

# **DVD-R DRIVE UNIT**

**SW-9501-S / SW-9501-T**

## **INSTRUCTION MANUAL**

Please read through these instructions before operating this unit.

Interface : SCSI

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# IMPORTANT SAFETY NOTICE

## NOTICE

- (1) You may not reproduce or transcribe any part of this publication without permission.
- (2) We reserve the right to revise this document at any time without notice.
- (3) If you have any questions about this document, contact your sales representative.

## SAFETY NOTICE

- (1) To prevent fire or electric shock, do not expose this appliance to rain or moisture.
- (2) To avoid electric shock or damage to the eyes due to laser beam, do not attempt to disassemble the cabinet.

**For USA** (Model SW-9501-S only)

## FEDERAL COMMUNICATIONS COMMISSION (FCC) RADIO FREQUENCY INTERFERENCE STATEMENT

### Class B Computing Device

**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.

**FCC WARNING** : Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### **CAUTION** :

Use shielded connecting cables in order to meet FCC emission limits and also to prevent interference to nearby radio and television reception.

# LASER SAFETY INFORMATION

## Class 1 LASER Product

This equipment is certified to comply with DHHS Rule 21 CFR Chapter 1, Subchapter J in effect as of date of manufacture.

Elsewhere, the drive is certified to conform to the requirements of the International Electrotechnical Commission (IEC) 825 and CENELEC EN60825 for Class 1 laser products.

Class 1 laser products are not considered to be hazardous. To ensure continued product safety, the following precautions should be heeded.

### Caution :

- (1) The use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- (2) Do not open the drive unit; no user adjustments or serviceable parts are inside.



- This label is attached to the inner side of the rear wall on the Mechanism chassis in the built-in drive unit.



- This label is attached to the bottom of the drive enclosed box.
- Dieser Zettel befindet sich angeklebt am Boden des Außengehäuses von Antriebsaggregat. (For German)
- Cette étiquette est appliquée sur le fond de la boîte extérieure de l'unité d'entraînement. (For French)
- Denne etiketten är satt nederst på kassen til drive-apparatet. (For Swedish)
- Denne merkelappen er satt nederst på kassen til drive-aggregatet. (For Norwegian)
- Denne markeseddel er sat nederst på kassen til drive-aggregatet. (For Danish)
- Tämä tarra on kiinnitetty ohjainkotelon pohjaan. (For Finnish)



- This label is attached to the bottom of the built-in drive unit in the enclosed box.
- Dieser Zettel befindet sich angeklebt am Boden des eingebauten Antriebsaggregats im Außengehäuse. (For German)
- Cette étiquette est appliquée sur le fond de l'unité d'entraînement incorporée dans la boîte extérieure. (For French)
- Denne etiketten är satt nederst på det inbyggd drive-apparatet i den omslutade boxen. (For Swedish)
- Denne merkelappen er satt på bunnen av det innebygde drive-aggregatet i den lukkede kassen. (For Norwegian)
- Denne markeseddel er sat på bunden af det indebyggede drive-aggregat i den lukkede kasse. (For Danish)
- Tämä tarra on kiinnitetty kotelon sisässä olevan sisäänrakennetun ohjaimen pohjaan. (For Finnish)

**For Finnish**

**VAROITUS!** Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

**For Swedish**

**WARNING!** Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.

**LASER Specification**

Type: Semiconductor laser GaAlAs  
Wave Length: 655 ~ 664 nm  
Divergence:  $\theta = 76.6^\circ \pm 4^\circ$   
Output Power: Read = 0.7 mW  
Write = 17 mW

**Laser-Daten: (For German)**

Typ: GaAlAs-Halbleiter-Laser  
Wellenlänge: 655 ~ 664 nm  
Divergenz:  $\theta = 76,6^\circ \pm 4^\circ$   
Ausgangsleistung: Lesen = 0,7 mW  
Schreiben = 17 mW

