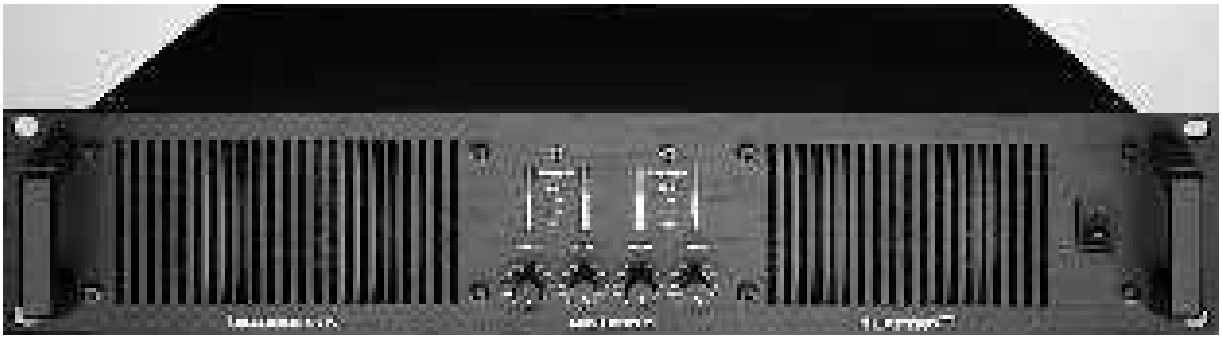
LAB.GRUPPEN



FOUR CHANNEL POWER AMPLIFIER

LAB 1200C

FEATURES

- **4x370 W into 8 Ω**
  4x380 W into 4 Ω
  at clip level with four channels driven
- **Compact design, 2 U high (88 mm)**
- **Low weight**
- **MLS switch offers full power in 8 or 4 ohms without increased power losses**
- **Electronically balanced inputs**
- **LED indicators show output voltage and headroom**
- **Independent protection circuitry**
- **ALS™ short circuit protection manages long-term short-circuit operations**
- **VHF protection**
- **DC protection**
- **Output cooled by Intercooler®**
- **Two proportional speed fans**
- **Clip limiter**

LAB. GRUPPEN's LAB 1200C is a four-channel, 370 watts per channel, light-weight power amplifier, designed for 19" rack mounting.

The LAB 1200C gives the opportunity of use in several applications, such as; in multi-channel monitor systems, four-channel reproduction, and compact amplification in active 2-, 3-, and 4-way systems.

The LAB 1200C gives the possibility to bridge connect one or two of the two pair of channels (channel A and B and/or channel C and D). These bridge mode combinations solve most of the problems concerning different impedance's and maximum power handing of loudspeakers.

The switch-mode power supply is the modern solution of the weight and size problem. With switch technology operating at a high frequency, it is possible to use ferrite transformers instead of heavy iron transformers and large electrolytic capacitors.

Switch-mode technology has been applied in power supplies in TV-sets during the latest 30 years. But in the LAB 1200C the power capacitivity is 10 times larger.

We have designed the LAB 1200C to obtain the same characteristics as a conventional power supply. Thanks to the switch-mode power supply it is easy to get the DC-rail voltage stabilised. This is made by controlling the magnetic energy in the ferrite transformer with a pulse width processor and magnetic "Flux Sense" windings.

Twenty-four 250 watt bipolar power transistors constitute the output stages, which are totally complimentary. The power transistors are cooled by a solid copper cooler, called Intercooler®, originally designed for our LAB 1300 power amplifier. LAB. GRUPPEN's specially designed thermal feedback circuit protects against thermal breakdown.

The LAB 1200C is completely short-circuit protected . The LAB 1200C is equipped with LAB. GRUPPEN's Adaptive Limiting SystemTM short circuit protection, which permits very high peak-currents, but still holds the transistors within the so-called "Safe Operation Area" at the present operating voltage. This makes it possible to run loudspeakers with impedance variations, which are considerably lower than the lowest permitted impedance of the power amplifier.

Six more protection circuits, which are separate for each channel, protect the LAB 1200C and the loudspeakers:

Two DC protections; one DC current limitation protection, supplemented with fuses on each DC voltage power supply rail; and one DC voltage protection of Crowbar type, which works by short-circuiting the output to protect the load.

Thermal protection; prevents the LAB 1200C from being overheated. The protection indicators on the front panel are switched on, as a warning, before the protection occurs.

