USB Microscope

"USB Shot"

Operating Manual

for Macintosh

Contents

1. Introduction

1-1   Using This Manual

Thank you for purchasing the Scalar USB Microscope. This manual describes the USB Shot application, which runs a Macintosh computer with a connected USB Microscope.

Users who want to use the USB Microscope immediately should read section 1.3 "Installation" and install the required software before beginning. Once the software has been installed, go to 2. "Basic Operation." This section gives step-by-step procedures for recording snapshot and movie images using USB Shot. Once you're familiar with recording snapshot and movie images, go to 3. "Image Settings" and 4. "System Settings."

Section 3 describes how to make various recording settings, such as color hue and resolution adjustments. Section 4 describes various settings for snapshot, movie, and interval snapshot images.

1-2   Operating System Requirements

USB Shot and the USB Microscope are designed to operate with the following hardware and software configurations:

System:	Macintosh with PowerPC
Memory:	64MB or more
Display capability:	Monitor and computer capable of displaying 24-bit color with a minimum resolution of 800 x 600 (SVGA).
Operating system:	Mac OS 8.6 / 9.0 / 9.04 / 9.1
	One of the above operating systems must be installed as a default on your Macintosh. (Compatibility is not guaranteed for future upgrades of these operating systems.)
QuickTime:	Ver. 3.0 or later must be installed in the operating system.

- Two or more USB devices connected to a single computer may not operate if used concurrently.
- Compatibility is not guaranteed if the product is connected via a hub.
- Product compatibility cannot be guaranteed for all computers, even if they meet these system requirements.
- The system requirements and product specifications may change without notice.
- The product names used in this manual are the trademarks or registered trademarks of their respective companies.

1-3   Installation

Insert the CD-ROM provided with USB Microscope into your CD-ROM drive. The CD-ROM icon appears on the desktop.

Double-click the CD-ROM icon to open the window, which contains the driver (Scalar USB Micro1.0) and the application folder (USB Shot Folder).

Copy "Scalar USB Micro1.0" by dragging it to the "Function Expansion" folder in the System folder.

Copy the "USB Shot Folder" folder by dragging it to the desired location on the hard disk.

Restart the Macintosh. The required software has now been installed.

2. Basic Operation

2-1   Connecting the USB Microscope

Connect the USB Microscope cable to a USB port on the computer.
The USB Microscope must be connected to the computer before you start USB Shot. USB Shot
will not function correctly if the cable is connected or disconnected after it is started up.
Before starting USB Shot, confirm that the monitor resolution is set to a minimum of 800 x 600
(SVGA) display, and that color depth is set to 24 bits.
When the USB Microscope is connected to the USB port on the keyboard of the Desk Top type
Macintosh,The caution dialogue "The USB device "Unknown Device" cannot operate because it
needs more power than is available" appears.In the case the dialogue appears,you need toconnect
the USB Microscope to the USB port on the Main unit of the Macintosh.

2-2   Starting USB Shot

Double-click the "USB Shot" icon (Figure 1) in the "USB Shot Folder" folder to start the USB
Shot application.

[Figure 1: USB Shot icon]

