OLYMPUS®

Tutorial

BX2BSW

BX2 Control Software

Petition

Thank you for adopting the Olympus optical microscope.
This tutorial manual describes the basic operation of the BX2BSW software
in part for user who operates for the first time.
Refer to Help in the BX2BSW software for overall operating methods.

CONTENTS

1 Getting started BX2BSW

1-1 Outstanding features of BX2BSW

- **Assigning a function to a button**

  You can assign a function to any button on the microscope frame, the hand switch or in the window.

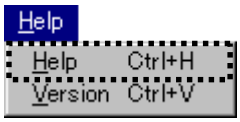
- **Assigning movements to a single button**

  A single movement such as rotating the revolving nosepiece or linked movements such as rotating the revolving nosepiece and filter turret can be freely assigned to a single button.

  Simply touching a button switches the mirror unit, switches off the transmitted lamp and opens the fluorescence illuminator shutter, for instance, then the differential interference contrast observation is easily switched to the fluorescence observation.

- **Assigning functions to the objective for every observation method**

  If you assigned functions in advance, the motorized part and its value are automatically set whenever the objective is engaged into the light path or the observation method is selected. The AS value of the motorized sensor, for instance, is set to the same whenever the 20X objective is selected in the differential interference contrast observation.



The following sections describe the basic use of the software. Refer to “Help” in the [Help] menu for detailed description of each tab and window.

1-2 Setup Procedure

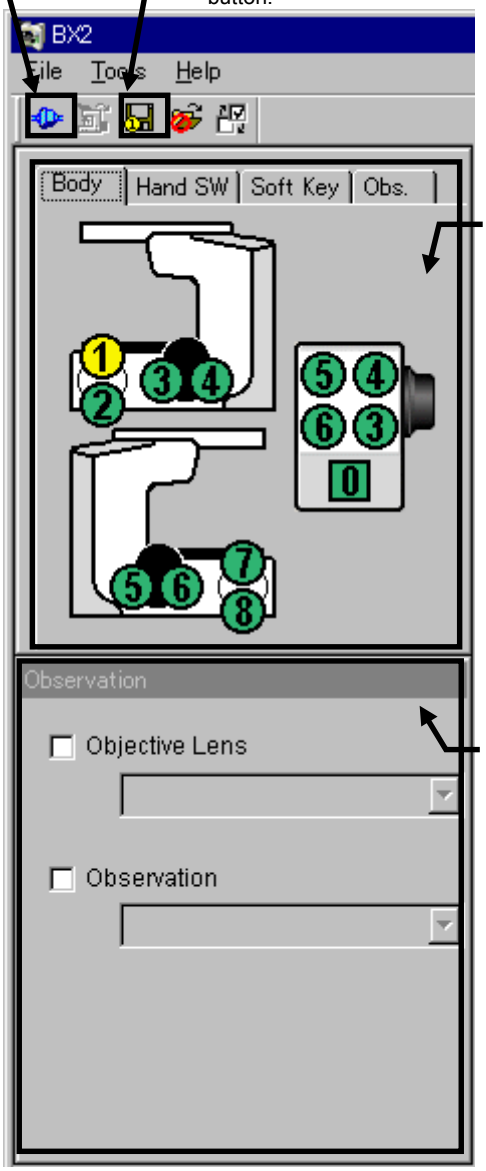
This section describes the basic procedure from starting up the software to finishing the setup. Refer to section 2-1 for the points for setup.

<Login> button

Logs into the microscope if necessary. Click to display in the depressed status.

<Save> button

Click to save the function assigned to the button.



1. Start up the software. (Sec 1-2-1)

2. Perform initial setup (Sec1-2-2)

Open the [BX2 Configuration] dialog box. (Sec 1-2-2-1)

Set the motorized units in the Device tab. (Sec 1-2-2-2)

Set the observation method in the Observation tab. (Sec1-2-2-3)

Set the objective in the Obj. tab.(Sec 1-2-2-4)

Set the mirror unit in the Mirror tab. (Sec 1-2-2-5)

Set the optical element and the top lens in the Condenser tab. (Sec 1-2-2-6)

Set the filter in the Filter tab. (Sec 1-2-2-7)

Set the focusing unit (parfocality compensation and JOG sensitivity) in the Focus tab. (Sec 1-2-2-8)

3. Set the AF unit (Sec1-2-3)

Set when using the microscope with the AF unit.

4. Assign functions to buttons. (Sec 1-2-4)

Selecting button window

Select the button to assign the function to.

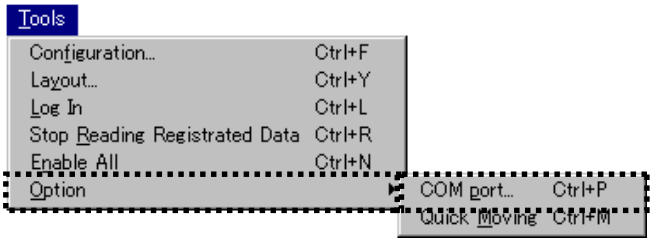
Selecting function window

Assign the function to the button selected in the Selecting function window.

Finish each setup before starting operation. Refer to section 1-3 for operating procedure.

