



ThunderBay 4 mini

Assembly Manual & User Guide



Up to 1556MB/s
Easily handles 4K, HD,
and multi-stream video



SoftRAID Software
Easy and complete
drive management



Daisy-Chain
Add up to five additional
Thunderbolt devices



Thunderbolt 3
Thunderbolt certified
for Mac and Windows



Expand Your Workspace
Add 4K monitor via the
second Thunderbolt 3 port

Introduction

- 1.1 Minimum System Requirements..... 1
 - Mac Requirements
 - PC Requirements
- 1.2 Package Contents..... 1
- 1.3 About This Manual..... 1
- 1.4 Front View..... 3
- 1.5 Rear View..... 3
- 1.6 Usage Notes..... 4

Installation

- 2.1 Drive Installation 5
- 2.2 Quick Start 5
- 2.3 Why Install SoftRAID..... 6
- 2.4 Replacing Drives..... 6
- 2.5 Drive Failure..... 6

Support Resources

- 3.1 Formatting 7
- 3.2 Troubleshooting 7
- 3.3 About Data Backup 7
- 3.4 Contacting Technical Support..... 7

1.1 System Requirements

Operating System

- Mac: macOS 10.13 or later
- PC: Windows 10 or later

Hardware

- Mac or PC with Thunderbolt 3 recommended for best performance

Supported Drives

- Any 2.5-inch SATA drive
- Drive heights up to 15 mm supported

1.2 Package Contents



OWC ThunderBay 4 mini
with Thunderbolt 3



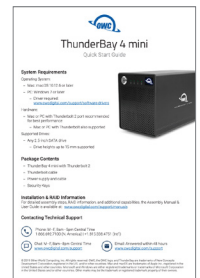
Thunderbolt 3 cable



Power supply and cable



Security keys



Quick Start Guide

1.3 About This Manual

The images and descriptions may vary slightly between this manual and the unit shipped. Functions and features may change depending on the firmware version. The latest product details and warranty information can be found on the product web page. OWC's Limited Warranty is not transferable and subject to limitations.



General Use Precautions

- To avoid damage, do not expose the device to temperatures outside the following ranges:

Environmental (Operating)

- Temperature (°F): 41° – 95°
- Temperature (°C): 5° – 35°

Environmental (Non-Operating)

- Temperature (°F): -4° – 140°
- Temperature (°C): -20° – 60°

- Always unplug the device from the electrical outlet if there is a risk of lightning or if it will be unused for an extended period of time. Otherwise, there is an increased risk of electrical shock, short-circuiting or fire.
- Do not use the device near other electrical appliances such as televisions, radios or speakers. Doing so may cause interference which will adversely affect the operation of the other products.
- Do not place the device near sources of magnetic interference, such as computer displays, televisions or speakers. Magnetic interference can affect the operation and stability of hard drives.
- Do not place objects on top of the device.
- Protect your device from excessive exposure to dust during use or storage. Dust can build up inside the device, increasing the risk of damage or malfunction.
- Do not block any ventilation openings on the device. These help to keep the device cool during operation. Blocking the ventilation openings may cause damage to the device and cause an increased risk of short-circuiting or fire.



Safety Precautions

- Read this user guide carefully and follow the recommended steps for assembly.
- Use proper anti-static precautions while installing drives into this enclosure. Failure to do so can cause damage to your drive mechanisms and/or the enclosure.
- Do not attempt to disassemble or modify the device. To avoid any risk of electrical shock, fire, short-circuiting or dangerous emissions, never insert any metallic object into the device. If it appears to be malfunctioning, please contact technical support.
- Never expose your device to rain, or use it near water or in damp or wet conditions. Never place objects containing liquids on the drive, as they may spill into its openings. Doing so increases the risk of electrical shock, short-circuiting, fire or personal injury.

