D-Mitri®

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D-Mitri User Guide, PN 05.176.104.01 A

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CHAPTER 1: INTRODUCTION

HOW TO USE THIS MANUAL

Make sure to read these instructions in their entirety before configuring a D-Mitri system. In particular, pay close attention to material related to safety issues.

As you read these instructions, you will encounter the following icons for notes, tips, and cautions:

NOTE: A note identifies an important or useful piece of information relating to the topic under discussion.

TIP: A tip offers a helpful tip relevant to the topic at hand.

CAUTION: A caution gives notice that an action may have serious consequences and could cause harm to equipment or personnel, or could cause delays or other problems.

Information and specifications are subject to change. Updates and supplementary information are available at www.meyersound.com.

Meyer Sound Technical Support is available at:

- **Tel:** +1 510 486.1166
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- **Web:** www.meyersound.com/support
- **Email:** techsupport@meyersound.com

D-MITRI DIGITAL AUDIO PLATFORM

D-Mitri is Meyer Sound's integrated digital audio platform for mixing, playback, multichannel distribution, live event control, and acoustic space simulation. D-Mitri consists of a series of hardware modules that can be used to design audio systems for a wide range of applications.

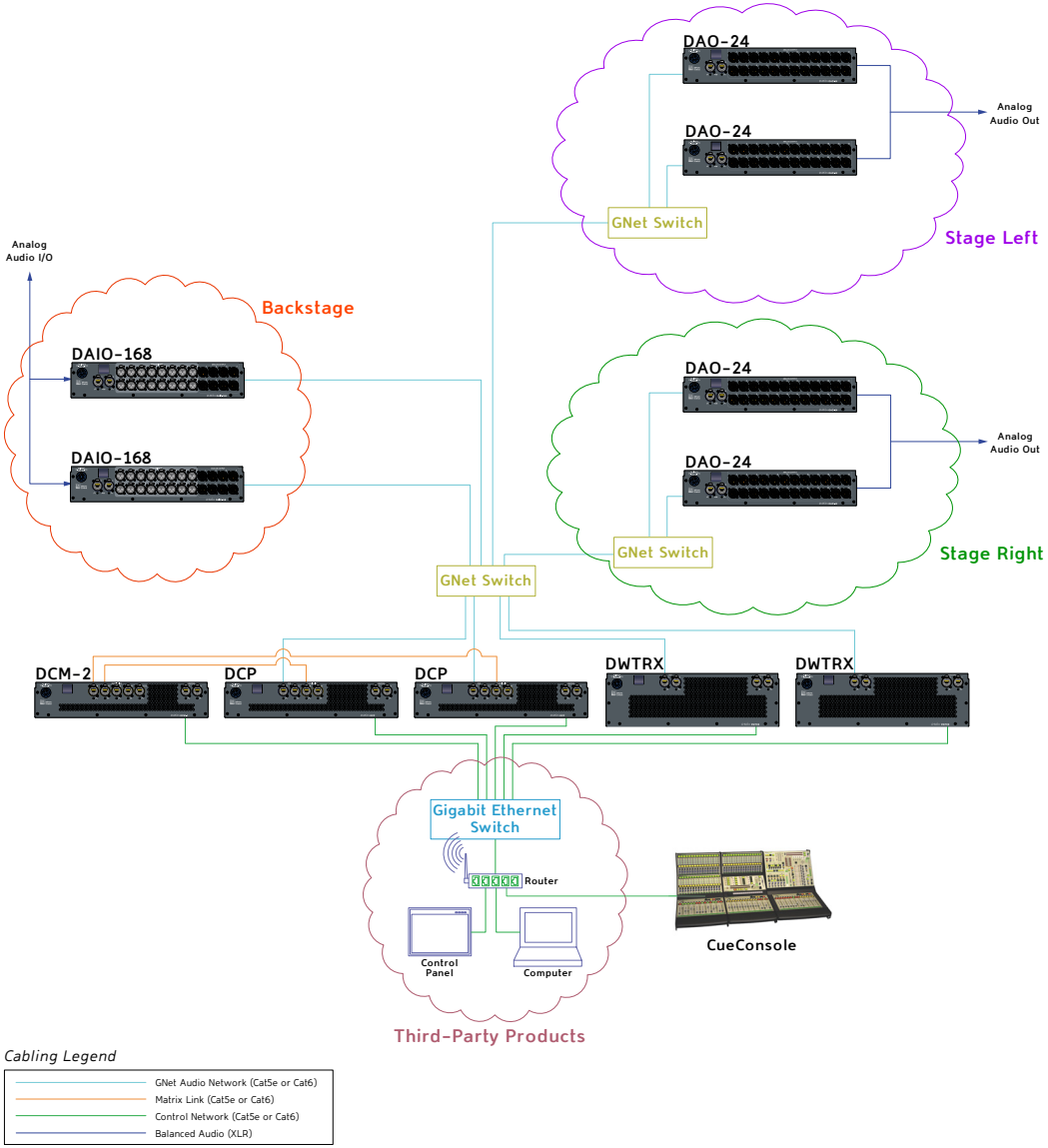
An Ethernet network-based, modular system that encompasses the entire audio chain from microphone input to loudspeaker output, D-Mitri integrates sound reinforcement, simultaneous recording and playback, matrix mixing, digital signal processing, multichannel surround panning, and show control automation into a unified, programmable environment.

With Meyer Sound CueStation control software, you can access every D-Mitri feature and fully automate system operation while sharing control among multiple users. You can further customize interaction with the system using Python-based scripting.

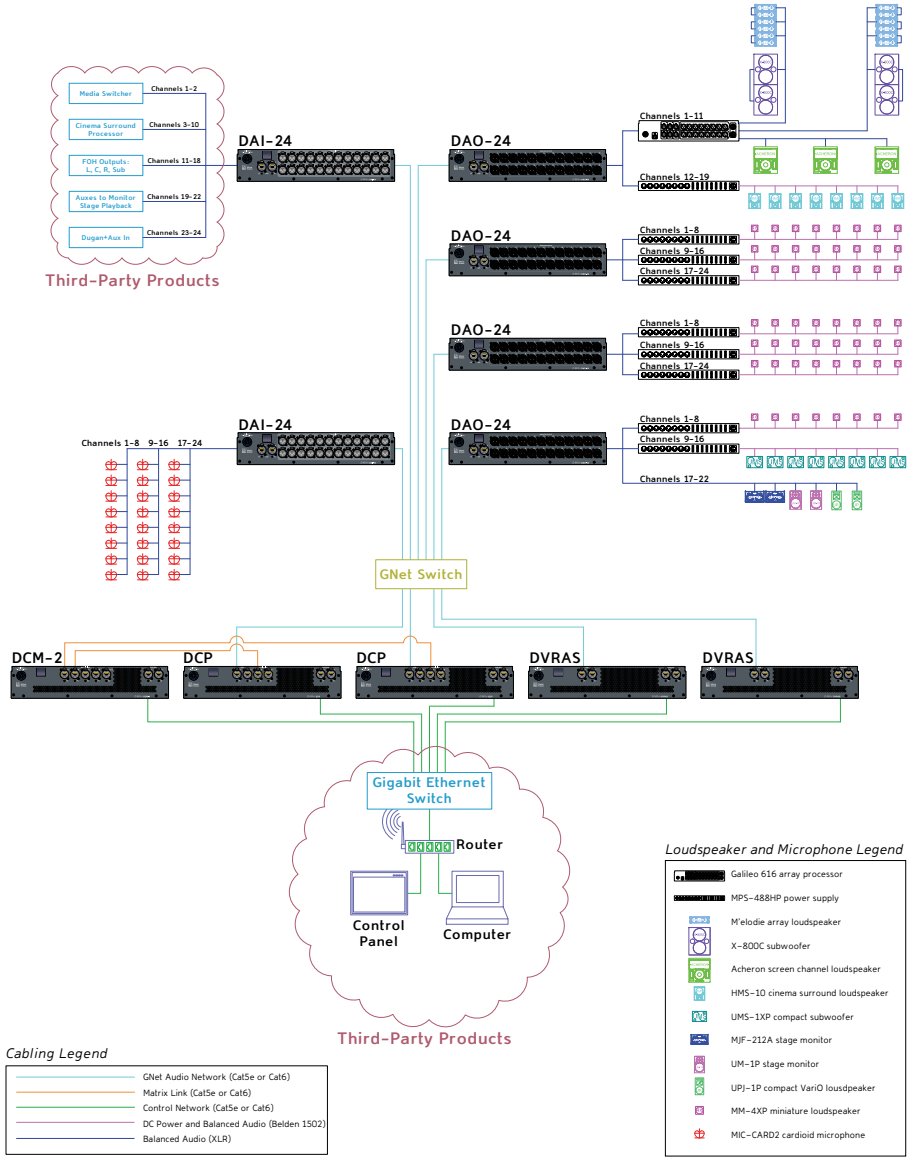
D-Mitri systems can be scaled for venues of all types and sizes, including clubs, corporate boardrooms, theatres, houses of worship, museums, theme parks, performing arts centers, and sports arenas.

Benefits of the D-Mitri platform include:

- Integration: D-Mitri unifies the functions of a hard disk recorder, a digital mixer, a digital patchbay, EQ, dynamics and reverb effects units, synchronization devices, a multichannel distribution system, and remote control into an integrated, fully-automatable system.
- Fidelity: D-Mitri features high-quality preamplification, conversion and processing, with support for 96 kHz/24-bit audio and 64-bit internal processing.
- Scalability: D-Mitri's modular framework can provide up to 288 inputs, outputs, and internal busses to power immersive sonic environments, enable complex surround processing, and control Meyer Sound Constellation variable room acoustic systems.
- Flexibility: D-Mitri's network infrastructure and support for standard synchronization and control protocols let you build centralized or distributed systems that can control and receive commands from a variety of external equipment.
- Control: D-Mitri can be controlled from a self-hosted Web page, with ASCII text commands, using Open Sound Control (OSC), or with Meyer Sound CueStation control software.
- Reliability: D-Mitri system architecture allows for full redundancy of system components and network connections, with automatic fail-over capabilities that ensure uninterrupted operation.



Show Control System Example



Constellation System Example

Processor Modules

D-Mitri processor modules provide the audio processing, signal routing functions, network connections, user control, and matrix mixing necessary for a D-Mitri system. With additional processor modules, D-Mitri systems can be expanded to as many as 288 audio inputs, 288 internal busses, and 288 audio outputs.

Specialized processor modules are available for hard disk recording and playback functions, and all required processing for the VRAS electroacoustic architecture used in Constellation systems. Each processor module has multiple built-in backup network connections to enable seamless operation with backup processor modules and networks.

I/O Modules

D-Mitri I/O modules provide all of the inputs, outputs, and conversion in a D-Mitri system. The variety of I/O modules allows a D-Mitri system flexibility and ease of integration with existing installations.

Different I/O modules feature microphone preamplifiers with digitally controlled gain and phantom power, high-resolution A/D/A conversion, switchable output level scale, multiple formats of digital audio input and output with sample rate conversion, and more. In addition to analog and digital audio connections, some I/O modules employ connections for SMPTE, MIDI and MIDI Show Control, Word Clock, and serial interfaces. Each I/O module has a built-in redundant network connection to enable seamless operation with backup processor modules and networks.

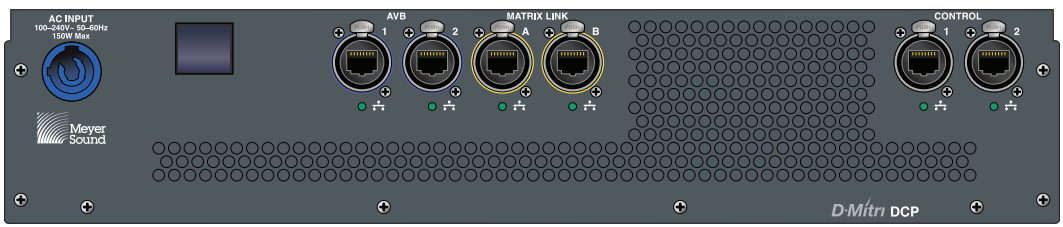
CHAPTER 2: D-MITRI MODULES

DCP D-MITRI CORE PROCESSOR

The DCP provides complete audio processing for 72 inputs, 72 internal busses, and 72 outputs. Two Control ports (one backup) connect the DCP to one or more control networks, allowing client control of the EQ, delay, and dynamics processing for every channel, from clients using CueStation software, Open Sound Control protocol, ASCII text commands, and browsers directed to D-Mitri's Web server. Two AVB ports (one redundant) connect the DCP to the GNet audio network, allowing channel control and matrix routing of up to eight networked I/O modules. Two Matrix Link ports (one redundant) connect to DCM modules for expanded matrixes and backup. Matrix Link connections carry audio streams between the DCM and connected DCP modules at 96 kHz sample rate and 32-bit resolution. The redundant Matrix Link port connects to a backup DCM-2 or DCM-4 module, ensuring seamless operation in the event that the primary DCM-2 or DCM-4 module goes offline.

DCP Rear Panel

The DCP rear panel includes the following components:



DCP Rear Panel

- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Safe mode; provides visual feedback when pressed after powering on.
- **AVB (1–2)** — etherCON® connectors; connects to GNet audio network switches with Cat5e or Cat6 cables; second port allows connection to an optional backup GNet network.

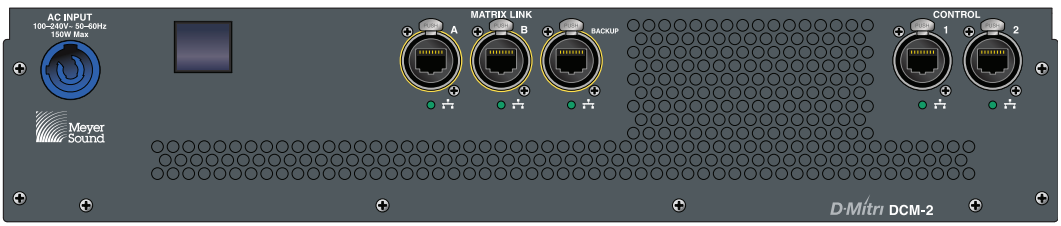
- **Matrix Link (A–B)** — etherCON connectors; connects with Cat5e or Cat6 cables directly to a DCM module to expand the D-Mitri system beyond 72 channels.
- **Control (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port allows implementation of a backup Control network.

DCM-2 D-MITRI CORE MATRIX

The DCM-2 allows two DCP modules to be combined into a single 144 input x 144 output matrix. An optional third DCP can be connected to serve as a backup, ensuring seamless operation in the event that any primary DCP goes offline. Two Control ports (one backup) connect the DCM-2 to one or more control networks, providing client control of the EQ, delay, and dynamics processing for every channel from clients using CueStation software, Open Sound Control protocol, or Python scripting language. Three Matrix Link ports (one backup) connect the DCM to two DCP modules and an optional backup DCP module.

DCM-2 Rear Panel

The DCM-2 rear panel includes the following components:



DCM-2 Rear Panel

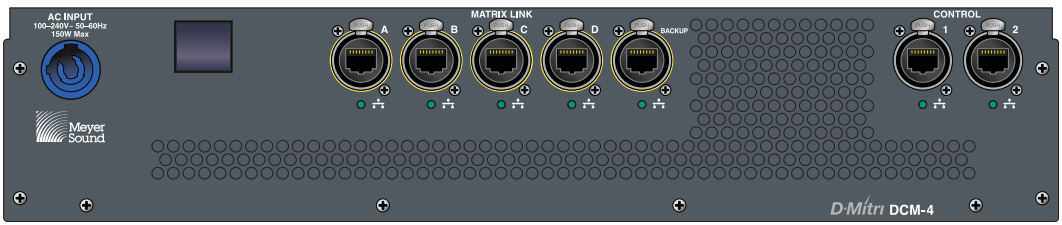
- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Safe mode; provides visual feedback when pressed after powering on.
- **Matrix Link (A–B)** — etherCON connector; connects with Cat5e or Cat6 cables to DCP modules for dynamic matrix mixing and routing for 144 inputs, 144 internal busses, and 144 outputs.
- **Matrix Link (Backup)** — etherCON connector; connects with Cat5e or Cat6 cables to a backup DCP module for seamless operation in the event that any primary connected DCP module goes offline.
- **Control (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port allows implementation of a backup Control network.

DCM-4 D-MITRI CORE MATRIX

The DCM-4 allows four DCP modules to be combined into a single 288 input x 288 output matrix. An optional fifth DCP can be connected to serve as a backup, ensuring seamless operation in the event that any primary DCP goes offline. Two Control ports (one backup) connect the DCM-4 to one or more control networks, providing client control of the EQ, delay, and dynamics processing for every channel from clients using CueStation software, Open Sound Control protocol, or Python scripting language. Five Matrix Link ports (one backup) connect the DCM to four DCP modules and an optional backup DCP module.

DCM-4 Rear Panel

The DCM-4 rear panel includes the following components:



DCM-4 Rear Panel

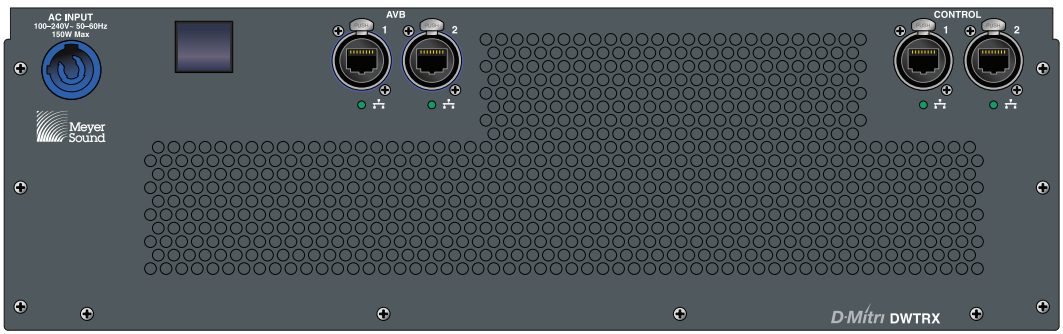
- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Safe mode; provides visual feedback when pressed after powering on.
- **Matrix Link (A–D)** — etherCON connector; connects with Cat5e or Cat6 cables to DCP modules for dynamic matrix mixing and routing for 288 inputs, 288 internal busses, and 288 outputs.
- **Matrix Link (Backup)** — etherCON connector; connects with Cat5e or Cat6 cables to a backup DCP module for seamless operation in the event that a primary connected DCP module goes offline.
- **Control (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port allows implementation of a backup Control network.

DWTRX D-MITRI WILD TRACKS

DWTRX modules provide simultaneous playback of up to 250 audio tracks across 72 outputs, and recording from up to 72 inputs. DWTRX modules contain two removable 160 GB solid-state hard drives, each with a capacity of up to 120 track hours of audio. DWTRX is capable of recording and reproducing multi-track audio at 96 kHz sample rate and 32-bit resolution. DWTRX features SafetyNet™, a redundancy system that buffers audio and automatically switches to the second solid state drive if the first one is removed or otherwise encounters a failover event. Two AVB ports (one redundant) carry audio streams over the GNet audio network between the DWTRX and the connected DCP module at 96 kHz sample rate and 32-bit resolution, and enable full deck control and matrix routing by CueStation and other connected clients.

DWTRX Rear Panel

The DWTRX rear panel includes the following components:



DWTRX Rear Panel

- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Safe mode; provides visual feedback when pressed after powering on.
- **AVB (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port allows connection to an optional backup GNet network.

- **Control (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port allows implementation of a backup Control network.

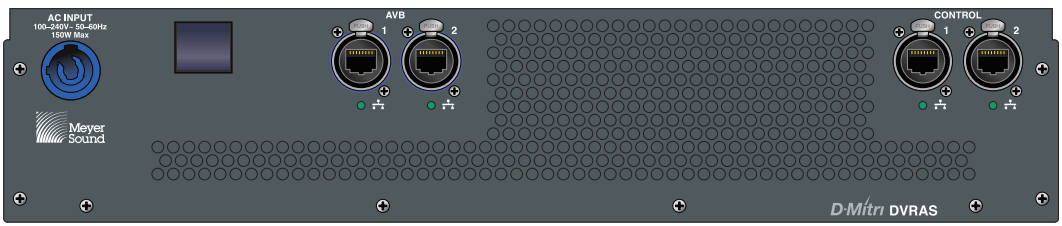
DVRAS D-MITRI VRAS

The DVRAS module is the core processor for Meyer Sound Constellation™ Systems. Constellation is an Electro-Acoustic system that uses D-Mitri processing as the core element. The DVRAS module provides Variable Room Acoustic System™ (VRAS) processing for up to 16 sends and 16 return channels in one zone of a Constellation system. In addition to the high-quality algorithms used in Constellation's Electro-Acoustic architecture, DVRAS executes equalization, dynamics, and delay processing for each channel and includes internal solid-state storage for system measurement and verification data. Two AVB ports (one redundant) carry audio streams over the GNet audio network between the DVRAS and the connected DCP module at 96 kHz sample rate and 32-bit resolution, and enable full channel control, VRAS parameter control, and matrix mixing by CueStation and other connected clients.

See www.meyersound.com/product/constellation for more information about Constellation.

DVRAS Rear Panel

The DVRAS rear panel includes the following components:



DVRAS Rear Panel

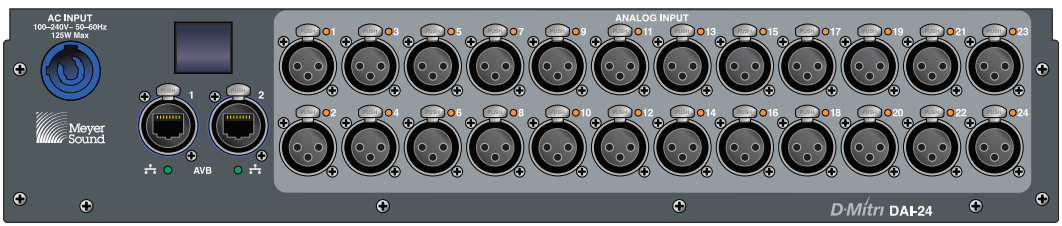
- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Safe mode; provides visual feedback when pressed after powering on.
- **AVB (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port allows connection to an optional backup GNet network.
- **Control (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port allows implementation of a backup Control network.

