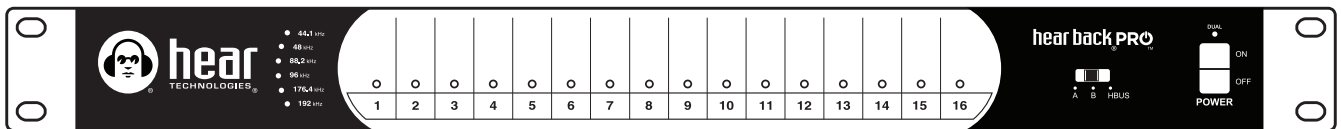# hear back PRO

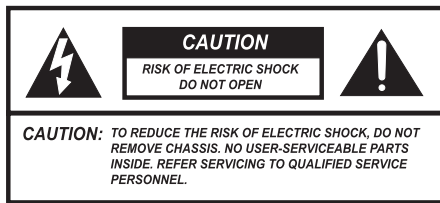## 16-CHANNEL PERSONAL MIXER SYSTEM

user guide

ENGLISH

Danger
Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably to noise induced hearing loss but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time.

The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures:

DURATION PER DAY (HOURS)	8	6	4	3	2	1
SOUND LEVEL (dB)		90	93	95	97	100	103

According to OSHA, any exposure in the above permissible limits could result in some hearing loss. Ear plugs or protectors in the ear canal or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss. If exposure in excess of the limits as put forth above, to insure against potentially harmful exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of inducing high sound pressure levels, such as this amplification system, be protected by hearing protectors while this unit is in operation.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE CHASSIS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

AVIS: RISQUE DE CHOC ELECTRIQUE-NE PAS OUVRIR.

THIS SYMBOL IS INTENDED TO ALERT THE USER TO THE PRESENCE OF NON-INSULATED "DANGEROUS VOLTAGE" WITHIN THE PRODUCT'S ENCLOSURE THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK TO PERSONS.

THIS SYMBOL IS INTENDED TO ALERT THE USER TO THE PRESENCE OF IMPORTANT OPERATING AND MAINTENANCE (SERVICING) INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THE UNIT.

IMPORTANT SAFETY INSTRUCTIONS

1. Read all safety and operating instructions before using this product.
2. All safety and operating instructions should be kept for future reference.
3. Read and understand all warnings listed on the operating instructions.
4. Follow all operating instructions to operate this product.
5. This product should not be used near water, i.e. bathtub, sink, swimming pool, wet basement, etc.
6. Only use dry cloth to clean this product.
7. Do not block any ventilation openings. It should not be placed flat against a wall or placed in a built-in enclosure that will impede the flow of cooling air.
8. Do not install this product near any heat sources; such as, radiators, heat registers, stove or other apparatus (including heat producing amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from the apparatus. Do not break the ground pin of the power supply cord.
11. Only use attachments specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Care should be taken so that objects do not fall and liquids are not spilled into the unit through the ventilation ports or any other openings.
15. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way; such as, power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
16. WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
17. The apparatus shall be connected to a mains socket outlet with a protective earthing connection.
18. Mains plug is used as the disconnect device. It shall remain readily operable and should not be obstructed during intended use.
19. WARNING: To prevent injury, this apparatus must be securely attached to a rack in accordance with the installation instructions.
20. Detailed installation instruction in user manual.

FRENCH

Danger

L'exposition a des niveaux eleves de bruit peut provoquer une perte permanente de l'audition. Chaque organisme humain reagit differemment quant a la perte de l'audition, mais quasiment tout le monde subit une diminution de l'acuite auditive lors d'une exposition suffisamment longue au bruit intense. Les autorites competentes en reglementation de bruit ont defini les expositions tolerees aux niveaux de bruits:

DURE EN HEURES PAR JOUR	8	6	4	3	2	1
NIVEAU SONORE CONTINU EN dB	90	93	95	97	100	103

Selon les autorites, toute exposition dans les limites citees ci-dessus, peuvent provoquer certaines pertes d'audition. Des bouchons ou protections dans l'appareil auditif ou sur l'oreille doivent etre portes lors de l'utilisation de ce systeme d'amplification afin de prevenir le risque de perte permanente de l'audition. Dans le cas d'expositions superieures aux limites precitees il est recommande, afin de se premunir contre les expositions aux pressions acoustiques elevees potentiellement dangeureuses, aux personnes exposees aux equipements capables de delivrer de telles puissances, tels ce systeme d'amplification en fonctionnement, de proteger l'appareil auditif.

ATTENTION

RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR

ATTENTION: AFIN DE LIMITER LE RISQUE DE CHO ELECTRIQUE, NE PAS ENLEVER LE CHASSIS. NE CONTIENT PAS DE PIECES POUVANT ETRE REPAREE PAR L'UTILISATEUR. CONFIER LE SERVICE APRES-VENTE AUX REPARATEURS

CE SYMBOLE A POUR BUT D'AVERTIR L'UTILISATEUR DE LA PRESENCE DE VOLTAGE DANGEREUX NON-ISOLE A L'INTERIEUR DE CE PRODUIT QUI PEUT ETRE DE PUISSANCE SUFFISAMMENT IMPORTANTE POUR PROVOQUER UN CHOC ELECTRIQUE AUX PERSONNES.

CE SYMBOLE A POUR BUT D'AVERTIR L'UTILISATEUR DE LA PRESENCE D'INSTRUCTIONS D'UTILISATION ET DE MAINTENANCE DANS LES DOCUMENTS FOURNIS AVEC CE PRODUIT.

IMPORTANTES INSTRUCTIONS DE SECURITE

1. Lire avec attention toutes les recommandations et précautions d'emploi avant d'utiliser ce produit.
2. Toutes les recommandations et précautions d'emploi doivent être conservées afin de pouvoir s'y reporter si nécessaire.
3. Lire et comprendre tous les avertissements énumérés dans les précautions d'emploi.
4. Suivre toutes les précautions d'emploi pour utiliser ce produit.
5. Ce produit ne doit pas être utilisé près d'eau, comme par exemple baignoires, éviers, piscine, sous-sol humides...etc.
6. Utiliser exclusivement un chiffon sec pour nettoyer ce produit.
7. Ne bloquér aucune ouverture de ventilation. Ne pas placer le produit tout contre un mur ou dans une enceinte fermée, cela gênerait le flux d'air nécessaire au refroidissement.
8. Ne pas placer le produit près de toute source de chaleur telle que radiateurs, arrivées d'air chaud, fourneaux ou autres appareils générant de la chaleur (incluant les amplificateurs producteurs de chaleur).
9. Ne pas négliger la sécurité que procure un branchement polarisé ou avec raccordement à la terre. Un branchement polarisé comprend deux fiches dont l'une est plus large que l'autre. Un branchement à la terre comprend deux fiches plus une troisième reliée à la terre. Si la fiche secteur fournie ne s'insert pas dans votre prise de courant. consulter un ´électricien afin de remplacer votre prise obsolète.
10. Protéger le cordon d'alimentation de tout écrasement ou pincement, particulièrement au niveau des fiches, des réceptacles utilisés et à l'endroit de sortie de l'appareil. Ne pas casser la fiche de terre du cordon d'alimentation.
11. Utiliser uniquement les accessoires spécifiés par le constructeur.
12. Utiliser uniquement avec le chariot de transport, le support, le trépied, la console ou la table spécifiés par le constructeur ou vendus avec l'appareil. Lors de l'utilisation d'un chariot, bouger avec précaution l'ensemble chariot/appareil afin d'éviter les dommages d'un renversement.
13. Débrancher cet appareil lors d'orages ou s'il n'est pas utilisé pendant une longue période.
14. Des précautions doivent être prises afin qu'aucun objet ne tombe et qu'aucun liquide ne se répande à l'intérieur de l'appareil par les orifics de ventilation ou n'importe quelle autre ouverture.
15. Pour toutes interventions techniques s'adresser à un technicien qualifié. L'intervention technique est nécessaire lorsque l'appareil a été endommagé de n'importe quelle façon, comme par exemple si le cordon secteur ou sa fiche sont détériorés,si du liquide a coulé ou si des objets sont tombés à l'intérieur de l'appareil,si l'appareil a été exposé à la pluie ou à l'humidité, s'il ne fonctionne pas normalement ou s'il est tombé.
16. ATTENTION: Pour réduire le risque d'incendie ou de choc electrique ne pas exposer l'appareil à la pluie ou à l'humidité.
17. L'appareil sera relié à un socle principal d`électricité muni d'une mise à terre protectrice.
18. Le cordon d'alimentation est utilisée comme dispositif de débranchement. Il restera aisément fonctionnelle et ne devrait pas être obstrué pendant l'utilisation prévue.
19. AVERTISSEMENT Pour raison de sécurité, cet appareil doit être solidement fixé à un rack selon les instructions d'installation.
20. Instruction d'installation détaillée à l'intérieur du manuel d'utilisateur.

