

# **PRODUCTS MANUAL**

## **R1V2 SERIES**

**High Density Redundant Power Supply**

**For 1U Chassis**



Rev.:A1

P/N:702-10041

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## 1.1 INTRODUCTION

First of all, thank you for purchasing R1V2 Series – High-Density Micro Redundant power supply for 1U chassis.

The R1V2 is a 1+1, Hot-swappable/Hot-pluggable, High-Density Micro Redundant power supply set, it consists of:

- (1) complete metal frame (nickel-plated)
- (2) compact size 1+1 power modules
- (3) backplane board

The R1V2 Series of hot swappable high-density micro redundant power supply offer a maximum 275 watts of output power. The R1V2 series provide Active Power Factor correction (PFC) at full range AC Input complies with IEC 1000-3-2/3 for critical applications.

The power unit's size is compact which smaller than PS II form factor and both power modules built two interior 40X28 mm ball bearing DC fans. Each power module has designed with 2 outputs including +12V & 5VSB circuits and higher current availability based on Intel ATX12V / EPS12V standards. Total set has designed with 5 outputs including +12V, +5V, +3.3V, -12V & +5VSB circuits

The unit features a warning sub-system, including LED display, buzzer alarm, TTL signal, etc., at the same time, it guides user the fast way to find out the power supply and DC fan Good or Fail optional conditions.

To really discover the power and easy in using these products, we recommend that you read through this manual carefully.

## 1.2 PACKING

Your R1V2 box package should consist of the following:

- (A) R1V2 \*1
- (B) Accessory pack (included 1 holding bracket for shipment)\*1
- (C) Products' manual \*1

## 1.3 MODEL DESIGNATION

Model number identification:

R1V2 – 5ZZZV4H

R1V2	---	Model name (AC Input)
5	---	For 5 DC outputs (5V/12V/-12V/3.3V/5VSB) for ATX12V / EPS12V Spec.
ZZZ	---	Total output power, ZZZ -> 275 etc. (unit: watt)
V	---	High efficiency.
4H	---	Suit for 1U chassis (1U = 44.4 m/m) suit for 1U chassis horizontal type

## **1.4 FEATURES**

R1V2 Series --- High-Density Redundant power supply with Active Power Factor correction

1+1, Hot swappable, Hot pluggable, AC Input for 1U chassis

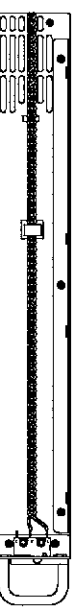
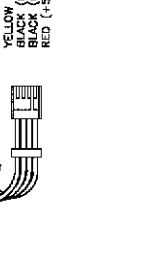
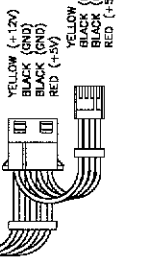
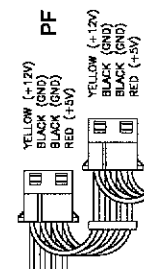
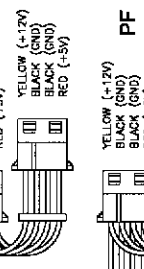
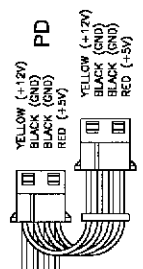
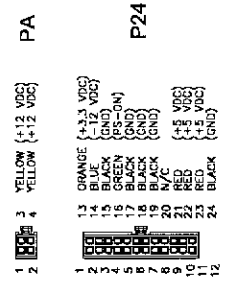
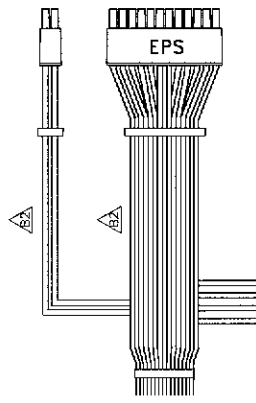
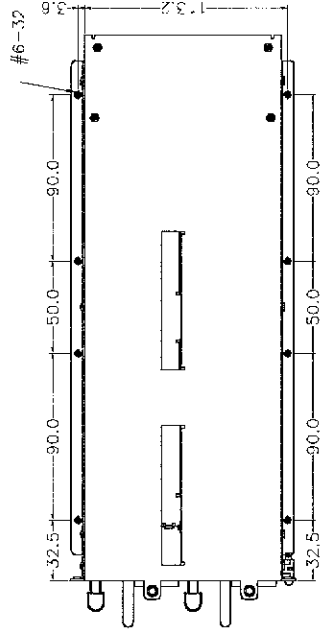
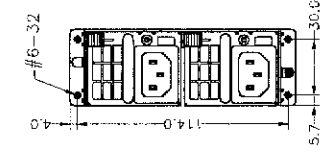
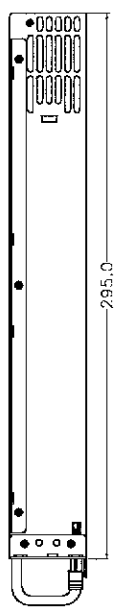
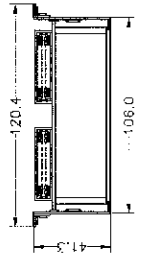
Easy fit into 1U , 275W+275W , ATX12V / EPS12V outputs

