APHEX SYSTEMS

Equalizer with Tubessence® Model 109

FEATURES

- Two operating modes; MONO 4 BAND (1 x 4) or DUAL 2 BAND (2 x 2).
- A true tube circuit (Tubessence) in the output stage for a “warm”, “sweet” and “rich” sound.
- Calibrated center detented Input and Boost/Cut potentiometers allow precise setting of unity gain.
- 15dB of Boost or Cut in each band.
- Peak / Shelf switch on each band.
- Use as a stand alone Tube Processor.
- Overlapping frequency controls allow adjustment from 20Hz to 20kHz
- 1/5 octave to 2 octave bandwidth adjustment.
- -10dBV / +4dBu switch for optimizing signal to noise performance for either operating level.

The Model 109 Equalizer with the exclusive Aphex **Tubessence**® circuit “sweetens” up your tracks while offering comprehensive tone control. The uniquely designed Model 109 can be either a MONO 4 BAND Equalizer or a DUAL 2 BAND Equalizer for both peak and shelving equalization of the entire audio spectrum; 20Hz to 20kHz. Each band provides variable boost/cut (±15dB), variable frequency (20Hz – 2kHz or 200Hz – 20kHz) and variable bandwidth (1/5 octave to 2 octaves) control. The Model 109 can be used for a combination of applications including gentle frequency response shaping and notching of specific frequencies, like 60Hz hum.

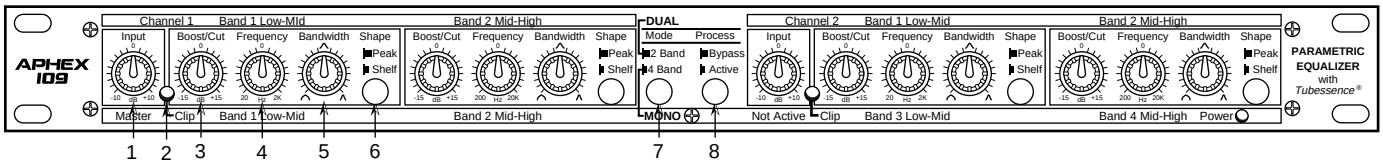
The Model 109 is the third Aphex product to incorporate the patented **Tubessence**® circuit which provides true vacuum tube circuitry and sound without transformers, high heat, short life, fragility, and sonic variability found in traditional tube designs. Due to the added “sweetness” of Tubessence, you will never hear an equalizer sound like the Model 109. Operating the unit in the EQ flat mode (calibrated center detent) allows the signal to pass through the Tubessence vacuum tube stage without any gain change, providing you with a great Tube Processor. This feature proves helpful for digital users who wish to “warm-up” their digital signals.

In a class by itself, the Model 109 has the flexibility to switch between MONO 4 BAND (1x4) and DUAL 2 BAND (2x2) operation. The Model 109 offers 4 band control when you really need to address complex equalization issues, yet it can also provide 2 channels of equalization (2 bands each) when more general equalization is required. For even more control, a switch is provided for selection of either peak/dip or shelving on all four bands!

APPLICATIONS

- RECORDING, MIXING AND MASTERING :
  Fine tune individual tracks, polish up the final two track mix or create special effects. Add sweetness to harsh digital recordings.
- SOUND REINFORCEMENT:
  Smooth out inconsistencies in the frequency response of house and stage monitors. Notch out feedback frequencies. Add additional EQ to your console’s channel and bus inserts.
- BROADCAST:
  Create a unique “station sound” for program material and commercials.
- COMMERCIAL SOUND:
  Improve system intelligibility and solve problems.
- MUSICIAN’ S RIGS:
  The ultimate equalizer for the professional guitar, bass and keyboard instrument rig.

Equalizer with Tubessence® Model 109



FRONT PANEL OPERATION

1. There are two INPUT controls with a range of -10dB to +10dB. Both INPUT controls are functional when the Model 109 is in the DUAL 2 BAND mode. Only the INPUT control on Channel 1 is functional in the MONO 4 BAND mode.

2. The CLIP LED illuminates when level reaches 3dB below clipping at any point in the signal path.

3. The BOOST/CUT control sets the amount of gain or attenuation at the frequency determined by the FREQUENCY control with a range of -15dB to +15dB for each band.

