



# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for MAXTOR ST32155N. You'll find the answers to all your questions on the MAXTOR ST32155N in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

**User manual MAXTOR ST32155N**  
**User guide MAXTOR ST32155N**  
**Operating instructions MAXTOR ST32155N**  
**Instructions for use MAXTOR ST32155N**  
**Instruction manual MAXTOR ST32155N**



.....  
*Hawk 2XL Disc Drive*

.....  
*ST32151N/W/WC, ST31051N/W/WC*

.....  
*ST32155N/W/WC, ST31055N/W/WC*

.....  
*Product Manual, Volume 1*



[You're reading an excerpt. Click here to read official MAXTOR ST32155N user guide](http://yourpdfguides.com/dref/2944390)  
<http://yourpdfguides.com/dref/2944390>

**Manual abstract:**

@Elite™, SeaFAX™, SeaFONET™, SeaTDD™, and SeaBOARD™ are trademarks of Seagate Technology, Inc. Other product names are registered trademarks or trademarks of their owners. No part of this publication may be reproduced in any form without written permission from Seagate Technology, Inc. Printed in the United States of America Revision status summary sheet Revision A B Date 5/2/96 Writer/Engineer D. Ashby Ashby and Kiene Sheets Affected 1-75 9, 23 and 25 Product Manual 77767489 is Volume 1 of a two Volume document with the SCSI Interface information in the Volume 2 SCSI Interface Product Manual, P/N 77738479. If the SCSI Interface information is needed the Volume 2 Interface Manual should be ordered, P/N 77738479. Hawk 2XL Product Manual, Rev. B vii Contents 1.0 2.0 Scope .

.....  
.....  
.....

.....  
.....  
.....  
.....

.....  
.....  
.....

... 1 Applicable standards and reference documentation. ....

.....  
.....  
..... 3 2.

1 Standards .....

.....  
.....  
.....

.....  
.....  
.....

..... 3 2.1.1 Electromagnetic compatibility ...

.....  
.....  
.....

.....  
.....  
..... 3 2.

1.2 Electromagnetic susceptibility. ....

.....  
.....  
.....  
.....

... 3 2.2 Electromagnetic Compliance for the European Union .....

.....  
.....  
.....

..... 3 2.3 Reference documents ....

.....  
.....  
.....

.....  
.....  
.....  
.....

. 4 General description . . . . .

.....  
.....  
.....  
.....  
.....  
.....

. . . . 5 3.1 Standard features . . . . .

.....  
.....  
.....  
.....  
.....  
.....

. . . . 7 3.2 Media characteristics . . . . .

.....  
.....  
.....  
.....  
.....  
.....

. 7 3.3 Performance . . . . .

.....  
.....  
.....  
.....  
.....  
.....

. . . . . 7 3.4 Reliability . . . . .

.....  
.....  
.....  
.....  
.....  
.....

. 7 3.5 Unformatted and formatted capacities . . . . .

.....  
.....  
.....  
.....  
.....

. . . . . 8 3.6 Factory installed accessories . . . . .

.....  
.....  
.....  
.....  
.....  
.....

. 8 3.7 Options (factory installed) . . .

.....  
.....  
.....  
.....

8 3.8 Accessories (user installed) . . . .

.....  
.....  
.....  
.....

. . 8 Performance characteristics . . . . .

.....  
.....  
.....  
.....

. . . . . 9 4.1 Internal drive characteristics (transparent to user) . .

.....  
.....  
.....  
.....

. . 9 4.2 SCSI Seek performance characteristics (visible to user) [6]\*. . . . .

.....  
.....  
..... 9 4.

2.1 Access time . . . . .

.....  
.....  
.....  
.....  
.....

. . . . . 9 4.2.2 Format command execution time (minutes) [1] . .

.....  
.....  
.....

. . . . . 10 4.2.3 Generalized performance characteristics . . .

.....  
.....  
.....  
..... 10 4.

3 Start/stop time . . . . .

.....  
.....  
.....  
.....  
.....

*11 4.4 Prefetch/multi-segmented cache control . . . . .*

. . . . .  
. . . . .  
. . . . .

*. 11 4.5 Cache operation . . .*

. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .

*. 11 4.5.1 Caching write data . .*

. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .

*. . 12 4.5.2 Prefetch operation . . . . .*

. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .

*. . . 12 Reliability specifications . . . . .*

. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .

*15 5.1 Error rates . . . . .*

. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .  
. . . . .

*. . . . 15 5.1.1 Environmental interference. . . .*

. . . . .  
. . . . .  
. . . . .  
. . . . .

*. . . . . 15 5.  
1.2 Read errors. . . .*

. . . . .  
. . . . .  
. . . . .

.....  
.....  
.....

..... 15 5.1.3 Write errors ..

.....  
.....  
.....

.....  
.....  
.....

... 15 5.1.4 Seek errors .....

.....  
.....  
.....

.....  
.....  
.....

16 5.2 Reliability and service. ....

.....  
.....  
.....

.....  
.....  
.....

..... 16 5.2.1 Mean time between failure ..

.....  
.....  
.....

. 16 5.2.2 Preventive maintenance ..

.....  
.....  
.....

.....  
.....  
.....

..... 16 5.2.

3 Service life .....

.....  
.....  
.....

.....  
.....  
.....

..... 16 5.2.4 Service philosophy ...

.....  
.....  
.....

.....  
.....

. 16 5.2.5 Service tools ..

.....

.....

.....

.....

.....

.....

.. 16 5.2.6 Product warranty.

.....

.....

.....

.....

.....

.....

..... 16 Physical/electrical specifications .....

.....

.....

.....

.....

.....

.....

..... 19 6.1 AC power requirements .....

.....

.....

.....

.....

.....

.....

..... 19 6.

2 DC power requirements .....

.....

.....

.....

.....

.....

..... 19 6.2.

1 Conducted noise immunity .....

.....

.....

.....

.....

..... 19 6.2.

2 Power sequencing .....

.....

.....

.....

.....

.....

..... 20 6.

2.3 Current profile .....

.....

.....

.....

.....

.....  
..... 20 6.

*3 Power dissipation . . . . .*

.....  
.....  
.....  
.....

*. . . 21 6.4 Environmental limits .*

.....  
.....  
.....  
.....

*21 6.4.1 Temperature . . .*

.....  
.....  
.....  
.....

*. . . . . 21 6.4.2 Relative humidity . .*

.....  
.....  
.....  
.....

*. . . . . 22 6.4.*

*3 Effective altitude (sea level) . . . . .*

.....  
.....  
.....  
.....

*. . 23 6.4.4 Shock and vibration .*

.....  
.....  
.....  
.....

*. . 23 6.4.5 Air cleanliness. . . . .*

.....  
.....  
.....  
.....

*. . . . . 25 3.0 4.0 5.*









.....

.....



[You're reading an excerpt. Click here to read official MAXTOR  
ST32155N user guide](http://yourpdfguides.com/dref/2944390)

<http://yourpdfguides.com/dref/2944390>

.  
.....  
.....  
.....  
.....49 9.6 Physical interface . .

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....49 9.6.1 DC cable and connector . .

.....  
.....  
.....  
.....  
.....  
.....  
.....49 9.6.  
2 SCSI Interface physical description . . . . .

.....  
.....  
.....  
.....  
.....  
.....  
.....52 9.6.3 SCSI Interface Cable requirements . . . . .

.....  
.....  
.....  
.....  
.....  
.....  
.....52 9.6.4 Mating connectors . . . . .

.....  
.....  
.....  
.....  
.....  
.....  
.....53 9.7 Terminator requirements . . . . .

.....  
.....  
.....  
.....  
.....  
.....  
.....63 9.8 Terminator power . .

.....  
.....  
.....  
.....  
.....  
.....

