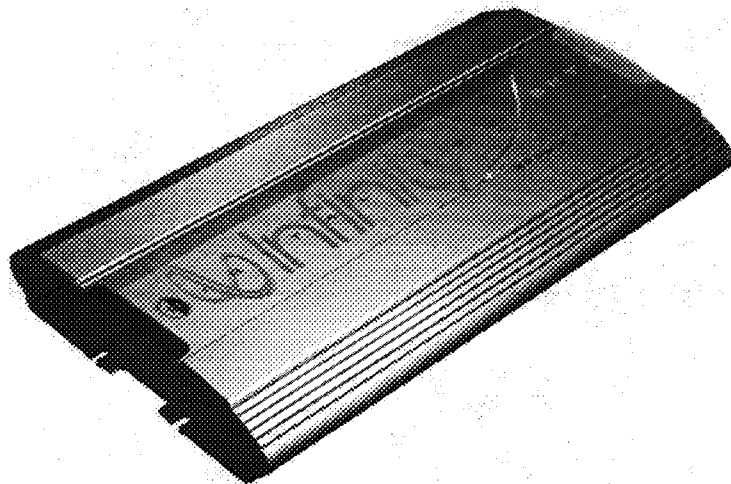


Infinity **CAR AUDIO**

B E T A

Digital 300, Digital 100, Digital 50
Powersource™ Amplifiers



**Owner's Manual
Installation Guide**

BETA DIGITAL POWERSOURCE™ AMPLIFIERS

The most advanced automobile engineering strikes the perfect balance between power and efficiency. We've applied the same thinking to our new Infinity Beta Digital Powersource Amplifiers.

The Beta Digital 300, Digital 100, and Digital 50 are the product of Infinity's second-generation digital amplifier development. Their compact design is ideally suited to the limited space of auto interiors, while their exceptional efficiency keeps energy consumption and heat generation at remarkably low levels. The true beauty of Infinity Digital Amps, however, is the unbelievable performance they pump into your sound system. When you install one, you'll add a whole new dimension of power to whatever you drive.

AMPLIFIER FEATURES...

The Beta Digital 100 offers stereo, bridged-mono, or tri-mode operation, and delivers 100 watts (rms) per channel into a 4-ohm load. The Beta Digital 50 is a smaller version that produces 50 watts (rms) per channel operating in stereo.

The Beta Digital 300 is a unique band-limited model, designed to drive subwoofer systems with 300 watts (rms) per channel from 20 to 400 Hz into a 4-ohm load. Moreover, in bridged mode, it will deliver an incredible 1000 watts. Aside from these differences, all three power amplifiers feature:

- Our innovative *differential amplification output switching* – the design essence of these products
- *HPDA (high power digital-to-analog) converter* on each channel to directly convert digital signals into amplified analog audio waveforms
- Custom-designed high-speed MOSFET switching power supply to supply voltages for internal circuits
- Five protection levels guard against over-voltage, under-voltage, over-power, over-temperature, and over-current situations
- High efficiency, requiring far less electrical power and generating a smaller amount of heat
- A small footprint when compared to conventional Class AB amplifiers with equivalent power ratings
- An amplifier input sensitivity control to match a wide range of input signal levels from 250 mV to 9 V
- A mono/stereo switch for fast system setup
- A bass equalization control (Beta Digital 100/50 only) for up to 11 dB of bass boost at 40 Hz
- Industrial-grade, gold-plated, "pre-wire and plug-in" connectors for an easy-to-install high-quality interface
- Transparent control cover to deter tampering yet provide a clear view of installation settings
- A rugged, sleek-looking case – built for the road, yet still a showpiece

ABOUT THE WARRANTY...

You've selected a premium product that offers superior performance and advanced materials, resulting from over 25 years of car audio design. This Infinity product is made with our ongoing dedication to creating the best consumer audio products possible. As a result, you can expect your new Beta Digital Powersource Amplifier to provide you with many years of listening enjoyment.

All Infinity Automotive Products carry a limited parts and labor warranty (see the enclosed warranty card), so retain the bill of sale to protect your purchase and to aid us with any service-related questions you may have.

ABOUT THIS MANUAL...

