



# C 28:4

## Overview: Channel Modes and Network

The power amplifier shall provide four discrete channels of amplification. Rear-panel switches shall enable bridging of adjacent channels to allow reconfiguration as a 2- or 3-channel amplifier, with increased power output available through the bridged channels. Each channel (discrete or bridged) shall be capable of independently driving either low impedance or high impedance (70 Vrms /100 V peak) loads. The amplifier shall employ a proprietary tracking Class D output circuit topology. The amplifier shall be equipped with sensing and communication circuits to allow comprehensive remote control and monitoring functions via a separate network bridge. The proprietary control and monitoring network shall employ TCP/IP protocols, use Cat-5 cable for interconnection, and allow remote control from either the network bridge front-panel or from an external PC using proprietary software.

## Power Output and Performance

Maximum total output of all four channels shall be 2800 watts. In discrete four-channel mode, each amplifier channel shall deliver maximum continuous output power as follows: 600 watts into 16 ohms; 700 watts into 8 ohms; 700 watts into 4 ohms; 300 watts into 2 ohms; or 700 watts into a high impedance (70 Vrms /100 V peak) load. Maximum output voltage per channel shall be 100 Vrms; maximum output current per channel shall be 12 Arms. In bridged mode, each bridged channel shall deliver maximum continuous output power as follows: 1400 watts into 16 ohms; 1200 watts into 8 ohms; 600 watts into 4 ohms; or 1400 watts into a high impedance (140 Vrms / 200 V peak) load.

Default amplifier gain shall be 35 dB, with rear-panel adjustment from 23 - 44 dB in 3 dB increments, selectable for each channel. For bridged channels, the amplifier shall automatically compensate -6 dB gain internally to maintain operation of all channels at selected gain.

The amplifier shall exhibit the following performance parameters with gain set at 35 dB and VPL (Voltage Peak Limiter) at 141 V: Frequency response shall be 6.8 Hz to 34 kHz, +0/-3 dB at 1 watt into an 8 ohm load; channel separation shall be greater than 70 dB; and signal-to-noise ratio shall be 112 dBA. THD at 1 watt, 20 Hz - 20 kHz, shall be less than 0.1%; THD at 1 kHz shall be no more than 0.05% at 1 dB below clipping.

A voltage peak limiter shall limit peak output as determined by rear-panel switches. In discrete four channel mode, peak voltage shall be selectable in eight steps across a range of 141 V to 42 V. In bridged mode, peak voltage shall be selectable in eight steps from 282 V to 84 V. The voltage limiter mode shall be selectable for either hard or soft limiting characteristics.

## Connectors, Controls, and Indicators

The following connectors and controls shall be provided on the REAR-PANEL of the amplifier. The four input connectors shall be

electronically balanced, 3-pin Phoenix connectors. The four output connectors shall be 2-pole barrier strip screw connectors. A group of seven DIP-switches shall determine the following: Amplifier gain (23 dB to 44 dB in 3 dB increments); option active; fan masked; and bridged mode selection for channel pairs. A group of sixteen DIP-switches shall determine Voltage Peak Limiter values for each channel, selectable in eight steps, and Hard or Soft limiting characteristic. Two RJ45 connectors shall be provided for input and output of the control/monitoring network signals. An LED adjacent to the RJ45 connectors shall indicate active or inactive status of the network.

The following indicators and controls shall be provided on the FRONT-PANEL of the amplifier. Four level control potentiometers, one for each channel, shall be provided beneath a front-panel security cover; potentiometers shall be detented and provide attenuation from 0 dB to minus infinity in 21 steps. Individual switches shall be provided for power on/off and remote power on/off enabling. Front-panel LED indicators shall be provided to show status of power on/off (green), network connection (blue), Power Average Limiter (red), and option card active (yellow). Additional LED indicators shall be provided to show the status of the following for each channel: signal present and high-impedance warning (green/red), signal present at -10 dB and -4 dB (2 x green), voltage peak limiter clipping (red), current peak limiter (CPL) active (orange), very high frequency (VHF) warning (yellow), high temperature warning (yellow flashing), and high temperature fault with output muted (yellow constant). Mute shall be indicated by illumination of both the temperature and VHF LEDs on a channel; fault shall be indicated by illumination of both the CPL and VHF LEDs on a channel.

## Power Supply, Protection, and Cooling

The power supply shall be a regulated switch mode type. The amplifier shall operate from AC line sources of either 230 V nominal or 115 V nominal, with operating ranges of 130 - 265 V and 65 - 135 V at line frequencies of 50 Hz or 60 Hz. Minimum power-up voltages are 171 V (230 V nominal) and 85 V (115 V nominal). A soft start circuit shall limit current inrush at power-up to 5 A. The amplifier shall be equipped with a PAL™ (Power Average Limiter) circuit to prevent excessive current draw. The amplifier shall be cooled by two temperature-controlled, variable-speed fans, with air flow from front-to-back. Adaptive fan on/off function shall be dependent on presence of an output signal.

## Physical

The amplifier shall be 483 mm (19 in.) wide, 88 mm (3.5 in. / 2 U) high, and 343 mm (13.5 in.) deep. The weight shall be 12 kg (26.4 lbs). The cabinet shall be black painted steel with a grey painted steel front-panel.

The amplifier shall be approved for use as specified by CE, ANSI/UL, ETL and the FCC. The amplifier shall be the Lab.gruppen C 28:4.

