ECI-60

Electronic Cinema Interface

INSTRUCTION MANUAL

USL, inc.

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One Year Limited Warranty

★ ★ ★ ★ ★

USL, Inc. warrants that each product manufactured by it will be free from defects in material and workmanship under normal usage for a period of one (1) year after its purchase new from an authorized dealer. Our obligation under this warranty is limited to repairing or replacing any product or component which we are satisfied does not conform with the foregoing warranty and which is returned to our factory, freight paid, or serviced by one of our authorized contractors. The forgoing warranty is exclusive and in lieu of all other warranties, whether expressed or implied. Such warranty shall not apply to any product or component (A) repaired or altered by anyone other than USL, Inc. or an authorized service contractor; (B) tampered with or altered in any way or subjected to misuse, negligence or accident or (C) which has been improperly connected installed or adjusted other than in accordance with USL, Inc.'s instruction.

Table of Contents

Please record the following information for your records:
Model: _____ Serial Number: _____
Date of Purchase: _____
Purchased from: _____

Important Safety Instructions:

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with a dry cloth.
7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade
or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the ap-paratus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart / apparatus combination to avoid injury from tip-over.
13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the
apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15) WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.
16) DO NOT EXPOSE TO DRIPPING OR SPLASHING. DO NOT PLACE OBJECTS FILLED WITH LIQUID, SUCH AS VASES,ON THIS APPARA-TUS.

WATCH FOR THESE SYMBOLS:

The lightning bolt triangle is used to alert the user to the risk of electric shock.

The exclamation point triangle is used to alert the user to Important operating or maintenance instructions.

FCC COMPLIANCE NOTICE

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that
to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Rack Mounting:

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."

ECI Background:

The Electronic Cinema Interface (ECI) is designed to select a single input from a variety of sources and then feed the selected source into a cinema processor. The ECI provides inputs from 6 Channel Analog, 2 Channel Analog, 8 Channel Digital, Toslink, and two SPDIF sources. The output is fed into the host cinema processor's External Analog Input (6 Channels). A balanced 2 channel analog output of AES channels 7 and 8 is provided.

Additionally, to synchronize the audio to the video source, each channel is capable of up to 300ms delay. Input Delays – Each stage channel L, C, R, SW) is capable of up to 200ms delay allowing for projector delay . Surround Delays - For the surround channels (LS, RS), an additional delay of up to 100ms may be added to the Input Delay. Delays can be configured for each type of input.

When a digital format is not selected an additional input allows a 6 channel analog signal to bypass the ECI and be fed directly into the cinema processor's External Analog Input.

Input trim gains of up to 18dB may be added to the 2 and 6 Channel Analog Inputs. There are no input trims on the digital inputs.

Output Trim attenuation of up to 20dB may be applied to each of the Digital Modes.

Environmental Conditions:

Operating: 0 decrees C to 40 degrees C (32F to 104F)
Storage: 0 degrees C to 85 degreesC (32F to 185F)
Humidity: 20% to 80% relative, noncondensing.

Power Requirements:

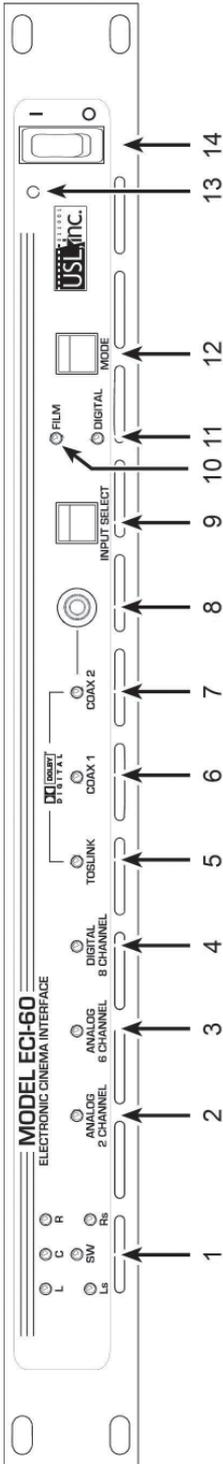100-240 VAC, 50-60 Hz, 300mA

Specifications:
One rack unit chassis.
Front Panel: 19 X 1.72 (431.8 X 43.688 mm)
Chassis: 17 X 1.67 X 7.5 (431.8 X 42.418 X 190.5 mm)
Weight: 6.35 lbs. (2.880 kg)
Shipping weight: 10 lbs. (4.536 kg)
Shipping Size: 24" x 17" x 6" (609.6 x 431.8 x 152.4 mm)

