

# Toughpower™ CableManagement 1500W

ATX 12V 2.3 & EPS 12V 2.91 Version

230V Edition

14cm Fan



**Tt** Thermaltake  
COOL ALL YOUR LIFE

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UL  
E161451



CB

FC

R43016

CE



~Build for Extreme~

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## **1. Introduction**

### **1.1 Statement**

We live up to the promise of Thermaltake logo in our unending quest for excellence. Shall you have any suggestion or comments, please access our website:

***Http://www.thermaltake.com***

or e-mail to:

***thermaltake@thermaltake.com***

We appreciate your kindly feedback and you will receive the prompt response from our customer service team. Please take the time in familiarizing yourself with the power supply, its connectors and the contents of this manual before proceeding with the installation of the power unit. You will need a Philips crosshead screwdriver, perhaps your PC case manual and most certainly your motherboard manual.

Should you have any questions regarding the content of the manual, please contact Thermaltake directly. Failure to follow the proper procedures may cause severe bodily harm or PC component damage.

### **1.2 Warnings and Cautions**

- 1.2.1** Do not unplug the AC power cord when the power supply is in use. Doing so may cause damages to your components.
- 1.2.2** Do not place the power supply in a high humidity and temperature environment.
- 1.2.3** When using Toughpower Cable Management 1500W power supply under testing conditions where the power supply unit is not installed in a PC with its components, please follow the steps below:
  - 1) Please take a paper clip and untwist it.
  - 2) Make sure the power supply unit is in the "OFF" position.
  - 3) Locate the 20+4 pin motherboard connector from the power supply unit.
  - 4) Plug one side of the paper clip into the green wire hole.
  - 5) Plug the other side of the paper clip into any of the black wire holes.
  - 6) Turn on the PSU to see if the power supply fan(s) turn(s) on.
- 1.2.4** High voltages exist in the power supply. Do not open the power supply case unless you are an authorized service technician or electrician.
- 1.2.5** All warranties and guarantees will be voided, if failure to comply with any of the warnings and cautions covered in this manual.

## **2. Product Features**

### **2.1 Four 8pin & Four 6pin PCI-E Connector**

Toughpower 1500W power supply comes with four 8pin and four 6pin PCI-E connectors. This combination of PCI-E connectors makes Toughpower 1500W be able to support NVIDIA SLI & ATI CrossFire technology and multiple high-end graphic cards.

### **2.2 Excellent Efficiency (up to 87%)**

Toughpower 1500W provides excellent efficiency and hence reducing energy consumption. That in return reduces customers' electricity bill.

### **2.3 140mm Ball-Bearing Fan**

The 140mm ball bearing fan effectively increases the airflow inside the PSU and decreases the ambient temperature.

### **2.4 Extremely Good Voltage Regulation ( $\pm 3\%$ )**

This feature allows tighter load regulation ( $\pm 3\%$ ) than other power supplies ( $\pm 5\%$ ) and increase system voltage stability.

### **2.5 MTBF > 120,000 Hours (Highly reliable)**

120,000 hours of MTBF (Mean Time between Failures) goes above and beyond all ATX specifications.

### **2.6 Four Independent +12V rails**

**FOUR** independent & powerful +12V rails provides stable voltage output for whole system and graphic cards. The total combined load can reach 120 A.

### **2.7 Cable Management**

Cable Management enables users to remove unused cables and significantly improves the airflow in the chassis.

### **2.8 Industrial Grade Components (capacitor, transformer, etc)**

All components are specially designed for industrial environment and extreme conditions.

### **2.9 Hi-Tech Black Coating**

With special Hi-Tech Black coating, Toughpower 1500W PSUs transmit professional, elegant and unique image.

### **2.10 High +5VSB Output**

Built-in higher +5VSB supports up to 12 USB devices. Also, even the system is power off, USB devices can still be charged by the 3A sustained output.

