



600W Single Output with PFC Function

**HRP-600N** series

User's Manual



AS/NZS 62368.1

UL

62368-1

BS

EN

EN

62368-1

TPTC004

IEC62368-1



## ■ Features

- Universal AC input / Full range
- Built-in active PFC function, PF>0.94
- 250% peak power capability
- High efficiency up to 89%
- Withstand 300VAC surge input for 5 seconds
- 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
- 5 years warranty

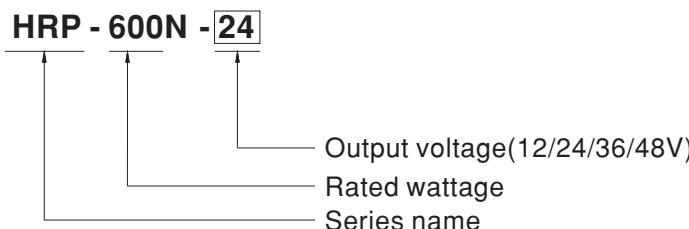
## ■ Applications

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

## ■ Description

HRP-600N is a 600W 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 the built-in fan with fan ON-OFF control, working for the temperature up to 70°C. Moreover, HRP-600N 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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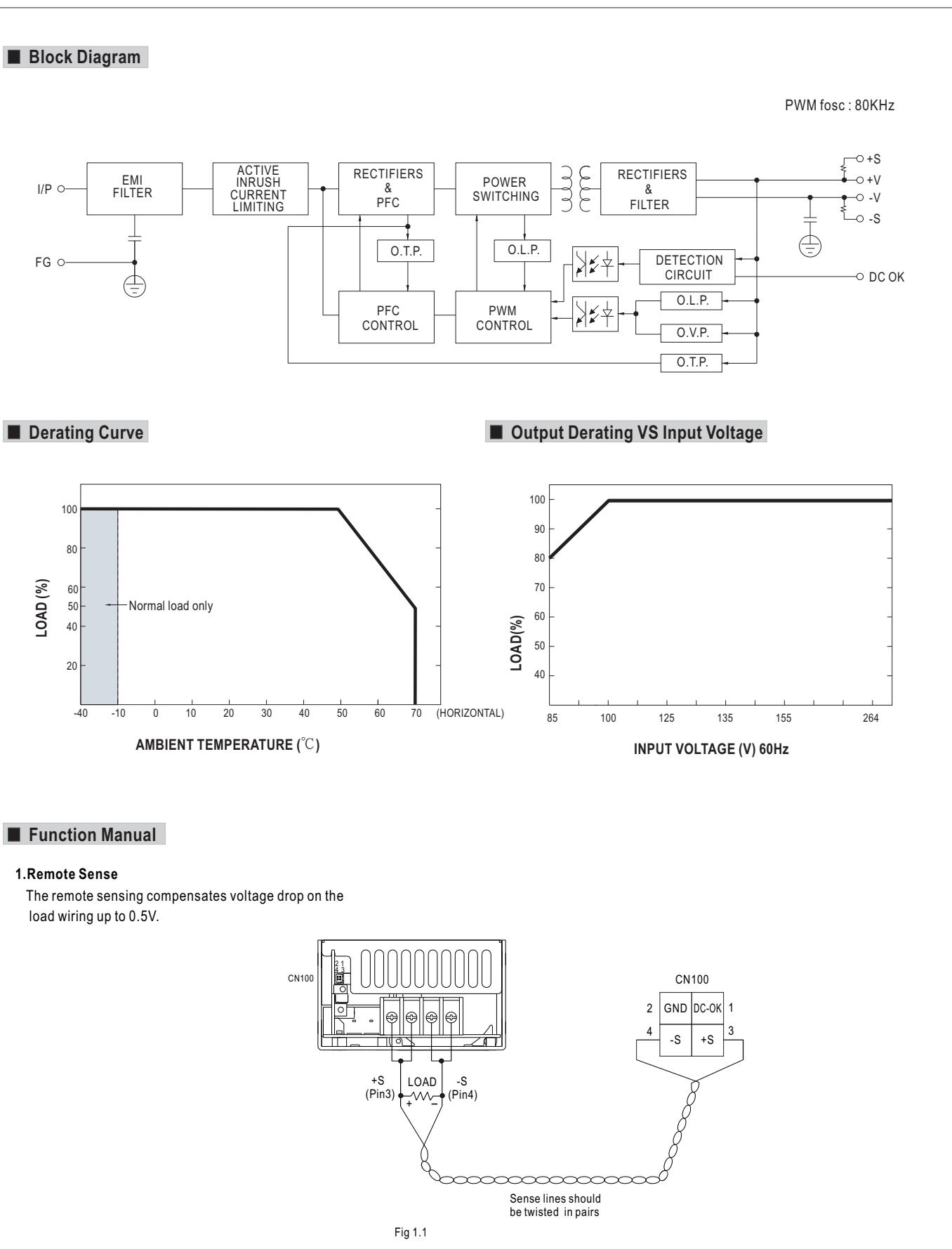
## SPECIFICATION

