

Nikon

**Application for Inverted Research Microscope
ECLIPSE Ti2 Series**

Ti2Control

Instruction Manual

(for Windows)

Introduction

Thank you for purchasing a Nikon product.

This manual describes how to install and use the application software “Ti2Control” for Nikon Inverted Research Microscope ECLIPSE Ti2 series.

To ensure correct usage, read this manual carefully before operating this product.

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

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- If you intend to use any other equipment with this product, read the manual for that equipment too.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment might be impaired.
- The images shown in this document are for reference only, and may appear somewhat different from those actual application images.

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 personal computer.

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Notes on Using “Ti2 Control”

- This application is used to make settings for the Ti2-E/Ti2-A, control the Ti2-E, and display the Ti2-A status.
- For the first use of the Ti2-E or Ti2-A, always perform microscope system settings with the setup function, and transfer this information to the microscope system using “SEND.”
- When setup information is transferred to the microscope system, the previous information held in memory is overwritten.
- We recommend that the information (including arbitrary registrations performed with the setup function or other setting function) be assigned a filename and saved on the application side after transfer.

Screens used in this manual

Menus and items displayed in “Ti2Control” vary depending on the microscope system configuration and the motorized devices connected.

The descriptions in this manual are mainly based on the screens of the Ti2-E.

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Chapter

1

Preparation

This chapter describes the hardware and software required for “Ti2Control” and how to install and uninstall the software.

1.1 Hardware and Software Requirements

⚠ CAUTION

Install the application before connecting your personal computer and microscope system (Ti2-E, Ti2-A).

Item	Specifications
Processor	1GHz or faster processor
LAN	1000 Base-T
RAM	1 GB or more (for 32-bit OS)/2 GB or more (64-bit OS)
Storage	There shall be 100 MB or more free space.
Resolution	Shall support 1280×1024-dot true color mode (recommended).
Video RAM	128 MB or more
Platform	Windows 7 Professional SP1 or later (32-bit or 64-bit Japanese or English)
Remarks	Installer “Ti2Control” installer program can be downloaded from the Internet. “Ti2Control” is not guaranteed to be compatible with all personal computers. Please contact your distributor for detailed compatibility information.

1.2 Installing the Application

This section describes how to install the application.

CAUTION

- Install the application before connecting the Ti2 microscope system to a personal computer.
- To install “Ti2Control,” you must log in to your personal computer with a user account with administrator rights.
- The uninstallation procedure for “Ti2Control” is the same as that for other Windows applications.

1. **Before installing “Ti2 Control,” end all system-resident programs, such as the screen saver and anti-virus software.**

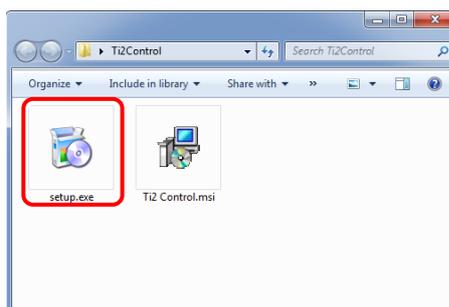
▼ Preparing for installation



2. **Execute the setup wizard.**

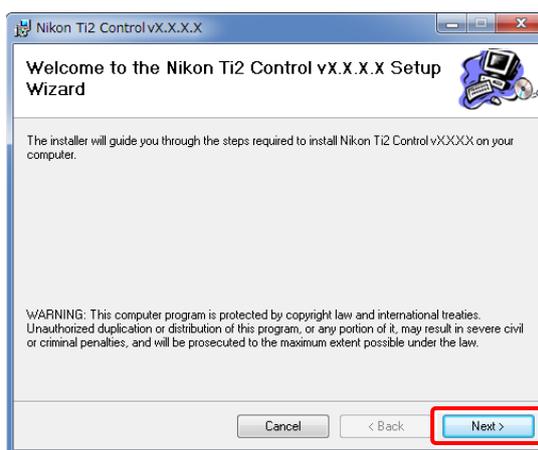
To install “Ti2 Control,” start the downloaded setup wizard (setup.exe) and follow the displayed messages.

▼ Starting the setup wizard



3. **The installation destination setting screen will be displayed when [Next] is clicked on the welcome screen of the setup wizard.**

▼ Welcome screen of the setup wizard



4. On the installation destination setting screen, specify a folder to install “Ti2 Control.”

The following are the default installation destination folders.

32-bit version: C:\Program Files\Nikon\Ti2 Control

64-bit version: C:\Program Files(x86)\Nikon\Ti2 Control

To change folders, click [Browse...].

5. Specify the user that will use “Ti2Control.”

Everyone: All users that will use this computer are applicable.

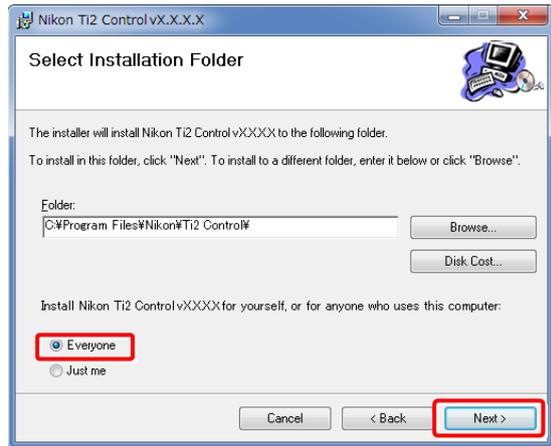
Just me: Only the user who is currently logged in is applicable.

6. After specifying a folder, click [Next] to display the installation screen.

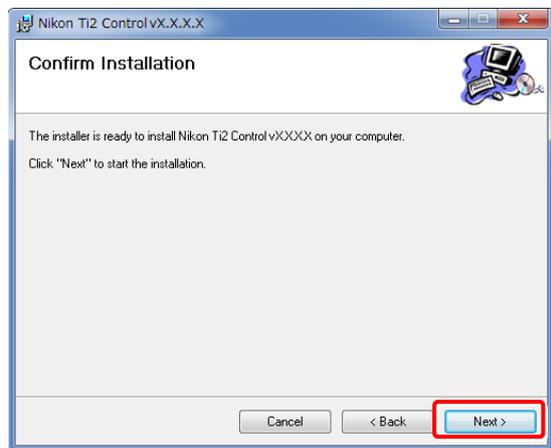
7. Click [Next] on the installation confirmation screen to start the installation.

If the [User Account Control] confirmation screen is displayed, click [Yes] to start the installation.

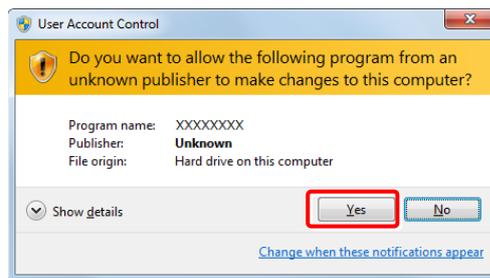
▼ Installation destination setting screen



▼ Installation screen

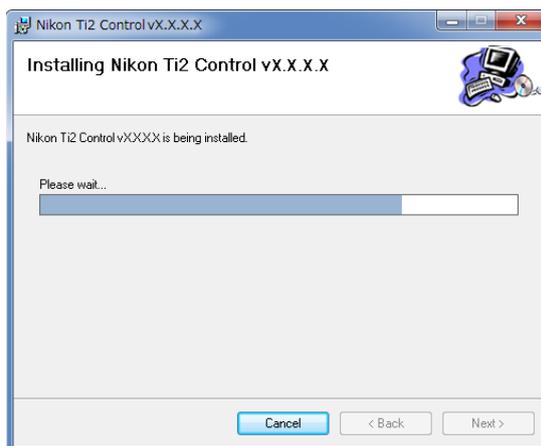


▼ [User Account Control] confirmation screen



The installation progress screen appears.

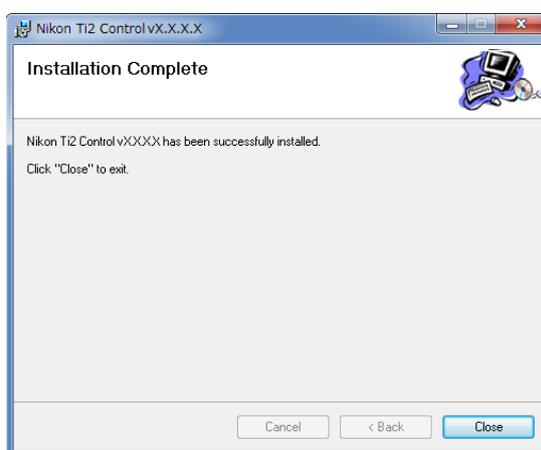
▼ Installation progress screen



When installation is completed, the screen as shown on the left appears.

Click [Close] to end the installation procedure.

▼ Installation Complete screen



This completes the installation of “Ti2 Control.”

Installing the driver

After the “Ti2Control” installation, connect the personal computer to the microscope system (the controller for Ti2-E in the case of the Ti2-E, or the microscope main body in the case of the Ti2-A) via the USB connector.

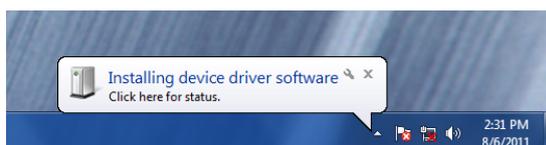
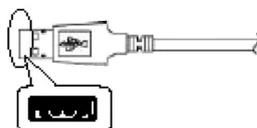
The driver will be installed automatically if the microscope system is connected to the personal computer for the first time.

1. **Connect USB connector A of the USB cable to the personal computer.** ▼ **USB connector A**
2. **Connect the other end of the cable to the USB connector of the microscope system.**

The detection wizard start screen appears.

After they are connected, the driver will be installed automatically.

Installation will end.



1.3 Starting and Exiting the Application

This section describes how to start and exit the application.

There are several ways to start or exit the application. Here is explained the typical method of starting from the [Start] menu and exiting by clicking [x] in the upper right corner of the operation screen.

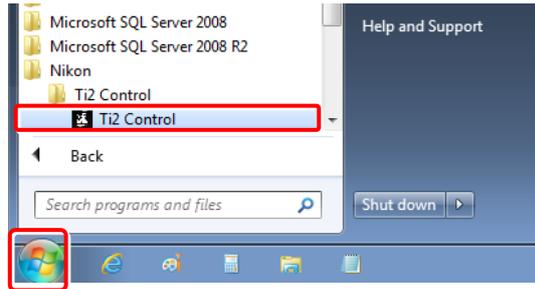
1.3.1 Starting the Application

After making sure that the microscope system is connected to the personal computer, start the computer.

1. Click the [Start] button.
2. Click [All Programs], [Nikon], [Ti2 Control], and then [Ti2 Control].

The “Ti2 Control” splash screen appears.

▼ Starting the application

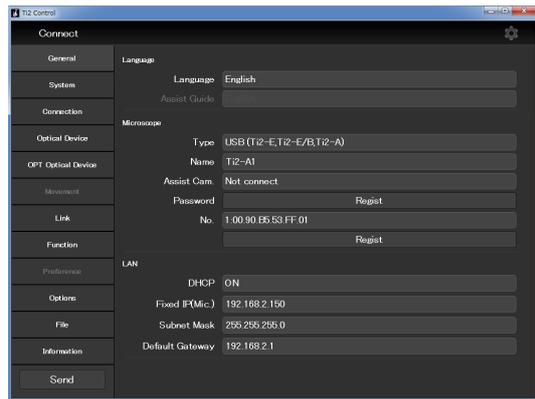


3. The microscope information is read and “Ti2 Control” starts.

CAUTION

Do not unplug the USB cable that connects to the microscope after starting “Ti2 Control.”

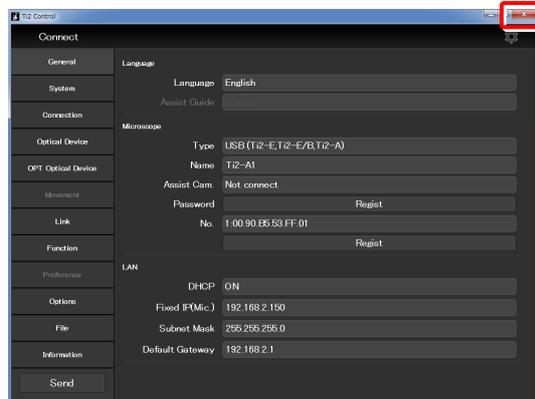
▼ Starting the application



1.3.2 Exiting the Application

1. Click the [x] button in the upper right corner of the screen.

▼ Exiting the application



Chapter

2

Setup

This chapter describes how to register new microscope system settings when using the “Ti2 Control” application for the first time.

When microscope system settings are changed, this setup process allows only the relevant information of the microscope system to be changed.

2.1 Basic Setup Operations and Screens

2.1.1 Configuration of the Setup Screen

■ **Setting item selection area**

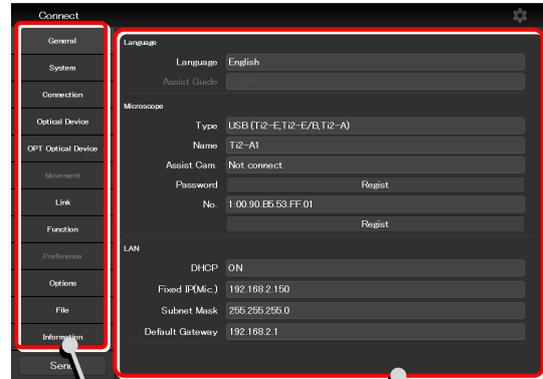
Click each button to change a setting item.

■ **Setting area**

Click a desired button in the setting item selection area to change the display items and settings.

✔ **Differences by microscope main body**
 The setting items for the Ti2-E differ from those for the Ti2-A.

▼ **Configuration of the setup screen**



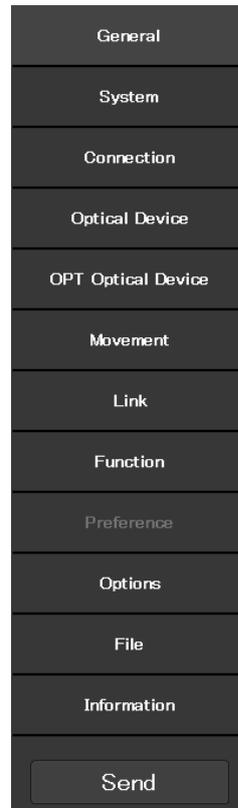
Setting item selection area Setting area

2.1.2 Setting Items

The setup function consists of 12 setting screens and one button:

- [General]: Basic settings of the microscope and the application
- [System]: Display and manual registration of the microscope configuration
- [Connection]: Settings of the connection destinations of devices
- [Optical Device]: Settings of optical devices
- [OPT Optical Device]:
New registration of optical devices
- [Movement]: Settings of movement (for Ti2-E only)
- [Link]: Settings of linked control
- [Function]: Assignment of functions
- [Options]: Settings of the motorized devices
- [File]: Saving and reading of settings
- [Information]: Display of the version information
- [Send] button: Transmission of the setting information to the microscope system

▼ **Setting items**



2.1.3 Sending Microscope System Information

■ Sending information to the microscope system

Click the [Send] button in the setting item selection area to display a confirmation screen.

Click [OK] to send the information set by the application to the microscope system.

▼ Setup screen

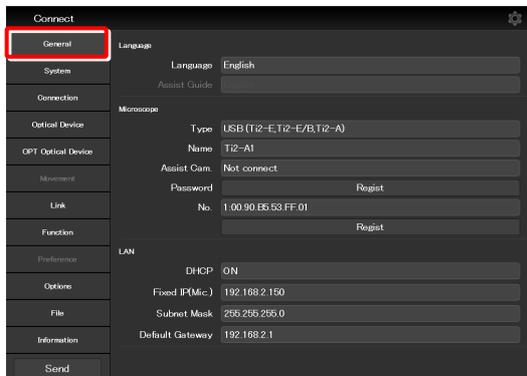
The screenshot shows a 'Connect' setup screen with a sidebar menu on the left and a main configuration area on the right. The sidebar menu includes: General, System, Connection, Optical Device, OPT Optical Device, Movement, Link, Function, Preference, Options, File, and Information. The main configuration area is divided into sections: Language (English), Assist Guide, Microscope (Type: USB (T2-E, T2-E/B, T2-A), Name: T2-A1, Assist Cam: Not connect, Password: [field], No. [field], Register), LAN (DHCP: ON, Fixed IP(Mic): 192.168.2.150, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.2.1), and a 'Send' button at the bottom left, which is highlighted with a red box.

