MICROTEK

Bio-1000F

Gel Scanner
User's Manual

Preface

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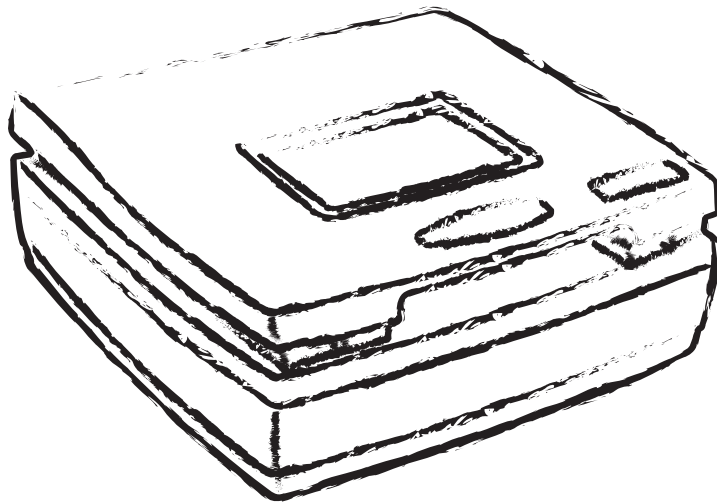
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Disclaimer

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I49-005119 B
March 2017

FCC Compliance Statement

This equipment (Model: MFS-300L) 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.

NOTE: A shielded Hi-Speed USB interface cable with ferrite core installed on the gel scanner connector end must be used with this equipment.

Caution: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Safety Precautions

Before using your scanner, read the following safety guides carefully, which detail the proper operation of the scanner and its accessories to prevent injuries or damage to users or equipment.

Meanings of Symbol Signs

⚠	CAUTION	This indicates hazardous situation which, if not paid attention, could result injury or damage to users or equipment.
⚡	WARNING	This indicates hazardous situation which, if not paid attention, could result serious injury or death to users.

Power Supply:

⚠ • Use a power source only with a power rating specified on the marking label.

⚠ ⚡ • Ensure to turn off the power of each device before connecting or disconnecting the cables.

⚠ ⚡ • Insert the plug completely into the outlet, as a loose connection may cause arcing and result in fire.

⚠ ⚡ • Ensure to hold the plug or connector to disconnect the cable; otherwise, if you pull the cable only, it may damage the core wire and result in fire or electric shock.

⚠ • Place and route the power supply cord such that it is not likely to be walked on or pinched by items placed upon or against them, paying particular attention to the cord near the power plugs, convenience receptacles, and at the point where it exits from the outlet.

⚠ • When the scanner is left unattended and unused for long periods of time, unplug it from the wall outlet.

Moving and Storing the Gel scanner:

⚠ • Always ensure that the scanner is stored properly before shipping or moving it. Quick stops, excessive force, and uneven surfaces may cause the product to overturn when moving.

⚠ ⚡ • Do not hit or drop the scanner. The scanner may be damaged if it receives a strong jolt, which may result in fire or electric shock if the scanner is used without being repaired.

⚠ ⚡ • Do not place the scanner on any slippery, slanted, or unstable surface. The product may slide or fall, causing serious injury to people as well as serious damage to the product.

⚠ ⚡ • Do not use the scanner near water. Never spill liquid of any kinds on the product, or it may result in electric shock or other hazards.

⚠ • This scanner should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

⚠ • Do not store the scanner in which it may be exposed to direct sunlight.

Using the Scanner

⚠ • Before using the scanner, make sure the area of the glass surface is clear from obstacles.

Maintenance and Service:

⚠ • When the scanner is going to be cleaned, ensure to turn off the power of each device and unplug the power cable from the AC outlet.

⚠ • When you need a repair service, unplug the scanner from the power outlet and consult qualified service personnel.

⚠ • When replacement parts are required, use replacement parts that are specified by the manufacturer or have the same characteristics as the original parts.

⚠ • For safety reasons, ensure to inspect the device before using it. In addition, carrying out a regular inspection at least once a year.

Blue-LED Light

⚠ • The blue-LED of the scanner is classified as Risk Group 1 (RG1), containing very low risk. While the product is under a normal operation, the light emitted from the blue-LED would not endanger human eyes

⚠ • In order to protect your eyes, do not stare directly at the light of the blue-LED in any circumstances without using an appropriate shielding or filter plate to unshield blue light.

⚠ • When using the blue-LED to perform gel excising or observation, ensure that you use the filter plate came with your scanner package. Or, use an appropriate shield or eye protector together with your scanner to avoid the damage from the direct blue light to your eyes.

For details on how to use the supplied filter plate, refer to section of this manual titled "Using the Filter Plate".

Table of Contents

Knowing about Your Gel scanner

The Bio-1000F is a gel scanner which is specifically designed for the use of scanning with global EtBr-alternative stain brands.

With a patented optical design, sensitive CCD and flexible software, Bio-1000F is capable to capture faint fluorescence, which demonstrates more sensitive and better performance than UV- and other blue-LED based gel imaging systems. Besides, equipped with blue-LED and filter plate, Bio-1000F provides multilevel protections from direct damages to eyes and skins, making safer and friendlier to both researchers and environment.

Features of the Bio-1000F

The Bio-1000F comes with several important features, including the following:

- High sensitivity of fluorescence — Bio-1000F goes perfectly with global EtBr-alternative stain brands. The highest sensitivity of Bio-1000F can reach to 0.008 ng/μl.

- Space-saving compact design — The modern and compact design of the Bio-1000F makes it perfect for small rooms and workshops, saving desk space and keep storage space neat and clean.

- Hi-Speed USB connecting port — High-Speed USB (USB 2.0) is capable of 480 Mbps data transfer, provides plug-and-play connectivity for a hassle-free installation.

- Microtek MiBio Fluo software — The easy and friendly user interface of MiBio Fluo stores gel images in a computer readable format, offering an easy and quick access and management.

- Easy to operate, clean and maintain — The Bio-1000F requires virtually no routine maintenance and no daily cleaning, which is ideal for busy working environments.

