

Architect's and Engineer's Specifications

The amplifier shall be an eight-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, -10% / +10% 50/60 Hz, universal AC input power with minimum voltage for power up at 90 V and power factor $\cos(\phi)$ greater than 0,9 from 500W to full output power and shall draw 223W (1,24A @ 230V; 1,99A @ 115V) when driven with pink noise signal at 1/8 of rated power into 4-ohm loads. The amplifier shall be provided with an IEC C13 (16A FOR EU, 15A FOR USA) main detachable connector and power cord set with IEC C13 connector on amplifier side and Schuko plug for EU and 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 70V/100V distributed lines by using dedicated transformers that can be plugged into any channel through a dedicated lid on the amplifier. Furthermore, it shall be able to provide more than 50 different possible output configurations (lo-Z, hi-Z, bridge mode, parallel mode, and combinations of these).

The amplifier shall have Energy save capabilities that can be activated for each channel pair. In energy save mode, the Amplifier shall enter a low power consumption idle state when no signal activity is detected for more than 4 seconds. Normal operation shall be resumed in a matter of milliseconds when an incoming signal is detected on the channel pair. In energy safe mode, the power consumption shall not exceed 9,3W @ 230V or 8,7W @ 115V (0,30A @ 230V or 0,21A @ 115V).

In Idle mode, the amplifier shall not absorb more than 15,6W @ 230V or 14,7W @ 115V (0,33A @ 230V or 0,27A @ 115V).

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

Front panel controls shall include:

- ▶ removable dust covers
- ▶ DIP switches in order to enable energy saving mode for a channel pair.
- ▶ a switch to toggle from line inputs to auxiliary inputs. The auxiliary inputs shall be provided for alarm or emergency purposes.
- ▶ one attenuator knob for each channel, numbered one through eight starting from the left hand side. Each channel's output attenuation level shall be set to any value from 0 to ∞ . Attenuation level shall decrease by rotating the blue knob clockwise.

The front panel shall also house a LED bar for each channel with 5 green, 1 yellow and 1 red LEDs: one for signal presence or -60dB(green), -10dB(green), -6dB(green), -3dB(green), -2dB(green), -1dB(yellow) and maximum output reached (red); yellow and red LEDs will also be used for protection alert as well: yellow will be solid when temperature will be between 70°C (158°F) and 80°C (176°F), solid red LED will indicate when the temperature will be over 80° or the channel is muted.

The rear panel shall contain these features:

- ▶ audio output connectors shall be removable 16-pin Phoenix®-style barrier connectors; the terminals shall be arranged to facilitate bridged mono connections.
- ▶ audio input connectors shall be two removable 12-pin Phoenix®-style barrier connectors for main balanced inputs and two removable 12-pin Phoenix®-style barrier connectors for balanced auxiliary inputs.

Rear-panel connectors shall also include:

- ▶ 4-pin Phoenix®-style barrier connectors for command input for switching from standard input to auxiliary input for alarm or emergency pre-recorded messages and aux voltage for remote on/off switching.
- ▶ 4-pin Phoenix®-style barrier connector type for aux front switch enabling and external 12V auxiliary supply.
- ▶ 12-pin Phoenix®-style barrier connector type for 24V relays output per channel providing fault conditions monitoring.

Each channel shall be capable of meeting the following performance criteria: EIAJ (1KHz @ 1% THD) in 8-channel mode: 8x80 W @ 8 Ohm, 2x150W @ 4 Ohm, EIAJ (1KHz @ 1% THD) in bridge mode channel pair: 160W @ 16 Ohm, 300W @ 8 Ohm; EIAJ (1KHz @ 1% THD) 8-channel mode on constant voltage line with output transformer: 8x130W @ 100V, 8x125W @ 70V; in parallel mode channel pair on constant voltage line with output transformer: 260W @ 100V, 250W @ 70V. Maximum output voltage per channel shall be 38V_{peak} @ loZ, 115V_{peak} @ 70V and 165V_{peak} @ 100V. Maximum output current shall be 15A peak @ loZ, 8A_{peak} @ 70V and 4,5A_{peak} @ 100V. Input impedance: 10K Ohm balanced; voltage gain: 32dB @ lo-Z, 41dB @ 70V and 44dB @ 100V; input sensitivity: 20 Hz - 20 kHz (1 W @ 8 Ω, +/-0.5 dB, or 32/65 W @ 70/100 V, +/-2.5 dB). Maximum input level: 0.63 V / -1.79 dBu. Frequency response: 20Hz-20KHz (lo-Z); 55Hz-12,25KHz (70V); 55Hz-16,25KHz (100V). Damping factor: (lo-Z) 20-200 Hz >500. Slew Rate @ 8 Ohm: 50V/us (input filter bypassed). S/N Ratio (20Hz-20KHz A weighted) in dB: >105dB (loZ), 110 dB (70V), 110dB (100V). 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: <0,05% from 1W to full power (typically <0,05%). Crosstalk > 60 dB @ 1KHz (lo-Z), >55 dB @ 1KHz (70V/100V).

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 5 kg (11 lb) without transformers and 11 Kg (24.3 lbs) all transformers included.