CREST AUDIO®

tactus™ foh

Mixing Interface

Operating Manual

FCC/ICES Compliancy Statement

This device complies with Part 15 of the FCC rules and Industry Canada license-exempt RSS Standard(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Warning: Changes or modifications to the equipment not approved by Peavey Electronics Corp. can void the user's authority to use the equipment.

Note – This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution

The equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

CREST AUDIO®

www.peaveycommercialaudio.com

Crest Audio 5022 HWY 493 N. Meridian, MS 39305 (601) 483-5365 FAX (601) 486-1278

FCC/ICES Compliancy Statement

⚠ To prevent interference, please install the clamp-on filter to the Ethernet cable close to the unit as shown.

ENGLISH

tactus foh

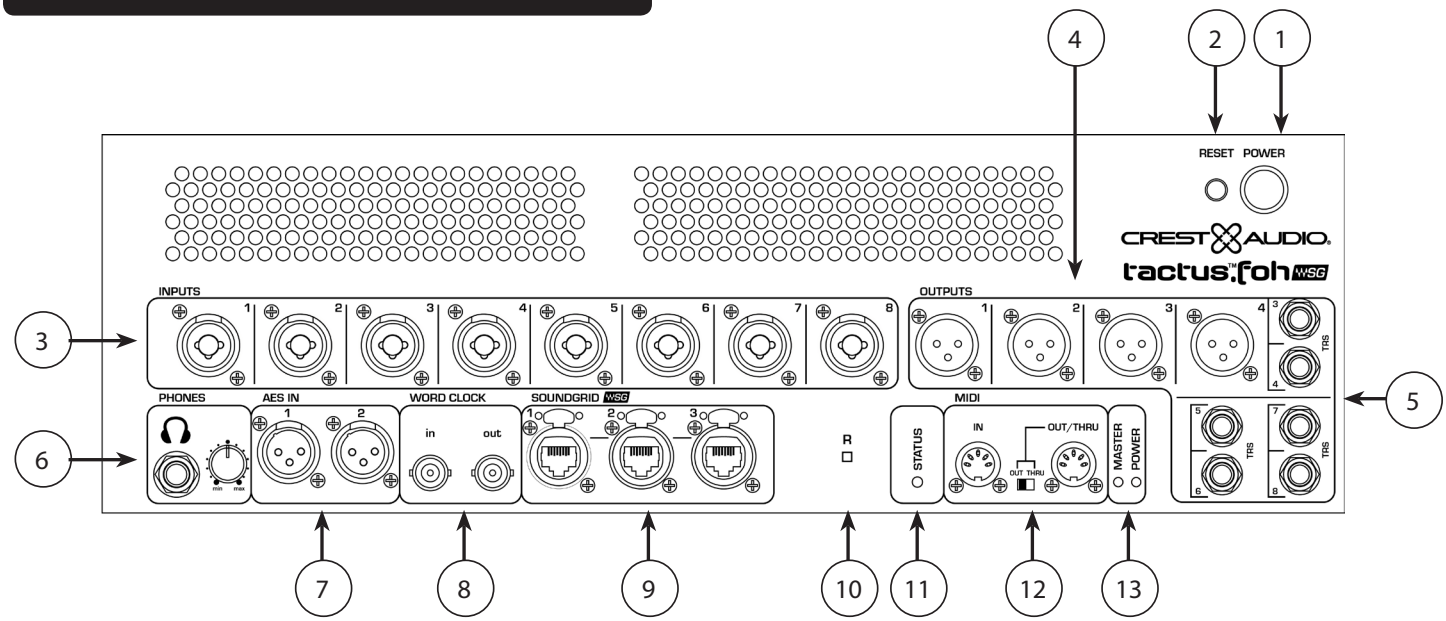
The tactus system by Crest Audio was designed in conjunction with Waves Audio to be a professional audio mixer that features a very flexible and scalable approach to digital mixing. Control of the system can range from a single touch screen computer to multiple screens with tactus.control, moving fader, user control surfaces. The Waves eMotion LV1 software is equally flexible. All of the processing within the system is based on Waves Audio's legendary plugins that can be selected and configured on every channel and every bus. The system is interconnected using SoundGrid, a networking and processing platform for real-time professional audio applications, developed by Waves Audio. The processing and IO can be likewise scaled to meet specific system requirements. A DAW can be connected to the SoundGrid network for seamless integration of multichannel recording and playback.

