

True Bi-amplification for DIY Ribbons and Woofers.

Due to the need for equalization in the passive crossover, true biampification has not been previously possible. Direct connection of an amplifier to the ribbon driver would result in very poor frequency response. The Clearview Crossover has accurate ribbon equalization incorporated in the crossover's high-pass section and a variety of DIY options for electronically assisted bass boost in the low-pass section. As such the Clearview CXR 22 active crossover is adaptable to a variety of speaker/ribbons combinations.

3 db. higher efficiency
Greater headroom even with smaller amplifiers
Higher damping factor
Lower amplifier intermodulation product level
An unprecedented offer to improve your favorite loudspeaker

About Ribbons

Information about planar magnetic ribbons.

About Amplifiers

Information about bi-amping your speakers.

Description.



The CXR 22 is a two way, two channel (stereo) third order active crossover design with

equalization built in for planar magnetic ribbon speakers. The CXR 22 evolved out of the "Classic" Clearview crossover as designed for the Carver Corporation manufactured ribbons and associated woofers.

The unit has a modular design to satisfy the different requirements imposed by the multiple ribbon drivers available waiting to be married to an even larger field of available woofers. All circuits have been designed around circuit topologies that exhibit the lowest possible sensitivity to component variation over temperature and aging. The inductors that such topologies call for have been replaced with General Impedance Convertors (GIC), in particular gyrator's and Frequency Dependent Negative Resistors (FDNR or "D" element.) The number of active components in the signal chain has been minimized to the absolute minimum for a circuit with this complexity.

Ribbon Section.

The filter alignments were selected for flat alignment at the crossover point and maximum linear phase for optimal transient response in the passband as not to compromise the excellent phase and transient characteristics of the linear phase drivers. Ribbon inherent resonances are adequately suppressed by the proper active circuits (2) in the high pass section. There is no need for power hungry passive notch filter(s) and controls in the ribbon connections.

The high pass section of the crossover is equipped with an active baffle correction circuit. This internally adjustable (and defeatable) circuit allows to correct within limits the dipole baffle cancellations in the low end of the ribbon's spectrum. This feature can be defeated for monopole operation.

Woofers Section.

The low pass section of the crossover starts out with a high pass filter. The crossover point can be set to match the active/passive subwoofer used in the listener's system or to protect the woofer system at the low end. This section can be defeated in which case response extends down to DC. This high pass filter has an active control for electronically assisted dipole woofer baffle trim. This circuit helps dipole woofer setups with low "Q". "Standard" Gain has been limited to 6 dB in order to protect your precious woofers. (Watch your Xmax !)
This circuit acts as dipole baffle cancellation correction for listeners with a dipole woofer set-up. Fourth order vented boxes can use this control to achieve 6th order performance.

Adventurous DIY's can install a Linkwitz correction network (6-8 dB) for woofers in sealed cabinets. All necessary circuitry is provided on board. Alternatively we can install a Linkwitz correction network if the user supplies Q_{tc} and F_c of the woofer in a closed box, including the target new Q_{tc+} and F_{c+} with the correction network. The new parameters should be chosen

such that the necessary correction is not too large to prevent the woofer operating outside its linear performance. (All necessary instructions in the manual.)

An uncommitted shelving EQ section is available on the board for users experimenting with woofer set-ups in need of a simple cut/boost. It is up to the user to verify linear operation of the woofer with the equalizer installed.

Component Quality

The PC board is double sided FR4, 1/16th with 2 ounce copper and thru-metalized holes, traces are roller tinned and soldermask applied, the component side is silkscreened, all manufactured in an USA UL and MilSpec certified plant.

All resistors are 1% metalfilm, capacitors are metalized film, polystyrene or polypropylene, accurate within 2 to 5% and matched within 1% per channel. Operational amplifiers are Analog Devices and/or Burr-Brown. See component list for more details. Decoupling capacitors are ceramic and/or tantalum. No use is made of IC sockets although we will provide units with machined and gold flashed IC sockets as an option. The socketed units carry all filter components on 600 mils dual-in-line gold plated carrier/modules. This allows for a fully modular approach in changing filter frequencies, slopes or topologies in custom built units.

Input and output connectors are gold plated.

