

OWNERS MANUAL



*Precision***Power**[™]
Absolutely State of the Art Mobile Audio[™]

PC360.2 / PC650.2
PC400.4 / PC640.4 / PC1000.1 / PC740.5

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CONGRATULATIONS

Thank you for choosing Precision Power™ audio equipment. Designed and engineered in the USA, this product combines innovative technology with the finest materials to consistently deliver Absolutely State of the Art™ performance, sound quality, reliability, and value. This Precision Power™ product reflects our commitment to offer you unparalleled performance and quality for years of dependable service and listening enjoyment.

SERVICE

Do not attempt to service Precision Power™ products yourself. Performing maintenance on your audio equipment will void the warranty. Many parts of the Precision Power™ product are custom built to our specifications. Our factory parts are not made available to anyone else nor are they for sale. Our goal is to make sure that your Precision Power™ product will always sound as good as the day it was purchased. Contact your Authorized Precision Power™ Dealer about obtaining any warranty service through Precision Power™.

CAUTION

Extended use of a high powered audio system may result in hearing loss or damage. While Precision Power™ systems are capable of "Concert Level" volumes with incredible accuracy, they are also designed for you to enjoy at more reasonable levels all of the sonic subtleties created by musicians. Please observe all local sound ordinances.

FEATURES

- Sequenced Delays Eliminate Residual Power-Up/Power-Down Pops.
- Differential RCA Inputs Isolate 12V/Audio to Ground, Eliminating Ground Loops and Noise.
- Full Signal Path Low Noise/Distortion Circuitry Topology.
- Optimal Component Layout for Minimal Distortion Induction & Signal Separation.
- Triple Darlington Audio Output Stages
- Differential Drives Divide Pre-Amp & Power-Amp Stages, Eliminating Ground Looping
- Full Differential Feedback Surrounding Power-Amp Stages directly from Speaker Terminals resulting in Uncolored Sound Reproduction and Elimination of Ground Loops
- Output Stage Bias Individually Sequenced, Optimizing Sound Quality
- Stout 2 Oz. Copper Traces Effortlessly Transfer High Volume Internal Current
- Close Tolerance Signal Path Components - 1% Resistors & 5% Capacitors
- Large TO218 MOSFET Transistors
- High Volume, Low ESR Capacitance Banks Compensate Power Supply Ripple Currents
- Extra Low Current Drive Stage Increases Efficiency & Sound Clarity
- Individually Regulated Preamp/Crossover Power Supplies Ensure Signal Purity
- Separated Capacitor Charging/Discharging Current Paths Prevent Rail Switching Spikes & Ground Traces from Entering Signal Stages Resulting in Distortion

SPECIFICATIONS

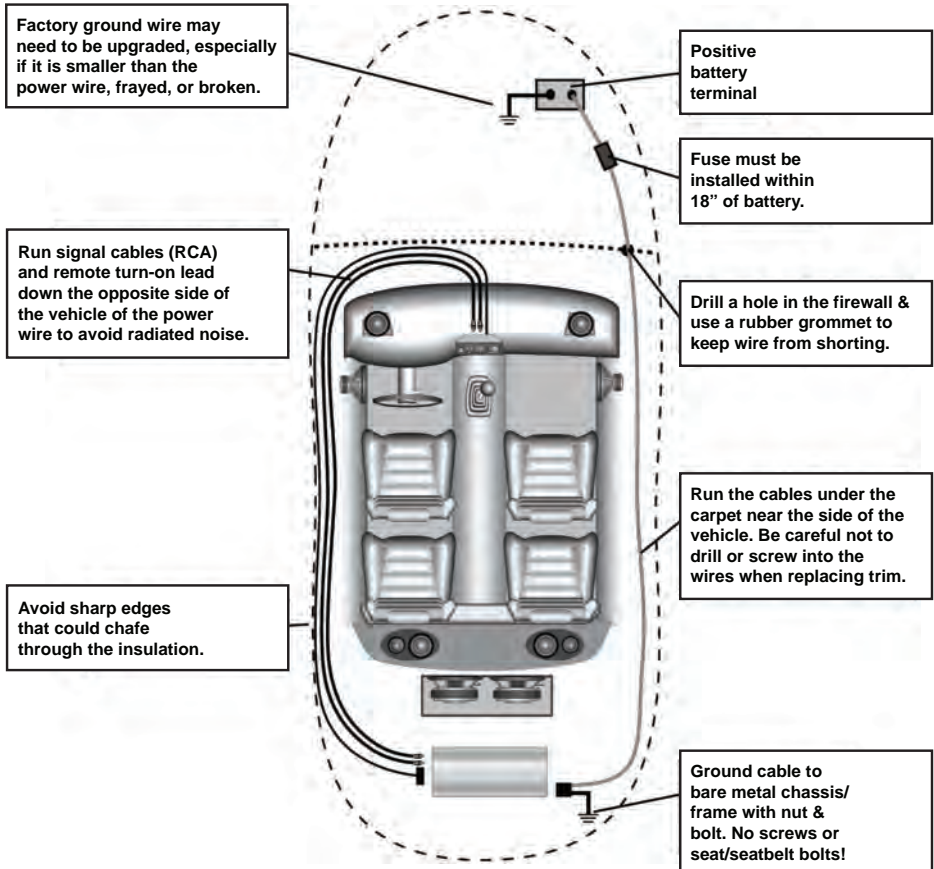
	PC360.2	PC650.2	PC400.4	PC640.4
Channels	2	2	4	4
RMS Power @ 4Ω, 14.4V	110W X 2	195W X 2	70W X 4	115W X 4
RMS Power @ 2Ω, 14.4V	180W X 2	325W X 2	100W X 4	160W X 4
RMS Power @ 4Ω Bridged	360W X 1	650W X 1	200W X 2	320W X 2
Total Harmonic Distortion (4Ω power)	0.02%	0.02%	0.02%	0.02%
Frequency Response	15-50KHz	15-50KHz	15-50KHz	15-50KHz
Input Sensitivity	200mV-9V	200mV-9V	200mV-9V	200mV-9V
Signal-to-Noise Ratio (4Ω power)	102dB	102dB	102dB	102dB
Damping Factor (100Hz, 4Ω)	>3000	>1500	>2000	>3000
Dimensions: H X W X L	2.3" X 10" X 12.1"	2.3" X 10" X 15.7"	2.3" X 10" X 13.7"	2.3" X 10" X 17.2"
Channels 1&2 HPF (12dB Slope)	15-4KHz	15-4KHz	15-4KHz	15-4KHz
Channels 1&2 LPF (12dB Slope)	50-4KHz	50-4KHz	-	-
Channels 3&4 HPF (12dB Slope)	-	-	15-4KHz	15-4KHz
Channels 3&4 LPF (12dB Slope)	-	-	50-4KHz	50-4KHz
Channels 1&2 Bass Boost	30-90Hz 0-12dB	30-90Hz 0-12dB	-	-
Channels 3&4 Bass Boost	-	-	30-90Hz 0-12dB	30-90Hz 0-12dB
Remote Gain Control	Included	Included	-	-
External Fuse Required	40	80	60	80