To attain maximum amplifier performance, we encourage you to read the remaining pages before installing and operating your new Infinity Beta Digital Powersource Amplifier. Especially review the *Applications* section (on the next page) for ideas on designing a system. Also, save these instructions for future reference.

IMPORTANT: Installation of automotive stereo components can require extensive experience in dealing with a variety of electrical, and mechanical procedures. Although these instructions explain how to install a Beta Digital Powersource Amplifier in a general sense, they do not show the exact installation methods for your particular vehicle. If you do not have the experience, do not attempt the installation yourself; instead ask your Authorized Infinity Car Audio Dealer about professional installation options.

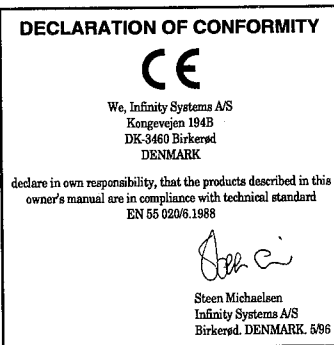


TABLE OF CONTENTS...

Applications	3
Precautions And Notes	5
Installation	6
Troubleshooting	8
Specifications	8

APPLICATIONS

For your convenience, we've included several application diagrams to help you plan your own system installation. Figures 1 through 3 show how to configure the Beta Digital 100 (or 50) for stereo, bridged-mono, and tri-mode applications.

For the Beta Digital 300, refer to Figures 4 and 5 (on the next page) for stereo and bridged-mono applications.

NOTE: For simplicity, Figures 1 through 5 do not show power, remote, and input connections.

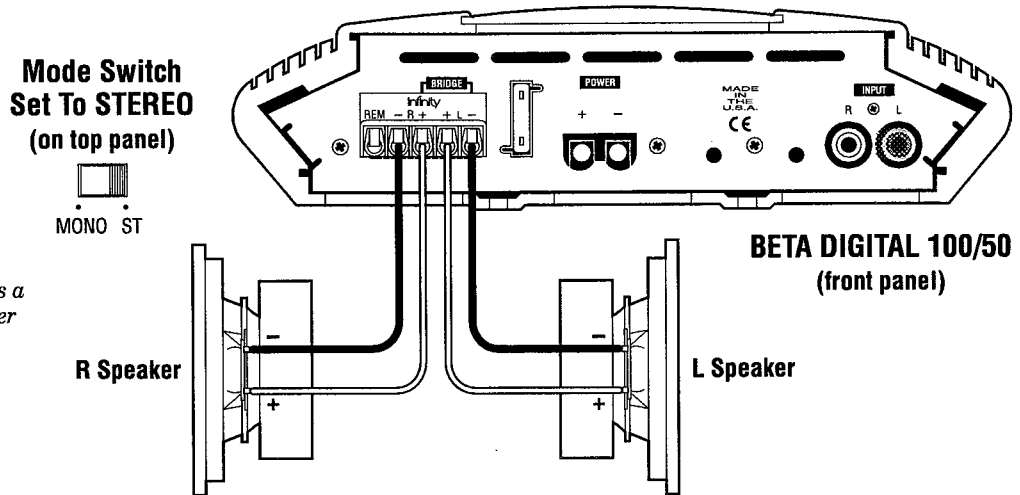


Figure 1. Wiring diagram shows a Beta Digital 100 (or 50) amplifier set to stereo to drive a pair of full-range speakers.

