PRODUCTS MANUAL

R2G SERIES

Micro Redundant Power Supply For 2U Chassis

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1.1 INTRODUCTION

First of all, thank you for purchasing R2G Series – Micro Redundant power supply for 2U chassis.

The R2G is an 1+1, Hot-swappable/Hot-pluggable, Micro Redundant power supply set, it consists of:

(1) complete metal frame (nickel-plated)
(2) compact size (smaller than PSII form factor) 1+1 power modules
(3) backplane board

The R2G Series of hot swappable micro redundant power supply offer a maximum 300/350 watts of output power. The R2G 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 an interior 40 m/m ball bearing DC fan for better ventilation. Particularly an 80 m/m DC Fan built on the rear side of the whole system to make sure a safe working unit. Each power module has designed with 6 outputs including +3.3V, +5V, +12V, -12V, -5V & 5VSB circuits and higher current availability based on Intel ATX12V / EPS12V standards. All you can see on the backplane board is just passive components and this is the key point to a greater Power Supply MTBF.

The unit features a warning sub-system, including LED display, buzzer alarm, TTL signal, I^2C interface device etc., at the same time, it guides user the fast way to find out the power supply and DC fan Good or Fail conditions.

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

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

1.2 PACKING

Your R2G box package should consist of the following:

(A) R2G *1
(B) Accessory pack (included 1 holding bracket for shipment)*1
(C) Products' manual *1

1.3 MODEL DESIGNATION

Model number identification:

R2G - 63ZZX

R --- Redundant (AC Input)
2G --- suit for 2U chassis (1U = 44.4 m/m)
6 --- for 6 DC outputs (5V/12V/-5V/-12V/3.3V/5VSB) for ATX12V / EPS12V Spec.
3ZZ --- total output power, 3ZZ- 300,350 (unit: watt)
X --- can be P or F.
P for built in PFC (full range).
F for regular AC Input 115/230VAC (AVS, auto range)

1.4 FEATURES

R2G Series --- Micro Redundant power supply (w/PFC / AVS versions)
1+1, Hot swappable, Hot pluggable, AC Input for 2U chassis

Easy fit into 2U , 300/350W +300/350W, PFC/AVS, ATX12V / EPS12V outputs

- Dimension : 82 (H) x 101 (W) x 276/300 (D) m/m (2 housings optional)
- True Redundant design (Passive backplane)
- All circuit been designed in the power module
- Hot swap, Hot plug ability
- Full range / Auto range operations
- Active Power Factor Correction (PFC) built in is optional
- ATX 300/350W + 300/350W output power
- Balance load sharing design
- Remote sensing design
- Meet FCC, CISPR EMI regulation
- Faulty free - slide rail design
- Smart I^2C interface design (optional)
- Compact size for 2U chassis
- Space save / click type handle design
- Dual EMI Line Filter inlets design
- One piece 40 m/m ball bearing DC fan on power module design
- A 80 m/m ball bearing DC fan on power system rear side (Optional)

1.5 PRE-INSTALLATION

Before installing the R2G 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 (page 4 ~ 13)

1.7 SPECIFICATIONS (page 14 ~ 15)

修訂 REVISIONS		
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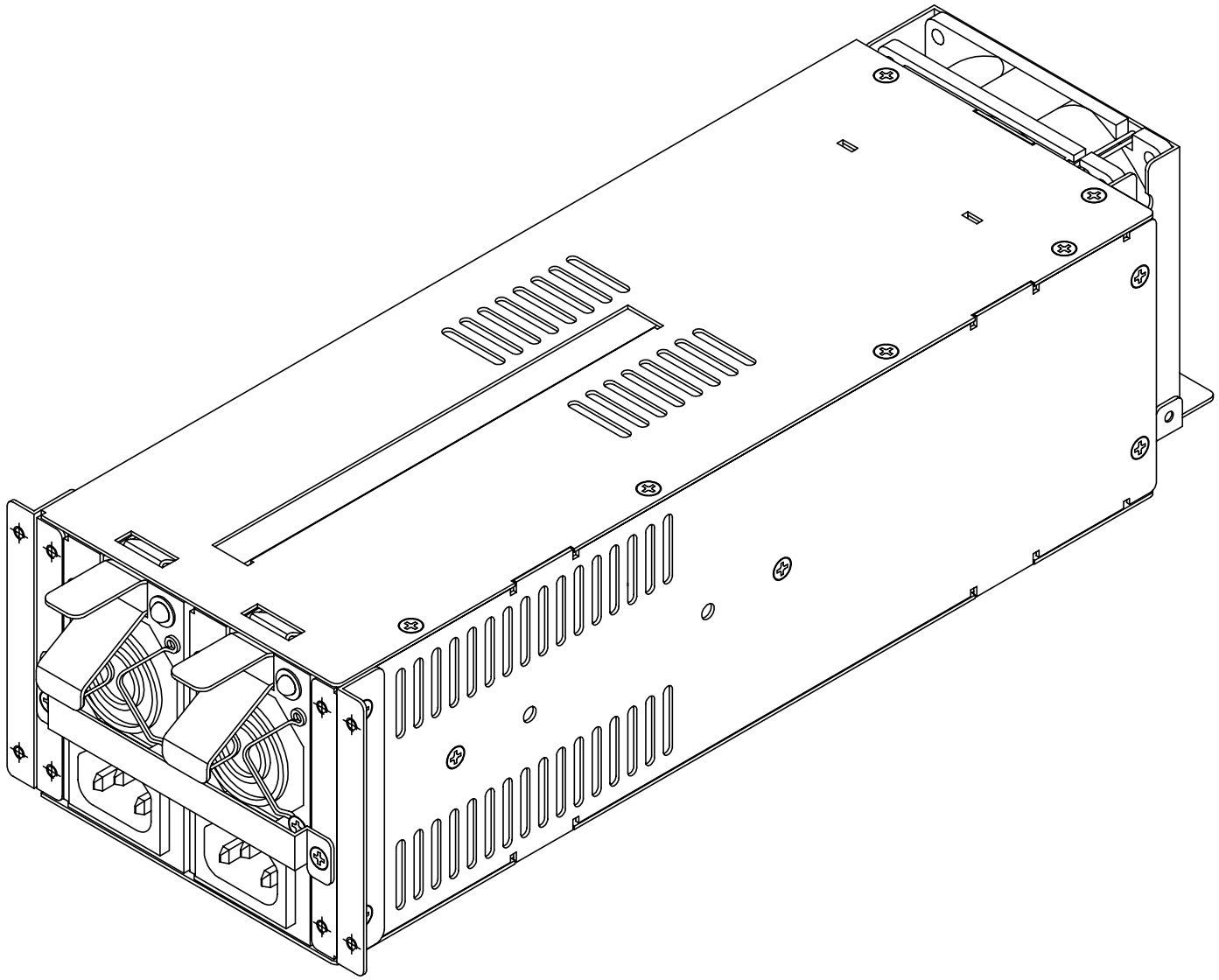

