

# Quantum®

## LTO Drives



### > DATASHEET

## Quantum LTO Tape Drive: Now with DATASTOR Shield Deduplication Software

Quantum's LTO stand-alone drives deliver a simple, affordable, all-in-one data protection solution that customers can depend on. Many companies can store all their data on a single cartridge, thanks to the tremendous capacity LTO technology provides. In addition, companies can keep this data secure using AES 256-bit encryption as tapes are transported off-site for disaster recovery or long-term archiving. Quantum's LTO tape drives are WORM capable, allowing companies from healthcare, financial, and other related industries to meet tough regulatory requirements. LTO technology offers backward read and write capability, providing an archive tape recovery solution with newer-generation drives.

Linear Tape File System (LTFS) software allows customers to simply drag and drop files to Quantum LTO tape drives as they would to a hard drive. This eliminates the need for backup software and allows the information written on tape to be exchanged easily between different users, operating systems, and software. This is highly beneficial for many applications—including media and entertainment, video and imaging, long-term archiving, among others—where removing the dependence on a proprietary format is important. LTFS is compatible with Windows, Linux, and Apple Mac operating systems.

Quantum tape drives now include DATASTOR Shield™ backup software with deduplication to supercharge your backup. Quantum and DATASTOR have teamed up to provide the first backup with deduplication straight to tape. This technology, which reduces backups significantly (up to 20x), allows you to store more data per tape than competitive models.

### FEATURES & BENEFITS

#### Performance\*

- LTO-8 and LTO-7:** Up to 750 MB/sec compressed transfer rate
- LTO-6:** Up to 400 MB/sec compressed transfer rate
- LTO-5:** Up to 280 MB/sec compressed transfer rate

#### Capacity\*

- LTO-8:** Up to 30 TB with standard compression; up to 240 TB with DATASTOR Shield
- LTO-7:** Up to 15 TB with standard compression; up to 120 TB with DATASTOR Shield
- LTO-6:** Up to 6.25 TB with standard compression; up to 50 TB with DATASTOR Shield
- LTO-5:** Up to 3.0 TB with standard compression; up to 30 TB with DATASTOR Shield

#### Security/Ease of Use

AES 256-bit data encryption security, WORM functionality, and partitioning capability

#### Compatibility

Investment protection with two generations of backward read and one generation of backward write capability

#### LTFS Software

Free LTFS software can be downloaded at [www.quantum.com](http://www.quantum.com)

#### Backup with Deduplication

Includes DATASTOR Shield backup software with deduplication, which reduces data by up to 20x

\*Assumes 2.5:1 compression for LTO-8, LTO-7, and LTO-6, 2:1 for LTO-5, 20:1 deduplication for DATASTOR Shield.



> LEARN MORE:  
[www.quantum.com/lto](http://www.quantum.com/lto)

# TECHNICAL SPECIFICATIONS

## DRIVE CAPACITY AND PERFORMANCE

| Drive Type | Media Type | Cartridge Capacity Native/Compressed/Deduplicated* (TB) | Drive Throughput Native/Compressed/Deduplicated* (MB/sec) |
|------------|------------|---|---|
| LTO-8      | LTO-8 (L8) | 12.0 / 30.0 / 240.0                                     | 300 / 750 / 6,000   |
| LTO-8      | LTO-7 (M8) | 9.0 / 22.5 / 180.0                                      | 300 / 750 / 6,000   |
| LTO-7      | LTO-7 (L7) | 6.0 / 15.0 / 120.0                                      | 300 / 750 / 6,000   |
| LTO-6      | LTO-6 (L6) | 2.5 / 6.25 / 50.0                                       | 160 / 400 / 3,200   |
| LTO-5      | LTO-5 (L5) | 1.5 / 3.0 / 30.0  | 140 / 280 / 2,800   |

**Configurations:** Internal bare, internal kit, tabletop kit, and 1U rack mount  
**Interface Connector Type:** 6 Gb/sec SAS  
 SFF8482 with integrated power (internal), SFF8088 (tabletop and rack)

**Burst Transfer Rate (MB/sec):** SAS (maximum) 600  
**Data Buffer Size:** LTO-8, LTO-7: 1 GB  
 LTO-6: 512 MB  
 LTO-5: 256 MB

## BACKUP SOFTWARE

**Included Software:** DATASTOR Shield Single-Server Backup  
**Deduplication Rate:** 20:1 (typical)  
**Software Compatibility:** Windows Only  
**Backup Methods:** Disk-to-disk-to-tape, disk-to-tape, archive-to-tape in native format  
**Upgradeable:** Yes to multiple servers, SQL, Exchange, SharePoint, Bare Metal, Cloud, and other functionality