MODEL ECI-60
ELECTRONIC CINEMA INTERFACE

1. Signal presence indicators – Indicates when signals are greater than -30dB.
2. 2 Channel Analog Indicator – Balanced line input. The 2 inputs are fed to a Pro Logic II decoder which produces a 6 channel output.
3. 6 Channel Analog Indicator – Balanced line input. All channels (L, C, R, SW, Ls, Rs) are processed through the unit.
4. 8 Channel Digital Indicator – AES Balanced line input. The standard 6 channels are processed through the unit. Two spare channels have independent balanced line outputs for use as needed.
5. Toslink Indicator – An optical fiber connection for SPDIF (PCM) or AC3 signals. Two channel PCM is decoded by the Pro Logic II into 6 channels.
6. COAX 1 Indicator – Rear Panel RCA type connector for SPDIF (PCM) or AC3 signals. Two channel PCM is decoded by the Pro Logic II into 6 channels.
7. COAX 2 Indicator – Front Panel RCA type connector for SPDIF (PCM) or AC3 signals. Two channel PCM is decoded by the Pro Logic II into 6 channels.
8. COAX 2 Input – RCA type connector for SPDIF (PCM) or AC3 signals.
9. Input Select switch (Front Panel) – Steps through the Input choices.
10. Film Mode Indicator – Lights when the unit is in Film (Bypass) Mode. Signals from Analog Bypass Input pass directly through the unit.
11. Digital Mode Indicator – Lights when the unit is in the Digital Mode. Signals from the selected digital input (item #9) are processed through the unit.
12. Mode switch – Selects between Film or Digital Modes.
13. Power Indicator – Lights when unit is powered on.
14. Power Switch – Applies power to the unit.
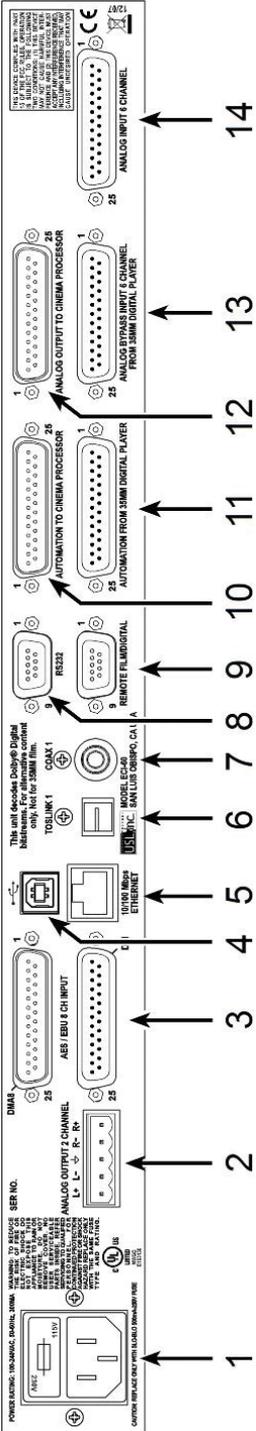
1. Power entry Module – Accepts IEC type of line cord from power 100-240VAC source. Also contains a 300mA Slo-Blo 5x20mm fuse.

2. Analog 2 Channel Output – Balanced analog output of AES Channels 7 and 8. Output level nominal 300mV, 600V

3. Digital Input – 8 channels of AES balanced line input. Channels 1-6 are routed through the unit to the Analog Output (item #11). Both DCI and DMA8 connector formats are supported. Channels 7 and 8 are routed to Analog 2 Channel Output (item #2).

4. USB Port – For communication with the user interface. *

5. Ethernet Port – For communication with the User Interface. *

6. Toslink Port – Optical Fiber input for SPDIF (PCM) or AC3 signals.

7. Coax 1 Port – RCA type Connector for SPDIF (PCM) or AC3 signals.

8. RS-232 Port – For communication with the User Interface.*

9. Remote Start/Stop – A manual control port for selecting Film or Digital Mode.

10. Cinema Processor Automation Port – A bi-directional port for receiving and sending automation pulses between the Cinema Processor and the ECI.

11. Digital Player Automation Port – A bi-directional port for receiving and sending automation pulses between the External Digital Player and the ECI.

