



# 500W Single Output DC-DC Converter

# SD-500 series



- Features :
  - DC input active surge current limiting
  - Wide 4:1~2:1 DC input range (24V: 19~72VDC, 96V:72~144VDC)
  - Protections: Short circuit / Overload / Over voltage / Over temperature / Input polarity(by fuse)
  - 2000VAC I/O Isolation
  - Forced air cooling by built-in DC fan with fan speed control function
  - Output OK Signal
  - Built-in remote ON-OFF control
  - Built-in remote sense function
  - 3 years warranty



## GTIN CODE

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



AS/NZS62368-1 BS EN/EN62368-1 TPTC004 IEC62368-1

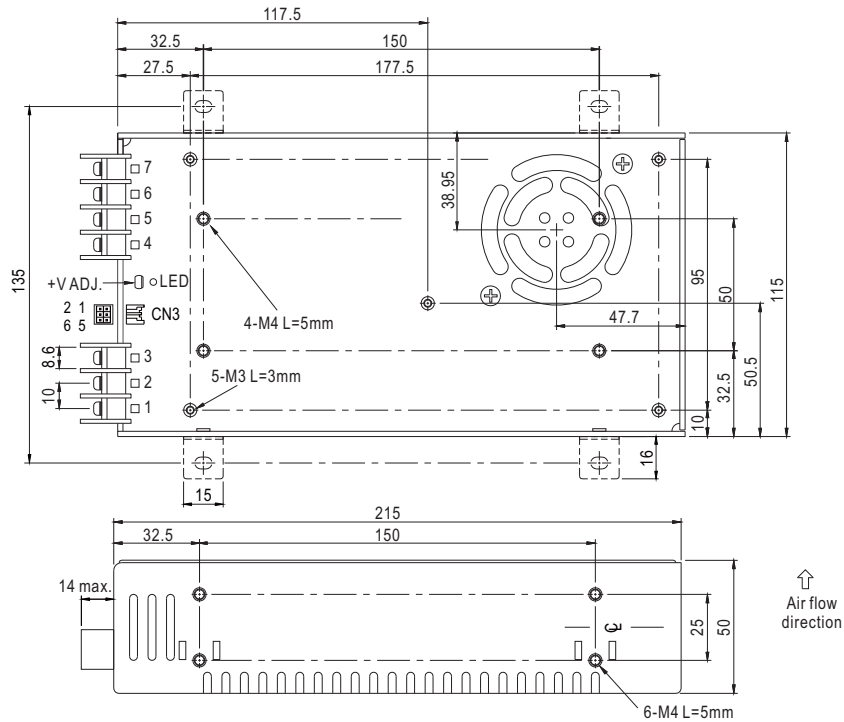
## SPECIFICATION

| MODEL                 | SD-500L-12  | SD-500L-24   | SD-500L-48   | SD-500H-12 | SD-500H-24      | SD-500H-48   |           |
|-----------------------|---|--|--------------|------------|-----------------|--------------|-----------|
| OUTPUT                | DC VOLTAGE  | 12V  | 24V          | 48V        | 12V             | 24V          | 48V       |
|                       | RATED CURRENT   | 40A  | 21A          | 10.5A      | 40A             | 21A          | 10.5A     |
|                       | CURRENT RANGE   | 0 ~ 40A  | 0 ~ 21A      | 0 ~ 10.5A  | 0 ~ 40A         | 0 ~ 21A      | 0 ~ 10.5A |
|                       | RATED POWER   | 480W   | 504W         | 504W       | 480W            | 504W         | 504W      |
|                       | RIPPLE & NOISE (max.) Note.2  | 150mVp-p   | 150mVp-p     | 150mVp-p   | 150mVp-p        | 150mVp-p     | 150mVp-p  |
|                       | VOLTAGE ADJ. RANGE  | 11 ~ 15V   | 23 ~ 30V     | 46 ~ 60V   | 11 ~ 15V        | 23 ~ 30V     | 46 ~ 60V  |
|                       | VOLTAGE TOLERANCE Note.3  | ±0.5%  | ±1.0%        | ±1.0%      | ±1.0%           | ±1.0%        | ±1.0%     |
|                       | LINE REGULATION   | ±0.5%  | ±0.5%        | ±0.5%      | ±0.5%           | ±0.5%        | ±0.5%     |
|                       | LOAD REGULATION   | ±0.5%  | ±0.5%        | ±0.5%      | ±0.5%           | ±0.5%        | ±0.5%     |
| SETUP, RISE TIME      | 500ms, 50ms at full load  |  |              |            |                 |              |           |
| INPUT                 | VOLTAGE RANGE Note.5  | 19 ~ 72VDC   |              |            | 72 ~ 144VDC     |              |           |
|                       | EFFICIENCY (Typ.)   | 86%  | 88%          | 89%        | 87%             | 89%          | 90%       |
|                       | DC CURRENT (Typ.)   | 24.2A/19VDC  | 24.8A/24VDC  | 12A/48VDC  | 8A/72VDC        | 6A/96VDC     |           |
|                       | CURRENT (AT NO LOAD)  | Max. 0.2A/48VDC  |              |            | Max. 0.1A/96VDC |              |           |
|                       | INRUSH CURRENT (Typ.)   | 60A/48VDC  |              |            | 60A/96VDC       |              |           |
| PROTECTION            | OVERLOAD  | 105 ~ 125% rated output power<br>Protection type : Constant current limiting, shut down o/p voltage after about 5 sec., re-power on to recover |              |            |                 |              |           |
|                       | OVER VOLTAGE  | 16 ~ 19V   | 30.8 ~ 35.2V | 62 ~ 68V   | 16 ~ 19V        | 30.8 ~ 35.2V | 62 ~ 68V  |
