

USER MANUAL

IPC MINI REDUNDANT POWER SUPPLY

Solutions: For IPC, Server, Storage, Workstation, Networking
and Disk Array System.

Model Name:

R4B-500/600/700/800G1V2 (Rear)

R4B-500/600/700/800GFV2 (Front)

**High
Efficiency**

Low Noise

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1.1 INTRODUCTION

COMIX thank you for purchasing R4B series PS II size mini redundant power supply. The R4B series is a 1+1 hot-swappable / hot-pluggable redundant power supply. It consists of,

A) Complete metal frame with compact size power modules.

B) Backplane board.

The R4B Series of hot swappable mini redundant power supply offer maximum 500/600/700/800 watts of output power. The series provide Active Power Factor Correction (PFC) at full range AC input that complies with EN 61000-3-2 for CE norms. The units are compact as PS II form factor and all the power modules are built interior 40X40X20 mm ball bearing fans for better ventilation.

The units also provide a warning sub-system, including LED display, buzzer alarm, TTL signal etc..

When all the power modules are at normal condition, it balances the load share through its parallel design and results in the increasing reliability of the power system.

In order to use the power supply more effectively and safety, we suggest that you read through this manual carefully in advance of the installation and any operation.

1.2 PACKING

R4B box package should consist of the following:

A) R4B Mini Redundant power supplies x 1 set

B) Power cord (option) x 1

C) Accessories pack / Brackets (option) x 1

D) User manual (option) x 1

1.3 SPECIFICATIONS

Model Name: R4B-500G1V2 / R4B-500GFV2 (500W + 500W)

Input Characteristics:

1. Voltage: 90 ~ 264V AC Full range
2. Frequency: 47 ~ 63Hz
3. Input Current: 10.0A for 115VAC, 5.0A for 230VAC.
4. Inrush Current: 25A for 115VAC, 50A for 230VAC per power supply module.

Output Characteristics:

Output Voltage	Min. Current	Max. Current	Regulation	Ripple & Noise (Max.)
+3.3V	1A	25A	±5%	60mVp-p
+5V	1A	25A	±5%	60mVp-p
+12V	1A	41A	±5%	120mVp-p
-12V	0A	0.8A	±5%	120mVp-p
+5VSB	0.5A	3.5A	±5%	50mVp-p

Note: The combined total power from 5V & 3.3V shall not exceed 170W.

Features:

- AC Inlet in each module.
- Active Power Factor Correction (PFC).
- Hold up time > 16ms of DC output at full load.
- Compact size (PS II form factor).
- Balance load sharing design and power efficiency > 80%.
- Temperature range: Operation 0°C ~ 50°C , Storage -20°C ~ 70°C .
- Faulty alarm methods: LED, Buzzer, TTL Signal.
- Power protection: OPP, OVP, SCP, OCP, OTP.
- Over Power Protection: 130% ~ 160%
- Over Voltage Protection: +3.3V → 3.75V~4.3V, +5V → 5.7V~6.9V, +12V → 13V~14.3V.
- Over Current Protection: +3.3V → 27.5A~37.5A, +5V → 27.5A~37.5A, +12V → 41.5A~61.5A.
- Meet EMI noise filter: FCC Class A, CISPR 22 Class A.
- Power good signal at 115/230VAC full load: 200ms to 500ms.
Power fail: 1ms (Min.)
- Cooling: TWO 40mm DC Fans (module).
- Dimensions: 150(W) x 86(H) x 199(D) mm.

Model Name:R4B-600G1V2 / R4B-600GFV2 (600W + 600W)

Input Characteristics:

1. Voltage: 90 ~ 264V AC Full range
2. Frequency: 47 ~ 63Hz
3. Input Current: 10.0A for 115VAC, 5.0A for 230VAC.
4. Inrush Current: 25A for 115VAC, 50A for 230VAC per power supply module.

Output Characteristics:

Output Voltage	Min. Current	Max. Current	Regulation	Ripple & Noise (Max.)
+3.3V	1A	25A	±5%	60mVp-p
+5V	1A	25A	±5%	60mVp-p
+12V	1A	49A	±5%	120mVp-p
-12V	0A	0.8A	±5%	120mVp-p
+5VSB	0.5A	3.5A	±5%	50mVp-p

Note: The combined total power from 5V & 3.3V shall not exceed 180W.