System Requirements

In order to use your Bio-1000F, your computer must satisfy the following system requirements:

- CD-ROM drive (for installing software)

- Color display with 24-bit color output capability

- 512 MB RAM or above

- 300 MB HDD or above

- Pentium IV PC or higher with Hi-Speed USB (USB 2.0)

- Microsoft Windows 7, Windows 8 or Windows 10

Taking a Closer Look

Open View
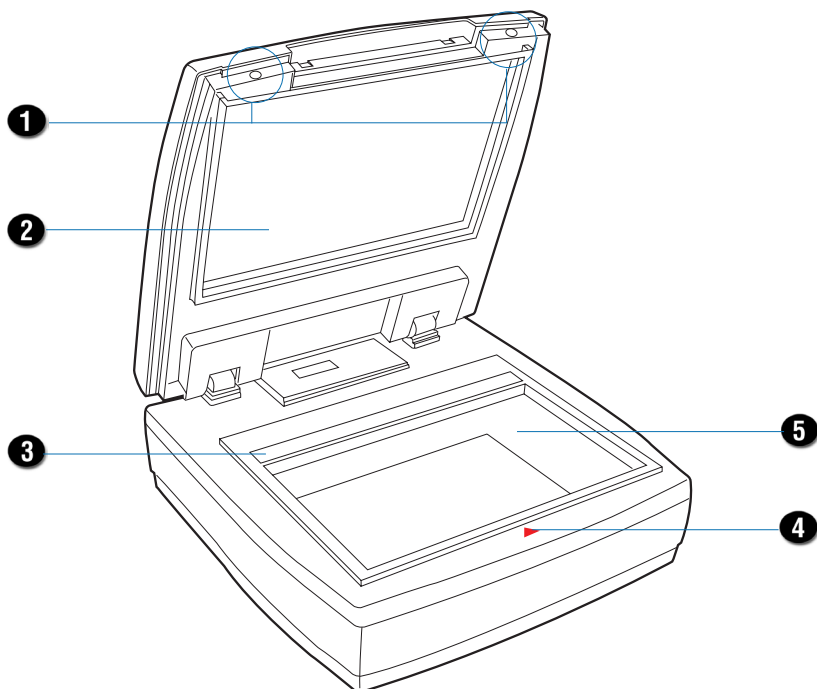
No.	Names of Parts	Functions of Parts
1	Holes (2)	Used to hang up a filter plate when lighting up a blue-LED for a gel excising or observation.
2	Scanner Lid	The top cover of the scanner.
3	Rear Glass Surface	The place where the scanner makes a calibration.
4	Red Arrow Mark	Used to align a gel properly.
5	Front Glass Surface	The place to put a gel for scanning, excising or observing.

Rear View
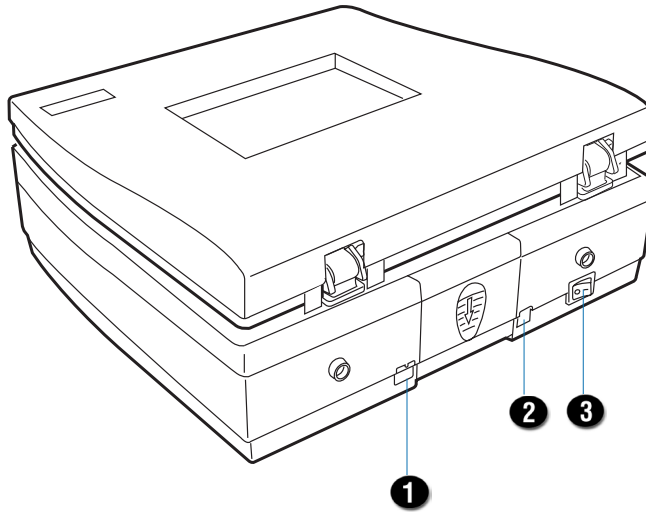
No.	Names of Parts	Functions of Parts
1	Hi-Speed USB Port	Connects the Hi-Speed USB (USB 2.0) cable to the computer.
2	Power Connector	Connects the scanner to the power adapter.
3	Power Switch	Turns the scanner on or off.

Initial Setup

In order to ensure that the scanner works properly, follow the three steps below to set up your scanner.

1. Unpacking the Package Contents

2. Installing the Software

3. Unlocking the Scanner

4. Connecting the Scanner

NOTE: Before unpacking, inspect the shipping carton for any signs of mishandling or damage first. The scanner's packing carton and padding material have been carefully chosen to prevent damage to the unit in shipping and can withstand a reasonable amount of pressure.

After unpacking your scanner package, refer to the later section to ensure that you received all of the parts necessary for scanner setup. If there are any damaged or missing parts, notify the shipper immediately or contact customer service.

Save the carton and all packing materials. If you need to ship the scanner later, it is recommended that you should repack it using the original wire ties, plastic bags, foam supports and cartons, which protects your scanner from unnecessary damage.

Step 1: Unpacking Package Contents

After you have unpacked your scanner package, please check for the major components listed below.
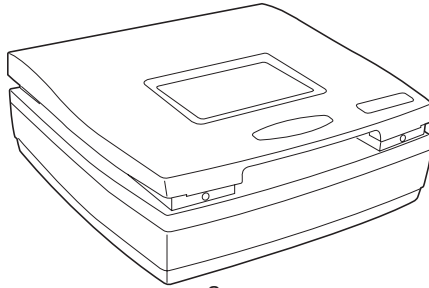
Scanner
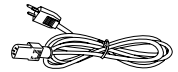
Power cord
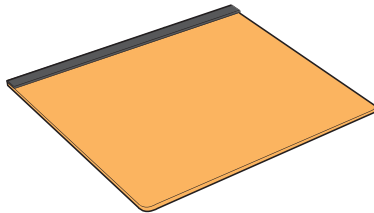
Filter plate
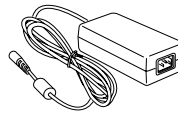
Power adapter
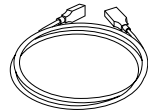
Hi-Speed USB cable
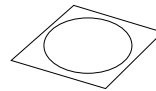
Software CD

Step 2: Installing the Software

Important: Do not remove the yellow stickers from your scanner until you are told to do so. You must install all software before connecting your scanner.

Always close any open programs and turn off Anti-virus utilities before installing software.

