

150W Single Output Switching Power Supply

**LRS-150F series**



■ **Features**

- Universal AC input / Full range
- Withstand 300VAC surge input for 5 second
- No load power consumption < 0.5W
- Miniature size and 1U low profile
- High operating temperature up to 70°C
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Compliance to IEC/EN 60335-1 (PD3) and IEC/EN61558-1, 2-16 for household appliances
- Operating altitude up to 5000 meters
- Withstand 5G vibration test
- High efficiency, long life and high reliability
- LED indicator for power on
- Over voltage category III
- 100% full load burn-in test
- 3 years warranty

■ **Applications**

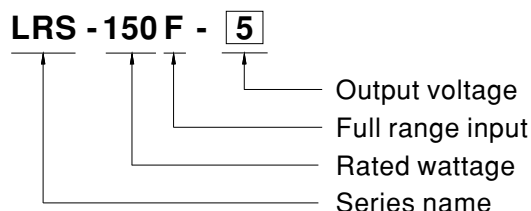
- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Electronic instruments, equipments or apparatus
- Household appliances

■ **Description**

LRS-150F series is a 150W single-output enclosed type power supply with 30mm of low profile design. Adopting the full range 85~264VAC input, the entire series provides an output voltage line of 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-150F that the whole series operates from -30°C through 70°C under air convection without a fan. Delivering an extremely low no load power consumption (less than 0.5W), it allows the end system to easily meet the worldwide energy requirement. LRS-150F has the complete protection functions and 5G anti-vibration capability; it is complied with the international safety regulations such as TUV EN60950-1, EN60335-1, EN61558-1/-2-16, UL60950-1 and GB4943. LRS-150F series serves as a high price-to-performance power supply solution for various industrial applications.

■ **Model Encoding**



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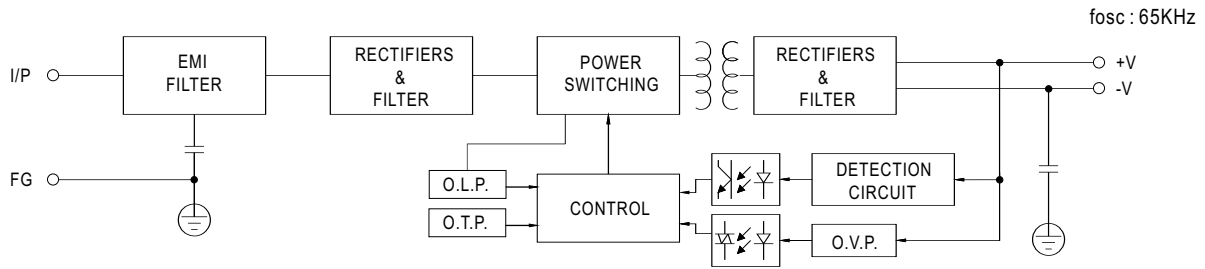
**SPECIFICATION**

MODEL		LRS-150F-5	LRS-150F-12	LRS-150F-15	LRS-150F-24	LRS-150F-36	LRS-150F-48
OUTPUT	DC VOLTAGE	5V	12V	15V	24V	36V	48V
	RATED CURRENT	22A	12.5A	10A	6.5A	4.3A	3.3A
	CURRENT RANGE	0 ~ 22A	0 ~ 12.5A	0 ~ 10A	0 ~ 6.5A	0 ~ 4.3A	0 ~ 3.3A
	RATED POWER	110W	150W	150W	156W	154.8W	158.4W
	RIPPLE & NOISE (max.) Note.2	100mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	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	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION Note.4	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION Note.5	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	500ms, 30ms/230VAC      500ms,30ms/115VAC at full load					
HOLD UP TIME (Typ.)	16ms/230VAC    12ms/115VAC at full load						
INPUT	VOLTAGE RANGE	85 ~ 264VAC    120 ~ 370VDC					
	FREQUENCY RANGE	47 ~ 63Hz					
	EFFICIENCY (Typ.)	85%	87.5%	89%	89%	89%	90%
	AC CURRENT (Typ.)	3A/115VAC    1.7A/230VAC					
	INRUSH CURRENT (Typ.)	COLD STAR 60A/230VAC					
	LEAKAGE CURRENT	<0.75mA / 240VAC					
PROTECTION	OVER LOAD	110 ~ 140% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed					
	OVER VOLTAGE	5.75 ~ 6.75V	13.8 ~ 16.2V	18.75 ~ 21.75V	28.8 ~ 33.6V	41.4 ~ 48.6V	55.2 ~ 64.8V
		Protection type : Shut down o/p voltage, re-power on to recover					
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover					
ENVIRONMENT	WORKING TEMP.	-30 ~ +70°C (Refer to "Derating Curve")					
	WORKING HUMIDITY	20 ~ 90% RH non-condensing					
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing					
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)					
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes					
	OVER VOLTAGE CATEGORY	III; Compliance to EN61558, EN50178, EN60664-1, EN62477-1; altitude up to 2000 meters					
SAFETY & EMC (Note 7)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1, EN60335-1, EN61558-1/-2-16, CCC GB4943.1, BSMI CNS14336-1, EAC TP TC004, AS/NZS 60950.1(by CB) approved					
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC    I/P-FG:2KVAC    O/P-FG:1.25KVAC					
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH					
	EMC EMISSION	Compliance to EN55032 (CISPR32) Class B, EN55014, EN61000-3-2 Class A(≤80% Load ),EN61000-3-3, GB/T 9254, BSMI CNS13438, EAC TP TC 020					
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN61000-6-2 (EN50082-2), heavy industry level, criteria A, EAC TP TC 020					
OTHERS	MTBF	648.6K hrs min.    MIL-HDBK-217F (25°C)					
	DIMENSION	159*97*30mm (L*W*H)					
	PACKING	0.48Kg ; 30pcs/15.4Kg/0.75CUFT					
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. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>4. Line regulation is measured from low line to high line at rated load.</p> <p>5. Load regulation is measured from 0% to 100% rated load.</p> <p>6. 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.</p> <p>9. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please email sales@pfyp.co.uk</p> <p>8. The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m (6500ft).</p>						