1.4 Front View

1. Locking faceplate – Use the included keys to lock the faceplate for security, or to remove the faceplate to gain access to the drive bays.
2. LED Indicators

LED	Color	Power Only	Power & Data	Drive Activity
Power	White/Blue	White	Blue	N/A
Drives (A, B, C, D)	Green	Off	Off	Flashing Green



1.5 Rear View

1. Security slot – connect a security tether here.
2. Thunderbolt 3 ports – connect to the computer host or chain additional Thunderbolt 3 devices here.
3. DC power input – connect the included power supply here.



1.6 Usage Notes

- If your ThunderBay 4 mini is configured as a RAID 0 volume, please make sure your data is backed up elsewhere. RAID 0 volumes should not be used for backup due to a lack of data redundancy and parity.
- For solid state drives (SSDs), the SATA 6G interface allows each individual drive to run at full SATA-III speeds (~ 500MB/s) but the PCIe to SATA controller is limited to four PCIe 2.0 lanes (Gen2 x4). Due to this configuration, the maximum transfer rate for a striped (RAID 0) RAID with four SSDs is ~ 1556MB/s, even though Thunderbolt 3 as a specification has a higher theoretical speed.
- Thunderbolt device chains can support up to six Thunderbolt devices.
- If mixing Thunderbolt 3 and earlier generation Thunderbolt devices (via 'Apple Thunderbolt 3 (USB-C) to Thunderbolt Adapters'), use the device order below to avoid slowing down Thunderbolt 3 devices in the chain: Computer > Thunderbolt 3 devices > earlier generation Thunderbolt devices.
- To safely remove drives and to ensure that no data is lost, always eject or unmount the drives from your operating system before unplugging the ThunderBay 4 mini or removing the drives. See the tips below for unmounting a drive from your specific OS.

macOS

- Drag the icon for the disk you wish to unmount to the trash can; OR
- Right-click the disk icon on the desktop, then click "Eject"; OR
- Highlight the disk on your Desktop and press Command-E.

Windows

1. Go to the System Tray (located in the lower right corner of your screen). Click on the "Eject" icon (a small green arrow over a hardware image).
 2. A message will appear, detailing the devices that the "Eject" icon controls, i.e., "Safely remove..." Click on this prompt.
 3. You will then see a message that says, "Safe to Remove Hardware." It is now safe to disconnect the ThunderBay 4 mini from the computer.
- The steps above are applicable to Windows 10 build 1803 and earlier. If you are using Windows 10 build 1809 (October 2018) or later, you can eject the drive by clicking the 'Show hidden items' menu in the Taskbar, then clicking 'Safely Remove Hardware and Eject Media', and last select the 'Eject' option for this volume.

2.1 Drive Installation

1. Insert one of the keys into the lock on the top left of the faceplate.
2. Turn the key clockwise, then pull it towards you. The faceplate will swing open.
3. Pull up on the faceplate to remove it.
4. Pull on the tab at the center of an empty drive tray to remove the tray from the enclosure.
5. Set the drive tray on your work surface. If you are replacing an existing drive, unscrew it from the drive tray.
6. Place the drive inside the drive tray as shown. The SATA connectors should be on the end opposite the tray handle.
7. Fasten the drive into the drive tray using four of the included Philips screws.
8. Slide the tray into the ThunderBay 4 mini. If you feel resistance, do not force the tray. Remove it, verify the alignment of the tray and the corresponding track, then try again.



2.2 Quick Start

1. Install drives into the ThunderBay 4 mini according to the instructions in Section 2.1.
2. Connect the power supply between the ThunderBay 4 mini and a power outlet.
3. Connect the included Thunderbolt cable to the ThunderBay 4 mini and your computer. When you do this, the ThunderBay 4 mini will power on and the drives will be available for use with your operating system.
4. If the ThunderBay 4 mini shipped with drives and was purchased as part of a SoftRAID bundle, the drives are already set up and formatted as a RAID 0 or RAID 5 volume. Double-click the ThunderBay icon on the Desktop or in the Finder, then install SoftRAID.
5. If you purchased your own drives for use with the ThunderBay 4 mini and they have not been set up before, they need to be formatted before they can be used.
6. Please visit www.owcdigital.com/format for tips on formatting drives for Mac or Windows. Once formatted, the drives are ready to use.

