A WORLD OF A/V SOLUTIONS

SWITCHERS & MATRICES

IN31608 PRESENTATION SWITCHER
16–INPUT, 8–OUTPUT

IN31608

OPERATION MANUAL

High Resolution Video Products • A/V System Integration Tools • Interactive Training Systems

Installation and Safety Instructions

For Models without a Power Switch:

The socket outlet shall be installed near the equipment and shall be accessible.

For all Models:

No serviceable parts inside the unit. Refer service to a qualified technician.

For Models with Internal or External Fuses:

For continued protection against fire hazard, replace only with same type and rating of fuse.

Instructions d'installation et de sécurité

Pour les modèles sans interrupteur de courant:

La prise de courant d'alimentation sera installé près de l'équipement et sera accessible.

Pour tout les modèles:

Pas de composants à entretenir à l'intérieur. Confiez toute réparation à un technicien qualifié.

Pour les modèles équipés de fusibles internes ou externes:

Afin d'éviter tout danger d'incendie, ne remplacer qu'avec le même type et la même valeur de fusible.

Installations- und Sicherheitshinweise

Für Geräte ohne Netzschalter:

Die Netzsteckdose soll in der Nähe des Gerätes installiert und frei zugänglich sein.

Für alle Geräte:

Keine Wartung innerhalb des Gerätes notwendig. Reparaturen nur durch einen Fachmann!

Für Geräte mit interner oder externer Sicherung:

Für dauernden Schutz gegen Feuergefahr darf die Sicherung nur gegen eine andere gleichen Typs und gleicher Nennleistung ausgewechselt werden.

Instalacion E Instrucciones de Seguridad

Modelos Sin Interruptor:

La conexión debe ser instalada cerca del equipo y debe ser accesible.

Para Todos Los Modelos:

Dentro de la unidad , no hay partes para reparar. Llame un tecnico calificado.

Modelos con Fusibles Internos o Externos:

Para prevenir un incendio, reemplace solo con el mismo tipo de fusible.

CE COMPLIANCE

All products exported to Europe by Inline, Inc. after January 1, 1997 have been tested and found to comply with EU Council Directive 89/336/EEC. These devices conform to the following standards:

EN50081-1 (1991), EN55022 (1987)
EN50082-1 (1992 and 1994), EN60950-92

Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) standards governing this device.

CE

FCC COMPLIANCE

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide against harmful interference when equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

Table of Contents

Product Overview

DESCRIPTION:

The **IN31608** Presentation Switcher combines the easy operation and serial control capabilities of a projector switcher with the flexibility of a matrix switcher. Featuring RGBHV + stereo audio matrix switching, 350 MHz bandwidth and two switching modes, the **IN31608** is ideal for permanent installations, rentals, complex staging operations and any other display system requiring a high performance, economical presentation switcher.

Direct Switching Mode - In the Direct Mode, the **IN31608** acts as a projector switcher, routing composite, S-Video and RGB signals to the appropriate outputs. The user simply presses one of the input buttons and that input signal is automatically routed to the pre-programmed output(s).

Matrix Switching Mode - For advanced applications requiring multiple outputs, the **IN31608** can operate as a true 16 x 8 matrix switcher. In the Matrix Mode, users press an output button followed by an input button and a new patch is immediately executed.

Projector Control - The **IN31608** can store and transmit serial ASCII or hex projector control strings to projectors, INLINE products or other serial controlled AV equipment in RS-232, RS-422 or RS-485 modes. Windows™ software provided with the switcher makes it easy to set up the unit and store control codes. All projector control strings are provided by the installing technician.

Front Panel Controls

INPUT 1 - 16:..... Selects a particular input

BLANK: ..... Selects no input (Blanks the selected output)

OUTPUT 1 - 8:..... Selects a particular output for the Matrix Mode and Direct Mode Setup

SAVE, RECALL: ..... For Matrix Mode only, saves or recalls a memory configuration

MUTE:..... Mutes the audio for the selected output

VOLUME ⋀:..... Increases the volume

VOLUME ⋁:..... Decreases the volume

F1, F2, F3 and F4: ..... Sends the pre-programmed code out the projector port

SWITCHING MODE: For Matrix Mode (only), selects the current switching mode as either:
1) Video, Sync, and Audio
2) Video and Sync only
3) Audio only

Switching - Connecting Inputs and Outputs (Front Panel)

DIRECT MODE

Press the button of the input you desire and the signal will automatically be sent to the appropriate output(s). Video, sync and audio are always routed together as a group (see DIRECT MODE SETUP on page 7 for more details.) That input LED will light as well as any of the selected output LEDs. To disconnect all outputs press the Blank Button.

MATRIX MODE

To make a new connection between an input and an output, the order of button presses is always output then input as described below.

First press the button of the output you would like to change. The selected output LED will light (only one output can be selected at a time). The LED of the input currently patched to that output will also light. To select a different input, press the button of the input you desire. To blank the output, press the Blank Button. Once an output is selected, the inputs may be changed indefinitely.

GROUP CONFIGURATION (MATRIX MODE ONLY)

In Matrix Mode, it is possible to switch video, sync and audio together or separately using the front panel Switching Mode Button or the serial commands.

Board Group Selection from the Front Panel - Switching multiple board groups is possible through the front panel. To select the switching mode depress the Mode Button. The switching mode sequences between three possible combinations in the following order:

1) VIDEO / AUDIO / SYNC (default) - video and audio LEDs on
2) VIDEO / SYNC ONLY - only video LED on
3) AUDIO ONLY - only audio LED on

Board Group Selection Using Serial Commands - It is also possible to switch audio, video, and sync together, separately or in almost any combination using the serial [CNF…] command. The [CNF…] command defines three groups. Each group is treated as an independent switcher within the unit, and can be switched independently. The factory default is to have all boards assigned to Group 1 so that they switch together.

One of the most common uses of assigning multiple groups is to switch audio independent of video. Assigning the RGB and sync boards to Group 1, and the audio to Group 2 will accomplish this. Doing so allows Group 1 and Group 2 can be switched independently.

The **IN31608** allows breakaway audio, video and sync in any combination through serial commands. However, there are only video and audio LEDs on the front panel to make this distinction. When sync is switched separately from video and audio, the unit automatically disables the front panel input and output switches and flashes the video and audio LEDs. The switcher is designed this way to protect the user from setting a breakaway sync mode with a serial command and subsequently switching the front panel manually without realizing that sync is being switched separately from audio and video.

SWITCHING EVENT ORDER

The following procedure describes the precise order of events each time a switch is made.