.63 9.9 Deagate SCSI Interface manual 77738479 (Vol. 2). The Hawk 2XL family consists of ST32151, ST31051, ST32155 and ST31055 products. Models offered are N, W, and WC. Table 1 lists the salient features that differentiate the different Hawk 2XL model numbers. Table 1: Drive model number vs. differentiating features Fast SCSI-3 Model number # Heads I/O Ckts #I/O connector I/O data bus bits Interface Data transfer rate (Mbytes/sec) ST32151N ST32151W ST32151WC ST31051N ST31051W ST31051WC ULTRA SCSI-3 [1] Model number 8 8 8 4 4 4 single-ended single-ended single-ended single-ended single-ended single-ended 50 68 80 50 68 80 8 16 16 8 16 16 10 20 20 10 20 20 # Heads I/O Ckts #I/O connector I/O data bus bits Interface Data

transfer rate (Mbytes/sec) ST32155N ST32155W ST32155WC ST31055N ST31055W ST31055WC 8 8 8 4 4 4 single-ended single-ended single-ended single-ended single-ended single-ended 50 68 80 50 68 80 8 16 16 8 16 16 20 40 40 20 40 40 From this point on in this Product Manual the reference to Hawk 2XL family models is referred to as "the drive" (unless reference to individual models are necessary). The drive printed circuit board is referred to as a PCB. [1] ULTRA SCSI is Seagate's name for the ANSI proposed "FAST-20" interface. 2. Hawk 2XL Product Manual, Rev. B \* \*Model "N" version with 50 pin SCSI I/O connector Figure 1. Hawk 2XL family drive Hawk 2XL Product Manual, Rev.

**B 3 2.0 Applicable standards and reference documentation** The drive has been developed as a system peripheral to the highest standards of design and construction. The drive depends upon its host equipment to provide adequate power and environment in order to achieve optimum performance and compliance with applicable industry and governmental regulations. Special attention must be given in the areas of safety, power distribution, shielding, audible noise control, and temperature regulation. In particular, the drive must be securely mounted in order to guarantee the specified performance characteristics. Mounting by bottom holes must meet the requirements of Section 8.4. 2.1 Standards The Hawk 2XL Family complies with Seagate standards as noted in the appropriate sections of this Manual and the Seagate SCSI Interface Manual, P/N 77738479 (Vol. 2).

The Hawk 2XL Family is a UL Recognized component per UL 1950 and a CSA Certified component per CAN/ CSA-C22.2 No. 950-M89. It also meets the requirements of DIN VDE 0805/05.90 and EN60950: 1988 (IEC 950).

**2.1.1 Electromagnetic compatibility** The drive, as delivered, is designed for system integration and installation into a suitable enclosure prior to use. As such the drive is supplied as a subassembly and is not subject to Subpart J of Part 15 of the FCC Rules and Regulations nor the Radio Interference Regulations of the Canadian Department of Communications. However, the unit has been tested using proper shielding and grounding and found to be compliant with Class A limits of the FCC Rules and the Regulations of the Canadian Department of Communications.

The physical design characteristics of the drive serve to minimize radiation when installed in an enclosure that provides reasonable shielding. As such, the drive is capable of meeting the Class B limits of the FCC Rules and Regulations of the Canadian Department of Communication. However, it is the user's responsibility to assure that the drive meets the appropriate EMI requirements in their system. Shielded I/O cables may be required if the enclosure does not provide adequate shielding. If the I/O cables are external to the enclosure, shielded cables should be used, with the shields grounded to the enclosure or to the host controller, but not both. **2.1.2 Electromagnetic susceptibility** As a component assembly, the drive is not required to meet any susceptibility performance requirements. It is the responsibility of those integrating the drive within their systems to perform those tests required and design their system to ensure that equipment operating in the same system as the drive or external to the system does not adversely affect the performance of the drive. See Section 5.

**1.1 and Table 2, DC power requirements.** **2.2 Electromagnetic Compliance for the European Union** If this model has the CE Marking it complies with the European Union requirements of the Electromagnetic Compatibility Directive 89/336/EEC of 03 May 1989 as amended by Directive 92/31/EEC of 28 April 1992 and Directive 93/68/EEC of 22 July 1993. Seagate uses an independent laboratory to confirm compliance to the above directives. The drive was tested in a representative system for typical applications. The selected system represents the most popular characteristics for test platforms The system configurations include: · 486, Pentium, and PowerPC Microprocessors · 3.5-inch Floppy Disc Drive · Keyboard · Monitor/Display Although the test system with this Seagate model complies to the directives, we cannot guarantee that all systems will comply. The computer manufacturer or system integrator shall conform EMC compliance and provide CE Marking for their product. 4 2.

**3 Reference documents** Seagate P/N 77767490 Seagate P/N 77738479 Hawk 2XL Product Manual, Rev. B Installation Guide SCSI Interface Manual ANSI Small Computer System Interface (SCSI): Document Number ANSI3.131-1986 (X3T9/84.40 Rev. 1B) (X3T9.2/82-2 Rev. 17B), X3T9.2/86-109 Revision 10H (SCSI-2) and X3T9.2-184 Rev. 4 (SCSI-3).

ANSI - draft proposed: Document Number X3T10/1071D, SCSI-3 FAST-20 revision 6. Package Test Specification Package Test Specification Seagate P/N 30190-001 (under 100 lb.) Seagate P/N 30191-001 (over 100 lb.) In case of conflict between this document and any referenced document, this document takes precedence. Hawk 2XL Product Manual, Rev. B 5 **3.0 General description** The drives are a member of a family of low cost, high performance, highly reliable, random access storage devices designed to meet the needs of the OEM marketplace. The drive records and recovers data on 3.5 inch (89 mm) fixed discs. The drive supports the Small Computer System Interface as described in the ANSI SCSI-2 and SCSI-3 Interface Manuals to the extent described in this product Manual (Vol.

1), which defines the product performance characteristics of the Hawk 2XL Family of drives, and the SCSI Interface Product Manual P/N 77738479 (Vol.



[You're reading an excerpt. Click here to read official MAXTOR ST32155N user guide](http://yourpdfguides.com/dref/2944390)  
<http://yourpdfguides.com/dref/2944390>

2, Version 2) which describes the general interface characteristics of this and other families of Seagate 3.5-inch drives. The drive interface supports multiple initiators, disconnect/reconnect, self-configuring host software and automatic features that relieve the host from the necessity of knowing the physical characteristics of the targets (logical block addressing is used). The Head/Disc Assembly (HDA) is environmentally sealed at the factory. Air recirculates within the Head/Disc (HDA) through a nonreplaceable filter to maintain a contamination free head/disc environment. Refer to Figure 2, an exploded view of the drive. NEVER disassemble the Head/Disc Assembly (HDA). This exploded view is for information only. Do not attempt to service items in the sealed environmental enclosure (heads, media, actuator, etc.

) as this requires special facilities. The drive contains no parts replaceable by the user. The drive warranty is voided if the HDA is opened. The Hawk 2XL Family drives use a dedicated landing zone at the innermost radius of the media to eliminate the possibility of destroying or degrading data by landing in the data zone. The drive automatically goes to the landing zone when the power is removed.

The Hawk 2XL Family drives incorporate an automatic shipping lock which prevents potential damage to the heads and discs that result from movement during shipping and handling. The shipping lock is automatically disengaged when power is applied to the drive and the head load process begins. The Hawk 2XL Family drives decode track location from the servo data embedded on each surface to eliminate mechanical transducer adjustments and related reliability concerns. The Hawk 2XL Family drives use a high performance actuator assembly that consists of a low inertia, balanced, patented, straight arm design that provides excellent performance with minimum power dissipation. 6 Hawk 2XL Product Manual, Rev.

