

Enterprise Performance 10K HDD

VERSION 9 Channel Data Sheet

The Perfect Match of High Capacity and High Performance

- High-capacity and small 2.5-inch footprint enables data centers to keep pace with data growth and optimize data center real estate.
- Delivers up to 2.4TB of high-performance data access for write-intensive applications
- Future-proof your storage infrastructure with a single advanced format interface model.
- Seagate® Enhanced Caching feature accelerates read and write I/O operations, preventing applications from slowing down under peak usage conditions.
- Latest 12Gb/s SAS interface for improved scalability
- Seagate Secure® features for preventing unauthorized access to data and for compliance with data security standards.
- Protection Information (PI) protects against data corruption.¹
- Seagate Secure SED and FIPS 140-2 government-grade models provide security for data-at-rest, and Instant Secure Erase (ISE) helps cut IT drive retirement costs.²
- Seagate PowerChoice™ technology for T10-compliant power management enables IT organizations to tailor systems for enhanced power consumption.
- Seagate RAID Rebuild[®] technology option makes RAID recovery faster and safer.

Best-Fit Applications

- Mission-critical servers and external storage arrays
- Database and online transaction process (OLTP) applications
- Power- and space-constrained data centers
- Green IT and drive-retirement cost reduction initiatives
- Compliance and data security initiatives
- Migration from 3.5-inch drive systems to next-generation technology
- Cost-effective alternative to higher-priced performance solutions

1 Protection Information (PI) feature requires PI-compliant host or controller support.

2 Not all drives may be available in all countries. Seagate Secure drives meet ISO/IEC 27040 and NIST 800-88 standards and may require use of TCG-compliant host or controller support.





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Specifications	FastFormat TM 512 Emulation/4K Native			
Capacity	2.4TB	1.8TB	1.2TB	600GB
Standard Model	ST2400MM0129	ST1800MM0129	ST1200MM0129	ST600MM0099
Seagate Secure® SED Model1			ST1200MM0139	ST600MM0109
Seagate Secure SLD Model Seagate Secure FIPS 140-2/Common Criteria			GTTECONNICTOS	
Model ^{1,2}	ST2400MM0149	ST1800MM0149	—	-
PERFORMANCE				
Spindle Speed (RPM)	10000RPM	10000RPM	10000RPM	10000RPM
Average Latency (ms)	2.9	2.9	2.9	2.9
Sustained Transfer Rate (Outer to Inner Diameter,	270 to 117	270 to 117	270 to 117	270 to 117
MB/s)				
Cache, Multisegmented (MB)	256	256	256	256
ENHANCED CACHING FEATURES		,		,
I/O Acceleration and Response Time Optimization	Enabled	Enabled	Enabled	Enabled
NAND Flash Type	eMLC	eMLC	eMLC	eMLC
NAND Flash Size	16GB	16GB	16GB	16GB
Intelligent NAND Endurance Management	Yes	Yes	Yes	Yes
ENTERPRISE FEATURES				
Secure Download & Diagnostics (SD&D) and Instant Secure Erase Option	Yes	Yes	Yes	Yes
FastFormat (512e/4Kn AF Switching)	Yes	Yes	Yes	Yes
12Gb/s SAS	Yes	Yes	Yes	Yes
CONFIGURATION/RELIABILITY		·		
Disks/Heads	4/8	3/6	2/4	1/2
External Transfer Rate (MB/s)	1200	1200	1200	1200
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E16	1 per 10E16	1 per 10E16	1 per 10E16
Annualized Failure Rate (AFR)	0.44%	0.44%	0.44%	0.44%
Limited Warranty (years)	5	5	5	5
POWER MANAGEMENT		•		
Typical Op (A) +5V/+12V	0.47/0.50	0.46/0.42	0.46/0.42	0.46/0.42
Typical Operating (W)	8.5	7.5	7.15	7.0
Average Idle Power (W)	4.8	4.4	3.91	3.8
Performance Efficiency Index (Idle W/GB)	0.0020	0.0024	0.0033	0.0063
Environmental				
Ambient Temperature, Operating (C°)	5°C – 55°C	5°C – 55°C	5°C – 55°C	5°C – 55°C
Ambient Temperature, Nonoperating (C°)	-40°C – 70°C	-40°C – 70°C	-40°C – 70°C	-40°C - 70°C
Shock, Max. Operating: 11ms (Gs)	40	40	40	40
Shock, Max. Nonoperating: 2ms (Gs)	400	400	400	400
Vibration, Operating: <500Hz (Gs)	0.5	0.5	0.5	0.5
Vibration, Nonoperating: <500Hz (Gs)	3	3	3	3
PHYSICAL				
Height (in/mm, max) ³	0.591in/15.00mm	0.591in/15.00mm	0.591in/15.00mm	0.591in/15.00mm
Width (in/mm, max) ³	2.760in/70.10mm	2.760in/70.10mm	2.760in/70.10mm	2.760in/70.10mm
Depth (in/mm, max) ³	3.955in/100.45mm	3.955in/100.45mm	3.955in/100.45mm	3.955in/100.45mm
Weight (lb/g)	0.507lb/230g	0.507lb/230g	0.507lb/230g	0.496lb/225g
Carton Unit Quantity	40	40	40	40
Cartons per Pallet/Cartons per Layer	60/10	60/10	60/10	60/10

