FireDock Series

FR-DK1/FR-DK2/FR-MDK1

User's Manual

Contents

RATOC Systems, Inc.

1. Introduction

1-1. Features

• This HDD docking module includes RATOC's original circuit and firmware for high-performance FireWire/IEEE1394 to IDE conversion. It supports UDMA/66 and achieves over 30MB/Sec. sustained HDD Read Speed.
• This HDD docking module includes two 400Mbps FireWire/IEEE1394 ports and works as a stand alone repeater even if you turn the key switch to the unlocked position.
• Hot-Swapping support.
• Plug and Play, recognized and mounted by the OS automatically.
• Allows HDD exchanging without the System shutdown or restart.

1-2. Package Confirmation

FireDock series are as follows. Check your package contents:

[Product Name:FR-DK1]
• FR-DK1
• One lock key
• Screws to mount a HDD
• One 6-6pin 1394 cable(1 m)
• One 6-4pin 1394 cable(1 m)
• Support software CD-ROM
• AC Cable(1m, 3pin)(3P - 2P plug included)
• User's Manual

[Product Name:FR-DK2]
• FR-DK2
• One lock key
• Screws to mount a HDD
• One 6-6pin 1394 cable(1 m)
• One 6-4pin 1394 cable(1 m)
• Support software CD-ROM
• AC Cable(1m, 3pin)(3P - 2P plug included)
• User's Manual

[Product Name:FR-MDK1]
• FR-MDK1
• One lock key
• Screws to mount a HDD
• One 6-6pin 1394 cable(1 m)
• Support software CD-ROM
• User's Manual

NOTE
1.FireDock series don't include a HDD.
2.If any of these items are missing from the retail package, contact your supplier immediately.

1

1-3. System Requirements

•Windows
  PC with 1394 port
  OS:Windows 98SE/Windows 2000/Windows Me

•Macintosh
  PowerMac G3/G4/G4 Cube, PowerBook G3/G4, iMac DV/DV+/SE, iBook,
  iBook SE with FireWire port (except for PowerBook G3 Pismo)
  OS:MacOS 9.0.4/9.1, MacOS X

1-4. Restrictions

(1)If you use the FR-MDK1, you have to connect it to your computer properly.
   For more information, refer to Chapter 2-2.
(2)If you exchange a HDD, refer to Chapter 4.
(3)The following HDDs are guaranteed to work fine with FireDock.
   (DATE:June in 2001)

     IBM DTLA Series/IC35 Series
     Maxtor DiamondMAX Series
     Quantum Fireball Plus AS Series
     Seagate Barracuda ATA Series

     Only the above HDDs are guaranteed to work fine.
(4)Supports the following ATAPI MODE:
   PIO MODE 4/DMA MODE 0-2/ULTRA DMA MODE 0-4
(5)You can boot up with FireWire embedded PowerMac(G4/AGP or better),
   PowerBook. The Apple firmware update may be required.
(6)Only bundled B'sCrew FW mounter is guaranteed to work fine with FireDock.
(7)You can't install Mac OS X in a HDD and can't boot up Mac OS X from a
   HDD.

1-5. Caution

   Just in case, you should back up important data or programs stored in a HDD
   of your PC or in a HDD you will use with FireDock before you use FireDock.
   RATOC assumes no liability resulting from the loss of important data or
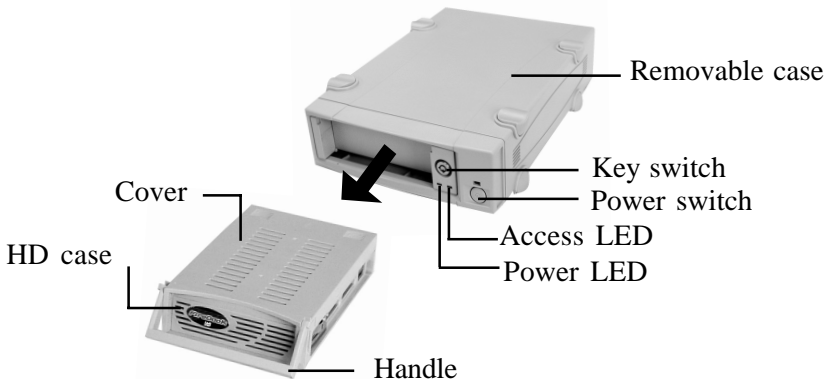   programs.

2. Setting

This chapter explains how to set up FireDock series before you use it.

