

LTS-90 Datasheet

1. Specifications

Basic specifications

Temperature	15°C to 35°C (16°C to 25°C recommended)
Humidity	20% to 80% (no condensation)
Power	AC 100 V to 240 V $\pm 10\%$, 50/60 Hz
Consumption	AC 100 V to 120 V: 130 VA (128 W) AC 220 V to 240 V: 154 VA (127 W)
Dimensions	212 (W) x 116 (H) x 422.5 (D) mm
Weight	8 kg
Consumables (at 24-hour operation)	Cooling fan: Replace every 3 years. Power: Replace every 5 years. Battery: Replace every 5 years. (*) Hard disk: Replace every 5 years.

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

Technical specifications

Removable Storage	LTO-8/ LTO-9 (File system: IBM LTFS)
Internal Storage	8TB HDD 20TB HDD (with optional LTS-90HDD20T installed)
Interfaces	
USB	USB3.0 series A connector x 4 (front x 2, rear x 2)
LAN1/2	100BASE-TX/1000BASE-T, RJ-45 x 2
To External Drive	Mini-SAS HD(SFF-8644) Connector x 1 To connect to an LTO-EU7/ LTO-EU8, an external LTO-7 drive made by IBM or an auto loader made by IBM. (LTS-TSC optional software is required to connect to an auto loader.)
VGA	15-pin D-Sub (female) x 1
RS-232C	Not used
IPMI	Not used

LTO-8 Basic Performance

Cartridge Size	105 (W) x 22 (H) x 102 (D) mm
Capacity	Approx. 12.0 TB (data area: 11711 GB / 10907 GiB)
Recording capacity	The followings, values excluding ancillary data and proxy video files, are theoretical. Actual values may differ depending on LTO tape and head conditions.
CBR/4:2:2/422P@HL	Approx. 380 hours (50 Mbps, HD)
VBR/4:2:0/MP@HL	Approx. 570 hours (35 Mbps, HD)
Response	File system information acquisition time: under one minute in typical case. File seek time: within three minutes (This will take more time in some cases.)

LTO-9 Basic Performance

Cartridge Size	105 (W) x 22 (H) x 102 (D) mm
Capacity	Approx. 18.0 TB (data area: 16736 GB / 16344 GiB)
Recording capacity	The followings, values excluding ancillary data and proxy video files, are theoretical. Actual values may differ depending on LTO tape and head conditions.
MPEG-2 422@HL	Approx. 576 hours (50 Mbps, HD)
MPEG-2 MP@HL	Approx. 876 hours (50 Mbps, HD)
Response	File system information acquisition time: under one minute in typical case. File body seek time: within three minutes (This will take more time in some cases.)
Media Initialization (Optimization)	New LTO-9 tapes require initialization the first time they are inserted; this is a one-time operation and is not required thereafter. It is performed automatically when a tape is inserted. Initialization can be performed on any drive, and the initialized tape can be used without modification on another drive. The average media initialization time is about 40 minutes. Most initializations take less than 60 minutes, but can take up to 2 hours. During initialization, the Single Character Display shows a lower case c and the green LED blinks.

H.264 file

Video	Resolution Low *	Compression format	H.264 Baseline Profile Level 2.1 (LTS-SX HD Main Profile Level 3.0)
		Resolution	HD: 424 x 240 (LTS-SX 480 x 270) SD: 320 x 240 (NTSC) 384 x 288 (PAL)
		Frame rate	NTSC family: 29.97fps, PAL family: 25 fps
		Bitrate	900 kbps (LTS-SX HD 1,000 kbps)
	Resolution Normal *	Compression format	H.264 Main Profile Level 3.2
		Resolution	HD: 1280 x 720
		Frame rate	NTSC: 29.97 fps, PAL: 25 fps
		Bitrate	2000 kbps
	Resolution High *	Compression format	H.264 High Profile Level 4.0
		Resolution	HD: 1920 x 1080
		Frame rate	NTSC: 29.97 fps, PAL: 25 fps

		Bitrate	4000 kbps
Audio	Resolution Low *	Compression format	AAC LC
		Number of channels	2 ch (LTS SX HD 8ch SD 4ch)
		Sampling rate	48 kHz 16 bit
		Bitrate	96 kbps
	Resolution Normal High *	Compression format	AAC LC
		Number of channels	2 ch (LTS SX HD 8ch SD 4ch)
		Sampling rate	48 kHz 16 bit
		Bitrate	384 kbps
File format		Container format	MP4
		Bitrate	Auto-calculated from video and audio bitrates
Timecode		-Added to each frame as the Picture Timing SEI message in H.264 streams. -Timecode can be added to the video content by changing setting.	

* Changing the resolution requires the corresponding codec option. (LTS-SX, LTS-XAVC or LTS-XAVC-L)

Windows Media File

Video	Compression format	Windows Media Video V9
	Resolution	HD: 424 x 240 SD: 320 x 240 (NTSC) 384 x 288 (PAL)
	Frame rate	NTSC family: 29.97 fps, PAL family: 25 fps
	Bitrate	1,300 kbps
Audio	Compression format	Windows Media Audio V9
	Number of channels	2 ch
	Sampling rate	48 kHz
	Bitrate	192 kbps
File format	Container format	WMV (ASF)
	Bitrate	Auto-calculated from video and audio bitrates
Timecode		-Timecode can be added to the video content by changing setting.

Options

LTR-BWIN ^(*)	LTR Browser (Windows Version)
LTR-BMAC ^(*)	LTR Browser (Mac Version)
LTS-SX	MPEG-2 (OP-1a) Plugin
LTS-PAD	AVC-Intra/DVCPRO Plugin
LTS-PRS	ProRes422 Plugin
LTS-DNxHD	DNxHD Plugin
LTS-XAVC	XAVC Plugin

LTS-XAVC-L	XAVC Long Plugin
LTS-AVCHD	AVCHD Plugin
LTS-MAM ^{(*)3}	Media Asset Manager
LTS-TSC	LTO Auto-loader Plugin
LTS-MGS ^{(*)2}	LTS Migrator (Windows Version)
LTS-10GR ^{(*)2}	10GbE option (RJ45 model)
LTS-10GS ^{(*)2}	10GbE option (SFP+ model) 10GBASE-SR SFP+ Optical Transceiver
LTO-EU7/8 ^{(*)1}	LTO-7/8 external unit
LTS-90HDD20T	20TB HDD Option
^{(*)1} User Manual (PDF) is included in each CD-ROM. ^{(*)2} Download User Manual (PDF) from LTS-90 page on the FOR-A website. ^{(*)3} Download User Manual (PDF) from LTS-MAM page on the FOR-A website.	

Accessories

AC Cord, LTO Cleaning cartridge, SFP+ optical transceiver (Included only when LTS-10GS is installed),
Packing list

2. External Dimensions

(All dimensions in mm.)

