Owner's Manual

PXE-C80-88

8 CHANNEL AUDIO PROCESSOR AMPLIFIER

//////ALPINE

Contents

Instructions

Instructions

Warning

Points for Safe Use

- Please read this manual carefully before using the machine and system components. This manual contains instructions on how to use this product safely and effectively. If failure to follow the instructions in this manual causes malfunctions, Alpine will not assume any responsibility.
- This manual uses various icons to explain how to use this product safely, and reminds you to pay attention to the dangers that may be caused by improper connection and operation. The meaning of these icons will be explained below. A complete understanding of the meaning of these icons is very important for the correct use of this manual and this system.

⚠ Warning

- It is very dangerous to operate this system while driving. The user should stop before operating the software.
- Road conditions and laws take precedence over the information displayed on the map: When driving, you should abide by actual traffic restrictions and conditions.
- This software is specially designed for this machine and cannot be used in combination with other hardware.

⚠ Warning

This symbol indicates important instructions. Failure to heed these instructions can result in serious injury or even death.

Do not use any features that will distract you while driving
Any function that affects your concentration should only be used after the car has come to a complete stop. To use these functions, please park your vehicle in a safe place first. Otherwise, an accident may result.

Do not disassemble or modify
Otherwise, it may cause an accident, fire or electric shock.

The volume must be maintained at a level where the noise outside the car can be heard while driving
Inaudible emergency vehicle sirens and road warning signals (train intersections, etc.) are very dangerous and may cause accidents. In addition, excessive volume may cause hearing loss.

This product is only suitable for cars with 12V negative grounding
Otherwise, it may cause a fire and other accidents.

Small objects such as bolts or screws should be kept out of the reach of children
Swallowing small objects may cause serious injury. Once swallowed by mistake, please immediately medical.

When replacing the fuse, you must choose a fuse with the correct ampere value
Otherwise, it may cause a fire or electric shock.

Do not block the ventilation holes or heat sink
Otherwise, it may cause internal heat build-up and may cause a fire.

This product can only be used in 12V mobile applications
If used in non-designed applications, it may cause fire, electric shock or other injuries.

Make the correct connection
If it is not connected properly, it may cause fire or product damage.

Before wiring, disconnect the cable from the negative terminal of the battery
Otherwise, it may cause electric shock or injury due to electrical short circuit.

Do not let the cable be entangled with surrounding objects
Arrange the wires and cables in accordance with the requirements of the manual to prevent them from becoming obstructive while driving. Cables or wires that obstruct or hang on the steering wheel, shift lever, brake pedal, etc. are extremely dangerous.

Do not splice cables
Do not cut the cable insulation to supply power to other equipment. Otherwise, the current carrying capacity of the wire will be exceeded, resulting in fire or electric shock.

Do not damage the pipe or wiring when drilling
When drilling holes in the chassis for installation, be careful not to touch, damage or obstruct the pipes, fuel lines, fuel tanks or wires. If you don't pay attention, it can cause fire.

Do not use bolts or nuts in brakes or steering systems for grounding connections
Never use bolts or nuts used in brakes or steering systems (or any other safety-related systems) or fuel tanks for installation or grounding connections. The use of such parts will cause the car controller to fail, resulting in fire and so on.

Do not install on the steering wheel or gear lever, etc., which may hinder the operation of the car
Otherwise, it will obstruct the front line of sight or obstruct moving parts, etc., causing serious accidents.

Do not touch the product while working
The temperature of the product is high when working,and it may be scalded when touched.

⚠️Notice

This symbol indicates important instructions. Failure to heed these instructions may result in injury or major property damage.

When there is a problem, please stop using it immediately
Otherwise, it may cause personal injury or damage to the product. Please return this product to an authorized Alpine dealer or the nearest Alpine service center for repair.

Ask professionals for wiring and installation
The wiring and installation of this product require professional skills and experience. For safety reasons, please contact the dealer where you purchased the product for installation.

Use designated accessories and install securely
Make sure to use only designated accessories. The use of non-designated parts may cause internal damage to the device, or it may not be securely installed in place. This can cause parts to loosen and cause danger or product failure.
Recommended Screw fixing torque between attachments BKT and product: 37±5 N/cm
Screw hole may be damaged if using large torque.

Arrange the wires to avoid crimping or being squeezed by sharp metal edges
The arrangement of wires and cables should be far away from moving parts (such as seat tracks) or sharp edges or corners. This will avoid crimping and damage to the wires. If the wiring passes through a metal hole, a rubber gasket should be used to prevent the wire insulation from being cut by the edge of the metal hole.

Do not install in high humidity or dusty locations
Avoid installing the device in a location with high humidity or dust. Moisture or dust invades the device and can cause product failure.

⚠ Precautions

Product cleaning

Please use a dry soft cloth to clean the product regularly. If the dirt is difficult to remove, soak a soft cloth with water only. Any other solvent may dissolve.

temperature

Before turning on the machine, please make sure that the temperature in the car is between +60℃ and -20℃.

Maintain

If you encounter a problem, do not repair it yourself. Please return this product to an authorized Alpine dealer or the nearest Alpine service center for repair.

Installation location

This machine cannot be installed in any of the following places:

- Near direct sunlight and heat sources
- Places with high humidity and near water sources
- Dusty places
- Locations subject to severe vibration

About the software license of the product

The software installed in the product contains open-source software. See the following Alpine website for details on the open source software.
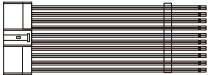[CN] https://www.alpine.com.cn/c/aftermarket_oss/download/CSP_Series
[EN] https://www.alpine.com.cn/e/aftermarket_oss/download/CSP_Series
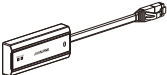
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* Appropriate recycling channels should be adopted for the disposal of electronic products to reduce electronic waste pollution.

Preparation work

Accessory List

Machine Screw × 10	Self-tapping Screw × 4	Mounting Brackets × 2
20P Input Cable	12P Output Cable	USB Cable
Main Unit	External Bluetooth Module (KCE-800BT)	Wired controller (RUX-CSP1)
Controller cable		

Connections and Functions

External Bluetooth

Controller

USB cable (included)

PC   Mobile player

Car audio player (Sold separately)

ACC (Red)

Car audio player (Sold separately)

Ignition key

Battery

REMO (Yellow/Red)

To External Power Amplifier etc.

