

SONY®

Installation Manual
SDX-500 Series

Ver.2.0

AIT Drive

Sony Corporation

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SDX-500 Tape Drive

The Sony SDX-500 series drive is a high capacity data storage device using Advanced Intelligent tape (AIT) technology. The SDX-500 series drive achieves high data reliability through Read-After-Write, an additional level of Error Correction Code, and other features.

The Sony SDX-500 series drive stores data on tape using a standard format called AIT (Advanced Intelligent Tape) and ALDC formats.

사용자 안내문

이 기기는 가정용으로 전자파 적합등록을 한 기기로서
주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

VORSICHT

Diese Ausrüstung erfüllt die Europäischen EMC-Bestimmungen für die Verwendung in folgender / folgenden Umgebung(en):

- Wohngegenden
- Gewerbegebiete
- Leichtindustriengebiete

(Diese Ausrüstung erfüllt die Bestimmungen der Norm EN55022, Klasse B.)

Introduction

Product Features

	SDX-500 series *
Data Capacity	50 G Byte capacity (with AIT-2 230m tape) (approximately 100 G Byte to 150 G Byte with Data Compression)
Transfer Rate (sustained)	6 M Byte/sec (with AIT-2 format) (approximately 12 M Byte/sec to 18 M Byte/sec with Data Compression)

* Data compression function is available with SDX-500C and 510C.

- Supported Format : AIT-1, AIT-2
- Not compatible with the DDS and EXABYTE format tapes
- Burst Transfer Rate -12 M Bytes/sec Asynchronous
-40 M Byte/sec Synchronous
- Large 10 M Byte Buffer Memory
- 3.5" form factor
- Embedded SCSI Interface
(ULTRA/WIDE and LVD/SE (single-ended) model (SDX-500C) or HVD model (SDX-510C) are available)
- Supports Variable or Fixed Record Length
- Supports SCSI Disconnection/Arbitration
- Read After Write (RAW) On and Off selectable
- Read Retry On and Off selectable
- Frame Rewrite Function
- Three levels of Error Correction Code (ECC)
- High Speed search (120 times normal Read/Write speed)
- Random Read, Append Write

Precautions

Installation

Avoid placing the drive in a location subject to:

- high humidity
- high temperature
- mechanical shock and vibration
- direct sunlight

Operation

- Do not move the drive while it is operating. It may cause malfunction.
- Avoid exposing the drive to sudden changes from a low to high in temperature. This may cause water condensation to collect inside the drive. If the ambient temperature should suddenly rise while the drive is turned on, wait at least one hour before turning on the drive. If you attempt to operate the drive immediately after a sudden increase in temperature, a malfunction may occur.
- Turning off the power to the drive while it is writing to tape may cause the tape to become unreadable. All previously negotiated parameters will be lost, whenever power to the drive is cycled.

Transportation

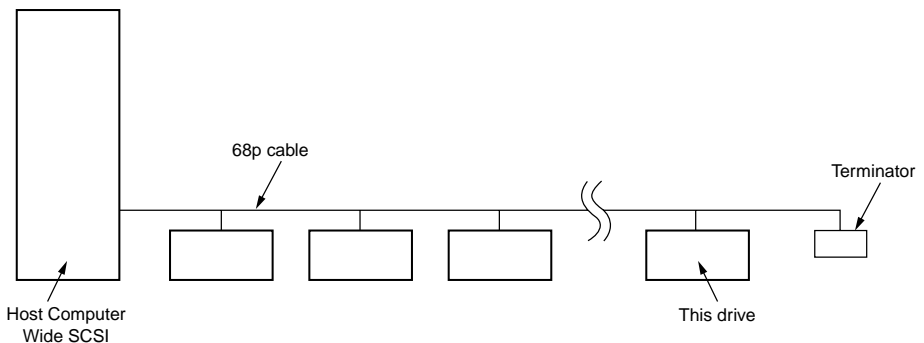
- Keep the original packing materials to facilitate transportation of the drive.
- Always remove the tape before moving the drive. After removing the drive from the computer, repack the drive into its original packing.

