

## SB i16 and SB 8.8

### Network I/O

### User Guide

Revision: 1.1



# Solid State Logic

O X F O R D • E N G L A N D

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**PLEASE READ ALL INSTRUCTIONS, PAY SPECIAL HEED TO SAFETY WARNINGS.**

E&OE

December 2018

## Document Revision History

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**Table of Contents**

<b>Introduction</b>	<b>4</b>	<b>Appendix A – General Specifications</b>	<b>19</b>
Overview	4	Ventilation	19
Key Features	4	<b>Appendix B - Connector Pin Outs</b>	<b>20</b>
SB i16 and SB 8.8 Front Panel	4	XLR Wiring	20
SB i16 and SB 8.8 Rear Panel	4	D-Type Multipin Wiring	20
Status LEDs and User Buttons	5	GPIO	21
Channel LEDs	5	<b>Appendix C –</b>	
Device Reset	5	<b>Performance Specifications</b>	<b>22</b>
Brooklyn Reset	5	Mic/Line Inputs	22
<b>Hardware Connections</b>	<b>6</b>	Line Outputs	23
Mains Power Connections	6	<b>Appendix D – Safety Notices</b>	<b>24</b>
Dante Connections	6	General Safety	24
Audio Inputs and Outputs	6	Installation Notes	24
GPIO	6	Power Safety	25
<b>SSL Network I/O Controller</b>	<b>7</b>	For EU	25
Installing Network I/O Controller	7	Environmental Declaration	26
Network Configuration - PC	7	RoHS Notice	26
Network Configuration - Device	7	For USA	26
The GUI	8	Electromagnetic Compatibility	26
Network View	8	Environmental	26
Inputs/Outputs	9		
Inputs	9		
Focus Window	9		
Outputs	10		
GPIO	10		
Setup	11		
<b>Ownership</b>	<b>12</b>		
Stagebox and Input Ownership	12		
Individual Input Ownership	13		
GPO Ownership	13		
<b>Gain Compensation</b>	<b>14</b>		
Compensated Ports	14		
Calibration Point	15		
Recalibrate Indication	15		
<b>Pad</b>	<b>16</b>		
Traditional	16		
AutoPad	17		
<b>Dante Controller</b>	<b>18</b>		
Network Config	18		
Device Info	18		

## Introduction

### Overview

SB i16 and SB 8.8 are, respectively, 2U, 16 input and 8 input/8 output SuperAnalogue™ Dante stageboxes, for all high-quality AoIP applications.

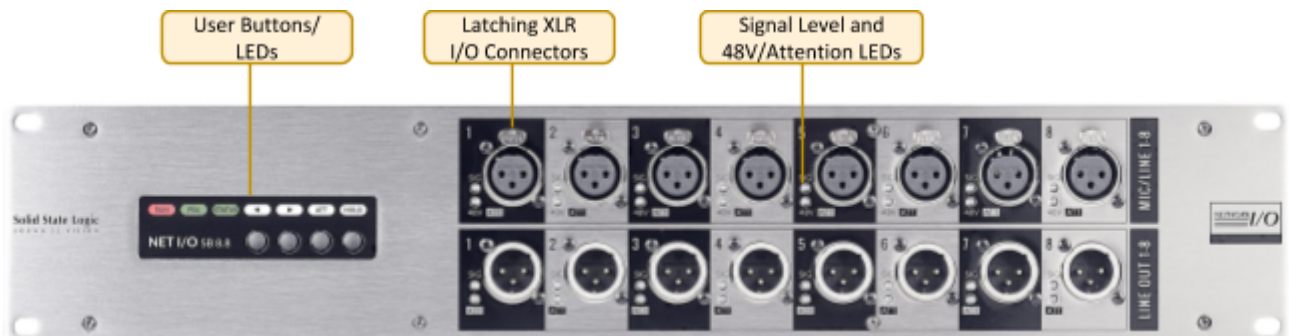
SB i16 and SB 8.8 can be controlled remotely from SSL Live and System T consoles as well as from SSL's Network I/O Controller app for PC.

SB i16 and 8.8 are ideally suited to studio and stage, featuring redundant power, redundant ruggedized etherCON Dante connections plus four GPIOs.

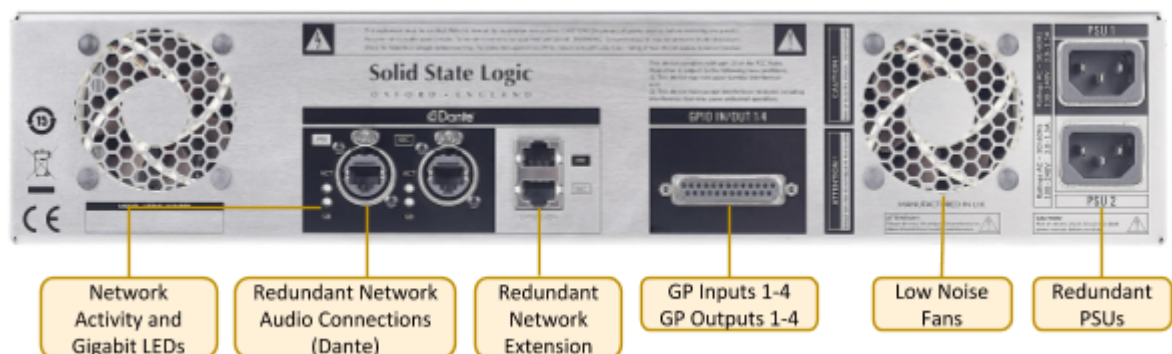
### Key Features

- Interface between studio/stage/recording area and IP audio networks using Dante and AES67
- Redundant PSUs and Dante network connections
- 8 or 16 SSL SuperAnalogue Studio Grade preamps
- GPIO connectivity - embed tallies across the network
- Redundant network extension ports
- Clear front panel indication - signal present, phantom power, channel attention
- Gain-compensated inputs available to Dante network
- Device and parameter ownership assignment to avoid control conflicts
- AutoPad - automatically adjusts gain and pad settings to accommodate widest possible range of input signals
- Two-speed ball-bearing fan cooling - sufficiently quiet to place on a studio floor

### SB i16 and SB 8.8 Front Panel



### SB i16 and SB 8.8 Rear Panel



Status LEDs and User Buttons

**Green (solid)** - normal operation: processor running and Dante networks connected

**Green (blinking)** - booting/reconfiguring

**Red (solid)** - loss of primary network

**Red (flashing)** - loss of secondary network


N.B. If both networks are lost the **RUN** LED will be solid red

**◀ ▶ Arrows** are for channel selection - when using the arrow buttons, the attention LED will flash red on the selected channel

**ATT** (Attention) allows a user to 'push' attention (for the already selected channel) to the software control application for swift identification of inputs or outputs. *Easily and quickly identify channels of interest between the studio floor and the control room.*

Multiple channels can have Attention active.