High Level IN1+ (White)	
High Level IN1- (White/Black)	❼
High Level IN2+ (Blue)	
High Level IN2- (Blue/White)	❽
High Level IN3+ (Yellow)	
High Level IN3- (Yellow/White)	❾
High Level IN4+ (Purple)	
High Level IN4- (Purple/White)	❿
High Level IN5+ (Gray)	
High Level IN5- (Gray/White)	⓫
High Level IN6+ (Pink)	
High Level IN6- (Pink/White)	⓬
High Level IN7+ (Orange)	
High Level IN7- (Orange/White)	⓭
High Level IN8+ (Green)	
High Level IN8- (Green/White)	⓮

Car audio player (Sold separately)

External Fuse

Vehicle's battery   Vehicle's chassis

Speakers
Subwoofer

External Power Amplifier (Sold separately)

Speaker OUT 1+ (White)	
Speaker OUT 1- (White/Black)	
Speaker OUT 2+ (Blue)	
Speaker OUT 2- (Blue/White)	
Speaker OUT 3+ (Yellow)	
Speaker OUT 3- (Yellow/White)	
Speaker OUT 4+ (Purple)	
Speaker OUT 4- (Purple/White)	
Speaker OUT 5+ (Gray)	
Speaker OUT 5- (Gray/White)	
Speaker OUT 6+ (Red)	
Speaker OUT 6- (Red/White)	

Speakers

Connections and Functions

❶ ❷ ❸ RCA Audio Input Jacks
3 groups of RCA audio signal input, which can be connected to the RCA audio signal output of car audio player.

❹ External Mic Input Jack
Connect to the external microphone (Sold separately) for Auto EQ on your PC.

❺ Switched Power Lead (Ignition)
Connect this lead to an open terminal on the vehicle's fuse box or another unused power source that provides(+)12V only when the ignition is turned on or in the accessory position.

❻ Remote Turn-On Lead
Connect this lead to the remote turn-on lead of your amplifier etc.

❼~❿ High Level Input Leads
Connect to the high-level output of the car audio player.

⓯ Input Select Switch
When the switch is pulled to the "ACC" terminal, ACC starts the machine; when it is pulled to the "HOST" terminal, the machine is started by the high level input signal H1-/H1+.

⓰ Power Indicator Light

⓱ Coaxial Input Jack
Connect the car audio coaxial cable, switch the audio source of the machine to the digital signal input, and play the coaxial digital signal.

⓲ External Bluetooth Connector
After the connection is successful, the Bluetooth is always on.

⓳ Controller Connector
Connect the controller.

⓴ USB Connector
It can be connected to a computer via a USB cable for detailed tuning operations and settings.
And it can be connected with mobile player as USB audio (DAC).

㉑ Car Audio Player (Sold separately)
Connect the car audio player.

㉒ Fuse
Insert one 40A fuse.

㉓ Power Supply Terminal
Connect the car battery.

㉔ ㉕ CH7-8 Speaker Output Terminals
The amplifier outputs are connected to the subwoofers.

㉖ CH1-6 Speaker Output Leads
The amplifier outputs are connected to the speaker.

㉗ ㉘ ㉙ ㉚ Pre-Out Jacks
4 groups of RCA audio signal output, which can be connected to external power amplifiers.

㉛ External Power Amplifier (Sold separately)
Connect external power amplifiers.

To prevent external noise from entering the audio system.
- The installation position of the machine and the wiring arrangement should be at least 10cm away from the automobile wiring harness.
- Try to keep the battery power cord away from other wires.
- Securely connect the ground wire to the bare metal contacts of the car chassis (remove any paint, dirt or grease if necessary).
- If you want to attach an optional noise suppressor, please try to keep it away from the machine when connecting. Your Alpine dealer has various types of noise suppressors, please contact them for details.
- Your Alpine dealer is proficient in noise prevention methods, please consult your dealer for details.

Pairing The Device

1 Open the settings menu of the smart device.

2 Go to the Bluetooth settings and make sure it is turned on.

3 Scan for devices.

4 The tablet or phone will find DSP-HD-XXXXXX.Click to connect to it.

Note:
- The light on the Bluetooth adapter will flash until a device has been paired. Once a device is paired it will remain steady.
- Only one Bluetooth-compatible device can be paired, and two Bluetooth-compatible devices cannot be connected at the same time.

Using the mobile app

- The following are the mobile phone requirements for using the application: iOS 10 or higher
- On your smartphone ,open the Apple App store and download and install the application.

Using the PC application

System requirements
The following are the system requirements for running the PC viewer.

- Operating system: Windows 10, Windows 11
- CPU: 2.9GHz or higher
- Memory card: 1GB or higher
- Hard Disk: 512MB or more free space
- Computer screen resolution: 2560 × 1440 or higher

Note:
- The PC viewer will not operate properly on PC systems running an operating system other than those listed in the system requirements.
- You can download the latest PC viewer software from the Alpine website.

Computer Software

Precautions installation

- The software can only be used under the Microsoft® Windows® operating system.
  Operating system: Windows 10, Windows 11
  CPU: 2.9GHz or higher
  Memory card: 1GB or higher
  Hard Disk: 512MB or more free space
  Computer screen resolution: 2560 × 1440 or higher
- Before connecting the PXE-C80-88 machine to the computer, please install the PXE-C80_C60 computer software correctly.
- After installing the PXE-C80_C60 software, you can tune and set the PXE-C80-88 machine on the computer.
  * This function is mainly for manufacturers and distributors.

Computer Software Introduction
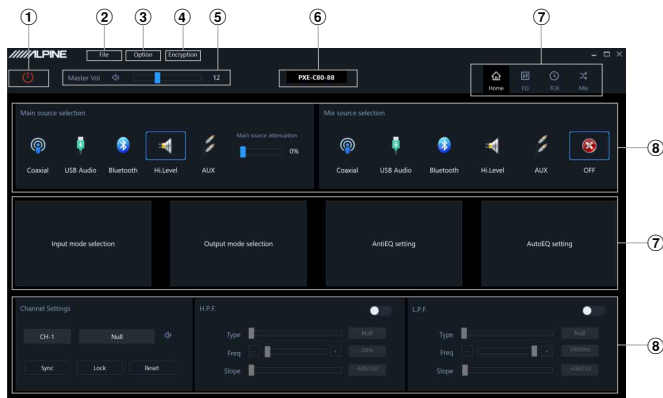
1 The host is powered on.

