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## Thermaltake TPD-850AH2FLG

# Thermaltake Toughpower GF1 (2024) 850W Power Supply User Manual

Model: TPD-850AH2FLG

## 1. PRODUCT OVERVIEW

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The Thermaltake Toughpower GF1 (2024) 850W is a fully modular ATX power supply designed for high-performance personal computers. It features 80 PLUS Gold efficiency, ensuring minimal energy waste and reduced heat generation. The unit incorporates a 120mm fluid bearing fan with a Smart Zero Fan mode, which keeps the fan off until a certain load threshold is met, providing silent operation under light loads. Its compact design and fully modular cabling system facilitate easy installation and improved cable management within PC chassis.



Figure 1.1: Thermaltake Toughpower GF1 850W Power Supply, showcasing its modular design and ventilation grilles.

## 2. INSTALLATION GUIDE

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### 2.1 Safety Precautions

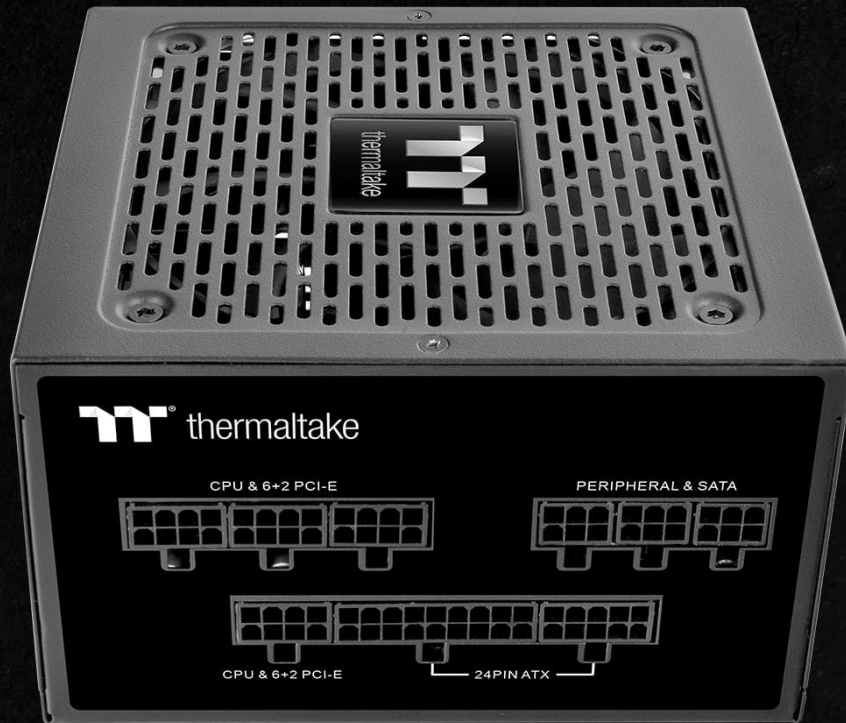
- Ensure the power supply is disconnected from the AC power outlet before installation or handling.
- Do not open the power supply casing. High voltages are present inside, which can cause electric shock.
- Install the power supply in a well-ventilated area to prevent overheating.
- Use only the modular cables provided with this power supply. Using incompatible cables may damage the unit or connected components.

### 2.2 Connecting Cables

The Toughpower GF1 850W features a fully modular design, allowing you to connect only the necessary cables for your system. This reduces cable clutter and improves airflow within your PC case.

1. Mount the power supply securely into your PC case's PSU bay using the provided screws.
2. Connect the 24-pin ATX main power cable to the motherboard.
3. Connect the 8-pin (4+4) CPU power cable(s) to the motherboard's CPU power connector(s).
4. Connect the 8-pin (6+2) PCIe power cable(s) to your graphics card(s).
5. Connect SATA power cables to your storage drives (HDDs, SSDs) and optical drives.

