SONY

SDT-S9000/BM

DDS Drive Unit

User's Guide

SDT-S9000/BM

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User's Guide

Safety Regulations

Owner's Record

The model and serial numbers are located on the bottom. Record the serial number in the space provided below.
Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. _____   Serial No. _____

Information

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

For the customers in the U.S.A.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

WARNING
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTICE

THIS NOTICE IS APPLICABLE FOR USA AND CANADA ONLY.

If shipped to USA, use the UL LISTED power cord specified below for 220-240 V operation.
If shipped to CANADA, use the CSA CERTIFIED power cord specified below for 220-240 V operation.
DO NOT USE ANY OTHER POWER CORD

Plug Cap	Tandem blade with ground pin.
	(NEMA 6-15P Configuration)
Cord	Type SVT or SJT, three 16 or 18 AWG wires.
Length	Maximum 14.7 feet (4.5m)
Rating	Minimum 10A, 250 V

NOTICE

This notice is applicable for countries other than USA and Canada.

In the countries other than USA and Canada, use the power cord set approved by the appropriate testing organization for the specific countries where this unit is to be used.

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Table of Contents

How to Use this Guide

This Guide describes the DDS Drive Unit SDT-S9000/BM , and how to take care of it. Please read it carefully before using the unit, and keep it handy for future reference.
The Guide consists of four parts, plus the specifications. Refer to the parts that relate to your use of the drive.

Part 1 describes the features of the drive, its system components, and the name and function of each part.

Part 2 describes the necessary connections between the drive and the host computer. If other SCSI devices are being used, you may need to change the SCSI ID setting. Read this part if you are installing the drive.

Part 3 describes how to use the drive, including how to turn it on, and how to insert and remove cartridges. Read this part if you are going to operate the drive.

Part 4 describes how to take care of the drive and cartridges, and how to clean the drive heads. Read this part before using the drive.

The Specifications appendix provides the major specifications of the SDT-S9000/BM.

Part 1. Introduction

About DDS Drives

The SDT-S9000/BM is an external DDS drive unit that uses data cartridges conforming to the DDS-3 format and DDS-2 format. The SDT-S9000/BM supports DDS-1, DDS-2 and DDS-3 formats.

Features

The DDS Drive Unit SDT-S9000/BM has the following features:
- The Digital Data Storage format provides a huge data storage capacity on DDS-1/DDS-2/DDS-3 data cartridges.
- Read After Write Function and third-level error correction code guarantee high data reliability.
- Data Compression provides 24 gigabytes of storage on a 125 m tape-length cartridge.[1]
  The native capacity is 12 gigabytes of storage on a 125 m tape-length cartridge.
- Stored data are automatically checked for compression.
- The SCSI-2 (ANSI SCSI-2 X3T9.2/86-109 REV.10C) interface is fully supported for host computer access.
- Read/Write operation is available with both DDS-1, DDS-2 and DDS-3 format.
- Automatic Super Head Cleaner

[1] This is assuming 2 : 1 compression ratio.
The degree of data compression attained while recording data varies according to system environment and data type.

Useable Cartridges

Data cartridges used with the SDT-S9000/BM must be marked with the DDS-1, DDS-2 or DDS-3 logo.
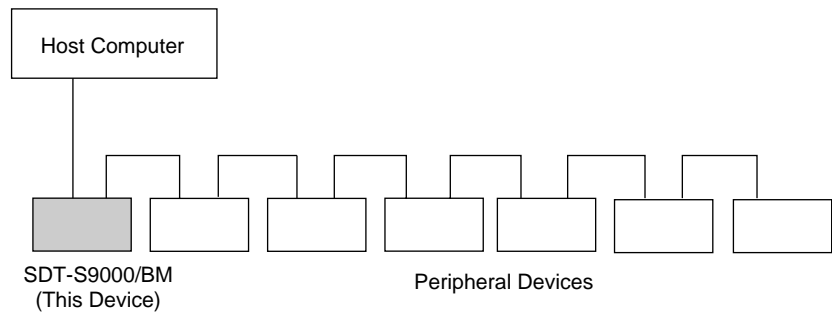

