



The A/V Presentation

SourceBook

Section 12B

Processors

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For Section 12B, Processors,
use Quick Dial #: 92

3630

RMS/Peak Dual Channel Compressor/Limiter with Gate

The 3630 is an affordable single rack space dynamics processor that provides two independent full-featured



channels of compression, limiting and gating, suitable for any application from subtle gain control to in-your-face punch. The compression section features variable Ratio, Threshold, Attack and Release controls as well as switchable RMS and Peak detection circuitry and Hard and Soft knee compression curves. The two fully independent gates feature variable threshold and rate controls to easily silence ambient noise. You can use the 3630 as an independent dual-channel compressor, with separate controls for each channel or push the Link button to strap the left and right channels together for stereo processing. Also features 1/4" inputs and outputs, precise signal metering and a sidechain insert for keying or ducking effects.

- ◆ Two discrete channels with identical controls and I/O provide stereo or dual mono operation – you can use each of the two channels independently, or you can strap both channels together, using the Link button, for stereo operation with both channels being controlled by channel A

Compression

- ◆ Each channel features a variable Threshold and Ratio controls
- ◆ Selectable Peak or RMS sidechain circuit reacts to signal peaks and potential clipping or average signal levels

- ◆ Selectable Hard and Soft Knee compression
- ◆ Bypass switches make it easy to compare the processed and unprocessed signals

Noise Gate

- ◆ Variable Threshold and Rate controls
- ◆ A pair of LEDs indicate whether the gate is open or closed

Output and Metering

- ◆ Output (makeup gain) level control
- ◆ 12-segment LED gain reduction metering (-1 to -30 dB range) as well as 12-segment

LED meters are switchable to show either input or output levels

Rear Panel

- ◆ 1/4" unbalanced inputs and outputs switchable for +4 dBu or -10dBV operation
- ◆ 1/4" TRS side chain I/O inserting an EQ or other external control signal

DEQ 230 DIGITAL EQ

Programmable Dual 1/3-Octave Graphic Digital EQs



Unlike so many EQs on the market today, the DEQ-230 has a friendly, intuitive nature, making

it one of the easiest to use, manipulate and control. With a sleek industrial design including over 800 individual LEDs to give a richly detailed view of EQ curves, the DEQ-230 is a clear standout in the world of graphic equalization. Plus its feature set is well suited for professional studio applications, while its very affordable price also makes it attractive to the recording hobbyist or performing musician.

Taking advantage of its internal digital signal processing and unique user interface, the DEQ-230 has the ability to store and recall 25 preset and 25 user-defined curves, as well as a single bypass button that affects both channels simultaneously. Sized to fit a single rack mount chassis, it includes 1/4" unbalanced analog I/O and an external AC power supply.

240

Two-Channel, Logic Gated Compressor

The 240 is a two-channel unit designed to have both technologies work as a seamlessly integrated



system. When the gate activates, the compressor is prevented from releasing. This avoids the conflict of the compressor attempting to raise signal level while the gate attempts to reduce it. The Logic-Assisted Gate technology provides the most reliable, accurate and stable operation of any gate. The circuitry of the gate is designed to never false trigger, click or chatter. Once triggered, even by a microscopic transient, the gate progresses through its attack, hold and release sequence. Controls on the gating portion include Threshold, Attack, Hold, Release and Depth. Controls in the compressor section include Drive, Speed and Output. Each channel may be used independently or the two channels may be linked for stereo processing.

- ◆ The gate and compressor work as an integrated system, never fighting each other. If the gate is triggered, the compressor's gain reduction is "frozen" until the gate is open again.
- ◆ A rear key insert jack allows line-level equipment to be inserted into the signal path of the gate's threshold detector for applications such as de-essing or keying the gate to an external signal.
- ◆ Insert point is between the unit's input stage and gate detector.
- ◆ A front panel multicolored LED bar graph meter displays either peak output level or gain reduction.

323A Compellor/Aural Exciter



The 323A Compellor/Aural Exciter is a single channel dynamics processor and program enhancer that

permits absolute control over program dynamics. The "Compellor" section is a self adjusting dynamic audio processor with "intelligent" control electronics that monitor and control long term dynamics, while simultaneously providing excellent leveling, compression and peak limiting action. Set-up and operation are simple and virtually fool-proof. The "Aural Exciter" section enhances and restores program material, resulting in increased audio presence, intelligibility and articulation.

- ◆ Multi-function dynamic processor with enhancer section.
- ◆ Smooth and transparent compression action with intelligent attack and release control.
- ◆ Delivers undetectable Automatic Gain Control (AGC) for maximum stability of program levels.
- ◆ Peak Limiter protects system components from sudden and potentially damaging peaks.
- ◆ LED metering system displays a choice of input, output, or gain reduction levels.
- ◆ Aural Exciter section improved performance and reduced distortion.
- ◆ Selectable nominal operating level.

ALESIS VOCAL ZAPPER

Vocal Reduction Tool

An affordable stereo vocal reducer in an ultra-compact 1/4-space rackmount chassis, the Vocal Zapper has the ability to precisely reduce vocals from any CD or stereo music source. It features 16 unique algorithms that allow optimal reduction of different types of vocals in various types of mixes. There are two 1/4" inputs and two 1/4" outputs operating at 24-bit conversion and 48kHz sample rate.



- ◆ 16 algorithms optimally reduce various types vocals.
- ◆ Sing along with any CD in your collection.
- ◆ Input CD/MP3 player, or any stereo line input.
- ◆ Use for performance or practice.
- ◆ Dimensions: 1.5 x 4.25 x 5.3" (HWD).

320A COMPELLOR

Dual Channel Compressor/Leveler/Limiter

The 320A delivers intelligent compressor action, leveling and peak limiting simultaneously. This versatile and highly affordable processor can be used to solve audio level problems and improve audio signals in the broadcast studio, recording studio and in live sound applications. Patented control circuits include analog computers that continuously analyze the input signal and vary the control characteristics to provide for virtually undetectable operation, regardless of the dynamics of the program. Extremely easy to use, you only need to set the Drive level to generate the desired amount of processing, set the Process Balance control between leveling and compression and adjust the output level for unity gain. The 320A is then ready to provide complete dynamic control - smooth, inaudible compression, increased system gain, desired program density and the freedom from constant "gain riding" - fully automatically! Its unique circuit design actually enhances transient qualities, thus making even heavy processing undetectable.



- ◆ Dual mono or stereo operation.
- ◆ "Invisible" compression characteristics assure tight dynamics and transparent performance
- ◆ Intuitive front panel metering system displays input/output or gain reduction levels.
- ◆ Intelligent Automated Gain Control (AGC) for consistent program levels.
- ◆ All potentiometers are detented for accurate resetting of controls.
- ◆ Operating reference levels are selectable from -10dBV, +4dBu or +8dBu.
- ◆ Leveling Speed (fast/slow) switch is located on the front panel, as is the defeat switch for the peak limiter.
- ◆ An RJ-11 connector on the rear panel facilitates remote relay bypass of the unit.
- ◆ Instantaneous peak limiting for effective system protection (user defeatable).
- ◆ Adaptive control circuits make for fast, simple set-up and no readjustment for varying program dynamics.

622 Logic Assisted Expander/Gate



The choice of professionals in recording, broadcast and sound reinforcement, the 622 incorporates

proprietary detection circuitry to provide the most reliable, accurate and stable operation of any gate. And with the ability to increase your dynamics along with lowering the noise floor of your gear, comes the highest quality VCA's to assure that you will never hear a click in your material again! The 622 also offers the highest quality audio path, flexible high "Q" key filters, key headphone outputs on the front panel and remote controlled bypass relays. Whether using it to keep your vocals clean or to control feedback, the 622 is a phenomenal addition to your processing rack!

- ◆ Use for live performance applications.
- ◆ Logic Assisted Gate Circuitry combines sophisticated level detection with logic generated control voltage assuring positive, stable and accurate triggering regardless of attack time.
- ◆ VCA 1001 voltage controlled attenuator assures the highest audio quality, speed and freedom from DC control feed through (no clicks regardless of attack time).
- ◆ 119 dB dynamic range, lowest distortion (0.005% typical) and widest frequency response (5Hz-100kHz).
- ◆ Switchable parametric key input filters (-24dB/octave filters with frequency and bandwidth controls).
- ◆ Switchable ducking mode with fully adjustable control of trigger threshold, attack time, hold time, release time, expander ratio, and attenuation range.
- ◆ Front headphone jack to monitor key input without disrupting audio output.
- ◆ Dedicated downward expander mode. allows high resolution of ratio adjustment from 1.2:1 to 10:1.
- ◆ Simple and accurate metering system.
- ◆ Servo-balanced input and output circuits.
- ◆ +4/-10 operation, rear panel selectable.
- ◆ Hardwire relay bypass: remote controllable.

722 DOMINATOR II

Precision MultiBand Peak Limiter

The Dominator II is a stereo MultiBand peak limiter designed to fit a wide range of applications.



Through the use of MultiBand techniques along with proprietary circuits, the audibility of limiting action is greatly reduced, especially when compared to conventional limiters. This means that greater limiting depth is possible, resulting in higher loudness with maintained audio quality. At virtually any limiting depth, the Dominator II is free of "hole punching", "dullness", and most other effects normally associated with limiters. As a peak overshoot protection limiter, the Dominator II is undetectable in line while it absolutely prevents peak levels from exceeding a user settable output level. In addition, the desired limiting effects of greater audio density and increased punch are readily available with the Dominator II.

- ◆ Peak Ceiling Trimmable in 0.2dB steps over a 34dB range
- ◆ 3-bands of limiting with switchable crossover frequencies
- ◆ Patented Automatic Limit Threshold (ALT) circuitry
- ◆ Freedom from pumping
- ◆ Freedom from Spectral Gain Intermodulation
- ◆ Adjustable density (relative crest height)
- ◆ Calibrated detented potentiometers
- ◆ 104dB dynamic range
- ◆ LF and HF EQ provides shaping equalization below peak ceiling
- ◆ Relay bypass is remote controllable
- ◆ Servo-balanced transformerless inputs and outputs
- ◆ Pre-emphasis is an equalization curve expressed as a time value based on the ratio of a resistor and capacitor. The higher the value, the greater the equalization. It has been employed as a noise reduction technique for broadcast and transmission links. There are primarily two world standards- 50 and 75 microseconds.
- ◆ Separately switchable pre and de-emphasis curves. With pre-emphasis switched in, either 50 or 75 microseconds, the equalization curve is added after the input stage and before the limiters. When de-emphasis is switched in, the complementary de-emphasis curve is inserted after the final clipper and before the output stage.
- ◆ When both pre and de-emphasis are switched in, the frequency response of the output is flat. When the input is below threshold and as the input increases above threshold the output takes the shape of the de-emphasis curve.

120 1 x 4 Servo-Balanced Distribution Amp



If you are in the market for a high-quality,

performance driven Distribution Amp, then the 120 is just what you are looking for! With specifications better than digital recordings (better than 90db and 5Hz - 100kHz specs), the 120 is designed from the ground up to be rock-solid in any situation. So, for any situation that you can throw at it, Aphex's 120 Distribution Amp offers 4 outputs that perform exceptionally well! The 120 is a high performance audio distribution amplifier with a single high impedance input and four low impedance outputs, all electronically servo-balanced. The 120's transformerless circuits are designed for wide, flat frequency response free from ringing or overshoot, making it ideal for distribution of SMPTE time code as well as audio. Each output has its own amplifier and level control for maximum versatility and isolation. The sturdy steel chassis may be used stand-alone or rackmounted, singly or in pairs.

124 Bi-directional Audio Level Matching Interface



You want to match your gear's inputs and

outputs... but everything is starting to sound awful! A CD player there, a recorder there... Throw in a few keyboards and a mixer. Start mixing different line levels (-10dBV for your keyboards and +4 for your mixer) and you're mixing levels are going to be all over the place. One line is going to be really hot while another is barely audible. But don't forget the noise or loss of dynamics that you are going to have with your gear when you start trying to match levels! That's where the 124 comes into the picture! The 124 Audio Level Interface is designed to allow use of -10dBV consumer Hi-Fi equipment with +4 or +8dBm professional and industrial audio systems. It provides an extremely clean, reliable two-way buffer so both systems can operate at maximum performance levels, matching impedances and operating levels. The 124 is going to make your life so much easier!

341 / 351 / 355

Graphic Equalizers

The **341** (dual channel 15 band, 2/3 octave), **351** (single channel 31 band, 1/3 octave), and **355** (dual channel 31 band, 1/3 octave) graphic equalizers designed for use in a number of live and studio applications including fixed installations. All three models feature constant Q circuitry and 20mm center detent sliders with a selectable boost/cut range of 6dB or 12dB, as well as per channel input level control, channel bypass switch with status LED,

and clip LED. The model 351 and 355 also offer adjustable high and low pass filters for controlling unwanted hiss and low end rumble. Balanced XLR and 1/4" TRS as well as unbalanced RCA inputs and outputs are provided, allowing the units to be interfaced with a variety of professional and consumer level equipment. The single rack space 341 and 351 as well as the dual rack space 355 are housed in a rugged steel chassis.

