

**Evolving technology to extend industry leadership,
IBM Travelstar continues to be the best storage decision
for the laptop computing market**



IBM Travelstar 4GT 2.5-Inch 3.2 and 4.0 GB Low Profile Disk Drives

Highlights

Industry leading performance

Offering the first 3.2 and 4.0 GB capacities in the industry standard 12.5mm profile, Travelstar 4GT provides storage solutions for mobile and network connected applications. Performance enhancements include increased data buffer size (now 512KB), a new Interface Transfer Rate of 33.3 MB/sec, and the industry's first mobile implementation of the Ultra DMA /33 interface.

Improved power management

IBM's proven Enhanced Adaptive Battery Life Extender™ 2.0 introduces a third idle mode, in addition to Performance Idle mode and Low idle mode, and selects the idle mode based on the individual user's access patterns.

Superior durability

The new Travelstar 4GT extends the proven Travelstar ruggedness to now withstand up to 600 G/2 ms non-operating shock and 100 G/2 ms operating shock, without sacrificing performance or reliability.

Leading drive technology

The Travelstar 4GT achieves its capacity, performance, and low-power management capabilities by employing IBM's development and integration experience in advancing disk drive technology.

These include IBM's advanced head technology, Magnetoresistive Extended (MRX), NO-ID™ sector formatting, Partial Response Maximum Likelihood (PRML) digital channel, and S.M.A.R.T. (Self Monitoring Analysis and Reporting Technology) protocol.

MRX advanced head technology offers increased areal density, reducing the number of disks and heads required. Load/Unload technology allows the Travelstar 4GT to fly these heads closer to the disk surface, improving areal density and performance. No-ID sector formatting increases storage capacity by eliminating the overhead caused by the duplicate storage of each data sector's ID fields, resulting in more disk space for a customer's data. The PRML digital channel allows higher areal densities and significantly contributes to the overall performance of the drive. S.M.A.R.T. protocol support protects data availability and alerts a system of impending drive failure.

The combination of IBM's leading technologies with the proven mechanical

design of Travelstar 4GT provides a new high capacity, high performance, and low power dissipation benchmark for today's notebook operating systems. Travelstar enables more availability of local and remote network resources, such as the Internet, with laptop applications.

Interface

The Travelstar 4GT has an ATA-3 interface and supports a transfer rate of 33.3 MB/sec. in Ultra DMA Mode-2 and 16.6 MB/sec. in PIO Mode-4, providing optimum data performance and industry compliance.

IBM quality and service

IBM drives are backed by an array of technical support, qualification support, and integration assistance. This comprehensive support package is designed to ensure that IBM customers can continue to develop and manufacture high-quality, cost-effective systems.



Travelstar 4GT 2.5-inch 3.2 and 4.0 GB Low Profile Disk Drives**DTCA-23240/-24090**

Configuration		Interface	ATA-3	
		Device Capacity (Formatted)	3.24/4.09 GB ¹	
		Sector Size	512 Bytes	
		Recording Zones	12	
		User Cylinders	6976	
		Data Heads	5/6	
		Disks	3	
		Areal Density (Maximum)	2.64 Gbits/sq. in.	
		Recording Density (Maximum)	211 KBPI	
		Track Density	12,500 TPI	
Performance		Data Buffer	512 KB ²	
		Rotational Speed	4000 RPM	
		Latency (Average)	7.5 ms	
		Media Transfer Rate	51.7 (inner), 83.4 (outer) Mbits/sec.	
		Interface Transfer Rate (Maximum AT)	33.3 MB/sec. Ultra DMA Mode-2 16.6 MB/sec PIO Mode-4	
		Seek Time (Typical Read)		
		Average 13 ms	Track-to-Track 4 ms	Full Track 23 ms
Reliability		Error Rates (Non-recoverable)	≤1 per 1.0E 13 bits transferred	
		Load/Unload Cycles	500,000	
Power		Requirements	+ 5 VDC (5%)	
		Dissipation (Typical) ³		
		Startup (Max. peak)	0.94 Amps	Performance Idle (Avg.) 1.85 Watts
		Seek (Avg.)	2.3 Watts	Active Idle (Avg.) 0.95 Watts
		Read (Avg.)	2.2 Watts	Low Power Idle (Avg.) 0.65 Watts
		Write (Avg.)	2.3 Watts	Standby (Avg.) 0.3 Watts
				Sleep 0.1 Watts
		Power Consumption Efficiency Index ⁴	0.0002 Watts/MB	
Physical Size		Height	12.5 mm	
		Width	70 mm	
		Depth	100 mm	
		Weight (Typical)	140 g	
Environmental Characteristics			Operating	Non-Operating
		Ambient Temperature	5 to 55° C	-40 to 65° C
		Relative Humidity (Non condensing)	8% – 90%	5% – 95%
		Maximum Wet Bulb (Non condensing)	29.4° C	40° C
		Shock (Half sine wave)	100 G/2 ms	600 G/2 ms
		Vibration (Random (RMS))	0.67 G (5-500 Hz)	3.0 G (5-500 Hz)
		(Swept sine)	1.0 G O-P (5-500 Hz)	N/A

¹ 1 GB = 1,000,000,000 Bytes ² Up to 44 KB used for firmware ³ Dissipation is reduced by the Enhanced Adaptive Battery Life Extender ⁴ Idle Power Dissipation/Formatted Capacity
1 MB = 1,000,000 Bytes

General product information for other IBM hard disk drive products is available by calling **1 800 IBM-2468 (1 416 383-5154 or fax 1 905 316-4733 outside of North America), and asking for Dept. Star 30.** Information is also available 24 hours a day, seven days a week, via fax or Internet. For faxed information, 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 order TECHFAX #7082 for information on the Travelstar 4GT or to receive a TECHFAX directory. The Internet may be accessed at **www.storage.ibm.com/oem.**

Product description data represents design objectives and is provided for comparative purposes; actual results may vary depending on a variety of factors. This product data does not constitute a warranty. Questions regarding IBM warranty terms or the methodology used to derive this data should be referred to an IBM representative. Data subject to change without notice.

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