR; Digital 1; Aux 1; Digital 2; Aux 2; None *m2* = Flat; Scope; Special
Shutdown Delay	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Changeover Open	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Changeover Close	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Changeover None	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Changeover Auto	*dd:dd*	*dd:dd* = 0:00 to 59:59 minutes:seconds
Projector Motor/Lamp On		n/a
Projector Motor/Lamp Off		n/a
Intermission Wait	*dd:dd*	*dd:dd* = 0:00 to 99:99 minutes:seconds
Lens/Masking Changeover: *m*		*m* = Flat; Scope; Special
Lens Changeover: *m*		*m* = Flat; Scope; Special
Volume *d1* dB Fade Time *d2*	*dd:dd*	*d1* = -50.0 to +10.0 dB *d2* = 0 to 10 seconds *dd:dd* = 0:00 to 99:99 minutes:seconds
Bypass: *m*	*dd:dd*	*m* = Off; On; No-op *dd:dd* = 0:00 to 59:59 minutes:seconds

d = decimal number; *m* = message

3.3.20 Setup: Program Editor

Click on *Program Editor* in the *Setup Menu*. This the program editor screen. The figure below shows an 'empty' program. Locate the **Ins** and **Del** buttons in the *Action* column to right of the instruction. Clicking the **Ins** button inserts a new program step before that step, increments it and all steps after it by one. When starting with an empty program, click the **Ins** button 5 to 10 times and begin adding instructions at Step 1. Click the **Del** button to delete an instruction.

Use the list box(s) to select the instruction, associated parameters and offset times.

The **Clear Program** button provides an easy way to remove all instructions from the editor. This allows you to easily start from an empty program.

The **Reset** button can be used to put to original program back, if it has not yet been saved to the eCNA-5 (with the **Submit** button).

Click the **Submit** button to save the program to the eCNA-5.

The **Submit To** button can be used to copy the program that is in the current editor to any of the nine eCNA-5 programs. Select the program you want to *save to* from the list box and click the **Submit To** button.

The program editor screen allows you to assign meaningful names to programs with up to 14 characters of text. Click the Edit Name button to type the program name into the Combo Box. Use the Combo Box to select the program to edit.

For example, a program could be named "3D Scope".

3.3.21 Setup: Macro Editor

The macro editor screen allows you to create up to 30 macros. This screen is almost identical to the Program Editor screen.

Click on *Macro Editor* in the *Setup Menu*. This the macro editor screen. Locate the **Ins** and **Del** buttons in the *Action* column to right of the instruction. Clicking the **Ins** button inserts a new program step before that step, increments it and all steps after it by one. When starting with an empty program, click the **Ins** button a few times and begin adding instructions at Step 1. Click the **Del** button to delete an instruction. Macros are limited to a maximum of 15 instructions.

The macro editor screen also allows you to assign meaningful names to macros with up to 14 characters of text. Click the Edit Name button to type the program name into the Combo Box. Use the Combo Box to select the macro to edit. This is helpful when assigning macros to triggers.

A Macro is a group of instructions similar to a program. Macros, however, are used much differently than programs. A macro can be run anytime while the eCNA is in progress (running a program), faulted, stopped or in the idle state. Macros can be initiated by the Call Macro program instruction, the Macro serial command or a Trigger event.

4. Status

Click *STATUS* to get to the *Status Menu*. The *Status Menu* is along the left side of the screen: **Main Status**, **Network Monitor**, **Local I/O Network**, **Ethernet Network**, **System Control Detail** and **I/O Flag Detail**. Each option contains screens that will provide status of the eCNA-5.
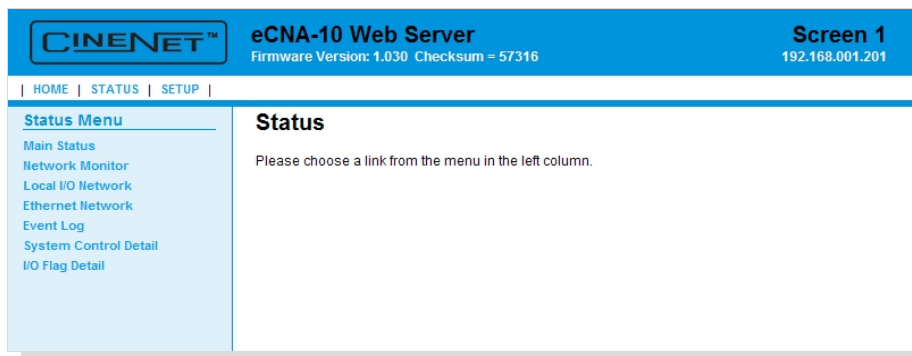
4.1 Status: Main Status

Click on *Main Status* in the *Status Menu*. This screen displays information during and between shows providing feedback of show progress, sound and picture format, current show segment, program number and step, cue number and fault conditions.

When the **Web Keys** in *System Parameters* are **Enabled**, the manual control buttons, as defined in *System Parameters*, will be available along the bottom of this screen.
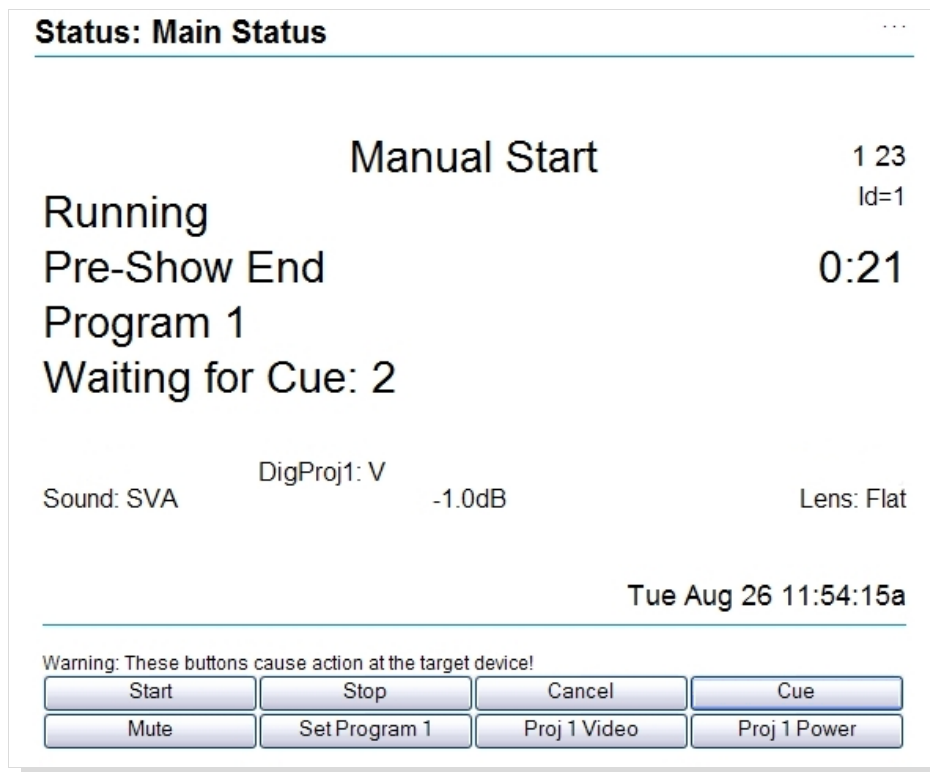
4.1.1 Status and Fault Messages

Memory Faults

User configuration data is stored in battery-back memory. A checksum is calculated on a block of data each time new data is saved. The checksum is re-calculated on a power up and compared to the previous saved checksum. If there is a mis-match, a fault is generated. Any of the following memory faults indicate that configuration data has changed. Any memory fault will prevent a program from being started. The fault must be cleared before starting a program. Although a Cancel will clear the fault and allow a program start, this does not fix the checksum mis-match. So the next power cycle will generate a new memory fault. The only way to fix this is to force a new checksum calculation by saving new data. The best way to do this is to restore data from your backup.

MEM FAULT:SYSTEM This indicates a System Parameters Memory Fault.

MEM FAULT:PROG *d-dd* This indicates a Program Memory Fault where *d-dd* is the program and step number of the first occurrence of corrupt user data.

MEM FAULT:MACR *d-dd* This indicates a Macro Memory Fault where *d-dd* is the macro and step number of the first occurrence of corrupt user data.

LOW BATTERY FAULT The Low Battery Fault indicates that the battery fell below the threshold voltage during a power down condition. This message would usually be accompanied by one or more memory faults.

CHECK RTC SETTINGS This message is displayed if the hardware clock and the software clock differ by more than 60 seconds. This normally won't happen because the software clock is set by reading the hardware clock on a power up. Thereafter, the hardware clock is set when the NTP time is received.

NTP SERVER NOT FOUND This message is displayed if the eCNA is configured to be an NTP client, the NTP IP address is not 0.0.0.0 and the NTP server is not responding. The message is activated if there are three consecutive NTP server timeouts.

LIN: NETWORK FAULT This message is displayed to indicate a loss of communications with a Local I/O Network (LIN) device. This fault will cause a program shutdown or prevent a program from starting. This is a latched fault and a Cancel input is required to clear the fault.

FIRE ALARM STOP This message indicates a fire stop input, which would normally come from the fire alarm system. This is a latched fault and a Cancel input is required to clear the fault.

LIN REMOTE STOP This is a status message only. This message indicates that a stop input from a Local I/O Network (LIN) device is activated. This message has a three second re-triggerable one-shot.

LIN REMOTE START This is a status message only. This message indicates that a start input from a Local I/O Network (LIN) device is activated. This message has a three second re-triggerable one-shot.

LIN REMOTE CANCEL INPUT This is a status message only. This message indicates that a cancel input from a Local I/O Network (LIN) device is activated. This message has a three second re-triggerable one-shot.

CAI *d* REMOTE STOP This is a status message only where *d* is 1, 2 or 3. This message indicates that a stop input was received from a Cinema Automation Interface (CAI) channel. This message has a three second re-triggerable one-shot.

CAI *d* REMOTE START This is a status message only where *d* is 1, 2 or 3. This message indicates that a start input was received from a Cinema Automation Interface (CAI) channel. This message has a three second re-triggerable one-shot.

DIGITAL *d* FAULT This message is displayed to indicate that a digital input fault was activated where *d* is 1 or 2. This fault will cause a program shutdown or prevent a program from starting. This fault can be configured to be a latched fault requiring a Cancel to clear the fault. See 'Digital Fault Input Latched' on the *Setup: System Parameters* screen.

CAI *d* FAULT This message is displayed to indicate that a digital input fault was activated where *d* is 1, 2 or 3. This fault will cause a program shutdown or prevent a program from starting.

IP ADDRESS CONFLICT This message indicates that more than one eCNA-5 is configured with the same IP Address.

SCREEN ID CONFLICT This message indicates that more the one eCNA-5 is configured with the same Screen Id. See Configuration DIP Switches on the Main CPU Board.

PROGRAM ABORT INPUT This is a status message only. This message indicates that an abort was activated. This message has a three second re-triggerable one-shot.

4.2 Status: Network Monitor

Click on *Network Monitor* in the *Status Menu*. This screen displays the status of all eCNAs that are part the Multicast Group. Click on the Screen number to access the eCNA's web server.

Status: Network Monitor

Screen	Device	Start Mode	Status	Program	Waiting for Event	Learn Cues	Sync Loop
1	eCNA-5 V1.052	Manual	Ready to Run	Program 2	Cue 0		
2	eCNA-5 V1.052	Manual	Ready to Run	Program 1	Cue 0		
3	eCNA-5 V1.052	Manual	Ready to Run	Program 1	Cue 0		
4	eCNA-5 V1.052	Manual	Ready to Run	Program 1	Cue 0		
5	eCNA-5 V1.052	Manual	Ready to Run	Program 1	Cue 0		
6	eCNA-5 V1.052	Manual	Ready to Run	Program 1	Cue 0		
7	eCNA-5 V1.052	Manual	Ready to Run	Program 1	Cue 0		
8	eCNA-5 V1.052	Manual	Running	Program 1	Cue 1		
9	eCNA-5 V1.052	Manual	Ready to Run	Program 1	Cue 0		

4.3 Status: Local I/O Network

Click on *Local I/O Network* in the *Status Menu*. This screen displays the status of devices on the Local I/O Network (LIN). Click on the **Prev** or **Next** buttons to view another device.

Status: Local I/O Network

[Prev] [Next] Number of devices responding: 1

IOBOARD	
Device Id	17
Type	10
Version	1
Checksum	160
Power up	1
Poll Error	0
Poll Error Total	0
Error Timer (sec)	0
Inputs	00010000
Outputs	00000010 00000000 11111111 11111111
Attribute	ID OP1 OP2 OP3 TYP 0 0 0 0 0 0 0 0
Status	Device Active Exchanging I/O Setup Parameters Received Id & Device Type Received

Device Id This is the network ID number of LIN device.

Type This is the device Type of the LIN Device.

LIN Device Name	Device Id	Type
QDC-400 #1	13	7
QDC-400 #2	14	7
QDC-400 #3	15	7
QDC-400 #4	16	7
GPIO Board #1 (39490)	17	10
GPIO Board #2 (39490)	18	10

Version This is the firmware version of the LIN device.

Checksum This the firmware checksum number.

Power up This is the number of times the LIN device has powered up or reset since the eCNA-5 has been powered on.

Poll Error This is the number of times the eCNA-5 has polled the LIN device with no response. This starts counting if the LIN device was once present and then lost communications.

Poll Error Total This is a history of the number of times the eCNA-5 has polled the LIN device with no response since the eCNA-5 has been powered on.

Error Timer This is the number of seconds that the LIN device has not responded.

Inputs This string of digits represent the actual state of the inputs. A "1" represents an input that is present. A "0" represents an input that is not present.

GPIO Board Inputs

00000000

In 8
In 7
In 6
In 5
In 4
In 3
In 2
In 1
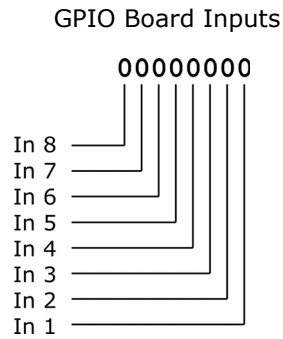
Outputs This string of digits represent the actual state of the relay outputs. A '1' represents an output that is on. A '0' represents an output that is off.

GPIO Board Outputs

00000000 00000000 11111111 11111111

Out 8
Out 7
Out 6
Out 5
Out 4
Out 3
Out 2
Out 1
Out 16
Out 15
Out 14
Out 13
Out 12
Out 11
Out 10
Out 9
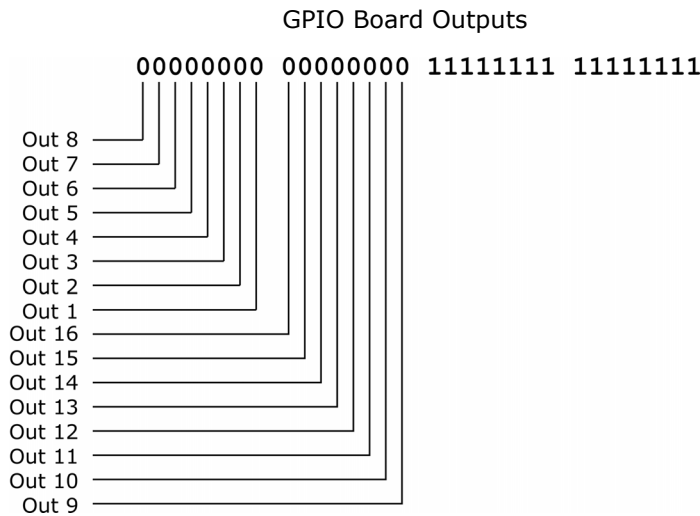
Attribute The attribute bits indicate the state of any configuration DIP switches and jumpers.

Status These messages are displayed based on internal status flags.

Device Active
Exchanging I/O
Setup Parameters Received
Id & Device Type Received
Wrong Device Type
Communications Link Error
Not Responding Regularly

4.4 Status: Ethernet Network

Click on *Ethernet Network* in the *Status Menu*. This screen displays the connection status of the available ports. The Connection History column displays the last five IP addresses of the devices that have been connected since the eCNA-5 has been powered on.

4.5 Status: Event Log

Click on *Event Log* in the *Status Menu*. This screen is used to download Event Logs from the eCNA-5. Select the number of records to retrieve and click on the **Download Event Log Data** button to either Open or Save the Event data.

Save: By default, the event logs are saved as a .csv (comma separated values) file. This is an ASCII text file that can be imported into any spreadsheet program.

Open: The event log records will be opened by the application that has the 'csv' file type association.

4.6 Status: System Control Detail

Click on *System Control Detail* in the *Status Menu*. This screen displays the status of the ten general purpose timers and a history of executed Triggers and Macros. This screen is useful for developing and debugging your application.

Status: System Control Detail

Timers

1	2	3	4	5	6	7	8	9	10
99:99	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00

Trigger/Macro History

#	Type	Cause	Action
49	T15: Man Strt Pre	User Defined Key 1	M07: Start Pre-Show
50	M07: Start Pre-Show	T15: Man Strt Pre	
51	T17: Allow/Release	User Defined Key 6	M09: Allow/Release
52	M09: Allow/Release	T17: Allow/Release	
53	T15: Man Strt Pre	User Defined Key 1	M07: Start Pre-Show
54	M07: Start Pre-Show	T15: Man Strt Pre	
55	M01: Pre-Show	CAI Channel 3	
56	M02: Pre-Show Ends	CAI Channel 3	
57	T12: Exception Timr	Timer 1	M03: Feature Starts
58	M03: Feature Starts	T12: Exception Timr	
59	T13: Wait For DLP	Timer 2	M04: Feature
60	M04: Feature	T13: Wait For DLP	
61	T19: Line Fault	Line Voltage Low	M10: SMS Pause/Stop
62	M10: SMS Pause/Stop	T19: Line Fault	
63	T20: Line Okay	Line Voltage OK 1	M11: SMS Strt/Resum
64	M11: SMS Strt/Resum	T20: Line Okay	
65	M05: Feature Ends	CAI Channel 1	
66	T25: Man Strt Featr	User Defined Key 2	M12: Start SMS
67	M12: Start SMS	T25: Man Strt Featr	

| Clear Table | Refresh Table | Pause Display |

Key: M = Macro   P = Program   T = Trigger

Timers

This table displays the status of the ten General Purpose Timers (GPT).

Trigger/Macro History

This table displays the history of macros and triggers in the order they were executed.

This column displays a number that increments to 99 and wraps. This is just a reference number that helps you keep track of the data.

Type This column displays either the trigger or the macro that was executed.

Cause This column displays the corresponding event, trigger or communications channel that generated or caused the macro or trigger.

Action This column displays the macro that was executed as a result of the trigger.

Triggers are abbreviated as **Txx**, where **xx** is the trigger number. Macros are abbreviated as **Mxx**, where **xx** is the macro number. Programs are abbreviated as **Px-yy**, where **x** is the program number and **yy** is the step number.

The eCNA maintains a local buffer that stores a full tables' worth a data. The **Clear Table** button only clears the table, not the eCNA buffer data. The **Refresh Table** button retrieves all buffer data. The **Pause Display** button allows you to freeze the table data on the screen.

4.7 Status: I/O Flag Detail

Click on *I/O Flag Detail* in the *Status Menu*. This screen displays the current states of the Standard Input and Output flags.

The screen also allows Administrators to override the Standard Outputs when the S2-1 DIP switch and Web Keys are both Enabled. The override buttons are not shown if these permissions are not enabled.

4.8 Status: CAI/RDI Messages

The eCNA allows a CAI client to exchange information with other CAI clients via the eCNA client message tables. The eCNA also stores status messages from supported remote devices. These tables can be viewed from this screen.

Click on *CAI/RDI Messages* in the *Status Menu*. Both RDI and CAI message tables can be viewed from this screen. This screen can be useful for development and debugging. Use the **Prev** and **Next** buttons to view a different table.

See Appendix B for a detailed description of the message table.

5. CAI Serial Commands

This section describes the Cinema Automation Interface (CAI) ASCII serial commands. These commands are used by the client for control and status purposes. The eCNA can also be configured to send unsolicited messages to the client for status, control and logging purposes. These unsolicited messages can be enabled or disabled with the configuration command.

The eCNA supports three CAI channels:

CAI Channel 1: TCP Port 13000 or RS-232 port (P9)
CAI Channel 2: TCP Port 13001
CAI Channel 3: TCP Port 13002 or RS-232 port (P1 on the 39446 optional adapter board)

Hardware Connection:

RS-232 (P9, P1 on the 39446 adapter):
Baud Rate: 19200 bps
Data Length: 8 bits
Parity Bit: No Parity
Stop Bits: 1 bit
Flow Control: Hardware (RTS-CTS)

Ethernet (J2):
10Base-T: 10 mbps
Duplex: Half or Full

Commands supported by the eCNA

Command	Response	Description
CMD EVT	RSP EVT	Event Command. This allows the client to send an event to the eCNA for control purposes
CMD LOG	RSP LOG	Log Command. This command allows the client to manage the event log buffer.
CMD OUT	RSP OUT	Output Command. The client can use this command to control individual outputs.
CMD STS	RSP STS	Status Command. This command allows the client to request the status of various functions.
CMD RCK	RSP RCK	Read the Clock Command. This allows the client to read the eCNA's clock. Can be used for time synchronization.
CMD SCK	RSP SCK	Set the Clock Command. This allows the client to set the eCNA's clock. Can be used for time synchronization.
CMD CFG	RSP CFG	Configuration Command. This command is used to enable or disable the unsolicited messages.
CMD RID	RSP RID	Report Id Command. The eCNA returns it's identification information to the client.
CMD RST	RSP RST	Report Status Record Command. The eCNA returns it's status record to the client.
CMD XST	RSP XST	Exchange Status Record Command. The eCNA exchanges it's status record with the client.
CMD SMW	RSP SMW	Status/Control Message Write Command. This allows a client to write text messages to it's table.
CMD SMR	RSP SMR	Status/Control Message Read Command. This allows a client to read text messages from any table.

Unsolicited Messages supported by the eCNA

Message	Description
RPT EVT	Unsolicited Event Report. If enabled, these messages sent by the eCNA contain real time event data. The client could use these for control purposes.
LOG EVT	Unsolicited Event Log. If enabled, these records sent by the eCNA contain the logged event data. The client could use these for reports.
STM EVT	Unsolicited Status/Control Event. If enabled, these messages sent by the eCNA on a Status/Control message change in the CAI or RDI table.

All serial commands and responses are ASCII text. For testing purposes it is easy to use a terminal emulation software program on a PC, such as Hyperterminal, to type commands and view responses and the unsolicited messages from the eCNA. A connection can be made to the RS-232 ports or Ethernet port using the communication parameters described above.

For example, to make an connection to the eCNA's Ethernet port with Hyperterminal, connect using TCP/IP (Winsock). Enter the Host Address (eCNA's IP Address, e.g., 192.168.1.101) and the Port Number (13000). Under File - Properties - Settings - ASCII Setup, make sure both *Send line ends with line feeds* and *Echo typed characters locally* are checked. Enter commands exactly as they appear in the manual.

Important Client Application Notes

1) A CAI channel will timeout after one minute. However, the connection timeout logic allows the connection to remain open even if the connection has timed out to allow sending unsolicited reports. But be aware, that the eCNA will close the TCP/IP connection if it is timed out and another client requests the resource. It may be desirable to periodically send a command to the port in order to maintain ownership of the resource.