- ◆ Dimension :R1V2 - 295mm(D)×106mm(W)×41.8mm(H)
- ◆ True Redundant design (Passive backplane)
- ◆ All circuit been designed in the power module
- ◆ Hot swap, Hot plug ability
- ◆ Full range 90V~264VAC input
- ◆ Active Power Factor Correction (PFC) built in
- ◆ ATX 275W + 275W output power
- ◆ Remote sensing design
- ◆ Meet FCC, CISPR EMI regulation
- ◆ Compact size for1U chassis
- ◆ Space save design
- ◆ One 40X28 m/m ball bearing DC fan on power module design
- ◆ High-Density

## **1.5 PRE-INSTALLATION**

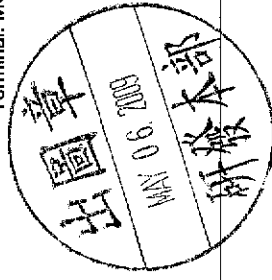
Before installing the R1V2 unit into the system chassis, please review the following drawings page 4 ~ 13 and find out the best way to match them.

## **1.6 DRAWING**



HOUSING	LENGTH
P24	420
PA	420
PB	420
PC	200
PD	420
PE	200
PF	420
PG	200
PH	200
TTL SIGNAL	1170
LED	1170
BUZZER RESET	770

- Notes:
- (a) All the Length of Output Wires Exclude Housing.
  - (b) P24, PA Connector: MOLEX 5557 Series or EQUIV.  
Terminal: MOLEX 39-00-0059/79 or EQUIV.
  - (c) PD-PG Connector: AMP 1-480424-0 or EQUIV.  
Terminal: AMP 61117-4 or EQUIV.
  - (d) PH Connector: AMP 171822-4 or EQUIV.  
Terminal: AMP 170262-1 or EQUIV.
  - (e) PB-PC Connector: MOLEX 675820000 or EQUIV.  
Terminal: MOLEX 675810000 or EQUIV.



材料規格: MATERIAL	日期: MAY-06-2009
XXX ±.025	DATE: MAY-06-2009
XX ±.100	DATE: MAY-06-2009
X ±.250	DATE: MAY-06-2009
核准者: BY: 盧永欣	DATE: MAY-06-2009
A-APPROVE BY: 李宗顯	DATE: MAY-06-2009
審核者: CHECK BY: 詹恩宜	DATE: MAY-06-2009
繪圖者: DRAW BY: 詹恩宜	DATE: MAY-06-2009
第三角法	