2 Connect one end of the USB cable to the "USB" port of the host, and connect the other end to the USB port of the computer.

3 Double-click the PXE-C80_C60 software icon to open the software.

① Online switch.
② Load or save the tuning file.
③ Select the function setting.
④ Encryption and decryption of tuning data.
⑤ Adjust the total volume.
⑥ Display the model name.
⑦ Function page selection.
⑧ Editing area of function page.

Connection

Setting items:
    Connection
Setting content:
   *Connection/disconnected*

Connection Settings

1 **Connect the USB cable and open the software, it will automatically go online. After the connection is successful, the connection icon will show green [🟢].**

2 **After online, click the connection icon to disconnect. When not online, the connection icon will display red [🔴], and click the connection icon again to go online again.**

File Settings

Click [File] to enter the loading or saving scene file page.

■ Load or save presets file page
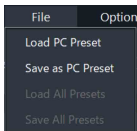
Setting items:
    File
Setting content:
    Load PC Preset/Save as PC Preset/Load All Presets/ Save All Presets

Load PC Preset
The scene file previously saved on the computer can be loaded as the current machine working scene.

Save as PC Preset
The current machine work scene file can be saved to the computer for later recall.

Load All Presets
Load the files of the entire machine previously saved on the computer to the machine (including the current working scene, machine preset scene, output channel configuration data, etc.), and copy all the machine data that has been debugged to the currently connected machine.
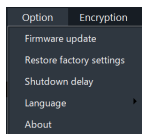
Save All Presets
Save all data on the current online machine as a computer file (including the current working scene, machine preset scene, output channel configuration data, etc.) for later recall when the whole machine is copied.

Option Setting

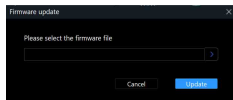Click [Option] to enter the setting page.

■ Setting page

<Setting item>

Firmware update
Restore factory settings
Shutdown delay
Language
About

Firmware Update Settings

Select [Firmware Update] from the options page to enter the firmware update setting page.

■ Firmware update page

Setting item:
Firmware update

1 **Click the ">" button to select the upgrade file.**

2 **Click the "Update" button to upgrade the firmware. The upgrade progress reaches 100%, indicating that the firmware upgrade is successful.**

3 **Click the "OK" button to exit the firmware update. After the update, the machine will automatically restart to work.**

Restore Factory Settings

Select [Restore Factory Settings] from the options page to enter the factory reset page.

■ Restore factory settings page
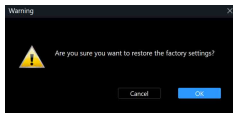
Setting item:
Restore factory settings

1 **Click the "OK" button to restore all the data set in the machine to the factory default state.**

Shutdown delay setting

Select [Shutdown Delay] from the options page to enter the shutdown delay setting page.

■ Shutdown delay page
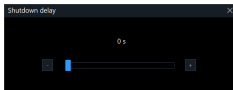
Setting item:
Shutdown delay
Setting content:
0~255s (initial value: 0s)

Language Settings

Setting item:
Language
Setting content:
English

View About

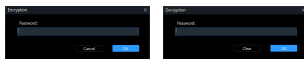Select [About] from the options page to enter the about page.

■ About page

You can view the version number.

Encryption Settings

Click [Encryption] to enter the encryption page, and click [Decryption] to enter the decryption page.

■ Encryption/Decryption page

Setting items:
Encryption/Decryption

1 **Encryption: Enter the password to encrypt the tuning data.**

2 **Decryption: You can enter a password to decrypt or clear data to EQ default data.**

• Encryption of EQ frequency, Q value, gain, delay, channel, phase equalizer and other tuning data.
• Encryption only encrypts a single group of audio data currently in use, not all data of the whole machine.
• The encrypted sound data can be stored as preset sound effects or computer files, and copying and transmission will not affect the encrypted state.

Master volume setting

Setting item:
Master volume
Setting content:
0~35 (initial value: 12)

1 You can adjust the total volume by pressing and holding the left mouse button, dragging the volume fader left or right, or scrolling the mouse wheel.

2 Click the main volume [ ] button to set the total volume mute [ ], click again to cancel the mute (it will automatically cancel the mute when the main volume is adjusted).

Function Page Selection

The function page can be switched.
<Setting item>

Home Page	
	Main source selection
	Main source attenuation setting
	Mix source selection
	Channel settings
	X-Over settings
EQ	
	Channel mute
	Sync settings
	EQ adjustment
	Equalizer settings
	Type selection
	Channel settings
	X-Over settings
	Preset sound settings

TCR	
	Delay adjustment
	Delay group selection
	Delay value display window
Mix	
	Combined frequency volume adjustment
Input mode selection	
	Input mode selection
Ouput mode selection	
	Ouput mode selection
Anti EQ	
	Type selection
	Fixed
	EQ adjustment
	Equalizer settings
	Signal gain
	Sensitivity
AutoEQ	
	Volume Adjustment
	Measurement
	Tuning
	Managing

Home Page

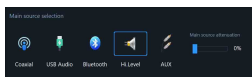## ■ Home Page

Setting items:
   Home Page
Setting content:
   Main source selection/Main source attenuation/
   Mix source selection/Channel settings/
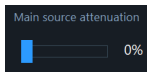   X-Over settings

Main Source Selection

Setting items:
   Main source selection
Setting content:
   Coaxial/USB Audio/Bluetooth/Hi.Level/AUX

Main Source Attenuation Setting

You can press and hold the left button of the mouse to move the fader left or right or scroll the mouse wheel, or press the up and down keys of the keyboard to set the attenuation. The Mix source is equivalent to mixing. The greater the attenuation of the main sound source, the lower the main volume, adjustable value: 0%~100%.

Setting items:
   Main source attenuation

Setting content:
   0% to 100% (default 0%)

Note:
When the current audio source mode is selected, the audio source mode can no longer be superimposed, otherwise the Mix source is invalid.