ELECTROMAGNETIC COMPATIBILITY

This device complies with part 15 of the FCC Rules and the Product Specifications noted on the Declaration of Conformity. Operation is subject to the following two conditions:

- this device may not cause harmful interference, and

- this device must accept any interference received, including interference that may cause undesired operation.

Operation of this unit within significant electromagnetic fields should be avoided.

- use only shielded interconnecting cables.

⚠ WARNING

The Hub unit produces heat while powered, and therefore requires adequate ventilation to ensure the internal temperature stays within maximum operating temperatures (0° C to 54.5° C, or 32° F to 130° F).

Please ensure that these clearances are met:

- 0.85 inches of clearance on either side of Hub

- 1 inch of clearance in front of Hub

- 11 inches of clearance in back of Hub

Care should be taken so that the Mixer's ventilation holes remain unblocked, allowing adequate airflow through both sides of the unit.
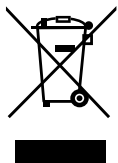
If you want to dispose this product, do not mix it with general household waste. There is a separate collection system for used electronic products in accordance with legislation that requires proper treatment, recovery and recycling.

Private household in the 25 member states of the EU, in Switzerland and Norway may return their used electronic products free of charge to designated collection facilities or to a retailer (if you purchase a similar new one).

For countries not mentioned above, please contact your local authorities for a correct method of disposal.

By doing so, you will ensure that your disposed product under goes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health.

DECLARATION OF CONFORMITY

Manufacturer's Name: Hear Technologies

Manufacturer's Address: 991 Discovery Dr.
Huntsville, AL 35806, USA

Declares that the product:

Product Name: Hear Back PRO

Product Option: All (requires Class II power adapter that conforms to the requirements of EN60065, EN60742, or equivalent.)

Conforms to the following Product Specifications:

Safety: IEC 60065 -01+Amd 1

EMC: EN 55022:2010

55024:2010

FCC Part 15

Supplementary Information:

The product herewith complies with the requirements of the:
Low Voltage Directive 2006/95/EC
EMC Directive 2004/108/EC
RoHS Directive 2002/95/EC
WEEE Directive 2002/96/EC
EC Regulation 278/2009

With regard to Directive 2005/32/EC and EC Regulation 1275/2008 of 17 December 2008, this product is designed, produced, and classified as Professional Audio Equipment and thus is exempt from this Directive.

Nason Tackett
Senior Design Engineer
Hear Technologies
991 Discovery Drive
Huntsville, AL 35806, USA
Date: August 15, 2014

A FEW NOTES ABOUT THE SYSTEM

- Do not share the network with any other devices.
  - High-quality, low-latency audio requires a constant stream of large amounts of data; therefore, other devices on the same network could compromise the quality of the audio.

- The system will not link at 10/100 Mbps, as it is designed to work at gigabit speeds.

- The system is designed to work with suitable CAT6 cable complying with the National authorities (cable with an outer jacket or sleeving rated VW-1 or better). Note, using low-quality cables may result in the Mixers refusing to link with the Hub.

- CAT6* cables, used for HBus or going to PRO Mixers, can be run 100 meters (328 feet) with no problems. Note, due to advanced internal termination techniques, cables used with the PRO series can be run up to 500 feet in ideal conditions (one piece of solid conductor CAT6* with no breaks or couplings). Utilizing proper punch-down and the correct RJ-45 connectors is key. The more breaks/connections/couplings in a cable run, the more limited this distance will be. Poor quality cabling will also limit the maximum distance. Running CAT6* cables alongside AC cables, florescent light fixtures, or computer network wiring will also limit the maximum distance. It is always preferred to run the Hear Back PRO CAT6* cabling by itself, away from other cabling. ALL cabling should be electrically tested before use. Contact an expert network professional for assistance with wiring installation.

- Don't use those old, gray, flat telephone cables (ISDN cables) as those are not gigabit Ethernet cables.

- The ground and power rails of the Mixer are totally isolated from the Hub, meaning no more ground loops to worry about.

- This system is compatible with most off-the-shelf Gigabit PoE+ network switches.
  - Network switch must be POE+ (30 watts) because the Mixer may otherwise periodically lose power at high volumes, due to it sourcing slightly more power than standard POE switches provide (15 watts).
  - Since a constant stream of data is required for audio, not all network switches will work with this system due to a function known as EEE (Energy Efficient Ethernet), which restricts the free-flow of data, sending bursts of data instead.

- Mixer faceplate can be labeled by using a Dry Erase marker, label maker, or by writing on a removable Mixer overlay. Please note that using permanent markers results in permanent labels!

Network Switches known to WORK with the Hear Back PRO	Network Switches known to NOT work with the Hear Back PRO
• D-Link DGS-1008G • Cisco 300 Series • Netgear GS108	• Netgear GS105

*If you're unsure if EEE is enabled on your Gigabit POE+ network switch, contact the switch's manufacturer.

FCC STATEMENT

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial 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 to 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.
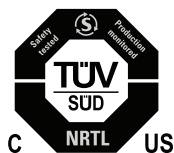
Cable complying with the National authorities (cable with an outer jacket or sleeving rated VW-1 or better).

CONTENTS

hear back PRO

ADVANTAGES / FEATURES

- Side-mounted card slot on Mixer for future expansion

- Large master knob controls overall main mix, AUX, and intercom levels independently

- Volume and panning control of all 16 channels

- Direct and immediate visual feedback of all 16 channels

- Up to 8 pairs of stereo-linked channels

- Support for sampling rates up to 192 kHz

- Selectable XLR or 1/8" Mixer AUX input

- Built-in intercom broadcasts the AUX source (mic, MP3 player, click, etc.)

- Intercom auto adjusts its own level so even the quietest message never goes unheard

- Modular I/O Hub card system lets you customize the system to match your configuration, and can adapt to your needs

- Supports secondary power supply to provide redundancy and power to up to 32 Mixers

- USB port on Hub makes updating firmware for future features and upgrades a simple drag-and-drop operation

- Status indicating logos on Hub and Mixers make it easy to detect and diagnose problems, should they arise

- Write session info and channel settings on storable Mixer overlays for an unlimited number of presets

  – Instantly store and recall presets from memory with the push of a button

  – Most recent configuration is saved, even after power-down

This is it – the simplest, most affordable digital solution to get everyone the mix they need to perform their best. This new system platform is completely modular and infinitely expandable, which means it is **the last personal monitoring system you'll ever need.**

Introducing the latest addition to the Hear Technologies family – Hear Back PRO.

