

S T 3 2 5 N SEAGATE

NO MORE PRODUCED

Native| Translation

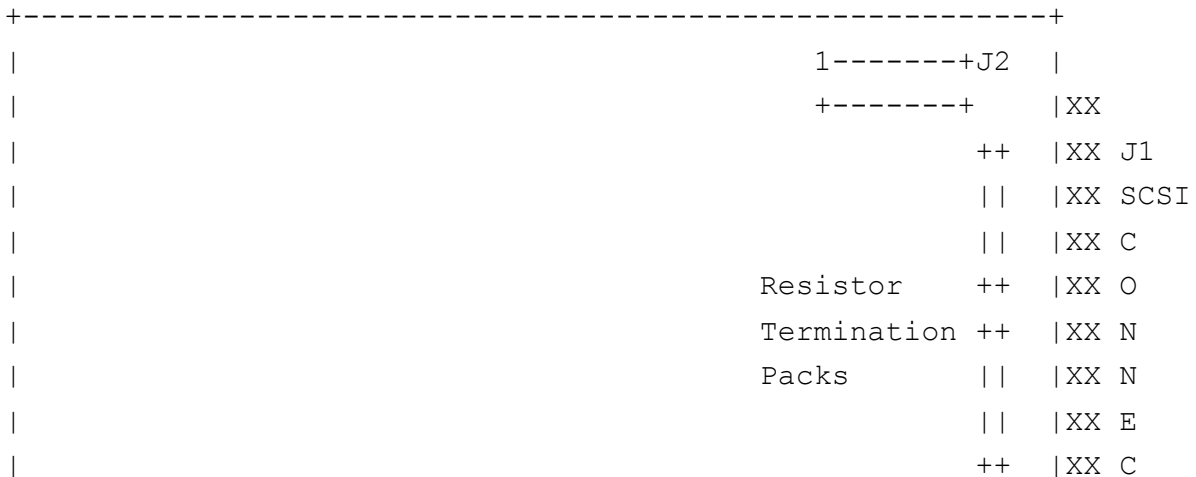
-----+-----+-----+-----

-			
Form	3.5"/SLIMLINE	Cylinders	
Capacity form/uniform	21/ MB	Heads	2
Seek time / track	31.5/10.0 ms	Sector/track	32
Controller	SCSI1 SINGLE-ENDED	Precompensation	
Cache/Buffer	2 KB	Landing Zone	
Data transfer rate	1.150 MB/S int	Bytes/Sector	512
	1.500 MB/S ext ASYNC		
Recording method	RLL 2/7	operating	non-
operating			
-----+-----			

-			
Supply voltage	5/12 V	Temperature *C	10 50   -40 60
Power: sleep	W	Humidity %	8 80   5 90
standby	1.4 W	Altitude km	-0.305 3.048   -0.305
9.144			
idle	2.4 W	Shock g	10   70
seek	7.0 W	Rotation RPM	3600
read/write	6.3 W	Acoustic dBA	40
spin-up	W	ECC Bit	32
		MTBF h	50000
		Warranty Month	12
Lift/Lock/Park	YES	Certificates	CSA, IEC380, TUV, UL478, VDE

# Layout

SEAGATE ST325N PRODUCT MANUAL 36144-001, REV. A



```

|                                     ++  |XX T
|                                     ||  |XX O
|                                     ||  |XX R
|                                     ++  |
|                                     |XX Power
|                                     |XX J3
+-----+

```

## Jumpers

SEAGATE ST325N PRODUCT MANUAL 36144-001, REV. A

### Jumper setting

=====

### J2 SCSI Bus Adress and Parity Check

-----

Select the desired SCSI ID with jumpers. Install the optional P-jumper to enable parity.

SCSI ID	P	LT	4	2	1	
0	o	o	o	o	o	Jumpers are provided on the drive for selecting the SCSI bus address. The microprocessor accesses this information at power-on. The address jumpers are accessed only during the power-on sequence. If the SCSI address is changed, the drive must be powered off and on.
1	o	o	o	o	x	
2	o	o	o	x	o	
3	o	o	o	x	x	
4	o	o	x	o	o	
5	o	o	x	o	x	
6	o	o	x	x	o	
7	o	o	x	x	x	

```

| |
| +---- Life Test
|

```

+----- Parity Bit Option

Some host systems require parity bit checking  
Install the P-Jumper to enable Parity

### Life Test

-----

This is a test function used during the manufacturing process and is not recommended for field use. When the Life Test jumper is installed the stepper motor will continuously seek between Track 0 and the maximum data cylinder and will ignore control signals sent via the interface.

