



300W Ultra-High Peak Power Supply

HRP-300N3 series

User's Manual



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



Features

- Universal AC input / Full range
- Withstand 300VAC surge input for 5 seconds
- 350% peak power capability
- Built-in constant current limiting circuit
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Built-in cooling fan ON-OFF control
- Built-in DC OK signal
- Built-in remote sense function
- Withstand 5G vibration
- Operating altitude up to 5000 meters(Note.5)
- Output voltage adjustable $\pm 15\%$ (Avg.)
- 1U low profile 41mm
- 5 years warranty

Applications

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

GTIN CODE

MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

Description

HRP-300N3 series is a 300W single output AC/DC ultra-high peak power supply. This series operates at 85~264VAC input voltage and offers the models with the DC output mostly demanded from the industry. Each model is cooled by the built-in fan with fan ON-OFF control, working for the temperature up to 70°C. Moreover, HRP-300N3 can provide 350% short-duration peak power for motor applications and electromechanical loads requiring much higher power during start-up.

Model Encoding

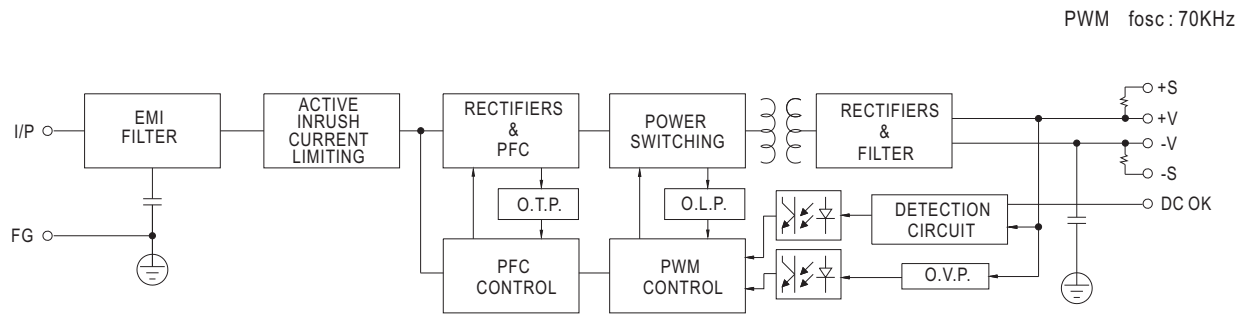
HRP - 300N3 - 24

Output voltage(12/24/36/48V)
3.5 times peak power
Rated wattage
Series name

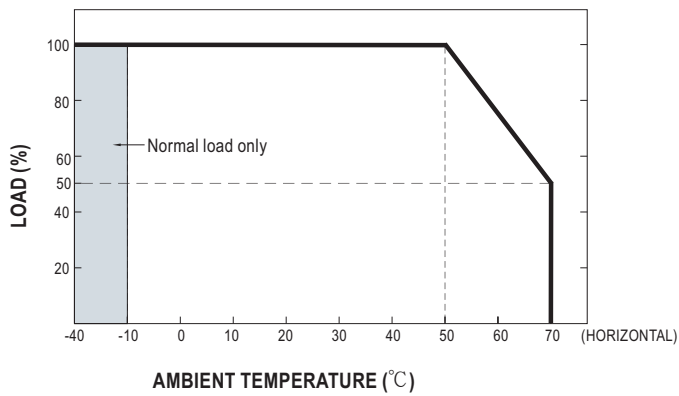
SPECIFICATION

MODEL		HRP-300N3-12		HRP-300N3-24		HRP-300N3-36		HRP-300N3-48	
OUTPUT	DC VOLTAGE	12V		24V		36V		48V	
	RATED CURRENT	27A		14A		9A		7A	
	CURRENT RANGE	0 ~ 27A		0 ~ 14A		0 ~ 9A		0 ~ 7A	
	RATED POWER	324W		336W		324W		336W	
	RIPPLE & NOISE (max.) Note.2	120mVp-p		150mVp-p		250mVp-p		250mVp-p	
	VOLTAGE ADJ. RANGE	10.2 ~ 13.8V		21.6 ~ 28.8V		28.8 ~ 39.6V		40.8 ~ 55.2V	
	VOLTAGE TOLERANCE Note.3	± 1.0%		± 1.0%		± 1.0%		± 1.0%	
	LINE REGULATION	± 0.3%		± 0.2%		± 0.2%		± 0.2%	
	LOAD REGULATION	± 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.4	85 ~ 264VAC 120 ~ 370VDC							
	FREQUENCY RANGE	47 ~ 63Hz							
	POWER FACTOR (Typ.)	PF>0.95/230VAC PF>0.99/115VAC at full load							
	EFFICIENCY (Typ.)	88%		87%		88%		89%	
