

MN SERIES (Conventional Air design) NAS HDD

Toshiba MN series of 3.5-inch^[1] 7200 rpm hard disk drives (HDD) deliver up to 10 TB^[2] of storage capacity, making it suitable storage solution for home and SOHO NAS applications. To address the demanding requirements, these HDDs provide enterprise class 1 million hour MTTF^[3], 180 TB/year^[4] workload rating and support for 24/7 power-on operation. The MN series also feature rotational vibration (RV) sensors which automatically detect and compensate for transient vibrations to deliver consistent performance in multi-bay storage enclosures.



Product image may represent a design model.

KEY FEATURES

- Up to 10 TB Capacity (model line-up also includes 8 TB, 6 TB and 4 TB)
- 7200 rpm Performance
- SATA 6.0 Gbit/s^[5]^[6] Interface
- MTTF of 1 million hours
- 180 total TB Transferred per Year Workload Rating
- Rotational Vibration (RV) Sensors for Great Scalability and Good Performance
- 24/7 operation

APPLICATIONS

- Home and SOHO NAS
- Small business server and storage
- Archiving and data back-up
- Private cloud storage

SPECIFICATIONS

Item		MN06ACA10T	MN06ACA800	MN05ACA800
Interface		SATA-3.3		
Formatted Capacity		10 TB	8 TB	
Performance	Interface Speed	6.0 Gbit/s, 3.0 Gbit/s, 1.5 Gbit/s		
	Rotation Speed	7200 rpm		
	Buffer Size	256 MiB ^[6]		128 MiB
	Max Data Transfer Speed (Sustained) (Typ.)	211 to 237 MiB/s	211 to 230 MiB/s	230 MiB/s
Logical Data Block Length		HOST: 512 B, DISK: 4096 B ^[7]		
Supply Voltage	Allowable Voltage	12 V ^[8] ± 10 % / 5 V ^[8] + 10% / - 5% ^[9]		12 V ^[8] ± 10 % / 5 V ^[8] ± 5% ^[9]
Power Consumption	Operating ^[10] (Typ.)	9.48 W	8.61 W	9.2 W
	Active Idle (Typ.)	7.15 W	6.33 W	6.2 W
Acoustics ^[11] (Sound Power)	Active Idle (Typ.)	34 dB		33 dB
	Seek (Typ.)	35 dB		35 dB

[1] "3.5-inch" mean the form factor of HDDs. They do not indicate drive's physical size. [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] MTTF (Mean Time to 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. [4] Workload is defined as the amount of data written, read or verified by commands from host system. [5] Read and write speed may vary depending on the host device, read and write conditions, and file size. [6] A mebibyte (MiB) means 2²⁰, or 1 048 576 bytes, and a gibibyte (GiB) means 2³⁰, or 1 073 741 824 bytes. [7] Read-modify-write is supported. [8] Input voltages are specified at the HDD connector side, during HDD ready state. [9] Make sure the value is not less than -0.3 V DC (less than -0.6 V, 0.1 ms) when turning on or off the power. [10] Operating watt is measured using 80% random read/write and 20% performance idle.

Item		MN06ACA600	MN05ACA600	MN04ACA400
Interface		SATA-3.3		SATA-3.1
Formatted Capacity		6 TB		4 TB
Performance	Interface Speed	6.0 Gbit/s, 3.0 Gbit/s, 1.5 Gbit/s		
	Rotation Speed	7200 rpm		
	Buffer Size	256 MiB	128 MiB	
	Max Data Transfer Speed (Sustained) (Typ.)	211 to 230 MiB/s	205 to 230 MiB/s	185 to 195 MiB/s
Logical Data Block Length		HOST: 512 B, DISK: 4096 B ^[7]		HOST: 512 B DISK: 512 B or 4096 B ^[7]
Supply Voltage	Allowable Voltage	12 V ^[8] ± 10 % 5 V ^[8] ± 5% ^[9]		
Power Consumption	Operating ^[10] (Typ.)	7.88 W	10.1 W	9.6 W
	Active Idle (Typ.)	5.59 W	6.7 W	5.2 W
Acoustics ^[11] (Sound Power)	Active Idle (Typ.)	34 dB	33 dB	30 dB
	Seek (Typ.)	35 dB	35 dB	34 dB

ENVIRONMENTAL LIMITS

Item		MN06ACA10T MN06ACA800 MN06ACA600	MN05ACA800 MN05ACA600 MN04ACA400
Temperature	Operating (ambient)	0 °C to 60 °C	
	Operating (surface)	0 °C to 65 °C	
	Non-Operating (ambient)	- 40 °C to 70 °C ^[15]	
Humidity	Operating	5 % to 90 % R.H. (No condensation)	
	Non-Operating	5 % to 95 % R.H. (No condensation)	
Shock	Operating	686 m/s ² { 70 G } (2 ms duration)	
	Non-Operating	2450 m/s ² { 250 G } (2 ms duration)	
Vibration ^[12]	Operating ^[13]	7.35 m/s ² { 0.75 G } (5 to 300 Hz) 2.45 m/s ² { 0.25 G } (300 to 500 Hz)	
	Non-Operating ^[14]	29.4 m/s ² { 3.0 G } (5 to 500 Hz)	49 m/s ² { 5 G } (5 to 500 Hz)
Altitude	Operating	- 305 m to 3048 m	
	Non-Operating	- 305 m to 12 192 m	

RELIABILITY

Item	Specification
MTTF	1 000 000 h
Non-recoverable Error Rate	1 error per 10 ¹⁴ bits read
Load / Unload (Max)	300 000 times
Availability	24 hours/day, 7 days/week
Rated Annual Workload (Total TB Transferred per Year, R/W)	180 TB/year

[11] The measuring method is based on ISO 7779. [12] Vibration applied to the HDD is measured at near the mounting screw hole on the frame as much as possible. [13] At random seek write/read and default on retry setting with log sweep vibration. [14] At power-off state after installation. [15] The range of altitude is 3 048 m or less. Up to 55 °C at 7620 m. Up to 40 °C at 12 192 m.

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