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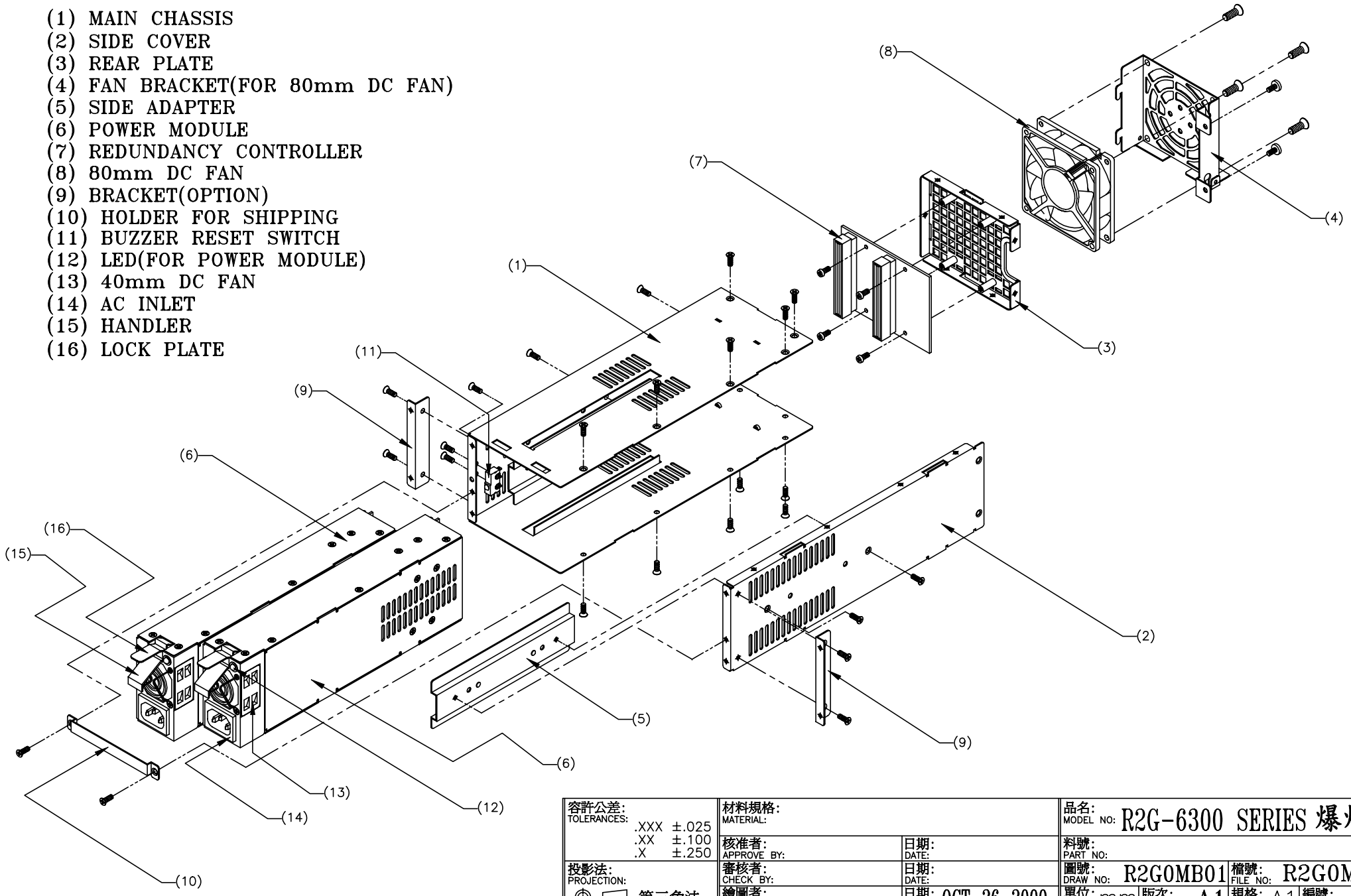
修訂 REVISIONS		
版次 REV.	記述 DESCRIPTION	日期 DATE

(1) MAIN CHASSIS
(2) SIDE COVER
(3) REAR PLATE
(4) FAN BRACKET(FOR 80mm DC FAN)
(5) SIDE ADAPTER
(6) POWER MODULE
(7) REDUNDANCY CONTROLLER
(8) 80mm DC FAN
(9) BRACKET(OPTION)
(10) HOLDER FOR SHIPPING
(11) BUZZER RESET SWITCH
(12) LED(FOR POWER MODULE)
(13) 40mm DC FAN
(14) AC INLET
(15) HANDLER
(16) LOCK PLATE



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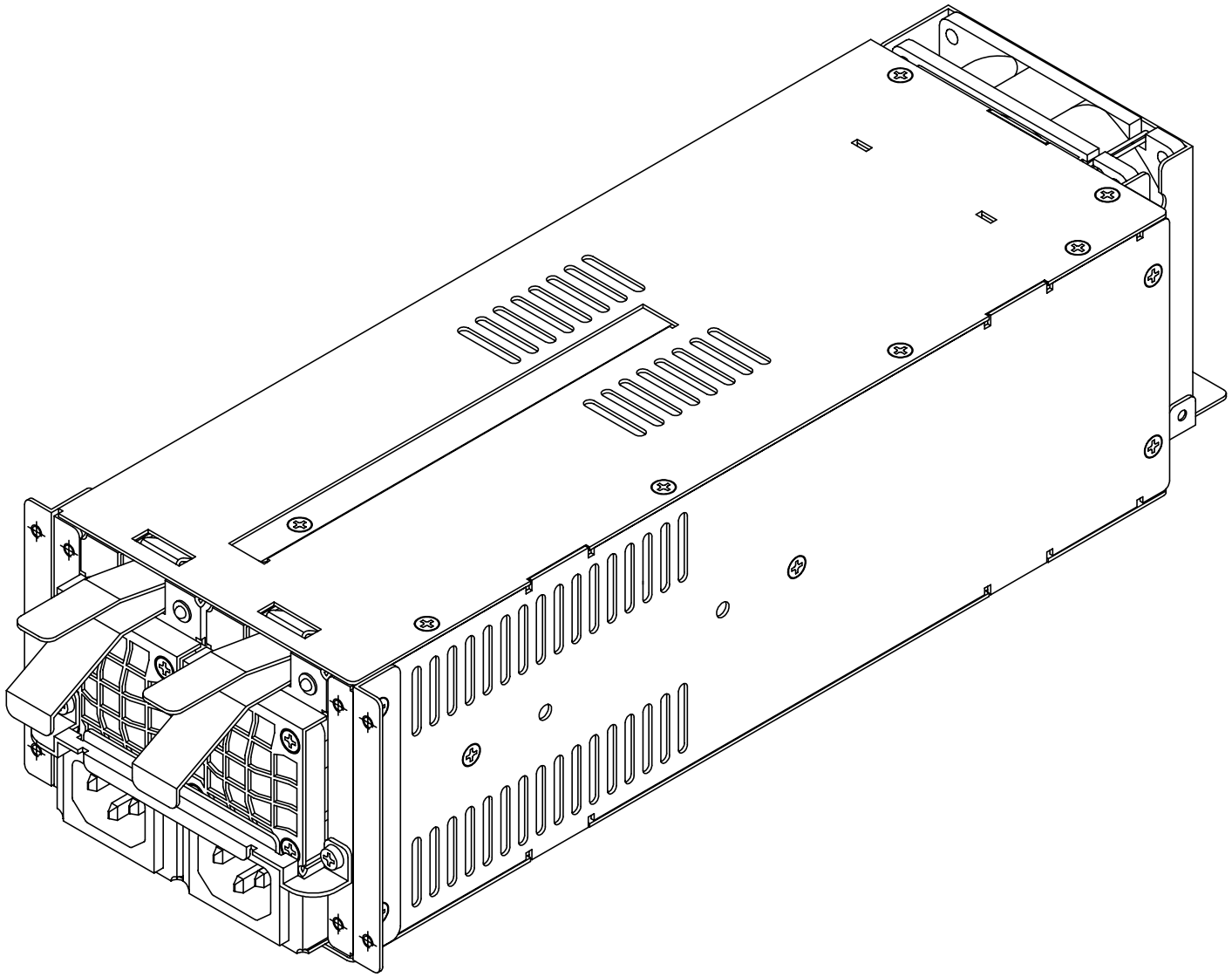