**LASER: (For French)**

Type: Laser semi-conducteur GaAlAs  
Longueur d'ondes: 655 ~ 664 nm  
Divergence:  $\theta = 76,6^\circ \pm 4^\circ$   
Puissance de sortie: Lecture = 0,7 mW  
Ecriture = 17 mW

**Laser- specifikationer: (For Swedish)**

Typ: Laserhalvedare GaAlAs  
Våglängd: 655 ~ 664 nm  
Divergens:  $\theta = 76,6^\circ \pm 4^\circ$   
Uteffekt: Läsning = 0,7 mW  
Skrivning = 17 mW

**LASER Spesifikasjon: (For Norwegian)**

Type: Halvleder laser GaAlAs  
Bølgelengde: 655 ~ 664 nm  
Divergens:  $\theta = 76,6^\circ \pm 4^\circ$   
Utgangseffekt: Lese = 0,7 mW  
Skrive = 17 mW

**Laser Specifikationer: (For Danish)**

Type: Semiconductor GaAlAs  
Bølge-længde: 655 ~ 664 nm  
Divergens:  $\theta = 76,6^\circ \pm 4^\circ$   
Udgang-effekt: Læse = 0,7 mW  
Skrive = 17 mW

**LASERin tekniset tiedot: (For Finnish)**

Tyyppi: Laserpuolijohdin GaAlAs  
Aallon pituus: 655 ~ 664 nm  
Hajaantumisen:  $\theta = 76,6^\circ \pm 4^\circ$   
Teho: Lue = 0,7 mW  
Kirjoita = 17 mW

# IMPORTANT SAFETY INSTRUCTIONS

1. Read all of these instructions.
2. Save these instructions for later use.
3. Follow all warnings and instructions marked on the product.
4. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
5. Do not use this product near water.
6. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
7. This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
8. This product is equipped with a 3-wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
9. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
10. If an extension cord is used with this product, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.
11. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
12. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to service personnel.
13. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
  - A. When the power cord or plug is damaged or frayed.
  - B. If liquid has been spilled into the product.
  - C. If the product has been exposed to rain or water.
  - D. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
  - E. If the product has been dropped or the cabinet has been damaged.
  - F. If the product exhibits a distinct change in performance, indicating a need for service.

## For Model SW-9501-S

This product can be used with the attached power cord only.

## For Model SW-9501-T

### IMPORTANT :

If the power cord is not attached when purchasing this equipment, consult with your dealer, etc.

" Use only Safety Licensed Power Cord on the relevant regulations. "

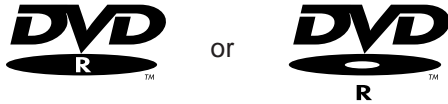
A certified power cord is to be used with this equipment. For a rated current up to 6 A, a type not lighter than H05VV-F3G 0.75 mm<sup>2</sup> or H05VVH2-F 3G 0.75 mm<sup>2</sup> shall be used.

## INTRODUCTION

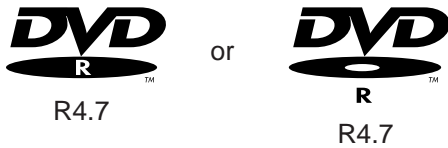
This DVD-R drive features 650 nm Laser Wave Length & 4.7GB DVD-R Media Writing technology.

DVD-R disc is compact disc memory that you can written high capacity digital data on the area one time and read with this DVD-R drive.

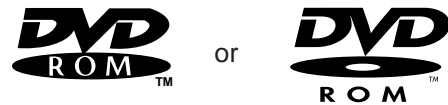
This drive unit uses DVD-R discs which bear the following mark.



Writing



This drive unit uses DVD-ROM discs which bear the following mark.





## CHAPTER 1 PRECAUTIONS WHEN OPERATING

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### 1.1 PRECAUTIONS WHEN TRANSPORTING

To avoid damage

- \* Keep the original packing materials for the drive unit.
- \* Before you transport the drive unit, remove the disc from the drive unit and repack the drive unit in its original packing.

### 1.2 INSTALLATION LOCATION

Do not place unit in the following environments.

