

HRPG-1000 Series

1000W Single Output with PFC Function



■ Features

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- High efficiency up to 94%
- Withstand 300VAC surge input for 5 seconds
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Built-in cooling fan ON-OFF control
- Current sharing up to 4000W (3+1)
- Built-in DC OK signal
- Built-in remote ON-OFF control
- Standby 5V@0.3A
- Built-in remote sense function
- No load power consumption<0.75W (Note.6)
- 5 years warranty

■ Applications

- Factory control or automation apparatus
- Test and measurement instrument
- Laser related machine
- Aging equipment
- RF application

■ GTIN CODE

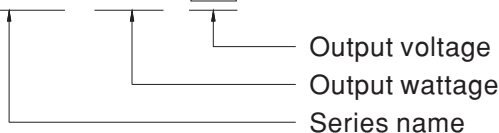
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

■ Description

HRPG-1000 is a single output enclosed type AC/DC power supply providing 1000 W output power for a wide range of industrial applications. This series operates for 90~264 VAC input voltage and offers models with different rated voltage ranging between 12 and 48 V that can satisfy the demands for all kinds of industrial equipments. Each model is cooled by the built-in fan with speed control, working for the temperature up to 70°C. Moreover, HRPG-1000 has various built-in functions such as auxiliary power, remote sense and remote on-off control, offering vast design flexibility for industrial application.

■ Model Encoding / Order Information

HRPG - 1000 - 12



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SPECIFICATION

| MODEL | HRPG-1000-12 | HRPG-1000-15 | HRPG-1000-24 | HRPG-1000-48 | |
|--------------------------------|--|---|--|---|-------------------|
| OUTPUT | DC VOLTAGE | 12V | 15V | 24V | 48V |
| | RATED CURRENT | 80A | 64A | 42A | 21A |
| | CURRENT RANGE | 0 ~ 80A | 0 ~ 64A | 0 ~ 42A | 0 ~ 21A |
| | RATED POWER | 960W (max. 1000W for 3 sec.) | 960W (max. 1000W for 3 sec.) | 1008W | 1008W |
| | RIPPLE & NOISE (max.) Note.2 | 150mVp-p | 150mVp-p | 200mVp-p | 250mVp-p |
| | VOLTAGE ADJ. RANGE | 11 ~ 14V | 14 ~ 17V | 22 ~ 28V | 46 ~ 56V |
| | VOLTAGE TOLERANCE Note.3 | ±2.0% | ±1.5% | ±1.0% | ±1.0% |
| | LINE REGULATION | ±0.5% | ±0.5% | ±0.5% | ±0.5% |
| | LOAD REGULATION | ±2.0% | ±1.5% | ±0.5% | ±0.5% |
| | SETUP, RISE TIME | 1000ms, 50ms/230VAC 2000ms, 50ms/115VAC at full load | | | |
| HOLD UP TIME (Typ.) | 16ms/230VAC 16ms/115VAC at full load | | | | |
| INPUT | VOLTAGE RANGE Note.4 | 90 ~ 264VAC(300VAC for 5 sec.) | | 127 ~ 370VDC | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | |
| | POWER FACTOR (Typ.) | PF>0.95/230VAC PF>0.99/115VAC at full load | | | |
| | EFFICIENCY (Typ.) | 91.5% | 92% | 93% | 94% |
| | AC CURRENT (Typ.) | 8.5A/115VAC 5A/230VAC | | | |
| | INRUSH CURRENT (Typ.) | 25A/115VAC 40A/230VAC | | | |
| | LEAKAGE CURRENT | <1.2mA/ 240VAC | | | |
| PROTECTION | OVERLOAD | 105 ~ 135% rated output power Protection type : Constant current limiting, recovers automatically after fault condition is removed | | | |
| | OVER VOLTAGE | 14.5 ~ 16.5V | 18.2 ~ 20.6V | 29 ~ 33V | 58 ~ 65V |
| | OVER TEMPERATURE | Shut down o/p voltage, recovers automatically after temperature goes down | | | |
| FUNCTION | CURRENT SHARING | Up to 4000W or (3+1) units. Please refer to the Function Manual. | | | |
| | REMOTE ON-OFF CONTROL | Power ON : short; Power OFF : open. Please refer to the Function Manual. | | | |
| | REMOTE SENSE | Compensate voltage drop on the load wiring up to 0.5V. Please refer to the Function Manual. | | | |
| | DC-OK SIGNAL | The TTL signal out, PSU turn on = 3.3 ~ 5.6V ; PSU turn off = 0 ~ 1V. Please refer to the Function Manual. | | | |
| | 5V STANDBY | 5VSB : 5V@0.3A ; tolerance ±5%, ripple : 50mVp-p(max.) | | | |
| | FAN CONTROL | Fan on/off by NTC(RT50) or 30% load min. | | | |
| ENVIRONMENT | 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 | | | |
| SAFETY & EMC (Note 7) | SAFETY STANDARDS | UL62368-1, CAN/CSA C22.2 No. 62368-1, TUV BS EN/EN62368-1, AS/NZS62368.1, 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°C / 70% RH | | | |
| | EMC EMISSION | Parameter | Standard | | Test Level / Note |
| | | Conducted | BS EN/EN55032 (CISPR32) | | Class B |
| | | Radiated | BS EN/EN55032 (CISPR32) | | Class B |
| | | Harmonic Current | BS EN/EN61000-3-2 | | Class A |
| | | Voltage Flicker | BS EN/EN61000-3-3 | | ----- |
| | EMC IMMUNITY | BS EN/EN55024, BS EN/EN61000-6-2 | | | |
| | | Parameter | Standard | | Test Level / Note |
| ESD | | BS EN/EN61000-4-2 | | Level 3, 8KV air ; Level 2, 4KV contact | |
| Radiated | | BS EN/EN61000-4-3 | | Level 3 | |
| EFT / Burst | | BS EN/EN61000-4-4 | | Level 3 | |
| Surge | | BS EN/EN61000-4-5 | | Level 4, 2KV/Line-Line 4KV/Line-Earth | |
| Conducted | | BS EN/EN61000-4-6 | | Level 3 | |
| Magnetic Field | | BS EN/EN61000-4-8 | | Level 4 | |
| Voltage Dips and Interruptions | BS EN/EN61000-4-11 | | >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods | | |
| OTHERS | MTBF | 286.6K hrs min. Telcordia SR-332 (Bellcore) ; 105.8K hrs min. MIL-HDBK-217F (25°C) | | | |
| | DIMENSION | 218*105*63.5mm (L*W*H) | | | |
| | PACKING | 1.53Kg;8pcs/13.3Kg/1.34CUFT | | | |
| NOTE | <p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>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.</p> <p>3. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>4. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>5. 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.</p> <p>6. No load power consumption<0.75W when RC+ & RC- (CN100 pin3,4) open.</p> <p>7. 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*700mm 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)</p> <p>8. 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).</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</p> | | | | |