1) Wait for:
    a) Next sync signal (genlock operation / vertical interval switching only), or
    b) Timer time-out, whichever comes first.
2) If video included in switch group (video always included in switch group for Direct Mode):
    a) Update video array for particular in-to-out channel.
    b) Set video switch to array but don't update yet.
3) If sync included in switch group (sync always included in switch group for Direct Mode):
    a) Determine which input is currently connected to the output in question.
    b) Disconnect and update sync array (if sync channel is currently connected).
    c) Connect new sync channel and update sync array.
4) RGB delay - Variable delay time according to value set for RGB Delay.
5) If video included in switch group (video always included in switch group for Direct Mode):
    a) Update video switch.
6) Send projector codes:
    a) If output changed, send projector output code and wait for projector code delay.
    b) Send projector input code.
7) If audio included in switch group (audio is always included in switch group for Direct Mode):
    a) Determine which input is currently connected to the output in question.
    b) Disconnect and update audio array (if audio channel is currently connected).
    c) Update audio volume for particular in-to-out channel.
    d) Connect new audio channel and update audio array.

Genlock Operation / Vertical Interval Switching

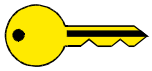
The **IN31608** can provide genlock operation / vertical interval switching when used with synchronous video sources. The unit has two BNC connectors on the rear panel to allow loop through of a house sync or black burst signal.* If this sync signal is active, the **IN31608** will delay the switch so that it begins with the leading edge of vertical sync. Genlock operation / vertical interval switching is *disabled* while in factory default mode, and may be *enabled* by pressing Output 4 during power up (see page 9). Alternatively, the [VIS0] and [VIS1] serial commands disable and enable the genlock operation / vertical interval switching, respectively. Refer to the Switching Event Order section above for the precise order of events each time a switch is made.
Note: When using the loop through feature, the unused BNC connector requires a 75 Ohm termination plug (IN9130**).*

RGB Delay

RGB Delay is a key feature of the **IN31608**. It provides an adjustable delay time between switching the sync and RGB boards. The delay time can be set from 0 to 6 seconds (in 500 millisecond intervals) by front panel power up settings or serial commands.

When RGB delay is engaged, the sync signals are connected first and the video and audio signals are blanked for the delay time to allow the display device to lock up to the new signal. After the delay time, the video and audio signals are connected. When set to the factory default of 0 seconds, video, sync, and audio switch at the same time. The RGB delay can be set via a Power On setting or via serial commands (see those sections for more detail).

KEY CONCEPT



RGB delay prevents the display device from showing re-sizing and other spurious on-screen effects that often occur while the display is adjusting to the new signal.

Audio

In Matrix Mode, the audio for the selected input is routed to the selected output. Note that the video, audio, and sync may be switched independently in Matrix Mode. In Direct Mode the audio of the selected input is sent to the selected output(s). The front panel volume control and the serial volume commands are mutually exclusively enabled. On power up, the front panel volume controls are enabled and the serial volume commands are disabled. The serial command [MDVOL0] enables the front panel volume controls and disables the serial volume commands. The serial command [MDVOL1] disables the front panel volume controls and enables the serial volume commands.

The **IN31608** has Volume Up and Down Buttons as well as a Mute Button. These buttons function as follows:

VOLUME UP / DOWN

The Volume Up Button increases the output volume and the Volume Down Button decreases it.

Matrix Mode - When the Volume Up / Down Button is depressed the volume of the currently selected output volume is incremented / decremented. If the button is held for one second, a fast increment / decrement mode is entered and the Output Button's LED flashes until the maximum / minimum output volume is reached.

Direct Mode - The volume control for Direct Mode works similarly to the volume control for Matrix Mode except that the output volume is controlled simultaneously for all outputs.

The output volume information is retained in non-volatile memory and can only be modified by the procedure described below or the serial volume commands [VOL…]. In Matrix Mode, output volume information is retained separately in non-volatile memory for all 16 channels. In Direct Mode, a global output volume control is retained in non-volatile memory that controls all outputs.

MUTE

The Mute Button disengages the audio signal. When the audio is muted (no audio) the mute LED turns on. The audio will remain muted until it is reactivated by pressing the button again. In the Matrix Mode, the audio of the currently selected output is muted. In the Direct Mode, all outputs are muted simultaneously. Muting does not affect the previously selected input or output volumes. The mute information is retained in non-volatile memory and can only be modified by the procedure described above or the serial command [MUTE…]. In Matrix Mode, mute information is retained separately for all 16 channels. In Direct Mode, a global mute controls all outputs.

VOLUME UP / DOWN AND MUTE FOR [SW] COMMAND

An alternative way of adjusting the volume and mute settings (associated with the [SW] command) with a serial command (such as [LVOL…]) is to make the adjustments as described above, then press the SAVE key followed by the BLANK key. The current volume and mute settings will override the settings previously stored and will be used with subsequent [SW] commands.

INPUT VOLUME

If the Mute Button is depressed simultaneously with the Volume Up / Down Button, the input volume for the currently selected input is affected instead of the output volume. In this case the Input Button's LED flashes until the maximum / minimum input volume is reached. By adjusting input levels, the levels of all the various input sources can be equalized. This is important so the volume level does not increase / decrease dramatically when switching between inputs. The input volume information is retained in non-volatile memory and can only be modified by the procedure described on the previous page.

The actual volume adjustment is calculated by adding the input volume setting and output volume setting together, and truncating the total at a maximum setting of 255. The total volume is mapped to a linear scale from -96.0 dB to +31.5 dB in increments of 0.5 dB. A total volume of 0 corresponds to -96.0 dB and a total volume of 255 corresponds to +31.5 dB. The default input value is mid scale (128) to allow for maximum input volume adjustment in both directions. The default output value for both left and right channels is 52, so that the default sum of input and output volumes for both left and right channels is -3 dB.