12. Analog Output – Sends balanced line audio outputs to the Cinema Processor.

13. Analog Bypass Input – Receives balanced line inputs from the external Digital Player.

14. Analog Input 2 Channel - Receives balanced line signals for the 2 Channel Analog Inputs; Analog Input 6 Channel Receives balanced line signals for the 6 channel Analog Inputs.

*   Either connector may be used to connect. Only one can be active at a time.

Installation Procedure

Begin by placing the ECI-60 laptop interface software CD into your CD-ROM drive. The installation program should start automatically within a few seconds. If it does not, you will need to run "Setup.exe" from the root directory of your CD-ROM drive. Either double click the "Setup.exe" icon or click the Windows "Start" button and select "Run…". Now enter "X:\setup.exe" (where X: is your CD-ROM drive), then click the "OK" button. Follow the instructions in the installation software.

The software will place an icon on your desktop which you may use to access the setup software.

Double click the ECI-60 icon on your desktop and the opening screen appears.
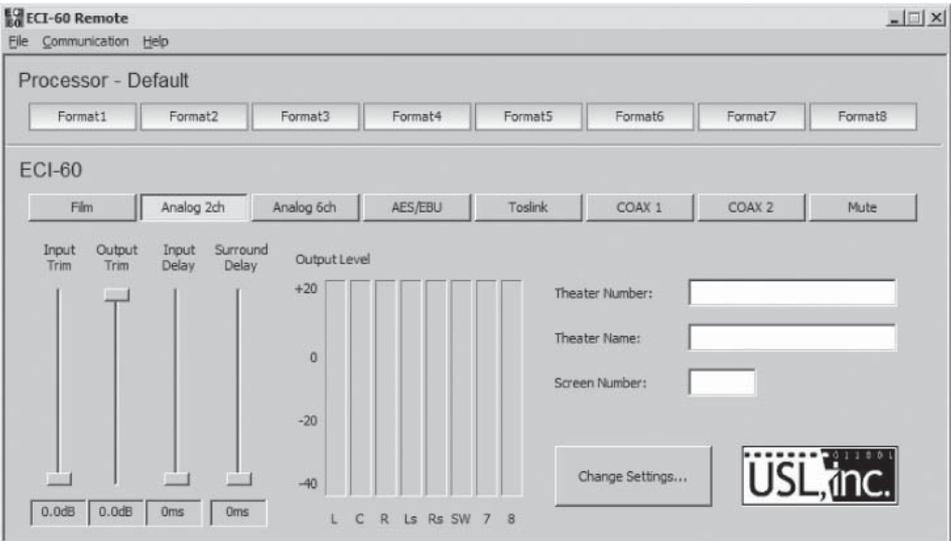
The opening screen is comprised of the menu bar, a section for selecting processors and controls for the functionality of the ECI-60 itself.
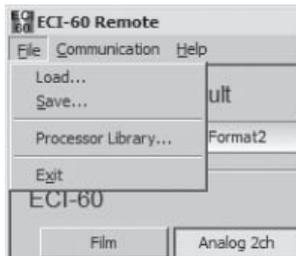
At the top of the screen is the Menu Bar. The menu bar gives access to various functions; Under "File" is not only the usual "Load" (to load a previously constructed setup) and "Save" (to save a setup you want to retain) and "Exit" (which really needs no explanation), but also the "Processor Library". The "Processor Library" will be explained later in this manual.

In the "Communications" tab you may choose to "Connect" to an ECI-60 or configure your "Communications Settings" When changing communications settings, the ECI-60 must not be connected to the setup software.
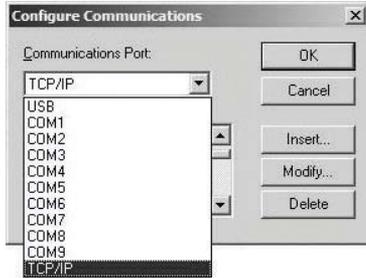

Selecting "Communications Settings" presents you with the above window in which you may configure your communications settings appropriately with "Com1" through "Com9" and TCP/IP if your access to the ECI-60 is through a network.

ECI-60 IP Retrieval.

