Network Audio Interface

16 Channels Of Analogue and AES Audio Across a Dante/AES67 Audio Network With Remote Controlled Microphone Amplifiers

With Remote Controlled Mic Amps

DARK1616M (Mic/line inputs)
Dante Network Audio Interface

Highlights

- Dante 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 system allows audio links over networks to be uncompressed, low latency and reliable. The 16 inputs and outputs of the Dark1616 are paralleled in both analogue and AES for maximum flexibility with the added benefit of exceptional quality mic amplifiers and huge 127dB dynamic range analogue to digital converters.

A modern Windows 10 app provides remote control facilities for the microphone amplifiers, metering & setup control. 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.

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Network Audio Interface

DARK1616M
Dante Network Audio Interface With Mic Amps

Features

Network Audio Link Options
Links between DARK1616M 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.

Built In Microphone Amplifiers
The Dark1616M includes selectable mic amps on all analogue inputs making the inputs mic/line. These are the highest quality remote gain controlled THAT Corporation analogue mic amps currently available, the outputs of which are converted to the digital domain by some of the best analogue to digital converters available, with 127dB of dynamic range. This allows the mic inputs to enter the audio network in the cleanest way possible. +48V phantom power is selectable.

Audio Inputs & Outputs
The Dark1616 has 16 analogue inputs and outputs, and 8 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.

Windows 10 App
A modern styled Windows 10 App is provided for the remote control and setup of the microphone amplifiers and inputs.

Loop Outputs
The status of the fibre and CAT6 network links are monitored and produce a closed contact on the rear 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 DARK1616.

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.

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DARK1616M

Dante Network Audio Interface With Mic Amps

Description

The DARK1616M 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 Dark1616M into the network. The Dark1616M has 8 off AES3 inputs and 16 off analogue inputs (Mic/ Line). Selection/ priority of the AES3 or Analogue circuits can be set on the remote control app.

Simultaneously there are 16 channels of audio being received from the network by the Dark1616M and these incoming circuits are provided as outputs from the Dark1616M in both AES3 and analogue.

A sophisticated remote control application is provided for Windows 10 machines. It provides set up, live gain control of the inputs & metering on both inputs & outputs. One app can control multiple Dark1616Ms and multiple apps can control 1 x Dark1616M.

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 are locked to the sample frequency of the Dante network.

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 Dark1616M 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 Dark1616M 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. This means 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 Dark1616M units can be directly connected with each other with no external network hardware.

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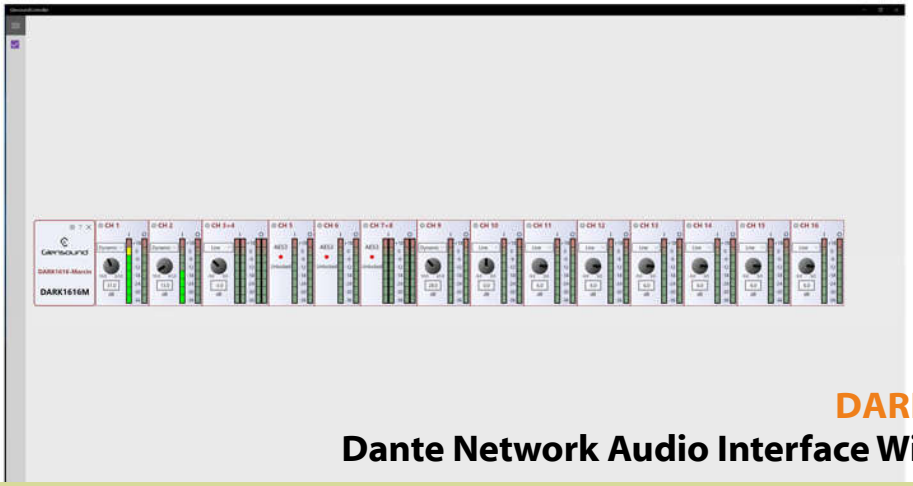
Network Audio Interface



