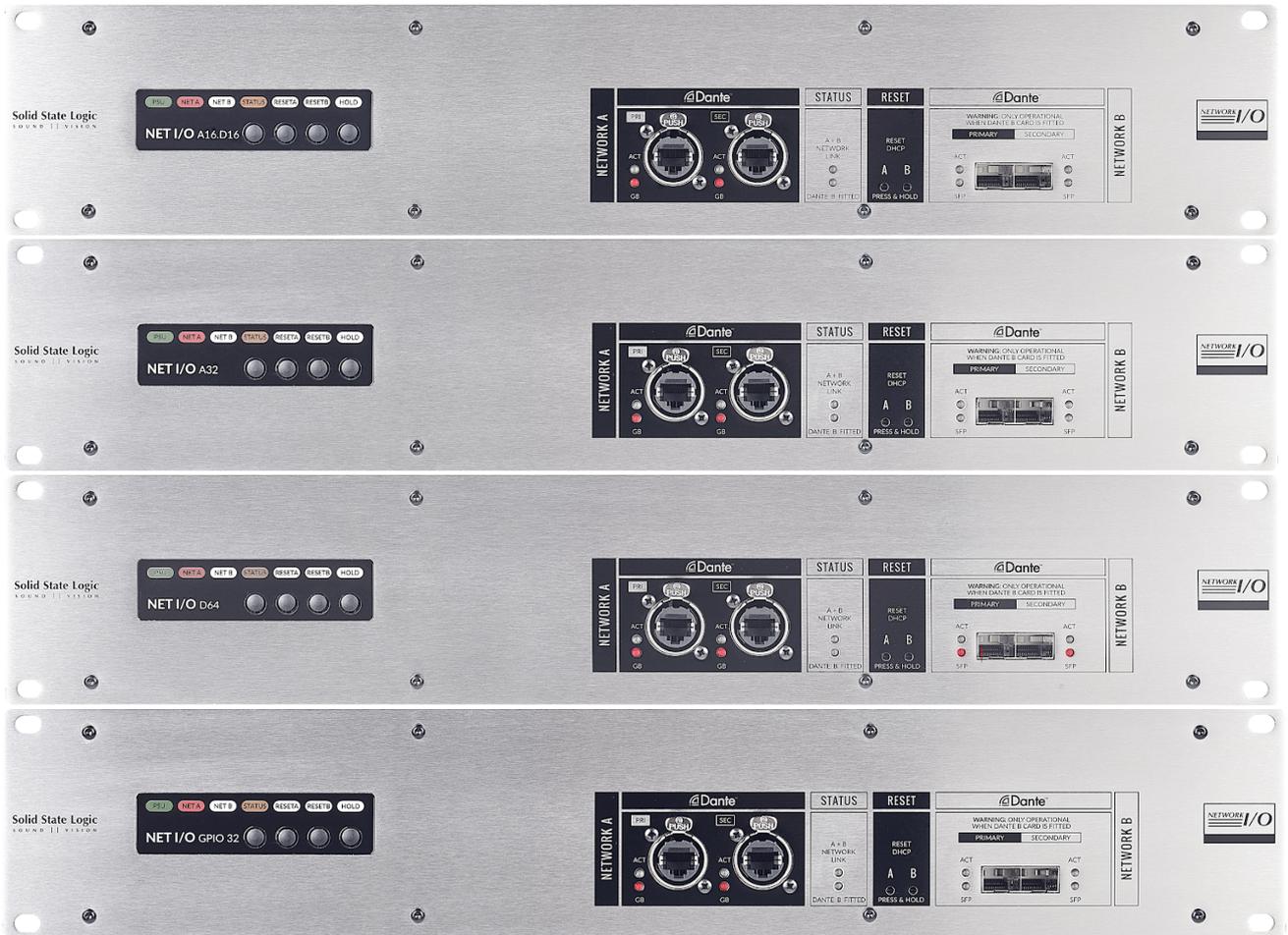


**A16.D16, A32, D64 and GPIO 32
Network I/O
User Guide
Revision: 1.1**



Solid State Logic

O X F O R D • E N G L A N D

Visit SSL at:
www.solidstatellogic.com

© Solid State Logic

All rights reserved under International and Pan-American Copyright Conventions

SSL®, Solid State Logic®, Total Recall®, Gravity® and Tempest®
are ® registered trademarks of Solid State Logic.

System T™, Live L100™, Live L200™, Live L300™, Live L500™, L500 Plus™, Blacklight™
are ™ trademarks of Solid State Logic.

Dante™ and Audinate™ are trademarks of Audinate Pty Ltd.

All other product names and trademarks are the property of their respective owners
and are hereby acknowledged.

No part of this publication may be reproduced in any form or by any means,
whether mechanical or electronic, without the written permission of
Solid State Logic, Oxford, OX5 1RU, England.

As research and development is a continual process, Solid State Logic reserves the right to change
the features and specifications described herein without notice or obligation.

Solid State Logic cannot be held responsible for any loss or damage arising directly or indirectly from
any error or omission in this manual.

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

E&OE

December 2018

Document Revision History

FIRST VERSION	Revision 1.0	7th September 2018
SECOND VERSION	Addition of GPIO 32	20th December 2018

Table of Contents

Introduction	4	Appendix A – Physical Specifications	18
Overview	4	Ventilation	18
Key Features	4	Appendix B - Connector Pin Outs	19
A16.D16 Front Panel	5	Analogue Inputs/Outputs	19
A16.D16 Rear Panel	5	AES/EBU Inputs/Outputs	20
A32 Front Panel	5	GPIO	21
A32 Rear Panel	5	Appendix C –	
D64 Front Panel	6	Performance Specifications	22
D64 Rear Panel	6	Mic/Line Inputs	22
GPIO 32 Front Panel	6	Line Inputs	23
GPIO 32 Rear Panel	6	Line Outputs	23
Status LEDs and User Buttons	7	Digital Inputs	24
Status and Reset	7	Digital Outputs	24
Device Reset	7	Appendix D – Safety Notices	25
Brooklyn Reset	7	General Safety	25
User and Control Bit Pass-Through (A16.D16 and D64 Only)	8	Installation Notes	25
Hardware Connections	9	Power Safety	26
Mains Power Connections	9	For EU	26
Dante Connections	9	Environmental Declaration	27
Audio and GPIO Connections	9	RoHS Notice	27
SSL Network I/O Controller	10	For USA	27
Installing Network I/O Controller	10	Electromagnetic Compatibility	27
Network Configuration - PC	10	Environmental	27
Network Configuration - Device	10		
The GUI	11		
Network View	11		
Inputs/Outputs	12		
Analogue Inputs	12		
Mic/Line Inputs	12		
Analogue Outputs	13		
AES I/O	13		
GPIO	14		
Setup	14		
Ownership	15		
Stagebox and Input Ownership	15		
Individual Input Ownership	16		
GPO Ownership (A16.D16 and GPIO 32 Only)	16		
Dante Controller	17		
Network Config	17		
Device Info	17		
Linking/Unlinking Networks A and B	17		
User and Control Bit Pass-Through (A16.D16 and D64 Only)	17		

Introduction

Overview

A16.D16, A32, D64 and GPIO 32 are 2U Dante I/O devices featuring high-density combinations of SuperAnalogue™, AES3 and GPIO connections. All analogue audio, AES audio and GPIO connectors are 25-pin D-type.

