

ARTRAY Camera / Converter
2 Measurement & Filing Software
ART-MEASURE v1380
Manual



ISO9001:2008 認証番号
44 100 16 82 0167

ARTRAY

株式会社 アートレイ

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1. SUMMARY

Thank you for purchasing ART-Measure.

This booklet explains how to install and use Art-Measure.

Regarding explanations for the hardware, please refer to our other booklets or contact our sales representatives.

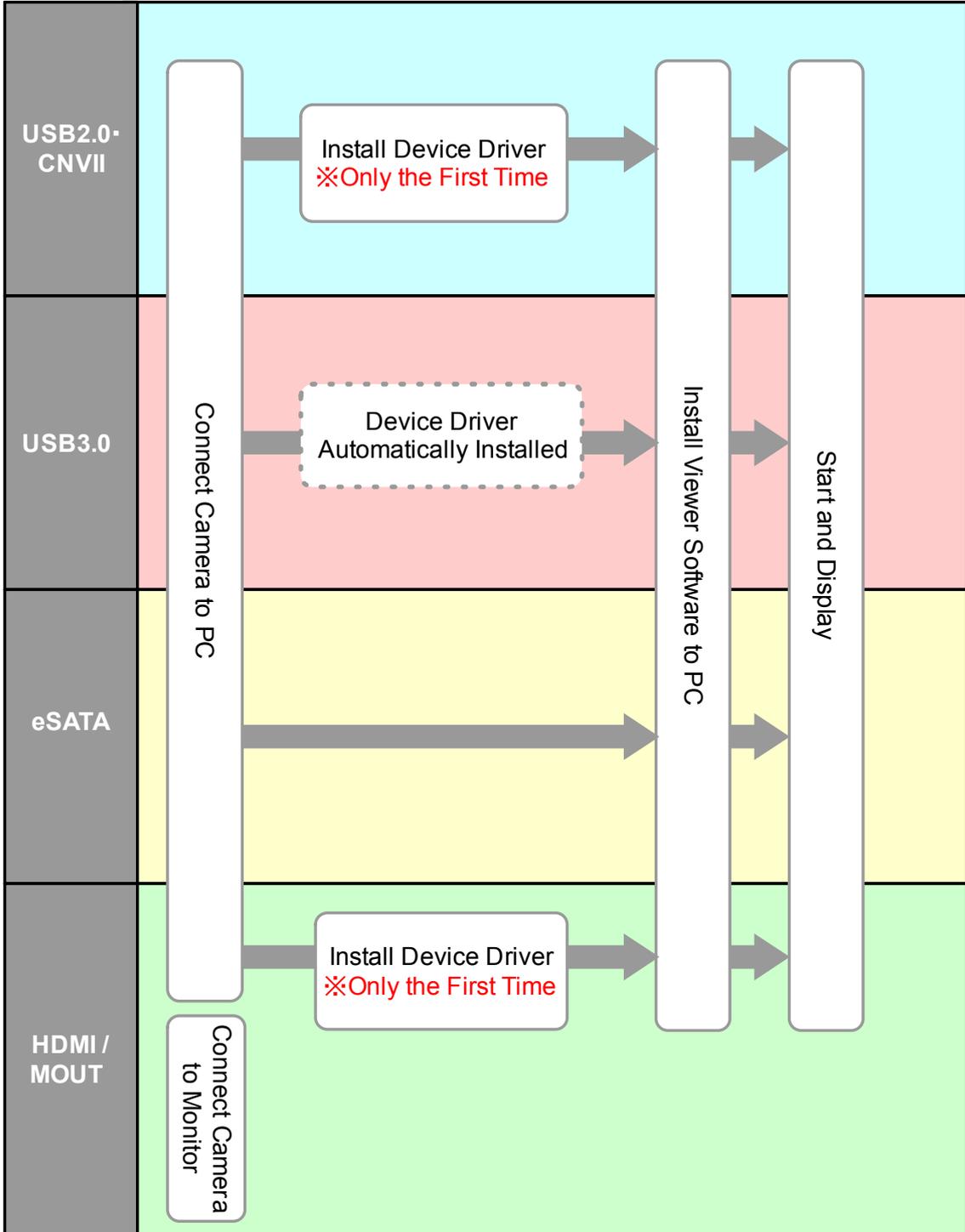
This booklet is written for the following models:

- λ ARTCAM USB2.0 camera series
- λ NTSC-USD2.0 convert unit ARTCNV II series.
- λ HDMI output cameras
- λ RGB output cameras
- λ ARTCAM eSATA camera series
- λ ARTCAM USB3.0 camera series

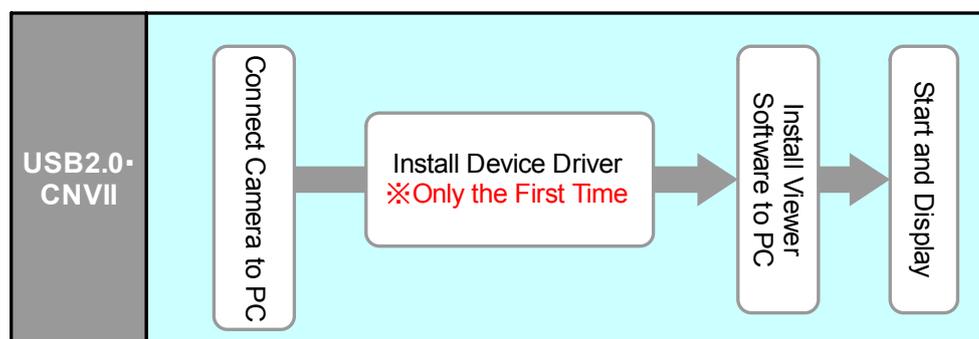
"Art-Measure" is protected by copyright law and international treaties. Unauthorized reproduction or distribution of the program or booklet may result in severe civil and criminal penalties.

Program names, system names, CPU names in the booklet are registered trademark by each maker.

2. INSTRUCTIONS FOR CAMERAS



2.1. USB2.0 CAMERA · ARTCNVIIDEVICE DRIVER INSTALLATION



You need to install device driver and software to use ARTCAM or ARTCNV II

Make sure using built-in USB2.0 ports. Using external USB2.0 port extended from PCI may cause difficulties in function.

Recommended PC: Intel chipset·ICH5 or newer.

Install the Device Driver

The following explains shows how to install the driver from CD accompanied with the product.

You may find difference between instruction on display and this booklet depends on O.S Please follow the instructions on display to install the device driver from “drivers” folder or “Direct Show drivers” folder.

If you already download the driver from our website, choose the folder where the file was extracted to.

If the installation of device driver is successful, the name of installed device will be shown on the device manager as soon as ARTCAM or ARTCNV II is connected to the screen.

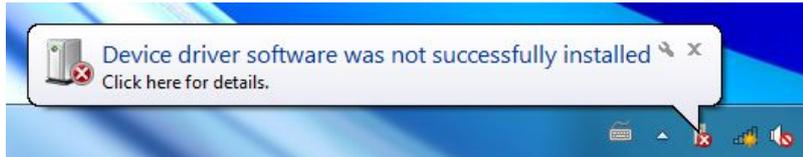
Please refer to page 11 [“CONFIRMING THE INSTALLATION OF ARTCAM / ARTCNV II”](#) for the details.

Installation on Windows 7

The following graphics show an example of installing ARTCAM-130MI on Windows 7.

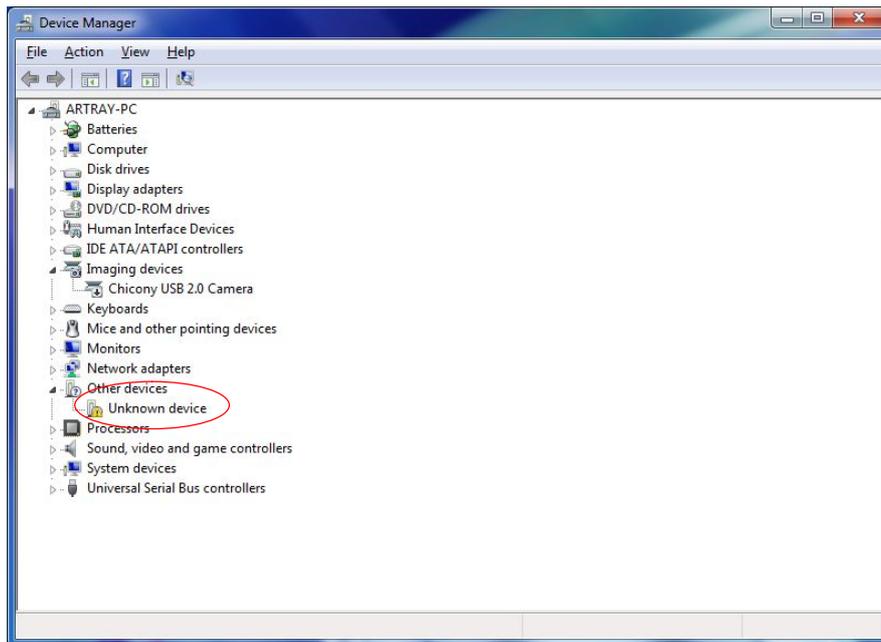
1. Insert the installation CD-ROM, and keep the camera and ARTCNV II connected to the USB2.0 port on the PC.

After the following dialog box pops out from the task bar, open device manager.

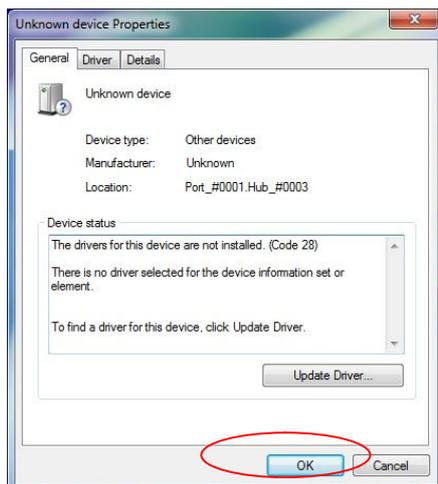


To open device manager, please check [“CONFIRMING THE INSTALLATION OF ARTCAM / ARTCNV II”](#) on page 11.

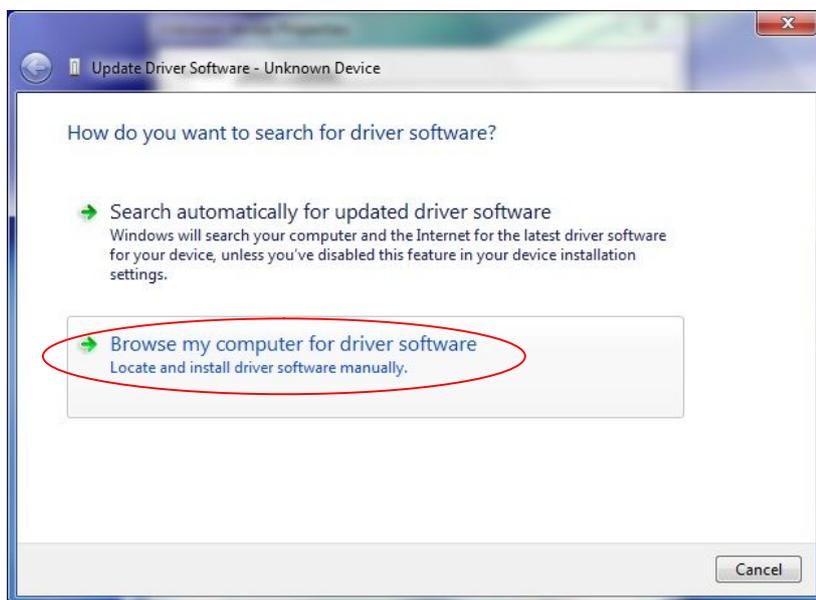
2. From device manager, select “Other devices”→”Unknown device” and double click.



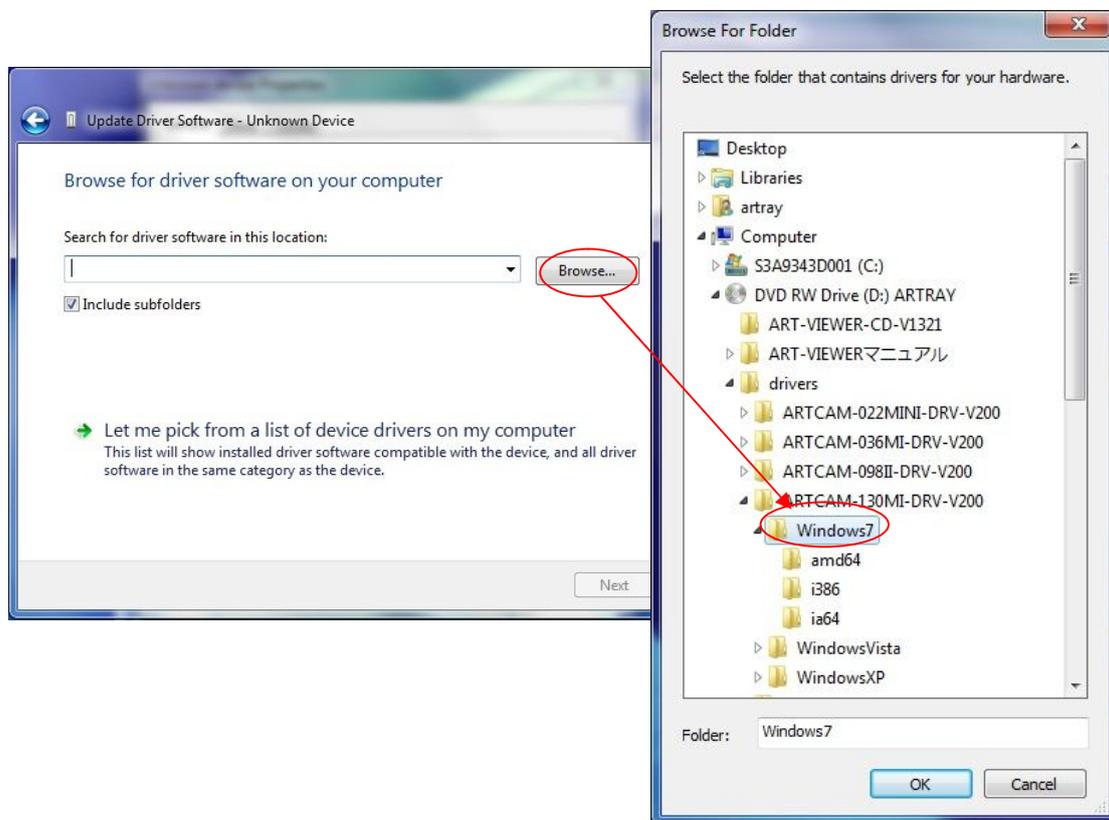
3. The following window pops up, click on “Update Driver”.



4. Click on “Browse my computer for driver software”.

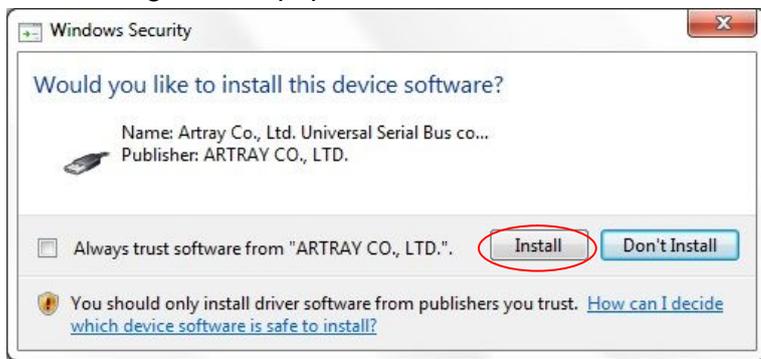


5. Click on “browse”, and from your CD-ROM select the “driver” folder and then choose the device which you want to install. Then select the “Windows7” folder.

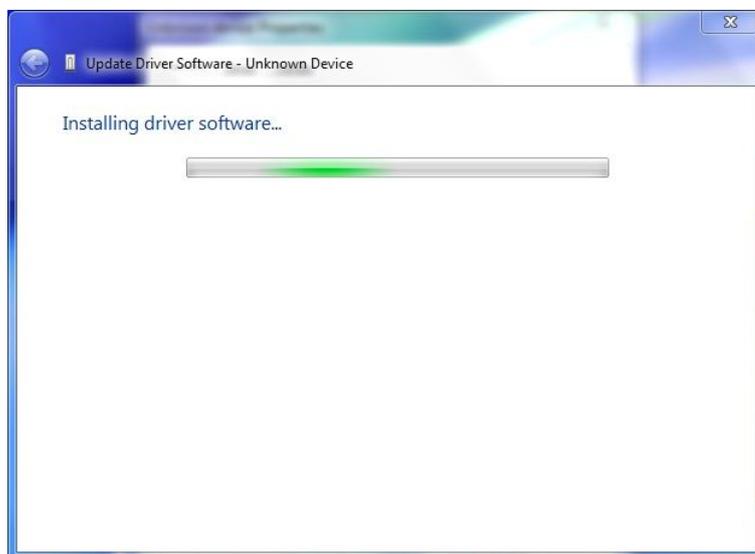


Click on “OK” to close the window. Then click on “Next”

6. The warning window pops out. Click on “Install”.



7. Wait for the system to complete the installation.

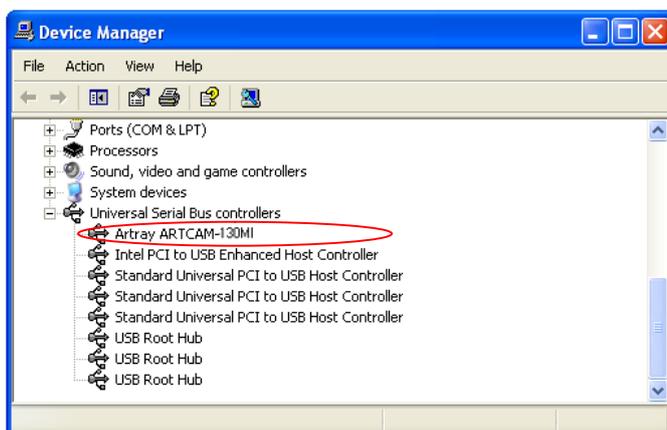


8. Click on “Close” on the following window to finish the installation.



CONFIRMING THE INSTALLATION OF ARTCAM / ARTCNV II

After the device driver has been installed, the name of the USB2.0 camera or ARTCNV II connected to the PC can be found on device manager. (In the example: ARTCAM-130MI)



※Please refer to the followings for the directory of Device Manager

Windows XP	Start Menu → Control Panel → System → Hardware → Device Manager
Windows Vista Windows 7	Start Menu→Control Panel→Device Manager

Notice for Device Manager Confirmation

Connecting Devices

The connecting devices for Standard Mode (SDK driver) and DS Mode (DirectShow driver) are different.

A) Standard Mode

- λ Windows XP : 「USB controller」
- λ Windows Vista / 7 : 「Universal Serial Bus controller」

B) DS Mode

- λ 「Imaging Device」

Displayed Names of Cameras

- λ Depending on the cameras, the camera name on screen shows may be different from the real one.
- λ For the details, please check “[Displayed Names of Cameras](#)“on page 188.

Standard driver and DS driver

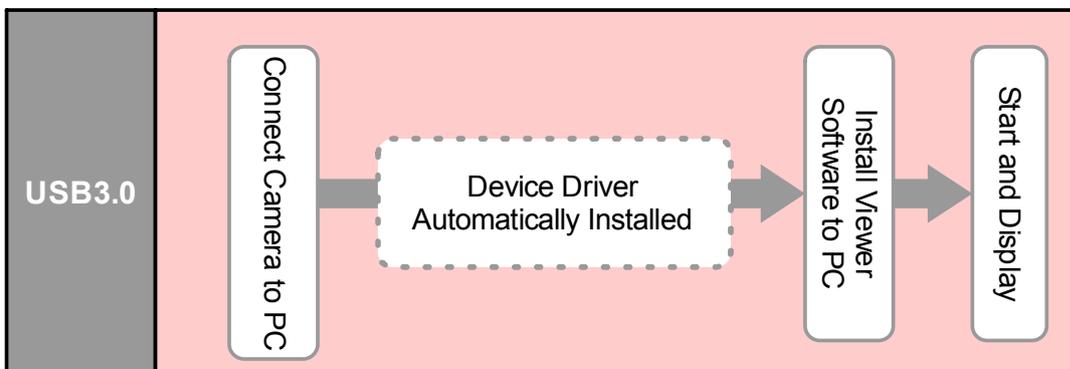
There are 2 kinds of drivers for our ARTCAM and ARTCNV II products.

Depending on which driver you use, some functions are different from each other.

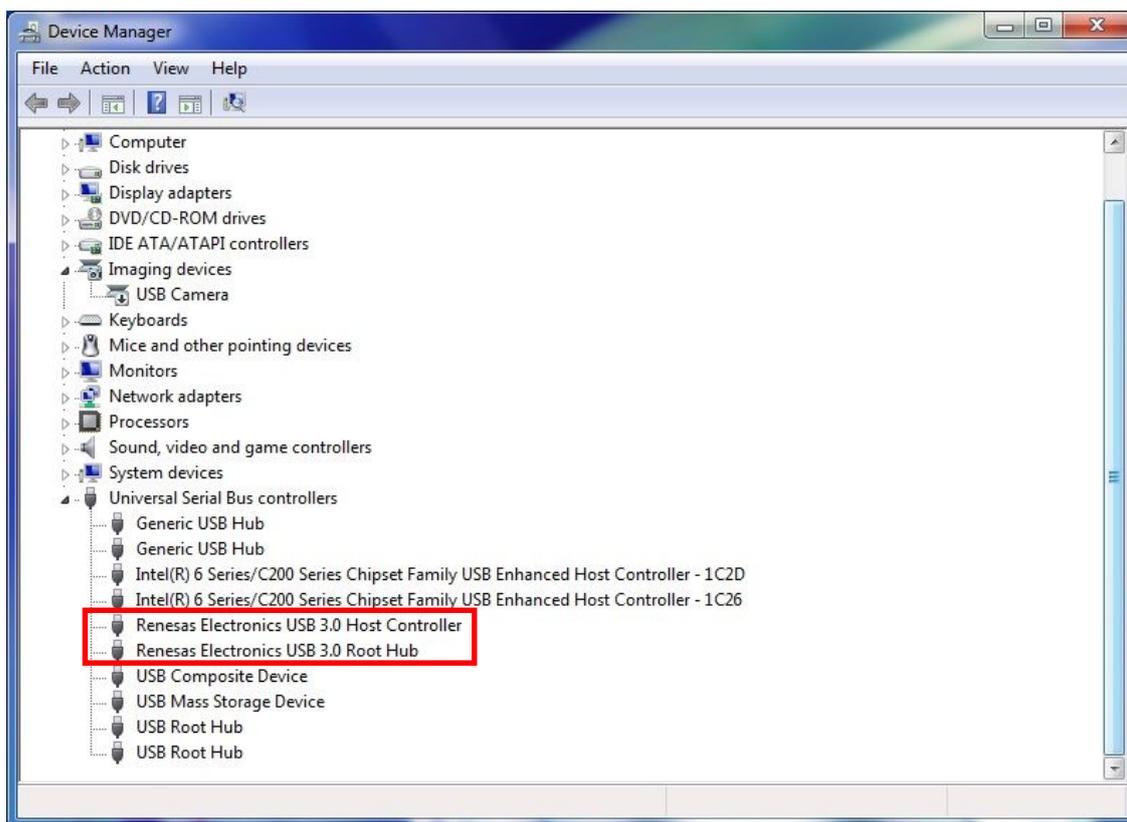
A) SDK Driver (Standard Mode)

- λ Applied with ARTRAY's own developed API
- λ Better performance than DS driver

2.2. USB3.0 CAMERA



1. Check on device manager to see if the USB 3.0 Host Controller Card is recognized correctly.

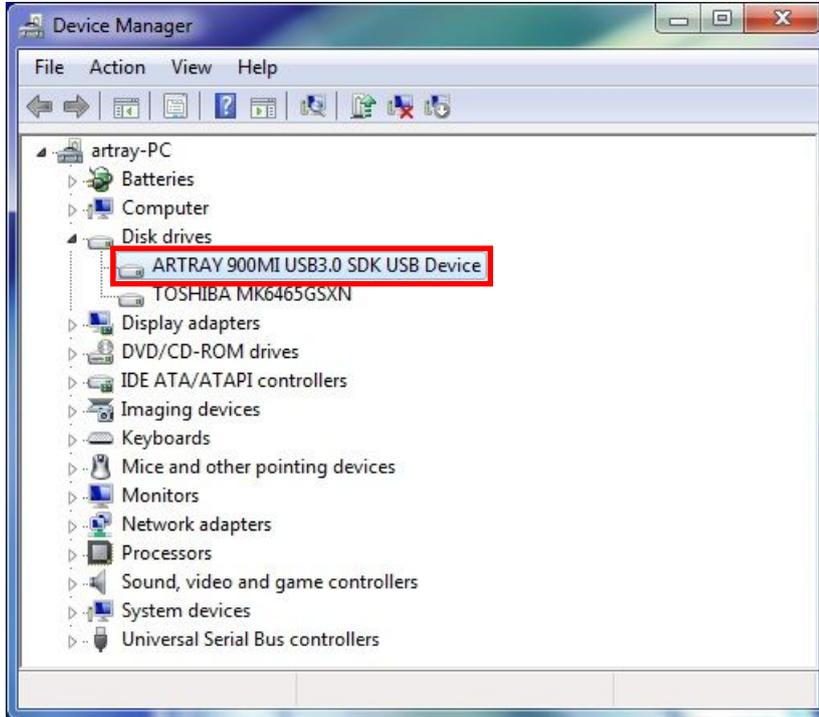


2. Connect the camera to the PC's USB3.0 port with a USB3.0 Cable (A-B).

Message "Your device is ready to use" pops up. The device has been automatically installed.

CONFIRMING THE INSTALLATION OF USB3.0 CAMERA

After the device driver has been installed, the name of the USB3.0 camera connected to the PC can be found on device manager.



To access device manager, please refer to “[CONFIRMING THE INSTALLATION OF ARTCAM / ARTCNV II](#)” on page 11.

Notice for USB3.0 Camera and the Viewer Software

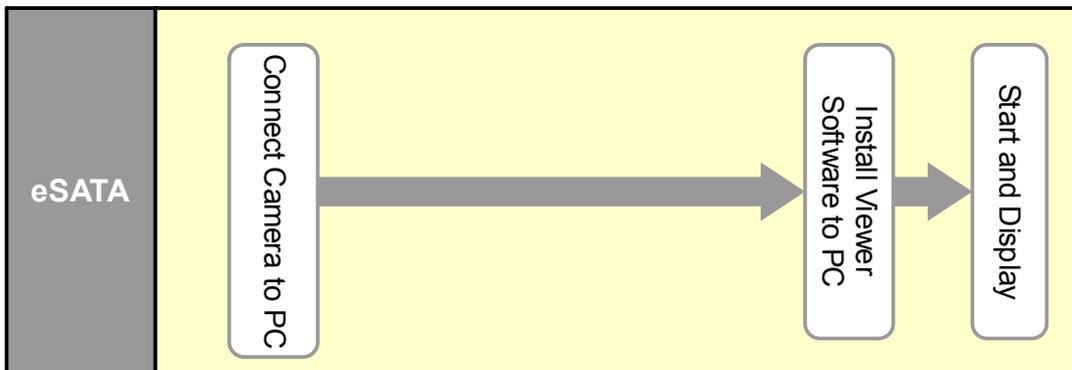
Administrator authority is needed to run USB3.0 Camera with the Viewer Software. Please login as Administrator and disable UAC (User Account Control) in Windows.

Please follow the step-by-step guide to disable UAC.

Windows Vista	Start→Control Panel→User Accounts→ Turn User Account control On or Off→ Deselect the Use User Account Control (UAC) To Help Protect Your Computer option, and click OK (Restart PC to apply the change)
Windows 7	Start→Control Panel→User Accounts→ Change User Account Control settings→ Move the slider bar to “Never notify”, and click OK (Restart PC to apply the change)

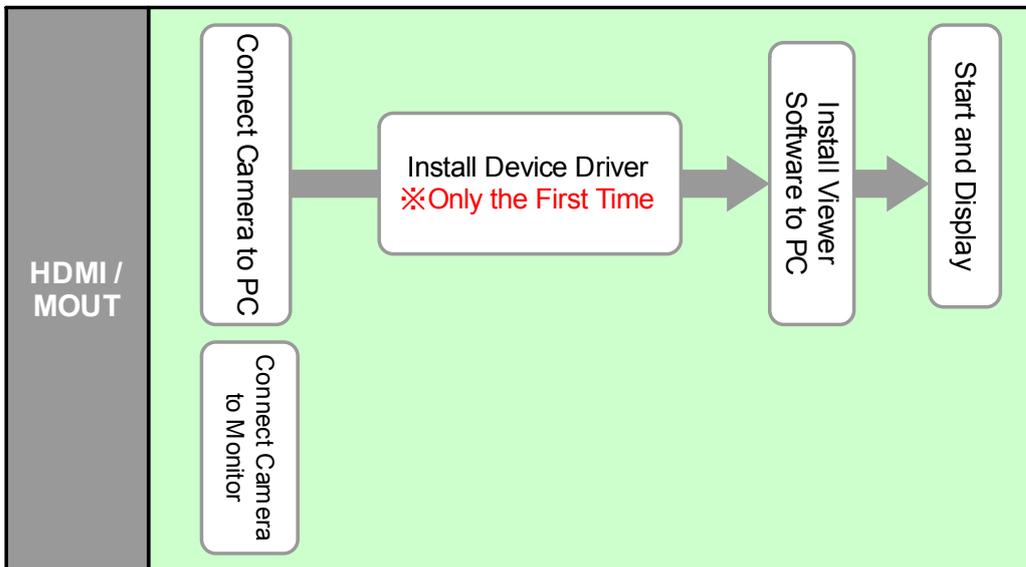
※There is no need to disable UAC in Windows XP.

2.3. eSATA CAMERA



Connect the eSATA camera PC to use. No installation required.

2.4. MONITOR OUTPUT CAMERA



ARTCAM-HDMI

There are 3 ways of image output for ARTCAM-HDMI

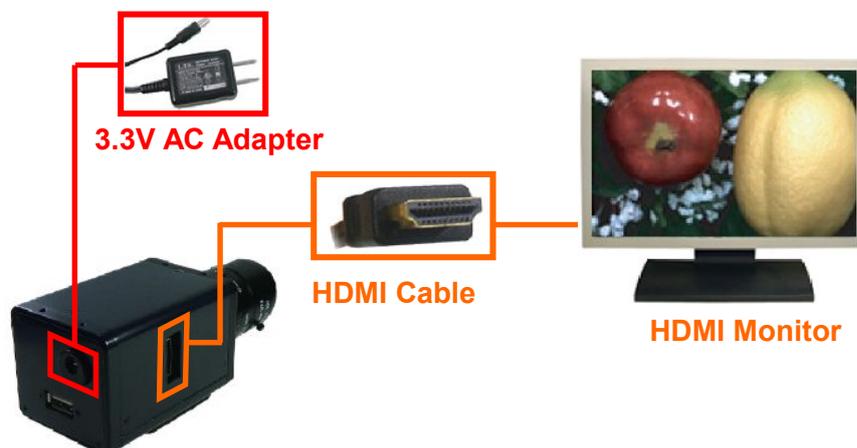
- λ HDMI Output
- λ PC Output
- λ HDMI Output+PC Output

HDMI Output

Connect the camera with a HDMI cable to a HDMI monitor to display the image taken by your camera without linking the camera to a PC.

1. Please connect the AC adapter to the camera for power supply.
2. Please connect the camera to the HDMI monitor with accompanied HDMI cable.

※ Software installation is not required.



Connection to PC (PC Output)

The camera/software settings can be changed by the Viewer Software with the camera connected to a PC.

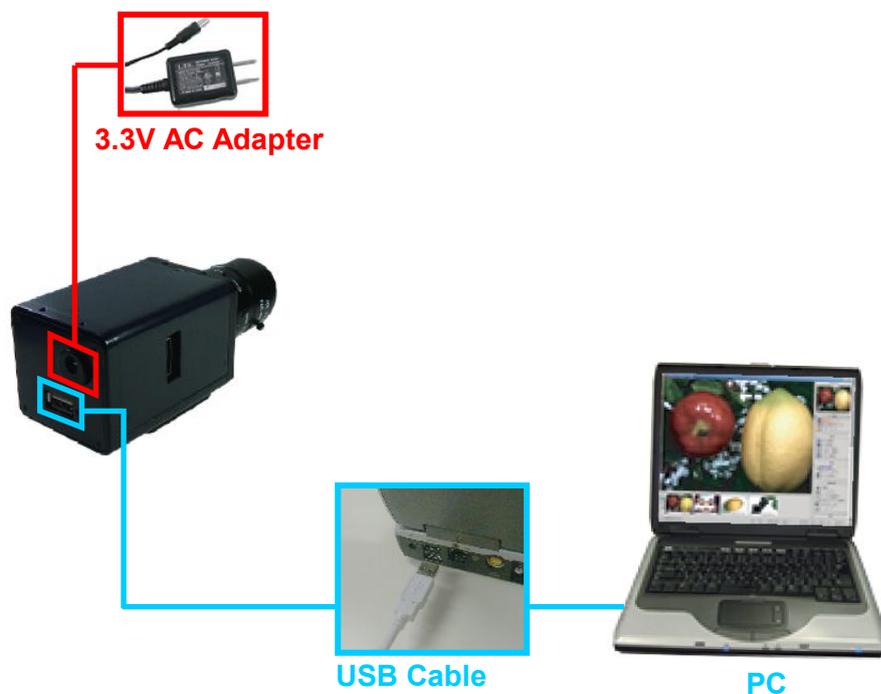
Also, still images can be taken and saved if the image is displayed on a PC.

1. Please connect the AC adapter to the camera for power supply.
2. Please connect the camera to PC with accompanied USB cable.

※NOTICE

Driver installation is necessary.

For installation details, refer to "[Install the Device Driver](#)" on page 7



HDMI Output with Connection to PC

Connect the camera to a HDMI monitor to display the image taken by your camera, and at the same time adjust the settings with PC.

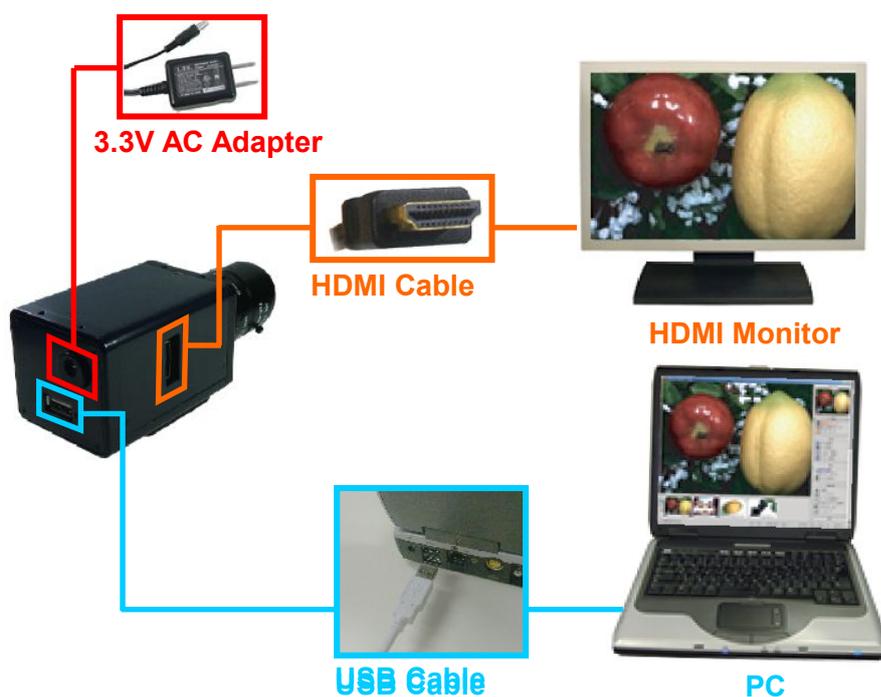
Also, still images can be obtained when the image taken by the camera is displayed on PC.

1. Please connect the accompanied AC adapter to the camera for power supply.
2. Please connect the camera to the HDMI monitor with the HDMI cable.
3. Please connect the camera to the PC with the accompanied USB cable

※NOTICE

Driver installation is necessary.

For installation details, refer to "[Install the Device Driver](#)" on page7.



ARTCAM-MOUT

There are 3 ways of image output for ARTCAM-MOUT.

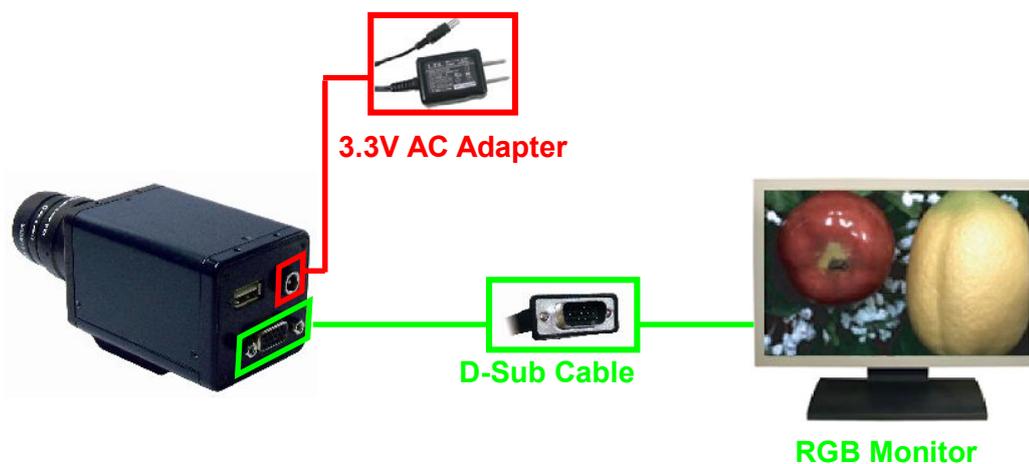
- λ RGB Output
- λ PC Output
- λ RGB Output+PC Output

RGB Output

Connect a D-Sub cable to a RGB monitor to display the image taken by your camera without connecting the camera to a PC.

1. Please connect the accompanied AC adapter to the camera for power supply.
2. Please connect the camera to the RGB monitor with the D-Sub cable (Male-Male 15 Pin).

※ Software installation is not necessary.



Connect to PC

The camera/software settings can be changed by the Viewer Software with the camera connected to a PC.

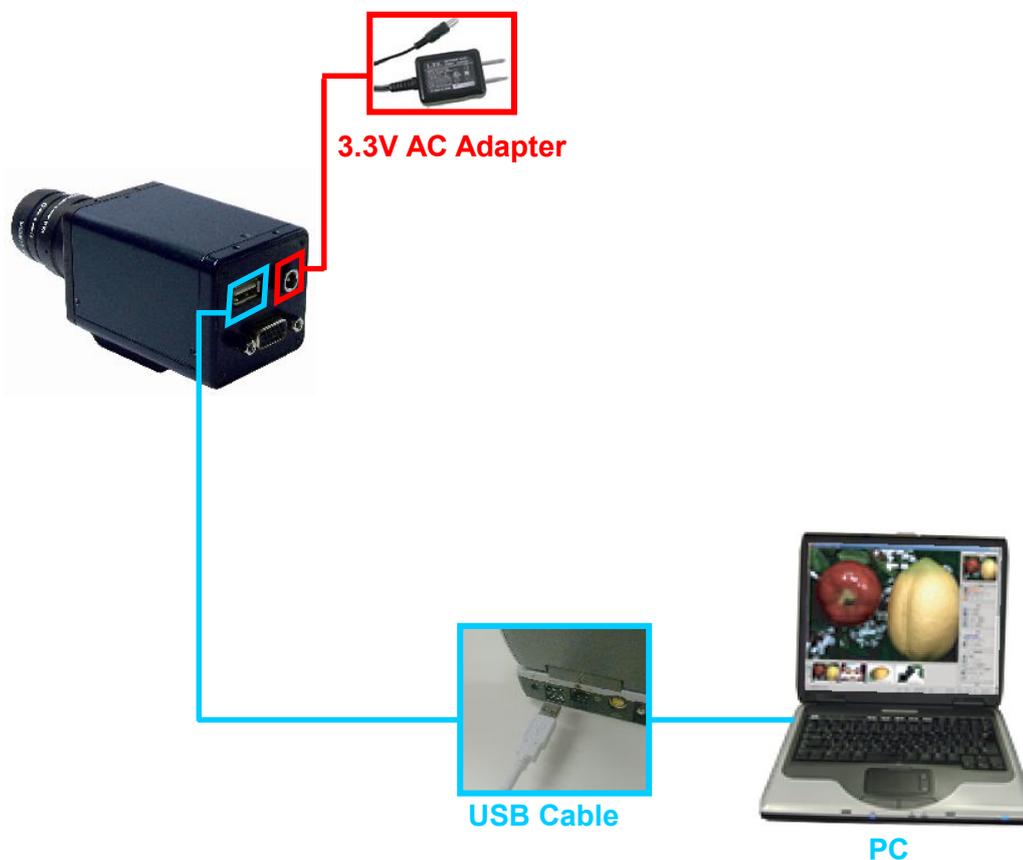
Also, still images can be taken and saved if the image is displayed on a PC.

1. Please connect the accompanied AC adapter to the camera for power supply.
2. Please connect the camera to the PC with the accompanied USB cable.

※NOTICE

Driver installation is necessary.

For installation details, refer to "[Install the Device Driver](#)" on page7.



RGB Output with Connection to PC

Connect the camera with a RGB monitor to display the image taken by your camera, and at the same time adjust the settings with PC.

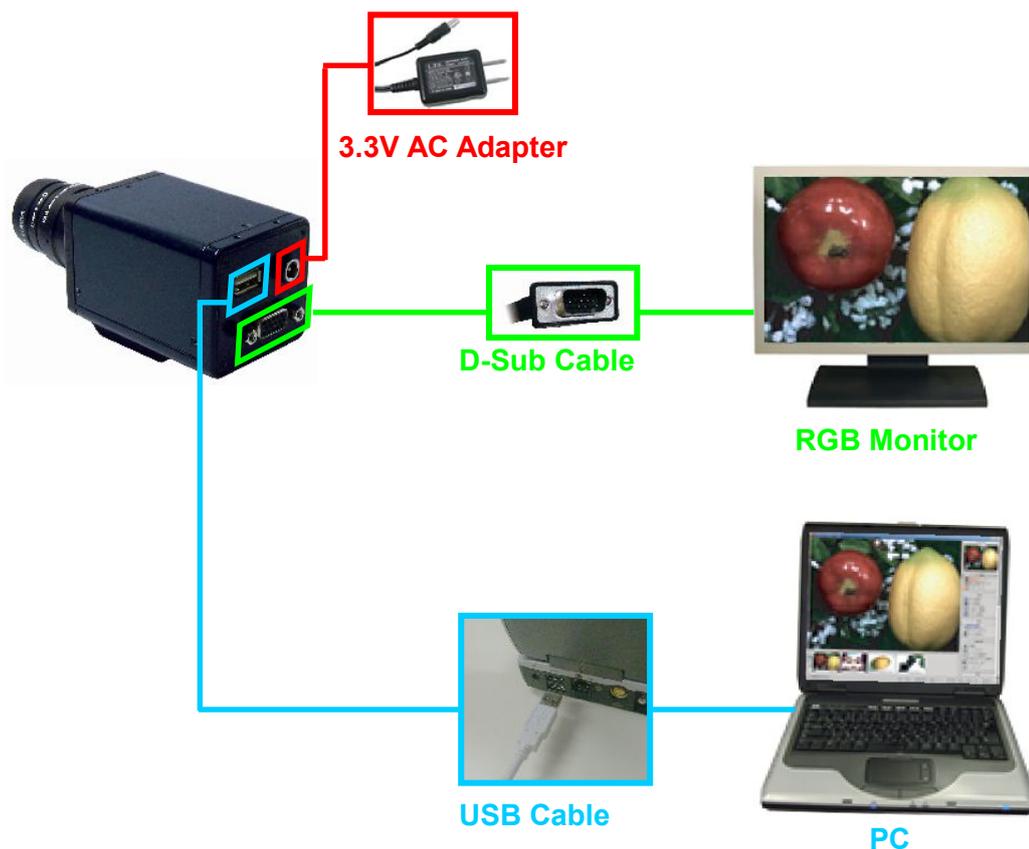
Also, still images can be obtained when the image taken by the camera is displayed on PC.