B Figure 2. Hawk 2XL family drive Hawk 2XL Product Manual, Rev. B 3.1 . . . . . Standard features 7 The Hawk 2XL Family has the following standard features: Integrated SCSI Controller with reduced complexity SCSI code Single-ended SCSI drivers and receivers Asynchronous and Synchronous data transfer protocol Firmware downloadable via SCSI interface Flawed sector reallocation at format time Programmable auto write and read reallocation Reallocation of defects on command (Post Format) 96 bit Reed-Solomon error correcting code Sealed Head/Disc Assembly No preventative maintenance or adjustment required Dedicated head landing zone Embedded servo data rather than a separate servo data surface Self diagnostics performed at power on 1:1 Interleave Zoned Bit Recording (ZBR) Vertical, horizontal, or top down mounting Dynamic spindle brake Permanently mounted terminators on "N" and "W" models, enabled by installation of a jumper plug. 256 K byte data buffer (512K byte data buffer for "W" and "WC" models and all Ultra SCSI models) Hot Plug compatibility (Section 9.6.4.3 lists proper host connector needed) SCAM plug-n-play compliant [1] ULTRA SCSI (Models ST32155 and ST31055) Media characteristics 3.2 The media used on the drive has a diameter of approximately 3.5 inches (89 mm).

The aluminum substrate is coated with a thin film magnetic material, overcoated with a proprietary protective layer for improved durability and environmental protection. 3.3 . . . . . Performance Programmable multi-segmentable cache buffer 5411 RPM Spindle. Average latency = 5.54 msec Command Queuing of up to 64 commands Background processing of queue Supports start and stop commands (spindle stops spinning) Low audible noise for office environment Low power consumption Reliability 3.4 . . . . . 800,000 hour MTBF Adaptive servo calibration for improved seek performance LSI circuitry Balanced low mass rotary voice coil actuator 5 year warranty for ST32151 and ST32155; 3 year warranty for ST31051 and ST31055 [1] Supports SCAM Level 1 at the moment. Will support Level 2 when all presently unresolved requirements are fully defined. As a factory installed option SCAM can be turned off. 8 3.5 Unformatted and formatted capacities Hawk 2XL Product Manual, Rev.

B Formatted capacity depends on the number of spare reallocation sectors reserved and the number of bytes per sector. The following table shows some typical 512 byte sector size [1] formatted capacities (rounded off). ST32151 GB ST32155 GB ST31051 GB ST31055 GB Spare Sector or Cylinders Reserved for reallocation No Spares Five Spare Sectors per Cylinder [2] Ten Spare Sectors per Cylinder [2] The standard OEM model is as follows: Formatted Data Block Size 512 Byte/Sector 2.18 2.15 1.

07 1.06 - Unformatted ST32151/ST32155 ST31051/ST31055 Notes. [1] [2] [3] [4] [5] 3.6 2.148 GB[4] 1.

060 GB[5] 2.54 GB 1.26 GB Sector size selectable when formatted at factory. All spare sectors are on one track. Spare cylinders are on the two inner tracks. Sparing equivalent to eight spare sector per cylinder (all spare sectors are on one track), two spare cylinders/unit.[3] Sparing equivalent to five spare sectors per cylinder (all spare sectors are on one track), two spare cylinders/unit.[3] Factory installed accessories OEM Standard drives are shipped with Installation Guide P/N 77767490 (unless otherwise specified). The factory also ships with the drive a small bag of the two jumper plug types used for the option select jumper headers. 3.

7 Options (factory installed) All customer requested options are incorporated during production or packaged at the manufacturing facility before shipping. Some of the options available are (not an exhaustive list of possible options): · The capacities shown in Section 3.5. Other capacities can be ordered depending on sparing scheme and sector size requested. · Black plastic front panel. Other panel colors may be specially ordered. Panel has a green, rectangular LED drive activity indicator lens. The indicator glows when the drive is selected. · Single unit shipping pack. The drive is normally shipped in bulk packaging to provide maximum protection against transit damage.

Units shipped individually require additional protection as provided by the single unit shipping pack. Users planning single unit distribution should specify this option. · The Installation Guide (P/N 77767490) is usually included with each standard OEM drive shipped, but extra copies may be ordered. 3.8

Accessories (user installed) The following accessories are available.

All accessories may be installed in the field. · Front Panel Kit (with green rectangular LED lens). · Single unit shipping pack. · Adapter Accessory Frame Kit P/N 75790701.



[You're reading an excerpt. Click here to read official MAXTOR ST32155N user guide](http://yourpdfguides.com/dref/2944390)  
<http://yourpdfguides.com/dref/2944390>

This kit adapts a 3.

5 inch Model "N" and "W" drives to fit in a 5.25 inch drive mounting space. The frame does not work for "WC" model drives which plug directly into a bulkhead or backplane connector. Hawk 2XL Product Manual, Rev. B 9 4.0 4.1 Performance characteristics Internal drive characteristics (transparent to user) ST32151/ST32155 ST31051/ST31055 Drive Capacity Read/Write Heads Bytes/Track Bytes/Surface Tracks/Surface, Total Tracks/Inch Servo Heads Internal Data Rate Disc Rotational Speed Average Rotational Latency 4.2 2.54 8 75,900 318 4176 4800 0 44 - 66 5411 ± 0.5% 5.

54 1.26 75,900 315 4176 4800 0 44 - 66 5411 ± 0.5% 5.54 GByte (UNF) (Rounded off values) Bytes (Avg) (Rounded off values) Mbytes (UNF) (Rounded off values) Tracks (user accessible) TPI (embedded servo) Mbits/sec (variable with zone) r/min ms SCSI Seek performance characteristics (visible to user) [6]\* The values given in Section 4.2.1 apply to all models of the Hawk 2XL family unless otherwise specified. Refer to Section 9.9 and to the SCSI-2 Interface Product Manual 77738479 for additional timing details. 4.2.

1 Access time Including Controller Overhead (without disconnect) [1] [4] Drive Level Read ms Average Typical Max. Typical Max. [3] [2] [3] [2] [3] [2] 10.4 11.

9 2.7 3.8 20.4 23.9 Write 11.

4 13.4 2.9 4.3 21.4 24.9 Single Track - Full Stroke - \* [ ] All notes for Sections 4.2 are listed at end of Section 4.2.3. 10 4.

2.2 Format command execution time (minutes) [1] ST32151/ST32155 ST31051/ST31055 Hawk 2XL Product Manual, Rev. B Maximum (with verify) Maximum (no verify) 4.2.3 30 20 20 10 Generalized performance characteristics 1 to 1 Minimum Sector Interleave (all Hawk 2XL models) Data Transfer Rate (1 sector) - 512 Byte Sector, Data Buffer To/From Disc Media: ST32151/ST32155 ST31051/ST31055 Min. Avg. Max. [4]\* [4] [4] 5.1 7.1 8. 2 MByte/sec MByte/sec MByte/sec 5.1 7.1 8.2 MByte/sec MByte/sec MByte/sec Data Transfer Rate (< 1 Track) - 512 Byte Sector, Data Buffer To/From Disc Media: ST32151/ST32155 ST31051/ST31055 Min. Avg. Max. [4] [4] [4] 3.8 5.6 6.4 MByte/sec MByte/sec MByte/sec 3.

8 5.6 6.4 MByte/sec MByte/sec MByte/sec divided by (Interleave Factor) divided by (Interleave Factor) divided by (Interleave Factor) SCSI Interface Data Transfer Rate (Asynchronous) [5] (all Hawk 2XL models): Maximum Instantaneous 6.0 [6] Maximum Average 6.0 MBytes/sec MBytes/sec The remainder of the specifications of Section 4.2.3 apply to all Hawk 2XL models: Sector Sizes Variable (180 to 4096 bytes per sector, but factory configurable only) in even number of bytes per sector. Synchronous Transfer Rate for ULTRA SCSI-2 models from 1.25 MBytes/sec to 20.0 MBytes/sec for 8 bit data bus and 40.

