

D S P A M P L I F I E R

Welcome to REBEC

We focus on providing premium acoustic experience and maintain strict standards for sound performance and manufacturing quality.

To ensure optimal use and installation results, please read this manual in full before installation.

Prepare all necessary tools and fully understand the installation procedures before operation. If you have any doubts, please consult a professional installation technician for assistance. Do not perform unauthorized operations.

Warranty Statement

This product is covered by warranty. Warranty terms and coverage shall be subject to local after-sales policies. Please present the original dated sales receipt when applying for repair services; otherwise, your warranty rights will be affected.

Technical Assistance

For technical assistance, please contact the shop where the product was purchased or the authorized distributor in your country/region.

You may also find relevant information on our official website:

www.rebecaudio.eu

We follow a policy of continuous improvement. Specifications and design details are subject to change without prior notice.

Compliance Statement

We hereby declare that this product meets the essential requirements and relevant provisions of applicable EU directives and harmonized standards. The product is affixed with the CE marking in full compliance with EU regulatory requirements, and the complete EU Declaration of Conformity is available upon request. All required conformity assessment tests have been successfully passed, and the product is eligible for legal placing on the market and sale within the European Union.

Specific compliance items are listed below:

- **Electromagnetic Compatibility (EMC) Directive 2014/30/EU**

Compliant with harmonized standards: EN 55032, EN 55035

- **Restriction of Hazardous Substances (RoHS 2) Directive 2011/65/EU**

Restricts the use of hazardous substances including lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE)

- **Radio Equipment Directive (RED) 2014/53/EU** (applicable to Bluetooth models only)

Compliant with harmonized standards: EN 300 328, EN 301 489-1, EN 62368-1

Waste Product Recycling Instructions

This product is electrical and electronic equipment. Do not dispose of it with household waste.

After scrapping, the product must be handed over to a professional e-waste recycling facility for disposal. It is strictly prohibited to discard it arbitrarily.

The recycling must comply with the EU WEEE Directive (2012/19/EU) requirements for separate collection and treatment, to protect the environment and human health.

For information on local recycling channels, please contact your municipal waste authority or the EU importer of this product.

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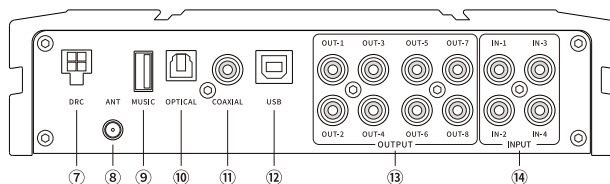
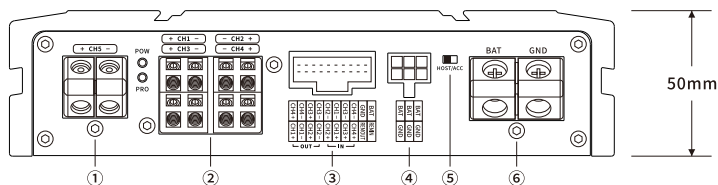
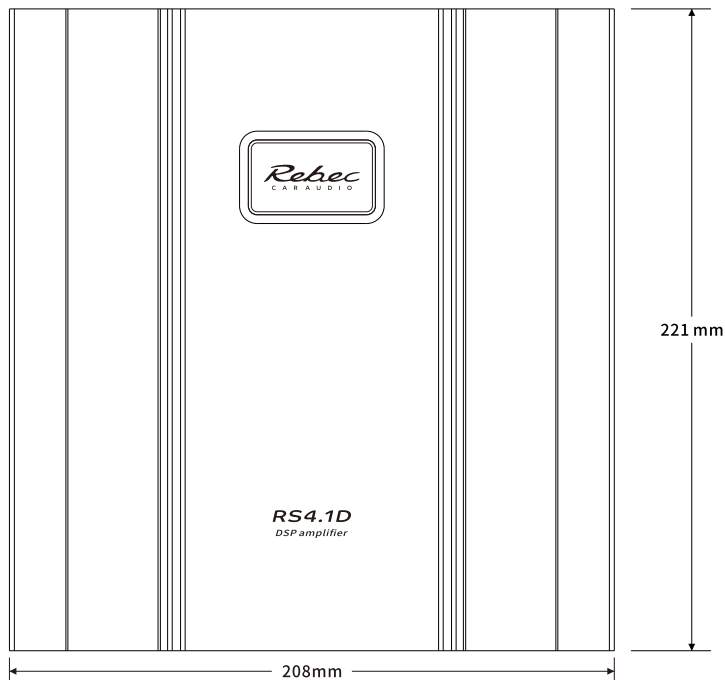
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Stereobutikken AS
Address: Aursundveien 2806, 7370 Brekkebygd, Norway TEL: +4722320860 Email: contact@rebecaudio.eu