If a warning dialog box (Figure 2) appears on the screen immediately after you start the software,
USB Microscope has not been connected to the computer, or the driver has not been installed
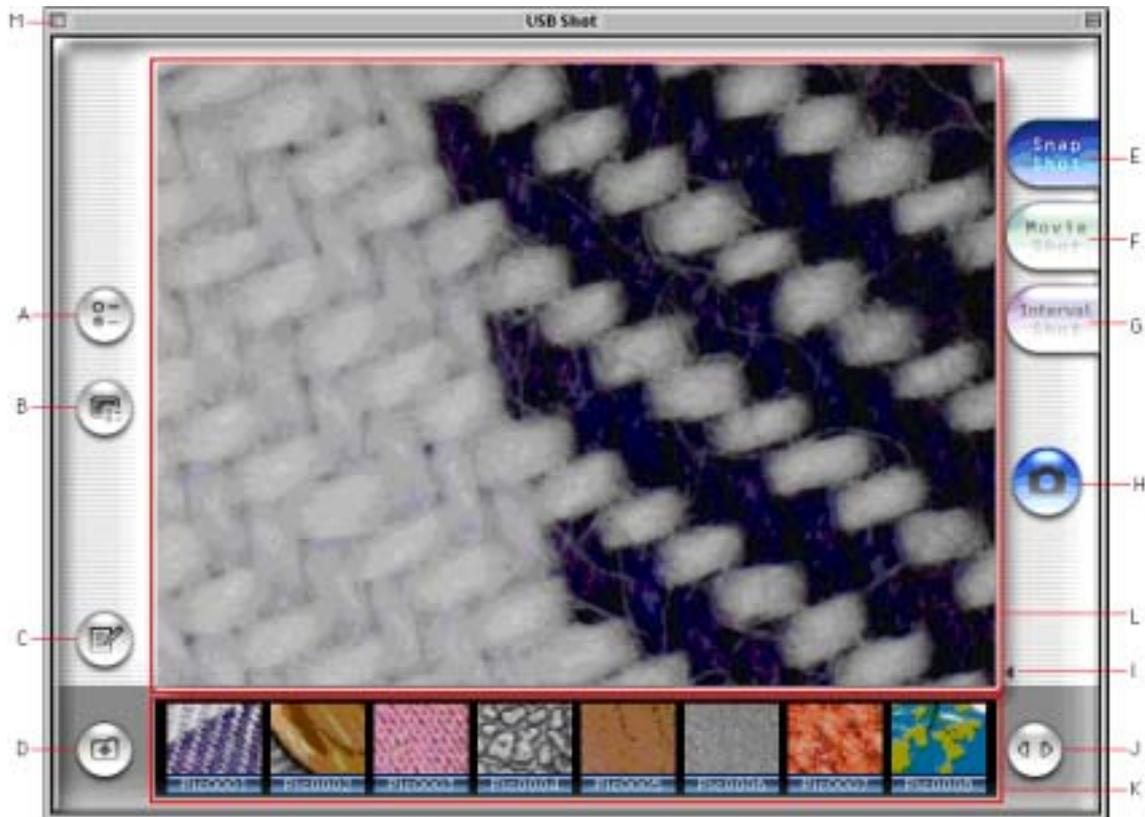correctly. In this case, USB Shot will shut down immediately.

[Figure 2: Warning dialog box]

This warning dialog box will also appear if the USB Microscope is disconnected from the
computer USB port while USB Shot is running. (USB Shot will shut down immediately if this
happens.)

2-3　USB Shot Screen

When USB Shot is launched, a window (Figure 3) is displayed on the screen.

[Figure 3: USB Shot window]

System settings button (Figure 3-A)	Displays the system settings dialog box.
Image settings button (Figure 3-B)	Displays the image settings dialog box.
Thumbnail/memo toggle button (Figure 3-C)	Switches between thumbnails and memos for the display area at the bottom of the screen.
Save folder selection button (Figure 3-D)	Displays the save folder selection dialog box.
Snapshot mode button (Figure 3-E)	Switches to Snapshot mode.
Movie mode button (Figure 3-F)	Switches to Movie mode.
Interval Snapshot mode button (Figure 3-G)	Switches to Interval Snapshot mode.
Record button (Figure 3-H)	Begins recording in the current recording mode.
Filename display toggle button (Figure 3-I)	Displays the image filename and recording date.
Scroll button (Figure 3-J)	Used to scroll through the thumbnails and memos.
Thumbnail/memo display area (Figure 3-K)	Area for displaying and editing thumbnails and memos attached to images.
Microscope image display area (Figure 3-L)	Displays images recorded with the USB Microscope in real-time displays recorded images selected for thumbnails.
Exit button (Figure 3-M)	Exits USB Shot.

2-4 Recording Snapshot Images

Images displayed in the USB Shot window can be saved as snapshot image files.
Click the Snapshot button (Figure 3-E) on the right-hand side of the window to switch the recording mode to Snapshot mode. The Record button on the center right-hand side of the screen changes to the Snapshot mode icon (Figure 4).

[Figure 4: Snapshot mode icon]

Press the Capture button on the USB Microscope or click the Record button (Figure 3-H) on the right-hand side of the window to save the current image and add it to the thumbnails at the bottom of the window.
The image file recorded is saved to the preset folder. (The folder set by default is the "Snap" folder at the same level as the application.)
You can change the settings to save images to a different folder. (See section 2-12.)
Up to 1000 images can be saved to a single folder.
Snapshot images are saved as 640 x 480 resolution files.
Files are saved in JPEG format (The default setting). You can change this to PICT format in the system settings. (See section 4-1.)