2.2 [General]: Basic Settings of the Microscope and the Application

The General screen allows basic settings of the microscope and the application.

1. Select [General] from the setting item selection area.

▼ General settings



2.2.1 Setting the Language

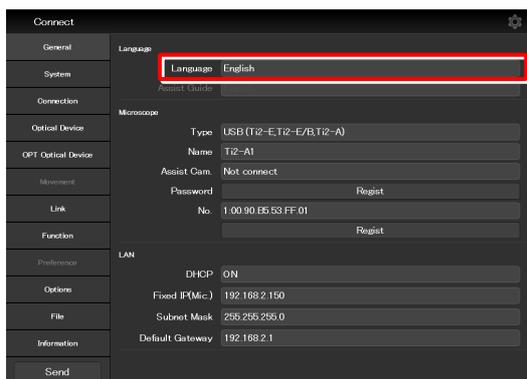
Set the language of this application.

1. Set as follows in the [Language] field.

Language:

Select the language to use.

▼ Setting the language



2.2.2 Registering the Microscope System

This section describes how to register a microscope, a password and an assist camera.

1. Set the following items in the [Microscope] field.

Type:

Select the microscope to be connected.

Name:

Enter a registration name of the microscope system.

Assist Cam.:

Click the box to display a list of MAC addresses of the assist cameras.

Click the target MAC address and then [OK] to register the assist camera.

⚠ CAUTION

When an assist tube base unit is used, connect the LAN cable to the [LAN (CAM)] port at the back of the microscope main body to connect to the wireless router.

⚠ When registering a new microscope system

To register a new microscope system, be sure to register an assist camera too.

When using a wireless router in this case, it is recommended to connect only one microscope system to the wireless router.

Password:

It is possible to make a setting so that a password is requested when accessing the microscope from a personal computer which is not registered for the microscope.

Enter any letters for the password. (Enter nothing if no password is to be set.)

No password is requested during an access if the microscope system is already registered on the personal computer.

No.:

Select a microscope number to be registered with the personal computer.

Up to 20 microscopes can be registered.

For each registered number, a registered name of the microscope system (or a MAC address) is displayed.

Regist button:

Click this button to register the connected microscope as a “trusted microscope” with a microscope number specified in “No.” and save it in the device.

Connection to the microscope registered here is possible without a password.

⚠ CAUTION

Make sure any new microscope system is registered.

▼ Registering the microscope system

Connect	
General	Language: English
System	Assist Guide
Connection	Microscope
Optical Device	Type: USB (T12-E,T12-E/B,T12-A)
OPT Optical Device	Name: T12-A1
Movement	Assist Cam.: Not connect
Link	Password: []
Function	No.: 1:00:90:E5:53:FF:01
Preference	LAN
Options	DHCP: ON
File	Fixed IP(Mic.): 192.168.2.150
Information	Subnet Mask: 255.255.255.0
	Default Gateway: 192.168.2.1
	Send

2.2.3 Setting the LAN

1. Set the following items in the [LAN] field.

DHCP:

Select whether to enable or disable the automatic allocation of the microscope's IP address.

Fixed IP(Mic):

Displays the fixed IP address of the microscope.

This IP address is not used when DHCP is enabled (ON).

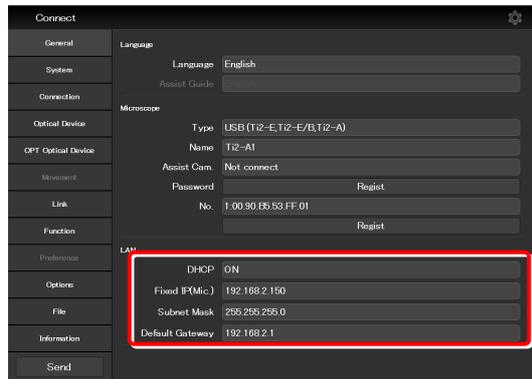
Subnet Mask:

Displays the subnet mask of the microscope.

Default Gateway:

Displays the default gateway of the microscope.

▼ Setting the LAN



2.3 [System]: Display and Manual Registration of the Microscope Configuration

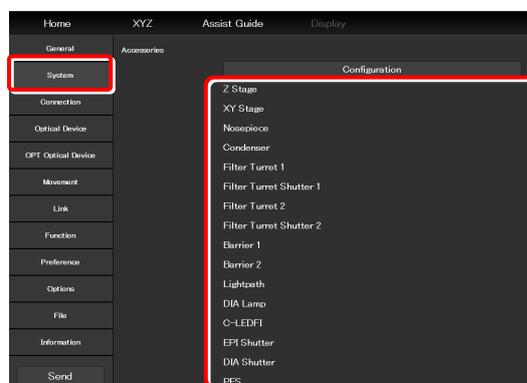
Clicking [System] displays a list of accessories mounted on the microscope system.

1. Select [System] from the setting item selection area.

A list of accessories connected to the microscope system will be displayed.

2. Confirm the items displayed in the [Configuration] field.

▼ Display of the microscope configuration



2.3.1 Manually Registering the Microscope Configuration

This section describes how to register the accessories which cannot be automatically detected.

The following is the basic registration procedure.

The condenser is used as an example here.

✔ Using a D-LH/LC precentered lamphouse (halogen lamp) with the Ti2-A

When using a D-LH/LC precentered lamphouse as dia-illumination with the Ti2-A, manually register the lamphouse by the following procedure.

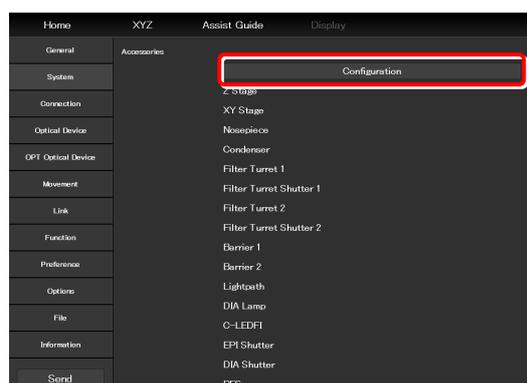
- 1) Disconnect the cable coming from the dia-illumination unit from the connector box on the rear surface of the microscope main body.
- 2) Specify [D-LH/LC Precentered Lamphouse] for the [DIA_Lamp] in the microscope configuration setting screen for manual configuration, of TI2Control.
- 3) Tap the [Send] button in the setting item selection area to send the registration information.
- 4) End the application.
- 5) Power off the microscope system.
- 6) Connect the cable coming from the dia-illumination unit with the connector box on the rear surface of the microscope main body.
- 7) Power on the microscope system.

To continue registration, start up the application.

1. Click [Configuration] in the setting item selection area.

A microscope configuration setting screen will be displayed.

▼ Manually registering the microscope configuration



2. Click the area where accessory mounting information is to be registered.

A registration screen of the area will be displayed.

✔ **Differences by microscope main body**

The selectable areas for the Ti2-E differ from those for the Ti2-A.

✔ **In a stage-up configuration**

In a 2-tier stage-up microscope configuration, click [Stage up] to change the configuration shown in the application to the state-up configuration.

3. Click a parts area or the parts list on the left.

A list of products that can be registered for that part will be displayed.

4. Select the name of the product to be registered.

5. Click [OK].

A product code of the selected product will be displayed on the second line of each item in the left parts list. ("-----" will be displayed if no product is selected.)

The parts area where a product is already registered is indicated in green.

6. Click [TOP] to register an accessory for another parts area.

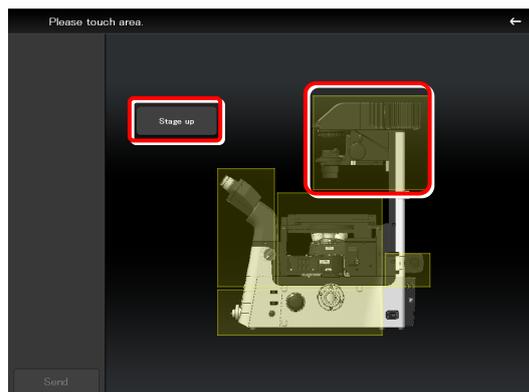
The screen will be returned to the microscope configuration setting screen.

7. Repeat steps 2 to 5 for each part to be registered.

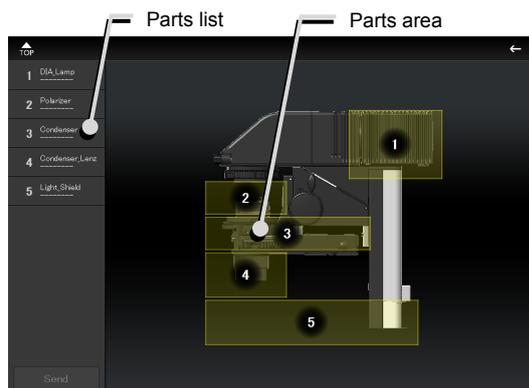
8. To finish manual registration of a microscope configuration, click [Send] to send the registration information or click [Back].

If the edited information is not sent, the information will not be saved.

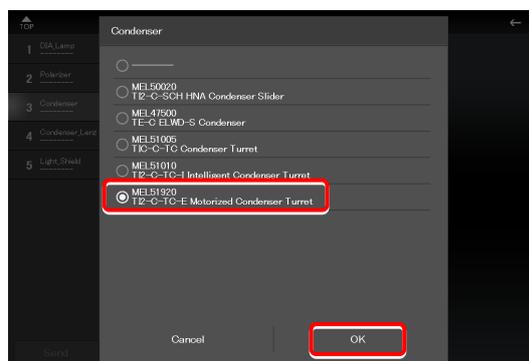
▼ **Microscope configuration setting screen**



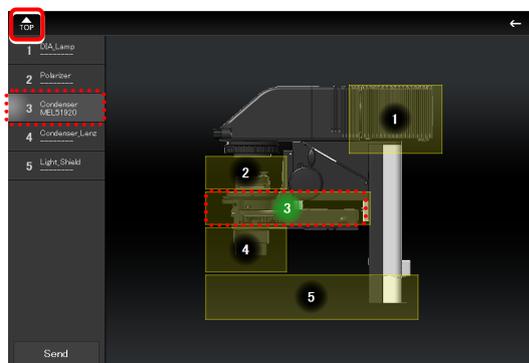
▼ **Per-area registration screen**



▼ **Product list dialog**



▼ **Per-area registration screen**



When using epi-illumination

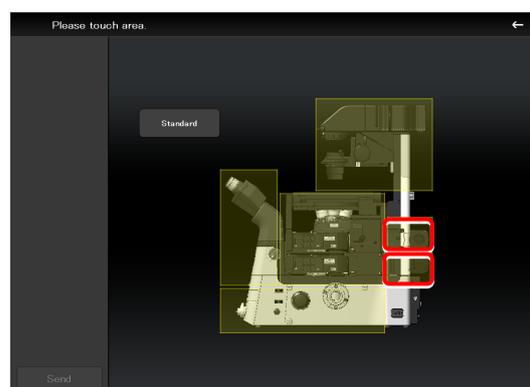
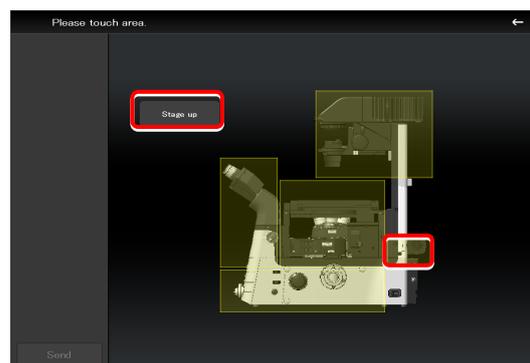
Click the area that includes the epi-illumination attachment.

The registration screen for the epi-illumination attachment will be displayed.

If a stage-up kit is used, epi-illumination attachments can be mounted in two tiers.

To register two tiers of epi-illumination attachments, click [Stage up].

▼ Registering an epi-illumination attachment



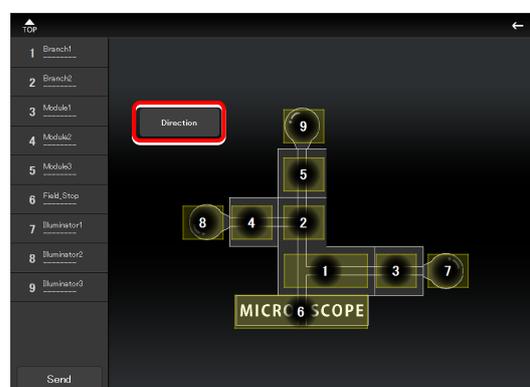
In a two-tier configuration, the upper and lower epi-illumination attachments are mounted in opposite directions. However, the application shows the two epi-illumination attachments in the same orientation.

The orientations of the two epi-illumination attachments can be shown in the same way as the actual ones by using the following procedure.

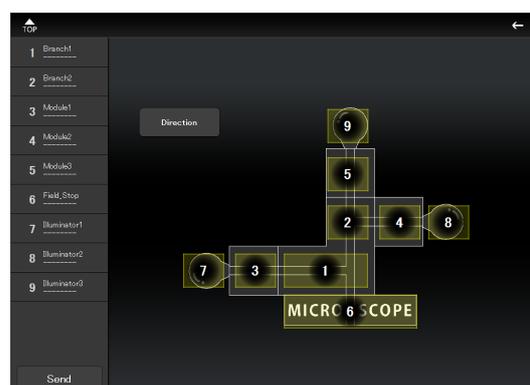
Select the epi-illumination attachment which is shown in the orientation opposite to the actual one.

Click [Direction] to invert the part orientation horizontally so that the display on the application is the same as the actual epi-illumination attachment.

▼ Inverting the orientation of the epi-illumination attachment



▼ Inverted layout diagram



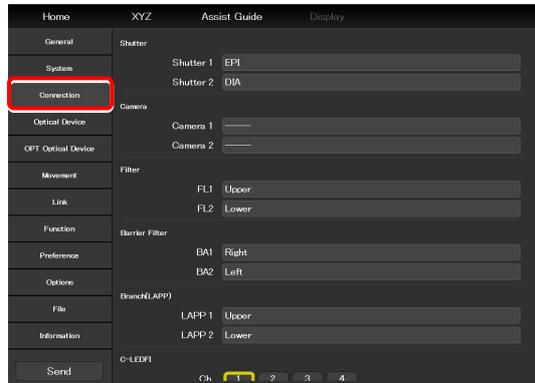
2.4 [Connection]: Setting the Connection Destinations of Devices

This section describes how to set the connection (mounting) destinations of devices.

1. **Select [Connection] from the setting item selection area.**

The connection setting screen appears.

▼ Setting the connections of devices



2.4.1 Setting the Connections of Motorized Shutters

When the NI-SH-E motorized shutter is mounted, epi-illumination (EPI), dia-illumination (DIA), or auxiliary (AUX) can be selected and set as the mounting destination.

1. **Set the following items in the [Shutter] fields.**

Shutter 1:

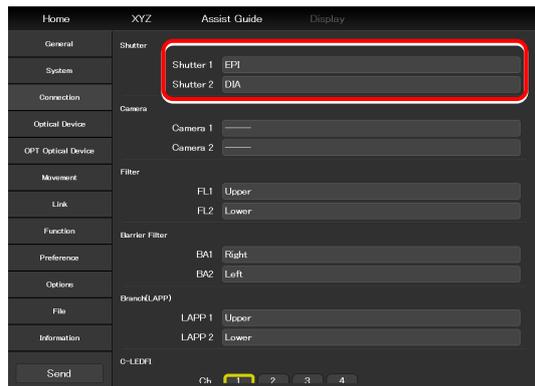
Select the mounting destination of the motorized shutter.

