

## QUICK START

We know you know how to use an equalizer. Just read this section for the unique things to be aware of in the DEQ 60L.

We know you know how to use a realtime analyzer, but using **PERFECT-Q** mode will make that job a lot easier. Since there is no interaction between filters, the multiple adjustments through all the bands just to get the analyzer to read flat is a thing of the past. One pass should do the trick. Then use the **TONE** controls or **CUT FILTERS** for general sweetening. We know your sound is important and your time is valuable.

If you want to compare the sound of your old (non-Rane) EQ to this one, and you are used to the way the slider bands interact, then use **PROPORTIONAL-Q** mode.

Activating the **CUT-ONLY** switch puts both equalizer channels in the high resolution **CUT 0 to -12 dB** (gray number scale). To prevent unwanted sudden volume shifts when switched, the outputs mute for a moment, then slowly increases in volume.

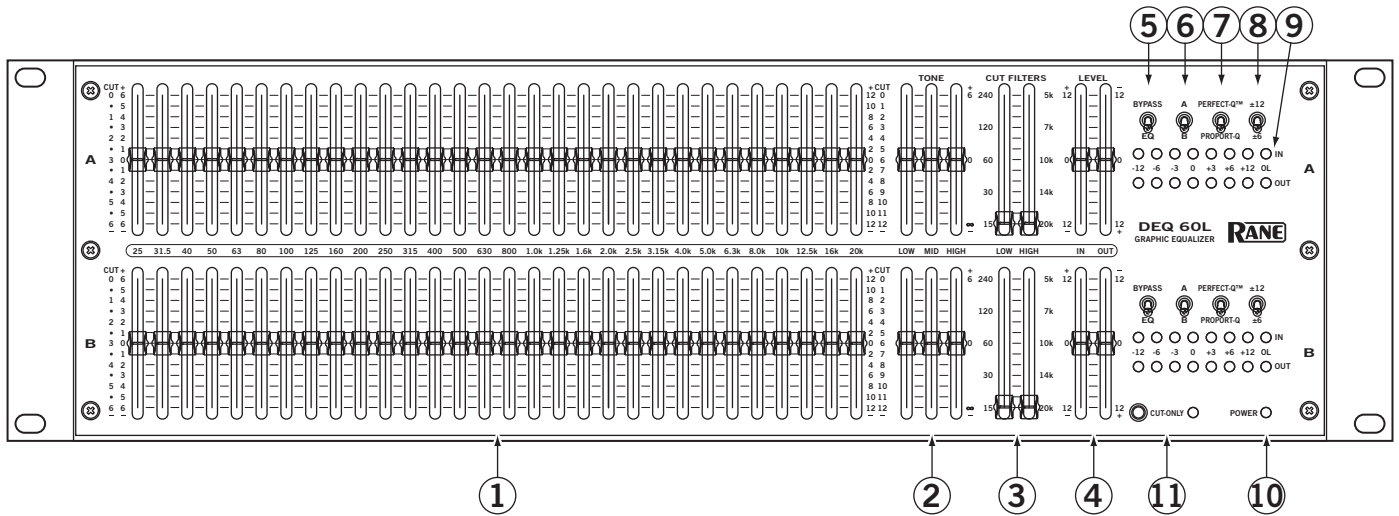
The **A** and **B** switches are like memories or control assigns. Normal stereo use would set the top row **A** (Left), and the bottom row to **B** (Right). But if you are running in stereo, and both

sides use the same EQ curve, you can set both switches to **A**. Now the top EQ curve controls both left and right channels. Switching these to **B** will use the bottom EQ curve for both channels. This is great for switching EQ when a source changes. Just be aware of where these switches are, an unassigned EQ row will have no audible effect. These switches also affect the **CUT FILTERS**, **TONE CONTROLS**, and **LEVELS**.

The channel **BYPASS** switches have two modes, set by the rear panel switch. When set to **FILTERS**, the **BYPASS** switch only bypasses the **EQ**, **TONE** and **CUT FILTERS**. The **LEVEL** controls and other switches remain active. When set to **ALL**, the **BYPASS** switches ignore everything *including* the **LEVEL** controls.

