



**REDNET<sup>®</sup>**

 **Dante<sup>™</sup>**

**Focusrite<sup>®</sup>**



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## What is RedNet?

Rednet is Focusrite's new flagship range of Ethernet-networked studio interfaces, based around the tried and tested Dante Ethernet audio networking system. Focusrite's RedNet is the first to offer IP network audio interfaces for the recording studio – or any application that requires moving high-quality audio around with ultra-low latency.

[www.focusrite.com/rednet](http://www.focusrite.com/rednet)



# Introducing REDNET – audio through Ethernet



Despite the advance of digital audio technology, one aspect of the recording process has remained virtually unchanged: the wiring. Traditional studio wiring is time consuming, complex, and represents a significant proportion of the expense of equipping a recording facility. Each analogue path needs a cable. Analogue cables are susceptible to RFI/EMI. Long cable runs cause audio signal deterioration. Refitting a facility often means substantial building work to lay or replace multicore analogue wiring. Imagine if you could run all your audio down a single, universally-standard, inexpensive, small-diameter cable, which might already be part of your building's wiring, to remote-controlled interfaces placed exactly where you need them – where the performers actually are.

That's just one of the promises of RedNet, the professional audio networking system from Focusrite. RedNet couples high-quality audio interfaces – for mic, line and instrument inputs and much more – with standard Ethernet cabling and Gigabit Ethernet switches, to let you place your inputs and outputs simply, efficiently and economically, where they need to be, with the superb, world-leading quality and precision audio performance you have come to expect from Focusrite.

## THIS IS REDNET

RedNet is a system that enables you to distribute audio at near zero-latency and high channel counts through standard Ethernet cabling. At its heart is Dante™, the robust digital audio networking technology developed by Audinate. Dante uses standard IP-based networking components, such as Ethernet cables, routers and switches, to carry a virtually

unlimited number of channels of high-resolution digital audio over a standard Ethernet network. Dante has been tried and tested in the live sound arena for years, where it is effectively a de facto standard.

Now Focusrite brings Dante into the studio as part of a complete audio system. RedNet comprises a range of extremely high-quality audio interfaces and components that do more than save you time and money on cabling: they revolutionise the way you work across the board.

Unlike other digital audio systems, RedNet is non-proprietary. Your audio computer system can run any audio software you want: you are not locked into a single system. RedNet is fully-compatible with any ASIO or Core Audio compliant DAW software, including Pro Tools®, Logic® and Nuendo®.

## KEY SYSTEM FEATURES:

- Up to 512 channels I/O of Focusrite quality sound over a single Ethernet link at near zero-latency
- Reliable and scalable, robust digital audio networking for the studio
- 24-bit operation at up to 192kHz sampling rate (including 44.1, 48, 88.2 and 96kHz)
- PCIe card sends up to 128 inputs and 128 outputs to host computer at up to 96kHz
- Proven Dante networking technology uses standard networking components
- JetPLL™ technology provides ultra-low jitter in all I/O units
- Units are hot-swappable, detected and configured automatically on plug-in
- DVS software is included with RedNet 1, 2, 3 and 4 units

## THE RANGE

RedNet forms a scalable system, initially made up of six products. Four high-quality, versatile interfaces deliver traditional Focusrite quality sound and performance, with exceptional value for money. Fundamentally, RedNet 1-4 comprises a near zero-latency audio distribution system. It is highly expandable; a single link on the network can handle up to 512 channels (I/O) at 48kHz. Every analogue interface delivers dynamic range of 119dB, with 24-bit resolution at sample rates up to 192kHz. Each embodies the most advanced digital audio conversion



designs available, including the latest A-D and D-A components, to provide exceptional quality. And with RedNet, you don't need additional cabling and complexity to sync to a master clock: the system takes care of that automatically as rock steady clocking between units is carried over Ethernet with JetPLL™ for ultra-low-jitter.

You can also bridge from the MADi protocol to your RedNet system with RedNet 6.

## INTERFACING REDNET WITH YOUR COMPUTER

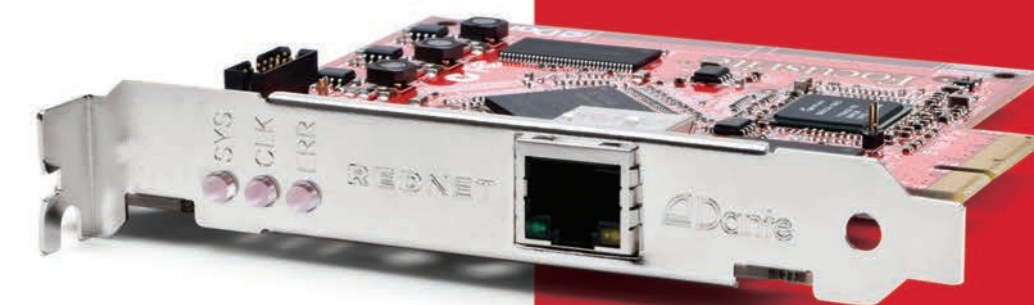
There are three methods of connecting the RedNet network to your computer: RedNet 5 (for Pro Tools HD, Pro Tools HDX and Pro Tools HD Native), the RedNet PCIe card

(for ASIO and Core Audio applications) and directly into your computer's Ethernet port with DVS or 'Dante Virtual Soundcard'.

RedNet 5 is a bridge between Pro Tools HD systems and the RedNet network, delivering the level of latency and I/O count you would expect from your Pro Tools HD system, to the simplicity and convenience of Ethernet.

For Core Audio and ASIO applications such as Logic and Nuendo, the RedNet PCIe card can be fitted to Windows or Mac computers with a standard PCIe card slot. It delivers 128 channels I/O at 96kHz sampling, with under 3 milliseconds latency at all sample rates. A standard RJ45 Ethernet connector links your audio computer to the rest of the network via a standard GigE switch.

Where ultra-low latency performance is less important, the Dante Virtual Soundcard (DVS) software can be used to host the network from your computer's built-in Ethernet port. This provides latency figures equivalent to Focusrite's professional FireWire interfaces. The virtual driver can also be used in small-scale portable system based around a laptop.



