WD WD4003FZEX

WD Black 4TB Desktop Hard Drive User Manual

Model: WD4003FZEX

INTRODUCTION

This manual provides essential information for the installation, operation, and maintenance of your WD Black 4TB 7200 RPM SATA 6 Gb/s 64MB Cache, 3.5-Inch Desktop Hard Disk Drive (Model: WD4003FZEX). This high-performance hard drive is designed to enhance your PC experience with its robust architecture and improved data protection features. Key features include:

- Next-generation desktop performance hard drive designed to intensify your PC experience.
- Improved Architectural Designs: Dual Core Processor, High Resolution Controller (HRC), StableTrac Technology.
- Improved Data Protection: Vibration Control Technology (VCT), Corruption Protection Technology (CPT), NoTouch Ramp Load Technology.
- Industry-leading 5-year manufacturer limited warranty.

PRODUCT OVERVIEW

Figure 1: Top view of the WD Black 4TB Hard Drive, illustrating the internal platter and read/write head assembly. This view highlights the precision engineering within the drive.

Figure 2: Angled view of the WD Black 4TB Hard Drive, showing the SATA data and power connectors at the rear. These are standard connectors for desktop computer integration.

The WD Black hard drive is a 3.5-inch form factor device designed for desktop computer systems. It features a SATA 6 Gb/s interface for high-speed data transfer and a 7200 RPM rotational speed for optimal performance. The drive includes a 64MB cache to further enhance data access speeds.

SETUP AND INSTALLATION

Before beginning installation, ensure your computer is powered off and disconnected from the main power supply. It is recommended to wear an anti-static wrist strap to prevent electrostatic discharge (ESD) damage to components.

Hardware Installation

1. **Prepare your computer case:** Open your computer case to access the internal drive bays. Identify an available 3.5-inch drive bay.

2. **Mount the hard drive:** Carefully slide the WD Black hard drive into the chosen 3.5-inch drive bay. Secure the drive using screws appropriate for your case. Ensure the drive is firmly mounted to minimize vibrations.

3. **Connect data cable:** Connect one end of a SATA data cable (not included) to the SATA data port on the hard drive. Connect the other end to an available SATA port on your motherboard.

4. **Connect power cable:** Connect a SATA power cable from your power supply unit (PSU) to the SATA power connector on the hard drive.

5. **Close the case:** Once all connections are secure, close your computer case.

Software Setup (Initial Use)

After hardware installation, you will need to initialize and format the drive within your operating system.

1. **Power on your computer:** Start your computer and allow it to boot into your operating system (Windows/macOS).

2. **Access Disk Management (Windows):**

   - Right-click on the Start button and select "Disk Management".
   - The new drive should appear as "Unallocated Space".
   - Right-click on the unallocated space for the new drive and select "Initialize Disk". Choose GPT (GUID Partition Table) for drives larger than 2TB.
   - After initialization, right-click the unallocated space again and select "New Simple Volume". Follow the wizard to create a partition, assign a drive letter, and format the drive (NTFS is recommended for Windows).

3. **Access Disk Utility (macOS):**

   - Open "Applications" > "Utilities" > "Disk Utility".

- Select the new drive from the sidebar.
- Click "Erase" and choose a format (e.g., APFS or Mac OS Extended (Journaled)) and a scheme (GUID Partition Map).
- Click "Erase" to format the drive.

For detailed instructions, refer to your operating system's documentation or the official WD support website.

OPERATING THE HARD DRIVE

Once installed and formatted, your WD Black hard drive operates like any other storage device in your system. You can use it for storing files, installing applications, or as a secondary drive for large media libraries.

Data Transfer

The drive supports SATA 6 Gb/s, providing high data transfer rates. Actual speeds may vary depending on your system's motherboard, SATA controller, and the type of data being transferred. For optimal performance, ensure your motherboard's SATA ports are configured for AHCI mode in the BIOS/UEFI settings.

Power Management

The drive's power consumption varies based on its operational state:

- **Read/Write:** 9.5 Watts
- **Idle:** 8.1 Watts
- **Standby/Sleep:** 1.3 Watts

Your operating system's power management settings can be configured to put the drive into a low-power state after a period of inactivity, which can help conserve energy and potentially extend drive lifespan.