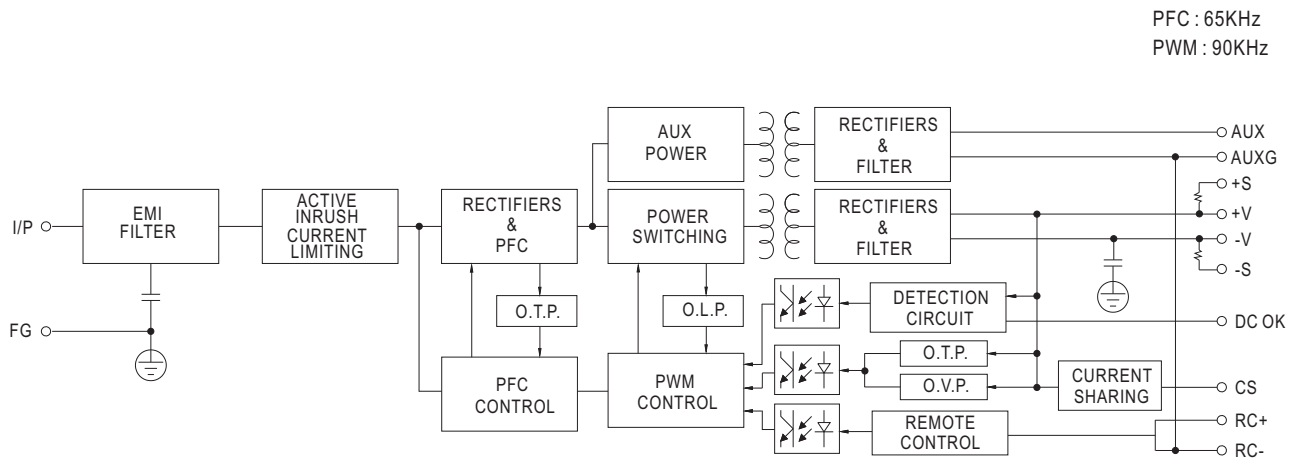
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HRPG-1000 Series

