

# SYNAPSE

High Channel Density  
Networked Audio Interfaces

Dante®  
AES67



## Product Family Overview

The Synapse product family adds high performance, high channel density analog and digital audio connectivity, monitoring and expansion to any Dante™ or AES67-based audio system.

## Common Features



- Dante™ and AES67 audio networking with support for Dante™ Domain Manager
- High performance A/D and D/A conversion supporting 16/24 bit, 44.1 kHz to 96 kHz sampling
- Front panel 1/4" headphone output with assignable audio source for confidence monitoring
- High contrast OLED display for audio level metering, device status and setup
- Network redundancy including built-in SFP ports for redundant fiber connectivity
- Optional redundant power with external supply
- Ethernet control with 3rd party control API
- Compact 1 RU form factor delivers high density audio connectivity in a rack space sensitive form factor
- Supported in Unify Control Panel for device configuration and real-time monitoring.

## Product

## Core Features

<b>DM 1</b>	Rackmount Networked Audio Monitor	<ul style="list-style-type: none"> <li>• Integrated rackmount speakers with front panel assignment of up to 128 channels Dante™ channels (extended mode)</li> </ul>
<b>D16M16</b>	16x16 Mic/Line Interface	<ul style="list-style-type: none"> <li>• 16 studio quality mic / line preamps</li> <li>• 16 balanced outputs</li> <li>• Available with terminal block or DB-25 connectors</li> </ul>
<b>D32o</b>	32 Line Output Interface	<ul style="list-style-type: none"> <li>• 32 high performance, balanced line outputs</li> <li>• Available with terminal block or DB-25 connectors</li> </ul>
<b>D32i</b>	32 Line Input Interface	<ul style="list-style-type: none"> <li>• 32 Balanced line inputs</li> <li>• Switchable pad per bank</li> <li>• Available with terminal block or DB-25 connectors</li> </ul>

## Applications

- Long range signal extension when utilized with integrated SFP expansion ports and fiber modules
- Centralized high density audio on/off ramp for AV matrix switches, wireless mic receivers, video decoders, media servers and multichannel amplifiers
- Audio confidence monitoring at the rack for quick system diagnostics and sound checks





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## DM 1

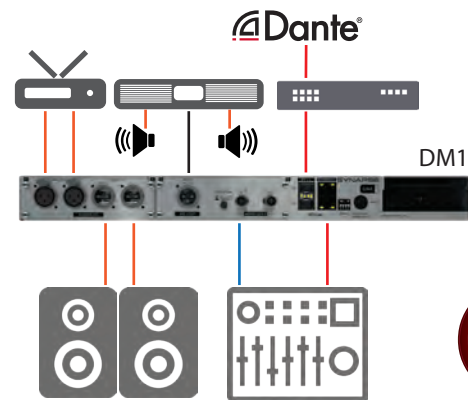


## DM1 Overview

The DM1 is a rackmount networked audio monitor for confidence monitoring of networked audio and local sources at the rack via headphones or through the integrated speakers. The DM1 has 2 modes of network audio monitoring: *Standard and Extended.*

Standard mode features monitoring of any of the 32 channels assigned to the Dante™/AES67 receiver inputs. Extended mode allows subscription based monitoring of up to 128 channels loaded to the DM1 using the Unity Control Panel Software. In both modes, audio may be selected for monitoring by the user via the front panel controls. The DM1 also features AES-3 digital outputs for connectivity to full range powered speakers or amplifiers and 2 channels of analog I/O for local source monitoring and network connectivity.

## Application Diagram



## Specifications

### Analog Inputs

- Maximum Input Level:** +24 dBu
- Input Impedance:** 10 k $\Omega$
- Input Type:** 3-pin XLR-F
- Dynamic Range:** >105 dB
- THD+N:** <0.02% @ -3dBFS
- Frequency Response:** 20 Hz to 20 kHz, +/- 0.5 dB

### Analog Outputs

- Maximum Output Level:** +24 dBu
- Output Impedance:** 200 Ohms
- Input Type:** 3-pin XLR-M
- Dynamic Range:** >110 dB
- THD+N:** <0.02% @ -3dBFS
- Frequency Response:** 20 Hz to 20 kHz, +/- 0.5 dB

### Audio Networking

- Protocol Support:** Dante™ with AES67 support
- Channel Count:** 32 Dante RX, 2 Dante™ TX
- Modes:** Switched or Redundant Mode,
- Latency:** 0.250 ms minimum
- Ports:** 2 - Gb Copper on RJ-45, 2 - Gb SFP

### Headphone Output

- Connector:** 1/4" Jack
- Controls:** Mute / Volume encoder
- Load:** 32 $\Omega$  Minimum

### Speaker Outputs

- Output Power:** 3 W / channel @ 8 ohms
- Frequency Response:** 250 Hz - 20 kHz +/-3 dB

