

Ultrastar™ A7K1000

3.5-INCH ENTERPRISE HARD DISK DRIVES

HITACHI
Inspire the Next

World's first terabyte hard drive for the enterprise –
Ideal for high-capacity storage in enterprise and nearline environments

Highlights

- > Up to 1 terabyte of capacity ¹
- > 3 Gb/s SATA for configuration flexibility
- > Targeted 1.2 million hours MTBF ²
- > Enhanced Rotational Vibration Safeguard (RVS) for robust performance in multi-drive environments
- > 5-year warranty

Applications/Environments

- > RAID arrays
- > Tiered storage
- > Nearline storage
- > Disk-to-disk back up
- > Network Attached Storage (NAS)
- > Data warehousing

Features and Benefits

	Feature / Function	Benefits
Capacity	Up to 1.0 TB of storage	Highest capacity available in a single hard drive
Reliability	Advanced PMR heads & media	Excellent soft error rate for improved reliability & performance
	Self-Protection Throttling (SPT)	Monitors and manages I/O to maximize reliability & performance
	Thermal Fly-height Control (TFC)	Better soft error rate for improved reliability & performance
	Fluid Dynamic Bearing (FDB) Motor	Improved acoustics & positional accuracy
	Load/unload ramp	Protects user data when power is removed
Performance	Rotational Vibration Safeguard (RVS)	Maintains high performance in multi-drive systems
	3 Gb/s SATA interface	300 MB/s burst data rate for faster data access
	32 MB cache buffer	Enhanced data transfer performance



1.0 TB, 750 and 500 GB | 7200 RPM
3 Gb/s SATA

Record capacity, enterprise-class reliability

The Ultrastar™ A7K1000 delivers up to one terabyte of storage capacity in a standard 3.5-inch form factor, filling a vital need for high-density storage in the enterprise. As the third generation design, based on the popular Deskstar™ E7K500, the Ultrastar A7K1000 continues to set the standard in enterprise-class reliability and performance for enterprise and nearline applications requiring high-capacity storage. With a unique 5-platter design, Hitachi has relaxed the bit densities to achieve higher reliability. The Ultrastar A7K1000 is built using the industry's most reliable perpendicular magnetic recording (PMR) recording heads and media.

Performance targeted for the enterprise

The Ultrastar A7K1000 features a 3 Gb/s SATA interface supporting key features in the Serial-ATA specification including Native Command Queuing (NCQ), staggered spin-up and hot-swap capability. The Ultrastar A7K1000 allows for configuration scalability and with the same physical connector as Serial Attached SCSI (SAS) drives, it's ideal for use in mixed-drive environments.

In multi-drive environments, rotational vibration, which results from the vibration of neighboring drives in a system, can degrade hard drive performance. To aid in maintaining high performance, the Ultrastar A7K1000 incorporates enhanced Rotational Vibration Safeguard (RVS) technology providing up to 50% improvement over the previous generation against performance degradation, leading the industry.

Finally, the Ultrastar A7K1000 is targeted at 1.2 million hours MTBF and provides the industry's most comprehensive 5-year warranty.

Specifications

Model(s)	HUA721010KLA330 HUA721075KLA330 HUA721050KLA330
Interface	3 Gb/s SATA
Capacity ¹	1 TB / 750 GB / 500 GB
Recording zones	30
Data heads (physical)	10 / 8 / 6
Data disks	5 / 4 / 3
Max areal density (Gbits/sq. in.)	148
Performance	
Data buffer (MB) ³	32
Rotational speed (RPM)	7200
Latency average (ms)	4.17
Media transfer rate (Mbits/sec, max)	1070
Interface transfer rate (MB/sec, max)	300
Sustained transfer rate (MB/sec)	85 - 42 (zone 0-29)
Seek time (read, typical, ms) ⁴	8.2
Reliability	
Error rate (non-recoverable, bits read)	1 in 10 ¹⁵
Start/stops (at 40° C)	50,000
Availability ² (days/week)	24 x 7
Targeted MTBF ² (hours)	1,200,000
Acoustics	
Idle (Bels)	2.9
Power	
Requirement	+5 VDC (+ -5%), +12 VDC (+ 20% - 8%)
Startup current (max. A)	2.0 (+ 12V) & 1.2 (+ 5V)
Idle (W)	9.0 / 8.1 / 7.3
Power consump. efficiency index (W/GB)	0.009 / 0.0108 / 0.0146
Physical size	
z-height (mm, max)	26.1
Dimensions (width x depth, mm)	101.6 x 147
Weight (g, max)	700
Environmental (operating)	
Ambient temperature	5° to 60° C
Shock (half-sine wave, G/2ms)	70
Vibration, random (G RMS 5 to 500 Hz)	0.67, all axes
Environmental (non-operating)	
Ambient temperature	-40° to 70° C
Shock (half-sine wave, G/1ms)	300
Vibration, random (G RMS 2 to 200 Hz)	1.04, all axes

¹ One GB is equal to one billion bytes and one TB equals 1,000 GB (one trillion bytes); accessible capacity may be less.
² Intended for use in lower duty cycle environments in the enterprise storage hierarchy, such as RAID and nearline applications. This MTBF target is based on a sample population and is estimated by statistical measurements and acceleration algorithms under nominal operating conditions. MTBF ratings are not intended to predict an individual drive's reliability. MTBF does not constitute a warranty.
³ Portion of buffer capacity used for firmware
⁴ Excludes command overhead

Hitachi quality and service

Hitachi's Ultrastar A7K1000 extends the company's long-standing tradition of performance and capacity leadership. The proven drive design enables high reliability and availability to customer data. Ultrastar quality, performance, and world class technical support and service provides customers with a lower total cost of ownership over previous generations.

Hitachi drives are backed by an array of technical support and services, which may include customer and integration assistance. Hitachi is dedicated to providing a breadth of hard disk drive solutions to satisfy all of today's demanding computing needs.

How to read the Ultrastar model number

HUA721010KLA330 = 1.0 TB, 3 Gb/s SATA
 H = Hitachi
 U = Ultrastar
 A = ATA
 72 = 7200 RPM
 10 = Full capacity — 1.0 TB
 10 = Capacity this model 10 = 1.0 TB
 (75 = 750 GB, 50 = 500 GB)
 K = Generation code
 L = 26.1mm z-height
 A3 = Interface, 3 Gb/s SATA
 0 = Reserved
 0 = Reserved

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