

TREO Engineering Limited Warranty USA

TREO Engineering Signal Processors are guaranteed to be free from defects in workmanship and materials for ninety days. If they are installed by an authorized Treo Engineering dealer this warranty is extended to three years. This warranty is conditional on the completion and return, within fourteen days of purchase, of warranty card enclosed with each signal processor. This warranty is valid only to the original purchaser. Proof of purchase must be available and serial number must be intact for warranty to be honored.

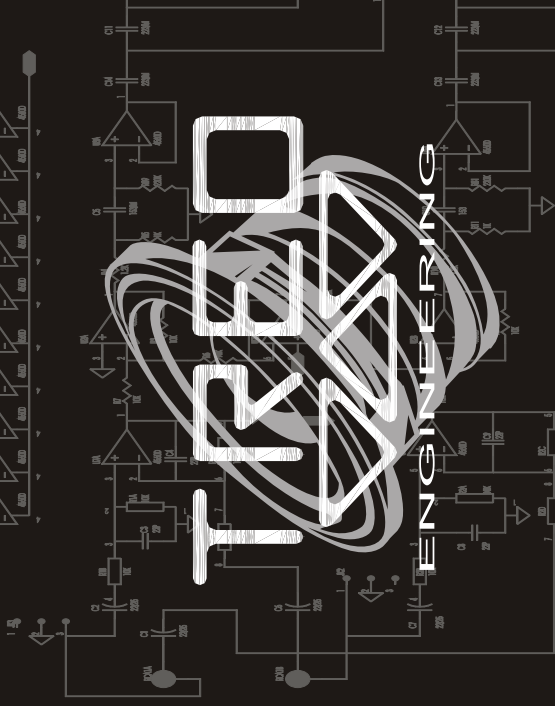
Abuse (including, but not limited to under or over voltage), misuse, accident, neglect, modification of signal processor, shipment of signal processor in carton/container other than the original packaging, missing serial number, use of the signal processor for any purpose other than its original intent, and damage from nature, its elements, or Act of God void this warranty. TREO Engineering shall not be held responsible for damage caused by this signal processor to its listeners, environment, related components, or any other damage directly or indirectly related to this signal processor.

Except those set out in this statement of limited warranty, all warranties expressed or implied for this signal processor, including all expressed or implied warranties of merchantability and fitness for a particular purpose, are specifically disclaimed by TREO Engineering. Some states do not allow exclusions or limitations or implied warranties so these may not apply. This warranty gives you specific legal rights and you may have other rights which vary from state to state.

TREO Engineering shall replace or repair this signal processor and pay for its return ground freight. The owner of this signal processor is responsible for providing the proper packing and freight for this signal processor to be returned to TREO Engineering or its authorized service center. Please contact TREO Engineering at 1-800-530-5925 or rma@treonline.com to obtain a return authorization number for the product's return.



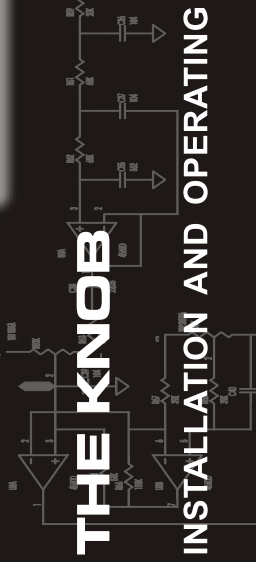
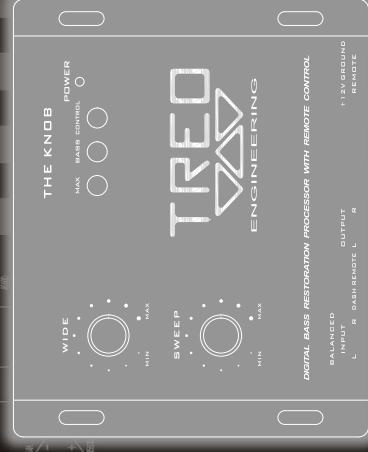
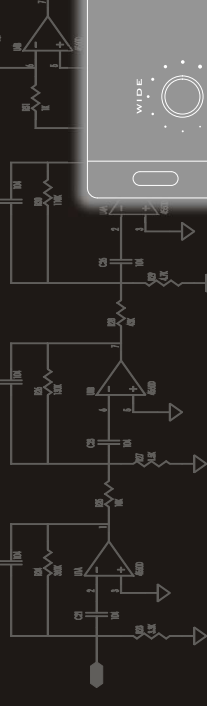
www.treonline.com



