

powersafe™

swissbit®

Product Fact Sheet

**Industrial
M.2 PCIe SSD**

N-36m2 P Series
PCIe Gen 3.1, 3D TLC

Industrial Temperature Grade

Date: February 23, 2023
Revision: 1.01




Made in Germany

Product Summary

- **Capacities:** 80 GBytes, 160 GBytes, 320 GBytes
- **Form Factor:** PCI Express M.2 2280 (80 mm x 22 mm x 3.8 mm)
- **Compliance¹:** PCI Express (PCIe) Base Specification Revision 3.1
- **Interface:** Gen3 x 4 Lanes
 - Drive operates in x1 mode in x1 M.2 PCIe slots
 - Drive operates in x2 mode in x2 M.2 PCIe slots
 - Drive operates in x4 mode in x4 M.2 PCIe slots
- **Command Sets:** Supports NVMe 1.4
- **Target Performance:**
 - Read Performance: Sequential Read up to 3,530 MBytes/s, Random Read 4K up to 380,000 IOPS
 - Write Performance: Sequential Write up to 3,020 MBytes/s, Random Write 4K up to 540,000 IOPS
- **Operating Temperature Range²:**
 - Industrial: -40 °C to 85 °C
- **Storage Temperature Range:** -40 °C to 85 °C
- **Power:**
 - Power States PSo, PS1, PS2, PS3 and PS4
 - Thermal Throttling supported
- **Data Retention³:** 10 Years @ Life Begin; 1 Year @ Life End, @40°C
- **Shock/Vibration:** 1,500 g / 50 g
- **High-Performance Processor with Integrated, Parallel Flash Interface Engines:**
 - Triple-Level Cell (TLC) 3D NAND Flash in pSLC mode
 - DDR4 DRAM based Controller architecture
 - 240 bit LDPC correction per 2 KByte
- **High Reliability:**
 - Mean Time Between Failure (MTBF): > 3,000,000 hours
 - Data Reliability: < 1 non-recoverable error per 10¹⁶ bits read

¹ To check the compatibility of the customer system and the storage device is part of the customer's responsibility. Swissbit can provide guidance and support on request.

² Adequate airflow is required to ensure the temperature, as reported in the S.M.A.R.T. data, does not exceed 105°C (industrial temperature drive).

³ NAND Flash suppliers refer to JEDEC JESD47 and JESD22 for Data Retention testing. Based on the information provided by the NAND Flash suppliers, Data Retention is targeted as shown

Product Features

- Dynamic and Static Wear Leveling
- Subpage Mode Flash Translation Layer (FTL)
- Data Care Management
 - Active: Adaptive Read Refresh
 - Passive: Background Media Scan
- Lifetime Enhancements
 - Dynamic Bad Block Remapping
 - Write Amplification Reduction
- Data set management support (TRIM)
- Active State Power Management (ASPM) Support
- In-Field Firmware Update⁴
- Enterprise-Grade Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T., Telemetry)
- 30 µinch (0.8 µm) Gold-Plated Connector (IPC-6012C Class 2 Compliant)
- End-to-End (E2E) Data Protection
- Power Fail Data Loss Protection option
- AES256 Encryption
- Crypto erase
- TCG Opal (on request)
- SMBus support (on request)
- Life Cycle Management
- Controlled "Locked" BOM
- RoHS / REACH Compliant
- 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.

⁴ The support of In-Field FW update capabilities on host systems is recommended.