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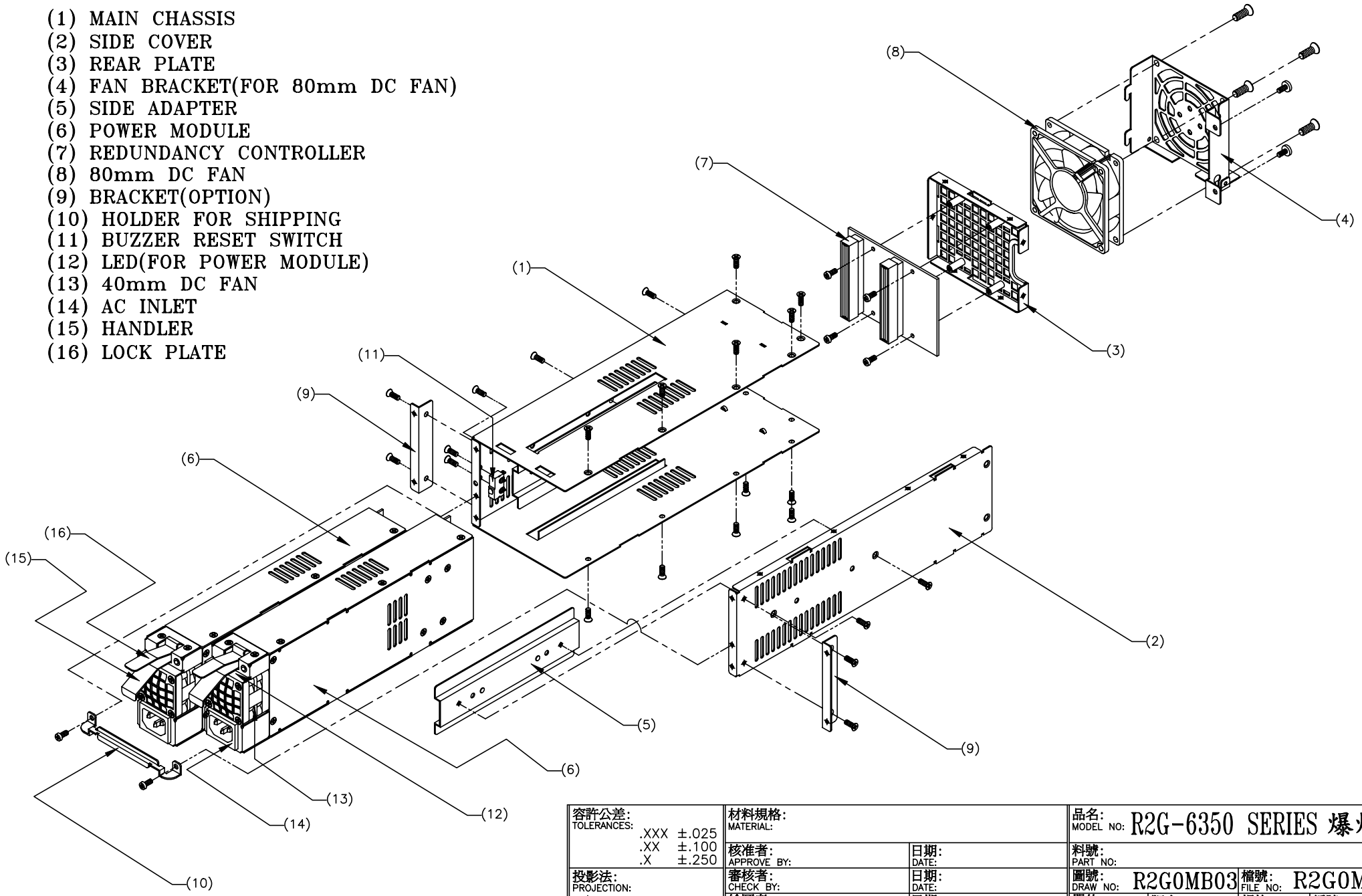
修訂 REVISIONS		
版次 REV.	記述 DESCRIPTION	日期 DATE

(1) MAIN CHASSIS
(2) SIDE COVER
(3) REAR PLATE
(4) FAN BRACKET(FOR 80mm DC FAN)
(5) SIDE ADAPTER
(6) POWER MODULE
(7) REDUNDANCY CONTROLLER
(8) 80mm DC FAN
(9) BRACKET(OPTION)
(10) HOLDER FOR SHIPPING
(11) BUZZER RESET SWITCH
(12) LED(FOR POWER MODULE)
(13) 40mm DC FAN
(14) AC INLET
(15) HANDLER
(16) LOCK PLATE