DDS-3 Logo   DDS-2 Logo   DDS-1 logo

CAUTION:
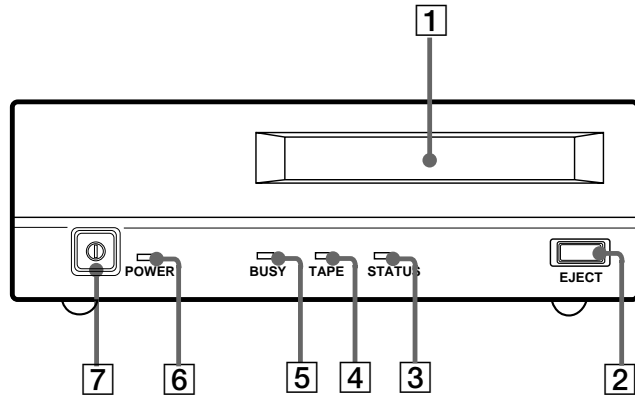Be sure to use only the cartridges designed specifically for DDS (do not use DAT cartridges for music).

System Components

The SDT-S9000/BM connects to the host computer via a SCSI-2 interface.

SDT-S9000/BM
(This Device)   Peripheral Devices

Part Names and Functions

Front panel

1 **DDS Data Cartridge Receptacle**
See page 15 for information on inserting and removing a DDS data cartridge.

2 **EJECT Button**
Push to remove a data cartridge from the drive.

3 **STATUS Indicator**
Lights when an inserted cartridge is write-protected. This indicator also lights under the following conditions:

Drive needs cleaning:	repeating long-on, short-off blinking.
End of Tape during cleaning:	repeating blinking (same on-off interval).
Drive Malfunctioning:	repeating short-on (once or twice), long-off blinking.

4 **TAPE Indicator**
When a DDS cartridge is installed, this indicator lights. This also lights under the following conditions:

Inserting and removing a cartridge:	repeated blinking (same on-off interval).
Cartridge deteriorated:	alternating long-short blinking.

5 **BUSY Indicator**

Lights when data is being transferred through the SCSI interface. This indicator also lights under the following conditions:

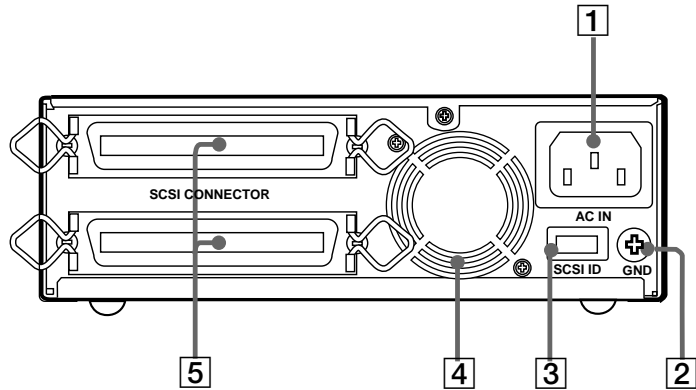| Drive is reading or writing normally:	repeated blinking (same on-off interval).

6 **POWER Indicator**

Lights while the drive is on.

7 **POWER Switch**

Press to turn the drive on or off.

Rear Panel

1. **AC IN Connector**
   Connect the supplied power cable here.

2. **GND (Ground) Terminal**
   Connect the ground terminals of other devices to the unit's frame ground.

3. **Rotary Selector Switch**
   SCSI ID selector.

4. **Cooling Fan**

5. **SCSI Connector**
   Connects to the SCSI bus connector of the host computer or another
   SCSI peripheral.

Part 2. Preparation

After you confirm that you have all of the required accessories for your installation, connect the drive to the host computer, and select the SCSI ID with the rotary switch on the rear panel.

Supplied Items

When you first open the box, make sure it contains the following items. Contact your supplier if anything is missing or broken.
• DDS Drive Unit
• Power Cable (External only)

Interconnections

The SCSI bus allows connection of up to seven peripherals to the host computer. Use a SCSI cable with a full-pitch connector.

