

ZAPCO

**HB 46 ADSP
HB 48 ADSP
HB 410 ADSP
HB 84D**

Quick Guide

HARMONY
BLUE NOSE Series
DSP/AMPLIFIERS

Before operating the unit, please read this manual thoroughly
and retain it for future reference.
Any updates are available on zapco.com



Table of Contents

General instructions	4
IT Istruzioni Generali	
DE Allgemeine Anweisungen	
FR Instructions Générales	
ES Instrucciones Generales	
CH 常规安装指引	
Control Panels	7
PC Control Program	10
Main Screen	11
File Menu	12
I/O Matrix	12
System Phasing	12
Mobile Control Program (APP)	14
Main Screen	14
Channel Setup	15
Equalizer	15
Crossover	16
System	16
I/O Matrix	17
Music Player	17
Remote Control (optional)	18
Technical Specifications	19

EN General Instructions

The installation of the product must be done by professional technicians. Always contact a ZAPCO Authorized Dealer.

Before you start your installation

ZAPCO highly recommends that a fuse or circuit breaker be placed within 18" of the battery. The protection device should be placed where it can be accessed easily and all wiring should be routed safely and correctly according to the following guidelines:

- Do not run wiring close to hot or spinning objects
- Always use wire grommets when routing wire through the firewall or any other metal panels
- Make sure that the potential for pinched wiring is avoided by routing all wires away from moving objects, including brake, gas and clutch pedals, etc.

Planning your power connections

- The +12V B is the main power input. This must be connected to the vehicle battery's positive (+) terminal
- The GND is the main ground or negative connection. This must be securely attached to bare metal at the vehicle frame
- The terminal between the main power and ground is the +12 turn-on input (REM) and can be connected to the head unit turn-on output wire. If none is available it can be connected to an accessory (ACC) terminal

Mounting your amplifier

Mounting your Zapco amplifier is easy. Just keep in mind a few guidelines:

- The amplifier requires adequate ventilation. Creating power creates heat, and cooling requires air
- Keep the amplifier out of the engine compartment or other locations that may cause excessive heat or moisture
- Do not mount the amplifier to a subwoofer box or other place that may have excessive vibration

Setting Gains

Gain pots are not volume controls and should be used only if absolutely necessary. Turning up gain controls causes increased noise, makes distortion more likely and reduces the dynamic range of your system.

Continuous exposure to excessive sound pressure levels may cause hearing damage. ZAPCO strongly advises that you use common sense when setting volume levels. Everything written in this manual is for the proper use of the products. Some features or specifications could be modified during production to improve the product performance. The technical specifications and functionalities stated here are current as of the time of publication.

IT Istruzioni Generali

L'installazione del prodotto deve essere effettuata da tecnici professionisti. Rivolgersi ad un Rivenditore Autorizzato ZAPCO.

Prima di iniziare l'installazione

ZAPCO consiglia vivamente di posizionare un fusibile entro 18" dalla batteria. Il dispositivo di protezione deve essere posizionato in un punto di facile accesso e tutti i cablaggi devono essere instradati in modo sicuro e corretto secondo le seguenti linee guida:

- Non eseguire il cablaggio vicino ad oggetti caldi o taglienti
- Utilizzare sempre i passacavi quando si instrada il cavo attraverso pannelli metallici
- Assicurarsi che venga evitato il rischio di schiacciamento dei cavi allontanando tutti i cavi da oggetti in movimento, inclusi i pedali del freno, dell'acceleratore e della frizione

Pianificare l'alimentazione

- Il +12V B è l'ingresso di alimentazione principale. Questo deve essere collegato al terminale positivo (+) della batteria dell'auto
- Il GND è la massa principale o il collegamento negativo. Questo deve essere fissato saldamente al metallo del telaio del veicolo
- Il terminale tra l'alimentazione principale e la massa è l'ingresso di accensione +12 (REM) e può essere collegato al cavo di uscita di accensione dell'unità principale. Se non è disponibile, può essere collegato ad un terminale accessorio (ACC)

Installare l'amplificatore

Installare il tuo amplificatore Zapco è facile. Basta tenere a mente alcune linee guida:

- L'amplificatore richiede una ventilazione adeguata. Creare potenza crea calore ed il raffreddamento richiede aria
- Tenere l'amplificatore fuori dal vano motore o altri luoghi che potrebbero causare calore o umidità eccessivi
- Non installare l'amplificatore su un subwoofer o in un altro posto che potrebbe generare vibrazioni eccessive

Regolazione guadagni

I potenziometri di guadagno non sono controlli del volume dovrebbero essere usati solo se assolutamente necessario. Aumentare il guadagno provoca un aumento del rumore, distorsione e riduce la gamma dinamica.

L'esposizione continua a livelli di pressione sonora eccessivi può causare danni all'udito. ZAPCO consiglia vivamente di utilizzare il buon senso quando si impostano i livelli di volume. Tutto quanto scritto in questo manuale è finalizzato al corretto utilizzo dei prodotti. Alcune caratteristiche o specifiche possono essere modificate durante la produzione per migliorare il prodotto. Le specifiche tecniche e le funzionalità qui riportate sono aggiornate al momento della pubblicazione.

DE Allgemeine Anweisungen

Die Produktinstallation sollte von professionellen Technikern durchgeführt werden. Wenden Sie sich immer an einen Autorisierten ZAPCO-Händler.

Bevor Sie mit der Installation beginnen

ZAPCO empfiehlt dringend, eine Sicherung innerhalb von 18 Zoll von der Batterie zu platzieren. Der Schutz muss an einer leicht zugänglichen Stelle angebracht werden und die gesamte Verkabelung muss gemäß den folgenden Richtlinien sicher und korrekt verlegt werden:

- Verkabeln Sie das Gerät nicht in der Nähe von heißen oder scharfen Gegenständen
- Bei der Kabeldurchführung immer Kabelverschraubungen verwenden Metallplatten
- Stellen Sie sicher, dass die Gefahr eines Einklemmens des Kabels vermieden wird, indem Sie alle Kabel von sich bewegenden Objekten fernhalten, einschließlich Brems-, Gas- und Kupplungspedale usw

Planen Sie die Stromversorgung

- +12V B ist der Hauptstromeingang. Dieser muss an den Pluspol (+) der Autobatterie angeschlossen werden
- Der GND ist die Hauptmasse oder negative Verbindung. Dieser muss sicher am Metall des Fahrzeugchassis befestigt sein
- Der Anschluss zwischen Hauptstrom und Masse ist der Zündeingang +12 (REM) und kann an die Zündausgangsleitung des Hauptgeräts angeschlossen werden. Wenn es nicht verfügbar ist, kann es an ein Zubehörtterminal (ACC) angeschlossen werden

Installieren Sie den Verstärker

Die Einrichtung Ihres Zapco-Verstärkers ist einfach.