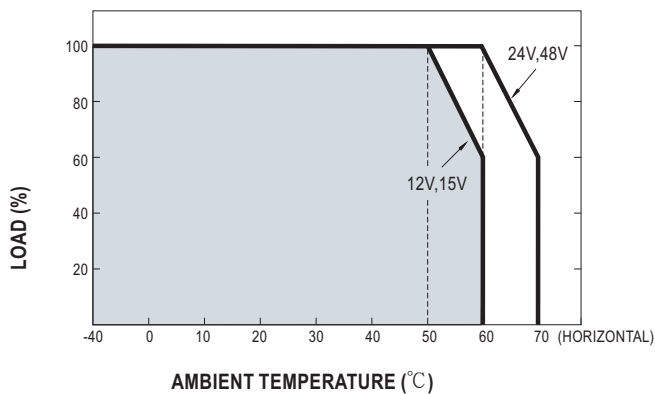
1000W Single Output with PFC Function



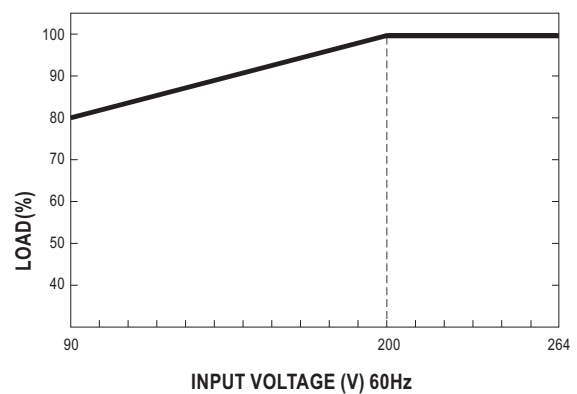
Block Diagram



Derating Curve



Output Derating VS Input Voltage



Function Description of CN100

| Pin No. | Function | Description |
|---------|----------|---|
| 1 | AUXG | Auxiliary voltage output ground. |
| 2 | AUX | Auxiliary voltage output, 4.75~5.25V, referenced to pin 1(AUXG). The maximum load current is 0.3A. This output is not controlled by the "remote ON/OFF control". |
| 3 | RC+ | Turns the output on and off by electrical or dry contact between pin 4 (RC-), Short: Power ON, Open: Power OFF. |
| 4 | RC- | Remote control ground. |
| 5 | CS | Current sharing signal. When units are connected in parallel, the CS pins of the units should be connected to allow current balance between units. |
| 6,8 | GND | This pin connects to the negative terminal(-V). Return for DC-OK signal output. |
| 7 | DC-OK | DC-OK signal is a TTL level signal, referenced to pin8(DC-OK GND). High when PSU turns on. |
| 9 | +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. |
| 10 | -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.

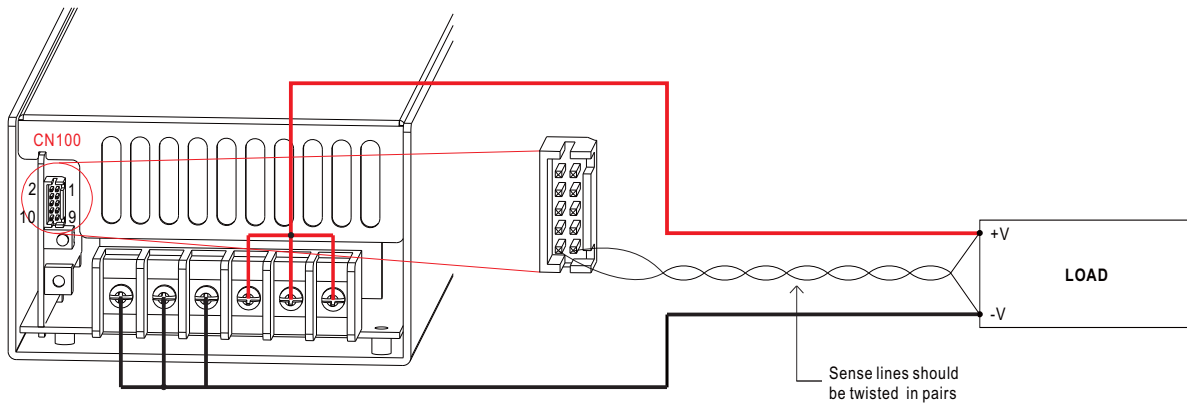


Fig 1.1

2. DC-OK Signal

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

| Between DC-OK(pin7) and GND(pin6,8) | Output Status |
|-------------------------------------|---------------|
| 3.3 ~ 5.6V | ON |
| 0 ~ 1V | OFF |

