

**KICKER**®

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**Front Row**™

**ZXDSP1**™

**6-Channel Digital Signal Processor**

Owner's Manual

Congratulations on purchasing the KICKER Front Row! The heart of your Front Row DSP processor is a combination of state-of-the-art digital signal processing and user friendly analog controls that give you easy, flexible, and precise control of the audio in your car. The soul of your Front Row lies in the precision-designed, user-adjustable features that transform your car into a studio and put you right there, Front Row, with your favorite music! You are going to love how your music sounds with heart and soul.

### PERFORMANCE

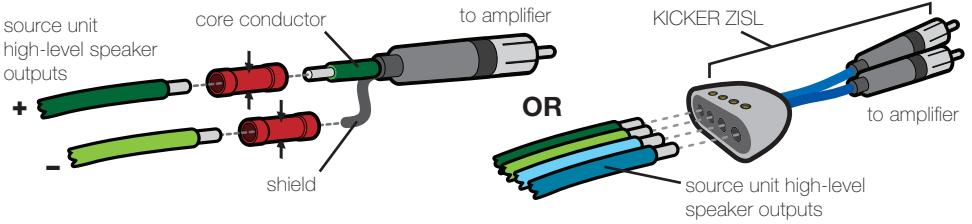
Operating Voltage	DC 10–16V
Fuse	2A
Remote Out Current Capacity	100mA
DSP Specifications	50MHz ZX CPU 28/56-bit double-precision DSP
Signal-to-Noise Ratio	110dB (ref. 4V)
Frequency Response $\pm$ 0.2dB	10Hz–22kHz
A/D-D/A Converters	24-Bit
THD+N	0.004%
Input Sensitivity	300mV–10V
Electronic Crossovers   32-Step Precision with Analog Control   Selectable Slope of 12dB, 24dB, or 48dB per Octave	FRONT: Variable HI-PASS, 10–5kHz REAR/SURROUND: Variable HI-PASS, 10–500Hz REAR/SURROUND: Variable LO-PASS, 50–5kHz SUB: Variable LO-PASS, 40–160Hz
Subsonic Filter	Variable, 10–80Hz @ 48dB/Octave
Subwoofer Phase Control	Variable, 0–180°
KickEQ™	Variable, 0–15dB @ 45Hz
SHOCwave™	Variable Bass Restoration 0–12dB, 1 Octave Below Fundamental
Width	7-1/32" (178.5mm)
Depth	7-23/32" (196mm)
Height	1-19/23" (40.6mm)

### INSTALLATION

**Mounting:** Choose a structurally sound location to mount your KICKER Front Row. Make sure there are no items behind the area where the screws will be driven. Choose a location that allows at least 4" (10cm) of open ventilation for the device. If possible, mount the Front Row in the climate-controlled passenger compartment. Drill four holes using a 7/64" (3mm) bit and use the supplied #8 screws to mount the Front Row.

**Wiring:** Disconnect the vehicle's battery to avoid an electrical short. Then, connect the ground wire to the Front Row. Make the ground wire short, 24" (60cm) or less, and connect it to a paint-and-corrosion-free, solid, metal area of the vehicle's chassis.