Pressing the **ATT** button again on the selected channel will cancel the Attention signal.



**Green** - normal operation, both power supplies active

**Red** - primary or secondary power supply inactive

**Green** - normal operation


**Red** - indicates a fault has occurred, refer to the setup information window

If **HOLD** and **▶** are held for 3 seconds then the primary Dante network connection will reset to use DHCP - once pressed the unit must be rebooted

If **HOLD** and **ATT** are pressed for 3 seconds this will perform a device reset - once pressed the unit must be rebooted

Channel LEDs

**SIG** analogue signal LEDs are green above -40 dBFS and red at -0.1 dBFS (clipping)



**48V/ATT** indicates phantom power and/or attention depending on red, green, or flashing combinations as follows:

- Red (solid)** - phantom power on
- Red (flashing)** - channel selected
- Green (flashing)** - channel attention active
- Green and red (flashing)** - phantom power on and channel attention active

Device Reset

Performing a device reset will clear the SSL device settings. This includes ownership, input and GPIO states. This does not clear Dante Brooklyn card settings.

Brooklyn Reset

Resetting the Dante Brooklyn card to default settings is performed from Dante Controller. Under the 'Device Config' tab for a device select 'Clear Config'. This clears the device name, channel labels, IP address settings, sample rate, latency and existing audio routes. This does not clear SSL Ownership settings.

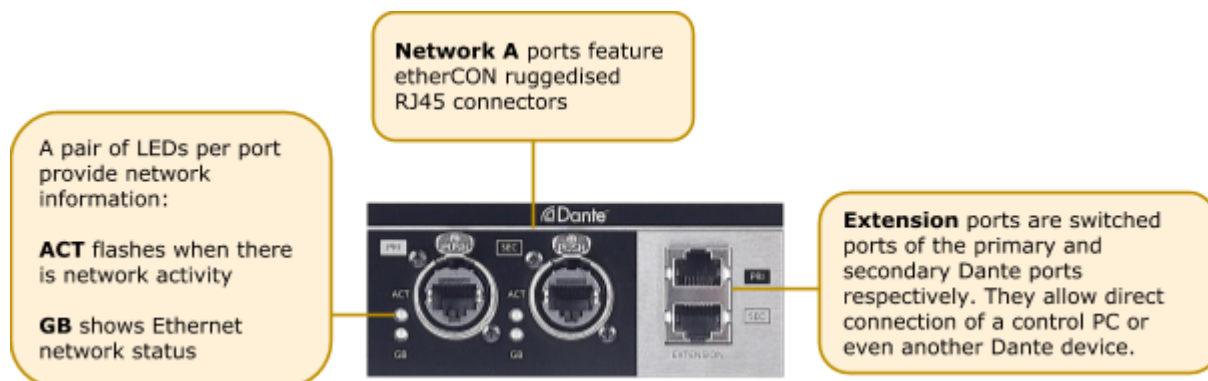
## Hardware Connections

### Mains Power Connections

SB i16 and SB 8.8 include redundant PSUs with IEC C14 inlets. Either supply can individually power the unit. Ideally these should be connected to separate power circuits to provide redundancy of incoming AC power.



### Dante Connections



SB i16 and SB 8.8 have two redundant sets of network connections.

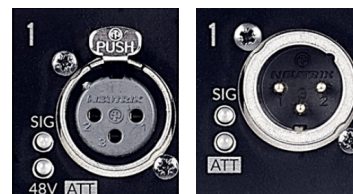
In Dante Controller it is possible to set Dante ports to switched mode rather than redundant mode. While this is possible, there is no need to here as the extension ports provide this functionality without loss of redundancy.

Never connect Primary and Secondary ports to the same single Dante network.

### Audio Inputs and Outputs

Electronically balanced mic/line inputs and line outputs on latching XLR-3 connectors.

See [Appendix B](#) for pinout information.



### GPIO

4 General Purpose opto-coupled inputs and 4 General Purpose relay outputs allow embedding and de-embedding of logic signals across the network.

See [Appendix B](#) for pinout information.



## SSL Network I/O Controller

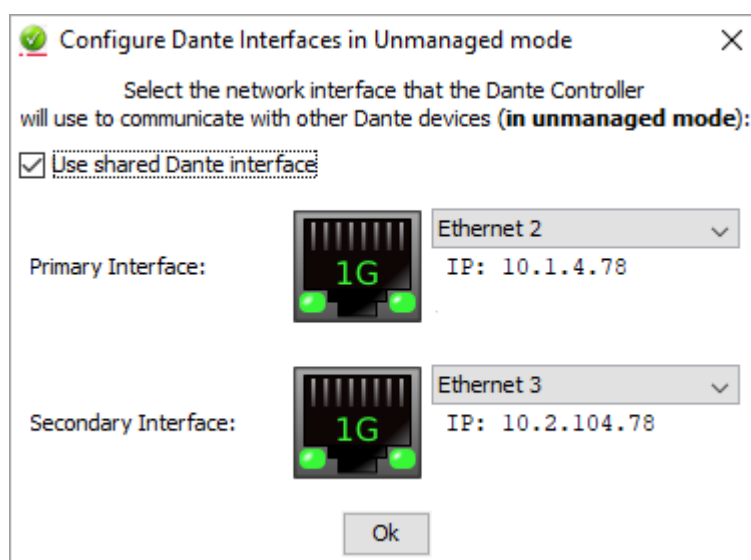
### *Installing Network I/O Controller*

When an SB i16 or SB 8.8 is used without an SSL console, configuration and control is achieved using the SSL Network I/O Controller PC application. This can be downloaded from the [SSL website](#) as part of the Network I/O Stagebox upgrade package or as a standalone installer.

Locate and run the Network I/O Controller installer and follow the on-screen prompts to install the application.

### *Network Configuration - PC*

Once Network I/O Controller is installed, connect the Windows PC to the same subnet as the Network I/O. The SSL Network I/O Controller application uses the network adapters configured in Dante Controller for communication. Before starting Network I/O Controller first open Dante Controller and select the network adapters connected to the Dante network. 'Use shared Dante interface' must be selected to ensure all applications using the Dante network use the correct adapters. Subsequent changes to network settings may require Network I/O Controller to be restarted.



TCP/IP is used to communicate with the unit, so check Windows firewall settings if communications are not working.

Set the computer to 'Never Sleep' to maintain communication.

### *Network Configuration - Device*

Unless shipped as part of a preconfigured system, Network I/O units are set to obtain an IP address automatically.

If the IP settings need to be changed to a fixed address – to match the network environment in which the unit is to be installed – this can be achieved using the Dante Controller application.

Remember that the computer's network adapter configuration will also need to be updated to match the Network I/O.

For additional information see the [Dante Controller](#) section.

