OPERATION MANUAL

for SK-Measure, the Filing & 2D Measurement Software

Ver1.658

SAITOH KOUGAKU CO.,LTD.

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Thank you for purchasing SK-Measure, the 2D measurement software.

This document is the operational manual for SK-Measure, the 2D measurement software.
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Accessories

Composition of product : Please make sure to check it first.

USB Key **Note: It cannot be reissued.**	**CD-ROM**	**Glass Scale** **(Central circle: 0.4 mm)**

Principle of the measurement software

This measurement software counts dots on the PC screen and calculates a dimension value based on a calibration value.
Due to such principle, it is required to set an accurate calibration vaule prior to measurement
Make sure to set a calibration value every time the magnification is changed.
Enlarge the lines for calibration (automatic /manual) to fill the screen during calibration
to make it more accurate.
See P. 15 (Automatic calibration value setting) and P. 42 (Manual calibration value setting)
for the setting of a calibration value.

Ⅰ How to install the software

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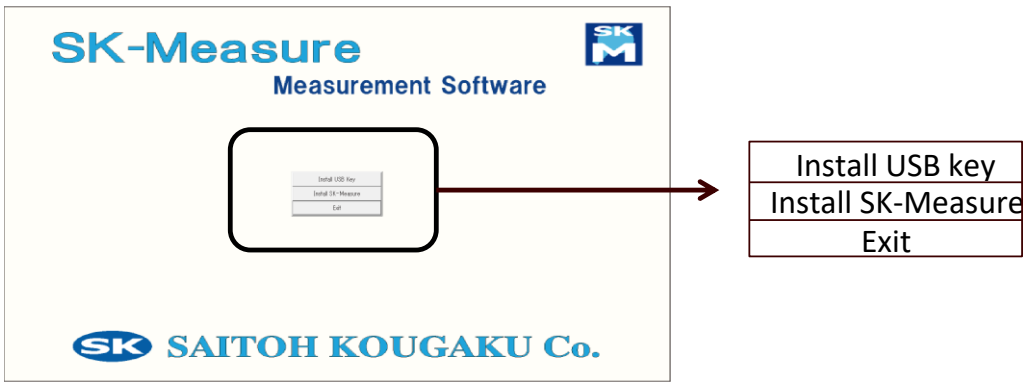
Ⅰ-1 Installation of the software for USB key activation

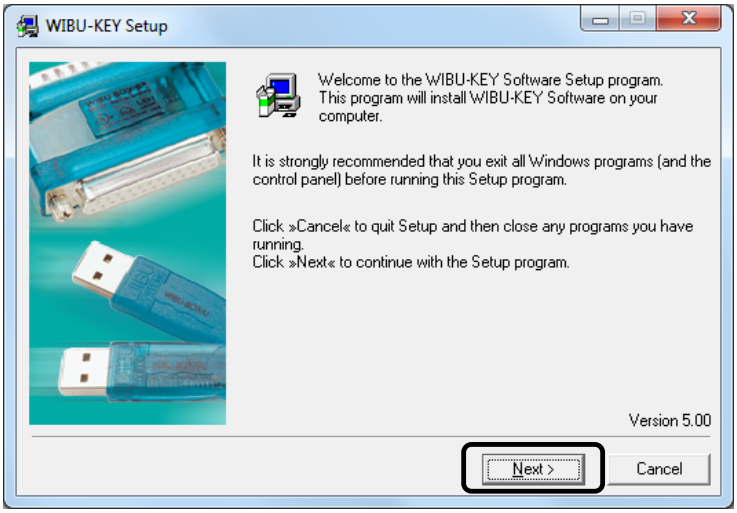
① Set the accompanying CD. *** Do not insert the accompanying USB key yet.**

② The following screen appears automatically. Select the [Install USB Key] button.

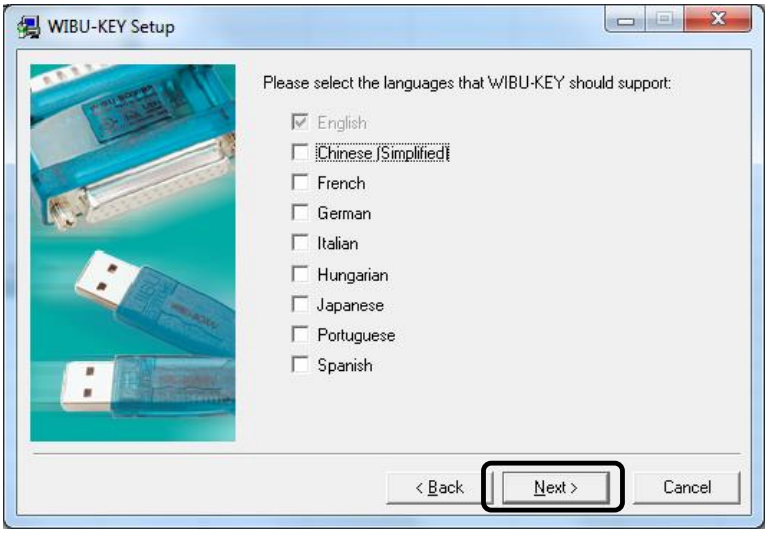
* Open the "setup" file in the CD-ROM when the screen is not displayed.



③ Click [Next].

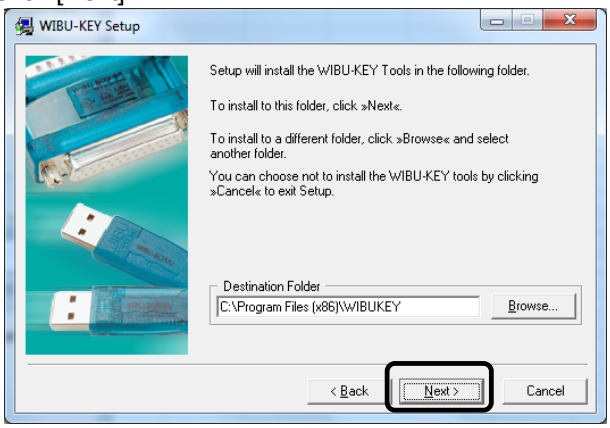


④ Select the language and click [Next].

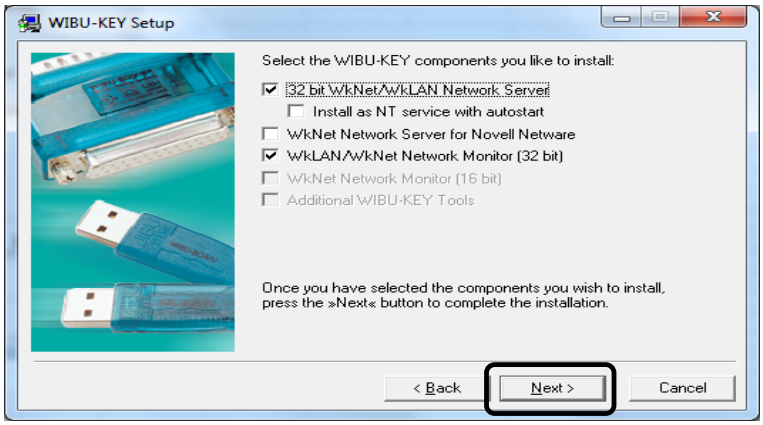


Continuing

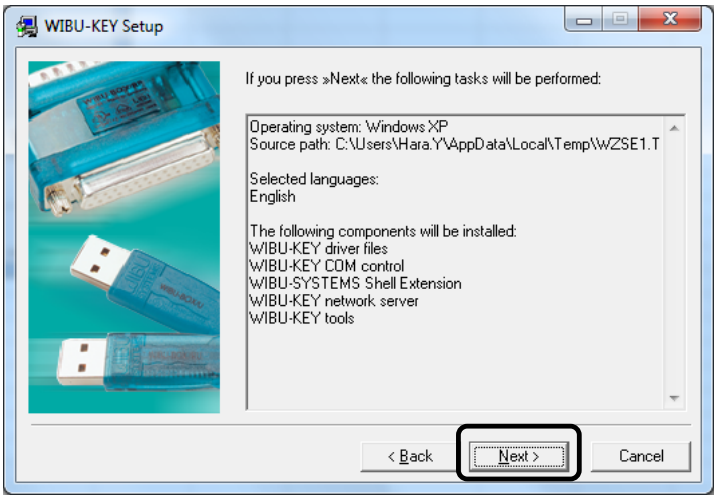
⑤ Click [Next].



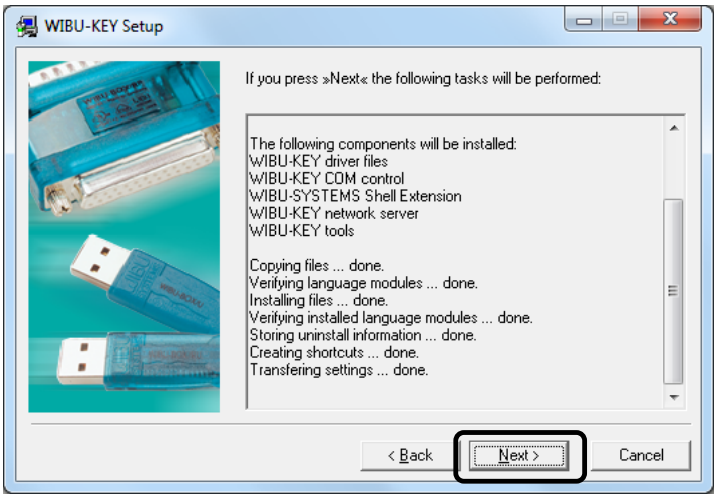
⑥ Click [Next].



⑦ Click [Next].

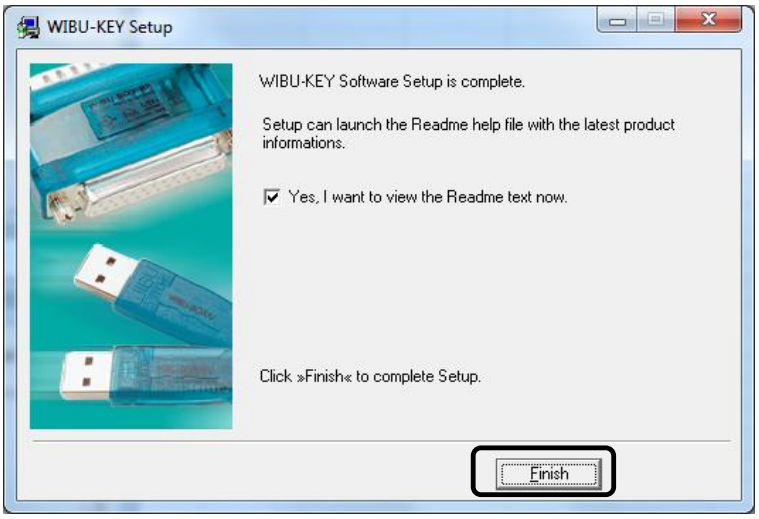


⑧ Click [Next].

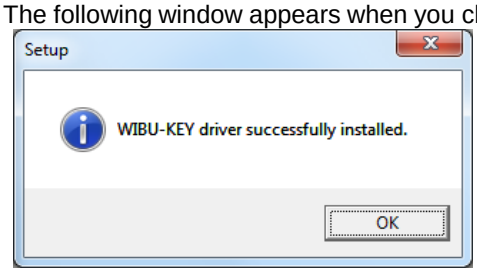


Continuing

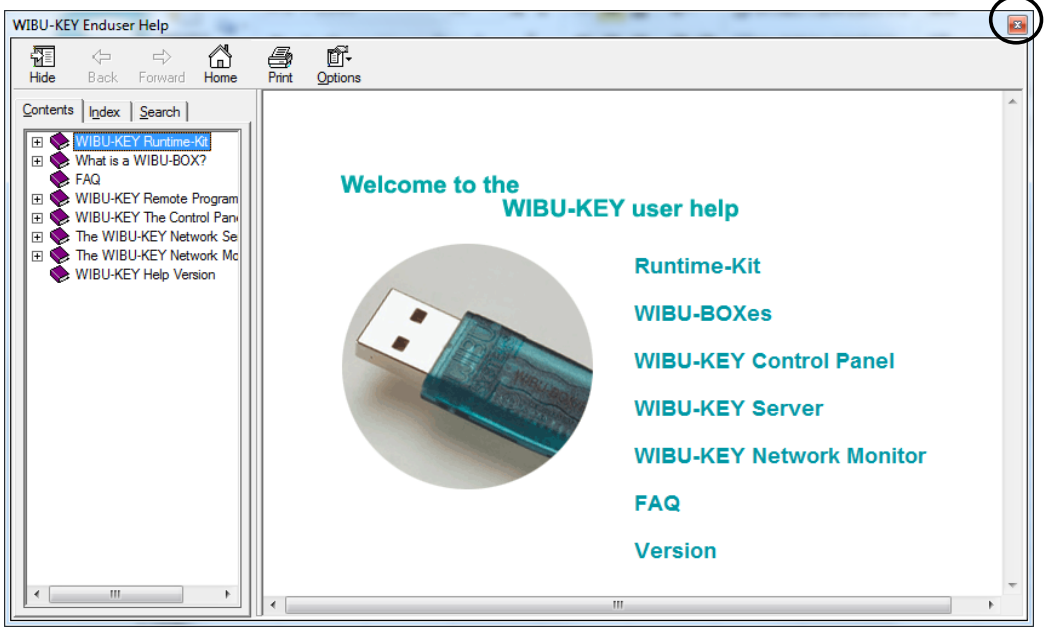
⑨ Click [Finish]. The installation is now completed.