A16.D16, A32 and D64 can be controlled remotely from SSL System T consoles, SSL Live consoles and SSL's Network I/O Controller app for PC.

A16.D16 is a 32-input and 32-output Dante I/O device featuring 4 SuperAnalogue mic/line inputs, 12 SuperAnalogue line inputs, 8 AES3 inputs, 16 SuperAnalogue line outputs, 8 AES3 outputs and 4 GPIO connections.

A32 is a 32-input and 32-output Dante I/O device featuring 32 SuperAnalogue line inputs and 32 SuperAnalogue line outputs.

D64 is a 64-input and 64-output Dante I/O device featuring 32 AES3 inputs and 32 AES3 outputs.

These units are ideally suited for bulk analogue and AES I/O connections from control or machine rooms, featuring a high-density combination of analogue and digital inputs and outputs, GPIO, redundant power and network connections.

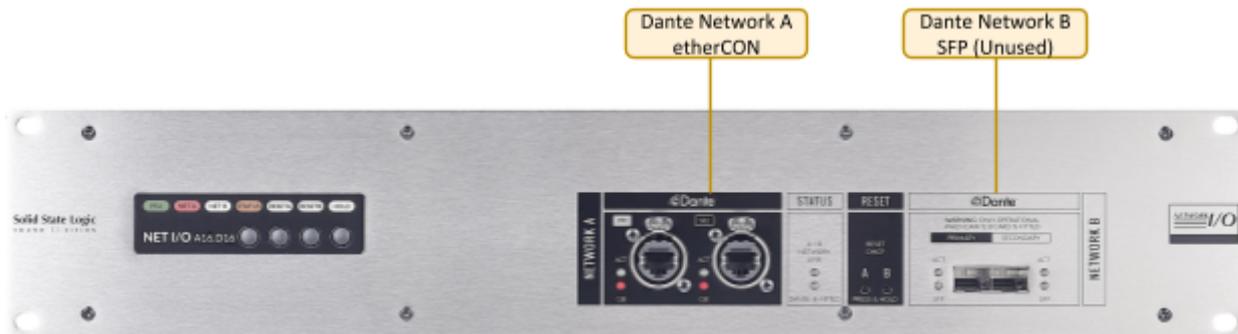
GPIO 32 is a 32-input and 32-output GPIO device which connects over a Dante network and can be controlled remotely from SSL System T consoles. It facilitates a variety of possibilities and applications for System T consoles, such as custom user key panels or complex Audio Follow Video setups. When coupled with System T's powerful Event Manager, GPIO 32 has endless possibilities for custom console functions and external triggers.

Key Features

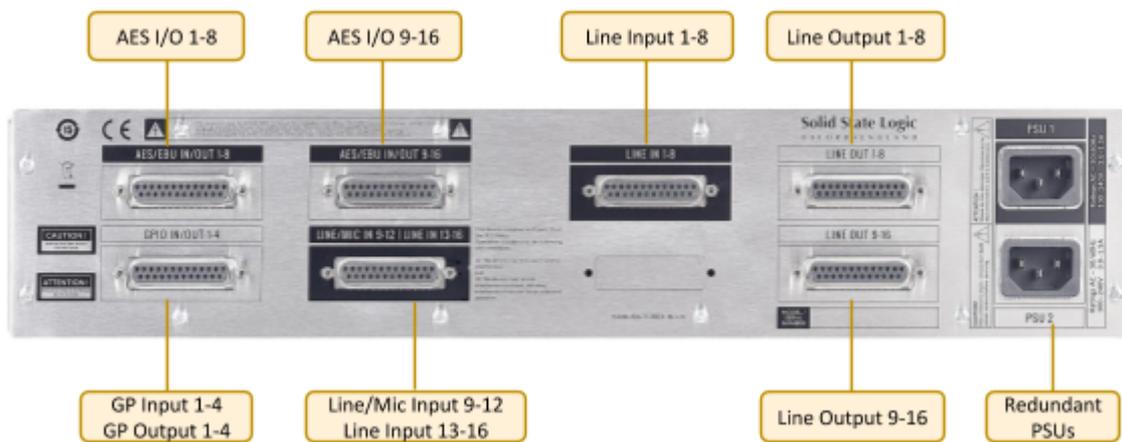
- Interface between control/machine room analogue/AES connections and IP audio networks using Dante and AES67
- Redundant PSUs and Dante network connections
- SSL SuperAnalogue technology¹
- Device and parameter ownership assignment to avoid control conflicts
- Front facing Dante network connections
- Rear facing audio and GPIO connections
- Silent operation - no cooling fans