Mix Source Selection
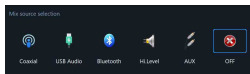
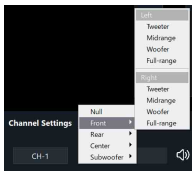**Setting items:**
   Mix source selection
Setting content:
   Coaxial/USB Audio/Bluetooth/Hi.Level/AUX/OFF
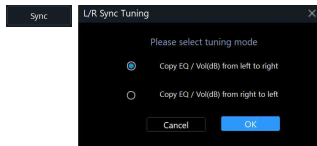
Channel Settings

Custom output channel type.
You can configure your favorite channel type according to your hobby.

■ Output type custom page

1 **Click the channel type custom box.**

2 **Select the output channel type in the pop-up window. Set the output type in the output type setting dialog box. There are tweeter, midrange, woofer and full-range options in the Front; tweeter, midrange, woofer and full-range options are available in the Rear; Front Center, Rear Center, F/C-Tweeter, R/C-tweeter options are available in the Center; L-subwoofer, R-subwoofer and subwoofer options are available in the Subwoofer.**
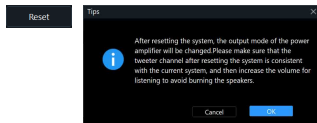
■ Sync settings page

Click [Sync], The optional sync is "Copy EQ/Vol(dB) from left to right" or "Copy EQ/Vol(dB) from right to left".

■ Lock settings page
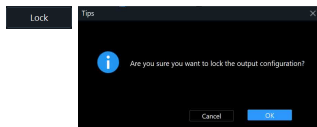
Click[Lock],It will lock all the output channel type.

■ Reset settings page

Click[Reset],It will clear all the output channel type to Null.

X-Over Settings

Setting items:
   X-Over settings
Setting content:
   Type/Frequency/Slope

1 Type settings: Link-Ril, Bessel and Butter-W.

2 Frequency setting: The frequency can be adjusted by directly inputting the value, scrolling the mouse wheel, the up and down keys on the keyboard, or clicking "-" or "+". Adjustable range: 20Hz~20000Hz.
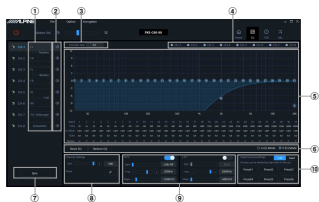
3 Slope setting: -6dB/Oct, -12dB/Oct, -18dB/ Oct, -24dB/Oct, -30dB/Oct, -36dB/Oct, -42dB/ Oct, -48dB/ Oct is optional.

Note:
When the slope is -6 dB/Oct, the type is displayed as "Null".

EQ

■ EQ page

Setting items:
   EQ/Channel Settings/X-Over settings/Preset sound settings
Setting content:
   Channel mute/Sync settings/EQ adjustment/ Equalizer settings/Channel display selection button/Channel settings/X-Over settings/Preset sound settings

① Customize the output channel type.
② Mute button.
③ EQ Gain step selection.
④ Channel display selection button.
⑤ EQ editing and display area.
⑥ Equalizer settings.
⑦ Sync settings button.
⑧ Channel settings.
⑨ X-Over settings.
⑩ Preset sound settings.

Customize the output channel type

Refer to "Output type custom page" (page 14).

Channel Mute Setting
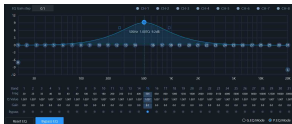
Setting items:
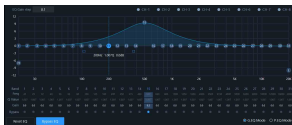Channel mute
Setting content:
Mute/off

EQ Adjustment

The output has 31 bands of EQ adjustable, and there are two interfaces of graphic equalization and parametric equalization.

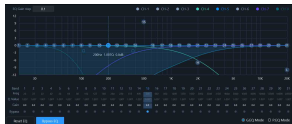P.EG page

G.EQ page

EQ Gain step

Setting items:
EQ Gain step
Setting content:
0.1 (initial setting)/0.5/1

EQ curve display

Click the channel display selection button to display the curve of the channel.

EQ settings

1 Select the output channel to be adjusted.

2 When the mouse moves to the serial number position, hold down, drag up and down to adjust the equalizer gain, drag left and right to adjust the equalizer frequency; when the mouse moves to the left and right blue boxes, hold down and drag to adjust the equalizer Q value. You can also set the frequency, Q value and gain by directly inputting the value, scrolling the mouse wheel, and the up and down keys on the keyboard.
Adjustable frequency range: 20Hz~20kHz;
Adjustable range of Q value: 0.404~28.852;
Gain adjustable range: -12.0 dB ~+12.0 dB.

Note:
The gain is adjustable in the graphic equalization interface, and the frequency and Q value are not adjustable. In the parameter equalization interface, the frequency, Q value and gain are adjustable.

Equalizer Settings
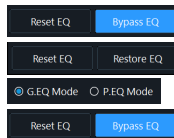
1 When there is EQ adjustment, the direct equalization button appears.

2 Through Equalization: When the current channel equalizer is turned on, this button will be displayed [Bypass EQ], click [Through Equalization] or the through dot to make all equalizers of the current channel inactive (through).

3 After clicking the "Yes" button, the button will be restored to the [Restore Balance] state [Reset EQ Restore EQ]. Then click [Restore EQ] and all equalizers of the current channel will return to the last activated state.

4 Click [Reset EQ], the parameters of all equalizers of the current channel return to the initial state.

5 Click [G.EQ Mode] to pop up a warning box "Confirm P.EQ to G.EQ mode?", press OK to switch to [G.EQ Mode], click [P.EQ Mode] to pop up a warning box "Confirm G.EQ to P.EQ mode?", press OK to confirm Switch [P.EQ Mode]. In the parametric equalization mode, the frequency, Q value and gain are adjustable, while in the graphic equalizer mode, the frequency and Q value are fixed, and only the equalizer gain can be adjusted.

Sync Settings

Refer to "Sync settings page" (page 15).

Channel settings
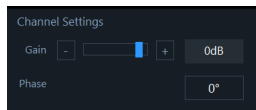
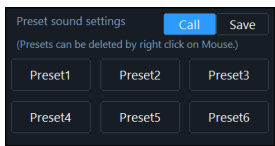

Setting items:
Preset sound settings
Setting content:
Gain/phase

1 Gain setting: The gain can be adjusted by directly inputting the value, scrolling the mouse wheel, the up and down keys on the keyboard, or clicking "-" or "+". Adjustable range: -60dB~6dB.

