

1.1 INTRODUCTION

First of all, thank you for purchasing M1S2 series redundant power supply for 1U.

The M1S2 is a 1+1 hot-swappable / hot-pluggable redundant power supply. It consists of,

- 1) complete metal frame
- 2) compact size power module
- 3) backplane

The M1S2 series redundant power supply offer a maximum 400/500 watts of output power. The power module is in compact size, and built-in a 40mm ball bearing DC fan for better ventilation. Each power module is designed with 5 outputs (+3.3V, +5V, +12V, -12V, and +5Vsb) circuits, and compliant to ATX12V. All you can see on the backplane is just passive components and this is the key point for longer MTBF.

The M1S2 series offer a warning sub-system, including LED display, buzzer alarm, TTL signal, It guides user the fast way to find out the power supply and DC fan status.

When all the power modules operate normally, it balances the load share through its parallel design, which increases the reliability of power system.

To really discover the power system and ease in using it, we recommend you to read through this manual carefully.

1.2 PACKING

Your M1S2 series should consist of the following,

- a) M1S2 x 1
- b) Accessory pack x 1

1.3 MODEL DESIGNATION

Model number identification

<u>X</u>	<u>X</u>	<u>Y</u>	<u>Z</u>	<u>X</u>	-	<u>X</u>	<u>XXX</u>	<u>X</u>	<u>X</u>	<u>X</u>
↑	↑	↑	↑	↑		↑	↑	↑	↑	↑
1	2	3	4	5	6	7	8	9	10	

1st --- Category

X --- blank AC input (AC – DC)

D -48Vdc input

B -24Vdc input

2nd --- Serial ID

X --- R redundant 1 + 1

M redundant N + 1

3rd --- for # U use

Y --- 1 for 1U use

2 for 2U use

4th --- PM or Customer specify

5th --- # of power module in N+1 system

X --- 1 single

2 1+1 power system

3 2+1 power system

4 3+1 power system

6th --- # of the channel

X --- 2 5V, 12V (Disk Array)

4 5V, 12V, -5V, -12V (AT)

- 5 5V, 12V, 3.3V, 5Vsb, -12V (ATX / EPS)
- 6 5V, 12V, 3.3V, 5Vsb, -5V, -12V (ATX / EPS)

7th --- # of total wattages

- XXX --- XXX W
- AXX --- 10XX W
- BXX --- 11XX W
- CXX --- 12XX W
-

8th --- attribute

- X --- P w/ PFC
- F w/ EMI filter
- V HIGH EFFICIENCY

9th --- Use FAN type

- X --- 3 use 3.8CM type
- 4 use 4CM type
- 6 use 6CM type
- 8 use 8CM type

10th --- chassis type

- X --- H horizontal type
- V vertical type
- M horizontal + vertical type

1.4 FEATURES

M1S2 series, 400W/500W + 400W/500W redundant power supply with active PFC, complaint to ATX12V

