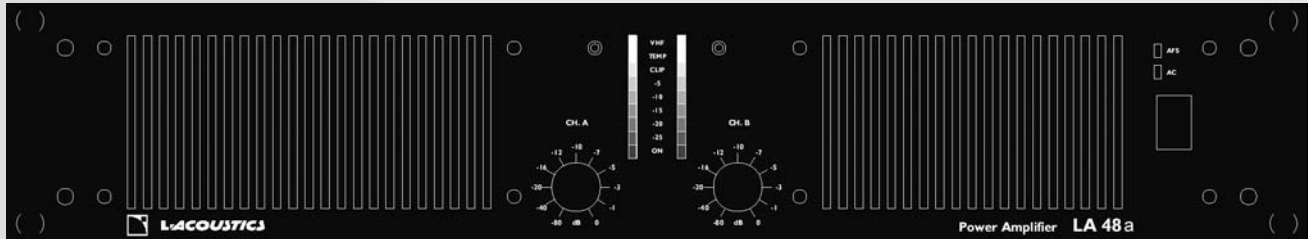




LA48a

**2-CHANNEL
POWER
AMPLIFIER**

L-ACOUSTICS PROFESSIONAL SOUND SYSTEM



- ▶ 2 x 1300 W into 8 Ω
- ▶ 2 x 2300 W into 4 Ω
- ▶ 2 x 2900 W into 2 Ω
- ▶ Compact design, 2 U high (88 mm)
- ▶ Lightweight (10 kg, 22 lbs)
- ▶ MLS™ switches offer power matching into different loads
- ▶ Electronically balanced inputs
- ▶ LED indicators show output voltage and headroom
- ▶ Output cooled by patented Intercooler®
- ▶ Two proportional speed fans
- ▶ Independent protection circuitry
- ▶ Short circuit protection
- ▶ DC protection
- ▶ Clip limiting
- ▶ VHF protection
- ▶ AFS™-limiter
- ▶ Thermal protection
- ▶ AC protection

FEATURES

The LA48a is a compact, light-weight power amplifier (2 rack units high, 10 kg) designed for high performance touring and fixed installation. Primarily intended for powering V-DOSC and SB218 subwoofers, the LA48a is capable of providing up to 2900 watts per channel into 2 ohms. The LA48a can also be configured to match the power delivered to a wide range of impedance loads using Minimum Load Select (MLS) switches, allowing the amplifier to be customized to suit a variety of L-ACOUSTICS loudspeaker models and applications.

The switch-mode power supply (SMPS) employed in the LA48a is a modern solution to the weight and size problem. With SMPS technology, it is possible to use ferrite transformers instead of the heavy iron transformers and large electrolytic capacitors that are typical of conventional power amplifiers. Combined with the heat dissipation efficiency of the patented Intercooler® system, this results in a weight reduction of up to 60% when compared with conventional amplifiers of similar power ratings.

Earlier attempts at using SMPS technology for audio were less than impressive since they directly adopted the type of supply found in computers. The LA48a is different since a regulated SMPS has been implemented using push pull conversion without current limiting on the secondary side of the switching transformer. Instead, sense windings inject a magnetic pulse from the AC line during a pulse time segment which is separate from the output charge current pulse. The net result is a power supply with performance characteristics that are the same as a conventional power supply and capable of delivering high peak power, tight bass and detailed transient response.

Using SMPS technology it is also easy to stabilize the DC-rail voltage allowing the LA48a to deliver full power over a range of up to 20% supply voltage swings and at any AC mains frequency from DC to 400 Hz. This stabilization is obtained by controlling the magnetic energy in the ferrite transformer with pulse width processing and magnetic flux sense windings.

The LA48a has an upgraded version of the switched mode output

stage from the LA 24a where the power transistors are cooled by a patented heatsink system termed the Intercooler®. Bipolar output devices are directly mounted onto a copper heat sink for improved heat transfer. The heat sink is then mounted horizontally in front of a pressure chamber that is created by two variable speed cooling fans. Specially designed thermal feedback circuitry protects against thermal breakdown and advanced linear active filtering is employed to reduce carrier noise and distortion in accordance with the strictest of EMC and RFI standards.

The LA48a is completely short-circuit protected (even for reactive loads) and specially designed short-circuit protection circuitry allows very high peak currents while holding transistors within their "Safe Operating Area". This makes it possible to run loudspeakers with impedance variations that are considerably lower than the rated impedance of the power amplifier. Six more protection circuits protect the LA48a and the loudspeakers:

DC Protection : Two types of D.C. protection - fuses on the supply branches of each channel (IEC 65 requirement) and crowbar type protection that shorts the output.

Thermal Protection : Protects the amplifier from overheating and causing damage to the output stages.

Clip Limiter : Prevents severely clipped waveforms from reaching the loudspeakers while maintaining full peak power.

VHF (Very High Frequency) Protection : Protects the loudspeaker against non-musical signals outside the audible frequency range.

AC Protection : Shuts down the outputs if the line voltage is outside the operating voltage of the LA48a.

AFS Limiter (Adaptive Fuse Saver) : Limits the mains current to a safe level according to the time lag of an 16 ampere slow blow fuse. All electronics are mounted on four modules that are easily accessible for repair or replacement.

