



# 1000W Single Output DC-DC Converter

# SD-1000 series



### ■ Features :

- 1U low profile 41mm
- High power density 10.7w/inch<sup>3</sup>
- 2000VAC I/O Isolation
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Output OK signal
- Built-in remote ON-OFF control
- Built-in remote sense function
- Forced air cooling by built-in DC fan with fan speed control
- 12V, 0.25A auxiliary output
- 3 years warranty

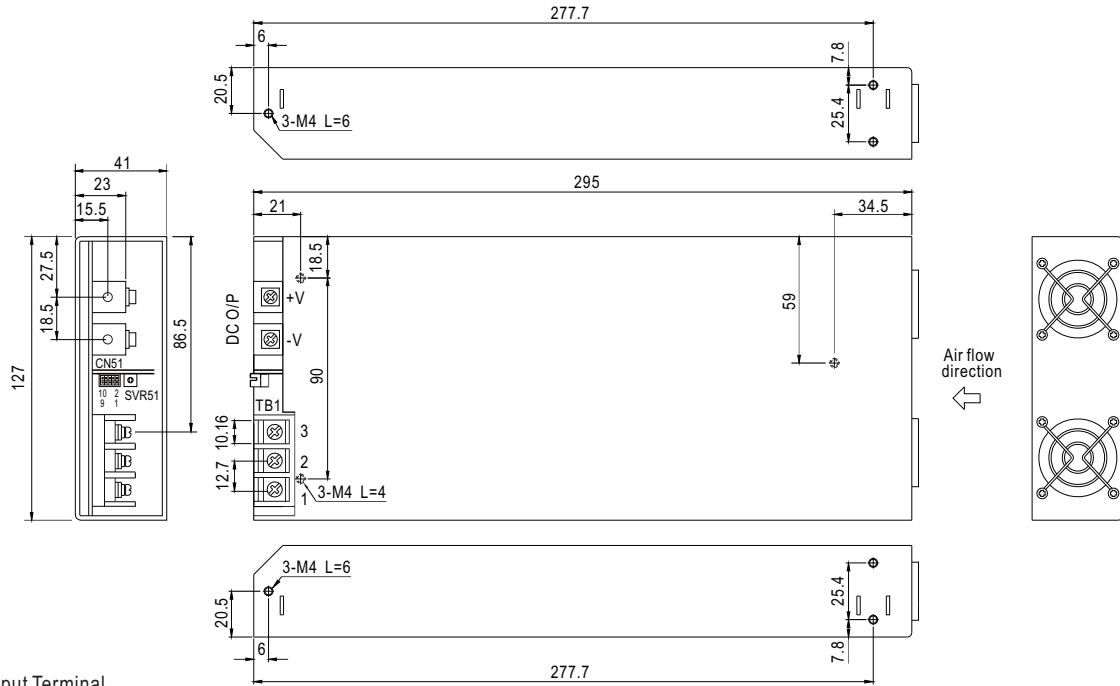


### SPECIFICATION

| MODEL                 |   | SD-1000L-12  | SD-1000L-24  | SD-1000L-48 | SD-1000H-12 | SD-1000H-24  | SD-1000H-48 |
|-----------------------|---|--|--------------|-------------|-------------|--------------|-------------|
| OUTPUT                | DC VOLTAGE  | 12V  | 24V          | 48V         | 12V         | 24V          | 48V         |
|                       | RATED CURRENT   | 60A  | 40A          | 21A         | 60A         | 40A          | 21A         |
|                       | CURRENT RANGE   | 0 ~ 60A  | 0 ~ 40A      | 0 ~ 21A     | 0 ~ 60A     | 0 ~ 40A      | 0 ~ 21A     |
|                       | RATED POWER   | 720W   | 960W         | 1008W       | 720W        | 960W         | 1008W       |
|                       | 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  | ± 1.0%   | ± 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.)   | 84%  | 88%          | 90%         | 85%         | 89%          | 92%         |
|                       | DC CURRENT (Typ.)   | 23.5A/48VDC  |              |             | 11.6A/96VDC |              |             |
|                       | INRUSH CURRENT (Typ.)   | -----  |              |             | 100A/96VDC  |              |             |
| PROTECTION            | OVERLOAD  | 105 ~ 125% rated output power<br>Protection type : Constant current limiting, unit will shut down o/p voltage after about 5sec. 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, maximum, 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 non-condensing  |              |             |             |              |             |
|                       | 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 CB, EAC TP TC 004 approved by TUV   |              |             |             |              |             |
|                       | 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 EN55032 (CISPR32), EAC TP TC 020   |              |             |             |              |             |
| OTHERS                | EMC IMMUNITY  | Compliance to EN61000-4-2,3,4,6,8, light industry level, criteria A, EAC TP TC 020   |              |             |             |              |             |
|                       | MTBF  | 106.7K hrs min. MIL-HDBK-217F (25°C)   |              |             |             |              |             |
|                       | DIMENSION   | 295*127*41mm (L*W*H)   |              |             |             |              |             |
| NOTE                  | PACKING   | 1.94Kg; 6pcs/12.6Kg/1.15CUFT   |              |             |             |              |             |
|                       | 1. All parameters NOT specially mentioned are measured at 48, 96VDC input, rated load and 25°C of ambient temperature.<br>2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.<br>3. Tolerance : includes set up tolerance, line regulation and load regulation.<br>4. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 720mm*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="http://www.meanwell.com">http://www.meanwell.com</a> )<br>5. Derating may be needed under low input voltages. Please check the derating curve for more details.<br>6. 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). |  |              |             |             |              |             |