-How to attach a 3.5 inch HDD to FireDock series(Chapter 2-1, 2-2)
-How to install Storage Supplement for Windows 98SE users(Chapter 2-3)
-How to install FRDKDOWN bug fix utility for Windows Me users(Chapter 2-4)
-How to install utility for MacOS 9.1/9.0.4 users(Chapter 2-5)
-How to install FireWire driver software for MacOS 9.0.4 users(Chapter 2-5)
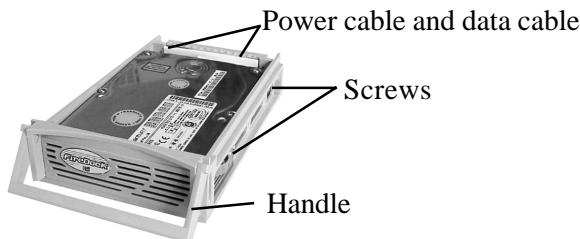
2-1.Attaching a HDD to FireDock series

Here is an explanation of how to attach a HDD to the FR-DK1. Follow the same procedure for the FR-DK2, FR-MDK1.

(1)Turn the key switch to the UNLOCKED POSITION. Then, lift handle to release the HD case from the removable case and pull out.

Removable case

Key switch
Power switch
Access LED
Power LED

Cover

HD case

Handle

(2)Slide cover off the HD case and connect power and data cable to the HDD. Mount the HDD in the HD case with the screws provided.
(NOTE)You have to set [MASTER] position in HDD jumper setting. If you have a Western Digital HDD, set [SINGLE] position in HDD jumper setting. For more information, refer to its manual.

Power cable and data cable

Screws

Handle

(3)Reinstall cover on the HD case and push the HD case into the removable case.
(4)Lower handle and use the provided lock key to lock the HD case. If you don't lock it, FireDock won't work. If you lock the HD case, the POWER LED(GREEN) will come on when it is powered.

NOTE
If you have the FR-DK2, the following two upper LED aren't used.

The two upper LED aren't used. Use individual LEDs on each key.

2-2.How to attach the FR-MDK1 to your computer

(1)If you have the FR-MDK1, follow the instructions in Chapter 2-1 first. Then, after making sure your computer is turned off, attach the FR-MDK1 to a 5 inch bay as shown below.

(2)You have to connect a power cable of your computer to the power connector on the back panel of the FR-MDK1. Refer to how to connect a 12V/5V power cable as described in the next page for more information.
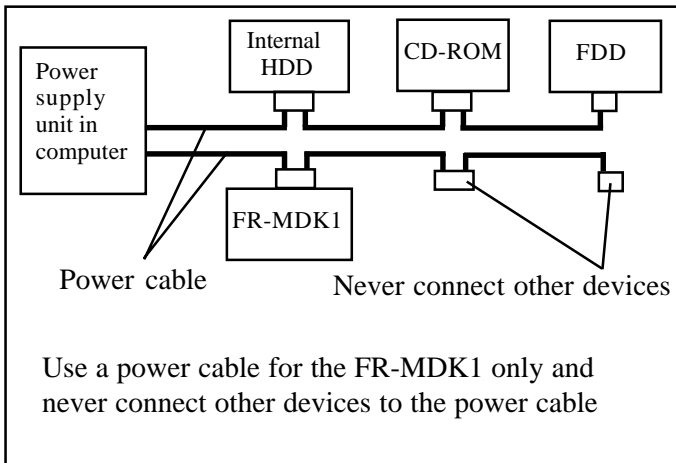

Power Connector
Refer to how to connect a 12V/5V power cable as described in the next page.
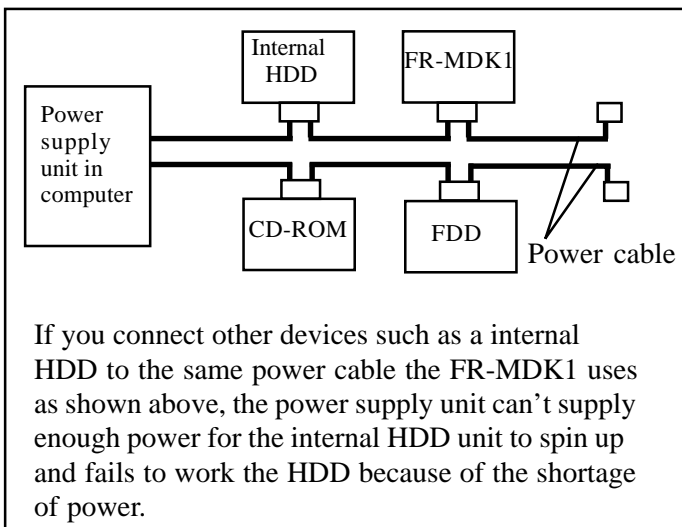
1394 port