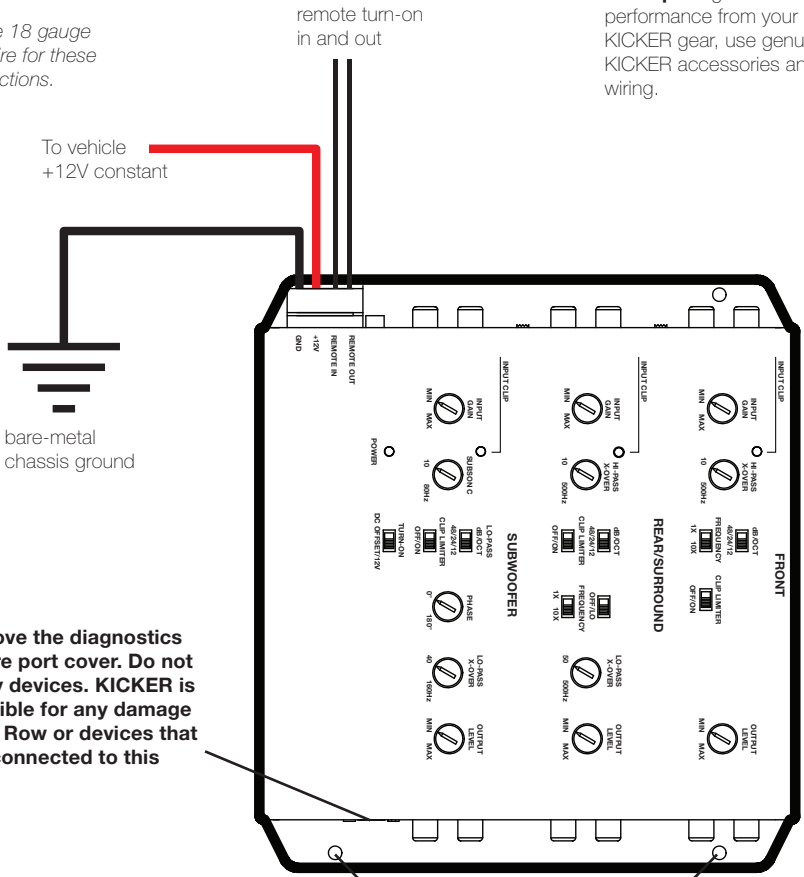
The Front Row has dual input sensitivity differential RCA inputs which will receive either high or low level signals from your car stereo's source unit. A high-level signal can be run from the source unit's speaker outputs to the stereo RCA inputs on the end panel of the Front Row using the KICKER ZISL as shown on the next page. Alternatively, the signal can be delivered to the Front Row using the low-level RCA outputs on the source unit. Keep the audio signal cable away from factory wiring harnesses and other power wiring. If you need to cross this wiring, cross it at a 90 degree angle.



Install a 2A fuse within 18" (45cm) of the battery and in-line with the power cable connected to your Front Row. If you ever need to remove the Front Row from the vehicle after it has been installed, the ground wire should be the last wire disconnected from the Front Row--just the opposite as when you installed it.

*NOTE: Use 18 gauge or larger wire for these four connections.*

**Pro Tip:** To get the best performance from your new KICKER gear, use genuine KICKER accessories and wiring.



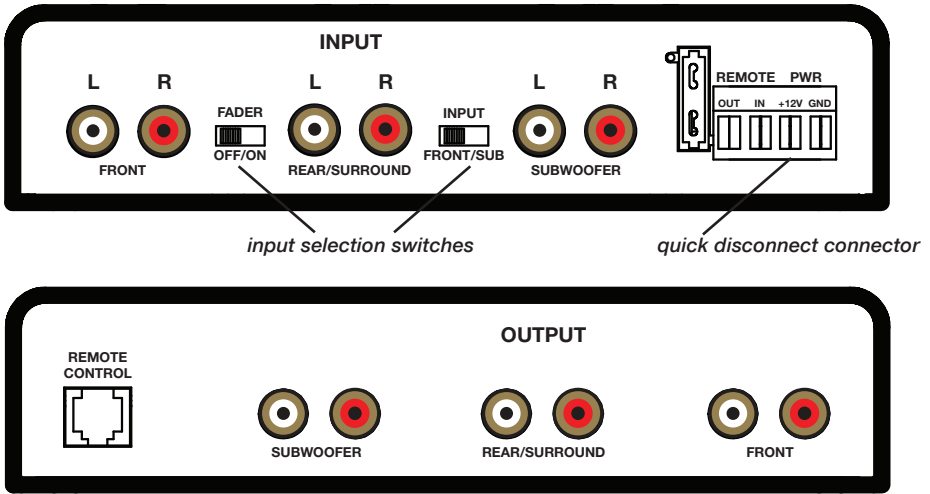
**Do not remove the diagnostics and firmware port cover. Do not connect any devices. KICKER is not responsible for any damage to the Front Row or devices that have been connected to this port.**

mount the Front Row to the vehicle using the supplied screws

## FEATURES

**Fader Switch:** If there is a dedicated output on your source unit for rear or surround channels, connect it to the RCA inputs labeled "REAR/SURROUND", and set the FADER switch to the **ON** position. If your source unit does not have a dedicated rear or surround output, set the FADER switch to the **OFF** position - this will direct the input of the FRONT channels to the REAR/SURROUND output.

**Sub Input Switch:** If there is a dedicated output on your source unit for a subwoofer, connect it to the RCA inputs labeled "SUBWOOFER", and set the SUB INPUT switch to the **SUB** position. If your source unit does not have a dedicated subwoofer output, set the SUB INPUT switch to the **FRONT** position - this will direct the input of the FRONT channels to the SUBWOOFER output.



