



## LD Systems LDDSP 44 K & LDDSP 45 K



### INTRODUCTION

The LD Systems® DSP 44 K and DSP 45 K are designed to meet the very highest audio demands in terms of performance and functional reliability. The professional 4-channel power amplifiers feature an extensive range of DSP functions (DSP 44 K with Dante™ interface), delivering stunning performance and uncompromising sound quality with an output of 1,200 watts per channel and 2 x 2,400 watts bridged. The high-efficiency Class H topology with switching power supply and power factor correction (PFC) provide a wide dynamic range and excellent impulse fidelity. The power amplifiers are equipped with a soft starter and comprehensive circuitry protection, including DC, overcurrent, thermal and short circuit protection. Additional protection is provided by two limiters preventing power supply overload and power amplifier clipping, as well as by both temperature-controlled fans. These ensure exceptional operational safety even under extreme conditions. The 24-bit DSP allows precise control with FIR and IIR filters, parametric EQ, crossover, delay, RMS and peak limiters. User-configurable loudspeaker presets with password protection enable fast set-up. Both power amplifiers sport a menu driven 4-line display and rotary encoder with push button switch for easy configuration. The Dante™ interface (in the DSP 44 K) allows instant integration in Dante™ networks, while the software included enables computer control and monitoring. The LD Systems® DSP 44 K and DSP 45 K power amplifiers are housed in a dual rack space all-steel chassis and weigh just 7 kg. They provide balanced Neutrik® XLR inputs, speakON® output connectors plus USB and Ethernet ports. The preset library ensures optimum performance and safe operation of LD Systems® loudspeakers.

## CONNECTIONS, OPERATING AND DISPLAY ELEMENTS



### 1 DISPLAY

Multi-functional LC screen for display of speaker presets, audio signal level and channel mute. It also shows menu items in the edit menu, allowing system settings to be made as required.

### 2 MENU / ENTER

Combined push-and-turn dial to access the edit menu and select and edit individual menu items.

### 3 EXIT / LOCK

1. EXIT: Press the button briefly to move up one level in the menu structure to the main display (more than once if necessary).
2. LOCK: Press and hold the button for about 5 seconds to lock the controls and prevent unintentional and unauthorised changes being made. To deactivate the lock, press and hold the MENU dial for approximately 3 seconds.

### 4 SELECT / MUTE A - D

1. SELECT: Briefly press the relevant button to select the desired channel in the edit menu.
2. MUTE: Press and hold the relevant button for about 3 seconds to mute the selected channel and for about 3 seconds to unmute it.

### 5 CLIP

The CLIP LED display lights up when the relevant amp channel is operated in the upper threshold range. Brief illumination of the LED is uncritical here. In order to protect the system, an excessive signal level is gently down-regulated by the integrated limiters. If the CLIP LED lights up for a prolonged period or permanently, reduce the volume level.

### 6 PMS (POWER MANAGEMENT SYSTEM)

The PMS is an electronic protection system which permanently monitors the main amp parameters so as to only draw from the power supply the amount of current required to maintain safe operation (monitoring of signal input, capacity, temperature, current). The PMS LED lights up in the following situations:

1. During the power-up process until the amp is fully functional. The outputs are muted at the same time.
2. Due to unfavourable operating conditions, the internal temperature rises to near the point when the system would automatically shutdown to prevent overheating. Here the system takes control, restricting current so as to maintain operational continuity at the power level which the amp is capable of withstanding at that particular moment.
3. Excessive mains current consumption. This only occurs either under laboratory conditions during protracted sinusoidal signal testing using dummy loads or in conditions of prolonged acoustic feedback. Here the PMS takes control to avoid any damage to the speakers and to prevent the mains breaker from tripping or the fuses blowing.

### 7 DATA

The USB interface enables management and control of the DSP amp via LD Systems OCS software (can be downloaded free of charge on the product page at [WWW.LD-SYSTEMS.COM](http://WWW.LD-SYSTEMS.COM)).

### 8 VENTILATION GRILL

In order to avoid overheating of the device, ensure that the ventilation grill is not covered and that air can circulate freely.

## 9 POWER ON/OFF

On/off switch for device's power supply.



## 10 POWER CABLE

Permanently attached power cable with CEE 7/7 mains plug.

## 11 LINE INPUT IN CH 1–4

Balanced line inputs for channels 1 to 4 with 3-pin XLR sockets (female). Control by unbalanced cables is also possible but balanced signal transmission is preferable due to the higher level of noise immunity.

Balanced pin connections: Pin 1 = shield, Pin 2 = +, Pin 3 = -

Unbalanced pin connections: Pin 1 & 3 = shield & -, Pin 2 = +

## 12 LINK CH 1–4

Balanced line outputs for channels 1 to 4 with 3-pin XLR sockets (male). The sockets for the CH 1 to 4 line outputs are connected in parallel with the relevant input sockets IN CH 1 to 4.

## 13 OUTPUT CH A - CH D

SpeakON speaker outputs for channels A to D. To avoid damage to the equipment, make sure that the total impedance of the connected speakers is at least 2 ohms.