**Mechanical Specification**

Case No. 952B Unit:mm



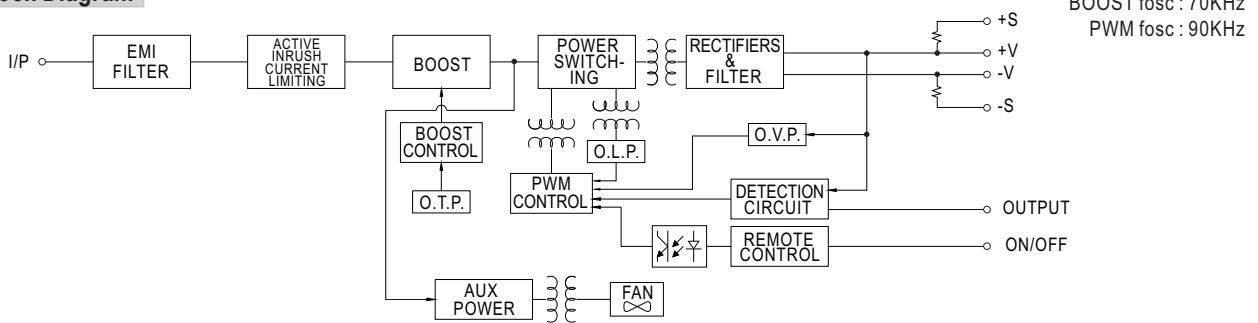
DC Input Terminal  
Pin No. Assignment

| Pin No. | Assignment  |
|---------|-------------|
| 1       | DC INPUT V+ |
| 2       | DC INPUT V- |
| 3       | FG $\perp$  |

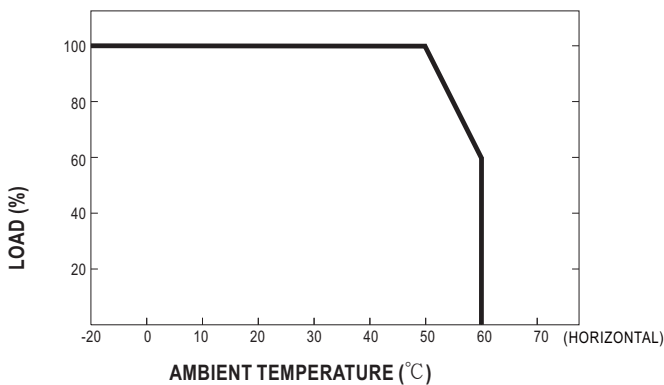
Control pin number assignment (CN51) : HRS DF11-10DP-2DS or equivalent

| Pin No. | Assignment | Pin No. | Assignment | Pin No. | Assignment | Mating Housing                 | Terminal                            |
|---------|------------|---------|------------|---------|------------|--------------------------------|-------------------------------------|
| 1       | +S         | 5       | AUX        | 9       | RCG        | HRS DF11-10DS<br>or equivalent | JST SPHD-002T-P0.5<br>or equivalent |
| 2       | -S         | 6       | AUXG       | 10      | NC         |                                |                                     |
| 3       | OUTPUT OK  | 7       | RC1        |         |            |                                |                                     |
| 4       | GND        | 8       | RC2        |         |            |                                |                                     |

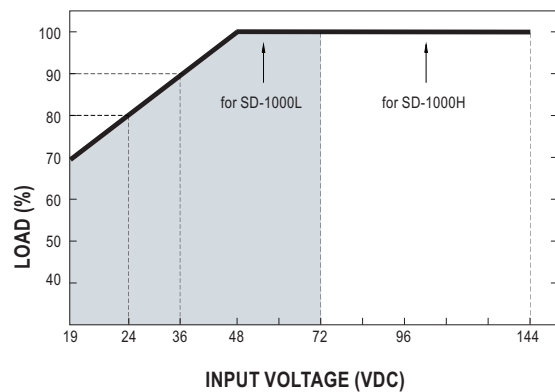
**Block Diagram**



**Derating Curve**



**Static Characteristics**



■ Function Description of CN51

| 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, referenced 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       | AUX      | Auxiliary voltage output, 10.8~13.2V referenced to pin6(AUXG).The maximum load current is 0.25A.  |
| 6       | AUXG     | Auxiliary voltage output ground. The signal return is isolated from the output terminals(+V & -V).  |
| 7       | RC1      | Remote ON/OFF   |
| 8       | RC2      | Remote ON/OFF   |
| 9       | RCG      | Remote ON/OFF ground  |
| 10      | NC       | No connection   |