0 MBytes/sec for 16 bit data bus. (see Section 9.5) Synchronous Transfer Rate for Fast SCSI-2 models from 1.25 MBytes/sec to 10.0 MBytes/sec for 8 bit data bus and 20.0 MBytes/sec for 16 bit data bus. (see Section 9.5) Read/Write consecutive sectors on a track Flaw reallocation performance impact (For flaws reallocated at format time using the spare sectors per cylinder reallocation scheme.) [7] Flaw reallocation performance impact (For flaws reallocated at format time using the spare tracks per volume reallocation scheme.) [7] Overhead time for head switch (512 byte sectors) Overhead time for one track cylinder switch Average rotational latency Yes Negligible 22.

16 msec (typical) 1 msec < 3 msec Typical 5.54 msec Hawk 2XL Product Manual, Rev. B Notes for Sections 4.2. [1] [2] 11 [3] [4] [5] [6] [7] 4.

3 Execution time measured from receipt of the last Byte of the Command Descriptor Block (CDB) to the request for a Status Byte Transfer to the Initiator (excluding connect/disconnect). Maximum times are specified over the worst case conditions of temperature, voltage margins and drive orientation. When comparing specified access times, care should be taken to distinguish between typical access times and maximum access times. The best comparison is obtained by system benchmark tests conducted under identical conditions. Maximum times do not include error recovery.

Typical Access times are measured under nominal conditions of temperature, voltage, and horizontal orientation as measured on a representative sample of drives. Assumes no errors and no sector has been relocated. Rate measured from the start of the first sector transfer to or from the Host. Assumes system ability to support the rate given and no cable loss. Simulated. Start/stop time After DC power has been applied, the drive becomes ready within 20 seconds if the Motor Start Option is disabled (i.e. the motor starts as soon as the power has been applied). During this time the drive responds to some commands over the SCSI interface in less than 3 seconds. Stop time is 20 seconds from removal of DC power.

If the Motor Start Option is enabled, the internal controller accepts the commands listed in the SCSI Interface Product Manual\* less than 3 seconds after DC power has been applied. After the Motor Start Command has been received the drive becomes ready for normal operations within 13 seconds typically. The Motor Start Command can also be used to command the drive to stop the spindle\*. There is no power control switch on the drive. 4.4 Prefetch/multi-

segmented cache control The drive provides prefetch (read look-ahead) and multi-segmented cache control algorithms that in many cases can enhance system performance. "Cache" as used herein refers to the drive buffer storage space when it is used in "cache" operations. To select prefetch and cache features the host sends the Mode Select command with the proper values in the applicable bytes in Mode Page 08h. Prefetch and cache operation are independent features from the standpoint that each is enabled and disabled independently via the Mode Select command. However, in actual operation the prefetch feature overlaps cache operation somewhat as is noted in Sections 4.

5.1 and 4.5.2. All default cache and prefetch Mode parameter values (Mode Page 08h) for standard OEM versions of this drive family are given in Tables 8a and 8b.

4.5 Cache operation In general, on "N" models 202,448 bytes of the 256 Kbyte physical buffer space, and on "W" and "WC" models, 431,136 Kbytes of the 512 Kbytes of physical buffer space in the drive can be used as storage space for cache operations. The buffer can be divided into logical segments (Mode Select Page 08h, byte 13) from which data is read and to which data is written. The drive maintains a table of logical block disk medium addresses of the data stored in each segment of the buffer. If cache operation is enabled (RCD bit = 0 in Mode Page 08h, byte 2, bit 0.

See SCSI Interface Product Manual P/N 77738479), data requested by the host with a Read command is retrieved from the buffer (if it is there), before any disc access is initiated. If cache operation is not enabled, the buffer (still segmented with required number of segments) is still used, but only as circular buffer segments during disc medium read operations (disregarding Prefetch operation for the moment).



[You're reading an excerpt. Click here to read official MAXTOR ST32155N user guide](http://yourpdfguides.com/dref/2944390)  
<http://yourpdfguides.com/dref/2944390>



*That is, the drive does not check in the buffer segments for the requested read data, but goes directly to the medium to retrieve it. The retrieved data merely passes through some buffer segment on the way to the host. On a cache "miss", all data transfers to the host are in accordance with "buffer-full" ratio rules. On a cache "hit" the drive ignores the "buffer-full" ratio rules. See explanations associated with Mode page 02h (disconnect/reconnect control) in the SCSI Interface Product Manual P/N 77738479. 12 Hawk 2XL Product Manual, Rev. B The following is a simplified description of a read operation with cache operation enabled: Case A - A Read command is received and the first logical block (LB) is already in cache: 1. Drive transfers to the initiator the first LB requested plus all subsequent contiguous LB's that are already in the cache.*

*This data may be in multiple segments. 2. When the requested LB is reached that is not in any cache segment, the drive fetches it and any remaining requested LB's from the disc and puts them in a segment of the cache. The drive transfers the remaining requested LB's from the cache to the host in accordance with the disconnect/reconnect specification mentioned above. 3. If the prefetch feature is enabled, refer to Section 4.5.2 for operation from this point. Case B - A Read command requests data, the first LB of which is not in any segment of the cache: 1. The drive fetches the requested LB's from the disc and transfers them into a segment, and from there to the host in accordance with the disconnect/reconnect specification referred to in case A.*

*2. If the prefetch feature is enabled, refer to Section 4.5.2 for operation from this point. Each buffer segment is actually a self-contained circular storage (wrap-around occurs), the length of which is an integer number of disc medium sectors.*

*The wrap-around capability of the individual segments greatly enhances the buffer's overall performance as a cache storage, allowing a wide range of user selectable configurations, which includes their use in the prefetch operation (if enabled), even when cache operation is disabled (see Section 4.5.2). The number of segments may be selected using the Mode Select command, but the size can not be directly selected. Size is selected only as a by-product of selecting the segment number specification.*

*The size in Kbytes of each segment is reported by the Mode Sense command page 08h, bytes 14 and 15. If a size specification is sent by the host in a Mode Select command (bytes 14 and 15) no new segment size is set up by the drive, and if the "STRICT" bit in Mode page 00h (byte 2, bit 1) is set to one, the drive responds as it does for any attempt to change unchangeable parameters (see SCSI I/O Product Manual P/N 77738479). The drive supports operation of any integer number of segments from 1 to 16.6*

*4.5.1 Caching write data Write caching is a write operation by the drive that makes use of a drive buffer storage area where the data to be written to the medium is stored in one or more segments while the drive performs the write command. Write caching is enabled along with read caching. For write caching, the same buffer space and segmentation is used as set up for read functions. The buffer segmentation scheme is set up or changed independently, having nothing to do with whether or not read and write caching is enabled or disabled. When a write command is issued, the cache is first checked to see if any logical blocks that are to be written are already stored in the cache from a previous read or write command.*

*If there are, the respective cache segments are cleared. The new data is cached for subsequent Read commands. If the number of write data logical blocks exceeds the size of the segment being written into when the end of the segment is reached, the data is written into the beginning of the same cache segment, overwriting the data that was written there at the beginning of the operation. However, the drive does not overwrite data that has not yet been written to the medium. Tables 8a and 8b show Mode default settings for the drives. 4.5.2 Prefetch operation If the Prefetch feature is enabled, data in contiguous logical blocks on the disc immediately beyond that which was requested by a Read command can be retrieved and stored in the buffer for immediate transfer from the buffer to the host on subsequent Read commands that request those logical blocks (this is true even if "cache" operation is disabled). Though the prefetch operation uses the buffer as a "cache", finding the requested data in the buffer is a prefetch "hit", not a "cache" operation "hit". Prefetch is enabled using Mode Select page 08h, byte 12, bit 5 (Disable Read Ahead - DRA bit).*