## THE REDNET DEALER NETWORK

The RedNet dealer network is a specially trained network of resellers. They understand the technology and can help you to find the right solution to meet your requirements.

RedNet is simple to install and uncomplicated to operate, but it is a significant investment and has multiple applications and uses. The RedNet dealer network has been trained to offer advice and expertise on how to configure your system and how to make sure it integrates smoothly into any existing Ethernet infrastructure.

RedNet presents so many possibilities for distributing audio around studios, schools, theatres, live venues, stadiums, houses of worship and more, the dealer network can help you understand RedNet's potential. All Focusrite distributors worldwide, and select dealers in the U.S, U.K and Germany are certified RedNet suppliers.

For more details:

[www.focusrite.com/rednet-dealers](http://www.focusrite.com/rednet-dealers)



# Case study: RedNet in use at the University of Derby



The University of Derby's Arts, Design and Technology departments are home to a complete sound studio complex that has recently been completely refurbished and re-equipped – and includes the world's first Focusrite RedNet installation.

The University rebuilt the recording facilities over the summer of 2012, consisting of two recording studios, each with a control room and a live room area. The immediate feeling you get on walking into the studios is that you are not in a special "educational" facility at all: instead, the atmosphere is one of a modern, working commercial studio complex – and an impressive one at that. In addition to the two main studios, there are three post-

production rooms – smaller, self-contained areas constructed as part of the same suite. The University also has a TV studio and a radio studio, with lines linking them to the main studio complex.

The larger of the two main control rooms, Control Room 1, features a classic Neve desk from 1985. Originally a broadcast console, it was refurbished by former Neve employee Neil McCombie. Control Room 2 is based around an Avid Pro Tools C|24 system, and both studios feature Pro Tools HD systems. All three of Derby's Pro Tools HD systems have been upgraded to HDX with new interfaces and Pro Tools 10 software.

"RedNet sounds great. I haven't been able to notice any particular problems, or artefacts, or anything with it: it just sounds great – really. It just works!"

**John Crossley** - Course leader

The control rooms also contain a respectable complement of outboard gear, including Drawmer 1960s and 1961s. Course leader, John Crossley notes, "We also bought quite a bit of Focusrite equipment as part of our refurbishment, so we now have some ISA 828s, ISA430 MkIIs, a couple of Liquid Channels, and one of the new two-channel preamps."

When Crossley and his colleagues were specifying the new studio complex, they naturally went to Focusrite, intending to include some interfaces and preamplifiers in the new rooms. They thought they might like to try a RedNet system too. "We had gone through the brochures and information, and I thought it sounded great. So I said 'We'll have one of everything – one of each bit'. In actual fact we ended up with almost one of everything!"

Derby's current complement of RedNet units includes three RedNet 4 8-channel mic preamps, giving a total of 24 mic pres; two RedNet 1 8-channel line-level I/O units;

and one RedNet 2 16-channel unit. They also have two PCIe cards.

Rather than permanently installing RedNet in the studios and control rooms, Crossley has opted for a more flexible approach. "The way we've set it up at the moment is as two mobile racking units," he says. "One rack contains all the RedNet 4 mic pres – 24 mic preamps in the one unit – and one of the 8-channel RedNet 1 units." Also in the rack is a switch to connect the units together, along with a headphone amplifier. "The idea is that this rack goes into whatever is going to be the live room," Crossley continues. "You just wheel this rack in, and you've got your mic pres, you have some line inputs if you need them, but more importantly you have some line outputs, which then of course feed into the headphone amplifier so you can have that two-way communication into the room."

Crossley's view of RedNet in action is remarkably straightforward. "To be honest with

