



LP-1 & LP-2 Low Pass Crossovers
2x-4 2-Way Crossover

Owner's Manual



Dear Customer,

Congratulations on your purchase of America's finest brand of Crossovers. At Rockford Fosgate we are committed to musical reproduction at its best, and we are pleased you chose our product. Through years of engineering expertise, hand craftsmanship and critical testing procedures we have created a wide range of products that reproduce music with all the clarity and richness you deserve.

For maximum performance we recommend you have your new Rockford Fosgate product installed by an Authorized Rockford Fosgate Dealer, as we provide specialized training through Rockford Technical Training Institute (RTTI). Please read your warranty and retain your receipt and original carton for possible future use.

PRACTICE SAFE SOUND™

CONTINUOUS EXPOSURE TO SOUND PRESSURE LEVELS OVER 100dB MAY CAUSE PERMANENT HEARING LOSS. HIGH POWERED AUTO SOUND SYSTEMS MAY PRODUCE SOUND PRESSURE LEVELS WELL OVER 130dB. USE COMMON SENSE AND PRACTICE SAFE SOUND.

The serial number can be found on the outside of the box. Please be sure to record it in the space provided below as your permanent record. This will become useful in recovering your product if ever stolen and serve as verification of your factory warranty.

Serial Number: _____

Model Number: _____

Introduction

This manual provides information on the features, installation and operation of the Punch AUDIO*phile* Low Pass Crossovers (LP-1 and LP-2), and 2-way Crossover (2x-4). We suggest you save this manual for future reference.

We strongly recommend you have your Authorized Rockford Fosgate Dealer install the Crossovers. If you do choose to install the crossover yourself, please be sure to read the entire manual before beginning.

Design & Features

Punch Audiophile LP1 and LP2

The Punch AUDIophile LP-1 and LP-2 passive, two channel, low pass crossovers are designed to conform to the performance and standards of the new Punch AUDIophile woofers, but will work with all Rockford Fosgate woofers. These low pass filters are designed to meet the following criteria:

- First order network(s), 6dB / octave at 100Hz for 2Ω / 4Ω loads
- Compact design with screw terminals for input and output
- 200 watt power handling
- Low DC resistance to minimize losses
- Two channel or single channel operation

Punch AUDIophile 2x-4

The 2x-4 Crossover is designed to be the "link" between tweeters, and mid-bass and mid-range speakers. This compact 2-way crossover is designed to conform to the following criteria:

- 2-Way Crossover network centered at 4kHz
- Uses Linkwitz-Riley 2nd order transfer function (12dB/octave)
- Additional tweeter filtering uses a series notch filter centered at 1500Hz to minimize the tweeter's resonant peak
- Also included is an impedance compensation network (Zobel) that flattens out the gradual impedance rise above 10kHz
- Tweeter protection provided through a special compression circuit

The compression circuit in the crossover consists of an array of two lamps wired in parallel, whose function is to monitor the input power to the tweeter. When it sees a threatening increase in input voltage, it will increase its resistance. This technique is fast, and virtually undetectable to the listener. Other manufacturers' tweeter protection is done via circuit breakers, which drastically reduce tweeter output – very noticeable and distracting for the listener.

- Small size, accomplished by inductors wound on specially designed ferrite bobbins

Note: With the second order Linkwitz-Riley network of the 2x-4, an out-of-phase condition can exist in the pass band. The best performance is usually achieved by placing the tweeter out-of-polarity with the midrange/woofer. We recommend you start with it wired in this manner, listen,

reverse the polarity, and then listen again. Select the one which offers the smoothest sounding frequency response. See the wiring diagrams on pages 12 and 13 for more information.

Mounting the Crossovers

The LP-1, LP-2, and 2x-4 are secured to relatively flat surfaces with sheetmetal screws inserted into the mounting holes on either side of the enclosure.

Input & Output Connectors

The LP-1, LP-2, and 2x-4 feature silver-plated “screw-lok” terminals which are used to secure both the input and output speaker wires. The LP-1 and LP-2 accept wire sizes up to 12 gauge.

Wiring the Crossovers

The LP-1 and LP-2 are designed to be wired in series with the subwoofers being used. Both positive (+) and negative (-) thruput connectors are provided. For more information, refer to the diagrams beginning on page 8.

Working with 2Ω and 4Ω woofer loads and crossover frequencies of 100Hz will set the inductor values for the LP-1 and LP-2 at 3.5 mH and 6.6 mH respectively.

To place the crossover in “mono mode,”

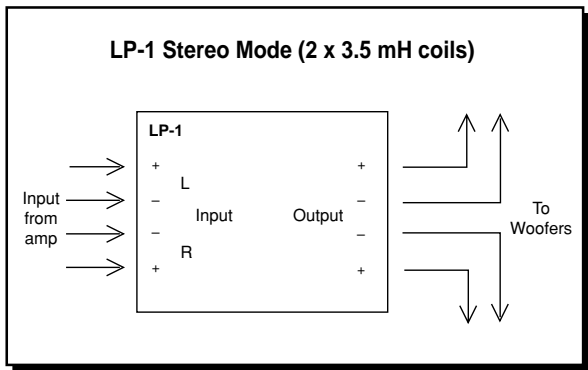
1. Place a jumper between the left to right positive outputs.
2. Place another jumper between the left to right negative outputs.