Precautions
- Switch off the host computer and peripherals before connecting the SCSI cable.
- Make sure the SCSI connectors are pressed tightly together.
- If this unit is the last (or only) device on the SCSI bus, make sure to connect a SCSI bus terminator to the open connector.
- The total length of the SCSI cable(s) between the host computer and the last device should be less than 6 meters.[*1]

AC power
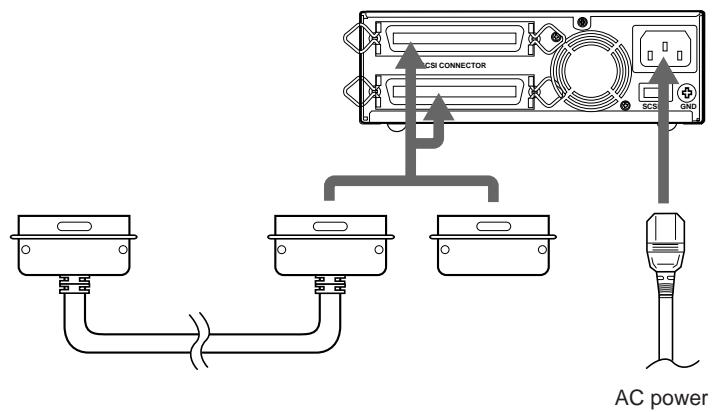
[*1] When using high-speed data transfer with the SDT-S9000/BM, it is recommended that total length of the SCSI cable not exceed 3m.

SCSI ID Setting

The SCSI ID is set by the rotary switch on the rear panel. Press the + or - buttons to move the number up or down, respectively.
As shipped from the factory, the SCSI ID is set to 0. Press the switch buttons, if necessary, to select the SCSI ID number you require.

Precautions
- The SCSI ID must be different from IDs of the other peripherals on the SCSI bus.
- As shipped from the factory, SCSI parity is enabled and Term power is ON. Since the terminating resistor inside the drive is disabled, a SCSI bus terminator must be connected to the SCSI bus before use.
- Before changing the SCSI ID setting, be sure to turn off the power with the POWER switch on the front panel.
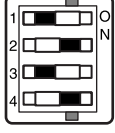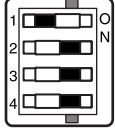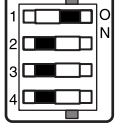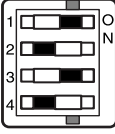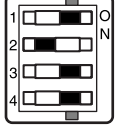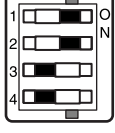
Configuration Switches Setting [1]
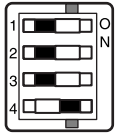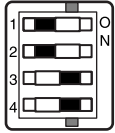
Sony SDT-S9000/BM has a set of configuration switches located on its bottom side. These drives can be made ready to run in major workstations by setting the configuration switches as shown in the following table.
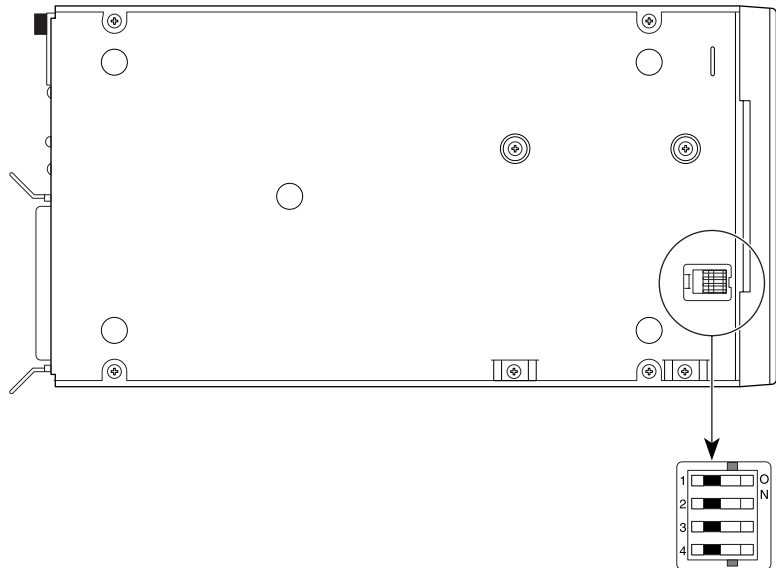
[1] with the SDT-S9000/BM

