



**RECOIL**<sup>®</sup>

## **P610**

Digital Signal Processor 6-Channel  
Inputs & 10-Channel Outputs

## **User Manual**

## CONGRATULATIONS!

Thank you for purchasing the Recoil P610. The P610 is a unique combination of a four channel amplifier and a digital signal processor in one piece. To ensure many years of great performance from your new DSP amplifier, we highly recommend you have your new P610 installed by an authorized Recoil Audio dealer.

Please take a few moments to thoroughly read this entire manual to make sure that you fully understand all the benefits from this new addition to your audio system. If there is any question, please contact us support@recoilaudio.com.

## FEATURES

- Inputs: 6 x RCA, 6 x high level, 1 x optical SPDIF
- Outputs: 10 x RCA
- Power Rating: RMS 4 X 25 Watts @ 4Ohm / Peak 4 X 50 Watts @ 4Ohm
- Powerful Audio DSP with 32 Bit high resolution / 48k Hz sampling rate
- AD and DA signal converters of the latest generation
- 9.5 Volt pre-output signal
- Built-in Bluetooth® Audio Streaming
- Windows PC software and App tuning
- Plug & play OEM harness (sold separately)
- Dimensions: 45mm x 126mm x 204mm (1.77" x 4.96" x 8.03")
- Optional DRC (sold separately)

## SPECIFICATION

Model	P610
Inputs	6 x RCA / Cinch
	6 x Highlevel speaker input
	1 x Optical SPDIF (12 - 48 kHz)
	1 x Remote In
Input Sensitivity	RCA / Cinch 2-4 Volts
	High level 5-20 Volts
Input Impedance	10k-Ohms
Bluetooth Streaming	Yes
Outputs	10 x RCA / Cinch
	1 x Remote Out
Power Rating	RMS 4 x 25 Watts @4-Ohm
	Peak 4 x 50 Watts @4-Ohm
Output Voltage	Up to 9.5 Volts
Frequency Response	20 Hz -22,000 Hz
DSP Resolution	32 Bit
Sampling Rate	48 kHz

DSP type	Audio Signal Processor
DSP Tuning	Windows PC Software & APP
Signal Converters	A/D: AK7735 (Hi-Level) AK5358 (AUX)
	D/A: AK7735 (Hi-Level) CS4344 (CH5-10)
Signal-to-Noise Ratio Digital Input	116 dB (A-weighted)
Signal-to-Noise Ratio Analog Input	106 dB (A-weighted)
Total Harmonic Distortion (THD+N) Digital Input	< 0.0005 %
Total Harmonic Distortion (THD+N) Analog Input	< 0.005 %
Crosstalk	> 90 dB
Operating Voltage	10-16 Volts
Current Draw	510 mA
Remote Turn-On	REM / DC
Max. Remote Output Current	500 mA
Fuse	15A
Dimensions (H x W x D)	"45mm x 126mm x 204mm /
	1.77" x 4.96" x 8.03" "

## CONNECTORS



### ❶ OEM T-Harness Connector

4-channel speaker level inputs & outputs, plus power, ground, remote input & output.

### ❷ 2-Channel Speaker Level Input

Optional two channels of speaker level input

### ❸ Remote Controller Port

Plug optional digital remote controller (DRC) with this port via RJ45 cable. The DRC is sold separately.

### ❹ Mode Selector

You can save up to six tuning modes in this DSP P610 device. This is the selector for you to switch among the six modes.

### ❺ Bypass Switch

This is the switch for signal to bypass DSP. So that you can compare the sound performance through or bypass DSP.

### ❻ MODE/BT LED

This is the LED indicator for modes selection and Bluetooth LED connection.

### ❼ Line Input

RCA inputs for connecting pre-amplifier signals.

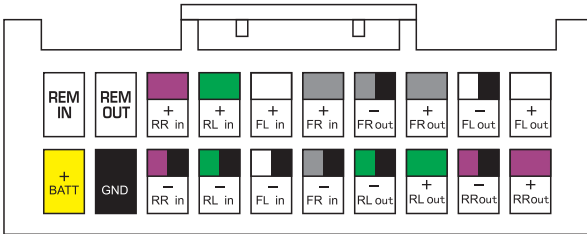
### ❽ USB PLAY

This is the port for USB flash driver to play MP3 music.

