

Nikon

**ECLIPSE Ni/Ci Series
Microscopes**

Ni Setup Tool

(Software for ECLIPSE Ni/Ci series microscopes)

Software Manual

Introduction



Thank you for purchasing this Nikon product.

This manual describes how to install and use the Ni Setup Tool software for ECLIPSE Ni/Ci series microscopes. To ensure correct use, please read this manual carefully before operating the product.

Refer to the hardware manual for detailed information on how to connect your microscope and discussions of the system configuration.

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- Although every effort has been made to ensure the accuracy of this manual, errors or inconsistencies may remain. If you note any points that are unclear or incorrect, please contact your nearest Nikon representative.
- If you intend to use any other equipment with this product, read the manual for that equipment too.
- If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

■ Prerequisite knowledge

This manual assumes a basic familiarity with Windows.

If you come across unfamiliar terms or operations while reading through this manual, consult the user's manual for your version of Windows.

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■ Disclaimer

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How to Read this Manual

This manual uses the following conventions in descriptions.

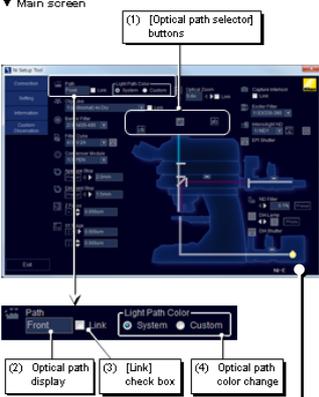
Chapter 4 Controlling the Motorized Devices
4.3 Controlling Each Motorized Device

4.3 Controlling Each Motorized Device

4.3.1 Optical Path Switching [Path]

IMPORTANT
You can change the optical path of the microscope system only when the motorized quadroural tube is connected. For other cases, the optical path only on the main screen can be changed.

▼ Main screen



- (1) Click an [optical path selector] button (Bino, Front, or Rear) to switch optical paths.
- (2) The selected optical path is displayed in the [Path] text box.
 - Bino: Binoocular part
 - Front: Tube adapter
 - Rear: Rear port
- (3) Optical path interlocked change
Check or uncheck the [Link] check box to enable or disable optical path interlock control. To control the units in sync with optical path switching, select the check box.
- (4) Optical path color change
Select [System] or [Custom] to change the optical path color to system color or custom color.
System color:
Color changes automatically according to the filter combination. Gray display indicates that light cannot pass through.

IMPORTANT
The [Link] check box is enabled only when the motorized or intelligent nosepiece are attached.

REFERENCE
For information on the device interlocks, refer to 3.9, "Interlock Setup [Interlock]".

REFERENCE
For information on the system color, refer to next page, and for custom color, refer to 5.1.8, "Changing the Optical Path Color [Custom Color]".

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Describes operation procedures, the result of the operation, and so on. [] indicates a string such as a menu name or button name displayed in the screen.

Describes cautions, important information, additional information, or reference information.

Shows the typical screen displayed during operation.

Symbols

CAUTION

Indicates a caution that you must read for proper operation of the application and microscope system.

IMPORTANT

Indicates important information that you must understand before starting operation.

SUPPLEMENT

Indicates additional information that will be helpful for operation.

REFERENCE

Indicates one or more sections and so on for reference.

Screens used in this manual

Menus and items displayed in Ni Setup Tool vary depending on the microscope system configuration and the motorized devices connected.

The descriptions in this manual are mainly based on the screens of Ni-E.

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1

Preparation

This chapter describes hardware and the Ni Setup Tool requirements and how to install and uninstall the software.

1.1

Hardware and Software Requirements

CAUTION

- Before installing the Ni Setup Tool, confirm that your PC meets the minimum requirements given below for memory and available hard disk space.
- Install the application before connecting your PC and microscope system (Ni-E, Ni-U, Ci-E).

PC main unit

Item	Specifications
CPU	Processor of 1 GHz or higher
Memory	1 GB or more (for 32-bit OS)/2 GB or more (for 64-bit OS)
Hard disk drive	100 MB or more free space
Video RAM	128 MB or more
OS	Windows 7 Professional SP1 or later (32-bit/64-bit, Japanese or English version)
Remarks	The Ni Setup Tool installer program can be downloaded from the website. The Ni Setup Tool is not guaranteed to be compatible with all PCs. Please contact your distributor for detailed compatibility information.

Display

Item	Specifications
Resolution	1,024 x 768 pixels. A monitor/video card capable of True Color output is recommended

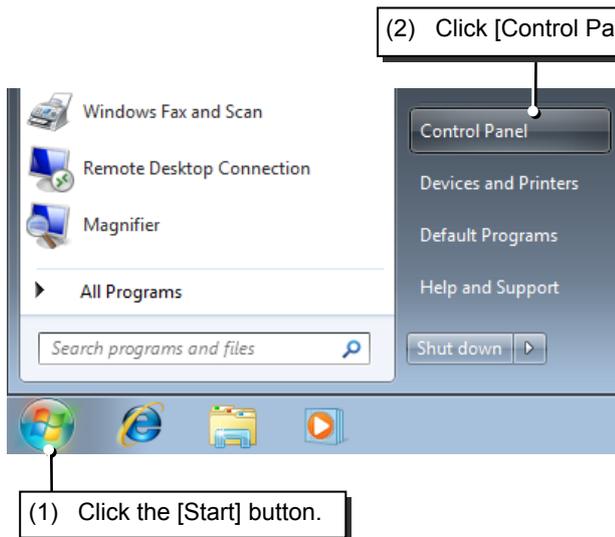
1.1.1 Checking Available RAM

Check the amount of available RAM in the [System Properties] dialog box.

[Memory] There must be at least 1 GB (32-bit OS) or 2 GB (64-bit OS).

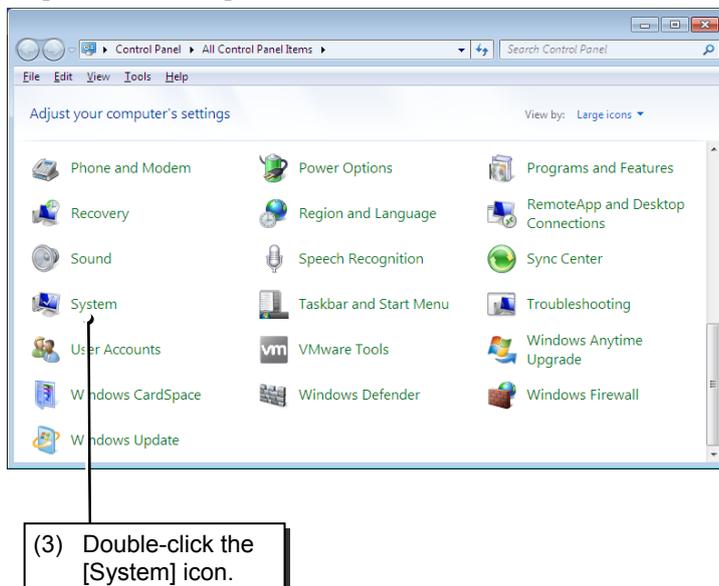
Operating procedure

▼ [Start] menu



- (1) Click the [Start] button.
- (2) Click [Control Panel] to display the [Control Panel] window.

▼ [Control Panel] window

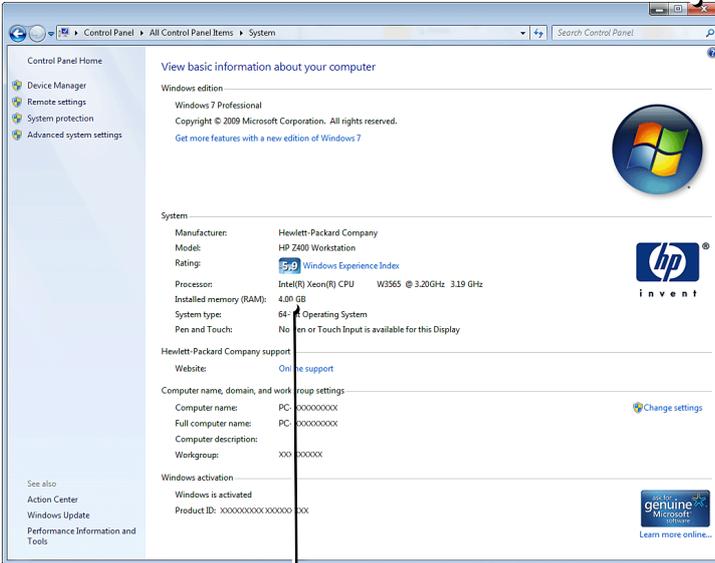


- (3) Double-click the [System] icon in the [Control Panel] window. The [System Properties] dialog box appears.

This figure shows the Control Panel window when [Large icons] is elected as the view method.

▼ [System Properties] dialog box

(5) Click the [Close] button.



(4) Check the installed memory here.

(4) Check the [System Properties] dialog box that installed memory for 32-bit OS is at least 1 GB or installed memory for 64-bit OS is at least 2 GB.

(5) Click the [Close] button to close the [System Properties] dialog box.

1.1.2 Checking the Free Hard Disk Space

Check the amount of free space on the hard disk in the [Computer] window.

If there is insufficient free space on the hard disk, increase the available free space by uninstalling any unnecessary applications.

[Hard disk] The hard disk must have at least 100 MB of free space.

Operating procedure

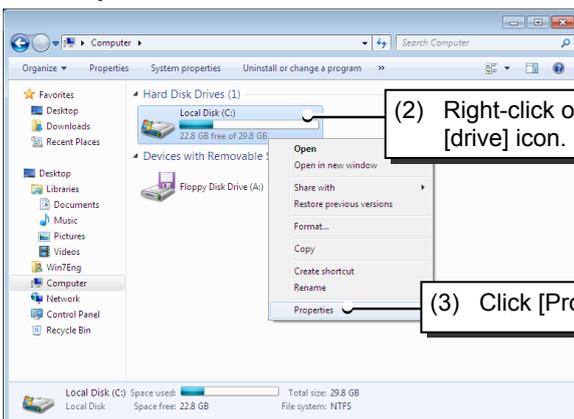
▼ Desktop



(1) Double-click the Computer icon.

- (1) Double-click the [Computer] icon. The [Computer] window appears.

▼ Computer window

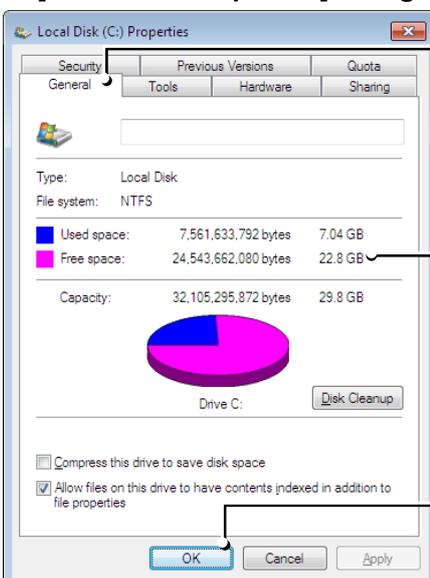


(2) Right-click on the [drive] icon.

(3) Click [Properties].

- (2) Right-click on the [Drive] icon in the [Computer] window for the drive on which you want to install the application.
- (3) Click [Properties] in the [Shortcut] menu. The [Properties] dialog box for the selected drive appears.

▼ [Local Disk Properties] dialog box



(4) Click the [General] tab.

(5) Check the free hard disk space.

(6) Click the [OK] or [Cancel] button.

- (4) Click the [General] tab of the [Properties] dialog box.
- (5) Check that at least 100 MB of free space is available on the hard disk.
- (6) Click [OK] or [Cancel] button to close the [Properties] dialog box.

1.2 Installing the Application

This section describes how to install the Ni Setup Tool.

CAUTION

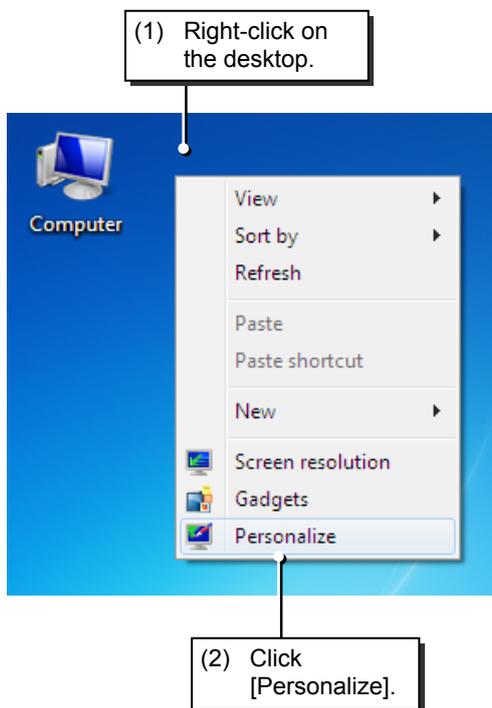
- Install the application before connecting the microscope system to the PC.
- To install the Ni Setup Tool, you must login to your PC with a user account with Administrator rights.

1.2.1 Closing All Other Applications

Before installing the Ni Setup Tool, close all background programs such as the screensaver and anti-virus utility.

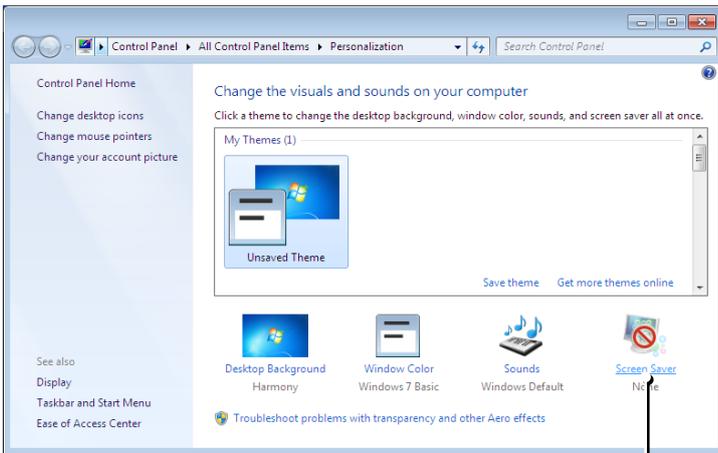
Closing the screensaver

▼ Shortcut menu on the desktop



- (1) Right-click on the desktop to display a [Shortcut] menu.
- (2) Click [Personalize] in the [shortcut] menu. The [Personalization] dialog box appears.

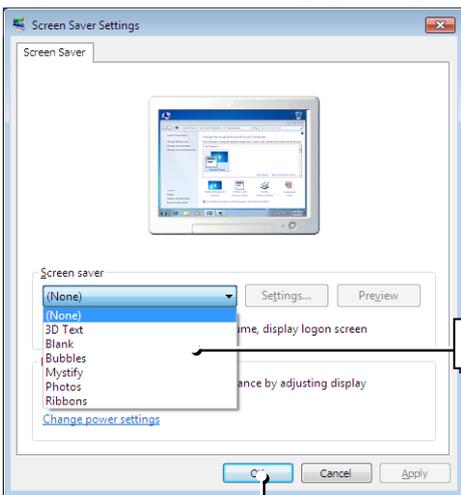
▼ [Personalization] dialog box



(3) Click the [Screen Saver].

(3) Click [Screen Saver] in the [Personalization] dialog box. The [Screen Saver] Settings dialog box appears.

▼ [Screen Saver Settings] dialog box



(4) Select [(None)].

(5) Click the [OK] button.

(4) In the [Screen Saver] Settings dialog box, select [(None)] from the [Screen saver] pulldown menu.

(5) Click the [OK] button.

1.2.2 Executing the Setup Wizard

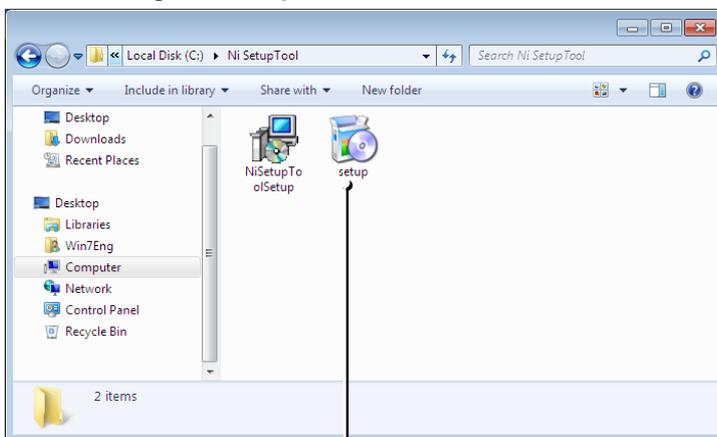
To install the application software, execute the installer (setup.exe) downloaded from the website, then follow the on-screen instructions.

CAUTION

- To install the Ni Setup Tool, you must login as Administrator.
- For information on uninstalling the Ni Setup Tool, refer to Section 1.3, “Uninstalling the Application”.

Executing the Setup Wizard

▼ Executing the Setup Wizard



(1) Double-click setup.exe.

- (1) Double-click the setup.exe file in the folder for the installer downloaded from the website. The Setup wizard startup dialog box appears.

Installation

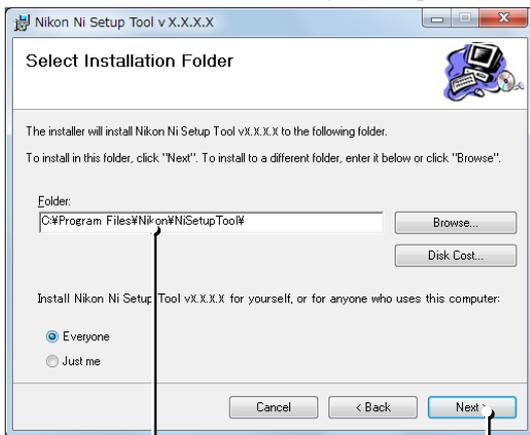
▼ Setup wizard startup dialog box



(2) Click the [Next] button.

- (2) Click the [Next] button in the Setup wizard startup dialog box. The Installation folder setup dialog box appears.

▼ Installation folder setup dialog box



(3) Specify the folder in which to install this software.

(4) Click the [Next] button.

(3) In the Installation folder setup dialog box, specify the folder in which the Ni Setup Tool will be installed.

The default folder is

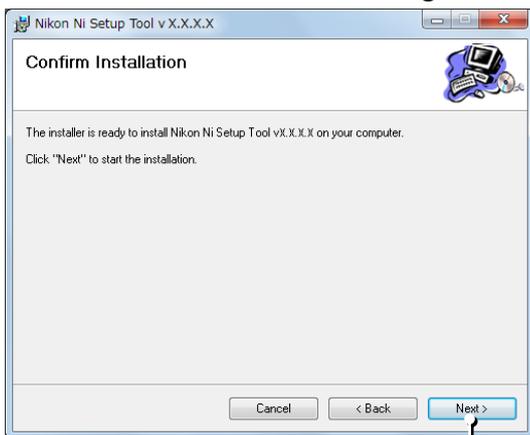
C:\Program Files\Nikon\NiSetupTool\.

To install the software in a different folder, click the [Browse...] button.

(4) Select the desired folder and then click the [Next] button.

The Confirmation Installation dialog box appears.

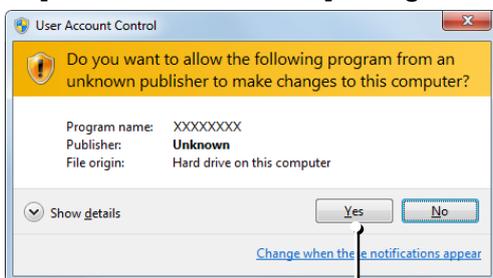
▼ Installation confirmation dialog box



(5) Click the [Next] button.

(5) Click the [Next] button in the Confirm Installation dialog box. The software is installed in the specified folder.

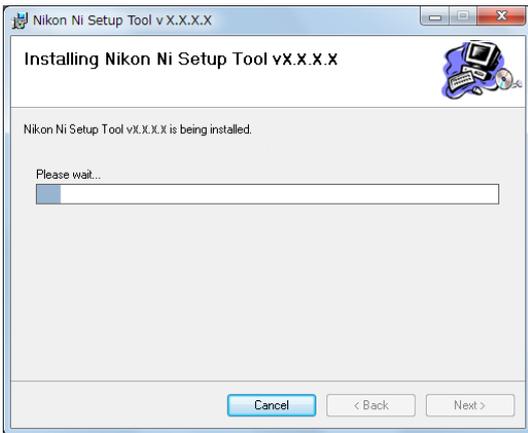
▼ [User Account Control] dialog box



(6) Click the [Yes] button.

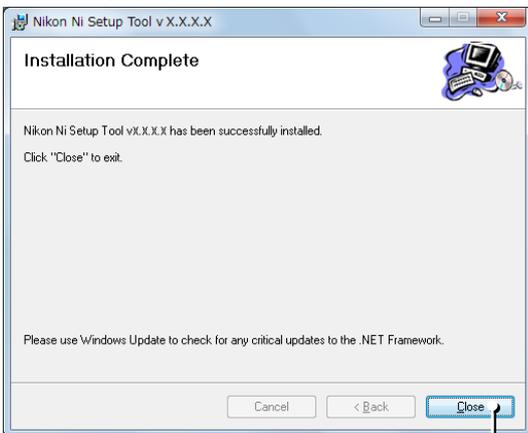
(6) If a [User Account Control] dialog box appears, click the [Yes] button. The installation starts.

▼ Dialog box during installation



The installation progress dialog box appears.

▼ Dialog box when installation is complete

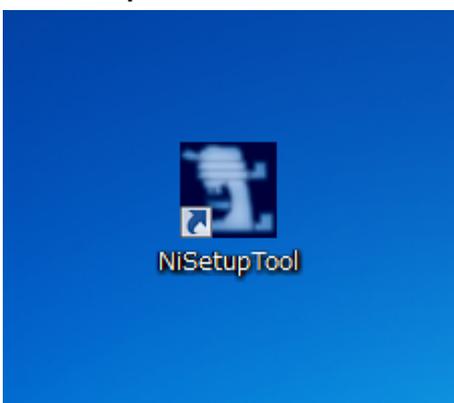


- (7) After installing the software, the setup wizard displays the dialog box shown on the left. Click the [Close] button to exit the wizard.

You have finished installing the Ni Setup Tool.

(7) Click the [Close] button.

▼ Desktop

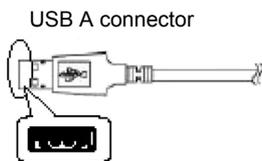


The shortcut icon for starting the Ni Setup Tool is created on the desktop.

1.2.3 Installing the Driver

After installing the Ni Setup Tool, connect the microscope system to your PC with a USB cable. When the system is connected to the PC for the first time, the driver is installed automatically.

▼ USB connector

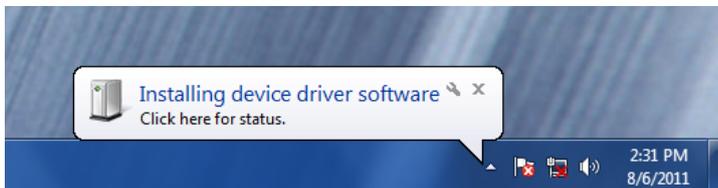


- (1) Plug the USB cable's A connector into the port on the PC and the other end into the USB port on the microscope system. The Wizard startup dialog box appears.

IMPORTANT

When the Ni-E or Ci-E is included in the system configuration, plug the other end into the USB connector of the Ni-E or Ci-E.

When the Ni-U is used together with the CTLB (control box B), plug the other end into the USB connector of the CTLB.



When the system is connected, the installation of the driver automatically starts.



The application is now installed.

1.3 Uninstalling the Application

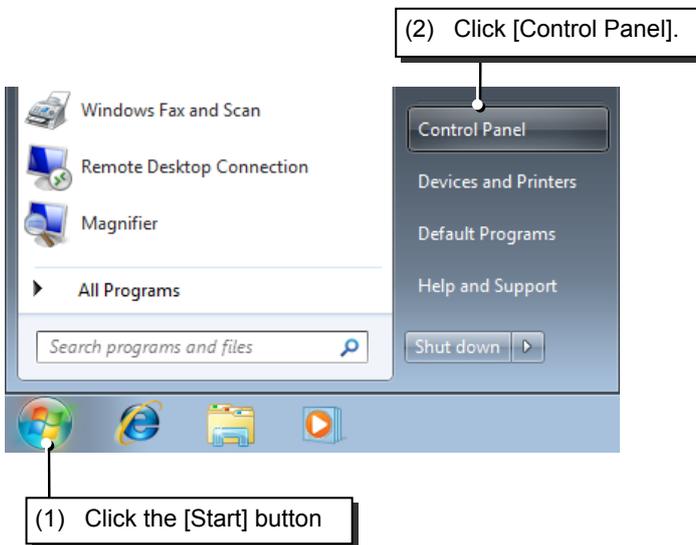
If you no longer need the Ni Setup Tool and wish to uninstall it (remove it from the hard disk), uninstall it using the [Programs and Features] utility in the [Control Panel].

CAUTION

- Once uninstalled, the application software cannot be used unless it is installed again.

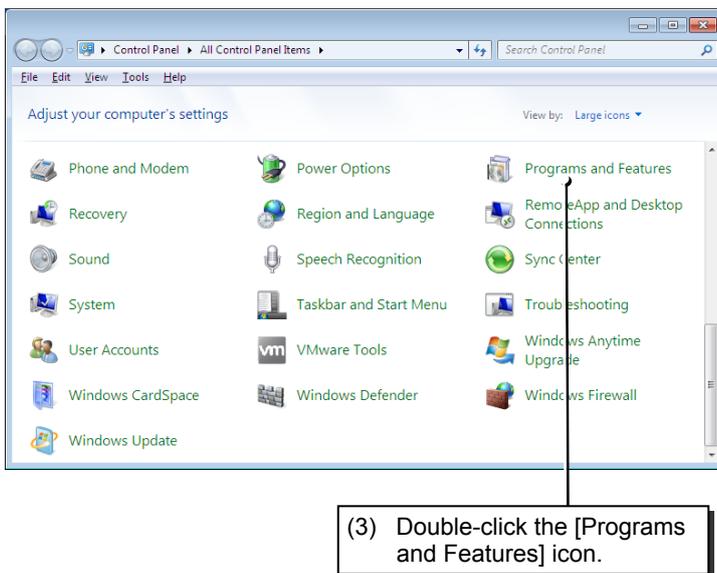
Uninstallation

▼ Start menu



- (1) Click the [Start] button.
- (2) Click [Control Panel] to display the [Control Panel] window.

▼ Control Panel window

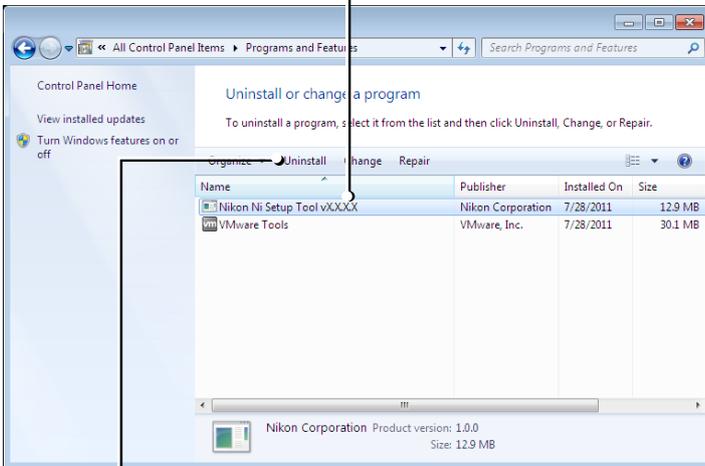


- (3) Double-click the [Programs and Features] icon in the [Control Panel] window. The dialog box for selecting a program to uninstall appears.

This figure shows the Control Panel window when [Large icons] is selected as the view method.

▼ **Dialog box to select programs to be uninstalled**

(4) Select [Nikon Ni Setup Tool vX.X.X.X]



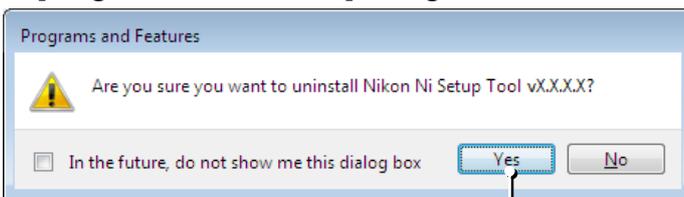
(5) Click the [Uninstall] button.

(4) Select [Nikon Ni Setup Tool vX.X.X.X] from the list in the dialog box.

("vX.X.X.X" varies with the version number.)

(5) Click the [Uninstall] button.

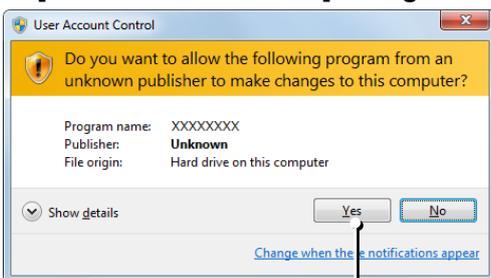
▼ **[Programs and Features] dialog box**



(6) Click the [Yes] button.

(6) When the [Programs and Features] dialog box appears, click the [Yes] button. The uninstallation starts.

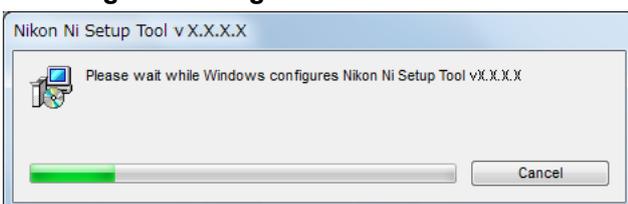
▼ **[User Account Control] dialog box**



(7) Click the [Yes] button.

(7) If the [User Account Control] dialog box appears, click [Yes] button and then the uninstallation starts.

▼ **Dialog box during uninstallation**



The dialog box during uninstallation appears and the application is deleted from the PC.

You have finished uninstalling the application.

2

Basic Operation of Ni Setup Tool

This chapter describes the basic usage of Ni Setup Tool and communications with the microscope system.

2.1

Main Functions of Ni Setup Tool

Ni Setup Tool has the following three main functions.

- **Setting up motorized devices**

When you connect your PC to the microscope system for the first time, you need to set up the motorized devices information for the microscope system.

For more information, refer to Chapter 3, “Setup”.

- **Controlling motorized devices**

During microscopy, you can monitor the current status of the microscope system visually and also control motorized devices from your PC.

For more information, refer to Chapter 4, “Controlling the Motorized Devices”.

- **Other functions**

You can set limit values for motorized devices and assign switch functions to the microscope main body and Ergo Controller. You can also register and load MODEs.

For more information, refer to Chapter 5, “Other Functions”.

CAUTION

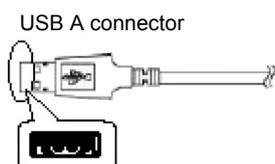
- **When you use Ni Setup Tool for the first time, make sure to perform setup to register the information for the microscope system. For details, refer to Chapter 3, “Setup”.**
- **Up to four microscope systems (Ni-E, Ni-U and CTLB, Ci-E) can be connected to a single PC. Please note that the microscope systems may not work properly if five or more microscope systems are connected to a PC at a time.**
- **Be sure to close Ni Setup Tool before reconnecting or connecting a USB connector. Connecting or reconnecting USB connectors while power is on may result in erratic microscope system operations.**
- **Menus and items that can be used vary depending on the microscope system configuration and the motorized devices connected.**

2.2 Starting and Exiting Ni Setup Tool

You can start and exit Ni Setup Tool in several ways. A general method is described here, using the [Start] menu to start and the [Exit] button in the main screen to exit.

2.2.1 Starting Ni Setup Tool

▼ USB connector



- (1) Connect the USB to the PC and the microscope system, and turn on the power for the microscope system. Maximum 20 sec required for initializing the microscope system.

IMPORTANT

When the Ni-E or Ci-E is included in the system configuration, plug the other end into the USB connector of the Ni-E or Ci-E.

When the Ni-U is used together with the CTLB (control box B), plug the other end into the USB connector of the CTLB.

When the microscope system and DS-L3 are connected, plug the other end into the USB connector of the DS-L3.

REFERENCE

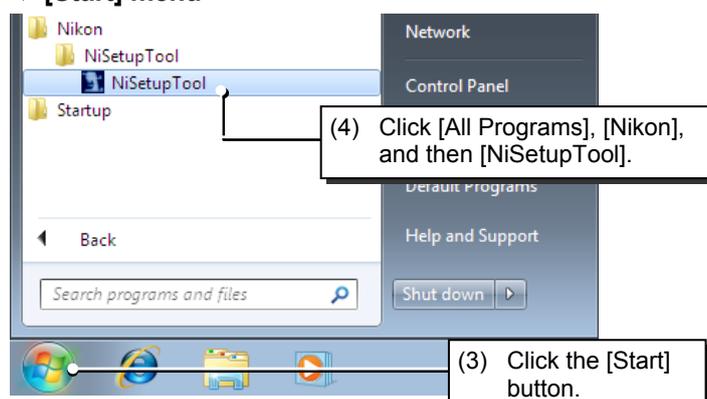
Refer to the microscope's instruction manual for microscope system's USB connection and startup.

- (2) Start up the PC.

REFERENCE

For details on starting up the PC, refer to the instruction manual provided with the PC.

▼ [Start] menu



- (3) Click the [Start] button.
- (4) Click [All Programs], [Nikon], and then [NiSetupTool]. Ni Setup Tool starts and the main screen appears.

CAUTION

Do not unplug the USB cable that connects the microscope with the PC while Ni Setup Tool is running.

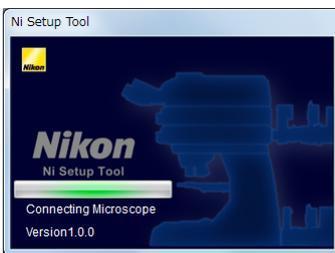
- **If multiple microscope systems are connected**

Among the microscopes connected to the PC through USB connection, the microscope that has the smallest USB port number is connected.

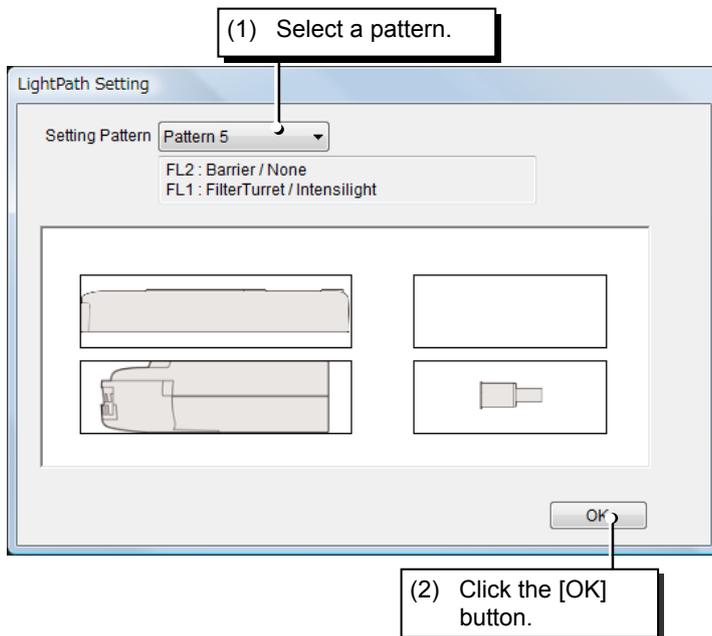
SUPPLEMENT

You can switch the microscope system to be connected, after startup.

▼ **Splash screen**



▼ **Optical path selection dialog box**



- **If the motorized devices currently connected are different from the ones connected at the last operation**

The optical path selection dialog box appears.

(1) Select an intermediate tube pattern from the [Setting Pattern] pull-down list.

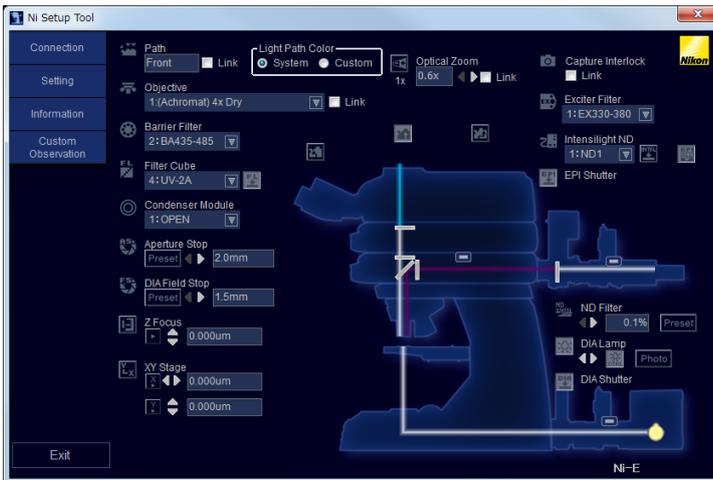
(2) Click the [OK] button.

The application starts and the main screen appears.

REFERENCE

For details on intermediate tube patterns, refer to 3.3.2, "Setting the Intermediate Tube Pattern [LightPath]".

▼ Example of the main screen [Ni-E]

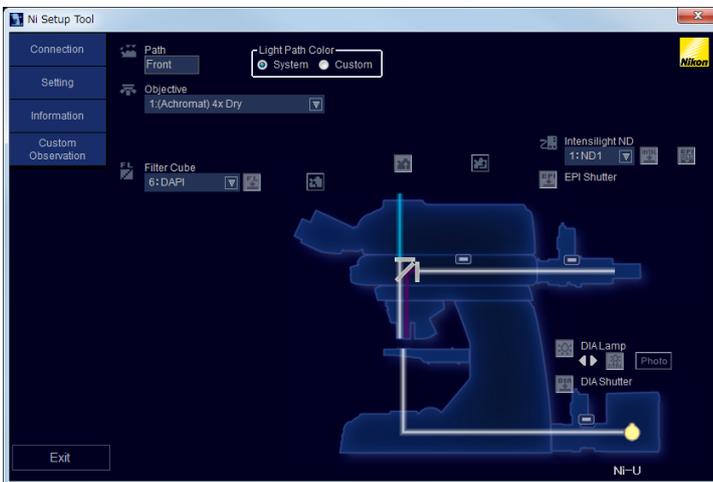


After the splash screen, the main screen appears.