The GUI

The application window is divided into six sections:

**Network View** shows each SSL device on the Dante network. Input meters are shown for every analogue input. Clicking a device brings its parameters into the **Detail View**. Large arrows on the far left and right scroll for more devices.

**Detail View** shows channel details for the selected device. Large arrows on the far left and right scroll for more channels.

**Focus View** shows an expanded view of the selected channel.

**GPIO View** shows the active status for each GPI and GPO.

**Page Select** selects the detail view to show inputs, outputs, or setup options for each device.

**Navigation** switches the in-focus channel and allows for gain adjustment. These arrows are also mapped to the PC keyboard. **Control** toggles fine (0.1 dB) gain adjustment and **Alt** coarse (3 dB) gain adjustment.

Network View

**Device Name** is set by the Dante Controller application.

**Selected device** is highlighted with a cyan background.

A **Red Highlight** indicates a device that requires operator action:
 

- A flashing red background indicates a device with a clipping audio channel
- A solid red border highlights a device with an active Attention flag

 If the device requiring attention is not already visible in the Network View window, then the appropriate large scroll arrow will show red to direct you to the appropriate device.

**Att and Mute tallies** show the status of these functions for every stagebox channel.

The **Level Meter** shows the real-time signal level for all analogue input channels. A red clipping indicator is also provided.

Greyed out devices marked **Offline** are 'known' to the network but uncontactable, typically switched off.

**PSU Tallies** show the status of PSUs 1 and 2 for each stagebox.



*Inputs/Outputs*

Select the Inputs or Outputs tab in the Page Select area to view I/O available on the network.

**Inputs**

**Control Status** shows whether the viewer has control of the input's parameters. Each individual channel has independent ownership.

**Rel** in cyan indicates that this input is under the control of the viewer. Press and hold to relinquish control.

**Take** indicates that this input is NOT under the control of the viewer. Press and hold to take control from the owner.

**Own** indicates that this input is not owned by any controller. Press and hold to take ownership of this input.

**Show Gain** toggles the fader into the focus view window. Gain can be controlled via mouse, keyboard, or numeric entry.

**Channel Info** shows all parameters of the channel at a glance.

**Selected Channel** is highlighted in cyan.

Holding **Audition** automatically sets the gain based on the source level.

**Focus Window** displays the available parameters for the selected channel.

**Level Meter** shows the signal level for the selected channel. A red clipping indicator is also provided.

**Fader** allows for manual level control via the slider, keyboard arrow keys, or numeric entry by clicking the text Gain Value box.

**Fader Level Bar** is coloured red on microphone input channels and cyan on line level inputs.

**Mute** mutes the input or output channel. The mute state is stored in volatile memory on the unit and all channels will reset to unmuted if the unit is repowered.

**Focus Window**

**+48V** toggles the mic preamp phantom power. Selecting **Line** input will turn off phantom power.

**Pad** toggles the -20 dB mic preamp pad. Further information is given in the **Pad** section.

**Limiter** toggles the mic preamp limiter, an oversampled DSP-based feed forward limiter which reduces the mic pre gain as soon as the output level exceeds a peak average level of -3dBFS.

**Mic/Line** toggles the appropriate input gain range and impedance for mic or line level sources. **Mic** inputs have a gain range of 74dB including the pad. The available range values are dependant on the operating level. **Line** level inputs have a gain range of +20 to -10 dB.

**ATT! (Attention)** toggles the hardware front panel LED for swift identification of inputs or outputs. Multiple channels can have Attention active. Attention can be cancelled by pressing the **ATT!** button again on the selected channel or from the device front panel.

## Outputs

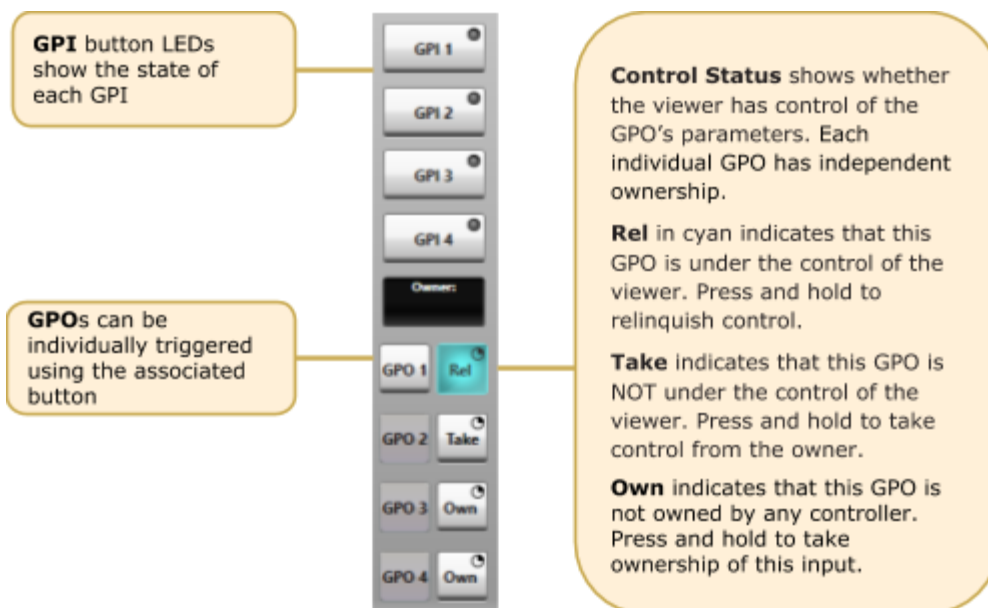


**Mute** allows individual outputs to be muted

## GPIO

The SB i16 and SB 8.8 are equipped with 4 GP input and 4 GP output circuits. Inputs are opto-isolated voltage triggered and output closures are via DIL relay.

See [Appendix B](#) for connector pinout and contact ratings.



Setup

Press **Setup** in the *Page Select* area to display the system configuration information.

**Stagebox Ownership** and **Inputs Ownership** settings are detailed under [Ownership](#).

The screenshot shows the 'SETUP' screen for an S300-IBoB device. The interface is divided into several sections:

- Name:** S300-IBoB
- Info:** PSU 1 ON, PSU 2 ON, FAN 1 ON, 1600 RPM, FAN 2 ON, 1600 RPM, Network Status: 100.254.57.31, Sample Rate: 48 kHz
- Temperature:** TEMP 1: 48, TEMP 2: 57, TEMP 3: 50
- Ownership:** Owned: PRODUCTS-S300, Stagebox Ownership, Inputs Ownership
- Attention:** Clear Attention
- OPERATING LEVEL:** 18 dBu
- PAD MODE:** AutoPad
- GAIN COMPENSATION:** Recalibrate All Owned Inputs

Callouts provide the following explanations:

- Name:** shows the device name as set in Dante Controller.
- Info:** shows the status of the device's redundant power supplies, fans, and temperature. Red indicates a fault.
- Operating Level:** allows selection of the maximum analogue I/O level in dBu (at 0dBFS) for the device.
- Clear Attention:** clears all active attention LEDs on the currently selected device.
- Recalibrate All Owned Inputs:** resets the trim applied to the gain compensated inputs. A warning below states: "Warning: May cause jump in audio on compensated outputs".
- AutoPad:** changes pad mode from traditional pad to AutoPad.