SPECIFICATIONS

	PC740.5	PC1000.1
Channels	5	1
RMS Power @ 4Ω, 14.4V	70W X 4, 275W X 1	-
RMS Power @ 2Ω, 14.4V	100W X 4, 450W X 1	1000W X 1
RMS Power @ 4Ω Bridged	200W X 2	-
RMS Power @ 1Ω, 14.4V	-	1000 x 1
Total Harmonic Distortion (4Ω power)	0.02%	0.02%
Frequency Response	15-50KHz	15-200Hz
Input Sensitivity	200mV-9V	200mV-9V
Signal-to-Noise Ratio (4Ω power)	104dB	102dB
Damping Factor (100Hz, 4Ω)	>1400	>2400
Dimensions: H X W X L	2" X 10" X 16.75"	2.3" X 10" X 16.5"
Channels 1&2 HPF (12dB Slope)	15-4KHz	-
Channels 1&2 LPF (12dB Slope)	-	50-200Hz
Channels 3&4 HPF (12dB Slope)	15-500Hz	-
Channels 3&4 LPF (12dB Slope)	50-4KHz	-
Channels 5 LPF (12dB Slope)	50-200Hz	-
Bass Boost	0-12dB (CH5 only)	0-12dB 30-90Hz
Subsonic Filter Slope 12dB	15-50Hz	15-50Hz
Phase Control	0 or 180/switch	0 or 180/variable
Remote Gain Control	Included	Included
External Fuse Required	100	150

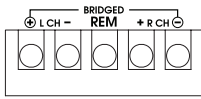
Installation

Before installing any audio equipment, it is good practice to disconnect the ground terminal on the battery to avoid damage to the vehicle or audio equipment. Failure to do this means you're a few brews short of a 6-pack and you probably already acquired the nickname of "Sparky" or "Smokey". Not cool! Do NOT hook the ground cable back up to the battery until the rest of the wiring is complete.

