

AIT Drive

User's Guide

AIT-2 TAPE DRIVE
SDX-520V Series

AIT-1 TAPE DRIVE
SDX-420V Series

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Your AIT TAPE DRIVE is assigned a Model No. ATDNA2A for regulatory compliance certifications.

The number is indicated on the model number label on your drive along with the rated voltage and current.

VORSICHT

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

- Wohngegenden
- Gewerbegebiete
- Leichtindustrialgebiete

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

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기기의 명칭 (모델명) : ATDNA2A
인증받은자의 상호 : SONY KOREA Corp.
제조년월일 : 별도표시
제조사/제조국가 : SONY CORP./일본,중국

IMPORTANT SAFEGUARDS

For your protection, please read these safety instructions completely before operating the appliance, and keep this manual for future reference.

Carefully observe all warnings, precautions and instructions on the appliance, or the one described in the operating instructions and adhere to them.

USE

Power Sources – This unit should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of electrical power, consult your dealer or local power company.

For the unit with a three-wire grounding type ac plug:

If you are unable to insert the plug into the outlet, contact your electrician to have a suitable plug installed. Do not defeat the safety purpose of the grounding plug.

AC Power cord: (for AC mains operating unit only)

The AC power cord should have appropriate safety approvals or marking for the country in which the equipment will be used. Consult your dealer or local power company.

Cleaning – Unplug the unit from the wall outlet before cleaning or polishing it. Do not use liquid cleaners or aerosol cleaners.

Use a cloth lightly dampened with water for cleaning the exterior of the unit.

Object and Liquid Entry – Never push objects of any kind into the unit through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the unit.

INSTALLATION

Water and Moisture – Do not use power-line operated units near water - for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.

Power-Cord Protection – Route the power cord so that it is not likely to be walked on or pinched by items placed upon or against them, paying particular attention to the plugs, receptacles, and the point where the cord exits from the appliance.

Accessories – Do not place the unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury to a child or an adult, and serious damage to the unit. Use only a cart stand tripod, bracket, or table recommended by the manufacturer.

Ventilation – The slots and openings in the cabinet are provided for necessary ventilation. To ensure reliable operation of the unit, and to protect it from overheating, these slots and openings must never be blocked or covered.

- Never cover the slots and openings with a cloth or other materials.
- Never block the slots and openings by placing the unit on a bed, sofa, rug or other similar surface.
- Never place the unit in a confined space, such as a bookcase, or built-in cabinet, unless proper ventilation is provided.

SERVICE

Damage Requiring Service – Unplug the unit from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power cord or plug is damaged or frayed.
- If liquid has been spilled or objects have fallen into the unit.
- If the unit has been exposed to rain or water.
- If the unit has been subject to excessive shock by being dropped, or the cabinet has been damaged.
- If the unit does not operate normally when following the operating instructions. Adjust only those controls that are specified in the operating instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to normal operation.
- When the unit exhibits a distinct change in performance - this indicates a need for service.

Servicing – Do not attempt to service the unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer to all servicing to qualified service personnel.

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SDX-520V/SDX-420V Tape Drive

The Sony SDX-520V/SDX-420V drive is a high capacity data storage device using Advanced Intelligent tape (AIT) technology. The SDX-520V/SDX-420V drive achieves high data reliability through Read-After-Write, an additional level of Error Correction Code, and other features.

The Sony SDX-520V/SDX-420V drive stores data on tape using a standard format called AIT (Advanced Intelligent Tape) and ALDC formats.

Introduction

Product Features

	SDX-520V	SDX-420V
Data Capacity	50 GB uncompressed (with AIT-2 230 m tape) 130 GB compressed* (with AIT-2 230 m tape)	35 GB uncompressed (with AIT-1 230 m tape) 91 GB compressed* (with AIT-1 230 m tape)
Transfer Rate (sustained)	6 MB/s uncompressed	4 MB/s uncompressed

* Assuming a 2.6 : 1 compression ratio.

