

**QUALSTAR**<sup>®</sup>



**ULTRIUM**  
LTO



*Desktop LTO Mac*

# Thank you for purchasing your Qi Desktop LTO Mac!

With Qualstar's Qi Desktop LTO Mac bundle, your data is kept secure on industry standard LTO tape cartridges that feature a shelf life of 30-plus years.

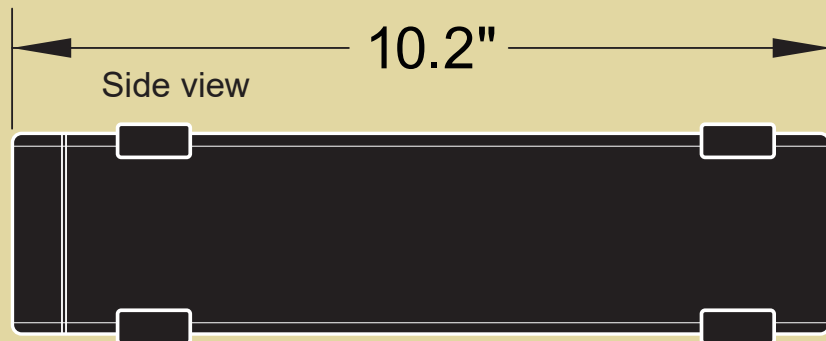
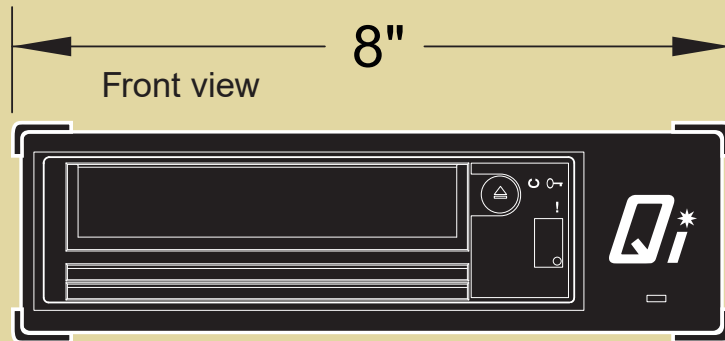
For more information, please contact us at [support@Qualstar.com](mailto:support@Qualstar.com) or visit us at [Qualstar.com](http://Qualstar.com)

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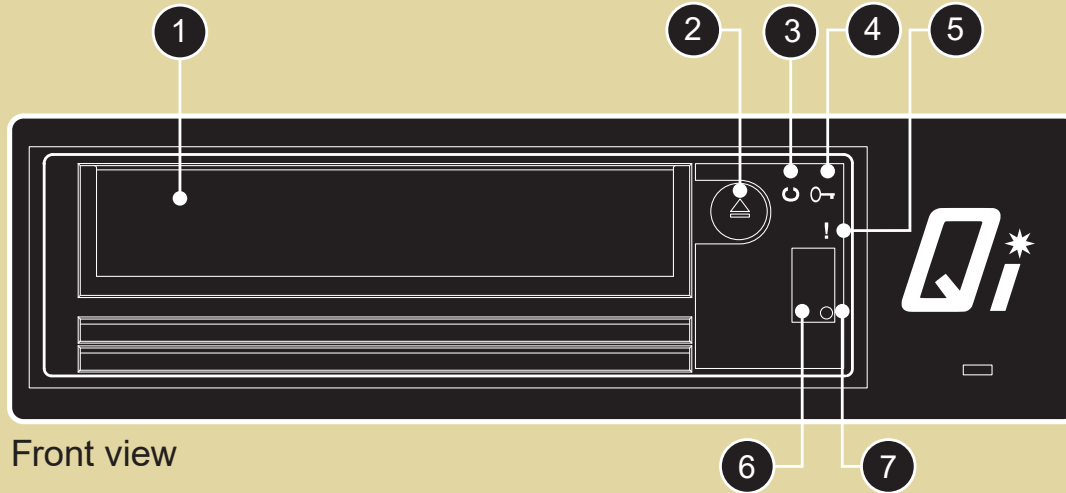
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# DIMENSIONS & SYSTEM REQUIREMENTS