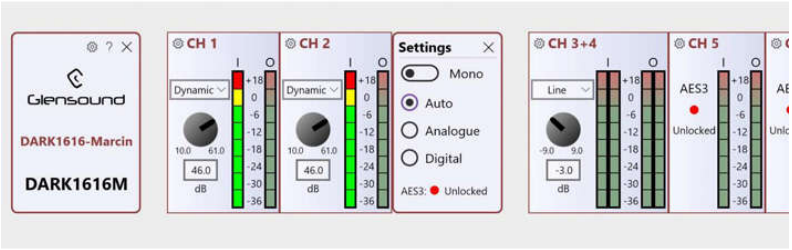
DARK1616M App
Dante Network Audio Interface With Mic Amps

Remote Control App

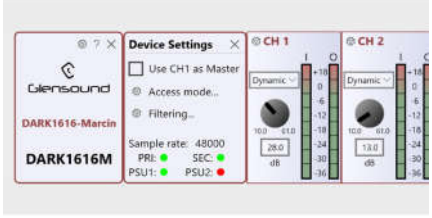
The sophisticated modern looking Windows 10 App allows full remote control of all the features of the Dark1616M.

The App connects to the Dark1616M via the same network as the Dante audio circuits and provides a reliable redundant control system via both the primary and secondary network interfaces, meaning that even if one of the 2 networks were to become disconnected the remote control would continue to work.

One App can connect to multiple DARK1616Ms and multiple Apps running on different PCs can connect to a single DARK1616M.The App provides the ability to lock out other users from controlling a Dark1616M and this facility can be password protected, meaning only authorised personnel can change the settings on a DARK1616M.



For users regularly using the units at different events and functions, settings can be saved and assigned names for quick recall.



Controls on the App include:

Selecting input type (Mic, Line, Mic + 48V Phantom)
Changing the input gain (in 3dB steps)
Selecting the input source (Analogue, Digital or Auto)
Monitoring an input level on a PPM style meter
Monitoring a channel's output level on a PPM style meter
Setting 2 inputs to become a stereo pair
Altering the ADC (analogue digital convertors) filter settings
Saving & recalling setups
Password protecting the DARK1616M to prevent other Apps controlling it
Monitoring the state of both power supplies
Seeing the state of both Primary & Secondary network links
Displaying the Dante network clock rate

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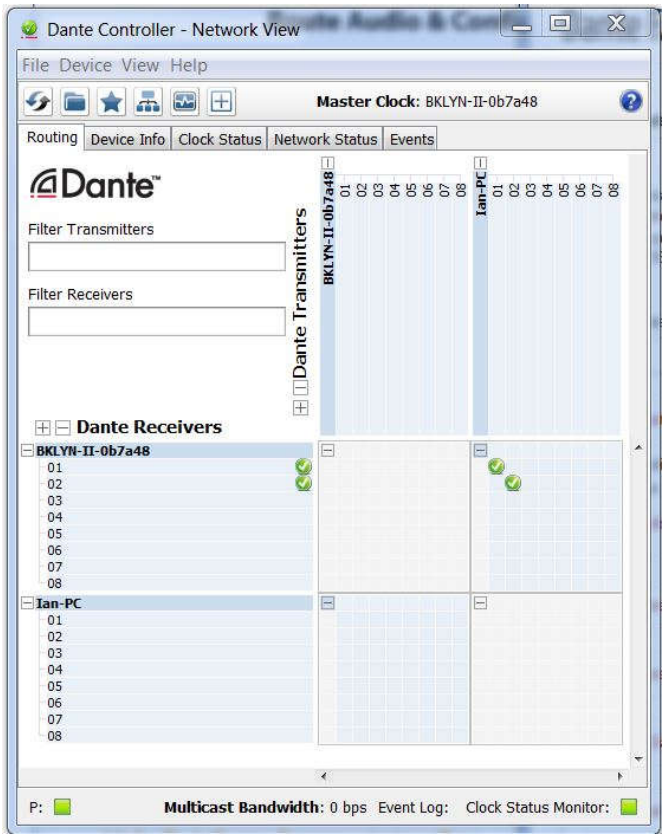
Dante Controller
Route Audio & Configure Devices On A Dante Network

Network Audio Interface

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

Dante overview

DANTE
The DANTE Audio Network Overview

Overview

Based on industry standards, Dante is an uncompressed, multi-channel digital media networking technology, with near-zero latency and synchronisation. Dante is the preferred audio networking solution that has been adopted by more pro-audio AV manufacturers than any other networking technology. Interoperability is not a dream of the future, but a reality today. Hundreds of Dante-enabled products are available from the world's leading manufacturers, enabling you to mix devices from multiple manufacturers.