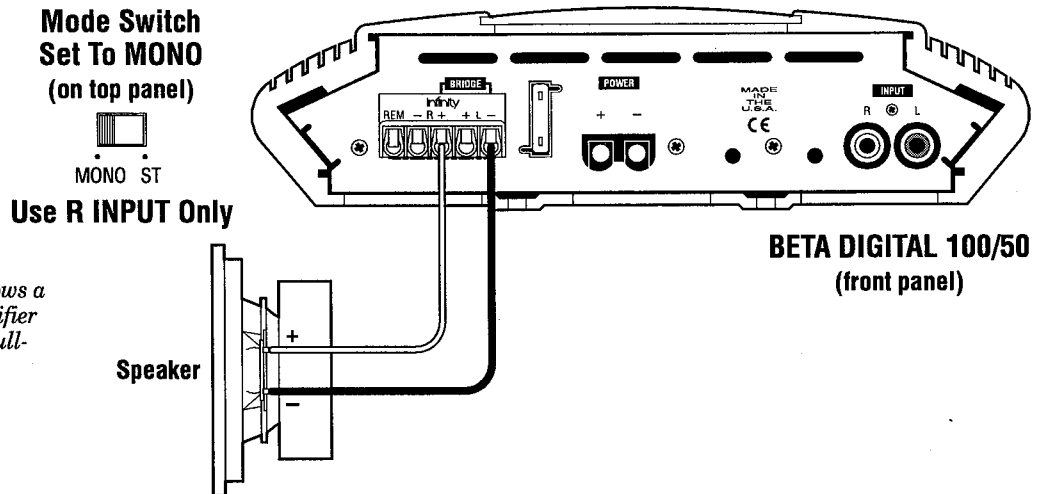
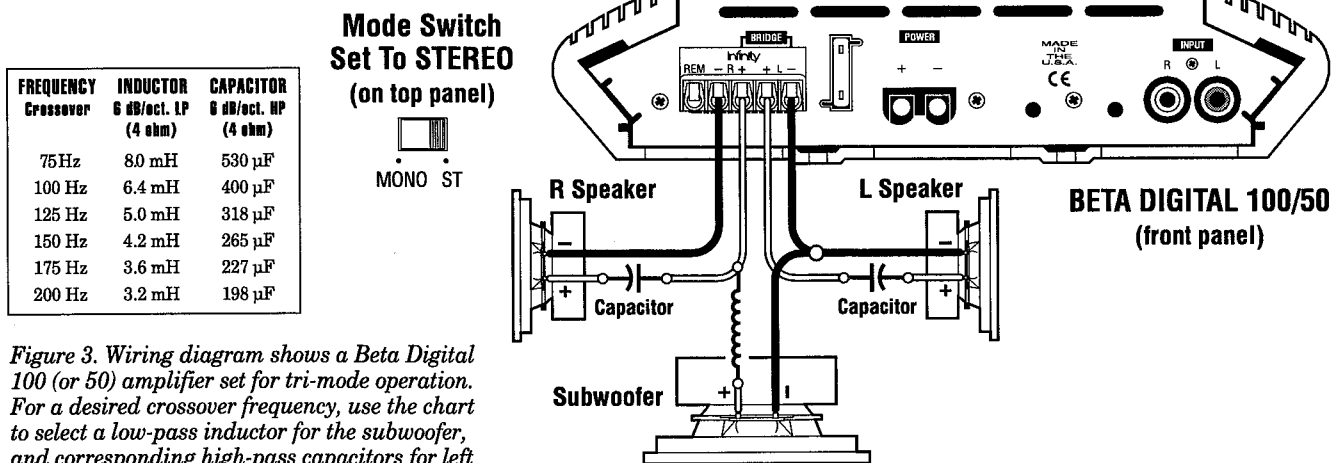


Figure 2. Wiring diagram shows a Beta Digital 100 (or 50) amplifier set to mono to drive a single full-range speaker.



FREQUENCY Crossover	INDUCTOR 6 dB/oct. LP (4 ohm)	CAPACITOR 6 dB/oct. HP (4 ohm)
75 Hz	8.0 mH	530 μ F
100 Hz	6.4 mH	400 μ F
125 Hz	5.0 mH	318 μ F
150 Hz	4.2 mH	265 μ F
175 Hz	3.6 mH	227 μ F
200 Hz	3.2 mH	198 μ F

Figure 3. Wiring diagram shows a Beta Digital 100 (or 50) amplifier set for tri-mode operation. For a desired crossover frequency, use the chart to select a low-pass inductor for the subwoofer, and corresponding high-pass capacitors for left and right speakers.