¹ A16.D16 and A32 only

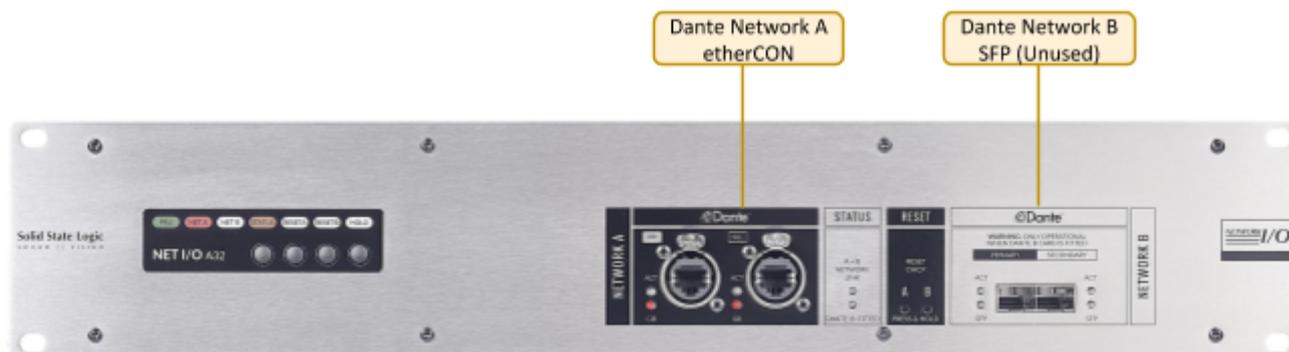
A16.D16 Front Panel



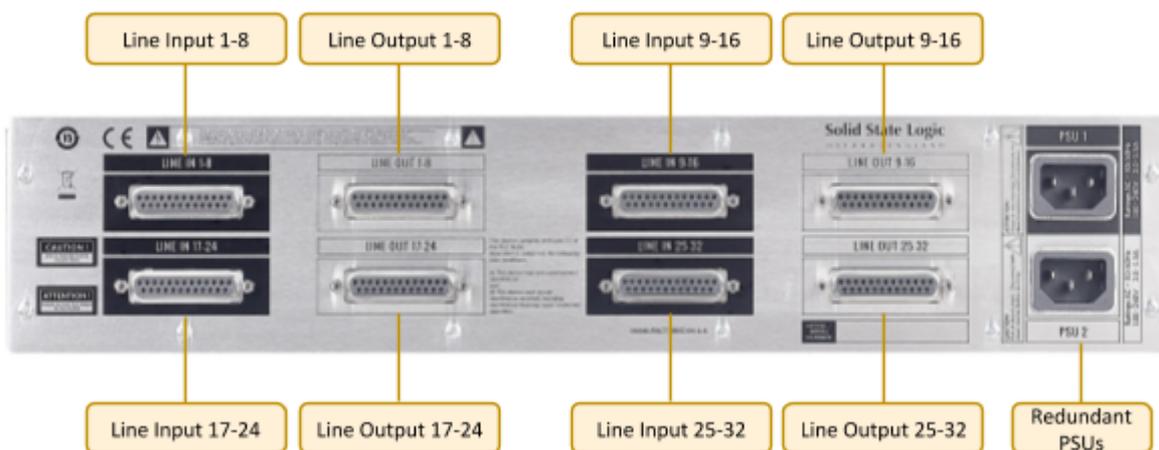
A16.D16 Rear Panel



A32 Front Panel



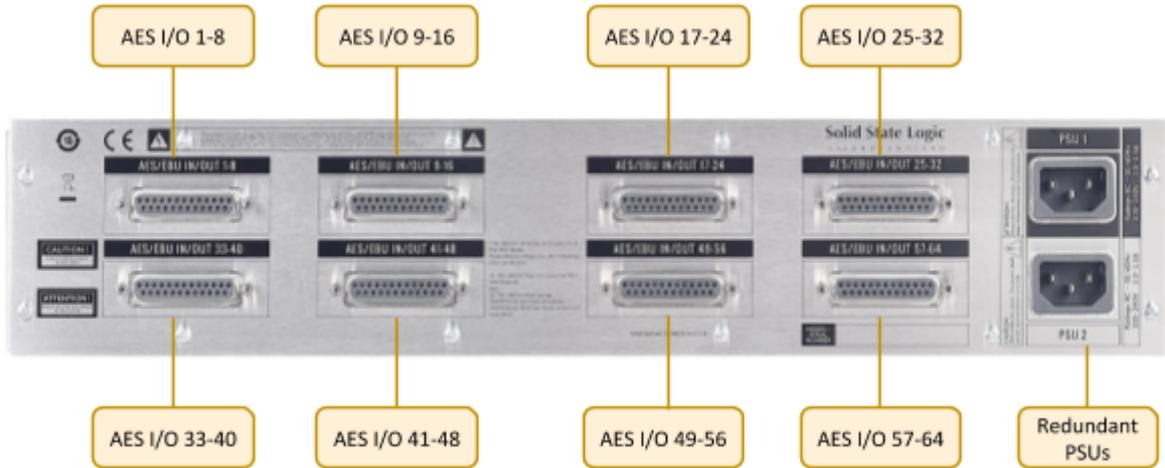
A32 Rear Panel



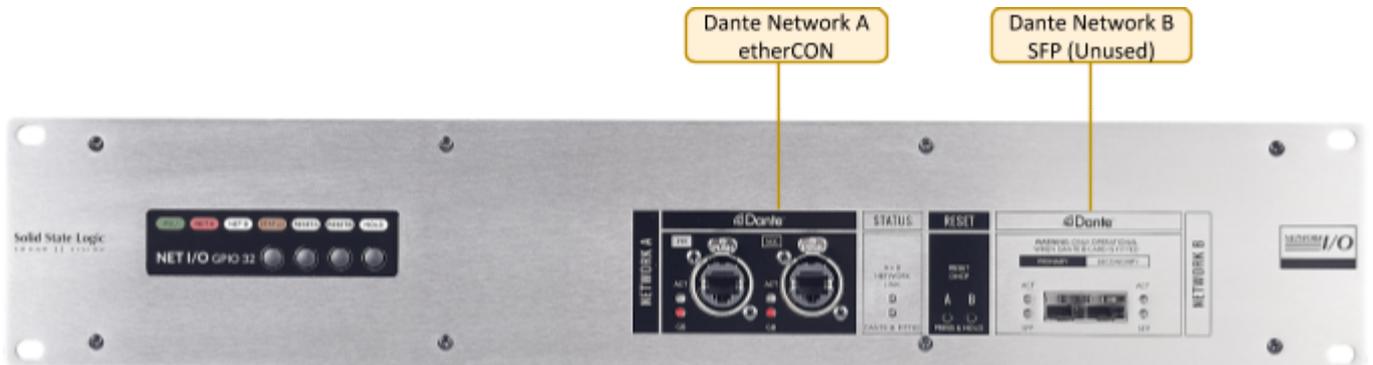
D64 Front Panel



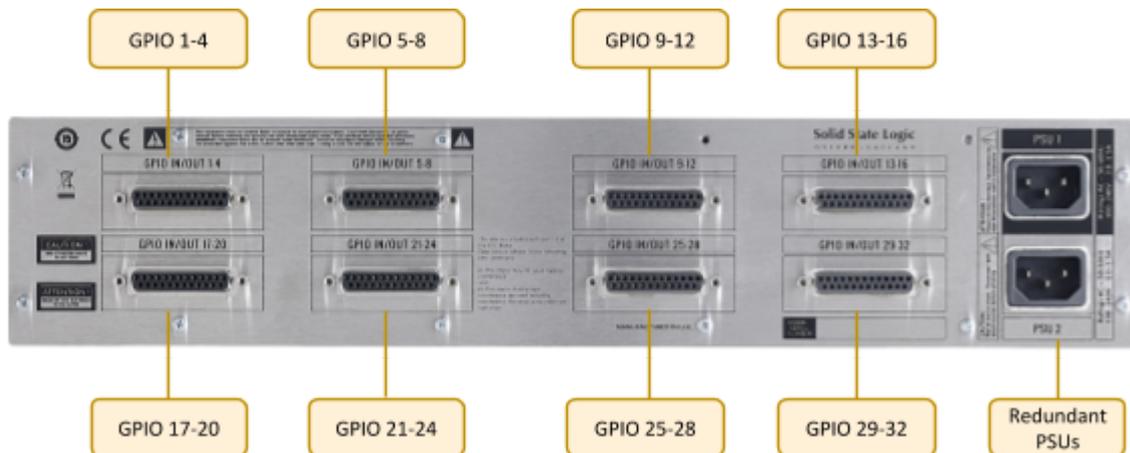
D64 Rear Panel



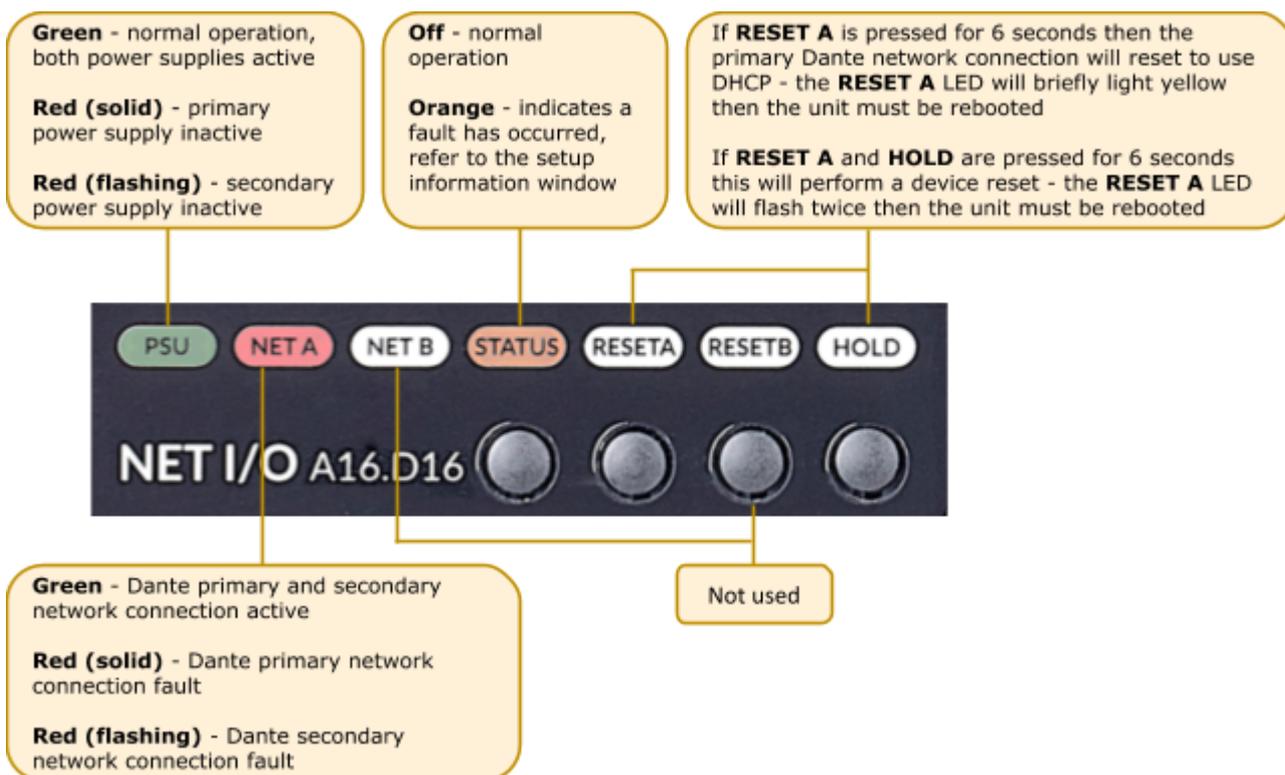
GPIO 32 Front Panel



GPIO 32 Rear Panel

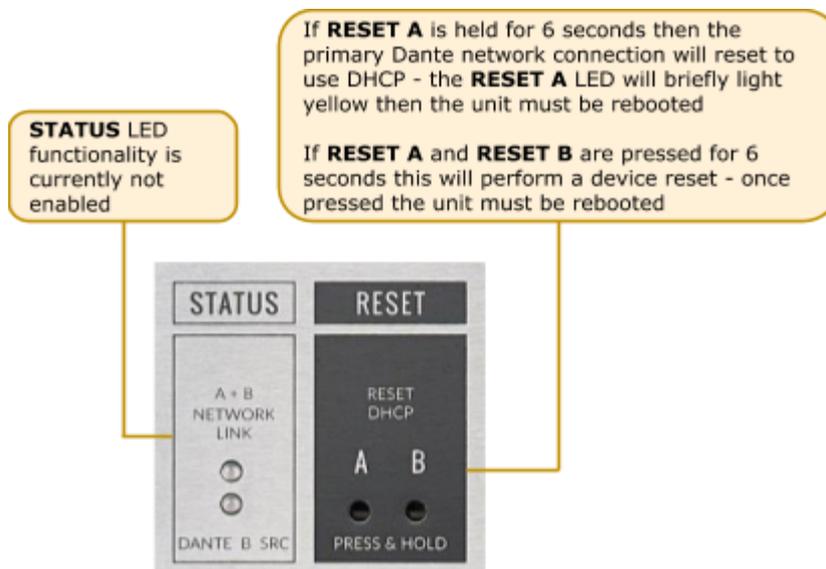


Status LEDs and User Buttons



Status and Reset

These reset buttons have the same functionality as the front-facing RESET A and RESET B user buttons.



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.

User and Control Bit Pass-Through (A16.D16 and D64 Only)

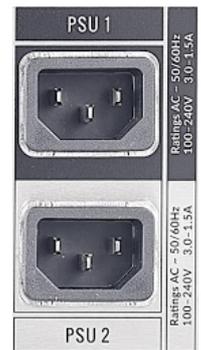