(The compression ratio varies according to the type of data.)

- Supported Format : AIT-1, AIT-2 (SDX-520V)
: AIT-1 (SDX-420V)
- Burst Transfer Rate 100 MB/s Ultra DMA (mode 5)
- Large 12 MB Buffer Memory
- 3.5" Standard Height, 5.25" Half Height
- ATA/ATAPI-6 Interface
- 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

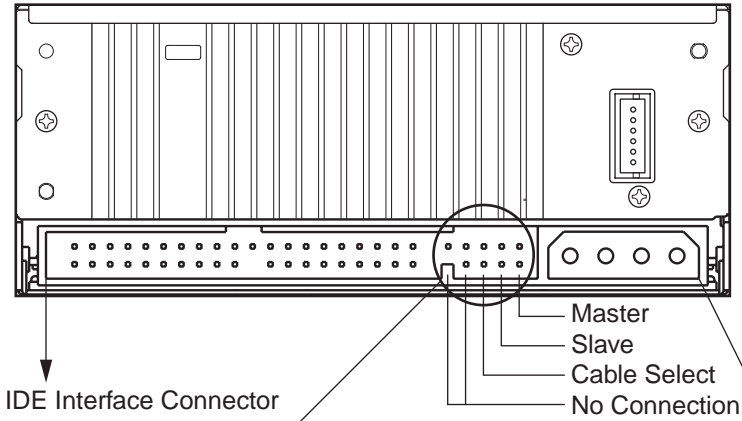
- Do not move the drive while it is operating. It may cause malfunction.
- Avoid exposing the drive to sudden changes from a low to high in temperature. This may cause water condensation to collect inside the drive. If the ambient temperature should suddenly rise while the drive is turned on, wait at 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

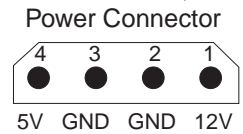
- Keep the original packing materials to facilitate transportation of the drive.
- Always remove the tape before moving the drive. After removing the drive from the computer, repack the drive into its original packing.

Installation

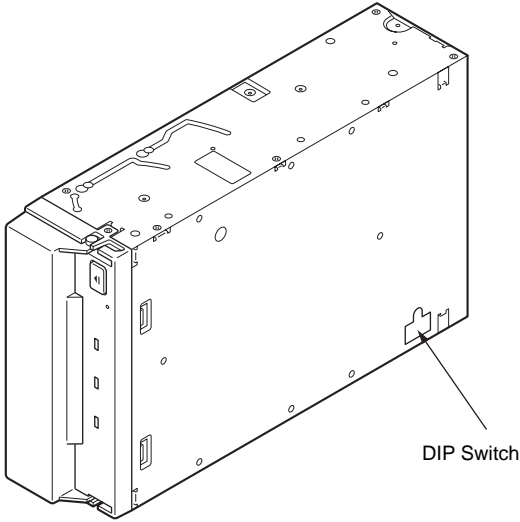
Jumper Setting



Jumpers	Drive Setting
	Master
	Slave
	Cable Select

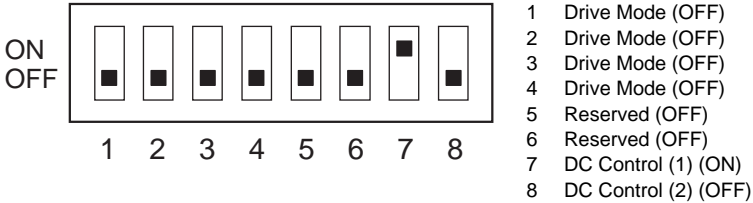


Option Switches (DIP Switch)

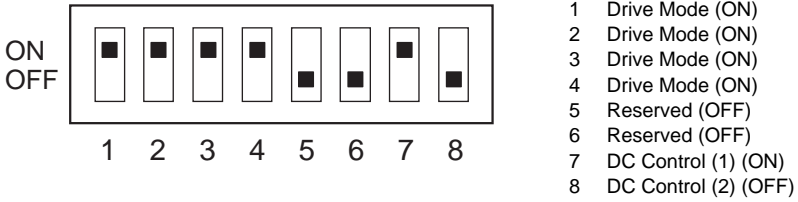


DIP Switch Positions

Default



Emulation Mode*



* Emulation Mode returns the following in the Product Identification field of Inquiry of the SDX-520V.

