

OWNER'S MANUAL

Two-Way Active Crossover



Directed[®]

Model 202

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CONGRATULATIONS

Thank you for choosing a Directed signal processor. Directed has been the leader in high-quality and innovative security products in the U.S. since 1990. Now we introduce to the car audio industry the same winning formula - products that meet the stringent standards of today's mobile electronics enthusiast yet priced for anyone's budget. Featuring variable crossover settings and 30 volt-driven

balanced circuits for more headroom with 6 volt outputs, this Directed signal processor will satisfy every music lover's needs for years to come.

Your Directed signal processor comes with a two year limited warranty if it is installed by an authorized DEI dealer. Please save your sales receipt and refer to the warranty section of this manual for complete details.

WARNING



High-powered car audio systems may produce sound pressure levels that exceed the threshold at which hearing loss may result.

They may also impair a driver's ability to hear traffic sounds or emergency vehicles. Use common sense and practice safe listening habits when listening to your audio system.

CROSSOVER MOUNTING AND CONNECTIONS

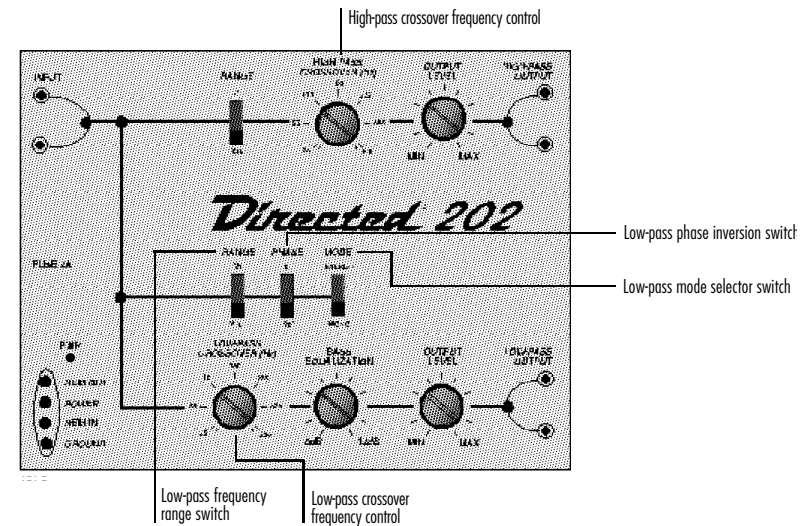
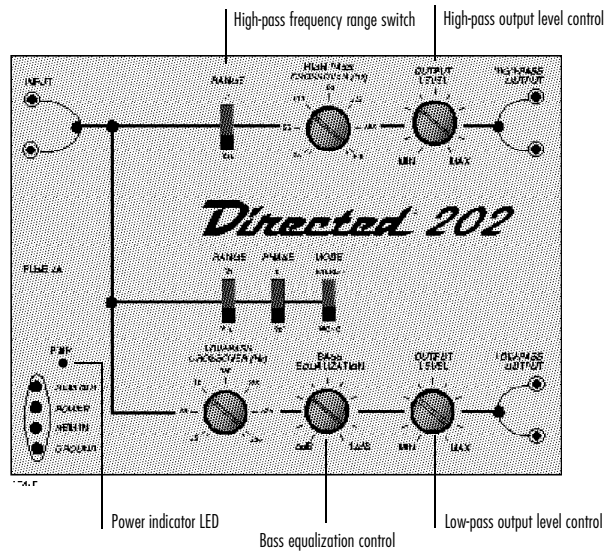
1. Please read the owner's manual carefully before you install the crossover.
2. Disconnect the battery ground terminal prior to making any electrical connections.
3. Pick a mounting location that will provide adequate access and ventilation and protect the crossover from heat, moisture, and dirt. When mounting the unit to the floor pan or a fire wall, check both sides for any hazards or obstructions such as gas tanks, fuel or brake lines, and wiring harnesses.
4. Avoid sharp metal areas when routing cables to the signal processor, and run RCA cables away from power cables and other potentially noisy car harnesses.
5. Power - connect this terminal to a constant +12V source. The battery +12V terminal of the amplifier or the constant +12V supply to the head unit are good locations for this connection.
6. Ground - connect this terminal to the car chassis. Make sure your chassis connection is secure by removing any paint at the ground point, and using a crimped, soldered terminal at the end of the wire. Do not connect this terminal to the ground terminal of an amplifier in the system.
7. Remote in - connect this terminal to the amplifier remote output from your head unit or signal source, if it provides one. The remote terminal of an amplifier is a good source for this connection. This input requires a switched +12V signal to activate the crossover.
8. Remote out - Connect to remote input of the amplifier(s).
9. RCA input - connect to RCA output from radio or signal source. Always use shielded RCA signal cables for this input.
10. High-pass RCA output - connect to the amplifier driving mid or high frequency speakers using a shielded RCA cable.
11. Low-pass RCA output - connect to the amplifier driving subwoofers or lower frequency speakers using a shielded RCA cable.

