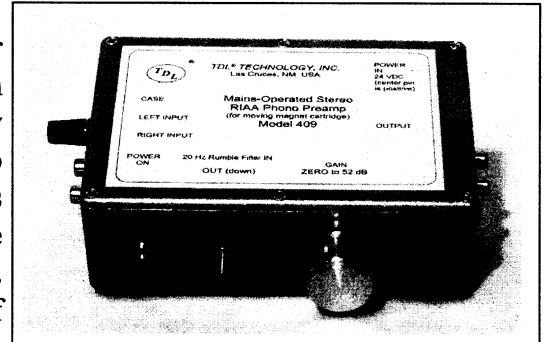


MAINS-OPERATED STEREO RIAA PHONO PREAMP

Model 409

Original version September 2005

This preamplifier was especially designed to drive a computer sound card's line-input for restoring vinyl LP records which were recorded using RIAA equalization. This preamp has very low output noise and very low power line hum pickup, two features essential to creating a CD-quality wave file. **This preamp is mains-operated and has essentially the same noise and hum levels as our battery-operated model 403.** The cast aluminum enclosure minimizes the pickup of unwanted signals.



INPUT: Matches all common moving magnet (MM) pickup cartridges. (The input resistance is 47K.)

GAIN: Zero to 52 dB at 30 to 35 Hz using the single-turn audio taper gain control.

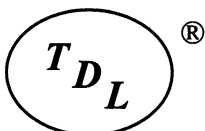
RESPONSE: Playback RIAA as shown in Figure 1. The rumble filters, which may be switched in and out, have corner frequencies of 20 Hz and change the response as shown. Because this preamp was designed to drive a sound card, it includes output lowpass filters with corner frequencies of 25 kHz. This causes no loss of quality because the CD sampling rate of 44.1 kHz limits the unaliased frequency response to 22 kHz.

DYNAMIC RANGE: Refer to Figure 2. This is a spectrogram of a typical channel with the gain set to 52 dB (maximum gain) and the truntable motor running. The noise level is more than 100 dB below the sound card max input and the 60 Hz hum is down 100 dB -- it is not audible in the recorded wave file. Depending on brand, age and condition, vinyl LP records have a dynamic range of 50 to 60 dB so with this preamp you can "capture" everything that's on the record.

CONNECTORS: Two female, panel mount RCA input connectors. Two female, panel mount RCA connectors plus a ¼ inch stereo phone jack for output. There is a 5-way binding post near the input connectors for connecting the preamp enclosure to the turntable frame as this may help reduce hum pickup (see the Operation section in the User Guide for more information on hum reduction). 2.5 mm male input power connector (center pin is positive). A red LED lights when the voltage is on.

POWER: Mains operation from a 24 VDC "wall wart" power supply that plugs into any (US) standard 115 VAC, 60 Hz outlet. There is no power-on switch in the model 409 as the wires to the switch increase the hum level. Power on/off is by plugging or unplugging the wall power supply or an inline switch can be placed in the power supply cable.

FURNISHED ACCESSORIES: 24 VDC wall power supply and Printed User Guide. The User Guide in .pdf format may also be downloaded from our web site.



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PHYSICAL: Cast aluminum enclosure measuring 190 x 135 x 63 mm (7.6 x 5.4 x 2.5 inches) overall including connectors and knobs. Weight is 686 gm (25 ounces). There are rubber bumpers on the four corners of the enclosure bottom.

PRICE: See price list.

