

Q400 & Q400-S, Enterprise M.2 2280 and mSATA (MO-300)

SMART Modular Technologies' Q400/Q400-S series are robust, embedded, enterprise class SATA M.2 and mSATA (MO-300) solid state drives featuring performance, reliability, and security for 24/7 operation with extended lifecycle. These drives specifically target the needs of OEM markets, such as server, storage cache/accelerators, networking, and data communications applications, which require reliable internal storage and a small footprint.

The Q400 offers the standard M.2 2280 and mSATA (MO-300) with 3D NAND technology and supporting both commercial and industrial temperature range. The Q400-S M.2 2280 drives are equipped with SafeDATA™ technology, which adds another layer of protection for data. SafeDATA™ is a robust system of hardware and firmware that controls SMART SSD drives operating safely during any events of unexpected power loss. It guarantees the end-to-end data integrity and prevents drive corruption due to the loss of critical data during the expected shut-down.

The Q400 and Q400-S embedded products are also a natural fit for embedded computing applications such as medical and enterprise applications. The low power consumption and fast data throughput are major advantages of the SMART Modular M.2 modules over traditional rotating hard disk drives (HDDs).

Utilizing an industry-standard SATA interface and connector, the Q400 and Q400-S modules are easily integrated into a host system without any special BIOS modifications or additional device drivers.

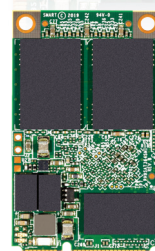
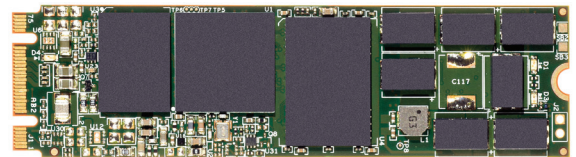
Q400/Q400-S M.2 and mSATA (MO-300) products address the need for enhanced reliability by incorporating onboard error detection and correction with static and dynamic wear leveling algorithms that provide reliable operation over the product life cycle. Also, these drives can offer pSLC mode for higher reliability and endurance.

Features & Benefits

- Enterprise/industrial grade controller and firmware
- Consistent performance and low Write Amplification Factor (WAF) under continuous workload operating conditions
- Enhanced S.M.A.R.T. functionality and event logging
- TCG OPAL and AES256 encryption for data security and data sanitize
- Enterprise or industrial grade 3D NAND with high endurance
- Robust PCB layout design with 30 μ inch gold contacts

Q400 & Q400-S Product Family Overview

	Capacity	Performance
M.2 2280 & mSATA (MO-300)		
M.2 2280 mSATA (MO-300)	120GB to 960GB	Sequential Up to 560MB/s (Read) Up to 490MB/s (Write) 4K Random Up to 95K IOPS (Read) Up to 55K IOPS (Write)



Applications

- Communications
- Embedded computing
- Medical
- Enterprise
- Networking
- Servers
- Storage

Q400 & Q400-S

Specifications

	M.2 2280 Q400/Q400-S TLC	mSATA (MO-300) Q400 TLC
Performance		
Host Interface Rate	6Gb/s (Backwards compatible to 3Gb/s & 1.5Gb/s)	
Capacities	120GB to 960GB	120GB to 960GB
Sequential Read (maximum)	Up to 560MB/s (120GB to 960GB)	
Sequential Write (maximum)	Up to 120MB/s (120GB) Up to 270MB/s (240GB) Up to 490MB/s (480 - 960GB)	
Reliability		
Data Reliability	< 1 Non-Recoverable Error in 10 ¹⁷ bits read	
Data Retention	10 years >90% life remaining, 1 year at the end of life	
Endurance (JEDEC Client Workload) ¹	120GB: 63 TBW 240GB: 145 TBW 480GB: 360 TBW 960GB: 800 TBW	
Error Correction	LDPC (Equivalent to 155 bits/1KB)	
Environmental		
Shock	1500 g half-sine, 0.5 msec, 1 shock along each axis, X,Y,Z in each direction	
Vibration	20G 80-2000Hz, 1.52mm 20-80Hz, 3 axis	
Operating Temperature	Commercial: 0° to 70°C Industrial: -40° to 85°C	
Storage Temperature	-40°C to 85°C	
Humidity	40°C, Operation: 90% RH, Storage: 93% RH	
Altitude	24,384 m [80,000 ft]	
Physical		
Length	80.0 mm	50.80 mm
Width	22.0 mm	29.85 mm
Height	3.65 mm	4.85 mm

¹Endurance is directly related to the User Specific Workload

Ordering Information

Part Number	Density
M.2 2280, Q400 Commercial Operating Temperature	
ST9M2S86D960GQT51	960GB
ST9M2S86D480GQT51	480GB
ST9M2S86D240GQT51	240GB
ST9M2S86D120GQT51	120GB
M.2 2280, Q400 Industrial Operating Temperature	
ST9M2S86D960GQTI51	960GB
ST9M2S86D960GQTI51	480GB
ST9M2S86D240GQTI51	240GB
ST9M2S86D240GQTI51	120GB
M.2 2280, Q400-S Commercial Operating Temperature	
ST9M2S86Q960GQT51	960GB
ST9M2S86Q480GQT51	480GB
ST9M2S86Q240GQT51	240GB
ST9M2S86Q120GQT51	120GB
mSATA (MO-300), Q400 Commercial Operating Temperature	
ST9MST6960GQT51	960GB
ST9MST6480GQT51	480GB
ST9MST6240GQT51	240GB
ST9MST6120GQT51	120GB
mSATA (MO-300), Q400 Industrial Operating Temperature	
ST9MST6960GQTI51	960GB
ST9MST6480GQTI51	480GB
ST9MST6240GQTI51	240GB
ST9MST6120GQTI51	120GB

Contact information

Corporate Headquarters/North America: T: (+1) 800-956-7627 • T: (+1) 510-623-1231 • F: (+1) 510-623-1434 • E: info@smartm.com

Customer Service: T: (+1) 978-303-8500 • E: customers@smartm.com

Latin America: T: (+55) 11 4417-7200 • E: sales.br@smartm.com

EMEA: T: (+44) 0 7826-064-745 • E: sales.euro@smartm.com

Asia/Pacific: T: (+65) 6678-7670 • E: sales.asia@smartm.com

For more information, please visit: www.smartm.com