SDX-520C

* Emulation Mode returns the following in the Product Identification field of Inquiry of the SDX-420V.

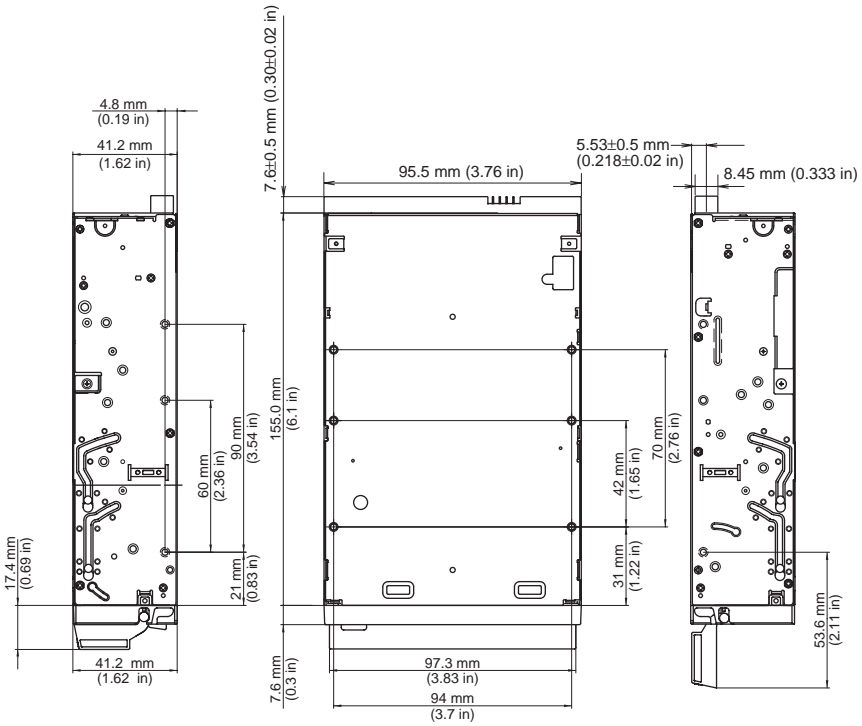
SDX-420C

Data Compression Control DIP switch

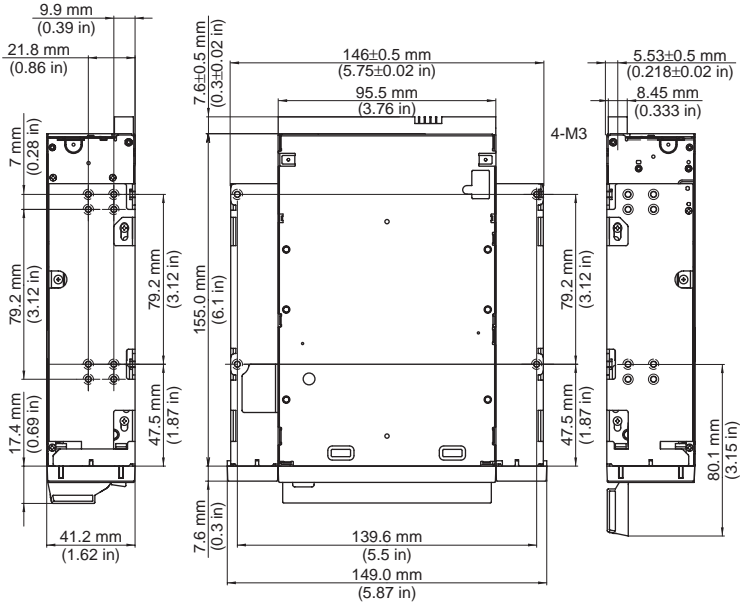
Data compression can be selected by DIP switches. Data compression is enabled while position 7 [DC Control (1)] is ON. Control by host can be disabled when position 8 [DC Control (2)] is ON.