341 (AREQ341)

Dual Channel 15-Band Graphic EQ

351 (AREQ351)

Single Channel 31-Band Graphic EQ

355 (AREQ355)

Dual Channel 31-Band Graphic EQ

HD-215 / 131 / 231 Graphic Equalizers

The **HD-215** (dual channel, 15-band), **HD-131** (single channel, 31-band), and **HD-231** (dual channel, 31-band) are rugged, dependable and affordable graphic equalizers, designed for professional use in live sound installations such as church, nightclub and PA systems as well as conference rooms, class rooms and lecture halls. Each model in the HD range features 20mm smooth action faders, selectable for $\pm 6\text{dB}$ or $\pm 12\text{dB}$ boost and cut with accurate constant-Q precision center frequencies that minimize interactions between adjacent frequencies. Other control features include independent, variable high and low pass filtering and output gain controls as well as a bypass switch. XLR, 1/4" and Euroblack barrier strip connectors ensure seamless integration into any system.

**HD-215** (ARHD215)

Dual Channel 15-Band Graphic EQ

HD-131 (ARHD131)

Single Channel 31-Band Graphic EQ

HD-231 (ARHD231)

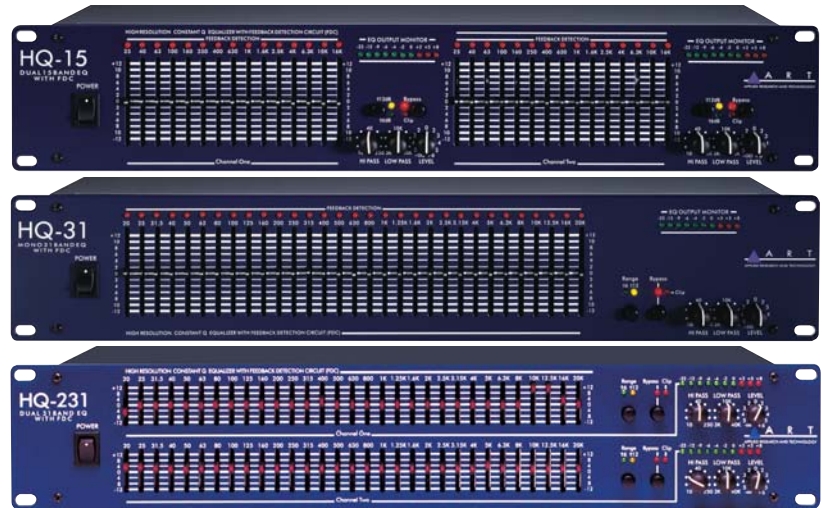
Dual Channel 31-Band Graphic EQ

HQ-15 / HQ-31 / HQ-231

Dual 15-Band/Single and Dual 31-Band Graphic EQs with Feedback Detection

The **HQ-15** (Dual Channel 15-Band EQ), **HQ-31** (Single-Channel 31-Band EQ) and **HQ-231**

(Dual-Channel 31-Band) are equipped with ART's proprietary FDC (Feedback Detection Circuitry) to help you keep live sound under control. Different from other systems in that it is extremely fast and accurate, FDC utilizes a set of LED indicators that show which of the many EQ bands has the greatest energy. And while FDC illuminates the band with the greatest energy with the brightest LED, it doesn't fully discriminate between bands and will not get "stuck" on one band when there is no signal. The LED indicators can immediately show which band corresponds to the feedback frequency, allowing sound engineers to reduce gain in that band to quickly kill the feedback while having minimal impact on the sound of the live program material. The FDC also acts as a simple spectrum viewer while the concert proceeds showing where the "hot" areas are. During system setup and sound check, FDC may be used to help identify room and sound system resonances. By increasing the gain until feedback, it is easy to identify those frequencies that are likely to be problems. Reducing the gain in these bands helps tune the sound system, and, remove problem areas before the show begins. It also helps increase the gain margin before feedback.



HQ-15 (ARHQ15)

Dual Channel 15-Band Graphic EQ

HQ-31 (ARHQ31)

Single Channel 31-Band Graphic EQ

HQ-231 (ARHQ231)

Dual Channel 31-Band Graphic EQ

Mixer	341	351	355	HD-215	HD-131	HD-231	HQ-15	HQ-31	HQ-231
Frequency Bands (ISO spacing)	2x15, 2/3 oct.	1x31, 1/3 oct.	2x31, 1/3 oct.	2x15, 2/3 oct.	1x31, 1/3 oct.	2x31, 1/3 oct.	2x15, 2/3 oct.	1x31, 1/3 oct.	2x31, 1/3 oct.
Filter Type	Constant-Q -3% Center Accuracy								
Slider Travel	20mm	20mm	20mm	20mm	20mm	20mm	45mm	45mm	20mm
Range (Selectable)					±6dB or ±12dB				
Input/Output Connections	XLR, 1/4" TRS RCA	XLR, 1/4" TRS RCA	XLR, 1/4" TRS RCA	XLR, 1/4" TRS Euroblock	XLR, 1/4" TRS Euroblock	XLR, 1/4" TRS Euroblock	XLR, 1/4" TRS RCA	XLR, 1/4" TRS RCA	XLR, 1/4" TRS RCA
Maximum Input Level	+22 dBm	+22 dBm	+22 dBm	+22dBm	+22dBm	+22dBm	+22 dBm	+22 dBm	+22 dBm
Output Impedance (Typical)	<150Ω	<150Ω	<150Ω	<150Ω	<150Ω	<150Ω	<150Ω	<150Ω	<150Ω
Max. Output Level	+22dBm	+22dBm	+22dBm	+22dBm	+22dBm	+22dBm	+22dBm	+22dBm	+22dBm
Frequency Response (±.5 dB)	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz	20Hz-20kHz
THD + Noise	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
Signal to Noise Ratio	-94 dB	-94 dB	-94 dB	>95dB	>98dB	>98dB	-94 dB	-94 dB	-94 dB
Size (HWD)	1 1/4 x 19 x 8 1/2"	1 1/4 x 19 x 8 1/2"	3 1/2 x 19 x 8 1/2"	1 1/4 x 19 x 7 1/2"	1 1/4 x 19 x 7"	3 1/2 x 19 x 7"	3 1/2 x 19 x 8 1/2"	3 1/2 x 19 x 9 1/2"	3 1/2 x 19 x 7 1/2"
Weight	4.5 lbs.	4.5 lbs.	9 lbs.	7.5 lbs.	7.5 lbs.	12 lbs.	4.5 lbs.	4.5 lbs.	12 lbs.

MQX SERIES**MQX-1310** Miniature 31-Band Graphic Equalizer

The MQX-1310 is a single rack space, single-channel graphic equalizer that is ideal for tuning a room's acoustics and controlling microphone feedback. It has



31 bands with standard ISO frequency intervals of 1/3 octave and a frequency range of 20 Hz to 20kHz. Each of the 31 bands are controlled by 25mm, linear slide faders, with center detent and switch selectable boost / cut range of $\pm 6\text{dB}$ or $\pm 15\text{dB}$. The MQX-1310 offers balanced (transformerless) XLR and 1/4" as well as barrier strip terminal inputs and outputs. The use of optimized Wein-bridge filters, for each frequency band, ensures minimum filter interaction and a constant bandwidth regardless of a slider's boost or cut setting. For greater signal to noise performance and transparency, filters in the center detent position are electrically removed from the circuit. Other features include an -infinity to +6dB gain control, switchable 18dB per octave high pass filter at 40Hz, green signal presence and red clip indicators as well as an EQ bypass switch.

MQX-2150 Miniature Dual 15-Band Graphic Equalizer

The MQX-2150 is a single rack space graphic EQ with most of the same features as the MQX-1310, but is split into two 15-band channels using ISO frequency intervals of 2/3 octave that

cover a frequency range of 25Hz to 16kHz. Along with the dual 15-bands, gain control, EQ boost and cut range, HPF, signal presence and red clip indicators as well as EQ bypass are independent for each channel. Inputs and output are available via balanced (transformless) XLR and 1/4" connectors.

MQX-2310 Miniature 31-Band Graphic Equalizer

The two rack space MQX-2310 represents the next logical step in Ashly's Miniature Graphic Equalizer series with 31 bands available on two channels, allowing dual mono or stereo operation. As with the MQX-1310, each band is centered on standard ISO frequencies



at intervals of 1/3 octave and covering a frequency range of 20Hz to 20kHz. The MQX-2310 offers balanced (transformerless) XLR and 1/4" as well as barrier strip terminal inputs and outputs.

MQX-1310 (ASMXX1310): Mono 31-Band
Graphic Equalizer374.95

MQX-2150 (ASMXX2150): Stereo 15-Band
Graphic EqualizerCALL

MQX-2310 (ASMXX2310): Stereo 31-Band
Graphic EqualizerCALL

GQX SERIES

GQX-1502 Two Channel 2/3 Octave Graphic Equalizer

The GQX-1502 is a dual-rack space stereo graphic equalizer with two channels of 15-band 2/3 octave EQ, controlled by 45mm, linear travel sliders. The 15 frequency bands cover a range of 25Hz to 16kHz and can be boost or cut ± 15 dB. The inputs and outputs are provided on servo-balanced XLR, 1/4" and barrier strip terminals. As with the Miniature Graphic Equalizer series, the use of Wein-bridge filters minimizes interactions between frequency bands while maintaining constant bandwidth throughout each filter's boost and cut range. Each filter is electrically removed from the circuit in the center detent position. Other per channel features include a switchable 12dB per octave high pass filter at 40Hz, an LED overload indicator as well as ± 15 dB gain control, and an overall EQ bypass.



GQX-3101 Single Channel 1/3 Octave Graphic EQ



A single channel 31-band, 1/3 octave graphic EQ with Wein-bridge filters, housed in a sturdy steel dual rack space. The 31 bands cover a frequency range of 20Hz to 20kHz. The linear slide faders feature 45mm travel, metal actuator shafts and a tactile center detent. The range of boost and cut per band is switchable between either ± 6 dB or ± 15 dB. It offers inputs and outputs that are (transformerless) balanced type on both XLR, 1/4" phone jacks and barrier strip terminals. A switchable 18dB per octave high pass filter is provided with a variable frequency between 8Hz to 200Hz. The GQX-3101 also features a 2 color, 10-segment LED meter as well as an overload LED indicator. Other features include variable input gain and an overall EQ bypass switch.

A single channel 31-band, 1/3 octave graphic EQ with Wein-bridge filters, housed in a sturdy steel dual rack space. The 31 bands cover a frequency range of 20Hz to 20kHz. The linear slide faders feature 45mm travel, metal actuator shafts and a tactile center detent. The range of boost and cut per band is switchable between either ± 6 dB or ± 15 dB. It offers inputs and outputs that are (transformerless) balanced type on both XLR, 1/4" phone jacks and barrier strip terminals. A switchable 18dB per octave high pass filter is provided with a variable frequency between 8Hz to 200Hz. The GQX-3101 also features a 2 color, 10-segment LED meter as well as an overload LED indicator. Other features include variable input gain and an overall EQ bypass switch.

GQX-3102 Stereo 1/3 Octave Graphic Equalizer

The GQX-3102 has the same features and components as the GQX-3101, but with two channels and a three rack space housing. It is ideal for installation requiring maximum flexibility, fidelity and accessibility. And like all of Ashly's graphic Equalizers, the GQX-3102 is backed by a five year warranty.



GQX-1502 (ASGQX1502): Dual Channel
15-Band Graphic EqualizerCALL

GQX-3101 (ASGQX3101): Single Channel
31-Band Graphic EqualizerCALL

GQX-3102 (ASGQX3102): Dual Channel
31-Band Graphic EqualizerCALL

MDX-1600 / 2600 / 4600

Autocom Pro-XL ♦ Composer Pro-XL ♦ Multicom Pro-XL

The MDX-1600, MDX-2600 and MDX-4600 feature Behringer's revolutionary IKA (Interactive Knee Adaptation) circuit that successfully combines the "hard knee" compressor circuit with the "soft knee" characteristic. They implement the IGC (Interactive Gain Control)

peak limiter that cleverly combines a clipper and program limiter. You'll find the IRC (Interactive Ratio Control) expander that automatically changes its ratio settings with the program material for ultra-musical and inaudible noise suppression. A switchable low contour filter prevents "pumping", while Behringer's IDE (Interactive Dynamic Enhancer) specifically makes up for the compression-induced loss of treble energy—assuring brilliant, lively audio even with heavy compression.



MDX-1600: Autocom Pro-XL



MDX-2600: Composer Pro-XL



MDX-4600: Multicom Pro-XL

- ♦ Stereo couple function with independent output level settings
- ♦ High-quality detented ALPS potentiometers and illuminated switches
- ♦ Servo-balanced, gold-plated 1/4" and XLR inputs/outputs (+4 dBu/10dBV switchable)
- ♦ Interactive Dynamic Enhancer (adjustable on the MDX1600)
- ♦ Automatic or manually adjustable attack and release times (MDX-1600/2600 only)
- ♦ Switchable side chain input with side chain monitor function (MDX-1600/2600 only)
- ♦ The MDX-1600 has a de-esser while the MDX-2600 has a switchable voice adaptive de-esser that differentiates between male and female voices. The MDX-2600 can also simulate tube circuitry for extra warmth and transparency.