The tactus foh houses the SoundGrid Server Extreme (SGS) which performs all of the digital signal processing for the Crest tactus Waves LV1 mix system. It's 8 microphone/line inputs and 8 balanced line level outputs provide the much needed, high-quality analog I/O so often needed at the front of house position. The gain of the digitally controlled preamplifiers can be adjusted in 1 dB steps over a 68 dB range to accept Mic and line level signals. It's 8 outputs are available on a combination of XLR and TRS 1/4" connectors.

Go to www.tactusdigitalmixing.com for more information.

Also see www.waves.com for eMotion LV1 information.

Front Panel



(1) Power switch:

The power On/Off switch is a soft switch like those found on most computer systems. Press the button to turn the unit on. Press and hold to turn the system off.

(2) Reset:

Pressing the reset button resets and restarts the SoundGrid server (SGS).
WARNING: Pressing this button will interrupt audio processing while the SGS restarts.

(3) XLR Mic/Line input:

The input sensitivity of this input is adjustable over a 68 dB range and will accept both line and mic level signals. The TRS 1/4" input has a higher input impedance and a 16 dB pad compared to the XLR input. 48V phantom power is also available on the XLR input but is not available on the 1/4" input.

(4) XLR Balanced outputs:

The XLR balanced outputs can be set in the software control panel for +18 dBu or +24 dBu maximum output.

(5) 1/4" Phone outputs:
Outputs 3 and 4 are also available on 1/4" TRS phone jacks. These jacks are wired in parallel with their corresponding XLR connectors. Outputs 5-8 are only available on 1/4" TRS connectors.

(6) Headphone output:
The 1/4" headphone output has a powerful amplifier driving it which is capable of producing 1W/channel into 32 Ohm headphones. The signal source for the headphone output is independently routable in software which allows it to be used for a wide variety of applications. Care should be taken in setting the headphone volume control to reduce the risk of hearing damage.

(7) AES Inputs:
The two AES XLR inputs each can each receive a stereo signal in AES3 (AES/EBU) format at the system sample rate. The signal sources are assigned in software.

(8) Word Clock In:
The word clock input accepts a standard 5 volt work clock signal at the sample rate selected in the system software. The duty cycle should be 50%. System sample frequencies are: 44.1 kHz, 48 kHz, 88.2 kHz and 96 kHz

Word Clock Out:
The word clock output delivers a 5 volt output with 50% duty cycle at the system operating sample frequency.

(9) SoundGrid ports 1, 2 and 3:
Ports 1, 2 and 3 connect to the interface through an internal Ethernet switch. These ports simplify configuration of the tactus/SoundGrid system by allowing components to be directly connected without an external switch.

(10) Recovery Switch

(11) Status LED
As the name implies, this LED is used to display the current operating status of the Stage Box.

Blue: Running and connected to Soundgrid network.
Red: Running but not connected to Soundgrid network.
Yellow: Awaiting firmware updates
Multi-color: LED cycles through multiple colors when ID is selected in the device inventory screen. This allows you to associate the specific Stage unit to the inventory selection.

(12) Standard MIDI input

The MIDI input can be used to control scenes and remote control LV1.

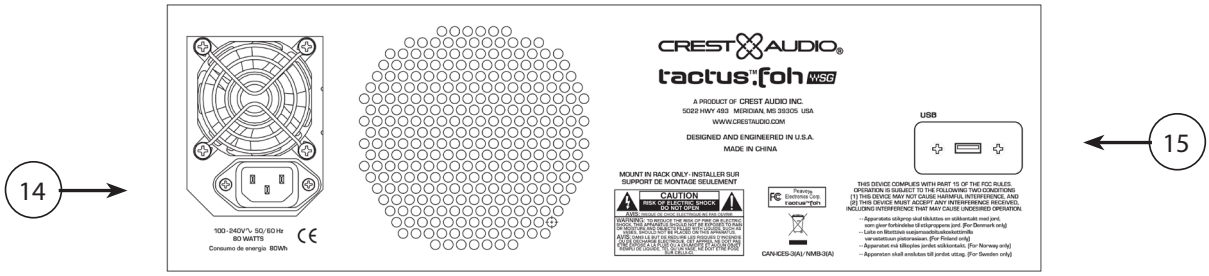
MIDI Thru/Output

The switch on the front panel sets the jack to function as a MIDI output or and input Thru output.