2-5 Recording Movie Images

Images displayed in the USB Shot window can be saved as movie image files.
Click the Movie Shot button on the right-hand side of the window to switch recording mode to Movie mode. The Record button on the center right-hand side of the screen changes to the Movie mode icon (Figure 5).

[Figure 5: Movie mode icon]

Press the Capture button on the USB Microscope or click the Record button (Figure 3-H) on the right-hand side of the window to start recording.
While recording is in progress, the message "Recording…" together with the remaining recording time is displayed with the Record button at the top left of the window.
Recording stops when you press the Record button again, or when the preset maximum recording time elapses. The first image of the sequence is added to the thumbnails at the bottom of the window.
The recorded image file is saved to the preset folder. (The initial default setting is the "Movie" folder at the same level as the application.)
You can change the settings to save images to a different folder. (See section 2-12.)
Up to 1000 images can be saved to a single folder.
The maximum recording time is specified in the system settings. (See section 4-2.)
Movie images are saved as 320 x 240 resolution files. (The initial default setting.)
Files are saved in QuickTime Movie format.
* The Quit menu and buttons other than the Record button are disabled while recording is in progress.

2-6　Recording Interval Snapshot Images

Allows still images displayed in the USB Shot window to be captured at set intervals. The sequence of images is then saved as a movie image file.
Click the Interval Snapshot mode button on the right-hand side of the window to switch the recording mode to Interval Snapshot mode. The Record button on the center right-hand side of the screen changes to the Interval Snapshot mode icon (Figure 6).

[Figure 6: Interval Snapshot mode icon]

Press the Capture button on the USB Microscope or click the Record button (Figure 3-H) on the right-hand side of the window to start interval snapshot recording.
While recording is in progress, the message "Recording…" together with the remaining recording time is displayed with the Record button at the top left of the window.
Recording stops when you press the Record button again or when the preset number of shots is reached. The first image of the sequence is added to the thumbnails at the bottom of the window. The image file recorded is saved to the preset folder. (The initial default setting is the "Interval" folder at the same level as the application.)
You can change the settings to save images to a different folder. (See section 2-12.)
Up to 1000 images can be saved to a single folder.
The recording interval and number of shots can be specified in the system settings. (See section 4-3.)
Movie images are saved as 640 x 480 resolution files.
Files are saved in QuickTime Movie format.
* The Quit menu and buttons other than the Record button are disabled while interval snapshot image recording is in progress.

2-7　Viewing Snapshot Images

To display a snapshot image, click with the mouse on the corresponding thumbnail image displayed at the bottom of the window.
The snapshot images recorded are either JPEG or PICT format files. (You can set different file formats in the system settings.)
The images can also be viewed with other applications capable of displaying JPEG or PICT format files, such as PictureViewer.
Click on the screen to switch to recording mode.

2-8　Viewing Movie Images

To view the movie image, click with the mouse on the corresponding thumbnail image displayed at the bottom of the window.
The movie image can be played back using the control buttons and slider displayed beneath the image.
The recorded movie images are QuickTime Movie format files.
The movie images can also be played back using other applications capable of playing QuickTime Movie format files, such as QuickTime Player.
Click on the screen to switch to recording mode.

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2-9   Viewing Interval Snapshot Images

To view the interval snapshot images as a movie, click with the mouse on the corresponding thumbnail image at the bottom of the window.
The interval snapshot images can be played back using the control buttons and slider displayed beneath the image.
The recorded movie images are QuickTime Movie format files.
The movie images can also be played back using other applications capable of playing QuickTime Movie format files, such as QuickTime Player.
Click on the screen to switch to recording mode.

2-10   Viewing Filenames and Recording Date

Click the Filename display button at the bottom right-hand side of the window to display the filename and recording date at the bottom right of the Microscope image display area.
Click the Filename display button once more to hide the filename and recording date.

2-11   Location of Saved Snapshot and Movie Images

Snapshot and movie images are saved on the hard disk.
The saved file location can be specified in the folder selection dialog box. (See section 2-12.)
The default saved file locations for each recording mode are initially set as shown below.

    - Snapshot images: "Snap" folder at the same level as the application.
    - Movie images: "Movie" folder at the same level as the application.
    - Interval snapshot images: "Interval " folder at the same level as the application.
     * These folders are created automatically when the application is launched.