DIGITAL BASS

RESTORATION PROCESSOR

WITH REMOTE CONTROL



THE KNOB

INSTALLATION AND OPERATING INSTRUCTIONS

Introduction

Congratulations on purchasing the TREQ KNOB. You are now the owner of the most powerful and accurate bass restoration and enhancement system available.

The TREQ KNOB can be used to restore and enhance bass in audio recordings in all genres from classical to rap and hip-hop to classic rock.

A dash-mountable level control allows instant adjustments of the bass restoration and enhancement level. The system can be turned up to add extra enhancement or turned down for passengers that do not share the driver's passion for bass.

Features

Bass Restoration DSP: The TREQ KNOB contains a Bass Restoration DSP that accurately restores and injects low frequency information back into the signal path. The Bass Restoration DSP can restore bass into all types of recordings regardless of era, genre, or source.

Bass Equalization Circuit: The TREQ KNOB has a unique equalization circuit that contours the restored bass to your stereo system.

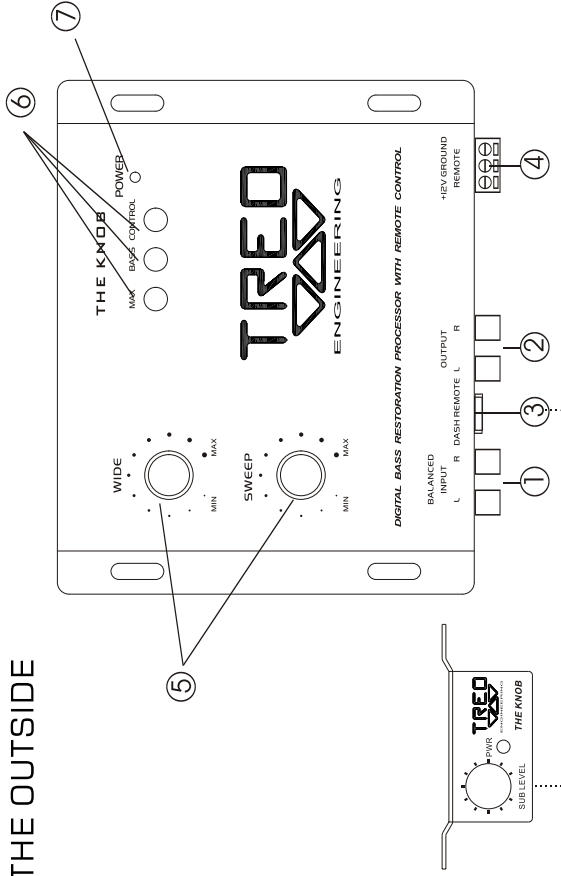
Dash Mountable Remote Control: The TREQ KNOB comes with a dash mountable remote control that allows control of the level of the TREQ KNOB without having to leave the driver's seat.

Bass Restoration Indicator: The chassis of the TREQ KNOB features three LED indicators that flash when the Bass Restoration DSP is activated.

Subsonic Filter: The subsonic filter enhances the efficiency of stereo system and helps to protect amplifiers and subwoofers from damage by eliminating inaudible frequencies.

Bass Output Control: The TREQ KNOB has the ability restore and enhance low bass frequencies in all types of recordings. The Bass Output control circuit allows the TREQ KNOB to maximize the bass output of any mobile audio system while restraining destructive bursts.