## 3. Components Check

**1**

One Toughpower 1500W power supply unit

(W/one 20+4pin main power connector, one 4+4pin +12V power connector, one 8pin power connector, and one 8pin/6pin PCI-E connector)



**2**

Three sets of wire/ 8pin PCI-E connector



**2**

Three sets of wire/ 6pin PCI-E connector



**3**

Two sets of wires w/ 5pin SATA connector



**4**

Two sets of wire w/ 4pin peripheral connector



**5**

One set of 8-pin to 6-pin PCI-E adapter



**6**

One AC Input power cord



**7**

4 mounting screws



**8**

User manual

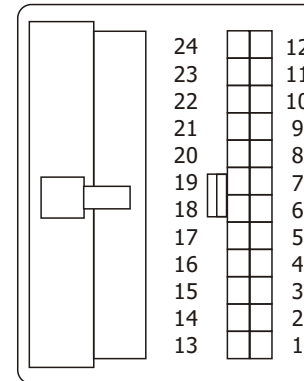


## 4. Connectors & Cables

### 4.1 Connectors

#### 4.1.1 Main Power Connector (20+4 pin)

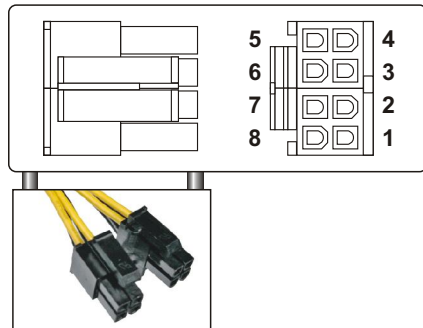
Support the latest ATX 12V 2.3 system motherboard



Voltage	Color	PIN	PIN	Color	Voltage
+3.3V	Orange	1	13	Orange	+3.3 V
+3.3V	Orange	2	14	Blue	-12 V
GND	Black	3	15	Black	GND
+5V	Red	4	16	Green	PS_ON
GND	Black	5	17	Black	GND
+5V	Red	6	18	Black	GND
GND	Black	7	19	Black	GND
PG	Gray	8	20	N/C	N/C
+5Vsb	Purple	9	21	Red	+5 V
+12V1	Yellow	10	22	Red	+5 V
+12V1	Yellow	11	23	Red	+5 V
+3.3 V	Orange	12	24	Black	GND

## 4.1.2 CPU Connector (4+4 pin)

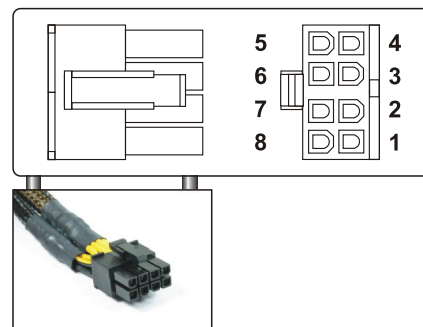
Support both dual CPU and single CPU systems by simply combining (8 pin) or splitting (4 pin X2) the connectors



Color	Signal	Pin
Black	GND	1
Black	GND	2
Black	GND	3
Black	GND	4
Yellow	+12V2	5
Yellow	+12V2	6
Yellow	+12V2	7
Yellow	+12V2	8

## 4.1.3 CPU Connector (8 pin)

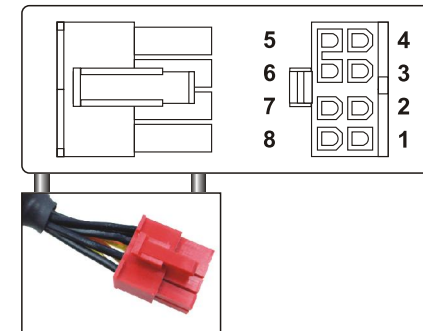
Support the 8-pin EPS 12V system motherboard



Color	Signal	Pin
Black	GND	1
Black	GND	2
Black	GND	3
Black	GND	4
Yellow	+12V2	5
Yellow	+12V2	6
Yellow	+12V3	7
Yellow	+12V3	8

## 4.1.4 PCI-E Connector (8 pin)

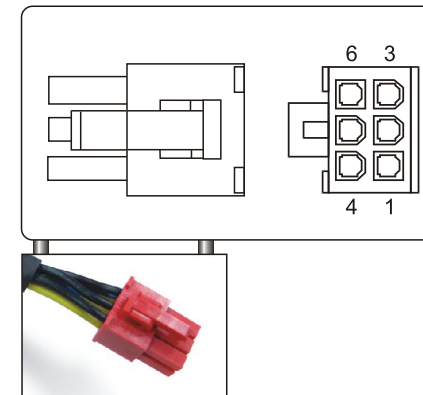
Support next generation 8 pin sockets on high-end graphic cards and can support the existing 6 pin sockets by connecting to the 8 pin to 6 pin converter.