1. Please connect the accompanied AC adapter to the camera for power supply.
2. Please connect the camera to the RGB monitor with the D-Sub cable (Male-Male 15pin).
3. Please connect the camera to the PC with the accompanied USB cable.

※NOTICE

Driver installation is necessary.

For installation details, refer to “[Install the Device Driver](#)” on page7.



Cameras which can output to HDMI monitor and RGB monitor at the same time are also available.

Please ask us for the details.

3. INSTALLATION OF USB KEY SOFTWARE AND MEASURING SOFTWARE

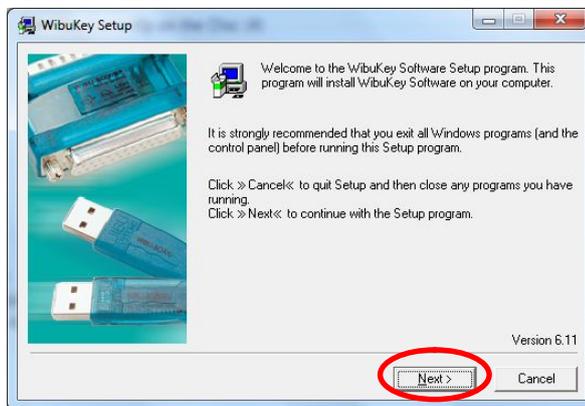
Measuring software doesn't work without inserting USB key to PC.

Make sure using the USB Key which is packed with measuring software.

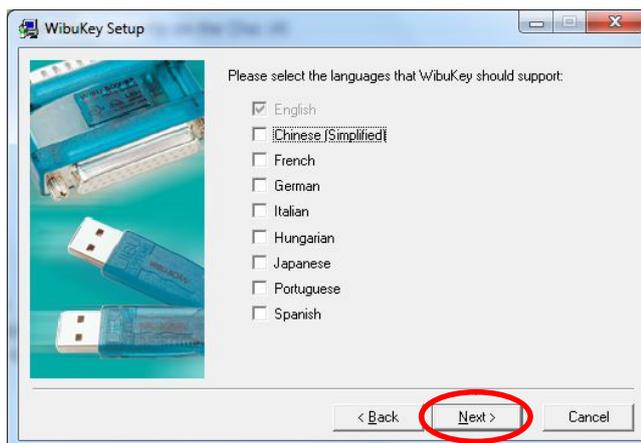
3.1. INSTALLATION OF SOFTWARE FOR USB KEY

1. Double-click on "WkRuntime.exe" in the accessory CD-ROM.

2. Left-click on "NEXT" on following window.

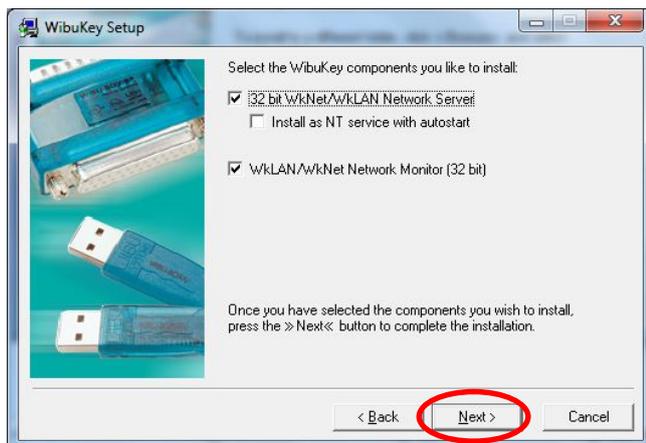


3. Check a language and left-click on "NEXT" on following window.

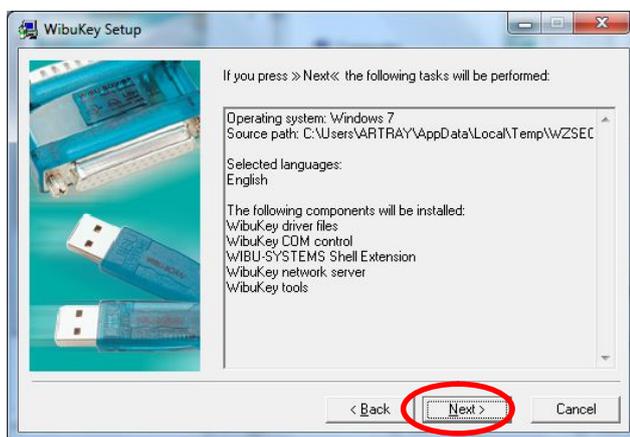


4. Left-click on "NEXT" on following window.

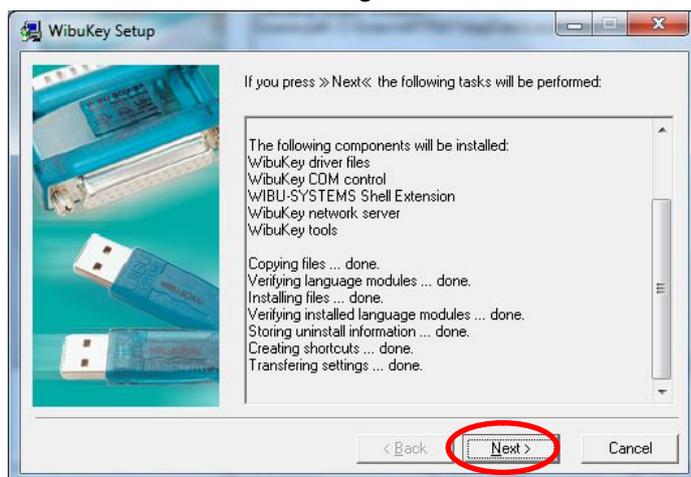
3. INSTALLATION OF USB KEY SOFTWARE AND MEASURING SOFTWARE



5. Left-click on “NEXT” on following window.

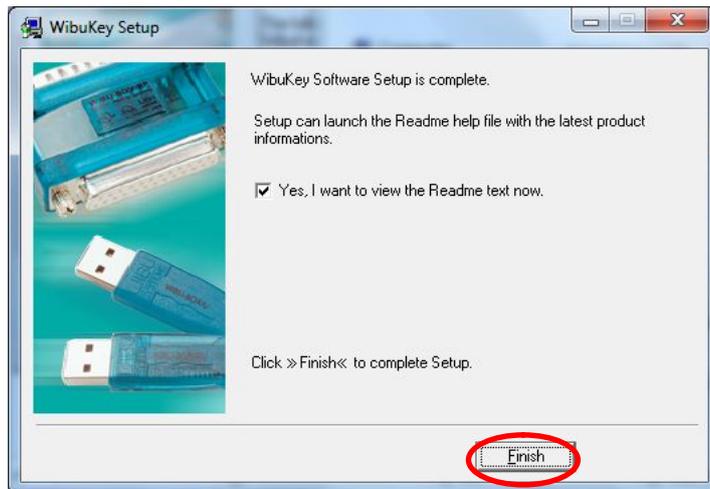


6. Left-click on “NEXT” on following window.



7. Left-click on “NEXT” on following window.

3. INSTALLATION OF USB KEY SOFTWARE AND MEASURING SOFTWARE

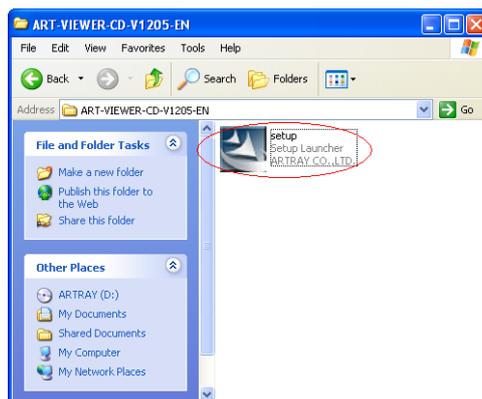


That is all steps for installation of software for USB key.

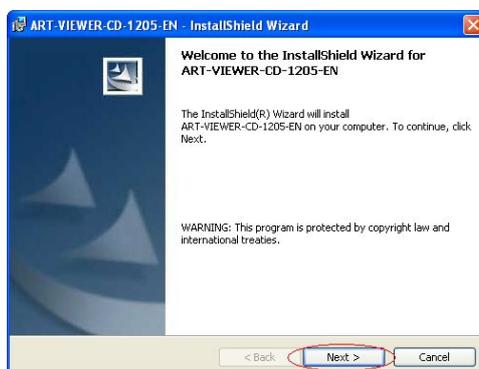
3.2. INSTALLATION OF MEASURING SOFTWARE

The following is an example which shows the installation of Viewer Software V1010.

1. Find the setup.exe file from the “ART-VIEWER-CD-Vxxxx” folder in the CD-ROM.
Double click on the setup.exe file.



2. Read and confirm the content, then click on “Next” to proceed.

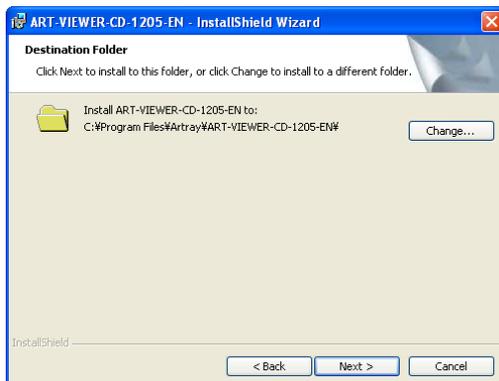


3. Enter your name and company name, and then make a left click on “Next”.



3. INSTALLATION OF USB KEY SOFTWARE AND MEASURING SOFTWARE

4. Select your destination folder to install.

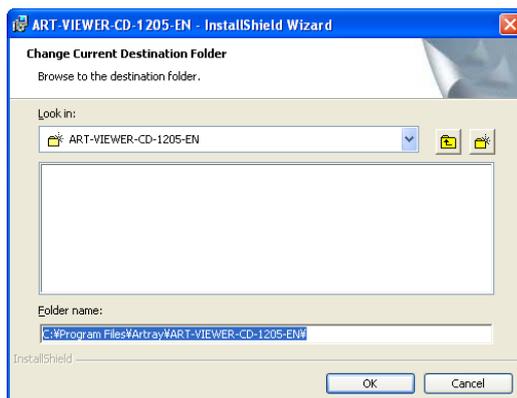


The default location is as below:

C:/Program Files/artray/ART-VIEWER-CD-Vxxxx

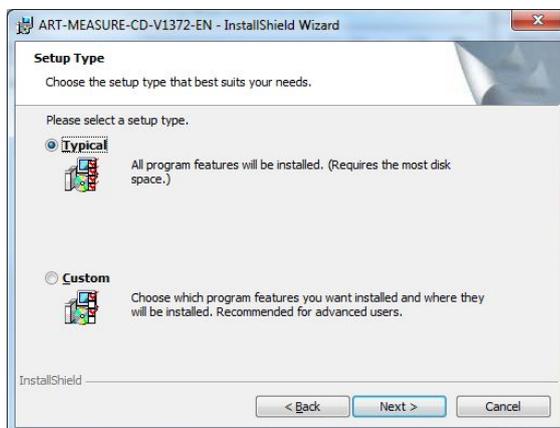
If the default location is ok, click on “Next” to proceed.

If you would like to change the destination to install, make a left-click on “Change”.
You can choose a desired directory to install when the following window shows up.

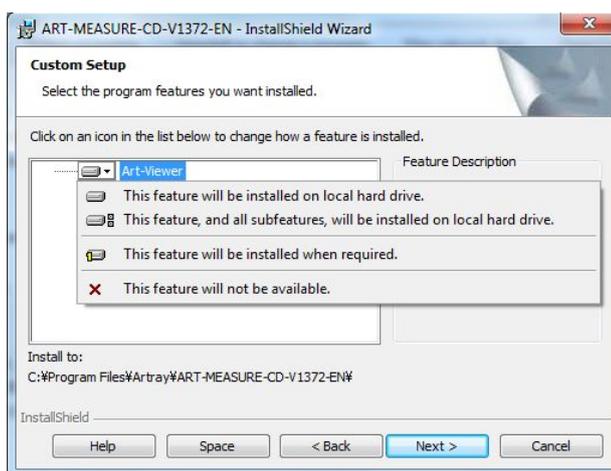


3. INSTALLATION OF USB KEY SOFTWARE AND MEASURING SOFTWARE

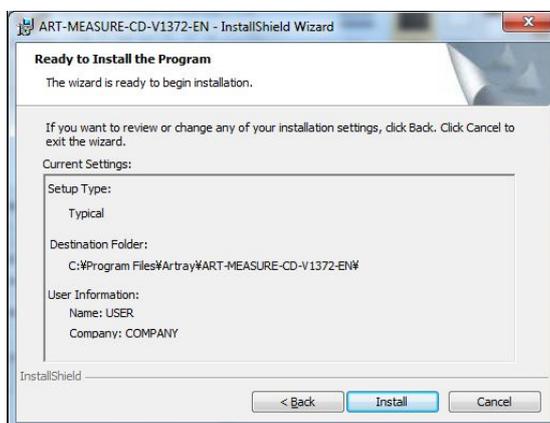
5. Choose “Setup Type” and left-click on “NEXT” on following window.



- Typical...Install both of “Art-Measure” and “Art-Viewer”
- Custom...You can choose installation of “Art-Measure” or “Art-Viewer” on following window.



6. You can check the setting information before start installation.
Left-click on “Next” to start the installation.



3. INSTALLATION OF USB KEY SOFTWARE AND MEASURING SOFTWARE

7. If you would like to run the software immediately, click the “Launch the program” box and make a left-click on “Finish” to complete the installation process.



That is all steps for installation of measuring software.

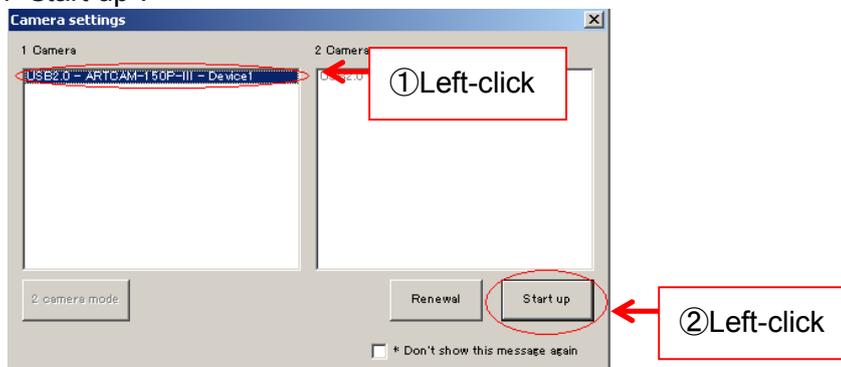
4. USE VIEWER SOFTWARE

The following explains the basic functions of Viewer Software.

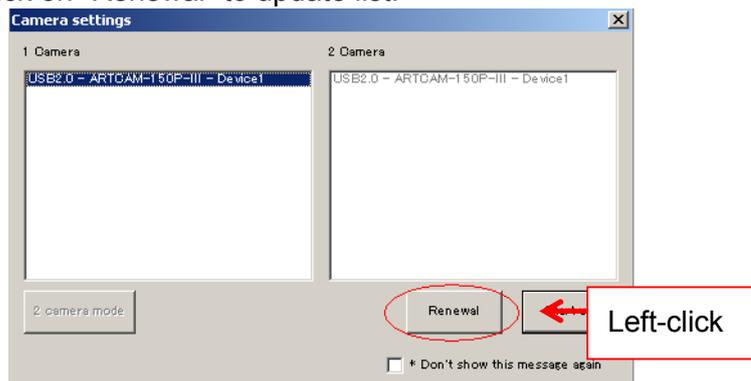
4.1. START AND DISPLAY

USB2.0/USB3.0 Camera -ARTCNV II

1. Connect the camera or ARTCNV II to the PC.
Make sure the lens is properly placed, and connect the camera or ARTCNV II to the PC's USB2.0 or USB3.0 port.
2. Start the Viewer Software.
Start the Viewer Software from either your Desktop or Start Menu.
To start from Start Menu, please refer to the following directory.
Start Menu → Programs → ART-VIEWER-CD-Vxxx → ArtViewer
3. Choose the ARTCAM or ARTCNV II you would like to use.
Select your camera from "1 Camera" on the Camera settings dialog box. Make sure it shows the correct name of the connected device, and then make a left-click on "Start up".



If the name of the ARTCAM or ARTCNV II which you want to start up with is not shown, left-click on "Renewal" to update list.



4. USE VIEWER SOFTWARE

※ Depending on models the displayed names may be different from the actual ones.
For the details please refer to “[Displayed Names of Cameras](#)” on page188.

4. By default, the Viewer Software starts in Movie mode which shows the motion captures from the camera.

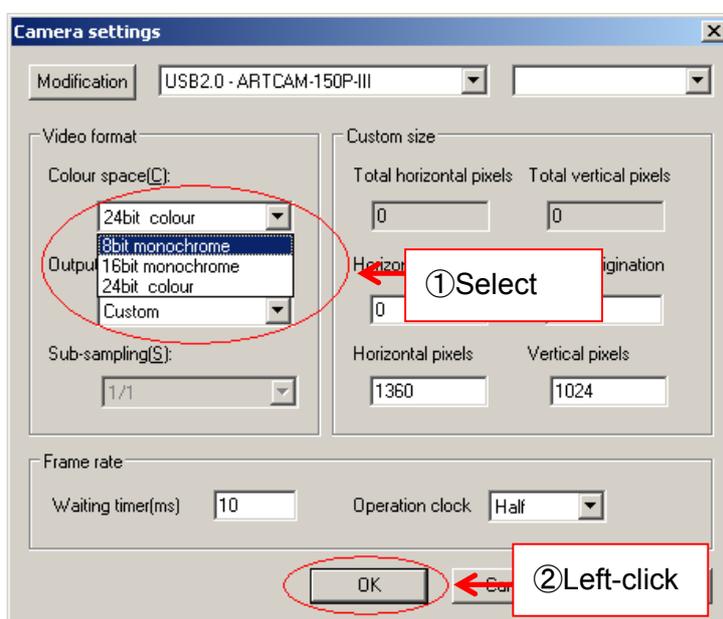


5. If you are using a monochrome camera, go to “Camera settings” and select “8bit monochrome” from the “Colour space” column.

To open “Camera settings” dialog box, make a left-click on



under “setting” from the main menu.

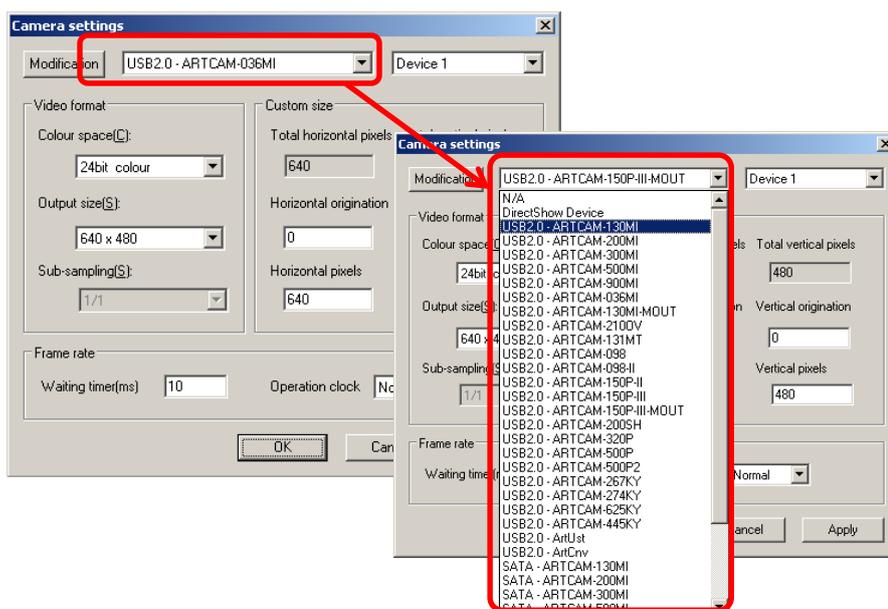


Please refer to “[Modify the Colour Output](#)” on page 40 for the details of Colour space (colour output modes).

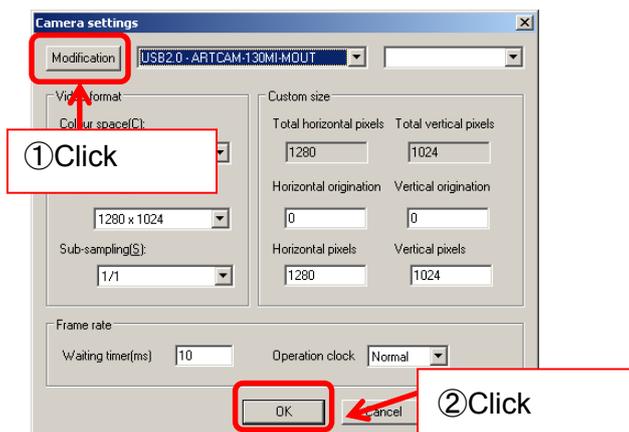
※ Use your monochrome camera only under “8bit monochrome” mode.

eSATA Camera

1. Connect the camera to the PC.
Make sure the lens is properly placed, and connect the camera to the PC's eSATA connector.
If your PC does not have an eSATA connector, please obtain a PCI adopter.
2. Insert USB key to USB 2.0 port.
3. Start the Measuring Software.
Start the Measuring Software from either your Desktop or Start Menu.
To start from Start Menu, please refer to the following directory.
Start Menu → Programs → ART-VIEWER-CD-Vxxxx → ArtViewer
4. Make a left-click on  Camera settings under "setting" from the main menu.
5. Choose the connected camera from the list on the Camera Settings screen.

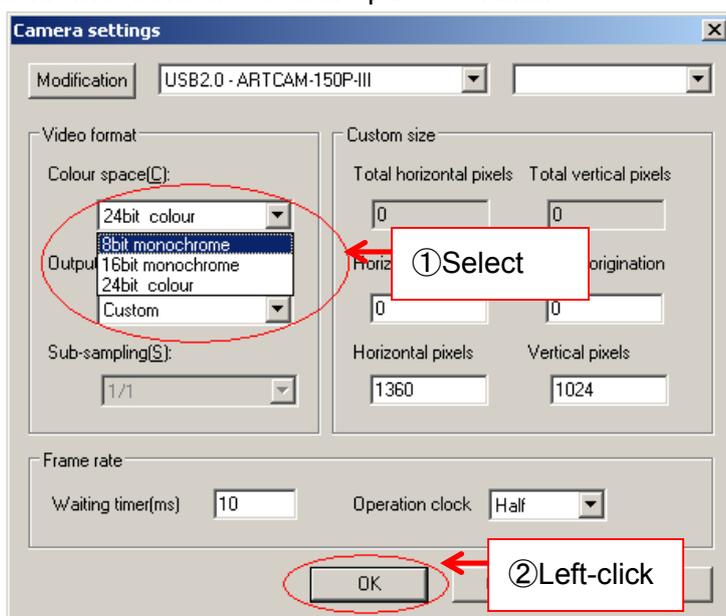


6. Click on "Modification", and "OK".



4. USE VIEWER SOFTWARE

7. From the “Mode select” menu on the right, click on  Movie mode to display the captions.
8. If you are using a monochrome camera, go to “Camera settings” and select “8bit monochrome” from the “Colour space” column.



Please refer to [“Modify the colour output mode”](#) on page 40 for the details of Colour space (colour output modes).

※ Use your monochrome camera only under “8bit monochrome” mode.

E Stage Bar

Stage Bar shows the current activities.

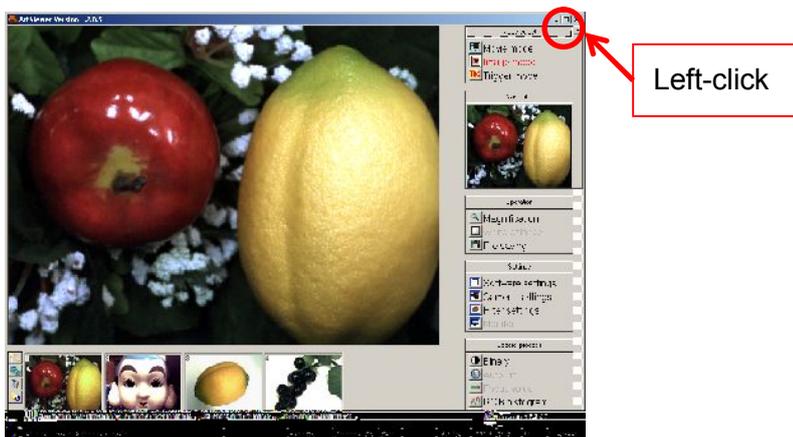


- ① ① explains the methods of operation matching to the cursor on the menu screen.
- ② To switch the Menu ON/OFF, left-click on ②.
- ③ To switch the Thumbnail ON/OFF, left-click on ③.
- ④ ④ shows the camera in functioning.
- ⑤ Frame rate on the software (display).
- ⑥ Frame rate on the hardware (readout).
- ⑦ ⑦ indicates the X coordinate of the mouse position in pixels
- ⑧ ⑧ indicates the Y coordinate of the mouse position in pixels.
- ⑨ ⑨ shows the zoom size of the image being displayed. Right-click/Left-click to adjust the size.
- ⑩ Left-click on ⑩ to switch to Full screen/Window mode.

※To switch to Window mode from Full screen mode, point the cursor to the lowest part of the screen and click on “Window”.

4.3. END THE PROGRAM

To close Measuring Software, click on the X button on the top right corner.



5. ADJUST THE DISPLAY

5.1. CHOOSE THE MODE (MOVIE·IMAGE·TRIGGER)

The three kinds of display mode: Movie, Image and Trigger.

Movie Mode Display

To enter the Movie Mode, click on  Movie mode from the “Mode select” menu.
The motions captured by the camera are displayed in real-time.

Image Mode Display

To enter the Image Mode, click on  Image mode from the “Mode select” menu.
The camera will stop capturing when you change the display mode from the Movie Mode to the Image Mode.
Image Mode is designed to read image files such as BMP and JPG.

Trigger Mode Display

To enter the Trigger Mode, click on  Trigger mode from the “Mode select” menu.
The camera will initialize itself as soon as you enter the Trigger Mode.
In the Trigger Mode, the camera capture is not being displayed. Instead, when the trigger signal is received by the camera, the electronic shutter starts functioning.

※NOTICE

- λ For the details of the trigger signal, please refer to the manuals of your cameras.
- λ Trigger Mode is not applied to every model of our cameras.
- λ To check which models support this function, refer to [AVAILABLE SOFTWARE FUNCTIONS BY CAMARA](#) on page 185.

<Standard driver>

To enter the Trigger Mode, left-click on  Trigger mode from the “Mode select” menu.

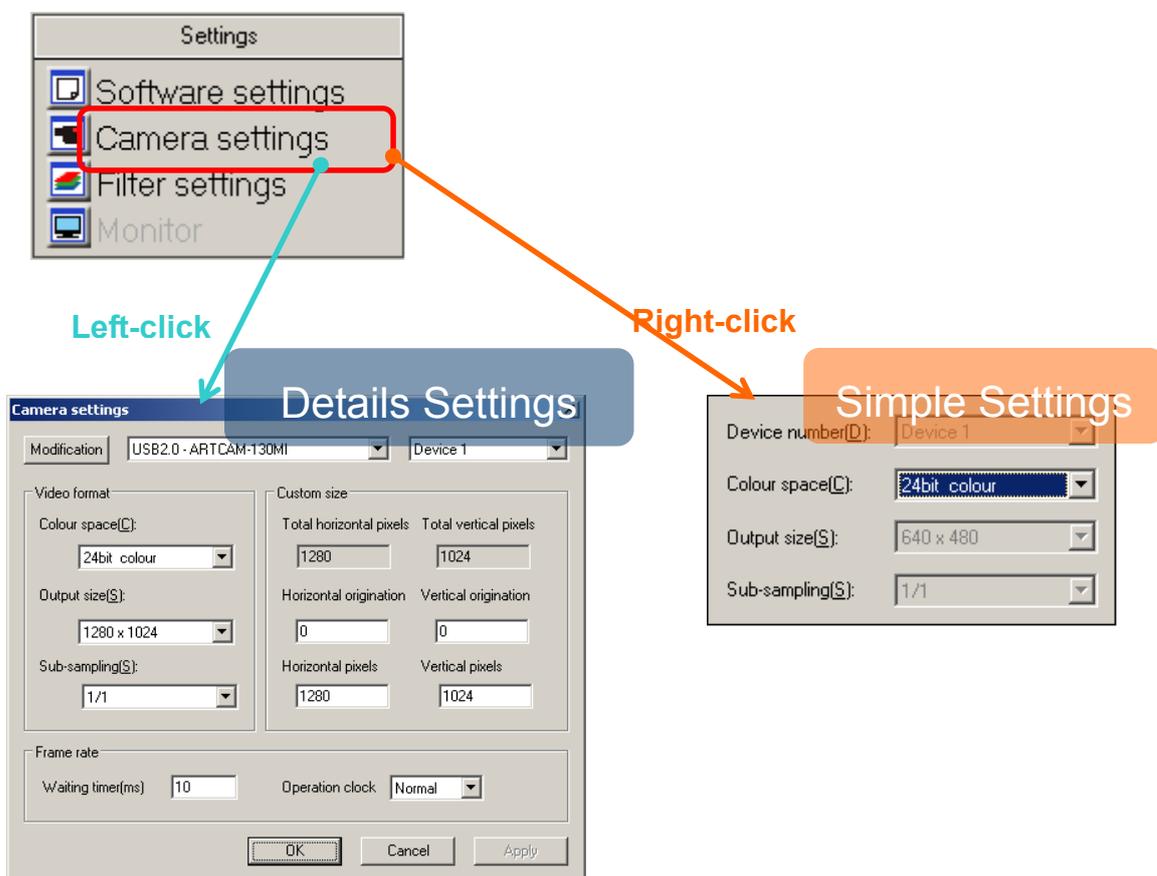
<DS driver>

※The driver should be 3.x or newer version.

To enter the filter setting, left-click on  Filter settings and check 「ExTrigger」, and left-click 「OK」 to complete the setting.

5.2. CAMERA SETTINGS FOR STANDARD MODE (SDK DRIVER)

Camera settings can be made either from the “Simple Settings” or “Details Settings” screen.

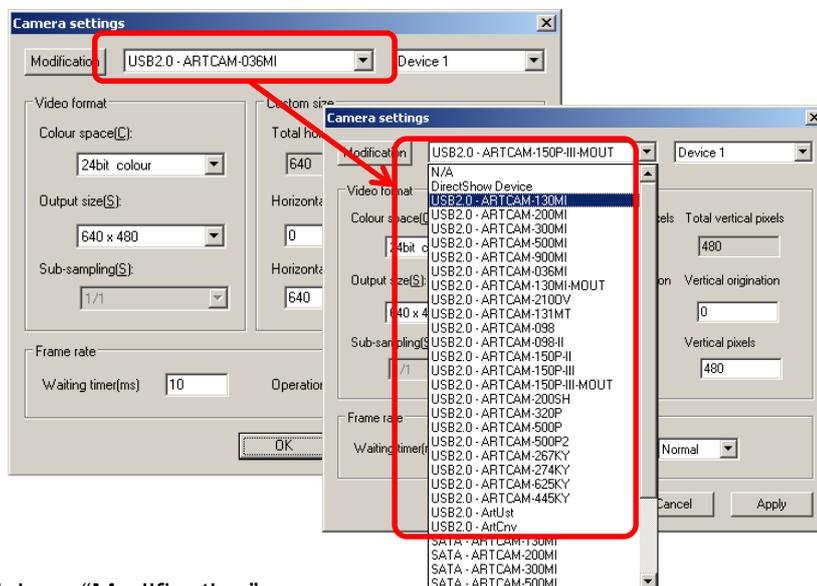


※NOTICE

- λ Click “OK” on the “Details Settings” screen to apply changes, or click “Cancel” to cancel.

Modify the Camera

1. Choose the connected camera from the list on the “Details Settings” screen.



2. Click on “Modification”.



The camera is auto-detected and the capture is displayed.

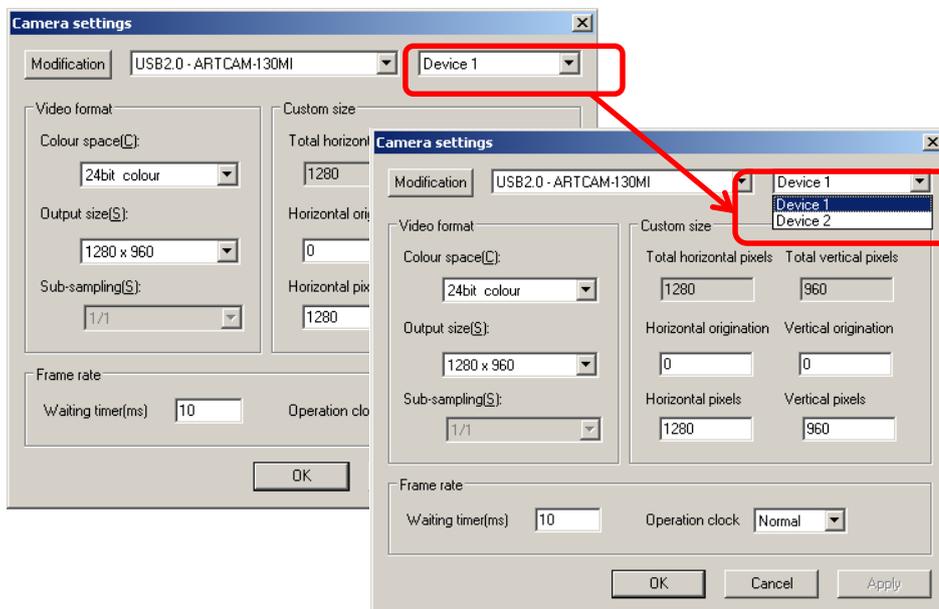
※NOTICE

- λ To switch to a DS driver, select “DirectShow Device” and choose the connected model from the device box on the right.
- λ For the details, please refer to page 51 "[Modify the Camera](#)” (DS Mode version).
- λ Depending on the models, the displayed names of cameras may be different from the real names.
- λ For the details, please refer to "[Displayed Names of Cameras](#)” on page 185.

Modify the Device of Camera

<From “Details Settings” screen>

1. Select the connected device.



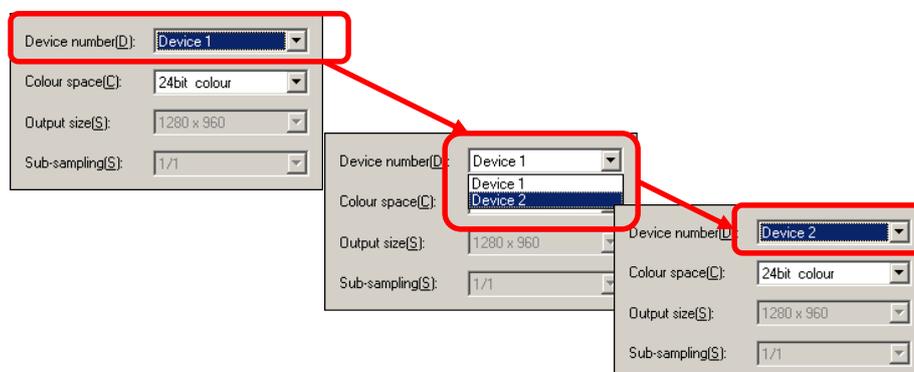
2. Left-click “Modification”



The capture of the camera which is connected with the selected device is displayed.

<From “Simple Settings” Screen>

Select the connected device.

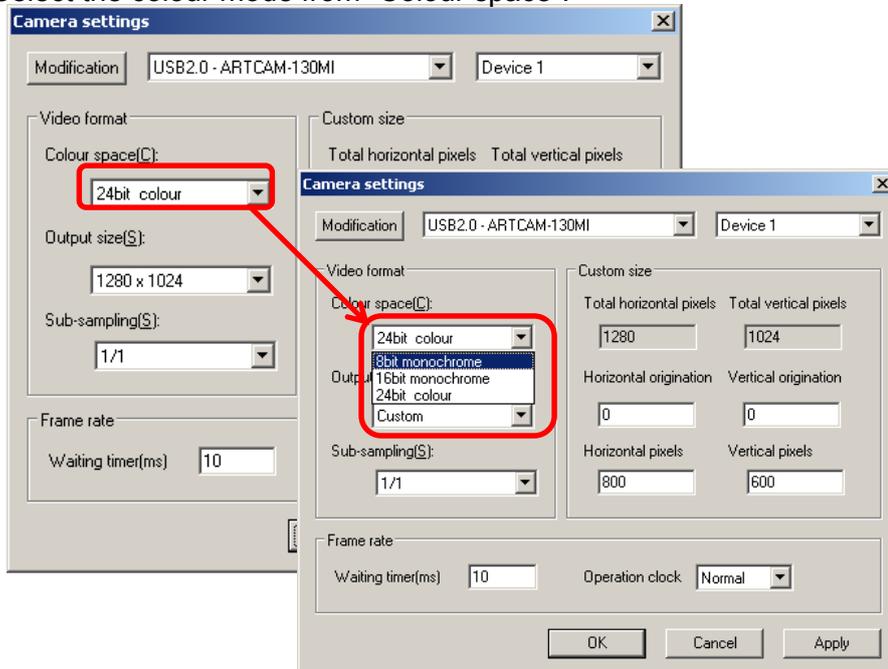


The capture of the camera which is connected with the selected device is displayed.

Modify the Colour Output

<From “Details Settings” screen>

1. Select the colour mode from “Colour space”.

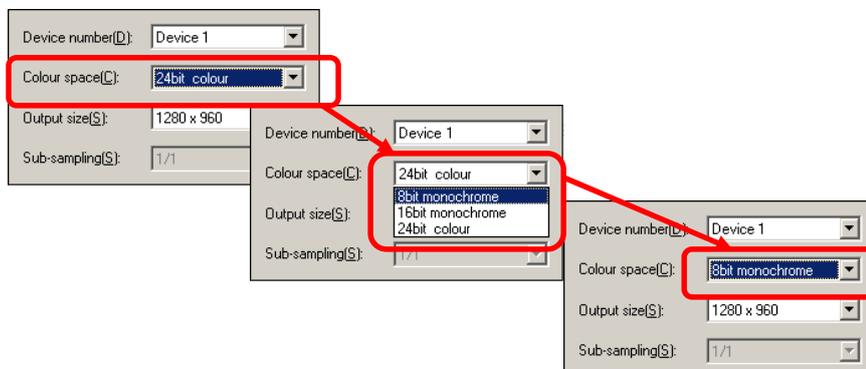


2. Make a left-click on “Apply” to change the colour mode.



<From “Simple Settings” Screen>

Select the colour space you want from the popped out dialog box.



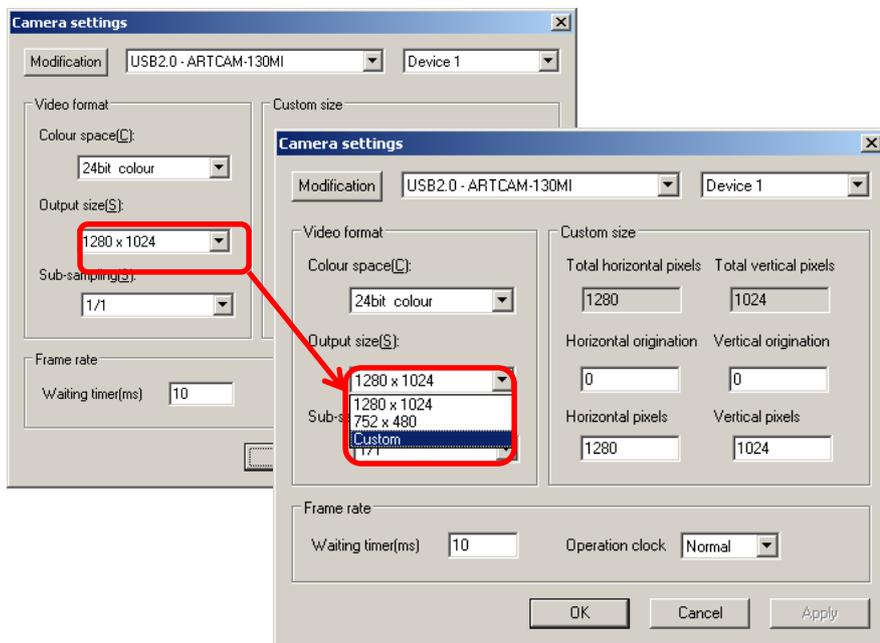
※Notice for 16 bit monologue mode

- λ Please set the “Operation clock” to “Half” if applying 16 bit monologue mode.
- λ About Operation clock settings, please refer to “[Modify the Operation Clock](#)” on page 48.
- λ Please note that some models do not support Half Operation Clock.
- λ To check which models support this function, refer to “[AVAILABLE SOFTWARE FUNCTIONS BY CAMARA](#)” on page 185.
- λ If your camera does not support Half Operation Clock mode, please do not apply 16 bit monologue mode.

Modify the Output Size

<From “Details Settings” screen”>

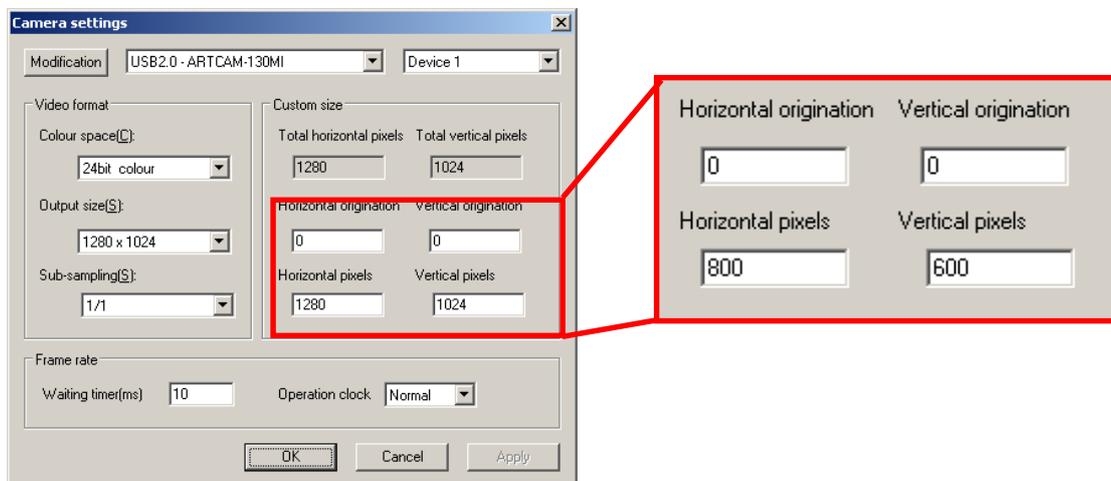
1. Select “Custom” from the “Output size” field.



To change output size without altering previously saved settings, please make sure that “Custom” is selected.

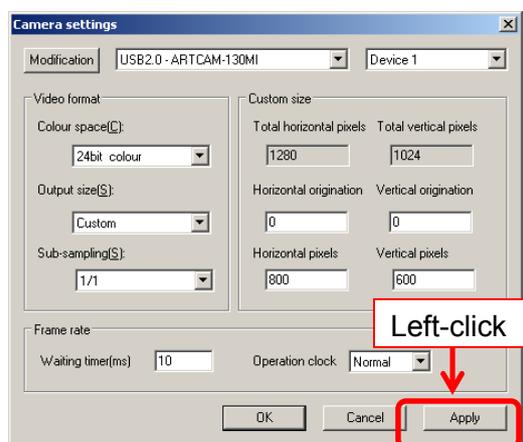
If “Custom” is not selected, the original setting will be overwritten.

