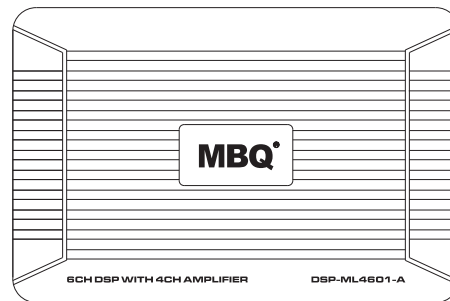




User Manual

DSP-ML4601-A

Product Introduction

This is a car audio digital signal processor with amplifier.
Thank you for purchasing the MBQ product. With this DSP amplifier, you can realize sound delay and equalizer settings and other tuning functions, improve the music listening experience.

Product Features

- Plug & play connector allows installation without wire stripping
- High fidelity double precision floating-point DSP processor
- Zero quiescent current for better battery protection
- Automatic noise cancellation

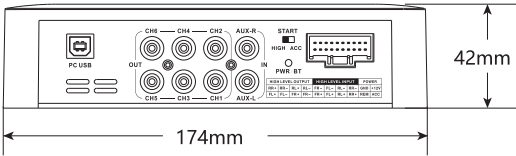
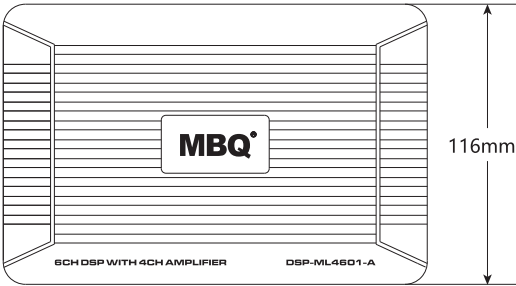
Notes

Please install this product correctly, and carefully go through the plug and play wiring harness before installation.
If your sound system has an independent power amplifier or an aftermarket amplifier, please consult the local dealer before installing this product, to make sure a correct connection method.
Please turn off the sound effect function of the original car navigation or CD.

Software Operation - PC

Ultra Low Frequency: 20-40Hz is the sound that reflects thunder, bass drums, etc., excessive elevation will make the music muddy, and the sound is strong when appropriate.

Product Dimensions



System settings

- Preset/Language Options: Preset Selection/Preset Name/Preset Invocation/Preset Saving/Language/Noise Gate
- Preset Saving/Upload Options: Save the preset data to or upload preset data from the computer to the DSP amplifier
- Options: Set USB tuning mode

Background noise off setting:

Background noise is the noise coming out of the speaker when pausing or stopping playback during the process of playing music.

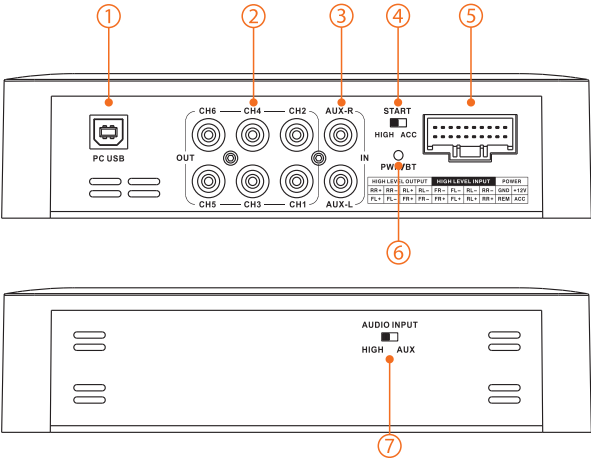
Settings: In the software interface - System Settings - Preset / Language - Noise Gate, the system defaults to 0 (off state), according to different head units to make appropriate adjustments, if the value is too small it will cause no output, adjustable range (0-20).

Basic tips for tuning:

- Ultra High Frequency: 8-10kHz affects the transparency and clarity of the sound, and excessive elevation will make the sound unnatural.
- High Frequency: 7-8kHz affects the layering of the sound, and excessive elevation will make the tooth accent of the language and the timbre hairy.
- Mid-hi Frequency: 2-5kHz is the characteristic tone of strings, excessive elevation will obscure the recognition of language syllables, and sound penetration decreases when insufficient.
- Mid Frequency: 500-2kHz is the characteristic tone of snare drums and percussion instruments, with a hazy sound when insufficient and a transparent and bright sound when appropriate.
- Mid-low Frequency: 150-500Hz is the structural part of the sound, the position of the human voice, excessive lifting will affect the clarity of the sound, the sound is soft and weak when it is insufficient, and the sound will feel thick and powerful when appropriate.
- Low Frequency: 40-150Hz is the basic part of the sound, is an important part of the performance of musical style, 150Hz excessive elevation will make the voice muffled, brightness decreased, nasal tone enhanced, insufficient sound thin, appropriate, bass tension appropriately, sound full and soft.

