

LTO Server  
**LTS-60**



**FOR.A**<sup>®</sup>  
INNOVATIONS IN VIDEO  
and AUDIO TECHNOLOGY

# LTO SERVER **LTS-60**



## Protect Valuable Assets

The LTS-60 functions as an LTFs-based media archiving server for LTO-6 tapes, and allows LTO tape files to be read and written via FTP from Windows or OS X computers. Ideal as a small-scale archiving and backup solution.

- Backup/archiving of nonlinear project data
- Backup/archiving of editing material or files used in broadcast production, exchanging data on LTO tapes
- Archiving of mixed material (video and data files), and other applications



### Auto-generating proxy video during archiving

Tags video files in standard MXF formats (MPEG-2 / DVCPRO / AVC-Intra / XAVC™ / Avid DNxHD® / AVCHD) or MOV files (Apple ProRes) with metadata when archiving. Offers LTR series video archiving recorder compatibility when stored on LTO tape. Thumbnails and proxy videos can be generated automatically from the MXF files\*1 using the optional software. And with a "partial retrieval" function, individual MXF files\*1 on an LTO tape can be retrieved for use as separate MXF files\*1.

\*1 QuickTime (MOV) files in case of ProRes

### Complete data archiving to LTO

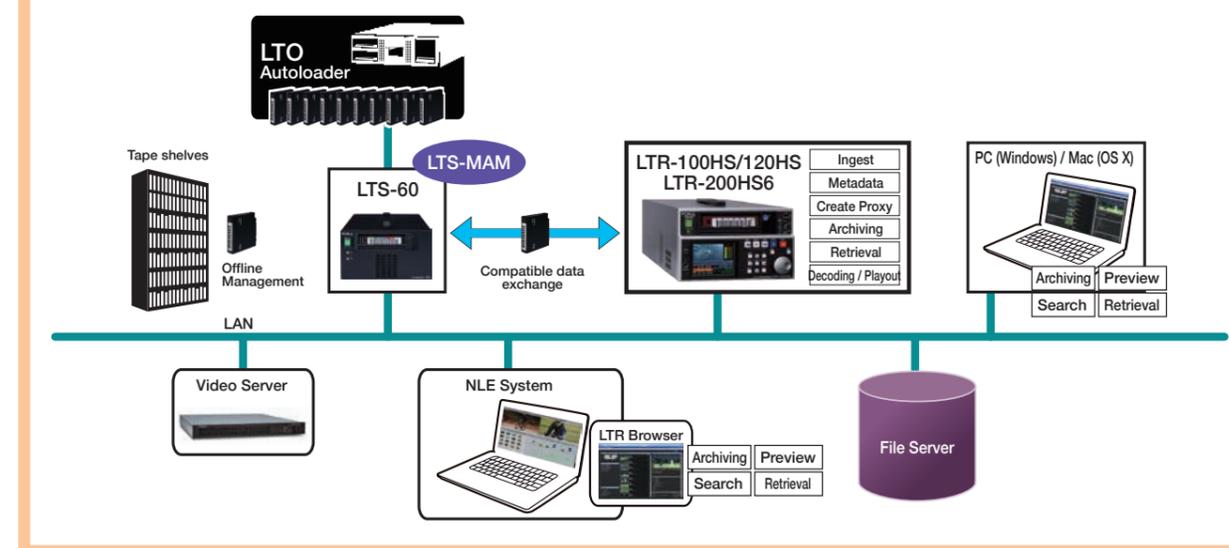
Archiving equipment that relies on databases or other internal file information tends to lock users into particular systems and limit LTO tape portability, making such systems less versatile. In contrast, by recording all data, including metadata, to the LTO tape\*2, the LTS-60 is able to maintain flexibility and avoid system lock-in, simplifying data transfers in asset management and other applications.

\*2 Requires activation of the metadata function before backup/archiving of generic files using the LTR Browser or LTS-MAM (optional software).

### Comprehensive file backup/archiving

Functions as an FTP server on the network, enabling Windows or OS X users to read or write any files on the unit's LTO tape directly via FTP. Back up project files, archive video files, or perform other tasks without file type or format restrictions.

Start with simple system with LTS-60 and LTS-MAM and expand on your demand



### LTO duplication

LTO tapes written by LTS-60 or LTR series products can be duplicated. High-speed copying between LTO tapes can be achieved in three ways; using optional software (LTS-REP) and an additional, external LTO drive; connecting two units of LTS-60 and PC; or by connecting the LTS-60, an LTR series product and PC via LAN using optional software (LTS-I-CP).

