

GRQ3122: 2U, dual channel (*two in / two out*)

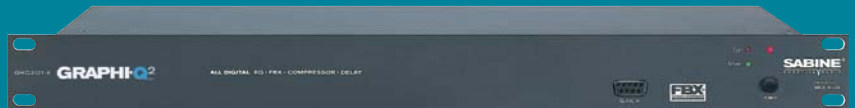
The New GRAPHI-Q2™ GRQ3120 Series

Each channel provides 8 signal processors:

- 31-band Digital Graphic EQ, with ± 6 or 12 dB range
- Patented FBX Feedback Exterminator®: up to 12 new FBX SmartFilters™ with Quick & Quiet Setup Mode
- Parametric Filters, up to 12 with full graphic editing
- High and Low Cut Filters
- Crossover: 1x2, with Bessel, Linkwitz-Reilly, and Butterworth filters, slopes to 48 dB
- Limiter: full-featured, including hard limiting for speaker protection
- Compressor: full-featured, switchable to stereo or mono
- Delay: up to 1 second delay, adjustable in 20 microsecond increments



GRQ3121: 1U, single channel (*one in / two out*)



GRQ3121-S: 1U, Blank front panel, single channel (*one in / two out*)

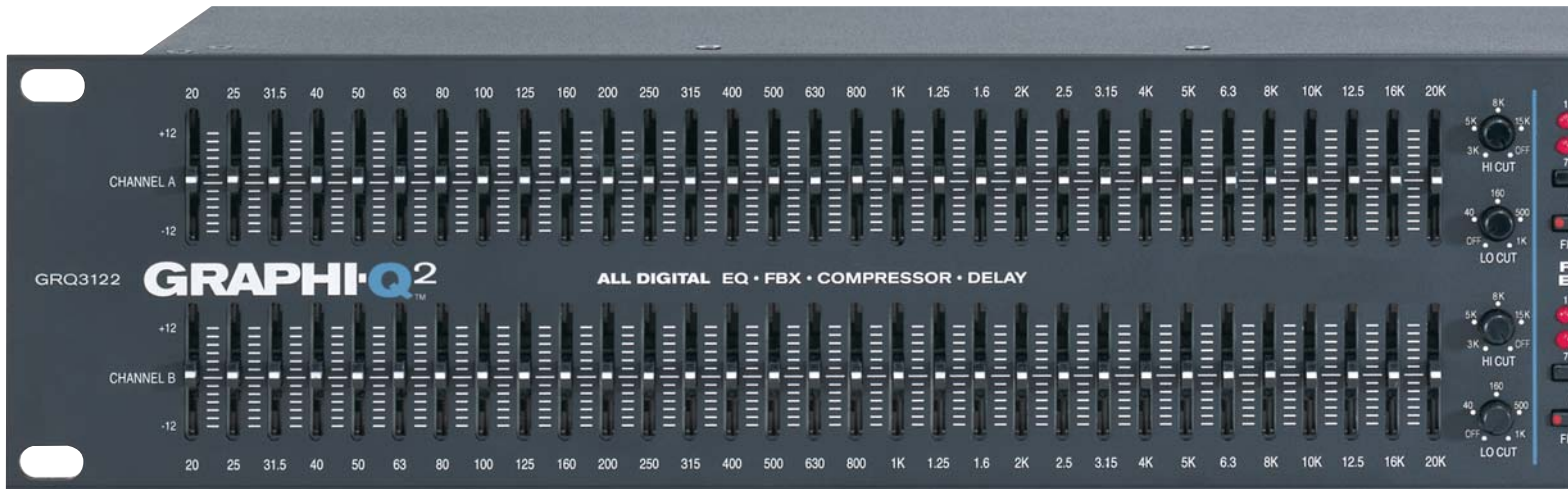


GRQ3122-S: 1U, Blank front panel, dual channel (*two in / two out*)

A new generation of hands-on or hands-off digital processors is here from Sabine. The Graphi-Q2 improves on the ground-breaking Graphi-Q with new software, new control options, and a full-featured crossover. Sabine was the first to offer an analog-style front panel controlling 32-bit digital processing, and this new generation of multi-function processors once again sets the standard for the all-in-one audio solution.