The RS232 port can be used to retrieve the ECI-60 IP assignment and built in test status. When the unit is power on, the test results and settings are sent to the RS232 port. With a terminal application the data sent can be viewed. A common terminal application is Hyper Terminal that can be configured to receive data from a RS232 port. This port will require the following settings: 38400 bit per second, 8 bit data, 1 stop bit, no-parity, and handshake is none.
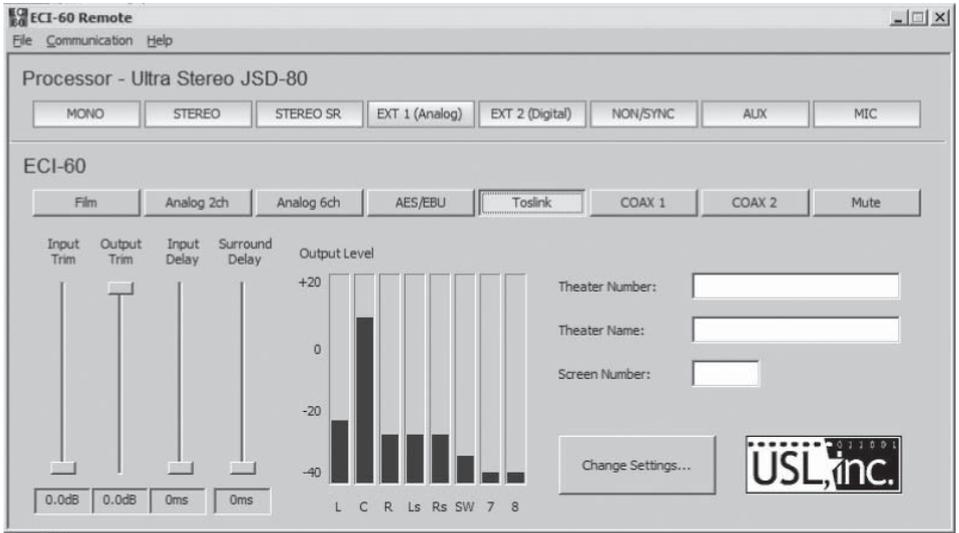
After you have achieved connection, the Format buttons will change color and, if you are connected to a piece of equipment, you may see movement in the "Output Level" window. At this point, you are operating with the "Default" processor so it is now time to select a processor. To do this, select the "Change Settings" button.
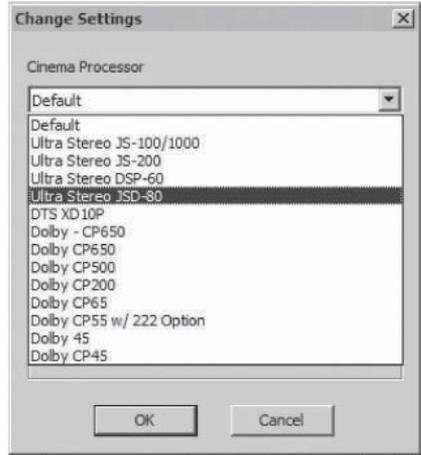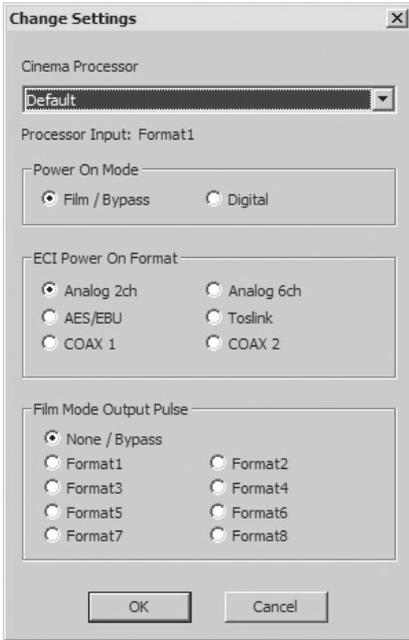
Selecting the "Change Settings" button will bring up the leftmost of the two dialogs. To select your processor for operation, you will need to access the drop down window as shown in the right graphic above. You may then choose a "power on" mode and "Power On Format". If Film/Bypass is selected, the ECI will not trigger the connected processor at unit power up.

