

BIWIN TDS601 2.5 SATA SSD

The BIWIN TDS601 SSD is a high-capacity, enterprise-grade storage device built for high-definition, multi-channel video surveillance, edge computing, and industrial server applications. It offers high and sustained performance, comprehensive data protection, and BOM (Bill of Materials) design. With support for capacities up to 8 TB, the TDS601 SSD is optimized for large-scale surveillance storage and other data-intensive workloads.

Featuring a full-capacity DRAM cache, the TDS601 SSD delivers enterprise-class sustained performance under continuous operation. To ensure maximum data integrity and reliability, it incorporates advanced technologies including RAM ECC, End-to-End (E2E) data protection, 4K LDPC, internal RAID, and hardware-based Power Loss Protection (PLP). Together, these capabilities provide a robust storage platform that meets the performance and compliance requirements of surveillance, edge computing, and industrial server deployments.



Key Features

Native 8 TB Capacity Support

With support for capacities of up to 8 TB, the TDS601 SSD is designed to meet the growing storage demands of data-intensive applications, such as rail transit systems, in-vehicle NVRs and DVRs. As the adoption of high-definition video continues to drive exponential growth in data volume, high-capacity storage is becoming an increasingly critical component in transportation and surveillance deployments.

Built with native 8 TB support across the controller architecture, firmware design, and NAND configuration, the TDS601 SSD delivers robust performance and reliability even at maximum capacity, ensuring dependable operation in demanding storage environments.

Enterprise-Class Sustained Performance

The TDS601 SSD features a full-capacity DRAM cache and an enterprise-grade hardware and firmware architecture, allowing it to deliver consistent performance under continuous workloads. Designed especially for demanding video surveillance environments, it supports up to 24 concurrent camera streams per drive while maintaining a sustained bandwidth of 1.5 MB/s per channel, ensuring smooth video recording without frame loss.

The TDS601 SSD is also optimized for edge computing and industrial server applications. Its high-performance architecture enables responsive data access and sustained read/write performance, making it particularly well suited for AI-assisted video surveillance and many other data-intensive workloads.

Comprehensive Data Integrity Protection

The TDS601 SSD series incorporates a full range of data integrity and reliability technologies at both the hardware and firmware levels. Hardware-based protection features include internal and external RAM ECC, End-to-End (E2E) Data Protection, 4K LDPC, Internal RAID, and hardware-based Power Loss Protection (PLP). Firmware-level technologies, including Garbage Collection (GC), wear leveling, and media scanning algorithms, further enhance data reliability and storage stability. Together, these technologies provide a more comprehensive protection for demanding surveillance, edge computing, and various industrial storage applications.

End-to-End In-House Design and Development

The TDS601 Series is built on a fully integrated BOM (Bill of Materials) architecture, featuring carefully sourced components throughout the entire design, including the SSD controller and NAND flash, DDR memory, and all passive components. The firmware is independently developed by in-house R&D team, while manufacturing is carried out at BIWIN's own production facilities, ensuring complete control across the entire product lifecycle. Developed from the ground up through BIWIN's fully integrated design and manufacturing capabilities, the TDS601 Series represents a truly self-developed storage solution.

Reliable Performance for Industrial Systems

Built on an enterprise-grade hardware and firmware architecture, the TDS601 SSD delivers the performance, stability, and reliability required for demanding industrial environments. The hardware platform and firmware design are developed in accordance with stringent industry reliability standards, ensuring consistent operation in mission-critical workloads. Its robust design makes it well suited for a wide range of industrial applications, too, including rail transit video surveillance, in-vehicle video surveillance, edge computing, industrial servers, power monitoring systems, network security infrastructure, and other data-intensive industrial deployments.

Technologies

DRAM Cache

PLP
(Power Loss Protection)

4K LDPC

E2E
(End-to-End)

RAID Protection

RAM ECC Protection

Applications



Video Surveillance



Rail Transportation



Car DVR



Edge Computing



Industrial Server



Power Monitoring System

Specifications

Model Name	TDS601
Interface	SATA 3.2
Form Factor	2.5''
Flash Type	3D TLC
Firmware	TLC Direct Write
DRAM Cache	Full-capacity DRAM Cache
Capacity	4 TB / 8 TB
Sequential Read (Up to)	560 MB/s
Sequential Write (Up to)	520 MB/s
Random Read 4K (Up to)	97K IOPS
Random Write 4K (Up to)	20K IOPS
Dimensions	100.00 x 70.00 x 7.00 mm
Operating Temperature	-20°C to + 75°C
Storage Temperature	-40°C to + 85°C
Endurance	3000 P/E cycles
MTBF	>2,500,000 hours
Certifications	CE,FCC, RoHS, HF, REACH, WEEE
TBW (Up to)	16000 TBW
Warranty	3-Year Limited

Order Information

Capacity	Part Number	Power-Loss Protection Options
4 TB	TD25B4T126Y3TP0	Firmware Based
8 TB	TD25B8T126Y3TP0	Firmware Based

1. Tested by BIWIN labs. Actual performance may vary due to systems, devices, or environment.
2. Maintenance and future updates are required throughout the product lifecycle. Specifications are subject to change without notice.
3. The pictures are for illustration only. Actual products may vary due to product enhancements or changes.
4. Not all products are sold in all regions of the world.
5. As used for storage capacity, one megabyte (MB)= one million bytes, one gigabyte (GB) = one billion bytes, and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on the operating environment. As used for buffer or cache, one megabyte (MB) = 1,048,576 bytes. As used for transfer rate or interface, megabyte per second (MB/s) = one million bytes per second, and gigabyte per second (GB/s) = one billion bytes per second.
6. MTBF = Mean Time Between Failures based on internal testing using the Telcordia stress testing standard.
7. Please visit www.biwin technology.com for warranty details in your region.
8. For more information, please contact sales@biwintech.com.

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