User's Manual

Thank you for choosing this Balance King Series power supply unit (PSU)! Please read this manual carefully and follow its instructions before installation.

Balance King Series power supply supports PC, IPC, Workstation and Server. It complies with the newest SSI EPS12V Version 2.91 and Intel ATX 12V Version 2.2 specifications. It supports Vista operating system with high-end graphic card. Dual & four +12V rails could automatically adjust +12V output according to CPU and graphic card's demand. It also includes (6+2) pin PCIe connector for high-end graphic card and (4+4) pin connector for Dual Core CPUs and Multi Core CPUs. In addition, we've included a variety of industrial-grade protective circuitry: OCP (Over Current Protection), OPP (Over Power Protection), OVP (Over Voltage Protection), SCP (Short Circuit Protection).

We would like to draw your attention to the conditions that your system works best for you without failing. To avoid such failures and to increase lifetime of your entire system, we suggest you to make sure that:

- Your PC or server is not located near a radiator or any other heat producing device
- Your PC or server is not located near a magnetic device
- Your PC or server is not located in a moist or dusty or vibrating environment
- Your PC or server is not exposed to direct sunshine
- Your PC or server must be work at stable input AC voltage

Chapter A: Features

- Complies with Intel ATX 12V V2.2 (SSI EPS12V V2.91 for 5000 and 6000)

- Automatically adjusts +12V output according to CPU and graphic card's demand
- Rated output power supply could perfect your system
- SLI Ready and supports Intel & AMD Dual Core CPUs and Multi Core CPUs
- Supports Vista operating system with high-end graphic card
- The standby mode consumes less than 1W when +5VSB is less than 0.1A
- FAN speed auto-controlled by thermal sensor in the side of power supply
- Harmonic: IEC 61000-3-2 Class D
- MTBF: 50,000 hours at 25℃
- 100% Hi-pot and Burn-in test
- EMI: FCC Part 15 Class & EN55022 Class B

Chapter B: Installation

1. Turn off your computer; unplug the power cord from your old power supply.
2. Open your computer case following your case manual.
3. Disconnect all PSU connectors from the motherboard and the peripherals, such as cooler, HDD, DVD, CDR, FDD, etc.
4. Remove the old power supply from your computer case and install your new power supply.
5. Connect the 20+4 pin main power connector to your motherboard.
   Note: Use the separated 20 pin if your motherboard requires 20 pin power connector.
6. Connect the Serial-ATA connectors to the peripherals.
7. Connect the peripheral 4 pin power connectors if you are still using IDE hard drives or optical drives.
8. Connect the PCI EXPRESS power connector to your PCI EXPRESS graphic card.

9. Connect your cooler to the regular 4 pin peripheral connectors if you have.
10. Close your computer case and connect the AC power cord to the power supply.

Chapter C: Booting the system

1. Main power connector (24 pin configuration) is properly connected
2. CPU +12V power connector (4 or 8 pin configuration) is properly connected
3. PCIe connector (if required by GPU) is properly connected
4. All other needed connectors are properly connected

Incorrect insertion might cause your PC unable to boot and some components might even be damaged!

5. AC cord is properly connected to wall plug and power supply AC inlet
6. Then close your computer chassis
7. Turn on the power supply by setting the I/O switch to “I” position; your system is ready to go.
8. You can turn on your PC now by pushing power button on your PC case!