## TAPE/FORMAT COMPATIBILITY

|             | Media Read/Write   | Media Read Only        |
|-------------|--|------------------------|
| LTO-8 Drive | LTO-8 (L8), LTO-8 WORM, LTO-7 (L7), LTO-7 WORM, LTO-6 (L6), LTO-6 WORM | N/A                    |
| LTO-7 Drive | LTO-7 (L7), LTO-7 WORM, LTO-6 (L6), LTO-6 WORM                         | LTO-5 (L5), LTO-5 WORM |
| LTO-6 Drive | LTO-6 (L6), LTO-6 WORM, LTO-5 (L5), LTO-5 WORM                         | LTO-4 (L4), LTO-4 WORM |
| LTO-5 Drive | LTO-5 (L5), LTO-5 WORM, LTO-4 (L4), LTO-4 WORM                         | LTO-3 (L3), LTO-3 WORM |

## RELIABILITY

**MTBF (hours):** 250,000 @ 100% duty cycle  
**MSBF:** 100,000 cycles  
**Load/Unload Life:** 80,000 cycles  
**Non-Recoverable Error Rate:** 1 in 1 x 10<sup>19</sup> bits (LTO-8, LTO-7 non-media error, clean drive)  
 1 in 1 x 10<sup>17</sup> bits (LTO-5, LTO-6 non-media error, clean drive)

## PHYSICAL

| Form Factor      | Internal w/o bezel | Internal with bezel | Tabletop    | 1U Rack Mount |
|------------------|--------------------|---------------------|-------------|---------------|
| Width (in / mm)  | 5.75 / 146         | 5.83 / 148          | 8.4 / 213   | 18.7 / 480    |
| Height (in / mm) | 1.61 / 41          | 1.68 / 42.7         | 2.3 / 58    | 1.7 / 43      |
| Length (in / mm) | 8.07 / 205         | 8.27 / 210          | 13.10 / 332 | 17.6 / 438    |
| Weight (lb / kg) | 3.55 / 1.61        | 3.57 / 1.62         | 9.4 / 4.3   | 14.2 / 6.4    |

## ENVIRONMENTAL

### OPERATING

**Temperature:** 50 °F to 100 °F (10 °C to 38 °C) @ 5 CFM  
**Humidity:** LTO-8, LTO-7: 20% to 80% (non-condensing)  
 LTO-6, LTO-5: 10% to 80% (non-condensing)  
**Altitude (maximum):** LTO-8, LTO-7: 10,000 ft (3,048 m)  
 LTO-6, LTO-5: 13,000 ft (4,000 m)

### NON-OPERATING

**Temperature:** LTO-8, LTO-7: -40 °F to 140 °F (-40 °C to 60 °C) excluding media  
 LTO-6, LTO-5: -40 °F to 149 °F (-40 °C to 66 °C) excluding media  
**Humidity:** LTO-8, LTO-7: 10% to 90% (non-condensing)  
 LTO-6, LTO-5: 10% to 95% (non-condensing)

**VOLTAGE (V):** +5, +12

### POWER CONSUMPTION (HALF-HEIGHT)

**LTO-8:** Idle: 11.0 Watts, Typical: 30 Watts, Peak: 42.0 Watts  
**LTO-7:** Idle: 21.1 Watts, Typical: 32 Watts, Peak: 64.5 Watts  
**LTO-6:** Idle: 13.2 Watts, Typical: 24.7 Watts, Peak: 69 Watts  
**LTO-5:** Idle: 13.3 Watts, Typical: 23.7 Watts, Peak: 69 Watts

## TAPE FORMAT

**Format:** LTO Ultrium 8, LTO Ultrium 7, LTO Ultrium 6, LTO Ultrium 5  
**Recording Density:** LTO-8: 20,579 KB/mm  
 LTO-7: 19,107 KB/mm  
 LTO-6, LTO-5: 15,143 KB/mm  
**Encoding Method:** LTO-8, LTO-7: 32 Channel 32/33 RLL  
 LTO-6, LTO-5: 16 Channel 32/33 RLL NPML  
**Data Compression:** LTO-8, LTO-7, LTO-6: 2.5:1  
 LTO-5: 2:1

## COMPATIBILITY

**Operating Systems:** Microsoft Windows, Red Hat Linux, SUSE Linux, Mac OS  
**Software/Hardware:** For the most up-to-date tested solutions, visit [www.quantum.com](http://www.quantum.com).

## TAPE

**Cartridge Dimensions (L x W x H):** 4 in x 4.15 in x .85 in  
 (102 mm x 105.4 mm x 21.5 mm)  
**Archive Storage:** 30 years  
**Durability:** 20,000 load/unload cycles

## WARRANTY

**Tape:** Limited lifetime  
**Tape Drive:** 3 years limited with Rapid Exchange

\*Assumes 2.5:1 compression for LTO-7 and LTO-6, 2:1 for LTO-5, 20:1 deduplication for DATASTOR Shield.