- \* High-temperature, high-humidity, extreme temperature changes.
- \* Dusty
- \* Excessive vibration/ sudden shock.
- \* Inclined place.
- \* Direct sunlight.

### 1.3 PRECAUTIONS FOR USE

- \* Never push objects of any kind through the Cabinet slots, never spill liquid of any kind on the unit.
- \* Do not place objects on the product.
- \* Do not attempt to service this product yourself.
- \* Do not open or remove covers.
- \* Do not place foreign objects in the drive unit and attempt to operate.

### 1.4 PRECAUTIONS FOR OPERATION

To avoid error

- \* Do not move the drive unit during operation.
- \* Do not operate the unit directly after a sudden increase in temperature.

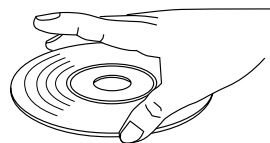
#### NOTE :

A great proportion of problems are usually caused by the following.

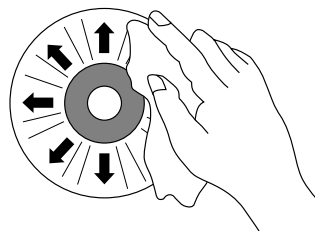
- ① Dust or Finger-prints on the surface of the disc.
- ② Random Electrical Noise.
- ③ Scratches and Defects on the surface of the disc.

### 1.5 PRECAUTIONS WHEN HANDLING DISCS

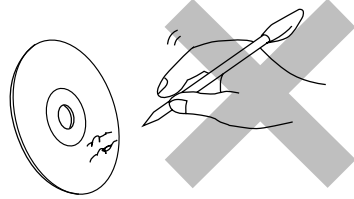
- ① Hold the disc by the edges, do not touch the surface of the disc.



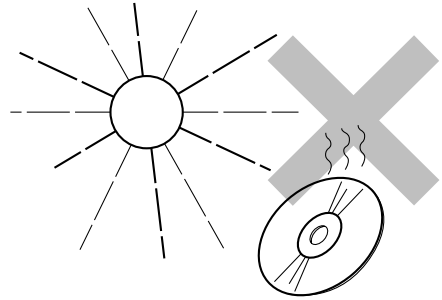
- ② To remove dust or fingerprint, use a clean, soft, dry cloth.



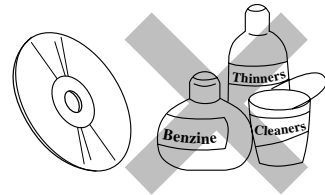
- ③ Do not write on the recording / reading side, or paste paper to the surface of the disc.  
When labelling a disc for identification purposes, write only on the premarked label side using a soft, felt tip marker.



- ④ Do not store the disc in a place where the temperature is high.



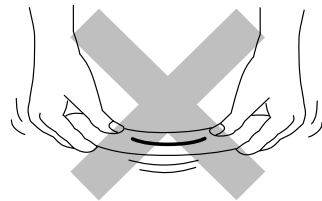
- ⑤ Do not use benzine, thinners and cleaners, etc.



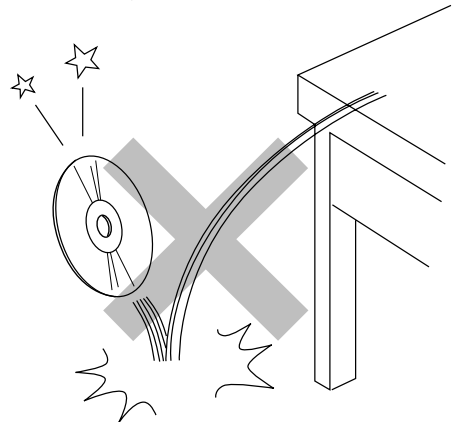
- ⑥ Do not make the center hole larger.



- ⑦ Do not bend the disc.