*DRA bit = 0 enables prefetch. Since data that is prefetched replaces data already in some buffer segment(s), the host can limit the amount of prefetch data to optimize system performance. The max prefetch field (bytes 8 and 9) limits the amount of prefetch. The drive does not use the prefetch "ceiling" field (bytes 10 and 11). During a prefetch operation, the drive crosses a cylinder boundary to fetch more data only if the Discontinuity (DISC) bit is set to one in bit 4 of byte 2 of Mode parameters page 08h.*

*Hawk 2XL Product Manual, Rev. B 13 Whenever prefetch (read look-ahead) is enabled (enabled by DRA = 0), it operates under the control of ARLA (Adaptive Read Look-Ahead). If the host uses software interleave, ARLA enables prefetch of contiguous blocks from the disk when it senses that a prefetch "hit" will likely occur, even if two consecutive read operations were not for physically contiguous blocks of data (e.g. "software interleave").*

*ARLA disables prefetch when it decides that a prefetch "hit" will not likely occur. If the host is not using software interleave, and if two sequential read operations are not for contiguous blocks of data, ARLA disables prefetch, but as long as sequential read operations request contiguous blocks of data, ARLA keeps prefetch enabled. Hawk 2XL Product Manual, Rev. B 15 5.0 Reliability specifications The following reliability specifications assume correct host/drive operational interface, including all interface timings, power supply voltages, environmental requirements and drive mounting constraints (see Section 8.4) Seek Errors Read Error Rates [1] Unrecovered Data Miscorrected Data MTBF Service Life Preventive Maintenance Note. [1] 5.1 Error rate specified with automatic retries and data correction with ECC enabled and all flaws reallocated. Error rates Less than 1 in 107 seeks Less than 1 sector in 1014 bits transferred Less than 1 sector in 1021 bits transferred 800,000 5 years None required The error rates stated in this specification assume the following: a. The drive is operated per this specification using DC Power as defined in this Manual (see Section 6).*



[You're reading an excerpt. Click here to read official MAXTOR ST32155N user guide](http://yourpdfguides.com/dref/2944390)  
<http://yourpdfguides.com/dref/2944390>

2). b. The drive has been formatted with the SCSI FORMAT commands. c. Errors caused by media defects or host system malfunctions are excluded from error rate computations. Refer to Section 3.2, "Media Characteristics." 5.1.1 Environmental interference When evaluating systems operation under conditions of Electromagnetic Interference (EMI), the performance of the drive within the system shall be considered acceptable if the drive does not generate an unrecoverable condition.

An unrecoverable error, or unrecoverable condition, is defined as one that: 1. Is not detected and corrected by the drive itself; 2. Is not capable of being detected from the error or fault status provided through the drive or SCSI interface; or 3. Is not capable of being recovered by normal drive or system recovery procedures without operator intervention. Read errors 5.

1.2 Before determination or measurement of read error rates: a. The data that is to be used for measurement of read error rates must be verified as being written correctly on the media. b. All media defect induced errors must be excluded from error rate calculations.

5.1.3 Write errors Write errors can occur as a result of media defects, environmental interference, or equipment malfunction. Therefore, write errors are not predictable as a function of the number of bits passed. If an unrecoverable write error occurs because of an equipment malfunction in the drive, the error is classified as a malfunction affecting MTBF. Unrecoverable write errors are those which cannot be corrected within two attempts at writing the record with a read verify after each attempt (excluding media defects). 16 5.1.4 Seek errors Hawk 2XL Product Manual, Rev. B A seek error is defined as a failure of the drive to position the heads to the addressed track.

There shall be no more than one recoverable seek error in 107 physical seek operations. After detecting an initial seek error, the drive automatically reseek to the addressed track up to 3 times. If a reseek is successful, the Extended Sense reports a seek positioning error (15h), no seek complete error (02h), or track follow error (09h), and the sense key reports a recovered error (1h). If all three reseek fail, a seek positioning error (15h) is reported with a Medium error (3h) or Hardware error (4h) reported in the Sense Key. This is an unrecoverable seek error. Unrecoverable seek errors are classified as failures for MTBF calculations. Refer to Section 5.1.1.2 of SCSI-2 Interface Product Manual P/N 77738479 for Request Sense information.

5.2 5.2.1 Reliability and service Mean time between failure The production disc drive shall achieve an MTBF of 800,000 hours when operated in a benign atmosphere at an average disc drive ambient temperature of 95°F (35°C) or less as measured per this Product Manual, Section 6.4.

1. Short-term excursions up to the specification limits of the operating environment will not affect MTBF performance. The following expression defines MTBF Estimated power-on operating hours in the period MTBF per measurement period = Number of drive failures in the period Estimated power-on operation hours means power-up hours per disc drive times the total number of disc drives in service. Each disc drive shall have accumulated at least nine months of operation. Data shall be calculated on a rolling average base for a minimum period of six months.

Drive failure means any stoppage or substandard performance caused by drive malfunction. 5.2.2 Preventive maintenance No routine scheduled preventive maintenance shall be required. 5.2.3 Service life The drive shall have a useful service life of five years. Depot repair or replacement of major parts is permitted during the lifetime (see Section 5.2.4).

5.2.4 Service philosophy Special equipment is required to repair the drive HDA. In order to achieve the above service life, repairs must be performed only at a properly equipped and staffed service and repair facility. Troubleshooting and repair of PCBs in the field is not recommended, because of the extensive diagnostic equipment required for effective servicing. Also, there are no spare parts available for this drive. Drive warranty is voided if the HDA is opened.

5.2.5 Service tools No special tools are required for site installation or recommended for site maintenance.

Refer to Section 5.2.4. The depot repair philosophy of the drive precludes the necessity for special tools. Field repair of the drive is not practical since there are no user purchasable parts in the drive.

5.2.6 Product warranty Beginning on the date of shipment to customer and continuing for a period of five years, Seagate warrants that each product (including components and subassemblies) or spare part that fails to function properly under normal use due to defect in materials or workmanship or due to nonconformance to the applicable specifications will be repaired or replaced, at Seagate's option and at no charge to customer, if returned by customer at customer's expense to Seagate's designated facility in accordance with Seagate's Warranty Procedure. Seagate will pay for transporting the repair or replacement item to customer. For more detailed warranty information refer to the Standard terms and conditions of Purchase for Seagate products.

Hawk 2XL Product Manual, Rev. B Shipping: 17 When transporting or shipping a drive, a Seagate approved container must be used. Keep your original box. They are easily identified by the Seagate Approved Package label. Shipping a drive in a non-approved container voids the drive warranty. Seagate repair centers may refuse receipt of components improperly packaged or obviously damaged in transit. Contact your Authorized Seagate Distributor to purchase additional boxes. Seagate recommends shipping by an air-ride carrier experienced in handling computer equipment. Product repair and return information Seagate customer service centers are the only facilities authorized to service Seagate drives. Seagate does not sanction any third-part repair facilities.

Any unauthorized repair or tampering with the factory-seal voids the warranty. Hawk 2XL Product Manual, Rev. B 19 6.0 6.1 Physical/electrical specifications AC power requirements Not applicable to this drive. 6.2 DC power requirements The voltage and current requirements for a single drive are shown in the following table. Values indicated apply at the drive power connector. The single ended power requirements includes the internal disc drive SCSI I/O termination.1 Table 2: DC power requirements

ST32151/ST32155 ST31051/ST31055 Voltage Regulation [4] [2] Average Idle Current [1] Maximum Starting Current (Peak)[2] Delayed Motor Start (Max) [3] Operating Current [5] Typ.

