

## 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 Dark1616 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.

**Dante™**

**Glensound**

**DANK1616S****Dante® Network Audio Interface****Features**

- Network Audio Link Options**  
 Links between DARK 1616s 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 DARK1616 is a 4 port Ethernet switch. If your primary network link is on fibre using the primary and redundant connections, you can utilise the CAT5 connections for linking multiple units. Only one DARK1616 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 how 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 utilizing 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 networks 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 Dark1616 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 Dark1616 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 and it is possible to set this switch to work as a traditional network switch instead of the default redundant mode meaning that there would be just one link to the Dante network and the other connections of the switch could have other Dante or network devices connected to them. As with all Dante devices once set up Dark1616 units can be directly connected with each other with no external network hardware.

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

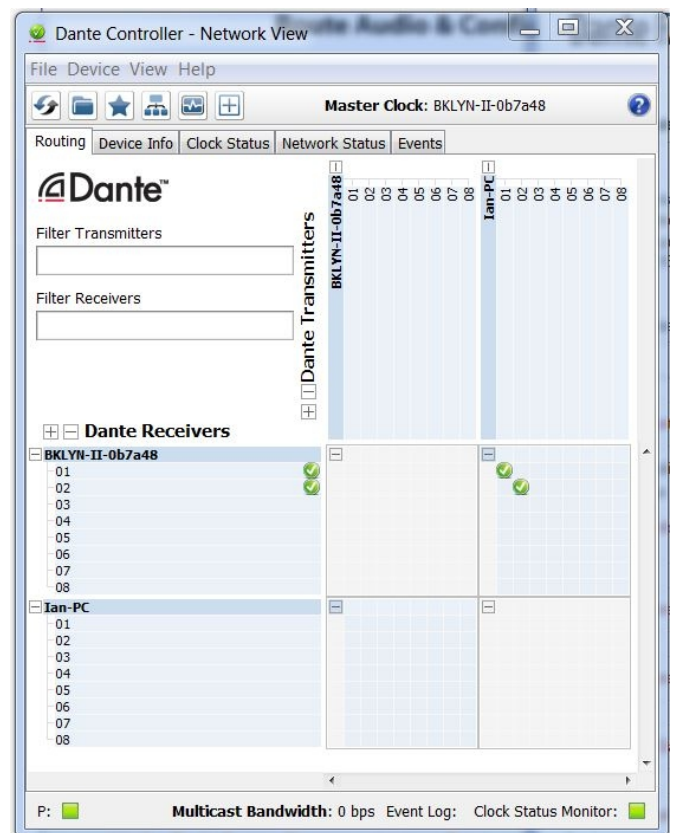
### Overview

#### 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
- Customize 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**

&gt;20k Ohm

**Output Impedance**

=&lt;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**

&gt;101dB @ 0dB with 1kHz tone

**Dynamic Range**

&gt;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**

&gt;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**

Physical A4 (download also available)

**Mains Cable**

UK &amp; EU Only, 2 metre mains plug to IEC

**Rj45 Network Cable**

2 metre Cat5 Rj45plug /Rj45plug cable