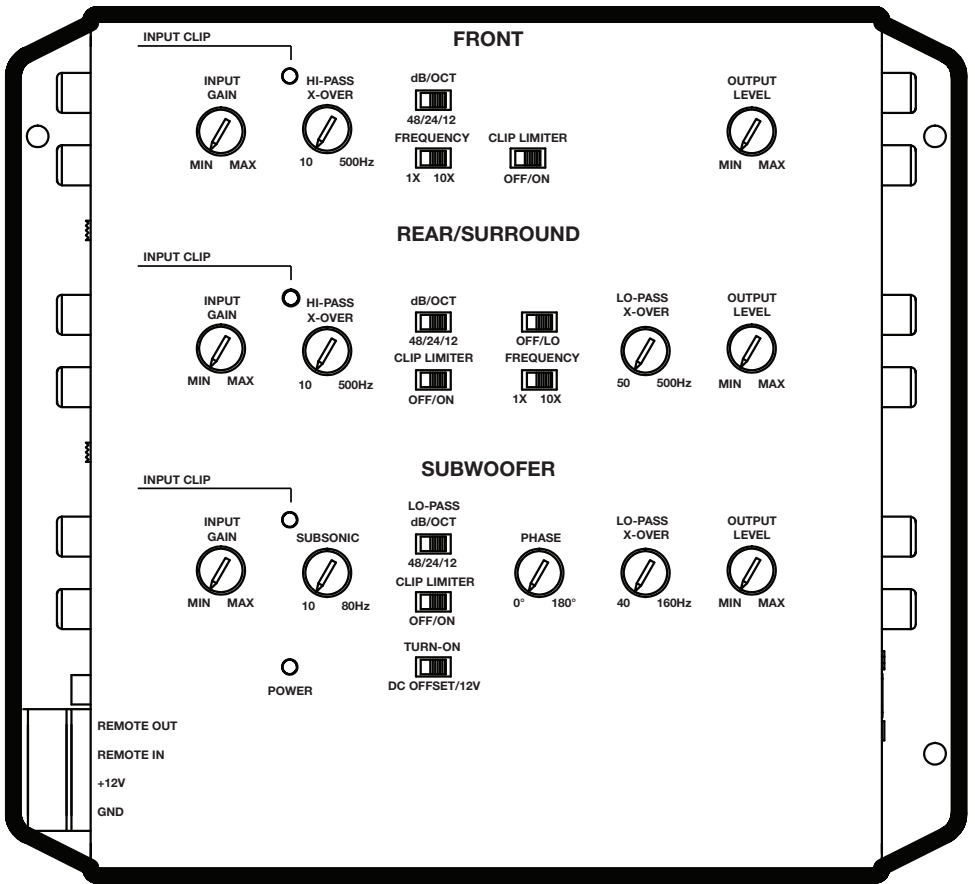
**Automatic Turn-On Selection:** The Front Row offers two different automatic turn-on modes that can be selected on the top panel; **+12V** or **DC OFFSET**. Using the DC Offset mode sets the REM OUT terminal to have +12V out for turning on additional amplifiers.

- Remote Turn-On: Set the switch to +12V to use the remote turn-on lead from your source unit. Run 18 gauge wire from the Remote Turn-On Lead on your source unit to the terminal labeled REMOTE IN next to the Front Row's power terminals. This is the preferred automatic turn-on method.
- DC Offset Turn-On: If Remote Turn-On is not an option, the next best setting is DC Offset. The DC Offset mode detects a 6V DC offset from the HI-Level speaker outputs when the source unit has been turned on.

**Input Gain Controls with Clip Indicators:** The RCA inputs on the KICKER Front Row are capable of receiving either Hi (up to 10V) or Low-level signals from your source unit. If you are sending a Hi-level signal, keep the INPUT GAIN down. The INPUT GAIN control is not a volume control. It matches the output of the source unit to the input level of the Front Row. Use a strong source of audio with good bass when adjusting these settings.

If you are using low-level RCA inputs, turn the source unit up to about 2/3 volume (if the source unit goes to 30, turn it to 20). Next, slowly turn up (clockwise) the INPUT GAIN on your KICKER Front Row until you can hear audible distortion or the INPUT CLIP light flashes, then turn it down until the distortion and/or CLIP LED stops blinking. Repeat this setup for all input channels.