DAI-24 D-MITRI ANALOG IN

The DAI-24 provides 24 analog inputs with high-quality preamplification and precision A/D conversion at 96 kHz sample rate and 24-bit resolution. CueStation software and other clients provide user controls for gain and input trim, phantom power, polarity inversion, and pad controls for each input. Two AVB ports (one redundant) carry audio streams over the GNet audio network from the DAI-24 to the connected DCP module at 96 kHz sample rate and 32-bit resolution, and enable full channel control and matrix routing by CueStation and other connected clients.

DAI-24 Rear Panel

The DAI-24 rear panel includes the following components:



DAI-24 Rear Panel

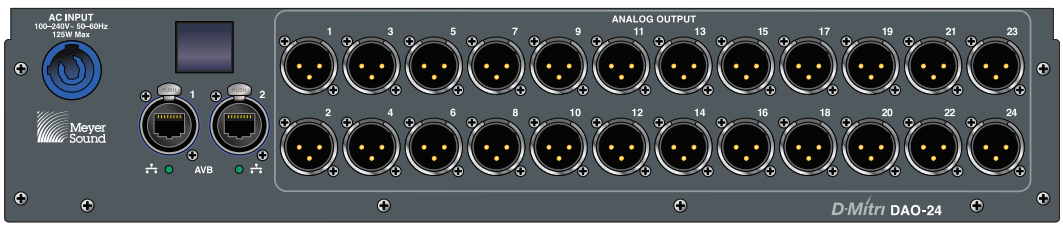
- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Maintenance mode; provides visual feedback when pressed after powering on.
- **AVB (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port provides redundant GNet connection and Maintenance mode control.
- **Analog Input (1–24)** — Gold-plated XLR 3-pin female input; accepts mic- or line-level signals, from –57 dBu to +26 dBu, with a dynamic range of 115 dB; LED indicators for phantom power; input scale is configurable as +16 dBu or +26 dBu for each input; gain, digital trim, phantom power, polarity inversion, level, and –18 dB pad control points are provided for CueStation and other clients.

DAO-24 D-MITRI ANALOG OUT

The DAO-24 provides 24 analog outputs with high-quality amplification and precision D/A conversion at 96 kHz sample rate and 24-bit resolution. CueStation software and other clients provide user controls for levels and digital trim controls for each output. Two AVB ports (one redundant) carry audio streams over the GNet audio network to the DAO-24 from the connected DCP module at 96 kHz sample rate and 32-bit resolution, and enable full channel control and matrix routing by CueStation and other connected clients.

DAO-24 Rear Panel

The DAO-24 rear panel includes the following components:



DAO-24 Rear Panel

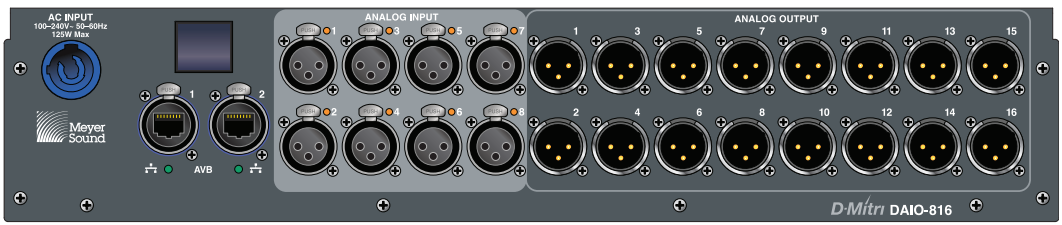
- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Maintenance mode; provides visual feedback when pressed after powering on.
- **AVB (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port provides redundant GNet connection and Maintenance mode control.
- **Analog Output (1–24)** — Gold-plated XLR 3-pin male output; output scale is configurable as +16 dBu or +26 dBu for each output; polarity inversion, digital trim, and level control points are provided for CueStation and other clients.

DAIO-816 D-MITRI ANALOG I/O

The DAIO-816 provides eight analog inputs and 16 analog outputs with high-quality preamplification and precision A/D/A conversion at 96 kHz sample rate and 24-bit resolution. CueStation software and other clients provide user controls for gain and input trim, phantom power, polarity inversion, and pad controls for each input, as well as configurable output levels and digital trim controls for each output. Two AVB ports (one redundant) carry audio streams over the GNet audio network between the DAIO-816 and the connected DCP module at 96 kHz sample rate and 32-bit resolution, and enable full channel control and matrix routing by CueStation and other connected clients.

DAIO-816 Rear Panel

The DAIO-816 rear panel includes the following components:



DAIO-816 Rear Panel

- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Maintenance mode; provides visual feedback when pressed after powering on.
- **AVB (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port provides redundant GNet connection and Maintenance mode control.
- **Analog Input (1–8)** — Gold-plated XLR 3-pin female input; accepts mic- or line-level signals, from –57 dBu to +26 dBu, with a dynamic range of 115 dB; input scale is configurable as +16 dBu or +26 dBu for each input; gain, digital trim, phantom power, polarity inversion, level, and –18 dB pad control points are provided for CueStation and other clients.

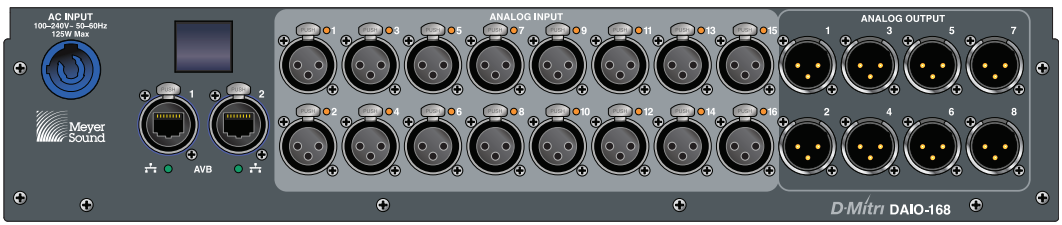
- **Analog Output (1–16)** — Gold-plated XLR 3-pin male output; output scale is configurable as +16 dBu or +26 dBu for each output; polarity inversion, digital trim, and level control points are provided for CueStation and other clients.

DAIO-168 D-MITRI ANALOG I/O

The DAIO-168 provides 16 analog inputs and eight analog outputs with high-quality preamplification and precision A/D/A conversion at 96 kHz sample rate and 24-bit resolution. CueStation software and other clients provide user controls for gain and input trim, phantom power, polarity inversion, and pad controls for each input, as well as configurable output levels and digital trim controls for each output. Two AVB ports (one redundant) carry audio streams over the GNet audio network between the DAIO-168 and the connected DCP module at 96 kHz sample rate and 32-bit resolution, and enable full channel control and matrix routing by CueStation and other connected clients.

DAIO-168 Rear Panel

The DAIO-168 rear panel includes the following components:



DAIO-168 Module Rear Panel

- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Maintenance mode; provides visual feedback when pressed after powering on.
- **AVB (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port provides redundant GNet connection and Maintenance mode control.
- **Analog Input (1–16)** — Gold-plated XLR 3-pin female input; accepts mic- or line-level signals, from –57 dBu to +26 dBu, with a dynamic range of 115 dB; input scale is configurable as +16 dBu or +26 dBu for each input; gain, digital trim, phantom power, polarity inversion, level, and –18 dB pad control points are provided for CueStation and other clients.

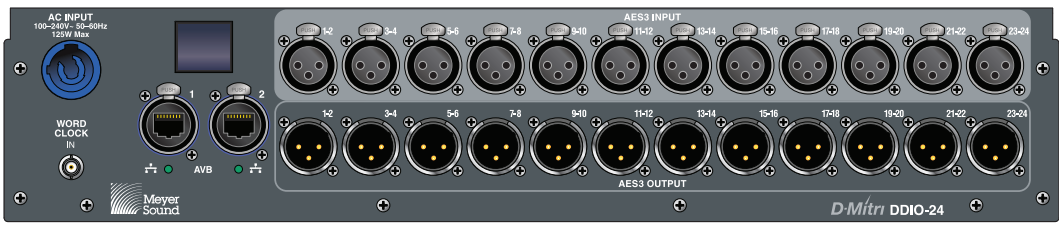
- **Analog Output (1–8)** — Gold-plated XLR 3-pin male output; output scale is configurable as +16 dBu or +26 dBu for each output; polarity inversion, digital trim, and level control points are provided for CueStation and other clients.

DDIO-24 D-MITRI DIGITAL I/O

The DDIO-24 provides 24 AES3 digital inputs and 24 AES3 digital outputs (two channels of digital audio per connector) with high-precision sample rate conversion on both inputs and outputs. CueStation software and other clients provide user controls for input level, as well as configurable output levels and trim controls for each output. Two AVB ports (one redundant) carry audio streams over the GNet audio network between the DDIO-24 and the connected DCP module at 96 kHz sample rate and 32-bit resolution, and enable full channel control and matrix routing by CueStation and other connected clients.

DDIO-24 Rear Panel

The DDIO-24 rear panel includes the following components:



DDIO-24 Rear Panel

- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Maintenance mode; provides visual feedback when pressed after powering on.
- **AVB (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port provides redundant GNet connection and Maintenance mode control.
- **AES3 Input (1–24)** — Gold-plated XLR 3-pin female input; each accepts two channels of AES3 digital input; polarity inversion, digital trim, and level control points are provided for CueStation and other clients.
- **AES3 Output (1–24)** — Gold-plated XLR 3-pin male output; each sends two channels of AES3 digital output; each configurable with polarity inversion, digital trim, and level control points are provided for CueStation and other clients.

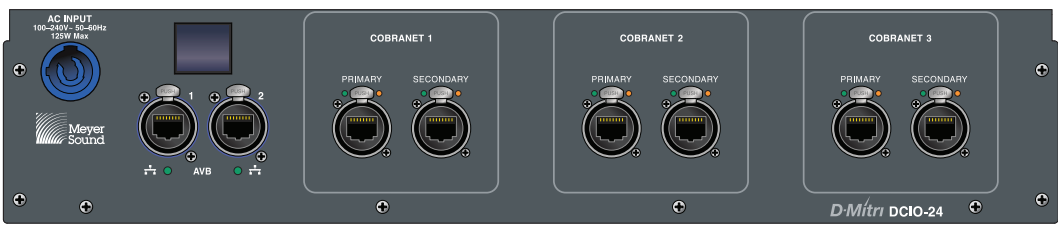
- **Word Clock Input** — BNC Word Clock input for locking the D-Mitri system clock or AES3 output clock to an external device.

DCIO-24 D-MITRI COBRANET I/O

The DCIO-24 provides 24 digital inputs and 24 digital outputs with conversion between a CobraNet® digital audio network and the D-Mitri digital audio network, with 8 inputs and 8 outputs per etherCON connection. Secondary CobraNet ports are provided for backup CobraNet connections. DCIO-24 modules support CobraNet Dual Link, which automatically switches to the backup network connection if the primary connection fails. CueStation software and other clients provide user controls for input level, as well as configurable level and trim controls for each output. Two AVB ports (one redundant) carry audio streams over the GNet audio network between the DCIO-24 and the connected DCP module at 96 kHz sample rate and 32-bit resolution, and enable full channel control and matrix routing by CueStation and other connected clients.

DCIO-24 Rear Panel

The DCIO-24 rear panel includes the following components:



DCIO-24 Rear Panel

- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Maintenance mode; provides visual feedback when pressed after powering on.
- **AVB (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port provides redundant GNet connection and Maintenance mode control.
- **CobraNet Primary (1–3)** — etherCON connectors; each providing eight channels of CobraNet input and eight channels of CobraNet output; polarity inversion, digital trim, and level control points are provided for CueStation and other clients.

- **CobraNet Secondary (1–3)** — etherCON connectors; each providing eight channels of redundant CobraNet input and eight channels of redundant CobraNet output; digital trim control points are provided for CueStation and other clients. CobraNet Secondary ports support CobraNet Dual Link for automatic failover to backup.

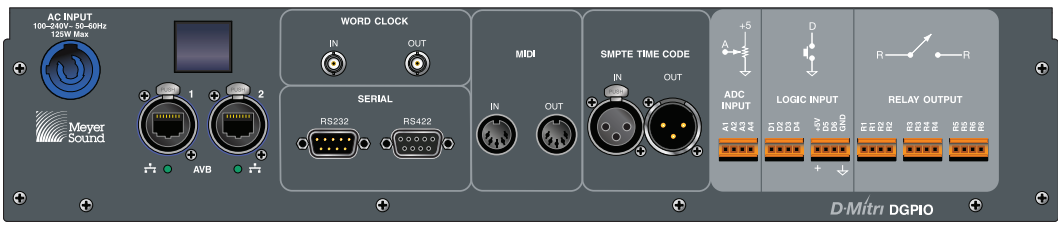
  NOTE: DCIO modules do not support Buddy Link functionality.

DGPIO D-MITRI GENERAL PURPOSE I/O

The DGPIO provides a variety of connections for external devices. CueStation software and other clients provide user controls for each connection. Two AVB ports (one redundant) carry Word Clock, MIDI, LTC, and other data over the GNet audio network between the DGPIO and the connected DCP module, and enable full control by CueStation and other connected clients.

DGPIO Rear Panel

The DGPIO rear panel includes the following components:



DGPIO Rear Panel

- **AC Input** — 3-pole powerCON 20 AC locking connector, rated at 20 A, 100–240 V AC, 50–60 Hz; accepts three contacts for line, neutral, and safety ground.
- **OLED Button** — When pressed while powering on the module, starts the module in Maintenance mode; provides visual feedback when pressed after powering on.
- **AVB (1–2)** — etherCON connectors; connects to Gigabit Ethernet network switches with Cat5e or Cat6 cables; second port provides redundant GNet connection and Maintenance mode control.
- **Word Clock In** — BNC Word Clock input for locking the D-Mitri system clock to external devices.
- **Word Clock Out** — BNC Word Clock output for locking external devices to the D-Mitri system clock.
- **RS-232** — Male DB-9 serial connector for connection and control of external devices with serial connectors.

- **RS-422** — Female DB-9 serial connector for connection and control of external devices with serial connectors.
- **MIDI (In, Out)** — Female 5-pin DIN connectors; capable of sending and receiving MIDI and MIDI Show Control messages.
- **SMPTE Time Code (In, Out)** — Gold-plated XLR 3-pin male and female connectors; capable of locking external devices using SMPTE Linear Time Code (LTC); capable of receiving SMPTE LTC to synchronize show control events in CueStation to an external device.
- **ADC Input, Logic Input, Relay Output** — Terminal strip connections for wiring relays, switches, and potentiometers. For more information, see Appendix C, “DGPIO Terminal Connections.”

CHAPTER 3: SUPPLYING POWER TO D-MITRI SYSTEMS

This chapter provides the Meyer Sound specification for proper powering of the various components of a D-Mitri system.

It is vital to the performance of a D-Mitri system to properly specify the type and quality of the electrical system that supplies power to its components, and to execute its proper connection. Poor, inadequate, or low-quality power may degrade the system's performance.

Installing a D-Mitri system requires not only provision of dedicated power to the system, but careful attention to the interface between the D-Mitri power supply and the building power supply.

D-MITRI POWER REQUIREMENTS

It is important to make sure that D-Mitri modules receive adequate electrical power. The table below describes the power requirements for these modules.

Power ratings for all Meyer Sound products can be found online at www.meyersound.com.

Power Requirements of D-Mitri Modules

Module Type	Abbreviated Name	Power Required
Core Processor	DCP	150 W
Core Matrix	DCM-2	150 W
	DCM-4	150 W
Wild Tracks	DWTRX	150 W
Variable Room Acoustic System	DVRAS	150 W
Analog In	DAI-24	125 W
Analog Out	DAO-24	125 W
Analog I/O	DAO-816	125 W
	DAO-168	125 W
Digital I/O	DDIO-24	125 W
CobraNet I/O	DCIO-24	125 W
General Purpose I/O	DGPIO	125 W

POWER CONNECTOR

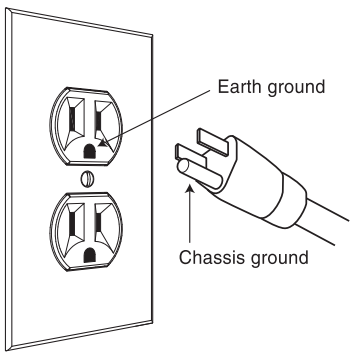
Each D-Mitri module uses a locking powerCON 20® connector to provide AC voltage to the unit. An internal switching power supply accepts voltages from 90 to 264 V AC, 50–60 Hz.

Locking powerCON 20 connector for AC power

Electrical Safety Issues

Pay close attention to these important electrical and safety issues:

- Make sure to use the correct power plug for the AC power in the area in which the D-Mitri modules operate.
- Always use a grounded outlet and plug.



⚠ **CAUTION:** To reduce the risk of electric shock, grounding of the AC power plug must be maintained.

CHAPTER 4: BUILDING D-MITRI SYSTEMS

BEFORE YOU BEGIN

When setting up a new D-Mitri system, make sure all the necessary components are present.

Hardware Package

The following items are included with each D-Mitri module:

- Power cable
- Hardware paperwork, including the following: module installation letter, test reports for analog I/O modules, and an ESD warning notice

Software Package

The D-Mitri software package includes the following items:

- CueStation CD
- CueStation Release Notes
- CueStation Installation Guide
- CueStation User Guide
- D-Mitri User Guide (this manual)
- Configuration Instructions and System Diagram

Additional Requirements

In addition to the items provided with the D-Mitri system, the following are required for a D-Mitri system:

- A computer compatible with CueStation (see the CueStation User Guide for more information)
- Network infrastructure for connecting the CueStation host computer to the D-Mitri system (Control network)

- GNet audio network switch configured by Meyer Sound (P/N 40.176.050.01)
- Network infrastructure for interconnecting D-Mitri modules
- If a firewall is employed by the network or by CueStation clients, it must be configured to allow UDP traffic on ports 5353, 8080, 16000, 17000, 18000–18002, 18004, 18033–18034, and 18037.

PLANNING D-MITRI SYSTEMS

D-Mitri systems are scalable; the modules needed for any given system vary. Considerations for I/O, processing, channel count, live backup modules, and physical location dictate the scale of the D-Mitri system. The following section describes how to determine the complement of D-Mitri modules that fit the application.

Network Wiring

Meyer Sound recommends that wiring installations be "certified" using standards from either Telecommunications Industry Association (TIA) or International Organization for Standardization and International Electrotechnical Commission (ISO/IEC).

Ethernet cabling and installation must conform to ISO/IEC 11801 (ISO/IEC 11801:2010 or later). Ethernet physical installation must support the IEEE 802.3-2012 specifications.

Meyer Sound Ethernet Products require Category 5 class E compliance.

Input and Output

Determine the required analog and digital audio connectivity. See "I/O Modules" on page 9 for a brief overview of each module's connectivity.

Integration of MIDI-controlled lighting systems, SMPTE-driven productions, and the addition of other equipment may require the addition of one or more DGPIO modules. See "DGPIO D-Mitri General Purpose I/O" on page 103 for more information.

Wild Tracks and DVRAS

For systems utilizing a DWTRX module for recording and cueable playback, additional DWTRX modules are needed for more than 72 recording or playback channels.

For Constellation systems, each DVRAS module provides input channel and Variable Room Acoustic System processing for one zone (up to 16 sends and 16 return channels). Additional DVRAS modules are needed for systems that require more than one zone.

Core Processing and Matrix Mixing

The necessary modules for routing and dynamic matrix mixing must be determined once the I/O modules, Wild Tracks modules, and DVRAS modules have been chosen. One DCP transmits and receives up to 72 channels of I/O, connecting to a maximum of 8 modules through the GNet audio network. Additional DCPs are required in systems that require more than 72 input channels, 72 output channels, or 72 busses, as well as systems that exceed 8 modules on the GNet audio network (any combination of I/O, Wild Tracks, or DVRAS).

For systems with multiple DCP modules, combining the processed channels must be done with a DCM-2 to create a system with 144 input channels, 144 busses, and 144 output channels (in systems with up to two DCP modules and one backup DCP module), or with a DCM-4 to create a system with 288 input channels, 288 busses, and 288 output channels (for systems with up to four DCP modules and one backup DCP module).

D-Mitri systems can scale up to a maximum of 288 inputs, 288 busses, and 288 outputs.

Live Backup Modules

Additional DCP, DCM, and WTRX modules can be added to a system as designated backup modules. Backup modules are automatically put into use if one of the modules suddenly goes offline.

For additional information, see “Backup Modules” on page 46.

Switches

Configuring the audio network for D-Mitri modules involves installing one or more GNet audio network switches configured by Meyer Sound to control audio data traffic among the modules. The Control network travels through one or more Ethernet switches, allowing control devices and routers to communicate with D-Mitri processor modules. Switches can be configured to carry both GNet and Control network traffic.

Some changes to system configurations, such as adding modules or changing VLAN settings, require changes to the switch configuration.

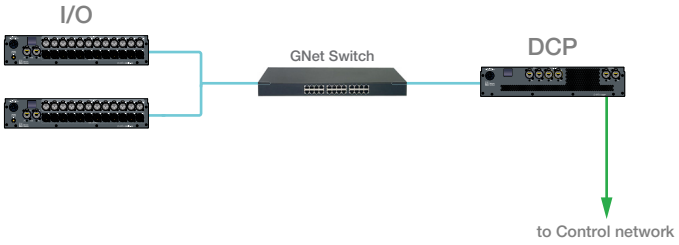
NOTE: Switches that have not been configured by Meyer Sound can be used, but require configuration by the user before operating within a D-Mitri system. See Appendix D, “Configuring Switch VLAN Settings” for more information.

D-MITRI SYSTEM GNET AUDIO NETWORK EXAMPLES

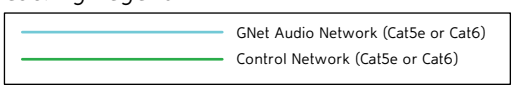
The following examples demonstrate possible arrangements of D-Mitri modules and audio network connections.

Small D-Mitri System

The following system example diagram illustrates the GNet connections in a typical small-scale D-Mitri system. To see audio network connections in the context of a complete system, see “D-Mitri Digital Audio Platform” on page 6.