	MDX-1600	MDX-2600	MDX-4600
Channels	2	2	4
Inputs	2x XLR, 2x 1/4" TRS phone, 2x 1/4" TS Sidechain		4x XLR, 4x 1/4" TRS phone
Outputs	2x XLR, 2x 1/4" TRS phone, 2x 1/4" TS Sidechain		4x XLR, 4x 1/4" TRS phone
Maximum Input Level	+22dBu	+22dBu	+21dBu
Compression Threshold	-20dB to +20dB, variable	-40dB to +20dB, variable	-40dB to +20dB, variable
Compression Ratio	1:1 to infinity:1, variable	1:1 to infinity:1, variable	1:1 to infinity:1, variable
Attack Time	Automatic or manual; Manual: 0.3mSec to 300mSec		Automatic
Gate Threshold	OFF to +10dB, variable	OFF to +10dB, variable	—
Gate Rate	Attack: Program dependent; Release: SLOW/FAST, variable		—
Maximum Output Level	+21dBu	+21dBu	+21dBu
Make-up Gain	-20dB to +20dB, variable	-20dB to +20dB, variable	-20dB to +20dB, variable
Frequency Response	0.35Hz to 200kHz, +0/-3dB	0.35Hz to 200kHz, +0/-3dB	0.35Hz to 200kHz, +0/-3dB
Noise	SNR: 115dB, unweighted	SNR: 115dB, unweighted	>95dBu, unweighted
Weight	19 x 8½ x 1¼"	19 x 8½ x 1¼"	19 x 8½ x 1¼"
Price	(BEMDX1600) 99.95	(BEMDX2600) 109.95	(BEMDX4600) 129.95

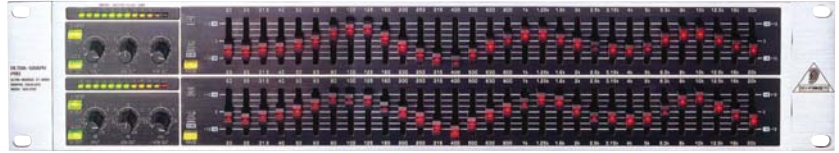
GEQ3102 ULTRA-GRAPH PRO

Dual-Channel 31-Band Graphic EQ

The GEQ3102 is a powerful graphic EQ tool with two channels of 31 standard

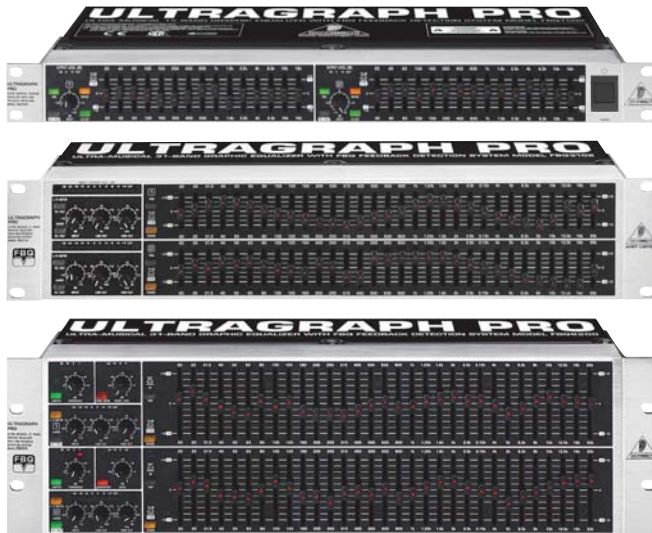
1/3-octave center frequencies plus sweepable high- and low-pass filters for "pre-graphic" trimming. The dual 12-segment LED chains can display either input or output level, and each EQ section can be bypassed for quick comparisons.

- ◆ 2x 31 ISO frequencies controllable via slide controls with boost/cut range switchable from 12dB to 6dB
- ◆ High-precision illuminated Alps faders
- ◆ 12-segment LED input/output metering
- ◆ High-quality detented potentiometers and illuminated switches
- ◆ Relay-controlled hard-bypass with an auto-bypass function during power failure
- ◆ Servo-balanced, gold-plated XLR and 1/4" inputs and outputs



ULTRAGRAPH PRO FBQ 1502 / 3102 / 6200

Graphic EQ / Feedback Destroyers



The Ultragraph Pro series are professional stereo graphic EQ/feedback destroyers designed for professional live sound and studio applications. The three available models include the single-rack space, 15-band FBQ1502, and two 31-band units, the dual rack space FBQ3102 and the three rack space FBQ6200. They all feature a patent-pending FBQ Feedback Detection System that provides instant detection of offending feedback frequencies, as well as comprehensive metering and balanced I/O connectivity. Each model also offers a low cut filter for controlling low frequency rumble and a dedicated mono subwoofer output with adjustable crossover frequency. The FBQ3102 adds variable hi and low cut filtering, while the FBQ6200 adds a limiter with a variable threshold control and a pink noise generator for aiding in the audio analysis process.

	FBQ1502	FBQ3102	FBQ6200
Number of EQ Bands	15 (2/3 octave)	31 (1/3 octave)	31 (1/3 octave)
Switchable Fader Range	±6dB / ±12dB	±6dB / ±12dB	±6dB / ±12dB
Limiter	—	—	Yes
Metering	4-digit LED (Input)	12-digit LED (input)	8-digit LED for I/O and subwoofer / Gain reduction metering
Inputs and Outputs	XLR and 1/4" TRS	XLR and 1/4" TRS	XLR and 1/4" TRS
Dimensions (WHD)	19 x 1 3/8 x 8 3/8"	19 x 5 1/2 x 3 1/2"	19 x 5 1/2 x 5 1/4"
Price	(BEFBQ1502) 79.95	(BEFBQ3102) 129.95	(BEFBQ6200) 179.95

ULTRAGRAPH DIGITAL DEQ1024

Digital Stereo 31-Band 24-Bit/96kHz Equalizer/Feedback Destroyer/Dynamics Processor

The DEQ1024 combines the sonic purity of a digital signal path with the hands-on tactile controls of analog gear. Illuminated 45mm faders can be set to any of three selectable operating ranges ($\pm 12\text{dB}$, $\pm 6\text{dB}$ and $0/-24\text{dB}$), while an automatic Feedback Destroyer is available with the ability to remove feedback in less than a second.

Servo-balanced XLR and 1/4" TRS connectors as well as AES/EBU and S/PDIF inputs/outputs for integration into any analog or digital system. Has a self-contained, realtime audio analyzer with a built in pink noise generator.



Additional features include sweepable low cut and high cut filters, an "inaudible" Noise Gate/Peak Limiter as well as a stereo imager that provides spatial enhancement and improved stereo imaging.



ULTRACURVE PRO DEQ2496

Digital 24-Bit/96kHz EQ/RTA Mastering Processor

A high-precision digital EQ and 61-band realtime analyzer designed for live sound. Offers 4 simultaneously available EQ modules including a 31-band graphic EQ, 10-band parametric EQ, Feedback Destroyer, as well as a three-band dynamic EQ per channel.

- ◆ 24-bit/96 kHz A/D- D/A converters and two SHARC digital signal processors for superb audio quality with a 113dB dynamic range.
- ◆ Ultra high-resolution, 61-band realtime FFT analyzer features an auto EQ function for room and loudspeaker equalization.
- ◆ Dedicated RTA XLR mic/line input with switchable phantom power is also provided.
- ◆ Balanced XLR inputs and servo balanced outputs, stereo aux output, AES/EBU and S/PDIF inputs and outputs ensures that the DEQ2496 can be integrated into any system.
- ◆ Has a wordclock input for syncing multiple digital devices, and MIDI I/O for remote control, preset dumps and system update.
- ◆ Multi-functional level meters (peak/RMS, VU and SPL meter with dBA/dBC weighting via RTA mic input), as well as 64 user memories.

ULTRAFEX PRO EX3200

2-Channel Multiband Spatial Sound Enhancement Processor

A popular psychoacoustics device that is geared for use in smaller setups or clubs. Features include a "Natural Sonic" processor that guarantees aural improvement and high-end transparency, an integrated bass processor that works wonders for your audio's low end, a Noise Reduction system, hard bypass and XLR connectors. In addition, the adjustable surround processor allows flexible widening of the stereo spatial effect.



- ◆ Releases untapped resources and details instruments, vocals and mixed program material
- ◆ Multiband concept for bass power and high frequency transparency
- ◆ VSP (Variable Sound Processing) circuit for simultaneous Enhancer and Exciter process
- ◆ "Dual Mode" ultra-bass enhancer produces "soft" and "tight" bass sounds
- ◆ Surround processor provides real spatial enhancement and improved stereo imaging
- ◆ High-quality detent potentiometers and illuminated switches
- ◆ Servo-balanced 1/4" TRS and RCA inputs
- ◆ Shift function allows you to control the frequency range of added bass punch
- ◆ Solo facility for effect loop application
- ◆ Relay controlled Hard Bypass with an auto bypass function during power failure
- ◆ Servo-balanced gold-plated XLR and 1/4" TRS inputs and outputs

DSP1124P FEEDBACK DESTROYER PRO

2-Channel Digital Feedback Suppressor/Parametric EQ

Powered by a 24-bit high-speed DSP the DSP1124P locates feedback frequencies immediately and sets extremely narrow notch filters to "destroy" them, leaving the remainder of the signal virtually untouched. With its various modes you can master just about any live sound situation or use it as a creative sound-shaping tool with 24 bands of fully parametric equalization.



- ◆ Automatically and "intelligently" finds and destroys up to 12 frequencies per channel
- ◆ "Set-and-forget" default setting enables immediate Feedback Destroyer performance
- ◆ Single-Shot mode automatically searches and destroys feedback and locks the filter until manually reset
- ◆ Auto mode continuously monitors the mix, resetting programmed filters automatically
- ◆ Select single-shot, auto or manual modes for each filter
- ◆ Manual mode allows individual settings of up to 2x 12 fully parametric filters with frequency, bandwidth and gain
- ◆ 24-bit A/D and D/A converters
- ◆ Two software engines allow independent or coupled functions on left and right channels
- ◆ Accurate eight-segment LED meters
- ◆ Full MIDI capability
- ◆ Servo-balanced XLR and 1/4" TRS I/O

FBQ2496 FEEDBACK DESTROYER PRO

Ultra-Fast 24-bit/96 kHz Feedback Destroyer



The FBQ2496 is a single rack space, digital feedback supressor with 24-bit / 96kHz A/D and D/A and 32-bit DSP that boasts a >0.2 sec. reaction time — the fastest feedback detection on the market.

Using its intelligent detection circuitry,

the FBQ2496 can automatically locate up to 20 feedback frequencies per channel and sets extremely narrow notch filters (1/60/oct) to "destroy" them, leaving the remainder of the signal virtually untouched. The unit's default "Set-and-Forget" setting and streamlined user interfaced will get you up and running in no time. A single-shot mode automatically detects and destroys feedback and locks the filter until it is manually reset. Additionally, a manual mode allows individual setting of up to 40 fully parametric filters with frequency, bandwidth and gain adjustment. Inputs and outputs are available via balanced, gold-plated XLR and 1/4" TRS connectors. The FBQ2496 can even be controlled and its software updated via MIDI.

	DEQ1024	DEQ2496	EX3200	DSP1124P	FBQ2496
Number of Channels	2	2	2	2	2
Maximum Input Level	+12 or +22dBu, switchable	+12 or +22dBu, switchable	+21dBm	+16dBu	+20dBu @ +4dBu nominal level +6dBV @ -10dBV nominal level
Maximum Output Level		+12dBu			
Frequency Response	15Hz to 35kHz, ± 3 dB	10Hz to 35kHz, -1dB	0.35Hz to 200kHz	20Hz to 20kHz	10Hz to 44kHz
Dimensions (WHD)	19 x 3½ x 5½"	19 x 1¼ x 8½"	19 x 1¼ x 8½"	19 x 1¼ x 7½"	19 x 1¼ x 7½"
Price	(BEDEQ1024) 149.95	(BEDEQ2496) 299.95	(BEEX3200) 79.95	(BEDSP1124P) 99.95	(BEFBQ2496) 149.95

CX2310 SUPER-X PRO • CX3400 SUPER-X PRO

2-Way Stereo/3-Way Mono Frequency Crossover with Subwoofer Out

The CX2310 offers absolute precision, state-of-the-art circuitry, professional components, ultra low-noise op amps, balanced inputs and outputs and intuitive operation. In addition to full-fledged 2-way stereo/3-way mono operation, the CX2310 a separate adjustable subwoofer output gives you an extra low-frequency band.



3-Way Stereo/4-Way Mono Frequency Crossover with Limiters

The CX3400 is an active frequency crossover enabling 2 or 3-way stereo or even 4-way mono operation. Each band features two 24-dB Linkwitz-Riley filters, as well as individual IGC limiters, while the integrated delay enables flexible time alignment.