Beachten Sie einfach ein paar Richtlinien:

- Der Verstärker benötigt eine ausreichende Belüftung. Bei der Stromerzeugung entsteht Wärme, für die Kühlung ist Luft erforderlich
- Bewahren Sie den Verstärker außerhalb des Motorraums oder anderer Orte auf, an denen übermäßige Hitze oder Feuchtigkeit entstehen könnte
- Installieren Sie den Verstärker nicht auf einem Subwoofer oder an einem anderen Ort, der übermäßige Vibrationen erzeugen könnte

Verstärkungsanpassung

Gain-Potentiometer sind keine Lautstärkereglern, sie sollten es sein nur dann verwendet werden, wenn dies unbedingt erforderlich ist. Eine Erhöhung der Verstärkung führt zu mehr Rauschen und Verzerrungen und verringert den Dynamikbereich.

Ständige Einwirkung übermäßiger Schalldruckpegel kann zu Gehörschäden führen. ZAPCO empfiehlt dringend, beim Einstellen der Lautstärke den gesunden Menschenverstand zu nutzen. Alles, was in diesem Handbuch geschrieben wird, zielt auf die korrekte Verwendung der Produkte ab. Einige Funktionen oder Spezifikationen können während der Produktion geändert werden, um das Produkt zu verbessern. Die hier gezeigten technischen Spezifikationen und Funktionen sind zum Zeitpunkt der Veröffentlichung aktuell.

FR Instructions Générales

L'installation du produit doit être effectuée par des techniciens professionnels. Contactez toujours un Revendeur agréé ZAPCO.

Avant de commencer votre installation

ZAPCO recommande fortement qu'un fusible ou un disjoncteur soit placé à moins de 18 pouces (moins de 45 centimètres) de la batterie. Le dispositif de protection doit être placé là où il est facilement accessible et tout le câblage doit être acheminé en toute sécurité et correctement selon les directives suivantes:

- Ne faites pas passer le câblage à proximité d'objets chauds ou en rotation
- Utilisez toujours des passe-fils lorsque vous faites passer le fil à travers le pare-feu ou tout autre panneau métallique
- Assurez-vous que tout risque de pincement des câbles soit évité en acheminant tous les fils loin des objets en mouvement, y compris les pédales de frein, d'accélérateur, d'embrayage, etc.

Planification de vos connexions électriques

- Le +12V B est l'entrée d'alimentation principale. Celui-ci doit être connecté à la borne positive (+) de la batterie du véhicule
- Le GND est la masse principale ou connexion négative. Celui-ci doit être solidement fixé au métal nu sur le châssis du véhicule
- La borne entre l'alimentation principale (+12V B) et la masse (GND) est l'entrée de mise sous tension +12 (REM) et peut être connectée au fil de sortie de mise sous tension de l'unité principale. Si aucun n'est disponible, il peut être connecté à une borne accessoire (ACC)

Montage de votre amplificateur

Le montage de votre amplificateur Zapco est facile. Gardez simplement à l'esprit quelques directives:

- L'amplificateur nécessite une ventilation adéquate. La création d'énergie crée de la chaleur et pour le refroidissement on a besoin de l'air
- Gardez l'amplificateur hors du compartiment moteur ou de tout autre endroit susceptible de provoquer une chaleur ou une humidité excessive
- Ne montez pas l'amplificateur sur un caisson de basses ou dans tout autre endroit susceptible de générer des vibrations excessives

Définition des gains

Les potentiomètres de gain ne sont pas des commandes de volume. Augmenter les commandes de gain entraîne une augmentation du bruit, rend la distorsion plus probable et réduit la plage dynamique de votre système.

Une exposition continue à des niveaux de pression sonore excessifs peut provoquer des lésions auditives. ZAPCO vous conseille fortement de faire preuve de bon sens lors du réglage des niveaux de volume. Tout ce qui est écrit dans ce manuel est destiné à la bonne utilisation des produits. Certaines caractéristiques ou spécifications pourraient être modifiées en cours de production pour améliorer les performances du produit. Les spécifications techniques et les fonctionnalités indiquées ici sont à jour au moment de la publication.

ES Instrucciones Generales

La instalación del producto debe ser realizada por técnicos profesionales. Comuníquese siempre con un Distribuidor Autorizado ZAPCO.

Antes de comenzar su instalación

ZAPCO recomienda encarecidamente colocar un fusible o disyuntor a 18 pulgadas (menos de 45 cm) de la batería. El dispositivo de protección debe colocarse en un lugar de fácil acceso y todo el cableado debe tenderse de forma segura y correcta de acuerdo con las siguientes pautas:

- No tienda cables cerca de objetos calientes o giratorios
- Utilice siempre pasacables cuando pase el cable a través del cortafuegos o cualquier otro panel metálico
- Asegúrese de evitar la posibilidad de que los cables queden atrapados colocando todos los cables lejos de objetos en movimiento, incluidos los pedales de freno, acelerador, embrague, etc.

Plificación de sus conexiones eléctricas

- El +12V B es la entrada de alimentación principal. Este debe conectarse al terminal positivo (+) de la batería
- El GND es la conexión a tierra principal o negativa. Este debe estar firmemente sujeto al metal desnudo en el marco del vehículo
- El terminal entre la alimentación principal (+12V B) y tierra (GND) es la entrada de encendido +12 (REM) y se puede conectar al cable de salida de encendido de la unidad principal. Si no hay ninguno disponible, se puede conectar a un terminal accesorio (ACC)

Montaje de su amplificador

Montar su amplificador Zapco es fácil. Solo tenga en cuenta algunas pautas:

- El amplificador requiere una ventilación adecuada. La creación de energía genera calor y la para la refrigeración se requiere aire
- Mantenga el amplificador fuera del compartimiento del motor u otros lugares que puedan causar calor o humedad excesivos
- No monte el amplificador sobre una caja de subwoofer u otro lugar que pueda tener vibraciones excesivas

Configuración de ganancias

Los potenciómetros de ganancia no son controles de volumen. Antes de encender su sistema por primera vez, debe asegurarse de que todos los controles de ganancia estén configurados al mínimo. Los controles de ganancia deben usarse sólo si es absolutamente necesario. Subir los controles de ganancia provoca un aumento del ruido, aumenta la probabilidad de distorsión y reduce el rango dinámico de su sistema. Si su unidad principal no tiene suficiente salida, obtendrá resultados mucho mejores si invierte en un amplificador de línea para proporcionar más señal al amplificador.