THE OUTSIDE



Functions

1. Inputs: The inputs of The TREO KNOB use a balanced input circuit to help minimize induced noise and are designed to handle, very high signal voltages up to 15 Volts.
2. Outputs: The output from the TREO KNOB should be connected to the next component in the signal path such as a crossover, equalizer or amplifier. The TREO KNOB should be connected in line BEFORE any crossovers.
3. Dash Remote Control
4. Power Connector: Caution should be used to avoid reversal of the B+ and remote terminals. If these terminals are reversed the unit may power up but noise may be induced.
5. Para-Bass Controls: These knobs control the Para-Bass functions of the TREO KNOB. The Sweep control allows selection of a center frequency for the bass restoration between 27 and 63 Hz. The Width control allows selection of the shape of the filter centered on the Sweep frequency.
6. Bass Restoration Indicator: These three LED indicators flash when the Bass Restoration DSP is activated.
7. Power-On LED

Adjusting the TREO KNOB Controls

The bass response in a system is affected by four factors:

- (1) The acoustics of the vehicle
- (2) The locations of the speakers within the vehicle
- (3) The frequency bandwidth present in the audio recording
- (4) Speakers and speaker enclosures

The TREO KNOB was developed to help restore and enhance low frequencies lost during the recording process. Because the acoustics of various environments and the amount of restoration needed by different recordings are different several different controls are present on the TREO KNOB.

The Sweep control allows selection of a center frequency for the bass restoration between 27 and 63 Hz. The Width control allows selection of the shape of the filter centered on the Sweep frequency.

Setting the Bass Output Control

The TREO KNOB is a powerful tool for restoring bass lost in the recording and mastering process. The TREO KNOB can be configured to restore bass tailored to a wide variety of car audio systems. Amplifier input gain sensitivity and the subwoofers' ability to handle high bass enhancement levels must be taken into consideration when setting the Bass Output Control. Use extreme caution when adjusting the Bass Output control to prevent damage to amplifiers or speakers.

Specifications

Maximum Input Level	15V RMS
Maximum Output Level	13.5V peak
Frequency Response	10Hz~100kHz; +/- 1dB
Total Harmonic Distortion	0.003%
Signal to Noise Ratio	130dB
Balanced Input Noise Rejection	>60dB
Input Impedance	10K Ohms
Output Impedance	150 Ohms
Power Supply	High headroom PWM
Power draw	150mA
Recommend fuse rating	1A

Troubleshooting Guide

If the Unit does not turn-on, and/or the power indicator LED is NOT illuminated:

1. Check to ensure that B+ and GND are not reversed.
2. Check that all power wires are connected properly and that system voltage is correct (11-16Volts).
3. Check that the fuse is intact.

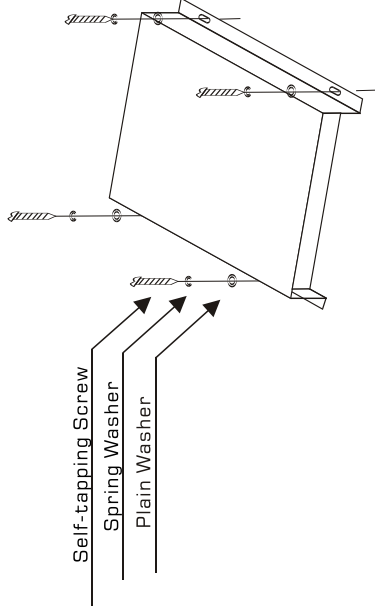
If you experience high audible distortion or low output volume:

1. Check that the input and output levels are set correctly. Input should match the source unit and output should match the sensitivity of the next device in the signal path.
2. Check the crossover settings and ensure they are correct; for high "Q" systems, set the crossover 1 octave or more above.

