Unregulated Switching Power Supplies

- Specifically designed to power stepper and servo systemss
- High efficiency
- Quick response to current change
- Output power up to 350W at 42, 48, 68 VDC
- Input of 220 AC ± 10% or 120 AC ± 10% input
- Short circuit, over-current, over-voltage and short-voltage protection
- Ultra compact size, light weight

Introduction

In stepper and servo systems, frequent speed and torque changes result in frequent current changes drawing from power supplies. When accelerating, servo / stepper drives draw high current and requires quick response for the power supplies. In de-acceleration, stepper / servo motors generates EMF charge back voltage back to servo / stepper drives, which will require the power supplies to “absorb” such voltage to protect the damage of connected stepper / servo drives.

Normal regulated switching power supplies commonly found on market are designed for powering devices with less output current changes. They can’t response quick enough to meet servo and stepper system. When adopted in servo or stepper systems, they could be even damaged because of lack the ability to handle voltage charge back from de-acceleration of servo / servo systems.

With special design, Leadshine SPS unregulated switching power supplies can meet the quick and frequent current change requirements in servo / stepper systems. Their built-in large capacitors can ensure that systems will still work normally in the process of stepper / servo de-acceleration. At ultra small sizes and very light weight (about 0.64 Kg, or 1.41 lbs), Leadshine SPS power supplies can output almost 350W continuous power (for 220 AC input) with the output voltage options of 42, 48, and 68 VDC.

Available Products

Model	Series	Input Voltage (VAC)	Output Voltage (VDC)	Output Current (A)	Peak Current (A)	Rated Power (W)	Size (mm)	Weight (kg)
SPS407	SPS	220VAC±10%	42	7		300	132*104*60	0.638
SPS407-L	SPS	110VAC±10%	42	4.7		200	132*104*60	0.638
SPS487	SPS	220VAC±10%	48	7		350	132*104*60	0.638
SPS487-L	SPS	110VAC±10%	48	4.0		200	132*104*60	0.638
SPS705	SPS	220VAC±10%	68	5		350	132*104*60	0.638
SPS705-L	SPS	110VAC±10%	68	3.0		200	132*104*60	0.638

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SPS Series DC Power Supplies

1. Introduction

The SPS series switch mode power supplies are specifically designed to power inductive loads found in stepping & servo motors. The normal regulated switching power supplies popular in the market are usually working with bad variability and low efficiency when used in stepping or servo driving, this is because that the conventional switching power supplies are designed for the constant and unvarying loads of circuit boards. Whereas, when the stepping or servo system running, the driving current varies extremely fast, which is belonged to inductive load, herein the drivers and power supplies would be damaged easily. This series supplies are capable of delivering current to drivers without affecting the reliability due to their unregulated specialty and bulky capacitance. By selecting correct model, one supply can supply 1-3 drivers and so the average cost of per shaft is saved.

2. Features

- Specifically designed to power stepping and servo drivers
- Efficient switch mode designed
- Output power up to 300W
- Short circuit, over-voltage protection
- Input voltage 220VAC or 120VAC (optional)
- Simple operation
- Compact size, lightweight

3. Electrical Specifications

Model	Output Voltage *Note1	Continuous Current	Peak Current	Supply Voltage *	Size (mm)	Weight(kg)
SPS407	42V	7A	9A	220VAC *Note2	132*104*60	0.638
SPS487	48V	7A	9A			
SPS705	68V	5A	7A			
SPS407-L	42V	4.7A	9A	120VAC *Note3	132*104*60	0.638
SPS487-L	48V	4.0A	9A			
SPS705-L	68V	3.0A	7A			

*Note1: Output voltage is proportional to supply voltage and affected by output current.
*Note2: Supply voltage for SPS407, SPS487 and SPS705 is from 180-250VAC
*Note3: Supply voltage for SPS407-L, SPS487-L and SPS705-L is from 90-130VAC

4. Operating Environment and Parameters

Cooling	Natural cooling or forced cooling	
Operating Environment	Environment	Avoid dust, oil fog and corrosive gases
	Ambient Temperature	0 C — 50 C
	Humidity	40 — 90%RH
	Vibration	5.9 m/s^2 Max
Storage Temperature	-40 C — 70 C	

5. Mechanical specifications (unit=mm, 1 inch = 25.4 mm)

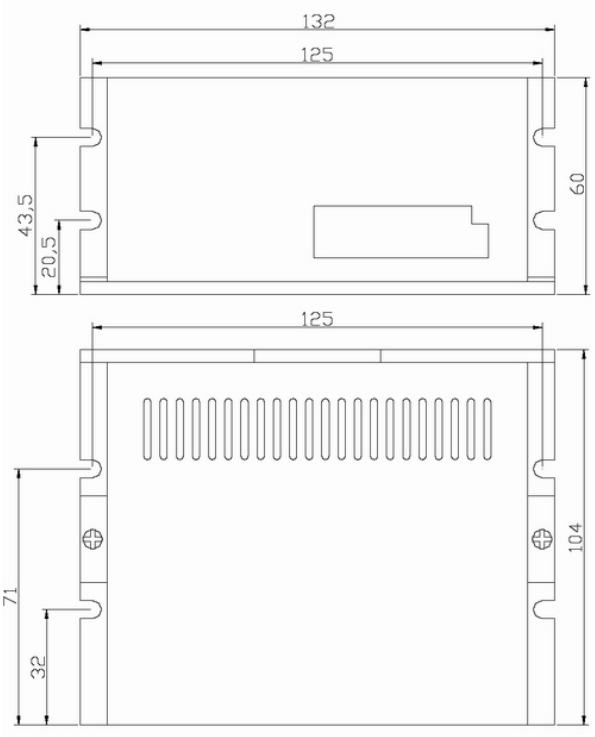

Figure 1: Mechanical specifications

6. Pin Assignment and Description

L	AC power input
N	
E	Ground terminal. Recommend connect this port to the ground for better safety.
GND	DC output negative
V+	DC output positive

7. Protection Functions

SPS407/487/705: When the input voltage higher than 264V, the ALARM LED will turn on and output will turn OFF;

SPS407-L/487-L/705-L: When the input voltage higher than 137V, the ALARM LED will turn on and output will turn OFF.