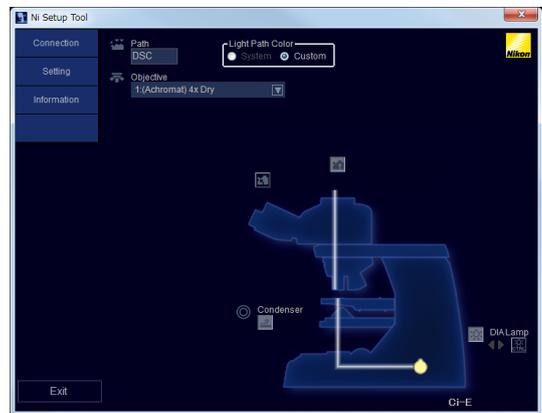
The display contents of the main screen vary depending on the status of the microscope system and motorized devices connected.

Note that the descriptions in this manual are mainly based on the screen of Ni-E.

▼ Example of the main screen [Ni-U]

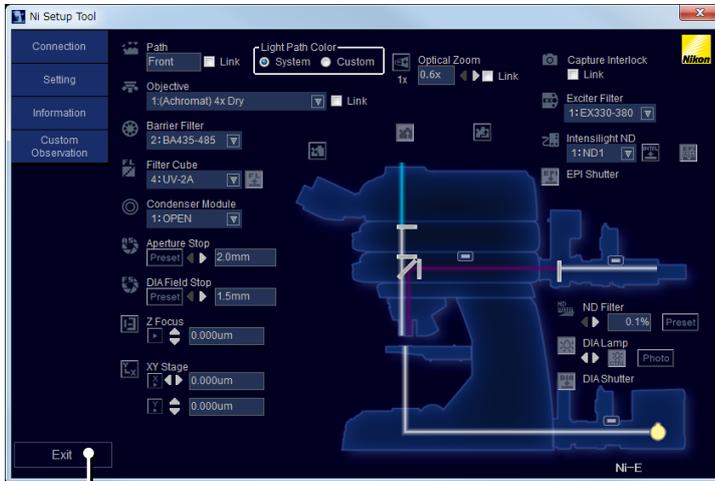


▼ Example of the main screen [Ci-E]



2.2.2 Exiting Ni Setup Tool

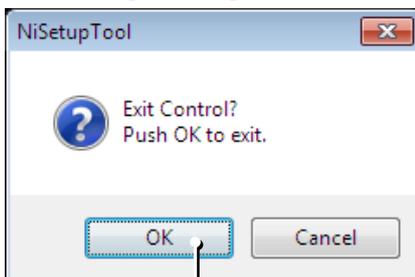
▼ Main screen



(1) Click the [Exit] button.

- (1) Click the [Exit] button in the main screen.
A confirmation message dialog box appears.

▼ Message dialog box



(2) Click the [OK] button.

- (2) Click the [OK] button.
Communications with the microscope system are terminated, and Ni Setup Tool closes.

2.3 Main Screen

2.3.1 Screen Configuration

The main screen of Ni Setup Tool consists of the "Menu area" for performing setup and other settings and also the "Motorized device control area" for controlling the microscope system.

▼ Main screen

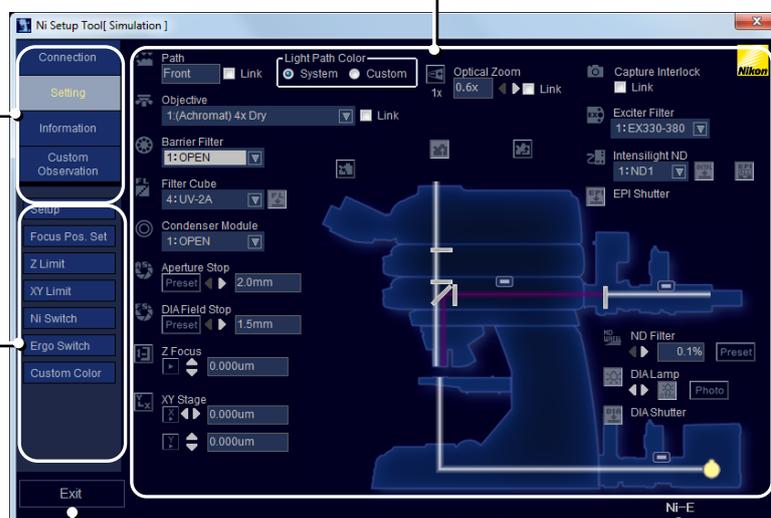
Menu

When a menu item is selected, a submenu is displayed and allows you to set the motorized devices and view the information.

Submenu display area

Motorized device control area

Displays setting states of motorized devices connected. Motorized devices can be controlled through the buttons and scroll bar.



[Exit] button

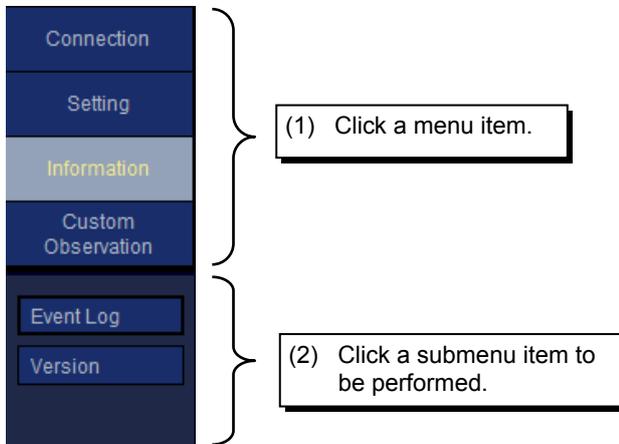
Closes Ni Setup Tool.

Name of the microscope system

Displays the name of the microscope system currently connected.

2.3.2 Basic Operation

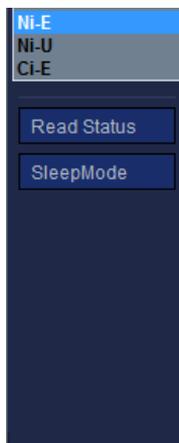
▼ Menu



- (1) Click a menu item.
The submenu appears.
- (2) Click a submenu item.
A setup dialog box appears or a function is performed depending on the item you selected.

▼ Submenu

[Connection]
Communications
with the microscope
system



REFERENCE
Section 2.4
in Chapter 2

[Setting]
Setup and various
settings



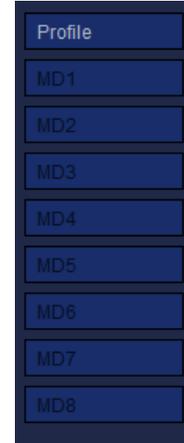
REFERENCE
Chapter 3,
Section 5.1
in Chapter 5

[Information]
Displaying various
types of information



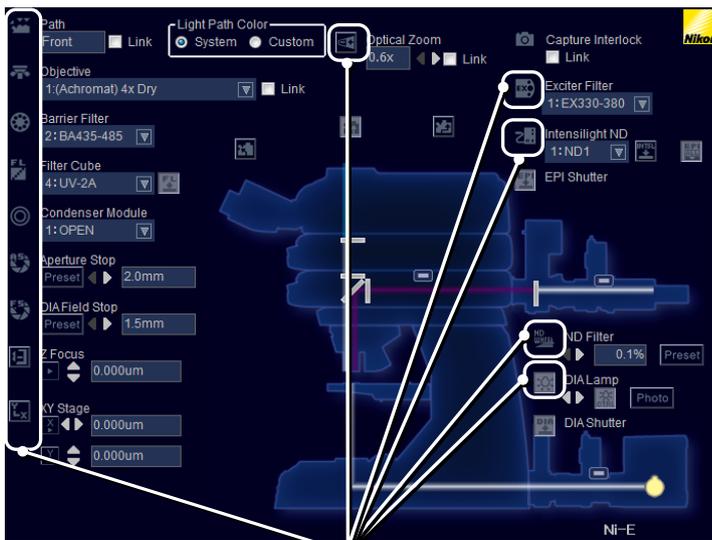
REFERENCE
Section 5.2
in Chapter 5

[Custom Observation]
MODE function



REFERENCE
Section 5.3
in Chapter 5

▼ Motorized device control area



Icons representing motorized devices

- (1) The image of the microscope system is displayed at the center. Icons representing the motorized devices and current control status of the microscope system are displayed around it.
- (2) If you change the settings of each motorized device, the change is reflected to the microscope system.

■ Main operations

-  button:
Click this button to display a list of selectable items.
-   buttons:
Click the buttons to change the corresponding value.
-  button and so on that change its icon depending on whether it is pressed or not:
Click the buttons to toggles the ON/OFF state or displays a setup dialog box.

REFERENCE

For details on the meanings of icons and how to operate the motorized device, refer to Chapter 4, “Controlling the Motorized Devices”.

2.4

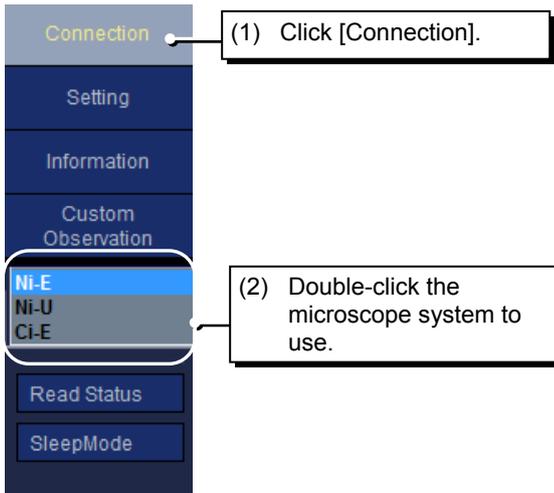
Communications with the microscope system [Connection]

2.4.1

Selecting the Microscope System

When two or more microscope systems are connected, you can select the microscope system to use after the application is started up.

▼ Menu



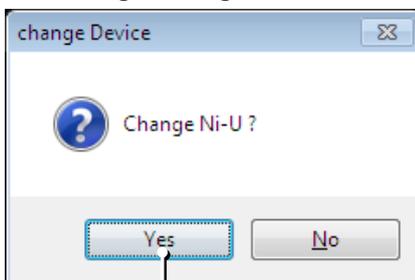
- (1) Click [Connection].

The Connection menu is displayed below the menu.

The highlighted item is the microscope system currently connected.

- (2) In the list box, double-click the microscope system you want to use. A confirmation message dialog box appears.

▼ Message dialog box



- (3) Click the [Yes] button.

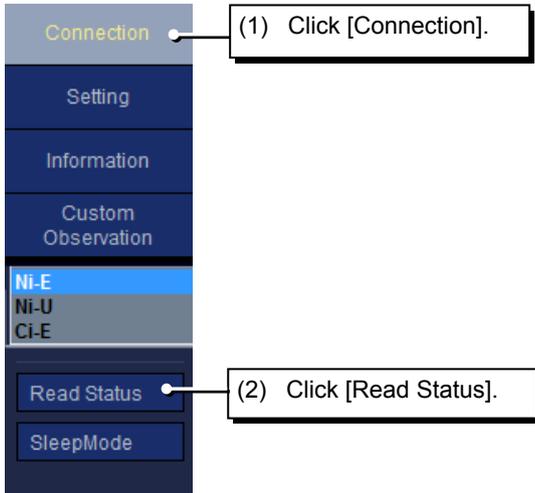
- (3) Click the [Yes] button.

The software will disconnect communications with the previous microscope system and initiate communications with the newly selected microscope system (all windows are closed and the splash screen appears).

2.4.2 Obtaining the Status of the Microscope System [Read Status]

You can try to obtain the information of the microscope system again, for example, when the communication between the PC and microscope system fails.

▼ Menu

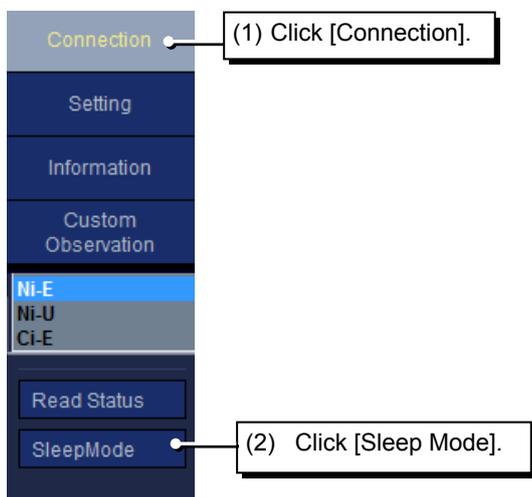


- (1) Click [Connection].
The Connection menu is displayed below the menu.
- (2) Click [Read Status].
The software starts communication between the PC and the microscope system, and obtains the current status.

2.4.3 Enabling or Disabling the Sleep Mode [Sleep Mode]

You can enable or disable the sleep mode. When the sleep mode is enabled, the corresponding motorized device is powered off. This function is supported only on Ni-E.

▼ Menu



(1) Click [Connection].

The Connection menu is displayed below the menu.

(2) Click [Sleep Mode] to enable or disable the sleep mode.

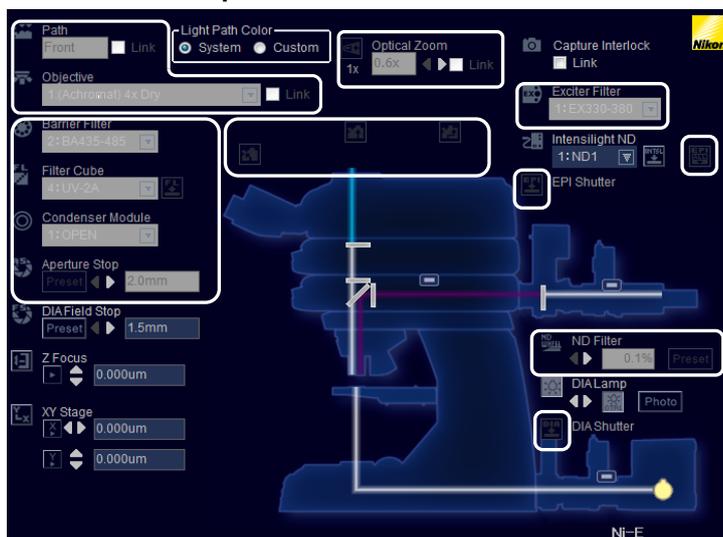
When the sleep mode is enabled, the corresponding motorized device is powered off.

The buttons for the motorized devices that support the sleep mode are disabled on the screen.

■ Motorized devices that support the sleep mode

- Optical path
- Objective
- Filter cube
- Filter cube 2
- Barrier filter
- Excitation filter
- Condenser module
- Diascopic aperture diaphragm
- Optical zoom
- ND filter
- EPI shutter
- DIA shutter

▼ When the sleep mode is enabled



The white borders indicate the motorized devices that are powered off.

IMPORTANT

When the sleep mode is enabled, the following functions cannot be used.

- All EPI shutter operation
- Focus position setup for elevating motion (Focus Pos. Set)
- MODE function (Custom Observation)

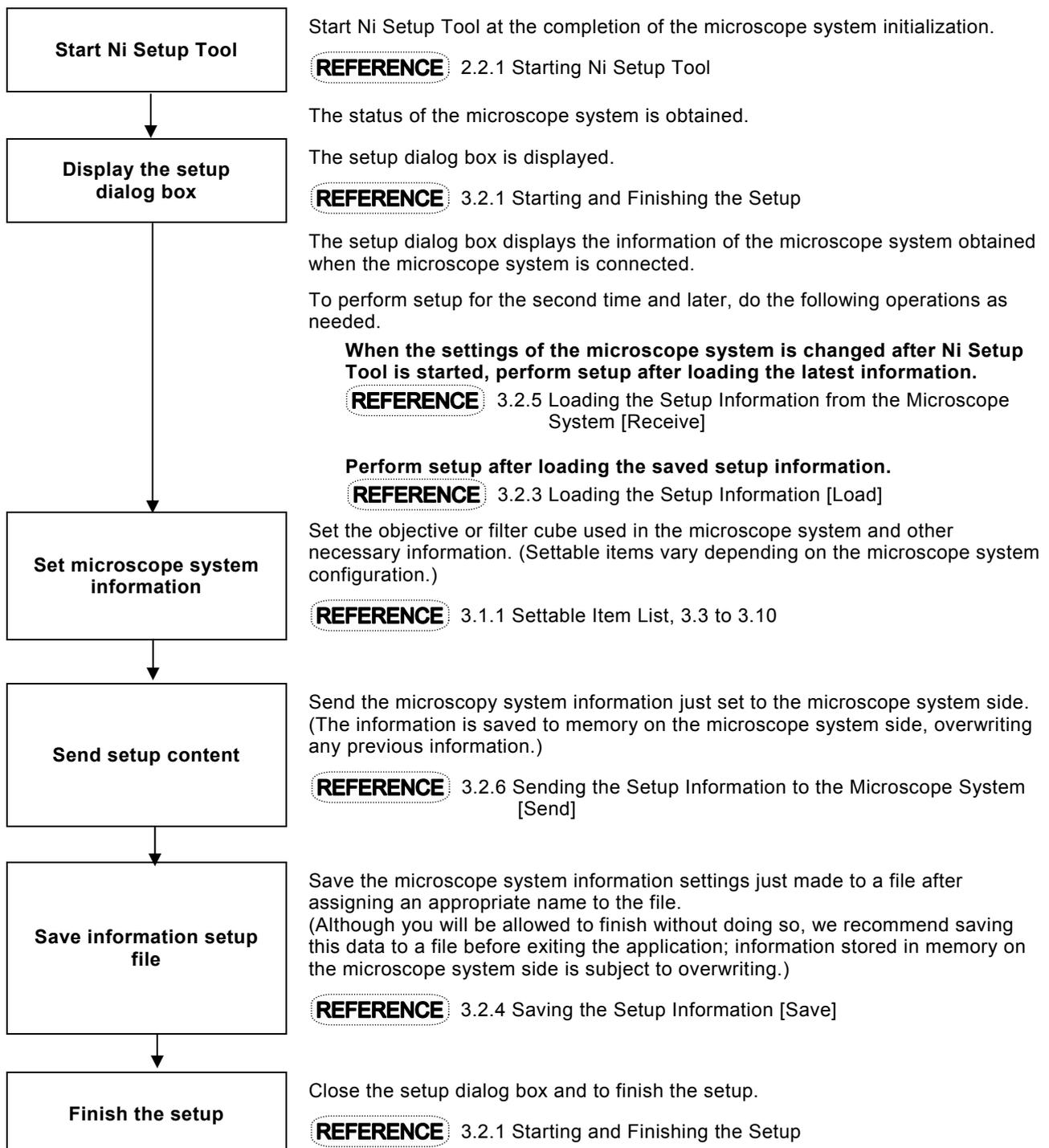
3

Setup

This chapter describes how to register the new settings of the microscope system when you use Ni Setup Tool for the first time. In the setup, you can modify microscope system information only where changes are made to the settings of the microscope system.

3.1 Setup Workflow

Shown below is the setup workflow when setting information for the microscope system.



3.1.1 Settable Item List

Shown below is a list of items that can be set during setup.

Function menu	Functions displayed	Ni-E	Ni-U	Ci-E	Refer to
System Name (Basic information setup)	Status (System configuration check)	✓	✓	✓	3.3.1
	LightPath (Intermediate tube pattern setup)	✓	✓	✓	3.3.2
Objective (Objective setup)	Nosepiece (Objective mounting setup)	✓	✓	✓	3.4.1
	Optional Obj. (New objective registration)	✓	✓	✓	3.4.2
	Limit Control (Special control setup)	✓	✓	✓	3.4.3
	Toggle (Toggle pattern setup)	✓	✓	✓	3.4.4
Filter Cube (Filter cube setup)	Filter Cube (Filter cube mounting setup)	✓	✓	×	3.5.1
	Filter Cube 2 (Filter cube 2 mounting setup)	✓	×	×	3.5.1
	Optional Cube (New filter cube registration)	✓	✓	×	3.5.2
	Optional Item (Item name registration)	✓	✓	×	3.5.3
Exciter Filter (Excitation filter setup)	EX Filter (Excitation filter mounting setup)	✓	×	×	3.6.1
	Optional EX (New excitation filter registration)	✓	×	×	3.6.2
Barrier Filter (Barrier filter setup)	BA Filter (Barrier filter mounting setup)	✓	×	×	3.7.1
	Optional BA (New barrier filter registration)	✓	×	×	3.7.2
Condenser (Condenser module setup)	Condenser (Condenser module mounting setup)	✓	×	×	3.8.1
	Optional (New condenser module registration)	✓	×	×	3.8.2
Interlock (Interlock setup)	Objective (Objective, Path, Optical Zoom Interlock setup)	✓	×	✓	3.9.1
	Capture(Capture Interlock setup)	✓	×	×	3.9.2
Control (Control-related setup)	DSC/Shutter (Shutter and camera setup)	✓	✓	✓	3.10.1
	Microscope (Microscope main body setup)	✓	✓	✓	3.10.2
	Ergo/Joy (Ergo Controller or joystick setup)	✓	×	×	3.10.3
	Keyboard (Shortcut key setup)	✓	✓	✓	3.10.4

✓: Available for setup

×: Not available for setup

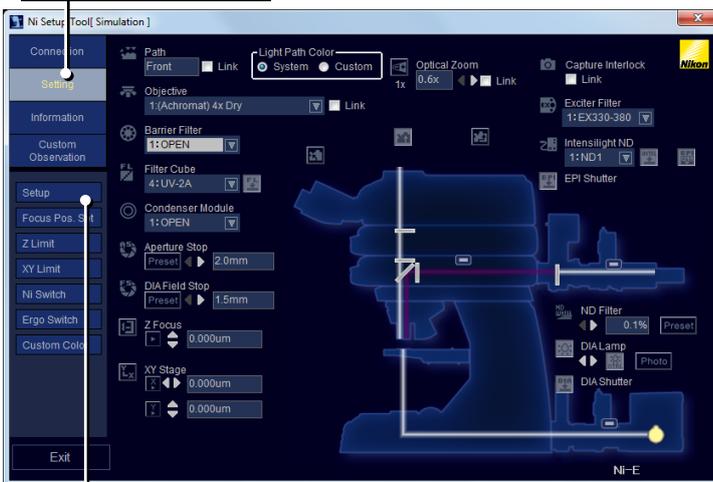
3.2 Basic Operation for Setup

3.2.1 Starting and Finishing the Setup

Starting the Setup

▼ Main Screen of Ni Setup Tool

(2) Click [Setting].



(3) Click [Setup].

- (1) Make sure that the name of the microscope and the connection status of motorized devices are displayed in the main screen of Ni Setup Tool.

REFERENCE

For details on starting Ni Setup Tool, selecting microscope, and the main screen, refer to Chapter 2, “Basic Operation of Ni Setup Tool”.

- (2) Click [Setting] in the menu. The Setting menu is displayed below the menu.
- (3) Click [Setup]. The setup dialog box appears.

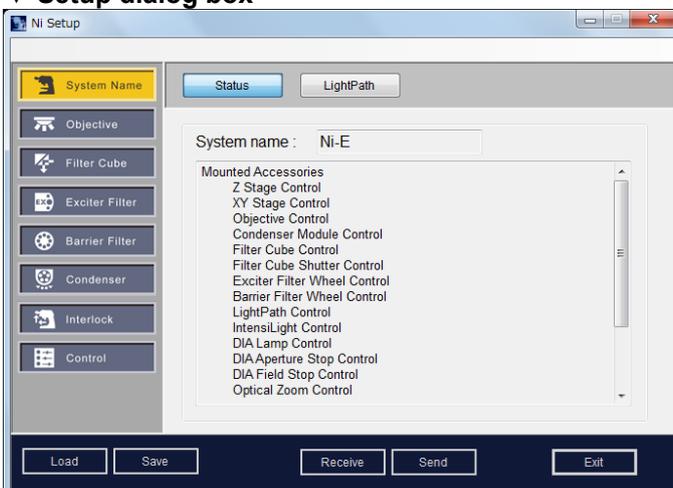
CAUTION

Do not unplug the USB cable that connects the microscope with the PC while Ni Setup Tool is running.

To apply the settings when the microscope is started, the Setup Tool must be closed before turning off the microscope.

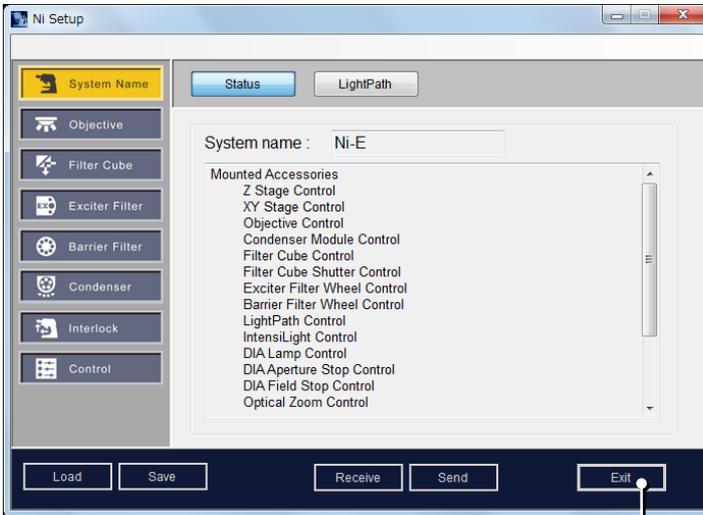
After closing the Setup Tool, wait a while before turning off the microscope.

▼ Setup dialog box



Finishing the Setup

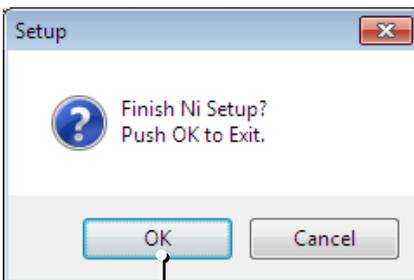
▼ Setup dialog box



(1) Click the [Exit] button.

- (1) Click the [Exit] button.
A confirmation message dialog box is displayed asking if you want to finish the setup.

▼ Message dialog box



(2) Click the [OK] button.

- (2) Click the [OK] button.
The setup finishes.

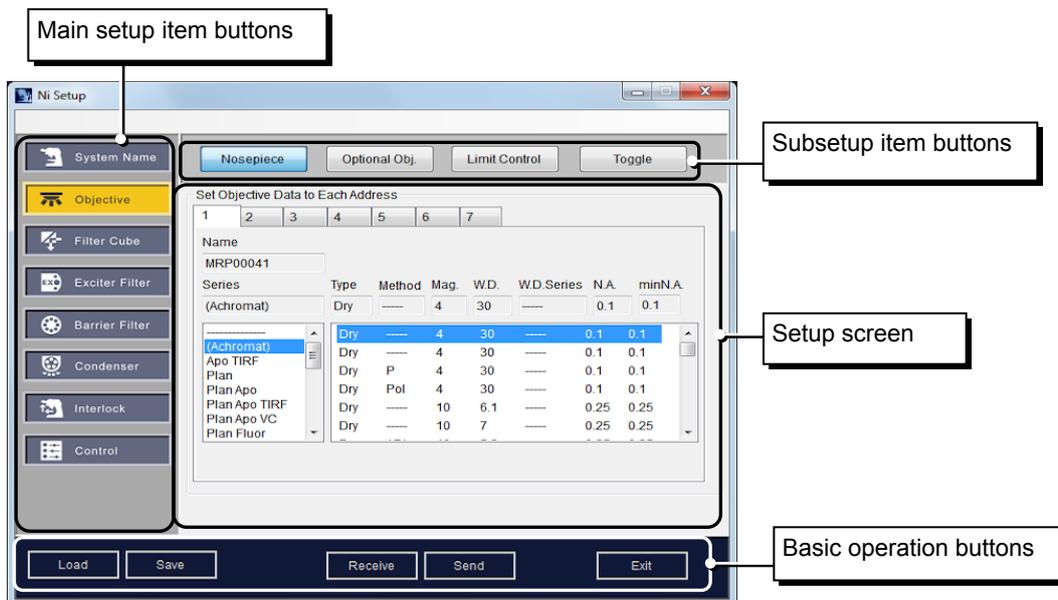
3.2.2 Setup Dialog Box Configuration

The setup dialog box consists of the main setup item buttons, subsetup item buttons, a setup screen, and basic operation buttons.

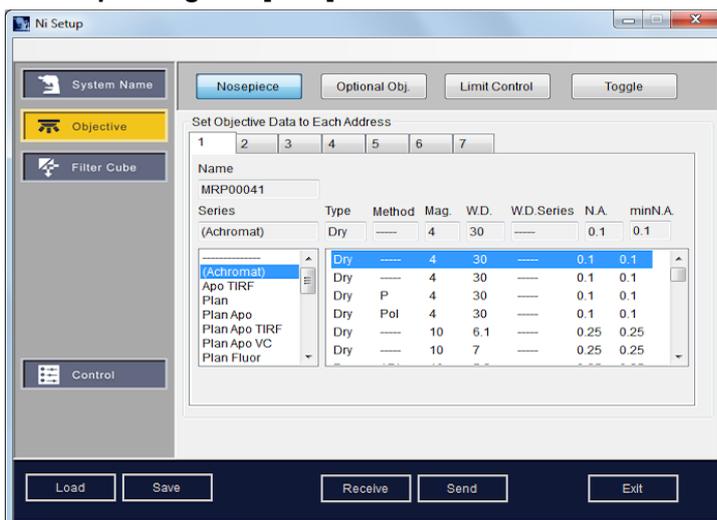
SUPPLEMENT

Some main setup item buttons and subsetup item buttons are not displayed depending on the microscope system configuration.

▼ Setup dialog box [Ni-E]



▼ Setup dialog box [Ni-U]

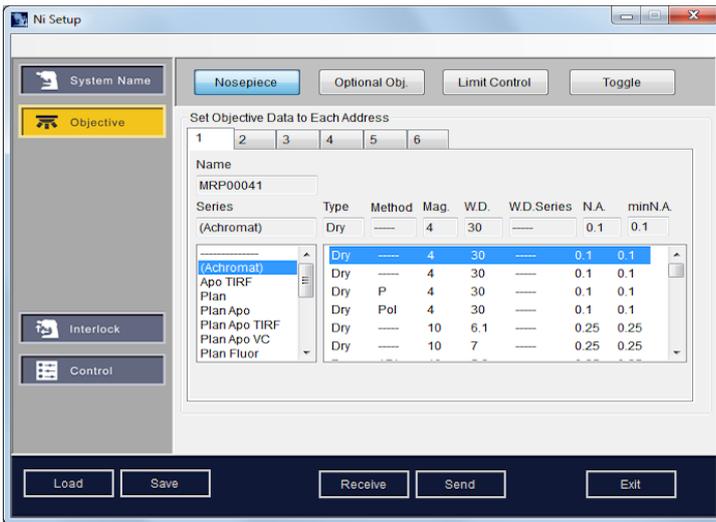


SUPPLEMENT

When Ni-U is connected, the following setup item buttons are not displayed.

- [Exciter Filter]
- [Barrier Filter]
- [Condenser]
- [Interlock]

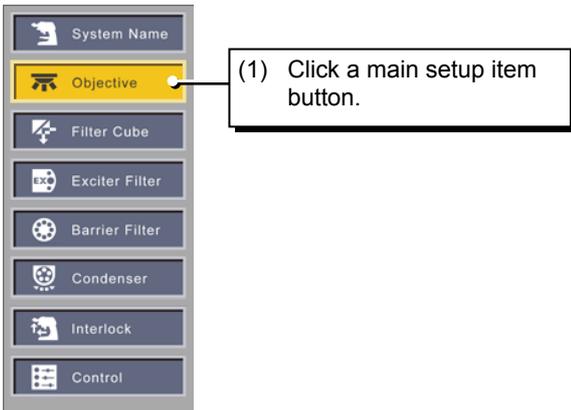
▼ Setup dialog box [Ci-E]

**SUPPLEMENT**

When Ci-E is connected, the following setup item buttons are not displayed.

- [Filter Cube]
- [Exciter Filter]
- [Barrier Filter]
- [Condenser]

▼ Main setup item buttons



- (1) Click a main setup item button.
The middle part of the dialog box changes to a setup screen for the item you clicked.

3.2.3 Loading the Setup Information [Load]

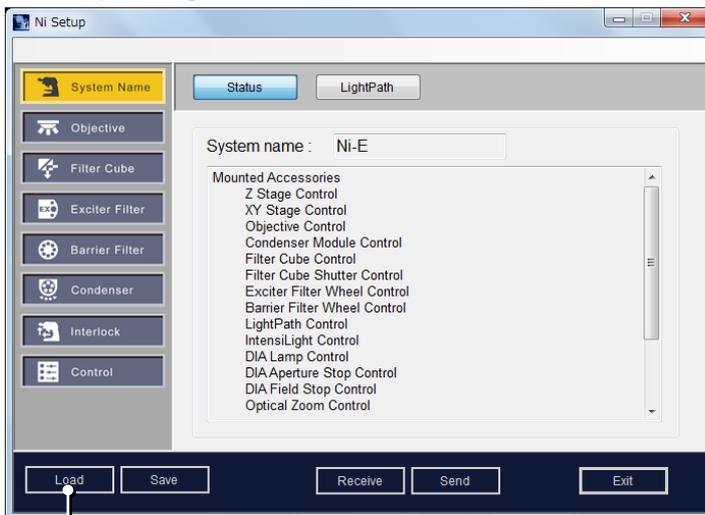
If a setup information data file (in an XML format) for microscope system is already available, you can load it to apply setup items that are displayed on the setup screen. If the setup information data file does not contain the information of a certain setup item, no information is reflected to the setup item.

The following shows the items on which the setup information is reflected.

Function menu	Screen	Item	
System Name	Status	System Name (Name of the microscope)	
	LightPath	Setting Pattern (Optical path pattern)	
Objective	Nosepiece	Nosepiece (Objective mounting setup information)	
	Optional Obj.	Optional Objective (Optional objective information)	
	Limit Control	Reverse Rotation	Reverse Rotation (Objective rotation direction)
		Safety Setting Enable	Safety Setting Enable (Escape enabling setup)
Toggle	Toggle Pattern Setting	Toggle Pattern Setting (Toggle pattern setup)	
Filter Cube	Filter Cube	Filter Cube (Filter cube setup information)	
	Filter Cube 2	Filter Cube 2 (Filter cube 2 setup information)	
	Optional Cube	Optional Cube (Optional filter cube information)	
	Optional Item	Optional Dichroic Mirror	Optional Dichroic Mirror (Optional dichroic mirror information)
		Optional Exciter Filter	Optional Exciter Filter (Optional excitation filter information) ^{*1}
Optional Barrier Filter		Optional Barrier Filter (Optional barrier filter information) ^{*2}	
Exciter Filter	EX Filter	Exciter Filter (Excitation filter mounting setup information)	
	Optional EX	Optional Exciter Filter (Optional excitation filter information) ^{*1}	
Barrier Filter	BA Filter	Barrier Filter (Barrier filter mounting setup information)	
	Optional BA	Optional Barrier Filter (Optional barrier filter information) ^{*2}	
Condenser	Condenser	Condenser (Condenser module mounting setup information)	
	Optional	Optional Condenser (Optional condenser information)	
Interlock	Objective	Objective, Path, Optical Zoom (Interlock setup information)	
	Capture	Capture (Capture Interlock setup information)	
Control	DSC/Shutter	EPI Shutter Port	EPI Shutter Port (EPI shutter port setup information)
		DIA Shutter Port	DIA Shutter Port (DIA shutter port setup information)
		DSC1	DSC1 (Camera setup information)
		DSC2	DSC2 (Camera setup information)
	Microscope	Microscope Setting	Microscope Setting (Microscope main body setup information)
		Capture button Setting	Capture button Setting (Capture button setup information)
		Z Drive Setting	Z Drive Setting (Elevating section Z setup information)
		FL Turret drive speed	FL Turret drive speed (Turret setup information)
	Ergo/JOY	Ergo Switch Setting	Ergo Switch Setting (Ergo switch setup information)
		Knob Setting	Knob Setting (Ergo/joystick knob setup information)
	Keyboard	Key Function	Key Function (Shortcut key setup information)

*1, 2: These information items are common between the different function menus that contain them.

▼ Setup dialog box

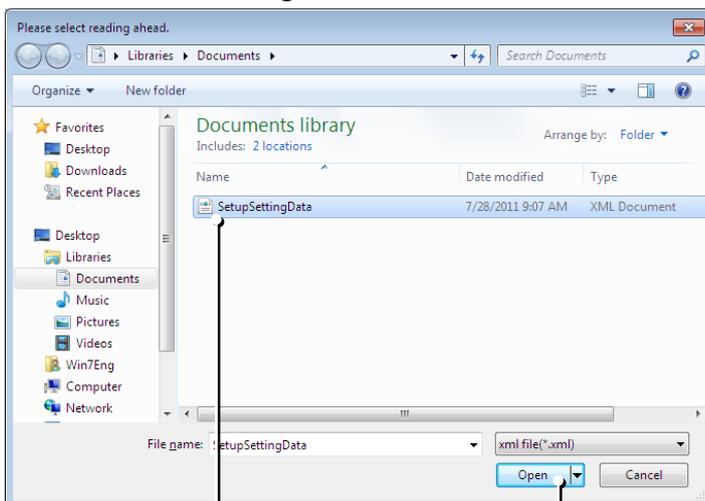


(1) Click the [Load] button.

(1) Click the [Load] button.

The file selection dialog box appears.

▼ File selection dialog box



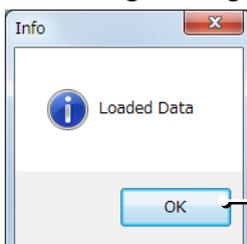
(2)-1
Select the setup
information data file.

(2)-2
Click the [Open]
button.

(2) Select the setup information data file and click the [Open] button.

This will load the setup information saved in the selected file, reflecting the information in each setup screen. A confirmation message dialog box appears.

