

Outstanding value, high capacity, and improved performance in a 9.5 mm height hard disk drive for notebook computing



IBM Travelstar 3GN

Highlights

High capacity

An areal density of 3.1 Gbits/square inch provides capacities of 3.2 and 2.1 GB to help meet the demands of the data-intensive applications required by notebook users.

Improved performance

Faster data rates, improved RPM (4200), and a 128 KB data buffer enhance performance without increasing power consumption. An Ultra DMA implementation boosts interface transfer rates to 33.3 MB/sec.

Superior power management

Enhanced Adaptive Battery Life Extender™ 2.0 power management technology includes Performance Idle, Active Idle, and Low Power Idle modes. It selects the appropriate mode to minimize power usage and increase battery life.

Rugged design

The Travelstar 3GN extends the proven Travelstar ruggedness to an industry-leading 700 G/1 ms non-operating shock rating and a 50 percent improvement in operating shock—to 150 G/2 ms—to help increase reliability.

Integrated Lead Suspension

An innovative new technology, Integrated Lead Suspension (ILS), reduces the number of moving parts and helps improve drive reliability.

Leading drive technology

With its high capacity, power management, performance, and ruggedness in a thin package, the Travelstar 3GN provides outstanding value for portable computing. At only 99 grams, the Travelstar 3GN is the lightest 2 or 3 GB notebook disk drive available, making it an ideal solution to the increasing demand for value and ultra-portable notebooks.

To provide this high level of performance, the Travelstar 3GN employs proven IBM technology. Magnetoresistive Extended (MRX) advanced head technology increases areal density, thereby reducing the number of disks and heads required to provide each capacity point. The MRX head technology increases areal density to 3.1 Gbits/square inch, and its pico slider enables more disk surface to be read.

IBM's proven head Load/Unload technology enables the use of smooth disks, allowing lower fly height that results in higher areal density. No-ID™ sector formatting also increases storage capacity by eliminating the overhead caused by the duplicate storage of each data sector's ID field. The Partial Response Maximum Likelihood (PRML) digital channel enables higher areal densities, significantly contributing to the drive's overall capacity and performance. In addition, S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) protocol support improves data availability by alerting the system of impending drive failure.

All of these innovative IBM technologies enable the Travelstar 3GN to provide the exceptional capacity, performance, power management, shock resistance, and reliability required by today's value and ultra-portable notebooks.

IBM quality and service

The Travelstar 3GN is backed by a three-year warranty and a wide range of technical support and services, which may include qualification support and integration assistance. This comprehensive support package helps ensure that IBM customers can continue to develop and manufacture high-quality, cost-effective systems.



Travelstar 3GN 2.5-inch 3.2 GB ultra-low-profile disk drive

Travelstar 3GN 2.5-inch 3.2 and 2.1 GB 9.5 mm height disk drives at a glance DYKA-23240/22160

Configuration	Interface	ATA-3		
	Capacity	3.24/2.16 GB ¹		
	Sector size	512 Bytes		
	Recording zones	8		
	User cylinders	8128		
	Data heads	4/3		
	Disks	2		
	Areal density (max)	3.12 Gbits/sq. in.		
	Recording density (max)	223.1 KBPI		
	Track density	14 KTPI		
	Performance	Data buffer	128 KB ²	
		Rotational speed	4200 RPM	
		Latency (average)	71 ms	
Media transfer rate		93.5 to 56.2 Mbits/sec		
Interface transfer rate (max. AT)		33.3 MB/sec Ultra DMA, Mode-2; 166 MB/sec PIO Mode-4		
Seek time		(typical read)		
Average		13 ms		
Track-to-track		4 ms		
Full-track		23 ms		
Reliability	Error rate (non-recoverable)	≤ 1 per 1.0 E13 bits transferred		
	Load/unload cycles	300,000 ³		
Power	Power requirement	+5VDC (±5%)		
	Dissipation (typical) ⁴			
	Startup (max peak)	4.7 W	Performance idle (avg.)	1.85 W
	Seek (average)	2.3 W	Active idle (avg.)	0.85 W
	Read (average)	2.0 W	Low power (avg.)	0.65 W
	Write (average)	2.1 W	Standby (avg.)	0.3 W
	Power consumption efficiency ⁵	0.0002 / 0.0003 Watts/MB	Sleep	0.1 W
Physical size	Height	9.5 mm		
	Width	70 mm		
	Depth	100 mm		
	Weight (max)	99 g		
Environmental characteristics		Operating	Non-operating	
	Ambient temp	5 to 55° C	-40 to 65° C	
	Relative humidity	8 % to 90 %	5 % to 95 %	
	Maximum wet bulb	29.4° C	40° C	
	Shock (half sine wave)	150 G/2 ms	700 G/1 ms	
	Vibration (random(RMS))	0.67 G (5 to 500 Hz)	3.01 G (5 to 500 Hz)	
	(Swept sine)	1 G 0-P (5 to 500 Hz)		
Warranty	3 years			

¹ 1 GB = 1,000,000,000 Bytes; 1 MB = 1,000,000 Bytes

² Upper 38 KB used for firmware

³ With controlled power off

⁴ Dissipation is reduced by the Enhanced Adaptive Battery Life Extender

⁵ Idle power dissipation/formatted capacity

General product information for other IBM hard disk drive products is available by calling 1 800 IBM-7777 and asking for Dept. Star 30 (outside of North America, call 1 416 383-5161 or fax 1 905 316-4733).

Information is also available via the Internet (www.storage.ibm.com/oem) or fax.

You can contact IBM's TECHFAX system by dialing 1 415 855-4773 from a touch tone phone. (International callers must call from a phone connected to a fax machine.) Follow the voice prompts to receive a TECHFAX directory.

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