



OLYMPUS

SZX-AR1

Software Help

Edition 01

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1 Operation procedure of the software

1.1 Basic operation of the software

▲Note

Please refer to the system manual for the operation procedure and limitations of the microscope itself.

The software of this system consists of the following three modes.

Please select the appropriate mode for your intended use.

- Create operating procedures
You can create content files (operating procedures, etc.) for tasks.
- Start the training
You can use the created content files to provide training for workers.
- Start the task
Tasks can be performed according to the created content files.

■ Windows OS shortcut keys

Windows OS shortcuts	
Command	Windows OS shortcut keys
Select All	Ctrl+A
Copy	Ctrl+C
Paste	Ctrl+V

■ Explanatory note

▲Note

Indicates matters and restrictions that, if not observed, may lead to failure of this product or problems.

📖Reference

Indicates effective knowledge, information, and other content for use.

①②③

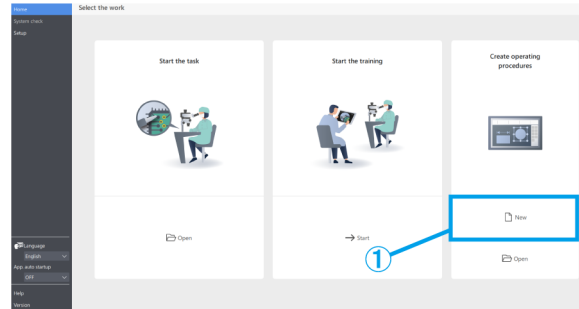
Indicates that it is a procedure.

(a)(b)(c)

Indicates that it is a functional description.

■ Create operating procedures

- ① On the Home screen, go to [Create operating procedures] mode and click [New].



■ Start the task

From either the monitor or the eyepiece side, open the content file you want to work with.

- ① Monitor side:

On the Home screen, click [Start the task] and then [Open] to open the content file you want to work with.

Eyepiece side:

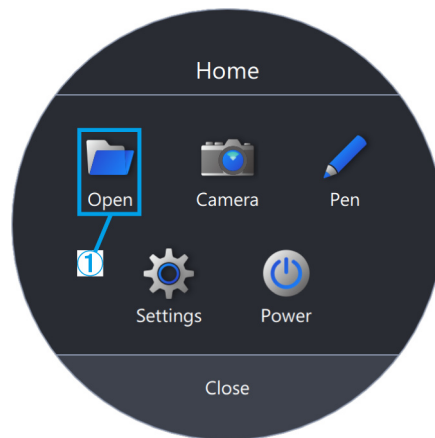
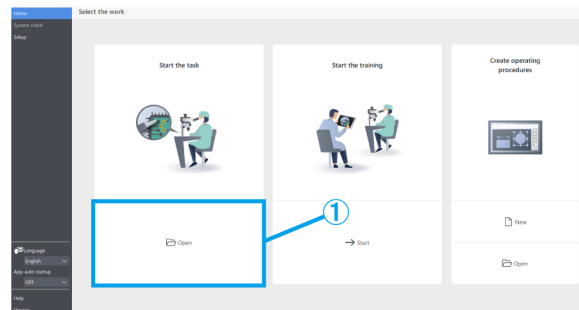
Press [2] on the keyboard to move the mouse cursor to the eyepiece side.

To move it back to the monitor side, press [1] on the keyboard.

Right-click to access the menu screen.

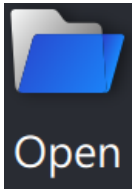

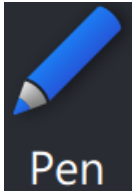

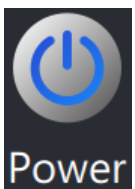
From [Home], click [Open] to open the content file you want to work with.

- ② After loading the content file is completed, confirm that an AR image is displayed on the Observation screen on the eyepiece side, and start the task.



Reference

The following is a list of functions available in [Home].

Menu	Functions List
 Open	Open You can select and open any content file.
 Camera	View live pictures, take photos, shoot videos, and save them Various contents can be used.
 Pen	Draw lines You can surround a selection with a free curve and add indicator lines.
 Settings	Configure the settings Set the language and magnification display.
 Power	Power off You can close applications, shut down and restart your PC.

Reference

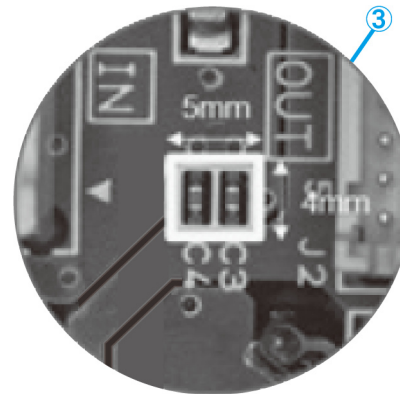
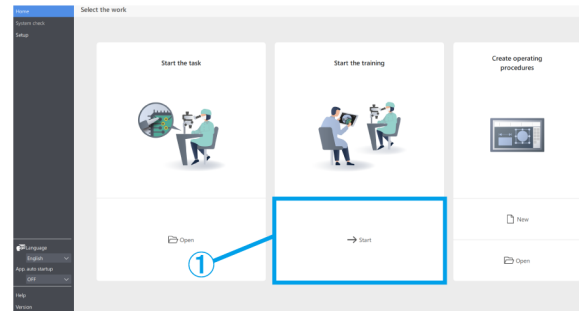
- You cannot overwrite the content file with the edited results such as added free lines.
If you want to edit the content file, you can do so from [Create operating procedures] in the main menu.
- For details on how to operate each menu, please refer to [P.24 to 29](#).
- It can also be used without a monitor when a monitor installation location cannot be secured.
The following settings are required.
 - Enable the auto startup for the software. (For setting instructions, please refer to [P.37](#).)
 - Enable the auto-login setting for the PC.

■ Start the training

- ① On the Home screen, go to [Start the training] mode and click [Start].
- ② When you start, three pages of slides will be created.
- ③ The operator works while looking through the eyepiece.
The instructor checks the operator's work on the monitor screen.
- ④ If necessary, the instructor can click on an object to be added from the content menu on the right side of the screen and add necessary indicator lines, etc. to the screen for the operator.

 Reference

- For details on the contents menu, please refer to [P.10 to 18](#).
- You cannot save the information of the added contents.
- The contents displayed after loading the content file cannot be edited again.
- You can also use the [Start the training] mode to create instructions and training contents in advance for use. In this case, you will need to open the content file.

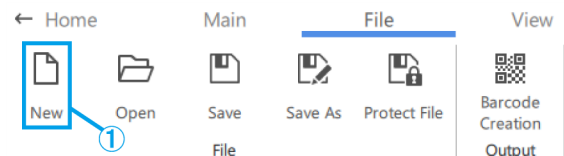


1.2 File operation

■ Creating a new file

- ① To create a new operating procedure, click [New].

For details on how to create an operating procedure, please refer to [P.10 to 23](#).

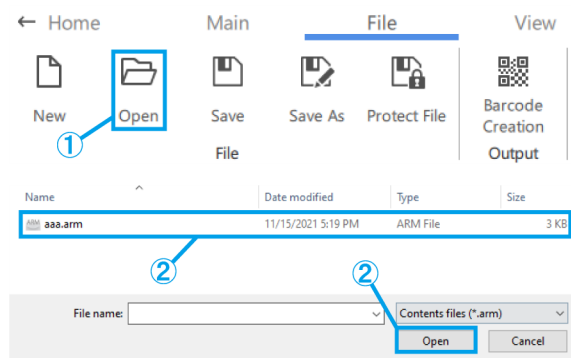


■ Loading a file

- ① To load a file, click [Open].
 ② Select an ARM file and click [Open].

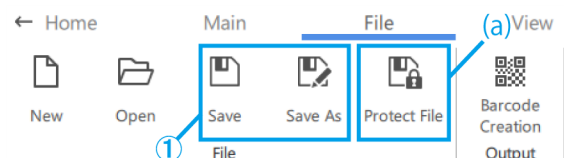
Reference

- You can also use a barcode reader to read a QR code saved by <Output>.
- For details on the settings for using a barcode reader, please refer to [P.35](#).
- QR code is a registered trademark of DENSO WAVE INCORPORATED.



■ Saving a file

- ① To save a file, click [Save As] or [Save].
 ② Select ARM file for the file type.
 ③ Enter a file name and click [Save].



- (a) If you want to protect your file, click [Protect File] to enable file protection.

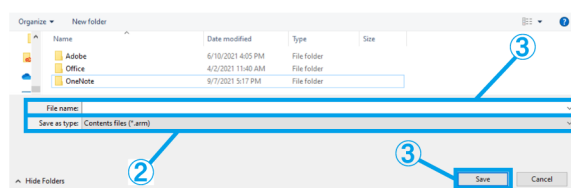
This function is used to check if the file will be opened as read-only the next time it is opened. If you set it as read-only, the content file will be opened in the [Start the task] mode.

- (b) If you save a file with the file protection enabled, a message will be displayed the next time you open the file.

- (c) Yes: [Start the task] mode

No: [Create operating procedures] mode

The operation will be started in each mode.



Confirmation

(b)

The creator would like you to open this file as read-only unless you need to make changes.

Open as read-only?



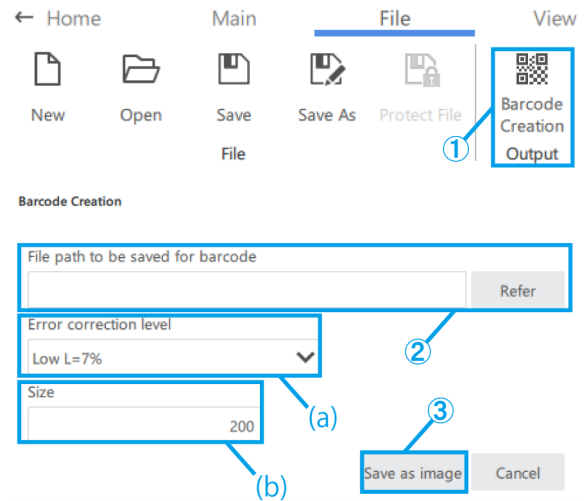
■ Creating barcodes (QR codes)

- ① Click [Barcode Creation].
- ② Create a barcode (QR Code) that stores the file path information described in the [File path to be saved for barcode] field.