With this system, there is no learning curve. Whether or not you've ever used a personal monitor mixer, the simple layout of this powerful system makes getting the right mix a quick and effortless experience. Based in Gigabit Ethernet, this framework paves the way for an impressive range of future possibilities.

The Hear Back PRO System: Hub & Mixers

The Hear Back PRO system consists of two main components: the Hub and the Mixer. The modular Hub consists of four card slots, which can be populated with any configuration of input and/or output cards to fit your exact needs. Each Hub has the ability to supply signal and power to as many as 32 Mixers (8 per Network Card), each over a single standard CAT6* cable. And with the built-in HBus In/Out ports, multiple Hubs can be daisy-chained together, allowing for truly unlimited system expansion.

The standard Hub (included in the "4-pack") comes preloaded with one Network Card and two 8-channel Analog Input Cards which can accept input signals from an audio mixer via auxiliary, matrix, monitor, and/or direct outputs.

Cable complying with the National authorities (cable with an outer jacket or sleeving rated VW-1 or better).

HUB FEATURES

- **Three switch selectable 16-channel input sources:**
  - **– Input A (Slots 1 & 2)**
  - **– Input B (Slots 3 & 4)**
  - **– HBus**
- **24-bit Delta-Sigma A/D converters**
- **Six user-selectable sample rates, indicated by LEDs: 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz, and 192 kHz**
- **Less than .25 milliseconds total system delay (latency) at 192 kHz**
- **16 RGB LEDs intuitively display signal / peak levels for channel metering**
- **Standard CAT6* delivers power and signals to Mixers**

- **Daisy-chain via HBus for very large systems**
- **Quiet, temperature-controlled fan (only runs when internal temperature reaches 43° C or 110° F)**
- **1 RU chassis**
- **Modular I/O card-slot configurable mainframe**
- **Gigabit Ethernet network fabric, with enough bandwidth to support up to 128 channels of audio at 192/176.4 KHz, 256 channels at 96/88.2 KHz, or 512 channels at 48/44.1 KHz**
- **48 volt Power Over Ethernet supply**
- **Port for redundant power supply (or to power more than 16 Mixers)**
- **USB port for firmware upgrades and future features**
- **Error indicating logo glows red should a fault arise**

HUB I/O CARDS

NETWORK CARD

A network card must first be inserted into the Hub's card slot 4 to transmit power, ground, and audio to Mixers via standard CAT6* cables. Each network card can support use of up to eight Mixers simultaneously. Additional Mixers can be used by inserting a second, third, or even fourth network card into card slots 3, 2, and 1, respectively. However, to power more than two network cards (or more than 16 Mixers), an additional power supply is required. The first two network cards in slots 3 and 4 will receive power if a power supply is present in either power port; the second two network cards in slots 1 and 2 will only receive power if a power supply is present in both power ports. Additionally, a second power supply serves as redundant power to slots 3 and 4 in the case that one power supply were to fail. A yellow LED under each power port indicates the presence of 48 volts, even when the Hub is powered off.

The network card's RJ45 pin-outs are the same as standard gigabit Ethernet RJ45 pin-outs, as shown below:

Pin	Pair	Description	Suggested Termination Color Scheme (568B)***
1	A+	Power over Ethernet (PoE) 48v**	white/orange
2	A-	Power over Ethernet (PoE) 48v**	orange
3	B+	Power over Ethernet (PoE) GND**	white/green
4	C+		blue
5	C-		white/blue
6	B-	Power over Ethernet (PoE) GND**	green
7	D+		white/brown
8	D-		brown

**Gigabit PoE uses a transformer on the data pairs to allow power and data to share the same pairs similar to how phantom power works on microphones.

***Color Scheme 568A is also acceptable, but do not crossover from 568A to 568B.

Each Mixer output on the network card has a power supervisor circuit that will only power the port if a valid PoE device is detected. In the event of a shorted cable or broken Mixer, the power supervisor circuit will disconnect the load, permitting other Mixers to function while protecting the power supply from the faulty output.
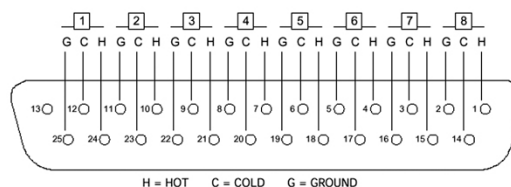
ANALOG INPUT CARD

Analog inputs are fully balanced and are connected using a standard DA-88 style Analog cable, such as the Hear Back Analog cable.
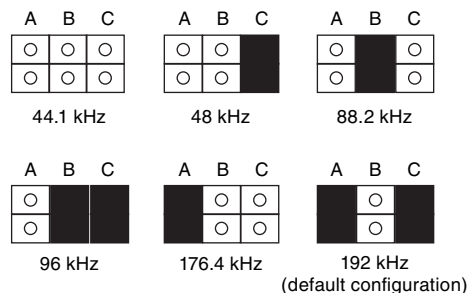
DB25 cable pin-outs are wired as shown below:

⚠ **CAUTION: Use only DA-88 Analog. Do not use TDIF.**

Pin-out for TASCAM DB25 8 Channel Balanced Connector

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
G C H G C H G C H G C H G C H G C H G C H G C H

13○ 12○ 11○ 10○ 9○ 8○ 7○ 6○ 5○ 4○ 3○ 2○ 1○
25○ 24○ 23○ 22○ 21○ 20○ 19○ 18○ 17○ 16○ 15○ 14○

H = HOT   C = COLD   G = GROUND

SELECTING SAMPLE RATE – The Analog input card lets users select the digital sampling rate they wish to convert their analog audio to via three jumpers located directly under the Hear Technologies logo on the Analog card circuit board. Jumper positions can be configured as shown below, where the blacked-out boxes represent an electrical connection between pins:

A B C	A B C	A B C
44.1 kHz	48 kHz	88.2 kHz

A B C	A B C	A B C
96 kHz	176.4 kHz	192 kHz (default configuration)

-10dB PAD – The Analog input card provides 2 jumpers per channel (16 total) that can be removed to achieve a -10dB pad per channel. These jumpers are labeled 1-8 (corresponding to each input channel), and located one inch away from the DB-25 connector. So, in this example, input channels 1 & 4 will be reduced by 10dB, while input channels 2 & 3 are at 0dB:

LEGEND	○○ No Jumper Connected	■ Jumper Connected

*Cable complying with the National authorities (cable with an outer jacket or sleeving rated VW-1 or better).

HBUS

The HBus permits daisy-chaining of multiple Hubs up to 500 feet apart using the HBus input and HBus output. This HBus is great for inter-studio or stage-to-stage connections, as well as daisy-chaining for very large systems. Use Hear Technologies CAT6* cables available in 50 foot length.

HBus RJ45 pin-outs are the same as standard gigabit Ethernet RJ45 pin-outs, only without power. The pin-outs are wired as shown below:

Pin	Pair	Description	Suggested Termination Color Scheme (568B)****
1	A+	Bidirectional Data Pair A	white/orange
2	A-	Bidirectional Data Pair A	orange
3	B+	Bidirectional Data Pair B	white/green
4	C+	Bidirectional Data Pair C	blue
5	C-	Bidirectional Data Pair C	white/blue
6	B-	Bidirectional Data Pair B	green
7	D+	Bidirectional Data Pair D	white/brown
8	D-	Bidirectional Data Pair D	brown

****Color Scheme 568A is also acceptable, but do not crossover from 568A to 568B.

INPUT SELECTOR SWITCH

The input selector switch gives the user a simple way to select any one of the three input sources without a patch bay, router, or rewiring.

