# 1500W Single Output Power Supply — RSP-1500 series

## Features :

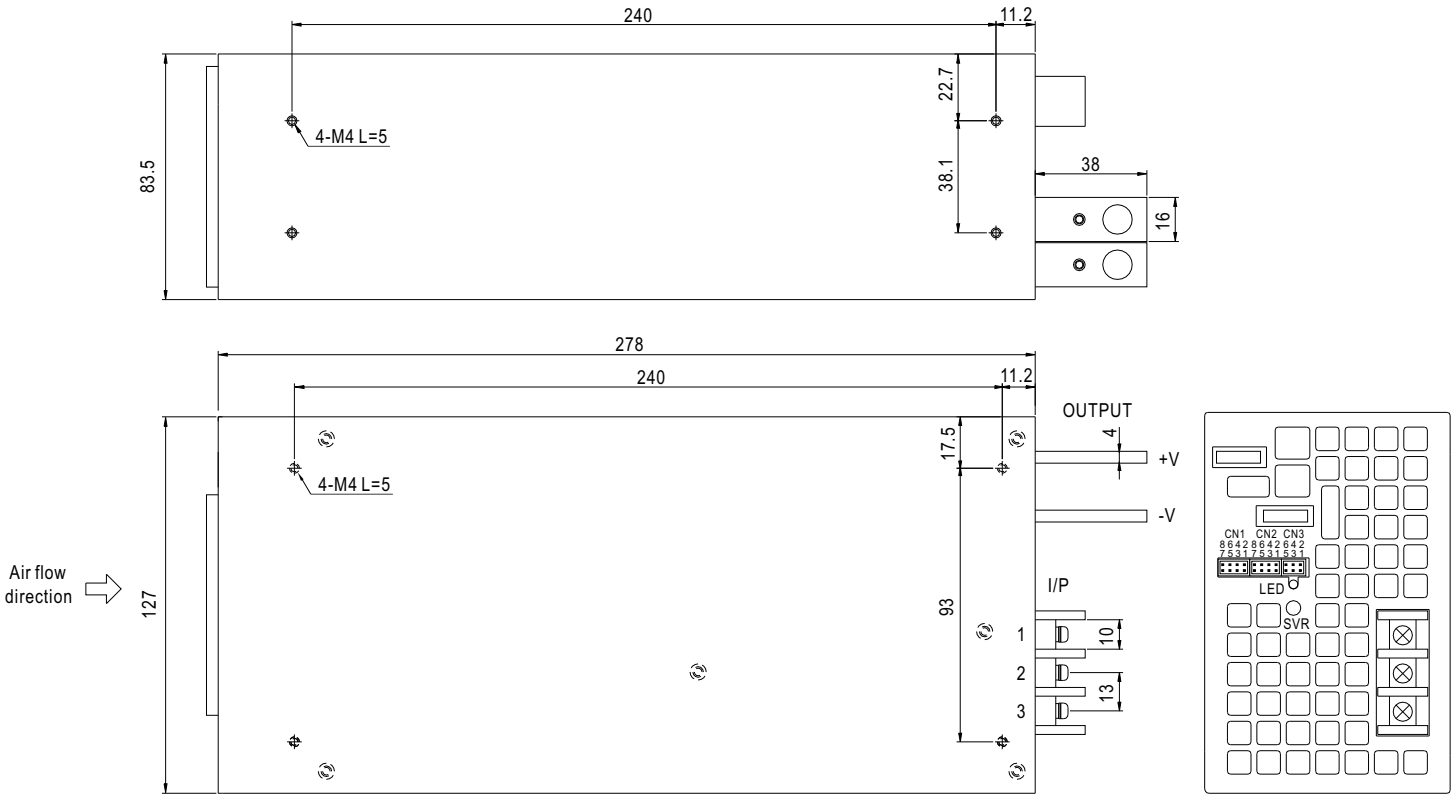
- Universal AC input/Full range
- ZVS new technology
- AC input active surge current limiting
- High efficiency up to 91%
- Built-in active PFC function,PF>0.95
- Protections:Short circuit, overload, over voltage, over temperature
- Forced air cooling by built-in DC ball bearing fan
- Output voltage can be trimmed between 70~100% of the rated output voltage
- High power density 8.3W/inch$^3$
- Current sharing up to 6000W(3+1)
- Alarm signal output
- Built-in 12V/0.1A auxiliary output for remote control
- Built-in remote ON-OFF control
- Built-in remote sense function
- 3 years warranty

