



## ***SURE STAR COMPUTER CO., LTD***

NO.2-1,DAAN ROAD, SHULIN .DIST., NEW TAIPEI CITY 238 , TAIWAN.

E-mail: [info@surestar.com.tw](mailto:info@surestar.com.tw)

Tel: +886 2 2682 2505

<http://www.surestar.com.tw>

Fax: +886 2 2682 2515

**700W+700W for IPC-Computer**

**2U / 3U Redundant Power Supply**

**Model No. TC-700RVN2**

# Table Of Contents

|   |          |
|---|----------|
| <b>1.INTRODUCTION.....</b>                  | <b>4</b> |
| <b>2.GENERAL DESCRIPTION.....</b>           | <b>5</b> |
| <b>3.ELECTRICAL PERFORMANCE .....</b>       | <b>5</b> |
| 3.1. AC Input.....                          | 5        |
| 3.1.1. AC Input voltage range.....          | 5        |
| 3.1.2. AC Input frequency.....              | 5        |
| 3.1.3. Input waveform.....                  | 5        |
| 3.1.4 Input current and inrush current..... | 5        |
| 3.2. Input current harmonics.....           | 5        |
| 3.3. Input power factor.....                | 5        |
| 3.4. Efficiency.....                        | 5        |
| 3.5. Output.....                            | 6        |
| 3.5.1. Stand-by power.....                  | 6        |
| 3.5.2. Output current capacity.....         | 6        |
| 3.5.3. Output voltage rise time .....       | 6        |
| 3.5.4. Output voltage hold up time.....     | 6        |
| 3.5.5. Dynamic load response time.....      | 7        |
| 3.5.6. Remote on/off control.....           | 7        |
| 3.5.7. Power good signal .....              | 7        |
| 3.6. PROTECTION.....                        | 8        |
| 3.6.1. Over voltage protection.....         | 8        |
| 3.6.2. Over load protection.....            | 8        |
| 3.6.3. Short circuit protection.....        | 8        |
| 3.6.4. Over-temperature protection .....    | 8        |
| 3.7. Power system fault signal.....         | 8        |
| 3.7.1. Audible buzzer.....                  | 9        |
| 3.7.2. Buzzer status.....                   | 9        |
| 3.7.3. LED indicator status.....            | 9        |
| 3.7.4. TTL signal.....                      | 9        |
| 3.8 Load sharing                            |          |
| 3.8.1. Forced load sharing.....             | 9        |
| 3.8.2. Load sharing signal.....             | 9        |
| 3.9. Hot-swap procedures.....               | 10       |

|   |           |
|---|-----------|
| <b>4.MECHANICAL.....</b>                  | <b>11</b> |
| 4.1. Outside dimension.....               | 11        |
| 4.2. DC output cables.....                | 12        |
| 4.3. AC Input connector.....              | 15        |
| 4.4. Cooling.....                         | 15        |
| <b>5.ENVIRONMENTS.....</b>                | <b>14</b> |
| 5.1. Temperature.....                     | 14        |
| 5.2.Humidity.....                         | 15        |
| 5.3. Altitude.....                        | 15        |
| 5.4. Power line disturbance.....          | 15        |
| 5.4.1 Over voltage.....                   | 15        |
| 5.4.2. Under voltage.....                 | 15        |
| 5.4.3. Surviving surge and sag.....       | 15        |
| <b>6. REGULATORY.....</b>                 | <b>15</b> |
| 6.1. Safety standards.....                | 15        |
| 6.1.1. Leakage current.....               | 15        |
| 6.1.2. Isolation resistance.....          | 15        |
| 6.1.3.Dielectric Withstand Voltage.....   | 16        |
| 6.2. Electromagnetic compatibility.....   | 16        |
| 6.2.1. EMI/RFI standards.....             | 16        |
| 6.2.2. Line noise disturbance.....        | 16        |
| 6.2.3. AC line transients.....            | 16        |
| <b>7. Reliability.....</b>                | <b>16</b> |
| 7.1. Mean Time Between Failure(MTBF)..... | 16        |

## 1. INTRODUCTION

First of all, thank you for purchasing RVN2 Series High-Density Redundant power supply for 2/3U chassis.

The RVN2 is a 1+1, Hot-swappable/Hot-pluggable, High-Density 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 RVN2 Series of hot swappable high-density redundant power supply offer a maximum 700watts of output power. The RVN2 series provide Active Power Factor Correction (PFC) at full range AC Input complies with EN 61000-3-2/3 for critical applications.

