



## 150W Single Output with PFC Function

# HRPG-150 series



### ■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- High efficiency up to 88%
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Cooling by free air convection
- Built-in constant current limiting circuit
- 1U low profile 38mm
- Built-in remote ON-OFF control
- Stand by 5V@0.3A
- Built-in remote sense function
- No load power consumption<0.5W (Note.6)
- 5 years warranty



### SPECIFICATION

| MODEL                    |                              | HRPG-150-3.3                                                                                                                          | HRPG-150-5 | HRPG-150-7.5 | HRPG-150-12  | HRPG-150-15  | HRPG-150-24  | HRPG-150-36  | HRPG-150-48  |
|--------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|
| OUTPUT                   | DC VOLTAGE                   | 3.3V                                                                                                                                  | 5V         | 7.5V         | 12V          | 15V          | 24V          | 36V          | 48V          |
|                          | RATED CURRENT                | 30A                                                                                                                                   | 26A        | 20A          | 13A          | 10A          | 6.5A         | 4.3A         | 3.3A         |
|                          | CURRENT RANGE                | 0 ~ 30A                                                                                                                               | 0 ~ 26A    | 0 ~ 20A      | 0 ~ 13A      | 0 ~ 10A      | 0 ~ 6.5A     | 0 ~ 4.3A     | 0 ~ 3.3A     |
|                          | RATED POWER                  | 99W                                                                                                                                   | 130W       | 150W         | 156W         | 150W         | 156W         | 154.8W       | 158.4W       |
|                          | RIPPLE & NOISE (max.) Note.2 | 80mVp-p                                                                                                                               | 80mVp-p    | 100mVp-p     | 120mVp-p     | 150mVp-p     | 150mVp-p     | 200mVp-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     | ± 2.5%                                                                                                                                | ± 2.5%     | ± 2.5%       | ± 1.5%       | ± 1.5%       | ± 1.5%       | ± 1.5%       | ± 1.5%       |
|                          | 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             | 3000ms, 50ms/230VAC      3000ms, 50ms/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.)            | 78.5%                                                                                                                                 | 84%        | 86%          | 87%          | 87%          | 87%          | 88%          | 88%          |
|                          | AC CURRENT (Typ.)            | 1.7A/115VAC      0.9A/230VAC                                                                                                          |            |              |              |              |              |              |              |
|                          | INRUSH CURRENT (Typ.)        | 35A/115VAC      70A/230VAC                                                                                                            |            |              |              |              |              |              |              |
|                          | LEAKAGE CURRENT              | <1mA / 240VAC                                                                                                                         |            |              |              |              |              |              |              |
| PROTECTION               | OVERLOAD                     | 105 ~ 135% rated output power<br>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.)                                                                               |            |              |              |              |              |              |              |
|                          | REMOTE CONTROL               | RC+ / RC-: 4 ~ 10V or open = power on ; 0 ~ 0.8V or short = power off                                                                 |            |              |              |              |              |              |              |
| ENVIRONMENT              | WORKING TEMP.                | -40 ~ +70℃ (Refer to "Derating Curve")                                                                                                |            |              |              |              |              |              |              |
|                          | WORKING HUMIDITY             | 20 ~ 90% RH non-condensing                                                                                                            |            |              |              |              |              |              |              |
|                          | STORAGE TEMP., HUMIDITY      | -40 ~ +85℃, 10 ~ 95% RH                                                                                                               |            |              |              |              |              |              |              |
|                          | TEMP. COEFFICIENT            | ± 0.04%/℃ (0 ~ 50℃ )                                                                                                                  |            |              |              |              |              |              |              |
|                          | VIBRATION                    | 10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes                                                                          |            |              |              |              |              |              |              |
| SAFETY & EMC<br>(Note 4) | SAFETY STANDARDS             | UL62368-1, TUV 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 EN55032 (CISPR32) Class B, EN61000-3-2,-3, EAC TP TC 020                                                                |            |              |              |              |              |              |              |
|                          | EMC IMMUNITY                 | Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, EN61000-6-2, heavy industry level, criteria A, EAC TP TC 020                         |            |              |              |              |              |              |              |
| OTHERS                   | MTBF                         | 213.4K hrs min.    MIL-HDBK-217F (25℃)                                                                                                |            |              |              |              |              |              |              |
|                          | DIMENSION                    | 159*97*38mm (L*W*H)                                                                                                                   |            |              |              |              |              |              |              |
|                          | PACKING                      | 0.63Kg; 24pcs/16Kg/0.76CUFT                                                                                                           |            |              |              |              |              |              |              |

