ORICO Black-40Gbps

ORICO 40Gbps M.2 NVMe SSD Enclosure User Manual

Model: Black-40Gbps

1. Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of your ORICO 40Gbps M.2 NVMe SSD Enclosure. This device is designed to provide high-speed external storage for M.2 NVMe solid-state drives, featuring a cooling fan and tool-free installation for convenience and optimal performance.

Figure 1: ORICO 40Gbps M.2 NVMe SSD Enclosure and accessories.

2. Package Contents

Please verify that all items listed below are included in your package. If any items are missing or damaged, please contact customer support.

- 1x ORICO AAGM2 USB4 Enclosure
- 1x USB-C to A/C Cable
- 1x Heatsink with thermal pad
- 2x Fasteners
- 1x Instruction Book (this manual)

Figure 2: Contents of the ORICO 40Gbps M.2 NVMe SSD Enclosure package.

3. Product Overview

The ORICO 40Gbps M.2 NVMe SSD Enclosure is designed for high-performance data transfer and storage. Key features include:

- **Ultra-Fast Transfer Speeds:** Supports up to 40Gbps via USB4 and Thunderbolt 3/4, enabling rapid data transfer.
- **Efficient Heat Dissipation:** Features a CNC-machined aluminum alloy body, built-in silent cooling fan, dual-end airflow vents, and an included thermal pad and heatsink to maintain stable performance.
- **Tool-Free Installation:** Allows for quick and easy installation of M.2 NVMe SSDs without the need for tools.
- **Wide Compatibility:** Supports M-Key NVMe SSDs (2230/2242/2260/2280) up to 8TB and is compatible with various operating systems and host devices.
- **Durable Design:** Aluminum alloy construction provides robust protection for your SSD.

4. Setup and Installation

Follow these steps to install your M.2 NVMe SSD into the enclosure.

4.1 Opening the Enclosure

1. Locate the top cover of the enclosure.
2. Gently push and slide the top cover to open the enclosure.

Figure 3: Tool-free opening and closing mechanism of the enclosure.

4.2 Installing the M.2 NVMe SSD

1. With the enclosure open, carefully insert your M-Key NVMe SSD into the M.2 slot. Ensure the SSD is aligned correctly with the connector.
2. Secure the SSD using the provided snap-on fastener.
3. Apply the thermal pad to the SSD, then place the heatsink on top of the thermal pad for optimal heat dissipation.

Note: This enclosure supports M-Key NVMe SSDs of sizes 2230, 2242, 2260, and 2280. It is not compatible with SATA-based M.2 SSDs (B-Key or B+M Key SATA) or some specific NVMe SSD models like Crucial P3 Plus, WD

Black SN750, and Samsung 970 EVO Plus.

Figure 4: Compatible M.2 NVMe SSD types and sizes.

