

16 Channels Of Analogue and AES Audio Across a Dante®/AES67 Audio Network With Output Sample Rate Converters and Word Clock In/ Out



DARK1616S
Dante® Network Audio Interface

Highlights

Dante® /AES67
Network Audio
Interface

Sample Rates
Up to 192K

16 Channels Of
Analogue &
AES Audio

Redundancy On
Network Links &
Power Supplies

Loop Outputs
On Loss Of Link
Or Power

Designed
For 24/7 Operation

Overview

Moving audio from A to B is now more flexible than ever. The Dante® /AES67 system allows audio links over networks to be un-compressed, low latency and reliable.

The 16 inputs and outputs of the Dark1616s are paralleled in both analogue and AES for maximum flexibility. The Dante Controller software allows simple point to point or point to multipoint routing across a network of Dante enabled products. Glensound adds broadcast grade reliability to the Dante interface with a primary and redundant CAT5 link, a primary and redundant SFP/fibre link, and a primary and redundant power supply, with loops indicating link & PSU states.

In addition to the standard Dark1616 the Dark1616S adds Word Clock inputs & outputs and output AES3 sample rate converters to allow locking of the AES3 output circuits to the Word Clock input frequency rather than the Dante network frequency.

**DARK1616S****Dante® Network Audio Interface****Features**

- **Network Audio Link Options**
Links between DARK1616 units and other Dante network devices across a network can be via:
 - Network cable - Primary & Redundant**
Two CAT6 network cable connections provide a primary and redundant connection. The maximum range of this link is 100m.
 - Fibre - Primary & Redundant**
Two SFP slots provide options for single, multi mode or bi-directional SFP modules, on a primary and a redundant connection. The distance of this link could be over many kilometres depending on the SFP module used.
- **Audio Inputs & Outputs**
The Dark1616 has 16 analogue inputs and outputs, and 16 AES inputs and outputs. All audio input and output connections are presented on DB25 sockets and follow the AES59 (Tascam) wiring convention for ease of sourcing pre-made cabling.
- **Network Or Direct Linking**
Two DARK1616s can be linked directly or as part of a Dante®/ AES67 network.
- **Loop Outputs**
The status of the fibre and CAT6 network links are monitored and produce a closed contact on the front panel in the event that any link should fail. There are also loop outputs for both power supplies in case there should be a failure. This allows connection to other devices or computers for monitoring of the link and power status of the DARK1616S.
- **Local Ethernet Switch**
Each DARK1616S is a 4 port Ethernet switch. If your primary network link is on fibre and using the primary and redundant connections, you can utilise the CAT5 connections for linking multiple units. Only one DARK1616S has to connect to the network, and the rest can daisy chain through any spare CAT5 or copper ports. Each will be presented on Dante Controller as a separate unit.
- **Designed for 24/7 Operation**
The technology that makes the Dark1616 comes from years of Glensound know h o w and the unit is designed to be suitable for permanent robust 24 hours a day 365 days a year operation.

**DARK1616S****Dante Network Audio Interface****Description**

The DARK1616S is a versatile break in/ out box for sending/ receiving both analogue and digital (AES3) audio to/ from a network utilising the Dante Audio over IP (AoIP) protocol.

In total there are 16 channels of audio sent from the Dark1616S into the network. The Dark1616S has 8 off AES3 inputs and 16 off analogue inputs. The AES3 inputs take priority over the analogue (if an AES3 input is receiving a valid AES3 signal then it will turn off the equivalent analogue input pair and route its output to the network).

Simultaneously there are 16 channels of audio being received from the network by the Dark1616S and these incoming circuits are provided as outputs from the Dark1616S in both AES3 and analogue.

The AES3 inputs have sample rate converters on them and can accept input frequencies up to 192kHz, the incoming AES3 circuit is always sample rate converted to match the Dante network frequency.

The AES3 outputs have sample rate converters on them and can be locked to the sample frequency of the Word clock input or to the Dante network.

The Word clock input allows an external clock to set the AES3 output frequency. It can also be used to set as the Dante® networks preferred master clock. A Word clock output is also provided, this is clocked at the same sample rate as the Dante® network and can be used for locking external equipment to the network's sample rate.

For ease of cabling audio I/O is presented on D25 sockets to the AES59 standard (Tascam wiring convention) for which there are a number of reasonably priced break out cables available from multiple suppliers.

Being designed for resilient broadcast applications the Dark1616S features both redundant power supplies and redundant Dante network links with link status GPOs (general purpose outputs (solid state relays)). Both primary and secondary network links are provided with both magnetic (copper RJ45) and fibre (SFP) interface connections. The Dante system itself provides a completely transparent redundant link system which means that if the Dark1616S lost its primary link circuit the secondary link would automatically take over with no loss of audio.

The primary and secondary network interfaces are routed internally via a network switch. It is possible to set this switch to work as a traditional network switch instead of the default redundant mode. This means that there would be just one link to the Dante network while the other connections of the switch could have other Dante or network devices connected to them. As with all Dante devices, once set up Dark1616S units can be directly connected with each other with no external network hardware.

