

Wavecom Instruments

# Winston LRS 200W

Power Supply Series



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# Winston LRS 200W

## Power Supply Series

### Overview

The Winston LRS-200 Series are 200W single-output enclosed power supplies. Featuring a switch selectable input of 115 or 230V AC, the LRS-200 range provides output voltages from 3.3V through to 48V and offers efficiencies of 83%-90%. The 1.8mm pure aluminium case features a specially designed mesh enclosure to maximise heat dissipation, and operates at temperatures between -30°C to 70°C without fan airflow. The LRS-200 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-200 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 seconds
- ◇ Less than 0.75W zero load power consumption
- ◇ 1U low profile
- ◇ Operates without external cooling in environments up to 70°C
- ◇ Short circuit, overload and overvoltage protections
- ◇ Cooling by free air convection
- ◇ 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

- |  |                |
|--|----------------|
| ◇ 200W 3.3V Single Output Switching Power Supply | WCM-LRM-200-03 |
| ◇ 200W 4.2V Single Output Switching Power Supply | WCM-LRM-200-04 |
| ◇ 200W 5V Single Output Switching Power Supply   | WCM-LRM-200-05 |
| ◇ 200W 12V Single Output Switching Power Supply  | WCM-LRM-200-12 |
| ◇ 200W 15V Single Output Switching Power Supply  | WCM-LRM-200-15 |
| ◇ 200W 24V Single Output Switching Power Supply  | WCM-LRM-200-24 |
| ◇ 200W 36V Single Output Switching Power Supply  | WCM-LRM-200-36 |
| ◇ 200W 48V Single Output Switching Power Supply  | WCM-LRM-200-48 |

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### Specifications

Model	LRS-200-03	LRS-200-04	LRS-200-05	LRS-200-12	LRS-200-15	LRS-200-24	LRS-200-36	LRS-200-48	
<b>Output</b>	DC Voltage	3.3V	4.2V	5V	12V	15V	24V	36V	48V
	Rated Current	40A	40A	40A	17A	14A	8.8A	5.9A	4.4A
	Current Range	0 - 40A	0 - 40A	0 - 40A	0 - 17A	0 - 14A	0 - 8.8A	0 - 5.9A	0 - 4.4A
	Rated Power	132W	168W	200W	204W	210W	211.2W	212.4W	211.2W
	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	±3.0%	±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								
<b>Input</b>	Voltage Range	90-132V AC / 180-264V AC by switch - 240-370V DC - (Switch on 230V AC)							
	Frequency Range	47 - 63Hz							
	Efficiency (Typical)	83%	86%	87%	87.5%	88%	89.5%	89.5%	90%
	AC Current (Typical)	4A/115VAC - 2.2A/230VAC							
	Inrush Current (Typical)	COLD START 60A/115VAC - 60A/230VAC							
	Leakage Current	<2mA / 240VAC							
<b>Protection</b>	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
	Over Temperature	Hiccup mode, recovers automatically after fault condition is removed							
<b>Environment</b>	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)							
<b>Safety</b>	Vibration	10 - 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes							
	Safety Standards	EN60950-1 approved							
	Withstand Voltage	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC							
<b>Others</b>	Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH							
	MTBF	347.5K hrs min. MIL-HDBK-217F (25°C)							
	Dimensions	215*115*30mm (L*W*H) - 0.66Kg							

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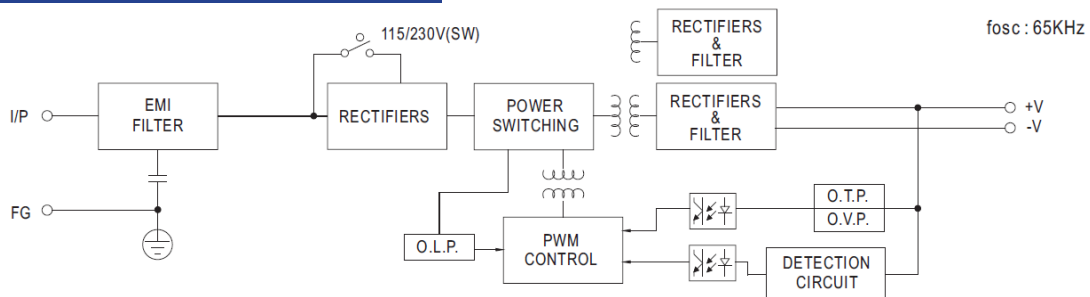
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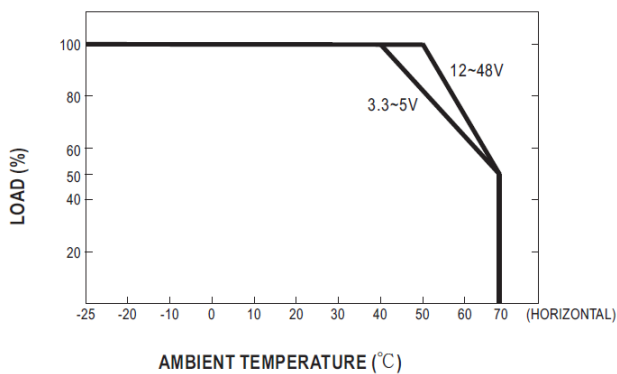
### Notes