INPUT METERING

The Hub features a unique input metering circuit consisting of one LED for each of the 16 input channels. Each LED provides four visual levels that correspond color to signal strength in dBu:

Signal Strength			Color
-36 dBu to	-18 dBu	RMS	blue
-18 dBu to	0 dBu	RMS	green
0 dBu to	+17.5 dBu	RMS	yellow
+17.5 dBu (clip)		Peak	red

STATUS INDICATING HUB LOGO

The illuminated logo serves as an indicator for several purposes. Under normal conditions, the logo will be blue, indicating valid clock is present (could be internal or external). A red logo indicates no valid clock is present. If the logo is blinking red, this typically indicates a temperature problem, but could indicate something else. Refer to troubleshooting section for detailed information.

INTERNAL FAN

The internal temperature-controlled fan operates whenever the internal temperature reaches 43° C or 110° F. In studio or indoor use, the fan should rarely come on. The Hub should be rack mounted away from high temperature devices such as power amplifiers. Please ensure our recommended clearances listed at the beginning of this manual are met.

DUAL POWER PORTS

The Hub supports two external power supplies. The second power supply serves two purposes: to provide redundancy in case of power failure, and to power more than two network cards (greater than 16 Mixers) in a single Hub. On the front of the Hub, an LED directly above the power switch will be lit if two power supplies are present. This provides an easy way to know if one of the power supplies has failed. On the back of the Hub, an LED is present directly under each power port, and will be lit if power is present at that port.

DETAIL DIAGRAM

FRONT PANEL
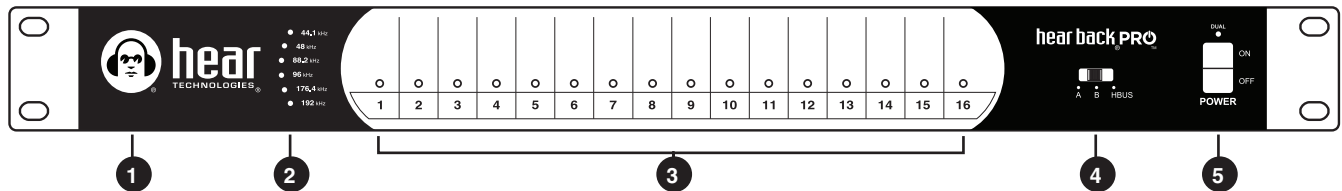
REAR PANEL
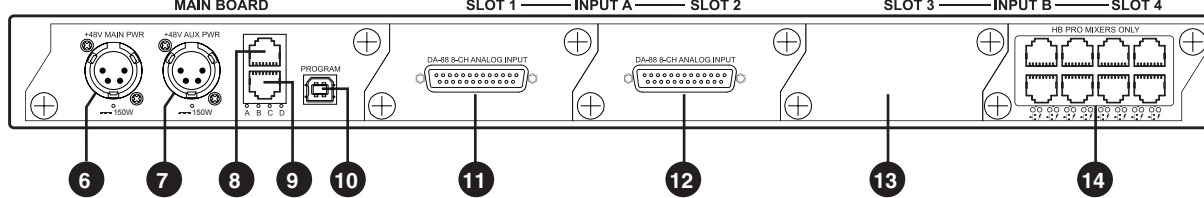
1 LED Status Indicator	7 Secondary 48V Power Input	12 Card Slot 2 (shown with 8-channel Analog Input)
2 Sample Rate LED Indicators	8 HBus Input	13 Card Slot 3 (shown unpopulated)
3 Audio Input Channels 1-16 Level LED Metering	9 HBus Output	14 Card Slot 4 (shown with 8-port Network Card)
4 Input Selector Switch	10 USB Connection	
5 Power Switch	11 Card Slot 1 (shown with 8-channel Analog Input)	
6 Main 48V Power Input		

*Cable complying with the National authorities (cable with an outer jacket or sleeving rated VW-1 or better).

MIXER FEATURES

- **Local control of up to 18 channels of audio**
- **Receive power and audio over one Ethernet cable, up to 500' from Hub to each Mixer**
- **Side-mounted card slot for future expansion**
- **Large master knob controls overall main mix, AUX, and intercom levels independently**
- **24-bit D/A and A/D delta-sigma converters**
- **Error indicating logo glows red to indicate a problem, and flashes red when headphone amplifier temperature reaches 100° C (212° F)**
- **Volume / panning / stereo link control of all 16 channels of audio**

- **Balanced mono/stereo, line level outputs**
- **Store up to 4 recallable presets, while most recent configuration is remembered after power-down**
- **Intercom feature allows communication to anyone with a Hear Back Mixer**
- **Selectable 1/8 inch TRS stereo unbalanced and XLR mono balanced (with 15v phantom power) AUX inputs:**
  – **Microphone input for crowd/ambiance mic, or for use with intercom**
  – **Drum module/metronome or local mix input**
- **One 1/8 inch TRS headphone output**
- **One 1/4 inch TRS headphone output**

MIXER CONSTRUCTION

The Hear Back PRO is constructed of UV-stabilized ABS and has a built-in mic stand mount. The cable strain relief channel (molded into the Mixer) greatly reduces stress on the CAT6* cable connectors and the Mixer RJ45 connector.

STATUS INDICATING MIXER LOGO

The illuminated logo serves as an indicator for several purposes. Under normal conditions, the logo will be blue, indicating digital audio packets are being received. A purple logo indicates audio packets are being dropped, and a red logo indicates no valid packets are being received. If the logo is blinking red, this indicates the headphone amplifier has overheated. Check the troubleshooting section if any color other than a blue logo occurs.

VOLUME

Each channel knob, by default, controls the volume of its respective channel within the mix. The master knob, by default, controls the volume of the overall mix. Volume operation is indicated by blue LEDs. Volume scales from 0% to 100%, left to right, respectively.

MASTER VOLUME – The master volume is used to set the volume of the headphones and the line outputs. When using the line outputs in conjunction with the headphones, optimize the mix for the headphones and then adjust the device connected to the line outputs to balance the gain.

PAN OPERATION

To control panning of channels, press the PAN button. The PAN button and channel knob LEDs will turn green to indicate that the channel knobs now control panning position of the audio within the stereo field. To return to volume control, press the PAN button again, or wait 30 seconds from the last adjustment for the system to automatically return to volume control.

STEREO LINK OPERATION

Each audio channel comes from a mono source, and is therefore center-panned by default. To quickly hard-pan two channels left and right to create a stereo pair, hold the PAN button for 3 seconds to enter the stereo link control interface. The PAN button and channel knobs will blink green. Move a knob to toggle that channel, and its adjacent channel, between mono and stereo-linked. Notice the panning position jump from center-panned to hard-panned. This operation can only be performed on adjacent pairs of channels. Therefore, channel 1 can only be linked with channel 2, channel 3 with channel 4, and so on. Press the PAN button again to exit the stereo link control interface, or wait 30 seconds from the last adjustment for the system to automatically return to volume control. Upon linking channels, the volume of the right channel is set according to the volume of the left channel. Volume adjustments to either stereo-linked channel now effects both channels in unison.