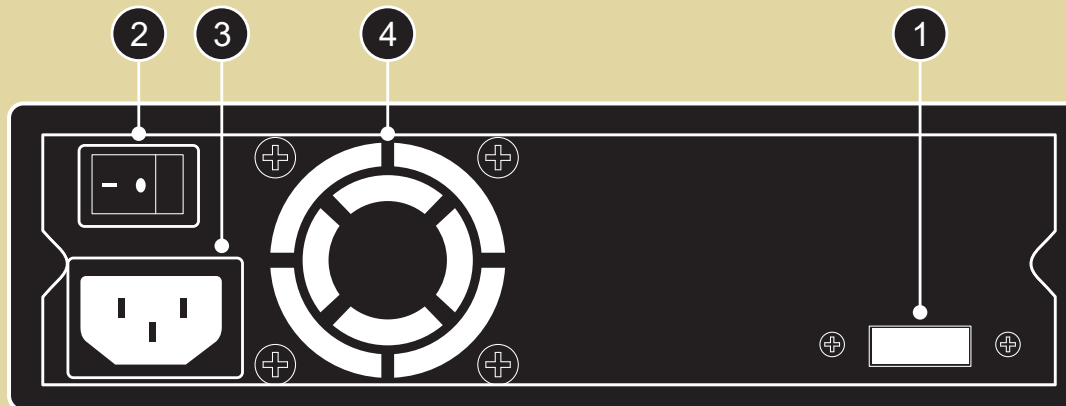
- Mac device with Thunderbolt connectivity
- Thunderbolt cable
- MacOS LTFS software ([Hedge Canister recommended—click here to download](#))

# FEATURES



Front view

- 1 Cartridge door
- 2 Cartridge unload button
- 3 Ready light (green)
- 4 Encryption key
- 5 Fault light (amber)
- 6 Single character display (SCD)
- 7 SCD dot



Rear view

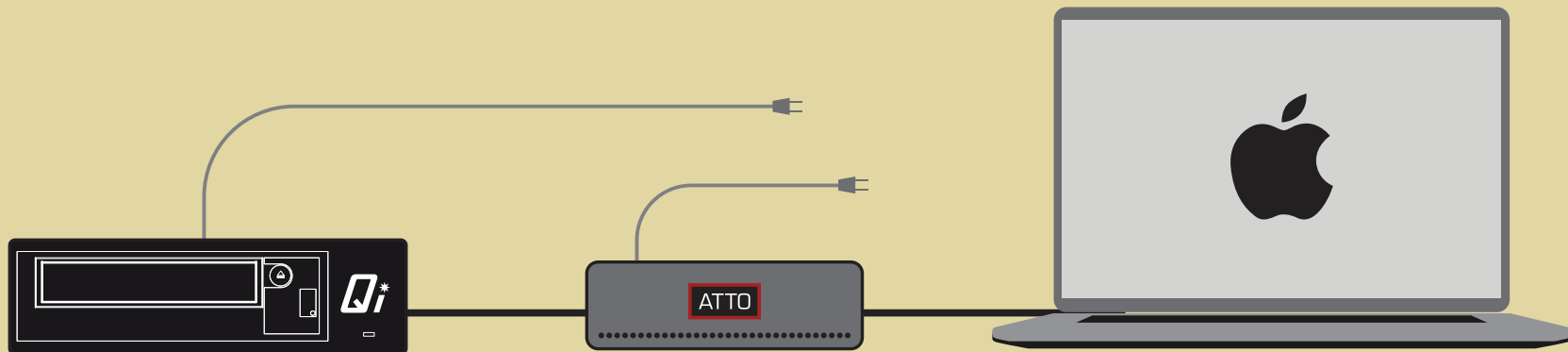
- 1 Mini-SAS SFF-8088 (F) port
- 2 On/Off switch
- 3 Power jack
- 4 Fan

# UNPACKING YOUR Qi DESKTOP LTO MAC

## Kit Contents

- Qi Desktop LTO SAS with LTO-6, LTO-7, or LTO-8 drive (with power cord)
- ATTO ThunderLink SH 3128 (with power cord)
- Mini-SAS SFF-8644 to SFF-8088 cable
- Quick Start Guide
- Applicable data tape cartridge (optional)

