



150W Single Output with PFC Function

**HRP-150N** series



AS/NZS 62368.1

UL62368-1

EN62368-1

TPTC004

IEC62368-1



Automate

Industrial

Network

Telecom

Security

## ■ Features

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- 200% 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

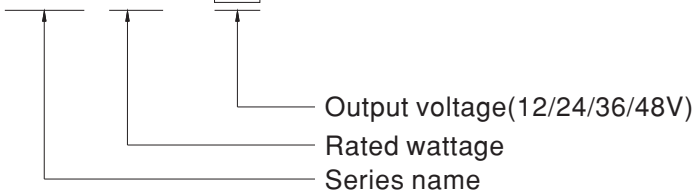
- Industrial automation machinery
- Industrial control system
- Mechanical and electrical equipment
- Diagnostic or biological facilities
- Test or measurement systems
- Telecommunication equipment

## ■ 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 200% short-duration peak power for motor applications and electromechanical loads requiring much higher power during start-up.

## ■ Model Encoding

**HRP - 150N - 24**

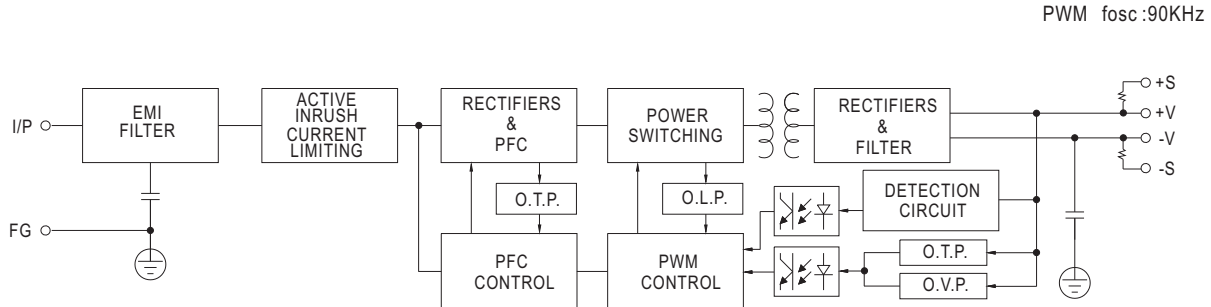




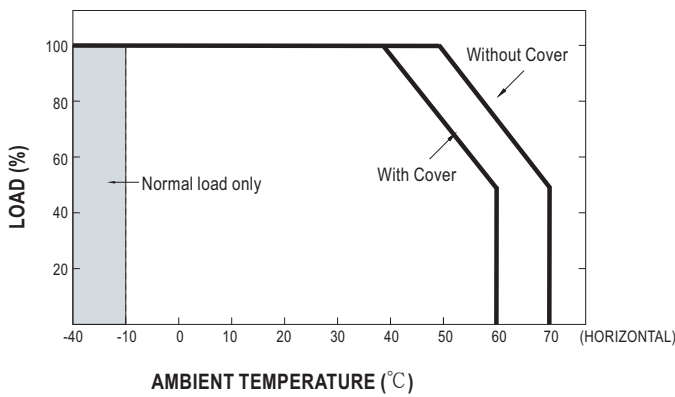
## SPECIFICATION

MODEL	HRP-150N-12	HRP-150N-24	HRP-150N-36	HRP-150N-48	
OUTPUT	DC VOLTAGE	12V	24V	36V	48V
	RATED CURRENT	13A	6.5A	4.3A	3.3A
	CURRENT RANGE	0 ~ 13A	0 ~ 6.5A	0 ~ 4.3A	0 ~ 3.3A
	RATED POWER	156W	156W	154.8W	158.4W
	RIPPLE & NOISE (max.) Note.2	120mVp-p	150mVp-p	200mVp-p	240mVp-p
	VOLTAGE ADJ. RANGE	10.2 ~ 13.8V	21.6 ~ 28.8V	28.8 ~ 39.6V	40.8 ~ 55.2V
	VOLTAGE TOLERANCE Note.3	± 1.5%	± 1.5%	± 1.5%	± 1.5%
	LINE REGULATION	± 0.3%	± 0.2%	± 0.2%	± 0.2%
	LOAD REGULATION	± 0.5%	± 0.5%	± 0.5%	± 0.5%
	SETUP, RISE TIME	3000ms, 50ms/230VAC 3000ms, 50ms/115VAC at full load			
HOLD UP TIME (Typ.)	16ms/230VAC 16ms/115VAC at full load				
INPUT	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%	89%
	AC CURRENT (Typ.)	1.7A/115VAC 0.9A/230VAC			
	INRUSH CURRENT (Typ.)	35A/115VAC 70A/230VAC			
	LEAKAGE CURRENT	<1mA / 240VAC			