To enable the pass-through of AES user and control bits the device must be set to **PCM 32 encoding** within Dante Controller. Changing the encoding setting is detailed in the [Dante Controller](#) section of this guide.

N.B. *When set to 32-bit encoding the audio remains 24-bit. The additional 8 bits are used to transport the user and control bits from the AES3 signals.*

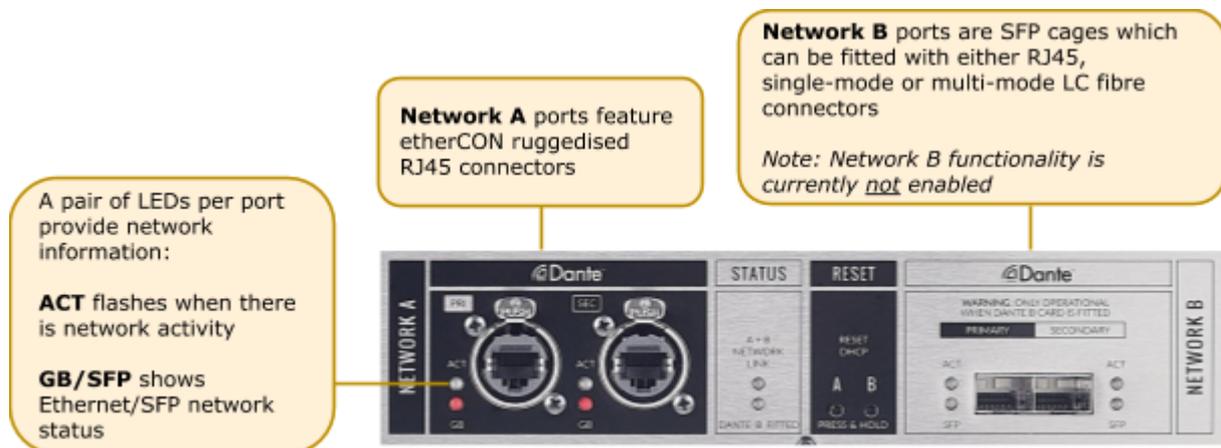
Hardware Connections

Mains Power Connections

The A16.D16, A32, D64 and GPIO 32 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



The A16.D16, A32, D64 and GPIO 32 have two redundant sets of network connections. The Network B port connectivity is currently not enabled, this requires an additional Dante card which is currently not available.