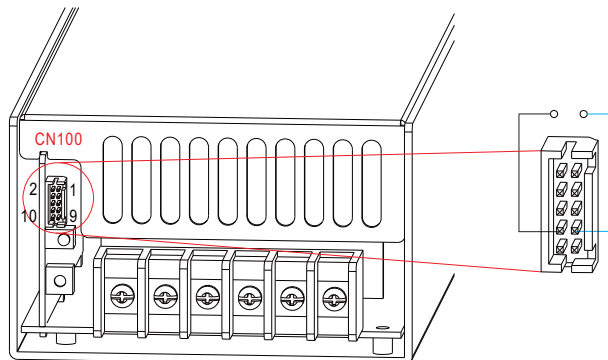


Fig 2.1

3. Remote ON-OFF Control

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

| Between RC+(pin3) and RC-(pin4) | Output Status |
|---------------------------------|---------------|
| SW ON (Short) | ON |
| SW OFF (Open) | OFF |

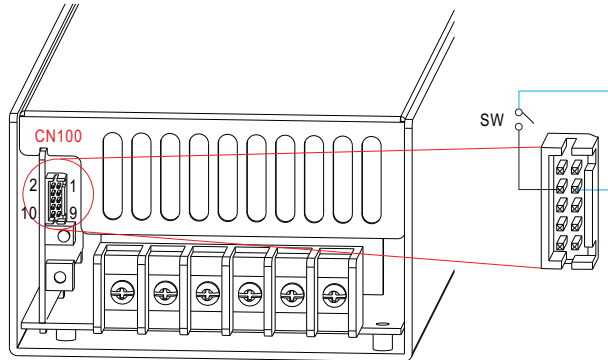


Fig 3.1

4. Current Sharing

HRPG-1000 has the built-in active current sharing function and can be connected in parallel, up to 4 units, to provide higher output power as exhibited below :

- ※ The power supplies should be paralleled using short and large diameter wiring and then connected to the load.
- ※ Difference of output voltages among parallel units should be less than 0.2V.
- ※ The total output current must not exceed the value determined by the following equation:

$$\text{Maximum output current at parallel operation} = (\text{Rated current per unit}) \times (\text{Number of unit}) \times 0.9$$
- ※ When the total output current is less than 5% of the total rated current, or say $(5\% \text{ of Rated current per unit}) \times (\text{Number of unit})$ the current shared among units may not be fully balanced.

