swissbit®

Product Fact Sheet

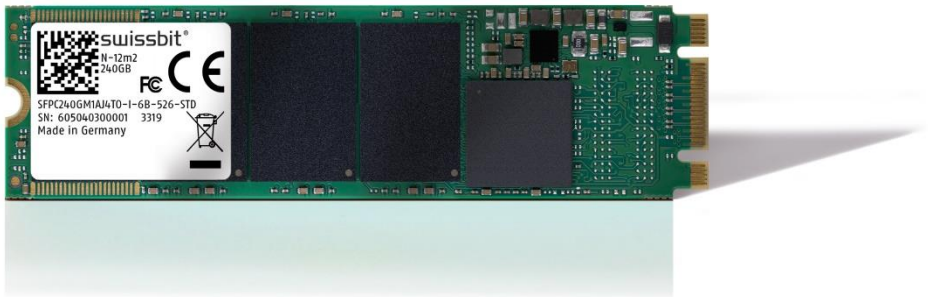
Industrial M.2 PCIe SSD

N-12m2 2280 Series

PCIe 3.1, 3D TLC

Commercial and Industrial Temperature Grade

Date: April 16, 2020
Revision: 1.01



Made in Germany

Product Fact Sheet
N-12m2 2280 Series

Product Summary

- **Capacities:** 30 GBytes, 60 GBytes, 120 GBytes, 240 GBytes
- **Form Factor:** PCI Express® M.2 2280 (80 mm x 22 mm x 2.23 mm)
- **Compliance:** PCI Express Specification Revision 3.1
- **Interface:** Gen3 x 2 Lanes
  - Drive operates in x1 mode in x1 M.2 PCIe slots
  - Drive operates in x2 mode in x2 or x4 M.2 PCIe slots
- **Command Sets:** Supports NVMe 1.2
- **Performance:**
  - Read Performance: Sequential Read up to 1,520 MBytes/s, Random Read 4K up to 179,500 IOPS
  - Write Performance: Sequential Write up to 925 MBytes/s, Random Write 4K up to 174,100 IOPS
- **Operating Temperature Range[1]:**
  - Commercial: 0 °C to 70 °C
  - Industrial: -40 °C to 85 °C
- **Storage Temperature Range:** -40 °C to 85 °C
- **Operating Voltage:** 3.3 V ± 5%
- **Low Power Consumption**
- **Data Retention:** 10 Years @ Life Begin; 1 Year @ Life End
- **Endurance in TeraBytes Written (TBW) Max Capacity[2]:** Client WL ≥ 300; Enterprise WL ≥ 75
- **Shock/Vibration:** 1,500 *g* / 50 *g*
- **LDPC ECC** with up to 120 bit correction per 1 KByte page
- **NAND Flash Technology:** Triple-Level Cell (TLC) 3D NAND Flash
- **Mean Time Between Failure:** > 2,000,000 hours
- **Data Reliability:** < 1 non-recoverable error per 10^{16} bits read

Product Features

- Dynamic and Static Wear Leveling
- Subpage Mode Flash Translation Layer (FTL)
- Active and Passive Data Care Management
- Lifetime Enhancements: Dynamic Bad Block Remapping and Write Amplification Reduction
- On-Board Power Fail Protection
- Deallocate and I/O Queues
- HMB (Host Memory Buffer) Support
- NVMe Security Command Support
- Active State Power Management (ASPM) Support
- In-Field Firmware Update
- Enterprise-Grade Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.)
- 30 µinch Gold-Plated Connector (IPC-6012B Class 2 Compliant)
- End-to-End (E2E) Data Protection
- Swissbit Life Time Monitoring (SBLTM) Tool and SDK for SBLTM (on request)

Why Swissbit?

Swissbit is focused on the design, development, manufacture, and support of leading edge memory and storage solutions for the worldwide OEM/ODM marketplace. As a global supplier, Swissbit recognizes and addressees the higher level of application requirements of today's industrial, Netcom, and automotive customers by providing best-in-class products and services, with uncompromised attention to driving overall value and quality.

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[1] Adequate airflow is required to ensure the temperature, as reported in the S.M.A.R.T. data, does not exceed 125°C (industrial temperature drive) and 110°C (commercial temperature drive) respectively.

[2] According to JEDEC (JESD47I), the time to write the full TBW is a minimum of 18 months. Higher average daily data volume reduces the specified TBW. The values listed are estimates and are subject to change without notice.