

Advanced Disc for Archive Drive

LKM-KB12

INSTRUCTION MANUAL

Please read through these instructions before operating this unit.

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Interface : USB



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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 German

Dieses Laufwerk als Einheit entspricht den Anforderungen von EN60950-1, EN60825-1. Wenn das Laufwerk in ein System eingebaut betrieben werden soll, muß das System in seiner Gesamtheit den einschlägigen Vorschriften entsprechen.

For USA

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.

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.

Pursuant to at the directive 2004/108/EC, article 9(2)

Panasonic Testing Centre

Panasonic Marketing Europe GmbH

Winsbergring 15, 22525 Hamburg, Germany

LASER SAFETY INFORMATION

Class 1 LASER Product

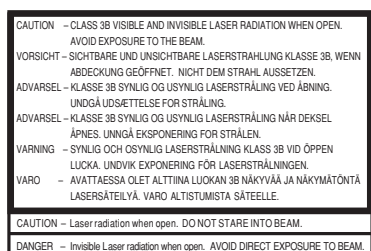
This equipment is certified to comply with DHHS Rule 21 CFR Chapter 1, Subchapter J in effect as of date of manufacture.

Elsewhere, the drive is certified to conform to the requirements of the International Electrotechnical Commission (IEC) 60825-1 and CENELEC EN60825-1 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. This equipment has the Optical Pickup which has the Triple Lasers (BD, DVD & CD).

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 upper shield at the top of the built-in drive unit in the enclosed box.
- Dieses Etikett ist auf der oberen Abschirmung oben auf des eingebauten Antriebsaggregats im Außengehäuse. (For German)
- Cette classification peut être trouvée au fond de l'unité d'entraînement incorporée dans la boîte extérieure. (For French)
- Märkningen återfinns på den översta kåpan överst på det innbyggd drive-apparatet i den omslutade boxen. (For Swedish)
- Denne merkelappen er festet til det øverste dekslet på toppen av det innebygde drive-aggregatet i den lukkede kassen. (For Norwegian)
- Denne etiket er sat fast på den øverste skærm på drev-enhedens top af det indebyggede drive-aggregat i den lukkede kasse. (For Danish)
- Tämä etiketti on liimattu voimayksikön yläosan suojalevyyn kotelon sisässä olevan sisäänrakennetun ohjaimen pohjaan. (For Finnish)



- 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)

for BD media

LASER Specification

Type: Semiconductor laser InGaN
Wave Length: 400 nm ~ 410 nm (Typical 405 nm)
Divergence: $\theta = 16^\circ \sim 24^\circ$ (Typical 20°)
Output Power: Read = 0,53 mW
Write = 19,6 mW

Laser-Daten: (For German)

Type: InGaN-Halbleiter-Laser
Wellenlänge: 400 nm ~ 410 nm (Typisch 405 nm)
Divergenz: $\theta = 16^\circ \sim 24^\circ$ (Typisch 20°)
Ausgangsleistung: Lesen = 0,53 mW
Schreiben = 19,6 mW

LASER: (For French)

Type: Laser semi-conducteur InGaN
Longueur d'ondes: 400 nm ~ 410 nm (Environ 405 nm)
Divergence: $\theta = 16^\circ \sim 24^\circ$ (Environ 20°)
Puissance de sortie: Lecture = 0,53 mW
Ecriture = 19,6 mW

Laser- specifikationer: (For Swedish)

Type: Laserhalvedare InGaN
Våglängd: 400 nm ~ 410 nm (Typiskt 405 nm)
Divergens: $\theta = 16^\circ \sim 24^\circ$ (Typiskt 20°)
Uteffekt: Läsning = 0,53 mW
Skrivning = 19,6 mW

LASER Spesifikasjon: (For Norwegian)

Type: Halvleder laser InGaN
Bølgelengde: 400 nm ~ 410 nm (Typisk 405 nm)
Divergens: $\theta = 16^\circ \sim 24^\circ$ (Typisk 20°)
Utgangseffekt: Lese = 0,53 mW
Skrive = 19,6 mW

Laser Spesifikationer: (For Danish)

Type: Semiconductor InGaN
Bølge-længde: 400 nm ~ 410 nm (Typisk 405 nm)
Divergens: $\theta = 16^\circ \sim 24^\circ$ (Typisk 20°)
Udgang-effekt: Læse = 0,53 mW
Skrive = 19,6 mW

LASERin tekniset tiedot: (For Finnish)