⑩ When you click [Finish] , the dialog box [WIBU-KEY driver successfully installed.] is displayed at the same time. The following window appears when you click the button.



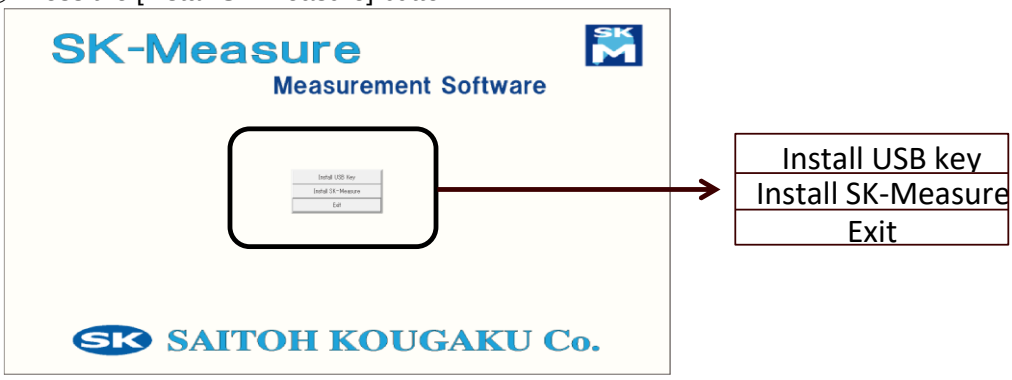
It is not necessary.
Close the window with "×".



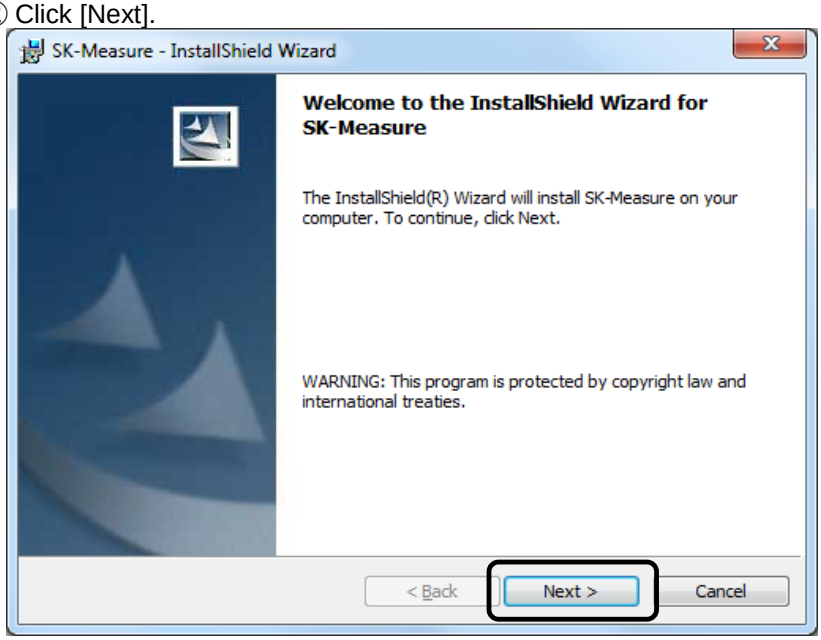
NEXT, GO ON TO THE [INSTALLATION OF SK-MEASURE, THE MEASUREMENT SOFTWARE] Continuing

Ⅰ-2 Installation of SK-Measure, the measurement software

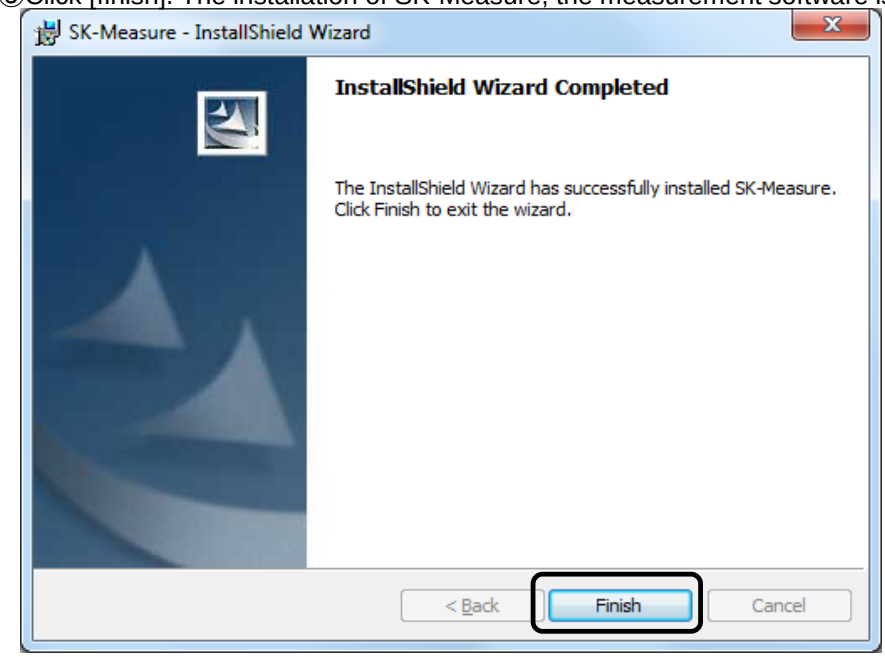
① Press the [Install SK-Measure] button.



② Click [Next].



③Click [finish]. The installation of SK-Measure, the measurement software is now completed.



Click [finish] on the installation window to end the installation.

Continuing

Ⅰ-3 Installation of the USB key unit

① Insert the accompanying USB key into the USB port of the computer and wait for a while until the following window is displayed.

This is the setting procedure when the USB key is connected for the first time and it is not required for the subsequent connection to the same USB port. Note that this procedure is necessary when it is connected to any other port.

②Select "No,not this time" and click [Next] . * Go to "③" when the screen below is not displayed.

③ Select "Install the software automatically[Recommended]" and click [Next].

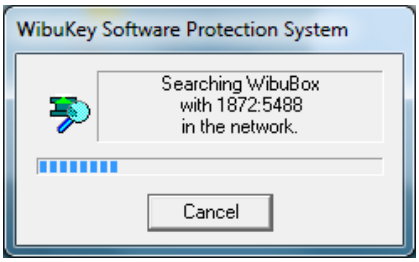
④ Select [Finish]. The installation of the USB key is now completed.

Continuing

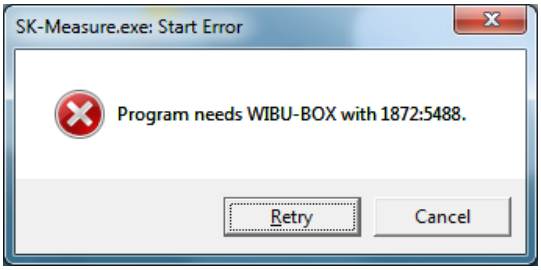
Make sure to insert the USB key before starting SK-Measure, the measurement software. The software will not start without it inserted.

Ⅰ-4 Precautions when starting SK-Measure, the measurement software

① The USB key is always necessary when you use SK-Measure, the measurement software.
The software will not start without the USB key.



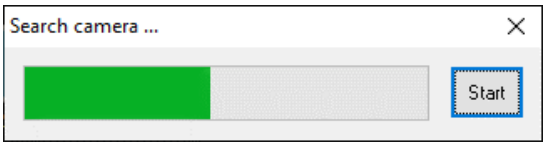
The above window is displayed when the USB key is not inserted.



When [Retry] is pressed after the USB key is inserted, the software will start.

② Only the USB port that you set in "①" is valid. To use other port, insert the USB key to the port and repeat the setting procedure in "①".

③ About "Search camera..."



When "Search camera" window is displayed but you connected the microscope,
internal camera is being overridden or other imaging device driver is being overridden.
If it is, start the software with clicking the start button, and then, connect to the microscope.

★ For How to Switch Cameras , see P14

Ⅱ Overview of screens and buttons

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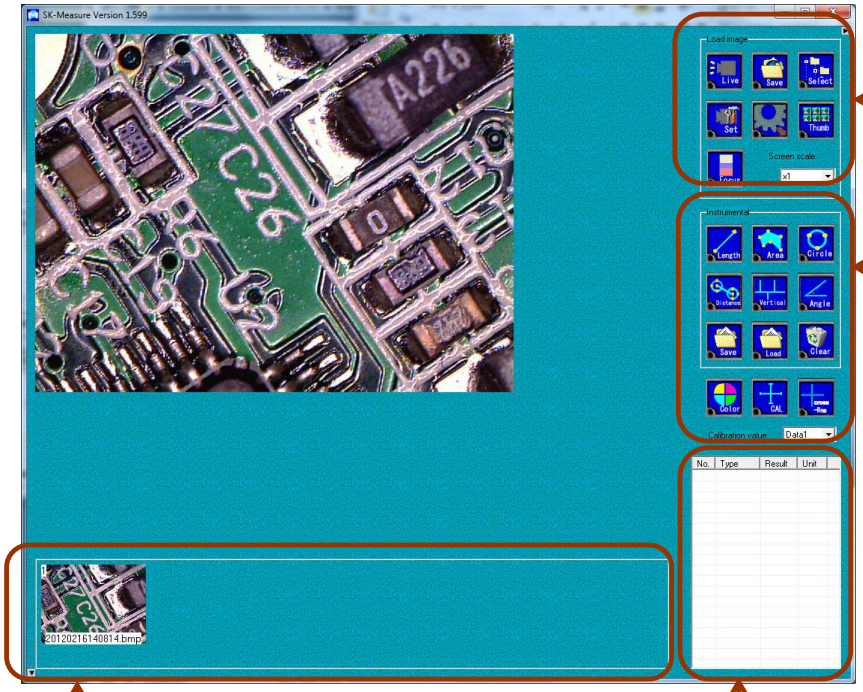
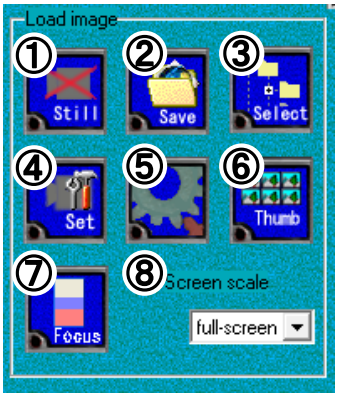
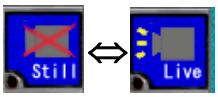


Image capture buttons



①  Switch between "Still" and "Live".

☆You can now switch between the "Still" and "Live" modes also by pressing the [F11] key.
You can switch the mode without using a mouse or keyboard

② Save the image (→ P22)

③ Simple and easy image saving (→ P25)

④ Make the setting for the camera

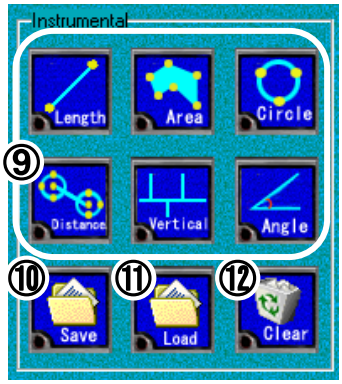
⑤ Switch between "saving the image only" and "saving the image with the measurement values" (→ P24)

⑥ Display the thumbnail (→ P33)

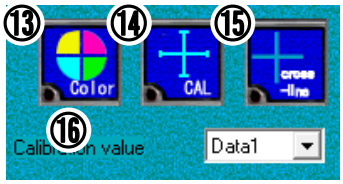
⑦ Specify the range of the partial focus（→ P30）

⑧ Switch the magnification of the screen (→ P28)

Measurement buttons



⑨Select the type of measurement (→ P18)
⑩Save the data of the measured value (→ P39, 41)
⑪Read the data of the measured value (→ P40)
⑫Delete the measured value (→ P37)



⑬ Set the color of the measurement lines（→ P29）
⑭ Set the calibration value (→ P15, 42)
⑮ Display the cross line (→ P35)
⑯ Switch the calibration values (→ P18)

Ⅲ How to Switch Cameras

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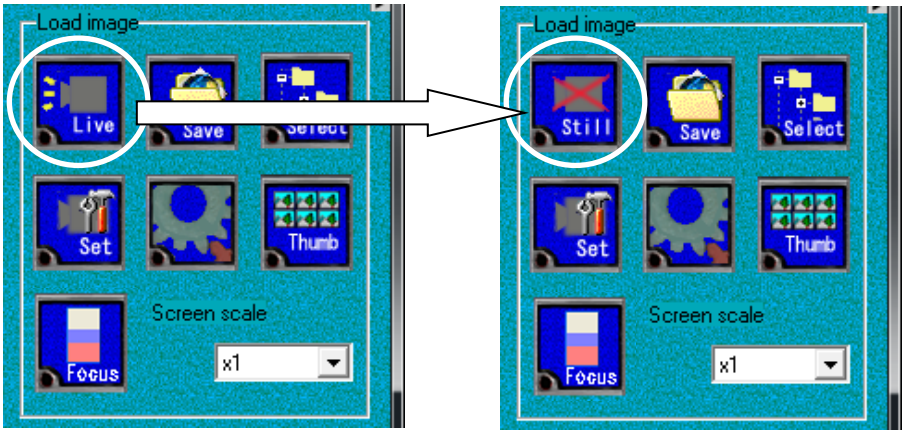
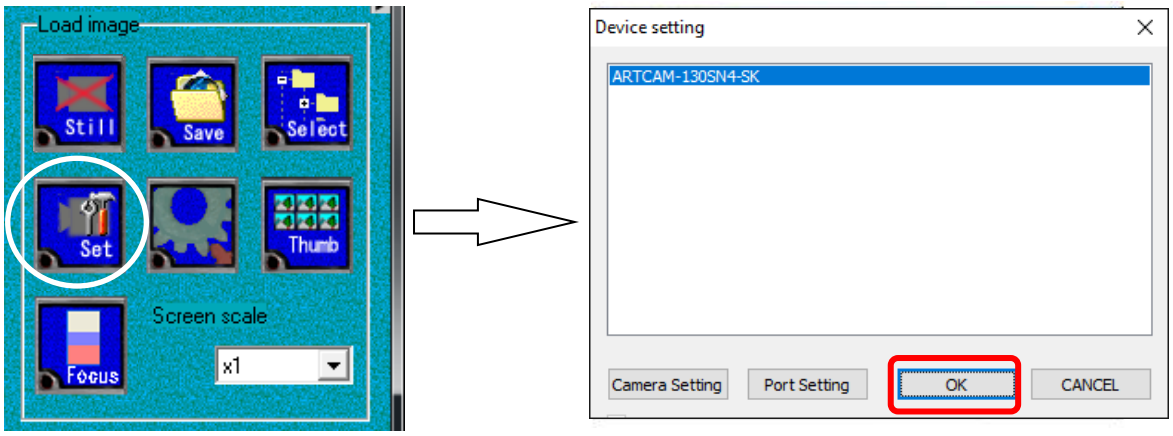
If the image from the computer-mounted camera is displayed on the monitor, switch to the microscope camera as shown below.

