

LAB.GRUPPEN



POWER AMPLIFIER

fp 3400

KEY FEATURES:

2 × 1100 watts @ 8 Ω
2 × 1500 watts @ 4 Ω
2 × 1700 watts @ 2 Ω
(Measured just below clip level,
with both channels driven)

- ◆ **Compact design, 2U high**
- ◆ **Low weight, 10 kg (22 lbs)**
- ◆ **MLS™ Switch: Lab.gruppen's unique power matching for different loads**

NEW FEATURES:

- ◆ **Multiple positions gain switch**
- ◆ **Intercooler® cooling system with front-to-rear airflow and easily accessible dust filters**
- ◆ **Improved low-end power bandwidth**
- ◆ **Link connector with XLR-type connector**
- ◆ **Bridged mono outputs in one Speakon® connector**
- ◆ **Extruded front panel for increased stability**

The fp 3400 is a **lightweight and space-saving power amplifier, ideal for use in high quality touring sound systems as well as in demanding permanent installations**

Heat and cooling are fundamental problems in extremely high powered amplifiers such as the fp 3400. In 1990, Lab.gruppen patented a high efficiency amplifier, in fact an evolution of the Class D amplifier. Lab.gruppen therefore call it Class TD. It attains the same high efficiency as Class D, but avoids its drawbacks. Class D has a power-amplifier topology using Pulse Width Modulation (PWM) to achieve high efficiency, but it needs a recovery filter between the output stage and the loudspeaker. Lab.gruppen's Class TD amplifiers do not need this filter and this is one reason why the Lab.gruppen Class TD obtains the same sonic quality as a traditional Class AB amplifier.

Besides the traditionally superb Lab.gruppen sonic performance, fp3400 offers a full line of important features:

Regulated switch mode power supply

Today there are many lightweight, switch-mode amplifiers on the market. However, the unique Lab.gruppen switch-mode power supply technology offers a number of essential advantages that make it superior to other seemingly similar power supply designs.

The most important features are the regulated power supply and the extreme power efficiency. The regulated power supply easily deals with a very high variation in the AC mains voltage: it can drop by up to 20% below its nominal level – e.g. to 180 V (90 V) instead of 230 V (115 V) – without any problem. Perhaps even greater benefits result from the extreme efficiency of Lab.gruppen amplifiers: only a fraction of the energy from the AC mains is turned into heat. A regulated power supply also presents some other sonic advantages, such as better cone control and the same fast response as a conventional power supply.

Multiple positions Gain switch

To meet the demands for a flexible gain structure in the system, Lab.gruppen offers a multiple position gain DIP switch. The maximum amplifier gain can be set to all industry standards: 20, 23, 26, 29, 32, 35, 38 and 41 dB.

Sophisticated protection circuitry, combining:

- **DC protection;** protects against infrasonic signals
- **VHF protection;** protects the loudspeakers against strong very high frequency non-musical signals above the audible range.
- **Thermal protection;** prevents the amplifier from being overheated. The protection indicators on the front panel are switched on, as a warning, before the protection process is initiated.
- **AC protection;** shuts down the power supply if the line voltage is outside the operating voltage.
- **Clip limiter;** prevents severely clipped waveforms from reaching the loudspeakers, whilst maintaining full peak power.

SPECIFICATIONS

fp 3400

Max output power ¹⁾	EIA	EIA	EIA	EIA	FTC
EIA at 1 kHz and 1% THD					20–20 kHz at 0.1% THD
MLS-switch	–5 dB	–4 dB	–2 dB	0 dB Full	0 dB Full
16 Ω per channel	160 W	200 W	340 W	520 W	500 W
8 Ω per channel	300 W	400 W	700 W	1100 W	1000 W
4 Ω per channel	600 W	750 W	1300 W	1500, 1900 ³⁾ W	1450 W
2 Ω per channel	1200 W	1400 W	1550, 1900 ³⁾ W	1700 ²⁾ , 3000 ³⁾ W	1650 W
16 Ω bridged	600 W	800 W	1400 W	2200 W	2000 W
8 Ω bridged	1200 W	1500 W	2600 W	3000, 3800 ³⁾ W	2900 W
4 Ω bridged	2400 W	2800 W	3100, 3800 ³⁾ W	3400 ²⁾ , 6000 ³⁾ W	3300 W

Max output voltage					
8 ohms load, MLS @ 0 dB	52 Vrms	58 Vrms	75 Vrms	94 Vrms	
Peak voltage, no load	79 V	82 V	107 V	132 V	

Distortion etc.	
THD 20 Hz–20 kHz and 1 W to full power	0.08 %
THD @ 1 kHz and –1 dB under clip	0.03 %
DIM 30 at –3 dB under clip	0.06 %
Hum and Noise	<–110 dB
Channel separation @10 kHz	70 dB
Output impedance	60 mΩ
Slew Rate	20 V/μs
Inputs	
Gain, selectable [dB]	20, 23, 26, 29, 32, 35, 38, 41
Impedance	20 kohm
Common mode rejection	50 dB

Front Panel		
Gain controls	(2) channel A, B	31 pos detent
Clip Indicator	(2) red LEDs	
Output headroom indicators	(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 power present
AFS Indicator	(1) green LED	Fuse saver activated

Rear Panel		
Input connectors	(2) Neutrik Combo XLR type, 3 pin and 1/4" jack	
Link connector	(2) XLR type, 3 pin male	
Output connectors	(2) Neutrik 4-pole Speakon® connectors	

Switches:	
Clip limiter A and B	On–Off (switchable)
MLS switch	0, –2, –4, –5 dB
Link-switch	Ch. A–B

Power	230 V version	115 V version
Operation voltage	130 V–265 V AC	65 V–135 V AC
Minimum start voltage	175 V	85 V AC
Full output power at 4 ohms	180 V–265 V AC	90 V–130 V AC
Peak inrush current (Soft start limited)	5 A	5 A

Current Draw @ 4ohms		
Quiescent power (no load)	1 Arms	2 Arms
1/8 of full power (–9 dB)	5 Arms	10 Arms
1/3 of full power (–5 dB)	11 Arms	22 Arms
At full power (0 dB)		
@1 kHz 1% THD	26 Arms	52 Arms

Net Dimensions	
mm	483 (19") W × 88 H × 347 D
inch	19" W × 3.5" H × 13.7" D

Shipping Dimensions	
mm	560 W × 180 H × 500 D
inch	22" W × 7.1" H × 19.7" D

Weight	
Net	10 kg (22 lbs)
Shipping	11.6 kg (25.6 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 60065, class I
ETL listed:	Conforms to ANSI/UL STD 6500 and Certified to CAN/CSA E60065-00
FCC:	Complies with Class B digital device, Part 15 of the FCC Rules.

NOTES:	
1)	Specifications measured with 230 V AC
2)	Component tolerance dependent
3)	Continuous power, one channel driven or peak power both channels driven (Thermal protection may occur at high continuous power)
4)	Normal operation level 1/8 of full power or –9 dB below clip level.

Lab.gruppen reserve the right to alter functions or the specification without prior notice.