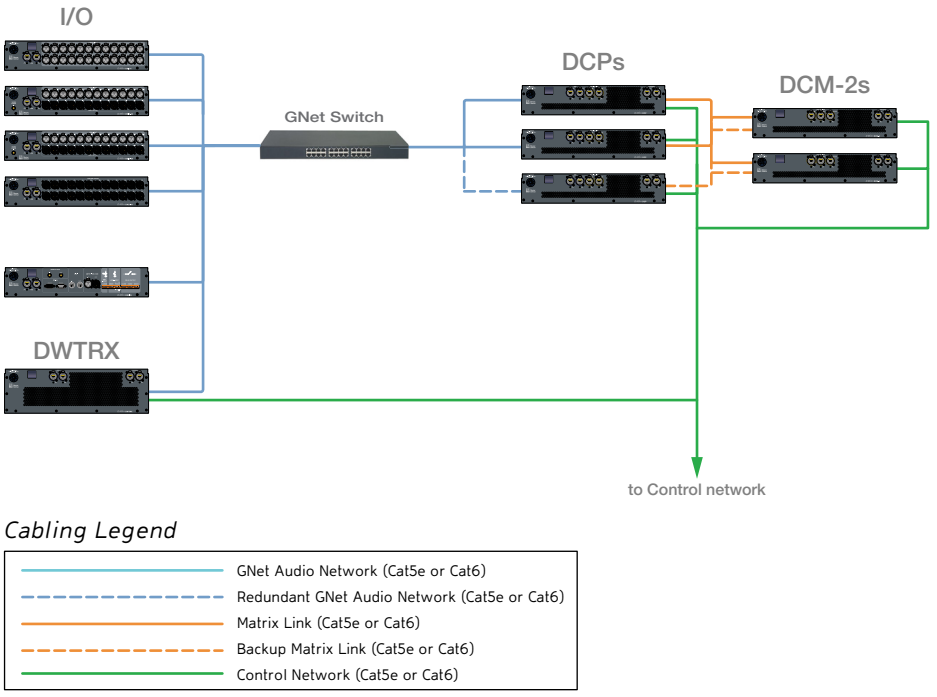
Cabling Legend



This small system only requires a single DCP module, as the I/O count does not exceed 72. Two DDIO modules provide a total of 48 channels of AES3 input and 48 channels of AES3 output.

Medium D-Mitri System with Backup Modules

The following system example diagram illustrates the GNet connections in a typical medium-scale D-Mitri system. To see audio network connections in the context of a complete system, see “D-Mitri Digital Audio Platform” on page 6.

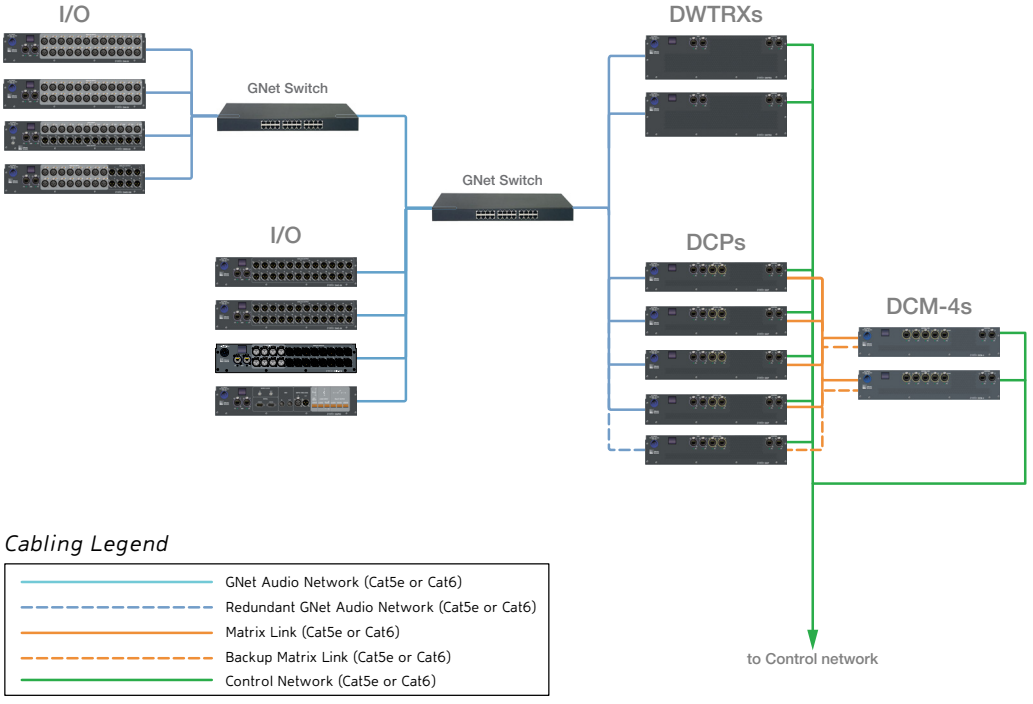


In this medium-sized D-Mitri system, DDIO modules provide 48 digital inputs and 48 digital outputs. DAI-24 and DAO-24 modules provide 24 analog inputs and 24 analog outputs. One DGPIO provides MIDI, serial, and terminal connections. A DWTRX module allows the playback of 250 channels across 72 busses and recording of up to 72 channels.

The total I/O count of this medium system is 144 inputs and 144 outputs, which require two DCPs and a DCM-2. Two live backup modules (one DCP and one DCM-2) have been installed.

Large, Distributed D-Mitri System with Backup Modules

The following system example diagram illustrates the GNet connections in a typical large-scale D-Mitri system. To see audio network connections in the context of a complete system, see “D-Mitri Digital Audio Platform” on page 6.



This distributed system features two racks of I/O modules in different locations, connected to an additional switch. DAI, DAO, DAIO-816, and DAIO-168 modules provide 68 analog inputs and 72 analog outputs. A DDIO module provides 24 digital inputs and 24 digital outputs. One DGPIO provides MIDI, serial, and Phoenix connections. Two DWTRX modules allow the playback of up to 500 channels on 144 busses, and recording of up to 144 channels.

The total I/O count of this system is 224 inputs and 240 outputs, which require four DCPs and a DCM-4 module for matrix mixing and routing. Core processor modules are supplemented by live backups (one DCP and one DCM-4).

D-MITRI NETWORK CONNECTIONS

As discussed in Chapter 1, “D-Mitri Digital Audio Platform”, D-Mitri modules come in two types: processor modules (DCP, DCM, WTRX, and VRAS) and I/O modules. Network connections to D-Mitri modules are made using standard Ethernet Cat5e or Cat6 cables.

The number of network connections needed for a D-Mitri module depends on the type and use of the module. I/O modules require at least one network connection, while processor modules require at least two. When installing a system that contains a DCM module, a direct connection is made between each DCM module and its associated DCP modules.

A D-Mitri system functions as a digital mixer. Some of its modules accept input from microphones and other components, other modules coordinate to process the input, and some modules transform and route the output to loudspeakers.

System diagrams for D-Mitri systems map the connection of input sources to modules, the connection of modules to one another, and the connection of modules to output components. The system diagrams distinguish between the system’s audio network and its Control network, and traces separate paths for each of them through the venue to front-of-house control rooms and other destinations.

D-Mitri processor modules operate across three Ethernet networks simultaneously: the GNet audio network, a Control network, and a Matrix Link™ DCP-to-DCM interconnection.

Generalized Precision Time Protocol

D-Mitri uses generalized Precision Time Protocol (gPTP) to synchronize audio streams. D-Mitri systems make use of a Best Master Clock algorithm to auto-select a device to be the gPTP Grandmaster, which sends gPTP information to all other modules. The Best Master Clock scheme allows the use of multiple modules as BMC, and will automatically failover to the next ranked BMC in case of the loss of the highest ranked Best Master Clock.

gPTP is used as a shared clock reference between modules. Using gPTP allows all audio outputs to be synchronized across the network, since timestamps for audio streams are adjusted to compensate for travel time and network jitter.

GNet Audio Network

Transmission of audio streams between processor and I/O modules takes place over GNet, a dedicated Ethernet audio protocol developed by Meyer Sound. GNet is also utilized for file transfers between client computers and D-Mitri modules, such as project files, logs, and audio files loaded to and from Wild Tracks modules. This network requires a switch configured by Meyer Sound (see “Switches” on page 35).

Control Network

Processor modules use the Control network to send and receive system control communication to and from a computer running CueStation software or any controller, including a custom-built browser interface. Configuring D-Mitri module connections to a Control network involves configuring a Gigabit Ethernet switch. For the use of wireless controller devices, a wireless access point must also be installed.

Matrix Link

Matrix Link is a dedicated, ultra-low latency Ethernet connection carrying audio streams between DCP and DCM modules at a 96 kHz sample rate and 32-bit resolution.

Systems with more than 72 channels require multiple DCP modules. To operate as a single system, multiple DCP modules must be connected directly to the appropriate Matrix Link ports on the associated DCM module. This connection is separate from the GNet network, and does not involve intermediation by a network switch.

Redundant Ports

Each D-Mitri module is equipped with one or more redundant Ethernet ports. This allows a D-Mitri system to connect to a separate Control network, to receive communication from CueStation software or external hardware controllers, to connect backup I/O and processor modules, and facilitates the use of a backup audio network (see “Backup Modules” on page 46).

CONNECTING D-MITRI MODULES

Network connections can be made once power source and grounding have been configured according to the information in Chapter 3, “Supplying Power to D-Mitri Systems.” Consult the system diagram provided by Meyer Sound to ensure the proper network connections.

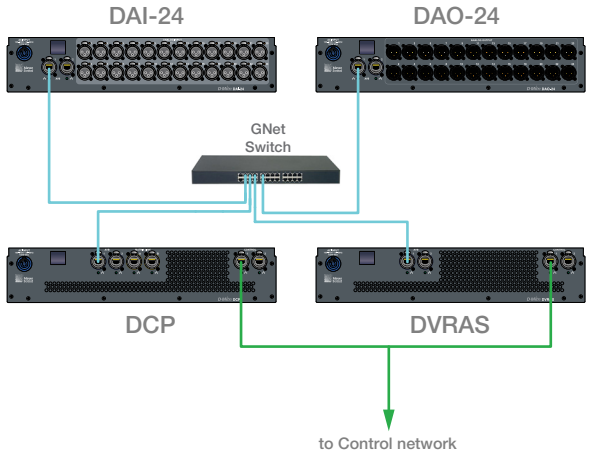
NOTE: In small D-Mitri systems, it is possible to use a single switch for both GNet and Control networks.

To build the D-Mitri network:

1. Make sure all components of the system are powered off.
2. Connect the GNet Switch Ports to AVB Port 1 of the following modules with Cat5e or Cat6 cable, according to the system diagram provided by Meyer Sound:

- DCP
- DWTRX
- DVRAS
- DAI-24
- DAO-24
- DAIO-816
- DAIO-168
- DDIO-24
- DCIO-24

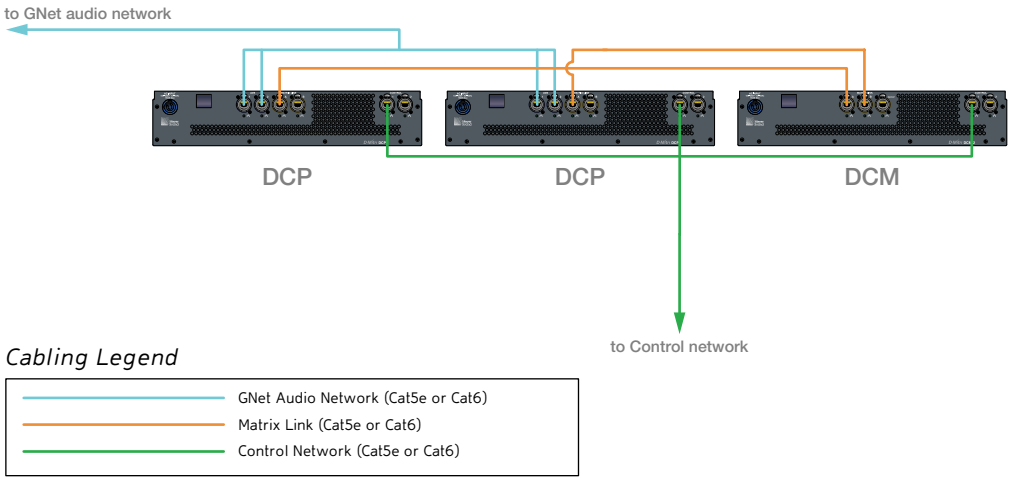
- DGPIO



TIP: The system may contain multiple switches if the GNet audio network is part of a distributed or backup system.

3. If incorporating a backup GNet audio network, repeat Steps 1–2, connecting AVB port 2 of each module to the backup GNet audio network switch. For additional information, see “Backup Modules” on page 46.

4. Connect the Matrix Link ports of the DCM module to Matrix Link port A of all DCP modules with Cat5e or Cat6 cable.



NOTE: For D-Mitri systems with a single DCP module, no DCM modules or Matrix Link connections are necessary.

5. Make the following connections for backup modules:

- Connect the Matrix Link Backup port of the DCM module to Matrix Link port A of the backup DCP module.
- Connect Matrix Link port B of all DCP modules to the Matrix Link ports of the backup DCM module.

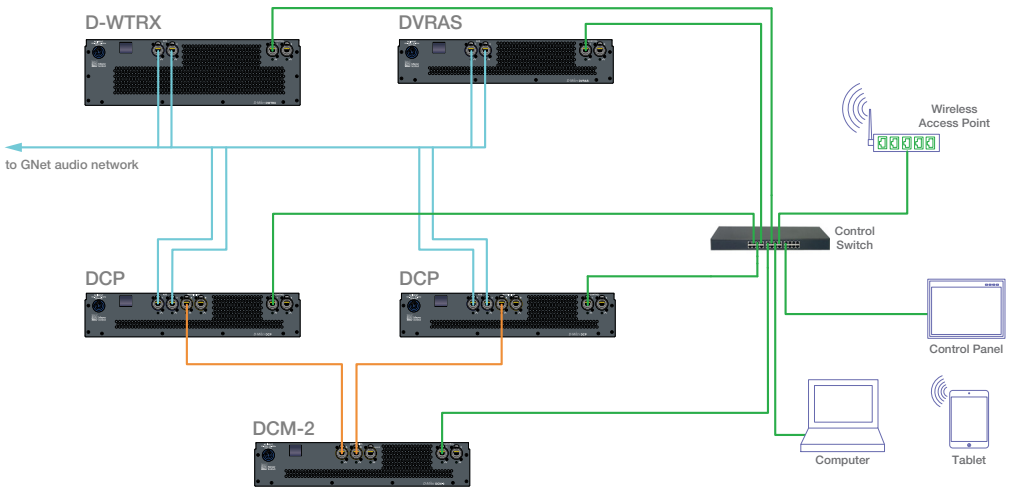
TIP: See “Backup Modules” on page 46 for more information about backup DCM and DCP modules.

6. Connect the Control network switch to Control port 1 of the following modules with Cat5e or Cat6 cable:

- DCP
- DCM-2

- DCM-4
- DWTRX
- DVRAS

7. If using a wireless control device, connect a wireless access point to the Control network switch.
8. If incorporating a backup Control network, repeat Steps 6–7, connecting Control port 2 of each module to the backup Control network switch.
9. Connect a computer with CueStation installed, CueConsole, and other control devices to the Control network switch with Cat5e or Cat6 cable, according to the system diagram provided by Meyer Sound. A router may be used to provide a wireless access point, if required by a control device.



Cabling Legend

GNet Audio Network (Cat5e or Cat6)
Matrix Link (Cat5e or Cat6)
Control Network (Cat5e or Cat6)

BACKUP MODULES

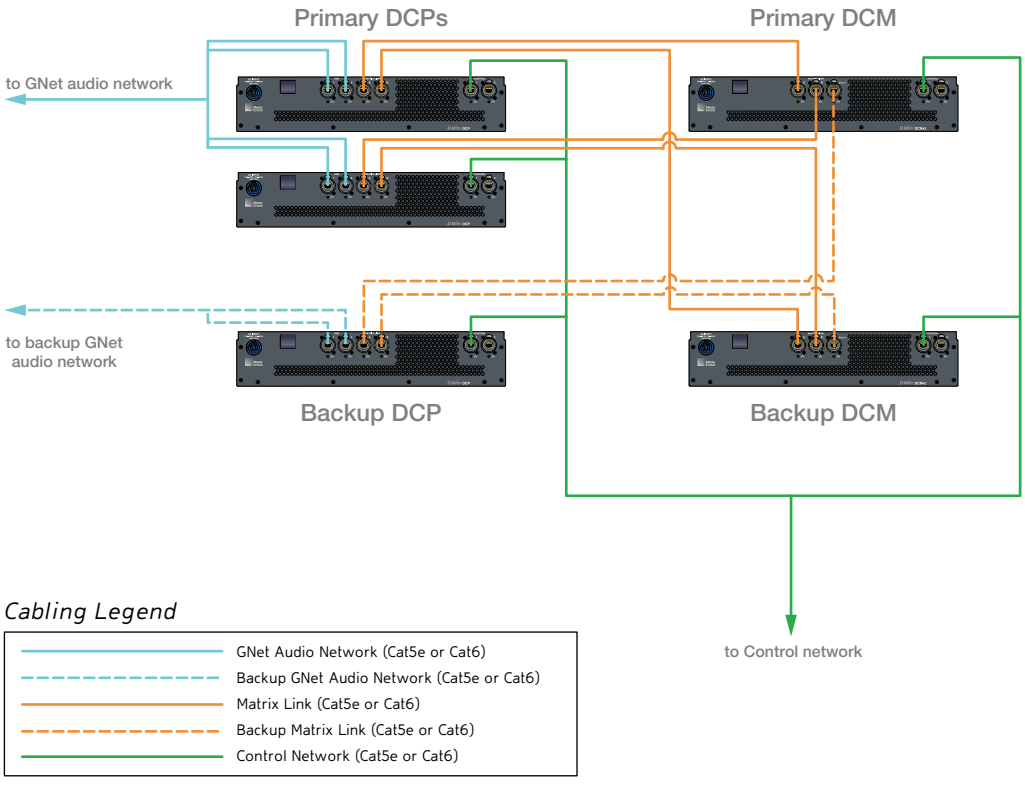
Backup modules are automatically put to use if one of the main modules suddenly goes offline.

It is recommended that one D-Mitri processor module be connected as a backup module, coming online in the case of emergency. DCP, DCM-2, DCM-4, and DWTRX modules can be designated as backup modules in the CueStation mixer configuration. Live Backup is enabled using the Live Backup command. See “Live Backup Command Subcue” on page 72 for information about CueStation control of Backup modules.

Backup DCP and DCM Modules

A live backup DCP must be given the unit ID “PROC-X” in the CueStation Mixer Configuration window, and must be plugged into the designated Matrix Link port on the DCM-2 or DCM-4 module, labeled “Backup.” One backup DCP can stand in for any one of up to 4 primary DCP modules.

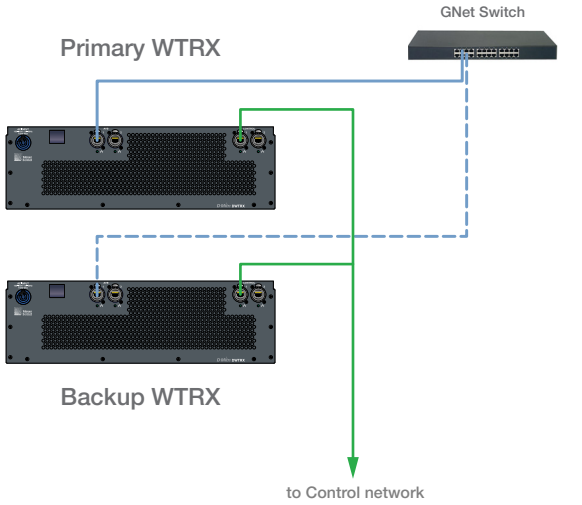
Where the Matrix Link A output of DCP modules connects to a Matrix Link input of primary DCM modules, Matrix Link B of DCP modules connects to a Matrix Link input of the backup DCM module. A live backup DCM-2 or DCM-4 must be given the unit ID “MTRX-X” in the CueStation Mixer Configuration window.



Matrix Link for Backup DCP and DCM Modules

Backup Wild Tracks Modules

Both the primary and the backup Wild Tracks units must be configured with the same unit ID. I/O Points in the Mixer Configuration are only associated with the primary Wild Tracks module; the D-Mitri system automatically switches to the backup unit if the primary unit goes offline.



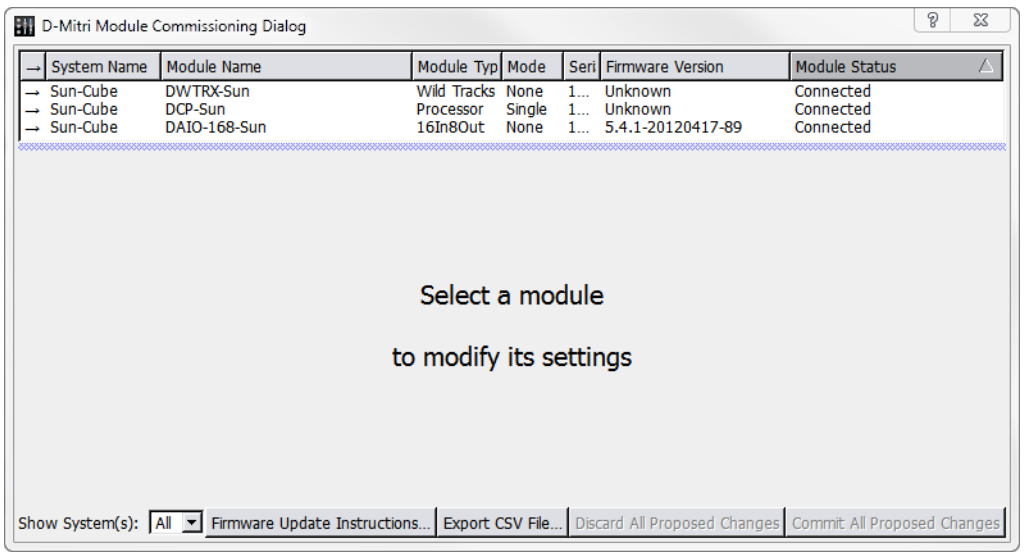
GNet for Backup Wild Tracks Modules

WORD CLOCK SOURCE AND TERMINATION

Modules with Word Clock inputs are set to an internal clock source by default. Setting a module to external clock requires settings to be changed in the CueStation Module Commissioning window.

To set the D-Mitri system to sync to an external clock through DGPIO or DDIO-24 Word Clock input:

1. On the rear panel of the module, press and hold the OLED button while the unit powers up. Release the OLED button when the amber percentage number text appears. For more information on operating modes, see “D-Mitri Operating Modes” on page 107.
2. Launch CueStation.
3. Choose Windows > Mixer Configuration.
4. Choose Configuration > Commission Modules. The Module Commissioning window displays a list of the detected D-Mitri modules and additional information, including their type, name, system, serial number, and firmware version.



