

SABINE® FBX2410 Feedback Exterminator®



Introducing the next generation in automatic feedback controllers: cleaner, faster, more transparent.

Since Sabine first invented digital automatic feedback control in 1991, FBX Feedback Exterminators have set the standard for transparent and reliable automatic feedback control. Sabine's latest product in automatic feedback controllers are FBX2410 Dual Channel Feedback Controller and the FBX1210 single Channel Feedback Controller. ClearOne continues to make these FBX units.

The FBX2410 includes the latest improvements to patented feedback control algorithms, providing the fastest ever feedback detection and elimination. It's one Hz placement accuracy means these filters are even more transparent, and the signal to noise ratio has been improved by 10dB. All this means the best just got better.

- Super-fast Automatic Feedback Control
- Quick and Quiet Setup
- Increased headroom and reduced noise floor
- Accurately distinguishes music from feedback
- Places filters with 1 Hz resolution
- Transparent – leaves your sound clear and untouched
- Provides more gain before feedback (6 to 9dB typical)
- 24-bit Digital Resolution
- Three-color LED filter display
- 12 Filters per channel
- Flexible Filter Controls
- Dynamic Filter Reset
- XLR & ¼"TRS inputs/outputs

The Power of FBX

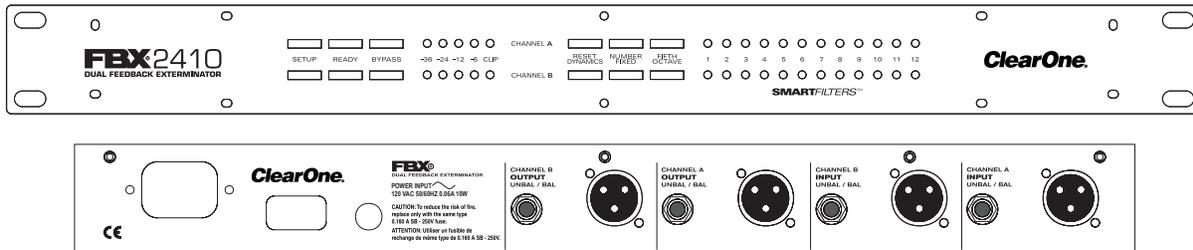
FBX Feedback Exterminators set themselves apart for their ability to control feedback during the program, not just at setup time. If feedback occurs during that crucial moment of the show, in the middle of the big solo, or just when the worship leader begins the sermon, the FBX places a filter that only kills the feedback, not the sound and power you work so hard to achieve. Think of the FBX as a very advanced set of automatic parametric filters. If you had the time, the filters, and the test equipment, you could find the feedback frequencies, dial in the precise filter location, and make a very narrow filter, just deep enough to remove the offending tone. The FBX does it all for you automatically, and it does it faster than any other method. How do we do it? First let's consider just how a superior feedback control filter should behave. Filters can be described by their Speed, Accuracy, Resolution, and Sonic Integrity.

SPEED: The industry's best digital signal processors give the FBX2410 a distinct speed advantage over all other automatic feedback controllers. And in Setup Mode the speed is increased, so you can complete your entire setup of the FBX in less than 30 seconds.

ACCURACY: Is it music or is it feedback? This is the most difficult question your feedback controller must answer. A wrong decision means you waste filters (less gain for you) and punch unnecessary holes in your sound. Less sophisticated feedback controllers place filters on any loud tone, even if it is music, but the FBX uses a patented analysis of the harmonic content of your program material. Because feedback is low in harmonics, and music and speech are rich in harmonics, the FBX is able to make the correct and accurate answer to the music or feedback question.

RESOLUTION: This is a big one. Now that we know feedback is happening, we need to target it precisely. Many feedback controllers place their filters in the general vicinity of the feedback and then widen the filters until the feedback goes away. The FBX uses a more sophisticated solution. It centers the filter exactly on the frequency that is

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feeding back. This unique one-Hertz resolution enables the FBX to control feedback with transparent filters that are ten times narrower than graphic equalizer filters, which can only muster 31 spots to place their very wide filters. Feedback frequencies are single tones, and that means there can be almost 20,000 places for them to occur in the audio spectrum. You can see that using a feedback control device with less resolution is like shooting a fly with a shotgun.

SONIC INTEGRITY: ClearOne's innovative approach to digital filtering is unique in the industry. Our filters just sound better, with far less phase distortion and a smoother response. Most other feedback controllers and graphic equalizers claim to provide Constant Q filters, but they really get wider as the filters go deeper. ClearOne filters remain extremely narrow regardless of their depth.

Faster Setup...

The FBX2410 gives you the easiest, fastest, and quietest setup procedure. In less than 30 seconds you will be ready for your performance, and the whole process is so quiet you can almost do it without anyone knowing it is happening!

...and a Bright Display

After the super-fast setup is complete the bright blue LED on the Ready button clearly tells you the show can begin, and you've got all the extra gain you need. You have complete control of the mix between filter types, and the bright, three-color LED display shows you your filter status at all times – you can see it from across the room!

The new FBX2410 continues its leadership in the field of innovative and effective feedback control. With improved specs and audio performance. Call us or head to your nearest ClearOne partner and try the new FBX for yourself. You will hear your sound and nothing else!

SABINE FBX2410 Engineering Specifications

FILTERS

- 12 independent digital notch filters per channel, controlled automatically from 40 Hz to 20 KHz.
- Filter width: user-controllable – either 1/10 or 1/5 octave*, constant "Q"
- Resolution: 1 Hz
- Time required to find and eliminate feedback: 0.4 seconds, typical @ 1 KHz
- Number of Dynamic vs. Fixed filters per channel: user selectable. Last configuration stored in memory.

INPUT/OUTPUT

- Input/Output Maximum Signal Levels: Balanced +18dBV peak, unbalanced +12 dBV peak
- Output Drive: Unit will perform as specified driving a load >600 Ohms
- Input Impedance: Balanced or unbalanced >40K Ohms, PIN 2 high
- Output Impedance: Balanced or unbalanced 150 Ohms nominal, PIN 2 high
- Bypass: True power off bypass
- Headroom: +14 dB peak @ 4 dBV nominal input, balanced
- I/O Connectors: XLR-3 and 1/4" TRS

PERFORMANCE**

- Frequency response: 20 Hz - 20 KHz +/- 0.3 dB
- Gain matching: +/- 0.2 dB
- Spectral Variation: + 0.25 dB, 20 Hz to 20 KHz
- SNR - Dynamic Range: >108 dB
- THD: .005% at 1 KHz. < 0.01% 20 Hz - 10 KHz, < 0.025% 10 KHz - 20 KHz

POWER INPUT

115 VAC: 100 - 130 VAC 50/60 Hz
230 VAC: 200 - 240 VAC 50/60 Hz

FUSE

115 VAC, 0.1 A, 10 W, 0.160 A SB fuse
230 VAC, 0.06A, 10 W, 0.080 A T fuse

DIMENSIONS

1-U rack mount; 19 x 1.75 x 6.25 in. nominal (rack mountable); 48.3 x 4.5 x 15.9 cm

WEIGHT

8.0 lbs. (3.6 kg) nominal

OPERATING TEMPERATURE

Safe operating temperature: -15 to +50 degrees C ambient temperature (5 to 122F)

*Below approximately 200 Hz the feedback filters become slightly wider to increase the feedback and rumble capture speed at these low frequencies.

**Tests performed using an Audio Precision System One model 322 or equal.