Tyyppi: Laserpuolijohdin InGaN
Aallon pituus: 400 nm ~ 410 nm (Tyypillinen 405 nm)
Hajaantumisen: $\theta = 16^\circ \sim 24^\circ$ (Tyypillinen 20°)
Teho: Lue = 0,53 mW
Kirjoita = 19,6 mW

for DVD media

LASER Specification

Type: Semiconductor laser AlGaInP
Wave Length: 657 nm ~ 665 nm (Typical 662 nm)
Divergence: $\theta = 14^\circ \sim 19^\circ$ (Typical 16°)
Output Power: Read = 1,42 mW
Write = 67 mW

Laser-Daten: (For German)

Type: AlGaInP-Halbleiter-Laser
Wellenlänge: 657 nm ~ 665 nm (Typisch 662 nm)
Divergenz: $\theta = 14^\circ \sim 19^\circ$ (Typisch 16°)
Ausgangsleistung: Lesen = 1,42 mW
Schreiben = 67 mW

LASER: (For French)

Type: Laser semi-conducteur AlGaInP
Longueur d'ondes: 657 nm ~ 665 nm (Environ 662 nm)
Divergence: $\theta = 14^\circ \sim 19^\circ$ (Environ 16°)
Puissance de sortie: Lecture = 1,42 mW
Ecriture = 67 mW

Laser- specifikationer: (For Swedish)

Type: Laserhalvedare AlGaInP
Våglängd: 657 nm ~ 665 nm (Typiskt 662 nm)
Divergens: $\theta = 14^\circ \sim 19^\circ$ (Typiskt 16°)
Uteffekt: Läsning = 1,42 mW
Skrivning = 67 mW

LASER Spesifikasjon: (For Norwegian)

Type: Halvleder laser AlGaInP
Bølgelengde: 657 nm ~ 665 nm (Typisk 662 nm)
Divergens: $\theta = 14^\circ \sim 19^\circ$ (Typisk 16°)
Utgangseffekt: Lese = 1,42 mW
Skrive = 67 mW

Laser Spesifikationer: (For Danish)

Type: Semiconductor AlGaInP
Bølge-længde: 657 nm ~ 665 nm (Typisk 662 nm)
Divergens: $\theta = 14^\circ \sim 19^\circ$ (Typisk 16°)
Udgang-effekt: Læse = 1,42 mW
Skrive = 67 mW

LASERin tekniset tiedot: (For Finnish)

Tyyppi: Laserpuolijohdin AlGaInP
Aallon pituus: 657 nm ~ 665 nm (Tyypillinen 662 nm)
Hajaantumisen: $\theta = 14^\circ \sim 19^\circ$ (Tyypillinen 16°)
Teho: Lue = 1,42 mW
Kirjoita = 67 mW

for CD media

LASER Specification

Type: Semiconductor laser AlGaAs
Wave Length: 777 nm ~ 790 nm (Typical 783 nm)
Divergence: $\theta = 13^\circ \sim 17,5^\circ$ (Typical 15°)
Output Power: Read = 1,5 mW

Laser-Daten: (For German)

Type: AlGaAs-Halbleiter-Laser
Wellenlänge: 777 nm ~ 790 nm (Typisch 783 nm)
Divergenz: $\theta = 13^\circ \sim 17,5^\circ$ (Typisch 15°)
Ausgangsleistung: Lesen = 1,5 mW

LASER: (For French)

Type: Laser semi-conducteur AlGaAs
Longueur d'ondes: 777 nm ~ 790 nm (Environ 783 nm)
Divergence: $\theta = 13^\circ \sim 17,5^\circ$ (Environ 15°)
Puissance de sortie: Lecture = 1,5 mW

Laser- specifikationer: (For Swedish)

Type: Laserhalvedare AlGaAs
Våglängd: 777 nm ~ 790 nm (Typiskt 783 nm)
Divergens: $\theta = 13^\circ \sim 17,5^\circ$ (Typiskt 15°)
Uteffekt: Läsning = 1,5 mW

LASER Spesifikasjon: (For Norwegian)

Type: Halvleder laser AlGaAs
Bølgelengde: 777 nm ~ 790 nm (Typisk 783 nm)
Divergens: $\theta = 13^\circ \sim 17,5^\circ$ (Typisk 15°)
Utgangseffekt: Lese = 1,5 mW

Laser Spesifikationer: (For Danish)

Type: Semiconductor AlGaAs
Bølge-længde: 777 nm ~ 790 nm (Typisk 783 nm)
Divergens: $\theta = 13^\circ \sim 17,5^\circ$ (Typisk 15°)
Udgang-effekt: Læse = 1,5 mW

LASERin tekniset tiedot: (For Finnish)

Tyyppi: Laserpuolijohdin AlGaAs
Aallon pituus: 777 nm ~ 790 nm (Tyypillinen 783 nm)
Hajaantumisen: $\theta = 13^\circ \sim 17,5^\circ$ (Tyypillinen 15°)
Teho: Lue = 1,5 mW

For Finnish**VAROITUS!**

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

For Swedish**VARNING!**

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

ELECTROSTATIC DISCHARGE NOTICE

Do not insert any foreign objects into the drive unit, since this may result in damage to the drive.

