

## Switching Power Supply

### 50W Ultra Low Noise AC/DC Switching Power Supply

# LFS50 A

Ultra Low Noise AC/DC Switching Power Supply made by Daitron  
The breakthrough LFS50A series, compact, light-weight, and high-efficient, provides clean DC power with a complex resonant converter.

The LFS50A switching power supply, keeping leakage current, conducted emission, and radiate emission low is an ideal solution for noise-sensitive applications, especially the equipment used in advanced hyperfine measurement, testing and medical & biotechnology fields.



- ◆ Reinforced Isolation ※ Medical Standard input-to-output
- ◆ Ultra Low Ripple & Noise
- ◆ Low Conducted Emission , Low Radiated Emission
- ◆ Low Leakage Current (0.15mA/at 264Vac)
- ◆ Safety Standard : 62368-1, 60601-1

### Specification

		Model Number	LFS50A-5	LFS50A-12	LFS50A-15	LFS50A-24	LFS50A-30	LFS50A-48
Input	Input Voltage Range		Rating 100—240Vac (Range: 85~264Vac)					
	Frequency Range		Rating 50/60Hz (Range: 47Hz~63Hz)					
	Input Current (*1)	ACIN 100V / 200V	0.7A / 0.4A (Io=100%)					
	Inrush Current (*1)	ACIN 100V / 200V	20A / 40A					
	Efficiency (*1)	ACIN 100V / 200V	80% / 82%	85% / 87%	86% / 88%	87% / 89%	87% / 89%	88% / 90%
	Power Factor (*1)	ACIN 100V / 200V	0.97 / 0.86					
	Leakage Current	ACIN 100V/240V/264V(60Hz)	0.05mA typ / 0.12mA typ / 0.15mA max					
Output	DC Output Voltage		5Vdc	12Vdc	15Vdc	24Vdc	30Vdc	48Vdc
	DC Output Voltage Variable Range		4.5~6.0V	10.8~13.2V	13.5~16.5V	21.6~26.4V	27.0~33.0V	43.2~52.8V
	Output Current		10A	4.2A	3.4A	2.1A	1.7A	1.1A
	Maximum Output Power		50.0W	50.4W	51.0W	50.4W	51.0W	52.8W
	Line Regulation / Load Regulation [Max]		40mV / 80mV	48mV / 96mV	60mV / 120mV	96mV / 150mV	120mV / 188mV	192mV / 300mV
	Ripple Noise	(*2)	10mV typ					
Other Feature	OCP	(*3)	> 110% (Shut down output)					
	OVP	(*3)	> 115% (Shut down output)					
	Other		Remote Sensing , Remote Control , Remote Output Voltage Control					
	Operation Indicator		LED lighting					
Mechanical	Cooling System		Convection					
	Size (W x H x D), Weight		82 x 40 x 141 mm / 3.23" x 1.57" x 5.55" inch ( Without terminal stand ) , 400g					
	Input & Output Terminal / Signal Terminal		Screw terminal / Connector					
Environmental Condition	Operating Temperature / Humidity	(*4)	-10 °C ~ 60°C (With output) / 30%RH ~ 90%RH (Non Condensing)					
	Operating atmospheric pressure range (IEC60601-1)		700hPa~1060hPa					
	Storage Temperature / Humidity		-20°C ~ 85°C / 10%RH ~ 95%RH (Non Condensing)					
	Vibration Resistance		19.6m/s <sup>2</sup> (10~55Hz 1minute Period 1hour for each X,Y,Z direction)					
	Shock Resistance		196.1m/s <sup>2</sup> 11ms 1time for X,Y,Z direction					
Isolation	Isolation Voltage		INPUT - FG : 2kVac(20mA) 1min, INPUT - OUTPUT : 4kVac(20mA) 1min, OUTPUT - FG : 500Vac(20mA) 1min					
	Isolation Resistance		INPUT-FG , INPUT-OUTPUT , OUTPUT-FG DC500V >100MΩ					
Others	Electrostatic Discharge Immunity Test		EN61000-4-2 Compliance					
	Radiated Radio-Frequency Electromagnetic Field Test		EN61000-4-3 Compliance					
	Electrical fast Transient / Burst Immunity Test		EN61000-4-4 Compliance					
	Surge Immunity Test		EN61000-4-5 Compliance					
	Conducted Disturbances Inducted by Radio-frequency Immunity Test		EN61000-4-6 Compliance					
	Power Frequency Magnetic Field Immunity Test		EN61000-4-8 Compliance					
	Voltage Dips, short interruptions , voltage variations immunity tests.		EN61000-4-11 Compliance					
	Conducted Emission		EN55022-B, FCC-B, VCCI-B Compliance					
	Safety Certifications		UL62368-1, CAN/CSA-C22.2 NO.62368-1, EN62368-1 Certification PSE Compliance ANSI/AAMI ES60601-1, CAN/CSA-C22.2 No.60601-1, EN60601-1 Certification					
	UL File No		E237238(UL62368-1), E320635 (ES60601-1)					
	CE Marking		Low voltage directive					
Harmonic Current Characteristics		EN61000-3-2 (CLASS A) Compliance						

(\*1) Conditions: Ta=25 degree C Typical value at maximum output power (Inrush current value doesn't include part of within 0.1msec to input filter)

(\*2) The typical ripple voltage in the standard specification is a value measured using 100MHz oscilloscope in the anechoic chamber under the JEITA measuring method (Condition: Ta=25°C, Vin=100Vac Typical value at rated output)

(\*3) Upon over voltage or over current conditions, input power must be removed to allow unit reset to occur within a few minutes.