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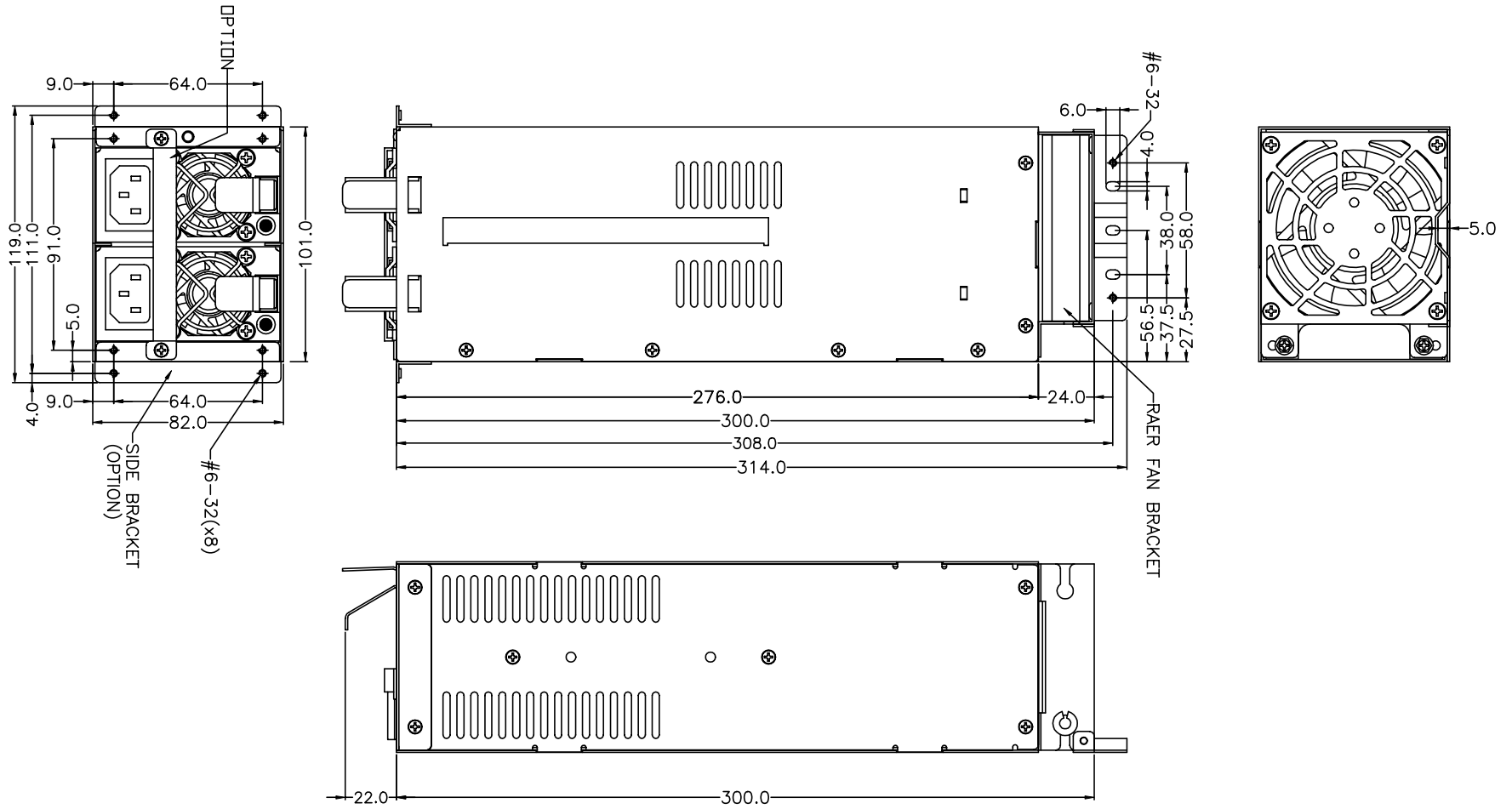
版次 REV.	記述 DESCRIPTION	日期 DATE
A2	修改鎖片角度及風扇護線環	JUL/25/2000
	修改通風孔及風扇架(8CM)	AUG/01/2000
	修改風扇架之支架爲點焊方式	AUG/17/2000
A3	將風扇固定孔改爲橢圓孔	APR-25-2002



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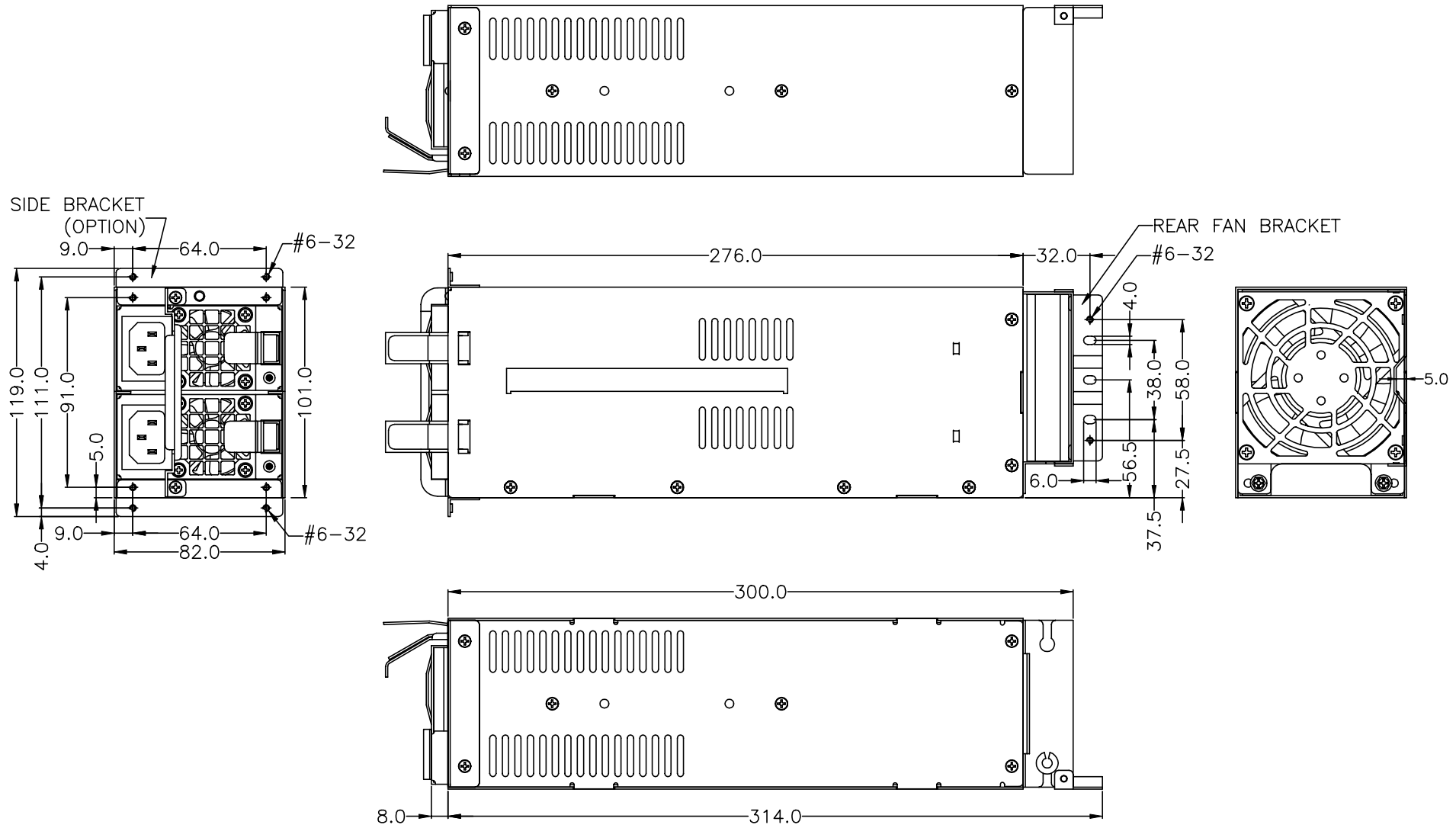
修訂 REVISIONS		
版次 REV.	記述 DESCRIPTION	日期 DATE
A2	增加2支固定架	APR-25-2002