Chapter D: Specification

1.0 AC input voltage

Paramet	Minimu	Nomin	Maximu	Unit
Vin	90	115	132	VRM
Vin	180	230	264	VRM
Vin	47	---	63	Hz

2.0 DC output voltage regulation

Output	Range	Min.	Nom.	Max.	Unit
+12V1,2,3,4DC	±5%	+11.4	+12.00	+12.60	Volts
+5VDC	±5%	+4.75	+5.00	+5.25	Volts
+3.3VDC	±5%	+3.14	+3.30	+3.47	Volts
-12VDC	±10%	-10.80	-12.00	-13.20	Volts
+5VSB	±5%	+4.75	+5.00	+5.25	Volts

2.1 DC output power distribution

Balance King 3000

Voltage	+3.3V	+5V	+12V1	+12V2	-12V	+5VSB
Max. load	20.0A	14.0A	18.0A	18.0A	0.3A	2.5A
Min. load	0.5A	0.3A	1.0A	1.0A	0.0A	0.0A

+3.3V&+5V total output not exceed 120W

Rated Power: 300W

Balance King 3500

Voltage	+3.3V	+5V	+12V1	+12V2	-12V	+5VSB
Max. load	22.0A	15.0A	18.0A	18.0A	0.3A	2.5A
Min. load	0.5A	0.3A	1.0A	1.0A	0.0A	0.0A

+3.3V&+5V total output not exceed 130W

Rated Power: 350W

Balance King 4000

Voltage	+3.3V	+5V	+12V1	+12V2	-12V	+5VSB
Max. load	24.0A	17.0A	18.0A	18.0A	0.5A	2.5A
Min. load	0.5A	0.3A	1.0A	1.0A	0.0A	0.0A

+3.3V&+5V total output not exceed 130W

Rated Power: 400W

Balance King 4500

Voltage	+3.3V	+5V	+12V1	+12V2	-12V	+5VSB
Max. load	25.0A	20.0A	18.0A	18.0A	0.5A	2.5A
Min. load	0.3A	0.5A	1.0A	1.0A	0.0A	0.0A

+3.3V&+5V total output not exceed 130W

Rated Power: 450W

Balance King 5000

Output	+3.3 V	+5 V	+12 V1	+12 V2	+12 V3	+12 V4	-12 V	+5 VSB
Max. Load	24.0A	20.0A	16.0A	16.0A	16.0A	16.0A	0.5A	3.0A
Min. Load	1.5A	1.0A	0.8A	0.8A	1.0A	0.5A	0.0A	0.1A

Rated Power: 500W

Maximum continuous combined load on +3.3V and +5V outputs shall not exceed 140W.

Maximum combined current for the +12V1, +12V2, +12V3 and +12V4 is 42A.

Balance King 6000

Output	+3.3 V	+5 V	+12 V1	+12 V2	+12 V3	+12 V4	-12 V	+5 VSB
Max. Load	24.0A	24.0A	16.0A	16.0A	16.0A	16.0A	0.5A	3.0A
Min. Load	1.5A	1.0A	0.8A	0.8A	1.0A	0.5A	0.0A	0.1A

Rated Power: 600W

Maximum continuous combined load on +3.3V and +5V outputs shall not exceed 140W.

Maximum combined current for the +12V1, +12V2, +12V3 and +12V4 is 48A.

2.2 Output Ripple & Noise

	+3.3V	+5V	+12V1,2,3,4	-12V	+5VSB
Ripple &Noise	50 mVp-p	50 mVp-p	120 mVp-p	120 mVp-p	50 mVp-p

2.3 Output protection

If the power supply is latch into shutdown stage (when OCP ,OVP or short protection is working),the power supply shall return to normal operation only after the fault has been removed and remote signal must reset for a minimum of 1 second (or the AC removed for 10 second) . Then, it will turn on again.

2.3.1 Over Voltage Protection (OVP)

In case of over voltage limits are exceeded, the power supply shall provide latch-mode over-voltage protection.

2.3.2 Short Circuit Protection (SCP)

An output short circuit is defined as any output impedance of less than 0.1 ohms. The power supply shall shut down and latch off for shorting all output to GND.

2.3.3 Over Current Protection (OCP)

Overload currents are applied to each tested output rail. If the current limits are exceeded, the power supply shall shutdown and latch off.

If you have any questions or need any supports, please contact your reseller, the nearest Huntkey agent or Huntkey headquarter service center.