**Crossover Controls with Selectable Slope and Frequency Multiplier Switches:** The variable crossover controls on the top of the Front Row allow you to adjust the HI-PASS crossover frequency for the FRONT and REAR/SURROUND channels from 10–500Hz, and the LO-PASS crossover from 50–500Hz (REAR/SURROUND channel) or 40–160Hz (SUBWOOFER channel). The setting for these controls is subjective; 80Hz is a good place to start. The REAR/SURROUND channels may act as a band-pass filter with both HI-PASS and LO-PASS crossover capabilities.



Set the **1X – 10X** frequency multiplier switch to the setting that is appropriate for your application. A setting of X10 will set the range of the HI-PASS crossover (FRONT) to 100–5,000Hz and the LO-PASS crossover (REAR/SURROUND) to 500–5,000Hz.

The SLOPE switch may be set to 12dB, 24dB, or 48dB of rolloff per octave. Use this setting to adjust how sharply the audio level increases/decreases at the crossover points.

**Adjustable Subsonic Filter (SUB):** The variable subsonic filter will provide a cut-off point for lower frequencies (10–80Hz) that could potentially damage your speakers from over-excursion, along with wasting your amplifier's power. The setting for this control should be set relative to your speaker's low-frequency capability.

**Output Level:** Each section of the Front Row has its own OUTPUT LEVEL control. Be sure your INPUT GAIN controls have been properly set and your crossover points selected *before proceeding with this step*. To properly set the output level controls, start with the gain controls on your amplifiers set at their lowest position and the OUTPUT LEVEL controls on the Front Row also turned all the way down (fully counter-clockwise). With a strong source of music playing, set your head unit's volume up to 3/4. Starting with the FRONT OUTPUT LEVEL, slowly turn the knob clockwise until you hear your amplifier playing very loudly, and distortion coming from your front speakers. Turn the knob counter-clockwise slightly until the distortion is gone. Repeat this process for each OUTPUT LEVEL section (FRONT, REAR/SURROUND, and SUBWOOFER).

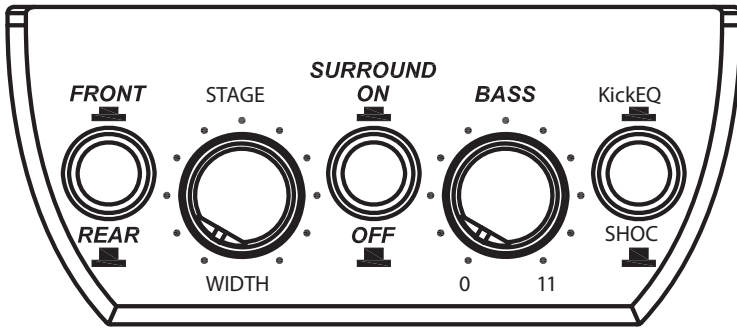
If you turn the OUTPUT LEVEL control all the way up and do not get very loud output or detect distortion from your amplifier, then turn it all the way back down, increase the gain on your amplifier slightly and repeat the process. The goal is to always introduce as little gain as possible while achieving full output. This will give you the highest possible signal-to-noise ratio for your audio system.

**Adjustable Phase Control (SUB):** The variable PHASE CONTROL on the Front Row allows you to adjust the phasing of the subwoofer frequency from 0°–180°. If you are experiencing an absence of bass in the audio, the bass frequency may be out of phase with the rest of the system. This setting will change the arrival time of the sub frequencies relative to your mid-drivers. Delay, reversing positive/negative polarity, or changing subwoofer location may also resolve these types of issues.

**Clip Limiter Switch:** When set to **ON**, the CLIP LIMITER will automatically compress the output to minimize distortion from reaching your amplifier when the input signal has clipped. This feature works best when the INPUT GAIN has been set correctly.

## REMOTE CONTROL FEATURES

The Front Row is equipped with a remote control that can be surface-mounted under your dash, in a center console or glove box, and even custom flush-mounted in your dash. The remote is connected to the Front Row main chassis with the included RJ-45 cable. The remote functions are very powerful and allow you to fine-tune the sound in your vehicle.



**Stage:** The STAGE/WIDTH control allows you to time align both your Rear-Left channel and your Front-Left channel independently of each other, which can create a more realistic stereo image, and a very wide, expansive sound stage. The FRONT/REAR button will select which channel the STAGE/WIDTH control is adjusting. Most users will configure this setting for optimal driver's-side listening, with the goal being to center the sound stage. Using audio with a strong female vocal or easily discernible lead, adjust the STAGE/WIDTH control knob until the music is centered. For the best results, isolate the channels you are aligning while making adjustments. The setting for this control is subjective and determined by your desired listening experience.