APPLICATIONS [continued]

**Mode Switch
Set To STEREO
(on top panel)**



R Subwoofer

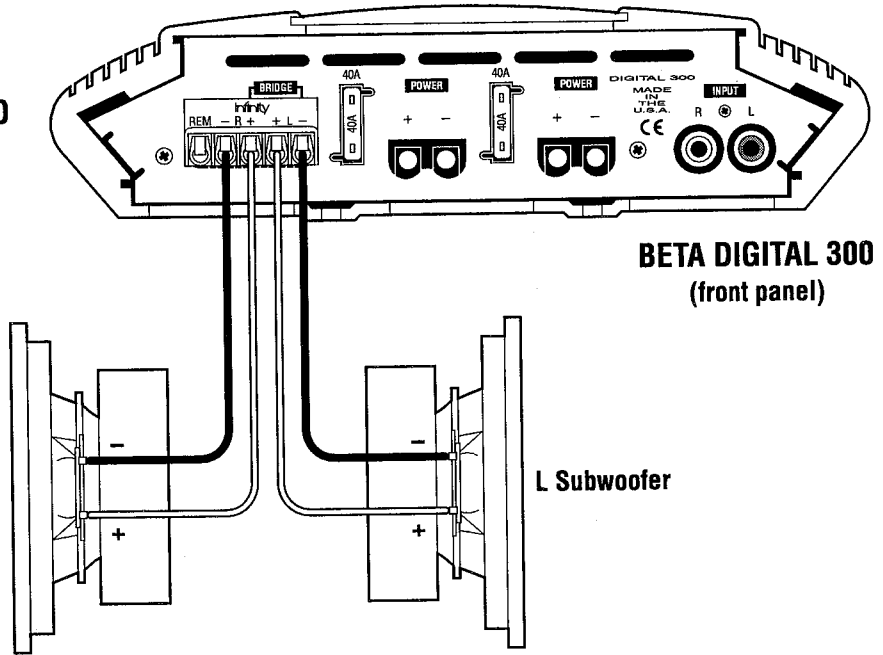


Figure 4. Wiring diagram shows a Beta Digital 300 amplifier set to stereo to drive a pair of subwoofers.

**Mode Switch
Set To MONO
(on top panel)**

MONO ST
Use R INPUT Only

Subwoofer

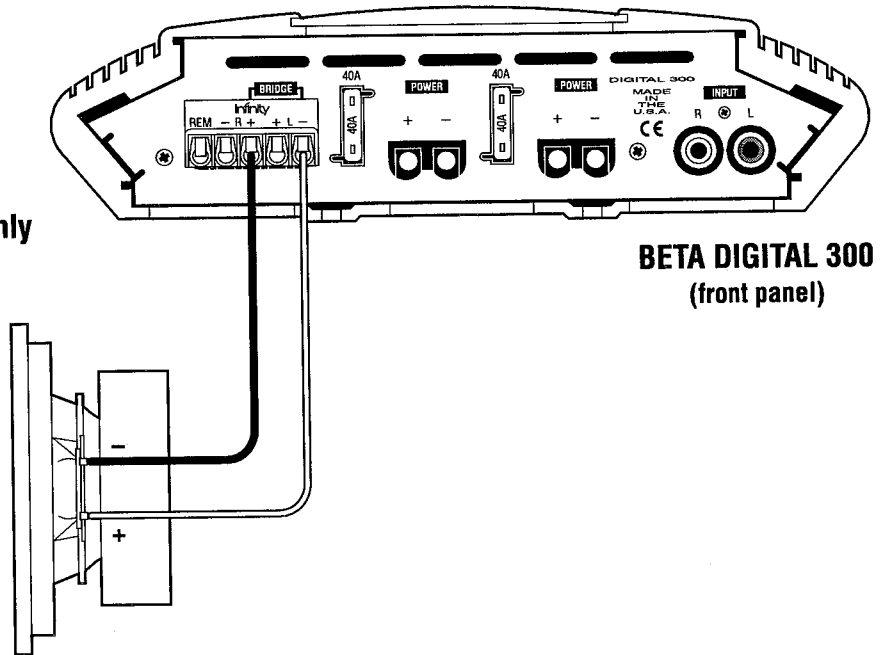


Figure 5. Wiring diagram shows a Beta Digital 300 amplifier set to mono to drive a single subwoofer.

PRECAUTIONS AND NOTES

- The Beta Digital 300/100/50 has five levels of circuit protection that monitor the amplifier and will shut it down whenever electrical system voltages drop below 10 Vdc or exceed 15.5 Vdc, temperatures are above 194° F (90° C), short circuits occur, or current draw exceeds product specifications. For best performance, check the intended mounting site to make sure the operating environment does not create conditions that will trigger circuit protection.
- The Beta Digital 300/100/50 is designed to operate into an optimum load of 4 ohms for the flattest frequency response (see Figure 6). Using other loads (e.g., 8 or 2 ohms) does not present a problem, but will slightly alter the highest frequencies.