2.3 Why Install SoftRAID?

- Depending on the SoftRAID version bundled with your ThunderBay 4 mini the RAID levels supported include: 0, 1, 4, 5, and 1+0 (10).
- Certify disks – writes a pattern to each sector on the disk and then reads it back to ensure that the drive is functioning as designed.
- Verify disks – reads every sector on the disk to ensure that it can be read without errors.
- Validate volumes – reads every block on the volume to ensure it can be read without errors.
- S.M.A.R.T. monitoring of all connected drives, including early warning for disk failure.
- Custom email alerts for important events.

2.4 Replacing Drives

You can add or remove any drive without needing to turn off the ThunderBay 4 mini or unmount any of the other drives. Each drive operates independently of the others and is not affected by the addition or removal of another drive unless the drives have been set up as part of a RAID volume.

2.5 Drive Failure

The ThunderBay 4 mini does not monitor drive health, and it will not alert you to a drive failure. You can monitor the health of your drives via SoftRAID in order to determine when a drive has failed or is in a pre-failure state. To replace a failed drive, simply remove the drive from its bay and replace it with another drive, following the steps in Section 2.1. The ThunderBay 4 mini does not need to be turned off during this process.

3.1 Formatting

For additional formatting information, including instructions on how to format the ThunderBay 4 mini for Mac or Windows, please go to: www.owcdigital.com/format

3.2 Troubleshooting

Begin your troubleshooting by verifying that the power cable is connected to the ThunderBay 4 mini and to a power source. If the power cable is connected to a power strip, make sure that the power switch on the strip is turned on. Then, verify that both ends of your cables are properly plugged into the computer and the enclosure. If the device is still not working properly, try connecting to another computer or using another Thunderbolt cable.

If you are still experiencing problems, please see Section 3.4 to contact Technical Support.

3.3 About Data Backup

To ensure that your files are protected and to prevent data loss, we strongly suggest that you keep two copies of your data: one copy on your ThunderBay 4 mini and a second copy on either your internal drive or another storage medium, such as an optical backup, or on another external storage unit. Any data loss or corruption while using the ThunderBay 4 mini is the sole responsibility of the user, and under no circumstances may OWC, its parents, partners, affiliates, officers, employees, or agents be held liable for loss of the use of data including compensation of any kind or recovery of the data.

3.4 Contacting Technical Support



Phone: M–F, 8am–5pm Central Time
(866) 692-7100 (N. America) | +1 (815) 338-4751 (Int'l)



Email: Answered within 48 hours
www.owcdigital.com/support



Chat: M–F, 8am–8pm Central Time
www.owcdigital.com/support

Changes:

The material in this document is for information purposes only and subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, OWC, its parent, partners, affiliates, officers, employees, and agents assume no liability resulting from errors or omissions in this document, or from the use of the information contained herein. OWC reserves the right to make changes or revisions in the product design or the product manual without reservation and without obligation to notify any person of such revisions and changes.

FCC Statement:

Warning! Modifications not authorized by the manufacturer may void the user's authority to operate this device. NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

Warranty:

The ThunderBay 4 mini has a [3 Year OWC Limited Warranty](#) if it was bundled with drives. ThunderBay 4 mini enclosures that do not ship with drives have a 1 Year OWC Limited Warranty. For up-to-date product and warranty information, please visit the [product web page](#).

Copyrights and Trademarks:

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written consent of OWC.

© 2019 Other world Computing, Inc. All rights reserved. OWC, the OWC logo, and ThunderBay are trademarks of New Concepts Development Corporation, registered in the U.S. and/or other countries. Mac and macOS are trademarks of Apple Inc., registered in the U.S. and other countries. Thunderbolt and the Thunderbolt logo are trademarks of Intel Corporation in the U.S. and/or other countries. Other marks may be the trademark or registered trademark property of their owners.