Four models for every application. Pick the Graphi-Q2 that works for your setup. Choose instant hands-on, front panel control or the blank front panel versions for the ultimate in system security and economy. RS232 remote computer control, 20 on-board program memories, and remote switching via contact closures are standard in all Graphi-Qs (blank or active front panel). No other professional audio device gives you this level of control, this superb audio quality, at this low price.

The single-channel Graphi-Q2s have two outputs for maximum system flexibility. GRQ2 Remote allows you to independently choose which functions are active in each of the two outputs. For example, you can use one channel for a delayed speaker, and choose which other processing you want on that delayed channel: FBX, compressor/limiter, or equalizers. You can have independent delay or level settings on each output, or dedicate the outputs to the new 1x2 crossover.



No Limits on DSP Power...

You will never run out of DSP power because all GRQ2 functions run concurrently. Set as many filters as you need, and add as much gain management and delay as the job requires. There are no meters showing DSP usage, because you will never run out of power.

How do we do it? Our 24-bit A/D and D/A give the cleanest audio possible, and Analog Devices' 32-bit floating-point SHARC™ digital processor powers every Graphi-Q, allowing simultaneous use and control of these eight essential functions.

- 31-band Digital Graphic EQ, with ± 6 or 12 dB range
- Patented FBX Feedback Exterminator: up to 12 new FBX SmartFilters with Quick & Quiet Setup Mode
- Parametric Filters, up to 12 with full graphic editing
- High and Low Cut Filters
- Crossover: 1x2, with Bessel, Linkwitz-Reilly, and Butterworth filters, slopes to 48 dB
- Limiter: Full-featured, including hard limiting for speaker protection
- Compressor: Full-featured, switchable to stereo or mono
- Delay: up to 1 second delay, adjustable in 20 microsecond increments

New GRQ2 Features:

- Crossover: Perfect for speaker control in mains and monitors
- Mixed control for the front panel: Selectively enable control for each function on the front panel
- New GRQ2 Remote Software: Compatible with all versions of Graphi-Qs
- Channel specific preset save and recall: Create presets to apply to either channel, or both
- Graphic Editing of Parametric Filters: Real-time filter drawing

...or Flexible Control



Front panels: The GRQ3121 and 3122 provide hands-on, "analog style" front panel control for your digital graphic EQ, high & low cut filters, FBX, Compressor, and Delay. Sabine's Tweak 'n' Peek gives you an instant readout of your every move on the front panel.

GRQ2 Remote Software for Windows™: A whole new look and improved navigation and graphic editing. Real-time display of all filter editing, including the new Crossover. Control up to 16 channels of Graphi-Qs via computer. Every Graphi-Q2 includes serial port and software for remote control, and remote switching connections for preset recall.

Sabine's GRQ2 Remote software gives you instant access to all front panel controls and to an additional layer of functions. Built-in Flash RAM lets you upgrade Graphi-Q2 firmware and software with the touch of a button. And all Graphi-Q2s are now controllable via software.

SIA SmartLive™: All Graphi-Q2s are controllable within SmartLive. Device control provides access to all Graphi-Q2 functions.

Remote Switching: Contact closure port on back panel allows for remote switching of Graphi-Q2 presets.

Graphi-Q2 Remote Control Software

The all new GRQ2 Remote for Windows gives you the same hands-on feel as the front panel, and allows you to control up to 16 channels of Graphi-Qs simultaneously. All the major functions you need are there on the screen, ready for use. You rarely have to leave the main screen or pull down a menu to access the control you need.

Graphi-Q2s are designed for rigorous use in these applications:

- Main and Monitor Sound Systems
- In-Ear Monitors
- Insert Points
- Wireless Mic Systems
- Touring Sound & Fixed Installations
- Churches & Schools
- Convention Centers & Sports Arenas
- Board Rooms & Meeting Rooms
- Teleconferencing & Distance Learning
- Paging & Desktop Audio
- Outboard processing for networked and distributed audio

We'll even show you a line graph of your gain structure, graphically displaying every parameter.