5. To filter the display of D-Mitri modules based on their system, select a system from the Show System menu at the bottom of the window.

6. Select a DDIO or DGPIO module to change its Word Clock settings.

- Set Clock Range to Low for an input sample rate range of 44.1 kHz to 48 kHz, or to High for an input sample rate range of 88.2 kHz to 96 kHz.
- If the module is the last device in the Word Clock chain, set Clock Termination to the desired impedance.
- Set BMC On to assign the module as Best Master Clock.
- Set PTP_Priority at 1 to assign the highest Precision Time Protocol priority.
- Set AVB_Lock On to lock the D-Mitri system to the external clock. Set AVB_Lock Off to lock only the current module to the external clock.
- Set Clock_Source1 to Internal.

7. Click Commit All Proposed Changes to continue.
8. Verify all changes shown in the Commit Summary dialog, then click OK to proceed. Modules in the process of updating are highlighted in red.

Word Clock received by the module is adopted as the internal clock, and the module's settings for Best Master Clock and AVB Lock allow it to dictate system-wide clocking.

NOTE: If the external Word Clock fails, or if detected accuracy of the external Word Clock exceeds 100 PPM, the module will revert to the last valid setting.

When the settings update is complete, the module automatically power cycles and returns to Running mode. When in Running mode, I/O modules are not displayed in the Module Commissioning window.

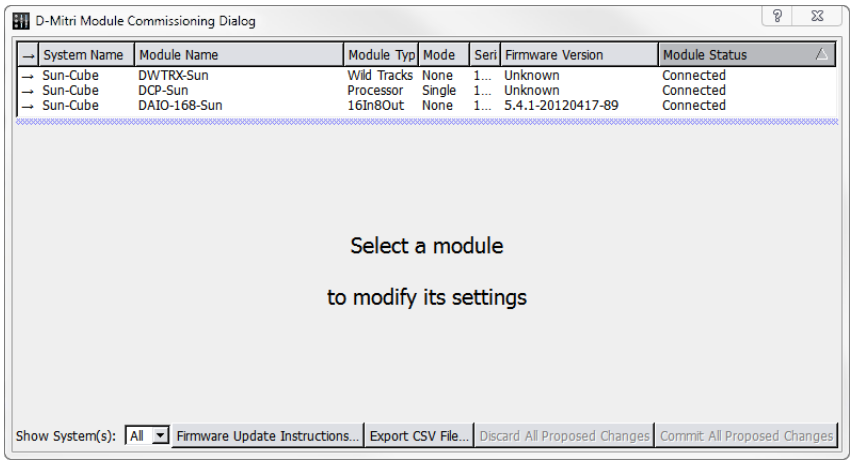
AES OUTPUT CLOCK SOURCE

AES outputs on DDIO-24 modules are set to use the D-Mitri system internal clock by default. In addition to an external Word Clock signal, sync can be obtained through the AES inputs. This requires settings to be changed in the CueStation Module Commissioning window.

To set a DDIO-24 module to sync to an external AES clock:

1. Power on the module in Maintenance mode. For more information, see “D-Mitri Operating Modes” on page 107.

2. Launch CueStation.
3. Choose Windows > Mixer Configuration.
4. Choose Configuration > Commission Modules. The Module Commissioning window displays a list of the detected D-Mitri modules and additional information, including their type, name, system, serial number, and firmware version.



5. To filter the display of D-Mitri modules based on their system, select a system from the Show System menu at the bottom of the window.
6. Select a DDIO-24 module to change its AES clock settings.

- Clock Source 1–3 divides the 24 inputs and 24 outputs of a DCIO-24 into three submodules, each comprised of eight inputs and eight outputs, and assigns the chosen clock source to the corresponding submodule.

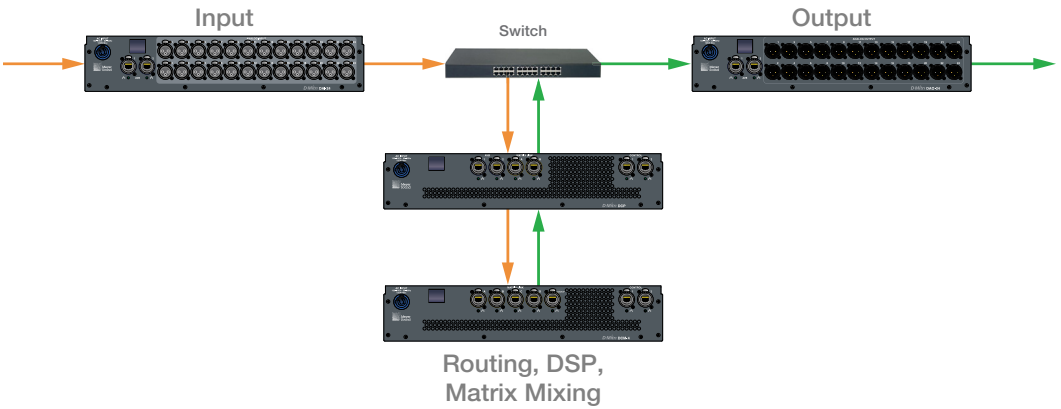
7. Click Commit All Proposed Changes to continue.
8. Verify all changes shown in the Commit Summary dialog, then click OK to proceed. Modules in the process of updating are highlighted in red.

When the settings update is complete, the module automatically power cycles and returns to Running mode. When in Running mode, I/O modules are not displayed in the Module Commissioning window.

CHAPTER 5: AUDIO SIGNAL PATH

D-Mitri encompasses the audio signal chain from audio input to loudspeaker output, including digital signal processing, matrix mixing, and dynamic control of sound effects and loudspeaker management.

The following conceptual diagram illustrates the general flow of audio and processing in a D-Mitri system.



AUDIO INPUT

All audio source signals are connected to a D-Mitri system through the following connections.

Analog Audio Input

Analog source signals connect to the XLR 3-pin female inputs located on the rear panel of the following modules:

- DAI-24
- DAIO-816
- DAIO-168

Each analog audio input feeds a high-quality preamplifier, and can accept balanced mic-level or balanced line-level signals with a maximum input level of +26 dBu. D-Mitri modules with analog inputs feature precision A/D conversion operating at 96 kHz sample rate and 24-bit resolution. The converted signal is then transported over D-Mitri's GNet Ethernet network.

Digital Audio Input

Digital source signals connect to the following modules:

- DDIO-24 features 24 channels each of digital audio input and output conversion between D-Mitri's GNet Ethernet network and devices that have AES3 digital audio connections. Each XLR 3-pin female connector located on the rear panel provides two channels of digital audio input.
- DCIO-24 features 24 channels each of digital audio input and output conversion between D-Mitri's GNet Ethernet network and a CobraNet digital audio network.

OTHER CONNECTIONS

DGPIO: D-Mitri General Purpose I/O offers additional connectivity to enable extensive control of external devices by D-Mitri's CueStation software, providing control input and output connections between D-Mitri's GNet Ethernet network and external devices that have a variety of industry standard interface types.

The rear panel of the DGPIO: D-Mitri General Purpose I/O features MIDI input and output connectors capable of carrying both standard MIDI and MIDI Show Control messages, serial interfaces that send and receive RS232 or RS422 serial data, an input and an output for SMPTE linear time code, word clock input and output connections, and a Phoenix connections for wiring relays, switches, and potentiometers.

PROCESSOR MODULES

After preamplification and conversion, signal continues through the D-Mitri network over GNet and Matrix Link.

GNet Audio Network

All I/O modules equipped with inputs send audio streams through a GNet Ethernet audio network to DCP modules. GNet enables low-latency transmission of digital audio with a low-jitter master clock, and is capable of transferring up to 216 audio channels at a 96 kHz sample rate and 32-bit resolution over each Gigabit Ethernet connection.

Matrix Link

Data travels between DCP modules and DCM matrix mixing modules (DCM-2 or DCM-4) over Matrix Link, a dedicated, ultra-low latency Ethernet connection carrying audio streams at a 96 kHz sample rate and 32-bit resolution.

PROCESSING AND MATRIX MIXING

At this point in the signal path, all routing, digital signal processing, and matrix mixing takes place with DCP and DCM modules, controlled by CueStation software. See Chapter 6, “CueStation Configuration” for more information about CueStation control.

Matrix Link

The return trip for audio begins with DCM matrix mixing modules sending audio streams at 96 kHz sample rate with 32-bit resolution over Matrix Link to DCP modules.

GNet

DCP modules send audio over D-Mitri’s GNet Ethernet network to I/O modules equipped with outputs.

AUDIO OUTPUT

Once all conversion, routing, and matrix mixing of audio signals is complete, and streams have traversed the network, signal is presented to modules with output connectors.

Analog Audio Output

D-Mitri modules with analog output connectors receive digital signal over D-Mitri's GNet Ethernet network, that in turn feed balanced line-level XLR 3-pin male connectors located on the rear panel of the following modules:

- DAO-24
- DAIO-816
- DAIO-168

Each analog output features precision D/A conversion. +16 dBu or +26 dBu full-scale analog output conversion levels are selected in CueStation.

Digital Audio Output

D-Mitri modules with digital output connectors receive digital signal over D-Mitri's GNet Ethernet network. The following modules are equipped with digital audio output connectors located on the rear panel:

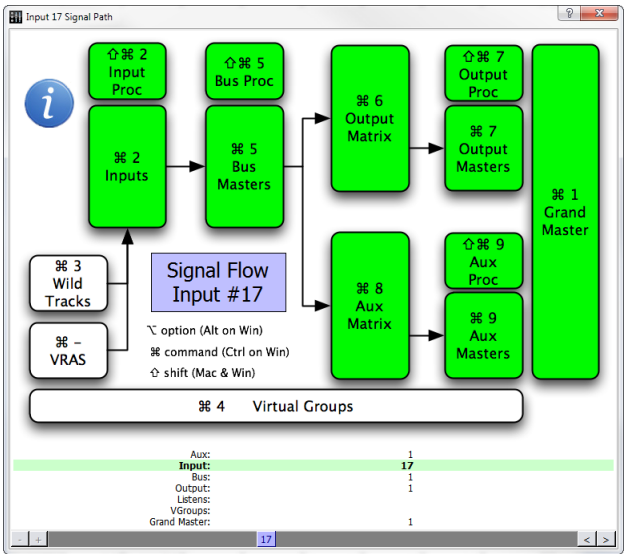
- DDIO-24 features 24 channels each of digital audio input and output conversion between D-Mitri's GNet Ethernet network and devices that have AES3 digital audio connections.
- DCIO-24 features 24 channels each of digital audio input and output conversion between D-Mitri's GNet Ethernet network and a CobraNet digital audio network.

CUESTATION SIGNAL PATH WINDOW

A complete internal signal path can be viewed in CueStation on a per-channel basis. In each CueStation window that represents a point in the audio signal path of a D-Mitri system, a set of Signal Path buttons is displayed.

Signal Path buttons

Click an arrow button to open the CueStation window for the previous or next point in the signal path. Click the blue info button to open the Signal Path window. The Signal Path window shows the signal path for the currently selected channel. The current point in the path is highlighted, and shortcuts are displayed for all points. When passing signal for the selected channel, the various buttons illuminate in green.



CueStation Signal Path window

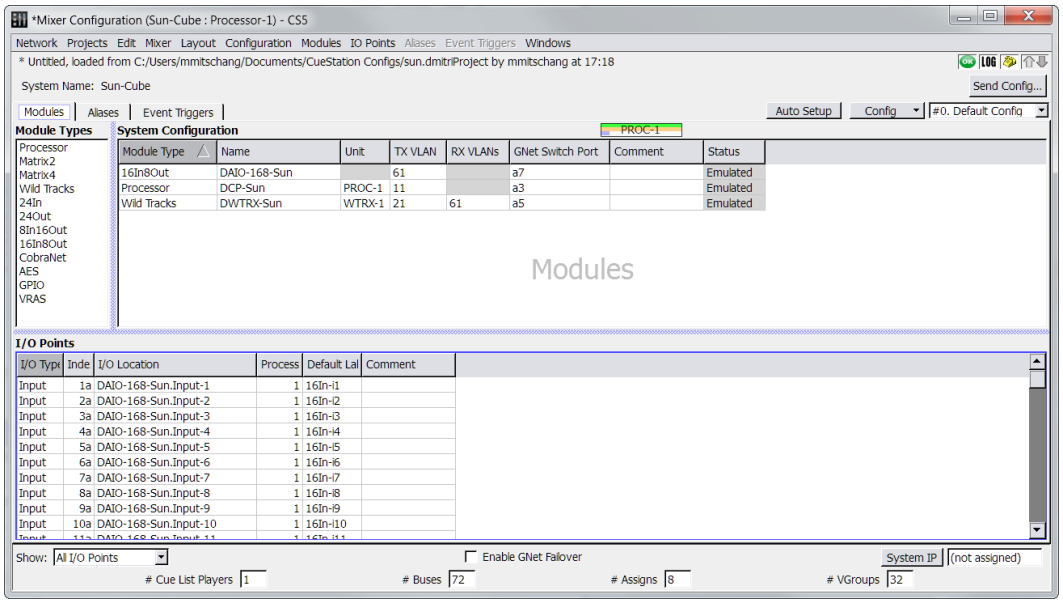
To navigate the Signal Path window:

1. Drag the scrollbar at the bottom of the Signal Path window to change the displayed channel. The displayed channel can also be changed by clicking on the arrow buttons adjacent to the scrollbar.
2. To open the corresponding window for any point in the signal path, do one of the following:

- Click any point in the displayed path.
- Use the keyboard shortcut displayed for any point in the displayed path.

CHAPTER 6: CUESTATION CONFIGURATION

Every D-Mitri project contains one or more mixer configurations. D-Mitri systems are configured with CueStation's Mixer Configuration window. The Mixer Configuration window displays switch port locations, unit names, module status, I/O points, and other information. When a D-Mitri project is saved, the configuration is saved with it. Configurations can also be saved separately as .dmitriMixerConfig files.



CueStation Mixer Configuration Window

CueStation is designed to make configuration as transparent as possible. Once it has been configured with CueStation, the entire system works as one cohesive unit.

MIXER CONFIGURATION

CueStation's Mixer Configuration is a digital representation of all modules in a D-Mitri system. Every time the D-Mitri system is powered on or power-cycled, it must receive a valid configuration before audio can be processed.

A configuration contains the following information:

- The type and number of modules in the D-Mitri system
- VLAN IDs and Switch Port settings
- The number of busses, bus assigns, and VGroups
- I/O points which correspond to the range of channels used by I/O modules, and in some cases, the type of channels
- Each I/O module's host DCP module

TIP: The system configuration may also include custom labels for I/O channels in the I/O Location column.

A valid configuration never duplicates channel numbers per channel type (e.g., two inputs cannot be simultaneously mapped to channel 10). A configuration saved to flash memory can be loaded automatically when powering on the D-Mitri system. Configurations can also be sent from a CueStation client as part of a project file.

If one D-Mitri module within a larger system goes offline, the configuration is automatically resent once it has reconnected.

The following section describes how to configure the system using the Mixer Configuration window.

NOTE: If a firewall is employed by the network or by CueStation clients, it must be configured to allow UDP traffic on ports 5353, 8080, 16000, 17000, 18000–18002, 18004, 18033–18034, and 18037.

Loading a Configuration from D-Mitri Flash Memory

Meyer Sound provides a project file for the D-Mitri system that is stored in the flash memory of system processor modules.

To load a configuration from D-Mitri flash memory:

1. Open CueStation.
2. Choose Network > Connect. Select the system from the list, then click Connect (all windows).
3. From any CueStation window, choose Projects > Open Project from Flash.
4. Enable the Load Project and Send Configuration options, then click Open. CueStation loads the configuration stored in the processor module flash memory, then sends the configuration to the D-Mitri system.
5. Verify that the GNet Switch port settings in the System Configuration pane match the physical arrangement of cables and switch ports.

NOTE: GNet Switch Port fields in the Mixer Configuration menu are for user reference only. Switch ports with the same VLAN settings can be used interchangeably.

Optionally, Choose Projects > Save Project As to save a copy of the configuration to the client computer.

When working offline with VirtualD-Mitri, flash memory is unavailable. For more information, see “Working Offline with VirtualD-Mitri” on page 74.

Auto-Start Project in Flash Memory

The project saved to D-Mitri Flash Memory can be set to load automatically when powering on the system. When CueStation connects to the D-Mitri system, the project loads automatically.

To Auto Start a project from D-Mitri Flash Memory:

1. Complete the process described in “Loading a Configuration from D-Mitri Flash Memory” on page 60.
2. Choose Projects > Save Project to Flash.

- Set the On Power Up behavior to Auto Start Project in Flash.
- Startup Delay defaults to 60 seconds. To modify, enter a Startup Delay time in seconds.
- Optionally, enter a Cue ID or Cue List ID to be recalled on Startup.

- A completion message is displayed in the Log when Auto Start has completed. To customize the message, enter text into the Completion Message field.

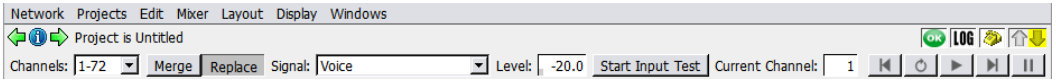
3. Click Save Settings to overwrite the project saved in Flash Memory.

TESTING A CONFIGURATION

Once a configuration has been sent to the D-Mitri system, the signal path and hardware can be tested by generating test signals with CueStation and with signals created by connected external sources.

Testing with Internally Generated Signals

Channel Test functionality is built into every CueStation window that has channel controls, and can be shown by choosing Display > Show Channel Test Controls. This functionality allows testing of a configuration and connected loudspeakers. Test signals can be generated at the inputs, outputs, and several other locations in the D-Mitri signal path.



CueStation Channel Test Controls

Channel Test Controls offer the following controls:

- The Channels field specifies which channels are included in the test. Enter a single channel, a range of channels, or choose Reset to All Channels. Individual channels are separated by commas and channel ranges are indicated with hyphens. For example, typing 1,14,36–41 in the field specifies a test for channels 1, 14, and 36 through 41.
- Merge and Replace buttons determine whether to merge the chosen test audio with other output on the selected channels, or to replace the output with the test audio.
- Channel Test Type selects the type of test audio. Options include a Voice announcement of the channel number, Voice and Pink Noise, Pink Noise (8 seconds), Log Sweep, and Pink Pulse.
- Channel Test Level sets the level in dB for generated test signals. This setting specifies the signal level of the generated test signal.

NOTE: Like other signals, the test signal is affected by all trim, level, and processing control settings present in the D-Mitri signal path.

- Start Test button begins the test. While the test is running, the Stop Test button ends the test.
- Current Channel indicates the channel that is currently being tested. Values that are manually entered in this field act as offsets.
- Channel Test transport buttons allow manual changes to the channel sequence. Test signal can be skipped to the previous or next channel, looped on the current channel, and paused.

Using the Channel Test Function

To prepare the D-Mitri system for a channel test:

1. Choose Windows > Inputs.
2. Choose Display > Show Channel Test Controls to reveal the signal generator controls at the top of the Inputs window.
3. Click the Master Input Select button to select all Input channels.
4. Command-click (Mac) or Ctrl-click (Windows) Bus 1 in the bus assigns section of any channel to assign all input channels to Bus 1.
5. Command-click (Mac) or Ctrl-click (Windows) the Unity button on any channel to set all input channel faders to unity.
6. Choose Windows > Matrix.
7. Choose Matrix > Set Diagonal. A diagonal matrix mix is created.
8. Choose Windows > Output Masters open the Output Masters window.
9. Click the Master Output Select button to select all Output channels.
10. Command-click (Mac) or Ctrl-click (Windows) the –inf button on any Output channel to set all selected channel faders to –inf.

Running a Channel Test

To test the D-Mitri system with signal generated by CueStation:

1. Complete the steps detailed in “Using the Channel Test Function” on page 63.
2. Choose Windows > Grand Master.
3. Click the Unity buttons for System Level and Trim to set fader levels to Unity.
4. To control an input channel test, choose Windows > Inputs. To control an output channel test, choose Windows > Output Masters.
5. Enter a value in Channel Test Set field to set the range of channels to test.
6. Choose an option from the Channel Test Type menu to set the type of test signal.
7. Enter a Channel Test Level value to set the test signal level in dB.
8. Click Start Test to begin the channel test.
9. Choose Windows > Output Masters.
10. Slowly increase the output fader levels until the test signal is playing back through connected loudspeakers at an audible level. To adjust the levels of all Output channels simultaneously, click the Master Output Select button and hold Command (Mac) or Ctrl (Windows) while adjusting any Output channel fader.

TIP: For manual control over the test sequence, use the Cycle button in conjunction with the Skip to Previous Channel and Skip to Next Channel buttons in the Channel Test Control section.

Testing with External Signals

External test signals can be fed into the D-Mitri system’s inputs, then sent to any or all outputs. The following procedure uses a single input point, Input 1, as an example.

To run audio signal from Input 1 to any number of outputs:

1. Choose Windows > Inputs.
2. Click the Unity button for Input 1 to set the fader level to Unity.
3. In the bus assigns section of Input 1, select Bus 1.
4. Choose Windows > Matrix.

5. Choose Matrix > Set Diagonal, Busses, Outputs. A diagonal matrix is created. All bus masters and output masters are set to unity.
6. Choose Windows > Grand Master.
7. Click the Unity buttons for System Level and Trim to set fader levels to Unity.
8. Choose Windows > Output Masters.
9. Slowly increase the output fader levels until the test signal is playing back through connected loudspeakers at the necessary level. To adjust the levels of all Output channels simultaneously, click the Master Output Select button and hold Command (Mac) or Ctrl (Windows) while adjusting any Output channel fader.

Audio connected to Input 1 is mixed to Output 1. To change the output path, select a different bus from the bus assigns section of Input 1.

EDITING D-MITRI CONFIGURATIONS

Any configuration in a D-Mitri project, or the modules contained therein, can be edited.

TIP: Standard edit commands such as Cut, Copy, and Paste can be used to edit modules in the System Configuration pane.

Adding Modules

Modules are typically added with the Query Hardware for Configuration command (see “Loading a Configuration from D-Mitri Flash Memory” on page 60). In addition, modules can be added and removed manually.