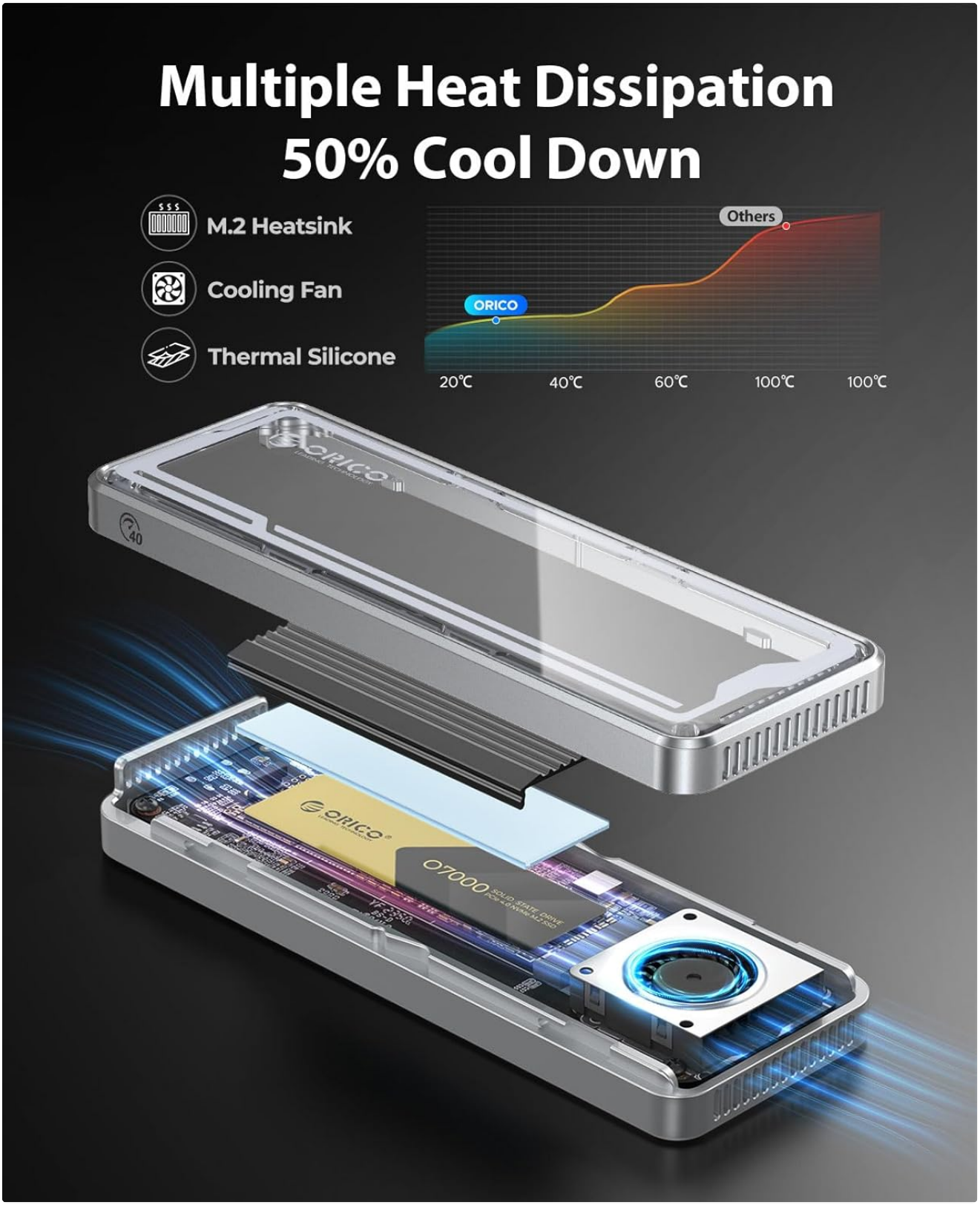

Figure 5: Components for multiple heat dissipation, including M.2 heatsink, cooling fan, and thermal silicone.

4.3 Closing the Enclosure

1. Once the SSD and heatsink are securely in place, slide the top cover back until it clicks into position.

5. Operating Instructions

5.1 Connecting to a Host Device

Use the provided USB-C to A/C cable to connect the enclosure to your computer or compatible host device. The enclosure supports various connection types:

- **USB4** / **Thunderbolt 3/4:** For maximum transfer speeds of up to 40Gbps.
- **USB 3.2** / **3.1** / **3.0:** Backward compatible, with speeds up to 10Gbps.

Upon connection, the enclosure should be recognized by your operating system as an external storage device. You may need to initialize and format the SSD if it is new or unformatted.

Figure 6: High-speed data transfer with the ORICO enclosure.

5.2 Data Transfer and Usage

Once connected, you can use the enclosure for various purposes:

- Creating an external database.

- Backing up important data.
- Expanding storage capacity for your devices.
- Facilitating fast video production workflows.

Figure 7: Versatile applications of the ORICO SSD enclosure.

