swissbit®

Product Fact Sheet

Industrial 2.5" SATA SSD

X-600 Series

SATA Gen3 – 6.0 Gbit/s, SLC

Commercial and Industrial Temperature Grade

Date: March 31, 2020
Revision: 1.02

Made in Germany

Product Fact Sheet
X-600 Series

Product Summary

- **Capacities:** 8 GBytes, 16 GBytes, 32 GBytes, 64 GBytes, 128 GBytes, 256 GBytes
- **Form Factor:** 2.5" SATA Solid State Drive (70 mm x 100 mm x 7 mm)
- **Compliance:** SATA Gen3 – 6 Gbit/s (Gen2 – 3 Gbit/s and Gen1 – 1.5 Gbit/s backward compatible)
- **Command Sets:** Supports ATA/ATAPI-8 and ACS-2
- **Performance:**
  - Read Performance: Sequential Read up to 520 MBytes/s, Random Read 4K up to 79,000 IOPS
  - Write Performance: Sequential Write up to 425 MBytes/s, Random Write 4K up to 76,000 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:** 5 V ± 10% (3.3 V available upon request)
- **Power (Max):** Read (Active): 2.45 W; Write (Active): 3.8 W; Idle: 550 mW; Slumber: 75 mW
- **Data Retention:** 10 Years @ Life Begin / 1 Year @ Life End
- **Endurance in TeraBytes Written (TBW) @ Max Capacity[2]:** Client ≥ 16,965; Embedded ≥ 5,495; Enterprise ≥ 2,460
- **Shock/Vibration:** 1,500 *g* / 50 *g*
- **High-Performance 32-Bit Processor with Integrated, Parallel Flash Interface Engines:**
  - Single-Level Cell (SLC) NAND Flash
  - Hardware BCH Code ECC (up to 66 bit correction per 1 KByte page)
- **Mean Time Between Failure (MTBF):** > 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
  - Write Amplification Reduction
- On-Board Power Fail Protection
- AHCI, TRIM, and NCQ Support
- ATA Security Feature Set Support
- DEVSLP Compatible
- 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)
- AES256 Encryption (on request)
- 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 115°C (industrial temperature drive) and 100°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.

Mouser Electronics

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SFSA008GQ1AA1TO-I-DB-226-STD SFSA016GQ1AA2TO-I-DB-226-STD SFSA032GQ1AA4TO-I-DB-226-STD SFSA064GQ1AA4TO-I-QC-226-STD SFSA256GQ1AA8TO-C-NC-226-STD SFSA256GQ1AA8TO-I-NC-226-STD SFSA128GQ1AA4TO-I-NC-226-STD SFSA008GQ1AA1TO-C-DB-226-STD SFSA016GQ1AA2TO-C-DB-226-STD SFSA032GQ1AA4TO-C-DB-226-STD SFSA064GQ1AA4TO-C-QC-226-STD SFSA128GQ1AA4TO-C-NC-226-STD