To add a D-Mitri module to the configuration:

1. Choose Windows > Mixer Configuration.
2. Choose Edit > New Module.
3. Select a Module Type to add.
4. Enter a Module Name and click Add Module. If set to Auto Assign, the module is named automatically by type and sequence.

TIP: Modules can also be quickly added by dragging a module from the Module Types list into the System Configuration pane.

After adding a module to the configuration, the System Configuration fields can be edited, as shown in “Editing Modules” on page 66. Adding modules manually is necessary when working offline with Virtual D-Mitri. For more information, see “Working Offline with VirtualD-Mitri” on page 74.

Duplicating Modules

Any module in a configuration can be duplicated, resulting in two identical modules in the configuration. This command can be used to create entries for Live Backup modules (see “Live Backup Modules” on page 71 for more information).

To duplicate a module:

1. Choose Windows > Mixer Configuration.
2. Select a module in the System Configuration pane.
3. Choose Edit > Duplicate Module.

Duplicate module names are appended with “#n” to differentiate them from the original modules. The duplicate module’s TX VLAN must be reassigned before sending the configuration.

Editing Modules

Each column in the Modules tab displays information pertaining to each D-Mitri module. To show or hide columns, right-click any column name and choose a column to show or hide. Any field in the System Configuration section with a white background can be edited.

To edit System Configuration fields:

1. Choose Windows > Mixer Configuration.
2. Click a field to edit it.
3. Enter a value, name, or comment.
4. Press Enter or click outside the field.

Disabling, Enabling, and Deleting Modules

Disabling a D-Mitri module renders it inactive, but it remains in the configuration. Disabled modules are displayed against a pink background, and can be re-enabled with Edit > Enable Module. Deleting a module removes it from the current configuration.

To disable, enable, or delete a module:

1. Choose Windows > Mixer Configuration.
2. Select a module in the System Configuration pane.
3. Choose from the following commands:

- Edit > Disable Module
- Edit > Enable Module
- Edit > Delete Module

Auto Setup

Auto Setup creates I/O Point entries for all unmapped inputs and outputs of connected modules. Existing I/O points are not altered. Make sure the project has been saved before using this command.

TIP: When using Auto Setup or manually changing I/O points, the configuration must be sent in order for the changes to take effect.

To use Auto Setup:

1. Choose Windows > Mixer Configuration.
2. Load a D-Mitri project file.
3. Click Auto Setup. I/O Points are created for all unmapped inputs and outputs. An alert is displayed if the selected configuration does not match the active configuration. Click Details for more information about the differences between configurations.
4. Click Send Config to overwrite the active configuration. See “Sending a Configuration” on page 68 for more information.

NOTE: The Mixer Configuration window is different from other CueStation windows, in that changes made in this window are not automatically sent to D-Mitri modules. Similarly, if changes are made in the Mixer Configuration window by another client, the window does not update automatically.

For more information on CueStation configurations, see “Configuration Management” on page 69.

Sending a Configuration

Once the D-Mitri system has been configured with CueStation, the configuration must be sent to the hardware before it takes effect.

To send the current Mixer configuration to the D-Mitri system:

1. Choose Windows > Mixer Configuration.
2. Click Send Config.
3. In the resulting Send Configuration Warning dialog, choose from the following options:

- Send Configuration temporarily mutes system audio output while all control points are reset. The configuration is sent to the D-Mitri system, and details are displayed in the Log window. The CueStation mixer windows show faders and other controls corresponding to the configuration.
- Cancel aborts the process. All control points remain unchanged.

CONFIGURATION MANAGEMENT

The following commands are used to create new configurations, alter configuration properties, and delete existing configurations.

Select Config Menu

This drop-down list displays the currently selected configuration. When expanded, all configurations in the D-Mitri project are shown.

To select a configuration:

1. Choose Windows > Mixer Configuration.
2. Click the disclosure button next to the configuration name.
3. Select a configuration.

The Mixer Configuration display updates with the currently selected configuration. Choosing the (Active Config) entry displays all settings of the configuration that is currently active on the D-Mitri system.

Creating New Configurations

New configurations can be created by either duplicating an existing configuration, or by initializing a blank configuration.

To create a new configuration:

1. Choose Windows > Mixer Configuration.
2. Click the Config drop-down menu.

- To duplicate the selected configuration, choose Duplicate Config [n].
- To create a blank configuration, choose New Config.

3. In the Rename Config dialog, enter a name for the new configuration and click OK.

Renaming Configurations

Configurations can be assigned a new name, keeping all other settings intact.

To rename a configuration:

1. Choose Windows > Mixer Configuration.
2. Click the Config drop-down menu.
3. Choose Rename Config [n].
4. In the Rename Config dialog, enter a new name for the configuration and click OK.

Setting Configuration IDs

Configurations can be assigned a new ID number, keeping all other settings intact. Configuration ID numbers are useful for organization in D-Mitri projects with multiple configurations.

To assign a new Configuration ID:

1. Choose Windows > Mixer Configuration.
2. Click the Config drop-down menu.
3. Choose Set ID of Config [n].
4. In the Set ID for Config dialog, enter a new ID number for the configuration and click OK.

If you try to assign an ID that is already in use, CueStation displays a prompt to swap the ID numbers between the current configuration and the configuration with the chosen ID. Click Yes to swap, or click Cancel to revert back to the original ID numbers.

Deleting Configurations

Configurations can be deleted from the Mixer Configuration window. The active configuration remains unchanged. If the active configuration is currently selected, the Delete Configuration command is unavailable.

To delete a configuration:

1. Choose Windows > Mixer Configuration.
2. In the Configuration Selection menu, select the configuration you want to delete.
3. Click the Config drop-down menu.
4. Choose Delete Config [n].

The selected configuration is deleted from the D-Mitri project, and CueStation automatically selects the currently active configuration.

Locking and Unlocking Configurations

Selected configurations can be locked to prevent further changes. Locked configurations can be unlocked to allow changes.

To lock or unlock a configuration:

1. Choose Windows > Mixer Configuration.
2. Click the Config drop-down menu
3. Choose one of the following:

- Lock Config [n].
- Unlock Config [n].

Locked configurations display all fields with a gray background, indicating that the parameters are not currently editable. Unlocked configurations display all editable fields with a white background.

LIVE BACKUP MODULES

Modules connected as Live Backup in CueStation are automatically put to use if one of the primary modules suddenly goes offline. For information about network connections for Backup modules, see “Backup Modules” on page 46.

D-Mitri’s use of backup modules depends on the global Enable GNet Failover setting in CueStation. To enable this function, choose Windows > Mixer Configuration and select the Enable GNet Failover option. To disable, deselect the Enable GNet Failover option.

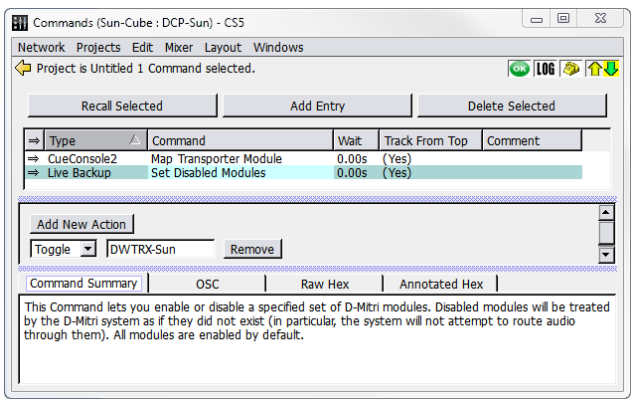
Processor module failover can also be triggered with a Live Backup command. This is useful for simulating a failover event, or for disabling a backup module so the primary module resumes its functionality.

Live Backup Command Subcue

The Live Backup command subcue allows Live Backup to be triggered manually. The command can be set to explicitly enable a module, explicitly disable a module, or toggle the enabled state of a connected backup module.

To create a Live Backup subcue:

1. Choose Windows > Commands.
2. Click the Add Entry button.
3. Right-click the Type column and choose Live Backup.
4. In the action pane below, click the drop-down menu to choose an action (Disable, Enable, or Toggle).
5. Enter a module name into the blank field next to the action menu.



Enabling or Disabling a Module with the Live Backup Command

Executing Live Backup Commands

To execute a Live Backup command:

1. Choose Windows > Commands.
2. Select the Live Backup subcue.
3. Click Recall Selected.

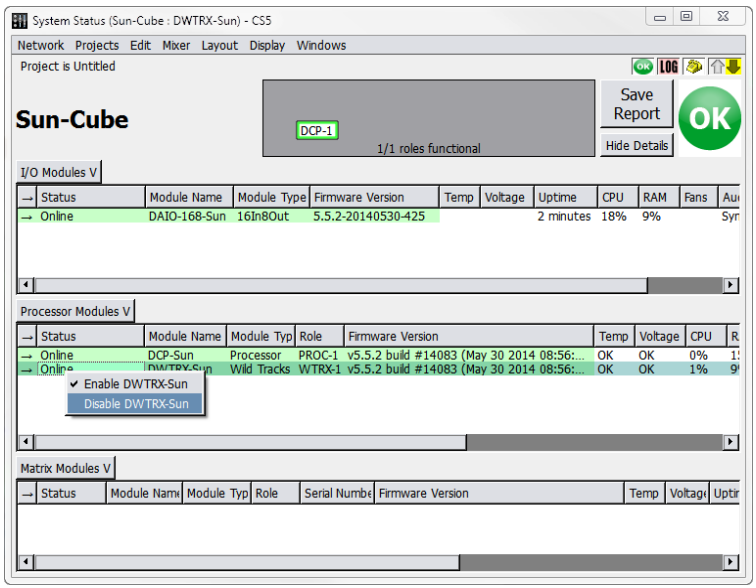
Disabling and Enabling Modules

Modules can be enabled or disabled directly through the Status window, or by subcue through the Set Disabled Modules command. Disabling marks the module as one that should not be used for passing audio, forcing the system to use its assigned backup modules for audio routing instead.

To disable a module through CueStation:

1. Choose Windows > System Status.
2. In the Status column, right-click a module and choose one of the following:

- Enable
- Disable



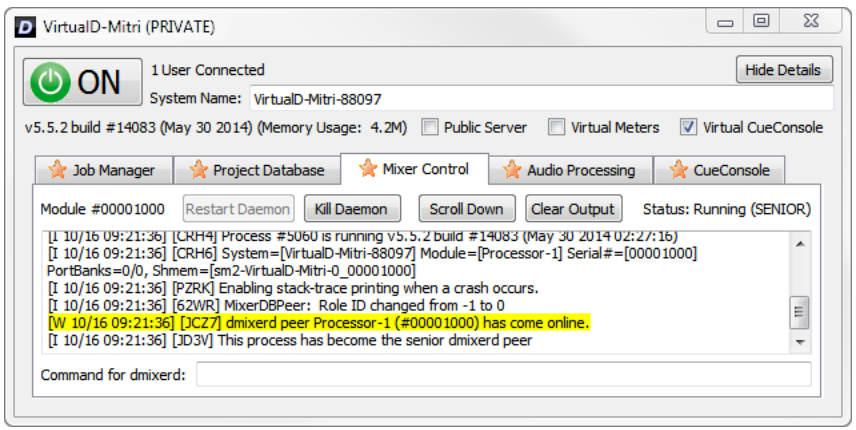
Enabling or Disabling a Module from the Status Window

WORKING OFFLINE WITH VIRTUALD-MITRI

CueStation provides a client interface for a D-Mitri system. VirtualD-Mitri is a software-based server component for CueStation. If no actual D-Mitri system is available, or when experimenting with D-Mitri without having to connect to an actual D-Mitri module, use VirtualD-Mitri.

CueStation and other clients normally connect to the server running on D-Mitri. When it is necessary to do cue programming work without having access to hardware, VirtualD-Mitri provides a simulation of the system.

The VirtualD-Mitri window, shown below in its expanded state, provides status information and a set of tabs that allow control of specific server components.



To Connect to VirtualD-Mitri:

1. Open CueStation.
2. Choose Network > Connect.
3. Select Launch VirtualD-Mitri.
4. Click Connect (all windows).

VirtualD-Mitri launches and CueStation connects to VirtualD-Mitri. CueStation behaves as though all hardware is connected. Due to the nature of the system simulation, the Query Hardware for Configuration command and CueStation functions that involve D-Mitri flash memory are not available when connected to VirtualD-Mitri.

Show/Hide Details

Clicking the Show Details button expands the VirtualD-Mitri window to the status shown above. It displays status information, five window tabs, and various controls. Click Hide Details to reduce the window down to a minimum size.

Status Information

System name, version number, memory usage, and build date are displayed near the top of the VirtualD-Mitri window.

Control Buttons

The five VirtualD-Mitri window tabs have different sets of control buttons. Two of these control the server component background processes, program routines that are responsible for monitoring communications and status, and providing server services.

- Restart Daemon is enabled only when the background process associated with the selected tab has been killed. Killing and restarting a background process is equivalent to rebooting that component of the server.
- Kill Daemon shuts down the background process associated with the selected tab.
- Scroll Down moves the tab's scrollbar to the bottom of the message list.
- Clear Output removes all the messages from the selected tab.

Job Manager

The Job Manager tab contains the output of the `djobd` daemon, which launches all of the other daemons and dictates their roles in the system. It is also responsible for restarting the other daemons if they exit.

Project Database

The Project Database tab lists system messages regarding the database background process, its communication with other background processes, and any project stored within the database. The database process controls access to subcues, cues, cue lists, and other project components.

Mixer Control

The Mixer Control tab lists system messages regarding the mixer background process, its communication with other background processes, and the status of various signal mix paths. The mixer background process is responsible for controlling and adjusting the signal mix.

Audio Processing

The Audio Processing tab contains the `dcasld` daemon. This daemon maintains the state of all system control points, as well as related tasks such as cue recalls and cue lists.

CueConsole

The CueConsole tab has controls for the CueConsole background process. This process is started automatically when VirtualD-Mitri starts. For more information, see “Virtual CueConsole” on page 76.

TIP: To access the web server, point a web browser to port 8080 of the computer running VirtualD-Mitri (for example, http://localhost:8080). To add HTML files for the web server, drag them into the Support Files window.

VIRTUAL CUECONSOLE

The CueConsole window lists system messages regarding the CueConsole background process, its communication with other background processes, and the status of any connected CueConsole modules. The CueConsole background process is responsible for monitoring and controlling the movement of CueConsole controls.

To open Virtual CueConsole:

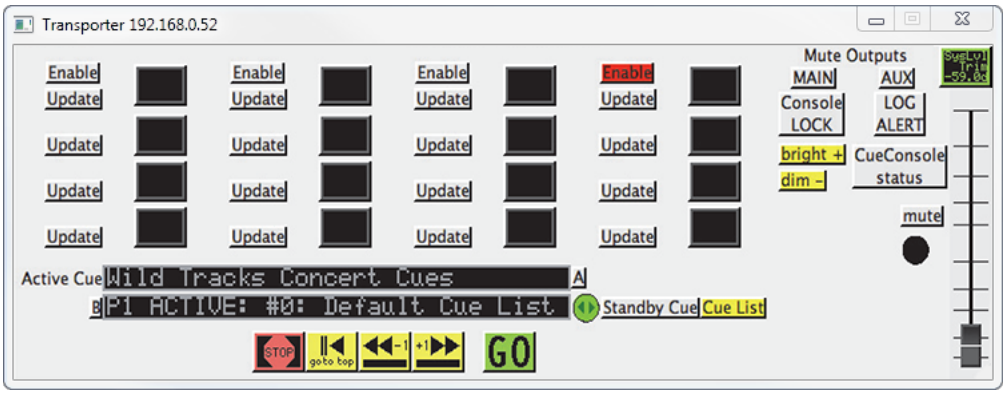
1. Open CueStation and connect to VirtualD-Mitri.
2. Choose Windows > Commands.
3. Click Add Entry.
4. Right-click the Type field of the new entry and select CueConsole2.
5. Right-click the Command field of the new entry and select one of the following:

- Map Editor Module

- Map Fader Module
- Map Meter Module
- Map Transporter Module

6. Click Recall Selected.

A new window appears, containing a virtual module. All CueConsole2 modules are supported.



Virtual CueConsole Transporter Window

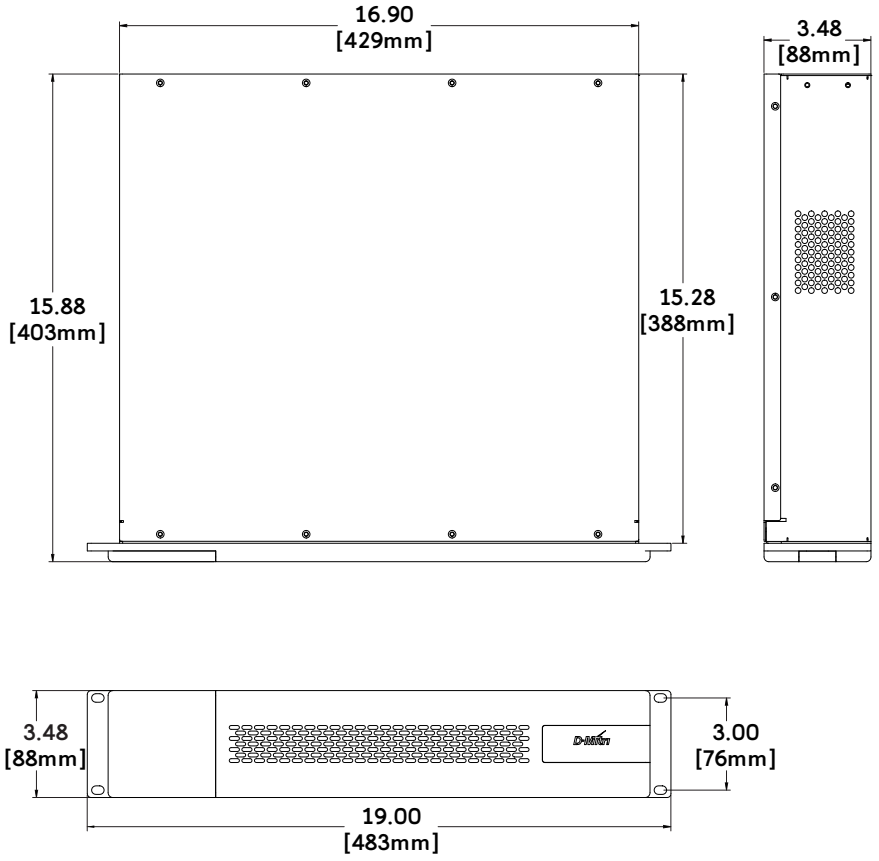
APPENDIX A: SPECIFICATIONS AND COMPLIANCE

DCP D-Mitri Core Processor

Digital Audio and Control	
Network	Two etherCON ports for connection to primary and backup GNet audio networks
	Two Matrix Link ports for connection to a DCM-2 or DCM-4 matrix mixing and routing module and one backup DCM-2 or DCM-4
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture, as well as external control via Open Sound Control protocol
Control Connections	Two etherCON ports (one redundant) for control by CueStation software and other clients
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	150 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	23 lbs (10.4 kg)
Notes	
System Requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6
Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C
Operating Altitude	To 4600 m (15,000 ft)

Non Operating Altitude	To 6300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

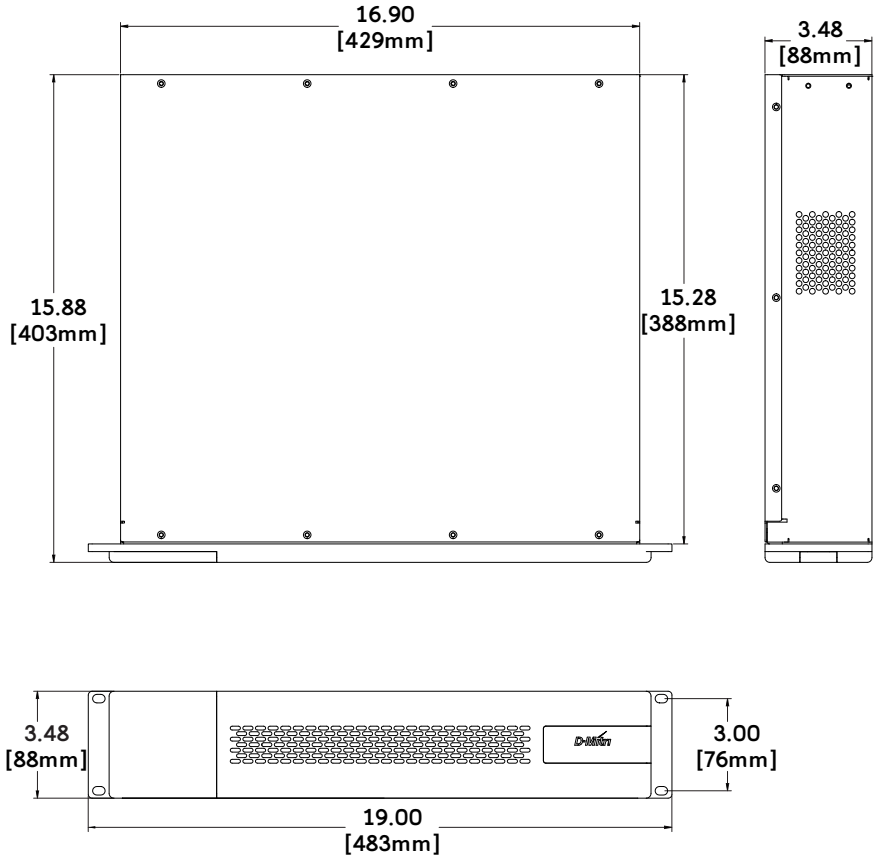
DCP D-Mitri Core Processor Dimensions



DCM-2 D-MITRI CORE MATRIX

Digital Audio and Control	
Network	Three etherCON Matrix Link ports for connection to up to two primary DCPs and one backup DCP
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture
Control Connections	Two etherCON ports (one redundant) for control by CueStation software and other clients
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	150 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	23 lbs (10.4 kg)
Notes	
System Requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6
Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C
Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