1. Turn on your computer.

2. Place the Microtek Software CD/DVD into a drive.

3. Follow the on-screen instructions to install the driver and software.

    NOTE: If the Microtek Software Installer screen does not come up automatically, double-click the following in succession: "My Computer"; the CD/DVD-ROM icon; then cdsetup.exe to start the installer program.
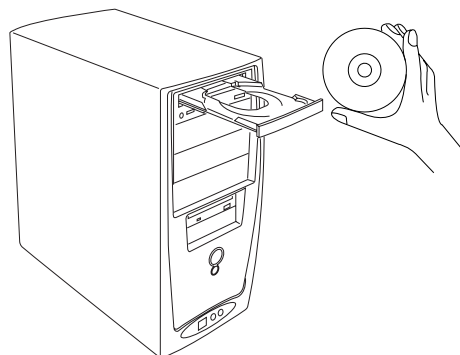
4. To install the software on the Microtek Software CD/DVD, click each software program in the order that it appears on the screen to install, and follow the on-screen instructions.

5. Click EXIT on the Microtek Software Installer screen when all the software has been installed.

6. Restart your computer.

Drivers & Software Upgrades

After you finish the installation of software, if you found that the installed drivers and software cannot run your product or your computer system properly later, please go to the Microtek Download Service site at ww7.microtek.com.tw/service.php to download and install any updates you may require.

For additional information about Microtek products, please visit our website at www.microtek.com.

Step 3: Unlocking the Scanner

1. With the scanner power off, tilt the scanner and locate the locking switch at the bottom right corner of the scanner. Do not turn the scanner upside down when attempting to unlock, as this may damage the scanner's mechanism.

2. Push the locking switch to the position as indicated in the graphic, with the icon on the lock showing as "unlocked".
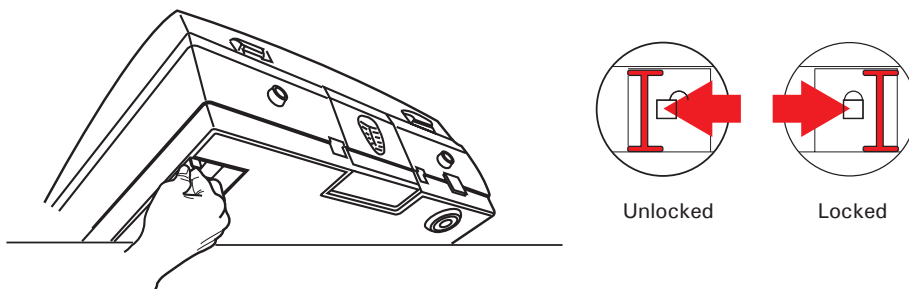
Unlocked   Locked

NOTE: To lock the scanner (for shipping and other purposes), turn the locking switch to the "Locked" position. When locking the scanner, do not turn the scanner upside down when locking the scanner back.

Step 4: Connecting the Scanner

To the Power adapter

1. Connect the power adapter to the back of the scanner.

2. Plug one end of the power cord into the power adapter, and plug the other end of the power cord into a wall outlet or other power source.
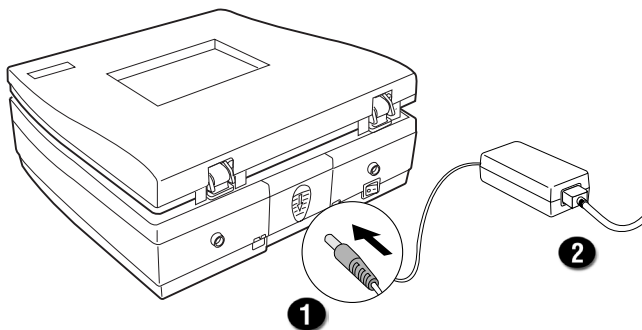
To the Hi-Speed USB Cable

3. Connect one end of the Hi-Speed USB cable to your scanner.

4. Connect the other end of the Hi-Speed USB cable to the computer's USB port.
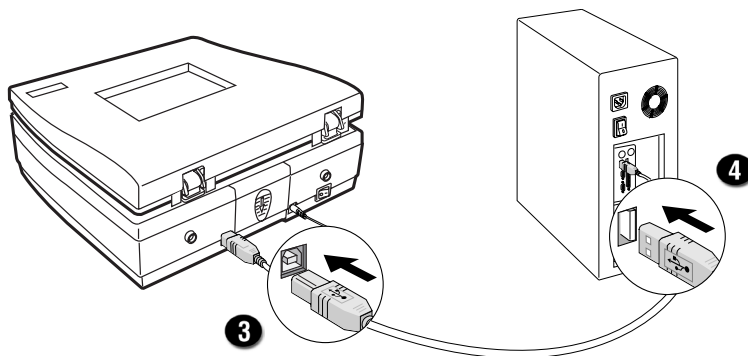
5. Turn the Power switch on the back of the scanner to "On" and immediate the scanner is ready to scan.

Power switch
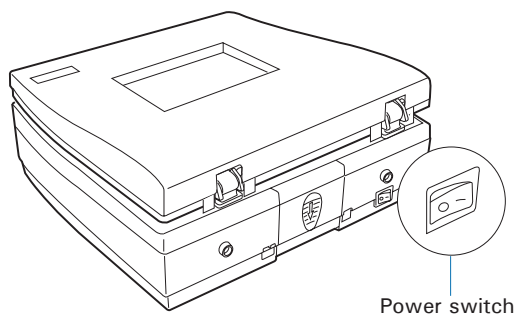
Digitizing a Gel

Positioning a Gel

1. Lift up the scanner lid.

2. Place a gel to be scanned on the scan bed. Use the red arrow mark at front of the scanner to align the scanned gel at center.