La exposición continua a niveles excesivos de presión sonora puede causar daños auditivos. ZAPCO recomienda que utilice el sentido común al configurar los niveles de volumen. Todo lo escrito en este manual es para el uso adecuado de los productos. Algunas características o especificaciones podrían modificarse durante la producción para mejorar el rendimiento del producto. Las especificaciones técnicas y las funcionalidades aquí indicadas están actualizadas en el momento de la publicación.

CH 常规安装指引

产品的安装必须由熟练的技术人员完成。请始终联系 ZAPCO 授权经销商。

开始安装前

ZAPCO 强烈建议在电池附近的 18 英寸 (约 45.7 厘米) 内放置一个保险丝或断路器。保护装置应放置在易于触及的位置, 所有布线应根据以下准则安全正确地布置:

- 不要将电线靠近热源或旋转物体
- 在将电线引导穿越防火墙或任何其他金属面板时, 务必使用电线防护套
- 确保所有电线远离汽车可以移动的部件, 包括刹车, 油门和离合踏板等, 以避免电线被夹

电源连接的准备工作

- +12V B 是主要的电源输入, 必须连接到车辆电池的正极 (+) 端
- GND 是主要的接地或负极连接, 必须牢固地连接到车辆车架上的裸露金属部位
- 主电源和地之间的端子是 +12 转换输入 (REM), 可以连接到主机的开关输出线, 如果没有可用的线, 它可以连接到附件 (ACC) 终端。应避免使用任何点火 (IGN) 线, 因为这可能会产生噪音安装功放机

安装 ZAPCO 功放机非常简单, 只需记住一些准则

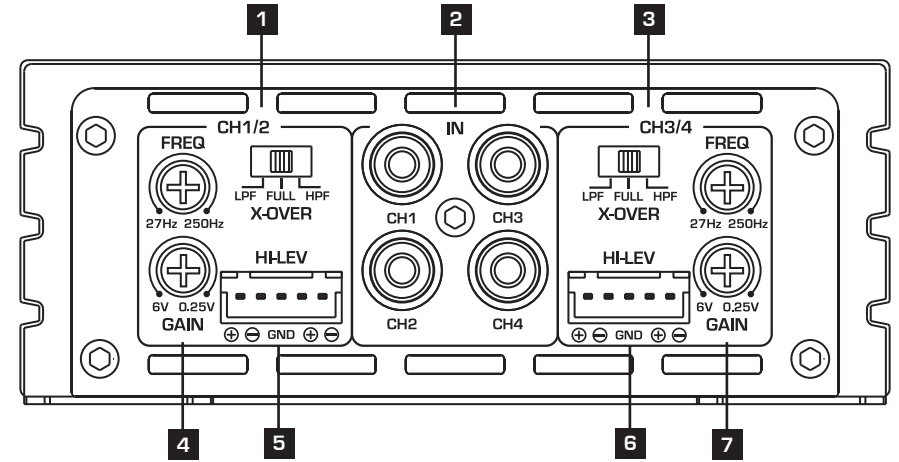
- 功放机需要足够的通风, 因为产生功率会产生热量, 冷却需要空气
- 不要将功放机安装在发动机舱或可能产生过多热量或湿气的位置
- 不要将功放机安装在低音炮音箱或其他可能有过多振动的地方

设置增益

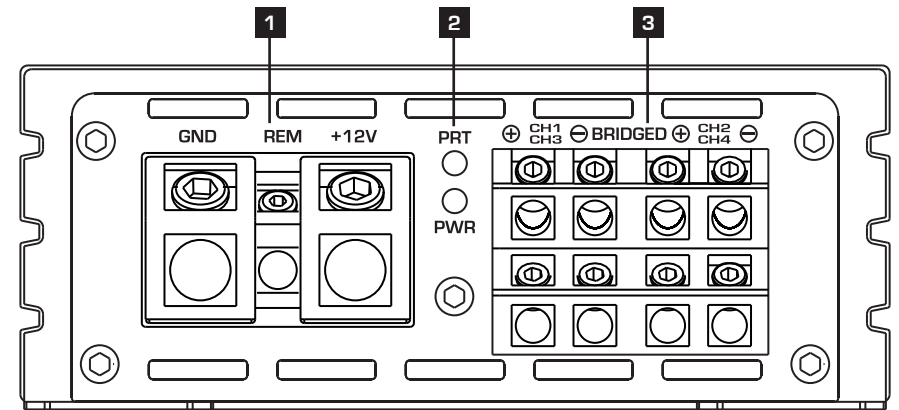
增益旋钮不是音量控制。在首次启动系统之前, 应确保所有增益控制设置为最小值。增益控制只应在绝对必要的情况下使用。增大增益控制会导致噪音增加, 增加失真的可能性, 并降低系统的动态范围。如果您的主机输出不足, 最好购买信号放大器以向功放机提供更多信号, 从而获得更好的音效。

长时间暴露于过高的声压级可能会导致听力损伤。ZAPCO 强烈建议在设置音量水平时要注意保护听力。本手册中的所有内容都是为了正确使用产品而编写的。一些功能或规格可能会在生产过程中进行修改以提高产品性能。此处陈述的技术规格和功能只针对本手册出版日期前的功放机产品

