CompactFlash™ Microdrive™, SmartMedia™, MemoryStick
SDMemoryCard MultiMediaCard™ Reader/Writer

Internal 6 in 1 Drive

Model YD-8V04

User's Manual

This product and manual are intended for persons who have expert knowledge about the personal computer (PC).
Before connecting the product to your PC, read the manuals of the PC and its motherboard carefully. If you have any question, contact the store from which you purchased the product.

<div style="background-color: yellow;">

Important instructions for use of the Internal 6 in 1 Drive

This product usually comes built in a PC. If you install or remove the product from your PC by yourself, read the manual for the PC and pay much attention so as not to suffer an electric shock.

</div>

Caution	■ Before building the Internal 6 in 1 Drive in your PC, read through this manual. The driver software may have to be installed in advance. ■ Before turning the power to the PC on or off, remove all media from the product. ■ This product is precision equipment. So do not drop the product, give a strong impact to it, or install it in locations exposed to heavy vibrations or high temperatures; doing so may cause the product breakdown.
Prohibition	■ Do not disassemble or modify the product. Disassembly or modification may cause a breakdown, fire, or electric shock. ■ Do not use or store the product in wet locations. The entry of liquid into the product may result in a breakdown, fire, or electric shock. ■ Do not insert any media other than specified ones. The insertion of a metal piece such as a coin or clip may lead to a breakdown, fire, or electric shock. ■ Do not remove the media from the product when its access LED lamp stays illuminated. ■ This product is intended for being used in general electric equipment. Do not use it in equipment (aerospace equipment, atomic power control system, traffic-related equipment, transportation equipment, industrial robot, combustion equipment, various safety devices, life-support system, etc.) that special quality and reliability are required, or that may threaten the human life or cause injury to the human body.

- It is prohibited by the copyright law to reproduce the whole or part of this software and User's Manual and rent the software, without permission of the copyright holder.
- We bear no liability for any pecuniary losses and lost profits resulting from use of the software included with this product, and any claims from third parties.
- This software cannot be used on other than specified equipment.
- The specifications of this software are subject to change without notice.
- We assume no responsibility for any breakdown and damage caused by misuse, troubles from other equipment, undue repairs or modifications.
- If this product should have any defect attributable to manufacture, we will exchange it with a new one, but cannot take on any more responsibility.

Illustrative pictures in this manual may differ from the PC's actual screens.

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SD Logo is a trademark.
Microsoft Windows is a registered trademark of Microsoft Corporation.
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Contents

1. About this manual (Supplementary remarks)

This manual is intended for customers who specialize in the assembly of build-to-order (BTO) PCs and other PCs.
If you are an end user, give great attention to the following items when using this product & manual.

- **Thoroughly read the manuals of your PC and its motherboard.**

- **Before mounting the product in your PC, be sure to turn off the power to the PC and remove the PC's power cord from the wall outlet. (Recent PCs still remain internally live even after terminating Windows.)**

- **When connecting the USB cable supplied with this product to the motherboard, firstly read the manual for the motherboard to learn the position and pin configuration of the USB connector.**
  Connecting the USB cable to a non-USB connector or to a wrong USB connector position may result in a serious breakdown of not only this product but also other equipment and the PC.

2. Overview

The Internal 6 in 1 Drive combines a USB (Universal Serial Bus)-compliant card reader/writers for SmartMedia, MemoryStick, SDMemoryCard, MultiMediaCard, Microdrive and CompactFlash cards. The card reader/writers are to be connected to the USB port of the PC. To use the Internal 6 in 1 Drive, the following requirements must be met: your PC is equipped with the USB port; the OS installed in the PC supports USB; and the driver software for the Internal 6 in 1 Drive is installed in the PC.

3. Features of the Internal 6 in 1 Drive

1) Hardware can be used by connecting a USB connector and software can be used only by installing device driver software.

2) The Internal 6 in 1 Drive can be installed in the space that one conventional 3.5 inches Floppy disk drive can fit in.

3) Internal 6 in 1 Drive is a built-in unit. The reboot of Internal 6 in 1 Drive by extraction and insertion of a cable and the separation from a system is difficult. Therefore, Internal 6 in 1 Drive has the USB Interface disconnect SW in the front bezel.

4) The Internal 6 in 1 Drive can be used in extensive environments: Windows XP, Windows 2000, Windows Me, Windows 98, and Windows 98 Second Edition.

3.1. Compatible Oses

PC	OS	Driver software
Windows	Windows XP	This product works with the standard driver in Windows. Install the drive label driver from the CD-ROM to use this product with the special drive labels.
	Windows 2000	Install the driver software from the CD-ROM after installing Windows 2000 Service Pack 3.
	Windows Me	This product works with the standard driver in Windows. Install the drive label driver from the CD-ROM to use this product with the special drive labels.
	Windows 98 Windows 98 Second Edition	Install the driver software from the CD-ROM.

NOTE:

1) When you use OS of Windows 2000, although attached CD-ROM can also install the driver software before Service Pack 3, in order to use it in the optimal environment, We recommend you to install Service Pack 3. Moreover, if Service Pack 3 is installed, please re-install the driver software from CD-ROM.
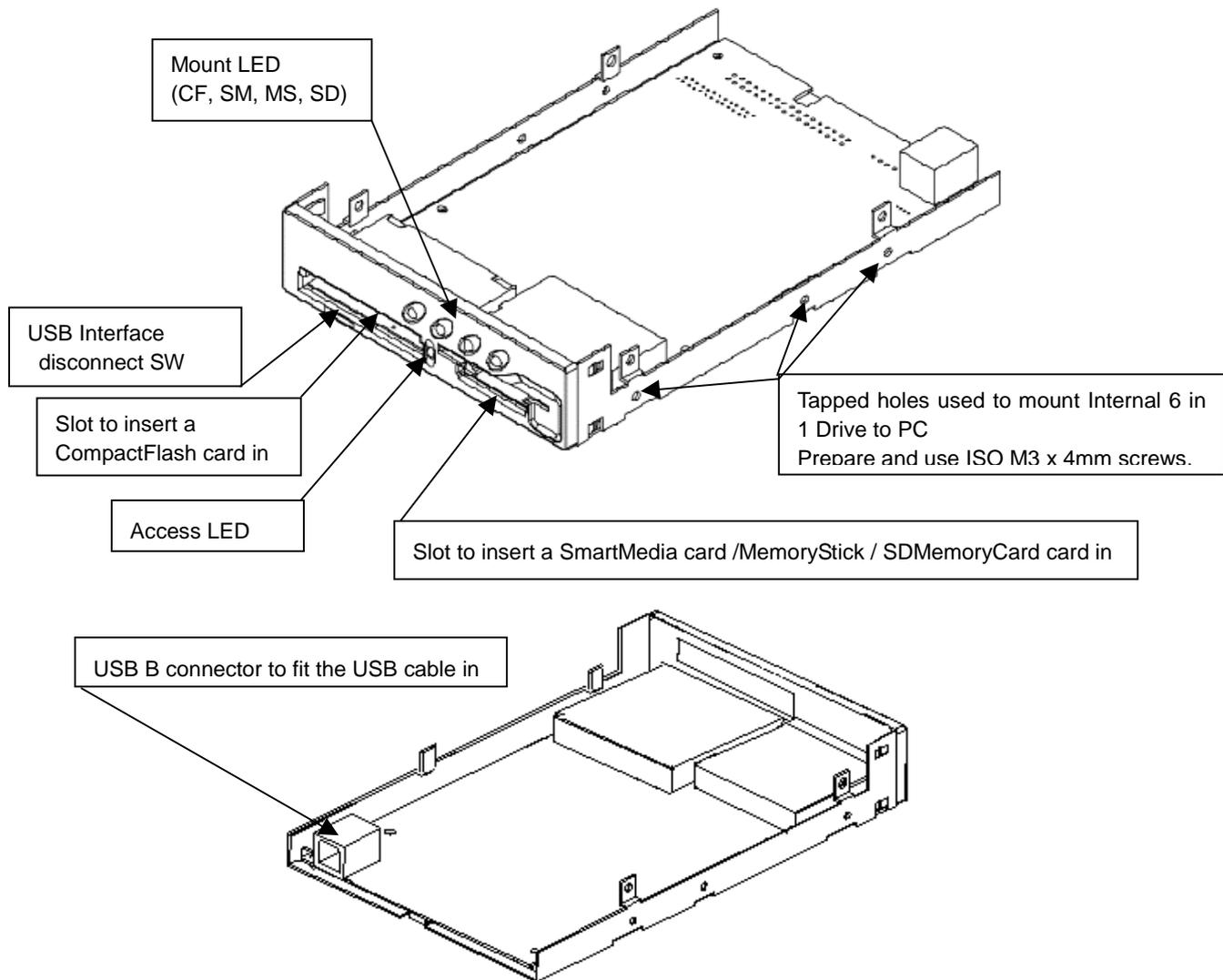
3.2. Compatible storage media

