

# Digital Audio Format Converters

## DN9650 and DN9652

The DN9650 network bridge allows the AES50 interfaces on Midas XL8 and PRO Series digital audio systems, Klark Teknik's DN9696 high resolution audio recorder and all Midas I/O units to connect to third party multichannel digital audio networks. Supported formats include MADI, Audinate\* Dante, Aviom\* A-Net, Cirrus Logic\* Cobra Net and Digigram\* EtherSound utilising network modules designed and manufactured by Lab X Technologies\*, Audinate\* and Cirrus Logic\*.



The DN9652 dual network bridge replaces the AES50 connections with a slot for a second network module. This creates a unique product enabling conversion between many multichannel digital audio formats, for example MADI to Dante or CobraNet to Ethersound. The DN9652 will find a myriad of uses solving all kinds of 'hard to fix' networking problems in a simple manner requiring little networking skill to deploy.

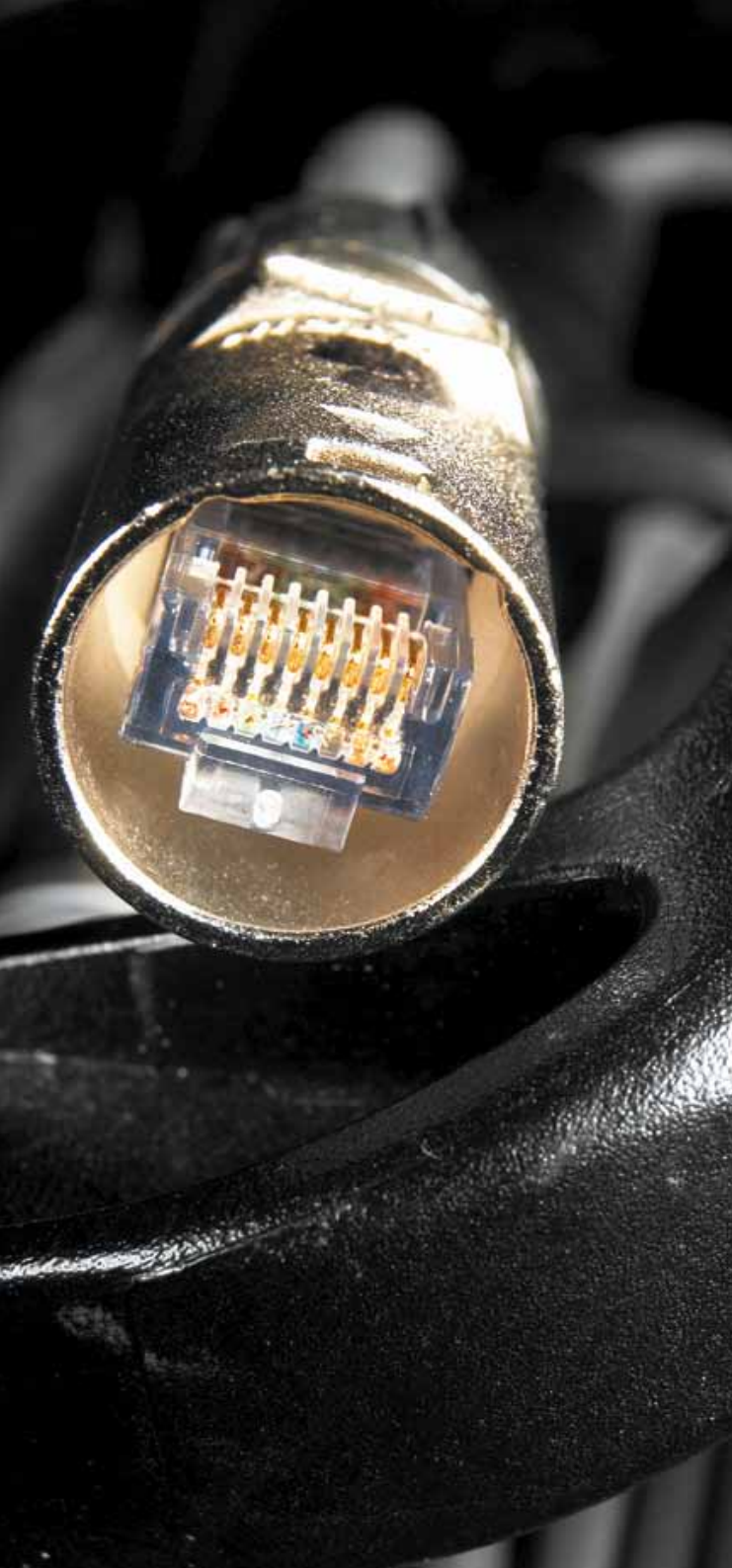


Both models include an astonishing 144 channels of high performance sample rate conversion and independent synchronisation for the two interfaces, including black burst, word clock and AES3. The minimal configuration requirements are simply set up using a standard web browser and an auto-configured Ethernet interface to the unit.

### Overview:

- Units support
  - AES50
  - MADI
  - Audinate Dante
  - Aviom A-Net
  - Cirrus Logic CobraNet
  - Digigram EtherSound
- 144 Channels of high performance sample rate conversion
- Independent Synchronisation: including black burst, word clock and AES3
- Exemplary Klark Teknik audio performance
- 1U

\* All trademarks acknowledged.



## Digital Snakes and Audio Distribution

Traditionally microphones have been connected to mixing consoles by long multi-core cables. Over time, as sound systems have grown, the number of cores required and the number of cables needed to connect all parts of the sound system together (FOH, Monitors, Remote Truck etc.) have increased. This results in ever higher costs and lower performance. Midas digital snakes provide a solution to these problems.

Microphones tend to be reactive devices, that is, their sound is altered by load impedance. Long cable and multiple console connections load microphone outputs such that level is reduced and especially high frequency content is lost. Digital snakes eliminate the need for long analogue connections and Midas snakes have especially high input impedance to minimise losses at all frequencies. As a result microphones develop their full natural character and typically sound superbly smooth and open.

Midas Snakes have been created using I/O components developed for the Midas digital console range and as such feature all the sonic benefits produced by this latest generation of Midas mic preamplifiers. These are real world designs featuring RFI protection, high common mode rejection, high dynamic range and overload tolerance; and of course they sound fantastic, as Midas pre-amps always have.

