



500W Single Output with PFC Function

**RSP-500** series

## Dimension

| L    | * | W   | * | H        |      |
|------|---|-----|---|----------|------|
| 230  | * | 127 | * | 40.5(1U) | mm   |
| 9.06 | * | 5   | * | 1.59(1U) | inch |



User's Manual



## ■ Features

- Universal AC input / Full range
- Built-in active PFC function
- High efficiency up to 90.5%
- Forced air cooling by built-in DC fan (Note.5)
- Built-in remote ON-OFF control / remote sense
- Protections: Short circuit / Overload / Over voltage / Over temperature
- 3 years warranty

## ■ Applications

- Factory control or automation apparatus
- Test and measurement instrument
- Laser related machine
- Burn-in facility
- RF application

## ■ GTIN CODE

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

## ■ Description

RSP-500 is a 500W single output enclosed 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 speed control, working for the temperature up to 70°C. Moreover, RSP-500 provides vast design flexibility by equipping various built-in functions such as remote ON-OFF control, remote sense, etc.

## ■ Model Encoding / Order Information

**RSP - 500 - 24**

Output voltage (3.3V/4V/5V/12V/15V/24V/27V/48V)  
Output wattage  
Series name

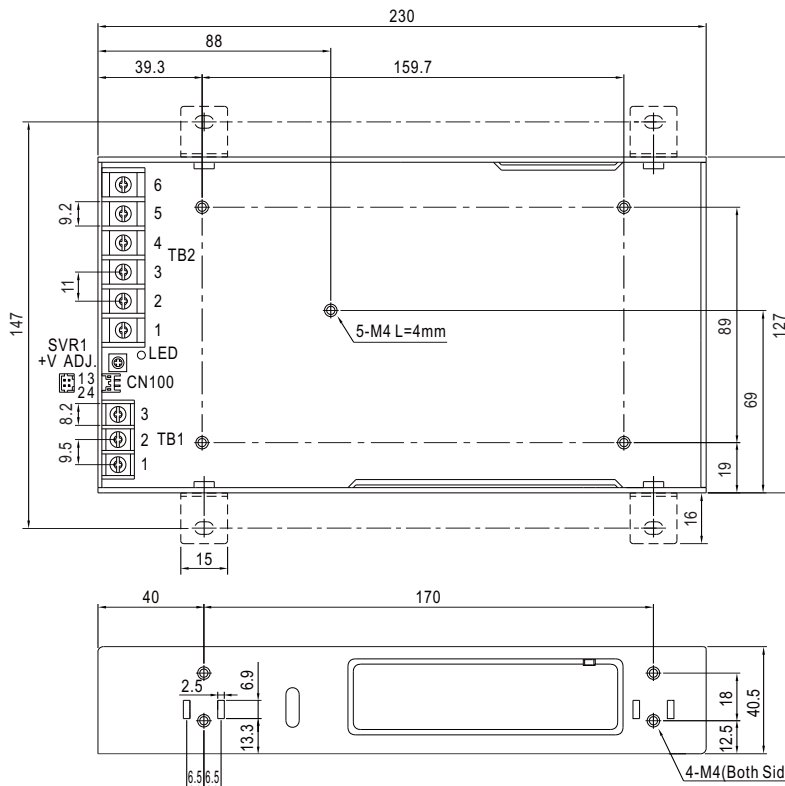


## SPECIFICATION

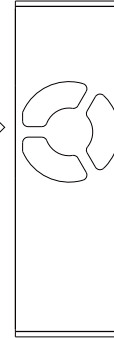
| MODEL                    |                              | RSP-500-3.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | RSP-500-4  | RSP-500-5  | RSP-500-12 | RSP-500-15 | RSP-500-24 | RSP-500-27 | RSP-500-48 |
|--------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|
| OUTPUT                   | DC VOLTAGE                   | 3.3V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4V         | 5V         | 12V        | 15V        | 24V        | 27V        | 48V        |
|                          | RATED CURRENT                | 90A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 90A        | 90A        | 41.7A      | 33.4A      | 21A        | 18.6A      | 10.5A      |
|                          | CURRENT RANGE                | 0 ~ 90A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0 ~ 90A    | 0 ~ 90A    | 0 ~ 41.7A  | 0 ~ 33.4A  | 0 ~ 21A    | 0 ~ 18.6A  | 0 ~ 10.5A  |
|                          | RATED POWER                  | 297W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 360W       | 450W       | 500.4W     | 501W       | 504W       | 502.2W     | 504W       |
|                          | RIPPLE & NOISE (max.) Note.2 | 120mVp-p                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 120mVp-p   | 150mVp-p   | 150mVp-p   | 150mVp-p   | 150mVp-p   | 150mVp-p   | 150mVp-p   |
|                          | VOLTAGE ADJ. RANGE           | 2.8 ~ 3.6V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3.6 ~ 4.3V | 4.5 ~ 5.5V | 10 ~ 13.2V | 13.5 ~ 18V | 20 ~ 26.4V | 26 ~ 30V   | 41 ~ 56V   |
|                          | 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             | 1500ms, 80ms/230VAC      3000ms, 80ms/115VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |            |            |            |            |            |            |
| INPUT                    | HOLD UP TIME (Typ.)          | 18ms/230VAC      14ms/115VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |            |            |            |            |            |            |
|                          | VOLTAGE RANGE Note.4         | 85 ~ 264VAC      120 ~ 370VDC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |            |            |            |            |            |            |
|                          | FREQUENCY RANGE              | 47 ~ 63Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |            |            |            |            |            |            |
|                          | POWER FACTOR (Typ.)          | PF>0.95/230VAC      PF>0.98/115VAC at full load                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |            |            |            |            |            |            |
|                          | EFFICIENCY (Typ.)            | 81%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 83%        | 84%        | 88%        | 88%        | 89%        | 89.5%      | 90.5%      |
|                          | AC CURRENT (Typ.)            | 4.2A/115VAC      2.1 A/230VAC      5.3A/115VAC      2.65 A/230VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |            |            |            |            |            |            |
|                          | INRUSH CURRENT (Typ.)        | 20A/115VAC      40A/230VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |            |            |            |            |            |            |
| PROTECTION               | LEAKAGE CURRENT              | <2mA / 240VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |            |            |            |            |            |            |