EMACS 新巨企業股份有限公司 ZIPPY TECHNOLOGY CORP. POWER DIVISION

品名: R1V2-5275V4H  
 MODEL NO: B00R1V227V001  
 料號: B00R1V227V001  
 PART NO: B00R1V227V001  
 圖號: B00R1V227V001  
 FILE NO: B00R1V227V001  
 單位: mm  
 版次: B2  
 規格: AO  
 編號: OF  
 SHEET: OF

# 1.7 SPECIFICATIONS

## INPUT CHARACTERISTICS:

**R1V2-5275V4H**

### A、INPUT CHARACTERISTICS：

- 1、VOLTAGE：90~264VAC FULL RANGE
- 2、FREQUENCY：47~63HZ
- 3、INPUT CURRENT：4A (RMS) FOR 115 VAC  
2A (RMS) FOR 230 VAC
- 4、INRUSH CURRENT：35A MAX. FOR 115 VAC PER MODULE  
70A MAX. FOR 230 VAC PER MODULE

### B、OUTPUT CHARACTERISTICS：

OUTPUT VOLTAGE	OUTPUT CURRENT		REGULATION		OUTPUT RIPPLE & NOISE MAX. [P-P]
	MIN.	MAX.	LOAD	LINE	
+5V	0	20	±5%	±1%	50mV (P-P)
+12V	0.1	22	±5%	±1%	120mV (P-P)
-12V	0	0.3	±10%	±1%	120mV (P-P)
+3.3V	0	20	±5%	±1%	50mV (P-P)
+5Vsb	0.1	2.5	±5%	±1%	50mV (P-P)

REMARK: +5V AND +3.3V TOTAL OUTPUT MAX: 150W / +5V, +3.3V, +12V, -12V TOTAL OUTPUT MAX: 263W / TOTAL POWER: 275W

### C、SPECIFICATION

- \* TEMPERATURE RANGE：OPERATING 0°C~50°C, STORAGE -20°C~80°C
- \* HOLD UP TIME：WHEN POWER SHUTDOWN DC OUTPUT 5V MUST BE MAINTAIN 16MSEC IN REGULATION LIMIT AT NORMAL INPUT VOLTAGE
- \* EFFICIENCY：78%±2% TYPICAL，AT FULL LOAD 230VAC
- \* LEAKAGE CURRENT: 3.5 MA. MAX. AT NOMINAL VOLTAGE 250VAC
- \* POWER GOOD SIGNAL：ON DELAY 100ms TO 550ms，OFF DELAY 1Ms
- \* OVER POWER PROTECTION：110~170% MAX
- \* OVER VOLTAGE PROTECTION: +5V→5.6~6.5V, +3.3V→3.6~4.3V, +12V→13.2~15V
- \* SHORT CIRCUIT PROTECTION: +5V, +3.3V, +12V, -12V, +5VSB
- \* SAFETY: MEET UL60950, TUV EN-60950, CB IEC 60950
- \* WARNING METHOD: AUDIO ALARM (BUZZER SOUND, RESETABLE), FALUT LED, TTL
- \* DIMENSION: 295(D)×106(W)×41.8(H) mm

## 1.8 INSTALLATION & TESTING

Turn off (Remote off) the on/off switch.

Mount the power supply in the system chassis using the proper mounting tool, the mounting holes in the power supply should match those in the case. Attach the connectors to the M/B by following the M/B instructions, there are various connectors / pin-outs on both power supply and M/B. They should match each other; otherwise the connection will cause undetectable harms.

Attach all the remaining power supply connections to the various peripherals as needed. These connectors are “keyed”, so there will be only one possible way to connect them.

Before applying power to the system, make sure there are no loose or incorrect connectors. You do not need to worry about the setting of AC Input because of the units' full range features. Double check that all connections to the M/B are matched properly. Maybe you would like to test the redundancy function before you put back the cover of your system chassis. Remote on the on/off switch, you will notice that if the power unit is operating properly, the individual LEDs and external warning LEDs (please refer to Sec. 1.10 for detail explanation) are lit Green. Now remove one of the power modules, the warning buzzer in the power system will sound and the external warning LED which displays the status of the total power supply system will change to blink, the individual LEDs (on the front of power module) indicating the power supply's status will not light. Meanwhile, the power supply will continue to backup the power output without affecting the computer system's operation.