1. Click the"live" button, then the screen becomes "Still".



2. Click the"Set" button, then the setting window is displayed.

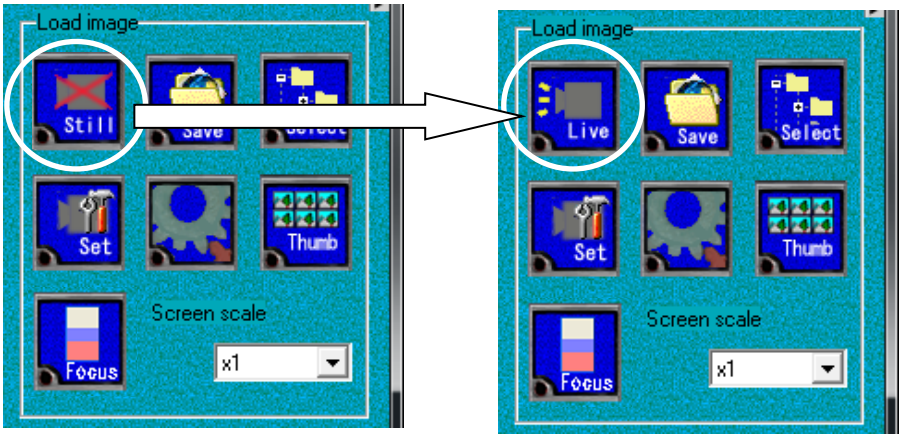


A camera list in the device setting.
Select suitable camera,then click the "OK" button.

Note

The camera depends on the microscope.
"ARTCAM-130SN4-SK" is the camera for SKM-S30D-PC and SKM-S31C-PC
"WAT-01U2" is the camerafor SKM-Z300C-PCM2
"StUSBCam" is the camerafor SKM-Z200C-PCD and SKM-Z300C-PCD
When the microscope is connected to computuer via the capture device "XCapture-1", select "CY3014USB, Analog 01 Capture".

3. Click the"Still" button, and the screen becomes "Live" again.
The camera has been changed.



Ⅳ Basic Operation (Making a Measurement) SAITOH KOUGAKU

Ⅳ-1 Procedures for measurement

【Step 1】Set the calibration value automatically

★ When the magnification is between 30-power to 240-power, the calibration value can be set automatically.
★ When the magnification is 30-power or below or 240-power or above, you need to set the calibration value manually.
For the procedure to set the calibration value manually, see P42

【Step 2】Select the type of the measurement

Distance/angle between two points, area, diameter of a circle, distance of center/diameter/angle between two circles, perpendicular, angle

【Step 3】Save the image

★ For the procedure to save the measurement value data, see P39 and P41

【Step 4】Read the saved image

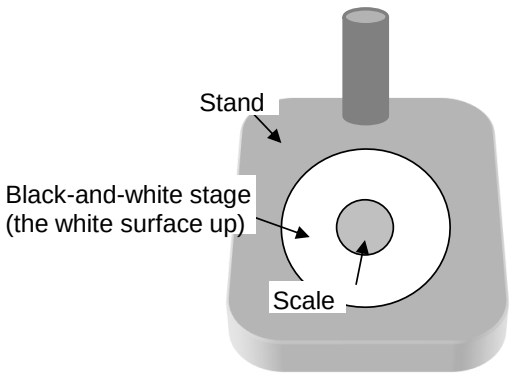
★ For the procedure to read the saved measurement value data, see P40

Ⅳ- 2 Making a measurement

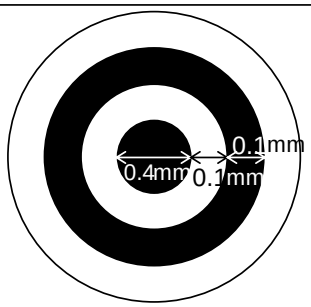
[Step 1] Set the automatic calibration value

① Set the scale for the automatic calibration value

Set the scale for the automatic calibration on the black-and-white stage. (use the white surface)



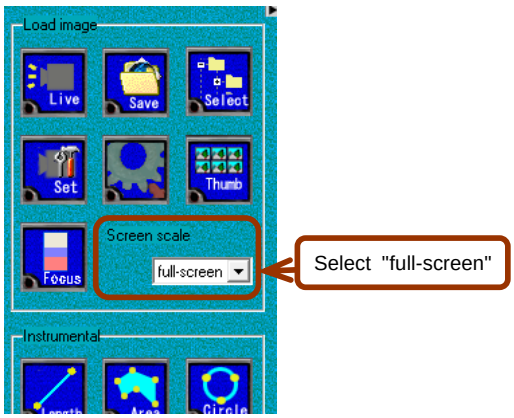
Enlarged view of the circular scale for the automatic/manual calibration value



After starting SK-Measure, make sure to set the scale so that the circle is located in the center of the screen. Check on the full-screen display.

②Select the magnification **from 30-power to 240-power.** Make the window go full screen and place the center of the scale on the center of the screen.

* Model SKM-S30D-PC is used



Continuing

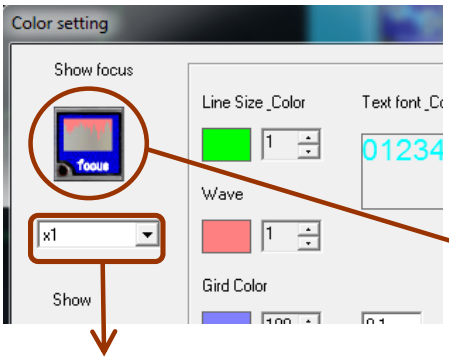
③ Bring into focus

Press the

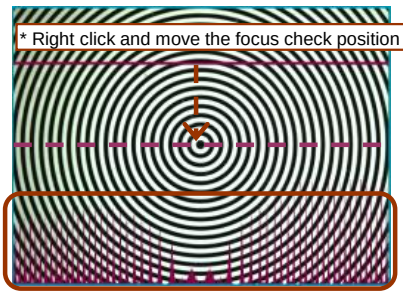
button to open the following Color window. Press the [focus] button.

★ To partially bring into focus , see P30

Check the waveform to bring into focus.
After adjusting the focus, press the [focus] button again to make the waveform not to be displayed.
Press the [OK] button on the Color setting window.



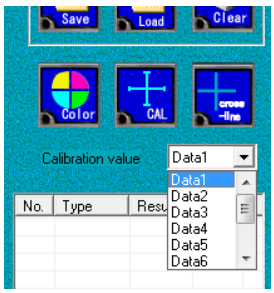
The size of the waveform can be changed.



It is brought into focus when the waveform is the longest.
(The waveform for the peak value remains)
* After adjusting the focus, press the [focus] button again to make the waveform not to be displayed.

④ Determine where to register the automatic calibration.

Determine where to save the calibration values. Up to ten automatic / manual calibration values can be registered in total.



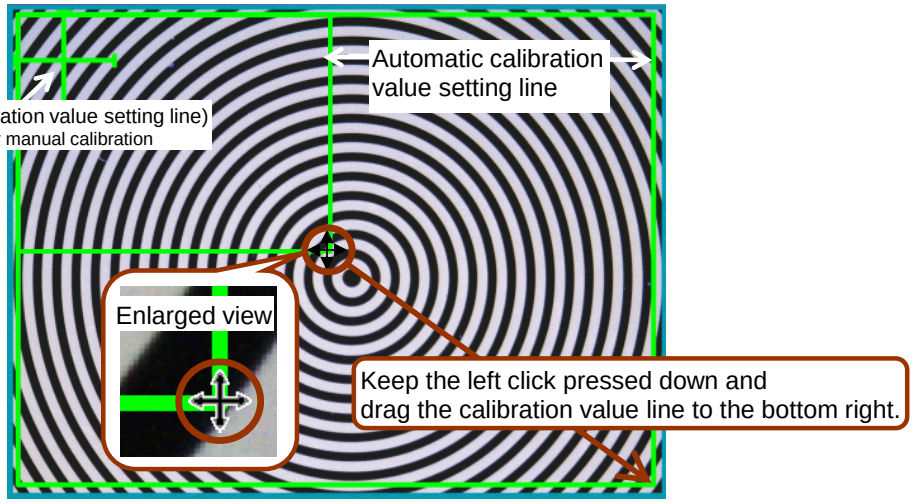
★ For the procedure to set the manual calibration value, see P42

⑤ Determine the range of calibration value with the automatic calibration value setting line.

Press the

button.

The [CAL] window opens and the calibration setting line is displayed.
(The default setting is shown in green.) Enlarge the range of the calibration setting line to full screen.

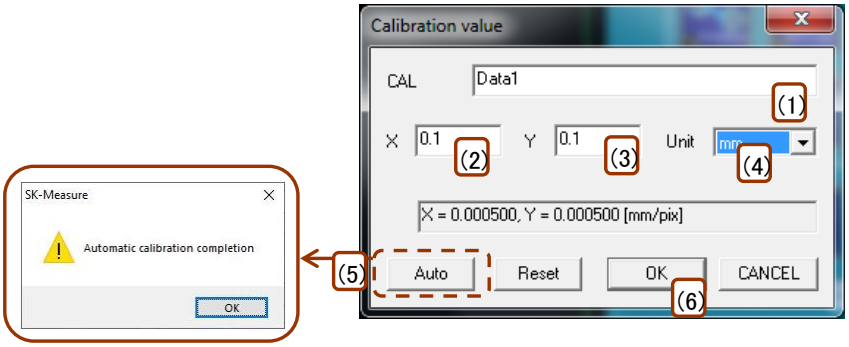


Point

The automatic calibration value setting (auto calibration) does not require detailed settings.

Continuing

⑥ Enter the basic value. Perform the automatic calibration value setting (auto calibration) and register the value.



Select the [Auto] button.
The "Finish calibration" window
is displayed.

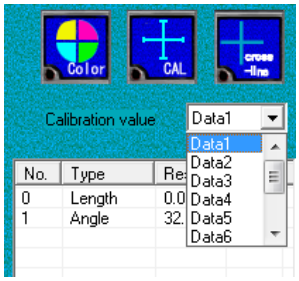
(1) Set the calibration value name. (It will be recognizable to include the magnification)
(2) Enter "0.1", the actual scale, for X.
(3) Enter "0.1", the actual scale, for Y.
(4) Select the unit "mm".
(5) Press the [Auto] button to "Finish calibration", and press the [OK] button.
(6) Press the [OK] button on the Calibration value window is pressed to register the calibration setting.

Do the same things on every magnification.

The calibration value setting is now completed. Next, perform the measurement.

[Step 2] Select the type of the measurement.

Select a calibration value from the list which was registered on "step1".

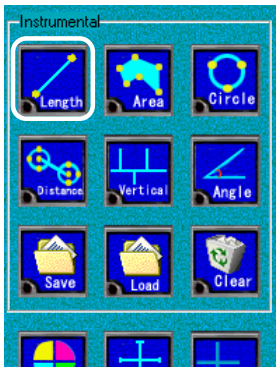


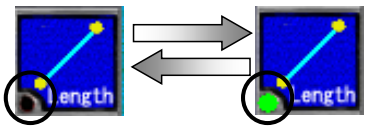
★ For how to set the calibration value, see below:
- For the magnification of 30- to 240 power … Automatic calibration value setting (→ P15)
- For the magnification of 30-power or below or 240-power or above … Manual calibration value setting (→ P42)

[Step 3] Select the type of the measurement.

SK-Measure offers total of six type of the measurement functions including:
distance/angle between two points, area, diameter of a circle, distance of center/diameter/angle between two circles, perpendicular, angle. Select the button for a desired measurement function from the buttons on the right side of the screen.

e.g.) Selecting the "Length" button on the right side of the screen





After click it, the light is turned on and a cross line appears on the screen.
Mouse cursor is the centre of the cross line.
While the light is on, the measurement goes on.
Click the icon again, the measurement is ended.

Each measurement procedure is explained in the following sections, respectively.