- ◆ World-class performance 24 dB per octave Linkwitz-Riley filters
- ◆ Absolute flat summed amplitude response, zero phase difference
- ◆ Separate subwoofer section with independent frequency control
- ◆ Individual output level controls for all bands; individual output mutes for easy band adjustment

- ◆ Individual phase reverse switches for instant phase correction
- ◆ Servo-balanced, gold-plated XLR inputs and outputs
- ◆ Precision Alps potentiometers
- ◆ Illuminated switches for operation in dark stage environments
- ◆ Shielded toroidal mains transformer for minimal noise

CX3400 Only—

- ◆ Individual limiter on each output for loudspeaker protection
- ◆ "Low Sum" function provides low-level mono output for subwoofer operation
- ◆ Adjustable time delay for phase alignment between drivers
- ◆ Switchable equalization for constant directivity horns

DSP110 Shark

Digital 24-Bit Multi-function Signal Processor



An all-round problem-solver, the DSP110 combines mic/line preamp (60 dB gain control, +48v phantom power) with a variety of signal processing options, including Feedback Destroyer, variable delay

line for speaker time-alignment (up to 2.5 seconds of delay, adjustable in msec, meters or feet), ultra-musical compressor with adjustable density and speed parameters, and an extremely fast automatic noise gate with learn function and optional manual setting. Add 24-bit A/D and D/A converters, servo-balanced XLR and 1/4" inputs/ outputs, mic/line level conversion, external power supply for maximum signal integrity and headroom, and you can use the DSP110 in just about any application.

- ◆ Status LEDs for all 12 filters
- ◆ 4-digit multi-function display
- ◆ 6-segment clip level meter
- ◆ Subsonic filter with adjustable cut-off frequency



HD400 Ultra-Compact

2-Channel Micro Hum Destroyer

This ultra-compact 2-channel hum destroyer may be small in size, but there is nothing lacking in its performance. This super-compact solution removes AC hum and noise quickly, easily and reliably. Ground loops are safely broken while the highest sonic quality is maintained. Plus, it automatically converts unbalanced signals into balanced without any signal loss. The unit carries two 1/4" TRS inputs and outputs for 2 mono or 1 stereo signal. If maintaining a small visual profile without any compromises on the quality is of the essence, then we got your gear!

CT100 Microprocessor-Controlled Cable Tester

The intelligent, CPU-controlled CT100 accepts virtually any connector type: XLR, mono and TRS phone (1/4", 1/8", TT), RCA and MIDI. It shows which input pin is connected to which output pin. Separate LED's indicate proper shield connection and phantom power presence. The CT100 also offers an installed cable test mode and a continuity check plus a test tone generator.



- ◆ Cable test mode, installed cable test mode and test tone mode
- ◆ Continuity check, Intermittent detect, Phantom power detect
- ◆ Grounded shield detect
- ◆ Test tone generation (1kHz and 440Hz)
- ◆ Battery operation (requires two AA alkaline batteries)

TENSIONED ADVANTAGE ELECTROL

266XL Dual Channel Compressor/Gate

The 266XL brings affordable, high-quality compression and gating with intuitive operation



so you can easily smooth uneven levels, add sustain to guitars, squash drums or tighten up mixes. Auto Attack and Release emulates the classic dbx compressors by continuously adjusting the attack and release times to optimally match the program material. Manual controls are also available, allowing you tailor the attack and release response specifically for individual tracks, mixed program material, special effects or system protection.

- ◆ Stereo or dual mono gating, compression
- ◆ Expander/Gate Circuit with variable release time and +15dBu maximum threshold.
- ◆ Advanced gate circuitry uses an automatic timing algorithm to produce ultra-smooth release characteristics—even with complex signals, such as voice or reverb decays
- ◆ Compressor/Limiter circuit with variable threshold and ratio controls as well as auto (program-dependent) or manual Attack and Release control.
- ◆ Selectable OverEasy/Hard Knee compression curves, depending if you're looking for "heavy" almost-special-effects compression or soft, smooth gain leveling.
- ◆ Sidechain Inserts enables an outboard processor to control compression or gating.
- ◆ RMS Level Detection senses the power in the program in a musical manner, for much better results than peak or average detection.
- ◆ 8-segment LED display for gain reduction (up to 30dB).
- ◆ In Stereo Couple mode, Channel 1's controls become the master, and Channel 2 follows precisely to ensure a rock solid stereo image, even with high amounts of compression
- ◆ Signal does not pass thru any of the parameter controls. Instead a DC voltage controls all functions, eliminating any possibility of potentiometer noise developing over time.
- ◆ Electronically-balanced XLR and 1/4" TRS inputs and impedance-balanced XLR and 1/4" TRS outputs

266XL (DB266XL):

Dual Mono/Stereo Compressor with Gate149.95

166XL (DB166XL):

Dual Mono/Stereo Compressor/Limiter with Noise Gate.....249.95

166XL Dual Channel Compressor/Gate



The 166XL steps up from the 266XL by adding two channels of PeakStop

limiting to provide studios, sound reinforcement companies, musicians, or anyone who needs quality processing quickly and easily—with complete control of signal dynamics. Most compressor/gates provide less than musical compression, coupled with gating that swallows transients—or closes early, cutting off decay and reverb tails. The superb engineering in the 166XL ensures that both its compression and gating provide versatility and excellent sonic performance in situations where other compressor/gates typically produce undesirable processing artifacts.

- ◆ Stereo or Dual Mono operation of gating, compression and PeakStop limiting.
- ◆ PeakStop Limiting provides control of maximum peak levels at the a channel's output regardless of any other control.
- ◆ PeakStop comes after the compression, gating and other circuitry including the output gain, so it sets an absolute limit for peak excursions before they reach the output.
- ◆ A Sidechain enable switch on each channel lets you activate or de-activate the Sidechain inserts without repatching
- ◆ A Contour button in the Sidechain Path prevents sustained low frequency program material from dominating the compressed signal. This allows faster attack times which preserve transients and allows higher compression ratios with less artifacts.
- ◆ Hardwire System Bypass Buttons on both channels allow the audio to pass even if the unit loses power — also useful for A-Bing the processed and unprocessed signals.
- ◆ 10-segment LED display for gain reduction (up to 30dB)
- ◆ Electronically-balanced XLR and 1/4" TRS inputs and outputs

COMPRESSOR / GATES

160A Compressor/Limiter

The latest generation
of the legendary
dbx 160 family of
compressor / limiters,



the 160A offers the same classic sound, easy set-up and no compromise metering plus it has an improved signal path and stronger chassis design. Digital-ready and road tough, the 160A features switchable OverEasy and Hard Knee compression, extremely wide threshold ranges, and controls for ratio and output gain. It also includes true RMS level detection, providing the most natural-sounding dynamics processing available—from subtle compression to “brick wall” peak limiting. And with its unique “INFINITY +” inverse compression mode, the 160A actually decreases the audio output level below unity gain when the input exceeds threshold. Two 160As can be coupled to process a stereo mix without shifting the left/right image.

- ◆ Choose low ratios and OverEasy compression to transparently smooth out fluctuating vocal and instrumental levels. Or use the 160A's Hard Knee compression and high ratios (up to and beyond infinity:1 and over 60dB gain reduction) for bombproof protection against overload distortion in digital recording, PA systems and broadcast signals.
- ◆ 12-segment LED display for gain reduction up to 40dB
- ◆ 19-segment LED display for high resolution monitoring of true RMS input/output levels
- ◆ Input/output meter calibration allows the 160A to be used in a variety of situations where the 0 reference is not consistent
- ◆ Electronically balanced /unbalanced input and output stages are fully compatible with +4/-10dB. The output stage is an outstanding line driver for long cable runs.
- ◆ “INFINITY +” inverse-compression mode decreases the output level below unity gain when the input exceeds threshold — ideal for correcting overbearing vocal choruses or controlling runaway house mix levels.
- ◆ Detector input allows special applications including frequency conscious compression in which an external equalizer is used.
- ◆ Input Ground Lift Switch eliminates any ground loop hum problems that may arise.

Hard Knee vs. OverEasy Compression:

When the compressor is set for Hard knee, the compression ratio applies only to signals above the threshold level. If the compressor is set for Soft knee (OverEasy), the compression ratio gradually increases from 1:1 to the current selected ratio over a range through the threshold area which allows the transition from uncompressed to compressed to be more gradual. This greatly reduces compression artifacts and allowing faster attack times and higher compression ratios while still maintaining the natural characteristics of the signal. Hard knee compression, on the other hand, is ideal for “brick wall” limiting because it stops any transients from slipping through without affecting lower level signals.

	266XL	166XL	160A
EXPANDER/GATE CONTROLS			
Threshold Control Range	-60 to +10dBu	Off to +15dBu	N/A
Ratio Control Range	1:1 to 4:1	1.2:1 to 8:1	N/A
COMPRESSOR CONTROLS			
OverEasy Button with LED	Yes	Yes	Yes
Threshold Control Range	- 40dB to +20dB	- 40dB to +20dB	- 40dB to +20dB
Ratio Control Range	1:1 to ∞:1	1:1 to ∞:1	1:1 to ∞:1
Attack Time	Switchable; Manual and Automatic	Switchable; Manual and Automatic	Automatic
Release Time	Switchable; Manual and Automatic	Switchable; Manual and Automatic	Automatic
1/4" TRS Side Chain Insert	Tip = Input, Ring = Output	Tip = Input, Ring = Output	
Bypass Switch w/LED	Yes	Yes	Yes (Hardwire)
PeakStop Limiter Threshold Range	N/A	0dBu to +20dBu	N/A
Gain Make-Up Range	Variable; -20dB to +20dB	Variable; -20dB to +20dB	Variable; -20dB to +20dB
Stereo Couple	True RMS Stereo Summing	True RMS Stereo Summing	True RMS Stereo Summing (with 2nd unit)

1066

Dual Channel Compressor/Limiter/Gate

Designed to provide simple, flexible operation for recording, broadcast or live sound



reinforcement applications, the 1066 steps up from the 166XL with several important features. At the heart of the 1066 is dbx's V2 VCA (voltage-controlled amplifier), which offers superb dynamic range characteristics while maintaining very low distortion and almost immeasurable noise. This, combined with its world-class design, enables the 1066 to perform like compressors selling for hundreds of dollars more. The 1066 also improves on the 166XL's limiter, with a PeakStopPlus limiter. In addition to simply preventing unwanted transients from blowing your speakers or causing digital clipping while minimizing the distortion common to many other "hard" limiters, PeakStopPlus offers a two-stage limiting process for more transparent control. The 1066 also adds a Side Chain Monitor button (SC Mon) that makes setting up and adjusting the Side chain much easier by allowing you to listen to the audio source inserted into the Side Chain. Last, selectable input and output metering helps determine that everything is matched up level-wise, maximizing signal-to-noise ratio.

SAME FEATURES AS THE 166XL, PLUS:

- ◆ RF-filtered, gold-plated electronically-balanced/unbalanced inputs and outputs
- ◆ V2 VCA boasts superb dynamic range characteristics while maintaining very low distortion and immeasurable noise.
- ◆ 12-segment LED for gain reduction (up to 30dB)
- ◆ Side Chain Monitor (SC) function makes setting up and monitoring the Side Chain much easier
- ◆ Precision metering of input/output levels (between -24 and +18dBu) with switchable 8-segment LED meters

PeakStopPlus Level Control

Applies fail-safe limiting using a unique two-stage process to control the output signal.

Stage 1 –

Instantaneous Transient Clamp

This is a soft logarithmic clamp function that ensures that the signal doesn't exceed the threshold set by the PeakStopPlus level control by more than 2 dB (typically) and will not introduce harsh artifacts.

Stage 2 –

Intelligent Predictive Limiting

This is a unique program limiter which monitors the input signal and intelligently predicts the amount of gain reduction needed to keep the output below the ceiling set by the Instantaneous Transient Clamp.

160A (DB160A): Single Channel
Compressor/Limiter**399.95**

1066 (DB1066): Dual Mono/Stereo
Compressor/Limiter with Gate**CALL**

1046 (DB1046): Four Channel
Compressor/Limiter**499.95**

1046 Quad Channel Compressor/Limiter



Equally at home in recording studios and live sound reinforcement venues, the

1046 provides 4 channels of pristine sound and smooth classic dbx OverEasy or hard knee compression for a variety of applications from multitrack recorders to PA systems. Stereo coupling is independently selectable for channels 1 and 2 and channels 3 and 4 letting you configure the 1046 for 4 mono channels, two stereo pairs, or two mono and one stereo pair of processing. Additionally PeakStopPlus is available to protect your system from the oppressive peaks that can take out valuable drivers in your sound reinforcement rig or studio monitors. So whether you need to control the level, placement in the mix, or overall characteristics of 4 independent signals or control the gain leveling on a couple of stereo pairs, the 1046 is for you.

The 1046 offers the same features and specifications as the 1066 except that it has no manual Attack & Release and no Side Chain functions.