LA 48a SPECIFICATIONS

OUTPUT POWER (EIA 1 kHz, 1% THD) ¹⁾

MLS Switch Setting

| Load | Configuration | -5 dB | -4 dB | -2 dB | 0 dB |
|---------|--------------------|--------|--------|--------|--------|
| 16 ohms | Stereo (2 channel) | 220 W | 260 W | 410 W | 650 W |
| 8 ohms | Stereo (2 channel) | 430 W | 520 W | 820 W | 1300 W |
| 4 ohms | Stereo (2 channel) | 830 W | 1000 W | 1600 W | 2300 W |
| 2 ohms | Stereo (2 channel) | 1660 W | 2000 W | 2400 W | 2900 W |
| 16 ohms | Mono Bridged | 860 W | 1040 W | 1640 W | 2600 W |
| 8 ohms | Mono Bridged | 1660 W | 2000 W | 3200 W | 4600 W |
| 4 ohms | Mono Bridged | 3400 W | 4000 W | 4800 W | 5800 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 for 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 (4 ohms load)

| | |
|---------------------------------------|--------|
| THD 20 - 20k Hz and 1 W to full power | 0.1 % |
| THD at 1k Hz and -1 dB under clip | 0.04 % |
| DIM 30 at -3 dB under clip | 0.06 % |

| | |
|--------------------------------------|------------|
| POWER BANDWIDTH ²⁾ | 5 - 20 kHz |
|--------------------------------------|------------|

| | |
|--------------------------|---------|
| SLEW RATE (1 kHz) | 20 V/μs |
|--------------------------|---------|

| | |
|-------------------------|----------|
| OUTPUT IMPEDANCE | 0.06 ohm |
|-------------------------|----------|

| | |
|--------------------------------------|------------|
| HUM AND NOISE below max power | < -110 dBA |
|--------------------------------------|------------|

| | |
|---------------------------|-----------------------------------|
| CHANNEL SEPARATION | 80 dB at 1 kHz 70 dB at 10 kHz |
|---------------------------|-----------------------------------|

PHASE AND DELAY

| | |
|---|---------------------|
| Deviation from perfect delay | ± 2° (150 - 20 kHz) |
| Total delay (input to output at 4 ohms) | 19 μs |

INPUTS

| | |
|---|---------------------|
| Sensitivity (for full output into 4 ohms) | 2.40 Vrms (9.9 dBu) |
| Gain | 32 dB |
| Impedance | 20 kohms, balanced |
| Common mode rejection at 1 kHz | 50 dB |

FRONT PANEL

| | | |
|----------------|---------------------------|-------------------------------------|
| Gain controls | (2) Channel A, B | |
| Output display | (2) red + (10) green LEDs | Fast peak - slow release |
| Temp indicator | (2) yellow LEDs | 80° C at heatsink |
| VHF indicator | (2) yellow LEDs | > 12 kHz at full power |
| On indicator | (2) green LEDs | DC rail voltage for channel A and B |
| AC indicator | (1) green LED | AC mains present |
| AFS indicator | (1) yellow LED | Fuse saver activated |

REAR PANEL

| | |
|----------------------|---|
| Input connectors | (2) Neutrik Combo XLR type 3 pin female & 1/4" jack and (2) XLR type 3 pin male |
| Output connectors | (2) Neutrik 4-pole Speakon connectors |
| Switches: | |
| Clip limiter A and B | On/Off (switchable) |
| MLS | 0, -2, -4 and -5 dB |

POWER

| | Version 230V | Version 115V |
|-----------------------------|------------------|-----------------|
| Nominal operating voltage | 230 V AC | 115 V AC |
| Operating voltage range | 130 V - 265 V AC | 65 V - 130 V AC |
| Minimum start voltage | 175 V AC | 85 V AC |
| Full output power at 4 ohms | 180 V - 265 V AC | 90 V - 130 V AC |

Current Draw at 4 ohms and 230V

| | | |
|--------------------------------------|-----------------------|-----------------------|
| Quiescent power (no load) | 1 Arms | 2 Arms |
| 1/8 of full power (-9 dB) | 6 Arms | 12 Arms |
| 1/3 of full power (-5 dB) | 14 Arms | 28 Arms |
| At full power (0 dB) at 1 KHz 1% THD | 20 Arms (AFS limited) | 40 Arms (AFS limited) |

NET DIMENSIONS mm (inch)

483 (19") W x 88 (3.5") H x 347 (13.7") D

SHIPPING DIMENSIONS mm (inch)

560 (22") W x 180 (7.1") H x 500 (19.7") D

NET WEIGHT

10 kg (22 lbs)

SHIPPING WEIGHT

11.6 kg (25.6 lbs)

¹⁾ Specifications measured with 230 V regulated AC

²⁾ VHF-protection turns off the channel for frequencies above 12 kHz at full power.

Approvals

CE

| | |
|----------|--|
| Emission | EN 55 103-1, E3 |
| Immunity | EN 55 103-2, E3, with S/N below 1% at normal operation level |
| Safety | EN 60 065, class I |

ETL

| | |
|-----------|-----------|
| ANSI / UL | STD 6500 |
| CAN / CSA | E60065-00 |

Specifications subject to change without notice

Specs LA48a 0103

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