Notice of SCSI Termination

- The SDX-500C conforms to the Microsoft PC97 standard which requires the internal (naked) drive to be terminated with an external terminator.

Microsoft PC97 SCSI requirements

SCSI peripherals must not terminate the bus. Both internal and external cable ends are instead terminated by plug-in connectors.

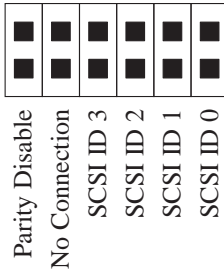
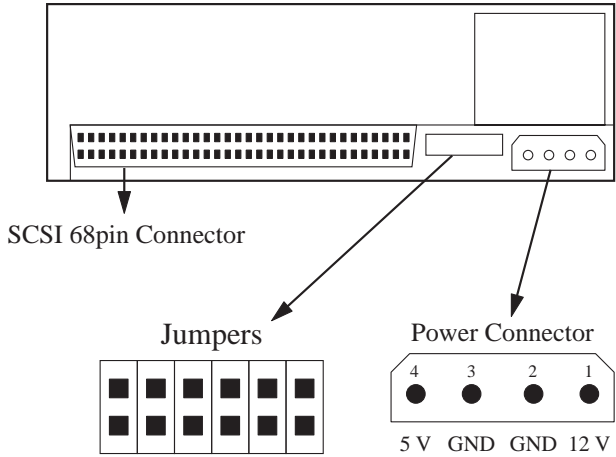


Example of SCSI set-up

Installation

SCSI Connection/Setting the SCSI ID

SCSI ID					
SCSI ID	P.O. N.C.	3	2	1	0
0		■	■	■	■
1		■	■	■	□
2		■	■	□	■
3		■	■	□	□
4		■	□	■	■
5		■	□	□	□
6		■	□	□	■
7		■	□	□	□
8		□	■	■	■
9		□	■	■	□
10		□	■	■	■
11		□	■	□	□
12		□	□	■	■
13		□	□	■	□
14		□	□	□	■
15		□	□	□	□



Parity

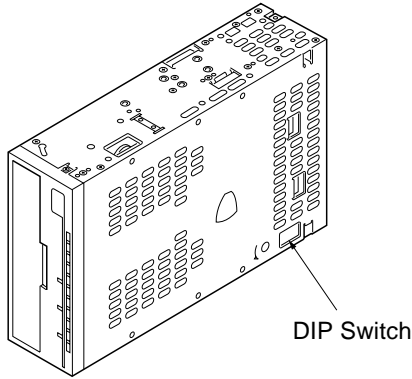
Disable	□	□	□	□	□
Enable	■	□	□	□	□

- Note :** □ = CLOSED/Jumper
 ■ = OPEN/Jumper not installed
 □ = Don't care

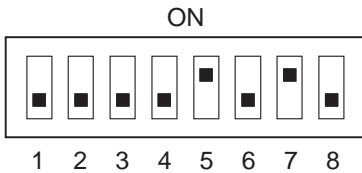
Parity Disable Jumper

Parity check function can be disabled by Jumper. Parity check is disabled while left end jumper is installed. Parity generate function is always enabled.

Option Switches (DIP Switch)



