

TGS205-P M.2 SATA SSD

BIWIN TGS205-P SSD is built for demanding industrial applications, integrating 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-P SSD uses a M.2 2242 form factor and strictly adheres to the SATA III protocol standard, providing high-speed performance with sequential read and write speeds up to 560 MB/s and 510 MB/s. With an operating temperature range from -40°C to +85°C, it ensures stable operation in extreme environments and offers capacities ranging from 8 GB to 64 GB for diverse storage requirements.

It employs Pseudo SLC (pSLC) technology, leveraging BIWIN's innovative flash optimization algorithms to overcome the lifespan limitations of traditional TLC, providing enhanced durability. The SSD includes various customization options, such as conformal coating for added protection, sidefill/underfill processes to improve vibration and shock resistance, and anti-sulfurization design to protect against environmental degradation. The TGS205-P SSD follows BIWIN's proprietary industrial-grade testing standards, ensuring exceptional reliability and safety.



Key Features

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

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

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

Leveraging BIWIN's proprietary flash optimization algorithms and pSLC technology, the TGS205-P SSD offers outstanding performance with up to 65,000 P/E cycles, nearly 22 times the endurance of conventional 3D TLC NAND flash (which typically supports only 3,000 P/E cycles). This high endurance, coupled with cost efficiency, provides the optimal solution for industrial control applications that require long-lasting performance while minimizing overall costs.

Advanced Technologies to Extend Product Lifespan

The BIWIN TGS205-P SSD incorporates technologies such as dynamic/static wear leveling, bad block management, TRIM, and garbage collection, ensuring optimal utilization of NAND Flash and significantly enhancing the product's durability.

Rigorous Testing for Exceptional Quality

The BIWIN TGS205-P SSD undergoes extensive testing, including "Double 85 test" (85°C high temperature and 85% high humidity), rapid temperature cycling (10°C/min), high/low-temperature stress testing, and anti-sulfuration G3 standards. With an MTBF (Mean Time Between Failures) exceeding 3 million hours, this SSD offers outstanding reliability.

Flexible Customization to Meet Specialized Application Needs

Various customization options, including conformal coating, sidefill/underfill, anti-sulfuration, and metal/graphene heatsinks, can offer comprehensive solutions to meet specific customer requirements.

Technologies

pSLC

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

Specifications

Model Name	TGS205-P
Interface	SATA III
Form Factor	M.2 2242
Flash Type	3D TLC
Firmware	pSLC
DRAM Cache	DRAM-less
Capacity	8 GB / 16 GB / 32 GB / 64 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.)	0.69 W
Write Power Consumption (Max.)	0.78 W
Idle Power Consumption (Max.)	0.2 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	65000 P/E cycles
MTBF	>3,000,000 hours
Certifications	CE, FCC, RoHS, HF, REACH
TBW	1500 TBW

Order Information

Capacity	Part Number	Power Loss Protection
8 GB	TG42B00820Y0P	Firmware-Based
16 GB	TG42B01620Y0P	Firmware-Based
32 GB	TG42B03220Y0P	Firmware-Based
64 GB	TG42B06420Y0P	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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