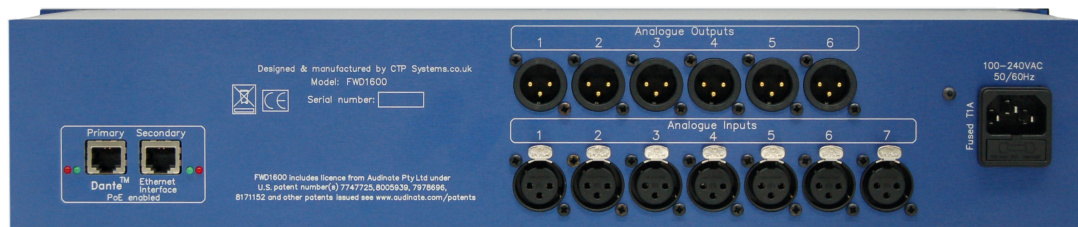# FWD1600
Dante™ enabled four wire box

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
Emissions: EN55103.1
Immunity: EN55103.2

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 an absurd 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.

Overview

The FWD1600 is a network sixteen input sixteen output four wire unit with eight IFB circuits in a 2RU case. In addition to the Dante ports there are seven analogue inputs and six analogue outputs available for use with four wire box functions or as Dante breakouts. Many parameters such as IFB dim level and 'all talk' functions may be programmed into the unit using the inbuilt web server. The microphone has 48 volt switchable phantom power available. There are both primary and secondary network connections to allow for redundancy or an additional switch connection for daisy chaining units.

When using network four wire units in combination with Dante Controller the user effectively has a peer to peer programmable talkback system.

Power

The FWD1600 may be PoE (Power over Ethernet) or mains powered 110-240 VAC 50/60 Hz.

Setting Up the network

The FWD1600 should be used in conjunction with Dante Controller software available from https://www.audinate.com/products/software/dante-controller. As supplied the FWD1600 will appear in Dante Controller as FWD1600-nnn.

Connect the primary 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 function should be configured in Dante Controller.

When then unit is powered and after successful network connection the LEDs by the RJ45 connectors will illuminate. The green LED will blink to show activity on the port or will be off if no link has been established. The red LED will illuminate if the unit has a one gigabyte connection.

The FWD1600 as it appears in Dante Controller

Dante page Receivers.

4w1 to 4w16 in are the four wire receive monitor inputs

IFB A to IFB H are IFB inputs, each may be assigned to any four wire output, Alternatively these may be assigned as analogue outputs via the web server assignments page. When selected to analogue these connect to the XLR outputs on the rear. When assigned to four wire outputs then several IFB inputs may be mixed to the same four wire output if required.

There are two 3:1 and one 2:1 Dante mixers available.

Dante page Transmitters

4w1 out to 4w16 out are the four wire outputs.

Hot mic out is the FWD1600 microphone, live at all times unless 'Mic Cut' is selected.

Spkr Mix out is a feed of the same audio as sent to the internal loudspeaker.

Mixers A, B and C outputs.

Analogue 1-7 are Inputs from the rear analogue input XLRs.

Talk keys

Press the 4w talk key down for momentary operation or up to latch it on. The red LED will illuminate. The 4w audio input will dim the incoming loudspeaker audio for that channel (this may be defeated or adjusted via the web server, more of that later). When the talk key is pressed the IFB input, which is normally routed to the four wire output, will be dimmed in level or cut as required (again selected via the web server).

Vox lights

These will illuminate green when incoming audio above -36dBFS is present on the four wire input. When audio is removed they will remain illuminated for approximately 15 seconds.

IFB mon

The IFB monitor button enables the user to listen to the incoming IFB audio, especially useful as a confidence check. The button will illuminate blue when the IFB is being monitored.
When selected the incoming audio monitoring for that channel is switched away from the four wire input to the IFB input. Press again to switch back to incoming audio.