Depending on your particular system setup, you can time align your rear-left speaker independently of your front-left, your front-left midrange independently from your front-left tweeter, or your front left-mid-bass independently from your front-left high-end.

**SHOCwave/KickEQ Bass Boost:** The SHOCwave (Sub Harmonic Octave Creation) will restore low frequencies that are weaker in older recordings or lost in data compression. The Front Row SUBWOOFER channel must be operating with a full-range signal for this effect to work properly. With the button out, adjust the BASS knob to a level that is satisfactory.

The KickEQ variable bass boost control is designed to give you increased output, 0–15dB, at 45Hz. The setting for this control is subjective. If you turn it up, you must readjust the input gain control to avoid clipping the Front Row or your amplifier.

The **OUT** position is for SHOCwave, while the **IN** position is for the KickEQ. These controls are independent of one another. With the button set to SHOCwave (OUT), adjust the BASS knob to a level that is satisfactory. Push the button to "lock-in" this setting, then use the BASS knob to set the level of KickEQ boost.

**Driver Selectable Surround:** The SURROUND button allows you to turn the surround sound effect of the Front Row **OFF/ON**. When **ON**, KICKER-engineered algorithms process the Rear Channels of the Front Row and provide a realistic, upmixed surround sound output. The surround effect is only available if your Front Row's REAR/SURROUND channel is actually driving rear speakers. If your Front Row is being used for other system designs the recommended position is **OFF**.

## OPERATION

By placing a crossover between the preamplifier (source unit) and the power amplifiers, each amplifier operates over a restricted frequency range, decreasing the likelihood of the amplifier damaging or coloring the sound. There are many possible system configurations with the KICKER Front Row. The most common configurations are detailed on the following pages. Please contact your KICKER dealer for more ideas or questions regarding specific system configurations.

### Front, Rear and Subwoofer wiring

factory source unit /  
factory amplifier

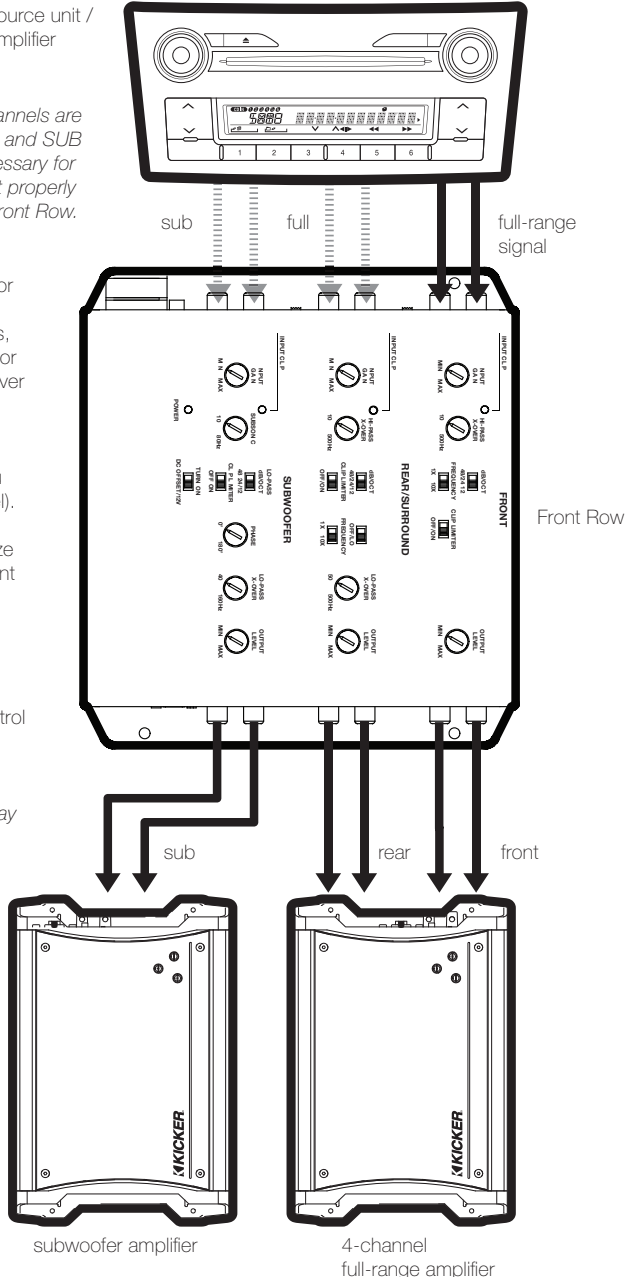
*NOTE: dashed, gray channels are optional with the FADER and SUB input switches. It is necessary for these switches to be set properly when configuring your Front Row.*

