MEAN WELL

# 450W Single Output with PFC Function HRPG-450 series

## Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- High efficiency up to 89.5%
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Built-in constant current limiting circuit
- Built-in cooling Fan ON-OFF control
- Built-in DC OK signal
- Built-in remote ON-OFF control
- Stand by 5V@0.3A
- Built-in remote sense function
- No load power consumption<0.5W (Note.7)
- 5 years warranty

User's Manual

## GTIN CODE

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

UL62368-1 BS EN/EN62368-1 TPTC004 IEC62368-1

## SPECIFICATION

| MODEL | | HRPG-450-3.3 | HRPG-450-5 | HRPG-450-7.5 | HRPG-450-12 | HRPG-450-15 | HRPG-450-24 | HRPG-450-36 | HRPG-450-48 |
|---|---|---|---|---|---|---|---|---|---|
| OUTPUT | DC VOLTAGE | 3.3V | 5V | 7.5V | 12V | 15V | 24V | 36V | 48V |
| | RATED CURRENT | 90A | 90A | 60A | 37.5A | 30A | 18.8A | 12.5A | 9.5A |
| | CURRENT RANGE | 0 ~ 90A | 0 ~ 90A | 0 ~ 60A | 0 ~ 37.5A | 0 ~ 30A | 0 ~ 18.8A | 0 ~ 12.5A | 0 ~ 9.5A |
| | RATED POWER | 297W | 450W | 450W | 450W | 450W | 451.2W | 450W | 456W |
| | RIPPLE & NOISE (max.) Note.2 | 80mVp-p | 80mVp-p | 100mVp-p | 120mVp-p | 150mVp-p | 150mVp-p | 240mVp-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 | ±2.0% | ±2.0% | ±2.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% | ±1.0% |
| | 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 | 1800ms, 100ms/230VAC 3600ms, 100ms/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% | 83% | 86.5% | 88% | 89% | 88% | 89% | 89.5% |
| | AC CURRENT (Typ.) | 5A/115VAC 2.4A/230VAC | | | | | | | |
| | INRUSH CURRENT (Typ.) | 35A/115VAC 70A/230VAC | | | | | | | |
| | LEAKAGE CURRENT | <1.5mA / 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 |
| | | 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 | | | | | | | |
| FUNCTION | 5V STANDBY | 5VSB : 5V@0.3A ; tolerance±5%, ripple : 50mVp-p(max.) | | | | | | | |
| | DC OK SIGNAL | PSU turn on : 3.3 ~ 5.6V ; PSU turn off : 0 ~ 1V | | | | | | | |
| | REMOTE CONTROL | RC+ / RC-: 4 ~ 10V or open = power on ; 0 ~ 0.8V or short = power off | | | | | | | |
| | FAN CONTROL (Typ.) | Load 20±10% 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 | | | | | | | |
| SAFETY & EMC (Note 4) | SAFETY STANDARDS | UL62368-1, TUV BS EN/EN62368-1, EAC TP TC 004 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 | Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020 | | | | | | | |
| | EMC IMMUNITY | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55024, BS EN/EN61000-6-2, heavy industry level, EAC TP TC 020 | | | | | | | |
| OTHERS | MTBF | 1180.3K hrs min. Telcordia SR-332 (Bellcore) ; 130.5K hrs min. MIL-HDBK-217F (25℃) | | | | | | | |
| | DIMENSION | 218*105*41mm (L*W*H) | | | | | | | |
| | PACKING | 1.19Kg; 12pcs/15.3Kg/0.82CUFT | | | | | | | |