## Model Numbers and Descriptions

|                      |  |                      |  |
|----------------------|--|----------------------|--|
| <b>TC-L82AN-BR</b>   | LTO-8 HH, Internal, 6 Gb/sec SAS, 5.25 in, black, bare                       | <b>TC-L72AN-BR-C</b> | LTO-7 HH, Internal, 6 Gb/sec SAS, 5.25 in, black, bare                       |
| <b>TC-L82AN-EY</b>   | LTO-8 HH, Internal, 6 Gb/sec SAS, 5.25 in, black                             | <b>TC-L72AN-EY-C</b> | LTO-7 HH, Internal, 6 Gb/sec SAS, 5.25 in, black                             |
| <b>TC-L82AN-EZ</b>   | LTO-8 HH, Internal, SAS HBA Bundle, 6 Gb/sec SAS, 5.25 in, black             | <b>TC-L72AN-EZ-C</b> | LTO-7 HH, Internal, SAS HBA Bundle, 6 Gb/sec SAS, 5.25 in, black             |
| <b>TC-L82BN-AR</b>   | LTO-8 HH, Tabletop, 6 Gb/sec SAS, black                                      | <b>TC-L72BN-AR-C</b> | LTO-7 HH, Tabletop, 6 Gb/sec SAS, black                                      |
| <b>TC-L82BN-EZ</b>   | LTO-8 HH, Tabletop, SAS HBA Bundle, 6 Gb/sec SAS, black                      | <b>TC-L72BN-EZ-C</b> | LTO-7 HH, Tabletop, SAS HBA Bundle, 6 Gb/sec SAS, black                      |
| <b>TC-L83CN-AR</b>   | LTO-8 HH, Single, 1U Rack Mount, 6 Gb/sec SAS, black                         | <b>TC-L73CN-AR-C</b> | LTO-7 HH, Single, 1U Rack Mount, 6 Gb/sec SAS, black                         |
| <b>TC-L82GN-BR</b>   | LTO-8 HH, Internal Drive Option for 1U Rack Mount, 6 Gb/sec SAS, black, bare | <b>TC-L72GN-BR-C</b> | LTO-7 HH, Internal Drive Option for 1U Rack Mount, 6 Gb/sec SAS, black, bare |
| <b>TC-L62AN-BR-C</b> | LTO-6 HH, Internal, 6 Gb/sec SAS, 5.25 in, black, bare                       | <b>TC-L52AN-BR-C</b> | LTO-5 HH, Internal, 6 Gb/sec SAS, 5.25 in, black, bare                       |
| <b>TC-L62AN-EY-C</b> | LTO-6 HH, Internal, 6 Gb/sec SAS, 5.25 in, black                             | <b>TC-L52AN-EY-C</b> | LTO-5 HH, Internal, 6 Gb/sec SAS, 5.25 in, black                             |
| <b>TC-L62AN-EZ-C</b> | LTO-6 HH, Internal, SAS HBA Bundle, 6 Gb/sec SAS, 5.25 in, black             | <b>TC-L52AN-EZ-C</b> | LTO-5 HH, Internal, SAS HBA Bundle, 6 Gb/sec SAS, 5.25 in, black             |
| <b>TC-L62BN-AR-C</b> | LTO-6 HH, Tabletop, 6 Gb/sec SAS, black                                      | <b>TC-L52BN-AR-C</b> | LTO-5 HH, Tabletop, 6 Gb/sec SAS, black                                      |
| <b>TC-L62BN-EZ-C</b> | LTO-6 HH, Tabletop, SAS HBA Bundle, 6 Gb/sec SAS, black                      | <b>TC-L52BN-EZ-C</b> | LTO-5 HH, Tabletop, SAS HBA Bundle, 6 Gb/sec SAS, black                      |
| <b>TC-L62BN-EM-C</b> | LTO-6 HH, Tabletop, SAS HBA and Media (5 pcs) Bundle, 6 Gb/sec SAS, black    | <b>TC-L52BN-EM-C</b> | LTO-5 HH, Tabletop, SAS HBA and Media (5 pcs) Bundle, 6 Gb/sec SAS, black    |
| <b>TC-L63CN-AR-C</b> | LTO-6 HH, Single, 1U Rack Mount, 6 Gb/sec SAS, black                         | <b>TC-L53CN-AR-C</b> | LTO-5 HH, Single, 1U Rack Mount, 6 Gb/sec SAS, black                         |
| <b>TC-L62GN-BR-C</b> | LTO-6 HH, Internal Drive Option for 1U Rack Mount, 6 Gb/sec SAS, black, bare | <b>TC-L52GN-BR-C</b> | LTO-5 HH, Internal Drive Option for 1U Rack Mount, 6 Gb/sec SAS, black, bare |

## ABOUT QUANTUM

Quantum is a leading expert in scale-out tiered storage, archive, and data protection, providing solutions for capturing, sharing, and preserving digital assets over the entire data lifecycle. From small businesses to major enterprises, more than 100,000 customers have trusted Quantum to address their most demanding data workflow challenges. Quantum's end-to-end, tiered storage foundation enables customers to maximize the value of their data by making it accessible whenever and wherever needed, retaining it indefinitely and reducing total cost and complexity. See how at [www.quantum.com/customerstories](http://www.quantum.com/customerstories).