The power unit's size is compact which smaller than PSII form factor and both power modules built two interior 38X38 m/m ball bearing DC fans. Each power module has designed with 5 outputs including +3.3V, +5V, +12V, -12V & 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 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 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.

## 2. GENERAL

This specification describes the performance characteristics of a 700watts hot swappable, 1+1 power system with +3.3V,+5V,+12V, -12V main DC outputs, and 5V standby outputs. The system is configured to hold two identical 700W power supply modules, SURE STAR Model TC-700RVN2.

## 3. ELECTRICAL PERFORMANCE

### 3.1. INPUT

#### 3.1.1. AC input voltage range

90VAC ~ 264VAC

#### 3.1.2. AC Input frequency

47 ~ 63Hz

#### 3.1.3. Input waveform

The unit is capable of operating with 10% distorted sine wave input. It is measured by a distortion analyzer. Its flat-topping clipped 10% from the peak value of standard sine-wave.

#### 3.1.4. Input current and inrush current

| AC INPUT VOLTAGE | MAX.INPUT CURRENT<br>per power supply module | MAX INRUSH CURRENT<br>per power supply module |
|------------------|--|---|
| 115Vrms          | 12Arms                                       | 60A pack                                      |
| 230Vrms          | 6Arms  | 120A pack                                     |

### 3.2. Input current harmonics

The input current drawn on the power line shall not exceed the limits set by IEC-61000-3-2.

### 3.3. Input power factor

The minimum power factor at full load shall be 0.98/115V 60 Hz and 0.96/230V 50 Hz.

### 3.4. Efficiency

76% Typical at full load

### 3.5.OUTPUT

#### 3.5.1. Stand-by power

The system shall provide a standby output of 5V +/- 5% with a current sourcing capability of 3.0A. The ripple and noise of this output shall be less than 50mVp-p. The output shall be active whenever AC power is applied to the unit. \*PSON shall have no effect on this output.

#### 3.5.2. Output current capacity

Each of the 1+1 redundant power supply module shall be capable of supplying the output currents of as below subject to the listed conditions and a total output power of 700watts. Due to the active current share, the actual maximum steady state current from each output shall be about half of the maximum current specified.

| OUTPUT VOLTAGE | OUTPUT CURRENT |      | REGULATION |      | OUTPUT RIPPLE & NOISE max. (P-P) |
|----------------|----------------|------|------------|------|----------------------------------|
|                | TC-700RVN2     |      | LOAD       | LINE |                                  |
|                | Min.           | Max. |            |      |                                  |
| +5V            | 1A             | 32A  | ±5%        | ±1%  | 50mV                             |
| +3.3V          | 1A             | 25A  | ±5%        | ±1%  | 50mV                             |
| +12V           | 3A             | 52A  | ±5%        | ±1%  | 70mV                             |
| -12V           | 0A             | 1A   | ±5%        | ±1%  | 70mV                             |
| +5SB           | 0.1A           | 3A   | ±5%        | ±1%  | 50mV                             |

#### REMARKS:

- 1.Total Max output of +5V AND +3.3V not exceed 200W
- 2.Power module Total output power not exceed 700W forTC-700RVN2
- 3.Noise bandwidth is from DC to 20MHz.

#### 3.5.3. Output voltage rise time

The rise time shall be less than 20 ms measured from 10% to 90%.

#### 3.5.4. Output voltage hold up time

Upon loss of an ac input at any input voltage between 115/230V, the output voltages of the system shall remain in regulation for at least 16 ms at full output loads.

### 3.5.5. Dynamic load response time

The following shall apply to the 3.3 V, 5 V, and 12 V outputs:

Output voltage for each output shall recover to within 5 % of its steady state level in less than 1 ms under the following conditions:

| <b>AC INPUT VOLTAGE: 90VAC ~ 264VAC</b>              |                         |                       |
|--|-------------------------|-----------------------|
| <b>Repetition rate of 100Hz with 50 % duty cycle</b> |                         |                       |
| <b>OUTPUT</b>  | <b>Step Load Size</b>   | <b>Load Slew Rate</b> |
| <b>+3.3V</b>   | 75% to 100% to 75% load | 0.5 A/u sec           |
| <b>+5V</b>   | 75% to 100% to 75% load | 0.5 A/u sec           |
| <b>+12V</b>  | 75% to 100% to 75% load | 0.5 A/u sec           |

