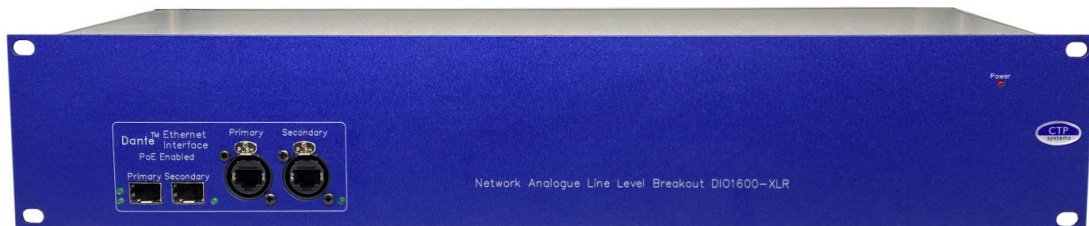
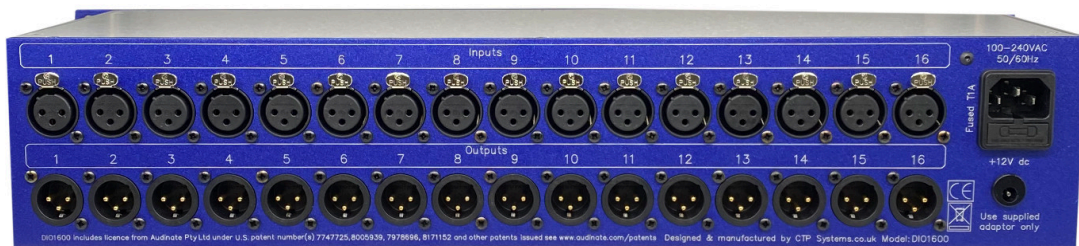




# DIO1600 and DIO1600-XLR Dante™ enabled Line Level Interface

Firmware version 1.0



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.

### **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](http://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 DIO1600 is a Dante enabled interface unit converting sixteen analogue line level inputs to network streams and sixteen network streams to line level analogue outputs.

All Line level inputs and outputs have adjustable gain from +12dB to -12dB in 1dB steps.

Network connections may be copper and/or fibre and the unit includes connections for network redundancy. The DIO1600 is PoE enabled so it may be operated without a mains supply. It may also be powered with an external 12 volt supply.

Levels may be adjusted using the built-in web server. The unit will operate at sample rates of 48kHz or 96kHz.

The unit will also operate in AES67 mode.

## **Power**

The DIO1600 may be powered by:

Mains, 110-240 VAC 50/60Hz.

Power over Ethernet (PoE) on either or both of the copper primary and secondary ethernet jacks. The unit has a class 3 signature.

An external 12 volt supply.

Clearly PoE power will not be available if the unit is used solely with fibre connections so the mains and/or 12 volt input should then be utilised.

Power may be connected to one or all of the power inputs simultaneously effectively providing power supply redundancy.



## **Network Connections**

The DIO1600 has a built-in network switch. This switch may be configured either as a standard switch where network connections may be passed on to other network devices or with redundant inputs for connection to a secondary (backup) network. The switch function should be configured from within Dante Controller. For copper network connections the closest green LED will flicker on successful network connection. For SFP connections (usually fibre) the relevant green LED on the left of the sockets will flicker.

## **Audio Connections**

The 1RU DIO1600 utilizes the Tascam analogue standard for audio inputs and outputs via D25 connectors, each D type carries eight audio circuits. The DIO1600-XLR is a 2RU version with XLR connections which may be specified mounted on the front or rear of the unit.

### **Line Inputs**

The line inputs are electronically balanced, they may also be used unbalanced. Gain is adjustable from -12dB to +12dB.

### **Line Outputs**

Line Outputs are electronically balanced, they may also be used unbalanced. Gain is adjustable from -12dB to +12dB.



## Using with Dante Controller

Below is a picture of how the DIO1600 will appear in Dante Controller.

The screenshot shows the Dante Controller - Network View 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 display area is divided into several sections:

- Routing**: A tabbed interface with "Device Info", "Clock Status", "Network Status", and "Events" tabs.
- Dante Logo**: The Dante logo is displayed in the top left of the main area.
- Filter Transmitters**: A text input field for filtering transmitters.
- Filter Receivers**: A text input field for filtering receivers.
- Dante Transmitters**: A vertical list of 16 transmitters, all labeled "DIO1600-1aecd2". The list is expanded to show 16 individual "Line In" entries (Line In 1 through Line In 16).
- Dante Receivers**: A vertical list of 16 receivers, all labeled "DIO1600-1aecd2". The list is expanded to show 16 individual "Line Out" entries (Line Out 1 through Line Out 16).
- Grid**: A large grid area for configuring connections between the 16 Line In and 16 Line Out ports.

At the bottom of the window, the status bar shows: "P: [green square] Unmanaged Multicast Bandwidth: 0 bps Event Log: [red square] Clock Status Monitor: [red square]".



### **Dante Transmitters**

These are the Dante outputs of the line inputs. They may also be routed within the device to the Dante receivers for analogue in/ analogue out use.