# CONNECTING THE Qi DESKTOP LTO MAC



**Step 1:** Connect the Qi to the ThunderLink with the provided SAS cable.

**Step 2:** Connect the ThunderLink to your Mac device with a Thunderbolt cable.

**Step 3:** Connect the Qi to a power outlet.

**Step 4:** Power on the Qi and wait until the unit displays a sustained green light.

**Step 5:** Connect the ThunderLink to a power outlet.

**Step 6:** Power on your Mac device.

**Step 7:** Download the latest device drivers from [atto.com/downloads](http://atto.com/downloads) and launch the driver setup program.

**Step 8:** Install MacOS LTFS software (Hedge Canister recommended).

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## **CONNECTING THE Qi DESKTOP LTO MAC**

**Note:** When initially powered on, the Qi will perform a hardware power on self-test (POST). The POST checks to make sure that the LTO drive is functioning properly. Wait until the single character display (SCD) presents a sustained green light to indicate POST is complete. POST takes approximately 12 seconds.

**Note:** If the Qi is powered on with a tape cartridge installed, the system will perform a much more intensive POST while the system verifies the integrity of the data on the tape.

**Note:** Never leave a tape in the Qi with the unit powered off!

**Note:** Never remove power from the Qi during read, write, load, and unload activities.

## LOADING THE LTO CARTRIDGE

1. Make sure the Qi is powered on and the green ready light is illuminated. Do not try to insert a tape cartridge before the green ready light is on and steady.
2. Insert the cartridge in to the LTO drive. The cartridge goes in with the arrow pointing upward.
3. Apply gentle pressure until the drive engages the cartridge.
4. When the cartridge is loaded, the green ready light will glow steady green.

## UNLOADING THE LTO CARTRIDGE

1. Always use the backup/archive application that you are running to unload the LTO tape cartridge. This ensures that the application has finished writing data to the tape before the cartridge is unloaded.
2. Press the blue cartridge unload button. During the unload process, the drive will complete any current tasks, rewind the tape and unload the cartridge. The green ready light flashes while the unload process is under way.
3. After the cartridge partially unloads, grasp the cartridge and remove from the drive.




# CLEANING THE Qi LTO TAPE DRIVE

The Qi will alert you when it is necessary to clean the LTO tape drive. The SCD will display a “C” to indicate a cleaning is required. To clean, insert a cleaning cartridge into the LTO drive. Cleaning begins automatically. When the process is finished, the cartridge is unloaded, and the SCD will be blank.

**Note:** The drive will automatically unload an expired cleaning cartridge.

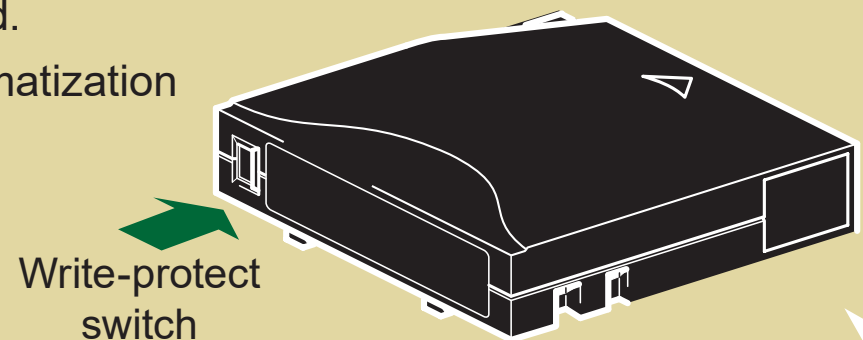
# APPENDIX A: CARTRIDGE COMPATIBILITY

	LTO Tape Cartridges				
	12 TB (Ultrium 8)	6 TB (Ultrium 7)	2.5 TB (Ultrium 6)	1.5 TB (Ultrium 5)	800 GB (Ultrium 4)
Desktop SAS LTO-8	Read/Write	Read/Write			
Desktop SAS LTO-7		Read/Write	Read/Write	Read Only	
Desktop SAS LTO-6			Read/Write	Read/Write	Read Only

## PROTECT YOUR MEDIA

Many tape drive and backup failures are caused by damaged or badly handled tape media.

