# BIWIN
*Storage Technology*

# TDS205
# SATA SSD

The BIWIN TDS205 SSD uses a high-performance SATA controller, integrating next-generation 4K LDPC error correction, in-drive RAID, and SRAM ECC to ensure data integrity and reliability. Tailored for industrial applications and embedded systems, this series is optimized for environments that demand consistent, high-quality data storage and transfer.

Compliant with the SATA III interface standard, the TDS205 SSD features a M.2 2242 form factor and delivers sequential read and write speeds up to 560 MB/s and 510 MB/s, respectively. With operational temperatures ranging from -20°C to +70°C, it guarantees stable performance in diverse environmental conditions, making it well-suited for mission-critical applications.

Further enhancing data integrity, the TDS205 SSD offers comprehensive features including end-to-end data protection, data inspection, and data erasure to ensure the integrity of stored information. S.M.A.R.T. monitoring provides real-time visibility into the health of the drive, enabling proactive maintenance through continuous monitoring, diagnostics, and reporting.

## Key Features

### High-Speed and Stable Performance in Industrial Environments

The BIWIN TDS205 SSD uses high-quality components, ensuring stable performance in environments ranging from -20°C to +70°C. With sequential read and write speeds up to 560 MB/s and 510 MB/s, the TDS205 provides high-speed, stable data access capabilities for standard industrial applications.

### Advanced Technologies to Extend Product Lifespan

With features including dynamic/static wear leveling, bad block management, TRIM, and garbage collection, the BIWIN TDS205 SSD ensures optimal utilization of NAND flash, significantly enhancing the product's durability and lifespan.

### Rigorous Industrial Testing for High Reliability

Built to industrial-grade standards, the BIWIN TDS205 SSD undergoes extensive testing, including high and low-temperature performance, functionality tests, and industrial platform compatibility, with an MTBF (Mean Time Between Failures) exceeding 3 million hours, ensuring exceptional reliability.

### Flexible Customization to Meet Specialized Requirements

The BIWIN TDS205 SSD offers custom services such as underfill/sidefill, metal/graphene heatsinks, and other tailored options to meet specific customer requirements, greatly enhancing reliability and durability in specialized environments.

## Technologies

| 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

| Industrial Automation | Financial and Retail Device | Self-Service Terminals | Network Communications | Smart Healthcare |
|---|---|---|---|---|

# Specifications

| | |
|---|---|
| Model Name | TDS205 |
| Interface | SATA III |
| Form Factor | M.2 2242 |
| Flash Type | 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) | 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.) | 0.86 W |
| Write Power Consumption (Max.) | 0.92 W |
| Idle Power Consumption (Max.) | 0.24 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 | >3,000,000 hours |
| Certifications | CE, FCC, RoHS, HF, REACH |
| TBW | 2400 TBW |
| Warranty | 3-Year Limited |

# Order Information

| Capacity | Part Number | Power Loss Protection |
|---|---|---|
| 32 GB | TD42B03220S0T | Firmware-Based |
| 64 GB | TD42B06420S0T | Firmware-Based |
| 128 GB | TD42B12820S1T | Firmware-Based |
| 256 GB | TD42B25620S1T | Firmware-Based |
| 512 GB | TD42B51220S1T | 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.

**B BIWIN**
Storage Technology

www.biwintechnology.com