TOSHIBA

Intelligent Surveillance. Built to Perform.

Delivering a smart video storage solution with enhanced reliability and performance that are optimized for 24/7 advanced AI-enabled network video recorders and video analytics servers.

S300 AI
Surveillance Internal Hard Drive

The Toshiba S300 AI Surveillance Hard Drive is built for AI-driven surveillance and video analytics. Powered by Toshiba's OptiFrame™ Technology, it delivers smooth multi-stream performance, efficient data handling, and reduced frame loss even under heavy workloads.

Designed for 24/7 operation[6], the S300 AI supports up to 64 HD camera streams[4] and 32 AI streams, with capacities up to 24TB[1] for extended video retention. It offers Enterprise-level reliability with up to 550TB/year workload rate[9] and up to 2.5 million hours MTBF[8] to handle workload-intensive AI analytics.

With 7,200 RPM speed, up to 1GB cache, and CMR recording technology, the S300 AI delivers fast, reliable performance with advanced caching and enhanced random write operation for real-time AI data capture.

Image does not represent actual product.

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S300 AI
Surveillance Internal Hard Drive

Application[13]

- Surveillance Network Video Recorders (sNVR)
- Surveillance Digital Video Recorders (sDVR)
- RAID Storage Arrays for Surveillance
- Advanced AI-powered Video Recorders
- Video Analytics Servers

Product image may represent a design model.

Enterprise-level Reliability

Built for 24/7 operation[6] with up to 550TB/year workload rate[9] and up to 2.5M hours MTBF[8] for reliable performance in workload-heavy AI environments.

Optimized for Multi-Bay, Multi-Stream Setups

Supports up to 64 HD cameras[4] and 32 AI streams, with built-in RV sensors to minimize vibrations and ensure stable operation in multi-bay systems.

Advanced Performance

7,200 RPM, up to 1GB cache, and CMR technology deliver fast, reliable data transfer with enhanced caching for seamless AI data capture and analytics.

Toshiba OptiFrame™ Technology

Smart firmware optimizes multi-stream data flow, reducing frame drops for smooth recording and playback.

AI-Ready Design

Optimized for high random write activity to support real-time AI analytics and uninterrupted insights.

Peace of Mind

Toshiba Five-year limited warranty[10].

TOSHIBA | S300 AI Specifications

Capacity[1]	24TB	22TB	20TB
Model Number (Retail packaging)			
Model Number (Bulk)	MG11ACA24TE-V	MG11ACA22TE-V	MG11ACA20TE-V

Basic Specifications

Recording Technology[2]	CMR	CMR	CMR
Interface	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s
Form Factor[3]	3.5-inch	3.5-inch	3.5-inch
Sector Size	512e	512e	512e

Features

AI Streams	Up to 32	Up to 32	Up to 32
Firmware Technology	OptiFrame™ AI	OptiFrame™ AI	OptiFrame™ AI
Number of Cameras Supported[4]	Up to 64	Up to 64	Up to 64
Drive Bays Supported[5]	Up to 24	Up to 24	Up to 24
Tarnish Resistant	Yes	Yes	Yes
24 x 7 Operation[6]	Yes	Yes	Yes
Rotational Vibration (RV) **Sensors**	Yes	Yes	Yes
Shock Sensor	Yes	Yes	Yes

Performance

Rotational Speed [RPM]	7,200	7,200	7,200
Max Data Transfer Speed[7] [MB/s Typ.](Sustained)	309	299	295
Cache Size [MB]	1024	1024	1024

Reliability

MTTF/MTBF [Hours][8]	2,500,000	2,500,000	2,500,000
Unrecoverable Error Rate	10 per 10^{16}	10 per 10^{16}	10 per 10^{16}
Maximum Workload Rate [TB/Year][9]	550	550	550
Load/Unload Cycles	600,000	600,000	600,000
Limited Warranty[10] [Years]	5	5	5