Slot	Compatible media
CompactFlash	DOS-formatted memory cards are supported. I/O cards such as modem, LAN, and PHS cards are not supported.
Microdrive	We have checked the operation of IBM Type II Microdrives of up to 1 GB. When using an IBM Microdrive, remove other memory cards. The Microdrive requires more power than other memory cards, if with other memory cards at the same time, an error may occur due to a shortage of power.
SmartMedia	DOS-formatted memory cards between 2 MB and 128 MB are supported. Only 3.3 V cards (including indicated as 3 V) are supported. 5 V cards are not supported. You can use SmartMedia cards with an ID, but the ID feature is not supported. Music data and other protected file types with anti-piracy functions are not supported. ROM cards are not supported.
MemoryStick	Sticks between 4 MB and 128 MB are supported. Magic Gate cards (white) are supported, but the Magic Gate feature is not supported, so music data and other protected file types with anti-piracy functions are not supported. I/O cards that are not memory such as GPS cards are not available.
SDMemoryCard	Cards between 8 MB and 128 MB are available. Cards of 256 MB and 512 MB are planned to be supported in the future. The Secure Digital feature is not supported, so music data and other protected file types with anti-piracy functions are not supported. SD I/O cards and SD Combo cards are not available.
MultiMediaCard	Cards between 8 MB and 128 MB are available. Cards of 256 MB and 512 MB are planned to be supported in the future. The Secure Digital feature is not supported, so music data and other protected file types with anti-piracy functions are not supported. SD I/O cards and SD Combo cards are not available.

NOTE:

1) In this manual, the above six types of media are generically called memory cards.
2) When using a Microdrive, do not use other memory cards at the same time because of its large power consumption.
3) Memory Sticks, MultiMediaCards, and SD Memory Cards use the same slot, so you cannot use them at the same time.
4) Only DOS format is supported. Memory cards formatted not in DOS format are not available.
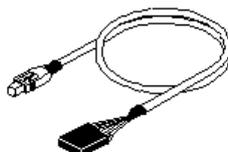
3.3. Exterior features

Mount LED
(CF, SM, MS, SD)

USB Interface
disconnect SW

Slot to insert a
CompactFlash card in

Access LED

Tapped holes used to mount Internal 6 in
1 Drive to PC
Prepare and use ISO M3 x 4mm screws.

Slot to insert a SmartMedia card /MemoryStick / SDMemoryCard card in

USB B connector to fit the USB cable in

[Important] For mounting on the PC, consult the manuals supplied with your PC and its motherboard.
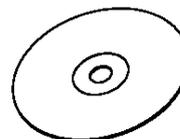
3.4. Package Content
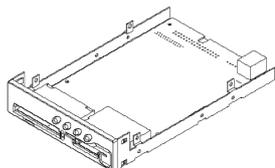
Internal 6 in 1 Drive   **USB cable**   **Driver CD-ROM**

NOTE: Memory cards are not included. Purchase them separately.

4. How to attach

4.1. Handling notes

The Internal 6 in 1 Drive should maintain the next notes about handling.

- **When you carry the Internal 6 in 1 Drive, please be sure to have the portion that the side fixes.**

- **Since a substrate is nakedness, please do not touch a substrate.**

- **When attaching the Internal 6 in 1 Drive, please attach a label under.**

- **When you place the Internal 6 in 1 Drive, please place a label under.**

- **Before working the inside of a computer, in order to avoid the danger of an electric shock, and damage, please be sure to carry out after pulling out the power supply plug of a computer.**
  (Please keep 5 seconds after pulling out a power supply plug.)

- **Since the inside of a computer is worked, please fully perform the measure against static electricity.**

