

# **SUPERDISK USB DRIVE UNIT**

**LKM-RMB33**

## **INSTRUCTION MANUAL**

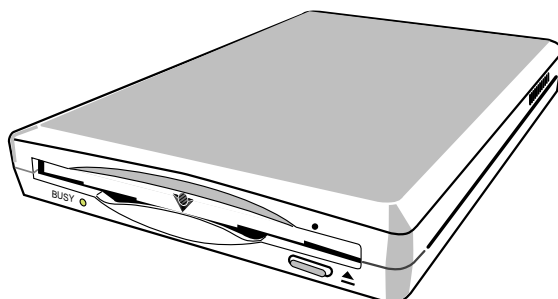
Please read through these instructions before operating the unit.

Interface : USB

# SUPERDISK USB DRIVE UNIT LKM-RMB33 INSTRUCTION MANUAL

Please read through these instructions before operating the unit.

Interface : USB



## TABLE OF CONTENTS

<b>IMPORTANT SAFETY NOTICE</b>	
<b>1. PRECAUTIONS WHEN OPERATING</b> .....	<b>A-2</b>
1.1 PRECAUTIONS WHEN TRANSPORTING .....	A-2
1.2 INSTALLATION LOCATION .....	A-2
1.3 PRECAUTIONS FOR USE .....	A-2
1.4 PRECAUTIONS FOR OPERATION .....	A-2
1.5 PRECAUTIONS WHEN HANDLING DISKS .....	A-2
<b>2. PARTS AND FUNCTIONS</b> .....	<b>A-3</b>
2.1 FRONT VIEW .....	A-3
2.2 REAR VIEW .....	A-4
<b>3. CONNECTIONS</b> .....	<b>A-5</b>
3.1 CONNECTING VIEW .....	A-5
<b>4. GUIDE TO OPERATION</b> .....	<b>A-6</b>
4.1 INSTALLATIONS .....	A-6
<b>5. GENERAL DESCRIPTION</b> .....	<b>A-7</b>
5.1 SUMMARY OF FEATURES .....	A-7
5.2 SYSTEM SET UP .....	A-7
5.3 POWER SAVING .....	A-7
<b>6. SPECIFICATION SUMMARY</b> .....	<b>A-8</b>
6.1 PERFORMANCE .....	A-8
6.2 ERROR RATES .....	A-8
6.3 GENERAL PERFORMANCE .....	A-8
6.4 ENVIRONMENTAL CONDITIONS .....	A-8
6.5 PICK UP LASER .....	A-8
<b>7. BEFORE REQUESTING SERVICE</b> .....	<b>A-9</b>
7.1 TROUBLESHOOTING .....	A-9
<b>APPENDIX</b> .....	<b>A-10</b>

# 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 contents of this document, contact your sales representative.

## SAFETY NOTICE

- (1) To prevent fire or electric shock, do not expose this drive unit 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

### 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.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。  
取扱説明書に従って正しい取り扱いをして下さい。

This equipment is certified to conform to EN60950, EN60825.  
The drive system with AC Adapter and Interface cable must be certified to conform to the relevant regulations.

# 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 procedures other than those specified herein may result in hazardous radiation exposure.
- (2) Do not open the drive unit; no user adjustable or serviceable parts are inside.

### LASER Specification

Type: Semiconductor laser GaAlAs  
Wave Length: 795 ± 20 nm  
Divergence:  $\theta_v = 30^\circ \sim 36^\circ$   
Output Power: 3.6 mW

### Laser-Daten: (For German)

Typ: GaAlAs-Halbleiter-Laser  
Wellenlänge: 795 ± 20 nm  
Divergenz:  $\theta_v = 30^\circ \sim 36^\circ$   
Ausgangsleistung: 3,6 mW

### Laser- specifikationer: (For Sweden)

Typ: Laserhalvedare GaAlAs  
Våglängd: 795 ± 20 nm  
Divergens:  $\theta_v = 30^\circ \sim 36^\circ$   
Uteffekt: 3,6 mW