How to connect a 12V/5V power cable

Sometimes the HDD in the FR-MDK1 causes in-rush current problem at the startup. To avoid the power shortage and the influence to other HDD, we strongly recommend to use separate power connector for each HDD as shown in the RIGHT CONNECTION.
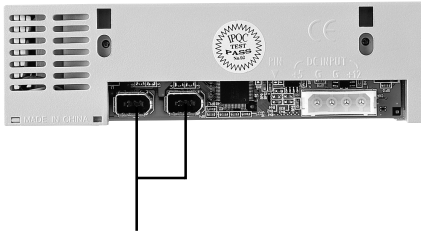
RIGHT   CONNECTION

Power supply unit in computer

Internal HDD

CD-ROM

FDD

FR-MDK1

Power cable

Never connect other devices

Use a power cable for the FR-MDK1 only and
never connect other devices to the power cable

WRONG   CONNECTION

Power supply unit in computer

Internal HDD

FR-MDK1

CD-ROM

FDD

Power cable

If you connect other devices such as a internal
HDD to the same power cable the FR-MDK1 uses
as shown above, the power supply unit can't supply
enough power for the internal HDD unit to spin up
and fails to work the HDD because of the shortage
of power.

(3)How to connect a 1394 cable

   After connecting a power cable to the FR-MDK1, connect the 1394 port of your
   computer to the 1394 port on the back panel of the FR-MDK1 with a 1394 cable.
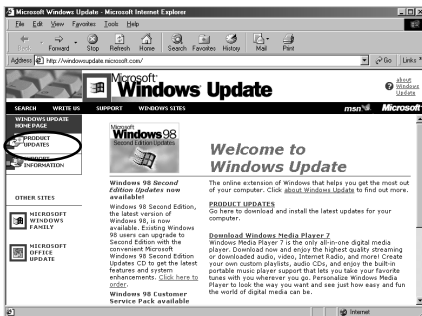   This package includes a 6pin-6pin cable.
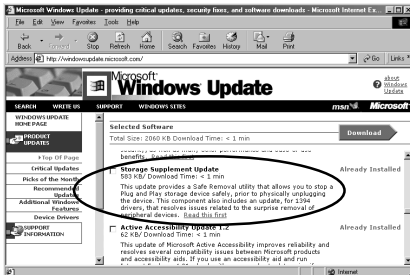

   Connect the 1394 port(6pin)

2-3.If you are using Windows 98SE.....

If you are using Windows 98SE, you need to install a 1394 Storage Supplement available through Microsoft web site. This component improves 1394 storage performance and also install a Safe Removal utility. To install the 1394 Storage Supplement, follow the steps:

(1)Click the **[Start]** button on the TaskBar.
(2)Select **[Windows Update]**. (http://windowsupdate.microsoft.com)
(3)**[Windows Update]** window will appear. Click **[PRODUCT UPDATES]**.

(4)Check **[Storage Supplement Update]** to download the Storage Supplement Update.For more information,refer to the Read this first on the screen.

2-4.If you are using Windows Me.....

If you are using Windows Me, you must install FRDKDOWN utility to avoid causing the following problem:

If you don't install the FRDKDOWN utility, blue error screen will appear and the system will stop when you finish or restart Windows Me.
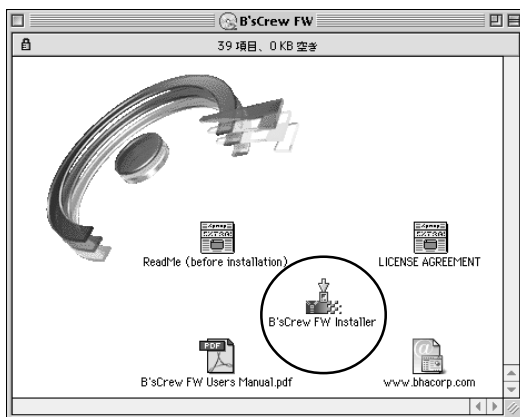
So, you need to install this utility. Follow the steps:
(1)Make sure a 1394 cable is removed.
(2)Insert the support software CD-ROM included in this package and open **[WinMe]** folder.
(3)Start **[Setup.exe]** and install it.
(4)After installing it, restart your computer.

You don't need to install this FRDKDOWN next time.

2-5.If you use MacOS 9.1/9.0.4.....

If you are using MacOS 9.1/9.0.4, you need to install **B'sCrew FW**. Insert the support software CD-ROM included in this package and start **[B'sCrew FW Installer]** to install it.