(\*4) Derating is required by operating temperature. Follow the overload and specification in manual to avoid the damage of power supply.

※This power supply is intended to be used as a component of a larger system of electrical equipment.

User is responsible for the safe design when this product is to be integrated in the equipment which requires particularly high quality and reliability and there is a possibility to endanger persons or property by a failure or malfunction of this product.



# LFS50 A

## Mechanical Drawings

### TB101

Pin#

- ① L : AC Line
  - ② N : AC Neutral
  - ③  $\perp$  : Frame Ground
  - ④ -V : - Output terminal
  - ⑤ +V : +Output terminal
- ※Terminal screws area all M3.5

### CN501

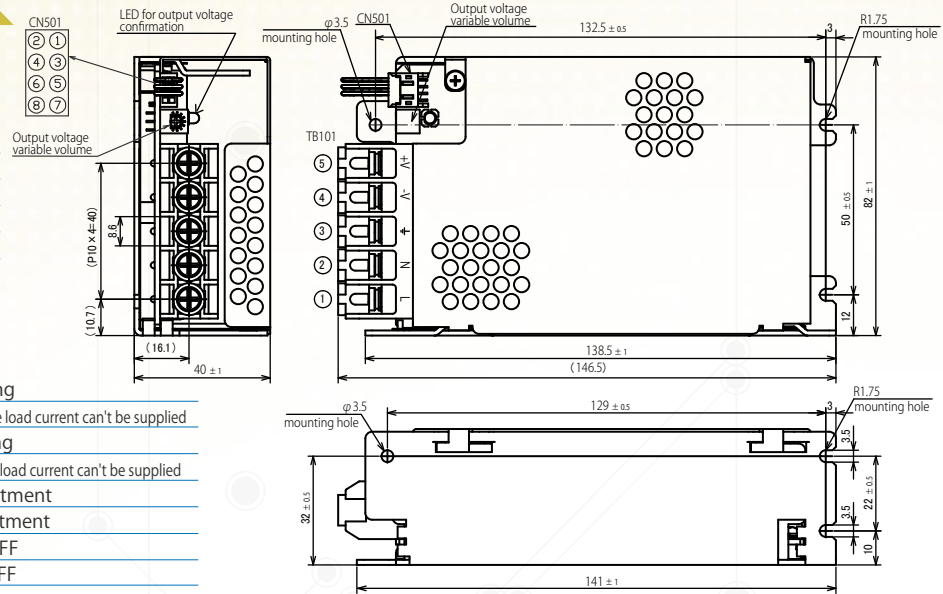
Pin#

- ① +S : +Output Remote Sensing
- ② +VS : +Output Voltage Check \* The load current can't be supplied
- ③ -S : - Output Remote Sensing
- ④ -VS : - Output Voltage Check \* The load current can't be supplied
- ⑤ VR+ : +Remote Voltage Adjustment
- ⑥ VR- : - Remote Voltage Adjustment
- ⑦ +R : +Remote Control ON/OFF
- ⑧ -R : - Remote Control ON/OFF

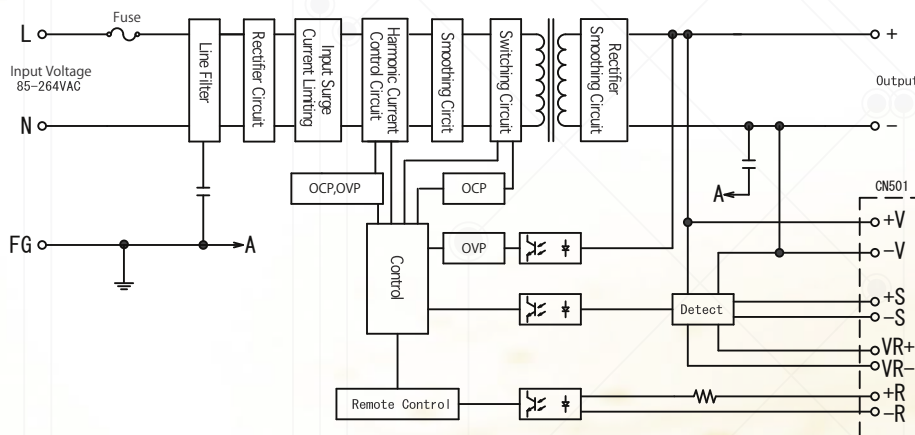
### CN502 (not included)

for proper connection to CN501

Connector P/N S8B-PHDSS (Manufacturer : JST) Terminal SPHD-001T-P0.5  
 Housing PHDR-08VS Crimping tool AP-K2N



## Block Diagram



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