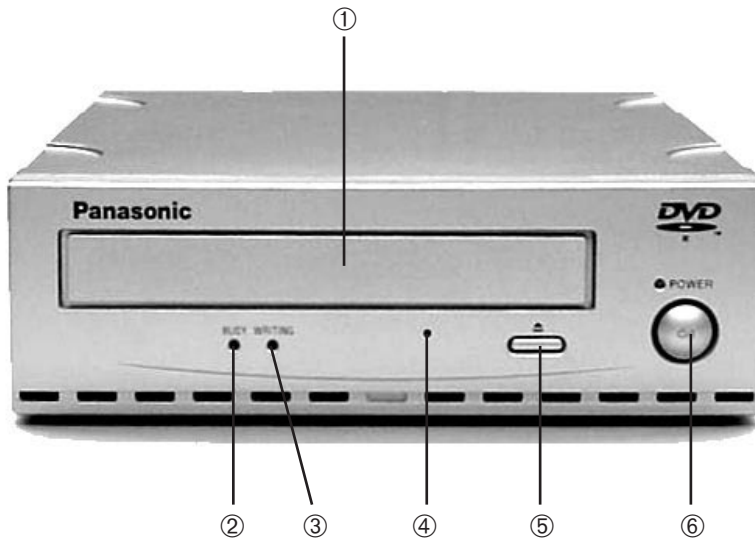
- ⑧ Do not drop the disc, or subject it to shock.



## CHAPTER 2 PARTS AND FUNCTIONS

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### 2.1 FRONT VIEW



① **DISC TRAY**

Accepts a disc.

② **BUSY INDICATOR**

Lights when data is being accessed from the disc.

③ **WRITING INDICATOR**

Lights when the drive is writing onto the writable disc.

④ **EMERGENCY EJECT HOLE**

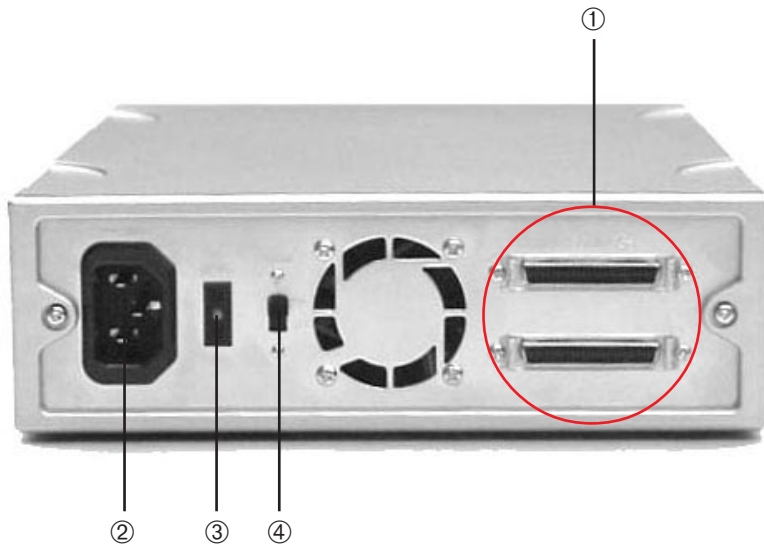
Insert an instrument such as straightened paper clip into this hole to manually eject the tray. (See the lower part in Section 4.1)

⑤ **EJECT / LOAD BUTTON**

Ejects and loads the disc tray.

⑥ **POWER ON / OFF SWITCH**

## 2.2 REAR VIEW



### ① SCSI INTERFACE CONNECTOR

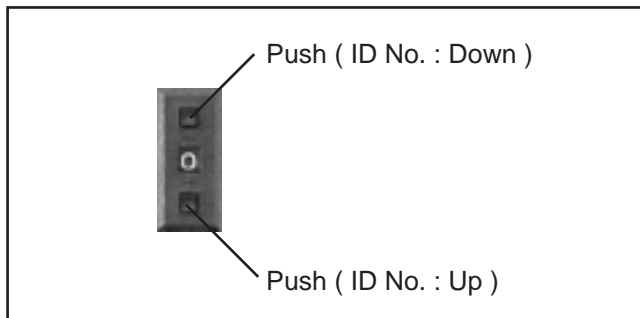
Connects to host computer's SCSI interface connector.