AUX INPUT

The auxiliary input connections provided are one 1/8 inch TRS stereo unbalanced input optimized for 0 dBu input level, and one XLR mono balanced input optimized for -42 dBu input level, selectable via the switch located adjacent to the connections. The inputs provide another mono or stereo-mixed channel to be inserted into the Mixer. Examples of use would be a drum machine click track into the drummer's Mixer, or a crowd/ambient mic in everyone's Mixer (which can double as the intercom mic). Another application would be a stereo mix from a guitar or keyboard local mix from another Hear Back or Hear Back PRO Mixer, creating a total of 18 channels controlled from your Mixer.

AUX INPUT OPERATION – Press the AUX button to change the function of the master knob to control the volume of the auxiliary input in the mix. Once pressed, the AUX button and master knob LEDs will turn red to indicate this function is active. Press the AUX button again to exit auxiliary volume control, or wait 30 seconds from the last adjustment for the system to automatically return the master knob to its default function.

PRESET OPERATION

The Hear Back PRO Mixer has the ability to store up to four system states in internal memory for easy session settings recall. Pressing the PRESET button will step through presets 1 – 4, one at a time.

To save current settings to a preset, hold the PRESET button for 2 seconds until the LED under the preset number rapidly blinks, and continue holding the PRESET button for 3 more seconds to begin stepping through preset memory slots. Release the PRESET button when the desired preset number is rapidly blinking to save to that preset memory slot.

Upon making any control change while using a preset, the preset number will slowly blink to let you know your new settings have not been saved. To save the changes to the preset, simply hold the PRESET button for 2 seconds until the preset number rapidly blink, then release.

To reset a preset's parameters back to default (all volume at 0%, all channels center-panned, all stereo-linked channels unlinked), first complete the settings reset operation (discussed later in this manual), then complete the normal steps listed above to save the settings to a preset.

INTERCOM

The intercom function transmits the AUX IN source to everyone with a Hear Back PRO Mixer on the same network. By default, the input gain for the intercom source is set to 75%. When receiving audio from another Mixer, the intercom has an auto gain feature that automatically adjusts the incoming signal so that you'll always hear it over your mix.

Cable complying with the National authorities (cable with an outer jacket or sleeving rated VW-1 or better).

INTERCOM OPERATION –To broadcast your intercom momentarily, simply press and hold the INTERCOM button. The button and the master knob LEDs will light up red to indicate that the intercom is broadcasting, and that the master knob now controls the input gain for your intercom source. To latch your intercom for a continuous broadcast, rapidly push the INTERCOM button three times in succession. The button and the master knob LEDs will stay red to indicate that the intercom is broadcasting. Press the INTERCOM button once more to stop continuous broadcast and return the master knob to its original function. The INTERCOM button will rapidly blink red to indicate that a broadcast from another Hear Back PRO is currently being received. Only one Mixer is able to broadcast at a time, so while one Mixer is broadcasting, all other Mixers on the same network are "locked out" from broadcasting until the transmitting Mixer's INTERCOM button is released or un-latched. If another Mixer is broadcasting and you wish to overtake the intercom, simply triple-tapping the INTERCOM button will stop the other Mixer from transmitting, latching your intercom instead.

DISABLING THE INTERCOM – To completely disable the intercom function on a Mixer, hold the INTERCOM button while plugging in the CAT6* cable until the PAN, AUX, and INTERCOM buttons blink rapidly to indicate you have entered the configuration interface. Pressing the INTERCOM button will now toggle the intercom on and off. To save the settings, press and hold the INTERCOM button until the Mixer reboots.

INPUT SIGNAL DISPLAY
To easily see which channels have signal present without having to turn up each channel individually, press and hold the AUX button until the AUX button begins blinking rapidly. If a signal is detected on a channel, the channel's LEDs will light up. Additionally, the master knob's LEDs act as an overall RMS meter, showing you how much headroom is available. This makes it easy to see how close the Mixer is to clipping. Note that you are still able to adjust channel and master volume in

this mode; however, the level indicator will only be shown briefly after making an adjustment, before returning to displaying input signal activity. Press the AUX button again to exit the input signal display mode.

SETTINGS RESET
To quickly reset all volume to 0%, unlink all stereo-linked channels, and move any panning back to center position, simultaneously press and hold the PAN and AUX button for 1 second until all of the channel knob and master knob's LEDs blink. This restores the current session settings back to its default "blank slate" position, but keeps all saved presets intact.
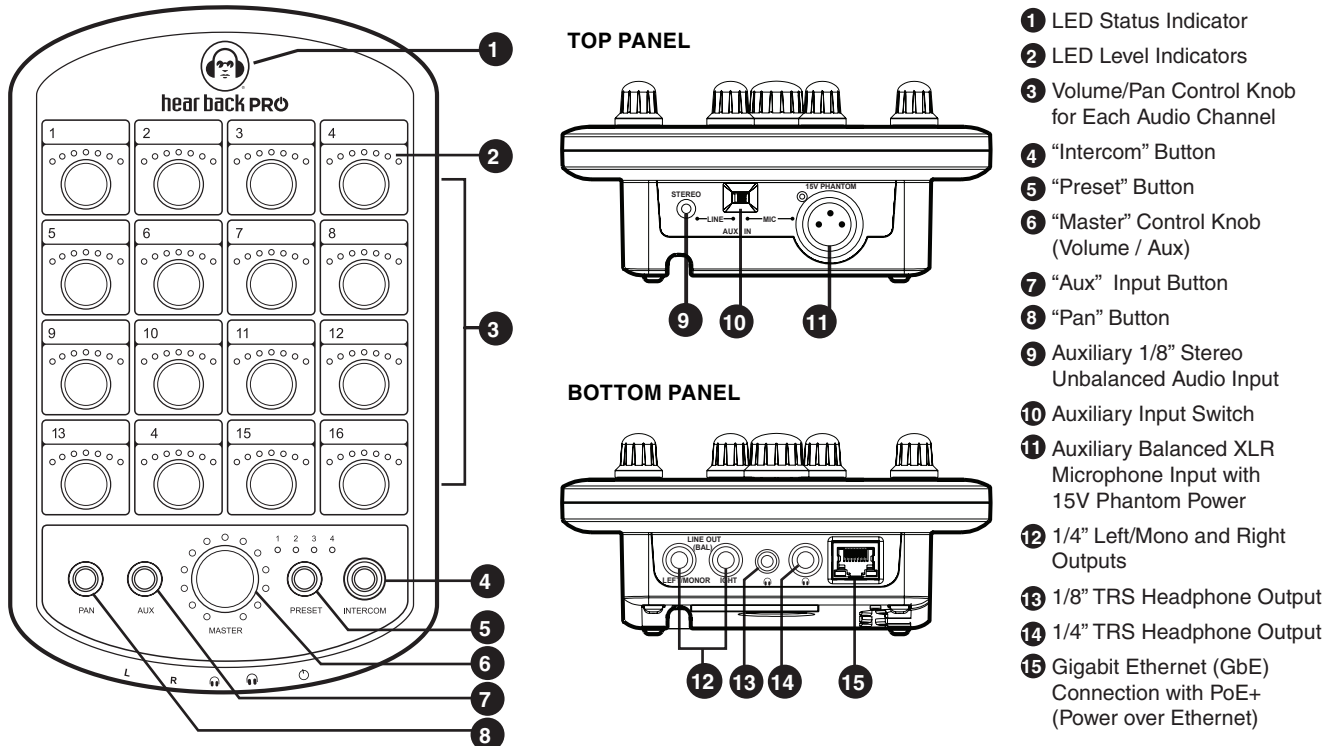
LINE OUTPUTS
Two balanced 1/4 inch TRS line outputs are provided. The left operates as a mono output for sub woofers and mono devices if nothing is plugged into the right line output. When a 1/4 inch plug is inserted into the right output, the line outputs operate in a normal stereo mode. The line outputs may be used simultaneously with the headphone outputs, and are both controlled with the master volume knob. In the event of ground loops when connecting the Mixer line outputs to other devices that have an earth ground, it may become necessary to lift the shield at the Mixer outputs.