An automation pulse can be sent during a Digital to Film mode transition. If None/Bypass is selected, no automation pulse will be generated when transitioning from Digital to Film mode.
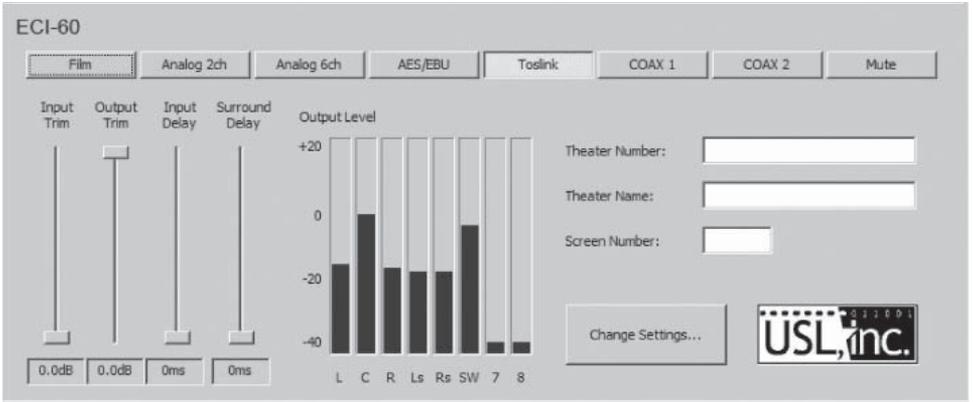
After you are connected, you may choose your input from any of the selectable buttons. The "Film" button acts like a bypass button and is one of two that are push on/push off. The other one is the "Mute" button.

The "Input Trim", "Output Trim", "Input Delay" and "Surround Delay" can be set for each format.

Note: We strongly suggest you create and save a "setup" which should contain the input and output levels for each mode plus all the time delay settings. This template can then be loaded thereby minimizing installation time.
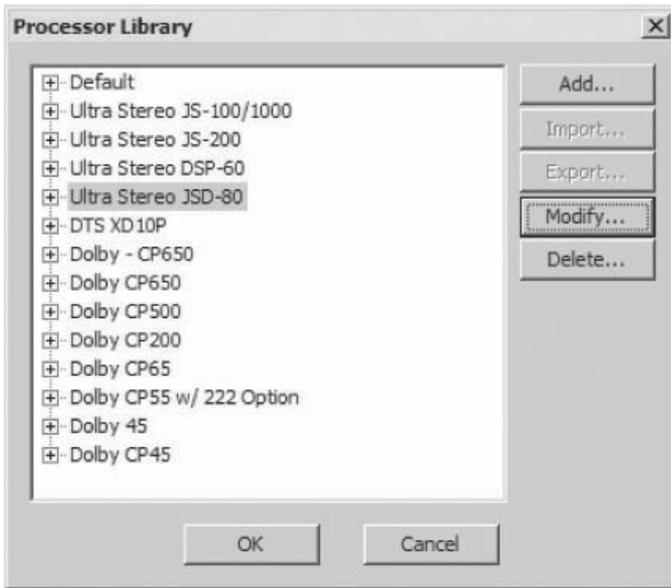
In the processor library function of the "File" menu on the main screen, you may select your processor. You may also "Add" to the list of processors or "Delete" a processor from the list.
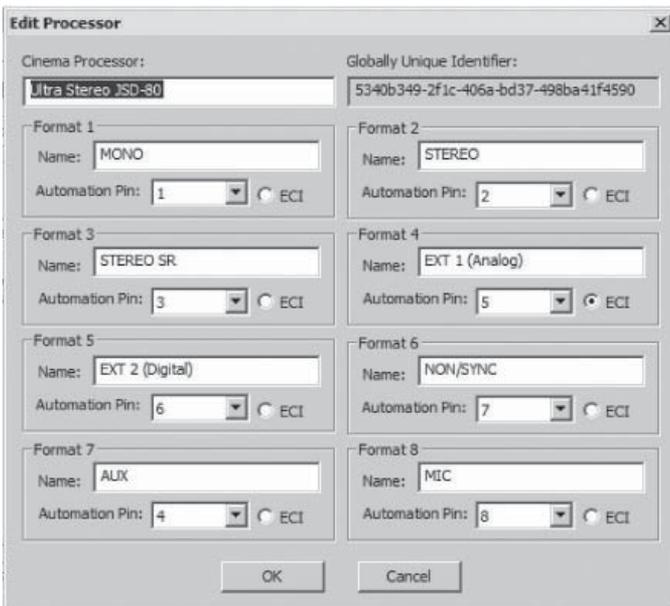
You may also choose to change a processor's capabilities with the "Modify" window.