2 SERIES GRAPHIC EQUALIZERS



The 131 (single 31 band, 1/3 octave), 215 (dual 15 band, 2/3 octave) and 231 (dual 31 band, 1/3 octave) are affordable graphic EQs designed for demanding sound reinforcement applications. Features include 4-segment LED metering and front panel bypass switching, 20mm faders with selectable $\pm 6\text{dB}$ or 12dB boost / cut ranges, $\pm 12\text{dB}$ input gain control, switchable 12dB/oct low cut filters at 50Hz as well as hum eliminating ground lift switching. Both balanced XLR and $1/4"$ TRS input and output connectors are provided for ease of installation. Professional specs include $10\text{Hz} - 50\text{kHz}$ frequency response, 108dB dynamic range and internal toroidal transformers.

131: Single 31-Band Graphic EQ (DB131)

215: Dual 15-Band Graphic EQ (DB215)

231: Dual 31-Band Graphic EQ (DB231)

12 SERIES GRAPHIC EQUALIZERS

Dual Channel 15- Band and 31-Band Graphic Equalizers

The 1215 and 1231 dual channel EQs meet the needs of the most demanding sound reinforcement environments, while offering simple and straightforward controls. The 1215 provides 15 2/3 octave bands with ISO frequency centers, while the 1231 provides 31 1/3 octave bands with ISO frequency centers.

Both feature 45mm faders, selectable $\pm 6\text{dB}$ or $\pm 15\text{dB}$ boost/cut ranges for precise gain adjustments, $\pm 12\text{dB}$ input gain range, and switchable $40\text{Hz}/18\text{dB}$ per octave Bessel low-cut filters.

Engineered to provide years of maintenance-free operation in any application, they utilize only the best possible components.

RF filtered, electronically-balanced XLR, barrier strip, and $1/4"$ TRS inputs and outputs provide ease of installation, while magnetically isolated transformers and chassis/signal ground lift capabilities ensure quiet performance.



1215: Dual Channel 15-Band Graphic Equalizer (DB1215)**249.95**

1231: Dual Channel 31-Band Graphic Equalizer (DB1231)**349.95**

20 SERIES Graphic EQs with Type III Noise Reduction

There are three EQs available in the 20 Series; the 2031 single channel 31 band 1/3 oct, the 2215 dual channel 15 band 2/3 oct, and the 2231 dual channel 31 band 1/3 oct. Each of these offers the same precision engineering, top shelf components, I/O and features plus, they add two powerful tools that let you use your system with confidence — dbx's proprietary Type III Noise Reduction which is capable of increasing S/N ratios by up to 20dB , as well as the patented PeakPlus limiter which provides fail-safe system protection for your sound system. A four stage LED ladder gives you a great visual indication as to what the limiter and signal levels are doing. Offering great value and an unequalled feature set, dbx's 20 Series equalizers have become crucial links in the sound systems of countless professionals all over the world.

20 SERIES GRAPHIC EQUALIZERS

SAME FEATURES AS THE 12 SERIES PLUS:

Type III Noise Reduction

- ◆ Each channel features individually switchable, transparent noise reduction circuitry, capable of restoring up to 20dB S/N ratio.
- ◆ A virtually instantaneous encoding and decoding algorithm allows radical EQing without substantially affecting noise performance.

Input and Outputs

- ◆ XLR, Barrier Strip, and 1/4" TRS connectors.

PeakPlus Limiter

- ◆ The PeakPlus Limiter circuitry available on each channel utilizes a variable 0dBu (off) to +24dBu threshold control to provide fail safe system protection.

Metering

- ◆ Four segment LED bargraph provides metering for BOTH Gain Reduction and Output Level
- ◆ Status LEDs offer visual feedback for all settings on the front panel.

2031: Single Channel 31-Band (DB2031) ...\$399.95 2215: Dual Channel 15-Band (DB2215)\$399.95 2231: Dual Channel 31-Band (DB2231)CALL

DRIVERACK PA Equalization & Loudspeaker Control System



A 1RU high, all-in-one, multi-function digital processor designed for live sound applications. The intuitive graphic user

interface provides easy access to everything you need to analyze and tune your sound system with a minimum fuss and optimal results.

- ◆ State-of-the-art signal processing capabilities include a Stereo Feedback Eliminator with 12 feedback notch filters, a Dual 28-band Graphic EQ, Classic dbx Compression, the model 120A Sub-harmonic Synthesizer, Stereo Multi-band Parametric EQ as well as a Peak Plus Output Limiters that provide speaker output protection.
- ◆ A crossover with 2x3, 2x4, 2x5 and 2x6 configurations and an Alignment Delay are also for properly assigning and time aligning your speakers.
- ◆ Auto-EQ RTA (realtime analyzer) works in conjunction with the on-board pink noise generator to automatically EQ the 28-band Graphic EQ.
- ◆ Front panel, phantom powered XLR mic input with the optional RTA-M mic allows you capture and analyze the pink noise signal.
- ◆ Two XLR inputs and six outputs with 24-bit converters and over 110dB dynamic range.
- ◆ 25 user-settings for storing custom configurations as well as 25 factory programs that can be used as templates.

ZONEPRO 640 / 641 Digital Zone Processors

ZonePro 640 and 641 are single rack zone processors designed for commercial audio applications. Each offers a total of six inputs (two mic/line via balanced Euroblock connectors and four RCA source) and four stereo zone balanced Euroblock outputs with a range of flexible signal routing options and powerful DSP processing.



- ◆ Besides standard gain and EQ control, there are specific processing capabilities available for optimizing paging mics including Gating, De-Essing, Auto Gain Control, compression and feedback suppression.
- ◆ The 640 and 641's routing module makes it easy to define a primary source as well as apply source ducking for paging and priority override.
- ◆ Output processing is also available and includes dbx's AutoWarmth function which is designed to provide natural low frequency extension, regardless of signal level.
- ◆ Each output also EQ, Bandpass and Crossover filters, Limiting and Delay.
- ◆ The 640 offers an onboard user interface, available on the front panel , as well as an RS-232 port on the rear that allows remote control and programming via Zone Pro Designer software and a Windows 2000 / XP compatible computer or via optional ZC Series wall panel controllers.
- ◆ The 641 forgoes the onboard user interface and features RS-232 ports on both the front and rear. Additional ZonePro features include a simple analog input buss that allows cascading multiple units.

M80 Eight Channel Mic Preamp with Mix Bus

The M80 provides eight channels of discrete Class A microphone / instrument preamplification with low noise, balanced input transformers along with several unique features. An ultra low impedance



mix bus is available for assigning and panning any of the 8 channels to a pair of stereo outputs. A high gain headphone output for monitoring the main bus. Another unique feature is the vintage warmth control provided on each channel that emulates the effect of analog tape saturation and vacuum tubes. Each channel is equipped with balanced XLR / 1/4" TRS mic/line inputs via Neutrik combo connectors and XLR balanced outputs. Separate 1/4" TRS send and return jacks are also on hand for inserting outboard dynamics processors.

Each Channel Features

- ◆ Discrete Class A input buffer and twin servo gain stage provide ultra low noise and wide gain control allowing signal boost without increasing unwanted background noise
- ◆ Gain control provides 60dB of gain — the amplifier has inherent gain of 12dB thus delivering a total possible gain of 72dB
- ◆ +28 dBu of headroom provides wide dynamic range and excellent transient response
- ◆ Switchable 48v phantom power, phase (polarity) reverse, 20dB pad and a 6dB/oct low-cut filter at 80Hz
- ◆ Full scale 7-segment LED metering (-36 dBu to +18dBu) plus a clip indicator
- ◆ Phantom power is supplied at a constant rate whether on one or all eight channels.

Inputs and Outputs

- ◆ XLR / 1/4" TRS Neutrik combo connectors accept mic or instrument inputs signals
- ◆ XLR-balanced direct outputs

Stereo Mix Bus (8x2 Mixer)

- ◆ A stereo mix bus lets you combine the input signals of each channel for monitoring or live remote/straight to 2 track recording
- ◆ Each channel features a L/R Mix Bus assign switch and a pan knob for placing each signal within the stereo spectrum
- ◆ Stereo headphone output with level control to monitor the Mix bus in loud or ambient environments such as concert halls or clubs
- ◆ XLR mix output accommodates both balanced and unbalanced signals. Output level control has a range of -72dBu to +10dBu

Vintage Warmth Control

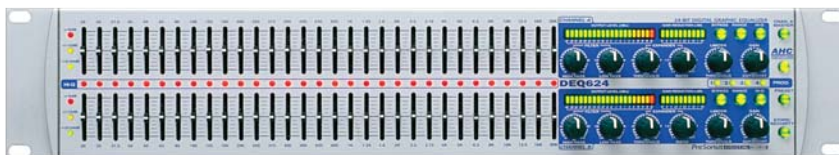
- ◆ The IDSS knob on each channel lets you add "warmth", much like a vacuum tube or analog tape saturation, to the audio source by boosting the even harmonic series of the input signal

Additional Features

- ◆ Auxiliary Input lets you daisy chain several M-80s together allowing them to share the last stereo output in the chain
- ◆ Housed in a 2RU, steel chassis with a high quality blue anodized front panel
- ◆ An external power supply ensure a noise free preamp environment.

DEQ624

Digital Stereo Graphic Equalizer Plus Dynamics Processing



The DEQ624 is a 24-bit digital two channel/stereo 31-band graphic EQ with features that extends its capabilities way beyond those of a standard graphic EQ.

This includes variable high and low pass

filters, brick wall limiting and expansion (noise reduction) for each channel. A proprietary Adaptive Hum Cancellation algorithm allows you to virtually eliminate 60-cycle ground hum at the flick of a switch. Although the DEQ624 is a digital processing unit, under digital control it has a familiar analog feel with 20mm digital encoding faders, knobs and switches — no menus or sub-menus to scroll through that will slow you down on the gig. Rear panel provides balanced XLR and 1/4" TRS inputs/outputs as well as barrier-strip terminals for permanent installation.

DEQ624

- ◆ 24-Bit digital signal processing provides accurate processing of analog signals
- ◆ Each channel of the graphic EQ section is comprised of 31 digital EQ encoders (faders) centered in 1/3 octave increments from 20 Hz to 20 kHz
- ◆ A range switch for each channel lets you choose one of three boost/cut ranges for the digital encoders – $\pm 6\text{dB}$, $\pm 12\text{dB}$ or $+12/-24\text{dB}$. The selected range is easily identified by LED's located at the left side of the EQ section
- ◆ Separate high (variable from 10 Hz to 410 Hz) and low (variable from 10 kHz to 20 kHz) pass filters are provided for each channel
- ◆ To help minimize overall system noise, both channels have separate expanders with variable ratio and threshold controls
- ◆ A "brick-wall" limiter with a variable threshold control provides fail-safe system protection from extreme transients
- ◆ A HI Q switch let's you narrow the bandwidth of the frequency bands from Normal Q with a 1/3 octave bandwidth to Hi Q which has a 1/8 octave bandwidth. With Hi Q engaged, adjacent frequencies will be less effected by boost/cut frequencies
- ◆ Adaptive Hum Cancellation greatly reduces 50Hz /60Hz system hum caused by grounding problems with the flick of a switch
- ◆ A hardwire bypass switch for each channel ensures that audio will still pass from input to output in the event of lost power
- ◆ To facilitate ease of set-up, a Channel A master switch, when engaged, will slave the controls of Channel B to Channel A.

Preset Management

- ◆ Preset switch lets you toggle through 4 user-defined setups that include a "snapshot" of the settings of the front panel controls
- ◆ A security lock-out feature, allows you to defeat the front panel controls of the unit which can be restored with user-created three-switch code combination

CL44 • GTX44 Quad Series Dynamics Processors



The CL44 four-channel professional compressor/limiter and the GTX44 four-channel frequency dependent gate/expander both combine a digitally-controlled, high-quality analog signal path with the added flexibility of digital

sidechain processing which provides vintage compressor emulations, ducking and spectral processing. They feature stereo linking of adjacent channels as well as sidechain inserts, balanced XLR inputs/outputs and a single unbalanced 1/4" TRS I/O connector for each channel. The GTX44 features high and low pass filters, variable attack, release and hold parameters and key listen control. The CL44 has a variable high pass filter with an independent limiter and full featured compressor.