If you are using MacOS 9.0.4, you should also download the latest FireWire support software from Apple web site(www.apple.com). To download the latest FireWire support software, follow the steps:
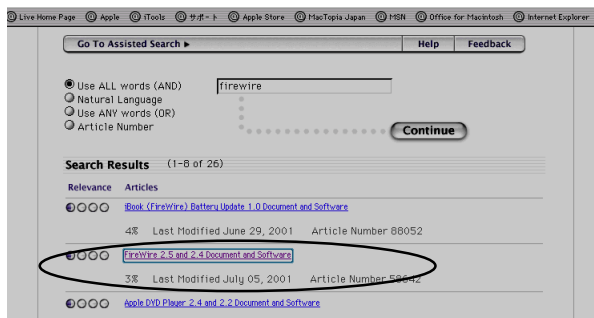
1.Access to the Apple web site(www.apple.com).
2.Click the **[Support]** tab and click **[Downloads]**.
　Download the latest Firewire to install it.
　　　　(The contents below may be different when you access to it. On July in
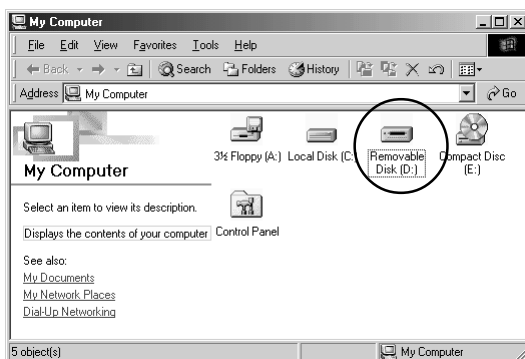　2001, the latest FireWire version is 2.5)

3. Installing

This chapter explains the installation of FireDock.

3-1.Installing on Windows

When you connect a 1394 cable to your computer, the HDD will be recognized automatically. If you can find the added <u>REMOVABLE ICON</u> in **[My Computer]** as shown below, you have finished the installation properly. If you get an error message saying you can't access to the media when you double-click on the removable disk icon, make sure of the followings:

a)If you have the FR-DK1 or FR-DK2, make sure the power switch is turned on.

b)Make sure the key switch is turned to the LOCKED POSITION.

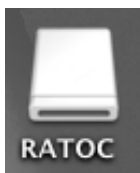c)The HDD is not formatted. Refer to Chapter5-1 for how to format a HDD.

This example shows one HDD is added. Drive letter depends on your system.

3-2.Installing on Macintosh

When you connect a 1394 cable to your computer, the HDD will be recognized automatically. If you can find the <u>REMOVABLE ICON</u> mounted on the desktop as shown below, you have finished the installation properly. If the HDD isn't formatted, you have to format the HDD. Refer to Chapter5-2 for how to format a HDD.

(OS:MacOS 9.1)   (OS:MacOS X)

4. How to use FireDock

This chapter explains how to use FireDock.
-How to use FireDock on Windows(Chapter 4-1)
-How to use FireDock on Macintosh(Chapter 4-2)

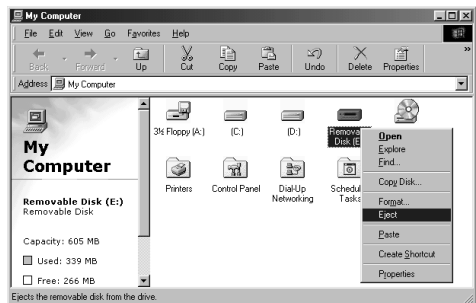### 4-1.How to use FireDock on Windows

(1)How to turn on FireDock

In any order, you can connect a 1394 cable, turn on the power switch, or key switch.

(2)How to exchange a HDD

(2-1)When you exchange one HDD, follow the steps:

a)Open **[My Computer]** and right-click on the removable icon. The pull-down menu will appear. Select the **[Eject]**.

b)Turn the key switch to the UNLOCKED POSITION. Don't turn off power switch. (The removable icon still appears even after turning the key switch to the UNLOCKED POSITION.)

c)Wait for about 5 seconds until the HDD spins down completely. Then, exchange the HDD.

(NOTE)
If you double-click the removable icon before you turn the key switch to the LOCKED POSITION, you will see the following warning message.

(OS:Windows 98SE)

(OS:Windows Me/Windows 2000)

d)Turn the key switch to the LOCKED POSITION. The HDD will spin up. After a few seconds, the Access LED (RED) will flash. Access to the HDD after the Access LED flashes.

(2-2)When you exchange two HDDs, follow the steps:

  a)Open **[My Computer]** and right-click on one removable icon. The pull-down menu will appear. Select the **[Eject]**.
  b)Turn its key switch to the UNLOCKED POSITION.
  c)Wait for about 5 seconds until the HDD spins down completely. Then, remove the HDD.
  d)Follow the same procedure a)-c) to remove the other HDD.
  e)Insert two HDDs.
  f)Turn the key switches to the LOCKED POSITION. The HDDs will spin up. After a few seconds, the Access LEDs(RED) will flash. Access to the HDDs after the Access LEDs flash.
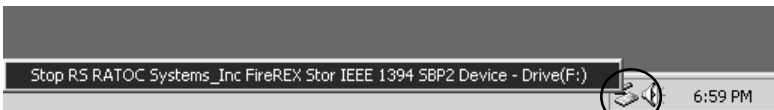
(3)How to remove a 1394 cable

  To remove a 1394 cable, follow the steps:
  a)When you click on the removal icon on the task tray, the following pop-up menu will appear. Select it.