## SPECIFICATION

| MODEL | | RSP-1500-5 | RSP-1500-12 | RSP-1500-15 | RSP-1500-24 | RSP-1500-27 | RSP-1500-48 |
|---|---|---|---|---|---|---|---|
| OUTPUT | DC VOLTAGE | 5V | 12V | 15V | 24V | 27V | 48V |
| | RATED CURRENT | 240A | 125A | 100A | 63A | 56A | 32A |
| | CURRENT RANGE | 0 ~ 240A | 0 ~ 125A | 0 ~ 100A | 0 ~ 63A | 0 ~ 56A | 0 ~ 32A |
| | RATED POWER | 1200W | 1500W | 1500W | 1512W | 1512W | 1536W |
| | RIPPLE & NOISE (max.) Note.2 | 150mVp-p | 150mVp-p | 150mVp-p | 150mVp-p | 150mVp-p | 200mVp-p |
| | VOLTAGE ADJ. RANGE | 4.5 ~ 5.5V | 10 ~ 13.5V | 13.5 ~ 16.5V | 20 ~ 26.4V | 24 ~ 30V | 43 ~ 56V |
| | VOLTAGE TOLERANCE Note.3 | ±2.0% | ±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 | ±2.0% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% |
| | SETUP, RISE TIME | 1500ms, 100ms at full load | | | | | |
| | HOLD TIME (Typ.) | 10ms at full load | | 14ms at full load | | 16ms at full load | |
| INPUT | VOLTAGE RANGE | 90 ~ 264VAC 127 ~ 370VDC | | | | | |
| | FREQUENCY RANGE | 47~63Hz | | | | | |
| | POWER FACTOR (Typ.) | 0.95/230VAC 0.98/115VAC at full load | | | | | |
| | EFFICIENCY (Typ.) | 80% | 87% | 87% | 90% | 90% | 91% |
| | AC CURRENT (Typ.) | 17A/115VAC 8A/230VAC | | | | | |
| | INRUSH CURRENT (Typ.) | 30A/115VAC 60A/230VAC | | | | | |
| | LEAKAGE CURRENT | <2.0mA / 240VAC | | | | | |
| PROTECTION | OVER LOAD Note.5 | 105 ~135% rated output power | | | | | |
| | | Protection type : Constant current limiting unit will shut down o/p voltage after 5sec. Re-power on to recover | | | | | |
| | OVER VOLTAGE | 5.75 ~ 6.75V | 13.8 ~ 16.8V | 17 ~ 20.5V | 27.6 ~ 32.4V | 31 ~ 36.5V | 57.6 ~ 67.2V |
| | | Protection type : Shut down o/p voltage, re-power on to recover | | | | | |
| | OVER TEMPERATURE | 95℃±5℃ (TSW2 ) Detect on heatsink of power transistor | | | | | |
| | | Protection type : Shut down o/p voltage, recovers automatically after temperature goes down | | | | | |
| FUNCTION | AUXILIARY POWER(AUX) | 12A@0.1A(Only for Remote ON/OFF control) | | | | | |
| | REMOTE ON/OFF CONTROL | Please see the Function Manual | | | | | |
| | ALARM SIGNAL OUTPUT | Please see the Function Manual | | | | | |
| | OUTPUT VOLTAGE TRIM | Please see the Function Manual | | | | | |
| | CURRENT SHARING | Please see the Function Manual | | | | | |
| ENVIRONMENT | WORKING TEMP. | -20 ~ +70℃ (Refer to output load derating curve) | | | | | |
| | WORKING HUMIDITY | 20~90% RH non-condensing | | | | | |
| | STORAGE TEMP., HUMIDITY | -40 ~ +85℃, 10 ~ 95% RH | | | | | |
| | TEMP. COEFFICIENT | ±0.05%/℃ (0 ~ 50℃) | | | | | |
| | VIBRATION | 10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes | | | | | |
| SAFETY & EMC (Note 4) | SAFETY STANDARDS | UL60950-1, TUV EN60950-1 Approved | | | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:3KVAC 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 | | | | | |
| | EMI CONDUCTION & RADIATION | Compliance to EN55022 (CISPR22) | | | | | |
| | HARMONIC CURRENT | Compliance to EN61000-3-2,-3 | | | | | |
| | EMS IMMUNITY | Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, Light industry level, criteria A | | | | | |
| OTHERS | MTBF | 62.6K hrs min. MIL-HDBK-217F (25℃) | | | | | |
| | DIMENSION | 278*127*83.5mm (L*W*H) | | | | | |
| | PACKING | 2.6Kg; 6pcs/16.6Kg/1.75CUFT | | | | | |
| NOTE | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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. The final equipment must be re-confirmed that it still meets EMC directives.<br>5. Derating may be needed under low input voltages. Please check the derating curve for more details. | | | | | | |