High quality, oversampling A/Ds and D/As are carefully protected from digital overload (so you can drive them hard without the sound breaking up). They feed multichannel data streams that conform to the AES50 standard and provide bi-directional connectivity between I/O boxes. The physical cable connection only requires light weight, but rugged, CAT-5e cable rather than the bulky multi-core traditionally used in the past. Neutrik Ethercon connectors provide rugged locking connections. System latency is extremely low and the connections feature feed forward error correction and recovery systems plus the option of adding n+1 redundancy to protect from damage to any single cable. Additionally the digital signals are immune to the crosstalk and noise issues that plague passive multi-core systems.

All components use a default unity gain structure and analogue inputs readily accept line level signals with headroom and metering identical to Midas Analogue consoles. The mic pre's are controlled by an application on your PC that provides direct access to 24 channels at a time with all settings automatically stored to the snake hardware boxes (so you can disconnect or reconnect the controlling PC at any time while the system continues to operate normally). Full metering is available for inputs (and outputs) so to all intents and purposes using the digital snake is just like remoting your console mic pre directly to the stage, except now it's a Midas mic pre.

Models range from a 16in / 8 out system up to 64 in / 64 out channels with up to 3,000 metres range, and include an inexpensive 48 in / 16 out model. There is a choice of five road-rugged hardware options including the DL431 24-channel, 5-way active digital/analogue input splitter. Each of its 24 inputs features three Midas mic pres, completely isolated from each other to prevent any audio interaction. The DL351 64 channel and DL451 24 channel units support a range of five different I/O modules providing huge configuration flexibility. Options include the Midas remote controlled mic pres, line in/out on various connectors and AES3 digital audio with sample rate conversion and local synchronisation capability. The DL251 and DL252 provide a fixed-format, 48 in / 16 out, all-analogue remote stage box which feature Midas mic pre's and dual-redundant power supplies and snakes. Remote control of mic amp functions is achieved from any Midas digital system, or via a PC computer running the appropriate Midas software.

All the components are connected using standard CAT-5e cables carrying the AES50 multichannel audio and control protocol and provide a standard 100m range. This can be extended up to 3,000m with the new Klark Teknik DN9650 network bridge in MAD1 mode.

