



200W Single Output Switching Power Supply

**LRS-200** series

## ■ Features

- AC input range selectable by switch
- Withstand 300VAC surge input for 5 second
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- 1U low profile
- Withstand 5G vibration test
- LED indicator for power on
- No load power consumption <math><0.75W</math>
- 100% full load burn-in test
- High operating temperature up to  $70^{\circ}\text{C}$
- Operating altitude up to 5000 meters (Note.8)
- High efficiency, long life and high reliability
- 3 years warranty

## ■ Applications

- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus

## ■ Description

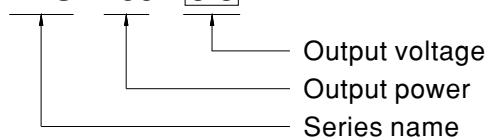
LRS-200 series is a 200W single-output enclosed type power supply with 30mm of low profile design. Adopting the input of 115VAC or 230VAC (select by switch), the entire series provides an output voltage line of 3.3V, 4.2V, 5V, 12V, 15V, 24V, 36V and 48V.

In addition to the high efficiency up to 90%, the design of metallic mesh case enhances the heat dissipation of LRS-200 that the whole series operates from  $-25^{\circ}\text{C}$  through  $70^{\circ}\text{C}$  under air convection without a fan. Delivering an extremely low no load power consumption (less than 0.75W), it allows the end system to easily meet the worldwide energy requirement. LRS-200 has the complete protection functions and 5G anti-vibration capability; it is complied with the international safety regulations such as UL 60950-1.

LRS-200 series serves as a high price-to-performance power supply solution for various industrial applications.

## ■ Model Encoding

**LRS - 200 - 3.3**

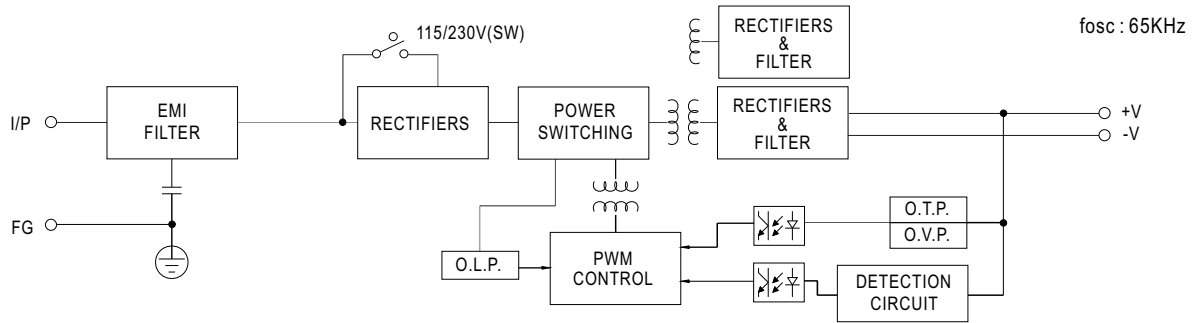




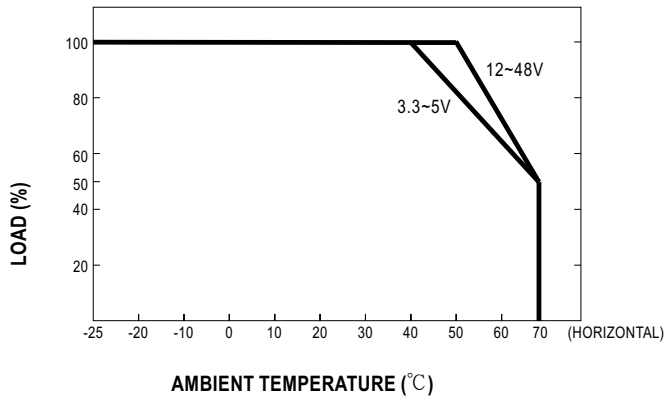
**SPECIFICATION**

MODEL		LRS-200-3.3	LRS-200-4.2	LRS-200-5	LRS-200-12	LRS-200-15	LRS-200-24	LRS-200-36	LRS-200-48	
OUTPUT	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 & NOISE (max.) Note.2	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 Note.3	± 3.0%	± 4.0%	± 3.0%	± 1.5%	± 1.0%	± 1.0%	± 1.0%	± 1.0%	
	LINE REGULATION Note.4	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%	
	LOAD REGULATION Note.5	± 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 ~ 132VAC / 180 ~ 264VAC by switch      240 ~ 370VDC (switch on 230VAC)								
	FREQUENCY RANGE	47 ~ 63Hz								
	EFFICIENCY (Typ.)	83%	86%	87%	87.5%	88%	89.5%	89.5%	90%	
	AC CURRENT (Typ.)	4A/115VAC      2.2A/230VAC								
	INRUSH CURRENT (Typ.)	COLD STAR 60A/115VAC      60A/230VAC								
	LEAKAGE CURRENT	<2mA / 240VAC								
PROTECTION	OVER LOAD	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	13.8 ~ 16.2V	18 ~ 21V	28.8 ~ 33.6V	41.4 ~ 46.8V	55.2 ~ 64.8V	
	OVER TEMPERATURE	Hiccup mode, recovers automatically after fault condition is removed								
ENVIRONMENT	WORKING TEMP.	-25 ~ +70°C (Refer to "Derating Curve")								
	WORKING HUMIDITY	20 ~ 90% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH								
	TEMP. COEFFICIENT	± 0.03%/°C (0 ~ 50°C)								
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes								
SAFETY	SAFETY STANDARDS	UL60950-1 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	347.5K hrs min.    MIL-HDBK-217F (25°C)								
	DIMENSION	215*115*30mm (L*W*H)								
	PACKING	0.66Kg; 15pcs/10.9Kg/0.78CUFT								
NOTE	<ol style="list-style-type: none"> <li>All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</li> <li>Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf &amp; 47uf parallel capacitor.</li> <li>Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>Line regulation is measured from low line to high line at rated load.</li> <li>Load regulation is measured from 0% to 100% rated load.</li> <li>Length of set up time is measured at cold first start. Turning ON/OFF the power supply very quickly may lead to increase of the set up time.</li> <li>The 150% peak load capability is built in for up to 1 second for 12~48V.LRS-200 will enter hiccup mode if the peak load is delivered for over 1 second and will recover once it resumes to the rated current level(115VAC/230VAC).</li> <li>The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m(6500ft).</li> </ol>									

■ Block Diagram



■ Derating Curve



■ Static Characteristics