- Channel: 6CH
- Equalizer: 31-band EQ
- Built-in Amplifier Type: Class AB
- Max. Output Power @4Ω: 45W x4
- RMS Output Power @4Ω: 25W x4
- Max. Output Power @2Ω: 85W x4
- RMS Output Power @2Ω: 50W x4
- Load Impedance: 2Ω-4Ω
- Working Voltage: DC 10-15V
- Tuning Software: Available on Windows/ Smartphones
- Inputs: 4CH Hi-level input, 2CH Low-Level Inputs, BT 5.0 Input
- Outputs: 4CH Hi-level Outputs, 6CH Low-level Outputs
- Frequency Response: 20Hz-20kHz
- Signal-to-Noise Ratio: ≥90dB
- Auto Turn ON/OFF: ACC/ Hi-level Input
- Dimensions: 174 x 116 x 42mm

Control Panel



1. USB port for PC tuning
2. CH1 - CH6 DSP signal low-level outputs
3. CH1 - CH2 RCA low-level inputs
4. Start mode select: by Hi-level input or by ACC
5. Power Input/ACC/REM/CH1 - CH4 Hi-level inputs & outputs
6. Indicator: Red flashing is normal working state, and the number of flashes is the number of DSP tuning modes; The blue light indicates Bluetooth.
7. Audio Input Method: High level input/ AUX low level input

Software Operation - PC

EQ: Normal equalizer, frequency and Q value cannot be set. Slowly adjust according to the sound of the scene, increasing or decreasing the gain.

GEQ: Advanced equalizer, frequency and Q value can be set, and frequency point can be arbitrarily changed. Q value: when the Q value is small, the width of the frequency band is large, and the adjustment is obvious; When the Q value is large, the width of the frequency band is small, and the adjustment change is small. (Adjustable range: 0.4-128)

Total volume control: the gain adjustment of the power amplifier, the default is 0dB, which can be adjusted according to the actual situation as needed.

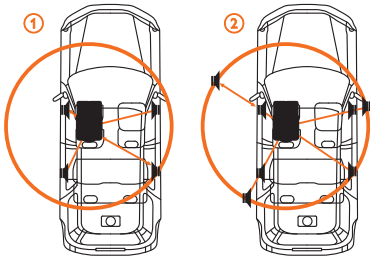
1.1channel: the gain of 4 door speakers and center speakers and subwoofer can be adjusted independently, the default is 0dB, which can be adjusted according to the actual situation as needed. Or choose to mix the whole system/ front sound stage/ rear sound stage.

Phase Control: the phase of the speakers could be switched from 0°/180°.

Time Alignment: The time alignment function is to create the effect for the center of the sound field by delaying the time of each speaker. It is divided into time adjustment and distance adjustment.

Adjustment method:

1. Time adjustment, basically it means increase the time delay when the speaker is close to the listener.
2. Distance adjustment, with the farthest speaker as the large radius, and the distance of the speaker closer to the listener should be increased (as shown in the picture below).





MBQ DSP.exe

- 1 Install the tuning software on your computer.
- 2 Connect the USB cable from the DSP to the PC.
- 3 Open the tuning interface (as shown in the pictures below).
- 4 The system automatically transmits data, and the upper left corner shows that the connection has successfully entered the tuning state.

Car audio enthusiasts/technicians can now start adjusting signal details.
Enhance the sound effects to your own liking to get the best enjoyment with DSP software.

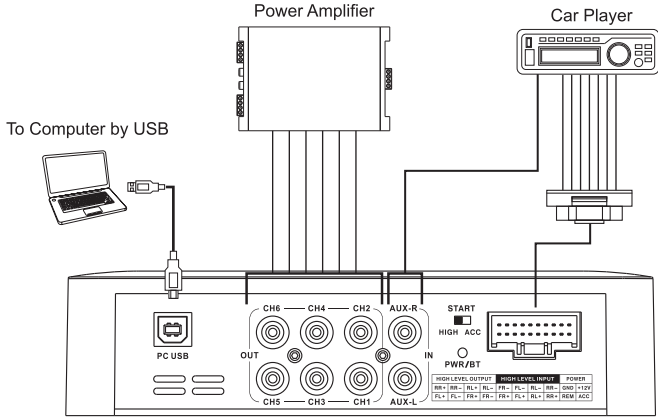


Software Interface

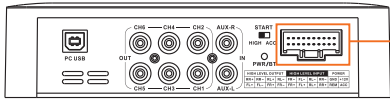
HPF: Setting the minimum frequency to pass. The frequency setting range is: OFF/20Hz-20600Hz. For example: when the frequency is set at 800Hz, the frequency above 800Hz can pass, and the frequency below 800Hz cannot pass.

LPF: Setting the maximum frequency to pass. The frequency setting range is: OFF/20Hz-20600Hz. For example: when the frequency is set at 800Hz, the frequency below 800Hz can pass, and the frequency above 800Hz cannot pass.

Limiting level: Limits the amount of output power and improves the effect of overall dynamics. The default is with maximum output power, when the level setting is small, the output power is also small. In general, keep the default state.



Control Panel



HIGH LEVEL OUTPUT				HIGH LEVEL INPUT				POWER	
RR +	RR -	RL +	RL -	FR -	FL -	RL -	RR -	GND	+12V
FL +	FL -	FR +	FR -	FR +	FL +	RL +	RR +	REM	ACC

- ① Hi-Level Outputs: Front Left(FL+, FL-), Front Right(FR+, FR-)
Rear Left(RL+, RL-), Rear Right(RR+, RR-)
- ② Hi-level Inputs: Front Left(FL+, FL-), Front Right(FR+, FR-)
Rear Left(RL+, RL-), Rear Right(RR+, RR-)
- ③ Power Inputs: ACC in, REM out, 12V Power Supply, Ground

Software Operation - Mobile Phone

Please scan the QR code below with your mobile phone to download and install the APP



Android APP



IOS APP

1. Install the tuning APP on your mobile phone.
2. Open the APP tuning interface (as shown in the pictures above).
3. Tap the  icon in the upper right corner of the APP interface and select Bluetooth to connect.
4. Tap on Advanced Settings to enter the sound tuning interface.



APP Interface