Stop 1394/USB Disk - Drive(F:)   5:13 PM   (OS: Windows 98SE)

Stop RS RATOC Systems_Inc FireREX Stor IEEE 1394 SBP2 Device - Drive(F:)   6:59 PM

(OS: Windows 2000)

Stop IEEE 1394 Disk - Drive(E:)   6:42 PM   (OS: Windows Me)

  b)When the message box saying **[the device can now be safely removed from the system]** appear, click **[OK]**. You can remove the 1394 cable.

(NOTE)
After the message box saying [the device can now be safely removed from the system] appears on Windows 2000, if you turn the key switch to the UNLOCKED POSITION and turn it to the LOCKED POSITION again, the removable icon in [My Computer] won't appear anymore. To show the removable icon after turning the key switch to the UNLOCKED POSITION, you have to remove a 1394 cable. Then, reconnect the cable and turn the key switch to the LOCKED POSITION.

(4)How to turn off FireDock

  Make sure your computer is turned off. Then, turn off FireDock.
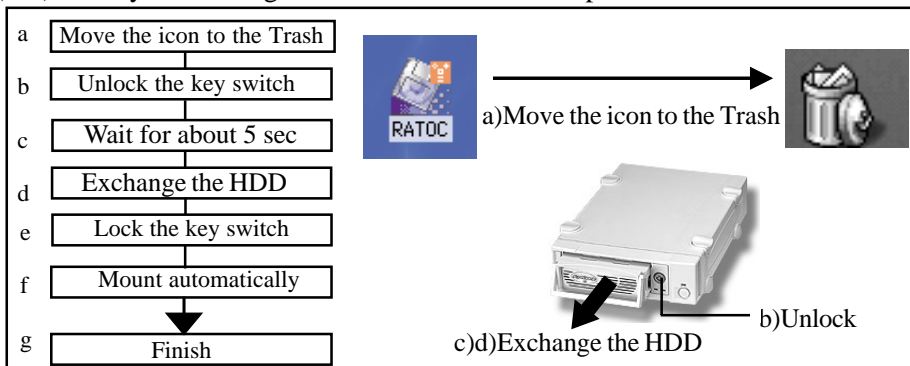
4-2.How to use FireDock on Macintosh

(1)How to turn on FireDock

    In any order, you can connect a 1394 cable or turn on FireDock, key switch.
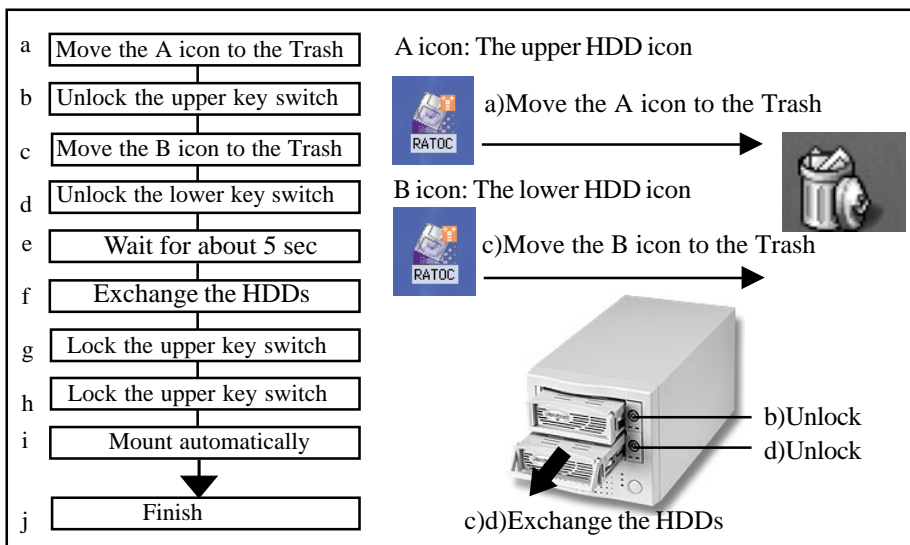
(2)How to exchange a HDD

 Follow the steps to exchage a HDD.
(2-1)When you exchange one HDD, follow the steps:

a	Move the icon to the Trash
b	Unlock the key switch
c	Wait for about 5 sec
d	Exchange the HDD
e	Lock the key switch
f	Mount automatically
g	Finish

a)Move the icon to the Trash

b)Unlock

c)d)Exchange the HDD

(2-2)When you exchange two HDDs, follow the steps:

a	Move the A icon to the Trash
b	Unlock the upper key switch
c	Move the B icon to the Trash
d	Unlock the lower key switch
e	Wait for about 5 sec
f	Exchange the HDDs
g	Lock the upper key switch
h	Lock the upper key switch
i	Mount automatically
j	Finish