### 3.5.6. Remote On/Off Control

The main outputs of this power supply (3.3V,5V,12V,-12V) shall be energized when input \*PSON is active. \*PSON is an active low TTL compatible signal referenced to the +5V standby common. This input signal shall be an open collector signal capable of sinking a minimum of 4mA. When \*PSON becomes inactive, the main outputs shall be disabled.

|             | <b>Power on</b> | <b>Power off</b> |
|-------------|-----------------|------------------|
| <b>PSON</b> | LOW (0.8V max)  | HI (2V max)      |

### 3.5.7. Power good signal

The system shall have an active high TTL compatible signal capable of sinking 1mA and sourcing 100uA. The signal shall become active within 100 to 500 ms from the instant +5V output reaches a steady state level within the specified regulation limits. It shall become inactive at least 1 ms before +5V drops to below the lower regulation limit.

## 3.6. PROTECTION

### 3.6.1. Over voltage protection

| OUTPUT | Min   | Max   |
|--------|-------|-------|
| +3.3V  | 3.75V | 4.3V  |
| +5V    | 5.7V  | 6.9V  |
| +12V   | 13V   | 14.3V |

### 3.6.2. Over power protection

OVER 110% ~ 150% of rated load Shut down latch off.

### 3.6.3. Short circuit protection

All output equipped with short circuit.(Shut down o/p voltage, re-power on to recover).

### 3.6.4. Over temperature protection

When power supply temperature over  $115\pm 5^{\circ}\text{C}$ , power supply will shut down

As it cools down to  $85\pm 5^{\circ}\text{C}$ , the power supply will re-start in auto-recovery.

## 3.7. Power system fault signal

When one of the power supply module in the system fails to provide output, the system shall provide:

### 3.7.1. Audible buzzer

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. 3.7.2./3.7.3.). 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.



### 3.7.2. Buzzer status

| POWER SUPPLY CONDITION            | Buzzer status |
|-----------------------------------|---------------|
| No AC power to all PSU            | OFF           |
| AC present/Only Standby Output On | OFF           |
| Power supply DC outputs ON and OK | OFF           |
| Power supply failure              | Beeping       |

### 3.7.3. LED indicator status

| POWER SUPPLY CONDITION            | Power system status |          | Per Power Module status |
|-----------------------------------|---------------------|----------|-------------------------|
|                                   | RED                 | GREEN    | ORANGE                  |
| No AC power to all PSU            | OFF                 | OFF      | OFF                     |
| AC present/Only Standby Output On | ON                  | OFF      | OFF                     |
| Power supply DC outputs ON and OK | OFF                 | ON       | ON                      |
| Power supply failure              | OFF                 | Blinking | OFF                     |

### 3.7.4. TTL signal

| POWER SUPPLY CONDITION | OUTPUT CONDITION |
|------------------------|------------------|
| NORMAL                 | HIGH             |
| FAILURE                | LOW              |

## 3.8 Load sharing

### 3.8.1. Forced Load Sharing

The +3.3V, +5V and +12V outputs shall have forced load sharing. The corresponding output shall share within 5% at full load when operated in a redundant 1+1 configuration. The 5VSB and -12V outputs shall not have forced load sharing between power modules.

Example of load share accuracy:

Power supply #1 = 20A

Power supply #2 > 19A and < 21A

### 3.8.2. Load Sharing Signal

The power supplies load share shall use a single load share bus signal connected between each corresponding output. If the load sharing is disabled by shorting the bus to ground, the power system shall continue to operate within regulation limits for loads less than or equal to the full load rating of each power supply. The failure of one power supply shall not effect the output voltages of the other supply still operating.