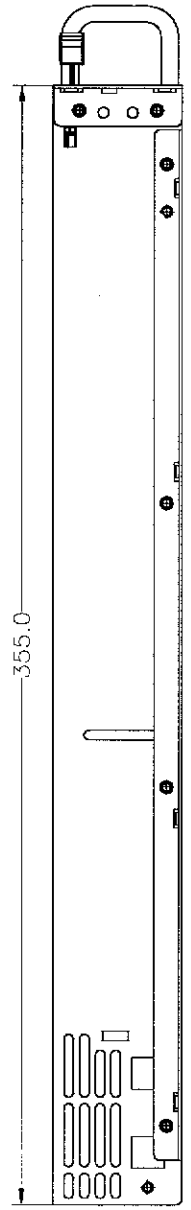
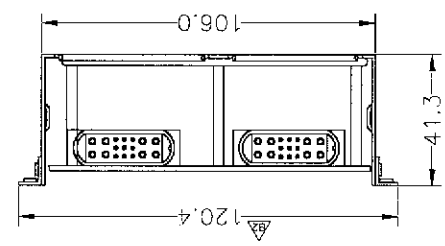
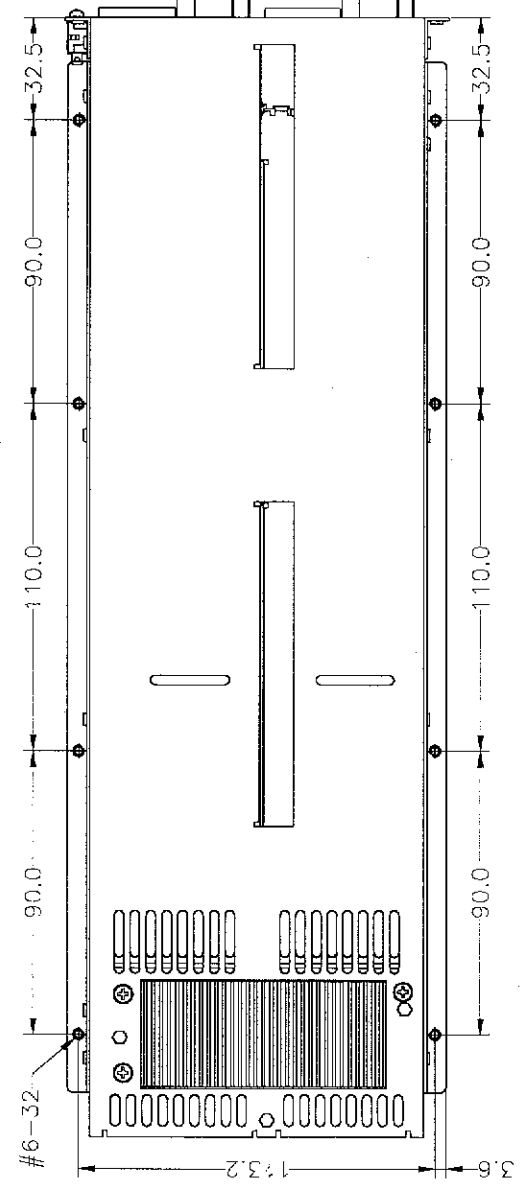
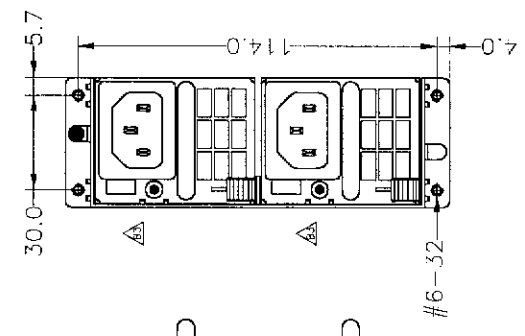
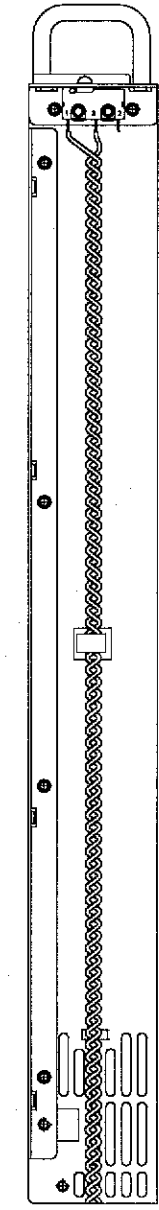
- All circuit designed into the power module
- Hot-swap and hot-plug ability
- Full range (90VAC – 264VAC) operation
- Active Power Factor Correction (PFC) built-in
- Balance load sharing design
- Remote sensing design
- Meet FCC, CISPR EMI regulation
- Faulty free- slide rail design
- Compact size for 1U chassis
- Dual inlets design
- Designed with one 40mm ball bearing DC fan on power module

1.5 DRAWING

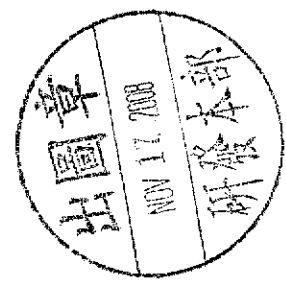
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REV. NO.	DESCRIPTION	DATE
B2	依客戶要求變更固定架尺寸	OCT-29-2008
B3	修正AC INLET之安裝方向	NOV-14-2008



