

**Antec**  
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**EARTHWATTS 650 GREEN  
POWER SUPPLY**

**USER'S MANUAL**

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## EARTH WATTS SERIES

### EA-650 GREEN POWER SUPPLY

#### THE ENERGY-EFFICIENT PSU

Get the power you need and the low electric bill you want with Antec's EarthWatts 650 Green! One of the most environmentally friendly power supplies on the planet, the EA-650 Green delivers 650 watts of reliable, continuous power while meeting the Bronze level of performance from 80<sup>®</sup> PLUS, the most widely recognized independent standard in power supply efficiency.

#### STANDARDS AND FEATURES

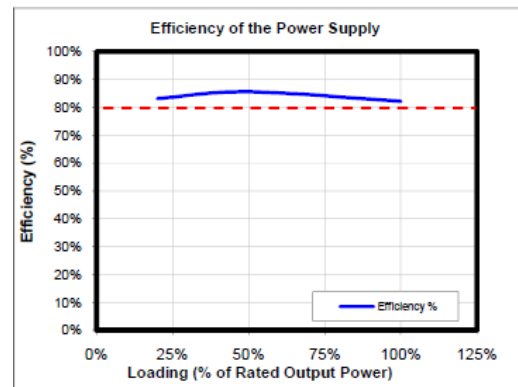
The EA-650 Green PSU is compatible with ATX12V v2.3 and EPS12V v2.91 specifications. This PSU features Universal Input, which automatically senses when you connect the power supply to any AC power source between 100 ~ 240V, eliminating the need to set a voltage switch. The EA-650 Green also features Active Power Factor Correction (Active PFC), which improves the power factor value of the PSU by altering the input current wave shape, helping to transmit energy across the grid.

#### SYSTEM PROTECTION

A variety of industrial-grade safety circuitry will help protect your computer: OCP (Over Current Protection), OVP (Over Voltage Protection), SCP (Short Circuit Protection), OPP (Over Power Protection) and OTP (Over Temperature Protection). Sometimes the PSU will "latch" into a protected shutdown state. This means that you will need to power off the PSU and clear the fault before it will function again. There are no user-replaceable fuses in your EA-650 Green.

#### 80 PLUS<sup>®</sup> BRONZE CERTIFICATION

80 PLUS<sup>®</sup> Bronze certification is among the highest independent standards in power supply efficiency. This allows the PSU to use less energy and generate less heat so it stays cooler, runs more quietly, and lasts longer. The EA-650 Green has been certified to be at least 82% efficient at a wide range of operating loads and will lower your operating costs while protecting the environment.










Source: 80 PLUS Verification and Testing Report

## DUAL +12 VOLT RAIL DISTRIBUTION

The EA-650 Green PSU uses dual +12 volt power rails. Different connectors are hooked up to separate circuits to aid in the balanced distribution of power between devices in your computer. The +12V rails have been assigned to different connectors, as shown in Table 2, to prevent voltage sags in one device due to sudden demands for power by another device.

TABLE 2: POWER CONNECTORS AND RAIL ASSIGNMENTS

Power Connectors	Description	+12V Rail
	24(20+4)-pin main connector	1
	1 x 8(4+4)-pin ATX12V / EPS12V	2
	1 x 8(6+2)-pin PCI-E	1
	1 x 8(6+2)-pin PCI-E	2
	5 x Molex	1
	7 x SATA	1
	Floppy	1

**Note:** No power cord included. By reusing your existing cord, you can reduce waste and help protect the environment.

## POWER OUTPUT

The EA-650 Green PSU distributes a varying maximum number of amps on each rail. To see the output capacity and regulation for each different voltage, see Table 3.