★ For each measurement procedure, see P20

When the measurement is performed, the 2D measurement result list is created.

e.g.) 2D measurement result list

No.	Type	Result	Unit
0	Length	0.087	mm
1	Angle	34.4	deg...
2	Circle dia...	0.034	mm
3	Circle dia...	0.062	mm
4	Circle dist...	0.042	mm
5	Angle	237.3	deg...
6	Angle	51.3	deg...
7	Circle dia...	0.094	mm
8	Polygon ...	0.001	mm2
9	Length	0.026	mm
10	Length	0.031	mm
11	Length	0.033	mm
12	Length	0.031	mm
13	Length	0.028	mm

★ For the 2D measurement result list, see P37

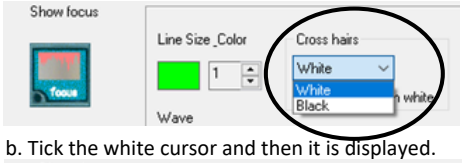
New!

★New function of Ver 1.658★

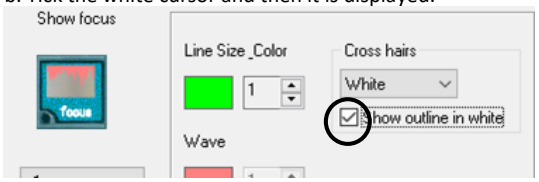
1. After a measurement button is clicked, you can measure in a row until the button is clicked again.
2. A cursor is changed to a cross hair during measurement, it is easier to determine a starting point and a end point.
   a. You can change the colour of a cross hair to black or white.
   b. You can also show or hide a white cursor which is previous type.

Click the button and then the below window is

a. Choose the colour of the cross hair to white or black.



b. Tick the white cursor and then it is displayed.



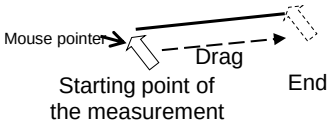
White cursor

◇Types of measurement◇

SK-Measure offers total of six types of the measurement functions including:
distance/angle between two points, area, diameter of a circle, distance of center/diameter/angle between two circles, perpendicular, angle. Each measurement functions are described below.

<1> Distance/angle between two points

The distance and angle between two points are measured.
Determine the starting point of the measurement, keep the left click pressed down and drag to the end point of the measurement.



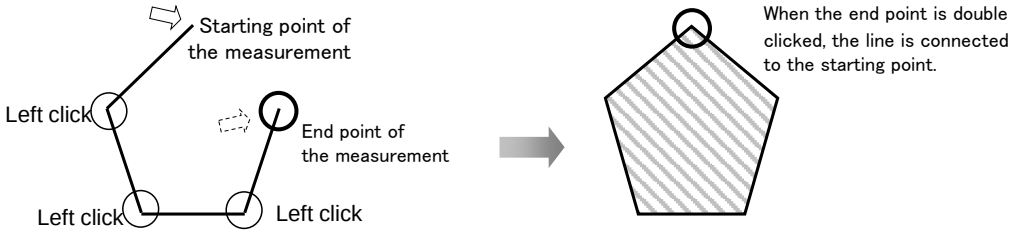
☆ Point ☆
To draw a horizontal or vertical line or a line at an arbitrary angle.
Move the mouse while pressing [shift] to draw a straight line

★ For the setting of the angle, see P34
★ To make the angle not to be displayed, see P34

How to correct
End the measurement and place the cursor to the starting point or the end point, and then a cross line appears.
Right click the line and drag to the right point.

<2> Area

The area of a polygon is measured.
Determine the starting point of the measurement. Left click on each of the edge points of the area to be measured and double click on the end point of the measurement to end the setting.

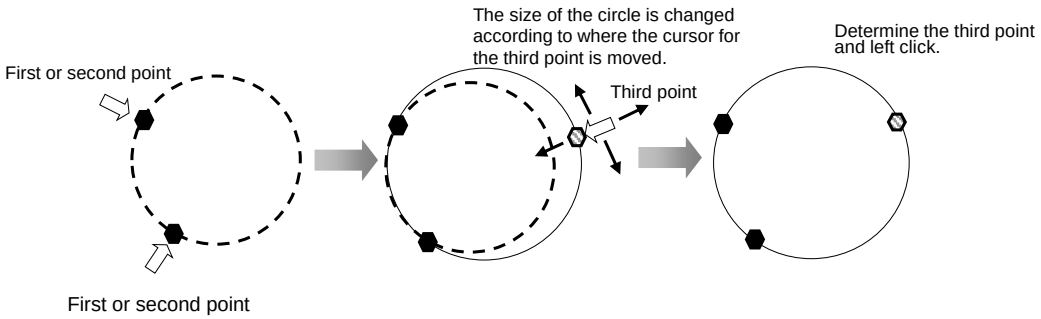


How to correct
End the measurement and place the cursor to each point, and then a cross line appears.
Right click the line and drag to the right point.

<3> Diameter of circle

The diameter of a circle is measured.

Specify three points on the circumference of the circle to be measured.
When two points are specified, a virtual circle is displayed. Put the virtual circle over the observation target and specify the third point to perform the measurement.

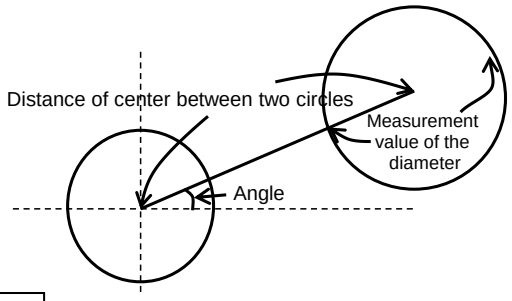


How to correct
End the measurement.The pointer is changed to ↔ when it is held over the line of the
Correct the size of the circle with the right click pressed down.

<4> Distance of center/diameter/angle between two circles

The distance of center, diameter and angle between two circles are measured.

Create two circles to be measured. (Circles can be created in the same manner as in "Diameter of circle" (previous page)).
As soon as the second circle is created, the distance of center, diameter and angle between two circles will be measured.



How to correct

End the measurement. The pointer is changed to ↔ when it is held over the line of the circle. Correct the size of the circle with the right click pressed down.

<5> Perpendicular

The perpendicular distance from the base line is measured.

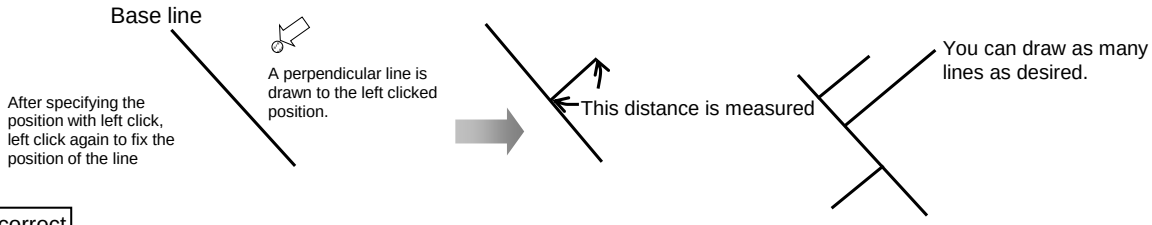
Draw the base line for the perpendicular line (on the x-axis, y-axis or anywhere).

[How to draw the base line]

Left click to specify the position. Move the mouse to determine length, width and oblique distance and left click again to fix the location of the base line.

* The base line can be moved by 45 degrees when it is operated with the Shift key pressed down.

Next left click the point to be measured against the base line, a perpendicular line is drawn.



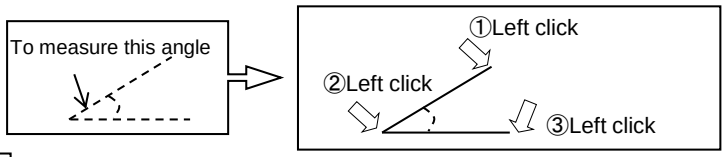
How to correct

End the measurement and place the cursor to top of the perpendicular line, and then a cross line appears.
Right click the line and drag to the right point.

<6> Angle

The internal angle is measured.

Left click on three points that include the angle to be measured to connect them. The internal angle is measured.



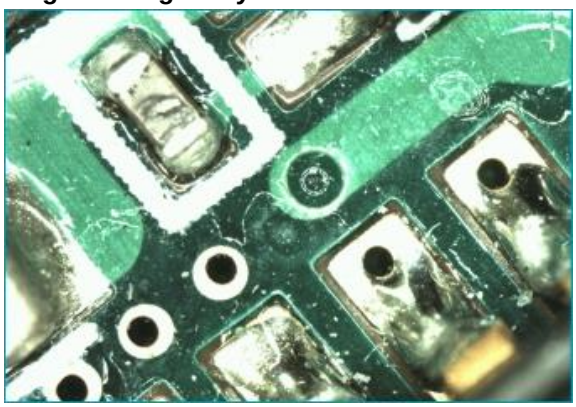
How to correct

End the measurement and place the cursor to each point, and then a cross line appears.
Right click the line and drag to the right point.

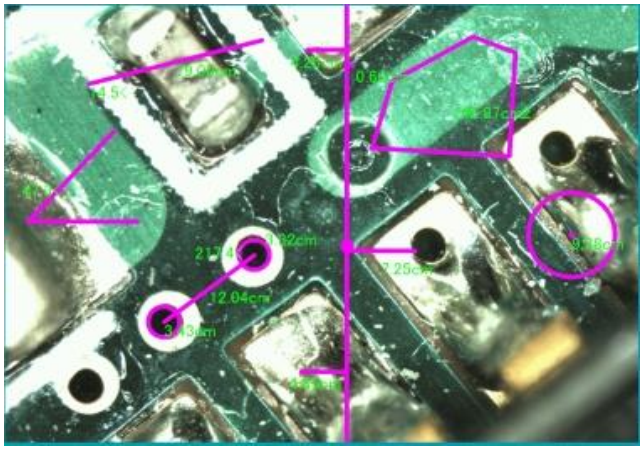
[Step 4] Save the image

Two types of the image saving function are available:
<Saving the image only> and **<Saving the image with the measurement values included in it>**

<e.g. Saving the image only>



<e.g. Saving the image with the measurement values included in it>



The displayed cross lines are also saved together.

★ For the details of the cross line, see P35

The image can be saved easily after a folder is selected.

Also, the image can be saved more easily.

★ For the simple image saving procedure, see P25

You may select the image quality for the saving.

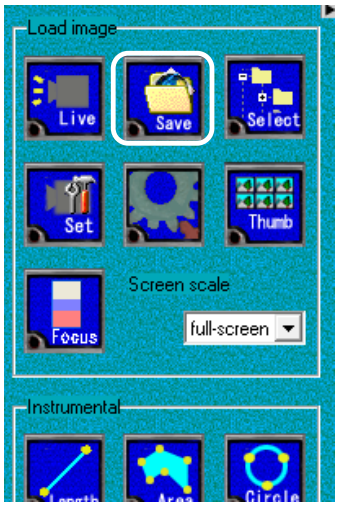
★ For the selection of the image quality, see P25

★ For the procedure to save the measurement value data, see P39, P41

<1>Saving the image only

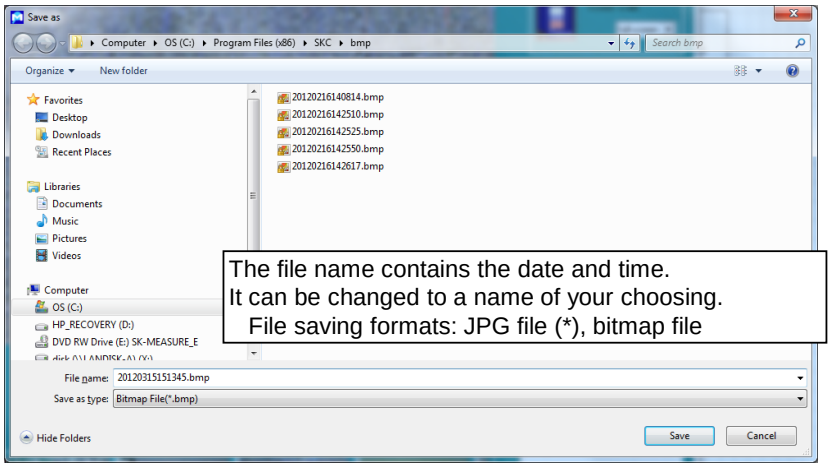
Select the

button.



Note

There are two different "Save"buttons.
To save an image, use the upper "Save" button.



The file name contains the date and time.
It can be changed to a name of your choosing.
File saving formats: JPG file (*), bitmap file

The default folder for saving is "**C:¥Program Files¥SKC¥bmp"**.
You may change the folder for saving.

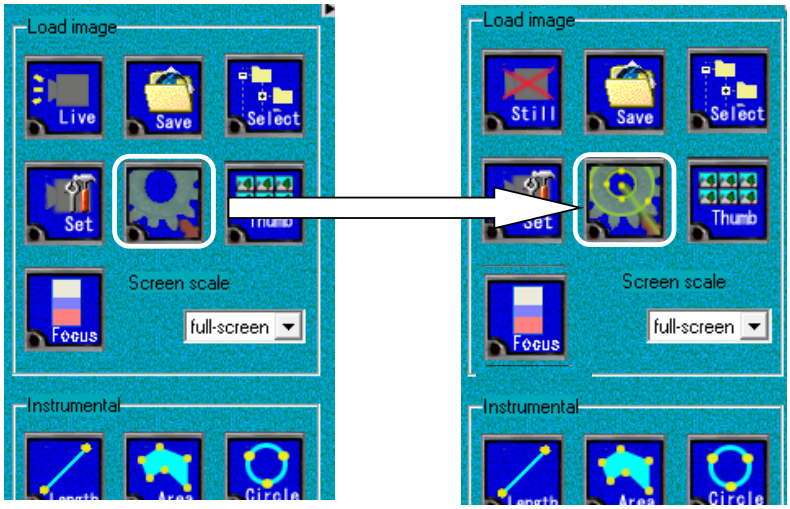
(*) You may select the image quality (low, intermediate, or high image quality) for the JPG file.