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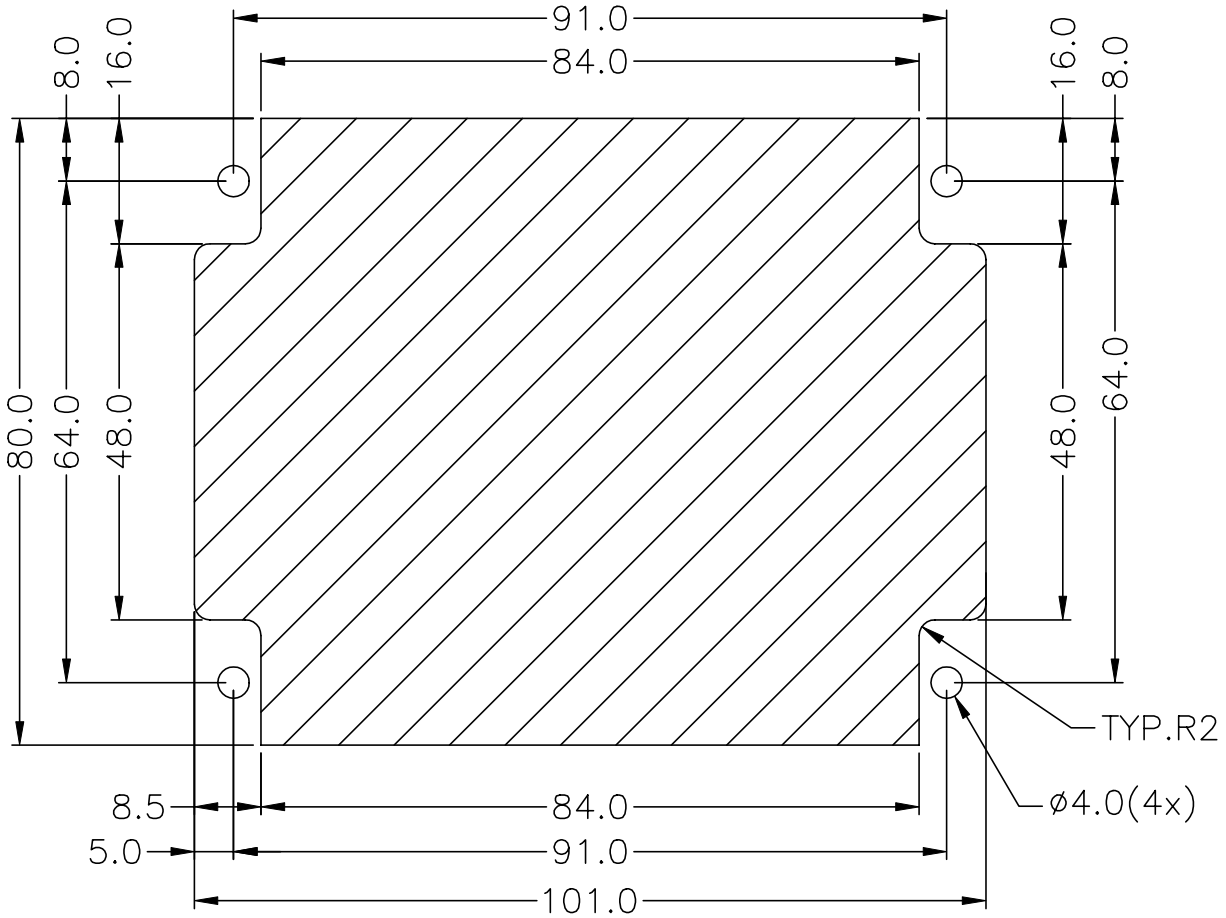

NOTE: WITHOUT SIDE BRACKET

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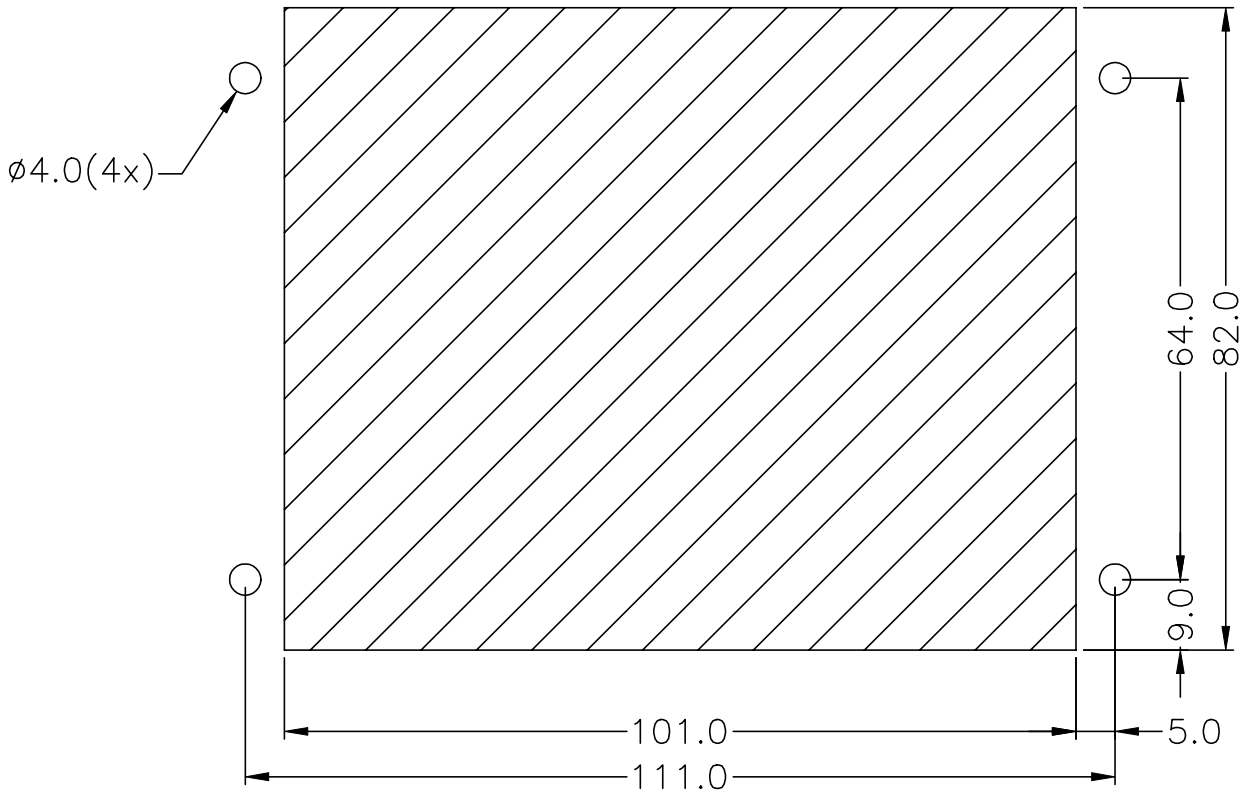