### **Dante Receivers**

These are the Dante to line level outputs.

### **Accessing the DIO1600 web page**

The Dante web page may be accessed using the Dante assigned IP address of the DIO1600. If you are using a fixed IP address then you already know what the IP address is. If you are using DHCP the address may be found using Dante Controller and selecting Device Info. Dial this address (ie. 169.254.34.217) into your web browser and the webpage will appear.

If your network is suitably set up it is also possible to access the web page using the following:

<http://dantename.local/>

where dantename is the name that appears for the DIO1600 in Dante Controller. If this does not work it is outside the scope of this document and down to your network setup, please ask your IT department or use the IP address.

Any number of DIO1600 may be viewed at once in multiple browsers or tabs.

It is important to note that the web page information will not be valid until after some 30 seconds after the DIO1600 is powered up, it takes this time for the first full web page update.



## The DIO1600 web page

CTP Module Configuration

Not secure | 169.254.185.179/ctp/dio1600setup

CTP systems

**DIO1600 SETUP** **INFORMATION**

**DIO1600 Setup**

Unit Number

-12 to 12      -12 to 12      -12 to 12      -12 to 12

Input 1 Gain	<input type="text" value="0"/>	Input 9 Gain	<input type="text" value="0"/>	Output 1 Gain	<input type="text" value="0"/>	Output 9 Gain	<input type="text" value="0"/>
Input 2 Gain	<input type="text" value="0"/>	Input 10 Gain	<input type="text" value="0"/>	Output 2 Gain	<input type="text" value="0"/>	Output 10 Gain	<input type="text" value="0"/>
Input 3 Gain	<input type="text" value="0"/>	Input 11 Gain	<input type="text" value="0"/>	Output 3 Gain	<input type="text" value="4"/>	Output 11 Gain	<input type="text" value="0"/>
Input 4 Gain	<input type="text" value="12"/>	Input 12 Gain	<input type="text" value="0"/>	Output 4 Gain	<input type="text" value="0"/>	Output 12 Gain	<input type="text" value="0"/>
Input 5 Gain	<input type="text" value="0"/>	Input 13 Gain	<input type="text" value="0"/>	Output 5 Gain	<input type="text" value="0"/>	Output 13 Gain	<input type="text" value="0"/>
Input 6 Gain	<input type="text" value="-6"/>	Input 14 Gain	<input type="text" value="0"/>	Output 6 Gain	<input type="text" value="0"/>	Output 14 Gain	<input type="text" value="-12"/>
Input 7 Gain	<input type="text" value="0"/>	Input 15 Gain	<input type="text" value="0"/>	Output 7 Gain	<input type="text" value="0"/>	Output 15 Gain	<input type="text" value="0"/>
Input 8 Gain	<input type="text" value="0"/>	Input 16 Gain	<input type="text" value="0"/>	Output 8 Gain	<input type="text" value="0"/>	Output 16 Gain	<input type="text" value="0"/>

For items with a direct input such as input gain just click on the box and type in a value. Any values outside the allowed range will result in no change in the display after selecting 'submit', the allowed range is shown at the top of the gain adjustment column.

The unit number may be in the range 0-127 and is used to easily identify a given unit, especially useful if several web pages or tabs are open for a number of devices. This number will remain stored in the DIO1600 memory.

Note that one or any number of changes may be made but they will not be sent to the DIO1600 until the 'Submit' button is selected.

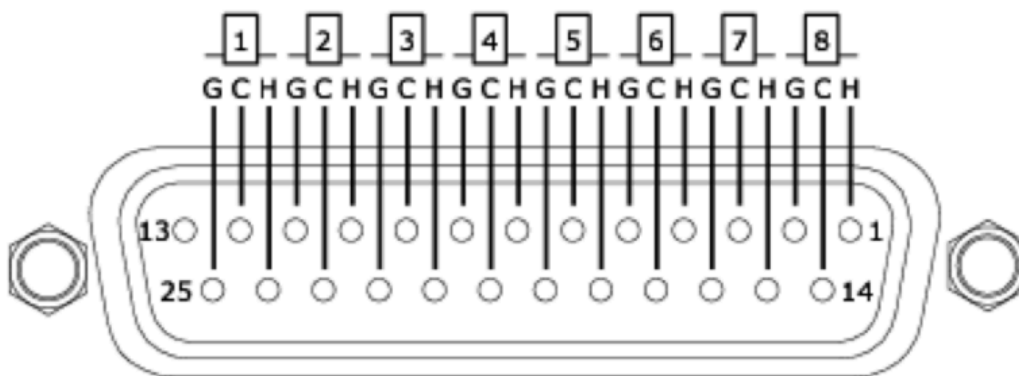
If at any time you require confirmation of the unit status just put the cursor in the URL box and hit return and the page will reload.



When inputting positive values (say +12dB) the + sign is not required so just type in 12. For negative values the minus (-) is required as in standard mathematical notation.

### D25 Pinouts

These apply to both inputs and outputs.



### Sample rate

The DIO1600 operates at sample rates of 48kHz or 96kHz and audio resolution is 24 bit. The sample rate may be changed from within Dante controller. Please note that Dante controller will not allow the use of mixed sample rates between devices.