POWER-Q™

ADF-4000

SERIES

24-bit

2-channel

FBX FEEDBACK EXTERMINATOR®

PARAMETRIC EQ

GRAPHIC EQ

REAL-TIME ANALYZER

COMPRESSOR/ LIMITER

NOISE GATE/ EXPANDER

DIGITAL DELAY

SABINE®
ADAPTIVE AUDIO

Power-Q™: Two Full Racks in One Essential Unit!

The new **POWER-Q™ ADF-4000™** combines the functions of nine separate products into one easy-to-use 2U package, and does it without the compromises of other multi-function units. 24-bit digital conversion and Analog Devices' new SHARC floating-point processor give the POWER-Q unparalleled audio quality and flexibility. The POWER-Q's integrated features replace two full racks of gear, offering two channels of:

- Up to 12-band Parametric Equalizer, with Hi & Lo Pass filters
- 31-band Graphic Equalizer, with adjustable filter widths
- Up to 12-band FBX-Feedback Exterminator, with adjustable sensitivity
- Real-Time Analyzer, full-featured & filter-based, with reference mic input
- Compressor/Limiter, full-featured
- Noise Gate/Expander, full-featured

"Nothing else in the industry has this kind of power... especially at this price!"

Joseph Thomas, Pelton Marsh Kinsella

"It's taken me two and a half years to find something that can do the job... I can't go anywhere without it!"

Seamus Fenton, Engineer for Paul Weller

The Next Generation FBX

The all new FBX Feedback Exterminator algorithm is yet another major breakthrough in automatic feedback control. The POWER-Q now offers the fastest and most accurate automatic feedback control system available anywhere. Unlike other systems, the POWER-Q works in setup and during the performance, with flawless discrimination between feedback and the program material.

The POWER-Q automatically detects acoustical feedback, precisely determines its frequency, and assigns

FBX®, Parametric, Graphic, RTA, Compressor/Limiter, Gate, & Delay all in one.

■ Digital Delay for speaker alignment
Now you can store up to 99 user-defined configurations, and load programs locally or via serial remote control options via PC. All functions operate concurrently, harnessing a whole rack of power with just one A/D conversion. You get the most powerful combination of equalization, gain management, and signal processing tools available at any price. And the POWER-Q offers these adaptive features available only from Sabine:

■ **FBX-Feedback Exterminator®:**
Automatically finds & eliminates feedback during program, not just at setup. Provides more gain before feedback, increased clarity, and maximum wireless mic mobility.

■ ***Fast* Auto Room EQ:**
Patented algorithm takes just seconds to flatten the response curve.

■ ***EAR* Environmental Artifact Removal:**
This function analyzes the frequency content of constant ambient room noise artifacts, and ignores this in its measurement of system EQ. So you won't roll off the low frequency in your sound system because the air conditioner is rumbling!

■ **ClipGuard™ Adaptive Clip Level Control:**
Expands dynamic range to >110 dB; maximum input/output signals up to 26 dBV.

■ **Automatic FBX Setup:**
Fast and quiet – no more "turn it up and wince!"

The POWER-Q now finds feedback at a very quiet volume by inserting a limiter as it automatically sets the FBX feedback control filters. It even tells you the additional gain you've achieved.

The **POWER-Q** is available in the following configurations, to meet your specific requirements:

■ Analog I/O (standard)
■ AES/EBU Digital I/O option
■ POWER-Q Remote: serial interface option with software for remote control of up to 8 POWER-Qs via any Windows 3.1/95/98 PC
■ PQ-Slave (blank front panel) for remote computer control and security installations.

The **POWER-Q** improves audio, solves tough problems, and saves money in all of these venues:

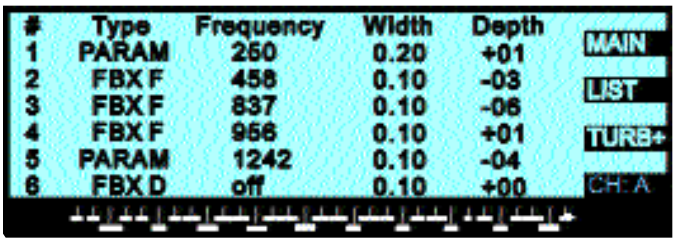
■ Theaters & concert halls
■ Recording & post-production studios
■ Churches & worship centers
■ Schools & auditoriums
■ Conference rooms & board rooms
■ Sports arenas & broadcast stations
■ Teleconferencing & paging systems

Other multi-function products cut corners to get all those features, but every POWER-Q function is top quality – and the price is unbeatable. Get the power of simplified operation, greater reliability, and no-compromise specifications. Ask your dealer for a **POWER-Q** demo today.

an extremely narrow Constant Q filter that surgically removes only the ringing frequency. The POWER-Q eliminates feedback quickly and automatically while making virtually no audible change in the audio quality!

