

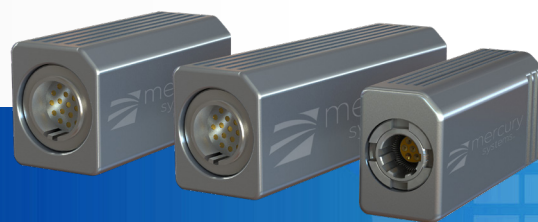
Secure Solid State Drives (SSD)

Mercury TRRUST-Stor® MissionPak



7-pin Model: MMRxxxAM6S-000lxx-01 (SATA SLC mode)
MMRxxxAM6T-000lxx-01 (SATA TLC mode)⁴

19-pin Model: MMSxxxAM6x-000lxx-01, (SATA, Short)⁴
MMSxxxAM6x-000lxx-02, (NVMe, 1-Lane, Short)⁴
MMLxxxAM6x-000lxx-03, (NVMe, 2-Lane, Long)⁴



- Engineered to CSfC, FIPS 140-2, and Common Criteria (CC) requirements (Planned)
- SATA and NVMe models
- Supports all popular military sanitized protocols plus self-destruct
- AES-256 XTS encryption with user fillable keys
- Heavily ruggedized, water-resistant form-factor



ADVANCED*

The Mercury TRRUST-Stor MissionPak SSD series expands the concept of hand-held storage to new frontiers by integrating the latest generation Armor™ NAND processor with AES-256 XTS encryption, multiple key management modes, DS-101 key fill, and self-destruct capability into an ergonomically packaged water-resistant form-factor designed for ease of use in harsh, possibly insecure environments.

Featuring the latest generation 3D NAND, TRRUST-Stor MissionPak is available in extended capacity TLC models and extended-life SLC-mode models. It includes the security and certifications of the popular ASURRE-Stor® SSD, in a heavily ruggedized, water-resistant ultra-portable form-factor. With options for either SATA or NVMe, TRRUST-Stor MissionPak is the perfect choice for mission critical applications where reliability, security, and ruggedization are the key to mission success.

Features

- Single 3.3 to 5.5 V ± 5% supply
- Designed and manufactured in the secure DMEA-accredited facility
- Mercury proprietary Armor 4 NAND processor
- Third generation 3D NAND flash technology.
 - TLC models (extended capacity) and SLC models (extended-life)
- Host usable capacity¹
 - SLC model: 128, 256, 512** GB
 - TLC model: 384, 768, 1536** GB

**Long form factor only
- Write Endurance: $1.5 \text{ PB} \left(\frac{\text{Capacity} \times \text{PE}}{4} \right)$ PE = Program Erase

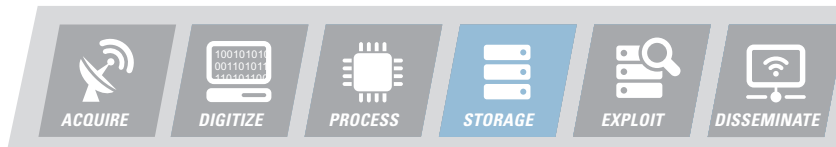
- Total Bytes Written (TBW)²
 - 7.7 PB (512 GB SLC mode)
 - 3.8 PB (1536 GB TLC mode)
- FIPS 140-2 and CSfC certified models F and C suffix⁴
 - Compliant to the NIAP EE and AA protection profiles
 - User and Crypto Officer Roles
- Multiple key management modes including user TRRUST-Boot secure boot image
- AES Key-Flipper technology eliminates key burn-in
- Fast Clear: Less than 10 seconds
- SKL and CYZ-10 compatible (19-pin model)
- Sequential Read/Write performance:³
 - SATA: Up to 300 MB/s
 - NVMe: Up to 1000 MB/s
- Ultra-strong LDPC Hard/Soft Error Correction
- UBER (Uncorrectable Bit Error Rate): 10⁻¹⁸
- Ruggedized water-resistant potted enclosure (non-potted optional)
- Hot Swap capable
- MTBF: 2 million hours @ 25 °C, Telcordia

NOTES:

1. One Gigabyte (GB) = 1,000,000,000 bytes.
100 MB/s = 100,000,000 bytes per second.
2. 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.
3. Performance values based on 128 KiB sequential transfers, largest capacity model, and empty drive.
4. Planned

*This product is under development, is not qualified or characterized and is subject to change or cancellation without notice.