Dimensions & Terminals



①② High Level Output ④⑥ Power Input Terminal ⑤ Activate Selection Button: ACC or HOST

③ REM in, Rem out, High Level Input, High Level Output (The high-level input terminal CH1 can activate the device.)

⑦ External Control Panel ⑧ External Bluetooth Antenna ⑨ USB Playback Interface ⑩ Optical Input

⑪ Coaxial Input ⑫ Computer Connection Interface ⑬ Low Level Output ⑭ Low Level Input

Scope of Delivery

- RS4.1D DSP Amplifier × 1
- User Manual × 1
- Warranty Card × 1
- Certificate of Conformity × 1
- Plug-and-play Wiring Harness × 1
- Mounting Brackets × 4
- Screws × 8

Features

- Class D amplification technology
- Compact design
- Auto-start function
- Built-in DSP processor
- Built-in Bluetooth module
- External High-Fidelity Bluetooth Antenna
- USB media playback
- Optical & coaxial digital inputs
- Plug-and-play OEM harness connectors
- PC tuning software support
- Support connection with external control panel (sold separately)

Installation

Before you begin installation

Before you begin installing this product, please read the manual thoroughly and have the required tools, cables and accessories ready. A complete list of materials is provided on the following page.

Amplifier location

Allow air circulation around the unit.

DSP amplifiers generate heat during operation. Install in a well-ventilated location. Do not cover with carpets or hide behind enclosed trim panels.

Do not mount inverted or upside down, to avoid affecting circuit stability or allowing foreign objects/water to enter.

Before installation, confirm the location does not interfere with the vehicle's structure, wiring or functions. Avoid installing in areas exposed to direct sunlight, high humidity or water.

Do not disassemble or modify the unit. Do not place heavy or metal objects on the unit to prevent damage or short circuits.

Disconnect Battery

Always disconnect the negative terminal of the vehicle battery before starting installation.

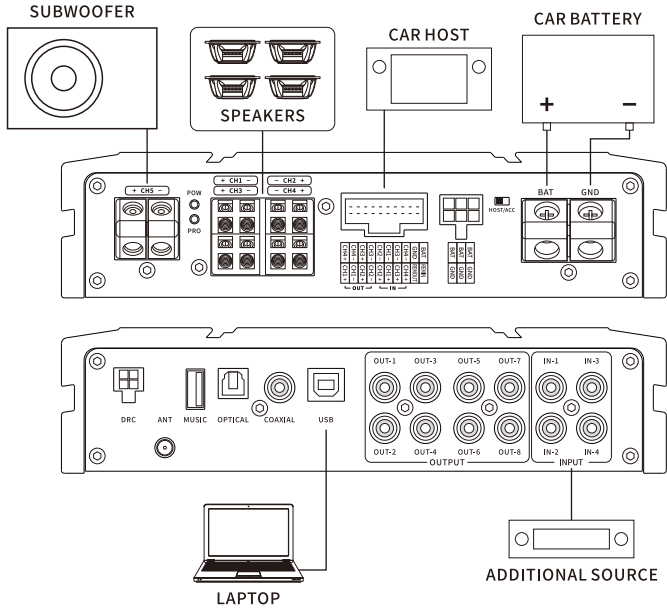
Before installing this product, always disconnect the negative terminal of the vehicle battery to avoid accidental short circuits, equipment damage or harm to the vehicle's electrical system during installation.