2. Type the effective pixels and start position into the origin and effective pixel fields under “Custom size”.



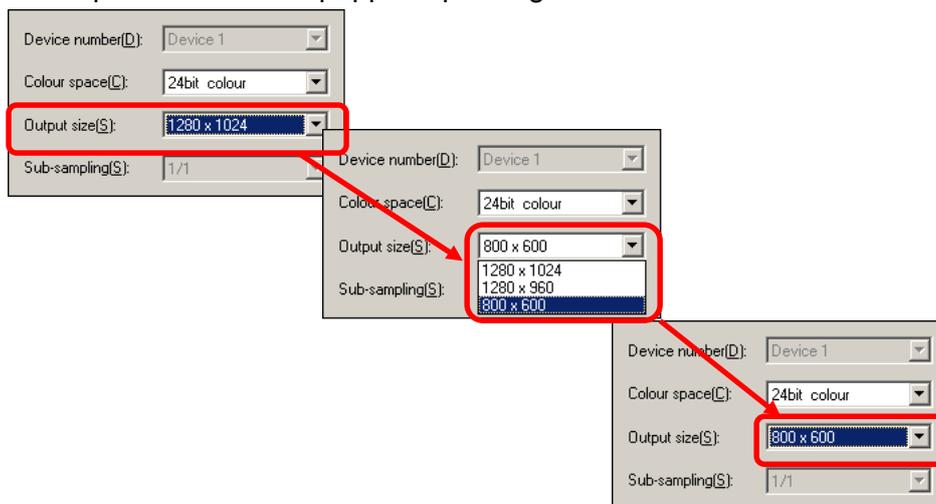
Here the Horizon and Vertical pixels are set to 800 by 600

3. Click “Apply” to apply the changes.



<From “Simple Settings” Screen>

Select the output size from the popped up dialog box.

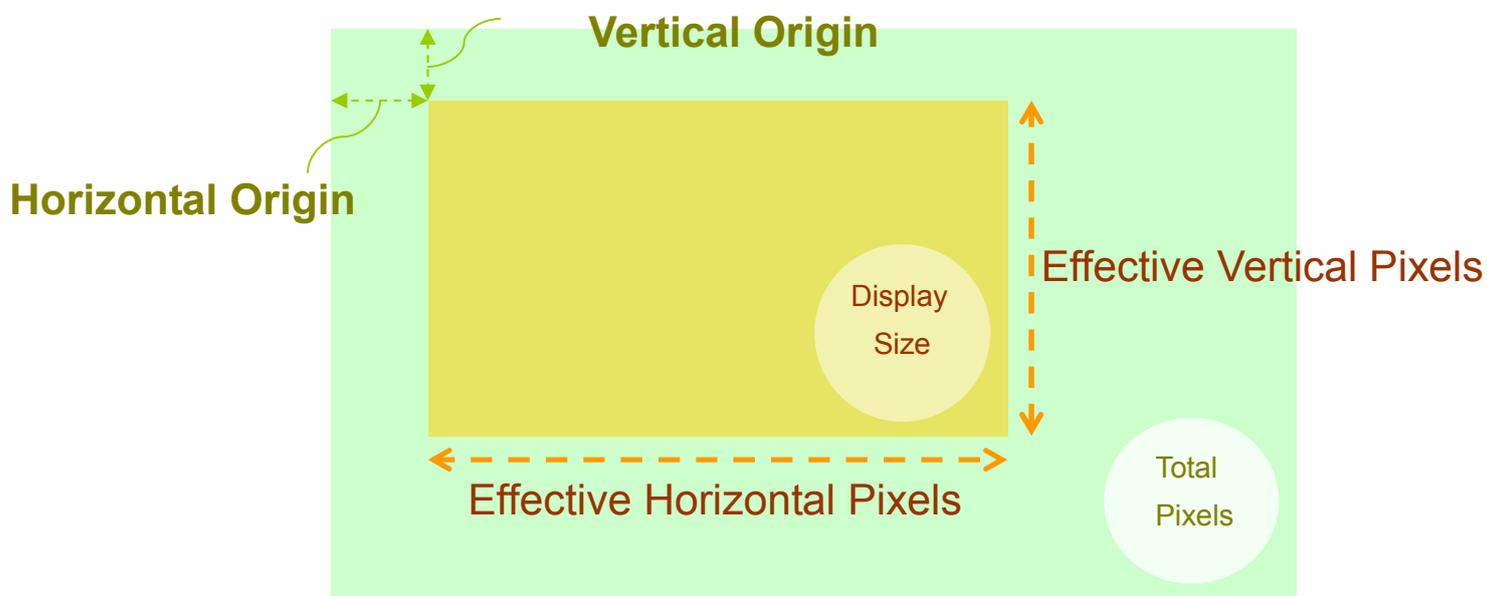


From the “Simple Settings” dialog box, users can select the output sizes which are previously added from the “Detail Setting” mode.

To initial a desired size setting, please add it from the “Details settings”.

※NOTICE

- λ Please note that the effective horizontal pixels must be multiples of 4. If not, the image may be disordered.
- λ CMOS cameras equipped with ROI (Region of Interest) function are able to read partial images with a faster transmission speed.
- λ CCD cameras do not possess ROI function; therefore even the effective pixels is set up, the total numbers of pixels will be read and only the arranged part will be displayed.

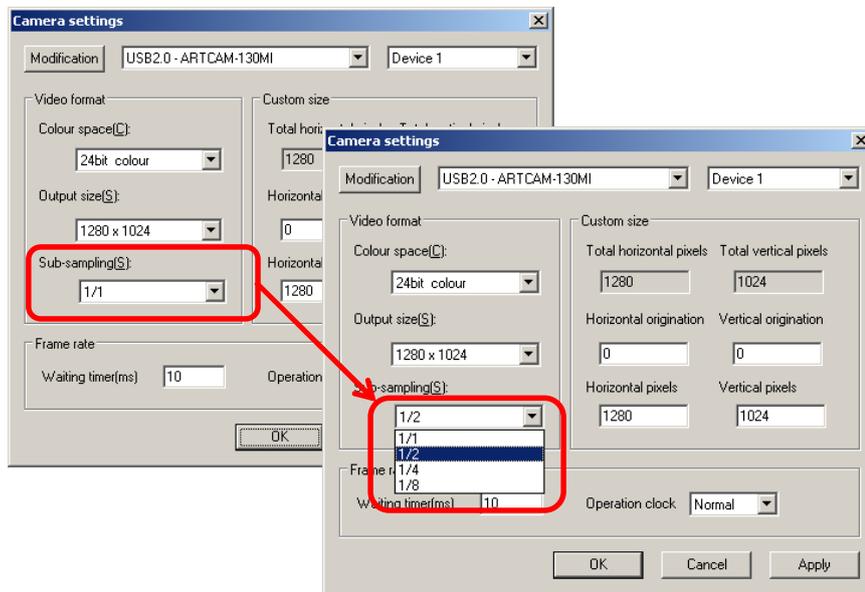
※Origins and effective pixels

Modify the Sub-Sampling Function of the Sensor

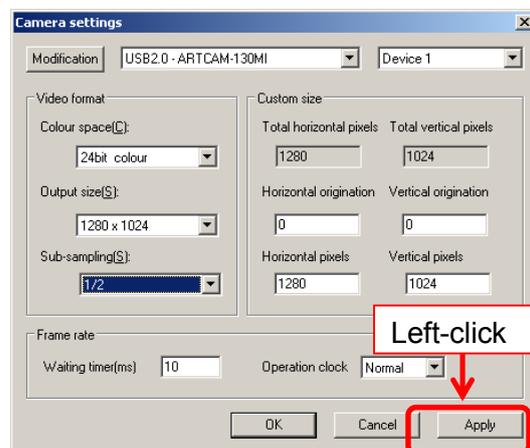
✘ Not available on eSATA camera

<From “Details Settings” screen>

1. Select the desired sub-sampling rate.

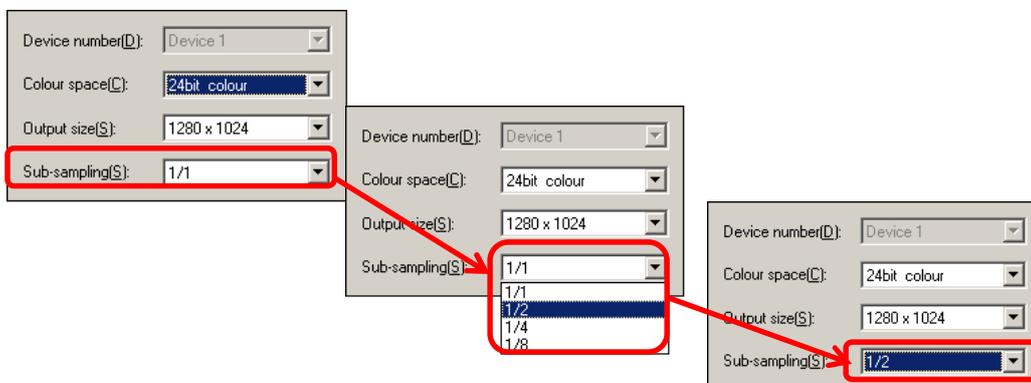


2. Left-click “Apply” to change the Sub-sampling rate.



<From “Simple Settings” Screen>

Select the desired sub-sampling rate.

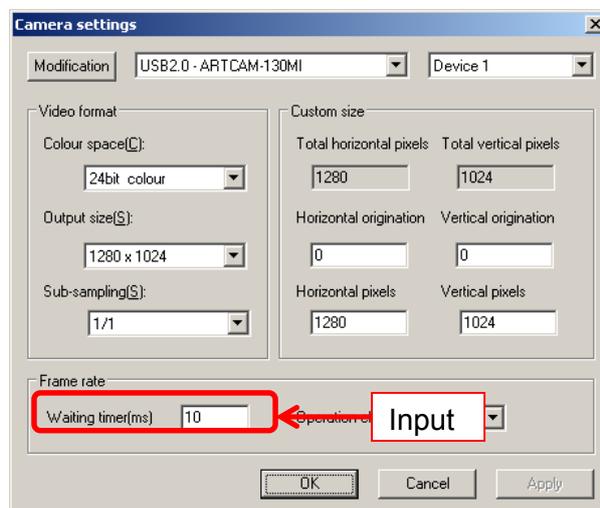


※NOTICE

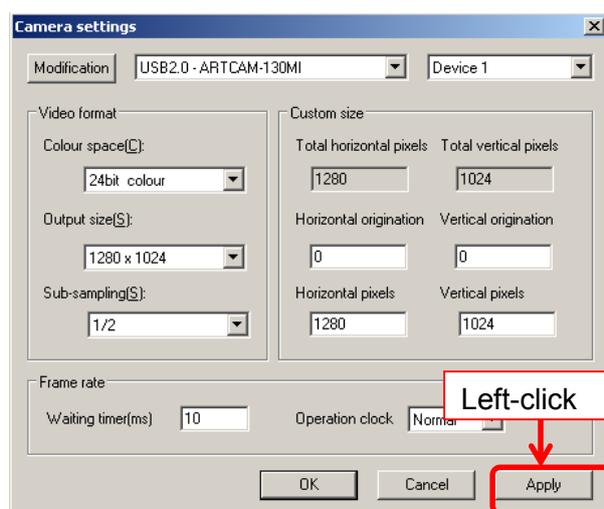
- λ Please note that some models are not applied to Sub-sampling function.
- λ To check which models support this function, refer to “[AVAILABLE SOFTWARE FUNCTIONS BY CAMARA](#)” on page 185.

Modify the Waiting Time

1. Enter the waiting time into the “Waiting time” field.



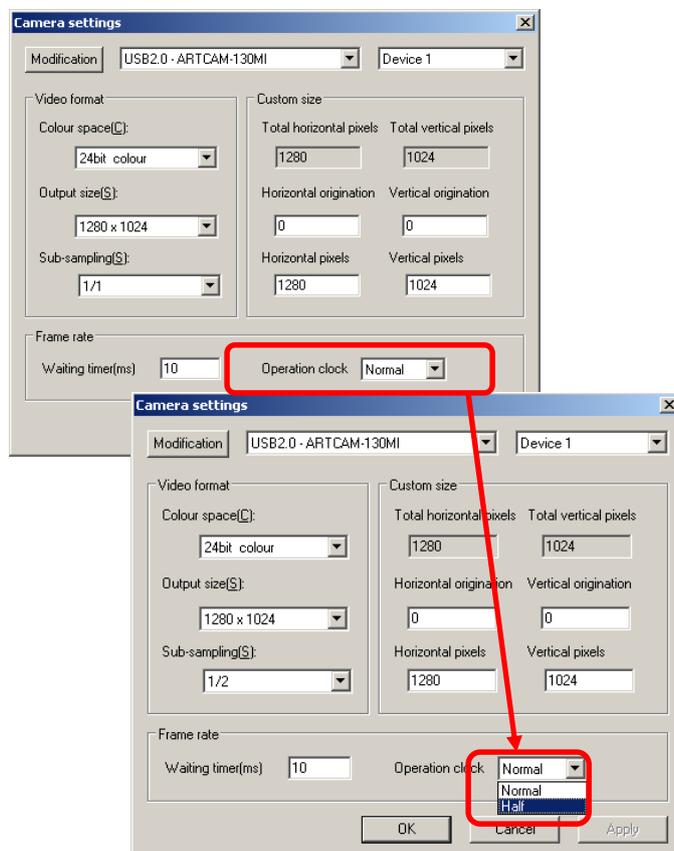
2. Left-click “Apply” to apply the change.



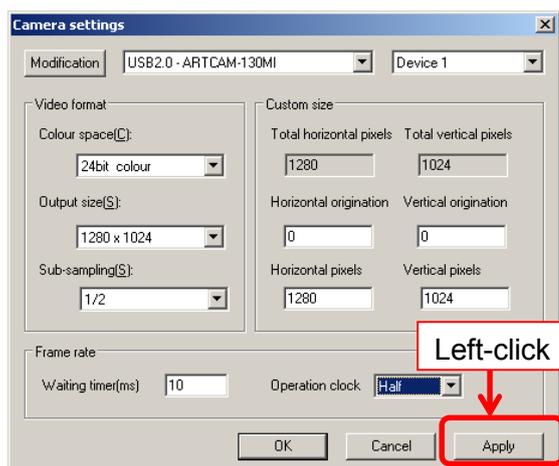
The waiting time is in millisecond (ms) and usually ranges from 5~10.

Modify the Operation Clock

1. Select the desired operation clock.



2. Left-click “Apply” to apply the change.



If the display appears distorted, it might be because the PC is short in memory or space...etc. In this case please set the Operation clock to “Half”.

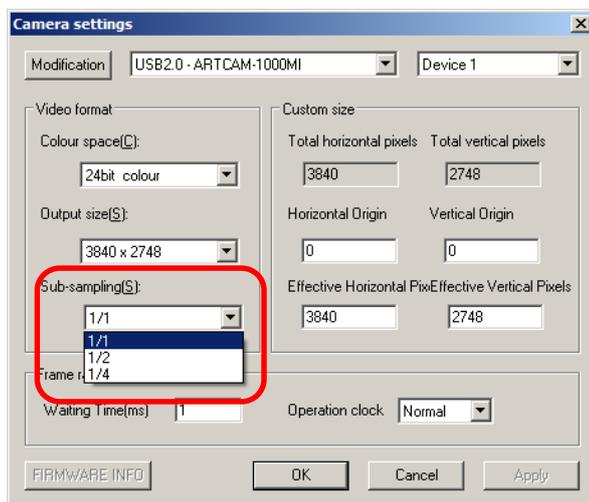
※Please note that operation clocks of some models are not able to be adjusted. To check which models support this function, refer to [“AVAILABLE SOFTWARE FUNCTIONS BY CAMARA”](#) on page 185.

Modify the USB/HDMI Output Size

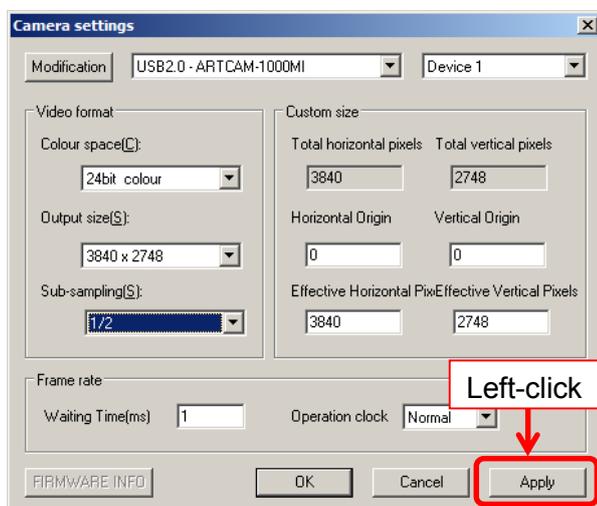
※The setting on USB / HDMI output size can be done only on 1000MI-HD2 model.

Procedure

1. Select the desired output size on the “Output size” field for USB output.



2. Left-click “Apply” to apply the modification.



Output size

The “Output size” shows the USB output size by above process.

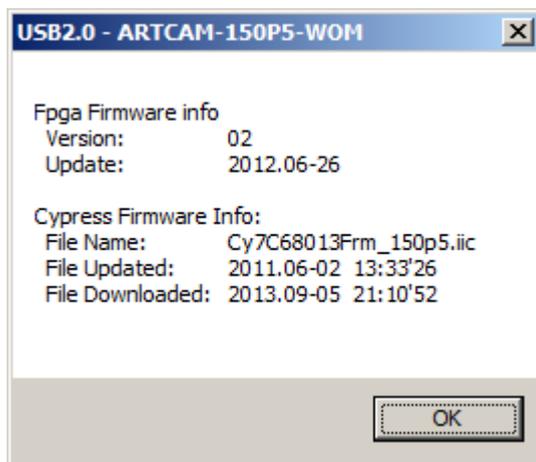
You can tell HDMI output size from USB output size by checking following table.

USB Output Size	HDMI Output Size
3664 × 2748	1920 × 1080
1920 × 1080	
1280 × 720	1280 × 720

Display Firmware Information

※This function is only applicable to WOM series.

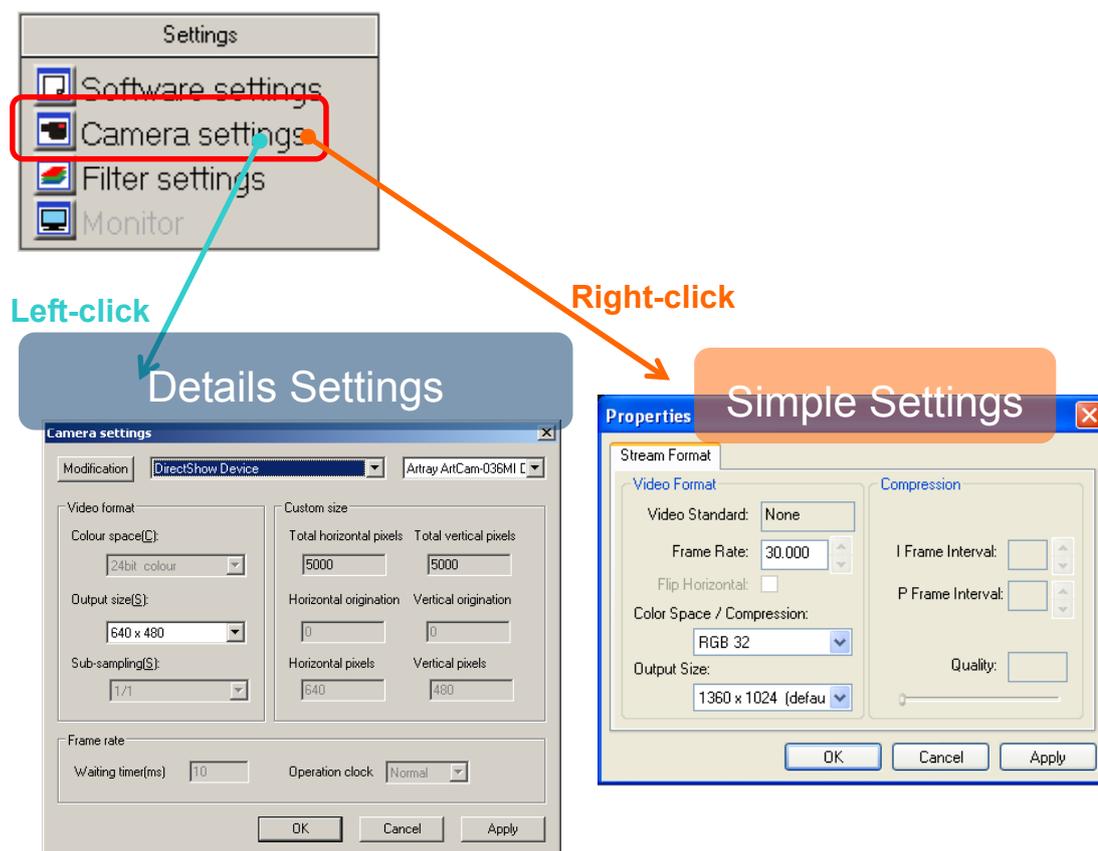
Left-click on “FIRMWARE INFO” and following dialog box will be displayed.



Please refer this information when you contact us for questions.

5.3. CAMERA SETTINGS FOR DS MODE (DS DRIVER) CAMERA

Camera settings can be made either from the “Simple Settings” or the “Details Settings” screen.

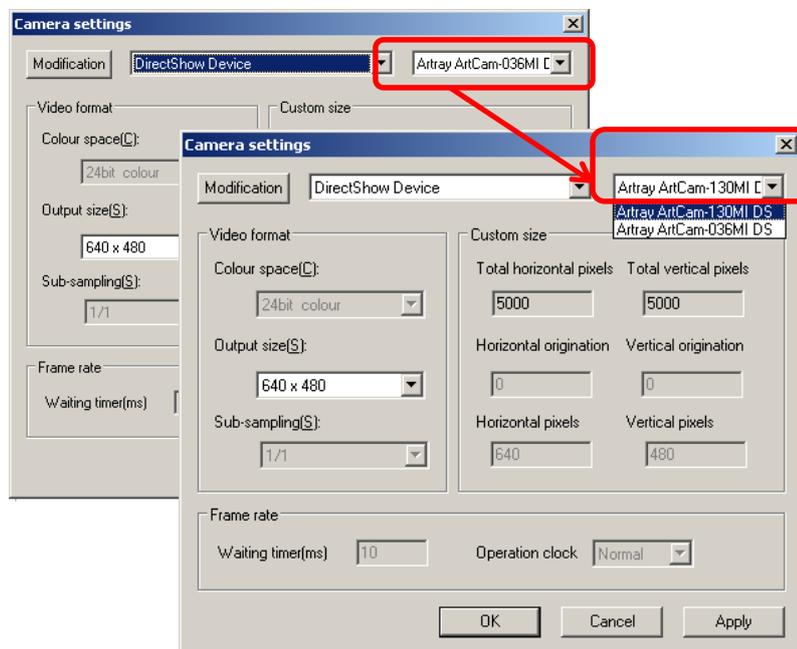


※NOTICE

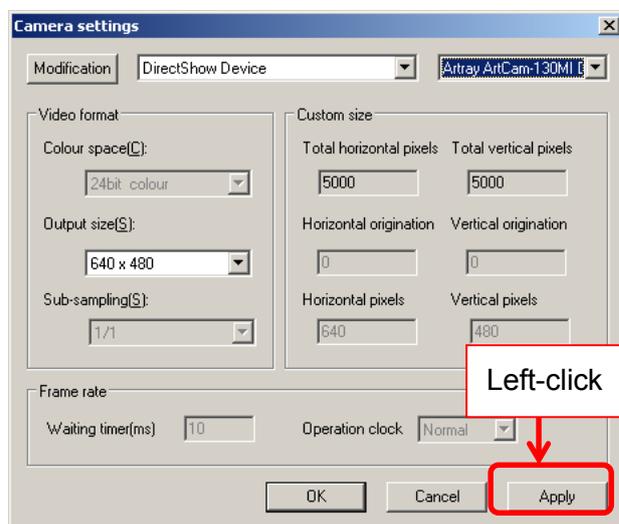
- λ Click “OK” on the “Details Settings” screen to apply changes, or click “Cancel” to cancel.
- λ Changing the settings from the “Simple Settings” is not available with the current version.

Modify the Camera for Connect

1. Choose the connected camera from the list from the “Details Settings” screen.



2. Click “Apply”



The camera is auto-detected and the captures are displayed.

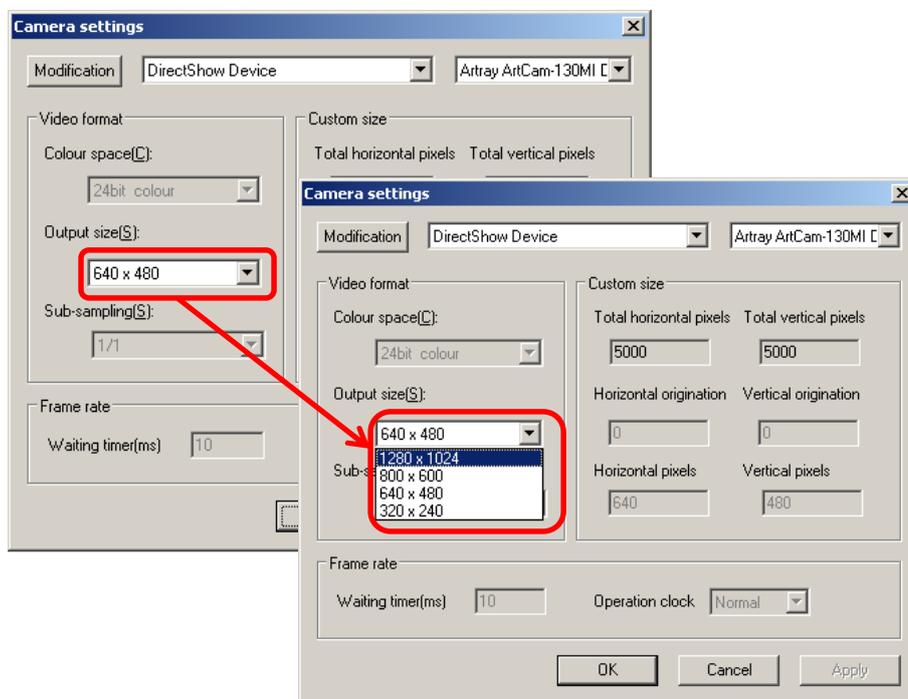
※NOTICE

To switch to Standard mode (SDK driver), please refer to [“Modify the Camera”](#) (Standard Mode version) on page 37.

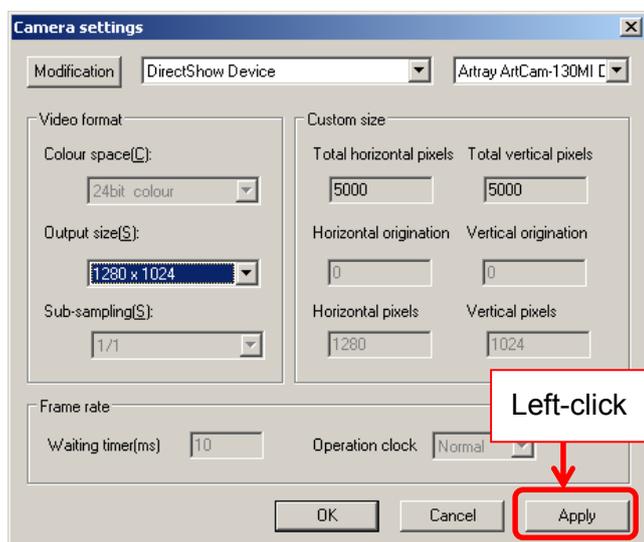
Modify the Colour Output Size

※Not available on CCD cameras.

1. On the “Details Settings” screen, select desired size from “Output size”.



4. Click “Apply” to apply the change.

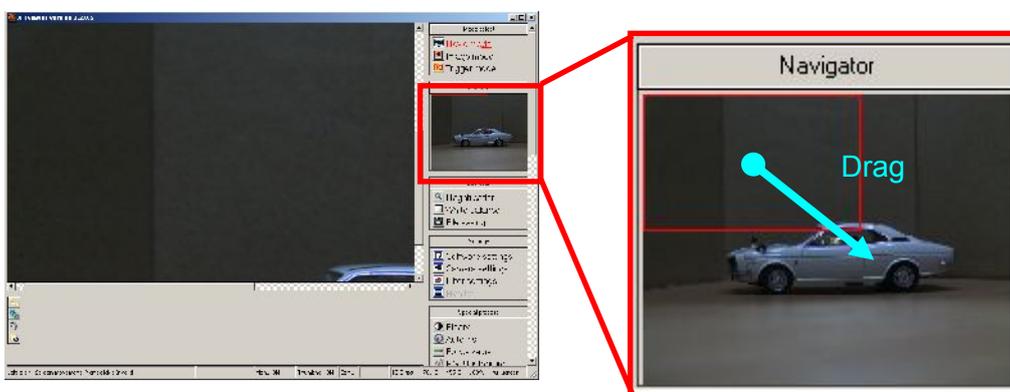


5.4. ADJUST THE DISPLAY

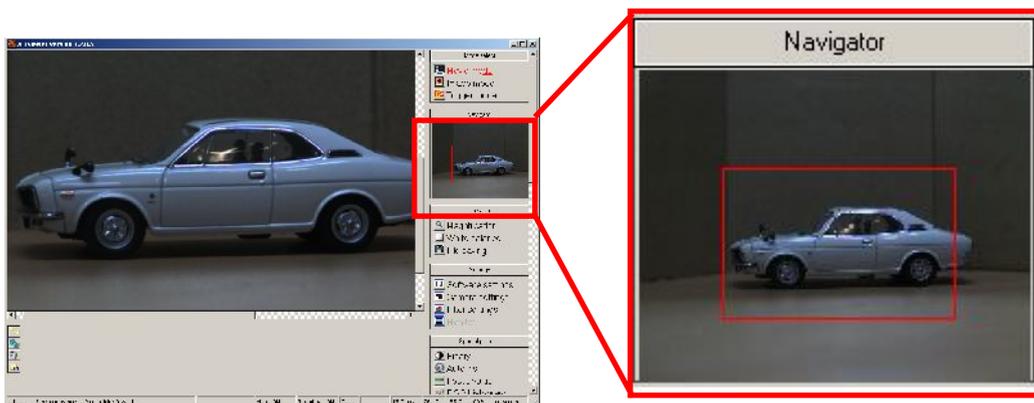
The area circumscribed by the red frame on Navigator is displayed on the Main Screen.

You can change the area by holding left mouse button and dragging/dropping the red frame.

1. On "Menu", point the mouse inside of the red frame on the Navigator screen. Hold the left mouse key and drag the red frame to where you want to show on the Main Screen.



2. Then the area is changed.



※CAUTION

Navigator doesn't show results of measurement.

5.5. ADJUST THE MAGNIFICATION

The magnification of images can be adjusted.

The possible range is from “Fit”(full screen) to 1600%.

The current magnification is displayed on the right end of the Stage Bar.

<Adjust Little by Little>

Left click on  Magnification ... from “Operation”.

The magnification is changed orderly from Fit(full screen)→50%→100%→200%→400%→800%→1600%→Fit...by every left-click.

<One Time Adjustment to Desired Magnification>

Right click on  Magnification ... from “Operation”.

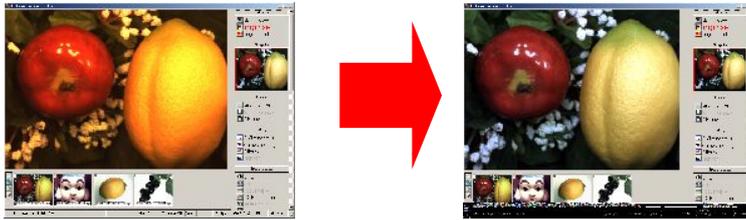
Then adjust the magnification with the slider bar.



- λ Drag the slider bar to adjust the magnification by levels.
- λ Press 「←」 or 「→」 on the keyboard to change by units of 1%.

To close the slider bar, move the mouse position out of the slider bar, or press the “Enter” or “Esc” key.

5.6. ADJUST WHITE BALANCE



※This function is not available on ARTCNV11 and DS Cameras.

<Auto White Balance>

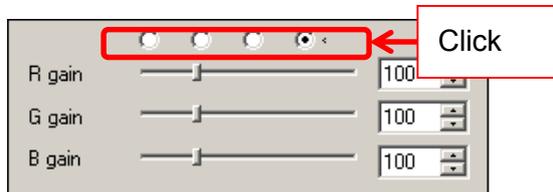
Left click on White balance from “Operation” on to adjust the White Balance automatically.

It is recommended to observe a subject that is of primary colour or evenly white.

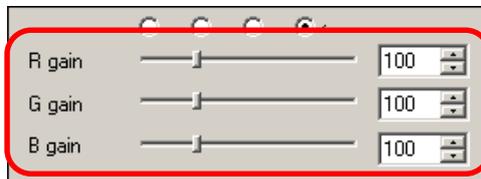
<Manually Setup>

1. Right click on White balance from “Operation” on the Menu.
2. Bayer Pattern and Bayer Gain can be adjusted from the Simple Settings screen.

λ To adjust the Bayer Pattern, click the radio button.



λ To adjust the Bayer Gain, move the slider bars of “R gain”, “G gain” or “B gain”, or type a value into the edit box at the right side.



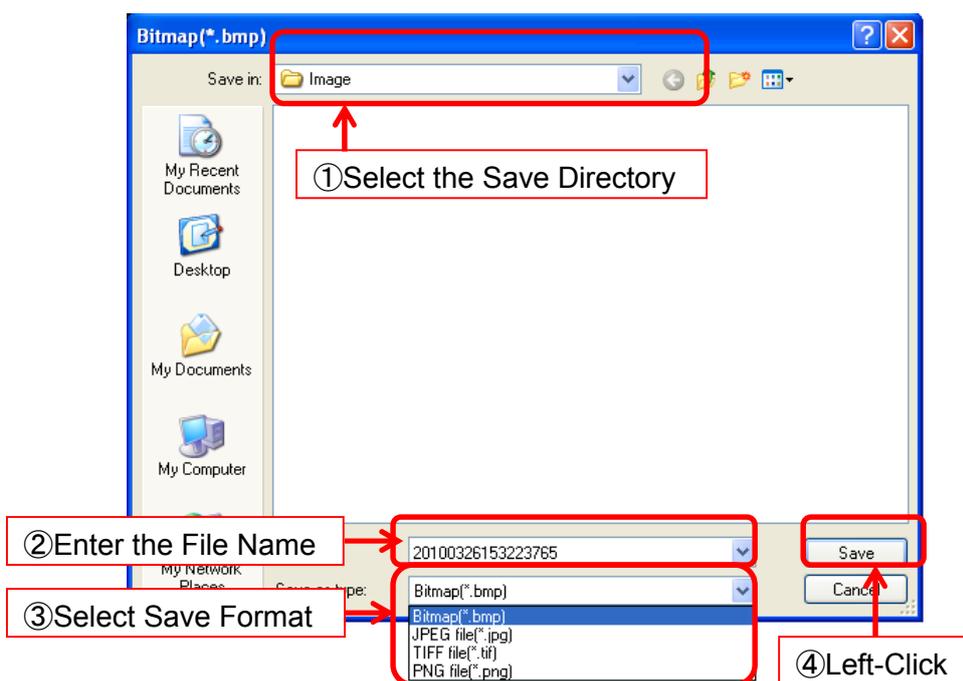
※Related information

- λ Bayer Pattern and Bayer Gain can also be adjusted from “Filter Settings”
- λ For the details, please refer to [“Filter Settings”](#) on page133.

5.7. SAVE

To save the current image, please follow the instructions below.

1. Left click on  File saving from “Operation” on the Menu.
2. Specify the file name, location and format on the file save dialog box. Then left click “Save”.



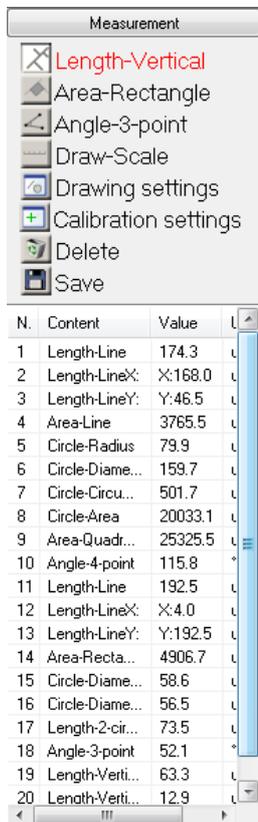
※If “Generate a file name automatically when saving” from “File Saving” has been selected, the file save dialog box may not pop up.

※For the details, please refer to [“Generate the file name automatically”](#) on page 115.

6. MEASUREMENT

You can do variety of measurement and drawing with ART-MEASURE.

The results of measurement will show up on the list in “Measurement”.



N.	Content	Value	U
1	Length-Line	174.3	u
2	Length-LineX:	X:168.0	u
3	Length-LineY:	Y:46.5	u
4	Area-Line	3765.5	u
5	Circle-Radius	79.9	u
6	Circle-Diame...	159.7	u
7	Circle-Circu...	501.7	u
8	Circle-Area	20033.1	u
9	Area-Quadr...	25325.5	u
10	Angle-4-point	115.8	°
11	Length-Line	192.5	u
12	Length-LineX:	X:4.0	u
13	Length-LineY:	Y:192.5	u
14	Area-Recta...	4906.7	u
15	Circle-Diame...	58.6	u
16	Circle-Diame...	56.5	u
17	Length-2-cir...	73.5	u
18	Angle-3-point	52.1	°
19	Length-Verti...	63.3	u
20	Length-Verti...	12.9	u

Scroll down to see more if you have a lot of results.

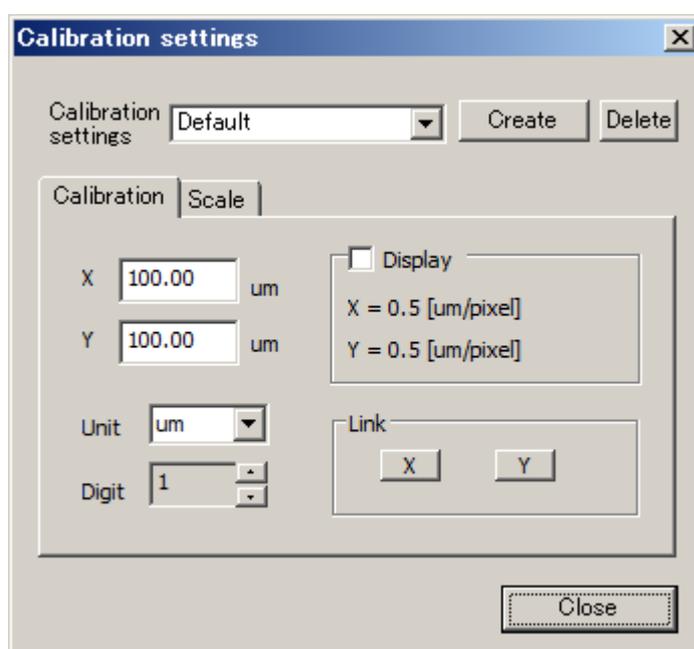
6.1. CALIBRATION SETTINGS

Besides calibration setting, you can name and save or delete them.

Before measuring objects, make sure setting calibration.

Following directions show you how to set calibration

1. Left-click on  Calibration settings from "Measurement" on "Menu".
2. Calibration setting Dialog shows up on screen.

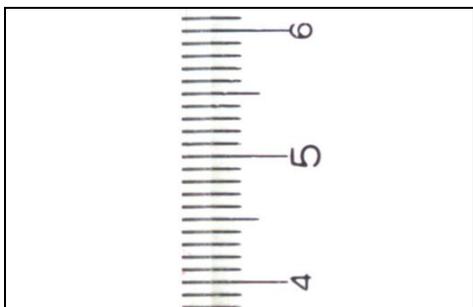


Set details of calibrated value.

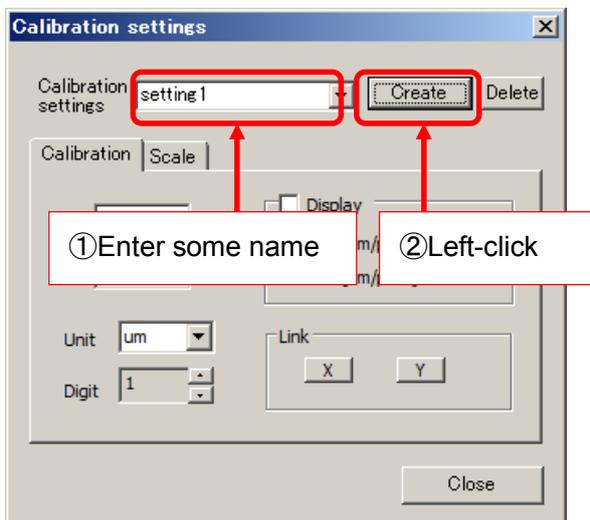
Left-click on "close" when you want to close it

Calibration settings

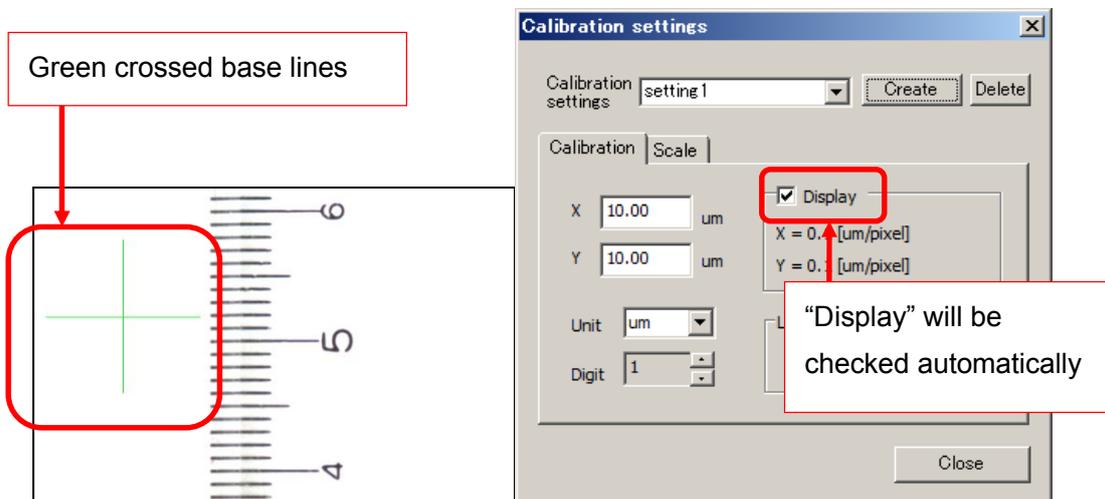
1. Show some object on the screen which you can tell actual measurement value.



2. Enter some name on "Calibration Settings" and left-click on "Create"

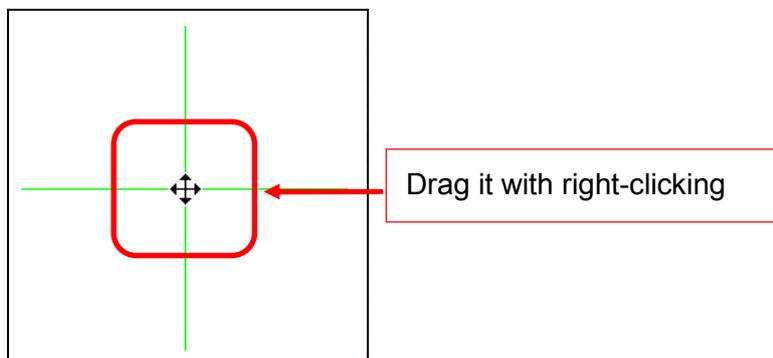


Left-click on "Create" and then the green crossed base lines will be displayed on the screen automatically.