NOTE: WITH SIDE BRACKET

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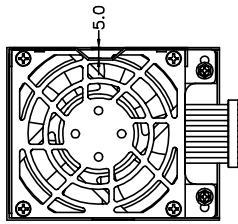

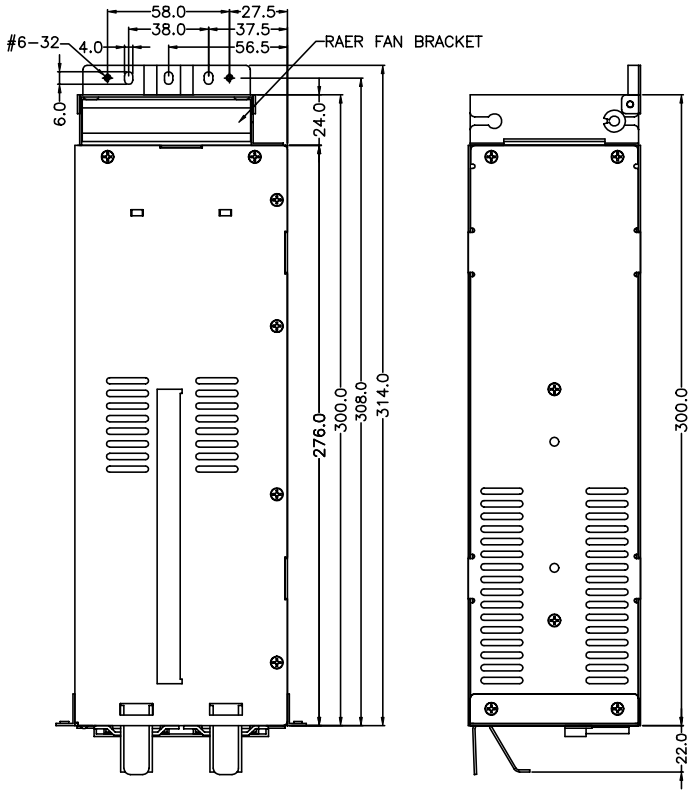

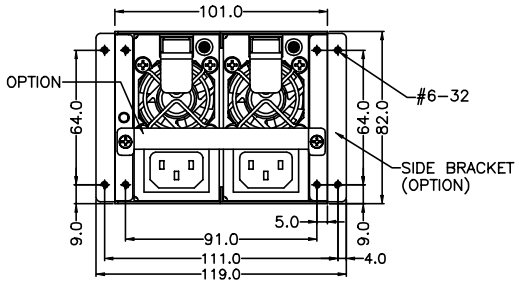

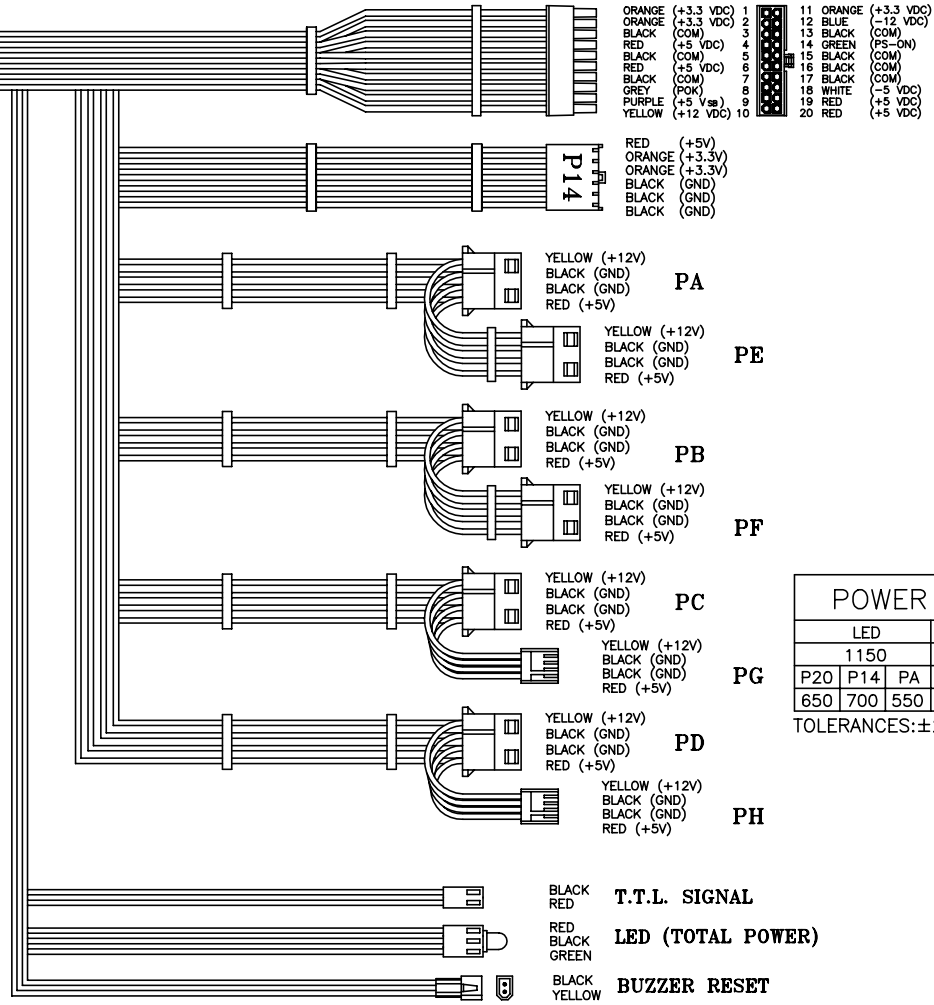

POWER WIRE LENGTH

LED			TTL SIGNAL			BUZZER SWITCH			
1150			1150			750			
P20	P14	PA	PB	PC	PD	PE	PF	PG	PH
650	700	550	550	550	550	200	200	200	200