Mounting Holes

For 3.5" Standard Height



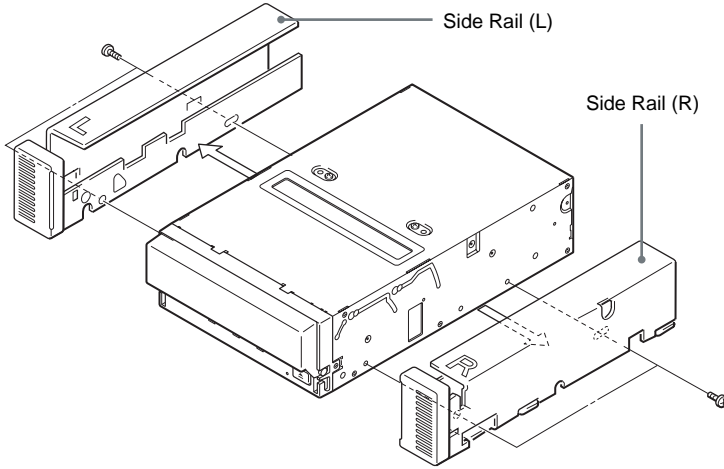
For 5.25" Half Height



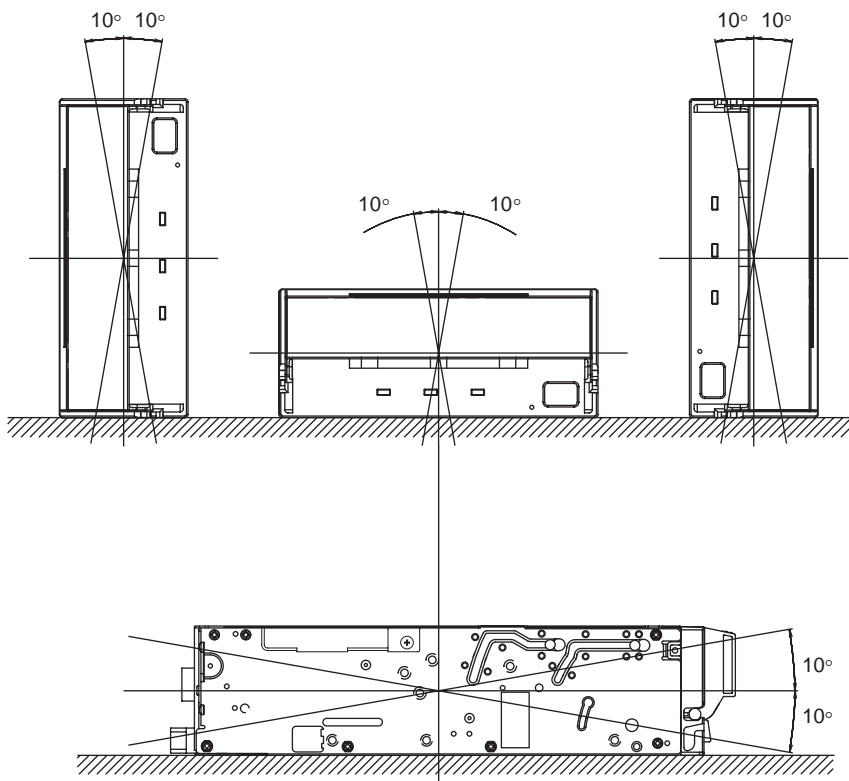
Reconfiguring from 5.25" Model to 3.5" Model

You can reconfigure the 5.25" model to the 3.5" model yourself.

