



## DIO8008R

Dante™ enabled network audio switcher with  
CLI control and analogue interface.



by  
CTP Systems



## **Product warranty**

This unit is guaranteed for a period of one year from dispatch of the goods. This guarantee is a return to base warranty. In the unlikely event of a fault the goods should be returned to CTP Systems in the UK or your local dealer.

This equipment is CE marked and conforms to the following directives:

Low Voltage Directive: EN60065 and EN62368-1: 2014

Emissions: EN55032: 2015

Immunity: EN55035: 2017

WEEE

CTP Systems are registered for Business to Business sales of WEEE in the UK. Our registration number is WEE/DF0509VR. This is why our product has a ridiculous picture of a dustbin on the back.

RoHS

The product conforms to the RoHS Directive 2002/95/EC for restriction of the use of hazardous substances in electrical and electronic equipment.

This unit was designed and manufactured in the UK by CTP Systems Limited, Unit 4, Clinton Business Centre, Lodge Road, Staplehurst, Kent TN12 0QF.

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**Dante** is a trademark of Audinate Pty Ltd.

**This manual assumes a degree of familiarity with Dante controller. If you are not familiar please see this document:**

<https://dev.audinate.com/GA/dante-controller/userguide/pdf/latest/AUD-MAN-DanteController-4.1.x-v1.0.pdf>



## **Overview**

The DIO8008R is a Dante enabled control unit for switching audio sources/destinations under Command Line Interface (CLI) or Telnet control. The unit is highly suitable for automated switching and is especially suitable for use within radio station infrastructure.

The unit has sixteen Dante inputs and sixteen Dante outputs as well as eight balanced analogue inputs and eight balanced analogue outputs. The analogue IO may be supplied with Studiohub+ (DIO8008R) or XLR (DIO8008RX) connections.

## **CLI Control**

The DIO8008R includes an ethernet control port, separate from the Dante ports and with its own IP address. This port controls all matrix switching. Signal levels for both inputs and outputs may also be controlled in 1dB steps from -12dB to +12dB. Full details of use of this port and the associated command set are described at the end of this document.

## **Dante / AES67 Network Connections**

The DIO8008R has a built in network switch. Connect the primary Dante RJ45 to your router. If redundant operation is required connect the secondary RJ45 to the redundant network router. Alternatively the secondary RJ45 may be used as a router output for forwarding on to additional Dante equipment. This feature may be configured in Dante Controller.

When the unit is powered and after successful network connection the LEDs on the RJ45 connectors will illuminate. The right LED will be amber if you have a gigabit connection or green if operating at 100 Mbps. The left LED will blink green to show activity on the port or will be off if no link has been established.

It takes the unit some 10 seconds from application of power to be ready to operate



## Signal routing

Audio should be routed into and out of the DIO8008R matrix using Dante Controller. The analogue IO is only available through the CLI. Selecting DIO8008R input to one of its own outputs via Dante Controller will have no effect and will be ignored.

## DIO8008R as it appears in Dante Controller

The screenshot shows the Dante Controller software interface. The window title is "Dante Controller - Network View". The menu bar includes "File", "Device", "View", and "Help". The toolbar contains various icons for navigation and settings. The main area is divided into several sections:

- Routing** (selected), Device Info, Clock Status, Network Status, Events
- Dante** logo
- Filter Transmitters** and **Filter Receivers** (empty text boxes)
- Dante Transmitters** (expanded): A list of 16 outputs labeled "Output 1" through "Output 16".
- Dante Receivers** (expanded): A list of 16 inputs labeled "Input 1" through "Input 16".
- Device Name:** DIO8008R-18bc14

At the bottom, there is a status bar with the following information:

- P: ■
- Unmanaged Multicast Bandwidth: 0 bps
- Event Log: ■
- Clock Status Monitor: ■



## Power

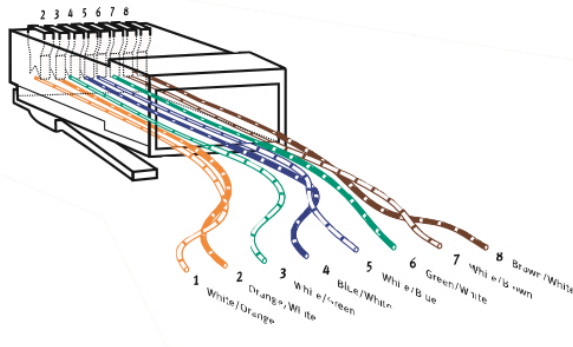
The DIO8008R may be powered by 110-240 VAC 50/60Hz.

