

Wavecom Instruments

Winston LRS 350W

Power Supply Series



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Overview

The Winston LRS-350 Series are 350W single-output enclosed power supplies. Featuring a switch selectable input of 115 or 230V AC, the LRS-350 range provides output voltages from 3.3V through to 48V and offers efficiencies of 79.5%-89%. A 1.8mm pure aluminium case encases the power supply, with built in cooling fan (and manual On/Off switch) for precise temperature control. The LRS-350 delivers less than 0.75W zero load power consumption making it an excellent option for meeting energy standards, and for reducing overall energy usage. With all these features and more, the LRS-350 series offers an excellent price to performance power supply solution.

Features

- ◇ AC input range selectable by switch
- ◇ Withstands up to 300V AC surge input for 5 second
- ◇ Less than 0.75W zero load power consumption
- ◇ 1U low profile
- ◇ Operates without external cooling in environments up to 70°C
- ◇ Short circuit, overload, overvoltage and overtemperature protections
- ◇ Built in cooling fan with on/off controls
- ◇ Operating altitude up to 5000 meters
- ◇ High efficiency, long life and high reliability
- ◇ LED Power Indicator
- ◇ 100% full load burn-in test
- ◇ 3 years warranty

Ordering Information

- | | |
|--|----------------|
| ◇ 350W 3.3V Single Output Switching Power Supply | WCM-LRM-350-03 |
| ◇ 350W 4.2V Single Output Switching Power Supply | WCM-LRM-350-04 |
| ◇ 350W 5V Single Output Switching Power Supply | WCM-LRM-350-05 |
| ◇ 350W 12V Single Output Switching Power Supply | WCM-LRM-350-12 |
| ◇ 350W 15V Single Output Switching Power Supply | WCM-LRM-350-15 |
| ◇ 350W 24V Single Output Switching Power Supply | WCM-LRM-350-24 |
| ◇ 350W 36V Single Output Switching Power Supply | WCM-LRM-350-36 |
| ◇ 350W 48V Single Output Switching Power Supply | WCM-LRM-350-48 |

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Specifications

Model	LRS-350-03	LRS-350-04	LRS-350-05	LRS-350-12	LRS-350-15	LRS-350-24	LRS-350-36	LRS-350-48		
Output	DC Voltage	3.3V	4.2V	5V	12V	15V	24V	36V	48V	
	Rated Current	60A	60A	60A	29A	23.2A	14.6A	9.7A	7.3A	
	Current Range	0 - 60A	0 - 60A	0 - 60A	0 - 29A	0 - 23.2A	0 - 14.6A	0 - 9.7A	0 - 7.3A	
	Rated Power	198W	252W	300W	348W	348W	350.4W	349.2W	350.4W	
	Ripple and Noise	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	
	Voltage Adj. Range	2.97 - 3.6V	3.6 - 4.4V	4.5 - 5.5V	10.2 - 13.8V	13.5 - 18V	21.6 - 28.8V	32.4-39.6V	43.2 - 52.8V	
	Voltage Tolerance	±4.0%	±4.0%	±3.0%	±1.5%	±1.0%	±1.0%	±1.0%	±1.0%	
	Line Regulation	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
	Load Regulation	±2.5%	±2.5%	±2.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	
	Setup, Rise Time	1300ms, 50ms/230VAC - 1300ms, 50ms/115VAC at full load								
	Hold up Time (Typ)	16ms/230VAC - 12ms/115VAC at full load								
Input	Voltage Range	90-132V AC / 180-264V AC by switch - 240-370V DC - (Switch on 230V AC)								
	Frequency Range	47 - 63Hz								
	Efficiency (Typical)	79.5%	81.5%	83.5%	85%	86%	88%	88.5%	89%	
	AC Current (Typical)	6.8A/115VAC - 3.4A/230VAC								
	Inrush Current (Typical)	60A/115VAC - 60A/230VAC								
	Leakage Current	<2mA / 240VAC								
Protection	Overload	110 - 140% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	Over Voltage	3.8 - 4.45V	4.6 - 5.4V	5.75 - 6.75V	13.8V - 16.2V	18 - 21V	28.9 - 33.6V	41.4 - 46.8V	55.2 - 64.8V	
		Protection type : Hiccup mode, recovers automatically after fault condition is removed								
	Over Temperature	Hiccup mode, recovers automatically after fault condition is removed								
Function	Fan On/Off Control	RTH3 ≥50°C Fan On - ≤40°C Fan Off								
Environment	Working Temp.	-20 - +70°C (Refer to "Derating Curve")								
	Working Humidity	20 - 90% RH non-condensing								
	Storage Temperature Humidity	-40 - +85°C, 10 - 95% RH								
	Temperature Coefficient	±0.03% per °C (0 - 50°C)								
	Vibration	10 - 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes								
Safety	Safety Standards	EN60950-1 approved								
	Withstand Voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC								
	Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC / 25°C/ 70% RH								
Others	MTBF	327.9K hrs min. MIL-HDBK-217F (25°C)								
	Dimensions	215 x 115 x 30mm (L*W*H) - 0.76Kg								