4.2. How to install the Internal 6 in 1 Drive in equipment
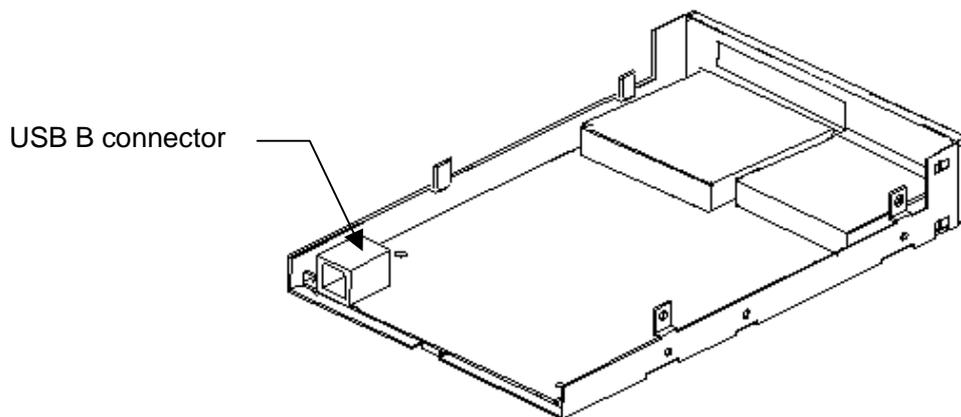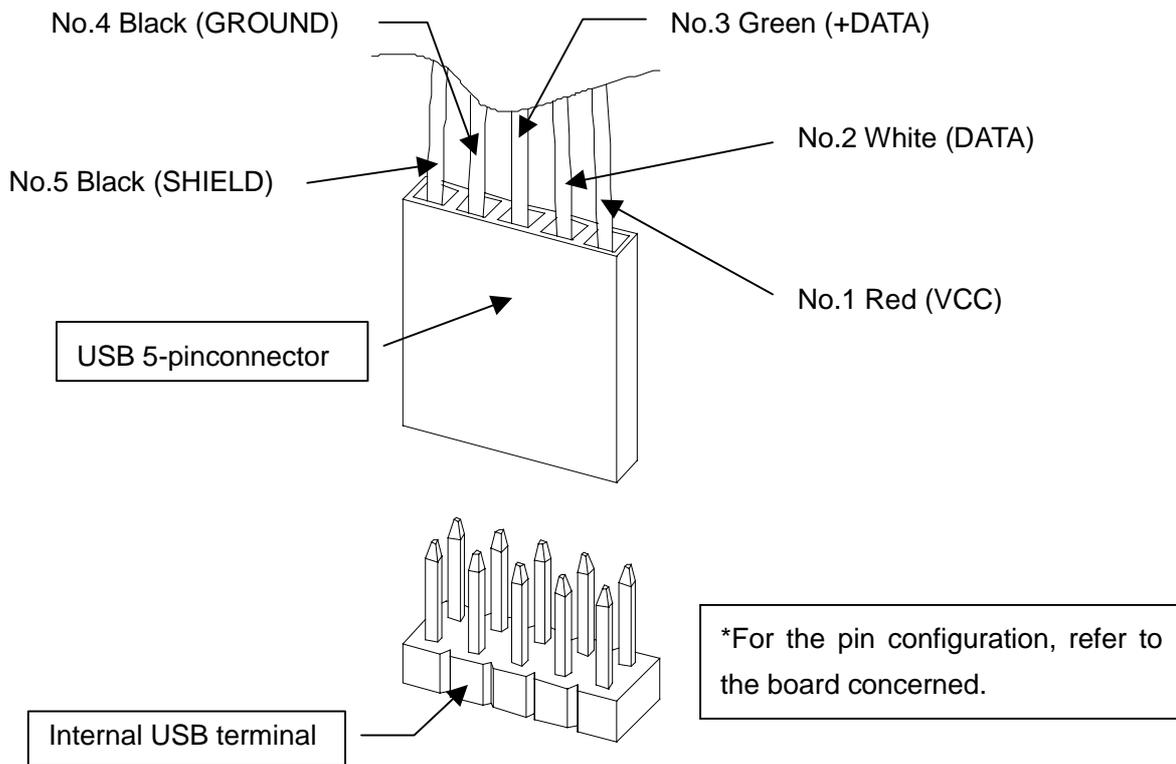
1) Please turn off the USB Interface disconnect SW switch in the front of Internal 6 in 1 Drive.

2) Align the tapped holes on the sides of the Internal 6 in 1 Drive with the PC-side mounting holes.

3) Secure the Internal 6 in 1 Drive with four M3 x 4mm long screws. (If you use screws longer than 4 mm, the inner parts of this product may interfere with them, thus causing a problem.)
- Tightening torque: 40~60cN/m, (4~6kgf/cm)
- Recommended screw length: M3 x 4 mm long screws
  (It is assumed that the PC-side bracket is 0.5 to 1 mm thick.)
    (Screw-in depth on the Internal 6 in 1 Drive side: MAX.4mm)

4.3. **How to connect the cables**

1) Connect the 5-pin connector of the USB cable (the interface's internal cable) to the USB terminal inside the motherboard.

- Pay attention to the direction of installation. See the reference illustration below.

No.4 Black (GROUND)   No.3 Green (+DATA)

No.2 White (DATA)

No.5 Black (SHIELD)

No.1 Red (VCC)

USB 5-pinconnector

Internal USB terminal

*For the pin configuration, refer to the board concerned.

USB B connector

5. Before use

If the Internal 6 in 1 Drive is already built before OS is installed, on installation about Windows 2000,98, and 98SE the memory cards are treated as other devices and do not operate, but this is normal. About Windows XP and Me, removable disk icon is displayed.

- **Before using the Internal 6 in 1 Drive, install the driver software after the USB Interface disconnect SW is OFF.** When adding the Internal 6 in 1 Drive to the PC equipped with an OS, install the Internal 6 in 1 Drive driver software by starting up its installer software before building the Internal 6 in 1 Drive hardware into the PC.

- **If the hardware is built in before execution of the installer, when the hardware wizard appears, be sure to "cancel" the wizard, and then start up the installer.**

- There are four types of driver software: for Windows XP, and for Windows 2000, and for Windows Me, and for Windows 98, and Windows 98 Second Edition.

> **[Important]**
> **If an earlier version of driver software or the driver software for our USB Hexa Media Drive is installed, uninstall it before installing the Internal 6 in 1 Drive driver. The Internal 6 in 1 Drive driver is compatible with the USB Hexa Media Drive. (Both operate with the same driver.) For the method of uninstalling driver software, refer to Paragraphs 6.3 "How to uninstall the driver software."**

6. How to install

6.1. How to install driver software

CD-ROM corresponds to Windows XP, 2000, Me, 98 and 98SE. Insert the driver CD-ROM into the PC. Then the installer will automatically start up. Installer identifies the OS version, and starts up the installer software. The procedure of installation on Windows XP is as follows. The procedure on other OS is almost same.

1) Before starting Windows, confirm the USB Interface disconnect SW of Internal 6 in 1 Drive is OFF.

2) Start up Windows and log in with the user name that is given Administrator privileges.

3) Insert the driver CD-ROM into the PC. Then the installer will automatically start up. The installer identifies the OS version, and starts up the installer software. When Install.exe does not start up automatically, open the CD-ROM in the My Computer folder, and double-click on the Install icon to start. Please click [INSTALL], if an installer displays.
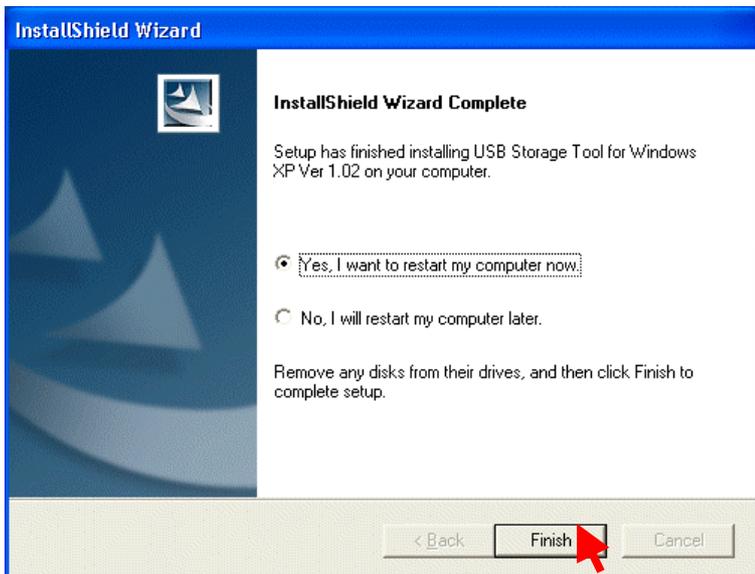

4) Please push the [OK] button.