### 3.9 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

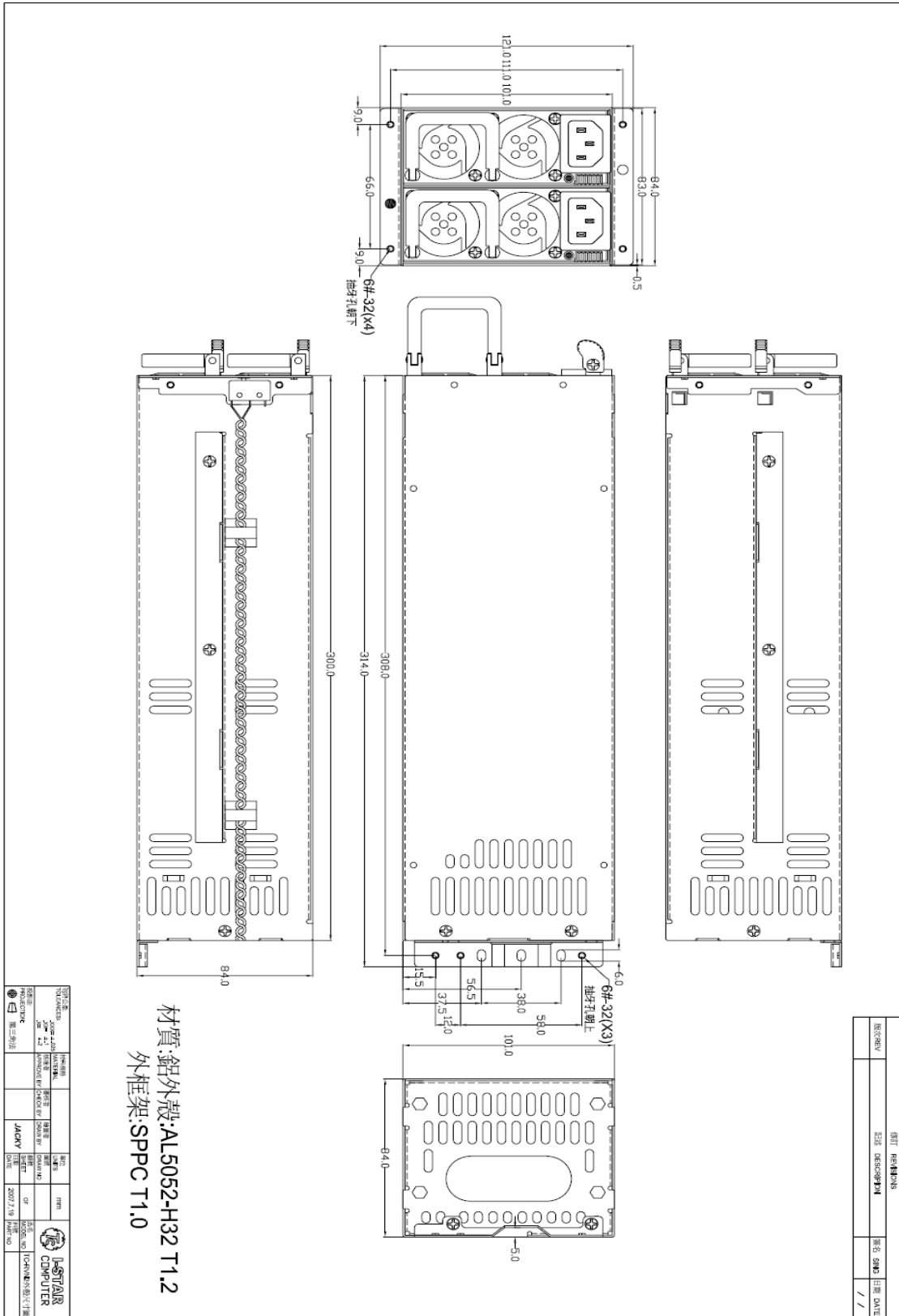
**WARNING:**

**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.

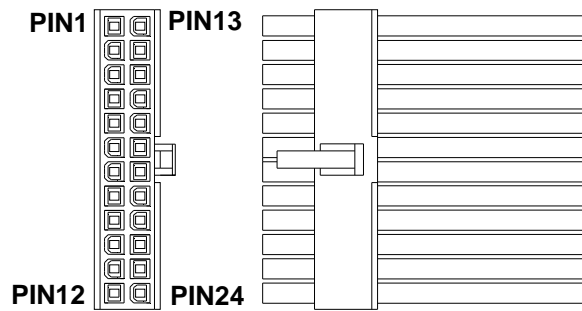
## 4. MECHANICAL

### 4.1. Outside Dimension: 300(D) x 101(W) x 84(H)mm

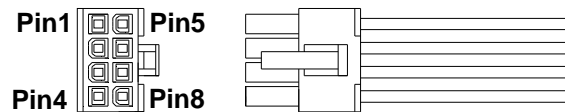


## 4.2. DC Output cables -- M24P+M8P+M4P, SATA\*2, PCI-E 6pin\*2, HDD\*18, Floppy\*2.

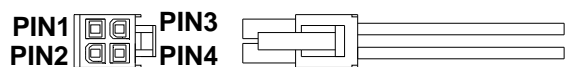
| 24Pins(EPS12V)                                    |            |        |           |             |
|---|------------|--------|-----------|-------------|
| Connector HOUSING: MOLEX 39-01-2240 or equivalent |            |        |           |             |
| TERMINAL: MOLEX 39-00-0039 or equivalent          |            |        |           |             |
| Pin No.   | WIRE COLOR | SIGNAL | WIRE TYPE | LENGTH      |
| 1   | ORANGE     | +3.3V  | 18AWG     | 600mm ±20mm |
| 2   | ORANGE     | +3.3V  | 18AWG     |             |
| 3   | BLACK      | COM    | 18AWG     |             |
| 4   | RED        | +5V    | 18AWG     |             |
| 5   | BLACK      | COM    | 18AWG     |             |