▼ Message dialog box



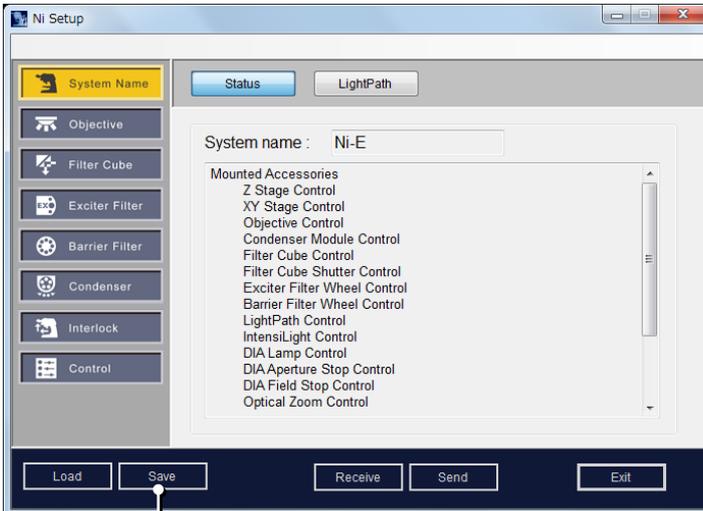
(3) Click the [OK] button.

(3) Click the [OK] button.

3.2.4 Saving the Setup Information [Save]

You can save the setup information displayed in each setup screen in a setup information data file (in an XML format).

▼ Setup dialog box

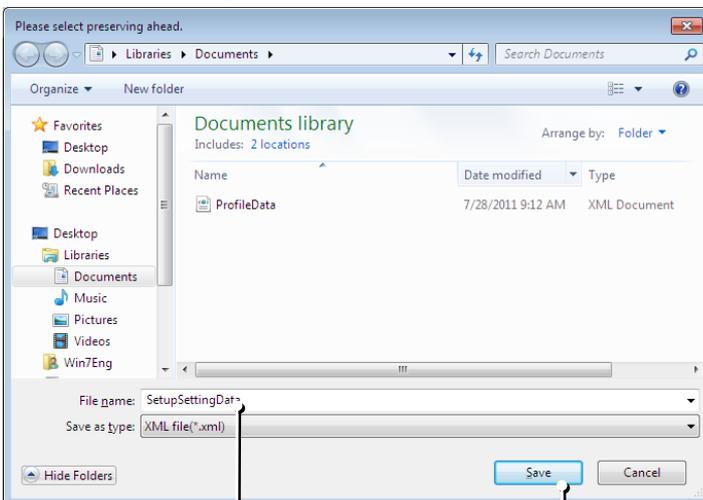


(1) Click the [Save] button.

(1) Click the [Save] button.

The file save dialog box appears.

▼ File save dialog box



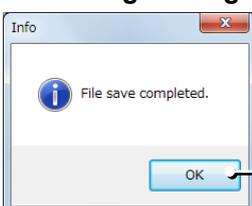
(2)-1
Specify a file name.

(2)-2
Click the Save button.

(2) Specify the folder to save the file and a file name, and then click the [Save] button.

The setup information is saved, and a confirmation message dialog box appears.

▼ Message dialog box

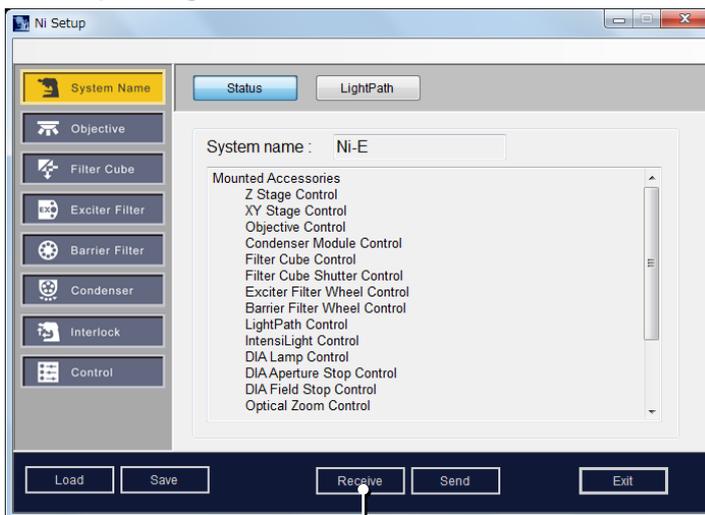


(3) Click the [OK] button.

(3) Click the [OK] button.

3.2.5**Loading the Setup Information from the Microscope System [Receive]**

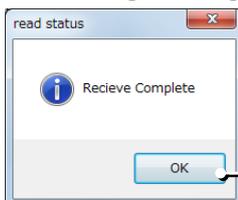
You can load the latest setup information from the microscope system currently connected, and reflect the information on each setup item on the setup screen. If you have modified the setup information with other control software after the setup dialog box appeared and you want to display the setup information in the setup dialog box, perform this operation.

▼ Setup dialog box

(1) Click the [Receive] button.

(1) Click the [Receive] button.

This will load the latest information from the microscope, reflecting the information in each setup screen. A confirmation message dialog box appears.

▼ Message dialog box

(2) Click the [OK] button.

(2) Click the [OK] button.

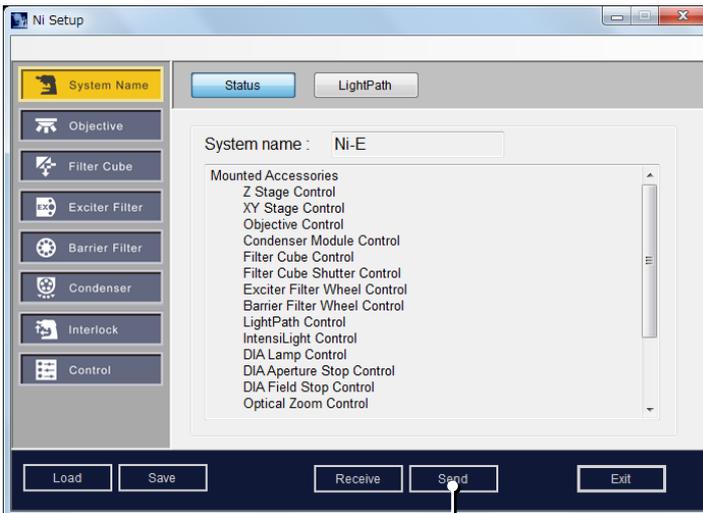
3.2.6**Sending the Setup Information to the Microscope System [Send]**

You can send the information you set for each setup item on the setup screen to the connected microscope system. Setup information only for the motorized devices connected can be sent.

The following shows the setup information items that are sent to each motorized devices.

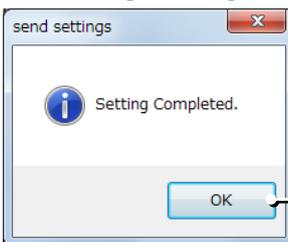
Function menu	Screen	Item	
Objective	Nosepiece	Nosepiece (Objective mounting setup information)	
	Optional Obj.	Optional Objective (Optional objective information)	
	Limit Control	Reverse Rotation	Reverse Rotation (Objective rotation direction)
		Safety Setting Enable	Safety Setting Enable (Escape enabling setup)
Toggle	Toggle Pattern Setting	Toggle Pattern Setting (Toggle pattern setup)	
Filter Cube	Filter Cube	Filter Cube (Filter cube setup information)	
	Filter Cube 2	Filter Cube 2 (Filter cube 2 setup information)	
	Optional Cube	Optional Cube (Optional filter cube information)	
	Optional Item	Optional Dichroic Mirror	Optional Dichroic Mirror (Optional dichroic mirror information)
Optional Exciter Filter		Optional Exciter Filter (Optional excitation filter information) ^{*1}	
Optional Barrier Filter		Optional Barrier Filter (Optional barrier filter information) ^{*2}	
Exciter Filter	EX Filter	Exciter Filter (Excitation filter mounting setup information)	
	Optional EX	Optional Exciter Filter (Optional excitation filter information) ^{*1}	
Barrier Filter	BA Filter	Barrier Filter (Barrier filter mounting setup information)	
	Optional BA	Optional Barrier Filter (Optional barrier filter information) ^{*2}	
Condenser	Condenser	Condenser (condenser module mounting setup information)	
	Optional	Optional Condenser (Optional condenser information)	
Interlock	Objective	Objective, Path, Optical Zoom (Interlock setup information)	
	Capture	Capture (Capture Interlock setup information)	
Control	DSC/Shutter	EPI Shutter Port	EPI Shutter Port (EPI shutter port setup information)
		DIA Shutter Port	DIA Shutter Port (DIA shutter port setup information)
		DSC1	DSC1 (Camera setup information)
		DSC2	DSC2 (Camera setup information)
	Microscope	Microscope Setting	Microscope Setting (Microscope main body setup information)
		Capture button Setting	Capture button Setting (Capture button setup information)
		Z Drive Setting	Z Drive Setting (Elevating section Z setup information)
		FL Turret drive speed	FL Turret drive speed (Turret setup information)
	Ergo/JOY	Ergo Switch Setting	Ergo Switch Setting (Ergo switch setup information)
Knob Setting		Knob Setting (Ergo/joystick knob setup information)	

*1, 2: These information items are common between the different function menus that contain them.

▼ Setup dialog box

(1) Click the [Send] button.

- (1) Click the [Send] button.
The setup information is sent to the microscope system.
A confirmation message dialog box appears.

▼ Message dialog box

(2) Click the [OK] button.

- (2) Click the [OK] button.

3.3**Setting the Basic Information [System Name]**

You need to check the setup status of the microscope system and select the optical path to prepare for controlling the microscope.

You can check and set the following items in the basic information.

- **System configuration check:**

Displays the name of the microscope system connected, the motorized devices connected, and also motorized devices not connected.

- **Intermediate tube pattern setup:**

Allows you to select the optical path and change the image of the microscope displayed on the control screen.

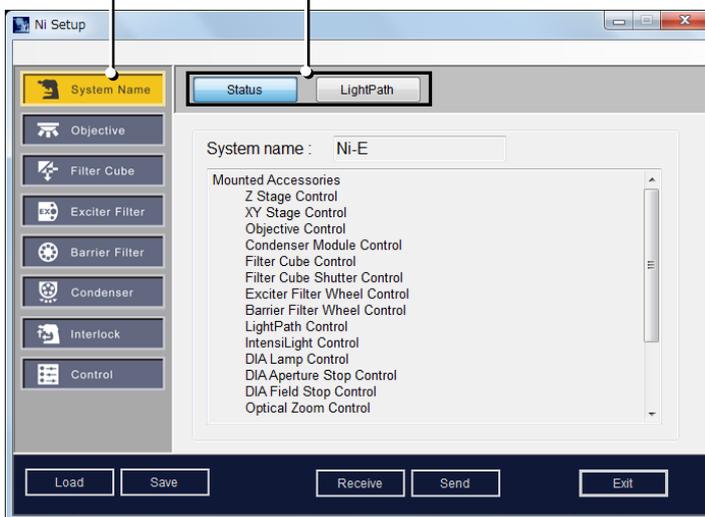
Displaying the setup screen

Clicking the [System Name] button – a main setup item button – displays the microscope system basic information screen.

▼ Microscope system basic information screen

(1) Click the [System Name] button.

(2) Click a subsetup item button.



(1) Click the [System Name] button – a main setup item button.

(2) Click a subsetup item button to display the each setup screen.

3.3.1 Checking the System Configuration [Status]

Clicking the [Status] button – a subsetup item button in microscope system basic information screen – displays the microscope system configuration check screen.

The screen displays the name of the microscope system connected, the motorized devices connected, and also motorized devices not connected.

The displayed items vary depending on the microscope system. Some motorized devices not connected may not be displayed.

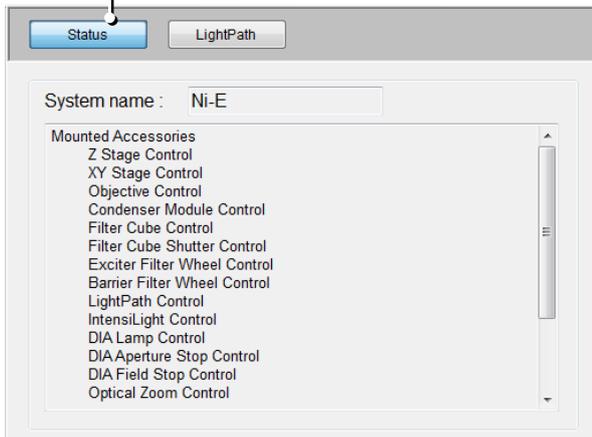
The following shows the list of the display items for the motorized devices.

No.	Display item	Ni-E		Ni-U		Ci-E	
		Connected	Not-connected	Connected	Not-connected	Connected	Not-connected
1	Z Stage Control	✓	×	—	—	—	—
2	Objective Z	✓	×	—	—	—	—
3	XY Stage Control	✓	✓	—	—	—	—
4	Objective Control	✓	✓	✓	✓	✓	✓
5	Condenser Module Control	✓	✓	—	—	✓	✓
6	Filter Cube Control	✓	✓	✓	✓	—	—
7	Filter Cube Shutter Control	✓	✓	✓	✓	—	—
8	Filter Cube2 Control	✓	×	—	—	—	—
9	Filter Cube2 Shutter Control	✓	×	—	—	—	—
10	Exciter Filter Wheel Control	✓	✓	—	—	—	—
11	Barrier Filter Wheel Control	✓	×	—	—	—	—
12	LightPath Control	✓	✓	—	—	—	—
13	EPI Shutter Control	✓	×	✓	×	—	—
14	DIA Shutter Control	✓	×	✓	×	—	—
15	AUX Shutter Control	✓	×	✓	×	—	—
16	DSC1	✓	×	✓	×	✓	×
17	DSC2	✓	×	—	—	—	—
18	IntesiLight Control	✓	✓	✓	✓	—	—
19	DIA Lamp Control	✓	✓	✓	✓	✓	✓
20	DIA Aperture Stop Control	✓	✓	—	—	—	—
21	DIA Field Stop Control	✓	✓	—	—	—	—
22	Optical Zoom Control	✓	✓	—	—	—	—
23	ND Filter Control	✓	✓	—	—	—	—
24	Ergo/Joy Control	✓	×	—	—	—	—

✓: Displayed
 ×: Not displayed
 —: Not supported

▼ Microscope system configuration check screen

(1) Click the [Status] button.

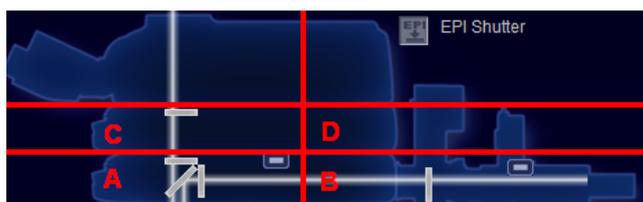


- (1) Click the [Status] button – a subsetup item button.
The [System name] text box displays the name of the microscope system connected, and the text box below it shows the connection status of the [Mounted Accessories].
The motorized devices connected are listed below Mounted Accessories, and the motorized devices not connected are listed below [Not Mounted Accessories].

3.3.2 Setting the Intermediate Tube Pattern [LightPath]

Clicking the [LightPath] – a subsetup item button in microscope system basic information screen – displays the intermediate tube pattern setup screen.

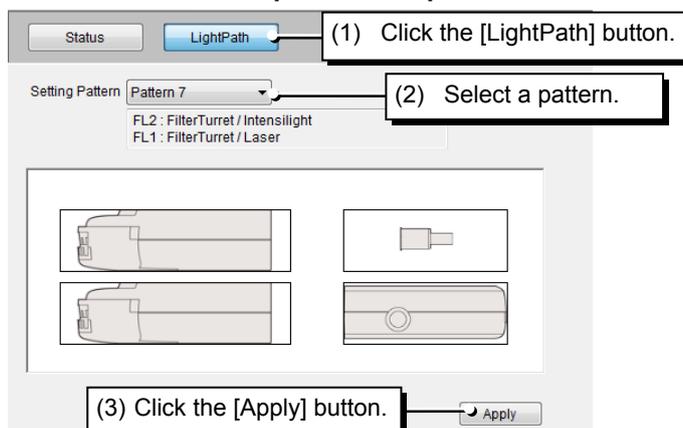
In the intermediate tube pattern setup screen, you can select the image of the microscope displayed on the screen for controlling the motorized devices. You can select a suitable pattern of motorized devices connected in the four areas A to D shown in the following figure that shows the part of the microscope above the contact arm.



You can select one of the following ten patterns.

Pattern	Number of intermediate tubes	A	B	C	D
1	0	None (No motorized device)	None (No motorized device)	None (No motorized device)	None (No motorized device)
2	1	FilterTurret (Epi-fluorescence cube turret)	EPI Lamp (Epi-illumination)	None (No motorized device)	None (No motorized device)
3	1	FilterTurret (Epi-fluorescence cube turret)	Intensilight (Fiber light source)	None (No motorized device)	None (No motorized device)
4	2	FilterTurret (Epi-fluorescence cube turret)	EPI Lamp (Epi-illumination)	Barrier (Barrier filter)	None (No motorized device)
5	2	FilterTurret (Epi-fluorescence cube turret)	Intensilight (Fiber light source)	Barrier (Barrier filter)	None (No motorized device)
6	Reserved				
7	2	FilterTurret (Epi-fluorescence cube turret)	Laser (Laser)	FilterTurret2 (Epi-fluorescence cube turret 2)	Intensilight (Fiber light source)
8	2	FilterTurret (Epi-fluorescence cube turret)	EPI Lamp (Epi-illumination)	FilterTurret2 (Epi-fluorescence cube turret 2)	BackPort (Back port unit)
9	2	FilterTurret (Epi-fluorescence cube turret)	Intensilight (Fiber light source)	FilterTurret2 (Epi-fluorescence cube turret 2)	BackPort (Back port unit)
10	2	FilterTurret (Epi-fluorescence cube turret)	BackPort (Back port unit)	FilterTurret2 (Epi-fluorescence cube turret 2)	EPI Lamp (Epi-illumination)
11	2	FilterTurret (Epi-fluorescence cube turret)	BackPort (Back port unit)	FilterTurret2 (Epi-fluorescence cube turret 2)	Intensilight (Fiber light source)

▼ Intermediate tube pattern setup screen



- (1) Click the [LightPath] button – a subsetup item button.
- (2) Select a pattern from the [Setting Pattern] pull-down list.

SUPPLEMENT

The patterns displayed in the pull-down list are restricted depending on the types of the motorized and intelligent devices mounted.

- (3) Click the [Apply] button.
The microscope image in the screen for controlling the motorized devices is changed according to the pattern selected.

3.4

Setting the Objective [Objective]

Setting up the objective lets you monitor the status of the microscope system at a glance and have objective switching interlocked.

The following information items can be set for the objective:

- **Objective mounting setup** (possible only if the motorized or intelligent nosepiece is attached): Set information on the objectives mounted at each nosepiece address (hole).
- **New objective registration** (possible only if the motorized or intelligent nosepiece is attached): Register information on new objectives that are not registered in the list box (up to 10 pieces.)
- **Special control setup** (possible only if the motorized nosepiece is attached): Set up the special control when changing objectives.
- **Toggle pattern setup** (possible only if the motorized nosepiece is attached): Register the addresses of the objectives to be linked with a toggle function that is performed through the forward/reverse rotation button of the nosepiece on the microscope, ergo controller, or remote controller pad.

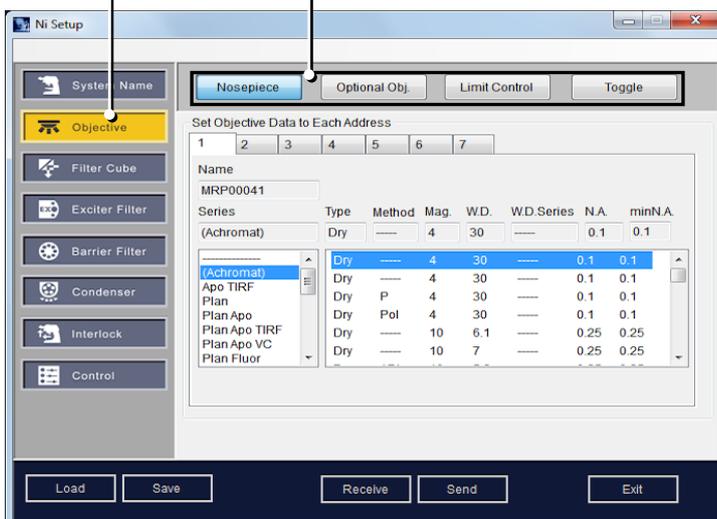
Displaying the setup screen

Clicking the [Objective] button – a main setup item button – displays the objective setup screen.

▼ Objective setup screen

(1) Click the [Objective] button.

(2) Click a subsetup item button.



(1) Click the [Objective] button – a main setup item button.

(2) Click a subsetup item button to display the each setup screen.

3.4.1 Objective Mounting Setup [Nosepiece]

Clicking the [Nosepiece] button – a subsetup item button in the objective setup screen – displays an objective mounting setup screen.

In the objective mounting setup screen, set information on the objectives mounted at each nosepiece address.

▼ Objective mounting setup screen

The screenshot shows the 'Set Objective Data to Each Address' screen. At the top, there are buttons for 'Nosepiece', 'Optional Obj.', 'Limit Control', and 'Toggle'. Below these are seven address tabs (1-7). A callout (1) points to the 'Nosepiece' button. Callout (2) points to the address tabs. Below the tabs is a form for 'Name' (MRP00041) and 'Series' (Achromat). A table of objective information is displayed, with a callout (3) pointing to the 'Type' column and a callout (4) pointing to the table rows. A larger callout at the bottom explains the table columns.

Series	Type	Method	Mag.	W.D.	W.D.Series	N.A.	minN.A.
(Achromat)	Dry	---	4	30	---	0.1	0.1
(Achromat)	Dry	---	4	30	---	0.1	0.1
Apo TIRF	Dry	P	4	30	---	0.1	0.1
Plan Apo	Dry	Pol	4	30	---	0.1	0.1
Plan Apo TIRF	Dry	---	10	6.1	---	0.25	0.25
Plan Apo VC	Dry	---	10	7	---	0.25	0.25
Plan Fluor	Dry	---	10	7	---	0.25	0.25

(1) Click the [Nosepiece] button.

(2) Select an address.

(3) Select the type of objective.

(4) Select objective information.

The name, type, immersion type, method, magnification, working distance, long working distance, numerical aperture, and minimum numerical aperture of the objective are displayed.

- (1) Click the [Nosepiece] button – a subsetup item button.
- (2) From the tab, select an address for which you want to set objective information.
- (3) Select the type of objective from the [Series] list box.
- (4) The corresponding name is displayed in the [Name] text box and the selected items of the objective information change. Select the desired objective information from the objective information list box. When you select any objective information, the immersion type, method, magnification, working distance, long working distance, numerical aperture, and minimum numerical aperture of the objective are displayed in the [Type], [Method], [Mag.], [W.D.], [W.D.Series], [N.A.], and [minN.A.] text fields.

SUPPLEMENT

If you select [-----] from the [Series] list box, all registered objective information items are displayed in the list box.

- (5) To set information for another address, go back to Step (2) and repeat the setup procedure.

SUPPLEMENT

To register new objective information not registered in the [Series] list box, click the [Optional Obj.] button – a subsetup item button.

This changes the screen to the one used to register new objective information. For details, refer to 3.4.2, “Registering New Objectives [Optional Obj.]”.

3.4.2 Registering New Objectives [Optional Obj.]

You can register new objectives that are not registered in the [Series] list box.

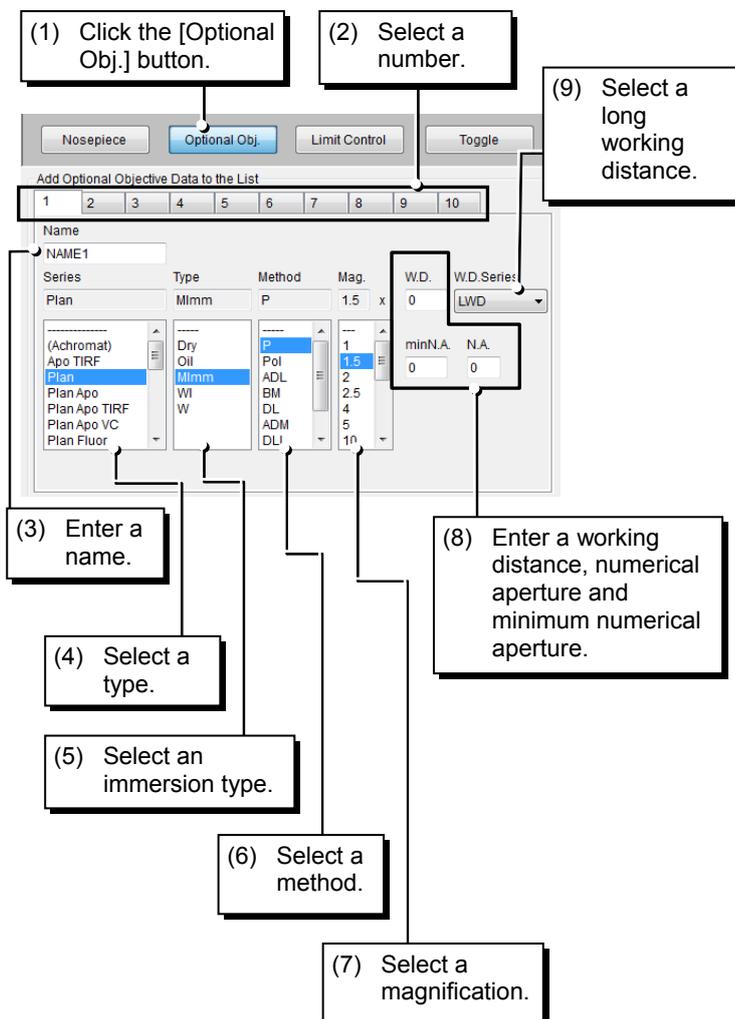
Clicking the [Optional Obj.] button – a subsetup item button in the objective setup screen – displays a screen for registering new objective information.

This screen lets you register up to 10 objectives.

When registering a new objective, you can register information on nine items: name, type, immersion type, method, magnification, working distance, numerical aperture, minimum numerical aperture, and long working distance.

The newly added objective is added at the bottom of the selectable list in the objective mounting setup screen.

▼ New objective registration screen



- (1) Click the [Optional Obj.] button – a subsetup item button.
- (2) From the tab, select a number for which you want to register objective information.
- (3) Enter the name of the objective in the [Name] text box (using up to 8 single-byte alphanumeric characters).

SUPPLEMENT

If you leave the text box blank, the objective information you entered is not registered but deleted.

If you want to delete the objective that is set in the objective mounting setup, cancel the mounting setup before deleting the objective.

- (4) [Select] the type of the objective from the Series list box.
- (5) Select the immersion type of the objective from the [Type] list box.
- (6) Select the method of the objective from the [Method] list box.
- (7) Select the objective magnification from the [Mag.] list box.
- (8) Enter the working distance, numerical aperture, and minimum numerical aperture of the objective in the [W.D.], [N.A.], and [minN.A.] text fields, respectively in the number format (up to second decimal place).

Valid ranges

- [W.D.]: 0.00 to 40
- [N.A.], [minN.A.]: 0.00 to 9.99

- (9) Select [LWD] or [ELWD] as a long working distance from the [W.D.Series] pull-down list.

The newly registered objective is added to the selectable items in the list box in the objective mounting setup screen.

3.4.3 Setting the Special Control [Limit Control]

Clicking the [Limit Control] – a subsetup item button in the objective setup screen – displays the special control setup screen.

Special control setup is designed to set the following control items:

- **Nosepiece rotation direction setup [Reverse Rotation]:**

Set up the nosepiece rotation direction when changing from low to high magnification lenses.

(SUPPLEMENT)

- Since the focal depth of the objective with low magnification is deep, the objective may be close to the specimen. If, under such a condition, the objective is changed to a high magnification, its edge may touch the specimen. The nosepiece rotation direction is set to avoid such a problem beforehand.
- If this setup is performed, [Rotation Stop] of the [Z Limit] setup is changed to [OFF]. For details on the [Z Limit] setup, refer to 5.1.2, “Setting the Software Limit for Elevating Section [Z Limit]” (Ni-E only).

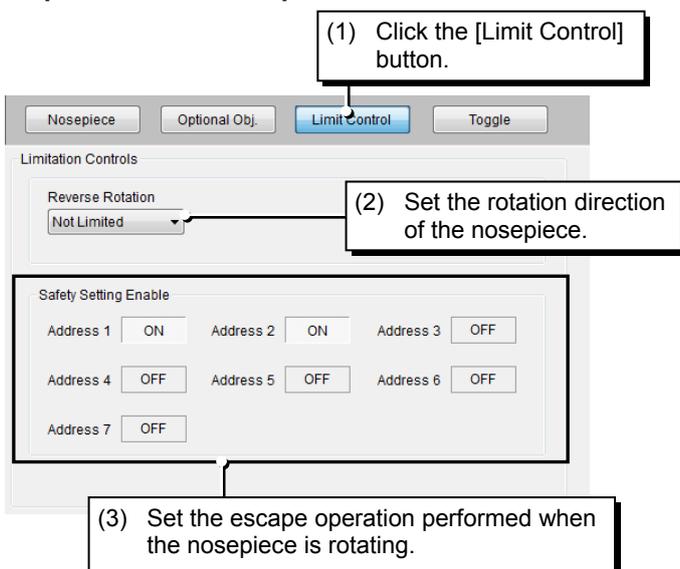
- **Rotating nosepiece escape operation setup [Safety Setting Enable]:**

Set whether to enable or disable the escape operation when the nosepiece is rotating at each nosepiece address.

(SUPPLEMENT)

At the nosepiece address at which [Escape Distance] Enable is set to ON, the escape can be performed by the amount selected for [Escape Distance]. For details on Safety Setting, refer to 3.10.2, “Microscope Setup [Microscope]”.

▼ Special control setup screen



- (1) Click the [Limit Control] – a subsetup item button.
- (2) Select [Not Limited] (normal rotation) or [Limited] (no rotation from Addresses 1 to 6 (7)) as the nosepiece rotation direction from the [Reverse Rotation] pull-down list.

(SUPPLEMENT)

If the setting is changed, [Rotation Stop] of the [Z Limit] setup is changed to [OFF]. For details on the [Z Limit] setup, refer to 5.1.2, “Setting the Software Limit for Elevating Section [Z Limit]”.

Also, [Rotation Stop released.] is displayed in the special control setup screen.

- (3) Set whether to enable or disable [Safety Setting Enable] by clicking the ON/OFF button of each address.

▼ When the nosepiece rotation direction setup is changed



3.4.4 Setting the Toggle Pattern [Toggle]

Clicking the [Toggle] – a subsetup item button in the objective setup screen – displays the toggle pattern setup screen.

In the toggle pattern setup, you can set the nosepiece address to be linked with a toggle function that is performed through the forward/reverse rotation button of the nosepiece on the microscope, ergo controller, or remote controller pad.

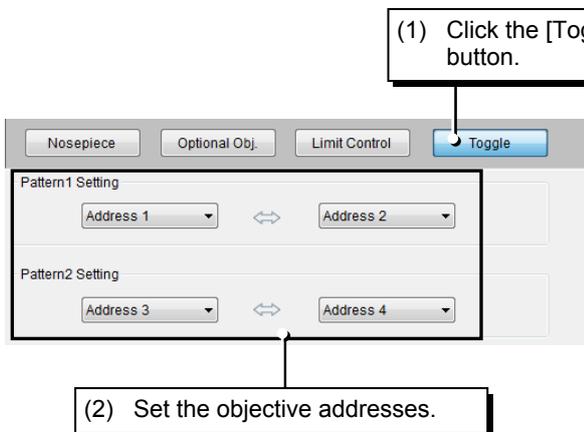
IMPORTANT

Only when [Toggle Mode] (toggle mode setting) is enabled, the toggle pattern setting that is set up on this screen is enabled. You can enable or disable [Toggle Mode] (toggle mode setting) or select the toggle pattern in the Ni switch setup dialog box and the Ergo switch setup dialog box (Ni-U: Remote control pad switch setup dialog box, Ci-E: Ci switch setup dialog box).

SUPPLEMENT

For details on Toggle Mode (toggle mode setting), refer to 5.1.4, “Setting the Ni Switches [Ni Switch]”, 5.1.5, “Setting the Ergo Controller Switches [Ergo Switch]”, 5.1.6, “Setting the Remote Control Pad Switches [Remote Switch]”, and 5.1.7, “Setting the Ci Switches [Ci Switch]”.

▼ Toggle pattern setup screen



- (1) Click the [Toggle] button – a subsetup item button.
- (2) Set the objective addresses for the toggle patterns 1 and 2. For [Pattern1 Setting] and [Pattern2 Setting], select [Address 1] to [Address 6/7] from the respective pull-down lists.

3.5 Setting the Filter Cube [Filter Cube]

By setting the filter cube, you can monitor the operation status of the microscope system at a glance.

The following information items can be set for the filter cube (when the motorized epi-fluorescence cube turret or intelligent epi-fluorescence cube turret is attached):

- **Filter cube mounting setup [Filter Cube]/[Filter Cube 2]:**
Set information on the filter cube attached at each epi-fluorescence cube turret address (filter cube bay).
- **Filter cube registration [Optional Cube]:**
Register a combination of excitation filter, dichroic mirror, and barrier filter as well as the name of a filter cube comprised of that combination.
- **Name registration [Optional Item]:**
Register the names of the excitation filter, dichroic mirror, and barrier filter.

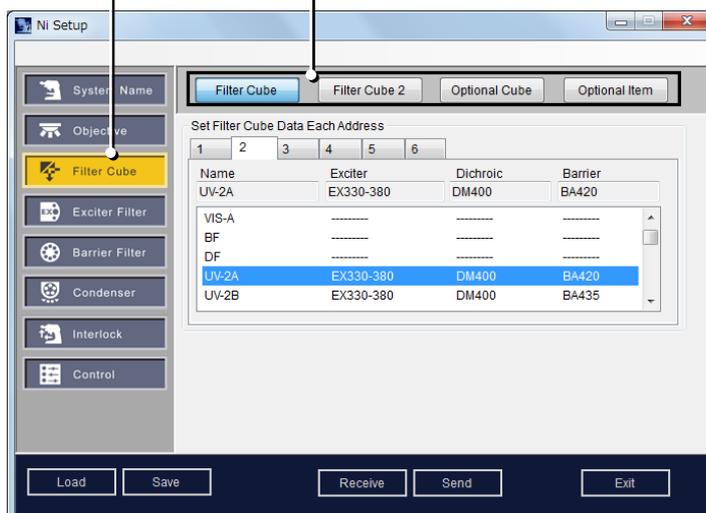
Displaying the setup screen

Clicking the [Filter Cube] button – a main setup item button – displays the filter cube setup screen.

▼ Filter cube setup screen

(1) Click the [Filter Cube] button.

(2) Click a subsetup item button.



- (1) Click the [Filter Cube] button – a main setup item button.
- (2) Click a subsetup item button to display the each setup screen.

3.5.1

Filter Cube Mounting Setup [Filter Cube]/[Filter Cube 2]

Clicking the [Filter Cube] or [Filter Cube 2] – a subsetup item button in the filter cube setup screen – displays the filter cube mounting setup screen.

You can set information on the filter cube attached at each epi-fluorescence cube turret address (filter cube bay).

▼ Filter cube mounting setup screen

(1) Click the [Filter Cube] or [Filter Cube 2] button.

Name	Exciter	Dichroic	Barrier
UV-2A	EX330-380	DM400	BA420
VIS-A	-----	-----	-----
BF	-----	-----	-----
DF	-----	-----	-----
UV-2A	EX330-380	DM400	BA420
UV-2B	EX330-380	DM400	BA435

(2) Select an address.

(3) Select a filter cube name.

The names of the excitation filter, dichroic mirror, and barrier filter are displayed.

- (1) Click the [Filter Cube] button – a subsetup item button.

If you want to set the filter cube for the filter cube 2, click the [Filter Cube 2] button – a subsetup item button.

- (2) From the tab, select an address for which you want to set filter cube information.

- (3) Select a filter cube name from [Name] in the list box.

When you select a filter cube name from [Name], the names of the excitation filter, dichroic mirror, and barrier filter are displayed in the [Exciter], [Dichroic], and [Barrier] text boxes, respectively.

SUPPLEMENT

[OPEN] can be selected only for Address 1.

- (4) To set information for another address, go back to Step (2) and repeat the setup procedure.

SUPPLEMENT

To register a new combination of excitation filter, dichroic mirror, and barrier filter, click the [Optional Cube] button. The screen changes to the one used for registering a new filter cube. Refer to the next page for details.

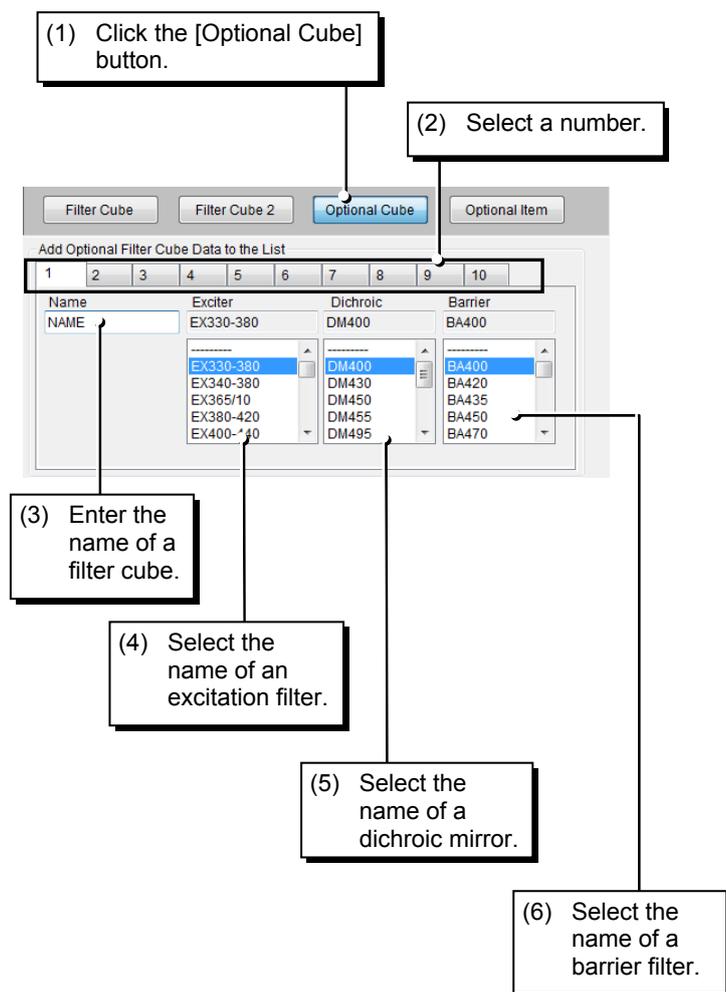
To register a new excitation filter, dichroic mirror, or barrier filter individually, click the [Optional Item] button. The screen changes to the one used for registering item names. For details, refer to 3.5.3, “Registering Item Names [Optional Item]”.