5) Descriptions about the method of installation are shown. Click on the [Next] button to go to the next step. Begin installing the driver files.
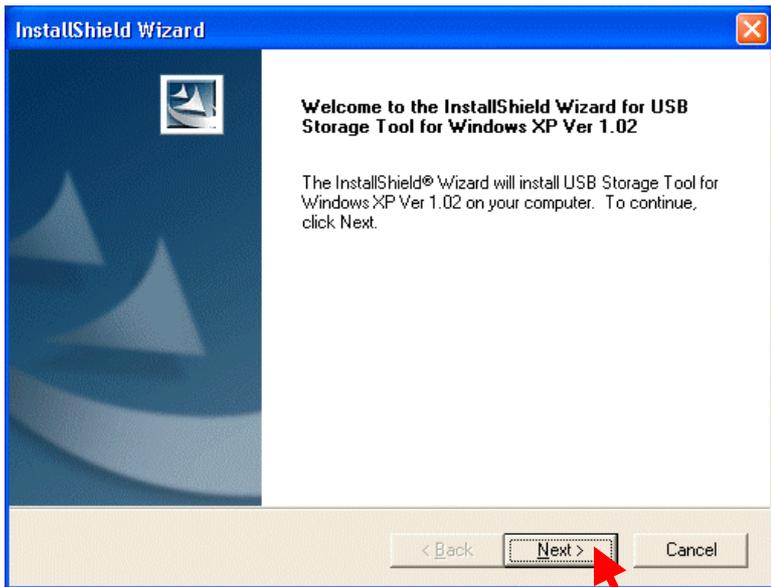
6) Installing the files of the driver software is complete now. Click on the [Finish] button to exit the installer.

7) In order to make Windows detect the Internal 6 in 1 Drive, it is necessary to restart your PC following based on Item 6) or choose of [Restart] from a start menu as below.

In the case of Windows XP
   Choose [Turn off computer] from a start menu and choose [Restart] from [Turn off computer] menu.
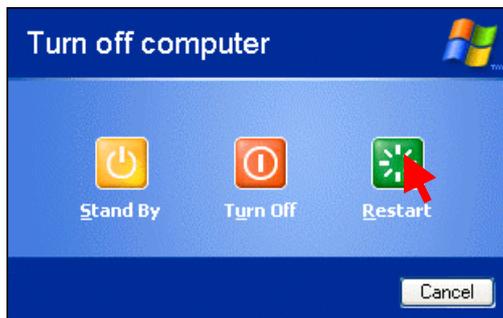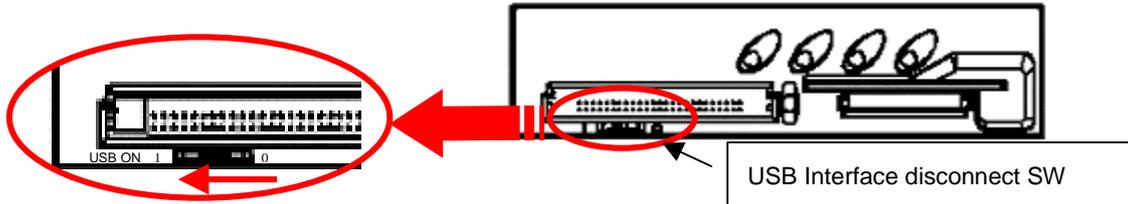

In the case of Windows 2000, Me, 98, 98SE
(The display has quoted Windows 2000.)
   Choose [Shut Down Windows] from a start menu and choose [Restart] from [Shut Down Windows] menu.

8) Please log in by the account that has Administrator authority again.

9) Please turn on "USB ON" the USB Interface disconnect SW of Internal 6 in 1 Drive. Windows automatically recognizes Internal 6 in 1 Drive, and the addition of new hardware is performed. If my computer folder is opened after ending, four icons are added as shown in the following figure. In addition, a drive letter (E: F: etc.) changes according to the environment of user's PC.

USB Interface disconnect SW

In the case of Windows XP SP1

In the case of Windows 2000, Me, 98, 98SE
(The display has quoted Windows 2000.)

10) If one icon is selected and double-clicked, the file on memory card will be displayed and be accessed.

| Icon		Corresponding Memory Card
In the case of Windows XP SP1	In the case of Windows 2000, Me, 98, 98SE	
		CompactFlash Microdrive
		SmartMedia
		MemoryStick
		SDMemoryCard MultiMediaCard

 : In case of such OS before Windows XP SP1, the icon of a left figure displays.

6.2. How to change the drive letter (Reference information)

Installing the Internal 6 in 1 Drive may change the drive letters (E, F, etc.) of the CD-ROM drive and other drives. In this case, you can change the drive letters of the SmartMedia and CompactFlash card reader/writers by setting in the Computer Management menu. The procedure for changing the drive letter is described below.
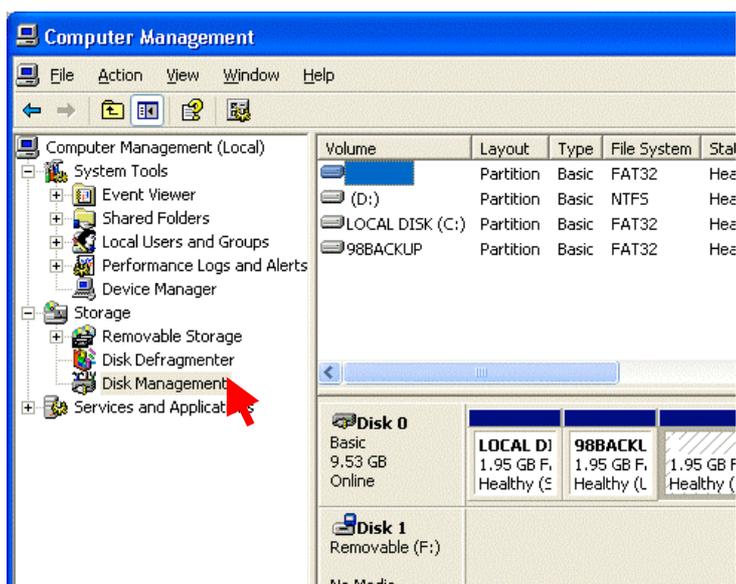
1) In the Control Panel winodw, double-click on the Administrative Tools icon to open it.
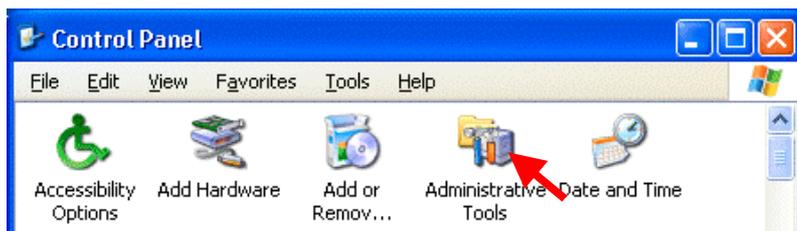
2) In the Administrative Tools, double-click on the Computer Management icon to open it.
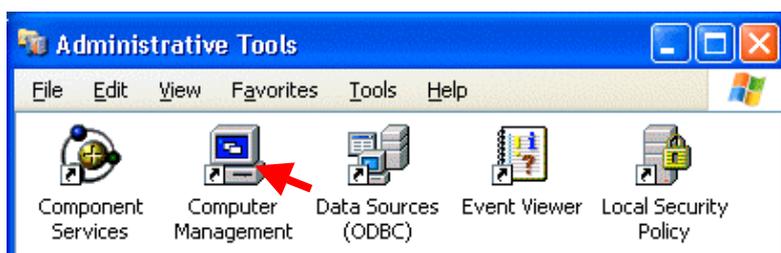
3) Select the Disk Management in the Storage folder, and the information about the disks will be shown on the right.