## Mechanical Specification

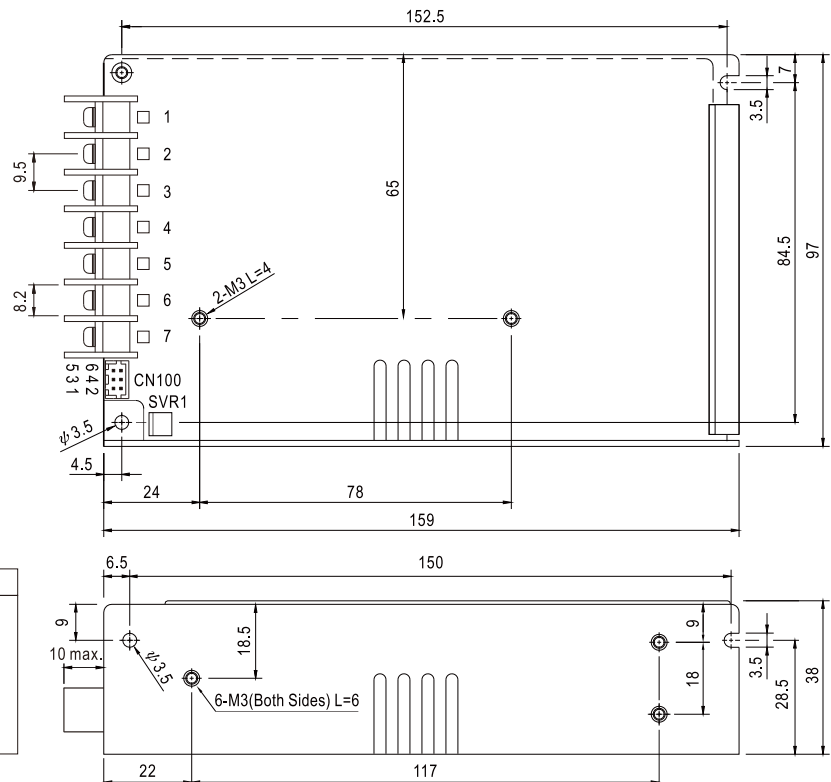
Case No.901I Unit:mm

### Terminal Pin No. Assignment

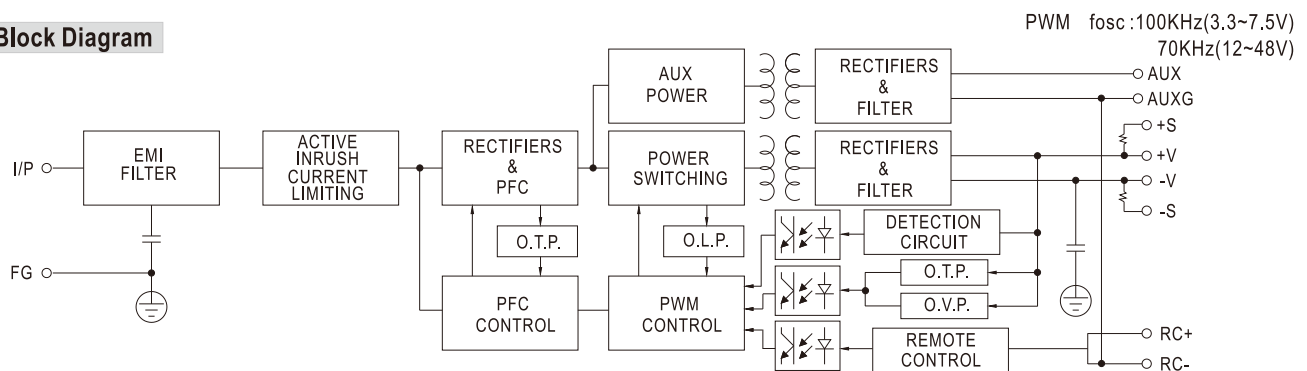
| Pin No. | Assignment | Pin No. | Assignment   |
|---------|------------|---------|--------------|
| 1       | AC/L       | 4,5     | DC OUTPUT -V |
| 2       | AC/N       | 6,7     | DC OUTPUT +V |
| 3       | FG $\perp$ |         |              |

