GRQ3121
Specifications

Hands-on or hands-off digital processors from Sabine. The Graphi-Q2 GRQ3121 is a groundbreaking full-featured speaker management device, with GRQ² remote software and external control options. Sabine was the first to offer an analog-style front panel controlling 32-bit digital processing, and this multi-function processor once again sets the standard for the all-in-one speaker management solutions. The GRQ² combines eight indispensable audio products into one all-digital package. With the touch of a fader you can shape your frequency response using the GRQ²'s 31-band digital graphic EQ. Use the parametric EQ to control your filter width, depth and frequency. Time align your speakers with the digital delay. Manage your system gain with the GRQ² digital compressor/limiter. Finally, add 3 to 9 dB extra gain and automatic feedback control with Sabine's patented FBX technology. In addition, Sabine's GRQ² Remote Control Software gives you instant access to all front panel controls and an additional layer of functions. You can view and edit frequency response curves, view edits before executing them, and take advantage of unlimited GRQ² file storage.

PERFORMANCE²
Frequency response: 20 Hz to 20 KHz, ±0.2 dB @ +18 dBV
THD: <0.01% at 1.0 KHz at +18 dBV with 30KHz bandwidth
SNR***: >105 dB
Dynamic Range: >110 dB
Headroom: +14 dB @ 4 dBV nominal input (balanced)

FBX/PARAMETRIC FILTERS
Twelve independent digital filters per channel, controlled automatically or parametrically from 20 Hz to 20 KHz, each switchable (GRQ2 Remote) between FBX fixed filters, FBX dynamic filters, and parametric filters[1]
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. FBX depth adjustable from -6 to -80 dB
Filter width: user-controllable from 9.99 to .01 octave (parametric), 1.0 to .01 octave (FBX*)
Low Cut Filter, user-controllable between 20 Hz and 1 KHz; 12 dB/octave roll-off
High Cut Filter, user-controllable between 3 KHz and 20 KHz; 12 dB/octave roll-off
Resolution: 1 Hz from 20 Hz to 20 KHz, FBX & 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 cut filters
Filters controllable via table or graphic interface.

CONTROLS
GRQ3121: Front panel, GRQ Remote (RS-232), Remote switching

GRAPHIC EQUALIZER
31 digital filters on 1/3-octave ISO center frequencies, width adjustable from 0.5 to 1.0 octave in .01 octave increments; ±12 or 6 dB boost and cut.
±6 or 12 dB boost and cut range.
Independent display and control of A & B channels

POWER
50/60 Hz available in 100V, 120V, 230V; 20W.

INPUT/OUTPUT**
Input impedance: Balanced > 10K Ohms, PIN 2 high.
Output impedance: Balanced 50 Ohms nominal, PIN 2 high.
Input/Output maximum signal levels: Balanced +18 dBV peak.
Maximum output load: 600 Ohms balanced
Bypass: true power-off bypass
I/O connectors: XLR-3, ¼" TRS
GRQ3121: Single channel, one input, two outputs.
Functions on each output selectable via GRQ2 Remote

UPGRADES
Operating system firmware stored in FLASH RAM.
All future upgrades for firmware and software downloadable from Sabine website using the Sabine Upgrade Wizard. www.sabine.com

DIGITAL PROCESSING
24 bit A/D and D/A
32-bit DSP

CROSSOVER
1x2; available in all Graphi-Q2 units
Bessel, Butterworth, Linkwitz-Reily filters
Slopes: 12, 24, 36, and 48 dB/octave

DIGITAL COMPRESSOR/LIMITER
Threshold: +32 dBV to -30 dBV peak in 0.5 dB steps
Ratio: 1:1 through infinity
Knee: variable soft/hard
Attack: 1 to 99 msec in 1 msec steps[1]
Release: .05 to 5 sec in .05 sec steps[1]
Peak limit threshold: +32 dBV to -30 dBV peak in 0.5 dB steps[1]
Mode: Dual Mono

DIGITAL DELAY
1.38 mSec to 999.96 mSec in 20 microsecond steps.
Programmable in milliseconds, feet or meters.

PASSWORD CONFIGURATION
4 levels.[1]

SAVE & RECALL CONFIGURATIONS[1]
20 user defined
1 factory default
1 most recent configuration (power down save)
1 front panel

DIMENSIONS
1-U rack mount: 19 x 1.75 x 9.5 in. (48.3 x 4.5 x 22.9 cm);
Weight: 8 lb. (3.6 Kg).

OPERATING TEMPERATURE
Safe Operating Temperature: 0 - 50 degrees centigrade ambient temperature (32-129F)

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GRQ3121
Specifications (continued)

Architect's and Engineer's Specifications:

The The Sabine GRQ3121 graphic EQ/parametric EQ/automatic feedback controller/compressor/limiter/delay/crossover shall be a single channel digital signal processor, programmable from the front panel or with provided Windows software, Graphi-Q² Remote, including linkable functions and remote programming and auto-FBX setup. 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 three types of user-selectable filters: parametric, fixed FBX or dynamic FBX. The user controls the parametric filters; the fixed FBX filters, controlled automatically, remain set on the initial feedback frequencies, and the dynamic FBX filters shall be automatically reassigned new frequencies as feedback occurs during the program. The GRAPHI-Q² shall also function as a 12-band parametric equalizer, 31-band graphic equalizer, full-featured compressor/limiter, 1x2 crossover, and digital delay for speaker alignment. The unit shall include the following front panel indicators (LED): power, and clip level and signal-use LED indicators. The unit shall also be provided with the following back panel controls: XLR-3 input/output connectors; 1/4" TRS connector, 8-pin Euroblock connector for switch remote control connection; an internal power supply and power cord; an RS232 remote control connector; an RS232 network connector; and a ground/lift button. The unit shall be the Sabine GRAPHI-Q² GRQ3121 Speaker Management System.

* Below approximately 200 Hz the feedback filters become slightly wider to increase the feedback and rumble capture speed at these low frequencies.
** Inputs may be balanced or unbalanced. For maximum output capabilities, outputs must be balanced (XLR or TRS). If either side of an output is grounded, the peak and output dynamic range will be reduced by 6 dB.
*** Signal-to-noise ratio is the ratio of the maximum undistorted signal by specification (26 dBV RMS sinewave) to the noise floor.
[1] Available using GRQ Remote Software only.
[2] Tests performed using an Audio Precision System One model 322 or equal.

(SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE)

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***Company names, product names, and trademarks listed here are the property of their respective owners and are used only to identify evaluated microphones used to develop digital processing; they in no way imply association, endorsement, or approval by any named manufacturer.

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