

# FBX-SOLO SM820 Feedback Exterminator®

The automatic feedback controller shall be a single channel digital signal processor for use with balanced microphones, with six 1/10- or 1/5-octave filters (selectable) and shall include a microphone preamp. The filters shall be constant Q (filter skirts do not widen as the filters get deeper). The unit shall automatically sense feedback and determine its pitch, then assign a digital notch filter to the resonating frequency to automatically eliminate the feedback. It shall effectively distinguish between music and feedback and shall be operational during the program. The product shall use two types of user-selectable notch filters: "fixed" or "dynamic." The fixed filters shall remain set on the initial feedback frequencies, while the dynamic filters shall be automatically reassigned new frequencies as feedback occurs during the program.

The unit shall include: a TURBO mode for quick setup; a two-position push button power switch; a two-color active/bypass button and LED for setting the unit to control feedback (active mode) or to take the unit out of the signal path so it has no effect on the program (bypass mode); a reset button so all filters may be re-configured; a "lock fixed" button and LED, which allows the user to lock fixed filters created during system setup and to limit the total number of active filters; a clip level adjust knob; clip LEDs, which indicate clip level and also indicate threshold level when enabling the selectable noise gate; filter stage activity LEDs to indicate active filters; a filter width switch to select 1/10- or 1/5-octave filters; an output lo/hi switch to choose output level; and a phantom power on/off switch. The unit shall also be provided with a microphone preamp, an external power supply, and XLR-3 input and output.

The following performance criteria shall be met:

**FBX/PARAMETRIC FILTERS** — Eight independent digital notch filters controlled automatically from 40Hz to 20,000Hz. Filter width: 1/10 or 1/5 octave (selectable), constant Q. Filter depth: DSP controlled, variable to -40dB. Resolution: 1/50th octave. Time required to find and eliminate feedback: 0.4 seconds, typical @ 1KHz. Total number of combined filters active: user selectable, from 1 to 8. Number of dynamic vs. fixed filters: user selectable. Last configuration stored in memory.

**INPUT/OUTPUT** — XLR-3 pin 2 high balanced. Input impedance: 1K Ohm nominal. Gain range: -15 to +20 dB (at high output). Maximum input/output level at lowest gain: -10 dBV. Input to output gain @ unity setting: +/-0.5 dBV. Phantom power: 48V switch selectable. Output impedance: unbalanced 10 Ohms nominal; maximum load 2K Ohms. Bypass: digital. EIN: -105 dBm @ 150 Ohms, 20Hz-17KHz or better.

**PERFORMANCE** — Frequency response: < +/- 0.75 dB, 20Hz to 17,000Hz. Signal to noise ratio: > 94 dB typical. Total harmonic distortion: < 0.01% @ 1 KHz @ any gain setting. Dynamic range: > 100 dB. Selectable noise gate.

**POWER** — Power supply: 8-20VDC @ 400 mA. Memory backup battery life: 7 years.

**DIMENSIONS** — 1-U rack mount height, 1/6-RU width; 2.78 x 1.65 x 5.5 in. nominal; 6.95 x 4.13 x 13.75 cm nominal. Weight: 9.0 oz. (0.26 kg) nominal. Optional rack tray holds up to six units.

The automatic feedback controller shall be the Sabine FBX-SOLO SM820 Feedback Exterminator®.