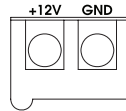


TERMINALS

* Power terminal block & Speaker terminal block for PC360.2 / PC650.2



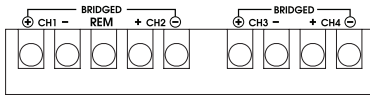
SPEAKER OUTPUT



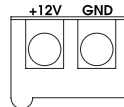
POWER INPUT

○ POWER-GREEN
○ PROTECTION-RED

* Power terminal block & Speaker terminal block for PC400.4 / PC640.4



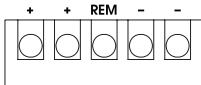
SPEAKER OUTPUT



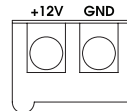
POWER INPUT

○ POWER-GREEN
○ PROTECTION-RED

* Power terminal block & Speaker terminal block for PC1000.1



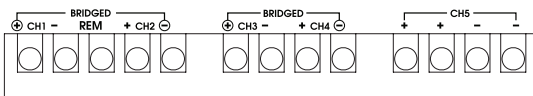
SPEAKER OUTPUT



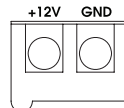
POWER INPUT

○ POWER-GREEN
○ PROTECTION-RED

* Power terminal block & Speaker terminal block for PC740.5



SPEAKER OUTPUT

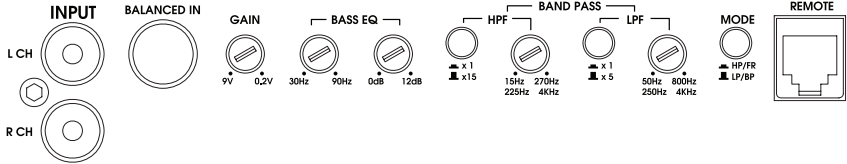


POWER INPUT

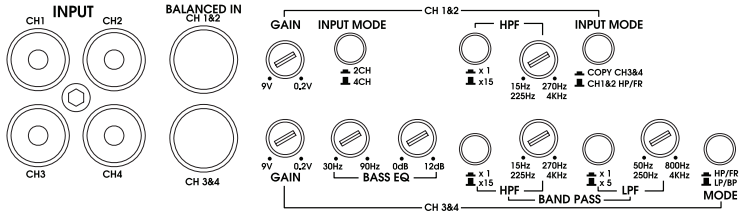
○ POWER-GREEN
○ PROTECTION-RED

CONTROLS

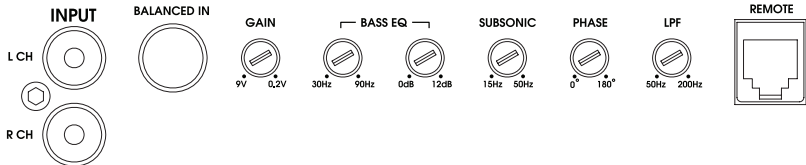
* Crossovers for PC360.2 / PC650.2



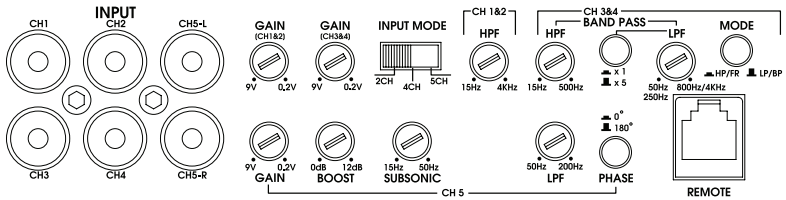
* Crossovers for PC400.4 / PC640.4



* Crossovers for PC1000.1



* Crossovers for PC740.5



Control Definitions

Alrighty, here comes the fun stuff. We're going to break this down to it simplest form so that there is no way you can possibly do any damage in the installation process to your audio system. We're going to explain in detail how every single knob and switch work rather than turn you loose on a sophisticated amplifier and have problems. **READ EVERYTHING!** Trust us, it'll be worth it... Before you do anything, undo the ground cable from the battery.

Power Terminal Block

GND – This is the Ground connection. Bolt the Ground cable to a bare metal part of the chassis/frame. Do NOT use self-tapping screws or seat/seatbelt bolts!

+12V – This is the Power Connection. This cable gets connected directly to the battery. You MUST use a fuse holder or circuit breaker within 18" of the battery. All cables ran through the firewall must be protected by a rubber or plastic grommet. If you have multiple amplifiers, the main fuse or circuit breaker at the battery should be the sum of all fuses or slightly less.

REM – This is the remote Turn-On connection. Connect to the amplifier output or power antenna output of the source unit. If the unit does not have a switched +12V output, you can use another switchable +12V.

Speaker Terminal Block

This is the Speaker(s) Connection. All components, coaxials and subwoofers connect here.

Crossovers

These controls allow you to pass and block frequencies to each driver. This is one of the most important parts of tuning any audio system.

LOW PASS – This control allows you to pass only frequencies lower than the frequency you choose to the drivers. For example, if you are powering a sub woofer and you choose 70Hz, then only 70Hz and lower tones will be passed through to the subs while all unwanted higher frequencies above 70Hz will be blocked.

HIGH PASS - This control allows you to pass only frequencies higher than the frequency you choose to the drivers.

High Pass crossover filters below 50Hz are also considered "subsonic" filters.

Multiplier Switches – Sometimes you may need a range that is not within the range supplied by the control potentiometer. In this case, if the amplifier has a multiplier switch, the range can change to accommodate your needs. For example, let's say you have a 4 channel amplifier and you want to put the tweeters (1") on the front channels and the midbass (6.5") on the rear channels, and use all electronic crossovers. You can set the High Pass for the tweeters at 4kHz. The low pass, if it as two ranges, may be from 50-800Hz which is not high enough. By using the multiplier switch, that same control can change the range from 50Hz-800Hz to 250Hz-4kHz. If this doesn't make sense and you do not understand frequencies clearly, PLEASE TAKE YOUR AMP TO A PROFESSIONAL PRECISION POWER DEALER!

Bass EQ – This circuit allows you to choose a frequency between 30Hz and 90Hz and boost that frequency by 0-12dB.

Crossovers(continued..)