Socket assignment OUT CH A/B: plus 1⊕ & minus 1⊖ = CH A / plus 2⊕ & minus 2⊖ = CH B

Socket assignment OUT CH B: plus 1⊕ & minus 1⊖ = CH B

Socket assignment OUT CH C/D: plus 1⊕ & minus 1⊖ = CH C / plus 2⊕ & minus 2⊖ = CH D

Socket assignment OUT CH D: plus 1⊕ & minus 1⊖ = CH D

In Bridge mode, the channel pairs CH A / CH B and CH C / CH D are linked to create higher-performance mono amps. The line input for Bridge A/B is XLR socket IN CH 1, for Bridge C/D the line input is XLR socket IN CH 3. In Bridge mode, the minimum impedance for connected speakers is 4 ohms.

Socket assignment OUT CH A/B BRD: plus 1⊕ & minus 2⊖

Socket assignment OUT CH C/D BRD: plus 1⊕ & minus 2⊖

## 14 ETHERNET

The Ethernet interface enables management and remote control of the DSP amp via LD Systems OCS software (can be downloaded free of charge on the product page at [WWW.LD-SYSTEMS.COM](http://WWW.LD-SYSTEMS.COM)).

## 15 DANTE™ (DSP 44 K only)

The Dante™ interface allows loss-free and interference-free transmission of digital audio signals over long distances using commonly available CAT5e (or better) Ethernet cables (Primary = Network 1, Secondary = Network 2).

## 16 HOUSING FAN

In order to avoid overheating of the device, ensure that the fan is not covered and that air can circulate freely.

## TECHNICAL DATA

Model number:	LDDSP44K	LDDSP45K
Product type:	DSP controlled amplifier	DSP controlled amplifier
Type:	4-Channel	4-Channel
Rated output power (1 kHz @ 2 Ohm):	4 x 1200 W	4 x 1200 W
Rated output power (1 kHz @ 2,7 Ohm):	4 x 1500 W	4 x 1500 W
Rated output power (1 kHz @ 4 Ohm):	4 x 1200 W	4 x 1200 W
Rated output power (1 kHz @ 8 Ohm):	4 x 675 W	4 x 675 W
Rated output power (Bridge @ 4 Ohm):	2 x 2400 W	2 x 2400 W
Rated output power @ 70 V Mode:	4 x 1200 W	4 x 1200 W
Rated output power @ 100 V Mode:	2 x 2400 W	2 x 2400 W
Output circuitry:	Class H	Class H
Frequency response +/- 1 dB:	10 Hz - 22000 Hz (depending on preset)	10 Hz - 22000 Hz (depending on preset)
THD:	< 0,05 % @ 1 kHz (depending on preset)	< 0,05 % @ 1 kHz (depending on preset)
Gain:	32 dB (depending on preset)	32 dB (depending on preset)
Protection circuits:	Over-current, soft-start, DC, thermal overload, short circuit, multiband peak limiter, RMS limiter, SMPS overload limiter, output clip limiter	Over-current, soft-start, DC, thermal overload, short circuit, multiband peak limiter, RMS limiter, SMPS overload limiter, output clip limiter
Controls:	Push encoder; 4 direct access buttons; exit/lock button ; Power Switch	Push encoder; 4 direct access buttons; exit/lock button ; Power Switch
Indicators:	4 line LC Display with backlight	4 line LC Display with backlight
AD/DA converter sampling frequency:	48 kHz	48 kHz
AD/DA converter resolution:	24 Bit	24 Bit
Dynamic range:	104 dB	104 dB
Maximum delay / Channel:	input: 48m(141ms) / output: 1m(3ms)	input: 48m(141ms) / output: 1m(3ms)
DSP Functions:	FIR and IIR filters, parametric EQ, crossover, I/O delay, RMS and Peak limiters, input matrix, password protected loudspeaker presets	FIR and IIR filters, parametric EQ, crossover, I/O delay, RMS and Peak limiters, input matrix, password protected loudspeaker presets
Line inputs:	4	4
Line input connectors:	Neutrik XLR	Neutrik XLR
Line through:	4	4
Line through connectors:	Neutrik XLR	Neutrik XLR
Loudspeaker outputs:	4	4
Speaker output connections:	Speakon	Speakon
Digital audio interface:	DANTE™ (Digital Audio Network Through Ethernet)	
Cooling:	two temperature controlled fans	two temperature controlled fans
Operating voltage:	Switching power supply, 100-240 V AC, 50-60Hz	Switching power supply, 100-240 V AC, 50-60Hz
Power consumption @ full load:	1900 W	1900 W
Ambient temperature (in operation):	0°C - 40°C	0°C - 40°C
Relative humidity (in operation):	<80% (non condensing)	<80% (non condensing)
Width:	482 mm	482 mm
Height:	89 mm	89 mm
Depth:	320 mm	320 mm
Weight:	7.9 kg	7.9 kg
Features:	4-channel DSP controlled, Smart 19"/2U housing, active PFC, Dante™ Interface, Ethernet, USB front port, LD Systems loudspeaker preset library, computer control software	4-channel DSP controlled, Smart 19"/2U housing, active PFC, Ethernet, USB front port, LD Systems loudspeaker preset library, computer control software