Group talk

This key enables the user to talk to a selection or all of the four wire outputs. The selection may be programmed in the web server. When selected all programmed keys will illuminate when Group Talk is activated.

Mixers

There are two 3:1 and one 2:1 Dante mixers included in the unit, they are available for mixing four wire outputs as required. Mixer C doubles up with the analogue line outputs so when these are configured as analogue outputs mixer C is not available.

Analogue Outputs/Inputs/Breakouts

IFB C to IFB H inputs may be alternatively configured (on a one by one basis) as Analogue output channels (XLRs 1 to 6 on the rear) via the assigns & analogue webserver page.

Analogue inputs require no switching and may just be assigned as required.

Accessing the FWD1600 web page

The Dante web page may be accessed using the Dante assigned IP address of the FWD1600. 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 FWD1600 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 FWD1600s may be viewed at once in multiple browsers or tabs. They can be quickly and easily identified by selecting individual Unit Names. See below for more information.

For items on the web page with a down arrow such as Mic gain, just click on the down arrow and select as required. For items with a direct input such as input levels just click on the box and type in a value. As an example, when keying in levels negative values should be typed as -9, positive values just 9. Any values outside the allowed value range will result in no change in the display. The allowed range is -12dB to +12dB. Note that one or any number of changes may be made but they will not be sent to the commentary box until the 'Submit' button is pressed.
If at any time you require confirmation of the FWD1600 status just put the cursor in the URL box and hit return, the page will reload.

Web page settings - Setup

Unit Name

This is available on all webserver pages and allows easy identification of individual FWD1600s without referring to the unit's IP address. Just type in a name up to 12 characters and hit 'submit'.

Talk Latch

Talk latch enables/disables the talk key 'press up to latch on' function on a key-by-key basis.

Group Talk

Any keys added to 'Group Talk' (Yes) will all be selected together when the group talk key is pressed.

Speaker Dim

These enable or disable the speaker dim function when a talkback key is pressed. The key may cut or dim according to the setting 'LS Dim Level' on the 4W Levels page.

Web page settings – 4W Levels

Four wire levels
Four wire input, output and IFB levels may be adjusted from -12dB to +12dB in 1dB steps.

Microphone gain
 may be set to:
Auto – Automatic gain control, the internal DSP will automatically adjust.
+60dB
+54dB
+48dB
+42dB
+36dB

Mic Phantom
Front panel microphone 48 volt phantom power may be switched on and off via this control.

IFB dim level
This sets the amount by which the IFB through audio dims when the talk key on that channel is pressed. Choices are:
-6dB
-12dB
-18dB
-24dB
-30dB
Mute (switches off the IFB through audio when the key is pressed).

LS dim level
This sets the amount by which the incoming loudspeaker audio dims when the talk key on that channel is pressed. Choices are:
-6dB
-12dB
-18dB
-24dB
-30dB
Mute
The LS dim level is 'intelligent' in that it will not dim the loudspeaker if programme audio is already below the set threshold.

Web page settings –Assigns / Analogue

Assign IFBs

These settings allow each IFB input channel to be assigned to any of the sixteen four wire outputs. Two or more inputs may be assigned to one output if required. IFBs C to H also double as analogue output channels. If analogue outputs are required switch the required channels to their associated analogue channel. Using the analogue output will disable the associated IFB input.

Analogue Levels

These may be adjusted over the range -12dB to +12dB.

Sample rate

The FWD1600 operates at a sample rate of 48kHz, 16 or 24 bit.

Power

PoE class 4
12 volts DC 1A
100-240VAC 50/60 Hz
Mains consumption <15 Watts

Actual power consumption will normally be far less than detailed above. The values shown allow for high level loudspeaker audio monitoring.

Mechanical

2RU case 150mm deep.
Weight 2kilos
All aluminium case.

Headset XLR wiring

1   Headset mic neutral
2   Headset mic live
3   Headset Earth
4   Right earpiece live
5   Left earpiece live