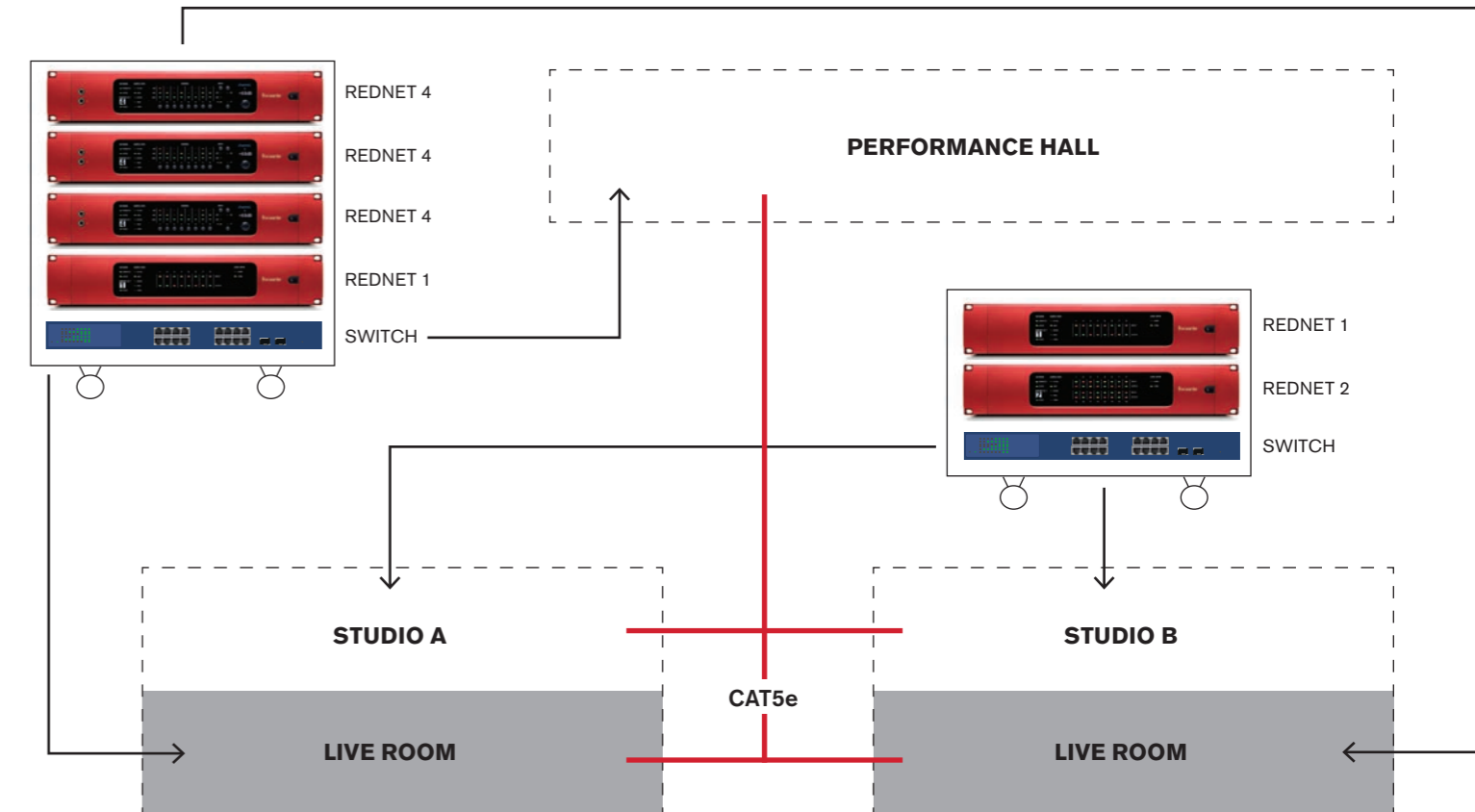


"The way we've set it up at the moment is as two mobile racking units.... one rack contains all the RedNet 4 mic pres – 24 mic preamps in the one unit – and one of the 8-channel RedNet 1 units."

**John Crossley** - Course leader

you," he says, "you just plug it in, and then you just forget it's there, really. That seems to be the beauty of it. From a technological point of view it's very clever, but in actual fact what it's doing is very simple: it's grabbing a signal, shooting it down a cable and giving it to you at the other end. Because it's doing that, and it doesn't seem to have any issues with doing that, once you set it up it's very straightforward. That's exactly what you want."

Crossley is very pleased with the performance of the system. "RedNet sounds great. I haven't been able to notice any particular problems, or artefacts, or anything with it: it just sounds great – really. It just works!"





# REDNET 1 – 8 channel A/D – D/A interface



RedNet 1 connects to your network with a single Ethernet cable. It's remotely controlled via the network and can be placed anywhere in your facility. It offers eight channels of line-level analogue in and out, with Focusrite's precision 24-bit A-D and D-A conversion for superb audio performance, and 119dB dynamic range at sample rates up to 192kHz. The rear panel includes standard DB25 connectors for analogue patchbay or breakout cable interfacing.

## HOW DOES IT WORK AS PART OF A SYSTEM?

RedNet 1 can be used simply as a means of converting 8 channels of audio and delivering it somewhere else on the network at near-zero latency.

## If you need to connect Rednet 1 to your computer there are three methods:

- The RedNet PCIe card for Core Audio and ASIO applications such as Logic and Nuendo
- RedNet 5 for Pro Tools HD, Pro Tools HDX and Pro Tools HD Native via DigiLink connectors
- Directly to your computer's Ethernet port using a standard Ethernet cable (with "Dante Virtual Soundcard")

## Inputs

Analogue line inputs – 8

Connector – 25-way female Dsub, wired to AES 59

0 dBFS reference levels – +18 or +24 dBu (switchable)

Frequency response – 20 Hz – 20 kHz ±0.05 dB

THD+N – < 0.001% unweighted; -1 dBFS input, 20 Hz – 22 kHz

Dynamic range – 119 dB 'A'-weighted (-60 dBFS method)

Converter dynamic range – 120 dB

Signal-to-noise ratio – 119 dB 'A'-weighted; 20 Hz – 20 kHz

## Outputs

Analogue line outputs – 8

Connector – 25-way female Dsub, wired to AES 59

0 dBFS reference levels – +18 or +24 dBu (switchable)

Frequency response – 20 Hz – 20 kHz ±0.15 dB

THD+N – < 0.001% unweighted; -1 dBFS input, 20 Hz – 22 kHz

Dynamic Range – 119 dB 'A'-weighted (-60 dBFS method)

Converter dynamic range – 120 dB

Signal-to-noise ratio – 119 dB 'A'-weighted; 20 Hz – 20 kHz

## Crosstalk

Input or Output to Input – <-90 dB  
(all other channels at 0 dBFS)

Input or Output to Output – <-100 dB  
(all other channels at 0 dBFS)

## Digital Performance

Supported sample rates – 44.1 / 48 / 88.2 / 96 / 192 kHz

Clock sources – Internal or from network master device

# REDNET 2 – 16 channel A/D – D/A interface



RedNet 2 adds 16 remote-controlled analogue channels in and out to your RedNet network and can be located anywhere you can run an Ethernet cable. Featuring Focusrite's precision 24-bit A-D and D-A conversion for superb audio performance, it delivers 119dB dynamic range at sample rates up to 192kHz. The rear panel includes standard DB25 connectors for analogue patchbay or breakout cable interfacing.

## HOW DOES IT WORK AS PART OF A SYSTEM?

RedNet 2 can be used simply as a means of converting 16 channels of audio and delivering it somewhere else on the network at near-zero latency.