TOLERANCES:±20 UNIT: mm

容許公差: TOLERANCES: .XXX ±.025 .XX ±.100 .X ±.250	材料規格: MATERIAL:		品名: MODEL NO:	R2G-6300P	
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投影法: PROJECTION: 第三角法	審核者: CHECK BY:	日期: DATE:	圖號: DRAW NO: R2G0MW01	檔號: FILE NO: R2G0MW01	
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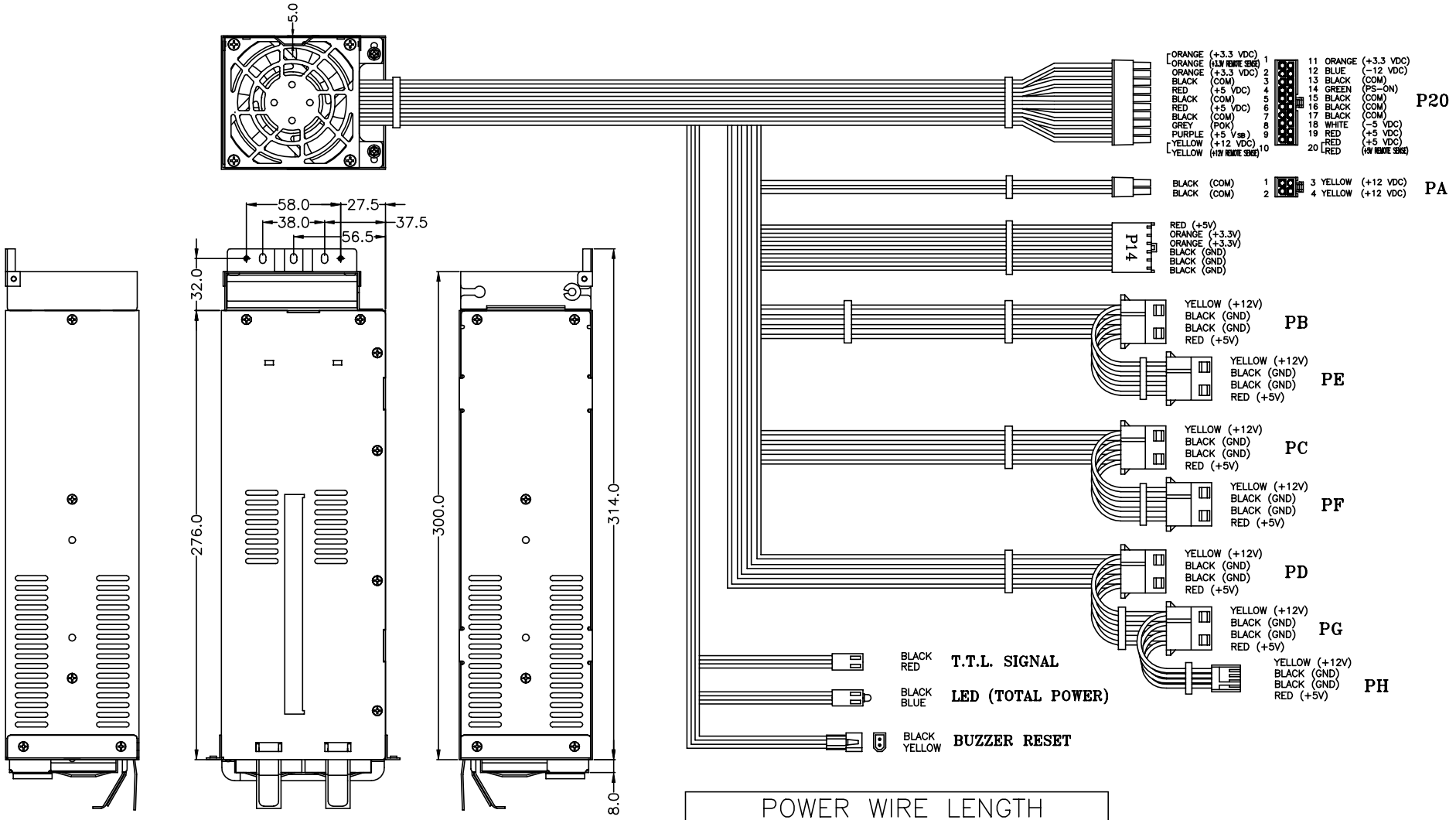
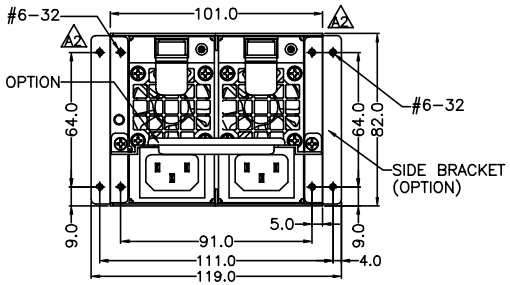
A2	增加2支固定架	MAR-08-2002





POWER WIRE LENGTH									
TTL SIGNAL			BUZZER SWITCH				LED		
1150			750				1150		
P20	P14	PA	PB	PC	PD	PE	PF	PG	PH
200	150	280	550	400	300	200	200	200	200

TOLERANCES:±20 UNIT: mm

容許公差: TOLERANCES: .XXX ±.025 .XX ±.100 .X ±.250	材料規格: MATERIAL:		品名: MODEL NO: R2G-6350P
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INPUT CHARACTERISTICS: R2G-6300P

- VOLTAGE: 95 ~264 VAC FULL RANGE
- FREQUENCY : 47 ~ 63 Hz
- INPUT CURRENT: 6.0 / 3.0 A FOR 115 / 230 VAC
- INRUSH CURRENT: 60A / 80A MAX. FOR 115 / 230 VAC PER POWER MODULE

OUTPUT CHARACTERISTICS:

OUTPUT VOLTAGE	OUTPUT CURRENT			REGULATION		OUTPUT
	MIN.[A]	MAX.[A]	PEAK(A)	LOAD	LINE	RIPPLE & NOISE MAX. [P-P]
5V	3.0	32		± 5%	± 1%	50mV
12V	2	16	20	± 6%	± 1%	120mV
-5V	0.05	0.5		±10%	± 1%	120mV
-12V	0.05	0.8		±10%	± 1%	150mV
3.3V	1.0	20		± 5%	± 1%	50mV
+5VSB	0.1	1.5		± 5%	± 1%	50mV