[1] Max. [1] Max. (Peak) [1] [2] [3] [4] [5] +5 V ±5% 0.32 A 0.57 A 0.

52 A 0.65 A 0.69 A 1.0 A +12 V ±5% 0.34 A 1.

8 A 0.22 A 0.40 A 0.42 A 1.8 A +5 V ±5% 0.32 A 0.57 A 0.52 A 0.65 A 0.69 A 1.

0 A +12 V ±5% 0.34 A 1.8 A 0.22 A 0.40 A 0.42 A 1.8 A Measured with average reading DC ammeter.



[You're reading an excerpt. Click here to read official MAXTOR](#)

[ST32155N user guide](#)

<http://yourpdfguides.com/dref/2944390>

Instantaneous current peaks will exceed these values. A droop of up to -10% is permissible during the T2 portion of +12 V power up (see Figure 3). This condition occurs when the Motor Start Option is enabled and the drive has not yet received a Start Motor command.

See Section 6.2.1 "Conducted Noise Immunity". Instantaneous peaks less than 5 msec in duration are allowed. General Notes from Table 2: 1.

2. 3. 4. At power-up, the motor current regulator limits the 12 volt current to a peak value of less than 1.8 amperes, although instantaneous peaks may occur as stated in [5] above.

Operating condition is defined as random seek read of 64 blocks. Minimum operating current loading for each supply voltage is not less than 38% of the maximum operating current shown. The +5 and +12 volt supplies shall employ separate ground returns. Where power is provided to multiple drives from a common supply, careful consideration for individual drive power requirements should be noted. Where multiple units are powered on simultaneously, the peak starting current must be available to each device. Conducted noise immunity 6.2.1 Noise is specified as a periodic and random distribution of frequencies covering a band from DC to 10 MHz. Maximum allowed noise values given below are peak to peak measurements and apply at the drive power connector. +5 V = +12 V = 150 mV pp from 0 to 50 kHz and 45 mA pp from 50 kHz to 10 MHz.

150 mV pp from 0 to 50 kHz and 60 mA pp from 50 kHz to 10 MHz. 20 6.2.2 Power sequencing Hawk 2XL Product Manual, Rev. B The drive does not require power sequencing. The drive protects against inadvertent writing during power-up and down. Daisy-chain operation requires that power be maintained on the terminated drive to ensure proper termination of the peripheral I/O cables. For the benefit of the system power supply, the drive power-up can be delayed using the motor start delay option. 6.2.

3 Current profile Figure 3 identifies the drive +5 V and +12 V current profile. The current during the various times is as shown: T1 T2 T3 T4 T5 Note. Power is applied to the drive. Controller self tests are performed. Spindle begins to accelerate under current limiting after performing drive internal diagnostics.

See Note 1 of Table 2. The heads move from the landing zone to the data area. The adaptive servo calibration sequence is performed. Calibration is complete and the drive is ready for reading and writing. All times and currents are typical.

See Table 2 for maximum current requirements. .6 5V Current (amps) .4 .2 T 0 1.6 T3 T1 T2 T4 T5 T6 1.4 1.2 1.0 12V Current (amps) .8 .

6. 4. 2 T 0 2 4 6 8 10 Seconds 12 14 16 18 20 0 Figure 3. Typical Hawk 2XL family drive +5 V and +12 V current profile Hawk 2XL Product Manual, Rev. B 6.3 Power dissipation 21 For drives with single ended interface circuits, typical operating random read power dissipation is 7.5 watts (25.6 BTUs per hour) of DC power average at nominal voltages. Typical power dissipation under idle conditions is 6.0 watts (20.

5 BTUs per hour). 6.4 Environmental limits Temperature and humidity values experienced by the drive must be such that condensation does not occur on any drive part. Altitude and atmospheric pressure specifications are referenced to a standard day at 58.7°F (14. 8°C). Maximum Wet Bulb temperature is 82°F (28°C). 6.4.1 Temperature a.

Operating The drive meets all specifications over a 41°F to 131°F (5°C to 55°C) drive ambient temperature range with a maximum temperature gradient of 36°F (20°C) per hour. The enclosure for the drive should be designed such that the temperatures at the locations specified in Table 3, column 1 are not exceeded. Air flow may be needed to achieve these temperature values. Operation at case temperatures [4] above these values may adversely affect the drives ability to meet specifications. The MTBF specification for the drive is based on operating at an ambient temperature of 95°F (35°C). Occasional excursions to drive ambient temperatures of 55°C or 5°C may occur without impact to specified MTBF. To achieve the specified MTBF, the values of Table 3, column 2 must be considered maximum average operating case temperatures. Air flow may be needed to achieve these temperatures. See Section 8.3.

Continual or sustained operation at case temperatures above these values may degrade MTBF. Table 3: Items in Figure 4 Temperatures PCB and HDA (see Figure 4) Component on PCB Number Column 1 Maximum Case [4] Temperatures (°C) Operating (55° Ambient) [2] Column 2 Typical Case [4] Temperatures (°C) at 35°C Ambient [1] HDA [3] U2 U4 U5 U13 1,2,3 1,2,3 1,2,3 1,2,3 65 91 98 84 96 45 63 52 57 53 Note. [1] [2] [3] [4] The temperatures shown in Column 2 were measured on an unmounted drive lying on its side during random write/reads at 100% duty cycle in still air. The temperatures in Column 1 are calculated and may not reflect actual operating values. Sufficient cooling air may be required to ensure that these values are not exceeded.

Measure HDA temp at point labeled "HDA" on Figure 4. PCB mounted Integrated circuit case. -40° to 158°F (-40° to 70°C) package ambient with a maximum gradient of 45°F (25°C) per hour. This specification assumes that the drive is packaged in the shipping container designed by Seagate for use with drive. b.

Non-Operating 22 Hawk 2XL Product Manual, Rev. B Model "WC" Single Ended I/O PCB [1] U8 U5 HDA U13 U14 U7 U2 U16 U1 U15 U4 J1 PCB 3 Model "N" Single Ended I/O PCB [1] Model "W" Single Ended I/O PCB [1] U8 U5 U13 U8 U5 U13 U14 U7 U2 U14 U7 U2 U16 U3 U1 U16 U1 U15 U4 U15 U4 J1 J1 PCB 1 [1] Bottom side of PCB PCB 2 Figure 4. Locations of components (listed in Table 3) 6.4.2 Relative humidity The values below assume that no condensation on the drive occurs.

a. Operating 8% to 80% relative humidity with a maximum gradient of 10% per hour. b. Non-Operating 5% to 95% relative humidity. Hawk 2XL Product Manual, Rev.

B 6.4.3 Effective altitude (sea level) 23 a. Operating -1000 to +10,000 feet (-305 to +3048 metres) b. Non-Operating -1000 to +40,000 feet (-305 to +12,210 metres) 6.4.4 Shock and vibration Shock and vibration limits specified in this document are measured directly on the drive chassis. If the drive is installed in an enclosure to which the stated shock and/or vibration criteria is applied, resonances may occur internally to the enclosure resulting in drive movement in excess of the stated limits. If this situation is apparent, it may be necessary to modify the enclosure to minimize drive movement. The limits of shock and vibration defined within this document are specified with the drive mounted by any of the four methods shown in Figure 5, and in accordance with the restrictions of Section 8.

4. Orientation of the side nearest the LED may be up or down.



[You're reading an excerpt. Click here to read official MAXTOR ST32155N user guide](http://yourpdfguides.com/dref/2944390)  
<http://yourpdfguides.com/dref/2944390>

6.4.4.1 Shock a. Operating The drive, as installed for normal operation, shall operate error free while subjected to intermittent shock not exceeding 10 g's at a maximum duration of 11 ms (half sinewave). Shock may be applied in the X, Y, or Z axis. b. Non-operating The limits of nonoperating shock shall apply to all conditions of handling and transportation.

