

# Secure Solid State Drives (SSD)

## Mercury TRRUST-Stor® MissionPak

MMRxxxAM6S-000lxx-01 (SATA SLC mode)



- Engineered to CSfC, FIPS 140-2 and Common Criteria (CC) requirements (Planned)
- SATA interface using rugged 7-pin connector
- Supports all popular military sanitization protocols plus self-destruct
- AES-256 XTS encryption with user-fillable keys
- Heavily ruggedized, water-resistant form factor



The Mercury TRRUST-Stor MissionPak SSD expands the concept of handheld storage by integrating the latest-generation Armor® 3D NAND processor with AES-256 XTS encryption, multiple key management modes and self-destruct capability into a heavily ruggedized, water-resistant form factor designed for ease of use in harsh, possibly insecure environments. The MissionPak SSD uses TLC NAND in SLC mode and includes the security and certifications of the popular ASURRE-Stor® SSD. It is the perfect choice for mission-critical applications where reliability, security and ruggedization are the keys to mission success.

### Features

- Single 3.3 to 5.5 V ± 5% supply
- Designed and manufactured in a secure DMEA-accredited facility
- Mercury proprietary Armor 4 NAND processor
- Third-generation 3D NAND flash technology.
  - TLC NAND running in SLC mode
- Host-usable capacity<sup>1</sup>
  - 165, 330 GB in SLC mode
  - Program erase cycles: 40,000 in SLC mode
- Total bytes written (TBW)
  - 2.56 PB minimum (256 GB model)
$$TBW = \left( \frac{\text{Capacity} \times PE}{4} \right) \text{ PE} = \text{Program Erase}$$
- FIPS 140-2 and CSfC-certified models F and C suffix<sup>2</sup>
  - Compliant to the NIAP EE and AA protection profiles
  - User and Crypto Officer Roles

- Multiple key management modes including user TRRUST-Boot secure boot image
- AES key-flipper technology eliminates key burn-in
- Fast clear: less than 10 seconds
- Sequential read/write performance<sup>3</sup>: SATA: Up to 250 MB/s
- Ultra-strong LDPC hard/soft error correction
- UBER (uncorrectable bit-error rate): 10<sup>-18</sup>
- Ruggedized water-resistant potted enclosure (non-potted optional)
- Hot swap capable
- MTBF: 2 million hours @ 25 °C, Telcordia

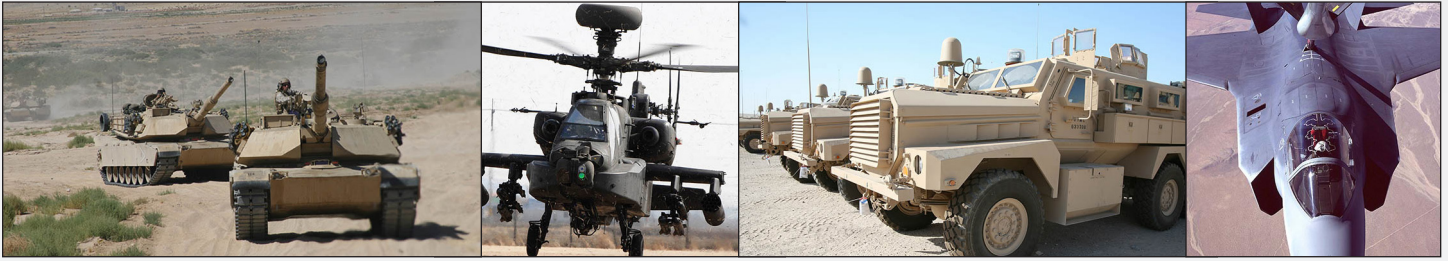
### Mechanical

- Vibration: 40.0 Grms, 15-2000 Hz, 3 axes, 6 hrs
- Operating Shock: 3000 G, 0.5 ms, ½ sine  
100 G, 11 ms, ½ sine
- Operating Temperature: -40 °C to +85 °C<sup>4</sup>  
Boot holdoff from -55 °C to -40 °C
- Storage Temperature: -55 °C to +105 °C
- Humidity: 100% condensing; water immersion to 2 feet for 10 minutes.
- Altitude: 80,000 feet
- Weight: 80 grams (short from factor)