Color	Signal	Pin
Yellow/Blue	+12V3/+12V4	1
Yellow/Blue	+12V3/+12V4	2
Yellow/Blue	+12V3/+12V4	3
Black	GND	4
Black	GND	5
Black	GND	6
Black	GND	7
Black	GND	8

## 4.1.5 PCI-E Connector (6 pin)

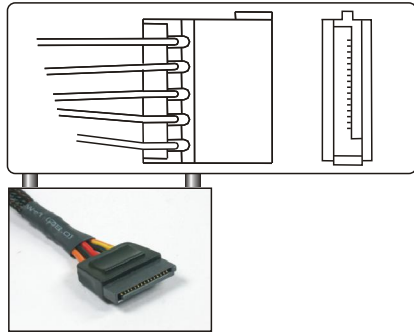
Support the latest high-end graphic cards with 6 pin socket



Color	Signal	Pin
Yellow	+12V3/+12V4	1
Yellow	+12V3/+12V4	2
Yellow	+12V3/+12V4	3
Black	GND	4
Black	GND	5
Black	GND	6

## 4.1.6 SATA Connector (5 pin)

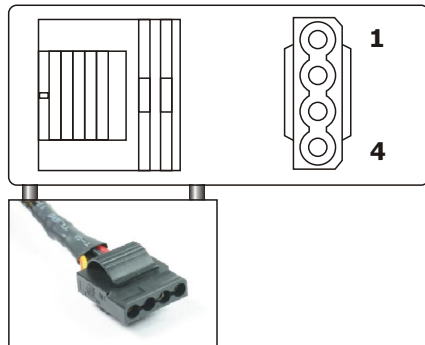
Support the new generation high-speed SATA devices



Color	Signal	Pin
Yellow	+12V1	1
Black	GND	2
Red	+5V	3
Black	GND	4
Orange	3.3V	5

## 4.1.7 Peripheral Connector (4 pin)

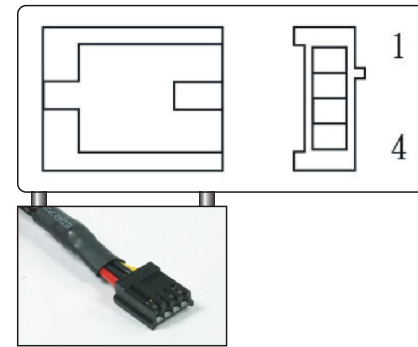
Support IDE/SCSI (HDD/CD/DVD..etc) devices



Color	Signal	Pin
Yellow	+12V1	1
Black	GND	2
Black	GND	3
Red	+5V	4

## 4.1.8 Floppy Disk Connector (4 pin)

Support Floppy Disk and some other additional devices



Color	Signal	Pin
Red	+5V	1
Black	GND	2
Black	GND	3
Yellow	+12V1	4

## 4.1.9 8 pin PCI-E to 6 pin PCI-E converter

Enable 8pin PCI-E connector connect to the graphic card that only has 6pin PCI-E socket.