	AC CURRENT (Typ.)	3.5A/115VAC 1.8A/230VAC							
	INRUSH CURRENT (Typ.)	35A/115VAC 75A/230VAC							
	LEAKAGE CURRENT	<2mA / 240VAC							
PROTECTION	OVERLOAD	Output power >105% rated for more than 5 seconds then shut down o/p voltage, re-power on to recover Constant current limiting for output power >380%(1140W) 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	
		Protection type : Shut down o/p voltage, re-power on to recover							
	OVER TEMPERATURE	TSW1: Shut down o/p voltage, recovers automatically after temperature goes down RTH3: Shut down o/p voltage, re-power on to recover							
FUNCTION	DC OK SIGNAL	PSU turns on : 3.3 ~ 5.6V ; PSU turns off : 0 ~ 1V							
	FAN CONTROL (Typ.)	Load 35±15% or RTH2≥50℃ Fan on							
ENVIRONMENT	WORKING TEMP.	-40 ~ +70℃ (Refer to "Derating Curve")							
	WORKING HUMIDITY	20 ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃ , 10 ~ 95% RH non-condensing							
	TEMP. COEFFICIENT	± 0.03%/℃ (0 ~ 50℃)							
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes							
	OPERATING ALTITUDE Note.5	5000 meters							
SAFETY & EMC (Note 6)	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℃ / 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		BS EN/EN61000-4-11				95% dip 0.5 periods, 30% dip 25 periods, 95% interruptions 250 periods			
OTHERS	MTBF	1524.0K hrs min. Telcordia TR/SR-332 (Bellcore) ; 187.7K hrs min. MIL-HDBK-217F (25℃)							
	DIMENSION	199*105*41mm (L*W*H)							
	PACKING	0.9Kg;15pcs/14.5Kg/0.84CUFT							
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μ F & 47 μ F 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 ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft). 6. 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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf) ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx								

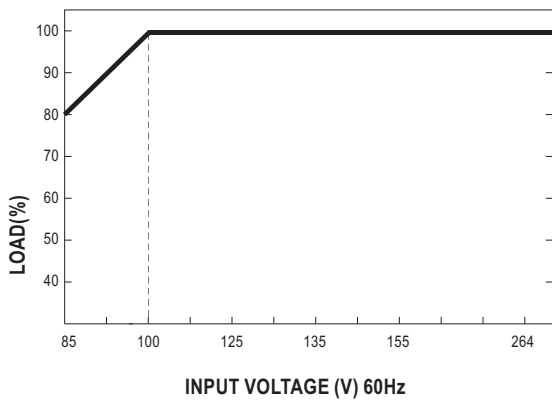
Block Diagram



Derating Curve



Output Derating VS Input Voltage



Function Manual

1. 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)

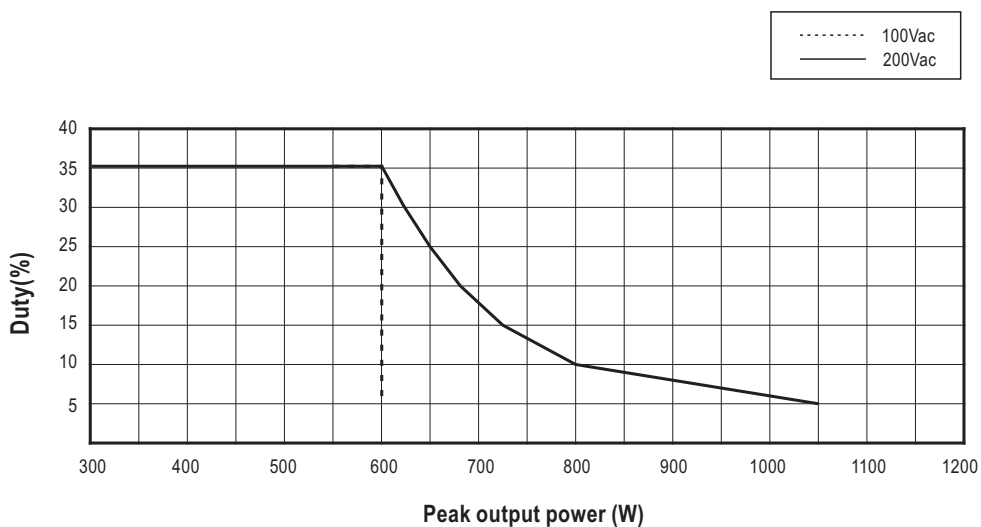
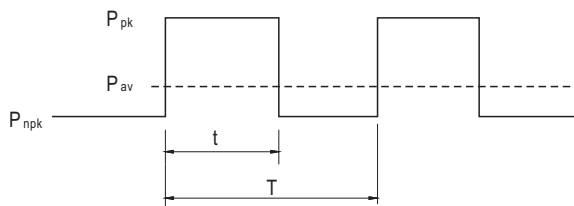
P_{pk} : Peak output power (W)