355.0



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

品名: MIS2-5400V/5500V 外觀尺寸圖
 MODEL NO:
 料號: MIS2MA00
 PART NO:
 圖號: MIS2MA00
 FILE NO:
 單位: mm
 版次: B3
 REV. NO:
 規格: A2
 SHEET: OF

材料規格: MATERIAL: .XXX ±.025 .XX ±.100 .X ±.250	材料規格: MATERIAL: 核准者: APPROVE BY: 審核者: CHECK BY: 繪圖者: DRAW BY:	日期: DATE: NOV-14-2008	日期: DATE: NOV-14-2008
容許公差: TOLERANCES:	投影法: PROJECTION: 第三角法	日期: DATE: NOV-14-2008	日期: DATE: NOV-14-2008

NOTES:
a). TOLERANCES: ±0.5mm

1.6 SPECIFICATION

INPUT CHARACTERISTICS: M1S2-5400V4H / M1S2-5500V4H

A、INPUT CHARACTERISTICS：

- 1、VOLTAGE：90~264VAC FULL RANGE
- 2、FREQUENCY：47~63HZ
- 3、INPUT CURRENT：3A / 4A (RMS) FOR HIGH RANGE INPUT VOLTAGE;
6A / 8A (RMS) FOR LOW RANGE INPUT VOLTAGE
- 4、INRUSH CURRENT：20A MAX. FOR 132 VAC PER MODULE
40A MAX. FOR 264 VAC PER MODULE

B、OUTPUT CHARACTERISTICS：

OUTPUT VOLTAGE	OUTPUT CURRENT		REGULATION		OUTPUT RIPPLE & NOISE MAX. [P-P]
	MIN.	MAX.	LOAD	LINE	
+5V	1	25	±5%	±1%	50mV
+12V	2	33/41	±5%	±1%	120mV
-12V	0	0.8	±10%	±1%	120mV
+3.3V	1	25	±5%	±1%	50mV
+5VSB	0.1	3.5	±5%	±1%	50mV

- REMARK: 1. TOTAL MAX OUTPUT OF +5V AND +3.3V NOT EXCEED 170W.
2. POWER MODULE TOTAL OUTPUT POWER NOT EXCEED 400W/500W

C、SPECIFICATION

- TEMPERATURE RANGE：OPERATING 0℃~40℃，STORAGE -20℃~80℃
- HOLD UP TIME：16mS MIN. AT FULL LOAD & 115 VAC INPUT VOLTAGE
- DIELECTRIC WITHSTAND：INPUT/OUTPUT 1500 VAC FOR 1 minute, INPUT TO FRAME GROUND 1500 VAC FOR 1 MINUTE
- EFFICIENCY：84% / 85% MAX.
- POWER GOOD SIGNAL：ON DELAY 100mS TO 500mS，OFF DELAY 1ms
- OVER POWER PROTECTION：110~150% MAX
- OVER VOLTAGE PROTECTION：+5V→5.8V~6.9V，+3.3V→3.9V~4.6V，
+12V→13.9V~16.4V
- OVER CURRENT PROTECTION: +3.3V→27.5~37.5A, +5V→27.5~37.5A,
+12V→36.3~59.4A(400W) / +12V→45.1~67.5A(500W)
- SHORT CIRCUIT: +12V, -12V, +3.3V, +5V, +5VSB
- EMI：FCC CLASS A，CISPR 22 CLASS A
- SAFETY：UL 60950-1, CSA 22.2 NO.60950-1-03 1ST Edition，TUV IEC60950-1,
CCC
- FAULTY ALARM METHODS: LED, BUZZER, TTL SIGNAL

- MEET IEC-1000-3-2 CLASS D (ACTIVE PFC)
- HOT-SWAPPABLE/HOT PLUGGABLE REDUNDANCY FUNCTION
- DIMENSION: 355(D) * 106(W) * 41.3 (H)mm
- COOLING: ONE 40mm DC FANS (MODULE)
- AC INLET IN EACH MODULE

1.7 INSTALLATION & TESTING

Mount the power supply into the system chassis by using proper mounting tool. The mounting holes of the power supply should match up with those in the chassis. Connect the power connectors to the M/B by following the M/B instruction. There is various on connectors / pinouts in both power supply and M/B. Please ensure to connect the matched one; otherwise, it 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 M/B is matched properly. Maybe you would like to test the redundancy function before you put 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 light in GREEN. 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 installation of M1S series redundant power supply.