2 Phase setting: normal phase or reverse phase switch.

X-Over settings

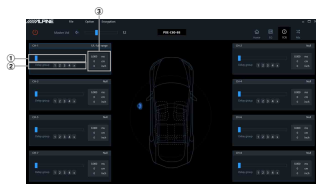Refer to "X-Over Settings" (page 15).

Preset sound settings

Setting items:
Preset sound settings
Setting content:
Call/Save/Delete

1 Click [Call] to recall the pre-stored sound effects.

2 Click [Save] to store the adjusted sound effect data.

3 Click the right mouse button to delete the preset sound settings.

TCR

① Delay adjustment.
② Delay group selection.
③ Delay value display window.

**Setting items:**
Delay setting
Setting content:
Delay/Delay group

1 Delay adjustment: The delay can be adjusted by directly inputting the value, scrolling the mouse wheel or the up and down keys on the keyboard.

2 Delay group: select the delay group, and the channels with the same delay group can be adjusted together.

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3 **The delay units are ms (milliseconds), inch (inches) and cm (centimeters).**

Delay range: 0.000~20.000 milliseconds;
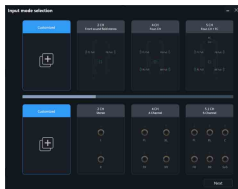   0~692 cm;
           0~273 inches.

Mix
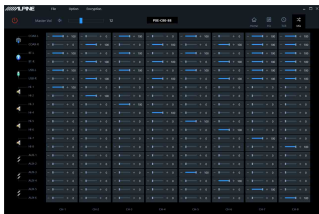
After the PXE-C80-88 machine sets the sound source signal into the audio processor, it is divided into the volume of each output channel, and the purpose of mixing and mixing can be achieved by adjusting the volume of each sound source in the channel.
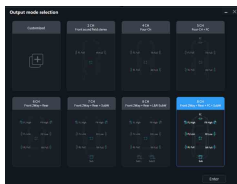
Input mode selection

■ Input mode selection page

1 **Select the desired channel type.**

2 **Click the [Enter] button to configure the channel type. At this time, the input channel type is fixed and cannot be configured.**

3 **Select Customized to clear all input channel types. At this time, you can customize the input channel types.**

Output mode selection

■ Output mode selection page

Refer to "Input mode selection page" (page 18).

Anti EQ

■ AntiEQ page

Setting items:
    Anti EQ
Setting content:
    Fixed/EQ adjustment/Equalizer setting/Save/
    Signal gain/Sensitivity

① Hi.Level input channel type.
② Fixed the RTA data.
③ EQ editing and display area.
④ Equalizer settings.
⑤ Save the AntiEQ data.
⑥ Signal gain.
⑦ Sensitivity.
⑧ RTA data.

H.level input channel type

Refer to "Output type custom page" (page 14).

Fixed the RTA data

1 Default is Fixed [▮], There is no RTA data.

2 Click one channel Unfixed [▮], begin to display RTA data.

3 10 bands of EQ adjustable to make the RTA data is flat.

EQ Adjustment

Refer to "EQ Adjustment" (page 16).

Equalizer settings

Refer to "Equalizer Settings" (page 16).

Signal gain

Hold down the mouse and push the fader left and right to adjust the signal gain.

Sensitivity

There are high, medium and low options. The higher the sensitivity, the more sensitive the frequency spectrum jumps.

AutoEQ

The PC and amp will connect automatically.

Volume Adjustment

Before measurement, the application will help you set an ideal volume.

Neutralize tone controls and processes
⚠ **Important:**
Be sure at this point to neutralize any tone controls and turn off any sound processes which are downstream from the amp.

Volume adjustment process
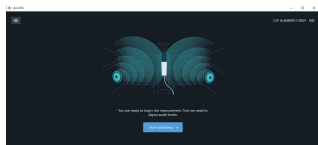Upon connecting to a new amp, AutoEQ will prompt you to start adjusting the volume level.

Figure 1

⚠ **Important:**
Make sure the microphone is connected to the amp.
Hold the microphone in the center of the cabin about one foot from the center console.
Click the button to proceed when you are ready.
You will hear the frequency sweep ("whoop-whoop") playing at a low volume.
Use the volume slider on the screen to gradually raise the volume until the input level rises to the middle of the volume monitor.
AutoEQ will automatically stop playing the signal after it detects a good level for a few seconds.
With level adjustment complete, the app will prompt you to proceed to the next step: measurement.
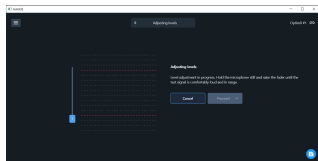

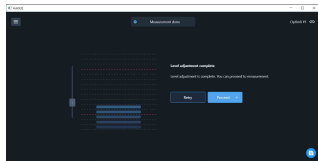Figure 2 - The volume adjustment screen showing the starting volume for the volume adjustment process.

Figure 3 - The volume adjustment screen showing the end result of volume adjustment.
The slider has been raised and the detected volume is optimal.

Measurement

This section explains the measurement portion of AutoEQ.

Microphone movement

Correct microphone movement during sound measurement is critical to getting a good result from AutoEQ. Please read this section carefully.

1 Overview

To make a measurement, you will move the microphone through the space of the cabin while AutoEQ plays a frequency sweep ("whoop-whoop" sound).

The key is to move the microphone constantly and consistently so that all of the space in the cabin is evenly covered during measurement.

This is important, so we will explain it in detail.

2 Measurement points

One AutoEQ measurement consists of at least 200 measurement points. That is, the frequency sweep ("whoop-whoop") will be played 200 times in order to measure the cabin's sound.

The exact point in space where the microphone is when it hears one frequency sweep is a measurement point. The sound was measured at that point.

The goal of microphone movement is to space these measurement points as evenly as possible in the frontal space of the car cabin.

3 Range of movement

Spaces through which you should move the microphone include:
- The space above the dashboard.
- The space in front of the driver and passenger, as low as the front of their shins (going slightly into the foot wells) and as high as the ceiling.

4 What to avoid

When moving the microphone for a measurement:
- Do not stop moving the microphone at all, including for individual measurement points. Constant movement is best.
- Do not go deep into the foot well spaces in the measurement.

Perform measurement

When you are ready, click the button to begin measurement.