| 6   | RED        | +5V    | 18AWG     |             |
| 7   | BLACK      | COM    | 18AWG     |             |
| 8   | GRAY       | PW-OK  | 18AWG     |             |
| 9   | PURPLE     | +5SB   | 18AWG     |             |
| 10  | YELLOW     | +12V3  | 18AWG     |             |
| 11  | YELLOW     | +12V3  | 18AWG     |             |
| 12  | ORANGE     | +3.3V  | 18AWG     |             |
| 13  | ORANGE     | +3.3V  | 18AWG     |             |
|   | ORANGE     | +3.3S  | 22AWG     |             |
| 14  | BLUE       | -12V   | 18AWG     |             |
| 15  | BLACK      | COM    | 18AWG     |             |
| 16  | GREEN      | PS-ON  | 18AWG     |             |
| 17  | BLACK      | COM    | 18AWG     |             |
| 18  | BLACK      | COM    | 18AWG     |             |
| 19  | BLACK      | COM    | 18AWG     |             |
| 20  | NC         | OPTION | 18AWG     |             |
| 21  | RED        | +5V    | 18AWG     |             |
| 22  | RED        | +5V    | 18AWG     |             |
| 23  | RED        | +5V    | 18AWG     |             |
| 24  | BLACK      | COM    | 18AWG     |             |

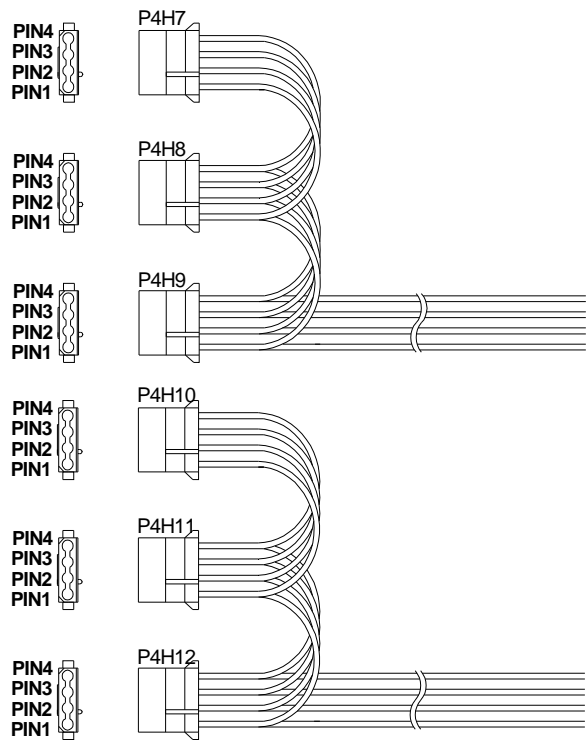
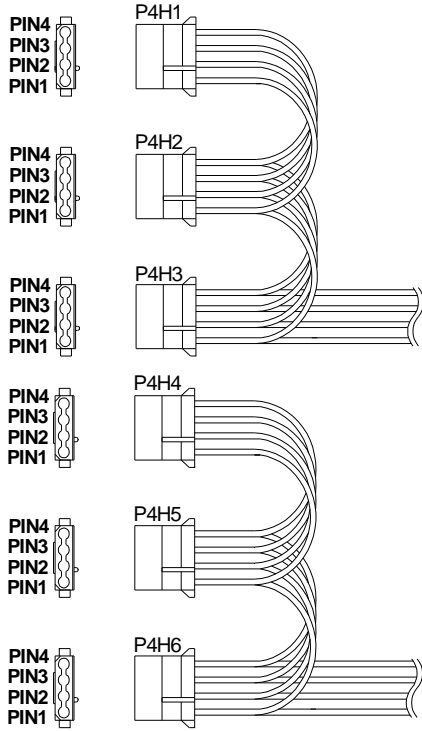