Xover Mode Switch – Select HP/FR for High Pass / Full Range and only the HIGH PASS functions will work. The High Pass filter is never off, but can be set to 15Hz which passes the entire audible spectrum to be reproduced. If you select LP/BP for Low Pass and Band Pass, then the LOW PASS function works as well. You can use the Low Pass in conjunction with the always-on High Pass to band pass the signal to the drivers. For example...Let's say you have 3-way components consisting of a 1" tweeter, 4" midrange and a 6.5" midbass. Your 4" and 1" are on another amplifier. You can set the midbass to play just the midbass frequencies by setting the LOW PASS to 400Hz and setting the high pass to 60Hz. This will effectively give you a dedicated midbass region that will not overlap into the midrange frequencies or subwoofer frequencies.

Input Gain – While most people set this control by ear to how loud they want their music, this is not the intent of this control. The range is from 0.2 volts to 9 volts. The control is meant for matching to the source unit's output signal voltage. For example, if you have a unit with low output voltage, you would probably have the control set fairly high, towards the 0.2V range. A lot of head units have 4 volts of signal voltage which mean that your control would be set in midway through the range. If you happen to have a line driver (signal booster) that yields 9volt or more, you will set the gain at the minimum position. In all of these examples, when properly level matched, the amplifier will put out full volume. Setting the control above the proper point may cause damage to the amplifier and speakers, and can result in poor sound quality and overall undesirable results...

RCA Signal Inputs – Ummm... If you do not know what goes here, get over to your local PRECISION POWER dealer immediately!

Balanced Signal Inputs – Using our BLT Balanced Line Transmitters, you can achieve balanced, noise-free signal transfer. This is a MUST and no-brainer for any audiophile, sound quality competitor, or anybody serious about their music.

CH1&2 Signal Mode – There are two options here for the signal processing. You can either choose CH1&2 HP/FR for High Pass or Full Range operations, or you can choose COPY CH3&4 making channels 1&2 receive the same processing as channels 3&4. This is handy if you want channels 1&2 to be identical to 3&4 or if you need low pass or band pass signal. Understand that this bypasses EVERYTHING so that the front channels are identical to the rear channels.

Phase Switch – This switch changes the phase of the woofer from 0 to 180 degrees.

Subsonic – The Subsonic Filter protects your subwoofers from playing frequencies below the physical limitations of the woofer, or that are beyond the human hearing capabilities. The Subsonic Filter will reduce the playback of these frequencies, and allow the amplifier to use the once wasted power for the audible frequency range. For example, let's say your subwoofer plays just fine, but at 20Hz tones it starts to flutter and get distorted. You can set the frequency to 25Hz and not have to worry about super low frequencies damaging your speakers because no music material below 25Hz will go to the subwoofers.

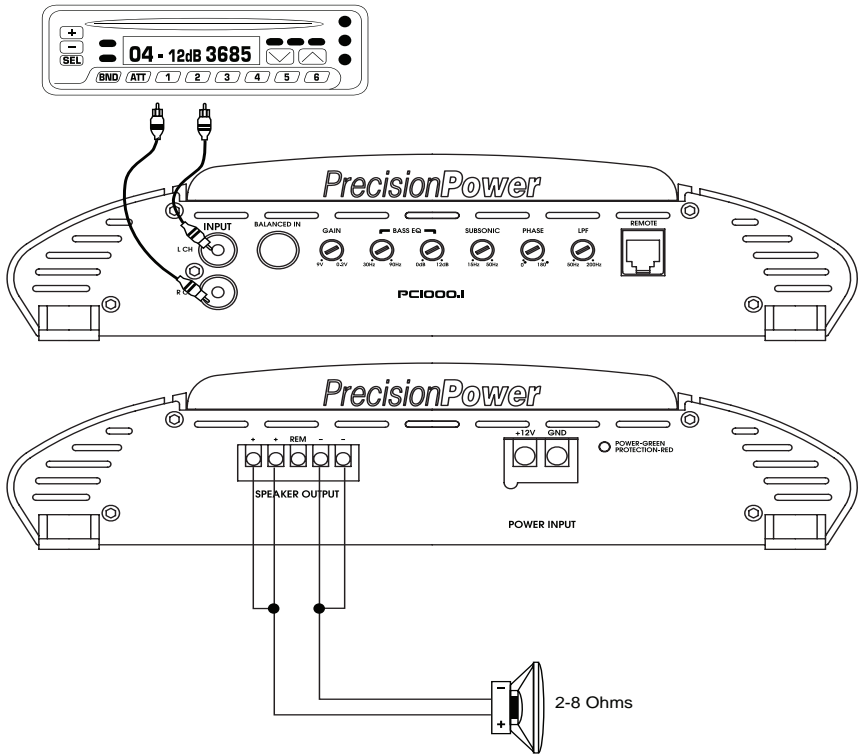
Crossovers(continued..)

Remote Control – This the port for the Remote Control so you can use the supplied unit to control the gain from the front of the vehicle.

Input Mode – When in 4CH mode, all 4 channels of signal are required and fadability is in effect. When in 2CH mode, only 2 channels of signal are required and CH1&3 get the same signal, and CH2&4 get the same signal. Fadability is lost in 2CH mode.