1 Not all drives may be available in all countries. Seagate Secure drives meet ISO/IEC 27040 and NIST 800-88 standards and may require use of TCG-compliant host or controller support. 2 FIPS 140-2 in review. See FIPS 140-2 Level 2 Certificate at http://csrc.nist.gov/groups/STM/cmvp/validation.html 3 These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at www.sffcommittee.org.

9 S E A G A T E

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Intelligent NAND Endurance Management	NAND Flash Type	_	_		
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Secure Download & Dagnostics (SO&D) and Instant Yes Yes Secure Erase Option – – Secure Erase Option – – Secure Erase Option – – Secure Erase Option Yes Yes CONFIGURATION RELIABILITY 1200 Bead Eros per Bits Read, Max 1 per 10E16 1 per 10E16 Nonnecoverable Read Eros per Bits Read, Max 1 per 10E16 0.44% Linked Waranty (yeas) 5 5 POWER MANAGEMENT 0.450.35 0.450.35 Typical Op (A) 5(V-12V 0.450.38 0.450.35 0.450.35 Typical Operating (M) 7.25 6.68 3.44 Performance Efficiency Index (Ide WGB) 0.0036 0.0057 3 Arbein Tierngerature, Nonoperating (C ¹) 40° C - 75° C 5° C - 55° C 5° C - 55° C Arbein Tierngerature, Nonoperating: -500Hz (Gs) 0.5	Intelligent NAND Endurance Management	_			
Secure Erase Option Yes Yes FastFormat (\$12e/4Kn AF Switching) — — — I Sobb SAS Yes Yes Yes CONFIGURATION RELIABILITY 1/2 Schwart 1/2 External Transfer Rate (MB) 1/200 1/200 Schwart 1/2 Namecoverable Read Erors per Bits Read, Max 1 per 10E16 1 per 10E16 Annualized Failure Rate (AFR) 0.44% 0.44% Linked Waranty (yeas) 5 5 5 5 DYBER ION (AFK) 0.450.38 0.450.35 1 Typical Operating (W) 0.426 0.444 0.444 Performance Efficiency Index (Idle WGB) 0.0036 0.0057 1 Environmentati S*C - 55*C 5*C - 55*C 5*C - 55*C Arbiben Temperature, Operating (C*) 5 0.5 0.5 Shock, Max: Operating (C*) 5*C - 55*C 5*C - 55*C 5*C - 55*C Arbibent Temperature, Operating (C*) 40°C - 70°C 40°C - 70°C 40°C - 70°C Shock, Max: Operating : 500Hz (Gs) <td< td=""><td>ENTERPRISE FEATURES</td><td></td><td></td></td<>	ENTERPRISE FEATURES				
12Gb/s SAS Yes Yes CONFIGURATION/RELIABILITY Disks/Heads 2/4 1/2 External Transfer Rate (MB/s) 1200 1200 Sternal Transfer Rate (MB/s) 100 1200 Nonecoverable Read Errors per Bits Read, Max 1 per 10E16 1 per 10E16 Annualized Failure Rate (AFR) 0.44% 0.44% Linked Warranty (years) 5 5 POWER MANAGEMENT 7 5 6.88 Typical Op (A) + SV+12V 0.450.35 0.450.35 Typical Op (A) + SV+12V 0.450.36 0.0057 Performance Efficiency Index (Idle W/GB) 0.038 0.0057 Performance Efficiency Index (Idle W/GB) 0.038 0.0057 Environmental	Secure Download & Diagnostics (SD&D) and Instant Secure Erase Option	Yes	Yes		