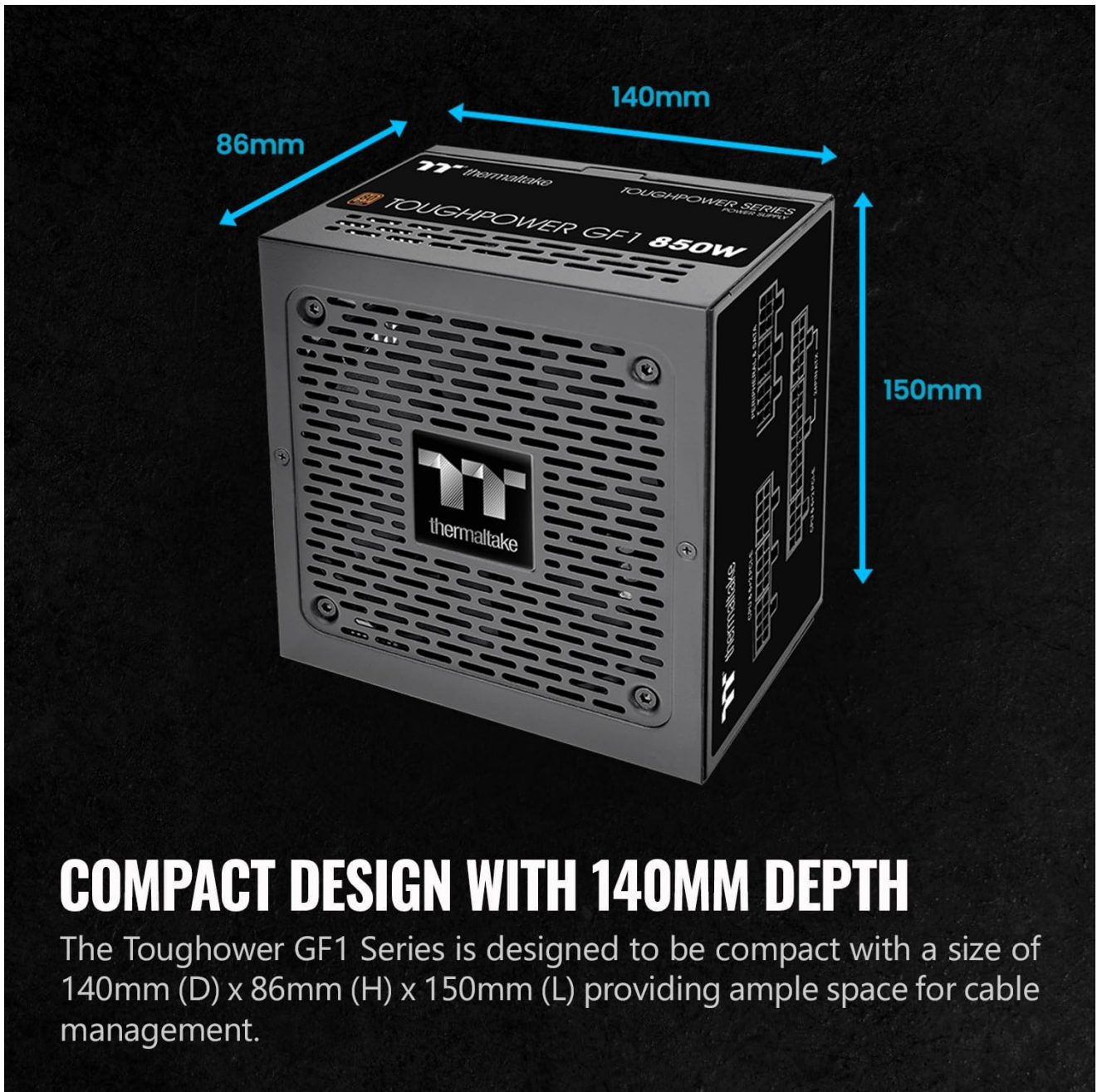
6. Connect Peripheral (Molex) power cables to any other components requiring them (e.g., case fans, fan controllers).
7. Ensure all connections are firm and properly seated.



## ZERO CABLE PLATFORM

Farewell to messy cables! We have connected the back panel and the PCB with a copper plate for better heat dissipation and impressive output power quality.

Figure 2.1: Rear panel of the power supply showing modular cable connections. The 'Zero Cable Platform' design enhances heat dissipation and power quality.



## COMPACT DESIGN WITH 140MM DEPTH

The Toughpower GF1 Series is designed to be compact with a size of 140mm (D) x 86mm (H) x 150mm (L) providing ample space for cable management.

Figure 2.2: Compact dimensions of the Toughpower GF1, measuring 150mm (L) x 86mm (H) x 140mm (D), allowing for ample cable management space.

### 3. OPERATION

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#### 3.1 Smart Zero Fan Feature

The Thermaltake Toughpower GF1 850W is equipped with a Smart Zero Fan feature. When enabled via the switch on the power supply, the 120mm fluid bearing fan will remain off when the power supply load is below a certain percentage (typically around 20-30% of maximum load). This ensures silent operation during low-power activities such as web browsing or light productivity tasks. The fan will automatically activate and adjust its speed as the load increases to maintain optimal cooling.