## Ownership

Ownership offers a level of protection to inputs: when an input is owned by a console the input parameters can only be modified by the device that owns it. This prevents control conflicts between networked consoles and control computers sharing resources. Parameters covered by ownership are:

- Mic gain
- Mic/line switching
- Pad
- Input mute
- Audition
- Limiter

Note that multiple consoles can share the same input signal but only one device can control the input parameters. Altering the input settings will affect all consoles using the input.

Any System T console, SSL Live console or instance of the SSL Network I/O Controller PC application can control ownership. There are three levels of ownership:

- Stagebox ownership: control SB i16 and SB 8.8 setup information only
- Input ownership: control input parameters only
- Input x ownership: control of input parameters on a per input basis

N.B. Ownership settings are stored on the SB i16 and SB 8.8. The mute state is stored in volatile memory on the unit and all channels will reset to unmuted if the unit is repowered.

### Stagebox and Input Ownership

Press and hold **Stagebox Ownership** to assign or relinquish stagebox ownership

If a device has **Stagebox Ownership** then the operating level and pad mode can be changed

The current owner is listed in white

Press and hold **Inputs Ownership** to open the Ownership menu:

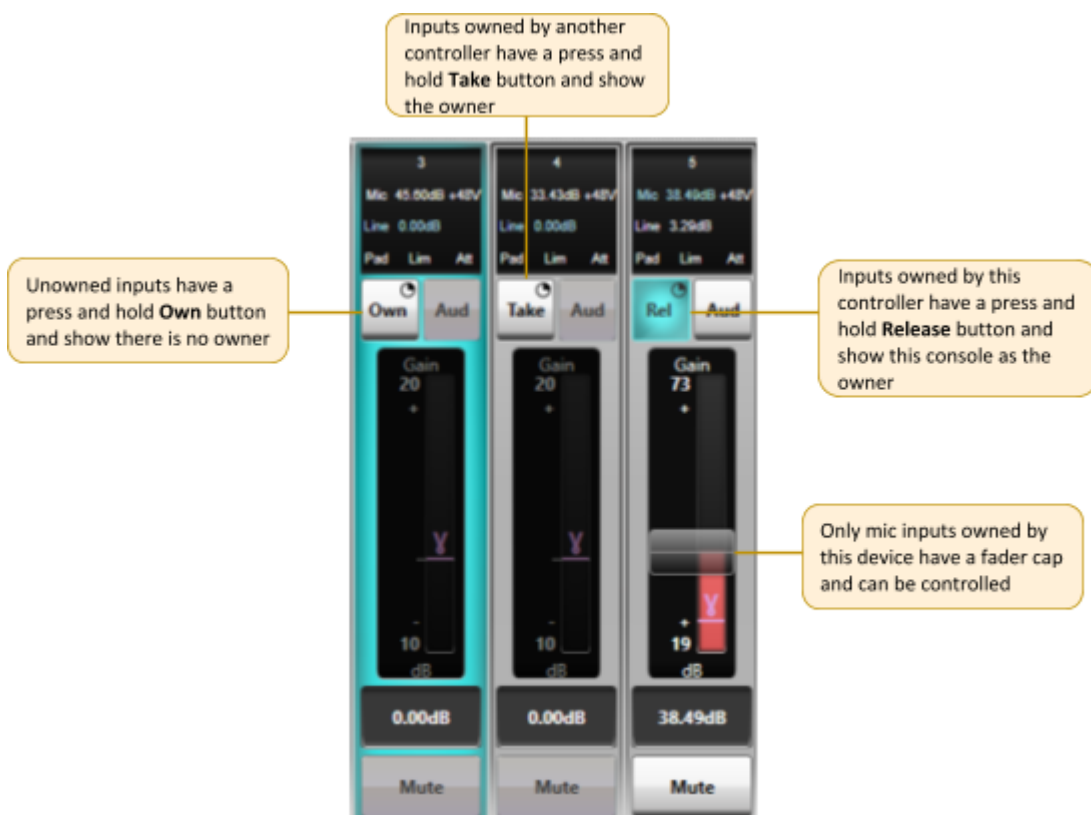
- Own All** will assign all unowned inputs
- Take All** will assign all inputs including those owned by another controller
- Release All** will release ownership of inputs owned by the controller

The screenshot shows the following interface elements:

- SETUP** tab selected.
- Name:** S300-8i16
- Info:** PSU 1 OK, PSU 2 OK, FAN 1 OK, 1600 RPM, FAN 2 OK, 1600 RPM, Network Status: 169.254.57.31, Sample Rate: 48 kHz
- Temperature:** TEMP 1: 48, TEMP 2: 57, TEMP 3: 56
- Ownership:** Own: PRODUCTS-500, Stagebox Ownership, Inputs Ownership
- Attention:** Clear Attention
- OPERATING LEVEL:** 58 dBu
- PAD MODE:** AutoPad
- GAIN COMPENSATION:** Recalibrate All Owned Inputs
- Warning:** May cause jump in audio on compensated outputs
- Control** buttons: Control, Up, Alt, Left, Down, Right

### Individual Input Ownership

One of three options will be displayed when an input is selected on a device, depending on the current ownership state. These options are **Own**, **Take** and **Release**:

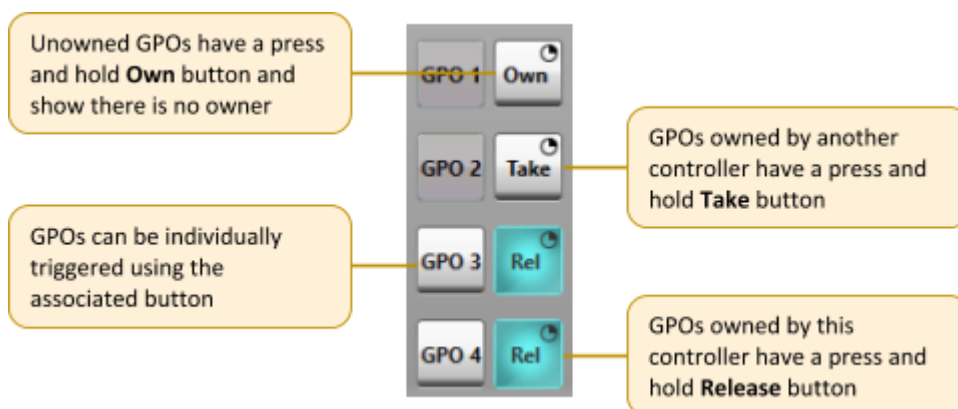


When an SSL console makes routes from Stagebox inputs, the console will automatically become the owner of any unowned inputs. If an input is owned by a different controller then routing will not automatically take ownership, **Take** ownership will need to be performed if input control is required on this device. Ownership from Network I/O Controller is manually controlled.

