TGP205
Industrial PCIe SSD

BIWIN
Storage Technology

BIWIN TGP205 SSD, engineered for industrial-grade applications, delivers high reliability and performance in sectors including industrial control, rail transportation, and data communications. It is ideal for key systems such as automation equipment, subway gate systems, and communication base stations.

Built with an M.2 2280 form factor, PCIe Gen3x4 interface, and NVMe 1.4 protocol, the TGP205 offers sequential read speeds up to 3400 MB/s and write speeds up to 2800 MB/s for efficient data processing. Available in capacities from 32 GB to 512 GB, this SSD can operate across a wide temperature range of -40°C to 85°C, providing stability in extreme environments.

The TGP205 adheres to BIWIN's rigorous industrial standards, ensuring exceptional reliability. It also includes power-loss protection, safeguarding data during unexpected power outages. Additionally, the TGP205 offers customizable features such as conformal coating, underfill/sidefill, and anti-sulfurization protection, providing a comprehensive choice of solutions for industrial applications requiring high security, durability, and long-term performance.

Key Features

High-Speed Data Transfer with PCIe Gen3x4

The TGP205 uses a high-performance PCIe Gen3x4 interface, compliant with NVMe 1.4. It delivers sequential read speeds up to 3400 MB/s and write speeds up to 2800 MB/s, with random read/write performance reaching 260K/210K IOPS.

Stable Operation Even Across Wide Temperature Ranges

With BIWIN's advanced manufacturing process, the TGP205 ensures the flash memory, controller, and components perform stably within a wide temperature range of -40°C to +85°C. Paired with proprietary firmware-based thermal optimization, it offers stable performance even in extreme industrial conditions.

Dual Power-Loss Protection for Enhanced Stability

BIWIN TGP205 features both firmware-based and hardware-based power loss protection for more stable power management. In the event of unexpected power interruptions, the TGP205 allows additional time to store volatile data, protecting data integrity and minimizing any risk of data loss.

Extended Lifespan with Advanced Technologies

Supporting features including dynamic/static wear leveling, bad block management, TRIM, and garbage collection, the TGP205 provides optimal use of the NAND flash and significantly enhances product durability.

Rigorous Testing for Premium Reliability

The BIWIN TGP205 undergoes stringent 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 of more than 3 million hours, it features exceptional reliability.

Customizable Solutions for Specialized Needs

The TGP205 offers custom services such as conformal coating, sidefill/underfill, anti-sulfurization protection, and metal/graphene heatsinks, significantly enhancing reliability and durability under specific application requirements.

Technologies

Power Loss Protection	S.M.A.R.T.	Online 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	TGP205
Interface	PCIe Gen3x4, NVMe 1.4
Form Factor	M.2 2242
Flash Type	Industrial 3D TLC
Firmware	TLC Direct Write
DRAM Cache	DRAM-less
Capacity	32 GB / 64 GB / 128 GB / 256 GB / 512 GB
Sequential Read (Up to)	3400 MB/s
Sequential Write (Up to)	2800 MB/s
Random Read 4K (Up to)	260K IOPS
Random Write 4K (Up to)	210K IOPS
Read Power Consumption (Max.)	1.48 W
Write Power Consumption (Max.)	2.24 W
Idle Power Consumption (Max.)	48 mW
Dimensions	22.00 x 42.00 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, HF, REACH
TBW (Up to)	500 TBW
Warranty	5-Year Limited

Order Information

Capacity	Part Number	Power Loss Protection
128 GB	TG42G12830Y0TP0	Hardware + Firmware-Based
256 GB	TG42G25630Y0TP0	Hardware + Firmware-Based
512 GB	TG42G51230Y0TP0	Hardware + Firmware-Based
32 GB	TG42G03230Y0T	Firmware-Based
64 GB	TG42G06430Y0T	Firmware-Based
128 GB	TG42G12830Y0T	Firmware-Based
256 GB	TG42G25630Y0T	Firmware-Based
512 GB	TG42G51230Y0T	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.biwintechnology.com for warranty details in your region.
8. For more information, please contact sales@biwintech.com.

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