Files are saved with a four-digit serial number added after the prefix.
The default setting is as shown below.
* The "Pic," "Mov," and "Int" prefixes can be changed in the system settings. (See section 4.)
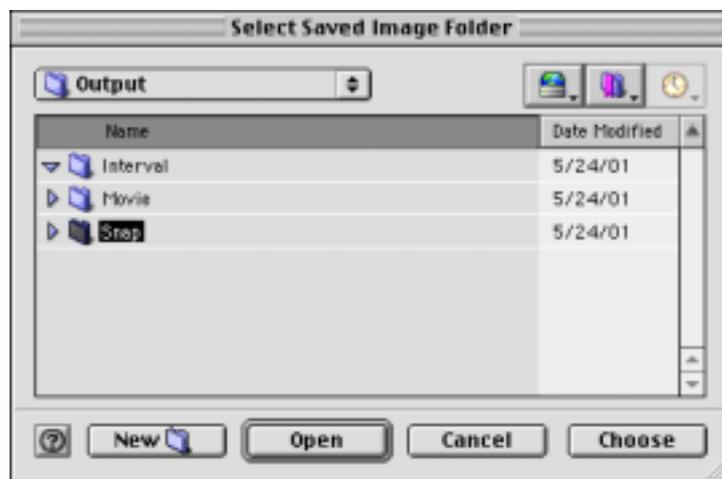
    - Snapshot images: "Pic" + serial number (E.g. Pic0001)
    - Movie images: "Mov" + serial number (E.g. Mov0001)
    - Interval snapshot images: "Int" + serial number (E.g. Int0001)

2-12   Selecting the Saved Image Location and Display Folder

The folder for saving snapshot and movie images recorded and the image folder for thumbnail images can be specified.
Click the folder selection button at the bottom left-hand side of the window to display the folder selection dialog box (Figure 7).
Select the folder and press the OK button to change the saved image folder and thumbnail display folder.

[Figure 7: Folder selection dialog box]

2-13 Scrolling through Thumbnails

The thumbnail area at the bottom of the window displays eight images simultaneously.
Clicking the scroll button at the bottom right of the window scrolls the thumbnails sideways to display images beyond the edge of the screen.
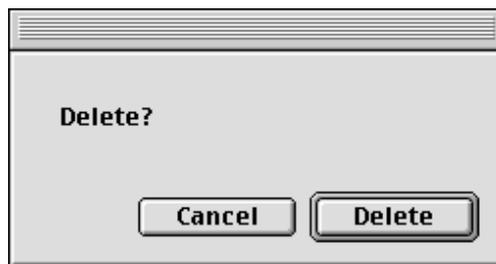* Thumbnail images are arranged from left to right in filename sequence.

2-14 Deleting Image Files

Clicking on an image in the thumbnail area at the bottom of the window highlights the image frame in yellow.
Pressing the Delete key with an image highlighted displays the delete confirmation dialog box (Figure 8).
Press the "Delete" button to delete the image selected.

[Figure 8: Delete confirmation dialog box]

2-15 Renaming Image Files

Clicking on the filename of an image displayed in the thumbnail area at the bottom of the window allows the filename to be edited.
Enter a new filename using the keyboard, and then press the Return or Enter key. The rename confirmation dialog box (Figure 9) appears.
Clicking the "Rename" button changes the filename of the image.
The position of the image in the thumbnail area does not change immediately after renaming, but the images are resorted by filename when the application is restarted or when switching to another recording mode.

[Figure 9: Rename confirmation dialog box]

2-16 Adding Memos

Text memos can be entered for recorded snapshot or movie images.
Clicking the Thumbnail/memo toggle button at the bottom left of the window changes the thumbnail area to the memo display and editing area.
If a memo has already been added to an image, this will be displayed in the memo area.
The memo display and editing area allows you to enter and edit memos using the keyboard.
If the memo text extends beyond the memo editing area, you can scroll through the text using the vertical scroll button on the right-hand side.
After entering or editing a memo, press the Thumbnail/memo toggle button.
The memo text is entered and the memo display and editing area reverts to the thumbnail area.

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2-17 Exiting USB Shot

To exit USB Shot, press the close box at the top left of the window, or select "Exit" (Press the Command key and Q key simultaneously) in the File menu.

Note for 1999 model PowerBook G3 users

With 1999 model PowerBook G3 computers (model numbers M7304J/A and M7308J/A), the computer is likely to freeze when resuming from sleep mode.
If using sleep mode on 1999 model PowerBook G3 computers, exit USB Shot and disconnect the USB Microscope from the computer before entering sleep mode.