Using the POWER-Q's graphic EQ for sound shaping and the FBX filters for feedback control, you can get a 6 to 9 dB increase in gain before feedback. FBX filters also provide the feedback-free mobility you expect from your wireless mics. Other devices may claim to be dynamic, but they don't have the patented FBX technology that allows the POWER-Q to control feedback in real time, indefinitely.

FBX filters come in two types: fixed and dynamic. Both filters are placed the same way – the difference comes after the filter is placed. Fixed filters remain on the initially detected feedback tone – they do not move. These filters provide the initial maximum gain before feedback and are placed during setup. Dynamic filters release and move to new feedback frequencies as needed to provide adaptive feedback control during the performance. Filter default settings are 7 fixed, and 3 dynamic, and 2 parametric. This is easily changed using the front panel controls.



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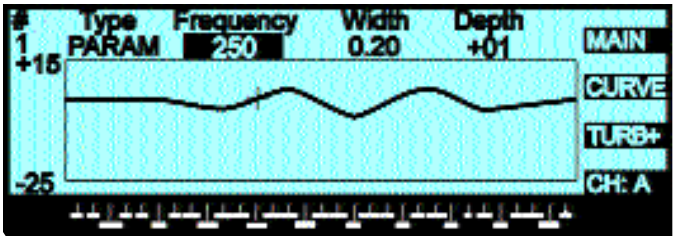

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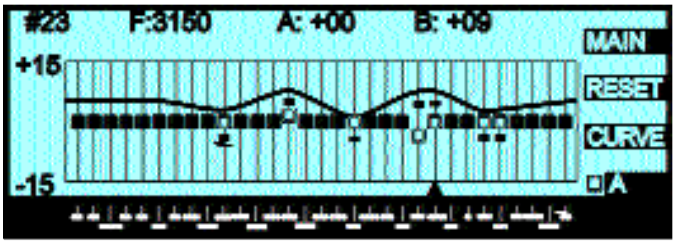

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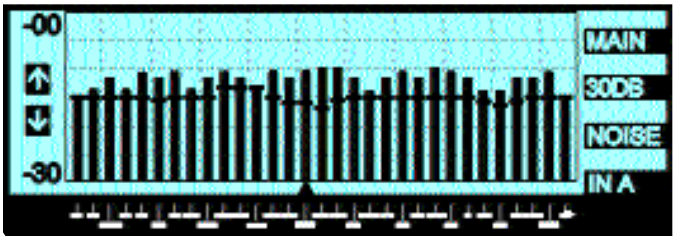

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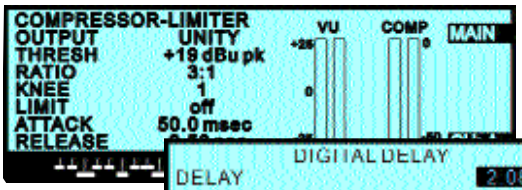

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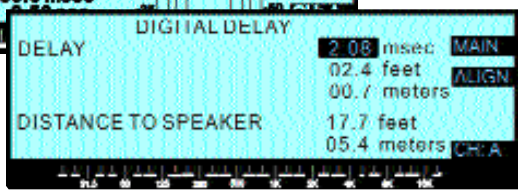

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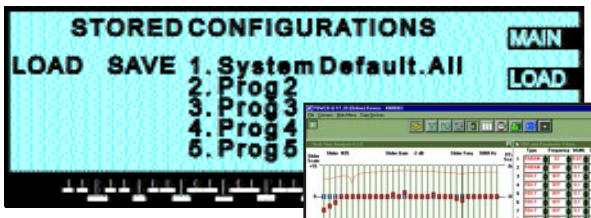

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PowerView Interface Screens

1. Parametric EQ & FBX Feedback Exterminator – List View

Tabular editing of 12 digital filters, switchable to Parametric (P), Fixed FBX (F), Locked Fixed (L), or Dynamic FBX (D). Adjust frequency, width and depth of all filters. High & low pass filters for each channel. Patented, adaptive FBX filters find and eliminate feedback by placing super-narrow Constant Q filters, providing more gain, increased clarity, and more wireless mic mobility. Adjustable FBX sensitivity and tracking.