Audio and GPIO Connections

All audio and GPIO connections are via 25-pin D-type connectors.

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



SSL Network I/O Controller

This section applies to the A16.D16, A32 and D64 only. GPIO 32 cannot be controlled from SSL Network I/O Controller.

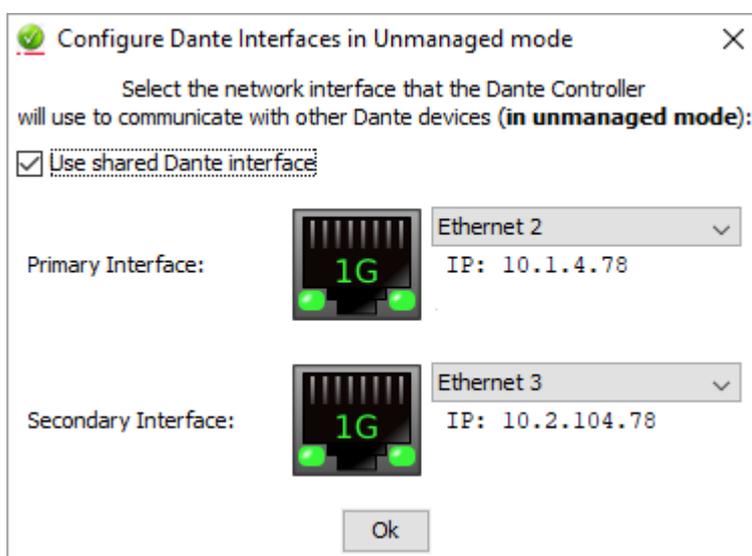
Installing Network I/O Controller

When an A16.D16, A32 or D64 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:

Input meters are shown for every analogue input. The **D64** is displayed as a narrow device with no input metering.

Network View shows each SSL device on the Dante network. 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, Outputs or AES I/O tab in the Page Select area to view I/O available on the network.

Analogue Inputs

This applies to the A16.D16 and A32 only.

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.

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.

Mic/Line Inputs

The following controls are available in the Focus window for A16.D16 inputs 9-12 only:

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

Mic/Line toggles the appropriate input gain range and impedance for mic or line level sources.

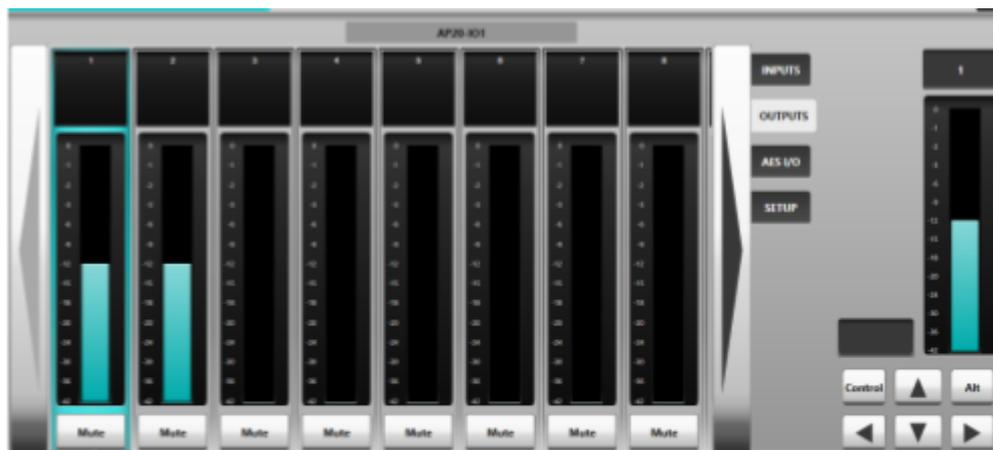
Mic inputs have a gain range of 74dB including the pad. The available range values are dependant on the operating level.

Line level inputs have no adjustable gain, they follow the operating level of the unit.

Pad toggles the -30 dB mic preamp pad.

Analogue Outputs

This applies to the A16.D16 and A32 only.



Mute allows individual outputs to be muted

AES I/O

This applies to the A16.D16 and D64 only.

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.



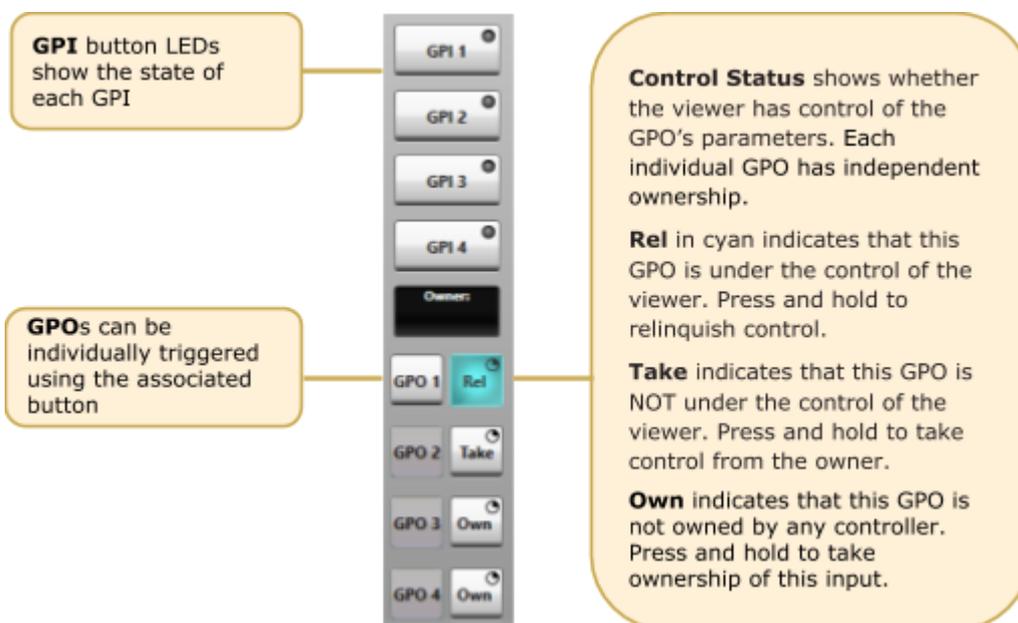
SRC In enables SRC for the in-focus input channels

Left and Right arrows navigate through the in-focus channels of the selected device

GPIO

This applies to the A16.D16 only. The A16.D16 is equipped with 4 GP input and 4 GP output circuits. Inputs are opto-isolated voltage triggered and output closures are via DIL relay.