DIP Switch Positions

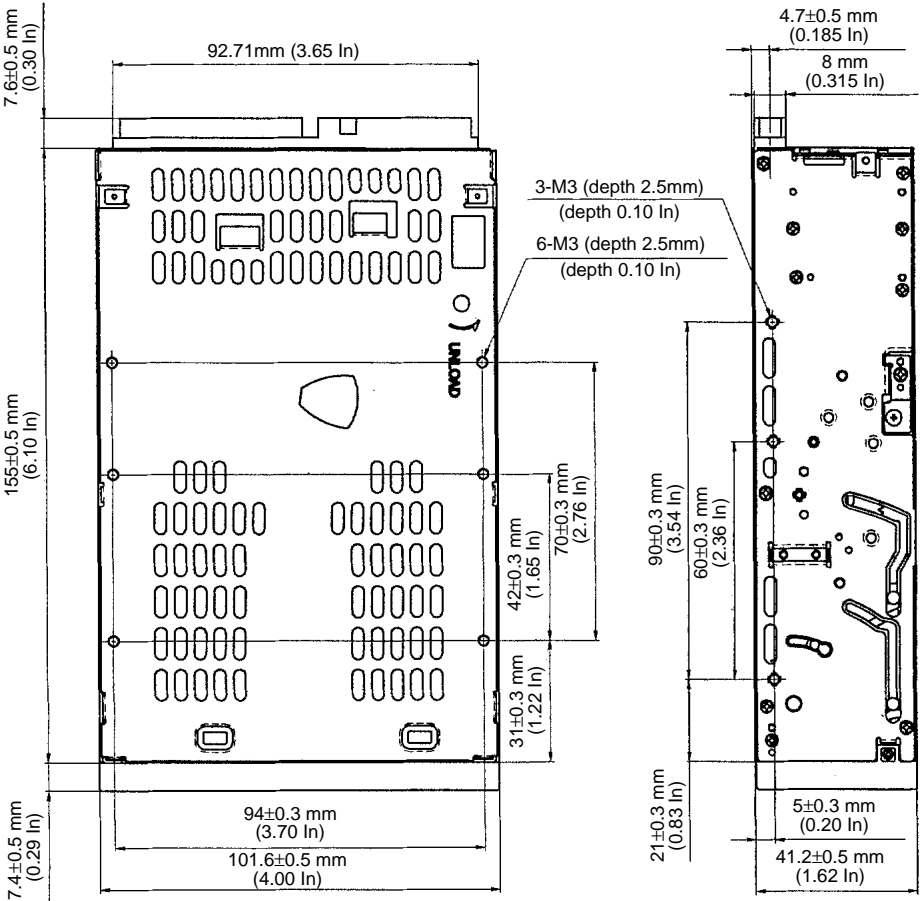


- 1 Reserved (OFF)
- 2 Reserved (OFF)
- 3 Reserved (OFF)
- 4 Reserved (OFF)
- 5 Terminator Power (ON)
- 6 Reserved (OFF)
- 7 DC Control (1) (ON)
- 8 DC Control (2) (OFF)