Analog 2 Channel Output (5 pin Phoenix type)

Pin Number	Function
1	Left +
2	Left -
3	Earth
4	Right +
5	Right -

Digital Input (AES balanced line)(25 pin D sub Female)

Pin Number	DCI Input	DMA8 Input	Pin Number	DCI Input	DMA8 Input
1		Gnd	14		AES 1/2+
2	Gnd	AES 1/2-	15		Gnd
3		AES 3/4+	16	Gnd	AES 3/4-
4		Gnd	17		AES 5/6+
5	Gnd	AES 5/6-	18		Gnd
6		AES 7/8+	19	Gnd	AES 7/8-
7	AES 7/8+	Gnd	20	AES 7/8-	Gnd
8	Gnd		21	AES 5/6+	
9	AES 5/6-	Gnd	22	Gnd	
10	AES 3/4+		23	AES 3/4-	Gnd
11	Gnd		24	AES 1/2+	
12	AES 1/2-	Gnd	25	Gnd	
13					

RS-232 Port (9 pin D sub Female)

Pin Number	Function	Pin Number	Function
1	IC *	6	IC *
2	TX	7	CTS †
3	RX	8	RTS †
4	IC *	9	
5	Gnd		

* - Internally Connected, do not use   † - Not required

Remote Start/Stop (9 pin D sub Female)

Pin Number	Function	Pin Number	Function
1	Digital Mode *	6	
2	Film Mode *	7	
3		8	
4		9	+5V Output †
5	Gnd		

* - Pull to Gnd   † - 0.1A max

Analog Output (25 pin D sub Male) (Balanced or Unbalanced Line)
Note: In Unbalanced mode the negative signal MUST be connected to ground.

Pin Number	Function	Pin Number	Function
1	Left –	14	Left +
2	Right Surr. +	15	Left Surr. +
3	Right Surr. –	16	
4	Left Surr. –	17	Right +
5		18	
6	Right –	19	Chassis Gnd
7		20	Center +
8	Center –	21	
9	Gnd	22	Gnd
10	Gnd	23	Gnd
11	Gnd	24	Subwoofer +
12	Subwoofer –	25	Pass Through
13	Gnd		

Analog Bypass Input (25 pin D sub Female) (Balanced or Unbalanced Line)
Note: In Unbalanced mode the negative signal MUST be connected to ground.

Pin Number	Function	Pin Number	Function
1	Left –	14	Left +
2	Right Surr. +	15	Left Surr. +
3	Right Surr. –	16	
4	Left Surr. –	17	Right +
5		18	
6	Right –	19	Chassis Gnd
7		20	Center +
8	Center –	21	
9	Gnd	22	Gnd
10	Gnd	23	Gnd
11	Gnd	24	Subwoofer +
12	Subwoofer –	25	Pass Through
13	Gnd		

Analog Input 6 Channel (25 pin D sub Female)(Balanced Line)

Pin Number	Function	Pin Number	Function
1	Right 2 +	14	Right 2 -
2	Gnd	15	Left 2 +
3	Left 2 -	16	Gnd
4	Right Surr. +	17	Right Surr. -
5	Gnd	18	Left Surr. +
6	Left Surr. -	19	Gnd
7	Subwoofer +	20	Subwoofer -
8	Gnd	21	Right +
9	Right -	22	Gnd
10	Center +	23	Center -
11	Gnd	24	Left +
12	Left -	25	Gnd
13	Reserved		

Note: Lines in boxed area are reserved for 2 Channel input.

Cinema Processor Automation Port (25 pin D sub Male) and
Digital Player Automation Port (25 pin D sub Female)

Cinema Processor Automation Port	Function	Digital Player Automation Port
Pin Number	Function	Pin Number
1	Control 1	1
2	Control 2	2/NC*
3	Control 3	3/NC*
4	Control 4	4
5	Control 5	5
6	Control 6	6
7	Control 7	7
8	Control 8	8
9	Feed through	9
10	Feed through	10
11	Feed through	11
12	Return (Gnd)	12
13	Feed through	13
14	Feed through	14
15	Feed through	15
16	Feed through	16
17	Feed through	17
18	Feed through	18
19	Feed through	19
20	Feed through	20
21	Feed through	21
22	Feed through	22
23	Feed through	23
24	Feed through	24
25	Feed through	25

*   When in Film/Bypass Mode, all lines pass through both connectors. When in Digital Mode, Pins 2 and 3 of the Digital Player Automation Port are disconnected from the Cinema Processor Automation Port to prevent accidental activation of the Cinema Processor.

This mode of operation may be deactivated at the factory upon request.

USL, inc.

011001

Precision Sound • Light • Color

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