Features:

- AC Inlet in each module.
- Active Power Factor Correction (PFC).
- Hold up time > 16ms of DC output at full load.
- Compact size (PS II form factor).
- Balance load sharing design and power efficiency > 80%.
- Temperature range: Operation 0°C ~ 50°C , Storage -20°C ~ 70°C .
- Faulty alarm methods: LED, Buzzer, TTL Signal.
- Power protection: OPP, OVP, SCP, OCP, OTP.
- Over Power Protection: 130% ~ 160%
- Over Voltage Protection:+3.3V→3.75V~4.3V,+5V→5.7V~6.9V,+12V→13V~14.3V.
- Over Current Protection:+3.3V→27.5A~37.5A, +5V→27.5A~37.5A, +12V→53.9A~73.5A.
- Meet EMI noise filter: FCC Class A, CISPR 22 Class A.
- Power good signal at 115/230VAC full load: 200ms to 500ms.
Power fail: 1ms (Min.)
- Cooling: TWO 40mm DC Fans (module).
- Dimensions: 150(W) x 86(H) x 199(D) mm.

Model Name:R4B-700G1V2 / R4B-700GFV2 (700W + 700W)

Input Characteristics:

1. Voltage: 90 ~ 264V AC Full range
2. Frequency: 47 ~ 63Hz
3. Input Current: 12.0A for 115VAC, 6.0A for 230VAC.
4. Inrush Current: 30A for 115VAC, 60A for 230VAC per power supply module.

Output Characteristics:

Output Voltage	Min. Current	Max. Current	Regulation	Ripple & Noise (Max.)
+3.3V	1A	32A	±5%	60mVp-p
+5V	1A	25A	±5%	60mVp-p
+12V	1A	57A	±5%	120mVp-p
-12V	0A	0.8A	±5%	120mVp-p
+5VSB	0.5A	3.5A	±5%	50mVp-p

Note: The combined total power from 5V & 3.3V shall not exceed 190W.

Features:

- AC Inlet in each module.
- Active Power Factor Correction (PFC).
- Hold up time > 16ms of DC output at full load.
- Compact size (PS II form factor).
- Balance load sharing design and power efficiency > 80%.
- Temperature range: Operation 0°C ~ 50°C , Storage -20°C ~ 70°C .
- Faulty alarm methods: LED, Buzzer, TTL Signal.
- Power protection: OPP, OVP, SCP, OCP, OTP.
- Over Power Protection: 130% ~ 160%
- Over Voltage Protection:+3.3V→3.75V~4.3V,+5V→5.7V~6.9V,+12V→13V~14.3V.
- Over Current Protection:+3.3V→35.2A~48A, +5V→27.5A~37.5A, +12V→62.7A~85.5A.
- Meet EMI noise filter: FCC Class A, CISPR 22 Class A.
- Power good signal at 115/230VAC full load: 200ms to 500ms.
Power fail: 1ms (Min.)
- Cooling: TWO 40mm DC Fans (module).
- Dimensions: 150(W) x 86(H) x 199(D) mm.

Model Name:R4B-800G1V2 / R4B-800GFV2 (800W + 800W)

Input Characteristics:

1. Voltage: 90 ~ 264V AC Full range
2. Frequency: 47 ~ 63Hz
3. Input Current: 12.0A for 115VAC, 6.0A for 230VAC.
4. Inrush Current: 30A for 115VAC, 60A for 230VAC per power supply module.

Output Characteristics:

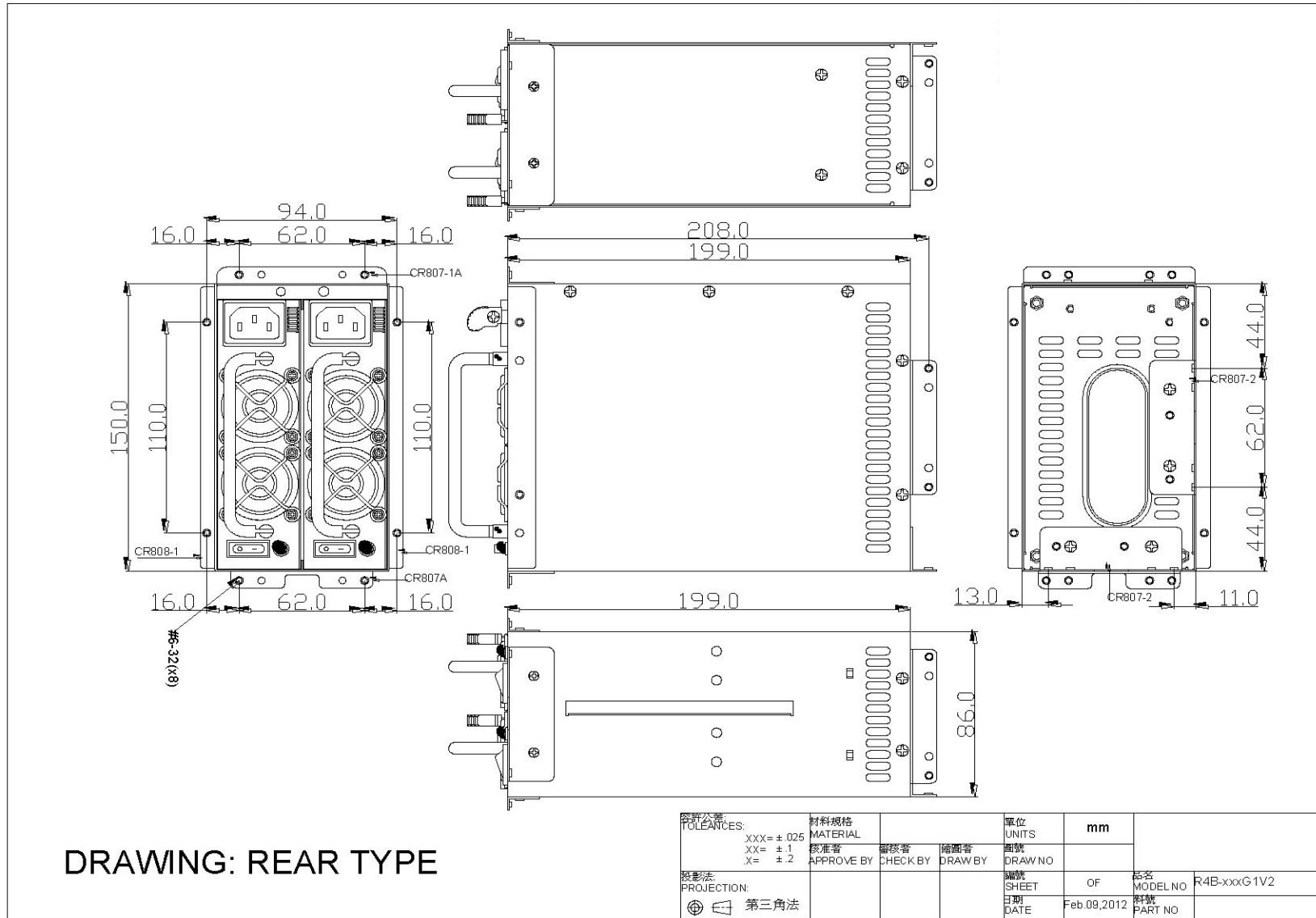
Output Voltage	Min. Current	Max. Current	Regulation	Ripple & Noise (Max.)
+3.3V	1A	32A	±5%	60mVp-p
+5V	1A	25A	±5%	60mVp-p
+12V	1A	65A	±5%	120mVp-p
-12V	0A	0.8A	±5%	120mVp-p
+5VSB	0.5A	3.5A	±5%	50mVp-p

Note: The combined total power from 5V & 3.3V shall not exceed 190W.

Features:

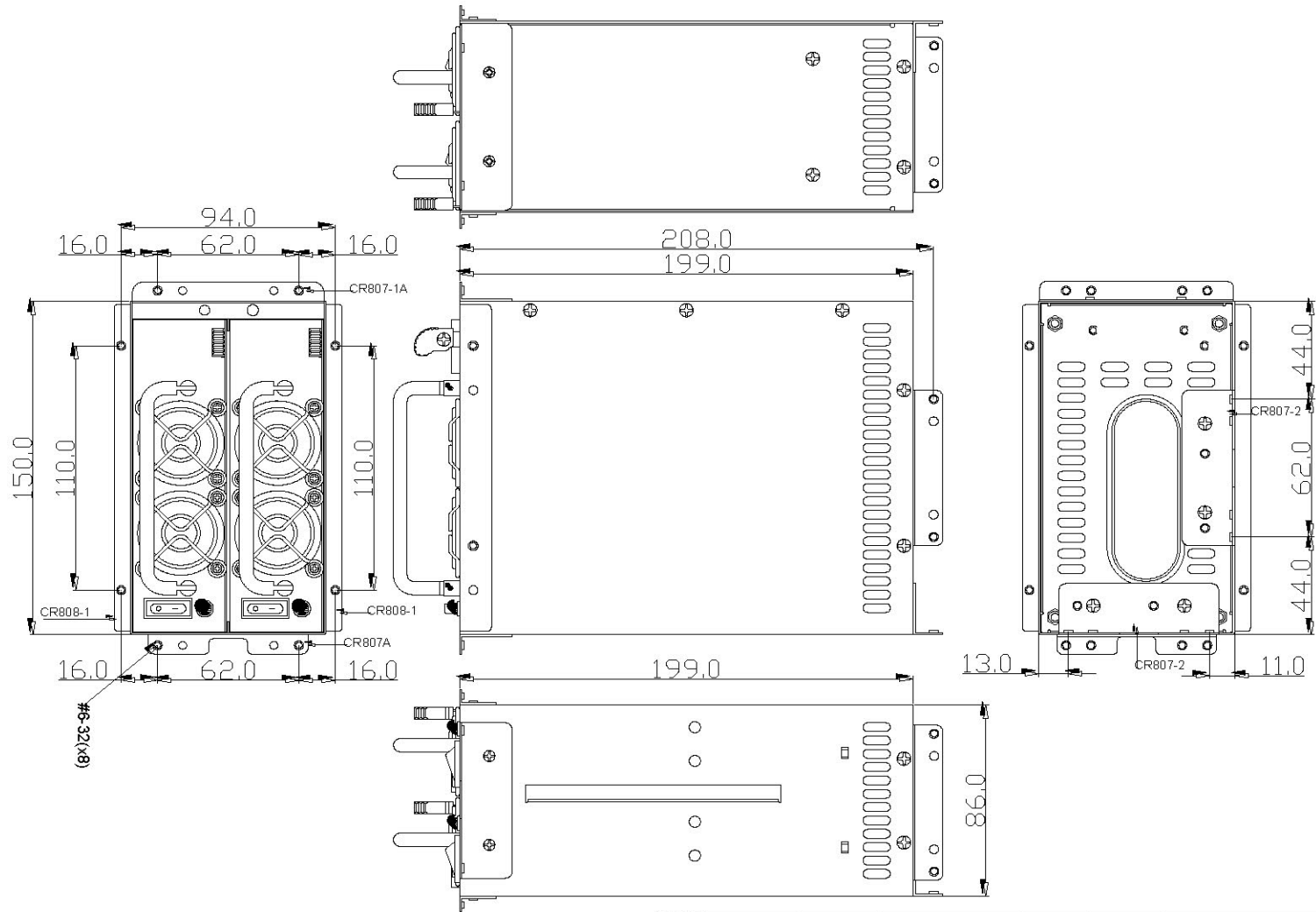
- AC Inlet in each module.
- Active Power Factor Correction (PFC).
- Hold up time > 16ms of DC output at full load.
- Compact size (PS II form factor).
- Balance load sharing design and power efficiency > 80%.
- Temperature range: Operation 0°C ~ 50°C , Storage -20°C ~ 70°C .
- Faulty alarm methods: LED, Buzzer, TTL Signal.
- Power protection: OPP, OVP, SCP, OCP, OTP.
- Over Power Protection: 130% ~ 160%
- Over Voltage Protection:+3.3V→3.75V~4.3V, +5V→5.7V~6.9V, +12V→13V~14.3V.
- Over Current Protection:+3.3V→35.2A~48A, +5V→27.5A~37.5A, +12V→71.5A~97.5A
- Meet EMI noise filter: FCC Class A, CISPR 22 Class A.
- Power good signal at 115/230VAC full load: 200ms to 500ms.
Power fail: 1ms (Min.)
- Cooling: TWO 40mm DC Fans (module).
- Dimensions: 150(W) x 86(H) x 199(D) mm.