1-2-1 Starting up the software

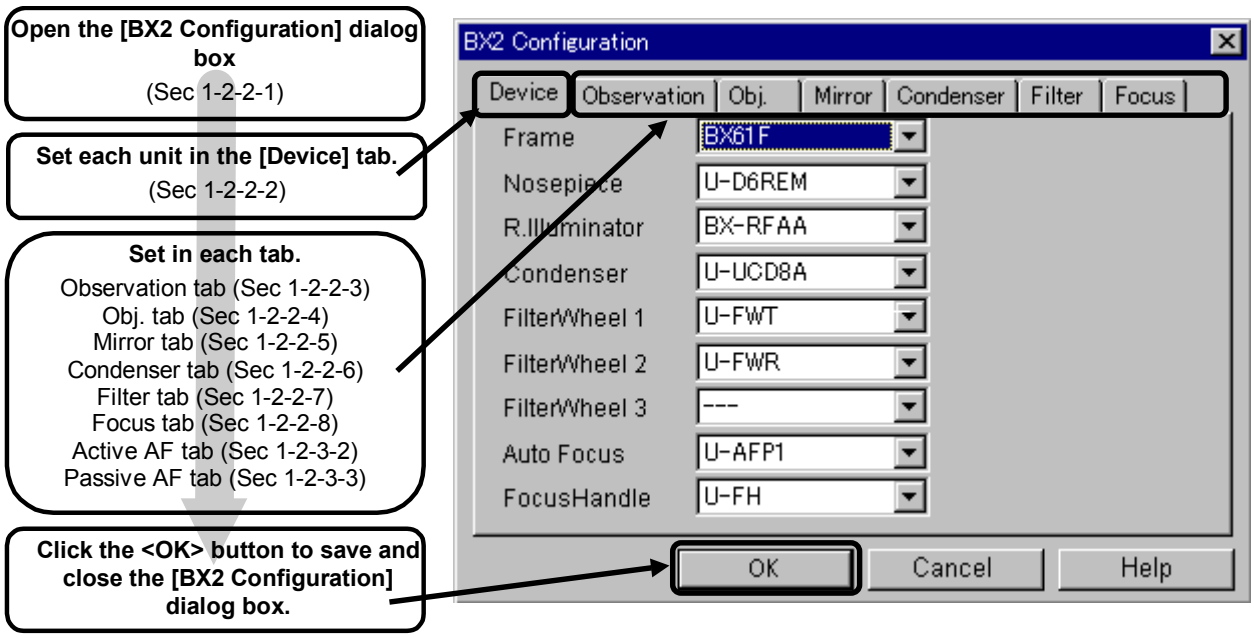
Click the <Start> button in the task bar on the PC monitor to display the [Start] menu, then point [Bx2]. Click [Bx2] to start up the software.



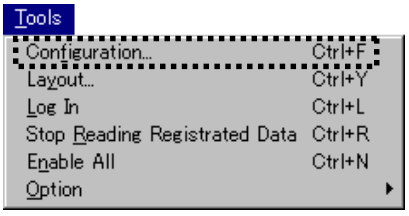
Then set the number of the communication port. Select [Option]-[COM port] in the [Tool] menu, enter the number of the communication port in the [COM port] dialog box and click the <OK> button.

1-2-2 Initial Setup

Initial setup is required to control the all units connected to the microscope through the software. Follow the procedure below;



1 Open the BX2 Configuration dialog box



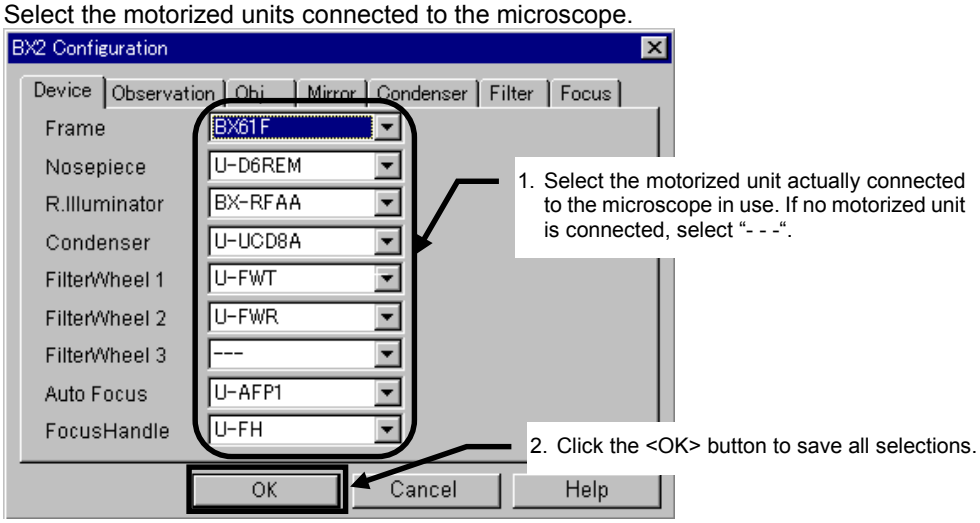
Select “Configuration” in the [Tools] menu to open the [BX2 Configuration] dialog box.

NOTE

Be sure to click the <OK> button to enable the setup in each tab in the [BX2 Configuration] dialog box.

2 Set the motorized units in the Device tab

Select the motorized units connected to the microscope.