A icon: The upper HDD icon

a)Move the A icon to the Trash

B icon: The lower HDD icon

c)Move the B icon to the Trash

b)Unlock
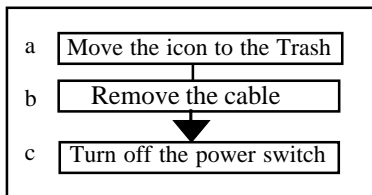d)Unlock

c)d)Exchange the HDDs

(NOTE)
1.If you exchange the two HDDs in the FR-DK2, you have to follow the procedure as described above. If you move both of the two icon to the Trash at the same time and unlock both of the key switches, the other HDD icon will mount again.
2.If the HDD icon fails to mount, unlock the key switch. Then, turn off the power switch and remove the 1394 cable and reconnect it, turn on the power switch, lock the key switch.
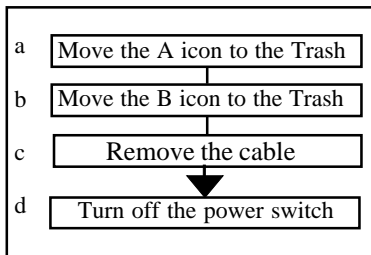
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(3)How to remove a 1394 cable

To remove a 1394 cable, follow the steps:
3-1) If you have the FR-DK1, or FR-MDK1, follow the steps:

a	Move the icon to the Trash
b	Remove the cable
c	Turn off the power switch

3-2) If you have the FR-DK2, follow the steps:

a	Move the A icon to the Trash
b	Move the B icon to the Trash
c	Remove the cable
d	Turn off the power switch

A icon: The upper HDD icon

a)Move the A icon to the Trash

B icon: The lower HDD icon

b)Move the B icon to the Trash

c)Remove the cable

d)Turn off the power switch

(4)How to turn off FireDock

Make sure your computer is turned off. Then, turn off FireDock.

5. Disk Formatting and Partitioning Utility

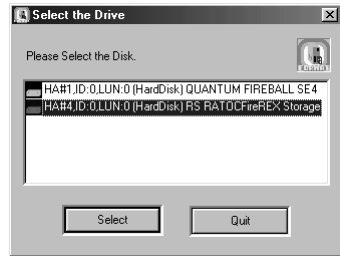This chapter explains the bundled Disk Formatting and Partitioning Utility.
-How to use the Disk Formatting and Partitioning Utility on Windows(Chapter 5-1)
-How to use the Disk Formatting and Partitioning Utility on Macintosh(Chapter 5-2)

5-1.How to use the Disk Formatting and Partitioning Utility on Windows

With the bundled utility, you can change file system or format a HDD. If your HDD file system is Macintosh format, the HDD icon won't appear in **[My Computer]**. In this case, you can change the file format and format the HDD with the bundled utility. Follow the steps below to use the utility.(The device information may be different from the screen below.)
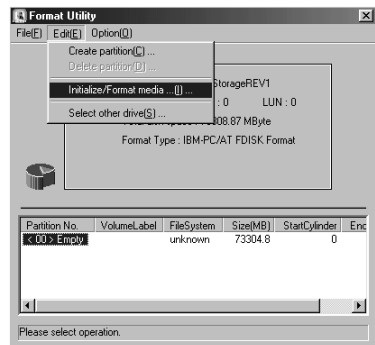
1.Make sure FireDock is connected and powered on.
2.Insert the support software CD-ROM included in this package.
3.Open **[My Computer]** and double-click the **CD-ROM drive** icon. Then, double-click the **FRFMTW9X.EXE** file.
4.**[Select the Drive]** screen will appear. Select the **RS RATOC FireREX Storage**(FireDock) and click **[Select]**.