VHF protection (Very High Frequency); protects the loudspeakers against strong non-musical signals above the audible area.

Clip limiter; prevents severely clipped waveforms from reaching the loudspeakers, but maintains full peak power.

AC protection; shuts down the outputs if the line voltage is outside the operating voltage of the LAB 1200C.

All electronics are mounted on six modules. The modules are easily accessible for replacement or repair, etc.

SPECIFICATION

LAB 1200C

MAX OUTPUT POWER [1]	MLS Switch	FTC 20 Hz-20 kHz at 0.1% THD	EIA 1 kHz at Clip (1% THD)	IHF Peak Power 20 msburst
16 Ω four channels	8	190 W	200 W	210 W
8 Ω four channels	8	350 W	370 W	380 W
4 Ω two channels [2]	8	650 W	700 W	720 W
4 Ω four channels	4	340 W	380 W	400 W
2 Ω two channels [2]	4	580 W	640 W	720 W
16 Ω bridged stereo	8	700 W	740 W	760 W
8 Ω bridged stereo	4	680 W	760 W	780 W

SPEAKER PROTECTION

Each channel is fuse protected on the positive and negative power supply rails. Electronic short-circuit protection with a progressive characteristic. The output power is turned off at shorted output. The power amplifier can be run into short-circuits for a long time without damage, and is open circuit and mismatch proof.

DISTORTION		
THD 20 Hz-20 kHz and 1 W-240 W	4 ohms	0.07 %
THD at 1kHz and 300W	4 ohms	0.01 %
DIM 30 at 150 W	4 ohms	0.008 %
CCIF (13 and 14 kHz) at 100 W	4 ohms	0.008 %
SMPTE (60 Hz and 7 kHz) at 150 W	4 ohms	0.01 %
POWER BANDWIDTH [3]		5 Hz-110 kHz
Slew rate		60 V/µs
OUTPUT IMPEDANCE	1 kHz	0.03 ohm
HUM AND NOISE below max power		<- 105 dBA
CHANNEL SEPARATION	1 kHz	80 dB
	10 kHz	70 dB
PHASE AND DELAY		
Deviation from perfect delay 150 Hz-20 kHz		± 1°
Total delay input to output at 4 ohms		3.5 µs
INPUTS		
Sensitivity for full output into 4 ohms		1.3 Vrms
Gain		29 dB
Impedance		20 kohms, balanced
Common mode rejection at 1 kHz		50 dB
FRONT PANEL		
Gain controls		(4) Channel A - B, C - D
Output displays	(4) red + (4 (2)green LED´s	Fast peak - slow release
Protect indicator	(4) yellow LED´s	80° C at heatzink or > 20 kHz at full power or shorted output.
On indicators	(4) green LED´s	DC rail voltage for channel A, B, C and D
REAR PANEL		
Input connectors		(4) XLR type 3 pin female (pin 2+).
Output connectors		(2) Neutric 4-pole speakon connectors (pin 1+ output, A, C)
Switches:		(pin 2+ output, B, D)
Link		A+B / B+C / C+D
Polarity B		Reverse polarity of channel B
Polarity D		Reverse polarity of channel D
Clip limiter A, B, C and D		On - Off
MLS		4 or 8 ohms

POWER		Option
Operation voltage	130 V - 280 V AC	65 V -135 V AC
Minimum start voltage	190 V AC	95 V AC
Full output power	180 V - 260 V AC	90 V - 130 V AC
Peak inrush current	4.5 A	

OVERALL DIMENSIONS		
mm (inch)		483 (19") W x 88 (3.5") H x 335 (13.2") D
WEIGHT		8.7 kg (19 lbs)
APPROVALS	CE	Emission EN 55 103-1, E3 Immunity EN 55 103-2, E3, with S/N below 1% at normal operation level [4] Safety EN 60 065, class I

1) Specifications measured with 230 V regulated AC
2) Continuous power, two channels driven or peak power four channels driven. (Thermal protection may occur at high continuous power).
3) The VHF-protection turns off the channel for frequencies above 20 kHz at full power.
4) Normal operation level 1/8 of full power or -9dB below clip point.

Lab.gruppen AB, Gullregnsvägen 16, SE-434 44 Kungsbacka, Sweden.
Tel. +46 300 168 23, Fax +46 300 142 46, www.labgruppen.se