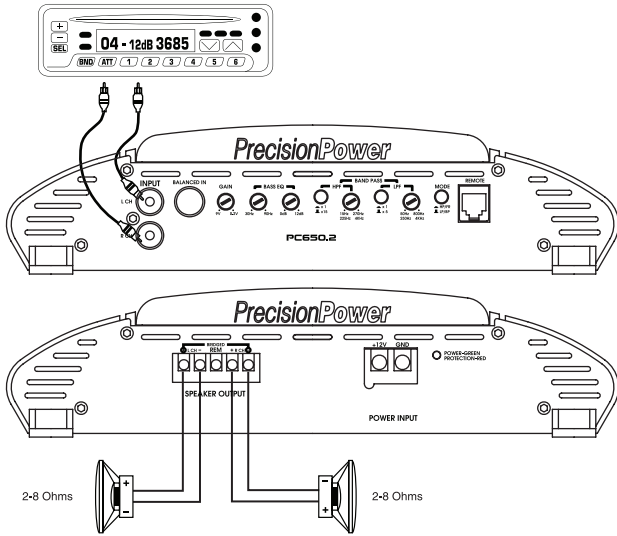
System Diagrams

MONO Channel System Design #1 PC1000.1

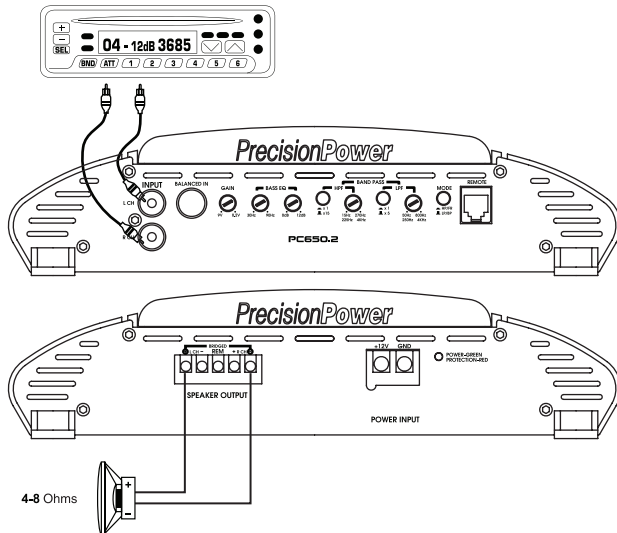


System Diagrams

2Channel System Design #1 PC360.2 / PC650.2

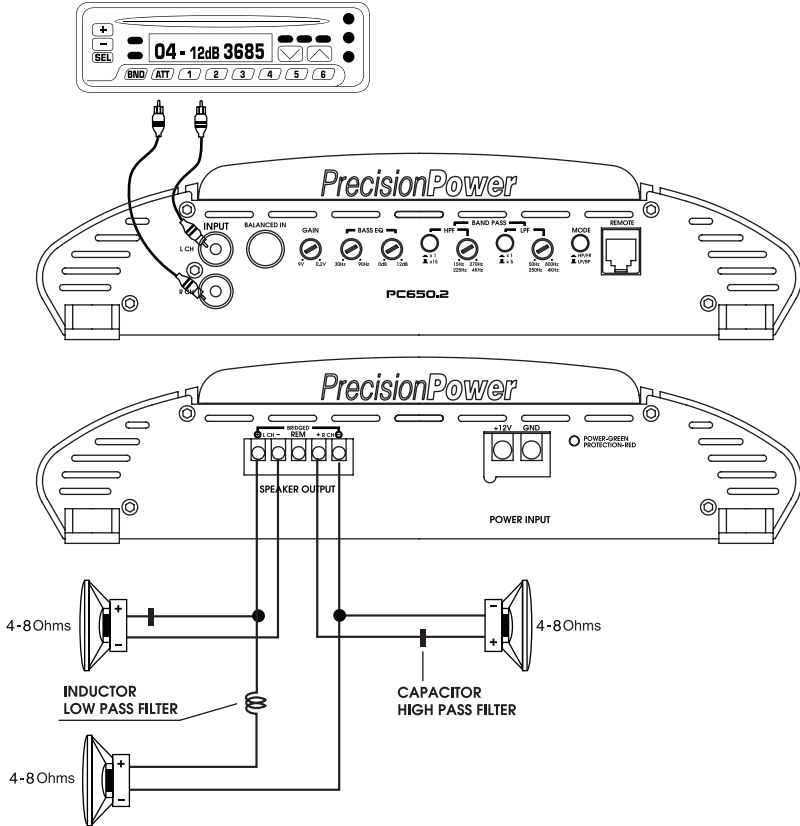


2Channel System Design #2 PC360.2 / PC650.2



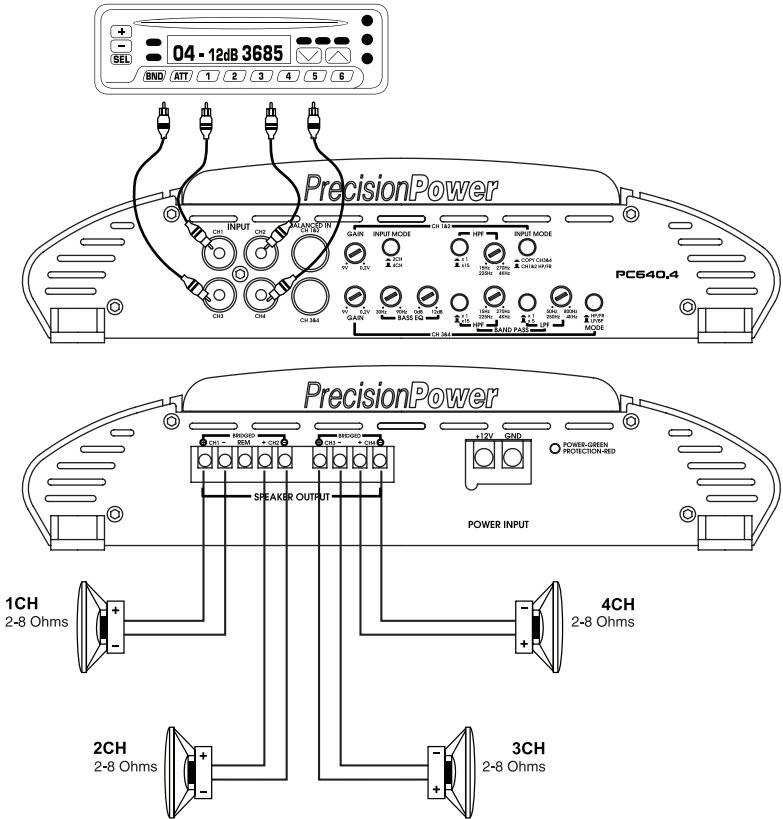
System Diagrams

2Channel System Design #3 PC360.2 / PC650.2



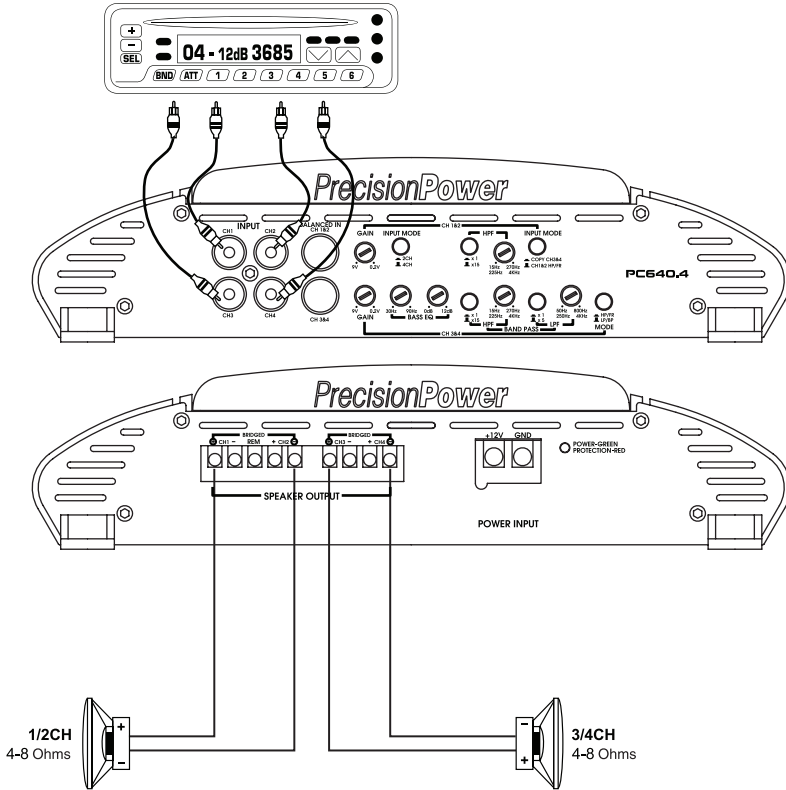
System Diagrams

4Channel System Design #1 PC400.4 / PC640.4



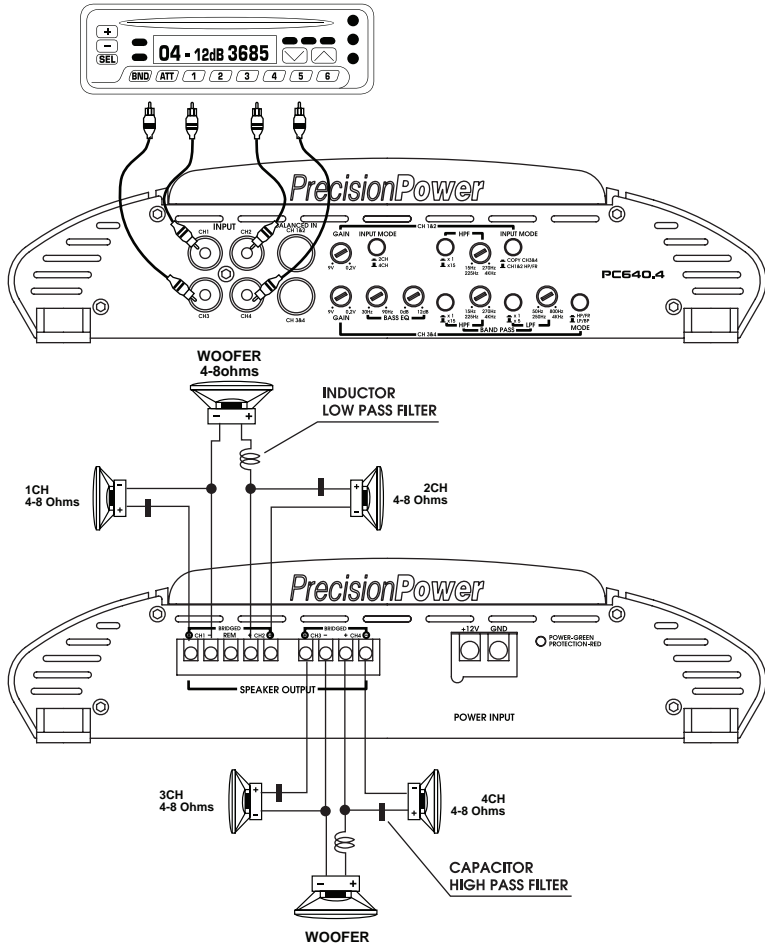
System Diagrams

