



# FP 4000

- ▶ **High power density** – The FP 4000 delivers a total of 4000 W (2 x 2000 W @ 2 ohms) in only 2U.
- ▶ **Lab.gruppen sound quality** – FP 4000 amplifiers maintain the Lab.gruppen's reputation for sound quality, with transparent mid- and high-frequency performance and new circuit designs optimized for sustained low-frequency output.
- ▶ **NomadLink® network ready** – Monitoring and control of key functions accessible via the intuitive DeviceControl software and the robust, daisy-chained NomadLink network, as well as by the leading third party control platforms.
- ▶ **Patented Class TD® amplifier topology** – Road-proven output stage delivers Class B audio quality with Class D efficiency.
- ▶ **Regulated Switch Mode Power Supply (R.SMPS™)** – Output power remains constant even with significant drops in the mains voltage.
- ▶ **Efficient cooling system** – Unique, lightweight Intercooler® copper cooling system dissipates more heat to allow extended peak output.
- ▶ **Adjustable parameters** – Selectable Gain, scalable Voltage Peak Limiter (VPL™), and bridge-mode operation allow custom configuration for any system or application.
- ▶ **XLR input and link connectors**
- ▶ **Heavy-duty binding post or speakON® output connectors**
- ▶ **Comprehensive protection and warning** – Excessive output current, DC, high temperature, very high frequency (VHF), short circuit, open load, mains fuse protection, and soft start.

## A Benchmark For Touring Amplification

Over the past decade, the tight and transparent sound of Lab.gruppen touring amplifiers has earned the praise of renowned FOH engineers and leading sound rental companies worldwide. The FP+ Series model FP 4000 continues this tradition. At the core of the FP 4000's performance is the patented Class TD output stage, a breakthrough amplifier topology that approaches the exceptional efficiency of Class D while retaining the sonic purity of proven Class B technology designs. Further contributing to the remarkable efficiency of the FP 4000 is a Regulated Switch Mode Power Supply (R.SMPS), which gives the added benefit of stabilizing rail voltages to the output even with wide fluctuations of mains voltage. A highly refined and updated circuit layout optimizes the interaction of R.SMPS and Class TD to produce the high power density of the FP 4000.

To keep its cool under extreme demands, the FP 4000 relies on Lab.gruppen's proprietary Intercooler. This innovation uses thousands of copper fins to multiply the exposed heatsink surface's rapid heat dissipation. Also, all output devices are mounted transverse to the airflow for uniform cooling. As a result, the FP 4000 delivers Lab.gruppen's trademark "all the power, all the time" with no degradation of sonic performance.

To maximize headroom in any application, the FP 4000 offers adjustable input gain along with Lab.gruppen's exclusive Voltage Peak Limiter (VPL). Adjustable on a per-channel basis, VPL optimizes the output for any load, from a single massive subwoofer to a series of HF compression drivers.

The comprehensive warning and protection features on the FP 4000 safeguard output circuits and connected loads while also extending amplifier life and minimizing the chance of service interruptions. Whether it's a matter of faulty wiring, improper use, or extreme ambient temperatures, the FP 4000 gives clear indication of any problems. Automatic protection measures engage only at critical thresholds. Operating conditions are re-checked every six seconds and, if a fault is detected, normal operation is resumed when measurements return to nominal.

The FP 4000 is shipped with a NomadLink network interface as standard. In conjunction with DeviceControl software, NomadLink allows comprehensive monitoring of amplifier status (including fault or warning indications) and also enables remote control of power on/off, channel mute, and channel solo functions. NomadLink is compatible with popular third-party control platforms; a separate NLB 60E NomadLink Bridge & Network Controller is required.



## Specifications FP 4000

### General

Number of channels	2
Peak total output both channels driven	4000 W
Peak output voltage per channel	121 V
Max. output current per channel	50 A peak

Max. Output Power	2 ohms	4 ohms	8 ohms	16 ohms
Per ch. (both ch.'s driven)	2000 W	1600 W	800 W	400 W
Bridged per ch.	3)	4000 W	3200 W	1600 W

### Performance with Gain: 35 dB and VPL: 121 V

THD 20 Hz - 20 kHz for 1 W	<0.1%
THD at 1 kHz and 1 dB below clipping	<0.05%
Signal To Noise Ratio	>112 dBA
Channel separation (Crosstalk) at 1 kHz	>70 dB
Frequency response (1 W into 8 ohms) +0/-3 dB	2 Hz - 34.2 kHz
Input impedance	20 kOhm
Common Mode Rejection (CMR)	>54 dB, 20 Hz to 20 kHz
Output impedance @ 100 Hz	32 mOhm

### Voltage Peak Limiter (VPL), max. peak output

VPL, selectable per ch.	121, 101, 83, 70, 56, 47, 38 V
VPL, selectable when bridged <sup>1)</sup>	242, 202, 166, 140, 112, 94, 76 V
Voltage Peak Limiter mode (per ch.)	Hard / Soft

### Gain and Level

Amplifier gain selectable (all channels) <sup>1)</sup> – rear-panel switches	23, 26, 29, 32, 35, 38, 41, 44 dB
Default gain	35 dB
Level adjustment (per ch.)	Front-panel potentiometer, 31 position detented from -inf to 0 dB

### Connectors and Switches

Input connectors (per ch.)	3-pin XLR, electronically balanced
Output connectors (per ch.)	Neutrik speakON or Binding Posts (must be specified upon order)
Output bridge mode per two ch.'s	A+B - Ch. A is signal input source
NomadLink network	On board, 2 x RJ45 etherCON <sup>®</sup> connectors, IN and OUT
Intelligent fans (on/off)	Yes, depending on presence of output signal
Power on/off and Remote enable on/off	Individual switches on front-panel
Cooling	Two fans, front-to-rear airflow, temperature controlled speed

### Front-panel indicators:

Common	NomadLink network; Power Average Limiter (PAL) <sup>2)</sup> ; Power on
Per channel	Signal present / High-impedance; -20 dB, -15 dB, -10 dB and -4 dB output signal; Voltage Peak Limiter (VPL); Current Peak Limiter (CPL); Very High Frequency (VHF); High temperature; Fault; Mute

### Power

Operating voltage, 230 V / 115 V nominal <sup>4)</sup>	130-265 V / 65-135 V
Minimum power-up voltage, 230 V / 115 V	171 V / 85 V
Power Average Limiter (PAL) <sup>2)</sup>	Yes
Soft start / Inrush Current Draw	Yes / max. 5 A
Mains connector	230 V CE: 16 A, CEE7; 115 V ETL: 20 A / NEMA 5-20P

### Dimensions

W: 483 mm (19"), H: 88 mm (2 U), Overall D: 396 mm (15.6"), Mounting D: 358 mm (14.1")

### Weight

12 kg (26.4 lbs.)

### Finish

Black painted steel chassis with black painted steel / aluminum front

### Approvals

CE, ANSI/UL 60065 (ETL), CSA C22.2 NO. 60065, FCC

**Note 1):** Automatic -6 dB gain compensation when bridging channels.

**Note 2):** PAL can reduce the maximum output power to keep the power supply operating safely, and/or to prevent excessive current draw tripping the mains breaker. Refer to the FP+ Operation Manual section 7.5.8 Power Average Limiter (PAL) for more information.

**Note 3):** The amplifier will be fully operational at bridge-mode 2 ohm loads, but due to physical constraints in the construction, the max. output power will not be significantly higher than running individual channels and therefore this mode of operation is not recommended.

**Note 4):** Separate 230 V or 115 V versions available. Not selectable on the amplifier.

All specifications are subject to change without notice.

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