- ◆ Hybrid VCA, analog dynamics processor under digital control with DSP flexibility
- ◆ Digital sidechain processing allows multiple functions such as filtering, vintage compressor emulation and other special functions, to be applied simultaneously
- ◆ Balanced XLR inputs and outputs
- ◆ Unbalanced inputs and outputs are also available via a single 1/4" TRS jack – A 'flip' button reverses the 'tip' and the 'ring' on the 1/4" jack to match the wiring of your mixer
- ◆ 1/4" TRS compressor sidechain insert with $+4/-10\text{dBv}$ selector
- ◆ Adjacent channels are stereo linkable
- ◆ Internal Power Supply
- ◆ Backlit function buttons
- ◆ All steel chassis, one rack space

CL44 Features

- ◆ Fully adjustable attack, release, ratio, threshold control. Program dependent attack and release is also available using the Auto function that monitors audio over three separate time constants
- ◆ Compander circuit raises an audio signal when it falls below a desired threshold – when used in conjunction with the compressor provides Automatic Gain Control.
- ◆ Variable High Pass Filter lets you pinpoint the frequency range in which the compressor operates
- ◆ Independent peak stop limiter
- ◆ A special 'optical' mode emulates the optical transfer curve found in vintage compressors
- ◆ 10-segment LED gain reduction meter

GTX44 Features

- ◆ Variable threshold, ratio, attack, release hold and range controls can be applied to achieve noise-gating or downward expansion
- ◆ Zero-Crossing function provides truly 'clickless' operation and chattering on gate settings that use quick attack-times
- ◆ Adjustable High- and Low- Pass filters allow you to control the specific frequency range over which the gate will open – a sidechain monitor listen button lets you hear what frequency range the gate is operating within
- ◆ Duck mode allows for external input of microphone signal via Gate Key Input

DC-22 2-Channel Dynamic Controller



The DC-22 is an easy to use, dual-channel, dynamic controller that combines high

quality VCA compression and gating with downward expansion. The Compressor section features a variable threshold ratio control capable of subtle dynamics control to peak limiting. The Expander/Gate musically attenuates signals below the set threshold level. This in contrast to a Gate only which shuts off any signals below the threshold. The link switch allows the DC-22 to be used for true stereo or independent dual channel processing. Compatible with balanced and unbalanced equipment.

Expander/Gate

- ◆ The adjustable gate is a downward expander (a compressor working in reverse) with a variable threshold control and fixed ratio of 2:1. When the signal drops below the set threshold, the gate threshold indicator lights and the output level is reduced by 2 dB for every 1 dB the input signal level drop

Compressor

- ◆ The compressor features variable threshold and a ratio controls
- ◆ The ratio control is variable from 1:1 up to ∞ :1 to allow the compressor to be used for limiting applications including system protection and digital recording
- ◆ The ± 15 dB output level controls provide make-up gain lost due to compression

Inputs & Outputs

- ◆ Both XLR balanced and 1/4" TRS balanced/unbalanced inputs are provided
- ◆ An input gain switch, on the rear panel, allows you to connect professional (+4dBu) and consumer (-10dBv) equipment to the 1/4" TRS inputs
- ◆ XLR balanced and unbalanced 1/4" TS outputs connectors are also provided

DC-22 (RADC22):

Dual Mono/Stereo Compressor with Gating.....244.95

DC-24 (RADC24):

Dual Mono/Stereo Compressor with Gating and Crossovers.....448.95

DC-24 2-Channel Dynamic Controller with Built-in Crossover

The DC 24 is a two channel dynamics processor with independent expander/gate



and compressor functions as well as dedicated limiter circuits that provide overall system protection on top of the other dynamics controls. Unique to the DC 24 is its built-in 24 dB/octave Linkwitz-Riley crossover which allows the unit to operate as a two-way speaker dividing network or for multiband dynamics control of a single audio source. Both balanced XLR and balanced/unbalanced 1/4" TRS inputs and outputs are provided as well as a 1/4" TRS side-chain insert on each channel.

STEP-UP FEATURES FROM THE DC22:

Expander/Gate

- ◆ Features variable threshold as well as ratio controls allowing you to select the amount of downward expansion — higher ratios will provide greater attenuation to signals below the set threshold.
- ◆ The attack and release times of the compressor and expander/gate circuits use dedicated RMS-sensing ICs that automatically adjust to the program material:
 - If the input is mostly low frequency, the times are made more gradual and slowed
 - For more transient signals, the times are tightened

Crossover

- ◆ 24 dB/octave Linkwitz-Riley crossover with two operating modes:
 - Low-High crossover mode (1 In/2 Out) allows the DC24 to be used as a two-way speaker dividing network along with a fully featured expander/gate, compressor and limiter on each output

- Bandsplit combine mode (1 In/1 Out) provides multi-band dynamics processing by dividing a single channel of audio in two separate frequency ranges that can independently processed and then recombined into one channel

Limiter

- ◆ Bandsplit combine mode (1 In/1 Out) provides multi-band dynamics processing by dividing a single channel of audio in two separate frequency ranges that can independently processed and then recombined into one channel



GE 215 / GE 130

Dual Channel 2/3 Octave and Single Channel 1/3 Octave Graphic EQs

The 2RU GE 215 dual 15-band and GE130 single 30-band graphic equalizers each feature Rane's innovative constant-Q (constant bandwidth) design which guarantees that the bandwidth of each filter is narrow enough to prevent unwanted interaction between filters, yet wide enough to produce exactly the type of correction curve required to control even the most unusual acoustical environment. Each active filter band features a boost/cut range of +12/-15dB on rugged 45 mm filter slider controls. Additional front panel controls and indicators include an overall input level control, overload LED indicators as well as fail-safe hardwire bypass switches for each channel. The rear of the unit provides both active balanced XLR as well as Euroblock screw terminal inputs and outputs.



EQ Section

- ◆ Dual channel, 15-band and single channel 30-band graphic EQs — frequency bands located on standard ISO center frequencies
- ◆ Constant-Q filter design minimizes interactions between adjacent bands
- ◆ +12/-15 dB boost/cut range
- ◆ 45 mm filter slider controls with grounded center detents and dust dams

Additional Features

- ◆ Input level control and overload indicators for each channel
- ◆ Hard-wire bypass switches are provided for each channel allowing direct comparison between the equalized and non-equalized signal — these switches require no power to operate, and provide automatic bypass in case of power failure.
- ◆ Built-in infrasonic and ultrasonic filters eliminate low-end rumble and RFI
- ◆ Output relays provide a brief turn-on delay, eliminating power-up thumps
- ◆ 2 RU high and only 5" deep
- ◆ UL/CSA/CE and 100/120/230 VAC remote power supplies

GE 30 / GE 60

Single and Dual Channel 1/3 Octave Graphic EQs



Rane's top of the line GE 30 single-channel and GE 60 dual channel, 1/3 octave graphic EQs are ideal for the most demanding live sound reinforcement applications. They take the professional and robust GE 215 and 130 to the next level with added flexibility and advanced features. Both feature long throw 60mm high resolution slide controls on each filter band, sweepable high and low band-limiting filters as well as switch-selectable active balanced or transformer balanced XLR and screw terminal outputs that will ensure that any stubborn system ground problems

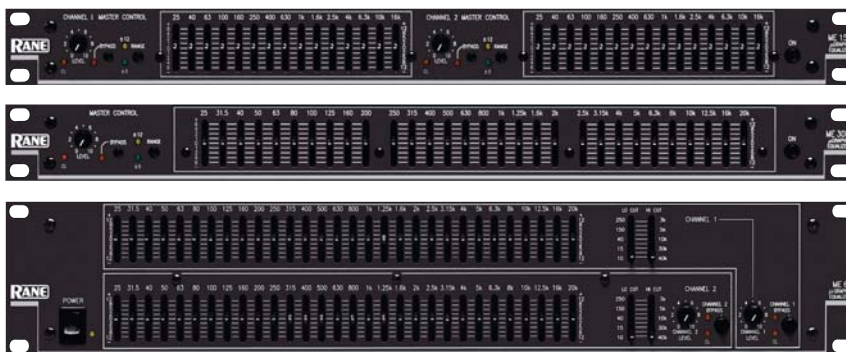
can be eliminated. Another important feature is the use of Interpolating Constant-Q filters, which allow you to equally boost or cut two adjacent frequency bands and achieve a frequency peaks (or dips) that are in between the center frequencies of the filters. The GE 30 also adds the ability to choose between of boost/cut or cut only operating modes.

ME 15B / ME 30B / ME 60

MicroGraphic Equalizers

Designed for people requiring the best equalizer value possible in the smallest space allowable. They offer the same high quality constant-Q performance as their long throw relatives, the GE's. No compromises or trade-offs exist in selecting the microGraphics — Only the slider throw is different. All circuitry, components and specifications are essentially identical. The microGraphic

series consists of three models — the ME 15B dual channel, 15-band 2/3-octave and the ME 30B, single channel 30-band 1/3-octave are housed in single space rack mount enclosures and feature a range switch that allows you to choose between $\pm 12\text{dB}$ and $\pm 6\text{dB}$ boost/cut. The ME 60 is a dual channel 30-band 1/3-octave model house in a two space rack mount chassis that inherits the Interpolating Constant-Q design of its big brothers the GE 30 and the GE 60.



- ◆ Constant-Q design minimizes interactions between adjacent bands eliminating the need to “equalize the equalizer”
- ◆ Compact 20mm sliders with dust dams detented and positively grounded at 0 dB
- ◆ Built-in infrasonic and ultrasonic filters eliminate low-end rumble and RFI

- ◆ The boost/cut range is switchable between $\pm 6\text{dB}$ and $\pm 12\text{dB}$. The $\pm 6\text{dB}$ mode offers the highest slider resolution while the $\pm 12\text{dB}$ mode provides a wider range of control over system audio (ME 15B and 30B only)
- ◆ Active balanced XLR and 1/4” TRS inputs and outputs

ME 60 Adds

- ◆ The same Interpolating Constant-Q design as the GE 30 and GE 60
- ◆ Sweepable High and Low Cut band limiting Filters
- ◆ Unbalanced RCA inputs and outputs

ME-15B (RAME15B)
308.95

ME-30B (RAME30B)
CALL

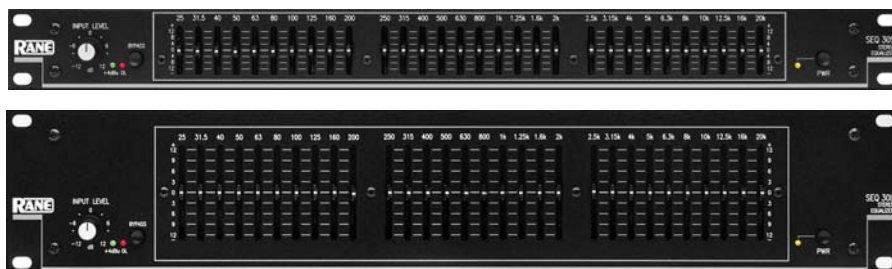
ME-60 (RAME60)
CALL

SEQ30S (RASEQ30S)
319.00

SEQ30L (RASEQ30L)
CALL

SEQ 30S / SEQ30L

Stereo Graphic Equalizers



The SEQ 30S and SEQ 30L are professional 30-band stereo graphic equalizers that use a single set of sliders to control the left and right channels simultaneously offering the ultimate in ease of use and stereo accuracy. Both units have exactly the same features and specs except that

the SEQ 30S is a single space rack unit with 20 mm short-throw sliders, and the SEQ 30L is a dual space rack unit and employs 45mm long-throw sliders. Basic features include $\pm 12\text{dB}$ boost/cut, input level controls, signal present and overload metering as well as XLR and 1/4” inputs and outputs.

SEQ 30S / SEQ30L

30-band 1/3 Octave Stereo Equalizers

- ◆ SEQ 30S uses short space-saving 20mm sliders while the SEQ 30L uses long and more precise 45 mm sliders — all other features are identical
- ◆ A single set of faders controls the left and right channels simultaneously, maintaining true stereo tracking
- ◆ Fills the void for true stereo applications while delivering precise equalization down to a fraction of a dB
- ◆ ± 12 dB input level control provided along with a bypass switch, enables easy gain comparisons between equalized and unequalized signals.

Inputs and Outputs

- ◆ Balanced XLR inputs and outputs are provided as well as balanced 1/4" TRS inputs and unbalanced 1/4" TS outputs
- ◆ The XLR and 1/4" TS outputs can be used simultaneously to drive two sources such as an amplifier and a recorder

Additional Features

- ◆ Internal power supply with low noise toroid output transformers that provides a wide 115 dB dynamic range
- ◆ +4dBu and overload indicators detect both input and post-EQ levels

AC 22 • AC 22B Active Crossovers

The Rane AC 22 and AC 22B are both active crossovers configurable for stereo 2-way

or mono 3-way operation using state-variable 4th-order Linkwitz-Riley filter alignments designed to minimize phase difficulties in the critical crossover regions. The model AC 22 utilizes 1/4" TRS connectors with balanced/unbalanced



inputs and unbalanced outputs while the AC 22B uses XLR connectors with active balanced inputs and outputs.

They both feature variable input and output level controls, band mute switches and user-adjustable time delay circuits to ensure proper mechanical phase alignment of adjacent drivers.

Crossover Features

- ◆ Two independent active crossover channels configurable as stereo 2-way or mono 3-way.
- ◆ State-variable 4th-order Linkwitz-Riley filter alignments with 24 dB per octave slopes are employed to minimize phase difficulties in the critical crossover region.
- ◆ Crossover frequencies are selected using a continuously variable control with 41 detents that provide mechanical reference of crossover settings.

Stereo 2-Way mode

- ◆ A mono sub mode switch allows you to disconnect the channel 2 low output jack and sum it with the channel 1 low output jack.

Band Limiting Filters

- ◆ Built-in 18dB/octave low cut filters at 20Hz virtually eliminates infrasonic rumble while providing overall system protection.