Dante® Controller Route Audio & Configure Devices On A Dante Network

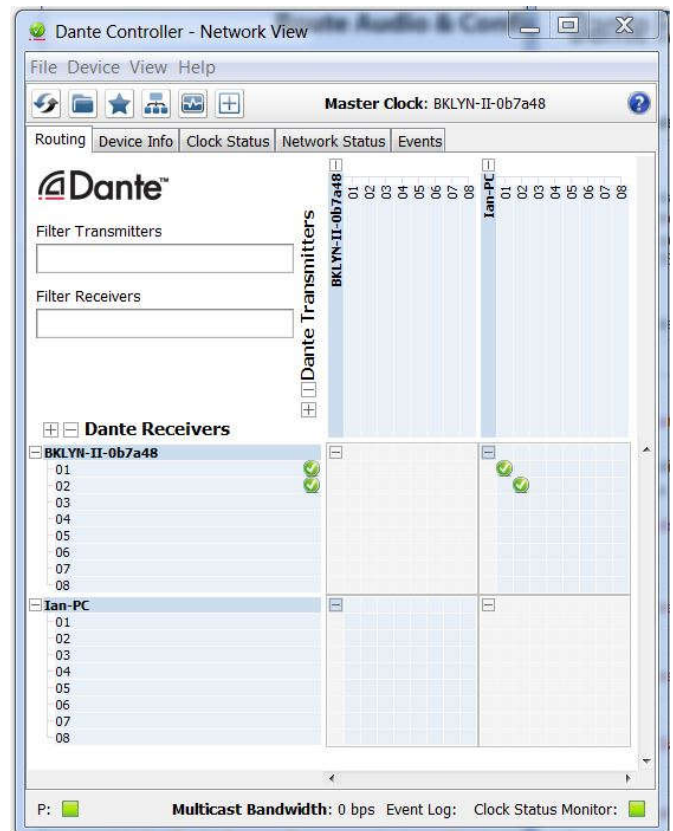
Overview

Dante Controller

Dante Controller is a free software application that enables you to route audio and configure devices on a Dante® network. With automatic device discovery, one-click signal routing and user-editable device and channel labels, setting up a Dante network couldn't be easier. See the overview for more detail on Dante audio networking.

Dante Controller is much more than just a configuration and routing matrix. Dante Controller provides essential device status information and powerful real-time network monitoring, including device-level latency and clock stability stats, multicast bandwidth usage, and customized event logging, enabling you to quickly identify and resolve any potential network issues. You can also quickly and easily backup, restore, move, and reuse Dante network configurations using Presets, and edit Dante routing configurations offline.

Dante Controller is available for Windows and Mac OS X.



Features

- View all Dante-enabled audio devices and their channels on the network
- View and edit device clock and network settings
- Route audio between devices, and view the state of existing audio routes
- Rename devices and channels using your own friendly names
- Customise the receive latency (latency before playout)
- Save and reapply audio routing presets
- Edit presets offline, and apply as configurations for new network deployments
- Change sample rates and clock settings
- View multicast bandwidth across the network
- View transmit and receive bandwidth for each device
- View device performance information, including latency stats, clock stability stats and packet errors
- View comprehensive, configurable event logs

SPECIFICATIONS

DARK1616S

ANALOGUE AUDIO**Frequency Response**

+/-0.25dB 20Hz to 22kHz (Input to Output)

Maximum Input Level

+18dB

Maximum Output Level

+18dBu

Input Impedance

>20k Ohm

Output Impedance

=<50 Ohms

Distortion

0.0013% @ 100Hz

0.0022% @ 1kHz

0.00094% @ 10kHz

Reference to +8dBu output

Noise

-93dB @ line up A weighted

RMS (22Hz to 22kHz)

Interchannel Crosstalk

>101dB @ 0dB with 1kHz tone

Dynamic Range

>111dB

Output Type

Electronically balanced (can be wired unbalanced)

Input Type

Electronically balanced (can be wired Unbalanced)

NETWORK**Dante® Network**

Sample Frequency: 44.1 - 192kHz

Resolution: 24 Bit

AES67 Mode

Sample Frequency: 48kHz

Channels/ Stream: Maximum of 8

Full Scale Level

Fs = +18dBu (others levels available to special order)

POWER**Mains Inputs**

2 off Filtered IEC, 100 to 240VAC

47 - 63Hz

AC Consumption

18 Watts @ 230VAC

Internal Mains Fuse

20mm 1A Anti Surge

MISC**Audio Connectors**

25 Way D Connectors wired to AES59

Alarm Connector

9 Way D Socket

Alarm Type

Solid State Relay

DIGITAL AES3 AUDIO**Frequency Response**

Flat to 22kHz (Input to Output)

Maximum Input Level

0dBFS

Maximum Output Level

0dBFS

Input Impedance

110 Ohms

Output Impedance

110 Ohms

THD + N

0.00018% relative

Noise

>-123dB (residual) A weighted

RMS (22Hz to 22kHz)

Dynamic Range

>141dB

Output Type

Transformer balanced

Output Frequency

44.1, 48, 88.2, 96, 192kHz (frequency matches Word Clock or Dante® network)

Input Type

Transformer balanced

Input Frequency

16 - 192kHz (sample rate converted to match Dante® network frequency)

Word Clock Frequency

44.1 - 192kHz

Word Clock Type

BNC Unbalanced 75 Ohms

PHYSICAL**Size**

1RU 19" 300mm deep (from rear of front panel to rear panel (excluding connectors))

Weight

3.3kg

Mechanics

All aluminium construction, anodized and laser etched front & rear panels

Shipping Carton

Rugged export quality cardboard carton

610 x 420 x 130mm LxDxH

Shipping Weight

4.8kg

INCLUDED ITEMS**Handbook**

By download

Mains Cable

UK & EU Only, 2 metre mains plug to IEC

RJ45 Network Cable

2 metre Cat5 RJ45plug /RJ45plug cable

E&OE

Technical specifications