MAINTENANCE

Hard drives are mechanical devices and require minimal user maintenance. However, following these practices can help ensure longevity and data integrity:

- **Regular Backups:** Always back up important data to another storage device or cloud service. No hard drive is immune to failure.
- **Proper Shutdown:** Always shut down your computer properly. Avoid sudden power loss, which can lead to data corruption or drive damage.
- **Temperature Control:** Ensure adequate airflow within your computer case to prevent the drive from overheating. Operating within recommended temperature ranges (typically 5°C to 60°C) is crucial.
- **Vibration Control:** Mount the drive securely to minimize vibrations, which can affect performance and lifespan. The WD Black series includes Vibration Control Technology (VCT) to mitigate this, but proper mounting is still important.
- **Disk Health Checks:** Periodically run disk health checks (e.g., CHKDSK on Windows, First Aid on macOS Disk Utility) to identify and repair minor file system errors.

TROUBLESHOOTING

If you encounter issues with your WD Black hard drive, consider the following troubleshooting steps:

Drive Not Detected

- **Check Cables:** Ensure both the SATA data and power cables are securely connected to the drive and the motherboard/PSU. Try different cables if available.

- **Check BIOS/UEFI:** Enter your computer's BIOS/UEFI settings during startup and verify that the SATA port to which the drive is connected is enabled and that the drive is recognized.

- **Power Supply:** Ensure your power supply unit (PSU) has sufficient wattage to power all components, including the new hard drive.

- **Disk Management/Utility:** As described in the Setup section, check Disk Management (Windows) or Disk Utility (macOS) to see if the drive is detected but uninitialized or unformatted.

Slow Performance

- **SATA Port:** Ensure the drive is connected to a SATA 6 Gb/s (SATA III) port on your motherboard for optimal speed. Older SATA II ports will limit performance.

- **AHCI Mode:** Verify that AHCI mode is enabled in your BIOS/UEFI settings for the SATA controller.

- **Fragmentation:** While less critical with modern file systems, excessive file fragmentation can impact performance. Consider defragmenting the drive (Windows) or ensuring TRIM is enabled for SSDs (not applicable here, but good general knowledge).

- **Background Processes:** Check for background applications or processes that might be heavily utilizing the drive.

Unusual Noises

While some operational noise is normal for mechanical hard drives, loud clicking, grinding, or scraping sounds are indicators of potential drive failure. If you hear such noises, immediately back up any critical data and consider replacing the drive.

SPECIFICATIONS

Feature	Specification
Model Number	WD4003FZEX
Capacity	4 TB
Rotational Speed	7200 RPM
Cache	64 MB
Interface	SATA 6 Gb/s (SATA III)
Form Factor	3.5-inch
Data Transfer Rate (Buffer to Host)	6 Gb/s
Data Transfer Rate (Host to/from Drive Sustained)	171 MB/s
Operating Shock	30Gs @ 2ms (write); 65Gs @ 2ms (read)
Non-operating Shock	300Gs @ 2ms
Idle Acoustics	29 dBA (average)
Seek Acoustics	34 dBA (average)
Dimensions (WxLxH)	4.000 x 5.787 x 1.028 inches / 101.6 x 147.0 x 25.4 mm

Feature	Specification
Weight	1.72 lbs / 0.78 kg
Operating System Compatibility	Windows/Mac
RoHS Compliant	Yes

WARRANTY INFORMATION

The WD Black 4TB Desktop Hard Drive (Model: WD4003FZEX) comes with an industry-leading **5-year manufacturer limited warranty**. This warranty covers defects in materials and workmanship under normal use. For specific terms, conditions, and the process for making a warranty claim, please refer to the official Western Digital warranty policy available on their website.

Please note: The warranty typically does not cover data loss. It is crucial to maintain regular backups of your data.

SUPPORT AND RESOURCES

For further assistance, technical support, or to access additional resources, please visit the official Western Digital support website. You can find drivers, firmware updates, diagnostic tools, and frequently asked questions (FAQs) there.

- **Official Website:** Western Digital Support
- **Product Page:** Search for "WD4003FZEX" on the Western Digital website for product-specific information.
- **User Manual (PDF):** A comprehensive user manual in PDF format may be available for download from the product's support page.