### LASER Spesifikasjon: (For Norway)

Type: Halvleder laser GaAlAs  
Bølgelengde: 795 ± 20 nm  
Divergens:  $\theta_v = 30^\circ \sim 36^\circ$   
Utgangseffekt: 3,6 mW

### Laser Specifikationer: (For Denmark)

Type: Semiconductor GaAlAs  
Bølge-længde: 795 ± 20 nm  
Divergens:  $\theta_v = 30^\circ \sim 36^\circ$   
Udgang-effekt: 3,6 mW

### LASERin tekniset tiedot: (For Finland)

Tyyppi: Laserpuolijohdin GaAlAs  
Aallon pituus: 795 ± 20 nm  
Hajaantumisen:  $\theta_v = 30^\circ \sim 36^\circ$   
Teho: 3,6 mW

### For Finland

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

### For Sweden

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



- This label is attached to the bottom of the drive unit.
- Diese Aufschrift befindet sich auf der Bodenplatte des Gerätes. (For German)
- Märkningen återfinns på drivenhetens undersida. (For Sweden)
- Denne merkelappen er festet til undersiden av spilleren. (For Norway)
- Denne etiket er sat fast i bunden af drev-enheden. (For Denmark)
- Tämä etiketti on liimattu laitteen pohjaan. (For Finland)



CAUTION-	INVISIBLE LASER RADIATION WHEN OPEN DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.
VORSICHT-	UNSIHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET, NICHT IN DEN STRAHL BLICKEN AUCH NICHT MIT OPTISCHEN INSTRUMENTEN.
ADVARSEL-	USYNLIG LASERSTRÅLING VED ÅBNING. SE IKKE IND I STRÅLEN-HELLER IKKE MED OPTISKE INSTRUMENTER.
ADVARSEL-	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STRÅLEN ELLER SE DIREKTE MED OPTISKE INSTRUMENTER.
VARNING-	OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÅR ÖPPNAD. STIRRA EJ IN I STRÅLEN OCH BETRAKTA EJ STRÅLEN MED OPTISKA INSTRUMENT.
VARO!	NÄKYMÄTÖNTÄ AVATTAESSA OLET ALTTIINA LASERSÄTEILYLLE. ÄLÄ TUJOTA SÄTEESEEN ÄLÄKÄ KATSO SITÄ OPTISEN LAITTEEN LÄPI.

- You can see this label on the upper shield when opening the top cover.
- Dieser Aufkleber ist auf der oberen Abschirmung sichtbar, wenn die obere Abdeckung geöffnet wird. (For German)
- Ni kan finna dette märket på den övre skärmen när Ni öppnar den översta locken. (For Sweden)
- De kan finne dette merket på den øvre skjermen når De åpner den øverste lokken. (For Norway)
- Denne mærkat kan ses på den øverste afskærmning, når topdækslet åbnes. (For Denmark)
- Tämä nimilappu näkyy yläsuojuksella, kun avaat kannen. (For Finland)

CAUTION-	INVISIBLE LASER RADIATION WHEN OPEN DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.
VORSICHT-	UNSIHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET, NICHT IN DEN STRAHL BLICKEN AUCH NICHT MIT OPTISCHEN INSTRUMENTEN.
ADVARSEL-	USYNLIG LASERSTRÅLING VED ÅBNING. SE IKKE IND I STRÅLEN-HELLER IKKE MED OPTISKE INSTRUMENTER.
ADVARSEL-	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STRÅLEN ELLER SE DIREKTE MED OPTISKE INSTRUMENTER.
VARNING-	OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÅR ÖPPNAD. STIRRA EJ IN I STRÅLEN OCH BETRAKTA EJ STRÅLEN MED OPTISKA INSTRUMENT.
VARO!	NÄKYMÄTÖNTÄ AVATTAESSA OLET ALTTIINA LASERSÄTEILYLLE. ÄLÄ TUJOTA SÄTEESEEN ÄLÄKÄ KATSO SITÄ OPTISEN LAITTEEN LÄPI.

