



150W Single Output with PFC Function

**HRP-150N** series

User's Manual



AS/NZS 62368.1   UL62368-1   BS EN/EN62368-1   TPTC004   IEC62368-1

EAC   CB   CE   UKCA



## ■ Features

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- 250% peak power capability
- High efficiency up to 89%
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- 1U low profile 38mm
- Built-in remote sense function
- 5 years warranty

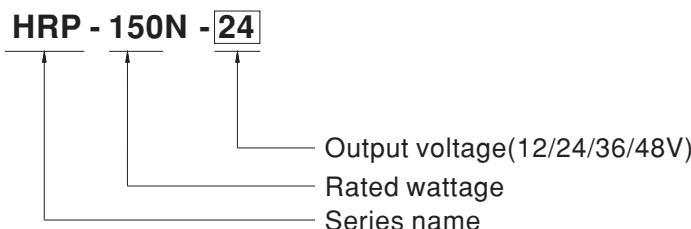
## ■ Applications

- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Diagnostic or biological facilities
- Test or measurement systems
- Telecommunication equipment

## ■ Description

HRP-150N is a 150W single output type AC/DC power supply. This series operates for 85~264VAC input voltage and offers the models with the DC output mostly demanded from the industry. Each model is cooled by free air convection, working for the temperature up to 70°C without cover. Moreover, HRP-150N provides 250% short-duration peak power for motor applications and electromechanical loads requiring much higher power during start-up.

## ■ Model Encoding





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## SPECIFICATION

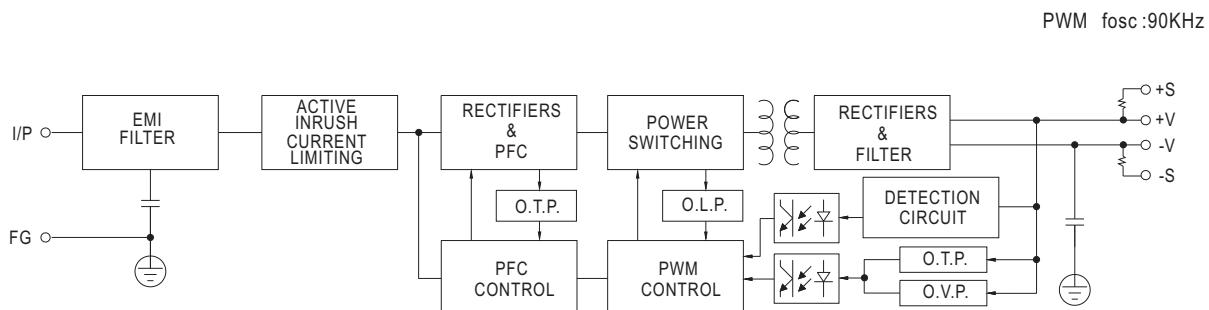
MODEL	HRP-150N-12	HRP-150N-24	HRP-150N-36	HRP-150N-48
OUTPUT	DC VOLTAGE	12V	24V	36V
	RATED CURRENT	13A	6.5A	4.3A
	CURRENT RANGE	0 ~ 13A	0 ~ 6.5A	0 ~ 4.3A
	RATED POWER	156W	156W	154.8W
	RIPLLE & NOISE (max.) Note.2	120mVp-p	150mVp-p	200mVp-p
	VOLTAGE ADJ. RANGE	10.2 ~ 13.8V	21.6 ~ 28.8V	28.8 ~ 39.6V
	VOLTAGE TOLERANCE Note.3	± 1.5%	± 1.5%	± 1.5%
	LINE REGULATION	± 0.3%	± 0.2%	± 0.2%
	LOAD REGULATION	± 0.5%	± 0.5%	± 0.5%
INPUT	SETUP, RISE TIME	3000ms, 50ms/230VAC	3000ms, 50ms/115VAC at full load	
	HOLD UP TIME (Typ.)	16ms/230VAC	16ms/115VAC at full load	
PROTECTION	VOLTAGE RANGE Note.4	85 ~ 264VAC	120 ~ 370VDC	
	FREQUENCY RANGE	47 ~ 63Hz		
	POWER FACTOR (Typ.)	PF>0.95/230VAC	PF>0.98/115VAC at full load	
	EFFICIENCY (Typ.)	88%	88%	89%
	AC CURRENT (Typ.)	1.7A/115VAC	0.9A/230VAC	
	INRUSH CURRENT (Typ.)	35A/115VAC	70A/230VAC	
ENVIRONMENT	LEAKAGE CURRENT	<1mA / 240VAC		
	OVERLOAD	Normally works within 105 ~ 200% rated output power for more than 5 seconds and then shut down o/p voltage, re-power on to recover		
		Constant current limiting for output power >280% rated for more than 5 seconds and then shut down o/p voltage, re-power on to recover		
	OVER VOLTAGE	14.4 ~ 16.8V	30 ~ 34.8V	41.4 ~ 48.6V
SAFETY & EMC (Note 5)	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover		
	WORKING TEMP.	-40 ~ +70°C (Refer to "Derating Curve")		
	WORKING HUMIDITY	20 ~ 90% RH non-condensing		
	STORAGE TEMP., HUMIDITY	-50 ~ +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		
OTHERS	OPERATING ALTITUDE Note.6	5000 meters		
	SAFETY STANDARDS	UL62368-1, TUV BS EN/EN62368-1, EAC TP TC 004, AS/NZS 62368.1 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		
	EMC EMISSION	Parameter	Standard	Test Level / Note
		Conducted	BS EN/EN55032	Class B
		Radiated	BS EN/EN55032	Class B
		Harmonic current	BS EN/EN61000-3-2	Class A
		Voltage Flicker	BS EN/EN61000-3-3	-----
	EMC IMMUNITY	BS EN/EN55035 , BS EN/EN61000-6-2(BS EN/EN50082-2)		
		Parameter	Standard	Test Level / Note
		ESD	BS EN/EN61000-4-2	Level 3, 8KV air; Level 2, 4KV contact
		RF field	BS EN/EN61000-4-3	Level 3, 10V/m
		EFT/ Burst	BS EN/EN61000-4-4	Level 3, 2KV
		Surge	BS EN/EN61000-4-5	Level 4, 4KV/Line-FG; 2KV/Line-Line
		Conducted	BS EN/EN61000-4-6	Level 3, 10V
		Magnetic Field	BS EN/EN61000-4-8	Level 4, 30A/m
	Voltage Dips and Interruptions			95% dip 0.5 periods, 30% dip 25 periods, 95% interruptions 250 periods
NOTE	MTBF	578.15K hrs min. Telcordia TR/SR-332 (Bellcore); 221.71K hrs min. MIL-HDBK-217F (25°C)		
	DIMENSION	159*97*38mm (L*W*H)		
	PACKING	0.54Kg; 24pcs/12.96Kg/0.9CUFT		
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. Derating may be needed under low input voltages. Please check the derating curve for more details. 5. 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 refer to "EMI testing of component power supplies." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> ) 6. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). ※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a>				