### ② AC (IN) CONNECTOR

Connects to AC power outlet using AC power cord.

### ③ SCSI ID SWITCH

Set ID-Number of SCSI interface.

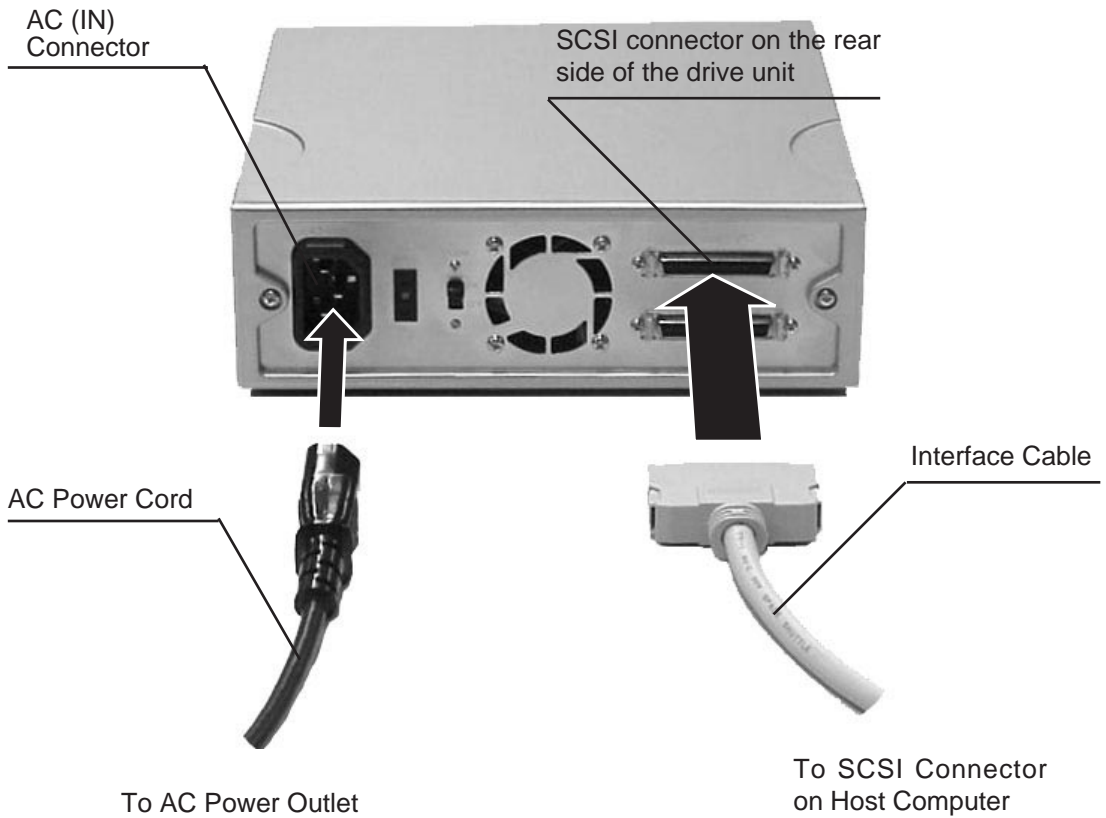


### ④ TERM POWER SWITCH

## CHAPTER 3 CONNECTIONS

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### 3.1 CONNECTING VIEW



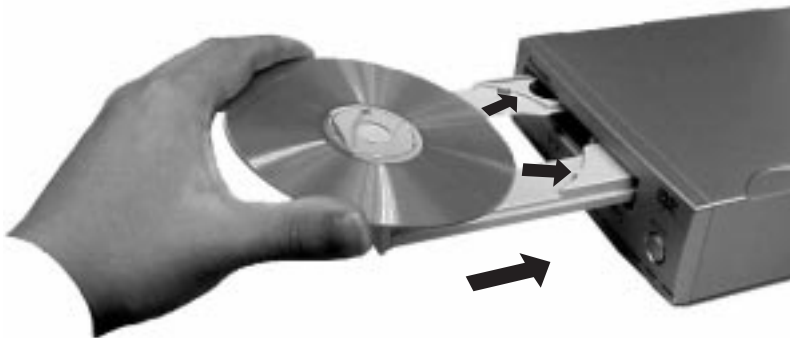
**CAUTION :** Input voltage changes automatically within a range of 100 V ~ to 240 V ~ .