- You can see this label on the bottom shield when removing the bottom cover.
- Dieser Aufkleber findet sich an der Bodenplatte nach Entfernen der Bodenabdeckung. (For German)
- Ni kan finna denna etiketten på den undre delen när det nedersta locket tas bort. (For Sweden)
- De kan finne denne etiketten på undersiden når det nederste lokket fjernes. (For Norway)
- De kan finde denne etiket på undersiden når den nederste låg tages vak. (For Denmark)
- Tämä merkki näkyy pohjalevyssä kun poistat pohjansuojan. (For Finland)

# INTRODUCTION

SuperDisk diskette can store high capacity data (up to 83 disks of the standard FD). This SuperDisk drive can read/ write the SuperDisk diskette and provides a full read/ write compatibility with the standard 3.5 " 2DD/ 2HD (720 KB/ 1.44 MB).

This drive unit uses SuperDisk diskettes which bear the following mark.



This mark is a trademark of Imation Corporation.

## System Requirements

- Computer  
IBM PC-AT or Compatible
- Operating System  
MS Windows 98 (Pre-installed)

# CHAPTER 1 PRECAUTIONS WHEN OPERATING

---

## 1.1 PRECAUTIONS WHEN TRANSPORTING

To avoid damages

- \* Keep the original packing materials for the drive unit.
- \* Prior to sending the drive unit, remove the disk from drive unit and repack drive unit as it was originally packed.

## 1.2 INSTALLATION LOCATION

Do not expose unit to 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 or insert objects of any kind through the disk slot, never spill liquid of any kind on the unit.
- \* Never use the Magnetic head cleaning kit. If you use it, it may shave the head. The SuperDisk drive's head is cleaned by itself.
- \* Do not place objects on the product.
- \* Do not attempt to repair this product yourself.
- \* Do not open or remove covers.

## 1.4 PRECAUTIONS FOR OPERATION

To avoid data read/ write error

- \* Do not move the drive unit during operation.
- \* Do not operate the unit immediately after a sudden increase in temperature.
- \* Do not use the SuperDisk drive with vertical installation.

## 1.5 PRECAUTIONS WHEN HANDLING DISKS

- ① Do not finger the magnetic disk through the shutter.



- ② While not using, ensure the disk shutter is tightly closed to protect the magnetic surface.



- ③ Keep away any magnetic instrument from a disk.



- ④ Store a disk in the specified environment:

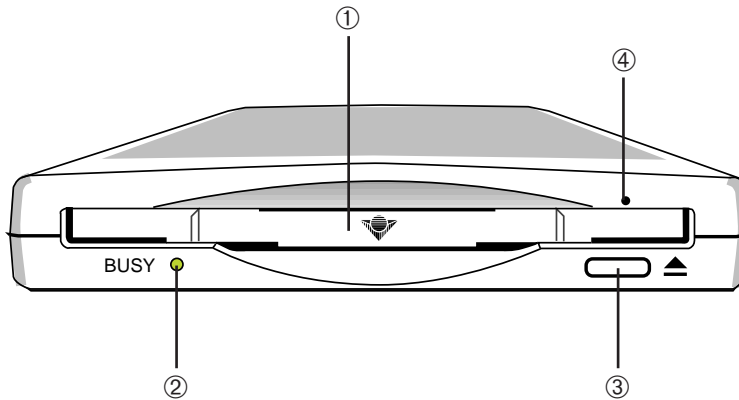
Temperature: 4 to 60 °C  
Relative humidity: 8 to 90 %  
Max. wet bulb temp. is 29 °C  
No moisture condensation



## CHAPTER 2 PARTS AND FUNCTIONS

---

### 2.1 FRONT VIEW



① **DISK SLOT**

Insert a disk.