Time Delay (Correction) Circuits

- ◆ To ensure the mechanical and electrical phase alignment of adjacent drivers will be acoustically correct, adjustable time delay circuits are provided on the low (and mid when used in 3-way mode) outputs of each channel to compensate for any physical misalignment of the drivers.
- ◆ The low delay circuit can be internally "transplanted" to the high output when necessary.

Inputs and Outputs

- ◆ Both units features two inputs, to allow stereo operation and four outputs configured as dual low and high outputs in 2-way stereo mode or low, mid and high in 3-way mode.
- ◆ The AC 22 utilizes 1/4" TRS connectors with balanced/unbalanced inputs and unbalanced outputs.
- ◆ The AC 22B uses XLR connectors with active balanced inputs and outputs.

Automatic 2-Way/3-Way Configuration

- ◆ Both units are smart enough to know whether you want to run a 2-way stereo, or a single channel 3-way system by the way the plugs are inserted and how your system is to be configured — plugging a signal into the channel 1 input and nothing into the channel 2 input tells the unit that you are running a single channel system in mono 3-way mode, and therefore sets the unit up to be a single channel device.

Additional Features

- ◆ An internal CD horn equalization modification is possible allowing a constant directivity horn to cover the same area as a long throw horn. This modification should be made by an experienced technician.

AC 23 / AC 23B

Active Crossovers

The Rane AC 23 and AC 23B

active crossovers offer the identical features and specs as

the AC 22 and AC 22B but with the ability to be configured for stereo 2- or 3-way, or mono 4- or 5-way operation. The AC 23, like the AC 22 is available with 1/4" TRS balanced/unbalanced inputs and 1/4" TS unbalanced outputs while the AC 23B is

provided with XLR connectors with active balanced inputs and outputs.



SAC 22 / SAC 23

Stereo 2-Way and Stereo 3-Way Crossovers

The SAC 22 and SAC 23 employ the same state-variable 4th-order Linkwitz-Riley filters with steep 24dB per octave rolloff slopes, as the AC 22 and AC 23 ensuring identical phase characteristics on its low pass and high

pass outputs. The SAC 22 utilizes a single 31-position precision DC control voltage potentiometer to simultaneously select the low and high frequency points while the SAC 23 uses two 31-position controls divided between low/mid and mid/high crossover regions. This crossover circuit design provides a smart and easy way to biamp or triamp your audio system while at the same time ensuring consistent accuracy from channel-to-channel and unit-to-unit that provides a distinct

advantage over continuously variable designs using ganged potentiometers which can yield large variations in channel-to-channel matching. Both units also feature active balanced XLR inputs and outputs.



Crossover Features

- ◆ 31-position detented stereo crossover controls provide the simplest way to biamp (SAC 22) or triamp (SAC 23) your system
- ◆ Same 4th order Linkwitz-Riley crossover design as the AC22/23
- ◆ An input level control allows decreasing the overall sensitivity of the entire sound system, including the mono subwoofer if one is used
- ◆ Separate low, high and mono subwoofer output level controls allow compensation for sensitivity variations in amplifiers and drivers

Inputs and Outputs

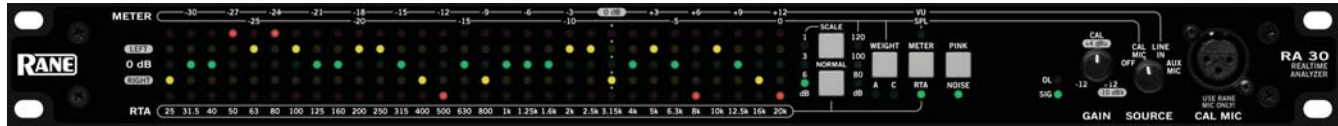
- ◆ Separate balanced XLR connectors are provided for the left and right inputs as well as the stereo low and high outputs. Additional left and right XLRs are provided for the mid outputs of the SAC 23

Subwoofer Output

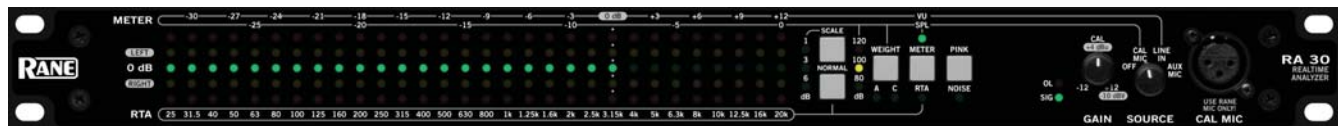
- ◆ The mono subwoofer out, with switchable 100Hz LP Filter, provides a separate mono sum of the left and right low outputs.
- ◆ The subwoofer output may be used along with the left and right low outputs

RA 30

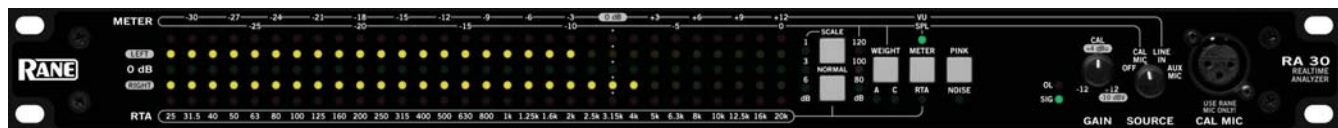
30-Band Multi-Function Realtime Analyzer



Real Time Analyzer Mode



Sound Pressure Level Mode



Stereo VU Mode

The Rane RA 30 Realtime Analyzer is a single rack space unit providing 30 bands of realtime frequency/amplitude information in a 5-LED per band format. The RA 30 serves three functions: Realtime Analyzer with Pink Noise generator, SPL Meter and Stereo VU Meter with Peak Hold.

RTA Mode

- ◆ RTA (Real Time Analyzer) Mode lets you visually judge the character of the signal being generated by the built-in Pink Noise generator (or any sound) using the included measurement mic. You can then adjust an external 1/3-octave EQ for the optimum response of a sound system based on the readings presented by the LED display.
- ◆ RTA mode divides broadband signals applied to either the mic or line inputs into 1/3-octave increments using IEC 61260 Class 2 filters. The outputs of the filters are displayed on the front panel to visually indicate the amplitude of each band, in user-selectable 1, 3 or 6 dB per LED scales.
- ◆ A Normalize button sets the 0 dB reference to the maximum band level.

SPL Meter Mode

- ◆ Accurately displays SPL (Sound Pressure Level) readings from a minimum of 51dBA to a maximum of 120dBA.
- ◆ In SPL Meter Mode, the display is read horizontally and calibrated to a 1dB resolution using the included calibration mic which auto ranges for maximized operation.

Stereo VU Meter Mode

- ◆ Stereo VU mode is automatically enabled when the Line input source is selected
- ◆ Levels are displayed as two horizontal rows of yellow LEDs with a 1.5dB resolution: The top row corresponds to the Left Input, and the bottom row corresponds to the Right Input. Levels above +3 dB on the VU scale switch to the red LED rows.
- ◆ The VU can be calibrated to accommodate +4 dBu or -10dBV signals.
- ◆ An instantaneous Peak Hold function with a 2-second hold time is also provided using a single LED display for each channel.
- ◆ Peak Hold is enabled or disabled by pressing the NORM button.
- ◆ If the held peak value is greater than +12dB on the VU scale, the +12dB LEDs stay illuminated. In this case, the Input gain can be decreased until the peak value is not "stuck" at +12dB. For a calibrated peak measurement, the input gain can be set to minimum, which sets the 0dB mark on the VU scale to +16dBu.

MIC 2 Condenser Microphone

A professional quality back-electret condenser microphone with an omnidirectional pickup pattern. This microphone is supplied with each RA 30, and connects to the front panel Mic Input jack only. The tapered aluminum mic housing fits most mic stand clips (one is included), and comes complete with a 25' cable to facilitate distant placement of the mic from the analyzer. These factory tested mics are flat to within 1dB from 20Hz to 16kHz. An Aux Mic Input is provided on the rear panel, facilitating the use of other microphones.



Rear Panel

- ◆ Pink Noise Output jack with a recessed Pink Noise Level adjustment
- ◆ Aux Mic Input (XLR)
- ◆ Stereo Line Inputs (1/4" balanced, can operate in mono by using the left input only).

S•COM / S•COM PLUS

Stereo Compressor / Limiters

The S•com is a dual-channel, single rack space stereo compressor designed to control signal levels in a variety of applications. It's logical design and layout make it simple to understand and easy to use. Sonic integrity offers clean, distortion free

audio, and a predictable, usable range of control from undetectable to clearly identifiable. Each channel combines an Expander/Gate, a Compressor/Limiter and a fully adjustable Enhancer. This unique circuit reduces noise, increases loudness and recovers high frequencies that might otherwise be compromised when audio is heavily compressed. The Spectra switch adds a mid-band boost to the detector circuit to help smooth out harsh vocals.

The S•com PLUS has basically the same features, but also offers a variable de-esser to improve audio quality by removing "S" from vocals and sibilance from overly bright sources such as cymbals. Both include a three-year extended warranty.



FEATURES

Expander/Gate

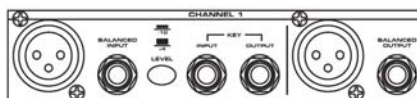
- ◆ The Expander/Gate features a variable Threshold control and switchable (fast/slow) Release time.
- ◆ Twin (open and closed) LEDs provide visual confirmation of the gate's operation

Compressor / Limiter

- ◆ Compressor/Limiter controls include variable threshold, ratio, attack, release and output level.
- ◆ Switchable AEG (Auto Envelope Generator) function continuously analyzes the audio input, and automatically adjusts the attack and release times based on the changing level.
- ◆ EFR (Enhanced Frequency Recovery) circuit helps restore high frequency content that can be lost when high gain reduction is applied.
- ◆ The SKD (Smart Knee Detector) automatically chooses between hard or soft knee compression curve—based on the program material. A hard knee curve activates the compression circuit only when the audio signal exceeds the threshold vs. a soft knee curve which gradually increases the compression ratio until the threshold is met.

Metering

- ◆ 12-segment LED meter is provided for Gain Reduction levels.
- ◆ Another 12-segment LED meter can be switched to display input or output levels.



Inputs and Outputs

- ◆ Servo balanced inputs and outputs on XLR and 1/4" connectors with switchable +4 and -10 operating levels.
- ◆ 1/4" key inputs and outputs

Additional Features

- ◆ A Key input switch, allows you to use an external audio source to control processing. For example, the signal from a kick drum trigger the amount of compression applied to a bass or you can use an EQ to specify which frequencies should be used to control dynamics.
- ◆ A link switch allows true stereo operation with channel one controlling the processing of both channels.

S•COM Only

- ◆ A Key Listen feature allows you to audition the Key input signal.
- ◆ An Enhancer level control allows you to adjust the amount of Enhanced Frequency Recovery being applied to the signal
- ◆ In lieu of a dedicated de-esser, a switchable Spectra circuit allows you to add a mid-band boost to the detector circuit to tame sibilant vocals

S•COM PLUS Only

- ◆ A switchable de-esser circuit with variable level control, helps you tame harsh and sibilant vocals. A five segment LED meter shows you the amount of high frequency gain reduction being applied to the signal
- ◆ A dedicated Peak Limiter ensures that output levels do not exceed the desired threshold level. Ideal for speaker protection in your PA rig and for recording and mixdown, especially to digital devices. An LED lets you know when the threshold level has been exceeded and the Limiter circuit is activated.

S•COM 4 / S•GATE 4

Four Channel Dynamics Processors

Compact and versatile, the single-rack space S•Com 4 and S•Gate 4 each four channels of high quality dynamics processing at an affordable price. The S•Com 4 features an Expander/Gate and Compressor/Limiter on each channel while the S•Gate 4 features an Expander/Gate/Ducker on each channel. Both units feature balanced XLR and 1/4" inputs and outputs and have a link function that allows you to configure each unit to work as dual stereo processors.



S•COM 4

- ◆ 4 Channel Compressor/Limiter, Expander/Gate with Enhancer
- ◆ Individual Threshold and Ratio controls on each channel
- ◆ SKD (Smart Knee Detector) circuit automatically switches from soft to hard knee based on the level of input signal applied
- ◆ EFR (Enhanced Frequency Recovery) circuit helps restore high frequency content that can be lost when high gain reduction is applied.
- ◆ Expander/Gate circuit with variable Trigger control and switchable Fast/Slow Release
- ◆ 5-Segment LED meters provided for input/output levels and Gain Reduction on each channel

Samson's S•Class processors represent a new perspective on professional-level audio processing. Elegant and powerful, they combine proven circuitry, innovative features and ease-of-use in beautifully crafted cabinets.

