DOD

SR Series Crossovers

Owner's Manual

- **SR 823**
- **SR 834**

A Harman International Company

These symbols are internationally accepted symbols that warn of potential hazards with electrical products. The lightning flash means that there are dangerous voltages present within the unit. The exclamation point indicates that it is necessary for the user to refer to the owners manual.

These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer's warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service.

Disconnect the unit during storms to prevent damage.

U.K. Mains Plug Warning

A molded mains plug that has been cut off from the cord is unsafe. Discard the mains plug at a suitable facility. **Never under any circumstances should you insert a damaged or cut mains plug into a 13 amp power socket.** Do not use the mains plug without the fuse cover in place. Replacement fuse covers can be obtained from your local retailer. Replacement fuses are 13 amps and MUST be ASTA approved to BS1362.

Safety Instructions

Notice for customers if your unit is equipped with a power cord.

Warning: This appliance must be earthed.

The cores in the mains lead are colored in accordance with the following code:

Green and Yellow - Earth Blue - Neutral Brown - Live

As colors of the cores in the mains lead of this appliance may not correspond with the colored markings identifying the terminals in your plug, proceed as follows:

- The core which is colored green and yellow must be connected to the terminal in the plug marked with the letter E, or with the earth symbol, or colored green, or green and yellow.
- The core which is colored blue must be connected to the terminal marked N, or colored black.
- The core which is colored brown must be connected to the terminal marked L, or colored red.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified service personnel who should refer to the table below. The green/yellow wire shall be connected directly to the unit's chassis.

CONDUCTOR		WIRE COLOR	
		Normal	Alt
L	LIVE	BROWN	BLACK
N	NEUTRAL	BLUE	WHITE
E	EARTH GND	GREEN/YEL	GREEN

Warning: If the ground plug is defeated, certain fault conditions in the unit or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and earth ground are touched simultaneously.

Warning

For your protection, please read the following:

Water and Moisture: Appliances should not be used near water (e.g. near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.) Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

Power Sources: The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

Grounding or Polarization: Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

Power Cord Protection: Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

Servicing: To reduce the risk of fire or electrical shock, the user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

For units equipped with externally accessible fuse receptacle: Replace fuse with same type and rating only.

Electromagnetic Compatibility

Operation is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.
- Use only shielded interconnecting cables.
- Operation of this unit within significant electromagnetic fields should be avoided.

SR Crossover

1

SR823 / SR834

Introduction

The DOD SR834 is a stereo 3-way, mono 4-way crossover, and the SR823 is a stereo 2-way, mono 3-way crossover. These high-quality crossover networks are designed to extract maximum sound quality from your multi-amped sound system at a price working musicians can afford.

Accurate 24dB/octave Linkwitz-Riley state-variable filters prevent peaks or dips in the output at crossover points, ensuring good driver protection by rolling off crossover frequencies rapidly.

A 4-pole, 24dB/Octave Butterworth filter may be electronically inserted at 40 Hz using a switch on the front panel (834 only), and a variable low frequency summed output is available for mono subwoofer applications.

The rear panel of the SR834/SR823 is clearly labeled for stereo and mono operation, and all outputs on the SR834 except the mono Low Frequency Sum output include phase switches.

ADVANTAGES OF A MULTIPLE AMPLIFIER SYSTEM

Multi-amped systems use separate amplifiers for each frequency band, allowing each amplifier to deliver maximum efficiency within a specified range. This method of amplification yields a cleaner overall sound and a significant decrease in the amount of power needed to drive the system to the same levels as a full-range amplified system with more power.

The greatest power demands in a sound system are made by the low frequencies of the program material. This is because music and voice signals contain mostly low frequency information, and low frequency drivers are generally less efficient than high frequency transducers.

In a multi-amped system, the power amplifier(s) for the low frequencies can be large enough to handle greater power demands, allowing high frequency power amplifiers to be much smaller, yet adequate to handle the demands of the high frequency content of the program material. Since each element of the system is driven by its own amplifier, any distortion that occurs is limited to the frequencies of the overdriving power amplifier. The rest of the signal remains clear and undistorted.

Also, since lower priced, smaller amplifiers can do the job of the larger and much more expensive amplifiers needed to drive full-range amped systems, the cost of a sound system can be significantly reduced (and sound better in the process). It may also be easier to haul several smaller power amplifiers around, rather than one big one, making portable systems easier to handle.

