



E-Star Power Development Co., Ltd. (E-STAR)  
 6F., No. 114, Sec. 3, Minquan E. Rd., Songshan Dist., Taipei City 10543,  
 Taiwan (R.O.C.)  
 Phone : 886-2-2957 5580 Fax : 886-2-2957 7473

## 450W Enclosed type single output power supply > LRS-450



IS 13252(Part 1):2010/  
 IEC 60950-1:2005  
 R-41179035  
 (except for 48V)



R33100  
 RoHS



AS/NZS62368-1



TPTC004



IEC62368-1



CB



UL62368-1



(Note.11)



UK CA



ECO



Automate



Industrial



Security



Network



Telecom

### ■ Features

- AC input range selectable by switch
- Withstand 300VAC surge input for 5 second
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Forced air cooling
- Built-in cooling Fan ON-OFF control
- 1U low profile
- Withstand 5G vibration test
- High operating temperature up to 70°C
- Operating altitude up to 5000 meters (Note.10)
- 3 years warranty
- MTBF>1KK hrs

### ■ Applications

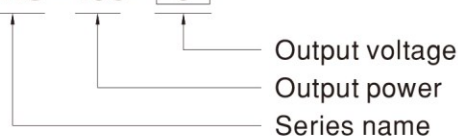
- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus

### ■ Description

LRS-450 series is a 450W single-output enclosed type power supply with 35mm of low profile design. Adopting the input of 115VAC or 230VAC (select by switch), the entire series provides an output voltage line of 5V, 12V, 15V, 24V, 36V and 48V. In addition to the high efficiency up to 92%, with the built-in long life fan LRS-450 can work under -20~+70°C with full load. LRS-450 has the complete protection functions and 5G anti-vibration capability; It is complied with complete international safety regulations LRS-450 series serves as a high price-to-performance power supply solution for various industrial applications.

### ■ Model Encoding

LRS - 450 - 5





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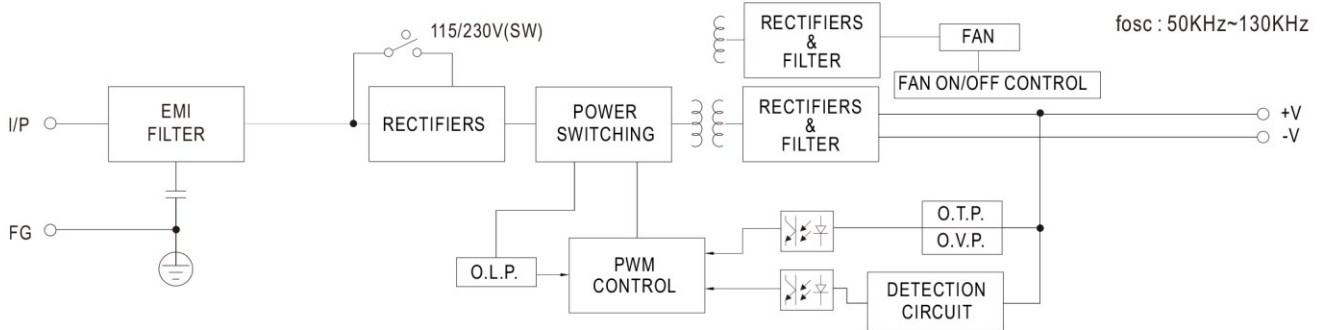
**SPECIFICATION**