Note that the audio route will still be made regardless of whether ownership is assigned.

### GPO Ownership

The four GPO connections also have ownership status. The available ownership states are identical to those for stagebox inputs.



## Gain Compensation

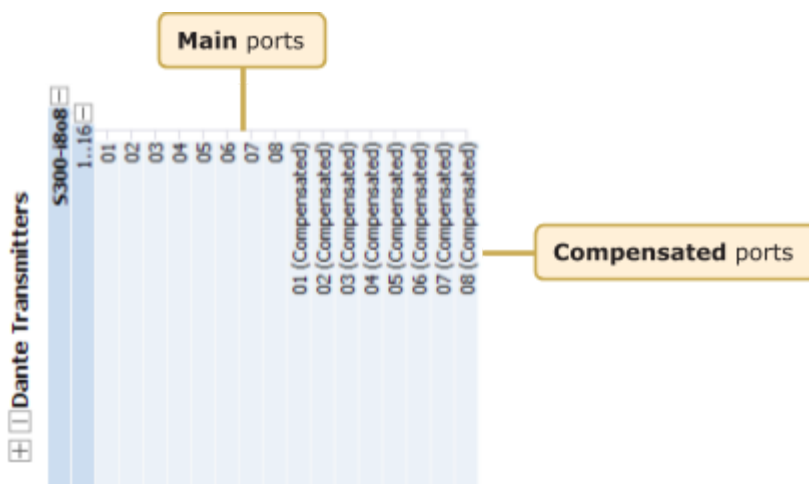
Each stagebox mic/line input has two transmit channels that can be subscribed to from the Dante network. **Main** channels follow the mic gain as set by the controller. **Compensated** channels nullify mic gain changes by applying a digital trim offset which is the negative equivalent of any analogue gain changes. Using **Compensated** channels ensures that devices receiving signals from the same stagebox avoid unintended changes to input source levels.

### Compensated Ports

When connected to an SSL console or the Network I/O Controller app the main and compensated channels show as two separate devices.

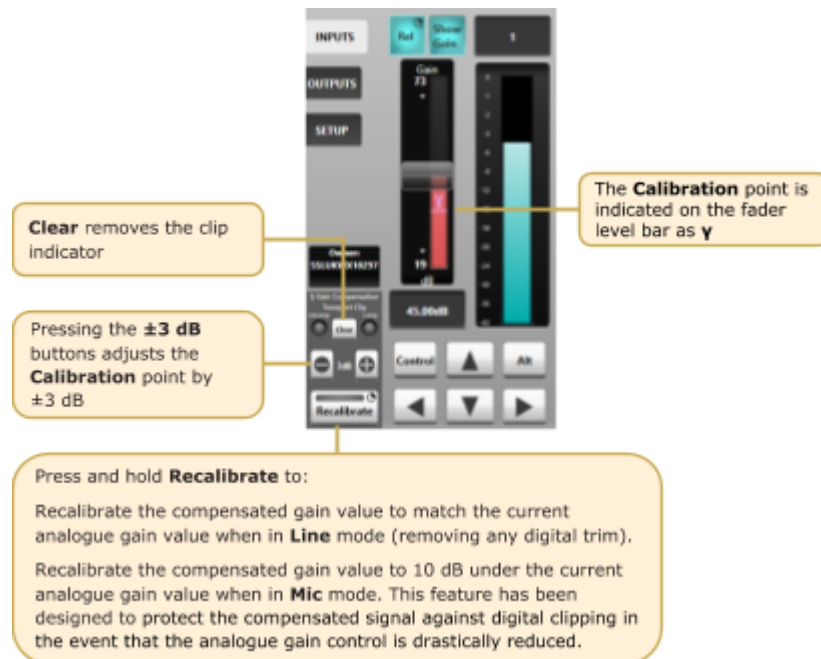


The compensated output's level is controlled in the stagebox itself, so any Dante device can receive the compensated signal, it does not have to be an SSL console. The compensated channels for an SB 8.8 or SB i16 can be found in Dante Controller under the Transmit tab of the Routing Matrix or Device View, listed immediately after the main channels.



### Calibration Point

The **Calibration** point is the value at which the analogue gain equals a digital trim value of 0 dB, i.e. there is no digital trim applied. Digital trim will be applied when the analogue gain level is above or below the **Calibration** point.



### Recalibrate Indication



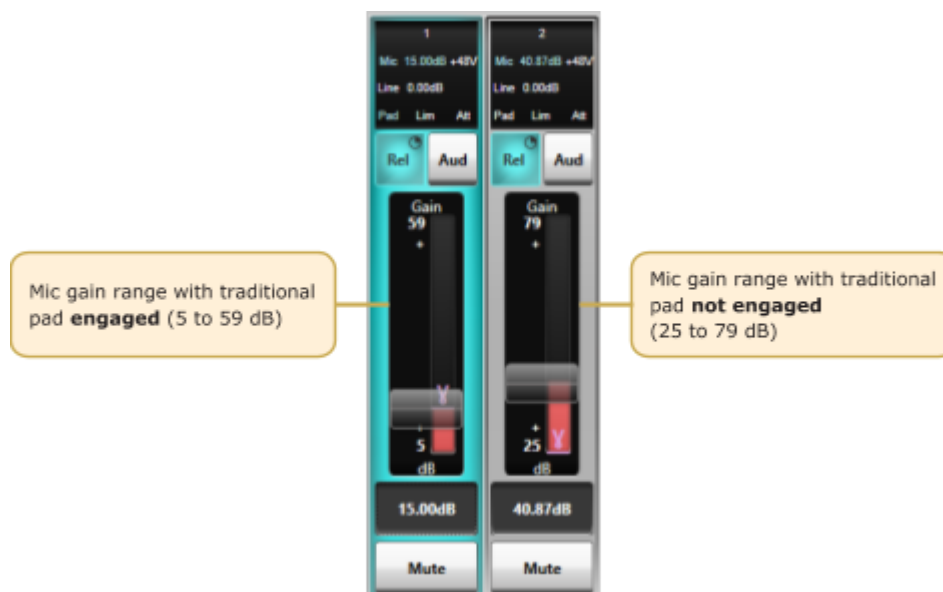
## Pad

The SB i16 and SB 8.8 have two pad modes, **Traditional** and **AutoPad**. The pad mode is selected per stagebox (applied to all inputs) from the **SETUP** tab of the stagebox within Network I/O Controller.