UNBALANCED AUDIO SETTINGS

INPUT AUDIO LEVEL STIMULUS = -10 dBm INPUT AUDIO LEVEL SET AT 128 DECIBALS			
OUTPUT LEVEL VALUE YYY	**GAIN (dBm)**	**OUTPUT LEVEL VALUE YYY**	**GAIN (dBm)**
120	18.0	55	-14.5
115	15.5	50	-17.0
110	13.0	45	-19.5
105	10.5	40	-22.0
100	8.0	35	-24.0
95	5.5	30	-27.0
90	3.0	25	-29.5
85	0.5	20	-32.5
84	0.0	15	-34.5
80	-2.0	10	-37.0
75	-4.5	5	-9.5
70	-7.0	0	-42.0
65	-9.5		
60	-12.0		

INPUT AUDIO LEVEL STIMULUS = 8.5 dBm			
84	18.4		

INPUT AUDIO LEVEL STIMULUS = 0.0 dBm			
84	9.94		

Note: Input and Output audio levels are summed internally to give the total audio level

BALANCED AUDIO SETTINGS

INPUT AUDIO LEVEL STIMULUS = -10 dBm INPUT AUDIO LEVEL SET AT 128 DECIMAL			
OUTPUT LEVEL VALUE YYY	**GAIN (dBm)**	**OUTPUT LEVEL VALUE YYY**	**GAIN (dBm)**
117	17.6	52	-14.9
112	15.1	47	-17.3
102	10.1	42	-19.9
97	7.64	37	-22.35
100	5.13	32	-24.0
92	5.5	30	-27.9
87	2.65	27	-29.5
85	0.5	20	-27.4
82	0.0	22	-32.4
77	-2.4	17	-34.9
72	-4.9	12	-37.4
67	-7.4	7	-39.8
62	-9.9	2	-42.9
57	-12.4	0	

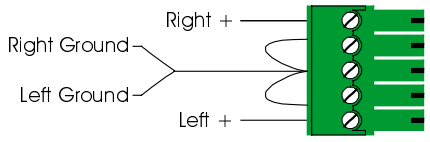
INPUT AUDIO LEVEL STIMULUS = 8.5 dBm			
82	18.6		

INPUT AUDIO LEVEL STIMULUS = 0.0 dBm			
99	18.6		
82	10.15		

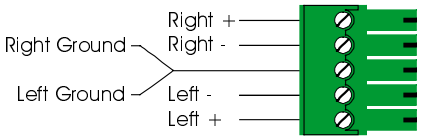
Note: Input and Output audio levels are summed internally to give the total audio level

AUDIO INPUT / OUTPUT CONNECTIONS

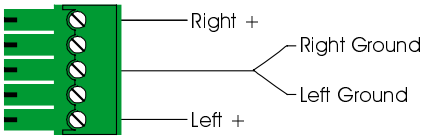
For Unbalanced Stereo Audio Input



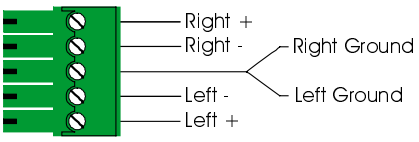
For Balanced Stereo Audio Input



For Unbalanced Stereo Audio Output



For Balanced Stereo Audio Output



Direct Mode Setup (Front Panel)

In the Direct Mode, inputs are assigned to a designated output and automatically routed to the output(s) when selected. This section describes the procedure to assign inputs to outputs via the front panel.

1. Enter the Direct Mode Setup with the appropriate power on setting (see Power On Settings section on page 8 for more details.) Once in the Direct Mode Setup, all output LEDs and the direct LED will flash. To exit the setup with no changes, press the Save Button.

2. Press the Output Button of the output you would like to assign inputs to. The selected output LED will turn on while the other 7 output LEDs and the direct LED will continue to flash. The input LED(s) currently associated with the selected output LED will turn on.

3. Press the Input Button(s) of the input(s) you would like to assign to that output. The input LED(s) will turn on. To disengage a selected input simply press that Input Button again.

4. Repeat steps 2 and 3 for all outputs.

5. Press the Save Button to save your changes and exit the Direct Mode Setup.

The Direct Mode Setup information is retained in non-volatile memory and can only be modified by the procedure described above or the serial [IO…] command.

Saving and Recalling Setup Memories for the Matrix Mode

The **IN31608** can store and recall up to 16 setup memories. A memory stores input to output connection information for video, audio, and sync, as well as output volume level and mute status. When recalled, all switch connections are executed and the volume and mute information is applied to all outputs.

Saving a Setup Memory - To save a memory configuration, make the desired input to output connections and then press the Save Button. The save LED will start to flash. Press the Input Button number corresponding to the memory you would like to save. For example, press the Input 3 Button to save to memory number 3. The save LED will turn off.

Recalling a Setup Memory - To recall a memory configuration, push the Recall Button. The recall LED will start to flash. Press the Input Button number corresponding to the memory you would like to recall. The recall LED will turn off.

Some global parameters are stored automatically and aren't affected by the currently selected Setup Memory. These parameters include:

Matrix / Direct Mode
Serial control port baud rate
Command codes
Projector port baud rate, data bits, parity, mode (RS-232, RS-485)
Projector port content
RGB delay
Code delay
Input audio levels

Power On Settings

The **IN31608** utilizes Power On settings to access certain parameters of the unit. To access a Power On adjustment, you must depress a specific button while turning the unit's power switch to ON. If power is already on, the user can hold down the indicated button and switch the power off and then back on.

IN31608 POWER ON OPTIONS

F1	Factory Default Setting
BLANK	Blank Factory Default Setting
MUTE	Toggle Front Panel Enable
MODE	Front Panel Test Mode
SAVE	Toggle Mode (Matrix / Direct)
OUT1	Direct Mode Setup
OUT2	Load Projector Code Memories with Test Strings
OUT3	Clears the Projector Port Memories
OUT4	Enable Genlock operation / vertical interval switching
INPUT1	Set RGB Delay to 0.0 seconds
INPUT2	Set RGB Delay to 0.5 seconds
INPUT3	Set RGB Delay to 1.0 seconds
INPUT4	Set RGB Delay to 1.5 seconds
INPUT5	Set RGB Delay to 2.0 seconds
INPUT6	Set RGB Delay to 2.5 seconds
INPUT7	Set RGB Delay to 3.0 seconds
INPUT8	Set RGB Delay to 3.5 seconds
INPUT9	Set RGB Delay to 4.0 seconds
INPUT10	Set RGB Delay to 4.5 seconds
INPUT11	Set RGB Delay to 5.0 seconds
INPUT12	Set RGB Delay to 5.5 seconds
INPUT13	Set RGB Delay to 6.0 seconds

RESET TO FACTORY DEFAULT (F1), (BLANK)

To reset the unit to the factory default setting, hold down the **F1** or **BLANK** button while turning on the unit. The factory default settings are as follows:

Parameter	Default State
Front Panel Operation	Enabled
RGB Delay	0.0 secs.
Audio Levels	Normalized to Default, -3 dB. Input = 128, Output = 52
Serial Control Port	9600 baud, 8 data, no parity
Command Code:	[ ]
Projector Control Port	RS-232, 9600 baud, 8 data, no parity
Group 1	All Boards
Group 2	No Boards
Group 3	No Boards
Code Delay	0 msecs.
Vertical Interval Switching / Genlock Operation	Disabled

FRONT PANEL TEST MODE (MODE)

Hold down the Switching Mode Button while turning on the unit. The Front Panel Test Mode continually polls the front panel switches. When a button closure is detected, the associated LED is turned on. If the button remains closed the LED begins to flash. The Volume Down Button controls all output LEDs simultaneously. The Switching Mode Button controls the five associated LEDs in sequence. To exit the Front Panel Test Mode turn the power off and then back on.

