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› [Corsair](#) /

› [CORSAIR RM650e \(2025\) Fully Modular Low-Noise ATX Power Supply Instruction Manual](#)

Corsair RM650e

CORSAIR RM650e (2025) Fully Modular Low-Noise ATX Power Supply

Instruction Manual

INTRODUCTION

The CORSAIR RM650e (2025) Series Fully Modular Low-Noise Power Supply provides quiet, reliable power to your PC with Cybenetics Gold efficiency. Designed for modern PC hardware, it features full modular cabling for easy installation and ATX 3.1 and PCIe 5.1 compliance, including a native 12V-2x6 connector. Industrial-grade, 105°C-rated capacitors ensure superb electrical performance and long-term stability. Its compact 140mm-long casing is compatible with most modern PC cases.

SAFETY AND COMPLIANCE INFORMATION

Please read all safety and compliance information before installing or using this product. Improper installation or use can result in damage to the product or connected components, and may void your warranty. Ensure your system is powered off and disconnected from the mains electricity before installation or maintenance. This power supply contains no user-serviceable parts. Refer to qualified personnel for any servicing needs.

WARNING: HIGH VOLTAGE

Do not open the power supply unit. There are no user-serviceable components inside. Opening the unit will void the warranty.

Box CONTENTS

The CORSAIR RM650e (2025) Power Supply package includes the following items:

- 1x CORSAIR RM650e (2025) Power Supply Unit
- 1x AC Power Cable
- 1x 24-pin ATX (24-pin) Connector Cable
- 1x 8-pin ATX 12V/EPS12V (4+4-pin) Connector Cable

- 1x 8-pin PCIe (6+2-pin) Connector Cable
- 1x 300W 12V-2x6 (12+4-pin) Connector Cable
- 1x 12V-2x6 (12+4-pin) to dual 8-pin PCIe (6+2-pin) Cable
- 6x SATA Connectors
- 2x PATA Connectors
- Mounting Screws and Cable Ties
- Safety and Compliance Information Booklet

CORSAIR RM650e POWER SUPPLY

Ready for high-end GPUs with a native 12V-2x6 GPU power cable, fully modular design, and Cybenetics Gold rated.

RSAIR

RM650e



*RMe SERIES PSUs are CYBENETICS rated between GOLD and PLATINUM.

ATX 3.1
PCIe 5.1 with 12V-2x6

Image: The CORSAIR RM650e (2025) Power Supply unit and its packaging.



Image: Diagram illustrating the fully modular cabling options included with the RM650e power supply.

PRODUCT OVERVIEW AND KEY FEATURES

- Fully Modular Design:** Connect only the cables your system requires, simplifying PC builds and improving cable management.
- ATX 3.1 & PCIe 5.1 Compliant:** Supports the latest power standards, including a native 12V-2x6 connector for modern high-end graphics cards, capable of withstanding 2x transient power excursions from the GPU.
- Low-Noise Operation:** A 120mm rifle bearing fan with a specially calculated fan curve keeps fan noise down, even under full load. Features Zero RPM Mode for silent operation at low to moderate loads.
- 105°C-Rated Capacitors:** Industrial-grade capacitors deliver steady, reliable power and dependable electrical performance, ensuring long-term reliability.
- Modern Standby Compatible:** Enables extremely fast wake-from-sleep times and better low-load efficiency.
- Compact Size:** A 140mm-long casing ensures an easy fit in nearly any modern PC case.

50 SERIES READY

This product is compatible and ready for the latest 50 Series GPUs from NVIDIA.



50 SERIES
READY

Image: The CORSAIR RM650e power supply showcasing its fully modular connector panel.

TUNED FOR LOW NOISE

A 120mm rifle bearing fan with a specially calculated fan curve keeps fan noise down.

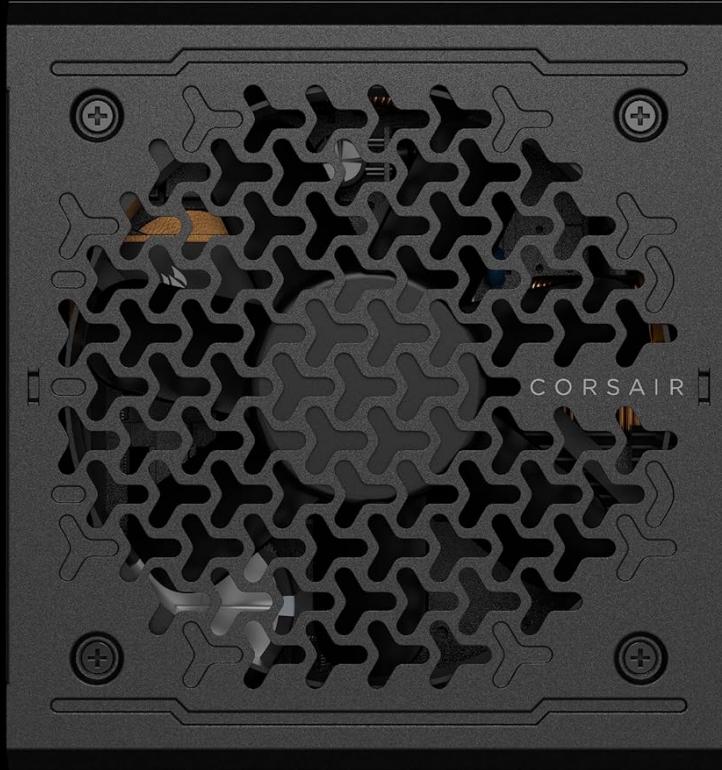


Image: Close-up of the 120mm rifle bearing fan on the CORSAIR RM650e, highlighting its low-noise design.