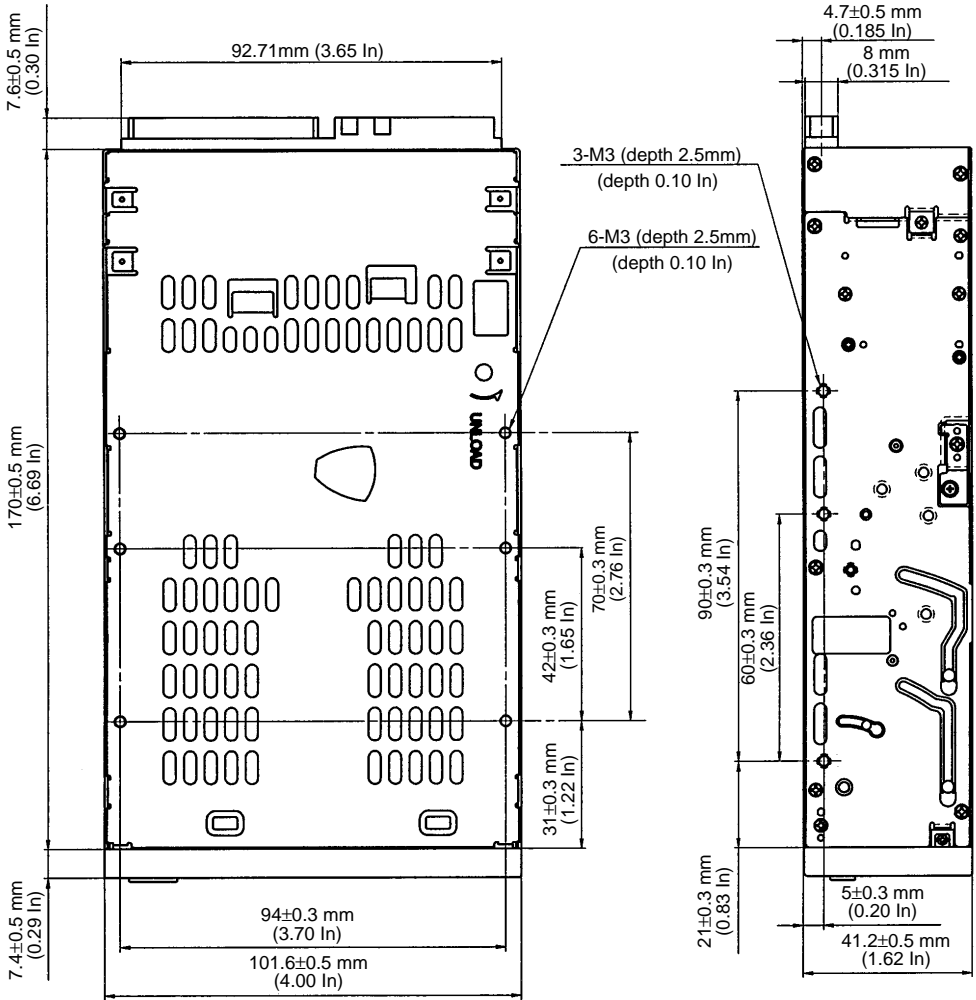
Data Compression Control DIP switch

Data compression can be selected by DIP switches. Data compression is enabled while position 7 [DC Control (1)] is ON. Control by host can be disabled when position 8 [DC Control (2)] is ON.

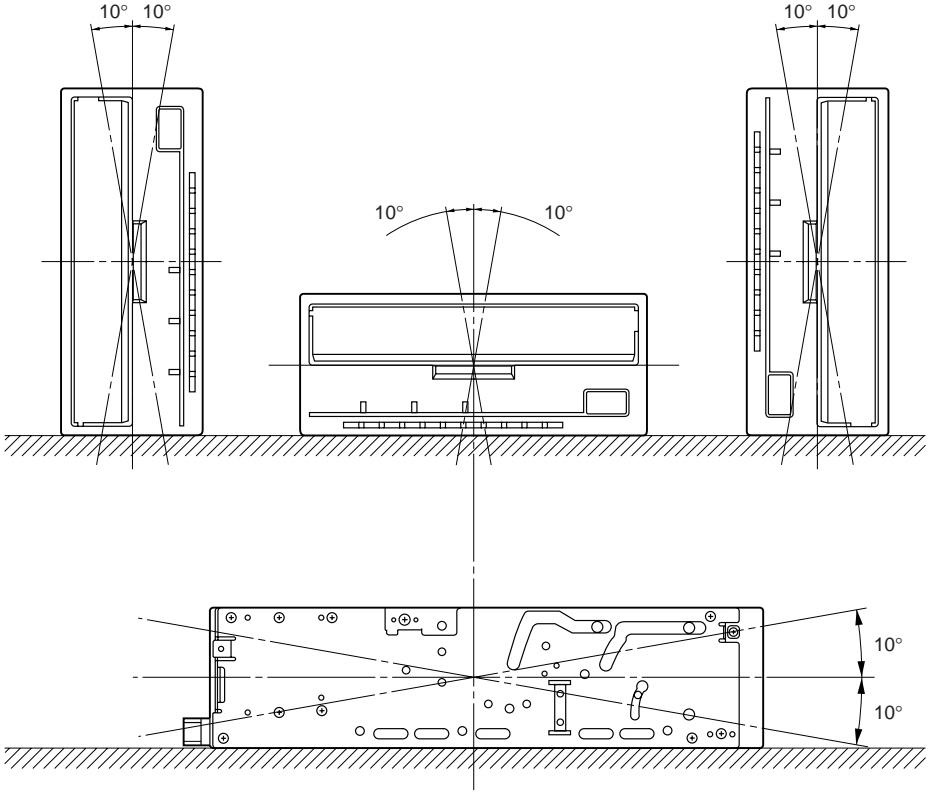
Mounting Holes for 3.5" Standard Height (SDX-500C)