6. Heat Dissipation and Performance

The ORICO enclosure is engineered with multiple heat dissipation mechanisms to ensure stable performance, especially during prolonged high-speed operations:

- **Aluminum Alloy Body:** The CNC-machined aluminum casing acts as a large heatsink, efficiently conducting heat away from the SSD.
- **Built-in Cooling Fan:** A silent fan actively circulates air to prevent heat buildup.
- **Dual-End Airflow Vents:** Designed to optimize air circulation through the enclosure.
- **Thermal Pad and Heatsink:** The included accessories further enhance heat transfer from the SSD to the enclosure.

These combined features help maintain lower operating temperatures, preventing thermal throttling and ensuring consistent high-speed data transfer.

7. Compatibility

7.1 SSD Compatibility

- **Supported:** M-Key NVMe SSDs (PCIe protocol) in sizes 2230, 2242, 2260, and 2280. Maximum capacity up to 8TB.
- **Not Compatible:** SATA-based M.2 SSDs (B-Key or B+M Key SATA).
- **Specific NVMe SSDs with known compatibility issues:** Crucial P3 Plus, WD Black SN750, and Samsung 970 EVO Plus.

7.2 Host Device and System Compatibility

- **Host Devices:** Compatible with USB4 and Thunderbolt 3/4 host devices (e.g., Mac M1/M2, Intel 12th generation or newer laptops). Backward compatible with USB 3.2/3.1/3.0 ports.
- **Operating Systems:** Windows, Android, Linux, Mac OS, Chrome OS, iPadOS.

Note: Older Thunderbolt versions and some USB ports may not support the full 40Gbps speed. Ensure your host device supports the desired transfer rate for optimal performance.

Figure 8: Wide compatibility with devices and operating systems.

8. Troubleshooting

- **Device Not Recognized:**
  - Ensure the SSD is correctly seated in the enclosure and the enclosure is properly closed.
  - Try connecting to a different USB/Thunderbolt port on your host device.
  - Test with a different cable if available.
  - Verify the SSD is an M-Key NVMe type and not a SATA M.2 SSD.

- Check Disk Management (Windows) or Disk Utility (macOS) to see if the drive is detected but uninitialized/unformatted.

- **Slow Transfer Speeds:**
  - Ensure your host device's port supports 40Gbps (USB4 or Thunderbolt 3/4). Connecting to a USB 3.0/3.1/3.2 port will result in lower speeds.
  - Verify the SSD itself is capable of high speeds.
  - Check for background processes that might be consuming system resources.
  - Ensure proper heat dissipation by checking if the fan is operating and the heatsink is correctly installed. Overheating can lead to performance throttling.

- **Enclosure Overheating:**
  - Confirm the thermal pad and heatsink are correctly installed on the SSD.
  - Ensure the cooling fan is not obstructed.
  - Avoid placing the enclosure in confined spaces that restrict airflow.

9. Specifications

Feature	Specification
Brand	ORICO
Model Number	Black-40Gbps
Interface	M.2 NVMe (PCIe)
Supported SSD Sizes	2230, 2242, 2260, 2280
Max Digital Storage Capacity	8 TB
Connectivity Technology	Thunderbolt, USB4
Data Transfer Rate	Up to 40 Gbps
Read Speed (Max)	3700 MB/s
Write Speed (Max)	3100 MB/s
Special Feature	Portable, Cooling Fan, Tool-Free Installation
Material	Aluminum Alloy, PC
Item Weight	8.1 ounces
Package Dimensions	10.83 x 7.24 x 1.06 inches

10. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the enclosure. Avoid using liquid cleaners or solvents.
- **Storage:** Store the enclosure in a cool, dry place away from direct sunlight and extreme temperatures.
- **Handling:** Handle the enclosure with care to prevent physical damage.

11. Warranty and Support

For warranty information and technical support, please refer to the official ORICO website or contact your retailer. Keep your purchase receipt for warranty claims.

ORICO Official Website: www.orico.com.cn