Product Guide

Samsung F2EG

500 GB / 1 TB / 1.5 TB

imagine a “green” hard drive without compromising the performance

Best-in-class capacity and low power solution for green computing

Samsung’s F2 Series EcoGreen Drive (F2EG) is the ideal high capacity drive for green computing environments.The new eco-friendly hard drive, F2EG is designed to meet demand for high performance devices with lower power consumption. Samsung’s EcoGreen F2 makes it possible to design storage systems with the right balance of high capacity, fast performance and energy conservation.

Huge capacity up to 1.5 terabytes

EcoGreen F2 delivers a whopping 1.5 TB of capacity using an industry leading 500 GB per disk. The F2EG, employing advanced PMR technology, achieves greater areal density than most hard drives shipping today. With its high areal density, reduced number of disks, and competitive performance, the F2EG is considered by many as the ideal drive because it improves on power efficiency while supporting a large capacity up to 1.5 TB with 3 disks.

Faster performance

Samsung F2EG has the world’s best areal density at 5400rpm rotation speeds. High density means more bits pass under the head faster, and it improves the drive performance. Samsung employs an advanced data recording technology, which brings the next generation technology into today’s single disk platform, enabling Samsung’s new 5400rpm drives to perform at current 7200rpm drive speeds*.The internal SysMark test results confirms that F2EG Performs as same as 7200rpm drive speeds, and even 10% faster than other green drives.

* Internal SysMark test result

Enhanced reliability

The enhanced reliability of the Samsung F2EG is made possible by the industry’s highest density – 500 GB / platter. This best-in-class areal density per platter enables Samsung to achieve a 1.5 TB drive with only 3 platters. With fewer heads and disks, the F2EG has a statistically lower probability of head-disk failures and enables designers to build more reliable computing systems.

Low power consumption

By using only 3 platters for 1.5 TB, as compared to competitor’s 4 or 5 platters for 1.5 TB, Samsung’s F2EG requires less power to start the motor, less power to continuously spin the motor and has a lighter head-stack which takes less power to seek.
With its advanced design and less components, the F2EG consumes 43% less power in R/W, and 57% less in idle than competitor’s 7200rpm drives. Samsung's advanced recording technology enables F2EG to perform similar to other 7200rpm drives.

* Internal test

Samsung EcoTriangle™

Samsung EcoGreen product line up is designed to satisfy the environment-conscious customers with Eco-Triangle™ features, offering less power consumption, low acoustic noise and eco-friendly components. The F2EG drive has a maximum of 500 GB of formatted capacity per disk while also featuring the industry-leading SilentSeek™ technology to eliminate acoustic noise. EcoGreen products comply with the international environment standard such as RoHS, TBBP-A, and Halogen Free. Samsung develops the Eco-Triangle™ to bring more energy efficient and high performance hard drive options to manufacturer of home media PC, external HDD, set-top box, and personal NAS.

How does Samsung make this possible?

The key technology that makes all of this possible is Samsung’s perpendicular recording technology. Perpendicular recording is a very different method to store bits on the disk drive platter. On a disk drive, each bit (1 or 0) is stored as magnetic information vertically into the platter; rather than the previous method of storing the magnetic information horizontally on the platter. The result is the magnetic poles of each bit do not interfere with the magnetic poles of neighboring bits. Now bits can be packed more tightly next to each other, and the sectors of data can be packed more tightly side by side.

www.samsunghdd.com

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The Samsung F2EG Desktop Drive : Capability for Desktop

- MAX.500 GB Formatted Capacity Per Disk
- Environment friendly product with RoHS compliance
- Serial ATA 3.0 Gbps Interface Support
- Improved performance with dual-ARM based firmware
- Improved recording stability over temperature with PMR
- ATA S.M.A.R.T. Compliant
- Advanced dynamic FOD control for best data integrity
- ATA Automatic Acoustic Management Feature
- Intelligent compensation of external disturbance
- ATA 48-bit Address Feature
- SATA Native Command Queuing Feature
- ATA Device Configuration Overlay Feature
- Device Initiated SATA Power Management
- NoiseGuard™
- Rotational vibration sensor
- SilentSeek™

Capacity[1]		500 GB	1 TB	1.5 TB
Model	16 MB	HD502HI	HD102SI	HD153UI
	32 MB		HD103SI	HD154UI

DRIVE CONFIGURATION

Capacity	500 GB-1.5 TB[1]
Interface	Serial ATA 3.0 Gbps
Buffer DRAM Size[2]	16 / 32 MB
Byte per Sensor	512 bytes

PERFORMANCE SPECIFICATIONS

Average Seek time (typical)		8.9 ms
Average Latency		5.52 ms
Data Transfer Rate		
Media to/from Buffer (Max.)		166 MB/sec
Buffer to/from Host (Max.)		300 MB/sec
Drive Ready Time (typical)	500 GB	10 sec
	1 TB - 1.5 TB	12 sec

RELIABILITY SPECIFICATIONS

Non-recoverable Read Error	1 sector in 10^{15} bits
Start/Stop Cycles	50,000

ACOUSTICS[3]

Idle	500 GB	2.2 Bel
	1 TB -1.5 TB	2.5 Bel
Performance Seek	500 GB	2.7 Bel
	1 TB -1.5 TB	2.8 Bel

*Notes : Design and specifications are subject to change without notice

ENVIRONMENTAL SPECIFICATIONS

Temperature		
Operating		0 ~ 60°C
Non-operating		-40 ~ 70°Cr
Humidity (non-condensing)		
Operating		5 ~ 90 %
Non-operating		5 ~ 95 %
Linear Shock (1/2 sine pulse)		
Operating		70 G
Non-operating	500 GB	350 G
	1 TB -1.5 TB	300 G
Altitude (relative to sea level)		
Operating		-300 to 3,000 m
Non-operating		-300 to 12,000 m

POWER REQUIREMENTS

Voltage	+5V±5%		+12V±10%
Capacity[1]	500 GB	1 TB	1.5 TB
Spin Up Current (Max)	2.0 A	2.0 A	2.0 A
Seek[4]	4.8 W	5.2 W	5.7 W
Read/Write	5.1 W	5.6 W	6.3 W
Idle (typical)	3.9 W	4.4 W	5.1 W
Standby (typical)	1 W	1 W	1 W
Sleep (typical)	1 W	1 W	1 W

PHYSICAL DIMENSION

Height (Max.)		26.1 mm
Width		101.5 mm
Length		147.0 mm
Weight (avg.)	500 GB	470 g
	1 TB	610 g
	1.5 TB	650 g

1.1 GB = 1 billion bytes, 1 TB=1 trillion bytes.
* Accessible capacity may vary as some OS users binary numbering system for reported capacity
2. A small portion of the 16 / 32MB buffer memory is reserved for firmware use
3. Average value with a high performance cover.
4. Random seek with 30% duty cycle.(Average value)

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