⚠ *NEVER lift or disconnect the AC safety ground of any device.*

HEADPHONE AMPLIFIER
The headphone amplifier outputs are paralleled outputs. When using multiple headsets, the total impedance should not go below 16 ohms. The headphone amplifiers are very powerful and can easily damage in-ear transducers, headphones, and your hearing; exercise great care in adjusting the master volume. At 32 ohms, the amplifier is capable of sustaining 2 watts of power per ear! The amplifiers are short circuit protected, and will cause the status indicator logo to blink red if overheated.

DETAIL DIAGRAM

TOP PANEL

BOTTOM PANEL

1 LED Status Indicator
2 LED Level Indicators
3 Volume/Pan Control Knob for Each Audio Channel
4 "Intercom" Button
5 "Preset" Button
6 "Master" Control Knob (Volume / Aux)
7 "Aux" Input Button
8 "Pan" Button
9 Auxiliary 1/8" Stereo Unbalanced Audio Input
10 Auxiliary Input Switch
11 Auxiliary Balanced XLR Microphone Input with 15V Phantom Power
12 1/4" Left/Mono and Right Outputs
13 1/8" TRS Headphone Output
14 1/4" TRS Headphone Output
15 Gigabit Ethernet (GbE) Connection with PoE+ (Power over Ethernet)

Cable complying with the National authorities (cable with an outer jacket or sleeving rated VW-1 or better).

HEAR BACK PRO CONNECTING AND CALIBRATION

1. **Connect the appropriate input(s)**, as shown in the hook-up diagram below and select the desired input using the front panel switch. Connect Hear Back PRO Mixers to the network card outputs using CAT6* cables and set all Mixer channel and master volume levels to 0%. Connect the headphones, in-ear monitors, and/or line outputs for connecting to wireless in-ear systems, powered monitors, or other devices requiring line-level inputs.

2. **Turn on Hub power**.

3. **Adjust the level at the input source** (DAW, mixer, etc.) until the red clip LED's on the Hub just come on and then reduce the levels on the input source until you have a "green" LED. **NOTE**: Adjust the source for as much signal into the Hub as possible without clipping. Higher input levels improve signal-to-noise and dynamic range. If you are unable to adjust your source without overdriving the Hear Back PRO system, follow the "-10dB Pad" instructions on page 2 to achieve and extra 10db of headroom. Remember, higher input levels improve signal-to-noise and dynamic range.

4. **Mixer Adjustment**: Once you have the signals optimized, turn the master volume up to about 10 o'clock and then raise each channel's volume up to a comfortable level. Avoid adjusting the master volume too high and running the inputs too low. If you wish to stereo-link any channels, enter the stereo-link control interface and toggle them on. If you wish to pan any mono channels within the stereo field, press the PAN button to make adjustments.

5. **AUX IN Adjustment**: If using an auxiliary input, connect it to the Mixer via the appropriate "LINE" or "MIC" input. Select the appropriate input via the "AUX IN" selector switch. If possible, adjust the input source for maximum volume without clipping. Press the "AUX" button to turn the "Master" knob LEDs "red" and slowly turn the "Master" knob to a comfortable level. Press the "AUX" button again to exit auxiliary volume control.

Now enjoy personal monitoring at its best and have fun!

⚠️ **WARNING**

- **The Hear Back PRO is capable of driving most headphones to extreme levels that can damage your HEARING!**

- **ALWAYS turn down the Mixer "Master" volume down before putting on in-ear headsets or headphones.**

HOOK-UP DIAGRAM
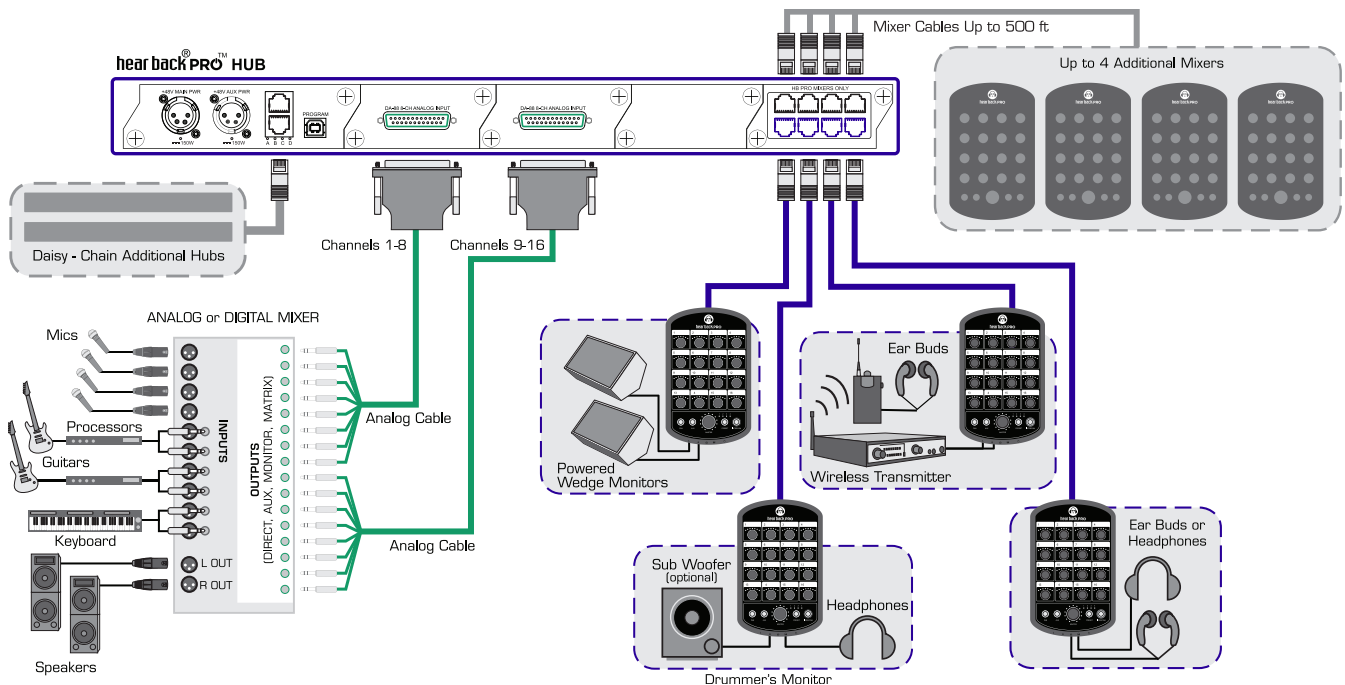
Cable complying with the National authorities (cable with an outer jacket or sleeving rated VW-1 or better).