### Connection with LTR series products

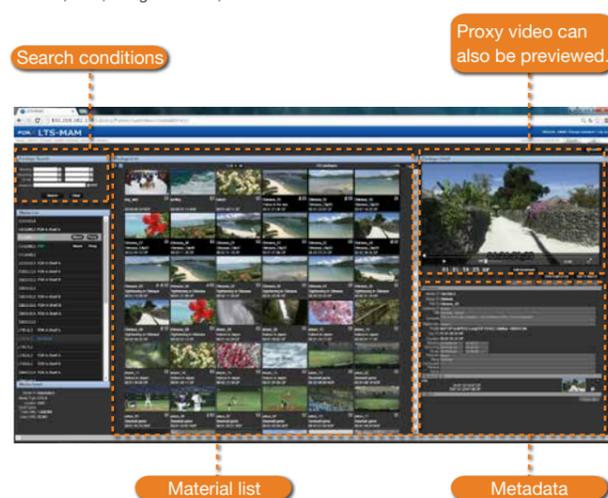
Connecting an LTR series video archiving recorder and LTS-60 allows LTO tapes to be searched with the LTS-MAM and the tapes to be played back by mounting them onto the LTR. Ideal in emergency situations, simple processing without having to copy material to HDD allows for increased workflow efficiency.

## Compact LTFs Archiving Box **LTS-MAM**

LTO server material file management software

Optional software LTS-MAM runs on the LTS-60, and allows intuitive, browser-based\*3 adding, searching, re-purposing, and management of assets from devices on the network. Also allows folders to be batch archived.

\*3 IE 10, IE11, Google Chrome, Safari



### Archiving and retrieval between storage and LTO tapes

Material files can be archived\*4 and retrieved between storage resources shared on LAN and an LTO tapes in the LTS-60, allowing non-linear editing materials and completed masters to be seamlessly stored and re-purposed.

\*4 Optional software supports auto-generation of proxy video from supported-format files.

### Material management

LTO tapes recorded with an LTR series video archiving recorder are automatically registered to the LTS-MAM database simply by inserting them into the LTS-60. When an LTO tape is registered, thumbnails, proxy video, metadata and other information are saved in the LTS-MAM database on the LTS-60 HDD, allowing the contents to be searched and previewed without the LTO tape mounted on the LTS-60. Expand LTS-60 HDD storage capacity by installing additional network-attached storage (NAS) devices to store proxy video.

### Search and preview

A list of archived material files can be viewed via thumbnails, and metadata accessed, through LTS-MAM using a Web browser via a network terminal. Preview proxy videos just by clicking on target material files narrowed via data search to show which tape the recorded material is located in, whether it is currently mounted, and where the tape is shelved.

### Partial Retrieval / Batch Retrieval

Target file locations can be extracted by specifying and bookmarking IN and OUT points using associated time codes\*5 during content playback (Partial Retrieval). Multiple bookmarks locations can be set for single material files and the specified locations successively retrieved in a single batch simply by selecting the target files (Batch Retrieval).

\*5 Continuous time codes

### Connecting to an LTO autoloader

LTS-MAM software supports LTS-60 linkage to TS3100 and TS3200 LTO autoloader units (IBM). Introducing of an LTO autoloader normally requires a control PC or other control unit, but an LTO autoloader system can be easily built, simply by connecting an LTS-60 with LTS-TSC plug-in software option installed to an LTO autoloader using an SAS cable\*6.

\*6 Supports only one LTO autoloader connection.

### Collation of files recorded on LTO tape\*7

After archiving, hash value of files recorded on the LTO tape are calculated and collated with their original files.

\*7 ON/OFF switchable on LTS-MAM management tool. When the function is turned ON, writing speeds slow down for files being imported as files are recorded.

### Expandable archive system

As your archiving requirements grow, choose the optimal solution for your expansion needs. Collaborating with the file-based media management system MediaConcierge™ (local/cloud-enabled version) allows for more robust material management capabilities among corporate groups and local or affiliated television stations, and offers simple, intuitive Web-based usability, flexible data management, and functionality.



\*8 A comprehensive solution for file-based workflows from FOR-A

## Options

### Options supports general-purpose codec

Generates of thumbnail and proxy video (H.264 or WMV). Partial retrieval function is also available.\*9  
LTS-PAD enables OP-Aton to OP-1a conversion. (Output signal is selectable from OP-1a or OP-Atom)

#### - Apple ProRes option (LTS-PRS)

An option for expanded functionality with ProRes based QuickTime (MOV) files.

#### - XAVC™ option (LTS-XAVC)

An option for expanded functionality with XAVC™ Intra based MXF files.

#### - Avid DNxHD® option (LTS-DNxHD)

An option for expanded functionality with Avid DNxHD® based MXF files.

#### - MPEG-2 option (LTS-SX)

An option for expanded functionality with MPEG-2 based MXF files.  
Supported file formats: MXF (OP-Atom, OP-1a) MPEG-2 I-GOP/Long GOP (SMPT ST 386, RDD 9)

#### - AVC-Intra/DVCPRO option (LTS-PAD)

An option for expanded functionality with AVC-Intra/DVCPRO based MXF files.  
Supported file formats: MXF (OP-Atom, OP-1a) DVCPRO 25/50/HD, AVC-Intra 50/100

#### - AVCHD option (LTS-AVCHD)

An option for expanded functionality with AVCHD based MXF files

\*9 LTS Browser or LTS-MAM is required. LTS-AVCHD doesn't supports partial retrieval function.

### Dual-drive copying option (LTS-REP)

Duplication of LTO tapes written by LTS-60 or LTR series products, using the built-in drive and an external drive\*\*10.  
\*10 Sold separately

### Remote control SDK

Please ask FOR-A about remote control API.