3.5.2 Registering the Filter Cube [Optional Cube]

You can register a new combination of excitation filter, dichroic mirror, and barrier filter. Clicking the [Optional Cube] – a subsetup item button in the filter cube setup screen – displays a screen for registering new filter cubes.

This screen lets you register up to 10 combinations of excitation filters, dichroic mirrors, and barrier filters, and the names of up to 10 filter cubes, each comprised of the combination thus specified.

▼ New filter cube registration screen



- (1) Click the [Optional Cube] button – a subsetup item button.
- (2) From the tab, select a number for which you want to set new filter cube information.
- (3) Enter the name of the filter cube in the [Name] text box (using up to 5 single-byte alphanumeric characters).

SUPPLEMENT

If you leave the text box blank, the item is not registered but deleted. If you want to delete the filter cube that is set in the filter cube mounting setup, cancel the mounting setup before deleting the filter cube.

- (4) Select the name of the excitation filter you want to set from the [Exciter] list box.
- (5) Select the name of the dichroic mirror you want to set from the [Dichroic] list box.
- (6) Select the name of the barrier filter you want to set from the [Barrier] list box.

The newly registered filter cube is added to the selectable items in the list box in the filter cube mounting setup screen.

SUPPLEMENT

To register a new excitation filter, dichroic mirror, or barrier filter individually, click the [Optional Item] button. The screen changes to the one used for registering item names. See the next page for more information.

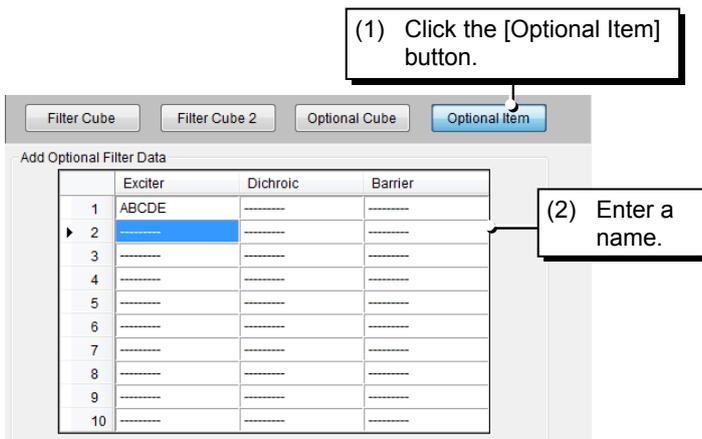
3.5.3 Registering Item Names [Optional Item]

Item name registration is needed to register a new excitation filter, dichroic mirror, or barrier filter individually.

Clicking the [Optional Item] – a subsetup item button in the filter cube setup screen – displays a screen for registering item names.

This screen lets you register names for up to 10 excitation filters, 10 dichroic mirrors, and 10 barrier filters.

▼ Item name registration screen



- (1) Click the [Optional Item] button – a subsetup item button.
- (2) In the [Exciter], [Dichroic], and [Barrier] text boxes here, enter the name of the excitation filter, dichroic mirror, and barrier filter you want to set (using up to 9 single-byte alphanumeric characters). The newly registered names are added to the selectable items in the list box in the new filter cube registration screen.

SUPPLEMENT

If you leave the text box blank, the item is not registered but deleted.

If you want to delete the excitation filter or barrier filter that is used by the filter cube that is set in the filter cube mounting setup, or if you want to delete the excitation filter or barrier filter that is set in the excitation filter mounting setup or barrier filter mounting setup, cancel each mounting setup before deleting them.

3.6

Setting the Excitation Filter [Exciter Filter]

By setting the excitation filter, you can monitor the operation status of the microscope system at a glance.

The following information items can be set for the excitation filter:

- **Excitation filter mounting setup [EX Filter]** (when the excitation filter wheel is mounted): Set information on the excitation filter mounted at the excitation filter wheel.
- **New excitation filter registration [Optional EX]** (when the excitation filter wheel is mounted): Register the name of the new excitation filter.

Displaying the setup screen

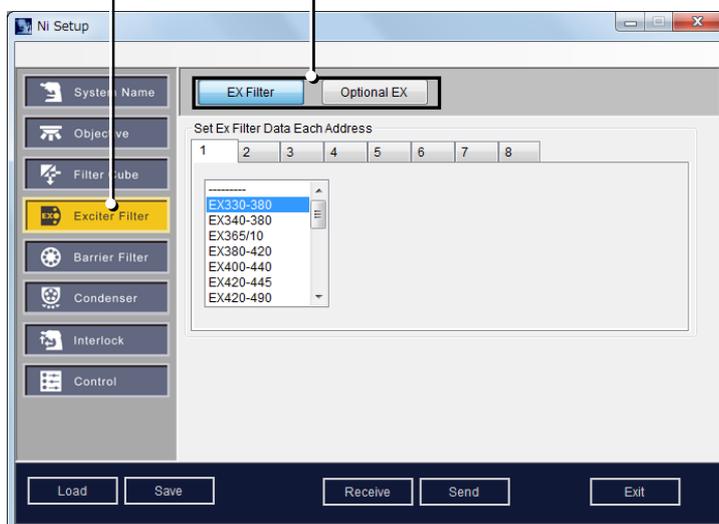
Clicking the [Exciter Filter] button – a main setup item button – displays the excitation filter setup screen.

▼ Excitation filter setup screen

(1) Click the [Exciter Filter] button.

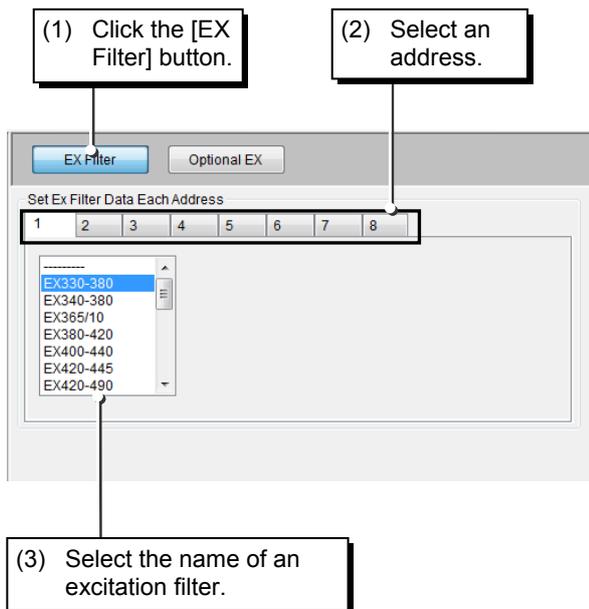
(2) Click a subsetup item button.

- (1) Click the [Exciter Filter] button – a main setup item button.
- (2) Click a subsetup item button to display the each setup screen.



3.6.1**Excitation Filter Mounting Setup [EX Filter]**

Clicking the [EX Filter] button – a subsetup item button in the excitation filter setup screen – displays the excitation filter mounting setup screen. In the screen, you can set information on the excitation filter mounted at the excitation filter wheel.

▼ Excitation filter mounting setup screen

- (1) Click the [EX Filter] button – a subsetup item button.
- (2) From the tab, select an address for which you want to register excitation filter information.
- (3) Select the name of the excitation filter you want to set from the list box.
- (4) To set information for another address, go back to Step (2) and repeat the setup procedure.

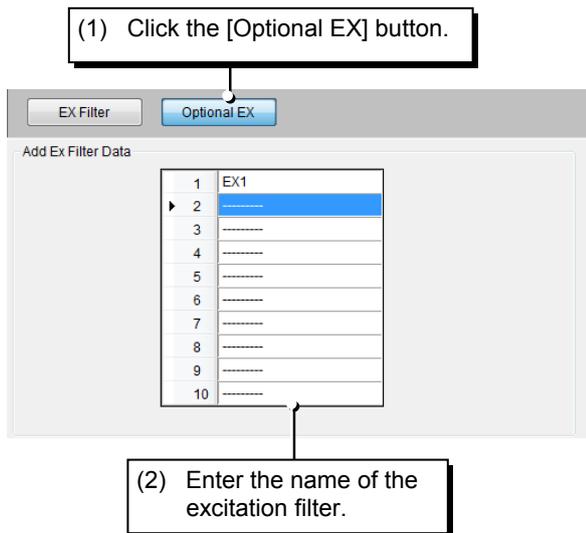
SUPPLEMENT

To register a new excitation filter, click the [Optional EX] button. The screen changes to the one used for registering a new excitation filter. Refer to the next page for details.

3.6.2**Registering New Excitation Filters [Optional EX]**

You can register new excitation filters.

Clicking the [Optional EX] – a subsetup item button in the excitation filter setup screen – displays a screen for registering new excitation filters. This screen lets you register up to 10 excitation filters.

▼ New excitation filter registration screen

- (1) Click the [Optional EX] button – a subsetup item button.
- (2) In the text box, enter the name of the excitation filter (using up to 9 single-byte alphanumeric characters). The newly registered excitation filters are added to the selectable items in the list box in the excitation filter mounting setup screen.

SUPPLEMENT

If you leave the text box blank, the item is not registered but deleted.

If you want to delete the excitation filter that is used by the filter cube that is set in the filter cube mounting setup, or if you want to delete the excitation filter that is set in the excitation filter mounting setup, cancel each mounting setup before deleting the excitation filter.

3.7

Setting the Barrier Filter [Barrier Filter]

By setting the barrier filter, you can monitor the operation status of the microscope system at a glance.

The following information items can be set for the barrier filter:

- **Barrier filter mounting setup [Barrier Filter]** (when the barrier filter wheel is mounted): Set information on the barrier filter mounted at the barrier filter wheel.
- **New barrier filter registration [Optional BA]** (when the barrier filter wheel is mounted): Register the name of the new barrier filter.

Displaying the setup screen

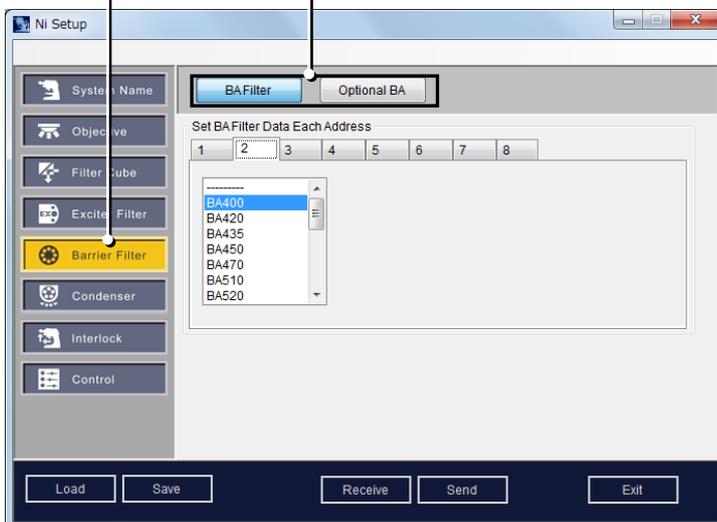
Clicking the [Barrier Filter] button – a main setup item button – displays the barrier filter setup screen.

▼ Barrier filter setup screen

(1) Click the [Barrier Filter] button.

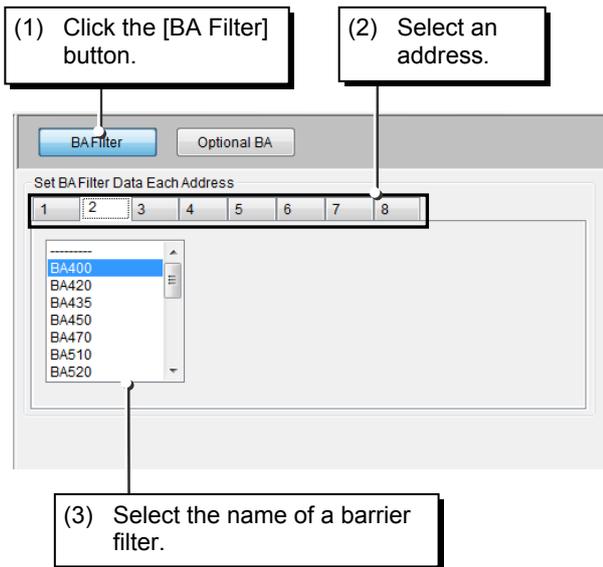
(2) Click a subsetup item button.

- (1) Click the [Barrier Filter] button – a main setup item button.
- (2) Click a subsetup item button to display the each setup screen.



3.7.1**Barrier Filter Mounting Setup [BA Filter]**

Clicking the [BA Filter] button – a subsetup item button in the barrier filter setup screen – displays the barrier filter mounting setup screen. In the screen, you can set information on the barrier filter mounted at the barrier filter wheel.

▼ Barrier filter mounting setup screen

- (1) Click the [BA Filter] button – a subsetup item button.
- (2) From the tab, select an address for which you want to register barrier filter information.

SUPPLEMENT

No barrier filter can be mounted at the Address 1. Therefore, the setting of the tab [1] (Address 1) is fixed to [OPEN] and cannot be modified.

- (3) Select the name of the barrier filter you want to set from the list box.
- (4) To set information for another address, go back to Step (2) and repeat the setup procedure.

SUPPLEMENT

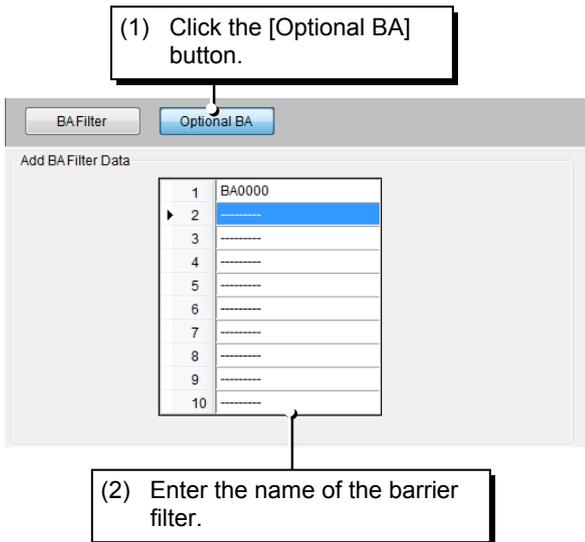
To register a new barrier filter, click the [Optional BA] button. The screen changes to the one used for registering a new barrier filter. Refer to the next page for details.

3.7.2 Registering New Barrier Filters [Optional BA]

You can register new barrier filters.

Clicking the [Optional BA] – a subsetup item button in the barrier filter setup screen – displays a screen for registering new barrier filters. This screen lets you register up to 10 barrier filters.

▼ New barrier filter registration screen



- (1) Click the [Optional BA] button – a subsetup item button.
- (2) In the text box, enter the name of the barrier filter (using up to 9 single-byte alphanumeric characters).

The newly registered barrier filters are added to the selectable items in the list box in the barrier filter mounting setup screen.

SUPPLEMENT

If you leave the text box blank, the item is not registered but deleted. If you want to delete the barrier filter that is used by the filter cube that is set in the filter cube mounting setup, or if you want to delete the barrier filter that is set in the barrier filter mounting setup, cancel each mounting setup before deleting the barrier filter.

3.8

Setting the Condenser Module [Condenser]

By setting the condenser module, you can monitor the operation status of the microscope system at a glance. Also condenser modules are switched automatically when objectives are changed.

The following condenser module information items can be set (when the motorized universal condenser is attached).

- **Condenser module mounting setup:**
Set information on the condenser module attached at each condenser address (condenser module bay).
- **New condenser module registration:**
Register the desired name of a condenser module.

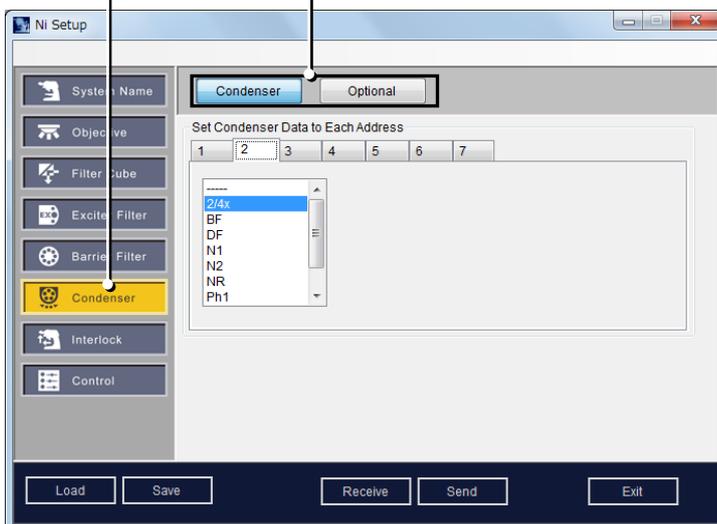
Displaying the setup screen

Clicking the [Condenser] button – a main setup item button – displays the condenser module setup screen.

▼ Condenser module setup screen

(1) Click the [Condenser] button.

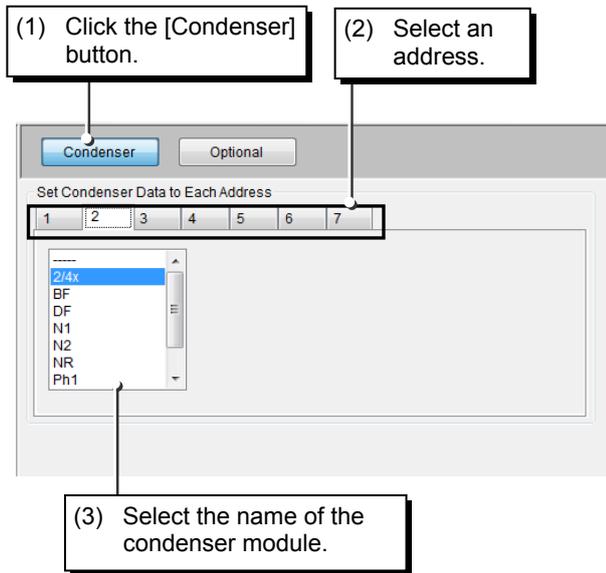
(2) Click a subsetup item button.



- (1) Click the [Condenser] button – a main setup item button.
- (2) Click a subsetup item button to display the each setup screen.

3.8.1**Condenser Module Mounting Setup [Condenser]**

Clicking the [Condenser] button – a subsetup item button in the condenser module setup screen – displays the condenser module mounting setup screen.

▼ Condenser module mounting setup screen

- (1) Click the [Condenser] button – a subsetup item button.
- (2) From the tab, select an address for which you want to set condenser module information.

SUPPLEMENT

No condenser module can be mounted at the condenser address 1. Therefore, the setting of the tab [1] (Address 1) is fixed to [OPEN] and cannot be modified.

- (3) Select the name of the condenser module from the list box.
- (4) To set information for another address, go back to Step (2) and repeat the setup procedure.

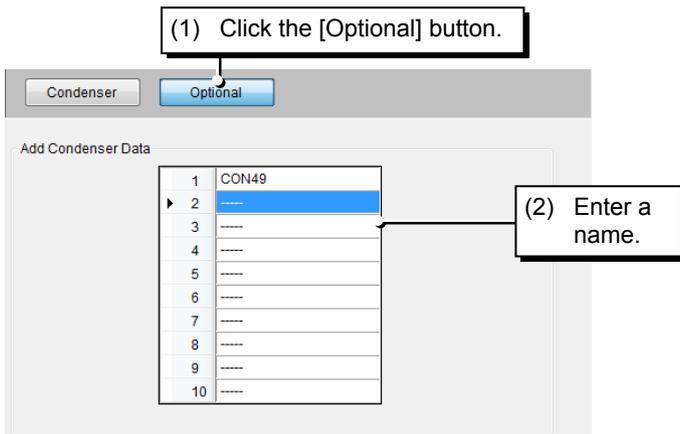
SUPPLEMENT

To register a new condenser module, click the [Optional] button. The screen changes to the one used for registering a new condenser module. Refer to the next page for details.

3.8.2**Registering New Condenser Modules [Optional]**

You can register new condenser modules.

Clicking the [Optional] – a subsetup item button in the condenser module setup screen – displays a screen for registering new condenser modules. This screen lets you register up to 10 condenser modules.

▼ Condenser module name registration screen

- (1) Click the [Optional] button – a subsetup item button.
- (2) Enter the name of the condenser module in the [Add Condenser Data] text box (using up to 5 single-byte alphanumeric characters). The names of the newly registered condenser modules are added to the selectable items in the list box in the condenser module mounting setup screen.

SUPPLEMENT

If you leave the text box blank, the item is not registered but deleted. If you want to delete the condenser module that is set in the condenser module mounting setup, cancel the mounting setup before deleting the condenser module.

3.9**Interlock Setup [Interlock]**

Interlock is designed to tailor various motorized devices of the microscope system to the control conditions that best fit the objective used.

The capture interlock is a function that allows you to quickly switch to a preconfigured optical path and filter cube by pressing the CAPTURE button on the microscope main body.

IMPORTANT

To enable the interlock setup, you need to check [Link] check box for [Path], [Objective], [Optical Zoom], and [Capture Interlock] in the motorized device control area.

The following interlock information items can be set (when the motorized or intelligent nosepiece is attached).

- **Objective interlock setup:**

Set whether to interlock each of the motorized devices when switching objectives.

SUPPLEMENT

For Ci-E, set whether to swing out the condenser when switching objectives (when the swing-out condenser is attached).

- **Objective interlock and parfocal correction setup:**

Set whether to perform parfocal position correction control.

SUPPLEMENT

Although all objectives have uniform parfocal lengths, each objective has slight differences in-focus positions, for which corrections must be made.

The parfocal correction function remembers slight differences in-focus positions to enable repeatable precise focusing.

- **Optical path switching interlock setup:**

Set whether to interlock the ND filter and diascope field diaphragm when switching optical paths.

- **Optical zoom interlock setup:**

Set whether to interlock the ND filter and diascope field diaphragm when switching optical zoom magnifications.

- **Compensation setup:**

Control values can be compensated for across the board when the diascope aperture diaphragm, condenser module, diascope field diaphragm, and ND filter are controlled through interlock. Set this compensation value.

- **Capture interlock setup:**

Set whether to interlock the switching of optical path and filter cube when pressing the CAPTURE button on the microscope main body.

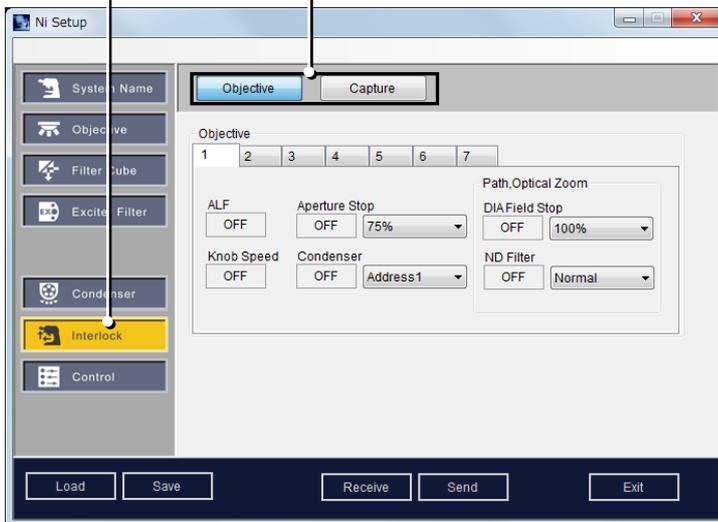
Displaying the setup screen

Clicking the [Interlock] button – a main setup item button – displays the interlock setup screen.

▼ Interlock setup screen [Ni-E]

(1) Click the [Interlock] button.

(2) Click a subsetup item button.



- (1) Click the [Interlock] button – a main setup item button.
- (2) Click a subsetup item button to display the each setup screen.

3.9.1

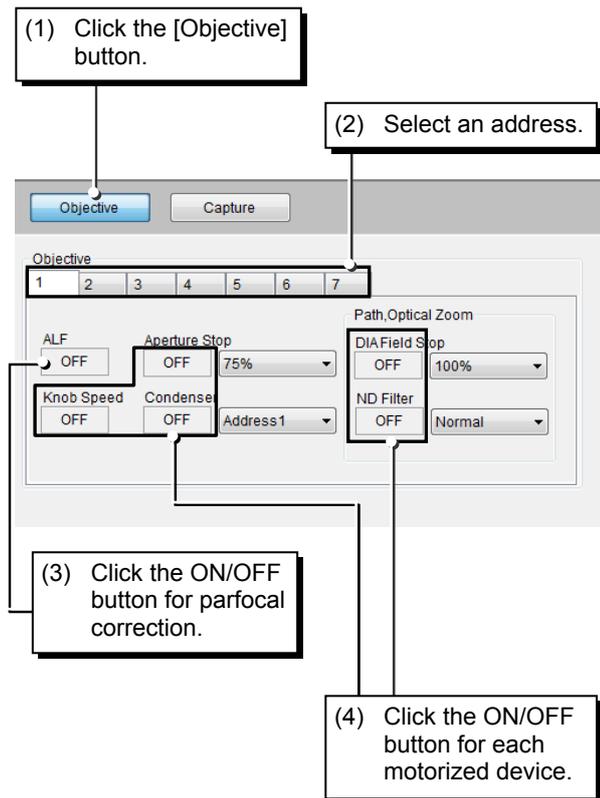
Objective, Optical Path Switching, and Optical Zoom Interlock Setups

Clicking the [Objective] button – a subsetup item button in the interlock setup screen – displays the interlock setup screen for Objective, Optical Path Switching, and Optical Zoom.

SUPPLEMENT

The setup items of the motorized devices not attached are not displayed.

▼ Interlock setup screen [Ni-E]



- (1) Click the [Objective] button – a subsetup item button.
- (2) From the tab, select the address of the objective for which you want to set interlock.
- (3) Set whether to enable (ON) or disable (OFF) interlocking the parfocal correction with objective by clicking the ON/OFF button for [ALF].

SUPPLEMENT

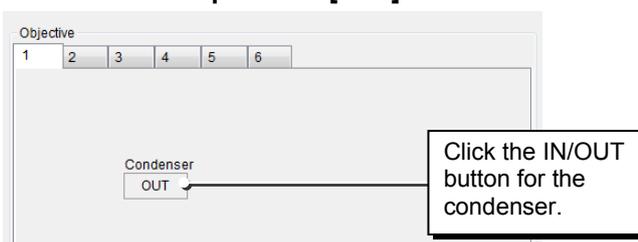
The [ALF] setting is applied to all addresses.

- (4) Set whether to turn ON or OFF each of the motorized devices (interlock the devices with objective) by clicking the ON/OFF button. The following motorized devices can be set:
 - [Aperture Stop]: Diascopic aperture diaphragm
 - [Knob Speed]:
 - Ergo controller (XYZ knob speed)
 - [Condenser]: Condenser
 - [DIA Field Stop]: Diascopic field diaphragm
 - [ND Filter]: ND filter

SUPPLEMENT

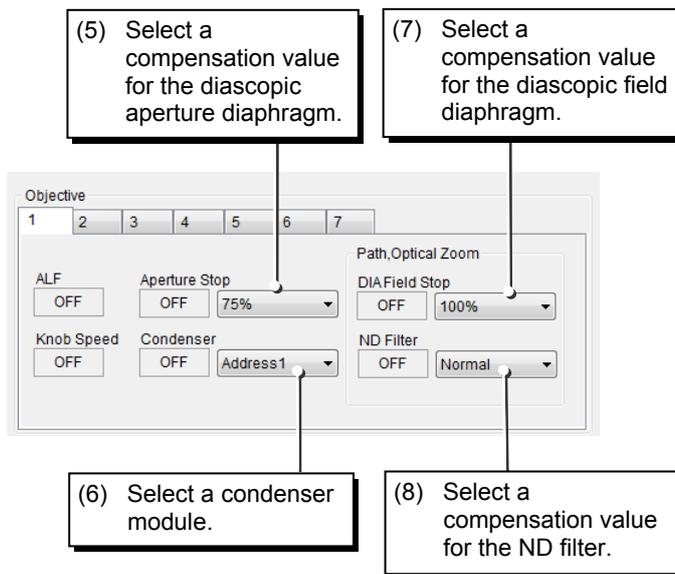
- When [Knob Speed] is set to [ON], the motorized stage movement speed will be changed depending on the objective's magnification.
 - 2x, 4x, 10x: Coarse
 - 20x, 40x: Fine
 - 60x, 100x: Extra fine
- For Ci-E, it is only possible to set whether to enable (IN) or disable (OUT) swinging out the condenser (when the swing-out condenser is attached).

▼ Interlock setup screen [Ci-E]

**SUPPLEMENT**

For Ci-E, set whether to enable (ON) or disable (OFF) interlocking the condenser with objective by clicking the ON/OFF button for [Condenser].

▼ Interlock setup screen [Ni-E]



- (5)** Select an interlock compensation value for the diascope aperture diaphragm from the [Aperture Stop] pull-down list.
- [75%]: Sets the aperture to 75% of the objective's numerical aperture
 - [Intelligent]: Adjusts the diaphragm so that the rate of the condenser's numerical aperture to the objective's numerical aperture immediately before the nosepiece is moved can be kept unchanged.
 - [Open]: Sets the maximum value.
 - [Close]: Sets the minimum value.
- (6)** Select an address of the condenser module that is set at interlock from the [Condenser] pull-down list.
- (7)** Select an interlock compensation value for the diascope field diaphragm from the [DIA Field Stop] pull-down list.
- [100%]: Matches with the field of view.
 - [Intelligent]: Adjusts the diaphragm so that the rate of the size of the field diaphragm to the field of view immediately before the nosepiece is moved can be kept unchanged.
 - [Open]: Sets the maximum value.
 - [Close]: Sets the minimum value.
- (8)** Select an interlock compensation value for the ND filter from the [ND Filter] pull-down list.
- [Normal]: Sets the transmittance to the standard value calculated from the magnification and numerical aperture of the objective.
 - [Intelligent]: Adjusts the ND filter so that the brightness of the field of view immediately before the nosepiece is moved can be kept unchanged.

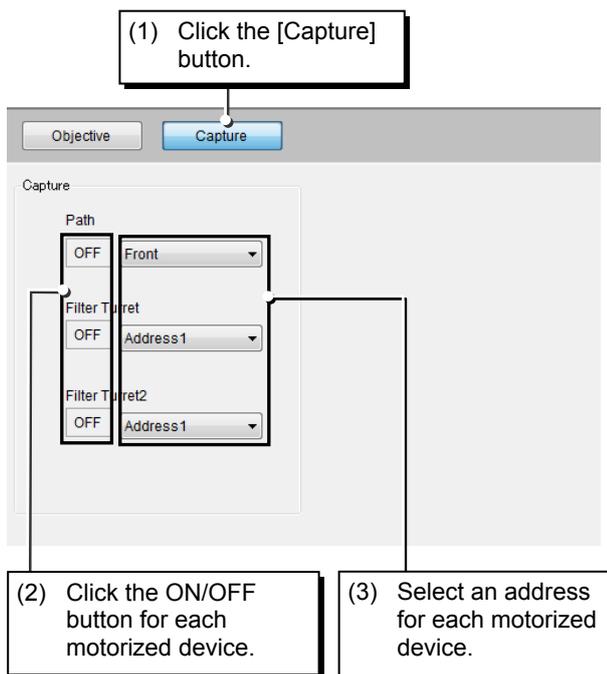
3.9.2 Capture Interlock Setup

Clicking the [Capture] button – a subsetup item button in the interlock setup screen – displays the capture interlock setup screen.

SUPPLEMENT

This setup can be performed only for Ni-E.

▼ Capture Interlock setup screen [Ni-E]



- (1) Click the [Capture] button – a subsetup item button.
- (2) Set whether to enable (ON) or disable (OFF) interlocking the motorized devices with capture interlock by clicking the ON/OFF button for each motorized device. The following motorized devices can be set:
 - [Path] : Optical path
 - [FilterTurret] :Filter cube
 - [FilterTurret2] :Filter cube 2
- (3) From the pull-down list, select the address of the optical path and filter cube for which you want to set capture interlock.

3.10 Control-Related Setup [Control]

The following control-related information items can be set:

- **Shutter and camera setup [DSC/Shutter]:**
 - Set the usage of the shutter connected to the shutter port.
 - Set the manufacturer and attaching position of the camera
- **Microscope setup [Microscope]:**
 - Basic setup of the microscope
 - Capture button setup
 - Enabling/disabling Z-knob operation
 - Rotation speed setup for epi-fluorescence cube turret (when the motorized epi-fluorescence cube turret is attached)
- **Ergo Controller or joystick setup [Ergo/JOY]:** (when the ergo controller or joystick is attached)
 - Basic setup and knob setup for the ergo controller and joystick

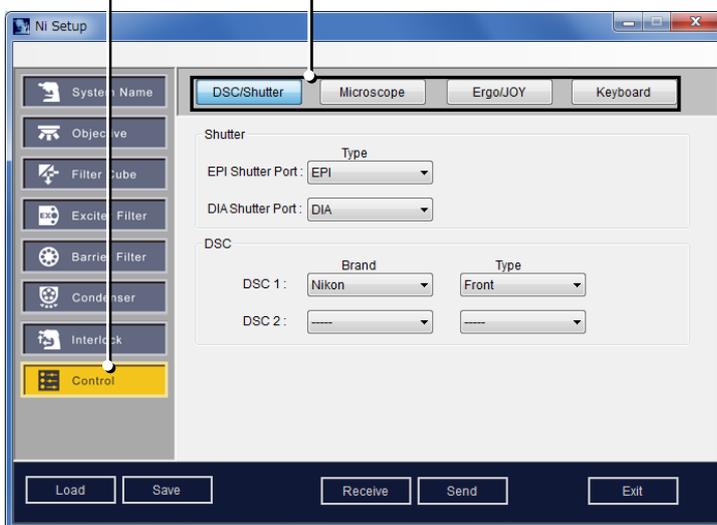
Displaying the setup screen

Clicking the [Control] button – a main setup item button – displays the control-related setup screen.

▼ Control-related setup screen

(1) Click the [Control] button.

(2) Click a subsetup item button.



- (1) Click the [Control] button – a main setup item button.
- (2) Click a subsetup item button to display the each setup screen.

3.10.1 Setting the Shutter and Camera [DSC/Shutter]

Clicking the [DSC/Shutter] button – a subsetup item button in the control-related setup screen – displays the shutter and camera setup screen.

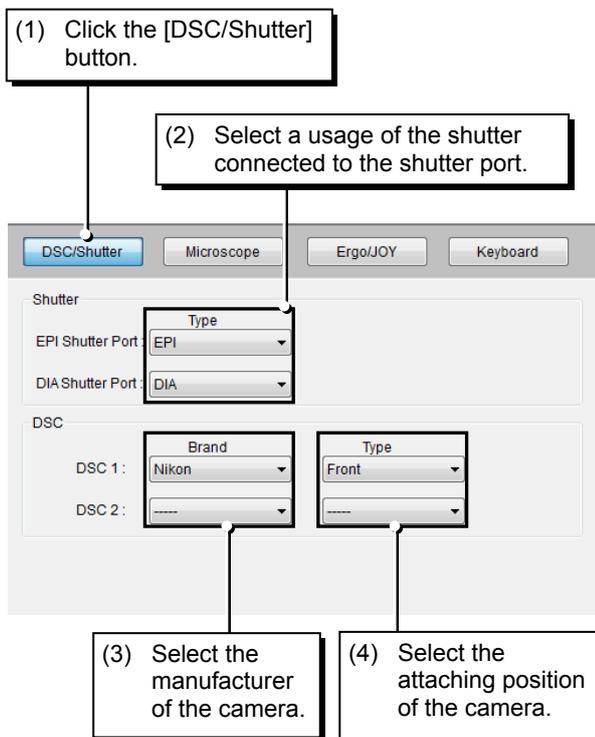
The following information items for the shutter and camera can be set:

- **Shutter setup:**
Set the usages of the shutters connected to the EPI side and DIA side shutter ports, respectively.
- **Camera setup:**
Set the manufacturer and attaching position of the connected camera.

IMPORTANT

Make sure that the shutters and camera are connected to the microscope system as specified here.

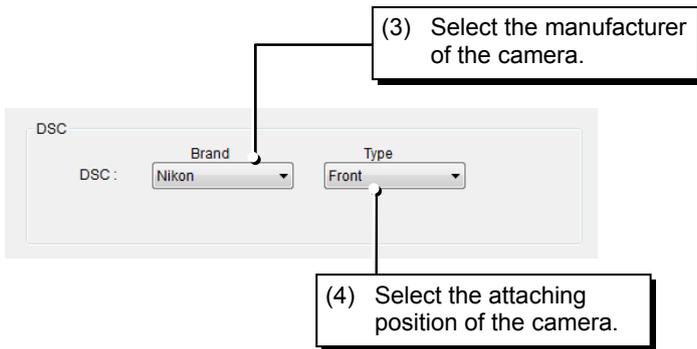
▼ Shutter and camera setup screen



- (1) Click the [DSC/Shutter] button – a subsetup item button.
- (2) Select [EPI] (for epi-illumination), [DIA] (for dia-illumination), or [AUX] (for auxiliary shutter) from the [Type] pull-down list for the usages of the shutters connected to the EPI-side and DIA-side shutter ports.
- (3) Select [Nikon] (for Nikon's camera) or [Andor] (for Andor's camera) from the [Brand] pull-down list for the manufacturer of the camera connected.
- (4) Select one of the following from the [Type] pull-down list for the position at which the camera is attached.
 - [Front]:
When the camera connected to the DSC connector is attached to the tube adapter.
 - [Left]:
When the camera connected to the DSC connector is attached to the DSC zooming port for quadrocular tube.
 - [Right]:
When the camera connected to the DSC connector is attached to the back port unit.
 - [AUX]:
When the camera is attached at a position other than above.

SUPPLEMENT

For Ni-U and Ci-E, only one camera can be set up.

▼ Shutter and camera setup screen [Ci-E]**SUPPLEMENT**

For Ci-E, select one of the following from the [Type] pull-down list.

- [Front]:
When the camera connected to the DSC connector is attached to the tube adapter.
- [Rear]:
When the camera connected to the DSC connector is attached to the DSC connector for Ergonomic binocular tube.
- [AUX]:
When the camera is attached at a position other than above.