HB 84D Control Panels

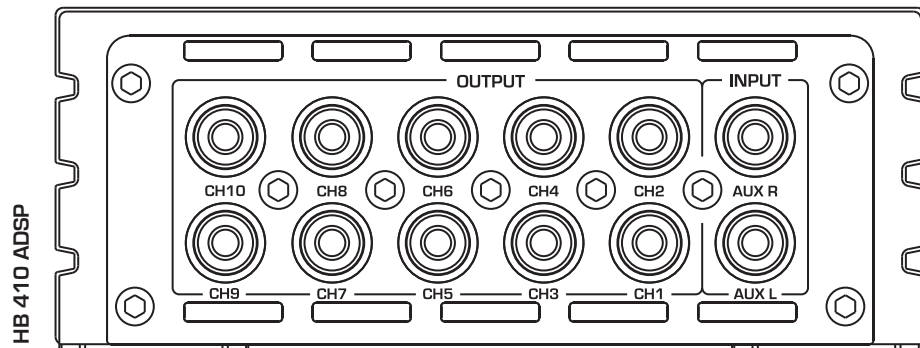
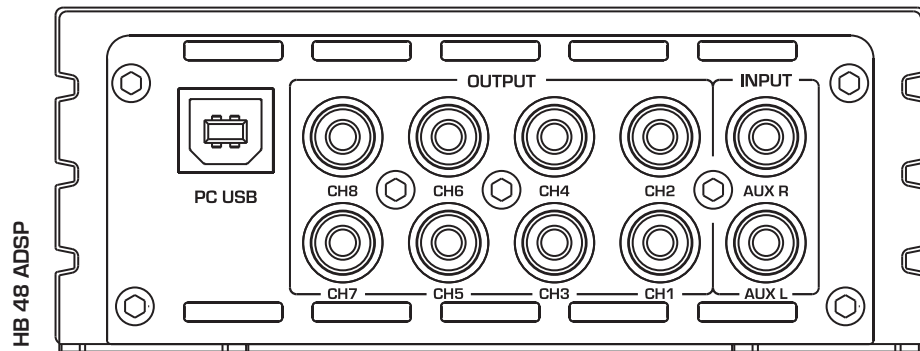
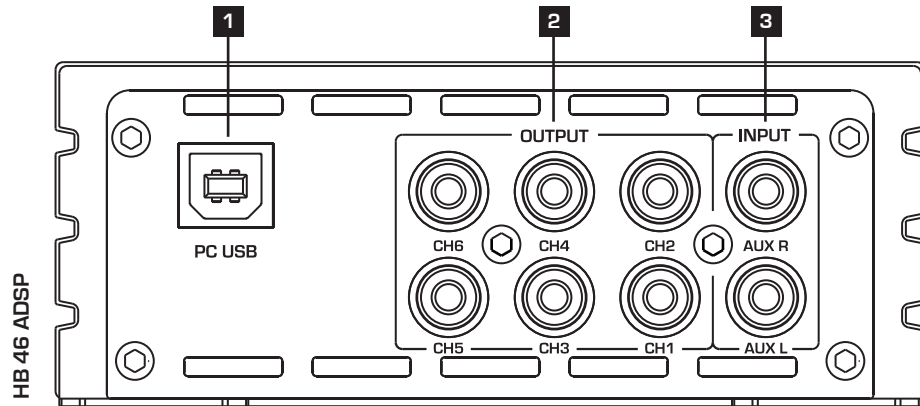


- 1 - CH1, 2 Frequency Control and Switch (LPF/Full/HPF).
- 2 - Low Level RCA Inputs.
- 3 - CH3, 4 Frequency Control and Switch (LPF/Full/HPF).
- 4 - CH1, 2 Gain Control.
- 5 - CH1, 2 Hi-Level Inputs.
- 6 - CH3, 4 Hi-Level Inputs.
- 7 - CH3, 4 Gain Control.

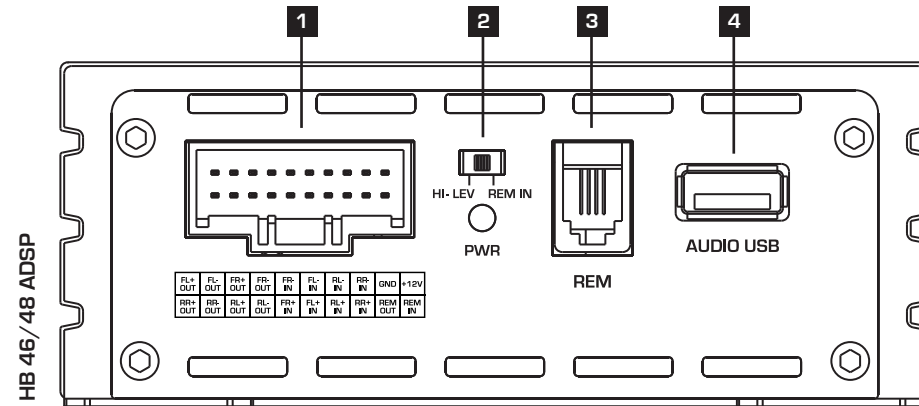


- 1 - Power/Ground/Rem Connections.
- 2 - Power and Protection Led.
- 3 - Speaker Outputs.

HB 46/48/410 ADSP Control Panels



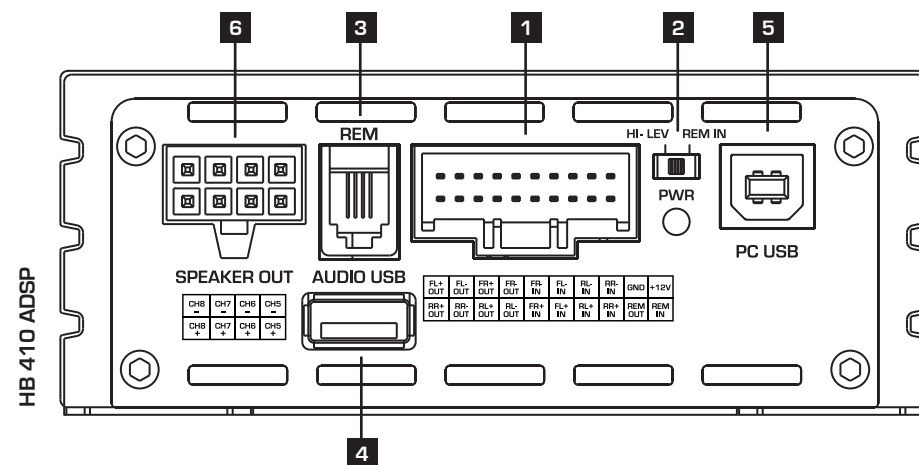
- 1 - USB Port, to connect your PC for DSP calibration and updates.
- 2 - 6-Ch. (HB 46 ADSP), 8-Ch. (HB 48 ADSP), 10-Ch. (HB 410 ADSP) RCA Outputs.
- 3 - 2-Channels RCA Inputs.



