B-DF4 Dante™-enabled Four-Wire Beltpack

The B-DF4 is a Dante network-connected four-wire unit in a compact beltpack enclosure. It facilitates controlled communication between a local operator and any combination of four endpoints on the Dante network. Level metering and setup are via a bright, crisp OLED display and internal DSP processing with several configurable options allows tailoring of the unit to a wide variety of broadcast applications.

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

Audio I/O

The local headset (or separate HP and mic) attaches via a 5-pin female XLR headset connector, the pinout of which is:

p1 – Mic+ input
p2 – Mic- input
p3 – Ground
p4 – HP left output
p5 – HP right output

A small internal loudspeaker may also be enabled for monitoring over a wider area.

Power

The B-DF4 may be powered from the network using PoE or locally.

Local power is supplied via a 2.1mm cylindrical 'barrel' power connector (compatible with Cliff locking connectors if extra security is required). The centre pin is POSITIVE and the optimal voltage is 12 volts DC (acceptable range is 9-16 volts) at a maximum current of 250mA.

Both power sources may be connected at once, effectively providing power supply redundancy.

Network Connection

The network port on the rear of the B-DF4 connects to a router via a standard RJ45 cable. When then unit is powered and after successful network connection the green LINK LED underneath the RJ45 connector will blink to show activity on the port. Conversely, if no link has been established then the LED will remain off.

The B-DF4 should be used in conjunction with Dante Controller software available from https://www.audinate.com/products/software/dante-controller.

As supplied the B-DF4 will appear in Dante Controller as B-DF4-xxxxxx.

The four Dante outputs are sends to which the B-DF4 microphone signal is routed when the correspondingly-numbered Talk button is activated.

The four Dante inputs are receive lines which may be selected for monitoring via the B-DF4 headphone output and internal loudspeaker.

Display

With a network connection established, during normal operation the OLED display shows two pseudo-PPM characteristic bargraph level meters.

The L(ine) meter shows the level of the monitoring mix being sent to the headset earpieces. This can be a combination of up to four network sources and, when a different mix is set for each ear (see below), the meter will display the louder of the two.

The M(ic) meter shows the level of the local microphone signal including the action of any optional processing (see below). To avoid distraction, it is only active when one or more outgoing Talk buttons are active.

Four-wire Communication

Pressing any of the four talk/listen buttons will send audio from the microphone to the correspondingly-numbered Dante network output(s) and hence to the destination(s) assigned in Dante Controller.

Any combination of talk buttons can be used simultaneously. When active, the buttons will illuminate and the Mic level bargraph will be activated on the OLED screen. The Talk buttons can be configured to momentary, latching or smart operation as preferred (see below).

Holding down the Listen Select button temporarily causes the four other buttons to display and control the combination of network audio sources that is being monitored. In this mode, pressing any of the four talk/listen buttons will toggle the correspondingly-numbered Dante network input into and out of the monitor mix. The buttons illuminate to show the currently-selected sources. Again, any combination of sources is permissible.

Optionally, the Talk buttons may also be configured to blink when a valid audio signal is detected on the correspondingly-numbered source channel (see below).

Setup

Several features of the B-DF4 may be customised to user preference. To enter Setup mode, hold the front-panel SEL button for approx. two seconds. The OLED display will show the first adjustable parameter and its current value.

Further brief presses of the SEL button will step through the available parameters, eventually looping back to the beginning. When the desired parameter is displayed, use the Up/Down arrow buttons to modify the value of the parameter as required.

To leave Setup mode, hold down the SEL button for two seconds once again. Setup mode will also be automatically cancelled if no button is pressed for ten seconds.

Adjustments made in Setup mode are stored in non-volatile memory and will continue to be applied until changed again. The available options are:

Ch.1/2/3/4 I/P Gain (default value: 0dB)

The gain of each incoming Dante channel can be individually adjusted. Values from -18dB to +6dB are available in steps of 3dB.

Mic Gain (default value: 30dB)

This sets the gain of the microphone preamplifier. Values from 30dB to 60dB are available in steps of 3dB.

Mic Phantom Enable (default value: OFF)

This parameter disables (OFF) or enables (ON) low-voltage phantom power to the microphone input. The phantom voltage is 12 volts when operating from PoE power or equal to the DC supply voltage when locally powered.

Mic Highpass Filter (default value: NONE)

An optional high-pass filter can be applied to the microphone signal.
Selecting SOME activates a first-order filter with a corner frequency of 100Hz.
Selecting LOTS activates a sharper second-order filter, again at 100Hz.

Mic Limiting (default value: NONE)

An optional limiter can be applied to the microphone signal.
Selecting SOME enables a mild compressor/limiter characteristic.
Selecting LOTS enables a more aggressive limiting characteristic.

H/P Limiting (default value: OFF)

An optional level limiter can be applied to the headphone signal.
When OFF is selected, the signal is limited at the clipping point of the amplifier.
Selecting LOW, MEDIUM and HIGH reduces the limit level by 3, 6 and 9dB respectively.

Mic > HP Sidetone (default value: OFF)

Sidetone from the microphone can be applied to the headphone signal.

Selecting HIGH enables sidetone at full volume, i.e. the same level that is sent to the network. The MEDIUM and LOW settings are 6 and 12dB lower respectively.

Sidetone Activation (default value: SWITCHED)

When set to SWITCHED, sidetone from the local microphone will only be added to the monitoring mix when one or more outgoing Talk channels are active.

When set to ALWAYS, sidetone will be added to the monitoring mix at all times.

Loudspeaker Enable (default value: OFF)

This parameter disables (OFF) or enables (ON) the internal loudspeaker.

Talk Switch Mode (default value: SMART)

This parameter determines the response characteristic of the Talk buttons.

If PTT is selected, the unit will transmit audio only whilst the Talk button(s) are pressed, with no latching under any circumstances.

If LATCH is selected, every new push of the Talk button(s), regardless of length, will toggle the audio output from On to Off or vice versa. Holding the button(s) will have no effect other than that of the initial press.

If SMART is selected, these two responses are combined. Short presses of the button will toggle between On and Off while longer pushes automatically cancel on release like a PTT button.

Ch.1/2/3/4 HP Routing (default value: L+R)

The way that each of the four incoming Dante channels is routed to the headphones can be individually set to either both ears (L+R) or one ear only (L ONLY or R ONLY).

Presence Detect (default value: OFF)

This parameter enables (ON) or disables (OFF) signal presence indication for the four incoming network sources. When enabled, the illuminated Talk buttons will blink to indicate the presence of an audio signal on the corresponding source channel. The operation of the buttons is otherwise unchanged.

Dimensions

81mm wide, 55mm high, 120mm deep including beltclip (removable).

Product warranty

This unit is guaranteed for a period of one year from date of dispatch. 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.

Compliance

This equipment is CE marked and conforms (where applicable) 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.

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,
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