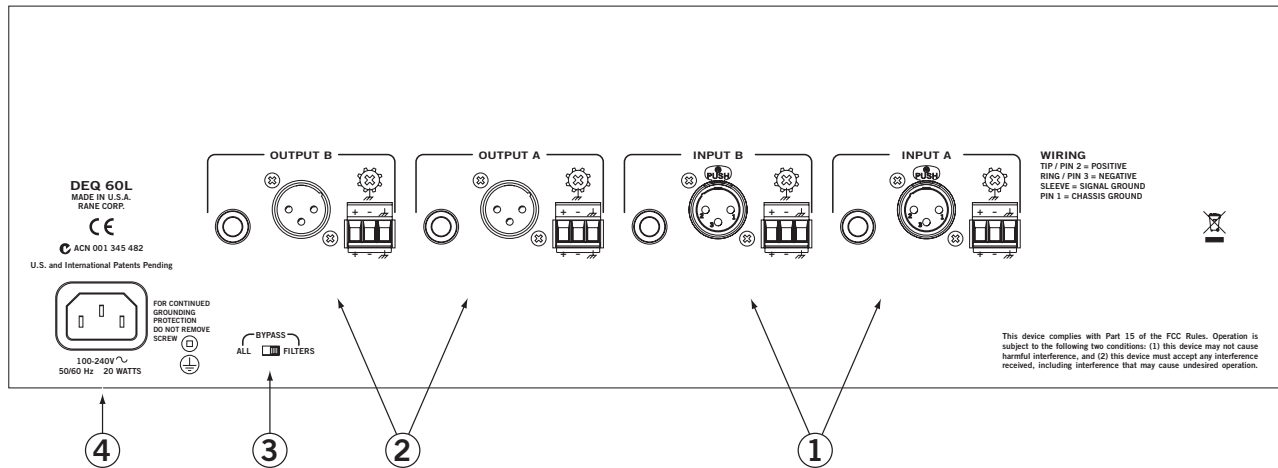
You have several connector choices on the rear. However, use only *ONE* type of **INPUT** on each channel. *These Inputs do not sum*. But you may use any combination of **OUTPUTS** simultaneously if desired. Polarity convention on the XLR jacks is pin 2 positive, pin 3 negative and pin 1 shield (chassis ground).

# FRONT PANEL DESCRIPTION



- ① **Graphic EQ controls:** Thirty bands are provided for each channel. Each EQ slider has a resolution of 256 steps. The center detent position guarantees a flat response. Slide control travel is 45mm with easy-to-read soft-touch handles.
- ② **LOW, MID, and HIGH TONE controls:** Independent, *Accelerated-slope™*, 3-band **TONE** controls allow easy, intuitive adjustment of tone response without the hassle of adjusting 30 bands. The **TONE** controls use 12 dB per octave Linkwitz-Riley filters. The Low/Mid crossover point is 300 Hz. The Mid/High crossover point is 4 kHz. As with the EQ sliders, center detent provides a guaranteed flat response. The range of control is +6 dB to *off*. Control resolution is 256 steps.
- ③ **LOW CUT and HIGH CUT FILTERS:** The **LOW** Cut Filter is adjustable over four octaves in 64 steps with a frequency range of 15 Hz to 240 Hz. The **HIGH** Cut Filter is adjustable over two octaves in 64 steps from 5 kHz to 20 kHz.
- ④ **LEVEL controls** serve two purposes, when used with the Meters (⑨):
  - 1) Adjust the INPUT signal level to 0 dBu for good headroom and signal to noise.
  - 2) Compensate for changes in signal level due to filter boost/cut settings by adjusting the OUTPUT signal level to 0 dBu. The operation of the OUTPUT LEVEL control is reversed. Pushing the control up *reduces* gain. Pushing the control down *increases* the gain. This allows the user to easily adjust *sensitivity* without affecting the output signal level. Simply grasp both input and output controls and move together. The ranges of both controls is ±12 dB with a resolution of 256 steps.
- ⑤ **BYPASS switches** have two possible modes of operation. If the rear panel switch is set to BYPASS ALL, all filters and level controls are bypassed. If the rear panel switch is set to BYPASS FILTERS, only the filters are bypassed. Filters include EQ, TONE and CUT. Automatic relay bypass hardwires Inputs to Outputs in the event of a power failure.
- ⑥ **A / B switches** determine which set of controls is used by the A-channel or B-channel. Controls affected by the A / B switch are EQ, TONE, CUT FILTERS, LEVEL, Q switches and ±12 / ±6 dB switches. Bypass switches are not affected.
- ⑦ **PERFECT-Q™:** What you see is what you get. **PROPORTional-Q:** Classic smooth response. Most users will prefer the PERFECT-Q position. Some users may prefer the PROPORT-Q setting. See Graphic EQ Controls on page Manual-4.
- ⑧ **±12 / ±6 dB switch** changes the boost / cut of the Graphic EQ (①) for each channel. Use the ±6 dB unless you really need ±12 dB, the resolution is better.
- ⑨ **Input and Output Meters** are peak responding and indicate the signal level in dBu. Peak-dBu is held and displayed for 1.5 seconds. Attack is instantaneous. Decay is 500 ms for a 20 dB step.
- ⑩ When the **POWER indicator** is on, it indicates that power is turned on. This works with ④ on the Rear Panel (next page).
- ⑪ **CUT-ONLY** mode switch: when pressed in, as shown by the LED, sets the range of the EQ sliders **0 to -12 dB** (gray number scale). When the switch is actuated, the output audio is muted and slowly increased to prevent volume surprises.

