

# 7603 Mic/Line Pre-amplifier

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## User's Manual

## Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This apparatus shall not be exposed to dripping or splashing, and no object filled with liquids, such as vases or beer glasses, shall be placed on the apparatus.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.

Le symbole éclair avec point de flèche à l'intérieur d'un triangle équilatéral est utilisé pour alerter l'utilisateur de la présence à l'intérieur du coffret de "voltage dangereux" non isolé d'ampleur suffisante pour constituer un risque d'électrocution.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Le point d'exclamation à l'intérieur d'un triangle équilatéral est employé pour alerter les utilisateurs de la présence d'instructions importantes pour le fonctionnement et l'entretien (service) dans le livret d'instruction accompagnant l'appareil.

**Caution:** to reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside Refer servicing to qualified personnel

**Attention:** pour éviter les risques de choc électrique, ne pas enlever le couvercle. Aucun Entretien de pièces intérieures par l'utilisateur. Confier l'entretien au personnel qualifié.

**Avis:** pour éviter les risques d'incendie ou d'électrocution, n'exposez pas cet article à la pluie ou à l'humidité



At the end of its useful life, this product must be carefully and correctly disposed of, and not placed in with household waste. Please contact your local, state, or national services for information regarding the safe disposal of electronic equipment.

# Introduction



Congratulations on your purchase of a fine Chameleon Labs' 7603 microphone/line preamplifier. We hope that it gives you many years of reliable and high-quality service.

Your Model 7603 has a transformer-balanced input with a range between 20 dB and 70 dB of gain. The separate line input is also transformer balanced and accepts input levels from -30 to +20 dB. The equalizer section is a selectable 3-band design with a flexible filter section.

The Model 7603 has been carefully constructed and individually tested for quality. It utilizes pure class 'A' circuitry. This unit is made with 100% discrete components, with hand-wound transformers, and is fabricated to precisely match vintage counterparts manufactured in the early to mid 70's.

The Model 7603 is based on high audio performance design techniques. By employing classic circuit design, polystyrene capacitors, a gold contact gain selector and custom wound transformers, Chameleon Labs ensures that the Model 7603 will exhibit classic audio sound.

Your Model 7603 represents a dramatic breakthrough in delivering vintage audio performance at an affordable price.

## Features:

- Chameleon Microphone and Line Input Transformers w/ mumetal housings
- Hi-Z Front Panel Direct Instrument Input (TRS)
- Chameleon Output Transformer
- Discrete Class A Electronic Topology
- Variable gain, low noise output stage
- 48V Phantom Mic Power
- Input and Output Level Monitoring via VU Meter
- Selectable 300Ω or 1200Ω Mic Input Impedance
- Inductor Based Equalization and High Pass Circuit
- Universal on board power supply

## Front Panel Features

- Rack-mountable, one rack-space high, 19 inches wide
- Mic/Line Gain rotary detented selector switch
- High-pass-filter frequency selector
- Low EQ frequency and amplitude selectors
- Mid EQ frequency and amplitude selectors
- High EQ frequency and amplifier selectors
- Output level control
- Power ON/OFF switch
- 300Ω or 1200Ω Mic Input Impedance Selector
- 48V Phantom Power ON/OFF switch
- Mic/Line switch
- DI input ON/OFF switch
- EQ ON/OFF switch
- Phase 0/180 degree switch
- DI 1/4" TRS input
- LEDs for input and output overload
- Illuminated input/output meter with dB range switch

## Rear Panel Features

- AC Power Input and integral fuseholder
- XLR Microphone input
- XLR Line input
- XLR Output