Both Feature:

- ◆ Linkable in two stereo pairs. This allows the settings on channels 1 and 3 to control the processing of channels 2 and 4.
- ◆ Advanced circuit design utilizing low noise operational amps and high quality VCA's
- ◆ Servo balanced inputs/outputs on XLR and 1/4" connectors with switchable +4/-10 operating levels.
- ◆ Three-year extended warranty

S•Gate 4

- ◆ Four channel Expander/Gate/Ducker
- ◆ Each of the gate channels has variable Threshold, Attack, Release, and Range controls
- ◆ Variable High and Low Pass Filters, on each channel, allow frequency selective triggering
- ◆ Ducker feature allows you to automatically attenuate (as opposed to gate) the signal of a channel or stereo pair.
- ◆ Ducking can also be triggered by an external audio source using the 1/4" Key Input. A Key Listen switch lets you monitor the key input signal.
- ◆ 8-segment LED meter lets you monitor the amount of Gain Reduction on each channel

RDL ST-CL2 Stick-On Series Compressor/Limiter

The ST-CL2 is a miniature wall and surface mount, high performance compressor/limiter from RDL, designed to maintain a constant average output level and effective peak control over a wide range of input levels. The input and output are line level and each may be wired balanced or unbalanced.

Trimmers provide adjustment for all usual professional and consumer audio input and output levels. Internal detectors feed three timing circuits. The threshold level and slope of each timing circuit are incremented to respond sequentially to signals of varying amplitude and energy levels.

The ST-CL2 features a soft-knee compression threshold and compression ratio which automatically adjusts to the program material. Two LED indicators cover the incremental ranges of compression, making setting of the input level quick and easy. Two ST-CL2s may be strapped together for stereo operation by connecting the coupling terminals between the two modules.



ST-CL2 Stick-On Series Compressor/Limiter (RDSTCL2).....147.50

S•CURVE 215 / S•CURVE 131 / S•CURVE 231

Designed and built for professionals, S•Curve EQs feature easy to read LED displays and the extra features professionals need. S•Curve EQs are also exceptionally quiet, in fact up to 15dB lower than comparable EQs. Three models available, the S•Curve 215 is a great, multi-purpose EQ packed with features and easy-to-read lighted display. The S•Curve 131 is for pros looking for a full 31-band EQ, while the S•Curve 231 is a totally comprehensive, feature-rich dual 31-band EQ for the most demanding applications. They all feature Constant Q circuitry, balanced XLR and 1/4" TRS inputs and outputs, LED faders and LED bar VU meters, boost/cut and cut only modes, and a bypass switch.



S•Curve 215 Dual 15-Band Graphic EQ

- ◆ 2/3 octave 15-band stereo graphic equalizer
- ◆ High pass filter
- ◆ Single rack space chassis with aluminum extrusion face plate

S•Curve 131 Dual 15-Band Graphic EQ

- ◆ 1/3 octave 31-band graphic equalizer
- ◆ Variable Low cut filter
- ◆ Single rack space chassis with aluminum extrusion face plate

S•Curve 231

Dual 31-Band Graphic EQ

- ◆ 1/3 octave 31-band stereo graphic equalizer
- ◆ Switchable $\pm 6\text{dB}$ or $\pm 12\text{dB}$ filters
- ◆ Variable Low and High cut filters
- ◆ Double rack space chassis with aluminum extrusion face plate
- ◆ Subwoofer output

S•3-Way Stereo/Mono Crossover



The S•3-way is a versatile 2-way, 3-way and 4-way crossover with a difference. First, it's a perfect 2-way or 3-way stereo crossover. But its

mode is also switchable for use as a 4-way mono crossover. Both feature 2ms of delay for time alignment, Mute and Phases switches for each output and XLR balanced outputs.

- ◆ Full-featured, Stereo 3-way, Mono 4-way electronic crossover
- ◆ The input gain features $\pm 12\text{dB}$ range with LED metering and Peak indicators.
- ◆ The first crossover point is sweepable in three ranges from 35Hz to 800Hz, from 350Hz to 8kHz with the 10x-Multiplier switch engaged, or from 16Hz to 400Hz in 4-way low-mode.
- ◆ The second crossover point is sweepable from 175Hz to 4kHz or from 350Hz to 8kHz depending on the setting of the mode switch.
- ◆ A Delay section with up to 2ms of delay to time-align low frequency outputs for improved phase response of any PA system
- ◆ Low, Mid and High Frequency outputs with $\pm 6\text{dB}$ of gain control.
- ◆ Each output incorporates a Mute switch for monitoring the individual frequency bands and a phase switch to invert the polarity of the output.
- ◆ High-quality 41-position detent pots and backlit switches
- ◆ The global section features a variable threshold Limiter, a CD function (for constant directivity horns) and High Pass Filter.

S•CLASS MINI PROCESSORS

The S•Class Mini processors offer advanced signal processing in incredibly durable, portable enclosures. Very affordable, the S•Class Minis are perfect for home, on the road, or as a quick fix to a house sound system.

Eight processors in the series, they include the S•Direct DI box, S•Monitor for personal monitoring on stage or in the studio, S•Mix miniature 5-channel mixer, S•Amp four channel headphone amplifier, S•Convert for interfacing and level matching consumer and professional audio equipment, S•Combine a 2 to 1 mic combiner, and S•Split a 1-in 3-out mic splitter. Last, the S•Phantom is a 2-channel 48v phantom power supply with two balanced XLR mic inputs and two balanced XLR mic outputs and an AC adapter included.



S•Combine (SASCOMBINE)

2 to 1 mic combiner, this tiny box has two balanced-XLR mic inputs, one balanced-XLR mic output and includes an AC adapter.

S•Monitor (SASMONITOR)

A lightweight personal headphone monitoring solution with an XLR microphone input and a 1/4" stereo mix input, an XLR Thru/Out mic send back to the console, and a 1/4" Mix Thru for daisy-chaining additional units. Additionally, it has two 1/4" headphone outputs, and individual volume knobs for both Mic and Mix control. Includes 12v AC adapter.

S•Split (SASSPLIT)

1-in 3-out mic splitter with one balanced XLR mic input and three balanced XLR mic outputs. Transformer isolated output for clean signal. AC adapter included.

S•Direct (SASCOMBINE)

A rugged and sturdy direct box that is ideal for stage and studio. The S•Direct features a switchable input level that handles instrument and speaker levels, switchable ground lift switch, gold-plated balanced XLR output and a 1/4" link output for stereo using 2 boxes. 48v phantom power or 9v operation with auto battery shut off**29.00**

S•Convert (SASCONVERT)

The S•Convert is a bi-directional level matching and interfacing device for consumer and professional audio products. The unit allows for the conversion of stereo -10 dBv (RCA) signals, which are typically output from consumer grade CD players and cassette recorders, to the +4 dBu (XLR) signals associated with professional mixing consoles, outboard effects processors, and recorders.

S•Mix (SASMIX)

A miniature 5-channel mixer with an XLR balanced mic input with volume control, stereo 1/4" and RCA inputs with volume control, and RCA and 1/4" stereo outputs. A 12v AC adapter is included.

S•Amp (SASAMP)

Ideal for home recording, the S•Amp is a low-cost, portable, 4-channel headphone amplifier that features individual output volume control knobs, 1/4" stereo input and outputs connectors. It includes a 12v AC adapter.

S•Phantom (SASPHANTOM)

An in-the-field, on-location solution, the S•Phantom is a 2-channel 48-volt phantom power supply with two balanced XLR mic inputs and two balanced XLR mic outputs. It includes an AC adapter.

422 Stereo AGC-Leveler

Audio comes in all shapes and sizes. There's loud audio, quiet audio, pretty audio and ugly audio. There's



music and speech. There are CD's mastered at drastically different levels. There are movie sound tracks where the effects are too loud and the dialog so soft you can't understand the words. To free yourself from unpredictable audio program levels, you need the 422 Stereo AGC/Leveler. With simple and intuitive controls, the 422 converts "all over the map" signal levels into smooth, intelligible, constant level audio. Unlike a compressor/limiter which only does half a job—it pushes down from the top, preventing overload and distortion in subsequent stages, but does nothing from the bottom (the low level signals that contribute so much to the intelligibility of speech and the enjoyment of music)—the 422 Stereo AGC-Leveler does it all. It makes the loud sounds quieter and the quiet sounds louder. And it does it with finesse. The 422 works without the side effects of compressors and limiters—no noise, pumping, and modulation.

The 422 is a remarkably sophisticated volume controller that is amazingly easy to use, because there are basically only four controls:

- The first and most important is the target level control. This sets the volume where you want it. The 422's input over output parallel VU meters simultaneously show you the unmodified input signal on top and the result of your target level setting just below it.
- The detector control increases the sensitivity of the AGC. As you turn it counterclockwise the 422 gently reaches down for the lower volume audio and brings it up.
- Set the target level and detector, then use the ratio control to increase or decrease the amount of leveling. At high ratios the program density increase results in a more "present" or "up front" sound. At low ratios the 422 performs subtle, yet effective, automatic gain riding.
- Last, adjust the peak limit control to create an absolute ceiling level. Great for protecting amps and speakers in discos where DJ's often succumb to a disease known as "volume creep" as the night wears on.

528E Voice Processor (Channel Strip)



A complete, self-contained voice processor with six separate functions: mic preamp, de-essing, compression/

limiting, downward expansion, parametric EQ, and voice symmetry alignment. All six processors may be used simultaneously. Although the 528E is called a "Voice Processor", it is perfectly suitable for any signal, vocal or not. Each function features a full complement of controls in an easy-to-use layout. Separate LED meters monitor mic gain and dynamics gain reduction functions thus facilitating quick and accurate adjustment of controls. Works with any mic (or line input), enhancing vocal intelligibility, increases perceived loudness and "presence". Great for voices. Ideal for broadcast mics, voice-overs and music recording, and sound reinforcement for PA/Paging systems.

Mic Preamp

Variable gain up to 60dB and 48v phantom power. Switchable 15dB pad prevents distortion when close miking. Mic and line inputs are balanced-transformerless XLR and equipped with filters to prevent RFI.

De-esser

Program controlled high-cut filter, 12dB per octave senses and regulates selectable high frequencies to reduce or eliminate annoying sibilance and "lip smacking". Controls are frequency and range (800Hz to 8000Hz).

Voice Symmetry

Corrects for excessive positive or negative signal peaks of the human voice. A simple in/out switch controls voice symmetry.

Compressor and Expander

Compressor maintains uniform levels while the downward expander eliminates "breathing", and noise build up. And because it's program controlled, the 528E's dynamic range processor responds quickly to transients, and gently to smaller level changes. Controls are expand and compress threshold (-30 to 0dBu) and compression/limiter ratio (1:1 to 10:1).

3-Band EQ

3-band— 16 to 500Hz (Low), 160 to 6300Hz (Mid) 680Hz to 22kHz (High) parametric EQ has a variable bandwidth from .3 to 4 octaves, 15dB boost/cut, and overlapping frequency ranges.

Metering

- ◆ Type: Multi-segment LED bar graph
- ◆ Output Level: -20 to +3 VU (0 VU = +4 dBu), VU calibrated, peak responding
- ◆ Gain Reduction: separate displays for de-esser, downward expander, compressor

322

DSP Engine

The 322 DSP Engine is an affordable, all-in-one, 24-bit digital signal processor with stereo I/O, built into a compact, half-rack space chassis. It combines all of the processing needs for a small sound system including 16 bands of parametric EQ, compressor / limiter/ AGC, speaker alignment delay, high low and shelving filters, two-way crossover, small speaker EQ, as well as a gate with side chain filters.

Programming of the 322 is made simple: with a Windows-based PC connected to the 322's front panel RS-232 port, you can control the 322's parameters using Symetrix's 322 Designer software as well as a drag and drop setup facility that allows you to drag processing blocks to the desired location in the signal chain. Using RS-232 for controlling the 322 has the added oadvantage of making the unit tamper-proof. Routing capabilities include the ability to sum two signals down to one or split a signal along two signal paths. There is also a built-in pink noise generator to help facilitate proper room and speaker tuning. The 322 features two inputs and outputs as well as a remote control port that can control up to four parameters — all available via Euroblock connectors.



TAPCO

TWEEQ T-231 Dual Channel 1/3 Octave Graphic EQ



Tweeq T-231 is a dual channel, rugged, two rack space, 31-band, 1/3 octave graphic equalizer. The high precision, 20mm EQ sliders are switchable to provide a boost / cut range of either $\pm 6\text{dB}$ or $\pm 12\text{dB}$. Each of the two channels

also offer switchable high and low pass filters, at 40Hz and 16kHz respectively, a bypass switch, signal clip indicators, output gain control sliders. The balanced XLR and 1/4" TRS connectors and unbalanced RCA inputs and outputs ensure that the Tweeq can intergate into any application regardless of whether the system is using professional or consumer level gear.

Squeeze SQ-2 Two Channel Compressor / Gate

Squeeze is a musical sounding, two-channel compressor/gate with a unique adjustable "Air" filter designed to the natural high-end of classic studio compressors.



Squeeze's two indentical channels each feature variable threshold controls for gating and compression. The compression section features variable ratio and output makeup gain controls as well as an attack and release section that can be switched for manual or automatic control. The compression circuit features auto soft/hard knee curves that adjust to the compression setting. Each channel also features a channel In/Out switch with status indicator, and precision 8-segment gain reduction metering. Balanced XLR and 1/4" TRS inputs and outputs as well as 1/4" TRS side chain inputs. The 1/4" connections accept both balanced and unbalanced signals. Squeeze's compression and gating capabilites are ideal for individual signal control of microphones or line source material or for use on the main stereo bus to limit and noise supress an entire mix.