## BE SMART, STAY QUIET

Featuring a 120mm fluid bearing fan to deliver excellent airflow. Furthermore, the Smart Zero Fan will not spin until the load exceeds certain percentage of the power supply, minimizing undesired noise.

Figure 3.1: Close-up of the Smart Zero Fan switch, allowing users to enable or disable the silent operation feature.

## 4. MAINTENANCE

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Proper maintenance ensures the longevity and optimal performance of your power supply.

- **Dust Removal:** Periodically clean the power supply's fan and ventilation grilles to prevent dust buildup, which can impede airflow and lead to overheating. Use compressed air for best results. Ensure the power supply is off and unplugged before cleaning.
- **Cable Management:** Ensure cables are neatly routed and do not obstruct airflow within the PC case.
- **Environmental Conditions:** Operate the power supply within the recommended temperature and humidity ranges (Operating Temperature: 5°C to 40°C; Operating Humidity: 20% to 85%).

## 5. TROUBLESHOOTING

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If you encounter issues with your power supply, refer to the following common problems and solutions:

| Problem                                      | Possible Cause  | Solution   |
|--|---|--|
| System does not power on.                    | Loose power cables, PSU switch off, insufficient power. | Check all power connections (24-pin, CPU, PCIe). Ensure the PSU's main switch is ON. Verify wall outlet power.   |
| System powers on but shuts down immediately. | Overload, short circuit, overheating.                   | Reduce component load. Check for short circuits (e.g., misplaced standoffs). Ensure adequate ventilation. The PSU has built-in protections (OCP, OVP, UVP, OPP, SCP, OTP). |
| Fan is not spinning.                         | Smart Zero Fan enabled, low load.                       | This is normal if Smart Zero Fan is enabled and load is low. If fan doesn't spin under high load, disable Smart Zero Fan or contact support.                               |
| Unusual noise from PSU.                      | Dust in fan, coil whine.                                | Clean the fan. Minor coil whine can be normal; if excessive, contact support.  |

The Toughpower GF1 series is built with industrial-grade protections including Over Current Protection (OCP), Over Voltage Protection (OVP), Under Voltage Protection (UVP), Over Power Protection (OPP), Short Circuit Protection (SCP), and Over Temperature Protection (OTP) to safeguard your hardware.

## 6. TECHNICAL SPECIFICATIONS

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| Feature                           | Specification                                 |
|-----------------------------------|---|
| Model Number                      | TPD-850AH2FLG                                 |
| Type                              | ATX 12V V2.4                                  |
| Max Output Capacity               | 850W  |
| Dimensions (W x H x D)            | 150mm x 86mm x 140mm (5.9 x 3.4 x 5.5 inches) |
| PFC (Power Factor Correction)     | Active PFC                                    |
| Power Good Signal                 | 100-150 msec                                  |
| Hold Up Time                      | 17msec  |
| Input Current                     | 15A-8A  |
| Input Frequency Range             | 50Hz/60Hz                                     |
| Input Voltage                     | 100-240V                                      |
| Operating Temperature             | 5°C to 40°C                                   |
| Operating Humidity                | 20% to 85%                                    |
| Storage Temperature               | 40°C to 55°C                                  |
| Storage Humidity                  | 10% to 95%                                    |
| Cooling System                    | 12cm Fluid Dynamic Bearing Fan                |
| Efficiency                        | 80 PLUS Gold certified (at 115Vac input)      |
| MTBF (Mean Time Between Failures) | 100,000 hours minimum                         |
| Safety Approval                   | FCC/cTUVus                                    |
| Main Capacitors                   | High Quality 105°C/221°F                      |



## HIGH QUALITY 105°C/221°F MAIN CAPACITORS

Providing great durability as well as offering the highest stability, while remaining reliable.

Figure 6.1: The power supply utilizes high-quality 105°C/221°F main capacitors for enhanced durability and stability.

## 7. WARRANTY AND SUPPORT

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### 7.1 Warranty Information

The Thermaltake Toughpower GF1 (2024) 850W Power Supply comes with an ample 10-year warranty from the date of purchase. This warranty covers defects in materials and workmanship under normal use. Please retain your proof of purchase for warranty claims.

### 7.2 Customer Support

For technical assistance, troubleshooting beyond this manual, or warranty inquiries, please visit the official Thermaltake website or contact their customer support directly. You can find contact information and additional resources at [www.thermaltake.com](http://www.thermaltake.com).