| MODEL                 | HRP-600N-12  | HRP-600N-24   | HRP-600N-36  | HRP-600N-48                            |
|-----------------------|--|---|--|--|
| OUTPUT                | DC VOLTAGE   | 12V   | 24V  | 36V                                    |
|                       | RATED CURRENT  | 53A   | 27A  | 17.5A                                  |
|                       | CURRENT RANGE  | 0 ~ 53A   | 0 ~ 27A  | 0 ~ 17.5A                              |
|                       | RATED POWER  | 636W  | 648W   | 630W                                   |
|                       | RIPPLE & NOISE (max.) Note.2   | 200mVp-p  | 150mVp-p   | 200mVp-p                               |
|                       | VOLTAGE ADJ. RANGE   | 10.2 ~ 13.8V  | 21.6 ~ 28.8V   | 28.8 ~ 39.6V                           |
|                       | VOLTAGE TOLERANCE Note.3   | ±1.0%   | ±1.0%  | ±1.0%                                  |
|                       | LINE REGULATION  | ±0.3%   | ±0.2%  | ±0.2%                                  |
|                       | LOAD REGULATION  | ±0.5%   | ±0.5%  | ±0.5%                                  |
|                       | SETUP, RISE TIME   | 1800ms, 50ms/230VAC   | 3600ms, 50ms/115VAC at full load                                       |  |
| INPUT                 | HOLD UP TIME (Typ.)  | 16ms/230VAC   | 16ms/115VAC at full load   |  |
|                       | VOLTAGE RANGE Note.4   | 85 ~ 264VAC   | 120 ~ 370VDC   |  |
|                       | FREQUENCY RANGE  | 47 ~ 63Hz   |  |  |
|                       | POWER FACTOR (Typ.)  | PF>0.94/230VAC  | PF>0.98/115VAC at full load  |  |
|                       | EFFICIENCY (Typ.)  | 88%   | 88%  | 89%                                    |
|                       | AC CURRENT (Typ.)  | 7.6A/115VAC   | 3.6A/230VAC  |  |
| PROTECTION            | INRUSH CURRENT (Typ.)  | 35A/115VAC  | 70A/230VAC   |  |
|                       | LEAKAGE CURRENT  | <1.5mA / 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 |  |  |
| FUNCTION              | OVER VOLTAGE   | 14.4 ~ 16.8V  | 30 ~ 34.8V   | 41.4 ~ 48.6V                           |
|                       |  | Protection type : Shut down o/p voltage, re-power on to recover   |  |  |
|                       | OVER TEMPERATURE   | Shut down o/p voltage, recovers automatically after temperature goes down   |  |  |
| ENVIRONMENT           | DC OK SIGNAL   | PSU turn on : 3.3 ~ 5.6V ; PSU turn off : 0 ~ 1V  |  |  |
|                       | FAN CONTROL (Typ.)   | Load 35±15% or RTH2≥50°C Fan on   |  |  |
| SAFETY & EMC (Note 5) | WORKING TEMP.  | -40 ~ +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  |  |  |
|                       | OPERATING ALTITUDE Note.6  | 5000 meters   |  |  |
| SAFETY & EMC (Note 5) | 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                                |
|                       | EMC IMMUNITY   | Voltage Flicker   | BS EN/EN61000-3-3  | -----                                  |
|                       |  | 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                           |
| OTHERS                | 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 |  |
|                       | MTBF   | 452.04K hrs min. Telcordia TR/SR-332 (Bellcore)   | 191.26K hrs min. MIL-HDBK-217F (25°C)                                  |  |
| DIMENSION             | 218*105*61.5mm (L*W*H)   |   |  |  |
|                       | PACKING  | 1.39Kg;8pcs/12.1Kg/1.58CUFT   |  |  |
| NOTE                  | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. Derating may be needed under low input voltages. Please check the derating curve for more details.<br>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> )<br>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).<br>※ 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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## 2.DC-OK Signal