| 8Pins(EPS12V)                                     |            |        |           |             |
|---|------------|--------|-----------|-------------|
| Connector HOUSING: MOLEX 39-01-0280 or equivalent |            |        |           |             |
| TERMINAL: MOLEX 39-00-0060 or equivalent          |            |        |           |             |
| Pin No.   | WIRE COLOR | SIGNAL | WIRE TYPE | LENGTH      |
| 1   | BLACK      | COM    | 18AWG     | 620mm ±20mm |
| 2   | BLACK      | COM    | 18AWG     |             |
| 3   | BLACK      | COM    | 18AWG     |             |
| 4   | BLACK      | COM    | 18AWG     |             |
| 5   | YELLOW     | +12V   | 18AWG     |             |
| 6   | YELLOW     | +12V   | 18AWG     |             |
| 7   | YELLOW     | +12V   | 18AWG     |             |
| 8   | YELLOW     | +12V   | 18AWG     |             |



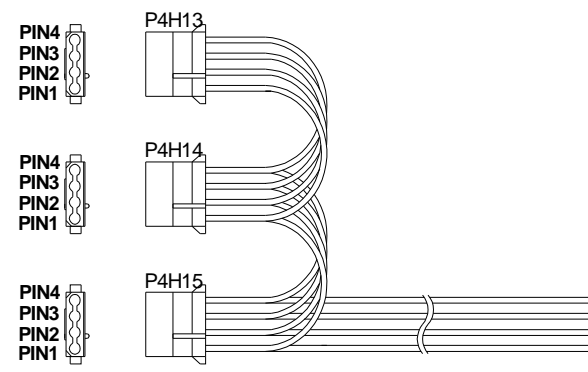
| 4Pins(ATX12V, FOR P4)                             |            |        |           |             |
|---|------------|--------|-----------|-------------|
| Connector HOUSING: MOLEX 39-01-0240 or equivalent |            |        |           |             |
| TERMINAL: MOLEX 39-00-0060 or equivalent          |            |        |           |             |
| Pin No.   | WIRE COLOR | SIGNAL | WIRE TYPE | LENGTH      |
| 1   | BLACK      | COM    | 18AWG     | 620mm ±20mm |
| 2   | BLACK      | COM    | 18AWG     |             |
| 3   | YELLOW     | +12V   | 18AWG     |             |
| 4   | YELLOW     | +12V   | 18AWG     |             |





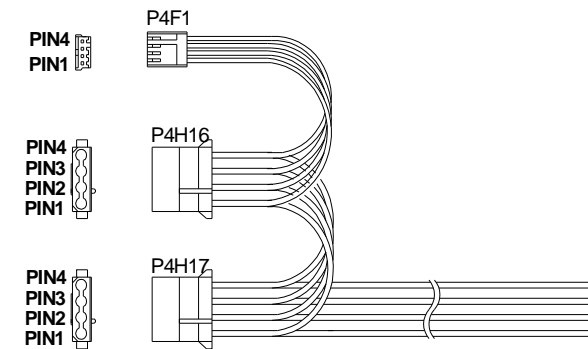
4Pins(HD/CD-ROM/RW)  
Connector HOUSING: AMP 480424-0 or equivalent  
TERMINAL:AMP 60619-4 or equivalent

| Name                          | Pin No. | WIRE COLOR | SIGNAL | WIRE SIZE | LENGTH      |
|-------------------------------|---------|------------|--------|-----------|-------------|
| P4H1,2,4,5,7,8,10,11,13,14,16 | 1       | YELLOW     | +12V   | 18AWG     | 150mm ±10mm |
|                               | 2       | BLACK      | COM    | 18AWG     |             |
|                               | 3       | BLACK      | COM    | 18AWG     |             |
|                               | 4       | RED        | +5V    | 18AWG     |             |



