

# LINE-OPERATED HIGH-PERFORMANCE MICROPHONE PREAMP

## Model 402

Original version March 2003

This preamplifier was especially designed to drive a computer sound card's line-input so we wanted the output noise very low compared to the line-in maximum signal level. With a dynamic range of nearly 70 dB at the full gain of 60 dB, this goal was achieved. You can, of course, use the model 402 for any application where a low-noise microphone preamp is needed. Power line operation eliminates the dependence on batteries but with the penalty of somewhat higher power line related noise (hum) as compared to our model 401. The cast aluminum enclosure minimizes the pickup of unwanted signals.



**INPUT:** Matches any dynamic or capacitor microphone needing an input impedance of 150 to 600 ohms. Differential input when using the 3-pin input connector if your microphone can use this feature.

**GAIN:** Times 10 to 1000 (20 to 60 dB) in 4 dB steps using an 11-position rotary switch.

**RESPONSE:** "A", "B" or "C" (flat) response as selected by a 3-position rotary switch. A four-pole Butterworth lowpass filter with a 25 kHz cutoff frequency reduces high frequency noise and serves as an anti-aliasing filter when driving a sound card input. Intermodulation distortion is below the noise level at all gain settings.

**DYNAMIC RANGE:** Nearly 70 dB at 60 dB gain, over 80 dB at 40 dB gain and about 90 dB at 20 dB gain. See Figures 1, 2 and 3.

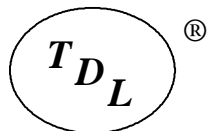
**CONNECTORS:** Two input connectors: 3-pin XLR microphone connector (**specify male or female**), and female BNC or RCA (**specify**). Two output connectors: female RCA and ¼ inch mono phone jack. 2.5 mm male input power connector for the external 24 VDC "wall wart" supply (furnished). A red LED lights when the power is on.

**POWER:** External "wall wart" 24 VDC, 100 mA power supply plugs into any standard (US) 115 VAC outlet. (Other mains voltages and outlets available on special order.) The power on/off switch is in the power supply line cord to help keep 60 and 120 Hz pickup to a minimum.

**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 190 x 135 x 63 mm (7.6 x 5.4 x 2.5 inches) overall including connectors and knobs. Weight is 645 gm (23 ounces). There are rubber bumpers on the four corners of the enclosure bottom.

**PRICE:** *See price list.*



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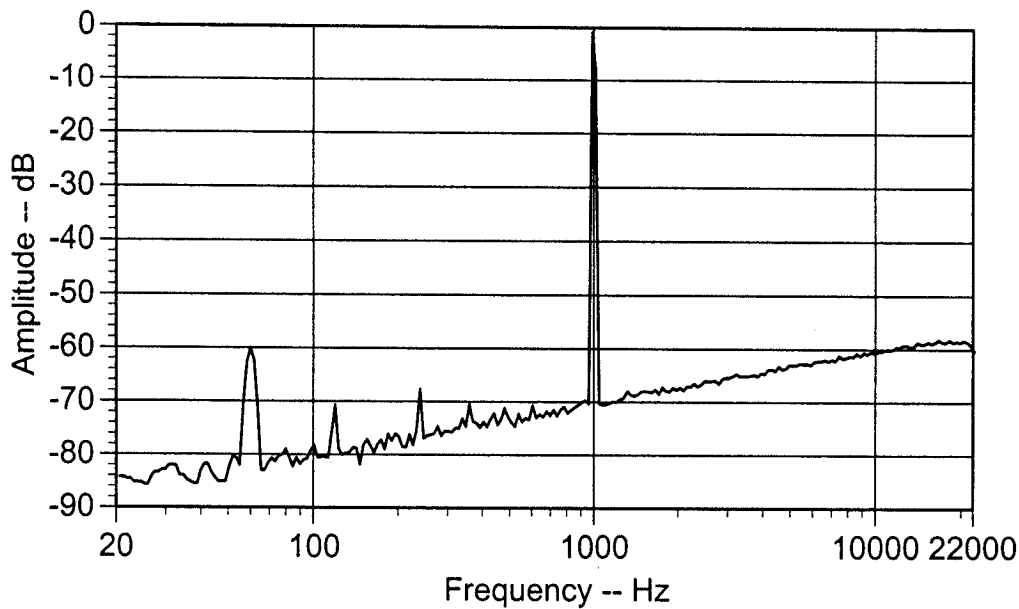


Fig. 1 -- Output power spectrum. 1 kHz sinewave input, 60 dB gain and flat (C) frequency weighting.

