SPECIFICATIONS

CEX™ 4La
Digital Crossover

SPECIFICATIONS

Frequency Response:
12 Hz to 20 kHz; +1, -2 dB

Total Harmonic Distortion:
Less than 0.015% at 1 kHz
(2 V RMS)

Signal-to-Noise Ratio:
Greater than 90 dB broad band
(filters off)

Input CMRR:
(Common mode rejection ratio)
Greater than 60 dB at 1 kHz

Maximum Input Level:
+25 dBu

Maximum Output Level:
+24 dBm (600 ohms) 13 V RMS;
+25 dBu (Hi-Z load) 15 V RMS

Filter Types:
4th and 8th order Linkwitz-Riley
4th and 8th order Butterworth
4th and 8th order Bessel

Input Impedance:
20 K ohms

Output Impedance:
100 ohms

Output EQ Types:
Constant Directivity Horn EQ:
Adjustable high frequency emphasis with up to 6 dB/ octave slope
Parametric EQ:
Gain: +6 dB to -12 dB
Frequency: 20 Hz to 20 kHz
Bandwidth: .1 to 2 octaves
Tone Controls:
Low frequency and high frequency shelving filters;
Gain: +6 dB to -12 dB

Delay Crossover Mode:
Pre-Delay:
Max delay 650 ms*
Step size 1 ms
Output Delay:
Max delay 10 ms
Step size 20.8 microseconds

Delay Line Mode:
Max delay each tap: 675 ms*
Step size 1 ms

***Note:** When both inputs A and B are used, the maximum delay time is shared between the inputs.*

Note: 0 dB = .775 V

FEATURES

- Four-way mono crossover
- Three-way mono with the 4th output as an additional LF out, MF out, HF out, or band-passed full-range output
- Two-way mono or stereo
- 48 kHz sample rate
- 64 times oversampled Delta-Sigma A/D converter
- 8 times oversampled Delta-Sigma D/A converters
- Up to 650 ms of pre-delay time memory that can be allocated to the two inputs
- Limiters on each output
- Selectable output equalization: CD Horn EQ, one band parametric EQ, or shelving low and high frequency tone controls
- Up to 10 ms of delay on each output for driver alignment (adjustable in 20.8 microseconds or 1/4" steps)
- Selectable filter type (4th and 8th order Linkwitz-Riley, 4th and 8th order Butterworth, 4th and 8th order Bessel)

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- Delay line mode with four taps (up to 675 ms)
- Low and high cut filters on each delay output
- 20 x 2 LCD display
- Two 5-segment LED arrays
- Relay turn on/off transient muting
- Selectable polarity reversal and output muting on each output
- Stores up to 50 complete setups, each with its own 15 character label
- Built-in security lock (when enabled, all parameters can be examined but not changed without entry of access code)
- Remote operation via MIDI

DESCRIPTION

The CEX™ 4La is a totally programmable, all digital, four-way crossover. The CEX 4La may also be configured to dual two-way mono, two-way stereo, or three-way with a fourth output as an additional low, mid, high, or full range output. The CEX 4La provides 650 ms of built-in pre-delay that may be allocated to the two balanced inputs. All or a portion of this delay capability may be assigned to the fourth output in the three-way mode for single delay line installations. The second input may be used to route signal to this "fourth" band-pass output when something other than the "main mix" is required.

The CEX 4La has digital limiters available on each output to prevent amplifier clipping and to protect speakers. Each of the limiters can be separately enabled and has adjustable sensitivity calibrated in dBV. The limiters can also be linked so that the selected limiters track to preserve the spectral balance.

The CEX 4La also has a choice of three equalization types. For high frequency horns, there is an adjustable constant directivity horn EQ. For flexibility, there is a one band parametric equalizer that can be set from 20 Hz to 20 kHz with a bandwidth of 0.1 to 2 octaves. For full spectrum delay applications, there is a set of bass and treble controls that may give sufficient adjustment without the expense of an additional equalizer.

The CEX 4La has been designed with ease of setup and functionality in mind. The control panel is simple and straightforward with labeled buttons for the various features and a 20 x 2 LCD display to visually indicate precise system adjustment. A "data entry wheel" has been included for rapid system calibration, and there are also "up" and "down" increment buttons for slower, more accurate adjustment.

In addition to crossover configuration, the CEX 4La also functions as a Delay Line, with the following variations: one delay line with 4 taps; two delay lines, one with 3 taps and the other with 1; two delay lines, each with 2 taps, totalling 675 ms of delay. Each delay line output includes low and high cut filters.