If no motorized shutter is mounted, select [--].

Shutter 2:

Select the mounting destination of the second motorized shutter. If only one motorized shutter is mounted, select [--].

▼ Setting the connections of motorized shutters



✔ SUPPLEMENTAL REMARKS

The same value cannot be specified for [Shutter 1] and [Shutter 2].

2.4.2 Setting the Connections of Cameras

Select and set the ports to which connected cameras are attached from [Front] (tube base unit side port), [Left] (left side port of the microscope main body), [Right] (right side port of the microscope main body), or [Aux] (back port (for the Ti2-E only), or bottom port (for the Ti2-E/B only)).

1. Set the following items in the [Camera] field.

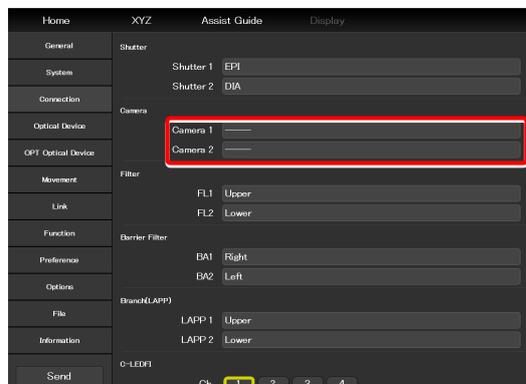
Camera 1:

Select the port to which the camera is attached.
If no camera is attached, select [---].

Camera 2:

Select the port to which the second camera is attached.
If only one camera is attached, select [---].

▼ Setting the connections of cameras



2.4.3 Setting the Connections of FL Turrets

In a stage-up configuration, specify the location to which each FL turret is attached, the upper tier (Upper) or the lower tier (Lower).

1. Set the following items in the [Filter] field.

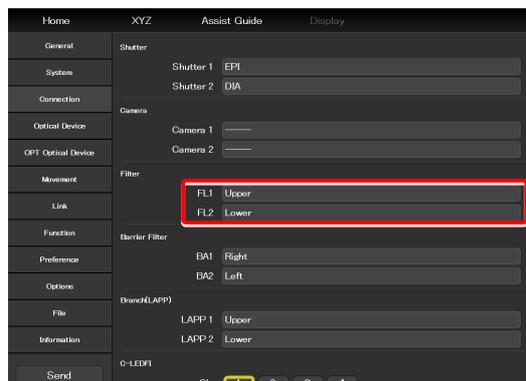
FL1:

Select the position to which the FL turret is attached.
If no FL turret is attached, select [---].

FL2:

Select the position to which the second FL turret is attached.
If only one FL turret is attached, select [---].

▼ Setting the connections of FL turrets



2.4.4 Setting the Connections of BA Filter Wheels: Ti2-E Only

Select and set the ports to which BA filter wheels are attached from [Left] (left side port), [Right] (right side port), or [Center] (lower tier of the stage-up kit).

1. Set the following items in the [Barrier Filter] field.

BA1:

Select the port to which the BA filter wheel is attached.

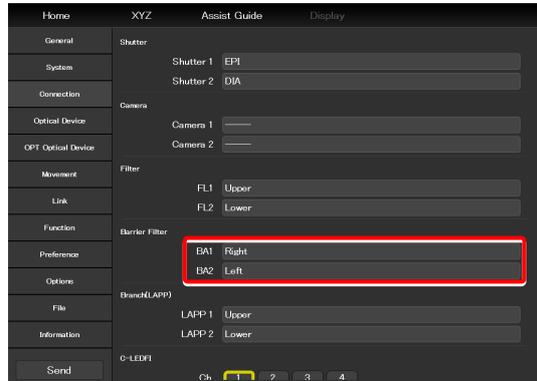
If no BA filter wheel is attached, select [---].

BA2:

Select the port to which the second BA filter wheel is attached.

If only one BA filter wheel is attached, select [---].

▼ Setting the connections of BA filter wheels



2.4.5 Setting the Branch(LAPP)

In a stage-up configuration, specify the location (the upper tier: Upper, or the lower tier: Lower) to which each main branch of the epi illumination attachment is attached.

1. Set the following items in the [Branch(LAPP)Barrier Filter] field.

LAPP1:

Select the position to which the main branch is attached

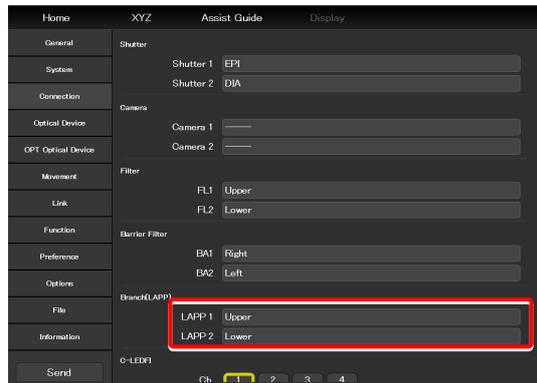
If no main branch is attached, select [---].

LAPP2:

Select the position to which the second main branch is attached.

If only one main branch is attached, select [---].

▼ Setting the Branch(LAPP)



2.4.6 Setting the C-LEDFl Epi-fl LED Illuminator

Set the LED wavelength of each channel of the C-LEDFl epi-fl LED illuminator.

1. Set the following items in the [C-LEDFl] field.

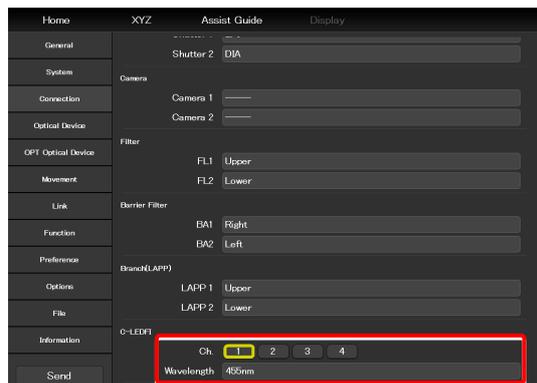
Channel:

Select the channel number of the LED.

Wavelength:

Allows displaying or specifying the wavelength of the LED selected in [Channel].

▼ Setting the C-LEDFl



2.5 [Optical Device]: Setting the Optical Devices

This section describes how to set the objective, condenser module, fluorescence filter cube, barrier filter (BA filter), intermediate magnification, and external phase contrast.

1. Select [Optical Device] from the setting item selection area.

The optical device setting screen appears.

▼ Setting optical devices

The screenshot shows the 'Setting optical devices' screen. On the left, a vertical menu has 'Optical Device' highlighted with a red box. The main area is divided into sections: Objective, Condenser, and Filter 1. Each section has an 'Address' field with a numeric keypad (1-6) and a 'Name' field. The Objective section also includes 'Observation', 'Series', and 'Mag.' fields. The Condenser section includes 'Name' and 'Function' fields. The Filter 1 section includes 'Name', 'EX', 'DM', and 'EA' fields. A 'Send' button is at the bottom left.

2.5.1 Setting the Nosepiece

Specify which objective is attached to each address of the nosepiece.

1. Select the address of the nosepiece for which objective information is to be set.

(Be sure to select this item first.)

▼ Setting the nosepiece

The screenshot shows the 'Setting the nosepiece' screen. The 'Address' field in the Objective section is highlighted with a red box. The screen layout is similar to the previous screenshot, but the 'Optical Device' menu item is not highlighted. The 'Address' field has a numeric keypad (1-6) and is currently set to '5'.

2. Set the following items.

Selecting [Observation], [Series] or [Mag.] displays a list of objectives that match the conditions.

Observation:

Allows a list of objectives to be narrowed down by specifying a microscopy technique.
(If the list does not include the target microscopy technique or the microscopy technique is unknown, select “---”.)

Series:

Allows a list of objectives to be narrowed down by specifying a series name.
(If the series name is unknown, specify “---”.)

Mag.:

Allows a list of objectives to be narrowed down by specifying a magnification.
(If the magnification is unknown, specify “---”.)

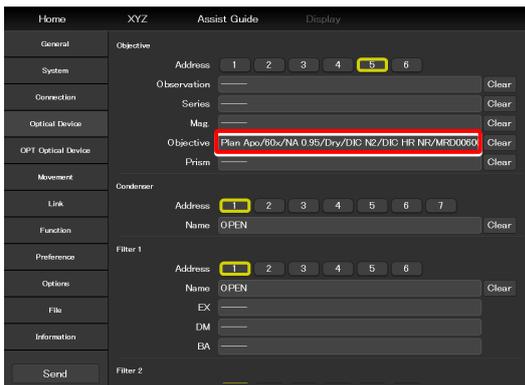
▼ Setting the nosepiece

The screenshot shows the 'Setting the nosepiece' screen. The 'Observation', 'Series', and 'Mag.' fields in the Objective section are highlighted with a red box. The 'Address' field is still set to '5'. The screen layout is similar to the previous screenshot.

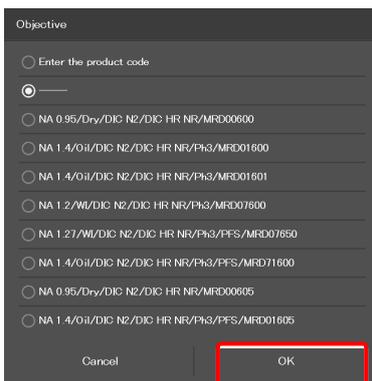
3. Click the [Objective] field, select the target objective from the list or enter the product code, and click [OK].

The information about the objective will be registered and displayed in the [Objective] field.

▼ Setting the nosepiece



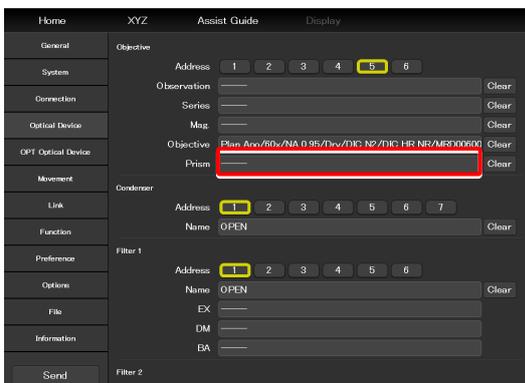
▼ List of objectives



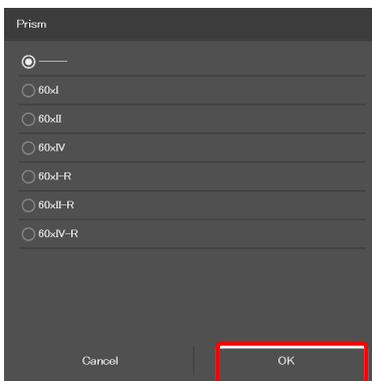
4. For DIC objectives, click the [Prism] field, select the target objective-side DIC prism from the list, and click [OK].

The information about the objective-side DIC prism will be registered and displayed in the [Prism] field.

▼ Setting the nosepiece



▼ List of prisms



5. To register another objective, select another number in [Address] and repeat steps 1 to 4.

2.5.2 Setting the Condenser Module

Specify which condenser module is attached to each address of the condenser turret.

1. Set the following items in the [Condenser] field.

Address:

Select the address of the condenser turret for which condenser module information is to be set.

Name:

Select a condenser module name.

2. To register another condenser module, select another number in [Address] and repeat step 1.

▼ Setting the condenser module

The screenshot shows the software interface with the 'Condenser' section highlighted. The 'Address' field is set to 1, and the 'Name' field is set to 'OPEN'. Other fields include Observation, Series, Mag, Objective (Plan Apo/60x/NA 0.95/Dry/DIC N2/DIC HR NR/MRD00600), and Prism.

2.5.3 Setting the Filter Cube

Specify which filter cube is attached to each address of the FL turret.

1. Set the following items in the [Filter 1] field.

Address:

Select the address of the FL turret for which filter cube information is to be set.
(Select this item first.)

Name:

Select a filter cube name.
(When this item is selected, the other values are read automatically.)

EX:

Displays the name of the excitation filter.

DM:

Displays the name of the dichroic mirror.

BA:

Displays the name of the BA filter.

2. To register another filter cube, select another number in [Address] and repeat step 1.

▼ Setting the filter cube

The screenshot shows the software interface with the 'Filter 1' section highlighted. The 'Address' field is set to 1, and the 'Name' field is set to 'OPEN'. Other fields include EX, DM, and BA.

✔ SUPPLEMENTAL REMARKS

When a stage-up kit is used, up to two FL turrets can be connected.

When two FL turrets are connected, set the [Filter 2] field too.

▼ For the second FL turret

The screenshot shows the software interface with the 'Filter 2' section highlighted. The 'Address' field is set to 1, and the 'Name' field is set to 'OPEN'. Other fields include EX, DM, and BA.

2.5.4 Setting the BA Filter: Ti2-E Only

Specify which BA filter (barrier filter) is attached to each address of the BA filter wheel.

1. Set the following items in the [Barrier Filter 1] field.

Address:

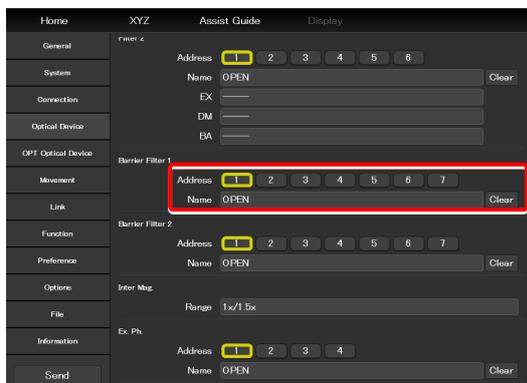
Select the address of the BA filter wheel for which BA filter information is to be set.

Name:

Select a BA filter name.

2. To register another BA filter, select another number in [Address] and repeat step 1.

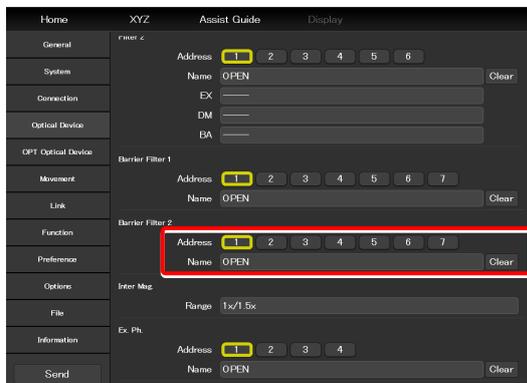
▼ Setting barrier filter 1



✔ SUPPLEMENTAL REMARKS

Up to two BA filter wheels can be connected.
When two BA filter wheels are connected, also set the [Barrier Filter 2] field.

▼ For the second BA filter wheel



2.5.5 Setting the Intermediate Magnification

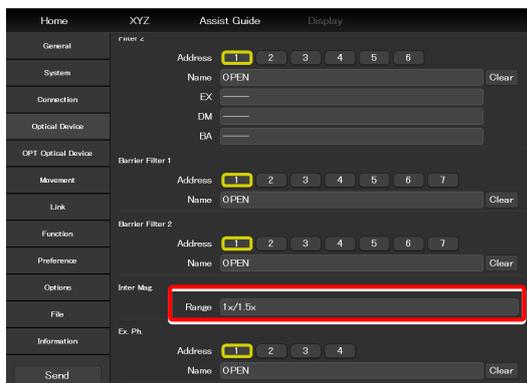
Set the intermediate magnification.

1. Set the following items in the [Inter Mag.] field.

Range:

Select the type of intermediate magnification lens (second objective) attached.

▼ Setting the intermediate magnification



2.5.6 Setting the External Phase Ring: Ti2-E Only

When the motorized tube base unit for external phase contrast is used, specify which phase ring is attached to each address of the phase ring turret.

1. Set the following items in the [Ex. Ph.] field.

Address:

Select the address of the turret for which external phase ring information is to be set.

Name:

Select an external phase ring name.