3. Lower down the scanner lid.

Important: Make sure that Calibration window on the glass surface is kept clear and free of obstruction at all times.
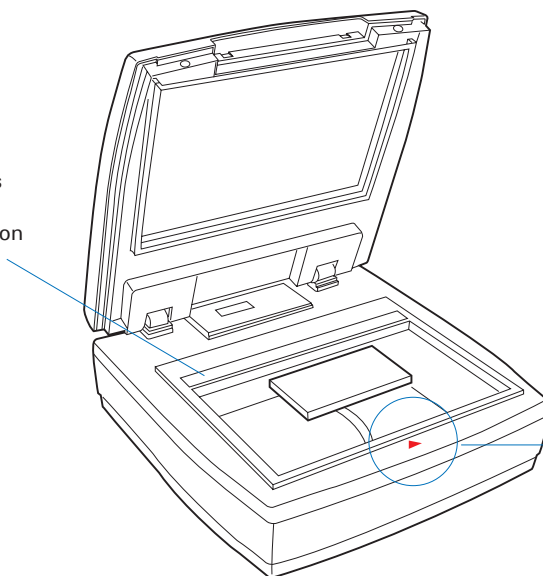
Use the red arrow mark at front of the scanner to align the gel to be scanned properly on the scan bed.

NOTE: When closing the scanner lid, make sure that it has been shut tightly; otherwise, the light may leak and generate poor scan quality.

Scanning a Gel

MiBio Fluo is a scanning software designed by Microtek for gel scanning. Its simple and user-friendly interface enables you to easily start the scanning process and finish all the scan jobs.

1. Follow the procedures for "Positioning a Gel" to place the gel to be scanned on the scanner glass surface.

2. Launch MiBio Fluo by clicking the program icon on the desktop of the computer.

3. Click the Image Capture button on the control panel to start scanning.

    When done, the scanned images will be automatically saved into the folder defined in Settings window. At the same time, the scanned images will be displayed in thumbnail sizes in the Thumbnail View area and labeled with the file name, grouped by a date, time and number.

    Click the image in the Thumbnail View area and then it will be enlarged and displayed in the Preview area.

    Refer to the section "Knowing the MiBio Fluo Software Better" in this manual for the details about how to change a folder or a name for a scanned image in the Settings window.

4. If necessary, drag the bar of Exposure Time to adjust the exposure time for a scanned gel, moving it to the left to decrease the exposure time and to the right to increase on the contrary. Or, you can also click the Plus (+) or Minus (-) button next to the bar to increase or decrease the exposure time.

    When done, click the Image Capture button again. A new thumbnail-size image will be displayed in the Thumbnail View area.

5. If you have to delete one piece of image in the Thumbnail View area, use the mouse to select the image you want to delete and then click the Delete button on the keyboard. To delete several images at one time, click and hold on the Ctrl button on the keyboard; then, use the mouse to select images you want to delete one by one and finally click the Delete button on the keyboard.
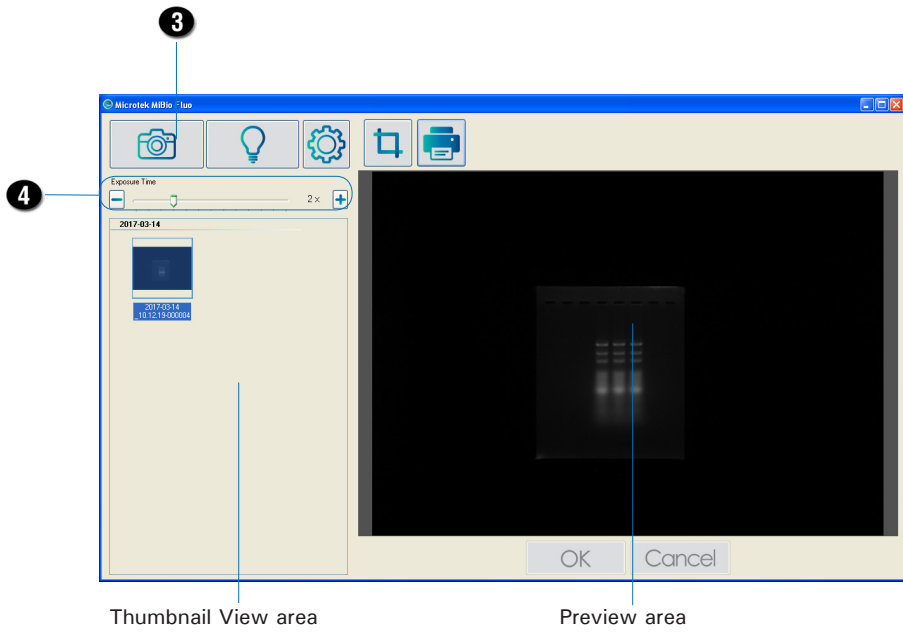
Thumbnail View area   Preview area

Excising or Observing a Gel

Using the Filter Plate

Came with the scanner package, there is a Filter Plate which can be used together with the Bio-1000F when making gel excising or observation by using a blue-LED. Follow the steps below to install the Filter Plate on the scanner and to perform your scan.

1. Follow the procedures in the section "Positioning a Gel" to place a gel to be scanned on the scan bed.

2. Follow the procedures (steps 2 and 3) for "Scanning a Gel" to launch the MiBio Fluo software and to perform a scan of the gel.

3. To install the Filter Plate on the scanner:

    A. Lift up the scanner lid.

    B. Locate two holes at the top inner side of the scanner lid and then insert posts at the top of the Filter Plate into the holes, shown as graph. When done, make sure whether the Filter Plate has been attached with the scanner tightly.

Posts at the top of the Filter Plate

Holes at the top inner side of the scanner lid
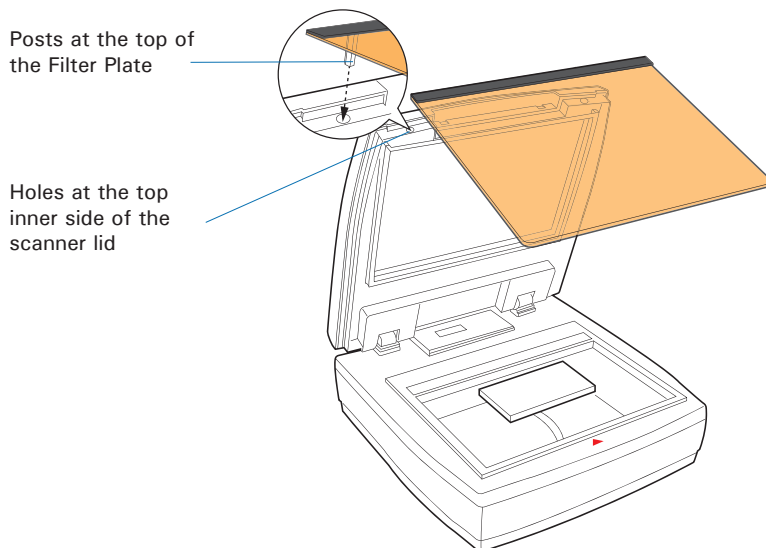
4. Next, click the Light up button on the control panel

    When the button is clicked, the blue-LED will be moved to a pre-defined position and then it will be lighted up.