### Traditional

**Traditional** pad mode is active when AutoPad is deselected. This allows the 20 dB pad to be inserted/removed manually. Inserting the pad will reduce the input gain by 20 dB. The reduced value will be shown in the input channel strip and the range of available gain values will be updated to reflect the pad state. Note that maximum and minimum gain values are dependant on the Operating Level setting.



**Compensated** channels will change signal level in accordance with the pad setting on the associated main channel when in **traditional** pad mode. If the pad is inserted on a main channel the signal level of both the main and compensated channel will drop by 20 dB.

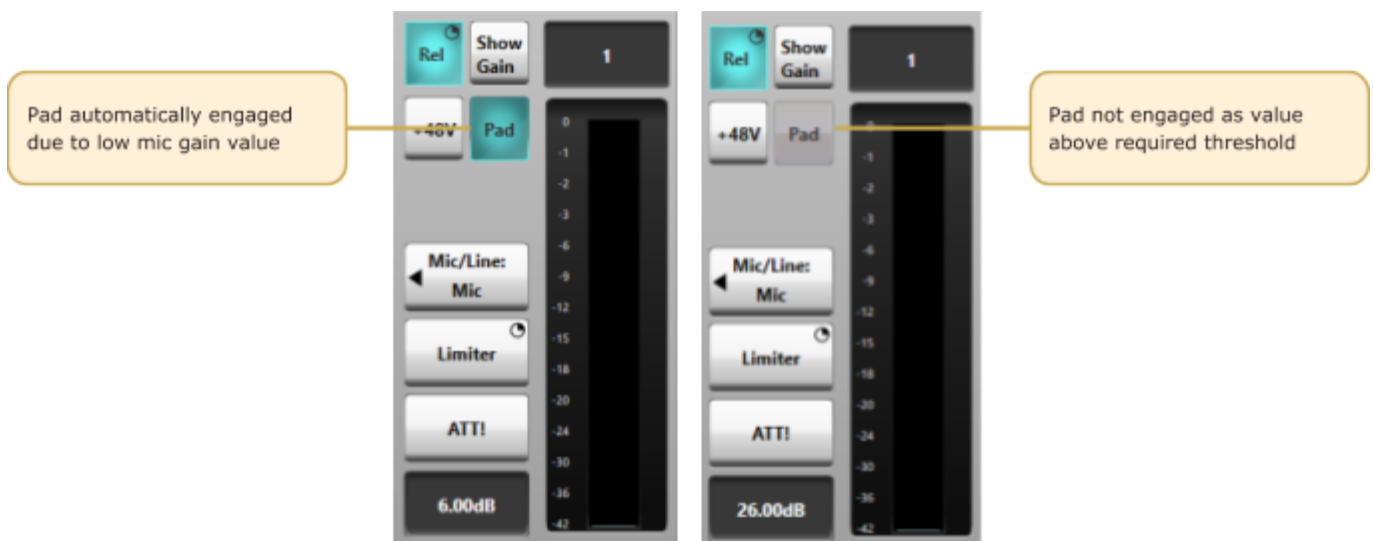


## AutoPad

**AutoPad** provides the entire possible gain range to the operator and silently applies the pad when the gain range is set to a low value that requires the pad to achieve.



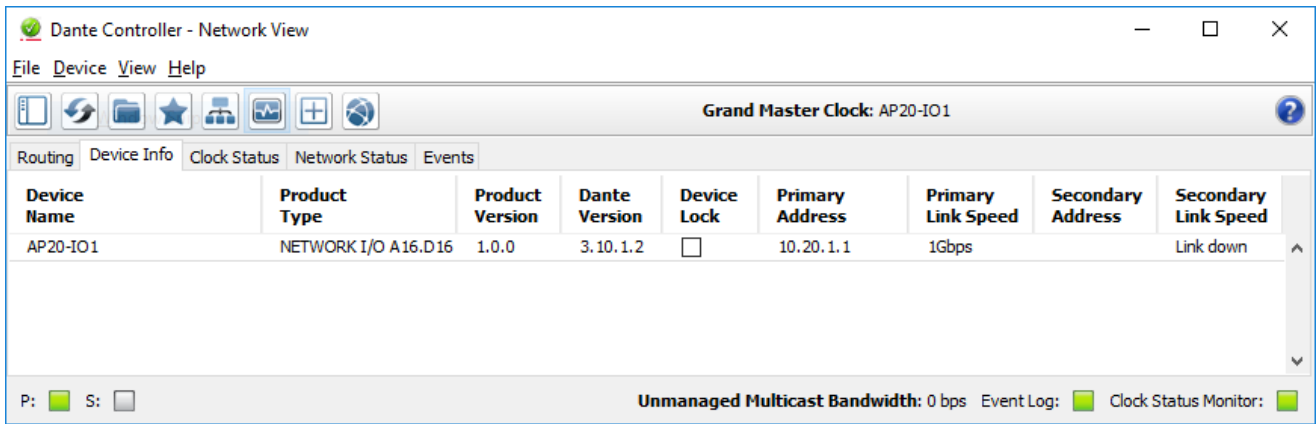
When **AutoPad** is active the **Pad** control on the channel is dimmed to show it is no longer available for user control. If the input gain is set to a low value which requires the pad to achieve then the **Pad** icon will be highlighted blue (whilst dimmed) to show that it is active.



It is advisable to check channel gain values after changing the **AutoPad** setting. Overall gain levels will be retained but pad states may change.

**Compensated** channels will retain a constant output signal level when in **AutoPad** mode, irrespective of whether the pad has been automatically applied.

## Dante Controller



Refer to Audinate’s Dante Controller user guide for complete information on Dante Controller software. The information below details the basics required to get started.

Clock sync, device naming, AES67 configuration and network management are all done within Dante Controller.

Dante utilises the device name for routing. Each device must have a unique name – if a name is duplicated it will be appended with a number.

### *Network Config*

Each device requires its own unique IP address. This may be automatically configured, provided by a DHCP server or assigned manually. The primary and secondary ports must not be connected to the same logical network. Ideally, separate switching hardware should be provided for primary and secondary networks. Creating VLANs on shared hardware is acceptable but does not provide the most robust redundancy.

### *Device Info*

The **Device Info** tab shows an overview of all devices on the Dante network including name, product type, software version, IP address, link speed and status.

**Device > Device View** provides configuration and diagnostics for each device including Tx and Rx subscription and signal status, software and firmware version information, network utilisation and real-time latency measurement, as well as configuration of device name, sample rate, bit depth, latency, IP address and AES67 parameters. The **Network Config** tab provides IP address configuration options.