This includes both isolated drives and integrated drives. The drive subjected to nonrepetitive shock not exceeding 75 g's at a maximum duration of 11 ms (half sinewave) shall not exhibit device damage or performance degradation. Shock may be applied in the X, Y, or Z axis. c. Packaged Disc drives shipped as loose load (not palletized) general freight will be packaged to withstand drops from heights as defined in the table below.

For additional details refer to specifications 30190-001 (under 100 lbs) or 30191-001 (over 100 lbs). Package Size (Cu.In.) Packaged/Product Weight lb. (kg)  
Drop Height in.

mm <600 600-1800 >1800 >600 Any 0-20 (0 to 9.1) 0-20 (0 to 9.1) 20-40 (9.1 to 18.1) 60 (1524) 48 (1219) 42 (1067) 36 (914) 24 Hawk 2XL Product Manual, Rev. B B1 Z Y X B A D A1 E B1 B A Z X A1 Y E1 C C1 E1 D1 C1 D1 E D C Figure 5. Recommended mounting (Applicable to all Hawk 2XL family models) Hawk 2XL Product Manual, Rev. B 6.4.4.

2 Vibration 25 a. Operating The drive as installed for normal operation, shall comply with the complete specified performance while subjected to continuous vibration not exceeding 5-22 Hz @ 0.020 inches (0.51 mm) displacement 22-400 Hz @ 0.5 g Vibration may be applied in the X, Y, or Z axis. b. Non-operating The limits of non-operating vibration shall apply to all conditions of handling and transportation. This includes both isolated drives and integrated drives.

The drive shall not incur physical damage or degraded performance as a result of continuous vibration not exceeding 5-22 Hz @ 0.081 inches (2.05 mm) displacement 22-400 Hz @ 2.00 g Vibration may be applied in the X, Y, or Z axis. 6.4.5 Air cleanliness The drive is designed to operate in a typical office environment with minimal environmental control.

6.4.6 Electromagnetic susceptibility See Section 2.1.2.

26 6.5 Mechanical specifications Hawk 2XL Product Manual, Rev. B The following nominal dimensions are exclusive of the decorative front panel accessory. However, dimensions of the front panel are shown in figure below. Refer to Figures 6a, 6b and 6c for detailed mounting configuration dimensions. See Section 8.4, "Drive mounting." Height: Width: Depth: Weight: 1.00 in 4.00 in 5.

74 in 1.5 pounds 25.4 101.6 145.8 0.68 mm mm mm kilograms [4] C [3] G L [1] F A D E Notes: [1] Mounting holes three on each side, 6-32 UNC. Max screw length into side of drive 0.15 in. (3.81 mm).

Screw tightening torque 6.0 in-lb (.675 NM) max with minimum thread engagement of 0.12 in. (3.

08 mm). B J [2] Mounting holes four on bottom, 6-32 UNC. Max screw length into bottom of drive 0.20 in. (5.

08 mm). Screw tightening torque 6.0 in-lb (.675 NM) max with minimum thread engagement of 0.12 in. (3.05 mm). [3] Power and interface connectors can extend past the "A" dimension by 0.040 in. (1.

02 mm). [2] [4] Decorative front panel (optional). Dimension Table Inches Millimeters 5.74 ± .010 145.80 ± .25 4.00 ± .010 101.60 ± .

25 1.00 + .021 25.40 + .53 .

009 .22 2.362 ± .010 60.00 ± .

25 .620 ± .020 15.75 ± .50 4.000 ± .010 101.60 ± .25 .250 + .

010 6.35 + .25 .005 .12 1.750 ± .010 44.45 ± .25 3.750 ± .

010 95.25 ± .25 2.370 ± .020 60.

20 ± .50 1.00 ± .010 25.4 ± .

25 4.000 ± .010 101.6 ± .25 0.19 ± .010 4.83 ± .25 0.015 max 0.

381 max 0.181 + .015 4.597 + .38 .010 .25 H A B C D E F G K N P [4] M H J K L M N P R Figure 6a. Mounting configuration dimensions for model "N" Hawk 2XL Product Manual, Rev. B 27 [4] C [3] G L [1] F A D E Notes: [1] Mounting holes three on each side, 6-32 UNC. Max screw length into side of drive 0.

15 in. (3.81 mm). Screw tightening torque 6.0 in-lb (.

675 NM) max with minimum thread engagement of 0.12 in. (3.05 mm). B J [2] Mounting holes four on bottom, 6-32 UNC.

Max screw length into bottom of drive 0.20 in. (5.08 mm). Screw tightening torque 6.0 in-lb (.675 NM) max with minimum thread engagement of 0.12 in. (3.05 mm).

[3] Power and interface connectors can extend past the "A" dimension by 0.040 in. (1.02 mm). [2] [4] Decorative front panel (optional). H A B C D E F G K N P [4] M H J K L M N P R Dimension Table Inches Millimeters 5.74 ± .010 145.80 ± .25 4.

00 ± .010 101.60 ± .25 1.00 + .

021 25.40 + .53 .009 .22 2.

362 ± .010 60.00 ± .25 .620 ± .020 15.75 ± .50 4.000 ± .010 101.

60 ± .25 .250 + .010 6.35 + .25 .005 .12 1.750 ± .010 44.

45 ± .25 3.750 ± .010 95.25 ± .

25 2.370 ± .020 60.20 ± .50 1.

00 ± .010 25.4 ± .25 4.000 ± .010 101.6 ± .25 0.19 ± .010 4.

83 ± .25 0.015 max 0.381 max 0.181 + .015 4.597 + .38 .010 .25 Figure 6b.

Mounting configuration dimensions for model "W" 28 Hawk 2XL Product Manual, Rev. B [4] C [3] G L [1] F A D E Notes: [1] Mounting holes three on each side, 6-32 UNC. Max screw length into side of drive 0.15 in. (3.

81 mm). Screw tightening torque 6.0 in-lb (.675 NM) max with minimum thread engagement of 0.12 in.

(3.05 mm). R Pin 1 Connector Centerline [5] B [2] Mounting holes four on bottom, 6-32 UNC. Max screw length into bottom of drive 0.20 in. (5.08 mm).

Screw tightening torque 6.0 in-lb (.675 NM) max with minimum thread engagement of 0.

12 in. (3.05 mm). [3] Power and interface connectors can extend past the "A" dimension by 0.040 in. (1.02 mm). [4] Decorative front panel (optional). [5]

Connector is centered (side to side) on drive within  $\pm 0.020$  in.  
 (.508 mm). J [2] A B C D E F G H J K L M N P R H K N P [4] M Dimension Table Inches Millimeters 5.74  $\pm$  .010 145.  
 80  $\pm$  .25 4.00  $\pm$  .010 101.60  $\pm$  .  
 25 1.00 + .021 25.40 + .53 .009 .22 2.362  $\pm$  .010 60.00  $\pm$  .  
 25 .620  $\pm$  .020 15.75  $\pm$  .50 4.000  $\pm$  .010 101.60  $\pm$  .25 .250 + .  
 010 6.35 + .25 .005 .12 1.  
 750  $\pm$  .010 44.45  $\pm$  .25 3.750  $\pm$  .  
 010 95.25  $\pm$  .25 2.370  $\pm$  .020 60.20  $\pm$  .50 1.00  $\pm$  .010 25.4  $\pm$  .  
 25 4.000  $\pm$  .010 101.6  $\pm$  .25 0.19  $\pm$  .010 4.83  $\pm$  .25 0.015 max 0.  
 381 max 0.181 + .015 4.597 + .38 .