CONFIGURATIONRELIABILITY Disks/Heads 2/4 1/2 Disks/Heads 1200 1200 Disks/Heads 1200 1200 Noncoverable Read (MB/s) 1 per 10E16 1 per 10E16 Annualized Failure Rate (AFR) 0.44% 0.44% Linited Warranty (years) 5 5 POWER MANAGEMENT 0 450.35 Typical Op (A 5V)+12V 0.450.38 0.450.35 Typical Op (A 5V)+12V 0.450.38 0.450.35 Proylead De (A 5V)+12V 0.450.38 0.0057 Proylead De (A 5V)+12V 0.450.35 0.0057 Performance Efficiency Index (Idle WGB) 0.0036 0.0057 Environmental 0.0057 5*C - 55*C Ambient Temperature, Nonoperating (C*) 5*C - 55*C 5*C - 55*C Ambient Temperature, Nonoperating (C*) 400 40 Shock, Max. Nonoperating : 1ms (Gs) 400 400 Vibration, Operating: 1ms (Gs) 3 3 Physicol 1 2.760n/70.10mm 3.591in/15.00mm Vib	FastFormat (512e/4Kn AF Switching)	-	—		
Disks/Heads 2/4 1/2 External Transfer Rate (RB/s) 1200 1200 Nonecoverable Read Errors per Bits Read, Max 1 per 10E16 1 per 10E16 Annualized Faiture Rate (AFP) 0.44% 0.44% Linited Warranty (years) 5 5 FOWER MANAGEMENT 5 5 Typical Op (Ar SV-12V) 0.450.38 0.450.35 Typical Op (Ar SV-12V) 0.450.38 0.00057 Environment I 0.00036 0.00057 Environment I 1.40°C - 70°C 40°C - 70°C Arnibent Temperature, Nonoperating (C°) 40° 40°C - 70°C Shock, Max. Nonoperating : range (SG)	12Gb/s SAS	Yes	Yes		
External Transfer Rate (MB/s) 1200 1200 Nonecoverable Read Errors per Bits Read, Max 1 per 10E16 1 per 10E16 Annualized Failure Rate (AFR) 0.44% 0.44% Linited Waranty (years) 5 5 POWER MANAGEMENT 7.25 6.68 Typical Op (A) +5V/+12V 0.45/0.38 0.45/0.35 Power MANAGEMENT 6.68 3.44 Performance Efficiency Index (idle WGB) 0.0036 0.0057 Environmental 5°C - 55°C 5°C - 55°C Anbeint Temperature, Nonoperating (C°) 4.0°C - 70°C 4.0°C - 70°C Shock, Max. Nonoperating: CBS) 4.00 4.0 Vibration, Operating: 4.500Hz (Gs) 0.5 0.5 Vibration, Nonoperating: CBS) 4.00 4.0 Vibration, Nonoperating: CBS) 3 3 PHYSICAL 1 1.5 1.5 Height (in/mm, max) ³ 0.591in/15.00mm 0.591in/15.00mm Vibration, Nonoperating: CBS) 3.955in/10.045mm 3.955in/10.045mm PHYSICAL 1.0 1.0551in/15.00mm 0.591in/1	CONFIGURATION/RELIABILITY				
Nonrecoverable Read Errors per Bits Read, Max 1 per 10E16 1 per 10E16 Annualized Failure Rate (AFR) 0.44% 0.44% Linited Waranty (yeas) 5 5 POWER MANAGEMENT 7 5 Typical Op (A) -5V/+12V 0.45/0.38 0.45/0.35 Typical Op (A) - 5V/+12V 0.45/0.38 0.45/0.35 Promone Efficiency Index (Idle WGB) 0.0036 0.0057 Environmental	Disks/Heads	2/4	1/2		
Annualzed Failure Rate (AFR) 0.44% 0.44% Limited Warranty (years) 5 5 POWER MANAGEMENT 0.45/0.38 0.45/0.35 Typical Op (A) +5V/+12V 0.45/0.38 0.45/0.35 Typical Op Parting (W) 7.25 6.68 Average Idle Power (W) 4.26 3.44 Performance Efficiency Index (Idle WGB) 0.00056 0.0057 Environmental	External Transfer Rate (MB/s)	1200	1200		