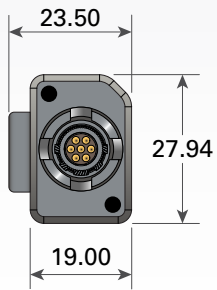
### NOTES:

1. One Gigabyte (GB) = 1,000,000,000 bytes.  
100 MB/s = 100,000,000 bytes per second.
2. Planned
3. Performance values based on 128 KiB sequential transfers, largest capacity model, and empty drive.
4. Data retention may diminish with extended storage or operation at temperatures above 70 °C. Operation at 85 °C requires maintaining Tcase at 85 °C or less.

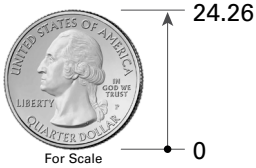
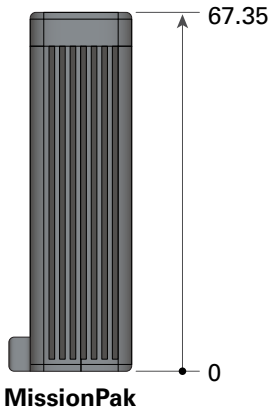
# Typical Applications



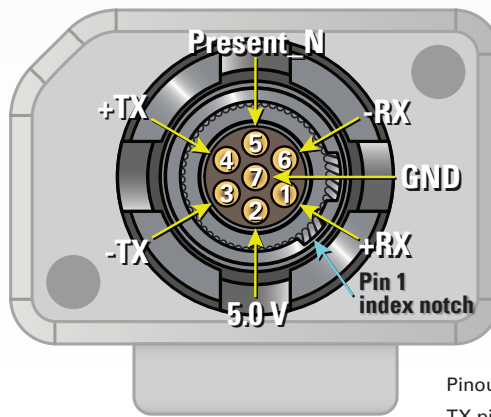
## Product Dimensions (in millimeters)



The host side "plug" connector is available from [Spacecraft Connectors Corp. KwikSnap Series \(SCTAC\)](http://Spacecraft Connectors Corp. KwikSnap Series (SCTAC).).



## Pin Locations



Pinout on 7-pin receptacle  
TX pin names are outputs from MissionPak  
RX pin names are inputs to MissionPak

## Pin Descriptions

Pin #	Description
1	+RX
2	5.0 V
3	-TX
4	+TX
5	Present_N
6	-RX
7	GND

## Part Numbering *(dashes in the part number are required)*

X XX xxx X M x m - 123 I xx - aa

### Product Series

- M = TRRUST-Stor® series, standard model without FIPS 140-2, Common Criteria or CSfC certifications
- A<sup>1</sup> = ASURRE-Stor® certified series with FIPS 140-2, and Common Criteria certifications. Eligible for use in CSfC 2-layer encryption solutions upon certification

### Form Factor

- MR = MissionPak (SATA)

### NAND (Capacity available to Host)

- 128 = 165 GB host capacity
- 256 = 330 GB host capacity

### Encryption Type

- A = AES-256 XTS

### Media

- M = Standard Product

### Media Type

- 6 = 3-bit TLC 3D NAND

### Operating Mode

- S = SLC mode

### Customizable Features Fields One, Two and Three

- G00 = Standard product, gray

### Operating Temperature

- I = Industrial (-40 °C to +85 °C)

### Classification

- ES = Engineering Sample
- C = CC and FIPS-140-2 certified; CSfC component listed upon qualification<sup>1</sup>
- F = FIPS-140-2 certified<sup>1</sup>
- 00 = Standard product

### Attributes

- 01 Construction: Lead Free (R)  
Interface Structure: 1 Lane (1)  
Interface Type: SATA 6 Gb/s (SA)
- 04<sup>1</sup> Construction: Leaded BGAs (L)  
Interface Structure: 1 Lane (1)  
Interface Type: SATA 6 Gb/s (SA)

NOTE: 1. Planned

Example part Number: MMR256AM6S-G00IES-01

**Need More Help?  
Need a Variant of This Product?**

Contact Mercury's Secure SSD application engineering team at [secure.ssd@mercy.com](mailto:secure.ssd@mercy.com)



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