## If you need to connect Rednet 2 to your computer there are three methods:

- The RedNet PCIe card for Core Audio and ASIO applications such as Logic and Nuendo
- RedNet 5 for Pro Tools HD, Pro Tools HDX and Pro Tools HD Native via DigiLink connectors
- Directly to your computer's Ethernet port using a standard Ethernet cable (with "Dante Virtual Soundcard")

## Inputs

Analogue line inputs – 16

Connector – 25-way female Dsub, wired to AES 59 (x2)

0 dBFS reference levels – +18 or +24 dBu (switchable)

Frequency response – 20 Hz – 20 kHz ±0.05 dB

THD+N – < 0.001% unweighted; -1 dBFS input, 20 Hz – 22 kHz

Dynamic range – 119 dB 'A'-weighted (-60 dBFS method)

Converter dynamic range – 120 dB

Signal-to-noise ratio – 119 dB 'A'-weighted; 20 Hz – 20 kHz

## Outputs

Analogue line outputs – 8

Connector – 25-way female Dsub, wired to AES 59 (x2)

0 dBFS reference levels – +18 or +24 dBu (switchable)

Frequency response – 20 Hz – 20 kHz ±0.15 dB

THD+N – < 0.001% unweighted; -1 dBFS input, 20 Hz – 22 kHz

Dynamic Range – 119 dB 'A'-weighted (-60 dBFS method)

Converter dynamic range – 120 dB

Signal-to-noise ratio – 119 dB 'A'-weighted; 20 Hz – 20 kHz

## Crosstalk

Input or Output to Input – <-90 dB  
(all other channels at 0 dBFS)

Input or Output to Output – <-100 dB  
(all other channels at 0 dBFS)

## Digital Performance

Supported sample rates – 44.1 / 48 / 88.2 / 96 / 192 kHz

Clock sources – Internal or from network master device



# REDNET 3 – Digital I/O



RedNet 3 interfaces your existing digital audio systems and components to the RedNet network, with up to 32 inputs and outputs and full software remote control. The unit includes support for AES/EBU, S/PDIF and ADAT (16 ADAT optical ports support 32 digital channels in and out – even at 96kHz, with S-MUX2) digital audio formats and allows the RedNet system to be synchronised to incoming signal clock or a word clock source.

## HOW DOES IT WORK AS PART OF A SYSTEM?

RedNet 3 can be used simply as a means of converting 32 channels of audio and delivering it somewhere else on the network at near-zero latency.

## If you need to connect Rednet 3 to your computer there are three methods:

- The RedNet PCIe card for Core Audio and ASIO applications such as Logic and Nuendo
- RedNet 5 for Pro Tools HD, Pro Tools HDX and Pro Tools HD Native via Digilink connectors
- Directly to your computer's Ethernet port using a standard Ethernet cable (with "Dante Virtual Soundcard")

## Inputs

**AES/EBU inputs** – 8 channels, with switchable SRC

**AES/EBU connector** – 25-way female Dsub, wired to AES 59 (combined I/O)

**ADAT inputs** – 32 channels @ 44.1 / 48 / 88.2 / 96 kHz sample rate; 16 channels @ 192 kHz

**ADAT connectors** – TOSLINK lightguides x 8

**S/PDIF input** – 2 channels, with switchable SRC 44.1 to 192 kHz

**S/PDIF connector** – Phono (RCA) socket

## AES/EBU Input Sample Rate Converters

**Input sample rate range** – 32 to 216 kHz

**Gain error** – -0.3 dB

**Dynamic Range** – > 138 dB (-60 dBFS method)

**THD+N** – < -130 dB (0.00003%); 0 dBFS input

## Outputs

**AES/EBU outputs** – 8 channels, sync-locked to RedNet system sample rate

**AES/EBU connector** – See "Inputs"

**ADAT outputs** – 32 channels @ 44.1 / 48 / 88.2 / 96 kHz sample rate; 16 channels @ 192 kHz

**ADAT connectors** – TOSLINK lightguides x 8

**S/PDIF output** – 2 channels, sync-locked to RedNet system sample rate

**S/PDIF connector** – Phono (RCA) socket

## Operating Modes

**AES/EBU mode** – AES/EBU inputs – Chs. 1 to 8; ADAT inputs – Chs. 9 to 32\*; AES/EBU outputs – Chs. 1 to 8; ADAT outputs – Chs. 1 to 32\*

**ADAT mode** – ADAT inputs – Chs. 1 to 32\*; AES/EBU outputs – Chs. 1 to 8; ADAT outputs – Chs. 1 to 32\*

## Digital Performance

**Supported sample rates** – 44.1 / 48 / 88.2 / 96 / 192 kHz

**Clock sources** – Local or from network master device

**Local clock sources** – Internal, Word Clock input, AES input 1, ADAT input 1, S/PDIF input

**External word clock range** – Sample rate  $\pm 7.5\%$

# REDNET 4 – Mic preamps, Line and DI



RedNet 4 adds eight of the latest remote-controlled Focusrite mic preamps / line inputs to your RedNet system through a single Ethernet cable. With two selectable DI's RedNet 4 provides an effective range of analogue inputs for your system. The unit includes Focusrite's world-class precision A-D conversion. Mic/Line/DI selection, gain, phantom power, HPF and metering are also accessible from the front panel.