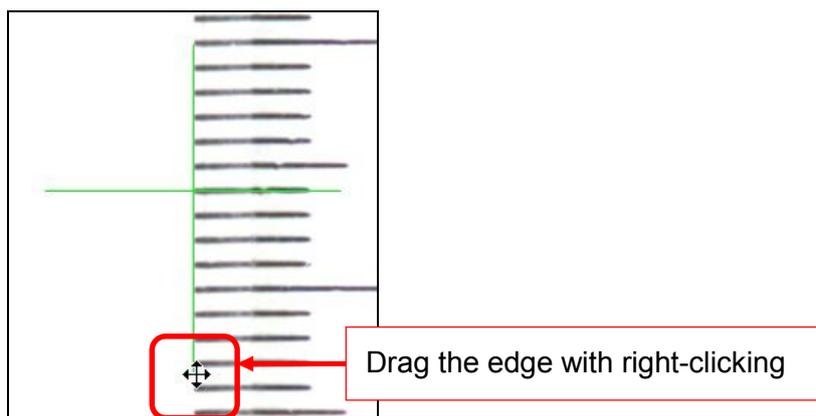


3. Move the base lines on actual measurement value and then fit the size of base lines to actual measurement value.

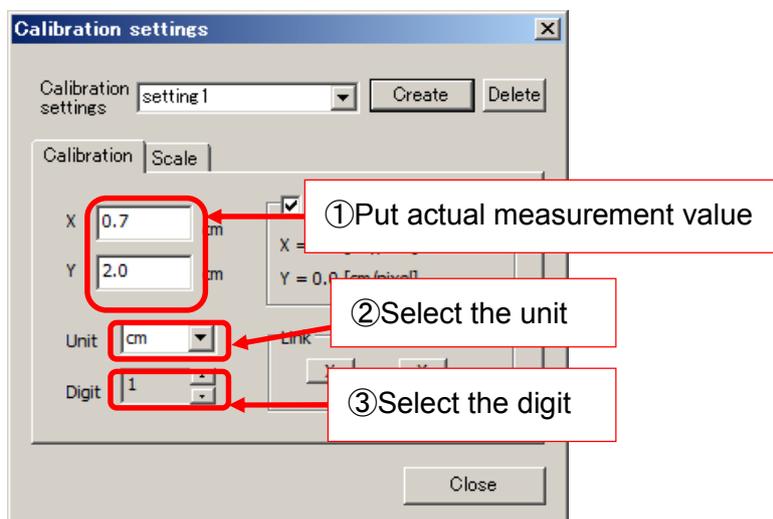
To move base lines, put the cursor on the intersection and it will be crossed arrows and then drag it with right-clicking



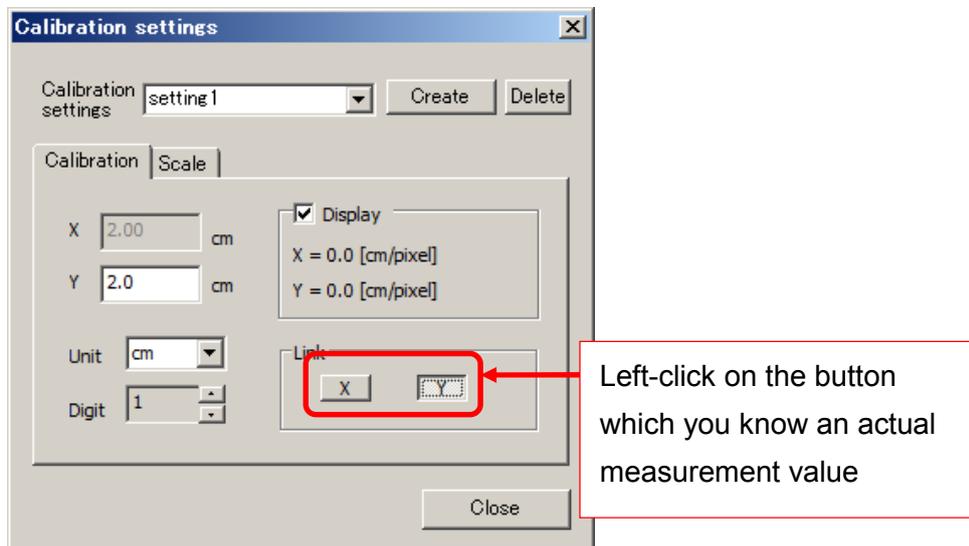
To resize the base lines, put the cursor on the edge of the base lines which you want to move and with the crossed arrow cursor, drag it with right-clicking



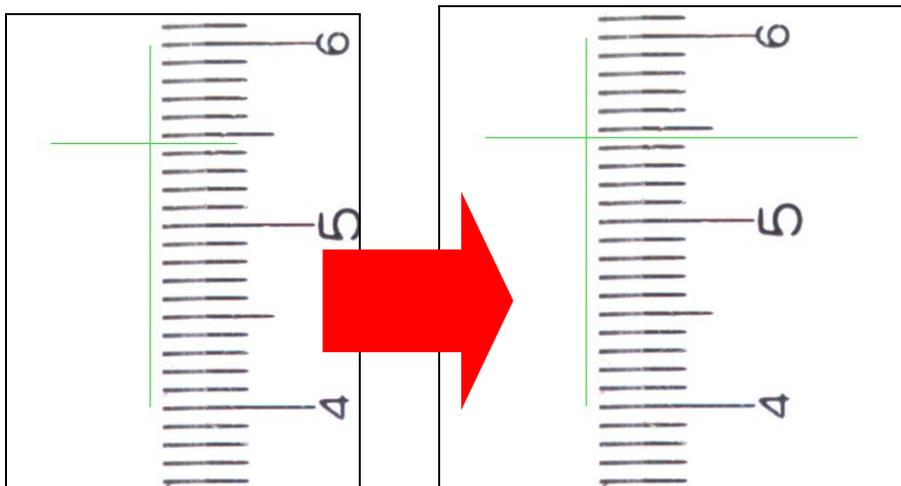
4. Enter actual measurement value on "X" and "Y" and select "Unit" and "Digit".



5. If you know just one actual measurement value of X and Y, enter it and left-click on the X or Y button which you know in the “Link” box



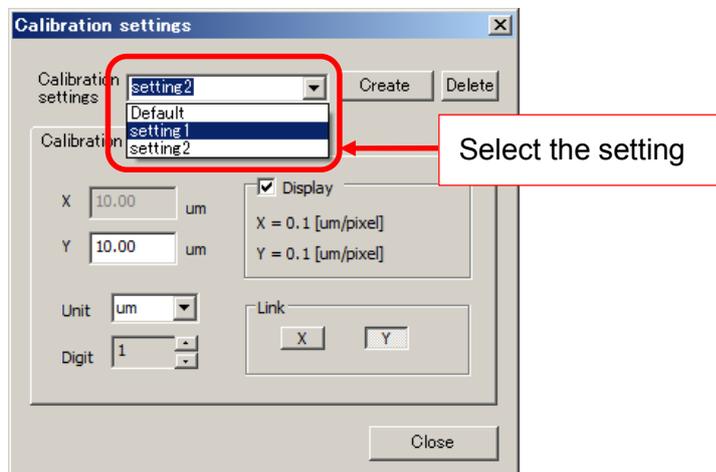
Actual measurement value you don't know will be resized automatically by the connection with the other one.



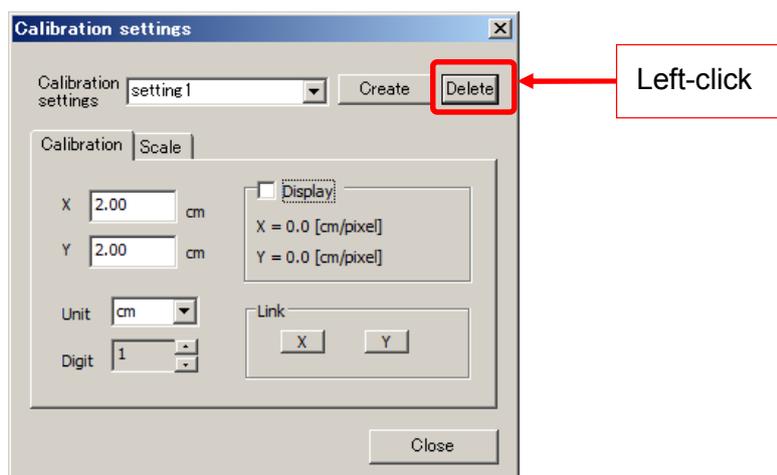
That is all process of calibration setting

Delete calibration setting

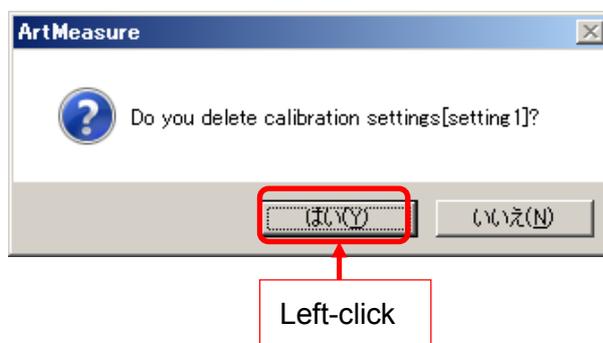
1. Select the setting name from pull down box of "Calibration settings".



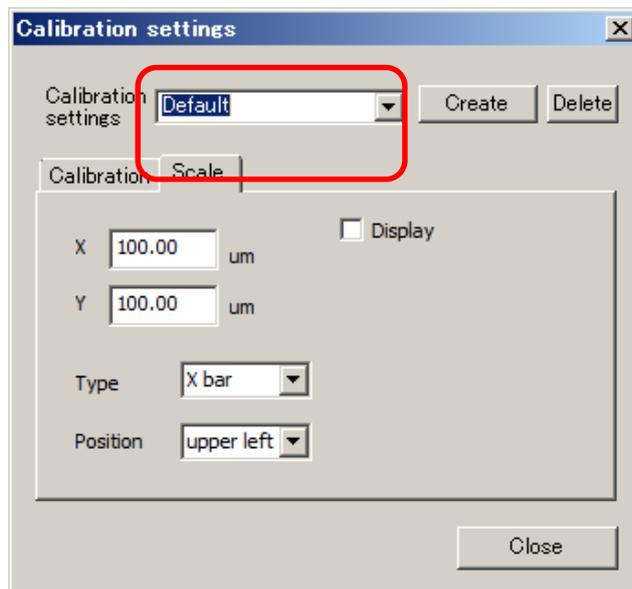
2. Left-click on "Delete"



3. Left-click on "Yes" on the window.



4. The calibration setting has been deleted.

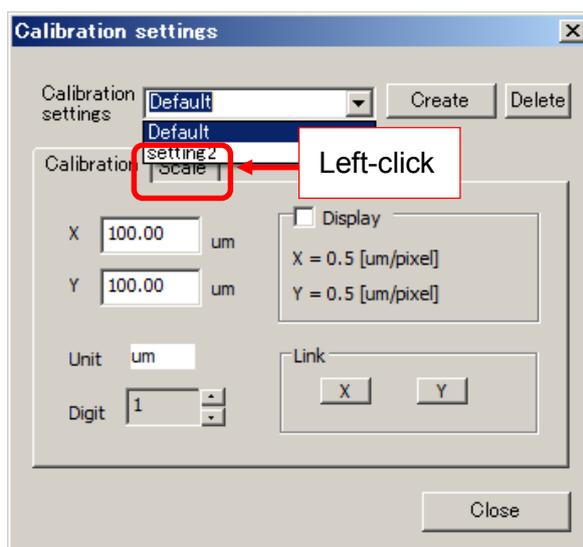


6.2. SCALE SETTING

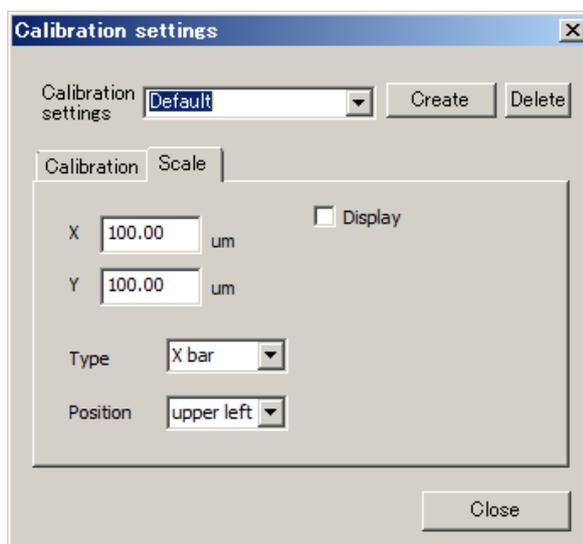
You can set scale from “Scale tab”.

Check below and find how to open “Scale tab”.

1. Left-click on  Calibration settings on “Measurement” from the Menu.
2. Left-click on “Scale tab” on “Calibration settings”



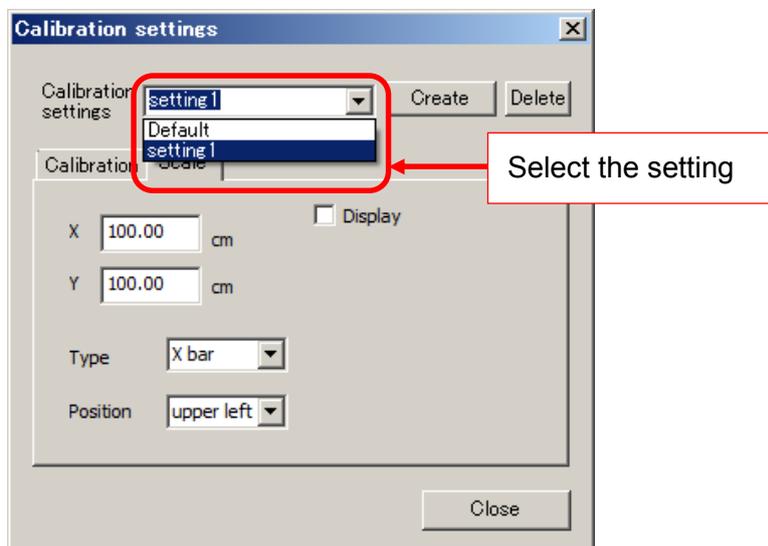
3. Scale settings field has shown up.



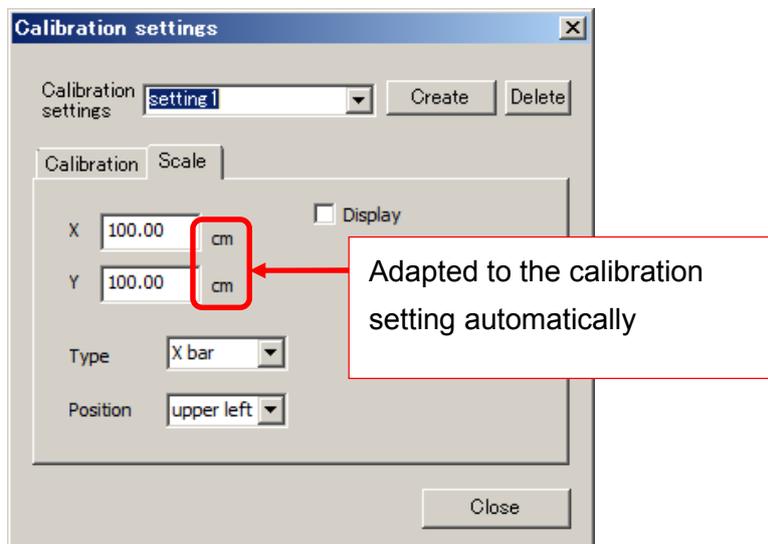
To close the window, left-click on the “Close” button.

Scale Settings

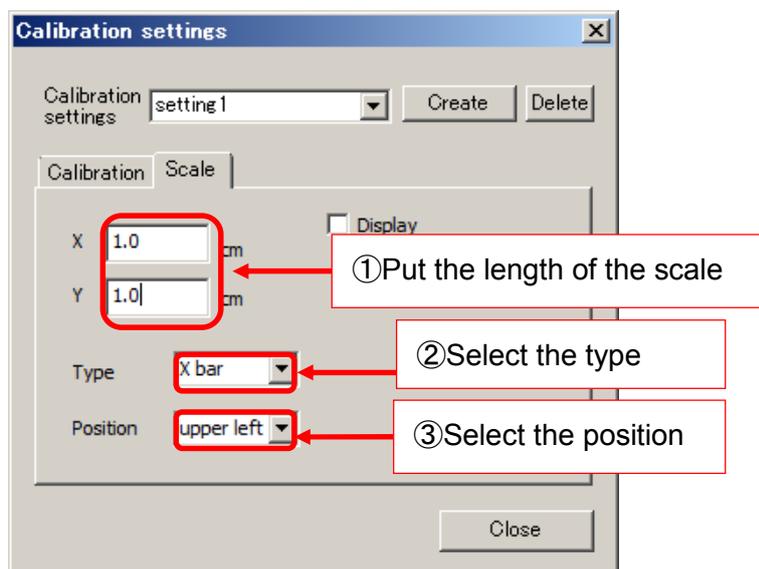
1. Select the calibration setting which you want to adapt to scale from the top box.



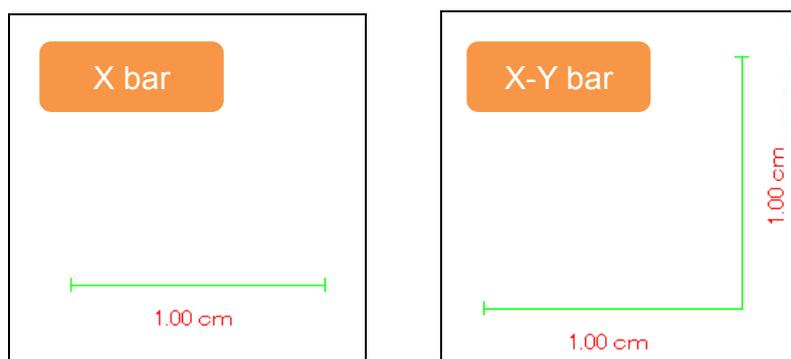
Unit of X and Y will be adapted to the calibration setting automatically.



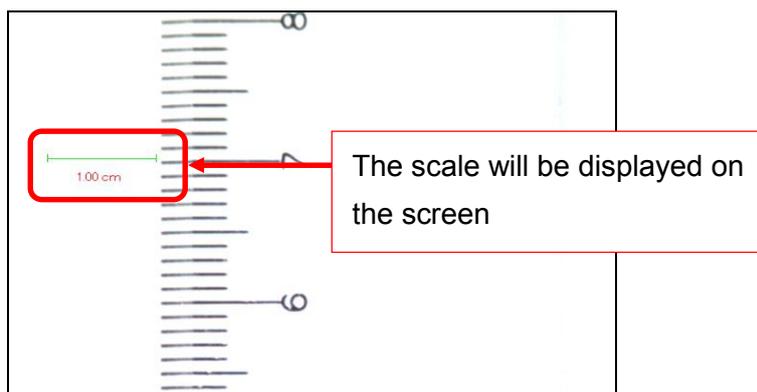
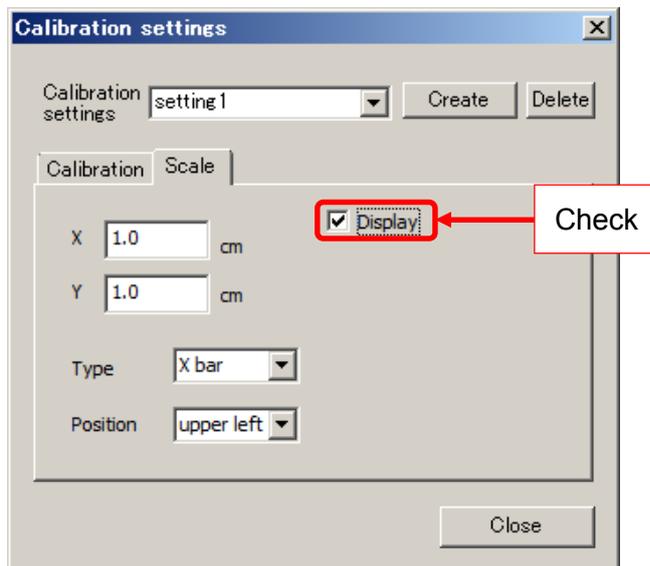
2. Put the length of the scale on X and Y and select “Type” and “Position”



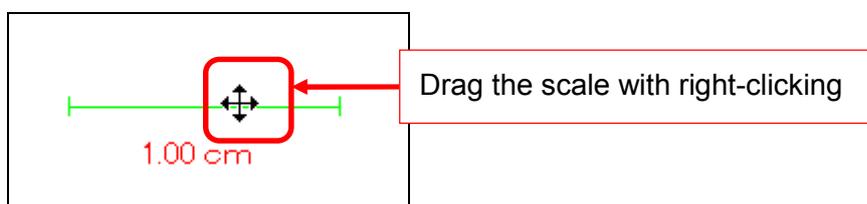
Select “X bar” or “X-Y bar” for “Type”



3. Check the box of "Display" and the scale will be displayed on the screen.

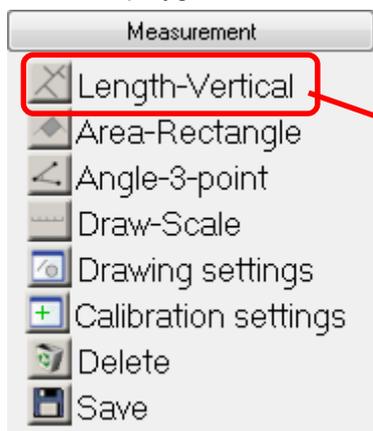


To move the scale, put a cursor on it and the cursor will be crossed arrows and then drag it with right-clicking



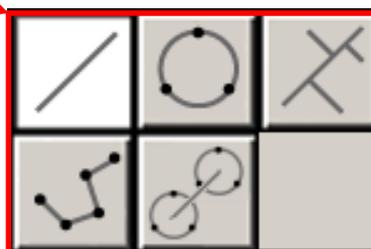
6.3. MEASURING LENGTH

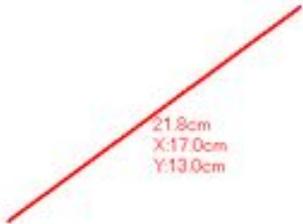
You can measure distance between two points, circumference and diameter, distance from line, polygonal lines and between two circles.



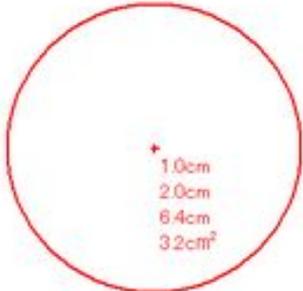
Right-click

Length Measurement Menu

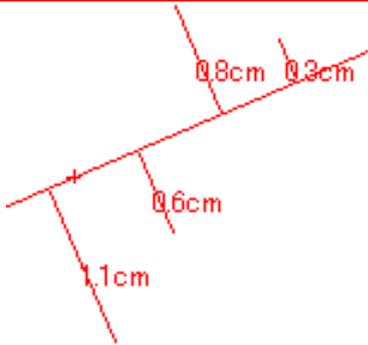




Distance between two points



Circumference and Diameter

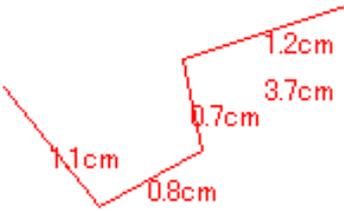


Distance from line

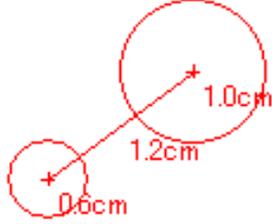






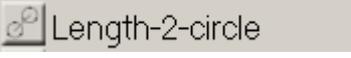


Length of Polygonal lines



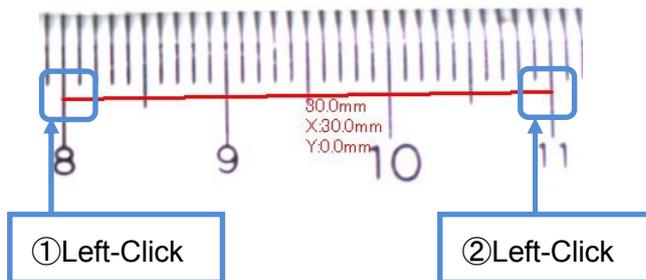
Distance between two circles





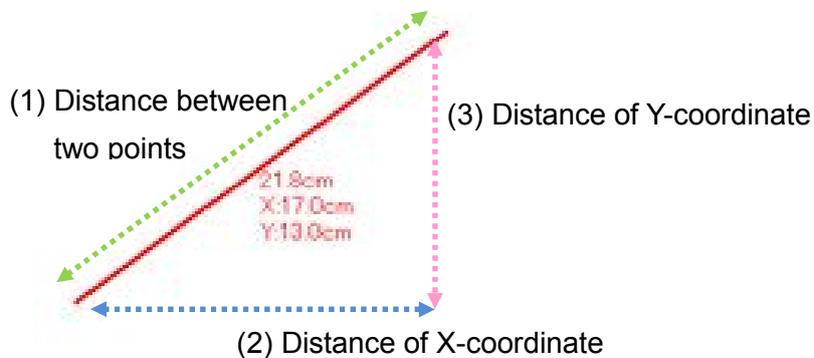
Measuring Distance between two points

1. Right-click on  on "Measurement" From Menu.
2. Left-click on  from "Length Measurement Menu".
3. Left-click on an initial point and terminal point each once.

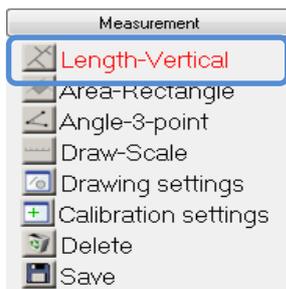


The results of the measurement are tree kinds of distance.

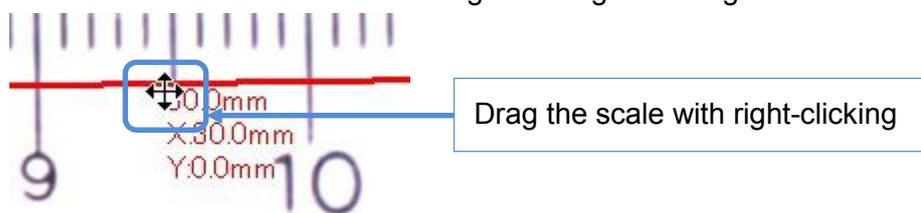
- (1) Distance between two points
- (2) Distance of X-coordinate
- (3) Distance of Y-coordinate



You can keep measuring while letters on the Menu are red.

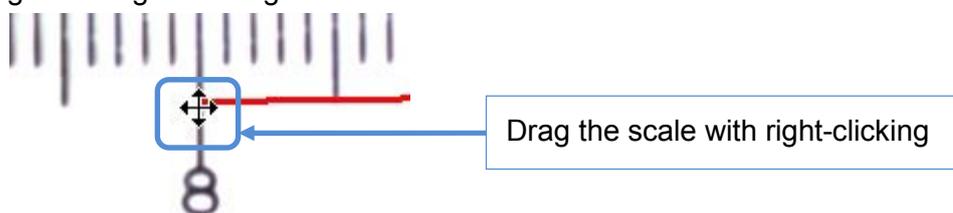


4. If you want to move the value of result, put a cursor on top left of them and the cursor will be crossed arrows and then drag it with right-clicking



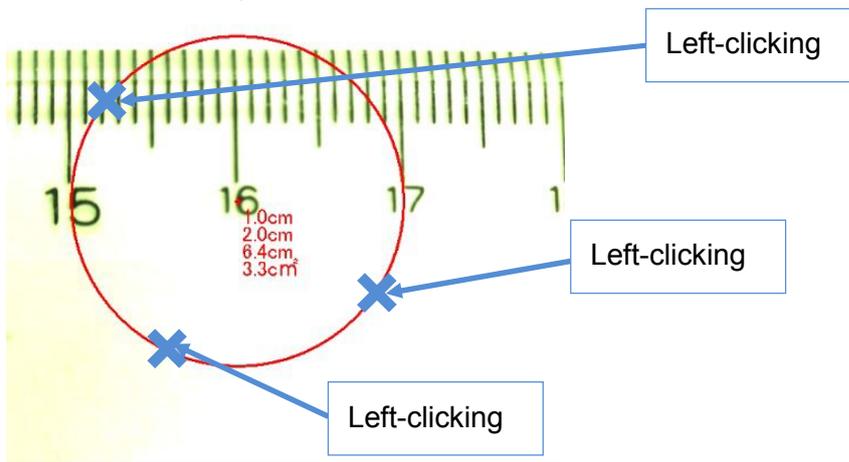
5. If you want to measure it again, move the point and replace it.

To move the point, put the cursor on it and the cursor will be crossed arrows and then drag it with right-clicking



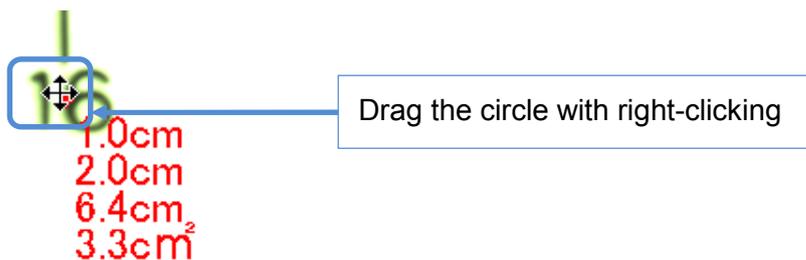
Measuring circumference & a diameter

1. Right-click on  on "Measurement" from the Menu.
2. Left-click on  from "Length Measurement Menu".
3. Left-click on any three points on the circumference

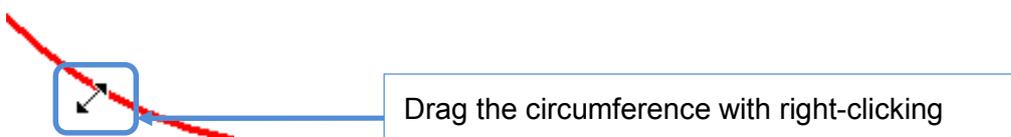


Results of measurement show the circumference, the radius, the diameter, and the area from the top.

4. To move a circle, put a cursor on the center of the circle and the cursor will be crossed arrows and then drag it with right-clicking



5. To measure circumference again, put a cursor on it and the cursor will be crossed arrows and then drag it with right-clicking to move it.

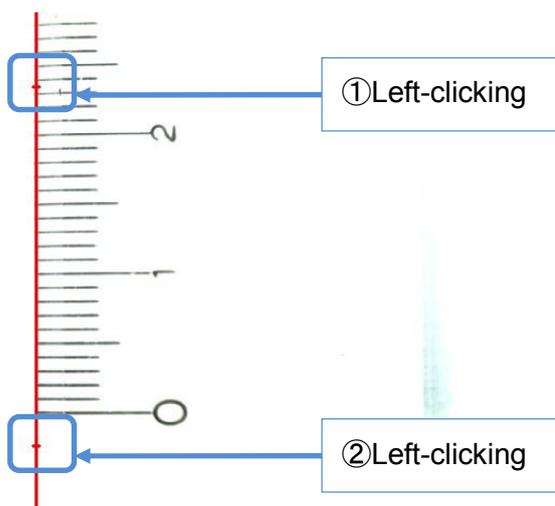


Measuring Distance from line

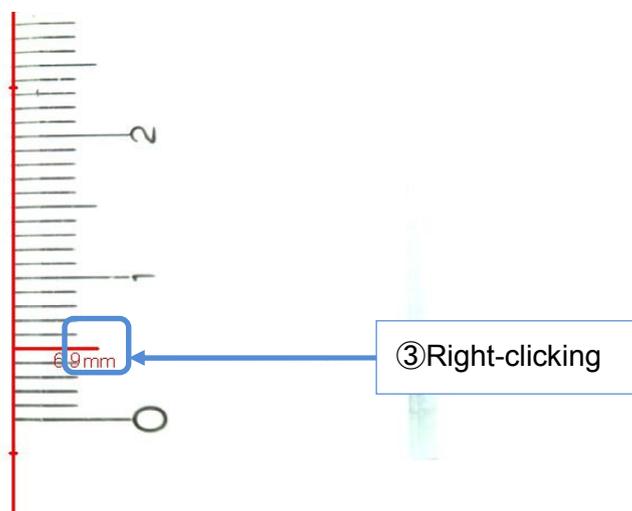
1. Right-click on  on "Measurement" From Menu.

2. Left-click on  from "Length Measurement Menu".

3. Left-click on any two points of the line.

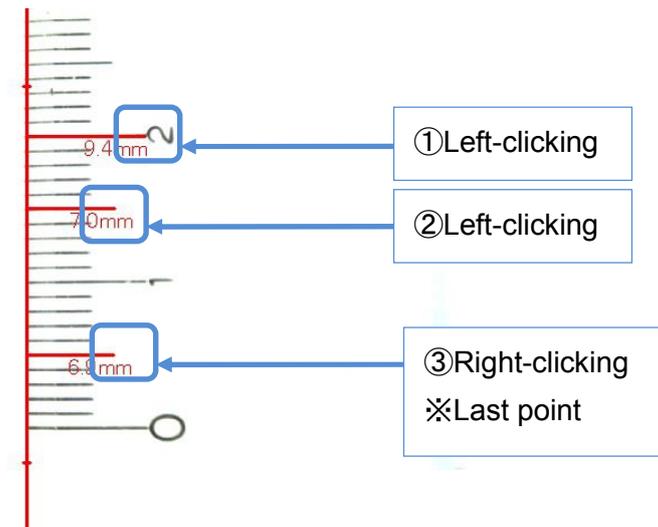


4. Then right-click on the point where you want to measure the distance from the line.



5. If you have some points you want to measure distances from the line, left-click on those points and right-click on the last point.

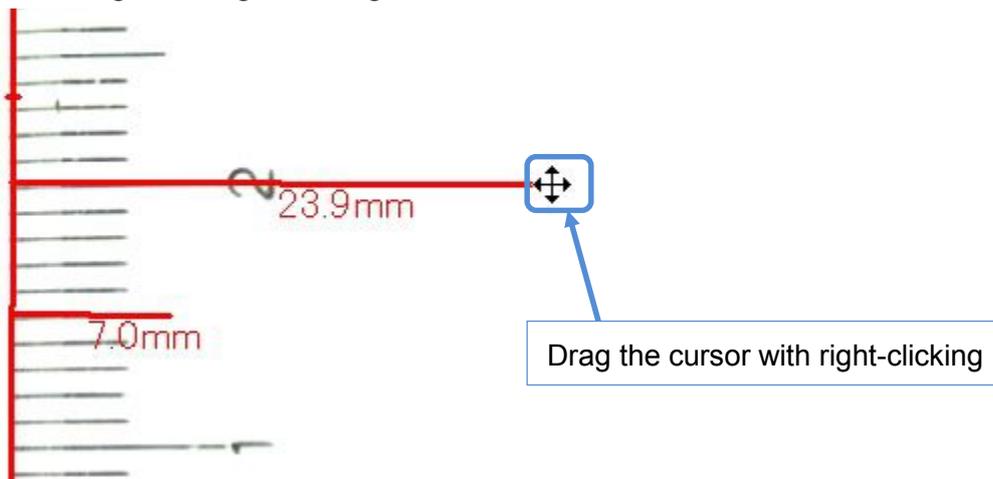
↓ When you want to measure distances between three points and the line...



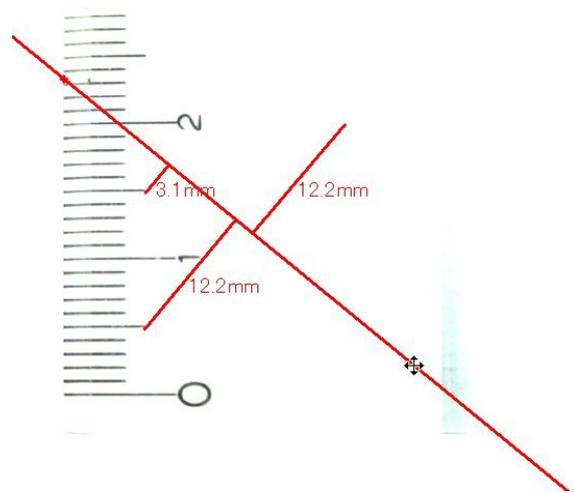
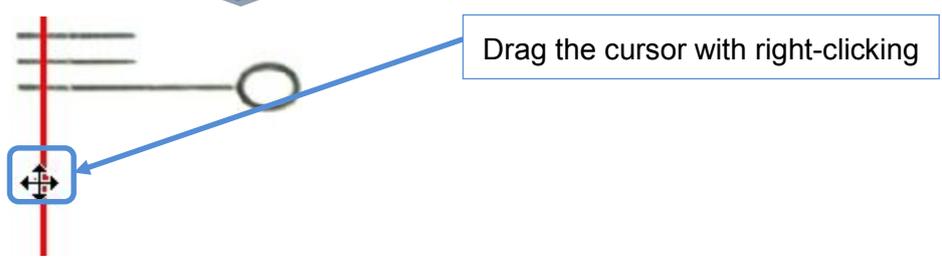
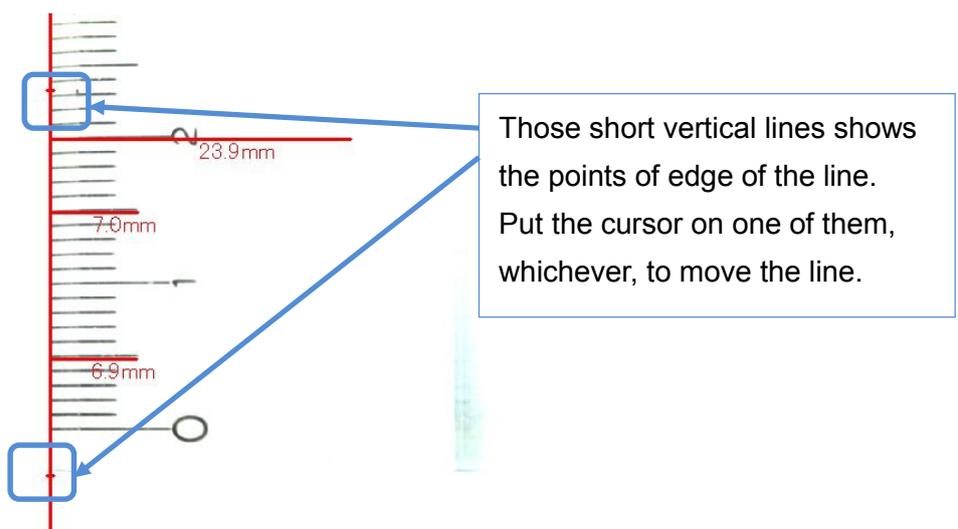
6. To move the Value of the result, put a cursor on the point and a cursor will be crossed arrows and then drag it with right-clicking



7. To move the measuring point, put a cursor on it and cursor will be crossed arrows and then drag it with right-clicking

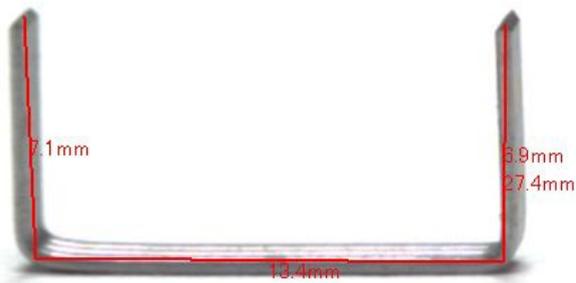


8. To move the line, put a cursor on one edge of the line, whichever, and the cursor will be crossed arrows and then drag it with right-clicking

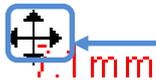


Measuring length of Polygonal lines

1. Right-click on  Length-Line on "Measurement" From Menu.
2. Left-click on  from "Length Measurement Menu".
3. Left-click on those points make up polygonal line.



4. To move the Value of the result, put the cursor on the point and the cursor will be crossed arrows and then drag it with right-clicking

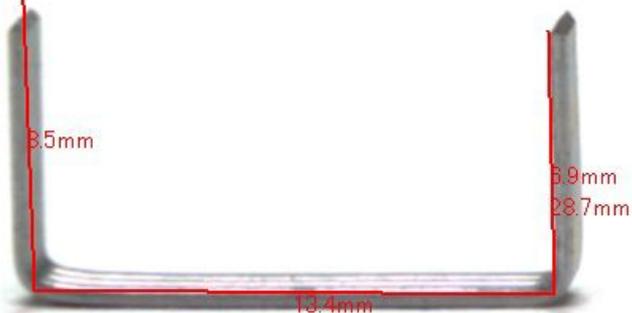


Drag the cursor with right-clicking

5. To measure the length again, put the cursor on the point you want to move and the cursor will be crossed arrows, and then drag it with right-clicking

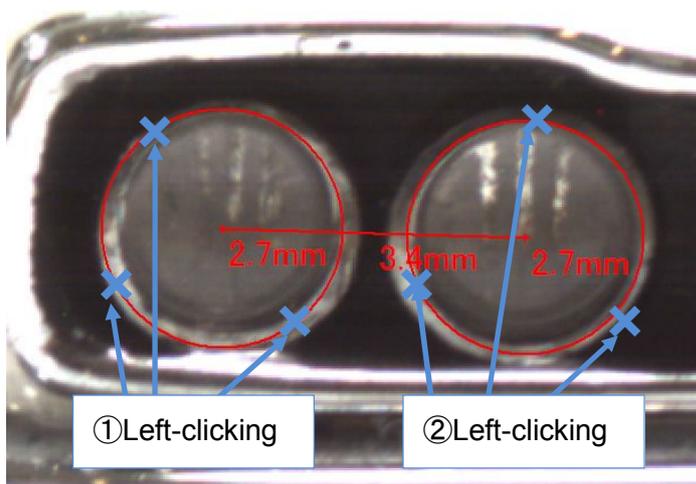


Drag the cursor with right-clicking

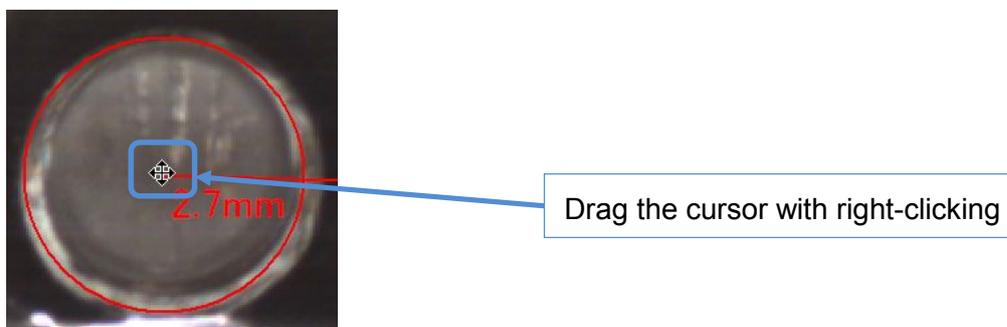


Measuring distance between two circles

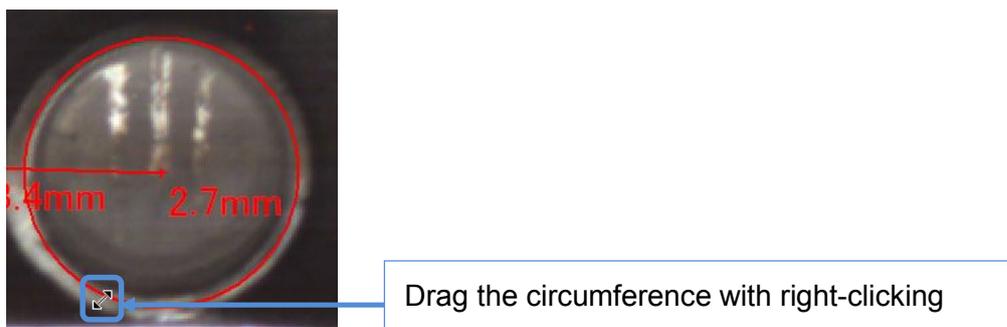
1. Right-click on  Length-Line on "Measurement" From Menu.
2. Left-click on  from "Length Measurement Menu".
3. Left-click on each three points on two circumferences.