3.10.2 Microscope Setup [Microscope]

Clicking the [Microscope] – a subsetup item button in the control-related setup screen – displays the microscope setup screen.

The following control-related information items can be set:

- **Basic setup of the microscope [Microscope Setting]:**

Set the brightness of the display, the display pattern displayed when the microscope is powered on, and also whether to sound the buzzer when operating the switches on the microscope or if an error occurs.

The following shows the display patterns on the display.

Item	Display items on the display					
Pattern1	Objective	Z-axis position	DIA lamp	Field diaphragm		
Pattern2	Objective	Z-axis position	Optical path	Optical zoom	Field diaphragm	
Pattern3	Objective	Z-axis position	Filter cube	Fiber light source	EPI shutter	
Pattern4	Objective	Z-axis position	Filter cube	Optical zoom	ND filter	
Pattern5	Objective	Z-axis position	Condenser module	Aperture diaphragm	Field diaphragm	
Pattern6	Filter cube	X-axis position	Optical zoom	Y-axis position		
Pattern7	Objective	X-axis position	Optical zoom	Y-axis position		
Pattern8	Barrier filter	Filter cube 2	Excitation filter	Filter cube	EPI shutter	
Pattern9	Objective	Filter cube	EPI shutter	Condenser module	Optical zoom	Field diaphragm
Pattern10*	Front button function (ID5)	Front button function (ID6)	Front button function (ID7)	Front button function (ID8)	Front button function (ID9)	Front button function (ID10)

* For details on the IDs of the front buttons, refer to 5.1.4, "Setting the Ni Switches [Ni Switch]".

- **Capture button setup**

Set the output destination to which the capture data is output when the capture button is pressed.

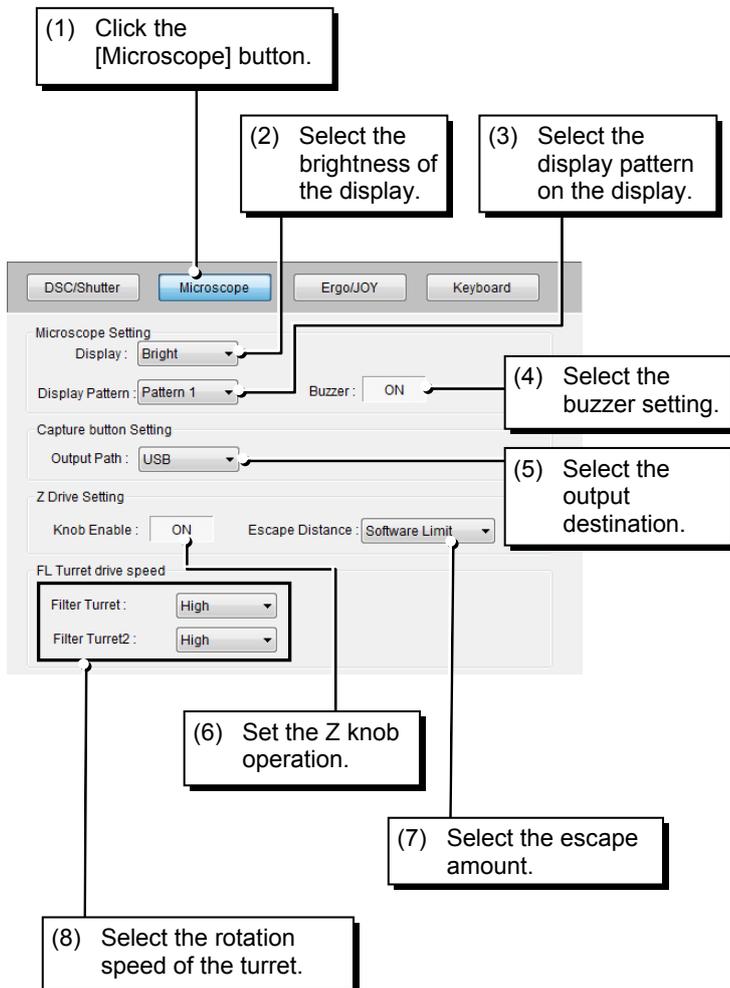
- **Elevating section Z setup**

Set whether to enable or disable the Z knob operation on the microscope and the escape amount for the nosepiece escape.

- **Rotation speed setup for epi-fluorescence cube turret**

Set the rotation speed for the epi-fluorescence cube turret.

▼ Microscope setup screen [Ni-E]



- (1) Click the [Microscope] button – a subsetup item button.
- (2) Select [Bright], [Dark], or [OFF] from the [Display] pull-down list for the brightness of the display on the microscope.

SUPPLEMENT

If [OFF] is selected, the display, and the left and right LEDs on the microscope are turned off.

- (3) Select the display pattern displayed on the display when the microscope is powered on from the [Display Pattern] pull-down list.

SUPPLEMENT

There are 10 display patterns. For details on the display items, see the previous page.

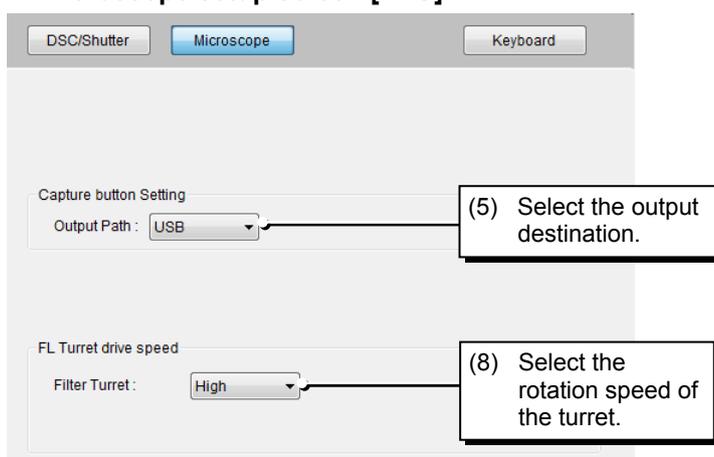
- (4) Set whether to sound the buzzer when operating the switches on the microscope by clicking the [Buzzer] switching button.
- (5) Select [DSC1], [DSC2], or [USB] from the [Output Path] pull-down list for the output destination of the capture data.

SUPPLEMENT

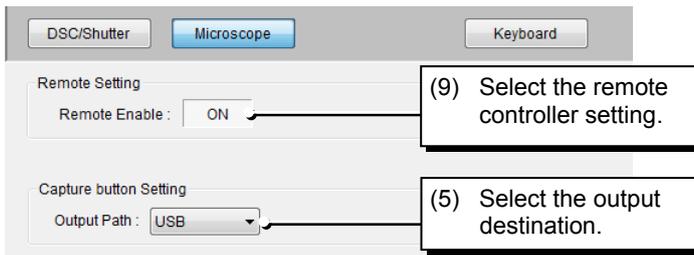
[DSC2] can be selected only for Ni-E.

- (6) Set whether to enable (ON) or disable (OFF) the Z knob operation on the microscope by clicking the [Knob Enable] switching button.
- (7) Select 10mm (retract 10 mm), [Software Limit] (retract to the limit), or 5mm (retract 5 mm) from the [Escape Distance] pull-down list for the escape amount.

▼ Microscope setup screen [Ni-U]



- (8) Select the rotation speed for the epi-fluorescence cube turret from the [Filter Turret] or [Filter Turret 2] pull-down lists.
 - [High] (High speed):
When using only normal filter cube.
 - [Low] (Low speed):
When using any of filter cubes which include thick dichroic mirror.

▼ Microscope setup screen [Ci-E]

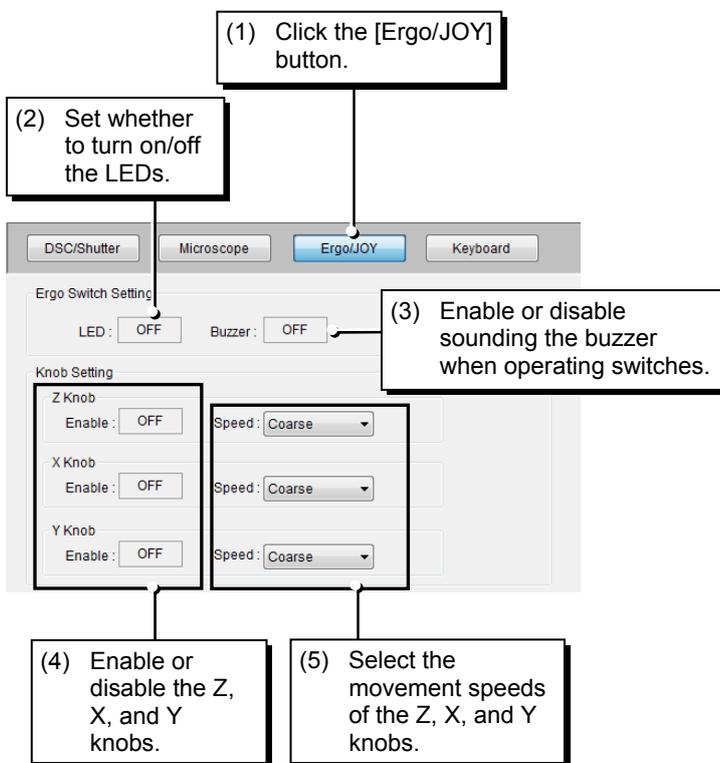
- (9) For Ci-E, set whether to enable (ON) or disable (OFF) the remote controller operation by clicking the [Remote Enable] switching button.

3.10.3 Ergo Controller or Joystick Setup [Ergo/JOY]

Clicking the [Ergo/JOY] – a subsetup item button in the control-related setup screen – displays the ergo controller or joystick setup screen.

- **Ergo controller switch setup [Ergo Switch Setting]** (when the ergo controller is connected): Set whether to turn on/off the LEDs of the switches on the ergo controller and whether to sound the buzzer when operating the switches.
- **Z, X, and Y knob setup [Knob Setting]** (when the ergo controller or joystick is connected): Set whether to enable or disable the Z, X, and Y knobs and set the movement speed by each knob.

▼ Ergo controller setup screen



- (1) Click the [Ergo/JOY] button – a subsetup item button.
- (2) Set whether to turn on or off the LEDs on the ergo controller by clicking the [LED] switching button.
- (3) Set whether to sound the buzzer when operating the switches on the ergo controller by clicking the [Buzzer] switching button.
- (4) Set whether to enable (ON) or disable (OFF) the Z, X, and Y knobs of the ergo controller or joystick by clicking the [Z Knob], [X Knob], and [Y Knob] switching buttons, respectively.
- (5) Select [Coarse] (coarse), [Fine] (fine), or [ExFine] (extra fine) from the [Speed] pull-down list for the movement speeds by the Z, X, and Y knobs of the ergo controller or joystick.

SUPPLEMENT

The [Speed] settings for [X Knob] and [Y Knob] are the same each other. If one of them is changed, the other is automatically changed to the same setting.

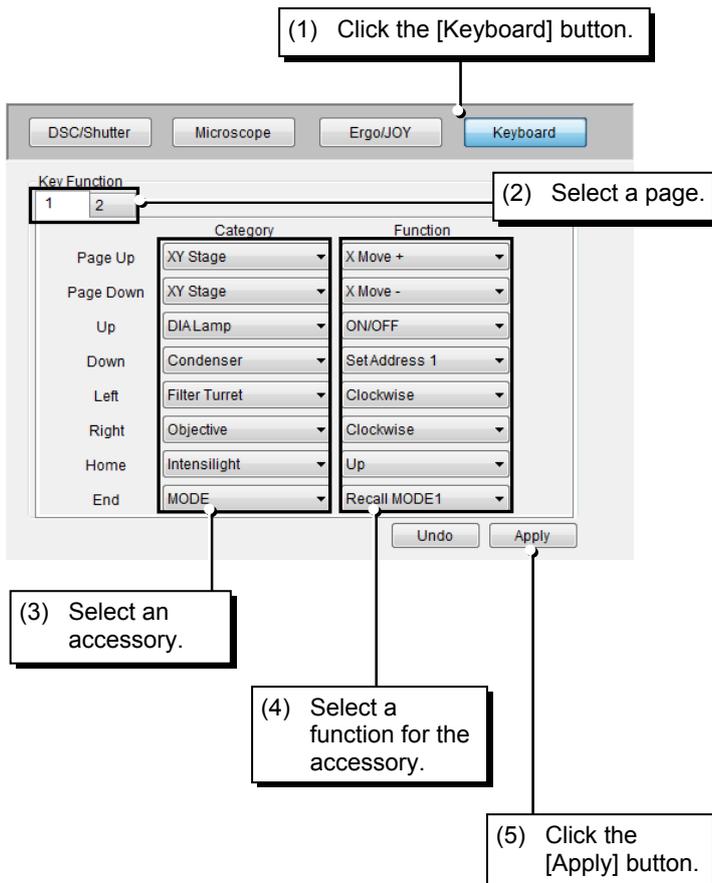
3.10.4 Shortcut key Setup [Keyboard]

You can assign shortcut keys to motorized device control functions.

- **Setting the shortcut key function:**

Set the function for the shortcut keys [Page Up], [Page Down], [Home], [End], [Up], [Down], [Left], [Right], [F5], [F6], [F7], [F8], [F9], [F10], [F11], and [F12].

▼ Shortcut key setup screen



- (1) Click the [Keyboard] button – a subsetup item button.
- (2) Select the tab that contains the shortcut key to be set up.
- (3) From the [Category] pull-down list, select the accessory to be controlled by the shortcut key.
- (4) From the [Function] pull-down list, select the accessory function to be controlled by the shortcut key.
- (5) Click the [Apply] button to apply the new settings.

SUPPLEMENT

Click the [Undo] button to reset all changes that have been made since opening the dialog box.

4

Controlling the Motorized Devices

This chapter describes how to monitor the status of the microscope system at a glance and how to operate the motorized devices.

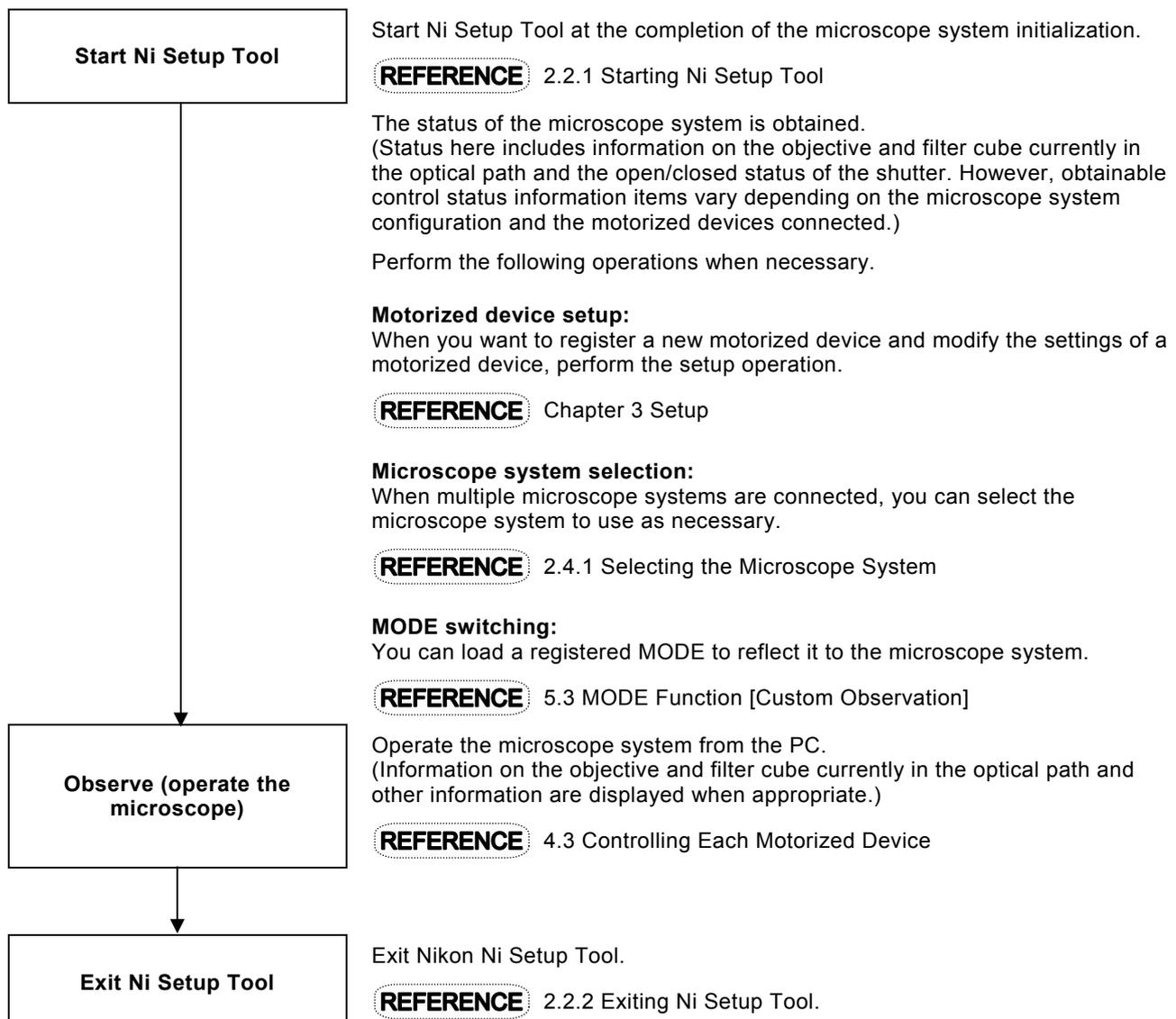
4.1

Control Workflow

The workflow for controlling the motorized devices is as described below.

CAUTION

- When you use Ni Setup Tool for the first time, make sure to perform setup to register the information for the microscope system. For details, refer to Chapter 3, “Setup”.
- Do not unplug the USB cable that connects the microscope with the PC while Ni Setup Tool is running.



4.1.1

List of Controllable Motorized Devices

In this application, controllable devices vary depending on the microscope system configuration.

The following shows a list of controllable devices for each configuration:

Motorized device name		Ni-E	Ni-U	Ci-E	Refer to
	Optical path switching [Path]	✓	✓	✓	4.3.1
	Objective [Objective]	✓	✓	✓	4.3.2
	Filter cube / filter cube 2 ^{*1} [Filter Cube]	✓	✓ ^{*2}	-	4.3.3
	Excitation filter [Exciter Filter]	✓	-	-	4.3.4
	Barrier filter ^{*1} [Barrier Filter]	✓	-	-	4.3.5
	ND filter [ND Filter]	✓	-	-	4.3.6
	EPI shutter [EPI Shutter]	✓	✓	-	4.3.7
	DIA shutter [DIA Shutter]	✓	✓	-	4.3.8
	Fiber light source ND filter [Intensilight ND]	✓	✓	-	4.3.9
	Diascopic aperture diaphragm [Aperture Stop]	✓	-	-	4.3.10
	Diascopic field diaphragm [DIA Field Stop]	✓	-	-	4.3.11
	Condenser module [Condenser Module]	✓	-	✓ ^{*3}	4.3.12
	Optical zoom [Optical Zoom]	✓	-	-	4.3.13
	Dia-illumination lamp [DIA Lamp]	✓	✓	✓	4.3.14
	All EPI shutter operation [EPI ALL]	✓	✓	-	4.3.15
	Elevating section Z [Z Focus]	✓	-	-	4.3.16
	XY stage [XY Stage]	✓	-	-	4.3.17

*1: The filter cube 2 and barrier filter cannot be attached at the same time.

*2: For Ni-U, only the filter cube can be attached.

*3: Swing-out condenser

4.2 Control Screen Configuration

In the control area, during microscopy, you can monitor the current status of the microscope system at a glance and also control motorized devices.

▼ Main screen

Current control status indications and motorized device operation buttons
 The current status is displayed adjacent to the icon representing each of the motorized devices.
 You can control the motorized devices through each name and list box.



Exit Ni Setup Tool

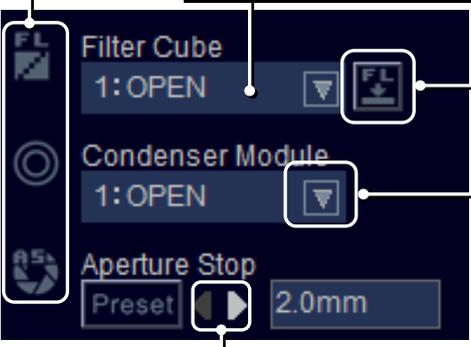
Icons representing respective motorized devices.

Current control status is displayed.

Click the button to toggle the ON/OFF state of the function or displays a setup screen.

Click this icon to display the list of options.

Click the buttons to increase or decrease the value. Click and hold one of the buttons to increment or decrement the value by a certain value.



4.3

Controlling Each Motorized Device

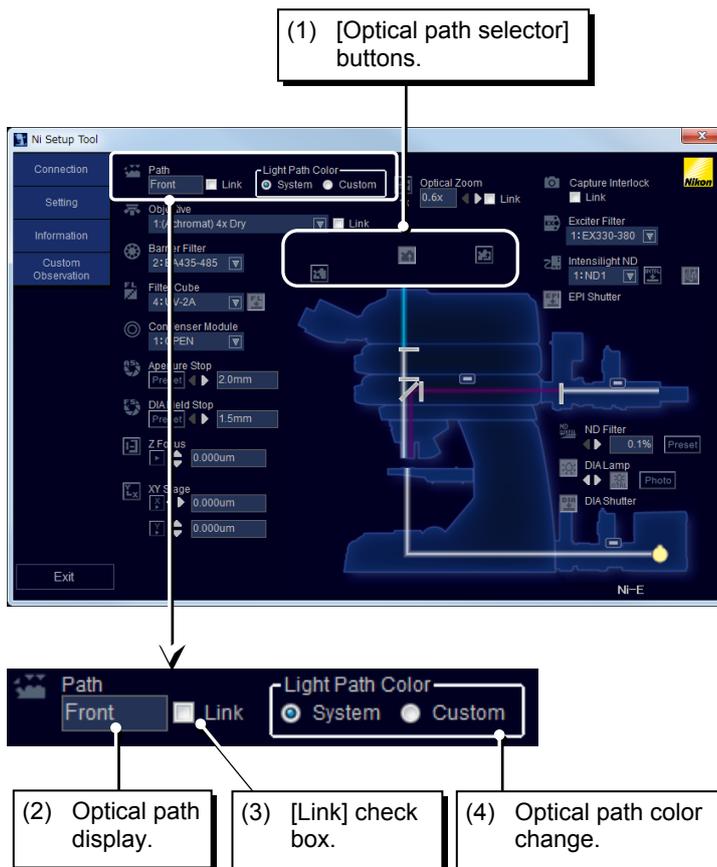
4.3.1

Optical Path Switching [Path]

IMPORTANT

You can change the optical path of the microscope system only when the motorized quadrocular tube is connected. For other cases, the optical path only on the main screen can be changed.

▼ Main screen



- (1) Click an [optical path selector] button (Bino, Front, or Rear) to switch optical paths.
- (2) The selected optical path is displayed in the [Path] text box.
 - Bino: Binocular part
 - Front: Tube adapter
 - Rear: Rear port

For Ci-E

- Bino: Binocular part
 - DSC: Camera port
- (3) **Optical path interlocked change**
Check or uncheck the [Link] check box to enable or disable optical path interlock control. To control the units in sync with optical path switching, select the check box.

IMPORTANT

The [Link] check box is enabled only when the motorized or intelligent nosepiece are attached.

REFERENCE

For information on the device interlocks, refer to 3.9, "Interlock Setup [Interlock]".

- (4) **Optical path color change**
Select [System] or [Custom] to change the optical path color to system color or custom color.

System color:

Color changes automatically according to the filter combination. Gray display indicates that light cannot pass through.

REFERENCE

For information on the system color, refer to next page, and for custom color, refer to 5.1.8, "Changing the Optical Path Color [Custom Color]".

SUPPLEMENT

System color

Optical path color is calculated automatically according to the filter combination.

The following optical path colors are displayed.



The most dominant color is displayed for continuous light containing multiple colors. However, white is displayed for light containing four or more colors or two or more non-continuous colors (*1).

Also, gray is displayed if light is blocked with a filter.

(*1) When passed through multi-filter for example.

Return light from sample

Epi-illumination only: Color is determined from the excitation light on the sample.

When there is dia-illumination: Treated as white light.

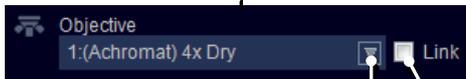
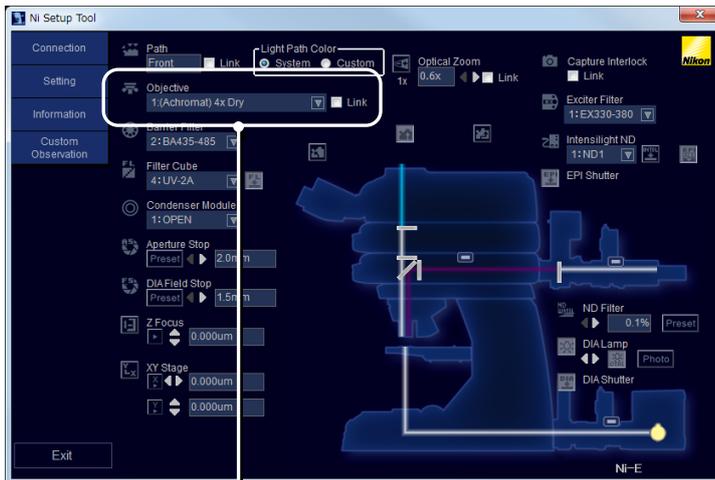
4.3.2

Objective [Objective]

IMPORTANT

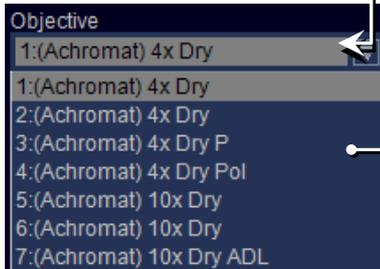
When the intelligent nosepiece is attached, the objective cannot be changed, but the selected objective is displayed.

▼ Main screen



(1) List display.

(3) [Link] check box.



(2) Objective list.

- (1) Click the  button to display the list of objectives (nosepieces).
- (2) Select an objective. The nosepiece is changed.
- (3) **Objective interlocked change**
Check or uncheck the [Link] check box to enable or disable objective interlock control. To control the units in sync with objective switching, select the check box. To switch objective independently, uncheck the check box.

REFERENCE

- For information on the device interlocks, refer to 3.9, “Interlock Setup [Interlock]”.
- For details on the objective setup, refer to 3.4, “Setting the Objective [Objective]”.

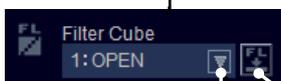
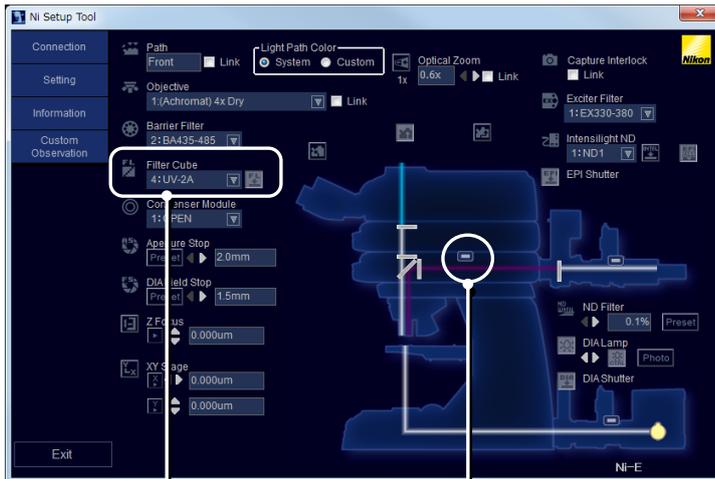
4.3.3

Filter Cube [Filter Cube]

IMPORTANT

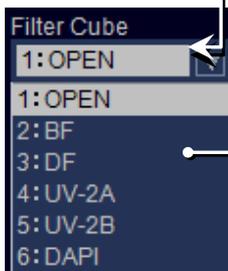
When the intelligent epi-fluorescence cube turret is attached, the filter cube cannot be changed, but the selected filter cube is displayed. Also, the built-in shutter is not displayed.

▼ Main screen



(1) List display.

(3) Shutter open/close button.

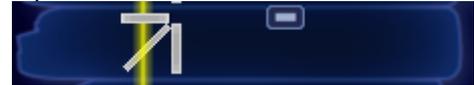


(2) Filter cube list.

- (1) Click the  button to display the list of filter cubes.
- (2) Select a filter cube. The address of the epi-fluorescence cube turret is changed.
- (3) To open or close the built-in shutter, click the  or  button.

- When the button is pressed: Open
- When the button is not pressed: Close

Open



Close

**SUPPLEMENT**

The filter cube 2 can also be controlled in the same way.

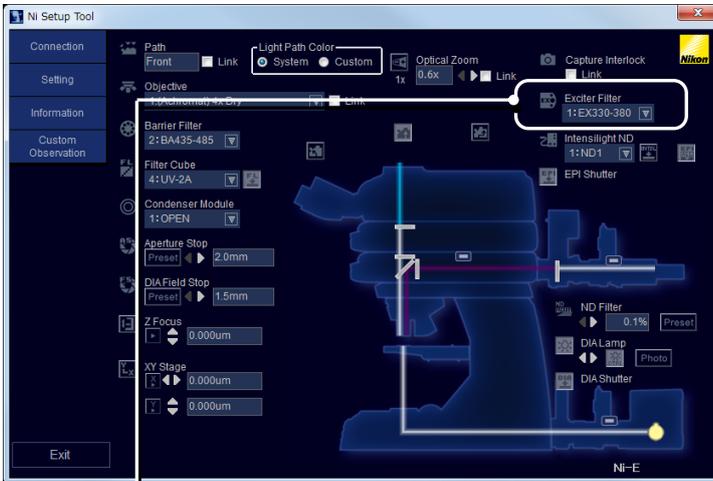
REFERENCE

For details on the filter cube setup, refer to 3.5, "Setting the Filter Cube [Filter Cube]".

4.3.4

Excitation Filter [Exciter Filter]

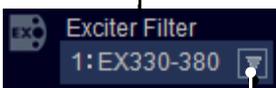
▼ Main screen



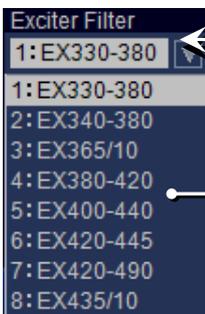
- (1) Click the  button to display the list of excitation filters.
- (2) Select an excitation filter. The address of the excitation filter wheel is changed.

REFERENCE

For details on the excitation filter setup, refer to 3.6, “Setting the Excitation Filter [Exciter Filter]”.



(1) List display.

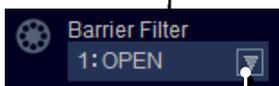
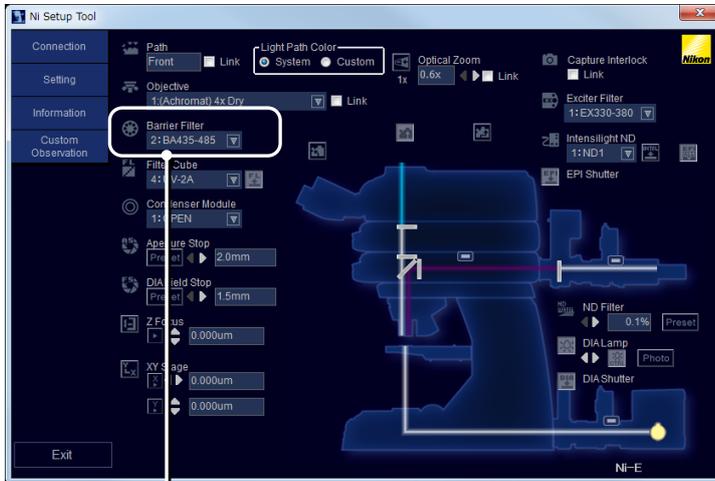


(2) Excitation filter list.

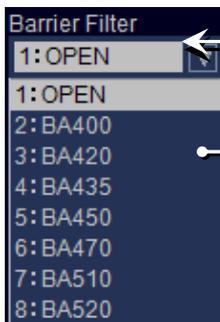
4.3.5

Barrier Filter [Barrier Filter]

▼ Main screen



(1) List display.



(2) Barrier filter list.

- (1) Click the  button to display the list of barrier filters.
- (2) Select a barrier filter. The address of the barrier filter wheel is changed.

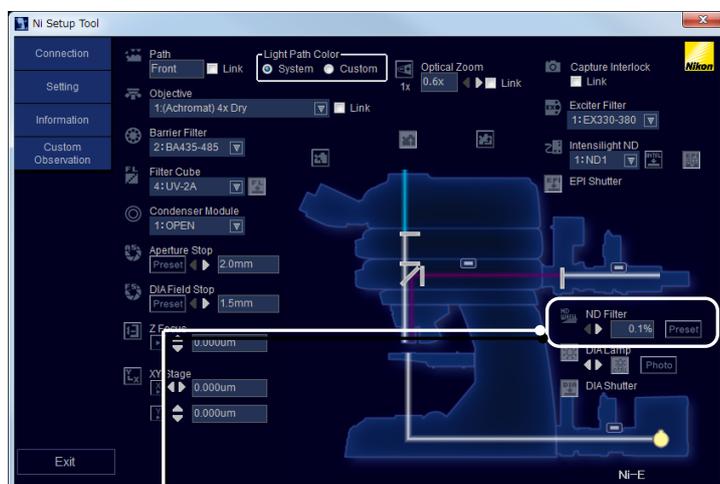
REFERENCE

For details on the barrier filter setup, refer to 3.7, “Setting the Barrier Filter [Barrier Filter]”.

4.3.6

ND Filter [ND Filter]

▼ Main screen



(1) Adjust the value.

[Preset] button.

- (1) Click the  button to adjust the transmittance (%) of the ND filter.

SUPPLEMENT

Click the  button to increment or decrement the value by 0.1% between 0.1 to 100.0%. Click and hold the button to increment or decrement the value by 1%.

■ Optimization function (Preset)

Click the [Preset] button to set the optimal transmittance based on the current objective, optical path, and optical zoom value.

This function is available only when the motorized universal condenser and motorized or intelligent nosepiece are attached and objective information is properly configured.

This function does not work when the optical path is Rear and the motorized DSC zoom port is not connected.

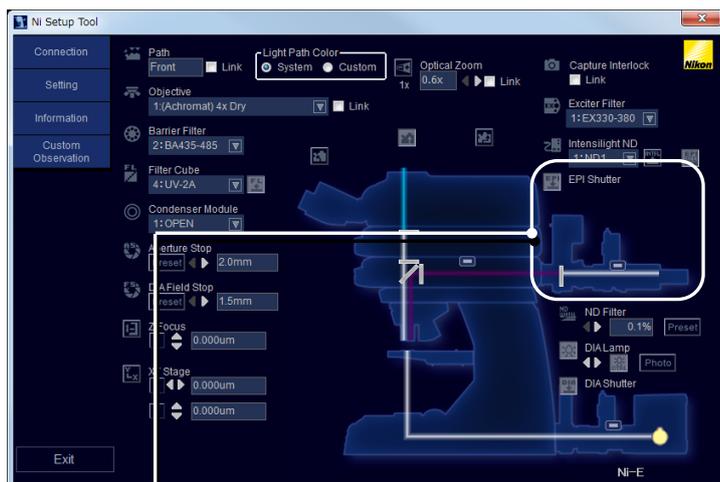
4.3.7

EPI Shutter [EPI Shutter]

IMPORTANT

The EPI shutter cannot be used if the function is not set to EPI in the shutter and camera setup screen. For details, refer to 3.10.1, “Setting the Shutter and Camera [DSC/Shutter]”.

▼ Main screen



(1) Shutter open/close button.

(1) Click the  or  button to toggle the shutter open or closed.

If closed, the shutter shuts off the optical path of the illumination.

- When the button is pressed:
Open
- When the button is not pressed:
Close

Open



Close



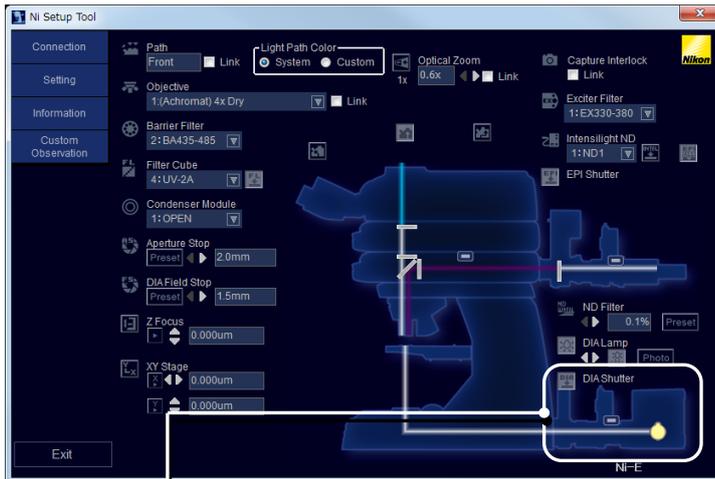
4.3.8

DIA Shutter [DIA Shutter]

IMPORTANT

The DIA shutter cannot be used if the function is not set to DIA in the shutter and camera setup screen. For details, refer to 3.10.1, “Setting the Shutter and Camera [DSC/Shutter]”.

▼ Main screen



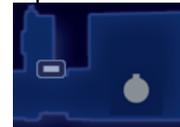
(1) Shutter open/close button.

(1) Click the  or  button to toggle the shutter open or closed.

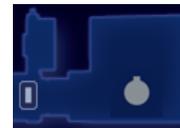
If closed, the shutter shuts off the optical path of the illumination.