Normalized Level (dB)

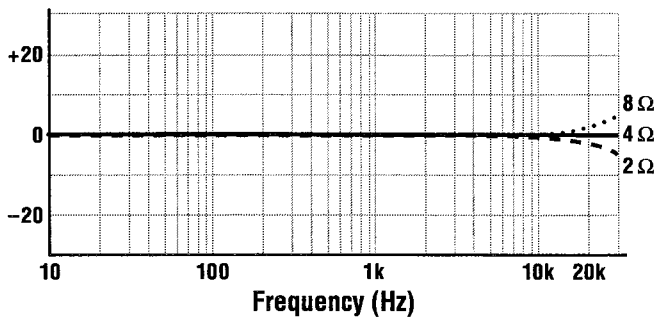


Figure 6. Frequency responses of a Beta Digital amplifier with both channels driving loads of 2, 4, and 8 ohms.

- Prior to installation, turn off all audio systems and other electrical devices. Also disconnect the (-) negative lead from the vehicle's battery.

- At the installation site, locate and make a note of all fuel lines, hydraulic brake lines, and electrical wiring. Use extreme caution when cutting or drilling in and around these areas.
- Use the enclosed mounting template as a drilling guide to mark locations for the mounting holes.
- Check clearances on both sides of a planned mounting surface before drilling any holes or installing any screws. Remember that the enclosed screws can extend up to an inch behind the surface. Always wear protective eyewear when using tools.
- The Beta Digital 300/100/50 uses gold-plated, industrial-grade Weco® plug-in connectors for power and speaker wiring. Because of precision tolerances, do not insert the connectors into the amplifier without pre-wiring them first. Once the wires are fastened in each shell, they provide additional gripping area for easy connector removal.
- When routing cables, keep input signal cables away from power cables and output speaker wires, as shown in Figure 7 (below).
- When making connections, make sure that each connection is clean and properly secured. Observe the polarity markings on the rear panel. Refer to the application drawings (Figures 1 through 4, starting on page 3) to set up the amplifiers for operation in stereo, bridged-mono, bi-amp, or tri-mode configurations.
- If the amplifier's fuse needs replacement, use only the same rating and type as a replacement. Do not substitute another kind.

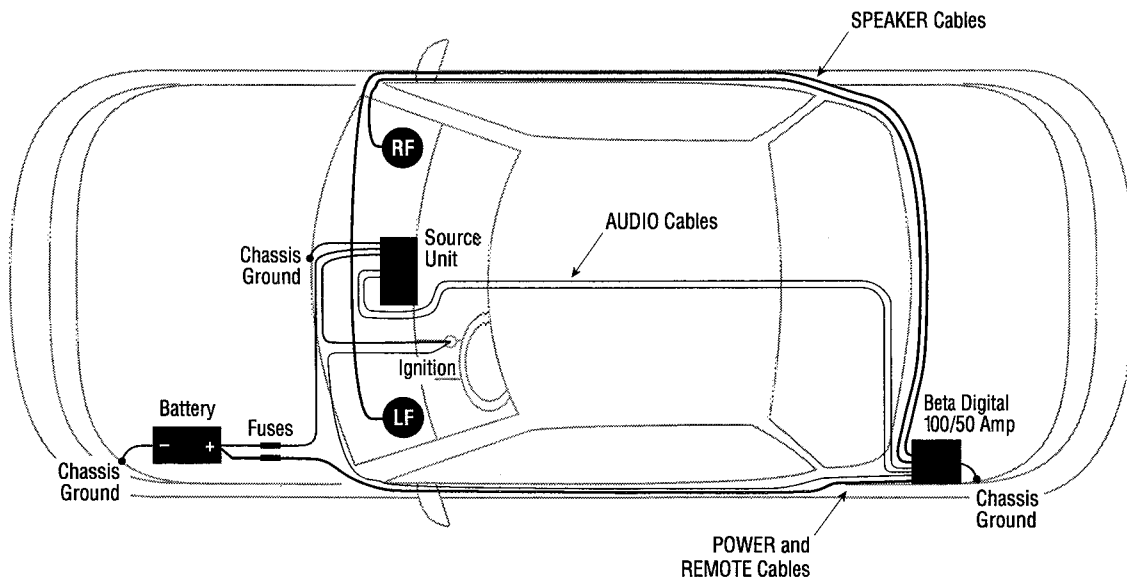


Figure 7. To minimize possible noise pickup, use this suggested cable routing scheme to plan your amplifier installation.