## Microphone Inputs

**Gain range** – 0 dB; 8 to 63 dB in 1 dB steps

**Type** – Electronically balanced,  $Z_{in} = 2.4$  kohms

**Max. input level** –  $+16 \pm 0.5$  dBu; min. gain for 0 dBFS,  $R_s = 150$  ohms, pad out

**Min. input level** –  $-47 \pm 0.5$  dBu; max. gain for 0 dBFS,  $R_s = 150$  ohms, pad out

**Frequency response** – 20 Hz – 55 kHz  $\pm 0.1$  dB (-3 dB @ 80 kHz,  $f_s = 192$  kHz);  $R_s = 150$  ohms

**THD+N** – < 0.0007% @ -1 dBFS; +15 dBu input,  $R_s = 150$  ohms, 20 Hz – 22 kHz

**Noise** – EIN -128 dB; 60 dB gain,  $R_s = 150$  ohms, 20 Hz – 22 kHz

**Phantom power** – 48 V, independently switchable per-channel

**Signal-to-noise ratio** – 119 dB 'A'-weighted;  $R_s = 150$  ohms

## Line Inputs

**Gain range** – -12 to 42 dB in 1 dB steps

**Max. input level** –  $+24 \pm 0.5$  dBu; min. gain for 0 dBFS

**Min. input level** –  $-30 \pm 0.5$  dBu; max. gain for 0 dBFS

**Frequency response** – 20 Hz – 20 kHz  $\pm 0.1$  dB

**THD+N** – < 0.003% @ -1 dBFS; +23 dBu input, min.gain, 20 Hz – 22 kHz

**Signal-to-noise ratio** – 117 dB 'A'-weighted

## Instrument Inputs (Inputs 1 & 2 only)

**Gain range** – +14 to 68 dB in 1 dB steps

**Max. input level** –  $+17 \pm 0.5$  dBu; min. gain for 0 dBFS

**Min. input level** –  $-37 \pm 0.5$  dBu; max. gain for 0 dBFS, pad out

**Frequency response** – 20 Hz – 20 kHz  $\pm 0.1$  dB

**THD+N** – < 0.001% @ -1 dBFS; +9 dBu input, min.gain, 20 Hz – 22 kHz

**Signal-to-noise ratio** – 112 dB 'A'-weighted

## Analogue High-Pass Filters

**Selection** – Independently switchable per-channel

**Frequency/slope** – -6 dB @ 65  $\pm 3$  Hz, 12 dB/octave

## Crosstalk

**Input to input** – < -80 dB (all other channels at 0 dBFS)

## Digital Performance

**Supported sample rates** – 44.1 / 48 / 88.2 / 96 / 192 kHz

**Clock sources** – Internal or from network master device



# Hosting REDNET – how does RedNet interface with my computer?



There are three methods of connecting the RedNet network to your computer: RedNet 5 (for Pro Tools HD, Pro Tools HDX and Pro Tools HD Native), the RedNet PCIe card (for ASIO and Core Audio applications) and directly into your computer's Ethernet port with DVS or 'Dante Virtual Soundcard'.

### Pro Tools HD:

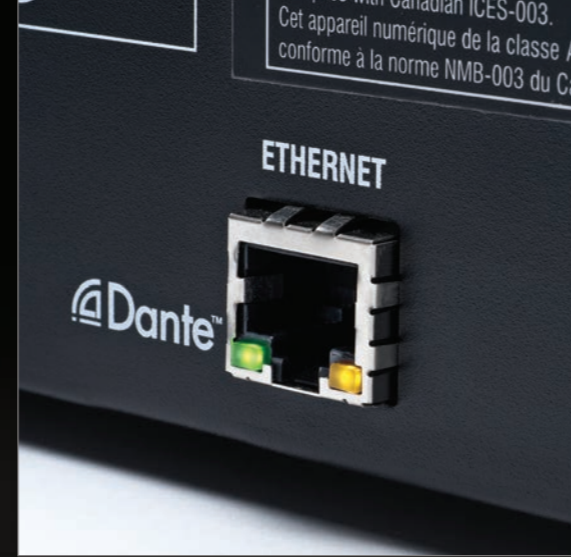
RedNet 5 is a bridge between Pro Tools HD systems and the RedNet network, delivering the level of latency and I/O count you would expect from your Pro Tools HD system, to the simplicity and convenience of Ethernet.

### ASIO and Core Audio Applications:

For ASIO and Core Audio applications such as Logic and Nuendo, the RedNet PCIe card can be fitted to Windows or Mac computers with a standard PCIe card slot. It delivers 128 channels I/O at up to 96kHz sampling, with under three milliseconds latency at all sample rates. A standard RJ45 Ethernet connector links your audio computer to the rest of the network via a standard GigE switch.

### Via your Ethernet port....

Where ultra-low latency performance is less important, the Dante Virtual Soundcard (DVS) software can be used to host the network from your computer's built-in Ethernet port. This provides latency figures equivalent to Focusrite's professional FireWire interfaces. The virtual driver can also be used in small-scale portable system based around a laptop.

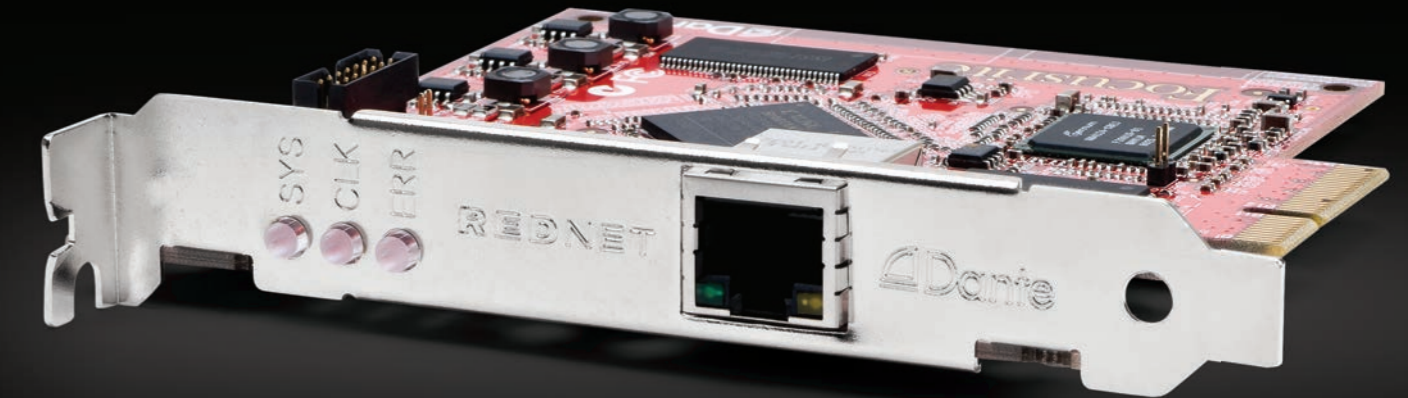


# REDNET PCIe card

For situations in which low-latency performance is critical, such as tracking, the RedNet PCIe card provides the best possible performance for your system. This dedicated card fits into a Windows or Mac computer with a standard PCIe card slot and delivers up to 128 channels I/O with under 3ms latency\*. A standard RJ45 Gigabit Ethernet connector links your audio computer to the rest of the network via a GigE switch.