- Keep the LTO cartridge in the case provided.
- Follow the temperature, humidity, and acclimatization guidelines on the media packaging.
- Avoid dropping and/or rough handling, as this is likely to damage the cartridge.
- Inspect it regularly for damage.



# APPENDIX B: ERROR CODES AND MESSAGES

If the drive detects a permanent error, it displays the error code on the SCD and flashes the fault light (ready light is off).

- Make note of the SCD error code before a cartridge is removed or the SCD error code is cleared.
- If an error occurred with the cartridge in the drive, push the unload button to eject the cartridge.
- To clear the SCD error code and power cycle the drive, press the unload button for 10 seconds.

Error Code	Cause and Action
1	Temperature problem. The tape drive detected that the recommended operating temperature was exceeded. Complete one or more of these actions: <ul style="list-style-type: none"><li>• Ensure the cooling fan is rotating.</li><li>• Remove any blockage preventing air from flowing freely through the tape drive.</li></ul>
2	Power problem. The tape drive detected that the externally supplied power is outside the specified voltage limits (the tape drive is not operating). Complete these actions: <ol style="list-style-type: none"><li>1. Ensure the power connector is properly seated.</li><li>2. Turn power off/on to the Qi to see if the problem repeats.</li></ol>
3	Firmware problem. The tape drive determined a firmware error occurred.

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## APPENDIX B: ERROR CODES AND MESSAGES

Error Code	Cause and Action
4	Firmware or hardware problem. The tape drive determined that a firmware or tape drive hardware failure occurred.
5	Tape drive hardware problem. The drive determined that a tape path or read/write error occurred. To prevent damage to the drive or tape, you cannot insert a cartridge if the current cartridge was successfully ejected. The error code might clear when you cycle power to the Qi.
6	Tape drive or media error. The tape drive determined that an error occurred, but it cannot isolate the error to faulty hardware or to the tape cartridge.
7	Media error. The tape drive determined that an error occurred because of a faulty tape cartridge or an invalid tape cartridge. Drive does not accept an expired cleaning cartridge.
8	Interface problem. The tape drive determined that a failure occurred in the tape drive's hardware or in the host bus.
9	Tape drive or RS-422 error. The tape drive determined that a failure occurred in the tape drive's hardware or in the RS-422 connection.

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## APPENDIX B: ERROR CODES AND MESSAGES

Error Code	Cause and Action
	Degraded operation. The tape drive determined a problem occurred that degraded the operation of the tape drive, but it did not restrict continued use.
	The tape drive must be cleaned. Clean the tape drive. See “Cleaning the Qi LTO Tape Drive” on page 9.
	Write operation to a write protected cartridge was attempted (includes any attempt to overwrite a WORM protected tape). Ensure the tape cartridge is the correct media type. If the tape cartridge is the correct media type, check the write-protect switch on the cartridge. The drive does not write to a write-protected cartridge.

**If an error code persists contact [support@Qualstar.com](mailto:support@Qualstar.com) for assistance**

# PRODUCT WARRANTY CAUTION

The Qi Desktop LTO SAS contains no user-serviceable components. Only an authorized service center should carry out any servicing or repairs. The warranty for the Qi shall not apply to failures of any unit when:

- Any of the Qi components are repaired or modified by anyone other than an approved agent.
- The Qi is physically abused or used in a manner inconsistent with the operating instructions or product specification defined by Qualstar.
- The Qi fails because of accident, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, modification, or service by anyone other than the factory service center or its approved agent.
- The Qi is repaired by anyone, including an approved agent, in a manner that is contrary to the maintenance or installation instructions supplied by Qualstar.
- The manufacturer's serial number tag is removed.
- The Qi is damaged because of improper packaging on return.

In case of unauthorized repairs or modifications, your warranty becomes immediately void.

Warranty information can be found by visiting [Qualstar.com/warranty-service](http://Qualstar.com/warranty-service).