Reconnect the negative terminal only after all wiring is complete and verified.

Bluetooth Connection Tutorial

When the amplifier is in working mode, the phone can search for the device name of "CAR_DSP_E5.4" through Bluetooth function, and click this option to perform Bluetooth pairing.

Routing wires



Tools and Materials Required

Tools:

- Phillips-head screwdriver
- Wire cutter/stripper
- Wire crimping pliers
- Heat gun
- Utility knife (optional)
- Interior trim removal tool set
- Power drill and drill bit set
- Socket wrench set (8mm/10mm/13mm)
- Digital multimeter or test light
- Tape measure (optional)

Wiring Specifications:

- Power cable: 6 AWG (<2m) / 4 AWG (≥2m)
- *Ground cable gauge must match the power cable gauge
- Tweeter wire: 18 AWG
- Woofer wire: 14 AWG
- Remote turn-on lead (REM): 18 AWG
- Midrange wire: 16 AWG
- Subwoofer wire: 10 AWG
- RCA interconnect cable

Note: Vehicle-specific plug-and-play T-harnesses are available and sold separately.

Installation Materials:

- Fuse holder with appropriate fuses
(Fuse rating must be selected according to the amplifier's maximum input current)
- Mounting screws, nuts and washers
- Speaker wire terminals
- Rubber grommets
- Cable ties
- Fine-grit sandpaper / conductive grease (for ground point treatment)
- Shock-absorbing rubber pads (optional)
- Ring terminal lugs
- Flame-retardant corrugated wire tubing
- Heat shrink tubing
- Fleece wire harness tape (optional)

Troubleshooting

Safety Precautions

- Cut off the whole vehicle power and disconnect the power cable of DSP amplifier before inspection, to avoid short circuit and equipment burnout.
- Do not disassemble the amplifier by yourself. There are no user-serviceable parts inside. Disassembly will void the warranty directly.
- Replace fuse with original specified specification only. Never use fuse with higher current rating to avoid mainboard damage.
- Do not make positive power cable contact negative power cable during inspection to prevent instantaneous short circuit.

Common Faults and Solutions

1. No power, power indicator off

- Cause 1: Loose, fallen or wrongly connected power cable, ground wire and REM control wire.
- Solution: Fasten all wiring terminals again, check wiring definition and avoid reverse connection.
- Cause 2: Built-in fuse or vehicle power fuse is blown.
- Solution: Replace with original fuse of the same specification, and inspect short circuit before re-powering on.
- Cause 3: Vehicle battery voltage is lower than 11V.
- Solution: Start the vehicle for power charging or connect external power supply to supplement electricity.
- Cause 4: No turn-on trigger signal output from host REM wire.
- Solution: Detect host turn-on signal and replace the REM control wire.

2. Power indicator on, but no sound output from all channels

- Cause 1: Mute mode is enabled or master volume is set to minimum.
- Solution: Connect DSP tuning software, disable mute function and turn up master volume.
- Cause 2: Wrong input source selected; RCA audio cable is loose or damaged.
- Solution: Switch to matched input source, re-plug or replace audio signal cable.
- Cause 3: Speaker wire short circuit or all speakers damaged.
- Solution: Disconnect all speaker wires for independent test, locate short circuit point and replace faulty speakers.
- Cause 4: Amplifier enters full protection mode.
- Solution: Power off the device and leave it standing for 5 minutes for heat dissipation, then restart after troubleshooting overheating and short circuit faults.

3. Partial channels no sound while other channels work normally

- Cause 1: Corresponding channel is disabled or channel volume is set to zero in tuning software.
- Solution: Open tuning software, enable the silent channel and restore default channel volume parameters.
- Cause 2: Open circuit or poor contact of single-channel speaker wire.
- Solution: Reconnect speaker wire of faulty channel and fix wiring terminals firmly.
- Cause 3: Hardware failure of single audio input channel.
- Solution: Swap left and right channel signal cables to confirm fault location, and send the device back to factory for professional maintenance.