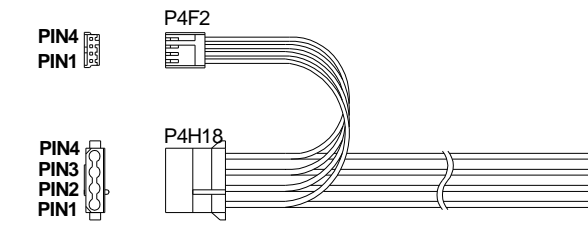
4Pins(HD/CD-ROM/RW)  
Connector HOUSING: AMP 480424-0 or equivalent  
TERMINAL:AMP 60619-4 or equivalent

| Name                 | Pin No. | WIRE COLOR | SIGNAL | WIRE SIZE | LENGTH      |
|----------------------|---------|------------|--------|-----------|-------------|
| P4H3,6,9,12,15,17,18 | 1       | YELLOW     | +12V   | 18AWG     | 620mm ±20mm |
|                      | 2       | BLACK      | COM    | 18AWG     |             |
|                      | 3       | BLACK      | COM    | 18AWG     |             |
|                      | 4       | RED        | +5V    | 18AWG     |             |

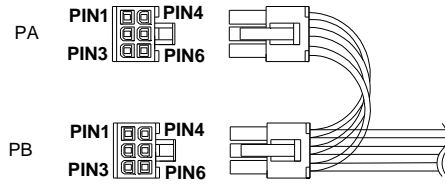


4Pins(FLOPPY DISK)  
Connector HOUSING: AMP 171822-4 or equivalent  
TERMINAL: AMP 170262-2 or equivalent

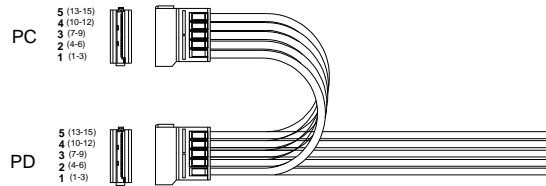
| Name         | Pin No. | WIRE COLOR | SIGNAL | WIRE TYPE | LENGTH      |
|--------------|---------|------------|--------|-----------|-------------|
| P4F1<br>P4F2 | 1       | YELLOW     | +12V   | 22AWG     | 150mm ±10mm |
|              | 2       | BLACK      | COM    | 22AWG     |             |
|              | 3       | BLACK      | COM    | 22AWG     |             |
|              | 4       | RED        | +5V    | 22AWG     |             |



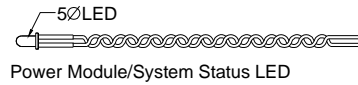
| 6Pins(PCI Express)                                |         |                 |        |           |             |
|---|---------|-----------------|--------|-----------|-------------|
| Connector HOUSING: MOLEX 39-01-0280 or equivalent |         |                 |        |           |             |
| TERMINAL: MOLEX 39-00-0060 or equivalent          |         |                 |        |           |             |
| Name  | Pin No. | WIRE COLOR      | SIGNAL | WIRE TYPE | LENGTH      |
| PB  | 1       | yellow / yellow | +12V   | 18AWG     | 620mm ±20mm |
|   | 2       | yellow / yellow | +12V   | 18AWG     |             |
|   | 3       | yellow / yellow | +12V   | 18AWG     |             |
|   | 4       | black / black   | COM    | 18AWG     |             |
|   | 5       | black / black   | COM    | 18AWG     |             |
|   | 6       | black / black   | COM    | 18AWG     |             |
| PA  | 1       | YELLOW          | +12V   | 18AWG     | 150mm ±20mm |
|   | 2       | YELLOW          | +12V   | 18AWG     |             |
|   | 3       | YELLOW          | +12V   | 18AWG     |             |
|   | 4       | BLACK           | COM    | 18AWG     |             |
|   | 5       | BLACK           | COM    | 18AWG     |             |
|   | 6       | BLACK           | COM    | 18AWG     |             |



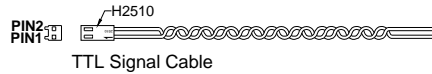
| 15Pins(SATA)                                      |         |                 |        |           |             |
|---|---------|-----------------|--------|-----------|-------------|
| Connector HOUSING: MOLEX 67582-0000 or equivalent |         |                 |        |           |             |
| Name  | Pin No. | WIRE COLOR      | SIGNAL | WIRE TYPE | LENGTH      |
| PD  | 1       | Orange / Orange | +3.3V  | 18AWG     | 620mm ±20mm |
|   | 2       | Black / Black   | COM    | 18AWG     |             |
|   | 3       | Red / Red       | +5V    | 18AWG     |             |
|   | 4       | Black / Black   | COM    | 18AWG     |             |
|   | 5       | Yellow / Yellow | +12V   | 18AWG     |             |
| PC  | 1       | ORANGE          | +3.3V  | 18AWG     | 150mm ±20mm |
|   | 2       | BLACK           | COM    | 18AWG     |             |
|   | 3       | RED             | +5V    | 18AWG     |             |
|   | 4       | BLACK           | COM    | 18AWG     |             |
|   | 5       | YELLOW          | +12V   | 18AWG     |             |