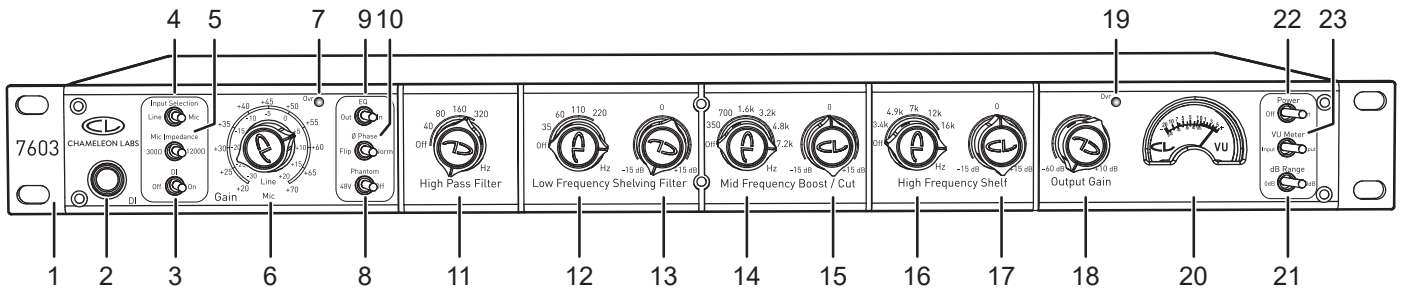
## Power Supply

- Internal universal power supply

## Limited Warranty

- One year

# Front Panel Features



## 1. Front Panel

This rack-mountable front panel is one rack-space high and 19 inches wide. Four mounting holes accept standard rack screws for securing the preamplifier in a rack.

## 2. DI Input

This high-impedance input can be used to connect an instrument directly to the 7603. Use the front panel DI switch (3) to turn on this input.

The ¼" TRS connector is wired with the TIP positive, the RING negative and the SLEEVE ground (shield).

## 3. DI on/off switch

Use this switch to turn the DI output on or off. Set it in the OFF position if you are not using the DI input.

## 4. Mic/Line switch

This switch allows you to select either the microphone input section, or line-level input section. The microphone and line inputs each have their own input connectors on the rear panel, and separate input transformers.

## 5. Mic Impedance switch

This switch allows you to select between an impedance of 300 Ω or 1.2 kΩ. Follow the advice from your microphone manufacturer.

## 6. Mic/Line Gain

This detented selector switch allows you to adjust either the gain of the microphone input section, or the gain of the line-level input section. The microphone and line inputs have their own input connectors on the rear panel, and separate input transformers. Use the Mic/Line selector switch (4) to select the input you would like to listen to.

## Microphone

The microphone gain is adjustable from +20 to +70 dB, in steps of 5 dB. Use the dB markings on the outer ring of the Gain control for setting the microphone level.

## Line

The line input gain is adjustable from -30 to +20 dB, in steps of 5 dB. Use the dB markings on the inner ring of the Gain control for setting the line level.


Adjust the gain carefully, so the input section is not too overloaded with a strong signal, and that weaker signals are boosted sufficiently. Have the gain set to minimum before turning on the preamplifier, then increase the gain as desired.

## 7. Ovr LED

This LED will light when the input levels are overloaded. Carefully adjust the Gain knob (6) so this LED does not come on during louder passages.

## 8. 48V switch

If your microphone requires 48 Volt Phantom Power, turn on this switch.

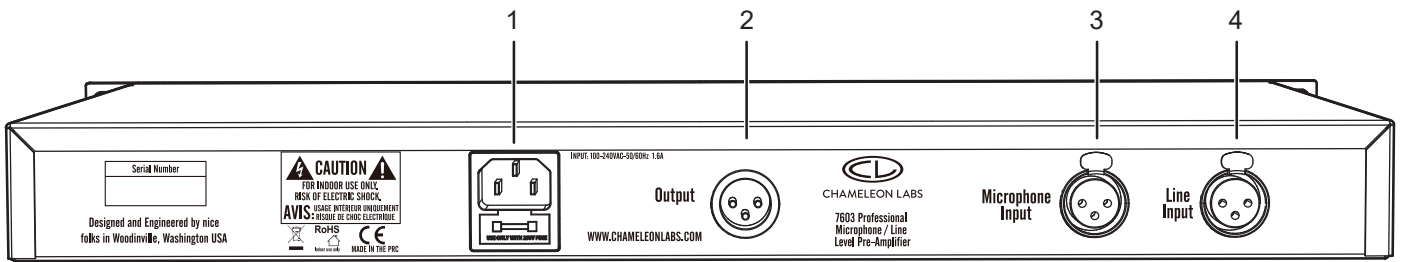
 **Caution:** Be very careful because some microphones can be damaged by Phantom Power. Read and follow the manufacturer's recommendations for your microphone before using this switch.

## 9. EQ ON/OFF switch

In the ON position, the signal EQ is adjustable using the EQ controls. In the OFF position, they have no effect and the EQ section is bypassed. This provides a quick way of comparing your EQ settings with the unaffected original signal.

