

Architect's and Engineer's Specifications

The amplifier shall be a two-channel model with a switch mode power-supply with power factor correction and bridgeable switch mode fixed frequency class D output circuit topology. The amplifier shall operate from 100 V - 240 V \pm 10%, 50/60 Hz, universal AC input power with a power factor $\cos(\phi)$ greater than 0.95 from 500W to full output power and shall draw no more than 813 W (4 A @230 V; 8 A @115 V) when driven with pink noise signal at 1/8 of rated power into 4-ohm loads. The amplifier shall be provided with an IEC C19/22.2 20 A main detachable connector and power cord set with IEC C19/22.2 connector on amplifier side and Schuko 16 A plug for EU and 20 A 3-pin American plug on the other. The amplifier shall have internal heat sinks cooled by a continuously variable speed fan with a microprocessor temperature control Air flow shall be from front to rear.

The amplifier shall be able to drive constant voltage line 70V/100V without external transformers. The amplifier shall contain a module which shall connect the amplifier to 100Mbps Ethernet network, allowing it to be remotely controlled and monitored via proprietary software running on an external PC. In addition the module shall allow the transport of real-time digital audio via AES-3 protocol in the two unused pairs of the same cat 5e Ethernet cable connected to RJ45 port.

The amplifier shall have a synchronized off-on muting, acting for four second after turn-on and within 500 ms after turn-off or loss AC power. Each channel shall have DC protection in order to protect against infrasonic signal and very low frequencies at the output that could damage loudspeakers. Each channel shall have VHF protection in order to protect loudspeakers against strong, very high frequency signals. Each channel shall have circuitry to protect against short circuits or other stressful events for the output circuits. Each channel shall have an independent clip limiter in order to prevent severely clipped waveforms from reaching loudspeakers, whilst maintaining full peak power. Each channel shall have a long term limiter in order to protect loudspeakers against non musical signals such as sine waves, feedback etc.

Front panel controls shall include: switch for selecting power on and off, removable dust covers, LCD display with backlight providing full control and monitoring of amplifier status; four navigation keys for navigating through the LCD menu: functions will be displayed on the display itself. The LCD display shall 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 for each channel, gate on input for each channel, mute at power on, idle mode. The LCD display shall provide user menu access to the following information: hardware info (amplifier serial number, hardware identifier connected to rear rotary encoders, front panel version number, controller 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); real time monitoring of amplifier temperature and history log, load impedance, output voltage, mains voltage.

The front panel shall also contain a LED bar for each channel with 5 green, 1 yellow and 1 red LEDs: for signal presents or -60 dB (green), -10 dB (green), -6 dB (green), -3 dB (green), -2 dB (green), -1 dB (yellow) and reached maximum output(red); yellow and red LEDs will be also used for protection alert as well: yellow will flash when temperature will be between 80° C (176° F) and 85° C (185° F), solid light to indicate when temperature will be over 85° (185° F), solid red LED to indicate when the channel is in protection status: the nature of protection will be displayed on the LCD screen.

The rear panel shall contain these features: dual paralleled RJ45 connector for auto-sense 100 Mbit Ethernet network capabilities and AES-3 audio protocol transport; providing full monitoring and control via proprietary software running on an external PC. These RJ45 dual ports shall allow daisy chain and redundant ring topologies. The output connectors shall be removable 2-pin Phoenix®-style barrier connectors for each channels; the terminals shall be arranged to facilitate bridged mono connection. Audio input connectors shall be removable 3-pins Phoenix®-style barrier connectors for balanced input (input 1, input 2, auxiliary 1, auxiliary 2) and 3-pins Phoenix-style barrier connectors for digital input (main digital input, auxiliary digital) Rear-panel connectors shall also include 2-pin Phoenix®-style barrier connector type for command input for switching from standard input to auxiliary input for alarm or emergency pre-recorded messages; and another 4-pin Phoenix®-style barrier connector type for 24V relays output for each channel providing fault conditions monitoring.

Each channel shall be capable of meeting the following performance criteria: 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: 1x5200 W @8 Ohm, 1x5600 W @4 Ohm; EIAJ (1KHz @ 1% THD) in stereo mode on constant voltage line without output transformer: 2x2400 W @100 V, 2x1800 W @70 V; maximum output voltage per channel shall be 165 V peak; maximum output current shall be 75 A peak. Input impedance: 10 kOhm; voltage gain: 26, 29, 32, 35 dB single channel user menu definable (32dB as factory default); input sensitivity: 5.30 Vrms (@26 dB gain), 3.76 Vrms (@29 dB gain), 2.66 Vrms (@32 dB gain), 1.88 Vrms (@35 dB gain); maximum input level: 27 dBu (@ 26 dB gain), 24 dBu (@ 29 dB gain), 21 dBu (@ 32 dB gain), 18 dBu (@ 35 dB gain); gate: user menu selectable for each channel (-54 dBu @ 26 dB gain, -57 dBu @ 29 dB gain, -60 dBu @ 32 dB gain, -63 dBu @ 35 dB gain); frequency response (1W @8 Ohm): 20 Hz - 20 kHz (\pm 0.2 dB); damping factor: 20 Hz - 200 Hz >5000; slew Rate @ 8 Ohm: 50 V/us (input filter bypassed); S/N Ratio (20 Hz - 20 kHz A weighted): >110 dBA; THD+N: <0.2% from 1W to full power (typically <0.05%); SMPTE IMD: <0.2% from 1W to full power (typically <0.05%); DIM30 IMD: <0.2% from 1W to full power (typically <0.05%); crosstalk > 70 dB @1 kHz.

The dimensions of the amplifier shall allow for 19 inch (48.3 cm) EIA standard (RS-310-B) rack mounting and it shall occupy one rack space; the amplifier shall be 4.4 cm (1.75 inches) tall and 36 cm (14.20 inches) deep behind the rack-mounting surface. The amplifier's weight shall not exceed 8 kg (17.6 lb). The amplifier shall be approved for use as specified by CE with CSA.