4. To move circles, put the cursor on the center of the circle and the cursor will be crossed arrows and then drag it with right-clicking



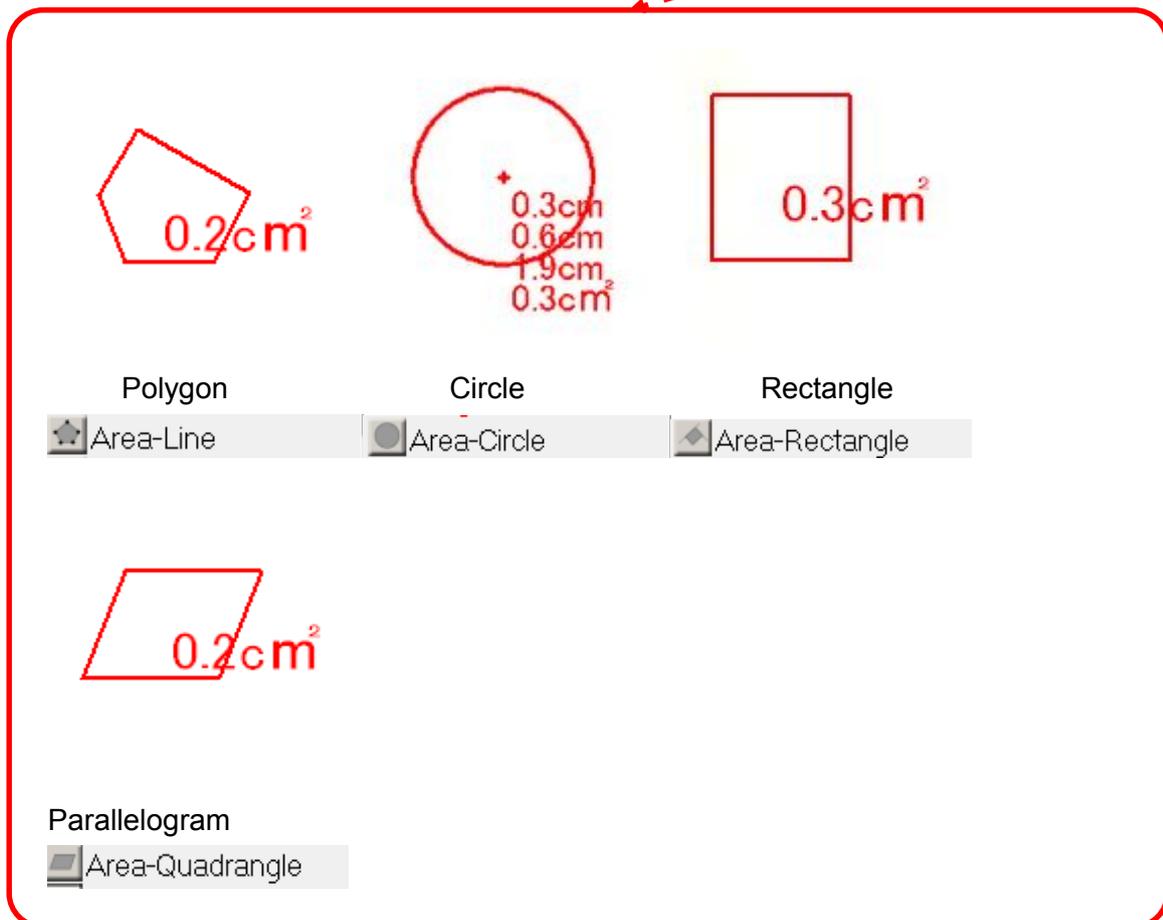
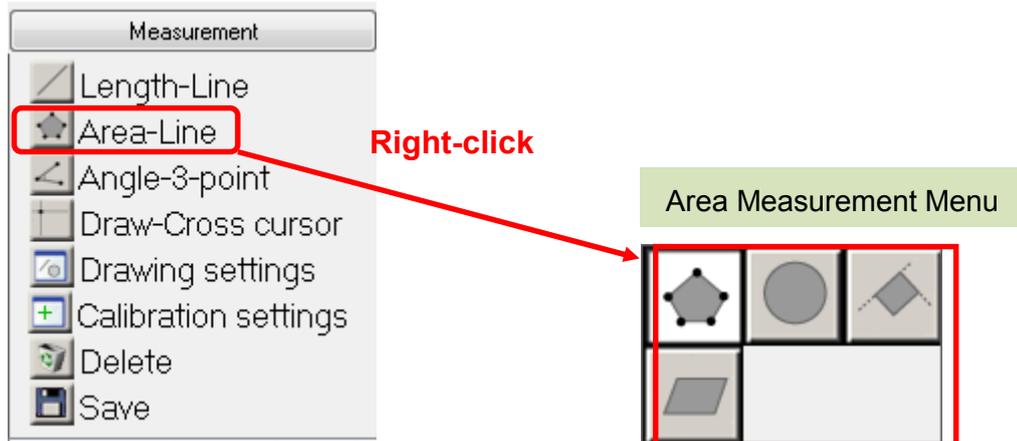
5. To measure circumference again, put a cursor on it and the cursor will be crossed arrows and then drag it with right-clicking



6.4. MEASURING AREA

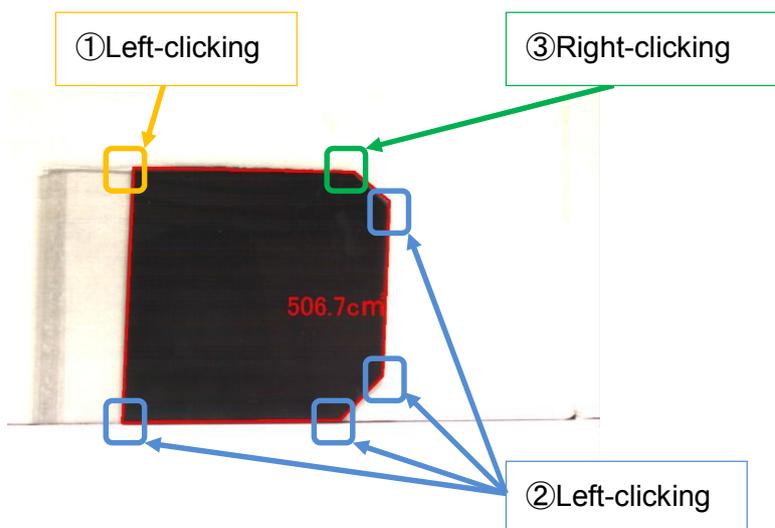
You can Measure area of Polygon, Circle, Rectangle, Parallelogram.

When you right-click on Area-Line on the Measurement Menu, Area Measurement Menu will show up.

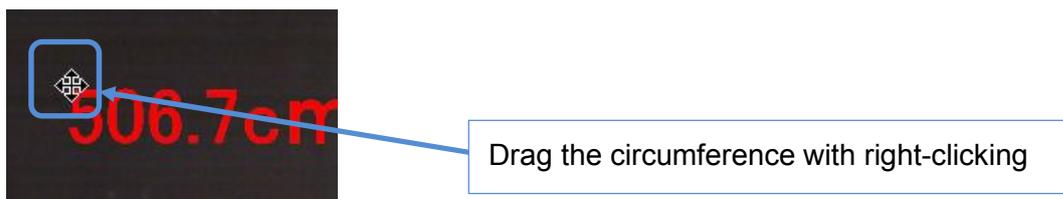


Measuring Area of Polygon

1. Right-click on  Area-Line on "Measurement" from the Menu.
2. Right-click on  from "Area Measurement Menu"
3. Left-click on each vertex on the polygon.



4. To move the value of calculation, put the cursor on the top-left of it and the cursor will be crossed arrows and then drag it with right-clicking

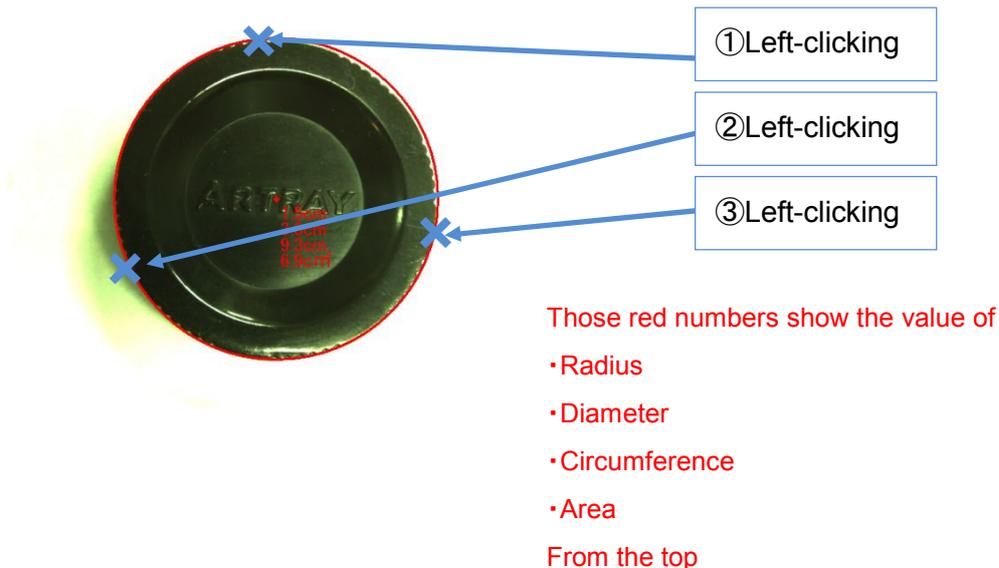


5. To measure the polygon again, put a cursor on vertex and the cursor will be crossed arrows and then drag it with right-clicking and move it.

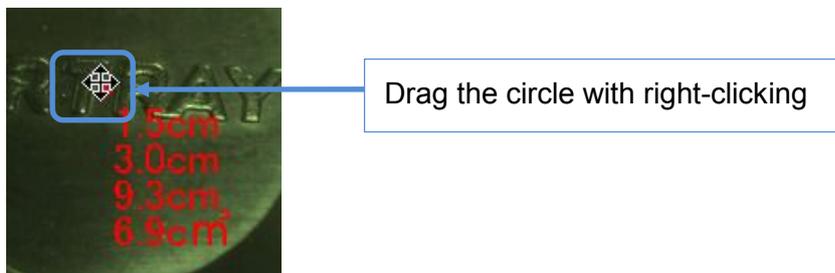


Measuring Area of Circle

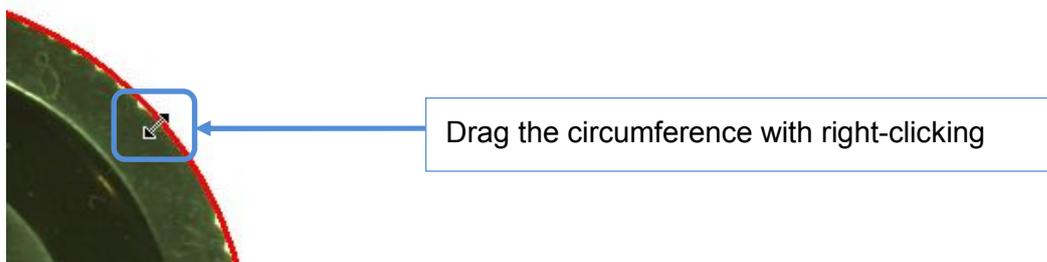
1. Right-click on  Area-Line on "Measurement" from the Menu.
2. Right-click on  from "Area Measurement Menu"
3. Left-click on some three points on the circumference



4. To move a circle, put a cursor on the center of the circle and the cursor will be crossed arrows and then drag it with right-clicking



5. To measure circumference again, put a cursor on it and the cursor will be crossed arrows and then drag it with right-clicking to move it.

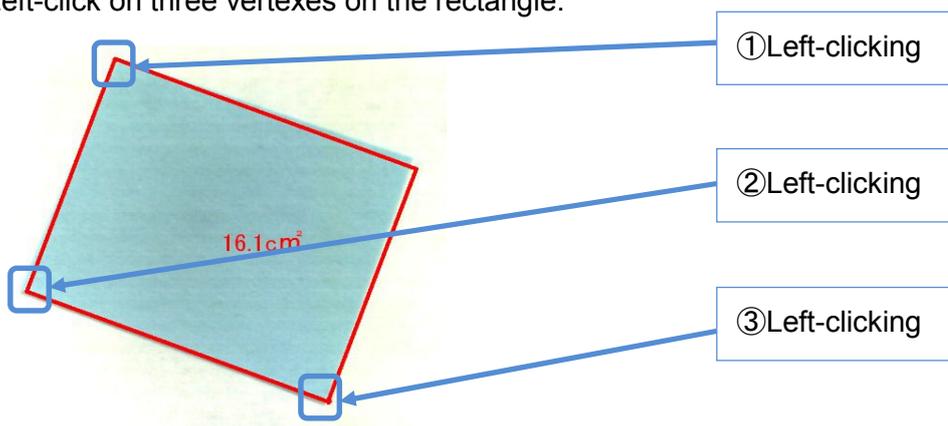


Measuring Area of Rectangle

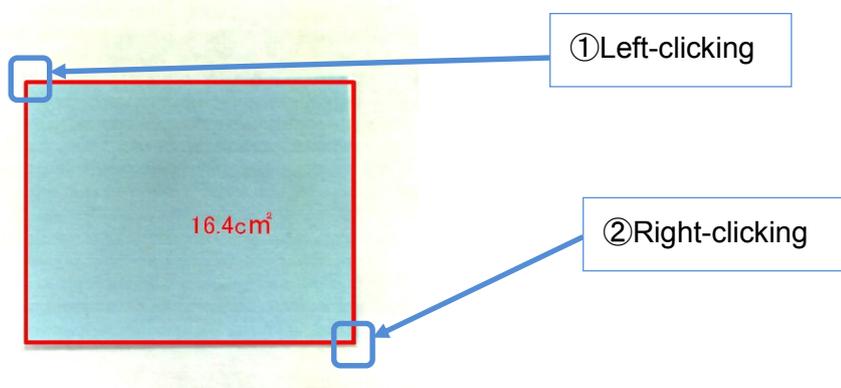
1. Right-click on  Area-Line on "Measurement" from the Menu.

2. Right-click on  from "Area Measurement Menu"

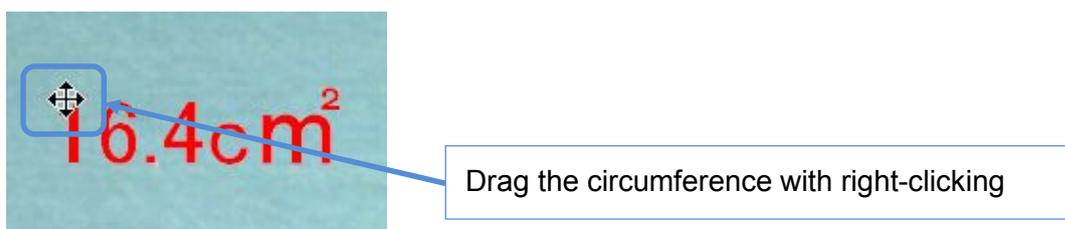
3. Left-click on three vertexes on the rectangle.



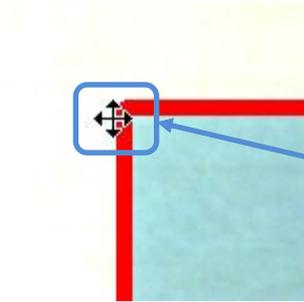
4. When the rectangle is parallel to the X and Y axis, left-click on the vertex on the top left and right-click on the vertex on the bottom right.



5. To move the value of calculation, put the cursor on the top-left of it and the cursor will be crossed arrows and then drag it with right-clicking



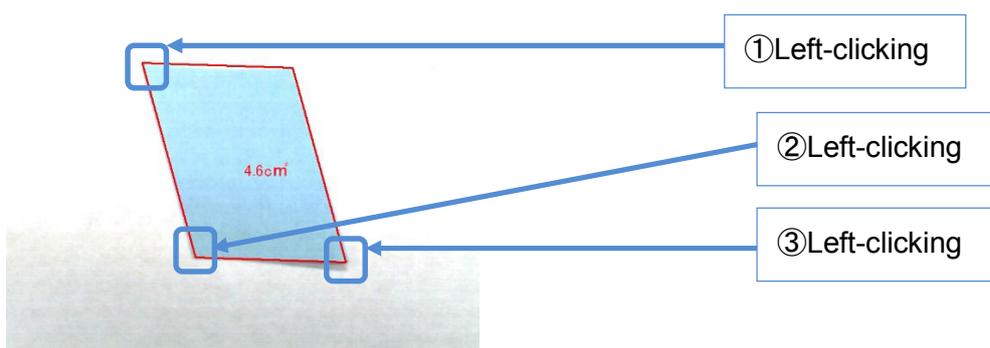
6. To measure the rectangle again, put a cursor on vertex and the cursor will be crossed arrows and then drag it with right-clicking and move it.



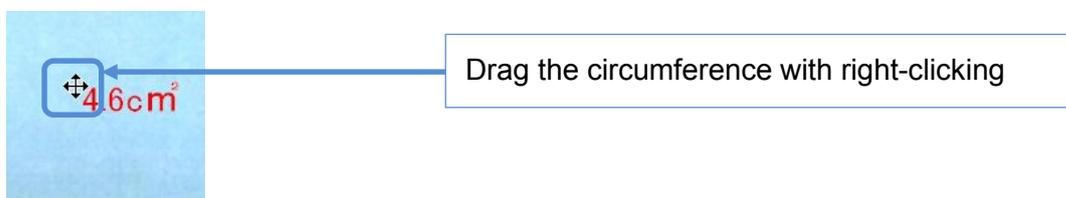
Drag the circumference with right-clicking

Measuring Area of Parallelogram

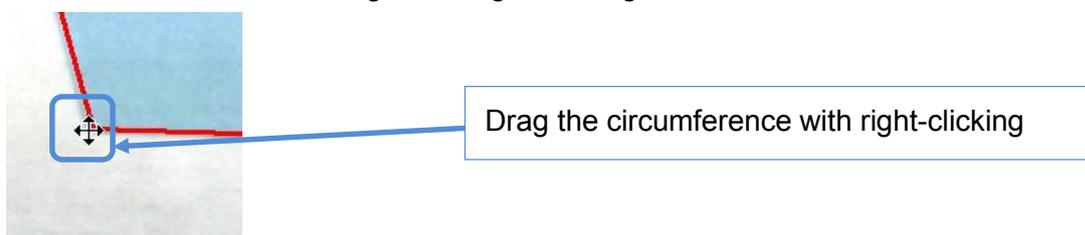
1. Right-click on  Area-Line on "Measurement" from the Menu.
2. Right-click on  from "Area Measurement Menu"
3. Left-click on three vertices on the parallelogram.



4. To move the value of calculation, put the cursor on the top-left of it and the cursor will be crossed arrows and then drag it with right-clicking

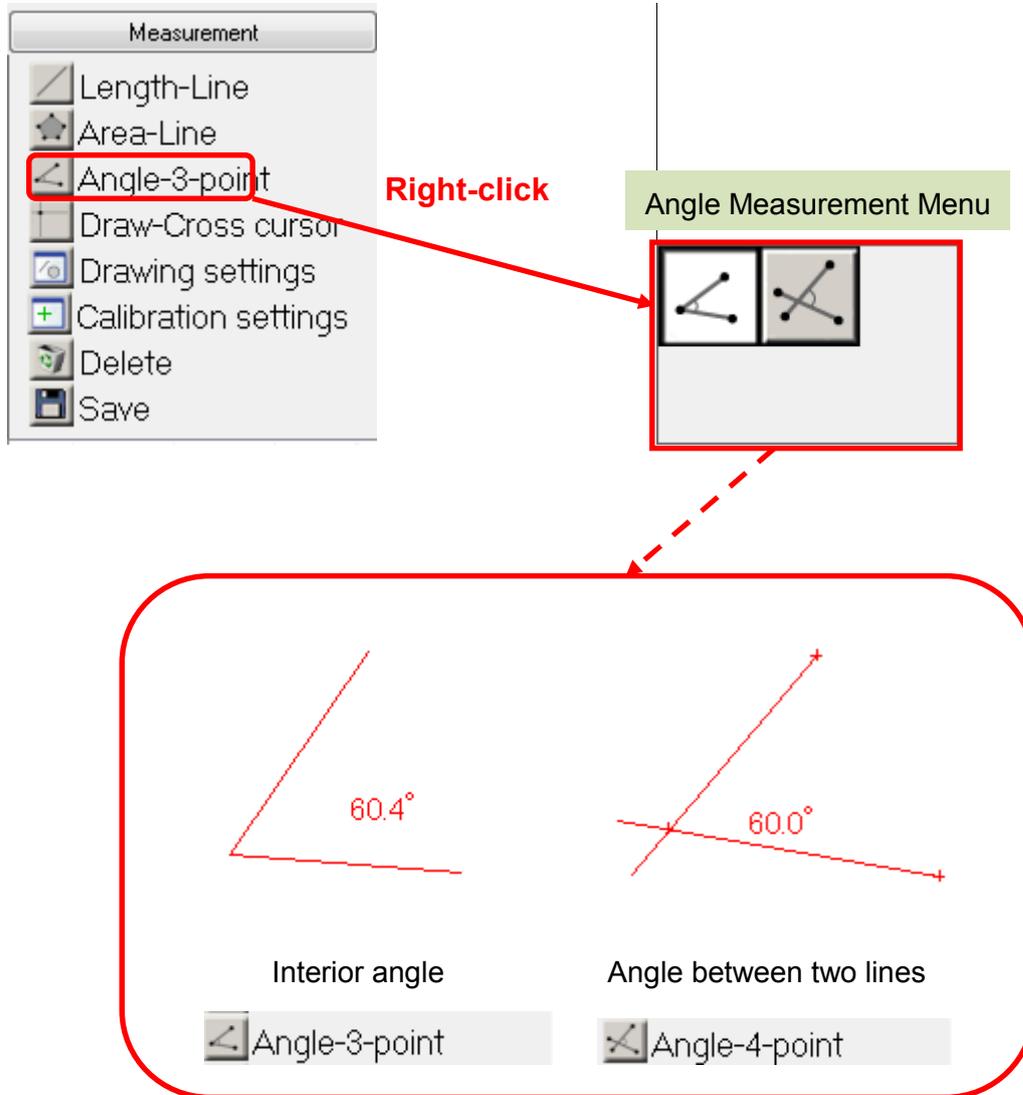


5. To measure the parallelogram again, put a cursor on vertex and the cursor will be crossed arrows and then drag it with right-clicking and move it.



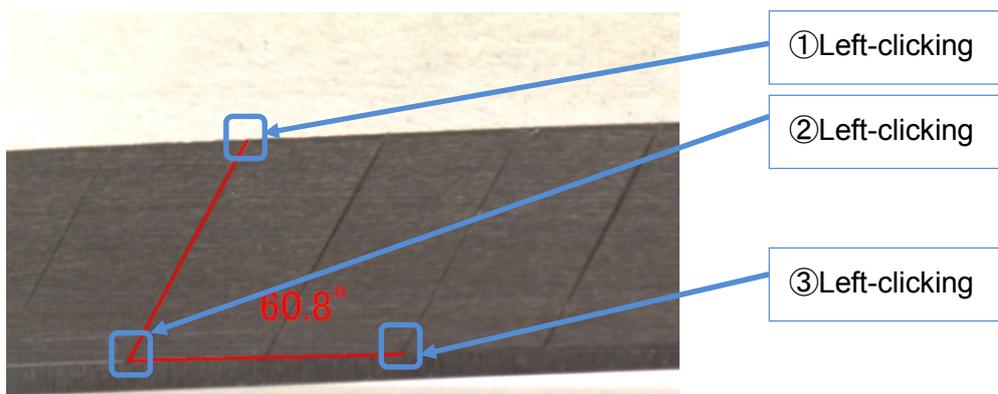
6.5. MEASURING ANGLE

You can measure interior angles and angles between two lines

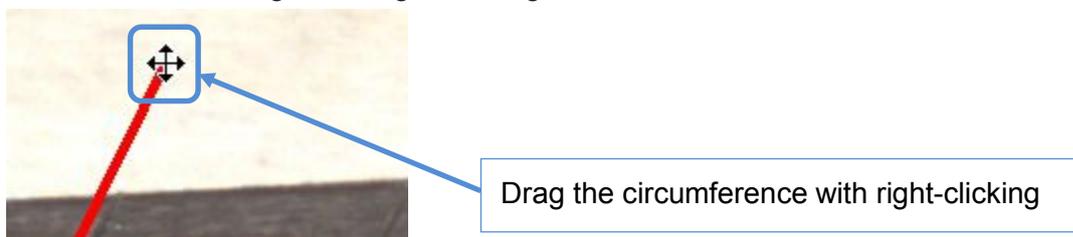


Measuring Interior lines

1. Right-click on  Angle- on "Measurement" from the Menu.
2. Left-click on  from "Angle Measurement Menu"
3. Left-click on three points making the angle in order.



4. To measure the angle again, put a cursor on the point and the cursor will be crossed arrows and then drag it with right-clicking and move it.

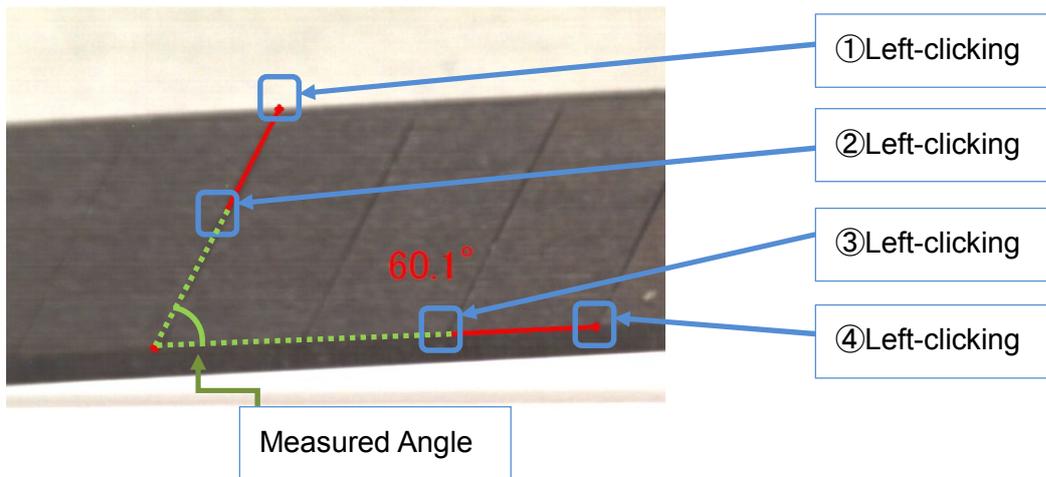


Measuring Angle between two lines

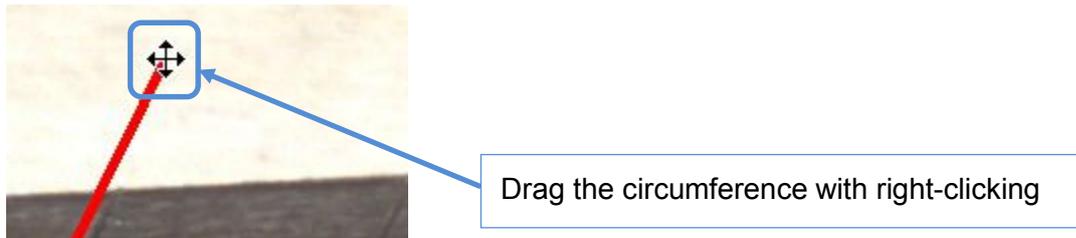
1. Right-click on  Angle- on "Measurement" from the Menu.

2. Left-click on  from "Angle Measurement Menu"

3. Left-click on any two points on a line and then also left-click on any two points on the line making angle with the other line.



4. To measure the angle again, put a cursor on the point and the cursor will be crossed arrows and then drag it with right-clicking and move it.



6.6. DRAWING

You can draw crossed lines, grid, scale, text and circles.

Measurement

- Length-Line
- Area-Line
- Angle-3-point
- Draw-Cross cursor**
- Drawing settings
- Calibration settings
- Delete
- Save

Drawing Menu

- Draw-Cross cursor
- Draw-Grid
- Draw-Scale
- Draw-Text
- Draw-Circle

(100.0 , 100.0)

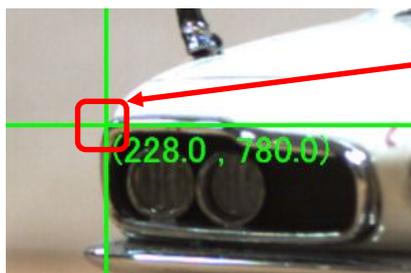
株式会社アートレイ

Drawing Cross cursor

1. Right-click on  Draw on "Measurement Menu".

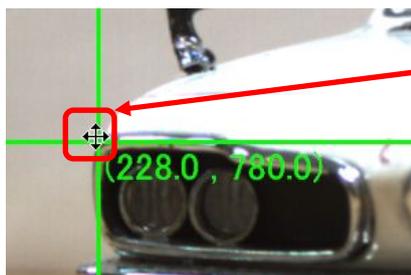
2. Left-click on  on "Drawing Menu".

3. Drawing cross cursor for clicking the point you want to put the intersection.



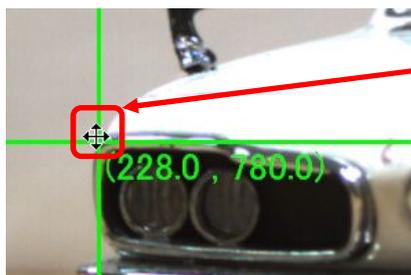
Left-clicking

4. To move the cross cursor you already made, put the cursor on it and the cursor will be crossed arrows and then drag it with right-clicking and move it.



Drag the intersection with right-clicking

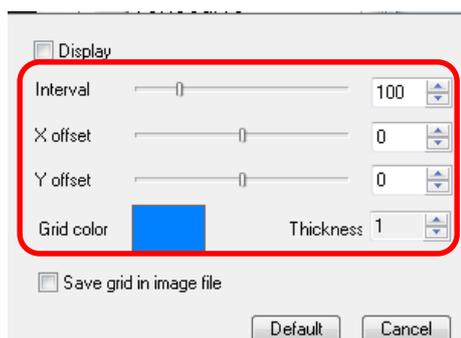
5. To delete cross cursor, put the cursor on it and the cursor will be crossed arrows and then press Delete key with right-clicking.



Drag the intersection with right-clicking

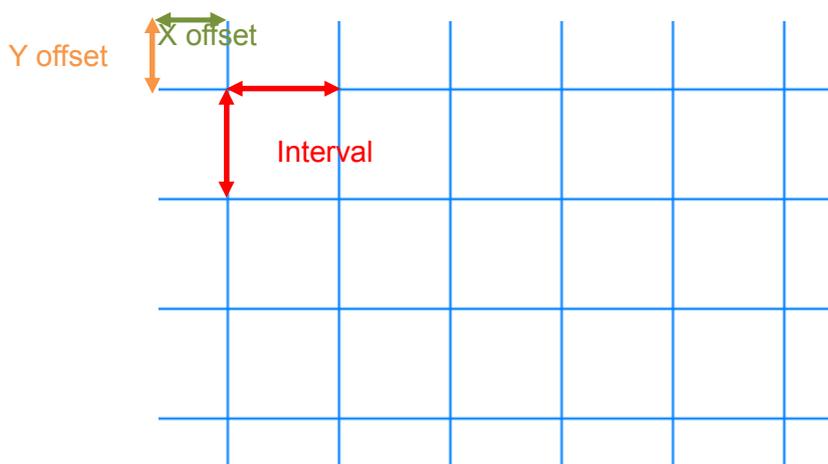
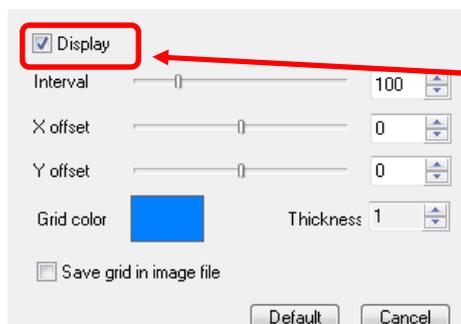
Drawing Grid

1. Right-click on  on "Measurement Menu".
2. Left-click on  on "Drawing Menu".
3. On the Grid setting window, set interval, X offset, Y offset, Grid color and Thickness.



※All units are Pixels.

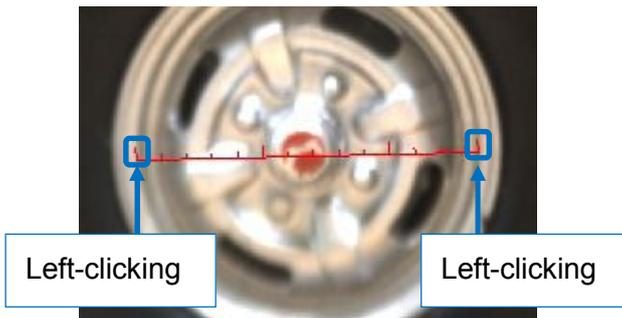
4. Check the box of "Display" and grid will be show up on the screen.



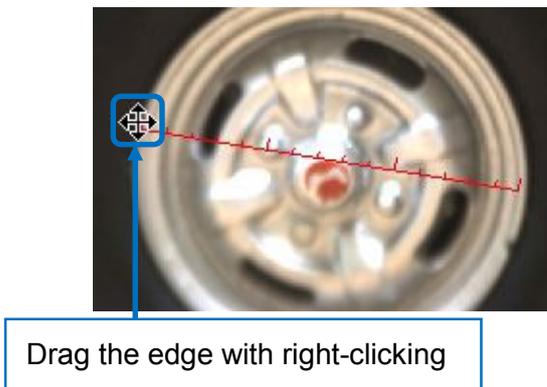
If the length of X offset and Y offset are longer than the interval, actual length of them will be X or Y offset – Interval. ex) Interval=30px, X offset=50px \Rightarrow X offset=20px

Drawing Scale

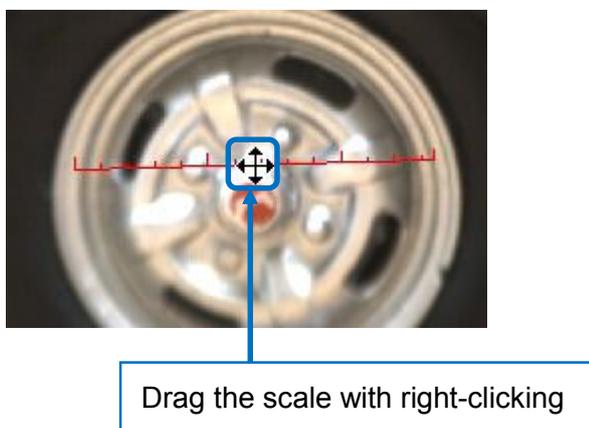
1. Right-click on  Draw on "Measurement Menu".
2. Left-click on  on "Drawing Menu".
3. Drawing Scales for left-clicking two points you want to put a scale.



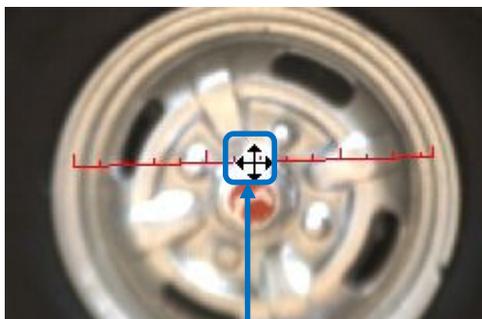
4. To draw a scale again, put the cursor on an edge and the cursor will be crossed arrows and then drag it with right-clicking and move it.



5. To move the scale you already made, put the cursor on the center of it and the cursor will be crossed arrows and then drag it with right-clicking and move it.



6. To delete a scale, put the cursor on it and the cursor will be crossed arrows and then press Delete key with right-clicking.



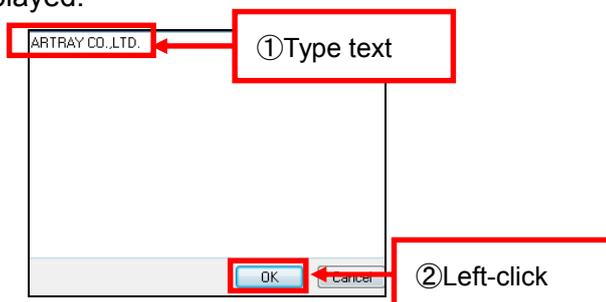
Press Delete key with right-clicking

※CAUTION

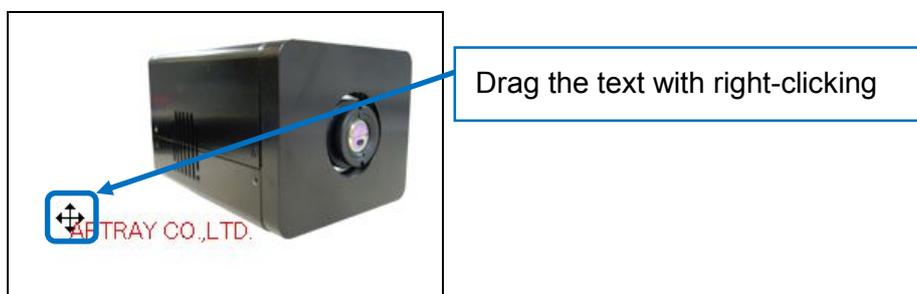
A unit of Scale is based on the calibration setting.

Drawing Text

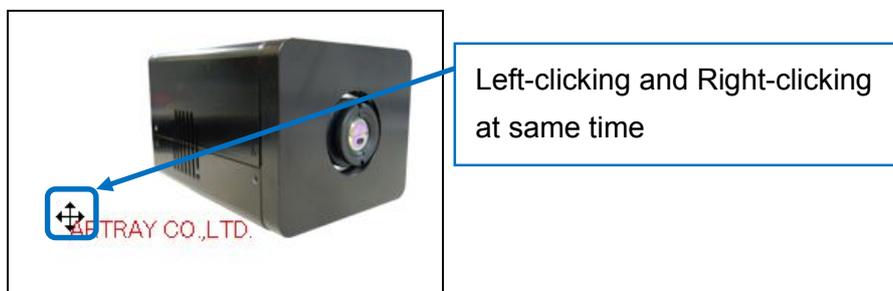
1. Right-click on  Draw on "Measurement Menu".
2. Left-click on  A on "Drawing Menu".
3. Left-clicking on the place where you want to put text on.
4. Type text on the edit window and left-click on "OK" button and the text will be displayed.



5. To move the text you already made, put the cursor on the top left of it and the cursor will be crossed arrows and then drag it with right-clicking and move it.



6. To edit text again, put the cursor on the top left of it and the cursor will be crossed arrows and then click both buttons of mouse at same time. The edit windows will be displayed on the screen.



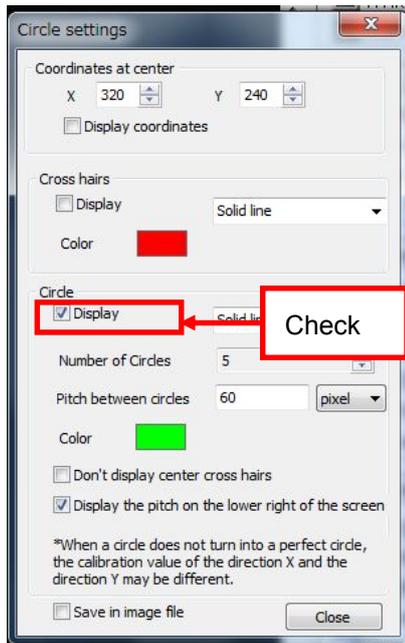
7. To delete the text, put the cursor on the top left of it and the cursor will be crossed arrows and then press Delete key with right-clicking.

Drawing Circle

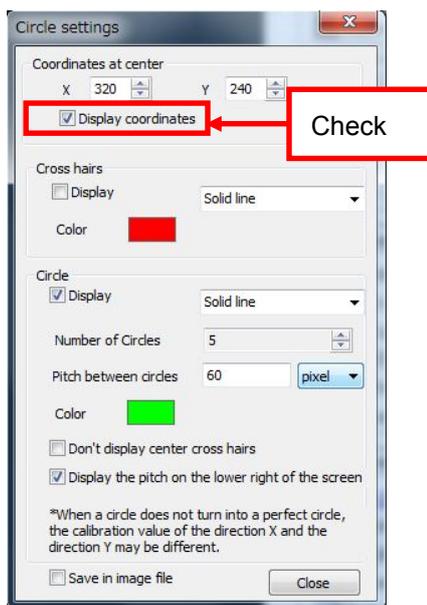
1. Right-click on  Draw on "Measurement Menu".
2. Left-click on  on "Drawing Menu".
3. Set "Coordinates at center", "Cross hair", "Pitch between Circles" and color of lines on Circle setting window.



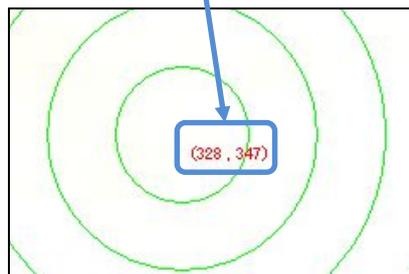
4. Check the box of "Display" and the circle will be displayed.



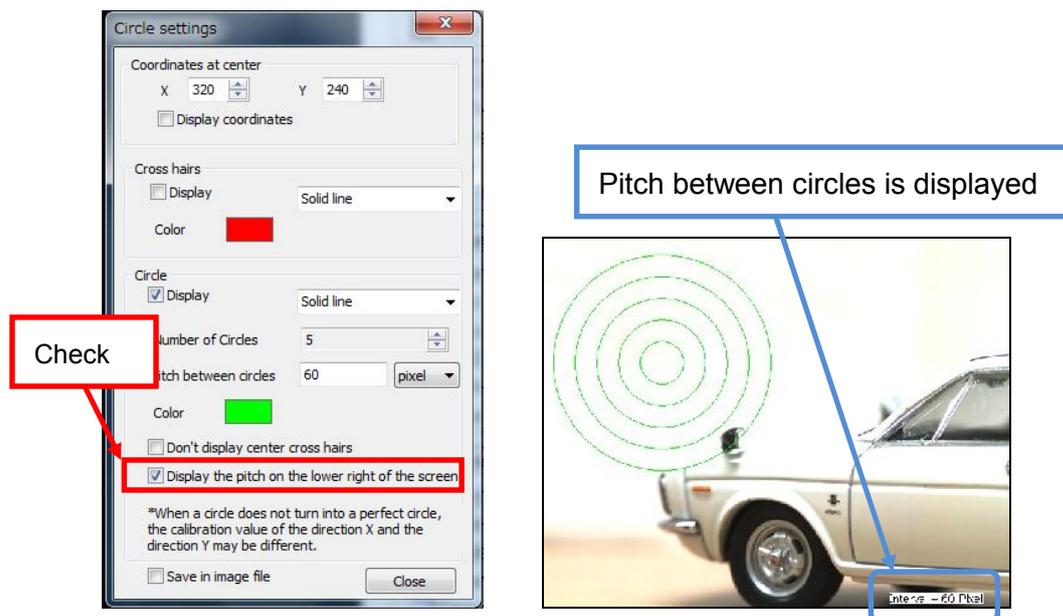
5. To display the coordinates at center by text, check the box of “Display coordinates”.



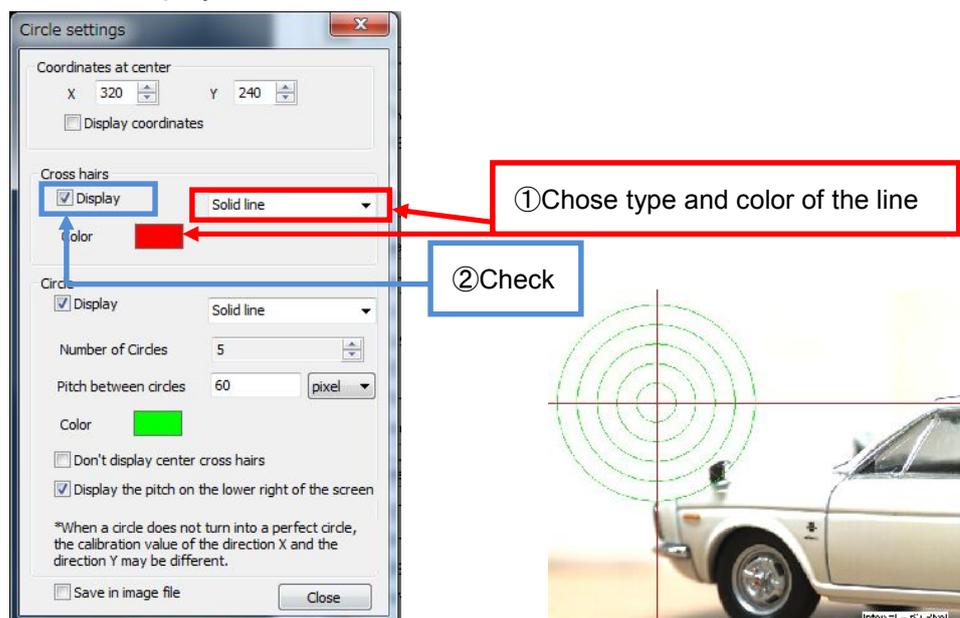
Coordinates at center is displayed



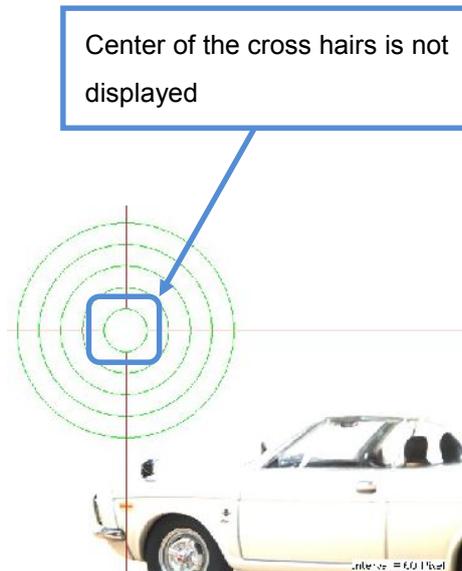
6. To display the pitch between circles, check the box of “Display the pitch on the lower right of the screen”.