This is the most common configuration for the Front Row, best when utilized with a high-pass crossover for your front drivers, high-pass crossover or band-pass filter for your rear drivers, and a low-pass crossover for your subwoofer(s). Recommended crossover starting points are 80Hz for HI and LO (Set LO-PASS on REAR/SURROUND channel to **OFF** unless you require a band-pass filter for that channel).

This configuration also allows you to utilize the Surround Sound function of your Front Row, as well as time alignment for both your Rear-Left and Front-Left speakers for an optimal driver's-side listening experience. Once the crossovers and OUTPUT LEVEL controls on your Front Row are configured, use the remote control to fine-tune the sound.

*NOTE: All stated crossover numbers are given as referential starting points and may not be ideal for your audio system.*

*NOTE: diagram shows 4-channel full-range amplifier receiving front and rear speaker output channels, however, separate 2 or 4-channel amplifiers may be used with the front and rear outputs.*



# High, Mid and Low wiring

In this configuration, the Front Row is used to drive your tweeters, midrange/midbass drivers and subwoofers separately; each with their own amplifier, crossover points and time alignment. Use this configuration with a set of components that require active crossovers and independent time alignment.

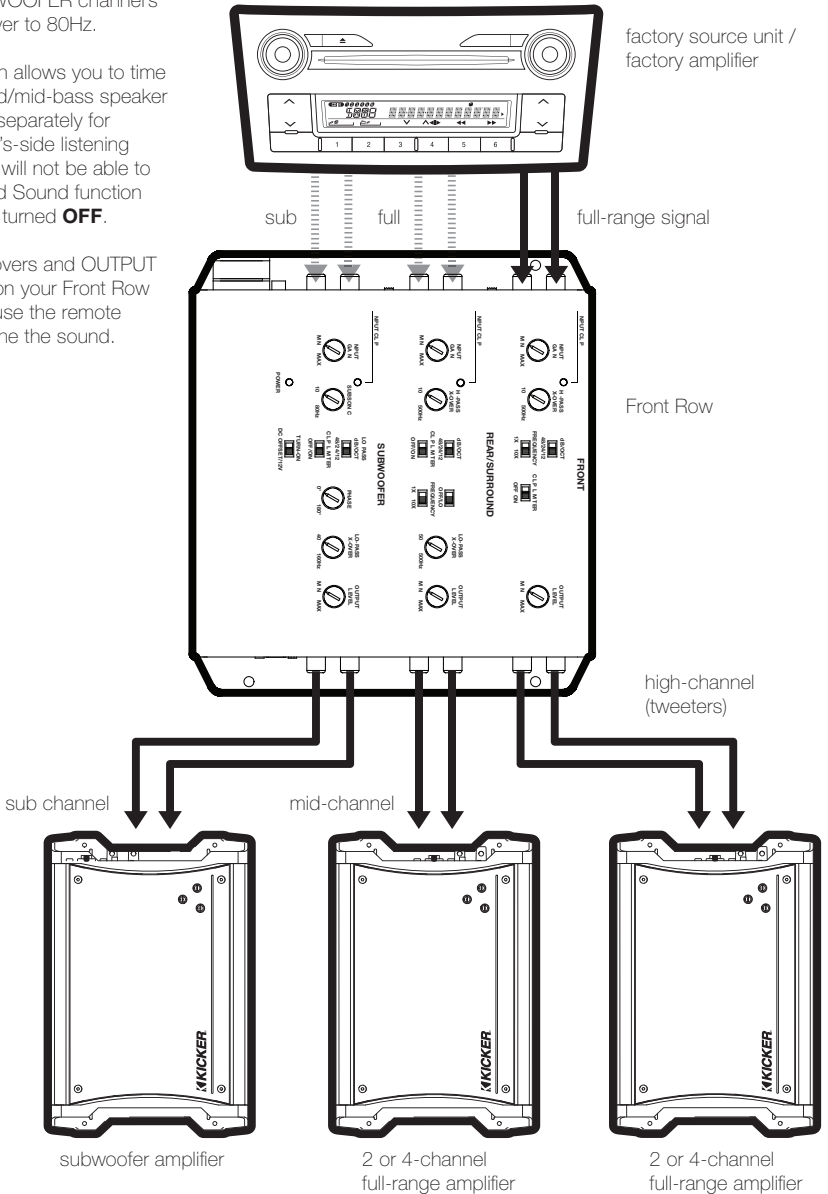
Set the FRONT FREQUENCY switch to a factor of **X10** and adjust the HI-PASS crossover for tweeter use (Recommended starting point of 3KHz).

