

K3

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 equipped with interactive LCD display on front panel providing full control and monitoring of amplifier status.

The amplifier shall be provided of Smart Card reader for firmware upgrade and preset load/save.

The amplifier shall be equipped with sensing and communication circuits, RS485 as standard, Ethernet as optional, providing full monitoring and control through proprietary software running on an external PC.

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: 2x1400 W @ 8 Ohm, 2x2600 W @ 4 Ohm, 2x2800 W @ 2 Ohm;
- EIAJ (1KHz @ 1% THD) in bridge mode: 1x2800 W @ 16 Ohm, 1x5200 W @ 8 Ohm, 1x5600 W @ 4 Ohm;
- maximum output voltage per channel shall be 165 V peak;
- maximum output current shall be 75 Arms.

AUDIO SPECIFICATIONS

The amplifier shall have:

- input impedance: 10K Ohm;
- input polarity: pin 2 positive (hot) on XLR;
- voltage gain: 26, 29, 32, 35 dB single channel user menu definable (32dB as factory default);
- input sensitivity: 5,29 Vrms (@ 26dB gain), 3,76 Vrms (@ 29dB gain), 2,66 Vrms (@ 32dB gain), 1,88 Vrms (@ 35dB gain);
- maximum input level: 27dBu/19Vrms (@ 26dB gain), 24dBu/12Vrms (@ 29dB gain), 21dBu/9Vrms (@ 32dB gain), 18dBu/6Vrms (@ 35dB gain);
- gate: user menu selectable for each channel (-52dBu @ 26dB gain, -55dBu @ 29dB gain, -58dBu @ 32dB gain, -61dBu @ 35dB gain);
- frequency response (1W @ 8 Ohm): 20Hz-20KHz (+/- 0,2 dB);
- damping Factor: 20-200 Hz >5000;
- slew Rate @ 8 Ohm: 50V/us (input filter bypassed);
- S/N Ratio (20Hz-20KHz A weighted) in dB: >112 dB;
- THD+N: <0,5% from 1W to full power (typically <0,05%);
- SMPTE IMD: <0,5% from 1W to full power (typically <0,05%);
- DIM30 IMD: <0,5% from 1W to full power (typically <0,05%);
- crosstalk > 72 dB @ 1KHz.

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 (ϕ): more than 0,90% from 500 W to full output power;
- detachable mains power cord set supplied with amplifier with IEC C19/22.2 (16A for EU, 20A for USA) connector on amplifier side and Schuko plug for EU and 3 Pin American plug on the other.

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 400 V AC mains tolerant). Internal varistor protects anyway for mains over 410V 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 try to reset automatically for about 50 times, after it will be necessary a manual reset, turning the amplifier off and back on;
- thermal protection: "protect" red leds light when heat sinks reach 60°C(140°F), at 85°C (185°F) thermal sensing circuit will mute both channels, they will un-mute automatically when temperature fall under 65°C (149°F).The output voltage will be reduced in a continuous way when the amplifier reaches 75°C(167°F) until when the amplifier will cool down to 65°C(149°F).

USER MENU SETTINGS

LCD display provide user menu access to the following settings:

- amplifier setting: output attenuation, input gain/sensitivity, input selection (analogue/digital/network), maximum output voltage, maximum mains current draw, clip limiter of channel 1, clip limiter of channel 2, gate on input channel 1, gate on input channel 2, mute at power on, idle mode;
- selection of optional DSP parameters: AES-3 input level control, source mode (stereo, parallel from input 1, parallel from input 2), main delay, input level control of channel 1, input level control of channel 2, polarity control of channel 1, polarity control of channel 2, delay of channel 1, delay of channel 2, channel 1 equalizer (low pass filter, high pass filter, 16 peaking/Low shelving/Hi shelving/Hi pass/Lo pass/band pass/band stop/all pass filters), channel 2 equalizer (low pass filter, high pass filter, 16 peaking/Low shelving/Hi shelving/Hi pass/Lo pass/band pass/band stop/all pass filters), channel 1 peak limiter, channel 1 power limiter, channel 2 peak limiter, channel 2 power limiter, channel 1 cable impedance compensation network (damping factor adjustment), channel 2 cable impedance compensation network (damping factor adjustment);
- real time monitoring of amplifier temperature and history log;