| POWER Module/System Status LED |               |            |           |             |
|--------------------------------|---------------|------------|-----------|-------------|
| Name                           | WIRE COLOR    | LED COLOR  | WIRE TYPE | LENGTH      |
| PW1LED                         | BROWN / WHITE | ORANGE     | 22AWG     | 840mm ±20mm |
| PW2LED                         | RED / WHITE   | ORANGE     | 22AWG     |             |
| External LED                   | GREEN / WHITE | RED/ORANGE | 22AWG     |             |



| TTL Signal  |            |        |           |             |
|---|------------|--------|-----------|-------------|
| Connector HOUSING: Molex 22-01-3027 or equivalent |            |        |           |             |
| Pin No.   | WIRE COLOR | SIGNAL | WIRE TYPE | LENGTH      |
| 1   | BLACK      | COM    | 22AWG     | 840mm ±20mm |
| 2   | RED        | +5V    | 22AWG     |             |



| ALARM Reset Switch Connector |            |        |           |             |
|------------------------------|------------|--------|-----------|-------------|
| Pin No.                      | WIRE COLOR | SIGNAL | WIRE TYPE | LENGTH      |
| 1                            | GRAY       | COM    | 22AWG     | 840mm ±20mm |
| 2                            | GRAY       | RESET  | 22AWG     |             |



### 4.3. AC input connector

IEC 320 AC Inlet with EMI Filter, 15A/250V

### 4.4. Cooling

BY BALL BEARING DC FAN.

## 5. ENVIRONMENTS

### 5.1. Temperature

Operating : 0°C to +45°C

Non Operating: -20°C to +70°C

## **5.2. Humidity**

Operating : 5% to 95%, non-condensing

Non Operating: 20% to 90%,non-condensing

## **5.3. Altitude**

Altitude during operation: Up to 2000 m

Altitude of test laboratory: Below 2000 m

## **5.4. Power line disturbance**

### **5.4.1. Over voltage**

The power supply shall function with no interruption when line input is surged 15 % above nominal for one second. The verification test shall be performed 10 times with a 10 % duty cycle.

### **5.4.2. Under voltage**

The power supply shall function with no interruption when line input is sagged 20%below nominal for one second. The verification test shall be performed10 times with a 10 % duty cycle.

### **5.4.3. Surviving surge and sag**

Power supply shall survive a surge to 147VAC for 0.5 second and a sag to 80VAC for 0.5 second without damage.

## **6. REGULATORY**

### **6.1. Safety standards**

- A. UL/cUL60950-1
- B. TUV EN60950-1
- C. CB
- D. CCC

#### **6.1.1. Leakage current**

Input leakage current from line to frame ground will be less than 3.5mA rms. for each power module. Condition: 264Vac/60Hz

#### **6.1.2. Isolation resistance**

Primary to earth ground 500Vdc , 50M ohms Min.

### **6.1.3. Dielectric Withstand Voltage**

Primary to Secondary : 1500V ac / 50Hz for 1 Minute.

Primary to Safety Ground: 1500V ac / 50Hz for 1 Minute.

## **6.2. Electromagnetic compatibility**

### **6.2.1. EMI/RFI standards**

A. FCC Part 15, class A.

B. CISPR22 (EN55022)class A.

### **6.2.2. Line noise disturbance**

The power supply shall operate normally when installed in a computer system and subjected to power line noise described in EN61000-4-4, level 3 (2 kV open circuit voltage). The power supply shall not cause any failure in the host computer system during line noise testing.

### **6.2.3. AC line transients**

The power supply shall comply with the surge voltage requirements of EN61000-4-5 level 3 (2 kV peak open circuit voltage from line/neutral to GND , and 1 kV from line to neutral)

## **7. Reliability**

### **7.1. Mean Time Between Failure(MTBF)**

Using MIL - HDBK -217F the calculated MTBF > 100,000 hours at 25°C.

\*Note:

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

November 14, 2012