### Digital I/O

- AES-3:** AES-3 digital output on 3-pin XLR-M,
- Word Clock:** Sync I/O on BNC with switchable 75 Ohm termination on input

**Certifications:** FCC 47CFR Parts 15B and 18 (Class A), EN 55011, ICES-003, CE (EN55022 Class A and EN55024 Class A)

**Dimensions:** 1 RU form factor, 19" W x 1.75" H x 12.5" D

**Weight:** 6 lbs

**Operating Temperature:** 0 to 40° C

**Power:** 110V-220V AC Input, with optional external 24VDC redundant supply

**Power Consumption:** <20W



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## D16Mio



### D16Mio Overview

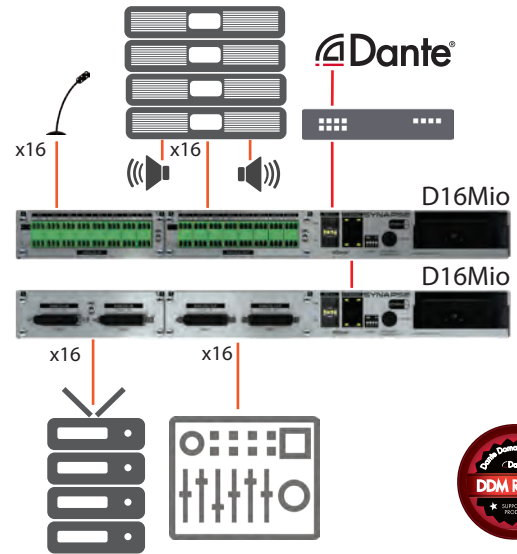
The D16Mio is a high performance, high channel density networked audio interface supporting Dante™ with AES67 interoperability. The D16Mio features 16 channels of studio grade microphone preamplifiers using THAT Corporation mic preamp technology, with up to 51 dB of digitally controlled gain in 3 dB steps. Each mic input also supports P48 switchable phantom power and a switchable pad for accommodation of pro line level inputs.

The balanced line level outputs feature digitally controlled output attenuation from 0 to -100 dB. All I/O are available independently via the Dante™ / AES67 network audio interfaces. The D16Mio is available in terminal block or DB-25 options for optimum ease of connectivity and wiring.

The D16Mio is an excellent solution for:

- Audio expansion for any DSP based AV systems
- House of worship and theaters
- Analog and digital snake alternative

### Application Diagram



### Specifications

#### Mic/ Line Inputs (16 Channels)

- Maximum Input Level:** +24 dBu (Pad Active - Line Mode)
- Input Impedance:** 10 kΩ
- Input Type:** 3-pin depluggable terminal block or DB-25
- EIN:** 125 dB @ Max Gain
- THD+N:** <0.005% (Line), <0.015% (Max Mic Gain)
- Frequency Response:** 20 Hz to 20 kHz, +/- 1 dB

#### Analog Outputs (16 Channels)

- Maximum Output Level:** +24 dBu
- Input Impedance:** 10 kΩ
- Input Type:** 3-pin XLR-M
- Dynamic Range:** >110 dB
- THD+N:** <0.02% @ -3dBFS
- Frequency Response:** 20 Hz to 20 kHz, +/- 1 dB

#### Headphone Output

- Connector:** 1/4" Jack
- Controls:** Mute / Volume encoder
- Load:** 32Ω Minimum

#### Audio Networking

- Protocol Support:** Dante™ with AES67 support
- Channel Count:** 16 Dante RX, 16 Dante™ TX
- Modes:** Switched or Redundant Mode
- Latency:** 0.250 ms minimum
- Ports:** 2 - Gb Copper on RJ-45, 2 - Gb SFP
- Sample Rates:** 16/24-bit, 44.1kHz, 48 kHz, 88.2kHz, 96 kHz