(13) Power LEDs

Power: lights when unit is receiving power.

Rear Panel



(14) Power Inlet

Connect to power line mains: 100V-240 VAC, 50/60 Hz.

⚠ Please read this guide carefully to ensure your personal safety as well as the safety of your equipment. Never break off the ground pin on any equipment. It is provided for your safety. If the outlet used does not have a ground pin, a suitable grounding adapter should be used and the third wire should be grounded properly. To prevent the risk of shock or fire hazard, always be sure that the mixer and all other associated equipment are properly grounded.

(15) USB Port

This USB connection goes to the SGS only. If the firmware on the internal drive were to become corrupted, a USB Flash drive configured as a backup boot drive can be connected to restore the system.

Installation

The tactus foh is designed for rack mount installation. The Rack ears on the unit come installed so that the front of the stage box is flush with the rack mount ears (Fig. 1). However, they can be repositioned so that the front panel is set back to protect the connectors (Fig. 2). To change the rack ear position, remove the screws in the rack ears and reattach using the alternate rack ear holes.

Fig. 1: Flushed position.

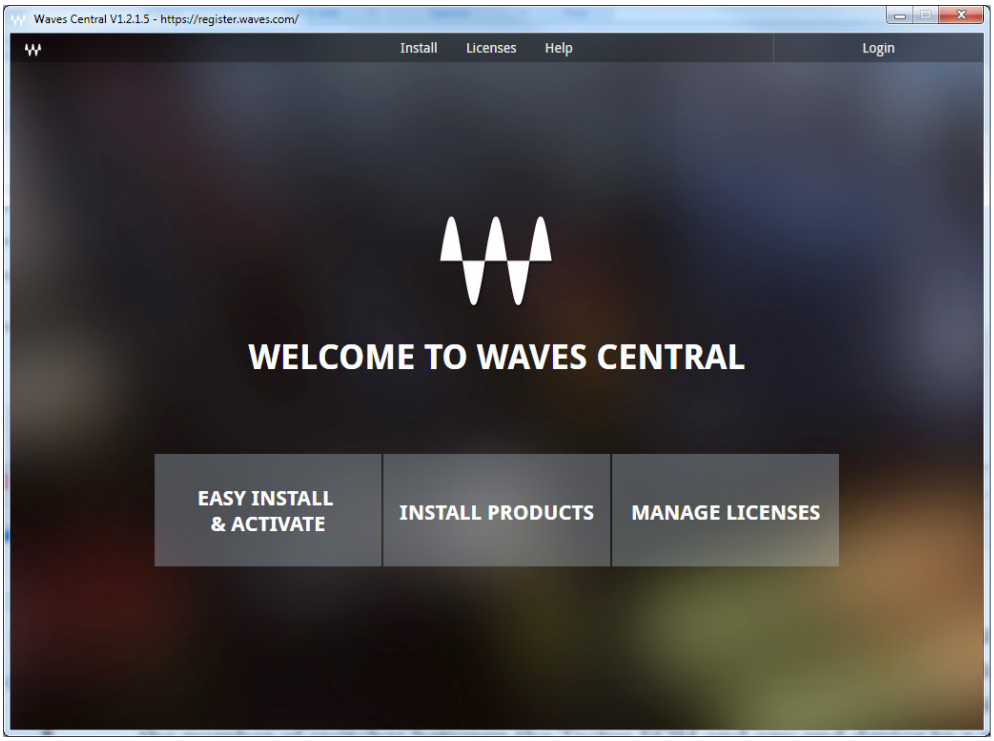
Fig. 2: Recessed Position

Software Installation

Waves eMotion LV1 software needs to be installed on the computer with touch screen (Mac or PC) that will be used to control your mixer. Waves Audio has additional information on the hardware requirements.

Go to Waves.com > Downloads > Latest version Waves Central and download the Mac or PC version of Waves Central. Run the installer following the instructions on the screen.

Launch Waves Central



Log into your account

You can choose to install the license and software directly onto your computer while connected to the internet or you can create an offline installation file. See the help files in Waves Central for details if necessary.