2. To register another external phase ring, select another number in [Address] and repeat step 1.

▼ Setting the external phase ring

The screenshot displays a software interface for configuring external phase rings. On the left is a sidebar with menu items: Home, XYZ, Assist Guide, and Display. The main content area is titled 'rwer c' and is divided into several sections:

- Barrier Filter 1:** Address (1-6), Name (OPEN), EX, DM, EA.
- Barrier Filter 2:** Address (1-7), Name (OPEN).
- Inter Mag:** Range (1x/1.5x).
- Ex. Ph. (highlighted in red):** Address (1-4), Name (OPEN), Clear.

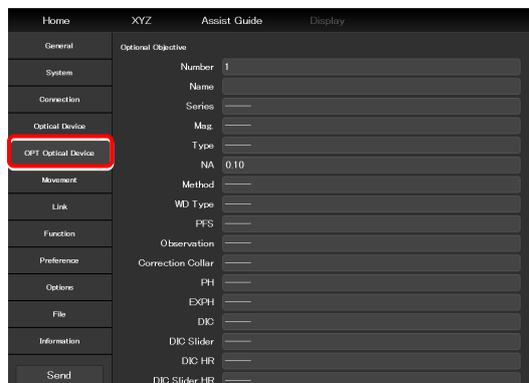
2.6 [OPT Optical Device]: Registering a New Optical Device

This section describes how to newly register an optical device not listed in the [Optical Device] setting, such as an objective, a condenser module, a filter cube, or a BA filter.

1. **Select [OPT Optical Device] from the setting item selection area.**

The optional optical device setting screen appears.

▼ Registering a new optical device



2.6.1 Registering a New Objective

Up to 10 new objectives can be registered.

The objectives registered here can be selected in [Objective] in [Optical Device].

1. **Set the following items in the [Optional Objective] field.**

Number:

Register the number for which new objective information is to be registered. (Up to 10 objectives can be registered.)

Name:

Specify a name.

Series:

Select the type of the objective.

Mag.:

Select the magnification of the objective.

Type:

Select the immersion liquid type of the objective.

NA:

Enter the numerical aperture (NA) of the objective.

Method:

Select the usage of the objective.

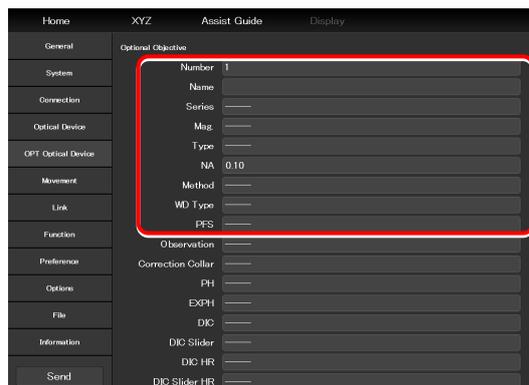
WD Type:

Select the long-working-distance type of the objective.

PFS:

Specify whether to use the PFS.

▼ Registering a new objective



Observation:

Select a microscopy technique.

Correction Collar:

For an objective with a correction collar, choose from Manual and Motorized.

PH:

For a phase contrast objective, select a PH code.

EXPH:

For a phase contrast objective, select the magnification of the objective.

DIC:

For a DIC objective, select a corresponding condenser module.

DIC Slider:

For a DIC objective, select a corresponding objective-side DIC prism..

DIC HR:

Select a high-resolution DIC prism type.

DIC Slider HR:

Select a high-resolution objective-side DIC prism.

DF:

For an objective for DF microscopy, select a corresponding condenser module.

NAMC:

For an objective for NAMC microscopy, select a corresponding condenser module.

2. To register another objective, select another number in [Number] and repeat step 1.

2.6.2 Registering a New Condenser Module

Up to 10 new condenser modules can be registered.

The condenser modules registered here can be selected in [Optional Condenser] in [Optical Device].

1. Set the following items in the [Optional Condenser] field.

Number:

Select a number with which a new condenser module is to be registered.

Name:

Specify a name.

2. To register another condenser module, select another number in [Number] and repeat step 1.

▼ Registering a new objective (continued from the previous page)

The screenshot shows a software interface with a sidebar on the left containing menu items: Home, XYZ, Assist Guide, Display, General, System, Connection, Optical Device, OPT Optical Device, Movement, Link, Function, Preference, Options, File, Information, and Send. The main area is titled 'XYZ' and contains several sections: Observation, Correction Collar, PH, EXPH, DIC, DIC Slider, DIC HR, DIC Slider HR, DF, NAMC, Optional Condenser, and Optional Filter. The 'Optional Condenser' section is highlighted with a red box and contains two input fields: 'Number' (with a dropdown arrow) and 'Name'.

▼ Registering a new condenser module

The screenshot shows the same software interface as above, but with the 'Optional Condenser' section highlighted by a red box. This section contains two input fields: 'Number' (with a dropdown arrow) and 'Name'.

2.6.3 Registering a New Filter Cube

Up to 10 new filter cubes can be registered.

The filter cubes registered here can be selected in [Filter 1] (or [Filter 2]) in [Optical Device].

1. Set the following items in the [Optional Filter] field.

Number:

Select a number with which a new filter cube is to be registered.

Name:

Specify a name.

EX:

Specify an excitation filter name.

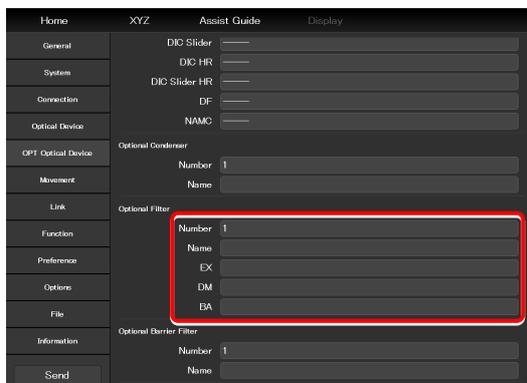
DM:

Specify a dichroic mirror name.

BA:

Specify a BA filter name.

▼ Registering a new filter cube



✔ **When specifying an excitation filter or a dichroic mirror name**

For an excitation filter name, specify “EX” as the first two letters and then specify the wavelength information. Examples: “EX450”, “EX450-490” (delimited by a hyphen) or “EX450/40” (the center wavelength and width are delimited by a slash)

Similarly, for a BA filter name, specify “BA” as the first two letters. For a dichroic mirror name, specify “DM” as the first two letters.

2. To register another filter cube, select another number in [Number] and repeat step 1.

2.6.4 Registering a New BA Filter: Ti2-E Only

Up to 10 new barrier (BA) filters can be registered.

The BA filters registered here can be selected in [Barrier Filter 1] (or [Barrier Filter 2]) in [Optical Device].

1. Set the following items in the [Optional Barrier Filter] field.

Number:

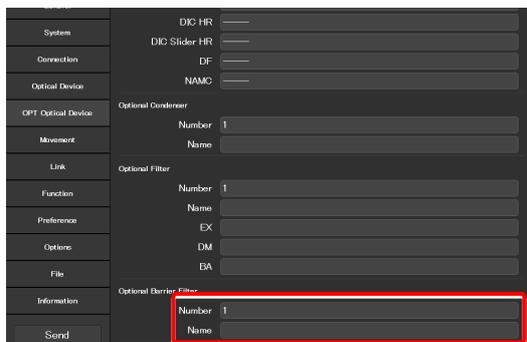
Select a number with which a new BA filter is to be registered.

Name:

Specify a name.

2. To register another BA filter, select another number in [Number] and repeat step 1.

▼ Registering a new BA filter

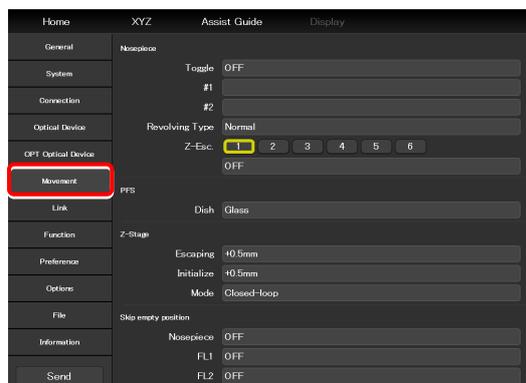


2.7 [Movement]: Setting the Movement: Ti2-E Only

This section describes how to set the movement of each motorized device.

1. Select [Movement] from the setting item selection area. ▼ Setting the movement

The movement setting screen appears.



2.7.1 Setting the Motorized Nosepiece

Set the movement of the motorized nosepiece.

1. Set the following items in the [Nosepiece] field. ▼ Setting the motorized nosepiece

Toggle:

If two objectives are registered, they can be toggled using the objective changeover switch of the microscope main body.

Assign toggle numbers (1 and 2) to the objectives. (“#1” and “#2” below allow settings for the objectives.)

#1:

Select the address of the nosepiece to which the first objective is attached.

#2:

Select the address of the nosepiece to which the second objective is attached.

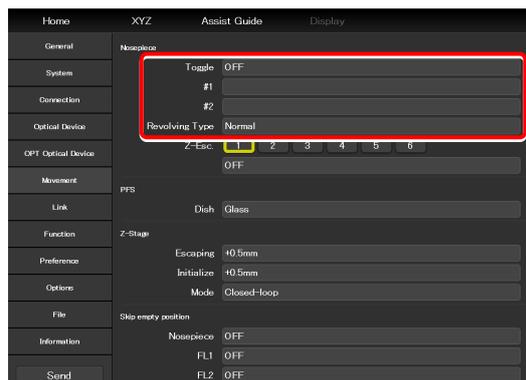
Revolving Type:

Select the operating pattern of the nosepiece.

Normal: Normal operation pattern

Shuttle: The nosepiece moves from 1 to 6 (or 6 to 1) via all addresses.

MEP59396: This is selected automatically when a motorized nosepiece of the motorized correction collar type is used.

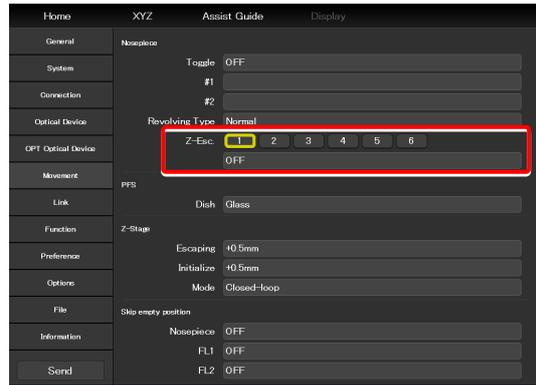


Z-Esc.:

It is possible to specify for each nosepiece address whether or not the objective is moved to the escape position when the nosepiece rotates.

Select the address of the nosepiece to which the target objective is attached.

If ON is set for an address, the objective is moved to the escape position before passing the selected address.



2.7.2 Setting the PFS

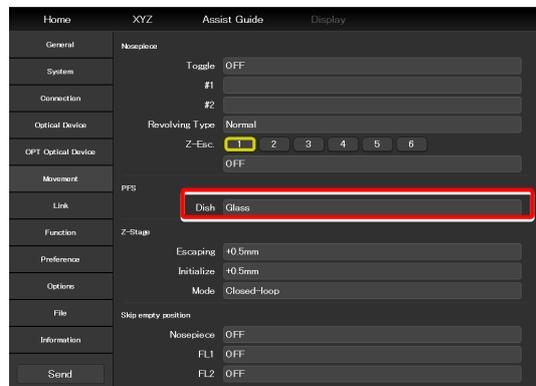
Set the type of the dish observed by using the PFS.

1. Set the following items in the [PFS] field.

Dish:

Select the dish type from [Glass] and [Plastic].

▼ Setting the PFS



2.7.3 Setting the Focusing Device (Z-Stage)

Set the movement of the focusing device (Z-stage).

1. Set the following items in the [Z-Stage] field.

Escaping:

Specify how far the objective is to be escaped when replacing the specimen.

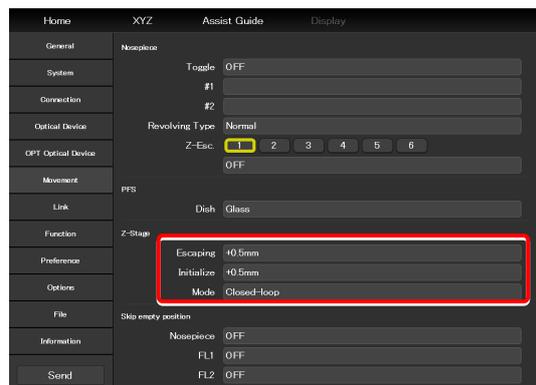
Initialize:

Specify where the objective is to be stopped when the microscope system is initialized.

Mode:

Select the focusing device control method from open loop and closed loop.
(This setting becomes effective when the controller for TI2-E is turned back on.)

▼ Setting the focusing device



2.7.4 Setting the Unallocated Address Skipping Function

If there is an address for which no optical device information is set when a motorized device rotates, specify whether to skip this address.

1. Set the following items in the [Skip empty position] field.

Nosepiece:

The nosepiece rotation when there is an address for which no objective information is set can be selected. (ON: The address for which no objective information is set is skipped.)

FL1:

The FL turret 1 rotation when there is an address for which no filter cube information is set can be selected. (ON: The address for which no filter cube information is set is skipped.)

FL2:

(Only when there is a second FL turret)

The FL turret 2 rotation when there is an address for which no filter cube information is set can be selected.

(ON: The address for which no filter cube information is set is skipped.)

Condenser:

Select the condenser turret rotation when there is an address for which no condenser module information is set.

(ON: The address for which no condenser module information is set is skipped.)

▼ Setting the unallocated address skipping function

The screenshot shows a software interface with a sidebar on the left containing menu items: Home, XYZ, Assist Guide, and Display. The main area is titled 'Skip empty position' and contains several settings:

- Toggle: OFF
- #1: [Input field]
- #2: [Input field]
- Revolving Type: Normal
- Z-Esc: 1, 2, 3, 4, 5, 6 (Option 1 is highlighted)
- OFF: [Input field]
- PI3: [Input field]
- Dish: Glass
- Z-Stage: [Input field]
- Escaping: +0.5mm
- Initialize: +0.5mm
- Mode: Closed-loop
- Skip empty position:
 - Nosepiece: OFF
 - FL1: OFF
 - FL2: OFF
 - Condenser: OFF

The 'Skip empty position' section is highlighted with a red box in the image.

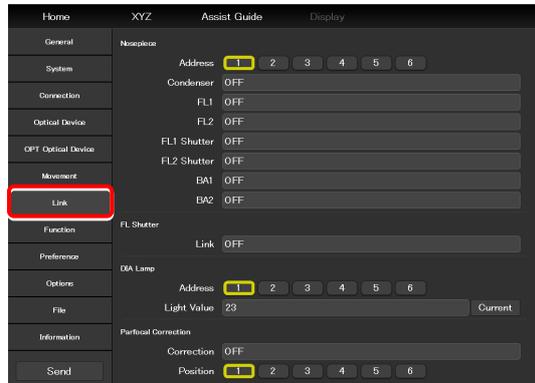
2.8 [Link]: Setting the Linking Function: Ti2-E Only

This section describes how to set the linking (interlocking) of other motorized devices when switching the objective.

1. Select [Link] from the setting item selection area.

The link control setting screen appears.

▼ Setting linked control



2.8.1 Setting a Linked Operation When the Objective Is Switched

Specify whether or not the devices are interlocked with the shuttle switches on the main body when they are depressed after the objective is switched.

1. Set the following items in the [Nosepiece] field.

Address:

Select the address of the nosepiece to which the target objective for link control is attached.

Condenser:

Select the condenser module to be linked when the objective is switched.

FL1:

Select the filter cube of FL turret 1 to be linked when the objective is switched.

FL2:

(Only when there is a second FL turret)

Select the filter cube of FL turret 2 to be linked when the objective is switched.