SDT-S9000/BM Configuration Switch Settings for Unix *

System		Configuration
Host	**Unix**	**SW Setting**
PC-based WS	SCO Unix Xenix	
Digital WS		
Sun WS	Solaris 2.X	
Sun WS	Sun OS 4.1.X	
IBM RS/6000 WS	AIX	
IBM RS/6000 WS	AIX	
HP WS	HP-UX	
SGI WS	IRIX	

* To be supported by the firmware ver.1260 or higher.

Part 3. Operation

This section describes how to use the DDS drive, and how to handle data cartridges.

How to use the DDS Drive

1 Press the POWER switch on the front panel.
The POWER indicator should light, and the STATUS, BUSY and TAPE indicators should blink as the self-test is performed.

2 When the three indicators stop blinking, you can insert a data cartridge as shown below. The TAPE indicator will blink, and if the cartridge is write-protected, the STATUS indicator will light.
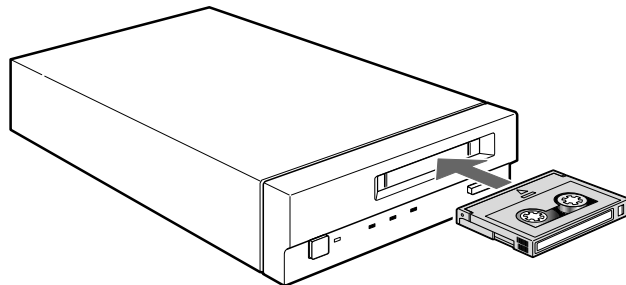
3 Computer software controls the reading and writing of tapes. While reading or writing, the BUSY indicator blinks.

Cartridge Removal

Press the EJECT button.
The cartridge ejects automatically.
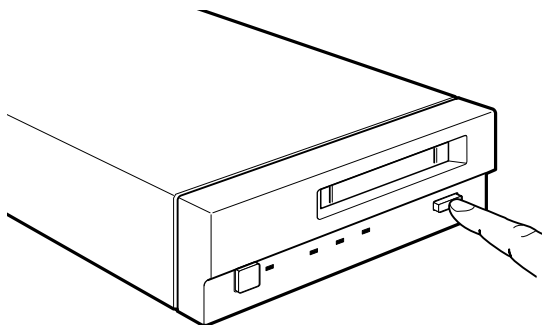
Caution
Do not push the EJECT button while the BUSY indicator is blinking: to do so may destroy data on the tape.

Part 4. Care and Maintenance

Taking Care of the Drive

Safety Considerations

■ Power

- Be sure to use only 100-240 V AC.
- Avoid plugging into the same outlet as high-current equipment like copiers or shredders.

■ Power Cable Precautions

- Do not crush the cable or place heavy items on it. If the cable insulation appears worn or broken, do not use the cable.
- Always unplug the cable by holding the plug: never pull the cable itself, as it will break.
- If the drive is not being used for a long time, unplug the cable from the outlet.

Avoiding Damage

■ Avoid shock and vibration

Intense shock, such as from dropping the drive, will damage it.

■ Environmental considerations

Do not store or use the drive in locations subject to:

- high humidity
- high temperature
- direct sunlight
- excessive dust
- intense vibration
- sudden changes in temperature

■ Proper ventilation

To avoid overheating, install the drive where it will have free air circulation around the case, and do not cover it during operation. The drive can malfunction if the internal temperature rises too high.

■ Avoid sudden changes in temperature

If the drive is moved from a cool place to a warm place, or if the room temperature suddenly rises, moisture may condense inside the case. After a sudden change in temperature, wait at least one hour before turning the drive on. If the drive is turned on with condensation inside, and a cartridge is installed, the drive or the tape can be damaged.

