

# **SUPERDISK USB DRIVE UNIT**

**LKM-FK73-D**

## **INSTRUCTION MANUAL**

Please read through these instructions before operating the unit.

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 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.

# 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.

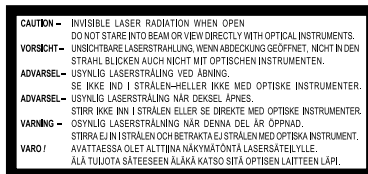
Class 1 laser products are not considered to be hazardous. To ensure continued product safety, the following precautions should be heeded.

### 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.



- 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 Swedish)
- Denne merkelappen er festet til undersiden av spilleren. (For Norwegian)
- Denne etiket er sat fast i bunden af drev-enheden. (For Danish)
- Tämä etiketti on liimattu laitteen pohjaan. (For Finnish)



- 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 Swedish)
- De kan finne dette merket på den øvre skjermen når De åpner den øverste lokken. (For Norwegian)
- Denne mærkat kan ses på den øverste afskærmning, når topdækslet åbnes. (For Danish)
- Tämä nimilappu näkyy yläsuojuksella, kun avaat kannen. (For Finnish)

### 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.

## 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. 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. 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.
8. 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.
9. Refer servicing to qualified service personnel under the following conditions:
  - A. If liquid has been spilled into the product.
  - B. If the product has been exposed to rain or water.
  - C. 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.
  - D. If the product has been dropped or the cabinet has been damaged.
  - E. If the product exhibits a distinct change in performance, indicating a need for service.

## INTRODUCTION

SuperDisk diskette can store high capacity data (240MB).

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).

2HD floppy disk can be used as a high 32MB capacity media with this SuperDisk drive.

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

**SUPER**  
**120MB** **DISK™**

**LS**  **120**

**SUPER**  
**240MB** **DISK™**

These marks are trademarks of Imation Corporation.

### System Requirements

- Computer  
IBM PC-AT or Compatible,  
iMac/ iBook/ PowerBook G3/ Power Mac G3/ Power Mac G4/ Power Mac G4 Cube
- Operating System  
MS Windows 98/ 98SE/ 2000/ Me  
Mac OS 8.6/ 9.0

# CHAPTER 1 PRECAUTIONS WHEN OPERATING

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## 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.
- \* Maximum Tilt angle of 15 degrees, use with Horizontal Installation.  
(Not recommended 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:

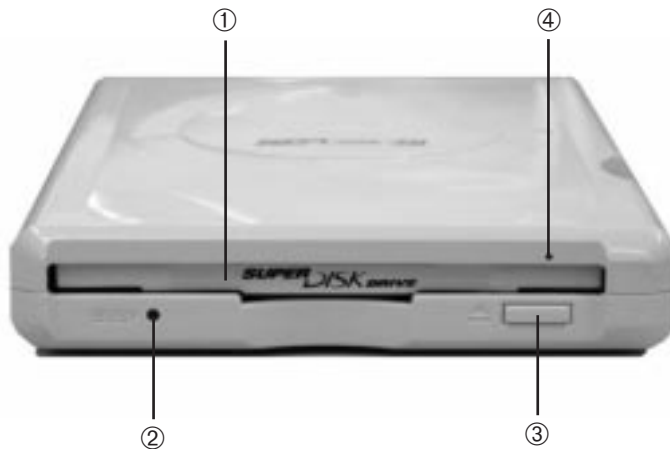
Temperature: 4 to 60 °C  
Relative humidity: 8 to 90 %  
Max. wet bulb temp. is 29 °C  
No moisture condensation



## CHAPTER 2 PARTS AND FUNCTIONS

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### 2.1 FRONT VIEW



① **DISK SLOT**

Insert a disk. (See Section 4.1)

② **BUSY INDICATOR**

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

③ **EJECT BUTTON** (No function for Mac system)

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 the lower part in Section 4.1)



