

LAB.GRUPPEN



POWER AMPLIFIERS

fp 2400Q

KEY FEATURES:

- ◆ 4 x 370 watts @ 8 Ω
4 x 380 watts @ 4 Ω
4 x 500 watts @ 2 Ω
(Measured just below clip level, with all 4 channels driven)
- ◆ Light weight and compact: only 8.6 kg (19lbs), 2U high
- ◆ **MLS™ Switch:** Lab.gruppen's unique power matching for different loads

NEW FEATURES:

- ◆ Replaces the LAB 1200C
- ◆ Easily accessible dust filters
- ◆ Improved low-end power bandwidth
- ◆ Extruded front panel for increased stability

The fp 2400 is a lightweight and space-saving four-channel power amplifier, ideal for use in high quality touring sound systems as well as in demanding permanent installations.

The fp 2400Q offers a choice of applications, such as in multi-channel monitor systems, four-channel reproduction and compact amplification in active 2-, 3-, and 4-way systems.

The fp 2400Q gives the possibility to bridge connect one or two of the two pairs of channels (channel A and B and/or channel C and D).

It also features Lab.gruppen's unique power matching solution, the MLS switch, which offers endless combinations for solving most of the problems related to different impedances and maximum power capacities of loudspeakers.

The latest semiconductor technology is utilized in the new ferrite Power (fP) amplifiers. This, together with Lab.gruppen's proprietary copper cooling system, Intercooler®, enhances the 2 ohms capacity. Two easily accessible dust filters on the front ensure a clean front-to-rear airflow.

A new Bi-phase wiring scheme also increases the capacity of the switch mode power supply. This extends the power bandwidth in the low end.

Besides the traditionally superb Lab.gruppen sonic performance, there is a full line of features to make the fP family functional in all situations from installation to high performance live sound systems:

Regulated switch mode power supply

Today there are many lightweight, switch-mode amplifiers in the market. However, the unique Lab.gruppen switch-mode power supply technology offers a number of essential advantages that make it superior to other and 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 instead of 230 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.

Sophisticated protection circuitry, combining:

- **ALS™ short circuit protection;** the Adaptive Limiting System permits very high peak currents, but keeps the amplifier within the Safe Operation Area.
- **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 2400Q

MAX OUTPUT POWER ¹⁾

EIA at 1 kHz and 1% THD

		0 dB Full	FTC 20-20kHz @0.1%THD
MLS switch	-3 dB	0 dB Full	0 dB Full
16 Ω four channels	95 W	200 W	180 W
8 Ω four channels	200 W	370 W	360 W
4 Ω four channels	380 W	590 ²⁾ , 700 ³⁾ W	530 W
2 Ω four channels	500 ²⁾ , 650 ³⁾ W	N/A	N/A
16 Ω bridged stereo	380 W	740 W	720 W
8 Ω bridged stereo	760 W	1200 ²⁾ , 1400 ³⁾ W	1000 W
4 Ω bridged stereo	1000 ²⁾ , 1280 ³⁾ W	N/A	N/A

Max output voltage

8 ohms load, MLS @ 0 dB	40 Vrms	54 Vrms
Peak voltage, no load	60 V	81 V

Distortion etc.

THD 20Hz-20kHz and 1W to full power	0,07 %
THD @ 1kHz and -1dB under clip	0,02 %
DIM 30 at -3dB under clip	0,008 %

Hum and Noise

Channel separation @10kHz	<-107 dB
Output impedance	70 dB
Slew Rate	30 mΩ
	60 V/μs

Inputs

Gain	32 dB
Impedance	20 kohm
Common mode rejection	50 dB

Front Panel

Gain controls	(4) channel A, B, C, D	31 positions detent
Clip Indicator	(4) red LEDs	
Output headroom indicators	(4 x 2) green LED's	Fast peak -slow release
Protect indicator	(4) yellow LEDs	80°C at heatsink or >12kHz at full power or shorted output
On Indicator	(4) green LEDs	DC rail voltage for channel A, B, C and D

Rear Panel

Input connectors	(4) Neutrik Combo XLR type, 3 pin & 1/4" jack
Output connectors	(2) Neutrik 4-pole Speakon connectors
Switches	
Clip limiter	On-Off (switchable)
MLS switch	0, -3 dB
Link-switches	A+B / B+C / C+D

Power

	230 V version	115 V version
Operation voltage	130 V-265 V AC	65 V – 135 V AC
Minimum start voltage	175 V	95 V AC
Full output power at 4ohms	200 V-265 V AC	100 V – 130 V AC
Peak inrush current (Soft start limited)	5 A	5 A

Current Draw @ 4ohms&230V

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

Net Dimensions mm (inch)

Shipping Dimensions mm (inch)	483 (19") W x 88 (3,5") H x 316 (12.4") D
Net Weight	560 (22") W x 180 (7.1") H x 500 (19.7") D
Shipping Weight	8.6 kg (19 lbs)
	10.2 kg (22.5 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 VAC

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 -9dB below clip level.