* 1999 model PowerBook G3 computers
This refers to models launched in May 1999, also known as PowerBook Bronze.
These models include models with 333 MHz and 400 MHz CPUs.
This does not apply to the PowerBook G3 (FireWire Model) launched in February 2000.
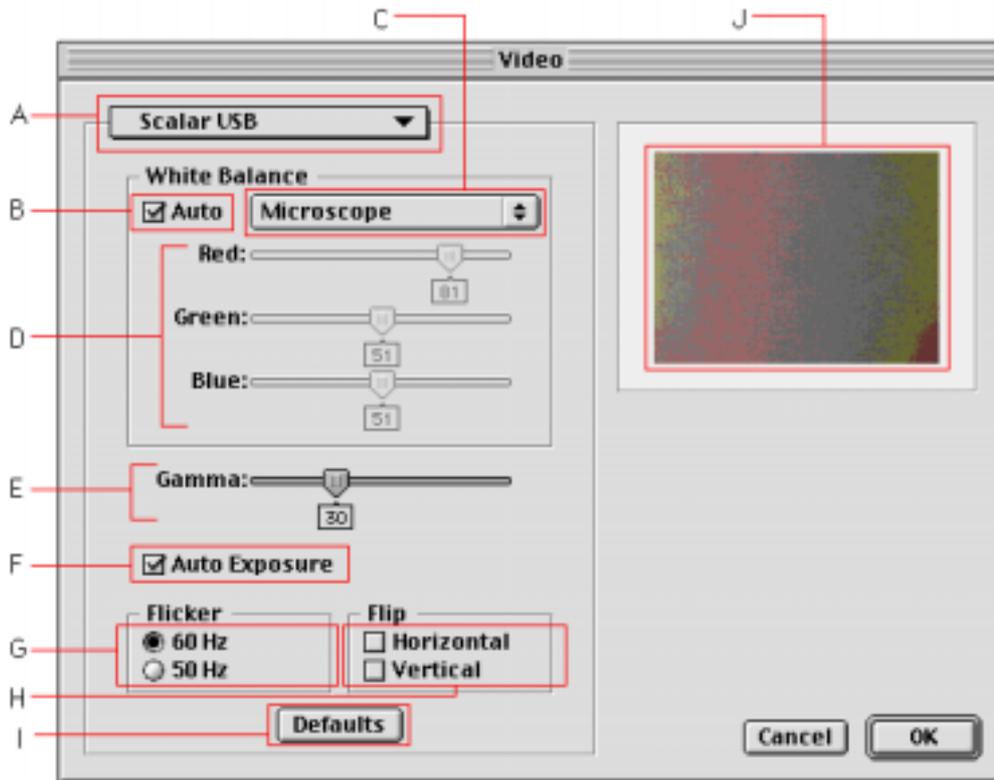
3. Image Settings

Click the Image settings button on the left-hand side of the window to display the setting dialog box (Figure 10).
Select the required setting item from the pop-up menu (Figure 10-A) at the top left of the dialog box to set the various recording parameters, including image compression method and image hue.

3-1   Scalar USB Microscope
The white balance and gamma correction can be adjusted for the image.

[Figure 10: Image setting dialog box]

- White balance (Figure 10-B,C,D)
Adjusts the white balance (hue of the image.)
If the Auto button (Figure 10-B) is deselected, you can set the optimum Red, Green, and Blue settings (Figure 10-D) by selecting the item from the pop-up menu (Figure 10-C).
The individual color settings can also be adjusted by dragging the Red, Green, and Blue sliders (Figure 10-D).
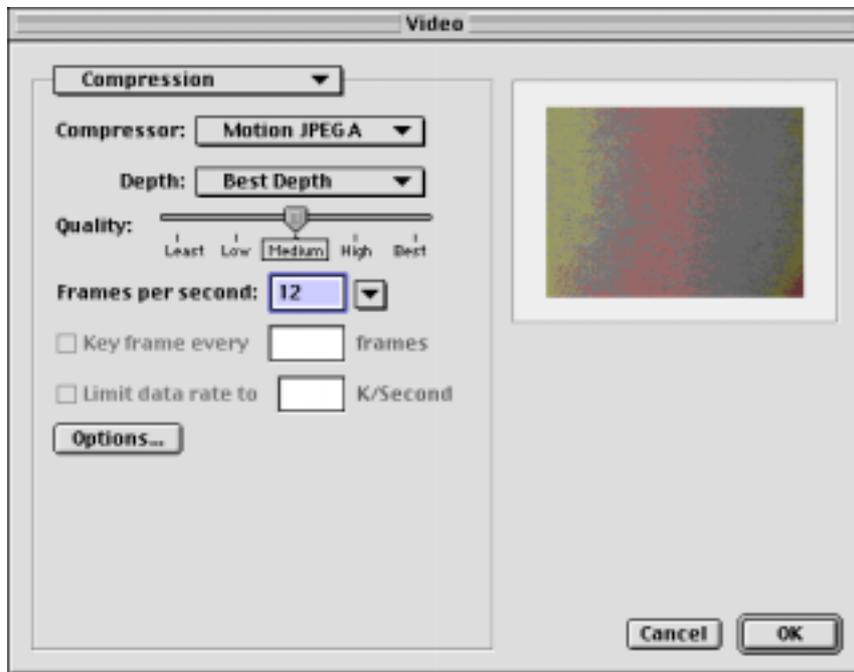The pop-up menu contains the following four items.

