



150W Single Output with PFC Function

HRP-150 series



■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- High efficiency up to 89% (typ.)
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- 1U low profile 38mm
- Built-in remote sense function
- 5 years warranty

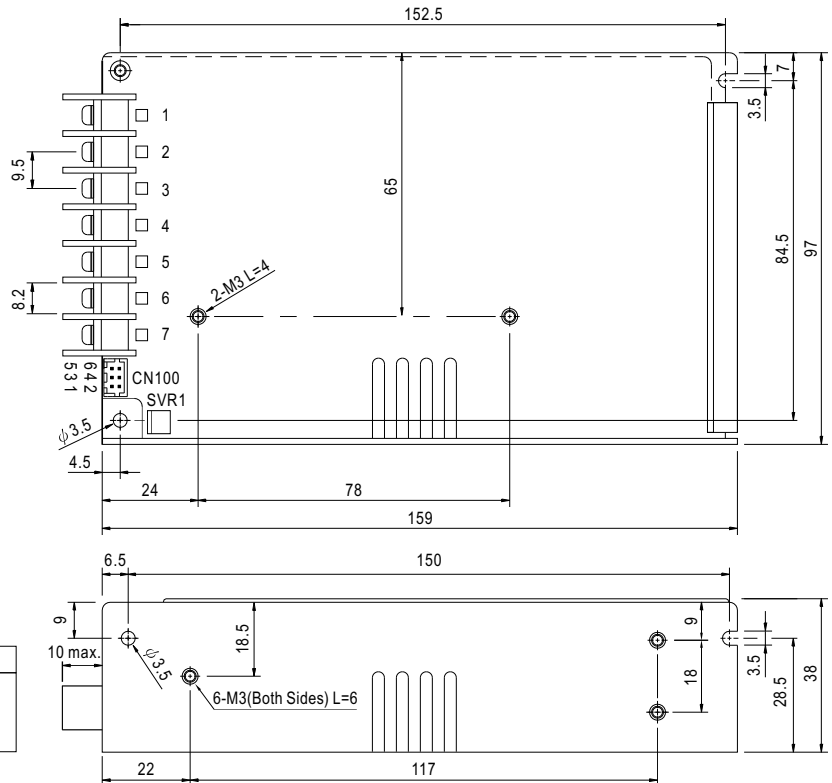


SPECIFICATION

MODEL	HRP-150-3.3	HRP-150-5	HRP-150-7.5	HRP-150-12	HRP-150-15	HRP-150-24	HRP-150-36	HRP-150-48		
OUTPUT	DC VOLTAGE	3.3V	5V	7.5V	12V	15V	24V	36V	48V	
	RATED CURRENT	30A	26A	20A	13A	10A	6.5A	4.3A	3.3A	
	CURRENT RANGE	0 ~ 30A	0 ~ 26A	0 ~ 20A	0 ~ 13A	0 ~ 10A	0 ~ 6.5A	0 ~ 4.3A	0 ~ 3.3A	
	RATED POWER	99W	130W	150W	156W	150W	156W	154.8W	158.4W	
	RIPPLE & NOISE (max.) Note.2	80mVp-p	80mVp-p	100mVp-p	120mVp-p	150mVp-p	150mVp-p	200mVp-p	240mVp-p	
	VOLTAGE ADJ. RANGE	2.8 ~ 3.8V	4.3 ~ 5.8V	6.8 ~ 9V	10.2 ~ 13.8V	13.5 ~ 18V	21.6 ~ 28.8V	28.8 ~ 39.6V	40.8 ~ 55.2V	
	VOLTAGE TOLERANCE Note.3	±2.5%	±2.5%	±2.5%	±1.5%	±1.5%	±1.5%	±1.5%	±1.5%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.3%	±0.3%	±0.2%	±0.2%	±0.2%	
	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
	SETUP, RISE TIME	1000ms, 50ms/230VAC 2500ms, 50ms/115VAC at full load								
HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load									
INPUT	VOLTAGE RANGE Note.5	85 ~ 264VAC		120 ~ 370VDC						
	FREQUENCY RANGE	47 ~ 63Hz								
	POWER FACTOR (Typ.)	PF>0.95/230VAC			PF>0.99/115VAC at full load					
	EFFICIENCY (Typ.)	80%	85%	87%	88%	88%	88%	89%	89%	
	AC CURRENT (Typ.)	2.3A/115VAC		1.3A/230VAC						
	INRUSH CURRENT (Typ.)	35A/115VAC		65A/230VAC						
	LEAKAGE CURRENT	<1mA / 240VAC								
PROTECTION	OVERLOAD	105 ~ 135% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed								
	OVER VOLTAGE	3.96 ~ 4.62V	6 ~ 7V	9.4 ~ 10.9V	14.4 ~ 16.8V	18.8 ~ 21.8V	30 ~ 34.8V	41.4 ~ 48.6V	57.6 ~ 67.2V	
	OVER TEMPERATURE	95°C (3.3V ~ 7.5V), 85°C (12V ~ 48V) (TSW1 : detect on heatsink Q1 of power transistor)								
		105°C (3.3V ~ 7.5V), 100°C (12V ~ 48V) (TSW2 : detect on heatsink HS4 of power transistor)								
ENVIRONMENT	WORKING TEMP.	-30 ~ +70°C (Refer to output load derating curve)								
	WORKING HUMIDITY	20 ~ 90% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.04%/°C (0 ~ 50°C)								
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes								
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved								
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC			I/P-FG:1.5KVAC			O/P-FG:0.5KVAC		
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH								
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B								
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3								
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, EN61000-6-2, heavy industry level, criteria A								
OTHERS	MTBF	238.8K hrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	159*97*38mm (L*W*H)								
	PACKING	0.61Kg; 24pcs/15.6Kg/0.76CUFT								
NOTE	<ol style="list-style-type: none"> 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Derating may be needed under low input voltages. Please check the derating curve for more details. 									

