


**500W Single Output DC-DC Converter**
**SD-500 series**

**Features :**

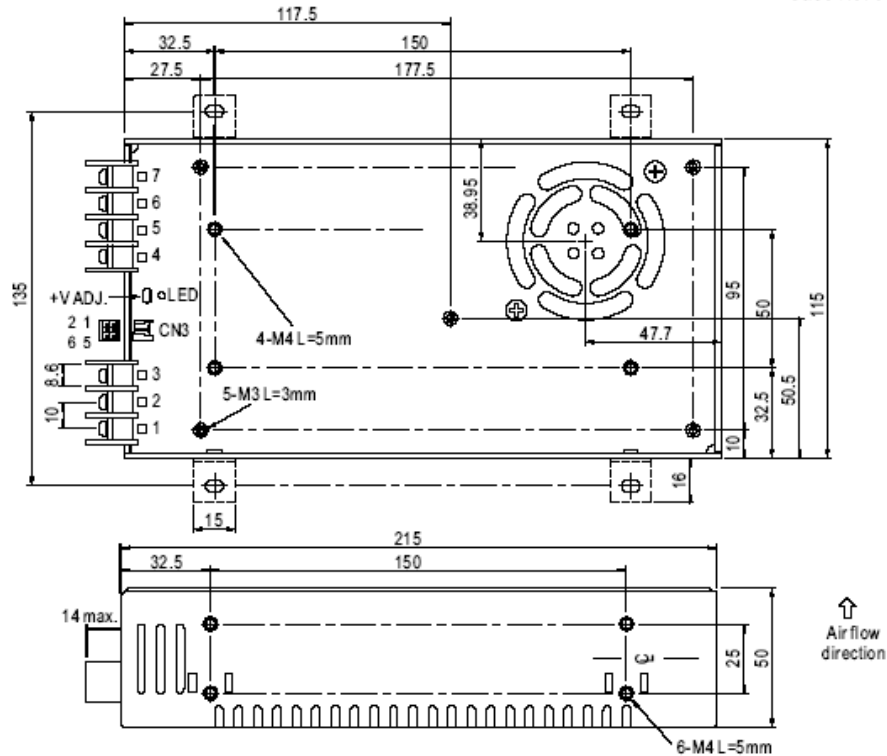
- DC input active surge current limiting
- Wide 4:1~2:1 DC input range (24V: 19~72VDC, 96V:72~144VDC)
- Protections: Short circuit / Overload / Over voltage / Over temperature / Input polarity (by fuse)
- 2000VAC I/O Isolation
- Forced air cooling by built-in DC fan with fan speed control function
-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


**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	±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.)	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 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	80°C±5°C (TSW1) detect on heatsink of power transistor 80°C±5°C (L-48V,H-24V,H-48V), 85°C±5°C (L-24V), 90°C±5°C (L-12V), 95°C±5°C (H-12V) (TSW2 : detect on heatsink of o/p diode) Protection type : 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 output load 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)					
SAFETY & EMC (Note 4)	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes					
	SAFETY STANDARDS	IEC60950-1 CB approved by TUV					
	WITHSTAND VOLTAGE	I/P-O/P:2KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC					
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC 25°C 70%RH					
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B					
OTHERS	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,6,8; ENV50204, light industry level, criteria A					
	MTBF	196.3K hrs min. MIL-HDBK-217F (25°C)					
	DIMENSION	215*115*50mm (L*W*H)					
	PACKING	1.15Kg; 12pcs/14.8Kg/0.92CUFT					
NOTE	1. All parameters NOT specially mentioned are measured at 48, 96VDC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. 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. 5. Derating may be needed under low input voltages. Please check the derating curve for more details.						

