Network Audio Interface

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 parallelled 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.

Glensound
Keeps Working

DARK1616S
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 outpus 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.

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 Dark1616S units can be directly connected with each other with no external network hardware.

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

Network Audio Interface

### 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.
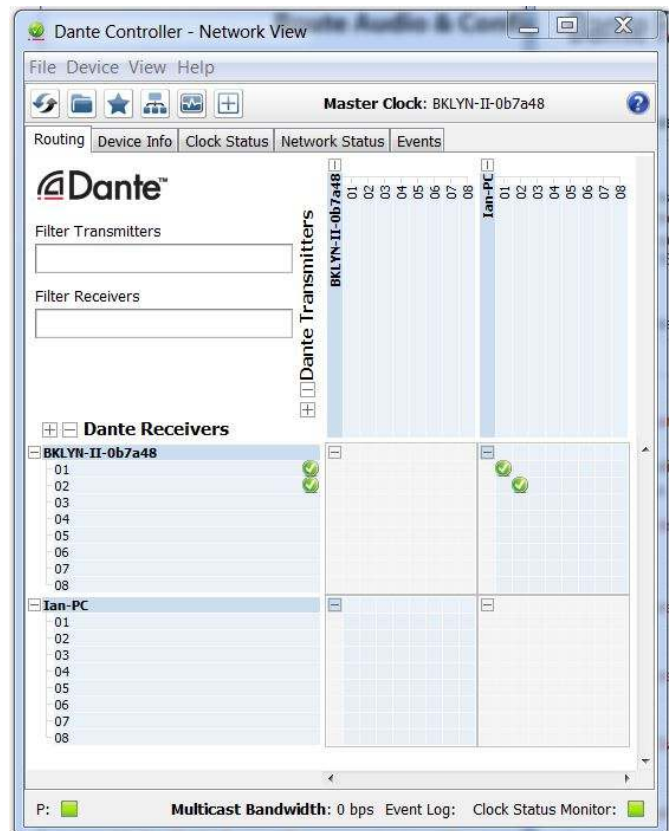
Features

- 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

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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 with1kHz 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
Physical A4 (download also available)

Mains Cable
UK & EU Only, 2 metre mains plug to IEC

Rj45 Network Cable
2 metre Cat5 Rj45plug /Rj45plug cable