**Certifications:** FCC 47CFR Parts 15B and 18 (Class A), EN 55011, ICES-003, CE (EN55022 Class A and EN55024 Class A)

**Dimensions:** 1 RU form factor, 19" W x 1.75" H x 12.5" D

**Weight:** 6 lbs

**Operating Temperature:** 0 to 40° C

**Power:** 110V-220V AC Input, with optional external 24VDC redundant supply

**Power Consumption:** <20W



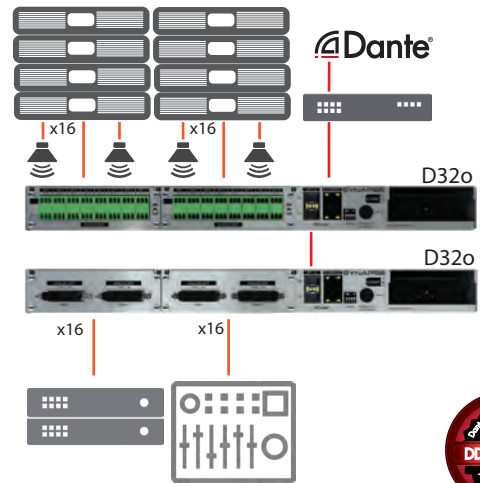
### D320 Overview

The D320 is a high performance, high channel density networked audio interface supporting Dante™ with AES67 interoperability. The balanced line level outputs feature digitally controlled output attenuation from 0 to -100 dB. All outputs are available independently for routing from the Dante™ / AES67 network audio interfaces. The D320 is available in terminal block or DB-25 options for optimum ease of connectivity and wiring.

The D320 is an excellent solution for:

- Audio expansion for any DSP based AV systems
- Network audio connectivity for multichannel amplification systems
- Digital Snake replacements
- Single box audio network upgrade solutions or legacy AV systems

### Application Diagram



### Specifications

#### Analog Outputs (32 Channels)

- Maximum Output Level:** +24 dBu
- Input Impedance:** 10 kΩ
- Input Type:** 3-pin XLR-M
- Dynamic Range:** >110 dB
- THD+N:** <0.02% @ -3dBFS
- Frequency Response:** 20 Hz to 20 kHz, +/- 0.5 dB

#### Headphone Output

- Connector:** 1/4" Jack
- Controls:** Mute / Volume encoder
- Load:** 32Ω Minimum

#### Audio Networking

- Protocol Support:** Dante™ with AES67 support
- Channel Count:** 32 Dante™ RX
- Modes:** Switched or Redundant Mode
- Latency:** 0.250 ms minimum
- Ports:** 2 - Gb Copper on RJ-45, 2 - Gb SFP
- Sample Rates:** 16/24-bit, 44.1kHz, 48 kHz, 88.2kHz, 96 kHz

#### Certifications:

- FCC 47CFR Parts 15B and 18 (Class A), EN 55011, ICES-003, CE (EN55022 Class A and EN55024 Class A)
- Dimensions:** 1 RU form factor, 19" W x 1.75" H x 12.5" D
- Weight:** 6 lbs
- Operating Temperature:** 0 to 40° C
- Power:** 110V-220V AC Input, with optional external 24VDC redundant supply
- Power Consumption:** <20W



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## D32i



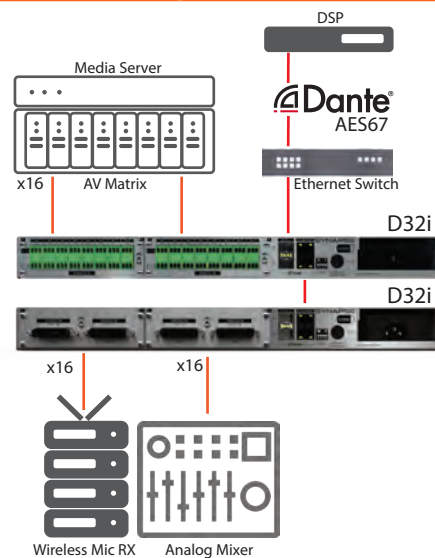
### D32i Overview

The D32i is a high performance, high channel density networked audio interface supporting Dante™ with AES67 interoperability. The balanced line level inputs feature a software switchable input pad for each bank to accommodate a mix of line level consumer and professional analog audio input levels. All inputs are available independently via the Dante / AES67 network audio interfaces. The D32o is available in terminal block or DB-25 options for optimum ease of connectivity and wiring.

The D32i is an excellent solution for:

- Audio expansion for any DSP based AV systems
- Network audio connectivity for AV matrices
- Digital Snake replacements
- Cost effective Dante interface for retrofit wireless microphone systems
- Single box audio network upgrade solutions or legacy AV systems

### Application Diagram



### Specifications

#### Line Inputs (32 Channels)

- Maximum Input Level:** +24 dBu (Pad Active - Line Mode)
- Input Impedance:** 10 kΩ
- Input Type:** 3-pin depluggable terminal block or DB-25
- Dynamic Range:** >105 dB
- THD+N:** <0.005% @ -3dBFS
- Frequency Response:** 20 Hz to 20 kHz, +/- 0.5 dB

#### Headphone Output

- Connector:** 1/4" Jack
- Controls:** Mute / Volume encoder
- Load:** 32Ω Minimum

#### Audio Networking

- Protocol Support:** Dante™ with AES67 support
- Channel Count:** 32 Dante™ TX, 2 Dante™ RX
- Modes:** Switched or Redundant Mode
- Latency:** 0.250 ms minimum
- Ports:** 2 - Gb Copper on RJ-45, 2 - Gb SFP
- Sample Rates:** 16/24-bit, 44.1kHz, 48 kHz, 88.2kHz, 96 kHz