The device will resolve to a link-local address if it is set to obtain an IP address automatically and no DHCP server is present. To access via link-local, set your computer to obtain an IP address automatically, directly connect to the device’s primary port and wait for the link-local addresses to resolve. Link-local addresses for the Primary Dante interfaces obtain IP addresses in the 169.254.xxx.xxx range, secondary Dante interfaces obtain addresses in the 172.31.xxx.xxx range.

## Appendices

### Appendix A – General Specifications

The following specifications are the same for both the SB i16 and SB 8.8.

Parameter	Value	Notes
<b>Depth</b>	300 mm ( 12")	
<b>Height</b>	88.5 mm ( 3.5")	2 RU
<b>Width</b>	438 mm ( 17.25") 482 mm ( 19")	Excluding rack ears Including rack ears
<b>Weight</b>	7.0 kg ( 15.4 lb)	
<b>Boxed Size</b>	575 x 510 x 280 mm ( 22.5 x 20 x 11")	
<b>Boxed Weight</b>	8.5 kg ( 18.7 lb)	
<b>Power</b>	< 100 W	
<b>Acoustic Noise</b>	NR20	Measured 1m from the front of the unit at the lowest fan speed. This speed will be active when the unit is within operating temperature limits.
<b>Operating Temperature</b>	+5°C to 40°C	
<b>Storage Temperature</b>	-20°C to 50°C	

#### Ventilation

Ventilation is from the rear of the unit.

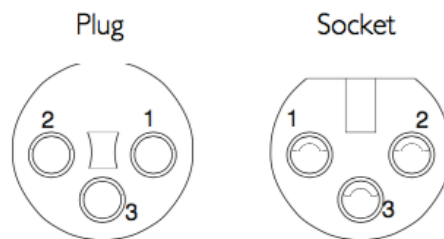
## Appendix B - Connector Pin Outs

### XLR Wiring

Dimensions: 19 x 60mm (approx.)  
 Cable Diameter: 8-12mm (typical)

Pinout for balanced audio:

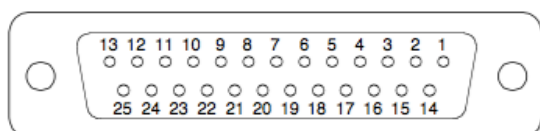
- Pin 1 Screen/Ground
- Pin 2 Hot (+ve)
- Pin 3 Cold (-ve)



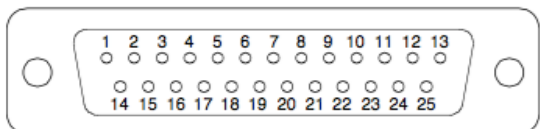
Connectors Viewed From Wiring Side

### D-Type Multipin Wiring

Connectors Viewed From Wiring Side



Plug



Socket

25-way

Dimensions: 55 x 15mm (approx.)  
 Cable Diameter: 8mm (typical)  
 Screwlock thread: 440-UNC

**GPIO****GP Outputs**

All output switch closures are via DIL relay.

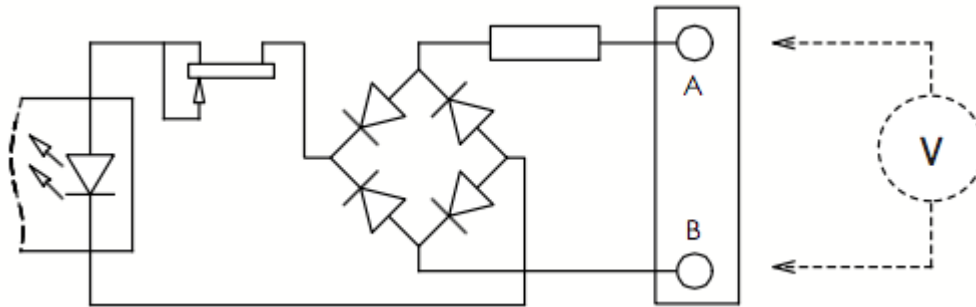
**DO NOT** use these outputs to directly switch capacitive or reactive loads; always use a separate external relay with suitable contact rating.

**DIL Relay Ratings:**

- 100V DC, 125V AC
- 100mA max.

**GP Inputs**

Inputs are triggered by applying an AC or DC voltage of between 4V and 24V. The current drawn is approximately 10mA. Minimum input pulse duration 50mS.



GP Inputs / Outputs			
Connector Type:		25-way D-type male	
Pin	Description	Notes:	
1	Input 1A	See input requirements above	
14	Input 1B		
2	Input 2A		
15	Input 2B		
3	Input 3A		
16	Input 3B		
4	Input 4A		
17	Input 4B		
5			
18			
6			
19			
7	+12V Output		0.5A max (both pins), Linked to pin 13 Reference for 12V output
20	Chassis		
8	Output 1A		See contact ratings above
21	Output 1B		
9	Output 2A		
22	Output 2B		
10	Output 3A		
23	Output 3B		
11	Output 4A		
24	Output 4B		
12			
25			
13	+12V Output	As pin 7	

## Appendix C – Performance Specifications

Mic/Line Inputs		
Parameter	Value	Notes
<b>Gain Range</b>	+5 to 79 dB	0 dBFS, MDAC continuous gain
<b>Maximum Input Level</b>	+28 dBu	Pad inserted
<b>Frequency Response</b>	± 0.25 dB	Mic mode, 20 Hz – 20 kHz (@48kHz) -0.5 dBu signal level
<b>Equivalent Input Noise</b>	< -123 dB	Mic mode, 70 dB gain, A-weighted filter, 22 kHz bandwidth.
<b>Usable Dynamic Range</b>	> 114 dB	Mic mode, 0 dBFS, A-weighted filter, 22 kHz bandwidth.
<b>Input Impedance</b>	1.5 kΩ / 14 kΩ	Mic / Line. Selectable per channel
<b>CMRR</b>	> 55 dB (typically > 65 dB) > 80 dB (typically > 90 dB)	Mic mode, 50 Hz – 20 kHz, 0 dBu Mic mode, 1 kHz, 0 dBu
<b>Crosstalk</b>	< -85 dB typically < -95 dB	20 Hz – 20 kHz
<b>THD+N</b>	< 0.005 % < 0.0015 %	Mic mode, 20 Hz – 20 kHz, -6 dBu, 22 kHz bandwidth Mic mode, 1 kHz, -6 dBu, 22 kHz bandwidth
<b>Phantom Power (Mic Input)</b>	+48 V ±4 V 10 mA	Selectable per channel
<b>Pad (Mic Input)</b>	20 dB	Selectable per channel
<b>Operating Levels</b>	+24, +22, +20, +18, +15 dBu	
<b>Sample Rates</b>	48 or 96 kHz	
<b>Resolution</b>	24 bit	
<b>Group Delay</b>	39 samples	Analogue to Dante module