1 - Hi-Level Speaker Inputs and Outputs, Power/Ground/Rem Connections.

FL+ OUT	FL- OUT	FR+ OUT	FR- OUT	FR- IN	FL- IN	RL- IN	RR- IN	GND	+12V
RR+ OUT	RR- OUT	RL+ OUT	RL- OUT	FR+ IN	FL+ IN	RL+ IN	RR+ IN	REM OUT	REM IN

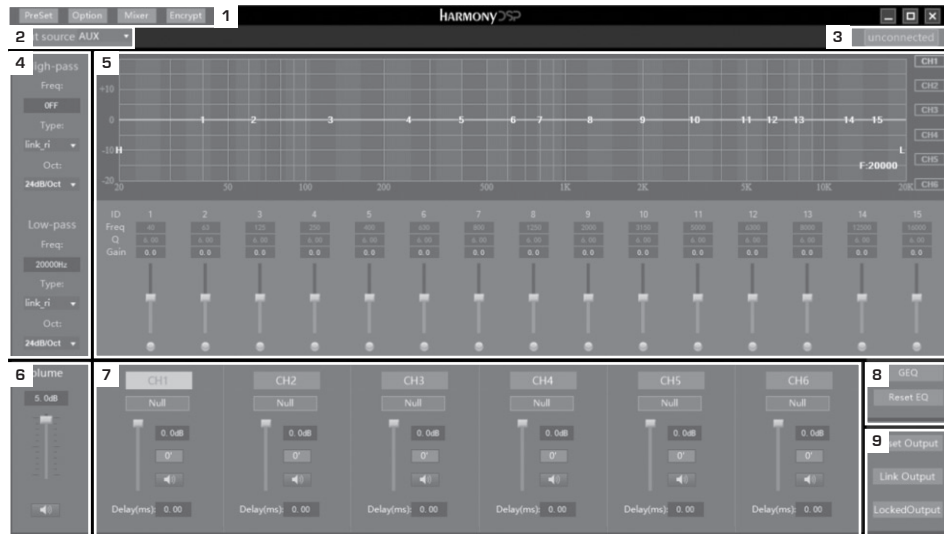
- 2 - Hi-Level/Rem In Switch.
- 3 - Remote Control Port.
- 4 - USB Port for Audio Files.



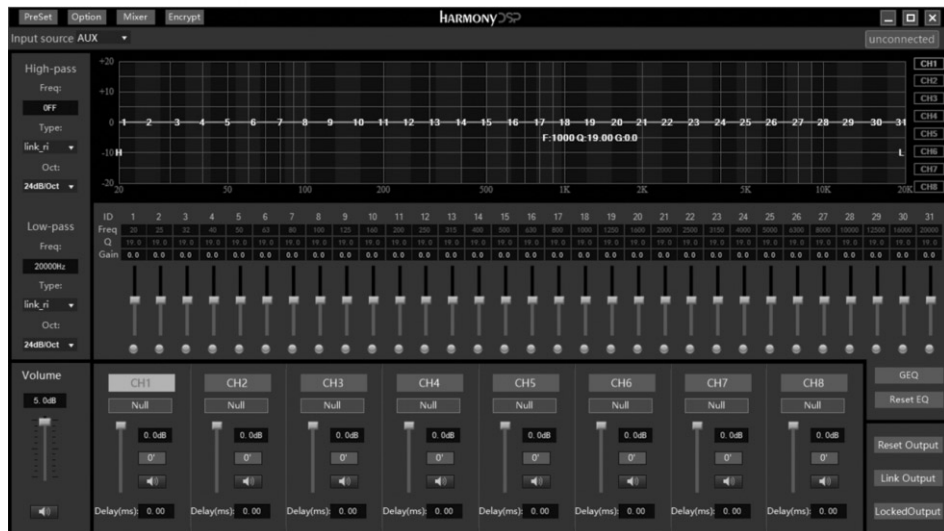
- 5 - USB Port, to connect your PC for DSP calibration and updates.
- 6 - Ch. 5, 6, 7, 8 Speaker Output.

PC Control Program

The Control Program requires installation. Download the file from the Harmony website, double click on it and follow the instructions. You should check back on the site regularly to assure you have the most up-to-date version of the software. Below is the layout of the main screen.



HB 46 ADSP Main Screen



HB 48/410 ADSP Main Screen

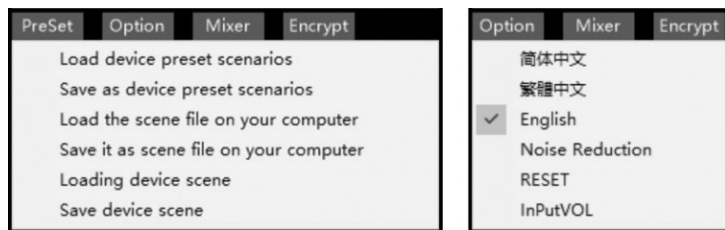
Main Screen

All the units share the same GUI, but the HB 46 ADSP has a 6-Channels DSP with a 15-bands EQ, the HB 48 ADSP has a 8-Channels DSP with a 31-bands EQ, and the HB 410 ADSP has a 10-Channels DSP with a 31-bands EQ.

- 1 - At the very top of the GUI there is the **File Menu** (Pag. 14). The Preset button is where you will save setups to memory presets and load setups from those saved. Option let you choose Language and other tools like BT/USB volume. The Mix button opens the I/O Matrix screen, where you can manually determine which inputs will be used for each output and how much of each input the output will receive. Encrypt is where you manage your password.
- 2 - Here you choose the **Input** you will use while tuning. You can choose AUX which can be an aftermarket head unit, or a factory head unit using the HI-LEV option. You also have USB and BT (Bluetooth) input.
- 3 - Connection status.
- 4 - **High-Pass and Low-Pass Filter** for each channel. You can type in the frequencies and choose crossover style and slope or turn the crossovers off, if you do not want them for some channels. Always check the speaker makers recommendations for crossovers before you make the crossover decisions.
- 5 - **EQ area**. Here are 15-bands (HB 46 ADSP) or 31-bands (HB 48 ADSP, HB 410 ADSP) of parametric equalization for each output channel and you can vary Frequency, Gain, and Q (the shape of the adjustment) for each band. Frequency: Each band is numbered. You can simply click onto a band button and drag it to where you want it. When you click onto a band there is a "Heads-up display" of the Frequency, Gain, and Q of the band.
- 6 - Here you find the master level control.
- 7 - The **Output Channels** section is for Speaker Assignment, Delay, adjusting Levels and checking Polarity to be sure all speakers are in phase with each other. There are a number of systems for checking System Phase. If the systems speakers are not all in phase there will be issues you can not fix by tuning. You can see the section on System Phasing (Pag. 12) to see one method of Phase checking. The MUTE buttons allow you to turn off any speakers that you do not want to hear while you are tuning other speakers. The purpose of Delay is to make every speaker the same distance from you, so you are in the middle.
- 8 - Here you choose between **GEQ (Graphic)** and **PEQ (Parametric)** equalizers, or Reset EQ, if you want to reset channels to default positions with no equalization.
- 9 - Here you Reset, Link or Lock Output Channels.