- real time monitoring of load impedance;
- real time monitoring of output voltage;
- real time monitoring of mains voltage;
- recall/save presets;
- display settings: voltage or current output display, amplifier name;
- amplifier set-up: hardware info (amplifier serial number, hardware identifier connected to rear rotary encoders, front panel version number, controller version number, DSP board version number, Ethernet board version number, operating life of the amplifiers in hours), hardware monitor with status check (internal rails voltage, internal auxiliary voltage, auxiliary analogue voltage, external remote control voltage, frequency system clock, DC/DC converter monitor), LCD contrast, set security password, security locking menu (all locked, allow safe, allow all), service information (factory reserved).

FRONT PANEL FEATURES

The amplifier front panels shall include:

- push on/push off mains power switch;
- dual paralleled RJ45 connector with green led for network and orange led for audio data on amplifier with optional Ethernet board;
- two 7 led bars, one for each channel, with 5 green leds, 1 yellow and 1 red each, first green led will show when input signal reach -60dBV, while the other 4 green leds will light for an output of -10dB, -6dB, -3dB, -2dB with the yellow one that will light @-1dB from maximum output and red led will light when reached maximum output; yellow and red leds will be used for protection alert as well: yellow will flash when temperature will be between 80°C (176°F) and 85°C (185°F), while will light steady when temperature will be over 85° (185°F), red led will light when the channel is in protection status, the nature of protection will be displayed on the LCD screen;
- LCD display with operating menu for selection of the amplifier settings;
- four navigation keys for navigating through the LCD menu: function is displayed on the display itself;
- smart card reader for preset load/save and firmware upgrade;
- two removable dust covers, left and right of LCD display.

REAR PANEL FEATURES

The amplifier rear panel shall include:

- IEC C19/22.2 (16A for EU, 20A for USA) mains detachable connector, amplifier provided with power cord set with IEC C19/C22. on amplifier side,

Schuko for EU and 3 Pin American plug on the other (white for live, black for neutral, green for earth);

- RS485 network amplifier version with RJ45 connector and dual recessed encoders for amplifier ID selection;
- dual paralleled RJ45 connector with green led for network and orange led for audio data on amplifier with optional Ethernet board;
- Neutrik® XLR connector for channel 1 analogue input and loop thru, with pin 2 positive (hot), pin 3 negative (cold), pin 1 ground;
- Neutrik® XLR connector for channel 2 analogue input and loop thru, with pin 2 positive (hot), pin 3 negative (cold), pin 1 ground;
- Neutrik® Speakon® NL4MD (mates with NL4FC or NL4) output connector for channel 1 (1+/2+ paralleled, 1-/2- paralleled; stereo 1+/1-; bridge positive on 1+/2+ on ch 1, negative 1-/2- on ch 2);
- Neutrik® Speakon® NL4MD (mates with NL4FC or NL4) output connector for channel 2 (1+/2+ paralleled, 1-/2- paralleled; stereo 1+/1-; bridge positive on 1+/2+ on ch 1, negative 1-/2- on ch 2);
- recessed link switch for paralleling input 1 on input 2;
- recessed switch for AES3/Analogue input signal selection (active on input 2 XLR connector only on amplifiers with optional DSP board);
- 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, 360 mm (14,2 in) deep, 44 mm (1,75 in) high.

Construction: 1 mm (0,04 in) steel chassis, 3 mm (0,12 in) steel front panel, 3mm (0,12 in) steel screw holes protection, 3mm (0,12 in) steel side reinforcement & rear support, 3 mm (0,12 in) steel removable front dust cover.

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

Net Weight: 8 Kg (17.6 lbs).

Shipping weight: 9,4 Kg (20,7 lbs).

The amplifier shall be approved for use as specified by CE, CSA pending.

The amplifier shall be the Powersoft K3.