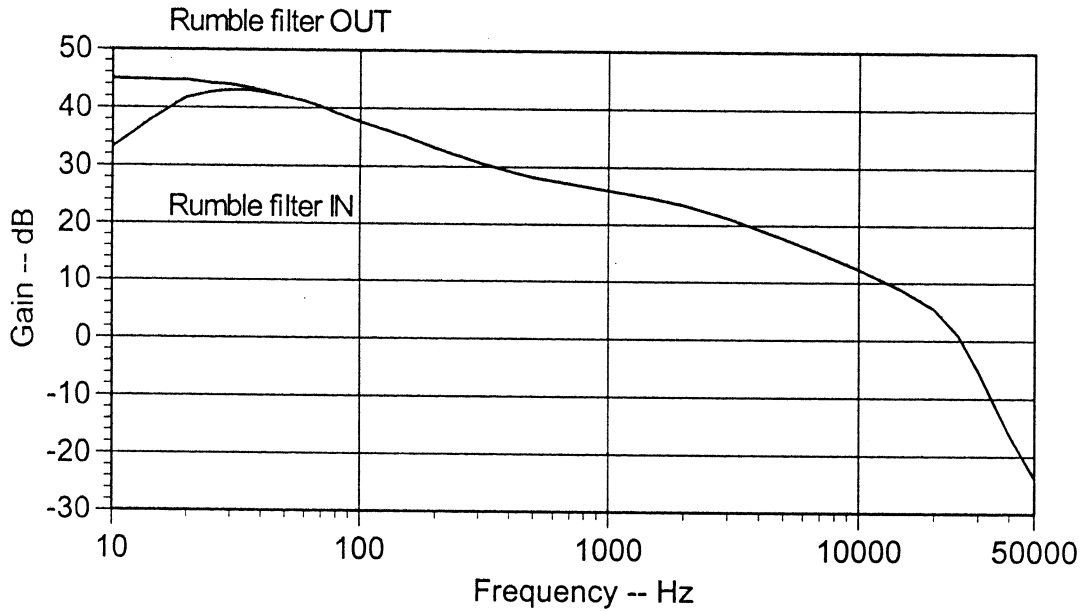


Figure 1 -- Typical measured frequency response at 44 dB gain.

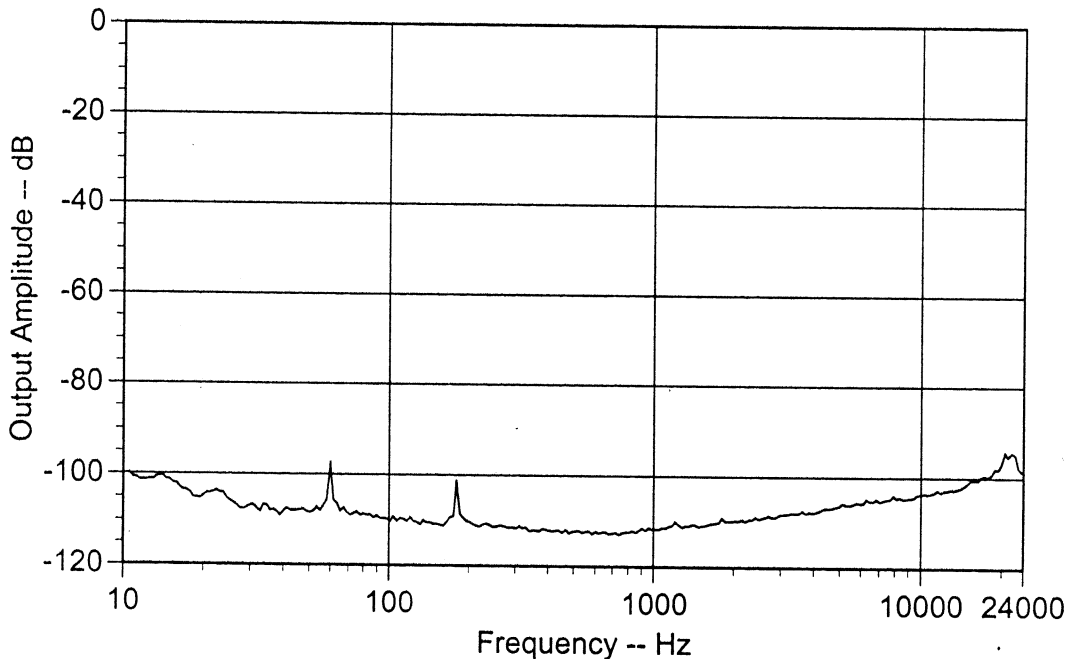


Figure 2 -- Typical output spectrum at 52 dB gain (max) with turntable motor running.