INSTALLATION

The Beta Digital 300/100/50 is easy to install. For optimum performance, we recommend using high-quality, twisted-pair shielded RCA audio cables and 14-gauge or larger speaker wire. Also, you'll need a minimum of 12-gauge stranded copper wire (e.g., red and black jackets) for the power connections. Use 18-gauge (e.g., blue jacket) wire for remote turn-on.

Depending on your total system plan, allow for adequate time and the possibility of overnight storage of your vehicle, since it may take more than one day to complete the installation.

PARTS LIST...

Examine and verify that the package includes the following items:

- (1) Beta Digital 300/100/50 Powersource Amplifier
- (1) Spare ATC fast-blow fuse (40 A for Beta Digital 300, 30 A for 100, or 20 A for 50)
- (1) Control cover and (1) hex-head machine screw
- (1) Weco 5-pin audio connector
- (1) Weco 2-pin power connector (for Beta Digital 100/50)
- (2) Weco 2-pin power connectors (for Beta Digital 300)
- (1) Mounting template (P/N.930...8007)

MOUNTING THE AMPLIFIER...

The Beta Digital 300/100/50 can be mounted in virtually any location *inside* the vehicle. However, make sure to keep the amplifier away from heater vents or ducts.

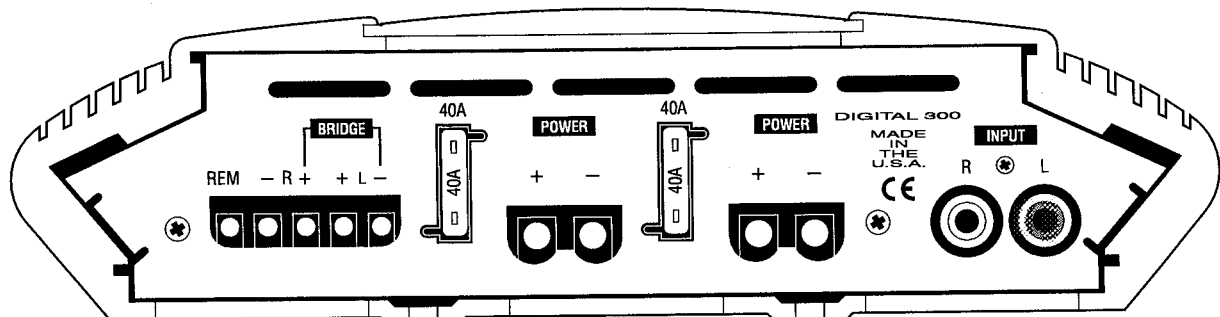
1. At the chosen site, use the enclosed mounting template and mark the locations of the four mounting holes for your specific model.
2. Drill a small pilot hole at each marked location.
3. Mount the amplifier and securely tighten the mounting screws (not enclosed).

WIRING THE AMPLIFIER...

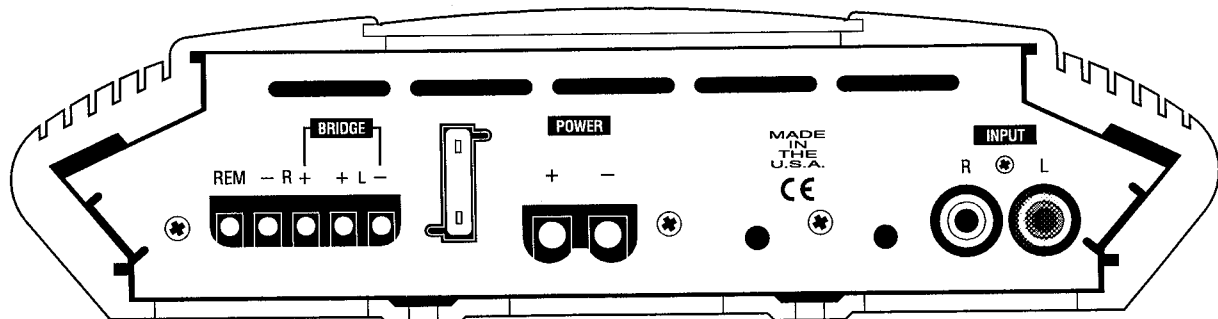
Refer to Figure 8 (below) for details of the Beta Digital 300/100/50 front panel connections.