Power Management

Supply Voltage	12 VDC ±10 % 5 VDC +10 % / -7 %	12 VDC ±10 % 5 VDC +10 % / -7 %	12 VDC ±10 % 5 VDC +10 % / -7 %
Power Consumption (Operating) [W]	8.11	8.11	8.11
Power Consumption (Active Idle) [W]	4.35	4.35	4.35

Environmental

Temperature (Operating)[11] [˚C]	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)
Temperature (Non-Operating) [˚C]	-40 to 70	-40 to 70	-40 to 70
Vibration (Operating) [m/s²]	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)
Vibration (Non-Operating) [m/s²]	29.4 {3.0 G} (5 to 500Hz)	29.4 {3.0 G} (5 to 500Hz)	29.4 {3.0 G} (5 to 500Hz)
Shock (Operating) [m/s²]	490 {50 G} (2 ms duration)	490 {50 G} (2 ms duration)	490 {50 G} (2 ms duration)
Shock (Non-Operating) [m/s²]	1,960 {200 G} (2 ms duration)	1,960 {200 G} (2 ms duration)	1,960 {200 G} (2 ms duration)
Acoustics Idle Mode [dB]	20	20	20

Physical

Height [mm Max.]	26.1	26.1	26.1
Length [mm Max.]	147	147	147
Width [mm Max.]	101.85	101.85	101.85
Weight [g Max.]	730	730	730

TOSHIBA | S300 AI Specifications

Capacity[1]	18TB	16TB	14TB
Model Number (Retail packaging)			
Model Number (Bulk)	MG11ACA18TE-V	MG11ACA16TE-V	MG11ACA14TE-V

Basic Specifications

Recording Technology[2]	CMR	CMR	CMR
Interface	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s
Form Factor[3]	3.5-inch	3.5-inch	3.5-inch
Sector Size	512e	512e	512e

Features

AI Streams	Up to 32	Up to 32	Up to 32
Firmware Technology	OptiFrame™ AI	OptiFrame™ AI	OptiFrame™ AI
Number of Cameras Supported[4]	Up to 64	Up to 64	Up to 64
Drive Bays Supported[5]	Up to 24	Up to 24	Up to 24
Tarnish Resistant	Yes	Yes	Yes
24 x 7 Operation[6]	Yes	Yes	Yes
Rotational Vibration (RV) **Sensors**	Yes	Yes	Yes
Shock Sensor	Yes	Yes	Yes

Performance

Rotational Speed [RPM]	7,200	7,200	7,200
Max Data Transfer Speed[7] [MB/s Typ.](Sustained)	295	295	295
Cache Size [MB]	1024	1024	1024

Reliability

MTTF/MTBF [Hours][8]	2,500,000	2,500,000	2,500,000
Unrecoverable Error Rate	$10 \text{ per } 10^{16}$	$10 \text{ per } 10^{16}$	$10 \text{ per } 10^{16}$
Maximum Workload Rate [TB/Year][9]	550	550	550
Load/Unload Cycles	600,000	600,000	600,000
Limited Warranty[10] [Years]	5	5	5

Power Management

Supply Voltage	12 VDC ±10 % 5 VDC +10 % / -7 %	12 VDC ±10 % 5 VDC +10 % / -7 %	12 VDC ±10 % 5 VDC +10 % / -7 %
Power Consumption (Operating) [W]	7.89	7.41	7.41
Power Consumption (Active Idle) [W]	4.16	3.66	3.66