- 1** Remove the 2 screws for each side rail.
- 2** Take the side rail off.



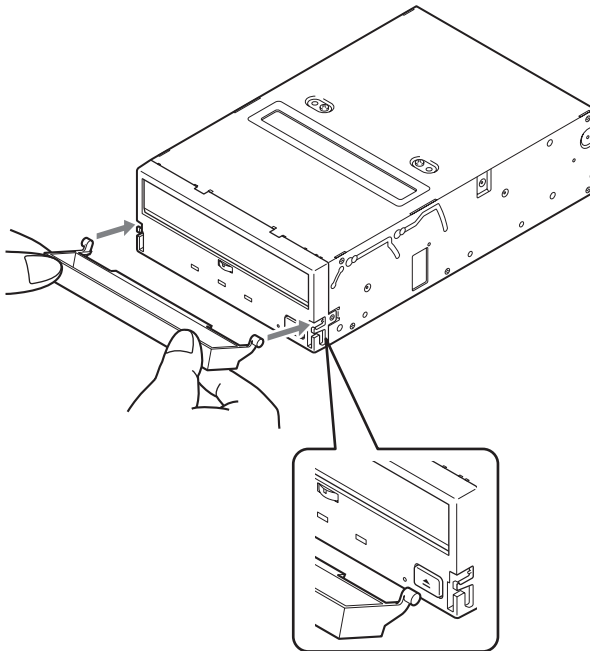
Orientation



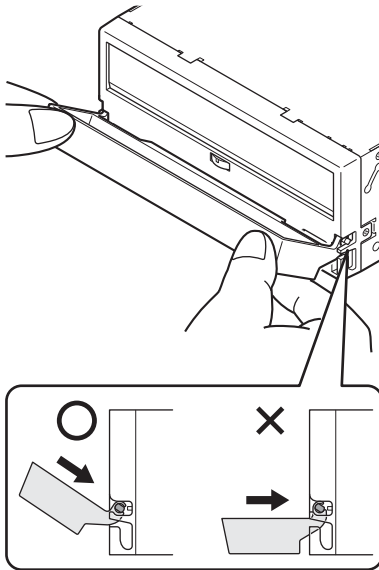
Attaching and Removing the Dust Cover

Attaching the Dust Cover

- 1 Align the dust cover's hinge clips (one on each side) with the pins of the drive bezel.
 - The dust cover should be positioned so that the magnets* on the cover's back face the drive bezel.
 - * This magnet does not affect the tape of the cartridge.
 - Holding the dust cover at an angle as shown in the figure below, set the hinge clips on top of the bezel pins, positioning them so that they bracket the pins.



- 2** Press down at an angle on each side in turn until you hear the hinge clips click into place.



Caution

Do not press the dust cover in horizontally from the front. Doing so could cause the dust cover to break.

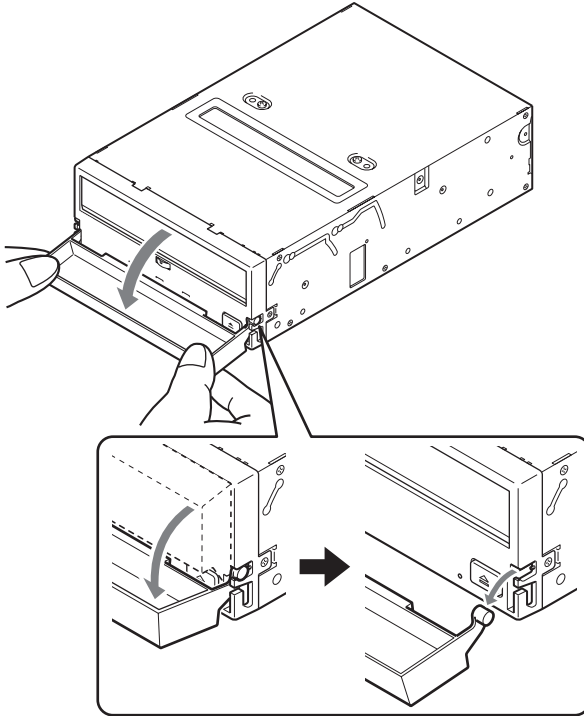
- 3** Close the dust cover.