    After the blue-LED is lighted up, a window pops up on the screen where a countdown clock (3 minutes) is displayed to show how much time left for you to make gel excising or observation directly on the scan bed. When done, click the Light off button to exit the window.
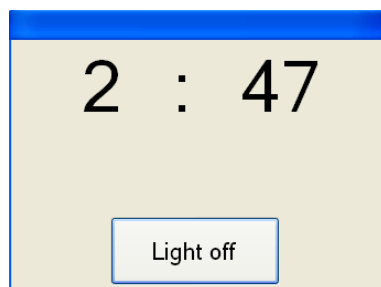
NOTE: If the blue-LED light is turned on for 3 minutes, you will be forced to wait at least 2 minutes to restart the use of the scanner.

Thumbnail View area   Preview area
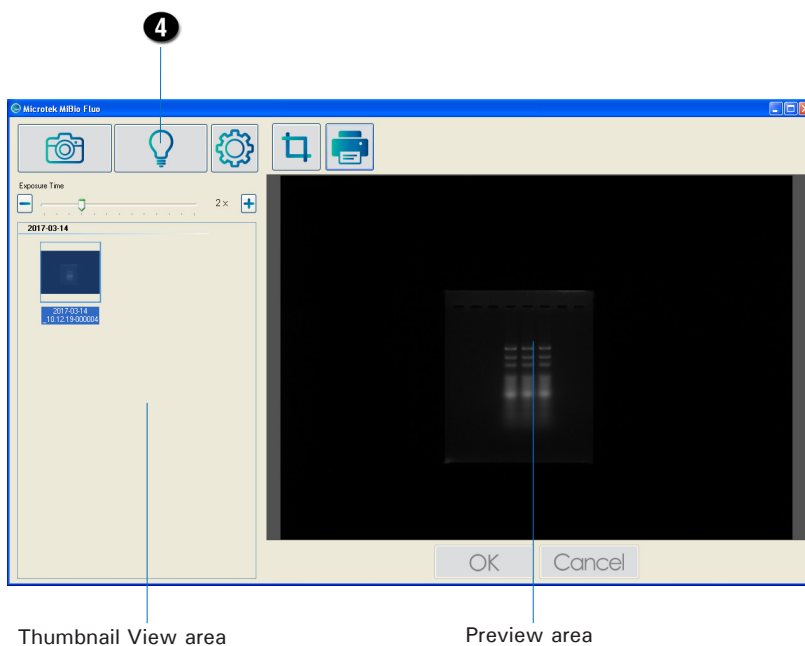
Knowing the MiBio Fluo Software Better

At previous sections, you have gotten ideas about how to use the Bio-1000F together with the MiBio Fluo software to process basic scan jobs. From this section, there are more detail descriptions about functions and commands built in the MiBio Fluo software which may help you to use this software more conveniently.

Launching MiBio Fluo

MiBio Fluo can be launched in a stand-alone mode.

From stand-alone mode: Double-click the MiBio Fluo icon on the desktop, or choose Start, Programs, Microtek MiBio Fluo for Windows, and then Microtek MiBio Fluo.

After being launched, the main control panel will appear on the screen.

Exiting MiBio Fluo

To exit MiBio Fluo, click on the Exit button on the upper right side of the main control panel.

Click here to exit MiBio Fluo
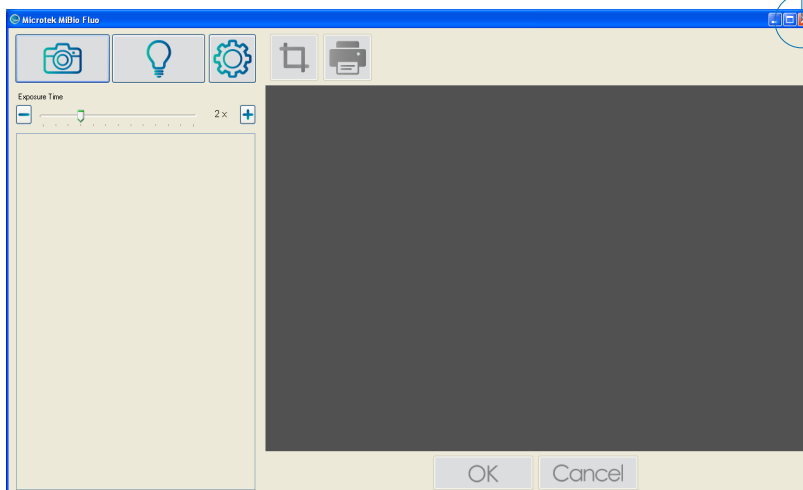
Main Control Panel

The main control panel is the prominent window and includes the various commands and tools for controlling the scanner.