When the warning buzzer sounds, the user can reset the warning buzzer by pressing the buzzer reset or use the reset switch of the system chassis. The reset switch can be connected by wires lead provided from the power supply system (please refer to Sec. 1.10). Insert the power module which is removed for testing earlier, the sound of the warning buzzer will disappear, the external warning LED will turn Green again. The LED indicating the status of the power supply will light again when testing another power supply by performing the similar procedure.



If everything works out fine, then turn off (remote off) the power system. Now put back the cover of the case and tighten with the screws that you have retained earlier. Now you have completed the installation of the R1V2 redundant power supply system.

## **1.9 HOT-SWAP PROCEDURES**

Please refer to the following when either power module or the fan found defective.

- A) Locate the defective power module by examining the individual LED (if LED without light, it indicates the power module is defective).

**\*\*\*WARNING:**

*Please perform the above step carefully otherwise it may cause shut down the whole system.*

**\*\*\*WARNING:**

*Please do not remove the defective power module until you have worn gloves to keep from be burned. This is due to the cover of the power module is used as heat sink for cooling, usually the temperature is around 50 ~ 60 degree Celsius under full load condition.*

- B) Loosen the bracket screws of the power module
- C) Remove the defective power module by pulling out method

**\*\*\*WARNING:**

*Please put aside the power module await for cooling down. Keep from other people touch it until it is cool.*

- D) Replace a new Good power module, insert the power module into the power system to the end.
- E) Check the LED of the power module light Green.
- F) Check the LED indicating the total power system status. It should be from twinkle to Green.
- G) Tighten the screws of the power module to fix it.
- H) If you want to test this new power module in simulating defective situation. Please refer to the Section 1.8 Installation & Testing Section.

*Remarks: If the DC fan of the power module fail, you have to replace the power module. Please follow with the Hot-Swap procedures of the power module.*

## 1.10 PINOUTS AND FUNCTION OF THE CONNECTORS

**\*\*\* Please be aware of the polarity\*\*\***

A. Power module defective signal:

PIN#	VOLTAGE	SPECIFICATION
1	GND	
2	TTL SIGNAL	pull up to +5Vsb Low Active --- Defective High --- Normal

B. Power status LED:

PIN#	VOLTAGE	SPECIFICATION
1	GND	
2	12V	Resistance 1K ohm to +12V Low Active (blink) --- Defective High (Green) --- Normal

C. Buzzer reset switch:

PIN#	VOLTAGE	SPECIFICATION
2	GND	
1	5V	pull up to +5Vsb Low Active --- on shoot trigger

TTL signal:

Sink current max. 5mA  
Source current max. 50uA  
Low Active ---Defective  
High ---Normal

## 1.11 TROUBLE SHOOTING

If you have followed these directions correctly, there should be no problem occurred. Some common symptoms are: the system doesn't work, buzzer sounds, work for a very short period, etc., please try the following steps to verify and correct it:

1. Check all the connections (correct pinouts, loose connections, wrong direction, etc).
2. Check for short-circuits or defective peripherals by unhooking each peripheral once at a time. When the systems functions again, you have solved the problem.
3. Once you hear the buzzer sound or see the LED with blink, please be aware of :
  - a. If the load is under the minimum / over the maximum load of each channel (please refer the Sec. 1.7 specification)?
  - b. If each power cord been well plugged into the inlet?

Suppose the above conditions happen, please unplug the power cords, wait for 2 ~ 3 minutes for releasing the protection state, then test it again.

- c. If buzzer still sounds or the LED shows power module is defective, please locate the defective power module, perform hot-swap procedure (please refer to the Sec. 1.9 Hot-swap procedures), sent the defective power module to your vendor for RMA operation.
    - d. If you can not fix the problem, please contact with your vendor for supporting.



The “RELIABILITY “ solution to E-application

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**POWER DIVISION**

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