CHAPTER 1 INTRODUCTION

1.1 FEATURE SUMMARY

- ① USB 2.0 Interface.
- ② Automatic Loading with tray.
- ③ Mechanical Shield for dust protection.
- ④ BD-R/RE, DVD-RAM & DVD-R/RW media readable or writable
- ⑤ Case and Bare type media supported.
- ⑥ External Type design.

This drive features both BD/DVD media reading and BD-R/BD-RE/DVD-RAM/DVD-R /DVD-RW media writing technology.

But, CD writing is not supported

This drive unit uses BD-R/RE discs which bear the following mark.



This drive unit uses DVD-ROM / DVD-RAM / DVD-R / DVD-RW discs which bear the following mark.



1.2 KIT CONTENTS

- Drive Unit
- AC Power Cable *
- USB Interface Cable
- CD-ROM Disc (Driver software, User manual)
- BD-RE (Blank disc) with Disc Protection Case
- Emergency Ejection Pin

* This product can be used with the attached AC power cable only.

NOTE :

- **USB2.0** : Universal Serial Bus Specification Revision 2.0
- **MS Windows** is a registered trademark of Microsoft Corporation.
- All other product/ brand names are trademarks or registered trademarks of their respective companies.

1.3 SYSTEM REQUIREMENTS

• CPU (Computer)

	Single CPU	Multi CPU
32bit	Xeon / Core2 by Intel	
64bit	AMD64 by AMD	

• Operating System

Windows 2000	Professional
	Serve
	Advanced Server
	Datacenter Server
Windows XP	Home Edition
	Professional
	Professional x64 Edition
Windows Server 2003	R2
	x64 Editions
Windows Vista	Starter
	Home Basic
	Home Premium
	Business
	Business x64
	Enterprise
	Enterprise x64
	Ultimate
	Ultimate x64
Windows Server 2008	Standard Edition x86
	Standard Edition x64
	Standard Edition without Hyper-V x86
	Standard Edition without Hyper-V x64
	Enterprise Edition x86
	Enterprise Edition x64
	Enterprise Edition without Hyper-V x86
	Enterprise Edition without Hyper-V x64
	Datacenter Edition x86
	Datacenter Edition x64
	Datacenter Edition without Hyper-V x86
	Datacenter Edition without Hyper-V x64

Fedora Core x86 & x64	3	2. 6. 9-1. 667
	4	20. 6. 11-1. 1369-FC4
	5	2. 6. 15-1. 2054
	6	2. 6. 18-1. 2798
	7	2. 6. 21-1. 3194

CHAPTER 2 PRECAUTIONS WHEN OPERATING

2.1 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.

2.2 INSTALLATION LOCATION

Do not place unit in the following environments.

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

2.3 PRECAUTIONS FOR USE

- * Never push objects of any kind through the disc tray, 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 on the disc tray and attempt to operate.
- * Do not use this drive when vertically oriented.

2.4 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.

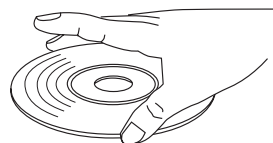
NOTE :

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

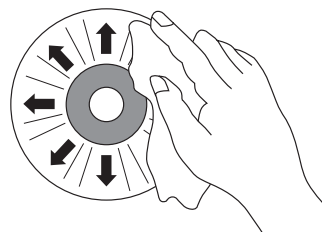
- ① Dust or Finger-prints on the surface of the disc.
- ② Random Electrical Noise.
- ③ Scratches and Defects on the surface of the disc.

2.5 PRECAUTIONS WHEN HANDLING DISCS

- ① Hold the disc by the edges (Bare type only), do not touch the surface of the disc.

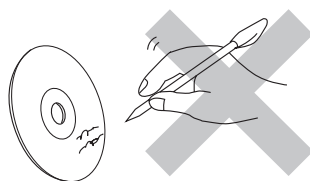


- ② To remove dust or fingerprint, use a clean, soft, dry cloth.