(NOTE)
1.The drive list window shows all the devices connected to USB, SCSI, IDE besides 1394 interface on your PC.
2.You can format a storage device such as a HDD, Zip, MO with this utility. But, you can't format a CD-R, CD-RW, DVD-RAM.
3.This utility runs only on Windows 98SE, Windows Me.
4.If you use Windows 2000, you have to use [Disk Management] in Windows 2000. If you format an over 32GBytes HDD, you have to select [NTFS] file system. If you select [FAT32], you will fail to format the HDD. For more information, refer to Windows 2000 Help file.
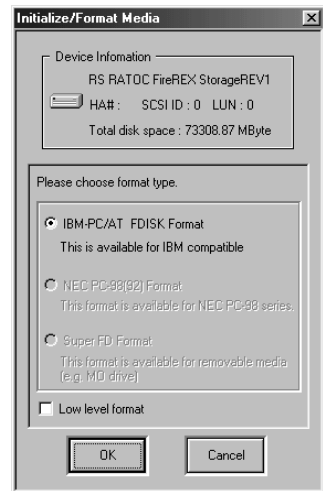
5.**[Format Utility]** screen will appear. Select **[Initialize/Format media]** from the **[Edit]** menu.
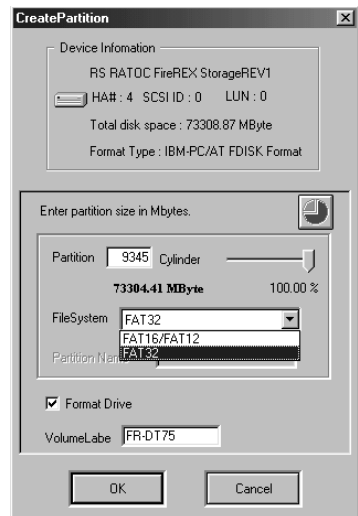
6.**[Initialize/Format Media]** dialog will appear. Select **IBM-PC/AT FDISK Format**. Then, click **[OK]**. Never select **Super FD Format**.

(NOTE)
You can't do low level format for FireDock. Never check this [Low level format] option.

7.The confirmation message box will appear twice. Click **[OK]**.
8.The message box saying **[You should create partition next]** will appear. Click **[OK]**.
9.The screen shown in the step 5 will appear. Select **[Create Partition]** from the **[Edit]** menu.
10.**[Create Partition]** screen shown below will appear.
11.Select **File System** from the list box and set Partition size, using the slider bar. If you format the HDD, check the **[Format Drive]** option. Then, click **[OK]** to create partition.
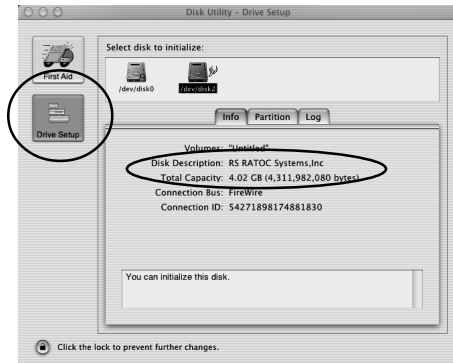
12.The confirmation message box will appear. Click **[OK]**.
13.The screen shown in the step 5 will appear. Select **[Quit]** from the **[Edit]** menu. The message box will appear. Click **[OK]**.Then, remove the HDD and insert it again for your information to take effect, following the instructions in Chapter 4-1. (2).
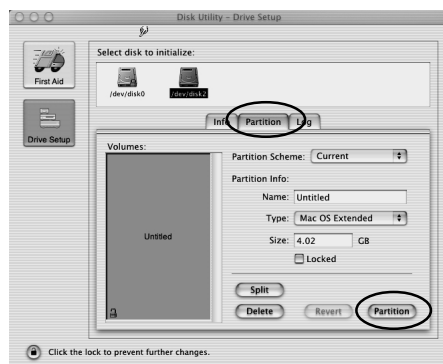
5-2.How to use the Disk Formatting and Partitioning Utility on Macintosh

If you use Mac OS X, don't install the bundled B'sCrew FW(Disk Formatting and Partitioning Utility). Because the B'sCrew FW can't run on MacOS X. But, you can change file system, format, create partion with the utility in Mac OS X. To use the utility, follow the steps:

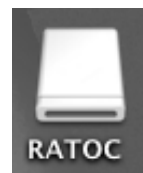1.Start the **[Disk Utility]** in the **[Utilities]** folder in the **[Applications]** folder in Mac OS X. Click **[Drive Setup]**. Then, select the HDD you want to format. If you format FireDock, see the Disk Description. FireDock Disk Description is **RS RATOC Systems,Inc**.

2.Select the **[Partition]** tab. Set partition parameter and click **[Partition]**.

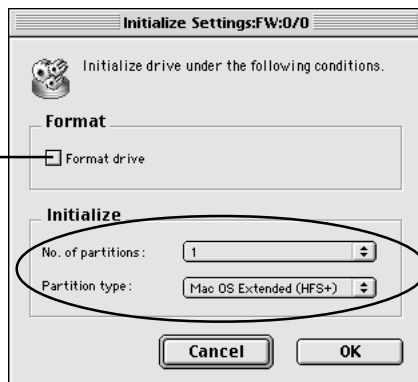3.The icon will mount. (The volume name [RATOC] is an example.)

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If you use Mac OS 9.1/9.0.4, you can change file system, format, create partion with the B'sCrew FW Disk Formatting and Partitioning Utility you installed in Chapter 2-5. But please note the B'sCrew FW is the only Disk Formatting and Partitioning Utility we guarantee to work fine with FireDock on July in 2001. So, be sure to use B'sCrew FW. To use B'sCrew FW in Mac OS X, follow the steps:

1. Start **[B'sCrew FW]** from the Apple menu. The following window will appear. If you want to select FireDock, select **RS RATOC FireREX Storage**. Then, click **[Initialize]**.