Using your computer as a platform gives you unlimited memory storage of Graphi-Q2 files. Each file holds up to 20 presets, and you can transfer these settings to the on-board memory locations within each Graphi-Q2. You can also access all Graphi-Q2 memory locations via the back-panel Euro-block remote switching connectors. Using a simple contact closure switch, you can offer scene change options to users who have no other access to any Graphi-Q2 controls. And you can print a three-page report that records the setting of every parameter in the Graphi-Q2, including a frequency response curve.

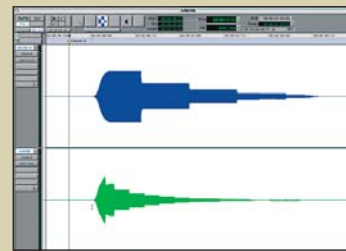


The FBX Feedback Exterminator®

Every Graphi-Q2 includes the new SMARTFilters version of Sabine's patented FBX Feedback Exterminator. Sabine pioneered the automatic feedback controller in 1990, and invented the digital feedback controller in 1991. The FBX in the Graphi-Q2 is the state-of-the-art in automatic feedback control – fast, reliable, and transparent.

SMARTFilters have laser-like accuracy and resolution, targeting feedback while leaving your sound untouched. That means the FBX is the right choice when you want to control feedback during the show, not just at setup time. This innovative solution identifies feedback and places super-narrow filters with one Hz resolution, during setup and during the program. This real-time performance distinguishes the FBX from all other feedback controllers. Each filter is custom-made at the moment of feedback, and is placed just deep enough to remove the ringing tone.

The new GRQ2 Crossover allows for easy editing of your all your crossover parameters, and allows for custom filter and slope selection on both sides of the crossover point. Your settings are displayed in real-time on the Response Curve display, which also selectively displays the graphic EQ, high & low cut, parametric, and FBX filters, for both the A and B channels, in any combination.



Speed of feedback elimination, shown as amplitude over time: The top chart shows the speed of a competitor. Note slow reaction time and longer time to eliminate the feedback. The bottom section shows the much faster FBX.



GRQ2 Crossover

Transparent Sound Your feedback controller should do nothing to your sound, and the patented FBX makes thousands of calculations per second to accurately distinguish music from feedback. Other feedback controllers may do fine in setup, but they will eat your sound alive during the show because they lack the ability to separate your sound from feedback. The laser-like FBX targets only the feedback and preserves your sound.

Flexible Filter Control Mix filter widths according to your application, lock or unlock your fixed filters, and reset your dynamics either manually or with the new Dynamic Filter Release Timer. Change the sensitivity of the algorithm to suit your application. You can speed up the process in speech applications, or apply a more rigorous setting for orchestral and house of worship applications.

Quick & Quiet Setup During setup the speed of the SMARTFilters is ramped up. And the output of the Graphi-Q2 is limited, so your setup procedure is easy on the ears and completed in 30 seconds.

Here's what all this means to you: More gain before feedback, increased clarity and intelligibility, more wireless microphone mobility, fast, easy setup, and adaptive, automatic feedback control. No other audio device provides these benefits at this price.



GRQ2-Remote Software Main Screen

all the FBX filters at a super-quiet level, and displays the added gain you get, all in real time.

Use the BYPASS and ACTIVE matrix to manage the status of every Graphi-Q2 function. Make fine adjustments to other Graphi-Q2 functions, including graphic EQ filter widths from 1/2 octave to one full octave, and adjust attack, release, and knee on the compressor.