Elements of the Main Control Panel

C. Light up button

E. Crop button

B. Image Capture button

D. Settings button

F. Print button

G. Minimize button

H. Exit button

A. Exposure Time slide bar

I. Preview area

L. Thumbnail View area

K. OK button

J. Cancel button
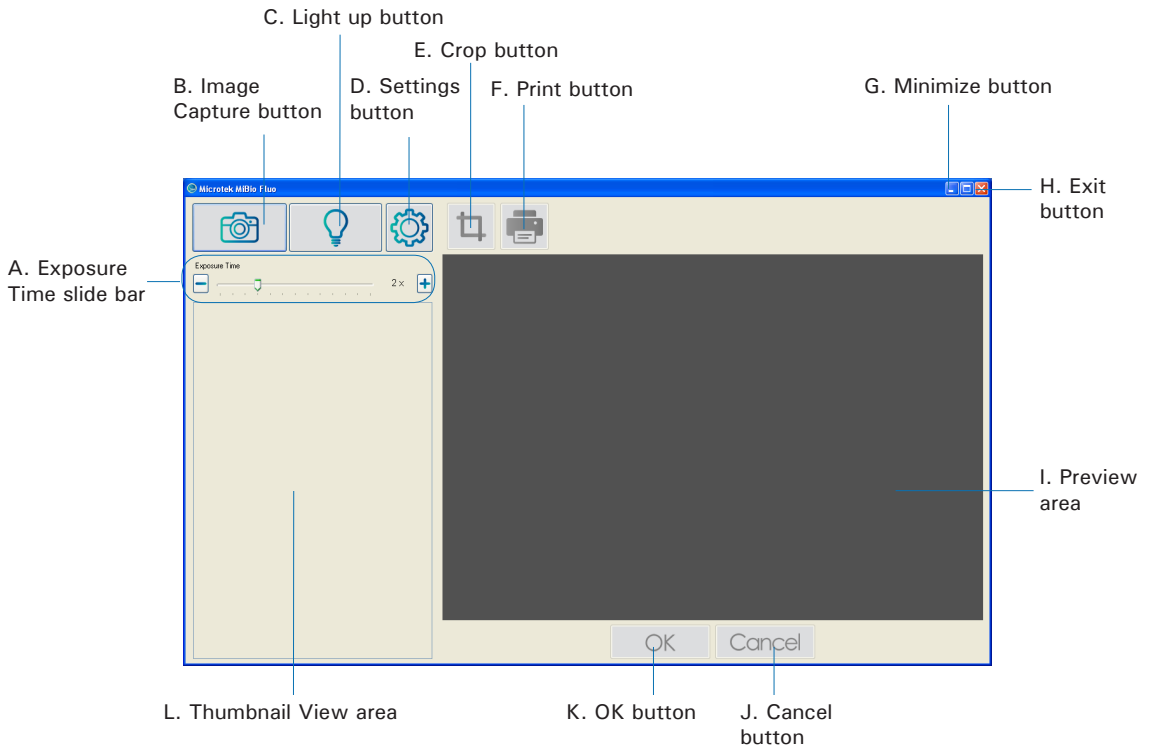
A. Exposure Time slide bar: Drag the slider left/right to decrease/increase the exposure time of the scanned image. Or, use the Plus/Minus (+ /-) button next to the slide to increase/decrease the exposure time of the scanned image too.

B. Image Capture button: Click this button to start the scanning.

C. Light up button: Click this button to turn on the blue-LED for gel excision or observation on the scan bed.

D. Settings window button: Click the Settings button to activate the Settings Window where you can adjust settings related to your gel scanning.

E. Crop button: The Crop button allows to crop and remove the unselected area from the image.

F. Print button: The Print button allows to print out the image selected in the Thumbnail View area.

G. Minimize button: Click the Minimize button to minimize MiBio Fluo.

H. Exit button: Click the Exit button to close MiBio Fluo scanning software.

I. Preview area: This area shows an enlarged view of the thumbnail selected in the Thumbnail View area.

J. Cancel button: Click the Cancel button to abandon what you framed by using the Crop button.

K. OK button: Click the OK button to save the area where you framed on the selected image by using the Crop button as a separated image file.

L. Thumbnail View area: This area shows thumbnails of scanned images or cropped images.

Image Capture Button

The Image Capture button scans the images on your scanner and delivers the images to your selected folder. The scanned image will be displayed in the Thumbnail View area when the scan is done.
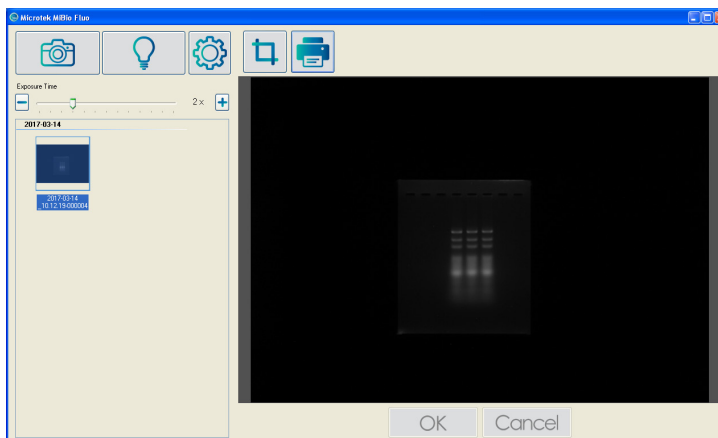
Light Up Button

The Light up button moves the blue-LED light to an assigned position and turns it on for gel excision or observation on the scan bed.

When clicking this button, the blue-LED will be moved to a pre-defined position and then will be lighted up. After the blue-LED is lighted up, a window pops up on the screen where a countdown clock (3 minutes) is displayed to show how much time left for you to make gel excising or observation directly on the scan bed. When done, click the Light off button to exit the window.
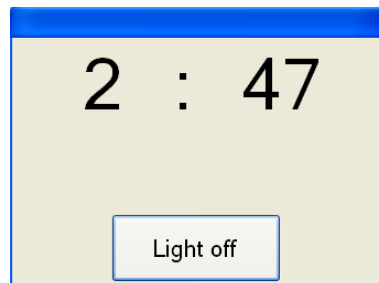
Please take note that if the blue-LED light is turned on for three minutes, the current timer window will be replaced by a new window. Inside, it displays a message that the lamp needs two minutes to cool down. And, the new timer (2 minutes) will start to countdown.

The window with a clock and a message
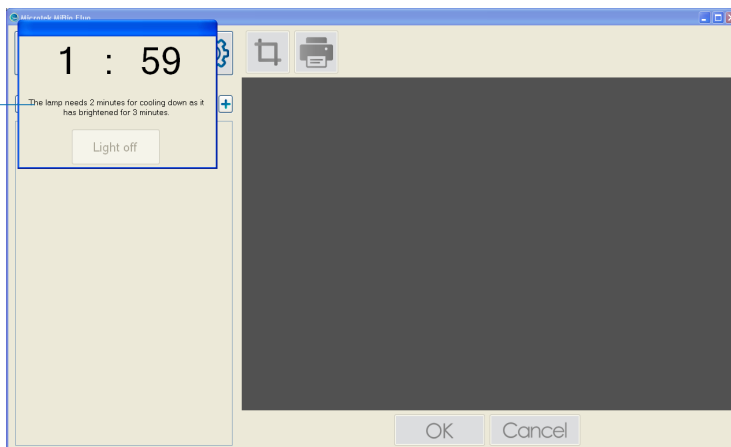
When this window appears on the screen, you have to wait at least 2 minutes for the blue-LED light of the scanner to cool down.