CROSSOVER ADJUSTMENTS

Crossover filters

1. Pick the correct frequency range switch settings for the high and low-pass filters. The X1 setting is used for subwoofer and mid-bass crossover applications. Use the X10 setting when using the model 202 for mid-bass/midrange and tweeter crossover applications. You can also use the switch settings to create bandpass filtering with amplifiers that incorporate built-in crossovers. Set the low-pass mode switch to mono if required by the system architecture. The phase switch should be set to 0° initially.
2. Preset the output levels for both high and low-pass sections to the 12 o'clock position.
3. Preset the crossover frequency controls to 100Hz for subwoofer and mid-bass applications, or 500Hz (5kHz with the X10 switch on) for midrange/tweeter applications.
4. Activate the head unit, and slowly increase the volume to a comfortable level. Verify that sound is coming out of each speaker in the system, and that each speaker is reproducing appropriate frequencies.
5. Turn the output level controls all the way down. Raise the head unit volume to about 80%, or a few clicks down from maximum.

6. Turn the high-pass output level up slowly until the sound begins to distort, then back it off until the distortion goes away. Adjust the high-pass crossover point up and down, listening for the best sound quality. Smaller speakers will distort if too much low-frequency signal is sent to them. The crossover point should be set as low as possible without over-driving the speaker audibly at higher output levels.
7. Once the high-pass settings are determined, increase the low-pass output level until the bass begins to distort, then back it off until the distortion goes away. Adjust the low-pass frequency up and down listening for the best sound quality. The crossover setting should be kept as low as practical without creating a "hole" in the system frequency response.
8. You may have to make adjustments to the high or low-pass output levels to keep the overall system frequency response smooth.
9. Listen to some music that you are familiar with, moving the low-pass output phase switch from 0° to 180° and back. Pick the setting that gives the most realistic integration of the subwoofer or mid-bass with higher frequency drivers.



SPECIFICATIONS

• Crossover Slope	12 dB/octave
• Crossover Frequency	35Hz-500Hz, X1 mode 350Hz-5kHz, X10 mode
• Bass equalization	-0,+12dB@40Hz,variable
• Frequency response	10Hz-50kHz, $\pm .5$ dB
• THD	0.02%
• Signal-to-Noise Ratio	100 dB(high-pass), 90 dB(low-pass)
• Separation	75 dB
• Input Sensitivity	200mV ~ 6V RMS
• Input Impedance	47k ohm
• Output Impedance	470 ohm
• Maximum Output Voltage	8V RMS
• Supply Voltage	9VDC to 16VDC
• Dimensions (mm)	162 W x 40 H x 125 D

FEATURES

- 30 volt balanced circuit design
- Low-noise J-FET op-amps
- X10 crossover frequency range switches
- Mono/stereo low-pass output switch
- Phase inversion low-pass output switch
- Separately adjustable filters for greater tuning flexibility
- Remote out with delay to turn on amplifiers.
- Gold-plated power terminals and RCA jacks