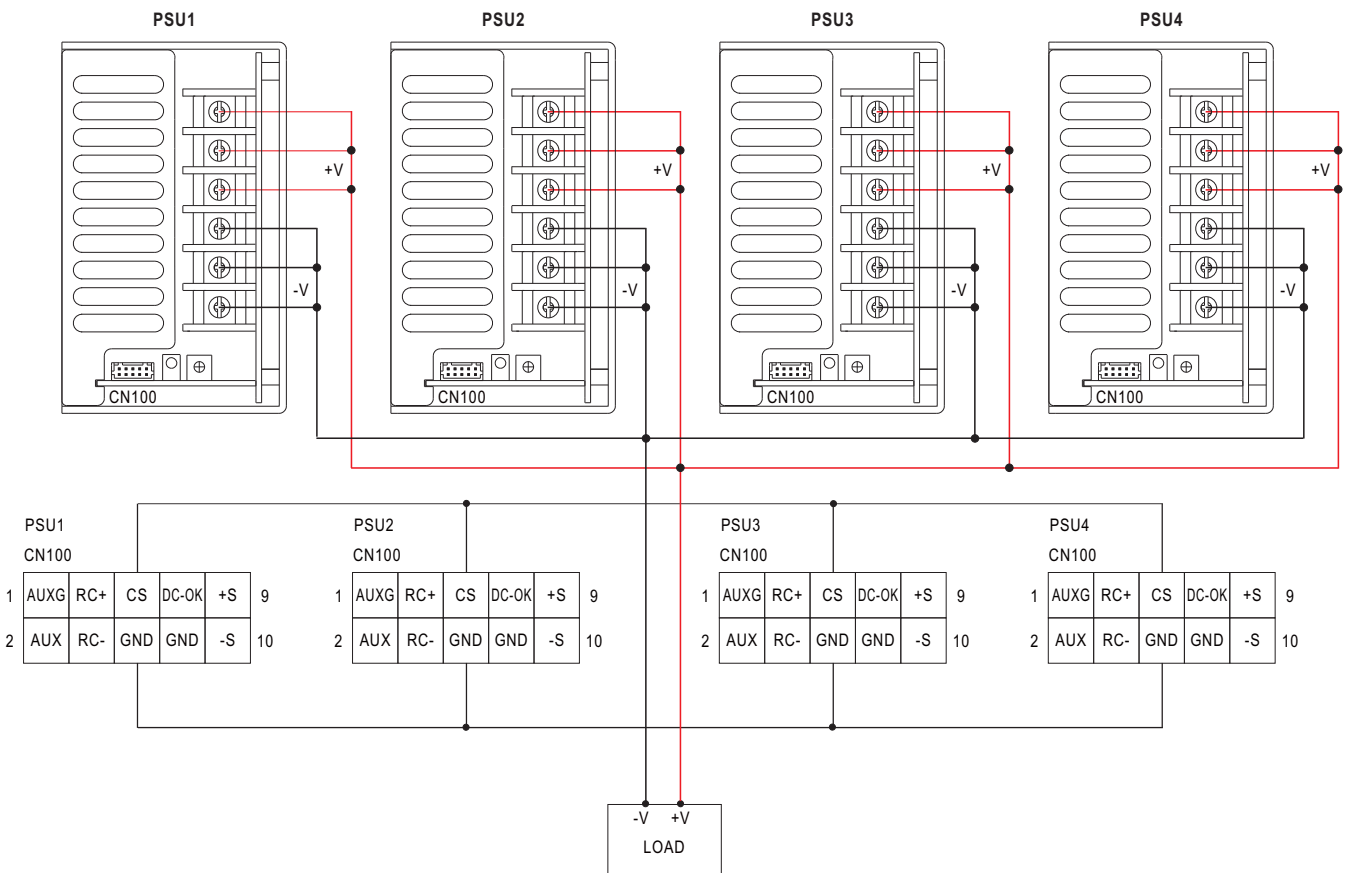
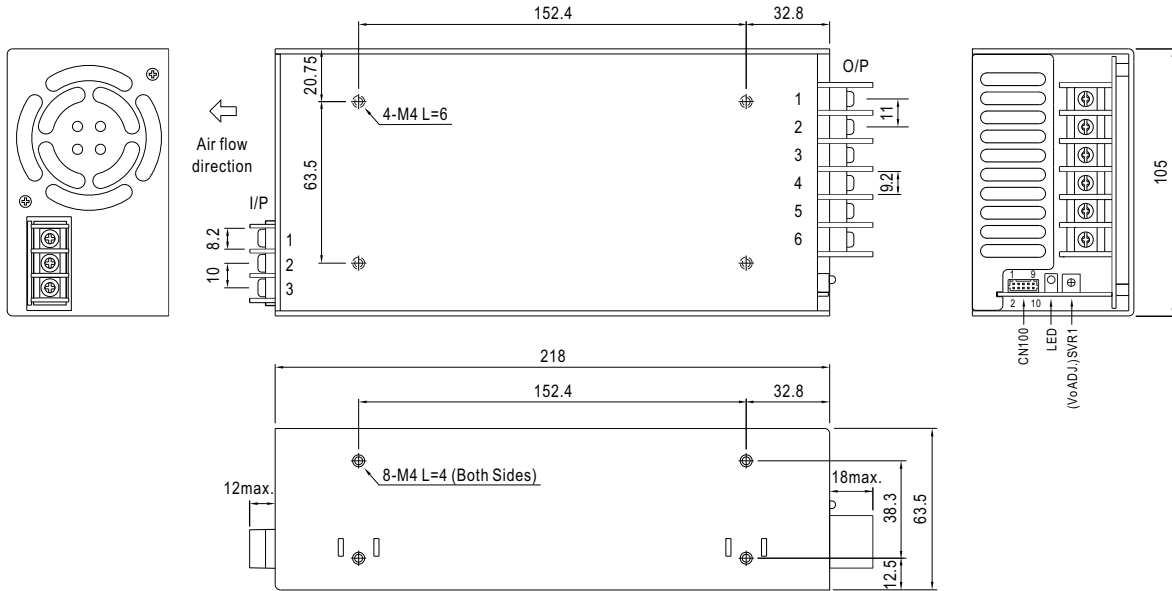


Fig 4.1

Mechanical Specification

(Unit: mm , tolerance ± 1 mm)

Case No. 977



AC Input Terminal Pin No. Assignment

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

DC Output Terminal Pin No. Assignment

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

Connector Pin No. Assignment(CN100) : HRS DF11-10DP-2DS or equivalent

| Pin No. | Assignment | Pin No. | Assignment | Mating Housing | Terminal |
|---------|------------|---------|------------|-----------------------------|-----------------------------|
| 1 | AUXG | 6,8 | GND | HRS DF11-10DS or equivalent | HRS DF11-**SC or equivalent |
| 2 | AUX | 7 | DC-OK | | |
| 3 | RC+ | 9 | +S | | |
| 4 | RC- | 10 | -S | | |
| 5 | CS | | | | |

Installation Manual

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