

MG08 SERIES ENTERPRISE CAPACITY HDD

Using an industry-leading^[1] 9-disk design pioneered by Toshiba, the MG08 Series provides 16 / 14 TB^[2] of conventional magnetic recording (CMR) capacity and 7200 rpm performance. The industry-standard 3.5-inch^[3] form-factor integrates easily into cloud-scale storage infrastructure, business-critical servers and storage, and File and Object storage solutions. Toshiba's precision industrial laser welding technology is put to use to seal helium inside the 9-disk mechanics. The massive 16 / 14 TB capacity is delivered using proven CMR recording technology providing optimum application compatibility and data reliability. Available with either a SATA 6.0 Gbit/s or a 12.0 Gbit/s SAS interface^[4], the MG08 Series models integrate easily into standard 3.5-inch drive bays to help reduce the footprint and operational burden of cloud-scale storage infrastructure, and business critical servers and storage svstems.



Product image may represent a design model.

KEY FEATURES

- Industry Standard 3.5-inch 26.1 mm Height Form Factor
- Conventional Magnetic Recording (CMR) 16 / 14 TB for broad compatibility
- Industry-leading 9-disk helium-sealed design for superior storage density
- 7200 rpm Performance
- 550 Total TB Transferred per Year Workload Rating^[5]
- 512e or 4Kn Advanced Format Sector Technology; (512e Model) Includes Toshiba Persistent Write Cache Technology for Data-Loss Protection in Sudden Power-Loss Events
- Sanitize Instant Erase (SIE) and Self-Encrypting Drive (SED) option model^[6]

APPLICATIONS

- Cloud-scale Sever and Storage Infrastructure
- Software-defined data center infrastructure
- File- and Object-based storage infrastructure
- Tiered Storage Infrastructure
- Workloads and Use-Cases that Benefit from High Capacity per Spindle
- Capacity-Optimized Cloud-scale and Rack-Scale Storage Systems
- Compliance Data Life-Cycle Management
- Data Center Data-Protection and Data Back-up Infrastructure

SPECIFICATIONS

Item	MG08ACA16TA MG08ACA16TE MG08ACA16TAY MG08ACA16TEY MG08ACP16TA MG08ACP16TE		MG08ACA14TA MG08ACA14TE MG08ACA14TAY MG08ACA14TEY		MG08SCA16TA MG08SCA16TE MG08SCA16TAY MG08SCA16TEY MG08SCP16TA MG08SCP16TE		MG08SCA14TA MG08SCA14TE MG08SCA14TAY MG08SCA14TEY	
	SATA-3.3			SAS-3.0				
Interface	SATA-3.3			SAS-3.0				
Formatted Capacity	16TB		14TB		16TB		14TB	
Performance	Interface Speed	6.0 Gbit/s, 3.0 Gbit/s, 1.5 Gbit/s			12.0 Gbit/s, 6.0 Gbit/s, 3.0 Gbit/s, 1.5 Gbit/s			
	Rotation Speed	7200 rpm						
	Buffer Size	512 MiB ^[8]						
	Maximum Sustained Data Transfer Speed ^[7] (Typ.)	262 MiB/s						
Logical Data Block Length	MG08xxxxxA/AY (fixed length)	4096 B			4096 B / 4160 B			
	MG08xxxxxE/EY (emulation) ^[9]	Host:512 B, Disk:4096 B			Host:512 B, Disk:4096 B Host:520 B, Disk:4160 B			
Supply Voltage	Allowable Voltage	12 V ^[10] ± 10 % / 5 V ^[10] + 10 % / -7 % ^[11]						
Power Consumption	Random Write / Read 4KB Q1 (Typ.)	7.63 W			8.12 W			
	Active Idle (Idle-A)	4.00 W			4.46 W			
Acoustics ^[12]	Active Idle (Typ.)	20 dB						

ENVIRONMENTAL LIMITS

Item	Specification	
Ambient temperature	Operating	5 °C to 55 °C (No condensation)
	Non-Operating ^[13] ^[14]	-40 °C to 70 °C (No condensation)
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 ^[13] ^[14]	- 305 m to 12 192 m
Shock ^[15]	Operating	686 m/s ² { 70 G } (2 ms duration)
	Non-Operating	2450 m/s ² { 250 G } (2 ms duration)
Vibration ^[15]	Operating ^[16]	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 ^[17]	29.4 m/s ² { 3.0 G } (5 to 500 Hz)

[1] Source: Toshiba Electronic Devices & Storage Corporation, as of January, 2019 for the 3.5-inch, 26.1mm height.

[2] Definition of capacity: Toshiba defines a terabyte (TB) as 1 000 000 000 000 bytes. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1 TB = 2⁴⁰ = 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, such as Microsoft Operating System and/or pre-installed software applications, or media content. Actual formatted capacity may vary.

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

[4] Read and write speed may vary depending on the host device, read and write conditions, and file size.

[5] Workload is defined as the amount of data written, read or verified by commands from host system.

[6] SED supports TCG Enterprise SSCs. And the HDDs which have any security function may not be available in the countries where the use of such HDDs is prohibited or limited due to export control and local regulations.

[7] 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 bits/s. 1 MiB/s = 1 048 576 bytes/s

[8] A mebibyte (MiB) means 2²⁰, or 1 048 576 bytes.

[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 -0.3 V DC (less than -0.6 V, 0.1 ms) when turning on or off the power.

[12] The measuring method is based on ISO 7779.

[13] Non-operating condition (except storage condition) assumes short term transportation.

[14] The range of altitude is 3048 m or less. Up to 55 °C at 7620 m. Up to 40 °C at 12 192 m.

[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

RELIABILITY

Item	Specification
MTTF / AFR ^[18]	2 500 000 hours / 0.35 %
Non-recoverable Error Rate	10 error per 10 ¹⁶ bits read
Load / Unload	600 000 times
Availability	24 hours/day, 7 days/week
Rated Annual Workload (Total TB Transferred per Year, R/W)	550 TB per year

[18] MTTF (Mean Time to Failure) of the HDDs during its life time is 2.5 million hours and AFR (Annualized Failure Rate) is 0.35 %. This assumes 8760 h/year power on hours (24 hours per one day, 7 days per one week), up to 550 TB/year total data transfers, 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.

MECHANICAL SPECIFICATIONS

Item	Specification
Width (Max)	101.85 mm
Height (Max)	26.1 mm
Length (Max)	147.0 mm
Weight (Max.(Typ.))	720 g (694 g)