FL1 Shutter:

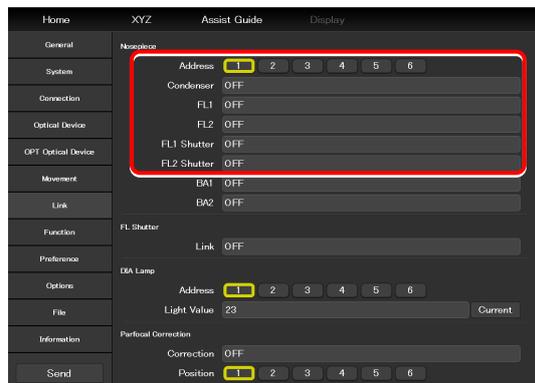
Select the state of the shutter of FL turret 1 to be linked when the objective is switched.

FL2 Shutter:

(Only when there is a second FL turret)

Select the state of the shutter of FL turret 2 to be linked when the objective is switched.

▼ Setting a linked operation when the objective is switched



BA1:

Select the BA filter of BA filter wheel 1 to be linked when the objective is switched.

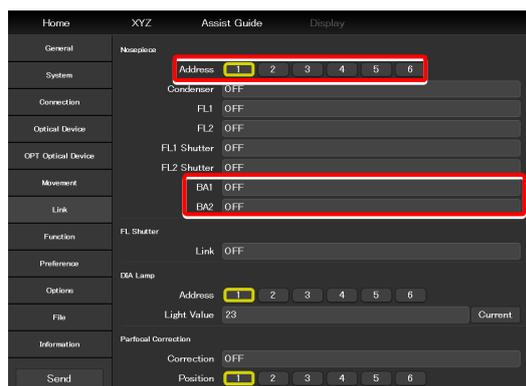
BA2:

(Only when there is a second BA filter wheel)

Select the BA filter of BA filter wheel 2 to be linked when the objective is switched.

2. If there is another objective as the target of link control, repeat step 1.

▼ Setting a linked operation when the objective is switched



2.8.2 Setting a Linked Operation of the Shutter

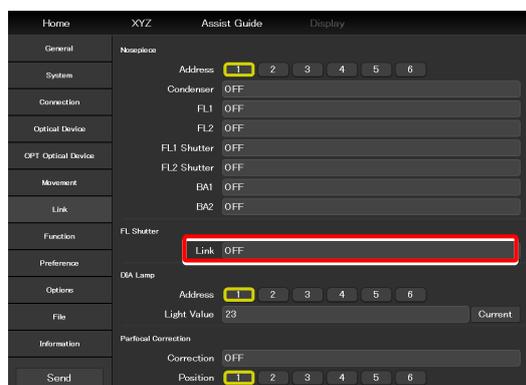
Specify whether the shutter in the FL turret is to be linked when the objective is switched.

1. Set the following items in the [FL Shutter] field.

Link:

Select [ON] to link the shutter when the objective is switched.

▼ Setting a linked operation of the shutter



2.8.3 Setting the Illumination Intensity of Dia-Illumination (DIA)

Specify whether diascope LED illumination intensity is to be changed when the objective is switched.

1. Set the following items in the [DIA Lamp] field.

Address:

Select the address of the nosepiece to which the target objective for link control is attached.

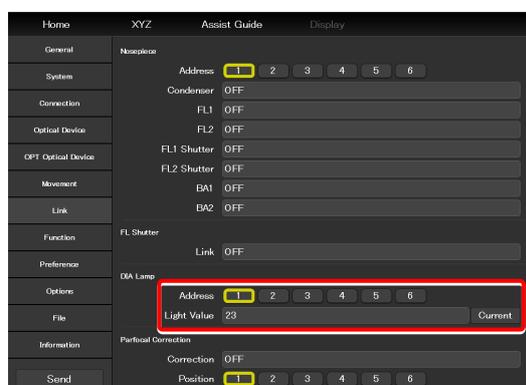
Light Value:

Specify an illumination intensity.
(Input range: 0 to 100)

Current button:

Allows the current value of the device to be read.

▼ Setting the illumination intensity of dia-illumination (DIA)



2.8.4 Setting the Parfocal Correction

If there is a shift in focal position when the objective is switched, this setting allows a correction.

1. Set and confirm the following items in the [Parfocal Correction] field.

Address:

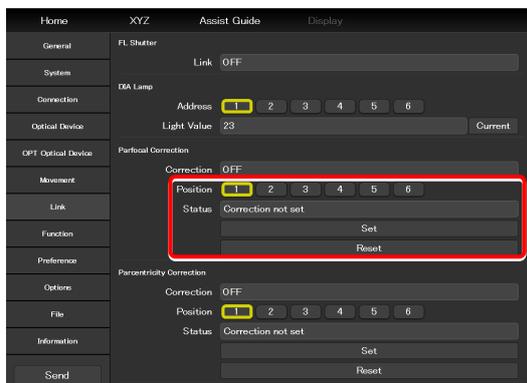
Select the address of the nosepiece to which the target objective is attached.

Status:

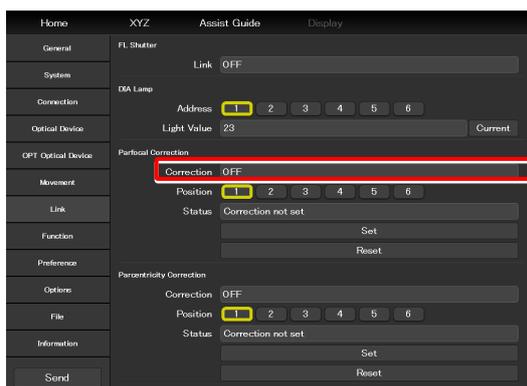
Indicates whether the objective is corrected or not.

2. Change the current objective to the maximum magnification objective on the microscope main body.
3. Focus on the specimen on the microscope main body.
4. Click [Set].
5. Repeat steps 1 to 4 to set the focal position for all addresses.
6. Click [Correction] to enable or disable the parfocal correction.

▼ Setting the parfocal correction



▼ Setting the parfocal correction



2.8.5 Setting the Parcentricity Correction

If there is a shift in center position when the objective is switched, this setting allows for correction.

1. Set and confirm the following items in the [Parcentricity Correction] field.

Address:

Select the address of the nosepiece to which the target objective is attached.

Status:

Indicates whether correction of the objective is set or not.

2. Change the current objective to the maximum magnification objective on the microscope main body.

3. Move the XY-stage so that an easy-to-identify object is at the center of the field of view.

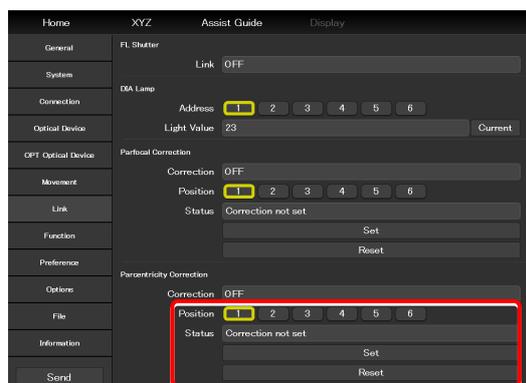
Use this object as a mark to correct the objective at another address.

4. Click [Set].

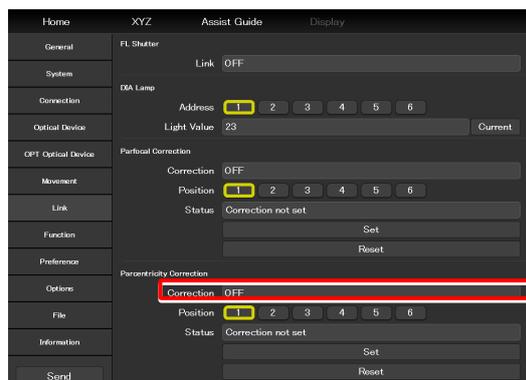
5. Repeat steps 1 to 4 to set the center position for all addresses.

6. Click [Correction] to enable or disable the parcentricity correction.

▼ Setting the parcentricity correction



▼ Setting the parcentricity correction



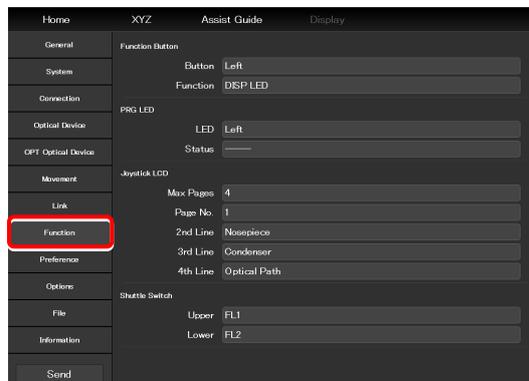
2.9 [Function]: Assigning Functions: Ti2-E Only

This section describes how to assign functions to the function buttons and LED indicators on the Ti2-E microscope main body, and the function buttons and LCD screen of the joystick.

1. Select [Function] from the setting item selection area.

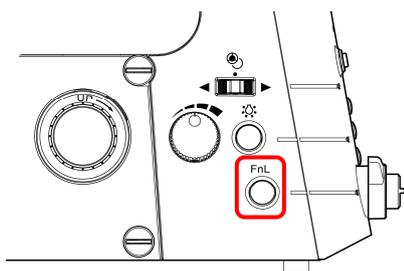
The function setting screen appears.

▼ Assigning functions

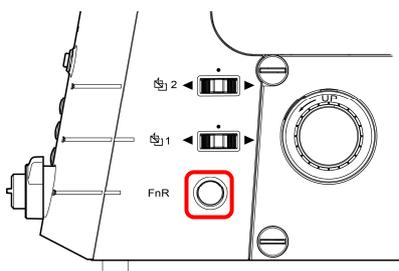


2.9.1 Setting the Function Buttons

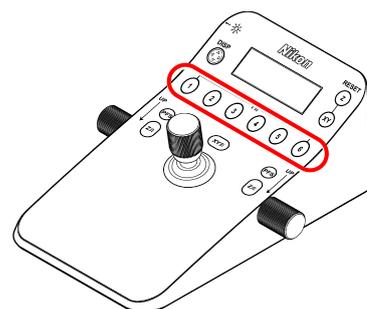
Assign functions to the function buttons (FnL and FnR buttons on the operation panels on the right and left sides) on the Ti2-E microscope main body, and the function buttons of the joystick.



Left operation panel



Right operation panel



Joystick

1. Set the following items in the [Function Button] field.

Function Button:

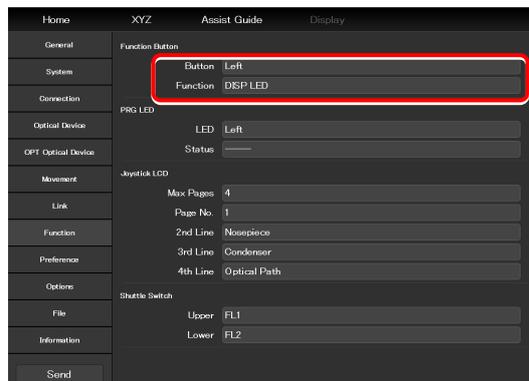
Select the position of the target function button on the microscope main body or the joystick.

Function:

Select the function to be assigned.

For the assignable functions, see "3.1 List of Functions Assigned to Function Buttons."

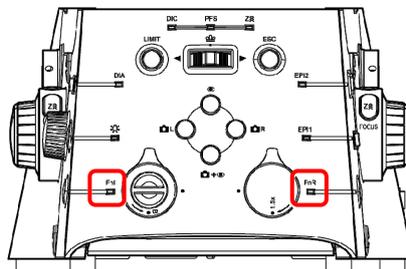
▼ Setting the function buttons of the microscope



2.9.2 Setting the FnL and FnR Indicators on the Microscope

Assign the operating status of an arbitrary function to the FnL or FnR LED indicator on the front operation panel of the Ti2-E microscope main body.

In the initial state, no function is assigned to the FnL and FnR indicators. The indicators do not light unless functions are assigned to them.



Front operation panel

1. Set the following items in the [PRG LED] field.

LED:

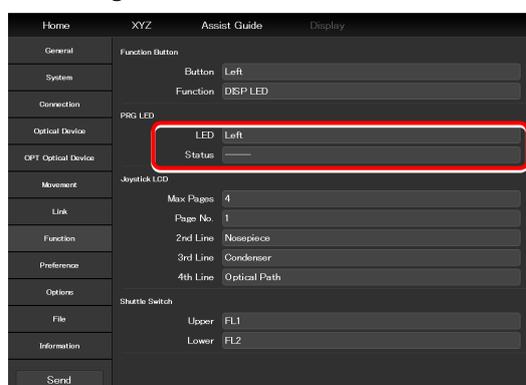
Select the position of the LED indicator on the microscope main body for which the operating status indication is enabled.

Status:

Select the function whose operating status is to be indicated.

For the assignable indication functions, see “3.2 List of Indication Functions Assigned to the LED Indicators of the Ti2-E Microscope Main Body.”

▼ Setting the LED indicators



2.9.3 Setting the LCD Display Screen of the Joystick

Set the function to be displayed on each LCD screen page of the joystick.

1. Set the following items in the [Joystick LCD] field.

Max Pages:

Set the maximum number of pages.

Page No.:

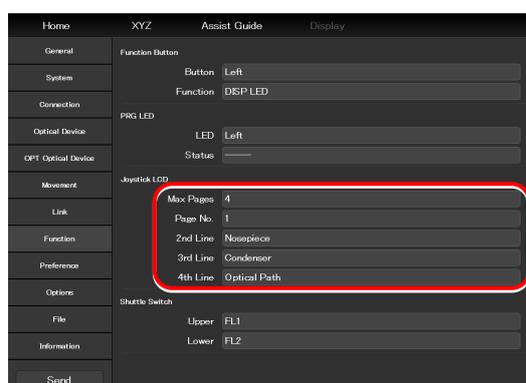
Select the target page number.

2nd Line to 4th Line:

Select the function to be assigned to each line.

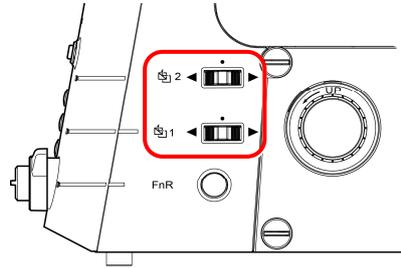
For the assignable functions, see “3.3 List of Functions Assigned to Joystick LCD Screen.”

▼ Setting the LCD display screen of the joystick



2.9.4 Setting the Shuttle Switches

The motorized FL turrets (1st and 2nd), barrier filters (1st and 2nd), or external Ph turret operation functions can be assigned to shuttle switches 1 and 2 of the Ti2-E microscope main body. (The default setting is the filter cube switches.)



Right operation panel

1. Set the following items in the [Shuttle Switch] fields.

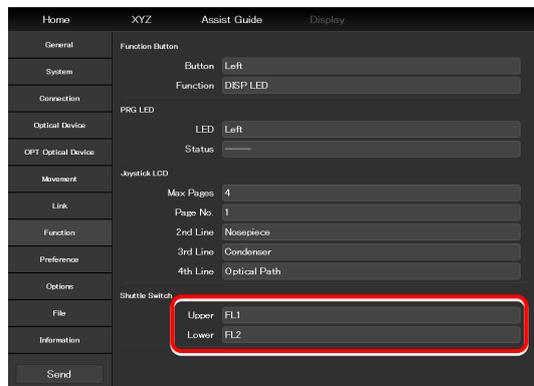
Upper:

Assign another operation function to shuttle switch 1 of the microscope main body.

Lower:

Assign another operation function to shuttle switch 2 of the microscope main body.

▼ Setting the shuttle switches



2.10 [Options]: Setting the Motorized Devices: For Ti2-E

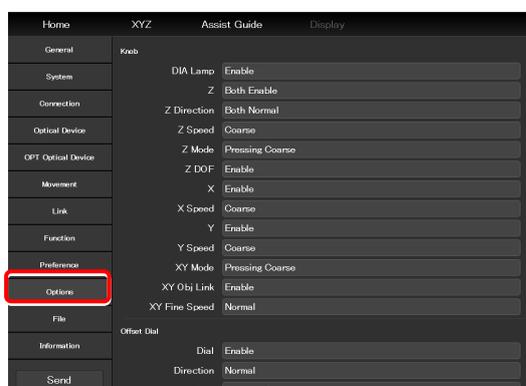
This section describes how to set the operation speed of the motorized device and whether the motorized device is to be controlled from the Ti2-E microscope main body or the joystick.