REMARKS: TOTAL CURRENT OF +5V AND + 3.3V NOT EXCEED 32 A

TOTAL +5V AND 3.3V AND 12V POWER NOT EXCEED 285 W

- TEMPERATURE RANGE : OPERATING 0^0C --- 40^0C, STORAGE –20^0C --- 80^0C
- HOLD UP TIME: 16 ms MINIMUM AT FULL LOAD & NORMAL INPUT VOLTAGE
- DIELECTRIC WITHSTAND: INPUT / OUTPUT 1500 VAC FOR 1 MINUTE
  INPUT TO FRAME GROUND 1500 VAC FOR 1 MINUTE
- EFFICIENCY: 63% TYPICAL, AT FULL LOAD
- POWER GOOD SIGNAL: ON DELAY 100 ms TO 500 ms, OFF DELAY 1 ms
- OVER LOAD PROTECTION: 110 ~ 160% MAX.
  OVER VOLTAGE PROTECTION:
  +5V → 5.7V ~ 6.5V, 3.3V → 3.9 ~ 4.3V, 12V → 13.3 ~ 14.3V
- OVER CURRENT PROTECTION : 5V, 12V, 3.3V 130% +/- 20% AT FULL LOAD
  -5V, -12V SHORT CIRCUIT
- EMI NOISE FILTER: FCC CLASS B, CISPR22 CLASS B
- SAFETY: UL 1950, CSA 22.2 NO/ 950, TÜV IEC 950
- REMOTE ON / OFF CONTROL
- FAULTY ALARM METHODS : LED, BUZZER, TTL SIGNAL
- HOT-SWAPPABLE / HOT-PLUGGABLE REDUNDANCY FUNCTION
- BALANCE LOAD SHARING DESIGN
- REMOTE SENSING DESIGN
- ISOLATION: BUILT-IN IN THE POWER MODULE
- MEET IEC-1000-3-2 CLASS D (ACTIVE PFC)
- DIMENSION: 82(H) X 101(W) X 300 (D) mm W Rear DC Fan
- 82(H) X 101(W) X 276 (D) mm W/O Rear DC Fan
- COOLING : TWO 40 mm DC FANS (ONE IN EACH MODULE)
  ONE 80 mm DC FAN (REAR SIDE)

* I2C FEATURE (OPTIONAL)

INPUT CHARACTERISTICS: R2G-6350P

- VOLTAGE: 90 ~ 264 VAC FULL RANGE
- FREQUENCY : 47 ~ 63 Hz
- INPUT CURRENT: 8.0 / 5.0 A FOR 115 / 230 VAC
- INRUSH CURRENT: 60A / 80A MAX. FOR 115 / 230 VAC PER POWER MODULE

OUTPUT CHARACTERISTICS:

OUTPUT VOLTAGE	OUTPUT CURRENT			REGULATION		OUTPUT
	MIN.[A]	MAX.[A]	PEAK(A)	LOAD	LINE	RIPPLE & NOISE MAX. [P-P]
5V	3.0	35		± 5%	± 1%	50mV
12V	2	22		± 5%	± 1%	100mV
-5V	0.1	0.5		±10%	± 1%	150mV
-12V	0.1	0.8		±10%	± 1%	150mV
3.3V	1.0	20		± 5%	± 1%	50mV
+5VSB	0.1	2.0		± 5%	± 1%	50mV

REMARKS: TOTAL CURRENT OF +5V AND + 3.3V NOT EXCEED 35 A

TOTAL +5V AND 3.3V AND 12V POWER NOT EXCEED 328 W

- TEMPERATURE RANGE : OPERATING 0^0C --- 40^0C, STORAGE -20^0C --- 70^0C
- HOLD UP TIME: 16 ms MINIMUM AT FULL LOAD NORMAL INPUT VOLTAGE
- DIELECTRIC WITHSTAND: INPUT / OUTPUT 1500 VAC FOR 1 MINUTE
  INPUT TO FRAME GROUND 1500 VAC FOR 1 MINUTE
- EFFICIENCY: 63% TYPICAL, AT FULL LOAD
- POWER GOOD SIGNAL: ON DELAY 100 ms TO 500 ms, OFF DELAY 1 ms
- OVER LOAD PROTECTION: 110 ~ 160% MAX.
  OVER VOLTAGE PROTECTION:
  +5V → 5.7V ~ 6.7V, 3.3V → 3.7 ~ 4.7V, 12V → 13.0 ~ 15.0V
- SHORT CIRCUIT : 5V,12V, 3.3V, AUTO-RECOVERED : 5VSB, -5V, -12V
- EMI NOISE FILTER: FCC CLASS B, CISPR22 CLASS B
- SAFETY: UL 1950, CSA 22.2 NO/ 950, TÜV IEC 950
- REMOTE ON / OFF CONTROL
- FAULTY ALARM METHODS : LED, BUZZER, TTL SIGNAL
- HOT-SWAPPABLE / HOT-PLUGGABLE REDUNDANCY FUNCTION
- N + 1 BALANCE LOAD SHARING DESIGN ON 5/12/3.3V CHANNEL
- REMOTE SENSING DESIGN
- ISOLATION: BUILT-IN IN THE POWER MODULE
- MEET IEC-1000-3-2 CLASS D (ACTIVE PFC)
- DIMENSION: 82(H) X 101(W) X 276/300 (D) mm, 276mm -- W/O REAR DC FAN
- COOLING : TWO 40 mm DC FANS (ONE IN EACH MODULE)
- ONE 80 mm DC FAN (REAR SIDE)
- I2C FEATURES (OPTIONAL)

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 up with those in the case. Attach the connectors to the M/B by following the M/B instructions, there are various on connectors / pinouts in 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 or auto voltage selecting 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, then individual LEDs, external warning LEDs (please refer to Sec. 1.10 for detail explanation) are lit Green, now remove one of the power modules by pressing the click type handle, the warning buzzer in the power system will sound and the external warning LED which display the status of the total power supply system will change color to be Red, the individual LEDs (both on the rear side or on the front control panel) 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.

The warning buzzer will continue sound, the user can reset the warning buzzer by pressing the buzzer reset or use the reset switch which all can be found on the front control panel 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, test 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 which you have retained earlier. Now you have completed the installation of the R2G 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 been 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 tough 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 which indicates the total power system status, that 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*****

THE LED CONNECTOR OF POWER#1 (300W ONLY)

PIN#	COLOR	VOLTAGE
1	GREEN	+5V
2	BLACK	GND

THE LED CONNECTOR OF POWER#2 (300W ONLY)

PIN#	COLOR	VOLTAGE
1	ORANGE	+5V
2	BLACK	GND

THE POWER SIGNAL CONNECTOR OF TOTAL POWER (300W ONLY)

PIN#	COLOR	CONDITION
1	RED	POWER FAIL
2	BLACK	GND
3	GREEN	POWER OK

THE BUZZER RESET SWITCH CONNECTOR (300W MODEL)

PIN#	COLOR	VOLTAGE
1	YELLOW	+12V
2	BLACK	GND

THE BUZZER RESET SWITCH CONNECTOR (350W MODEL)

PIN#	COLOR	VOLTAGE
1	YELLOW	+5VSB(PULL HIGH)
2	BLACK	GND

THE SIGNAL CONNECTOR OF POWER RESET

PIN#	COLOR	VOLTAGE
1	RED	TTL SIGNAL
2	BLACK	GND

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

c. 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 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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Note:

**The description stated herein is subject to change without prior notice.*