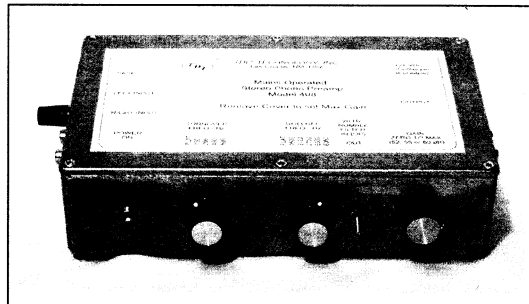


# MAINS OPERATED STEREO PHONO PREAMP

## Model 408

Original version: August 2005

This preamplifier was especially designed to drive a computer sound card's line-input for restoring 33-1/3, 45 and 78 RPM records which were recorded using various equalizations. 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 model 407.** The cast aluminum enclosure minimizes the pickup of unwanted signals.



**INPUT:** Matches all common magnetic pickup cartridges. (The input resistance is 47K.)

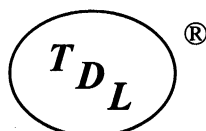
**GAIN:** Zero to 52, 56 or 60 dB using the single-turn audio taper gain control. Max gain is user selectable by removing the top cover and setting four jumpers -- details are in the User Guide.

**RESPONSE:** Switch selectable turnover frequencies of 150, 200, 400, 500 Hz and flat as well as switch selectable rolloff frequencies of 1600, 2122, 2700, 5500, 6360 Hz and flat permit all of the 78 RPM equalization curves to be closely approximated. RIAA and FFRR equalizations can also be set for 33-1/3 and 45 RPM records. A typical 78 RPM curve (used by Decca) is shown in Figure 1. (A comprehensive table of response settings for different record labels is included in the User Guide along with links to reference web sites.) The rumble filters, which may be switched in and out, have corner frequencies of 20 Hz. 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 turnover and rolloff frequencies set to "flat", the gain set to 54 dB and the turntable motor running. The noise level is 95 dB below the sound card max input and the 60 and 180 Hz hum is down over 85 dB -- it is not audible in the recorded wave file. Depending on manufacturer, age and condition, 78 RPM records have a dynamic range of 30 to 50 dB so with this preamp you can "capture" everything that's on the record. (The noise and hum levels may vary with the turntable being used.)

**CONNECTORS:** Two female, panel mount RCA input connectors. Two female, panel mount RCA connectors plus a 1/4 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 (the center pin is positive). A red LED lights when the preamp is on.

**POWER:** Mains operation from a 24 VDC "wall wart" supply that plugs into any (US) standard 115 VAC, 60 Hz outlet. (Power supplies for other mains voltages and outlets available on special order.) There is no power-on switch in the model 408 as the use of a switch increases the hum level. Power can be turned on or off by plugging or unplugging the wall power supply or an inline switch can be placed in the power supply cable.



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**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.

**PHYSICAL:** Cast aluminum enclosure measuring 248 x 158 x 63 mm (9.9 x 6.3 x 2.5 inches) overall including connectors and knobs. Weight is 885 gm (about 32 ounces). There are rubber bumpers on the four corners of the enclosure bottom.