★ For the selection of image quality, see P25

★ For the simple image saving procedure, see P25

＜2＞Saving the image with the measurement values included in it

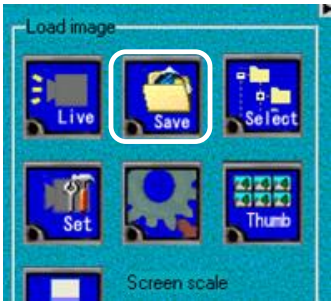
① Select the button.



When the picture on the button is changed, the measurement data is included and saved as the image.
The displayed cross lines are also saved.

★ For the details of the cross lines, see P35

② Select the button.



Save the image in the same manner as in <Saving the image only> (See P23)

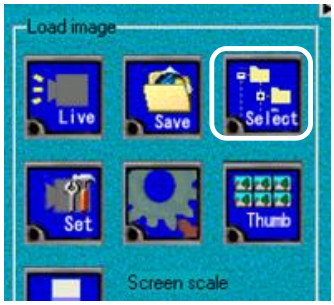
Note

If you edit the measurement data again,
you should save measurement data and the image separately,
because a image saved with measurement data can't be edited again.

＜3＞Simple and easy image saving

Press the

button to specify the folder in which the image is saved in advance.



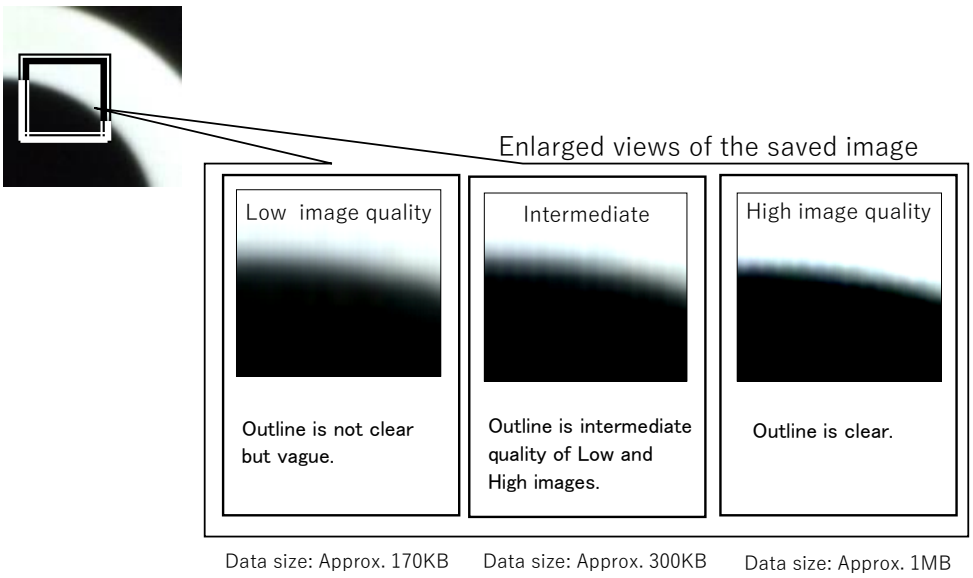
Right click on the"Save" button, then the image is saved in the specified folder.
The file name will be the date and time.
The format of the file will be as same as that of the previous file saved.
Note that the left clicking the "Save" button opens a window for specifying the save destination.

POINT!

You can save the image in the specified folder also by pressing the [F12] key,
as in the case when you right click on the "Save" button.
The file name will be the date and time.
The file format will be the same as the previous file saved.
You can save images without using a mouse or keyboard if you use the foot switch (optional).

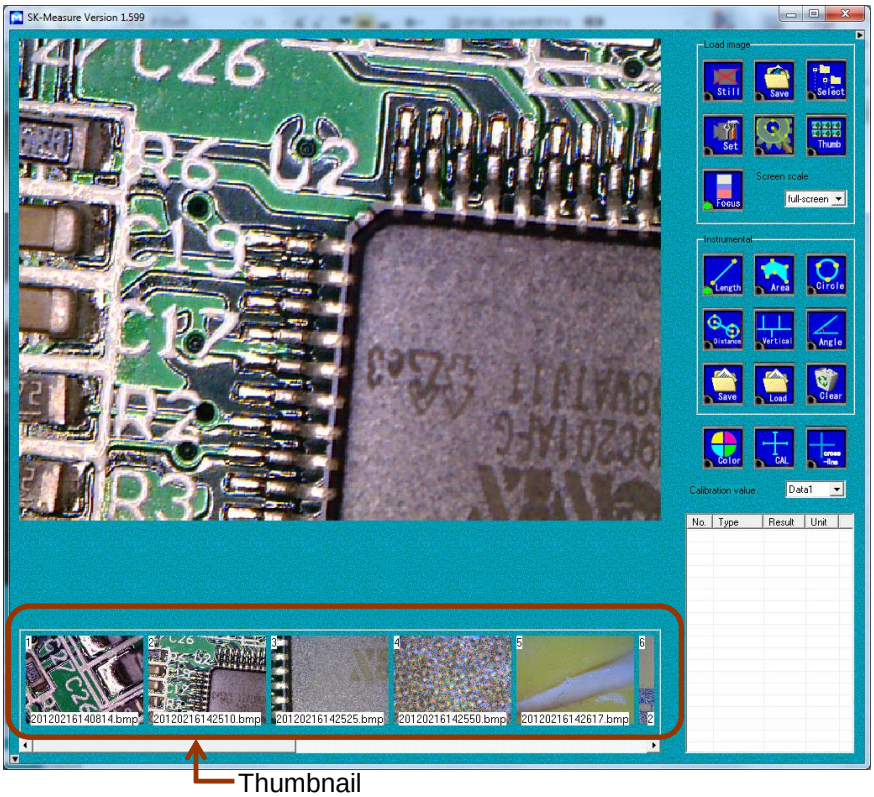
＜4＞Selecting the image quality

You may select the image quality when saving an image.(Available when saving with jpg extension)



[Step 5] Read the saved image

The saved images are displayed in a thumbnail.
When you hold the cursor over the image in the thumbnail and double click on it with the left button, the [Live] button is switched to the [Still] button and the saved image is displayed.



★ For the details of the thumbnail, see P33

Ⅴ Advanced Operation (Useful Functions)

SAITOH KOUGAKU

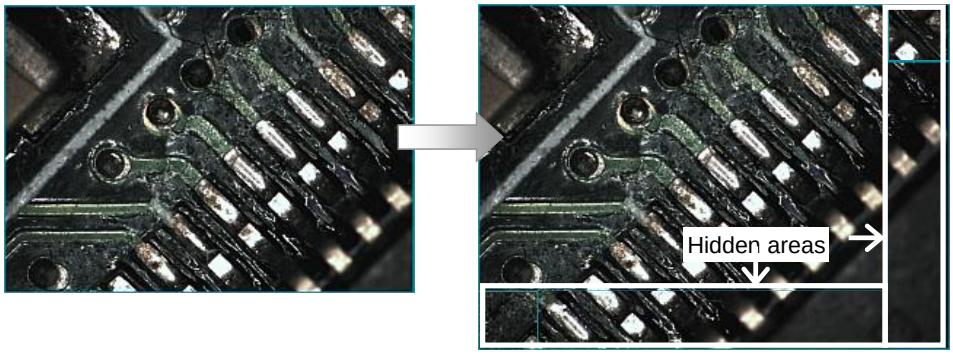
Ⅴ - 1 Advanced operation (Useful functions) ◇ General work◇

＜1＞Displaying hidden areas

Some parts of the image may be hidden and not displayed when the display magnification of the screen is larger than one.
There are two methods to display such hidden areas.

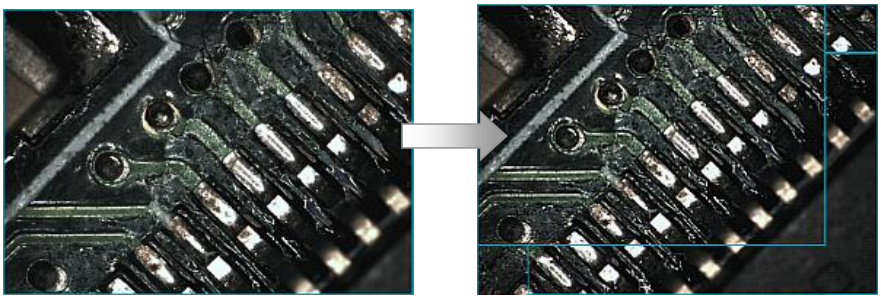
[Method 1] Move the image

The pointer is changed to when the left click of the mouse is pressed.
The screen moves when the cursor is moved in that state (with the left click pressed down).（Except for the full-screen display）



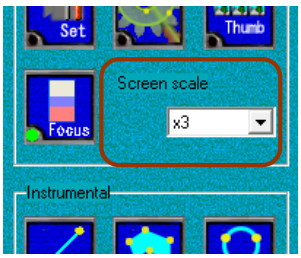
[Method 2] Use the full-screen display

When [full-screen]is selected in for [Screen scale], the entire imaging area is displayed.



<2>Zooming in & out on the screen

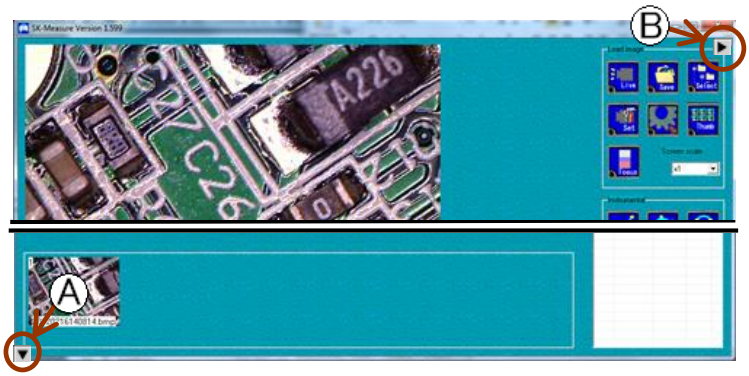
To zoom in/out the image on the imaging screen, scroll the mouse wheel at the position where you want to zoom in/out.
Scroll the mouse wheel down to zoom out or up to zoom in.
Or, you may change the screen display magnification with the pull-down menu shown in the figure on the right.



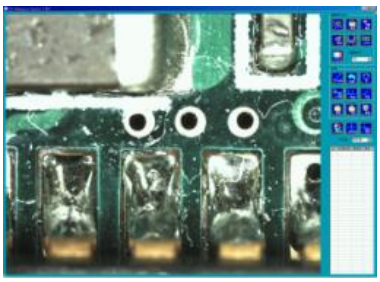
The image is zoomed in/out centering around the position of the mouse pointer (digital processing)

<3>Switching the display screen

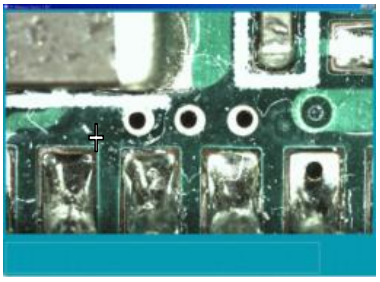
You can hide the menu and the thumbnail to expand the image area on the display screen.



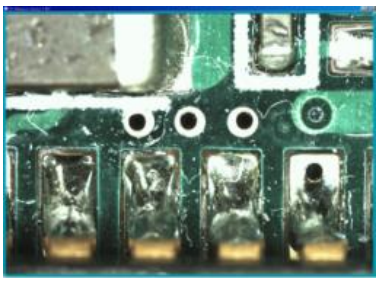
The thumbnail is hidden when Ⓐ is clicked.



All menu buttons on the right side are hidden when Ⓑ is clicked.



A full-screen image is displayed.



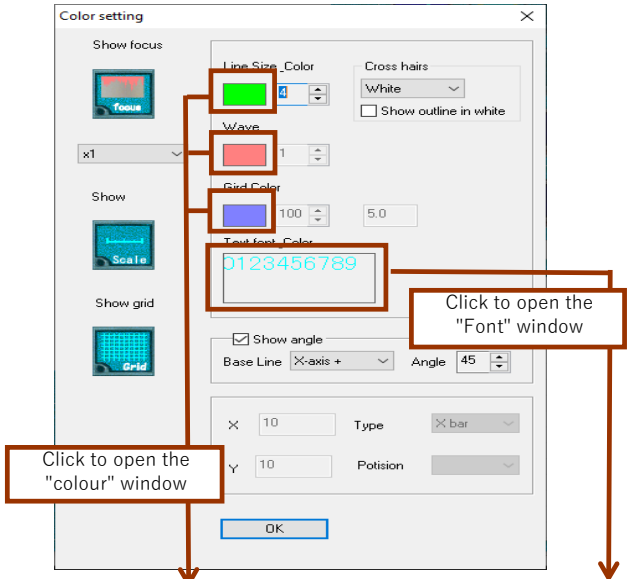
＜4＞Setting the colors

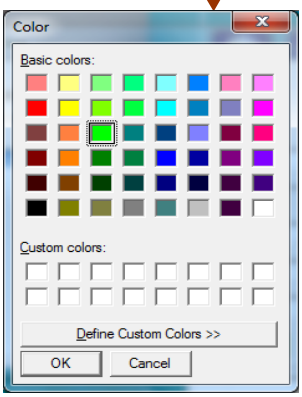
You can set the color of the measurement line or grid, or the font of the text of the measurement result.