 Reference

When you read the barcode (QR code) with a barcode reader, it will start reading the content file of the stored file path.

- ③ Click [Save as image] to save the barcode (QR Code).



- (a) Select the [Error correction level].
Barcodes (QR codes) have the ability to recover data even if a part of the code is dirty or damaged. There are four "Error correction levels": L (7%), M (15%), Q (25%), and H (30%). Increasing the level improves the error correction capability, but increases the size of the code because the amount of data increases. The level to be selected is determined by overall consideration of the usage environment, code size, etc. Select level L or M for environments with less chance of getting dirty, and select level Q or H for environments with more chance of getting dirty.
- (b) Set the size by directly entering 200–999 (pixels).

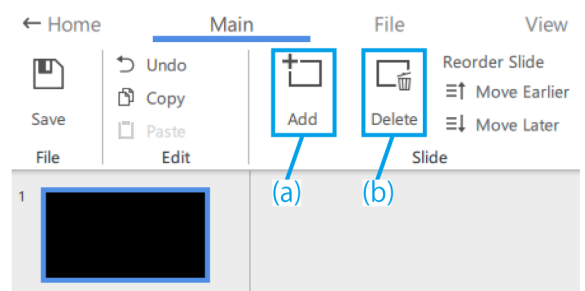
1.3 Slide operation

■ Adding or deleting slides

- (a) To add a slide, click [Add] and add a new slide after the selected slide.
- (b) If you want to delete an unnecessary slide, click [Delete] to delete the selected slide.

 Reference

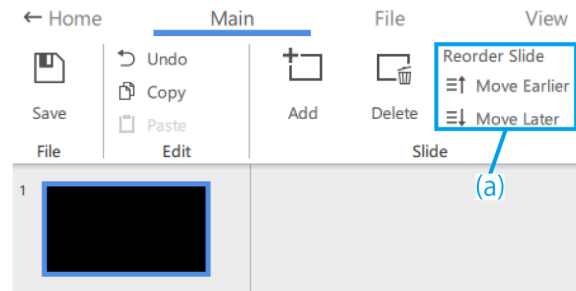
- The [Delete] key can also be used for deleting operation.
- You can also use the [Ctrl+A] shortcut to select all.
- You can select multiple items by holding down the [Ctrl] key while selecting them.



*The currently selected slide will have a blue frame.

■ Reordering slides

- (a) If you want to change the order of the slides, click [Move Earlier] or [Move Later] to move the selected slide.



■ Slide forward/backward

The following is how to switch between slide forward and slide backward.

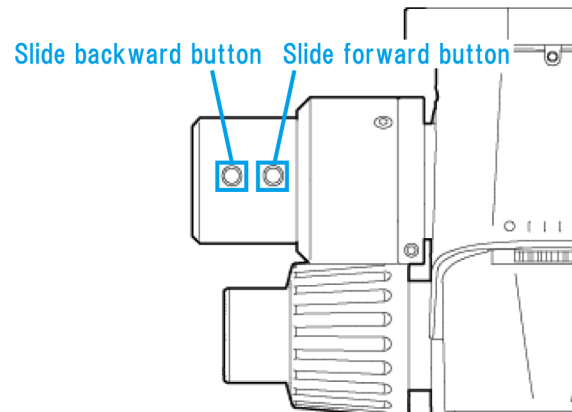
Operating unit	Functions of each unit	
Mouse wheel	Up: Backward	Down: Forward
Slide forward/backward button (Zoom magnification sensor)	Left button: Backward	Right button: Forward
Shortcut key (Keyboard)	"4" or "PgDn": Slide backward	"6" or "PgUp": Slide forward

When you turn the zoom handle of the microscope, the size of the gauge, reticle, etc. stored in the content file will be zoomed in and out according to the observation magnification.

Adjust the magnification to suit your training needs according to your work.

[Reference](#)

- When the zoom magnification is changed, the drawing on the eyepiece lens and the monitor screen will be displayed if the handle is at the zoom click position, and the drawing on the eyepiece lens and the monitor screen will disappear if the handle is not at the zoom click position.
- For details on how to operate other objects, please refer to [P.10 to 18](#).

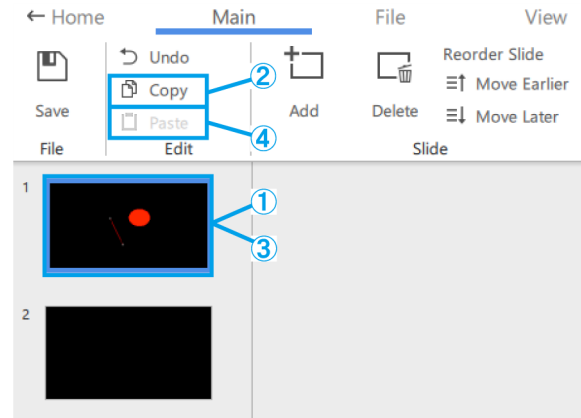


■ Copying and pasting slides

- ① If you want to copy/paste a slide, select the slide you want to copy.
- ② Click [Copy].
- ③ Select the slide you want to paste it on the next page.
- ④ Click [Paste].

 Reference

You can also use the [Ctrl+C] and [Ctrl+V] shortcuts to copy and paste slides.



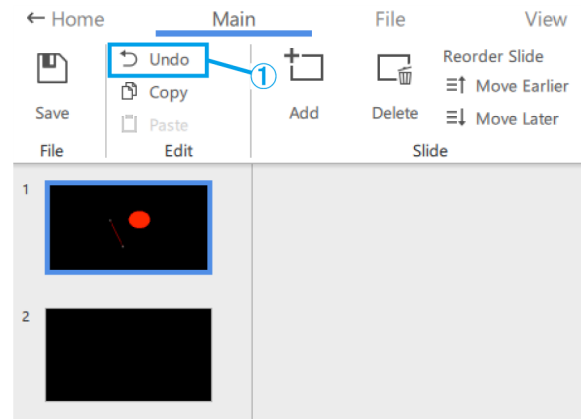
■ Undoing slide operations

- ① To undo a slide operation, click [Undo].

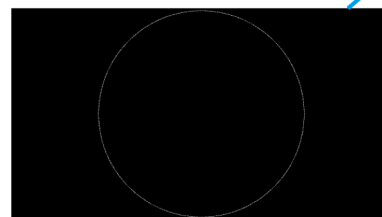
 Reference

You can revert to the past operation status for operations performed on thumbnails and drawing areas.

The system will keep a history of 20 operations.

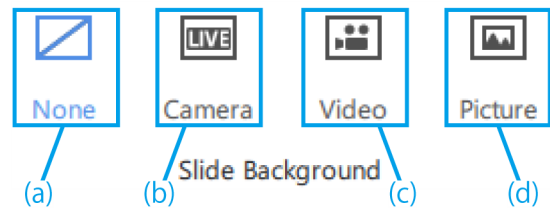


Drawing area



Slide background

- (a) To turn off the screen display, click [None].
- (b) To display the live screen of the microscope camera, click [Camera].
- (c) If you want to view a video, click [Video] and choose from .avi, .mp4, or .mov files.
- (d) If you want to view a picture, click [Picture] and choose from .bmp, .jpeg(jpg), or .png files.

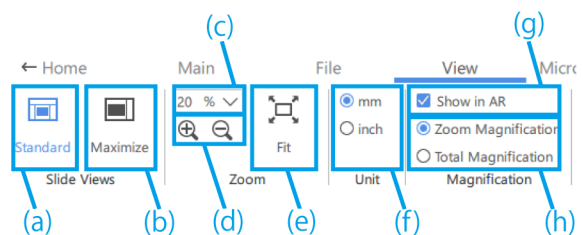


Reference

- The following slide will be selected in the default setting.
If there is no camera connection at startup:
"None"
If there is a camera connection at startup:
"Camera".
- After adding a video/picture, you can adjust the size and placement of the video/picture. If you want to adjust the size and placement again, right-click on the drawing area and select [Resize Background]. Right-click on the video/picture again to finalize the size and placement.
- The background can also be changed by right-clicking on the drawing area and selecting [Change slide background].

Screen display settings

- (a) Click [Standard] to display with thumbnails.
- (b) Click [Maximize] to display without thumbnails.
- (c) Select the magnification ratio from [20%], [50%], [80%], [100%], [200%], and [400%].
- (d) These buttons allow you to zoom in and out in 10% increments. The adjustment range is from 20% to 400%.
- (e) Click [Fit] to display the image at the maximum magnification that will fit in the window.
- (f) Used these buttons to switch the display unit of [Gauge] and [Reticle] in the application.
- (g) Select whether or not to show the magnification on the AR display.
- (h) Select the magnification to be shown on the AR display.



1.4 Drawing operation

■ Editing object styles

- (a) To change the style, select the object, and from [Shape Colors], change the shape fill option for the object, color, line weight, and line type (solid/dashed) of the shape outline.

To change the font, select the text object and change the font and font size from [Font].

The font size can be set in the range of 14 to 72 pt.