- When the button is pressed: Open
- When the button is not pressed: Close

Open



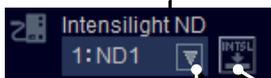
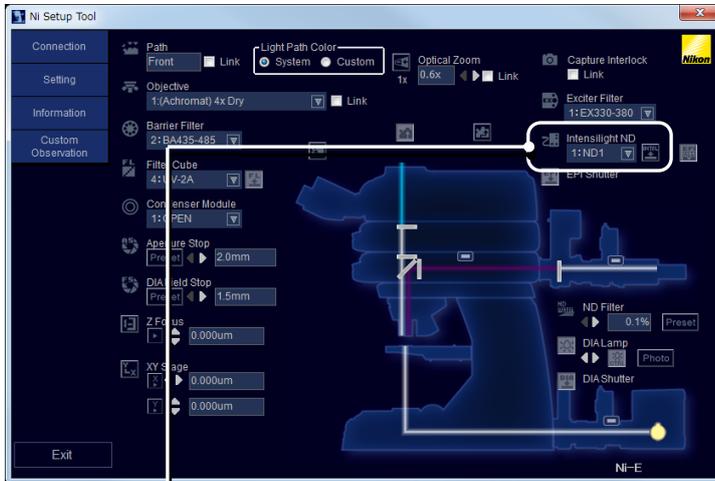
Close



4.3.9

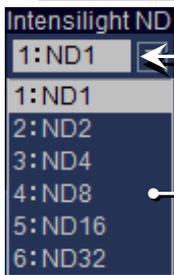
Fiber Light Source ND Filter [Intensilight ND]

▼ Main screen



(1) List display.

(3) Shutter open/close button.



(2) ND filter list.

- (1) Click the  button to display the list of fiber light source ND filters.
- (2) Select an ND filter. The light intensity is changed.
- (3) To open/close the built-in shutter of the fiber light source, click the  button.
 - When the button is pressed: Open
 - When the button is not pressed: Close

Open: Light ON

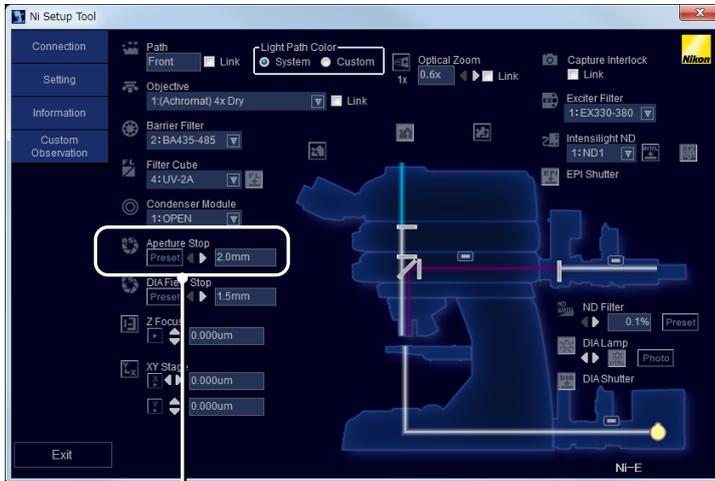


Close: Light OFF



4.3.10 Diascopic Aperture Diaphragm [Aperture Stop]

▼ Main screen



(1) Adjust the value.

[Preset] button.

- (1) Click the  button to adjust the diameter (mm) of the aperture diaphragm.

SUPPLEMENT

Click the  button to increment or decrement the value by 0.1 mm between 2.0 to 30.6 mm. Click and hold the button to increment or decrement the value by 0.5 mm.

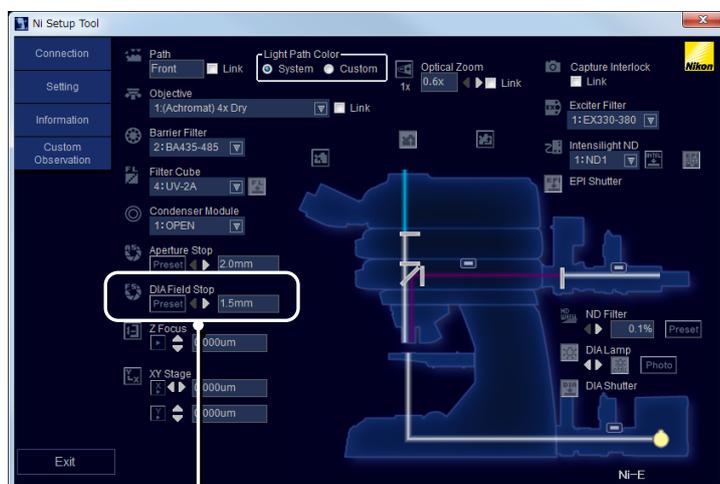
■ Optimization function (Preset)

Click the [Preset] button to set the optimal transmittance for the current objective.

This function is available only when the motorized universal condenser and motorized or intelligent nosepiece are attached and objective information is properly configured.

4.3.11 Diascopic Field Diaphragm [DIA Field Stop]

▼ Main screen



(1) Adjust the value.

[Preset] button.

- (1) Click the  button to adjust the diameter (mm) of the field diaphragm.

SUPPLEMENT

Click the  button to increment or decrement the value by 0.1 mm between 1.5 to 30.6 mm. Click and hold the button to increment or decrement the value by 0.5 mm.

■ Optimization function (Preset)

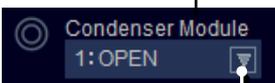
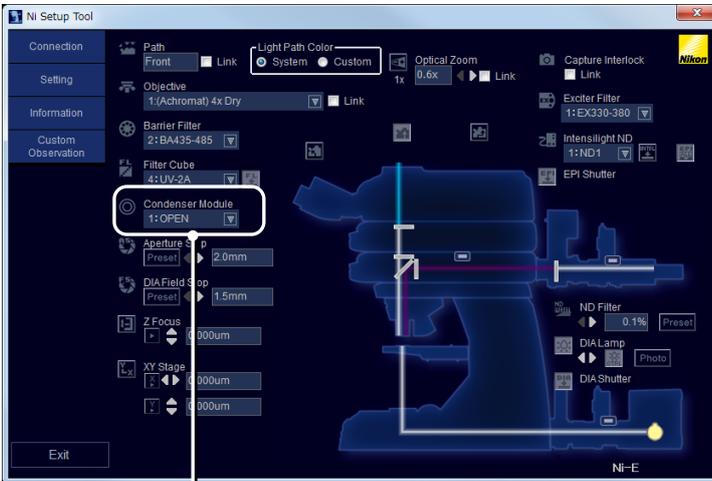
Click the [Preset] button to set the optimal transmittance for the current objective.

This function is available only when the motorized universal condenser and motorized or intelligent nosepiece are attached and objective information is properly configured.

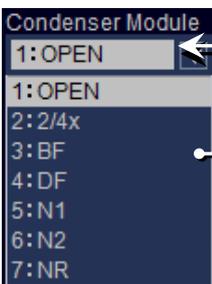
This function does not work when the optical path is Rear and the motorized DSC zoom port is not connected.

4.3.12 Condenser Module [Condenser Module]

▼ Main screen



(1) List display.



(2) Condenser module list.

▼ For Ci-E



(1) IN/OUT button for the swing-out condenser.

- (1) Click the  button to display the list of condenser modules.
- (2) Select a condenser module. The position of the condenser module is changed.

■ For Ci-E

- (1) Click the  button to toggle the IN/OUT state of the swing-out condenser.
 - When the button is not pressed: IN
(The top lens is set in the optical path.)
 - When the button is pressed: OUT
(The top lens is out of the optical path.)

When the setting of the swing-out condenser is IN

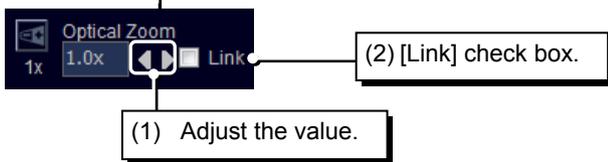
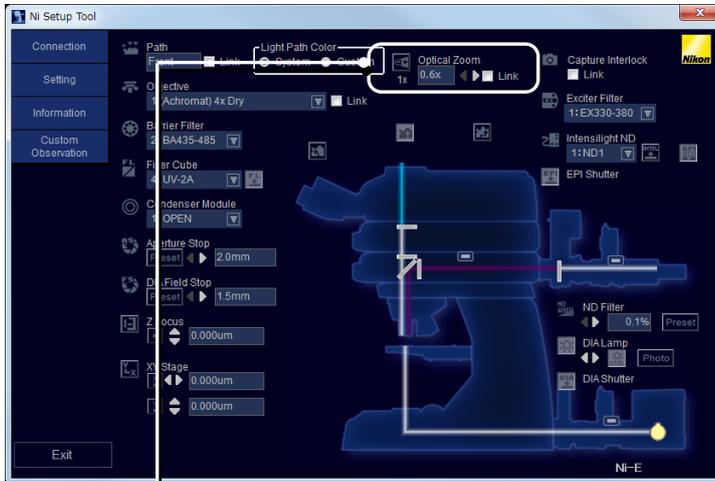


When the setting of the swing-out condenser is OUT



4.3.13 Optical Zoom [Optical Zoom]

▼ Main screen



- (1) Click the  button to adjust the zoom magnification.

SUPPLEMENT

Click the  button to increment or decrement the value by 0.1x between 0.6 to 2.0x. Click and hold the button to increment or decrement the value by 0.2x.

Click the  button to set the zoom magnification to 1.0x.

- (2) **Optical zoom interlocked change**
Check or uncheck the [Link] check box to enable or disable optical zoom interlock control. To control the units in sync with optical zoom switching, select the check box.

IMPORTANT

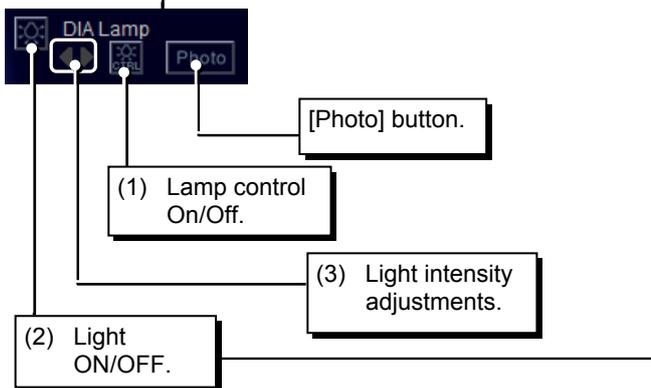
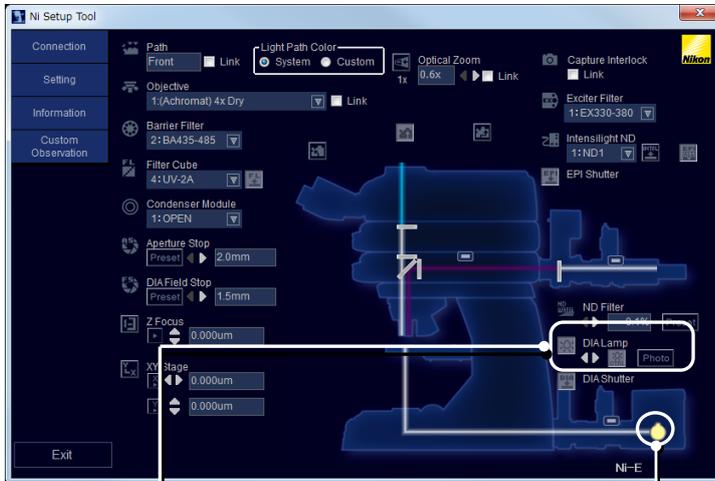
The [Link] check box is enabled only when the motorized DSC zooming port and the motorized or intelligent nosepiece are attached.

REFERENCE

For information on the device interlocks, refer to 3.9, “Interlock Setup [Interlock]”.

4.3.14 Dia-illumination Lamp [DIA Lamp]

▼ Main screen



- (1) Click the  button to enable controlling the dia-illumination lamp. The  button is enabled.

- When the button is pressed: ON (Ni Setup Tool has control)
- When the button is not pressed: OFF (The microscope system has control)

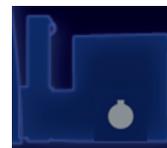
- (2) Click the  or  button to toggle the ON/OFF status of the light.

- When the button is pressed: ON
- When the button is not pressed: OFF

Light ON



Light OFF



When the light is ON, the  button and [Photo] button can be used.

- (3) To adjust the light intensity of the lamp, click the  button.

SUPPLEMENT

Click the  button to increase or decrease the light intensity. Click and hold the button to increment or decrement the light intensity by a certain value.

■ **For improved color reproduction (Photo)**

For Ni-E and Ni-U, change in lamp voltage affects the color of the illumination. Where color reproduction is of significance, press the [Photo] button to adjust the lamp voltage to the voltage that offers optimal color reproduction. If necessary, use ND filters for brightness adjustment.

- When the button is pressed: ON
- When the button is not pressed: OFF

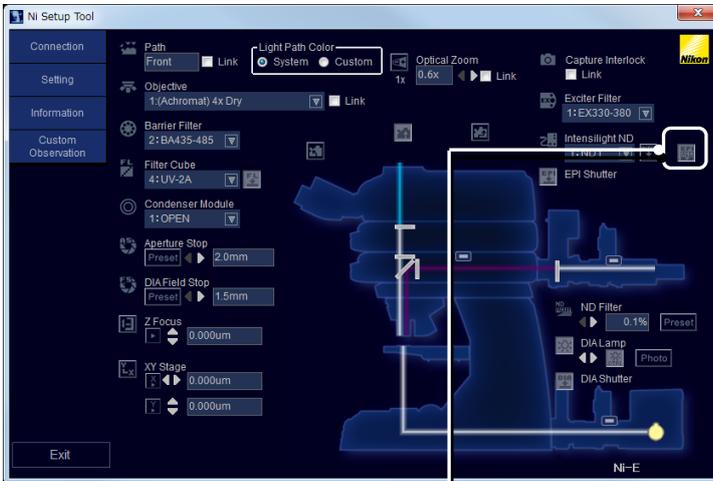
If the , , or  button is clicked, this function is set to OFF.

IMPORTANT

For Ni-U, when the microscope has control, the status of the microscope system cannot be obtained except the ON/OFF status of the light.

4.3.15 All EPI Shutter Operation [EPI ALL]

▼ Main screen



(1) Open/close all EPI shutters button.

(1) Click the  button to open or close all EPI shutters.

- When the button is pressed:
All shutters are closed (Open)
- When the button is not pressed:
All shutters are opened (Close)

SUPPLEMENT

The following shutters can be opened/closed.

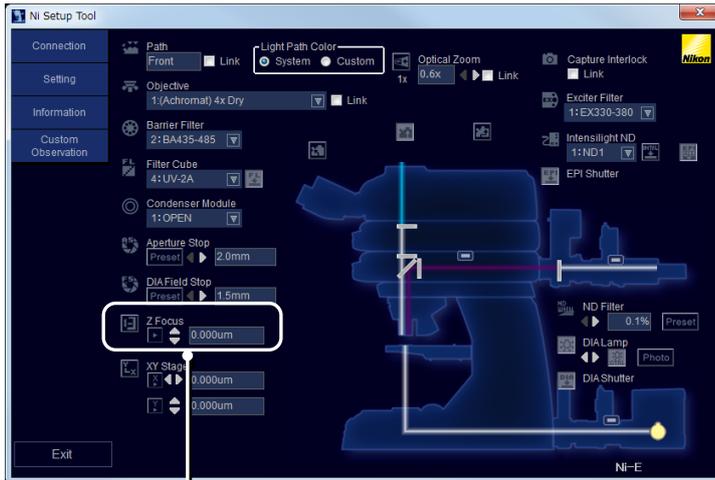
- Built-in shutter of the epi-fluorescence cube turret
- Built-in shutter of the epi-fluorescence cube turret 2
- EPI motorized shutter
- Built-in shutter of the fiber light source

4.3.16 Elevating Section Z [Z Focus]

You can adjust the elevating section Z in the main screen or by displaying the control dialog box.

Adjusting in the main screen

▼ Main screen



(1) Adjust the position.

Set the movement speed.

- (1) Click the  button to adjust the height (um) of the elevating section Z.

SUPPLEMENT

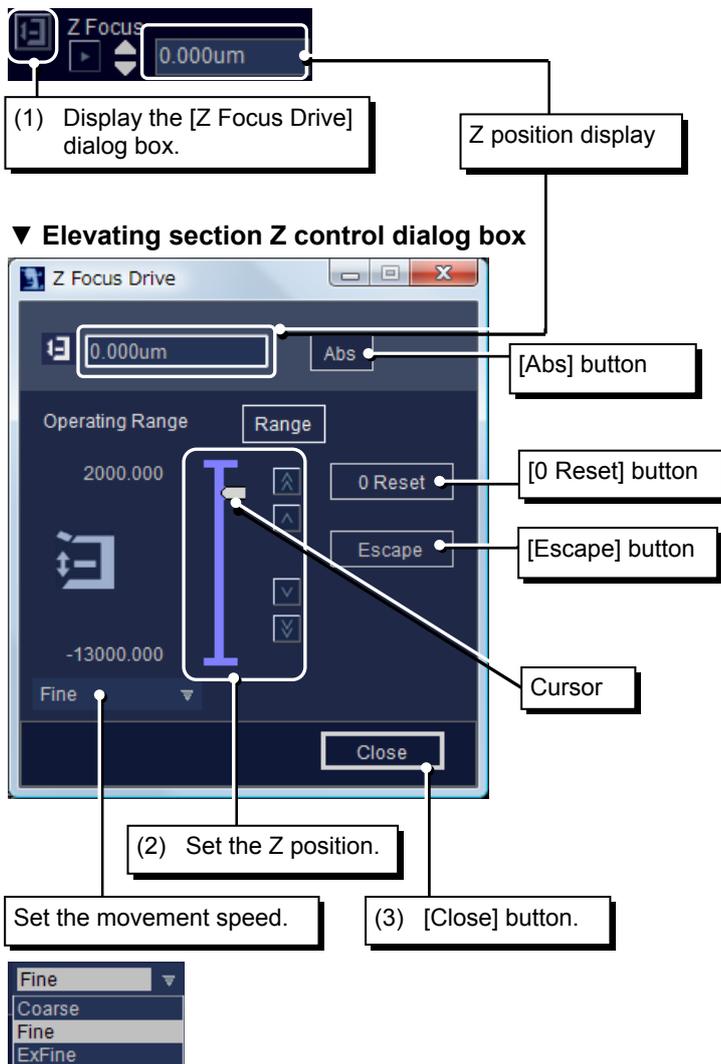
Click the  button to increase or decrease the value at a specified speed. Click and hold the button to increment or decrement the value continuously by a certain value.

■ Setting the movement speed

Click the  button to change the movement speed of the elevating section in the following three levels:

- 5 um/sec
- 50 um/sec
- 150 um/sec

Adjusting in the control dialog box



- (1) Click the button to display the dialog box for controlling the elevating section Z.
- (2) Move the cursor of the scroll bar to move the elevating section up or down.

SUPPLEMENT

Click the , , or , button to also move the elevating section. Click the or button to move the elevating section in increments of 0.1 μm , and click the or button to move the elevating section in increments of 0.5 μm .

- (3) Click the [Close] button to close the control dialog box.

■ Setting the movement speed

Click [] to display the list of the speed options for the elevating section. You can select the speed from the list in the following three levels.

- Coarse (Coarse): 2.5 mm/sec
- Fine (Fine): 1.5 mm/sec
- ExFine (Extra fine): 0.5 mm/sec

■ Escape and refocus of the elevating section

Click the [Escape] button to move the elevating section to the escape position. After the elevating section has been moved, the button indication changes to [Refocus]. Click the [Refocus] button to return the elevating section to its previous position.

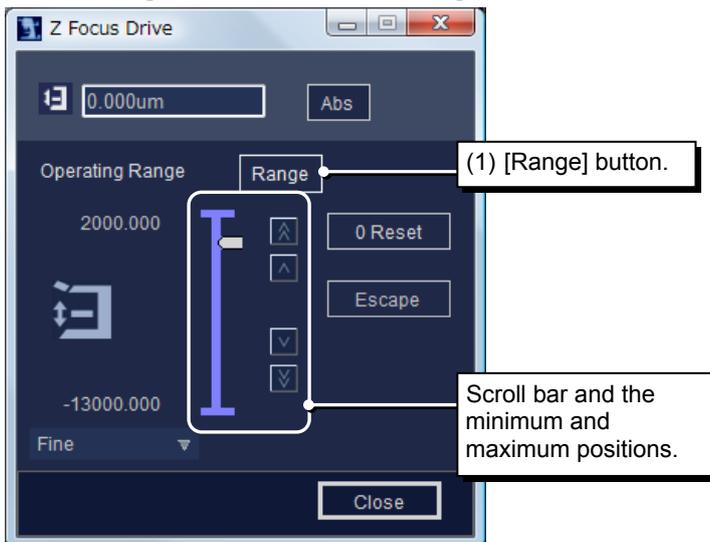
IMPORTANT

- The actual escape position is determined by the [Escape] function setup.
- When the elevating section is at the escape position, the elevating section cannot be operated.

REFERENCE

For details on the escape function setup, refer to 3.10.2, “Microscope Setup [Microscope]”.

▼ Elevating section Z control dialog box

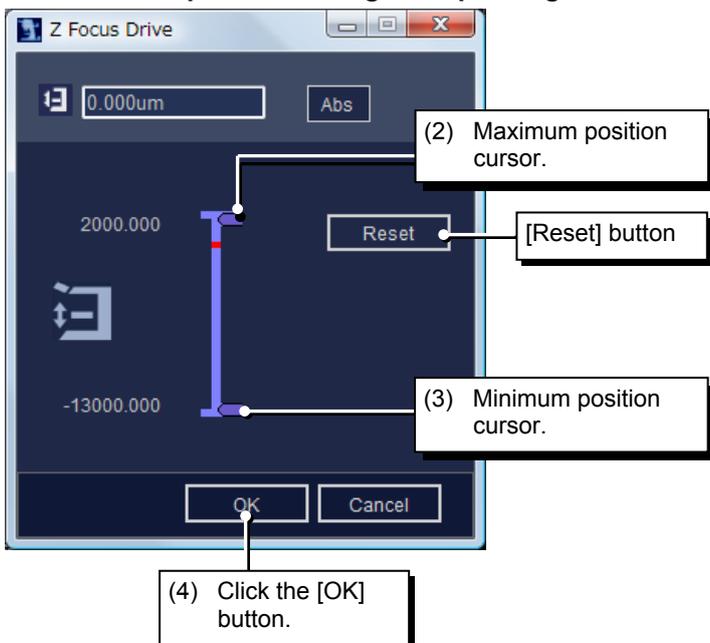


■ Scroll bar operational range setup

You can adjust the scroll bar operational range by setting maximum and the minimum positions.

- (1) Click the [Range] button to go to the scroll bar operational range setup dialog box.
- (2) Use the maximum position cursor on the scroll bar to set the maximum position. The value displayed for the maximum position is updated as you move the cursor.
- (3) Use the minimum position cursor on the scroll bar to set the minimum position. The value displayed for the minimum position is updated as you move the cursor.

▼ Scroll bar operational range setup dialog box



SUPPLEMENT

The red mark indicates the current position of the elevating section. The upper limit value cannot be lower than the red mark and the lower limit value cannot be higher than the red mark.

- (4) Click the [OK] button to apply the settings and display the dialog box for controlling the elevating section Z.

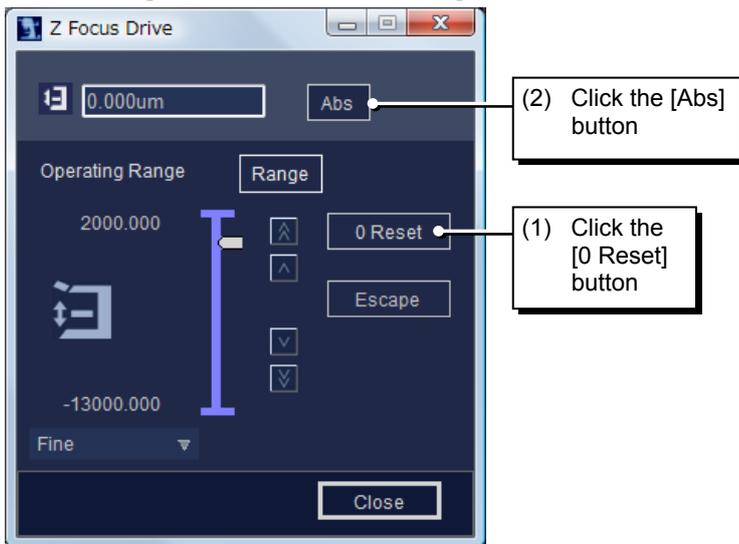
SUPPLEMENT

Click the [Reset] button to set the maximum and minimum positions of the scroll bar to their default values.

Default value:

-13000.000 um to 2000.000 um

▼ Elevating section Z control dialog box



■ Resetting the Z counter

The current elevating focus position can be set as the reference position (0.000um). The elevating focus position will be indicated relative to the set position.

- (1) Click the [0 Reset] button to set the current elevating focus position as the reference position.

SUPPLEMENT

When you set the reference position, the indicated maximum and minimum values for the elevating focus position scroll bar change to values referring to the reference position.

- (2) Click the [Abs] button to return the elevating focus position to absolute position display.

The reference position is reset.

SUPPLEMENT

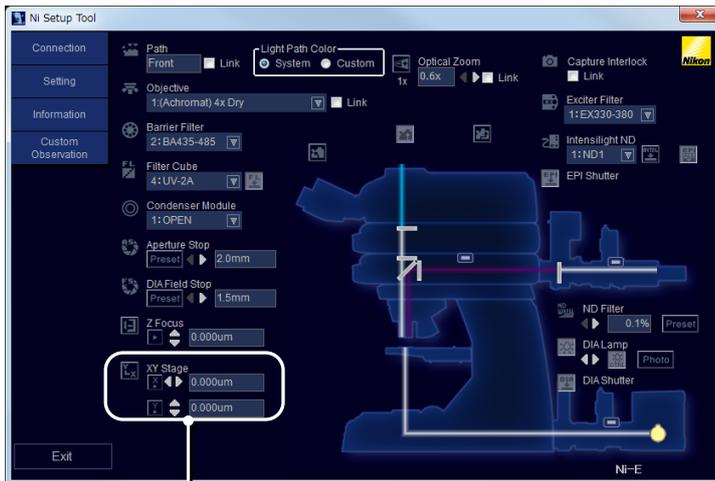
If the display position of the microscope is already 0.000um, even if you click the [0 Reset] button, the absolute position display is not returned to the reference position display.

4.3.17 XY Stage [XY Stage]

You can adjust the XY stage in the main screen or by displaying the control dialog box.

Adjusting in the main screen

▼ Main screen



(1) Adjust the position.

Set the movement speed.

- (1) Click the button to adjust the position (um) of the X stage.
- (2) Click the button to adjust the position (um) of the Y stage.

SUPPLEMENT

Click the or button to increase or decrease the value at a specified speed. Click and hold the button to increment or decrement the value continuously by a certain value.

■ Setting the movement speed

Click the or button to change the movement speed of the stage in the following three levels:

- 0.25 um/sec
- 4 um/sec
- 100 um/sec

Adjusting in the control dialog box

(1) Display the [XY Stage dialog] box.

XY position display

▼ XY stage control dialog box

XY Stage

x: 0.000um y: 0.000um

Range Max 27000.000um

Y

Range Min -27000.000um

-34000.000um X 34000.000um

Range Min Range Max

Fine

Escape

Range Reset

Close

(2) Virtual stage

[Escape] button

Set the movement speed.

Fine

Coarse

Fine

ExFine

(3) Click the [Close] button

- (1) Click the  button to display the dialog box for controlling the XY stage.
- (2) Click any position on the virtual stage to move the stage to that position.

SUPPLEMENT

The virtual stage indicates the range of stage operations in terms of absolute coordinates from the stage center.

- (3) Click the [Close] button to close the control dialog box.

■ Setting the movement speed

Click [▼] to display the list of the speed options for the stage. You can select the speed from the list in the following three levels.

- Coarse (Coarse): 25 mm/sec
- Fine (Fine): 5 mm/sec
- ExFine (Extra fine): 0.25 mm/sec

SUPPLEMENT

If you select ExFine, it will take a time to move the stage a long distance. The values are not changed until the movement is completed.

■ Escape and return of the stage

Click the [Escape] button to move the elevating section to the escape position and moves the stage to the specimen removal position. After the stage has been evacuated, the button indication changes to [Return]. Click the [Return] button to return the stage to its previous position (note however that this does not return the elevating section to its previous position).

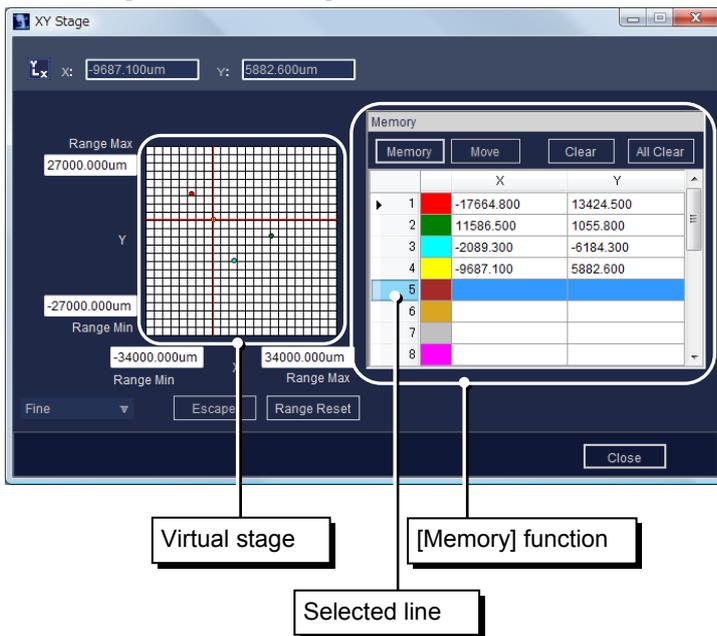
IMPORTANT

The actual escape position is determined by the [Escape] function setup.

REFERENCE

For details on the escape function setup, refer to 3.10.2, “Microscope Setup [Microscope]”.

▼ XY stage control dialog box

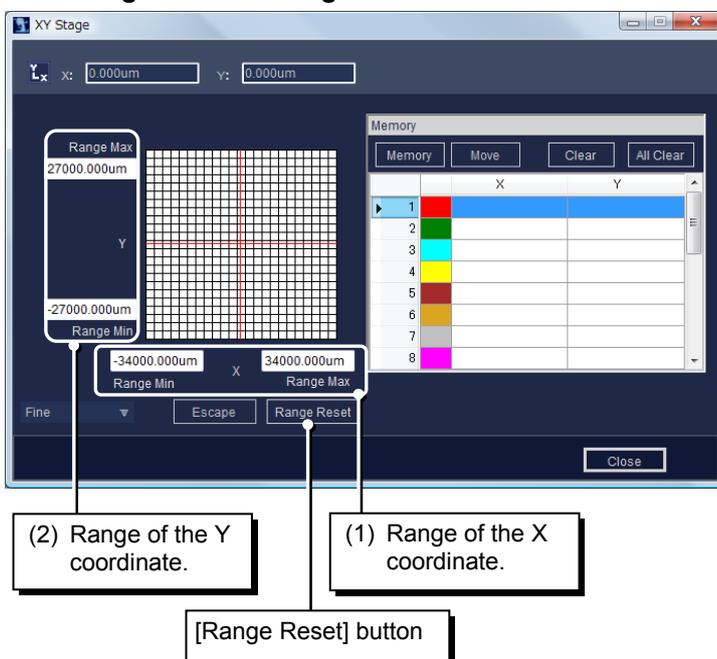


■ Stage position memory function (Memory)

This function lets you store any stage position in memory. Also, you can return the stage to a position stored in memory. (Up to 20 positions can be stored.)

- Memorizing the position
Select a line and click the [Memory] button to store the current stage position in memory. The memorized position is indicated by the same color on the virtual stage.
- Returning to the memorized position
Select a line and click the [Move] button to move the stage to the position.
- Clearing the memorized position
Select a line and click the [Clear] button to clear the memorized position. Click the [All Clear] button to clear all memorized positions.

▼ XY stage control dialog box



■ Virtual stage operational range setup

You can set the maximum and minimum positions of the display range on the virtual stage to facilitate the operation.

- (1) Enter the maximum and minimum positions for the X-axis direction in the [Range Max] and [Range Min] text boxes, respectively.
- (2) Enter the maximum and minimum positions for the Y-axis direction in the [Range Max] and [Range Min] text boxes, respectively.

SUPPLEMENT

- The initial values are set to the default values of the XY stage.
- Click the [Range Reset] button once again to restore the default values.

Default value:

X: -34000.000 um to 34000.000 um

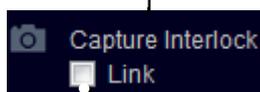
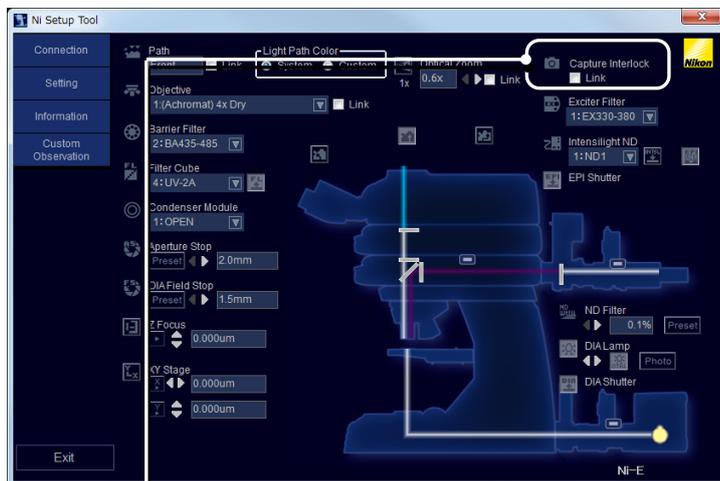
Y: -27000.000 um to 27000.000 um

4.3.18 Capture Interlock [Capture Interlock]

IMPORTANT

This function is supported only on Ni-E.

▼ Main screen



(1) [Link] check box

(1) Capture interlocked change

Check or uncheck the [Link] check box to enable or disable capture interlock control. To control the units in sync with the pressing of the CAPTURE button, select the check box.

IMPORTANT

When the [Link] check box is selected while a digital camera is connected via USB/trigger to the Ni-E main body, pressing the CAPTURE button will first switch the optical path and filter cube, and then capture an image with the connected digital camera.

REFERENCE

For information on the device interlocks, refer to 3.9, "Interlock Setup [Interlock]".

5

Other Functions

This chapter describes how to set the limit values and how to register MODEs.

5.1

Setting Various Functions [Setting]

This section describes setting functions other than [Setup] among items displayed when [Setting] is clicked in the menu in the main screen.

REFERENCE

For details on Setup, refer to Chapter 3, "Setup".

5.1.1

Setting the Focus Position for Elevating Motion [Focus Pos. Set]

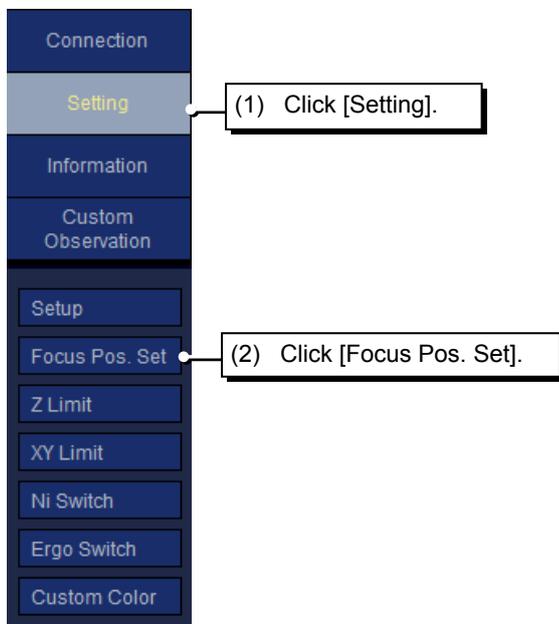
The slight difference in focus position for elevating motion between different objectives is stored as the compensation amount to enable accurate reproduction.

In the focus position setup for elevating motion, the current Z-axis absolute position (focus position) is stored in association with an objective address.

SUPPLEMENT

This setup can be performed only when the motorized nosepiece is attached to Ni-E.

▼ Menu

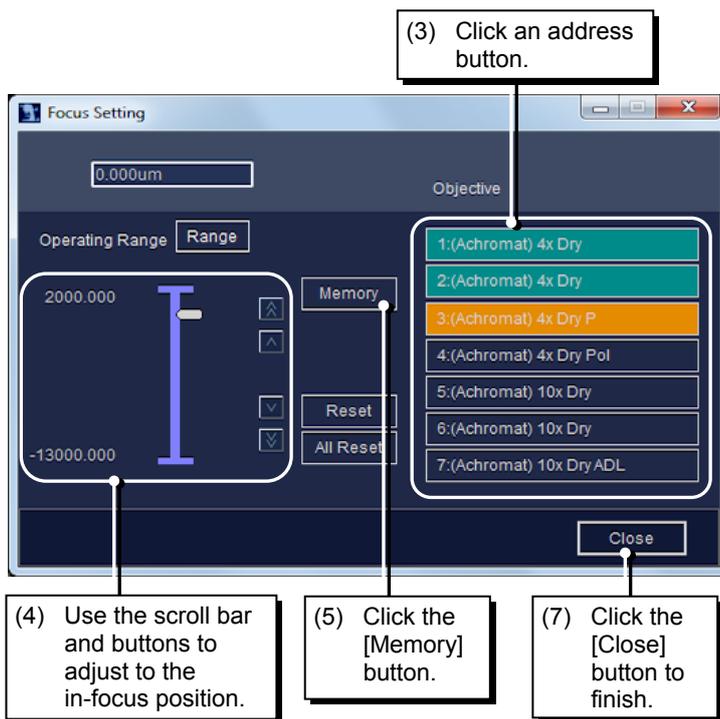


(1) Click [Setting].

The Setting menu is displayed below the menu.

- (2) Click [Focus Pos. Set] to display the dialog box for setting up focus position for elevating motion.

▼ Focus position for elevating motion setup dialog box



(3) Click an address button for [Objective] to switch the address of the objective. The selected button is indicated in orange.

(4) Use the focus knob on the microscope or the cursor of the scroll bar to move the elevating section to the focus position for elevating motion.

SUPPLEMENT

Click the ,  or ,  button also to move the elevating section. Click the  or  button to move the elevating section in increments of 0.1 um, and click the  or  button to move the elevating section in increments of 0.5 um.

The operational range of the scroll bar can be changed. Refer to the next page for details.