|                          | OVERLOAD                     | 105 ~ 130% rated output power<br>Protection type : Constant current limiting, recovers automatically after fault condition is removed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |            |            |            |            |            |            |
|                          | OVER VOLTAGE                 | 3.8 ~ 4.5V      4.5 ~ 5.3V      5.75 ~ 6.75V      13.8 ~ 16.2V      18.8 ~ 21.8V      27.6 ~ 32.4V      32.9 ~ 38.3V      58.4 ~ 68V<br>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                 | REMOTE CONTROL               | POWER ON: open or 0~0.8VDC between RC+(Pin 4)&RC-(Pin3) on CN100<br>POWER OFF: 4~10VDC between RC+(Pin 4)&RC-(Pin3) on CN100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |            |            |            |            |            |            |
|                          | REMOTE SENSE                 | Compensate voltage drop on the load wiring up to 0.3V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |            |            |            |            |            |            |
|                          | FAN CONTROL (Typ.)           | RTH2≥50°C±10°C Fan on ; RTH2≤40°C±10°C Fan off (Fan always on for 3.3~5V, Fan ON/OFF control for 12~48V)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |            |            |            |            |            |            |
| ENVIRONMENT              | WORKING TEMP.                | -30 ~ +70°C (Refer to "Derating Curve")                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            |            |            |            |            |            |            |
|                          | WORKING HUMIDITY             | 20 ~ 90% RH non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |            |            |            |            |            |            |
|                          | STORAGE TEMP., HUMIDITY      | -40 ~ +85°C, 10 ~ 95% RH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |            |            |            |            |            |            |            |
|                          | TEMP. COEFFICIENT            | ±0.03%/°C (0 ~ 50°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |            |            |            |            |            |            |
|                          | VIBRATION                    | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |            |            |            |            |            |            |
| SAFETY & EMC<br>(Note.4) | SAFETY STANDARDS             | UL62368-1, TUV BS EN/EN62368-1, AS/NZS 62368.1, EAC TP TC 004, CCC GB4943.1, BSMI CNS14336-1, BIS IS13252(Part1): 2010/IEC 60950-1:2005(except for 48V) 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                 | Compliance to BS EN/EN55032 (CISPR32) Class B, BS EN/EN61000-3-2,-3, EAC TP TC 020, GB/T 9254, CNS13438 Class B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |            |            |            |            |            |            |
|                          | EMC IMMUNITY                 | Compliance to BS EN/EN61000-4-2,3,4,5,6,8,11, BS EN/EN55035, BS EN/EN61000-6-2, EAC TP TC 020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |            |            |            |            |            |            |
| OTHERS                   | MTBF                         | 1372.4K hrs min.    Telcordia SR-332 (Bellcore) ; 187.9K hrs min.    MIL-HDBK-217F (25°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |            |            |            |            |            |            |
|                          | DIMENSION                    | 230*127*40.5mm (L*W*H)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |            |            |            |            |            |            |
|                          | PACKING                      | 1.3Kg; 9pcs/12.7Kg/0.7CUFT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |            |            |            |            |            |            |
| 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 &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 <math>\mu</math>F &amp; 47 <math>\mu</math>F 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. Fan always on for 3.3~5V, Fan ON/OFF control for 12~48V.</p> <p>6. The power supply is considered a component which will be installed into a final equipment. 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="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a>)</p> <p>7. 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 <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a></p> |            |            |            |            |            |            |            |