### Mechanical Specification

Case No. 912A Unit:mm



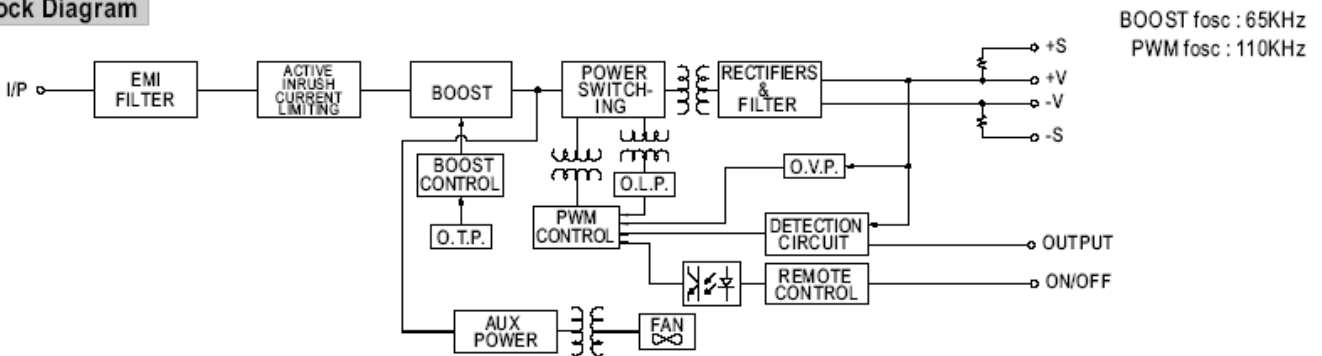
DC Input Terminal Pin No. Assignment

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

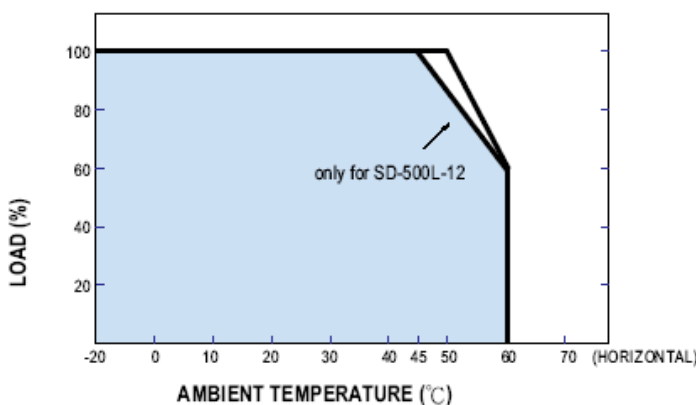
Control Pin No. Assignment (CN3) : JST B6B-PHDSS or equivalent

Pin No.	Assignment	Pin No.	Assignment	Mating Housing	Terminal
1	+S	4	GND	JST PHDR-06VS or equivalent	JST SPHD-002T-P0.5 or equivalent
2	-S	5	RC		
3	OUTPUT OK	6	RCG		

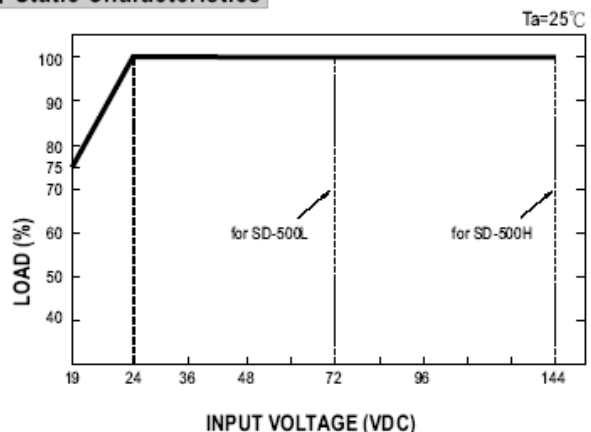
### Block Diagram



### 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

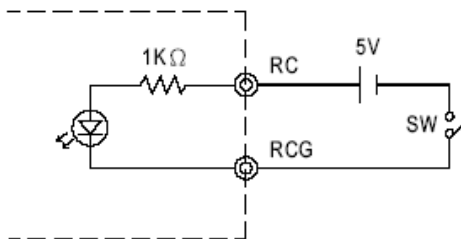
- (1) Remote ON/OFF control becomes available by applying voltage in CN3
- (2) Table 1.1 shows the specification of Remote ON/OFF function
- (3) Fig.1.2 shows the example to connect Remote ON/OFF control function

Table 1.1 Specification of Remote ON/OFF

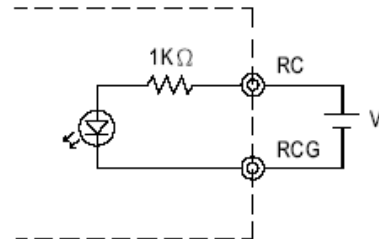
Connection Method	Fig. 1.2(A)	Fig. 1.2(B)
Output on	SW Open	V=0~0.8Vdc
Output off	SW Close	V=4~10Vdc

Fig.1.2 Examples of connecting remote ON/OFF

(A) Using external voltage source



(B) Using external voltage source



#### 2. Output OK signal

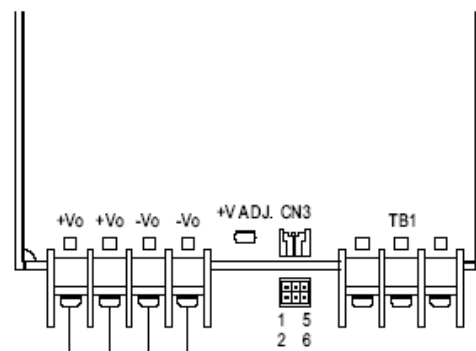
"Output OK" is an open collector signal. It indicates the output status of the PSU. It can operate in two ways : One is sinking current from external signal ; the other is sending out a voltage signal.

##### 2-1 Sink current :

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

##### 2-2 Voltage signal :

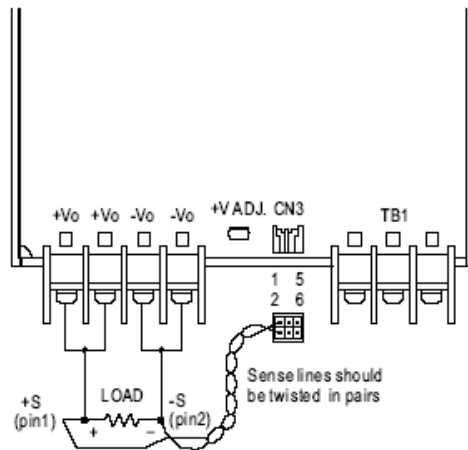
Between O/P OK(pin3) and GND(pin4)	Output Status
0 ~ 0.5V	ON
12 ~ 13V	OFF



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/POK	RC
-S	GND	RCG
2		6