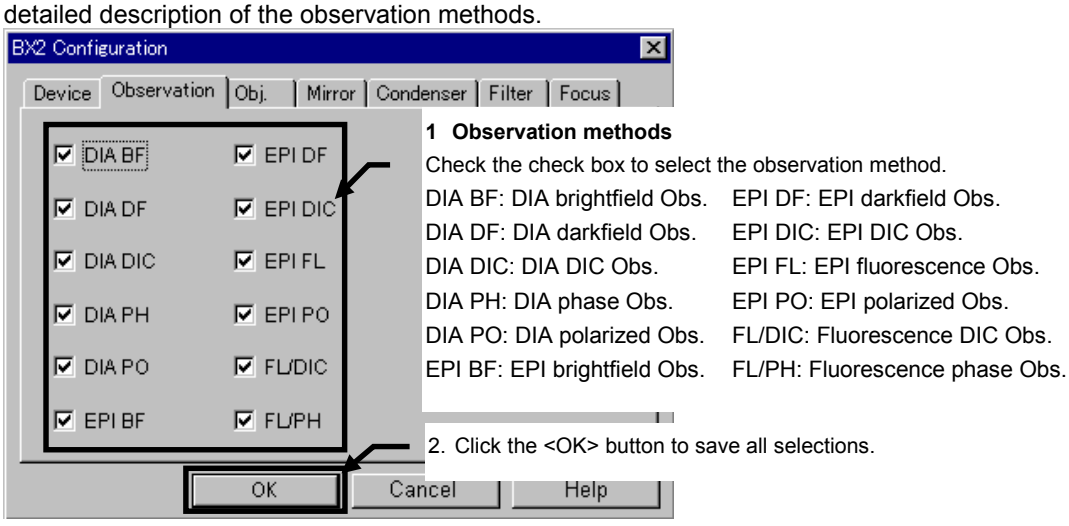


TIP

Selecting a focus handle unit disables the focus adjustment knob on the microscope frame and enables the focus handle selected here. Selecting "- - -" enables the focus adjustment knob on the microscope frame even if the focus handle is connected.

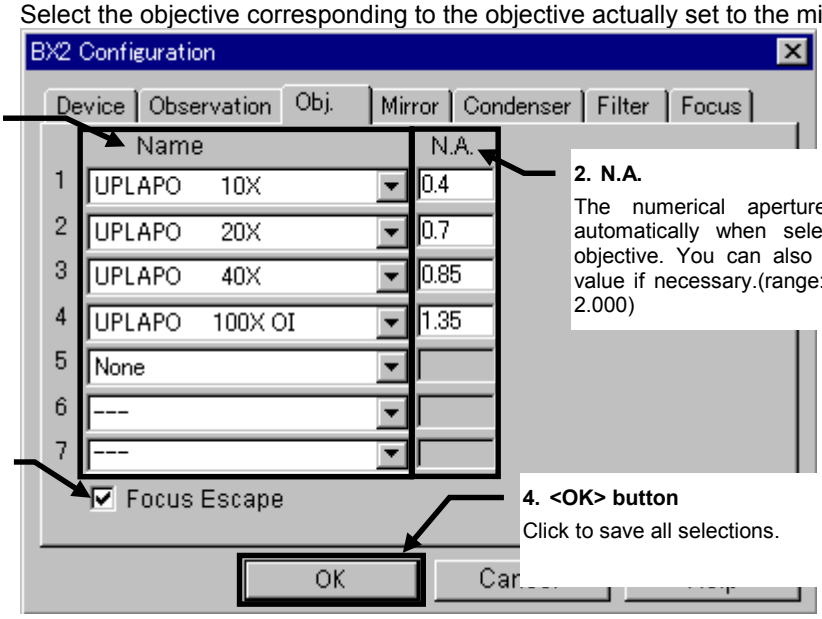
3 Set the observation method in the Observation tab

Check the observation method. The observation method checked here is set to every objective using the Observation tab in the Selecting button window. And the observation method checked here can be selected in the Observation drop-down list in the Observation window of the Selecting function windows. Refer to section 2-2-1 for detailed description of the observation methods.



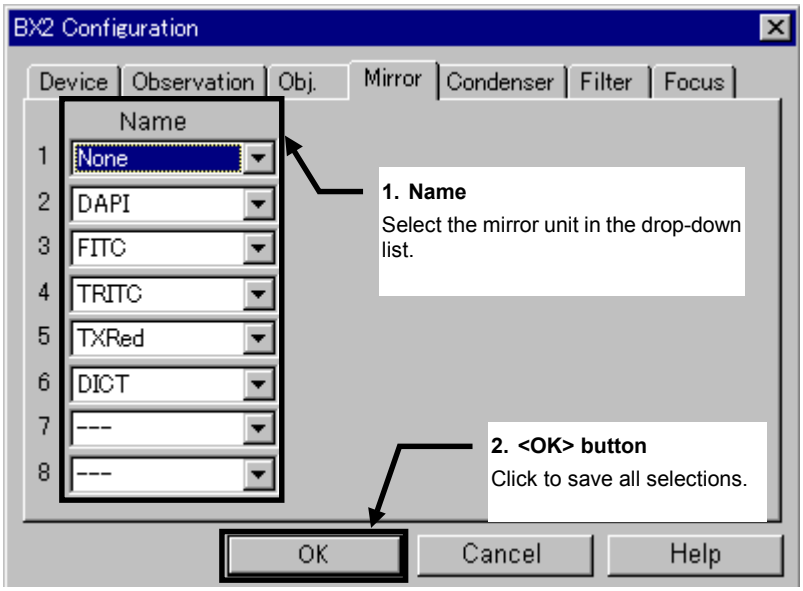
4 Set the objective in the Obj.tab

Select the objective corresponding to the objective actually set to the microscope.



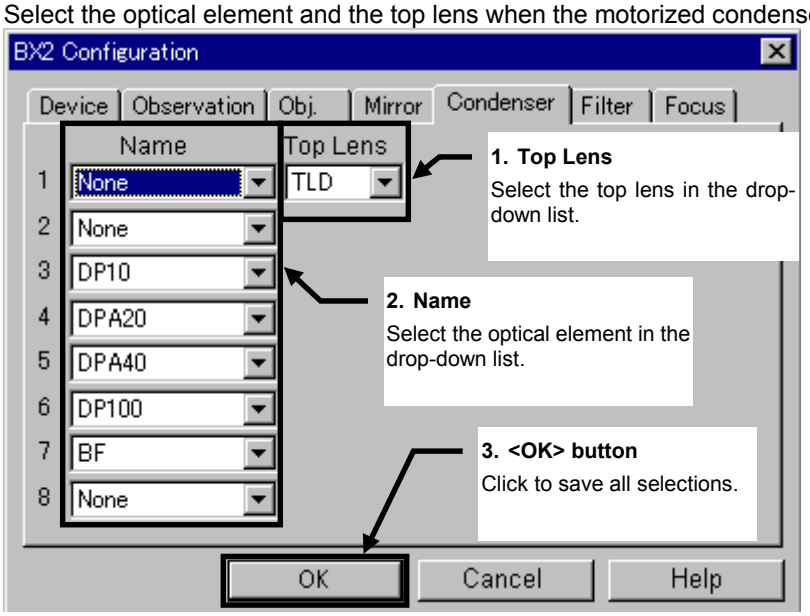
5 Set the mirror unit in the Mirror tab

Select the mirror unit when the motorized illuminator with the mirror unit is connected.