- 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-200 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

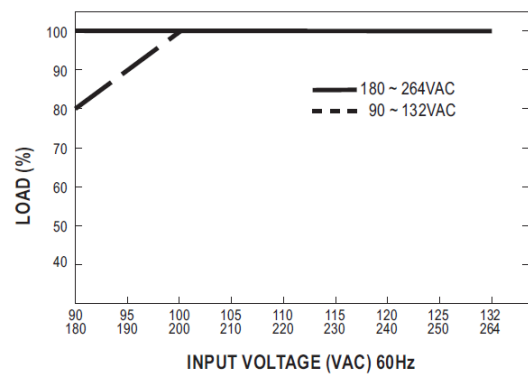
### Block Diagram



### Derating Curve



### Static Characteristics



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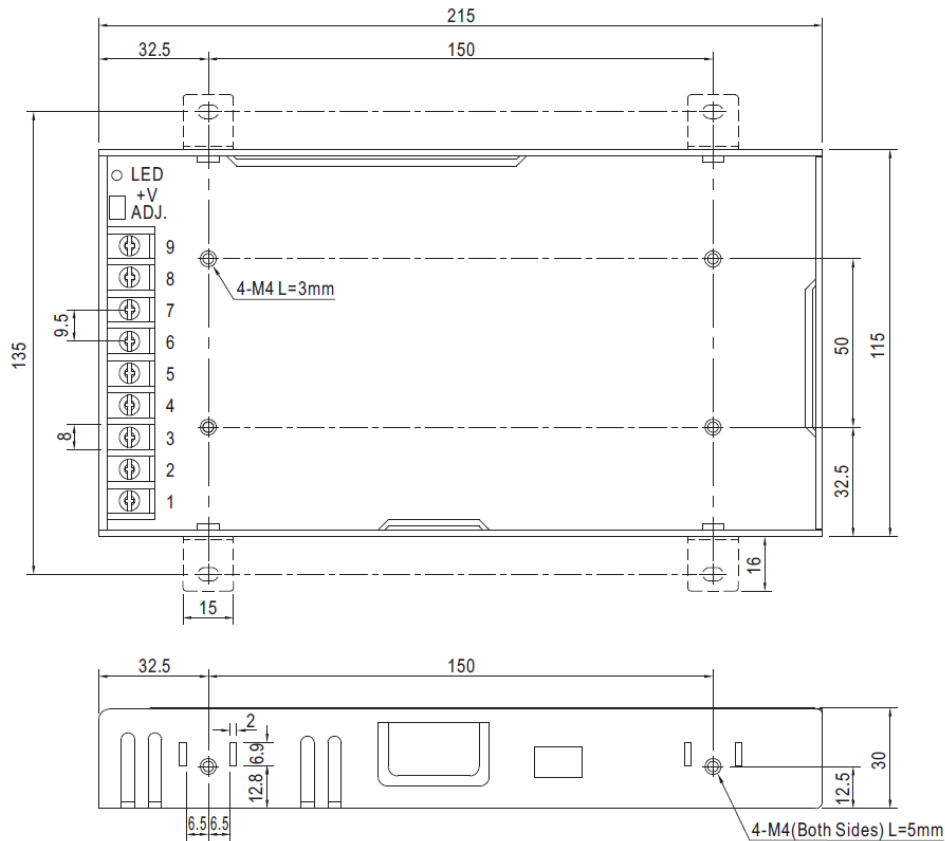
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### Mechanical Specification



### 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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