#### 50-Pin SCSI Connector Pin Assignments

```
-----
Signal      Pin No.    Signal      Pin No.
-----
-DB (0)     2          Ground      28
-DB (1)     4          Ground      30
-DB (2)     6          -ATN        32
-DB (3)     8          Ground      34
-DB (4)    10          -BSY        36
-DB (5)    12          -ACK        38
-DB (6)    14          -RST        40
-DB (7)    16          -MSG        42
-DB (P)    18          -SEL        44
Ground     20          -C/D        46
Ground     22          -REQ        48
Ground     24          -I/O        50
Terminator 26
Power
```

Note: All odd pins, except pin-25 are connected to ground. Pin-25 is not connected.

#### J3 DC Power and pin connector assignments

```
-----
+-----+      1 = + 12 VDC
| 1  2  3  4 |  2 = + 12 Volts return
+-----+      3 = +  5 Volts return
              4 = +  5 VDC
```

## Install

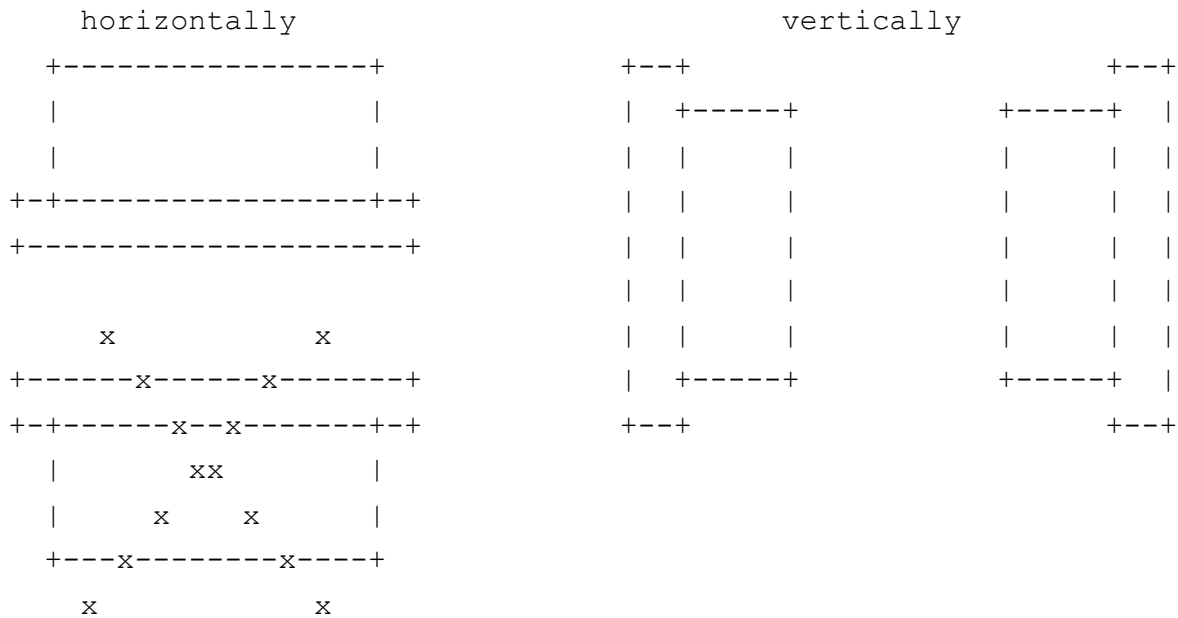
SEAGATE ST325N PRODUCT MANUAL 36144-001, REV. A

Notes on installation

=====

## Installation direction

-----



The drive may be mounted horizontally with the PC board down or on either side (edge). The drive may not be tilted front or back, in any position, by more than 5\*.

For optimum performance, the drive should be formatted in the same position as it will be mounted in the host system.

There are 4 mounting holes on the bottom of the drive. There are no side mounting points on the ST325N.

Required mounting screws: 4-40 UNC-2A.

Warning: The mounting screws must not extend beyond the inside of the chassis mounting surface (or into drive mounting points) more than 0.093-inches max.

## Mounting Screw Torque Requirements

---

Do not exceed 3 inch-lbs.

## Shock and vibrations

---

All shock and vibration specifications assume that the drive is mounted in an approved orientation with the input levels at the drive mounting screws. Shock measurements are based on a 11 msec., half-sine-wave shock pulse. Nonoperating specifications assume that the read/write heads are positioned in the shipping zone.

## Read/Write Head Auto-Park

---

Upon power-down, the read/write heads automatically move to the shipping zone. All portions of the head/slider assembly will park inboard of the maximum data cylinder.