For details on the controllable functions of the Ti2-A, see “2.10.5 Ti2-A.”

1. Select [Options] from the setting item selection area.

The motorized device setting screen appears.

▼ Setting the motorized devices



2.10.1 Controlling Each Knob

This section describes how to control each knob.

1. Set the following items in the [Knob] field.

DIA Lamp:

Enable or disable the dia-illumination brightness adjuster operation.

Z:

Enable or disable the focusing device (Z-stage) control by the focus knob of the microscope main body or the joystick.

Z Direction:

Select the rotation direction of the focus knob and the moving direction of the focusing device (Z-stage) of the microscope main body and joystick.

Z Speed:

Select the movement speed of the focusing device (Z-stage), initiated by the focus knob of the microscope main body or joystick.

Z Mode:

Select the behavior when the Z coarse-motion button of the joystick is used.

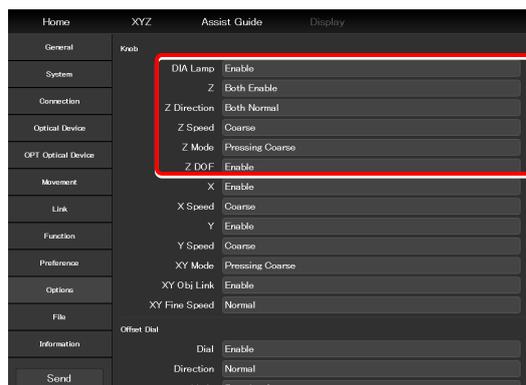
Pressing Coarse: Coarse motion only while the button is pressed

Toggle: Switches between coarse motion and fine motion.

Z DOF:

Specify whether to make the focusing device (Z-stage) move by the focus knob of the microscope main body or the joystick according to the NA.

▼ Setting each knob



X:

Enable or disable the control in the X-axis direction of the stage by using the stage drive lever of the joystick.

X Speed:

Select the movement speed in the X-axis direction of the stage by using the stage drive lever of the joystick.

Y:

Enable or disable the control in the Y-axis direction of the stage by using the stage drive lever of the joystick.

Y Speed:

Select the speed of the movement in the Y-axis direction of the stage initiated by using the stage drive lever of the joystick.

XY Mode:

Select the behavior when the XY coarse-motion button of the joystick is used.

Pressing Coarse: Coarse motion only while the button is pressed

Toggle: Switches between coarse motion and fine motion.

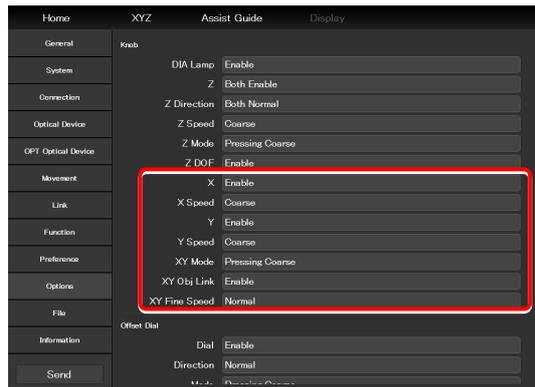
XY Obj Link:

Specify whether the speed of the XY stage is to be changed according to the magnification of the objective.

XY Fine Speed:

When “Normal” is selected, the XY stage moves in normal fine motion. When “Low” is selected, it moves in finer motion than “Normal”.

▼ **Setting each knob (Continued from the previous page)**



2.10.2 Controlling the PFS Offset Dial

This section describes how to control the PFS offset dial.

1. **Set the following items in the [Offset Dial] field.**

Dial:

Enable or disable the control of the PFS offset dial.

Direction:

Select the rotation direction of the PFS offset dial.

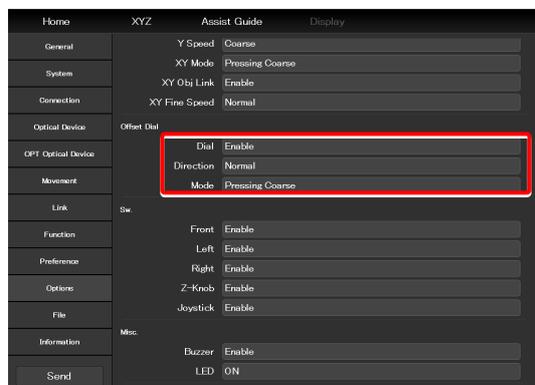
Mode:

Select the behavior when the Z coarse-motion button of the offset dial is used.

Pressing Coarse: Coarse motion only while the button is pressed

Toggle: Switches between coarse motion and fine motion.

▼ **Setting the offset dial**



2.10.3 Controlling the Switches

This section describes how to control each button (switch) of the microscope main body and joystick.

1. Set the following items in the [Sw.] field.

Front:

Enable or disable operation by the buttons or switches on the front operation panel of the microscope main body.

Left:

Enable or disable operation by the buttons or switches on the left operation panel of the microscope main body.

Right:

Enable or disable operation by the buttons or switches on the right operation panel of the microscope main body.

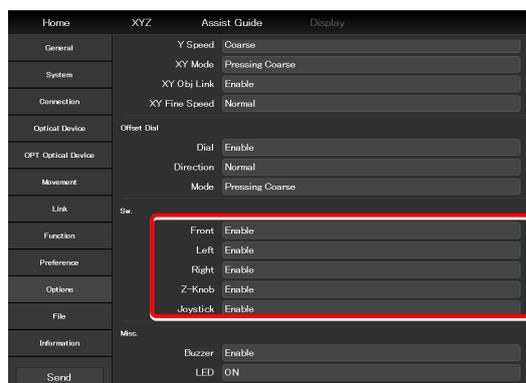
Z-Knob:

Enable or disable operation by the Z coarse-motion button of the focus knob on the both sides of the microscope main body.

Joystick:

Enable or disable operation by the buttons of the joystick.

▼ Controlling the switches



2.10.4 Other Control Items

This section describes other control items.

1. Set the following items in the [Misc.] field.

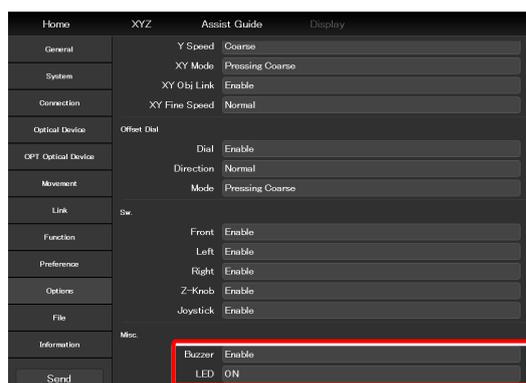
Buzzer:

Enable or disable the buzzer of the microscope main body.

LED

Turn on or off the LED of the microscope main body.

▼ Other control items



2.10.5 Ti2-A

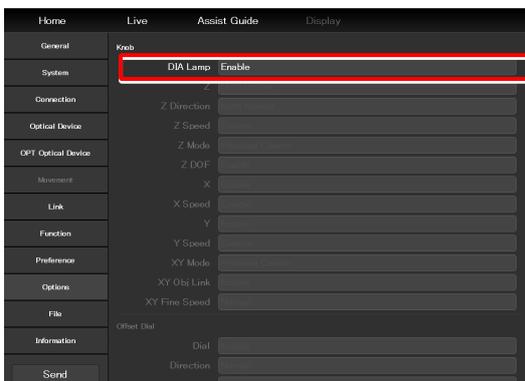
Set the controllable functions of the Ti2-A.

1. Set the following items in the [Knob] field.

DIA Lamp:

Enable or disable the dia-illumination brightness adjuster operation.

▼ Setting each knob

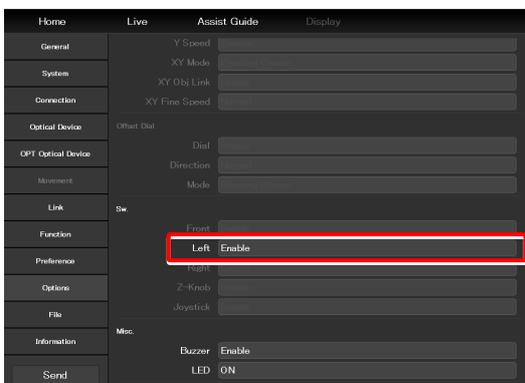


2. Set the following items in the [Sw.] field.

Left:

Enable or disable operation by the buttons or switches on the left operation panel of the microscope main body.

▼ Controlling the switches



3. Set the following items in the [Misc.] field.

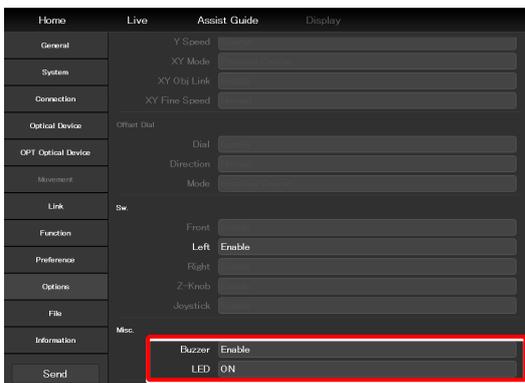
Buzzer:

Enable or disable the buzzer of the microscope main body.

LED:

Turn on or off the LED of the microscope main body.

▼ Other control items



2.11 [File]: Saving and Reading Settings

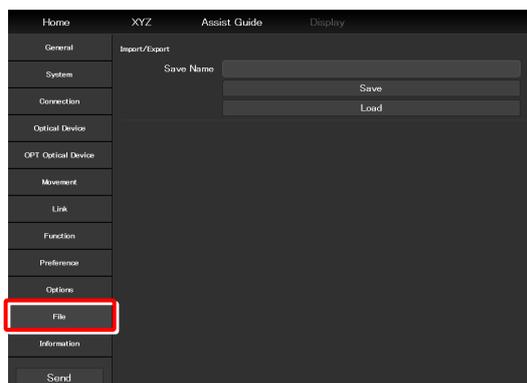
This section describes how to save or read settings.

The settings made by using the “Ti2 Control” application can be saved (as a configuration file) in the personal computer and read later.

More than one configuration file can be saved, with a file for each user. The settings of the microscope system can be changed by reading different configuration files.

1. Select [File] from the setting item selection area.

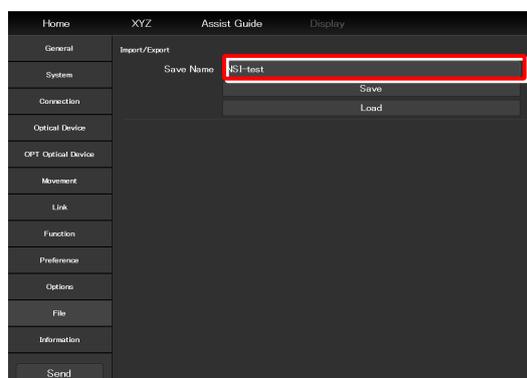
▼ Setting a file



2.11.1 Saving the Settings

1. Specify a file name in [Save Name] in the [Import/Export] field.

▼ Saving the settings



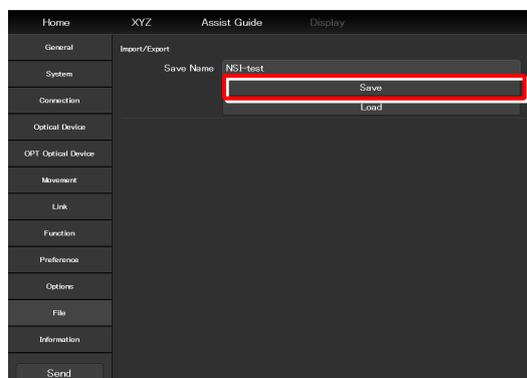
2. Click [Save].

The setting information will be saved.

✔ SUPPLEMENTAL REMARKS

If the file name specified in step 1 already exists, a confirmation message appears after [Save] is clicked, asking whether the file is to be overwritten.

Click [Yes] to overwrite the file or [Cancel] to cancel saving the file.

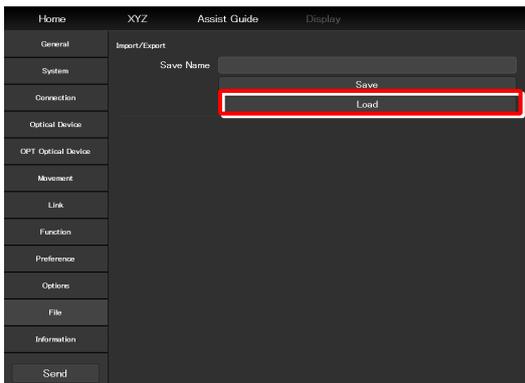


2.11.2 Reading the Settings

1. Click [Load] in the [Import/Export] field.

The file selection screen appears.

▼ Reading the settings

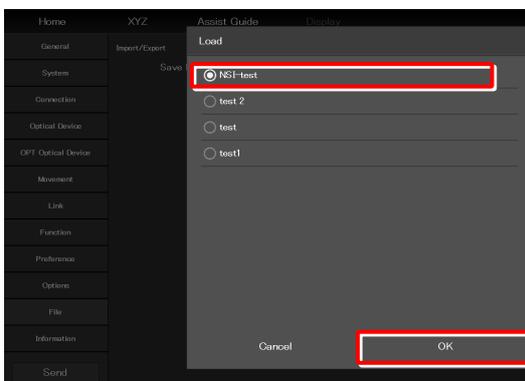


2. Select the setting information to be loaded.

3. Click [OK].

The setting information that is saved is loaded and reflected on each setting screen.

▼ File selection screen

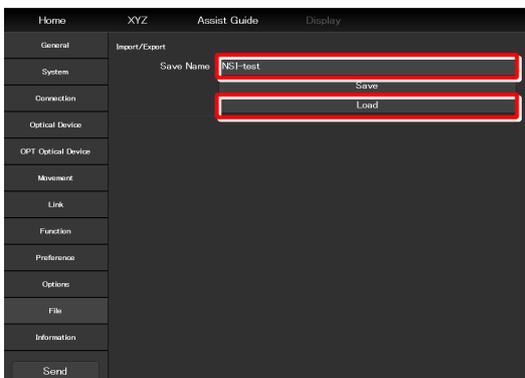


✔ SUPPLEMENTAL REMARKS

When a file name is specified in [Save Name] and [Load] is clicked, setting information is loaded and reflected on each setting screen if the specified file exists.

If the specified file does not exist at this time, a file selection screen will appear. Specify a file.

▼ Reading the settings



This completes the setup procedure.

Click [Send] in the setting item selection area to send the setting information to the microscope.

2.12 [Information]: Version Information

This section describes how to confirm the version of the application and the controller for the microscope.

1. Select [Information] on the setting item selection area.

The version of the application, the controller and the microscope main body will be displayed.

The version information on each Ti2 series microscope will be displayed.

Ti2 Control:

Version of this application

Ti2-E [Microscope Main Body]:

FPGA version of the Ti2-E main body when the Ti2-E main body is in use

[Controller CPU]:

CPU version of the controller for Ti2-E when the Ti2-E main body is in use

[Controller FPGA]:

FPGA version of the controller for Ti2-E when the Ti2-E main body is in use

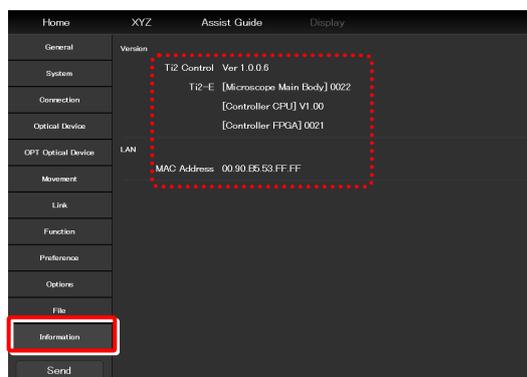
Ti2-A:

CPU version of the Ti2-A main body when the Ti2-A main body is in use

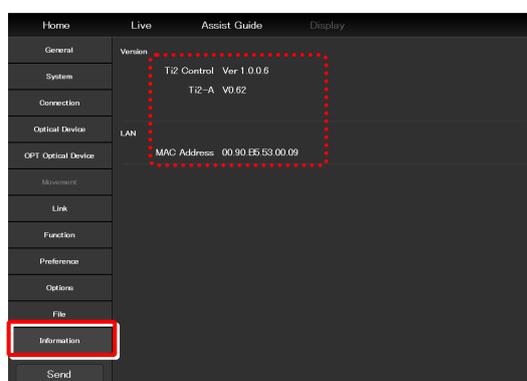
MAC Address:

MAC address of the currently used microscope system

▼ Version information (For Ti2-E)



▼ Version information (For Ti2-A)



Chapter

3

Appendix (Ti2-E Only)

This chapter lists the functions assigned to function buttons on the Ti2-E microscope main body and the joystick.