When the 2 minutes countdown is finished, the timer window will be automatically shut down. Then, you can restart to use the scanner.

Settings Button

The Settings button activates the Settings window in which you can adjust parameters related to output scanned gel images, such as file's name, file's saving location, file's output format and so on.
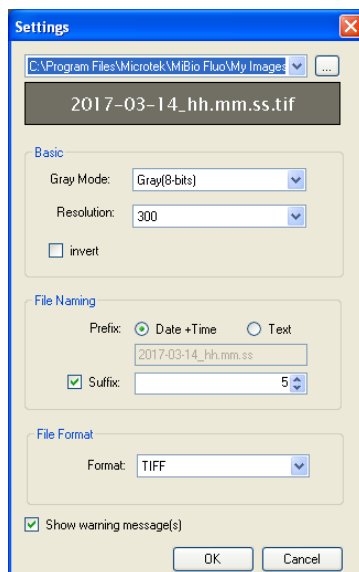
File's Saving Location

This is the folder to store scanned images. To specify a folder of your own, click the icon (⬚) next to the file's saving location box.

File's saving location box
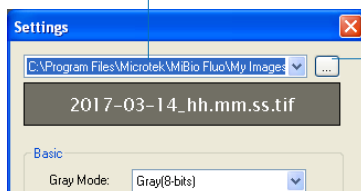
Click to toggle through a list of folders which can be assigned to save scanned images.

Gray Mode

The Gray Mode box shows you the image type of the current scan job.

• Gray (8-bits): Grayscale images use shades of gray to simulate gradations of color or tonal values, and contain 8 bits per pixel.

• Gray (16-bits): Grayscale images use shades of gray to simulate gradations of color or tonal values, and contain 16 bits per pixel.

Resolution

The Resolution box shows the resolution settings. The options are 150, 300 and 600 dpi. The default value is 300.

Invert

If this option is checked, the colors of the gel image will be inverted automatically when the gel image is captured. For example, a white becomes a black and a black becomes a white.

File Naming

By here, you can give a file name to the scanned image.

Prefix: This option lets you decide a root file name for the scan image.

If "Date + Time" is checked, the file name consists of the date and time when you scan the image. For example, if you see a file labeled with "2017-03-14_08.51.52", it means that this file was created at 52 seconds, eight 51, March 14 2017.

If "Text" is checked, you are allowed to enter a root file name in the edit box below "Prefix". "Image" is the default.

Suffix: If this option box is checked, the drop-box allows you to select a starting number to be appended to the root file name. For example, if "Text" is checked and the Suffix option is checked and set as "5", the name of the saved file will be "Image-000005".

The file name is used for the scanned image.
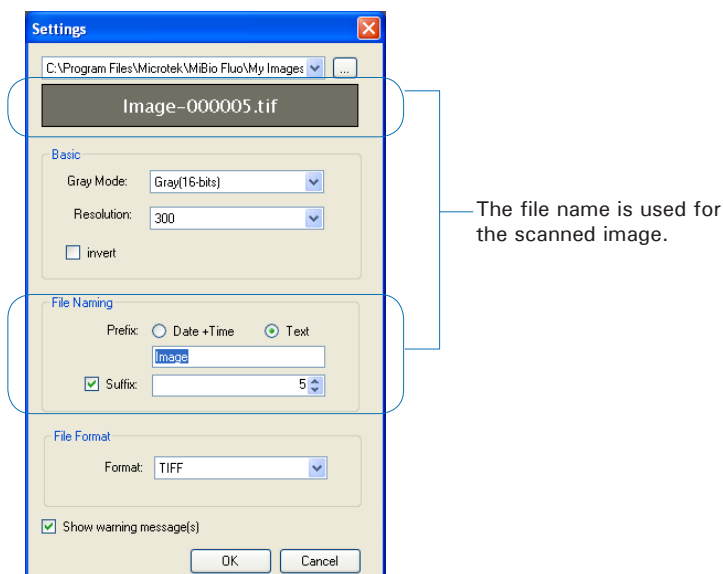
File Format

By here, you can select a file format when saving a file. The options are TIFF and JPEG.

The JPEG option is active only when the Gray Mode is set as Gray(8-bits).

Show Warning Message(s)

If this option is checked, the software will display warning messages when you want to delete images from the Thumbnail View area.

Crop Button

The Crop button lets you to crop and remove the unselected area from the image in the Preview area. The newly cropped image will appear in the Thumbnail View area as a new image file when done. This button can be activated only when the gel image is selected in the Thumbnail View area

To use the Crop button:

1. Click to select an image from the Thumbnail View area. The selected image will appear in the Preview area.

2. Click the Crop button; then, draw to select an area you want by dragging the mouse over the image and clicking the left mouse button.

    After done, drag on the edge or a corner of the framed area to determine the final size of the cropping area if necessary.

    To remove the selected area of the image, click the Cancel button at the bottom of the Preview area. Immediately, the selected frame will disappear.
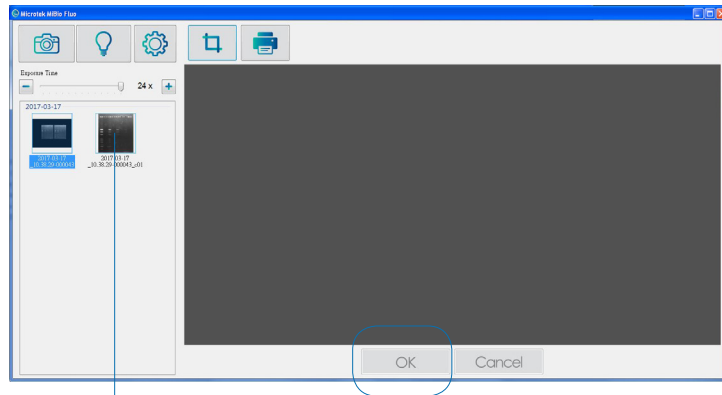
    To reselect an area to crop, repeat the procedure mentioned above.