When power is applied, the heads will recalibrate to Track 0.

## FCC Verification

---

The ST325N is a device intended to be contained solely within a personal computer or similar enclosure (not attached to an external device). As such, it is considered to be a subassembly even when individually marketed to the customer. As a subassembly, no Federal Communications Commission authorization, verification or certification of the device is required.

## Formatting and defect management

---

Media defects are identified and recorded on the disc during the manufacturing process. This defect map is used during formatting and enables the drive to bypass these defects. During the formatting operation, the controller uses the sector-slip technique to reassign defect sectors.

## DC Power specifications

Power may be applied/removed in any sequence without loss of data or damage to the drive. Typical seek currents are measured on repetitive one-third stroke buffered seeks with two spindle rotations between each seek.

Voltage tolerance, all conditions, including ripple: 5%.

Typical seeking/nonseeking current and power specifications assume nominal voltages applied, 25\* C ambient temperature, sea level and spindle rotating.

## Input Noise

Maximum permitted input noise ripple: 100 mV (peak-to-peak)  
Maximum permitted input noise: 20 MHz.

(Measured at the host system power supply across an equivalent 20 resistive load on the +12 V line and an equivalent 8 load on the +5 V line.)

## Cable specification

A 50-conductor flat cable or 25-conductor twisted pair cable is required. The maximum cable length is 6 meters (19.7 ft). Each SCSI bus connection may have a 0.1 meter (0.33 ft) maximum stub length.

The characteristic impedance for unshielded flat or twisted pair ribbon cable should be 100 ±10%. A characteristic impedance greater than 90 is preferred for shielded cables.

To minimize discontinuities and signal reflections it is desirable to minimize the use of cables of different impedances in the same bus.

## Connector Requirements

-----  
The drive connector is a 50-conductor connector with two rows of 25 male pins on 100 mil centers.

The cable connector is a 50-conductor nonshielded connector consisting of two rows of 25 female contacts on 100 mil centers. Recommended strain-relief connectors are AMP part number 1-499506-2 or DUPONT part number 66900-X50.

## Onboard Drive Diagnostics

-----  
At power-on the drive will execute a series of diagnostic tests. Any failure will be indicated by a series of LED (front panel) flashes. The first failure will be preserved. The drive is ready to read/write if no error codes are received within 22 seconds.

Flashes	Failures codes
1	Microprocessor/Internal Memory Test
2	Microprocessor ROM Checksum Test
3	Controller Chip Test
4	Read Record ID Mark/Microprocessor RAM Test
5	Data Buffer RAM Test
7	Drive Ready Test
8	Read Operating System Microcode From Drive
	If the controller is unable to read the operating system from the drive

## Drive formatting

-----  
All Seagate SCSI interfaces drives are low-level formatted at the

factory. You may wish to low-level format the drive to optimize its performance for your system. Consult the controller documentation for information on low-level formatting.

Partitioning and high-level formatting can be done through DOS.

## Features

SEAGATE ST325N PRODUCT MANUAL 36144-001, REV. A

### ST325N Configuration

-----

Seagate intelligent drive feature an onboard SCSI-compatible controller. This embedded controller performs all of the functions that were previously implemented by the host-supplied controller. With the controller onboard, the diagnostic capabilities of the drive are enhanced because the controller is able to optimize drive performance and error recovery.

The embedded controller supports the SCSI interface as defined in the ANSI X3T9.2/82-2 document. The interface hardware is capable of transferring up to 12 Mbits/sec. using asynchronous data transfer. Devices on the SCSI interface are daisy-chained together using a common cable. Both ends of the cable are terminated. All signals on the interface are common between all devices.

### Formating and Defect Management

-----

Because Seagate SCSI interface drives have the controller onboard, bad sectors are mapped out and become transparent to the user; this allows Seagate to specify "guaranteed megabytes" for SCSI drives and eliminates the requirement for a media defect specification.

### Error Recovery

-----

The controller provides error recovery routines which are necessary to assure data integrity. These techniques include ECC, seek-retry, read-retry, head-offset and defect management. To assure a high de-



gree of data reliability, the controller utilizes a 32-bit error checking and correction polynomial.

#### RAM Buffer

-----

The drive may be purchased with a standard 2K RAM Buffer or an optional 8K RAM buffer.

#### UL/CSA Listing

-----

The ST325N is listed in accordance with UL 478 and CSA C22.2 (0-M1982), and meets all applicable sections of IEC 380 and VDE 0806/08.81, as tested by TUV-Rheinland, North America.