

# swissbit®

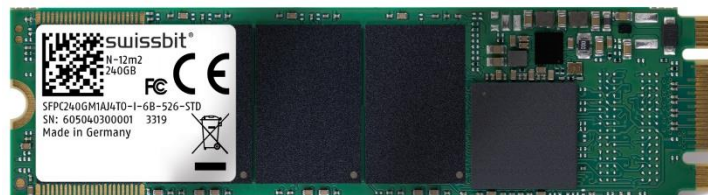
Product Fact Sheet

## 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 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 x2 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<sup>1</sup>:**
  - 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<sup>2</sup>:** 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<sup>16</sup> 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 addresses 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.

<sup>1</sup> 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.

<sup>2</sup> According to JEDEC (JESD471), 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.