## CHAPTER 4 GUIDE TO OPERATION

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### 4.1 INSTALLATIONS

- Starting the drive.
- ① Turn on the power supply.
  - ② Press the eject button. The tray is ejected from the drive.
  - ③ Place the disc in the tray with the disc's label facing up.
  - ④ Press the eject button or press the tray lightly as in the following figure. The tray is retracted automatically.

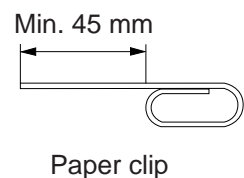


- ⑤ Loading start.

#### **CAUTION:**

- Do not insert any foreign objects into the disc tray. This could result in a malfunction.
- Do not manually force the tray to open.
- When the drive is not in use, keep the tray closed to protect against dust and dirt.
- Do not press down hard on the tray when loading a disc, since this may result in damage to or malfunction of the tray.

• In case of emergency, eject the tray manually  
If for some reason the tray will not eject automatically, press the eject-bar (for example, insert a straightened paper clip minimum straight length = 45mm, Diameter = 1 ~ 1.5mm) into the emergency eject hole to manually eject the tray. (Before proceeding with this emergency step, make sure that the power is switched OFF.)



## CHAPTER 5 GENERAL DESCRIPTION

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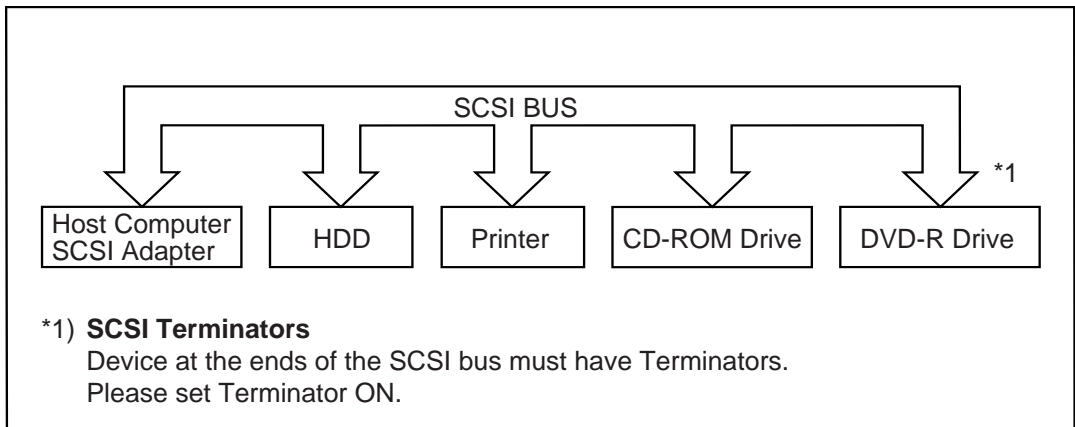
### 5.1 FEATURE SUMMARY

- ① Embedded SCSI-2 Interface.
- ② High Capacity Digital Data Write and Read Available.
- ③ Coped with 650 nm Laser Wave Length & 4.7GB DVD-R Media Writing.
- ④ TILT Servomechanism Equipped.

### 5.2 SYSTEM SET UP

Hardware System [ Example of SCSI system set-up ]

This unit consists as SCSI Device and basically must be installed in SCSI System.



### 5.3 POWER SAVING

- ① When the drive waits for a command from the Host for more than two minutes, then the drive enters Power Save Mode. Laser and Spindle motor stop.
- ② Re-start is automatic when the Host Command is received or eject button is pushed.