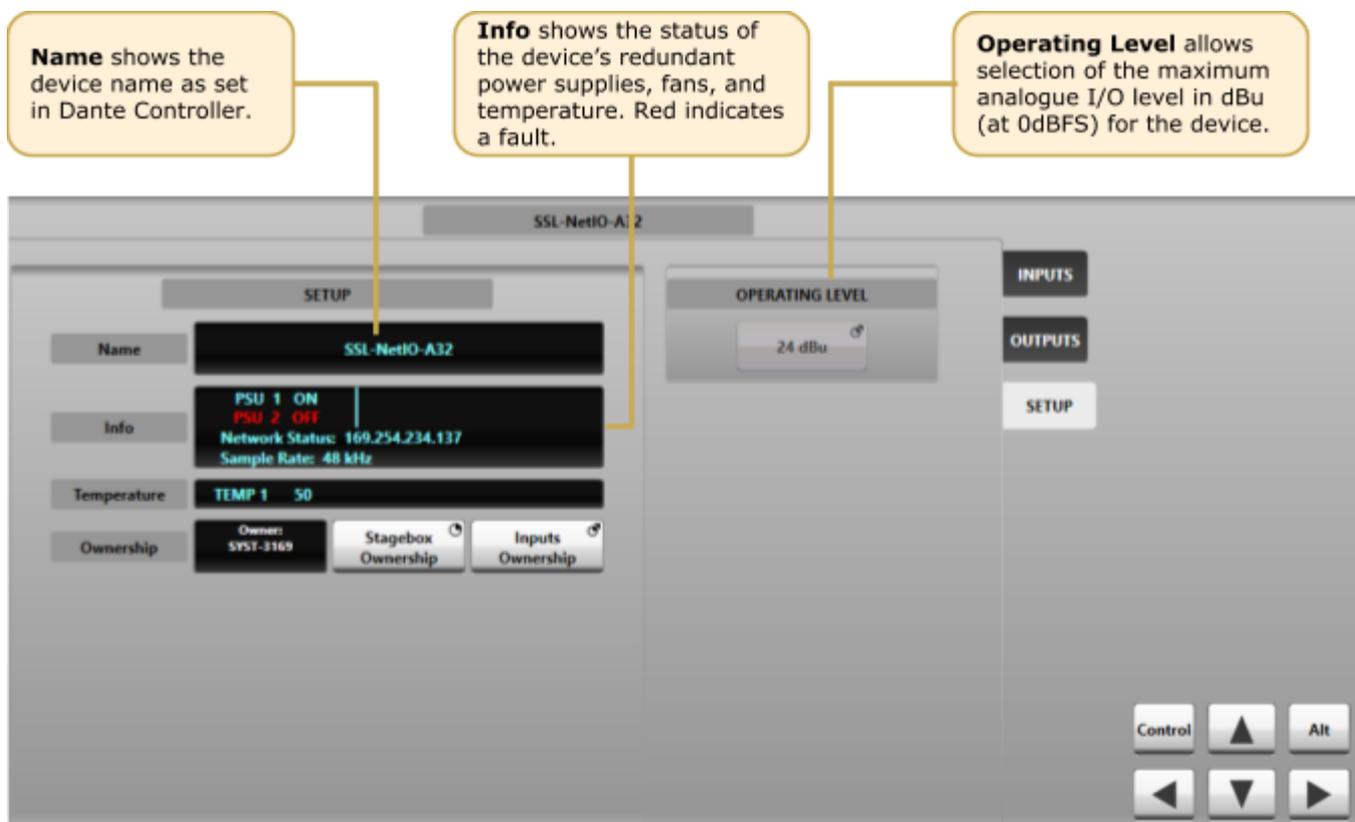
See [Appendix B](#) for connector pinout and contact ratings.



Setup

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

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



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
- SRC

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 A16.D16/A32/D64 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 A16.D16/A32/D64. 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 unit is owned then the operating level can be changed

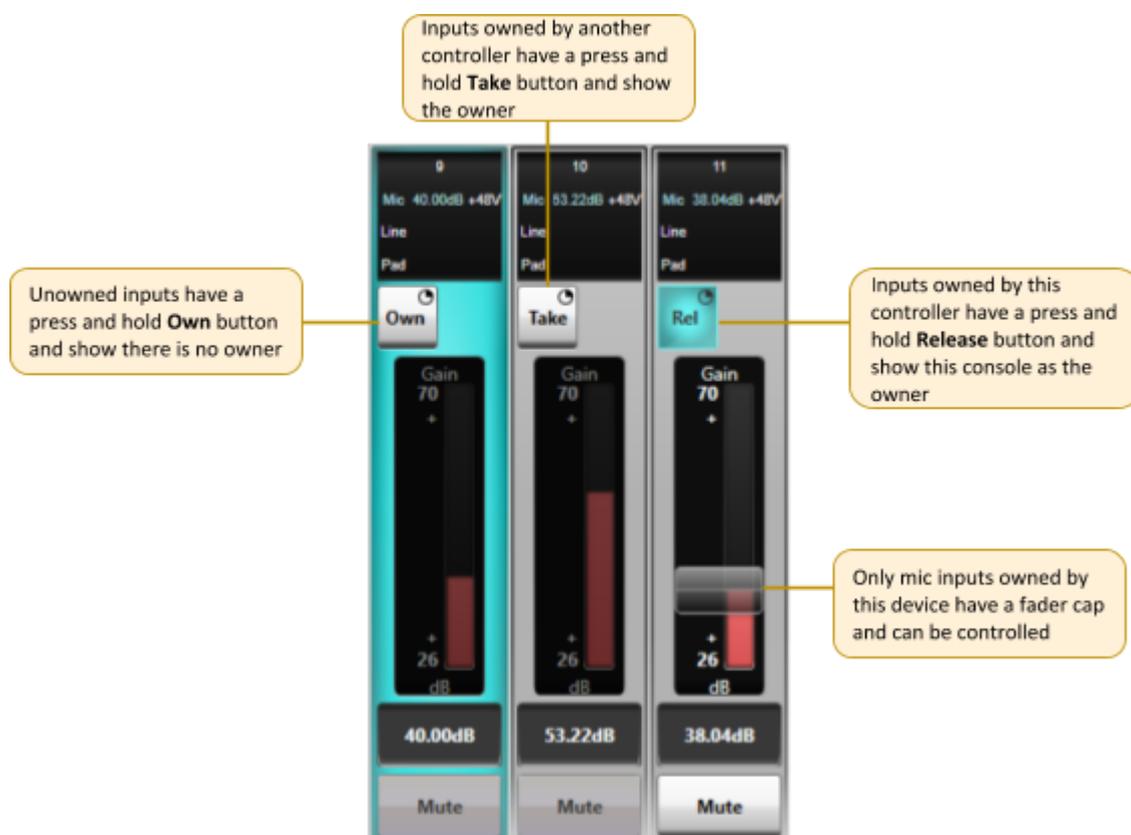
The current owner is listed in white

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

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**:



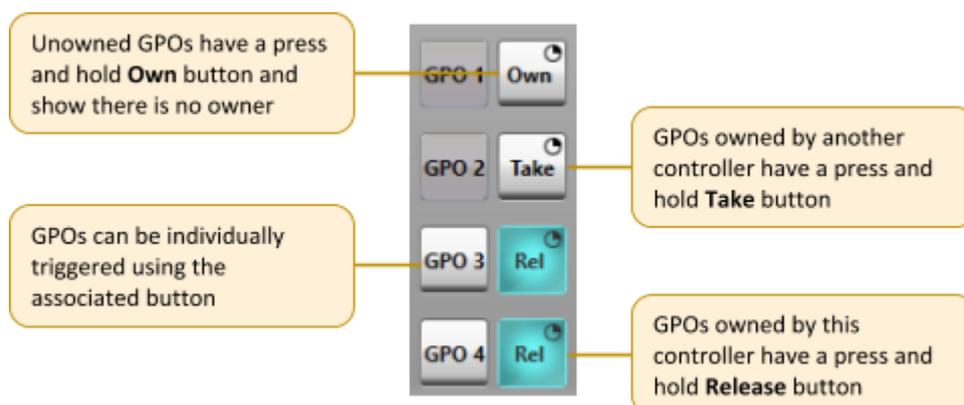
When an SSL console makes routes from Stagebox inputs, the console will automatically become the owner of any unowned inputs. If an input is owned by a different controller then routing will not automatically take ownership, **Take** ownership will need to be performed if input control is required on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

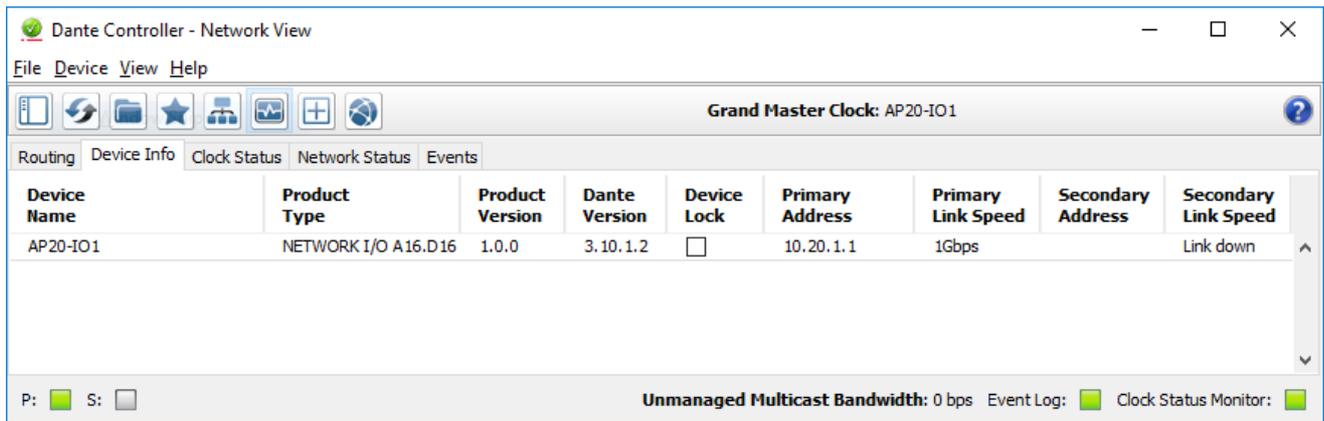
GPO Ownership (A16.D16 and GPIO 32 Only)

The A16.D16 and GPIO 32 GPO connections also have ownership status. The available ownership states are identical to those for inputs.

N.B. GPIO 32 ownership is only controllable from System T consoles. GPIO 32 cannot be controlled from SSL Network I/O Controller.



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.

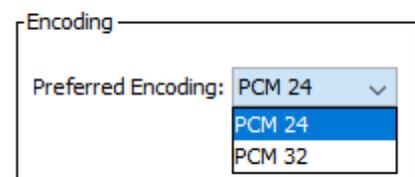
The device will resolve to a link-local address if it is set to obtain an IP address automatically and no DHCP server is present. To access via link-local, set your computer to obtain an IP address automatically, directly connect to the device’s primary port and wait for the link-local addresses to resolve.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

Linking/Unlinking Networks A and B

Network B functionality is not yet enabled. The Network Config tab within Dante Controller Device View allows for Networks A+B to be linked/unlinked, this currently has no functional effect on the unit.

User and Control Bit Pass-Through (A16.D16 and D64 Only)

To enable the pass-through of AES user and control bits the device must be set to 32-bit encoding (**PCM 32**). This is set within the **Encoding** section of the **Device Config** tab.



Appendices

Appendix A – Physical Specifications

Parameter	Value	Notes
Depth	460 mm (18.11")	
Height	88.5 mm (1.75")	2 RU
Width	438 mm (17.25") 482 mm (19")	Excluding rack ears Including rack ears
Weight	9.5 kg (21 lb)	
Power	< 100 W	
Boxed Size	538 x 538 x 228 mm (21.2 x 21.2 x 9.0")	
Boxed Weight	12.5 kg (27.6 lbs)	

Ventilation

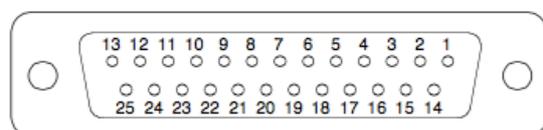
Ventilation is from the side and top of the unit.

1RU of ventilation must be provided above each unit.

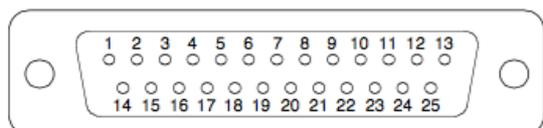
Appendix B - Connector Pin Outs

Analogue Inputs/Outputs		
Location:		Rear Panel
Connector Type:		25-way D-type female
Pin	Description	Notes:
1	Channel 8 (+ve)	Same circuit arrangement for Inputs and Outputs. Circuits offset by 8 for each additional connector.
14	Channel 8 (-ve)	
2	0V	
15	Channel 7 (+ve)	
3	Channel 7 (-ve)	
16	0V	
4	Channel 6 (+ve)	
17	Channel 6 (-ve)	
5	0V	
18	Channel 5 (+ve)	
6	Channel 5 (-ve)	
19	0V	
7	Channel 4 (+ve)	
20	Channel 4 (-ve)	
8	0V	
21	Channel 3 (+ve)	
9	Channel 3 (-ve)	
22	0V	
10	Channel 2 (+ve)	
23	Channel 2 (-ve)	
11	0V	
24	Channel 1 (+ve)	
12	Channel 1 (-ve)	
25	0V	
13	n/c	

Connectors Viewed From Wiring Side



Plug

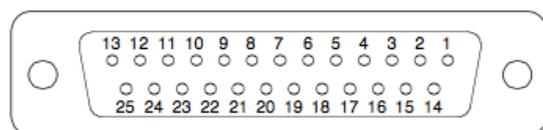


Socket

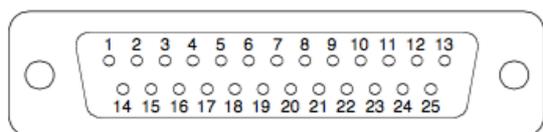
Dimensions: 55 x 15mm (approx.)
 Cable Diameter: 8mm (typical)
 Screwlock thread: 440-UNC

