



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.

ctpsystems.co.uk. Telephone +44 (0)1580 891114

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 - Network View interface. The top menu bar includes File, Device, View, and Help. Below the menu is a toolbar with various icons. The main window displays the Dante logo and a list of devices. The device DIO8008R-18bc14 is selected, and its configuration is shown in the right pane. The configuration includes a list of 16 outputs (Output 1 to Output 16) and a list of 16 inputs (Input 1 to Input 16). The status bar at the bottom shows the Unmanaged Multicast Bandwidth as 0 bps, the Event Log as empty, and the Clock Status Monitor as green.

Dante Controller - Network View

File Device View Help

Grand Master Clock: DIO8008R-18bc14

Routing Device Info Clock Status Network Status Events

Dante

Filter Transmitters

Filter Receivers

Dante Receivers

DIO8008R-18bc14

- Input 1
- Input 2
- Input 3
- Input 4
- Input 5
- Input 6
- Input 7
- Input 8
- Input 9
- Input 10
- Input 11
- Input 12
- Input 13
- Input 14
- Input 15
- Input 16

Dante Transmitters

DIO8008R-18bc14

- Output 1
- Output 2
- Output 3
- Output 4
- Output 5
- Output 6
- Output 7
- Output 8
- Output 9
- Output 10
- Output 11
- Output 12
- Output 13
- Output 14
- Output 15
- Output 16

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



Power

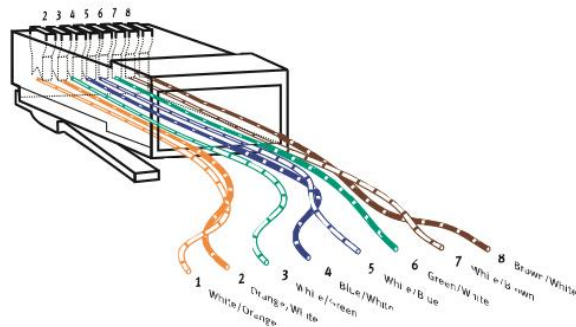
The DIO8008R may be powered by 110-240 VAC 50/60Hz.

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





CLI Commands for CTP Systems DIO8008R

This documentation shows how to use and control the DIO8008R using Windows Telnet.

First find the IP address of the DIO8008R control port by installing the 'Device Installer' program enclosed on the CD. When the program is run it will search for the control port and display its IP address. The DIO8008R is supplied with the control port running DHCP. The IP address may be changed using the Web Configuration tab which is shown when you double click on the Xport name.

Ensure Telnet is installed on your PC then open the Windows command line interface.

At the command prompt type in 'telnet'
The command prompt will change to 'Microsoft Telnet'

Type in 'open xxx.xxx.xxx.xxx 10001' where xxx.xxx.xxx.xxx is the IP address of the control port on the rear of the unit and 10001 is the port number (this number is normally fixed).

Now you can type in commands as below. Please note that the Telnet interface accepts each character as it is typed. If you backspace over a character and re-type then the system will see this as an error as the backspace will be included as a received character although not displayed on the screen.

All accepted commands will return 'OK'. Any mistypes or errors will return '???'.

Routing and level control will be shown as inputs and outputs 1 to 16 in the case of Dante channels or 1 to 8 for analogue channels.

Type case may be upper or lower or a mixture of both, it makes no difference. Spaces may be added as required for legibility, they will be ignored by the receiver.

Most status requests or commands may be shortened, the short form is show next to the commands as below.

Routing for the Dante inputs and outputs is proceeded by a 'D' as in D1>D3 On.

Routing for the analogue inputs and outputs is proceeded by an 'A' as in A1>D3 On.

All routing commands are terminated with 'On' or Off' to set or unset a route.

Range for the Dante inputs and outputs is 1-16 for a total of 16 input and output Dante channels.

Range for the Analogue inputs and outputs is 1-8 for a total of 8 input and output analogue channels.

All settings are retained after a power cycle.

Routing commands (N = the required routing source)

All Off no shot form

Will switch all routing to off, a good starting point. This does not affect input and output level settings.



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