MATRIX / DIRECT MODE SELECTION (SAVE)

To toggle between the Matrix Mode and the Direct Mode, hold down the Save Button while turning on the unit. When you enter the Direct Mode, the unit will automatically enter the Direct Mode Setup. The direct LED and all output LEDs flash to indicate Direct Mode Setup.

DIRECT MODE SETUP (OUTPUT 1)

While in the Direct Mode, you can enter the Direct Mode Setup by holding down the Output 1 Button while turning on the unit. The direct LED and all output LEDs flash to indicate Direct Mode Setup.

PROJECTOR MEMORY TEST MODE (OUTPUT 2)

Holding down the Output 2 Button while turning on the unit is a quick, convenient way of loading the projector memories with descriptive text (for test) without using the Serial Mode to load the memories one by one. **Note that if the unit has already been loaded with a customized code for the projector memories, this code will be overwritten.**

CLEAR PROJECTOR MEMORIES (OUTPUT 3)

Hold down the Output 3 Button while turning on the unit. This is a quick, convenient way of clearing the projector memories.

GENLOCK OPERATION / VERTICAL INTERVAL SWITCHING (OUTPUT 4)

Hold down the Output 4 Button while turning on the unit. This enables genlock operation / vertical interval switching on subsequent power ups until either factory default or the serial command [VIS0] disables it.

RGB DELAY (INPUT)

Hold down the appropriate button while turning on the unit (see table below):

DELAY TIME (SECONDS)	BUTTON
0.0	INPUT 1
0.5	INPUT 2
1.0	INPUT 3
1.5	INPUT 4
2.0	INPUT 5
2.5	INPUT 6
3.0	INPUT 7
3.5	INPUT 8
4.0	INPUT 9
4.5	INPUT 10
5.0	INPUT 11
5.5	INPUT 12
6.0	INPUT 13

Projector Control Port

The projector control port can be used to control a piece of equipment via RS-232, RS-422 or RS-485. The communication parameters of the port are set via the serial [PCPPxx] commands. The projector codes are stored in non-volatile memory. This feature is enabled / disabled by the [PCP…] command. When the **IN31608** performs certain actions, a code is transmitted through the projector control port. Codes are sent as follows:

Input and Output Codes - Each input and output can store an ASCII or hex code that may be transmitted when a switch is made.

1) If a switch is made where the output changes, the associated output code is sent. Then a delay defined by the [PCPD…] command is implemented.
2) Regardless of changes in output, the associated input code is then sent.

Function Buttons - Function Buttons F1, F2, F3 and F4 each hold two codes. One code is sent when the button is activated (the LED turns on) and the other is sent when it is deactivated.

Recall Codes - When a memory is recalled, a code is sent. Codes can be stored for memories 1 through 16.

For test purposes it is possible to send the projector control codes through the serial control port as well as the projector control port by first issuing the serial command [PCP2].

Serial Control Port

PROTOCOL

The **IN31608** baud rate may be selected from 1200 to 19,200 baud with the serial [ACI] command.

9600 baud (default)
No Parity
8 data bits
1 stop bit

These settings are stored in non-volatile memory.

STRUCTURE

All commands sent to the unit must contain a leading character (identified by the command code), followed by the actual command and an ending character (also identified by the command code). Each command must be completely executed by the **IN31608** before it will accept a new command. The **IN31608** provides a response to all commands received. If the **IN31608** executes the command, the response is sent after the command execution. When a command is executed, the unit provides the response [OK] to indicate that the command was received and executed. *Do not send a new command until the [OK] is received, otherwise there may be a conflict*. The responses have the same beginning and ending characters as the commands that elicited the responses. Some examples of responses are:

RESPONSE	**INDICATION**
[OK]	Command received and executed
[INVALID COMMAND]	Command as received does not exist
[INVALID PARAMETER]	Parameter is out of range
[INVALID MODE]	Command does not apply to current **IN31608** mode
[GROUP CONFLICT]	[CNF] command groups must be mutually exclusive

Some commands, such as the various [STAT] commands, have specific responses (see the Serial Control Command Description section on the next page).

KEY CONCEPT

*A successful response from the **IN31608** is issued after execution of the command Except for the ACI and CMDCD commands. The response to the ACI command is sent at the existing baud rate, and then the baud rate is changed. The response to the CMDCD command is sent with the existing command code and then the command code is changed.*

COMMAND CODE DEFINITIONS

The **IN31608** can recognize one of four sets of leading and ending characters, also called the command codes. These are: [ ] { } ( ) < >. The factory default for the command code is [ ]. The command code can be changed via the serial [CMDCD] commands. The command codes are stored in non-volatile memory.

A complete command string consists of:

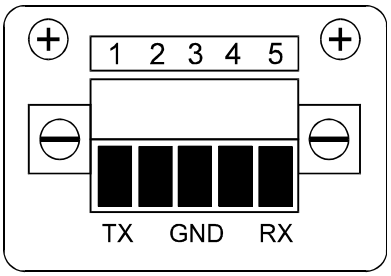
[	The leading character
CALL02	The actual command
]	The ending character

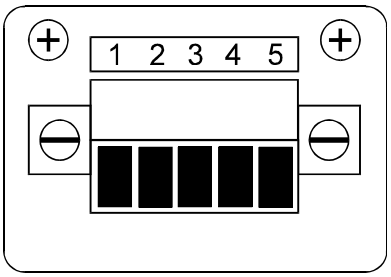
Some sample command codes follow:

[CALL01]	Recall setup memory 1
[RGB3.0]	Set RGB Delay to 3 seconds

SERIAL PORT PIN DEFINITIONS

The **IN31608** utilizes a 5-pin captive screw terminal block. The outside connector, the RS-232 Input Port, controls the **IN31608**. The inside connector (the Projector Control Port) communicates with an external device. The pin configurations are as follows:





RS-232 Serial Control Port

Pin #	Signal
1	Transmit
3	Ground
5	Receive

RS-232/422/485 Projector Control Port

RS-232/422		RS-485	
Pin #	Signal	Pin #	Signal
1	Transmit +	1	Transmit +
3	Ground	2	Transmit -
5	Receive +	3	Ground
		4	Receive -
		5	Receive +

Serial Control Command Description

(Leading and ending command codes not shown for clarity)