② **BUSY INDICATOR**

Lights while a command from host is executed. (including read/ write operations)

③ **EJECT BUTTON**

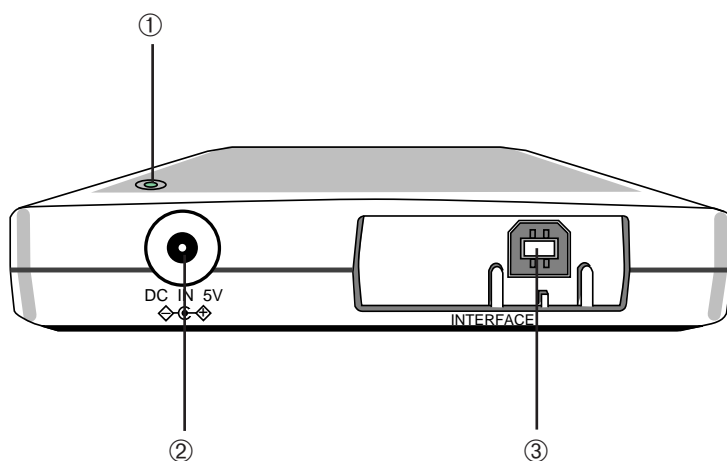
Ejects a disk.

④ **EMERGENCY EJECT HOLE**

Insert an instrument such as straightened paper clip pin into this hole to manually eject a disk. (See 4.1)



## 2.2 REAR VIEW



① **POWER INDICATOR**

Lights up while the drive power is on.

② **DC (IN) CONNECTOR**

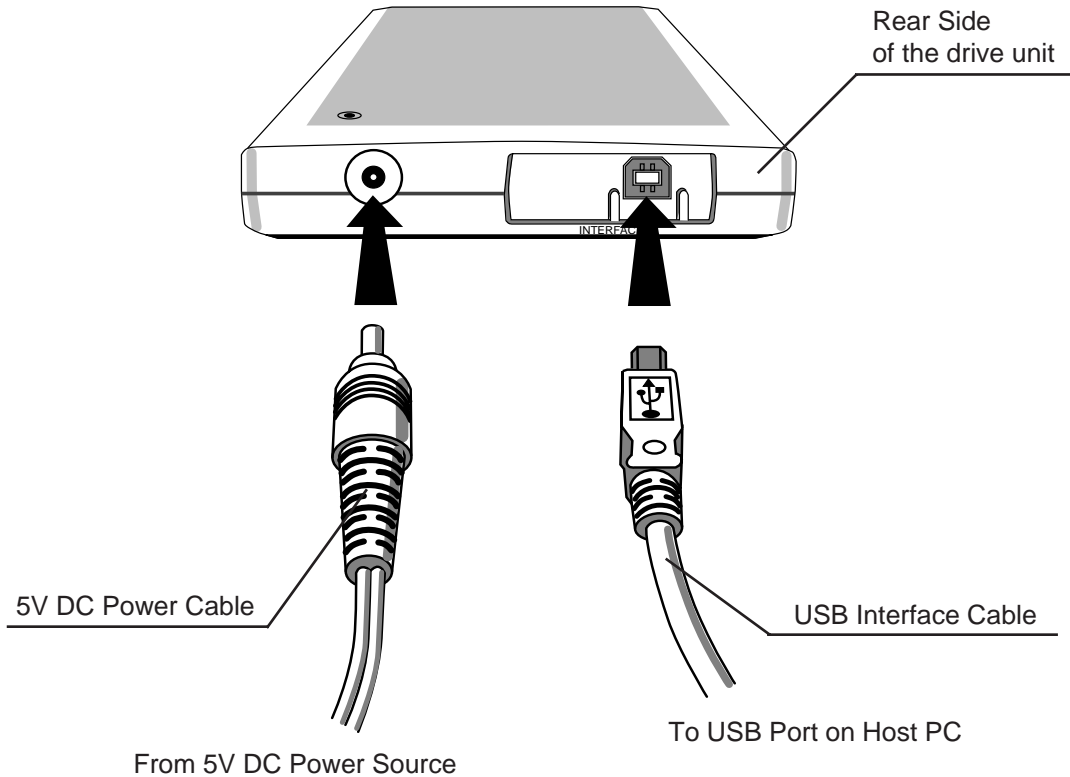
Connects to 5V DC power source.