7. To display the cross hairs, chose the type and color of the cross hair line and check the box of “Display”.



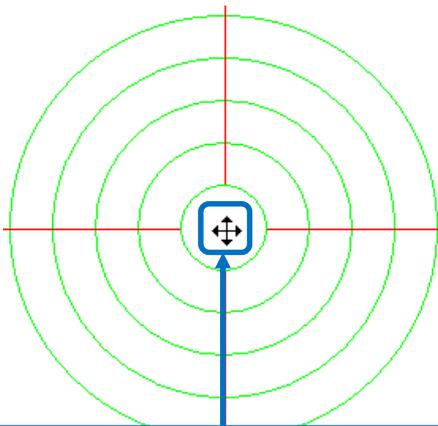
8. To not display the cross hair of the center circle, check on the box of “Don’t display center cross hair”.



9. To move circles or cross hairs, change the coordinates at center on Circle setting menu or put the cursor on the coordinates at center and it will be crossed arrows and drag it with right-clicking.



Change the coordinates at center

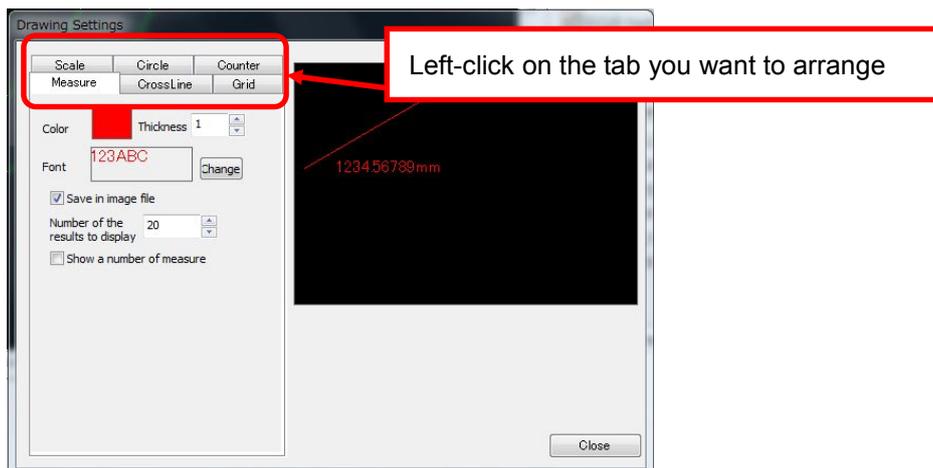


Drag the coordinates with right-clicking

6.7. DRAWING SETTINGS

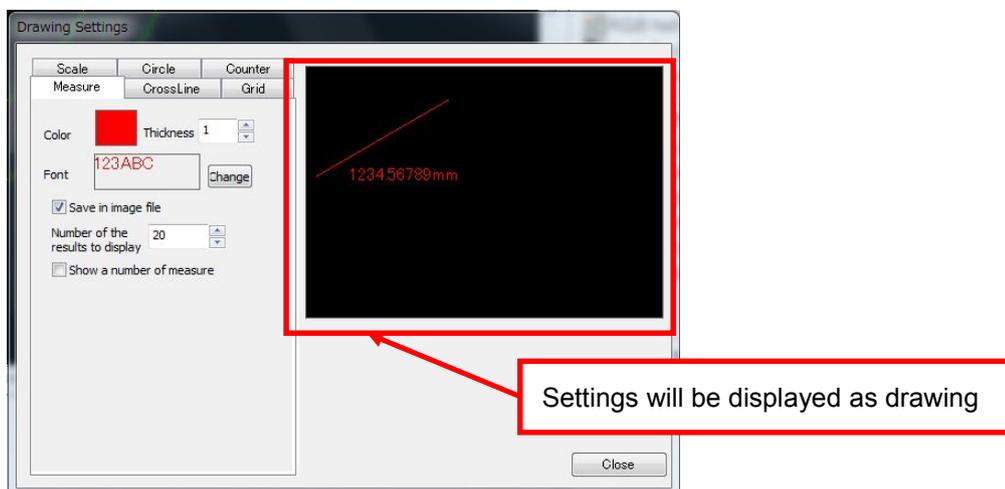
You can arrange those settings for measurement like font or thickness.

1. Left-click on  Drawing settings from “Measurement” on the Menu.
2. Left-click on the tab which you want to arrange settings.



Settings of drawing distance, area or angle belong to “Measure” tab.

Those settings you do on left side of the window will be displayed as drawing on right side.



※CAUTION

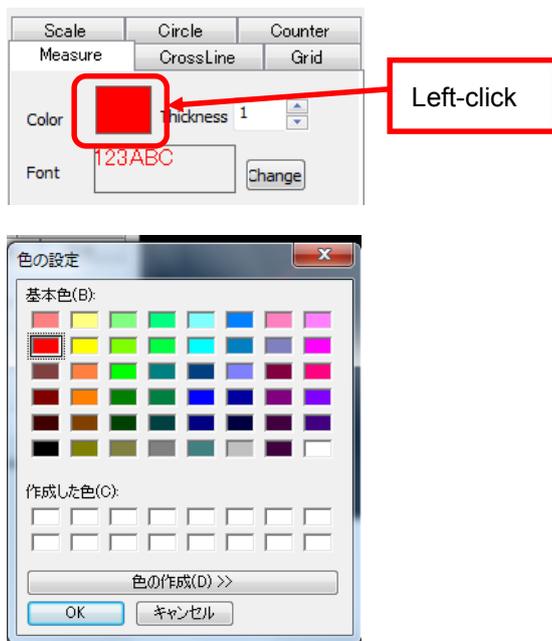
Those Settings you arranged will be applied to future measurement.

Those measurement data you already did will not be reflected by new settings.

Drawing Settings of Measurement

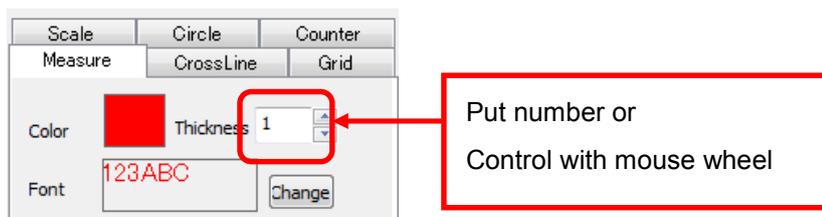
A) Setting of drawing color

Left-click on the colored square and chose color from the color pick window and left-click on "OK" button.



B) Setting of thickness of lines

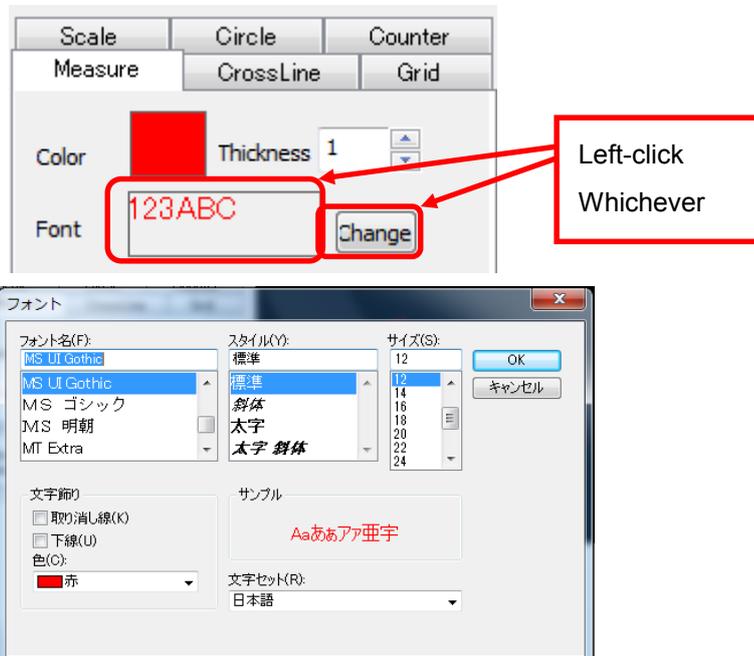
Put the number of thickness directly or control with mouse wheel.



C) Settings of Font

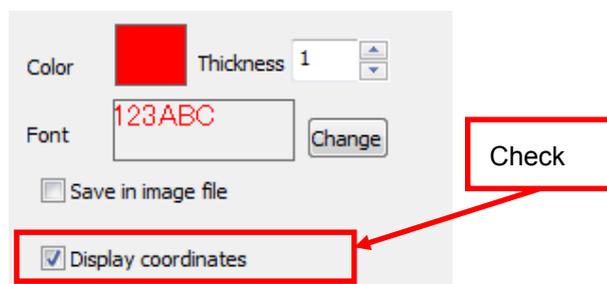
Left-click on the square has letters on it or “Change”.

Select font from the font setting window.



D) Display coordinates

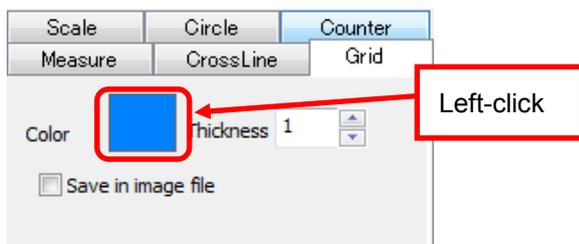
Check the box of “Show a number of measure”



Drawing Settings of Grid

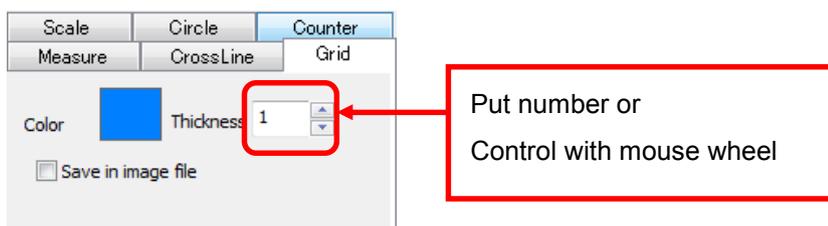
A) Setting of drawing color

Left-click on the colored square and chose color from the color pick window and left-click on "OK" button.



B) Setting of thickness of lines

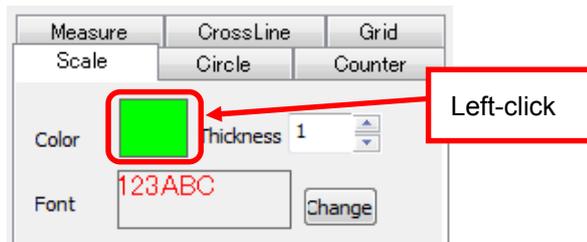
Put the number of thickness directly or control with mouse wheel.



Drawing Settings of Scale

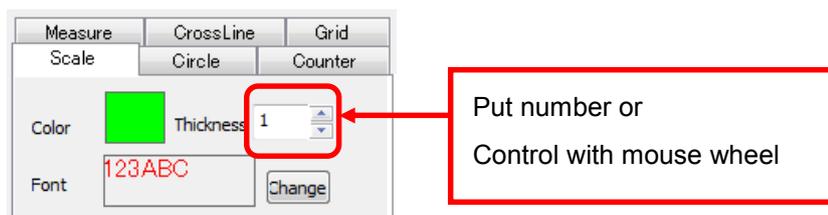
A) Setting of drawing color

Left-click on the colored square and choose color from the color pick window and left-click on "OK" button.



B) Setting of thickness of lines

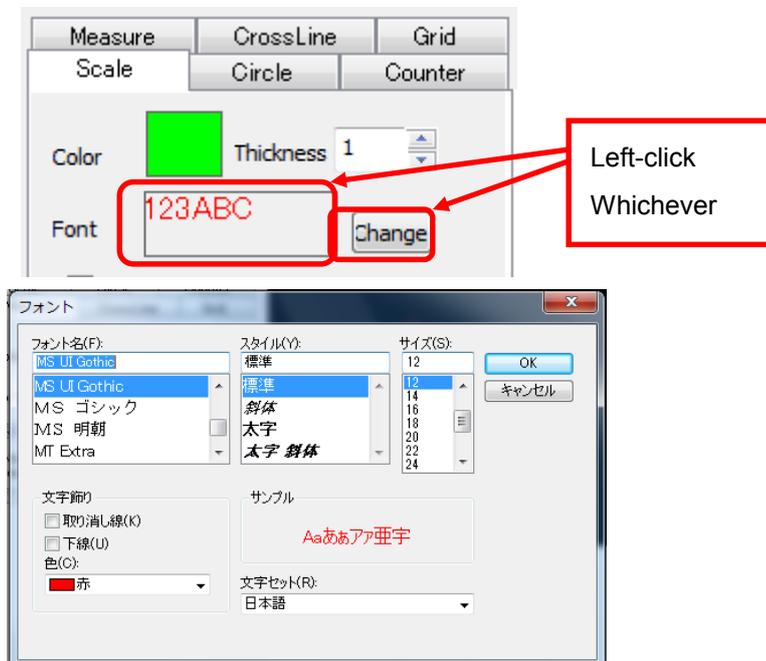
Put the number of thickness directly or control with mouse wheel.



C) Settings of Font

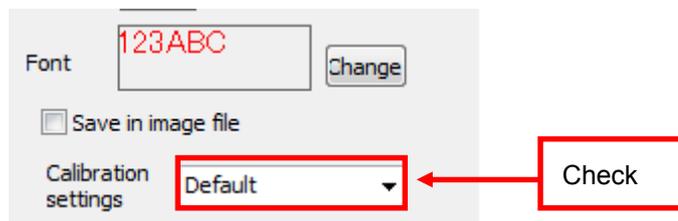
Left-click on the square has letters on it or “Change”.

Select font from the font setting window.



D) Setting of Calibration for apply

Select calibration setting for apply from “Calibration settings”



※CAUTION

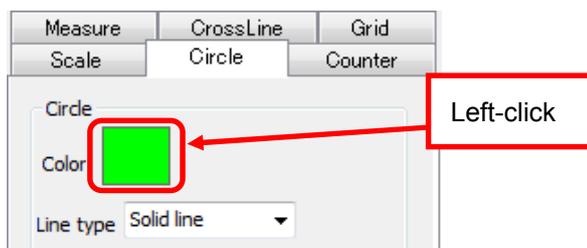
This setting is for the scale of “Calibration Settings”.

For scale of drawing, you can arrange settings from “Measurement” tab.

Drawing Settings of Circles

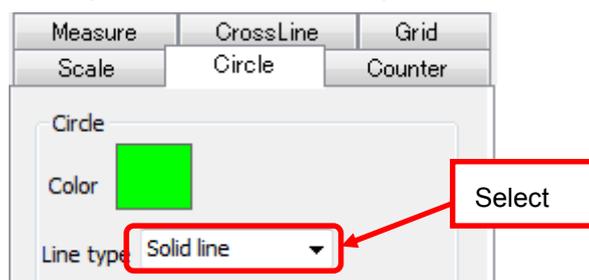
A) Setting of drawing color of circles

Left-click on the colored square in "Circle" box and chose color from the color pick window and left-click on "OK" button.



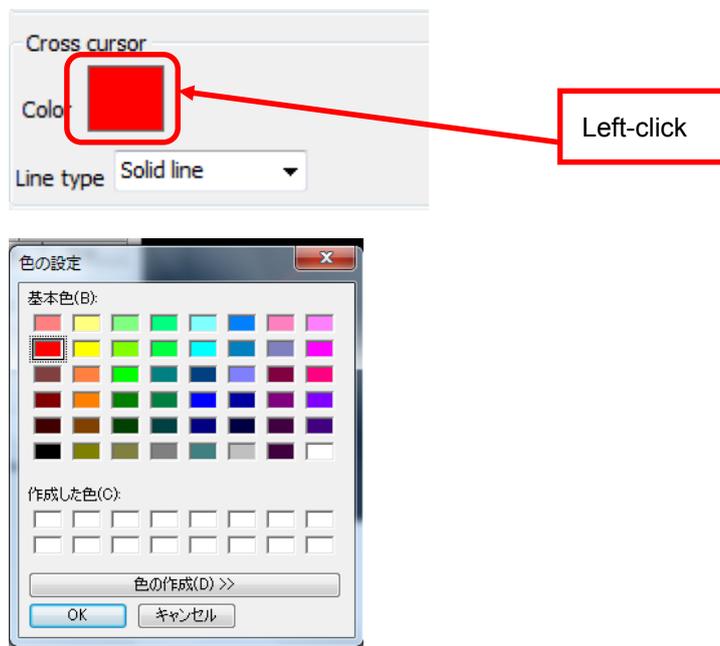
B) Setting of type of circumference line.

Select type of line from "Line type" in "Circle" box.



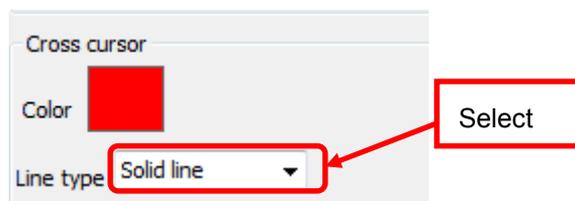
C) Setting of drawing color of Cross hair

Left-click on the colored square in “Cross cursor” box and chose color from the color pick window and left-click on ”OK” button.



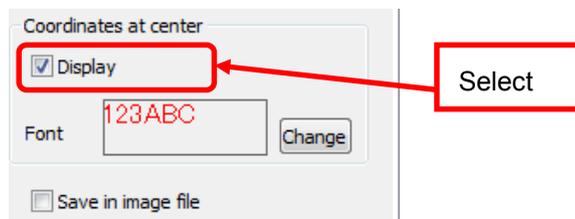
D) Setting of line type of cross hair.

Select type of line from “Line type” in “Cross cursor” box.



E) Display coordinates at center of cross hair.

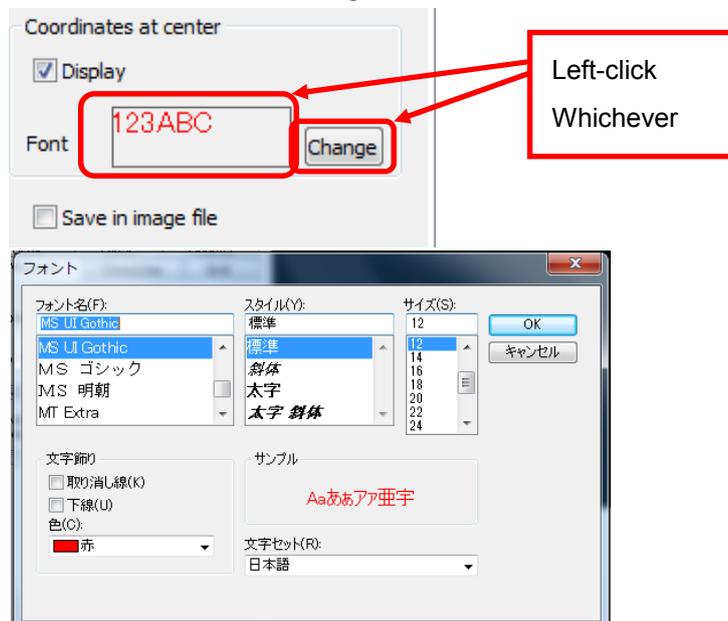
Check the box of “Display” in “Coordinates at center” box.



F) Setting font of Coordinates at center.

Left-click on the square has letters on it or “Change” in Coordinates at center box.

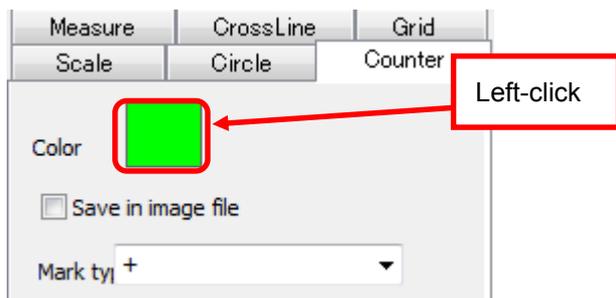
Select font from the font setting window.



Drawing Settings of Counter

A) Setting of drawing color of counter

Left-click on the colored square in "Counter" box and chose color from the color pick window and left-click on "OK" button.



6.8. DELETE MEASUREMENT RESULTS

You can delete those measurement results of distance, area and angle from the list.

Delete individually

1. Chose a result to delete on the list of "Measurement" from "Menu"

No.	Content	Value	Unit
1	Area-Line	1514.8	um ²
2	Area-Q...	2851.8	um ²
3	Circle-R...	30.0	um
4	Circle-D...	60.0	um
5	Circle-C...	188.6	um
6	Circle-A...	2831.6	um ²

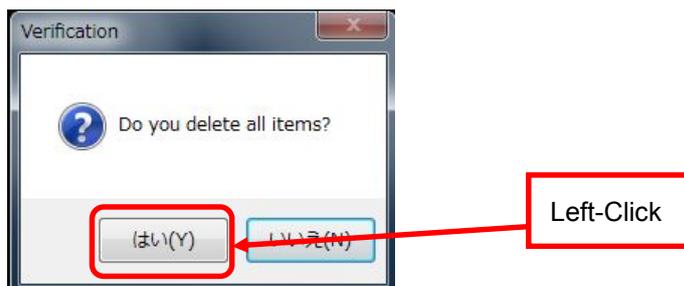
Chose

2. Left-click on  Delete on the list of "Measurement" from "Menu".

The result you chosen will be deleted.

Delete all results

1. Left-click on  Delete on the list of "Measurement" from "Menu" without choosing any result.
2. Left-click on "はい(Y)" after the box below show up. Then, all result you had done before will be deleted.

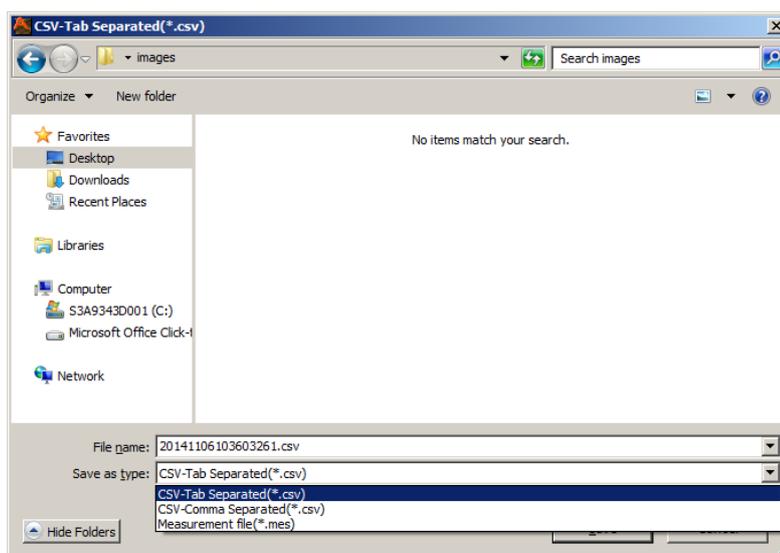


6.9. SAVE MEASUREMENT RESULTS

You can save those measurement results of distance, area and angle as CSV or mes.

Save Measurement Results

1. Left-click on  Save on the list of “Measurement” from “Menu”
2. The window for saving will show up and then select format and location for saving and left-click on “保存(S)” to save the data.



Saving Format

You can choose from those three kinds of format.

- CSV(tab delimited)
- CSV(Comma Separated Value)
- mes(Measurement file)

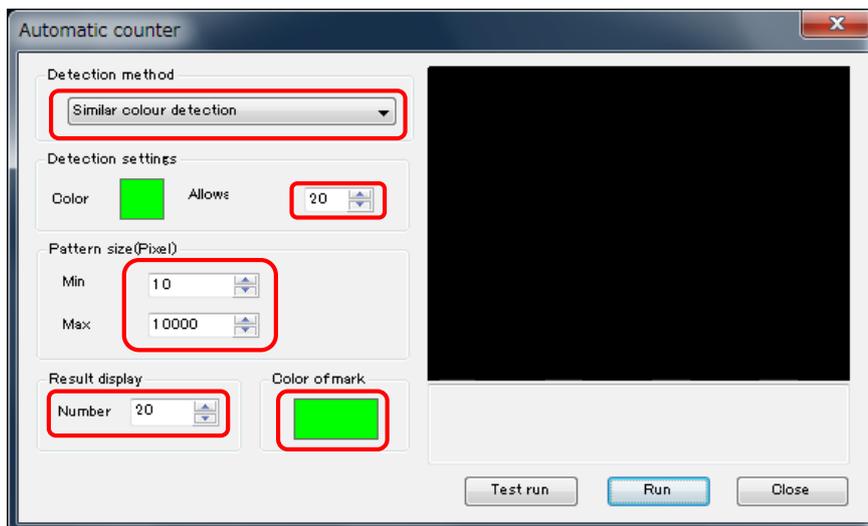
mes···File format for saving measurement results. You can back those results to the software by Drag and Drop.

※CAUTION

Before you move mes file back to the software, make sure both pixel sizes of the picture and mes file. It doesn't work properly if those pixel sizes don't fit.

7.2. AUTOMATIC COUNTER

1. Left-click on  Automatic counter on “Counter” from “Menu”
2. Set Detection method, Pattern size, Result display and Color of Mark on Automatic counter window.



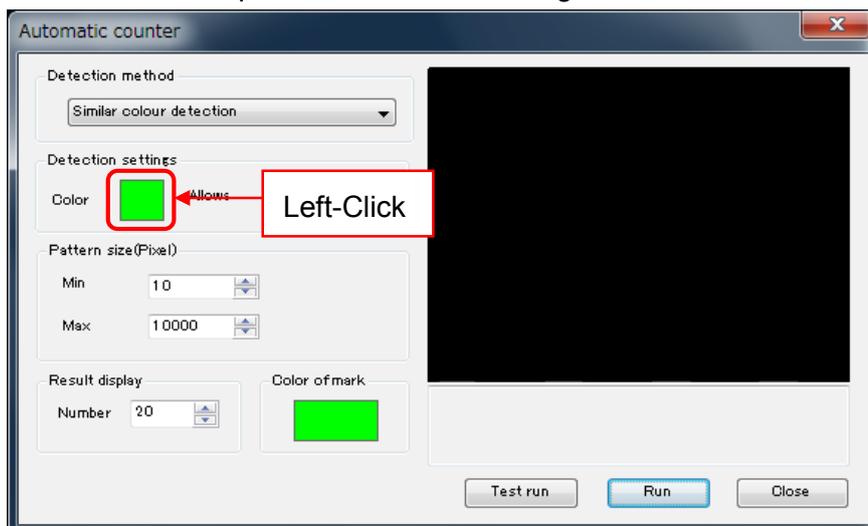
You can choose from two types of detection method.

Similar colour detection...Detect by similar colour on pictures.

Similar colour blightness...Detect by similar colour on pictures.

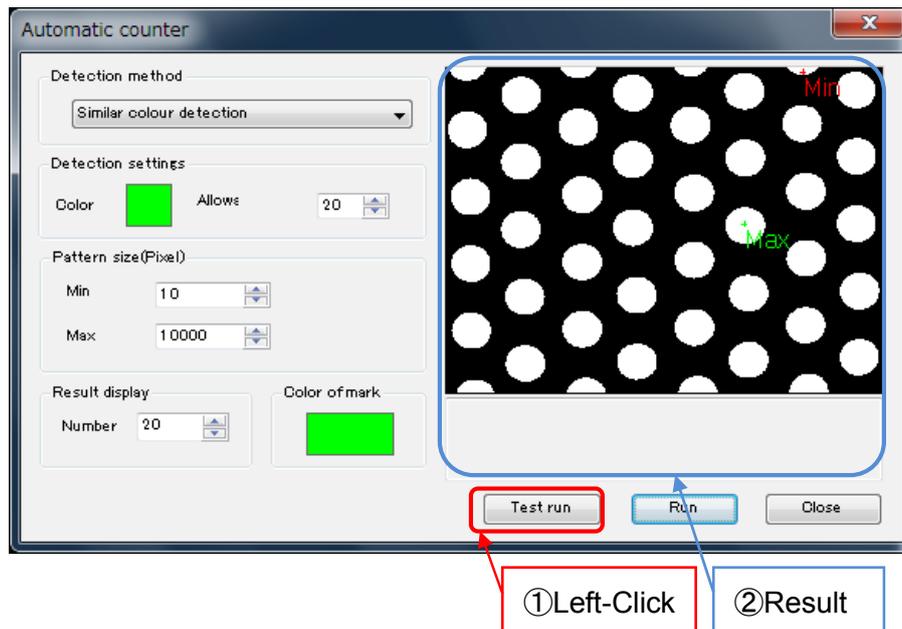
※Works for only monochrome

3. Left-click on coloured-square on “Detection settings”.



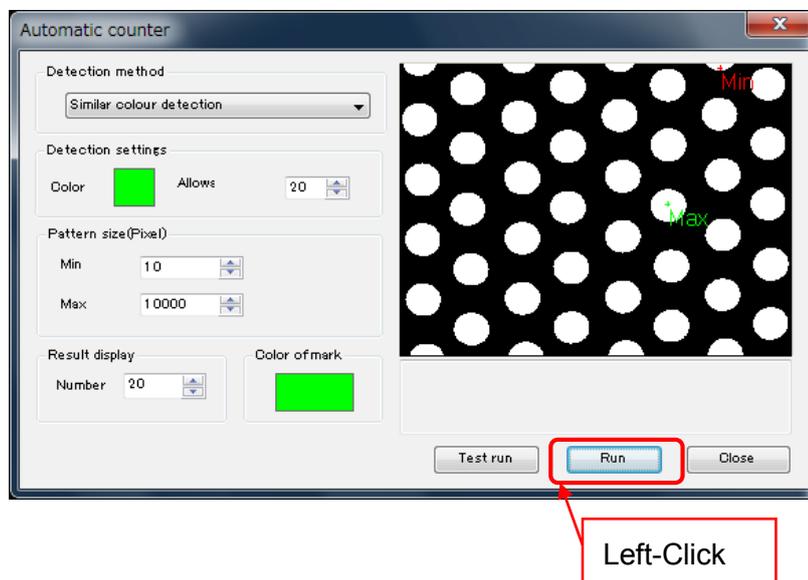
4. Left-click on the point of the colour on the picture to pick the detection colour.

5. Left-click on “Test run”.



Then, the result of test run will be displayed on right side of window.
You can try test run as much as you need until you get the best result.

6. Left-click on "Run" to define the count result.

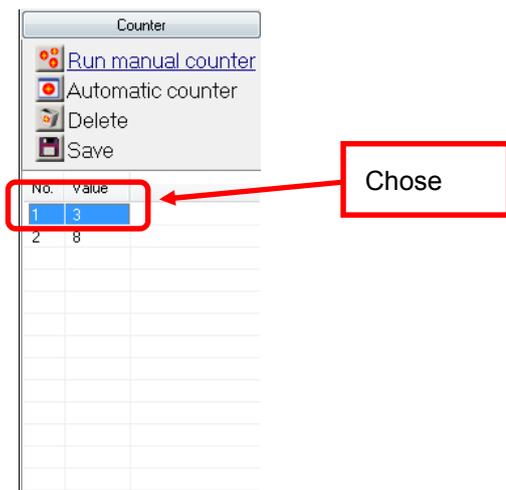


7.3. DELETE COUNTING RESULTS

You can delete those counting results from the list.

Delete individually

1. Chose a result to delete on the list of "Counter" from "Menu"

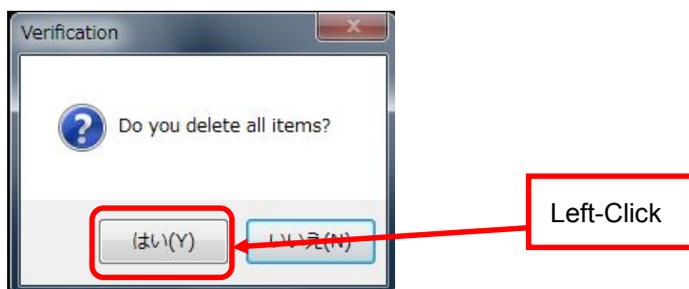


2. Left-click on  Delete on the list of "Counter" from "Menu".

The result you chosen will be deleted.

Delete all results

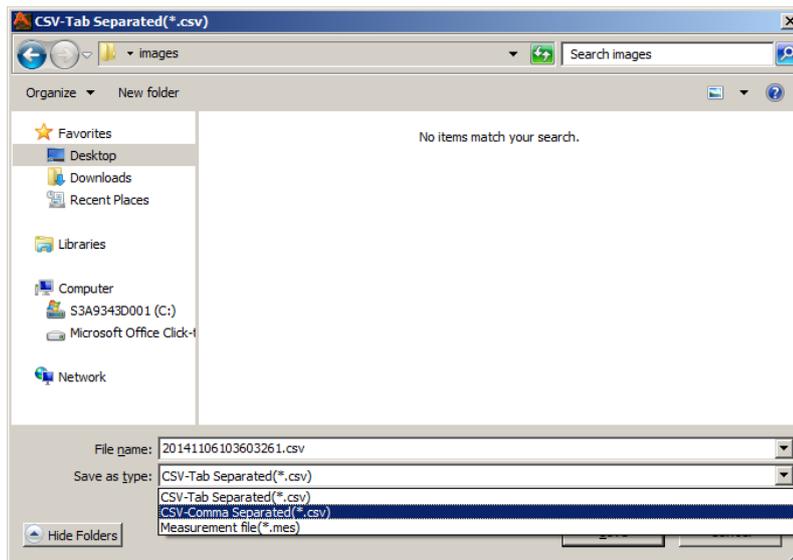
1. Left-click on  Delete on the list of "Counter" from "Menu" without choosing any result.
2. Left-click on "はい(Y)" on the following box. Then, all results you had done before will be deleted.



7.4. SAVE COUNTING RESULTS

You can save those counting results as CSV.

1. Left-click on  Save on the list of “Counter” from “Menu”
2. The window for saving will show up and then select format and location for saving and left-click on “Save” to save the data.

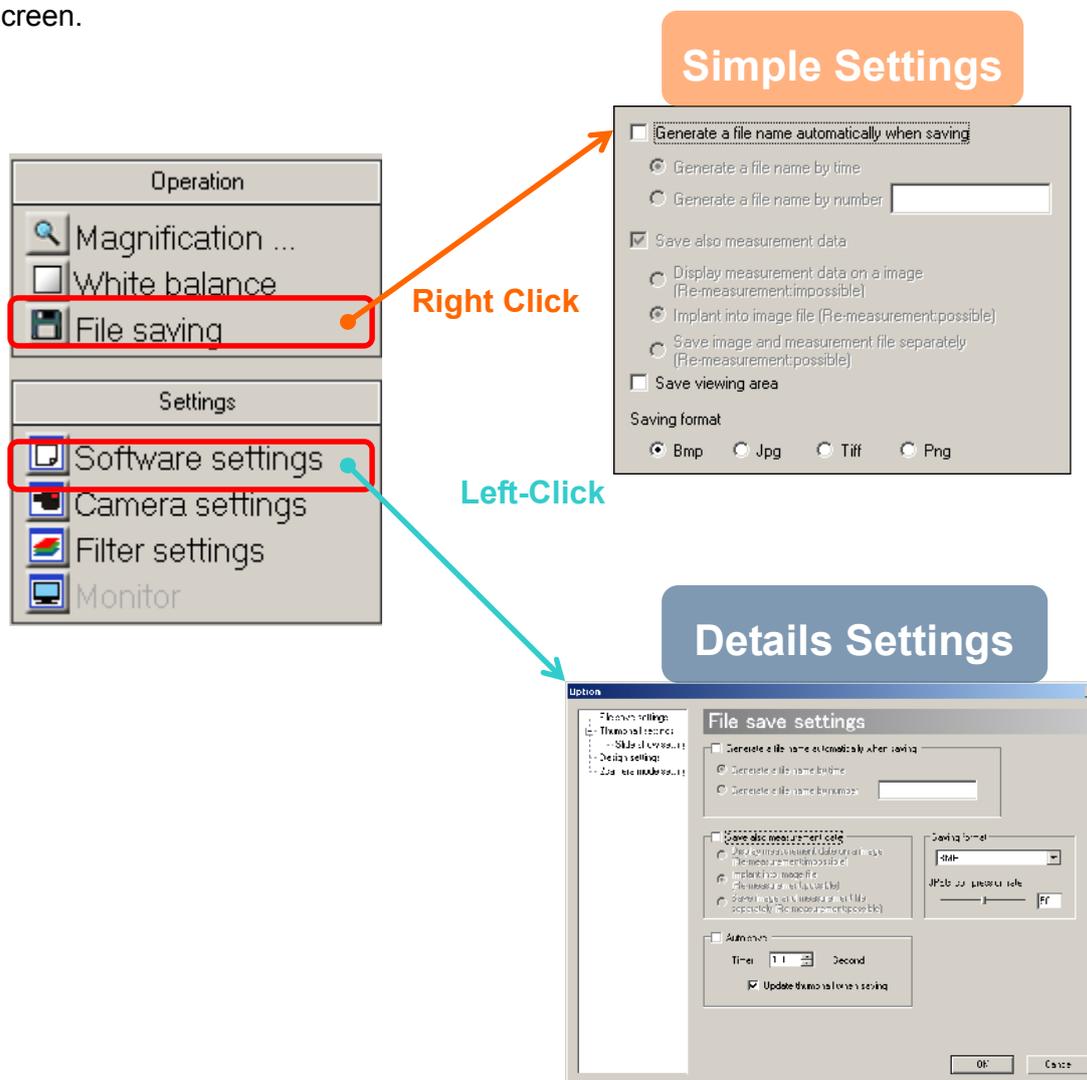


You can choose from two kinds of format, tab delimited or comma separated value.

8. SETTINGS

8.1. FILE SAVE SETTINGS

File save settings can be made either from the “Simple Settings” or “Details Settings” screen.



※NOTICE

- λ To apply the settings on the Details Settings screen, please left click on “OK”.
- λ To not apply the settings, please left click on “Cancel”.

Generate File Names Automatically

To save files automatically by left clicking on  File saving without having the file settings dialog box pop out is possible under certain conditions

The file name may be formed by the following 2 types:

A) Time of saving

Name the file by date and time when it is saved.

For example, a file saved at 14:25:12:23, February 15 2007 will be named "2007021514251223.(extension)".

B) Alphabet plus consecutive numbers

Name the file by users' designated words and consecutive numbers.

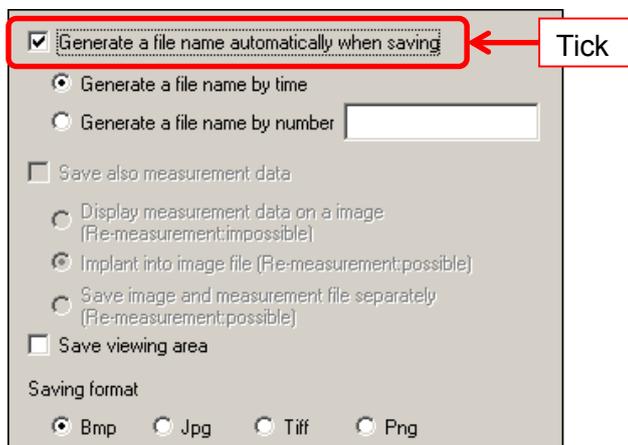
For example, if "AAA" is specified to be the designated words, the file names will be "AAA0001.(extension)", "AAA0002.(extension)"...etc.

If the words are not specified, the file names will be "0001.(extension)", "0002.(extension)"...etc.

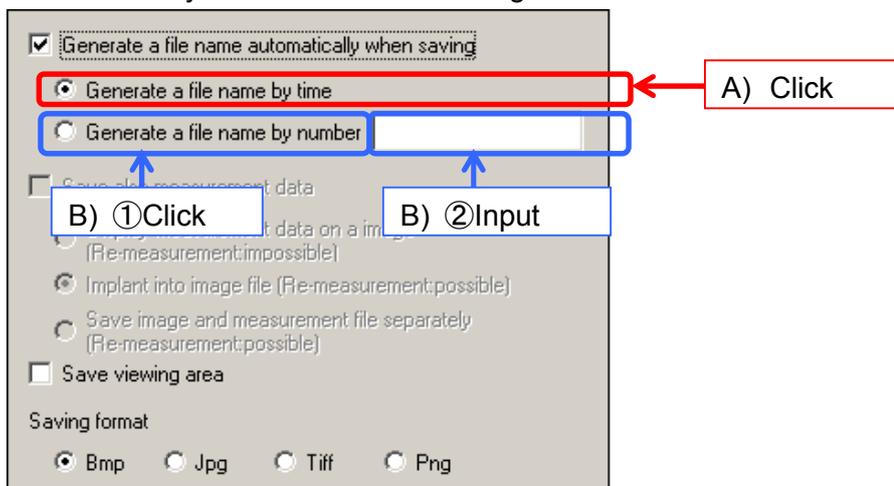
The file name generation settings can be changed from both Simple Settings screen and Details Settings screen.

The followings explain the steps of settings from Simple Settings screen. The same settings apply on Details Settings screen.

1. Tick on "Generate a file name automatically when saving".

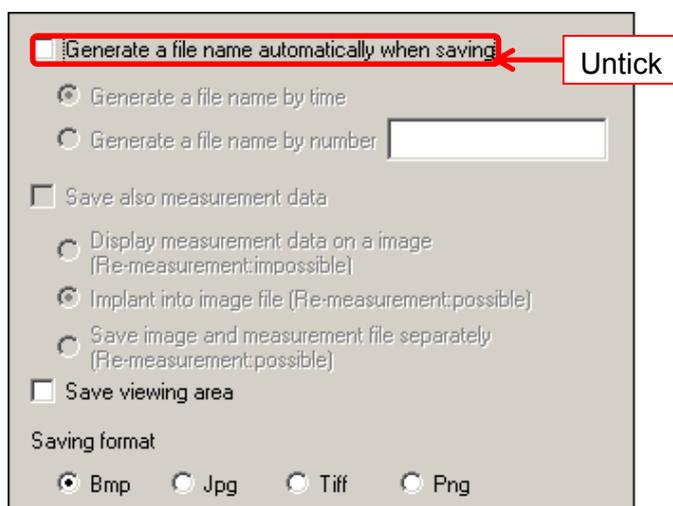


2. Select on how you like file names to be generated.



- A) To generate file names by the time of saving, please click on “Generate a file name by time”
- B) To generate file names by alphabet plus consecutive numbers, please click on “Generate a file name by number”, and enter desired options of words.

To name files manually, please untick “Generate a file name automatically when saving”

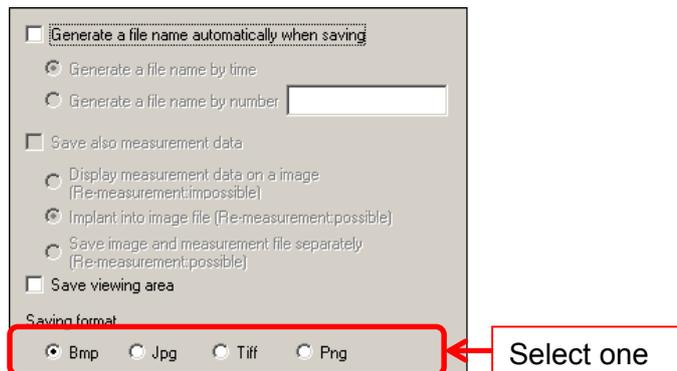


Select the File Saving format

Four kinds of format are available for saving such as Bmp, Jpg, Tiff, and Png
The settings can be changed from both Simple Settings screen and Details Settings screen. However, the compression rate of JPEG format can be only selected from Details Settings screen.