TABLE 3: OUTPUT CAPACITY AND REGULATION

Output Voltage	Load Max.	Regulation	Ripple & Noise
+3.3V	24A	±5%	50 mV
+5V	24A	±5%	50 mV
+12V <sub>1</sub>	38A	±5%	120 mV
+12V <sub>2</sub>	38A	±5%	120 mV
-12V	0.5A	±10%	120 mV
+5Vsb	2.5A	±5%	50 mV

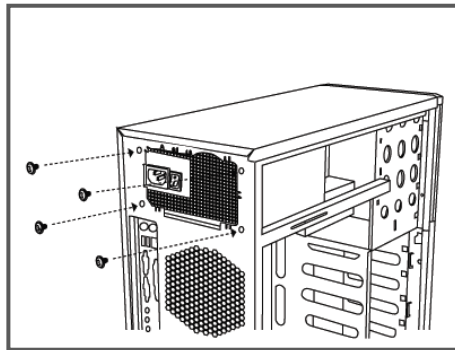
The continuous maximum total output power shall not exceed 650W.

+12V<sub>1</sub> and +12V<sub>2</sub> DC maximum output power shall not exceed 650W.

+3.3V and +5V DC maximum combined output power shall not exceed 140W.

INSTALLATION:

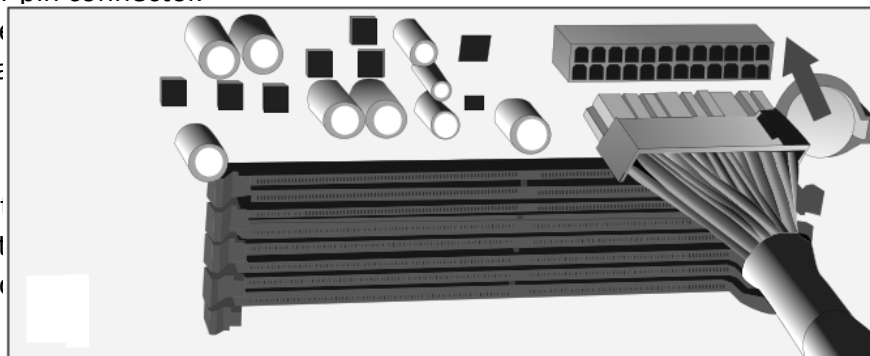
1. Install the EA-650 Green PSU into your case with the four screws provided.



2. Connect the 24-pin main power connector to your motherboard. If your motherboard uses a 20-pin connector, detach the 4-pin attachment on the 24-pin connector.

power connector to motherboard uses a the 4-pin attachment

**Note:** The place of a



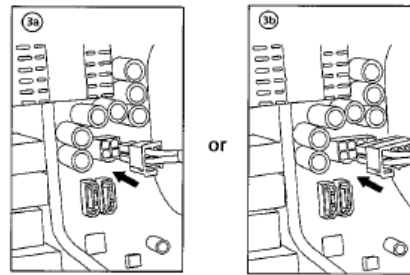
used in

3. Connect the CPU fan power connector to the motherboard.

connector for on your board has an

8-pin socket with a cover on some of the openings, we recommend that you remove the cover and use the 8-pin connector.

**Note:** Please also refer to your motherboard user's manual for any special instructions.



4. Connect the PCI-E connector(s) to your graphics card(s), if applicable. PCI-E graphics cards use different amounts of power. For some, a single 6-pin connector is sufficient, while more powerful cards use multiple connectors, including the advanced 8-pin PCI-E connector. The 8-pin PCI-E connectors on the EA-650 Green can be used as either 6- or 8-pin connectors.
5. Connect all Molex/SATA connector(s) to your hard drives, optical drives (CD/DVD/BluRay™) and other accessories. Please note that some devices will use either the older 4-pin Molex connectors, while others will use the newer 15-pin SATA connector. 4-pin Molex connectors have two black wires, a yellow, and a red. The SATA connector has an additional orange power wire.
6. Connect your floppy drive (if present) using the supplied FDD connector shown in Table 2.
7. Connect an AC power cord to the power supply AC inlet. To reduce waste, the EA-650 Green does not come with a power cord. Turn the switch to the “|” position after you have connected all the devices and are ready to turn on your computer.

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