Mounting Holes for 3.5" Standard Height (SDX-510C)



Orientation

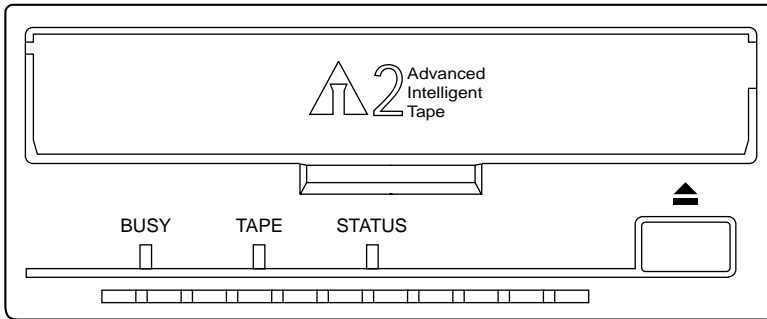


Operation

Location of 3 LEDs

There are three LED indications (BUSY,TAPE and STATUS) and an EJECT button on the front panel of the unit.

Front Panel (for 3.5" Standard Height)



LED Indication for Drive Status

The LED indicators are defined as follows

LED			STATE		
BUSY	TAPE	STATUS	Activity	Cartridge	Other
			None	None	None
			SCSI	None	None
			Drive	Loading/Unloading	None
			Drive	Loading/Unloading	Write Protected
			None	Loaded	Cleaning Tape at EOM
			None	Loaded	None
			SCSI	Loaded	None
			SCSI/Drive	Loaded	None
Independent			*	Loaded	Write Protected
Independent		Independent	*	Loaded	Error Rate Warning
*	*		*	*	Cleaning Request
*	*		*	*	Self Test Failure
	*	*	*	*	Waiting for Reset
*		*	*	*	Waiting for Eject

off on

1 pulse (0.25 sec on/0.25 sec off)

1 pulse (0.25 sec on)

1 pulse (3.5 sec on/0.5 sec off)

2 pulses (0.25 sec on/0.5 sec off)

* : Not defined

Drive Operation

Loading a Tape

Insert a cassette into the slot on the front panel with the arrow on the cassette pointing towards the drive. As the cassette is inserted, the drive takes it and automatically loads it into drive mechanism.

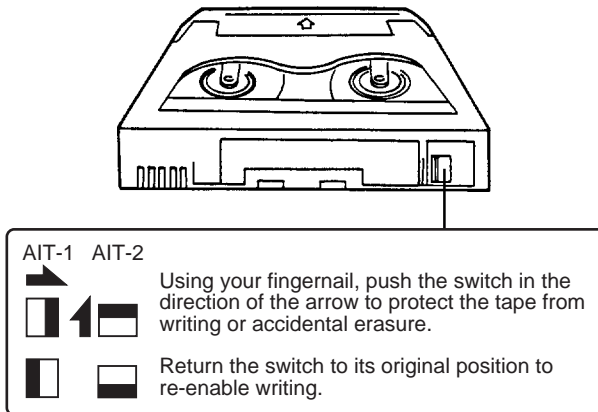
Unloading a Tape

The cassette can be removed from the SDX-500 either in response to a SCSI Unload Command, or by pressing the eject bottom.

By pressing Eject button, the tape goes to BOP, the drive unthreads it, and ejects the cassette from the slot.

Write-protecting a Tape

Cassettes can be write-protected by sliding the tab on the back of the cassette. In this state, data can be read from the tape but not written onto it.