■ Abnormal occurrences

If the drive behaves abnormally, or if it begins to smell or smoke, immediately unplug it from the wall outlet and contact your supplier for assistance.

■ Cabinet cleaning

Wipe the cabinet with a soft dry cloth. For heavy dirt, wipe with a soft cloth moistened with a gentle liquid soap, then wipe again with a soft dry cloth. Do not use alcohol, paint thinner, bug sprays or other volatile solvents, as they can damage the finish.

Taking Care of Cartridges

Use Precautions

- Avoid heavy vibration and dropping.
- The shutter on the face of the cartridge is opened automatically when it is inserted into the drive. Do not open the shutter by hand, as touching the tape may damage it.
- The cartridge was carefully aligned during assembly at the factory. Please do not try to open it or take it apart.
- The write-protect switch on the face of the cartridge prevents the tape from being written to or accidentally erased. If you do not need to write to the tape, move this switch to the write-protect position (in the direction of the arrow).
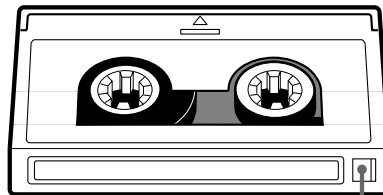
Using your fingernail, push the switch in the direction of the arrow to protect the tape from writing or accidental erasure.

Return the switch to its original position to re-enable writing.

- In case of a sudden change in temperature, condensation may interfere with reading and writing to a tape.
- Avoid unnecessary insertion and removal of cartridges if you do not need to write or read a tape.
- When finished using the drive, remove the cartridge.

Storage Precautions

- Keep cartridges in their cases when not in the drive.
- Avoid storing cartridges in dusty places, in direct sunlight, near heaters or air conditioners, or in humid locations.
- Do not place cartridges on the dashboard or in a storage tray in a car.

Head Cleaning

To keep the DDS drive in top condition, clean the head as needed, using the proper head cleaning cartridge (sold separately). When the head needs cleaning, the STATUS indicator will blink.

How to Clean

1   Insert the head cleaning cartridge (DG-5CL) into the DDS Data cartridge receptacle. Cleaning starts automatically.
2   After about 10 seconds, cleaning will stop and the cartridge (DG-5CL) will eject automatically.
     One head cleaning cartridge can be used about 30 times.

Notice:
Do not rewind the cleaning cartridge and reuse it. When you reach the end of the cartridge, dispose of it and buy a new one.

Appendix

Specifications (SDT-S9000/BM)

■ Performance

Storage Capacity	24 GB compressed (with 125 m DDS-3 tape)[1]
	12 GB un-compressed (with 125 m DDS-3 tape)
Bit Error Rate	less than 10^{-15}
Data Transfer Rate (TAPE)	1.18 MB/s uncompressed
	2.36 to 4.72 MB/s compressed
Burst Data Transfer Rate (SCSI)	5 MB/s maximum, asynchronous
	10 MB/s maximum, synchronous
Initialize Time	less than 3 seconds
Load Time	less than 24 seconds
Unload Time	less than 20 seconds
Rewind Time	less than 80 seconds (with 125 m tape)

■ Operating Environment

Operating	Temperature: 10 to 35 °C
	Humidity: 30 to 80% (no condensation)
	Maximum wet bulb temperature: 26 °C
Non-Operating	Temperature: -40 to +70 °C
	Humidity: 10 to 90%

■ Power Supply & Miscellaneous

Power Supply	100 to 240 V AC, 50/60 Hz
	0.5 to 0.3 A
Case Dimensions	$160 \times 52.4 \times 300$ mm (W $\times$ H $\times$ D) (excluding protruding parts)
Weight	2.2 kg
Accessories	Power Cable (1)
	User's Guide (1)

Specifications may be subject to change, in the interest of technological improvement, without notice or obligation.