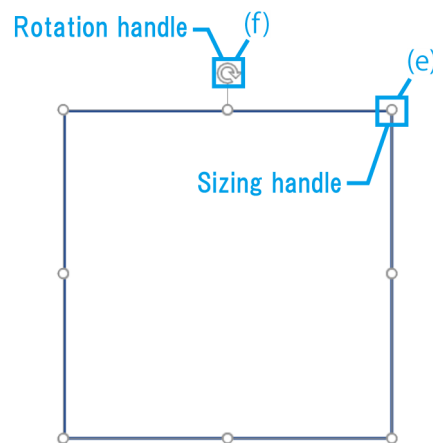
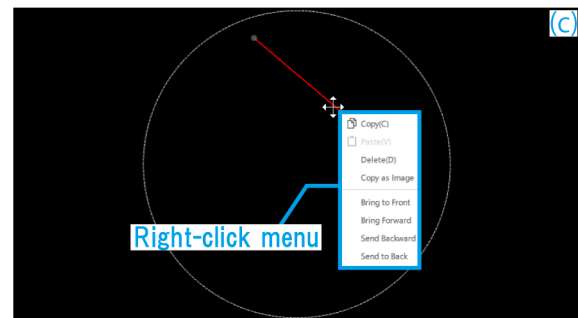
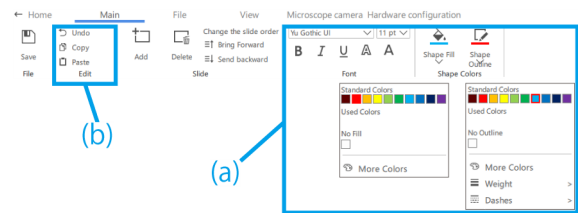
- (b) Perform [Undo], [Copy], and [Paste] operations for the drawn object.
- (c) Right-click on the object to use the following functions.
- Copy as image
 - Adjust the object placement in the Z direction

Reference

- To scale an object, drag one of the object's selection handles. Hold down the [Shift] key while dragging to adjust the size while maintaining the aspect ratio.
 - If you want to rotate an object, drag the object's rotation handle.
 - The [Delete] key can also be used for deleting operation.
 - You can also use the [Ctrl+A] shortcut to select all.
 - You can select multiple items by holding down the [Ctrl] key while selecting them.
 - You can revert to the past operation status for operations performed on thumbnails and drawing areas. The system will keep a history of 20 operations.
 - If black color is used in the software, it will be transparent in the AR image.
- (d) To move a picture or video, drag the object to move it.
- (e) To scale a picture or video, drag one of the object's selection handles.
- (f) To rotate a picture or video, drag the object's rotation handle.


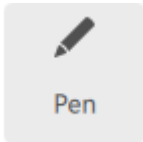
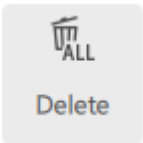




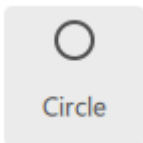

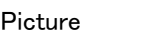
Reference

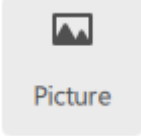
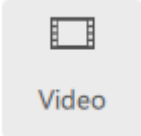


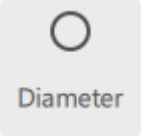

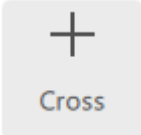

Hold down the [Shift] key while dragging to rotate in 90° increments.



1.5 Various contents operations

■ Content menu

Content menu	Object type	Functional details
Pen  Pen	Pen 	Draw lines You can surround a selection with a free curve and add indicator lines. You can change the color and line weight of pen drawings by clicking the [Pen] button in the [Shape Colors] menu.
	Delete 	Delete all pen drawings You can delete a selection or an indicator line added by the [Pen] function. Only the content added by the [Pen] function will be deleted.
Shape  Shape	Line 	Draw straight lines You can change the color and line weight of the placed lines by clicking the [Shape Outline] button in the [Shape Colors] menu at the top of the screen.
	Arrow 	Draw arrows You can change the color and line weight of the placed arrows by clicking the [Shape Outline] button in the [Shape Colors] menu at the top of the screen.
	Rectangle 	Draw rectangles You can change the following settings for the placed rectangle using the buttons in the [Shape Colors] menu at the top of the screen. <ul style="list-style-type: none"> • [Shape Outline]: Specify the color, line weight, and line type (solid/dashed) of the shape outline. • [Shape Fill]: Specify the color of the area inside the outline.
	Circle 	Draw circles You can change the following settings for the placed circle using the buttons in the [Shape Colors] menu at the top of the screen. <ul style="list-style-type: none"> • [Shape Outline]: Specify the color, line weight, and line type (solid/dashed) of the shape outline. • [Shape Fill]: Specify the color of the area inside the outline.
	Text 	Add text You can change the font type, size, color, and line weight of the added text from the [Font] menu at the top of the screen.
	Picture 	Place pictures

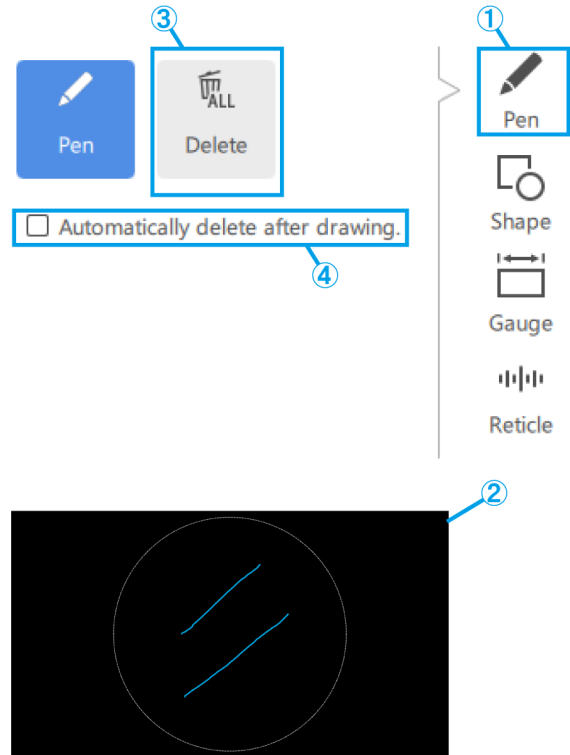
	 <p>Picture</p>	<p>The supported picture file types are “.bmp, jpeg (.jpg), and .png”.</p>
	<p>Video</p>  <p>Video</p>	<p>Place videos The supported video file types are “.avi, .mp4, and .mov”.</p>
<p>Gauge</p>  <p>Gauge</p>	<p>Width/Height</p>  <p>Width / Height</p>	<p>Place rectangular gauges You can change the settings of the placed rectangular gauge, such as width, height, position, and whether or not to show the dimensions.</p>
	<p>Diameter</p>  <p>Diameter</p>	<p>Place circular gauges You can change the settings of the placed circular gauge, such as diameter, position, and whether or not to show the dimensions.</p>
<p>Reticle</p>  <p>Reticle</p>	<p>Cross</p>  <p>Cross</p>	<p>Display the cross You can change various settings of the displayed cross, such as the angle, whether or not to display the scale, and the properties of the lines and dimension labels.</p>
	<p>Grid</p>  <p>Grid</p>	<p>Display the grid You can change various settings of the displayed grid, such as the angle, whether or not to display the scale, and the properties of the lines and dimension labels.</p>

■ Pen drawing

- ① Click [Pen].
- ② Drag the mouse to draw a line freehand on the screen.
- ③ Click [Delete] to delete all pen drawings on the screen.
- ④ When this option is checked, all pen drawings will disappear from the screen one second after drawing.

Reference

- The pen can be used only in the [Start the task] mode and the [Start the training] mode.
- You can draw a straight line from the pen drawing end position to the position where you move the mouse and right-click.



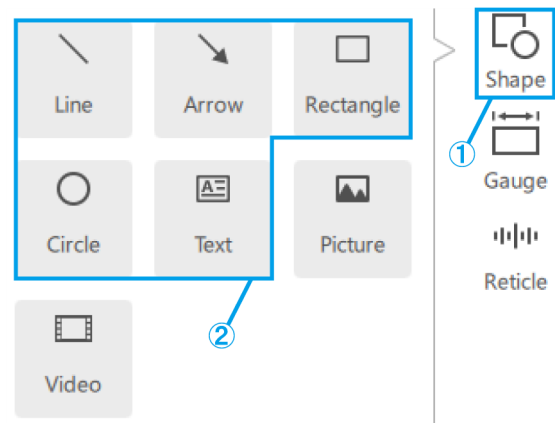
■ Adding shapes

Lines, arrows, rectangles, circles, and text

- ① Click [Shape].
- ② To place a shape, click [Object].
- ③ Click on the screen to place the desired object.

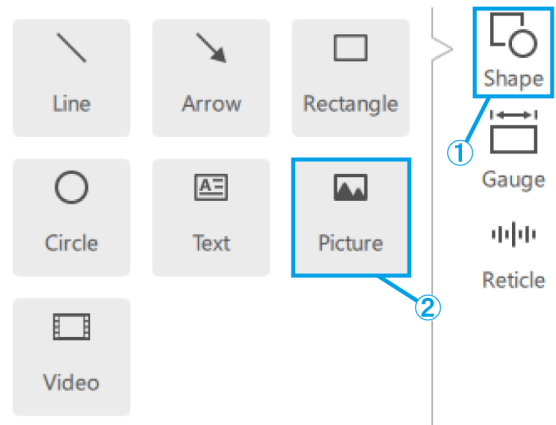
Reference

- Line and Arrow:
Click and draw while holding down the [Shift] key to draw a horizontal/vertical line.
- Circle:
Click and draw while holding down the [Shift] key to draw a perfect circle.
- Rectangle:
Pressing the [Shift] key while clicking to edit an existing rectangle will allow you to adjust its size while maintaining the aspect ratio of the rectangle as it was drawn.