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

| Between DC-OK(pin1) and GND(pin2) | Output Status |
|-----------------------------------|---------------|
| 3.3 ~ 5.6V                        | ON            |
| 0 ~ 1V                            | OFF           |

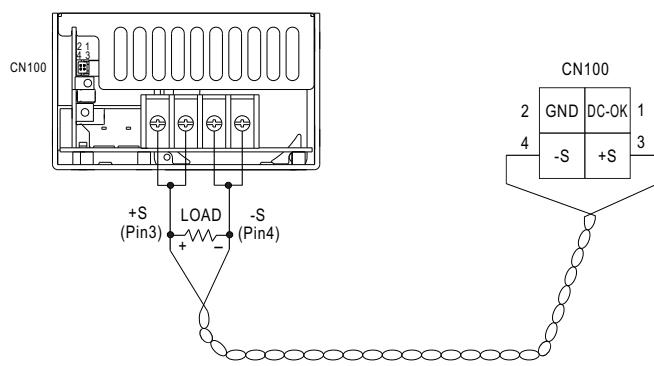


Fig 2.1

Sense lines should  
be twisted in pairs

## 3.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)

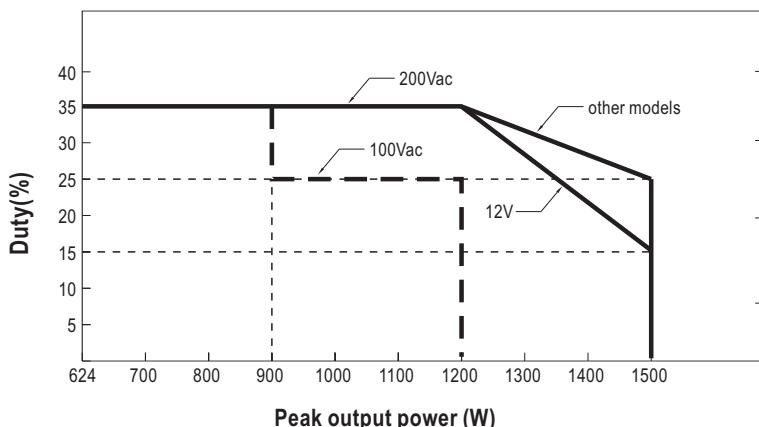
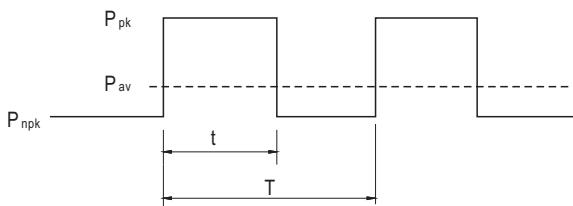
$P_{pk}$  : Peak output power (W)

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

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

$t$  : Peak power width (sec)

T: Period (sec)