A countdown will begin on the screen, and then the measurement process will begin.

For the duration of the measurement, move the microphone through the cabin of the car as described in the previous section.

During measurement, the result of each sweep will be displayed on the screen with a faint curve and the average will be shown with a strong curve.
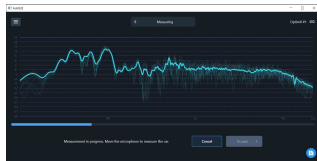

Figure 4 - The measurement screen showing a measurement in progress.

The progress of the entire measurement will be shown in a progress bar at the bottom of the screen. The app will confirm when measurement is completed.
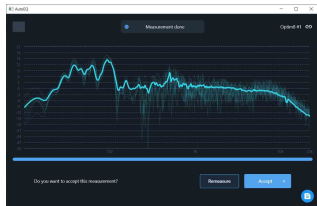

Figure 5 - The measurement screen showing a measurement that has been completed.

If you see no obvious problems with the measurement, you can accept it. If not, choose "remeasure" to retry measurement.

Tuning

With measurement complete, you are ready to tune the sound in the vehicle.

Tuning screen

This section is an introduction to the tuning screen. It will cover the controls shown on the screen without discussing procedure.

Figure 6 - The tuning screen with its default options shown.

1 Side Panel Controls

These are the controls available outside of the main graph area:

EQ Gain Offset - This setting adjusts the boost and cut of the EQ. This will be the first step in your tuning process.

Reset to Default - This button resets everything on this tuning screen to defaults.

Bypass EQ - This toggle allows you to A/B test the sound with the EQ on and off.

Level - This slider controls the volume of the music source.

2 Graph Curves

These are the curves shown in the main graph area. The display of each one can be toggled on and off.

Target (yellow) - This is the curve which you will manipulate to tune the system. AutoEQ will match your system's sound to this curve.

Measurement (dark teal) - This is the measured APVD of your car's system.

EQ (blue) - This is the correction curve AutoEQ will apply in order to achieve your target curve.

Predicted (gray) - This curve shows what the predicted result from your target curve will be.
It will vary slightly from the target (yellow) curve, or may be hidden behind it if AutoEQ is going to hit your target exactly.

Distortion & Noise (magenta) - This curve shows the distortion and noise that were present during your measurement.

Tuning Process

This section covers the standard procedure using the tuning screen to create your EQ.

1 Check the Distortion & Noise Level

Before proceeding, we must check the Distortion & Noise curve relative to the Measurement curve. To make this easier, you may turn off display of all other curves.

Where the Distortion & Noise curve comes too close to the Measurement curve, that means there is too much noise to rely on this measurement in that frequency range. The Distortion & Noise curve should be at least 10 dB below the Measurement curve. If it is 6 dB or closer, that frequency range of the measurement is unreliable.

Figure 7 - The tuning screen showing an unacceptable high amount of noise.

It is expected that the Distortion & Noise curve will approach the Measurement curve in the very low frequency ranges. This will be in the frequency range where ambient noise overpowers the system's capabilities. This is not a problem.

Figure 8 - The tuning screen showing a good noise level, well below the measurement curve.

2 Adjust the EQ Gain Offset

This setting will define the amount of boost and cut AutoEQ will use.

When adjusting EQ Gain Offset, it is best to turn on the display of only the Measurement and EQ curves in the graph area. This way, you can clearly see the boost/cut areas.

- **Boosted** areas are the frequency ranges where the EQ curve is above the Measurement curve.
- **Cut** areas are the frequency ranges where the EQ curve is below the Measurement curve.

Use the slider to raise or lower the EQ Gain Offset until there is an equal amount of boost and cut across the graph.

Bad offset sample Figure 9, Figure 10.

Figure 9 - The tuning screen showing an EQ Gain Offset with too much cut. The EQ curve is entirely below the Measurement curve.

Figure 10 - The tuning screen showing an EQ Gain Offset with too much boost. The EQ curve is entirely above the Measurement curve.

Good offset sample Figure 11.

Figure 11 - The tuning screen showing an EQ Gain Offset that is good. It is balanced between cut and boost.

3 Play reference audio

If you want to play reference audio while tuning, you can start now. You can play audio from a music player app on your PC, or you can send audio into the amp from a completely separate input. Both will work for real-time tuning.

4 Adjust the Target Curve

Enable the display of the Target curve. (Displaying other curves is optional.) This is the yellow curve with control points which you can set to define your desired outcome. Each control point is represented as a node (white dot) on the curve.

Moving the control points - To move a control point, simply drag it to the desired location. You can move it side to side or up and down.

Adding a control point - To add a control point, double-tap on the Target curve where you want to create the new point. Then, drag that point to adjust its position.

Deleting a control point - To delete a control point, double-top on it. You will have an option to delete that control point, or to cancel deletion.

As you modify the target curve, AutoEQ will update the EQ curve and send it to the amp so you can hear your result. There is a delay of a few seconds from when you make an adjustment to when you hear it from the system.

5 Storing the EQ Curve

When you are done adjusting your target curve, you can click the Store button to finalize the EQ curve on the amp.

The EQ data is now saved on the amp.

Managing Amps

This section covers how to manage saved amps in AutoEQ and how to reconnect to an amp you have already worked on.

Reconnect to an amp

To reconnect to an amp you have worked on previously, you must have that amp connected to your PC via USB. The amp will appear in the Recently connected list. To work on this amp, simply click on its name.

Rename an amp

It is strongly recommended to give an amp a name that is easy to remember. To rename an amp from the Recently connected amps list, click on the three-dot menu icon on the right side of its name. Choose "Edit."

You can now rename the amp by changing the name in the text field. The original name of the amp will always be saved and shown in the amp info.

Remove an amp

To remove an amp from the Recently connected list, tap on the three-dot menu icon on the right side of its name. Choose "Edit."

Click the button at the bottom of the menu to remove the amp from your app.

Mobile Phone App

Overview

This manual explains how to use the Alpine AutoEQ app on an iPhone to perform equalization.
Here is an overview of the process:

1 Setup
A list of required software and hardware.

2 Connect
Connect the iPhone app to the Alpine amp.

3 Volume adjustment
The app will assist you in setting the right volume for measurement.

4 Measurement
You will move the iPhone throughout the cabin in a specific way while the amp plays frequency sweeps. This measures the sound in the cabin.