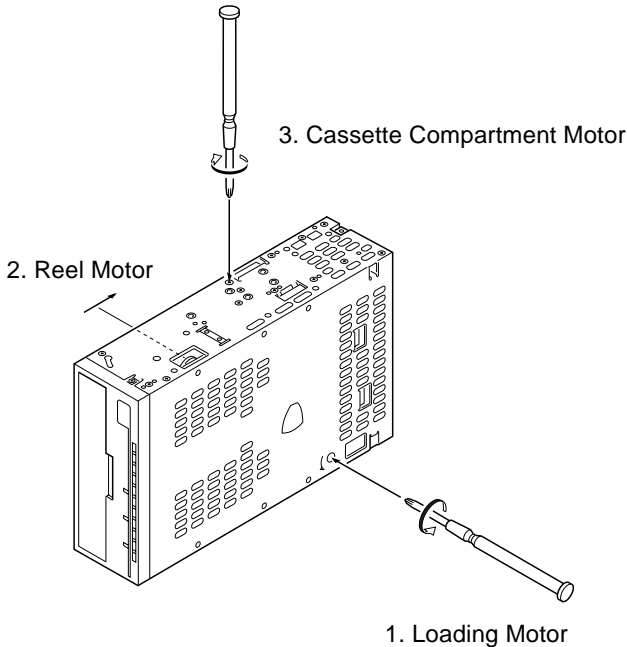


Using a Cleaning Cassette

In case of SDX-500 series, a cleaning function is built in the drive and hence, a periodic cleaning using cleaning cassette such as other format requires is not necessary. However, when the drive does not recover at the worst case, cleaning cassette is recommended to use.

Emergency Tape Removal Procedure

1. Remove the drive from the chassis or enclosure to allow access to the bottom and right side of the drive.
2. Remove the drive's top cover.
3. Locate the small opening in the bottom of the drive and insert the tip of a precision screwdriver so that the Threading motor shaft can be rotated.
4. Rotate the motor shaft counterclockwise to bring the threading mechanism back to the initial position. (Refer to the photo-1 on the next page)
5. Before manual eject procedure, tape slack must be removed in order to prevent tape damage. Press and rotate the gear mechanism located on the right side of the drive clockwise to tighten the tape.
6. After the tape slack has been removed, turn the screw located on the right side of the drive clockwise by a precision screwdriver until the tape cartridge is lifted out of the drive mechanism and is ejected.
7. Return the drive to Sony for repair.



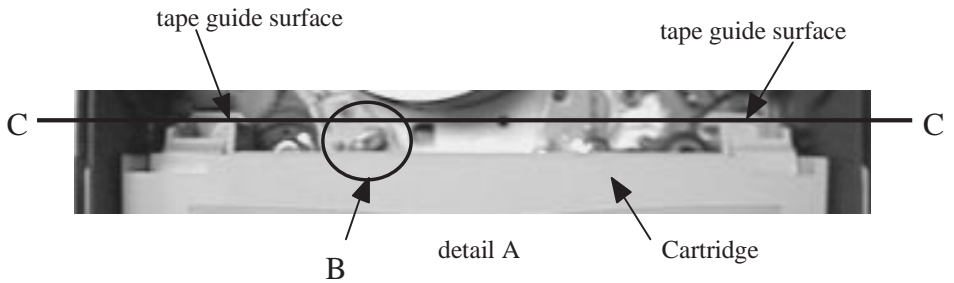
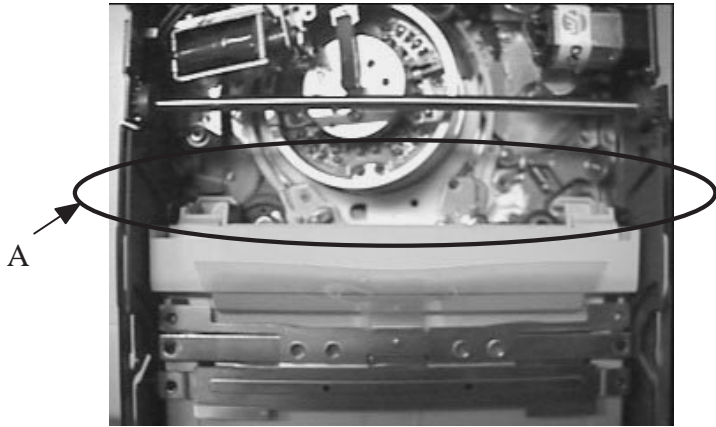


Photo-1: The Initial Position of the Threading Mechanism

Caution:

Stop rotating the motor shaft immediately, when the guide B (see detail A of Photo-1) gets to the area below the line C-C (This line is defined by 2 circular tape guide surfaces of the cartridge). Otherwise the gear of the drive can be damaged.