#### Certifications:

- FCC 47CFR Parts 15B and 18 (Class A), EN 55011, ICES-003, CE (EN55022 Class A and EN55024 Class A)
- Dimensions:** 1 RU form factor, 19" W x 1.75" H x 12.5" D
- Weight:** 6 lbs
- Operating Temperature:** 0 to 40° C
- Power:** 110V-220V AC Input, with optional external 24VDC redundant supply
- Power Consumption:** <20W



## Architects & Engineers Specifications

### Synapse DM1 A & E Specs

The Dante™ interface shall have 32 Dante™ receive channels that may be selected by the user from the front panel for monitoring through the integrated speakers, headphone, AES-3 and analog outputs. The interface shall provide visual indication of audio levels from the front panel display, in both 16 channel bank summary and individual channel views.

The interface shall support master and slave synchronization of external word clock devices via the rear panel BNC connectors.

The interface shall support extended monitoring capabilities of up to 128 channels using remote Dante™ subscription from the device. The rear panel analog inputs shall support local monitoring as well as transmission to the Dante™/AES67 network. The rear panel analog inputs and outputs shall be available on 3 pin XLR connectors.

The Dante™ interface shall support a switched or redundant network mode. The device shall have two integrated Gigabit Ethernet ports on RJ-45 connectors and 2 gigabit SFP expansion slots for connectivity to a Dante network. All parameter changes will be non-volatile and self-restoring in the event of power interruption. The device shall support power redundancy. The device shall be compliant with FCC 47CFR parts 15B and 18 (Class A), EN 55011, ICES-003, RoHS and CE (EN55022 Class A and EN55024 Class A).

The device shall be the Atterotech Synapse DM1.

### Synapse D32o A & E Specs

The Dante™ interface shall have 32 balanced line level outputs available on terminal blocks or DB-25 connectors. The output attenuation level shall be configurable in 1 dB increments from 0 to -100 dB. The front panel display shall show received network audio input levels and allow assignment of any assigned network audio receiver channel to the front panel mounted headphone jack for monitoring. The Dante™ interface shall support a switched or redundant network mode. The device shall have two integrated Gigabit Ethernet ports on RJ-45 connectors and 2 gigabit SFP expansion slots for connectivity to a Dante™ network. All parameter changes will be non-volatile and self-restoring in the event of power interruption. The device shall support power redundancy. The device shall be compliant with FCC 47CFR parts 15B and 18 (Class A), EN 55011, ICES-003, RoHS and CE (EN55022 Class A and EN55024 Class A).

The device shall be the Atterotech Synapse D32o.

### Synapse D16Mio A & E Specs

The Dante™ / AES67 interface shall have 16 balanced mic/line level inputs available on terminal blocks or DB-25 connectors. The mic/line preamps for each channel shall support up to 51 dB of digitally controlled gain in 3 dB increments with switchable phantom power. A switchable attenuator pad provides support for line level signals levels of up to +24dBu when active. The front panel display shall show audio inputs and allow assignment of any analog input to the front panel mounted headphone jack for monitoring.

The interface shall have 16 balanced line level outputs available on terminal blocks or DB-25 connectors. The output attenuation level shall be configurable in 1 dB increments from 0 to -100 dB.

The Dante™ interface shall support a switched or redundant network mode. The device shall have two integrated Gigabit Ethernet ports on RJ-45 connectors and 2 gigabit SFP expansion slots for connectivity to a Dante™ network. All parameter changes will be non-volatile and self-restoring in the event of power interruption. The device shall support power redundancy. The device shall be compliant with FCC 47CFR parts 15B and 18 (Class A), EN 55011, ICES-003, RoHS and CE (EN55022 Class A and EN55024 Class A).

The device shall be the Atterotech Synapse D16Mio.

### Synapse D32i A & E Specs

The Dante™ interface shall have 32 balanced line level inputs available on terminal blocks or DB-25 connectors. The input sensitivity shall be configurable in 16 channel banks for connectivity to pro (+4 dBu nominal) or consumer (-10 dBV nominal) line level inputs. The front panel display shall show audio inputs and allow assignment of any analog input to the front panel mounted headphone jack for monitoring. The

Dante™ interface shall support a switched or redundant network mode. The device shall have two integrated Gigabit Ethernet ports on RJ-45 connectors and 2 gigabit SFP expansion slots for connectivity to a Dante™ network. All parameter changes will be non-volatile and self-restoring in the event of power interruption. The device shall support power redundancy. The device shall be compliant with FCC 47CFR parts 15B and 18 (Class A), EN 55011, ICES-003, RoHS and CE (EN55022 Class A and EN55024 Class A).

The device shall be the Atterotech Synapse D32i.