5 Tuning
Once you have an accurate measurement, you can tune the system using the graphical interface.

Setup

This section covers the required hardware and software for using Alpine AutoEQ.

1 Hardware
Necessary hardware includes:
- Alpine amp
- An iPhone with access to the App Store

2 Software
The Alpine AutoEQ app is available from the App Store. Open the App Store and search for "PXE-C80_C60." Be sure to select the app published by Alpine Electronics.

Connect

Follow the instructions below to connect the Alpine AutoEQ app to the amp.

1 Turn on the amp
Power on the Alpine amp. Make sure its Bluetooth dongle is plugged in.

2 Bluetooth Settings on iPhone
From the iPhone's home screen, open the Settings app.
Tap on Bluetooth to enter the Bluetooth settings.
In the list of available devices, you will see the Alpine amp. It will have a name that starts with "DSP HD-…". Tap on this option to connect your phone to the amp.

3 Open the app and connect
From the iPhone's home screen, open the Alpine AutoEQ app.
When the app opens, it will scan for Alpine amps. In the upper portion of the screen, it will show new amps you have not connected to.
The Recently connected panel in the lower part of the screen shows amps you have connected to previously.
Tap on the amp you want to connect to.
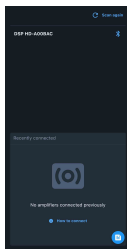
Figure 1

Volume Adjustment

Refer to AutoEQ Volume Adjustment in PC side. (page 19)

Figure 2 - The volume adjustment screen showing the starting volume for the volume adjustment process (horizontal orientation).

Figure 3 - The volume adjustment screen showing the end result of volume adjustment.
The slider has been raised and the detected volume is optimal. (Horizontal orientation.)

Measurement

Refer to AutoEQ Measurement in PC side. (page 20)

Figure 4 - The measurement screen showing a measurement in progress.

Figure 5 - The measurement screen showing a measurement that has been completed.

Tuning

Refer to AutoEQ Measurement in PC side. (page 21)

Figure 6 - The tuning screen with its default options shown.

Figure 7 - The tuning screen showing an EQ Gain Offset with too much cut. The EQ curve is entirely below the Measurement curve.

Figure 8 - The tuning screen showing an EQ Gain Offset with too much boost. The EQ curve is entirely above the Measurement curve.
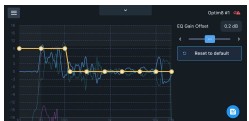
Figure 9 - The tuning screen showing an EQ Gain Offset that is good. It is balanced between cut and boost.

Figure 10 - An example of the tuning screen showing a customized EQ curve with the option shown to delete a control point.

Managing Amps and Reconnecting

Refer to AutoEQ Managing Amps in PC side.
(page 23)

Wired Controller

Connect the wired controller (RUX-CSP1) to the DSP correctly, and ensure that it starts normally before use.

Startup Screen

After the wired controller is started, the dynamic startup screen appears, as shown in Figure 1.

Figure 1

Master Volume

After it is started, enter the main interface of the wired controller-Master Volume Interface, as shown in Figure 2-1. Turn the button to adjust the master volume. Turning it clockwise can increase the volume, while turning it counterclockwise will decrease the volume. The adjustment range is from 0 to 35. In addition, pressing the master volume interface of the wired controller briefly can mute the DSP. The mute interface is as shown in Figure 2-2.

Figure 2-1

Figure 2-2

Subwoofer Volume (SUB W)

Press and hold the button in the main interface for 1~4 seconds to enter the subwoofer volume (SUB W) interface, as shown in Figure 3. Turn the button of the wired controller to adjust the subwoofer volume. Turning it clockwise can increase the volume, while turning it counterclockwise will decrease the volume (Adjustment range: 0~15). When the volume is turned to the desired volume, press the button briefly to determine the selected volume, and then return to the main volume interface directly.

Note:
If the wired controller is not operated for about 4 seconds, it will exit from the interface to the main interface (Master Volume Interface).
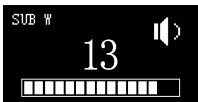
Figure 3

Sound Effect Presets (PRESET)

Press and hold the button in the main interface for over 4 seconds to enter the sound effect presets interface. And then turning the button to move the cursor to the sound array "1~6" or enter the "Skip" page, as shown in Figure 4-1. The number after PRESET refers to the sound effect data currently used by the DSP.
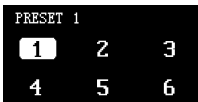
Figure 4-1

When the cursor moves to a number, press the button briefly to load the sound effect presets, as shown in Figure 4-2. After the data is loaded, it will exit from this interface to the main interface (Master Volume Interface).

Figure 4-2

Main Source

Turn the button of the wired controller in the "Skip" interface to enter the main source interface, as shown in Figure 5. Turn the button to select the main sound source: COAX (Digital), USB, BT (Bluetooth), Hi.L (High Level), or AUX (Low Level), and press the button briefly to confirm the main source selection mode. If no operation is performed for about 4 seconds, it will exit from the interface to the main interface (Master Volume Interface).

Figure 5

Main Source Attenuation

Press the button briefly to select the COAX (Digital), USB, BT (Bluetooth), Hi.L (High Level), or AUX (Low Level) mode to enter the interface of adjusting the main source attenuation, as shown in Figure 6. Turn the button to adjust the main source attenuation level, clockwise is to increase the attenuation level, while turning it counterclockwise will decrease the attenuation level. The range of attenuation is 0~100%. If no operation is performed for about 4 seconds, it will exit from the interface to the main interface (Master Volume Interface).

Figure 6

Mix Source

After pressing the button to select the main source attenuation, you can enter the mix sound source interface, as shown in Figure 7-1. Turn the button to select the mix sound source: COAX (Digital), USB, BT (Bluetooth), Hi.L (High Level), AUX (Low Level) or OFF. And press the button briefly to confirm the mix source mode. If no operation is performed for about 4 seconds, it will exit from the interface to the main interface (Master Volume Interface).

Figure 7-1

Note:
When a sound source is selected, it cannot then be selected again as the mix sound source; doing so causes the mix sound source to be invalid, as shown in Figure 7-2. If no operation is performed for about 4 seconds, it will exit from the interface to the main interface (Master Volume Interface).