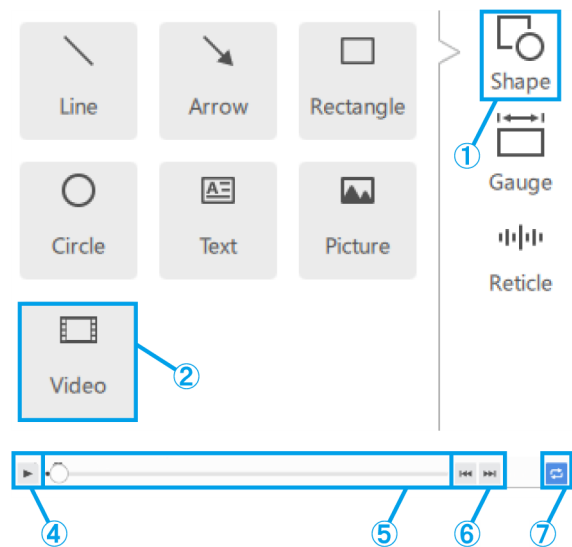
Picture

- ① Click [Shape].
- ② To place a content, click [Picture].
- ③ You can choose the picture format from .bmp, jpeg (jpg), and .png files.



Video

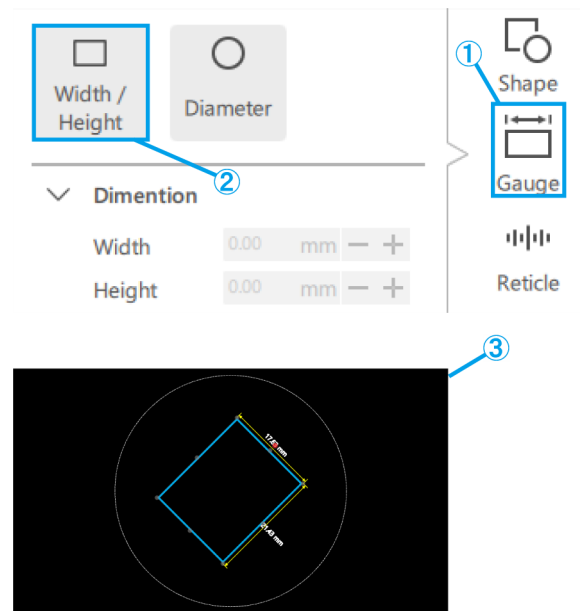
- ① Click [Shape].
- ② To place a content, click [Video].
- ③ Hover the mouse pointer over a video object to display the controller.
- ④ This button is used to control playback/pause.
- ⑤ You can use the playback position bar to control the playback.
- ⑥ These buttons are used for forward/backward operations (one click for a 5-second transition).
- ⑦ This button is used to turn on/off the loop playback.
- ⑧ You can choose the video format from avi, .mp4, and .mov files.



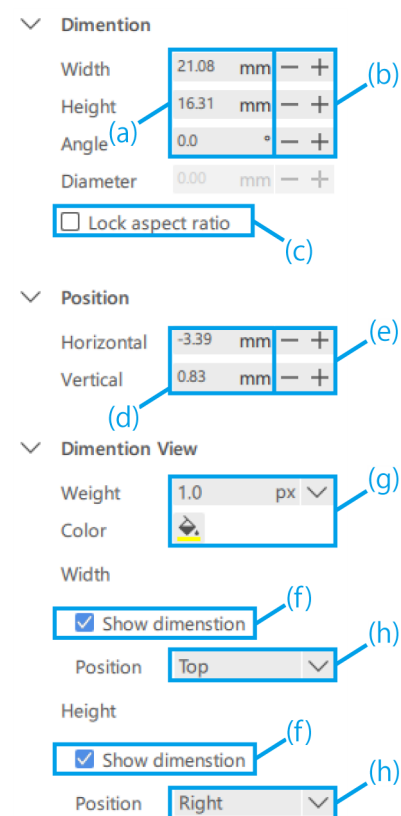
■ Adding gauges

Rectangular gauge

- ① Click [Gauge].
- ② Click [Width / Height].
- ③ Place the gauge on the screen.



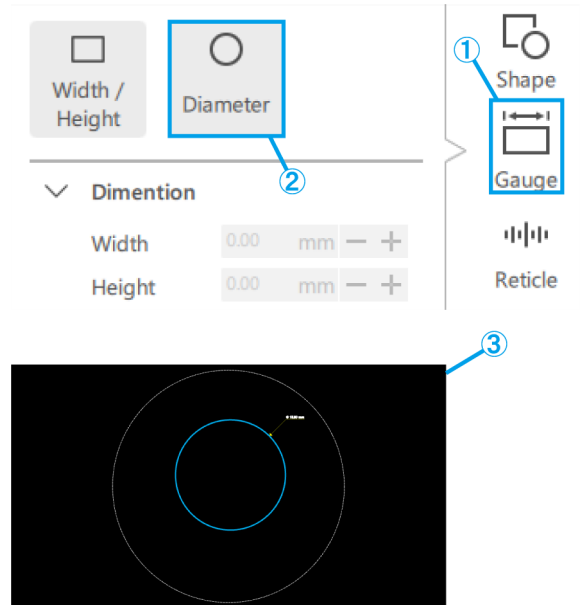
- (a) Enter the value of [Width / Height / Angle] directly.
- (b) You can change the [Width / Height] in 1 mm increments using these buttons. You can change the [Angle] in 1° increments using these buttons.
- (c) Check this box to fix the aspect ratio when scaling the gauge.
- (d) Enter the values for the gauge position directly.
- (e) You can change the gauge position in 1 mm increments using these buttons.
- (f) Check this box to display dimension lines.
- (g) Select the [Weight / Color] of the dimension lines.
- (h) Select the position of the dimension lines from Top or Bottom, and from Right or Left side of the gauge.



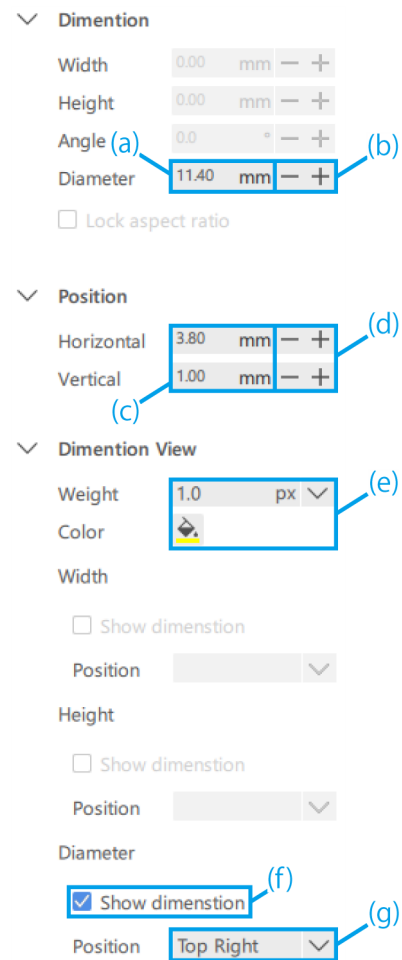
1 Operation procedure of the software

Circular gauge

- ① Click [Gauge].
- ② Click [Diameter].
- ③ Place the gauge on the screen.



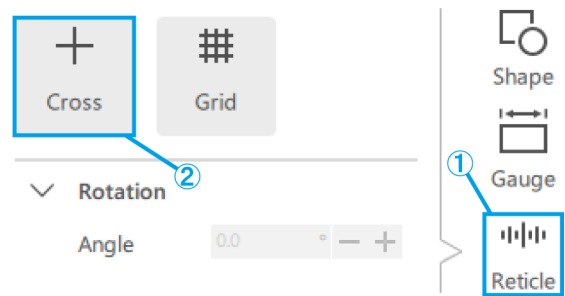
- (a) Enter the value for [Diameter] directly.
- (b) You can change the [Diameter] in 1 mm increments using these buttons.
- (c) Enter the values for the gauge position directly.
- (d) You can change the gauge position in 1 mm increments using these buttons.
- (e) Select the [Weight / Color] of the dimension lines.
- (f) Check this box to display dimension lines.
- (g) Select the position of the dimension lines from the Top Right, Bottom Right, Bottom left, or Top Left of the gauge.



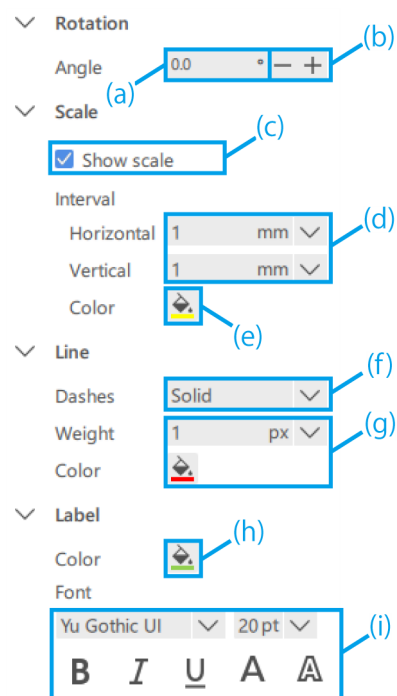
■ Adding reticles

Cross

- ① Click [Reticle].
- ② Click [Cross].

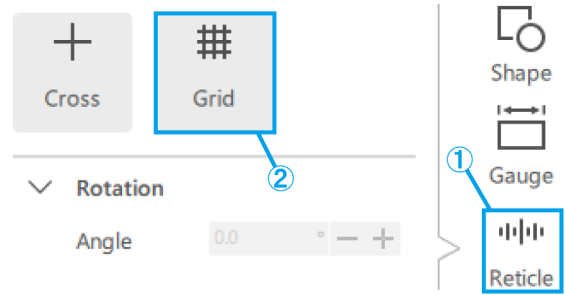


- (a) Enter a value for the [Angle] of the cross directly.
- (b) You can change the [Angle] of the cross in 1° increments using these buttons.
- (c) Select whether to show or hide the scale.
- (d) Select the [Horizontal interval] and [Vertical interval].
- (e) Select the [Color] of the scale.
- (f) Select either [Solid / Dash] for the cross.
- (g) Select the [Weight] and [Color] of the cross.
- (h) Select the [Color] of the label.
- (i) Select the [Font] of the label.