This completes attachment of the dust cover.

Removing the Dust Cover

- 1 Open the dust cover.
- 2 Holding the dust cover at both corners, carefully raise the dust cover.

The dust cover hinge clips and drive bezel pins uncouple.



Note

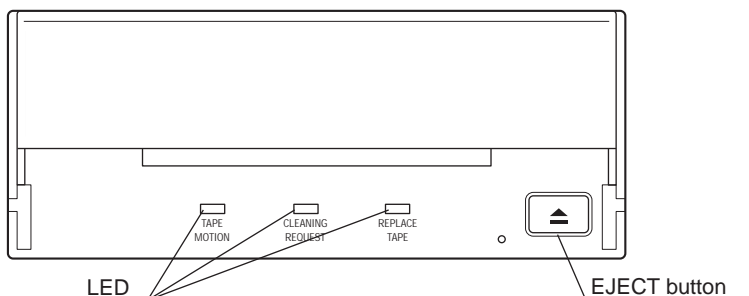
We recommend that you use the drive with the dust cover.

Operation

Location of 3 LEDs

There are three LED indications (TAPE MOTION LED, CLEANING REQUEST LED, REPLACE TAPE LED) 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			Sense
TAPE MOTION	CLEANING REQUEST	REPLACE TAPE	
■	Independent	Independent	Tape Loaded
■□■	Independent	Independent	Tape Access in Progress (write/read)
□■□	Independent	Independent	Tape Access in Progress (others)
Independent	■	Independent	Cleaning is requested
Independent	■□■	Independent	Cleaning is Not Completed
Independent	Independent	■	Media Error Occurred
□■□	□■□	■□■	H/W Error Occurred

■ on

■□■  Slow

1 pulse (0.9 sec on/0.3 sec off)

□■□  Fast

1 pulse (0.3 sec on/0.3 sec off)

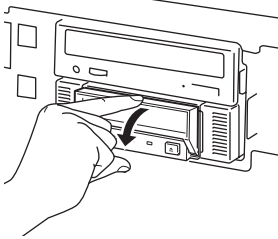
Drive Operation

Loading a Cartridge

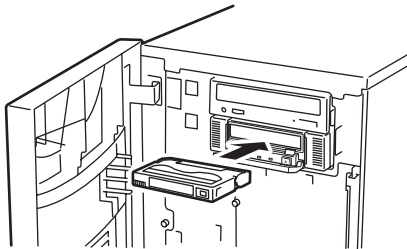
Note

While setting the data cartridge, do not turn off the host computer. This may cause a malfunction or damage data.

- 1** Turn on the host computer. Check that the drive's TAPE MOTION LED, CLEANING REQUEST LED and REPLACE TAPE LED go off.
- 2** Open the dust cover.



- 3** Set the AIT data cartridge orientation as shown here and insert it into the data cartridge slot.



By inserting the data cartridge to the extent, it is automatically set in the drive and the TAPE MOTION LED lights.

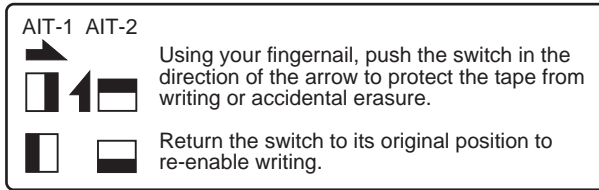
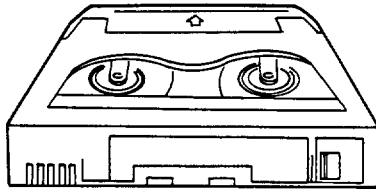
Unloading a Cartridge

The cartridge can be removed from the SDX-520V and SDX-420V either in response to a ATAPI Unload Command, or by pressing the EJECT bottom.