2. Parametric EQ & FBX Feedback Exterminator – Graphic Edit View

Click & Drag graphic editing of parametric filters, 12 per channel. Grab any filter or select any point on the curve to edit using cursor keys & datawheel. Values for selected FBX or parametric filters are shown at top of screen. Shows change in response curve as you sweep filter center frequency, width, or depth. Filter ranges: 20Hz to 20KHz (1 Hz resolution), +12 to -80 dB, 1/100 to 9.99 octaves. Curves are interactively displayed concurrently with all other POWER-Q functions.

3. Graphic EQ

View and edit 31 bands per channel simultaneously on the same screen. View actual frequency response curve as you adjust filters. Edit channels individually or LINK them together. Edit one channel and COPY it to the other. In Automatic Room Equalization mode, POWER-Q uses reference mic input to flatten the response curve of the venue. Ranges: 31 ISO bands, +12 to -15 dB, 1/2 to one octave. Both channels operate concurrently with all POWER-Q functions.

4. Real-Time Analyzer

31-band, filter-based, 1/3 octave ISO, 20 to 20KHz digital real-time analyzer. Choose A, B, or C weighting, slow/fast response, pink or white noise generator. Display scrolls and scales, adjust peak hold and compare channels. Superimpose graphic EQ on RTA display for precise viewing and editing of frequency response (patent pending). Display channel A or B inputs & outputs, and reference mic input. Runs concurrently with all other POWER-Q functions.

5a. Compressor/Limiter

Control compressor threshold, limiter threshold, compression ratio, attack & release time, knee, gain & peak limit for each channel. View input levels and gain reduction. Adjust gate threshold, attack, release & knee. Runs concurrently with all other POWER-Q functions.

5b. *Automatic* Digital Delay for Speaker Time Alignment

Two 1 x 1 digital delays with 20 microsecond resolution. Input in feet, meters or seconds. 83.2 millisecond delay max. per channel. Automatically measures the distance between the speakers and your reference microphone and synchronizes the speaker delays in just a few seconds. Runs concurrently with all other POWER-Q functions.

6a. Program Store & Recall

Save and recall up to 99 user-defined configurations and/or frequency response curves. Load programs locally or via POWER-Q Remote control option. Also saves current settings and menu location on power-down.

6b. POWER-Q Remote

Use optional serial interface and Windows software to control POWER-Q from your computer. All functions controlled & displayed in full color. Or control multiple channels of POWER-Qs (slave and/or serial-equiped standard units) from one computer.

Windows Not Shown:
Automatic Room Equalization, Noise Gate, and Global Parameters.

POWER-Q™ ADF-4000™ ENGINEERING SPECIFICATIONS

FBX/Parametric Filters

Twelve independent digital filters per channel, controlled automatically or parametrically from 20 Hz to 20 KHz, each switchable between FBX fixed filters, FBX dynamic filters, and parametric filters

Filter depth: user-controllable in 1 dB steps from +12 dB to -84 dB (parametric mode), 3 dB steps from 0 dB to -80 dB (FBX mode), max. automatic depth adjustable from -6 to -80 dB

Filter width: user-controllable from 9.99 to .01 octave (parametric), 1.0 to .01 octave (FBX)

High pass filter, user-controllable in 1 Hz steps between 20 Hz and 3 KHz; 12 dB/octave roll-off

Low pass filter, user-controllable in 1 Hz steps between between 1 KHz and 20 KHz; 12 dB/octave roll-off

Resolution: 1 Hz from 20 Hz to 20 KHz in FBX and parametric mode

Time required to find and eliminate feedback: user-controllable from 0.1 seconds to 1 second (typically 0.3 seconds).

Total number of combined filters active per channel: user-selectable, 0 - 12; plus low and high pass filters

Filters controllable via table or graphic interface

Graphic Equalizer

31 digital filters on ISO 1/3-octave center frequencies, width from 0.5 to 1.0 octave in .01 octave increments; +12 dB boost to -15 dB cut

Independent display and control of A & B channels, or LINK function

Real-Time Analyzer

31 band, 20 Hz - 20 KHz on ISO center frequencies

A, B, C, or flat weighting

Fast/slow speed, multiple peak hold functions

Source selectable: reference mic, channels A or B input or output

Reference mic input: ISO phantom power, +48 VDC @ 10 mA, 1.2 K Ohm impedance

Compressor/Limiter

Threshold: +32 dBu to -30 dBu in 0.5 dB steps

Ratio: 1:1 through 10, 16, 32, or ∞

Knee: variable soft/hard

Attack: 1.0 to 100 msec in .5 msec steps

Release: .05 to 5 sec in .05 sec steps

Peak limits: +32 dBu to -30 dBu in 0.5 dB steps

Noise Gate/Expander

Threshold: -20 dBu to -90 dBu in 0.5 dB steps

Knee: variable soft/hard

Attack: 1 to 99 msec in 1 msec steps

Release: .05 to 5 sec in .05 sec steps

Digital Delay

1.3 to 83.2 msec per channel in 20 µsec steps

Programmable in microseconds, feet or meters.