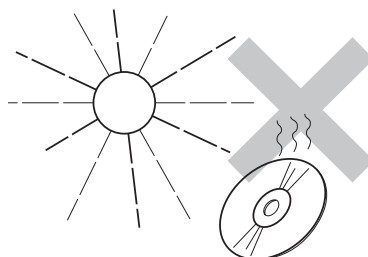


- ③ Do not write and paste anything on the recording/ reading side of the disc.
Do not paste anything to all the surface of the BD-R/RE, DVD-RAM or DVD-R/RW disc.

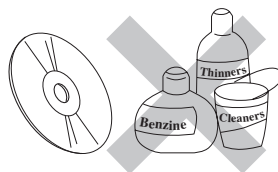
When labelling the BD-R/RE, DVD-RAM or DVD-R/RW disc for identification purposes, write only on the premarked label side using a soft, felt tip marker. Should not paste a large or thick label to the outer back surface (the label side) of the disc, or it generates drive vibration due to imbalance of the disc.



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



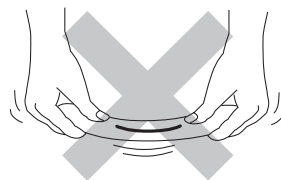
- ⑤ Do not use benzine, thinners and cleaners, etc.



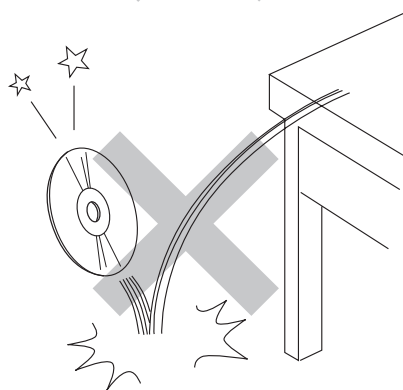
- ⑥ Do not make the center hole larger.



- ⑦ Do not bend the disc.

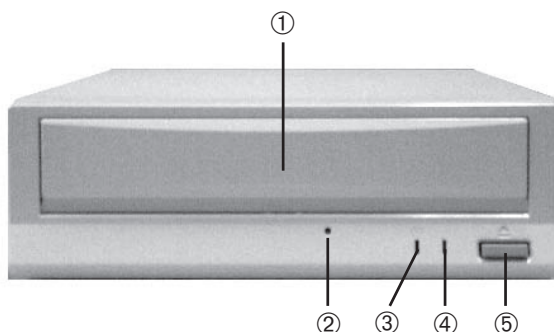


- ⑧ Do not drop the disc, or subject it to shock.



CHAPTER 3 PARTS AND FUNCTIONS

3.1 FRONT VIEW



① **DISC TRAY**

Accepts a disc.

② **EMERGENCY EJECT HOLE**

Insert the emergency eject pin (attached) firmly into this hole to manually eject the tray.
(Before proceeding with this emergency step, make sure that the power is switched OFF.)

③ **POWER LED**

Lights up when the drive power is ON.

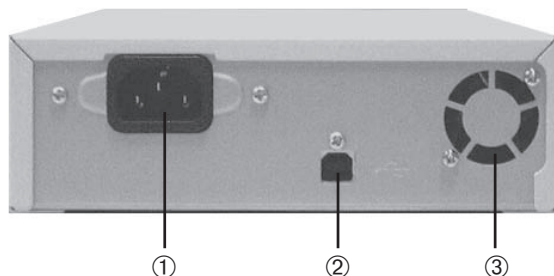
④ **BUSY / WRITING INDICATOR**

Blinks when data is being accessed from the disc or the drive is writing onto the BD-R/RE or DVD-RAM/R/RW disc.

⑤ **EJECT/LOAD BUTTON**

Ejects and loads the disc tray.

3.2 REAR VIEW



① **AC INLET**

Connects to the wall outlet with the attached power cable.