[1] This is assuming 2 : 1 compression ratio.
The degree of data compression attained while recording data varies according to system environment and data type.

Third Party Support Contact (In the USA)

Host Adapter Vendors	Phone Numbers
Adaptec	408-945-8600
ATTO	716-691-1999
Bus Logic	408-492-9090
DPT	407-830-5522
Future Domain	714-253-0400
Initio	408-988-1919
Qlogic	714-438-2200
Ultera Systems Inc.	714-367-8800

Operating Systems	Backup Software Vendors	Phone Numbers
DOS	Arcada	407-333-7500
	Cheyenne	516-484-5110
	Columbia Data Products	407-869-6700
	Corel	613-728-8200
	NovaStor	805-579-6700
	Palindrome	708-505-3300
	ST. Bernard Sofware	619-676-2277
	Sytron	508-898-0100
	Tapedisk	715-235-3388
Macintosh	Cheyenne	516-484-5110
	Corel	613-728-8200
	Dantz	510-253-3000
	NovaStor	805-579-6700
OS/2	Cheyenne	516-484-5110
	Corel	613-728-8200
	IBM	800-426-3333
	NovaStor	805-579-6700
	Sytron	407-333-7500
Windows	Arcada	407-333-7500
	Cheyenne	516-484-5110
	Corel	613-728-8200
	Creata	909-595-8811
	NovaStor	805-579-6700
	ST. Bernard Software	619-676-2277
	Sytron	508-898-0100
Windows NT	Arcada	407-333-7500
	Cheyenne	516-484-5110
	Creata	909-595-8811
	Microsoft	206-882-8080
	NovaStor	805-579-6700
	Avail Systems	303-444-4018
Windows NT Advanced Server	Microsoft	206-882-8080
Windows 95	NovaStor	805-579-6700
DEC Unix	Cheyenne	516-484-5110
	NovaStor	612-933-8790
	Software Moguls	612-933-8790
	Work Station Solutions	603-880-0080

* All phone numbers listed are in the USA.
  Add the country code (1) prior to those numbers when calling from outside the USA.

Operating Systems	Backup Software Vendors	Phone Numbers
SUN Unix	Legato	415-812-6000
	NovaStor	818-707-9900
	Software Moguls	612-933-8790
	Sun Soft	310-348-8649
	Work Station Solutions	603-880-0080
Solaris Unix	Cheyenne	516-484-3150
	Legato	415-812-6000
	NovaStor	818-707-9900
	Software Moguls	612-933-8790
	Sun Soft	310-348-8649
	Work Station Solutions	603-880-0080
SCO Unix	Cheyenne	516-484-3150
	Legato	415-812-6000
	Software Moguls	612-933-8790
	Work Station Solutions	603-880-0080
NCR Unix	NovaStor	818-707-9900
	Work Station Solutions	603-880-0080
HP Unix	Cheyenne	516-484-3150
	NovaStor	818-707-9900
	Work Station Solutions	603-880-0080
AIX Unix	Cheyenne	516-484-3150
	Legato	415-812-6000
	NovaStor	818-707-9900
	Software Moguls	612-933-8790
	Work Station Solutions	603-880-0080
Interactive Unix	Sun Soft	310-348-8649
SGI Unix	Software Moguls	612-933-8790
	Work Station Solutions	603-880-0080
Novell UNIXware	Novell	801-263-3500
Novell NLM	Arcada	407-263-3500
	Avail Systems	303-444-4018
	Cheyenne	516-484-3150
	Columbia Data Products	407-682-0265
	Creata	909-595-8811
	Legato	415-812-6000
	NovaStor	818-707-9900
	Novell	801-419-5544
	Palindrome	708-505-3300
	Performance Tech	210-979-2110
	ST. Bernard Software	619-676-2277
	Symantec	310-449-4156
	Sytron	508-898-0100
Banyan	Performance Tech	210-979-2110
Lantastic	NovaStor	818-707-9900
Amiga	Moonlighter	407-384-9484
RS6000	Legato	415-812-6000
	NovaStor	818-707-9900
	Software Moguls	612-933-8790

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