■ Function Manual

1.Remote ON/OFF

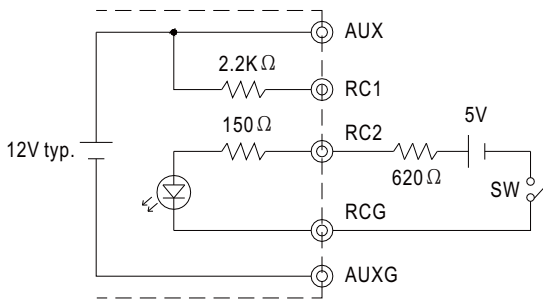
- (1)Remote ON/OFF control becomes available by applying voltage in CN51
- (2)Table 1.1 shows the specification of Remote ON/OFF function
- (3)Fig.1.2 shows the example to connect Remote ON/OFF control function

Table 1.1 Specification of Remote ON/OFF

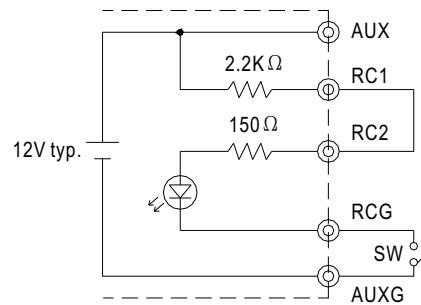
| Connection Method | Fig. 1.2(A) | Fig. 1.2(B) | Fig. 1.2(C) |
|-------------------|-------------|-------------|-------------|
| SW Logic          | Output on   | SW Open     | SW Close    |
|                   | Output off  | SW Close    | SW Open     |

Fig.1.2 Examples of connecting remote ON/OFF

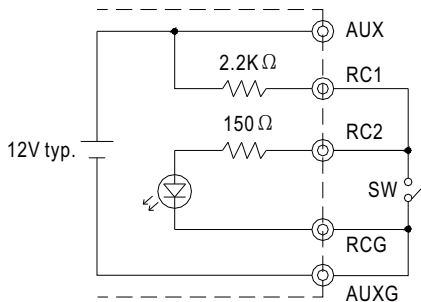
(A)Using external voltage source



(B)Using internal 12V auxiliary output



(C)Using internal 12V auxiliary output



**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           |

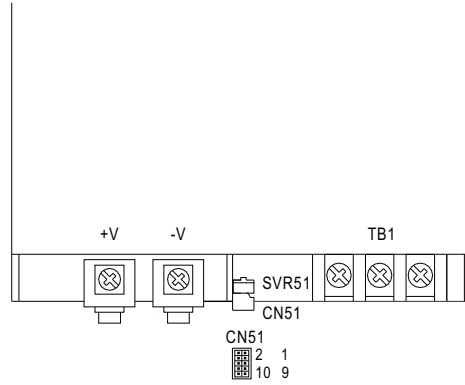


Fig 2.1

|      |      |        |   |
|------|------|--------|---|
| 2    | -S   | +S     | 1 |
|      | GND  | O/P OK |   |
| CN51 | AUXG | AUX    |   |
|      | RC2  | RC1    |   |
|      | NC   | RCG    |   |
| 10   |      |        | 9 |

**3. Remote Sense**

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

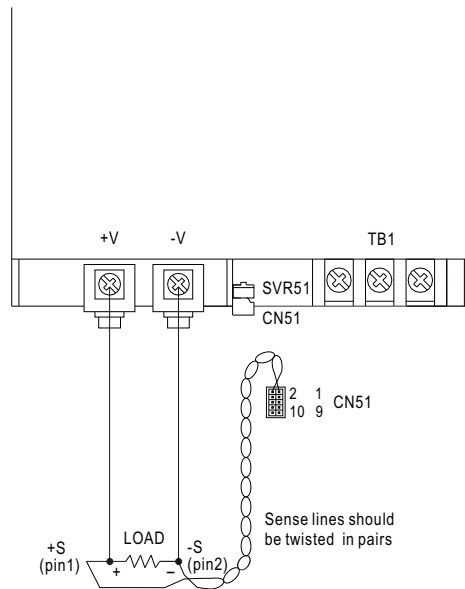


Fig 3.1

|      |      |        |   |
|------|------|--------|---|
| 2    | -S   | +S     | 1 |
|      | GND  | O/P OK |   |
| CN51 | AUXG | AUX    |   |
|      | RC2  | RC1    |   |
|      | NC   | RCG    |   |
| 10   |      |        | 9 |