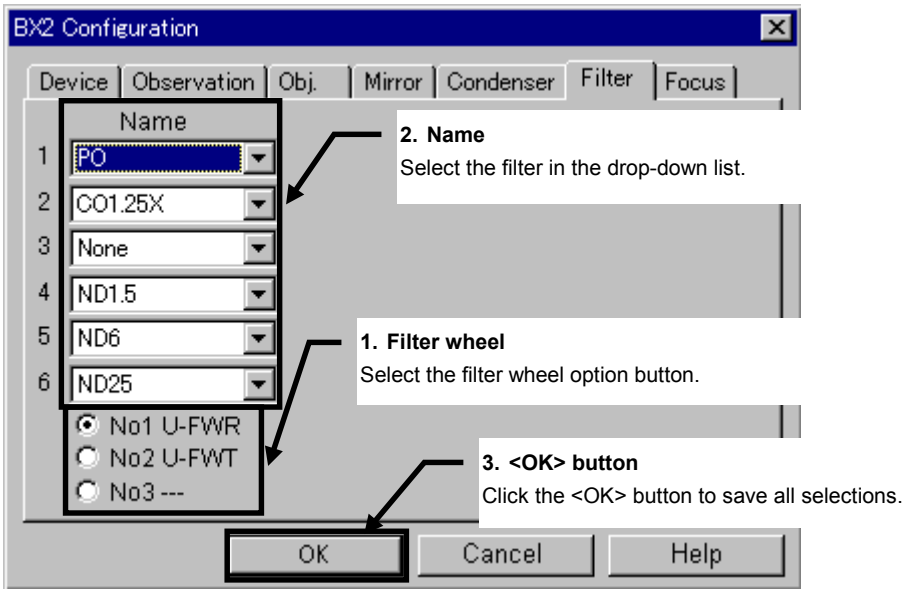
6 Set the optical element and the top lens in the Condenser tab

Select the optical element and the top lens when the motorized condenser is connected.



7 Set the filter in the Filter tab

Select the filter when the filter wheel is connected.



8 Set the focusing unit in the Focus tab

Compensate the difference of parfocality set in advance when changing the objective.

Follow steps 1 through 5 in order after checking off the Pfcl check box.

Set the amount of the fine focus movement per rotation of the focus adjustment knob.

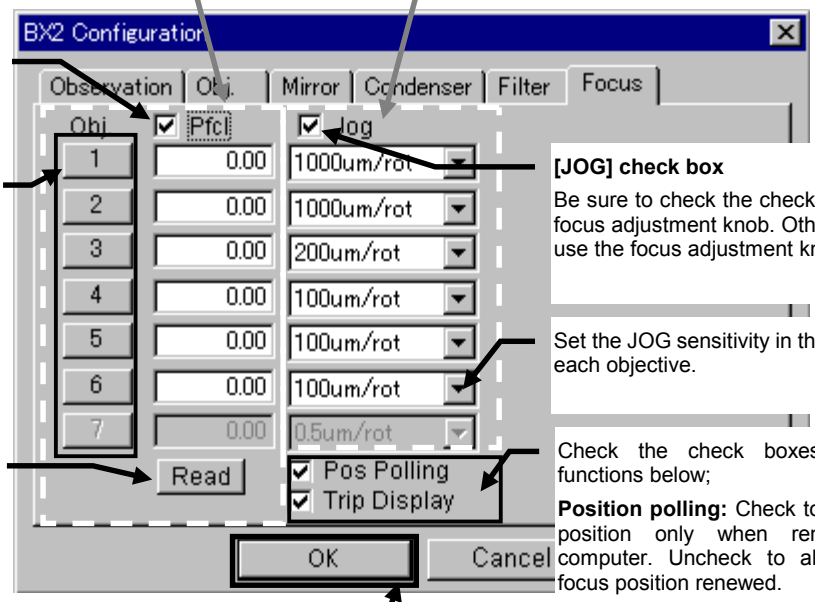
The coarse focus movement cannot be adjusted here since it is fixed to 1000um/rot.

Check the [JOG] check box, select the objective (in step1) and select the value in the drop-down list.

Refer to “Help” in the [Help] menu in detail.

Compensate the parfocality using this area.

Set the JOG sensitivity using this area.



5. [Pfcl] check box

Check to enable the setups in step 1to 4.

1. Select the objective

Click the number corresponding to the highest-powered objective to engage it into the light path.

2. Focus on a specimen.

3. Click the <Read> button

Click to read the current focus position.

4. Repeat steps 1 to 3 until all values are minimized. Enter the same value as the previous objective into the text box where no objective is assigned. Do not set “0.00” to all text boxes finally.

[JOG] check box

Be sure to check the check box to enable the focus adjustment knob. Otherwise you cannot use the focus adjustment knob.

Set the JOG sensitivity in the drop-down list to each objective.

Check the check boxes to enable the functions below;

Position polling: Check to display the focus position only when renewed from the computer. Uncheck to always display the focus position renewed.