Mechanical Specification

Case No.901I Unit:mm



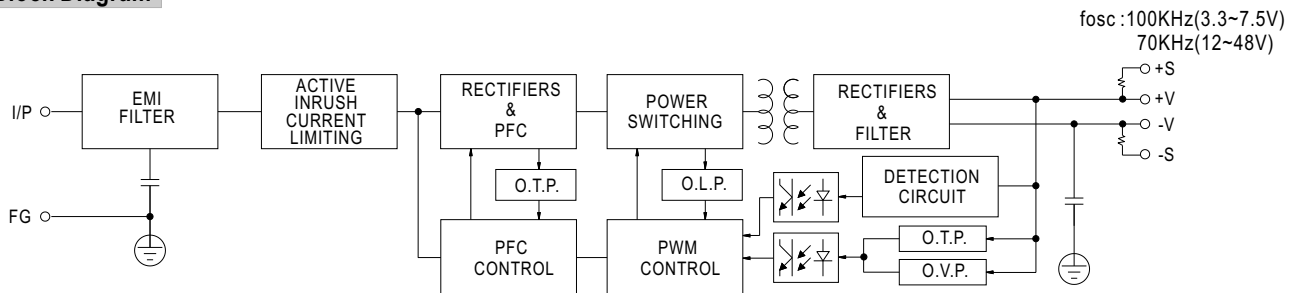
Terminal Pin No. Assignment :

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

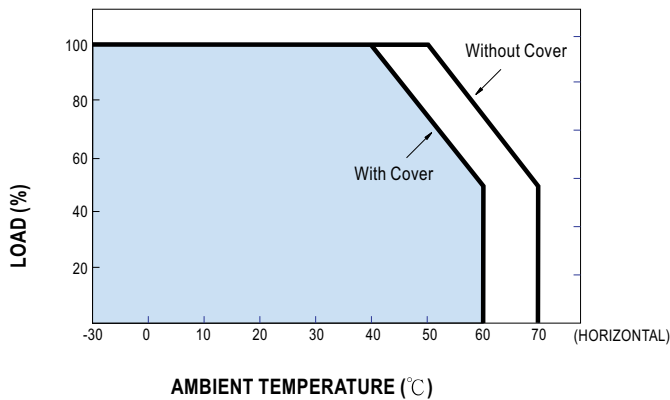
Connector Pin No. Assignment (CN100) :
HRS DF11-6DP-2DS or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	-S	HRS DF11-6DS or equivalent	HRS DF11-**SC or equivalent
2	+S		
3-6	NC		