|                       | OVER TEMPERATURE  | Shut down o/p voltage, recovers automatically after temperature goes down  |              |            |                 |              |           |
| FUNCTION              | REMOTE ON/OFF CONTROL   | Please refer to function manual  |              |            |                 |              |           |
|                       | OUTPUT OK SIGNAL  | Open collector signal low when PSU turns on, max. sink current :10mA   |              |            |                 |              |           |
| ENVIRONMENT           | WORKING TEMP.   | -20 ~ +60°C (Refer to "Derating Curve")  |              |            |                 |              |           |
|                       | WORKING HUMIDITY  | 20 ~ 90% RH non-condensing   |              |            |                 |              |           |
|                       | STORAGE TEMP., HUMIDITY   | -40 ~ +85°C, 10 ~ 95% RH   |              |            |                 |              |           |
|                       | TEMP. COEFFICIENT   | ±0.02%/°C (0 ~ 50°C)   |              |            |                 |              |           |
|                       | VIBRATION   | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes   |              |            |                 |              |           |
| SAFETY & EMC (Note 4) | SAFETY STANDARDS  | IEC62368-1,TUV BS EN/EN62368-1, EAC TP TC 004 approved, design refer to AS/NZS 62368.1   |              |            |                 |              |           |
|                       | WITHSTAND VOLTAGE   | I/P-O/P:2KVAC 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, EAC TP TC 020   |              |            |                 |              |           |
|                       | EMC IMMUNITY  | Compliance to BS EN/EN61000-4-2,3,4,6,8, BS EN/EN55035, light industry level, EAC TP TC 020  |              |            |                 |              |           |
| OTHERS                | MTBF  | 1333.7K hrs min. Telcordia SR-332 (Bellcore) ; 196.3K hrs min. MIL-HDBK-217F (25°C)  |              |            |                 |              |           |
|                       | DIMENSION   | 215*115*50mm (L*W*H)   |              |            |                 |              |           |
|                       | PACKING   | 1.15Kg; 12pcs/14.8Kg/0.9CUFT   |              |            |                 |              |           |
| NOTE                  | <ol style="list-style-type: none"> <li>All parameters NOT specially mentioned are measured at 48, 96VDC input, rated load and 25°C of ambient temperature.</li> <li>Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μ F &amp; 47 μ F parallel capacitor.</li> <li>Tolerance : includes set up tolerance, line regulation and load regulation.</li> <li>The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a>)</li> <li>Derating may be needed under low input voltages. Please check the derating curve for more details.</li> <li>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).</li> </ol> ※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a> |  |              |            |                 |              |           |