- DL351 64 audio inputs / 64 audio outputs depending on card configuration
- DL451 24 audio inputs / 24 audio outputs depending on card configuration
- DL251 48 audio inputs / 16 audio outputs fixed configuration
- DL252 48 audio outputs / 16 audio inputs fixed configuration
- DL431 24 audio inputs 5 way active split
- Software remote mic amp control
- Up to 3000m range

Midas has invested seven years of research and development into multi-channel high performance digital audio networking systems. The Midas network and input/output devices are already in regular use with the XL8 and PRO Series consoles in hundreds of locations worldwide every day.

Midas has now made this technology available to everyone as part of a portfolio of products including digital snakes and digital audio distribution systems. Midas offers many configurations from an ultra-affordable 48/16 system to highly complex long distance multi location distribution and splitter systems. All Midas mic amp functions are fully remote controllable from PC based software with optional hardware controllers.

**Digital snakes and audio distribution**

- All systems built from standard Midas I/O units
- AES50 network connections on rugged CAT-5e cable with Neutrik Ethercon connectors
- Ultra low and deterministic latency (in-ear compatible)
- Redundancy options available
- All systems are supplied with Midas PC-based remote control software
- PC connects to any unit via an Ethernet connection
- Hardware remote gain control option available

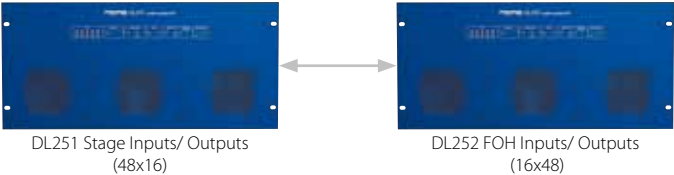
**Midas Remote Control Software**



- Remote mic gain control
- Remote 48V switching
- Connector identify function
- 20 LED input and output metering
- 24 channels per page
- Rotary control hardware remote controller option
- Auto IP address setup
- Auto unit detect and identification

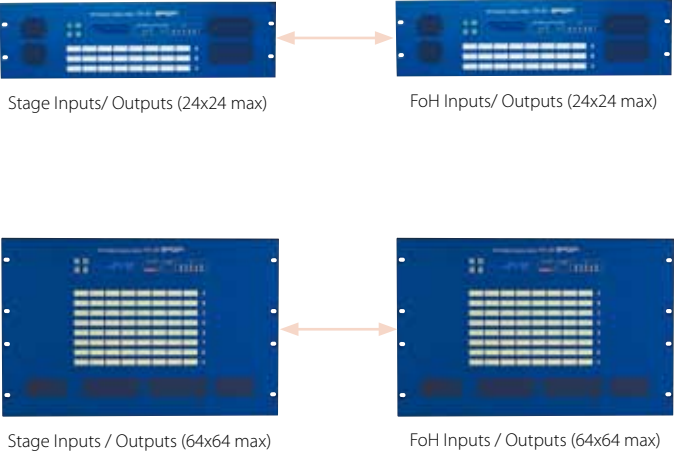


**Entry level fixed format using one DL251 and one DL252 I/O unit:**



- 48 remote controlled Midas mic pres
- 16 line level returns
- 100m AES50 CAT-5e cable on reel
- 2nd redundant cable option
- Dual redundant power supplies on both units as standard
- 48kHz sample rate

**DL351/DL451 flexible configurations:**



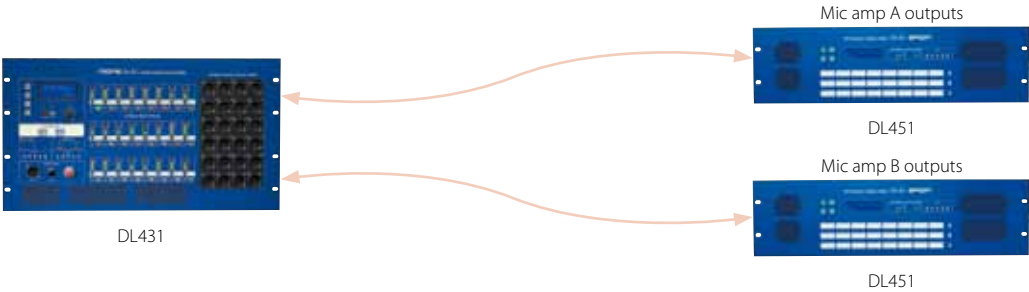
- DL451 max 24 channel bidirectional, 3 I/O cards
- DL351 max 64 channel bidirectional, 8 I/O cards
- 5 I/O card options including mic, line, AES/EBU
- 100m AES50 CAT-5e cables on reels
- Redundant cable options
- DL351 has redundant power supplies as standard
- 96kHz sample rate
- DN9650 interface to MADi, Dante, Aviom, Ethersound and Cobranet