## REAR PANEL DESCRIPTION



- ① **Channel A and B INPUTS:** Plug the outputs of the mixer or other source to these Inputs. *Choose between the XLR, the 1/4" TRS, or the Euroblock Input jack—use only one—they do not sum.*

Rane adheres to the international and U.S. standard for balanced pin configurations: Pin 1 is chassis ground (neutral), pin 2 is hot (positive), and pin 3 is signal return (negative).

Avoid the temptation to use unbalanced tip-sleeve 1/4" TS plugs, but if you must, keep them short as possible, 10 feet (3 meters) maximum. Long unbalanced cables invite hum, noise and other undesirables. Balanced TRS 1/4" are much better at rejecting noise.

The Euroblocks normally connect the cable shield to the ground terminal. For those installations where the internal shield-to-chassis connection causes interference, connect each shield directly to the chassis grounding screw located above each Euroblock connector, keeping the shield wrapped around the audio conductors as much as possible. For optimum Electromagnetic Interference (EMI) immunity, connect the shields at both ends of the cable to chassis ground.

See the RaneNote "Sound System Interconnection" for more information on system connections and proper grounding practices.

- ② **Channel A and B OUTPUTS:** Any Output can be used simultaneously with the others, take your pick. Same wiring as above... keep cables short, always wire balanced when possible, eat your vegetables, yadda yadda.
- ③ **BYPASS mode switch:** See ⑤ on the Front Panel, previous page.
- ④ **Power connector:** Uses the standard cord provided. Inside the DEQ 60L is a universal internal switching power supply that accepts 100 to 240 VAC at 50 to 60 Hz, allowing it to work in most countries.

## Feature

- 1) *Perfect-Q™*: What you see is what you get
- 2) Proportional-Q: Classic smooth response
- 3) Independent *Accelerated-Slope™* 3-band tone controls
- 4) Low-cut and High-cut filters
- 5) Input and Output level controls
- 6) Eight segment metering for each input and output
- 7) Two Boost / Cut ranges:  $\pm 6$  dB or  $\pm 12$  dB
- 8) Each audio channel may use A or B controls
- 9) Analog controls
- 10) XLR, TRS and Euroblock Phoenix connectors
- 11) Bypass switch (DSP)
- 12) Bypass relay (power failure)
- 13) Exceptional RF and Magnetic immunity
- 14) Universal switching power supply
- 15) Cut-Only mode

## Graphic EQ Controls

Control each of the thirty bands of EQ with high resolution, 256 step slide controls. The center detent position guarantees a flat response. *Perfect-Q™* filters guarantee accurate graphic response and **no** band interaction.

The elimination of band interaction means the DEQ filters are suitable for “ringing out a room” and capable of the very subtle adjustments required by the most demanding user. Unlike previous designs that act upon a bandwidth of up to one octave when cut 12 dB, *Perfect-Q* only affects the intended 1/3 octave. For the first time, the user is able to adjust a single 1/3 octave band with no affect on adjacent bands. The lack of band interaction guarantees slider settings accurately indicate frequency response.

For full details and comparisons to previous EQs, see “*Perfect-Q: The Next Step in EQ Design*” included with this manual.

## Benefit

- 1) **No** EQ filter interaction. Response matches slider settings.
- 2) Familiar response. Smooth tone contouring.
- 3) Adjust Tone response without moving a dozen EQ sliders.
- 4) Band limit for application: Voice, Music, Headphones, etc.
- 5) Optimize dynamic range. Match the level after the EQ.
- 6) Allows accurate use of the level controls.
- 7) Select control resolution and range for the application.
- 8) Stereo Linking; Two “analog memories”; A-curve / B-curve comparison.
- 9) Quick control access with one control, one function, no confusion.
- 10) Connector matches your cables.
- 11) EQ in/out compare. Bypass Filters only or bypass Filters and Level controls.
- 12) No pops on turn-on or turn-off. Passes signal when power is off.
- 13) Works in high RF environments. Works next to power amps.
- 14) Works virtually anywhere in the world.
- 15) Maximum level of precision.

## Control Surface

All graphics are screened on the reverse side of a durable Lexan surface. The graphics remain clear even after years of life on the road.

## Universal Switching Power Supply

The DEQ 60L operates on any AC mains from 100 VAC to 240 VAC, 50 Hz or 60 Hz. The line cord attaches to a standard IEC appliance inlet, shipped with each unit.

## Security

An optional 5.2" security cover is available as an accessory for the DEQ 60L.