10. **Phase Reversal**  
This allows you to change the signal phase by 180 degrees. This is useful when comparing the sound of your microphone or instrument within the mix. Imagine if a note is played, and the speaker cone is moving out. With the phase reversed, the speaker cone would instead be moving in at that moment.
11. **High-Pass filter**  
This detented selector switch allows you to select the frequency of the high pass filter. Signals below this frequency are attenuated with an 18 dB per octave slope. This filter is useful for removing low-frequency effects such as mic-handling and stage noise, rumble etc. The crossover frequency can be selected from OFF, 40, 80, 160, and 320 Hz. In the OFF position, the high-pass filter is bypassed and the low-frequencies are not affected.
12. **Low EQ frequency**  
This detented selector switch allows you to select the frequency of the low EQ shelving filter. Signals below this frequency are boosted or attenuated depending on the setting of the Low EQ amplitude control (13). The available frequency selections are 35, 60, 110, and 220 Hz. In the OFF position, the Low EQ is bypassed.
13. **Low EQ amplitude**  
This continuously-variable control allows you to boost or attenuate the level at the frequency set by the Low EQ frequency control (12). The level of adjustment is from -15 to +15 dB
14. **Mid EQ frequency**  
This detented selector switch allows you to select the frequency of the Mid EQ peaking filter. Signals around this frequency are boosted or attenuated depending on the setting of the Mid EQ amplitude control (15). The available frequency selections are 350, 700, 1.6k, 3.2k, 4.8k, and 7.2 kHz. In the OFF position, the Mid EQ is bypassed.
15. **Mid EQ amplitude**  
This continuously-variable control allows you to boost or attenuate the level at the frequency set by the Mid EQ frequency control (14). The level of adjustment is from -15 to +15 dB
16. **High EQ frequency**  
This detented selector switch allows you to select the frequency of the High EQ shelving filter. Signals above this frequency are boosted or attenuated depending on the setting of the High EQ amplitude control (17). The available frequency selections are 3.4k, 4.9k, 7k, 12k, and 16 kHz. In the OFF position, the High EQ is bypassed.
17. **High EQ amplitude**  
This continuously-variable control allows you to boost or attenuate the level at the frequency set by the High EQ frequency control (16). The level of adjustment is from -15 to +15 dB
18. **Output Gain**  
This continuously-variable control allows you to adjust the level of the output from -60 dB to +10 dB. Acting as a console fader, this control is placed after the gain stage and before the output stage. This allows for trimming of the input signal between the 5 dB steps of the input switch, as well as allowing the input to be intentionally overdriven. The normal position for this control is wide open.
19. **Ovr LED**  
This LED will light when the output levels are overloaded. Carefully adjust the Output Gain control (18) so this LED does not come on during louder passages.
20. **Meter**  
This precision VU meter shows either the input or output levels, depending upon the position of the input/output switch (23). Use the dB range switch (21) to select the meter sensitivity.
21. **dB Range**  
Use this to select the dB range of the meter from 0 dB or -20 dB.
22. **Power Switch**  
When all your connections to and from the preamplifier have been made, use this switch to turn the unit on or off.
23. **VU Meter switch**  
Use this to select if the meter shows the input signal level or the output signal level.

# Rear Panel Features



## 1. AC Power Input

The unit contains a universal power supply that will operate with AC mains voltages from 100 VAC to 240 VAC at 50/60 Hz.

Connect one end of the supplied AC power cord to this input, and the other end to an AC mains supply.

The AC input has its own integral fuseholder. Before changing or inspecting the AC fuse, turn off the unit and unplug the power cord from the AC mains supply. Use only the specified fuse. If the fuse is replaced and blows again, please contact your dealer for repair. DO NOT use a larger fuse.

## 2. Output

Connect this to the line-level input section of a mixer, or the line-level input of a power amplifier, or to other devices such as Analog to Digital converters etc.

This male XLR connector is wired with pin 2 HOT, pin 3 common, and pin 1 ground (shield).

## 3. Microphone input

Connect your microphone to this input. The preamplifier can supply 48V phantom power through this input to your microphone, if your microphone requires phantom power.

This female XLR connector is wired with pin 2 HOT, pin 3 common, and pin 1 ground (shield). The 48 VDC phantom power is supplied on pins 2 and 3.

## 4. Line input

Connect the output of your line-level device to this input, for example, the line-level output from a keyboard or a guitar preamplifier.

This female XLR connector is wired with pin 2 HOT, pin 3 common, and pin 1 ground (shield).