   In the case where the eCNA communications resource is already being used (open and not timed out) by Client A and Client B tries to connect, the error response (RSP,ERR,0,998,Resource Unavailable,828<CR><LF>) is sent back to Client B. The connection to Client A is unaffected.

2) The third parameter in all commands is the Packet Sequence Number (PSN). The PSN is a two-byte number (0 to 65535) that should wrap at 65535. The eCNA puts the client's command PSN in all responses to the client. The PSN can be used to match responses with commands. The client may increment the PSN for each new command it transmits. Incrementing PSN is optional and if not used just fix it at 0.

3) A checksum calculation by the client is optional. If "??" is used in the command instead of a checksum, the command is executed. The eCNA interprets this as a 'don't care' value for the checksum. This method is not recommended because it does not insure proper message error checking. However it may be acceptable for TCP/IP communications.

4) The Request Response parameter (Y or N) appears in a command just before the checksum. This instructs the eCNA to either send a response or not. This is available for all commands that do not request information from the eCNA.

   The response is only an acknowledgment that the command was received and not that it was necessarily executed. The Report Event message or Status command can be utilized to determine execution.

5) Commands exceeding 132 characters including the terminating carriage return and line feed are discarded by the eCNA. Commands must not contain the NULL character (0x00) anywhere in the command line.

6) ASCII messages can be sent 'unsolicited' from the eCNA based on internal and external events. These messages may be required for the application and are configured by the client using the **CONFIGURATION** command. This configuration is saved to battery-backed memory, but the configuration flags are cleared when the firmware is updated or when the battery is replaced. So it is a good idea to always send the configuration on initial communications.

5.1 EVENT Command

The Event Command allows the client to send an event code to the eCNA. The eCNA will act on the event accordingly. A response from the eCNA is optional.

Command

CMD,EVT,*psn*,*code*,*yn*,*checksum*<CR><LF>

EVENT Command Message Format		
Parameter	**Description**	
CMD,	Start of Message string (This parameter is always "CMD").	
EVT,	Event Command string (This parameter is always "EVT").	
psn,	Packet sequence number (0 to 65535). Should be used to match responses with commands, otherwise always 0.	
code,	Event code (This parameter must contain <u>one</u> of the following event code strings).	
	STA	This code Starts or Resumes the eCNA program.
	STP	This code Stops the eCNA program.
	FLT	This code sets the "CAI *n* Fault". Where *n* is the CAI Channel number.
	CUE	This code will Cue the eCNA program.
	CLR	This code Clears the CAI Fault flag.
	ABT	This code Aborts a Program.
	CNL	This code Cancels the Alarm on the eCNA.
	RES	This code Resets a Fault. Same as pressing the Alarm Cancel or Cancel key
	PGM,*d*	This code sets the Program Number. *d* = 1 - 9
	SXT,*d,mm,ss*	This code starts the Exception Timer. *d* = 0 - 20, *mm* = minutes (0-99), *ss* = seconds (0-59)
	NXQ,*d*	This code will cue the eCNA program. The parameter *d* must match the Cue number the program is waiting for, where *d* = 1 to 20.
	CAI,*d,m*	This code will set or clear the CAI communications 'block control commands' flag for a particular channel. *d* (channel number) = 1 - 3. *m* = "ALLOW" or "BLOCK".
	MAC,*n*	This code will call a Macro, where *n* = the Macro number (1 - 30).
	SGT,*d,mm,ss,*	This code starts the general purpose timer. *d* = 1 - 10, *mm* = minutes (0-99), *ss* = seconds (0-99)
yn,	Request a response flag.	
	Y	The eCNA will respond with it's response message.
	N	This eCNA will not respond.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'.	
<CR>	Terminating carriage return. (ASCII control character, 0x0D).	
<LF>	Terminating line feed. (ASCII control character, 0x0A).	

Response (optional)

RSP,EVT,*psn*,*err*,*checksum*<CR><LF>

EVENT Response Message Format	
Parameter	**Description**
RSP,	Start of Message string (This parameter is always "RSP").
EVT,	Event Response string (This parameter is always "EVT").
psn,	Packet Sequence Number. Matches command packet sequence number.
err,	Error Number (0 to 999). 0 = okay, else number indicating problem.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters.
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

EVT Command & Response Example

Command
CMD,EVT,0,STA,Y,907<CR><LF>

Response
RSP,EVT,0,0,756<CR><LF>

Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

5.2 LOG Command Client ➜ eCNA

The eCNA maintains a log file of up to 1364 events records in battery-backed memory. The LOG command allows the client to manage the event log file. A response from the eCNA is optional.

Command

CMD,LOG,*psn*,*code*,*yn*,*checksum*<CR><LF>

LOG Command Message Format	
Parameter	**Description**
CMD,	Start of Message string (This parameter is always "CMD").
LOG,	Log Command string (This parameter is always "LOG").
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.
code,	Log code. (This parameter must contain any <u>one</u> of the following log code strings).
	GETALL — Resend all logged event records. Note: This can be a large amount of data (1364 records).
	CLRBUF — Clear event buffer. This parameter erases all event history. Note: There is normally no need to use this parameter. It is provided for initial setup of the battery RAM.
	CLRSSQ — Clear Show Sequence number. This parameter resets the Show Sequence Number to 0. This number is automatically incremented by the eCNA each time a program is started.
yn,	Request a response flag.
	Y — The eCNA will respond with it's response message.
	N — This eCNA will not respond.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

Response (optional)

RSP,LOG,*psn*,*err*,*checksum*<CR><LF>

LOG Response Message Format	
Parameter	**Description**
RSP,	Start of Message string (This parameter is always "RSP").
LOG,	Log Response string (This parameter is always "LOG").
psn,	Packet Sequence Number. Matches command packet sequence number.
err,	Error Number (0 to 999). 0 = okay, else number indicating problem
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

LOG Command & Response Example

Command
CMD,LOG,0,GETALL,Y,1236<CR><LF>

Response
RSP,LOG,0,0,743<CR><LF> (Followed by all event logs. See LOG Message.)

Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

5.3 CONFIGURATION Command   Client ➜ eCNA

The Configuration command allows the client to enable or disable the unsolicited messages sent by the eCNA. A response from the eCNA is optional.

Command

CMD,CFG,*psn,code,yn,checksum*<CR><LF>

CONFIGURATION Command Message Format		
Parameter	**Description**	
CMD,	Start of Message string (This parameter is always "CMD").	
CFG,	Configuration Command string (This parameter is always "CFG").	
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.	
code,	Configuration code. (This parameter must contain any <u>one</u> of the following configuration code strings).	
	RPTOFF	Event Reports Off.
	RPTON	Event Reports On
	LOGOFF	Event Log Off
	LOGON	Event Log On
	OPT1OFF	Disables logging of Macro calls (Event #95)
	OPT1ON	Enables logging of Macro calls (Event #95)
	STMOFF,*a*	Status/Control Message Events Off for table *a* Where: *a* = CAI1, CAI2, CAI3, RDI1, RDI2, RDI3, RDI4, RDI5 or ALLTBL (ALLTBL = All Tables)
	STMON,*a*	Status/Control Message Events On for table *a* Where: *a* = CAI1, CAI2, CAI3, RDI1, RDI2, RDI3, RDI4, RDI5 or ALLTBL (ALLTBL = All Tables)
yn,	Request a response flag.	
	Y	The eCNA will respond with it's response message.
	N	This eCNA will not respond.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'	
<CR>	Terminating carriage return. (ASCII control character, 0x0D)	
<LF>	Terminating line feed. (ASCII control character, 0x0A)	

Response (optional)

RSP,CFG,*psn,err,checksum*<CR><LF>

CONFIGURATION Response Message Format	
Parameter	**Description**
RSP,	Start of Message string (This parameter is always "RSP").
CFG,	Configuration Response string (This parameter is always "CFG").
psn,	Packet Sequence Number. Matches command packet sequence number.
err,	Error Number (0 to 999). 0 = okay, else number indicating problem
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

CFG Command & Response Example

Command
CMD,CFG,0,LOGON,Y,1160<CR><LF>

Response
RSP,CFG,0,0,725<CR><LF>

Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

5.4 STATUS Command   Client ➜ eCNA

The Status command can be used by the client to request the status of various functions.

Command

CMD,STS,*psn*,*code*,*checksum*<CR><LF>

Status Command Message Format	
Name	**Description**
CMD,	Start of Message string (This parameter is always "CMD").
STS,	Status Command string (This parameter is always "STS").
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.
code,	Status code. (This parameter must contain any <u>one</u> of the following status code strings).
	CTRLST — Control State.
	STPST — Stopped State.
	CUENO — Cue Number.
	DP1CF — Digital 1 Power control flag.
	DP1OS — Digital 1 Power output status.
	DV1CF — Digital 1 Video control flag.
	DV1OS — Digital 1 Video output status.
	DP2CF — Digital 2 Power control flag.
	DP2OS — Digital 2 Power output status.
	DV2CF — Digital 2 Video control flag.
	DV2OS — Digital 2 Video output status.
	FPOS — Film Projector output status.
	FCOOS — Film Changeover output status.
	SPCF — Slide (Aux) Projector control flag.
	SPOS — Slide (Aux) Projector output status.
	SYNC — Sync Mode.
	RESET — eCNA Power up and other CPU reset.
	SEGIDX — Segment index number.
	SEGTXT — Segment name.
	CAICMD — CAI command access flag.
	PROGN — Program Number.
	XTMR — Exception timer status.
	WAITEV — 'Wait Event' instruction status.
	GTMR,*n* — General purpose timer status. *n* = timer number
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

STATUS Command (continued)

Response

RSP,STS,*psn*,*err*,*code*,*checksum*<CR><LF>

Name	Description	
RSP,	Start of Message string (This parameter is always "RSP").	
STS,	Status Response string (This parameter is always "STS").	
psn,	Packet Sequence Number. Matches command packet sequence number.	
err,	Error Number (0 to 999). 0 = okay, else number indicating problem	
code,	Status code. (This parameter will contain one of the following status code strings).	
	"IDL" = Idle, "RUN" = Running	Response to CTRLST
	"OK" = No Fault, "STP" = Stopped", "FLT" = Faulted, "FIR" = Fire Stop	Response to STPST
	Decimal number, 0 - 20	Response to CUENO
	"NO" = Digital 1 Power is off, "D1P" = Digital 1 Power is on	Response to DP1CF
	"NO" = Digital 1 Power is off, "D1P" = Digital 1 Power is on	Response to DP1OS
	"NO" = Digital 1 Video is off, "D1V" = Digital 1 Video is on	Response to DV1CF
	"NO" = Digital 1 Video is off, "D1V" = Digital 1 Video is on	Response to DV1OS
	"NO" = Digital 2 Power is off, "D2P" = Digital 2 Power is on	Response to DP2CF
	"NO" = Digital 2 Power is off, "D2P" = Digital 2 Power is on	Response to DP2OS
	"NO" = Digital 2 Video is off, "D2V" = Digital 2 Video is on	Response to DV2CF
	"NO" = Digital 2 Video is off, "D2V" = Digital 2 Video is on	Response to DV2OS
	"NO" = Film Projector is off, "PJM" = Film Projector is on	Response to FPOS
	"NO" = Changeover douser is closed, "C/O" = Changeover douser is open	Response to FCOOS
	"NO" = Aux projector is off, "AUX" = Aux projector is on	Response to SPCF
	"NO" = Aux projector is off, "AUX" = Aux projector is on	Response to SPOS
	"NO" = Stand Alone, "YES" = Sync (one film, multiple screens)	Response to SYNC
	Decimal number, 0 - 255, MSB is set after a reset.	Response to RESET
	Decimal number, 0 - 9	Response to SEGIDX
	14 character user-defined text	Response to SEGTXT
	"OK" = Access to all commands, "BLK" = All control commands are blocked	Response to CAICMD
	Decimal number, 0 - 9. 0 indicates the Program number is not set.	Response to PROGN
	n,d,mm,ss. Where *n* = Wait Event number (0 - 20), *d* = CAI Channel number that started the timer (1 - 3), *mm* = Minutes (0 - 99), *ss* = Seconds (0 - 59).	Response to XTMR
	n,s. Where *n* = Wait Event number (0 - 20), *s* = "YES" for waiting and "NO" for not waiting.	Response to WAITEV
	n,e,s,mm,ss. Where *n* = Timer number (1-10), *e* = "EXC" for Exclusive and "ANY" for Anybody, *s* = "PAU" for paused and "RUN" running, *mm* = Minutes (0 - 99), *ss* = Seconds (0 - 99).	Response to GTMR,*n*
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters.	
<CR>	Terminating carriage return. (ASCII control character, 0x0D)	
<LF>	Terminating line feed. (ASCII control character, 0x0A)	

Status Response Message Format (table header)

STS Command & Response Example

Command
CMD,STS,1,SEGTXT,Y,1299<CR><LF>

Response
RSP,STS,1,0,Feature,1528<CR><LF>

Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

✔ NOTE: The "Control" flag is the desired state of the output based on the eCNA control program (or manual override). The "Output Status" flag is the actual state of the output. In normal operation, these two flags would be the same. However, they could be different after a manual stop, a fault or a power up depending on the how the "power up" and "fault to" states are configured. The client may want use either one or both of these flags depending on the requirements.

5.5 OUTPUT Command   Client ➜ eCNA

The Output Command allows the client to directly control individual outputs on the eCNA. A response from the eCNA is optional.

Command

CMD,OUT,*psn*,*code*,*yn*,*checksum*<CR><LF>

OUTPUT Command Message Format		
Parameter	**Description**	
CMD,	Start of Message string (This parameter is always "CMD").	
OUT,	Output Command string (This parameter is always "OUT").	
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.	
code,	Output code. (This parameter must contain any <u>one</u> of the following output code strings).	
	HLUP	House Lights Up
	HLDOWN	House Lights Down
	HLMID1	House Lights Mid 1
	HLMID2	House Lights Mid 2
	SLUP	Stage Lights Up
	SLDOWN	Stage Lights Down
	CURTOPEN	Curtain Open
	CURTCLOS	Curtain Close
	MSKFLAT	Masking Flat
	MSKSCOPE	Masking Scope
	MSKSPECL	Masking Special
	LENFLAT	Lens Flat
	LENSCOPE	Lens Scope
	LENSPECL	Lens Special
	SNDAUX1	Sound Aux 1
	SNDAUX2	Sound Aux 2
	SNDDIG1	Sound Digital 1
	SNDDIG2	Sound Digital 2
	SNDMONO	Sound Mono
	MUTEON	Sound Mute On
	MUTEOFF	Sound Mute Off
	SNDNSYNC	Sound Non-Sync
	SNDSR	Sound SR
	SNDSVA	Sound SVA
	OUT*x*ON	Aux Out *x* On (where *x* is 1 through 16)
	OUT*x*OFF	Aux Out *x* Off (where *x* is 1 through 16)
	DP1ON	Digital 1 Power On
	DP1OFF	Digital 1 Power Off
	DV1ON	Digital 1 Video On
	DV1OFF	Digital 1 Video Off
	DP2ON	Digital 2 Power On
	DP2OFF	Digital 2 Power Off
	DV2ON	Digital 2 Video On
	DV2OFF	Digital 2 Video Off
	SPROJON	Slide Projector On
	SPROJOFF	Slide Projector Off
yn,	Request a response flag.	
	Y	The eCNA will respond with it's response message
	N	This eCNA will not respond.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'	
<CR>	Terminating carriage return. (ASCII control character, 0x0D)	
<LF>	Terminating line feed. (ASCII control character, 0x0A)	

OUTPUT Command (continued)

Response (optional)

RSP,OUT,*psn*,*err*,*checksum*<CR><LF>

	OUTPUT Response Message Format
Parameter	**Description**
RSP,	Start of Message string (This parameter is always "RSP").
OUT,	Output Response string (This parameter is always "OUT").
psn,	Packet Sequence Number. Matches command packet sequence number.
err,	Error Number (0 to 999). 0 = okay, else number indicating problem
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

OUT Command & Response Example

Command
CMD,OUT,0,MSKFLAT,Y,1347<CR><LF>

Response
RSP,OUT,0,0,765<CR><LF>

Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

5.6 READ CLOCK Command   Client ➜ eCNA

The READ CLOCK command allows the client to read the eCNA's clock for date and time. The client could use this command to synchronize it's clock with the eCNA's clock.

Command

CMD,RCK,*psn,checksum*<CR><LF>

READ CLOCK Command Message Format	
Parameter	**Description**
CMD,	Start of Command string (This parameter is always "CMD").
RCK,	Read Clock Command string (This parameter is always "RCK").
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

Response

RSP,RCK,*psn,err,yyyy,mm,hh,mm,ttt,checksum*<CR><LF>

READ CLOCK Response Message Format	
Parameter	**Description**
RSP,	Start of Response string (This parameter is always "RSP").
RCK,	Read Clock Response string (This parameter is always "RCK").
psn,	Packet Sequence Number. Matches command packet sequence number.
err,	Error Number (0 to 999). 0 = okay, else number indicating problem
yyyy,	Year. 4 digit decimal number.
mm,	Month. 1- 2 digit decimal number.
dd,	Day. 1 - 2 digital decimal number.
hh,	Hour. 1 - 2 digit decimal number.
mm,	Minutes. 1 - 2 digit decimal number.
ss,	Seconds. 1 - 2 digit decimal number.
ttt,	Thousandths of a second. 1 - 3 digit decimal number.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

RCK Command & Response Example
Command CMD,RCK,0,616<CR><LF> **Response** RSP,RCK,0,0,2008,6,12,8,53,12,253,1817<CR><LF> **Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.**

5.7 SET CLOCK Command Client ➜ eCNA

The SET CLOCK command allows the client to set the eCNA's clock. The client could use this command to synchronize the eCNA's clock with it's clock. A response from the eCNA is optional.

Command

CMD,SCK,*psn,yyyy,mm,dd,hh,mm,ss,ttt,yn,checksum*<CR><LF>

Parameter	Description
SET CLOCK Command Message Format	
CMD,	Start of Command string (This parameter is always "CMD").
SCK,	Set Clock Command string (This parameter is always "SCK").
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.
yyyy,	Year. 4 digit decimal number. Range: 1970 - 2036
mm,	Month. 1- 2 digit decimal number. Range: 1 - 12
dd,	Day. 1 - 2 digital decimal number. Range: 1 - 31
hh,	Hour. 1 - 2 digit decimal number. Range: 0 - 23
mm,	Minutes. 1 - 2 digit decimal number. Range: 0 - 59
ss,	Seconds. 1 - 2 digit decimal number. Range: 0 - 59
ttt,	Thousandths of a second. 1 - 3 digit decimal number. Range: 0 - 999
yn,	*a* = Y or N. N= eCNA will not respond. Y = eCNA will respond.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

Response (optional)

RSP,SCK,*psn,err,checksum*<CR><LF>

Parameter	Description
SET CLOCK Response Message Format	
RSP,	Start of Response string (This parameter is always "RSP").
SCK,	Set Clock Response string (This parameter is always "SCK").
psn,	Packet Sequence Number. Matches command packet sequence number.
err,	Error Number (0 to 999). 0 = okay, else number indicating problem
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters
<CR>	Terminating carriage return. (ASCII control character, 0x0D).
<LF>	Terminating line feed. (ASCII control character, 0x0A).

SCK Command & Response Example

Command
CMD,SCK,0,2008,6,12,10,12,43,0,Y,1476<CR><LF>

Response
RSP,SCK,0,0,742<CR><LF>

Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

5.8 REPORT ID Command   Client ➜ eCNA

The REPORT ID command allows the client get the eCNA's identification record. The eCNA returns it's Device Name, Software Version and Screen Id Number.

Command

CMD,RID,*psn*,*checksum*<CR><LF>

REPORT ID Command Message Format	
Parameter	**Description**
CMD,	Start of Command string (This parameter is always "CMD").
RID,	Report Id Command string (This parameter is always "RID").
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'
<CR>	Terminating carriage return. (ASCII control character, 0x0D).
<LF>	Terminating line feed. (ASCII control character, 0x0A).

Response

RSP,RID,*psn*,*err*,*record*,*checksum*<CR><LF>

REPORT ID Response Message Format		
Parameter	**Description**	
RSP,	Start of Response string (This parameter is always "RSP").	
RID,	Report Id Response string (This parameter is always "RID").	
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.	
err,	Error Number (0 to 999). 0 = okay, else number indicating problem.	
record,	eCNA Id Record. (This record will contain <u>all</u> of the following code strings).	
	code 1,	Device name = "eCNA-5". ASCII Text. Max. Length = 8 characters.
	code 2,	Software version. ASCII Text. Max. Length = 6 characters.
	code 3	Screen Id. Decimal number: 0 to 63. Max length = 2 characters.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'	
<CR>	Terminating carriage return. (ASCII control character, 0x0D).	
<LF>	Terminating line feed. (ASCII control character, 0x0A).	

RID Command & Response Example

Command
CMD,RID,0,615<CR><LF>

Response
RSP,RID,0,0,eCNA-5,1007,27,1630<CR><LF>

Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

5.9 EXCHANGE STATUS Command   Client ➜ eCNA

The EXCHANGE STATUS command can be used by the client to exchange status records with the eCNA. Most of the codes in the eCNA status record are individually available with the **STS** command.

Command

CMD,XST,*psn*,*record*,*checksum*<CR><LF>

EXCHANGE STATUS Command Message Format	
Parameter	**Description**
CMD,	Start of Command string (This parameter is always "CMD").
XST,	Exchange Status Command string (This parameter is always "XST").
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.
record,	Client Status Record. (This record must contain <u>all</u> of the following comma delimited code strings).
	code 1, Device (client) name. ASCII Text. Max length = 8 characters. *code 2,* "STY" = Start Yes. "STN" = Start No. Transition from STN to STY starts the eCNA. *code 3,* "SPY" = Stop Yes. "SPN" = Stop No. Transition from SPN to SPY stops the eCNA. *code 4,* "OK" = No fault. "FLT" = Fault. Transition from OK to FLT faults the eCNA. *code 5* "NO" = No. "NXT" = Add 1 to Cue. Transition from NO to NXT cues the eCNA.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'
<CR>	Terminating carriage return. (ASCII control character, 0x0D).
<LF>	Terminating line feed. (ASCII control character, 0x0A).