TECHNICAL SPECIFICATIONS

Mixer Aux Input

Line Input Configuration/Impedance:	1/8" Stereo, unbalanced, 10K ohms typical
Line Input Level:	0 dBu optimal, +18 dBu max
Mic Input Configuration/Impedance:	XLR Mono, balanced, 150 ohms typical, 150 Hz high pass
Mic Input Level:	-42 dBu optimal, -30 dBu max

Mixer Headphone Power

Load Impedance:	THD less than 0.01%*	THD less than 0.1%
8 Ohms:	1.2W*	1.5 W
	*THD AT 8 Ohms = 0.015% typical	
16 Ohms:	1.6 W	1.8 W
25 Ohms:	2.0 W	2.2 W
32 Ohms:	1.8 W	2.0 W
50 Ohms:	1.5 W	1.6 W
100 Ohms:	1.1 W	1.2 mW
200 Ohms:	500 mW	650 mW
600 Ohms:	220 mW	250 mW
Inter Modulation Distortion:	Typically less than 0.03%	

Mixer Line Output

Frequency Response:	20 Hz to 20 KHz, +/-0.15 dB
THD+N:	0.004% typical at 1 KHz, +15 dBu
Inter Modulation Distortion:	0.008% typical, 20 Hz – 20 KHz, +4 dBu
	0.02% typical at +4 dBu, 60 Hz/7 KHz
Crosstalk:	Less than -93 dBu @ 1 KHz
Propagation Delay:	Less than 0.38 mSec @ 192 kHz sample rate

System Noise Performance

Noise, A-Weighted:	-93 dBu @ 192 kHz sample rate
Dynamic Range:	117 dB typical

System I/O

Hub Line In, Analog:	16 Balanced inputs on 2x DB-25 female (DA-88 pinout)
Hub Maximum Input Level, Analog:	+2dBu with analog card pad jumpers populated, +12dBu with jumpers removed
Hub HBus In, Out:	8-pin RJ45 jack (standard Ethernet pinout)
Hub USB Port:	USB 2.0 (for firmware updates)
Hub Card Slots (4x):	Each slot can accept an analog or digital input card, output card, or 8-port Mixer network card
Mixer to Hub Connection:	8-pin RJ45 jack (8x Mixer connections per network card)
Mixer Headphone Out:	1x TRS 1/4" and 1x 1/8" unbalanced stereo
Mixer Line Out:	TRS 1/4" balanced (2 connections: left/mono, right)
Mixer Max Output Level, Analog:	+24 dBu (mixed output)
Mixer Aux Input:	TRS 1/8" unbalanced stereo and XLR balanced mono (with 15 volts phantom power)
Mixer Card Slot:	For future digital or analog input/output expansion capabilities or side-car add-on

Physical, Mixer

Size:	9.5" (241 mm) H x 5.95" (152 mm) W x 2.71" (7.62 mm) D
Unit Weight:	1.6 lb. (0.72 kg)
Mounting:	Standard mic stand (5/8" 27 threads per inch) or desk mounted

Physical, Hub

Size:	1.75" (45 mm) H x 19" (482 mm) W x 8.5" (216 mm) D
Unit Weight:	6.3 lb. (2.8 kg)
Mounting:	Standard rack mount, 1 RU

Power

Hub Power Requirements:	48VDC, 150 Watts (each external power supply powers up to 16 Mixers)***
Mixer Power Requirements:	Power over Ethernet (PoE) 36–52 volts DC, 15 Watts max provided by Hub through CAT6** network cabling
External Power Supply Requirements:	Input Voltage: 90VAC to 264VAC 50/60Hz

Cabling, Mixers and HBus

CAT6** cables used for Mixers or for HBus can be run up to 500 feet in *ideal conditions* (*one piece of solid conductor CAT6 with no breaks or couplings*). The more breaks/connections/couplings in a cable run, the more limited this distance will be. Poor quality cabling will also limit the maximum distance.

Note: 0 dBu = 0.775 Vrms.   **Cable complying with the National authorities (cable with an outer jacket or sleeving rated VW-1 or better).*
Specifications and features subject to change without notice.   ****Hub is capable of powering up to 32 Mixers with an additional power supply.*

TROUBLESHOOTING AND OPERATING TIPS

Note: Some problems require you to refer to the A-B-C-D error code LEDs below the HBus ports on back of Hub.

No Audio Output	- Verify the Hub is powered on. - Check input connections. - Make sure input selector switch is in the proper position for your audio source – HBus, input A (slots 1 & 2), or input B (slots 3 & 4). - Verify the status-indicating logo on both the Hub and Mixer are both BLUE. - Check your headphones, wireless transmitters/receivers, monitor amplifiers, etc., to verify they are functioning properly.

Hub Logo is solid RED	**Refer to the A-B-C-D error code LEDs below the HBus ports on back of Hub:**
	• If no error code LED is lit:
	  ○ No clock is present.
	  ○ If using an Analog Input card:
	    – Verify the input selector switch is in the correct position.
	    – Verify an Analog Input card is present in either slot 1 (for input A) or slot 3 (for input B).
	    – If the problem still persists, please call customer service.
	  ○ If using any Digital Input card:
	    – Verify the digital source is functioning correctly – powered on and sending clock.
	    – Verify the input selector switch is in the correct position.
	    – Verify the Digital Input card is present in either slot 1 (for input A) or slot 3 (for input B).
	    – If the problem still persists, please call customer service.
	• If error code LED **A**, **B**, or **A & B** are lit:
	  ○ An internal problem is present. Please call customer service.
	• If error code LED **C** is lit:
	  ○ No firmware file can be found on the internal SD card. Connect the Hub to a computer via USB. The Hub will appear on the computer as a mass storage device named HBPRO. Download the latest firmware file from our website, and simply drag and drop the file onto the HBPRO, then reboot the Hub.
	• If error code LED **D** is lit – alone or in combination with any other error LEDs:
	  ○ An internal power problem has occurred. Please call customer service.

Hub Logo is blinking RED	**Refer to the A-B-C-D error code LEDs below the HBus ports on back of Hub:** • This is typically an overheating problem – if so, error code LEDs **A**, **B**, & **C** will be lit. ○ Allow adequate ventilation for Hub as specified in owner's manual. • If any other combination of error code LEDs are lit, please contact customer service.

Hub Logo is PURPLE	• Verify that there are not two 16-channel input cards on the same input (e.g. slot 1 & slot 2)
	  ○ The Hear Back PRO Hub cannot have more than one 16-channel input card on the same input
	• If using an off-the-shelf network switch, it might utilize a function known as EEE (Energy Efficient Ethernet).
	  ○ Attempt to bypass the network switch, making a home run from Hub to Mixer, to verify this is the problem – if so, try a known good network switch from the list at the beginning of the Hear Back PRO User Guide.

Hub Logo OFF	• Verify power switch is on.
	• Verify the Hub is receiving power by checking for a yellow LED beneath the power port on the back of the Hub. This LED should be lit when the power supply is connected, even with the Hub powered off.
	• If the yellow LED is not lit:
	  ○ Verify the external power supply is the unit provided by Hear Technologies.
	  ○ Replace external supply with known good unit.