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

P_{rated} : Rated output power(W)

t : Peak power width(sec)

T : Period(sec)



For example (24V model) :

$V_{in} = 200V$ $\text{Duty}_{max} = 10\%$

$$P_{av} = P_{rated} = 336W$$

$$P_{pk} = 800W$$

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

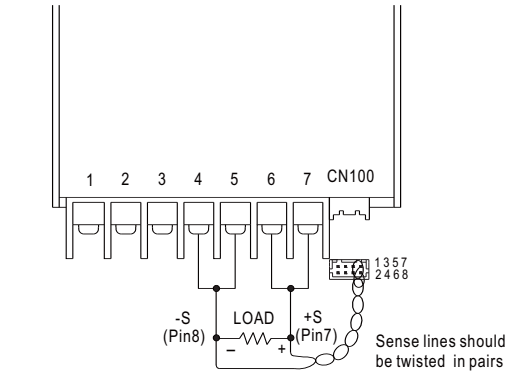
$$T \geq \frac{5 \text{ sec}}{10\%} \geq 50 \text{ sec}$$

$$P_{npk} \leq \frac{T P_{av} - t P_{pk}}{T-t}$$

$$P_{npk} \leq 284.4W$$

2.Remote Sense

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



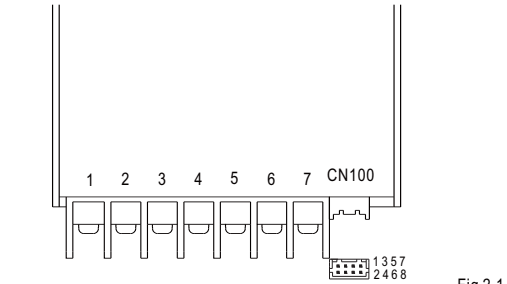
CN100				
1	NC	DC-OK	GND	+S
2	NC	NC	NC	-S

Fig 1.1

3.DC-OK Signal

DC-OK signal is a TTL level signal. High when PSU turns on.

Between DC-OK(pin3) and GND(pin5)	Output Status
3.3 ~ 5.6V	ON
0 ~ 1V	OFF

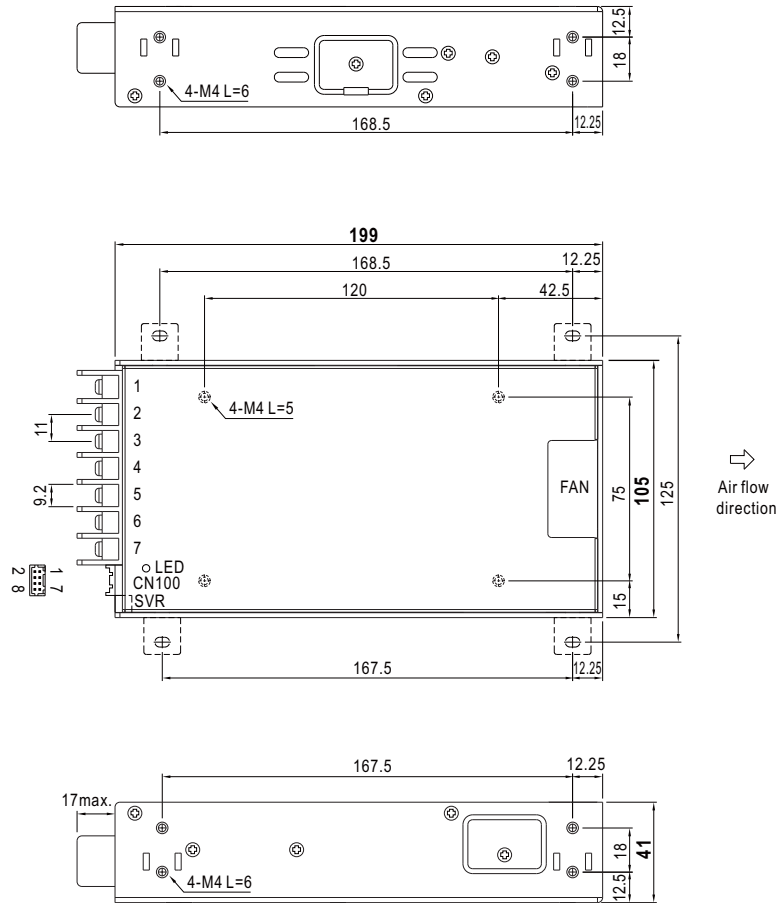


CN100				
1	NC	DC-OK	GND	+S
2	NC	NC	NC	-S

Fig 2.1

Mechanical Specification

Case No.980A 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 DF11-08DP-2DS or equivalent

Pin No.	Assignment	Mating Housing	Terminal
1,2,4,6	NC	HRS DF11-8DS or equivalent	HRS DF11-**SC or equivalent
3	DC-OK		
5	GND		
7	+S		
8	-S		

Installation Manual

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