# swissbit®

## Product Fact Sheet

## Industrial
## 2.5" SATA SSD

## X-60 Series
### SATA Gen3 – 6.0 Gbit/s, MLC

### Commercial and Industrial Temperature Grade

Date:        November 05, 2021
Revision:    1.03

# durabit™

## "the better MLC"

## Product Summary

- **Capacities:** 30 GBytes, 60 GBytes, 120 GBytes, 240 GBytes, 480 GBytes, 960 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 525 MBytes/s, Random Read 4K up to 74,300 IOPS
  - Write Performance: Sequential Write up to 460 MBytes/s, Random Write 4K up to 77,900 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): 2.1 W; Write (Active): 4.0 W; Idle: 525 mW; Slumber: 125 mW
- **Data Retention:** 10 Years @ Life Begin / 1 Year @ Life End
- **Endurance in TeraBytes Written (TBW) @ Max Capacity[2]:** Client ≥ 2,380; Embedded ≥ 660; Enterprise ≥ 610
- **Shock/Vibration:** 1,500 $g$ / 50 $g$
- **High-Performance 32-Bit Processor with Integrated, Parallel Flash Interface Engines:**
  - Multi-Level Cell (MLC) 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

- Best-in-Class Performance and Endurance with durabit™ Technology
- Dynamic and Static Wear Leveling
- 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 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.

[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.

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**Revision: 1.03**
Template: Doc-4991
File: X-60_fact_sheet_Rev103
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# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Swissbit](#):
  SFSA030GQ1AA1TO-I-LB-216-STD    SFSA120GQ1AA4TO-I-LB-216-STD    SFSA480GQ1AA4TO-I-OC-216-STD

SFSA960GQ1AA8TO-I-OC-216-STD    SFSA060GQ1AA2TO-I-LB-216-STD    SFSA240GQ1AA4TO-I-HC-216-STD

SFSA480GQ1AA4TO-C-OC-216-STD    SFSA060GQ1AA2TO-C-LB-216-STD    SFSA030GQ1AA1TO-C-LB-216-STD

SFSA240GQ1AA4TO-C-HC-216-STD    SFSA960GQ1AA8TO-C-OC-216-STD    SFSA120GQ1AA4TO-C-LB-216-STD