4. The FREQUENCY control determines the center frequency of the peak curve or the corner frequency of the shelf curve being produced within each band. Overlapping FREQUENCY controls cover the complete audio range from 20Hz to 20kHz.

5. The BANDWIDTH control determines the range of frequencies, or the shape of the curve, around the center frequency (defeated for shelf equalization). The BANDWIDTH control is continuously variable from 1/5 octave for notch filtering to 2 octaves for smooth tone shaping.

6. The SHAPE switch offers two positions. In PEAK, a specific frequency range on either side of the center frequency is applied gain or attenuation. In SHELF, a constant gain or attenuation is applied above or below the corner frequency, depending on the band.

7. The MODE switch determines whether the Model 109 will be used as a MONO 4 BAND equalizer or as a DUAL 2 BAND equalizer. In DUAL 2 BAND, there are 2 channels with two bands of EQ each. In MONO 4 BAND there is only 1 channel, offering a total of four bands of EQ.

8. The ACTIVE position of the PROCESS switch inserts the Model 109 into the audio path. Placing this switch in BYPASS initiates a hardwire bypass, sending the input directly to the output, passing audio even with no power to the 109.

GENERAL SPECIFICATIONS

NOMINAL OPERATING LEVEL (user selectable on back)	**+4dBu**	**-10dBV**
INPUT		
Connector:	TRS 1/4" (6.3mm) phone jack	same
Type:	Transformerless, differential servo balanced	same
Impedance: Balanced	15KΩ	same
Unbalanced	7.5kΩ	same
Nominal Level:	+4dBu	-10dBV (-7.8dBu)
Maximum Level:	+23dbu	+8.8dBV (+11dBu)
CMRR:	50dB typical	same
OUTPUT		
Connector:	TRS 1/4" (6.3mm) phone jack	same
Type:	Single-ended, impedance balanced* (may be used unbalanced)	unbalanced
Impedance: Balanced (SEIB*)	116Ω typical	N/A
Unbalanced	60Ω typical	200Ω typical
Nominal Level:	+4dBu	-10dBV (-7.8dBu)
Maximum Level:	+22dBu; +21dBm with R_L 600Ω	+7.7dBV (+9.9dBu)
AUDIO*		
Frequency Response (10 Hz - 30kHz):	± 0.1dB	same
Dynamic Range:	108dB	105dB
Hum and Noise (10Hz - 22kHz unweighted):	-86dBu	-95dBV (-92.8dBu)
Crosstalk (10Hz- 22kHz @ max. output):	-59dB	-56dB
THD :	<0.15% @ +10dBu	<0.15% @ - 4dBV
IMD:	<0.12% @ +10dBu	<0.12% @ - 4dBV

* All controls set for flat response

EQUALIZATION PARAMETERS	
Boost/Cut:	±15 dB
Frequency:	20Hz- 2kHz (Low-Mid Bands); 200Hz-20kHz (Mid-High Bands)
Bandwidth:	Nominally 1/5 octave to 2 octaves at full boost in Peaking mode (.66 <Q> 7.2)
Input Control Range:	± 10dB Nominal (both channels)
CONTROLS, FUNCTION SWITCHES AND METERING	
Controls:	Input, Boost/Cut, Frequency, Bandwidth
Switches:	Shape (Peak/Shelf) , Mode (Dual 2 Band, Mono 4 Band), Process (Active, Bypass)
Indicator:	Clip LED
OTHER SPECIFICATIONS	
Power Requirements:	Unit is powered by an external 24-volt, 600mA transformer (supplied with unit). Primary voltage, connectorization and agency listings of transformers supplied with units are appropriate for local power at points of destination.
Power Connector:	2.5 mm "barrel" connector, located on rear panel; fits mating connector on transformer (see above).
Power Consumption (maximum):	13 watts
Dimensions:	19" W x 1.75 " H x 5.75" overall depth, depth behind front panel: 4.5".
Net Weights:	Rack mount chassis 3 lbs.; external transformer 13.3 oz. (USA model)
Shipping Weight:	5 lbs.

APHEX SYSTEMS 11068 Randall Street • Sun Valley, CA 91352 • (818) 767-2929 • Fax (818) 767-2641

Aphex is proudly American...100% owned, engineered and manufactured in the U.S.A.