## For example (12V model) :

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

$$P_{av} = P_{rated} = 636W$$

$$P_{pk} = 1200W$$

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

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

$$P_{av} = \frac{P_{pk} \times t + P_{npk} \times (T-t)}{T} = \frac{1200 \times 5 + P_{npk}(20-5)}{20} \leq 636W$$

$$P_{npk} \leq 448W$$

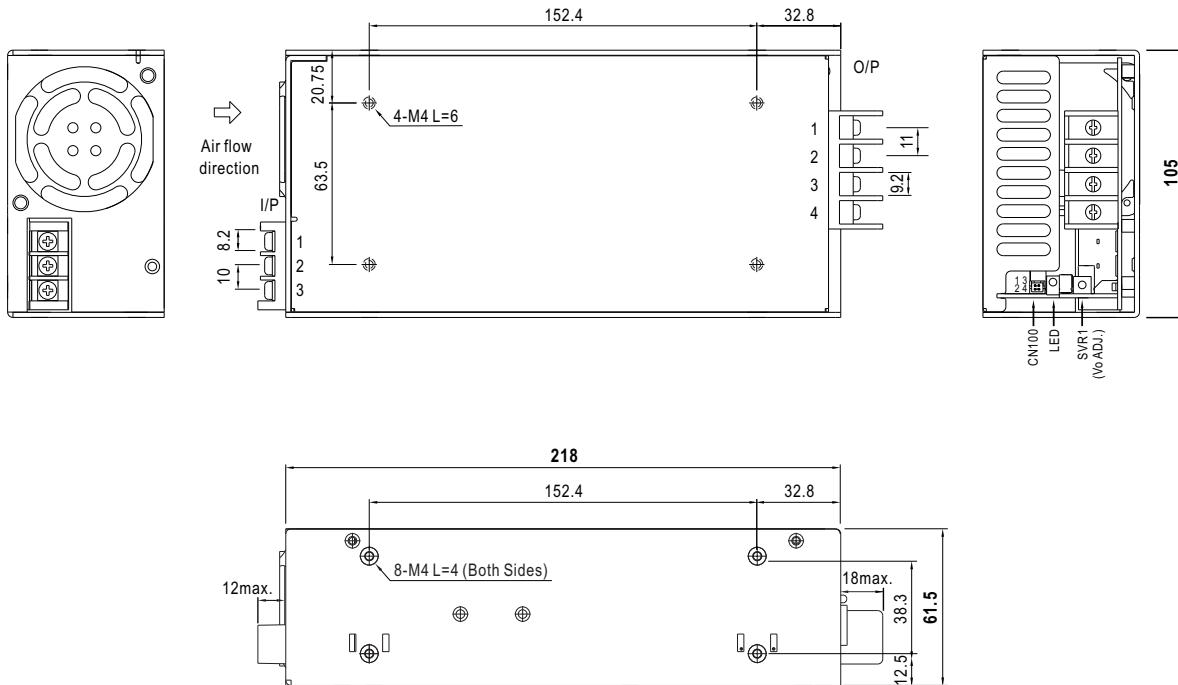


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■ Mechanical Specification

Case No. 977A Unit:mm



AC Input Terminal Pin No.  
Assignment

| Pin No. | Assignment |
|---------|------------|
| 1       | AC/L       |
| 2       | AC/N       |
| 3       | FG $\pm$   |

DC Output Terminal Pin No.  
Assignment

| Pin No. | Assignment |
|---------|------------|
| 1~2     | -V         |
| 3~4     | +V         |

Connector Pin No. Assignment(CN100) : HRS DF11-4DP-2DS or equivalent

| Pin No. | Assignment | Mating Housing                | Terminal                       |
|---------|------------|-------------------------------|--------------------------------|
| 1       | DC-OK      |                               |                                |
| 2       | GND        | HRS DF11-4DS<br>or equivalent | HRS DF11-**SC<br>or equivalent |
| 3       | +S         |                               |                                |
| 4       | -S         |                               |                                |

■ Installation Manual

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