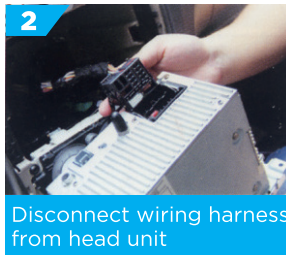


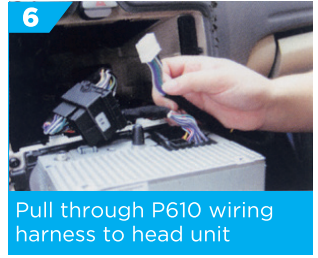
- 9 PC USB**  
Connects the Recoil DSP P610 to your PC for tuning.
- 10 Line Output**  
10-Channel line outputs for connecting amplifiers. Make sure that the remote output is used to turn on these devices.
- 11 Coaxial Input**  
Coaxial input for digital stereo signal (SPDIF format).
- 12 Optical Input**  
Optical input for digital stereo signals (SPDIF format).
- 13 Remote Turn-On Selector**  
Select the remote turn-on mode between REM and DC.

## WIRING DIAGRAM



## INSTALLATION





## COMPUTER TUNING INTERFACE

The screenshot displays the Recoil Audio computer tuning interface. At the top, there are menu options for File and Settings. Below that, a control bar includes Main Source, HiLevel, Mix Source (OFF), Default Output, Clear Output, Link, Summing, and Master Vol (0.0). A 'Disconnected' status indicator is visible on the right.

The main interface features ten channels (CH 1 to CH 10) with dropdown menus for speaker types: CH 1 (FL Tweeter), CH 2 (FR Tweeter), CH 3 (FL Mid), CH 4 (FR Mid), CH 5 (FL Woofer), CH 6 (FR Woofer), CH 7 (RL Full), CH 8 (RR Full), CH 9 (C Full), and CH 10 (SW). A car diagram on the left shows speaker locations.

The central part of the interface is a frequency response graph for CH 1, showing a flat line at 0dB across the frequency spectrum from 20Hz to 20kHz. The graph is overlaid with the 'RECOIL' logo. Below the graph is a table of frequency points and gain values:

NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Fc	20	25	31	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
Q	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32	4.32
Gain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Below the graph are controls for Delay (0.00 ms), Treble Boost (0dB), Mid Boost (0dB), Bass Boost (0dB), and SW Boost (0dB). The interface also includes Preset Save and Load buttons, and a 'Work' indicator.

At the bottom, there are detailed filter settings for CH 1:

- HPF: Fc: 2200.0Hz, Type: ButterWorth, Slope: 12dB/Oct, Noise Gate: -120dB, EQ Reset
- LPF: Fc: 20000.0Hz, Type: ButterWorth, Slope: OFF, Turn On Delay: 0ms, EQ Bypass
- PEQ Mode

The Recoil Audio logo is visible in the bottom right corner.

## INSTALLATION

- Increase Subwoofer Bass: +60-80Hz
- Increase Upper Bass: +125Hz
- Increase Mid-Range: +200-400Hz
- Increase High Freq.Tones: +1KHz
- Increase Upper Vocals: +3KHz
- Enhance Vocal Thickness:+4-8KHz
- Extend Audible High Freq.+12-16KHz
- Subwoofer Bass:-60-80Hz
- Upper Bass:-125Hz
- Mid-Range:-400-500Hz
- Mid to High Freq.-1250-200Hz
- Vocal Adjustment:-3KHz
- High freq.Precision: -4-8KHz
- Audible High Freq.Top end: -12-16KHz
- Reduce Mid-Bass:-160-200Hz
- Reduce Upper Mid-Bass:-200Hz
- Reduce Lower Mid-Range: -250Hz

## TUNING REFERENCE

- Please ensure proper installation for best results. Refer to the installation visual guides in the instruction manual BEFORE installation.
- We do not recommend playing music at maximum volume when driving. You may risk hearing and equipment damage, as well as distracted driving.
- Make sure all surfaces and connection points are dry before installing your new P610.
- If your car already has an existing amplifier or after market amplifier, please consult with your Recoil Audio dealer for best installation set up.
- The P610 requires the wiring harness that is included with the P610, we do not recommend using different wiring harnesses as you risk damage to the P610.

## TROUBLE SHOOTING

The wiring plug does not match the original	The wiring harness is dedicated for special vehicles. Please confirm your model and the model of high and low matching, and inform local dealers or agents
There are murmurs in the use of the product	Please make sure that the host connection wire is properly connected and check for loose. There are still murmurs to check if there is any connection with CD or DVD. Still unable to resolve the local dealers or agents.
The work indicates that the class is not bright and has no sound	Please check whether the tail line is properly connected and check whether the original car has its own amplifier or not.
There is no electricity for the original engine and the machine	Check whether the original owner's surface power cord is connected, and whether the grounding black line is connected to the original engine housing and restore the original engine location.