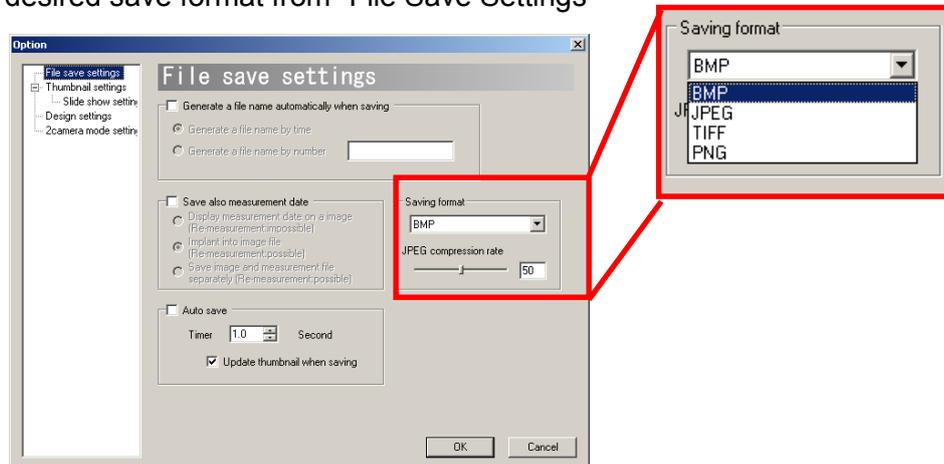
<From “Simple Settings” Screen>

Check on the desired save format from “Save Format”.

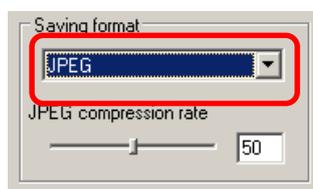


<From “Details Settings” screen>

Select the desired save format from “File Save Settings”



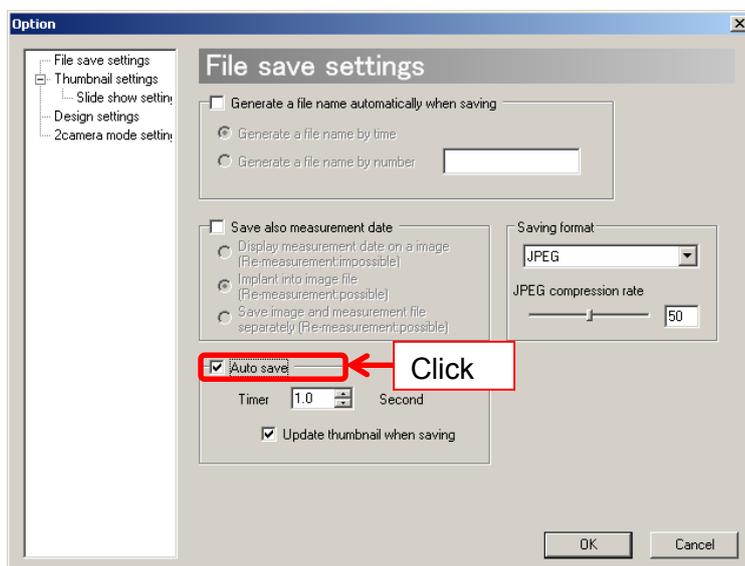
If you decide to save files in JPEG format, please designate a compression rate from 1~100. The compression rate can be designated by either moving the slider bar, or typing the number into the edit box.



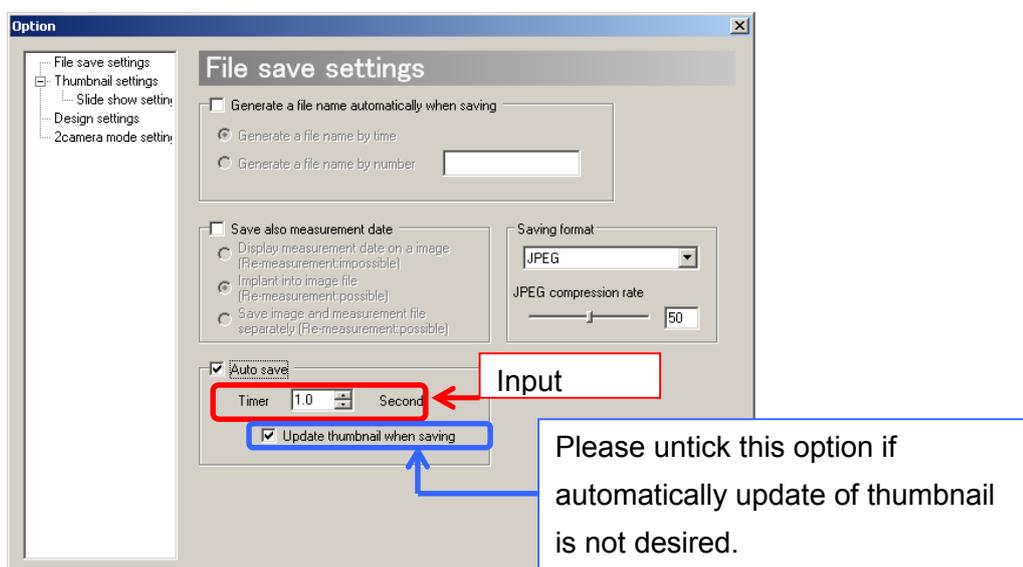
Auto Save

Files can be auto saved by desired intervals of time.

1. Click on “Auto Save”.

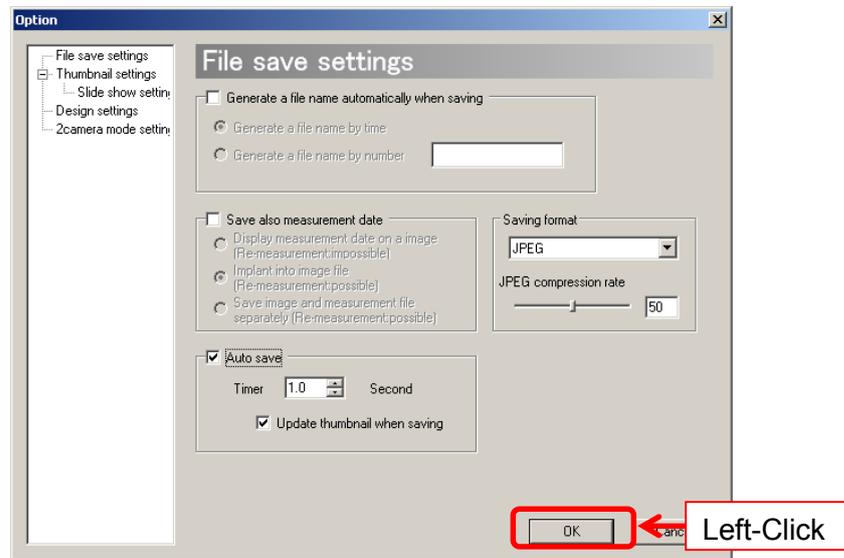


2. Enter a desired length of interval for file save into the “Time Interval” blank.



If you do not want to update on thumbnail when saving automatically, please untick “Update thumbnail when saving”.

3. Click on “OK” and start the Auto save.



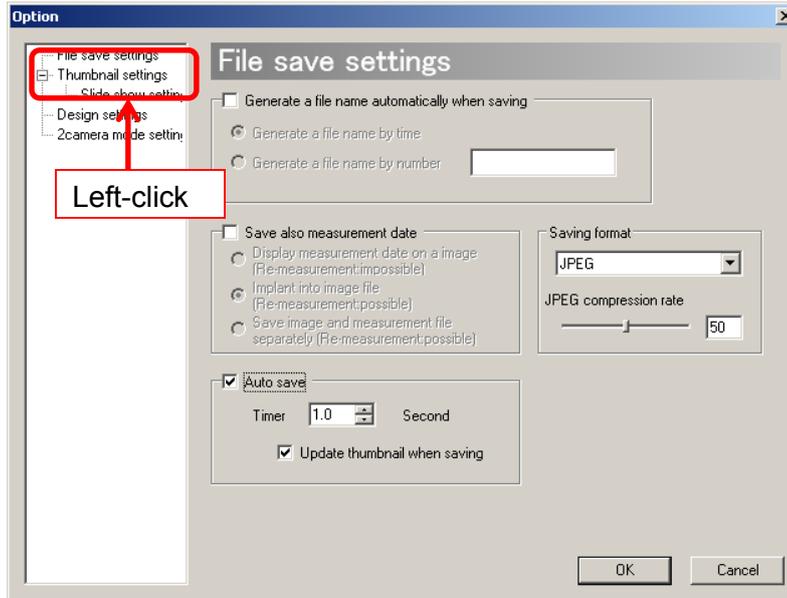
※NOTICE

- λ The time interval can be set from 0.0 to 1000.0 seconds by the unit of 0.1 second. However, the actual timing is subject to the frame rate of the camera, wait time and the specification of your computer.
- λ For example, even the frame rate is 10fps and the time interval is set to 0.1 second, it is not certain that 10 pictures will be saved in 1 second.
- λ If “Generate a file name automatically when saving” is not ticked, the file names will be automatically generated by time.
- λ If “Generate a file name automatically when saving” is ticked, the file names will be automatically generated by the chosen form.
- λ To stop Auto save, click on  File saving from “Operation” on the Menu, or untick “Auto save” and click on “OK”.

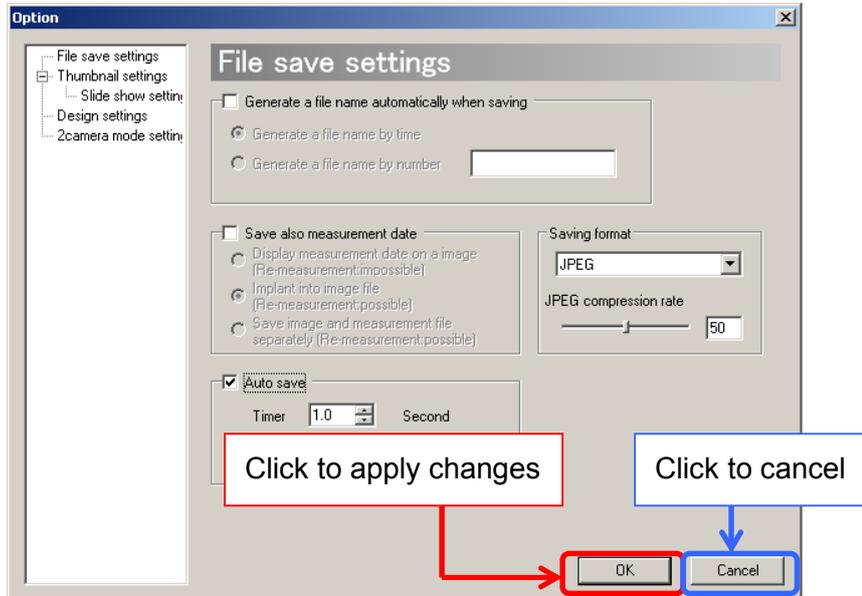
8.2. THUMBNAIL SETTINGS

Settings related to thumbnail can be changed from “Thumbnail Settings” window. To access “Thumbnail Settings”, follow the steps below.

1. Make a left-click on  Software settings from “Settings” on the Menu.
2. Click on “Thumbnail settings” on the entries from the left side of the window.



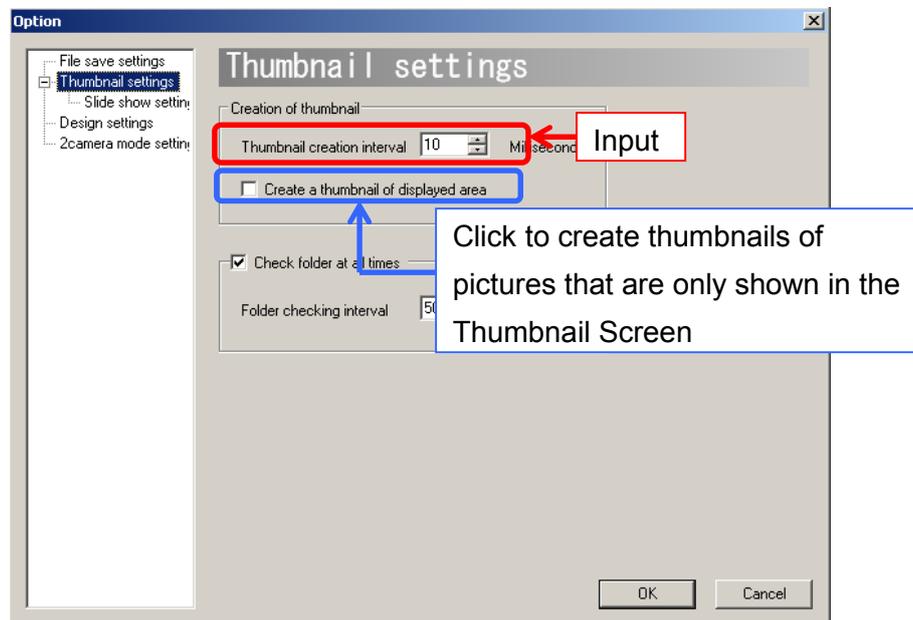
3. The Thumbnail settings screen appears.



Click “OK” to apply changes, or click “Cancel” to cancel.

Modify the Length of Thumbnail Interval

Enter a desired length of interval between Thumbnail Creation.



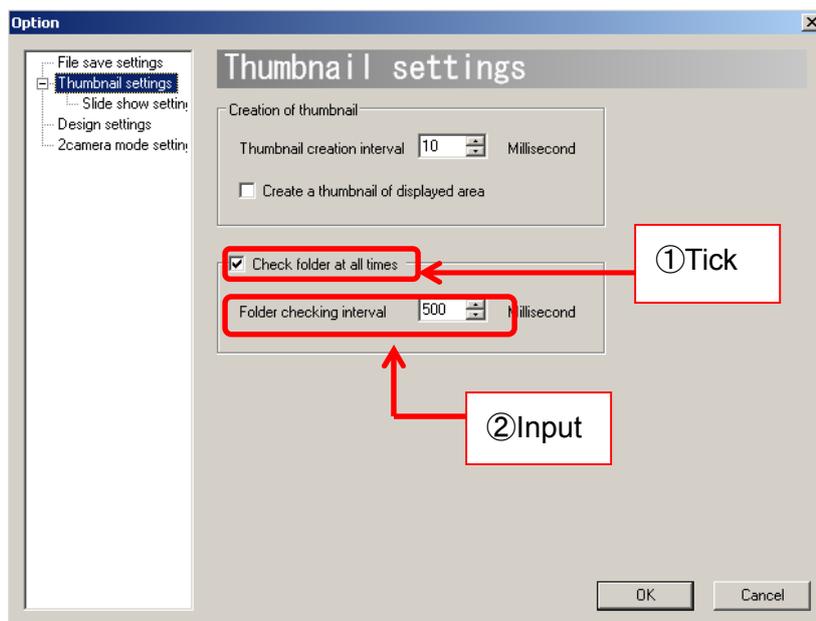
The interval of thumbnail creation can be set from 1~10000 milliseconds.

To avoid creating thumbnails of pictures that are not shown in the Thumbnail Screen, please tick on “Create thumbnails of the area being displayed only”. If you choose to create thumbnails of all the images, the large quantity of the images may cause a slowdown on the software.

Check the Thumbnail Folder at All Time

If image files made from external applications are added to the thumbnail folder, the thumbnail display will be refreshed.

To enable this setting, click on “Check folder at all times” and enter the time interval to check.



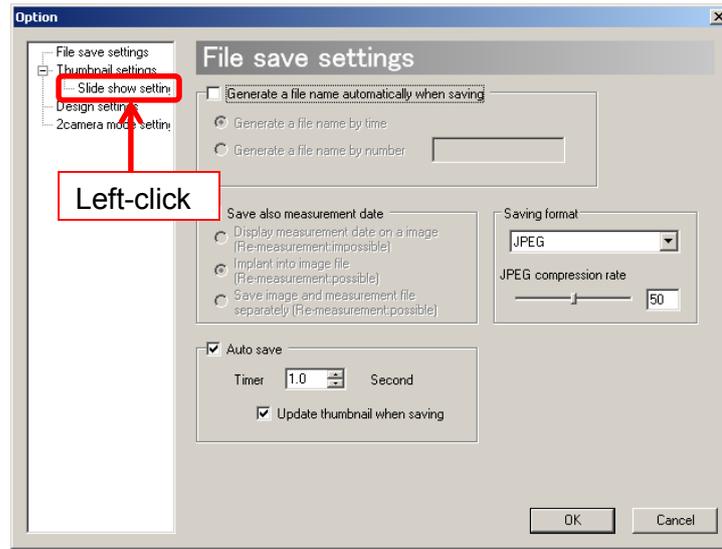
Folder checking interval can be set from 100~10000 milliseconds.

Please note that “Check folder at all times” is initially selected by default.

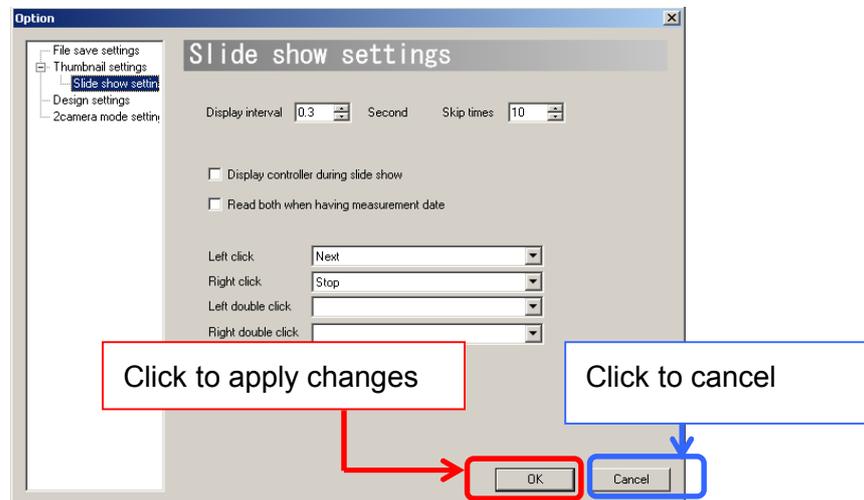
8.3. SLIDE SHOW SETTINGS

Settings related to slide show can be changed from “Slide Show Settings” window. To access “Slide Show Settings”, follow the steps below.

1. Make a left-click on  Software settings from “Setting” on the Menu.
2. Click on “Slide Show Settings” on the entries from the left side of the window.



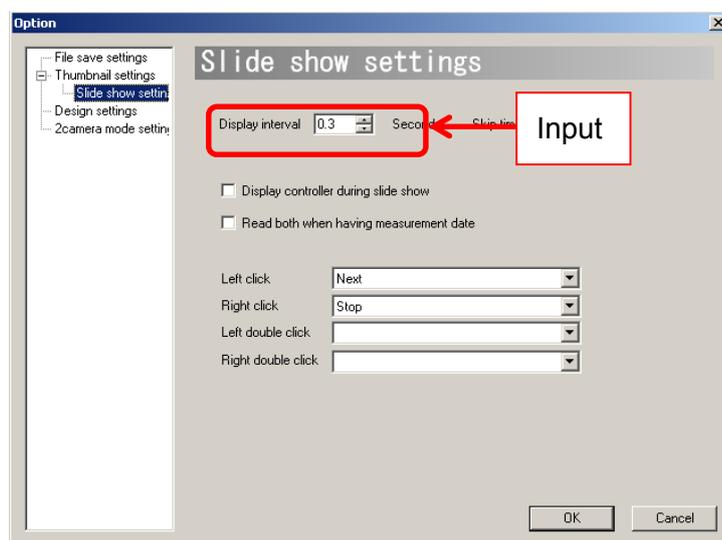
3. The Slide Show Settings screen appears.



Click “OK” to apply changes, or click “Cancel” to cancel.

Change the Slideshow Display Interval

To adjust the time interval between slides, please enter a desired time interval into the “Display interval” field.

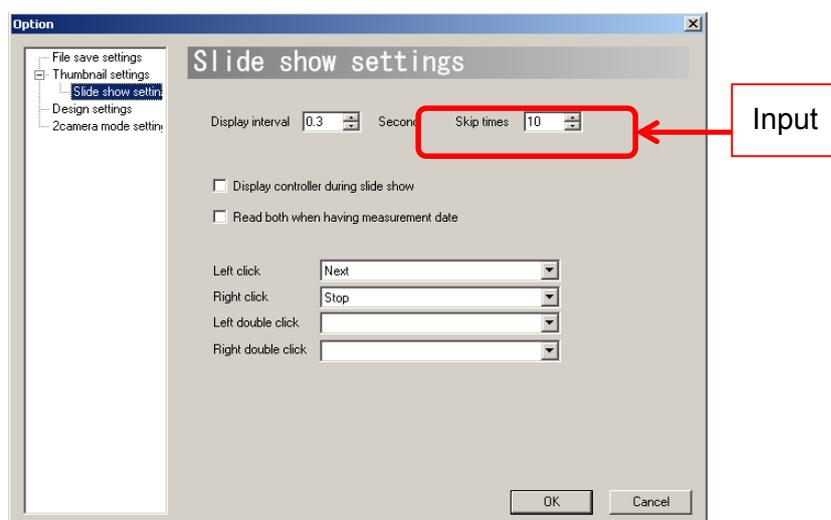


The display interval can be set from 0~1000 seconds by intervals of 0.1 second.

Define the Number of Skips on Slide Show

When playing the Slide show, press the forward/backward skip button to skip forward or backward a certain number of slides. The number of skips can be set.

Please enter a number to skip into the “Number of Skips” field.



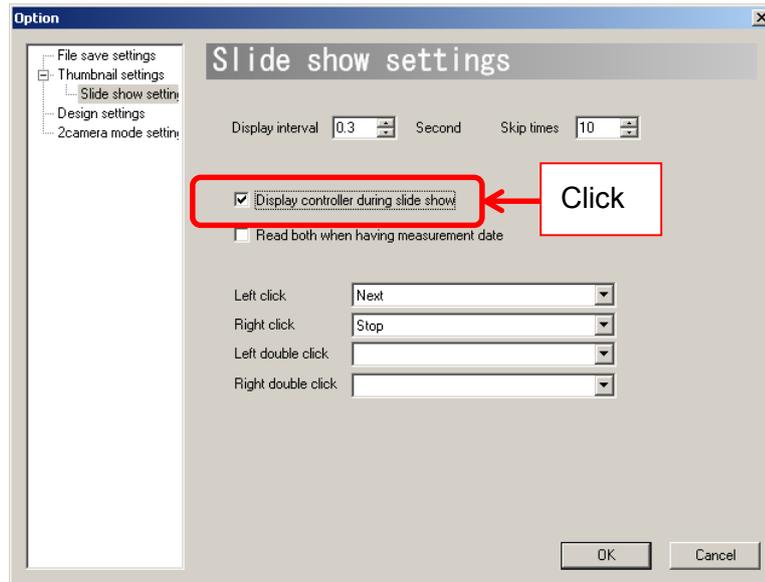
The number of skips can be set from 0 to 1000.

Display the Controller during Slide Show

The controller (as below) during Slide show can be shown or hidden.



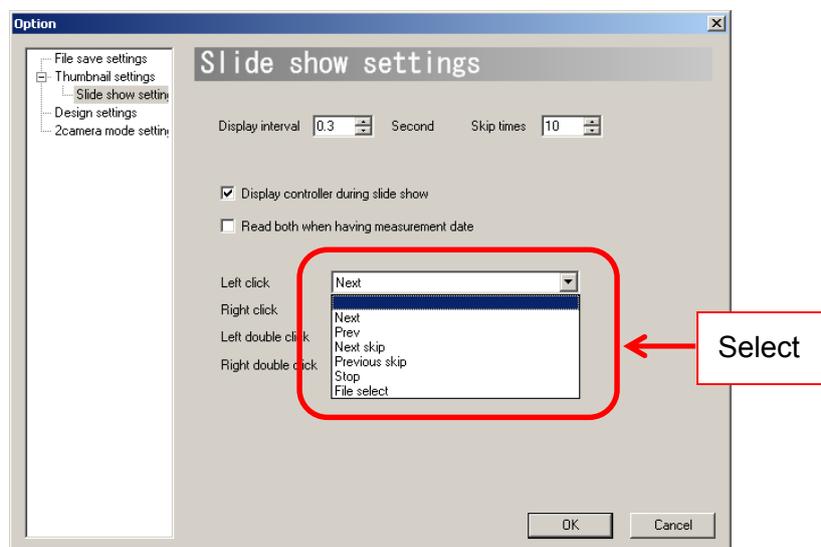
To show the controller during the Slide show, please click on “Display controller during slide show”



Set the Mouse Operation during the Slide Show

Mouse Settings can be changed during the slideshow.

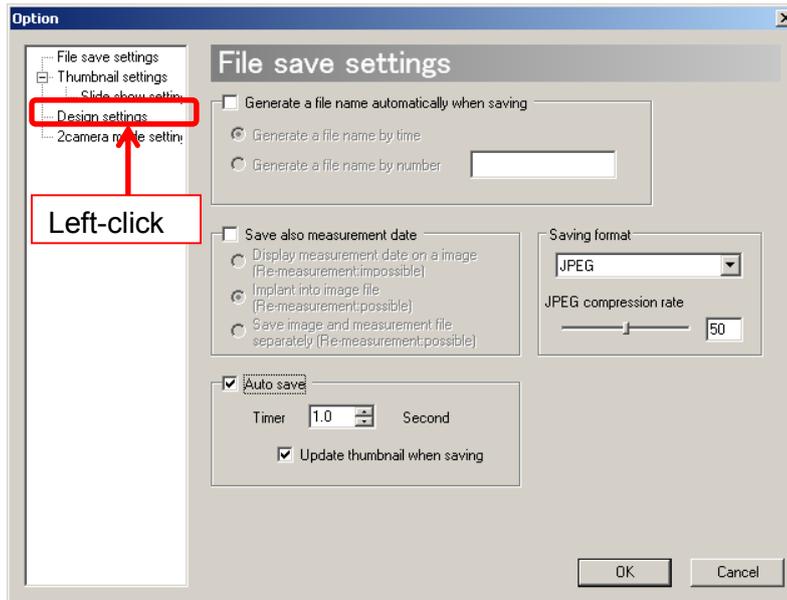
“Right click”, “Left click”, “Right double click”, and “Left double click” can be turned into shortcuts of desired actions.



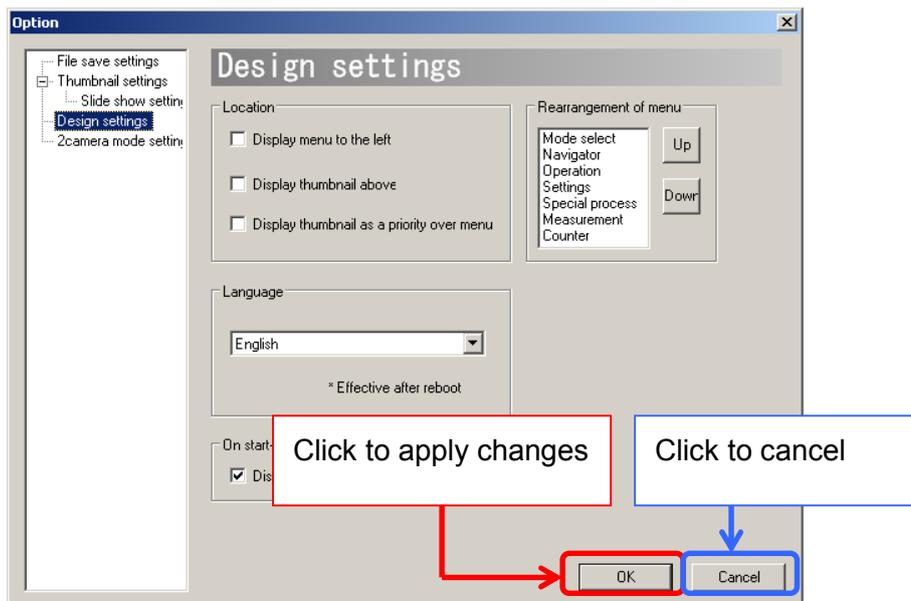
8.4. DESIGN SETTINGS

Settings related to Viewer Software Design can be changed from “Design Settings” window. To access “Design Settings”, follow the steps below.

1. Make a left-click on  Software settings from “Settings” on the Menu.
2. Click on “Design settings” on the entries from the left side of the window.



3. The Design settings tab is displayed.



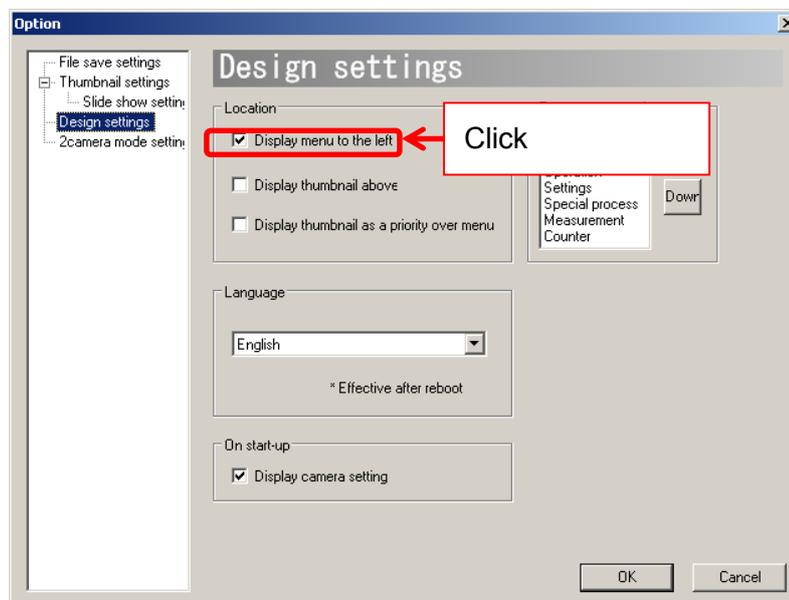
Click “OK” to apply changes, or click “Cancel” to cancel.

Move Tool Menu to the Left

The Menu is on the right of the window by default. It can be moved to the left.

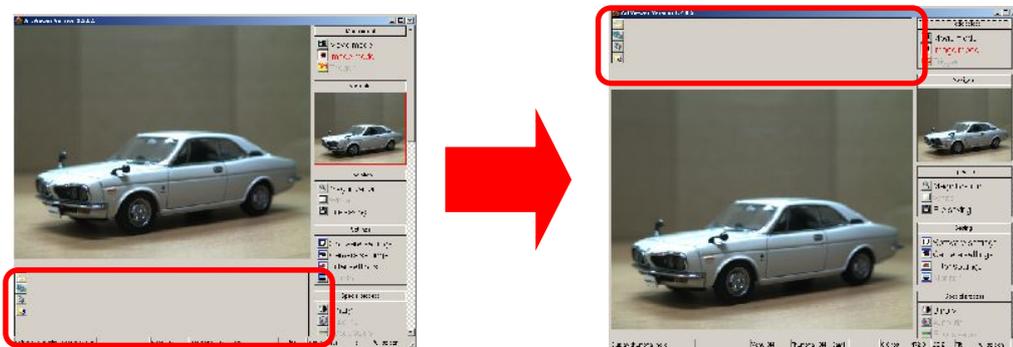


To move the Menu to the left, click on “Move menu to the Left” from “Display Alignment”.

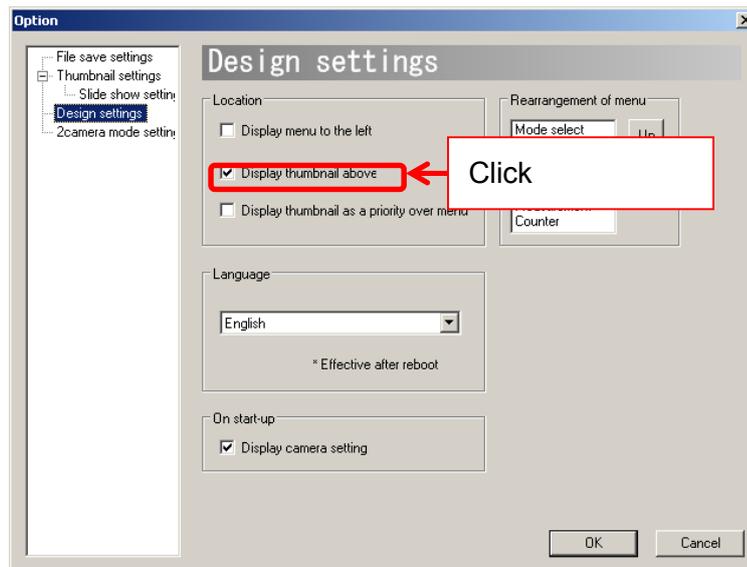


Move Thumbnail to the Top

The Thumbnail is on the bottom of the window by default. It can be move to the top.

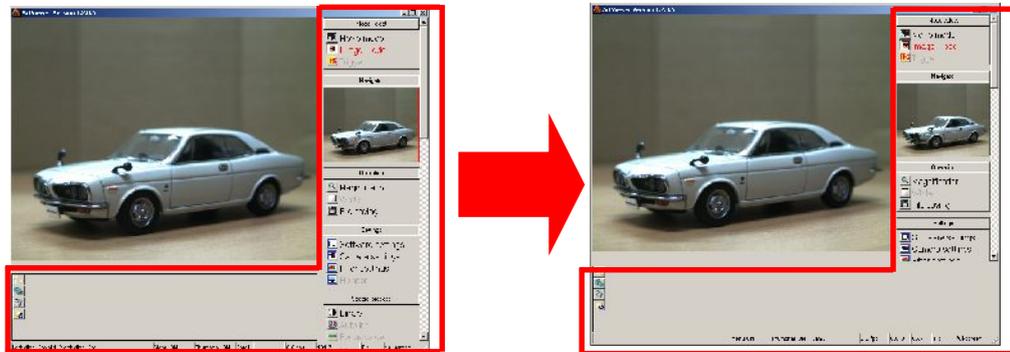


To move the thumbnail to the top, click on “Move Thumbnail to the Top” from “Display Alignment”.

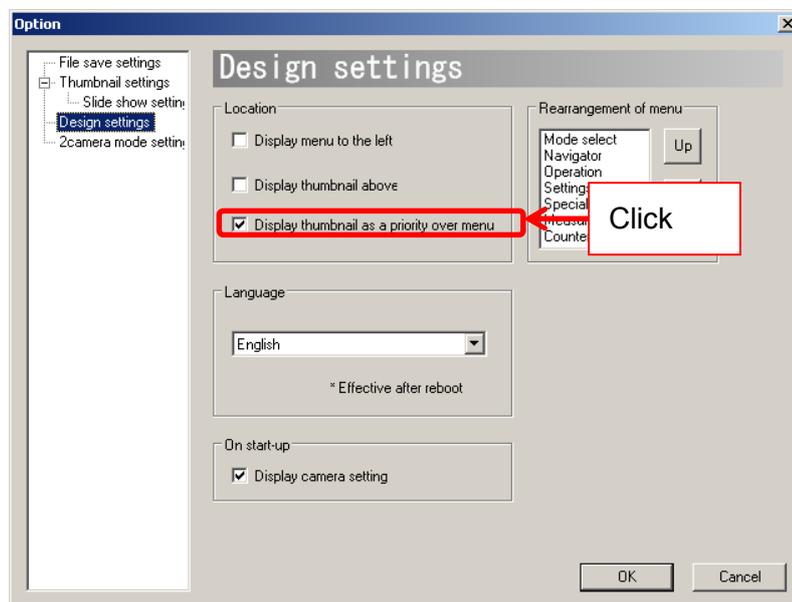


Bring Thumbnail to the Front

The Menu is the top layer on the Viewer Software window by default, but the Thumbnail layer may also be brought to the front.



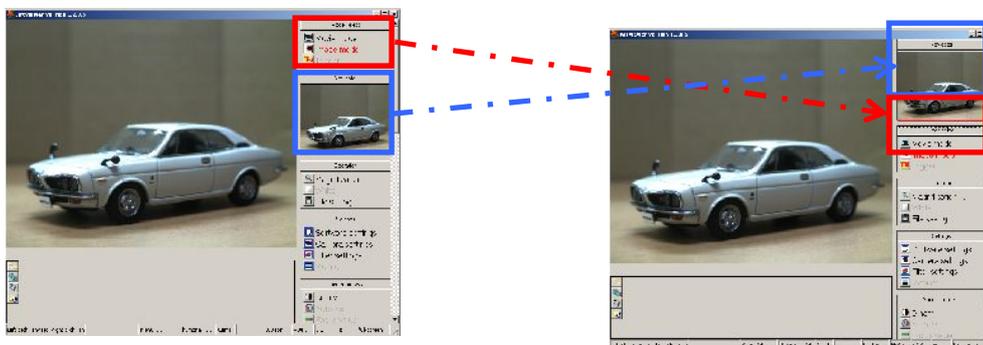
Click on “Bring Thumbnail to the Front”



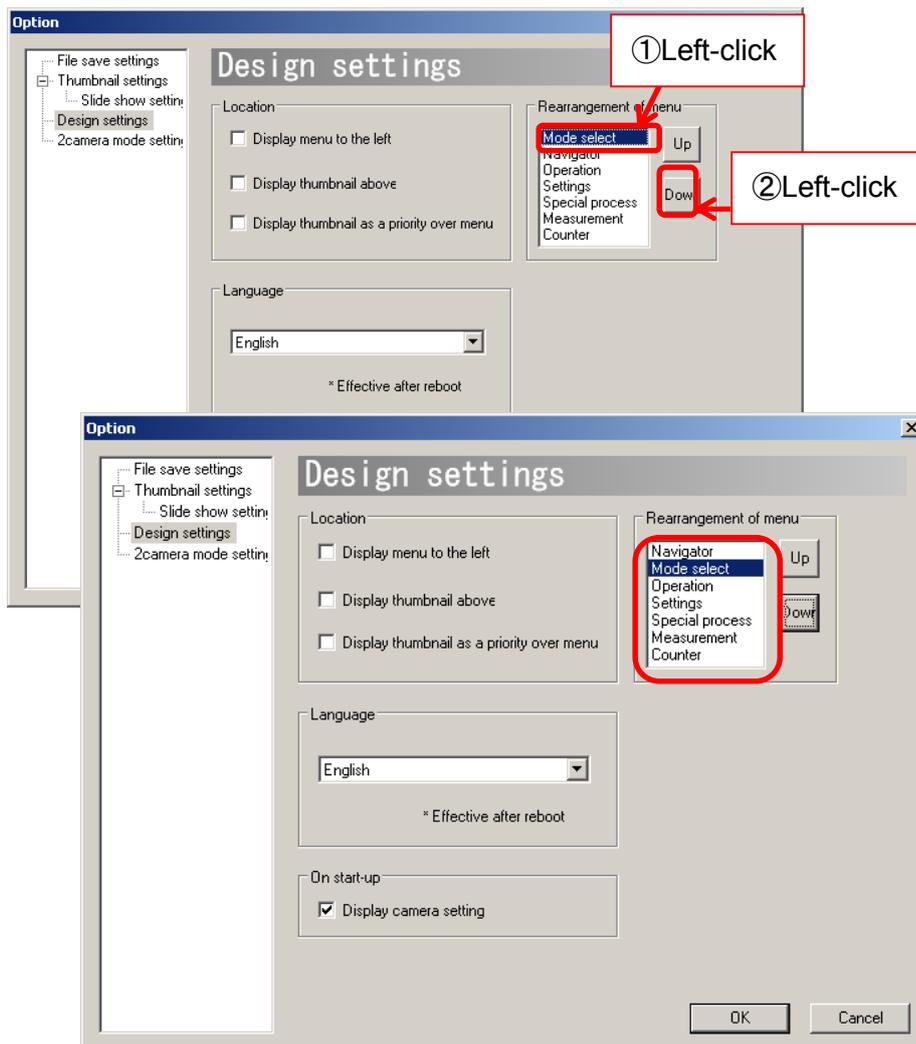
Rearrange Menu Items

The order of Menu bar items can be re-aligned.

The following is an example to show how to move “Mode select” downward.

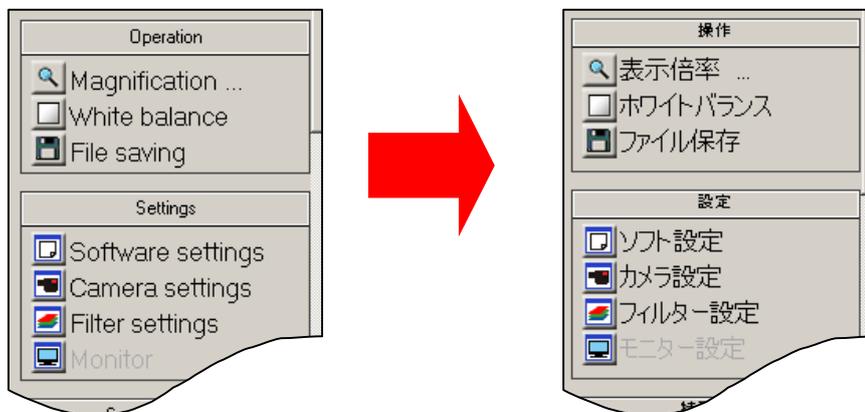


From “Rearrange Menu Items”, select the item to be moved, and then make a left-click on the direction key (up or down).

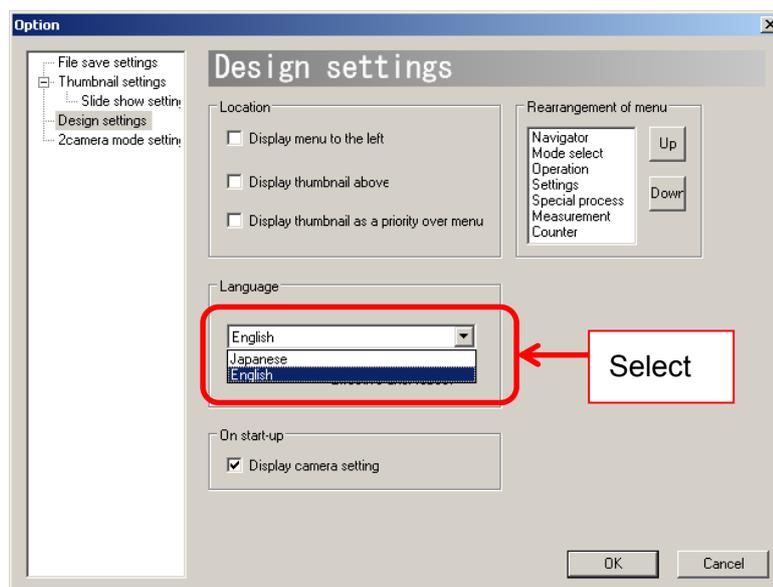


Switch the Language of the Software (JP/EN)

The Language of Viewer Software can be switched between English and Japanese.



Select the preferred language from the “Language” field.



To apply this change, please click “OK” to close the “Design Settings” screen, and then restart the Viewer Software.

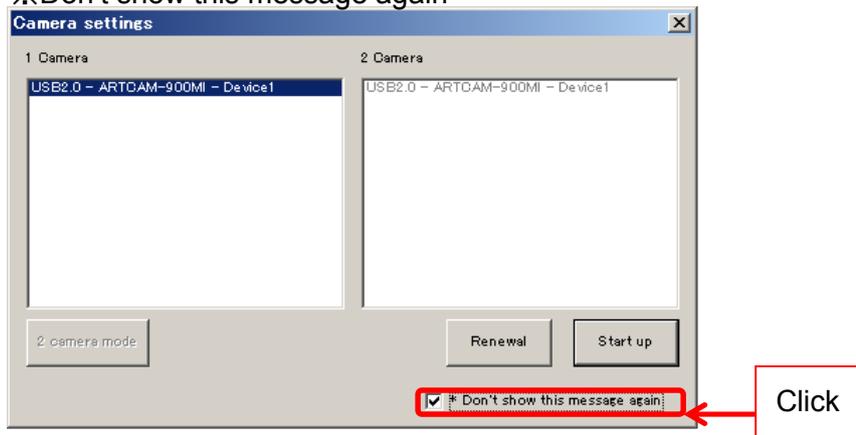
Do not Show the Camera Settings Dialog Box When the Program Starts

Camera Settings dialog box pops up by default (as below) when the program is started. This dialog box can be hidden.