Case No. 912A

**Mechanical Specification**

(Unit: mm , tolerance ± 1mm)



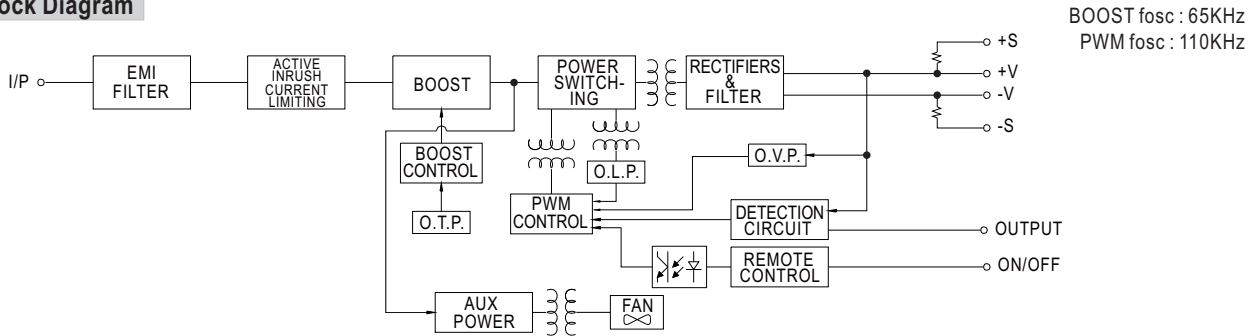
DC Input Terminal Pin No. Assignment

| Pin No. | Assignment  | Pin No. | Assignment |
|---------|-------------|---------|------------|
| 1       | DC INPUT V+ | 4,5     | -V         |
| 2       | DC INPUT V- | 6,7     | +V         |
| 3       | FG $\pm$    |         |            |

Control Pin No. Assignment (CN3) : HRS DF11-6DP-2DS or equivalent

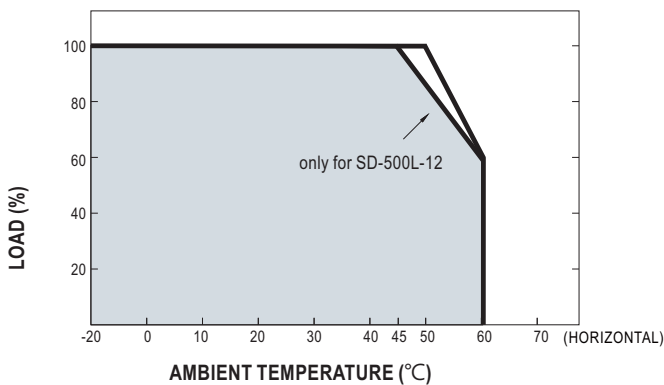
| Pin No. | Assignment | Pin No. | Assignment | Mating Housing             | Terminal                         |
|---------|------------|---------|------------|----------------------------|----------------------------------|
| 1       | +S         | 4       | GND        | HRS DF11-6DS or equivalent | JST SPHD-002T-P0.5 or equivalent |
| 2       | -S         | 5       | RC         |                            |                                  |
| 3       | OUTPUT OK  | 6       | RCG        |                            |                                  |