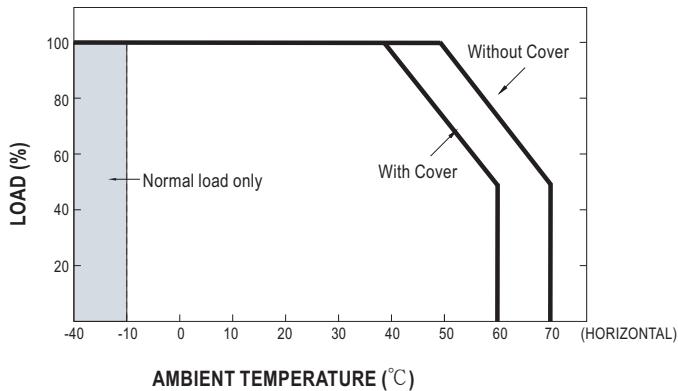
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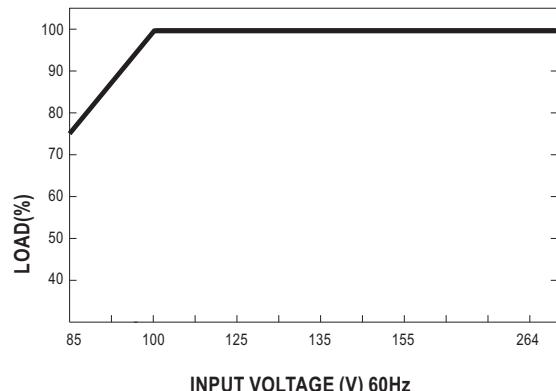
### Block Diagram



### Derating Curve



### Output Derating VS Input Voltage



### Function Manual

#### 1. Remote Sense

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

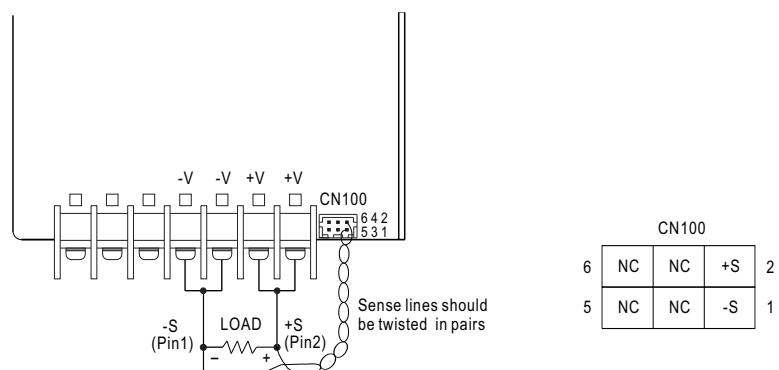


Fig 1.1

## 2. Peak Power

$$P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} \leq P_{rated}$$

$$\text{Duty } \frac{t}{T} \times 100\% \leq 35\%$$

$$t \leq 5 \text{ sec}$$

$P_{av}$  : Average output power (W)