### LTR Browser

Enables these operations from a computer:  
Browsing lists of MXF files\*1 on an LTO tape, with thumbnails and metadata. Windows and OS X versions available.

Extra features: Metadata searching, Adding/removing MXF files, Viewing/editing metadata, Proxy playback, Partial retrieval



### LTR/LTS Copy Controller (LTS-I-CP)

Duplication of LTO tapes written by LTS-60 or LTR series products, by connecting two units of LTS-60 or the LTS-60 and a LTR series product with PC using LAN.

\*1 QuickTime (MOV) files in case of ProRes

## Specifications

Recording format	LTO-6/LTO-5**11, (File system: IBM LTFS)
Internal Storage	3 TB HDD
Interfaces	USB: 2.0 Series A connector x2 USB: 3.0 Series A connector x2 LAN1/2: 100 Base-TX/1000 Base-T, RJ-45 x2 To External Drive: mini-SAS connector x1 (for IBM external LTO-6/LTO-5 drive or IBM autoloader connection. LTS-REP/LTS-TSC option software is necessary) DVI-I: 29-pin (female) x1 PS/2: 6-pin mini-DIN connector x1 RS-232C: Not used
Temperature / Humidity	10°C to 35°C / 20% to 80% (no condensation)
Power / Consumption	100 VAC to 240 VAC, ±10%, 50/60 Hz / 130 VA (128 W) at 100 VAC to 120 VAC, 132 VA (125 W) at 220 VAC to 240 VAC
Dimensions / Weight	212 (W) x 116 (H) x 421.2 (D) mm / 7 kg
Accessories	Operation manual, AC Cord retaining clip, LTO-6 tape cartridge, and LTO cleaning cartridge
Consumables (if used 24 hours a day at room temperature)	Cooling fan: Replace every 3 years. Power unit: Replace every 5 years. Battery: Replace every 5 years**12. Hard disk drive: Replace every 5 years.
Options	LTR Browser / LTS-PRS (ProRes supporting Plug-in) / LTS-XAVC (XAVC™ option) / LTS-DNxHD (Avid DNxHD® option) / LTS-SX (MPEG-2 option) / LTS-PAD (AVC-Intra/ DVCPRO option) / LTS-AVCHD (Plug-in software for AVCHD) / LTS-RPS (Dual-drive copying option) / Remote control SDK / LTS-TSC (LTO autoloader control software) / LTS-MAM (material management software) / Annual support

\*\*11 LTO WORM is not available.

\*\*12 Yearly battery replacement is recommended when unit is stored without powering on for long periods

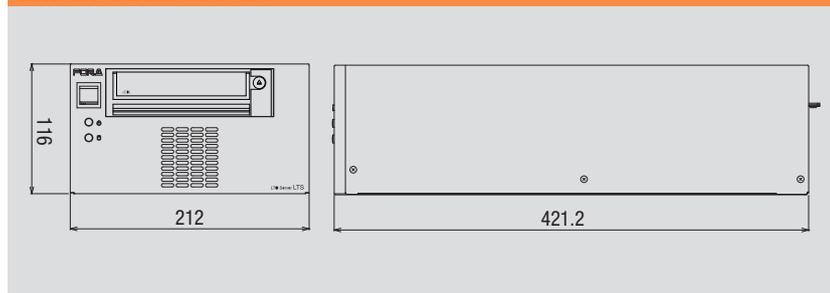
## LTO Basic Performance

	LTO-5	LTO-6
Cartridge Size	105 (W) x 22 (H) x 102 (D) mm	
Capacity	Approx. 1.5 TB (data area: 1,425 GB / 1,327 GiB)	Approx. 2.5 TB (data area: 2,408 GB / 2,242 GiB)
Recording capacity (theoretical value)**13	MPEG-2 422@HL: 50 Mbps, HD: Approx. 52 hours MPEG-2 MP@HL: 35 Mbps, HD: Approx. 82 hours	MPEG-2 422@HL: 50 Mbps, HD: Approx. 80 hours MPEG-2 MP@HL: 35 Mbps, HD: Approx. 120 hours
Response**14	File system information acquisition time: under 1 minute in typical case (depends on number of files on LTO tape) File body seek time: within 3 minutes in typical case (This will take more time in some cases)	

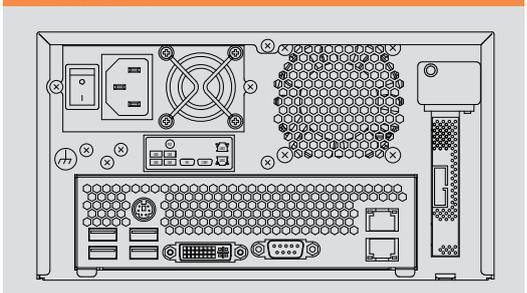
\*\*13 Without proxy video and metadata. Actual values may differ depending on LTO tape and head conditions.

\*\*14 Response may vary depending on the LTO tape or LTO drive condition.

## External Dimensions



## Rear Panel



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AVC-Intra and DVCPRO are trademarks of Panasonic Corporation.

XAVC is a trademark of Sony Corporation.

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