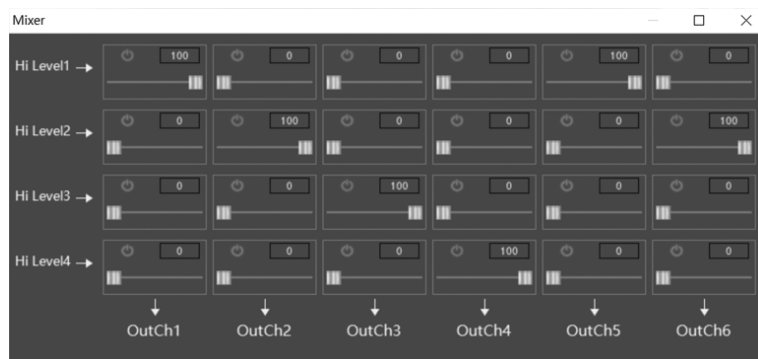
File Menu

At the very top of the GUI there is the File Menu. The **Preset** button is where you will save setups to memory presets and load setups from those saved. Here you can also save setups into your PC. **Option** button let you choose between Languages, Noise Reduction, Reset function, Input volume, and informations about your device and software. **MIX** will open the I/O Matrix screen (see below). With **Encrypt** you can manage your Password.



I/O Matrix

With the Mixing Set, you can manually determine which inputs will be used for each output (processing channel) and how much of each input the output will receive. The inputs are listed down the left side and the output channels are listed across the bottom.



System Phasing

Before equalization you should assure that all speakers are in phase as a system at the listening position. All speakers need to have the same polarity so they move the same direction at the same time. If they are not, you will not be able to get a proper tune. There are a number of methods for doing this. We offer one.

Tweeters (A): Mute all speakers except the tweeters and play a high female vocal solist. You should hear the voice at a single point near upper middle of the windshield. If the speakers are out of phase the voice will not be localized but will seem to come from everywhere. To test, using the Phase buttons, change the phase of the right speaker and listen for the difference. Do this a couple of times as needed. The position that puts the voice in a small single location on the window is the correct phase.

Tweeters (B): Note where the Tweeter center is located. It should be just slightly above and to the left of the center of the windshield (for left hand drive cars). If it is off to the opposite side of center or too far to the left, and if you have measured correctly, then you have a gain difference and you can correct by a slight level adjustment reduce the right tweeter to bring it left or reduce the left channel to take it right. No more that 1dB or 2dB. Now the tweeters are set. From here on out you cannot change the levels or phase of either tweeter.

Mids, Mid-Woofers, and Subs: Now mute the tweeters and un-mute the midranges. The process is the same for each pair of speakers. The sound should come from a single focused point near the center of the windshield. For midranges and larger drivers, you want to use a deeper male vocal. The larger drivers are much easier to tell the differences between in-phase and out of phase. Also, with the larger speakers you will hear a dramatic reduction of bass if the speakers are out of phase. So, for midrange and larger speakers you will look for a focused sound source in the windshield with stronger bass.

NOTE: Once each channel pair is adjusted, they cannot be separated. Any change of phase must be done by the pair.

Phasing the pairs: Again, listening to a single vocalist. Mute all channels again except the tweeters. Then bring in the midranges. If these pairs are in proper phase the sound should be near center in the upper part of the windshield. If they are not in phase the sound will be pulled down lower. You can reverse the phase of BOTH mids now and listen for the difference in the sound location. Choose the phase position that puts the sound high near the center.

Once you have these phased you can bring in the mid-bass with the same process. Again, the focus should be high in the dash. If the mid-bass is out of phase with the tweeters and mids then they will pull the sound down toward the floor.

Woofers or Subs: There will be bass! You have phased the woofers, so we know there will be bass. What you need to listen for here is location, and mid-bass (something with kick drums is ideal). Proper woofer phasing will work with the mid-bass drivers to give good solid, crisp mid-bass. Out of phase will result in a soft, low-impact mid-bass. Bass out of phase with the mid-bass will also be more located in the back of the vehicle while a properly phased bass will blend better into the front soundstage.

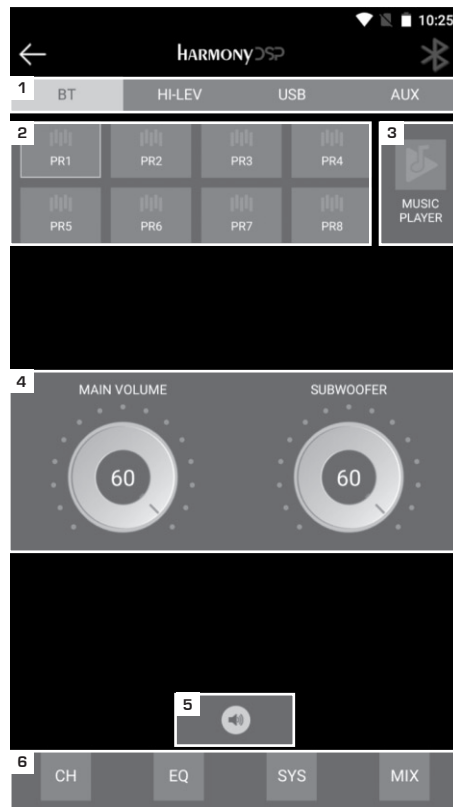
Mobile Control Program (APP)

The HB ADSP Apps are identical, except for the number of channels and EQ bands, depending on the models, (6-Ch./15-bands EQ for the HB 46 ADSP model, 8-Ch./31-bands EQ for the HB 48 ADSP model, and 10-Ch./31-bands EQ for the HB 410 ADSP model). The goal is to have a control system that made sense in a smaller platform but would allow the user to do everything necessary for a complete setup and tune with a smartphone or tablet.