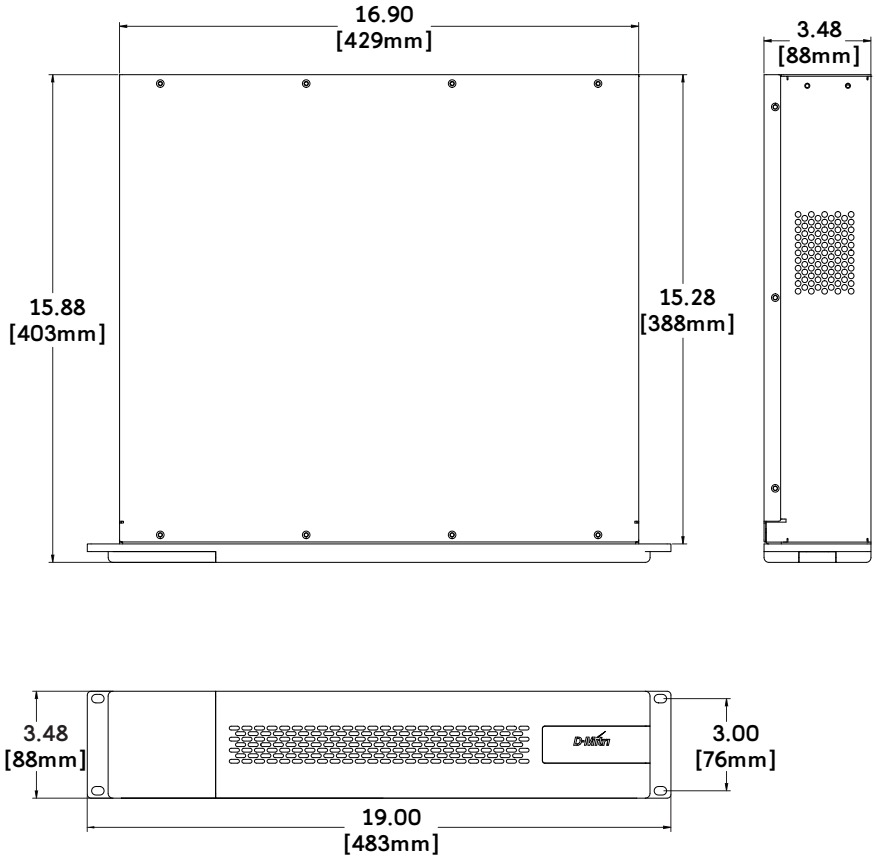
DCM-2 D-Mitri Core Matrix Dimensions



DCM-4 D-Mitri Core Matrix

Digital Audio and Control	
Network	Five etherCON Matrix Link ports for connection to up to four primary DCPs and one backup DCP
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture
Control Connections	Two etherCON ports (one redundant) for control by CueStation software and other clients
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	150 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	23 lbs (10.4 kg)
Notes	
System Requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6
Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C
Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

DCM-4 D-Mitri Core Matrix Dimensions

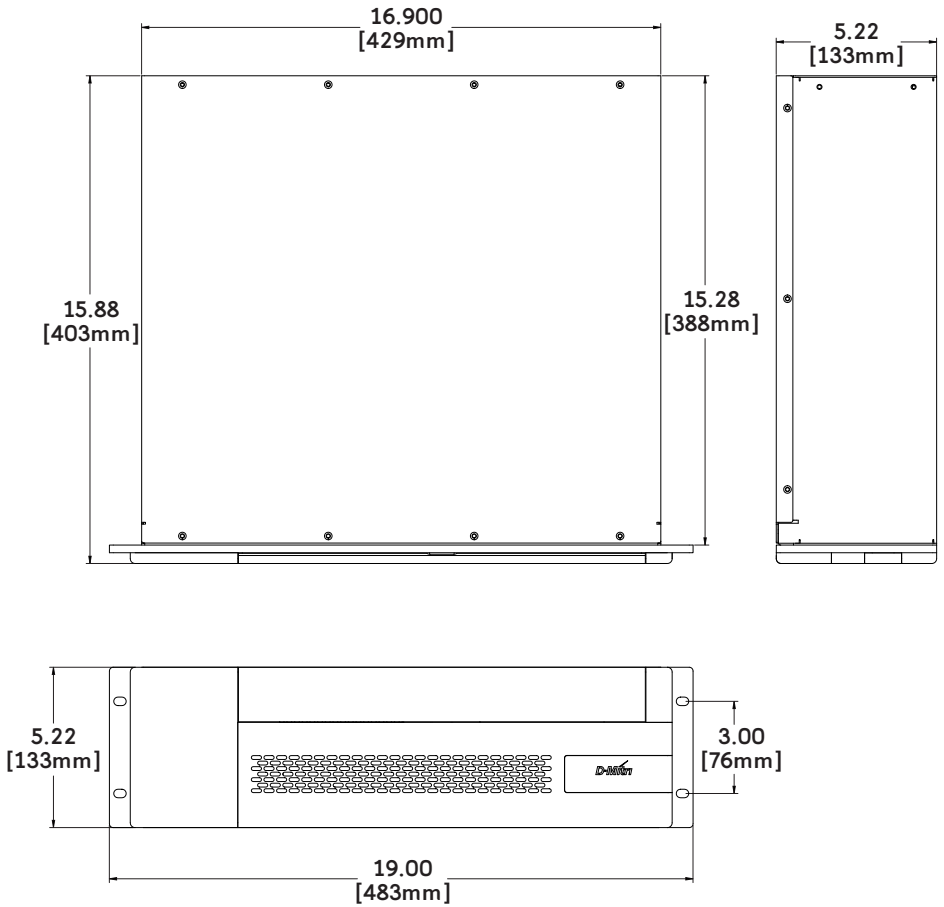


DWTRX D-Mitri Wild Tracks

Digital Audio and Control	
Network	Two etherCON ports for connection to primary and backup GNet audio networks
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture
Control Connections	Two etherCON ports (one redundant) for control by CueStation software and other clients
Storage Media for Sound Files	
Digital Media	Two removable 160 GB Solid State Drives
File Format	96 kHz 32-bit floating point AIFF, WAV, and FLAC
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	150 W maximum
Physical	
Dimensions	Three rack spaces
	19 inches W x 5.2 inches H x 15.9 inches D (483 mm x 133 mm x 404 mm)
Weight	30 lbs (13.6 kg)
Notes	
System requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6
Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C
Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)

Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

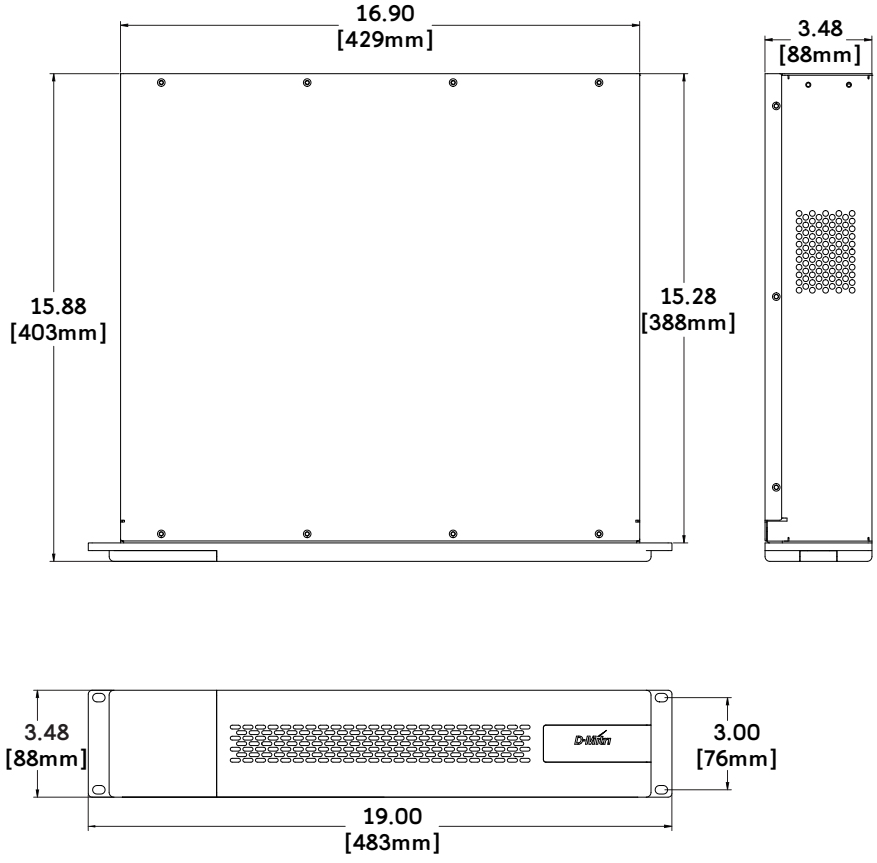
DWTRX D-Mitri Wild Tracks Dimensions



DVRAS D-Mitri VRAS

Digital Audio and Control	
Network	Two etherCON ports for connection to primary and backup GNet audio networks
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture
Control Connections	Two etherCON ports (one redundant) for control by CueStation software and other clients
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	150 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	20 lbs (9.1 kg)
Notes	
System Requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6
Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C
Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

DVRAS D-Mitri VRAS Dimensions

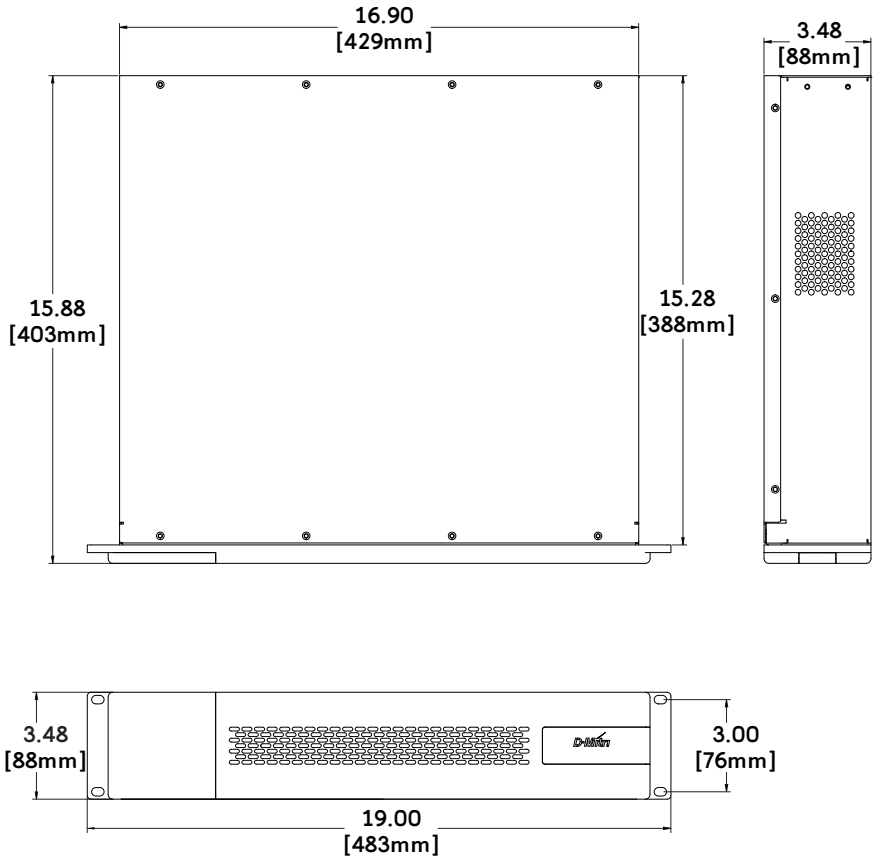


DAI-24 D-Mitri Analog In

Analog Audio	
Input Section	24 analog Mic/Line inputs with individually switched phantom power
Input Connectors	Gold-plated XLR 3-pin female
Maximum Input Level	Scale adjustable from -57 dBu to +26 dBu
A/D Conversion	
Digital Conversion	96 kHz sample rate, 24-bit resolution.
Digital Audio and Control	
Network	Two etherCON ports for connection to primary and backup GNet audio networks
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture, as well as external control via Open Sound Control protocol
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	125 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	20 lbs (9.1 kg)
Notes	
System Requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6
Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C

Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

DAI-24 D-Mitri Analog In Dimensions

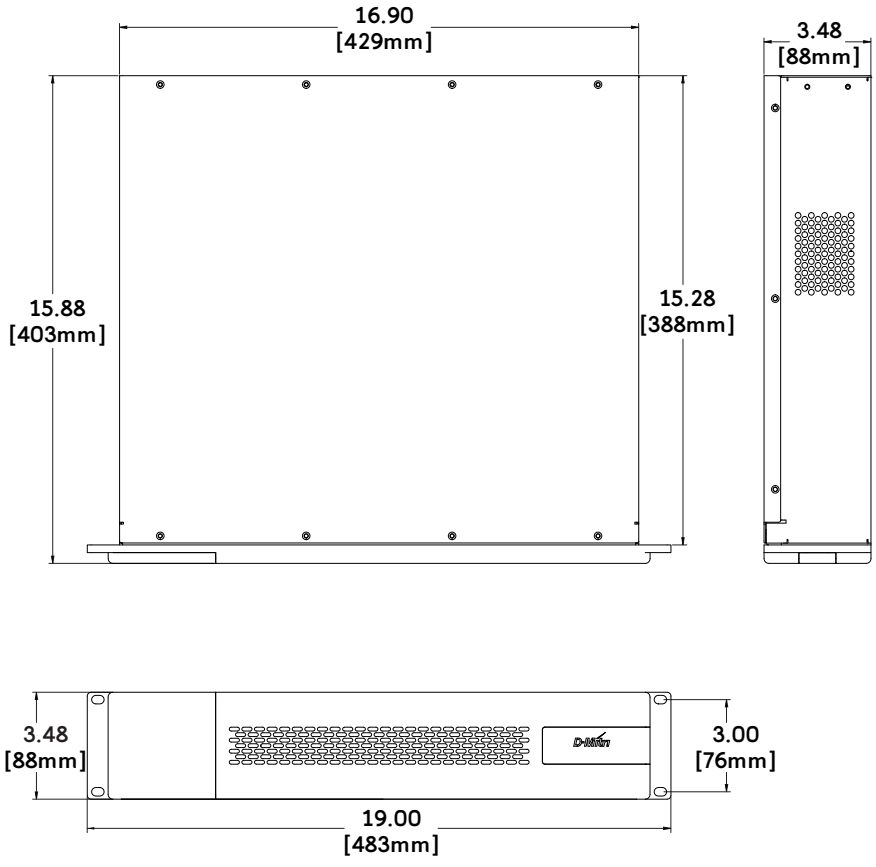


DAO-24 D-Mitri Analog Out

Analog Audio	
Output Section	24 analog outputs
Output Connectors	Gold-plated XLR 3-pin male
Maximum Output Level	Output scale adjustable between +16 dBu and +26 dBu into 600 ohms or greater
D/A Conversion	
Analog Conversion	96 kHz sample rate, 24-bit resolution
Digital Audio and Control	
Network	Two etherCON ports for connection to primary and backup GNet audio networks
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture, as well as external control via Open Sound Control protocol
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	125 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	20 lbs (9.1 kg)
Notes	
System Requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6
Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C

Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

DAO-24 D-Mitri Analog Out Dimensions

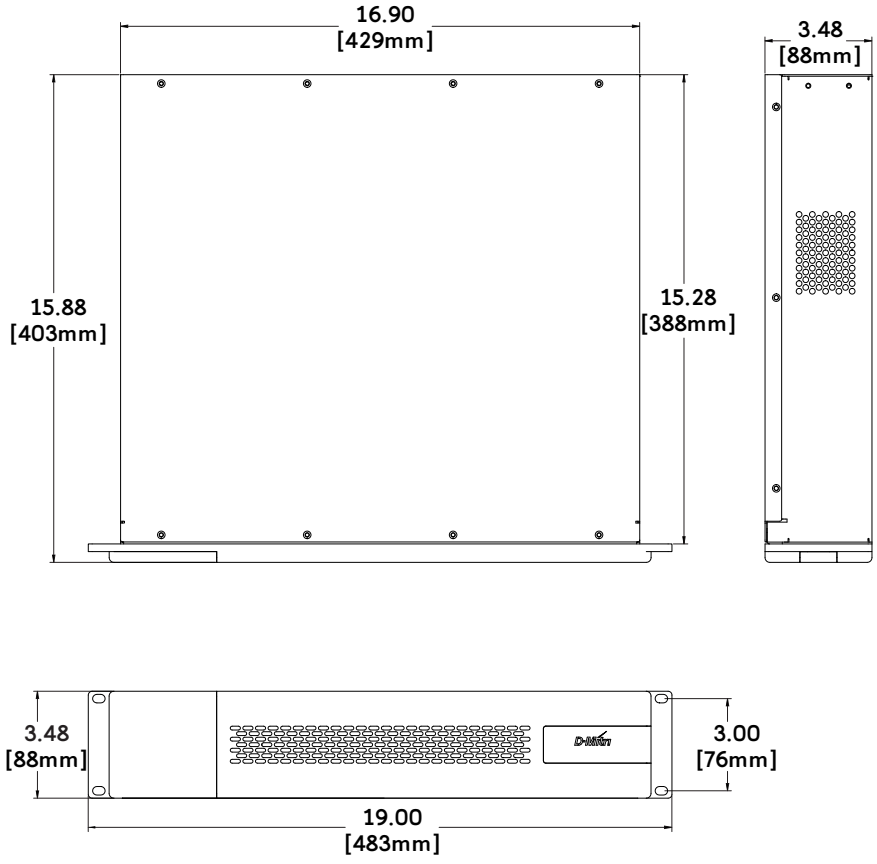


DAIO-816 D-Mitri Analog I/O

Analog Audio	
Input Section	Eight analog Mic/Line inputs with individually switched phantom power
Input Connectors	Gold-plated XLR 3-pin female
Maximum Input Level	Scale adjustable from -57 dBu to +26 dBu
Output Section	16 analog outputs
Output Connectors	Gold-plated XLR 3-pin male
Maximum Output Level	Output scale adjustable between +16 dBu and +26 dBu into 600 ohms or greater
A/D/A Conversion	
Digital Conversion	96 kHz sample rate, 24-bit resolution
Analog Conversion	96 kHz sample rate, 24-bit resolution
Digital Audio and Control	
Network	Two etherCON ports for connection to primary and backup GNet audio networks
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture, as well as external control via Open Sound Control protocol
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	125 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	20 lbs (9.1 kg)
Notes	
System Requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6

Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C
Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

DAIO-816 D-Mitri Analog I/O Dimensions

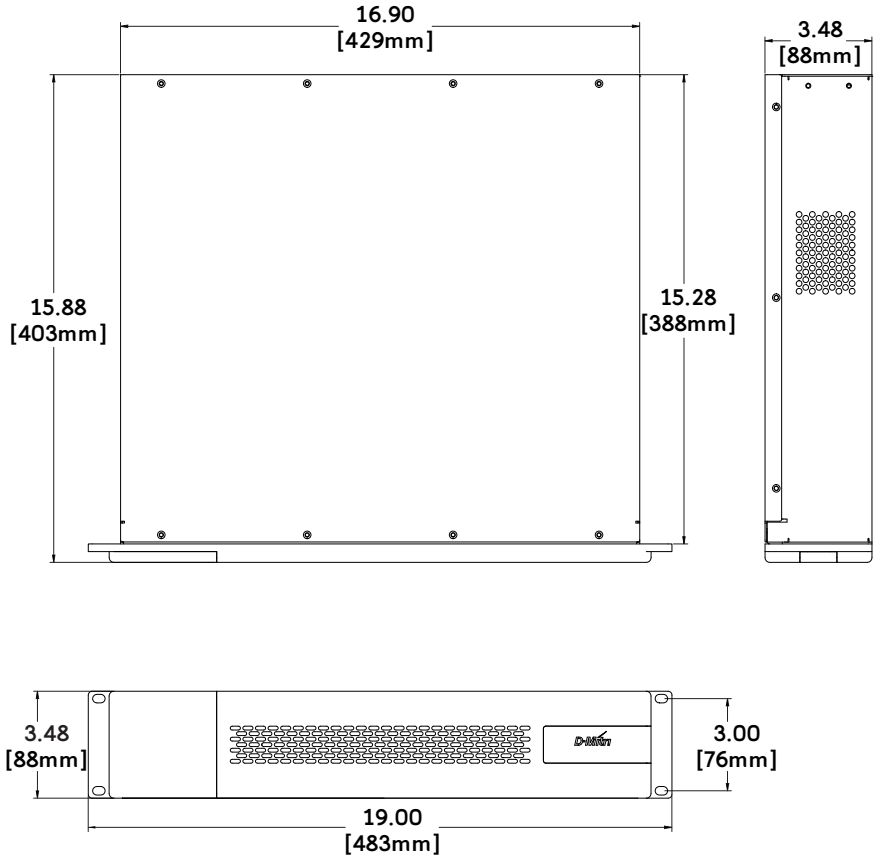


DAIO-168 D-Mitri Analog I/O

Analog Audio	
Input Section	16 analog Mic/Line inputs with individually switched phantom power
Input Connectors	Gold-plated XLR 3-pin female
Maximum Input Level	Scale adjustable from -57 dBu to +26 dBu
Output Section	Eight analog outputs
Output Connectors	Gold-plated XLR 3-pin male
Maximum Output Level	Output scale adjustable between +16 dBu and +26 dBu into 600 ohms or greater
A/D/A Conversion	
Digital Conversion	96 kHz sample rate, 24-bit resolution
Analog Conversion	96 kHz sample rate, 24-bit resolution
Digital Audio and Control	
Network	Two etherCON ports for connection to primary and backup GNet audio networks
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture, as well as external control via Open Sound Control protocol
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	125 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	20 lbs (9.1 kg)
Notes	
System Requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6

Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C
Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