(5) Click the [Memory] button to register the specified focus position for elevating motion. The registered button is indicated in green.

SUPPLEMENT

To cancel the setting, select an address button and click the [Reset] button. Click the [All Reset] button to cancel all settings.

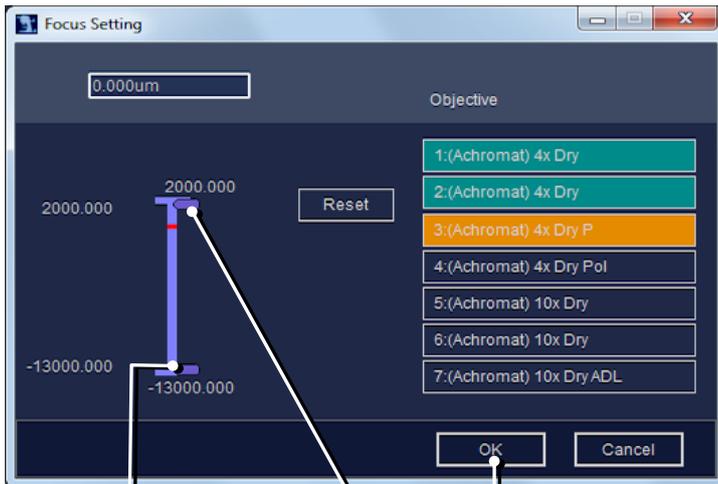
(6) To set another objective, go back to Step (3) and repeat the setup procedure.

SUPPLEMENT

For addresses where no objective is attached, make sure to set the focal point for all nosepiece addresses. For addresses where no objective is attached, save the focal point with the same status as the previous address. If you do not set the focal point, parfocal correction is not performed when the address is switched from the position without objective to the position with objective, or vice versa.

(7) To finish the focus position setup for elevating motion, click the [Close] button.

▼ Scroll bar operational range setup dialog box



(2) Change the lower limit value.

(2) Change the upper limit value.

(3) Click the [OK] button.

■ Scroll bar operational range setup

- (1) Click the [Range] button on the focus position for elevating motion setup dialog box displays the scroll bar operational range setup dialog box that is used to change the operational range in Step (4) above.
- (2) Move the cursor for the maximum position to change the upper limit value or move the cursor for the minimum position to change the lower limit value.

IMPORTANT

The red mark indicates the current value of the position for elevating motion. The upper limit value cannot be lower than the red mark and the lower limit value cannot be higher than the red mark.

- (3) Click the [OK] button.
The changed range values of the scroll bar are applied and the focus position for elevating motion setup dialog box appears.

5.1.2 Setting the Software Limit for Elevating Section [Z Limit]

You can set a limit to prevent contact between the specimen on the stage and the objective when the elevating section is raised on the focusing stage microscope (or when the elevating section is lowered on the focusing nosepiece microscope).

System	Default value	Configurable range
Focusing stage system	2000.000 um	-8000.000 um to 2000.000 um
Focusing nosepiece system	2000.000 um	-10000.000 um to 2000.000 um

IMPORTANT

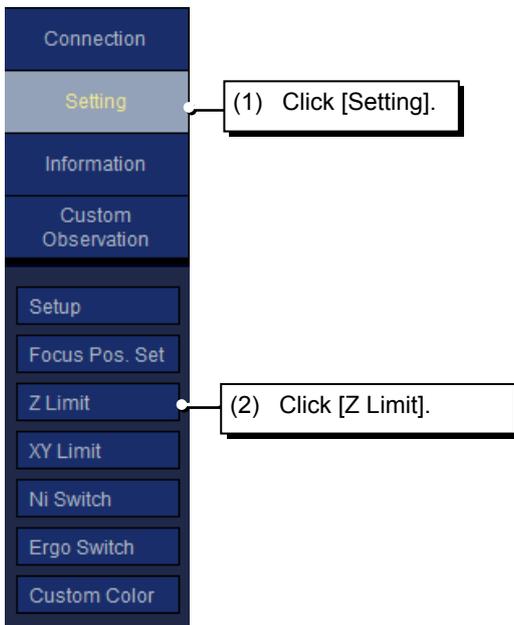
If you want to set the software limit beyond the current limit values, click the default button in the software limit setup dialog box and then operate the elevating section.

SUPPLEMENT

When you use the focus knob to move the elevating section, the actual stop position is up to about 20 um above the specified limit.

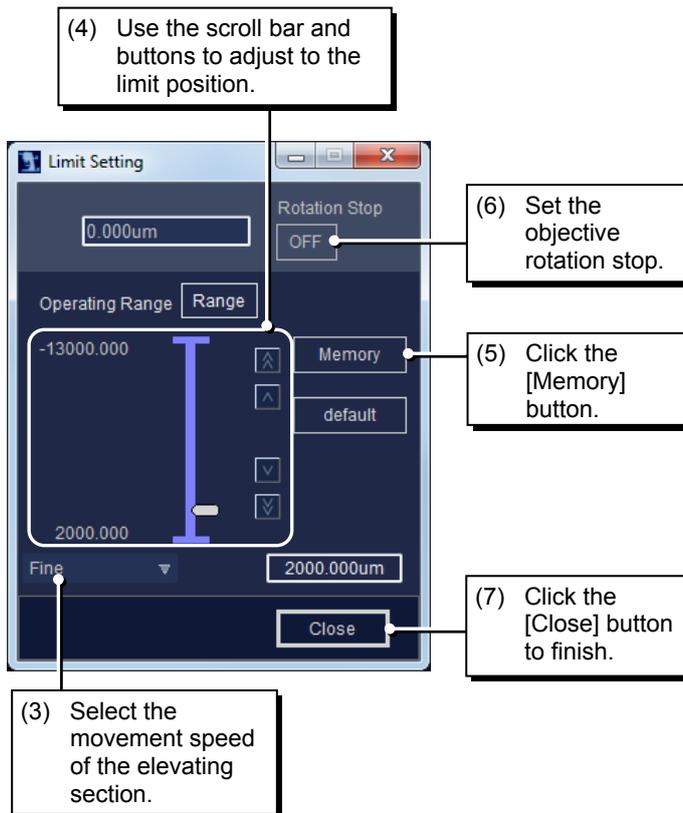
The following describes the operation for setting the limit.

▼ Menu



- (1) Click [Setting].
The Setting menu is displayed below the menu.
- (2) Click [Z Limit] to display the software upper limit setup dialog box.

▼ Software limit setup dialog box for elevating section



- (3) Select [Coarse] (coarse), [Fine] (fine), or [ExFine] (extra fine) from the pull-down list for the movement speed of the elevating section.
- (4) Use the focus knob on the microscope or the cursor of the scroll bar to move the elevating section to the limit position.

SUPPLEMENT

Click the ,  or ,  button also to move the elevating section. Click the  or  button to move the elevating section in increments of 0.1 um, and click the  or  button to move the elevating section in increments of 0.5 um.

Click the [Range] button to display the scroll bar operational range setup dialog box that is used to change the operational range.

For details on the operation, refer to “■Scroll bar operational range setup” in 5.1.1, “Setting the Focus Position for Elevating motion [Focus Pos. Set]”.

- (5) Click the [Memory] button to register the specified limit position.
The current value + 0.5 um is set as the limit value.

SUPPLEMENT

- The registered limit position is applied to all the objective addresses.
- Click the [default] button to restore the settings to their default values.
- If the elevating section is currently at the limit position, the operation for restoring the defaults does not work. In this case, move the elevating section below the limit position (or for a focusing nosepiece system, move the elevating section above the limit position), and then click the [default] button again.

- (6) Set whether to enable (ON) or disable (OFF) the objective rotation stop by clicking the [Rotation Stop] switching button.

When the button is [ON], the motorized nosepiece rotation is not allowed if the elevating section is above the specified position.

SUPPLEMENT

Near the configured value, vibration may move the elevating section and rotate the motorized nosepiece.

- (7) To finish the setup, click the [Close] button.

SUPPLEMENT

If you want to apply the limit value changed with other control software to the software limit setup dialog box, close the dialog box and open it again.

5.1.3 Setting the Software Limit for XY Stage [XY Limit]

You can set the software limit values (XMax, XMin, YMax, and YMin) for the XY stage. The default value is set at initial startup.

Setting item	Default value	Configurable range
XMax	34000.000 um	1000.000 um to 34000.000 um
XMin	-34000.000 um	-34000.000 um to -1000.000 um
YMax	27000.000 um	1000.000 um to 27000.000 um
YMin	-27000.000 um	-27000.000 um to 1000.000 um

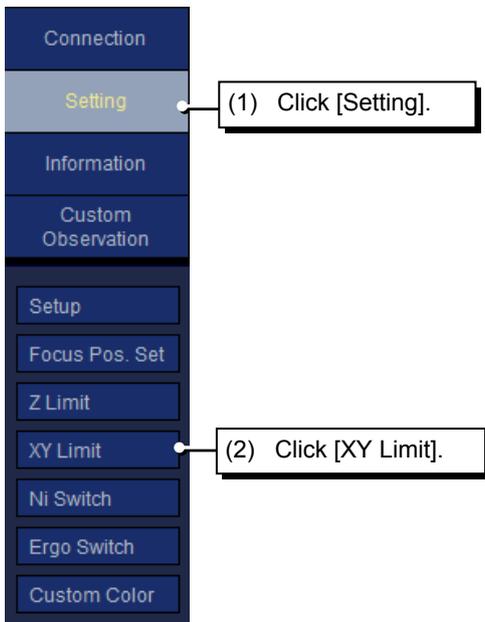
IMPORTANT

If you want to set the software limit beyond the current limit values (by operating the stage), click the default button in the XY stage software limit setup dialog box and then operate the stage.

SUPPLEMENT

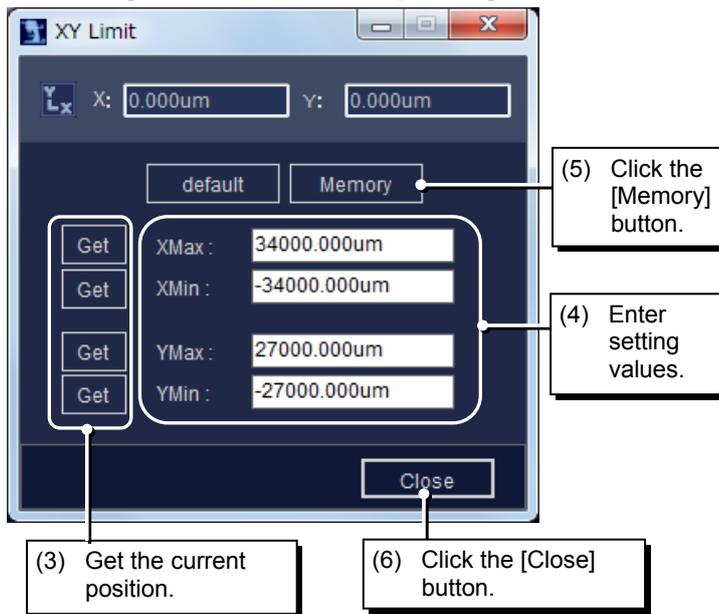
- This setup can be performed only when the motorized XY stage is attached to Ni-E.
- When you use the ergo controller or joystick to move the stage in X and Y directions, the actual stop position is up to about 800 um beyond the specified limit values.

▼ Menu



- (1) Click [Setting].
The Setting menu is displayed below the menu.
- (2) Click [XY Limit] to display the XY stage software limit setup dialog box.

▼ XY stage software limit setup dialog box



- (3) Click each [Get] button to get the current position.
- (4) Instead of getting the current position, you can also enter the setting values of the X and Y stage coordinates in the [XMax], [XMin], [YMax], and [YMin] text boxes.
- (5) Click the [Memory] button to register the specified positions.
If the setting values are close to the current position, the current position values + 0.5 um (or for the lower limit values, - 0.5 um) are registered for the limit position.

SUPPLEMENT

- Click the [default] button to restore the settings to their default values.
 - If the stage is currently at the limit position, the operation for restoring the defaults does not work. In this case, move the stage inside the limit position, and then click the [default] button again.
- (6) To finish the setup, click the [Close] button.

SUPPLEMENT

If you want to apply the limit values changed with other control software to the XY stage software limit setup dialog box, close the dialog box and open it again.

5.1.4 Setting the Ni Switches [Ni Switch]

You can assign functions to the switches on the right, front, and left sides of Ni-E.

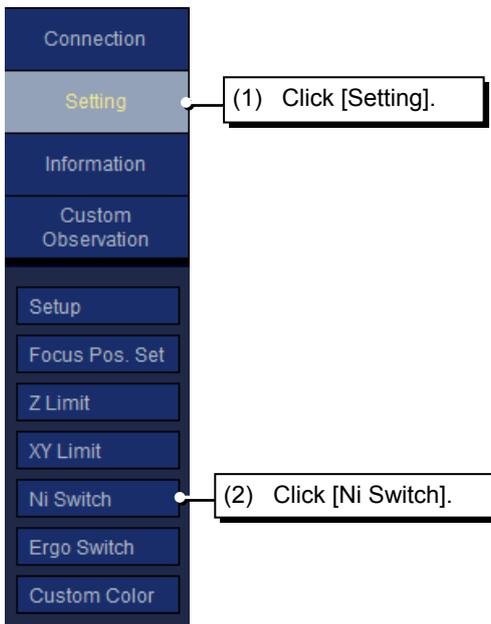
SUPPLEMENT

This setup can be performed only for Ni-E.

REFERENCE

For details on the functions that can be assigned to the Ni switches, refer to Appendix 1, "List of Functions Assigned to the Ni Switches".

▼ Menu



- (1) Click [Setting].
The Setting menu is displayed below the menu.
- (2) Click [Ni Switch] to display the Ni switch function assignment dialog box.

▼ Ni switch function assignment dialog box (front)

(3) Select the side you want to set up.

(4) Set the toggle mode.

(5) Click a switch button.

(6) Assign each switch function.

ID	Category	Function	Switch Type
5	Condenser	CCW	SW
6	Condenser	CW	SW
7	EX Wheel	CCW	SW
8	EX Wheel	CW	SW
9	BA Wheel	CCW	SW
10	BA Wheel	CW	SW
3	Display	LED On/Off	SW
1	Display	Pattern Down	CW/CCW_1
14	Display	Control	SW
2	Display	Pattern Up	CW/CCW_1
4	Z Focus	ZERO Reset	SW
11	Path	BINO	SW
12	Path	FRONT	SW
13	Path	REAR	SW

(7) Enable or disable the switches.

(8) Click the [Send] button.

(3) Click the [Right], [Front], or [Left] button to select the side on the microscope to which the switch functions are assigned. The switch function assignment dialog box for the selected side appears.

(4) Set the toggle mode. Select [Pattern1], [Pattern2], or [Disable] from the [Toggle Mode] pull-down list. If the toggle mode is enabled, the toggle function is enabled for the switches to which the CW/CCW function for Objective is assigned. For the switches with the toggle function enabled, the [Function] item cannot be changed.

SUPPLEMENT

The values predefined in the toggle pattern setup are applied to [Pattern1] and [Pattern2]. For details, refer to 3.4.4, "Setting the Toggle Pattern [Toggle]".

(5) Click the button for the switch to which you want to assign a function. The button is changed to the pressed state. Also, the line with the [ID] number corresponding to the clicked button is selected.

(6) Select the function you want to assign to the switch from each pull-down list.

SUPPLEMENT

To restore the switch functions to their default values, click the [default] button. Click [All Default] to restore the all switch functions of [Right], [Front], and [Left] to their default values.

(7) Set whether to enable (ON) or disable (OFF) the switch functions displayed on the screen by clicking the [Enable] switching button.

(8) Click the [Send] button to send the settings to the microscope system.

SUPPLEMENT

Click the [Undo] button to reset all changes that have been made since opening the dialog box.

▼ Ni switch function assignment dialog box (right)

(9) Select the side you want to set up.



(9) To assign switch functions on another side, click the [Right], [Front], or [Left] button to switch the screen, and repeat the operations of the steps (4) to (8).

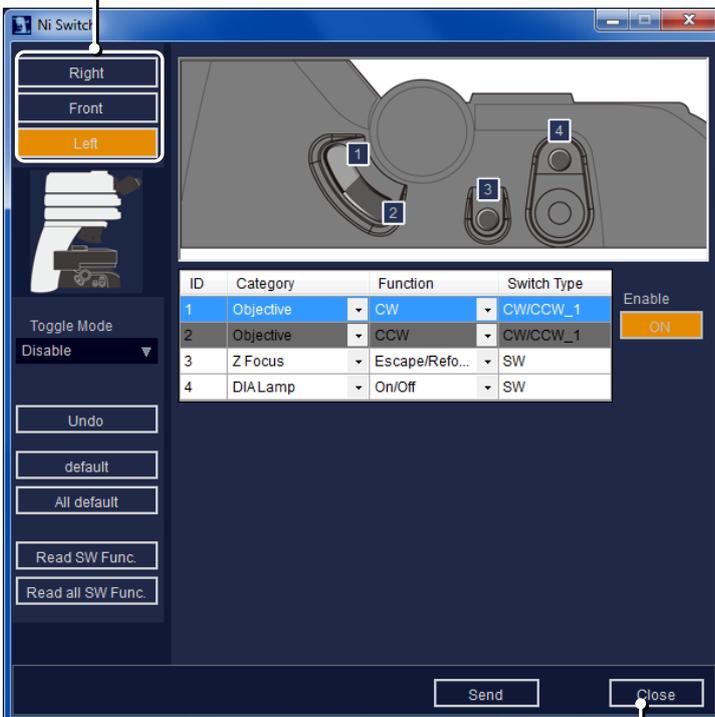
(10) To finish the setup, click the [Close] button.

SUPPLEMENT

If you want to apply the settings changed with other control software to the Ni switch function assignment dialog box, click the [Read SW Func.] button or [Read all SW Func.] button.

▼ Ni switch function assignment dialog box (left)

(9) Select the side you want to set up.



(10) Click the [Close] button to finish the setup.

5.1.5**Setting the Ergo Controller Switches [Ergo Switch]**

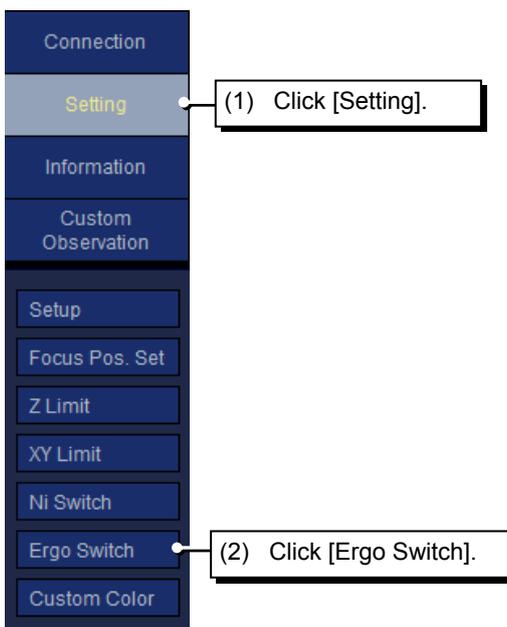
You can assign functions to the switches on the ergo controller.

SUPPLEMENT

This setup can be performed only when the ergo controller is connected to Ni-E.

REFERENCE

For details on the functions that can be assigned to the ergo controller switches, refer to Appendix 2, "List of Functions Assigned to the Ergo Controller Switches".

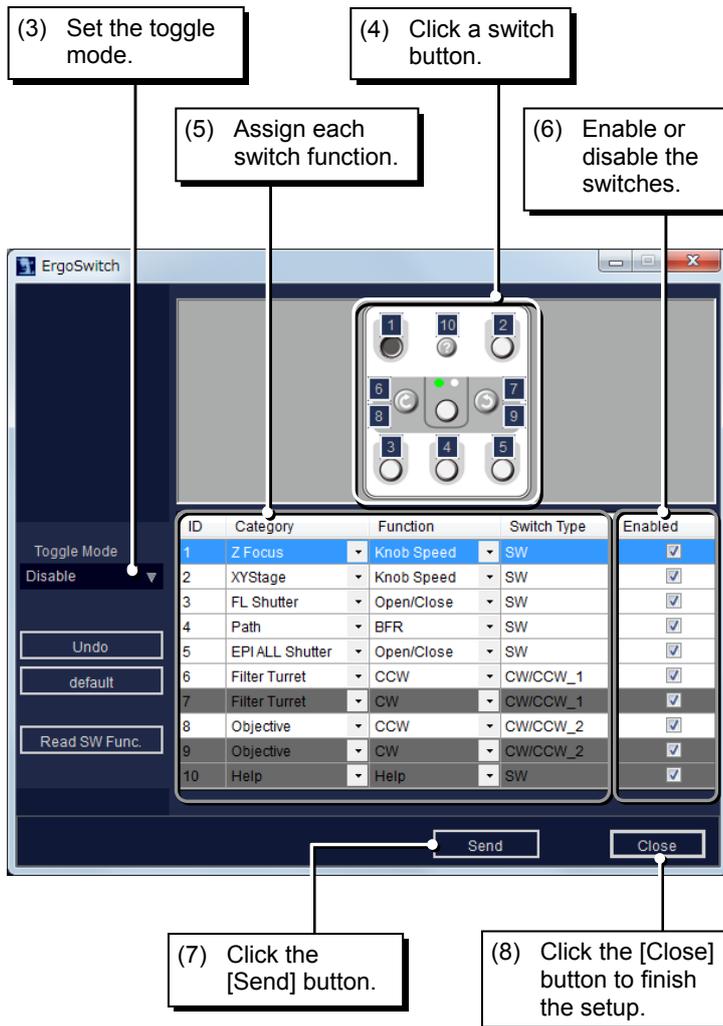
▼ Menu**(1) Click [Setting].**

The Setting menu is displayed below the menu.

(2) Click [Ergo Switch] to display the ergo controller switch function assignment dialog box.**SUPPLEMENT**

You can also display the ergo controller switch function assignment dialog box by pressing the [Help] button on the ergo controller when Ni Setup Tool is running.

▼ Ergo controller switch function assignment dialog box



- (3) Set the toggle mode.
Select [Pattern1], [Pattern2], or [Disable] from the [Toggle Mode] pull-down list. If the toggle mode is enabled, the toggle function is enabled for the switches to which the CW/CCW function for Objective is assigned. For the switches with the toggle function enabled, the [Function] item cannot be changed.

SUPPLEMENT

The values predefined in the toggle pattern setup are applied to [Pattern1] and [Pattern2]. For details, refer to 3.4.4, "Setting the Toggle Pattern [Toggle]".

- (4) Click the button for the switch to which you want to assign a function. The button is changed to the pressed state. Also, the line with the [ID] number corresponding to the clicked button is selected.
- (5) Select the function you want to assign to the switch from each pull-down list.

SUPPLEMENT

To restore the switch functions to their default values, click the [default] button.

- (6) Set whether to enable (ON) or disable (OFF) the switch settings by selecting or deselecting each [Enable] check box.
- (7) Click the [Send] button to send the settings to the microscope system.

SUPPLEMENT

Click the [Undo] button to reset all changes that have been made since opening the dialog box.

- (8) To finish the setup, click the [Close] button.

SUPPLEMENT

If you want to apply the settings changed with other control software to the ergo controller switch function assignment dialog box, click the [Read SW Func.] button.

5.1.6**Setting the Remote Control Pad Switches [Remote Switch]**

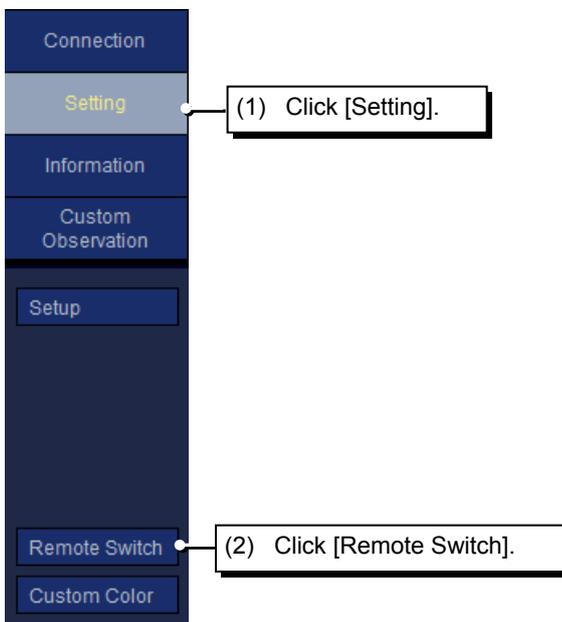
You can assign functions to the switches on the remote control pad.

SUPPLEMENT

This setup can be performed only when the remote control pad is connected to Ni-U.

REFERENCE

For details on the functions that can be assigned to the remote control pad switches, refer to Appendix 3, “List of Functions Assigned to the Remote Control Pad Switches”.

▼ Menu

- (1) Click [Setting].
The Setting menu is displayed below the menu.
- (2) Click [Remote Switch] to display the remote control pad switch function assignment dialog box.

▼ Remote control pad switch function assignment dialog box

The screenshot shows a dialog box titled "Remote Switch" with a graphical representation of a control pad at the top. Below it is a table with the following data:

ID	Category	Function	Switch Type
1	EPI Shutter	Open/Close	SW
2	FL Shutter	Open/Close	SW
3	INTSL Shutter	Open/Close	SW
4	DIA Shutter	Open/Close	SW
5	Intensilight	Up	CW/CCW_1
6	Intensilight	Down	CW/CCW_1
7	Objective	CW	CW/CCW_2
8	Objective	CCW	CW/CCW_2
9	Filter Turret	CW	CW/CCW_3
10	Filter Turret	CCW	CW/CCW_3

Annotations in the image point to the following elements:

- (3) Set the toggle mode. (Points to the "Toggle Mode" dropdown menu, currently set to "Disable".)
- (4) Enable or disable the switches. (Points to the "Enable" button, currently set to "ON".)
- (5) Click the [Send] button. (Points to the "Send" button at the bottom of the dialog.)
- (6) Click the [Close] button to finish the setup. (Points to the "Close" button at the bottom of the dialog.)

- (3) Set the toggle mode.
Select [Pattern1], [Pattern2], or [Disable] from the [Toggle Mode] pull-down list.

If the toggle mode is enabled, the toggle function is enabled for the switches to which the CW/CCW function for Objective is assigned.

SUPPLEMENT

The values predefined in the toggle pattern setup are applied to [Pattern1] and [Pattern2]. For details, refer to 3.4.4, "Setting the Toggle Pattern [Toggle]".

- (4) Set whether to enable (ON) or disable (OFF) the switch functions displayed on the screen by clicking the [Enable] switching button.

SUPPLEMENT

When you click a switch button on the top of the screen, the button is changed to the pressed state. Also, the line with the [ID] number corresponding to the clicked button is selected.

- (5) Click the [Send] button to send the settings to the microscope system.
(6) To finish the setup, click the [Close] button.

SUPPLEMENT

If you want to apply the settings changed with other control software to the remote control pad switch function assignment dialog box, click the [Read SW Func.] button.

5.1.7**Setting the Ci Switches [Ci Switch]**

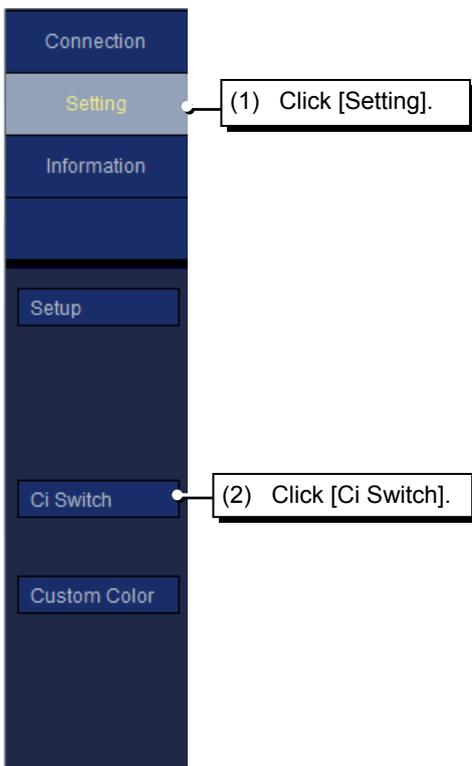
You can assign functions to the switches on the right and left sides of Ci-E.

SUPPLEMENT

This setup can be performed only for Ci-E.

REFERENCE

For details on the functions that can be assigned to the Ci-E switches, refer to Appendix 4, "List of Functions Assigned to the Ci Switches".

▼ Menu

- (1) Click [Setting].
The Setting menu is displayed below the menu.
- (2) Click [Ci Switch] to display the Ci switch function assignment dialog box.

▼ Ci switch function assignment dialog box (right)

(3) Select the side you want to set up.

ID	Category	Function	Switch Type	Enable
1	Objective	CW	CW/CCW_1	<input checked="" type="checkbox"/>
2	Objective	CCW	CW/CCW_1	<input checked="" type="checkbox"/>
3	Capture	Capture	SW	<input checked="" type="checkbox"/>

(4) Set the toggle mode.

(5) Enable or disable the switches.

(6) Click the [Send] button.

(3) Click the [Right] or [Left] button to select the side on the microscope to which the switch functions are assigned. The switch function assignment dialog box for the selected side appears.

(4) Set the toggle mode. Select [Pattern1], [Pattern2], or [Disable] from the [Toggle Mode] pull-down list.

If the toggle mode is enabled, the toggle function is enabled for the switches to which the CW/CCW function for Objective is assigned.

SUPPLEMENT

The values predefined in the toggle pattern setup are applied to [Pattern1] and [Pattern2]. For details, refer to 3.4.4, “Setting the Toggle Pattern [Toggle]”.

(5) Set whether to enable (ON) or disable (OFF) the switch settings by selecting or deselecting each [Enable] check box.

SUPPLEMENT

When you click a switch button to which you want to assign a function, the button is changed to the pressed state. Also, the line with the [ID] number corresponding to the clicked button is selected.

(6) Click the [Send] button to send the settings to the microscope system.

(7) To finish the setup, click the [Close] button.

SUPPLEMENT

If you want to apply the settings changed with other control software to the Ci switch function assignment dialog box, click the [Read SW Func.] button.

▼ Ci switch function assignment dialog box (left)

(3) Select the side you want to set up.

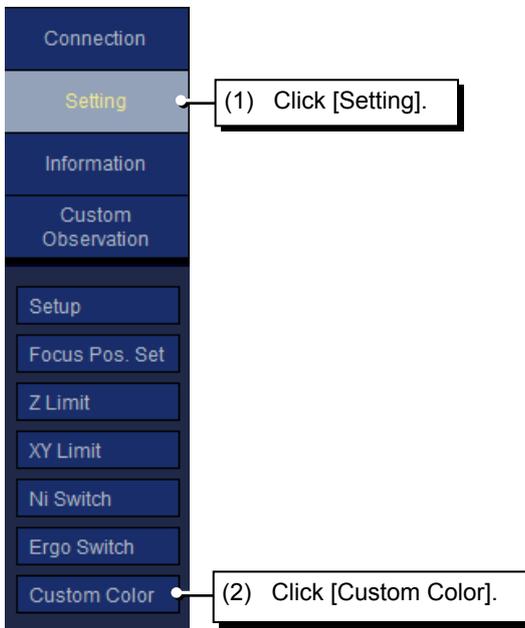
ID	Category	Function	Switch Type	Enable
1	Objective	CW	CW/CCW_1	<input checked="" type="checkbox"/>
2	Objective	CCW	CW/CCW_1	<input checked="" type="checkbox"/>

(6) Click the [Send] button.

5.1.8 Changing the Optical Path Color [Custom Color]

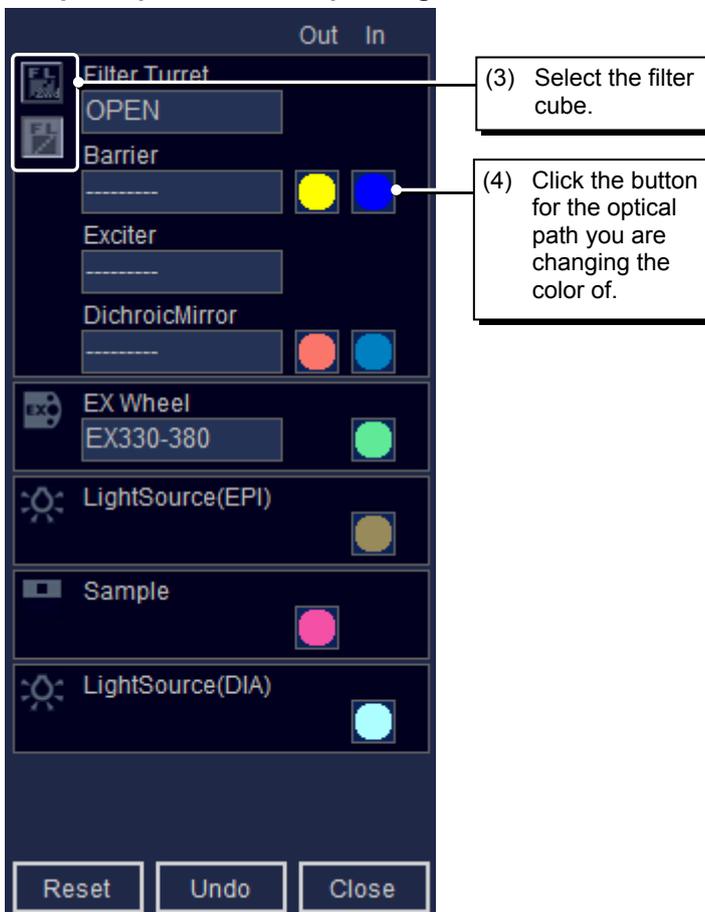
You can change the color with which optical paths are displayed on the screen.

▼ Menu

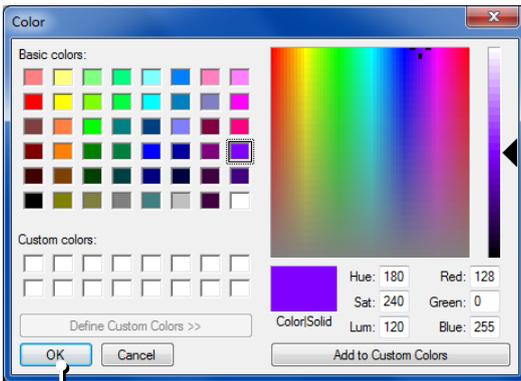


- (1) Click [Setting].
The Setting menu is displayed below the menu.
- (2) Click [Custom Color] to display the optical path color setup dialog box on the main screen.
Also, optical path color of the main screen changes to custom color.

▼ Optical path color setup dialog box



- (3) Select the filter cube. (This step is only required when using filter cubes in two layers)
- (4) Click the optical path button for the optical path you are changing the color of to open its color setting dialog.

▼ Color setting dialog

(5) Click the [OK] button.

- (5) Select a color, then click the [OK] button. The optical path color on the main screen is updated.

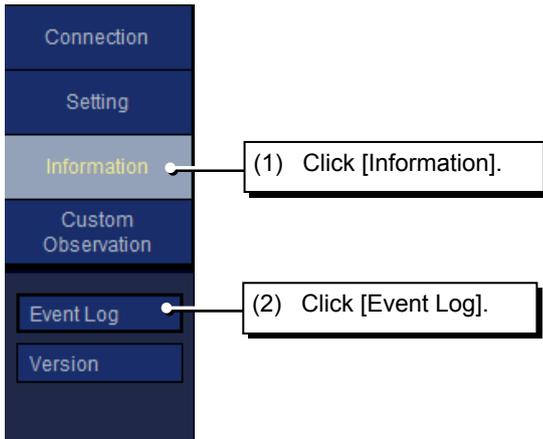
▼ Optical path color setup dialog box**SUPPLEMENT**

Clicking the [Reset] button on the optical path color setup dialog box discards the current setting and uses the default color (same as system color).

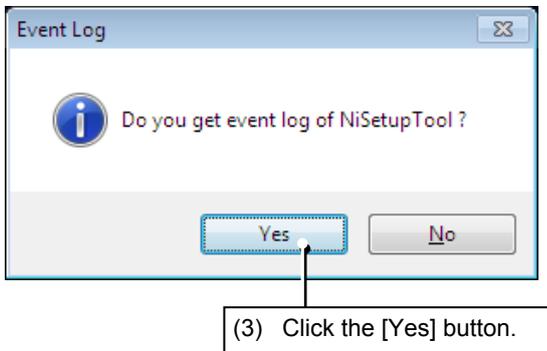
Click the [Undo] button to reset all changes that have been made since opening the dialog box.

5.2**Checking Various Information [Information]****5.2.1****Checking Event Logs [Event Log]**

Event logs for the microscope system let you check operation history (saved in up to 20 files with up to 4 MB each in size).

▼ Menu

- (1) Click [Information].
The Information menu is displayed below the menu.
- (2) Click [Event Log] to display an event log confirmation dialog box.

▼ Event log confirmation dialog box

- (3) Click the [Yes] button in the confirmation dialog box to write event logs for the selected microscope system to the "NiSetupToolLogXX.Log" file.

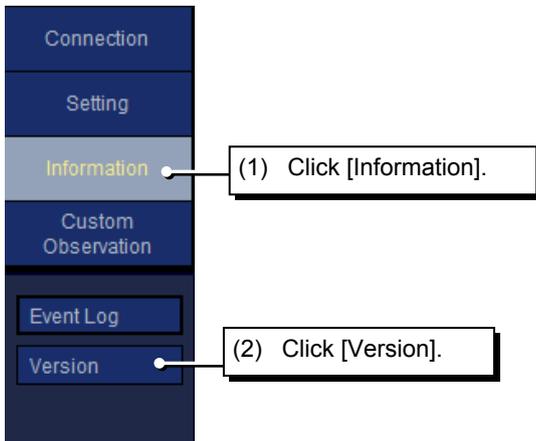
SUPPLEMENT

- [XX] represents a two-digit sequential number. Up to 20 files can be saved.
 - "NiSetupToolLogXX.Log" is created in the \Local\Nikon\Log sub-folder in the Application Data folder, when the Ni Setup Tool installs in the default settings.
- (4) Check the event logs in the displayed "NiSetup ToolLogXX.Log".
 - (5) Close the "NiSetupToolLogXX.Log" file.