The powersupply uses a toroidal transformer, low ESR capacitors with high frequency bypassing and a bypassed Schottky diode rectifier bridge. The adjustable tracking regulator section is pre-regulated for optimal low noise performance and line regulation. The primary AC voltage is internally strappable for 115-230 VAC, 50-60 Hz operation.

Other stuff you may want to know:

For more information on the 5 channel version, please see [Surround 5.1](#).

Rear panel

Right and left gold plated RCA inputs

Right and left high- and low-pass gold plated RCA outputs.

Front panel

Black anodized with power LED

Ribbon Trim Control

Ribbon Level Control

Woofer Q Control

Woofer Level Control.

Internal Tweaks:

- Ribbon dipole baffle cancellation correction. (Cermet trim potentiometer)
- Ribbon high roll-off correction. This section can be converted to a low pass section if you insist adding a super ribbon tweeter, cross over above 10 kHz at third order slope to minimize integration problems. Specify when ordering please

Crossover

Following crossover frequencies are standard available:

- 150 Hz. Recommended for 72" and 75" ribbons (ACI and B&G Radia 75 and Radia 50)
- 200 Hz. Recommended for 60" ribbons (Carver Corp 60" ribbon and 48" ribbon)
- Any other frequency on request please specify the manufacturer and model number of the ribbon.

Following woofer high-pass crossover frequencies are standard available:

- 20 Hz., 25 Hz, 30 Hz, 35 Hz, 40 Hz, 50 Hz, 60 Hz, 80 Hz
- Yes, any other frequency on request.

CXR-2x has a 18db. per octave slope, linear phase topology, aligned for flattest response around the crossover point..

Distortion.

The use of audio grade operational amplifiers in the chosen topology helps keeping the distortion and noise contribution very low as shown in the chart below. THD+N covers 10 harmonics and noise. Column 4 and 5 show second and third harmonic respectively.

THD+N

| | | THD+N | 2nd | 3rd |
|----------------|--------|---------|---------|---------|
| Ribbon output | 200 Hz | <0.005% | <0.001% | <0.001% |
| | 1 kHz | <0.004% | <0.001% | <0.001% |
| | 10 kHz | <0.01% | <0.004% | NA |
| Woofers output | 100 Hz | <0.002% | <0.001% | <0.001% |

Dimensions

CXR 22: 1.75" h x 8.5" w x 10" d or 44 mm x 216 mm x 254 mm

CXR 25: 3.5" h x 19" w x 10" d. or 44 mm x 483 mm x 254 mm.

Power:

115/230 VAC, 15VA.

Model numbers

Assemble your Model number,

CXR 2c-d-xx-yyy-s

Order Number Matrix

| | | |
|-----|--------|---|
| c | 2 or 5 | 2 for a dual channel (stereo) unit 5 for a five channel (surround) unit. |
| d | A | A for Assembled, tested, 24 hour burn in and final test |
| xx | | Two digit Frequency in Hz of the Woofer high-pass section. |
| yyy | | Three digit Frequency in Hz of the Ribbon Crossover. |
| -s | -S | For Socketed OpAmps and Filter Components |

Examples:

CXR 22-A-25-150-S is an assembled and tested stereo crossover with 25Hz high pass in the woofer section and a woofer/ribbon crossover of 150 Hz. Socketed OpAmps and Filter Components on Module carriers. (Gold Plated Machined pins.)

CXR 25-A-35-180-S is an assembled and tested surround crossover with a highpass of 35 Hz

and a non-standard crossover of 180 Hz. We will accept orders for units with different high pass and crossover frequencies for the front speakers, center and rear channels. E-mail your request.

Other configurations, please contact us here with your requests.

[Component Silkscreen](#). (GIF file, 43 Kb)

Pricing - Ordering

CXR 22-A-xx-yyy: Price on request

"S" socket option: \$ 79.00

The "S" option provides machined pin gold flashed IC sockets and component carriers with gold plated pin AND sleeves.

Order by mail,

[Audio-X-Stream](#)

Rudi A. Blondia

Please include model number, preferred method of shipment and a daytime phone number where we can contact you.

Warranty and other small print.

Assembled and tested products carry a two year warranty on labor and components. Shipping is not included in the warranty.

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