EXCHANGE STATUS Command (continued)

Response

RSP,XST,*psn,err,record,checksum*<CR><LF>

EXCHANGE STATUS Response Message Format	
Parameter	**Description**
RSP,	Start of Response string (This parameter is always "RSP").
XST,	Exchange Status Response string (This parameter is always "XST").
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.
err,	Error Number (0 to 999). 0 = okay, else number indicating problem.
record,	eCNA Status Record. (This record will contain <u>all</u> of the following comma delimited code strings).

	code 1,	CAI control flag. "ENA" = CAI Enabled, "DIS" = CAI Disabled. (See Main CPU Board S2-8)
	code 2,	Control state. "IDL" = Idle , "RUN" = Running.
	code 3,	Stopped state. "OK" = No Fault, "STP" = Stopped, "FLT" = Faulted, "FIR" = Fire Stop.
	code 4,	Cue number. Decimal number: 0 to 20.
	code 5,	Digital 1 Power control flag. "NO" = Off, "D1P" = On
	code 6,	Digital 1 Power output status. "NO" = Off, "D1P" = On
	code 7,	Digital 1 Video control flag. "NO" = Off, "D1V" = On
	code 8,	Digital 1 Video output status. "NO" = Off, "D1V" = On
	code 9,	Digital 2 Power control flag. "NO" = Off, "D2P" = On
	code 10,	Digital 2 Power output status. "NO" = Off, "D2P" = On
	code 11,	Digital 2 Video control flag. "NO" = Off, "D2V" = On
	code 12,	Digital 2 Video output status. "NO" = Off, "D2V" = On
	code 13,	*Film Projector output status. "NO" = Off, "PJM" = On
	code 14,	*Film Changeover output status. "NO" = Closed, "C/O" = Open
	code 15,	Slide (Aux) Projector control flag. "NO" = Off, "AUX" = On
	code 16,	Slide (Aux) Projector output status. "NO" = Off, "AUX" = On
	code 17,	*Sync Mode. "NO" = Stand Alone, "YES" = Sync (one film, multiple screens)
	code 18,	*Synced House Id. Decimal number, 0 = Not used, 1 to 63 = Screen Id
	code 19,	*Synced House Id. Decimal number, 0 = Not used, 1 to 63 = Screen Id
	code 20,	*Synced House Id. Decimal number, 0 = Not used, 1 to 63 = Screen Id
	code 21,	*Synced House Id. Decimal number, 0 = Not used, 1 to 63 = Screen Id
	code 22,	*Synced House Id. Decimal number, 0 = Not used, 1 to 63 = Screen Id
	code 23,	Reset. Decimal number, 0 - 255, MSB is set after a reset.
	code 24,	*Bypass flag. "BPN" = Not Active, "BPY" = Activated
	code 25,	Segment index number. Decimal number, 0 - 9
	code 26,	Segment name. Up to 14 character user-defined text
	code 27,	CAI Command Access Flag. "OK" = Access to all commands, "BLK" = All control commands are blocked.
	code 28,	Program Number. Decimal number 1 - 9
	code 29,	CAI Channel Number that started the Exception Timer. Decimal number, 1,2 or 3
	code 30,	Exception Timer Minutes (Ticking down). Decimal number, 0 - 99
	code 31,	Exception Timer Seconds (Ticking down). Decimal number, 0 -59
	code 32,	'Wait Event: n' Instruction Status. "YES" = Waiting, "NO" = Not Waiting
	code 33	'Wait Event: n' Instruction Event number n. (Cleared on program start).

checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'
<CR>	Terminating carriage return. (ASCII control character, 0x0D).
<LF>	Terminating line feed. (ASCII control character, 0x0A).

* Not applicable to the eCNA-5.

XST Command & Response Example

Command
CMD,XST,0,Client 1,STN,SPN,OK,NO,2352<CR><LF>

Response
RSP,XST,0,0,ENA,IDL,OK,0,NO,NO,D1V,D1V,NO,NO,NO,NO,NO,NO,NO,NO,NO,0,0,0,0,0,7,BPN,Between Shows,OK,6723<CR><LF>

Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

EXCHANGE STATUS Command (continued)

eCNA Status Record

This record contains data from the eCNA that can be used for control and status purposes. The eCNA returns this information when it responds to the **RST** and **XST** commands. This information is used by the client to coordinate its presentation with the eCNA's control. The data in this record is formatted as a comma delimited ASCII string.

No.	Parameter	Description
		eCNA Status Record
1	CAI Control Flag	This parameter indicates whether the eCNA accepts control data from this command set. When this flag is Disabled, the eCNA ignores incoming control data from the client. When this flag is Enabled the eCNA will accept valid control data from the client. This flag is controlled by with the Main CPU Board DIP switch S2-8. Values: "ENA" = Enabled, "DIS" = Disabled
2	Control State	This parameter indicates the current state of the eCNA's control program. eCNA reports "IDL" between shows, and "RUN" when running a Feature Program. Values: "IDL" = Idle, "RUN" = Running
3	Stopped State	This parameter indicates the exception state of the eCNA. The eCNA will not start or resume when in the "FLT" or "FIR" states. It can be started when in the "OK" state. It can be resumed when in the STP state. Values: "OK"=No Fault, "STP"=Stopped, "FLT"=Faulted, "FIR"=Fire Stop
4	Cue Number	This parameter reports the current Cue Number of the eCNA's program. When between shows (IDL), this number will be zero. Decimal number in the range of 0 to 20.
5	Digital 1 Power Control Flag	This parameter indicates the current state of the Digital 1 Power output flag. This is the 'desired' state, not necessarily the state of the output. This output may fault to a different state. Fixed length = 3 ASCII characters, values: "NO"=Digital 1 Power is off, "D1P"=Digital 1 Power is on.
6	Digital 1 Power Output Status	This parameter indicates the current state of the Digital 1 Power output. Values: "NO"=Digital 1 Power is off, "D1P"=Digital 1 Power is on.
7	Digital 1 Video Control Flag	This parameter indicates the current state of the Digital 1 Video output flag. This is the 'desired' state, not necessarily the state of the output. This output may fault to a different state. Values: "NO"=Digital 1 Video is off, "D1V"=Digital 1 Video is on.
8	Digital 1 Video Output Status	This parameter indicates the current state of the Digital 1 Video output. Values: "NO"=Digital 1 Video is off, "D1V"=Digital 1 Video is on.
9	Digital 2 Power Control Flag	This parameter indicates the current state of the Digital 2 Power output flag. This is the 'desired' state, not necessarily the state of the output. This output may fault to a different state. Values: "NO"=Digital 2 Power is off, "D2P"=Digital 2 Power is on.
10	Digital 2 Power Output Status	This parameter indicates the current state of the Digital 2 Power output. Values: "NO"=Digital 2 Power is off, "D2P"=Digital 2 Power is on.
11	Digital 2 Video Control Flag	This parameter indicates the current state of the Digital 2 Video output flag. This is the 'desired' state, not necessarily the state of the output. This output may fault to a different state. Values: "NO"=Digital 2 Video is off, "D2V"=Digital 2 Video is on.
12	Digital 2 Video Output Status	This parameter indicates the current state of the Digital 2 Video output. Values: "NO"=Digital 2 Video is off, "D2V"=Digital 2 Video is on.
13	Film Projector Output Status	This parameter indicates the current state of the Film Projector Motor. Values: "NO"=Film Motor is off, "PJM"=Film Projector Motor is on.
14	Film Changeover Output Status	This parameter indicates the current state of the Film Projector Changeover. Values: "NO"=Changeover is closed, "C/O"=Changeover is open.
15	Slide (Aux) Projector Control Flag	This parameter indicates the current state of the Aux Projector output control flag. This is the 'desired' state, not necessarily the state of the output. This output may fault to a different state. Values: "NO"=Aux Projector is off, "AUX"=Aux Projector is on.
16	Slide (Aux) Projector Output Status	This parameter indicates the current state of the Aux Projector output. Values: "NO"=Aux Projector is off, "AUX"=Aux Projector is on.
17	Sync Mode	This parameter indicates when the eCNA is configured for Interlock (SYN) mode of operation. Interlock mode is where more than one auditorium uses the same film that is run through several projectors. Values: "NO"=Stand alone, "SYN"=Sync (one film, multi house).

EXCHANGE STATUS Command (continued)

No.	Parameter	Description
		eCNA Status Record (continued)
18	Synced House Id	This parameter indicates the Screen Id of another auditorium that is currently "Interlocked" (SYNC'ed) with this eCNA. This number only has meaning when the eCNA is in Sync Mode (SON). Decimal number in the range of 0 = not used, 1 to 63 = Id of device.
19	Synced House Id	This parameter indicates the Screen Id of another auditorium that is currently "Interlocked" (SYNC'ed) with this eCNA. This number only has meaning when the eCNA is in Sync Mode (SON). Decimal number in the range of 0 = not used, 1 to 63 = Id of device.
20	Synced House Id	This parameter indicates the Screen Id of another auditorium that is currently "Interlocked" (SYNC'ed) with this eCNA. This number only has meaning when the eCNA is in Sync Mode (SON). Decimal number in the range of 0 = not used, 1 to 63 = Id of device.
21	Synced House Id	This parameter indicates the Screen Id of another auditorium that is currently "Interlocked" (SYNC'ed) with this eCNA. This number only has meaning when the eCNA is in Sync Mode (SON). Decimal number in the range of 0 = not used, 1 to 63 = Id of device.
22	Synced House Id	This parameter indicates the Screen Id of another auditorium that is currently "Interlocked" (SYNC'ed) with this eCNA. This number only has meaning when the eCNA is in Sync Mode (SON). Decimal number in the range of 0 = not used, 1 to 63 = Id of device.
23	Reset	This parameter indicates that the eCNA has re-booted. This would most likely be due to a power up, but will also indicate any other system reset. This parameter can be used by the client to detect a power up, allowing the client to initialize outputs if desired. This is a 1 byte value. The most significant bit (80 Hex, 128 Decimal) is set after a reset and cleared after the eCNA status record is sent the first time. The lower bits (0 to 7F Hex, 0 to 127) are simply incremented by one after each reset. Decimal number in the range of 0 to 255.
24	Bypass Flag	This parameter indicates the state of the Bypass flag. The Bypass flag can be set or cleared with the Bypass program instruction or a programmable input. Bypass is only used with the 39440 termination board to activate or de-activate eCNA control. Values: "BPN" = Bypass is not active, "BPY" = Bypass is activated.
25	Segment Index Number	This parameter indicates the current segment number of the eCNA control program. Decimal number in the range of 0 to 9.
26	Segment Name	This parameter indicates the current segment name. of the eCNA control program. User defined text up to 14 ASCII characters.
27	CAI Command Access Flag	This parameter indicates the status of the CAI Command access flag. This flag is controlled by the CAI command program instruction that is used to Allow or Block serial control commands on a CAI communications channel. This only blocks 'control' commands. Status commands are always accepted. Values: "OK" = Access with all commands, "BLK" = All control commands are blocked.
28	Program Number	This parameter indicates the Program Number. This program number can show up as 0 when the program is not set. Decimal number in the range of 0 to 9.
29	CAI Channel that started the Exception Timer	This parameter indicates the CAI communications channel that started the Exception Timer. This is cleared on program start. CAI Channel number 1, 2 or 3.
30	Exception Timer Minutes	This parameter indicates the Exception Timers time left in minutes. Decimal number 0 to 99.
31	Exception Timer Seconds	This parameter indicates the Exception Timers time left in seconds. Decimal number 0 to 59.
32	Wait Event Status	This parameter indicates if the Wait Event instruction is waiting to start the Exception timer. Values: "YES" = Waiting, "NO" = Not waiting.
33	Wait Event Number	This parameter indicates the current Event number. This number is cleared on program start. Decimal number 0 to 20.
34	Future	Parameters may be added to the end of this record in future releases.

Any new future parameters will be inserted right before the checksum. Client software should be designed to except and discard possible new parameters, but still include them in the checksum calculation. This will provide compatibility with future eCNA firmware.

5.10 REPORT STATUS Command   Client ➜ eCNA

The REPORT STATUS command can be used by the client to request the status record from the eCNA. Most of the codes in the eCNA status record are individually available with the **STS** command.

Command

CMD,RST,*psn*,*checksum*<CR><LF>

REPORT STATUS Command Message Format	
Parameter	**Description**
CMD,	Start of Command string (This parameter is always "CMD").
RST,	Exchange Status Command string (This parameter is always "RST").
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.
checksum	Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'
<CR>	Terminating carriage return. (ASCII control character, 0x0D).
<LF>	Terminating line feed. (ASCII control character, 0x0A).

Response

RSP,RST,*psn*,*err*,*record*,*checksum*<CR><LF>

REPORT STATUS Response Message Format	
Parameter	**Description**
RSP,	Start of Response string (This parameter is always "RSP").
RST,	Exchange Status Response string (This parameter is always "RST").
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.
err,	Error Number (0 to 999). 0 = okay, else number indicating problem.
record,	eCNA Status Record. (This record will contain <u>all</u> of the following comma delimited code strings).
	code 1, CAI control flag. "ENA" = CAI Enabled, "DIS" = CAI Disabled. (See Main CPU Board S2-8) code 2, Control state. "IDL" = Idle , "RUN" = Running. code 3, Stopped state. "OK" = No Fault, "STP" = Stopped, "FLT" = Faulted, "FIR" = Fire Stop. code 4, Cue number. Decimal number: 0 to 20. code 5, Digital 1 Power control flag. "NO" = Off, "D1P" = On code 6, Digital 1 Power output status. "NO" = Off, "D1P" = On code 7, Digital 1 Video control flag. "NO" = Off, "D1V" = On code 8, Digital 1 Video output status. "NO" = Off, "D1V" = On code 9, Digital 2 Power control flag. "NO" = Off, "D2P" = On code 10, Digital 2 Power output status. "NO" = Off, "D2P" = On code 11, Digital 2 Video control flag. "NO" = Off, "D2V" = On code 12, Digital 2 Video output status. "NO" = Off, "D2V" = On code 13, *Film Projector output status. "NO" = Off, "PJM" = On code 14, *Film Changeover output status. "NO" = Closed, "C/O" = Open code 15, Slide (Aux) Projector control flag. "NO" = Off, "AUX" = On code 16, Slide (Aux) Projector output status. "NO" = Off, "AUX" = On code 17, *Sync Mode. "NO" = Stand Alone, "YES" = Sync (one film, multiple screens) code 18, *Synced House Id. Decimal number, 0 = Not used, 1 to 63 = Screen Id code 19, *Synced House Id. Decimal number, 0 = Not used, 1 to 63 = Screen Id code 20, *Synced House Id. Decimal number, 0 = Not used, 1 to 63 = Screen Id code 21, *Synced House Id. Decimal number, 0 = Not used, 1 to 63 = Screen Id code 22, *Synced House Id. Decimal number, 0 = Not used, 1 to 63 = Screen Id code 23, Reset. Decimal number, 0 - 255, MSB is set after a reset. code 24, *Bypass flag. "BPN" = Not Active, "BPY" = Activated code 25, Segment index number. Decimal number, 0 - 9 code 26, Segment name. Up to 14 character user-defined text code 27, CAI Command Access Flag. "OK" = Access to all commands, "BLK" = All control commands are blocked. code 28, Program Number. Decimal number 1 - 9 code 29, CAI Channel Number that started the Exception Timer. Decimal number, 1,2 or 3 code 30, Exception Timer Minutes (Ticking down). Decimal number, 0 - 99 code 31, Exception Timer Seconds (Ticking down). Decimal number, 0 -59 code 32, 'Wait Event: n' Instruction Status. "YES" = Waiting, "NO" = Not Waiting code 33 'Wait Event: n' Instruction Event number n. (Cleared on program start).
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'
<CR>	Terminating carriage return. (ASCII control character, 0x0D).
<LF>	Terminating line feed. (ASCII control character, 0x0A).

* Not applicable to the eCNA-5.

REPORT STATUS Command (continued)

RST Command & Response Example

Command
CMD,RST,0,641<CR><LF>

Response
RSP,RST,0,0,ENA,IDL,OK,0,NO,NO,D1V,D1V,NO,NO,NO,NO,NO,NO,NO,NO,0,0,0,0,0,7,BPN,0,Between Shows,OK,6717<CR><LF>

Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

See the *eCNA-5 Status Record* in section 5.9 for a detailed description of the parameters.

5.11 STATUS/CONTROL MESSAGE WRITE Command   Client ➜ eCNA

This command allows a CAI client to write text messages to it's own client message table. A response is optional. Up to 10 messages, each containing up to 24 ASCII characters in length are supported. Messages are written one at a time. All characters are supported except:

double quote	"	less than	<	ampersand	&
single quote	'	greater than	>	open bracket	[
semi-colon	;	comma	,	close bracket	]

Command

CMD,SMW,*psn,code,yn,checksum*<CR><LF>

STATUS/CONTROL MESSAGE WRITE Command Message Format	
Parameter	**Description**
CMD,	Start of Message string (This parameter is always "CMD").
SMW,	Status/Control Message Write Command string (This parameter is always "SMW").
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.
code,	Message code (This parameter must contain the following event code strings.)
	d,m — This writes text message *m* to table message number *d*, Where: *m* = ASCII message up to 24 characters in length; *d* = 1 - 10
yn,	Request a response flag
	Y — The eCNA will respond with it's response message
	N — This eCNA will not respond
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

Response (optional)

RSP,SMW,*psn,err,msg,checksum*<CR><LF>

STATUS/CONTROL MESSAGE WRITE Response Message Format	
Parameter	**Description**
RSP,	Start of Message string (This parameter is always "RSP").
SMW,	Status/Control Message Write Response string (This parameter is always "SMW").
psn,	Packet Sequence Number. Matches command packet sequence number.
err,	Error Number (0 to 999). 0 = okay, else number indicating problem
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

STATUS/CONTROL MESSAGE WRITE Command & Response Example

Command
CMD,SMW,0,2,Lamp_On,Y,1588<CR><LF>

Response
RSP,SMW,0,0,764<CR><LF>

This example writes "Lamp_On" text to message number 2.

Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

5.12 STATUS/CONTROL MESSAGE READ Command   Client ➜ eCNA

This command allows a CAI client to read messages from the message table for any of the supported device channels (CAI Client channels 1 through 3, and Remote Device channels 1 through 5). The device channels are as follows:

Device Channel	Message Table
CAI Channel 1	CAI1
CAI Channel 2	CAI2
CAI Channel 3	CAI3
RDI Channel 1	RDI1
RDI Channel 2	RDI2
RDI Channel 3	RDI3
RDI Channel 4	RDI4
RDI Channel 5	RDI5

Command

CMD,SMR,*psn,code,yn,checksum*<CR><LF>

STATUS/CONTROL MESSAGE Command Message Format		
Parameter	**Description**	
CMD,	Start of Message string (This parameter is always "CMD").	
SMR,	Status/Control Message Read Command string (This parameter is always "SMR").	
psn,	Packet sequence number (0 to 65535). Can be used to match responses with commands, otherwise always 0.	
code,	Message code (This parameter must contain the following event code strings.)	
	a,d	This reads text message number *d* from device message table *a*, Where: *a* = CAI1, CAI2, CAI3, RDI1, RDI2, RDI3, RDI4 or RDI5, *d* = 1 - 10
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters or wildcard '??'	
<CR>	Terminating carriage return. (ASCII control character, 0x0D)	
<LF>	Terminating line feed. (ASCII control character, 0x0A)	

Response

RSP,SMR,*psn,err,msg,checksum*<CR><LF>

STATUS/CONTROL MESSAGE Response Message Format	
Parameter	**Description**
RSP,	Start of Message string (This parameter is always "RSP").
SMR,	Status/Control Message Read Response string (This parameter is always "SMR").
psn,	Packet Sequence Number. Matches command packet sequence number.
err,	Error Number (0 to 999). 0 = okay, else number indicating problem
msg,	Client Message Name. ASCII Text, up to 24 characters in length.
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters
<CR>	Terminating carriage return. (ASCII control character, 0x0D)
<LF>	Terminating line feed. (ASCII control character, 0x0A)

STATUS/CONTROL MESSAGE READ Command & Response Example
Command CMD,SMR,0,CAI1,2,1026<CR><LF> **Response** RSP,SMR,0,0,Lamp_On,1481<CR><LF> This example reads the "Lamp_On" text message from CAI Channel 1 table, message 2. Note: For testing purposes, the don't care "??" characters can be used in the command instead of a checksum.

5.13 EVENT Report   Client ← eCNA

The EVENT Report is a special type of message that the eCNA will, if enabled, send unsolicited to the client. The client can decide to act on it or not. The message is sent at the beginning of the event. This is an open loop message so there is no response to this type of message and client should not respond. It is possible for an event to generate more than one message. For example, a Fire Stop will generate 'FIRESTOP' and 'ALLSTOP' messages. The client should discard messages it does not care about.

Report

RPT,EVT,0,*msg*,*checksum*<CR><LF>

<table>
<tr><th colspan="3">REPORT Event Message Format</th></tr>
<tr><th>Name</th><th colspan="2">Description</th></tr>
<tr><td>RPT,</td><td colspan="2">Start of Report string (This parameter is always "RPT").</td></tr>
<tr><td>EVT,</td><td colspan="2">Event Report string (This parameter is always "EVT").</td></tr>
<tr><td>0,</td><td colspan="2">Packet Sequence No. Always 0.</td></tr>
<tr><td rowspan="22">*msg*,</td><td colspan="2">Event Message (This parameter will contain <u>one</u> of the following message strings).</td></tr>
<tr><td>FIRESTOP</td><td>Fire Stop</td></tr>
<tr><td>START</td><td>eCNA program start or resume (local or remote, manual or auto)</td></tr>
<tr><td>IDLE</td><td>eCNA transition from In Progress to the Idle state.</td></tr>
<tr><td>ALLSTOP</td><td>Anything that stops a show in progress (fire, manual, fault)</td></tr>
<tr><td>DP1ON</td><td>Digital Projector Power 1 output state transition ON</td></tr>
<tr><td>DP1OFF</td><td>Digital Projector Power 1 output state transition OFF</td></tr>
<tr><td>DV1ON</td><td>Digital Projector Video 1 output state transition ON</td></tr>
<tr><td>DV1OFF</td><td>Digital Projector Video 1 output state transition OFF</td></tr>
<tr><td>DP2ON</td><td>Digital Projector Power 2 output state transition ON</td></tr>
<tr><td>DP2OFF</td><td>Digital Projector Power 2 output state transition OFF</td></tr>
<tr><td>DV2ON</td><td>Digital Projector Video 2 output state transition ON</td></tr>
<tr><td>DV2OFF</td><td>Digital Projector Video 2 output state transition OFF</td></tr>
<tr><td>CUE</td><td>Program cue was incremented by one</td></tr>
<tr><td>CueXTO_1</td><td>Exception Timer from Channel 1 timed out.</td></tr>
<tr><td>CueXTO_2</td><td>Exception Timer from Channel 2 timed out.</td></tr>
<tr><td>CueXTO_3</td><td>Exception Timer from Channel 3 timed out.</td></tr>
<tr><td>SENDF*x*</td><td>CAI Report Event Instruction.
Where:
x = 1 to 30</td></tr>
<tr><td>GTE*xx_yy*</td><td>General Purpose Timer expired.
Where:
xx = the timer number 01 to 10
yy = owner of the timer (00 = program, 01 = CAI Channel 1, 02... 03 = CAI Channel 03)</td></tr>
<tr><td>*checksum*</td><td colspan="2">Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters</td></tr>
<tr><td><CR></td><td colspan="2">Terminating carriage return. (ASCII control character, 0x0D).</td></tr>
<tr><td><LF></td><td colspan="2">Terminating line feed. (ASCII control character, 0x0A).</td></tr>
</table>

EVENT Report (continued)