Grid

- ① Click [Reticle].
- ② Click [Grid].



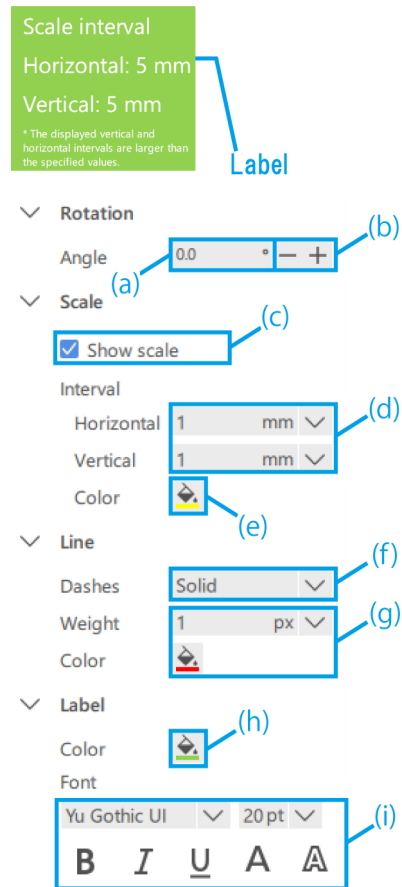
- (a) Enter a value for the [Angle] of the grid directly.
- (b) You can change the [Angle] of the grid in 1° increments using these buttons.
- (c) Select whether to show or hide the scale.
- (d) Select the [Horizontal interval] and [Vertical interval].

Reference

Note that the specified scale interval may cause too many scale lines depending on the observation magnification, so the scale interval may be changed to a larger value than the specified one in such cases.

If a change has occurred, a notation of this will appear on the label.

- (e) Select the [Color] of the scale.
- (f) Select either [Solid / Dash] for the grid.
- (g) Select the [Weight] and [Color] of the grid.
- (h) Select the [Color] of the label.
- (i) Select the [Font] of the label.



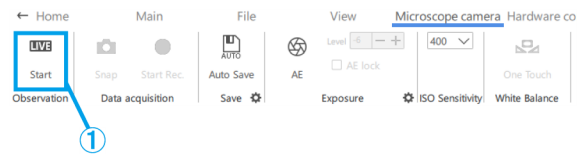
1.6 Microscope camera operation

■ Observation of microscope camera images

- ① To display the live screen of the microscope camera, click [Start].

 Reference

If you start up the app with the camera connected, it will start up in the live start state.



■ Data acquisition and storage

- (a) To take a snapshot, click [Snap] while the observation status is [Live].

If you want to record it, click [Start Rec.] while the observation status is [Live].

If you want to save the picture with AR display, check the [Save with AR] checkbox.

- (b) Auto save disabled state

Immediately after taking a snapshot or stopping recording, a save dialog will appear.

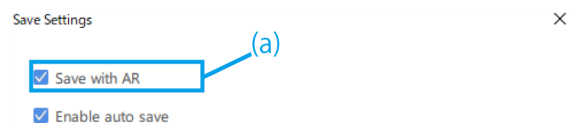
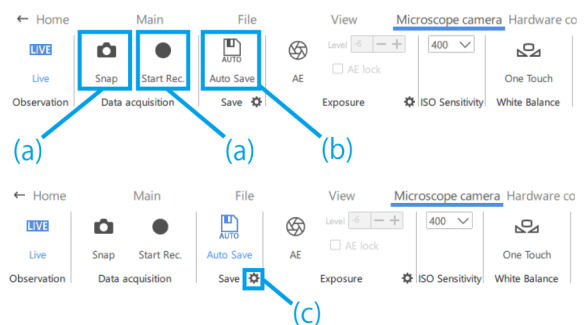
- (c) Auto save enabled state

Click the [gear mark] to display the Save Settings screen, where you can configure settings for automatic saving.

After you click [Snap] or stop recording, the data will be automatically saved according to the save settings.

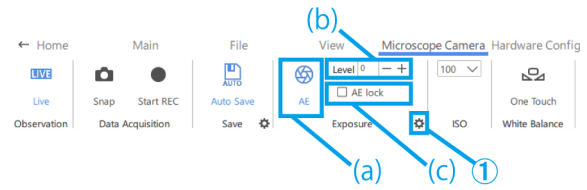
 Reference

- The formats that can be saved are as follows
 - Picture: .bmp, jpeg (.jpg), .png
 - Video: .mp4, .mov
- Depending on the PC load during recording, the following phenomena may occur.
 - Delay or skipping of recorded video
 - Delay or skipping of recorded audio
 - Video and audio delay or skipping in video playback

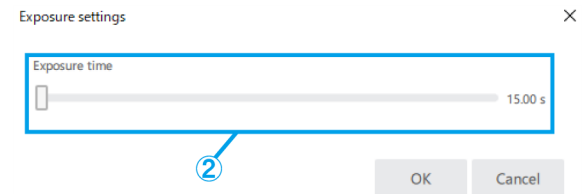


■ Exposure setting

- ① To set the exposure time, turn off the AE function and click the [Gear mark].
- ② Then, change the [Exposure time] to the desired value.

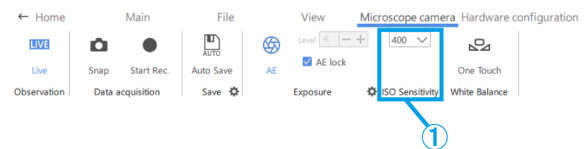


- (a) To turn on or off the AE function, click the [AE mark].
- (b) To adjust the exposure level, click on the plus or minus button next to [Level].
The exposure level can be adjusted in the range of -6 to +6.
- (c) Check the [AE lock] checkbox to retain the exposure time for the current observation.



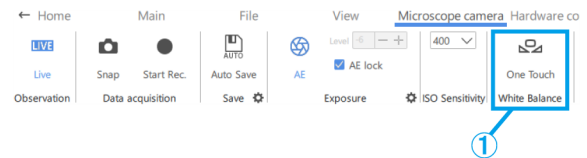
■ ISO sensitivity setting

- ① Change the ISO sensitivity to [100], [200], or [400].



■ White balance setting

- ① To adjust the white balance, use a white paper or the like as a sample and click [One Touch].



1.7 Operation for changing hardware configuration

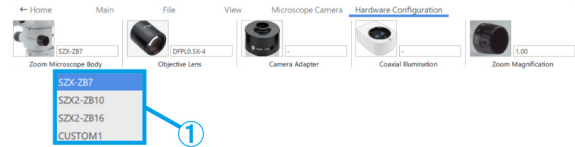
- You can check the current hardware configuration without having to return to the Home screen.
- This function is used when the content file being created is to be used for a different hardware configuration. However, if you change the hardware configuration, you will need to adjust the hardware again.

■ Zoom microscope body

- ① Select a zoom microscope body from [SZX-ZB7], [SZX2-ZB10], [SZX2-ZB16], or [CUSTOM1].

Reference

- The [CUSTOM1] is a zoom microscope for special applications and is not sold to the general public.
- When using this system, the observation magnification and observation range are as follows.



SZX-ZB7 combination (Zoom magnification of the microscope body: 0.8 to 5.6X)

Objective lens	Eyepiece magnification (number of fields of view)	
	10X (22 fields of view)	
	Observation magnification (X)	Observation range (mm)
0.5X	5.00 to 35.0	44.0 to 6.29
0.75X	7.50 to 52.5	29.3 to 4.19
1X	10.0 to 70.0	22.0 to 3.14
1.25X	12.5 to 87.5	17.6 to 2.51
1.5X	15.0 to 105	14.7 to 2.10
2X	15.8 to 158	11.0 to 1.57

SZX2-ZB10 combination (Zoom magnification of the microscope body: 0.63 to 6.3X)

Objective lens	Eyepiece magnification (number of fields of view)	
	10X (22 fields of view)	
	Observation magnification (X)	Observation range (mm)
0.5X	3.94 to 39.4	55.9 to 5.59
0.75X	5.91 to 59.1	37.2 to 3.72
1X	7.88 to 78.8	27.9 to 2.79
1.25X	9.84 to 98.4	22.3 to 2.23
1.5X	11.8 to 118	18.6 to 1.86
2X	15.8 to 158	14.0 to 1.40

SZX2-ZB16 combination (Zoom magnification of the microscope body: 0.7 to 11.5X)

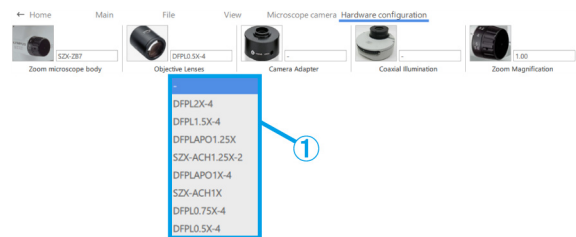
Objective lens	Eyepiece magnification (number of fields of view)	
	10X (22 fields of view)	
	Observation magnification (X)	Observation range (mm)
0.3X	2.62 to 43.1	83.8 to 5.10
0.5X	4.38 to 71.9	50.3 to 3.06
0.8X	7.00 to 115	31.4 to 1.91
1X	8.75 to 144	25.1 to 1.53
1.6X	14.0 to 230	15.7 to 0.96
2X	17.5 to 288	12.6 to 0.77

Reference

When used in combination with a coaxial illumination, the observation magnification will be the above observation magnification X1.5.