### Key Features and Performance:

- 128 channels in and 128 channels out
- Compatible with any Dante network
- Up to 192 kHz sample rate
- Under 3ms analogue-to-analogue round-trip latency\*
- ASIO and Core Audio drivers



\* Dependent on ASIO/Core Audio buffer size

### MADI

RedNet 6 is a RedNet MADI bridge. Whereas this is not technically a host, it is another way of getting audio in and out of your Ethernet network. Any device with MADI connectivity (mixing consoles, interfaces and PCIe cards that use MADI) can be connected to your RedNet system via RedNet 6.



# REDNET Control software panel

RedNet Control is Focusrite's software interface for routing, controlling and configuring RedNet interfaces from a computer on the network.

Typically running on the computer housing the RedNet host, RedNet Control provides a "drag and drop" interface for routing audio to and from RedNet PCIe, RedNet 5 and Dante Virtual Soundcard (DVS). This provides a fast, effective and simple method of routing audio as a complex matrix is not required. Simply drag a unit from the "Unrouted" section and it will be routed within moments.

### The following functions are just some of the remote controllable aspects of RedNet interfaces:

- Gain of preamps (RedNet 4)
- Reference level (RedNet 1 and RedNet 2: +18 dBu and + 24dBu)
- Clock source
- RedNet preferred master clock
- Sample rate





# REDNET 5 – 32 channel HD bridge



RedNet 5 connects your RedNet system to Pro Tools HD®. Up to six units can be connected to one Pro Tools HDX system, supporting up to 192 channels at 96 kHz or 96 channels at 192 kHz. Three units can be connected to a Pro Tools HD system and two to a Pro Tools HD Native system, delivering 96 and 64 channels respectively at 96 kHz. RedNet 5 is interoperable with other Pro Tools interfaces and no RedNet PCIe card is required.

## KEY FEATURES AND PERFORMANCE:

- Upgrade to RedNet interfaces while remaining fully compatible with your saved sessions
- Each RedNet 5 can route up to 32 input and 32 output channels between your RedNet network and Pro Tools HD system
- Connecting six RedNet 5 units to a Pro Tools HDX system allows up to 192 inputs and outputs - the maximum supported by Pro Tools HDX.

- Maintain your existing Pro Tools workflow with simple, logical assignment of RedNet I/O to Pro Tools HD inputs and outputs
- Compatible with Pro Tools HD® TDM systems

# REDNET 6 – MADI Bridge



MADI is widely used for large-scale digital audio systems such as audio consoles and conversion systems, allowing multiple channels to be carried along a single interface. RedNet 6 provides the link between your RedNet Ethernet-based audio system and any MADI / AES10 setup. RedNet 6 supports up to 64 channels of both coaxial and optical MADI interfaces and is completely bi-directional: use RedNet's high quality interface products with your MADI system – or MADI components with your RedNet system. RedNet 6 features an asynchronous sample rate converter (ASRC) on each input and output so you can interface between MADI and RedNet irrespective of the sample rate at which either system is operating. Connect your RedNet system to MADI-based digital consoles, computer cards, converters and much more. In addition to both coax and optical MADI interfaces, RedNet provides Word Clock in and out.

## KEY FEATURES:

Add MADI to RedNet – or RedNet to MADI. RedNet 6 connects your MADI system and your RedNet system seamlessly together. Connect RedNet to digital mixing consoles, interfaces and cards that use MADI; or conversely, extend your MADI system with RedNet's versatile, superb-quality audio interfaces and connectivity.

## Coaxial and Optical

RedNet 6 supports both coax and optical interfaces – connect simply to any MADI equipment

## External Word Clock I/O for either RedNet or MADI

Slave either the RedNet systems or MADI streams to an external clock

## Up to 64 MADI channels

RedNet 6 supports up to 64 channels of digital audio I/O at standard sample rates (44.1/48kHz) from your MADI system, 32 channels at 96kHz and 16 at 192kHz.

## Asynchronous sample rates

Each RedNet 6 input and output has asynchronous sample rate converters (ASRC) allowing MADI and RedNet systems to operate simultaneously at different sample rates.

## Compact and effective

RedNet 6 is a simple 1U rack-mount module with the classic red aluminium faceplate.

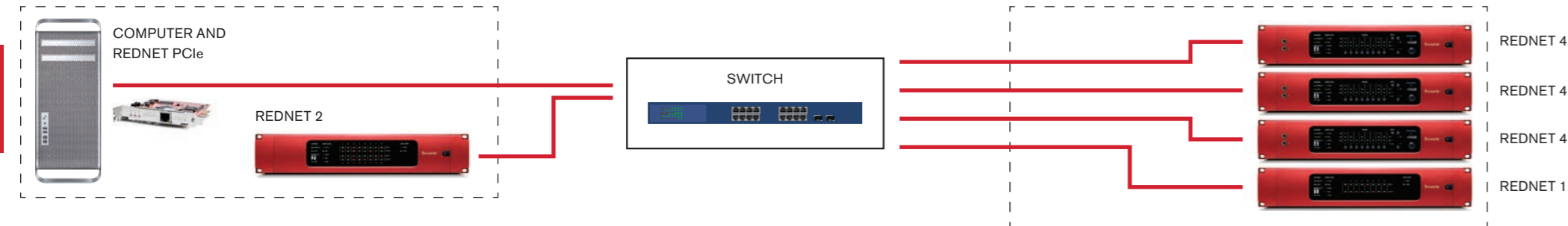
## Remote routing and control

RedNet Control software allows remote routing and control from your audio computer system via a software control panel – no hardware patching required.