**Block Diagram**

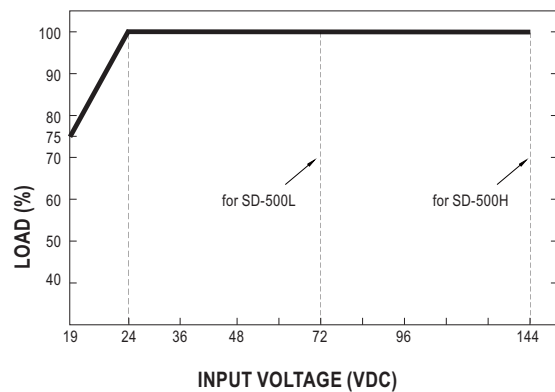


BOOST fosc : 65KHz  
PWM fosc : 110KHz

**Derating Curve**



**Static Characteristics**



■ Function Description of CN3

| Pin No. | Function | Description   |
|---------|----------|---|
| 1       | +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. |
| 2       | -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. |
| 3       | O/P OK   | Open collector signal, reference to pin4(GND). Low when PSU turns on. The maximum sink current is 10mA and the maximum external voltage is 13V.   |
| 4       | GND      | These pins connect to the negative terminal (-V).   |
| 5       | RC       | Remote ON/OFF   |
| 6       | RCG      | Remote ON/OFF ground  |

■ Function Manual

1.Remote ON/OFF

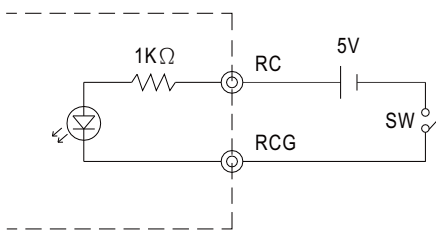
- (1)Remote ON/OFF control becomes available by applying voltage in CN3
- (2)Table 1.1 shows the specification of Remote ON/OFF function
- (3)Fig.1.2 shows the example to connect Remote ON/OFF control function

Table 1.1 Specification of Remote ON/OFF

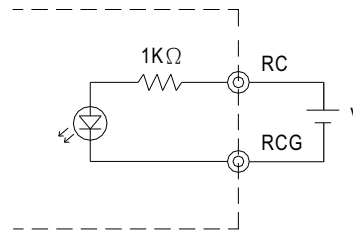
| Connection Method | Fig. 1.2(A) | Fig. 1.2(B) |
|-------------------|-------------|-------------|
| Output on         | SW Open     | V=0~0.8Vdc  |
| Output off        | SW Close    | V=4~10Vdc   |

Fig.1.2 Examples of connecting remote ON/OFF

(A)Using external voltage source



(B)Using external voltage source



2.Output OK signal

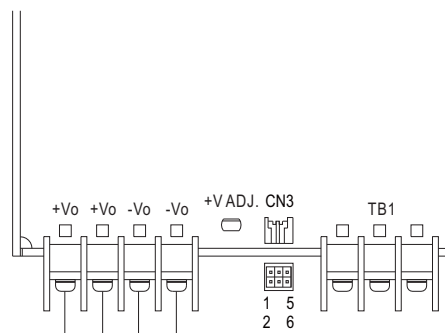
"Output OK" is an open collector signal. It indicates the output status of the PSU. It can operate in two ways : One is sinking current from external signal ; the other is sending out a voltage signal.

2-1 Sink current :

The maximum sink current is 10mA and the maximum external voltage is 13V.

2-2 Voltage signal :

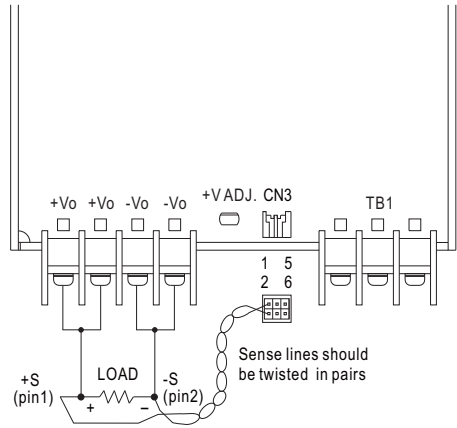
| Between O/P OK(pin3) and GND(pin4) | Output Status |
|------------------------------------|---------------|
| 0 ~ 0.5V                           | ON            |
| 12 ~ 13V                           | OFF           |



| 1  | CN3    | 5   |
|----|--------|-----|
| +S | O/P OK | RC  |
| -S | GND    | RCG |
| 2  |        | 6   |

**3.Remote Sense**

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



|    |        |     |
|----|--------|-----|
| 1  | CN3    | 5   |
| +S | O/P OK | RC  |
| -S | GND    | RCG |
| 2  |        | 6   |