AES/EBU Inputs/Outputs		
Location:		Rear Panel
Connector Type:		25-way D-type female
Pin	Description	Notes:
1	Out channels 7/8 +	Outputs. Circuits offset by 8 for each additional connector.
14	Out channels 7/8 -	
2	Ground	
15	Out channels 5/6 +	
3	Out channels 5/6 -	
16	Ground	
4	Out channels 3/4 +	Inputs. Circuits offset by 8 for each additional connector.
17	Out channels 3/4 -	
5	Ground	
18	Out channels 1/2 +	
6	Out channels 1/2 -	
19	Ground	
7	In channels 7/8 +	Inputs. Circuits offset by 8 for each additional connector.
20	In channels 7/8 -	
8	Ground	
21	In channels 5/6 +	
9	In channels 5/6 -	
22	Ground	
10	In channels 3/4 +	n/c
23	In channels 3/4 -	
11	Ground	
24	In channels 1/2 +	
12	In channels 1/2 -	
25	Ground	
13	n/c	

Connectors Viewed From Wiring Side



Plug



Socket

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

GPIO

GP Outputs

All output switch closures are via DIL relay.

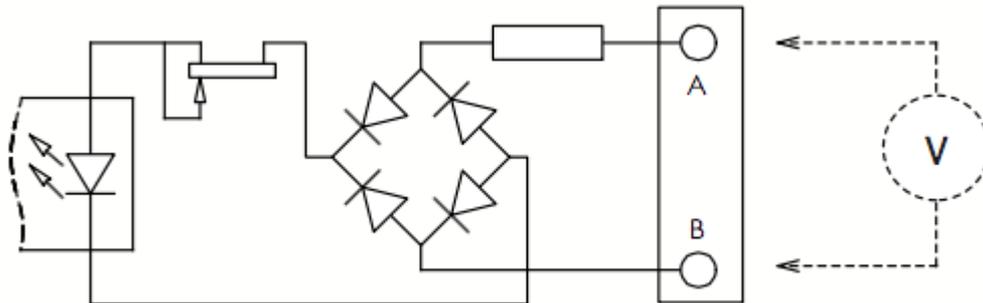
DO NOT use these outputs to directly switch capacitive or reactive loads; always use a separate external relay with suitable contact rating.

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 Same circuit arrangement for Inputs and Outputs Circuits offset by 4 for connectors 2 - 8 on GPIO 32
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
Gain Range	+26 to +70 dB -4 to +30 dB -4 to +40 dB	Mic mode, 0 dBFS, 0.1 dB gain step size Line mode, 0 dBFS, 0.1 dB gain step size Mic mode with pad engaged
Maximum Input Level	+27.5 dBu	30 dB Pad inserted
Frequency Response	± 0.2 dB	Mic mode, 20 Hz – 20 kHz (@48kHz) Typically ± 0.1 dB
Equivalent Input Noise	< -123 dB	Mic mode, 70 dB gain, A-weighted filter, 22 kHz bandwidth. Typically -124 dB
Usable Dynamic Range	> 115 dB	Mic mode, 0 dBFS, A-weighted filter, 22 kHz bandwidth. Typically 116 dB.
Input Impedance	2.3 kΩ / 10 kΩ	Mic / Line. Selectable per channel
CMRR	> 70 dB > 90 dB	Mic mode, 20 Hz – 20 kHz, 0 dBu Mic mode, 1 kHz, 0 dBu
Crosstalk	> -75 dB > -90 dB	20 Hz – 20 kHz 1 kHz
THD+N	< 0.01 %	Mic mode, 20 Hz – 20 kHz, -1 dBFS, 22 kHz bandwidth.
Phantom Power (Mic Input)	+48 V ±4 V 10 mA	Selectable per channel
Pad (Mic Input)	30 dB	Selectable per channel
Operating Levels	+24, +22, +20, +18, +15 dBu	
Sample Rates	44.1, 48, 88.2 or 96 kHz	
Resolution	24 bit	

Measurement Parameters

Sample Rate:	96 kHz
Operating Level:	+24 dBu = 0 dBFS
Mic input termination:	150Ω
Mic Mode Gain:	26 dB (unless stated otherwise)
Reference frequency:	1 kHz (unless stated otherwise)

Line Inputs		
Parameter	Value	Notes
Maximum Input Level	+24 dBu	10 k Ω load
Frequency Response	\pm 0.1 dB	-1 dBFS, 20 Hz – 20 kHz
Usable Dynamic Range	> 116 dB	0 dBFS, A-weighted filter, 22 kHz bandwidth Typically >117 dB
THD+N	< 0.005 %	20 Hz – 20 kHz, -1 dBFS, 22 kHz bandwidth Typically < 0.004%
Sample Rates	44.1, 48, 88.2 or 96 kHz	
Resolution	24 bit	

Line Outputs		
Parameter	Value	Notes
Maximum Output Level	+24 dBu	600 Ω / 10 k Ω load
Output Impedance	< 50 Ω	
Frequency Response	\pm 0.3 dB	-1 dBFS, 20 Hz – 20 kHz
Usable Dynamic Range	> 116 dB	0 dBFS, A-weighted filter, 22 kHz bandwidth Typically >117 dB.
Crosstalk	< -90 dB < -105 dB	20 Hz – 20 kHz, 0 dBFS 1 kHz, 0 dBFS
THD+N	< 0.01 %	20 Hz – 20 kHz, -1 dBFS. 22 kHz bandwidth Typically < 0.004%
Output Symmetry	> 40 dB	20 Hz – 20 kHz Typically > 50 dB
Sample Rates	44.1, 48, 88.2 or 96 kHz	
Resolution	24 bit	

Measurement Parameters

Sample Rate:	96 kHz
Operating Level:	+24 dBu = 0 dBFS
Reference frequency:	1 kHz (unless stated otherwise)

Digital Inputs		
Parameter	Value	Notes
Input Impedance	110 Ω	Transformer coupled
Sample Rates	44.1, 48, 88.2 or 96 kHz	176 kHz or 192 kHz with sample rate converters enabled
Sample Rate converters	Yes	Selectable per AES channel pair
Resolution	24 bit	

Digital Outputs		
Parameter	Value	Notes
Output Impedance	110 Ω	Transformer coupled
Sample Rates	44.1, 48, 88.2 or 96 kHz	
Resolution	24 bit	

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 IEC sockets (when both are used).
 - III. Please use a 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 half-cycle inrush current: 1.3 A. Typical peak inrush current: <5 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

Temperature	Operating: +5 to 30 deg. C	Storage: -20 to 50 deg. C
Vibration	Operating: < 0.2 G (5–200 Hz)	Non-operating: < 0.4 G (5–200 Hz)
Shock	Operating: < 3 G (11 ms max.)	Non-operating: < 10 G (11 ms max.)