Configure the REAR/SURROUND channel for mids by using the crossovers as a band-pass filter. Set the LO-PASS switch to ON and the FREQUENCY switch to a factor of **X10**, then adjust both the HI-PASS and LO-PASS crossovers accordingly (Recommended starting points of 80Hz and 3KHz, respectively).

Adjust the SUBWOOFER channel's LO-PASS crossover to 80Hz.

This configuration allows you to time align your left mid/mid-bass speaker and left tweeter separately for an optimal driver's-side listening experience. You will not be able to use the Surround Sound function and it should be turned **OFF**.

Once the crossovers and OUTPUT LEVEL controls on your Front Row are configured, use the remote control to fine-tune the sound.





# High/Mid, Mid-Bass and Low wiring

In this configuration, the Front Row is used to drive your mid-range and tweeters, mid-bass drivers, and subwoofers separately; each with their own amplifier, crossover points and time alignment. Use this configuration with a dedicated midbass driver and either a coaxial or set of components providing your mid and treble frequencies.

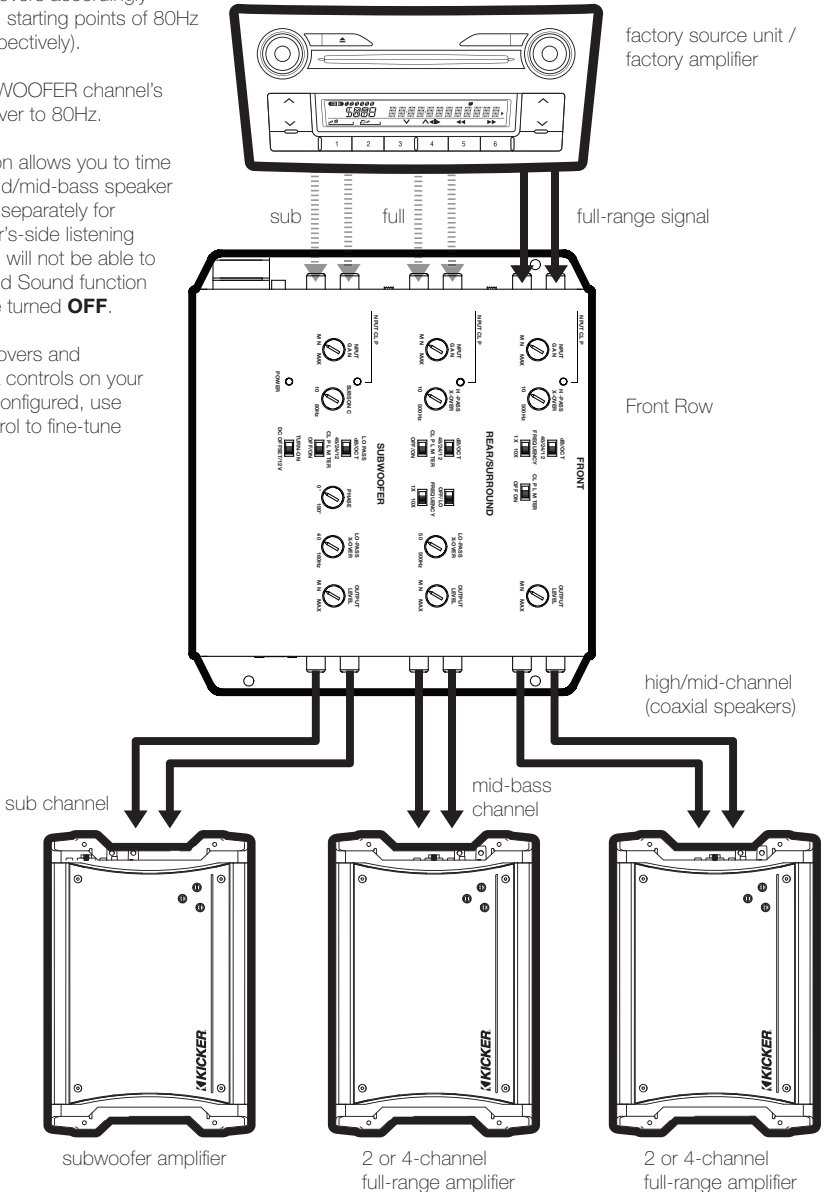
Set the FRONT FREQUENCY switch to a factor of **X1** and adjust the HI-PASS crossover for mid-range and high-range use (Recommended starting point of 160Hz).