Turn on your unit. It will enter into pairing mode with blue light flash alternately. Open the Bluetooth of your smart device and search the DSP for pairing. Red BT icon means not connected.

Main Screen

- 1 - In the main screen you will find the Input Source menu where you can choose BT, HI-LEV, USB and AUX.
- 2 - Here you find 8 Presets (saved into your device) to choose from.
- 3 - Here you open the Music Player.
- 4 - Main and Subwoofer Volume.
- 5 - System MUTE.
- 6 - The advanced menu with Channels, EQ, System and Mixing buttons.

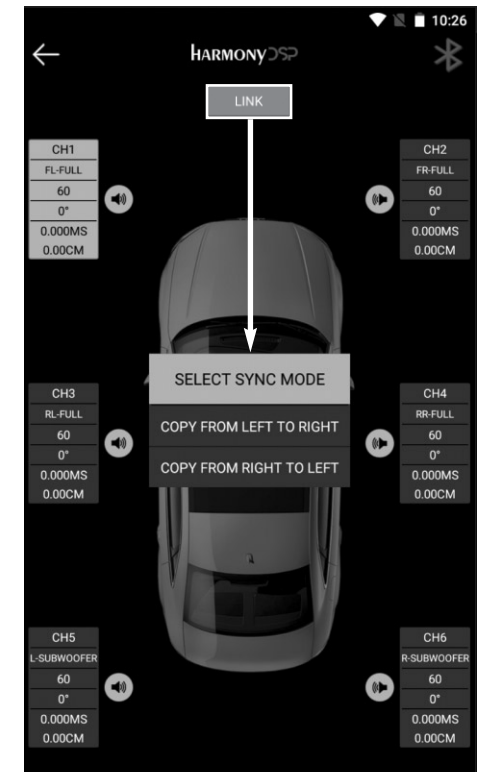


Channels Setup

Click on CH button in the main screen and you will have the Channel setup screen. Choose from 1 to 6 (model HB 46 ADSP), from 1 to 8 (model HB 48 ADSP) or from 1 to 10 (model HB 410 ADSP) to setup:

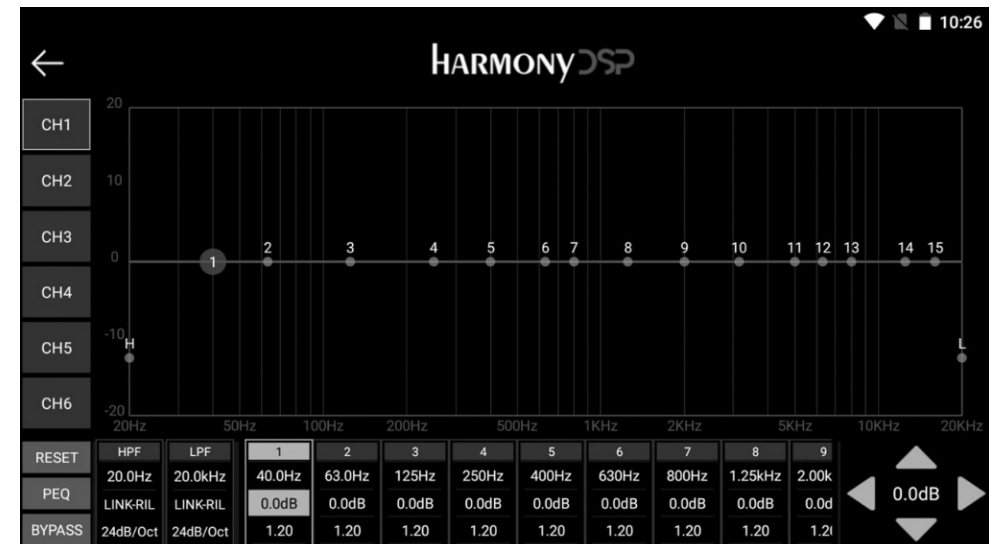
- Channel Assignment
- Gain
- Phase
- Delay (in MS and CM)

You can also mute each channel with the individual speaker icon. LINK button let you link channels between them.



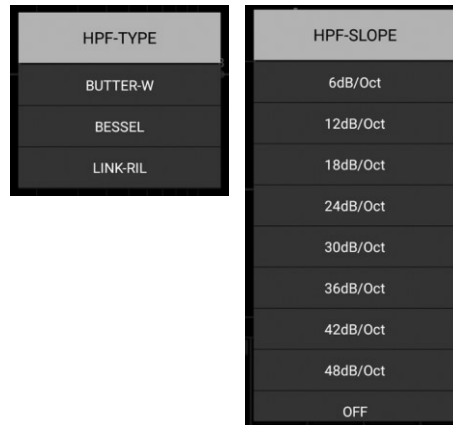
Equalizer

Click on EQ button in the main screen and you will have the EQ main page (6-Ch./15-bands EQ for the HB 46 ADSP, 8-Ch./31-bands EQ for the HB 48 ADSP, 10-Ch./31-bands EQ for the HB 410 ADSP)



Crossover

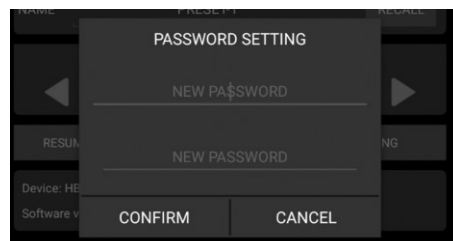
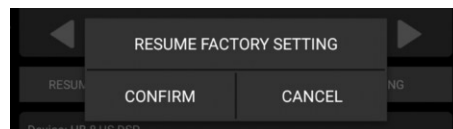
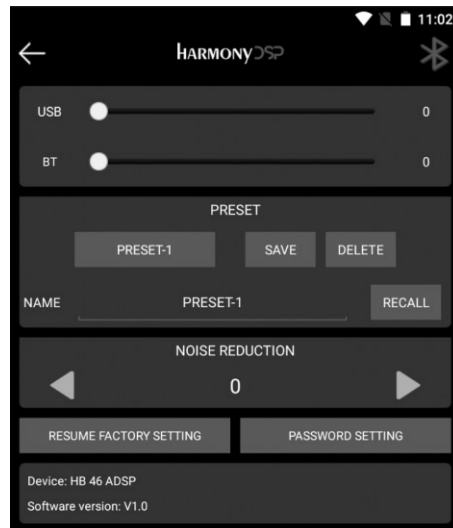
High-Pass and Low-Pass Filter for each channel. You can type in the frequencies and choose crossover style and slope or turn the crossovers off, if you do not want them for some channels. Always check the speaker makers recommendations for crossovers before you make the crossover decisions.