Password Configuration

5 numeric characters

Load & Recall Configurations & Response Curves

99 user defined

1 factory default

1 most recent configuration (power down save)

Front Panel

LCD Display

Clip, limit, signal, and gate LEDs for channels A & B; clip and signal LEDs for REF

Serial, Digital, & Bypass status LEDs

Four menu/soft keys

Context-sensitive Help key

Datawheel, cursor, and Enter keys

Input/Output

Input impedance: Balanced > 10K Ohms, PIN 2 high

Output impedance: Balanced 10 Ohms nominal, PIN 2 high

Input/Output maximum signal levels: Balanced +26 dBV peak

Output load: (600 Ohms balanced)

Bypass: true power-off bypass

I/O connectors: XLR-3

Performance*

Frequency response: 10 Hz to 20 KHz, +/- 0.2 dB @ +22 dBV

THD: <0.01% at 1.0 KHz at +22 dBV

SNR**: >105 dB (with ClipGuard™)

Dynamic Range: >110 dB (with ClipGuard™)

Headroom: +22 dBV peak @ 4 dBV nominal input

Power

50/60 Hz available in 100 V, 120 V, 230 V; 25 W

Dimensions

2-U rack mount 19 x 3.5 x 9 in. (48.3 x 9 x 22.9 cm); 9 lb. (3.9 Kg)

You're in good company when you use ADF:

American Museum of Natural History
Mirage Hotel
Jacob Javitz Convention Center
Korean Broadcast System
Walt Disney Company
Westin Bonaventure Hotel
Willie Nelson
Meadowlands Exposition Center
Congress Innsbruck
Showco
Gateway Arena
Jeff Carson Band
Electrotec
Sound Planning
Bangkok University
Waylon Jennings
Rock 'n' Road Audio
Plano, Texas City Hall
R.A.I. Congress Centre
Wavelength Hire Company
NASA
Church House, Westminster
National Bowling Stadium
Austrian Federal Broadcast
City TV
L.A. Shakespeare Festival
Iane Cove Municipal Council
ABC News, New York
Square Soft
United Nations Headquarters
...and thousands more!

Options

POWER-Q Slave: Blank Front Panel two-channel slave unit for remote master control with PC (via serial connector)

DIG-I/O: AES/EBU Digital I/O (add to standard analog)

POWER-Q Remote:Serial port (RS232) and full remote control with POWER-Q for Windows™

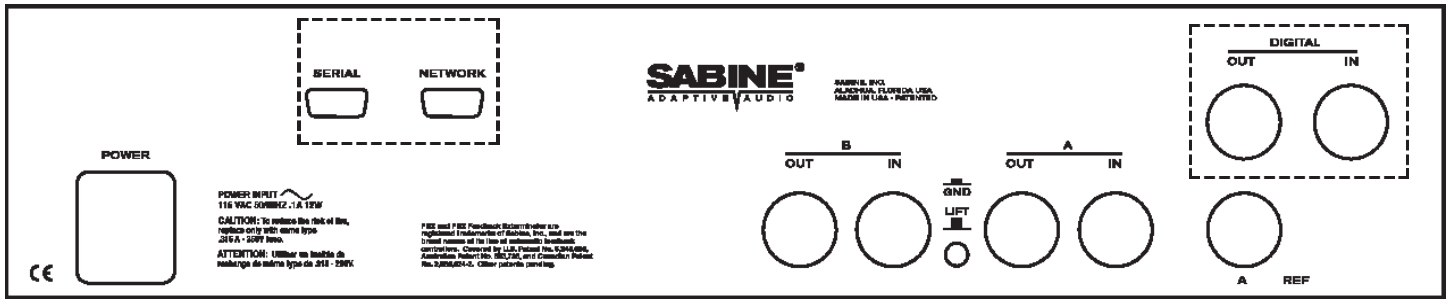
Specifications subject to change without notice.

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

** Signal-to-noise ratio is the ratio of the maximum undistorted signal by specification (26 dBV RMS sinewave) to the noise floor

Note: *dotted line areas denote optional features*

One-year limited warranty • Patented • Made in USA



www.sabine.com
13301 Highway 441
Alachua, FL 32615-8544 USA
Tel: (386) 418-2000
Fax: (386) 418-2001