010 .25 Figure 6c. Mounting configuration dimensions for model "WC" Hawk 2XL Product Manual, Rev. B 29 7.0 Defect and error management The drive, as delivered, complies with this specification.

The read error rate and specified storage capacity are not dependent upon use of defect management routines by the host (initiator). Defect and error management in the SCSI system involves the drive internal defect/error management and SCSI systems error considerations (errors in communications between Initiator and the drive).



[You're reading an excerpt. Click here to read official MAXTOR ST32155N user guide](http://yourpdfguides.com/dref/2944390)  
<http://yourpdfguides.com/dref/2944390>

Tools for use in designing a defect/error management plan are briefly outlined in this section, with references to other sections where further details are given. 7.1 Drive internal defects and errors Identified defects are recorded on the drive defects list tracks (referred to as the primary or ETF defect list). @@@@ Most host adapters use SCSI ID 7. @@@@. If the drive is attached to a bus that contains other devices, and the new drive is not attached to the end of the bus, the Terminator Enable jumper (TE) should be removed from the new drive. Note. For additional information about terminator requirements, refer to Section 9.7.

Terminator power is discussed in Section 9.8. · Set all appropriate option jumpers for desired operation prior to power on. If jumpers are changed after power has been applied, recycle the drive power to make the new settings effective. · Installation instructions are provided by host system documentation or with any additionally purchased drive installation software. If necessary see Section 10.0 for Seagate support services telephone numbers. · The manufacturer's installed labels must not be removed from the drive or covered with additional labels, as they contain information required when servicing the product. Formatting · It is not necessary to low level format this drive. The standard OEM drive is shipped from the factory low level formatted in 512 byte sectors.

Other formats must be established only at time of drive manufacturer. · High level format the drive. This involves assigning one or more partitions or logical drives to the drive volume. Follow the instructions in the system manuals for the system into which the drive is to be installed. 8.

1 Drive ID/option select header Figures 7a through 7c show views of the drive ID select jumper connectors. Figure 7d shows the option select jumper connector for all models. Figure 7b shows a rear view of model drives for the purpose of showing J1 auxiliary which has a duplicate pin configuration and purpose of J6 (Figure 7a) on the rear of the drive. Both J1-auxiliary and J6 have pins for selecting drive ID and for connecting the remote LED cable. Only one or the other should be used, although using both at the same time would not damage the drive.

The notes following the figures describe the functions of the various jumper positions on the connectors J2, J1-Auxiliary and J6. Suggested part numbers for the jumpers used on J2 is Molex 52747-0211 (Seagate P/N 77679052). A bag with the two jumper plug types is shipped with the standard OEM drives. 32 Hawk 2XL Product Manual, Rev. B Drive Front Jumper Plug (enlarged to show detail) Pin 1 J6 LRR Reserved E E E AAA DSS 2 1 0 SCSI ID = 0 SCSI ID = 1 SCSI ID = 2 SCSI ID = 3 SCSI ID = 4 SCSI ID = 5 SCSI ID = 6 SCSI ID = 7 [3] (default) [4] Host Alternate Usage Plug: +5V Reserved Pins 11 9 7 5 3 1 8 642 Shipped with cover installed. Do not install jumpers; retain cover unless 20 pin plug is installed. Optional connections to switching circuits in host equipment to establish drive ID. [4] Ground Drive Activity LED [4] Dashed area is optional host circuitry (external to the drive) connected to host supplied optional usage plug. Do not connect anything to pins 13-20. Figure 7a.

Hawk 2XL family drive ID select header for model "N" [ ] Notes for Figures 7a through 7c are in Section 8.1.1. Hawk 2XL Product Manual, Rev. B 33 Drive Front Jumper Plug (enlarged to show detail) Pin 1 J6 [1] Reserved LR EE DS A3 A2 A1A0 SCSI ID = 0 SCSI ID = 1 SCSI ID = 2 SCSI ID = 3 SCSI ID = 4 SCSI ID = 5 SCSI ID = 6 [4] SCSI ID = 7 SCSI ID = 8 SCSI ID = 9 SCSI ID = 10 SCSI ID = 11 SCSI ID = 12 SCSI ID = 13 SCSI ID = 14 SCSI ID = 15 [3] Reserved Pins 11 9 7 5 3 1 8 642 (default) [4] Host Alternate Usage Plug: +5V Shipped with cover installed. Do not install jumpers; retain cover unless 20 pin plug is installed. Optional connections to switching circuits in host equipment to establish drive ID. [4] Ground Drive Activity LED [4] Dashed area is optional host circuitry (external to the drive) connected to host supplied optional usage plug. Do not connect anything to pins 13-20. Figure 7b.

Hawk 2XL family drive ID select for models "W" and "WC" 34 Hawk 2XL Product Manual, Rev. B Drive HDA (rear view, PCB facing downward) Pin 1 +5V Ground J1-Auxiliary [1] [2] Pin 1A 4P 3P 2P 1P Pin 12A 68 Pin SCSI I/O Connector J1 SCSI ID = 0 SCSI ID = 1 SCSI ID = 2 SCSI ID = 3 SCSI ID = 4 SCSI ID = 5 SCSI ID = 6 SCSI ID = 7 SCSI ID = 8 SCSI ID = 9 SCSI ID = 10 SCSI ID = 11 SCSI ID = 12 SCSI ID = 13 SCSI ID = 14 SCSI ID = 15 [3] [2] (default) J1-DC Power PCB A 3 A 2 A 1A 0 7 8 6 5 3 4 1 2 [4] Host Alternate Usage Plug: +5V N.C. 11 9 Ground Optional connections to switching circuits in host equipment to establish drive ID. [4] Pins 2, 4, 6, and 8 are driven low for 250 ms after PWR ON and reset to allow jumper selectable SCSI ID. [4] [4] Dashed area is optional host circuitry (external to the drive) connected to host supplied optional usage plug. Figure 7c. Hawk 2XL family drive ID select header J1-auxiliary for model "W" (J1-Aux. Pins 1A-12A) Hawk 2XL Product Manual, Rev. B 35 Drive Front J2\* Jumper Plug (enlarged to show detail) Caution: Do not use J2 jumper plugs on J6 or J1-Auxiliary, as the internal contacts will be deformed and can not be used on J2 without them falling off.

J2 Jumper Positions R T D MW P E T T ESEPDSP P Terminator Enable Delay Motor Start Enable Motor Start Write Protect Parity Disable Term. Power from Drive (default) (default) \*Additional notes [ ] on these functions in section 8.1.2. Term. Power to SCSI Bus Term. Power from SCSI Bus [3] Figure 7d. Hawk 2XL family drive option select header for models "N" and "W" Drive Front J2\* Jumper Plug (enlarged to show detail) Caution: Do not use J2 jumper plugs on J6, as the internal contacts will be deformed and can not be used on J2 without them falling off. J2 Jumper Positions R RRR E D MW P E E E SSEPDSS S Delay Motor Start Enable Motor Start Write Protect Parity Disable [3] [3] [5] \*Additional notes [ ] on these functions in section 8.1.

2. Figure 7e. Hawk 2XL family drive option select header for model "WC" 36 8.1.1 [1] Notes for Figures 7a, 7b, 7c, 7d and 7e. Hawk 2XL Product Manual, Rev. B Notes explaining the functions of the various jumpers on jumper header connectors J2, J1-Auxiliary and J6 are given here and in Section 8.1.2. The term "default" means as standard OEM units are configured with a jumper on those positions when shipped from factory. "Off" means no jumper is installed; "On" means a jumper is installed. OFF or ON underlined is factory default condition. The PCB on "N" and "WC" model drives does not have connector J1-Auxiliary.



[You're reading an excerpt. Click here to read official MAXTOR ST32155N user guide](http://yourpdfguides.com/dref/2944390)  
<http://yourpdfguides.com/dref/2944390>