Linited Warranty (years) 5 5 POWER MANAGEMENT 7 0.45/0.38 0.45/0.35 Typical Op (A) +5V/+12V 0.45/0.38 0.45/0.35 0.45/0.35 Prysical Op (A) +5V/+12V 0.45/0.38 0.45/0.35 0.45/0.35 Provision 4.26 3.44 0.0057 Environmental 0.0057 0.0057 0.0057 Ambient Temperature, Operating (C°) 4.0°C - 70°C 4.0°C - 70°C 4.0°C - 70°C Anbient Temperature, Nonoperating : CS) 4.00 4.00 4.00 Shock, Max. Operating: 11ms (Gs) 4.00 4.00 1.5 Shock, Max. Nonoperating: 2:00Hz (Gs) 0.5 0.5 0.5 Vibration, Operating: -500Hz (Gs) 3 3 3 PHYSICAL 0.591in/15.00mm 0.591in/15.00mm 0.591in/15.00mm Width (in/	Nonrecoverable Read Errors per Bits Read, Max	1 per 10E16	1 per 10E16		
POWER MANAGEMENT Typical Op (A) +5V/+12V 0.45/0.38 0.45/0.35 Typical Operating (W) 0.45/0.38 0.45/0.35 Average Idle Power (W) 6.68 6.68 Average Idle Power (W) 4.26 3.44 Performance Efficiency Index (Idle W/GB) 0.0036 0.0057 Environmental 5°C - 55°C 5°C - 55°C Ambient Temperature, Nonoperating (C°) 40°C - 70°C 40°C - 70°C Shock, Max. Operating: 11ms (Gs) 40 40 Vibration, Operating: 2ms (Gs) 0.5 0.5 Vibration, Nonoperating: C(S) 3 3 PHYSICAL 1 1 1 Widt (in/mm, max) ³ 0.591in/15.00mm 0.591in/15.00mm Depth (in/mm, max) ³ 0.592in/10.45mm 3.955in/10.45mm Depth (in/mm, max) ³ 0.527601/70.10mm 3.955in/10.45mm Depth (in/mm, max) ³ 0.400 0.400	Annualized Failure Rate (AFR)	0.44%	0.44%		
Typical Op (A) +5V/+12V 0.45/0.38 0.45/0.35 Typical Operating (W) 7.25 6.68 Average Idle Power (W) 4.26 3.44 Performance Efficiency Index (Idle WGB) 0.0036 0.0057 Environmental	Limited Warranty (years)	5	5		
Typical Operating (W) 7.25 6.68 Average Idle Power (W) 4.26 3.44 Performance Efficiency Index (Idle W/GB) 0.0036 0.0057 Environmental	POWER MANAGEMENT				
Average Idle Power (W) 4.26 3.44 Performance Efficiency Index (Idle W/GB) 0.0036 0.0057 Environmental	Typical Op (A) +5V/+12V	0.45/0.38	0.45/0.35		
Performance Efficiency Index (Idle W/GB) 0.0036 0.0057 Environmental So C - 55 °C So C - 55 °C Ambient Temperature, Operating (C°) So C - 55 °C 40 °C - 70 °C <	Typical Operating (W)	7.25	6.68		
Environmental Ambient Temperature, Operating (C°) 5°C – 55°C 5°C – 55°C Ambient Temperature, Nonoperating (C°) -40°C – 70°C -40°C – 70°C Shock, Max. Operating: 11ms (Gs) 40 40 Shock, Max. Operating: 2ms (Gs) 400 40 Vibration, Operating: 2ms (Gs) 0.5 0.5 Vibration, Operating: <500Hz (Gs)	Average Idle Power (W)	4.26	3.44		
Ambient Temperature, Operating (C°) 5°C - 55°C 5°C - 55°C Ambient Temperature, Nonoperating (C°) -40°C - 70°C -40°C - 70°C Ambient Temperature, Nonoperating (C°) 40°C - 70°C -40°C - 70°C Shock, Max. Operating: 11ms (Gs) 40 40 Shock, Max. Nonoperating: 2ms (Gs) 400 40 Vibration, Operating: 2ms (Gs) 0.5 0.5 Vibration, Nonoperating: <500Hz (Gs)	Performance Efficiency Index (Idle W/GB)	0.0036	0.0057		
Ambient Temperature, Nonoperating (C°) 40°C - 70°C 40°C - 70°C Shock, Max. Operating: 11ms (Gs) 40 40 Shock, Max. Nonoperating: 2ms (Gs) 400 40 Shock, Max. Nonoperating: 2ms (Gs) 400 400 Vibration, Operating: <500Hz (Gs)	Environmental				
