

## Ottocanali 12K4 DSP+Dante Amplifier

### Architect's and Engineer's Specifications

The amplifier shall be an eight-channel model and an universal switch mode power supply with power factor correction, smart rail management 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  $\cos(\varphi)$  greater than 0,9 from 500W to full output power and shall draw 2115W (9,7 A @ 230V) or 2075 W (18,5 A @ 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 C20 main detachable connector and power cord set with IEC C20 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 low impedance loads (2/4/8 Ohm) and 70V/100V distributed lines selectable per channel by using dipswitch settings at the rear panel of the amplifier. Furthermore, it shall be able to provide more than 60 different possible output configurations (lo-Z, hi-Z, bridge mode, parallel mode, and combinations of these). The amplifier shall deliver a maximum output power per channel of; 850W at 8  $\Omega$ ; 1500 W at 4  $\Omega$ ; 1000 W at 2  $\Omega$ ; 3000 Watt at 8 $\Omega$  bridged; 2200 Watt at 4  $\Omega$  bridged; 1500 Watt at 100 Volt and 1500 Watt at 70 Volt.

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 Idle mode, the amplifier shall not absorb more than 35 W @ 230V or 30 W @ 115V (0,8A @ 230V or 0,6A @ 115V). The amplifier shall not dissipate more than 1937 BTU/h @ 230 V and 2141 BTU/h @ 115 V at 1/8 of the rated power at 4 Ohm.

The amplifier shall contain a DSP board for real-time audio processing not exceeding a 2.5 ms fixed latency architecture. As part of the DSP the amplifier will offer an 8 x 8 matrix for all analogue and digital inputs. Integrated in the DSP will be filters per channel offering raised-cosine, custom FIR, parametric IIR, peaking, hi/lo-shelving, all-pass, band-pass, band-stop, hi/lo-pass filters and a crossover with linear phase (FIR), Butterworth, Linkwitz-Riley, Bessel: 6 dB/oct to 48 dB/oct (IIR).

For time alignment the DSP in the amplifier will offer Delay 2 s (input) + 100 ms (output). The limiters in the DSP will contain TruePower™, RMS voltage, RMS current and Peak limiters. Active DampingControl™ and LiveImpedance™ measurement will be part of the DSP

The internal memory of the amplifier will contain of predefined pre-sets with cross-over settings and will allow for more than 200 users pre-sets and snapshots to be stored.

The amplifier will offer pilot tone sensing on all inputs and outputs, redundant input switch over, pilot tone back up strategy with delay compensation, output load monitor and output load detection.

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Network audio expansion shall be provided by the Dante protocol with a capacity of 16 x 8 channels. The connection to the Dante network will be offered by primary and secondary connection enabling redundant setup of the Dante stream. Connectors shall be gigabit RJ45 utilizing CAT6 cable. Remote control and monitoring of the status of the amplifiers shall be provided by a RJ45 port combined with the Dante port

The amplifier shall be equipped with remote On/off contacts and gain selection switches which will allow the amplifier to operate with 26,29,32 and 35 dB gain applied to the input signal. The amplifier shall implement HPF filter to either 35 Hz or 70 Hz configurable per channel.

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.

The amplifier system shall implement triggering signals to broadcast alarms by providing a pair of paralleled general purpose output connections per channel: one Normally Open (NO) and one Normally Closed (NC). The GPO contacts will be used to report potentially dangerous faults or generally unsafe operation conditions by toggling alarm switches relative in case of no AC mains, thermal stress, short circuit in output wiring, amplifier is in Standby, DC presence at the output, Input pilot tone out of range, output pilot tone out of range and output load out of range.

The amplifier shall offer redundancy on the inputs by offering 8 auxiliary inputs next to the 8 analog line inputs. The auxiliary input will be able to be triggered remotely by close contact connection provided on the rear panel of the amplifier. A fixed +/- 12 volt DC connection on the rear channel will allow remote switching of the auxiliary inputs. The amplifier will be equipped with a redundant power supply. Failure of one of the main power supplies will result in a 6 dB reduction of specifications.

Each channel shall have long term limiters in order to protect loudspeakers against non-musical signals such as sine waves, feedback signals etc.

The amplifier front panel shall provide ON LED and STANDBY LED, Armonía ID push button, Soft Reset push button, Hard Reset push button, Self-Check function, Status LED strip, LED signal metering per channel, level potentiometer per channel, power push button and a USB port reserved for servicing.

The amplifier rear panel shall provide AC mains connector, Phoenix output connectors, Phoenix line input connector, Phoenix Auxiliary priority connector, Phoenix GPO connector, System configuration dip switches and output configuration dip switches.

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