Figure 7-2

Channel Settings

Press the button briefly to select the COAX (Digital), USB, BT (Bluetooth), Hi.L (High Level), AUX (Low Level) or OFF mode to enter the channel settings interface, as shown in Figure 8-1. The output type of channel 1 speaker can be selected by turning the button in the following order: Full-range, Tweeter, Woofer, Subwoofer, and Mid-range. After selection, press the button briefly to confirm the channel type. And if CH-1 is synchronized to the Tweeter type, it will be displayed. Then turn the button to the right to select the speaker type in the order of Woofer → Subwoofer → Mid-rang, and turn the button to the left for Full-rang. At the same time, press the button briefly can also be directly switched to 2~8 channel, and the corresponding channel settings.

Figure 8-1

When the wire controller is in the channel 8 setting interface, press the button briefly to enter the CAUTION page, as shown in Figure 8-2. Turn the button can choose to save or skip, and press it briefly to determine the selection. After the selection is complete, it will automatically exit from the interface to the main interface.

Figure 8-2

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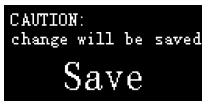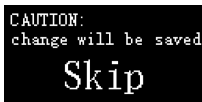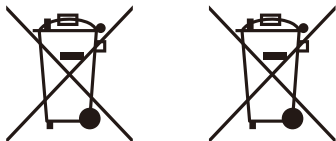
Information on the disposal of waste electrical and electronic equipment and batteries (applicable to countries that adopt a garbage collection system)

If you want to dispose of this product, do not mix it with general household waste. In accordance with regulations that require proper disposal, recycling and recycling, there is a separate collection system for waste electronic products. Please contact your local authorities to find the location of the recycling facility closest to you. Proper recycling and waste disposal help conserve resources while preventing harmful effects on human health and the environment.

Specifications

Performance		
Power Output	Rated: 4Ω, 14.4V, 10%THD	CH1-6: 50W, CH7-8: 150W
RCA Output	Rated: 10kΩ, 14.4V, 0.1%THD	CH1-8: 4Vrms
THD+N	High level: 2Vrms into 4Ω	≤0.1%
	RCA: 2Vrms into 10kΩ	≤0.06%
S/N	High level: 40k-AES17+A-weighted	≥80dB
	RCA: 40k-AES17+A-weighted	≥95dB
Input Voltage	High level	26Vpp
	RCA	11Vpp
Output Voltage	High level	CH1-6: 40Vpp, CH7-8: 70Vpp
	RCA	4Vrms
Frequency Response		20Hz~40kHz
General		
Input Impedance	High level	>50kΩ
	RCA	>50kΩ
System Sampling Rate		192kHz/32bit
Operating Voltage		9~16V
Operating Temperature		-20°C~+60°C
BACK UP CURRENT (12.6V)		≤3mA
REM Start Input		High level (H1-/H1+), ACC optional
REM Start Output		12V (0.2A)
Weight		2.4kg
Dimensions	Length	225mm
	Width	220.5mm
	Height	54mm

Function Parameter

Inputs	8ch High-level 6ch RCA Coaxial Digital Signal Bluetooth Audio USB Audio (DAC)
Outputs	8ch High-level 8ch RCA
Output Channel Signal Gain	Range: -60dB~+6dB
Output Signal Equalizer	Type: Parametric / Graphic Equalizer Frequency: 20Hz~20kHz (1Hz steps) Q value: 0.404~28.852 Gain: -12.0dB~+12.0dB (0.1dB steps)
Anti EQ Signal Equalizer	Type: Parametric / Graphic Equalizer Frequency: 20Hz~20kHz (1Hz steps) Q value: 0.404~28.852 Gain: -12.0dB~+12.0dB (0.1dB steps)
Output Signal Divider	Each output channel is equipped with multi-order high and low pass independent filters, Filter type: Link-Ril, Bessel, Butter-W Filter crossover point: 20Hz~20kHz (1Hz steps) Filter slope: -6dB/Oct~-48dB/Oct
Output Phase	Normal phase or reverse phase (0° or 180°)
Output Delay	0.000~20.000ms, 0~692cm, 0~273inch
Preset Sound Effects	6 sound data presets

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About the Rules of Bluetooth Electromagnetic Radiation Regulation

Thailand	
	เครื่องวิทยุคมนาคมนี้ ได้รับยกเว้น ไม่ต้องได้รับใบอนุญาตให้มี ใช้ซึ่งเครื่องวิทยุคมนาคม หรือตั้งสถานีวิทยุคมนาคมตามประกาศ กสทช. เรื่อง เครื่องวิทยุคมนาคม และสถานีวิทยุคมนาคมที่ได้รับยกเว้นไม่ต้องได้รับใบอนุญาต วิทยุคมนาคมตามพระราชบัญญัติวิทยุคมนาคม พ.ศ. 2498

UAE		**TDRA – UNITED ARAB Emirates** **Mode Dealer ID Name:** DA99931/21 **TARTTE:** ER16354/22 **Model Name:** KCE-800BT **Product Type:** Bluetooth	

Function	Operation Frequency Range	Max Output Power	Operation temperature
Bluetooth	2.402GHz~2.480GHz	3.80dBm	-20℃~+60℃

Attestation of Conformity

Registration No.	AGC03993220403E0
Applicant	ALPINE ELECTRONICS MARKETING, INC.
	1-7, Yukigaya-otsukamachi, Ota-ku, Tokyo, 145-8501, Japan
Product Designation	External HD digital Bluetooth
Brand Name	Alpine
Model / Series Models	KCE-800BT
Manufacturer	ALPINE ELECTRONICS MARKETING, INC.
	1-7, Yukigaya-otsukamachi, Ota-ku, Tokyo, 145-8501, Japan

Requirement	Applied Standards	Document Evidence	Result
Art.3.1(a) Health	EN 62479:2010 EN 50663:2017	Test Report: AGC03993220403EH02	Conform
Art.3.1(a) Safety	EN IEC 62368-1: 2020+A11:2020	Test Report: AGC03993220403ES01	Conform
Art.3.1(b) EMC	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09)	Test Report: AGC03993220403EE01	Conform
Art.3.2 Radio	ETSI EN 300 328 V2.2.2 (2019-07)	Test Report: AGC03993220403EE04	Conform

CE

Signed by General Manager (King Zhang)
Issue Date: June 9, 2022

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