1. For power, remote, and speaker wires, strip $\frac{1}{4}$ " off one end of each jacket to reveal bare wire for insertion into the Weco connectors.
2. Using the Weco 2-pin power connector, connect a black wire from the nearest bare-metal chassis component to the (-) terminal. Then, connect a red wire from the vehicle's +12 Vdc to the (+) terminal.

NOTE: The Beta Digital 300 has two independent power supplies and, therefore, uses two 2-pin power connectors.



BETA DIGITAL 300 WIRING CONNECTIONS
(front panel)



BETA DIGITAL 100/50 WIRING CONNECTIONS
(front panel)

Figure 8. Wiring connections for Beta Digital 300/100/50 amplifier.

INSTALLATION (continued)

3. Insert a wired Weco 2-pin connector into a POWER socket on the amplifier. Press it in until it stops. For the Beta Digital 300, insert an additional wired Weco 2-pin connector into the remaining POWER socket.

NOTE: Before insertion, make sure each wire is firmly seated in the connector and that each screw is completely tightened.

4. Using the Weco 5-pin connector, connect a blue wire from the source unit's remote connection to the REM terminal. Then, connect speaker wires from the speakers to the L and R (+ and -) terminals, as required by your system plan.

NOTE: Make sure polarities on speaker connections are correct, especially when implementing bridged-mono or tri-mode configurations for the Beta Digital 100/50 amplifier (refer to Figures 2 through 4, starting on page 3).

5. Insert the wired Weco 5-pin connector into the 5-pin socket on the amplifier. Press it in until it stops.

NOTE: Before insertion, make sure each wire is firmly seated in the connector and that each screw is completely tightened.

6. Connect RCA cables from a source unit to the L and R INPUT jacks.

SETTING INPUT SENSITIVITY AND BASS EQ...

Initially, turn the input sensitivity GAIN and bass EQ controls (on Beta Digital 100/50 only) to their minimum (counter-clockwise) positions (refer to Figure 9).

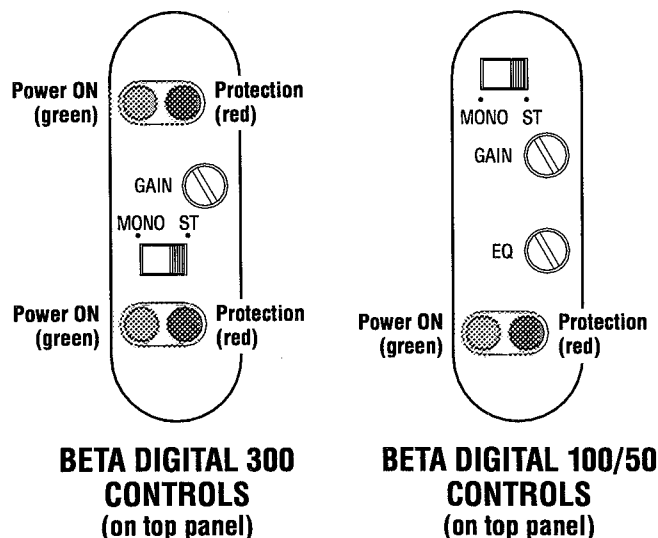


Figure 9. Beta Digital 300/100/50 controls and indicators.

1. Reconnect the (-) negative lead to your vehicle's battery. Apply power to the audio system and play a favorite music track from CD or tape.

NOTE: After the source unit is on, the green LED(s) on the top panel will illuminate, indicating that the amplifier is on. If not, check the wiring, especially the remote connection from the source unit. Also refer to "Troubleshooting" on the next page.