## Initial set up of the Model 7603

1. Select 40 dB on the Microphone / Line sensitivity control. Turn the Output control fully counter clockwise. Make certain that the DI, 48V, EQ and Phase switches are all off. Set the Mic/Line input selector to MIC.
2. Connect a microphone to the female XLR connector on the rear panel. If the microphone requires Phantom Power, switch the 48V on. Be very careful, as some microphones can be damaged by phantom power.
3. The normal position for the 300/1.2K impedance switch is 1.2K. This matches most professional microphones used today; if your microphone requires a lower impedance, you may toggle the switch to 300. You can toggle between the selections without damage to the microphone to determine which impedance performs better for your application.
4. Connect the rear panel Line Output male XLR connector, to the input XLR connector on your mixer, recorder, or digital audio workstation (DAW).  

(If you are sending to a device that does not have a gain control, use the Output control to adjust your signal so that your loudest signals just fail to reach the maximum input levels on your recording device.)
5. Turn the Output control clockwise until you can see level on the input of your recorder. Increase until the desired level is achieved.  

(Vintage Hint: Adjusting the Microphone/Line Gain control along with the Output control can provide a variety a different sounds by overdriving the amplifier circuits while lowering the final output level in order to not overdrive the recorder.)
6. If you wish to connect the equalizer section to the line output of your board or DAW, simply connect to the Line Input female XLR connector on the rear panel.
7. To insert the equalization section into the circuit, toggle the EQ switch. Each section can be set to OFF with the frequency selector knob. As you add or subtract gain within the equalizer, be sure to adjust your overall gain with the output control. When the output control can no longer make the adjustments that you need, you may switch to a higher or lower gain setting on the Microphone / Line Gain control.
8. When an electronic instrument such as an electric guitar is used, it may be plugged directly into the ¼" DI plug located on the front panel. Toggle the DI switch to select this input device.
9. If phase reversal is needed or you want to try its effect, toggle the phase switch (a zero symbol with a diagonal line through it).

# Technical Specifications

General Specifications	
Noise	Better than -125dBm EIN between -80 and -40 dBm referenced to 600Ω input impedance, SNR 116dB at maximum output
Output Type	Transformer balanced and floating to drive 600 Ω load
Maximum Output	+28 dBu into 600Ω load impedance
Frequency Response	10Hz - 20kHz -0.5 dB 10Hz - 50kHz -1 dB
Indicators	
Meter Light	Power ON
Red	Input Overload
Red	Output Overload
Internal Power Supply	
100 to 240 VAC (50/60 Hz)	Switch mode power supply, fully shielded Quiescent Consumption 0.5 Watts Peak Output 3 Amp
User Controlled Functions	
ON Switch	Turn Pre Amp ON - VU meter light on
300Ω / 1200Ω Switch	Switch between 300Ω and 1200Ω input impedance for the mic input
48V Power Supply Switch	ON/Off
DI Switch	Direct Input with 100KΩ input sensitivity
EQ Switch	Engages audio high pass filter and equalization circuits
Polarity Switch	Reverses the polarity of the audio signal
Mic/Line Switch	Switch between Mic or Line inputs
Mic/Line Sensitivity Switch	20dB to 70dB of mic boost and -30dB to +20dB of line level adjustment.
High Pass Filter	Provides a 15dB/octave high pass filter at 40Hz, 80Hz, 160Hz and 320Hz
Low Frequency Equalization	Provides +/-15 db of Boost or Cut at 35Hz, 60Hz, 110Hz or 220Hz
Mid Frequency Equalization	Provides +/-15 db of Boost or Cut at 360Hz, 700Hz, 1.6kHz, 3.2kHz, 4.8kHz or 7.2kHz
High Frequency Equalization	Provides +/-15 db of Boost or Cut at 3.4kHz, 4.9kHz, 7kHz, 12kHz or 16kHz
Inputs	
Microphone (XLR)	Transformer balanced input, RF isolated
Line (XLR)	Transformer balanced input, RF isolated
Direct In (1/4" TRS)	High impedance instrument input

Input Impedance	
Microphone	300Ω or 1200Ω
Line	10kΩ line bridging from 600Ω or lower source impedance
Direct Input	100kΩ
Sensitivity	
Microphone	From -70dBm to -20dBm in 5 dB steps for 0dBm output
Line	From -30 dBm to +20 dBm in 5 dB steps for 0 dBm output
Physical Specifications	
Depth	280mm / 11.02 inches
Height	44.5mm / 1.75 inches (1 RU)
Width	480mm / 19 inches
Weight	4.54 kg / 10.0 lbs
Box Size	
Depth	400mm / 15.75 inches
Height	150mm / 5.90 inches
Width	620mm / 24.4 inches
Weight	6.58 kg / 14.50 lbs

Chameleon Labs reserves the right to change these specifications at any time without notice. Not to be a pain, but to improve things in general.

