

# LD2004

## ARCHITECTS' & ENGINEERS' SPECIFICATIONS

### OVERVIEW

The power amplifiers shall be a two-channel model with a switch mode power supply and bridgeable switch mode fixed frequency class D output circuit topology.

The amplifier shall be able to install a proprietary optional DSP board for internal signal processing.

### POWER OUTPUT SPECIFICATIONS

The amplifier shall exhibit the following power output performance:

- EIAJ (1KHz @ 1% THD) in stereo mode: 2x600 W @ 8 Ohm, 2x1000 W @ 4 Ohm; 2x600 W @ 2 Ohm (2x1800 W 10ms peak power);
- EIAJ (1KHz @ 1% THD) in bridge mode: 1x2000 W @ 8 Ohm, 1x1200 W @ 4 Ohm (1x3600 W 10ms peak power).

### AUDIO SPECIFICATIONS

The amplifier shall have:

- input impedance: 10K Ohm;
- input polarity: pin 2 positive (hot) on XLR;
- voltage gain: 38 dB;
- input sensitivity: 0,87 Vrms/1dBu;
- maximum input level: 19,7dBu/7,5 Vrms;
- frequency response (1W @ 8 Ohm): 10Hz-30KHz (+/-3 dB);
- damping Factor: >100 @100 Hz;
- slew Rate @ 8 Ohm: 20V/us (input filter bypassed);
- S/N Ratio (20Hz-20KHz A weighted) in dB: >105 dB;
- THD+N: <0,5% from 1W to full power (typically <0,1%);
- SMPTE IMD: <0,5% from 1W to full power (typically <0,1%);
- DIM30 IMD: <0,02% from 1W to full power (typically <0,01%);
- crosstalk > 70 dB @ 1 KHz.

### OPTIONAL DSP FEATURES

Optional DSP shall have:

- 2 inputs, 3 outputs;
- 24bit/48KHz AD/DA converters;
- 26 bit inner processing;
- 7 biquad (general Butterworth, Bessel, peaking, shelving, arbitrary IIR) filters per channel for HPF, LPF and system equalization;
- dual dynamic processor per channel, with arbitrary input/output curve and adjustable time constants;
- mixed balanced output for subwoofer drive with 12/24dB oct programmable slope and cut-off;
- 0 – 3.7ms variable delay per channel for speaker alignment;
- 105 dBA in/out (analog to analog) signal to noise ratio;
- 1.5 ms processing delay time.

### POWER SUPPLY & COOLING SPECIFICATIONS

The amplifier shall have an universal switch mode power supply with one, microprocessor temperature controlled, continuously variable speed fan, front-to-back airflow.

The amplifier shall exhibit the following performances:

- required AC mains: internally selectable 115V (+15/-25%) or 230V (+15/-25%);
- minimum voltage for power up: 90 V;
- detachable mains power cord set supplied with amplifier with IEC 16A on amplifier side and Schuko plug for EU and rest of the world, American 3 pin 15A for USA.

### PROTECTION CIRCUITS SPECIFICATIONS

The amplifier shall be equipped with the following protection circuits:

- AC protection: shuts down the power supply if the line voltage is outside the operating voltage (up to 290V AC mains tolerant);
- turn on/off muting: for about 4 seconds after turn on, and soon after turn off, the amplifier outputs are muted;
- clip limiter: prevents severely clipped waveforms from reaching the loudspeakers, whilst maintaining full peak power;
- DC protection: protects against infrasonic signals at the outputs, DC or very low frequencies that could damage loudspeakers;
- VHF protection: protects the loudspeakers against strong, very high frequency, non-musical, signals above the audible range;
- long term limiter: "protect" red leds light when it is started the output tension reduction due to steady long term rms signals (not musical signals but sinus, feedback, etc.), preventing damage to loudspeakers;
- short circuit protection: "protect" red leds light in case of possible short circuit or other stressful events for the output circuits. This protection will reset automatically when the short circuit conditions are removed;
- thermal protection: "protect" red leds light when heat sinks reach 60°C (140°F), at 75°C (167°F) thermal sensing circuit will mute both channels, they will un-mute automatically when temperature fall under 65°C (149°F).

### FRONT PANEL FEATURES

The amplifier front panels shall include:

- push on/push off mains power switch;
- two detect gain reduction knob, one for each channel, with steps of 38, 36, 34, 32, 30, 28, 26, 24, 20, 10, -∞ dB;
- two 3 led bars, one for each channel, with 2 green leds and 1 red, the 2 green leds will light for an output of -18dB and -6dB, while the red led will light when the maximum output will be reached;
- two green leds, one for each channel, marked as "signal" that will light when input signal reach -24dBV;
- one green led, marked as "ready", that will light when amplifier is on;
- one yellow led, marked as "temp", that will light when temperature will reach 70°C (158° F), 5°C (41°F) before the protection circuit will mute outputs;
- one removable dust cover.

## REAR PANEL FEATURES

The amplifier rear panel shall include:

- IEC 16A mains detachable connector, amplifier provided with power cord set with VDE16A on amplifier side and Schuko plug for Eu and rest of the world, American 3 pin 15A plug for USA;
- Neutrik® XLR connector for channel 1 input, pin 2 positive (hot) on XLR, pin 3 negative (cold) on XLR, pin 1 ground on XLR with XLR loop thru connector that can be assigned, through internal deep switches, to optional DSP subwoofer output;
- Neutrik® XLR connector for channel 2 input, pin 2 positive (hot) on XLR, pin 3 negative (cold) on XLR, pin 1 ground on XLR with XLR loop thru connector that can be assigned, through internal deep switches, to optional DSP subwoofer output;
- Neutrik® Speakon® NL4MD (mates with NL4FC or NL4) output connector for channel 1 (positive on 1+ negative on 1- for stereo configuration; positive on 2+ negative on 2- for bridge configuration);
- Neutrik® Speakon® NL4MD (mates with NL4FC or NL4) output connector for channel 2 (positive on 1+ negative on 1- for stereo configuration; positive on 2+ negative on 2- for bridge configuration);

- recessed link switch for paralleling input 1 on input 2;
- one cooling fan outlet.

## PHYSICAL SPECIFICATIONS

The amplifier shall comply with EIA standard 19 in. rack (EIA RS-310-B).

External dimensions: 483mm (19 in) wide, 358 mm (14,1 in) deep, 44 mm (1,75 in) high

Construction: 1 mm (0,04 in) steel chassis, 3 mm (0,12 in) steel front panel.

Cabinet shall be natural steel color with black painted cover and blue and black front panel

Net Weight: 7,3 Kg (16.1 lbs)

Shipping weight: 8,8 Kg (19,4 lbs)

The amplifier shall be approved for use as specified by CE and KETI.

The amplifier shall be the Powersoft LD2004.