1.4 DRAWING



DRAWING: REAR TYPE

設計公差 TOLERANCES: XXX = ± 0.25 XX = ± 1 X = ± 2	材料規格 MATERIAL 核准者 APPROVE BY	審核者 CHECK BY	繪圖者 DRAW BY	單位 UNITS 圖號 DRAW NO	mm	品名 MODEL NO R4B-xxxG1V2
投影法 PROJECTION: 第三角法				日期 DATE Feb.09.2012	圖號 SHEET OF	料號 PART NO



DRAWING: FRONT TYPE

設計公差 TOLERANCES:	材料規格 MATERIAL:	單位 UNITS:	mm	
XXX= ± .025				
XX= ± .1	核准者 APPROVE BY	審核者 CHECK BY	繪圖者 DRAW BY	圖號 DRAW NO
X= ± .2				
投影法 PROJECTION:			編號 SHEET	OF
第三角法			日期 DATE	Feb.09.2012
			品名 MODEL NO	R4B-xxxGFV2
			料號 PART NO	

1.5 INSTALLATION & TESTING

Mount the power supply into the system chassis by using proper mounting tool. Attach the connectors to the motherboard by following it's instructions, there are various connectors / pin-outs of both power supply and motherboard. Please ensure to connect the matched one; otherwise, the connection will cause unexpected harms. Connect the remaining power connectors to the various peripherals as needed. These connectors are "keyed", so there will be only one possible way to connect them.

Before applying power source to the system, make sure these is no loosed or incorrect connectors. Double check if all connection to the motherboard is matched properly. Maybe you would like to test the redundancy function before you out back the cover of your system chassis, then, please power it on. If the power system operates normally, the individual LEDs on power module and the external warning LED should be lighted.

Now, remove one power module from the power system, the warning buzzer in the power system will sound, the external warning LED, which displays the status of the total power system, will change to be RED, the individual LED indicating the power module's status will distinguish. Meanwhile, the power system will continue to backup the power output without affecting the operation of your computing system. The warning buzzer will sound continuously. You can reset warning buzzer by pressing the buzzer reset switch. Insert the power module which is removed for test earlier. The sound of the warning buzzer will stop; the

external warning LED will turn to be GREEN again; the LED indicating the status of power module will light in GREEN. Test another power supply by performing the same procedure.

If everything works out fine, then turn off the power system. Now put back the cover of the chassis and tighten with the screws which you have retained earlier. Now you have completed the testing and installation of R4B redundant power supply system.

1.6 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.

B) Turn off the individual on / off switch of the defective power module.

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 60 ~ 70 degree Celsius under full load condition.

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) Turn on the power module.

F) Check the LED of the power module, which should be in Green.

G) Check the LED indicating the total power system status. It should be from twinkle to Green.

Remarks: If the DC fan of the power module fails, you have to replace the power module. Please follow the same procedures.

1.7 PIN-OUTS AND FUNCTION OF THE CONNECTORS

~ Please be aware of the polarity ~

Power Module/System Status LED			
Name	WIRE COLOR		LED COLOR
PW1LED	BROWN	WHITE	ORANGE
PW2LED	RED	WHITE	ORANGE
External LED	GREEN	WHITE	GREEN/ORANGE

TTL Signal Connector		
Pin No.	WIRE COLOR	SIGNAL
1	BLACK	COM
2	RED	+5V

Alarm Reset Switch Connector		
Pin No.	WIRE COLOR	SIGNAL
1	GRAY	COM
2	GRAY	RESET



1.8 BUILT IN THERMAL CONTROL = LOW NOISE

This small card can auto distinguished the power heats and fan speed. If power supply temp. get heating the speed should be go faster; contrariwise.

1.9 TROUBLE SHOOTING

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

1. Check all the connections (correct pin-outs, loose connectors, wrong direction, etc.).
2. Check for short-circuits or defective peripherals by unhooking each peripheral once at a time. When the system functions again, you have solved the problem.
3. Once you hear the buzzer sound or see the LED with RED light, please be aware of:
 - a) If AC input voltage been set correct?
 - b) If each power cord been well plugged into the AC inlet?
 - c) If the load is "under the minimum" or "over the maximum" load of each channel (please refer the Sec. 1.3 specifications).

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

- d) If buzzer still sound or the LED shows power module is defective, please locate which power module is defective, perform hot-swap procedure (please refer the Sec.1.7 Hot-swap procedures), sent the defective power module to your vendor for RMA operation.

- e) If you can not fix the problem, please contact with your vendor for supporting.

Remarks:

1. Unambiguous reference to service document for instructions for replacement of fuses replaceable only by service personnel.
2. Caution: for continued protection against risk of fire, replace only with same type and rating of fuse.
3. Disconnect power supply cords before servicing.