4. Abnormal noise, current noise and background noise during playback

- Cause 1: Damaged shielding layer of audio cable; audio cable is laid close to power cable leading to electromagnetic interference.
- Solution: Separate audio cables from power cables during wiring, and replace high-quality shielded audio cables.
- Cause 2: Poor grounding of host and DSP amplifier.
- Solution: Polish vehicle grounding points again to ensure firm and rust-free grounding connection.
- Cause 3: Excessively high system gain setting.
- Solution: Enter tuning software and properly reduce input and output gain value.

5. Amplifier restarts frequently with flashing warning indicator

- Cause 1: Device overheating caused by long-time high-power operation.
- Solution: Ensure good ventilation and heat dissipation for amplifier installation position, and lower playback volume properly.
- Cause 2: Too low speaker impedance or speaker wire short circuit.
- Solution: Check parallel connection quantity of speakers and troubleshoot wire insulation damage and short circuit problems.
- Cause 3: Severe voltage fluctuation of vehicle power supply.
- Solution: Install power capacitor to stabilize vehicle power supply voltage.

6. Computer fails to connect with DSP tuning software

- Cause 1: Damaged USB tuning cable or poor interface contact.
- Solution: Replace original dedicated USB tuning cable and re-plug the interface.
- Cause 2: Corresponding driver program is not installed on computer.
- Solution: Download and install official driver, then restart computer and reconnect.
- Cause 3: DSP amplifier is not powered on normally.
- Solution: Make sure the amplifier works normally before connecting with computer for tuning.

After-sales Service Instruction

If the device still cannot work normally after all above troubleshooting steps, stop using the product immediately and contact your dealer or official after-sales team for professional maintenance. Do not disassemble the device without authorization.