All Event Reports with the Checksum		
RPT,EVT,0,FIRESTOP,1329<CR><LF>	RPT,EVT,0,SENDF14,1178<CR><LF>	RPT,EVT,0,GTE03_01,1224<CR><LF>
RPT,EVT,0,START,1107<CR><LF>	RPT,EVT,0,SENDF15,1179<CR><LF>	RPT,EVT,0,GTE04_01,1225<CR><LF>
RPT,EVT,0,IDLE,995<CR><LF>	RPT,EVT,0,SENDF16,1180<CR><LF>	RPT,EVT,0,GTE05_01,1226<CR><LF>
RPT,EVT,0,ALLSTOP,1252<CR><LF>	RPT,EVT,0,SENDF17,1181<CR><LF>	RPT,EVT,0,GTE06_01,1227<CR><LF>
RPT,EVT,0,DP1ON,1063<CR><LF>	RPT,EVT,0,SENDF18,1182<CR><LF>	RPT,EVT,0,GTE07_01,1228<CR><LF>
RPT,EVT,0,DP1OFF,1125<CR><LF>	RPT,EVT,0,SENDF19,1183<CR><LF>	RPT,EVT,0,GTE08_01,1229<CR><LF>
RPT,EVT,0,DV1ON,1069<CR><LF>	RPT,EVT,0,SENDF20,1175<CR><LF>	RPT,EVT,0,GTE09_01,1230<CR><LF>
RPT,EVT,0,DV1OFF,1131<CR><LF>	RPT,EVT,0,SENDF21,1176<CR><LF>	RPT,EVT,0,GTE10_01,1222<CR><LF>
RPT,EVT,0,DP2ON,1064<CR><LF>	RPT,EVT,0,SENDF22,1177<CR><LF>	RPT,EVT,0,GTE01_02,1223<CR><LF>
RPT,EVT,0,DP2OFF,1126<CR><LF>	RPT,EVT,0,SENDF23,1178<CR><LF>	RPT,EVT,0,GTE02_02,1224<CR><LF>
RPT,EVT,0,DV2ON,1070<CR><LF>	RPT,EVT,0,SENDF24,1179<CR><LF>	RPT,EVT,0,GTE03_02,1225<CR><LF>
RPT,EVT,0,DV2OFF,1132<CR><LF>	RPT,EVT,0,SENDF25,1180<CR><LF>	RPT,EVT,0,GTE04_02,1226<CR><LF>
RPT,EVT,0,CUE,930<CR><LF>	RPT,EVT,0,SENDF26,1181<CR><LF>	RPT,EVT,0,GTE05_02,1227<CR><LF>
RPT,EVT,0,CueXTO_1,1389<CR><LF>	RPT,EVT,0,SENDF27,1182<CR><LF>	RPT,EVT,0,GTE06_02,1228<CR><LF>
RPT,EVT,0,CueXTO_2,1390<CR><LF>	RPT,EVT,0,SENDF28,1183<CR><LF>	RPT,EVT,0,GTE07_02,1229<CR><LF>
RPT,EVT,0,CueXTO_3,1391<CR><LF>	RPT,EVT,0,SENDF29,1184<CR><LF>	RPT,EVT,0,GTE08_02,1230<CR><LF>
RPT,EVT,0,SENDF1,1126<CR><LF>	RPT,EVT,0,SENDF30,1176<CR><LF>	RPT,EVT,0,GTE09_02,1231<CR><LF>
RPT,EVT,0,SENDF2,1127<CR><LF>	RPT,EVT,0,GTE01_00,1221<CR><LF>	RPT,EVT,0,GTE10_02,1223<CR><LF>
RPT,EVT,0,SENDF3,1128<CR><LF>	RPT,EVT,0,GTE02_00,1222<CR><LF>	RPT,EVT,0,GTE01_03,1224<CR><LF>
RPT,EVT,0,SENDF4,1129<CR><LF>	RPT,EVT,0,GTE03_00,1223<CR><LF>	RPT,EVT,0,GTE02_03,1225<CR><LF>
RPT,EVT,0,SENDF5,1130<CR><LF>	RPT,EVT,0,GTE04_00,1224<CR><LF>	RPT,EVT,0,GTE03_03,1226<CR><LF>
RPT,EVT,0,SENDF6,1131<CR><LF>	RPT,EVT,0,GTE05_00,1225<CR><LF>	RPT,EVT,0,GTE04_03,1227<CR><LF>
RPT,EVT,0,SENDF7,1132<CR><LF>	RPT,EVT,0,GTE06_00,1226<CR><LF>	RPT,EVT,0,GTE05_03,1228<CR><LF>
RPT,EVT,0,SENDF8,1133<CR><LF>	RPT,EVT,0,GTE07_00,1227<CR><LF>	RPT,EVT,0,GTE06_03,1229<CR><LF>
RPT,EVT,0,SENDF9,1134<CR><LF>	RPT,EVT,0,GTE08_00,1228<CR><LF>	RPT,EVT,0,GTE07_03,1230<CR><LF>
RPT,EVT,0,SENDF10,1174<CR><LF>	RPT,EVT,0,GTE09_00,1229<CR><LF>	RPT,EVT,0,GTE08_03,1231<CR><LF>
RPT,EVT,0,SENDF11,1175<CR><LF>	RPT,EVT,0,GTE10_00,1221<CR><LF>	RPT,EVT,0,GTE09_03,1232<CR><LF>
RPT,EVT,0,SENDF12,1176<CR><LF>	RPT,EVT,0,GTE01_01,1222<CR><LF>	RPT,EVT,0,GTE10_03,1224<CR><LF>
RPT,EVT,0,SENDF13,1177<CR><LF>	RPT,EVT,0,GTE02_01,1223<CR><LF>	

✔ Note: To control the unsolicited Event Reports, the client must use the CFG Configuration command.

To disable the Report Event messages send:

Command: CMD,CFG,0,RPTOFF,Y,<CHECKSUM or ??><CR><LF>
Response: RSP,CFG,0,0,725<CR><LF>

To enable the Report Event messages send:

Command: CMD,CFG,0,RPTON,Y,<CHECKSUM or ??><CR><LF>
Response: RSP,CFG,0,0,725<CR><LF>

This configuration flag is saved in battery RAM.

5.14 EVENT Log   Client ← eCNA

A history of activity is stored at the eCNA in a log file in battery-backed memory. If this feature is enabled, event records are sent one a time and at a low priority so they shouldn't interfere with other transactions. The client can store these records to it's own disk file for future use. This is an open loop message so there is no response to this type of message and client should not respond.

Usage Note: To get the "run time" event logging, just turn logging on with the Configuration command and leave it on. The client will get any buffered events, and then receive new events in real time as they are buffered. This method collects logged events as they happen. To get "on-demand" event logging, turn logging on with the Configuration command to receive all the buffered events (since the last time you retrieved them). Then turn logging back off with the Configuration command until the next time you want to gather events. This method can be used to collect all the logged events at the end of a show or at the end of the day, week, etc.

Log

LOG,EVT,0,*record*,*checksum*<CR><LF>

Event Log Format	
Parameter	**Description**
LOG,	Start of Log string (This parameter is always "LOG")
EVT,	Event Log string (This parameter is always "EVT").
0,	Packet Sequence No. Always 0.
record,	Log Record (This parameter will contain all of the following message strings).

ID,	Network ID (Screen Number). 1 byte decimal, 1 - 63
Record,	Event record version. 1 byte decimal, 0
Device,	Type of Device. 1 byte decimal, 12 = eCNA-5
Code,	Event code number. 2 bytes decimal, 0 to 65535
Code Name,	Event code name. Text, max length = 8 characters
Event Flags,	32 bit event flags.
Sequence,	Show sequence number. 2 byte decimal, 0 to 65535
Year,	Event date stamp. Year. 2 byte decimal number.
Month,	Event date stamp. Month. 1 byte decimal number, 1 to 12
Day,	Event date stamp. Day. 1 byte decimal number, 1 to 31
Hour,	Event time stamp. Hour. 1 byte decimal number, 0 to 23
Minutes,	Event time stamp. Minute. 1 byte decimal number, 0 to 59
Seconds,	Event time stamp. Second. 1 byte decimal number, 0 to 59
Hundredths,	Event time stamp. Hundredths of a second. 1 byte decimal, 0 to 99
Down Time,	Accumulated show down time
Loop,	Sync loop number. 1 byte decimal, 0 to 20
Program,	Program Number. 1 byte decimal, 1 to 9
Status,	Show status. 1 byte decimal. 1 = Ready to Run, 2 = Fault, 3 = Running, 4 = Intermission, 5 = Stopped
Cue,	Cue number. 1 byte decimal, 0 to 20
P1,	Parameters 1. Event specific data. 2 byte decimal, 0 to 65535
P2,	Parameters 2. Event specific data. 2 byte decimal, 0 to 65535
P3,	Parameters 3. Event specific data. 2 byte decimal, 0 to 65535
P4,	Parameters 4. Event specific data. 2 byte decimal, 0 to 65535
P5,	Parameters 5. Event specific data. 2 byte decimal, 0 to 65535
P6,	Parameters 6. Event specific data. 2 byte decimal, 0 to 65535
P7,	Parameters 7. Event specific data. 2 byte decimal, 0 to 65535
P8	Parameters 8. Event specific data. 2 byte decimal, 0 to 65535

checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters
<CR>	Terminating carriage return. (ASCII control character, 0x0D).
<LF>	Terminating line feed. (ASCII control character, 0x0A).

Event Log Example

LOG,EVT,0,27,0,12,1,StartMan,1090584577,16,2008,6,10,7,33,21,82,0,0,1,0,0,0,0,0,0,0,0,0,0,4913

EVENT Log (continued)

✔

Note: To control the unsolicited Event Logs, the client must use the CFG Configuration command.

To disable the Log Event messages send:

Command: CMD,CFG,0,LOGOFF,Y,<CHECKSUM OR ??><CR><LF>
Response: CMD,CFG,0,0,725<CR><LF>

To enable the send Logged Events send:

Command: CMD,CFG,0,LOGON,Y,<CHECKSUM or ??><CR><LF>
Response: RSP,CFG,0,0,725<CR><LF>

This configuration flag is saved in battery RAM.

EVENT Log (continued)

Parameter	Description
ID,	This is the Screen ID. DIP switches S1-3 through S1-8 on the eCNA Main CPU are used to configure the ID number. This number should correspond with the screen number.
Record,	This is the record version number.
Device,	This is the Network Device Type. 12 = eCNA-5
Code,	This is the event code number. Each event has a unique number.
Code Name,	This is the name of the event. This is text with a maximum of 8 characters.
Event Flags,	This is a 32 bit event flag. Bit 0 is the LSB. This is a decimal number in the range 0 to $2^{32} - 1$

Event Record Detail (spanning header above the table)

Event Flags bit table:

Bit 0	------------	Bit 8	------------	Bit 16	Any Event **	Bit 24	Show Start **
Bit 1	In Progress *	Bit 9	------------	Bit 17	------------	Bit 25	Minor Fault **
Bit 2	------------	Bit 10	------------	Bit 18	Ready to Resume **	Bit 26	------------
Bit 3	Running *	Bit 11	------------	Bit 19	Ready to Run **	Bit 27	Major Fault **
Bit 4	------------	Bit 12	------------	Bit 20	User Code **	Bit 28	Computer **
Bit 5	------------	Bit 13	------------	Bit 21	Resume **	Bit 29	Unscheduled Shutdown **
Bit 6	------------	Bit 14	------------	Bit 22	Cue **	Bit 30	Scheduled Events **
Bit 7	------------	Bit 15	------------	Bit 23	Show End **	Bit 31	Buffer Overflow - Lost Data *

The flag bits can be used to organize events for reporting purposes. These bits represent either run time 'status' or event 'type' flags.
* = Status Flags. These flags are set depending on the status of the eCNA at the time of the event.
** = Type Flags. These flags are set depending on the type of event.

Parameter	Description
Sequence,	This parameter is the Show sequence number. This number is incremented for each new show. This number is used to group all events for a particular show. This is a decimal number in the range of 0 to 9999. This number can be reset (cleared) by the client.
Year,	This parameter is the year value of the date stamp for the logged event. This is a two byte decimal number.
Month,	This parameter is the month value of the date stamp for the logged event. This is a decimal number in the range of 1 to 12.
Day,	This parameter is the day value of the date stamp for the logged event. This is a decimal number in the range of 1 to 31.
Hour,	This parameter is the hour value of the time stamp for the logged event. This is a decimal number in the range of 0 to 23.
Minutes,	This parameter is the minutes value of the time stamp for the logged event. This is a decimal number in the range of 0 to 59.
Seconds,	This parameter is the seconds value of the time stamp for the logged event. This is a decimal number in the range of 0 to 59.
Hundredths,	This parameter is the hundredths of a second value of the time stamp for the logged event. This is a decimal number in the range of 0 to 99.
Down Time,	This is an accumulated time value that is the unscheduled show down time. This is a decimal number that represents the down time in seconds.
Loop,	Sync Loop Number. This is a decimal number in the range of 1 to 20.
Program,	Program Number. This is a decimal number in the range of 1 to 20.
Status,	This is the Show Status at the time of the event. 0 = Ready to Run, 1 = Fault, 2 = Running, 3 = Intermission, 4 = Stopped
Cue,	This is the Cue Number at the time of the event.
P1,	Parameter 1 - Event specific data.
P2,	Parameter 2 - Event specific data.
P3,	Parameter 3 - Event specific data.
P4,	Parameter 4 - Event specific data.
P5,	Parameter 5 - Event specific data.
P6,	Parameter 6 - Event specific data.
P7,	Parameter 7 - Event specific data.
P8,	Parameter 8 - Event specific data.

The client can use some or all of these parameters to generate Event Log or Show Log reports. Using the Event flags can simplify organizing the events.

Using Hyperterminal or another terminal software program, the events can easily be captured to a text file and imported into a spreadsheet for examination.

EVENT Log (continued)

This is a list of events and their definitions.

Event No.	Event Name	Description
		Events
1	StartMan	Manual Start - Remote (LIN) start, Keyboard start and Sync start (slave). Event 'Type' Flag bits set: Any Event (16), Show Start (24), Scheduled Event (30)
4	Show_End	Show End - Transition from "In Progress" to "Idle" Event 'Type' Flag bits set: Any Event (16), Show End (23), Scheduled Event (30)
5	IntmStrt	Intermission Start - Programmed intermission Event 'Type' Flag bits set: Any Event (16), Scheduled Event (30)
6	Intm_End	Intermission End - Cue or Start or Timer Event 'Type' Flag bits set: Any Event (16), Scheduled Event (30)
7	Stop_Man	Manual Stop - Remote (LIN) stop, Keyboard stop Event 'Type' Flag bits set: Any Event (16), Unscheduled Shutdown (29)
8	Resumed	Show Resumed Event 'Type' Flag bits set: Any Event (16), Resume (21)
9	ReadyRun	Ready to Run - Not in progress and no faults Event 'Type' Flag bits set: Any Event (16), Ready to Run (19)
12	MemSuper	Supervisory Memory Fault Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Computer (28), Unscheduled Shutdown (29)
14	MemProg	Program Memory Fault P1 = Program Number P2 = Step Number Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Computer (28), Unscheduled Shutdown (29)
16	XenonFlt	Xenon Lamp Fault Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Unscheduled Shutdown (29)
17	LIN_Flt	Local I/O Network Fault P1 = LIN device ID Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Unscheduled Shutdown (29)
23	StopFire	Fire Stop Fault Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Unscheduled Shutdown (29)
24	Stop_Rem	Remote Stop - LSN RSM-10, LSN sync stop Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Unscheduled Shutdown (29)
25	ReadyRes	Ready to Resume Fault Event 'Type' Flag bits set: Any Event (16), Ready to Resume (18)
26	Battery	Low Battery Fault. Real Time Clock chip lost battery backup Event 'Type' Flag bits set: Any Event (16), Minor Fault (25), Computer (28)
33	ResetExt	External Reset. (Parameters 1 through 6 are the captured old time.) P1 = Year P2 = Month P3 = Day P4 = Hour P5 = Minutes P6 = Seconds P7 = Firmware Version P8 = Firmware Checksum Event 'Type' Flag bits set: Any Event (16), Computer (28), Unscheduled Shutdown (29)
34	ResetPup	Power up Reset. (Parameters 1 through 6 are the captured old time.) P1 = Year P2 = Month P3 = Day P4 = Hour P5 = Minutes P6 = Seconds P7 = Firmware Version P8 = Firmware Checksum Event 'Type' Flag bits set: Any Event (16), Computer (28), Unscheduled Shutdown (29)
35	ResetDog	Watchdog Reset. (Parameters 1 through 6 are the captured old time.) P1 = Year P2 = Month P3 = Day P4 = Hour P5 = Minutes P6 = Seconds P7 = Firmware Version P8 = Firmware Checksum Event 'Type' Flag bits set: Any Event (16), Computer (28), Unscheduled Shutdown (29)

EVENT Log (continued)

Event No.	Event Name	Description
36	ResetHlt	Halt Monitor Reset. (Parameters 1 through 6 are the captured old time.) P1 = Year P2 = Month P3 = Day P4 = Hour P5 = Minutes P6 = Seconds P7 = Firmware Version P8 = Firmware Checksum Event 'Type' Flag bits set: Any Event (16), Computer (28), Unscheduled Shutdown (29)
37	ResetClk	Loss of Clock Reset. (Parameters 1 through 6 are the captured old time.) P1 = Year P2 = Month P3 = Day P4 = Hour P5 = Minutes P6 = Seconds P7 = Firmware Version P8 = Firmware Checksum Event 'Type' Flag bits set: Any Event (16), Computer (28), Unscheduled Shutdown (29)
38	ResetTst	Test Reset. (Parameters 1 through 6 are the captured old time.) P1 = Year P2 = Month P3 = Day P4 = Hour P5 = Minutes P6 = Seconds P7 = Firmware Version P8 = Firmware Checksum Event 'Type' Flag bits set: Any Event (16), Computer (28), Unscheduled Shutdown (29)
44	CueAuto0	Automatic Cue 0 - This always happens at show start (not in sync). Event 'Type' Flag bits set: Any Event (16), Cue (22), Scheduled Event (30)
45	CueKeybd	Cue from eCNA Keyboard. Event 'Type' Flag bits set: Any Event (16), Cue (22)
46	KeyAbort	Show abort from eCNA keyboard. Event 'Type' Flag bits set: Any Event (16), Show End (23), Unscheduled Shutdown (29)
55	Dig1Flt	Digital Projector 1 Fault Input. Configurable termination board input. Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Unscheduled Shutdown (29)
56	Dig2Flt	Digital Projector 2 Fault Input. Configurable termination board input. Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Unscheduled Shutdown (29)
57	StartDP1	Digital Projector 1 Start Input. Configurable termination board input. Event 'Type' Flag bits set: Any Event (16), Show Start (24), Scheduled Event (30)
58	StartDP2	Digital Projector 2 Start Input. Configurable termination board input. Event 'Type' Flag bits set: Any Event (16), Show Start (24), Scheduled Event (30)
59	Stop_DP1	Digital Projector 1 Stop Input. Configurable termination board input. Event 'Type' Flag bits set: Any Event (16), Unscheduled Shutdown (29)
60	Stop_DP2	Digital Projector 2 Stop Input. Configurable termination board input. Event 'Type' Flag bits set: Any Event (16), Unscheduled Shutdown (29)
61	CueDP1	Digital Projector 1 Cue Input. Configurable termination board input. Event 'Type' Flag bits set: Any Event (16), Cue (22), Scheduled Event (30)
62	CueDP2	Digital Projector 2 Cue Input. Configurable termination board input. Event 'Type' Flag bits set: Any Event (16), Cue (22), Scheduled Event (30)
63	CAI1Flt	Fault from CAI Channel 1. Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Unscheduled Shutdown (29)
64	CAI2Flt	Fault from CAI Channel 2. Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Unscheduled Shutdown (29)
65	CAI3Flt	Fault from CAI Channel 3. Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Unscheduled Shutdown (29)
66	StopCAI1	Stop from CAI Channel 1. Event 'Type' Flag bits set: Any Event (16), Unscheduled Shutdown (29)
67	StopCAI2	Stop from CAI Channel 2. Event 'Type' Flag bits set: Any Event (16), Unscheduled Shutdown (29)
68	StopCAI3	Stop from CAI Channel 3. Event 'Type' Flag bits set: Any Event (16), Unscheduled Shutdown (29)

Table header: Events (continued)

EVENT Log (continued)

Event No.	Event Name	Description
		Events (continued)
69	StrtCAI1	Start from CAI Channel 1. Event 'Type' Flag bits set: Any Event (16), Show Start (24), Scheduled Event (30)
70	StrtCAI2	Start from CAI Channel 2. Event 'Type' Flag bits set: Any Event (16), Show Start (24), Scheduled Event (30)
71	StrtCAI3	Start from CAI Channel 3. Event 'Type' Flag bits set: Any Event (16), Show Start (24), Scheduled Event (30)
72	CueCAI1	Cue from CAI Channel 1. Event 'Type' Flag bits set: Any Event (16), Cue (22), Scheduled Event (30)
73	CueCAI2	Cue from CAI Channel 2. Event 'Type' Flag bits set: Any Event (16), Cue (22), Scheduled Event (30)
74	CueCAI3	Cue from CAI Channel 3. Event 'Type' Flag bits set: Any Event (16), Cue (22), Scheduled Event (30)
75	AbtCAI1	Program Abort from CAI Channel 1 Event 'Type' Flag bits set: Any Event (16), Show End (23), Unscheduled Shutdown (29)
76	AbtCAI2	Program Abort from CAI Channel 2 Event 'Type' Flag bits set: Any Event (16), Show End (23), Unscheduled Shutdown (29)
77	AbtCAI3	Program Abort from CAI Channel 3 Event 'Type' Flag bits set: Any Event (16), Show End (23), Unscheduled Shutdown (29)
78	ClkWeb	The Clock was set from the web browser. Event 'Type' Flag bits set: Any Event (16)
79	ClkNTP	The clock was synchronized with the Network Time Server. This happens on a power up and when the eCNA "Network Time Server" configuration flag is set to "Enable". Event 'Type' Flag bits set: Any Event (16)
80	ClkCAI1	The Clock was set from CAI Channel 1. Event 'Type' Flag bits set: Any Event (16)
81	ClkCAI2	The Clock was set from CAI Channel 2. Event 'Type' Flag bits set: Any Event (16)
82	ClkCAI3	The Clock was set from CAI Channel 3. Event 'Type' Flag bits set: Any Event (16)
83	ClrBufC1	The Event log buffer was cleared from CAI Channel 1. Event 'Type' Flag bits set: Any Event (16)
84	ClrBufC2	The Event log buffer was cleared from CAI Channel 2. Event 'Type' Flag bits set: Any Event (16)
85	ClrBufC3	The Event log buffer was cleared from CAI Channel 3. Event 'Type' Flag bits set: Any Event (16)
86	ClrSSQC1	The Show Sequence Number was cleared from CAI Channel 1. Event 'Type' Flag bits set: Any Event (16)
87	ClrSSQC2	The Show Sequence Number was cleared from CAI Channel 2. Event 'Type' Flag bits set: Any Event (16)
88	ClrSSQC3	The Show Sequence Number was cleared from CAI Channel 3. Event 'Type' Flag bits set: Any Event (16)
89	ClkNTPTO	NTP Server Time Out. Event 'Type' Flag bits set: Any Event (16)
90	InpAbort	Digital Input Abort. Event 'Type" Flag bits set: Any Event (16), Show End (23), Unscheduled Shutdown (29)
91	CueXTO_1	CAI Channel 1 Exception Timer expired and generated an automatic cue. Event 'Type' Flag bits set: Any Event (16), Cue (22), Scheduled Event (30)
92	CueXTO_2	CAI Channel 2 Exception Timer expired and generated an automatic cue. Event 'Type' Flag bits set: Any Event (16), Cue (22), Scheduled Event (30)
93	CueXTO_3	CAI Channel 3 Exception Timer expired and generated an automatic cue. Event 'Type' Flag bits set: Any Event (16), Cue (22), Scheduled Event (30)
94	MemMacro	Macro Memory Fault P1 = Macro Number P2 = Step Number Event 'Type' Flag bits set: Any Event (16), Major Fault (27), Computer (28), Unscheduled Shutdown (29)