Configure the REAR/SURROUND channel for mid-bass by using the crossovers as a band-pass filter. Set the LO-PASS switch to ON and the FREQUENCY switch to a factor of **X1**, then adjust both the HI-PASS and LO-PASS crossovers accordingly (Recommended starting points of 80Hz and 160Hz, respectively).

Adjust the SUBWOOFER channel's LO-PASS crossover to 80Hz.

This configuration allows you to time align your left mid/mid-bass speaker and left tweeter separately for an optimal driver's-side listening experience. You will not be able to use the Surround Sound function and it should be turned **OFF**.

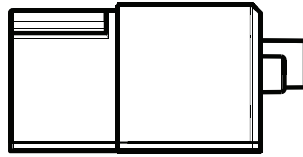
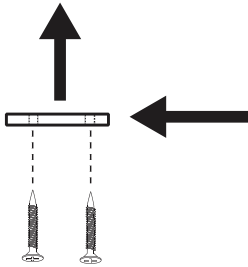
Once the crossovers and OUTPUT LEVEL controls on your Front Row are configured, use the remote control to fine-tune the sound.



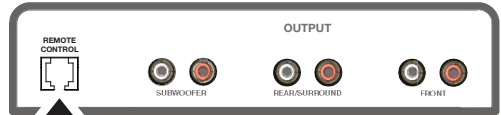
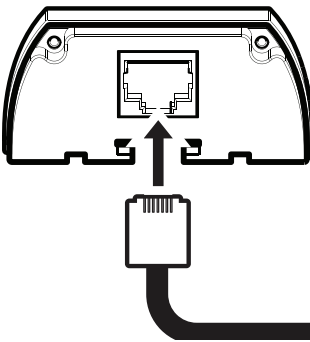
# Front Row Remote Installation

NOTE: If your remote is disconnected, SHOCwave and KickEQ settings will be reset.

1. mount the metal bracket



2. slide the housing until it snaps into the metal bracket



Connect the supplied RJ-45 patch cable to the Front Row remote and the REMOTE CONTROL jack on the end-panel of the Front Row

## Troubleshooting

If your amplifier does not appear to be working, check the obvious things first such as blown fuses, poor or incorrect wiring connections, incorrect setting of crossover switch and gain controls, etc. There is a green **POWER** LED located on top of the Front Row. When this green LED is lit, it indicates the Front Row is turned on and no trouble exists.

**Green LED off, no output?** With a Volt Ohm Meter (VOM) check the following: ❶ +12 volt power terminal (should read +12V to +16V) ❷ Remote turn-on terminal (should read +12V to +16V) ❸ Check for reversed power and ground connections ❹ Ground terminal, for proper conductivity.

**Green LED on, no output?** Check the following: ❶ RCA connections ❷ Test speaker outputs with a "known" good speaker. ❸ Substitute source unit with a "known" good source unit. ❹ Check for a signal in the RCA cable feeding the Front Row with the VOM meter set to measure "AC" voltage.

**No or low output?** ❶ Check the balance control on source unit ❷ Check the RCA (or speaker input) and speaker output connections.

**Alternator noise-whining sound with engine's RPM?** ❶ Check for damaged RCA (or speaker input) cable ❷ Check the routing of RCA (or speaker input) cable ❸ Check the source unit for proper grounding ❹ Check the gain settings and turn them down if they are set too high.

**Reduced bass response?** Reverse a speaker connection from positive to negative on the stereo/subwoofer channel(s); if the bass improves, the speaker was out of phase.

**Ground Noise?** KICKER electronics are engineered to be fully compatible with all manufacturers' head units. Some head units may require additional grounding to prevent noise from entering the audio signal. If you are experiencing this problem with your head unit, in most cases running a ground wire from the RCA outputs on the head unit to the chassis will remedy this issue.

**CAUTION:** When jump starting the vehicle, be sure that connections made with jumper cables are correct. Improper connections can result in blown amplifier fuses as well as the failure of other critical systems in the vehicle.