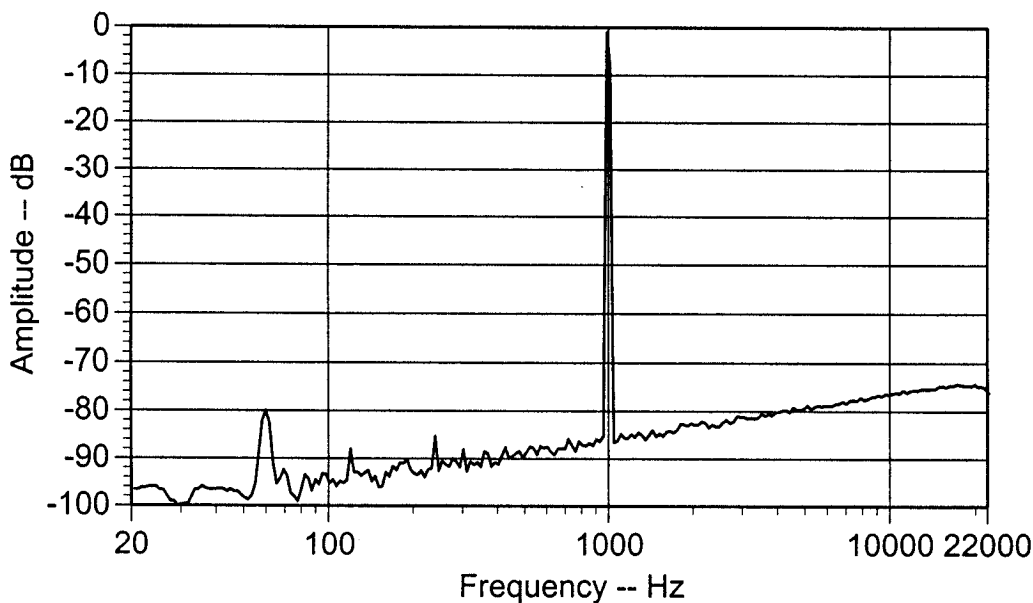


Fig. 2 -- Output power spectrum. 1 kHz sinewave input, 40 dB gain and flat (C) frequency weighting.

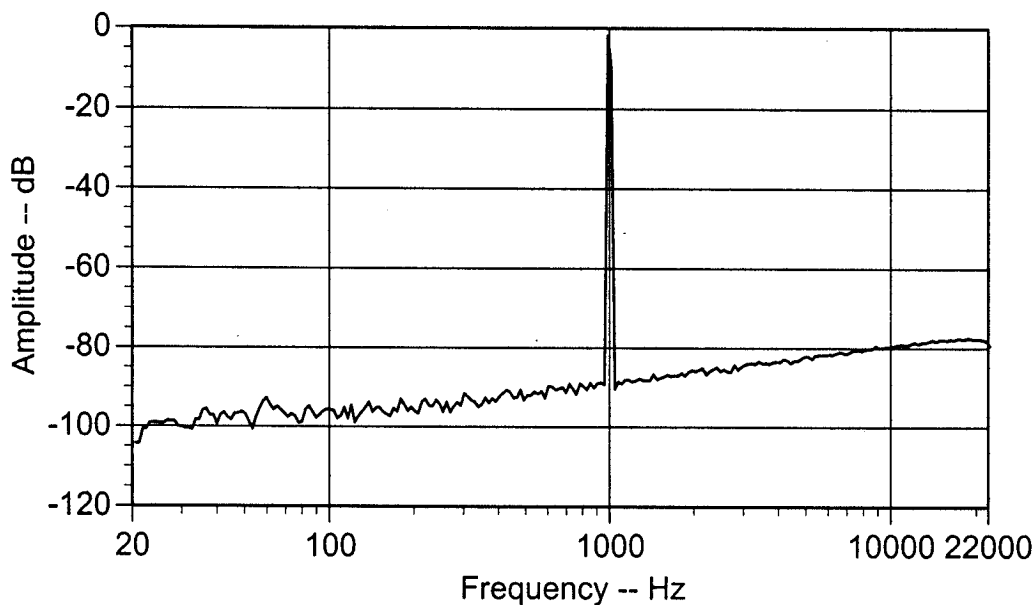


Fig. 3 -- Output power spectrum. 1 kHz sinewave input, 20 dB gain and flat (C) frequency weighting.