EVENT Log (continued)

Event No.	Event Name	Description
95	Mac*xxayy*	Macro Call Mac = constant and indicates a macro was executed. *xx* = macro number (01 to 30) *a* = P for program, C for CAI Command, T for Trigger *yy* = Program number (01-99), CAI Channel number (01-03), Trigger number (01-30) P1 = Macro Number (01-30) P2 = Owner (0 = Program, 1 = CAI, 2 = Trigger) P3 = Program Number P4 = Program Step Number P5 = CAI Channel Number P6 = Trigger Number Event 'Type' Flag bits set: Any Event (16)
96	SENDF1	CAI SENDF1 Event Report Event 'Type' Flag bits set: Any Event (16)
97	SENDF2	CAI SENDF2 Event Report Event 'Type' Flag bits set: Any Event (16)
98	SENDF3	CAI SENDF3 Event Report Event 'Type' Flag bits set: Any Event (16)
99	SENDF4	CAI SENDF4 Event Report Event 'Type' Flag bits set: Any Event (16)
100	SENDF5	CAI SENDF5 Event Report Event 'Type' Flag bits set: Any Event (16)
101	SENDF6	CAI SENDF6 Event Report Event 'Type' Flag bits set: Any Event (16)
102	SENDF7	CAI SENDF7 Event Report Event 'Type' Flag bits set: Any Event (16)
103	SENDF8	CAI SENDF8 Event Report Event 'Type' Flag bits set: Any Event (16)
104	Xif*mm_nn*	Exit If Instruction *mm* = Macro number (01-30) *nn* = Macro step number (01 - 15) P1 = Macro number (01-30) P2 = Macro step number (01 - 15) Event 'Type' Flag bits set: Any Event (16)
105	VoltHiLo	Line Voltage Hi/Lo P1 = Highest voltage measured during the interval P2 = Lowest voltage measured during the interval Event 'Type' Flag bits set: Any Event (16)
106	SENDF9	CAI SENDF9 Event Report Event 'Type' Flag bits set: Any Event (16)
107	SENDF10	CAI SENDF10 Event Report Event 'Type' Flag bits set: Any Event (16)
108	SENDF11	CAI SENDF11 Event Report Event 'Type' Flag bits set: Any Event (16)
109	SENDF12	CAI SENDF12 Event Report Event 'Type' Flag bits set: Any Event (16)
110	SENDF13	CAI SENDF13 Event Report Event 'Type' Flag bits set: Any Event (16)
111	SENDF14	CAI SENDF14 Event Report Event 'Type' Flag bits set: Any Event (16)
112	SENDF15	CAI SENDF15 Event Report Event 'Type' Flag bits set: Any Event (16)
113	SENDF16	CAI SENDF16 Event Report Event 'Type' Flag bits set: Any Event (16)
114	SENDF17	CAI SENDF17 Event Report Event 'Type' Flag bits set: Any Event (16)
115	SENDF18	CAI SENDF18 Event Report Event 'Type' Flag bits set: Any Event (16)
116	SENDF19	CAI SENDF19 Event Report Event 'Type' Flag bits set: Any Event (16)
117	SENDF20	CAI SENDF20 Event Report Event 'Type' Flag bits set: Any Event (16)

EVENT Log (continued)

Event No.	Event Name	Description
		Events (continued)
118	SENDF21	CAI SENDF21 Event Report Event 'Type' Flag bits set: Any Event (16)
119	SENDF22	CAI SENDF22 Event Report Event 'Type' Flag bits set: Any Event (16)
120	SENDF23	CAI SENDF23 Event Report Event 'Type' Flag bits set: Any Event (16)
121	SENDF24	CAI SENDF24 Event Report Event 'Type' Flag bits set: Any Event (16)
122	SENDF25	CAI SENDF25 Event Report Event 'Type' Flag bits set: Any Event (16)
123	SENDF26	CAI SENDF26 Event Report Event 'Type' Flag bits set: Any Event (16)
124	SENDF27	CAI SENDF27 Event Report Event 'Type' Flag bits set: Any Event (16)
125	SENDF28	CAI SENDF28 Event Report Event 'Type' Flag bits set: Any Event (16)
126	SENDF29	CAI SENDF29 Event Report Event 'Type' Flag bits set: Any Event (16)
127	SENDF30	CAI SENDF30 Event Report Event 'Type' Flag bits set: Any Event (16)

5.15 EVENT Status/Control Message   Client ← eCNA

The EVENT Status/Control Message, if enabled, will be sent unsolicited to the client. This message is sent when a message in the eCNA message table changes. This is an open loop message so there is no response to this type of message and client should not respond. See the Configuration command for instructions on how to control what messages are sent to the client.

Status/Control Message

STM,EVT,0,*msg*,*checksum*<CR><LF>

REPORT Event Message Format		
Name	**Description**	
STM,	Start of Report string (This parameter is always "RPT").	
EVT,	Event Report string (This parameter is always "EVT").	
0,	Packet Sequence No. Always 0.	
msg,	Event Message (This parameter will contain the following message strings).	
	a,d,m	Status/Control Message event strings Where: *a* = Device Table, CAI1, CAI2, CAI3, RDI1, RDI2, RDI3, RDI4 or RDI5 *d* = Message Number, 1 - 10 *m* = ASCII message up to 24 characters in length
checksum	Checksum (0 to 65535). Unsigned 16-bit decimal sum of all preceding characters	
<CR>	Terminating carriage return. (ASCII control character, 0x0D).	
<LF>	Terminating line feed. (ASCII control character, 0x0A).	

EVENT Status/Control Message Example

STM,EVT,0,CAI1,3,Dowser_Open,2225<CR><LF>

5.16 Error Response Numbers

The Error number is always the fourth parameter in all responses. This number is normally the parameter number of the command that the eCNA could not process because it was out of range or missing. However, there are a few special case Error numbers that have been defined.

Error Number	Description
0	OK - All data in the packet received by the eCNA was accepted.
1	Not used. The command must start with the valid parameter, CMD, . If it doesn't the characters up to and including the next CR LF are discarded and the eCNA does not respond.
2	The command was not recognized. This response always return Sequence Number = 0.
3 to n	This Error Number indicates which parameter of the received packet has a problem. The parameter was unrecognized or out of range. None of the data in the received packet was stored. Example: "CMD,XST,0,Host,xxx,SPN,OK,NO,?" would return an Error Number of 5 indicating that xxx was not recognized as a valid parameter.
989	General purpose timer reserved. Any attempts to start or clear a timer currently owned by another CAI channel or eCNA will get this error number in the response.
990	NXQ Cue command parameter did not match the cue number in the program.
991	Exception Timer is already running. Too late to start the Exception Timer.
992	Can not change Program number because a show is in progress.
993	Won't set Clock. Indicates that the eCNA won't set the Real Time Clock because it is configured for NTP time.
994	Command Blocked by Instruction. Indicates that the command was blocked by the program CAI Command Block instruction.
995	Can not start because there is a fault.
996	Indicates I/O Board is not present or not responding. This error can be returned for the DIN. DOT and RDO commands.
997	Client Control is disabled at the eCNA. eCNA Main CPU Board DIP switch S2-8 is off.
998	Resource Not Available. This is returned when the connection is not available (already connected).
999	Checksum Error. The packet received by the eCNA had a missing or incorrect checksum and was ignored. If possible, the eCNA returns the normal response packet (but did not use the received data).

5.17 Connect Error Response

In the special case where the eCNA communications resource is already being used, when the client tries to connect, the following error response is sent back to the caller and the connection is then closed by the eCNA.

Command   Response
Any   RSP,ERR,0,998,Resource Unavailable,828<CR><LF>

5.18 Checksum

A checksum is appended to the end of all messages to help detect errors in transmission. The checksum is an unsigned 16-bit decimal sum of all characters preceding the checksum. The checksum is obtained by adding all the decimal values of ASCII characters that make up a command or response. Logically 'AND' 65535 to this sum <u>or</u> repeatedly subtract 65536 (2^{16}) from this sum until the remainder is less than 65536 to get the final 16-bit decimal checksum value.

Checksum Calculation Example:

Command
CMD,RID,0,[ ]<CR><LF>

Response
RSP,RID,0,0,eCNA-5,1010,1,[ ]<CR><LF>

The Command is:

Command Character	ASCII Value
C	67
M	77
D	68
,	44
R	82
I	73
D	68
,	44
0	48
,	<u>44</u>
	615

The checksum is 615 and the complete command is:

CMD,RID,0,615<CR><LF>

The Response is:

Response Character	ASCII Value
R	82
S	83
P	80
,	44
R	82
I	73
D	68
,	44
0	48
,	44
0	48
,	44
e	101
C	67
N	78
A	65
-	45
1	49
0	48
,	44
1	49
0	48
1	49
0	48
,	44
1	49
,	<u>44</u>
	1568

The checksum is 1568 and the complete response is:

RSP,RID,0,0,eCNA-5,1010,1,1568<CR><LF>

If ?? is added to the instruction instead of a checksum, the instruction is executed. It sends a "don't care" value for the checksum. This method is not recommended for programming because it does not insure proper communication error checking.

5.19 Command Summary

All Commands and Responses end with a checksum, carriage return and line feed. Checksum = 0 to 65535. Carriage Return = 0Dh. Line Feed = 0Ah.

FUNCTION	COMMAND					RESPONSE					REF.
	ASCII Command Code	ASCII Function Code	Packet Sequence Number	ASCII Parameters	Request Ack	ASCII Response Code	ASCII Function Code	Packet Sequence Number	Error Number	ASCII Parameters	
Read Clock	CMD,	RCK,	0-65535,			RSP,	RCK,	0-65535,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	
Set Clock	CMD,	SCK,	0-65535,	yyyy,mm,dd,hh,mm,ss,ttt,		RSP,	SCK,	0-65535,	0-999,		
Get Control State Status	CMD,	STS,	0-65535,	CTRLST,		RSP,	STS,	0-65535,	0-999,	IDL, | RUN,	
Get Cue Number	CMD,	STS,	0-65535,	CUENO,		RSP,	STS,	0-65535,	0-999,	0 - 20,	
Get Stopped State Status	CMD,	STS,	0-65535,	STPST,		RSP,	STS,	0-65535,	0-999,	OK, | STP, | FLT, | FIR,	
Get Digital 1 Power Control Flag Status	CMD,	STS,	0-65535,	DP1CF,		RSP,	STS,	0-65535,	0-999,	NO, | D1P,	
Get Digital 1 Power Output Status Flag	CMD,	STS,	0-65535,	DP1OS,		RSP,	STS,	0-65535,	0-999,	NO, | D1P,	
Get Digital 1 Video Control Flag	CMD,	STS,	0-65535,	DV1CF,		RSP,	STS,	0-65535,	0-999,	NO, | D1V,	
Get Digital 1 Video Output Status Flag	CMD,	STS,	0-65535,	DV1OS,		RSP,	STS,	0-65535,	0-999,	NO, | D1V,	
Get Digital 2 Power Control Flag	CMD,	STS,	0-65535,	DP2CF,		RSP,	STS,	0-65535,	0-999,	NO, | D2P,	
Get Digital 2 Power Output Status Flag	CMD,	STS,	0-65535,	DP2OS,		RSP,	STS,	0-65535,	0-999,	NO, | D2P,	
Get Digital 2 Video Control Flag	CMD,	STS,	0-65535,	DV2CF,		RSP,	STS,	0-65535,	0-999,	NO, | D2V,	
Get Digital 2 Video Output Status	CMD,	STS,	0-65535,	DV2OS,		RSP,	STS,	0-65535,	0-999,	NO, | D2V,	
Get Film Projector Output Status	CMD,	STS,	0-65535,	FPOS,		RSP,	STS,	0-65535,	0-999,	NO, | PJM,	
Get Film Changeover Douser Output Status	CMD,	STS,	0-65535,	FCOOS,		RSP,	STS,	0-65535,	0-999,	NO, | C/O,	
Get Slide (Aux) Projector Control Flag	CMD,	STS,	0-65535,	SPCF,		RSP,	STS,	0-65535,	0-999,	NO, | AUX,	
Get Slide (Aux) Projector Output Status	CMD,	STS,	0-65535,	SPOS,		RSP,	STS,	0-65535,	0-999,	NO, | AUX,	
Get Sync Mode Status	CMD,	STS,	0-65535,	SYNC,		RSP,	STS,	0-65535,	0-999,	NO, | YES,	
Get CPU Reset Status	CMD,	STS,	0-65535,	RESET,		RSP,	STS,	0-65535,	0-999,	0 - 255,	
Get Segment Index Number	CMD,	STS,	0-65535,	SEGIDX,		RSP,	STS,	0-65535,	0-999,	0 - 9,	
Get Segment Name	CMD,	STS,	0-65535,	SEGTXT,		RSP,	STS,	0-65535,	0-999,	a,	
Get CAI Command Access Flag	CMD,	STS,	0-65535,	CAICMD,		RSP,	STS,	0-65535,	0-999,	OK, | BLK,	
Get Program Number	CMD,	STS,	0-65535,	PROGN,		RSP,	STS,	0-65535,	0-999,	0 - 9,	
Get Exception Timer Status	CMD,	STS,	0-65535,	XTMR,		RSP,	STS,	0-65535,	0-999,	n,d,m,s,	
Get Wait Event Instruction Status	CMD,	STS,	0-65535,	WAITEV,		RSP,	STS,	0-65535,	0-999,	n,s,	
Get GP Timer Status	CMD,	STS,	0-65535,	GTMR,n,		RSP,	STS,	0-65535,	0-999,	n,e,s,mm,ss,	
Exchange Status	CMD,	XST,	0-65535,	< client status record>,		RSP,	XST,	0-65535,	0-999,	<eCNA status record>,	
Report Status	CMD,	RST,	0-65535,			RSP,	RST,	0-65535,	0-999,	<eCNA status record>,	
Report Id	CMD,	RID,	0-65535,			RSP,	RID,	0-65535,	0-999,	n,v,s,	
Start Program	CMD,	EVT,	0-65535,	STA,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Stop Program	CMD,	EVT,	0-65535,	STP,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Fault	CMD,	EVT,	0-65535,	FLT,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Cue Program	CMD,	EVT,	0-65535,	CUE,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Abort Program	CMD,	EVT,	0-65535,	ABT	Y/N	RSP,	EVT,	0-65535,	0-999,		
Cancel Alarm	CMD,	EVT,	0-65535,	CNL,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Reset Fault	CMD,	EVT,	0-65535,	RES,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Set Program Number	CMD,	EVT,	0-65535,	PGM,d,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Start Exception Timer	CMD,	EVT,	0-65535,	SXT,d,m,s,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Cue Program	CMD,	EVT,	0-65535,	NXQ,d,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Block Commands	CMD,	EVT,	0-65535,	CAI,d,m,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Start Macro	CMD,	EVT,	0-65535,	MAC,n	Y/N	RSP,	EVT,	0-65535,	0-999,		
Set/Clear GP Timer	CMD,	EVT,	0-65535,	SGT,n,m,s,	Y/N	RSP,	EVT,	0-65535,	0-999,		
Get All Event Logs	CMD,	LOG,	0-65535,	GETALL,	Y/N	RSP,	LOG,	0-65535,	0-999,	<all event logs>	
Clear Log Buffer	CMD,	LOG,	0-65535,	CLRBUF,	Y/N	RSP,	LOG,	0-65535,	0-999,		
Clear Log Show Number	CMD,	LOG,	0-65535,	CLRSSQ,	Y/N	RSP,	LOG,	0-65535,	0-999,		
Enable Event Report	CMD,	CFG,	0-65535,	RPTON,	Y/N	RSP,	CFG,	0-65535,	0-999,		
Disable Event Report	CMD,	CFG,	0-65535,	RPTOFF,	Y/N	RSP,	CFG,	0-65535,	0-999,		
Enable Event Log	CMD,	CFG,	0-65535,	LOGON,	Y/N	RSP,	CFG,	0-65535,	0-999,		
Disable Event Log	CMD,	CFG,	0-65535,	LOGOFF,	Y/N	RSP,	CFG,	0-65535,	0-999,		
Enable Macro Calls Logging	CMD,	CFG,	0-65535,	OPT1ON,	Y/N	RSP,	CFG,	0-65535,	0-999,		
Disable Macro Calls Logging	CMD,	CFG,	0-65535,	OPT1OFF,	Y/N	RSP,	CFG,	0-65535,	0-999,		
Enable Status/Ctrl Message	CMD,	CFG,	0-65535,	STMON,	Y/N	RSP,	CFG,	0-65535,	0-999,		
Disable Status/Ctrl Message	CMD,	CFG,	0-65535,	STMOFF,	Y/N	RSP,	CFG,	0-65535,	0-999,		

Command Summary (continued)

FUNCTION	COMMAND					RESPONSE					REF.
	ASCII Command Code	ASCII Function Code	Packet Sequence Number	ASCII Parameters	Request Ack	ASCII Response Code	ASCII Function Code	Packet Sequence Number	Error Number	ASCII Parameters	
Lights: House Up	CMD,	OUT,	0-65535,	HLUP,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Lights: House Mid 1	CMD,	OUT,	0-65535,	HLMID1,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Lights: House Mid 2	CMD,	OUT,	0-65535,	HLMID2,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Lights: House Down	CMD,	OUT,	0-65535,	HLDOWN,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Lights: Stage Up	CMD,	OUT,	0-65535,	SLUP,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Lights: Stage Down	CMD,	OUT,	0-65535,	SLDOWN,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Curtain Open:	CMD,	OUT,	0-65535,	CURTOPEN,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Curtain Close:	CMD,	OUT,	0-65535,	CURTCLOS,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Masking: Flat	CMD,	OUT,	0-65535,	MSKFLAT,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Masking: Scope	CMD,	OUT,	0-65535,	MSKSCOPE,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Masking: Special	CMD,	OUT,	0-65535,	MSKSPECL,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Lens: Flat	CMD,	OUT,	0-65535,	LENSFLAT,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Lens: Scope	CMD,	OUT,	0-65535,	LENSCOPE,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Lens: Special	CMD,	OUT,	0-65535,	LENSPECL,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Sound: Aux 1	CMD,	OUT,	0-65535,	SNDAUX1,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Sound: Aux 2	CMD,	OUT,	0-65535,	SNDAUX2,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Sound: Digital 1	CMD,	OUT,	0-65535,	SNDDIG1,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Sound: Digital 2	CMD,	OUT,	0-65535,	SNDDIG2,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Sound: Mono	CMD,	OUT,	0-65535,	SNDMONO,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Sound: Mute On	CMD,	OUT,	0-65535,	MUTEON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Sound: Mute Off	CMD,	OUT,	0-65535,	MUTEOFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Sound: Non-Sync	CMD,	OUT,	0-65535,	SNDNSYNC,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Sound: SR	CMD,	OUT,	0-65535,	SNDSR,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Sound: SVA	CMD,	OUT,	0-65535,	SNDSVA,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 1: On	CMD,	OUT,	0-65535,	OUT1ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 1: Off	CMD,	OUT,	0-65535,	OUT1OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 2: On	CMD,	OUT,	0-65535,	OUT2ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 2: Off	CMD,	OUT,	0-65535,	OUT2OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 3: On	CMD,	OUT,	0-65535,	OUT3ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 3: Off	CMD,	OUT,	0-65535,	OUT3OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 4: On	CMD,	OUT,	0-65535,	OUT4ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 4: Off	CMD,	OUT,	0-65535,	OUT4OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 5: On	CMD,	OUT,	0-65535,	OUT5ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 5: Off	CMD,	OUT,	0-65535,	OUT5OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 6: On	CMD,	OUT,	0-65535,	OUT6ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 6: Off	CMD,	OUT,	0-65535,	OUT6OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 7: On	CMD,	OUT,	0-65535,	OUT7ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 7: Off	CMD,	OUT,	0-65535,	OUT7OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 8: On	CMD,	OUT,	0-65535,	OUT8ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 8: Off	CMD,	OUT,	0-65535,	OUT8OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 9: On	CMD,	OUT,	0-65535,	OUT9ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 9: Off	CMD,	OUT,	0-65535,	OUT9OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 10: On	CMD,	OUT,	0-65535,	OUT10ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 10: Off	CMD,	OUT,	0-65535,	OUT10OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 11: On	CMD,	OUT,	0-65535,	OUT11ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 11: Off	CMD,	OUT,	0-65535,	OUT11OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 12: On	CMD,	OUT,	0-65535,	OUT12ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 12: Off	CMD,	OUT,	0-65535,	OUT12OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 13: On	CMD,	OUT,	0-65535,	OUT13ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 13: Off	CMD,	OUT,	0-65535,	OUT13OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 14: On	CMD,	OUT,	0-65535,	OUT14ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 14: Off	CMD,	OUT,	0-65535,	OUT14OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 15: On	CMD,	OUT,	0-65535,	OUT15ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 15: Off	CMD,	OUT,	0-65535,	OUT15OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 16: On	CMD,	OUT,	0-65535,	OUT16ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Aux Out 16: Off	CMD,	OUT,	0-65535,	OUT16OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		

Command Summary (continued)

FUNCTION	COMMAND					RESPONSE					REF.
	ASCII Command Code	ASCII Function Code	Packet Sequence Number	ASCII Parameters	Request Ack	ASCII Response Code	ASCII Function Code	Packet Sequence Number	Error Number	ASCII Parameters	
Digital 1 Power On	CMD,	OUT,	0-65535,	DP1ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Digital 1 Power Off	CMD,	OUT,	0-65535,	DP1OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Digital 1 Video On	CMD,	OUT,	0-65535,	DV1ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Digital 1 Video Off	CMD,	OUT,	0-65535,	DV1OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Digital 2 Power On	CMD,	OUT,	0-65535,	DP2ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Digital 2 Power Off	CMD,	OUT,	0-65535,	DP2OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Digital 2 Video On	CMD,	OUT,	0-65535,	DV2ON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Digital 2 Video Off	CMD,	OUT,	0-65535,	DV2OFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Slide Projector On	CMD,	OUT,	0-65535,	SPROJON,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Slide Projector Off	CMD,	OUT,	0-65535,	SPROJOFF,	Y/N	RSP,	OUT,	0-65535,	0-999,		
Status/Ctrl Message Write	CMD,	SMW,	0-65535,	*d,m,*	Y/N	RSP,	OUT,	0-65535,	0-999,		
Status/Ctrl Message Read	CMD,	SMR,	0-65535,	*a,d,*	Y/N	RSP,	OUT,	0-65535,	0-999,		