Parametric Filter control allows you to switch any filter from fully-programmable parametric to Fixed or Dynamic FBX filters. In Automatic FBX Setup Mode, the Graphi-Q2 automatically sets up the FBX filters – just sit back and watch as the unit raises the gain, places

GRAPHI-Q 3120 SERIES Engineering Specifications

Digital Processing

24 bit A/D and D/A, 32-bit DSP

Independent display and control of A & B channels

Graphic Equalizer

31 digital filters on ISO 1/3-octave center frequencies, width adjustable⁴ from 0.5 to 1.0 octave in .01 octave increments \pm 6 or 12 dB boost and cut range

Low Cut Filter, user-controllable between 20 Hz and 3 KHz; 12 (or 24¹) dB/octave roll-off

High Cut Filter, user-controllable between 1 KHz and 20 KHz; 12 (or 24¹) dB/octave roll-off

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 filters⁴

Filter depth: user-controllable in 1 dB steps from +12 dB to -84 dB (parametric mode), 3 dB steps from 0 dB to -40 dB (FBX mode), max. automatic depth adjustable from -6 to -40 dB

Filter width: user-controllable from 9.99 to .01 octave (parametric), 1.0 to .01 octave (FBX¹)

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

Time required to find and eliminate feedback: typically 0.3 seconds @ 1 KHz

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

Digital Compressor/Limiter

Threshold: +30 dBV to -30 dBV in 0.5 dB steps (independently adjustable for compressor & limiter⁴)

Ratio: 1:1 through infinity

Knee: soft to hard, in 40 steps⁴

Attack: 1 to 99 msec in 1 msec steps⁴

Release: .05 to 5 sec in .05 sec steps⁴

Peak limits: +32 dBV to -30 dBV in 0.5 dB steps⁴

Mode: Dual Mono or Stereo (GRQ3122 & 3122-S)

Digital Delay

1.38 to 999.96 msec in 20 μ sec steps

Programmable in milliseconds, feet or meters.

Crossover

1x2; Bessel, Linkwitz-Reilly, and Butterworth filters; 12, 24, 36, 48 dB/octave slopes

Password Configuration

4 levels⁴

Controls

GRQ3122, 3121: Front panel, GRQ2 Remote (RS 232),

Remote switching

GRQ3122-S, 3121-S: GRQ2 Remote (RS 232), Remote switching

Save & Recall Configurations

20 user defined

1 factory default

1 most recent configuration (power down save)

1 default front panel

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 +18

dBV peak input, Balanced +18 dBV peak output²

Output load: (600 Ohms balanced)

Bypass: true power-off bypass

I/O connectors: XLR-3, 1/4" TRS

GRQ3122 and 3122-S: Dual channel, one input, one

output per channel

GRQ3121, and 3121-S: Single channel, one input, two

parallel outputs. Functions on each output selectable via GRQ2 Remote

Performance⁵

Frequency response: 10 Hz to 20 KHz, \pm 0.2 dB @ +18 dBV

THD: <0.01% at 1.0 KHz at +18 dBV with 30 KHz

Bandwidth

SNR³: >105 dB

Dynamic Range: >110 dB

Headroom: +14 dB peak @ 4 dBV nominal input

Upgrades

Operating system firmware stored in Flash RAM. All future upgrades for firmware and software downloadable from Sabine website using Upgrade Wizard.

Power

50/60 Hz available in 100 V, 120 V, 230 V; 18 W

Dimensions

2-U rack mount: 19 x 3.5 x 9.5 in. (48.3 x 9 x 22.9 cm);

9 lb. (3.9 Kg)

1-U rack mount: 19 x 1.75 x 9.5 in. (48.3 x 4.5 x 22.9 cm);

8 lb. (3.6 Kg)

Notes:

¹ Below approximately 200 Hz the feedback filters become slightly wider to increase the feedback and rumble capture speed at these low frequencies.

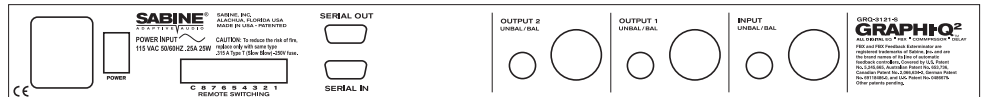
² Note: Inputs may be balanced or unbalanced. For maximum output capability, outputs must be balanced (XLR or TRS). If either side of an output is grounded, the peak output and dynamic range will be reduced by 6 dB.