## ■ Mechanical Specification

Case No.943A Unit:mm




AC Input Terminal Pin. No. Assignment

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

Control Pin. No Assignment(CN1,CN2) :

| Pin No. | Assignment | Pin No. | Assignment | Mating Housing | Terminal |
|---|---|---|---|---|---|
| 1 | RCG | 4 | TRIM | HRS DF11 or equivalent | HRS DF11 or equivalent |
| 2 | RC2 | 6 | LS(Current Share) | | |
| 3,5,7 | -S | 8 | +S | | |

RCG: Remote ON/OFF Ground
RC2: Remote ON/OFF
-S : -Remote Sensing
TRIM: Adjustment of Output Voltage
LS: Load Share
+S: +Remote Sensing

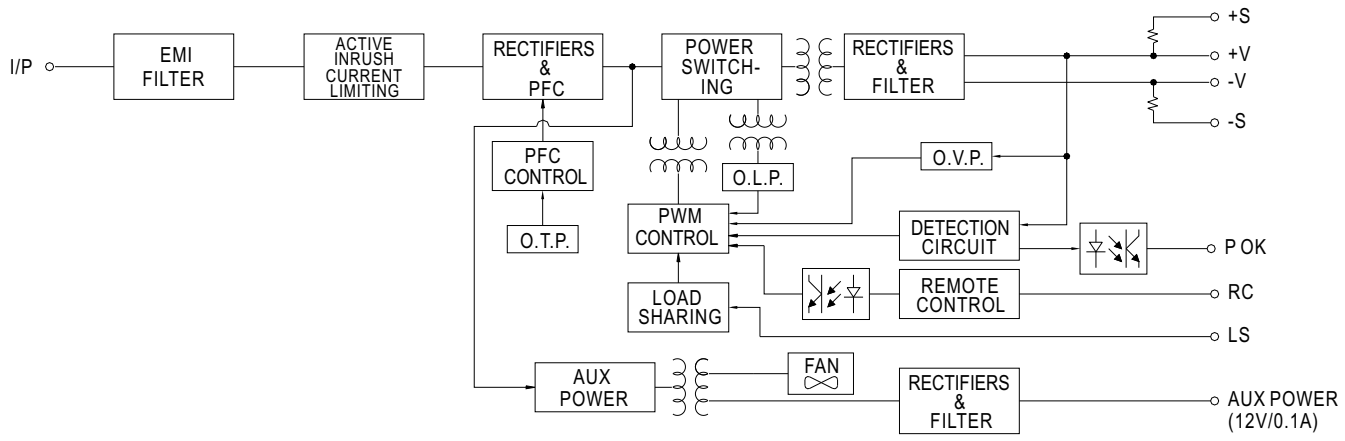
Control Pin. No Assignment(CN3) :

| Pin No. | Assignment | Pin No. | Assignment | Mating Housing | Terminal |
|---|---|---|---|---|---|
| 1 | P OK GND | 4 | AUXG | HRS DF11 or equivalent | HRS DF11 or equivalent |
| 2 | P OK | 5 | RC1 | | |
| 3 | RCG | 6 | AUX | | |