2 SR Crossover

INSTALLATION

**** Be sure to begin installation with all AC power to your sound system turned off.**

Install the crossover in a rack using the provided rack screws and washers. Route the AC power cord away from audio lines and plug into a convenient outlet. Connect audio lines to the crossover using the appropriate input jacks to channels 1 and 2 (for stereo operation) or to channel 1 (for mono operation). Connect the appropriate output jacks for stereo 3-way, mono 4-way operation (SR834 only), or stereo 2-way, mono 3-way (SR823). The rear panel is clearly marked for proper connection. Follow the top labels for stereo connection or the bottom labels for mono connection.

All inputs and outputs are balanced. Use XLR type male plugs for inputs and female plugs for outputs. For balanced operation using 1/4" phone plug connectors, use only tip-ring-sleeve (stereo) jacks. For unbalanced operation using 1/4" phone plug connectors, use only tip-sleeve (mono) jacks.

FOR BALANCED CONNECTION:
Wire XLR connections as follows:

Pin 2: high
Pin 3: low
Pin 1: ground or common

FOR UNBALANCED AMPLIFIER CONNECTION:
To make an *unbalanced* connection to the unit's XLR connectors, wire the line connectors as follows:

Pin 2: high
Pin 3: NO CONNECTION
Pin 1: ground

Use tip-sleeve 1/4" phone plug connectors for connection to the amplifiers, wired as follows:

tip: high
sleeve: ground

Once the crossover is installed, adjusted, and tested, an optional security panel may be secured to the front panel of the unit to prevent tampering.

SETUP

****CAUTION: DO NOT TURN ON THE POWER AMPLIFIERS YET.**

Consult your speaker and driver manufacturer's specifications for the recommended crossover frequencies. Basic setup procedures for the crossovers are as follows:

• Label each power amplifier for its respective frequency band.

SR834: LOW, MID, or HIGH for stereo operation; LOW, LOW-MID, HIGH-MID, or HIGH for mono operation.

SR823: LOW, HIGH for stereo operation or LOW, MID, HIGH for mono operation.

• Set each power amplifier volume control at maximum and connect each power amplifier output to its correct speaker or driver.

• Apply power to the crossover. Apply power to the mixer then the power amps.

STEREO OPERATION

Using the markings non-italicized markings on the front and rear panels and set each channel as follows:

• Set the gain control to 0 dB. Set all level controls to -12 and switch in the 15Hz high-pass filter if desired.

SR823: Set the LOW/HIGH crossover frequency for each channel according to the front panel markings. If below 180Hz is desired, press the ÷10 switch****** on the rear panel.

SR834: Set the LOW/MID crossover frequency for each channel according to the front panel markings. If below 180Hz is desired, press the ÷10 switch****** on the rear panel. If the desired frequency is below 180 Hz, the ÷10 switch must be engaged (LED indicator lit). If the desired frequency is above 180 Hz, the Range switch must be disengaged (LED indicator off).

When the ÷10 switch is engaged, the frequencies marked around the LOW/MID (LOW/HIGH for SR823) frequency control are divided by 10. In other words, if the LOW/MID (LOW/HIGH for SR823) frequency is set at 250Hz and the range switch is engaged, the actual crossover frequency is 25Hz.

SR834: Set the MID/HIGH crossover frequency. The Channel 2 MID/HIGH frequency control has two sets of markings. When using the crossover in stereo mode, use the lower frequency markings to set the MID/HIGH crossover point. This frequency control has no range switch.

WARNING: BEFORE PRESSING THE ÷10, LF SUM OR STEREO/MONO SWITCHES, LOWER THE OUTPUTS OF YOUR POWER AMPLIFIERS TO AVOID DAMAGE TO DRIVERS AND LOUDSPEAKERS.

4 SR Crossover

- Connect the outputs of the crossover to the appropriate amplifiers. THE POWER AMPLIFIERS SHOULD STILL BE UNPOWERED. Check to see that all crossover level controls are set to -12, and that both gain controls are set to 0 dB. Apply power to the low frequency amplifier.
- Send a broadband signal into the crossover and slowly bring up the LOW level control. Set the control for the desired level. The gain control can be used to boost the signal if needed.

SR834: Apply power to the mid frequency amplifier and turn up the MID level control to the desired level.

SR834/SR823: Finally, apply power to the high frequency power amplifier and bring up the HIGH level control to the desired level.

Once the output levels are set, any phase problems can be corrected with the phase inversion switches on the rear panel. THE PHASE INVERSION SWITCHES ARE MECHANICAL SWITCHES AND SHOULD ONLY BE CHANGED WHEN THE POWER AMPLIFIER FOR THAT OUTPUT IS OFF. Turning down the level controls will not prevent transients from appearing at the outputs when changing the phase switches while the crossover is on. These transients can damage power amplifiers, speakers, and drivers.