MODEL	LRS-450-5	LRS-450-12	LRS-450-15	LRS-450-24	LRS-450-36	LRS-450-48	
OUTPUT	DC VOLTAGE	5V	12V	15V	24V	36V	48V
	RATED CURRENT	75A	37.5A	30A	18.8A	12.5A	9.4A
	CURRENT RANGE	0 ~ 75A	0 ~ 37.5A	0 ~ 30A	0 ~ 18.8A	0 ~ 12.5A	0 ~ 9.4A
	RATED POWER	375W	450W	450W	451.2W	450W	451.2W
	RIPPLE & NOISE (max.) Note.2	200mVp-p	200mVp-p	200mVp-p	240mVp-p	360mVp-p	360mVp-p
	VOLTAGE ADJ. RANGE Note.3	4.75 ~ 5.5V	11.4 ~ 13.2V	14.25 ~ 16.5V	22.8 ~ 26.4V	34.2 ~ 39.6V	45.6 ~ 52.8V
	VOLTAGE TOLERANCE Note.4	±2.0%	±1.5%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION Note.5	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION Note.6	±2.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME Note.7	1500ms, 50ms/230VAC      1500ms, 50ms/115VAC at full load					
HOLD UP TIME (Typ.)	16ms/230VAC      12ms/115VAC at full load						
INPUT	VOLTAGE RANGE Note.8	90 ~ 132VAC / 180 ~ 264VAC by switch      255 ~ 370VDC (switch on 230VAC)					
	FREQUENCY RANGE	47 ~ 63Hz					
	EFFICIENCY (Typ.)	87%	90%	90%	91%	92%	92%
	AC CURRENT (Typ.)	10A/115VAC	6A/230VAC				
	INRUSH CURRENT (Typ.)	35A/115VAC	60A/230VAC				
LEAKAGE CURRENT	<2mA / 240VAC						
PROTECTION (Note.9)	OVER LOAD	105 ~ 150% rated output power Constant current limiting, unit will shutdown after 3 sec. re-power on to recover					
	OVER VOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	18 ~ 21V	27.6 ~ 32.4V	41.4 ~ 48.6V	55.2 ~ 64.8V
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover					
FUNCTION	FAN ON/OFF CONTROL (Typ.)	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 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	BS IEC/UL 62368-1, EAC TP TC 004, AS/NZS62368.1 approved, BIS IS 13252(Part1):2010/IEC60950-1:2005(except for 48V), BSMI CNS 15598-1					
	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					
	EMC EMISSION	Compliance to EAC TP TC 020, BSMI CNS15936					
OTHERS	EMC IMMUNITY	Compliance to EAC TP TC 020					
	MTBF	1508.9K hrs min. Telcordia SR-332(Bellcore) ;    252.2K hrs min. MIL-HDBK-217F (25°C)					
	DIMENSION	225*124*35mm (L*W*H)					
	PACKING	0.85Kg/15pcs/14.11Kg/0.85CUFT					
NOTE	<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. 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.</p> <p>3. Voltage adjustment can only be operated within the input range of 100~120VAC or 200-240VAC. If the voltage adjustment is performed outside this range, it may cause abnormal output.</p> <p>4. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>5. Line regulation is measured from low line to high line at rated load.</p> <p>6. Load regulation is measured from 0% to 100% rated load.</p> <p>7. Length of set up time is measured at cold start. Turning the power supply on/off frequently may lead to increase of the set up time.</p> <p>8. Derating may be needed under low input voltages. Please refer to "Static Characteristics" sections for details.</p> <p>9. Once protections are triggered, 3min(Typ.) of cold down time is required before restart.</p> <p>10. The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m(6500ft).</p> <p>11. 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:</p> <p>a) the end-devices is used within the European Union, and</p> <p>b) the end-devices is connected to public mains supply with 220Vac or greater rated nominal voltage, and</p> <p>c) the power supply is:</p> <ul style="list-style-type: none"> <li>- installed in end-devices with average or continuous input power greater than 75W, or</li> <li>- belong to part of a lighting system</li> </ul> <p>Exception:</p> <p>Power supplies used within the following end-devices do not need to fulfill EN61000-3-2</p> <p>a) professional equipment with a total rated input power greater than 1000W;</p> <p>b) symmetrically controlled heating elements with a rated power less than or equal to 200W</p>						