COMMAND	DESCRIPTION	RESPONSE
ACI3	Set to 1200 baud rate	[OK]
ACI4	Set to 2400 baud rate	[OK]
ACI5	Set to 4800 baud rate	[OK]

COMMAND	DESCRIPTION	RESPONSE
ACI6	Set to 9600 baud rate, *default setting*	[OK]
ACI7	Set to 19200 baud rate	[OK]
CALL*xx* *(Matrix Mode)*	Recall configuration from SETUP*xx* *xx*: 2 byte ASCII code, 01 <= *xx* <= 16. ***Example:*** [CALL16] Recall configuration previously saved to Memory 16. ***Note: See [SAVExx]***	[OK]
CMDCD0	Set the command code to [ ], *default setting*	[OK]
CMDCD1	Set the command code to { }	[OK]
CMDCD2	Set the command code to ( )	[OK]
CMDCD3	Set the command code to < >	[OK]
CNF*xxyyzz* *(Matrix Mode)*	Configure the board groups for individual control over the RGB, Sync and Audio boards (RS-232 control only) *xx*: Represents boards in Group 1 *yy*: Represents boards in Group 2 *zz*: Represents boards in Group 3 where *xx*, *yy*, and *zz* are as follows: 01 Video boards only 08 Sync boards only 20 Audio boards only 09 Video and Sync boards 21 Video and Audio boards 28 Sync and Audio boards 29 All boards (Video, Sync and Audio boards) 00 No Boards No boards ***Note:*** Boards can only be configured to one group. ***Example 1:*** [CNF 09 20 00] *(spaces added for clarity)* Assign Video and Sync boards to Group 1 and the Audio boards to Group 2. ***Example 2:*** [CNF 29 00 00] *(spaces added for clarity)* Assign all boards to Group 1. ***Note: Use with [L] command.***	[OK]
FP	Toggle between front panel enable and disable	[OK]
FP0	Disable the front panel operation	[OK]
FP1	Enable the front panel operation, *default setting*	[OK]
IN*ii* *(Direct Mode)*	For the Direct Mode select input *ii*, 00 <= *ii* <= 16 *ii*: Input #, a 2 byte ASCII code. If *ii* = 00, no input is selected, resulting in a blank output.	[OK]
INFO	Get firmware version	[Version 2.3 10/21/99]
IO*o*$i_1 i_2 i_3 \ldots i_{16}$ *(Direct Mode)*	For the Direct Mode, assign inputs to output *o* 1 <= *o* <= 8 , i_n = O or C *o*: Output # to assign inputs to i_n: 'O' for open or 'C' for closed ***Example 1:*** [IO1CCCCOOOOOOOOOOO] Assign Inputs 1, 2, 3 and 4 to Output 1. ***Example 2:*** [IO8OCOCOCOCOCOCOCOC] Assign even Inputs to Output 8.	[OK]

COMMAND	DESCRIPTION	RESPONSE
Lg$i_1i_2i_3\ldots i_8$ *(Matrix Mode)*	Load a new path for Group *g*. The switch is not executed until the [SW] command is sent. *g*: Group #, a 1 byte ASCII code, 1 <= g <= 3. i_n: 2 byte ASCII code representing the Input # to be connected to output o_n. ***Example:*** [L 1 04 05 00 03 00 00 00 00] *(spaces added for clarity)* Load a new path for Group #1 as follows: Output 1 to Input 04, Output 2 to Input 05, Output 3 disconnect, Output 4 to Input 03, Outputs 5-8 disconnected. Mute associated with [SW] command	[OK]
LMUTEabcdefgh	a = 0 => disable mute for channel 1, a = 1 => enable mute for channel 1, b = 0 => disable mute for channel 2, b = 1 => enable mute for channel 2… h = 0 => disable mute for channel 8, h = 1 => enable mute for channel 8. ***Example:*** [LMUTE01010101] Mutes even outputs for subsequent [SW] commands.	[OK]
LVOLaaa…hhh	Set volume output for both channels associated with [SW] command: 0 =< aaa =< 255 ***Example:*** [LVOL 101 102 103 104 105 106 107 108] *(spaces added for clarity)* Sets output 1 to volume 101, output 2 to volume 102…output 8 to volume 108 for subsequent [SW] commands.	[OK]
LVOLLaaa…hhh	Set volume for left channel associated with [SW] command: 0 =< aaa =< 255. ***Example:*** [LVOLL 001 002 003 004 005 006 007 008] *(spaces added for clarity)* Sets left output 1 to volume 1, left output 2 to volume 2…left output 8 to volume 8 for subsequent [SW] commands. Doesn't modify right output volume.	[OK]
LVOLRaaa…hhh	Set volume for right channel associated with [SW] command: 0 =< aaa =< 255 ***Example:*** [LVOLR 011 022 033 044 055 066 077 088] *(spaces added for clarity)* Sets right output 1 to volume 11, right output 2 to volume 22…right output 8 to volume 88 for subsequent [SW] commands. Doesn't modify left output volume.	[OK]
MDVOL0	Front panel volume adjustment is enabled and serial volume control adjustment is disabled (factory default).	[OK]
MDVOL1	Front panel volume adjustment is disabled and serial volume control adjustment is enabled.	[OK]
MODE0	Select Matrix mode	[OK]
MODE1	Select Direct mode	[OK]
MUTE*o*0 *(unmute)*	Enable Audio for output *o* (volume on). In Direct Mode the [MUTE*o*0] command controls all outputs simultaneously regardless of the '*o*' channel selection, 1 <= *o* <= 8. ***Example:*** [MUTE20] In Direct Mode mute all outputs. In Matrix Mode mute output 2 only.	[OK]
MUTE*o*1 *(mute)*	Disable Audio for output *o* (volume off). In Direct Mode the [MUTE*o*1] command controls all outputs simultaneously regardless of the '*o*' channel selection, 1 <= *o* <= 8. ***Example:*** [MUTE21] In Direct Mode unmute all outputs. In Matrix Mode unmute output 2 only.	[OK]