³ Signal-to-noise ratio is the ratio of the maximum undistorted signal by specification (26 dBV RMS sine wave) to the noise floor.

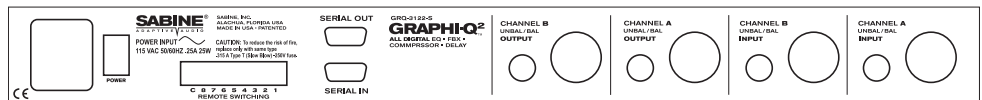
⁴ Adjustable with GRQ2 Remote only.

⁵ Tests performed using an Audio Precision System One model 322 or equal.

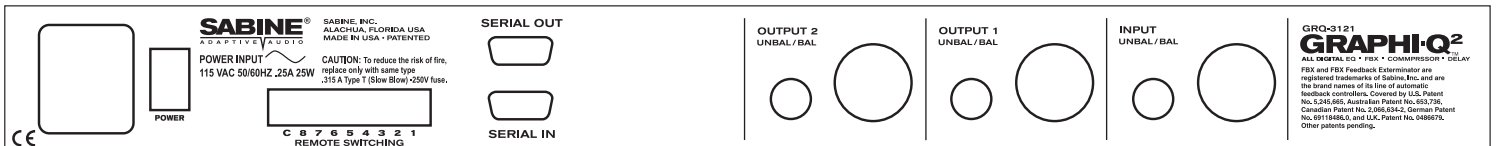
Specifications subject to change without notice.



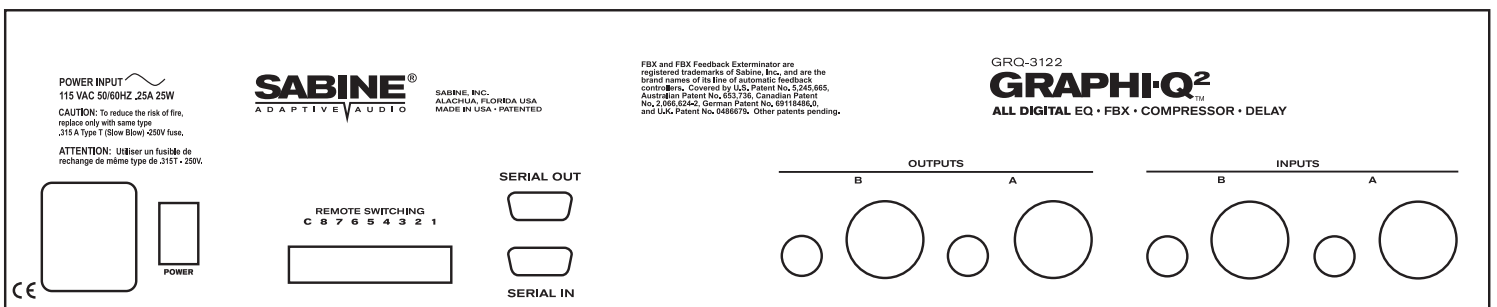
GRQ3121-S: 1U, Blank front panel, single channel (*one in / two out*)



GRQ3122-S: 1U, Blank front panel, dual channel (*two in / two out*)



GRQ3121: 1U, single channel (*one in / two out*)



GRQ3122: 2U, dual channel (*two in / two out*)

One-year limited warranty

Patented[†]

Other Patents Pending

Made in USA

SABINE
ADAPTIVE AUDIO

Complete Operating Guide
available at our website

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[†]FBX and FBX Feedback Exterminator are registered trademarks of Sabine, Inc., and are the brand names of its line of automatic feedback controllers. Covered by U.S. Patent No. 5,245,665, Australian Patent No. 653,736, German Patent No. 69118486.0, U.K. Patent No. 0486679, and Canadian Patent No. 2,066,624-2. Other patents pending.