Environmental

Temperature (Operating)[11] [˚C]	5 to 60 (surface)	5 to 60 (surface)	5 to 60 (surface)
Temperature (Non-Operating) [˚C]	-40 to 70	-40 to 70	-40 to 70
Vibration (Operating) [m/s²]	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)
Vibration (Non-Operating) [m/s²]	29.4 {3.0 G} (5 to 500Hz)	29.4 {3.0 G} (5 to 500Hz)	29.4 {3.0 G} (5 to 500Hz)
Shock (Operating) [m/s²]	490 {50 G} (2 ms duration)	490 {50 G} (2 ms duration)	490 {50 G} (2 ms duration)
Shock (Non-Operating) [m/s²]	1,960 {200 G} (2 ms duration)	1,960 {200 G} (2 ms duration)	1,960 {200 G} (2 ms duration)
Acoustics Idle Mode [dB]	20	20	20

Physical

Height [mm Max.]	26.1	26.1	26.1
Length [mm Max.]	147	147	147
Width [mm Max.]	101.85	101.85	101.85
Weight [g Max.]	730	730	730

Capacity[1]	10TB	8TB
Model Number (Retail packaging)		
Model Number (Bulk)	MG10ADA10TE-V	MG10ADA800E-V

Basic Specifications

	10TB	8TB
Recording Technology[2]	CMR	CMR
Interface	SATA 6.0 Gbit/s	SATA 6.0 Gbit/s
Form Factor[3]	3.5-inch	3.5-inch
Sector Size	512e	512e

Features

	10TB	8TB
AI Streams	Up to 32	Up to 32
Firmware Technology	OptiFrame™ AI	OptiFrame™ AI
Number of Cameras Supported[4]	Up to 64	Up to 64
Drive Bays Supported[5]	Up to 24	Up to 24
Tarnish Resistant	Yes	Yes
24 x 7 Operation[6]	Yes	Yes
Rotational Vibration (RV) **Sensors**	Yes	Yes
Shock Sensor	Yes	Yes

Performance

	10TB	8TB
Rotational Speed [RPM]	7,200	7,200
Max Data Transfer Speed[7] [MB/s Typ.](Sustained)	281	281
Cache Size [MB]	512	512

Reliability

	10TB	8TB
MTTF/MTBF [Hours][8]	2,000,000	2,000,000
Unrecoverable Error Rate	10 per 10^{16}	10 per 10^{16}
Maximum Workload Rate [TB/Year][9]	550	550
Load/Unload Cycles	600,000	600,000
Limited Warranty[10] [Years]	5	5

Power Management

	10TB	8TB
Supply Voltage	12 VDC ±10 % 5 VDC +10 % / -7 %	12 VDC ±10 % 5 VDC +10 % / -7 %
Power Consumption (Operating) [W]	9.63	9.63
Power Consumption (Active Idle) [W]	5.74	5.74

Environmental

	10TB	8TB
Temperature (Operating)[11] [˚C]	5 to 60 (surface)	5 to 60 (surface)
Temperature (Non-Operating) [˚C]	-40 to 70	-40 to 70
Vibration (Operating) [m/s²]	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)	7.35 {0.75 G} (5 to 300 Hz) 2.45 {0.25 G} (300 to 500 Hz)
Vibration (Non-Operating) [m/s²]	29.4 {3.0 G} (5 to 500Hz)	29.4 {3.0 G} (5 to 500Hz)
Shock (Operating) [m/s²]	686 {70 G} (2 ms duration)	686 {70 G} (2 ms duration)
Shock (Non-Operating) [m/s²]	2,450 {250 G} (2 ms duration)	2,450 {250 G} (2 ms duration)
Acoustics Idle Mode [dB]	34	34

Physical

	10TB	8TB
Height [mm Max.]	26.1	26.1
Length [mm Max.]	147	147
Width [mm Max.]	101.85	101.85
Weight [g Max.]	755	755

TOSHIBA

Toshiba Consumer Internal Hard Drives.

A drive for every storage application.

Hard Drive **Surveillance** **S300 AI**

Hard Drive **urveillance** **S300 Pro**

Hard Drive **AS Systems** **N300 Pro**

Hard Drive **rformance** **X300 Pro**

Hard Drive **urveillance** **S300**

Hard Drive **AS Systems** **N300**

Hard Drive **rformance** **X300**

Image does not represent actual product.