DAIO-168 D-Mitri Analog I/O Dimensions

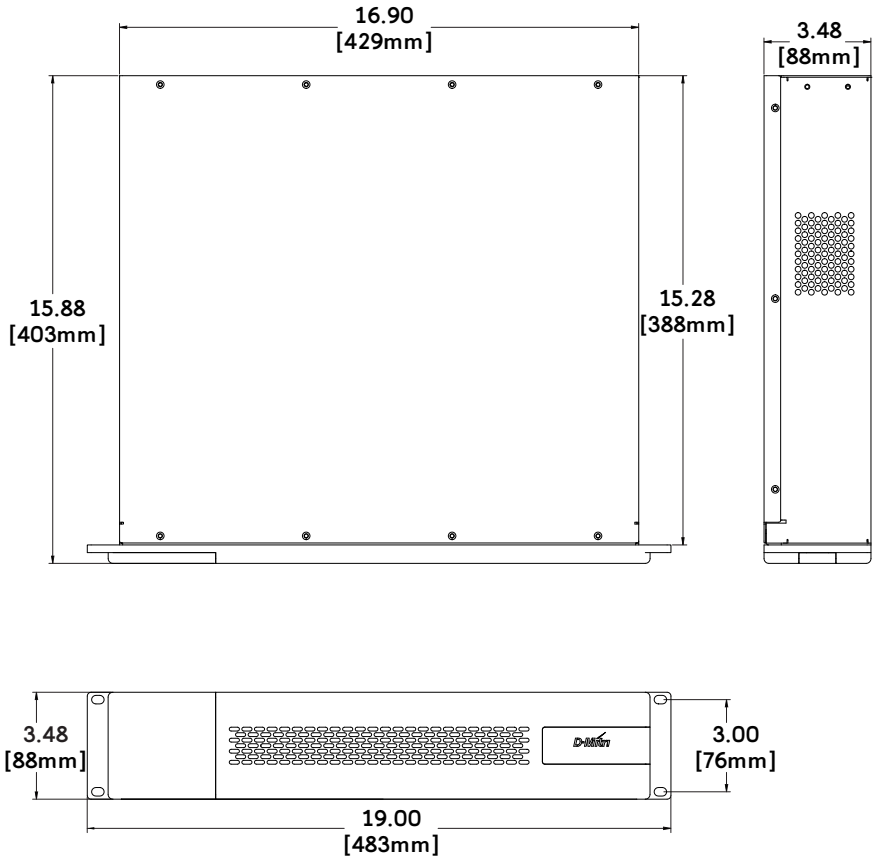


DDIO-24 D-Mitri Digital I/O

D/D Conversion	
Digital Conversion	96 kHz sample rate, 24-bit resolution, sample rate conversion available
Digital Audio and Control	
Input Section	24 AES/EBU inputs on 12 XLR connectors
Input Connectors	Gold-plated XLR 3-pin female
Output Section	24 AES/EBU outputs on 12 XLR connectors
Output Connectors	Gold-plated XLR 3-pin male
Word Clock input	One word clock input on BNC connector
Network	Two etherCON ports for connection to primary and backup GNet audio networks
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture, as well as external control via Open Sound Control protocol
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	125 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	20 lbs (9.1 kg)
Notes	
System Requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6
Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C

Humidity	To 95% at 35° C
Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

DDIO-24 D-Mitri Digital I/O Dimensions

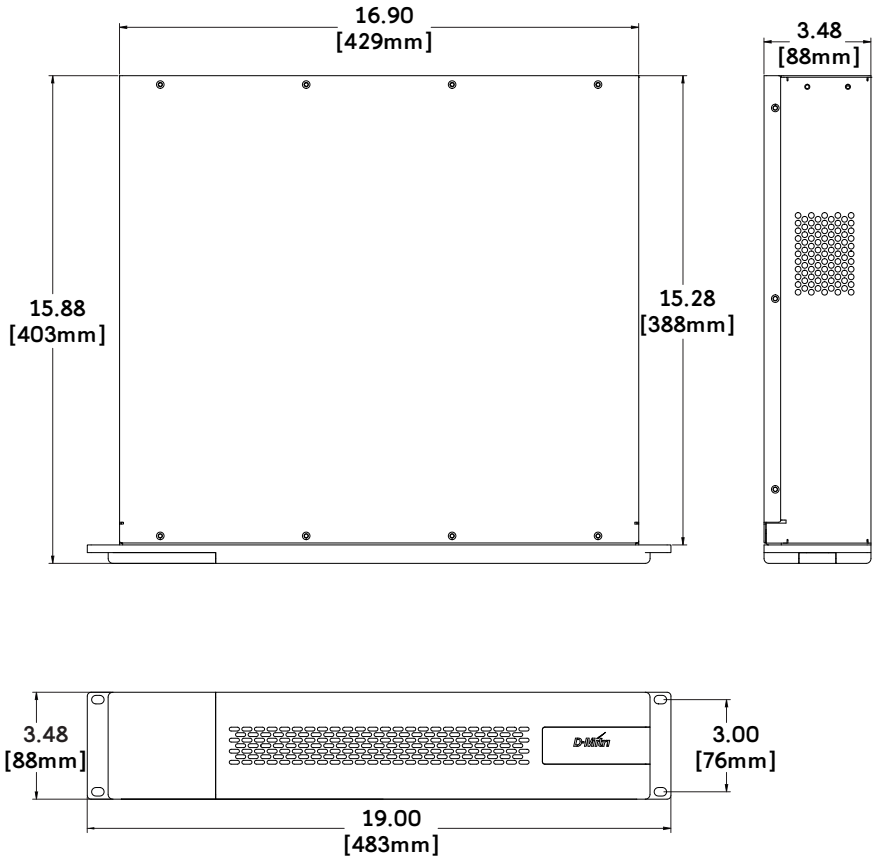


DCIO-24 D-Mitri CobraNet I/O

D/D Conversion	
Digital Conversion	96 kHz sample rate, 24-bit resolution, sample rate conversion available
Digital Audio and Control	
Input/Output Section	Up to 24 input and 24 output CobraNet channels across three primary and three secondary CobraNet inputs
Input/Output Connectors	Six etherCON ports
Network	Two etherCON ports for connection to primary and backup GNet audio networks
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture, as well as external control via Open Sound Control protocol
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	125 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	20 lbs (9.1 kg)
Notes	
System Requirements	D-Mitri requires a Gigabit Ethernet infrastructure
Cabling	Cat5e or Cat6
Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C
Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)

Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

DCIO-24 D-Mitri CobraNet I/O Dimensions

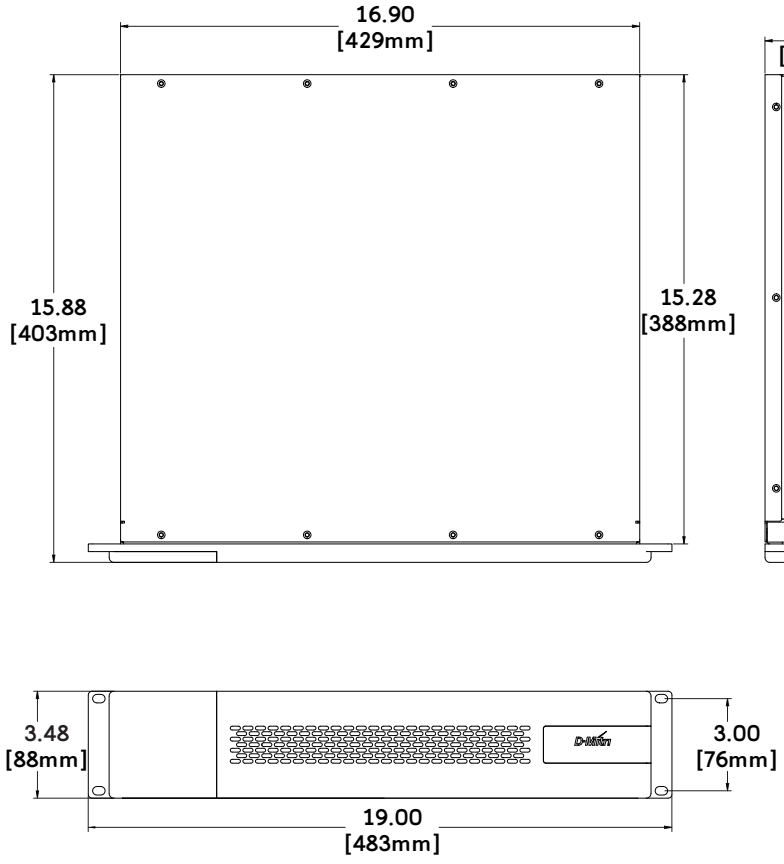


DGPIO D-Mitri General Purpose I/O

Connections	
MIDI	One MIDI input on 5-pin DIN connector
	One MIDI output on 5-pin DIN connector
SMPTE (LTC)	One SMPTE input on Gold-plated XLR 3-pin female connector
	One SMPTE output on Gold-plated XLR 3-pin male connector
Serial	One RS-232 on male DB-9 connector
	One RS-422 on female DB-9 connector
Word Clock	One word clock input on BNC connector
	One word clock output on BNC connector
Terminal Strip (see Appendix C, “DGPIO Terminal Connections”)	Six relay connections
	Six Digital Logic Inputs with switch contact closure (including ground and +5v)
	Four ADC inputs
Digital Audio and Control	
Network	Two etherCON ports for connection to primary and backup GNet audio networks
Software Control	Full bidirectional communication with D-Mitri for control by CueStation software within a client-server architecture, as well as external control via Open Sound Control protocol
AC Power	
Connector	powerCON 20
Operating Voltage Range	100–240 V AC, 50–60 Hz
Power Consumption	125 W maximum
Physical	
Dimensions	Two rack spaces
	19 inches W x 3.5 inches H x 15.9 inches D (483 mm x 89 mm x 404 mm)
Weight	20 lbs (9.1 kg)
Notes	
System requirements	D-Mitri requires a Gigabit Ethernet infrastructure

Cabling	Cat5e or Cat6
Environmental	
Operating Temperature	0° C to +45° C
Non operating Temperature	–40° C to +75° C
Humidity	To 95% at 35° C
Operating Altitude	To 4600 m (15,000 ft)
Non Operating Altitude	To 6300 m (25,000 ft)
Shock	30 g 11 msec half-sine on each of 6 sides
Vibration	10 Hz – 55 Hz (0.010 m peak-to-peak excursion)

DGPIO D-Mitri General Purpose I/O Dimensions



FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INDUSTRY CANADA COMPLIANCE STATEMENT

This Class A digital apparatus complies with Canadian ICES-003.

AVIS DE CONFORMITÉ À LA RÉGLEMENTATION D'INDUSTRIE CANADA

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

EN 55032 (CISPR 32) STATEMENT

Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

APPENDIX B: D-MITRI FIRMWARE

D-Mitri firmware can be updated to take advantage of recent fixes and enhancements, and may be required when updating CueStation clients. D-Mitri modules must be in Safe or Maintenance mode to be updated.

CueStation deploys D-Mitri firmware through the Module Commissioning window, which supports the dmitriUniversalFirmware format. A file in this format includes firmware for all modules for a given release, enabling the user to update the entire D-Mitri system with a single file.

⚠ **CAUTION:** Do not update firmware unless advised by Meyer Sound Technical Support.

PREPARING PROCESSOR MODULES FOR A FIRMWARE UPDATE

The Control network connections for updates to processor modules are identical to those of normal operation.

If the processor modules are running CueStation 5.5.1 (or later) firmware, no additional preparation is required before installing firmware updates.

D-MITRI OPERATING MODES

Each D-Mitri module operates using one or more types of firmware to control a variety of onboard functions. Before beginning a firmware update on a D-Mitri module, the module must be put in the correct mode for receiving the new firmware. There are two operating modes for D-Mitri modules:

- Running mode
- Safe mode (processor modules), Maintenance mode (I/O modules)

In Running mode, a module is fully operational. In Safe or Maintenance mode, a module offers a limited set of functions, designed for performing hardware testing, problem diagnosis, debugging, and for changing some persistent module settings and updating some kinds of firmware. Safe or Maintenance mode allows recovery in the case of a failed firmware upgrade. The following procedures describe how to put D-Mitri modules in each mode.

Putting a D-Mitri Module in Running Mode

To put a D-Mitri module in Running mode:

1. Supply power to the unit.

The module boots into Running mode, which is its normal condition. When pressed, the OLED button displays the following information:

- DCM module OLED displays the module type (DCM-2 or DCM-4) and Running mode firmware version and date.
- DCP module OLED displays the Running mode firmware version and date while powering on. When pressed after powering on, the OLED displays gPTP status and VLAN ID. If connected to a DCM module, DCM port ID is shown.
- I/O module OLED shows boot progress in green percentage display while powering on. When pressed after powering on, the OLED displays the IP addresses for each AVB port, alternating between AVB port 1 and AVB port 2. A small indicator at the bottom of the display identifies which port the displayed IP address pertains to.

NOTE: In Running mode, there is no IPv4 address for AVB port 1 of I/O modules. When pressed, the OLED displays “NO IP ADDRESS” for AVB 1. The scrolling display shows the IPv6 addresses in small text at the top of the display.

TIP: OLED buttons illuminate for a short time when pressed, then switch off to preserve the life of the display when not in use.

Putting a D-Mitri Processor Module in Safe Mode

To put a DCM-2, DCM-4, DCP, DVRAS, or DWTRX module in Safe mode:

1. On the rear panel of the module, press and hold the OLED button while the unit powers up.
2. Release the OLED button when “SAFE MODE” scrolls across the display.

In Safe mode, the OLED button displays “SAFE MODE” in alternating colors when pressed.

Putting a D-Mitri I/O Module in Maintenance Mode

To put a DAI-24, DAO-24, DAIO-816, DAIO-168, DDIO-24, DCIO-24, or DGPIO module in Maintenance mode:

1. On the rear panel of the module, press and hold the OLED button while the unit powers up.
2. Release the OLED button when the amber percentage number text appears.

In Maintenance mode, the OLED button shows text that is amber (instead of green) when pressed. When pressed after powering on, the OLED displays the IPv4 address for the module's AVB 2 port.

NOTE: In Running mode, there is no IPv4 address for AVB port 1 of I/O modules. When pressed, the OLED displays "NO IP ADDRESS" for AVB 1.

PREPARING I/O MODULES FOR A FIRMWARE UPDATE

When I/O modules are in Maintenance mode, only AVB port 2 is active. A computer running CueStation can be temporarily connected directly to AVB port 2 of the following modules in order to update the firmware:

- DAI-24
- DAO-24
- DAIO-816
- DAIO-168
- DDIO-24
- DCIO-24
- DGPIO

If the D-Mitri system employs a backup GNet audio network, a computer running CueStation can be temporarily connected to any port on one of the backup GNet audio network switches that has VLAN 256 tagged. With this connection, multiple I/O modules can be updated simultaneously without the need for re-patching modules to the Control network.

In most cases, if the I/O module is running CueStation 5.5.1 (or later) firmware, no additional preparation is required before starting the firmware update procedure.

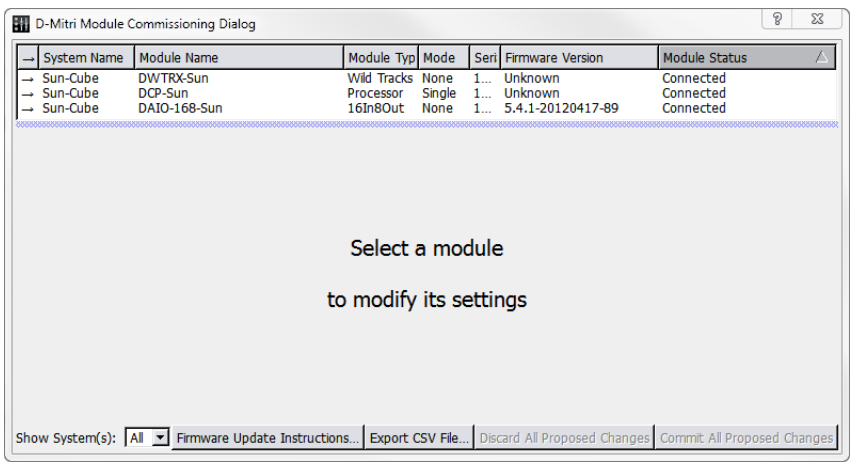
TIP: Prior to updating D-Mitri firmware, become familiar with the different operating modes.

PERFORMING A FIRMWARE UPDATE

Verify the integrity of all network cables. Make sure all connections are properly seated for optimal contact. Disable Wi-Fi on the computer running CueStation.

To update D-Mitri firmware:

1. Download the latest D-Mitri firmware from http://forums.meyersound.com.
2. Power on each processor module in Safe mode.
3. Power on each I/O module in Maintenance mode.
4. Launch CueStation. Make sure the most recent version of CueStation is used when performing a firmware update.
5. Choose Windows > Mixer Configuration.
6. Choose Configuration > Commission Modules. The D-Mitri Module Commissioning window displays a list of the detected D-Mitri modules and additional information, including their type, name, system, serial number, and firmware version.

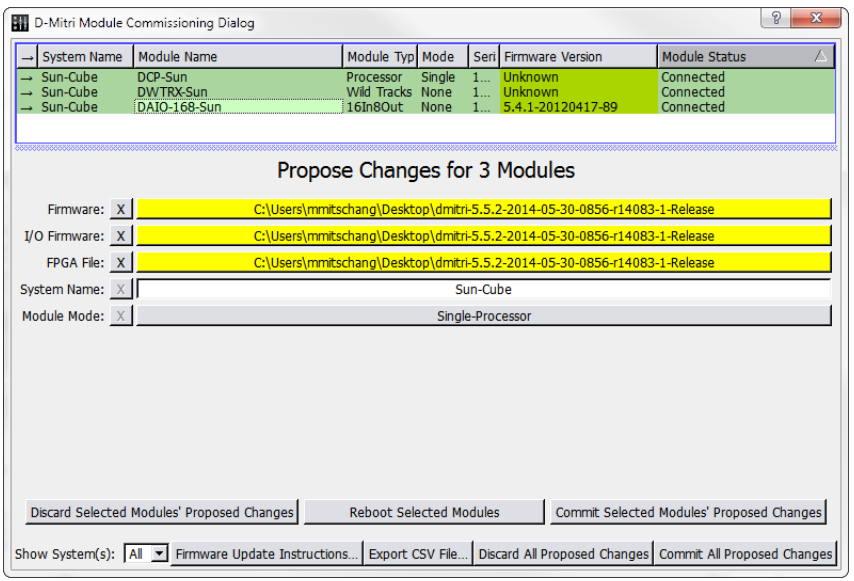


NOTE: Some modules may temporarily display an “Unknown” firmware version. The displayed version refreshes shortly after communication has been established with all modules.

7. To filter the display of D-Mitri modules based on their system, select a system from the Show System menu at the bottom of the window.
8. Select D-Mitri modules to update:

- To update a single module, select the module.
- To update multiple modules, Command-click (Mac) or Ctrl-click (Windows) each noncontiguous module. Shift-click can be used to select contiguous modules.
- To update all modules, select all.

9. Click the entry for Firmware. In the resulting Set Firmware to Install for Module window, navigate to the location of the .dmitriUniversalFirmware file.
10. Click Commit All Proposed Changes to continue.



11. Verify all changes shown in the Commit Summary dialog, then click OK to proceed. Modules in the process of updating are highlighted in red.

- Processor modules are updated and automatically power cycle twice, returning to Running mode. The OLED buttons display the FPGA version briefly when the modules boot.
- I/O modules take longer to update. The OLED buttons display the update progress with percentage text. When firmware update is complete, I/O modules automatically power cycle and return to Running mode. When in Running mode, I/O modules are not displayed in the D-Mitri Module Commissioning window.

NOTE: When I/O modules are in Maintenance mode, the firmware version shown is the Maintenance mode firmware. To see the Running mode firmware version, open the System Status window in CueStation while the module is in Running mode. Running mode firmware is not required to be the same version number as Safe or Maintenance mode firmware.

CAUTION: Do not power off D-Mitri modules during or immediately after a firmware update. Modules may automatically power off as part of their firmware update procedure. If the update procedure is interrupted by manually powering off a D-Mitri module, the firmware for that module may become corrupted and require re-installation.

MEYER SOUND TECHNICAL SUPPORT

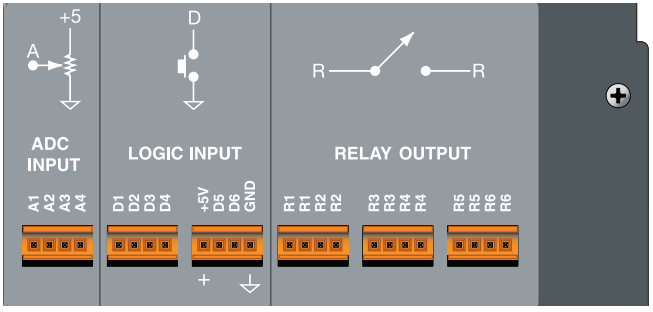
If you encounter any problems while installing or operating any of the software, hardware, or firmware in this guide, please contact Meyer Sound Technical Support.

Email: techsupport@meyersound.com

Web: http://www.meyersound.com

APPENDIX C: DGPIO TERMINAL CONNECTIONS

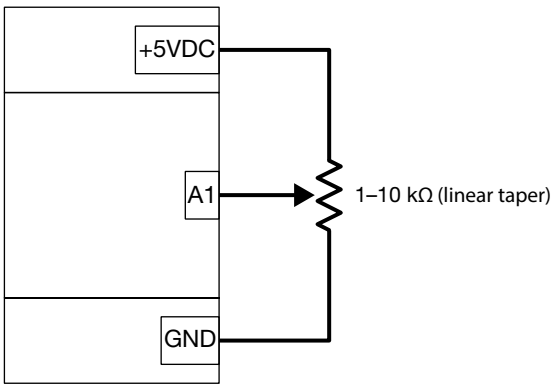
DGPIO: D-Mitri General Purpose I/O modules contain terminal strip connections for wiring relays, switches, potentiometers, contact closures for manual control of cue recall (such as click tracks), and connecting to external control systems such as fire alarms to allow for automated system control.



Weidmuller® BL 3.5 series female plugs may be used for connection to the DGPIO terminals. Four-pole plugs (PN 484.076) are available from Meyer Sound.

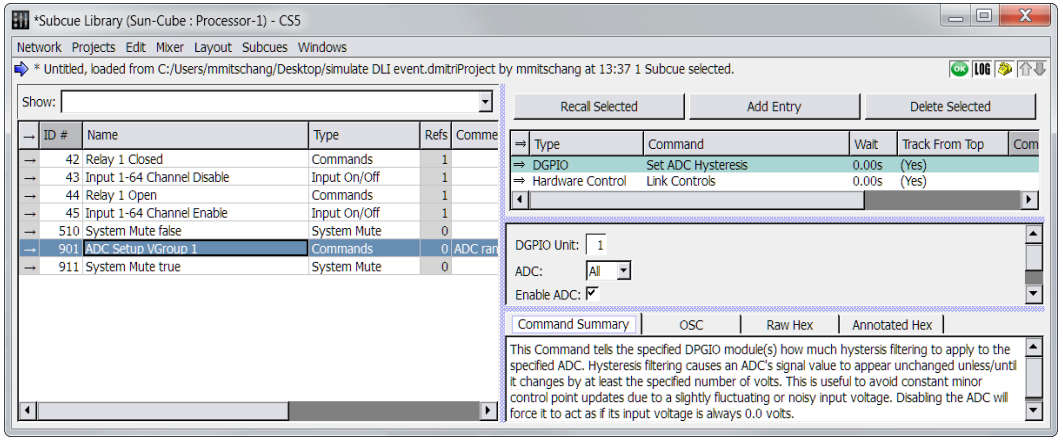
ADC INPUT

The Analog Direct Current Input terminals feature 4 inputs, which sense incoming voltage (from 0–5 V) to control parameters within CueStation. Using a potentiometer to control the level of a VGroup is one example that utilizes ADC Inputs. Another example is matching the physical position of a set piece with a Space Map Trajectory so that the trajectory follows exact position of moving scenery.