3.1 List of Functions Assigned to Function Buttons

3.1.1 Initial Setting of the Function Buttons on the Ti2-E Microscope Main Body

The table below lists the default functions assigned to the function buttons on the Ti2-E microscope main body.

Button name	Indicated name	Functional overview
FnR button	I/O1OUT TRIG.	Trigger output of digital I/O channel 1
FnL button	DISP LED	Turns on or off the LED indicators on the front of the microscope main body.

3.1.2 Initial Setting of the Function Buttons on the Joystick

The table below lists the default functions assigned to the function buttons on the joystick.

Button name	Indicated name	Functional overview
Fn1	MODE1 MEM-RECALL	Memorizes and recalls Mode 1.
Fn2	MODE2 MEM-RECALL	Memorizes and recalls Mode 2.
Fn3	COND SHIFT	Shifts the condenser.
Fn4	COND SHUTTER MOVE	Shifts the condenser shutter address.
Fn5	FL1st SHIFT	Shifts FL turret 1.
Fn6	FL1SH OPEN-CLOSE	Opens or closes FL turret 1 shutter.

3.1.3 Functions That Can Be Registered

The table below lists the functions that can be assigned to the function buttons on the Ti2-E microscope main body and the joystick. All these functions can be assigned from "Ti2 Control."

No.	ID	Indicated name	Functional overview	Operations that can be set from the joystick (✓✓ indicates the default.)	
				Fn1 to 6 buttons on the joystick	FnL/FnR button on the microscope main body
1	0	—— (NULL)	Nothing is to be set.	✓	✓
2	10	REVO SHIFT	Move the joystick to the left in the X direction while pressing the button: Turns the nosepiece clockwise. Move the joystick to the right in the X direction while pressing the button: Turns the nosepiece counterclockwise.	✓	
3	11	REVO 1	Moves to nosepiece address 1.		
4	12	REVO 2	Moves to nosepiece address 2.		
5	13	REVO 3	Moves to nosepiece address 3.		
6	14	REVO 4	Moves to nosepiece address 4.		
7	15	REVO 5	Moves to nosepiece address 5.		
8	16	REVO 6	Moves to nosepiece address 6.		
9	18	REVO CW	Turns the nosepiece clockwise.		
10	19	REVO CCW	Turns the nosepiece counterclockwise.		
11	20	COND SHIFT	Move the joystick to the left in the X direction while pressing the button: Turns the condenser clockwise. Move the joystick to the right in the X direction while pressing the button: Turns the condenser counterclockwise.	✓✓ (Fn3)	
12	21	COND 1	Moves to condenser address 1.		
13	22	COND 2	Moves to condenser address 2.		
14	23	COND 3	Moves to condenser address 3.		
15	24	COND 4	Moves to condenser address 4.		
16	25	COND 5	Moves to condenser address 5.		
17	26	COND 6	Moves to condenser address 6.		

No.	ID	Indicated name	Functional overview	Operations that can be set from the joystick (✓✓ indicates the default.)	
				Fn1 to 6 buttons on the joystick	FnL/FnR button on the microscope main body
18	27	COND 7	Moves to condenser address 7.		
19	28	COND CW	Turns the condenser clockwise.		
20	29	COND CCW	Turns the condenser counterclockwise.		
21	30	FL1st SHIFT	Move the joystick to the left in the X direction while pressing the button: Turns FL turret 1 clockwise. Move the joystick to the right in the X direction while pressing the button: Turns FL turret 1 counterclockwise.	✓✓ (Fn5)	
22	31	FL1st 1	Moves FL turret 1 to address 1.		
23	32	FL1st 2	Moves FL turret 1 to address 2.		
24	33	FL1st 3	Moves FL turret 1 to address 3.		
25	34	FL1st 4	Moves FL turret 1 to address 4.		
26	35	FL1st 5	Moves to address 5 of FL turret 1.		
27	36	FL1st 6	Moves to address 6 of FL turret 1.		
28	38	FL1st CW	Turns FL turret 1 clockwise.		
29	39	FL1st CCW	Turns FL turret 1 counterclockwise.		
30	40	FL2nd SHIFT	Move the joystick to the left in the X direction while pressing the button: Turns FL turret 2 clockwise. Move the joystick to the right in the X direction while pressing the button: Turns FL turret 2 counterclockwise.	✓	
31	41	FL2nd 1	Moves FL turret 2 to address 1.		
32	42	FL2nd 2	Moves FL turret 2 to address 2.		
33	43	FL2nd 3	Moves FL turret 2 to address 3.		
34	44	FL2nd 4	Moves FL turret 2 to address 4.		
35	45	FL2nd 5	Moves FL turret 2 to address 5.		
36	46	FL2nd 6	Moves FL turret 2 to address 6.		
37	48	FL2nd CW	Turns FL turret 2 clockwise.		
38	49	FL2nd CCW	Turns FL turret 2 counterclockwise.		
39	50	BA1st SHIFT	Move the joystick to the left in the X direction while pressing the button: Turns BA filter wheel 1 clockwise. Move the joystick to the right in the X direction while pressing the button: Turns BA filter wheel 1 counterclockwise.	✓	
40	51	BA1st 1	Moves BA filter wheel 1 to address 1.		
41	52	BA1st 2	Moves BA filter wheel 1 to address 2.		
42	53	BA1st 3	Moves BA filter wheel 1 to address 3.		
43	54	BA1st 4	Moves BA filter wheel 1 to address 4.		
44	55	BA1st 5	Moves BA filter wheel 1 to address 5.		
45	56	BA1st 6	Moves BA filter wheel 1 to address 6.		
46	57	BA1st 7	Moves BA filter wheel 1 to address 7.		
47	58	BA1st CW	Turns BA filter wheel 1 clockwise.		✓
48	59	BA1st CCW	Turns BA filter wheel 1 counterclockwise.		✓
49	60	BA2nd SHIFT	Move the joystick to the left in the X direction while pressing the button: Turns BA filter wheel 2 clockwise. Move the joystick to the right in the X direction while pressing the button: Turns BA filter wheel 1 counterclockwise.	✓	
50	61	BA2nd 1	Moves BA filter wheel 2 to address 1.		
51	62	BA2nd 2	Moves BA filter wheel 2 to address 2.		
52	63	BA2nd 3	Moves BA filter wheel 2 to address 3.		
53	64	BA2nd 4	Moves BA filter wheel 2 to address 4.		
54	65	BA2nd 5	Moves BA filter wheel 2 to address 5.		

No.	ID	Indicated name	Functional overview	Operations that can be set from the joystick (✓✓ indicates the default.)	
				Fn1 to 6 buttons on the joystick	FnL/FnR button on the microscope main body
55	66	BA2nd 6	Moves BA filter wheel 2 to address 6.		
56	67	BA2nd 7	Moves BA filter wheel 2 to address 7.		
57	68	BA2nd CW	Turns BA filter wheel 2 clockwise.		✓
58	69	BA2nd CCW	Turns BA filter wheel 2 counterclockwise.		✓
59	70	PATH SHIFT	Move the joystick along the XY direction of the joystick while pressing the button for optical path switching: X+: R100, X-: L100, Y+: EYE, Y-: AUX	✓	
60	71	PATH EYE	Switches the optical path to EYE.		
61	72	PATH R100	Switches the optical path to R100.		
62	73	PATH L100	Switches the optical path to L100.		
63	74	PATH AUX	Switches the optical path to AUX.		
64	75	PATH EYE-R100	Toggles the optical path between EYE and R100.		
65	76	PATH EYE-L100	Toggles the optical path between EYE and L100.		
66	77	PATH EYE-AUX	Toggles the optical path between EYE and AUX.		
67	78	PATH R100-L100	Toggles the optical path between R100 and L100.		
68	79	PATH R100-AUX	Toggles the optical path between R100 and AUX.		
69	80	PATH L100-AUX	Toggles the optical path between L100 and AUX.		
70	81	PATH ALL	Switches the optical path from EYE to R100, AUX, L100 and then back to EYE.		
71	92	Z ZERO RESET	Resets the elevating movement (Z-axis coordinate) to 0.		
72	93	Z ESCAPE-REFOCUS	Toggles the elevating movement between escape and restore positions.	✓	
73	94	Z ESCAPE	Places the elevating section in the escape position.		
74	95	Z REFOCUS	Restores the elevating section to the original position.		
75	96	Z LIMIT	Sets or releases the software limit (Z limit) on the elevating section.		
76	102	X ZERO RESET	Resets the XY stage (X-axis coordinate) to 0.		
77	103	Y ZERO RESET	Resets the XY stage (Y-axis coordinate) to 0.		
78	104	XY ZERO RESET	Resets the XY stage (XY-axis coordinates) to 0.		
79	105	XY CONSTANT SPEED	Turns on or off the joystick constant speed mode for the XY stage.	✓	
80	106	XY JOYFINESPEED	Sets the joystick fine speed for the XY stage to normal or low speed.	✓	
81	111	SH1 OPEN-CLOSE	Opens or closes motorized shutter 1.	✓	✓
82	112	SH2 OPEN-CLOSE	Opens or closes motorized shutter 2.	✓	✓
83	113	FL1SH OPEN-CLOSE	Opens or closes FL turret 1 shutter.	✓✓ (Fn6)	
84	114	FL2SH OPEN-CLOSE	Opens or closes FL turret 2 shutter.	✓	
85	115	COND SHUTTER MOVE	Moves the condenser shutter position.	✓✓ (Fn4)	
86	120	LED SHIFT	Adjusts brightness by turning the focus knobs while pressing the button.	✓	
87	121	LED ON-OFF	Turns on and off diascope LED illumination.	✓	
88	122	LED UP	Increases the illumination intensity of diascope LED illumination.		
89	123	LED DOWN	Decreases the illumination intensity of diascope LED illumination.		
90	124	HALOGEN SHIFT	Adjusts brightness by turning the focus knobs while pressing the button.	✓	
91	125	HALOGEN ON-OFF	Turns on and off halogen dia-illumination.	✓	

No.	ID	Indicated name	Functional overview	Operations that can be set from the joystick (✓✓ indicates the default.)	
				Fn1 to 6 buttons on the joystick	FnL/FnR button on the microscope main body
92	126	HALOGEN UP	Increases the illumination intensity of halogen dia-illumination.		
93	127	HALOGEN DOWN	Decreases the illumination intensity of halogen dia-illumination.		
94	131	PFS ON-OFF	Turns on or off PFS4.		
95	132	PFS DM	Brings the PFS dichroic mirror to the IN or OUT position.	✓	
96	133	PFS OFFSET ZERO	Moves the offset lens to offset 0 position.		✓
97	134	PFS LED OFF	Turns on or off the PFS LED.		
98	137	OLSP COARSE-FINE	Switches the PFS4 offset knob between coarse motion and fine motion.		
99	140	TUBEBASE SHIFT	Move the joystick to the left in the X direction while pressing the button: Turns the tube base's external Ph turret clockwise. Move the joystick to the right in the X direction while pressing the button: Turns the tube base's external Ph turret counterclockwise.	✓	
100	141	TUBEBASE 1	Moves the tube base's external Ph turret to address 1.		
101	142	TUBEBASE 2	Moves the tube base's external Ph turret to address 2.		
102	143	TUBEBASE 3	Moves the tube base's external Ph turret to address 3.		
103	144	TUBEBASE 4	Moves the tube base's external Ph turret to address 4.		
104	148	TUBEBASE CW	Turns the tube base's external Ph turret clockwise.		✓
105	149	TUBEBASE CCW	Turns the tube base's external Ph turret counterclockwise.		✓
106	151	MBRANCH1st IN-OUT	Brings the epi-illumination attachment's Lapp main branch 1 to the IN or OUT position.	✓	✓
107	152	MBRANCH2nd IN-OUT	Brings the epi-illumination attachment's Lapp main branch 2 to the IN or OUT position.	✓	✓
108	153	SBRANCH IN-OUT	Brings the epi-illumination attachment's Lapp sub branch to the IN or OUT position.	✓	✓
109	161	EPILED UNIT#1	Selects LED unit #1 of the epi-fl LED illuminator.		
110	162	EPILED UNIT#2	Selects LED unit #2 of the epi-fl LED illuminator.		
111	163	EPILED UNIT#3	Selects LED unit #3 of the epi-fl LED illuminator.		
112	164	EPILED UNIT#4	Selects LED unit #4 of the epi-fl LED illuminator.		
113	165	EPILED UNIT ALL	Switches the LED unit of the epi-fl LED illuminator from #1 to #2, #3, #4, and then back to #1.		
114	166	EPILED UP	Increases the illumination intensity of the selected LED unit of the epi-fl LED illuminator.		
115	167	EPILED DOWN	Decreases the illumination intensity of the selected LED unit of the epi-fl LED illuminator.		
116	168	EPILED ON-OFF	Turns on or off the selected LED unit of the epi-fl LED illuminator.		
117	170	INTSL SHIFT	Move the joystick to the left in the X direction while pressing the button: Turns the ND clockwise. Move the joystick to the right in the X direction while pressing the button: Turns the ND counterclockwise.		
118	171	INTSL ND CW	Turns the IntensiLight ND clockwise.		
119	172	INTSL ND CCW	Turns the IntensiLight ND counterclockwise.		
120	173	INT.SH OPEN-CLOSE	Opens or closes the IntensiLight shutter.		
121	180	CORCOL SHIFT	Moves the motorized correction collar in the +/- direction when the focus knobs are turned while the button is pressed.	✓	
122	191	MODE1 MEMORY	Memorizes Mode 1 setting.		
123	192	MODE2 MEMORY	Memorizes Mode 2 setting.		
124	193	MODE3 MEMORY	Memorizes Mode 3 setting.		
125	194	MODE4 MEMORY	Memorize Mode 4 setting.		