# Set up diagrams

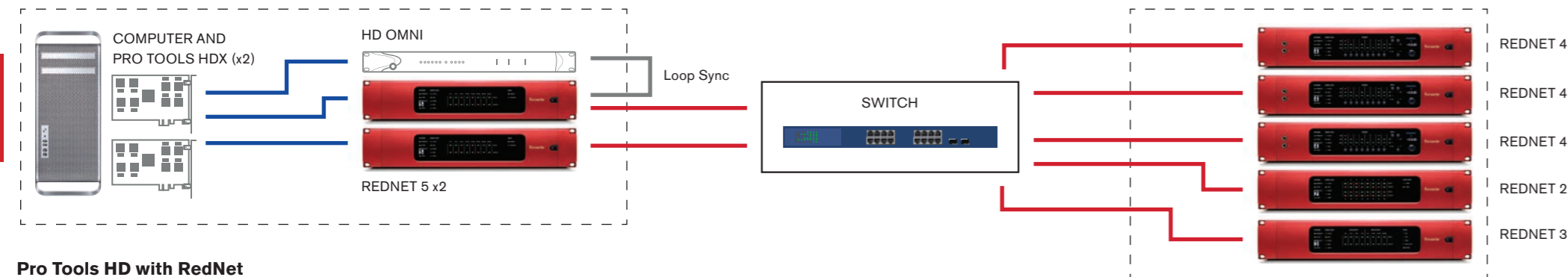
## CONTROL ROOM



### Recording Studio with RedNet PCIe host

This setup provides low latency recording for a typical two-room studio. Here, control room monitoring and line inputs are catered for by RedNet 2. In the live room, three RedNet 4 units provide 24 channels of remote control mic pres and RedNet 1 provides line level monitoring sends and eight line inputs.

## CONTROL ROOM



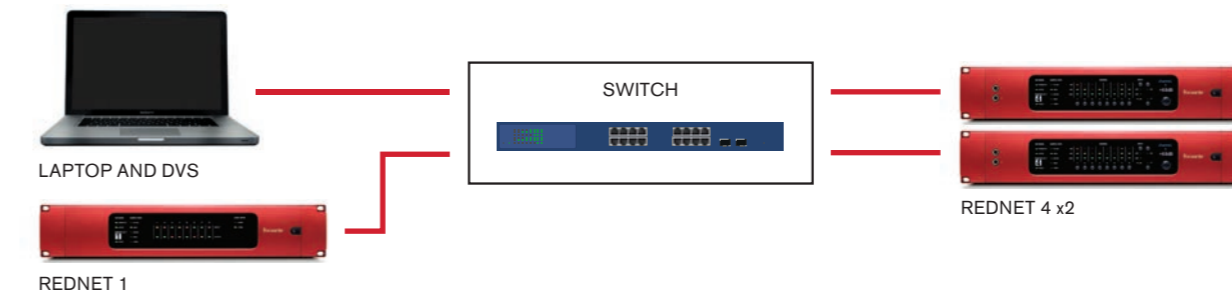
### Pro Tools HD with RedNet

RedNet 5 allows any Pro Tools HD system to integrate seamlessly with the Dante network. Here, the Avid OMNI is used for control room monitoring and local input signals. It is connected to one of two RedNet 5 units via Loop Sync. Note that the second RedNet 5 does not require a Loop Sync connection as it receives its clocking signal over the network. The two RedNet 5 units provide up to 64 channels I/O to/from the Pro Tools HD system and RedNet. Any number of RedNet interfaces could be connected to the switch. In this scenario, three RedNet 4 units are providing 24 channels of remote controlled mic preamps, a RedNet 2 unit provides 16 channels of line level I/O, and RedNet 3 allows the connection of up to 32 channels I/O of ADAT signals, even at 96 kHz.

### CABLE KEY

- CAT5e or CAT6
- DigiLink
- Fiber

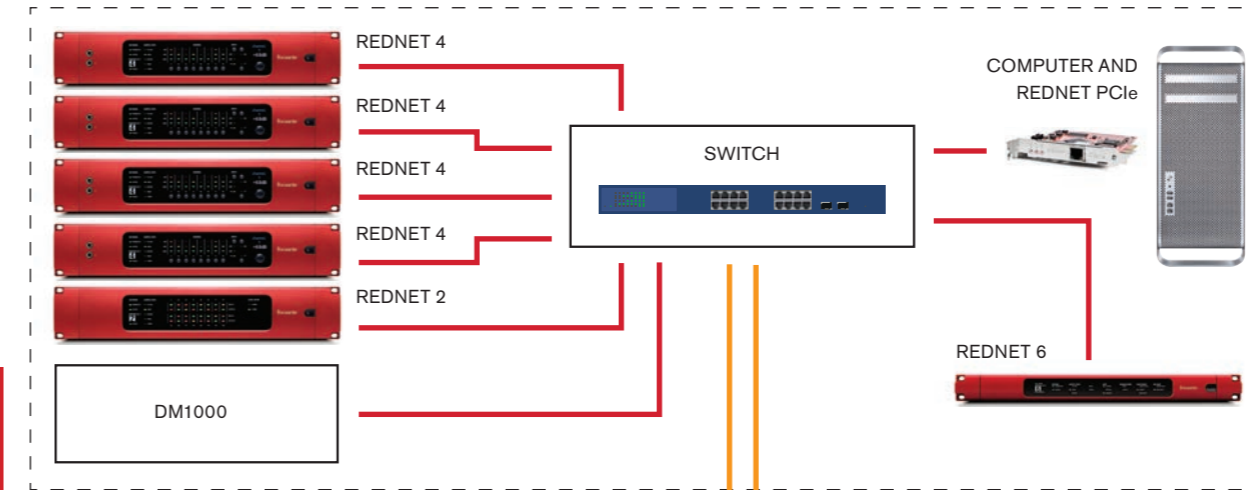
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### Basic Location Recording Setup using DVS (without PCIe card)

Dante Virtual Soundcard provides a great solution for the mobile recording engineer. Simply plug into your onboard Ethernet port with a CAT 6 cable, and connect to RedNet interfaces via a switch. Here, two RedNet 4 units provide 16 channels of remote controlled mic pres (which could be placed under/near the stage) and a single RedNet 1 unit provides the line I/O for monitoring the recording. Remember that as RedNet uses standard Ethernet hardware, each CAT 6 cable can be up to 100m (109 yards) in length, perfect for location recording.