## Sample rate

The DIO8008R operates at 48kHz, 24 bit.

## Studiohub+ Connections

StudioHub+ RJ-45 Pinout				
Channel	Color Pair	RJ-45 Pins	110 Pins	Ethernet
L+ / AES+	Wht/Org	1	3	TR+
L- / AES-	Org/Wht	2	4	TR-
R+	Wht/Grn	3	5	R+
R-	Grn/Wht	6	6	R-
nc	Wht/Blu	5	1	n/c
GND	Blu/Wht	4	2	n/c
15V-	Wht/Brn	7	7	n/c
15V+	Brn/Wht	8	8	n/c
Shield	Wht/Slr	Shield	9	x
Shield	Slr/Wht	Shield	10	x







Some routing examples.

Input AN > output DN On                      shortened              AN > DN On  
connects analogue input N to Dante output N.

Input AN > output DN Off                      shortened              AN > DN Off  
Disconnects analogue input N from Dante output N.

Input DN > output DN On                      shortened              DN > DN On  
connects Dante input N to Dante output N.

Input AN > output AN Off                      shortened              AN > AN Off  
Disconnects analogue input N from analogue output N.

### Level control commands

All levels may be set to zero by typing in 'all zero'

Level control is in 1dB steps from -12dB to +12dB. Negative levels must have character '-' before the value, Positive levels do not require '+' but it may be added if preferred. N = required level.

Some level examples

Input D1 = N                                      shortened              I D1=N  
Level of Dante input 1 = NdB

Input A2 = N                                      shortened              I A2=N  
Level of analogue input 2 = NdB

Output D4 = N                                    shortened              O D4=N  
Level of Dante output = NdB

Output A7 = N                                    shortened              O A7=N  
Level of Dante output 7 = NdB

### Interrogation

The status of the DIO8008R may be downloaded in one block by sending 'Status'. The download will show routing only on connected channels. All levels will be displayed. A download of status may look like this:

Input D1 > output A1  
Input A2 > output D2  
Input D4 > output D3  
Input A3 > output A4

Input D1 = 0  
Input D2 = -6  
Input D3 = +6



Input D4 = 0  
Input D5 = 0  
Input D6 = -6  
Input D7 = +6  
Input D8 = 0  
Input D9 = 0  
Input D10 = -6  
Input D11 = +6  
Input D12 = 0  
Input D13 = 0  
Input D14 = -6  
Input D15 = +6  
Input D16 = 0

Input A1 = -2  
Input A2 = -6  
Input A3 = +5  
Input A4 = 0  
Input A5 = -2  
Input A6 = -6  
Input A7 = +5  
Input A8 = 0

Output D1 = 0  
Output D2 = -5  
Output D3 = +12  
Output D4 = -3  
Output D5 = 0  
Output D6 = -5  
Output D7 = +6  
Output D8 = -3  
Output D9 = 0  
Output D10 = -5  
Output D11 = +12  
Output D12 = -3  
Output D13 = 0  
Output D14 = -5  
Output D15 = +6  
Output D16 = -3

Output A1 = -2  
Output A2 = -6  
Output A3 = +5  
Output A4 = 0  
Output A5 = -2  
Output A6 = -6  
Output A7 = +5  
Output A8 = 0



Alternatively a '?' may be used to query a specific channel.

Using the status as shown above.

? input A1	could show	input A1> output D1. Level = 0
? input D3	would show	input D3> output D4. Level = +6
? output D4	could show	input3 A> output D4. Level = +4
? output D5	could show	output D5 Level= -2