To see our full line of consumer HDD storage products, visit:

storage.toshiba.com/consumer-hdd

[1] One Terabyte (1TB) means 10^{12} = 1,000,000,000,000 bytes using powers of 10. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1TB = 2^{40} = 1,099,511,627,776 bytes, and therefore shows less storage capacity. Available storage capacity (including examples of various media files) will vary based on file size, formatting, settings, software and operating system and other factors. Actual formatted storage capacity may vary.

[2] CMR is Conventional Magnetic Recording technology.

[3] 2.5-inch and 3.5-inch mean the form factor of HDDs. They do not indicate drive's physical size.

[4] Number of surveillance cameras support capability is defined by performance simulation with High Definition cameras at up to 10Mbps rate, depending on the HDD model. Actual results may vary based on various factors, including the types of cameras installed, the system's hardware and soware capabilities, and the video compression technology used, as well as system variables such as resolution, frames per second, and other settings. Compatibility may vary depending on user's hardware configuration and operating system. "High Definition" is calculated assuming Full HD 1080p, 30fps, transfer rate of up to 10Mbps/stream.

[5] As for "Drive Bays Supported", please contact your Solutions Provider because the compatibility with the host device will vary based on the system.

[6] Drive life may vary depending on usage and workload. See also MTTF/MTBF and Annual Workload Rating for more detail.

[7] The maximum sustained data rate and interface speed may be restricted to the response speed of host system and by transmission characteristics. Read and write speed may vary depending on the host device, read and write conditions, and file size. Transfer speed varies by capacity.

[8] MTTF (Mean Time to Failure) or MTBF (Mean Time Between Failure) is not a guarantee or estimate of product life; it is a statistical value related to mean failure rates for a large number of products which may not accurately reflect actual operation. Actual operating life of the product may be different from the MTTF or MTBF. MTTF (Mean Time to Failure) or MTBF (Mean Time Between Failure) of the HDDs during its life time is 600,000 hours and AFR(Annualized Failure Rate) is 1.46%, or 1.0 million hours and AFR is 0.88%, or 1.2 million hours and AFR is 0.73%, or 2.5 million hours and AFR is 0.35% (depending on HDD models). This assumes power-on hours are 24 x 7 in normal usage (8760 h/year power on hours, up to 180TB/year, or up to 300TB/year, or up to 550TB/year total data transfers (depending on HDD models), and average HDA surface temperature:40°C or less). Use at case HDA surface temperature above 40°C may degrade product reliability and reduce warranty period.

[9] Annual Workload Rating: HDDs keep track of various drive usage such as power on hours, lifetime writes and lifetime reads from the host computer. With this data we calculate an Annualized Workload Rate, under 40 deg. C ambient environments, Annualized Workload Rate = (Lifetime Writes + Lifetime Reads) * (8760 / Lifetime Power On Hours) in case Power On time is 8760h or longer. Otherwise (i.e. Power On time is shorter than 8760h), Annualized Workload Rate = (Lifetime Writes + Lifetime Reads) Each drive is designed to perform up to the Annualized Workload Rate stated, after which the drive may be expected to decline. The Annualized Workload Rate in no way alters the warranty policy for such drive. Workload is defined as the amount of data written, read or verified by commands from host system.

[10] Standard limited warranty applies. The warranty brochure can be viewed online at http://storage.toshiba.com/consumer-hdd/warranty-info.

[11] Operation in high surface temperature will shorten the useful life of the drive. The recommended operating surface temperature is less than 60°C.

[12] Product specifications, configurations, software, components and features are subject to change without notice.

[13] Compatibility may vary depending on user's hardware configuration and operating system.

[14] OptiFrame is a trademark or registered trademark of Toshiba Electronic Devices & Storage Corporation in the United States and other countries. All other trademarks are the property of their respective owners.

[15] Product image may represent a design model.