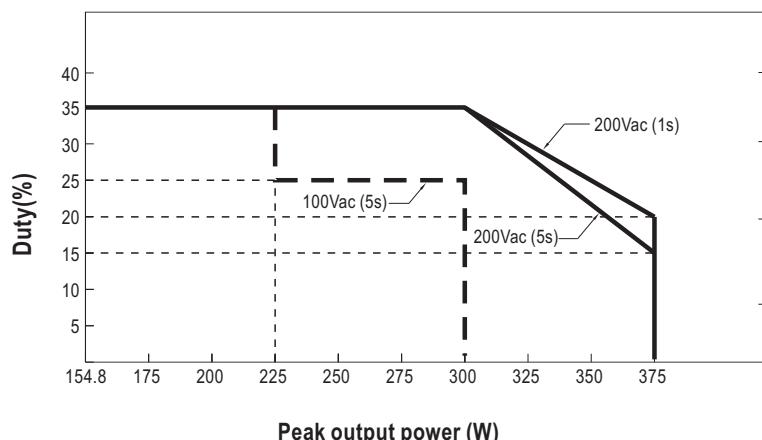
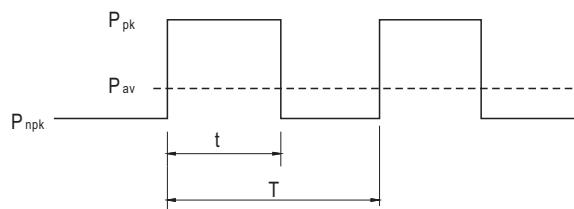
$P_{pk}$  : Peak output power (W)

$P_{npk}$  : Non-peak output power (W)

$P_{rated}$  : Rated output power (W)

$t$  : Peak power width (sec)

$T$  : Period (sec)


**For example (12V model) :**

$$V_{in} = 100V \quad \text{Duty}_{max} = 25\%$$

$$P_{av} = P_{rated} = 156W$$

$$P_{pk} = 300W$$

$$t \leq 5 \text{ sec}$$

$$T \geq 20 \text{ sec}$$

$$P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} = \frac{300 \times 5 + P_{npk}(20-5)}{20} \leq 156W$$

$$P_{npk} \leq 108W$$

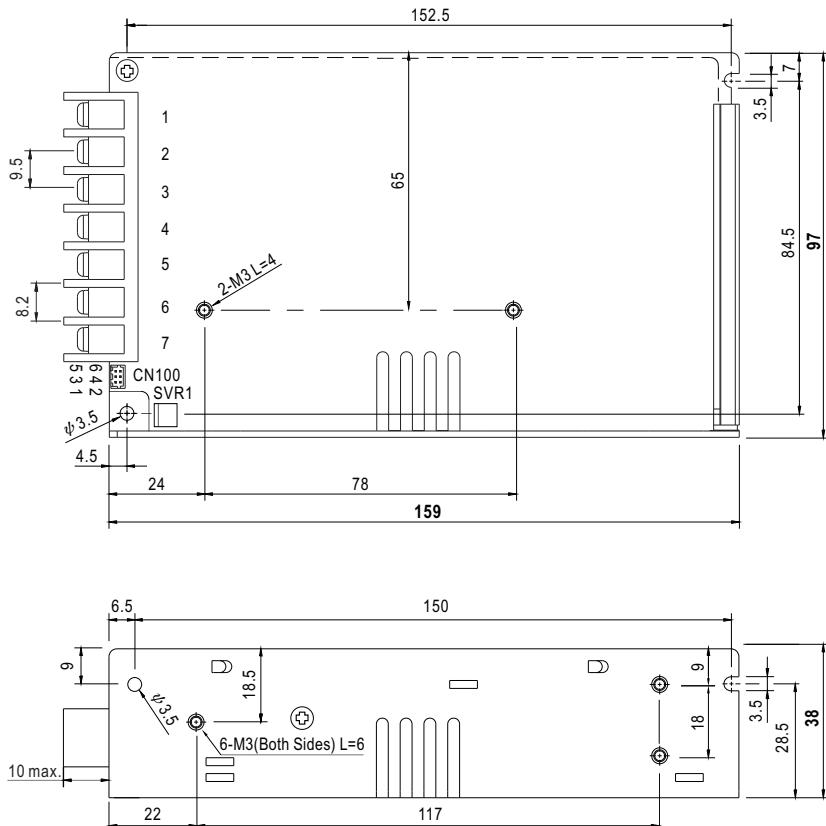


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## ■ Mechanical Specification

Case No.9011 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 $\pm$		

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

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

## ■ Installation Manual

Please refer to : <http://www.meanwell.com/manual.html>