



# LA15a

**4-CHANNEL  
POWER  
AMPLIFIER**

## L-ACOUSTICS PROFESSIONAL SOUND SYSTEM



- ▶ 4 x 370 W into 8  $\Omega$
- ▶ 4 x 600 W into 4  $\Omega$
- ▶ 4 x 500 W into 2  $\Omega$
- ▶ Compact design, 2 U high (88 mm)
- ▶ Lightweight (8.6 kg, 19 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
- ▶ ALS™ short circuit protection
- ▶ DC protection
- ▶ Clip limiting
- ▶ VHF protection

## FEATURES

The LA15a is a compact, light weight four-channel power amplifier (2 rack units, 8.6 kg) providing 600 watts per channel into 4 ohms. Ideal for amplifying the high frequency section in multi-channel monitor systems or passive 2-way systems in distributed fixed installations, the LA15 can also be used to power active 2- and 3-way systems since it is possible to bridge connect one or two channel pairs and match the output power delivered into a variety of impedance loads using Minimum Load Select (MLS) switching.

The switch-mode power supply (SMPS) employed in the LA15a 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 the type of supply found in many computers today was directly adopted. The LA15a 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 that 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 LA15a 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 twenty-four 250 watt bipolar power transistors employed in the LA15a are cooled by a patented solid copper heatsink, termed the Intercooler. Transistors are directly mounted onto the Intercooler for improved heat transfer and the heat sink is 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 LA15a is completely short-circuit protected and equipped with Adaptive Limiting System™ short circuit protection. ALS permits very high peak currents while keeping the transistors within their "Safe Operation Area". This makes it possible to run loudspeakers with impedance variations that are considerably lower than the rated nominal impedance of the power amplifier. Five more protection circuits protect the LA15a and the loudspeakers:

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

**Thermal Protection** : Prevents the amplifier from overheating and causing damage to the output stages. Front panel indicators come on as a warning before protection occurs.

**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.

All electronics are mounted on six modules that are easily accessible for repair or replacement.

## LA 15a SPECIFICATIONS

### OUTPUT POWER (EIA 1 kHz, 1% THD)<sup>1)</sup>

### MLS Switch Setting

Load	Configuration	-3 dB	0 dB
16 ohms	Quad (4 channel)	95 W	200 W
8 ohms	Quad (4 channel)	200 W	370 W
4 ohms	Quad (4 channel)	380 W	600 W
2 ohms	Quad (4 channel)	500 W	
16 ohms	Stereo (2 channels bridged)	380 W	740 W
8 ohms	Stereo (2 channels bridged)	760 W	1200 W
4 ohms	Stereo (2 channels bridged)	1000 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	0.07 %
THD at 1k Hz and -1 dB under clip	0.02 %
DIM 30 at -3 dB under clip	0.008 %

### POWER BANDWIDTH<sup>2)</sup>

5 Hz-20 kHz

### SLEW RATE (1 kHz)

60 V/μs

### OUTPUT IMPEDANCE

0.03 ohm

### HUM AND NOISE below max power

< -107 dBA

### CHANNEL SEPARATION

80 dB at 1 kHz  
70 dB at 10 kHz

### PHASE AND DELAY

Deviation from perfect delay ± 1° (150 - 20 kHz)  
Total delay (input to output at 4 ohms) 3.5 μs

### INPUTS

Sensitivity	1.22 Vrms (4 dBu)
Gain	32 dB
Impedance	20 kohms, balanced
Common mode rejection at 1 kHz	50 dB

### FRONT PANEL

Gain controls	(4) Channel A, B, C, D	
Output display	(4) red + (4 x 2) green LEDs	Fast peak - slow release
Protect indicator	(4) yellow LEDs	80° C at heatsink or > 12 kHz at full power or shorted output
On indicator	(4) green LEDs	DC rail voltage for channel A and B

### REAR PANEL

Input connectors	(4) Neutrik Combo XLR type 3 pin female & 1/4" jack
Output connectors	(2) Neutrik 4-pole Speakon connectors
<b>Switches:</b>	
Link	B+C
Link / Bridge	A+B / C+D
MLS	0 or -3 dB
Clip Limiter	On/Off (switchable)

### 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	200 V - 265 V AC	100 V - 130 V AC

### Current Draw at 4 ohms and 230V

Quiescent power (no load)	1.4 Arms	2.8 Arms
1/8 of full power (-9 dB)	6 Arms	12 Arms
1/3 of full power (-5 dB)	9 Arms	18 Arms
At full power (0 dB) at 1 KHz 1% THD	16 Arms	32 Arms

### NET DIMENSIONS mm (inch)

483 (19") W x 88 (3.5") H x 316 (12.4") D

### SHIPPING DIMENSIONS mm (inch)

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

### NET WEIGHT

8.6 kg (19 lbs)

### SHIPPING WEIGHT

10.2 kg (22.5 lbs)

<sup>1)</sup> Specifications measured with 230 V regulated AC

<sup>2)</sup> 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

#### ETL

Safety EN 60 065, class I  
ANSI / UL STD 6500  
CAN / CSA E60065-00

Specifications subject to change without notice

Specs LA15a 0103

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