TDP205
Industrial PCIe SSD

BIWIN Storage Technology

BIWIN TDP205 SSD features industrial-grade reliability and high-speed data processing in demanding environments. Built with a high-performance PCIe Gen3 controller and 3D TLC NAND with a direct write architecture, it achieves sequential read and write speeds up to 3200 MB/s and 2700 MB/s for high-throughput data transfer and processing across industrial IoT (IIoT), smart manufacturing, and other data-intensive applications.

To ensure stable performance under extreme conditions, the TDP205 integrates advanced reliability technologies, including RAID, ECC (Error Correction Code), and 4K LDPC (Low-Density Parity-Check). Its industrial-grade firmware and hardware architecture significantly enhance storage durability with a write endurance of more than 3000 P/E cycles, supporting high-frequency write workloads while minimizing long-term maintenance costs.

Striking a strong balance between performance and durability, the BIWIN TDP205 safeguards data integrity, reduces system downtime, and boosts overall productivity in critical industrial environments.

Key Features

Stable Operation Across Wide Temperature Ranges

Built with industrial-grade components that are validated through rigorous thermal testing, the TDP205 SSD ensures stable performance across a wide operating temperature range of -20°C to +70°C. The TDP205 is designed to maintain reliability under frequent temperature shifts, for stable performance in both high- and low-temperature operating conditions.

Durability and Reliability for Industrial Applications

Equipped with a robust PCIe Gen3 controller and industrial-grade firmware, the TDP205 incorporates multiple data protection technologies, including 4K LDPC error correction, SRAM-based ECC, and RAID. With a rated endurance of 3000 program/erase (P/E) cycles, it offers long-term operational stability and exceptional durability for critical applications that demand nonstop 24/7 performance.

Broad Compatibility and Custom Options

The BIWIN TDP205 SSD is optimized for the complex requirements of various platforms and devices. With a thorough tuning and optimization of the firmware, along with comprehensive compatibility testing, this drive ensures seamless integration with major global platforms and operating systems for stable performance in diverse work environments. When specialized or application-specific platforms are required, BIWIN offers precision customization services, collaborating closely with clients to deliver high-performance, high-reliability solutions tailored to specific industry needs.

Intelligent Monitoring and Thermal Management

The BIWIN TDP205 is equipped with high-precision thermal sensors and leverages S.M.A.R.T. health monitoring to track temperature changes in real time. Its advanced thermal management algorithm dynamically adjusts performance based on thermal conditions, preventing overheating for sustained reliability under high-load operating environments.

Rigorous Quality Control

From wafer fabrication to final product shipment, BIWIN industrial SSDs adhere strictly to international quality and industrial standards. The TDP205 is manufactured under a stringent quality management system, including Online Reliability Testing (ORT) post-mass production, to guarantee sustained performance and reliability throughout the product lifecycle.

Technologies

RAID	ECC (Error Correction Code)	30μ" Gold Finger	Intelligent Thermal Throttling	Software-based PLP (Power Loss Protection)	S.M.A.R.T.

Applications

Network Communications	Smart Healthcare	Intelligent Transportation
Industrial Automation	AIoT (Artificial Intelligence of Things)	Industrial Robots

Specifications

Model Name	TDP205
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	128 GB / 256 GB / 512 GB / 1 TB / 2 TB
Sequential Read (Up to)	3200 MB/s
Sequential Write (Up to)	2700 MB/s
Random Read 4K (Up to)	285K IOPS
Random Write 4K (Up to)	240K IOPS
Read Power Consumption (Max.)	2.39 W
Write Power Consumption (Max.)	2.52 W
Idle Power Consumption (Max.)	0.36 W
Dimensions	22.00 x 42.00 x 3.60 mm
Operating Temperature	-20°C to +70°C
Storage Temperature	-40°C to +85°C
Endurance	3000 P/E cycles
MTBF	>2,000,000 hours
Certifications	CE, FCC, RoHS, HF, REACH
TBW (Up to)	1500 TBW
Warranty	3-Year Limited

Order Information

Capacity	Part Number	Power Loss Protection
128 GB	TD42G12830S2T	Firmware-Based
256 GB	TD42G25630S2T	Firmware-Based
512 GB	TD42G51230S2T	Firmware-Based
1 TB	TD42G1T230S2T	Firmware-Based
2 TB	TD42G2T230S2T	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.biwintechnology.com for warranty details in your region.
8. For more information, please contact sales@biwintech.com.

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