

*A compact, self-contained, high-capacity, very rugged external storage solution for mobile computing environments*



## IBM Travelstar E External Hard Drive

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### Highlights

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**Employs a rugged design and shock damping for drive reliability and durability**

**Provides high storage capacities (up to 10 GB) to meet growing mobile user requirements**

**Is plug-and-play compatible with any PC-format notebook that has a PC card (PCMCIA) slot<sup>1</sup>**

**Simplifies operation with self-loading installation, data backup, and drive mirroring software**

**Features a self-contained design that eliminates the need for a power cord or external storage media such as cartridges and diskettes**

**Provides higher performance—up to 2.0 MB/sec—than external devices that use parallel ports**

**Weights only 12 ounces (340 g) and is small for easy portability**

**Uses field-proven, award-winning IBM Travelstar<sup>®</sup> mobile hard drives**

### A better way to keep up with data growth

If you're like most notebook PC users, you probably find yourself having to delete files that you would rather keep. There never seems to be as much storage as you need. With the proliferation of storage-hungry multimedia applications and the growing reliance on the Internet and e-mail applications, notebook hard drives are filling up faster than ever. Today, there is an easy way to add more storage to your system—quickly, easily, and affordably. With the new IBM Travelstar E External Hard Drive, you don't have to make the difficult decision of which files to keep and which to delete.

### The IBM Travelstar E External Hard Drive

Notebook PC users who need more storage have generally had three options: they can swap their internal hard drive with a higher capacity model, purchase a new PC with a higher capacity drive, or install external storage devices that use removable cartridges or CD-ROMs. All of these options have drawbacks. Installing a new hard drive in a notebook PC often requires expert assistance; purchasing a new PC can be rather expensive; and most external storage drives are expensive, have a greater susceptibility to shock and vibration, and rely on an external power source and media.

On the other hand, the IBM Travelstar E External Hard Drive is a self-contained mobile storage solution designed especially for notebook PC environments. It provides superior ruggedness, capacity, and performance in a smaller form factor than desktop drives. And it is much more affordable than purchasing a new PC or external removable media drive of equivalent capacity. Because the IBM Travelstar E External Hard Drive is a complete self-contained system, you don't have to carry around an extra power cord or a stack of cartridges or disks.

The plug-and-play IBM Travelstar E External Hard Drive is an easy-to-install, easy-to-use solution for adding mobile high-capacity storage to any notebook PC with a PCMCIA card slot. Two capacity points are available—8 GB and 10 GB—both of which provide an impressive price per GB. With superior shock and vibration performance, fast data transfer, and quiet operation, these drives are ideal for even the most demanding environments.



*The IBM Travelstar E External Hard Drive with PCMCIA attachment*

## **A versatile external storage solution**

The versatility of the IBM Travelstar E External Hard Drive enables it to fulfill a variety of user needs, such as data backup and archiving. Backup is simple with easy-to-use preloaded software tools. And you can easily transport large data files simply by plugging in the IBM Travelstar E External Hard Drive to another PC.

The high storage capacities enable you to store today's popular MP3, video, and multimedia files that can quickly consume all the storage in many hard drives. As a bonus, you don't have to worry about shuffling through a pile of cartridges or CDs to find the specific files you want—they can all remain in one place on the IBM Travelstar E External Hard Drive.

The IBM Travelstar E External Hard Drive can also help reduce security risks. For instance, if you are presenting a series of presentations at a conference, you can store sensitive data as encrypted files on a single IBM Travelstar E External Hard Drive rather than printing it in hardcopy or storing it on various cartridges, CDs, or notebook PCs.

## **Easy installation and use**

The IBM Travelstar E External Hard Drive is a complete plug-and-play solution that you can set up in just a few minutes. In fact, no driver diskettes or CDs are needed for the installation.<sup>1</sup> The one-time installation takes only a few minutes and offers the choice of installing "lite" preloaded software, such as popular MP3 "ripper" software and data backup/archiving applications. With the preloaded software, you get a fast, reliable data backup or drive mirroring solution right out of the box.

IBM Travelstar E External Hard Drives are also very easy to use. The small form factor and light weight make them easy to transport. And there are no external power cables or cartridges to worry about. You simply attach the PCMCIA card to the notebook and you are ready to begin.

## **The increasing demand for storage capacity**

In the past few years, several trends have combined to drive up the need for higher storage capacity:

*Memory-intensive applications*—Most PCs running a Windows\*\* operating system and standard Internet browser, word processing, spreadsheet, and organization software require 500 MB (or 0.5 GB) of storage just for those applications. Add a few more applications, and you can quickly fill many smaller hard drives.

*Proliferation of data from new sources*—The Internet, intranets, extranets, e-mail, multimedia, and other digital audio and video applications (such as MP3, 3-D design, 3-D animated graphics, and photography manipulation) have become commonplace for most notebook users. As a result, storage requirements have increased almost exponentially. For example, just one minute of uncompressed video requires 1.6 to 2.0 GB of storage.