③ **USB CONNECTOR**

Connects to host computer's USB interface port.

## CHAPTER 3 CONNECTIONS

### 3.1 CONNECTING VIEW



**Note :**

When you connect the SuperDisk drive while the host computer power is on (hot-plug), first, the SuperDisk drive must be plugged to 5 V DC power source, and next, plugged to USB port on the host computer in the order.

When you disconnect, unplug in the reverse order. If not, the host computer may hang-up.

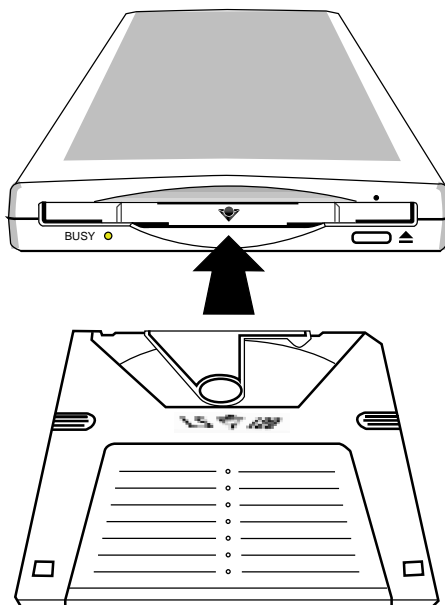
The AC Adapter for this SuperDisk(LKM-RMB33) must be satisfied the below requirements.

1. The AC Adapter has been certified to conform to the requirements of the relevant regulations.
2. The AC Adapter output is supplied through SELV (Safety Extra Low Voltage) circuit and Limited Current circuit.
3. The AC Adapter output voltage and current value are the prescribed one.

## CHAPTER 4 GUIDE TO OPERATION

### 4.1 INSTALLATIONS

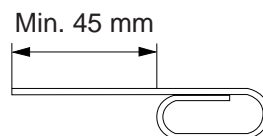
- To start operation on drive.
  - ① Turn on the power supply of Host PC.
  - ② Plug the 5V DC cable and USB interface cable from Host PC to the SuperDisc drive. (Refer the previous page)
  - ③ Insert a disk into the disk slot with the disk's label facing up and the shutter side heading as shown in the figure below.



#### CAUTION:

- Do not insert any foreign objects into the disk slot. This could result in a malfunction.
- Do not press down hard on a disk when inserting the disk, because this may cause damages or malfunction to the disk and/or the drive unit.

- In case of emergency, eject the disk manually  
If for some reason the disk does not eject automatically, press the eject-bar (for example, insert a straightened paper clip pin with minimum straight length = 45 mm, Diameter = 1 ~ 1.3 mm) into the emergency eject hole to eject the disk. (Before proceeding with this emergency step, make sure that the power is switched OFF.)



Paper clip pin

# CHAPTER 5 GENERAL DESCRIPTION

---

## 5.1 SUMMARY OF FEATURES

- ① High Data Storage Capacity (with SuperDisk diskette)
- ② Full read/ write compatibility with the standard 2DD/ 2HD (720 KB/ 1.44 MB)
- ③ Embedded USB Interface
- ④ Slim Stand Alone Design
- ⑤ Horizontal Installation Type

## 5.2 SYSTEM SET UP

The USB technology Devices are fully hot-pluggable to the USB-enabled computer. The SuperDisk drive with USB interface is able to be attached to host computer and used without turning off or rebooting the computer.

