

M1HC SATA SSD

SMART Modular Technologies' M1HC 2.5" SATA solid state drives (SSDs) is one of the most data-protected and secure SSDs available. Its ruggedized design is built to withstand 1000g, 0.5 ms of operating shock. The M1HC is also built to operate over 30,000 m of altitude, or 100,000 ft. Its superior reliability is proven with 1 in 10¹⁵ bits read and over 10 years of built-in data retention. Engineers designing for high-capacity, highly secure, military applications will want to consider the M1HC as part of their project. Utilizing a fast SATA 6Gb/s interface, the M1HC delivers 520MB/s sequential read and 500MB/s sequential write speeds, up to 70,000 random read IOPS and up to 70,000 random write IOPS. Capacities of 1, 2, 4, and 8 Terabytes are available using cost effective multi-level cell (MLC) NAND Flash. 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.

Data Security

The M1HC SSD provides some of the most comprehensive security features available. It automatically protects all user data written with an AES 256-bit encryption that is FIPS 197 certified. It implements military security procedures such as NSA 9-12, AR 380-19, NAVSO P-5239-26, and AFFSI-5020 for ground forces, naval and air protection needs. Also included are TCG/Opal 2.0 Compliance, Sanitize Device feature set, and the Security feature set per the ATA-8 specification, including deleting the encryption key in less than 10 milliseconds.

Features

- ▶ **High capacity, 1, 2, 4, and 8 TB**
- ▶ **High Random and Sequential I/O Performance**
- ▶ **Cost-Effective MLC Flash**
- ▶ **Ruggedized Enclosure (Shock, Vibration)**
- ▶ **Adaptive Thermal Protection**
- ▶ **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**
- ▶ **TCG/Opal 2.0 Compliant**

M1HC SATA Product Family

Capacity	Sustained Performance	Random Performance
1TB, 8TB	480MB/s Read 420MB/s Write	40,000 IOPS Read 40,000 IOPS Write
2TB, 4TB	480MB/s Read 480MB/s Write	44,000 IOPS Read 77,000 IOPS Write



M1HC SATA Specifications

2.5" SATA	
Performance	
Burst	600MB/s
Sequential	480MB/s Read, 480MB/s Write ¹
Random	IOPS Read 44,000 ¹ IOPS Write 77,000 ¹
Interface	SATA 6 Gb/s
Capacity	
MLC	1, 2, 4, 8TB
Reliability	
MTBF	1.5M hours
Power Loss Protection	Fast Flush of Cached Data
Endurance	2,000TB Written on 8TB capacity ²
Data Retention	12 months @ 30°C
Warranty	1 Year
Data Security	
Encryption	AES 256-bit
Elimination	ATA-8 Security Erase and Military Procedures
Power	
Input Voltage	5 V +/-10%
Idle (typ)	1.8 W
Active Read/Write (typ)	3.1 / 5.2 W
Environmental	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 95°C
Operating Shock, Acceleration Force	1000 g half-sine, 0.5 ms
Operating Vibration, Freq/Displacement	16.3 g rms, 10-2,000Hz
Operating Vibration, Freq/Acceleration	80Hz/20g
Operating Vibration Orientation	X, Y, Z axis/60 min for each
Relative Humidity	95% under 55°C (operational)
Altitude	30,480m (100,000 ft)
Mechanical	
Length	100.00mm
Width	69.85mm
Height	7mm (1, 2, 4TB) 9.5mm (8TB)

(1) Typical I/O performance numbers as measured fresh-out-of-the-box (FOB) using Iometer with a queue depth of 32

(2) Based on full sustained 128KB workload

M1HC SATA Ordering Information

Part Number	Capacity (TB)
HR8A2P001TDI001	1
HR8A2P002TDI001	2
HR8A2P004TDI001	4
HR8A2P008TDI001	8

Contact information

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