PROTECTION	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 >220% 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	57.6 ~ 67.2V
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down			
ENVIRONMENT	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			
	OPERATING ALTITUDE Note.6	5000 meters			
SAFETY & EMC (Note 5)	SAFETY STANDARDS	UL62368-1, TUV 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	EN55032	Class B	
		Radiated	EN55032	Class B	
		Harmonic current	EN61000-3-2	Class A	
		Voltage Flicker	EN61000-3-3	-----	
	EMC IMMUNITY	EN55035 , EN61000-6-2(EN50082-2)			
		Parameter	Standard	Test Level / Note	
		ESD	EN61000-4-2	Level 3, 8KV air; Level 2, 4KV contact	
		RF field	EN61000-4-3	Level 3, 10V/m	
		EFT/ Burst	EN61000-4-4	Level 3, 2KV	
Surge		EN61000-4-5	Level 4, 4KV/Line-FG; 2KV/Line-Line		
Conducted		EN61000-4-6	Level 3, 10V		
Magnetic Field		EN61000-4-8	Level 4, 30A/m		
Voltage Dips and Interruptions	EN61000-4-11	95% dip 0.5 periods, 30% dip 25 periods, 95% interruptions 250 periods			
OTHERS	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			
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>Derating may be needed under low input voltages. Please check the derating curve for more details.</li> <li>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>)</li> <li>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).</li> </ol>				

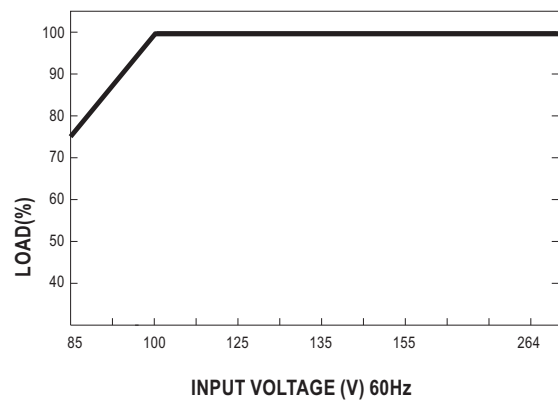
## Block Diagram



## Derating Curve



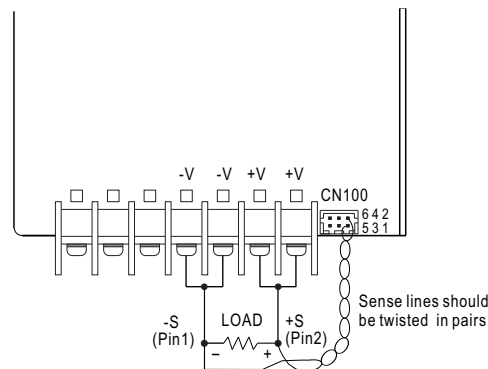
## Output Derating VS Input Voltage



## Function Manual

### 1. Remote Sense

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



CN100				
6	NC	NC	+S	2
5	NC	NC	-S	1

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)