COMMAND	DESCRIPTION			RESPONSE
PCC*xx*	Send out the stored code in Projector Control Code block *xx* ***Example 1:*** [PCC40] For either Direct Mode or Matrix Mode send out the code associated with Projector Input 1. ***Example 2:*** [PCC60] For Matrix Mode send out the code associated with Recall Memory 1. (Invalid for Direct Mode)			[OK]
	xx	**DIRECT MODE**	**MATRIX MODE**	
	40	Projector Input 1 Code	Projector Input 1 Code	
	41	Projector Output 1 Code	Projector Output 1 Code	
	42	Projector Input 2 Code	Projector Input 2 Code	
	43	Projector Output 2 Code	Projector Output 2 Code	
	44	Projector Input 3 Code	Projector Input 3 Code	
	45	Projector Output 3 Code	Projector Output 3 Code	
	46	Projector Input 4 Code	Projector Input 4 Code	
	47	Projector Output 4 Code	Projector Output 4 Code	
	48	Projector Input 5 Code	Projector Input 5 Code	
	49	Projector Output 5 Code	Projector Output 5 Code	
	4A	Projector Input 6 Code	Projector Input 6 Code	
	4B	Projector Output 6 Code	Projector Output 6 Code	
	4C	Projector Input 7 Code	Projector Input 7 Code	
	4D	Projector Output 7 Code	Projector Output 7 Code	
	4E	Projector Input 8 Code	Projector Input 8 Code	
	4F	Projector Output 8 Code	Projector Output 8 Code	
	50	Projector Input 9 Code	Projector Input 9 Code	
	51	Projector Input 10 Code	Projector Input 10 Code	
	52	Projector Input 11 Code	Projector Input 11 Code	
	53	Projector Input 12 Code	Projector Input 12 Code	
	54	Projector Input 13 Code	Projector Input 13 Code	
	55	Projector Input 14 Code	Projector Input 14 Code	
	56	Projector Input 15 Code	Projector Input 15 Code	
	57	Projector Input 16 Code	Projector Input 16 Code	
	58	F1 Key On Code	F1 Key On Code	
	59	F1 Key Off Code	F1 Key Off Code	
	5A	F2 Key On Code	F2 Key On Code	
	5B	F2 Key Off Code	F2 Key Off Code	
	5C	F3 Key On Code	F3 Key On Code	
	5D	F3 Key Off Code	F3 Key Off Code	
	5E	F4 Key On Code	F4 Key On Code	
	5F	F4 Key Off Code	F4 Key Off Code	
	60	Not used	Recall Memory 1 Code	
	61	Not used	Recall Memory 2 Code	
	62	Not used	Recall Memory 3 Code	
	63	Not used	Recall Memory 4 Code	
	64	Not used	Recall Memory 5 Code	
	65	Not used	Recall Memory 6 Code	
	66	Not used	Recall Memory 7 Code	
	67	Not used	Recall Memory 8 Code	
	68	Not used	Recall Memory 9 Code	
	69	Not used	Recall Memory 10 Code	
	6A	Not used	Recall Memory 11 Code	
	6B	Not used	Recall Memory 12 Code	
	6C	Not used	Recall Memory 13 Code	
	6D	Not used	Recall Memory 14 Code	
	6E	Not used	Recall Memory 15 Code	
	6F	Not used	Recall Memory 16 Code	

<table>
<tr><th>COMMAND</th><th>DESCRIPTION</th><th>RESPONSE</th></tr>
<tr><td>PCHxx
‘hex code’</td><td>Load ‘hex code’ in Projector Control Code block xx. 60 characters maximum
Example 1: [PCH400102030405] loads buffer 40 with the five characters: HEX: 01, 02, 03, 04, 05 or Binary: 0000 0001, 0000 0010, 0000 0011, 0000 0100, 0000 0101
Example 2: [PCH6F414243] loads buffer 6F with the 3 characters: HEX: 41, 42, 43 or Binary: 0100 0001, 00100 0010, 0100 0011. Note that [PCL50ABC] achieves the same results as Example 2.</td><td>[OK]</td></tr>
<tr><td>PCLxx
‘ascii code’</td><td>Loads ‘ascii code’ code in Projector Control Code block xx. 60 characters maximum.
Example 1: [PCL6FaAbBcC] This is the code for recall memory 16 in Matrix Mode. It loads the ASCII sequence “aAbBcC.”
Example 2: [PCL58aAbBcC] This is the code for Function 1 On in both Matrix and Direct Modes. It loads the ASCII sequence “aAbBcC.”</td><td>[OK]</td></tr>
<tr><td>PCP0</td><td>Disable projector control port</td><td>[OK]</td></tr>
<tr><td>PCP1</td><td>Enable projector control port</td><td>[OK]</td></tr>
<tr><td>PCP2</td><td>Transmit projector control code through serial and projector ports (for test). Once enabled this feature is disabled by cycling power.</td><td>[OK]</td></tr>
<tr><td>PCPDx</td><td>Set code delay where x is as follows:
x = 0 0 msecs
x = 1 1 msecs
x = 2 5 msecs
x = 3 10 msecs
x = 4 20 msecs
x = 5 50 msecs
x = 6 100 msecs
Example: [PCPD5]
Set projector code delay to 50 msec.</td><td>[OK]</td></tr>
<tr><td>PCPPxx</td><td>Set projector port per the following table.
Example: [PCPPA3]
Set the projector port for 9600 baud, even parity, and RS-485.
<table>
<tr><th>BAUD</th><th>PARITY</th><th>RS-232</th><th>RS-485</th></tr>
<tr><td>1200</td><td>None</td><td>00</td><td>80</td></tr>
<tr><td>1200</td><td>Odd</td><td>10</td><td>90</td></tr>
<tr><td>1200</td><td>Even</td><td>20</td><td>A0</td></tr>
<tr><td>2400</td><td>None</td><td>01</td><td>81</td></tr>
<tr><td>2400</td><td>Odd</td><td>11</td><td>91</td></tr>
<tr><td>2400</td><td>Even</td><td>21</td><td>A1</td></tr>
<tr><td>4800</td><td>None</td><td>02</td><td>82</td></tr>
<tr><td>4800</td><td>Odd</td><td>12</td><td>92</td></tr>
<tr><td>4800</td><td>Even</td><td>22</td><td>A2</td></tr>
<tr><td>9600</td><td>None</td><td>03</td><td>83</td></tr>
<tr><td>9600</td><td>Odd</td><td>13</td><td>93</td></tr>
<tr><td>9600</td><td>Even</td><td>23</td><td>A3</td></tr>
<tr><td>19200</td><td>None</td><td>04</td><td>84</td></tr>
<tr><td>19200</td><td>Odd</td><td>14</td><td>94</td></tr>
<tr><td>19200</td><td>Even</td><td>24</td><td>A4</td></tr>
<tr><td>38400</td><td>None</td><td>05</td><td>85</td></tr>
<tr><td>38400</td><td>Odd</td><td>15</td><td>95</td></tr>
<tr><td>38400</td><td>Even</td><td>25</td><td>A5</td></tr>
<tr><td>57600</td><td>None</td><td>06</td><td>86</td></tr>
<tr><td>57600</td><td>Odd</td><td>16</td><td>96</td></tr>
<tr><td>57600</td><td>Even</td><td>26</td><td>A6</td></tr>
</table></td><td>[OK]</td></tr>
</table>