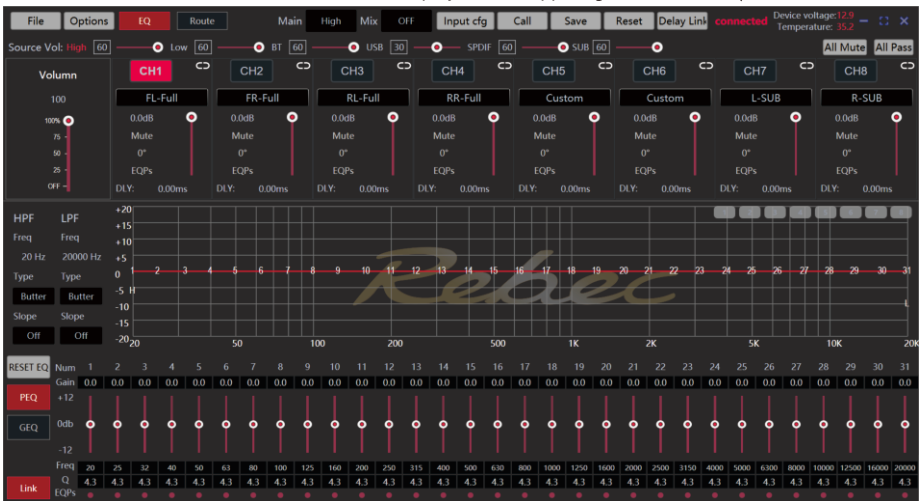
Specifications

Model	RS4.1D
Input	USB Audio Input
	4-CH low level input (1.3–5.1 Vpp)
	4-CH high level input (7.9–24.9 Vpp)
	Optical input (192 kHz/24 bit)
	Coaxial input (192 kHz/24 bit)
	Bluetooth input
Output	5-ch high level output
	8-ch low level output
RCA Output Voltage	2.35 V
RMS Output Power	100W×4CH+250W×1CH@14.4VDC, 0.1%THD,4Ω
	133W×4CH+333W×1CH@14.4VDC, 0.1%THD,3Ω
	150W×4CH+400W×1CH@14.4VDC, 0.1%THD,2Ω
	100W(4Ω)×4CH+600W(1Ω)×1CH@14.4VDC, 0.1%THD
MAX Output Power	200W×4CH+500W×1CH@14.4VDC, 10%THD,4Ω
	267W×4CH+667W×1CH@14.4VDC, 10%THD,3Ω
	300W×4CH+800W×1CH@14.4VDC, 10%THD,2Ω
	200W(4Ω)×4CH+1200W(1Ω)×1CH@14.4VDC, 0.1%THD
RMS Bridged Power (CH1+CH2) & (CH3+CH4)	300W×2ch@14.4VDC, 0.1%THD,4Ω Bridged mode:3Ω/2Ω/1Ω load not permitted,minimum 4Ω
MAX Bridged Power (CH1+CH2) & (CH3+CH4)	600W×2ch@14.4VDC, 10%THD,4Ω Bridged mode:3Ω/2Ω/1Ω load not permitted,minimum 4Ω
Amplifier Topology	Class D
Frequency Response	20 Hz – 20 kHz
EQ	31-band EQ
Crossover	Butterworth / Linkwitz-Riley / Bessel
Presets	6 presets for storage and recall
Tuning Interface	PC / App
Dynamic Range	93 dB
DSP Sampling Rate	48 kHz
Signal to Noise Ratio	105 dB
Total Harmonic Distortion	<0.01% (Low level), <0.03% (High level)
Bluetooth Version	Bluetooth 5.0
Standby Current	1.5 A
Maximum Current	100 A
Operating Temperature	-45 °C – 105 °C
Operating Voltage	10 – 16 VDC
Dimensions (L×W×H)	221×208×50 mm (8.70×8.19×1.97 in)

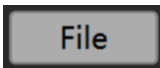
Introduction To Tuning Software

Software Main Interface

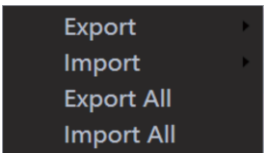
Connection successful. The word "connected" is displayed in the upper right corner.



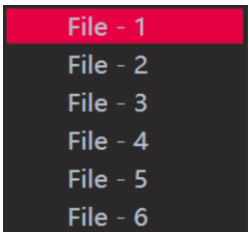
Click File



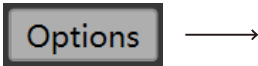
Supports Import, Export, Import All and Export All functions. You can import tuning parameters to the DSP device or export them to your computer for saving.



Save: Save tuning settings to the DSP with custom naming; up to 6 presets can be stored
Call: Recall saved presets.



Click options



A small window as shown in the figure will pop up. You can configure power-on delay, automatic attenuation ratio of the main audio source, noise gate on/off and parameters, software language, and automatic preset switching for corresponding audio sources.

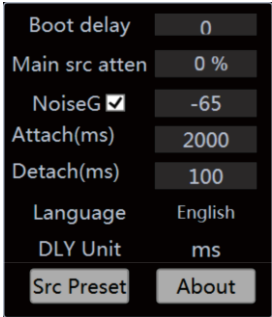
Boot delay: Enables delayed startup, adjustable from 5 to 30 seconds.

Main src atten: The main audio source will attenuate automatically when the secondary audio source detects a signal. The attenuation ratio is adjustable from 0% to 100%.

NoiseG: Turn the noise gate on or off. Adjustable parameters: threshold (-65 ~ -90), attack time (10 ~ 5000 ms), release time (10 ~ 5000 ms).

Language: Simplified Chinese, Traditional Chinese, English.

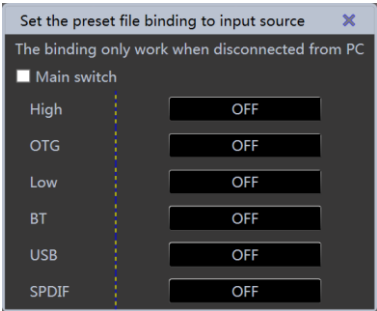
Src Preset: Set the system to automatically switch to the corresponding preset when different audio sources are played.