Interface Implementation

Supported SCSI Messages

Abort	Message Parity Error
Bus Device Reset	Message Reject
Command Complete	No Operation
Disconnect	Restore Pointers
Extended Message	Save Data Pointer
- Synchronous Data Transfer Request	
- Wide Data Transfer Request	
Identify (w/&w/o Disconnect)	
Ignore Wide Residue	

Supported SCSI Commands

Erase	Report Density Support
Inquiry	Report Luns
Load/Unload	Request Block Address
Locate	Request Sense
Log Sense	Reserve Unit
Log Select	Rewind
Mode Select	Seek Block
Mode Sense	Send Diagnostic
Prevent Allow Medium Removal	Space
Read	Test Unit Ready
Read Block Limits	Verify
Read Buffer	Write
Read Position	Write Buffer
Receive Diagnostic Result	Write Filemarks
Release Unit	

Specification

Product Specifications

Dimensions

	SDX-500C	SDX-510C
Height	41.2 mm (1.62 in)	41.2 mm (1.62 in)
Width	101.6 mm (4.0 in)	101.6 mm (4.0 in)
Depth	155.0 mm (6.1 in)	170.0 mm (6.7 in)

Acoustic Noise

(A) curve weight

Streaming Write/Read	35 db (A)
Insert/Eject	60 db (A)

Note: The sound-meter on (A) scale is located 1 m in front of the center of the drive front panel.

Altitude

Operating	0 to 10,000 feet
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Shock

Operating	No Data Loss Half Sine Performance 5 G Peak 3 ms 3 axes, 3 directions *Interval 10 seconds
Non-Operating	No Device Damage Half Sine 90 G Peak 3 ms (30 G Peak 11 ms) 3 axes, 3 directions *Interval 10 seconds

Vibration

Operating	Swept Sine 5 to 500 Hz *0.25 G Peak 1 Octave/min
Non-Operating	Swept Sine 5 to 500 Hz *0.5 G Peak 1 Octave/min. 3 axes, 3 directions

Temperature and Humidity Range

Temperature

Operating	5°C to 40°C (T < 10°C/h)
Non-Operating (mech.)	- 40°C to 70°C (T < 20°C/h)
Non-Operating (tape)	- 40°C to 45°C (T < 20°C/h)

Humidity

Operating	20 to 80% RH, non-condensing Maximum wet bulb temperature = 26°C
Non-Operating (mech.)	5 to 95% RH (T < 30%/h)
Non-Operating (tape)	20 to 80% RH (T < 30°C/h)

Power Requirements

Model	Voltage	Max Ripple	Current	
			Typical	Maximum
SDX-500C	5V +/- 5%	100 mVp-p	1.5 A	2.5 A
	12 V +/- 10%	150 mVp-p	0.4 A	1.2 A
SDX-510C	5V +/- 5%	100 mVp-p	1.6 A	2.5 A
	12 V +/- 10%	150 mVp-p	0.4 A	1.2 A

Suspended Particulate

Operating	Less than 150 microgram/m ³ Based Sampling period 24 hours
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EMC

Radiated/Conducted	EN55022/94+EN55022 A1/95 class B
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ESD

Discharge Voltage	< 15 kV: No operation failure < 20 kV: No drive damage
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Air-cooling Requirement

Surrounding temperature	< 40 °C
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Clean air flow is recommended to minimize the possibility of data loss.

Sony Contacts

For further information, please contact:

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