Drag to select an area to crop

3. When done, click the OK button at the bottom of the Preview area.

   A new and after-cropped image will then appear in the Thumbnail View area. It will be saved in the folder in which you specified in Setting window.

The cropped image

Print Button

The Print button lets you print the selected gel image through the connected printer. This button can be activated only when the gel image is selected in the Thumbnail View area

To print ~~an~~ the selected image:

1. Click to select an image from the Thumbnail View area. The selected image will appear in the Preview area.

2. Click the Print button to activate the Print window.

3. Assign a connected printer and adjust settings if necessary. When done, click OK to start the printing.
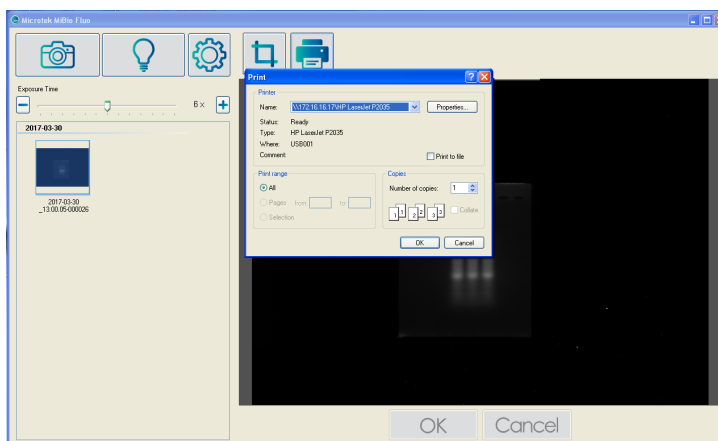
Care and Cleaning

To ensure optimal performance for the Bio-1000F, it is important to clean the rear and front glass surfaces of the scanner on a regular basis.

Cleaning the Glass Surfaces

1. Lift up the scanner lid.
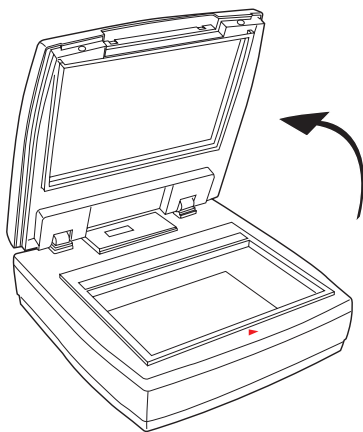
2. Use the cleaning cloth come with your package or a soft, non-abrasive and lint-free cloth to gently wipe the rear and front glass surface areas on the scanner's flatbed.
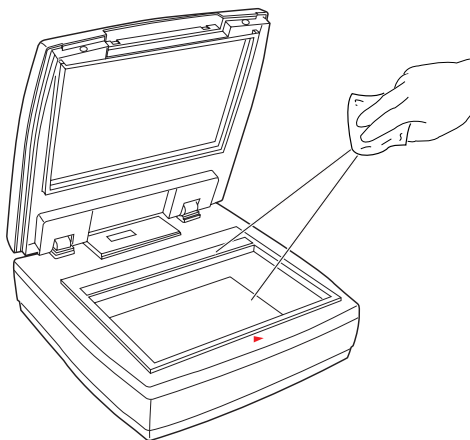
NOTE: Do not use any detergents, synthetic cleaning solutions, cleaning naphtha, or other solvents to clean the glass surface directly.

Maintenance

After usage for a period of time, the parts inside your scanner, such as the light source, may become worn out, and a problem such as insufficient light supply may occur. In this cases, contact your local dealers or wholesales for the maintenance services.

NOTE: Your scanner need a professional to perform the required service or maintenance. Do not attend to fix or perform the maintenance by yourself, or it may cause dangers to you or the scanner.

Appendix

Troubleshooting

If you encounter any problems, check the section below and follow the suggested solution if your problem is listed. You may also want to go over installation steps 1 to 4 as described in the "Initial Setup" section of this document to make sure that you have followed all procedures properly.

1. **The Add/Remove Hardware Wizard appears on your screen.**

    Click the "Cancel" button and close the MiBio Fluo.

    Disconnect the Hi-Speed USB cable from the back of your computer, and refer to the installation instructions in this document.

2. **When trying to scan, an error message appears on your screen that reads, "Can't Find Scanners".**

    Make sure your scanner is unlocked (see Step 3 in the "Initial Setup" section).

    Make sure your scanner is connected to your computer and plugged in to a power source (see Step 4 in the "Initial Setup" section).

    Uninstall and reinstall the MiBio Fluo software.

3. **After clicking scan, a blank screen appears.**

    Make sure your scanner is unlocked (see Step 3 in the "Initial Setup" section).

    Uninstall and reinstall the MiBio Fluo software.

4. **Having trouble scanning gels.**

    Make sure you place the gel properly on the scan bed. Do not block the calibration area.

    Uninstall and reinstall the MiBio Fluo software.

Specifications

Type	Desktop flatbed gel scanner
Light Source	Blue LED
Scanning Modes	16-bit grayscale (Approx. 65,536 shades of gray)
	8-bit grayscale (Approx. 256 shades of gray)
Resolution	600 dpi
Sensitivity	0.008 ng/μl
Scanning Area	7" x 5" (177.8 mm x 127 mm)
Interfaces	Hi-Speed USB (USB 2.0)
Dimensions (L x W x H)	12" x 12" x 5"
	(304.8 mm x 304.8 mm x 127 mm)
Weight	10.56 pounds (4.8 kg)
	11 pounds (5 kg) (With the Filter Plate)
Voltage	AC 100V-240V, 50-60 Hz, 1.5A max. (Input)
	DC 15V, 2.5A (Output)
Power Consumption	37.5 W max.

Power Supply
(AC/DC adapter)

Voltage	MFR	Model No.
AC 100V to 240V	HARD	HDAD38W101

Environment	Operating temperature: 41° to 104°F (5° to 40°C)
	Relative humidity: 20% to 85%

Important: Specifications, software bundles, and accessories are subject to change without notice. Not responsible for typographic errors.

English