4Channel System Design #2 PC400.4 / PC640.4



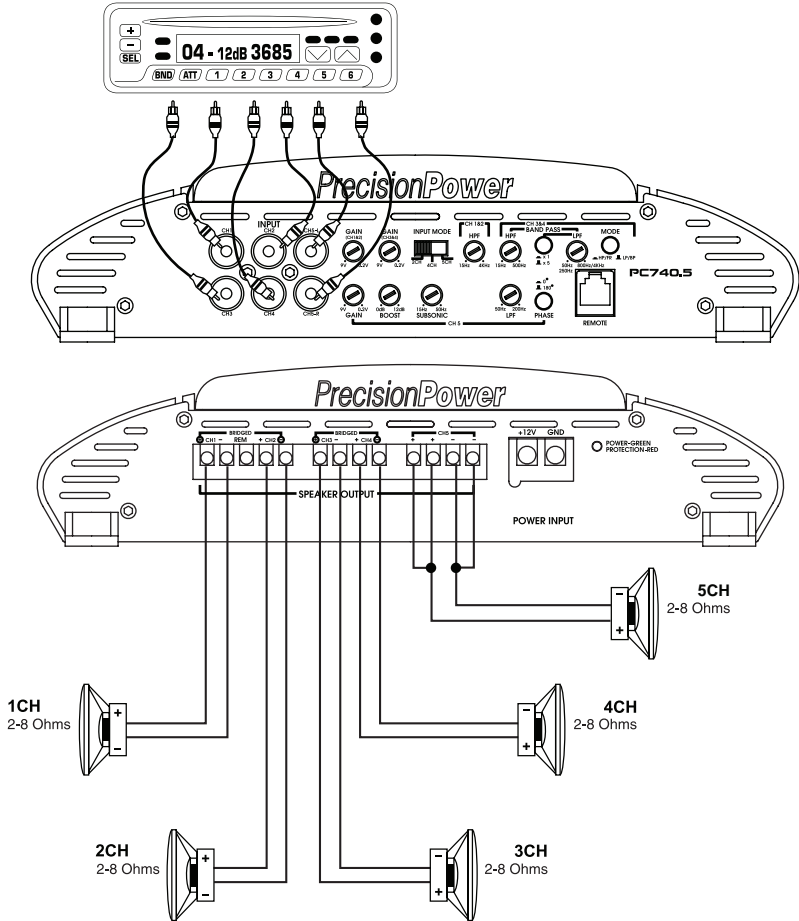
System Diagrams

4Channel System Design #3 PC400.4 / PC640.4



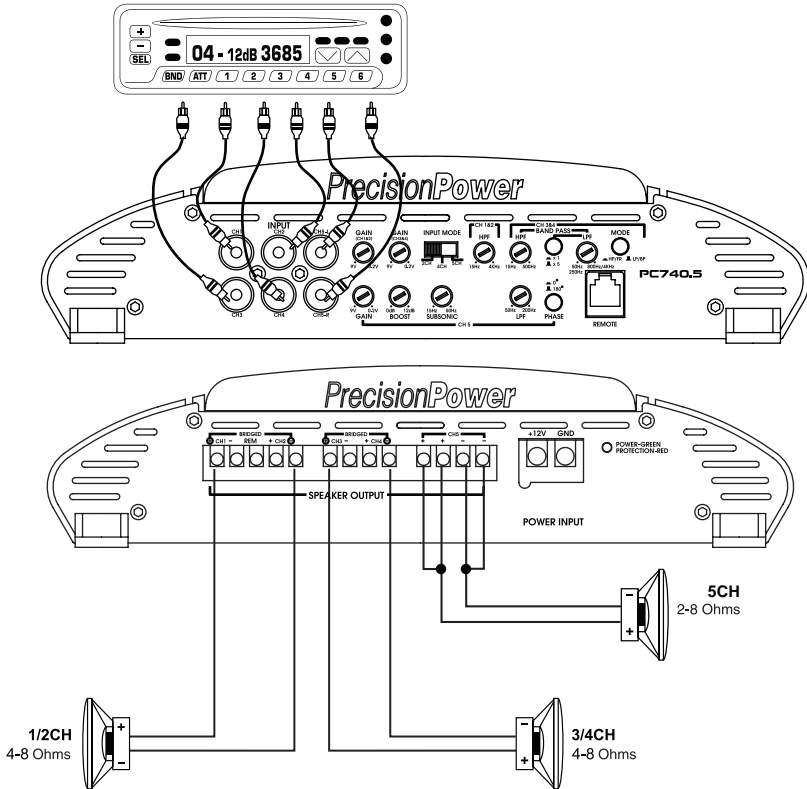
System Diagrams

5Channel System Design #1 PC740.5



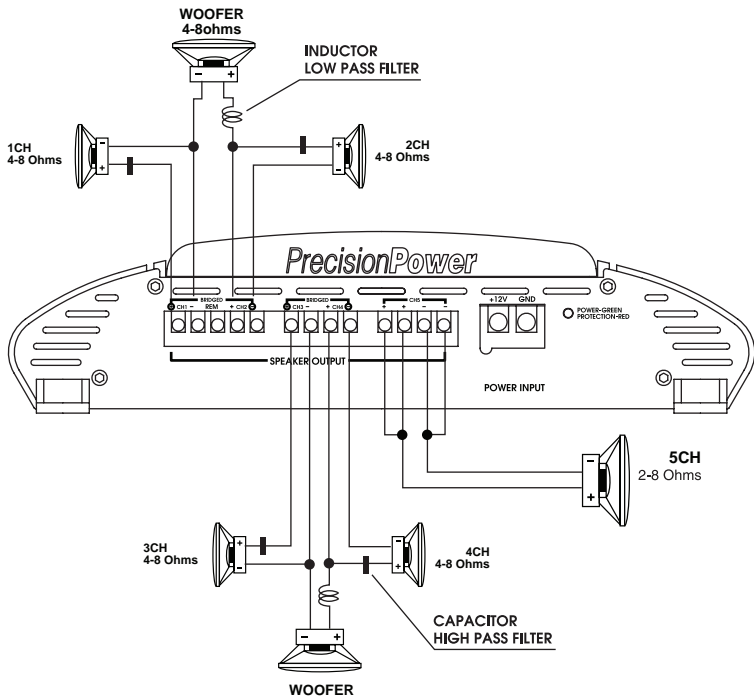
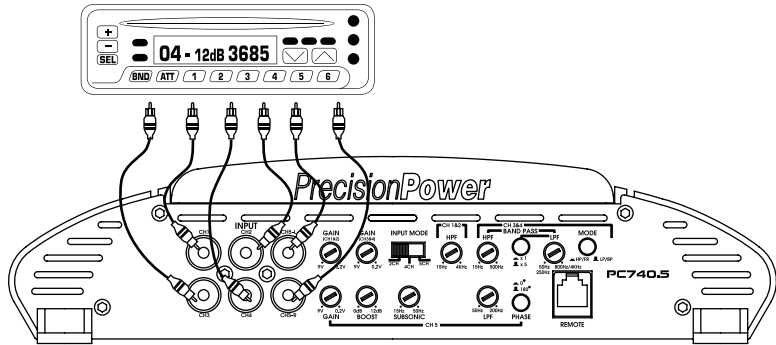
System Diagrams

5Channel System Design #2 PC740.5



System Diagrams

5Channel System Design #3 PC740.5



TroubleShooting

SYMPTOM	CHECK	REMEDY
NO SOUND	Is the Status LED illuminated GREEN? NO?	Check all fuses to the amplifier
		Confirm remote turn-on lead is connected at the amp and at the radio/switched +12Volts
		Clean contacts on fuse holder
		Verify ground is secure
	Is the Status LED illuminated GREEN? Yes?	Check gain on amp
		Check source level volume
Check for Speaker or wire short		
AMP NOT SWITCHING ON	No power to power wire	Re-secure power cable
	Poor Ground	Must have bare metal ground
	Does remote wire have +12V	Check at source and amp
	Check fuses	Burnt, broken, detached?
NO SOUND ON ONE CHANNEL	Check speaker wire	Look for shorts, pinches or disconnected terminal
	Check RCAs	Swap left with right. If the bad side began working, the problem is before the amplifier
AMP SHUTS DOWN	Check speaker load	Verify that the load does not drop below the specified ohm level
STATUS LED IS ON - RED	Check temperature	Wait for amp to cool down
	Speakers shorted	Check to see if it is the wire or the speakers themselves
SMOKE CAME OUT	Either you spilled your beer on it or did not read this manual and follow the directions	Put smoke back inside
CAN'T KEEP THE OPPOSITE SEX OFF ME	Is volume loud enough for others to hear?	To avoid the opposite sex, buy a different brand of amplifier

