

# D1604

## ARCHITECTS' & ENGINEERS' SPECIFICATIONS

### OVERVIEW

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

The amplifier shall be able to be equipped with optional sensing and communication board, on RS485 communication bus, providing full monitoring and control through proprietary software running on an external PC.

### POWER OUTPUT SPECIFICATIONS

The amplifier shall exhibit the following power output performance:

- EIAJ (1KHz @ 1% THD) in stereo mode: 2x500 W @ 8 Ohm, 2x800 W @ 4 Ohm;
- EIAJ (1KHz @ 1% THD) in bridge mode: 1x1000 W @ 16 Ohm, 1x1600 W @ 8 Ohm.

### AUDIO SPECIFICATIONS

The amplifier shall have:

- input impedance: 10K Ohm;
- input polarity: pin 2 positive (hot) on XLR, tip positive (hot) on jack;
- voltage gain: 32 dB;
- input sensitivity: 1,58 Vrms/6,19 dBu;
- maximum input level: 3,5 Vrms/13,10 dBu;
- gate: selectable from switches behind front panel -50dBu;
- input filters: hi-pass, low pass, band pass 65 Hz, 100 Hz, 130 Hz selectable from switches behind front panel;
- frequency response (1W @ 8 Ohm): 5Hz-30KHz (+/-3 dB);
- damping factor: >600 @100 Hz;
- slew Rate @ 8 Ohm: 40V/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;

### POWER SUPPLY & COOLING SPECIFICATIONS

The amplifier shall have an universal switch mode power supply with Power Factor Correction with one, microprocessor temperature controlled, continuously variable speed fan, front-to-back airflow. The amplifier shall exhibit the following performances:

- required AC mains: universal AC input 95-265 V, 50/60 Hz;
- minimum voltage for power up: 90 V;
- power factor cos ( $\varphi$ ): more than 0,95% from 200 W to full output power;
- 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). Internal varistor protects anyway for mains over 290V containing damages to internal circuits;
- 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 32, 30, 28, 26, 24, 22, 20, 18, 14, 4, -∞ dB;
- two 5 led bars output meter, one for each channel, with 3 green leds, 1 yellow and 1 red each, the 3 green leds will light for an output of -9dB, -6dB and -3dB with the yellow one that will light @-1dB from maximum output and red led will light when reached maximum output;
- one green leds marked as "signal" that will light when input signal reach -66dBV;
- one green leds, marked as "ready" that will light when amplifier is on;
- one yellow leds, 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;
- two removable dust filters.

### REAR PANEL FEATURES

The amplifier rear panel shall include:

- IEC 16A mains detachable connector, amplifier provided with power cord set with VDE 16A on amplifier side and Schuko plug for Eu and rest of the world, American 3 pin 15A plug for USA;
- RJ45 connector and dual recessed encoders for ID selection on amplifier with optional network board;

- Neutrik® XLR/Jack combo connector for channel 1 input, pin 2 positive (hot) on XLR, tip positive (hot) on jack, pin 3 negative (cold) on XLR, ring negative (cold) on Jack, pin 1 ground on XLR, sleeve ground on Jack;
- Neutrik® XLR/Jack combo connector for channel 2 input pin 2 positive (hot) on XLR, tip positive (hot) on jack, pin 3 negative (cold) on XLR, ring negative (cold) on Jack, pin 1 ground on XLR, sleeve ground on Jack;
- 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, 455 mm (17,9 in) deep, 44 mm (1,75 in) high.

Construction: 1 mm (0,04 in) steel chassis, 5 mm (0,20 in) aluminum front panel, 3mm (0,12 in) steel screw holes protection.

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

Net Weight: 8,5 Kg (18,7 lbs).

Shipping weight: 10 Kg (22,04 lbs).

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

The amplifier shall be the Powersoft D1604.