2. The following window will appear. Set initialize parameter and click **[OK]**. But, **be sure not to check the Format drive option**.

Be sure not to check the Format drive option.

3. The icon will mount. (The volume name [RATOC] is an example.) For more information, refer to B'sCrew FW user's manual.

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6. Troubleshooting

Q: When I execute Fdisk command for an over 64GBytes on Windows 98SE, its capacity shows wrong capacity information. After restarting, I click the HDD with the right button to format and get the right capacity information.

A: This is because Windows 98 or Windows 98SE Fdisk command can't treat over 60GB. Windows Me Fdisk command is fixed.

7. Registration and Tech-support

5-1. How to Register

We highly recommend to register yourself as our customer through our on-line registration.

1. On the Internet, access our site.

   (**http://www.ratocsystems.com/english/**)

2. Follow window menu guide to register.

3. Fill out and submit the registration form.

5-2. Software Update and Support

-**Software Update**-
The latest driver and application software are subject to change for improvement or bug fix.
You can download the latest version from our web site.
(**http://www.ratocsystems.com/english/**)

-**Technical Support**-
You can get a Tech support from RATOC at the following.
(Open Monday - Friday, 9:30A.M. to 5:00P.M.(PST))
 RATOC Systems International,Inc. Tech support
  Address: 1933 O'Toole Avenue Suite A109
            SanJose, CA 95131, U.S.A.
 Phone   : (408)955-9400
 Fax   : (408)955-9402
 E-mail   : int-support@rexpccard.co.jp

 Web   : http://www.ratocsystems.com/english/

8. Options

Options are available (sold separately) at the web site:

   1.http://www.ratocsytems.com/english/
   2.http://www.firewireshop.com

   -FR-MR1   (Internal tray case)

If you have any questions about these options, contact to:
RATOC Systems International, Inc. Tech support:
  Tel   : (408)955-9400 / Fax   : (408)955-9402
   E-mail: int-sales@rexpccard.co.jp

9. Specifications

[FR-DK1]

Model	FR-DK1
Name	1394 Removable case kit(External 1 Bay type)
Interface	1394 400Mbps two 6P ports
	(IEEE1394-2000/IEEE1394-1995 compatible)
Data transfer rate	100, 200, 400Mbps
ATAPI MODE	PIO MODE 4/DMA MODE 0-2/ULTRA DMA MODE 0-4
Drive	3.5 inch ATA/IDE HDD
Electrical: Input	AC 100-240V 50-60Hz
Power dissipation	50W (Max)
Size	204mm(W) x 278mm(L) x 78mm(H)
Weight	2Kg

[FR-DK2]

Model	FR-DK2
Name	1394 Removable case kit(External 2 Bay type)
Interface	1394 400Mbps two 6P ports
	(IEEE1394-2000/IEEE1394-1995 compatible)
Data transfer rate	100, 200, 400Mbps
ATAPI MODE	PIO MODE 4/DMA MODE 0-2/ULTRA DMA MODE 0-4
Drive	3.5 inch ATA/IDE HDD
Electrical: Input	AC 100-240V 50-60Hz
Power dissipation	80W (Max)
Size	180mm(W) x 346mm(L) x 170mm(H)
Weight	5Kg

[FR-MDK1]

Model	FR-MDK1
Name	1394 Removable case kit(Internal type)
Interface	1394 400Mbps two 6P ports
	(IEEE1394-2000/IEEE1394-1995 compatible)
Data transfer rate	100, 200, 400Mbps
ATAPI MODE	PIO MODE 4/DMA MODE 0-2/ULTRA DMA MODE 0-4
Drive	3.5 inch ATA/IDE HDD
Electrical: Input	12V DC 50mA
Power dissipation	5V/60mA(Max) (Not include HDD power dissipation)
Size	147mm(W) x 213mm(L) x 38mm(H)
Weight	545g

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Changes

The information in this User's Manual is furnished for information only and is subject to change without notice. RATOC Systems,Inc. reserves the right to make changes in the product design or product improvements without reservations and without notification to its users. RATOC Systems,Inc. assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

Regulatory Agency Notice
FCC Compliance Statement
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:
(1) Reorient or relocate the receiving antenna.
(2) Increase the separation between the equipment and receiver.
(3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
(4) Consult the dealer or an experienced radio/TV technician for help.
Changes or modifications not expressly approved by the party responsible for compliance may result in this unit not complying with FCC Rules Part 15.

CE Compliance Statement
To meet EN55022(Class B) and EN55024 requirements, you have to use a IEEE1394(FireWire) cable less than 3 m.