

Industry-leading capacity, performance, and acoustics  
in a low-profile hard drive

**HITACHI**  
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## Hitachi Travelstar 40GNX 2.5-inch hard disk drive

### Highlights

- ▶ **Hitachi offers models that operate with the Enhanced Availability feature**
- ▶ **40GNX—the fifth generation of 5,400rpm models—offers high capacity and high performance in the industry with a 40GB, 9.5mm hard drive.**
- ▶ **40GNX provides areal densities of up to 34Gbits/sq.inch, yielding up to 20GB of capacity per disk**
- ▶ **All models contain Fluid Dynamic Bearing (FDB) motor technology for industry-leading idle and operating acoustic performance**
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- ▶ **Travelstar provides industry-leading operational shock rating of up to 200Gs (2ms)**
- ▶ **Travelstar leverages latest Antiferromagnetically-coupled (AFC) media, also known as “pixie dust”**

### Leading-edge technology

The Hitachi Travelstar 40GNX is a 9.5mm high, fifth generation 5400 rpm, hard disk drive for mobile computing.

The innovative hard drive design combines AFC Media, Fluid Dynamic Bearing (FDB) motor technology, Giant Magnetoresistive (GMR) heads, Partial Response Maximum Likelihood (PRML) digital channel, head load/unload technology, Enhanced Adaptive Battery Life Extender™ (ABLE) 3.0, and an ATA/100 interface. With this design, the Travelstar 40GNX provides exceptional storage capacity, performance, power management and quality required by today's demanding notebook requirements.

The Travelstar family of hard disk drives incorporates the latest in storage technology—Antiferromagnetically-coupled (AFC) media, informally known as “pixie dust.” This technology sandwiches

a three-atom-thick layer of ruthenium, a precious metal, between two magnetic layers on a disk, allowing for a higher areal density, breaking through limitations of the super paramagnetic effect.

As a result, the Hitachi Travelstar drives are suitable for demanding, high-capacity Internet, digital audio, video streaming, and real-time multimedia applications—whether users are in the office or on the road. In non-traditional applications, Travelstar drives can now incorporate into such products as Point-of-Sale Systems, Set-Top Boxes, Telemetry (automobile) applications, and communications and entertainment systems.

### Performance and reliability

The Hitachi Travelstar 40GNX hard drive uses proven storage technologies such as TrueTrack Servo, Drive Fitness Test™ (DFT), and Self-Monitoring Analysis and Reporting Technology (S.M.A.R.T.), as well

as a thermistor, an adaptive control device that helps maintain high performance and fast seek times at high environmental temperatures.

### Enhanced Availability models

Hitachi also offers enhanced availability features on selected new Travelstar models. These industry-first models increase the hard disk drive's available “power-on” hours for emerging applications with continuous operation. At a read/write or data access rate of up to 50 percent—a typical usage cycle for 24x7 blade server environments—the drives are designed to allow users to leave these drives powered on around-the-clock.

### Advanced mobile systems

The Travelstar 40GNX redefined state-of-the-art storage for mobile computing. The reduced acoustics, high speeds, and capacities of Hitachi Travelstar drives support superior digital content creation

## Hitachi Travelstar hard disk drive characteristics

Feature	Benefit
40GB mobile hard drive and the fifth-generation 5,400rpm model in the industry	Hitachi Travelstar 40GNX has the industry-leading performance to enable mobile users to work with a new range of emerging storage-intensive applications.
Drive Noise Suppression System (DNSS) <ul style="list-style-type: none"><li>• Fluid Dynamic Bearing (FDB) motors on all models</li><li>• VCM acoustic dampening</li></ul>	Hitachi Travelstar 40GNX incorporates state-of-the-art noise suppression technology for industry-leading quiet operation.
Fast Ultra-DMA 100 2.5-inch mobile hard drives	Hitachi Travelstar 40GNX features industry-standard high data transfer rates to help ensure ultimate performance.
High max areal density of 34Gbits/sq. inch in up to 40GB of capacity per disk	Hitachi Travelstar 40GNX maximizes areal density resulting to enable more data storage per disk in standard compact packages.
Industry-leading operating shock rating of (200Gs/2ms) for a 2.5-inch mobile hard drive	Hitachi Travelstar 40GNX provides exceptional ruggedness to help withstand shock during read/write operations.
Antiferromagnetically-coupled (AFC) media on all models	The Hitachi Travelstar family incorporates AFC "pixie dust" technology, allowing for higher areal density.

capabilities, higher quality digital audio and video, and significantly faster processing for data-intensive multimedia and Internet applications.