**PRICE:** See price list.

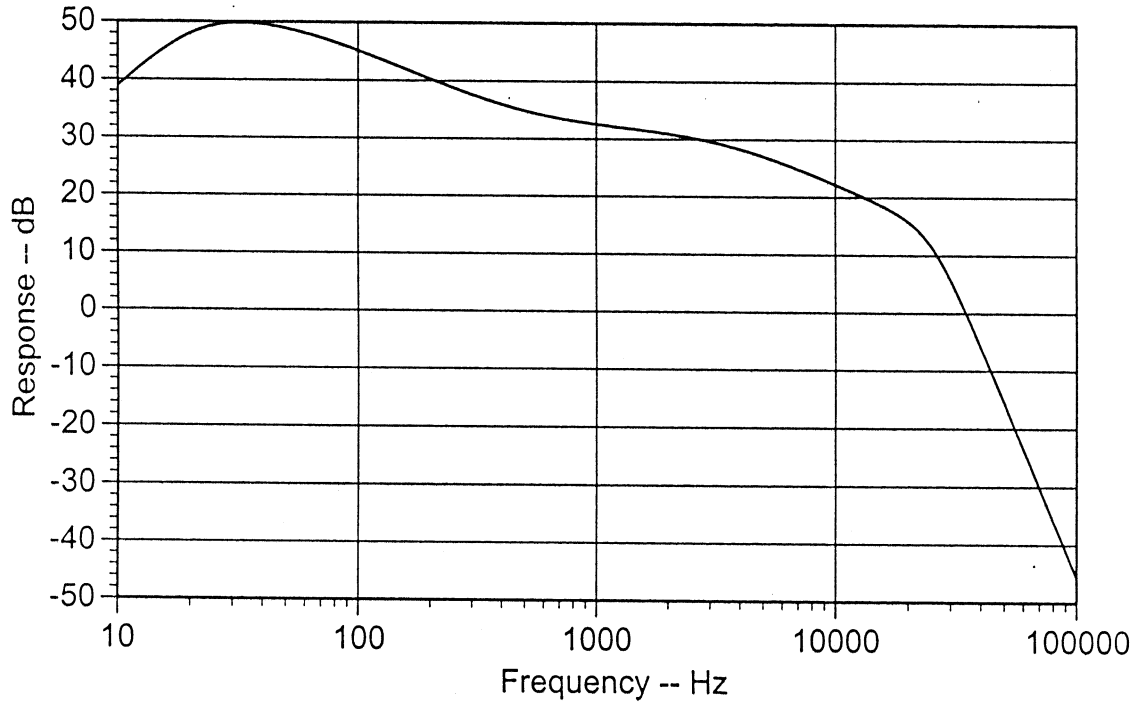


Figure 1 -- Typical frequency response at maximum gain for Decca 78. Turnover frequency is 150 Hz and rolloff is 2700 Hz..

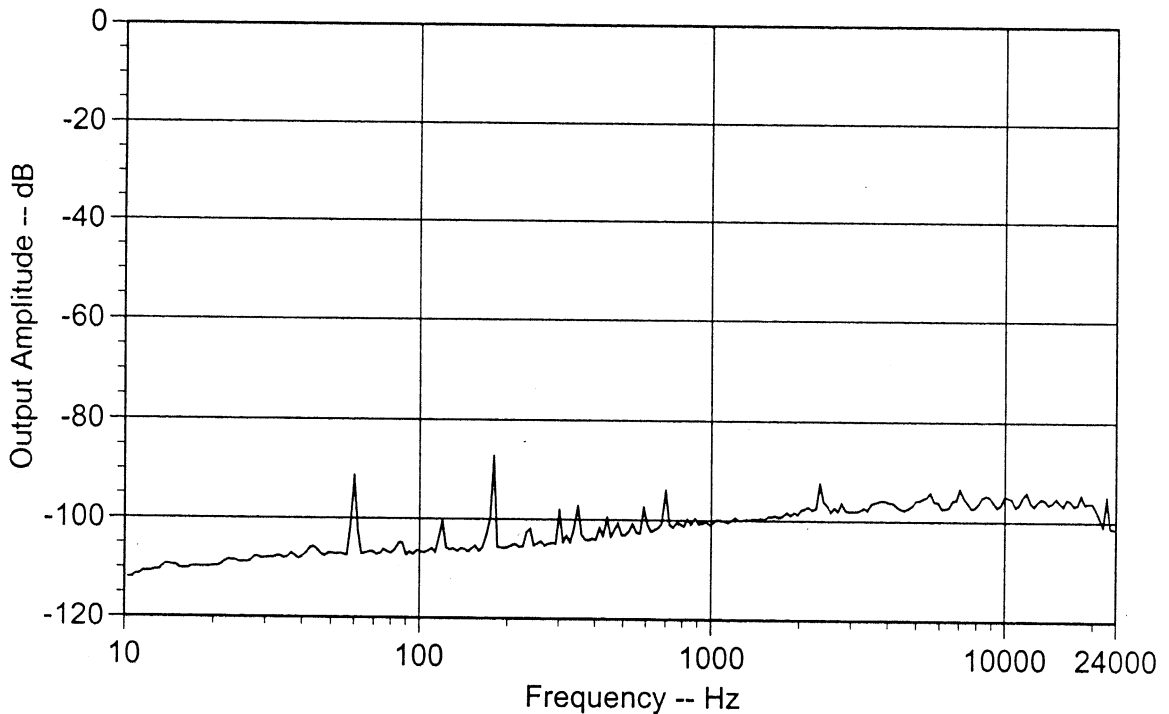


Figure 2 -- Typical output spectrum at 54 dB gain with turntable motor running.