4) Right-click on the disk of which the drives letter you want to change, and in the displayed menu, select and click on [Change Drive Letter and Paths…].
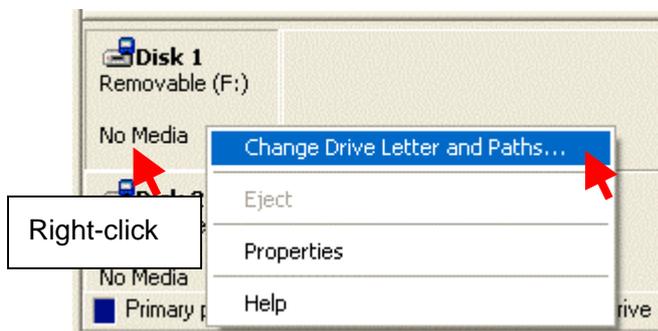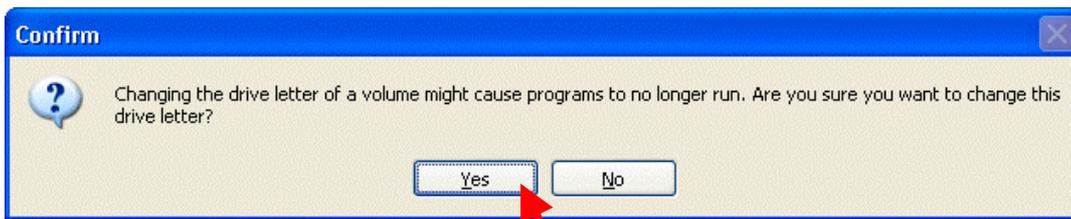

5) The following window for changing the drive letter will be displayed. Click on [Change…].
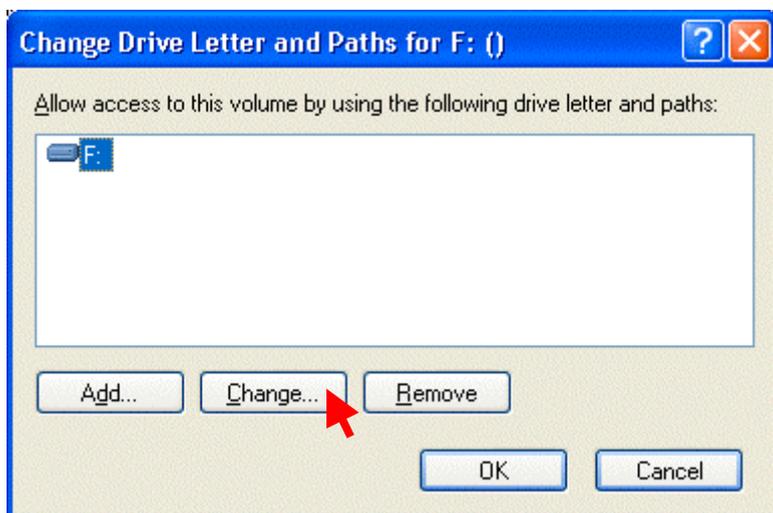
6) In the following window for editing, set a desired drive letter and click on the [OK] button. In this example, the drive letter of the CompactFlash card drive is set to J.
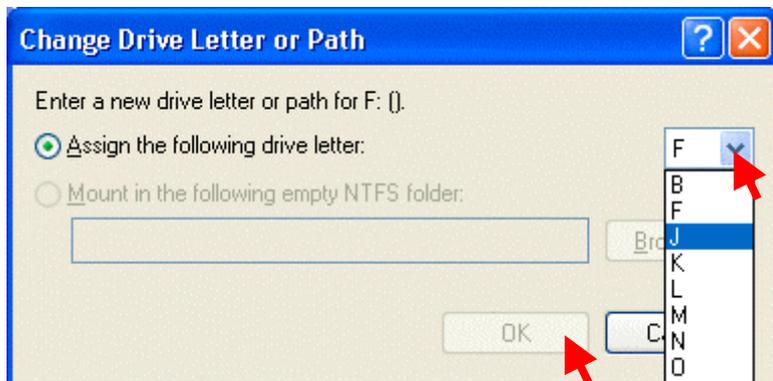
7) The following confirmation dialog box will appear. Click on the [Yes] button.

8) When the My Computer is opened, the change is reflected. In the this example, the CompactFlash and SmartMedia card drives are set to J and K, respectively.
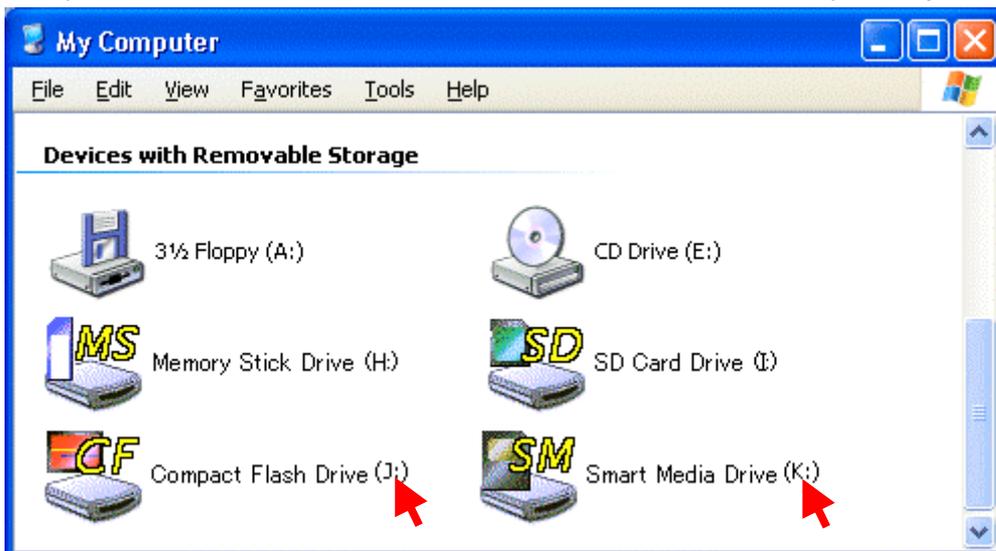
6.3. How to uninstall the driver software

When updating the driver software, it is necessary to uninstall the existing driver software before installing new driver software. To uninstall, comply with the following procedure.