No.	ID	Indicated name	Functional overview	Operations that can be set from the joystick (✓✓ indicates the default.)	
				Fn1 to 6 buttons on the joystick	FnL/FnR button on the microscope main body
126	195	MODE5 MEMORY	Memorizes Mode 5 setting.		
127	196	MODE6 MEMORY	Memorizes Mode 6 setting.		
128	197	MODE7 MEMORY	Memorizes Mode 7 setting.		
129	198	MODE8 MEMORY	Memorizes Mode 8 setting.		
130	201	MODE1 RECALL	Recalls Mode 1 setting.		
131	202	MODE2 RECALL	Recalls Mode 2 setting.		
132	203	MODE3 RECALL	Recalls Mode 3 setting.		
133	204	MODE4 RECALL	Recalls Mode 4 setting.		
134	205	MODE5 RECALL	Recalls Mode 5 setting.		
135	206	MODE6 RECALL	Recalls Mode 6 setting.		
136	207	MODE7 RECALL	Recalls Mode 7 setting.		
137	208	MODE8 RECALL	Recalls Mode 8 setting.		
138	211	MODE1 MEM-RECALL	Short press: Recalls Mode 1 setting. Long press: Memorizes Mode 1 setting.	✓✓ (Fn1)	✓
139	212	MODE2 MEM-RECALL	Short press: Recalls Mode 2 setting. Long press: Memorizes Mode 2 setting.	✓✓ (Fn2)	✓
140	213	MODE3 MEM-RECALL	Short press: Recalls Mode 3 setting. Long press: Memorizes Mode 3 setting.	✓	✓
141	214	MODE4 MEM-RECALL	Short press: Recalls Mode 4 setting. Long press: Memorizes Mode 4 setting.	✓	✓
142	215	MODE5 MEM-RECALL	Short press: Recalls Mode 5 setting. Long press: Memorizes Mode 5 setting.		
143	216	MODE6 MEM-RECALL	Short press: Recalls Mode 6 setting. Long press: Memorizes Mode 6 setting.		
144	217	MODE7 MEM-RECALL	Short press: Recalls Mode 7 setting. Long press: Memorizes Mode 7 setting.		
145	218	MODE8 MEM-RECALL	Short press: Recalls Mode 8 setting. Long press: Memorizes Mode 8 setting.		
146	221	I/O1OUT TRIG.	Trigger output of control box I/O channel 1	✓	✓ (FnR)
147	222	I/O2OUT TRIG.	Trigger output of control box I/O channel 2	✓	✓
148	223	I/O3OUT TRIG.	Trigger output of control box I/O channel 3		
149	224	I/O4OUT TRIG.	Trigger output of control box I/O channel 4		
150	225	I/O5OUT TRIG.	Trigger output of control box I/O channel 5		
151	226	I/O6OUT TRIG.	Trigger output of control box I/O channel 6		
152	227	I/O7OUT TRIG.	Trigger output of control box I/O channel 7		
153	228	I/O8OUT TRIG.	Trigger output of control box I/O channel 8		
154	231	I/O1OUT TOGGLE	Switches the control box I/O channel 1 output between High and Low.	✓	✓
155	232	I/O2OUT TOGGLE	Switches the control box I/O channel 2 output between High and Low.	✓	✓
156	233	I/O3OUT TOGGLE	Switches the control box I/O channel 3 output between High and Low.		
157	234	I/O4OUT TOGGLE	Switches the control box I/O channel 4 output between High and Low.		
158	235	I/O5OUT TOGGLE	Switches the control box I/O channel 5 output between High and Low.		
159	236	I/O6OUT TOGGLE	Switches the control box I/O channel 6 output between High and Low.		
160	237	I/O7OUT TOGGLE	Switches the control box I/O channel 7 output between High and Low.		
161	238	I/O8OUT TOGGLE	Switches the control box I/O channel 8 output between High and Low.		

No.	ID	Indicated name	Functional overview	Operations that can be set from the joystick (✓✓ indicates the default.)	
				Fn1 to 6 buttons on the joystick	FnL/FnR button on the microscope main body
162	241	I/O1OUT PUSH	Drives the control box I/O channel 1 output. High when pushed.	✓	✓
163	242	I/O2OUT PUSH	Drives the control box I/O channel 2 output. High when pushed.	✓	✓
164	243	I/O3OUT PUSH	Drives the control box I/O channel 3 output. High when pushed.		
165	244	I/O4OUT PUSH	Drives the control box I/O channel 4 output. High when pushed.		
166	245	I/O5OUT PUSH	Drives the control box I/O channel 5 output. High when pushed.		
167	246	I/O6OUT PUSH	Drives the control box I/O channel 6 output. High when pushed.		
168	247	I/O7OUT PUSH	Drives the control box I/O channel 7 output. High when pushed.		
169	248	I/O8OUT PUSH	Drives the control box I/O channel 8 output. High when pushed.		
170	251	EXI/O1OUT TRIG.	Trigger output of extension box I/O channel 1		
171	252	EXI/O2OUT TRIG.	Trigger output of extension box I/O channel 2		
172	253	EXI/O3OUT TRIG.	Trigger output of extension box I/O channel 3		
173	254	EXI/O4OUT TRIG.	Trigger output of extension box I/O channel 4		
174	255	EXI/O5OUT TRIG.	Trigger output of extension box I/O channel 5		
175	256	EXI/O6OUT TRIG.	Trigger output of extension box I/O channel 6		
176	257	EXI/O7OUT TRIG.	Trigger output of extension box I/O channel 7		
177	258	EXI/O8OUT TRIG.	Trigger output of extension box I/O channel 8		
178	259	EXI/O9OUT TRIG.	Trigger output of extension box I/O channel 9		
179	260	EXI/O10OUT TRIG.	Trigger output of extension box I/O channel 10		
180	261	EXI/O11OUT TRIG.	Trigger output of extension box I/O channel 11		
181	262	EXI/O12OUT TRIG.	Trigger output of extension box I/O channel 12		
182	263	EXI/O13OUT TRIG.	Trigger output of extension box I/O channel 13		
183	264	EXI/O14OUT TRIG.	Trigger output of extension box I/O channel 14		
184	265	EXI/O15OUT TRIG.	Trigger output of extension box I/O channel 15		
185	266	EXI/O16OUT TRIG.	Trigger output of extension box I/O channel 16		
186	271	EXI/O1OUT TOGGLE	Switches the extension box I/O channel 1 output between High and Low.		
187	272	EXI/O2OUT TOGGLE	Switches the extension box I/O channel 2 output between High and Low.		
188	273	EXI/O3OUT TOGGLE	Switches the extension box I/O channel 3 output between High and Low.		
189	274	EXI/O4OUT TOGGLE	Switches the extension box I/O channel 4 output between High and Low.		
190	275	EXI/O5OUT TOGGLE	Switches the extension box I/O channel 5 output between High and Low.		
191	276	EXI/O6OUT TOGGLE	Switches the extension box I/O channel 6 output between High and Low.		
192	277	EXI/O7OUT TOGGLE	Switches the extension box I/O channel 7 output between High and Low.		
193	278	EXI/O8OUT TOGGLE	Switches the extension box I/O channel 8 output between High and Low.		
194	279	EXI/O9OUT TOGGLE	Switches the extension box I/O channel 9 output between High and Low.		
195	280	EXI/O10OUT TOGGLE	Switches the extension box I/O channel 10 output between High and Low.		
196	281	EXI/O11OUT TOGGLE	Switches the extension box I/O channel 11 output between High and Low.		

No.	ID	Indicated name	Functional overview	Operations that can be set from the joystick (✓✓ indicates the default.)	
				Fn1 to 6 buttons on the joystick	FnL/FnR button on the microscope main body
197	282	EXI/O12OUT TOGGLE	Switches the extension box I/O channel 12 output between High and Low.		
198	283	EXI/O13OUT TOGGLE	Switches the extension box I/O channel 13 output between High and Low.		
199	284	EXI/O14OUT TOGGLE	Switches the extension box I/O channel 14 output between High and Low.		
200	285	EXI/O15OUT TOGGLE	Switches the extension box I/O channel 15 output between High and Low.		
201	286	EXI/O16OUT TOGGLE	Switches the extension box I/O channel 16 output between High and Low.		
202	291	EXI/O1OUT PUSH	Drives the extension box I/O channel 1 output. High when pushed.		
203	292	EXI/O2OUT PUSH	Drives the extension box I/O channel 2 output. High when pushed.		
204	293	EXI/O3OUT PUSH	Drives the extension box I/O channel 3 output. High when pushed.		
205	294	EXI/O4OUT PUSH	Drives the extension box I/O channel 4 output. High when pushed.		
206	295	EXI/O5OUT PUSH	Drives the extension box I/O channel 5 output. High when pushed.		
207	296	EXI/O6OUT PUSH	Drives the extension box I/O channel 6 output. High when pushed.		
208	297	EXI/O7OUT PUSH	Drives the extension box I/O channel 7 output. High when pushed.		
209	298	EXI/O8OUT PUSH	Drives the extension box I/O channel 8 output. High when pushed.		
210	299	EXI/O9OUT PUSH	Drives the extension box I/O channel 9 output. High when pushed.		
211	300	EXI/O10OUT PUSH	Drives the extension box I/O channel 10 output. High when pushed.		
212	301	EXI/O11OUT PUSH	Drives the extension box I/O channel 11 output. High when pushed.		
213	302	EXI/O12OUT PUSH	Drives the extension box I/O channel 12 output. High when pushed.		
214	303	EXI/O13OUT PUSH	Drives the extension box I/O channel 13 output. High when pushed.		
215	304	EXI/O14OUT PUSH	Drives the extension box I/O channel 14 output. High when pushed.		
216	305	EXI/O15OUT PUSH	Drives the extension box I/O channel 15 output. High when pushed.		
217	306	EXI/O16OUT PUSH	Drives the extension box I/O channel 16 output. High when pushed.		
218	311	DISP LED	Turns on or off the LED indicators on the front of the microscope main body.	✓	✓✓ (FnL)
219	312	OBJ COMBINATION	Linked operation of the nosepiece and optical devices		

3.2 List of Indication Functions Assigned to the LED Indicators of the Ti2-E Microscope Main Body

3.2.1 Indication Functions That Can Be Registered

The table below lists the LED indications that can be assigned to the FnL and FnR indicators on the Ti2-E microscope main body.

No.	Indicated name	Functional overview	States when set
1	-----	Nothing is to be set.	None
2	Shutter 1 Open/Close Status	Shutter 1 open/closed status	Lit: Open, Extinguished: Closed
3	Shutter 2 Open/Close Status	Shutter 2 open/closed status	Lit: Open, Extinguished: Closed
4	Main Branch 1 IN/OUT Status	Main branch 1 status	Lit: In, Extinguished: Out
5	Main Branch 2 IN/OUT Status	Main branch 2 status	Lit: In, Extinguished: Out
6	Sub Branch IN/OUT Status	Sub branch status	Lit: In, Extinguished: Out
7	C-LEDFI ON/OFF Status	Selected LED unit status of the epi-fl LED illuminator	Lit: On, Extinguished: Off
8	Intensilight Shutter Open/Close Status	Intensilight shutter status	Lit: Open, Extinguished: Closed
9	DIC Polarizer IN/OUT Status	DIC polarizer status	Lit: In, Extinguished: Out
10	DIC Analyzer IN/OUT Status	Analyzer slot status	Lit: In, Extinguished: Out
11	Optical Zoom 1.5x/1x Status	Intermediate magnification	Lit: 1.5x, Extinguished: 1x
12	Eyepiece Tubebase Camera Port IN/OUT Status	Tube base unit camera port status	Lit: EYE (motorized tube and port tube) with assist tube open Extinguished: DSC (motorized tube and port tube) with assist tube closed
13	Bertrand Lens IN/OUT Status	Bertrand lens status	Lit: In, Extinguished: Out
14	Assist Camera ON/OFF Status	Assist camera power status	Lit: On, Extinguished: Off
15	Control Box I/O 1 Output Hi/Low Status	Control box I/O channel 1 output status	Lit: High, Extinguished: Low
16	Control Box I/O 2 Output Hi/Low Status	Control box I/O channel 2 output status	Lit: High, Extinguished: Low
17	Control Box I/O 3 Output Hi/Low Status	Control box I/O channel 3 output status	Lit: High, Extinguished: Low
18	Control Box I/O 4 Output Hi/Low Status	Control box I/O channel 4 output status	Lit: High, Extinguished: Low
19	Control Box I/O 5 Output Hi/Low Status	Control box I/O channel 5 output status	Lit: High, Extinguished: Low
20	Control Box I/O 6 Output Hi/Low Status	Control box I/O channel 6 output status	Lit: High, Extinguished: Low
21	Control Box I/O 7 Output Hi/Low Status	Control box I/O channel 7 output status	Lit: High, Extinguished: Low
22	Control Box I/O 8 Output Hi/Low Status	Control box I/O channel 8 output status	Lit: High, Extinguished: Low
23	Extension I/O Box I/O 01 Output Hi/Low Status	Extension box I/O channel 1 output status	Lit: High, Extinguished: Low
24	Extension I/O Box I/O 02 Output Hi/Low Status	Extension box I/O channel 2 output status	Lit: High, Extinguished: Low
25	Extension I/O Box I/O 03 Output Hi/Low Status	Extension box I/O channel 3 output status	Lit: High, Extinguished: Low
26	Extension I/O Box I/O 04 Output Hi/Low Status	Extension box I/O channel 4 output status	Lit: High, Extinguished: Low
27	Extension I/O Box I/O 05 Output Hi/Low Status	Extension box I/O channel 5 output status	Lit: High, Extinguished: Low
28	Extension I/O Box I/O 06 Output Hi/Low Status	Extension box I/O channel 6 output status	Lit: High, Extinguished: Low
29	Extension I/O Box I/O 07 Output Hi/Low Status	Extension box I/O channel 7 output status	Lit: High, Extinguished: Low
30	Extension I/O Box I/O 08 Output Hi/Low Status	Extension box I/O channel 8 output status	Lit: High, Extinguished: Low
31	Extension I/O Box I/O 09 Output Hi/Low Status	Extension box I/O channel 9 output status	Lit: High, Extinguished: Low
32	Extension I/O Box I/O 10 Output Hi/Low Status	Extension box I/O channel 10 output status	Lit: High, Extinguished: Low
33	Extension I/O Box I/O 11 Output Hi/Low Status	Extension box I/O channel 11 output status	Lit: High, Extinguished: Low
34	Extension I/O Box I/O 12 Output Hi/Low Status	Extension box I/O channel 12 output status	Lit: High, Extinguished: Low

No.	Indicated name	Functional overview	States when set
35	Extension I/O Box I/O 13 Output Hi/Low Status	Extension box I/O channel 13 output status	Lit: High, Extinguished: Low
36	Extension I/O Box I/O 14 Output Hi/Low Status	Extension box I/O channel 14 output status	Lit: High, Extinguished: Low
37	Extension I/O Box I/O 15 Output Hi/Low Status	Extension box I/O channel 15 output status	Lit: High, Extinguished: Low
38	Extension I/O Box I/O 16 Output Hi/Low Status	Extension box I/O channel 16 output status	Lit: High, Extinguished: Low

3.3 List of Functions Assigned to Joystick LCD Screen

3.3.1 Initial Settings of LCD Display

The table below lists the default indication functions assigned to the LCD screen on the joystick.

In the initial setting, the LCD screen of the joystick has four pages.

Page	Line	Indicated name	Functional overview
Page 1	2nd line	Nosepiece	Information about objectives
	3rd line	Condenser	Information about condensers
	4th line	Optical Path	Information about optical path switching
Page 2	2nd line	FL1	Information about FL turret 1
	3rd line	Inter Mag.	Information about intermediate magnification
	4th line	Bertrand Lens	Information about the Bertrand lens
Page 3	2nd line	DIC Prism	Information about the DIC prism
	3rd line	DIC Polarizer/Analyzer Slot	Information about the DIC polarizer and analyzer slot
	4th line	-----	(Nothing is set.)
Page 4	2nd line	DIA Lamp	Information about LED dia-illumination
	3rd line	C-LEDFI	Information about the Epi-fl LED
	4th line	C-HGFI	Information about the Intensilight

3.3.2 Indication Functions That Can Be Registered

The table below lists the functions that can be assigned to the LCD screen on the joystick.

No.	Indicated name	Functional overview
1	-----	(Nothing is set.)
2	Nosepiece	Information about objectives
3	Condenser	Information about condensers
4	FL1	Information about FL turret 1
5	FL2	Information about FL turret 2
6	BA1	Information about BA filter wheel 1
7	BA2	Information about BA filter wheel 2
8	Optical Path	Information about optical path switching
9	Eyepiece Tubebase	Information about the tube base unit camera port
10	LAPP Main Branch 1	Main branch 1 (epi-illumination information)
11	LAPP Main Branch 2	Main branch 2 (epi-illumination information)
12	LAPP Sub Branch	Sub-branch (epi-illumination information)
13	Shutter	Information about the motorized shutter
14	DIA Lamp	Information about LED dia-illumination
15	DIC Prism	Information about the DIC prism
16	DIC Polarizer/Analyzer Slot	Information about the DIC polarizer and analyzer slot
17	Inter Mag.	Information about intermediate magnification
18	Bertrand Lens	Information about the Bertrand lens
19	C-LEDFI	Information about the Epi-fl LED
20	C-HGFI	Information about the Intensilight