Mercury Systems is a leading commercial provider of secure sensor and safety-critical processing subsystems. Optimized for customer and mission success, Mercury's solutions power a wide variety of critical defense and intelligence programs.



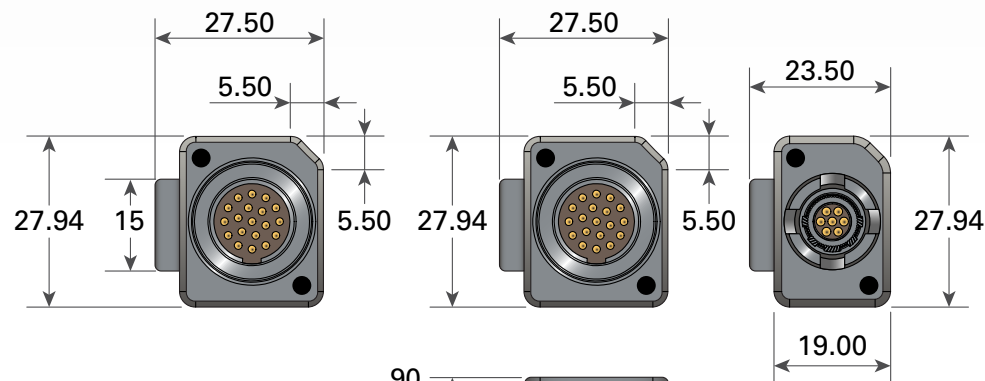
Mechanical

- 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 °C³
Boot Holdoff from -55 °C to -40 °C
- Storage Temperature: -55 °C to +105 °C³
- Humidity: 100% condensing. Water immersion to 2 feet for 10 minutes.
- Altitude: 80,000 feet
- Weight: 80 grams (short from factor)