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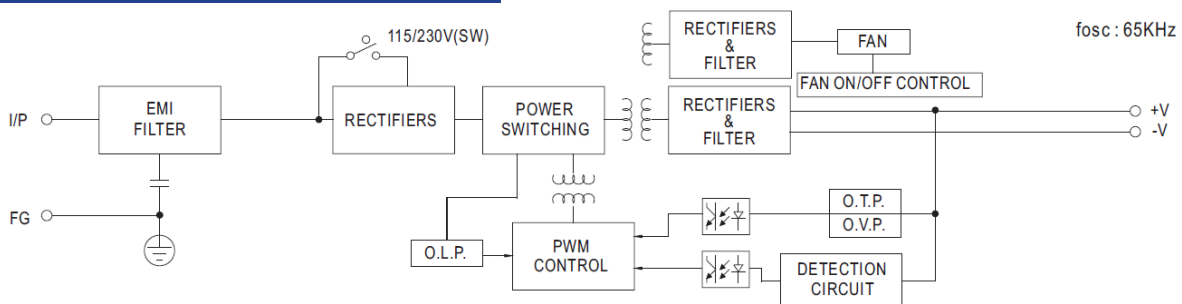
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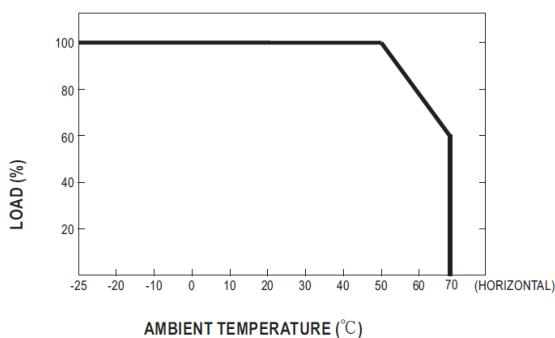
Notes

- All Parameters not specifically mentioned are measured at 230V AC input, rated load and 25°C ambient temperature
- Ripple and noise are measured at 20MHz bandwidth by using a 30cm twisted pair-wire terminated with a 0.1uf and 47uf parallel capacitor.
- Tolerance: includes set up tolerance, line regulation and load regulation.
- Line regulation is measured from low line to high line at rated load.
- Load regulation is measured from 0% to 100% rate load.
- Length of set up time is measured at cold first start. Turning the power supply ON/OFF very quickly may lead to an increase of the set up time.
- The 150% peak load capability is built in for up to 1 second for 12-48V. The LRS-350 will enter hiccup mode if the peak load is delivered for more than 1 second, and will recover once it returns to the rated current level (115 or 230V AC)
- The ambient temperature derating of 5°C/1000m is needed for operating at altitudes greater than 2000m.
- This power supply does not meet the harmonic current requirements outlined by EN61000-3-2. Please do not use this power supply under the following conditions:
 - End Device is used within the European Union, and
 - End Device is connected to public mains supply with 220V AC or greater rated nominal voltage, and
 - The power supply is either: installed in end devices with average or continuous input power greater than 75W or belong to part of a lighting system
- Exception: Power supplies used within the following end-devices do not need to fulfill EN61000-3-2
 - Professional Equipment with a total rated input power greater than 1000W
 - Symmetrically controlled heating elements with a rated power less than or equal to 200W