Trip display: Check to simply measure the relative position.

6. Click the <OK> button

Click to save all selections.

One Point!

Refer to the following values for selecting the JOG sensitivity.

To 5X objective or lower: 1000um/rot.

To 10X objective: 200um/rot

To 10X objective or higher: 100um/rot

1-2-3 Setting the autofocusing unit

Follow the steps below when using the microscope with the autofocusing unit.

Set in the [BX2 Configuration] dialog box
Select the autofocusing type and the objective set to the microscope in the [Device] tab and the [Obj.] tab.
(Sec 1-2-2-2, 1-2-2-4)

Set Far limit/Near limit
Set the far limit/near limit in the [Focus] window of the selecting function windows. Refer to “Help” in the [Help] menu for details.

Focus on a specimen
Focus on a specimen.

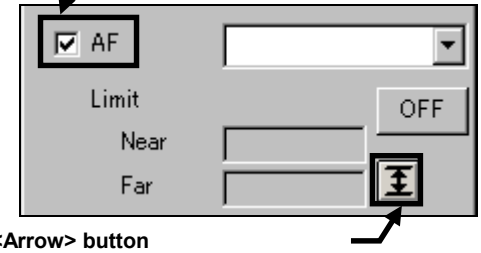
Set the AF zone
(Sec 1-2-3-1)

Adjust Active AF/Passive AF
(Sec 1-2-3-2, 1-2-3-3)

1 Set the AF zone

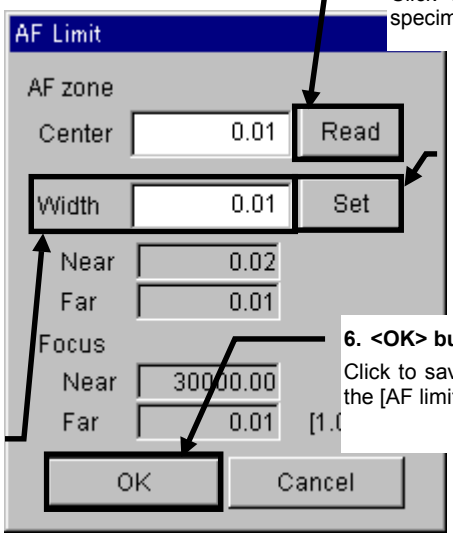
The AF zone is the focus movement range when autofocusing. Set the AF zone to prevent your specimen from touching with the objective and protect the microscope itself. Display the [AF limit] dialog box from the [Active AF/Passive AF] window (shown left) of the Selecting function windows to set the AF zone.

1. [AF] check box
Check the AF check box in the [Active AF/Passive AF] window.



2. <Arrow> button
Click to display the [AF limit] dialog box shown right.

3. <Read> button
Click while focusing on a specimen.



5. <Set> button
Click to set the width of the AF zone entered in step 4.

6. <OK> button
Click to save the values set in the [AF limit] dialog box.

4. Width
Enter the width of the AF zone. (Range: 1 to 30000, Unit: 1.00 um) “500.00” (= 500um) is the recommended value for normal specimen.

2 Adjust the Active AF

Match the focal point of the laser beam in autofocusing with the actual focal point on a specimen for every objective. This adjustment is effective in acquiring a focused-on image in autofocusing. Use the [Active AF] tab in the [BX2 Configuration] dialog box for adjustment. Before adjustment, check the [AF] check box in the [Active AF] window of the Selecting function windows to set AF to on.

1. [AF] check box

Check the [AF] check box of the objective for autofocusing before adjustment.

2. <Obj.> button

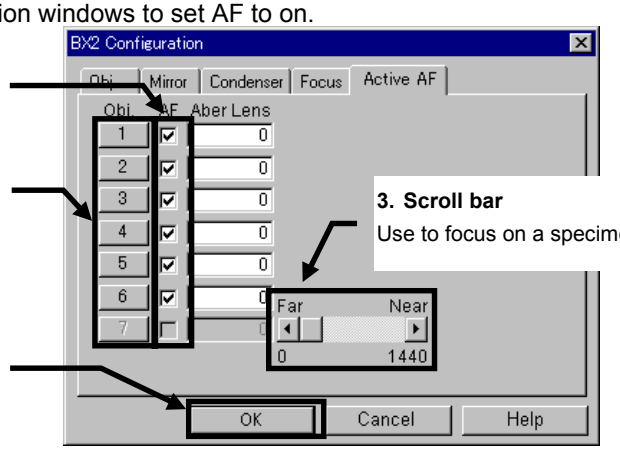
Click the number corresponding to the objective to be adjusted.

4. Adjust the other objectives

Follow steps 1 to 3 to adjust all objectives.

5. Save

Click the <OK> button to save all adjustments and close the [BX2 Configuration] dialog box.



3. Scroll bar

Use to focus on a specimen.

3 Adjust the Passive AF

Match the focal point in autofocusing with the focal point on a specimen confirmed on the monitor or picture. This adjustment is effective in acquiring a focused-on image in autofocusing. Use the [Passive AF] tab in the [BX2 Configuration] dialog box for adjustment. Before adjustment, uncheck the [AF] check box in the [Passive AF] window of the Selecting function windows. Use the lowest-powered objective (except for the 25X objective) for adjustment and engage the lowest-powered objective into the light path in advance. When using the unit without the motorized aperture stop and maximizing the field diaphragm, maximize the aperture diaphragm to improve the precision of focusing.