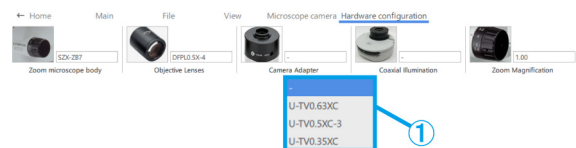
■ Objective lens

- ① Depending on your needs, select an objective lens from [DFPL2X-4], [DFPL1.5X-4], [DFPLAPO1.25X], [SZX-ACH1.25X-2], [SZX-ACH1.25X-2], [DFPLAPO1X-4], [SZX-ACH1X], [DFPL0.75X-4], [DFPL0.5X-4], [SDFPLFL0.3X], [SDFPLAPO0.5XPF], [SDFPLAPO0.8X], [SDFPLAPO1XPF], [SDFPLAPO1.6XPF], and [SDFPLAPO2XPFC].



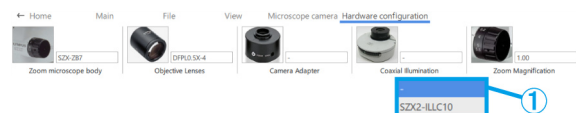
■ Camera adapter

- ① Depending on your needs, select a camera adapter from [U-TV0.63XC], [U-TV0.5XC-3], and [U-TV0.35XC].



■ Coaxial illumination

- ① Depending on your needs, select [SZX2-ILLC10] or [SZX2-ILLC16] as the coaxial illumination.

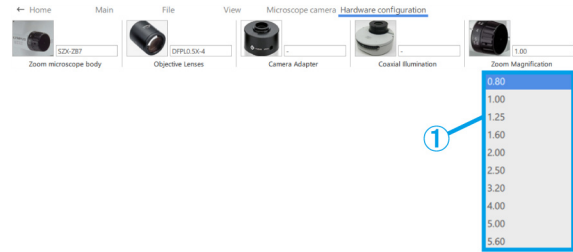


Zoom magnification

① Select the zoom magnification.

Reference

- If the zoom magnification sensor is connected to the PC, the magnification will be changed in synchronization with the magnification sensor. If it is synchronized, you cannot select it from the screen.
- Please refer to the table below for the respective magnifications.



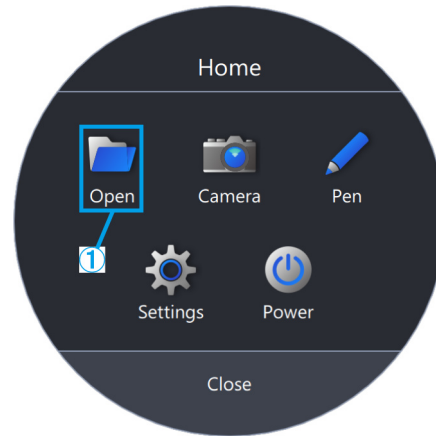
Zoom magnification.		
SZX-ZB7	SZX2-ZB10	SZX2-ZB16
0.80	0.63	0.70
1.00	0.80	0.80
1.25	1.00	1.00
1.60	1.25	1.25
2.00	1.60	1.60
2.50	2.00	2.00
3.20	2.50	2.50
4.00	3.20	3.20
5.00	4.00	4.00
5.60	5.00	5.00
–	6.30	6.30
–	–	8.00
–	–	10.00
–	–	11.50

1.8 Functions of the AR display side

Press [2] on the keyboard to move the mouse cursor to the eyepiece side. To move it back to the monitor side, press [1] on the keyboard.

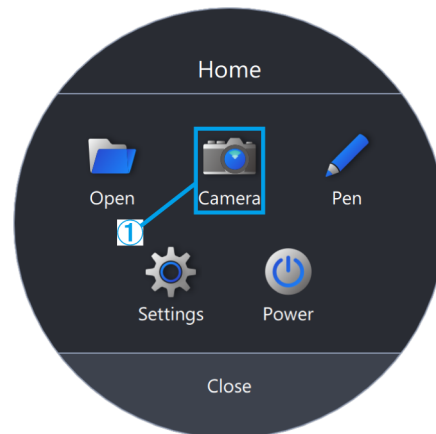
■ Open

- ① Click [Open] to open the content file you want to work with.

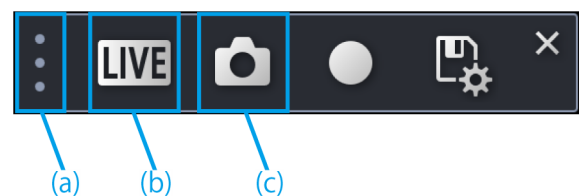


■ Camera

- ① Click [Camera].



- (a) You can move the toolbar by dragging and dropping [⋮].
- (b) To display the live screen of the microscope camera, click [LIVE].
- (c) To take a snapshot, click the [Camera mark].



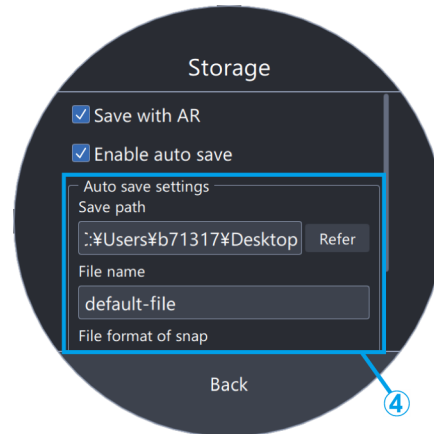
Video recording

- ① To start recording, click the [REC mark].
- ② To stop recording, click the [Stop REC mark].
- ③ To go to the Save Settings screen, click the [Save mark].
- ④ When the Auto Save setting is OFF:

After data acquisition, a save dialog will appear, so enter the [Save path] and [File name] to save the data.

When the Auto Save setting is ON:

After data acquisition, the data will be saved automatically according to the Auto Save settings in the Save Settings.



- (d) Click the [AE mark] to switch between automatic and manual exposure and adjust the exposure amount.
- (e) Change the ISO sensitivity to [100], [200], or [400].



White balance

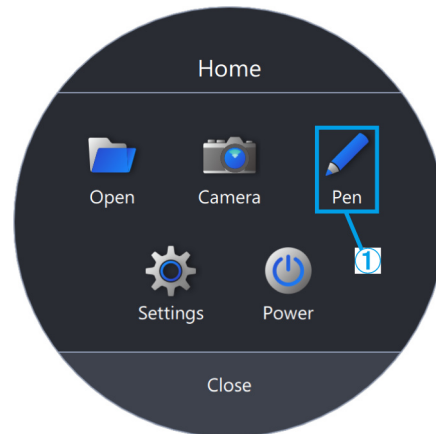
- ① To adjust the white balance, click [WB].
- ② Place a piece of white paper as a sample.
- ③ Click [One Touch] to adjust the white balance.



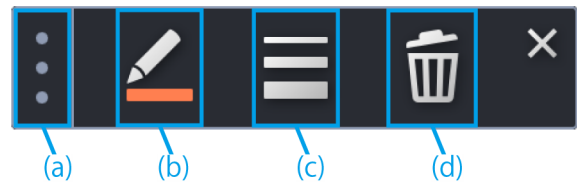


■ Pen

- ① Click [Pen].



- (a) You can move the toolbar by dragging and dropping [⋮].
- (b) To change the line color, click the [Pen mark].
- (c) To change the line weight, click the [Change line weight mark].
- (d) To delete a line, click the [Trash].

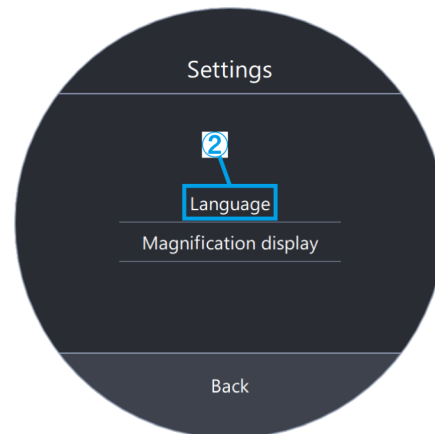
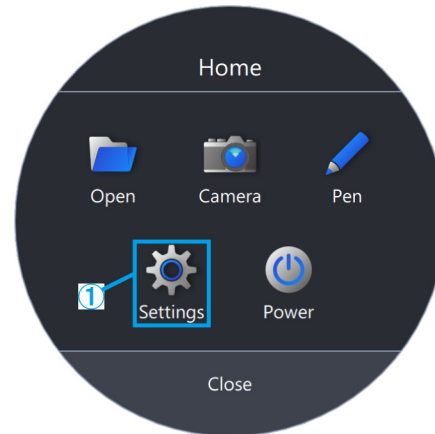


 Reference

The pen can be used only in the [Start the task] mode and the [Start the training] mode.

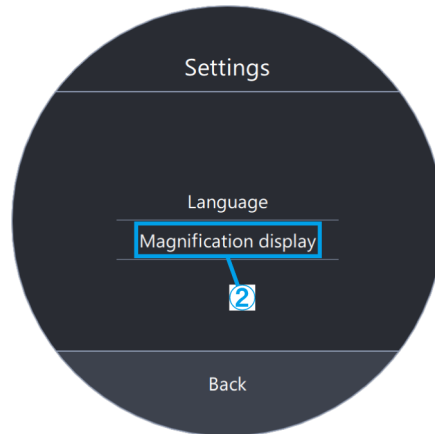
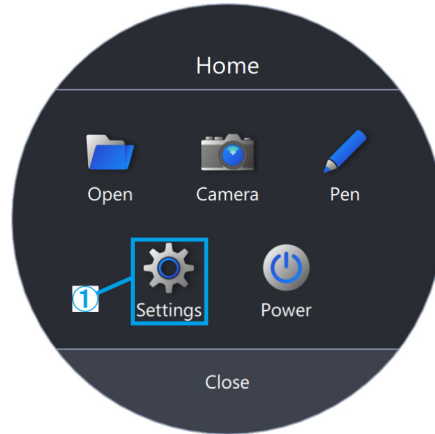
■ Language setting

- ① Click [Settings].
- ② Click [Language] and select the language you want to use.