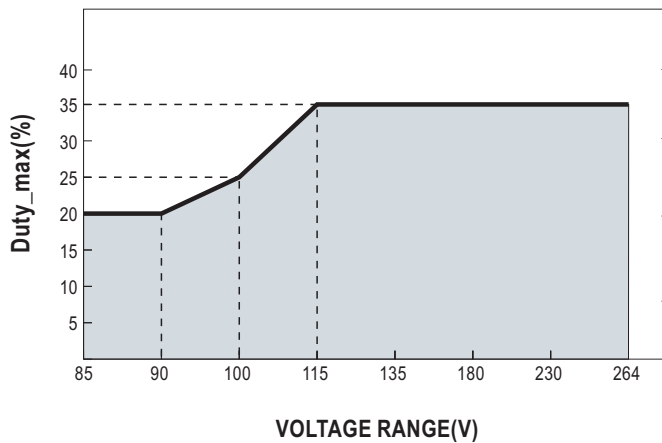
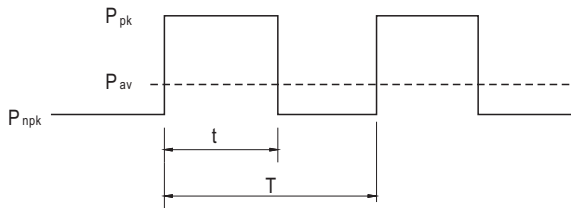
$P_{pk}$  : Peak output power (W)

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

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

$t$  : Peak power width(sec)

$T$  : Period(sec)



### For example (12V model) :

$V_{in} = 100V$      $\text{Duty\_max} = 25\%$

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

$P_{pk} = 200\% P_{rated} = 312W$

$t \leq 5 \text{ sec}$

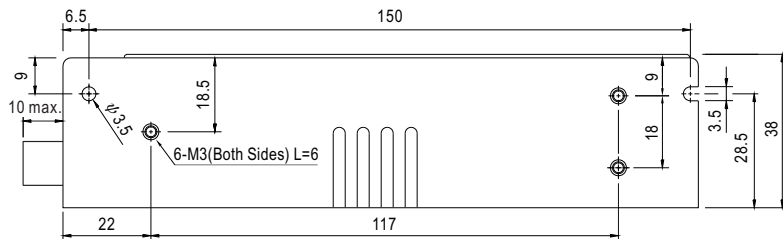
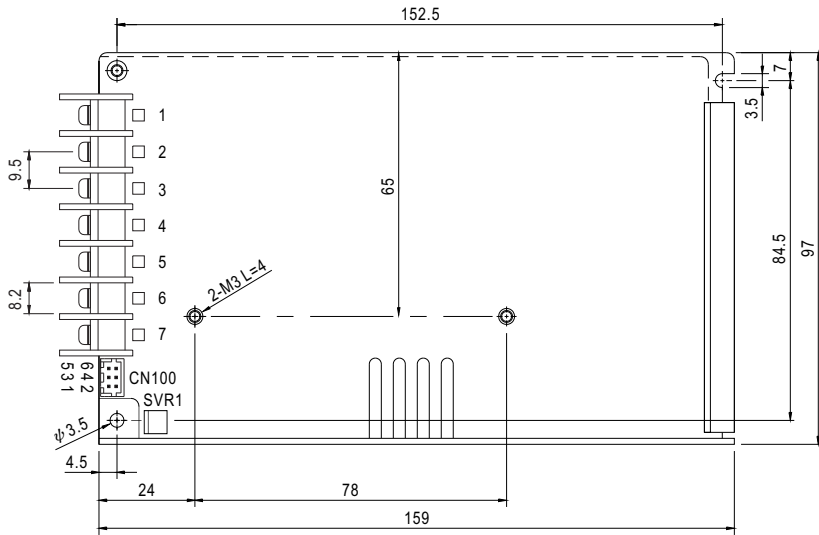
$T \geq 20 \text{ sec}$

$$P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} = \frac{312 \times 5 + P_{npk} \times (20-5)}{20} \leq 156W$$

$$P_{npk} \leq 104W$$

**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 $\perp$		

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

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

**Installation Manual**

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

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