## 2.2 REAR VIEW



### ① USB INTERFACE CABLE

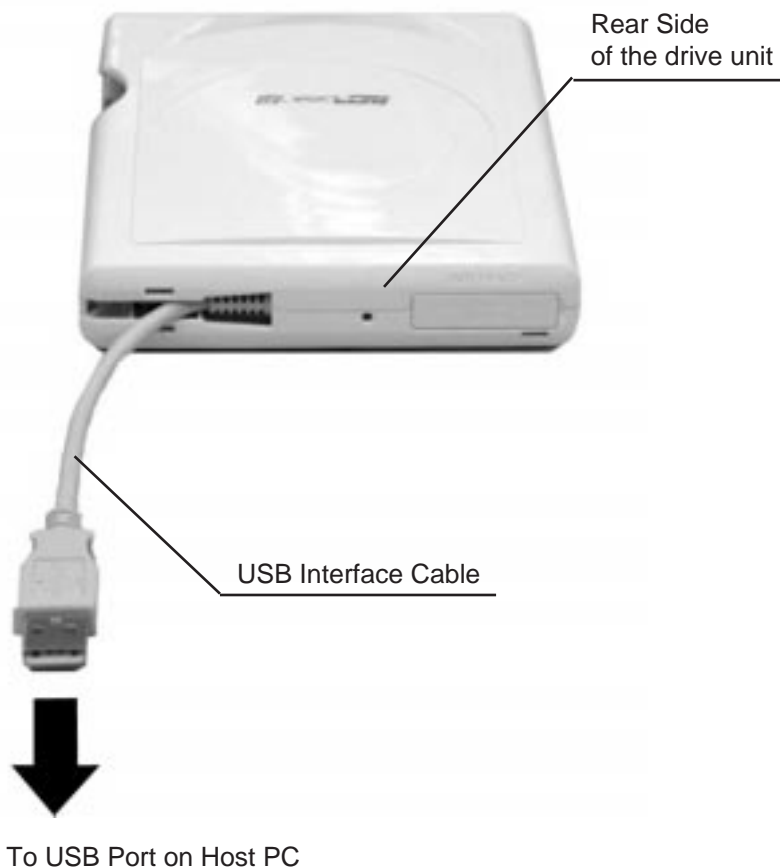
Connects the end of the cable to host computer's USB interface port.

### ② EXPANSION CONNECTOR

Not use normally.

## CHAPTER 3 CONNECTIONS

### 3.1 CONNECTING VIEW



**Note :**

You can connect the SuperDisk drive while the host computer power is on (Hot-Plug). When hot-plugging, the host PC automatically recognizes the SuperDisk device if the SuperDisk device driver is already installed into the PC.

The AC Adapter for this SuperDisk 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

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### 4.1 INSTALLATIONS

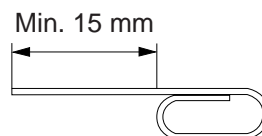
- To start operation on drive.
  - ① Turn on the power supply of Host PC.
  - ② Plug the USB interface cable of the SuperDisc drive to Host PC USB port.  
(Refer the previous page)
  - ③ Insert a disk into the disk slot with the disk's label facing up and the shutter side heading as shown in the below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



#### 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 = 15 mm, Diameter = 0.5 ~ 0.8 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

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### 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 Cable (Power Supply capability)
- ④ Slim Stand Alone Design
- ⑤ 32MB Standard FD (2HD) Formatting function

### 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.
- **iMac, iBook, Power Mac, PowerBook, Macintosh**, and the Mac OS logo are trademarks of Apple Computer, Inc.
- **SuperDisk** and the SuperDisk logo are trademarks of Imation Corporation.
- **All other product / brand names** are trademarks or registered trademarks of their respective companies.

## CHAPTER 6 SPECIFICATION SUMMARY

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### 6.1 PERFORMANCE

① Disk Diameter	3.5 inches
② Disk speed	1500 r/min
③ Storage Capacity	
Formatted	120 MBytes (SuperDisk) 720 KB/1.44 MBytes(2DD/ 2HD) 32 MBytes (2HD 32MB Formatted)
④ Recording Density	105.6 k FCI (SuperDisk)
⑤ Track Density	2490 TPI (SuperDisk)
⑥ Data Transfer Rate from Disk	600 KBytes/ s (SuperDisk)
⑦ Seek Time (average)	95 ms [ typical ] (SuperDisk)

**MTBF** 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 $\pm$ 0.5 A [ max ]
② Dimensions (W x H x D)	110 x 24.6 x 142.8 mm
③ Weight	310 g [ typical ]

### 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>	<ol style="list-style-type: none"> <li>① Ensure that the DC power is surely supplied through USB cable.</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> </ol>

## APPENDIX

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### 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.

### Installation of the SuperDisk Device Driver for Mac OS

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

1. Turn on your Macintosh computer.
2. Set the SuperDisk driver disc in your CD-ROM drive.
3. Double-click the " SuperDisk Installer CD " icon displayed on desktop.
4. Double-click the " SuperDisk Installer " icon in the opened " SuperDisk Installer CD " .
5. Follow the procedures displayed on the screen to install SuperDisk Device Driver.

**Note :**

The 32MB FD writing software " SuperWriter32 " is installed along with the above installation.

## 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 :** When formatting 2HD floppy disk, Not perform "Quick-Format".

### for Mac OS

First, insert a disk that you wish to format into the SuperDisk drive.

- for already formatted FD
  1. Click on the displayed " SuperDisk " icon.
  2. Select " Disk Initialize " from " Special " menu.
  3. Select format type and click on " Initialize " button.
- for Not formatted FD

Select format type and click on " Initialize " button in displayed dialogue\_box.

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



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