If you experience whining or engine noises:

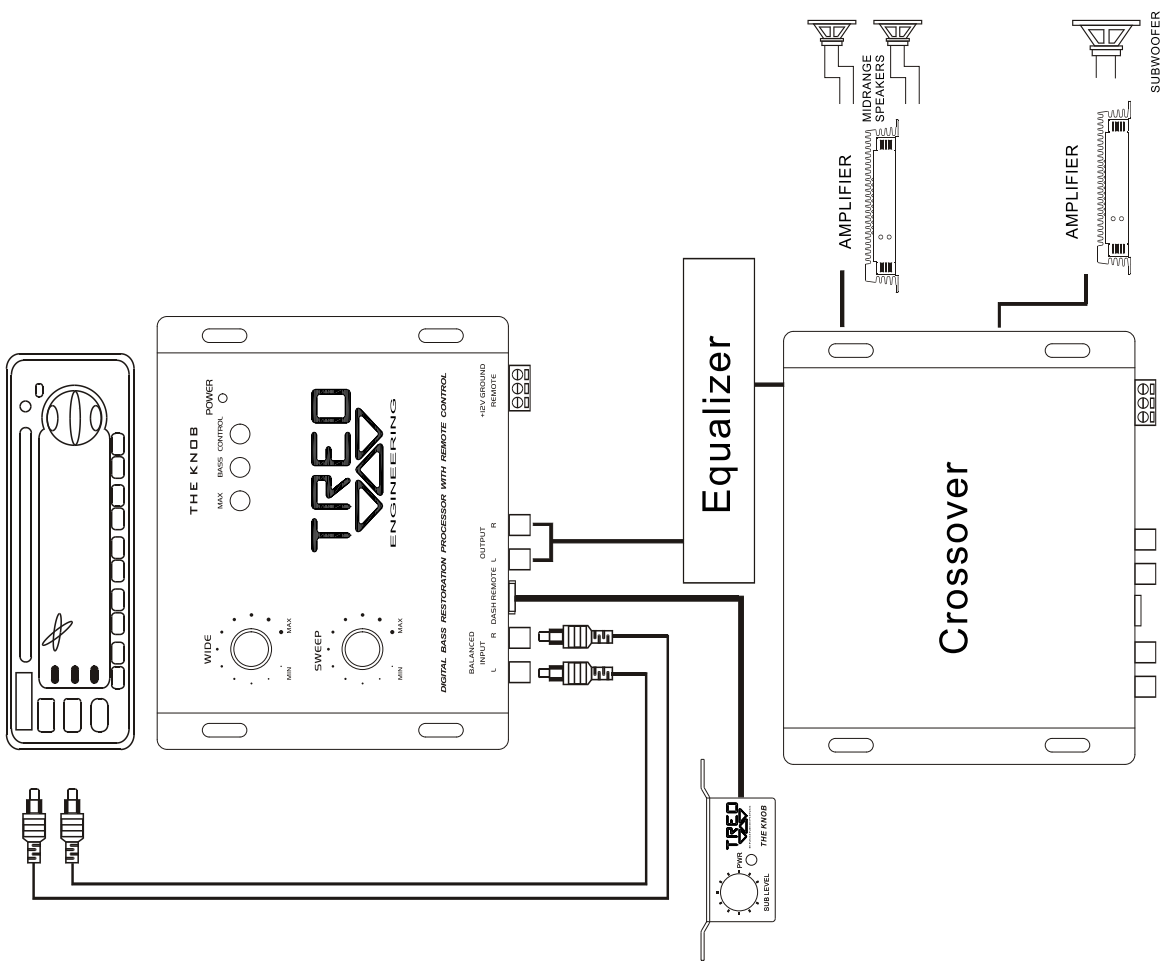
1. Verify that the GND connection is secure and ensure that the wiring is at least 14-16 AWG and not unnecessarily long.
2. Verify that the B+ connection is secure and ensure that the wiring is at least 14-16 AWG and not unnecessarily long.
3. Verify that the B+ and remote leads are not reversed. The unit may power up in this condition but noise may be induced.
4. Change the power source; try tapping for power and/or ground from different points.

Installation



Signal Connection

NOTE: The output from the TREO KNOB should be connected to the next component in the signal path such as a crossover, equalizer or amplifier. The TREO KNOB should be connected in line BEFORE any crossovers.

