

The industry's first and only hard drives built to perform in extreme temperature environments

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Hitachi Endurastar J4K20 and N4K20 2.5-inch hard disk drives

Highlights

- ▶ **20GB capacity**
- ▶ **Operating temperature range from -20° C to +85° C**
- ▶ **Fly height compensation accommodates changes in air density caused by temperature and altitude**
- ▶ **Built-in shock sensor enhances data integrity in automotive applications**
- ▶ **Enhanced moisture control system ensures corrosion control in extreme environments**



Practical Innovation

Hitachi presents a 2.5-inch hard disk drive designed specifically to perform in extreme temperature environments. Offered at 20GB capacities, the new Endurastar J4K20 and Endurastar N4K20 create a new generation of hard drives to meet the expanding needs of emerging markets.

Ideal for Automotive Applications

Built to operate in temperature ranges of up to -20° C to +85° C, the Hitachi Endurastar hard disk drives are the only drives available in the market today which support the environmental conditions commonly found in the automotive industry.

These drives are the ideal choice for automotive applications, including car navigation and car audio products.

Performance and Reliability

The new Endurastar models feature glass media and load/unload technology in addition to shock sensor technology, which cushions the drive in less than ideal shock or vibration conditions.

The J4K20 and N4K20 incorporate fluid dynamic bearings (FDB) in the spindle motor, re-designed to support a wider temperature range. The new FDB allows the same quiet operation and improved shock characteristics as with PC models, but offers even higher reliability for automotive environments.

These features enable the Endurastar drives to employ a non-operating shock tolerance of 800G/1ms, and an operating shock tolerance of 100G/11ms.

Hitachi Endurastar J4K20 and N4K20 hard disk drive specifications

Product name	Endurastar J4K20	Endurastar N4K20
Model number	HTA422020F9ATJ0	HTA422020F9ATN0
Configuration		
Interface	ATA-5	ATA-5
Capacity (GB) ¹	20	20
Sector size (bytes)	512	512
Recording zones	16	16
Data heads	2	2
Disks	1	1
Max. areal density (Gbits/sq.inch)	37.7	37.7
Performance		
Data buffer (MB) ²	8	8
Rotational speed (rpm)	4172	4172
Latency (average ms)	7.2	7.2
Max. media transfer rate (MB/sec)	31.4	31.4
Max. interface transfer rate (MB/sec)	100MB/sec Ultra DMA mode-5	100MB/sec Ultra DMA mode-5
Seek time (ms)		
Average (typical)	13	13
Maximum (typical)	24	24
Minimum (typical)	3	3
Reliability		
Error rate (non-recoverable)	< 1 per 10 ¹³ bits transferred	< 1 per 10 ¹³ bits transferred
Load/unload cycle	300,000	300,000
Power (@ 25° C)		
Requirement	+5VDC(±5%)	+5VDC(±5%)
Startup (max. peak)	6.5 W	6.5 W
Seek (average)	2.4 W	2.4 W
Read (average)	2.15 W	2.15 W
Write (average)	2.15 W	2.15 W
Performance idle (average)	1.8 W	1.8 W
Active idle (average)	0.80 W	0.80 W
Low power idle (average)	0.60 W	0.60 W
Standby (average)	0.15 W	0.15 W
Sleep	0.1 W	0.1 W
Physical size		
Height (mm)	9.5	9.5
Width (mm)	70	70
Depth (mm)	100	100
Weight (g)	107	107
Environmental characteristics		
Operating		
Ambient temperature	-20° to 85° C	0° to 60° C
Relative humidity (non-condensing)	5% - 90%	5% - 90%
Maximum wet bulb (non-condensing)	40° C	40° C
Shock (half sine wave)	100G/11ms	100G/11ms
Vibration (sine wave)	1.0 G (22 - 500Hz)	1.0 G (22 - 500Hz)
Non-operating		
Ambient temp	-40° to 85° C	-40° to 85° C
Relative humidity (non-condensing)	5% - 95%	5% - 95%
Maximum wet bulb (non-condensing)	40° C	40° C
Shock (half sine wave)	800G/1ms	800G/1ms
Vibration (sine wave)	5.0G (22 - 500Hz)	5.0G (22 - 500Hz)
Acoustics (A-Weighted Sound Power (Bels))		
Idle (typical)	2.4	2.4
Op (typical)	3.0	3.0

¹GB equals one billion bytes when referring to hard drive capacity; accessible capacity may be less.

² Space reserved for firmware

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