TOSHIBA

DT02-VH SERIES
SURVEILLANCE HDD

Toshiba's Surveillance HDD DT02-VH Series are designed for purpose-built consumer and commercial surveillance video systems supporting up to 64 cameras [1]. The versatile capacity allows solutions designers to customize the storage capacity that optimum aligns with image resolution and stable video recording requirements. DT02-VH series use an energy-saving 5400 rpm design to deliver performance tuned for demanding 24/7, multi-stream surveillance environments. DT02-VH series are designed to be compatible with the wide variety of surveillance platforms available from leading SVR and NVR vendors.

Product image may represent a design model.

KEY FEATURES

- Up to 6 TB[2] capacity
- Supports up to 64 cameras high-definition streams
- 256 MiB buffer helps to smooth video recording and guard against frame drops
- Designed for 24x7 operation
- Annual workload rating of 180 TB/year[3]
- MTTF of 1M hours[4]
- Industry-standard 3.5-inch form-factor [5] and SATA 6.0 Gbit/s interface [6]
- Advanced Format 512e Sector Technology
- Drive-Managed SMR (Shingled magnetic recording) Technology

APPLICATIONS

- Network Video Recorders (NVR)
- Hybrid (analog and IP) Super DVR (SDVR) platforms
- Mid- and High-Range Surveillance NVR (SNVR) and SDVR platforms

SPECIFICATION

Item		DT02ABA600VH	DT02ABA400VH
Interface		SATA-3.3	
Formatted Capacity		6 TB	4 TB
Performance	Interface Speed [8]	6.0 Gbit/s, 3.0 Gbit/s, 1.5 Gbit/s	
	Rotation Speed	5400 rpm	
	Buffer Size	256 MiB [7]	
	Maximum Data Transfer Speed [8] (Sustained) (Typ.)	176.4 MiB/s	
Logical Data Block Length[9]		HOST: 512 B, DISK: 4096 B	
Supply Voltage	Allowable Voltage	12 V [10] ± 10 % / 5 V [10] ± 5 % [11]	
Power Consumption	Operating (Typ.)[12]	4.84 W	4.36 W
	Active idle (Typ.)	2.81 W	2.33 W
	Standby (Typ.)	0.36 W	0.34 W
Acoustics (Sound Power) [13]	Low Power Idle (Typ.)	24 dB	22 dB

ENVIRONMENTAL LIMITS

Item		Specification
Ambient temperature	Operating	0 °C to 60 °C (No condensation)
	Non-Operating	- 40 °C to 70 °C (No condensation)
Enclosure surface temperature[14]	Operating	0 °C to 70 °C (No condensation) [14]
Relative Humidity	Operating	5 % to 90 % R.H. (No condensation)
	Non-Operating	5 % to 95 % R.H. (No condensation)
Altitude	Operating	- 305 m to 3048 m
	Non-Operating	- 305 m to 12192 m
Shock[15]	Operating	686 m/s^2 { 70 G } (2 ms duration)
	Non-Operating	6TB: 2940 m/s^2 { 300 G } / 4 TB: 3430 m/s^2 { 350 G } (2 ms duration)
Vibration[15]	Operating [16]	4.90 m/s^2 { 0.50 G } (5 to 350 Hz) 2.45 m/s^2 { 0.25 G } (350 to 500 Hz)
	Non-Operating [17]	29.4 m/s^2 { 3.0 G } (5 to 500 Hz)

RELIABILITY

Item	Specification
MTTF / AFR	1 000 000 hours / 0.88 %
Non-recoverable Error Rate	1 error per 10^{14} bits read
Load / Unload	600 000 times
Availability	24 hours/day, 7 days/week
Rated Annual Workload (Total TB Transferred per Year, R/W)	180 TB/year

MECHANICAL SPECIFICATIONS

Item	DT02ABA600VH	DT02ABA400V
Width	101.6 mm ± 0.25 mm	
Height (Max)	26.1 mm	
Length (Max)	147.0 mm	
Weight (Max)	680 g	650 g

[1]Number of surveillance cameras support capability is defined by performance simulation with High Definition cameras at 4 Mbit/s rate. Actual results may vary based on various factors, including the types of cameras installed, the system's hardware and software capabilities, and the video compression technology used, as well as system variables such as resolution, frames per second, and other settings. [2]Definition of capacity: One terabyte (TB) = one trillion bytes, but storage capacity actually available may vary depending on operating environment and formatting. Available storage capacity (including examples of various media files) will vary based on file size, formatting, settings, software and operating system and/or pre-installed software applications, or media content. Actual formatted capacity may vary. [3]Workload is defined as the amount of data written, read or verified by commands from host system. [4]MTTF (Mean Time to Failure) of the HDDs during its life time is 1 000 000 hours and AFR (Annualized Failure Rate) is 0.88 %. (POH: 8760 hours per one year of 24 x 7 operational capabilities for normal surveillance usage and environments. Average HDA surface temperature:40°C or less., workloads: 180 TB/year, which is defined as the amount of data written, read or verified by commands from host system) Continual or sustained operation at case HDA surface temperature above 40°C may degrade product reliability. [5] "3.5-inch" means the form factor of HDDs. They do not indicate drive's physical size. [6]Read and write speed may vary depending on the host device, read and write conditions, and file size. [7] A kibibyte (KiB) means 2^{10}, or 1024 bytes, a mebibyte (MiB) means 2^{20}, or 1 048 576 bytes, and a gibibyte (GiB) means 2^{30}, or 1 073 741 824 bytes. [8]The maximum sustained data rate and interface speed may be restricted to the response speed of host system and by transmission characteristics. 1 Gbit/s = 1 000 000 000 bit/s. 1 MiB/s = 1 048 576 B/s [9]Read–modify-write is supported. [10] Input voltages are specified at the HDD connector side, during HDD ready state. [11]Make sure the value is not less than DC -0.3 V (less than -0.6 V, 0.1 ms) when turning on or off the power. [12] Operating watt is measured using 80% random read/write and 20 % performance idle. [13]The measuring method is based on ISO 7779. [14] Operation of high surface temperature will be shortened of the drives useful life. The recommendation operating condition of surface temperature is less than 60℃. [15] Vibration applied to the HDD is measured at near the mounting screw hole on the frame as much as possible. [16] At random seek write/read and default on retry setting with log sweep vibration. [17] At power-off state after installation.