**NOTE**

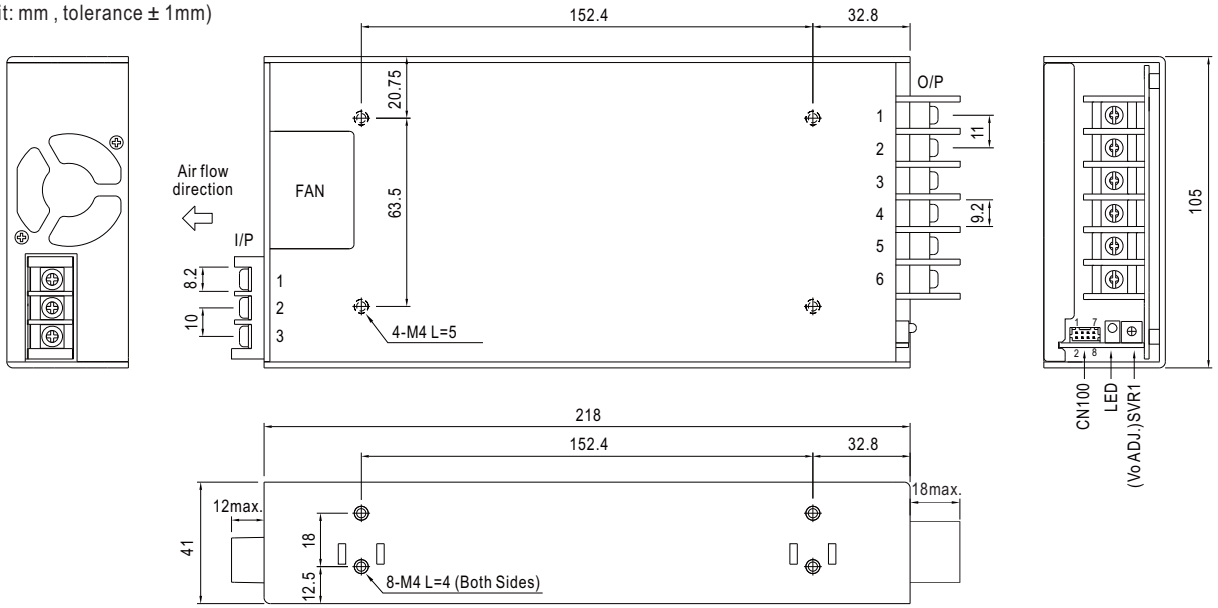
1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μF & 47 μF parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. The power supply is considered a component which will be installed into a final equipment. 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 )
5. Derating may be needed under low input voltages. Please check the derating curve for more details.
6. Length of set up time is measured at first cold start. Turning ON/OFF the power supply may lead to increase of the set up time.
7. No load power consumption<0.5W when RC- & RC+ (CN100 pin1,2) 0 ~ 0.8V or short.
8. 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).

※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

## ■ Mechanical Specification

(Unit: mm , tolerance ± 1mm)

Case No. 995A




AC Input Terminal Pin No. Assignment

| Pin No. | Assignment |
|---|---|
| 1 | AC/L |
| 2 | AC/N |
| 3 | FG ⏚ |

DC Output Terminal Pin No. Assignment

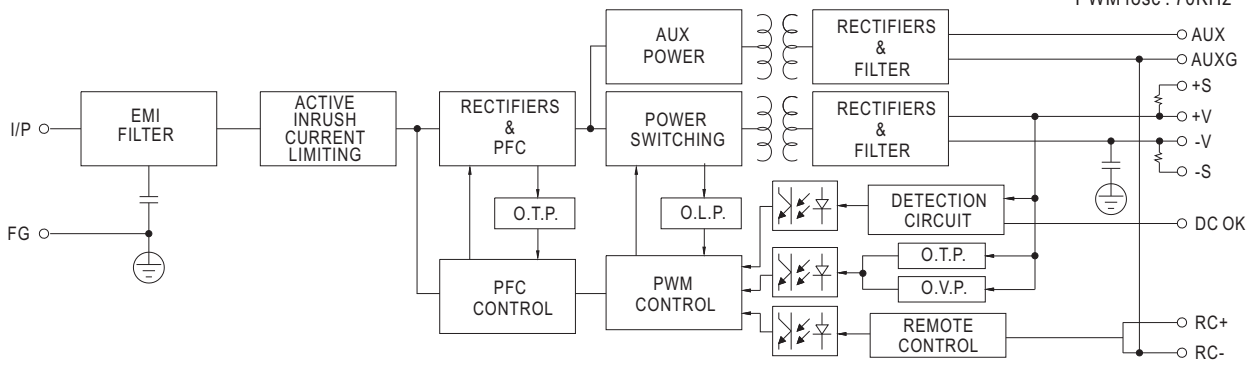
| Pin No. | Assignment |
|---|---|
| 1~3 | -V |
| 4~6 | +V |

Connector Pin No. Assignment(CN100) : HRS DF11-8DP-2DS or equivalent

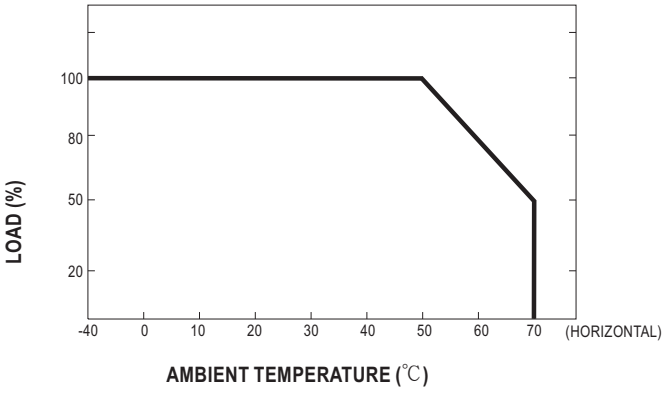
| Pin No. | Assignment | Pin No. | Assignment | Mating Housing | Terminal |
|---|---|---|---|---|---|
| 1 | RC+ | 5 | DC-OK | HRS DF11-8DS or equivalent | HRS DF11-**SC or equivalent |
| 2 | RC- | 6 | GND | | |
| 3 | AUX | 7 | +S | | |
| 4 | AUXG | 8 | -S | | |