## CHAPTER 6 SPECIFICATION SUMMARY

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### 6.1 PERFORMANCE

① Disc diameter		12cm, 8cm
② Disc speed		
(DVD Single Layer 1x mode) *1		570 ~ 1390 r/min (CLV) *2
(DVD Dual Layer 1x mode)		630 ~ 1530 r/min (CLV)
③ Data capacity		
	Reading	3.95 / 4.7 GBytes (DVD-R) 4.7 GBytes (DVD-ROM Single Layer) 8.5 GBytes (DVD-ROM Dual Layer)
	Writing	4.7 GBytes (DVD-R)
④ Data transfer Rate		
	Reading	11.08 MBits/s (1x CLV)
	Writing	11.08 MBits/s (1x CLV)
	Burst	10 MBytes/s Max.(Synchronous) 5 MBytes/s Max.(Asynchronous)
⑤ Access time		
Random access time *3		290 ms [ typical ]
1/3 stroke access time *4		350 ms [ typical ]
Fullstroke access time *5		600 ms [ typical ]
⑥ Buffer Size		4 MBytes
<b>MTBF</b>		100,000 POH (duty 20%)

#### NOTE:

- \*1 1x mode:                      1x speed mode
- \*2 CLV :                         Constant Linear Velocity
- \*3 Random access time :     Average of Data read over the whole area (one layer media) more than 2000 times including latency and layered error correction time.
- \*4 1/3 stroke access time :   From 0h (LBA) to BAC2Eh(LBA) including latency and layered error correction time.
- \*5 Fullstroke access time :   From 0h (LBA) to 2300F0h(LBA) including latency and layered error correction time.



## 6.2 ERROR RATES

- Soft read errors Less than  $10^{-6}$
- Hard read errors Less than  $10^{-12}$

## 6.3 GENERAL PERFORMANCE

- ① Power requirement 100 – 240 V ~ AUTO  
0.34 – 0.17 A  
50 / 60 Hz
- ② Dimensions (W x H x D) 190 x 62.8 x 270 mm
- ③ Weight 2500 g [ typical ]

## 6.4 ENVIRONMENTAL CONDITIONS

- Operating
- Temperature 5 ~ 40 °C
  - Humidity 5 ~ 90 %RH  
(Max. wet bulb temp. is 29 °C, Non-condensation)

- Non-operating
- Temperature – 30 ~ 60 °C
  - Humidity 5 ~ 95 %Rh  
(Non-condensation)

## 6.5 PICK UP LASER

- Type: Semiconductor laser GaAlAs
- Wave Length: 655 ~ 664 nm
- Divergence:  $\theta = 76.6^\circ \pm 4^\circ$
- Output Power: Read = 0.7 mW  
Write = 17 mW

## CHAPTER 7 BEFORE REQUESTING SERVICE

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### 7.1 TROUBLESHOOTING

- (1) There are many kinds of problems caused by misuse. When a problem occurs, check the table below which describes possible problems occurring with your DVD-R drive.
- (2) If the DVD-R drive is not operating correctly and you cannot restore operation by following the detailed procedures in the table below, do not remove the cover of the units or adjust further.
- (3) In the case of (2) above, unplug the unit and consult with your dealer or the nearest service station.

TROUBLE	CORRECTION
• DVD-R drive does not operate and Writing / Busy Indicator does not light.	<ol style="list-style-type: none"><li>① Confirm that the interface board is installed correctly in your host computer.</li><li>② Confirm that the connection between the DVD-R drive and the host computer is correct.</li><li>③ Confirm that the program is correct.</li><li>④ Confirm that the setting drive select switch is correct.</li><li>⑤ Confirm that the disc has been inserted label side up.</li><li>⑥ Confirm that foreign objects have not been inserted.</li></ol>
• DVD-R drive does not operate and Writing / Busy Indicator does not light.	<ol style="list-style-type: none"><li>① Confirm that the recordable DVD-R disc has been mounted.</li><li>② Confirm that the proper Writing Software has been installed.</li></ol>

Weight and dimensions shown are approximate.  
Specifications are subject to change without notice.