Once the jumpers are in place, mono filter input and output then become either the left positive (+) and negative (-), or right positive (+) and negative (-) inputs.

The table below lists the various crossover options available with the LP-1 and LP-2 filters. The frequencies indicated here reflect real measurements and not calculations based on inductor values.

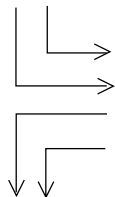
Model Number	2Ω Load	4Ω Load	8Ω Load
LP-1 Stereo Mode	100 Hz	200 Hz	400 Hz
LP-1 Mono Mode	50 Hz	100 Hz	200 Hz
LP-2 Stereo Mode	50 Hz	100 Hz	200 Hz
LP-2 Mono Mode	25 Hz	50 Hz	100 Hz

Sample Wiring Diagrams



LP-1 Mono Mode

Input from
Amp



LP-1

+

L

-

Input

-

R

+

Output

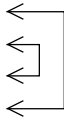
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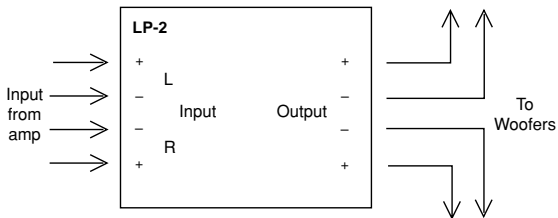
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Jumpers

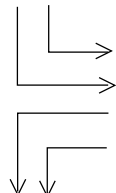


LP-2 Stereo Mode (2 x 6.6 mH coils)



LP-2 Mono Mode

Input from
Amp



LP-2

+

-

-

+

+

-

-

+

L

Input

R

Output

+

-

-

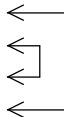
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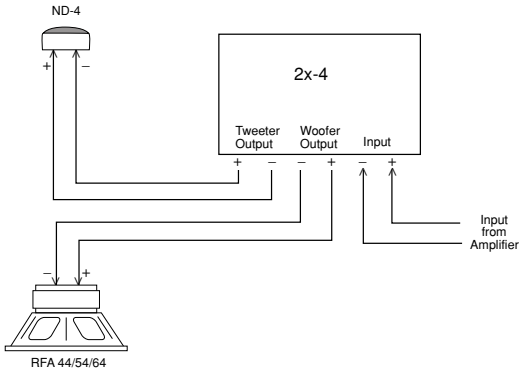
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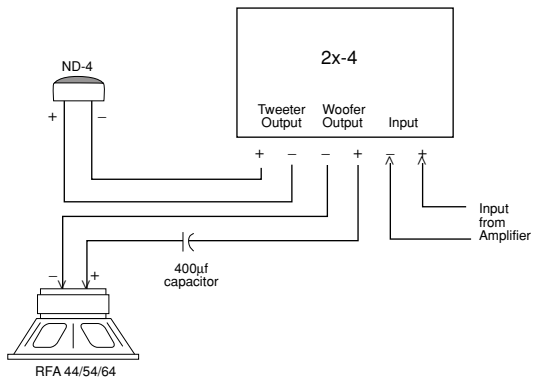
Jumpers

To
Woofers

2x-4 Crossover Wiring Diagram



Bandpassing the woofer on a 2x-4



Warranty Information

Rockford Fosgate warrants all loudspeakers to the original purchaser for a period of two (2) years parts and labor, providing the product was purchased from an Authorized Rockford Fosgate Dealer. Speakers found to be defective during the warranty period will be repaired or replaced (with a product deemed to be equivalent) at Rockford Fosgate's discretion. Repaired or replaced speakers will cover the balance of the original warranty period only. Warranty does not cover abuse or installation error. If a determination is made that the product has been abused or is out of the warranty period, it will be repaired, exchanged, and billed. Parts not covered under warranty will be repaired or replaced and billed. For speaker boxes, please return the speaker only. Speakers must be returned prepaid to Grand Rapids, MI.

GENERAL

Electronics and speaker warranties do not cover any appearance item, any cost or expense related to the removal or reinstallation of the product, any accessory used in conjunction with the product, damage to the product resulting from alteration, accident, misuse or abuse, or improper installation. This warranty

does not apply if the parts or labor, which would otherwise be provided without charge under this warranty, are obtained from any source other than Rockford Fosgate or an Authorized Rockford Fosgate Service Center.

The warranty is the only express warranty and does not create any implied warranties. Rockford Fosgate limits its obligations under any implied warranties under state laws to a period not to exceed the written warranty period. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply. This warranty applies only to products sold in the United States of America or its possessions. For warranty outside the U.S.A., please contact the nearest Authorized Rockford Fosgate Dealer. This warranty gives the consumer specific legal rights, and the consumer may have other rights which vary from state to state.

A defective product must be shipped prepaid to the Authorized Rockford Fosgate Dealer from which the consumer purchased the product or to one the addresses below, in the original factory carton or equivalent. Any shipping loss or damage will be borne by the consumer or the consumer's shipper. A consumer return-

ing a product to the factory should call (800) 669-9899 for a Return Authorization Number. All shipments shall be clearly marked with the Return Authorization Number on the outside of the shipping carton.

Prices are subject to change without notice.

1-800-669-9899.

Rockford Fosgate:

609 Myrtle N.W.

Grand Rapids, MI 49504 (Receiving-speakers)

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