System

Click on SYS button in the main screen and you will have the System screen with the following functions.

- USB/BT Levels.
- Manage Presets
- Noise Reduction
- Resume Factory Setting / Password
- Device and Software informations



I/O Matrix

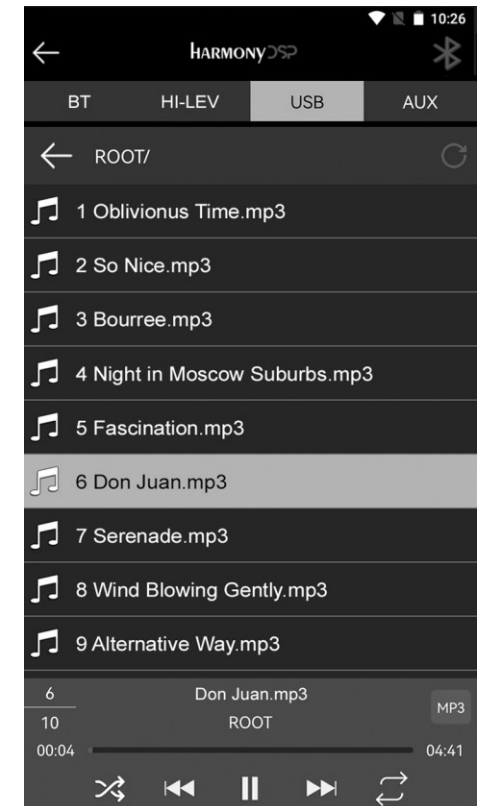
Click on MIX button in the main screen to enter the I/O Matrix.

You can manually determine which inputs (USB-L/R, Digital-L/R, BT-L/R) will be used for each output (processing channel) and how much of each input the output will receive.



Music Player

Connect a USB device to the Audio USB port. Click on USB button on input source menu, then click on Music Player button in the main screen to enter the Player. Be sure the USB device contains audio files in the supported format (MP2/4, WMA, APE, FLAC, AAC, M4A,WAV, AIF, AIFC). From the App it is possible to access the folders and the contained audio files.

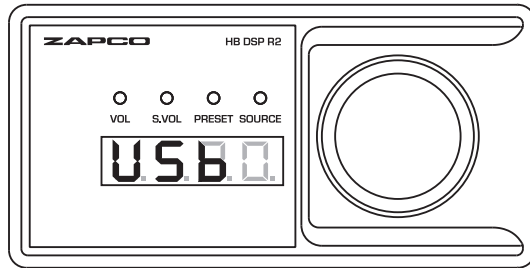


Remote Control (optional for HB 46/48/410 ADSP)

Here the remote controls.

Press the knob to switch between:

- **VOL.** Rotate the knob to increase/decrease the main volume.
- **S.VOL.** Rotate the knob to increase/decrease the subwoofer volume.
- **PRESET.** Rotate to switch between presets, then press to enter. Press and hold for 3 sec. to go back to volume mode.
- **SOURCE.** Rotate to switch between available input sources.



PLAYER Mode. Connect a USB device to the Audio USB port (be sure the USB device contains audio files in the supported format: MP2/4, WMA, APE, FLAC, AAC, M4A,WAV, AIF, AIFC). Press the knob to select SOURCE then rotate the knob to select USB. Press to confirm, then rotate the knob to go to the previous or the next song. Press and hold to go back to volume mode.

Technical Specifications

Main Features	HB46	HB48	HB410	HB84D
DSP Channels	6	8	10	-
High Level Inputs	4-Channels	4-Channels	4-Channels	4-Channels
RCA Inputs	2-Channels	2-Channels	2-Channels	4-Channels
RCA Outputs	6-Channels	8-Channels	10-Channels	-
Amplifier Power (Max)	4 x 70W	4 x 70W	8 x 70W	-
Plug & Play Ready	Yes	Yes	Yes	Yes
BT 5.1 Streaming	Yes	Yes	Yes	-
Music Player	Yes (APP)	Yes (APP)	Yes (APP)	-
DSP Tools	PC + APP	PC + APP	PC + APP	-

DSP Features

DSP Equalizer	15-Bands	31-Bands	31-Bands	-
Input Choice:	AUX, BT, HI-LEV, USB			-
I/O Mixing Matrix	Yes	Yes	Yes	-
Crossover	HP-Full-LP	HP-Full-LP	HP-Full-LP	-
Crossover Type	Butterworth, Bessel, Linkwitz-Riley			-
Crossover Slope	6-12-18-24-30-36-42-48 dB/Oct.			-
Delay	.00-20.00 ms, .00-692.00 cm, .00-273.00 in.			-

Other Technicals

S/N Ratio	> 100dB	> 100dB	> 100dB	> 95dB
THD	< 0.05%	< 0.05%	< 0.05%	< 0.1%
Frequency Response	20Hz - 20KHz			
Amplifier Power (4 Ohm)	4 x 20W	4 x 20W	8 x 20W	4 x 75W
Amplifier Power (2 Ohm)	4 x 35W	4 x 35W	8 x 35W	4 x 120W
Amplifier Power (Max)	4 x 70W	4 x 70W	8 x 70W	-
Input Impedance	20 KOhm (Low), 240 Ohm (High)			
Signal I/O Range	RCA Input 6Vpp, RCA Output 9Vpp, High-Lev. 26Vpp			
Power Supply Cons.	DC 9V-16V, < 0.1W			
Unit Dimensions (mm):	135-159 (L) 115 (W) 45.5 (H)	160-184(L) 115 (W) 45.5 (H)	160-184(L) 115 (W) 45.5 (H)	160-184(L) 115 (W) 45.5 (H)
Remote Dimensions (mm):	90 (L) x 45 (H)			

HARMONY Blue Note is a ZAPCO Series, Brand of APEX Group

Distributed in Europe by: ARPA of Europe srl
Via Isonzo snc - 04100 Latina - ITALY

zapco.com / man st-hb v.2.1

ZAPCO