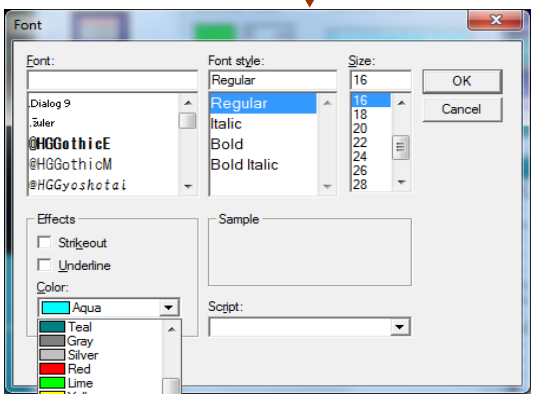
Press the

button.

The following window is displayed and you can set the color of the measurement line, waveform of the focus and grid respectively.Also, you can set the font of the text of the measurement result.







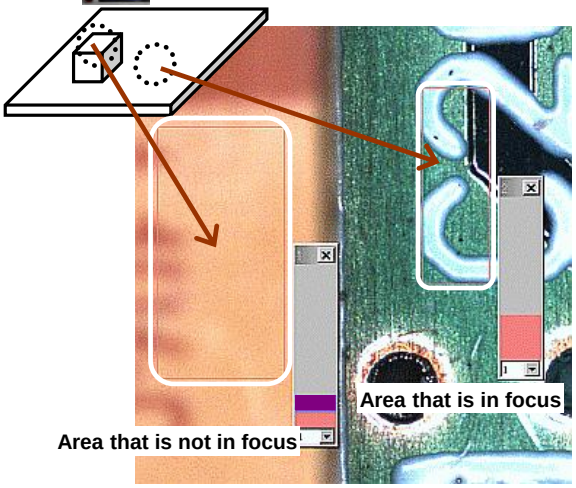
★ For the details of the grid, see P32

＜5＞Focus of partial focusing

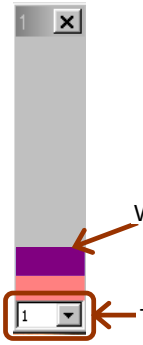
The peak of the focus is shown in a graph so that where is in focus is recognizable.
This function specifies the area on the screen to be in focus and displays in a graph.
More the area is in focus, higher the graph goes. The peak value is memorized and displayed.
The rate of increase of the graph varies by the target object, and the gain adjustment is also available.

Press the

button and specify the area to bring into focus.



《Description of the bar》



More than one focusing area can be specified.

＜6＞Displaying the scale

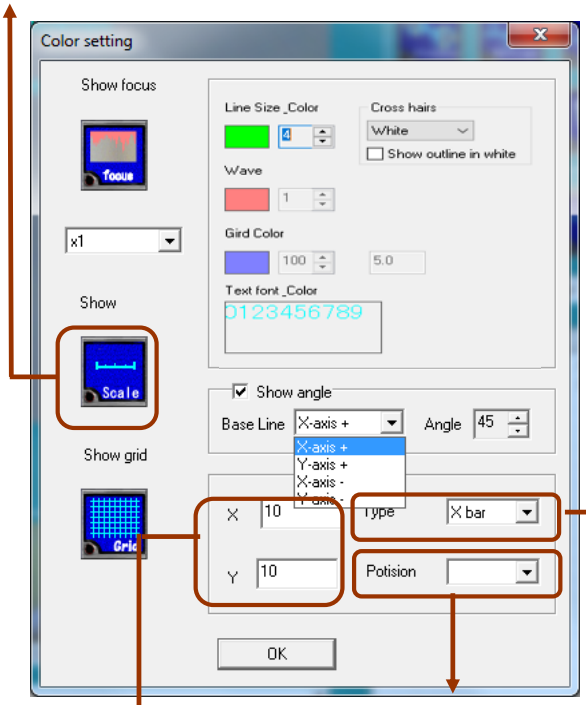
You can display the scale on the imaging screen.

① Select the

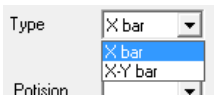
button. The following window is displayed.

②

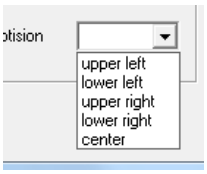
The scale is displayed on the imaging screen in the actual scale (calibration value).
* To be used after calibration.



Select the type of the scale (*)



Select the location to display the scale.

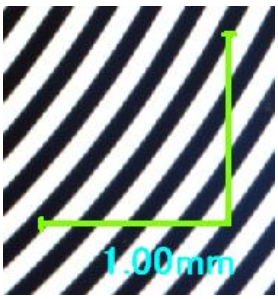


The location of the scale can be changed after it is displayed.

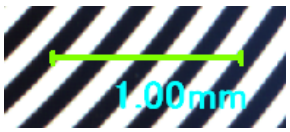
Determine the dimension of the scale（it is the actual dimension (calibration value)).

(*) There are two types of scale.

X-Y Bar



X Bar



<7>Displaying the grid

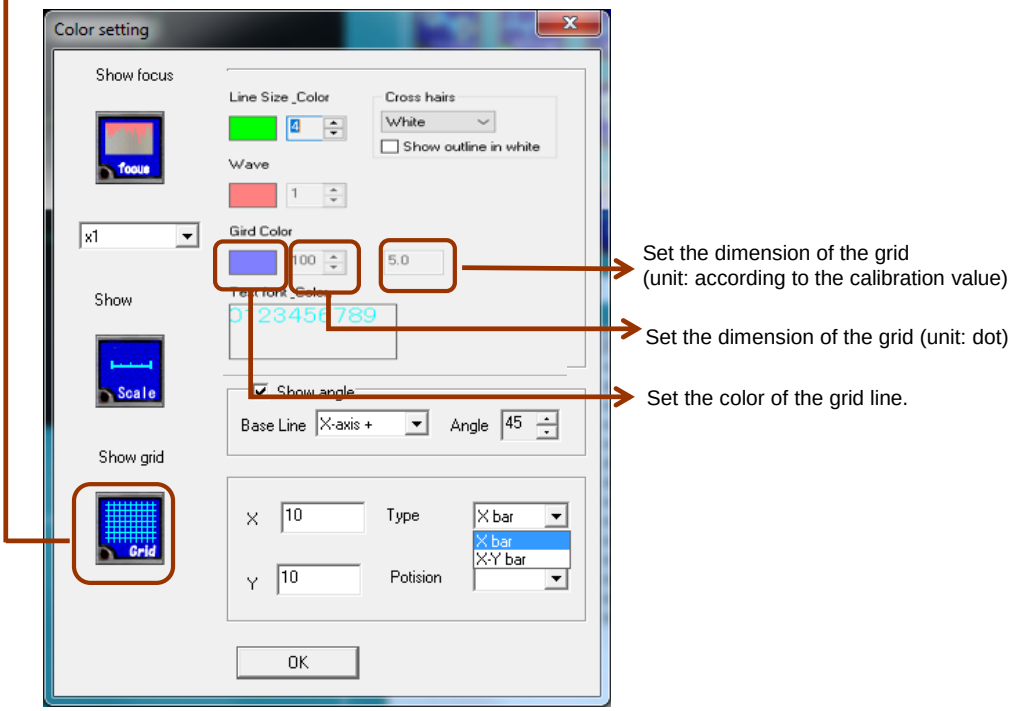
You can display the scale on the imaging screen.

① Select the

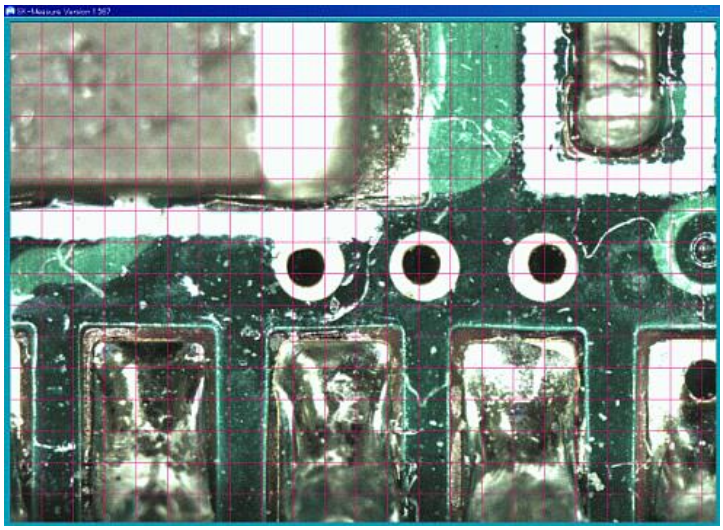
button. The following window is displayed.

②

The grid is displayed on the imaging screen in the actual scale (calibration value).
* To be used after calibration.

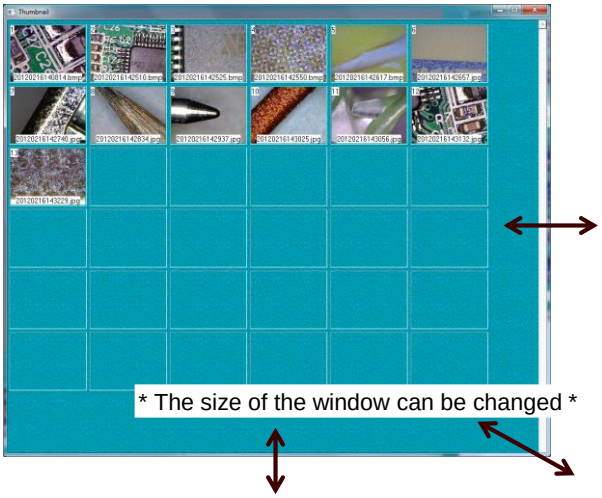


e.g. Grid on the image



＜8＞Displaying the thumbnail

You can display the separate thumbnail window.



When you right click on an image of the thumbnail,

this window will be displayed.

[Open] × × × The saved data is displayed. The [Live] button is changed to the [Still] button and the images of the thumbnail are displayed.
To return to the original state, press the [Still] button to change it to [Live].

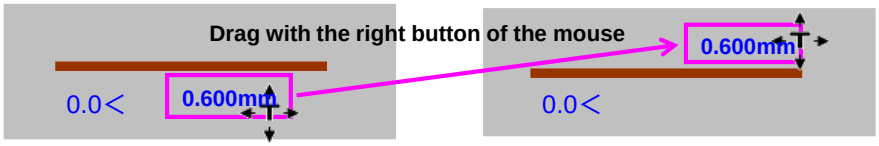
[Remove] × × × The saved data itself is completely deleted when it is specified and does not remain in the Recycle Bin.

[Trash] × × × The data is moved to the Recycle Bin when it is specified.

Ⅴ-2 Advanced operation (useful functions) ◇Measurement◇

<1>Moving the measurement value

The pointer is changed to ✥ when the cursor is moved close to a measurement value.
When the measurement value is dragged in that state with the right button of the mouse, the value can be moved.
(See the figure below)

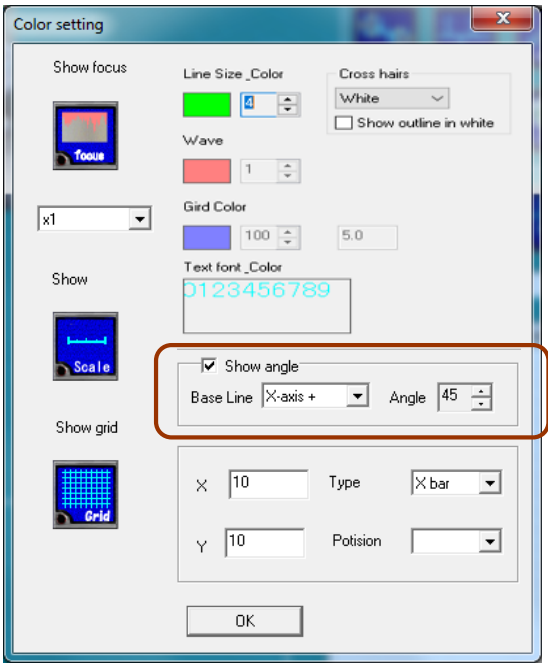


<2>Displaying/hiding the angle

You can set to display/hide the angle that is displayed for the distance between two points.
You can also set the reference axis of the angle.

Press the

button. The following window is displayed.

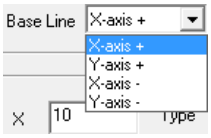


Make the settings here

◆ You can select to display/hide the angle.

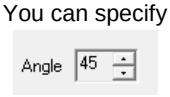
- When checked, the angle is displayed.
- When unchecked, the angle is not displayed.

◆ You can select the reference axis and direction of the angle.



- X-axis+ The angle is measured in the anticlockwise direction from the three o'clock position.
- Y-axis+ The angle is measured in the anticlockwise direction from the twelve o'clock position.
- X-axis- The angle is measured in the anticlockwise direction from the nine o'clock position.
- Y-axis- The angle is measured in the anticlockwise direction from the six o'clock position.

◆ You can specify the angle of the line.

