

BIWIN TGS601 2.5" SATA SSD

The BIWIN TGS601 SSD series delivers a high-capacity industrial storage solution for wide-temperature applications in edge-computing and multi-channel high definition video surveillance. Combining a high-performance architecture with robust data protection, the TGS601 series is built for AI-powered surveillance, edge computing, industrial servers, and other mission-critical applications.

The TGS601 series is available in 4 TB and 8 TB capacities to support large-scale data-intensive workloads. It integrates full-capacity onboard DRAM cache to deliver consistent steady-state performance under sustained workloads. To maintain data integrity in even demanding operating conditions, it incorporates RAM ECC, End-to-End (E2E) Data Protection, 4K LDPC error correction, internal RAID redundancy, and hardware-based Power Loss Protection (PLP), safeguarding data integrity.



Key Features

Native 4 TB and 8 TB High-Capacity Storage

Available in 4 TB and 8 TB sizes, the TGS601 series' expansive capacity is built to meet the growing storage demands of rail transit, in-vehicle NVRs, DVRs, and other data-intensive applications. As AI-powered surveillance accelerates the adoption of 4K and 8K video, 8 TB capacity is becoming the new standard for next-generation transportation and mobile surveillance systems and the TGS601 series can deliver that today.

Engineered from the ground up to support 8 TB capacity, the TGS601 series is optimized across NAND selection, controller architecture, and firmware design to deliver robust performance and uncompromised reliability.

Consistent Performance for Continuous Recording

The TGS601 series integrates a full-capacity onboard DRAM cache and is optimized for sustained write-intensive workloads. Powered by BIWIN's proprietary Win-REC intelligent write algorithm, it supports continuous recording of up to 24 simultaneous video streams on a single drive, sustaining 1.5 MB/s per channel with consistent write performance to help minimize frame drops and recording interruptions.

Even in AI-powered surveillance applications with concurrent recording and analytics workloads, the TGS601 series maintains consistent read and write performance, making it well suited for edge computing and industrial server deployments.

Data Integrity at Every Layer

To help ensure data integrity and consistency, the TGS601 series combines hardware- and firmware-level protection into a comprehensive data reliability framework.

At the hardware level, the controller integrates 4K LDPC hardware decoding, ECC protection for both internal and external memory, chip-level RAID, and hardware-based Power Loss Protection (PLP) to safeguard data integrity under demanding operating conditions.

At the firmware level, intelligent garbage collection (GC), dynamic wear leveling, and periodic media scanning continuously optimize drive endurance and long-term performance.

This combination of reliability features ensures long-term data integrity, and helps extend the effective lifespan of the storage solution, improving ROI, and cementing platform stability.

End-to-End Control for Long-Term Supply Security

The BIWIN TGS601 series is developed on a fully controlled design and manufacturing platform, featuring in-house firmware development and independently managed packaging and testing. Key components, including the controller, NAND flash, DDR, and passive components, are carefully selected to ensure consistent product quality and long-term supply continuity. With end-to-end control across the development and manufacturing process, and BIWIN's standout position in the industry, the TGS601 series delivers reliable, consistent long-term product availability for industrial deployments.

Reliable Operation Across Wide Temperature Ranges

Designed for operation across a wide -40°C to 85°C temperature range, the TGS601 series supports reliable deployment in extreme hot and cold environments and can manage wide temperature swings within that range, too. From component selection to firmware optimization, every aspect of the design is engineered to meet wide-temperature requirements, helping ensure stable operation under a range of demanding conditions.

Versatility Across Industrial Applications

Combining an enterprise-class storage architecture with wide-temperature hardware design, the TGS601 series delivers sustained performance and reliability across a broad range of industrial applications, including: rail transportation surveillance, in-vehicle surveillance, edge computing, industrial servers, power monitoring, cybersecurity infrastructure, and mission-critical systems.

Technologies

DRAM Cache

Power Loss Protection
(PLP)

LDPC Error Correction

Data Path E2E
Protection

Internal RAID

RAM ECC

Applications



Rail
Transit



In-Vehicle
DVR



Edge
Computing



Industrial
Servers



Power
Monitoring



Mission-Critical
Systems

Specifications

Model Name	TGS601
Interface	SATA 3.2
Form Factor	2.5" SATA
Flash Type	3D TLC
Firmware	TLC Direct Write
DRAM Cache	DRAM-Based
Capacity	4 TB / 8 TB
Sequential Read (Up to)	560 MB/s
Sequential Write (Up to)	520 MB/s
4K Random Read (Up to)	97K IOPS
4K Random Write (Up to)	20K IOPS
Dimensions	100.00 × 70.00 × 7.00 mm
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
MTBF	>2,500,000 Hours
Certifications	CE, FCC, RoHS, HF, REACH, WEEE
Warranty	3-Year Limited

Order Information

Capacity	Part Number	Power Loss Protection
4 TB	TG25B4T126Y3TP0	Hardware and Firmware-Based
8 TB	TG25B8T126Y3TP0	Hardware and 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 life cycle. 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.biwintech.com for warranty details in your region.
8. For more information, please contact sales@biwintech.com.

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