Click on Easy Install & Activate. Any products that are not currently activated will appear on the list.
Select eMotion LV1 and any other products you wish to install on this system and Click on the "Install & Activate" Button.

When installation is complete, restart your computer.

For more information on features, options and operation of Waves eMotion LV1 software go to Waves.com > Products

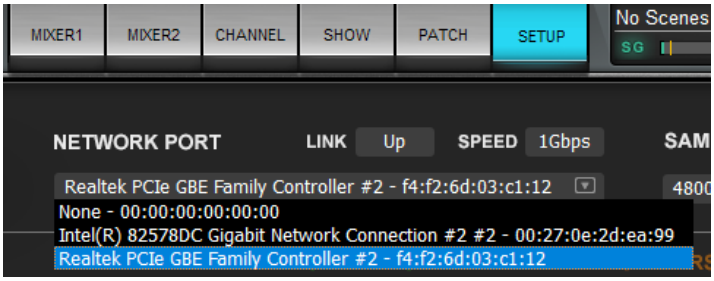
SoundGrid

SoundGrid is a networking and processing platform for real-time professional audio applications, developed by Waves Audio. The Tactus FOH communicates with the rest of the Tactus system using Waves audio SoundGrid digital transport protocol using standard 1Gbit/s Ethernet hardware. *For more information on Waves Audio eMotion LV1 software, go to: http://www.waves.com/*

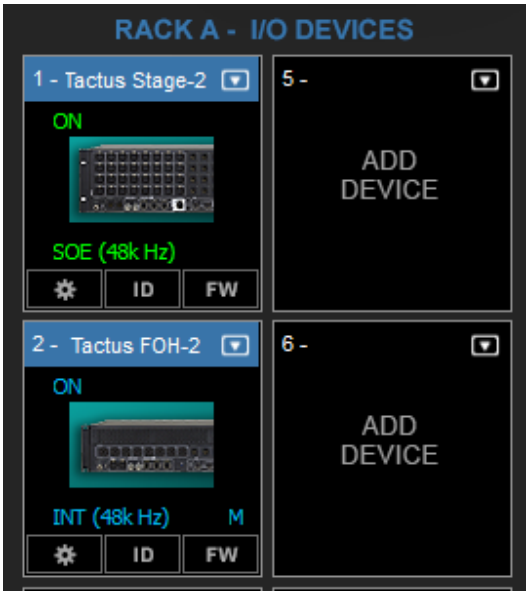
Connecting the System

The devices in the Tactus system are connected using standard Ethernet cable, Category 5E or better. Standard Gigabit network switches can be used but are seldom necessary because most of the Tactus products have an Ethernet switch built in with 3 external ports. To reduce latency in the system, it is always a good idea to keep the number of switches between the Tactus FOH and any end device to a minimum. The SoundGrid network connectors accept standard RJ-45 style modular connectors but these can be made more rugged by the addition of XLR-net or EtherCon XLR style shells to the cable ends. The recommended maximum length of a gigabit Ethernet run on copper cable is 100 meters.

It is recommended that you connect the Ethernet port of the computer running Waves LV1 directly to the Tactus FOH. Due to the high level of traffic required for the Tactus mix system, the SoundGrid network for Tactus should not be shared with other systems or equipment.



Select the network port that will be used for SoundGrid if more than one network adapter is available.



The Tactus FOH appears as two separate devices in the LV1 System Inventory screen. The first is the SGS (SoundGrid Server) that is assigned in the Servers section. The FOH I/O is assigned in one of the I/O racks and appears as Tactus FOH. It does not matter which rack slot it is assigned to but you may wish to make the FOH the clock master of the system as indicated by INT (Freq) and "M" as shown above. This is done by selecting "Set Master" in the same rack drop-down used to select the device. Tactus Stage is receiving its clock sync over Ethernet (SOE) in the picture above.