STEREO OPERATION USING A MONO SUBWOOFER

This mode of operation provides:

SR834: Channel 1 and Channel 2 high frequency outputs, Channel 1 and Channel 2 mid frequency outputs, and one summed low frequency output.

SR823: Channels 1 and 2 high frequency outputs and one summed low frequency output.

The setup procedure is the same as for the stereo mode, except that, instead of connecting both low frequency outputs, connect only the Low Frequency Sum output to the low frequency amplifier. Set both LOW level controls to the same level to ensure that both controls contribute the same amount of signal to the Low Frequency Sum output.

Note: There is no phase inversion switch on the SR834 for the Low Frequency Sum output. Any phase problems must be corrected using the phase inversion switches on the other four outputs.

MONO OPERATION

Depress the Stereo/Mono switch** (LED indicator lit). When operating the crossover in mono mode, the HIGH-MID/HIGH frequency control range is from 800Hz - 9kHz.

The mono mode setup procedure is the same as for stereo mode, except that the bottom row of markings on the front and rear panels will be followed instead of the top row. Be sure that the amplifiers are off, that the gain control is set to 0 dB, and that the level control is set to -12 before proceeding to adjust the crossover frequencies and levels. THE LOW FREQUENCY SUM OUTPUT IS NOT USABLE IN THE MONO MODE.

**** WARNING: BEFORE PRESSING THE ÷10, LF SUM OR STEREO/MONO SWITCHES, LOWER THE OUTPUTS OF YOUR POWER AMPLIFIERS TO AVOID DAMAGE TO DRIVERS AND LOUDSPEAKERS.**

6 SR Crossover

SR823/834 Specifications

CONFIGURATIONS:

Stereo 2-way, Mono 3-way
Stereo 3-way, Mono 4-way.

FILTERS:

Filter Type: Linkwitz-Riley state-variable
Crossover Slopes: 24dB per octave
Accuracy: 14%

CROSSOVER FREQUENCIES

Stereo:

LOW/MID: 180Hz to 2kHz or 18Hz to 200Hz (selectable switch on rear panel)
MID/HIGH: 450Hz to 5kHz

Mono:

LOW/LOW-MID: 180Hz to 2kHz or 18Hz to 200Hz (selectable switch on rear panel)
LOW-MID/HIGH-MID: 450Hz to 5kHz in two ranges
HIGH-MID/HIGH: 800Hz to 9kHz.

INPUTS:

Type: Electronically Balanced
Connector: XLR 3 F
Polarity: Pin 2 "hot"
RFI Filtering: Provided on each input
Maximum Input Level:
Balanced: +27dBu
Unbalanced: +27dBu
Input Impedance:
Balanced: 20kΩ
Unbalanced: 10kΩ

OUTPUTS:

Type: Electronically Balanced
Connector: XLR 3 M
Polarity: Pin 2 "hot" (rear panel selectable)

Maximum Output Level:	**10kΩ Load**	**600 Ω Load**
Balanced:	+27dBu	+27dBm
Unbalanced:	+22dBu	+20dBm

Output Impedance:
Balanced: 102Ω
Unbalanced: 51Ω

PERFORMANCE:

THD+Noise: Less than 0.004%. (Crossover @ 1kHz 30kHz filter)
Dynamic Range (Balanced Output):
Minimum: 115dB
Typical: >117dB

Hum & Noise (Maximum)	**Stereo Mode**	**Mono Mode**
Low Frequency Output	-90dBu	-90dBu
Low-Mid Output	-89dBu	-90dBu
High-Mid Output (834 only)		-88dBu
High Frequency Output	-88dBu	-88dBu

Frequency Response:
Highpass Filter OUT: 10Hz (-0.5dB) to 75kHz (-3dB)
15Hz Highpass Filter IN: 15Hz (-3dBu) to 75kHz (-3dB)

DECLARATION OF CONFORMITY

Manufacturer's Name: DOD Electronics Corporation

Manufacturer's Address: 8760 South Sandy Parkway
Sandy, Utah 84070

declares that the products:

Product Name: SR823, SR834

Product Options: All

conform to the following product specifications:

Safety: EN 60065 (1993)
IEC63 (1985) with Amendments 1,2,3

EMC: EN 55013 (1990)
EN 55020 (1991)

Supplementary Information:

The products herewith comply with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC as amended by directive 93/68/EEC.

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