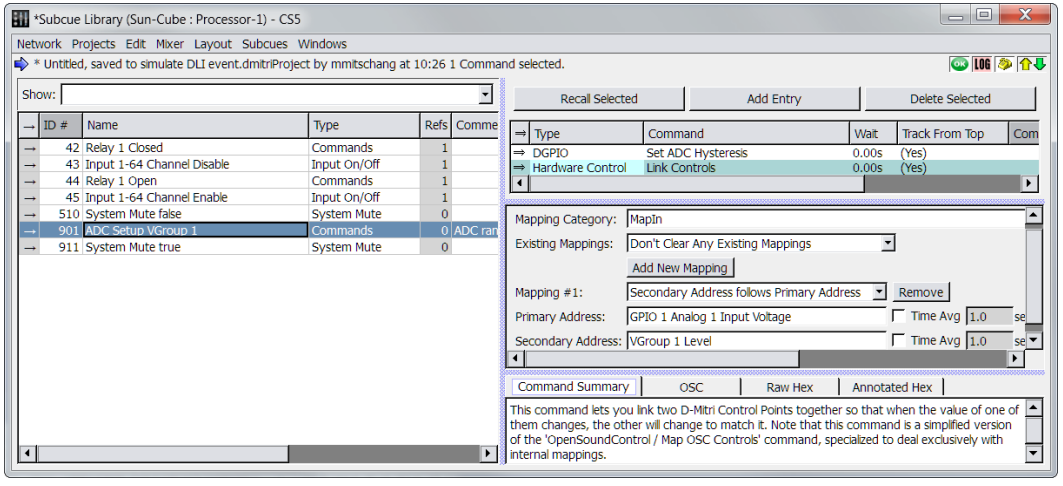


External Potentiometer connected to ADC Input A1, Ground, and 5 V DC

In the following example, a command subcue has been configured with two entries. Set ADC Hysteresis instructs the DGPIO to filter all ADC Inputs to prevent fluctuations of 0.05 V or less from adjusting control points, which is not required but may be desirable in some circumstances. Link Controls sets the VGroup level to update accordingly when the input voltage changes at ADC Input A1.



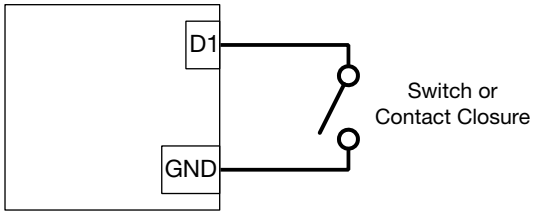
Setting Hysteresis for ADC Inputs



Linking ADC Voltage and VGroup 1 Level Controls

LOGIC INPUT

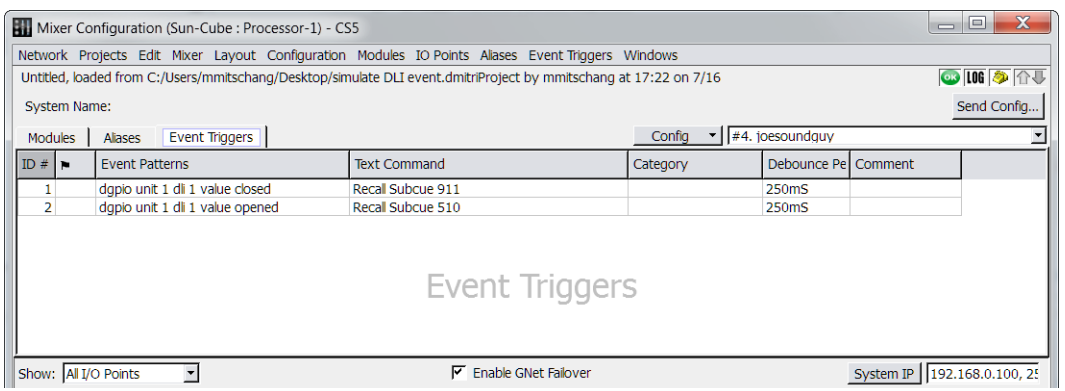
The Logic Input terminals feature contacts for +5 V and Ground, plus 6 Logic Inputs for receiving binary (On/Off) electrical signals. Using an external switch or contact closure to control the status of a control point in CueStation is one example that utilizes Logic Inputs.



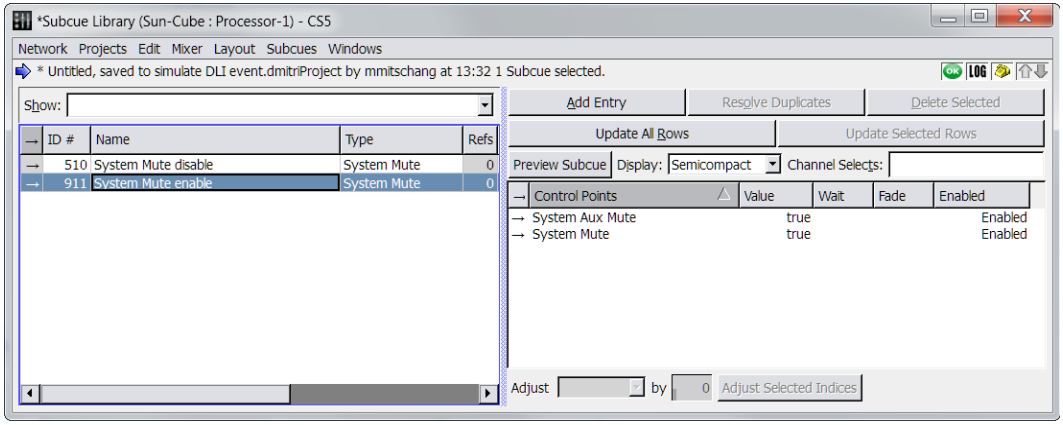
External Switch of Contact Closure connected to Logic Input D1

⚠ **CAUTION:** Do not send voltage higher than +5 V DC to any Logic Input. Logic Inputs are designed for switch closure to ground, as shown above. Cable length to Logic Inputs should be kept to under 100 ft.

Event Triggers set up within CueStation can trigger events based on the status of Logic Inputs, such as cue recall. In the following example, an external switch has been configured as a master mute. When engaged, the switch closes the circuit and recalls a System Mute enable subcue. When disengaged, the switch opens the circuit and recalls a System Mute disable subcue.



Event Triggers for Logic Input 1



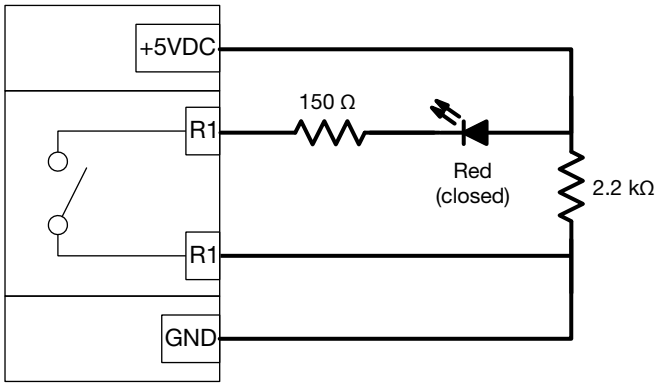
Subcues for Logic Input 1 Event Triggers

TIP: In addition to the Mixer Configuration window, Event Triggers can be created and managed by Commands Subcues. Event Triggers created by Subcue can be seen by viewing the active Mixer Configuration in the Mixer Configuration Window.

An alternate method of mapping Logic Inputs to control points is the Link Controls subcue detailed in “ADC Input” on page 114.

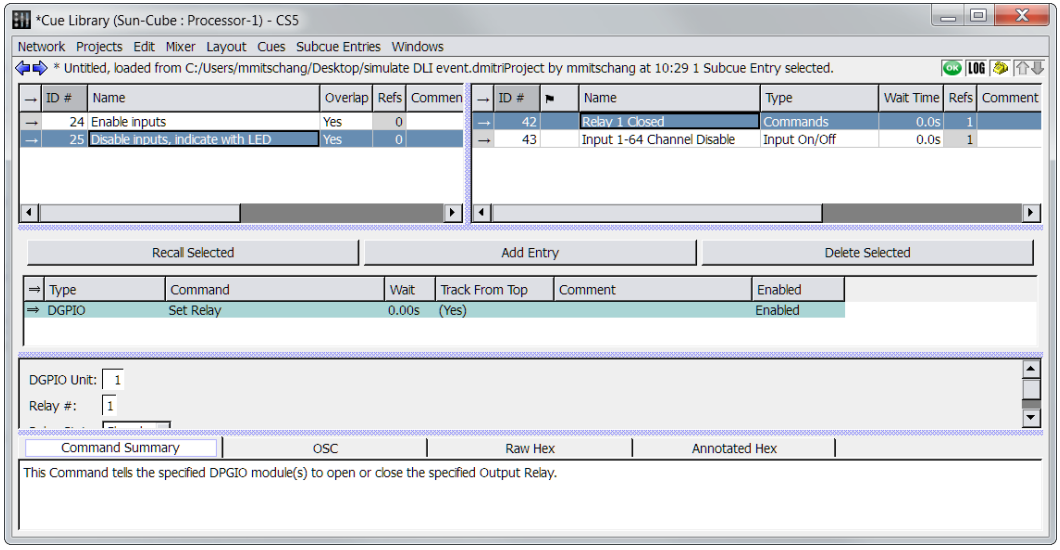
RELAY OUTPUT

Relay Output terminals feature 6 internal relays with two contacts each. Relay Outputs can be used to interface with external devices, and even be connected to logic inputs on other systems. Using LEDs to indicate cue recall in CueStation is one example that utilizes Relay Outputs.



External LEDs connected to Relay Output R1

In the following example, two cues have been configured. Cue 24 enables inputs channels and opens Relay 1 on DGPIO unit 1; Cue 25 disables the inputs and closes the relay. Combined with the circuit from the above diagram, these cues indicate input channel status with an LED (red for disabled).



Cue for Enabling Inputs and Closing a Relay

CAUTION: Do not connect Relay Output terminals to circuits with voltage higher than +50 V or current higher than 200 mA.

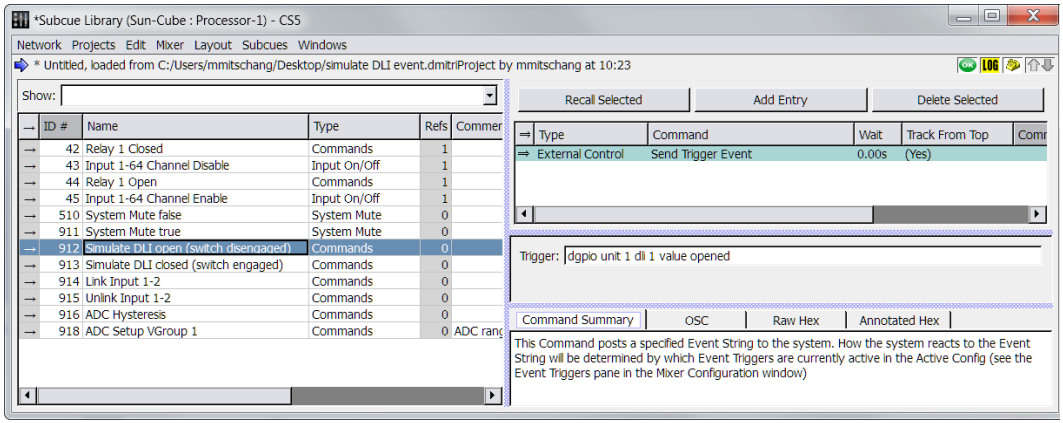
TESTING EVENT TRIGGERS OFFLINE

Event Triggers can be tested offline with VirtualD-Mitri, or on D-Mitri systems prior to having the physical connections in place. Utilizing a command subcue, Event Triggers can be simulated by CueStation.

To simulate an Event Trigger:

1. Choose Windows > Subcue Library to open the Subcue Library window.
2. Choose Subcues > New Subcue > Commands to create a blank Command subcue.
3. Click Add Entry to create a blank subcue entry.
4. Right-click the Type field and choose External Control.

5. Right-click the Command field and choose Send Trigger Event.
6. Enter an event string into the Trigger field (example: *dgpio unit 1 dli 1 value closed*).



Testing an Event Trigger with a Send Trigger Event command subcue

Once the Send Trigger Event command subcue has been created, recall the subcue to simulate the event. CueStation will behave as though the Event String has been received from an external source.

NOTE: For more information on control points and system automation, see the CueStation User Guide.

APPENDIX D: CONFIGURING SWITCH VLAN SETTINGS

Configuring the GNet audio network for D-Mitri modules involves installing one or more GNet audio network switches configured by Meyer Sound to route audio data traffic among the modules. When module connections match the system design provided by Meyer Sound, these configured switches require no user intervention or configuration.

Switches that have not been configured by Meyer Sound require the user to configure them correctly before operation within a D-Mitri system.

The following sections detail the process of generating a switch configuration script in CueStation software, and running that script to configure a switch. Switch configurations must also be updated when adding additional D-Mitri modules to a previously configured system.

GENERATE SUGGESTED VLAN SETTINGS REPORT

The Generate Suggested VLAN Settings Report function of CueStation includes a tab with an auto-generated script for the NETGEAR® GS724Tv3 Smart Switch. This script is used for VLAN configuration at the switch.

To generate the switch script:

1. Select or create a Configuration in the Mixer Configuration window.
2. Choose Configuration > Generate Suggested VLAN Settings Report.
3. Click the Netgear Switch CLI Script tab.
4. Copy the text from the Netgear Switch CLI Script window starting with the line `admin` and ending with the line `echo 'All Done!'`

The switch script now resides in the clipboard. It is later pasted into a Telnet session when configuring the switch. See “Configuring the Switch” on page 124 for more information.

TIP: To back up or archive the switch script, paste the contents of the clipboard into a blank text document and save the file.

USING TELNET

Telnet allows text commands to be sent between a computer and the Netgear GS724Tv3 Gigabit Smart Switch. It can be used to configure VLAN settings of the switch for GNet traffic according to the settings report generated by CueStation. The process of using Telnet varies by operating system.

Telnet with Mac OS X

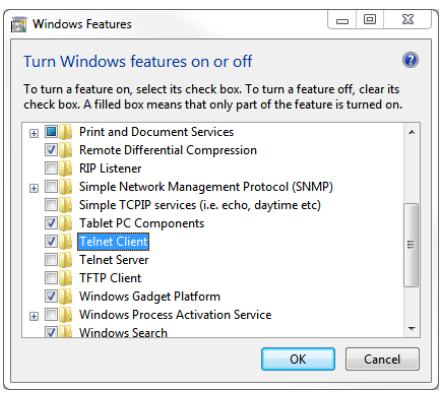
To use Telnet with Mac OS X:

1. Choose Applications > Utilities.
2. Open Terminal.
3. Type Command+N to open a new Terminal session.

Telnet with Windows

To use Telnet with Windows:

1. Log in with a user account that has full Administrator access.
2. Click the Start button and choose Control Panel.
3. Open Programs and Features.
4. In the left pane of Programs and Features, select Turn Windows Features On or Off.



5. Select the check box for Telnet Client, then click OK.

Once installation has completed, telnet.exe can be located by clicking the Start button and typing “telnet” into the search bar.

CONFIGURING THE SWITCH

Once the Suggested VLAN Settings Report has been generated and copied to the clipboard, the settings must be applied to the switch.

To apply the Suggested VLAN Settings Report script to the switch:

1. Connect the client computer to the GNet switch with an Ethernet cable.
2. Open Terminal or telnet.exe
3. To connect to port 60000 of the switch, enter `telnet` *[switch IPv4 address here]* `60000`. The computer must be on the same subnet as the switch. The following example uses an IP address of 192.168.0.2.

```
USERNAME$ telnet 192.168.0.2 60000
Trying 192.168.0.2...
Connected to 192.168.0.2.
Escape character is '^]'.
(Broadcom FASTPATH Switching)
```

4. Paste the text into the telnet session. The data is entered into the switch and the correct answers sent for all prompts. The terminal displays the following lines:

```
Applying Interface configuration, please wait ...
Configuration Saved!
(Broadcom FASTPATH Switching) #
(Broadcom FASTPATH Switching) #logoutConnection closed by foreign host.
```

5. Power cycle the switch.

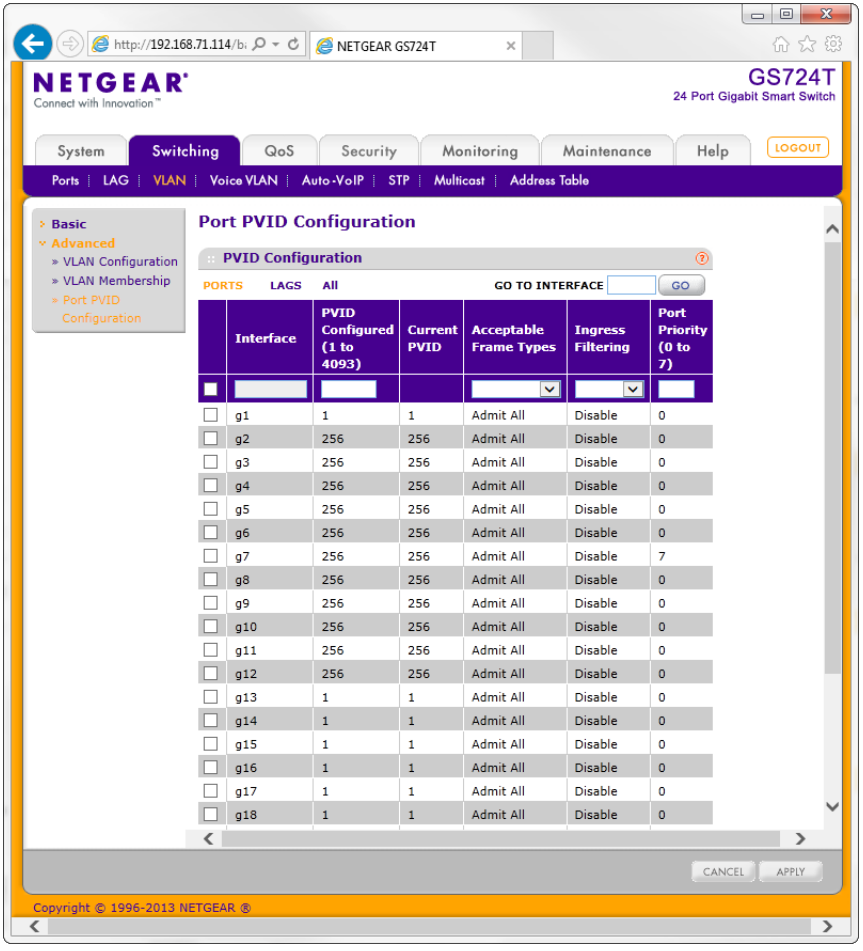
Once the switch has been power cycled, the following settings may need to be manually configured:

- VLAN Membership for VLAN 1. The script default is Untagged for all ports, which must be manually edited if both control and audio are on the same switch.
- Port Priority for gPTP. All ports are set to 0 when running the script.
- PVID for Audio VLANs. Any ports used for GNet audio need PVID set to 256.
- Any VLANs above 512 are not removed. The Netgear factory default does not have VLANs above 3.

To manually configure the remaining options:

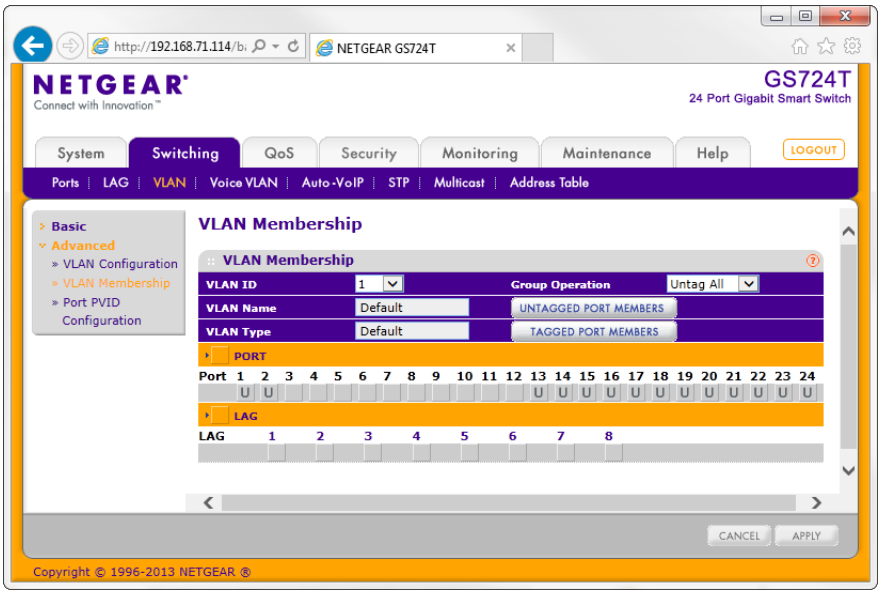
1. Open the switch web page, choose the Switching tab, and select VLAN.

2. In Switching > VLAN > Advanced, choose Port PVID Configuration
3. Set the PVID to 256 for all Ports used for GNet audio. For both audio and control on the same switch, ports 2–12 and 24 are typically set to 256 for GNet audio.



4. Set the Port Priority to 7 for all IO modules that are BMC members. Leave the Port Priority at 0 for all other ports.

5. In Switching > VLAN, select VLAN Membership
6. Select VLAN ID 1.
7. Change U to (blank) for all ports that are used for GNet audio. For both audio and control on the same switch, ports 1 and 13–23 are typically left as “Untagged”. All other ports are blank for VLAN ID 1.



NOTE: The default VLAN maintenance port is 1. This must be U (untagged) on VLAN ID 1.

8. Select VLAN ID 256. Set all ports that are used by GNet audio to U (untagged.) For both audio and control on the same switch, set all ports that are used for the control network to blank (not tagged or untagged).

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D-Mitri User Guide, PN 05.176.104.01 A