By using one of the new Travelstar drives in a laptop system, you can unchain your multimedia studio from the desktop, enabling high-end multimedia creativity as mobile as your imagination

### Hitachi quality, support, and service

The Hitachi Travelstar mobile hard disk drives share common field-proven components to provide manufacturers with superior-quality hard drives backed by Hitachi warranty and technical support and services.



*Hitachi Travelstar 40GNX: 9.5mm, 5,400rpm, 40GB ATA-5 hard disk drive<sup>1</sup>*

## Hitachi family of Travelstar 40GNX hard disk drives specifications

Product name	Travelstar 40GNX	Travelstar 40GNX
Model name	IC25N040ATCS05	IC25N020ATCS05
<b>Configuration</b>		
Interface	ATA-5	ATA-5
Capacity (GB)	40	20
Sector size (bytes)	512	512
Recording zones	16	16
Data heads	4	2
Disks	2	1
Max. areal density (Gbits/sq.inch)	34	34
<b>Performance</b>		
Data buffer (KB) <sup>2</sup>	8,192 <sup>3</sup>	8,192 <sup>3</sup>
Rotational speed (rpm)	5,400	5,400
Latency (average ms)	5.5	5.5
Max. media transfer rate (Mbits/sec)	297	297
Max. interface transfer rate (MB/sec)	100MB/sec Ultra DMA mode-5	100MB/sec Ultra DMA mode-5
Seek time (ms)		
Average (typical)	12	12
Track to track (typical)	2.5	2.5
Full stroke (typical)	23	23
<b>Power</b>		
Requirement	+5VDC(±5%)	+5VDC(±5%)
Dissipation (typical)		
Startup (max. peak)	5.0 W	5.0 W
Seek (average)	2.6 W	2.6 W
Read (average)	2.5 W	2.5 W
Write (average)	2.5 W	2.5 W
Performance idle (average)	2.0 W	2.0 W
Active idle (average)	1.3 W	1.3 W
Low power idle (average)	0.85 W	0.85 W
Standby (average)	0.25 W	0.25 W
Sleep	0.1 W	0.1 W
Power consumption efficiency (watts/GB)	0.021	0.043
<b>Physical size</b>		
Height (mm)	9.5	9.5
Width (mm)	70	70
Depth (mm)	100	100
Weight (g)	102	102
<b>Environmental characteristics</b>		
Operating		
Ambient temperature	5° to 55° C	5° to 55° C
Relative humidity (non-condensing)	8% - 90%	8% - 90%
Maximum wet bulb (non-condensing)	29.4° C	29.4° C
Shock (half sine wave)	200Gs (2ms)	200Gs (2ms)
Vibration (RMS)		
Random (RMS)	0.67G (5 - 500Hz)	0.67G (5 - 500Hz)
Swept sine	1G 0-P (5 - 500Hz)	1G 0-P (5 - 500Hz)
Non-operating		
Ambient temp	-40° to 65° C	-40° to 65° C
Relative humidity (non-condensing)	5% - 95%	5% - 95%
Maximum wet bulb (non-condensing)	40° C	40° C
Shock (half sine wave)	800Gs/1ms	800Gs/1ms
Vibration (random (RMS))	3.01G (5 - 500Hz)	3.01G (5 - 500Hz)
<b>Acoustics (A-Weighted Sound Power (Bels))</b>		
Idle (typical)	2.5	2.5
Op (typical)	3.1	3.1
Idle (maximum)	2.7	2.7
Op (maximum)	3.3	3.3

**For more information**

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<sup>1</sup> Clear cover drive models shown for illustration purposes only

<sup>2</sup> Up to 280 KB out of 8048 KB used for firmware

<sup>3</sup> Up to 300 KB out of 8048 KB used for firmware

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