- Microscope: Optimum settings for a USB Microscope with a light source-equipped lens unit.
- Fluorescent: For recording under fluorescent lighting with a lens unit not equipped with its own light source
- Incandescent: For recording under incandescent lighting with a lens unit not equipped with its own light source
- Outdoors: For recording outdoors with a lens unit not equipped with its own light source

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If the Auto button (Figure 10-B) is selected, data is read in from the USB Microscope, and the Red, Green, and Blue settings (Figure 10-D) are set automatically.
Note that the automatic setting function will not function if "Microscope" is selected in the pop-up menu (Figure 10-C).
In default status, the Auto button is set to ON (selected), and "Microscope" is selected in the pop-up menu.

- Gamma (Figure 10-E)
  Sets the response characteristics (gamma correction value) for image gradations. (The default setting is 30.)

- Auto Exposure (Figure 10-F)
  Selecting this function adjusts the exposure automatically. (The default setting is ON.)

- Flicker (Figure 10-G)
  Selects 50 MHz or 60 MHz for the vertical synchronization frequency. (The default setting is 60 MHz.)

- Flip (Figure 10-H)
  Selecting "Horizontal" reverses the image horizontally. (The default setting is OFF.)
  Selecting "Vertical" inverts the image vertically. (The default setting is OFF.)

- Preview (Figure 10-I)
  Displays the USB Microscope image using the values set.
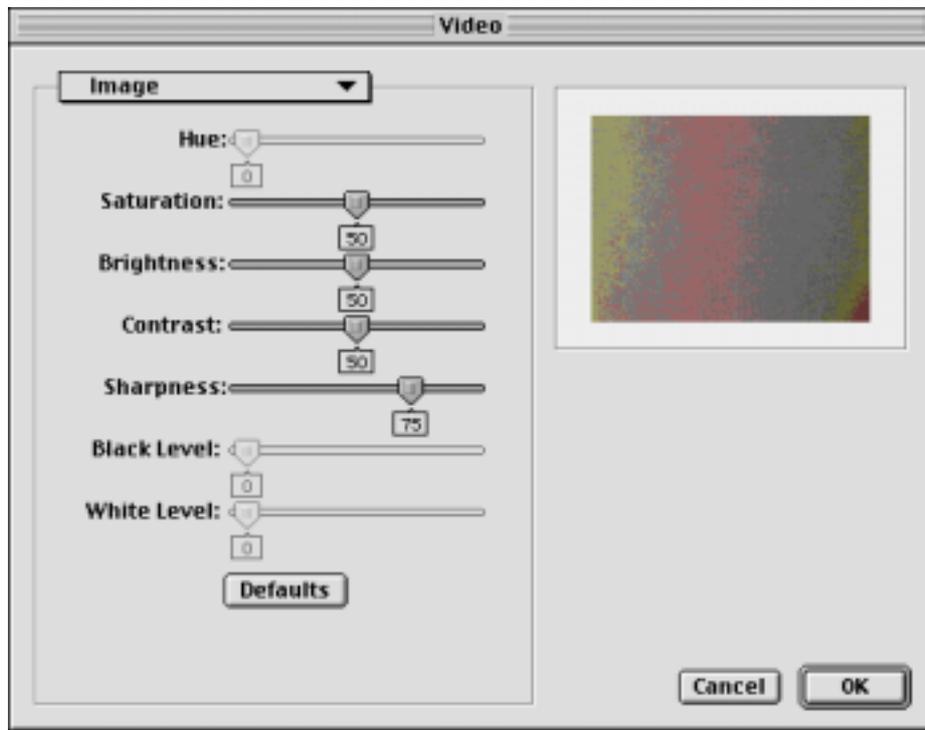
3-2   Compression

Sets the image compression method.
Select a compression method from the "Compression program" pop-up menu and set the various parameters.
Compression will result in some loss of image quality, but also reduces the size of the movie files saved.