## 5.3 POWER SAVING (Standby Mode)

- ① When the drive waits for a command from the Host for more than four seconds, then the drive enters Power Save Mode. Laser and Spindle motor stop.
- ② Restart is automatic when the Host Command is acknowledged.

### NOTE :

- **USB** : Universal Serial Bus.
- **MS Windows** is a registered trademark of Microsoft Corporation.
- **IBM PC-AT** is a registered trademark of International Business Machines Corporation.
- **SuperDisk** and the SuperDisk logo are trademarks of Imation Corporation.

## CHAPTER 6 SPECIFICATION SUMMARY

---

### 6.1 PERFORMANCE

① Disk Diameter	3.5 inches
② Disk speed	720 r/min
③ Storage Capacity (Formatted)	120 MBytes (SuperDisk) 720 KB/1.44 MBytes (2DD/ 2HD)
④ Recording Density	33.8 k FCI (SuperDisk)
⑤ Track Density	2490 TPI (SuperDisk)
⑥ Typical Sustained Transfer Rate from Disk	266 ~ 479 KBytes/ s (SuperDisk)
⑦ Seek Time (average)	70 ms typical
<b>MTBF</b>	15,000 POH (@duty 25 %)

### 6.2 ERROR RATES

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

### 6.3 GENERAL PERFORMANCE

① Power requirement	+5 V $\approx$ 1.2 A
② Dimensions (W x H x D)	111 x 21.5 x 167 mm
③ Weight	370 g typ.

### 6.4 ENVIRONMENTAL CONDITIONS

	Operating	Non-operating
• Temperature	5 ~ 35 °C	-10 ~ 60 °C
• Humidity	20 ~ 80 %Rh (Non-condensation)	20 ~ 80 %Rh (Non-condensation)

Note: The Media specification limits the environment to a wet bulb temperature of 29.4 deg.C (85 deg.F)

### 6.5 PICK UP LASER

• Type	Semiconductor laser GaAlAs
• Wave Length	795 $\pm$ 20 nm
• Divergence	$\theta_v = 30^\circ \sim 36^\circ$
• Output power	3.6 mW

# CHAPTER 7 BEFORE REQUESTING SERVICE

---

## 7.1 TROUBLESHOOTING

- (1) There are many kinds of problems caused by misuses. When a problem occurs, check the table below which describes possible problems occurring with your SuperDisk drive.
- (2) If the SuperDisk drive does not operate correctly and you cannot restore operation by the following detailed procedures in the table, 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
<ul style="list-style-type: none"><li>• SuperDisk drive does not operate and Busy Indicator does not light.</li></ul>	<ul style="list-style-type: none"><li>① Ensure that the DC power cable has been plugged surely.</li><li>② Ensure that the USB connection between the SuperDisk drive and the host computer is correct.</li><li>③ Ensure that the Device Driver installation has been completed.</li><li>④ Ensure that the disk has been inserted label side up and shutter side head.</li><li>⑤ Ensure that foreign objects are not inserted.</li></ul>

## APPENDIX

---

### Installation of the SuperDisk Device Driver for Windows 98

This Device Driver software must be installed into your host computer before operating the SuperDisk drive.

1. Turn on the personal computer and start Windows 98.
2. Set the SuperDisk driver disc in your CD-ROM drive.
3. Open the **Run...** window from the **Start** menu.
4. Type "A:\SETUP.EXE" and press **OK**. (assumes that your drive is designed "A")
5. Follow the procedures displayed on the screen to install SuperDisk Device Driver.

### Formatting of SuperDisk / 2DD or 2HD disk for Windows 98 (You can also use the Formater attached with Windows 98)

1. Insert a disk that you wish to format into the SuperDisk drive.
2. Right-click on the " 3 1/2 Floppy " icon.
3. Left-click on the " Format utility For SuperDisk ".
4. " Format Utility for SuperDisk " window appears.  
Follow the procedures displayed on the screen to perform formatting of disk.

**Note :** Low-level formatting for SuperDisk disk is not supported.

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