■ Magnification display setting

- ① Click [Settings].
- ② Click [Magnification display].

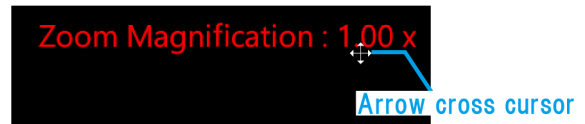
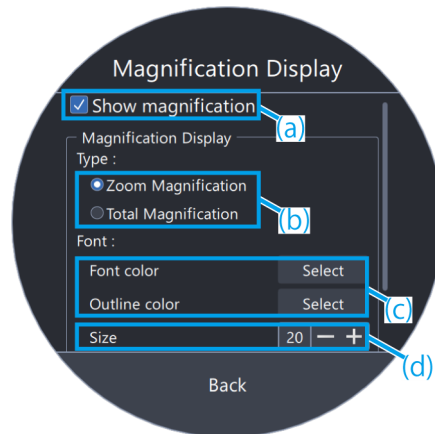


- (a) Select whether to show or hide the magnification.
- (b) Select [Zoom Magnification] or [Total Magnification].
- (c) Click [Select font color] or [Select outline color], and change the color.
- (d) Change the font size.

Reference

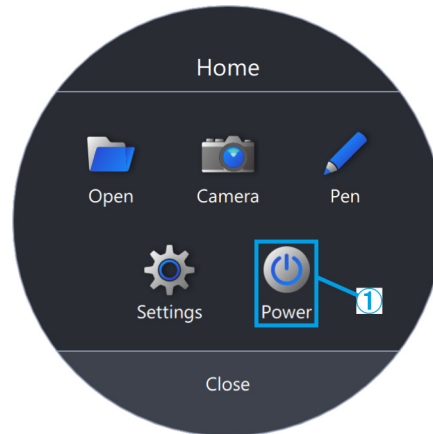
The magnification display can be moved over the view of the eyepiece.

- 1) Press [2] on the keyboard to move the mouse cursor to the eyepiece.
- 2) Move the cursor to Zoom Magnification or Total Magnification, and the cursor will change to . You can move the cursor to any position by dragging it while it is displayed with this appearance.



■ Power

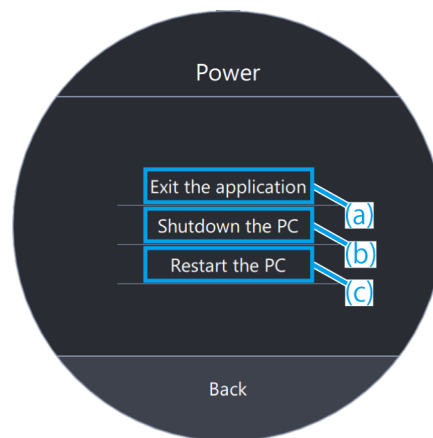
① Click [Power].



- (a) Click [Exit the application] to exit the application.
- (b) Click [Shutdown the PC] to shut down the application and the PC.
- (c) Click [Restart the PC] to exit the application and restart the PC.

Reference

- If you choose [Exit the application], please move the mouse after exiting the application so that the mouse cursor appears on the monitor.
- When using the application in an environment without a monitor, [Exit the application] will not be displayed.



2 Others

2.1 System check

⚠ Note

System checks should be performed periodically as part of daily inspections.

If you do not perform the inspection, you may not be able to obtain the correct zoom magnification.

■ System check

- ① Click [System check].

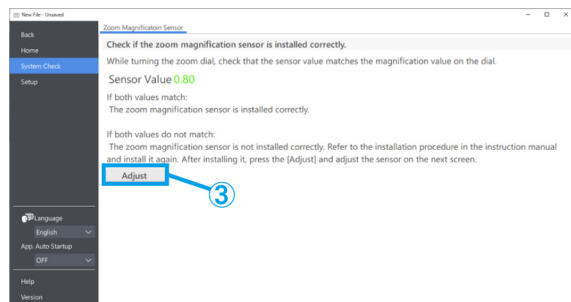
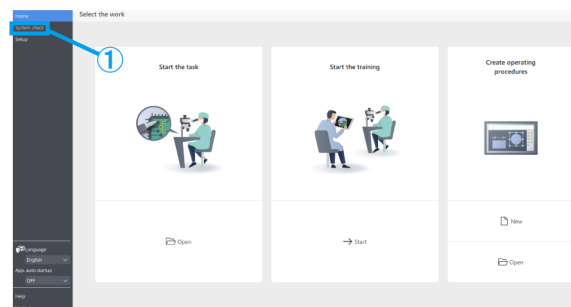
Reference

After connecting the zoom magnification sensor, you will be able to check it.

- ② Rotate the zoom handle to see if the correct magnification is displayed.
- ③ If it is not displayed correctly, click [Adjust] to make adjustments.

Reference

For details on how to make adjustments, please refer to [P.33](#).



2.2 Setup

■ Selecting a microscope configuration

- ① Click [Setup].
- ② Click [Edit].

Reference

If you click [Edit] while the camera is live, you cannot select the camera. To select a camera, stop live.

- ③ Select the zoom microscope body, camera, and other units from the pull-down list to fit the microscope system you are using.
- ④ Click [Save] to save the settings.
- ⑤ Clicking [Export] will save the device setting data of [Microscope Configuration] and [AR Display Adjustment]. Save the file in any folder with a desired file name.

Reference

The exported device setting data can be used for backup of the settings or for reuse in other systems.

- ⑥ Clicking [Import] will load the device setting data of [Microscope Configuration] and [AR Display Adjustment], and the setting information will be reflected. Select the name of the file you want to load and open the file.

Reference

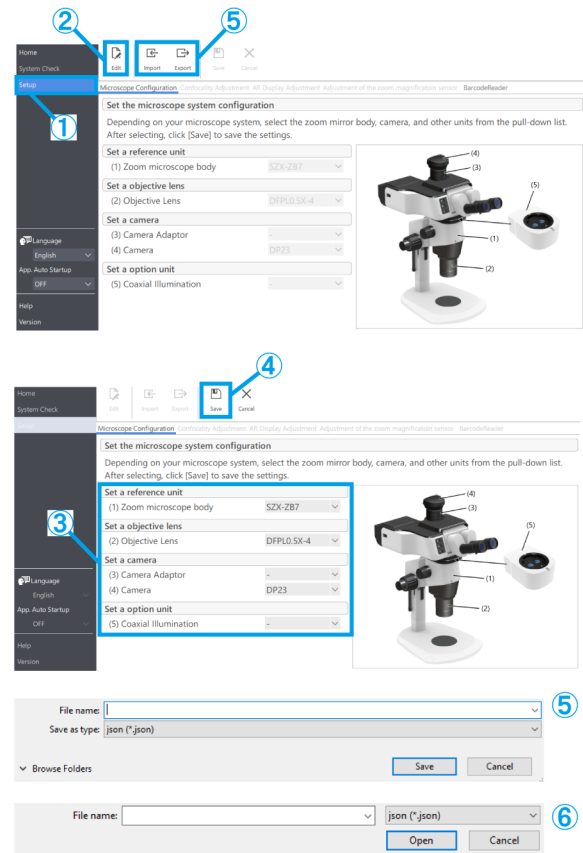
- The device setting data is the data that contains the microscope configuration information and the AR display adjustment setting information.
- The specifications for [Save] and [Export] are as follows.

Save:

Save the set values in the software.

Export:

Export the set values to a file.



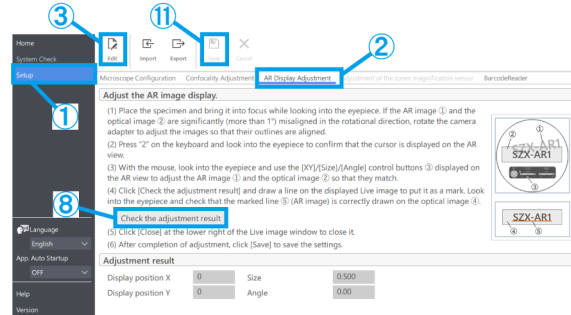
■ AR Display Adjustment

Match the position of the AR picture with that of the camera picture.

Before performing this adjustment, be sure to perform diopter adjustment. (For diopter adjustment, please refer to steps 2 to 6 of "Observation procedures" in the system manual.)

Without diopter adjustment, the AR picture display cannot be adjusted correctly.

- ① Click [Setup].
- ② Click [AR Display Adjustment].
- ③ Click [Edit].
- ④ Place the sample and look through the eyepiece to adjust the focus.



Reference

- Use a sample with clear contrast and contours to make adjustments. Using a sample with printed text, such as a business card, makes it easier to make adjustments.
- The size of the AR display is determined roughly by the combination of the camera and camera adapter. When making adjustments, try to set it around this reference value. Please refer to the table below for the reference values.

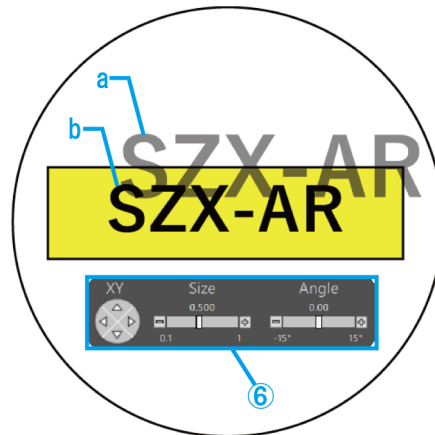
Camera	Camera adapter	Size
DP23	U-TV0.35XC-2	0.397
	U-TV0.5XC-3	0.278
	U-TV0.63XC	0.22
DP27	U-TV0.35XC-2	0.57
	U-TV0.5XC-3	0.399
	U-TV0.63XC	0.317

- ⑤ Use the keyboard to operate. Press [2] on the keyboard and look through the eyepiece to confirm that the cursor appears in the AR display.
- ⑥ Match the AR image (a) with the optical image (b).

