

TGS202-P Industrial mSATA SSD

For demanding industrial applications, the BIWIN TGS202-P SSD integrates industrial-grade controllers and TLC NAND flash technology. This SATA III SSD 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 TGS202-P SSD features the mSATA 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 a wide operating temperature range from -40°C to +85°C, it can ensure stable operation despite extreme environments. Capacities range from 8 GB to 64 GB to meet diverse storage requirements.

The TGS202-P SSD follows BIWIN's proprietary industrial-grade testing standards, ensuring exceptional reliability and safety. It also employs Pseudo SLC (pSLC) technology, leveraging BIWIN's innovative flash optimization algorithms to overcome the lifespan limitations of traditional TLC, adding enhanced durability. When required, the SSD can include various customization options such as conformal coating for added protection, sidefill/underfill processes to improve vibration and shock resistance, and anti-sulfurization to protect against environmental degradation.



Key Features

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

The BIWIN TGS202-P SSD ensures reliable operation in extreme conditions via advanced selection mechanisms which guarantee the flash memory, controller, and components support a wide temperature range of -40°C to +85°C. Coupled with BIWIN's proprietary firmware enhancement strategy, this ensures stable performance even 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 TGS202-P SSD offers long-standing 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, makes the TG202-P the optimal solution for industrial control applications that require long-lasting performance with minimal overall costs.

Advanced Technologies to Extend Product Lifespan

The BIWIN TGS202-P SSD incorporates technologies such as dynamic/static wear leveling, bad block management, TRIM, and garbage collection to ensure optimal utilization of NAND Flash and significantly enhance the product's durability.

Rigorous Testing for Exceptional Quality

The BIWIN TGS202-P 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 standards, with an MTBF (Mean Time Between Failures) exceeding 3 million hours.

Flexible Customization to Meet Specialized Application Needs

The BIWIN TGS202-P SSD offers various customization options, including conformal coating, sidefill/underfill, anti-sulfuration, and metal/graphene heatsinks, providing comprehensive choices for 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

Model Name	TGS202-P
Interface	SATA III
Form Factor	mSATA
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.)	0.71 W
Write Power Consumption (Max.)	0.8 W
Idle Power Consumption (Max.)	0.2 W
Dimensions	50.80 x 29.85 x 4.65 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 (Up to)	1500 TBW
Warranty	5-Year Limited

Order Information

Capacity	Part Number	Power Loss Protection
8 GB	TG59B00820Y0P	Firmware-Based
16 GB	TG59B01620Y0P	Firmware-Based
32 GB	TG59B03220Y0P	Firmware-Based
64 GB	TG59B06420Y0P	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.

Global Headquarters:

BIWIN STORAGE TECHNOLOGY CO., LTD.

Building #4, South Zone #2, Zhongguan Honghualing Industrial Zone,

Nanshan District, Shenzhen, Guangdong, China

+86 (755) 2671-5701

sales@biwintech.com