Updating Firmware

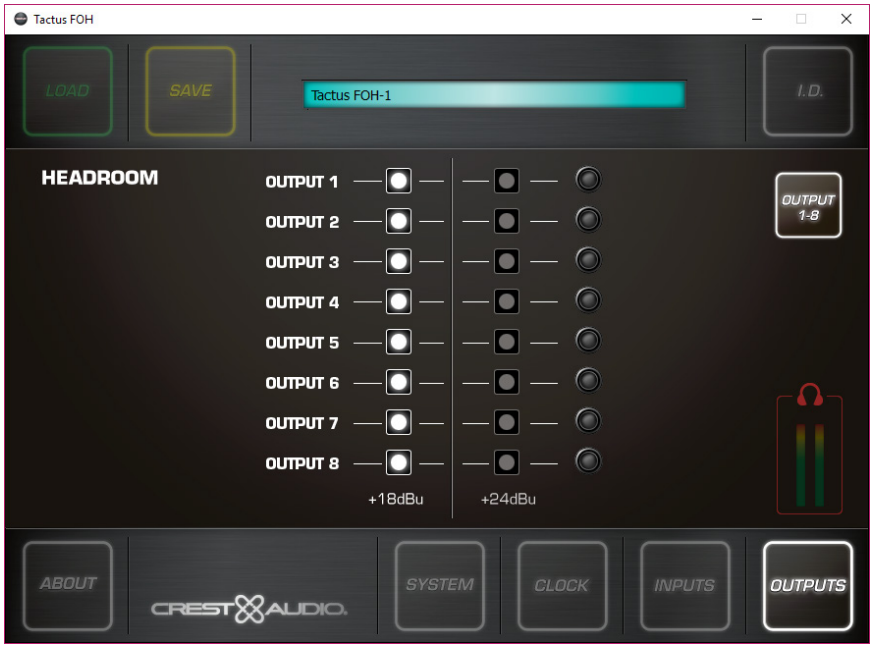
If the FW button is lit, a Firmware update is necessary. This can be easily accomplished over the SoundGrid network by Clicking FW on the screen and following the instructions.

Control Panel Operation

Click the gear on the device inventory screen to bring up the control panel for that device.
The control panel allows a complete view and control of the setting of the FOH audio interface. The inputs can be more easily controlled directly in LV1 but this interface can be used to set the max signal level of the audio outputs, view and control device clocking and view firmware versions. Clicking the ID button in this panel will cause the Status LED to flash on the FOH.