Click Src Preset



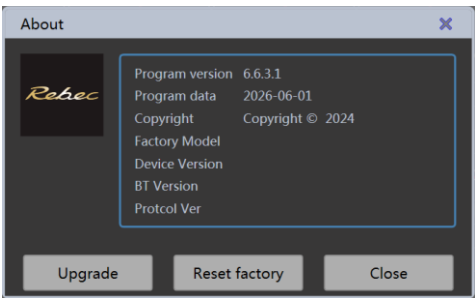
Each source supports independent custom tuning configuration.



Click About



Supports online firmware upgrade or factory default restoration.



Select main source and sub source

MainHighMixHigh

Click Input cfg

Input cfg

Gain adjustable for each input channel.

When "High Sync" is enabled, all high-level input channels will be adjusted synchronously.

When "High Sync" is disabled, each high-level input channel can be adjusted individually.

When "Low Sync" is enabled, all low-level input channels will be adjusted synchronously.

When "Low Sync" is disabled, each low-level input channel can be adjusted individually.

Input cfg

BT SPDIF USB(L)	☐ 0dB	☐ 3dB	☒ 6dB	☐ 9dB	☐ 12dB
BT SPDIF USB(R)	☐ 0dB	☐ 3dB	☒ 6dB	☐ 9dB	☐ 12dB
High 1	☐ 0dB	☐ 3dB	☒ 6dB	☐ 9dB	☐ 12dB
High 2	☐ 0dB	☐ 3dB	☒ 6dB	☐ 9dB	☐ 12dB
High 3	☐ 0dB	☐ 3dB	☒ 6dB	☐ 9dB	☐ 12dB
High 4	☐ 0dB	☐ 3dB	☒ 6dB	☐ 9dB	☐ 12dB
Low 1	☐ 0dB	☐ 3dB	☒ 6dB	☐ 9dB	☐ 12dB
Low 2	☐ 0dB	☐ 3dB	☒ 6dB	☐ 9dB	☐ 12dB
Low 3	☐ 0dB	☐ 3dB	☒ 6dB	☐ 9dB	☐ 12dB
Low 4	☐ 0dB	☐ 3dB	☒ 6dB	☐ 9dB	☐ 12dB

☒ High sync☒ Low sync

Save&BootCancel

Click Reset

Reset

Select to clear all configurations or restore default settings.

Set emptySet default

Click Delay Link

Delay Link

Adjust signal delay for each output channel; freely set synchronous linkage tuning between channels.

DLY:

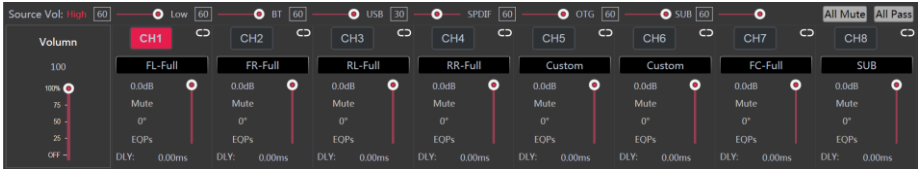
Channel with same group number will link delay value.

CH1	FL-Full	0.00 ms	0"	CH2	FR-Full	0.00 ms	0"		
☐	☐	0.0 cm	Mute	☐	☐	0.0 cm	Mute		
1	2	3	4	X	1	2	3	4	X
CH3	RL-Full	0.00 ms	0"	CH4	RR-Full	0.00 ms	0"		
☐	☐	0.0 cm	Mute	☐	☐	0.0 cm	Mute		
1	2	3	4	X	1	2	3	4	X
CH5	Custom	0.00 ms	0"	CH6	Custom	0.00 ms	0"		
☐	☐	0.0 cm	Mute	☐	☐	0.0 cm	Mute		
1	2	3	4	X	1	2	3	4	X
CH7	FC-Full	0.00 ms	0"	CH8	SUB	0.00 ms	0"		
☐	☐	0.0 cm	Mute	☐	☐	0.0 cm	Mute		
1	2	3	4	X	1	2	3	4	X