Shock, Max. Operating: 11ms (Gs) 40 40 Shock, Max. Nonoperating: 2ms (Gs) 400 400 Shock, Max. Nonoperating: 2ms (Gs) 400 400 Vibration, Operating: c500Hz (Gs) 0.5 0.5 Vibration, Nonoperating: c500Hz (Gs) 3 3 PHYSICAL 0.591in/15.00mm 0.591in/15.00mm Width (in/mm, max) ^G 0.591in/15.00mm 2.760in/70.10mm Depth (in/m, max) ^G 3.955in/100.45mm 3.955in/100.45mm Weight (b/g) 0.426ib/193g 0.490ib/222g Carton Unit Quantity 40 40	Ambient Temperature, Operating (C°)	5°C – 55°C	5°C – 55°C		
Shock, Max. Nonoperating: 2ms (Gs) 400 400 Vibration, Operating: <500Hz (Gs)	Ambient Temperature, Nonoperating (C°)	-40°C – 70°C	-40°C – 70°C		
Vibration, Operating: <500Hz (Gs) 0.5 Vibration, Nonoperating: <500Hz (Gs)	Shock, Max. Operating: 11ms (Gs)	40	40		
Vibration, Nonoperating: <500Hz (Gs) 3 3 PHYSICAL	Shock, Max. Nonoperating: 2ms (Gs)	400	400		
PHYSICAL Height (in/mm, max) ³ 0.591 in/15.00mm 0.591 in/15.00mm Width (in/mm, max) ³ 2.760 in/70.10mm 2.760 in/70.10mm Depth (in/mm, max) ³ 3.955 in/100.45mm 3.955 in/100.45mm Weight (b/g) 0.426 b/193g 0.490 b/222g Carton Unit Quantity 40 40	Vibration, Operating: <500Hz (Gs)	0.5	0.5		
Height (in/mm, max) ³ 0.591in/15.00mm 0.591in/15.00mm Widh (in/mm, max) ³ 2.760in/70.10mm 2.760in/70.10mm Depth (in/mm, max) ³ 3.955in/100.45mm 3.955in/100.45mm Weight (b/g) 0.426ib/193g 0.490ib/222g Carton Unit Quantity 40 40	Vibration, Nonoperating: <500Hz (Gs)	3	3		
With (in/mm, max) ³ 2.760in/70.10mm 2.760in/70.10mm Depth (in/mm, max) ³ 3.955in/100.45mm 3.955in/100.45mm Weight (b/g) 0.426ib/193g 0.490ib/222g Carton Unit Quantity 40 40	PHYSICAL				
Depth (in/m, max) ³ 3.955in/100.45mm 3.955in/100.45mm Weight (b/g) 0.426ib/193g 0.490ib/222g Carton Unit Quantity 40 40	Height (in/mm, max)3	0.591in/15.00mm	0.591in/15.00mm		
Depth (in/mm, max) ³ 3.955in/100.45mm 3.955in/100.45mm Weight (b/g) 0.426ib/193g 0.490ib/222g Carton Unit Quantity 40 40	Width (in/mm, max) ³	2.760in/70.10mm	2.760in/70.10mm		
Weight (b/g) 0.426b/193g 0.490b/222g Carton Unit Quantity 40 40	Depth (in/mm, max) ³	3.955in/100.45mm	3.955in/100.45mm		
	Weight (lb/g)	0.426lb/193g	0.490lb/222g		
Cartons ner Pallet/Cartons ner Laver 60/10 60/10	Carton Unit Quantity	40	40		
00/10 00/10	Cartons per Pallet/Cartons per Layer	60/10	60/10		

1 Not all drives may be available in all countries. Seagate Secure drives meet ISO/IEC 27040 and NIST 800-88 standards and may require use of TCG-compliant host or controller support.

2 FIPS 140-2 in review. See FIPS 140-2 Level 2 Certificate at http://csrc.nist.gov/groups/STM/cmvp/validation.html 3 These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at www.sffcommittee.org

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