2. Log into the microscope and focus on a specimen.

3. Fully loose the FOCUS ADJ. LOCK screw on the Passive AF sensor. (A double-rotation may be acceptable.)

4. Turn the FOCUS ADJ. LOCK screw on the Passive AF sensor to illuminate the center in the graphic.

5. Tighten the FOCUS ADJ. LOCK screw on the Passive AF sensor.

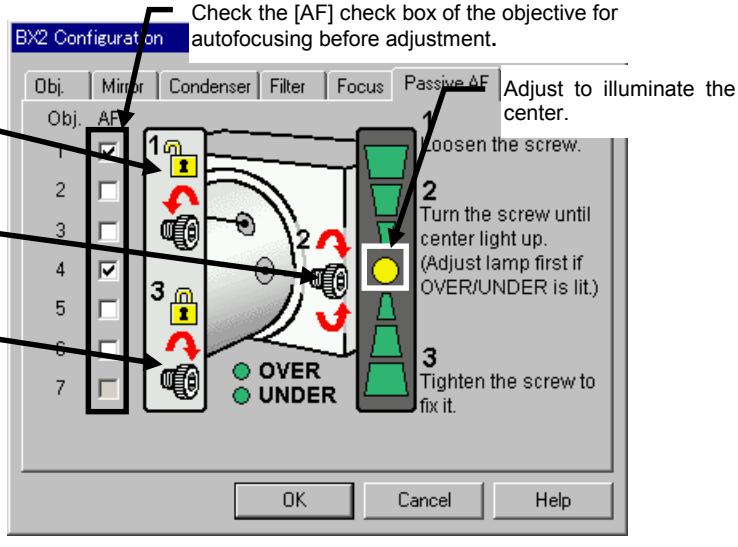
6. Check that the graphic is kept illuminated with the FOCUS ADJ. LOCK screw tightened. If not, follow step 4 again.

Click the <OK> button to close the [Passive AF] tab.

1. [AF] check box

Check the [AF] check box of the objective for autofocusing before adjustment.

Adjust to illuminate the center.



1-2-4 Assigning functions to buttons

1 Select the button for assignment

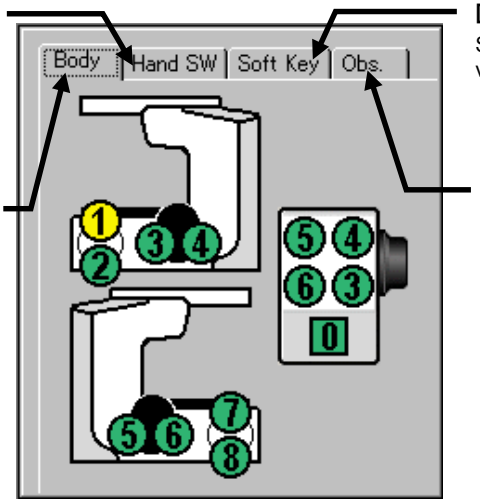
Select a button in the Selecting button window. Refer to “Help” in the [Help] menu for the detailed description of each tab in the Selecting button window.

[Hand SW] tab

Select a button to assign a function to among the hand switch buttons.

[Body] tab

Select a button to assign a function to among the buttons on the body.



[Soft Key] tab

Select a button among the soft keys virtually displayed on the monitor.

[Obs.] tab

Movements set in the Selecting function windows are activated when the objective is engaged into the light path or the observation method is selected.
Refer to Sec 2-2 for assigning a function to the objective for every observation method.

NOTE

In the [Obs.] tab, functions are assigned not to buttons. However, the assignment is activated when the observation method set in the [Body] tab, [Hand SW] tab, and [Soft key] and [Obs.] tab tab is selected or the objective set is engaged into/approaches to the light path.

TIP

When selecting to use the focus handle unit, the graphic of the focus handle unit is displayed.

2 Assign functions to buttons

In the Selecting function windows, select functions to be assigned to the buttons selected in section 1-2-4-1 above. Refer to “Help” in the [Help] menu for detailed description of each function.

3 Save

When finishing assigning functions to buttons, click the <Save> button in the tool bar to save the assignment.

<Save> button

1-3 Operating Procedure

Before starting operations, switch on the power sources such as the power switches of the microscope control box (BX-UCB) and the lamp.

Start up the software.

Connect to the microscope


<Login> button

Click the <Login> button in the tool bar to connect to the microscope.

Operate the microscope using the buttons to which the functions have been assigned.

NOTE **To connect the computer to BX-UCB, use a straight cable.**

NOTE **Immediate after logging into the microscope with the <Login> button, the observation method is not specified. Before using the microscope, select the observation method or press the button to which the observation method is assigned as a single function or linked movements.**

2 The Example of Setup

This section describes the typical setup procedure to familiarize you with the software.
First of all, set the units equipped with the microscope in use to the software and assign buttons to move each unit. It makes no difference that in what order the functions are assigned. And the assignments are enabled only when the computer is connected to BX-UCB.

NOTE

This section describes just a typical setup procedure.
The software can provide more features for your study.

2-1 The Points for Setup

To assign functions to the buttons selected in the Selecting button window, take the points below into consideration.

Point1. Assign a single movement such as opening/closing the shutter to the button on the microscope frame or hand switch or the soft key.

Point2. Do not assign linked movements activated by selecting certain observation method or objective (such as engaging PLAPO2X into the light path, disengaging the condenser top lens from the light path and maximizing the AS) to the button on the microscope frame or hand switch or the soft key. Select the observation method and objective in the [Observation] tab in the Selecting button window and assign functions using the Selecting function windows.

Point3. Assign linked movements not activated by selecting certain observation method or objective (such as selecting a dye in fluorescence observation) to a single button on the microscope frame or hand switch or the soft key. And assign the function to move the objective selected in the [Observation] tab in the Selecting button window to this button.

2-2 The Example of Button Assignments

<Save> button

Assuming the motorized units below are equipped, create a menu to switch between the transmitted brightfield observation and the fluorescence observation easily. When all assignments to buttons are finished, click the <Save> button.