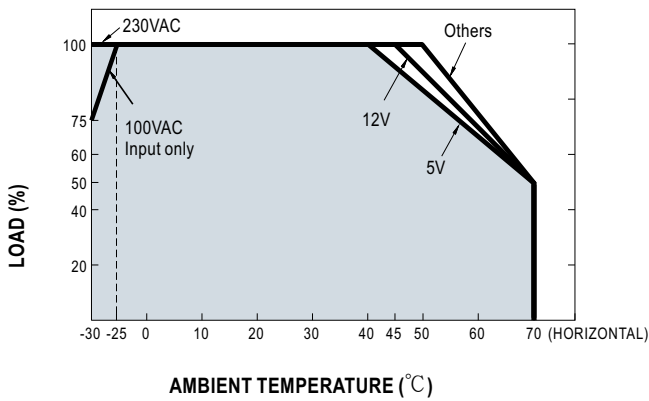
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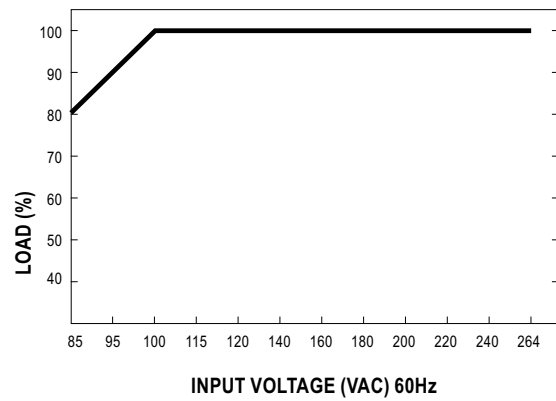
■ Block Diagram



■ Derating Curve



■ Static Characteristics

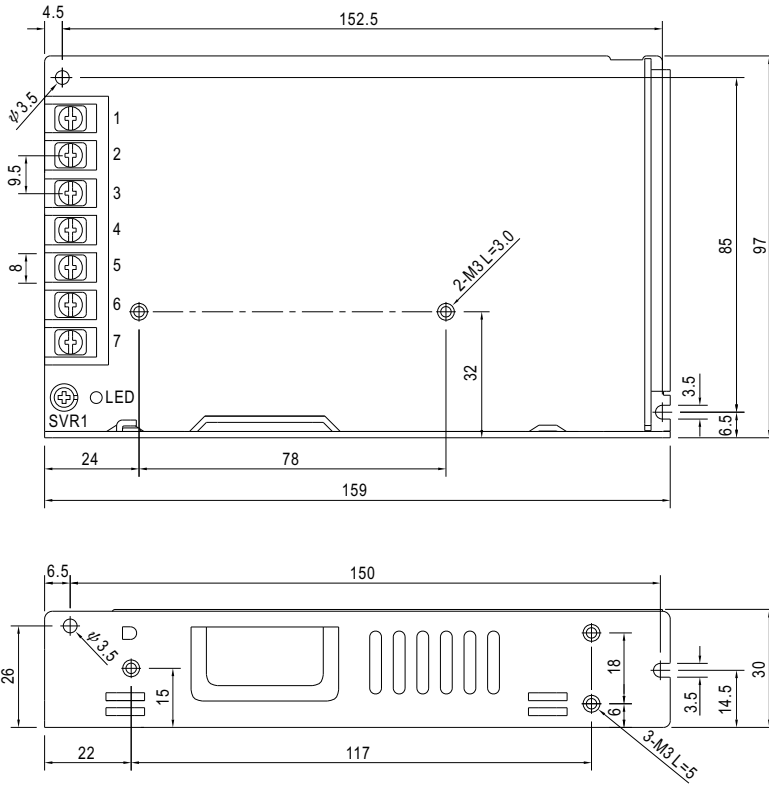


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**Mechanical Specification**

Case No.241A Unit:mm



Terminal Pin No. Assignment

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	4,5	DC OUTPUT -V
2	AC/N	6,7	DC OUTPUT +V
3	FG $\perp$		

**Installation Manual**

Please email sales@pfyp.co.uk