Economical and Versatile

One cable does it all. Dante does away with heavy, expensive analog or multicore cabling, replacing it with low-cost, easily-available CAT5e, CAT6, or fibre optic cable for a simple, lightweight, and economical solution. Dante integrates media and control for your entire system over a single, standard IP network.

Dante systems can easily scale from a simple pairing of a console to a computer, to large capacity networks running thousands of audio channels. Because Dante uses logical routes instead of physical point-to-point connections, the network can be expanded and reconfigured at any time with just a few mouse clicks.

Outstanding Quality

Since audio is transmitted digitally, you don't have to worry about the common analogue challenges of interference from other electrical equipment, crosstalk between cables, or signal degradation over long cable runs.

Easy To Install

Setting up Dante networks couldn't be easier. You no longer have to shudder when considering the deployment of an audio network. Even the most complex networks can be set up and configured quickly and easily with Dante, making system integration simple. Dante automatically handles the technical complexities for you.

Signal routing and system configuration with Dante is fast, simple, and incredibly flexible. Dante Controller is a powerful software application that manages devices on the network. Setting up a Dante network is typically just a matter of plugging devices into an Ethernet switch and connecting a computer to the network. All Dante devices are automatically discovered and displayed in Dante Controller, so you can be up and running in seconds.

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The DANTE Audio Network Overview

Easy to Use
With Dante Controller you can easily edit device names and channel labels, control sample rates, and set device latencies. There is no longer any need to remember device IDs or channel numbers. Instead, a single audio channel is referred to just like an email address: "commentatorA @ studio or "news_mic @ voboothA". Set it and forget it. Once the network is configured, the computer running Dante Controller can be removed from the network, and reconnected only if changes are required or system monitoring is desired. Signal routing and other system settings are stored safely in the Dante devices themselves, so they are automatically restored if a device is power-cycled.

Network Health and Management
Real-time information about the health of your network is essential for a proper understanding of its performance. There is a rich suite of diagnostic tools within Dante Controller, providing visibility into the network health status through features such as device latency monitoring, active clock health monitoring, packet error reporting, and bandwidth usage statistics.

Glitch-Free Redundancy
Many Dante-enabled devices support 'glitch–free' redundancy, enabling a secondary physical network to be provided, duplicating the audio traffic on the primary network. This automatically prevents any audio loss or interruption in the event of a connectivity problem on the primary network.

Unicast or Multicast
Dante audio channels can be configured as unicast or multicast as appropriate, to make best use of available bandwidth. Unicast provides a direct point-to-point stream for unique channels; multicast sends an audio stream to multiple devices simultaneously.

Fully Integrated with Windows and Mac OS X
With Dante Virtual Soundcard, your computer becomes a Dante audio interface for multitrack recording and media playback, using the computer's existing Ethernet port — no additional hardware is required. Digital Audio Workstations, software-based media players, Skype, iTunes, Pandora, Spotify and other applications are easily integrated into your network via Dante Virtual Soundcard.

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Technical Specifications

SPECIFICATIONS

DARK1616M

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)

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 Dante network)

Input Type
Transformer balanced

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

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

DARK1616M

MIC INPUTS (OTHER SPECS AS ABOVE)

Frequency Response
+/-0.25dB 40Hz to 22kHz

Input Range
-67 to -15dB (for -24dBFs line up)
-61 to -7dB (for -18dBFs line up)

Input Gain Resolution
3dB steps

Input Impedance
>2k4 Ohm

Equivalent Input Noise
127dB (22Hz - 22kHz Terminated 300 Ohms)

Distortion
0.013% @ 100Hz, 0.002% @ 1kHz
0.003% @ 10kHz, Reference to +8dBu output

Phantom Power
+48 Volts

E&OE