1) The USB Interface disconnect SW of Internal 6 in 1 Drive is OFF.
2) Double-click on the Add/Remove Programs icon in the Control Panel to open the appropriate window.
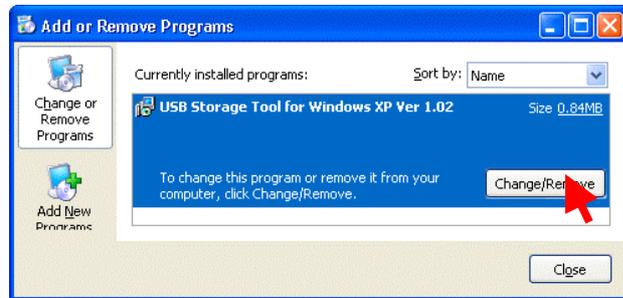
In the case of Windows XP
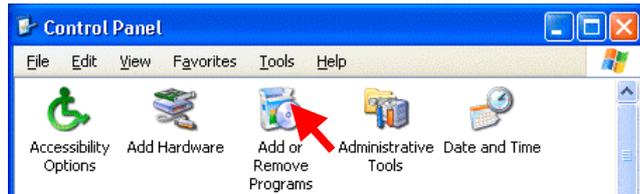
In the case of Windows 2000, Me, 98, 98SE
(The display has quoted Windows 2000.)
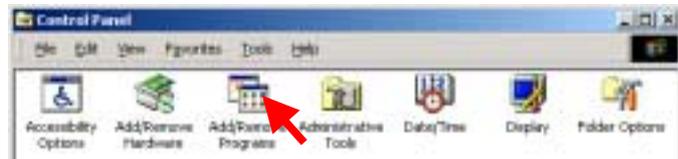
3) In the Add/Remove Programs window, the list of applications installed is displayed. In this list, select Internal 6 in 1 Drive, and click on the [Remove] button. Then the uninstaller for the driver will start up. Operate in accordance with the instructions shown on the screen, and the driver will be uninstalled.

In the case of Windows XP

In the case of Windows 2000, Me, 98, 98SE
(The display has quoted Windows 2000.)
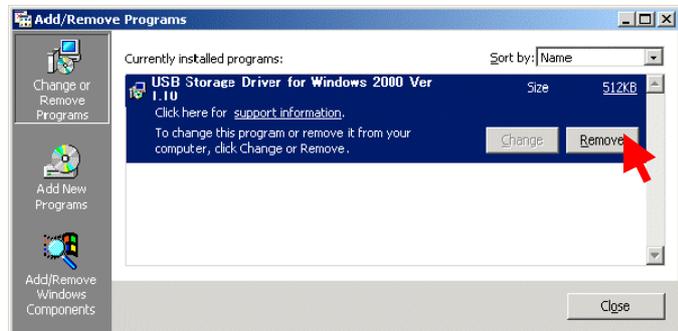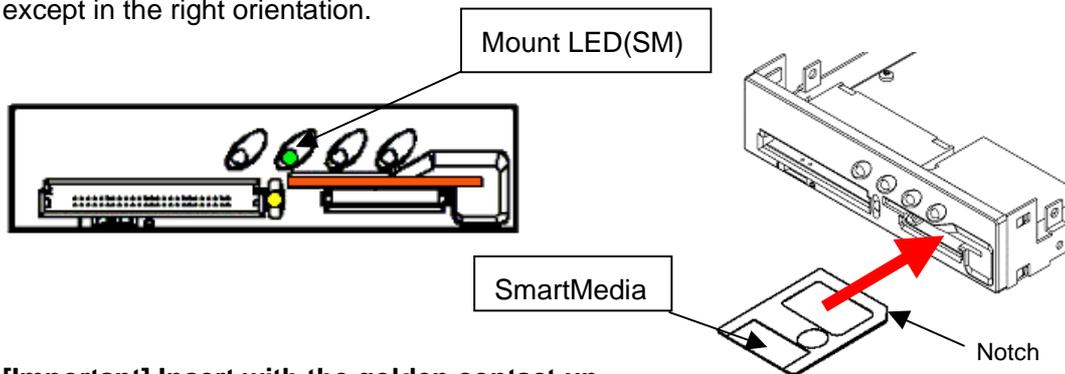
7. How to operate the Internal 6 in 1 Drive

7.1. Inserting the memory card

7.1.1. Inserting the SmartMedia card

The SmartMedia card operates as a USB-interfaced removable disk.

1) Inserting the SmartMedia card

    The SmartMedia card should be inserted into the SmartMedia card slot located in the right-hand part of the Internal 6 in 1 Drive. When inserting the card, push it in with the golden contact side up as far as it will go. When the card is inserted correctly, it is protruded by about 5 mm. The card slot is so designed that the card cannot be inserted except in the right orientation.

[Important] Insert with the golden contact up.

7.1.2. Inserting the MemoryStick

The MemoryStick operate as an USB-interfaced removable disk.

1) Inserting the MemoryStick

    The MemoryStick should be inserted into the MemoryStick / SDMemoryCard slot located in the right-hand part of the Internal 6 in 1 Drive. When inserting the card, push it in as far as it will go. The card slot is so designed that the card cannot be inserted except in the right orientation.
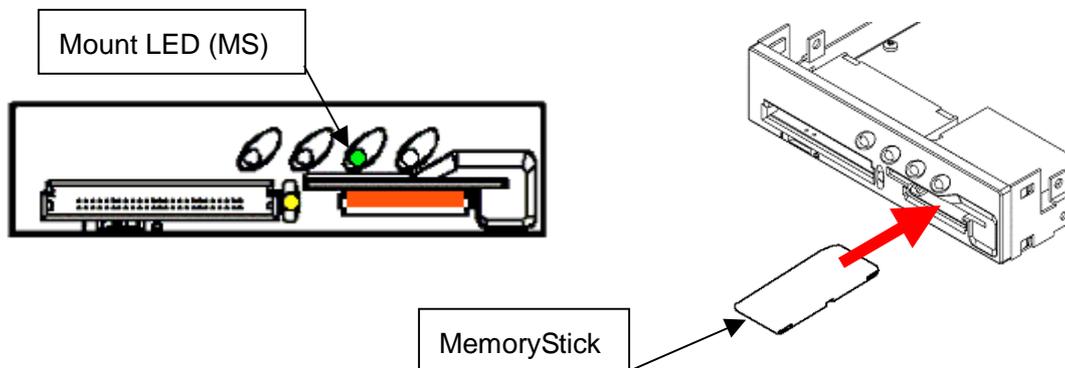
7.1.3. **Inserting the MultiMediaCard, and SDMemoryCard**

The MultiMediaCard, and SDMemoryCard operate as a USB-interfaced removable disk.

1) Inserting the MultiMediaCard, and SDMemoryCard

The MultiMediaCard and SDMemoryCard should be inserted into the MemoryStick / SDMemoryCard slot located in the right-hand part of the Internal 6 in 1 Drive. When inserting the card, push it in as far as it will go. The card slot is so designed that the card cannot be inserted except in the right orientation.