[Figure 11: Compression method setting dialog box]

3-3   Image

Sets image quality parameters, including saturation, brightness, and contrast.
You can individually adjust the various parameters by dragging the adjuster sliders.

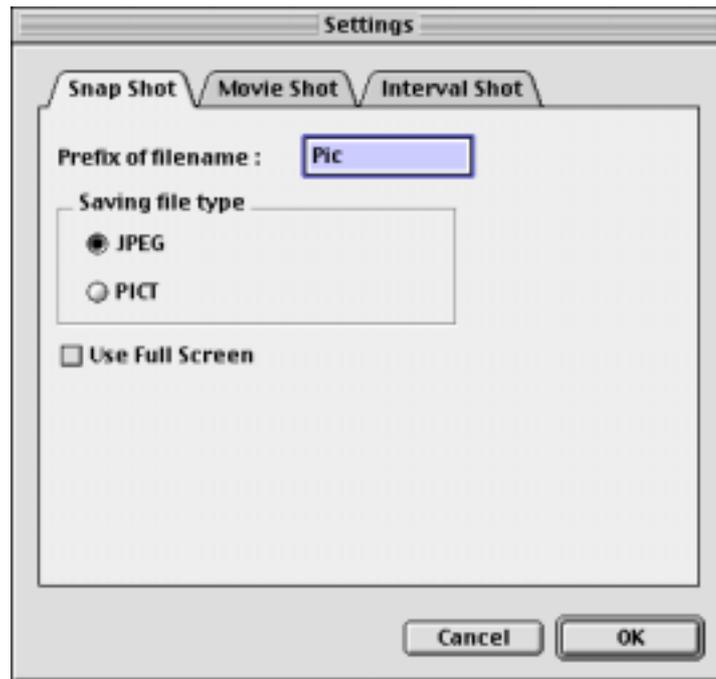[Figure 12: Image quality setting dialog box]

4. System Settings

Click the System settings button on the left-hand side of the window to display the setting dialog box.
Various recording parameters can be set by selecting the setting item from one of the (three) tabs at the top of the dialog box.

4-1   Snap Shot

Settings for snapshot image recording.
The filename prefix and format for saving can be set.

[Figure 13: Setting dialog box Snap Shot]

- Prefix of filename
    Specifies the prefix for saved files. (The default setting is "Pic.")
    You can enter up to 8 single-byte characters.

- Saving file type
    Specifies the format for saved files. (The default setting is "JPEG.")
    The options are JPEG or PICT.

- Use Full Screen
    Specifies whether or not to display in full-screen mode. (The default setting is "OFF.")
    In full-screen mode, the menu bar is hidden, and the background outside the window is shown in black.
    When using full-screen mode with an 800 x 600 resolution monitor, the contents of the window will fill the entire screen.

    Note:
    Depending on the selected resolution, the close box at the top left of the window and the File menu may not be displayed in full-screen mode.
    To exit the application when using an 800 x 600 resolution monitor, press the Q key while pressing the Command key.
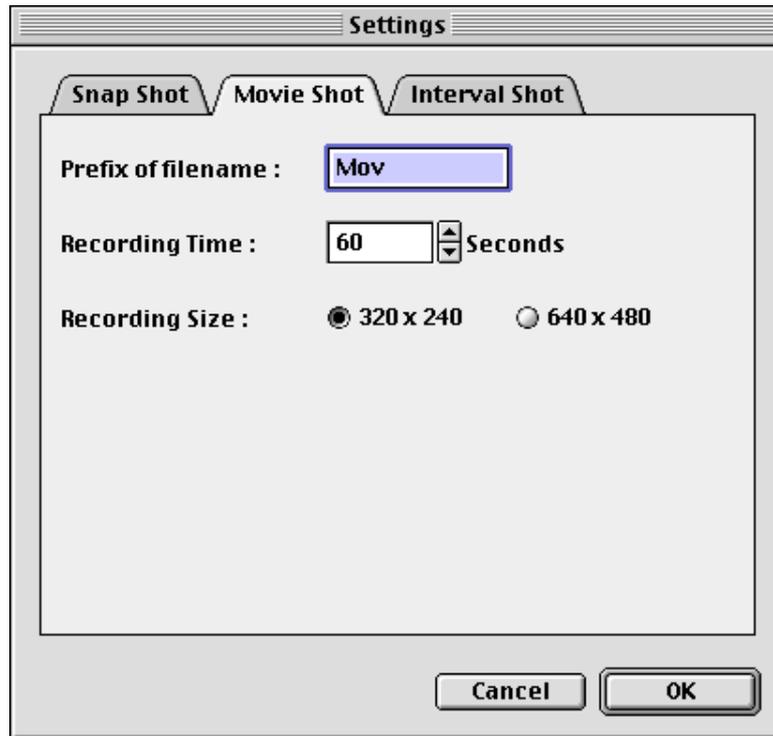
    Tip:
    You can also change settings such as "Divide Screen" and "Scale Color" via the menu bar.
    However, note that the menu bar will not be displayed in full-screen mode.