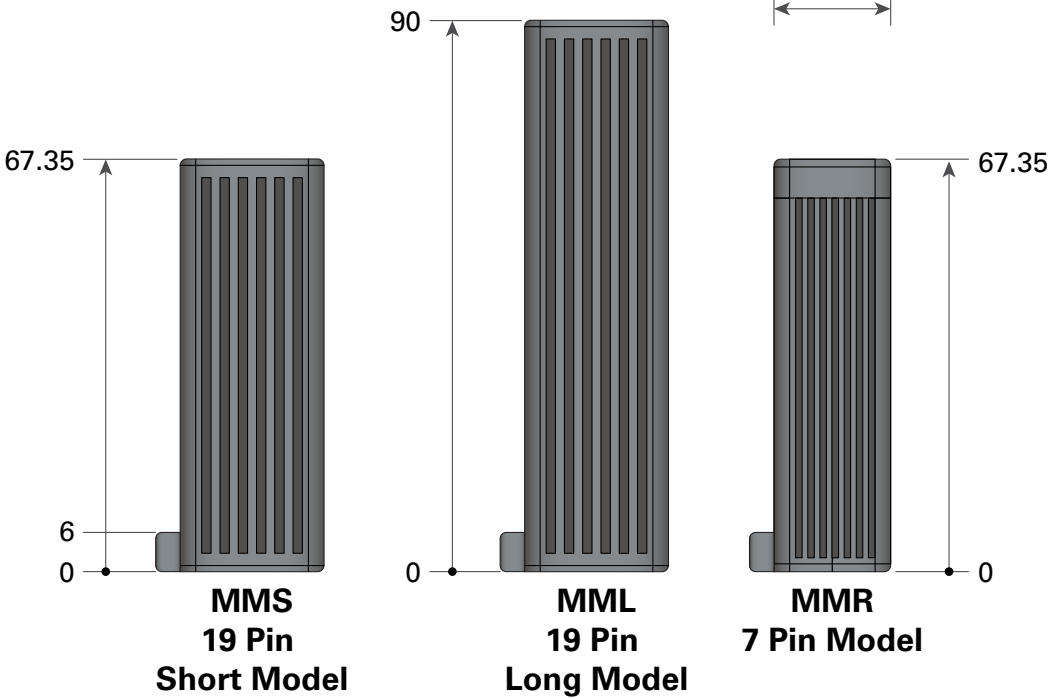
Typical Applications



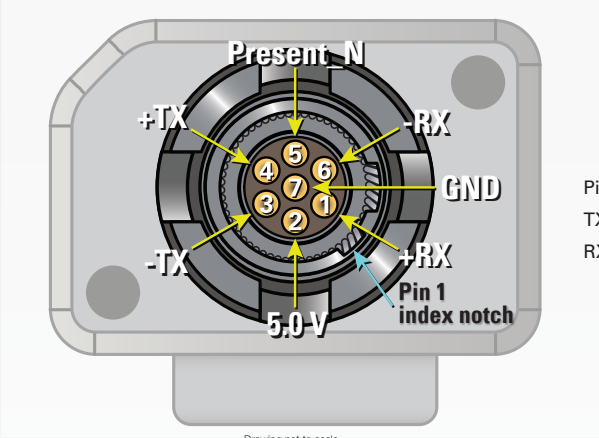
Product Dimensions (in millimeters)



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



MMR – 7 Pin Model

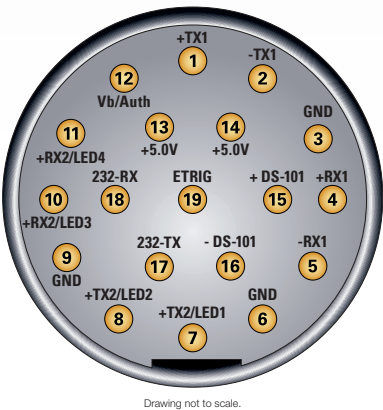


Pinout on 7 pin Receptacle
TX pin names are outputs from MissionPak
RX pin names are inputs to MissionPak

7 Pin Description

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

MML, MMS – 19 Pin Model



Pinout on 19 pin Receptacle
TX pin names are outputs from MissionPak
RX pin names are inputs to MissionPak

19 Pin Description

Pin #	1	2	3	4	5
Description	+TX1	-TX1	GND	+RX1	-RX1
Pin #	6	7	8	9	10
Description	GND	-TX2/LED1	+TX2/LED2	GND	+RX2/LED3
Pin #	11	12	13	14	15
Description	+RX2/LED4	Vb/Auth	+5.0V	+5.0V	+DS-101
Pin #	16	17	18	19	
Description	-DS-101	232-TX	232-RX	ETRIG	

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 = *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, 7-Pin Short Model)
- ML = MissionPak (SATA/NVMe, 19-Pin Long Model)*
- MS = MissionPak (SATA/NVMe, 19-Pin Short Model)*

NAND (Capacity available to Host)

- xxx = 128, 256, 512* GB SLC mode; 384, 768, 1536* GB TLC mode
- *Long form factor only

Encryption Type

- A = AES-256 XTS V = SuiteA (Sponsored)
- Q = Post Quantum* N = No Encryption

Media

- M = Standard product

Media Type

- 2 = 1-bit SLC NAND, 32Gb 6 = 3-bit TLC 3D NAND

Operating Mode

- S = SLC mode T = TLC mode

Customizable Features fields One, Two and Three

- G00 = Standard product, gray B00 = Standard product, black G10 = gray, non-potted B10 = black, non-potted

Operating Temperature

- I = Industrial (-40 °C to +85 °C) C = Commercial (0 °C to 70 °C)

Classification

- ES = Engineering Sample F = *FIPS-140-2 certified
- C = *CC and FIPS-140-2 certified; CSfC component listed upon qualification 00 = Standard product

Attributes

- | | | | | | | |
|------|----------------------|------------------|------|----------------------|------------------|----------|
| - 01 | Construction: | Lead Free (R) | - 03 | *Construction: | Lead Free (R) | *Planned |
| | Interface Structure: | 1 Lane (1) | | Interface Structure: | 2 Lane (2) | |
| | Interface Type: | SATA 6 Gb/s (SA) | | Interface Type: | NVMe (NV) | |
| - 02 | *Construction: | Lead Free (R) | - 04 | *Construction: | Leaded BGAs (L) | |
| | Interface Structure: | 1 Lane (1) | | Interface Structure: | 1 Lane (1) | |
| | Interface Type: | NVMe (NV) | | Interface Type: | SATA 6 Gb/s (SA) | |

Example part Number: MML512AM6S-G00I00-01 (TRRUST-Stor SATA, Long, 512 GB, SLC, Gray)
AMR256AM6S-B00IC-01 (ASURRE-Stor SATA, Short, 256 GB, SLC, Black, CSfC)

Need More Help? Need a Variant of This Product?

Contact Mercury's Secure SSD application engineering team at secure.ssd@mrcy.com



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