5.20 Event Report Summary

EVENT	REPORT				
	ASCII Report Code	ASCII Event Code	Packet Sequence Number	ASCII Message	Checksum
Fire Stop	RPT,	EVT,	0,	FIRESTOP,	1329
Program Start or Resume	RPT,	EVT,	0,	START,	1107
Transition to Idle State	RPT,	EVT,	0,	IDLE,	995
Program Stop	RPT,	EVT,	0,	ALLSTOP,	1252
Digital 1 Power On	RPT,	EVT,	0,	DP1ON,	1063
Digital 1 Power Off	RPT,	EVT,	0,	DP1OFF,	1125
Digital 1 Video On	RPT,	EVT,	0,	DV1ON,	1069
Digital 1 Video Off	RPT,	EVT,	0,	DV1OFF,	1131
Digital 2 Power On	RPT,	EVT,	0,	DP2ON,	1064
Digital 2 Power Off	RPT,	EVT,	0,	DP2OFF,	1126
Digital 2 Video On	RPT,	EVT,	0,	DV2ON,	1070
Digital 2 Video Off	RPT,	EVT,	0,	DV2OFF,	1132
Program Cue Incremented	RPT,	EVT,	0,	CUE,	930
Channel 1 Exception Timer	RPT,	EVT,	0,	CueXTO_1,	1389
Channel 2 Exception Timer	RPT,	EVT,	0,	CueXTO_2,	1390
Channel 3 Exception Timer	RPT,	EVT,	0,	CueXTO_3,	1391
CAI Report Event Instruction, SENDF1	RPT,	EVT,	0,	SENDF1,	1126
CAI Report Event Instruction, SENDF2	RPT,	EVT,	0,	SENDF2,	1127
CAI Report Event Instruction, SENDF3	RPT,	EVT,	0,	SENDF3,	1128
CAI Report Event Instruction, SENDF4	RPT,	EVT,	0,	SENDF4,	1129
CAI Report Event Instruction, SENDF5	RPT,	EVT,	0,	SENDF5,	1130
CAI Report Event Instruction, SENDF6	RPT,	EVT,	0,	SENDF6,	1131
CAI Report Event Instruction, SENDF7	RPT,	EVT,	0,	SENDF7,	1132
CAI Report Event Instruction, SENDF8	RPT,	EVT,	0,	SENDF8,	1133
CAI Report Event Instruction, SENDF9	RPT,	EVT,	0,	SENDF9,	1134
CAI Report Event Instruction, SENDF10	RPT,	EVT,	0,	SENDF10,	1174
CAI Report Event Instruction, SENDF11	RPT,	EVT,	0,	SENDF11,	1175
CAI Report Event Instruction, SENDF12	RPT,	EVT,	0,	SENDF12,	1176
CAI Report Event Instruction, SENDF13	RPT,	EVT,	0,	SENDF13,	1177
CAI Report Event Instruction, SENDF14	RPT,	EVT,	0,	SENDF14,	1178
CAI Report Event Instruction, SENDF15	RPT,	EVT,	0,	SENDF15,	1179
CAI Report Event Instruction, SENDF16	RPT,	EVT,	0,	SENDF16,	1180
CAI Report Event Instruction, SENDF17	RPT,	EVT,	0,	SENDF17,	1181
CAI Report Event Instruction, SENDF18	RPT,	EVT,	0,	SENDF18,	1182
CAI Report Event Instruction, SENDF19	RPT,	EVT,	0,	SENDF19,	1183
CAI Report Event Instruction, SENDF20	RPT,	EVT,	0,	SENDF20,	1175
CAI Report Event Instruction, SENDF21	RPT,	EVT,	0,	SENDF21,	1176
CAI Report Event Instruction, SENDF22	RPT,	EVT,	0,	SENDF22,	1177
CAI Report Event Instruction, SENDF23	RPT,	EVT,	0,	SENDF23,	1178
CAI Report Event Instruction, SENDF24	RPT,	EVT,	0,	SENDF24,	1179
CAI Report Event Instruction, SENDF25	RPT,	EVT,	0,	SENDF25,	1180
CAI Report Event Instruction, SENDF26	RPT,	EVT,	0,	SENDF26,	1181
CAI Report Event Instruction, SENDF27	RPT,	EVT,	0,	SENDF27,	1182
CAI Report Event Instruction, SENDF28	RPT,	EVT,	0,	SENDF28,	1183
CAI Report Event Instruction, SENDF29	RPT,	EVT,	0,	SENDF29,	1184
CAI Report Event Instruction, SENDF30	RPT,	EVT,	0,	SENDF30,	1176
GPT 1 Expired (Started by Instruction)	RPT,	EVT,	0,	GTE01_00	1221
GPT 2 Expired (Started by Instruction)	RPT,	EVT,	0,	GTE02_00	1222
GPT 3 Expired (Started by Instruction)	RPT,	EVT,	0,	GTE03_00	1223
GPT 4 Expired (Started by Instruction)	RPT,	EVT,	0,	GTE04_00	1224
GPT 5 Expired (Started by Instruction)	RPT,	EVT,	0,	GTE05_00	1225
GPT 6 Expired (Started by Instruction)	RPT,	EVT,	0,	GTE06_00	1226
GPT 7 Expired (Started by Instruction)	RPT,	EVT,	0,	GTE07_00	1227
GPT 8 Expired (Started by Instruction)	RPT,	EVT,	0,	GTE08_00	1228
GPT 9 Expired (Started by Instruction)	RPT,	EVT,	0,	GTE09_00	1229
GPT 10 Expired (Started by Instruction)	RPT,	EVT,	0,	GTE10_00	1221
GPT 1 Expired (Started by CAI Channel 1)	RPT,	EVT,	0,	GTE01_01	1222
GPT 2 Expired (Started by CAI Channel 1)	RPT,	EVT,	0,	GTE02_01	1223
GPT 3 Expired (Started by CAI Channel 1)	RPT,	EVT,	0,	GTE03_01	1224
GPT 4 Expired (Started by CAI Channel 1)	RPT,	EVT,	0,	GTE04_01	1225
GPT 5 Expired (Started by CAI Channel 1)	RPT,	EVT,	0,	GTE05_01	1226

Event Report Summary (continued)

EVENT	REPORT				
	ASCII Report Code	ASCII Event Code	Packet Sequence Number	ASCII Message	Checksum
GPT 6 Expired (Started by CAI Channel 1)	RPT,	EVT,	0,	GTE06_01	1227
GPT 7 Expired (Started by CAI Channel 1)	RPT,	EVT,	0,	GTE07_01	1228
GPT 8 Expired (Started by CAI Channel 1)	RPT,	EVT,	0,	GTE08_01	1229
GPT 9 Expired (Started by CAI Channel 1)	RPT,	EVT,	0,	GTE09_01	1230
GPT 10 Expired (Started by CAI Channel 1)	RPT,	EVT,	0,	GTE10_01	1222
GPT 1 Expired (Started by CAI Channel 2)	RPT,	EVT,	0,	GTE01_02	1223
GPT 2 Expired (Started by CAI Channel 2)	RPT,	EVT,	0,	GTE02_02	1224
GPT 3 Expired (Started by CAI Channel 2)	RPT,	EVT,	0,	GTE03_02	1225
GPT 4 Expired (Started by CAI Channel 2)	RPT,	EVT,	0,	GTE04_02	1226
GPT 5 Expired (Started by CAI Channel 2)	RPT,	EVT,	0,	GTE05_02	1227
GPT 6 Expired (Started by CAI Channel 2)	RPT,	EVT,	0,	GTE06_02	1228
GPT 7 Expired (Started by CAI Channel 2)	RPT,	EVT,	0,	GTE07_02	1229
GPT 8 Expired (Started by CAI Channel 2)	RPT,	EVT,	0,	GTE08_02	1230
GPT 9 Expired (Started by CAI Channel 2)	RPT,	EVT,	0,	GTE09_02	1231
GPT 10 Expired (Started by CAI Channel 2)	RPT,	EVT,	0,	GTE10_02	1223
GPT 1 Expired (Started by CAI Channel 3)	RPT,	EVT,	0,	GTE01_03	1224
GPT 2 Expired (Started by CAI Channel 3)	RPT,	EVT,	0,	GTE02_03	1225
GPT 3 Expired (Started by CAI Channel 3)	RPT,	EVT,	0,	GTE03_03	1226
GPT 4 Expired (Started by CAI Channel 3)	RPT,	EVT,	0,	GTE04_03	1227
GPT 5 Expired (Started by CAI Channel 3)	RPT,	EVT,	0,	GTE05_03	1228
GPT 6 Expired (Started by CAI Channel 3)	RPT,	EVT,	0,	GTE06_03	1229
GPT 7 Expired (Started by CAI Channel 3)	RPT,	EVT,	0,	GTE07_03	1230
GPT 8 Expired (Started by CAI Channel 3)	RPT,	EVT,	0,	GTE08_03	1231
GPT 9 Expired (Started by CAI Channel 3)	RPT,	EVT,	0,	GTE09_03	1232
GPT 10 Expired (Started by CAI Channel 3)	RPT,	EVT,	0,	GTE10_03	1224

5.21 Event Log Summary

EVENT	ASCII Log Code	ASCII Event Code	PSN	Id	Rec. Ver.	Dev. Type	Event No.	Event Name	Event Flags (1)	Show Seq. No.	Time Stamp	Down Time (2)	Sync Loop	Prog. No.	Show Status (3)	Cue No.	Event Specific Parameters
								LOG									
Manual Start	LOG,	EVT,	0,	1-63,	0,	12,	1,	StartMan,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Program End	LOG,	EVT,	0,	1-63,	0,	12,	4,	Show_End,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Intermission Start	LOG,	EVT,	0,	1-63,	0,	12,	5,	IntmStrt,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Intermission End	LOG,	EVT,	0,	1-63,	0,	12,	6,	Intm_End,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Manual Stop	LOG,	EVT,	0,	1-63,	0,	12,	7,	Stop_Man,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Program Resumed	LOG,	EVT,	0,	1-63,	0,	12,	8,	Resumed,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Ready to Run	LOG,	EVT,	0,	1-63,	0,	12,	9,	ReadyRun,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Supervisory Memory Fault	LOG,	EVT,	0,	1-63,	0,	12,	12,	MemSuper,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Program Memory Fault	LOG,	EVT,	0,	1-63,	0,	12,	14,	MemProg,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,0,0,0,0,0,0,
Local I/O Network Fault	LOG,	EVT,	0,	1-63,	0,	12,	17,	LIN_Flt,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,0,0,0,0,0,0,0,
Fire Stop	LOG,	EVT,	0,	1-63,	0,	12,	23,	StopFire,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Remote Stop	LOG,	EVT,	0,	1-63,	0,	12,	24,	Stop_Rem,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Ready to Resume	LOG,	EVT,	0,	1-63,	0,	12,	25,	ReadyRes,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Low Battery	LOG,	EVT,	0,	1-63,	0,	12,	26,	Battery,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
External Reset	LOG,	EVT,	0,	1-63,	0,	12,	33,	ResetExt,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,p3,p4,p5,p6,p7,p8,
Power Up Reset	LOG,	EVT,	0,	1-63,	0,	12,	34,	ResetPup,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,p3,p4,p5,p6,p7,p8,
Watchdog Reset	LOG,	EVT,	0,	1-63,	0,	12,	35,	ResetDog,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,p3,p4,p5,p6,p7,p8,
Halt Monitor Reset	LOG,	EVT,	0,	1-63,	0,	12,	36,	ResetHlt,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,p3,p4,p5,p6,p7,p8,
Loss of Clock Reset	LOG,	EVT,	0,	1-63,	0,	12,	37,	ResetClk,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,p3,p4,p5,p6,p7,p8,
Test Reset	LOG,	EVT,	0,	1-63,	0,	12,	38,	ResetTst,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,p3,p4,p5,p6,p7,p8,
Automatic Cue 0	LOG,	EVT,	0,	1-63,	0,	12,	44,	CueAuto0,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Keyboard Cue	LOG,	EVT,	0,	1-63,	0,	12,	45,	CueKeybd,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Keyboard Abort	LOG,	EVT,	0,	1-63,	0,	12,	46,	KeyAbort,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Digital 1 Fault Input	LOG,	EVT,	0,	1-63,	0,	12,	55,	Dig1Flt,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Digital 2 Fault Input	LOG,	EVT,	0,	1-63,	0,	12,	56,	Dig2Flt,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Digital 1 Start Input	LOG,	EVT,	0,	1-63,	0,	12,	57,	StartDP1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Digital 2 Start Input	LOG,	EVT,	0,	1-63,	0,	12,	58,	StartDP2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Digital 1 Stop Input	LOG,	EVT,	0,	1-63,	0,	12,	59,	Stop_DP1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Digital 2 Stop Input	LOG,	EVT,	0,	1-63,	0,	12,	60,	Stop_DP2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Digital 1 Cue Input	LOG,	EVT,	0,	1-63,	0,	12,	61,	CueDP1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Digital 2 Cue Input	LOG,	EVT,	0,	1-63,	0,	12,	62,	CueDP2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Fault from CAI Channel 1	LOG,	EVT,	0,	1-63,	0,	12,	63,	CAI1Flt,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Fault from CAI Channel 2	LOG,	EVT,	0,	1-63,	0,	12,	64,	CAI2Flt,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Fault from CAI Channel 3	LOG,	EVT,	0,	1-63,	0,	12,	65,	CAI3Flt,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Stop from CAI Channel 1	LOG,	EVT,	0,	1-63,	0,	12,	66,	StopCAI1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Stop from CAI Channel 2	LOG,	EVT,	0,	1-63,	0,	12,	67,	StopCAI2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Stop from CAI Channel 3	LOG,	EVT,	0,	1-63,	0,	12,	68,	StopCAI3,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Start from CAI Channel 1	LOG,	EVT,	0,	1-63,	0,	12,	69,	StrtCAI1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Start from CAI Channel 2	LOG,	EVT,	0,	1-63,	0,	12,	70,	StrtCAI2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Start from CAI Channel 3	LOG,	EVT,	0,	1-63,	0,	12,	71,	StrtCAI3,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Cue from CAI Channel 1	LOG,	EVT,	0,	1-63,	0,	12,	72,	CueCAI1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Cue from CAI Channel 2	LOG,	EVT,	0,	1-63,	0,	12,	73,	CueCAI2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Cue from CAI Channel 3	LOG,	EVT,	0,	1-63,	0,	12,	74,	CueCAI3,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Program Abort from CAI Channel 1	LOG,	EVT,	0,	1-63,	0,	12,	75,	AbtCAI1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Program Abort from CAI Channel 2	LOG,	EVT,	0,	1-63,	0,	12,	76,	AbtCAI2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Program Abort from CAI Channel 3	LOG,	EVT,	0,	1-63,	0,	12,	77,	AbtCAI3,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Clock Set from web browser	LOG,	EVT,	0,	1-63,	0,	12,	78,	ClkWeb,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Clock Synced with NTP Server	LOG,	EVT,	0,	1-63,	0,	12,	79,	ClkNTP,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,

Event Log Summary (continued)

EVENT	ASCII Log Code	ASCII Event Code	PSN	Id	Rec. Ver.	Dev. Type	Event No.	Event Name	Event Flags (1)	Show Seq. No.	Time Stamp	Down Time (2)	Sync Loop	Prog. No.	Show Status (3)	Cue No.	Event Specific Parameters
Clock set from CAI Channel 1	LOG,	EVT,	0,	1-63,	0,	12,	80,	ClkCAI1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Clock set from CAI Channel 2	LOG,	EVT,	0,	1-63,	0,	12,	81,	ClkCAI2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Clock set from CAI Channel 3	LOG,	EVT,	0,	1-63,	0,	12,	82,	ClkCAI3,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Event Log Buffer cleared from CAI Channel 1	LOG,	EVT,	0,	1-63,	0,	12,	83,	ClrBufC1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Event Log Buffer cleared from CAI Channel 2	LOG,	EVT,	0,	1-63,	0,	12,	84,	ClrBufC2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Event Log Buffer cleared from CAI Channel 3	LOG,	EVT,	0,	1-63,	0,	12,	85,	ClrBufC3,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Show Sequence Number Cleared from CAI Channel 1	LOG,	EVT,	0,	1-63,	0,	12,	86,	ClrSSQC1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Show Sequence Number Cleared from CAI Channel 1	LOG,	EVT,	0,	1-63,	0,	12,	87,	ClrSSQC2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Show Sequence Number Cleared from CAI Channel 1	LOG,	EVT,	0,	1-63,	0,	12,	88,	ClrSSQC3,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
NTP Server time out	LOG,	EVT,	0,	1-63,	0,	12,	89,	ClkNTPTO,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Digital Input Abort	LOG,	EVT,	0,	1-63,	0,	12,	90,	InpAbort,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Channel 1 Exception Timer time out	LOG,	EVT,	0,	1-63,	0,	12,	91,	CueXTO_1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Channel 2 Exception Timer time out	LOG,	EVT,	0,	1-63,	0,	12,	92,	CueXTO_2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Channel 3 Exception Timer time out	LOG,	EVT,	0,	1-63,	0,	12,	93,	CueXTO_3,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Macro Memory Fault	LOG,	EVT,	0,	1-63,	0,	12,	94,	MemMacro,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,0,0,0,0,0,0,
Macro Call	LOG,	EVT,	0,	1-63,	0,	12,	95,	Macxxayy,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,p3,p4,p5,p6,0,0,
SENDF1 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	96,	SENDF1,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF2 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	97,	SENDF2,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF3 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	98,	SENDF3,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF4 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	99,	SENDF4,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF5 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	100,	SENDF5,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF6 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	101,	SENDF6,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF7 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	102,	SENDF7,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF8 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF8,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
Macro Exited due to Exit If Instruction	LOG,	EVT,	0,	1-63,	0,	12,	104,	Xifmm_nn,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,0,0,0,0,0,0,
Line Voltage Hi/Lo	LOG,	EVT,	0,	1-63,	0,	12,	105,	VoltHiLo,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	p1,p2,0,0,0,0,0,0,
SENDF9 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF9,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF10 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF10,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF11 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF11,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF12 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF12,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF13 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF13,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF14 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF14,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF15 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF15,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF16 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF16,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF17 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF17,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF18 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF18,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF19 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF19,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF20 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF20,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF21 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF21,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF22 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF22,	d,	0-999,	yyyy,mm,dd,hh,mm,ss,ttt,	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,

Event Log Summary (continued)

EVENT	LOG																
	ASCII Log Code	ASCII Event Code	PSN	Id	Rec. Ver.	Dev. Type	Event No.	Event Name	Event Flags (1)	Show Seq. No.	Time Stamp	Down Time (2)	Sync Loop	Prog. No.	Show Status (3)	Cue No.	Event Specific Parameters
SENDF23 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF23,	d,	0-999,	*yyyy,mm,dd,hh,mm,ss,ttt,*	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF24 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF24,	d,	0-999,	*yyyy,mm,dd,hh,mm,ss,ttt,*	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF25 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF25,	d,	0-999,	*yyyy,mm,dd,hh,mm,ss,ttt,*	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF26 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF26,	d,	0-999,	*yyyy,mm,dd,hh,mm,ss,ttt,*	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF27 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF27,	d,	0-999,	*yyyy,mm,dd,hh,mm,ss,ttt,*	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF28 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF28,	d,	0-999,	*yyyy,mm,dd,hh,mm,ss,ttt,*	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF29 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF29,	d,	0-999,	*yyyy,mm,dd,hh,mm,ss,ttt,*	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,
SENDF30 Event Report	LOG,	EVT,	0,	1-63,	0,	12,	103,	SENDF30,	d,	0-999,	*yyyy,mm,dd,hh,mm,ss,ttt,*	d,	0,	0-9,	d,	0-20,	0,0,0,0,0,0,0,0,

Note 1: Event Flags. d = 32 bit decimal number. See Event Flags on next page.

Note 2: Down Time. d = 2 byte decimal number which equals the total number of seconds a program has been stopped.

Note 3: Show Status. d = 1 byte decimal number. 1 = Ready to Run, 2 = Fault, 3 = Running, 4 = Intermission, 5 = Stopped

Event Log Summary (continued)

Event Flags

32 bit event flag. Bit 0 is the LSB. This is a decimal number in the range 0 to 2^{32} - 1			
Bit 0 ------------ Bit 1 In Progress * Bit 2 ------------ Bit 3 Running * Bit 4 ------------ Bit 5 ------------ Bit 6 ------------ Bit 7 ------------	Bit 8 ------------ Bit 9 ------------ Bit 10 ------------ Bit 11 ------------ Bit 12 ------------ Bit 13 ------------ Bit 14 ------------ Bit 15 ------------	Bit 16 Any Event ** Bit 17 ------------ Bit 18 Ready to Resume ** Bit 19 Ready to Run ** Bit 20 User Code ** Bit 21 Resume ** Bit 22 Cue ** Bit 23 Show End **	Bit 24 Show Start ** Bit 25 Minor Fault ** Bit 26 ------------ Bit 27 Major Fault ** Bit 28 Computer ** Bit 29 Unscheduled Shutdown ** Bit 30 Scheduled Events ** Bit 31 Buffer Overflow - Lost Data *

The flag bits can be used to organize events for reporting purposes. These bits represent either run time 'status' or event 'type' flags.
* = Status Flags. These flags are set depending on the status of the eCNA at the time of the event.
** = Type Flags. These flags are fixed depending on the type of event.