1.8 Hot-swap procedures

Please refer to the following when either power module is defective.

1) Locate the defective power module by examining the individual LED (if LED is distinguished, it indicates the power module is defective).

*** WARNING:

Please perform the following step carefully; otherwise, it may cause the whole system shutdown.

*** WARNING:

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

2) Loose the screws of power module bracket.

3) Plug out the defective power module.

*** WARNING:

Please put aside the power module to wait for cooling down. Keep other people from touching it until it is cooled.

4) Replace a new / GOOD power module. Insert the power module into the power system till to the end.

5) Check the LED of the power module, which should be in GREEN.

6) Check the warning LED indicating the status of total power system, which should be in GREEN.

7) Tighten the screws of the power module.

8) If you want to test this new power module and simulate the defective situation, please refer to Section 1.7 Installation & Testing.

Remarks: If the DC fan of the power module fails, you have to replace the power module. Please follow the Hot-Swap Procedures for replacement.

1.9 PINOUTS AND FUNCTION OF THE CONNECTORS

THE LED CONNECTOR OF TOTAL POWER SYSTEM

PIN#	COLOR
1	RED
2	BLACK
3	GREEN

THE BUZZER RESET SWITCH CONNECTOR

PIN#	COLOR
1	BLACK
2	YELLOW

THE SIGNAL CONNECTOR OF POWER RESET

PIN#	COLOR	COLOR
1	RED	TTL SIGNAL
2	BLACK	GND

TTL signal:

Sink current max. 5mA

Source current max. 50uA

Low Active ---Defective

High ---Normal

1.10 SINGLE-MODE and REDUNDENT-MODE

The power supply has two working modes depending on the quantity of power module inserted, SINGLE-MODE and REDUNDENT-MODE.

1) SINGLE-MODE (only one module inserted and power on)

Notice items:

- a) When only one module inserted the detect circuit will assume the other empty module is Dummy. In this mode, power supply is working at only one module and without any alarming signals. When module failed, the power supply shut down.
- b) When only module is working then changing to dual modules (Redundant) working status. Just insert another power module then power on it. There is no need to power off the system. The detect circuit will assume the power supply recover the redundant functions. All alarming signals are functionally when two modules inserted.

- c) If two modules inserted, but only power on one power module. The detect circuit will judge the other module is abnormal (no output) then send alarming signals.

2) REDUNDENT-MODE

In this mode two modules have to inserted and power on. Any one module failed the other module will continue working and detect circuit send out the alarming signals. Alarming singles can be removed by replacing a new power module or user can disable it.

1.11 TROUBLE SHOOTING

If you have followed these instructions correctly, it should function normally.

Some common symptoms are, the system doesn't work, buzzer alarms, shutdown after running a very short period,...etc. If so, please check the following steps to verify and correct it.

- 1) Check all connection (if pinouts is correct, if any connection loosed, if the direction is incorrect,...etc.).
- 2) Check if any short-circuit or defective peripherals by plugging out the power connector from each peripheral, one at a time. Shall the system functions again, you have solved the problem.
- 3) Once you hear the buzzer sound or see the warning LED in RED, please check,
 - a) If the loading is under the minimum or over the maximum load of each channel.
 - b) If the power source is well connected and supplied.

Shall the above condition is happened, please disconnect the power source and wait for 2-3 minutes to release the protection status; then test it again.

- c) If buzzer keeps alarming or LED indicates the power module failure, please locate which power module is defective. Perform hot-swap procedures (ref. to Sec. 1.8 Hot-Swap Procedures). Return the defective power module back to your vendor for RMA procedure.
- d) If you can not fix the problem, please contact your vendor for supporting.

Note:

- * The description stated herein is subject to change without prior notice.
- * All brand names and trademarks are the property of their respective owners.