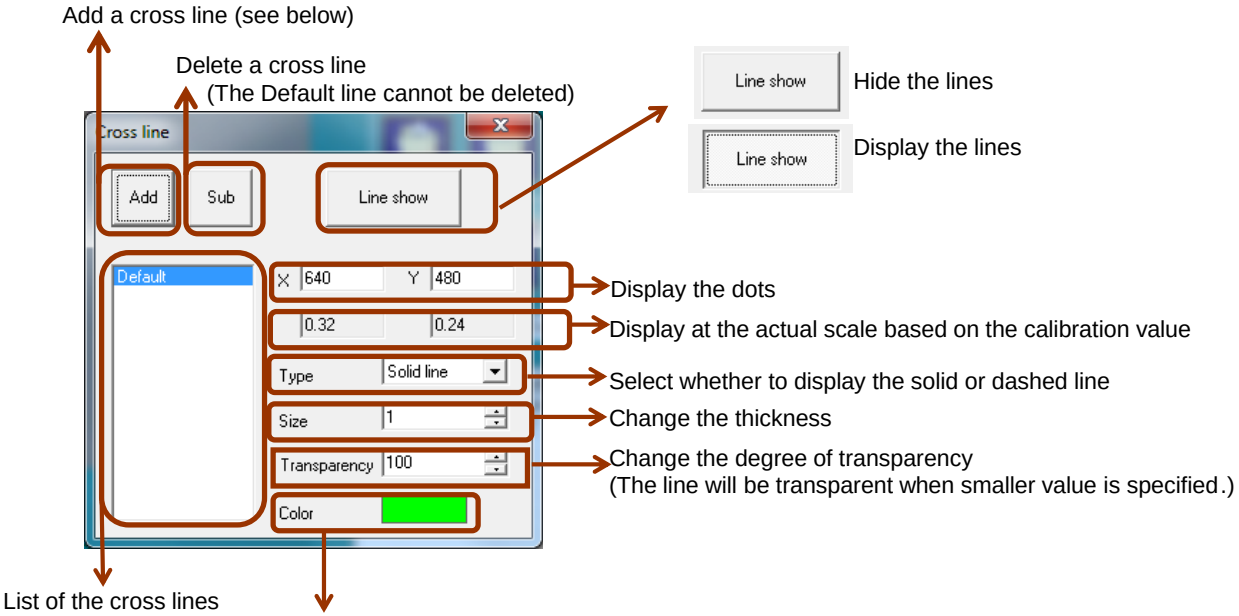


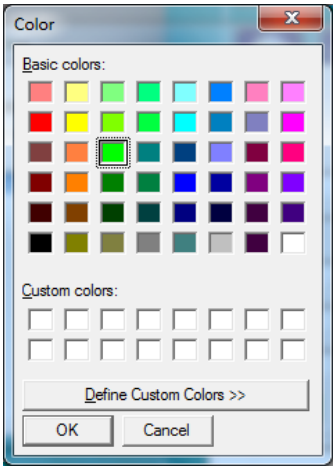
Drag while pressing the [shift] key to draw a line at the specified angle from the reference axis you selected above.

<3>Displaying the cross line

Select to display or hide the cross line on the screen.
Each coordinate is shown as a dot. (The actual scale is shown underneath the dot coordinate.)

★ You can add a cross line at a desired position, and can specify the line type, thickness, degree of transparency and color for each cross line.





Select the color
Click to open the color setting window.

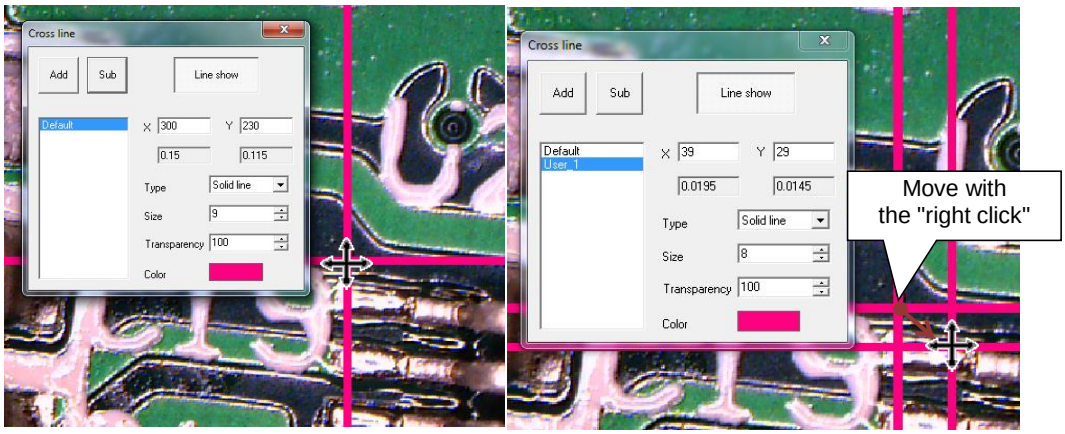
* The cross line is not displayed? Possible causes are:
- Setting of the screen magnification
When the screen magnification is "x1" or larger, the cross line may be outside the area of the screen .
In that case, change the screen display mode to "full-screen".
- Output size of the camera is not appropriate
Change the output size. See "Camera settings(other handling instructions)" for the detailed procedure.
* The output size varies by the camera.

Continuing

◆ Adding a cross line

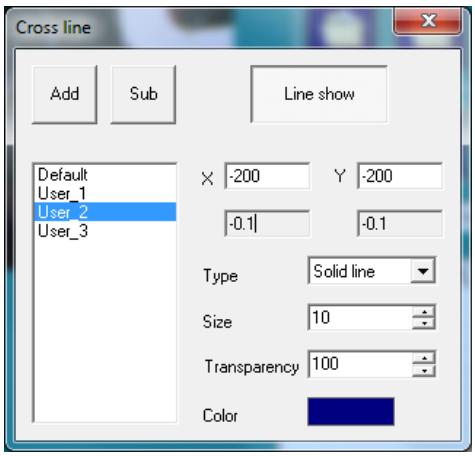
A cross line is added.

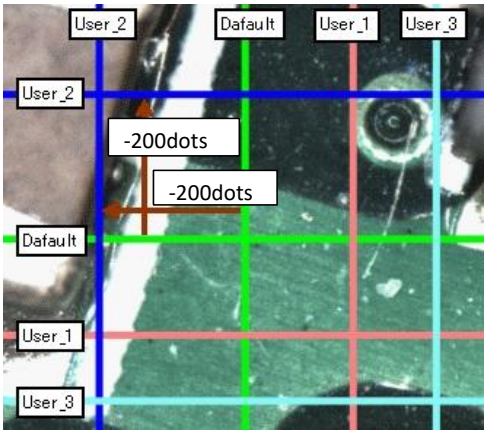
Click the "Add" button,the added cross line is displayed.
It looks like nothing has changed,but the added cross line is on the default line.
When right click on the default line and drag it, the added cross line is displayed.



- The added line is not displayed when the "Default" line is not displayed.
- You can draw as many cross lines as desired.
- The initial coordinate of the "Default" is X=640, Y=480. (Factory default)
- When the "Default" cross line is moved, the "User" lines moves along with it.
- The coordinate of the "User_1" and the subsequent lines starts from the "Default".

<e.g.> "User_2" is displayed at the position -200 dots away in the X direction and -200 dots away in the Y direction from the "Default".





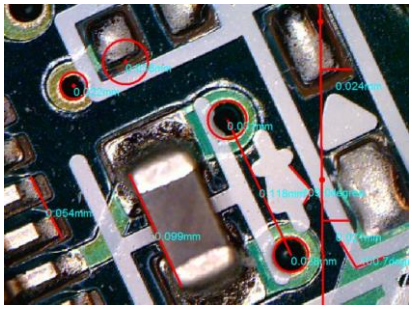
★ The displayed cross lines are saved when **<Saving the image with the measurement values included in it>** is performed to save the image.

★ For the details of <Saving the image with the measurement values included in it>, see P24

Ⅴ－３ Advanced operations (useful functions) ◇Data◇

＜1＞2D measurement result list

The measurement data is displayed in 2 dimensions when the measurement is performed.



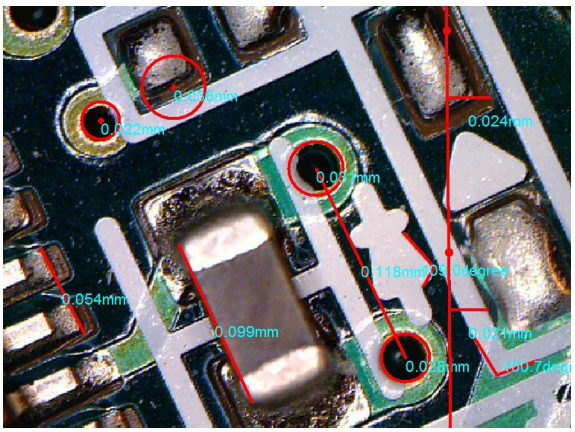
e.g. 2D measurement result list

No.	Type	Result	Unit
0	Length	0.054	mm
1	Angle	297.0	deg...
2	Angle	109.0	deg...
3	Angle	100.7	deg...
4	Circle di...	0.022	mm
5	Circle di...	0.036	mm
6	Circle di...	0.031	mm
7	Circle di...	0.028	mm
8	Circle di...	0.118	mm
9	Angle	295.1	deg...
10	Length	0.024	mm
11	Length	0.021	mm
12	Length	0.099	mm
13	Angle	294.9	deg...

＜2＞Deleting measurement values

Delete the measurement data.

The procedure for deletion is explained using the following image.

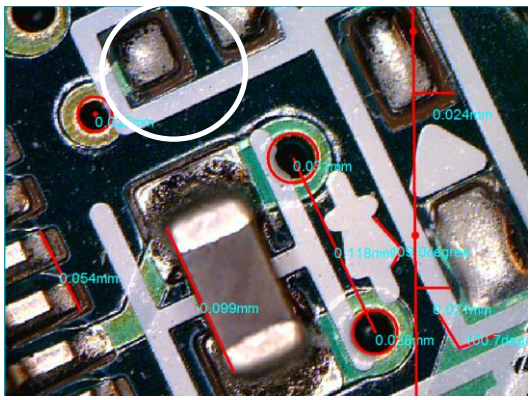


◆ Deleting only one measurement data

No.	Type	Result	Unit
0	Length	0.054	mm
1	Angle	297.0	deg...
2	Angle	109.0	deg...
3	Angle	100.7	deg...
4	Circle di...	0.022	mm
5	Circle di...	0.036	mm
6	Circle di...	0.031	mm
7	Circle di...	0.028	mm
8	Circle di...	0.118	mm
9	Angle	295.1	deg...
10	Length	0.024	mm
11	Length	0.021	mm
12	Length	0.099	mm
13	Angle	294.9	deg...

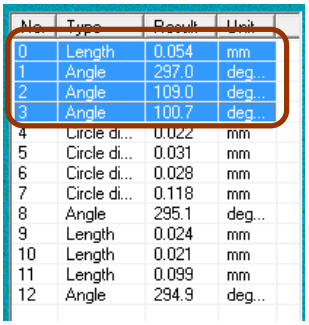
Click on the data to be deleted.
(The color will be reversed)

Click on

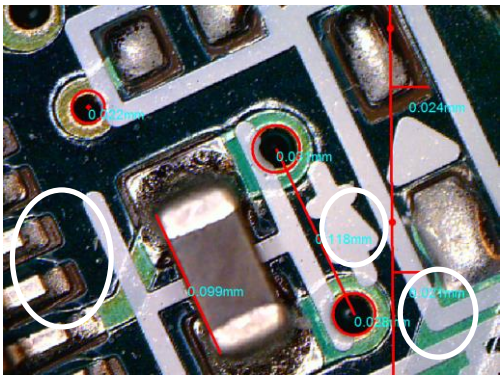


The data in the white circle deleted.

◆ Deleting consecutive lines



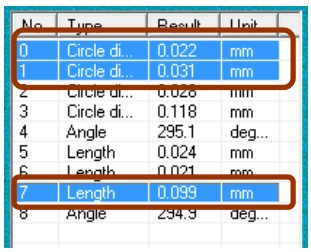
Click on



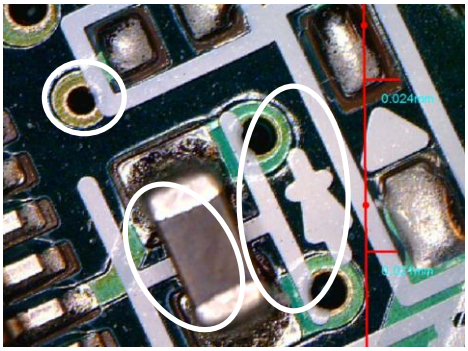
Click on the first line of the data to be deleted collectively, and then click on the last line of the data to be deleted with the [shift] key pressed down. (It is useful when deleting the measurement data on the consecutive lines.)

The data in the white circles is deleted.

◆ Deleting multiple lines



Click on



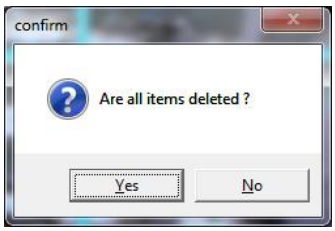
Select multiple lines with the data to be deleted with the [Ctrl] key pressed down.

The data in the circles is deleted.