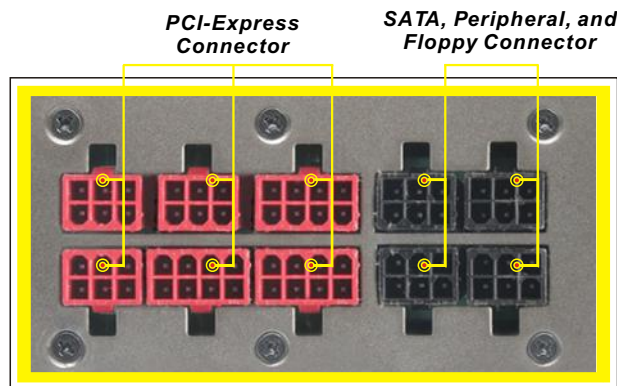




## 4.2 Cables

Users can optimize the cables arrangement within the chassis by using only what users need. This feature increases the airflow and reduces the overall ambient temperature within the chassis, also improves the overall look and tidiness of the system.

**Embedded Socket and Modularized Cable Management Design:**



**4.2.1** Inside the box, you will find the following wires and connectors

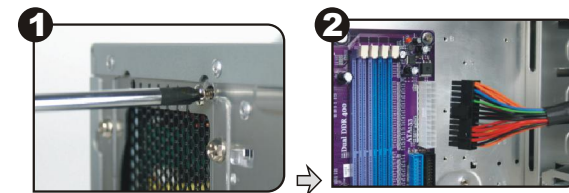
Wires & Connectors	Native Cables	
	1 x 20+4pin motherboard connector	500mm
1 x 4+4pin EPS12V connector	550mm	
1 x 8pin EPS12V connector	550mm	
1 x 8pin/6pin PCI-E connector	500mm + 150mm	
Modular Cables		
3 x 6pin PCI-E connector	500mm	
3 x 8pin PCI-E connector	500mm	
2 x quad SATA power connectors	500mm+150mm+150mm+150mm	
2 x quad 4pin IDE & single floppy power connectors	500mm+150mm+150mm+150mm+150mm	

## 5. Installation Steps

To prevent electrical shocks, please disconnect the power cord from your existing power supply unit.

### Step 1

After install the power supply unit into the chassis and then connect the 20+4 pin main power cable to motherboard 20pin or 24 pin socket.



### Step 2

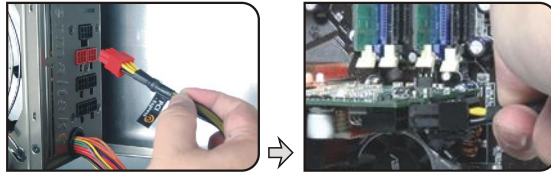
Connect the 4+4 pin / 8 pin +12V power connector to motherboard (User can use either 4-pin or 8-pin to connect motherboard socket, please check your motherboard user manual for detail information)





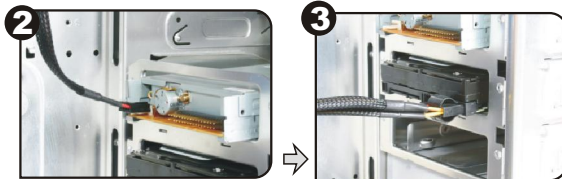
### Step 3

Connect the 6pin or 8pin PCI-E connectors to your graphic card(s) as needed.

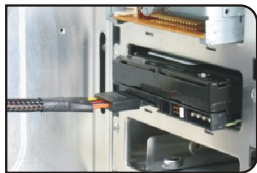


### Step 4

Connect the 4 pin power connector to peripheral devices such as DVD-Burner, hard drive, and etc. In addition, user can connect the 4-pin floppy power connector to connect the floppy drive.



If your devices are S-ATA interface, there are also S-ATA connectors available.



## 6. +12V Rail Distribution

W0171 - 1500W PSU				
Connector	+12V1	+12V2	+12V3	+12V4
20+4pin Main Power	○			
4+4pin CPU Power		○		
8 pin CPU Power		○	○	
Peripheral & Floppy	○			
S-ATA	○			
6 pin standard PCI-E			○	
6 pin Modular PCI-E			○	
6 pin Modular PCI-E				○
6 pin Modular PCI-E				○
8 pin standard PCI-E			○	
8 pin Modular PCI-E			○	
8 pin Modular PCI-E				○
8 pin Modular PCI-E				○