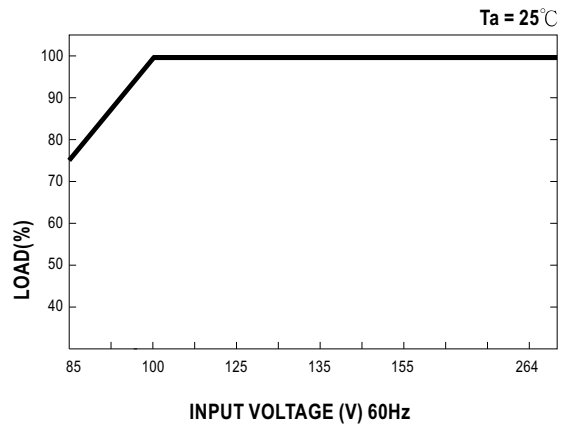
Block Diagram



Derating Curve



Output Derating VS Input Voltage





■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- High efficiency up to 88% (typ.)
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- 1U low profile 38mm
- Built-in remote ON-OFF control
- Stand by 5V@0.3A
- Built-in remote sense function
- No load power consumption<0.5W
- 5 years warranty

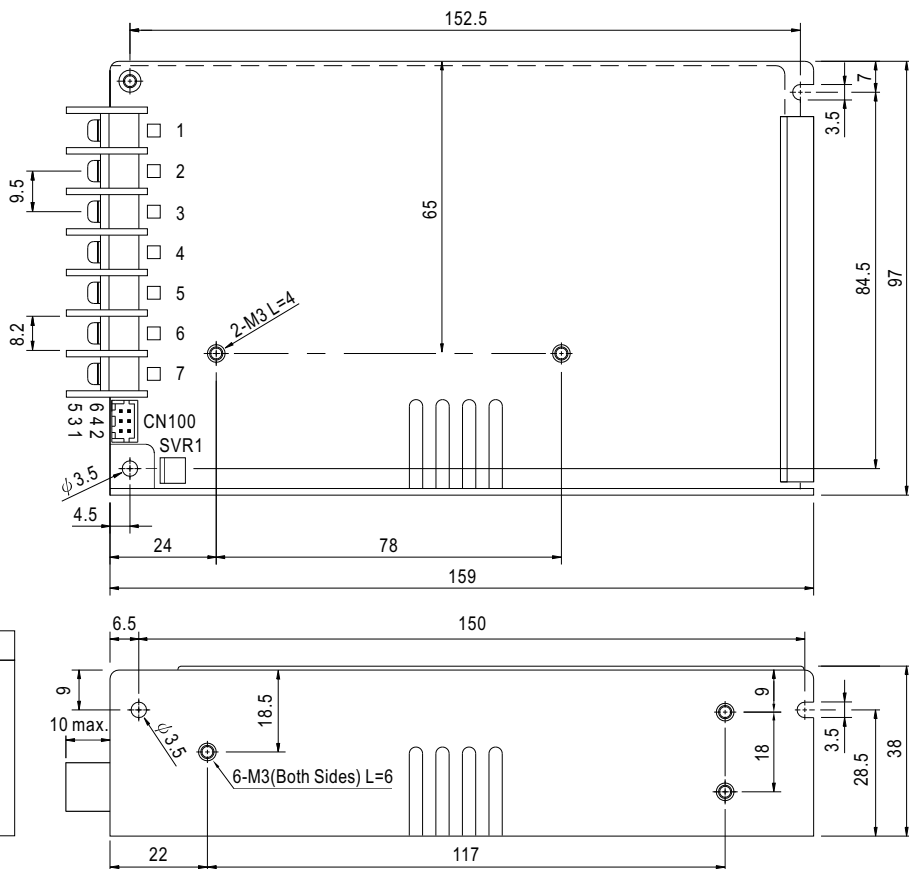


SPECIFICATION

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	LOAD REGULATION	±1.0%	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
	SETUP, RISE TIME	1000ms, 50ms/230VAC 2500ms, 50ms/115VAC at full load								
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	OVER TEMPERATURE	95°C (3.3V ~ 7.5V), 85°C (12V ~ 48V) (TSW1 : detect on heatsink Q1 of power transistor)								
		105°C (3.3V ~ 7.5V), 100°C (12V ~ 48V) (TSW2 : detect on heatsink HS4 of power transistor) Protection type : Shut down o/p voltage, recovers automatically after temperature goes down								
FUNCTION	REMOTE CONTROL	Short power OFF ; Open power ON								
ENVIRONMENT	WORKING TEMP.	-30 ~ +70°C (Refer to output load derating curve)								
	WORKING HUMIDITY	20 ~ 90% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.04%/°C (0 ~ 50°C)								