Mount LED (SD)

SDMemoryCard and MultiMediaCard

7.1.4. **Inserting the CompactFlash card and Microdrive**

The CompactFlash card and Microdrive operates as an USB-interfaced removable disk.

1) Inserting the CompactFlash card and Mcirodrive

The CompactFlash card and Mcirodrive should be inserted into the CompactFlash card slot located in the left-hand part of the Internal 6 in 1 Drive. When inserting the card, push it in as far as it will go. When the card is inserted correctly, it is protruded by about 8 mm. The card slot is so designed that the card cannot be inserted except in the right orientation.
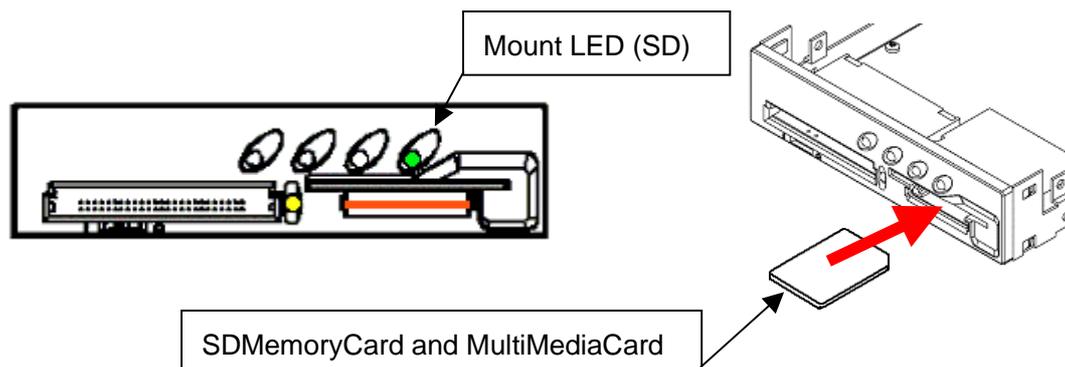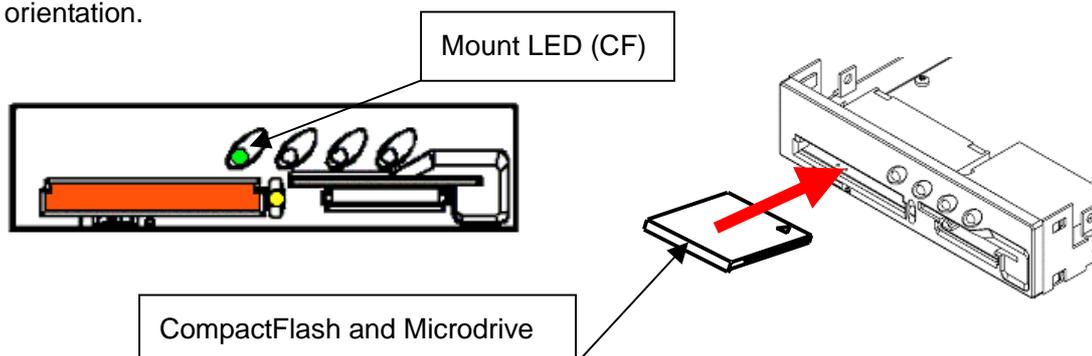
Mount LED (CF)

CompactFlash and Microdrive

7.2. **How to operate on Windows**
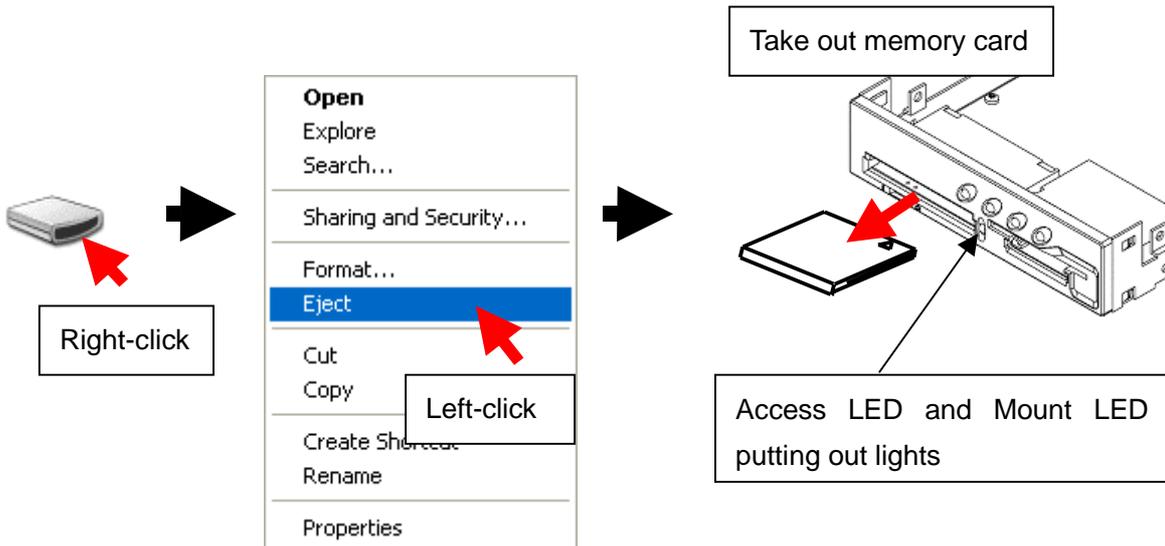
1) Inserting the Memory Card (Mount)

If memory card is inserted in Internal 6 in 1 Drive, the mount LED of the inserted card will light up. An access LED lights up simultaneously and access becomes possible.

Memory card is the right direction and please insert it to the back promptly. If it inserts slowly or stops on the way, it may be unable to recognize correctly.

Mount LED (CF, SM, MS, SD)

Access LED
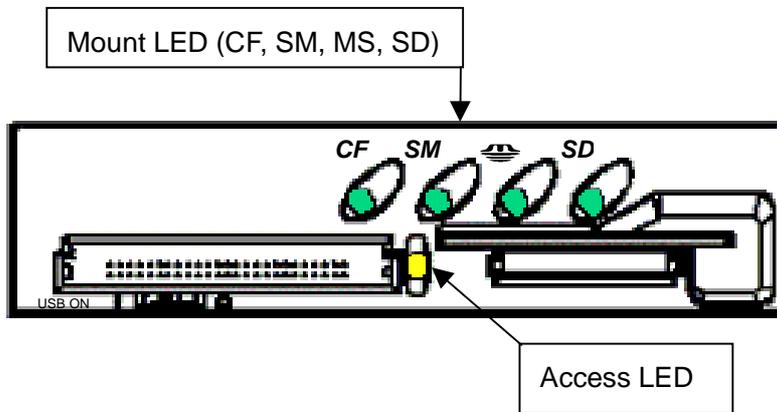
2) Removing the memory card

Make sure that a file on the media is not being used by an application or being copied. When you take out memory card safely, Please perform a right click by the icon of the removable disk chosen from my computer. [Eject] is clicked from a menu. After it performs extraction operation and an access LED checks putting out lights, a finger pinches and draws out memory card.