No.	Event	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	StartMan	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Show_End	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	IntmStrt	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Intm_End	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Stop_Man	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Resumed	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	ReadyRun	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	MemSuper	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	MemProg	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	LIN_Flt	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	StopFire	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Stop_Rem	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	ReadyRes	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Battery	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	ResetExt	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	ResetPup	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	ResetDog	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	ResetHlt	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	ResetClk	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	ResetTst	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	CueAuto0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	CueKeybd	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	KeyAbort	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Dig1Flt	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Dig2Flt	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	StartDP1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	StartDP2	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	Stop_DP1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	Stop_DP2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	CueDP1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	CueDP2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	CAI1Flt	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	CAI2Flt	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	CAI3Flt	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	StopCAI1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	StopCAI2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	StopCAI3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	StrtCAI1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	StrtCAI2	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	StrtCAI3	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	CueCAI1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	CueCAI2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	CueCAI3	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	AbtCAI1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	AbtCAI2	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	AbtCAI3	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	ClkWeb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	ClkNTP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	ClkCAI1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	ClkCAI2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	ClkCAI3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	ClrBufC1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	ClrBufC2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	ClrBufC3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	ClrSSNC1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	ClrSSNC2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	ClrSSNC3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	ClkNTPTO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	InpAbort	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	CueXTO_1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	CueXTO_2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	CueXTO_3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	MemMacro	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	Macxxayy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Event Log Summary (continued)

Event Flags (continued)

No.	Event	Bits 0 - 31																																
		31	30	29	28	27	26	25	24		23	22	21	20	19	18	17	16		15	14	13	12	11	10	9	8		7	6	5	4	3	2	1	0
96	SENDF1	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
97	SENDF2	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
98	SENDF3	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
99	SENDF4	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
100	SENDF5	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
101	SENDF6	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
102	SENDF7	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
103	SENDF8	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
104	Xif*mm_nn*	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
105	VoltHiLo	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
106	SENDF9	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
107	SENDF10	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
108	SENDF11	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
109	SENDF12	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
110	SENDF13	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
111	SENDF14	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
112	SENDF15	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
113	SENDF16	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
114	SENDF17	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
115	SENDF18	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
116	SENDF19	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
117	SENDF20	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
118	SENDF21	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
119	SENDF22	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
120	SENDF23	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
121	SENDF24	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
122	SENDF25	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
123	SENDF26	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
124	SENDF27	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
125	SENDF28	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
126	SENDF29	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0
127	SENDF30	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0

6. System Block Diagram

| | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |

39425-2
MAIN CPU BOARD

J1
1	Ground
2	Ground
3	+5 volts
4	+5 volts
5-20	Data (0-15)
21-36	Address (0-18)
37	SIZ0
38	FPTYPE2
39	FPRES
40	FPTYPE1
41	FPRW
42	8.3MHz Clock
43	/DSACK1
44	/FPSEL
45	+18 volts
46	+18 volts
47	+5 volts
48	Ground
49	Ground
50	-24 volts

DISPLAY
BOARD
INTERFACE
(Not Used)

P2
1	DATA+
2	DATA-
3	Shield	LIN
4	NETRTN
5	+VNET (+18VDC)

LIN CABLE
TO LIN SLAVE

P10
1	+VNET (+18VDC)
2	NETRTN
3	Shield	LIN
4	DATA-
5	DATA+

ALTERNATE
LIN CONNECTOR

P3
1	SHIELD
2	DATA-	LSN
3	DATA+

LOCAL SYNC NETWORK

P11
1	Shield
2	DATA-	LSN
3	DATA+

LOCAL SYNC NETWORK

P1
1	+VNET (+18V)
2	LCD (-24V)
3	NETRTN
4	+VMAIN (+24V)

POWER
(Not Used)

P9
1	CTS
2	RX
3	GND
4	TX
5	RTS

RS-232
(CAI CHANNEL 1)

P5
1	-
2	N/C
3	+

ALARM
(Outboard)

P8
1	DCD
2	DSR
3	RX
4	RTS
5	TX
6	CTS
7	DTR
8	RI
9	GND
10	GND

RS-232
(10P Ribbon)
(Dumb Terminal)

P7
1	NC
2	/BERR
3	Ground
4	DSCLK
5	Ground
6	FREEZE
7	/RESET
8	DSI
9	+5 volts
10	DSO

BDM
CONNECTOR
(Factory Only)

J2
1	TxD+
2	TxD-
3	RxD+
4	N/C
5	N/C
6	RxD-
7	N/C
8	N/C

10BaseT
ETHERNET
(RJ45)

P4
3	Shield
5	NETRTN
2	NET-
4	+VNET
1	NET+

FRONT
PANEL LSN
(Not Used)

39446
RS-232 ADAPTER
(Optional)

POWER SWITCH

P17
1	+VEXT
2	+VEXT (SW)
3	+VEXT (SW)
4	+VNET

P14
1	RxD
2	CTS
3	TxD
4	RTS
5	Ground
6	+5 Volts

JS1
1	RxD	CTS	1
2	CTS	RX	2
3	TxD	GND	3
4	RTS	TX	4
5	Ground	RTS	5
6	+5 Volts		

P1

RS-232
(CAI CHANNEL 3)

P16
| 1 | +VEXT |
| 2 | NETRTN |

SYSTEM POWER
(+18VDC)

EXTERNAL SUPPLY:
+18VDC @ 800mA

SYSTEM POWER
(+18VDC)

TB1
| 1 | +VEXT |
| 2 | NETRTN |

TB1
1	MISO
2	/PRES
3	PCS1
4	MOSI
5	SCLK
6	+5V
7	GND

SPI

| SCALE | N/A | TITLE | eCNA-5 CPU BOARD ASSEMBLY |
| SHEET 1 OF 2 | DATE MAR 2010 | DWG NUMBER | |

EPRAD
INCORPORATED 6979 WALES RD. NORTHWOOD, OHIO
PHONE: 419-666-3266 FAX 419-666-8109

System Block Diagram (continued)

39490
GPIO TERMINATION BOARD

J1
RTN	1
PWR	2
DPEN	3
MOSI	4
DPSTB	5
SCK	6

TB5
1	IN 1 A
2	IN 1 B
3	IN 2 A
4	IN 2 B
5	IN 3 A
6	IN 3 B
7	IN 4 A
8	IN 4 B
9	IN 5 A
10	IN 5 B
11	IN 6 A
12	IN 6 B
13	IN 7 A
14	IN 7 B
15	IN 8 A
16	IN 8 B

INPUTS:
5V-24V AC/DC

P1
	+VNET (+18VDC)	1
	NETRTN	2
LIN	SHIELD	3
	DATA-	4
	DATA+	5

LIN CABLE
TO LIN MASTER/SLAVE

TB1
	DATA+	1
	DATA-	2
LIN	SHIELD	3
	NETRTN	4
	+VNET (+18VDC)	5

ALTERNATE
LIN CONNECTOR

TB2
1	OUT 15 COM
2	OUT 15 N.O./N.C.
3	OUT 16 COM
4	OUT 16 N.O./N.C.

HIGH POWER
RELAY OUTPUTS
250VRMS @ 10A MAX.
30VDC @ 10A MAX.

TB4
1	OUT 1 N.O.
2	OUT 1 COM
3	OUT 2 N.O.
4	OUT 2 COM
5	OUT 3 N.O.
6	OUT 3 COM
7	OUT 4 N.O.
8	OUT 4 COM
9	OUT 5 N.O.
10	OUT 5 COM
11	OUT 6 N.O.
12	OUT 6 COM
13	OUT 7 N.O.
14	OUT 7 COM
15	OUT 8 N.O.
16	OUT 8 COM
17	OUT 9 N.O.
18	OUT 9 COM
19	OUT 10 N.O.
20	OUT 10 COM
21	OUT 11 N.O.
22	OUT 11 COM
23	OUT 12 N.O.
24	OUT 12 COM
25	OUT 13 N.O./N.C.
26	OUT 13 COM
27	OUT 14 N.O./N.C.
28	OUT 14 COM
29	+12VDC
30	+12VDC
31	RETURN
32	RETURN

LOW POWER
RELAY OUTPUTS:
30VRMS @ 2A MAX.
60VDC @ 1A MAX.

12VDC
(FUSED @ ½ AMP)

P3
OUT 1 N.O.	1
OUT 1 COM	2
OUT 2 N.O.	3
OUT 2 COM	4
OUT 3 N.O.	5
OUT 3 COM	6
OUT 4 N.O.	7
OUT 4 N.C.	8

OUTPUT
OVERRIDE
CONNECTOR

P4
OUT 5 N.O.	1
OUT 5 COM	2
OUT 6 N.O.	3
OUT 6 COM	4
OUT 7 N.O.	5
OUT 7 COM	6
OUT 8 N.O.	7
OUT 8 N.C.	8

OUTPUT
OVERRIDE
CONNECTOR

P5
OUT 9 N.O.	1
OUT 9 COM	2
OUT 10 N.O.	3
OUT 10 COM	4
OUT 11 N.O.	5
OUT 11 COM	6
OUT 12 N.O.	7
OUT 12 N.C.	8

OUTPUT
OVERRIDE
CONNECTOR

P6
OUT 13 N.O./N.C.	1
OUT 13 COM	2
OUT 14 N.O./N.C.	3
OUT 14 COM	4
	5
	6
	7
	8

OUTPUT
OVERRIDE
CONNECTOR

TYPICAL DPDT
OVERRIDE SWITCH WIRING

SWITCH (REF)

REAR
VIEW

| SCALE		TITLE	**eCNA-5 39490 GPIO**		EPRAD
N/A			**TERMINATION BOARD**		
SHEET **2** OF **2**		DATE **MAR 2010**	DWG NUMBER		INCORPORATED 6979 WALES RD. NORTHWOOD, OHIO PHONE: 419-666-3266 FAX 419-666-8109

7. I/O Termination Board

The eCNA-5 39490 termination board is powered and controlled by the eCNA-10 main control board via the Local I/O Network (LIN). This is where all digital inputs and outputs are terminated in the field. The eCNA-5 can support up to two 39490 termination boards.

Features

- 14 low power relay outputs with LED indicators
- 2 high power relay outputs with LED indicators
- 8 optically isolated inputs
- 12 volt DC power
- Manual override headers

7.1 39490 GPIO Termination Board
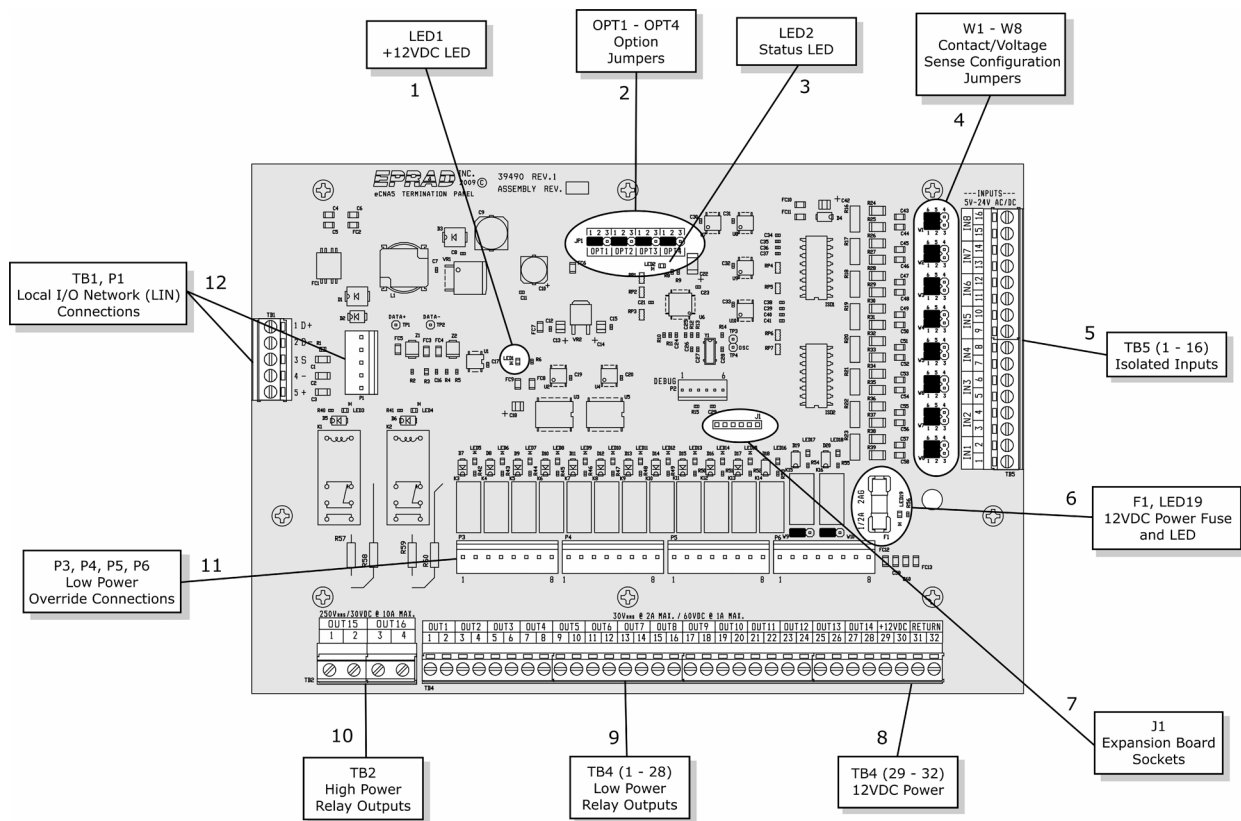
1) Power LED - This indicates the status of the regulated +12 volt DC power.

2) Option Jumpers - These jumpers are used for special configuration.

Jumper	Position	Description
OPT 1	1-2 2-3	Undefined. Reserved for future.
OPT 2	1-2 2-3	Undefined. Reserved for future.
OPT 3	1-2 2-3	Undefined. Reserved for future.
OPT 4	1-2 2-3	Board #1 (LIN Id = 17) Board #2 (LIN Id = 18)

3) Status LED - This indicates the status of the on-board computer. If the computer is operating properly, it will indicate one of three conditions.

1: A fast (.2 second) blink rate indicates the computer is working and communicating properly with the eCNA-5 main control board.

2: A slow (1 blink ON, 2 seconds OFF) rate indicates since power up, the board has not received data from the eCNA-5 main control board. The I/O is disabled.

3: A slow (2 blinks ON, 2 seconds OFF) rate indicates a communication timeout. Communications were once established and subsequently lost. The I/O is disabled.

4) Voltage/Contact Sense Jumpers - Inputs can be individually configured for either voltage sense or contact sense.

5) Inputs - TB5 (1-16) are the low voltage isolated input connections. Inputs can be wired for either 'contact' or 'voltage' sense. All inputs are de-bounced and require a minimum pulse width of 0.5 seconds.

Input Range: $5V_{DC}$ - $34V_{DC}$, $3.6V_{RMS}$ - $24V_{RMS}$ @ 20mA Max.

6) 12 Volt Power Fuse - The 12VDC supply is fused at 1/2 amp. LED 19 indicates the condition of the fuse.

7) Optional Expansion Board - J1 socket strip is used for an expansion board.

8) 12 Volt Power Connections - TB4 (29-32) are the +12 volt power connections. This can be used to power any 12 volt device such as an external relay.

9) Low Power Relay Outputs - TB4-1 through TB4-28 are the low power output connections. All relay contacts are 'dry' and require an external power source.

Contact Maximum Ratings: $30V_{RMS}$ @ 2 Amps / $60V_{DC}$ @ 1 Amp

10) High Power Relay Outputs - TB2 is the high power output connections. The relay contacts are 'dry' and require and external power source.

Contact Maximum Ratings: $250V_{RMS}$ @ 10 Amps / $30V_{DC}$ @ 10 Amps

11) Override Connections - P3, P4, P5 and P6 headers are for the low power manual override cables.

12) LIN - TB1 and P1 are the LIN connections. This is the serial data and power connections from the main control board.

7.2 39490 Termination Schedule

TB1 is used for the LIN field connections. The LIN connections on TB1 are normally not required (P2 and P3 headers are used instead).

TB1	Name	Description / Comment
1	LIN Data +	Local I/O Network serial data connections.
2	LIN Data -	
3	LIN Shield	
4	LIN Return (-)	+18 Volts DC Power from the Main Control Board.
5	LIN Power (+)	

TB2 is use for the high power relay field connections.

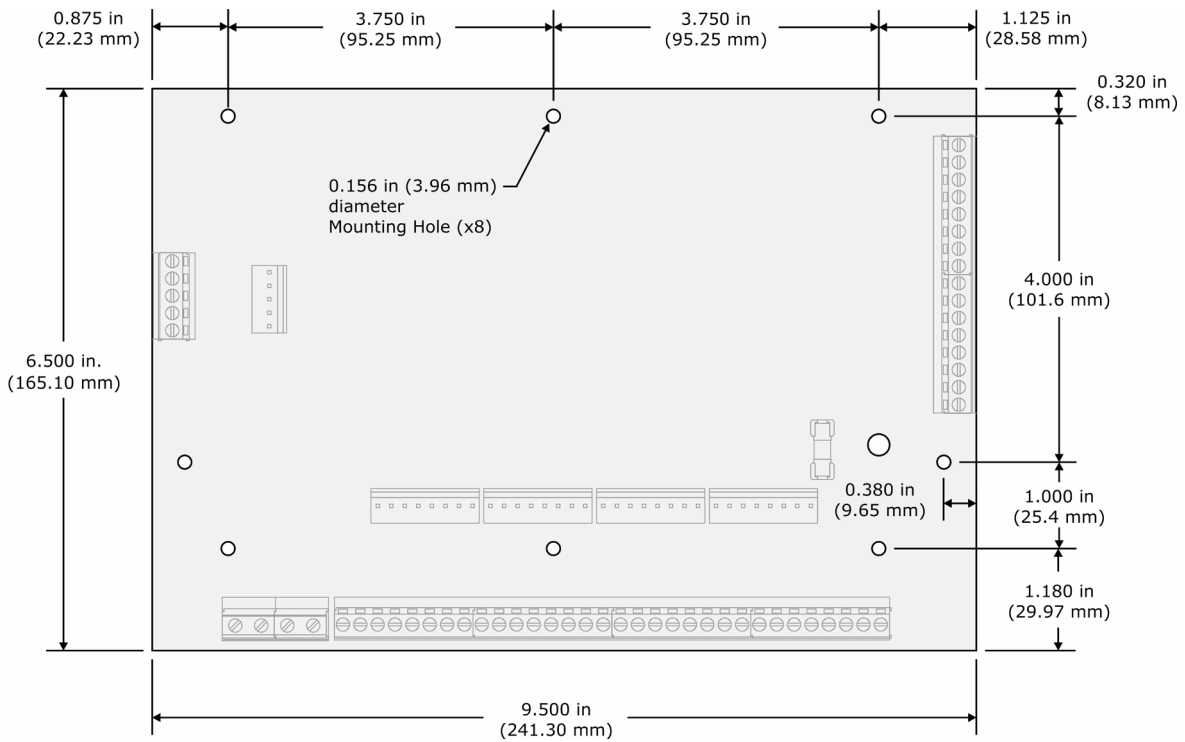| TB2	Name	Description / Comment
1	Out 15 N.O./N.C.	These are normally open high power contacts. It's function can be software configured. These two outputs can be re-configured for normally closed.
2	Out 15 COM	
3	Out 16 N.O./N.C.	
4	Out 16 COM	

TB4 is the low power relay field connections.

TB4	Name	Description / Comment
1	Out 1 N.O.	These are the low power outputs. The function of each of these are configurable. Out 1 through Out 12 are normally open contacts. Out 13 and Out 14 can be configured for normally closed with jumpers W9 and W10, respectively.
2	Out 1 COM	
3	Out 2 N.O.	
4	Out 2 COM	
5	Out 3 N.O.	
6	Out 3 COM	
7	Out 4 N.O.	
8	Out 4 COM	
9	Out 5 N.O.	
10	Out 5 COM	
11	Out 6 N.O.	
12	Out 6 COM	
13	Out 7 N.O.	
14	Out 7 COM	
15	Out 8 N.O.	
16	Out 8 COM	
17	Out 9 N.O.	
18	Out 9 COM	
19	Out 10 N.O.	
20	Out 10 COM	
21	Out 11 N.O.	
22	Out 11 COM	
23	Out 12 N.O.	
24	Out 12 COM	
25	Out 13 N.O./N.C.	
26	Out 13 COM	
27	Out 14 N.O./N.C.	
28	Out 14 COM	
29	(+) 12VDC Power	+12VDC Power (fused at 1/2 amp)
30	(+) 12VDC Power	
31	(-) 12VDC Return	
32	(-) 12VDC Return	

TB5 is the inputs and remote power connections.

| TB5	Name	Description / Comment
1	IN 1 A	These eight inputs are software configurable. Inputs can be individually configured for either voltage sense or contact sense.
2	IN 1 B	
3	IN 2 A	
4	IN 2 B	
5	IN 3 A	
6	IN 3 B	
7	IN 4 A	
8	IN 4 B	
9	IN 5 A	
10	IN 5 B	
11	IN 6 A	
12	IN 6 B	
13	IN 7 A	
14	IN 7 B	
15	IN 8 A	
16	IN 8 B	

7.3 39490 Board Dimensions

7.4 Termination Board Inputs

All inputs are bi-directional. The figure below is a schematic representation of all inputs.
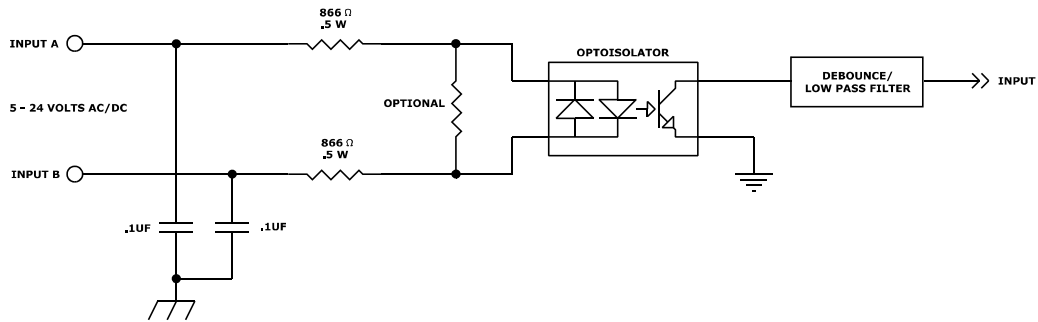
Inputs can be wired in a number of ways. Below are the most typical ways the inputs are wired to an external device.

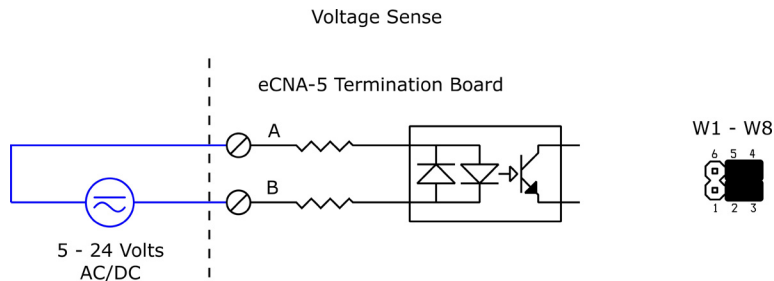### Contact Sense Input

Using the +12 volt power source on the termination board, the input can wired for contact sensing. Only a remote relay contact or switch is required to generate an input.
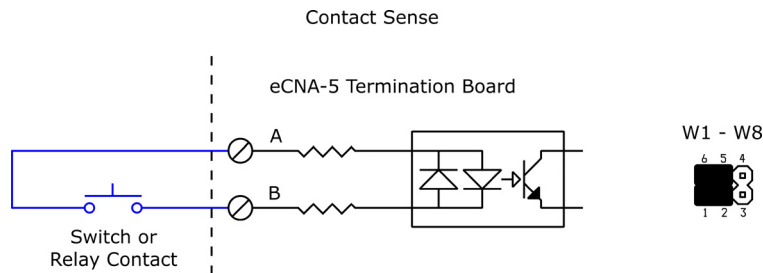
Voltage Sense Input

The input can accept AC or DC voltage in the range of 5 to 24 volts. The maximum current draw per input is 20 milliamps.

High Voltage Input

If higher voltages are required for input control, then an external relay can be wired to the input as shown.