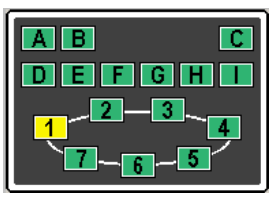
No.1 hole on the motorized revolving nosepiece: UPLAPO4X

No.2 hole on the motorized revolving nosepiece: UPLAPO20X

Mirror unit in the motorized illuminator: U-MNIBA (for FITC observation) and U-MWIG (for TXRed observation)

Motorized condenser: U-UCD8A

Assign following movements to the buttons on the hand switch.



<Hand switch buttons>

D button: Switching to the brightfield observation corresponding to the objective currently engaged into the light path.

E button: Switching to the fluorescence observation (FITC).

F button: Switching to the fluorescence observation (TXRed).

1 button: Switching to UPLAPO4X in the observation method currently selected.

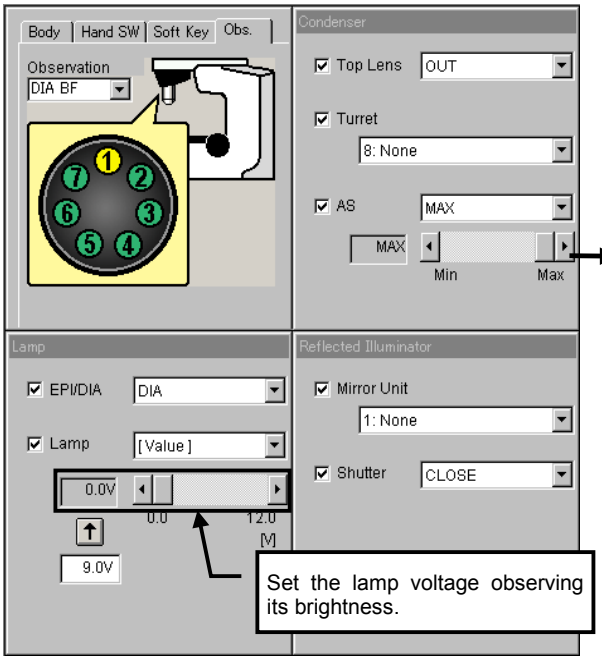
2 button: Switching to UPLAPO20X in the observation method currently selected.

2-2-1 Setup Procedure

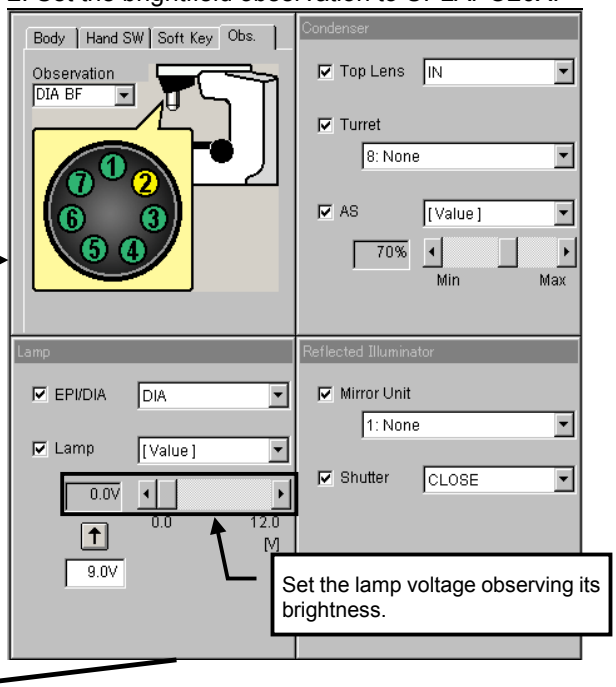
<Save> button

NOTE **Be sure to click the <Save> button to save each assignment whenever the assignment in a window is finished.**

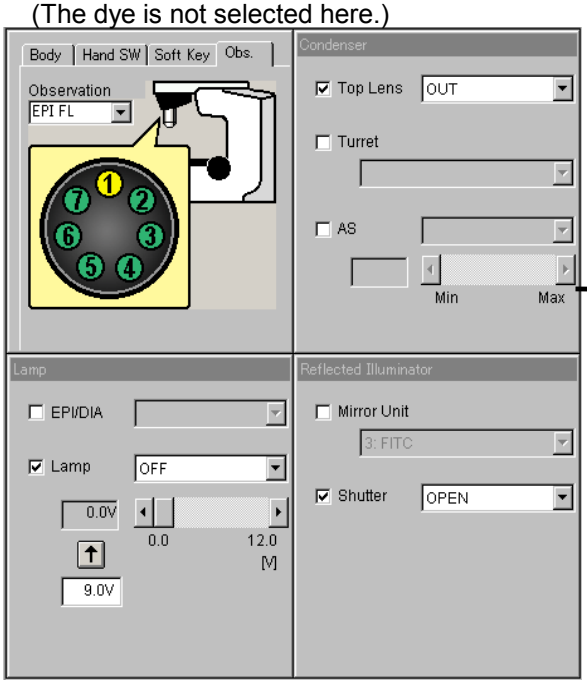
1. Set the brightfield observation to UPLAPO4X.