Case No.226A Unit:mm

## Mechanical Specification



Air flow direction



### AC Input Terminal Pin No. Assignment (TB1)

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

### DC Output Terminal Pin No. Assignment (TB2)

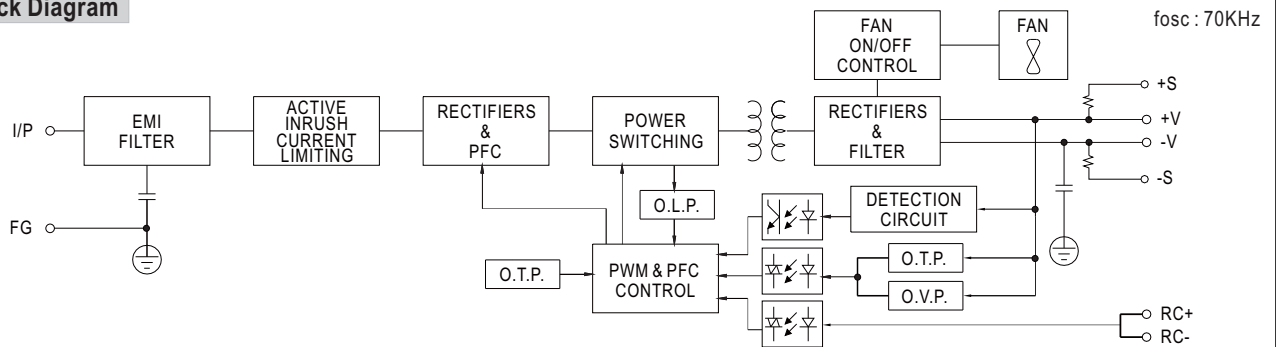
| Pin No. | Assignment   |
|---------|--------------|
| 1-3     | DC OUTPUT -V |
| 4-6     | DC OUTPUT +V |

### Connector Pin No. Assignment (CN100) :

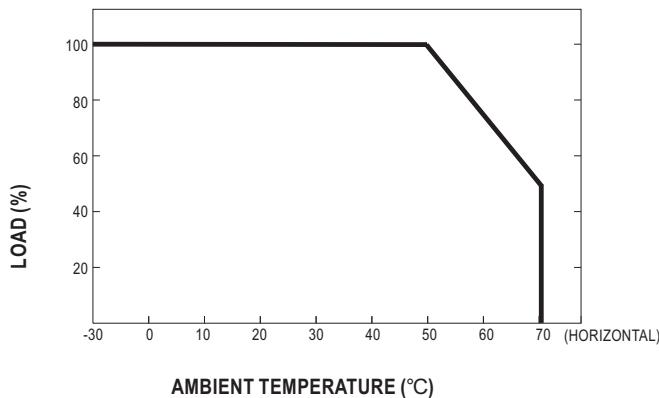
HRS DF11-04DP-2DS or equivalent

| Pin No. | Assignment | Mating Housing             | Terminal                     |
|---------|------------|----------------------------|------------------------------|
| 1       | -S         | HRS DF11-4DS or equivalent | HRS DF11-**-SC or equivalent |
| 2       | +S         |                            |                              |
| 3       | RC-        |                            |                              |
| 4       | RC+        |                            |                              |

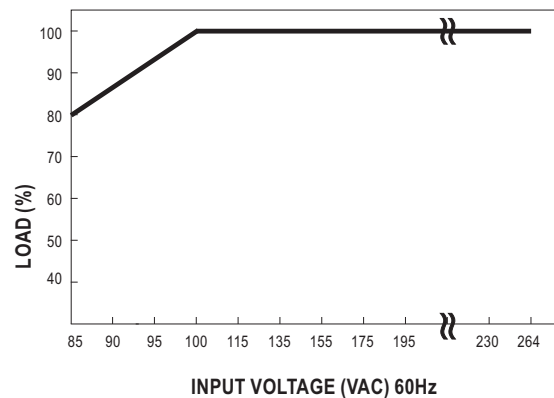
## Block Diagram



## Derating Curve



## Static Characteristics



## Function Description of CN100

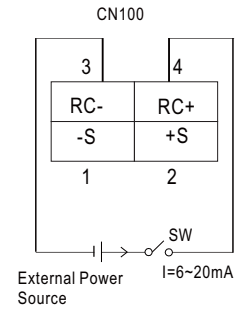
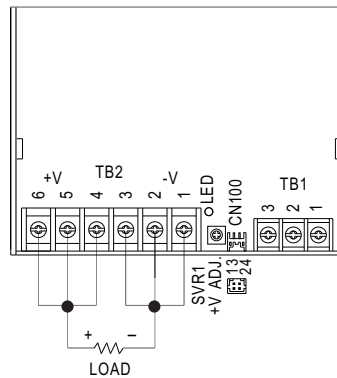
| Pin No. | Function | Description                                                                                                                                                                                                           |
|---------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 0.3V. |
| 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 0.3V. |
| 3       | RC-      | Return for RC+ signal input.                                                                                                                                                                                          |
| 4       | RC+      | Turns the output on and off by electrical or dry contact between pin 4 (RC+) and pin 3 (RC-). 0~0.8VDC or open: Power ON, 4~10VDC: Power OFF.                                                                         |

## Function Manual

### 1.Remote Control

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

| Between RC-(pin3) and RC+(pin4) on CN100 | PSU Status |
|------------------------------------------|------------|
| SW OFF (0 ~ 0.8VDC) or open              | ON         |
| SW ON (4 ~ 10V)                          | OFF        |



### 2.Remote Sense

The remote sensing compensates voltage drop on the load wiring up to 0.3V