### Measurement Parameters

Sample Rate:	48 kHz
Operating Level:	+24 dBu = 0 dBFS
Mic input termination:	150Ω
Mic Mode Gain:	24 dB (unless stated otherwise)
Reference frequency:	1 kHz (unless stated otherwise)

Line Outputs		
Parameter	Value	Notes
<b>Maximum Output Level</b>	+24 dBu	600 $\Omega$ / 10 k $\Omega$ load
<b>Output Impedance</b>	< 50 $\Omega$	
<b>Frequency Response</b>	$\pm$ 0.2 dB - 0.5 dB	-0.5 dBFS, 20 Hz – 15 kHz At 20 kHz
<b>Usable Dynamic Range</b>	> 113 dB	0 dBFS, A-weighted filter, 22 kHz bandwidth Typically >117 dB.
<b>Crosstalk</b>	< -90 dB typically < -100 dB	20 Hz – 20 kHz, 0 dBFS
<b>THD+N</b>	< 0.004 % < 0.004 %	20 Hz – 20 kHz, -10 dBFS, 22 kHz bandwidth 1 kHz, 0 dBFS to -20 dBFS, 22 kHz bandwidth
<b>Output Symmetry</b>	> 40 dB	20 Hz – 20 kHz Typically > 50 dB
<b>Operating Levels</b>	+24, +22, +20, +18, +15 dBu	
<b>Sample Rates</b>	48 or 96 kHz	
<b>Resolution</b>	24 bit	
<b>Group Delay</b>	31 samples	Analogue to Dante module

### Measurement Parameters

Sample Rate: 48 kHz  
 Operating Level: +24 dBu = 0 dBFS  
 Reference frequency: 1 kHz (unless stated otherwise)

## Appendix D – Safety Notices

### *General Safety*

1. Please read and keep this document.
2. Adhere to all warnings and follow instructions.
3. This electrical equipment should not be used near water.
4. Cleaning should only be with dry cloths or products compatible with electrical devices – never when the unit is powered.
5. Keep the unit free of dust and use in a clean environment.
6. Do not use near any heat source or in direct sunlight.
7. Do not use near naked flames.
8. Do not place heavy objects on the unit.
9. Only use attachments/accessories recommended by the manufacturer.
10. Unplug the device during lightning storms or long periods of nonuse.
11. The unit can only be serviced by qualified personnel – Seek immediate service if:
  - I. The unit has been exposed to moisture
  - II. The unit has been dropped
  - III. The unit does not operate normally
12. Do NOT modify this unit – alterations may affect performance, safety and/or international compliance standards.
13. SSL does not accept liability for damage caused by maintenance, repair or modification by unauthorised personnel.

### *Installation Notes*

1. When installing this apparatus either fix it into a standard 19" rack or place the apparatus on a secure level surface.
2. When this apparatus is rack mounted, fit all rack screws. Rack shelves are recommended for this apparatus.
3. Allow a 1U gap above and below this apparatus for cooling.
4. Do not obstruct any ventilation cut-outs or exhaust fans.
5. Ensure that no strain is placed on any cables connected to this apparatus. Ensure that all such cables are not placed where they can be stepped on, pulled or tripped over.



### Power Safety

1. The unit is not supplied with a mains lead allowing you to use IEC distribution of mains cables of your choice. Any mains cable used must fulfill the following:
  - I. Refer to the ratings label on the rear of the unit and always use suitable mains cords.
  - II. The unit should ALWAYS be earthed with the earth on both the IEC sockets (when both are used).
  - III. Please use - compliant 60320 C13 TYPE SOCKET. When connecting to supply outlets ensure that appropriate sized conductors and plugs are used to suit local electrical requirements.
  - IV. Maximum cord length should be 4.5m (15').
  - V. The cord should bear the approval mark of the country in which it is to be used.
2. The appliance coupler is used as the disconnect device, ensure that it is connected to an unobstructed wall outlet.
3. The unit is designed for connection to single phase supplies only.
4. The clear markings regarding redundant power supplies detailed on the unit must be transferred into the installation to ensure both power sources are removed before qualified personnel service the unit.

**GB** The apparatus shall be connected to mains socket outlets with a protective earthing connection

**DEN** Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord

**FIN** Laite on liitettävä suojamaadoituskoskettimilla va rustettuumpistorasiaan

**NOR** Apparatet må tikoples jordet stikkontakt

**SWE** Apparatens skall anslutas till jordat uttag



**ATTENTION!** This equipment must be Earthed. Refer to manual for installation instructions.

**CAUTION!** Disconnect all power sources before removing any panel(s). No user-serviceable parts inside – to be serviced only by qualified personnel.



**WARNING!** Un-Earthed metal parts may be present inside enclosure. Check for hazardous voltages before touching.

For protection against risk of fire – replace only with same type / rating of fuse. Do not expose to rain or moisture.

### For EU



The stagebox is CE compliant and fully conforms with the current protection requirements of the European community council directives on EMC and LVD. Note that any cables supplied with SSL equipment may be fitted with ferrite rings at each end. This is to comply with the current regulations and these ferrites should not be removed. Any modifications to this equipment may adversely affect the CE compliance of this product.

### Environmental Declaration



The symbol shown here, which is on the product or its packaging, indicates that this product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste using a designated collection point for recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can dispose of your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

### RoHS Notice

Solid State Logic has conformed and this product has conformed to European Union's Directive 2011/65/EU on Restrictions of Hazardous Substances (RoHS) as well as the following sections of California law which refer to RoHS, namely sections 25214.10, 25214.10.2, and 58012, Health and Safety Code; Section 42475.2, Public Resources Code.

### For USA

To the User:

1. Do not modify this unit! This product, when installed as indicated in the instructions contained in the installation manual, meets FCC requirements.
2. Important: This product satisfies FCC regulations when high quality shielded cables are used to connect with other equipment. Failure to use high quality shielded cables or to follow the installation instructions may cause magnetic interference with appliances such as radios and televisions and will void your FCC authorisation to use this product in the USA.
3. Note: This equipment 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 reasonable protection against harmful interference when the 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 this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### Electromagnetic Compatibility

EN55103-1:2009, EN55103-2:2009 Environments E1, E2, E3 and E4

Typical average initial in-rush current: 1.2 A, 5 sec in-rush current: 0.8 A

The audio input/output and network ports are screened-cable ports and any connections to them should be made using braid-screened cable and metal connector shells in order to provide a low impedance connection between the cable screen and the stagebox. All network connections should be of Cat5e standard or above.

### Environmental

<b>Temperature</b>	Operating: +5 to 40 deg. C	Storage: -20 to 50 deg. C
<b>Vibration</b>	Operating: < 0.2 G (5–200 Hz)	Non-operating: < 0.4 G (5–200 Hz)
<b>Shock</b>	Operating: < 3 G (11 ms max.)	Non-operating: < 10 G (11 ms max.)