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes								
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	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH								
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B								
	HARMONIC CURRENT	Compliance to EN61000-3-2, -3								
OTHERS	EMM IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, ENV50204, EN55024, EN61000-6-2, heavy industry level, criteria A								
	MTBF	213.4K hrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	159*97*38mm (L*W*H)								
NOTE	PACKING	0.63Kg; 24pcs/16Kg/0.76CUFT								
		1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. Derating may be needed under low input voltages. Please check the derating curve for more details.								

Mechanical Specification

Case No.901I Unit:mm



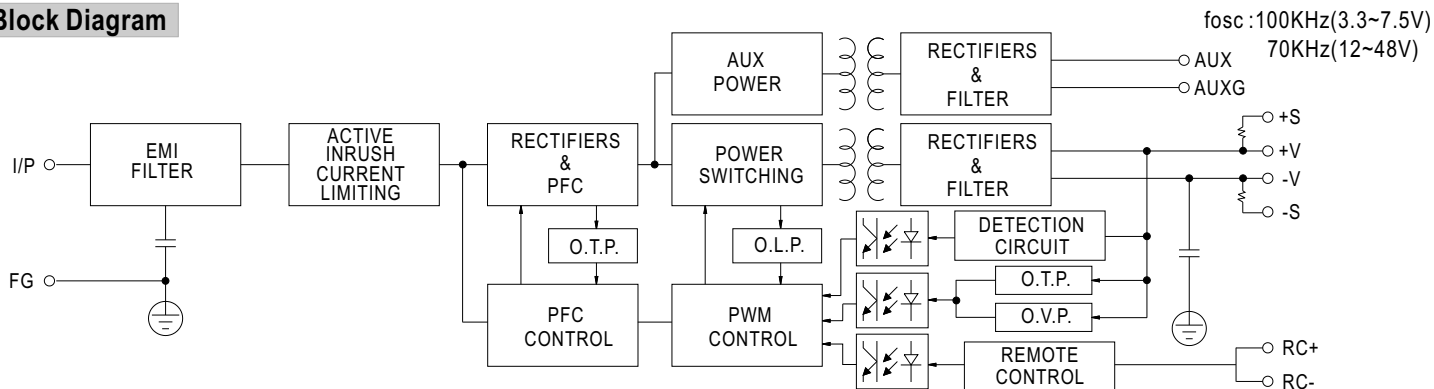
Terminal Pin No. Assignment

Pin No.	Assignment	Pin No.	Assignment
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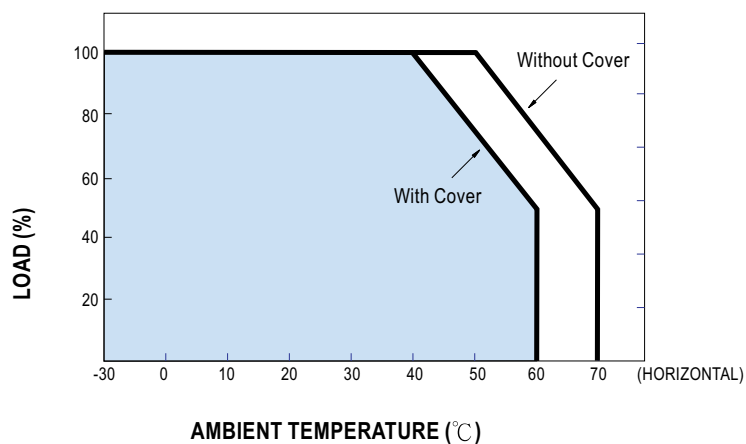
Connector Pin No. Assignment (CN100) : HRS DF11-6DP-2DS or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1	-S	HRS DF11-6DS or equivalent	HRS DF11-6DS or equivalent
2	+S		
3	AUXG		
4	AUX		
5	RC-		
6	RC+		