## AUDITORIUM



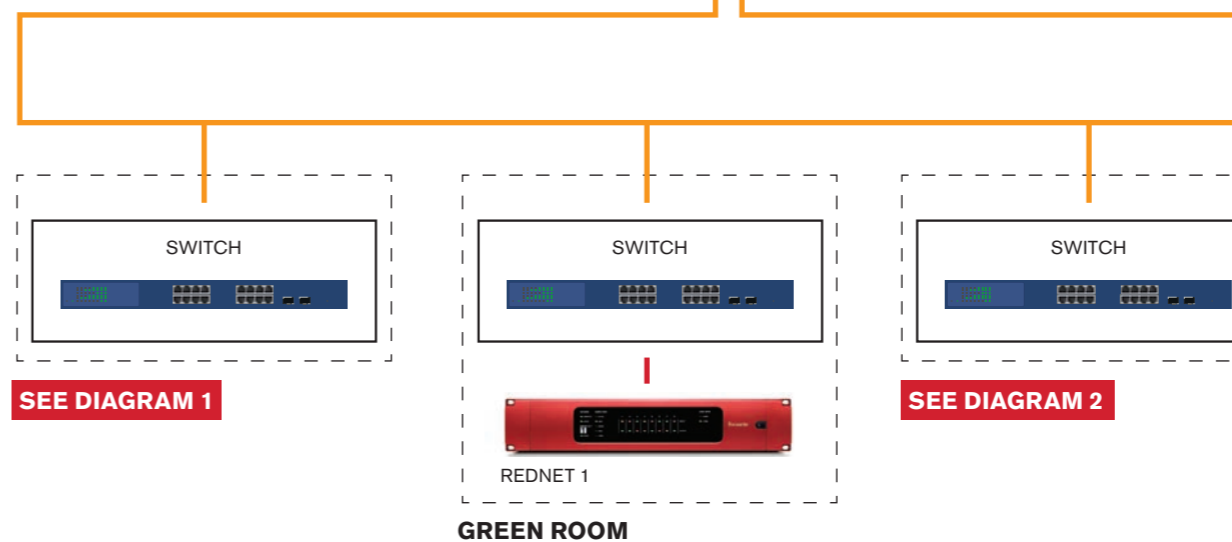
### The possibilities are endless...

Of course the basic systems (previously shown) are just the tip of the RedNet iceberg. Multiple computers, and any number of interfaces can exist on the same network, allowing you to truly embrace the power of networked audio. In addition to this, RedNet can integrate with Dante based equipment from other manufacturers, such as mixing consoles, speaker management systems, power amplifiers and more.

This system could be in a University or Theatre for example. Here, as the building is very large, the backbone of the network system is based on fibre optics. Each switch in the system provides breakout/in on Ethernet ports to which CAT 6 cabling is connected. The main Front of House sound for the auditorium is mixed using a Dante-enabled mixing console, with a locally positioned computer equipped with RedNet PCIe to record the show. RedNet 4 and RedNet 2 units are used to form a stage box solution, piping audio to and from the main stage. RedNet 6 is also used here to provide MADI I/O which could be used to feed a broadcast stream, or indeed any other MADI-based equipment.

The two recording studios from diagrams one and two are on the same network, one Pro Tools HD based and one RedNet PCIe based. These studios could either be operated independently from the rest of the network, or could receive audio from, and route it to any other location on the network. Finally RedNet 1 provides foldback in the green room for artists to hear the performance live from the stage.

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SEE DIAGRAM 1

SEE DIAGRAM 2



# Beyond the Recording Studio – RedNet in other environments

In addition to interfacing with computers, RedNet is an audio distribution system. This means that RedNet is adaptable to any situation that requires lots of high-quality audio to be moved from one place to another.

Many of RedNet's early adopters have seen potential in other areas as well as traditional recording studios. The convenience of moving audio via Ethernet instead of multicore cabling has benefits in a variety of applications. Obvious examples include piping audio through a building's existing Ethernet infrastructure (avoiding expensive and disruptive cabling installation). But also, imagine running a single Ethernet cable between rooms (or even buildings) for a location recording - or to multi-track a gig using a different part of the venue as a control room...

## Educational Facilities

Patch any space to any control room: live room, practice rooms, concert halls, live venue/student union and more... Educators who are already using RedNet are putting units in wheeled racks and transporting them to wherever they need inputs, making huge savings on cabling, infrastructure and turning any space with an Ethernet socket into a recording space.

## Live sound

Dante – the technology behind Ethernet audio - is no stranger to live music venues. Connect RedNet units to consoles and stage boxes with Dante cards installed and move multi-channel audio to wherever you need it. You could even monitor and mix multi-track recordings of the show in remote rooms in the venue.



## Location recording

Imagine turning up to a location and simply running single Ethernet cables instead of multicore - or using the building's Ethernet infrastructure. You could even set up your control room in another building. The other advantage of RedNet is that by connecting microphones to the A-D converter at source, the distance audio has to travel through analogue cables is dramatically reduced. Unlike analogue cabling, the RedNet network does not suffer from any signal degradation.



## Theatres

Whether it's a new or an old building, RedNet avoids the need for the expense, disruption and damage caused by installing and moving multicore cable runs. Connect RedNet to any existing consoles or stage boxes with Dante cards installed and move audio easily between different rooms.

## Post-production facilities

RedNet is well adapted to handling audio in post-production facilities: It offers high channel count; simple configuration of I/O and RedNet 6 delivers MADI integration. Individual inputs and outputs can be assigned to the same box from different sources so engineers are not restricted to only using channels in large banks

## House of worship

Whatever the scale of your house of worship installation, RedNet enables you to move audio around easily so services can be monitored and recorded separately from the front of



house desk. RedNet's interoperability with Dante cards means that you can connect RedNet to compatible consoles and breakout boxes.

## Broadcast

RedNet provides benefits for broadcasters wishing to take advantage of audio over gigabit Ethernet. RedNet may be implemented today and is ready for the AVB future.

# Notes:







Available from certified RedNet retailers

Focusrite®