## 7. SPEC Table

Model	W0171			
<b>SPECIFICATION</b>				
Power	1500W			
Dimension	200mm(L)x150mm(W)x86mm(H)			
Switches	ATX Logic on-off additional power rockerswitch			
PFC	Active PFC (PF > 0.9)			
Cooling System	140mm Fan, 2300RPM ± 10%			
Noise	16 dBA at 1300 RPM			
P. G. Signal	100-500 ms			
Efficiency	up to 87%			
Hold-up Time	16ms			
<b>INPUT</b>				
Input Voltage	230 VAC			
Input Frequency Range	47 ~ 63 Hz			
MTBF	120,000 hrs minimum (at 25 °C)			
Input Current	10A			
<b>OUTPUT</b>				
	Max/Min	Regulation	Ripple & Noise <sup>*1</sup>	Output
+12V1	20A/1.0A	+3,-3%	240mV	750W
+12V4	40A/1.0A	+3,-3%	240mV	
+3.3V	30A/0.5A	+3,-3%	100mV	
+12V2	20A/1.0A	+3,-3%	240mV	
+12V3	40A/1.0A	+3,-3%	240mV	750W
+5V	30A/0.5A	+3,-3%	100mV	9.6W
-12V	0.8A/0.0A	+10,-10%	240mV	
+5Vsb	3.5A/0.0A	+3,-5%	100mV	
Total Power	1500W			
Peak Power	1600W			
*1. Add 0.1uF and 47uF capacitors across output terminal during ripple & noise test.				
<b>ENVIRONMENT</b>				
Operating Temp.	10 °C to 50 °C			
Storage Temp.	-20 °C to 70 °C			
Operating Humidity	20% to 90%, non-condensing			
Storage Humidity	5% to 95%, non-condensing			
<b>PROTECTION</b>				
	DC rail	Trigger Point/Range		
Over Voltage Protection	+3.3V trip point	4.5 Vmax		
	+5.0V trip point	7.0 Vmax		
	+12.0V trip point	15.6 Vmax		
Over Current Protection	+3.3V	33A ~ 50A		
	+5.0V	33A ~ 50A		
	+12V1 & +12V2	22A ~ 35A		
	+12V3 & +12V4	42A ~ 60A		
Under Voltage Protection	+3.3V trip point	2.0 Vmin		
	+5.0V trip point	3.3 Vmin		
	+12.0V trip point	8.5 Vmin		
Short Protection	All output to GND			

## 8. Other Specification

### 8.1 Inrush Current:

AC input 230Vac at 25 °C cold start power no damage

### 8.2 Power Efficiency

80%(min.) at full load(typical)

### 8.3 CE Requirements

#### 8.3.1 Conducted EMI

1. Meet FCC: ClassB
2. Meet CISPR 2 2: ClassB
3. Meet BSM I: ClassB

#### 8.3.2 Safety Standards

1. Meet CUL (U L 6095 0)
2. Meet TUV EN60950
3. Meet CB (IE C 950)
4. Meet CE

#### 8.3.3 Harmonic

Meet IEC1000-3-2, Class D

## ***9. Trouble Shooting***

### ***Condition 1:***

**No DC output. The fan or fans are motionless. Check:**

- 1-1 Is the AC inlet plug firmly plugged into the PSU inlet socket?
- 1-2 Is the wall socket, extension power cord, power strip or surge protector in use, fully functional and wall power switch turned 'ON' ?
- 1-3 Is the Main Board socket (20+4 pin) plug fully and firmly inserted?

### ***Condition 2:***

**The fan or fans began rotating and then stopped. The system hangs without proceeding any further Check:**

- 2-1 Are the peripheral connectors firmly plugged into accessory devices, such as the main hard drive, CD ROM, etc?
- 2-2 If a plug has been inadvertently connected in an off-set or reversed position, unplug the AC power source, reconnect the offending connectors and then wait for 30 seconds before replug in the AC power source and try again.

*Note: If the power supply is still unable to power up after following the above instruction, please send the unit back to your dealer or retailer for after sales service.*

## ***10. Contact us***

**For further technical supports or general inquiries, please contact us at:**

### ***Thermaltake Technology USA***

Toll Free: (800)988-1088

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*NOTE*

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