~Sebatron~

Innovative Australian Audio

The Eye - operating manual

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The Eye

Stereo Resonant Filter with fader for frequency control

1. Introduction

The Sebatron ‘Eye’ is a stand-alone Stereo Resonant Filter for use in creative and practical audio/musical applications.Careful useage allows a wide range of stereo filtration effects that have the capacity to add shape and texture to any stereo musical mixes or subgroups.Additionally the Eye can function as a practical stereo equalizer providing versatile stereo tone shaping.

The filter cutoff frequency control is adjusted via an 11cm horizontal fader for ease of accuracy and manipulation .This allows the user to accurately target a specific frequency and/or to do fast sweeps up and down the audio spectrum with minimal effort.

The Eye filter runs two separate VCF circuits (one for left channel and one for right channel) that are driven by the same internal control voltage.This control voltage is adjusted by the fader to achieve a variable cutoff frequency. The two filters can be slightly separated or offset by the use of the ‘stereo offset’ control allowing for a multitude of interesting and creative filtration effects.

The Eye also features an external +5vdc input to interface with other CV based equipment such as sequencers or low frequency oscillators.

There are three separate filtration modes of operation :

Bandpass , Lowpass and Highpass.

Bandpass:
Only passes frequencies at the selected frequency of the fader control.
Lowpass:
Only passes frequencies below the selected frequency of the fader control.
Highpass:
Only passes frequencies above the selected frequency of the fader control.

Each mode is selected via the mode momenatry pushbutton switch located on the bottom left of the Eye.
A Blue LED indicates which of the three filtration modes is selected.

The bypass control is switched by relay so there is no audio colouration while in bypass mode.This is known as a ‘true’ bypass. If power supply is not plugged in or is interrupted the Eye will revert to bypass mode so that the signal flow remains un-interrupted.

2. Features

The Eye

-***Three modes of Stereo Filtration :*** *Bandpass , Lowpass , Highpass*
-***Horizontal 11cm fader*** *for accurate frequency cutoff control*
-***Variable resonance control (Q)*** *from smooth to edgy*
-***Fully variable mix control*** *from 100% dry to 100% wet*
-***Unique Stereo Offset*** **control** for more creative options
-***True Relay Bypass*** *for uncoloured bypass*
-***Noiseless switching circuitry*** *for mode and bypass*
-***External control voltage input*** *for cutoff frequency control*
-***Heavy Duty push button switches*** *for durability*
-***Quality components*** *used throughout*

2. Features

-***Suitable for*** *electric instruments , line level signals , mixes etc.*
-Portable and lightweight *less than 1kg*
-***Runs off 12VDC 1 amp*** *power supply*
-***Solid 1.2mm mild steel*** *powder coated chassis*

3. Functions and Dials

Input Level:

Adjusts the level of input signal going into the Eye circuitry.
By careful adjustment of the input level the optimum signal range can be attained. If set too high the Eye will distort, if set too low the noise floor will become apparent.

Mix:

Adjusts the relative levels of dry unprocessed signal and wet processed signal for the final output. Final signal output mix can be adjusted from completely 100% dry to 100% wet.

Resonance:

Controls the amount of resonance (or Q) centred around the cut off frequency.At far left (low Q) with the resonance set low the filter cutoff can be smooth and subtle. As the dial is turned to the right the resonance increases (high Q) giving more edge or presence to the filter output. At far right the resonance control stops slightly short of oscillation.

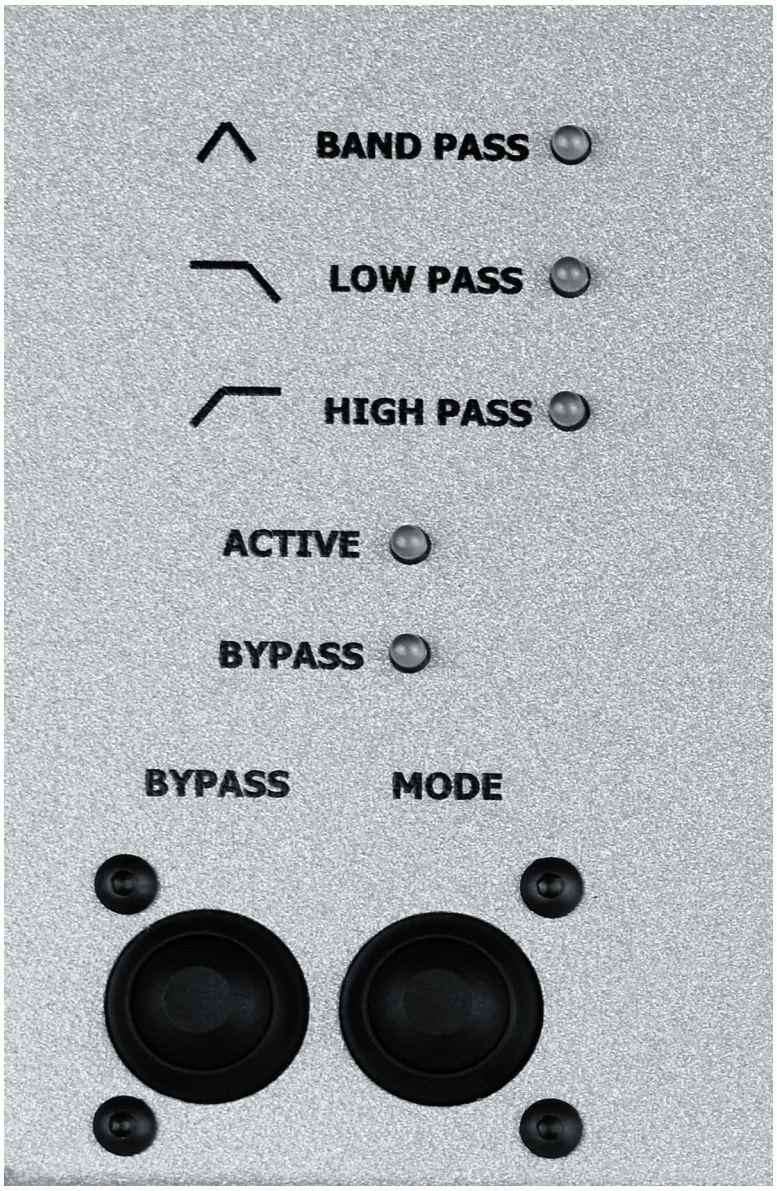
Stereo Offset:

Adjusts the difference or separation of the selected frequency between the two filters.For normal stereo matched operation this is usually and best left in the centre position.Interesting stereo filtration effects however can be obtained by setting the dial slightly off centre and manipulating during useage.

Cutoff Frequency Control Fader:

Used to adjust the cutoff frequency of the Stereo Filter.
At far left the cutoff frequency is approximately 30HZ , at far right it reaches approximately 20 KHZ.

3. Functions and Dials



Bypass Pushbutton:

Selects between process/effect or dry/bypass.
Bypass is relay activated for zero signal colouration in bypass mode.

If power supply is not plugged in or is interrupted the Eye will revert to bypass mode so that the signal flow remains uninterrupted.

A Blue LED indicates which of the two modes is selected.

Mode Pushbutton:

Cycles between the three modes of filtertration for selection :

Bandpass , Lowpass , Highpass.

A Blue LED indicates which of the three filtration modes is selected.

4. Inputs and Outputs

12VDC input
1 amp min
centre negative

Ext. CV
0 to +5vdc

Left/Right Outputs

Left/Right Inputs

4. Inputs and Outputs

Audio Inputs and Outputs:

Best results are achieved when the Eye is fed standard phono line level signals. For proper stereo operation both inputs should be used.

For single channel or monoral operation an input to the left channel will automatically be linked to the right channel so that both channels of the Eye can be utilized in series.

The same applies to the outputs when only the left output is used.
Both channels will be automatically linked in series and appear on the left output. If it is desired to only use one filter stage it may be necessary to insert a ‘dummy’ phone jack into the second output to break the link.

External Control Voltage input:

To interface with other C.V based equipment the Eye features an external C.V input.This is a TRS socket that connects the fader to the ring of the phono plug for transmission of the fader position while using the tip as the receive path for the C.V to go directly to the VCF via the stereo offsett control.

To slave the Eye to an external control voltage the cable need not be TRS. A standard phono to phono lead will work.
All voltages must be within 0 to +5VDC.

To control other CV devices using the Eye fader a TRS cable must be used. In this configuration the sleeve of the connector is the output of the fader voltage and a custom cable may need to be arranged.

DC Power Input:

For proper operation the Eye must be used with the correct power supply. Power Supply requirements are :

12VDC 1 amp minimum with centre negative 2.1mm dc plug.

Plugging in the incorrect power supply may result in damaging the Eye although there are some protective components that keep this down to a minimum if this should occur.

5. Operation

Set the dials of the Eye to 12 o’clock or noon.Plug into the two phono inputs and proceed to feed the Eye a decent line level signal.

Press the bypass switch to engage the filter (active LED should light up).
Use the fader to sweep up and down the audio spectrum and get a feel of the frequency range.

If at any stage you hear a substantial amount of clipping or distortion then turn down the input level control of the Eye.If that doesn’t work then reduce the level of input signal going into the Eye.

Allow yourself time to experiment with the three different filter modes (bandpass, lowpass and highpass) by cycling through them using the mode pushbutton.Turn the mix control fully to the right to hear the effect with no dry signal.

When increasing resonance you may need to back off on the input level so as to not overload the circuit.Compare the relative levels of the affected signal with that of the dry or bypass signal by switching between bypass and active states using the bypass switch.Use the input level control to keep the two different signals close to each other in signal strength.

For normal matched stereo operation the offset dial is best left in the centre or 12 o’clock position as this makes the cutoff frequency equal and symmetrical to both left and right channels. Turning the offset control *off centre* shifts the cutoff frequency to one side and with a bit of practice this can be a very creative tool for live performance and/or recording.

6. Specifications

Inputs/Outputs : Unbalanced 1/4” phono
Power Supply : DC +12V 1 amp centre negative , 2.1mm
Audio frequency response : 20hz-20khz +/- 1db
Filter frequency range : 30hz to 20khz
Max. Input Level : +4dbm
Max. Output Level: +4dbm
External Control Voltage input: 0 to +5VDC
Dimensions : 215mm X 170mm X 50mm
Weight: Approx. 1kg.
Construction : Powder Coated 1.2 mm mild steel.

Service/Repair queries :
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