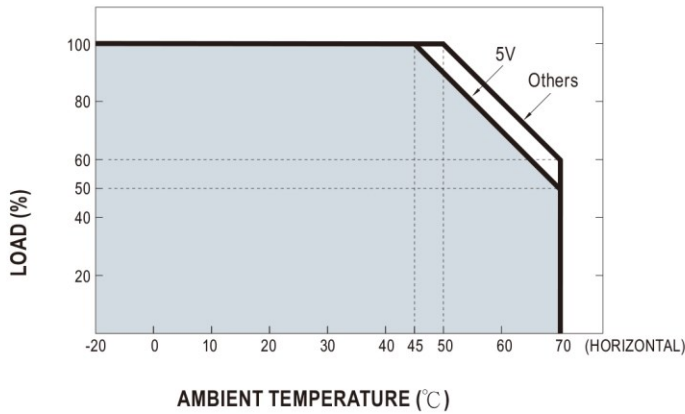


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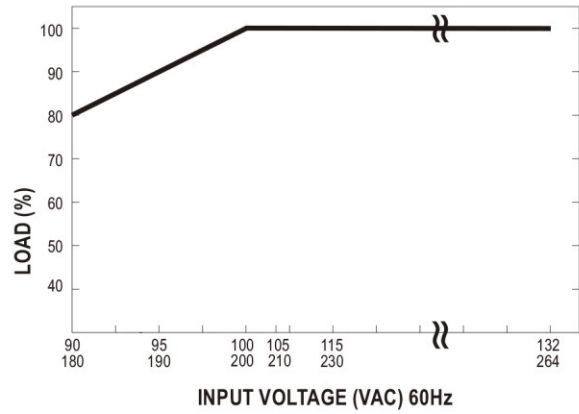
**Block Diagram**



**Derating Curve**



**Static Characteristics**





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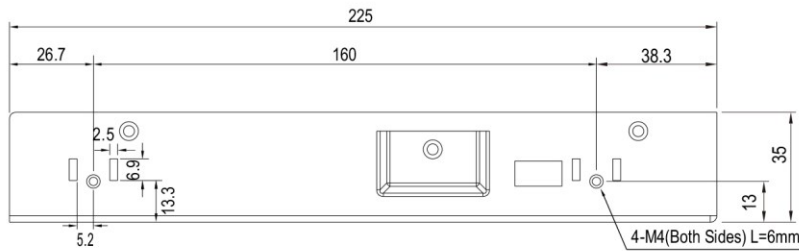
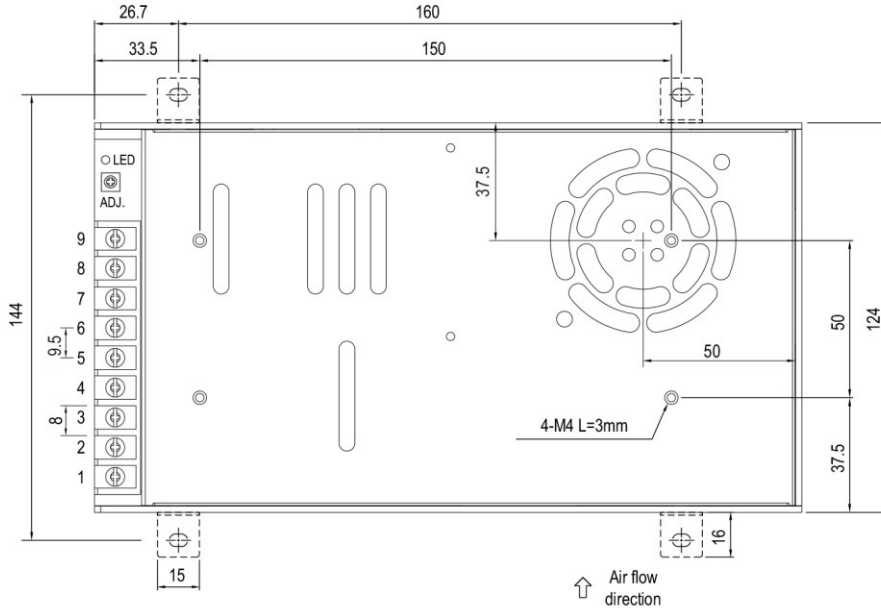
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**Mechanical Specification**

Case No. 291 Unit:mm



Terminal Pin No. Assignment :

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	4~6	DC OUTPUT -V
2	AC/N	7~9	DC OUTPUT +V
3	FG $\perp$		