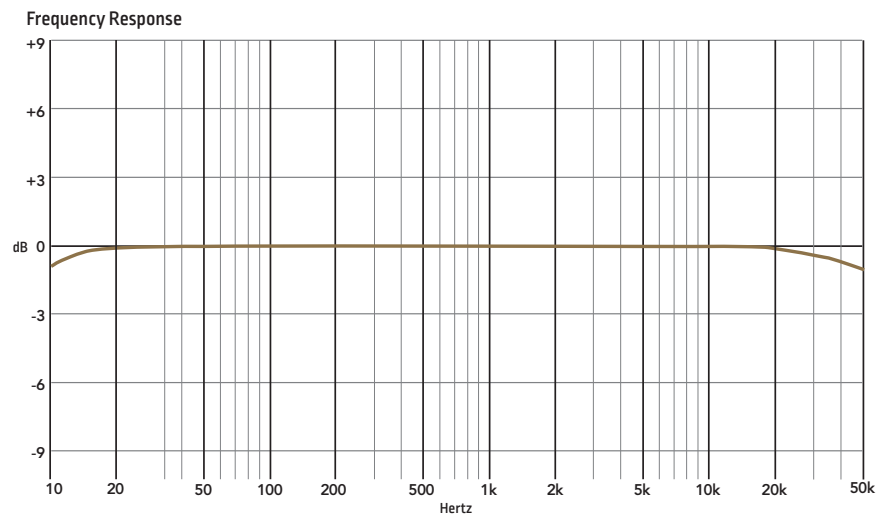
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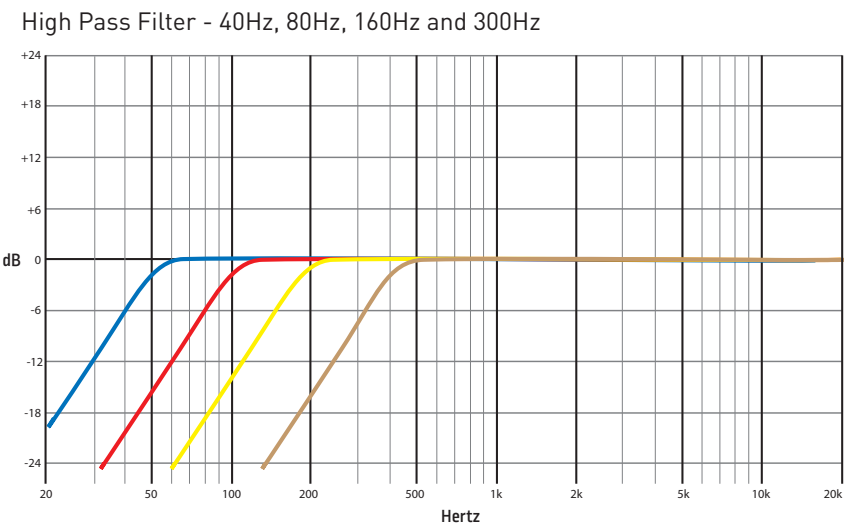


# Typical Performance Graphs

The graphs below show the effect of the high-pass filter controls and the Low, Mid, and High EQ. They show the signal level change versus frequency.



This graph shows the frequency response with no high-pass filter or EQ engaged.

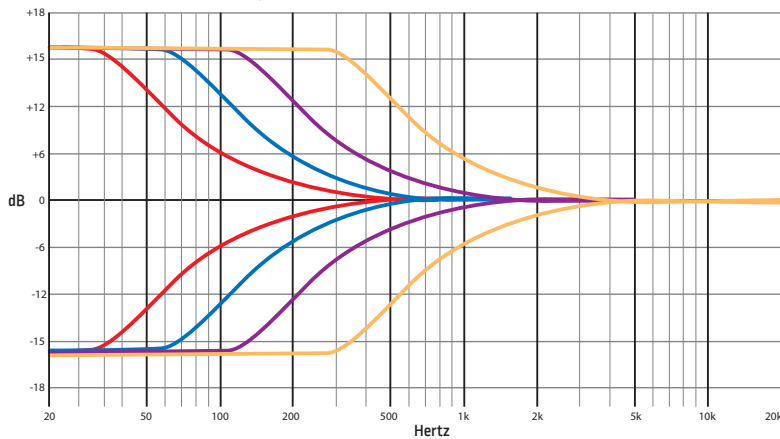


## High Pass Filter

The high-pass crossover frequency can be selected from 40, 80, 160, and 320 Hz. In the OFF position, the high-pass filter is bypassed and the low-frequencies are not affected.