Reset group

Fixed adjustment interface:

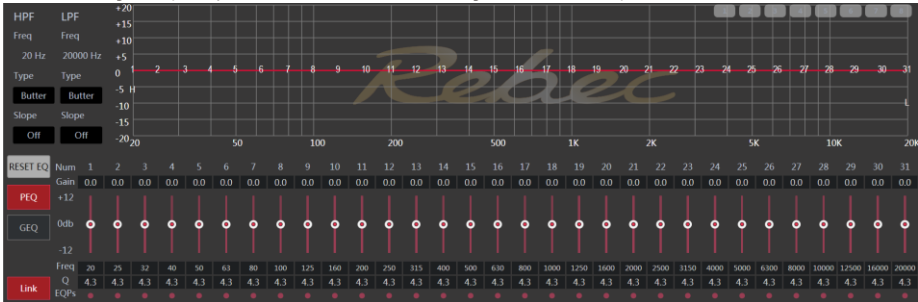
On this interface, adjust master volume;adjust volume for each input channel;adjust volume, phase, delay values and link groups per output channel.



Click EQ



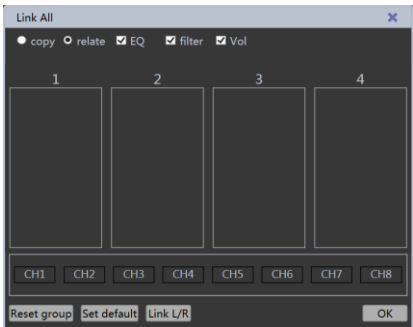
Detailed HPF and LPF parameters including frequency, filter type and slope are adjustable per output channel. Fine EQ settings (frequency and Q factor) can also be configured for each output channel.



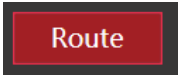
Click Link



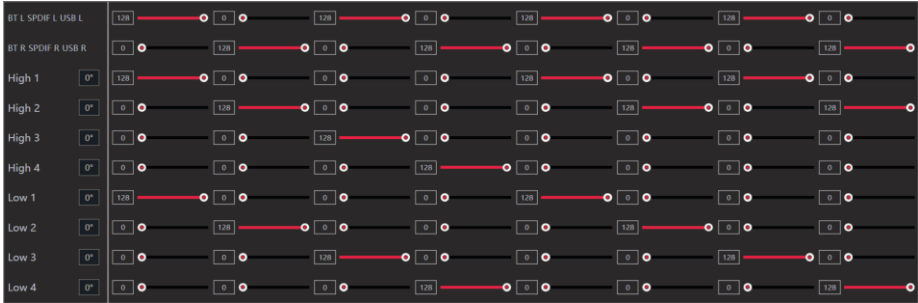
Link groups can be freely configured with two link modes: Absolute Link and Dynamic Link.
Absolute Link: All tuning parameters are synchronized simultaneously.
Dynamic Link: Selectable tuning parameters for synchronization.



Click Route



This is the mixing setup interface for adjusting relative volume ratios between each input channel and each output channel.



Crossed-out wheeled bin symbol explanation:

At the end of their service life, this product, user documentation, and packaging must be disposed of through designated recycling systems and must not be mixed with unsorted municipal waste. For information on your nearest recycling point, please contact your local waste management authority.



This product bears the CE mark, indicating compliance with health, safety and environmental protection standards for products sold within the European Economic Area (EEA).



REBEC products comply with the EU RoHS Directive requirements. Do not dispose of this product as household waste.



As a global partner of the European Mobile Media Association (EMMA), REBEC supports the industry in promoting high-quality custom car audio and video installation solutions.

www.rebecaudio.eu