

TGS205 Industrial SATA SSD

Designed for industrial applications, BIWIN TGS205 SSD integrates industrial-grade controllers and TLC NAND flash technology. It is widely used in industrial control, rail transportation, data communication, and other fields, and is compatible with critical equipment such as automation devices, metro gate systems, and communication base stations.

The TGS205 SSD features a M.2 2242 form factor and strictly adheres to the SATA III standard, delivering high-speed performance with sequential read and write speeds up to 560 MB/s and 510 MB/s. Available in capacities from 128 GB to 512 GB, it meets diverse storage needs, with an operating temperature range of -40°C to +85°C for more stable performance in extreme environments.

The TGS205 SSD undergoes rigorous testing, including “Double 85” (85°C high temperature and 85% high humidity test), rapid temperature cycling (10°C/min), high/low-temperature stress testing, and anti-sulfuration G3 standard, ensuring outstanding reliability and safety. The SSD comes with power-loss protection, safeguarding data against damage from unexpected power outages. Customization options, including conformal coating, sidefill/underfill and anti-sulfuration, provide comprehensive solutions to enhance reliability and durability in harsh environments.



Key Features

Stable Wide-Temperature Operation from -40°C to +85°C

The BIWIN TGS205 SSD offers reliable operation in extreme conditions, with an advanced selection process that ensures the flash memory, controller, and components support a wide temperature range of -40°C to +85°C. Coupled with our proprietary firmware enhancement strategy, this ensures a more stable performance in challenging climates and even harsh industrial environments.

65,000 P/E Cycles for Exceptional Longevity and Cost-Effectiveness

Supporting both firmware and hardware-based power-loss protection, the BIWIN TGS205 SSD maintains power stability during unexpected power failures, allowing additional time for volatile data storage and effectively addressing various power-loss scenarios.

Advanced Technologies to Extend Product Lifespan

The BIWIN TGS205 SSD incorporates technologies such as dynamic/static wear leveling, bad block management, TRIM, and garbage collection for the optimal utilization of NAND Flash to significantly enhance product durability.

Rigorous Testing for Exceptional Quality

The BIWIN TGS205 SSD undergoes extensive testing, including “Double 85” (85°C high temperature and 85% high humidity test), rapid temperature cycling (10°C/min), high/low-temperature stress testing, and anti-sulfuration G3 standard, with an MTBF (Mean Time Between Failures) exceeding 3 million hours, demonstrating its outstanding reliability.

Flexible Customization to Meet Specialized Application Needs

The BIWIN TGS205 SSD offers various customization options, including conformal coating, sidefill/underfill, anti-sulfuration, and metal/graphene heatsinks, providing a choice of comprehensive solutions to meet specific customer requirements and significantly improving reliability and durability.

Technologies

Power Loss Protection

S.M.A.R.T.

Firmware Update

End-to-End Data Protection

Data Erasure

Garbage Collection

Dynamic/Static Wear Leveling

TRIM Command

Bad Block Management

Intelligent Thermal Throttling

Applications



Network Communications



Industrial Automation



Security Surveillance



Intelligent Transportation



Smart Energy

Model Name	TGS205
Interface	SATA III
Form Factor	M.2 2242
Flash Type	3D TLC
Firmware	TLC Direct Write
DRAM Cache	DRAM-less
Capacity	128 GB / 256 GB / 512 GB
Sequential Read (Up to)	560 MB/s
Sequential Write (Up to)	510 MB/s
Random Read 4K (Up to)	90K IOPS
Random Write 4K (Up to)	70K IOPS
Read Power Consumption (Max.)	0.8 W
Write Power Consumption (Max.)	1.3 W
Idle Power Consumption (Max.)	0.25 W
Dimensions	42.00 x 22.00 x 3.60 mm
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +95°C
Endurance	3000 P/E cycles
MTBF	>3,000,000 hours
Certifications	CE, FCC, RoHS
Warranty	5-Year / 2400 TBW

Order Information

Capacity	Part Number	Power Loss Protection
128 GB	TG42B12820Y0TP0	Firmware-Based
256 GB	TG42B25620Y0TP0	Firmware-Based
512 GB	TG42B51220Y0TP0	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.biwintech.com for warranty details in your region.
8. For more information, please contact sales@biwintech.com.

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