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

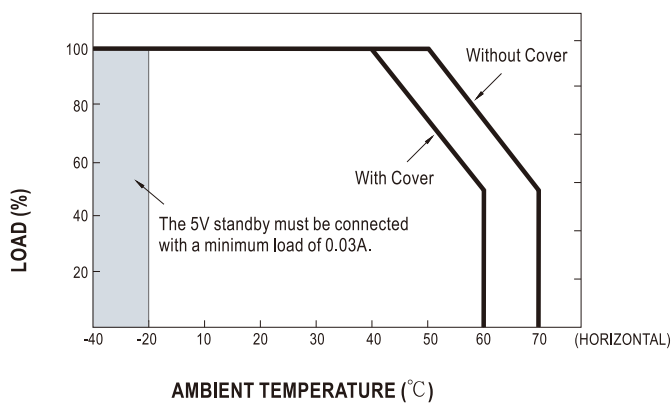
| Pin No. | Assignment | Mating Housing                | Terminal                        |
|---------|------------|-------------------------------|---------------------------------|
| 1       | -S         | HRS DF11-6DS<br>or equivalent | HRS DF11-**-SC<br>or equivalent |
| 2       | +S         |                               |                                 |
| 3       | AUXG       |                               |                                 |
| 4       | AUX        |                               |                                 |
| 5       | RC-        |                               |                                 |
| 6       | RC+        |                               |                                 |



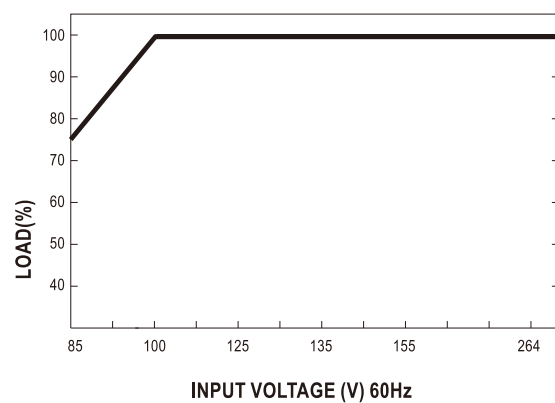
## Block Diagram



## Derating Curve



## Output Derating VS Input Voltage



## Function Description of CN100

| Pin No. | Function | Description                                                                                                                                                                                                           |
|---------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | -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. |
| 2       | +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. |
| 3       | AUXG     | Auxiliary voltage output ground. The signal return is isolated from the output terminals (+V & -V).                                                                                                                   |
| 4       | AUX      | Auxiliary voltage output, 4.75~5.25V, referenced to pin 3(AUXG). The maximum load current is 0.3A. This output is not controlled by the "remote ON/OFF control".                                                      |
| 5       | RC-      | Remote control ground.                                                                                                                                                                                                |
| 6       | RC+      | Turns the output on and off by electrical or dry contact between pin 5 (RC-), Short: Power OFF, Open: Power ON.                                                                                                       |

## Function Manual

### 1.Remote Control

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

| Between RC-(pin5) and RC+(pin6) | Output Status |
|---------------------------------|---------------|
| SW ON (Short)                   | OFF           |
| SW OFF (Open)                   | ON            |

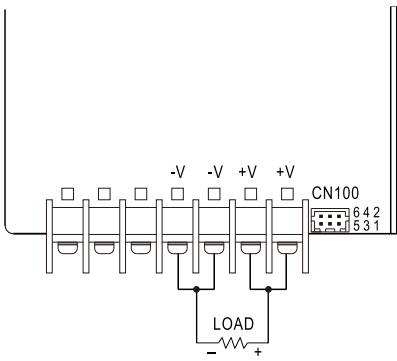
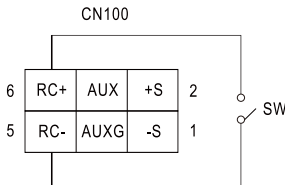


Fig 1.1



### 2.Remote Sense

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

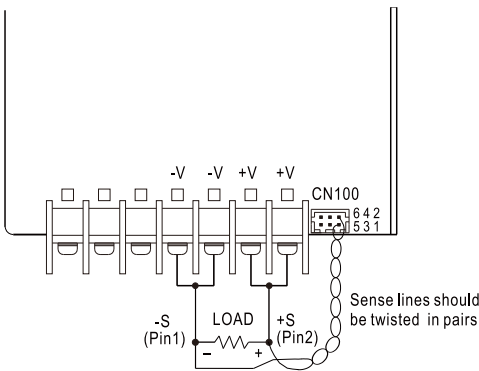


Fig 2.1