LIMITED TWO YEAR CONSUMER WARRANTY

Directed Electronics, Inc. (DEI) promises to the original purchaser, to replace this product should it prove to be defective in workmanship or material under normal use, for a period of two years from the date of purchase by the dealer as indicated by the date code marking of the product **PROVIDED** the product was installed by an authorized DEI dealer. During this two year period, there will be no charge for this replacement **PROVIDED** the unit is returned to DEI, shipping pre-paid. If the unit is installed by anyone other than an authorized DEI dealer, the warranty period will be 1 year from date of purchase by the dealer as indicated by the date code marking of the product. During this 1 year period, there will be no charge for this replacement **PROVIDED** the unit is returned to DEI, shipping pre-paid. This warranty is non-transferable and does not apply to any unit that has been modified or used in a manner contrary to its intended purpose, and does not cover damage to the unit caused by installation or removal of the unit. This warranty is void if the product has been damaged by accident or unreasonable use, neglect, improper service or other causes not arising out of defects in materials or construction. **ALL WARRANTIES INCLUDING BUT NOT LIMITED TO EXPRESS WARRANTY, IMPLIED WARRANTY, WARRANTY OF MERCHANTABILITY, FITNESS FOR PARTICULAR**

PURPOSE, AND WARRANTY OF NON-INFRINGEMENT OF INTELLECTUAL PROPERTY ARE EXPRESSLY EXCLUDED TO THE MAXIMUM EXTENT ALLOWED BY LAW, AND DEI NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY LIABILITY IN CONNECTION WITH THE SALE OF THE PRODUCT. DEI HAS ABSOLUTELY NO LIABILITY FOR ANY AND ALL ACTS OF THIRD PARTIES INCLUDING ITS AUTHORIZED DEALERS OR INSTALLERS. Unit must be returned to DEI, postage pre-paid, with: consumer's name, telephone number, and address, authorized dealer's name and address, and product description. **IN ORDER FOR THIS WARRANTY TO BE VALID, YOUR UNIT MUST BE SHIPPED WITH PROOF OF INSTALLATION BY AN AUTHORIZED DEI DEALER. ALL UNITS RECEIVED BY DEI FOR WARRANTY REPAIR WITHOUT PROOF OF DEI DEALER INSTALLATION WILL BE COVERED BY THE LIMITED 1 YEAR PARTS AND LABOR WARRANTY.** Note: This warranty does not cover labor costs for the removal and reinstallation of the unit. **BY PURCHASING THIS PRODUCT, THE CONSUMER AGREES AND CONSENTS THAT ALL DISPUTES BETWEEN THE CONSUMER AND DEI SHALL BE RESOLVED IN ACCORDANCE WITH CALIFORNIA LAWS IN SAN DIEGO COUNTY, CALIFORNIA.**

OTHER PRODUCTS AVAILABLE FROM:



**Directed
Directed**

Directed

- CLASS D MONO AMPLIFIERS
- 2 CHANNEL AMPLIFIERS
- 4 AND 5 CHANNEL AMPLIFIERS
- SIGNAL PROCESSORS



- TUBE SUBWOOFERS
- POWERED SUBWOOFERS
- SINGLE AND DUAL VOICE COIL SUBWOOFERS
- COAXIAL SPEAKERS



- SINGLE AND DUAL VOICE COIL SUBWOOFERS
- COAXIAL SPEAKERS
- COMPONENT SPEAKER SYSTEMS



- SINGLE AND DUAL VOICE COIL DIE-CAST SUBWOOFERS
- COMPONENT NEODYMIUM SPEAKER SYSTEMS



- SINGLE AND DUAL VOICE COIL DIE-CAST SUBWOOFERS



- HIGH PERFORMANCE POWER CABLES
- PREMIUM SPEAKER/AUDIO CABLES AND ADAPTERS
- POWER CAPACITORS
- GOLD-PLATED POWER DISTRIBUTION AND FUSING BLOCKS
- GOLD-PLATED POWER AND SPEAKER TERMINALS



DEI is an ISO 9001 registered company.

Always use a



Master Audio Output Protection

DEI is a proud member of