2. On the source unit, increase the volume control to maximum position. Slowly increase the GAIN control (clockwise) towards three o'clock and, at the same time, listen to the quality of the reproduced sound. At some point, you'll hear distortion on the music peaks. Stop the adjustment and turn it back slightly.

3. On the Beta Digital 100/50, when the EQ control is at a minimum, the low frequencies are unaltered (i.e., "flat"). However, you may still want to emphasize the bass frequencies, depending on your vehicle's dimensions, the choice of speakers, and the average volume setting.

NOTE: Make sure all tone and loudness controls on the source unit are off before setting the Beta Digital 100/50's EQ control.

Before you turn up the EQ control, lower the audio system volume to a loud but comfortable level. Listen and compare the bass to the rest of the track. It should sound deep and powerful, yet not overwhelming. If the bass sounds weak, slowly increase the EQ control (clockwise) and stop the adjustment when you hear a satisfying sound mix (see Figure 10 for response range of EQ control). Once this control is set, use the equalization controls on the source unit to adjust the bass on specific tracks or at low listening levels.

Level (dB)

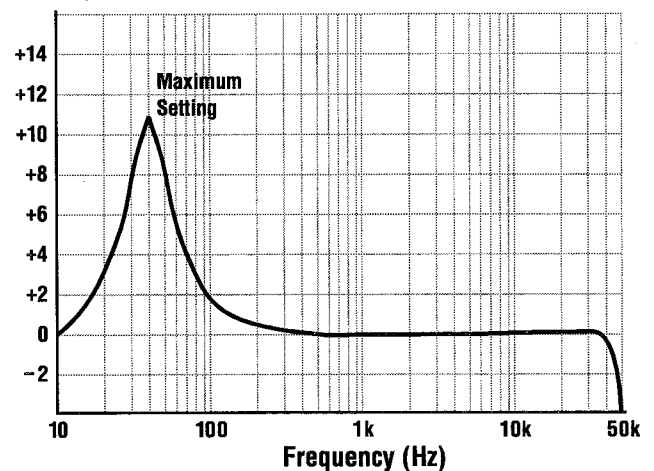


Figure 10. Beta Digital 100/50 frequency response with EQ control at maximum setting.

INSTALLING THE CONTROL COVER...

After wiring and testing the Beta Digital 300/100/50 amplifier, install the control cover using the hex-head screw to deter tampering and help seal out dust (refer to Figure 9).

NOTE: Do not over tighten the hex-head screw. Doing so may crack the cover.

TROUBLESHOOTING

Use the following guide to identify symptoms and solve problems. Make sure the vehicle's electrical system is working properly and power is reaching the Beta Digital 300/100/50 (i.e., green LED on the top panel is on).

SYMPTOM	LIKELY CAUSE	SOLUTION
No audio	Low/No Remote Turn-On Voltage	Check connections; test turn-on voltage
	Speakers are not connected or are blown	Check wiring; use VOM/DVM to measure speaker coil impedance
Distorted audio	Input sensitivity and/or bass eq. is not set properly	See <i>Setting Input Sensitivity and Bass EQ</i> on previous page
Audio lacks "punch"	Speakers are wired with wrong polarity	Check polarity of connections; refer to <i>Applications</i> (page 3)

SYMPTOM	LIKELY CAUSE	SOLUTION
Audio cycles off and on; Red protection LED (on top panel) is on	A protection circuit is turning the amplifier off and on	Verify the following—electrical system is between 10 ~ 15.5 Vdc; temperature is not over 194°F (90°C); no short circuits; speaker loads are not less than 2 ohms (4 ohms in mono)
Audio cycles off and on; Red protection LED (on top panel) is on	GAIN is set too high	Set Input Sensitivity correctly (see previous page)
Fuse keeps blowing	Incorrect wiring or short circuit	Check connections; refer to <i>Applications</i> (see page 3)



©1996, Infinity Systems, Inc., 20630 Nordhoff Street, Chatsworth, CA 91311, USA
 VOICE (818) 407-0228 • FAX (818) 709-9486

Infinity constantly strives to update and improve existing products, as well as create new ones; therefore, the specifications and construction details in this and related Infinity publications are subject to change without notice. Powersource is a trademark of Infinity Systems, Inc.