LCP300-24D5 Power Supply Datasheet

Description

The LCP300-24D5 is a compact, fully enclosed 300W dual-output power supply for 3D printing applications. Featuring power factory correction and Gallium Nitride technology, the LCP300-24D5 provides 24V and 5V outputs with an efficiency of over 90%.

Features

- Dual output: 24VDC (x3) and 5VDC (x1)
- Highly compact (120×95×35mm) and fully enclosed
- GaN technology with PFC and efficiency of up to 91%
- Overload, overvoltage, and temperature protection
- Wide AC input: 100-240VAC
- Dual AC input terminals, supporting AC series connection

Model Breakdown

LCP300-24D5

- 24V primary output
  5V output
- 300W power rating
- LDO Compact PSU

Electrical Specifications

Model	LCP300-24D5		
Output	Output Voltage	5V	24V
	Max Current	5A	11.45A
	Max Power	25W	275W
	Ripple & Noise (Max)[2]	150mVp-p	360mVp-p
	Line Regulation	±1%	±1%
	Load Regulation	±5%	±2%
	Start-up / Rise Time[3]	3000ms、≤100ms	
	Hold-up Time[4]	≥8.3ms at full load	
Input	Voltage Range	100~240VAC	
	Frequency Range	50~60Hz	
	Efficiency	≥91%	
	AC Current	3.5A/115VAC 2A/230VAC	

Electrical Specifications

Model	LCP300-24D5	
Input	Inrush Current	≤50A/220VAC cold start
	Leakage Current	≤0.75mA,240VAC/50Hz
	L/N Terminal Current[5]	12A Max
Protection Features	Overload Protection	≥110% of rated output power
		5.2~6A (5V), 13~17A (24V), output voltage shuts off; recovers automatically after fault removal
	Overvoltage Protection	≥135% of rated output voltage
		Output voltage shuts off; recovers automatically after fault removal
	Temperature Protection	When enclosure surface temperature exceeds 110°C
		Output voltage stops until temperature drops below 80°C
Environmental Conditions	Operating Temperature	-20~40℃
	Operating Humidity	10~90%
	Storage Temperature & Humidity	-30~85℃/ 5~90%
	Vibration	10~500Hz, 2G, 10 minutes/cycle, 60 minutes in each X, Y, and Z direction
Safety & Compliance	Safety Standards	
	High Voltage Resistance	2.5KVAC
	Insulation Resistance	≥100MΩ
	EMC Immunity	Compliant with EN/IEC: EN55032, EN55035
	Harmonic Standards	Compliant with IEC61000-3-2, IEC61000-3-3
	LVD	Compliant with EN IEC 62368-1
Others	Dimensions	120.0mm(L)*95.0mm(W)*35.0mm(H)
	Packaging	132*105*39mm
	MTBF	50000h (25℃)

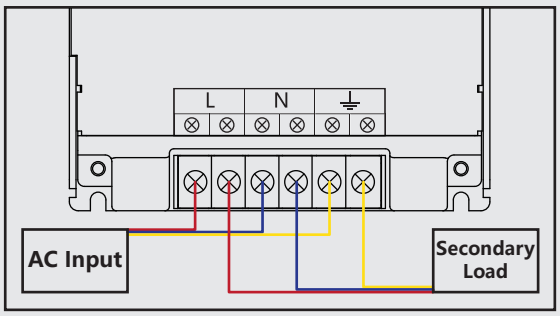
Electrical Specifications

Model	LCP300-24D5
Notes	1. Unless otherwise specified, all specifications are measured under 230VAC input, rated load, and 25°C ambient temperature. 2. Ripple and noise measurement: Measured at the end of the output cable, with a 0.1μF ceramic capacitor and a 47μF electrolytic capacitor. 3. Start-up time: The time from when power is applied to the input until the output voltage rises to 90% of its rated value. Rise time: The time required for the power supply to reach its rated output value from a no-power state. 4. Hold-up time: The duration from when the AC input is cut off to when the output drops below 5% of the standard value. 5. L/N terminal current: Refers to AC voltage interface, where a single input is used to distribute one output. The maximum current the AC voltage interface can withstand is 12A.

Wiring & Connections

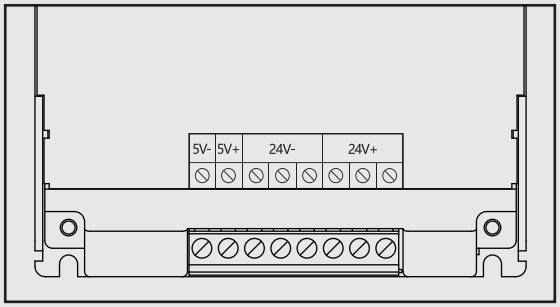
AC (Mains) Input

The LCP300-24D5 accepts a wide input range from 100-240VAC. There is no input voltage selection switch required.
The LCP300-24D5 features dual AC input terminals. Each terminal is capable of transferring currents of up to 12A. In theory this allows for additional AC loads to be daisy chained through the power supply, greatly simplifying wiring.
The input connectors use M3 barrier terminals. SV2-3 or equivalent fork spade terminals are recommended for wiring.



Output Terminals

The LCP300-24D5 features three 24VDC output terminals and a single 5VDC output. The 5V output is generated using an internal step-down buck converter from the 24V rail.
A total combined output of 300W is possible. However, at maximum output, the power supply can become signifi-cantly hot, and external airflow directed at the casing is recommended in this situation.
The output connectors use standard screw terminals. While bare stripped wires can be used, it is highly recommended to use ferrules. Ferrules up to size VE1508 can be used.



Drawings and Dimensions