*Increased reliance on information as a tool*—Through business intelligence, data mining, and data warehouse applications, more businesses are turning their raw data into valuable information. In order to do this more efficiently, many businesses are setting up dedicated Storage Area Networks (SANs) and data warehouses that enable business intelligence operations. In turn, notebook users find themselves conducting information management tasks in a similar manner with their own personal databases—which ultimately requires a greater investment in storage.

*Expanded use of mobile hard drives*—Many mobile drives are now being used in non-IT industries where storage requirements have increased due to the growth of information appliances with computing capabilities, such as printers, fax machines, commercial point-of-sale terminals, and medical testing products. Because of their lighter weight, smaller size, and superior ruggedness compared to desktop drives, mobile drives are an ideal choice for handling storage needs for a wide variety of commercial and industrial applications.

With their ruggedness, high performance, and industry-leading capacities, IBM Travelstar E External Hard Drives address these varied requirements to provide a highly reliable mobile storage solution.

## **Unsurpassed reliability and performance**

Because IBM Travelstar E External Hard Drives are much faster than other external drives that rely on removable media, they are ideal for running real-time online presentations, games, photo albums, and videos. The sustained data throughput rate of PCMCIA channels at 2 MB/sec is much higher than competitive products that use parallel port attachment at sustained throughput rates of only 200 to 300 KB/sec.



*A lightweight, high-capacity storage device for notebook PCs*

IBM Travelstar E External Hard Drives also have high shock and vibration ratings that are far superior to those of other external removable media storage drives. In fact, IBM Travelstar E External Hard Drives are designed to withstand repeated tabletop-height vertical drops and still maintain data integrity, thanks to innovative shock damping technology.

**Proven IBM quality and service**

IBM Travelstar E External Hard Drives are backed by IBM technical support and a two-year limited warranty. To further ensure reliability, IBM Travelstar E External Hard Drives use field-proven IBM Travelstar mobile hard drives that have a solid reputation for quality and are noted for offering some of the highest capacities, industry-leading shock ratings, and lowest power consumption in their class.

Together, these characteristics help keep IBM Travelstar E External Hard Drives operating reliably even in the most demanding environments.



*High reliability and a rugged design to handle demanding environments*

**The advantages of IBM Travelstar E External Hard Drives over typical external removable media storage devices**

Compared to other types of external storage devices, IBM Travelstar E External Hard Drives provide a number of advantages, including:

- Ruggedness to withstand heavy use in real-world mobile environments
- A sealed design that lowers the susceptibility to foreign particles (and potential drive contamination)
- Superior capacities of 8 GB and 10 GB per device compared to 2 GB removable cartridges
- A much lower price per GB of storage
- No need for a separate power cord or removable cartridges
- A smaller form factor with a lower drive weight
- Easier installation and use
- A faster, higher performance interface

## IBM Travelstar E External Hard Drive at a glance

Model	Travelstar 10E DTZN-1000TP	Travelstar 8E DTZN-0810SP
Part number	34L4224	34L4223
Physical size		
Height	28.0 mm	28.0 mm
Width	108.0 mm	108.0 mm
Length	171.5 mm	171.5 mm
Weight	295 g	340 g
Capacity	10 GB	8 GB
Number of disks	3	5
Number of heads	6	10
Areal density (GB/sq. in.)	5.60	3.09
Data buffer (KB)	512	512
Interface	PCMCIA	PCMCIA
Avg. seek time read (typical)	12 ms	12 ms
Avg. latency	7.1 ms	6.1 ms
Data rate		
Media (Mbits/sec)	118	108
Power requirements		
Supply (via PC card)	+5V dc	+5V dc
Seek	2.30 W	2.60 W
Read	2.10 W	2.50 W
Write	2.20 W	2.70 W
Performance idle	1.85 W	2.00 W
Low power idle	0.65 W	0.85 W
Standby	0.25 W	0.30 W
Sleep	0.10 W	0.10 W
Ambient temperature		
Operating	5 to 55° C	5 to 55° C
Nonoperating	-40 to 65° C	-40 to 65° C
Relative humidity		
Operating	8% to 90%	8% to 90%
Nonoperating	5% to 95%	5% to 95%
Vibration (swept sine)		
Operating	1.0 G (5-500 Hz)	1.0 G (5-500 Hz)
Nonoperating	5.0 G (10-500 Hz)	5.0 G (10-500 Hz)
Shock		
Operating	300 G/2 ms	250 G/2 ms
Nonoperating	6000 G/0.3 ms	5000 G/0.5 ms
Start/stop cycles	300,000	300,000
Warranty	Two years	Two years

## For more information

Internet and e-mail:

- [www.ibm.com/harddrive](http://www.ibm.com/harddrive)
- [drive@us.ibm.com](mailto:drive@us.ibm.com)

IBM TECHFAX document server:

- 408-256-5418 (requires touch-tone phone)
- International callers must call from a fax machine

IBM hard drive product information:

- 1 888-IBM-5214 (United States)
- 507-253-4110 (outside of the United States)



[www.ibm.com/harddrive](http://www.ibm.com/harddrive)

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<sup>1</sup> Notebooks running Windows NT 4.0 will require a special CD from IBM to initially reformat the IBM Travelstar E External Hard Drive.

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\*\* Windows is a registered trademark of Microsoft Corporation.

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