## ■ Block Diagram

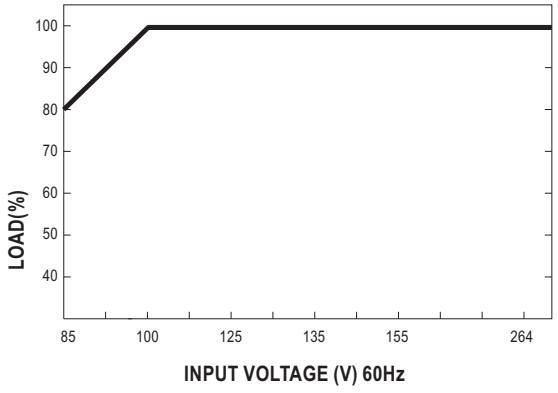
PWM fosc : 70KHz




## ■ Derating Curve




## ■ Output Derating VS Input Voltage



## ■ Function Description of CN100

| Pin No. | Function | Description |
|---|---|---|
| 1 | RC+ | Turns the output on and off by electrical or dry contact between pin 2 (RC-), Short: Power OFF, Open: Power ON. |
| 2 | RC- | Remote control ground. |
| 3 | AUX | Auxiliary voltage output, 4.75~5.25V, referenced to pin 4(AUXG). The maximum load current is 0.3A. This output is not controlled by the "remote ON/OFF control". |
| 4 | AUXG | Auxiliary voltage output ground. The signal return is isolated from the output terminals (+V & -V). |
| 5 | DC-OK | DC-OK Signal is a TTL level signal, referenced to pin6(DC-OK GND). High when PSU turns on. |
| 6 | GND | This pin connects to the negative terminal(-V). Return for DC-OK signal output. |
| 7 | +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. |
| 8 | -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. |

## ■ Function Manual

### 1.Remote Sense

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

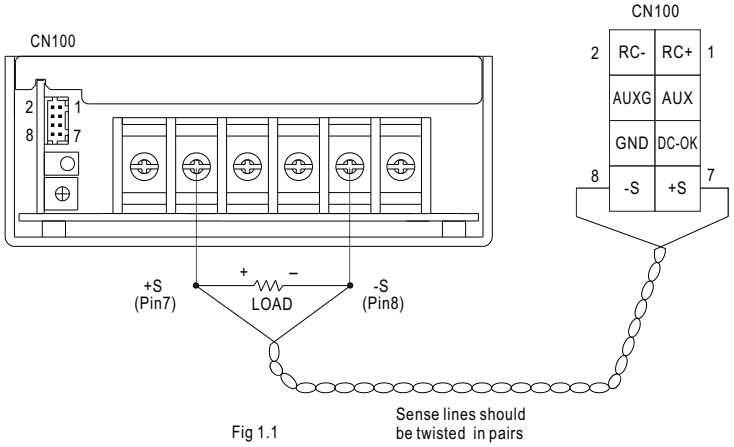



Fig 1.1

### 2.DC-OK Signal

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

| Between DC-OK(pin5) and GND(pin6) | Output Status |
|---|---|
| 3.3 ~ 5.6V | ON |
| 0 ~ 1V | OFF |

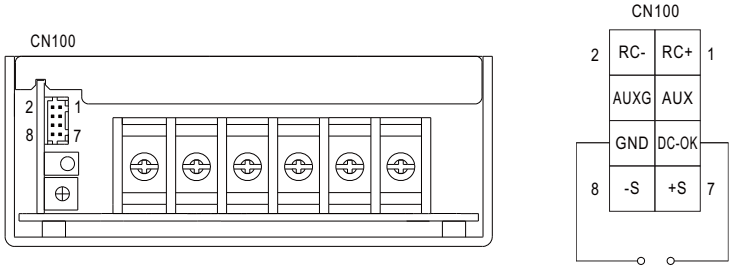



Fig 2.1

### 3.Remote Control

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

| Between RC+(pin1) and RC-(pin2) | Output Status |
|---|---|
| SW ON (Short) | OFF |
| SW OFF (Open) | ON |

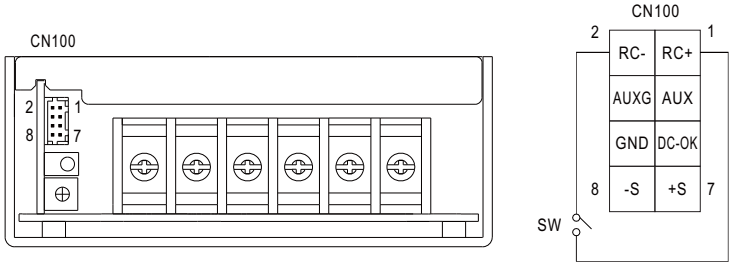



Fig 3.1