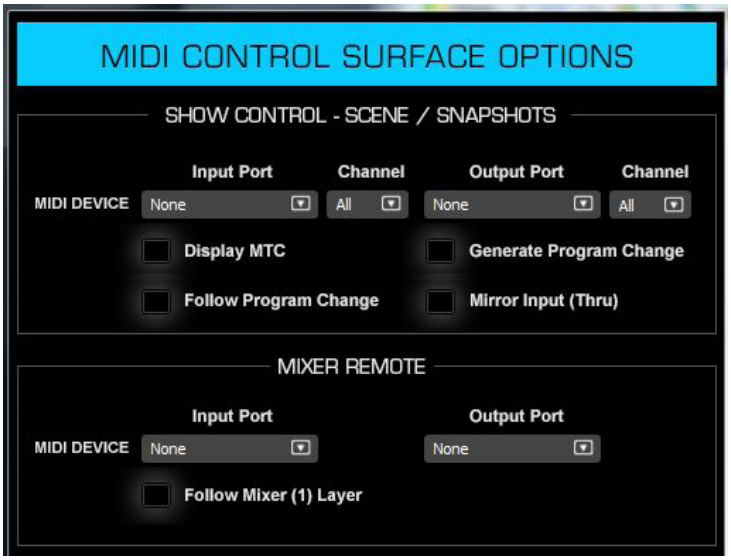
Inputs

Outputs

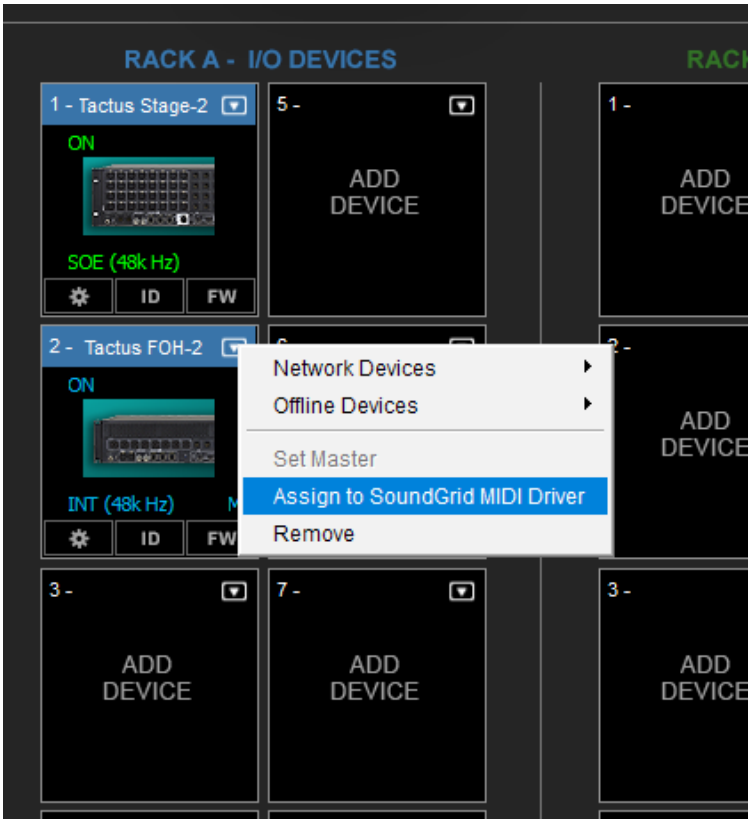


Clocks

System



MIDI configuration is selected in the CONTROLS column on the SETUP page. The MIDI settings window is opened by clicking on the gear in the control's box.



Select the MIDI interface in the desired I/O DEVICE, by using the drop down menu, as shown above.

Specifications

Sample Frequencies:
44.1 kHz, 48 kHz, 88.2 kHz and 96 kHz

XLR Input
Full scale input sensitivity:
Adjustable from +26 dBu to -42 dBu corresponding to gain settings -8 to 60

Frequency Response:
+0/-0.2 dB 15 Hz to 22 kHz @ 48 kHz sample rate
+0/-0.2 dB 17 Hz to 40 kHz @ 96 kHz sample rate

Dynamic Range: (Measured bandwidth limited 20 Hz to 20 kHz)
110 dB Gain = 0

EIN (Gain 60, 150 Ohms)
-128.7 dBu A weighted

THD+N (Measured at 1 kHz, Gain = 0)
0.0015%

Phase Response:
+/- 10 Deg 20 Hz to 20 kHz

Input impedance:
2 K Ohm

48V phantom power available

1/4” Phone Input
16 dB pad to XLR input
Input Impedance> 10K Ohms.
No Phantom Power available.
XLR Balanced outputs
Selectable maximum output level +18 dBu or + 24 dBu
Frequency Response:
+0/-0.2 dB 15 Hz to 22 kHz @ 48 kHz sample rate
+0/-0.2 dB 17 Hz to 40 kHz @ 96 kHz sample rate

Dynamic Range: (Measured bandwidth limited 20 Hz to 20 kHz)
110 dB Gain = 0

EIN (Gain 60, 150 Ohms)
-128.7 dBu A weighted

THD+N (Measured at 1 kHz, Gain = 0)
0.0015%

Phase Response:
+/- 10 Deg 20 Hz to 20 kHz

Input impedance:
2 K Ohm

Headphone output: 1 Watt per channel into 32 Ohm headphones.

AES-3, AES-EBU Stereo Inputs. The AES receiver has a high quality sample rate converter and will accept standard sample rates from 44.1k to 96k.

Word clock input: Standard 5 Volt square wave. 50% duty cycle.

Word clock output: 1X sample rate Standard 5 Volt square wave. 50% duty cycle.

Word clock Input: 1X sample rates of 44.1 kHz, 48 kHz, 88.2 kHz and 96 kHz.

Digital Signal Processing (DSP): Performed internally using SoundGrid Extreme Hardware.

Power requirements:
Universal input power supply 100V-240 VAC, 50/60 Hz, 80 Watts

*Specifications subject to change without notice.

www.peaveycommercialaudio.com

Warranty registration and information for U.S. customers available online at
www.peaveycommercialaudio.com/warranty
or use the QR tag below

Features and specifications subject to change without notice.

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Logo referenced in Directive 2002/96/EC Annex IV
(OJ(L)37/38,13.02.03 and defined in EN 50419: 2005
The bar is the symbol for marking of new waste and
is applied only to equipment manufactured after
13 August 2005