• Click the [Angle] control buttons and set the value to 0. If the AR image and the optical image are significantly misaligned in the rotational direction, rotate the camera adapter to adjust it so that the misalignment is within $\pm 1^\circ$.

(For adjustment of the camera adapter, please refer to the instruction manual that comes with the camera adapter.)

• Use the mouse to operate. Look through the eyepiece and click the [XY]/[Size] control buttons



on the AR display to make adjustments so that the AR image (a) matches the optical image (b).

• Press the AR image ON/OFF button to show and hide the AR image repeatedly to check if the AR image and the optical image match. For the operation procedure, please refer to “Operation of the AR Trinoculars” in the system manual.

- ⑦ Use the keyboard to operate. Press [1] on the keyboard and make sure that the mouse cursor appears on the software.
- ⑧ Use the mouse to operate. Click [Check the adjustment result] in the [AR Display Adjustment] tab. The camera picture window will appear on your PC monitor screen.
- ⑨ Click on one of the four colored buttons displayed in the lower right corner of the camera picture window, then left-click and drag to draw a line at the location to be marked. Look through the eyepiece and check that the optical image as seen through the optical barrel matches the marker line drawn in the camera picture window.
- ⑩ Click [Close] in the lower right corner of the camera picture window to close the window.
- ⑪ After completing the adjustment, click [Save] to save the settings.

[Reference](#)

If the marker lines are displayed out of alignment, repeat steps ④ through ⑥ again.



■ Adjustment of the zoom magnification sensor

- ① Enable clicking on the zoom handle.

For the operation procedure, please refer to “Setting the zoom magnification sensor” in the system manual.

- ② Click [Setup].
- ③ Click [Adjustment of the zoom magnification sensor].

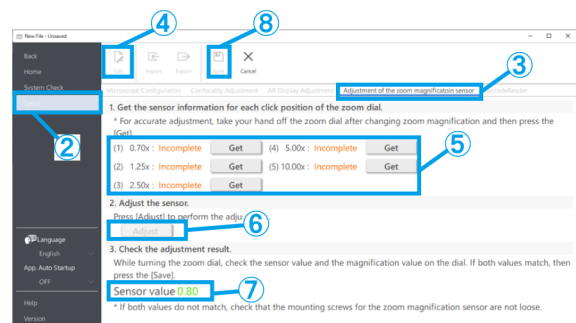
[Reference](#)

After connecting the zoom magnification sensor, you will be able to check it.

- ④ Click [Edit].
- ⑤ Turn the zoom handle to the click position and click [Get] for the corresponding magnification.

[Reference](#)

To ensure accurate magnification readings, do not



touch the microscope when clicking the [Get] button.

- ⑥ When you have completed getting all the magnifications, click [Adjust].
- ⑦ Turn the zoom handle to check that the magnification sensor value displayed on the screen matches the magnification indicated on the zoom handle.
- ⑧ If there is no problem with the magnification sensor value, click [Save] to save the settings.

 Reference

If magnification acquisition is not successful, the zoom magnification sensor may not be attached securely. Check again that the fixing screw for the zoom magnification sensor is not loose.

Barcode reader

- ① Click [Setup].
- ② Click [BarcodeReader].

Reference

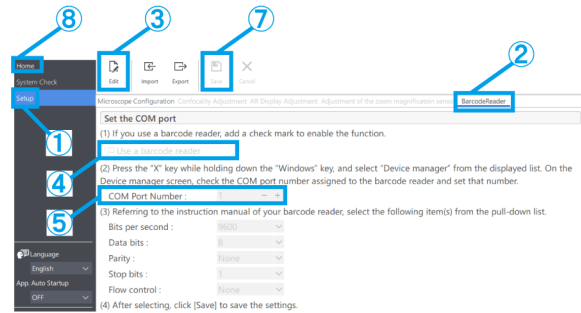
- You need to set up a COM port to link the barcode reader to the software.
- To connect this software to a barcode reader, you need to set the barcode reader to use the COM communication.

- ③ Click [Edit].
- ④ Check the [Use a barcode reader] checkbox.
- ⑤ Check the port number to which the barcode reader is connected in the Device Manager of your PC, and change the [COM Port Number:].
- ⑥ Refer to the instruction manual of the barcode reader you are using and select the communication specifications.
- ⑦ Click [Save].
- ⑧ Click [Home].
- ⑨ Scan the QR code shown on the right.

If you can open the sample content file, you are connected without any problems.

Reference

- When Setup is selected, the content file cannot be opened and a message will be displayed.
- To check if the QR code has been read, you need to navigate from [Setup] to [Home].



QR code



■ Connecting external switches

The shortcut keys built into this software can be assigned to external switches.

① Connect external switches.

② Refer to the list of shortcut keys below and assign the required functions to the external switches.

For details on how to assign external switches, please refer to the instruction manual of the external switches.

📖 Reference

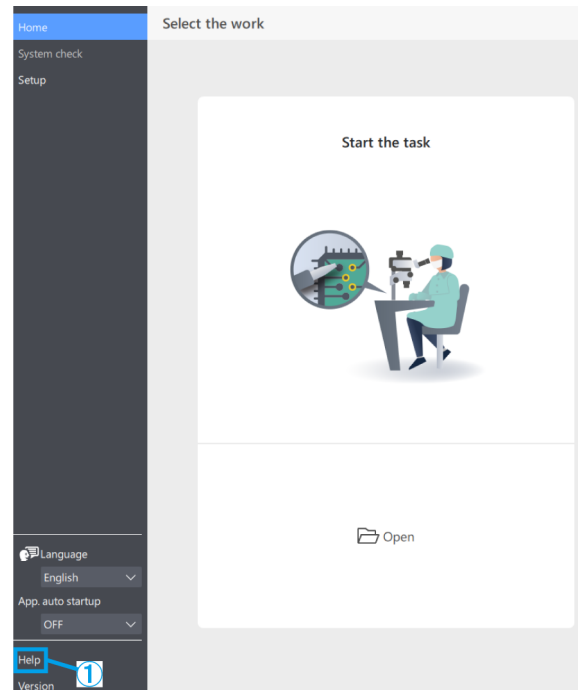
- The numbers of the shortcut keys are fixed.
- Even without an external switch, you can use it by pressing the numeric keypad on the keyboard.

Shortcut keys built into this software	
Command	Shortcut key
Move the mouse cursor to the main monitor side	Number "1" key
Move the mouse cursor to the AR display side.	Number "2" key
Slide backward	Number "4" or "PgDn"
Slide forward	Number "6" or "PgUp"
Snap	Number "7" key
Start/stop video recording	Number "9" key

2.3 Help

■ Help

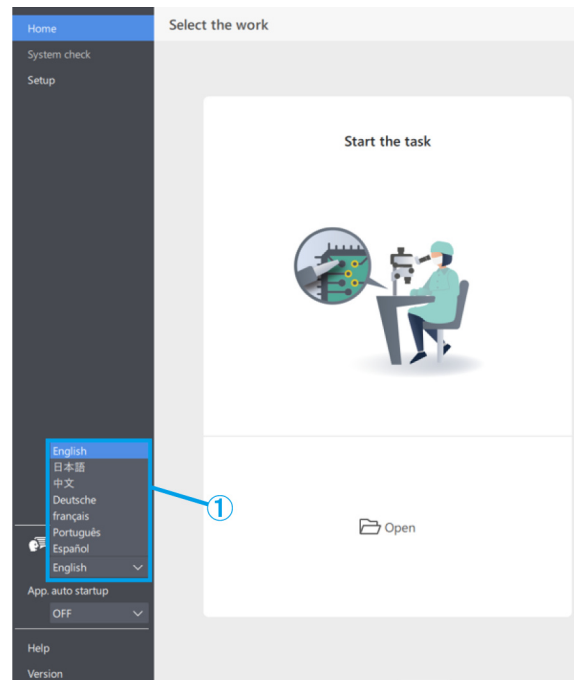
① Click [Help] to open the help file.



2.4 Language setting

Language setting

- Click [Language] and select the language you want to use.



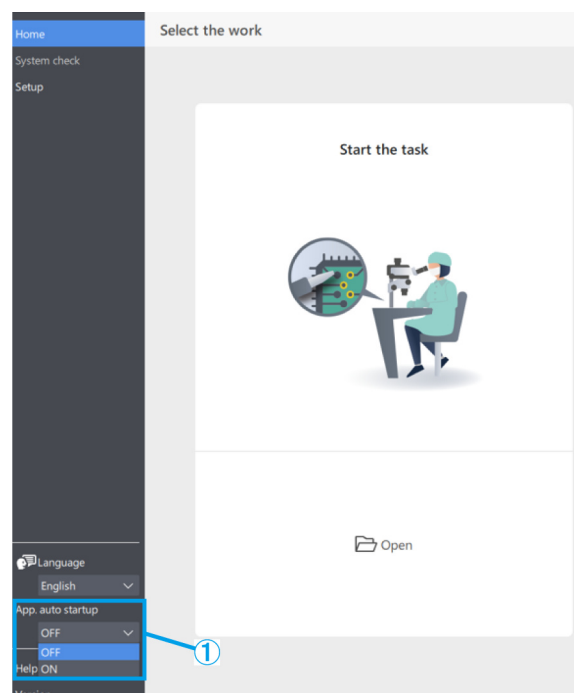
2.5 App startup settings

App startup settings

- From [App. auto startup], select either ON or OFF.

Reference

If you select ON for [App. auto startup], the application will also start up automatically the next time you start up your PC.



2.6 Version information

- Version information

- ① To check the version information, click on [Version].
- ② Click [Third Party Notifications] to display information about the open source software you are using.