High Voltage Sense

eCNA-5 Termination Board

120Vac

External
Low Power
Relay

A

B

W1 - W8

6 5 4

1 2 3

NPN Open Collector Output Connection

NPN Open Collector Output Connection

eCNA-5 Termination Board

A

B

W1 - W8

6 5 4

1 2 3

< 10mA

Control
Signal
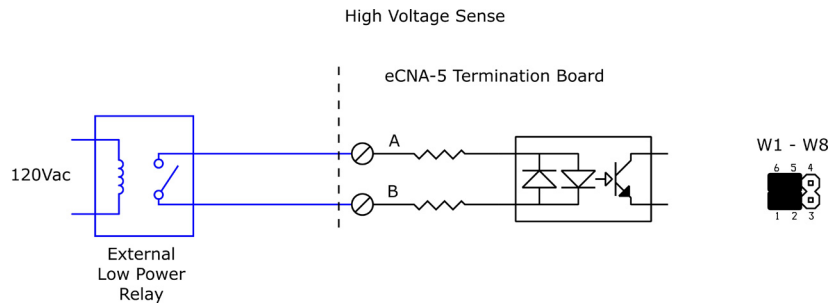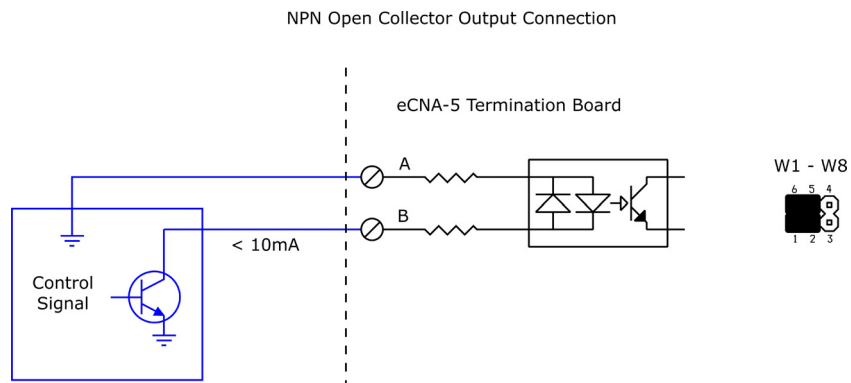
7.5 Termination Board Outputs

All relay outputs are 'dry' contacts. They require an external power source. It is strongly recommended that the power source be current limited. The figure below is a schematic representation of the relay outputs. Most outputs are normally open contacts.
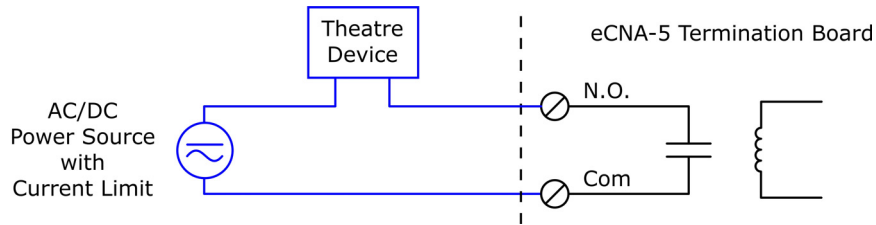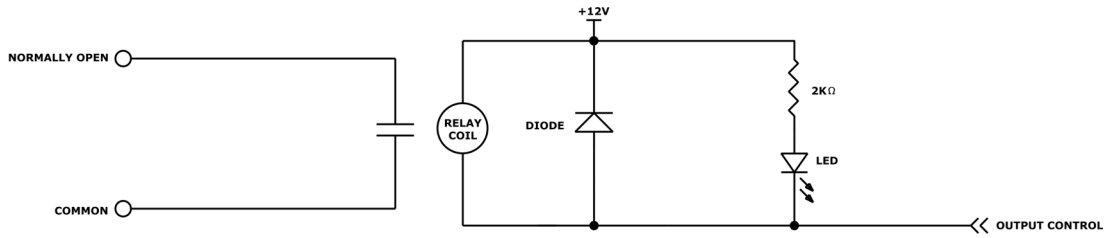
Typical Masking motor wiring
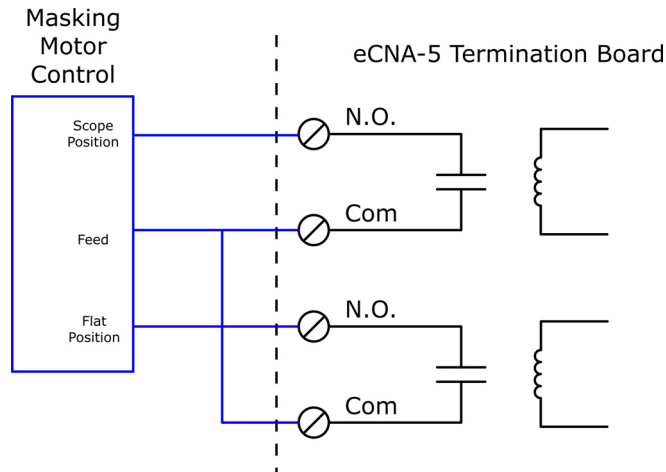
8. Power Supply

The power requirements for the eCNA-5 control and I/O boards is 18 to 24 volts DC @ 0.8 A.

The wall plug power supply included with the eCNA-5 Rack and Panel mount is a 15 watt universal (90 - 264 volt AC) input and a 18 volt DC @ 825mA output.

The power requirements for the Wall mount unit is 85 to 264 volts AC @ 0.25 A.

Appendix A: Remote Device Support

This section describes the remote device configuration and commands for several cinema equipment products. Communications to any of these devices can be configured using any of the five remote device channels. See section 3.3.8 for additional information.

A.1 NEC® Digital Cinema Projectors

Configuration:

All NEC® NC Series projectors listen on TCP port 7142 for incoming connections.

Configuration	
Name	Value
Device Communications	Enable
Device	NEC Projector
Device Name	NC1600C
IP Address	10 . 6 . 26 . 2
Port Number	7142
Poll for Status	Enable
Poll Interval (sec)	10

In addition to user messages, the eCNA has built-in support for acquiring projector status. This status is available to CAI clients. In order to get status, *Device Communications* and *Poll for Status* must be **Enabled**. The *Poll Interval* is the time interval in seconds that the projector is polled for status. The range is 2 to 60 seconds. 10 seconds is the default. If status is not required for the application, it is best that *Poll for Status* remain **Disabled**.

Command Messages:

This is a list of commonly used control commands. The user only needs to enter the two byte command and any data bytes if applicable. The eCNA automatically inserts the Projector ID, Model Code, Data Length and Checksum. A default NEC configuration file is available from EPRAD.

Command Structure:

(1) **ID1**	(8 bit)		**Entered by user**
(2) **ID2**	(8 bit)		**Entered by user**
(3) Projector ID	(8 bit)		Automatically inserted by eCNA (00H)
(4) Model Code	(4 bit)		Automatically inserted by eCNA (0H)
(5) Data Length	(12 Bit)		Automatically calculated and inserted by eCNA (0H - FFFH)
(6) **Data**	(0 to 4095 Bytes)		**Entered by user**
(7) Checksum	(8 bit)		Automatically calculated and inserted by eCNA (0H - FFH)

NEC® Projector Control Commands				
Name	Description	Command Code		
		(1)	(2)	(6)
Lamp Off	This command sets the Lamp Control Mode to Lamp Off	03	2F	12 02
Lamp On	This command sets the Lamp Control Mode to Lamp On	03	2F	12 01
Lamp Standard	This command sets the Lamp Control Mode to Lamp Standard (in conjunction with Power On/Off)	03	2F	12 00
Douser Open	This command cancels picture mute by opening the lens douser	02	17	
Douser Close	This command mutes a picture by closing the lens douser	02	16	
Title List	Selects from Title/Entry List: 1 through 100. xx = 00 through 99 (List number - 1). For example xx = 07 for list number 8	02	03	00 xx
Macro Key 1	This command activates the Preset (Macro) Key number 1	02	03	06 00
Macro Key 2	This command activates the Preset (Macro) Key number 2	02	03	06 01
Macro Key 3	This command activates the Preset (Macro) Key number 3	02	03	06 02
Macro Key 4	This command activates the Preset (Macro) Key number 4	02	03	06 03
Macro Key 5	This command activates the Preset (Macro) Key number 5	02	03	06 04
Macro Key 6	This command activates the Preset (Macro) Key number 6	02	03	06 05
Macro Key 7	This command activates the Preset (Macro) Key number 7	02	03	06 06
Macro Key 8	This command activates the Preset (Macro) Key number 8	02	03	06 07
292-A	This command selects the signal input port 292-A	02	03	05 1A
292-B	This command selects the signal input port 292-B	02	03	05 1B
292-Dual	This command selects the signal input port 292-Dual	02	03	05 1C
DVI-A	This command selects the signal input port DVI-A	02	03	05 38
DVI-B	This command selects the signal input port DVI-B	02	03	05 39
DVI-Dual/Twin	This command selects the signal input port DVI-Dual/Twin	02	03	05 3A
Power On	This command switches on the main power of the projector. The projector doesn't accept any other command during power on processing	02	00	
Power Off	This command switches off the main power of the projector. The projector doesn't accept any other command during power off processing. (It contains a cooling period.)	02	01	
Picture Mute On	This command blanks the picture	02	10	
Picture Mute Off	This command cancels the blank picture condition. If the douser is closed, this function does not work	02	11	

The NEC NC Series projectors may support more control commands. If additional control is required, please consult NEC projector documentation or call EPRAD.

	Messages		
No.	Name	Command Code	Resp
1	Lamp On	03 2F 12 01	☑
2	Lamp Off	03 2F 12 02	☑
3	Shutter Open	02 17	☑
4	Shutter Close	02 16	☑
5	Macro Key 1	02 03 06 00	☑
6	Marco Key 2	02 03 06 01	☑
7	Macro Key 3	02 03 06 02	☑
8	Macro Key 4	02 03 06 03	☑
9	Macro Key 5	02 03 06 04	☑
10	Macro Key 6	02 03 06 05	☑
11	Macro Key 7	02 03 06 06	☑
12	Macro Key 8	02 03 06 07	☑
13			☐
14			☐
15			☐
16			☐

The **Resp** checkbox should be checked for all NEC commands.

A.2 Barco Digital Cinema Projectors

Configuration:

Series 1 Projector:

Series 1 projectors listen on TCP port 43680 for incoming connections. The Series 1 DP projectors (DP100, DP90, DP1200, DP1500, DP2000, DP3000), have two IP addresses. One for the main projector controller and one for the Texas Instruments DLP Cinema® front end. The IP address of the projector (main controller) should be used.

Series 2 Projector:

Series 2 projectors listen on TCP port 43728 for incoming connections. The Series 2 projectors have a single IP address.

Configuration	
Name	Value
Device Communications	Enable
Device	Barco Series 1 Projector
Device Name	DP2000
IP Address	10 . 6 . 26 . 5
Port Number	43680
Poll for Status	Enable
Poll Interval (sec)	10

In addition to user messages, the eCNA has built-in support for acquiring projector status. This status is available to CAI clients. In order to get status, *Device Communications* and *Poll for Status* must be **Enabled**. The *Poll Interval* is the time interval in seconds that the projector is polled for status. The range is 2 to 60 seconds. 10 seconds is the default. If status is not required for the application, it is best that *Poll for Status* remain **Disabled**.

Command Messages:

This is a list of commonly used control commands. The user only needs to enter the command bytes(s) and any data bytes if applicable. The eCNA automatically inserts the Start byte, Projector address, Checksum byte and Stop byte. A default Barco configuration file is available from EPRAD.

Command Structure:

(1) Start Byte	Automatically inserted by eCNA (FEH)
(2) Address Byte	Automatically inserted by eCNA (00H)
(3) **Command Byte(s)**	**Entered by user**
(4) **Data Bytes (optional)**	**Entered by user**
(5) Checksum Byte	Automatically calculated and inserted by eCNA (00H - FFH)
(6) Stop Byte	Automatically inserted by eCNA (FFH)

Barco Projector Control Commands			
Name	Description	Command Code	
		(3)	(4)
Lamp Off	This command sets the Lamp to Off	76 1A	00
Lamp On	This command sets the Lamp to On	76 1A	01
Douser Open	This command opens the mechanical lens douser	22 42 00	
Douser Close	This command closes the mechanical lens douser	23 42 00	
Macro Execute	This command executes a macro. The macro name must match exactly the name stored in the projector.	E8 81	{Macro Name} 00

Barco projectors may support more control commands. If additional control is required, please consult Barco projector documentation or call EPRAD.

Messages			
No.	Name	Command Code	Resp
1	Lamp On	76 1A 01	☐
2	Lamp Off	76 1A 00	☐
3	Dowser Open	22 42 00	☐
4	Dowser Close	23 42 00	☐
5	Flat	E8 81 {FLAT} 00	☐
6	Scope	E8 81 {SCOPE} 00	☐
7	3D Flat	E8 81 {3D_FLAT} 00	☐
8	3D Scope	E8 81 {3D_SCOPE} 00	☐
9	Pre-Show Flat	E8 81 {PRESHOW_FLAT} 00	☐
10	Event Flat	E8 81 {EVENT_FLAT} 00	☐
11	Pre-Show Scope	E8 81 {PRESHOW_SCOPE} 00	☐
12	Event Scope	E8 81 {EVENT_SCOPE} 00	☐
13			☐
14			☐
15			☐
16			☐

The **Resp** checkbox should be unchecked for all Barco commands.

A.3 Christie® Digital Cinema Projectors

Configuration:

Use TCP port 5000 for communications.

Configuration	
Name	**Value**
Device Communications	Enable
Device	Christie Projector
Device Name	CP2000-ZX
IP Address	10 . 6 . 26 . 14
Port Number	5000
Poll for Status	Enable
Poll Interval (sec)	10

In addition to user messages, the eCNA has built-in support for acquiring projector status. This status is available to CAI clients. In order to get status, *Device Communications* and *Poll for Status* must be **Enabled**. The *Poll Interval* is the time interval in seconds that the projector is polled for status. The range is 2 to 60 seconds. 10 seconds is the default. If status is not required for the application, it is best that *Poll for Status* remain **Disabled**.

Command Messages:

This is a list of commonly used control commands. The user only needs to enter the ASCII function code. The eCNA automatically inserts the start of message and end of message characters. A default Christie configuration file is available from EPRAD.

Command Structure:

(1) Start of Message Character   Automatically inserted by eCNA, "("
(2) **Function Code**   Entered by user
(3) End of Message Character   Automatically inserted by eCNA, ")"

Christie® Projector Control Commands		
Name	**Description**	**Command Code (2)**
Projector On/Lamp Off	This command turns the projector On and the lamp Off	{PWR 0}
Projector On/Lamp On	This command turns the projector On and the lamp On	{PWR 1}
Projector Standby Mode	This command sets the projector to standby mode	{PWR 3}
Douser Open	This command opens the mechanical lens douser	{SHU 0}
Douser Close	This command closes the mechanical lens douser	{SHU 1}
Channel Set	This command sets the active channel. Where xx = 01 to 64	{CHA 1xx}

Christie projectors may support more control commands. If additional control is required, please consult Christie projector documentation or call EPRAD.

Messages			
No.	Name	Command Code	Resp
1	Lamp On	{PWR 1}	☐
2	Lamp Off	{PWR 0}	☐
3	Shutter Open	{SHU 0}	☐
4	Shutter Close	{SHU 1}	☐
5	Channel 101	{CHA 101}	☐
6	Channel 102	{CHA 102}	☐
7	Channel 103	{CHA 103}	☐
8	Channel 104	{CHA 104}	☐
9	Channel 105	{CHA 105}	☐
10	Channel 106	{CHA 106}	☐
11	Channel 107	{CHA 107}	☐
12	Channel 108	{CHA 108}	☐
13			☐
14			☐
15			☐
16			☐

The **Resp** checkbox should be unchecked for all Christie commands unless the FYI and Error message broadcast is enabled. The eCNA does not enable or disable these messages.

A.4 Dolby® CP650 Digital Cinema Processor

In order to send control commands to the CP650, be sure the CP650 is connected to the Ethernet switch. Also be sure that the CP650 is running software v.2.2 or later. See the CP650 documentation for directions on how to configure the network settings.

Configuration:

Device Communications:	Enable
Device:	Raw
Device Name:	CP650
IP Address:	*<Enter IP Address of CP650>*
Port Number:	61412

Command Messages:

This is a list of CP650 control commands.

Dolby® CP650 Control Commands		
Name	**Description**	**Command Code**
Format 01	Selects Dolby Format 01 (Mono optical) *	{format_button=0} 0D 0A
Format 04	Selects Dolby Format 04 (Dolby A-type optical) *	{format_button=1} 0D 0A
Format 05	Selects Dolby Format 05 (Dolby SR optical) *	{format_button=2} 0D 0A
Format 10	Selects Dolby Format 10 (Dolby Digital film) *	{format_button=3} 0D 0A
Format 11	Selects Dolby Format 11 (External six-channel) *	{format_button=4} 0D 0A
User Format 1	Selects Dolby User Format 1 *	{format_button=5} 0D 0A
User Format 2	Selects Dolby User Format 2 *	{format_button=6} 0D 0A
Nonsync	Selects the Nonsync Format *	{format_button=7} 0D 0A
Mute Off	Selects the Unmute - Fades up the audio output to all channels **	{mute=0} 0D 0A
Mute On	Selects the mute - Fades down the audio output to all channels **	{mute=1} 0D 0A
Toggle Mute	Toggles the Mute state on/off **	{mute=2} 0D 0A
Fader Level	Selects the fader level, where x = 0 .. 100 (Corresponding to fader values 0.0 .. 10.0) ***	{fader_level=x} 0D 0A
Fader Enable	Enable main shaft fader (and any attached remotes)	{fader_setting=local} 0D 0A
Fader Disable	Disable main shaft fader (and any attached remotes)	{fader_setting=auditorium} 0D 0A

  * Any preset fader level associated with the indicated button is also applied, and the LED for the selected button is illuminated.
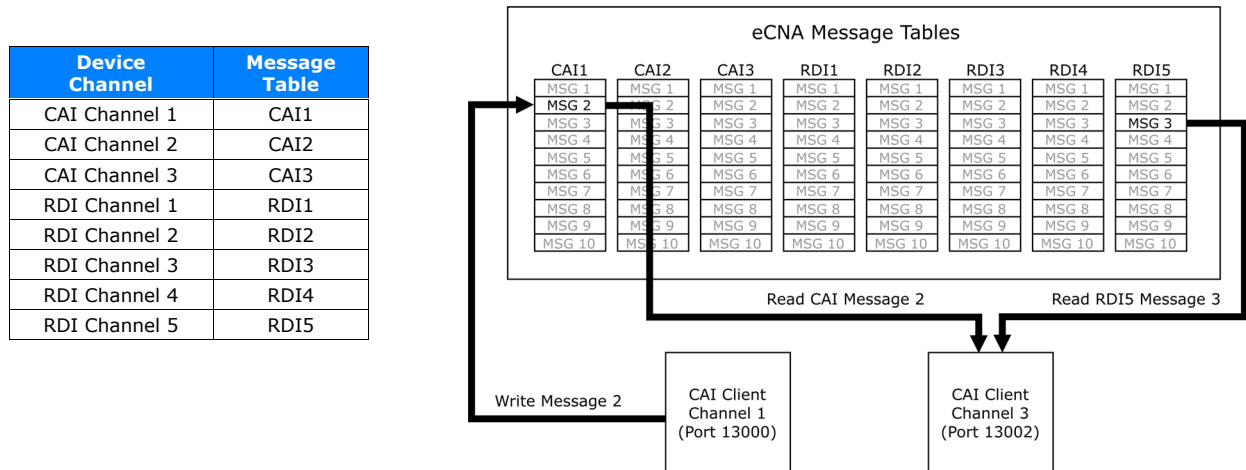
  ** Any applicable fade in/out time is applied just as if the front-panel **mute** button were used.

*** If the fader level is changed via this serial interface, this setting is lost at the next CP650 start.

Appendix B: Status/Control Message Table

B.1 Cinema Automation Interface (CAI) Client Status/Control Messages

A CAI client can exchange information with other CAI clients via the eCNA client message tables. Messages can be used for both status and control purposes. Each CAI client can write to its' own table and read data from any other client table including it's own. The eCNA currently supports up to 10 messages per table, each containing up to 24 ASCII characters. The client uses the **STATUS/CONTROL MESSAGE WRITE** command to write a message to its' message table and the **STATUS/CONTROL MESSAGE READ** command to read a message from any client table. A CAI client can also read messages from the Remote Device (RDI) status tables.

Device Channel	Message Table
CAI Channel 1	CAI1
CAI Channel 2	CAI2
CAI Channel 3	CAI3
RDI Channel 1	RDI1
RDI Channel 2	RDI2
RDI Channel 3	RDI3
RDI Channel 4	RDI4
RDI Channel 5	RDI5

The eCNA can be configured to send these client messages, unsolicited, to any CAI channel. In other words, each client can independently configure the eCNA to receive messages from only the table(s) it wants. These messages are automatically sent when the message changes. Use the **CONFIGURATION** command to enable or disable the Status/Control unsolicited messages. The client can also force an unsolicited message every time the message is written by putting the "!" character at the beginning of the message.

Notes:

1) All characters are supported except:

double quote	"	less than	<	ampersand	&
single quote	'	greater than	>	open bracket	[
semi-colon	;	comma	,	close bracket	]

2) After an eCNA power up, the message table is filled with empty strings.

3) Outgoing 'unsolicited' client message events are placed into a fixed size output buffer. The eCNA sends these messages attempting to keep this buffer empty. Be aware that this buffer can overflow if the clients pushing new messages to their message tables exceeds the rate at which clients are accepting the unsolicited messages. Oldest messages are lost first. The number of messages that can be buffered depends on the length of the messages. A maximum of 35 (24 character) messages can be buffered. A maximum of 100 messages (of smaller lengths) can be buffered.

B.2 Remote Device Interface (RDI) Server Status Messages

The eCNA can "poll" supported Remote Devices for status. Status messages are put into the device channel message table and made available for CAI clients. A CAI client can read a message using the **STATUS/CONTROL MESSAGE READ** command. The eCNA can also be configured to send these status messages, unsolicited, to any CAI channel. Use the **CONFIGURATION** command to configure the eCNA to send messages from the desired RDI channel(s). Messages are sent only when the status message changes.

Status messages for the supported devices are defined as follows:

Message No.	Description	Remote Device Status (Polled)		
		Barco Projector	**Christie Projector**	**NEC Projector**
1	Connection Status	Disabled Poll_Enabled Poll_Enabled_Error Poll_Disabled Poll_Disabled_Error	Disabled Poll_Enabled Poll_Enabled_Error Poll_Disabled Poll_Disabled_Error	Disabled Poll_Enabled Poll_Enabled_Error Poll_Disabled Poll_Disabled_Error
2	Lamp Status	Lamp_On Lamp_Off Lamp_Status_Error	Lamp_On Lamp_Off Lamp_Status_Error	Lamp_On Lamp_Off Lamp_Status_Error
3	Douser Status	Douser_Open Douser_Close Douser_Status_Error	Douser_Open Douser_Close Douser_Status_Error	Douser_Open Douser_Close Douser_Status_Error
4	Current Macro	*Macro Name* Macro_Status_Error	101 - 164 Macro_Status_Error	
5	Input Select	*Input File Name* InputSel_Status_Error		
6				
7				
8				
9				
10				

Message 1: Connection Status

"Disabled"   When the RDI channel is configured: Disabled.

"Poll_Enabled"   When the RDI channel is configured: Enabled and Poll Status is Disabled. No messages have been exchanged yet.

"Poll_Enabled_Error"   When the RDI channel is configured: Enabled and Poll Status is Enabled. A Communications Error has occurred. This condition is self-clearing when the communications is successful.

"Poll_Disabled"   When the RDI channel is configured: Enabled and Poll Status is Disabled. No User Messages have been exchanged yet.

"Poll_Disabled_Error"   When the RDI channel is configured: Enabled and Poll Status is Disabled. The last User Message couldn't be delivered to the Remote Device.

Message 2: Lamp Status

""   Zero-length string, until a response has been received from the device.
"Lamp_On"   Lamp is on.
"Lamp_Off"   Lamp is off.
"Lamp_Status_Error"   Cannot get status from device.

Message 3: Dowser Status

"" Zero-length string, until a response has been received from the device.
"Douser_Open" Dowser is open.
"Douser_Close" Dowser is closed.
"Douser_Status_Error" Cannot get status from device.

Message 4: Macro Status

"" Zero-length string, until a response has been received from the device.
Macro Name/Number Macro name or number from remote device.
"Macro_Status_Error" Cannot get status from device.

Message 5: Input Select Status

"" Zero-length string, until a response has been received from the device.
Input Name/Number Selected input name or number from remote device.
"InputSel_Status_Error" Cannot get status from device.

Message 6 through 10: Undefined

"" Zero-length string, until a response has been received from the device.