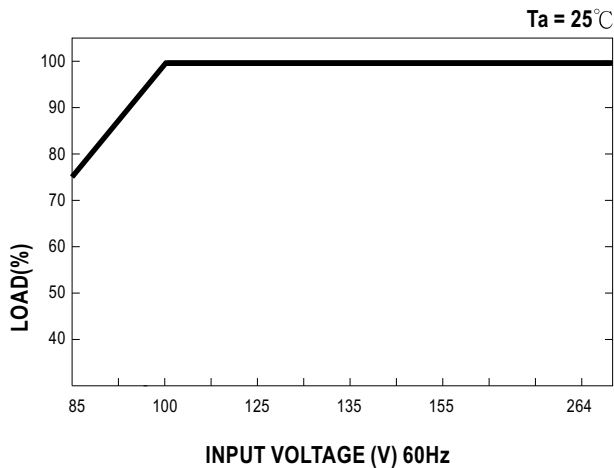
Block Diagram



Derating Curve



Output Derating VS Input Voltage



Function Description of CN100

Pin No.	Function	Description
1	-S	Negative sensing. The -S signal should be connected to the negative terminal of the load. The -S and +S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
2	+S	Positive sensing. The +S signal should be connected to the positive terminal of the load. The +S and -S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
3	AUXG	Auxiliary voltage output ground. The signal return is isolated from the output terminals (+V & -V).
4	AUX	Auxiliary voltage output, 4.6~5.25V, referenced to pin 3(AUXG). The maximum load current is 0.3A. This output has the built-in oring diodes and is not controlled by the "remote ON/OFF control".
5	-RC	Remote control ground.
6	+RC	Turns the output on and off by electrical or dry contact between pin 5 (RC-). Short: Power OFF, Open: Power ON.

Function Manual

1. Remote Control

The PSU can be turned ON/OFF by using the "Remote ON/OFF" function

Between RC-(pin5) and RC+(pin6)	Output Status
SW ON (Short)	OFF
SW OFF (Open)	ON

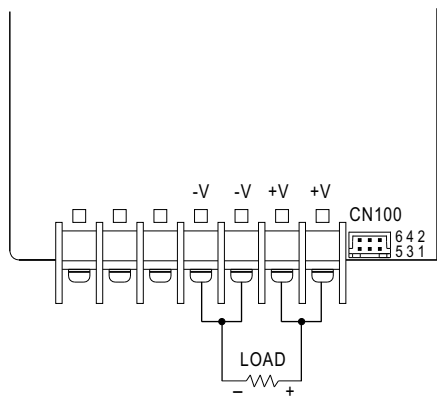
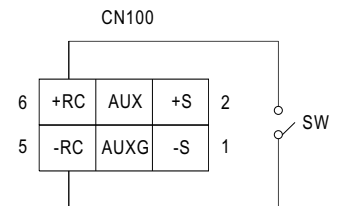


Fig 1.1



2. Remote Sense

The remote sensing compensates voltage drop on the load wiring up to 0.5V.

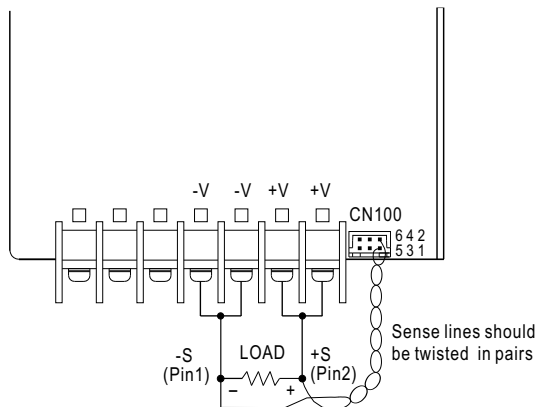


Fig 2.1