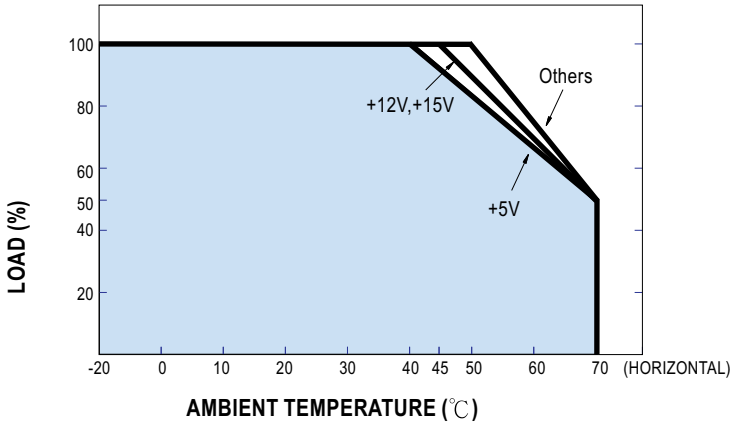
P OK GND: Power OK Ground
P OK: Power OK Signal
RCG: Remote ON/OFF Ground
AUXG: Auxiliary Ground
RC1: Remote ON/OFF
AUX: Auxiliary Output

## ■ Block Diagram

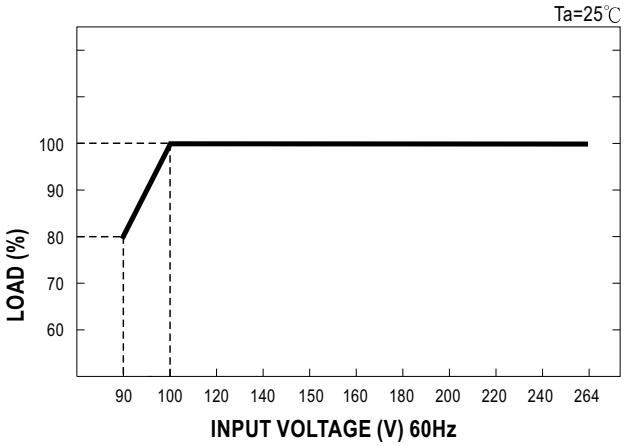
PFC fosc : 70KHz
PWM fosc : 100KHz



## ■ Derating Curve




## ■ Static Characteristics




## ■ Function Manual

**1.Remote ON/OFF**

(1)Remote ON/OFF control becomes available by applying voltage in CN1 & CN2 & CN3

(2)Table 1.1 shows the specification of Remote ON/OFF function

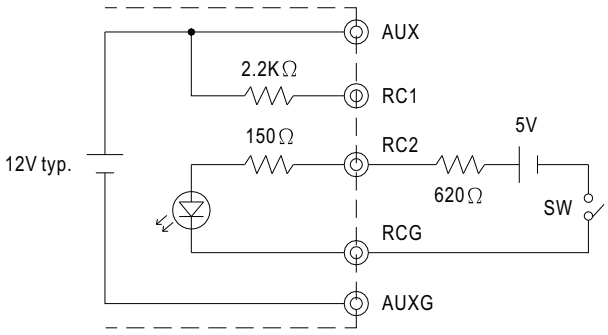
(3)Fig.1.2 shows the example to connect Remote ON/OFF control function

Table 1.1 Specification of Remote ON/OFF

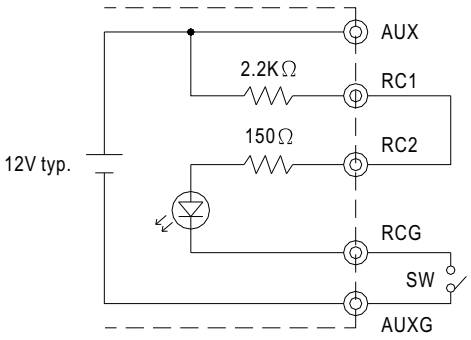
| Connection Method | | Fig. 1.2(A) | Fig. 1.2(B) | Fig. 1.2(C) |
|---|---|---|---|---|
| SW Logic | Output on | SW Open | SW Open | SW Close |
| | Output off | SW Close | SW Close | SW Open |