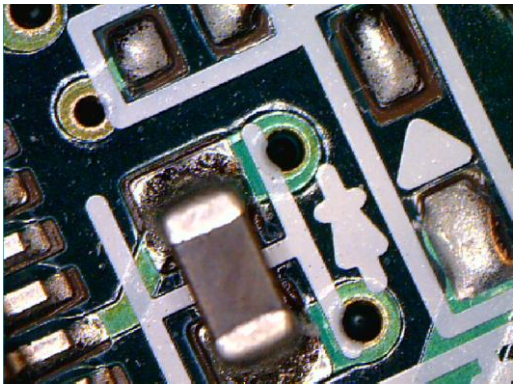
◆ Deleting all data

When the

button is pressed without selecting the measurement data, the following window is displayed. Click on [Yes] to delete all the measurement data on the screen.



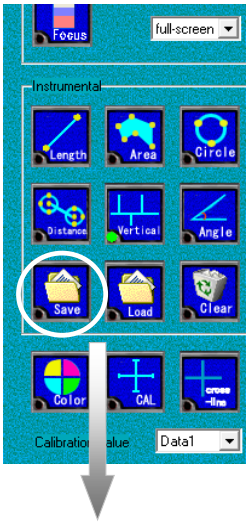
Click on [Yes]



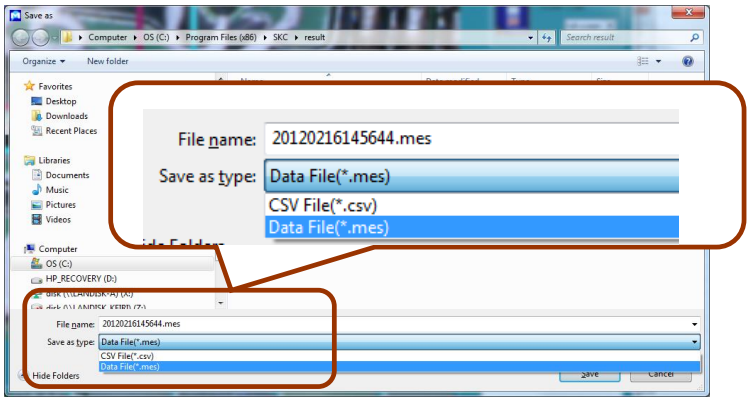
All the data is deleted.

<3>Saving the data of measurement values [Extension:mes]

The data of the measurement values can be saved and retrieved later using SK-Measure.
The extension is mes.



There are two different Save buttons.
To save only the data of the measurement values, use "Save" in "Instrumental".

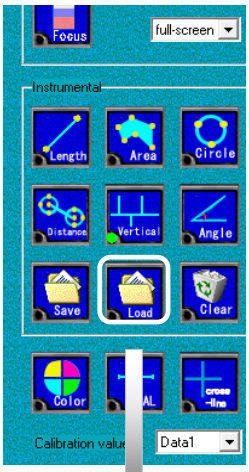


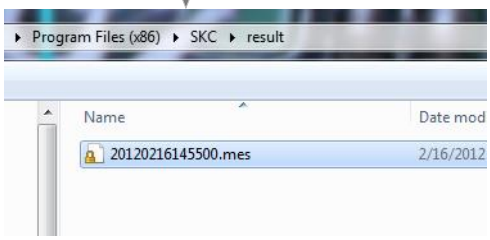
Select "mes" for Save as type. You may change File name to any desired name.

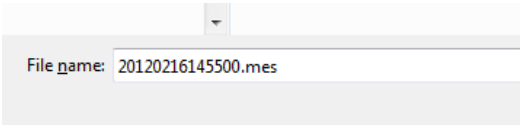
★ To save the data in the csv format, see P41

＜4＞Reading the data of the measurement values【Extension:mes】

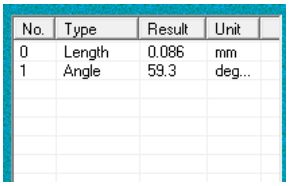
The data saved with [Extension: mes] can be read. * The measurement value is determined by the current calibration value.







Select the target file and open it. When the file is opened, the measurement result is shown on the display.



No.	Type	Result	Unit
0	Length	0.086	mm
1	Angle	59.3	deg...

Read measurement data

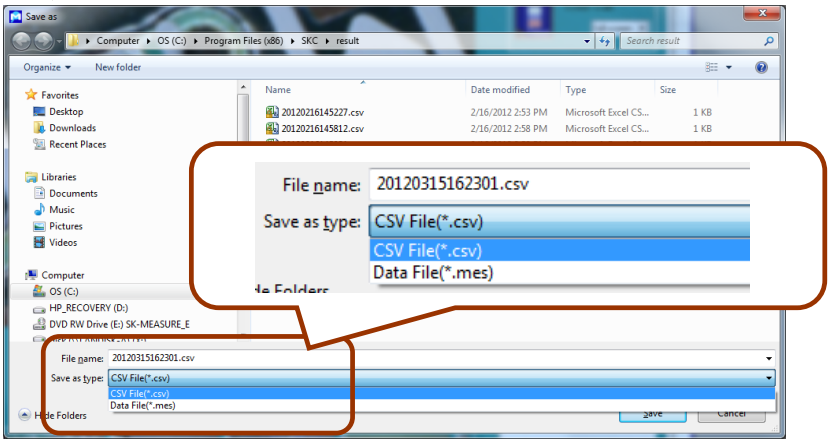
Note

Before you read a measurement value, the calibration value has to be the same as it was saved, and measurement has to be ended.
If you read the measurement value when you are measuring, the data on screen will vanish.
If the calibration value is different, the measurement value is not right.
Only the measurement value is read, the image is not read.
Read the image and measurement value and click the 2D measurement result list, you can edit the measurement value again.

<5>Saving the data of the measurement values【csv format】

The data of the measurement values is saved in the csv format.

There are two different Save buttons.
To save only the data of the measurement values, use "Save" in "instrumental".



Select "csv" for file type. You may change the file name to any desired name.

e.g. The saved data

	A	B	C	D
1	No.	Type	Result	Unit
2	0	Length	0.086	mm
3	1	Angle	59.3	degree
4	2	Angle	99.6	degree
5				

Displayed in the csv format

★ To save the data in the mes format (so that the data can be read with the measurement software SK-Measure), see P39

Ⅵ Setting of Calibration Value [Manual Calibration Value Setting] SAITOH KOUGAKU

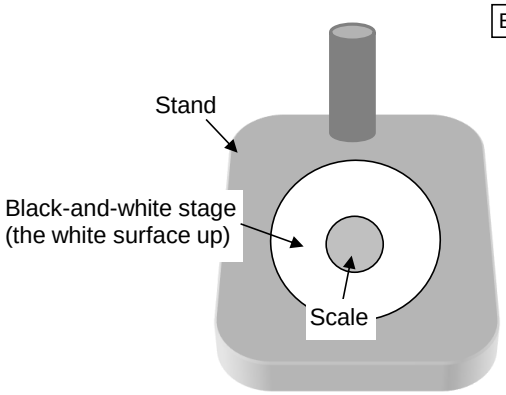
Ⅵ- 1 Manual calibration value setting

The calibration value setting is made manually. (Applicable to any magnification)
It is otherwise used when the magnification is beyond the range of the automatic calibration value setting.
(30-power or above, 240-power or below)

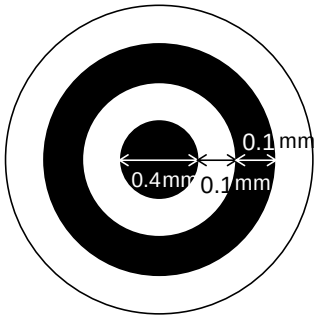
★ For the automatic calibration value setting, see P15

Ⅵ- 2 Manual calibration value setting (using a circular scale)

① Set the scale for automatic calibration on the black-and white stage. (Use the white surface)



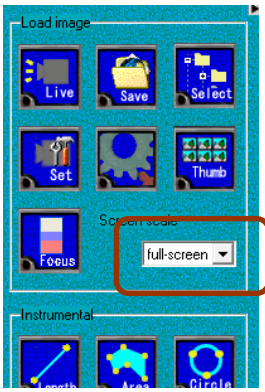
Enlarged view of the circular scale for the automatic/manual calibration value



After starting SK-Measure, make sure to set the scale
so that the central circle is located in about the center of the screen.

② Select the magnification for the measurement.

* Model SKM-S30D-PC is used in the image example.



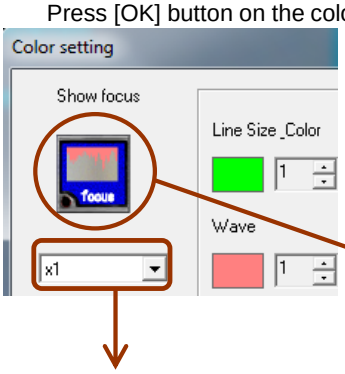
Select "full-screen"

③ Bring into the focus.

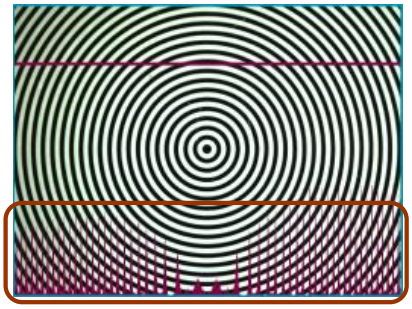
Press the

button to open the following window. Press the [focus] button.

Check the waveform to bring into focus.
After adjusting the focus, press the [focus] button again to make the waveform not to be displayed.
Press [OK] button on the color setting window.



The size of the waveform can be changed.

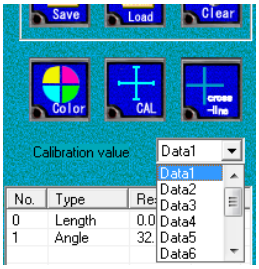


It is brought into focus when the waveform is the longest.
(The waveform for the peak value remains)
* After adjusting the focus, press the【focus】button again
to make the waveform not to be displayed.

Continuing

④ Determine where to register the calibration value.

Select the calibration value to be saved. Up to ten automatic/manual calibration values can be registered in total.

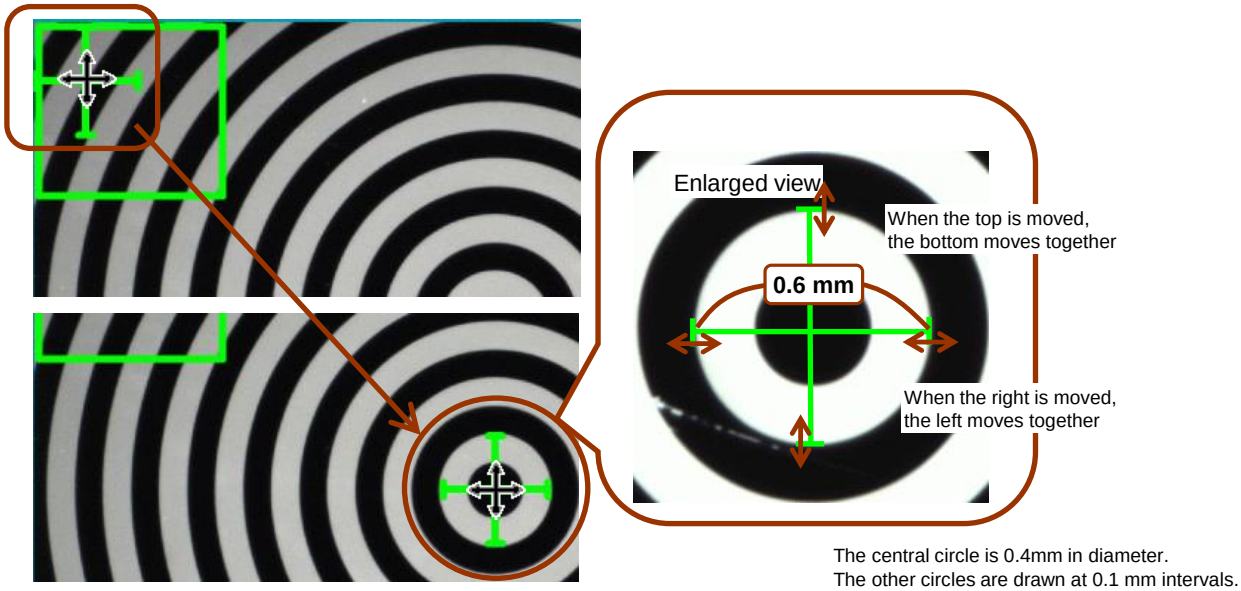


⑤ Set the manual calibration setting line on the circular scale.

Press the

button.

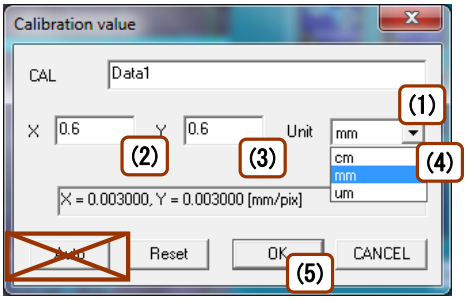
The [Calibration value] window opens and the calibration value setting line is displayed (in green by default)
(The square is for the automatic calibration value. It is the cross line for the manual calibration value.)



The central circle is 0.4mm in diameter.
The other circles are drawn at 0.1 mm intervals.

You can zoom in/out the screen by using the mouse wheel at the position of the cursor.

⑥ Enter the basic values. Perform the manual calibration value setting and register the value.



(1) Set the calibration value name. (It will be recognizable to include the magnification)
(2) Enter "0.6", the actual scale, for X.
(3) Enter "0.6", the actual scale, for Y.
(4) Select the unit.
(5) Press the [OK] button on the Calibration value window to register the calibration setting.

***** The basic calibration value varies by the scale to be used or the length of the calibration value line. Make sure to enter the specified value.

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