Take out memory card

Right-click

| Open |
| Explore |
| Search... |
| Sharing and Security... |
| Format... |
| Eject |
| Cut |
| Copy |
| Create Shortcut |
| Rename |
| Properties |

Left-click

Access LED and Mount LED putting out lights

[Important]

When writing to a memory card in Windows XP and 2000, an access to the card may be caused by a delayed write operation even after the access LED goes out. For safety purposes, wait about 30 seconds after the access LED becomes unlit, then remove the media.

8. Restriction

1) Precautions for use in Windows XP, 2000 and, Me

   Windows XP, 2000 and, Me shows the icon for disconnection in its task tray, but this icon should not be used to disconnect. If you disconnect the Internal 6 in 1 Drive by clicking on the icon, its memory card reader/writers cannot be used any more until Windows XP, 2000 and, Me is restarted.

2) Media formatting

   To format a media, right-click on the appropriate drive icon in the My Computer, and select [Format] in the displayed menu.
   If you use a digital camera, take notice that when a media is formatted in Windows, the media sometimes comes not to be recognized by your digital camera because of different specification in the formatting. The memory cards must be formatted with your digital camera.
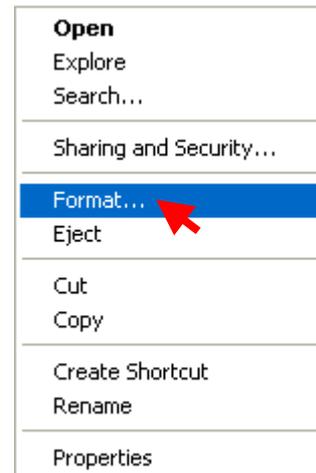

3) Standby

   The Internal 6 in 1 Drive supports the standby function based on the PC-2000 standard, not all PCs' standby function. So, if the standby operation of your PC causes any problem, do not use the function.
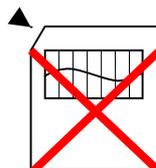   During standby, do not insert or remove the media.

4) Usable SmartMedia card

   The Internal 6 in 1 Drive supports 3.3-volt and 3-volt SmartMedia cards, not the old 5-volt type.
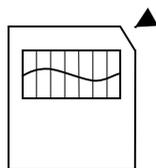
   3.3V and 3V type   5V type

[Important] The Internal 6 in 1 Drive is so designed that the 5-volt SmartMedia card cannot be inserted. Do not insert it by force.

5) SmartMedia card handling

If the contact area of a SmartMedia card is dirty, a read error may be caused. Keep the contact area clean.

6) SmartMedia card with ID

The Internal 6 in 1 Drive does not support the ID information of the SmartMedia card, but allows you to use any SmartMedia card with ID as a usual media.

7) Restrictions on the DOS mode

The memory card reader/writers do not operate in the DOS mode. To use those reader/writers, start up Windows.

9. Product specification

9.1. Physical Specifications

	Description	Specification
Drive Unit	Size (Excluding protrusion)	101.6 $\pm$0.4 mm (W) X 25.4$\pm$0.5 mm (H) X 155 $\pm$1 mm (D)
	Weight	185 g (TYP)
	Color (Standard)	Front Panel: Pearl White

9.2. Electrical Specifications

Description	Specification
USB Specification	FULL SPEED(12Mbps)
Power Supply Voltage	DC 4.75 V to 5.25 V
Current Consumption	500 mA (Max) [1]
Regulations	UL, cUL, CE, FCC-Class B, VCCI Class B
Access LED	Yellow color. light on when access.

*1 Without using MicroDrive.
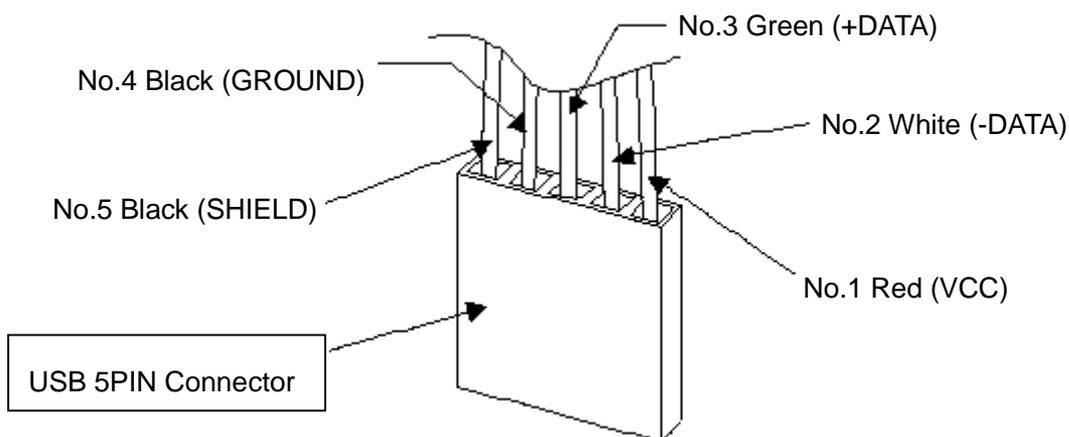
9.3. Environment Specifications

Description	In operating	In non-operating
Temperature	5 - 40 ℃	-30 - 60 ℃
Relative Humidity	30 - 80 %RH	No condensation
Maximum Wet Bulb Temperature	29 ℃	--------
Vibration Sweep Time: 5.6 minutes Test time: 10 minutes (each direction) Direction of Sweep: XYY'	$9.8 \ m/s^2$ (10 - 200 Hz) (1.0G) $4.9 \ m/s^2$ (200 - 500 Hz) (0.5G)	$19.6 \ m/s^2$ (10 to 500 Hz) (2.0G)
Shock Direction of Shock: XYY'	$49 \ m/s^2$ (11 ms Half Sine) (5.0 G)	$980 \ m/s^2$ (11ms Half Sine) (100G)
Electrostatic Discharge	IEC 61000-4-2 level 2 Compliant(contact discharge) IEC 61000-4-2 level 3 Compliant(air discharge)	

9.4. Attached USB cable specifications

Description	Specification
USB Connector	USB Type B Connector
5 PIN Connector	Housing: RE-05 (JST) or Equivalent Terminal: RF-SC2210 (JST) or Equivalent
Cable length	70cm

5 PIN CONNECTOR PINPOUT

USB Connector Pin No.	(Lead Wire)		5 Pin Connector
	Signal name	Electric wire color	
1	VCC	(Red)	1
2	-DATA	(White)	2
3	+DATA	(Green)	3
4	GROUND	(Black)	4
Plug Shell	Shield	(Black)	5

No.4 Black (GROUND)

No.3 Green (+DATA)

No.2 White (-DATA)

No.5 Black (SHIELD)

No.1 Red (VCC)

USB 5PIN Connector

[Important]

Before connecting, make sure the pin configuration is in agreement with that on the PC side, consulting the manual for your PC.

10. About inquiries

Inquiries should be directed to the store from which you purchased the product or any store that is provided on the package.