By pressing EJECT button, the tape is rewound and the cartridge ejected from the slot.

Write-protecting a Cartridge

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



Using a Cleaning Cartridge

A cleaning function is built into the SDX-520V and SDX-420V so the use of a cleaning cartridge is not needed. If however the drive experiences excessive errors, the use of a Sony cleaning cartridge is recommended.

Interface Implementation

Supported ATA Commands

- ATAPI SOFT RESET (0x08)
- EXECUTE DRIVE DIAGNOSTIC (0x90)
- ATAPI PACKET COMMAND (0xA0)
- ATAPI IDENTIFY DEVICE (0xA1)
- STANDBY IMMEDIATE (0xE0)
- IDLE IMMEDIATE (0xE1)
- CHECK POWER MODE (0xE5)
- SLEEP (0xE6)
- SET FEATURE (0xEF)

Supported ATAPI Packet Commands

Mandatory ATAPI command set:

Supporting most of all SCSI commands in SDX-520V/SDX-420V.

- ERASE
- INQUIRY
- LOAD/UNLOAD
- LOCATE
- LOG SELECT
- LOG SENSE
- MODE SELECT
- MODE SENSE
- READ
- READ POSITION
- REQUEST SENSE
- REWIND
- SPACE
- TEST UNIT READY
- WRITE
- WRITE BUFFER
- WRITE FILEMARK

Specification

Product Specifications

Dimensions

	3.5"	5.25"
Height	41.2 mm (1.62 in)	41.2 mm (1.62 in)
Width	101.6 mm (4.0 in)	146.0 mm (5.75 in)
Depth	155.0 mm (6.1 in)	155.0 mm (6.1 in)

Mass

3.5"	740 g (26.1 oz.)
5.25"	970 g (34.2 oz.)

Temperature and Humidity Range

Temperature

Operating	5 °C to 40 °C ($\Delta T < 10$ °C/h) (41 °F to 104 °F ($\Delta T < 18$ °F/h))
Non-Operating (mech.)	- 40 °C to 70 °C ($\Delta T < 20$ °C/h) (- 40 °F to 158 °F ($\Delta T < 36$ °F/h))
Non-Operating (tape)	- 40 °C to 45 °C ($\Delta T < 20$ °C/h) (- 40 °F to 113 °F ($\Delta T < 36$ °F/h))

Humidity

Operating	20 to 80% RH, non-condensing Maximum wet bulb temperature : 26 °C (78.8 °F/h)
Non-Operating (mech.)	5 to 95% RH ($\Delta RH < 30\%/h$) Maximum wet bulb temperature : 45 °C (113 °F/h)
Non-Operating (tape)	20 to 80% RH ($\Delta RH < 30\%/h$)

Power Requirements

SDX-520V

Voltage	Max Ripple	Current	
		Typical	Maximum
5 V +/- 5 %	100 mVp-p	0.9 A	1.2 A
12 V +/- 10 %	150 mVp-p	0.3 A	1.2 A

SDX-420V

Voltage	Max Ripple	Current	
		Typical	Maximum
5 V +/- 5 %	100 mVp-p	0.9 A	1.2 A
12 V +/- 10 %	150 mVp-p	0.3 A	1.2 A

Air-cooling Requirement

Surrounding temperature	< 40 °C (104 °F)
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Clean air flow is recommended to minimize the possibility of data loss.

Sony Contacts

For further information, please contact:

Sony Electronics Inc., Tape Storage Solutions (USA)

URL: <http://www.storagebysony.com>

Sony Corporation

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Computer Peripherals Dept. Tape Streamer Section

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