Designing for the most discriminating sound engineers and realizing the benefits of time alignment, we have included 10 ms of delay on each of the four outputs just for the purpose of driver alignment within the system. This built-in delay, dedicated to system alignment, is adjustable in 20.8 microseconds or 1/4" steps.

The crossover filter type is selectable for 4th and 8th order Linkwitz-Riley, 4th and 8th order Butterworth, and 4th and 8th order Bessel, offering total control and precise driver/frequency-range matching.

ARCHITECTURAL & ENGINEERING SPECIFICATIONS

The electronic crossover network shall be configurable as a four-way mono, three-way mono, or two-way mono or stereo crossover. The 4th output shall be usable as an additional low, mid, or high frequency output, or as a full range band-passed delay when the unit is configured as a three-way crossover. It shall have two balanced input channels and four balanced outputs. It shall be fully programmable and use digital filters and delay.

The crossover filter type shall be switchable and include: 4th and 8th order Linkwitz-Riley, 4th and 8th order Butterworth, and 4th and 8th order Bessel filters. The user shall be able to set the crossover filters by specifying either the crossover point or the individual low cut and high cut frequency of each output.

The crossover shall have up to 650 ms of pre-delay, adjustable in 1 ms steps, that can be shared by the 2 inputs, and up to 10 ms of delay on each output that can be adjusted in 20.8 µs steps.

The crossover shall have a 5 segment LED level meter for each input and level controls for each input and output. The unit shall provide facilities for muting or

reversing the polarity of each audio output. When 4th order filters are selected, each output shall have the option of 3 EQ types. When 8th order filters are selected, output 4 shall have EQ available. The EQ types shall be: adjustable CD horn EQ, one band parametric EQ, and high and low frequency shelving EQ. Each output also has a limiter. The output limiters shall each have controls to: enable the limiter, adjust its sensitivity, and to link limiter action, causing selected limiters to track.

The crossover shall use an 18 bit 64 times oversampled analog to digital converter and 18 bit digital to analog converters at a sample rate of 48 kHz. The unit shall employ 24 bit internal processing.

The crossover shall have relay muting to suppress turn on/off transients.

The crossover shall have a 2 x 20 character LED backlit LCD display, 8 function buttons, and a data entry knob for easy setup and precise adjustment.

The unit shall have a lock that can be engaged so that settings can be examined but not changed without entry of an access code.

The unit shall have the capability of storing up to 50 complete configurations that can be recalled from the front panel or remotely via the digital control interface. It shall also be able to send and receive these stored configurations via the built-in digital interface.

The unit shall be configurable as a tapped delay line with 4 output taps from input "A," 3 outputs from input "A," and 1 from input "B," or 2 outputs each from inputs "A" and "B." The maximum delay time shall be 675 ms when only input "A" is used. When both inputs are used, the sum of the longest taps for input "A" and input "B" shall not exceed 675 ms. Each output tap shall have a band-passed output with adjustable low cut and high cut filters.

It shall have electronically balanced inputs with a maximum input level of +25 dBu and a minimum common mode rejection of 60 dB. The outputs shall be electronically balanced and shall drive a 600 ohm load to +24 dBm. XLR connectors shall be used for inputs and outputs.

It shall have a frequency response of 12 Hz to 20 kHz; +1 dB, -2 dB. The signal-to-noise ratio shall exceed 90 dB broad band measured with the filters off. It shall have an input impedance of 20 K ohms and an output impedance of 100 ohms.

The crossover shall mount in a standard 19" rack requiring 1.75" of height. The unit shall weigh 10 pounds with dimensions 17" wide x 1.75" high x 11.25" deep.

The crossover shall have a single line cord with a three prong plug. It shall operate on 120 VAC, 50/60 Hz, and consume 35 watts. The published specifications shall be met or exceeded. The crossover shall be a Peavey Architectural Acoustics CEX™ 4La.

LIMITED WARRANTY

Peavey Electronics Corporation warrants to the original purchaser of this new Architectural Acoustics product that it is free from defects in material and workmanship. If within one (1) year from date of purchase a properly installed product proves to be defective and Peavey is notified, Peavey will repair or replace it at no charge. (Note: Batteries and patch cords not covered.) "Original purchaser" means the customer for whom the product is originally installed.

Damage resulting from improper installation, interconnection of a unit or system of another manufacturer, accident or unreasonable use, neglect or any other cause not arising from defects in material and workmanship is not covered by this warranty. The warranty is valid only as to products purchased and installed in the United States and Canada.

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PEAVEY® ARCHITECTURAL ACOUSTICS®

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