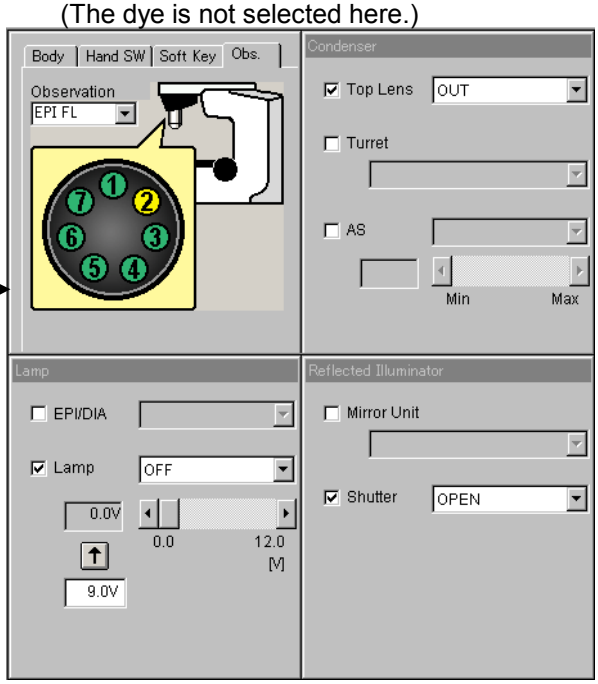
2. Set the brightfield observation to UPLAPO20X.



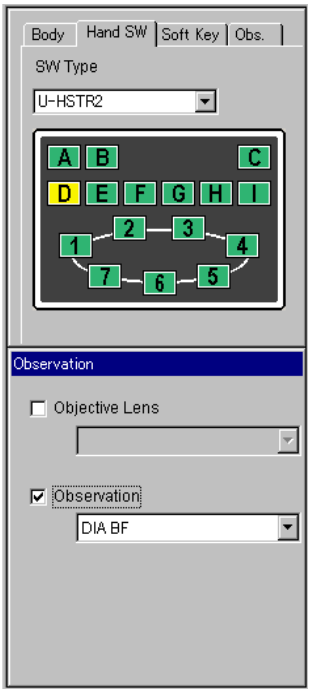
3. Set the fluorescence observation to PLAPO4X.
(The dye is not selected here.)



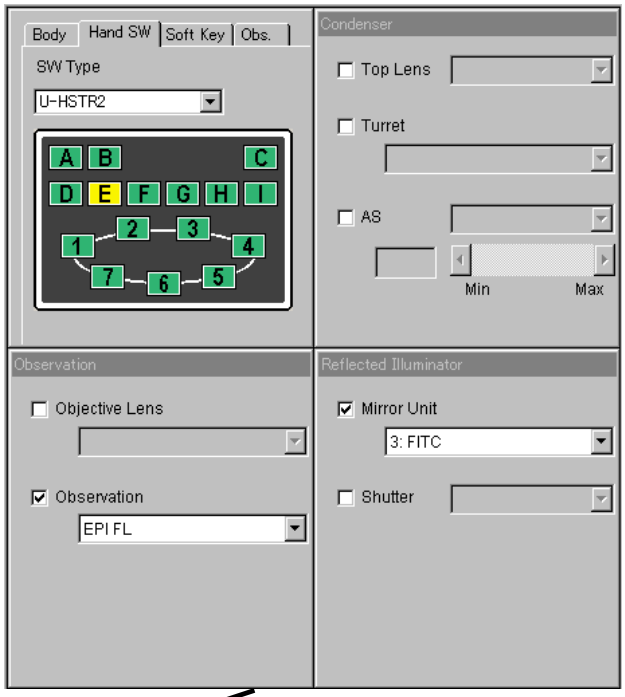
3. Set the fluorescence observation to PLAPO20X.
(The dye is not selected here.)



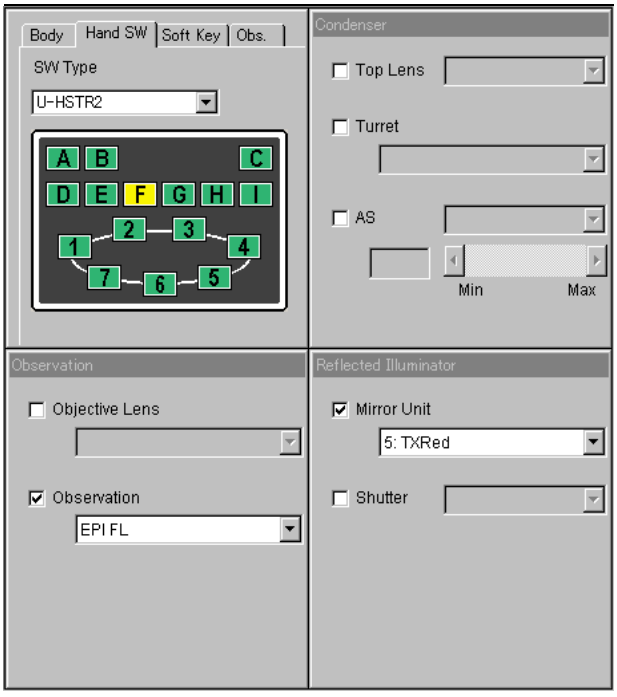
5. Set the brightfield observation to button D on the hand switch.



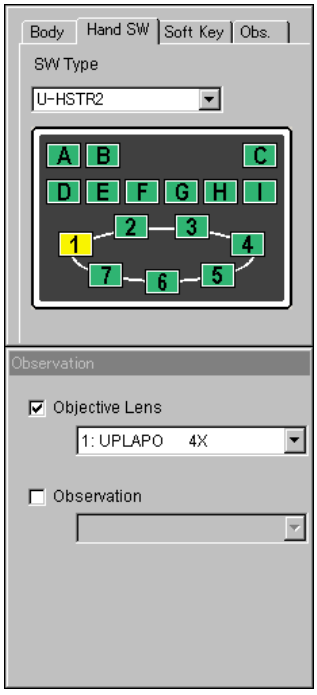
6. Set the fluorescence observation (FITC) to button E on the hand switch.



7.Set the fluorescence observation (TXRed) to button F on the hand switch.



8. Set UPLAPO4X to button1 on the hand switch.



9. Set UPLAPO20X to button2 on the hand switch.