SETUP AND INSTALLATION

Follow these general steps to install your CORSAIR RM650e power supply:

- 1. Prepare Your System:** Ensure your computer is completely powered off and unplugged from the wall outlet. Open your PC case to access the power supply mounting area.
- 2. Remove Old PSU (if applicable):** Disconnect all cables from your old power supply and remove it from the case.
- 3. Mount the New PSU:** Carefully slide the CORSAIR RM650e into the designated power supply bay in your PC case. Secure it with the provided mounting screws.
- 4. Connect Essential Cables:**
 - Connect the 24-pin ATX cable to your motherboard.
 - Connect the 8-pin ATX 12V/EPS12V (4+4-pin) cable to your motherboard's CPU power connector.
 - For graphics cards, use the appropriate PCIe (6+2-pin) cables or the native 12V-2x6 cable for compatible GPUs.

- Connect SATA and PATA cables to your storage drives and other peripherals as needed.

5. **Cable Management:** Utilize the fully modular design to connect only necessary cables. Route cables neatly behind the motherboard tray or through designated channels to improve airflow and aesthetics.
6. **Final Connections:** Connect the AC power cable to the power supply and then to a wall outlet or surge protector.

Video: An unboxing and overview of the CORSAIR RM Series Power Supply, demonstrating its modularity and features. Note: This video features the RM850e model, but the modularity and cable types are similar.

Video: A user demonstrating the unboxing and initial setup of a CORSAIR RM650e power supply, highlighting its components and connections.

OPERATING INSTRUCTIONS

Once installed, the CORSAIR RM650e operates automatically. The 120mm rifle bearing fan features a Zero RPM Mode, meaning it will remain off during low to moderate loads for silent operation. The fan will only spin up when the power supply reaches a certain temperature or load threshold to maintain optimal cooling. This intelligent fan control ensures quiet performance while efficiently managing heat.

MAINTENANCE

To ensure optimal performance and longevity of your CORSAIR RM650e power supply, consider the following maintenance tips:

- **Keep it Clean:** Periodically clean the exterior of the power supply and the fan grille to prevent dust buildup, which can impede airflow and reduce cooling efficiency. Use compressed air or a soft brush.
- **Ensure Proper Airflow:** Make sure your PC case has adequate airflow and that the power supply's fan intake and exhaust are not obstructed.
- **Check Cable Connections:** Occasionally verify that all modular cables are securely connected to both the power supply and your components.
- **Avoid Overloading:** Ensure your system's power requirements do not exceed the 650W capacity of the power supply.

TROUBLESHOOTING

If you encounter issues with your CORSAIR RM650e power supply, try the following steps:

- **No Power:**
 - Check that the AC power cable is securely connected to both the power supply and the wall outlet.
 - Ensure the power supply's ON/OFF switch is in the 'ON' position.
 - Verify all modular cables (24-pin ATX, CPU, PCIe) are correctly seated.
 - Test the wall outlet with another device to confirm it has power.
- **System Instability/Crashes:**
 - Ensure your system's power draw does not exceed the PSU's 650W rating.
 - Check for loose cable connections.
 - Monitor system temperatures to ensure components are not overheating.
- **Fan Not Spinning:**

- The RM650e features Zero RPM Mode. The fan will not spin at low to moderate loads. This is normal operation.
- If the system is under heavy load and the fan is still not spinning, ensure there are no obstructions and contact support if the issue persists.

SPECIFICATIONS

| Feature | Detail |
|----------------------------|--|
| Brand | Corsair |
| Series | CORSAIR RM650e |
| Model Number | CP-9020302-NA |
| Form Factor | ATX |
| Output Wattage | 650 Watts |
| Efficiency Rating | Cybenetics Gold |
| ATX Standard | ATX 3.1 |
| PCIe Standard | PCIe 5.1 (with 12V-2x6 cable) |
| Capacitor Rating | 105°C-Rated |
| Cooling Method | Air (120mm Rifle Bearing Fan with Zero RPM Mode) |
| Item Weight | 3.26 pounds |
| Product Dimensions (LxWxH) | 5.91 x 5.51 x 3.35 inches |
| Color | Black |

WARRANTY AND SUPPORT

The CORSAIR RM650e (2025) Power Supply is backed by a comprehensive **seven-year warranty**, ensuring long-term reliability and peace of mind. For technical support, warranty claims, or additional product information, please visit the official Corsair support website or contact their customer service.

Video: A user upgrading their power supply, demonstrating the installation process and highlighting the benefits of a modular PSU.

Note: This video features the RM850e model, but the installation process is similar.