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4-2　Movie Shot

Settings for movie image recording.
You can specify the filename prefix for saved files and recording length.
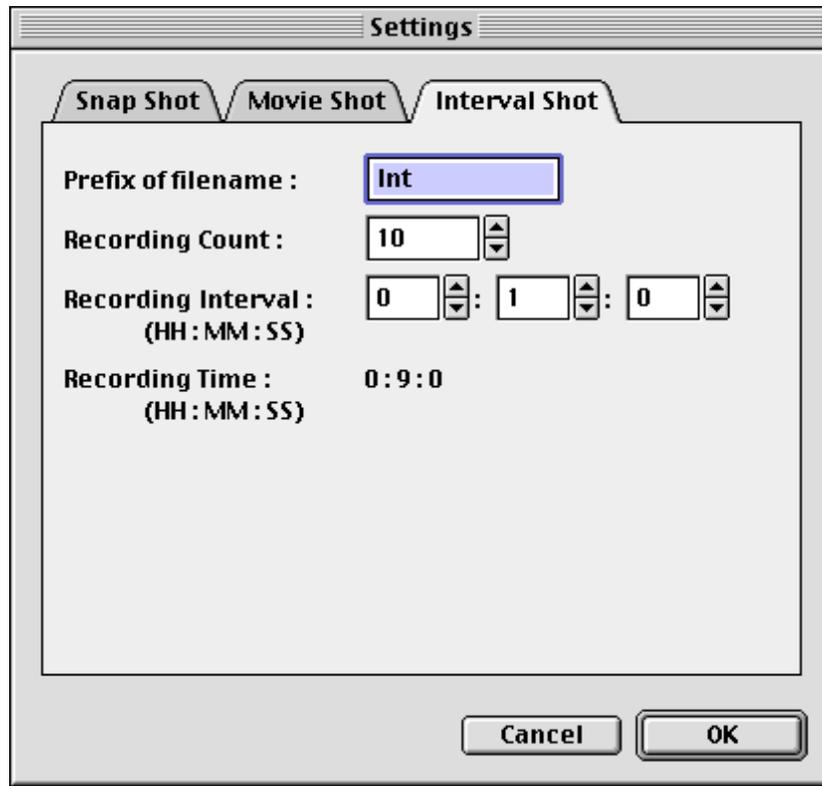

[Figure 14: Setting dialog box Movie Shot tab]

- Prefix of filename
    Specifies the prefix for saved files. (The default setting is "Mov.")
    You can enter up to 8 single-byte alphabetic characters.

- Recording time
    Specifies the recording time. (The default setting is 10 seconds.)
    Specify recording times between 1 and 999 seconds.

- Recording Size
    Specifies the image size during recording. (The default setting is 320 x 240.)

4-3   Interval Shot

Settings for interval snapshot recording.
You can specify the filename prefix for saved files and the recording interval.

[Figure 15: Setting dialog box Interval Shot tab]

- Prefix of filename
    Specifies the prefix for saved files. (The default setting is "Int.")
    You can enter up to 8 single-byte alphabetic characters.

- Recording count
    Specifies the number of shots. (The default setting is "10.")
    Specify a number of shots between 3 and 999.

- Recording Interval
    Specifies the interval between shots. (The default setting is 1 minute.)
    Enter an interval in units of (from left to right) hours, minutes, and seconds.

- Recording time
    Displays the total recording time. (Cannot be input.)
    This is the product of the recording count and the recording interval.

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