COMMAND	DESCRIPTION	RESPONSE
PTg*Ooo*I*ii* *(Matrix Mode)*	Execute a switch in Matrix Mode. Connect Output *mm* to Input *nn* for Group *g*. See CNF Command for reference. *g*: Group #, a 1 byte ASCII code, 1 <= g <= 3. *ii*: Input #, a 2 byte ASCII code, 00 <= *ii* <= 16. If *nn* = 00, no input is selected, resulting in a blank output. *oo*: Output #, a 2 byte ASCII code, 00 <= *oo* <= 8. ***Example:*** [PT 1 O 04 I 02] *(spaces added for clarity)* Connect Output #4 to Input #2 for the boards in Group 1.	[OK]
RGB*x.x*	Set RGB delay to *x.x* seconds. *x.x*: ranges from 0.0 to 6.0 in 0.1 second intervals. ***Example:*** [RGB3.7] Set RGB delay to 3.7 seconds.	[OK]
SAVE*xx* *(Matrix Mode)*	Save current configuration to SETUP*xx* *xx*: 2 byte ASCII code, 01 <= *xx* <= 16. ***Example:*** [SAVE16] Set current configuration to Setup Memory 16. ***Note: See [CALLxx]***	[OK]
STAT0	General status request	See examples on pages 15 & 16
STAT1	Video array status request	See examples on pages 15 & 16
STAT2	Sync array status request	See examples on pages 15 & 16
STAT3	Audio array status request	See examples on pages 15 & 16
STAT4	Audio input volume array status request	See examples on pages 15 & 16
STAT5	Audio output volume array status request	See examples on pages 15 & 16
STAT6	Audio mute array status request	See examples on pages 15 & 16
STAT7 *(Direct Mode)*	Direct Mode switch matrix request	See examples on pages 15 & 16
STAT8	Projector Port status request	See examples on pages 15 & 16
STAT9	Serial Command Port status request	See examples on pages 15 & 16
SW *(Matrix Mode)*	Execute all switch connections as defined by the L command.	[OK]
VIS0	Disable genlock operation / vertical interval switching	[OK]
VIS1	Enable genlock operation / vertical interval switching	[OK]
VOL*o*+	Increment volume for output *o*, 1 <= *o* <= 8. In Direct Mode the [VOL*o*+] command controls all outputs simultaneously regardless of the '*o*' channel selection. ***Example:*** [VOL3+] In Matrix Mode increment volume for output 3 by one to a maximum value of 255. In Direct Mode increment volume for all outputs by one to a maximum value of 255. ***Note: see [MDVOL0] & [MDVOL1]***	[OK]
VOL*o*-	Decrement volume for output *o*, 1 <= *o* <= 8. In Direct Mode the [VOL*o*-] command controls all outputs simultaneously regardless of the '*o*' channel selection. ***Example:*** [VOL6-] In Matrix Mode decrement volume for output 6 by one to a minimum value of 0. In Direct Mode decrement volume for all outputs by one to a minimum value of 0. ***Note: see [MDVOL0] & [MDVOL1]***	[OK]
VOL*oxxx*	Set the output volume for both left and right channels of output '*o*' to value '*xxx*'. 1 <= *o* <= 8; 000 <= *xxx* <= 255 decimal. In Direct Mode the [VOL*oxxx*] command controls all outputs simultaneously regardless of the '*o*' channel selection. ***Example:*** [VOL6255] In Matrix Mode set volume for output 6 to a value of 255. In Direct Mode set volume for all outputs to a value of 255. ***Note: see [MDVOL0] & [MDVOL1]***	[OK]

COMMAND	DESCRIPTION	RESPONSE
VOLL*oxxx*	Set the output volume for only left channel of output '*o*' to value '*xxx*'. 1 <= *o* <= 8; 000 <= *xxx* <= 255 decimal. In Direct Mode the [VOLL*oxxx*] command controls all left outputs simultaneously regardless of the '*o*' channel selection. ***Example:*** [VOLL1000] In Matrix Mode set left volume for output 1 to a value of 0. In Direct Mode set left volume for all outputs to a value of 0. ***Note: see [MDVOL0] & [MDVOL1]***	[OK]
VOLR*oxxx*	Set the output volume for only right channel of output '*o*' to value '*xxx*'. 1 <= *o* <= 8; 000 <= *xxx* <= 255 decimal. In Direct Mode the [VOLR*oxxx*] command controls all right outputs simultaneously regardless of the '*o*' channel selection. ***Example:*** [VOL8255] In Matrix Mode set right volume for output 8 to a value of 255. In Direct Mode set right volume for all outputs to a value of 255. ***Note: see [MDVOL0] & [MDVOL1]***	[OK]

[STAT] COMMAND EXAMPLES

DESIRED FUNCTION	COMMAND STRING	RESPONSE
Request current system status	[STAT0]	[mode = MATRIX front panel = ENABLED save memory = 17 group1 = 29 group2 = 00 group3 = 00 RGB delay = 0.0 sec proj. port = ENABLED proj. delay = 0 msecs VIS = ON]
Request video array status *(Currently selected video array is saved in memory 1)*	[STAT1]	[videoArray(1) IN01:OOOOOOOC * IN02:OOOOOOOO ** IN03:OOOOOOCO *** IN04:OOOOOOOO IN05:OOOOOOOO IN06:OOOOOOOO IN07:OOOOOCOO **** IN08:OOOOOOOO IN09:OOOOOOOO IN10:OOOOOOOO IN11:OOOOOOOO IN12:OOOOOOOO IN13:OOOOOOOO IN14:OOOOOOOO IN15:OOOOOOOO IN16:OOOOOOOO] * *indicates that output 1 is connected to input 1* ** *indicates that no outputs are connected to input 2* *** *indicates that output 2 is connected to input 3* **** *indicates that output 3 is connected to input 7*
Request sync array status	[STAT2]	[syncArray(1)… *(rest of response is similar to format for [STAT1] but reflects sync array data)*
Request audio array status	[STAT3]	[audioArray(1)… *(rest of response is similar to format for [STAT1] but reflects audio array data)*
Request audio input volume array status	[STAT4]	[audioInputVol IN01: 30 * IN02: 30 IN03: 30 IN04: 30

