

M1 & M2 SATA SSD

SMART Modular Technologies' M1 and M2 2.5" SATA solid state drives (SSDs) combine high performance, superior reliability and data security into a single ruggedized design, making it the ideal storage solution for many demanding defense, industrial automation, transportation, medical and telecommunication applications.

Utilizing a SATA 6Gb interface, M1 and M2 SSDs deliver 525MB/s sequential read and 500MB/s sequential write speeds, up to 70,000 random read IOPS and up to 50,000 random write IOPS. Capacities of 240, 480, 960, and 1920GB are available using cost effective multi-level cell (MLC) NAND Flash.

SMART's M1 and M2 SSDs are designed to meet the needs of cost-sensitive applications where temperature tolerances are as important as high performance and reliability. A robust set of diagnostic tools is provided through SSD-specific S.M.A.R.T attributes which can be used to monitor the health of the drive. The only difference in reliability between the M1 and M2 SSDs is that the M2 employs pFail back up technology in case of accidental power failure.

Data Security

M1 and M2 SSDs automatically protect all data written with AES 256-bit encryption. Also included is the Security Erase feature per the ATA-8 specification whereby the encryption key will be deleted in less than one second.

Write Termination

When the SSD has too many bad blocks, the M1 and M2 go into Write Termination mode, whereby no more data can be written.

Features

- ▶ **High Random and Sequential I/O Performance**
- ▶ **Cost-Effective MLC Flash**
- ▶ **Ruggedized Enclosure (Shock, Vibration)**
- ▶ **Write Termination**
- ▶ **Thermal Sensor**
- ▶ **Static and Dynamic Wear Leveling**
- ▶ **Firmware Updatable**
- ▶ **Low Power Management**
- ▶ **Ideal for High and Low Temperature Applications**
- ▶ **S.M.A.R.T. Attributes to Monitor Drive Health**
- ▶ **AES 256-bit Encryption to automatically Protect all Data Written to the Drive**

M1 & M2 SATA Product Family

Capacity	Sustained Performance	Random Performance
240, 480, 960, 1920GB	525MB/s Read 500MB/s Write	70,000 IOPS Read 50,000 IOPS Write

One gigabyte, or GB, equals one billion bytes when referring to drive capacity. Accessible capacity may vary based on the operating environment and drive formatting.



M1 and M2 SATA Specifications

2.5" SATA	
Performance	
Burst	600MB/s
Sequential	525MB/s Read, 500MB/s Write ¹
Random	IOPS Read 70,000 ¹ IOPS Write 50,000 ¹
Interface	SATA 6 Gb/s
Capacity	
MLC	240, 480, 960, 1920GB ²
Reliability	
MTBF	2M hours
Error Correction	120 bit ECC plus parity
Power Loss Protection	Fast Flush of Cached Data/pFail ³
Endurance	4114TB Written ⁴
Data Retention	10 years at 25°C when new
Warranty	1 Year
Data Security	
Encryption	AES 256-bit
Elimination	ATA-8 Security Erase
Power	
Input Voltage	5 V +/- 5%
Idle (typ)	365 mW
Active Read/Write (typ)	2150 / 4300 mW
Environmental	
Operating Temperature	-40°C to 85°C
Storage Temperature	-40°C to 85°C
Operating Shock	50 g half-sine, 11ms, 3 shocks along each axis (+/-)
Operating Vibration	16.4 g rms, 15-2,000Hz
Relative Humidity	5%-95% non-condensing
Alltitude	24,384m (80,000 ft)
Mechanical	
Length	100.00mm
Width	69.85mm
Height	9.0 mm +/- with some tolerance

(1) Based on 480GB Drive

(2) One gigabyte, or GB, equals one billion bytes when referring to drive capacity. Accessible capacity may vary based on the operating environment and drive formatting

(3) pFail on M2 only

(4) Based on 1920GB Drive

M1 SATA Ordering Information

Part Number	Capacity (GB)
HR6A2X0240EI001	240
HR6A2X0480EI001	480
HR6A2X0960EI001	960
HR6A2X1920EI001	1920

M2 SATA Ordering Information

Part Number	Capacity (GB)
HR7A2X0240EI001	240
HR7A2X0480EI001	480
HR7A2X0960EI001	960
HR7A2X1920EI001	1920

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