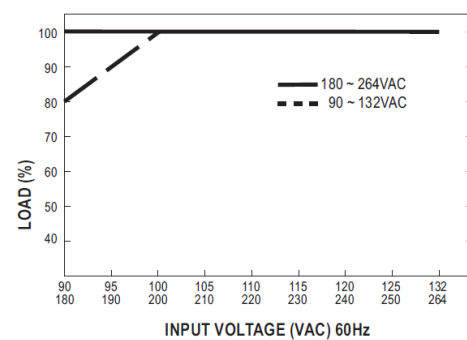
Block Diagram



Derating Curve



Static Characteristics



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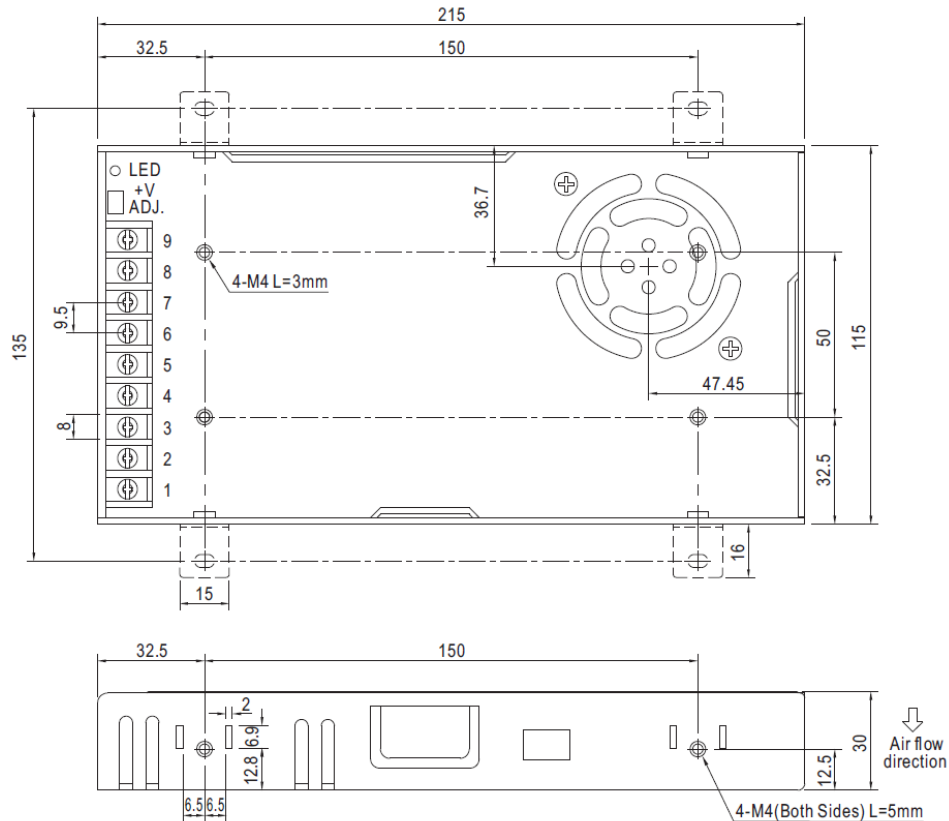
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Mechanical Specification



Terminal Pin Number Allocation

Pin Number	Assignment
1	AC/L
2	AC/N
3	FG \perp
4, 5, 6	DC OUTPUT -V
7, 8, 9	DC OUTPUT +V

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