② **USB (B type) CONNECTOR**

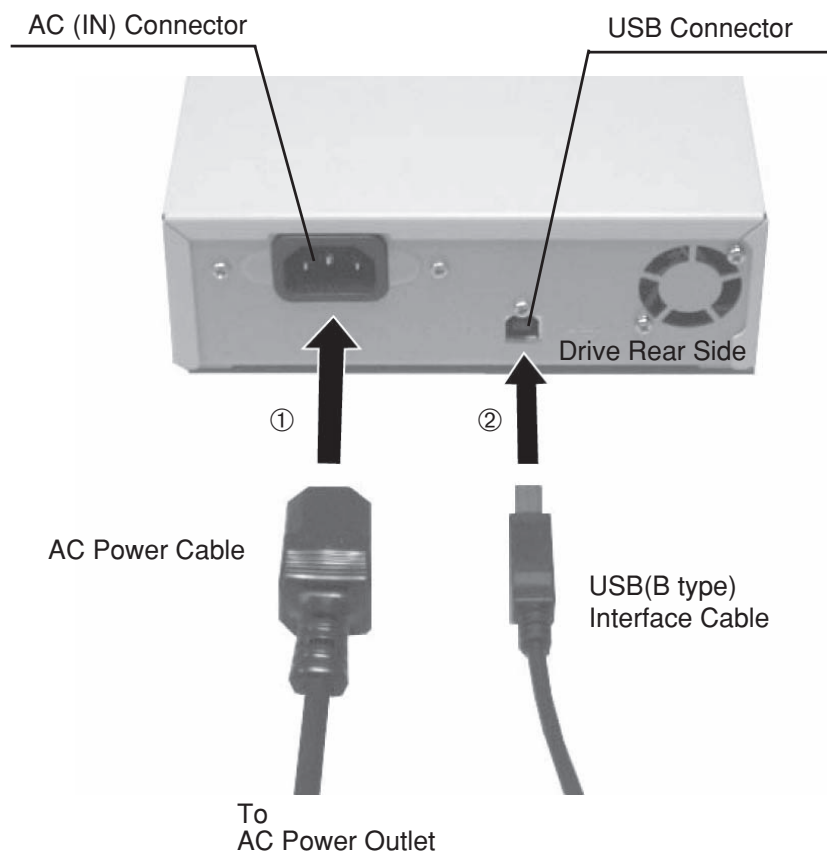
Connects to host computer's USB connector with USB cable (attached).

③ **FAN**

makes air to flow to protect this drive from overheating.

CHAPTER 4 CONNECTIONS

4.1 CONNECTING VIEW



When connecting, connect in order of AC power cable ---> USB Interface Cable .
When disconnecting, disconnect in converse order of the connecting.

When you operate this product, the power outlet should be near the product and easily accessible.

CHAPTER 5 GUIDE TO OPERATION

5.1 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 according to each disc type as in the below figure.

Case type (BD, DVD-RAM) :

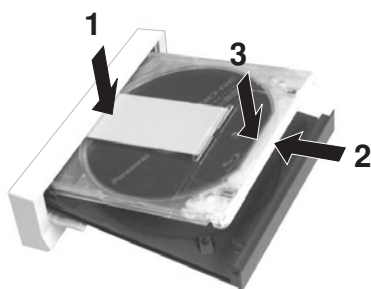
1. Insert so the label-side of the shutter is facing up.
2. Push the case disc about 2 cm towards the drive.
3. Press gently on the shutter-label so the BD/DVD-RAM disc sits firmly on the tray.

Non-case(Bare media) type :

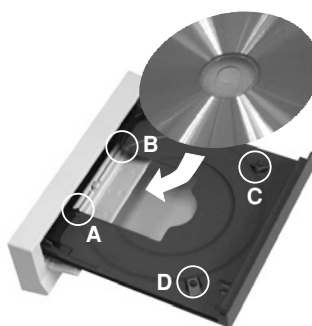
1. Turn a disc so the label-side of the disc is facing up.
2. Place the outer edges of the disc to inner of the four disc holders (A,B,C,D).
3. Set the disc so it fits inside the disc guides.

- ④ Press the eject button or press the tray lightly.
The tray is retracted automatically.
- ⑤ Loading start.

Case type (BD, DVD-RAM)



Non-case(Bare media) type



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.

CHAPTER 6 BEFORE REQUESTING SERVICE

6.1 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 drive.
- (2) If the 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
• The drive does not operate and Busy Indicator does not blink while writing, reading, or tray opening/closing.	① Confirm that the connection between the drive and the host computer is correct. ② Confirm that the program is correct. ③ Confirm that the setting drive select switch is correct. ④ Confirm that the disc has been inserted label side up. ⑤ Confirm that foreign objects have not been inserted.

CHAPTER 7 SPECIFICATION SUMMARY

7.1 GENERAL PERFORMANCE

① Power requirement	100 V – 240 V ~ AUTO 0.5 A – 0.3 A 50 Hz / 60 Hz
② Dimensions (W x H x D)	168.5 mm x 56.8 mm x 290 mm
③ Weight	2435 g typ.

7.2 ENVIRONMENTAL CONDITIONS

	Operating	Non-operating
• Temperature	5 °C ~ 35 °C	– 30 °C ~ 60 °C
• Humidity	10 %Rh ~ 80 %Rh (Max. wet bulb temp. is 29 °C, Non-condensation)	5 %Rh ~ 90 %Rh (Non-condensation)