DESIRED FUNCTION	COMMAND STRING	RESPONSE
	[STAT4] (Cont.)	IN05: 30 IN06: 30 IN07: 30 IN08: 30 IN09: 30 IN10: 30 IN11: 30 IN12: 30 IN13: 30 IN14: 30 IN15: 30 IN16: 30] ** decimal value from 0 to 255, default = 30*
Request audio output volume array status	[STAT5]	[audioOutputVol(1) OUT01 LEFT: 30 Right 30 * OUT02 LEFT: 30 Right 30 OUT03 LEFT: 30 Right 30 OUT04 LEFT: 30 Right 30 OUT05 LEFT: 30 Right 30 OUT06 LEFT: 30 Right 30 OUT07 LEFT: 30 Right 30 OUT08 LEFT: 30 Right 30] ** decimal value from 0 to 255, default = 30*
Request mute array status *(In matrix mode)*	[STAT6]	[audioMute(1) OUT01: MUTE OUT02: UNMUTE OUT03: UNMUTE OUT04: UNMUTE OUT05: UNMUTE OUT06: UNMUTE OUT07: UNMUTE OUT08: UNMUTE]
Request mute array status *(In direct mode)*	[STAT6]	[directMute=UNMUTE]
Request direct mode switch matrix *(Currently selected video array is saved in memory 17)*	[STAT7]	[videoArray(17) IN07:OOOOOOCO] *indicates that only output 2 is connected to input 07 and that input 07 is the currently selected input*
Request projector port status	[STAT8]	[Projector Port Status RS-232 No Parity Baud Rate = 9600]
Request serial command port status	[STAT9]	[Serial Comm Port Status RS-232 No Parity Baud Rate = 19200]

Specifications

IN31608 Presentation Switcher	
RGBHV Input:	
Connectors	One set of (5) female BNC connectors per each of the 16 channels
Impedance	Video: 75 Ohms Sync: High Impedance
RGB Level	0.7 Vp-p Nominal
Sync Level	5 V Max.
Coupling	DC coupled. Any input signal DC offset should be limited to ±0.5 VDC to allow for an acceptable signal swing without distortion.
Audio Input	
Connectors	One 5-pin Phoenix brand captive screw terminal per each of the 16 channels
Impedance	High Impedance (10 KOhms)
Level	Line Level
RGBHV Output:	
Connectors	One set of (5) female BNC connectors per each of the 8 channels
Impedance	75 Ohms
RGB Bandwidth (-3dB)	350 MHz
RGB Gain	1.0 ± 5% 75 Ohm terminated (maximum output voltage is ±3 V unloaded, ±1.5 V 75 Ohm terminated)
Sync Output	1.0 ±5% with high impedance load. 0.5 ±5% 75 Ohm terminated (maximum output voltage is ±4 V)
Audio Output:	
Audio Connectors	One 5-pin Phoenix brand captive screw terminal per each of the 8 channels
Audio Impedance	600 Ohms
Gain	1.0 ± 5% with high impedance load, nominal. Programmable from -96.0 dB to +31.5 dB.
Frequency Response	DC to 80 KHz
Genlock In / Loop Out:	
Genlock Connectors	One set of (2) female BNC connectors
Impedance	75 Ohms
General:	
RS-232 Input Port	RS-232 at 1200, 2400, 4800, 9600 or 19200 baud, no parity, 8 bit, 1 stop bit
Projector Control Port	RS-232 or RS-485 at 1200, 2400, 4800, 9600, 19200, 38400 baud no parity, odd parity or even parity, 8 bit, 1 stop bit
Power	96 - 260 VAC, 40 to 60 Hz
Size	17"W x 12.2"D x 7"H (excluding mounting flanges)
Weight	20 lbs.
Regulatory Compliance	
Safety	UL 1950, 3rd Ed.; CE: EN60950-92; CAN/CSA-22.2 No. 950 3rd Ed.
EMI	FCC class A; CE: EN50081-1, EN55022, EN50082-1

Troubleshooting

Problem 1: The power switch is on but all of the front panel LEDs are dark.

Solution 1: Make sure that the AC cord is securely plugged into the unit and the AC source.
Solution 2: Make sure the AC source is live.
Solution 3: Check the **IN31608** fuse and replace if necessary.

Problem 2: A video glitch occurs during switching.

Solution 1: If vertical interval switching (VIS) / genlock operation is not required: 1) disable it with serial command [VIS0], or 2) disable it by pressing the POWER ON and OUT4 Buttons simultaneously.
Solution 2: If VIS is required, make sure that a valid GENLOCK INPUT SIGNAL is attached to the unit.
Solution 3: If projector codes are not required, disable them with serial command [PCP0].
Solution 4: If projector codes are required, use the highest baud rate [PCPP*xx*], the minimum projector code length [PCL*xx*] / [PCH*xx*], and the minimum delay possible [PCPD*x*].

Problem 3: There is no response from serial commands.

Solution 1: Make sure that the baud rates of the controller and the unit match ([ACI*x*] or 9600 factory default).
Solution 2: Make sure the controller is configured as eight data bits, one stop bit and no parity.
Solution 3: Make sure that the correct command codes are being used ([CMDCD*x*] or '[]' factory default).
Solution 4: Make sure that the connector cable is properly inserted into both / all units.
Solution 5: The controller must wait for a response to each command. Make sure that the command buffer is not overwritten.

Problem 4: Audio / video LEDs on the front panel are flashing, and front panel input and output commands are not responding.

Solution: See GROUP CONFIGURATION on page 2.

Problem 5: Front panel is locked up (no response).

Solution 1: If all LEDs are off, refer to problem 1.
Solution 2: If video and audio LEDs are flashing, see problem 4.
Solution 3: Cycle power while depressing Mute Button (toggle front panel enable), or send serial command [FP1] (front panel enable).
Solution 4: Cycle power while depressing the F1 Key (factory default). Unit should come up in matrix mode.

Problem 6: Front panel volume control does not respond.

Solution: Enable front panel volume control with serial command [MDVOL0] or cycle power while depressing the F1 Key (factory default).

Problem 7: Serial volume commands result in INVALID MODE responses.

Solution: Enable serial volume control with serial command [MDVOL1].

Warranty

- INLINE warrants the equipment it manufactures to be free from defects in materials and workmanship.
- If equipment fails because of such defects and INLINE is notified within two (2) years from the date of shipment, INLINE will, at its option, repair or replace the equipment at its plant, provided that the equipment has not been subjected to mechanical, electrical or other abuse or modifications.
- Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of re-shipment to the Buyer.
- **This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.**

The information in this preliminary manual has been carefully checked and is believed to be accurate. However, INLINE, Inc. assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will INLINE, Inc. be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the **IN31608** features and specifications is subject to change without notice.

INLINE, Inc. ♦ 22860 Savi Ranch Parkway ♦ Yorba Linda, CA 92887

(800) 882-7117 ♦ (714) 921-4100 ♦ Fax (714) 921-4160 ♦ www.inlineinc.com