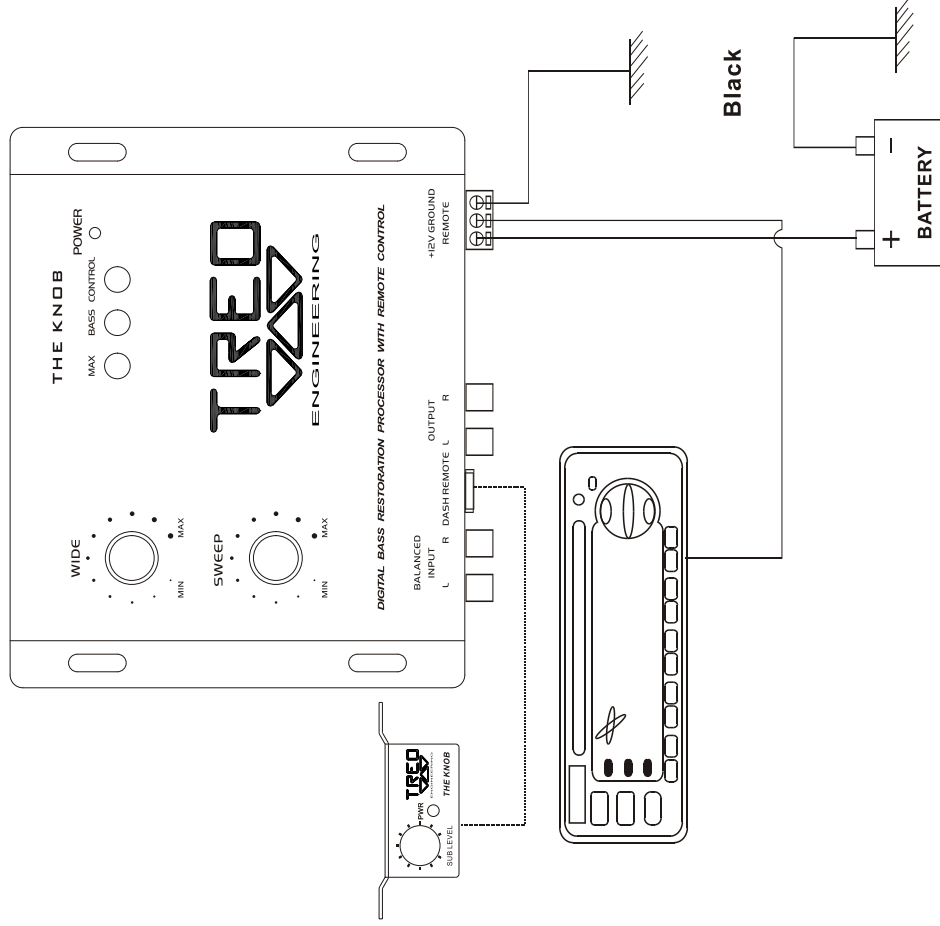


Electronic Connections & Wiring Power connection

B+ (12V): Connect the red wire to positive terminal of 12V power source.

REMOTE: Connect the blue wire to remote output of the source unit or equalizer.

GND: Connect the black wire to the vehicle chassis.



The Inside

8. Input Grounding: For most systems this jumper can be set in the BALANCED position. In some systems the source unit may seek ground through the RCA connectors. If this is the case, the jumpers should be set to the UNBALANCED position.

9. Ground Isolation Jumpers: Occasionally alternator whine or other noise may be present in a system because the source unit and amplifier are grounded differently. The best course of action in this situation is to equalize the grounding of the source unit and the amplifier. If this is not possible alternative grounding connections have been provided. Make sure the system is turned OFF before you move these jumpers.

10. Bass Output Control Jumpers: Not all systems have the same design or application. Some systems are designed strictly for SPL competition while others are designed for daily use on the street. The Bass Output Control Jumpers can increase or decrease the output signal voltage of the Bass Restoration Circuit. Depending on system design and application these jumpers can be changed to a higher or lower setting to maximize bass output and protect amplifiers and speakers. In most systems the factory setting will be optimal. It is recommended to try the factory default setting before making changes to the Bass Output Control Jumpers.

