

# TCS Space & Component Technology

## Proteus IDE - Solid State Drive



### Features

- Conforms with ATA/ATAPI-7
- 64MB cache enables high IOPS for small block random operations
- Available with and without secure erase capability
- Fast erasure clears 128GB in less than 8 seconds
- Write Protect by jumper
- Ruggedized design; tested to MIL-STD-810
- Precision machined, anodized aluminum alloy case
- Enhanced reliability options include conformal coating, staking and component encapsulation
- No device driver development required (completely compatible with standard IDE / PATA)

### Applications

- Military and Defense — Ground, Sea, and Air
- Ruggedized computers/notebooks — mobile and system-based
- Homeland Security/Surveillance/Mapping/Reconnaissance/Remote Sensing
- Aerospace avionics, cockpit instrumentation both commercial and defense
- Unmanned vehicles including UAVs, robotics, and mine detection
- Radar/Guidance Systems and Telemetry/Tracking
- Vehicle Management/Information Systems
- Extreme operating environments including down-hole drilling and transportation
- Where your SSD absolutely, positively has to work!

TCS Space & Component Technology introduces the low-power, Proteus IDE/PATA Solid State Drive (SSD) with secure erase capability, delivering ultra-high-reliability mass storage in an industry-standard 2.5 inch package. It offers direct replacement of rotating disk drives with capacities ranging from 32GB to 256GB.

Secure erase functionality features seven different agency-approved erase methods. Software command or an external jumper initiate erasure.

This Proteus SSD supports the AT Attachment with Packet Interface-7 standard. With a high speed controller and 64MB of on-board cache, the Proteus 128GB SSD delivers sustained reads up to 107MB/s and sustained writes up to 115MB/s. Unlike other IDE (or parallel ATA) SSDs, the Proteus SSD's read/write cache architecture is optimized to support file defragmentation with OS TRIM utilities. This eliminates performance degradation due to file fragmentation — a problem for older SSD designs.

The SSD provides a solid data path with integrated hardware support for on-the-fly, per sector error detection and correction. The resulting Bit Error Rate is less than one in  $10^{14}$ .

Rigorously tested and independently verified to MIL-STD-810, the ultra-rugged Proteus SSD survives the harshest environments. The drives have a conservatively calculated MTBF of 1.24 million hours. Industrial grade SLC NAND technology provides data retention of over 10 years and write endurance of over 100,000 writes.

Designed and manufactured in the USA at AS9100-certified facilities, the Proteus is the unquestioned reliability leader among high-performance, rugged SSDs.

## Contact

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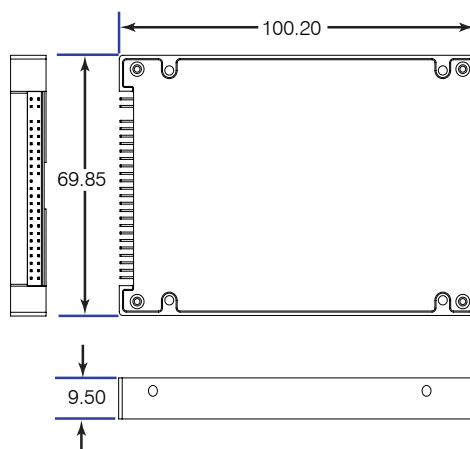
TCS brings proven, technology problem-solving expertise to its professional service offerings for the public sector. From continuity of operations and information assurance, to cyber security and integrated logistics support, TCS solves the toughest technical challenges, under conditions that demand the highest level of reliability, availability, and security. As an ISO 9000-certified provider with many consultants holding active security clearances, TCS has an established track record over the past decade as a trusted partner providing mission continuity for the Department of Defense, Special Operations and intelligence communities, the Department of Homeland Security, and the Department of State.

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Specifications	
Performance	
Capacity	Raw: 32GB, 64GB, 128GB, 256GB Users: 29.8GB, 59.6GB, 119.2GB, 238.4GB
Cache Size / Sector Size	64MB / 512 Byte Standard
Sustained Read (64GB SSD)	Up to 107 MB/s
Sustained Write (64GB SSD)	Up to 115 MB/s
Random Read, 4KB blocks (64GB SSD)	> 7800 IOPS
Random Write, 4KB blocks (64GB SSD)	> 900 IOPS
Erase Methods	
Fast Erase, DoD NISPOM 5220.22-M, DoD NISPOM 5220.22-M Sup 1, NSA/CSS 9-12, Army AR 380-19, Navy NAVSO P-5239-26, Air Force AFSSI-5020, RCC-TG IRIG 106-7	
Power	
Input Voltage	+5VDC $\pm$ 10%
Read Max (64GB SSD)	1.10 W
Write Max (64GB SSD)	1.90 W
Max. In-rush Current	< 1.5 Amp
Reliability	
MTBF	> 1.24 million hours, Telcordia 25°C, 32GB SSD
Data Reliability	< 1 non-recoverable error in 10 <sup>14</sup> bits read
Data Retention	> 10 years
Endurance	> 100,000 writes
Wear-Leveling	Proprietary static and dynamic algorithms
Environment	
Operating Temperature	-40°C to +85°C
Storage Temperature	-50°C to +95°C
Altitude	80,000 feet
Humidity	5% to 95% relative humidity, non-condensing
Shock	1,500G at 0.5ms
Vibration	16.3G minimum RMS
MIL-STD-810 Test Options	Thermal Cycling, Thermal Shock, Shock, Vibration, Gunfire Vibration, Low Pressure, Sand & Dust, Fungus, Explosive Atmosphere, Salt Fog
Mechanical	
Dimensions (mm)	ATA Standard



- Jumper locations:
- 1 Write Protect
  - 2 Fast Erase\*
  - 3 Customizable Erase Trigger\*
  - 4 Customizable Erase Trigger\*
  - 5 Not Active

Entire enclosure is machined, anodized aluminum

Packaging options:

- Conformal coat
- Silicone gel fill
- Epoxy staking

\* Erase options available on secure drives only.

Product Information and Specifications subject to change without notice. DS-TSDE25P-E