**Splitter snakes and audio distribution products**

- All systems built from standard Midas I/O units
- AES50 network connections on rugged CAT-5e cable with Neutrik Ethercon connectors
- Redundancy options available
- All systems are supplied with Midas PC-based remote control software
- Two independent Midas mic pres separately controlled from each end point
- Analogue fixed gain transformer isolated output
- PC connects to any unit by Ethernet (auto IP addressing)
- Hardware remote gain control option available

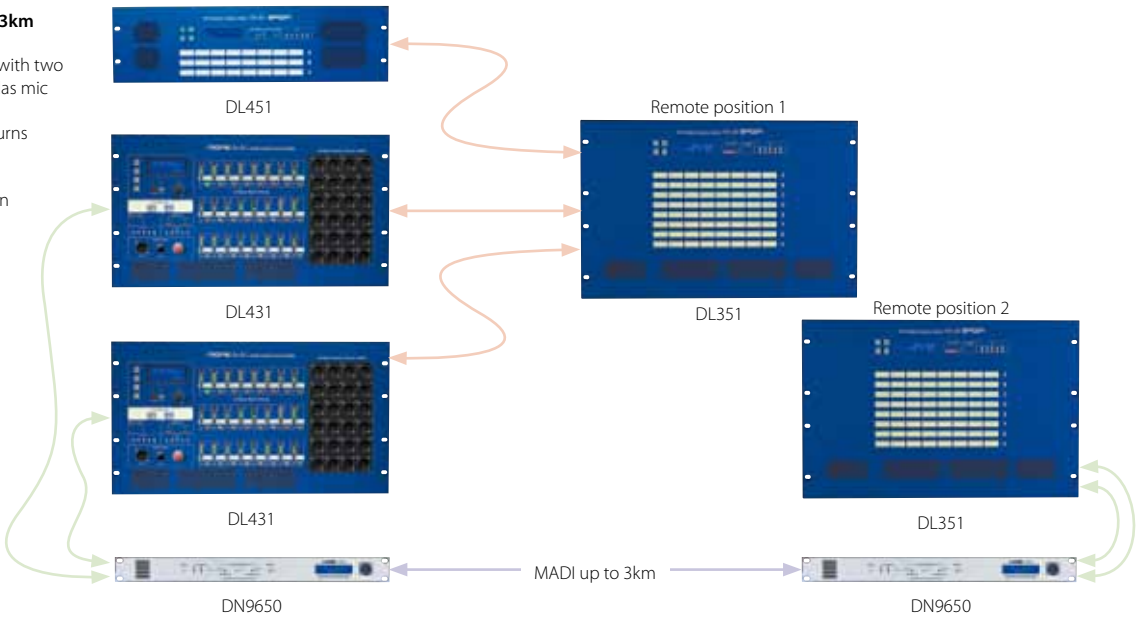
**Example 1: 24 channel dual remote end**

- DL431 24 channel MIC splitter with twin remote controlled mic pres at stage end
- Dual AES50 digital links up to 100m each
- Dual 24 channel line or AES/EBU output units at e.g FOH and broadcast truck
- Three additional analogue split outputs: e.g to feed a monitor console
- Redundancy options



**Example 2: 48 mic, 16 return, up to 3km**

- Dual DL431 24 channel MIC splitter with two independent remote controlled Midas mic pres per channel at stage end
- DL451 with line out modules for returns
- DL351 48 mic out and 16 returns at remote 1 position
- Twin DN9650 units with MADI option providing the 48 mic signals up to 3km away at remote 2 position with line outs from DL351
- Redundancy options



**Example 3: 64 Midas mic pres to 3rd party systems with MADI, Dante or other inputs**