Fig.1.2 Examples of connecting remote ON/OFF

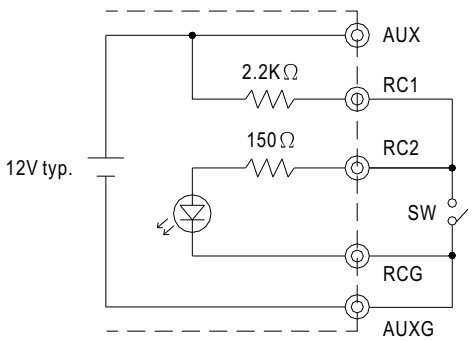
(A)Using external voltage source




(B)Using internal 12V auxiliary output




(C)Using internal 12V auxiliary output



## 2.Alarm Signal Output

(1)Alarm signal is sent out through "P OK" & "P OK GND" pins
(2)An external voltage source is required for this function. The maximum applied voltage is 50V and the maximum sink current is 10mA
(3)Table 2.1 explain the alarm function built-in the power supply

| Function | Description | Output of alarm(P OK) |
|---|---|---|
| P OK | The signal is "Low" when the power supply is above 65% of the rated output voltage-Power OK | Low (0.5V max at 10mA) |
| | The signal turns to be "High" when the power supply is under 65% of the rated output voltage-Power Fail | High or open (External applied voltage 10mA max.) |

Table 2.1 Explanation of alarm

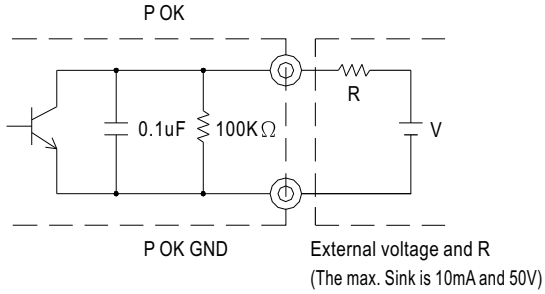



Fig. 2.2 Internal circuit of P OK (Open collector method)

## 3.Output Voltage TRIM

(1)Adjustment of output voltage is possible between 70~100%(Typ.) of the rated output which is shown in Fig. 3.1
(2)Connecting a resistor externally between TRIM and-S on CN1 or CN2 that is shown in Fig. 3.2.

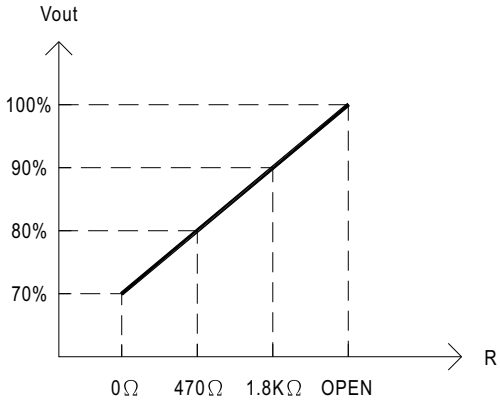



Fig. 3.1 External Resistor (Typical)

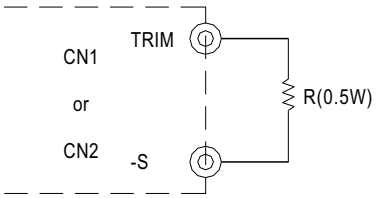



Fig. 3.2 Output voltage trimming

## 4.Current Sharing

(1)Parallel operation is available by connecting the units shown as below (+S,-S and LS are connected mutually in parallel):
(2)The voltage difference among each output should be minimized that less than ±2% is required
(3)The total output current must not exceed the value determined by the following equation (Output current at parallel operation)=(The rated current per unit) x (Number of unit) x 0.9
(4) In parallel operation 4 units is the maximum, please consult the manufacture for other applications
(5) When remote sensing is used in parallel operation, the sensing wire must be connected only to the master unit