Mixer logo is solid RED	• No audio data is being received.
	  ○ If an off-the-shelf gigabit switch is being used, the Mixer may not be seeing the Hub clock.
	    – Attempt to bypass the network switch, making a home run from Hub to Mixer, to verify this is the problem – if so, try a known good network switch from the list at the beginning of the Hear Back PRO User Guide.
	  ○ Check the orange and green LEDs on the Ethernet port of the Mixer and ensure that you see a solid lit orange LED and a blinking green LED. The lit orange LED indicates that a gigabit Ethernet link is established and the blinking green LED indicates data is being received.
	    – If the orange LED is not lit or it lights intermittently, there is a problem with the cabling between the Mixer and the Hub. To verify this, use a known good short Ethernet cable to plug the Mixer directly into the Hub. If the problem still occurs, contact our technical support department.
	    – If the mixer works with the short piece of known good Ethernet cable, investigate the cable between the Hub and the Mixer location.
	    – CAT6* cables, used for HBus or going to PRO mixers, can be run 100 meters (328 feet) with no problems. Note, due to advanced internal termination techniques, cables used with the PRO series can be run up to 500 feet in ideal conditions (one piece of solid conductor CAT6* with no breaks or couplings). Utilizing proper punch-down and the correct RJ-45 connectors is key. The more breaks/connections/couplings in a cable run, the more limited this distance will be. Poor quality cabling will also limit the maximum distance.
	    – Running CAT6* cables alongside AC cables, florescent light fixtures, or computer network wiring will also limit the maximum distance. It is always preferred to run the Hear Back PRO CAT6* cabling by itself, away from other cabling.
	    – ALL cabling should be electrically tested before use. Contact an expert network professional for assistance with wiring installation.

Cable complying with the National authorities (cable with an outer jacket or sleeving rated VW-1 or better).

Mixer Logo is PURPLE	• Mixer is not receiving all audio packets.
	  ○ Verify Hear Back network is not accidentally connected to a data network. Do not share the Hear Back PRO network with any other devices.
	  ○ Verify all off-the-shelf switches used are indeed rated for gigabit speeds.
	  ○ If using an off-the-shelf network switch, it might utilize a function known as EEE (Energy Efficient Ethernet).
	    – Attempt to bypass the network switch, making a home run from Hub to Mixer, to verify this is the problem. If so, try a known good network switch from the list at the beginning of the Hear Back PRO User Guide.

Mixer Logo flashes RED	• Internal headphone circuit is overheating.
	  ○ Check to verify headphone load is stereo (not mono).
	  ○ Verify 1/4 inch and/or 1/8 inch plug is tip-ring-sleeve (TRS), not tip-sleeve (TS).
	  ○ Look for shorted cables.
	  ○ Verify total load is not below 8 ohms per channel.

When I connect a line level device to the Mixer line outputs, I hear a buzz.	• Wire TRS outputs using only black (ring -) and red (tip +) wires. • Disconnect shield at the Mixer and terminate at receiving end only. • For unbalanced outputs, wire the ring (- black) to the receiving end sleeve and tie the shield at the receiving end only. Connect the tip (+ red) to the tip at the receiving end.
When I link two mono channels, the stereo spread is incorrect.	• Verify the source (mixer, DAW, etc.) has these outputs panned hard left and right. ○ The pan control of the source determines the stereo spread.
The fan does not operate.	• The fan only runs when power supply temperature reaches 43° C or 110° F.

If you need further assistance, feel free to contact **Hear Technologies** technical support by phone at +1-256-922-1200 or visit our web site at **http://www.HearTechnologies.com**.
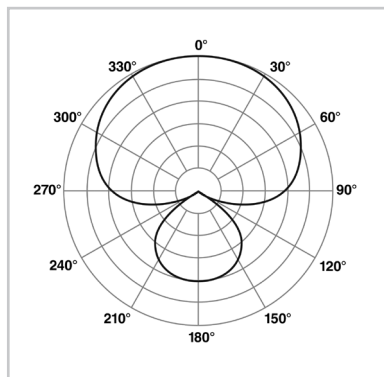
SYSTEM ACCESSORIES

AM12 AMBIENT MICROPHONE

12 inch condenser gooseneck mic with super cardioid pattern for use with Hear Back PRO Mixer as an ambient or intercom microphone.

The AM12 features 15 volt phantom power, 30Hz – 16kHz frequency response, and -40db sensitivity.

supercardioid pattern

CABLES

Hear Technologies offers a variety of quolity cables that work with your system including CAT5e, CAT6, Optical, Insert and Analog DA-88 style cables.

CAT5 & CAT6   OPTICAL   INSERT   ANALOG

MIXER TILT ADAPTER

The Mixer Tilt Adapter is for all Hear Back Mixers adding a ball joint with 5/8" 27 male threading to any standard imc stand to get the perfect angle with 360° rotation and 180° tilt.

MICROPHONE STAND ADAPTER

Mount the Hear Back Mixer to the side of any mic stand or standard music stand using the MSA Mic Stand Adapter. This clamp-on adjustable width bracket attaches to the built-in 5/8" threaded socket located on the back of the Mixer.

TOTE BACK

This soft-side nylon carrying case is perfect for carrying (8) Hear Back Mixers or (4) Mixers and (1) Hub. Adjustable dividers allow you the freedom to customize the compartments.

hear back.

- Unlimited system size
- Local control of 8 audio channels (stereo mix and six "more-me's")
- ADAT, analog, HearBus inputs are switch-selectable from front panel
- Built-in DSP Limiter with threshold adjustment
- Master Volume
- Stereo AUX In
- Balanced Line-Outputs
- Built-in Mic Stand Mount
- Standard CAT5e power

mix back.

- Affordable 16 x 12 x 2 x 2 monitor mixer
- 16 Mic/Line inputs each with passive split and 2 stereo and 12 mono level controls
- 16 master outputs each available as analog, ADAT, and HearBus
- Pin 1 lift and Mic phantom power switches
- Dual switch-selectable effects sends
- Stereo Aux inputs
- Channel Inserts
- Four-band EQ with dual sweepable mids
- Talkback with intercom and optional remote control
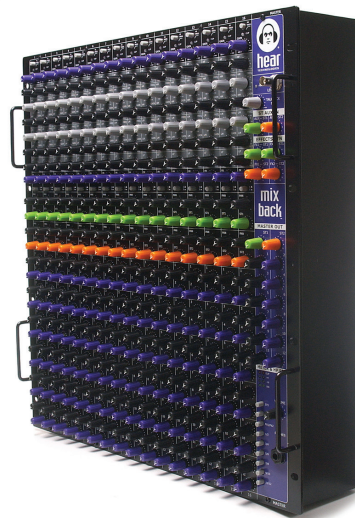
freedom back.

- High quality UHF Wireless Stereo In-Ear Monitor system
- Available in UA (584 – 608 MHz) and UB (655 – 679 MHz) bands
- 120 digitally selectable UHF channels
- Back-lit LCD display of frequency, audio level, group and channel
- Wireless stereo belt pack allows freedom to move about the stage
- Batteries included

NOTES

LIMITED WARRANTY

Hear Technologies warrants the equipment against defects in materials and labor for a period of one year from the original date of purchase. The duration of this warranty is limited to claims made to Hear Technologies within the periods stated with respect to parts and labor from the date of purchase. During the warranty period, defective equipment will be replaced or repaired to the general condition as received, at the discretion of Hear Technologies.

All transportation is the responsibility of the purchaser or owner. Equipment should be shipped in the original shipping box.

This warranty applies only to defects in materials and workmanship and does not cover failure or damage due to shipping loss or damage, abuse, misuse, misapplication, incorrect or varying power line voltages, lack of proper maintenance, natural disasters, acts of God, or unauthorized modifications, repairs, or any alterations done without the expressed written consent by Hear Technologies. Hear Technologies shall not be liable for any loss of use of the equipment, or consequential damages, including damages to other parts of the installation in which the equipment is a part.

Hear Technologies does not make any warranty, express or implied, other than the warranty contained herein. No agent, representative, or employee has the authority to increase or alter the liability, obligations, and terms of this warranty or sale of the equipment. NOTE: It is strongly recommended that any equipment returned to Hear Technologies be properly packaged and insured for its full value in case of loss, handling or shipping damage.

Hear Technologies shall not be responsible for damage or loss of equipment during shipment.

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