5.2.2 Checking Version Information [Version]

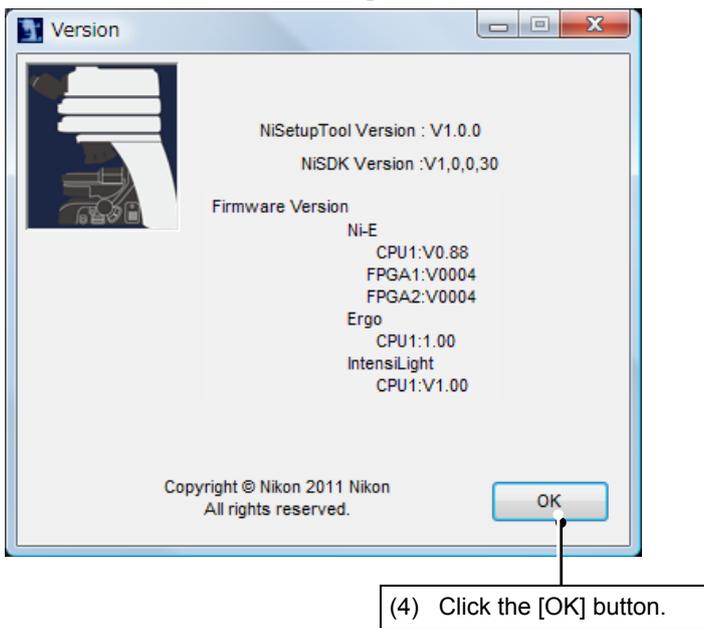
You can check version information for Ni Setup Tool and firmware incorporated into each device.

▼ Menu



- (1) Click [Information].
The Information menu is displayed below the menu.
- (2) Click [Version] to display the version information dialog box.

▼ Version Information dialog box



- (3) This dialog box shows the following information:
 - Version of this application
 - Version of NiSDK or CiSDK
 - Firmware of the microscope
 - FPGA1 of the microscope (only for Ni-E/Ni-U)
 - FPGA2 of the microscope (only for Ni-E)
 - Version of the ergo controller (or joystick) (only for Ni-E)
 - Firmware version of IntensiLight (only for Ni-E/Ni-U)
- (4) Click the [OK] button to close the version information dialog box.

5.3 MODE Function [Custom Observation]

You can register a MODE or load a stored MODE.

SUPPLEMENT

This function can be used only for Ni-E and Ni-U.

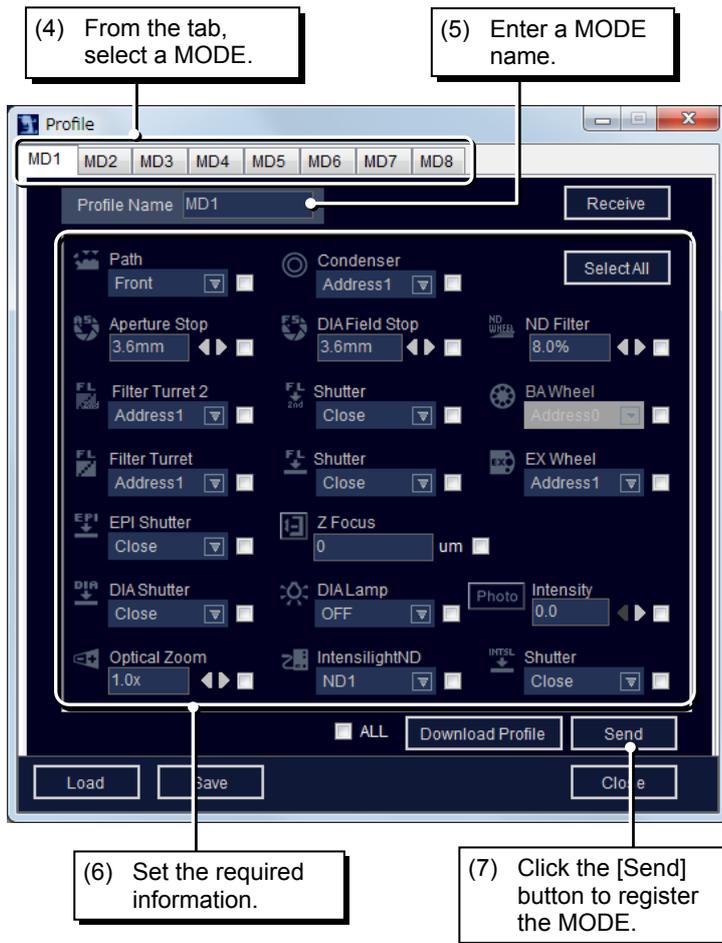
5.3.1 Registering a MODE (Setting Up the Profile)

▼ Menu



- (1) Click [Custom Observation].
The Custom Observation menu is displayed below the menu.
- (2) Click [Profile] to display the profile setup dialog box.

▼ Profile setup dialog box



- (3) When the profile setup dialog box is displayed, the data registered in the microscope system is loaded. The loaded data will be reflected in the setup screen.

IMPORTANT

Setup information will be reflected only for the motorized devices connected.

- (4) From the tab, select a MODE (among MD1 to MD8 in the default status) to set up.
- (5) Enter a MODE name.

SUPPLEMENT

The registered name is reflected in the tab name selected in Step (2) and the sub-menu name in the main screen.

- (6) Set the required information.
- For the items with the button, click the button and select an item from the displayed list. For the items with the button, click the button to change the value or enter a value directly.
- For [Z Focus], click the button to get the current position of the elevating section.
 - When the [Photo] button for [Intensity] is clicked, the brightness set in the microscope system is applied, and [DIA Lamp] cannot be changed with the button. In this case, if the [Photo] button is clicked again, the DIA Lamp can be changed.

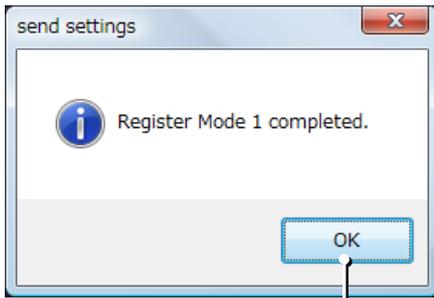
- (7) Select the check boxes for the setup items you want to register, and then click the [Send] button to send the settings to the microscope system. A completion message dialog box appears.

Click the [Select All] button to select all check boxes simultaneously. When all check boxes are already selected, the button will be labeled as [Unselect All]. Click the [Unselect All] button to unselect all check boxes simultaneously.

SUPPLEMENT

- When you want to register the setting contents of all tabs (MODEs), check ALL, and then click the [Send] button.
- When you register the settings while the check boxes for all motorized devices are deselected, the MODE button is disabled.

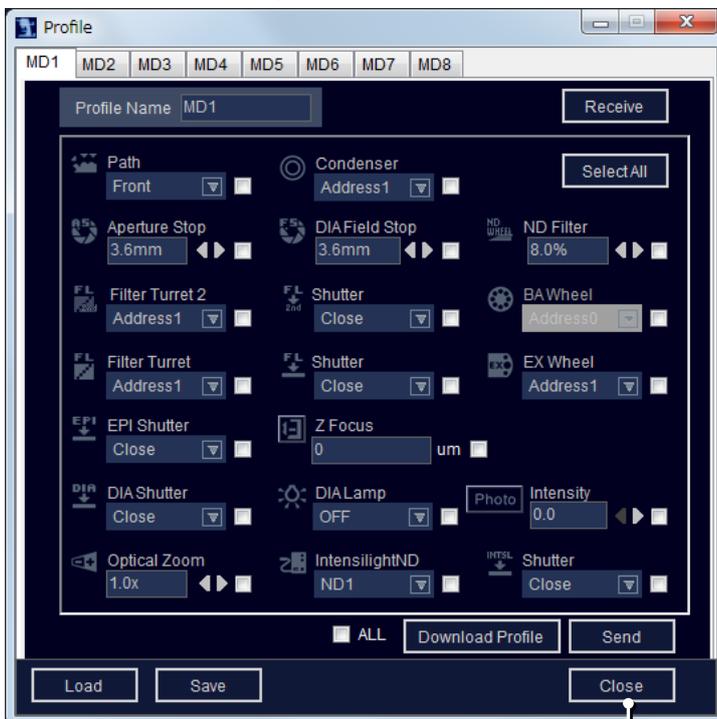
▼ Message dialog box



(8) Click the [OK] button.

- (8) Click the [OK] button.
The profile setup dialog box appears.

▼ Profile setup dialog box



(9) Click the [Close] button to finish the setup.

- (9) To finish the setup, click the [Close] button.
The name of the registered MODE is displayed in the sub-menu of the main screen.

SUPPLEMENT

If you want to apply the settings changed with other control software to the [Profile] dialog box, click the [Download Profile] button.

▼ Profile setup dialog box

Acquiring current control information
Click the [Receive] button.



Saving the setup data
Click the [Save] button.

Acquiring a saved data
Click the [Load] button.

■ To load the current control information

Click the [Receive] button. This will load the information from the microscope, reflecting the information in the setup screen.

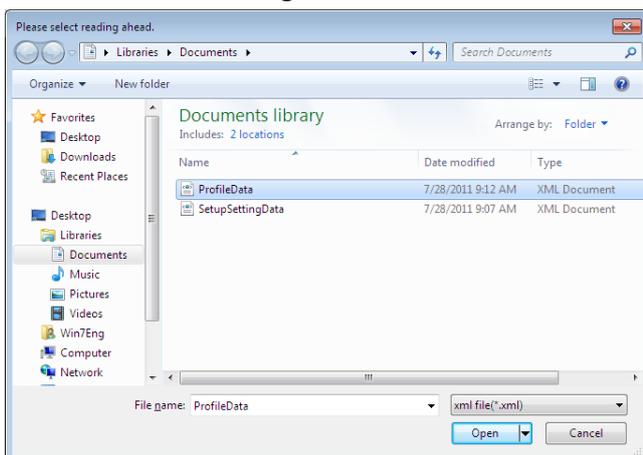
■ To load a saved data

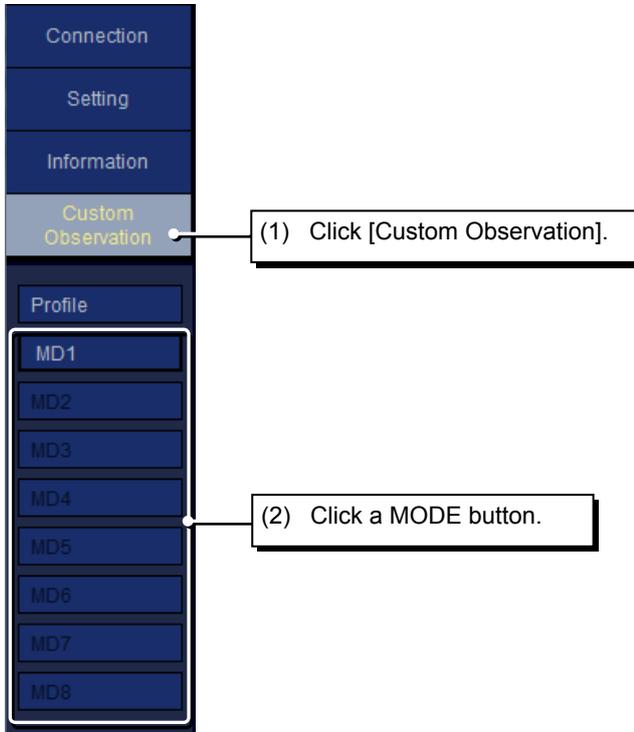
Click the [Load] button to display the file selection dialog box. Select a file (***.xml) to load the information and reflect it in the setup window.

■ To save the setup data

Click the [Save] button to display the file selection dialog box. In this dialog box, specify a filename (***.xml) and save the file.

▼ File selection dialog box



5.3.2**Loading a MODE**▼ **Menu**

- (1) Click [Custom Observation].
The registered MODEs are displayed below the menu.

SUPPLEMENT

The MODE button names displayed in white indicate that the setup information has been registered (and the names displayed in black indicate unregistered MODEs.)

- (2) Click the button of the MODE you want to select to load the MODE.
The registered settings are reflected to the microscope system.

Appendices

Appendix 1 List of Functions Assigned to the Ni Switches

[Front] [default] functions assigned by default

ID	Item	Function name	Description
1	Display	Pattern Down	Changes the display patterns to be displayed in descending order.
2	Display	Pattern Up	Changes the display patterns to be displayed in ascending order.
3	Display	LED On/Off	Changes the brightness of the display.
4	Z Focus	ZERO Reset	Resets the position of the elevating section Z to zero.
5	Condenser	CCW	Switches the condenser module by rotating the condenser reversely.
6	Condenser	CW	Switches the condenser module by rotating the condenser forward.
7	EX Wheel	CCW	Switches the excitation filter by rotating the excitation filter wheel reversely.
8	EX Wheel	CW	Switches the excitation filter by rotating the excitation filter wheel forward.
9	BA Wheel	CCW	Switches the barrier filter by rotating the barrier filter wheel reversely.
10	BA Wheel	CW	Switches the barrier filter by rotating the barrier filter wheel forward.
11	Path	BINO	Sets the optical path to BINO.
12	Path	FRONT	Sets the optical path to FRONT.
13	Path	REAR	Sets the optical path to REAR.

[Right] [default] functions assigned by default

ID	Item	Function name	Description
1	DIA Field Stop	Up	Moves the diascopic field diaphragm toward the opening direction.
2	DIA Field Stop	Down	Moves the diascopic field diaphragm toward the closing direction.
3	Aperture Stop	Up	Moves the diascopic aperture diaphragm toward the opening direction.
4	Aperture Stop	Down	Moves the diascopic aperture diaphragm toward the closing direction.
5	Capture	Capture	Performs a capture.
6	Filter Turret	CW	Switches the filter cube by rotating the epi-fluorescence cube turret forward.
7	Filter Turret	CCW	Switches the filter cube by rotating the epi-fluorescence cube turret reversely.
8	FL Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret.

[Left] [default] functions assigned by default

ID	Item	Function name	Description
1	Objective	CW	Switches the objective by rotating the nosepiece forward.
2	Objective	CCW	Switches the objective by rotating the nosepiece reversely.
3	Z Focus	Escape/Refocus	Performs the escape/return of the elevating section Z.
4	DIA Lamp	ON/OFF	Turns on or off the dia-illumination.

[Front] Functions that can be assigned to the IDs 5 to 10 on the screen

Item	Function name	Description
Non-Function		No function is assigned.
Condenser	CW	Switches the condenser module by rotating the condenser forward.
	CCW	Switches the condenser module by rotating the condenser reversely.
FL Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret.
FL2 Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret 2.
Filter Turret2	CW	Switches the filter cube by rotating the epi-fluorescence cube turret 2 forward.
	CCW	Switches the filter cube by rotating the epi-fluorescence cube turret 2 reversely.
EX Wheel	CW	Switches the excitation filter by rotating the excitation filter wheel forward.
	CCW	Switches the excitation filter by rotating the excitation filter wheel reversely.
BA Wheel	CW	Switches the barrier filter by rotating the barrier filter wheel forward.
	CCW	Switches the barrier filter by rotating the barrier filter wheel reversely.
MODE	Recall MODE1 to MODE8	Performs Mode observation interlock operations 1 to 8.
EPI Shutter	Open/Close	Opens or closes the EPI motorized shutter.
DIA Shutter	Open/Close	Opens or closes the DIA motorized shutter.
ND Filter	UP	Increases the light intensity of the ND filter.
	Down	Decreases the light intensity of the ND filter.
Optical Zoom	UP	Increases the magnification of the optical zoom.
	Down	Decreases the magnification of the optical zoom.

[Front] Functions that can be assigned to the IDs 11 to 13 on the screen

Item	Function name	Description
Non-Function		No function is assigned.
Objective	set Address1 to Address7	Sets the nosepiece to the specified position.
Condenser	set Address1 to Address7	Sets the condenser to the specified position.
Filter Turret	set Address1 to Address6	Sets the epi-fluorescence cube turret to the specified position.
FL Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret.
Filter Turret 2	set Address1 to Address6	Sets the epi-fluorescence cube turret 2 to the specified position.
FL Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret 2.
EX Wheel	set Address1 to Address8	Sets the excitation filter wheel to the specified position.
BA Wheel	set Address1 to Address8	Sets the barrier filter wheel to the specified position.
Intensilight	set ND1	Sets the ND filter of the fiber to ND1.
	set ND2	Sets the ND filter of the fiber to ND2.
	set ND4	Sets the ND filter of the fiber to ND4.
	set ND8	Sets the ND filter of the fiber to ND8.
	set ND16	Sets the ND filter of the fiber to ND16.
	set ND32	Sets the ND filter of the fiber to ND32.
INTSL Shutter	Open/Close	Opens or closes the built-in shutter of the fiber.
MODE	Recall MODE1 to MODE8	Performs Mode observation interlock operations 1 to 8.
Path	BINO	Sets the optical path to BINO.
	FRONT	Sets the optical path to FRONT.
	REAR	Sets the optical path to REAR.
EPI ALL Shutter	Open/Close	Opens or closes all shutters attached on the EPI side.
EPI Shutter	Open/Close	Opens or closes the EPI motorized shutter.
DIA Shutter	Open/Close	Opens or closes the DIA motorized shutter.
Z Focus	ZERO Reset	Resets the position of the elevating section Z to zero.
	Escape/Refocus	Performs the escape/return of the elevating section Z.
Sleep	On/Off	Enables or disables the sleep mode.
DIA Lamp	On/Off	Turns on or off the dia-illumination.
Display	LED On/Off	Changes the brightness of the display.
	Control	Displays the switches assigned to IDs 5 to 10 on the screen.
Capture	Capture	Performs a capture.

[Right] Functions that can be assigned to the IDs 1 to 4, 6, and 7 on the screen

Item	Function name	Description
Non-Function		No function is assigned.
Objective	CW	Switches the objective by rotating the nosepiece forward.
	CCW	Switches the objective by rotating the nosepiece reversely.
Condenser	CW	Switches the condenser module by rotating the condenser forward.
	CCW	Switches the condenser module by rotating the condenser reversely.
Filter Turret	CW	Switches the filter cube by rotating the epi-fluorescence cube turret forward.
	CCW	Switches the filter cube by rotating the epi-fluorescence cube turret reversely.
Filter Turret2	CW	Switches the filter cube by rotating the epi-fluorescence cube turret 2 forward.
	CCW	Switches the filter cube by rotating the epi-fluorescence cube turret 2 reversely.
EX Wheel	CW	Switches the excitation filter by rotating the excitation filter wheel forward.
	CCW	Switches the excitation filter by rotating the excitation filter wheel reversely.
BA Wheel	CW	Switches the barrier filter by rotating the barrier filter wheel forward.
	CCW	Switches the barrier filter by rotating the barrier filter wheel reversely.
Aperture Stop	Up	Moves the diascopic aperture diaphragm toward the opening direction.
	Down	Moves the diascopic aperture diaphragm toward the closing direction.
DIA Field Stop	Up	Moves the diascopic field diaphragm toward the opening direction.
	Down	Moves the diascopic field diaphragm toward the closing direction.
ND Filter	UP	Increases the light intensity of the ND filter.
	Down	Decreases the light intensity of the ND filter.
Optical Zoom	UP	Increases the magnification of the optical zoom.
	Down	Decreases the magnification of the optical zoom.
Display	Pattern UP	Changes the display patterns to be displayed in ascending order.
	Pattern Down	Changes the display patterns to be displayed in descending order.

[Right] Functions that can be assigned to the IDs 5 and 8 on the screen

Item	Function name	Description
Non-Function		No function is assigned.
Objective	set Address1 to Address7	Sets the nosepiece to the specified position.
Condenser	set Address1 to Address7	Sets the condenser to the specified position.
Filter Turret	set Address1 to Address6	Sets the epi-fluorescence cube turret to the specified position.
FL Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret.
Filter Turret 2	set Address1 to Address6	Sets the epi-fluorescence cube turret 2 to the specified position.
FL2 Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret 2.
EX Wheel	set Address1 to Address8	Sets the excitation filter wheel to the specified position.
BA Wheel	set Address1 to Address8	Sets the barrier filter wheel to the specified position.
Intensilight	set ND1	Sets the ND filter of the fiber to ND1.
	set ND2	Sets the ND filter of the fiber to ND2.
	set ND4	Sets the ND filter of the fiber to ND4.
	set ND8	Sets the ND filter of the fiber to ND8.
	set ND16	Sets the ND filter of the fiber to ND16.
	set ND32	Sets the ND filter of the fiber to ND32.
INTSL Shutter	Open/Close	Opens or closes the built-in shutter of the fiber.
MODE	Recall MODE1 to MODE8	Performs Mode observation interlock operations 1 to 8.
Path	BINO	Sets the optical path to BINO.
	FRONT	Sets the optical path to FRONT.
	REAR	Sets the optical path to REAR.
EPI ALL Shutter	Open/Close	Opens or closes all shutters attached on the EPI side.
EPI Shutter	Open/Close	Opens or closes the EPI motorized shutter.
DIA Shutter	Open/Close	Opens or closes the DIA motorized shutter.
Z Focus	ZERO Reset	Resets the position of the elevating section Z to zero.
	Escape/Refocus	Performs the escape/return of the elevating section Z.
Sleep	On/Off	Enables or disables the sleep mode.
DIA Lamp	On/Off	Turns on or off the dia-illumination.
Display	LED On/Off	Changes the brightness of the display.
	Control	Displays the switches assigned to IDs 5 to 10 on the screen.
Capture	Capture	Performs a capture.

[Left] Functions that can be assigned to the IDs 1 and 2 on the screen

Item	Function name	Description
Non-Function		No function is assigned.
Objective	CW	Switches the objective by rotating the nosepiece forward.
	CCW	Switches the objective by rotating the nosepiece reversely.
Condenser	CW	Switches the condenser module by rotating the condenser forward.
	CCW	Switches the condenser module by rotating the condenser reversely.
Filter Turret	CW	Switches the filter cube by rotating the epi-fluorescence cube turret forward.
	CCW	Switches the filter cube by rotating the epi-fluorescence cube turret reversely.
Filter Turret2	CW	Switches the filter cube by rotating the epi-fluorescence cube turret 2 forward.
	CCW	Switches the filter cube by rotating the epi-fluorescence cube turret 2 reversely.
EX Wheel	CW	Switches the excitation filter by rotating the excitation filter wheel forward.
	CCW	Switches the excitation filter by rotating the excitation filter wheel reversely.
BA Wheel	CW	Switches the barrier filter by rotating the barrier filter wheel forward.
	CCW	Switches the barrier filter by rotating the barrier filter wheel reversely.
Aperture Stop	Up	Moves the diascopic aperture diaphragm toward the opening direction.
	Down	Moves the diascopic aperture diaphragm toward the closing direction.
DIA Field Stop	Up	Moves the diascopic field diaphragm toward the opening direction.
	Down	Moves the diascopic field diaphragm toward the closing direction.
ND Filter	UP	Increases the light intensity of the ND filter.
	Down	Decreases the light intensity of the ND filter.
Zoom	UP	Increases the magnification of the optical zoom.
	Down	Decreases the magnification of the optical zoom.
Display	Pattern UP	Changes the display patterns to be displayed in ascending order.
	Pattern Down	Changes the display patterns to be displayed in descending order.

[Left] Functions that can be assigned to the IDs 3 and 4 on the screen

Item	Function name	Description
Non-Function		No function is assigned.
Objective	set Address1 to Address7	Sets the nosepiece to the specified position.
Condenser	set Address1 to Address7	Sets the condenser to the specified position.
Filter Turret	set Address1 to Address6	Sets the epi-fluorescence cube turret to the specified position.
FL Shutter	Open/Close	Opens or closes the shutter of the epi-fluorescence cube turret.
Filter Turret2	set Address1 to Address6	Sets the epi-fluorescence cube turret 2 to the specified position.
FL2 Shutter	Open/Close	Opens or closes the shutter of the epi-fluorescence cube turret 2.
EX Wheel	set Address1 to Address8	Sets the excitation filter wheel to the specified position.
BA Wheel	set Address1 to Address8	Sets the barrier filter wheel to the specified position.
Intensilight	set ND1	Sets the ND filter of the fiber to ND1.
	set ND2	Sets the ND filter of the fiber to ND2.
	set ND4	Sets the ND filter of the fiber to ND4.
	set ND8	Sets the ND filter of the fiber to ND8.
	set ND16	Sets the ND filter of the fiber to ND16.
	set ND32	Sets the ND filter of the fiber to ND32.
INTSL Shutter	Open/Close	Opens or closes the built-in shutter of the fiber.
MODE	Recall MODE1 to MODE8	Performs Mode observation interlock operations 1 to 8.
Path	BINO	Sets the optical path to BINO.
	FRONT	Sets the optical path to FRONT.
	REAR	Sets the optical path to REAR.
EPI ALL Shutter	Open/Close	Opens or closes all shutters attached on the EPI side.
EPI Shutter	Open/Close	Opens or closes the EPI motorized shutter.
DIA Shutter	Open/Close	Opens or closes the DIA motorized shutter.
Z Focus	ZERO Reset	Resets the position of the elevating section Z to zero.
	Escape/Refocus	Performs the escape/return of the elevating section Z.
Sleep	On/Off	Enables or disables the sleep mode.
DIA Lamp	On/Off	Turns on or off the dia-illumination.
Display	LED On/Off	Changes the brightness of the display.
	Control	Displays the switches assigned to IDs 5 to 10 on the screen.
Capture	Capture	Performs a capture.

Appendix 2 List of Functions Assigned to the Ergo Controller Switches

[default] functions assigned by default

ID	Item	Function name	Description
1	Z Focus	Knob Speed	Changes the elevating section Z movement speed by the knob of the ergo controller.
2	XY Stage	Knob Speed	Changes the XY stage movement speed by the knob of the ergo controller.
3	FL Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret.
4	Path	BFR	Sets the optical path to BINO→FRONT→REAR→BINO.
5	EPI All Shutter	Open/Close	Opens or closes all shutters attached on the EPI side.
6	Filter Turret	CW	Switches the filter cube by rotating the epi-fluorescence cube turret forward.
7	Filter Turret	CCW	Switches the filter cube by rotating the epi-fluorescence cube turret reversely.
8	Objective	CW	Switches the objective by rotating the nosepiece forward.
9	Objective	CCW	Switches the objective by rotating the nosepiece reversely.
10	Help	Help	Displays the functions of the ergo controller switches.

Functions that can be assigned to the IDs 1 to 5

Item	Function name	Description
Non-Function		No function is assigned.
Light Path	BINO	Sets the optical path to BINO.
	FRONT	Sets the optical path to FRONT.
	REAR	Sets the optical path to REAR.
	BF	Sets the optical path to BINO↔FRONT.
	FR	Sets the optical path to FRONT↔REAR.
	BR	Sets the optical path to BINO↔REAR.
	BFR	Sets the optical path to BINO→FRONT→REAR→BINO.
FL Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret.
FL2 Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret 2.
INTSL Shutter	Open/Close	Opens or closes the built-in shutter of the fiber.
EPI ALL Shutter	Open/Close	Opens or closes all shutters attached on the EPI side.
EPI Shutter	Open/Close	Opens or closes the EPI motorized shutter.
DIA Shutter	Open/Close	Opens or closes the DIA motorized shutter.
Z Focus	ZERO Reset	Resets the position of the elevating section Z to zero.
	Knob Speed	Changes the elevating section Z movement speed by the knob of the ergo controller.
Sleep	On/Off	Enables or disables the sleep mode.

Appendix 2 List of Functions Assigned to the Ergo Controller Switches

Item	Function name	Description
XY Stage	Knob Speed	Changes the XY stage movement speed by the knob of the ergo controller.
Capture	Capture	Performs a capture.
Help	Help	Displays the functions of the ergo controller switches.

Functions that can be assigned to the IDs 6 to 9

Item	Function name	Description
Non-Function		No function is assigned.
Objective	CW	Switches the objective by rotating the nosepiece forward.
	CCW	Switches the objective by rotating the nosepiece reversely.
Filter Turret	CW	Switches the filter cube by rotating the epi-fluorescence cube turret forward.
	CCW	Switches the filter cube by rotating the epi-fluorescence cube turret reversely.
Filter Turret2	CW	Switches the filter cube by rotating the epi-fluorescence cube turret 2 forward.
	CCW	Switches the filter cube by rotating the epi-fluorescence cube turret 2 reversely.
EX Wheel	CW	Switches the excitation filter by rotating the excitation filter wheel forward.
	CCW	Switches the excitation filter by rotating the excitation filter wheel reversely.
BA Wheel	CW	Switches the barrier filter by rotating the barrier filter wheel forward.
	CCW	Switches the barrier filter by rotating the barrier filter wheel reversely.
Aperture Stop	Up	Moves the diasopic aperture diaphragm toward the opening direction.
	Down	Moves the diasopic aperture diaphragm toward the closing direction.
DIA Field Stop	Up	Moves the diasopic field diaphragm toward the opening direction.
	Down	Moves the diasopic field diaphragm toward the closing direction.
ND Filter	UP	Increases the light intensity of the ND filter.
	Down	Decreases the light intensity of the ND filter.
Intensilight	UP	Replaces the fiber light source ND filter to the one with a larger number.
	Down	Replaces the fiber light source ND filter to the one with a smaller number.
Condenser	CW	Switches the condenser module by rotating the condenser forward.
	CCW	Switches the condenser module by rotating the condenser reversely.
Zoom	UP	Increases the magnification of the optical zoom.
	Down	Decreases the magnification of the optical zoom.

Appendix 3 List of Functions Assigned to the Remote Control Pad Switches

Functions that are assigned to the IDs 1 to 10

ID	Item	Function name	Description
1	EPI Shutter	Open/Close	Opens or closes the EPI motorized shutter.
2	FL Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret.
3	INTSL Shutter	Open/Close	Opens or closes the built-in shutter of the fiber.
4	DIA Shutter	Open/Close	Opens or closes the DIA motorized shutter.
5	Intensilight	Up	Replaces the fiber light source ND filter to the one with a larger number.
6		Down	Replaces the fiber light source ND filter to the one with a smaller number.
7	Objective	CW	Switches the objective by rotating the nosepiece forward.
8	Objective	CCW	Switches the objective by rotating the nosepiece reversely.
9	Filter Turret	CW	Switches the filter cube by rotating the epi-fluorescence cube turret forward.
10	Filter Turret	CCW	Switches the filter cube by rotating the epi-fluorescence cube turret reversely.

Appendix 4 List of Functions Assigned to the Ci Switches

[Right] Functions that are assigned to the IDs 1 to 3

ID	Item	Function name	Description
1	Objective	CW	Switches the objective by rotating the nosepiece forward.
2	Objective	CCW	Switches the objective by rotating the nosepiece reversely.
3	Capture	Capture	Performs a capture.

[Left] Functions that are assigned to the IDs 1 to 2

ID	Item	Function name	Description
1	Objective	CW	Switches the objective by rotating the nosepiece forward.
2	Objective	CCW	Switches the objective by rotating the nosepiece reversely.

Appendix 5 List of Functions Assigned to the Shortcut Key

Functions that can be assigned when Ni-E is connected

Item	Function name	Description
Non-Function	-----	No function is assigned.
Z Focus	Z Move +	Moves the elevating section in the positive Z direction.
	Z Move -	Moves the elevating section in the negative Z direction.
	Escape/Refocus	Performs the escape/return of the elevating section Z.
XY Stage	X Move +	Moves the XY stage in the positive X direction.
	X Move -	Moves the XY stage in the negative X direction.
	Y Move +	Moves the XY stage in the positive Y direction.
	Y Move -	Moves the XY stage in the negative Y direction.
	Escape/Return	Moves the XY stage to the specimen removal position or the original position.
Path	FRONT	Sets the optical path to FRONT.
	BINO	Sets the optical path to BINO.
	REAR	Sets the optical path to REAR.
	BINO/FRONT	Sets the optical path to BINO↔FRONT.
	FRONT/REAR	Sets the optical path to FRONT↔REAR.
	BINO/REAR	Sets the optical path to BINO↔REAR.
	B/F/R	Sets the optical path to BINO→FRONT→REAR→BINO.
DIA Lamp	On/Off	Turns on or off the dia-illumination.
	Up	Increases the brightness of dia-illumination.
	Down	Decreases the brightness of dia-illumination.
Objective	set Address1 to 7	Sets the nosepiece to the specified position.
	Clockwise	Switches the objective by rotating the nosepiece forward.
	Counter-Clockwise	Switches the objective by rotating the nosepiece reversely.
Condenser	set Address1 to 7	Sets the condenser to the specified position.
	Clockwise	Switches the condenser module by rotating the condenser forward.
	Counter-Clockwise	Switches the condenser module by rotating the condenser reversely.
Filter Turret	set Address1 to 6	Sets the epi-fluorescence cube turret to the specified position.
	Clockwise	Switches the filter cube by rotating the epi-fluorescence cube turret forward.
	Counter-Clockwise	Switches the filter cube by rotating the epi-fluorescence cube turret reversely.
FL Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret.
Filter Turret2	set Address1 to 6	Sets the epi-fluorescence cube turret 2 to the specified position.
	Clockwise	Switches the filter cube by rotating the epi-fluorescence cube turret 2 forward.
	Counter-Clockwise	Switches the filter cube by rotating the epi-fluorescence cube turret 2 reversely.

Appendix 5 List of Functions Assigned to the Shortcut Key

Item	Function name	Description
FL2 Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret 2.
EX Wheel	set Address1 to 8	Sets the excitation filter wheel to the specified position.
	Clockwise	Switches the excitation filter by rotating the excitation filter wheel forward.
	Counter-Clockwise	Switches the excitation filter by rotating the excitation filter wheel reversely.
BA Wheel	set Address1 to 8	Sets the barrier filter wheel to the specified position.
	Clockwise	Switches the barrier filter by rotating the barrier filter wheel forward.
	Counter-Clockwise	Switches the barrier filter by rotating the barrier filter wheel reversely.
DIA Shutter	Open/Close	Opens or closes the DIA motorized shutter.
EPI Shutter	Open/Close	Opens or closes the EPI motorized shutter.
EPIALL Shutter	Open/Close	Opens or closes all shutters attached on the EPI side.
INTSL Shutter	Open/Close	Opens or closes the built-in shutter of the fiber.
Intensilight	set ND1	Sets the ND filter of the fiber to ND1.
	set ND2	Sets the ND filter of the fiber to ND2.
	set ND4	Sets the ND filter of the fiber to ND4.
	set ND8	Sets the ND filter of the fiber to ND8.
	set ND16	Sets the ND filter of the fiber to ND16.
	set ND32	Sets the ND filter of the fiber to ND32.
	Up	Replaces the fiber light source ND filter to the one with a larger number.
	Down	Replaces the fiber light source ND filter to the one with a smaller number.
Aperture Stop	Up	Moves the diasopic aperture diaphragm toward the opening direction.
	Down	Moves the diasopic aperture diaphragm toward the closing direction.
	Preset	Sets the diasopic aperture diaphragm to the recommended value.
DIA Field Stop	Up	Moves the diasopic field diaphragm toward the opening direction.
	Down	Moves the diasopic field diaphragm toward the closing direction.
	Preset	Sets the diasopic field diaphragm to the recommended value.
ND Filter	Up	Increases the light intensity of the ND filter.
	Down	Decreases the light intensity of the ND filter.
	Preset	Sets the light intensity of the ND filter to the recommended value.
Zoom	UP	Increases the magnification of the optical zoom.
	Down	Decreases the magnification of the optical zoom.
MODE	Recall MODE1 to 8	Performs Mode observation interlock operations 1 to 8.

Functions that can be assigned when Ni-U is connected

Item	Function name	Description
Non-Function	-----	No function is assigned.
Path	FRONT	Sets the optical path to FRONT.
	BINO	Sets the optical path to BINO.
	REAR	Sets the optical path to REAR.
	BINO/FRONT	Sets the optical path to BINO↔FRONT.
	FRONT/REAR	Sets the optical path to FRONT↔REAR.
	BINO/REAR	Sets the optical path to BINO↔REAR.
	B/F/R	Sets the optical path to BINO→FRONT→REAR→BINO.
DIA Lamp	On/Off	Turns on or off the dia-illumination.
	Up	Increases the brightness of dia-illumination.
	Down	Decreases the brightness of dia-illumination.
Objective	set Address1 to 7	Sets the nosepiece to the specified position.
	Clockwise	Switches the objective by rotating the nosepiece forward.
	Counter-Clockwise	Switches the objective by rotating the nosepiece reversely.
Filter Turret	set Address1 to 6	Sets the epi-fluorescence cube turret to the specified position.
	Clockwise	Switches the filter cube by rotating the epi-fluorescence cube turret forward.
	Counter-Clockwise	Switches the filter cube by rotating the epi-fluorescence cube turret reversely.
FL Shutter	Open/Close	Opens or closes the built-in shutter of the epi-fluorescence cube turret.
DIA Shutter	Open/Close	Opens or closes the DIA motorized shutter.
EPI Shutter	Open/Close	Opens or closes the EPI motorized shutter.
EPIALL Shutter	Open/Close	Opens or closes all shutters attached on the EPI side.
INTSL Shutter	Open/Close	Opens or closes the built-in shutter of the fiber.
Intensilight	set ND1	Sets the ND filter of the fiber to ND1.
	set ND2	Sets the ND filter of the fiber to ND2.
	set ND4	Sets the ND filter of the fiber to ND4.
	set ND8	Sets the ND filter of the fiber to ND8.
	set ND16	Sets the ND filter of the fiber to ND16.
	set ND32	Sets the ND filter of the fiber to ND32.
	Up	Replaces the fiber light source ND filter to the one with a larger number.
	Down	Replaces the fiber light source ND filter to the one with a smaller number.
MODE	Recall MODE1 to 8	Performs Mode observation interlock operations 1 to 8.

Functions that can be assigned when Ci-E is connected

Item	Function name	Description
Non-Function	-----	No function is assigned.
Path	DSC	Sets the optical path to DSC.
	BINO	Sets the optical path to BINO.
	DSC/BINO	Sets the optical path to DSC ↔ BINO.
DIA Lamp	On/Off	Turns on or off the dia-illumination.
	Up	Increases the brightness of dia-illumination.
	Down	Decreases the brightness of dia-illumination.
Objective	set Address1 to 6	Sets the nosepiece to the specified position.
	Clockwise	Switches the objective by rotating the nosepiece forward.
	Counter-Clockwise	Switches the objective by rotating the nosepiece reversely.
Condenser	In/Out	Moves the swing-out condenser into or out of the optical path.