# Typical EQ Performance Graphs

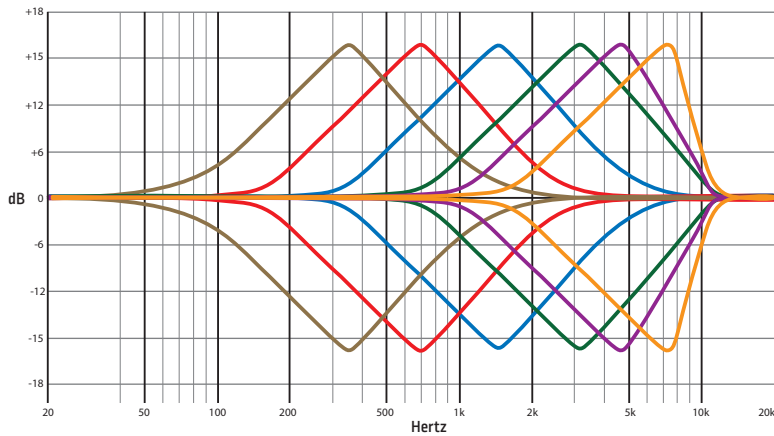
Low Frequency Shelving Filter - 35Hz, 60Hz, 110Hz and 220Hz



## Low EQ

The available frequency selections are 35, 60, 110, and 220 Hz, with 20 dB boost or cut. In the OFF position, the Low EQ is bypassed.

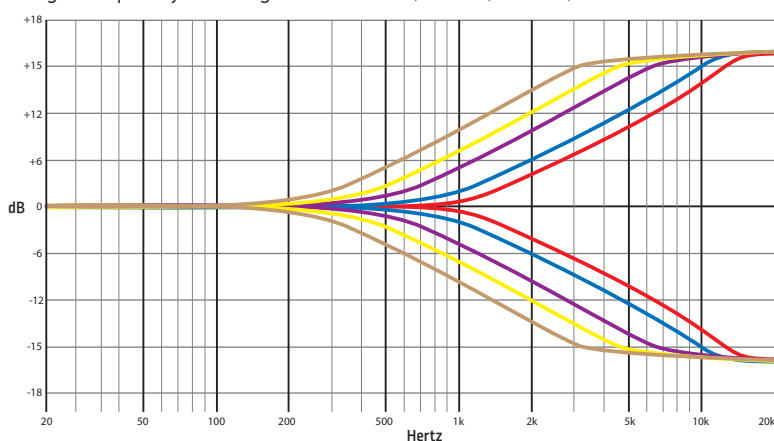
Mid Frequency EQ - 360Hz, 700Hz, 1.6kHz, 3.2kHz and 7.2kHz



## Mid EQ

The available frequency selections are 360, 700, 1.6k, 3.2k, 4.8k, and 7.2 kHz, with 20 dB boost or cut. In the OFF position, the Mid EQ is bypassed.

High Frequency Shelving Filter - 360Hz, 700Hz, 1.6kHz, 3.2kHz and 7.2kHz



## High EQ

The available frequency selections are 3.4k, 4.9k, 7k, 12k, and 16 kHz, with 20 dB boost or cut. In the OFF position, the High EQ is bypassed.



## Warranty and Liability

Your Chameleon Labs product is warranted to the original owner for a period of one year. Chameleon Labs guarantees this product to be free from electrical and mechanical defects and will repair or replace defective components, or replace the unit at Chameleon Lab's option. Should service be required for your Chameleon Labs product, please contact the manufacturer. Service is provided for products beyond the warranty period. Seller warrants that the goods are described in this agreement, but no other express warranty is made in respect to the goods. The entire risk as to the quality and performance of the good is with the buyer. Seller disclaims all warranties either expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose, and seller neither assumes nor authorizes any other person to assume for it any liability in connection with the sale of said goods.

MODEL NUMBER -----  
SERIAL NUMBER -----  
DATE OF PURCHASE -----  
PURCHASED FROM -----  
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Please visit [www.chameleonlabs.com](http://www.chameleonlabs.com) for the latest updates and technical information.