There are two ways to hide the Camera Settings dialog box.

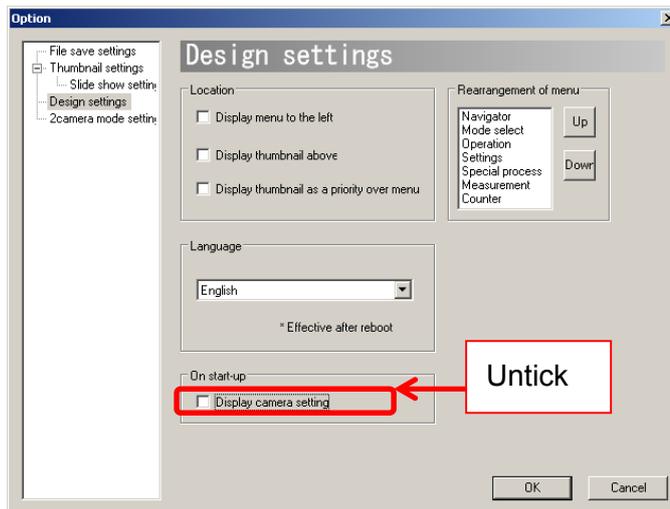
<Set from Camera Settings dialog box when the program starts>

Click on “☒Don't show this message again”



<Set from Design Settings screen>

Untick “Display camera settings” under “On start-up”



☒NOTICE

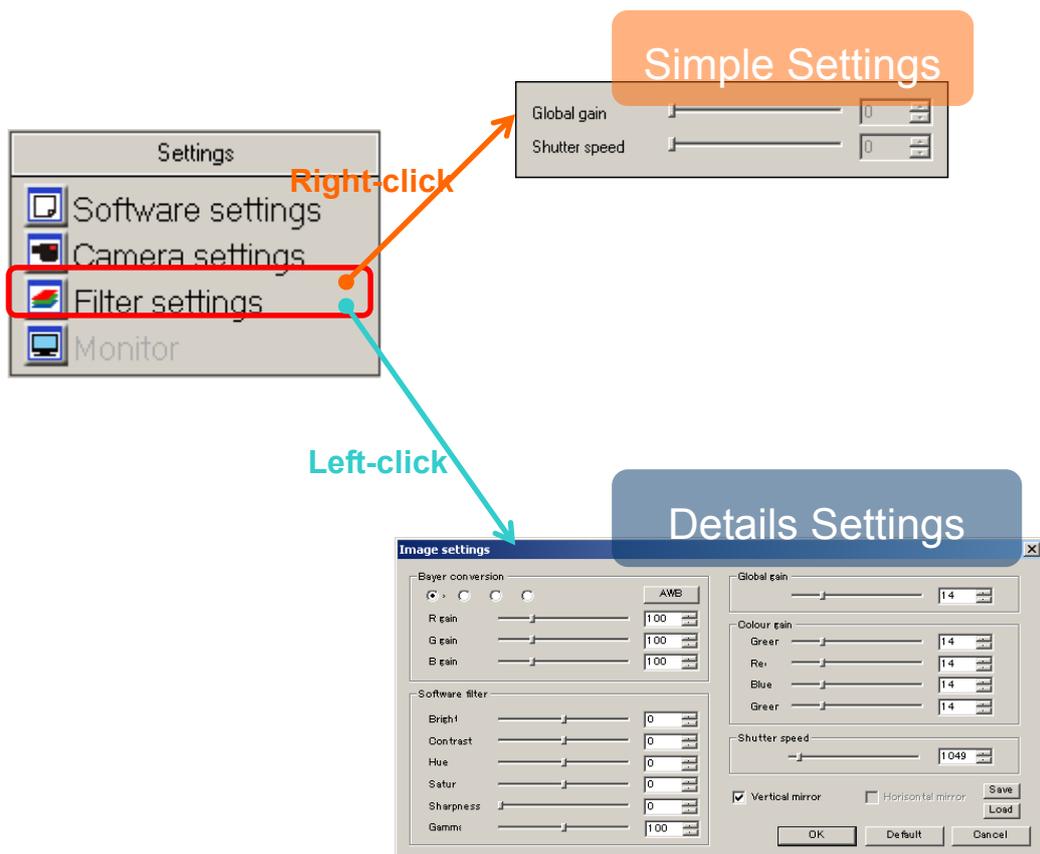
If the Camera Settings dialog box is set to hidden when starting, the same camera from last time will be automatically selected.

If a camera different from last time is connected, please go to “Camera Settings” from the “Settings” menu and select the camera after the program starts.

8.5. FILTER SETTINGS (STANDARD MODE)

Camera

Settings related to the filters can be changed from either the “Simple Settings” or “Details Settings” screen.

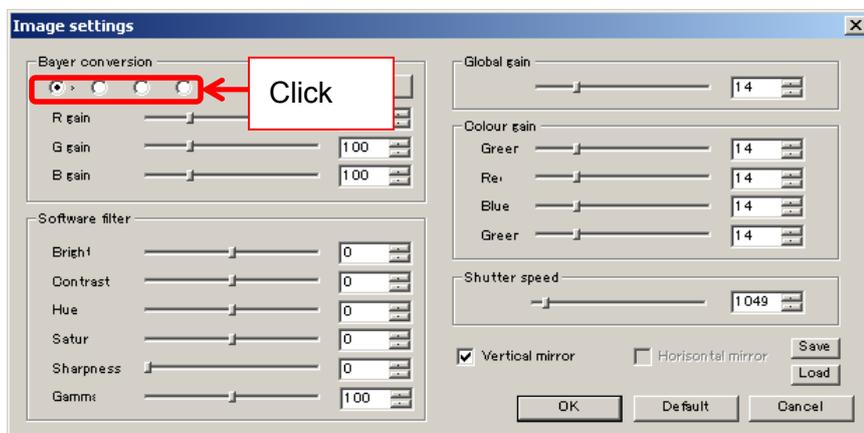


※ NOTICE

- λ Click “OK” on the “Details Settings” screen to apply changes, or click “Cancel” to cancel.

Change Bayer Pattern

Please click on the Radio Button from “Bayer conversion” on the Details Settings screen.

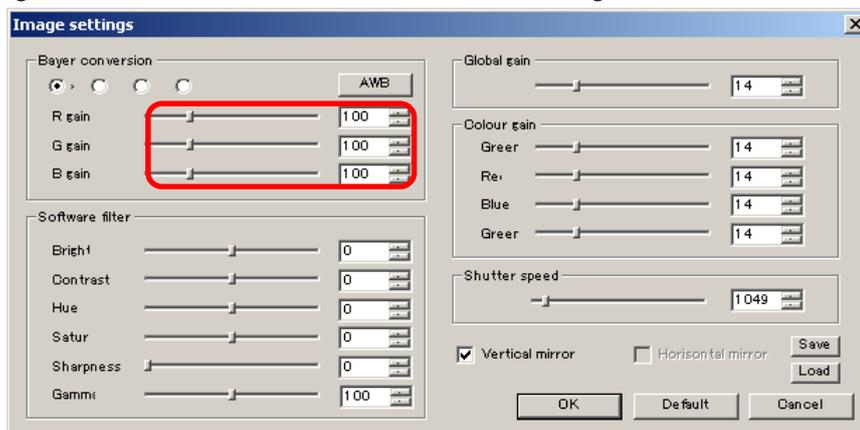


Bayer patterns may vary by model.

Bayer Pattern can be also adjusted from White Balance Settings Screen. For the details, please refer to [Adjust White Balance](#) on page 56.

Adjust RGB Gains

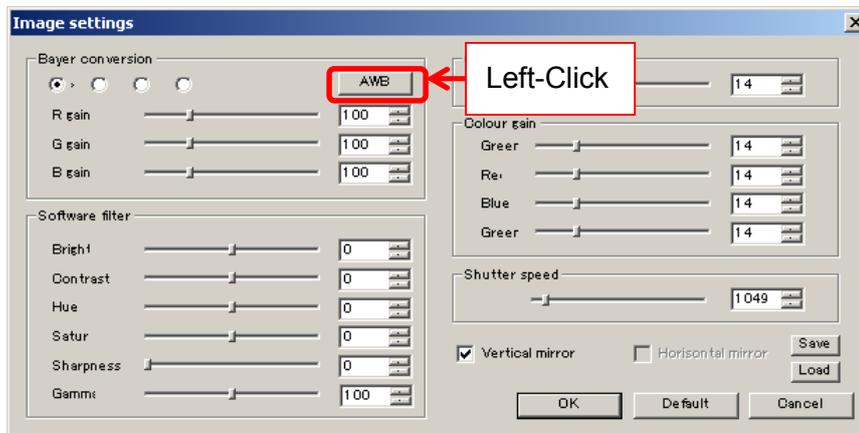
Adjust “R gain”, “G gain”, and “B gain” by either entering numbers into the edit boxes or moving the slide controllers from the Details Settings screen.



RGB gain can be also adjusted from White Balance Settings Screen. For the details, please refer to [Adjust White Balance](#) on page 56.

Auto White Balance

Click on “AWB” from the Details Settings screen to apply Auto White Balance.

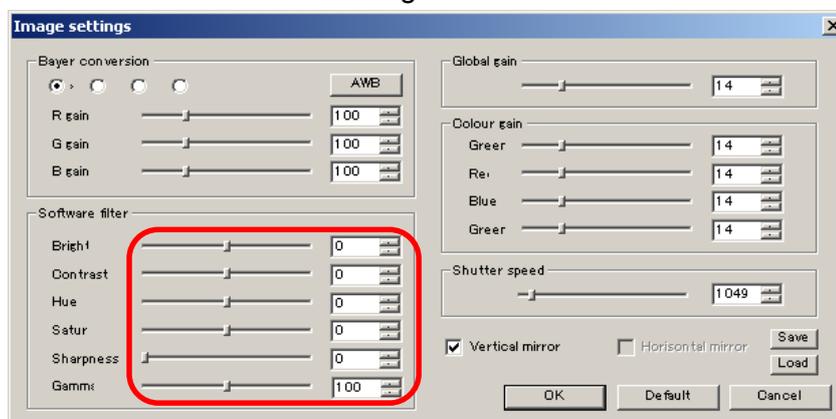


Auto White Balance can also be applied White Balance Settings screen. For the details, please refer to [Adjust White Balance](#) on page 56.

Enable the Filters

Filters for brightness, contrast, hue, saturation, sharpness, and gamma are available.

Please adjust each item by either entering a number into the edit box or dragging the slide controller from the Details Settings screen.



Gamma value 100 stands for $\gamma = 1.00$.

With the sharpness filter enabled, the frame rate may decrease due to slow operation speed.

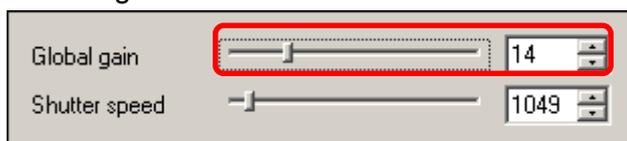
※ With Software Filters enabled, the CPU load may increase and result in display delays.

Set Global Gain

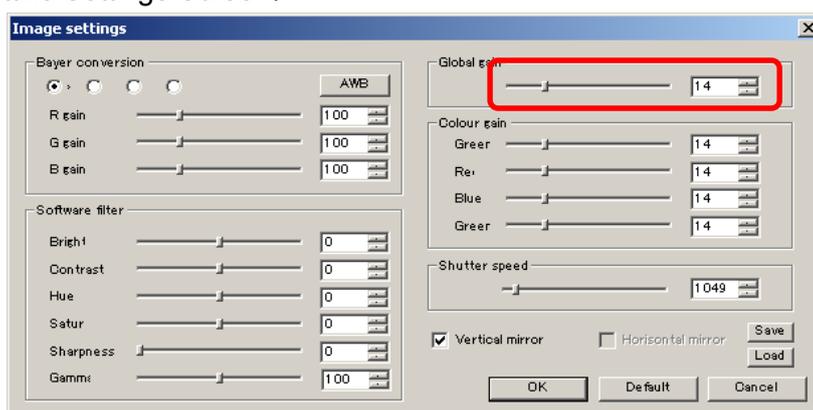
Global Gain level can be changed from either the “Simple Settings” or “Details Settings” screen.

Please set Global Gain by either entering a number into the edit box or dragging the slide controller from the Details Settings screen.

<Simple Settings Screen>



<Details Settings Screen>



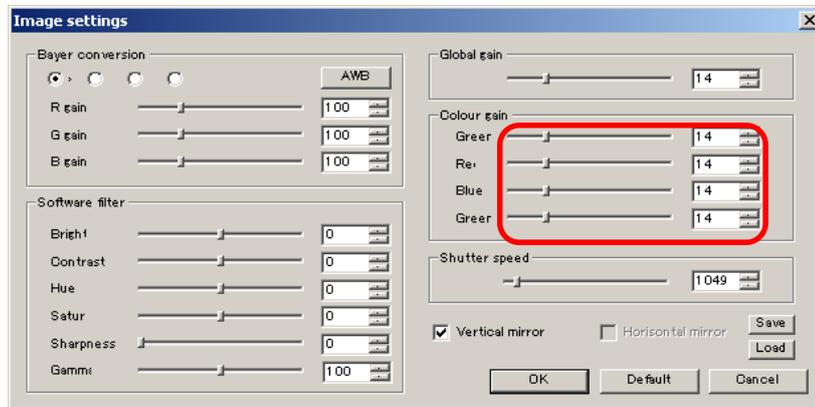
※ NOTICE

- λ Global gain is correlated to each color gain. If the global gain is adjusted, the color gains will be set to the same value of the global gain.
- λ It is not necessary to adjust the global gain if you are going to adjust the color gains one by one.

Adjust Color Gain

※Not available on eSATA camera

Please adjust Color Gain by either entering numbers into the edit boxes or moving the slide controllers from the Details Settings screen.



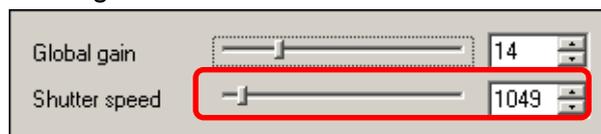
Color Gain Settings is applicable on all CMOS cameras except for 036MI.
For inapplicable models, the edit boxes are grey and unable to be adjusted.

Adjust Shutter Speed

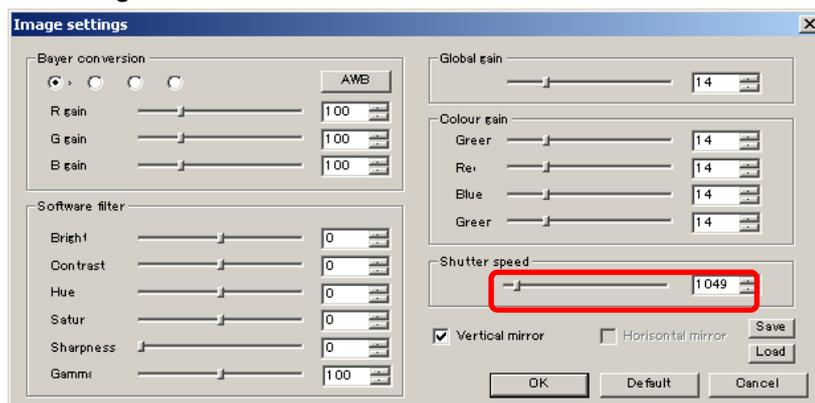
Shutter Speed can be changed from either the “Simple Settings” or “Details Settings” screen.

Please adjust the Shutter Speed by either entering a number into the edit box or moving the slide controller from the Details Settings screen.

<Simple Settings Screen>

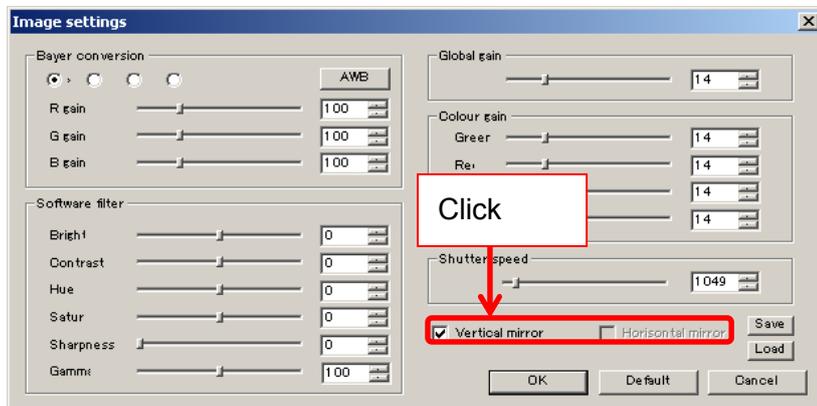


<Details Settings Screen>



Mirror

Click “Vertical mirror” or “Horizontal mirror” from the Details Settings screen to apply Mirror.



Horizontal mirror is available on only some of the models.

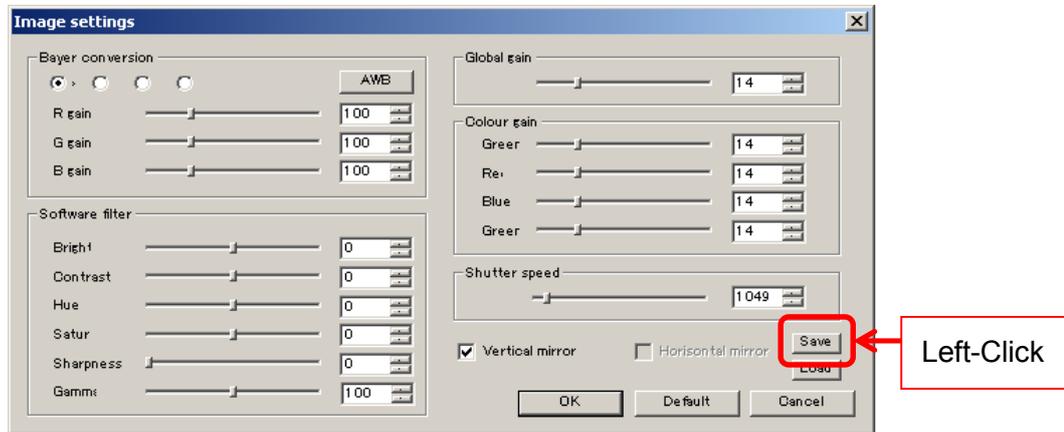
For the details, please refer to [AVAILABLE SOFTWARE FUNCTIONS BY CAMARA](#) on page 185.

For inapplicable models, the box is grey and unclickable.

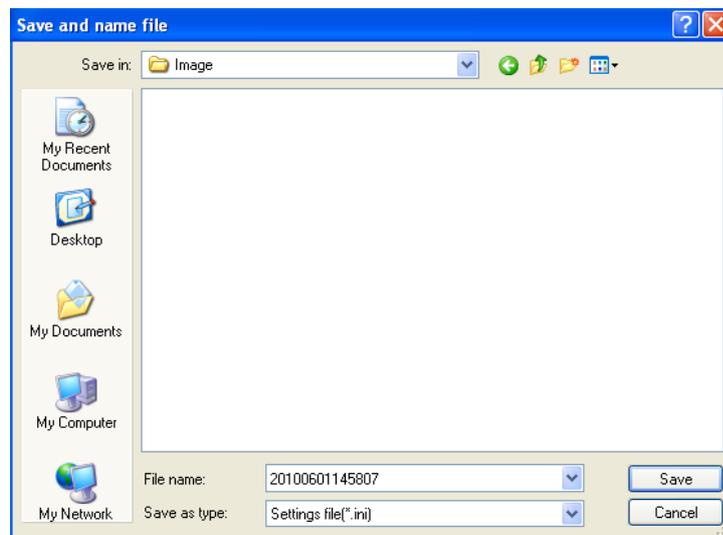
Save Changes to the Filter Settings

To save changes to the Filter Settings, please follow the instructions below.

1. Click “Save” on the Details Settings screen.



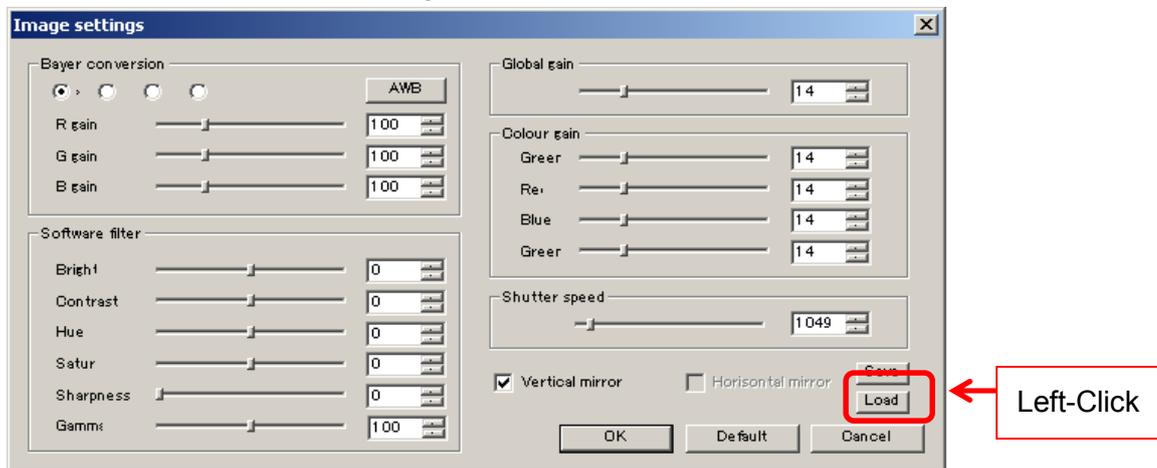
2. The file save dialog box pops up. Please specify the filename and location, and then click “Save”.



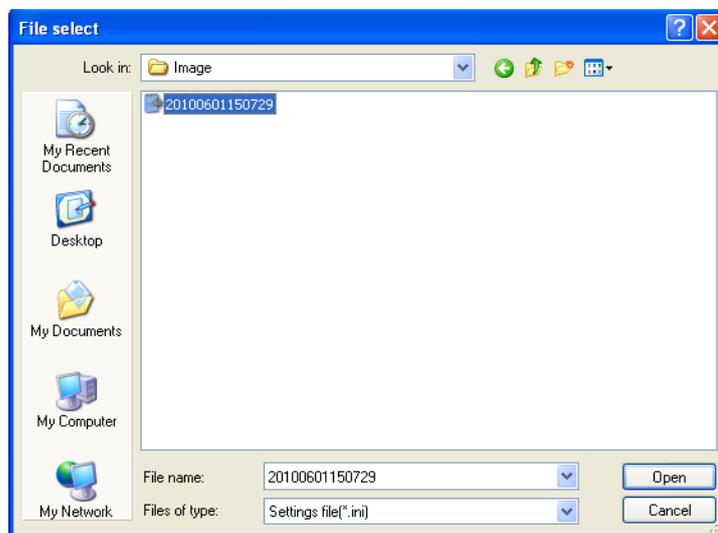
Load the Filter Settings

To restore previously saved filter settings, please follow the instructions below.

1. Click “Load” on the Details Settings screen.



2. The file save dialog box pops up. Select the settings file and left-click “Open”.

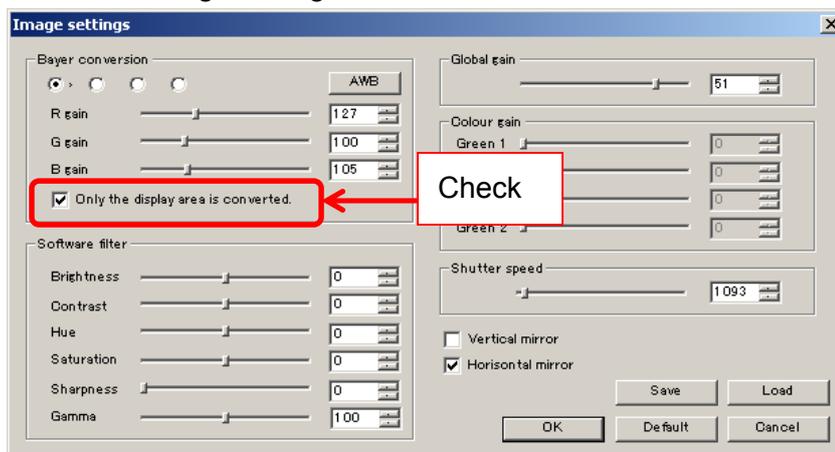


Bayer Conversion only on the Display Area

When running a USB3.0 Camera, having the whole image converted to Bayer may result in very low frame rate.

The frame rate can be improved by having only the display area on the software converted to Bayer.

To apply Bayer conversion only on the display area, please tick “Only the display area is converted” on the Image settings window.



To apply Bayer conversion on the whole image, please leave “Only the display is converted” unchecked.

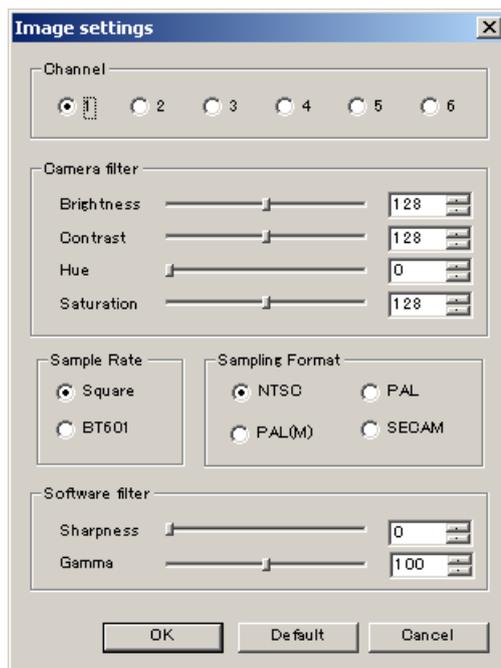
※NOTICE

- λ Bayer conversion takes places on the whole image when the still image is saved.
- λ For streaming, only the Bayer converted area are refreshed on the Navigator screen.

ARTCNV II

Settings related to filters can be changed from “Image settings” window.

To open the “Image settings” window, please left-click on  Filter settings from “Settings” on the Menu.



Click “OK” to apply changes, or click “Cancel” to cancel.

To retrieve default settings, click “Default”.

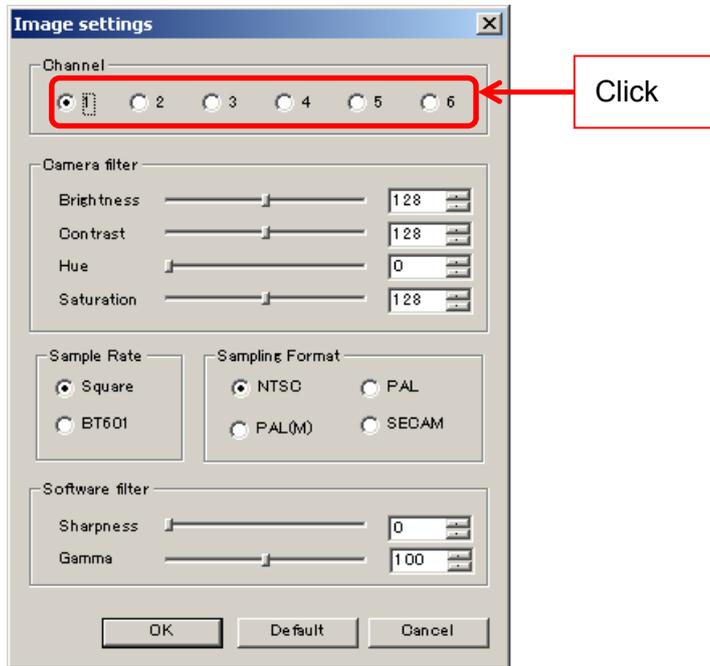
※NOTICE

If right-clicking on  Filter settings, Simple Settings screen for global gain and shutter speed adjustment will pop up. However please note that these settings cannot be changed if you are using ARTCNVII.

Switch the Channel

If more than one camera is connected to ARTCNV7, you can switch the display source.

Please select the channel to be displayed from “Channel”.



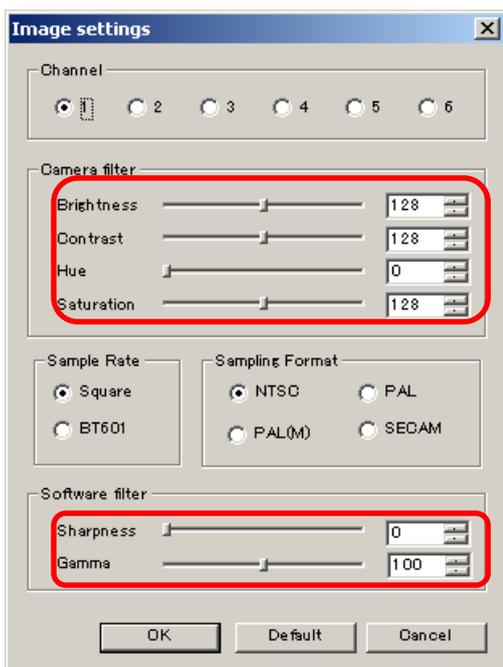
※ NOTICE

- λ To connect more than one camera and switch the channel, please adopt CNV7-2CH or CNV-HAKO.
- λ If only one camera is connected, please select “1”.

Enable the Filter

Filters for brightness, contrast, hue, saturation, sharpness, and gamma are available.

Please adjust Camera filter and Software filter by either entering numbers into the edit boxes or moving the slide controllers from the Details Settings screen.



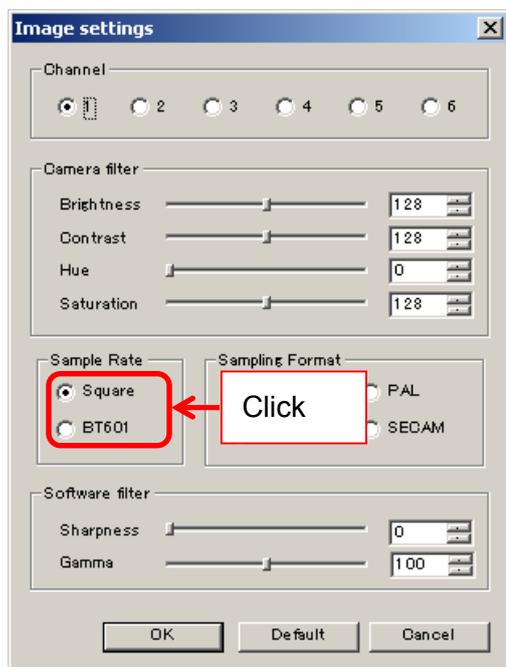
Gamma value 100 stands for $\gamma = 1.00$.

With the sharpness filter enabled, the frame rate may decrease due to slow operation speed.

※ With Software Filters enabled, the CPU load may increase and result in display delays.

Switch Sampling Rates

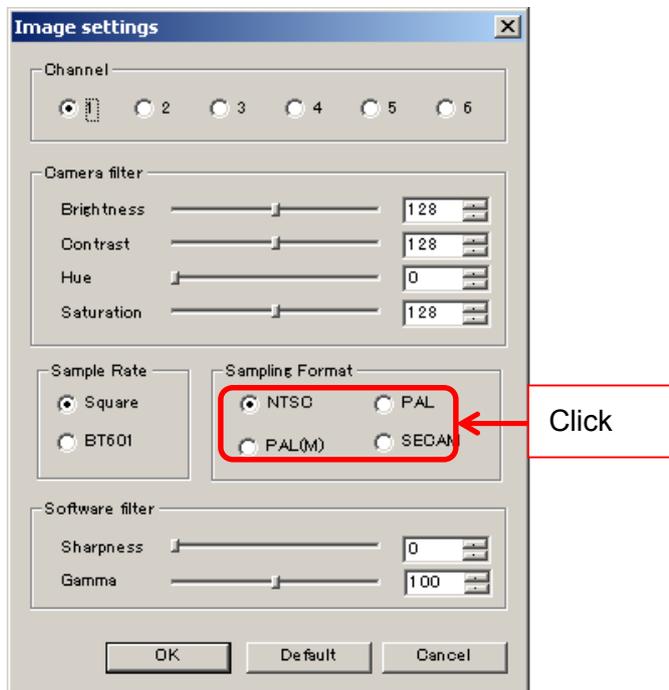
Please select the sampling rate from “Sampling Rates”



The frequency of sampling can be changed.

Switch Sampling Format

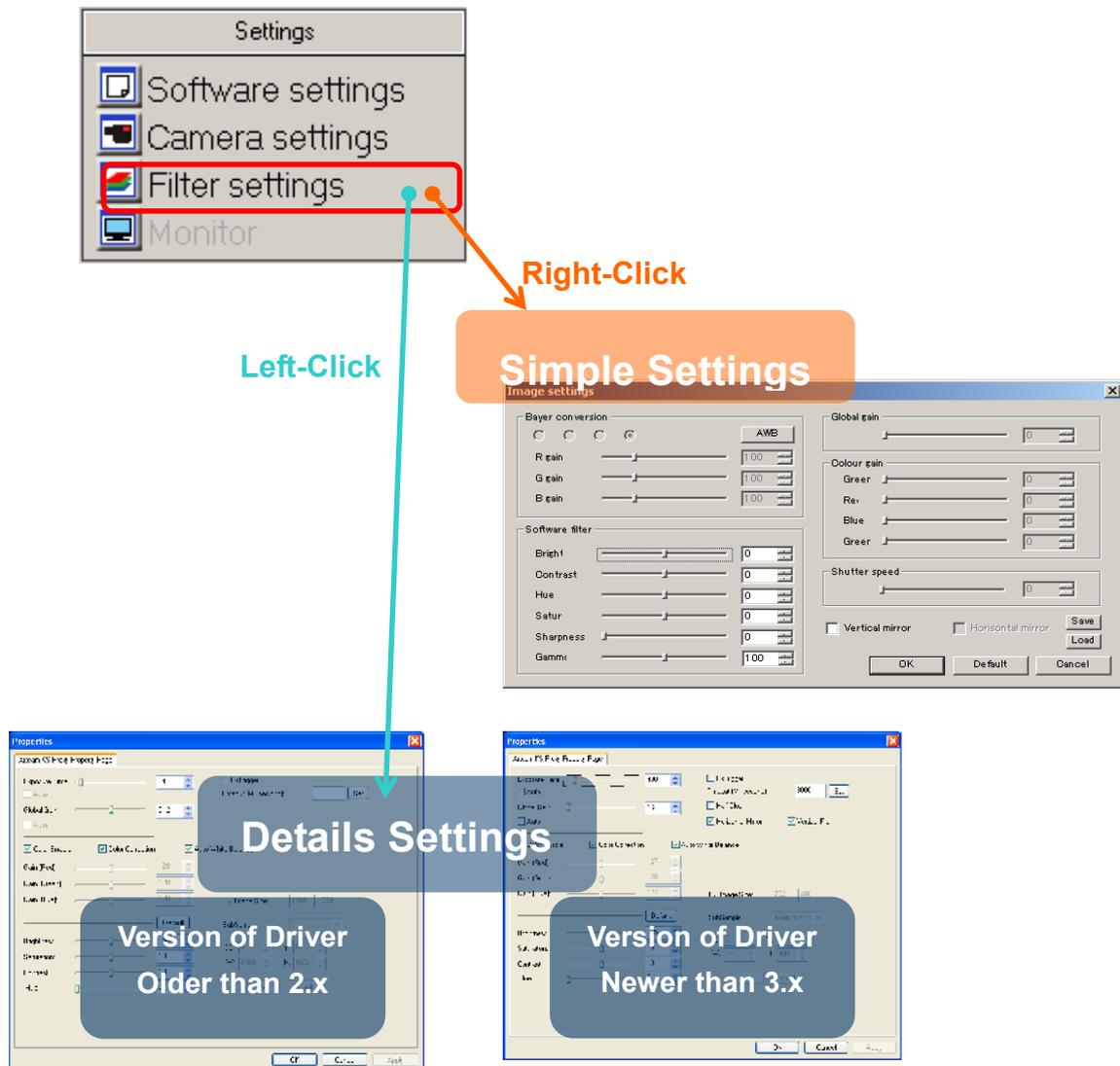
Please select the format from “Sampling Format”



Input signal format can be switched.
Please select a suitable analog signal format.

8.6. FILTER SETTINGS (DS MODE)

Settings related to the filters can be changed from either the “Simple Settings” or “Details Settings” screen.



※ NOTICE

- λ Window of “Detail settings” is different depends on Version of Driver.
- λ Click “OK” on the “Details Settings” screen to apply changes, or click “Cancel” to cancel.

Newer Than Version 3.x

Enable the Filter

■ Filter functions ■

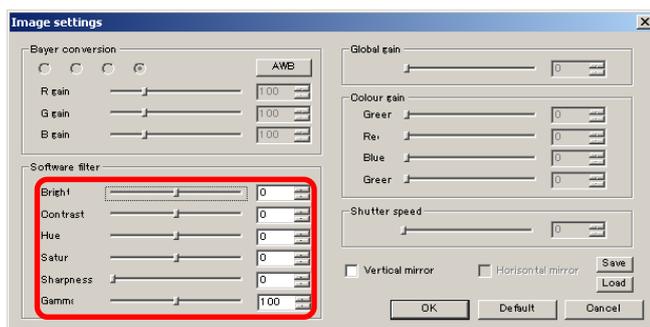
Brightness, Contrast, Hue, Saturation, Sharpness and Gamma

※ NOTICE

- λ With Software Filters enabled, the CPU load may increase and result in display delays.
- λ Sharpness and Gamma can be modified only on “Simple Settings”.

< Simple Setting >

On “Software Filter”, put numbers in edit boxes or move slide controllers to adjust settings of filter.

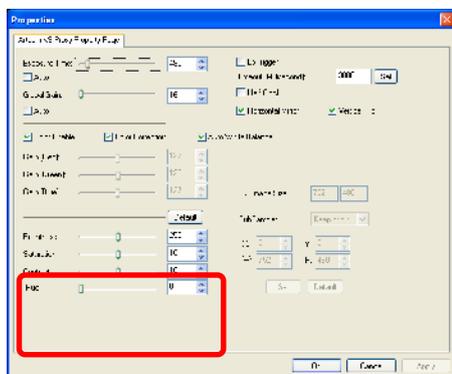


Gamma value 100 stands for $\gamma = 1.00$.

With the sharpness filter enabled, the frame rate may decrease due to slow operation speed.

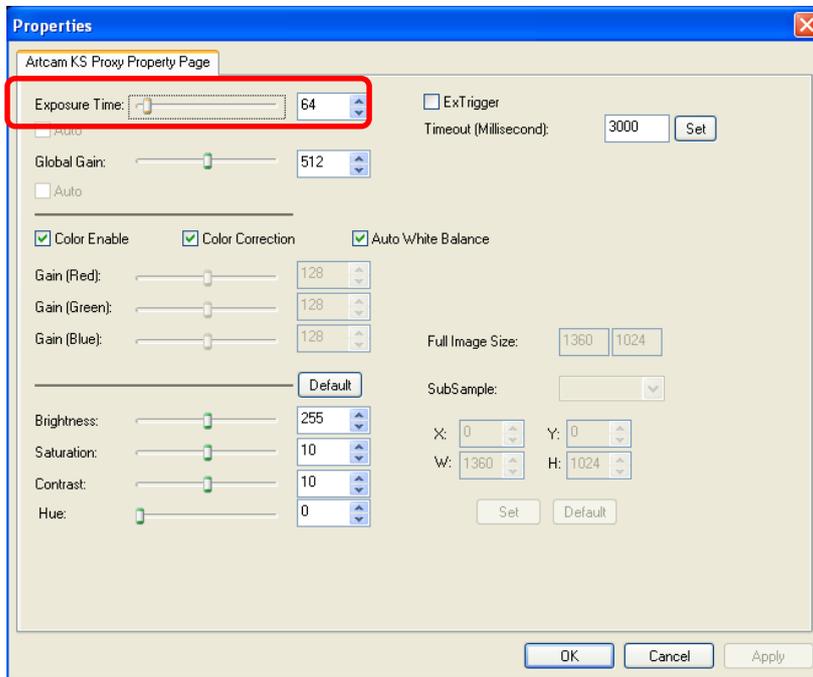
< Details Setting >

Put numbers into edit boxes or move slide controllers to adjust settings of filter for Brightness, Saturation, Contrast, and Hue.



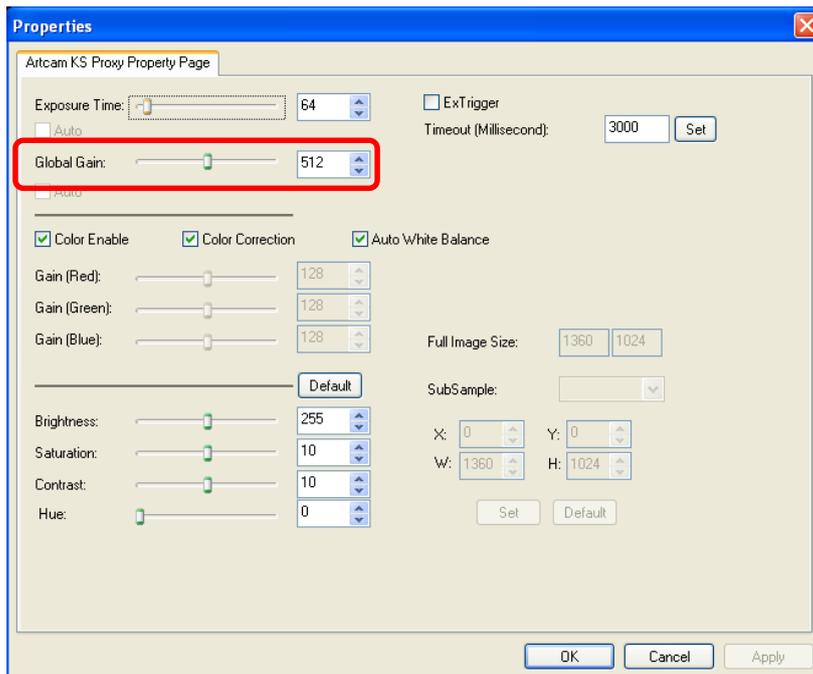
Adjust Shutter Speed

Please adjust the Shutter Speed by either entering a number into the edit box or moving the slide controller of “Exposure Time” from the Details Settings screen.



Adjust Global Gain

Please adjust the Global Gain by either entering a number into the edit boxes or moving the slide controller from the Details Settings screen.

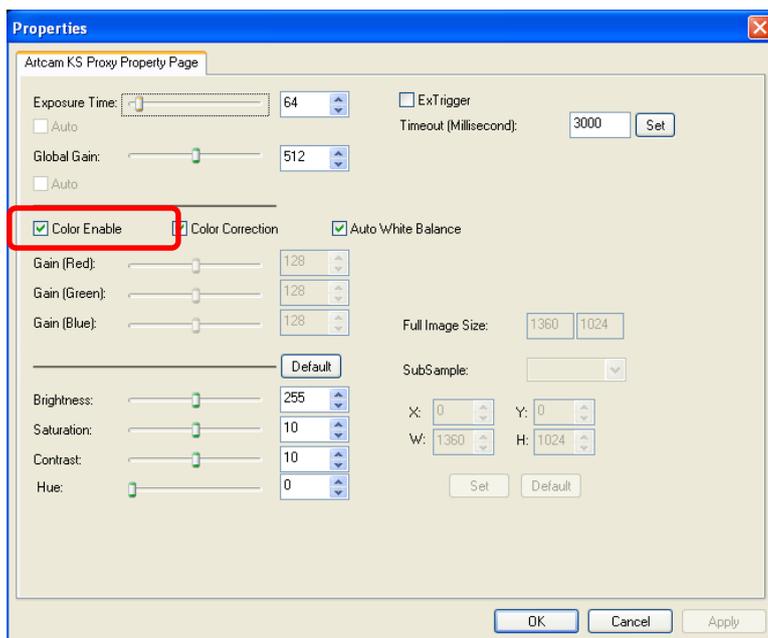


Enable Color Output

✘ Not applicable on Monochrome Cameras

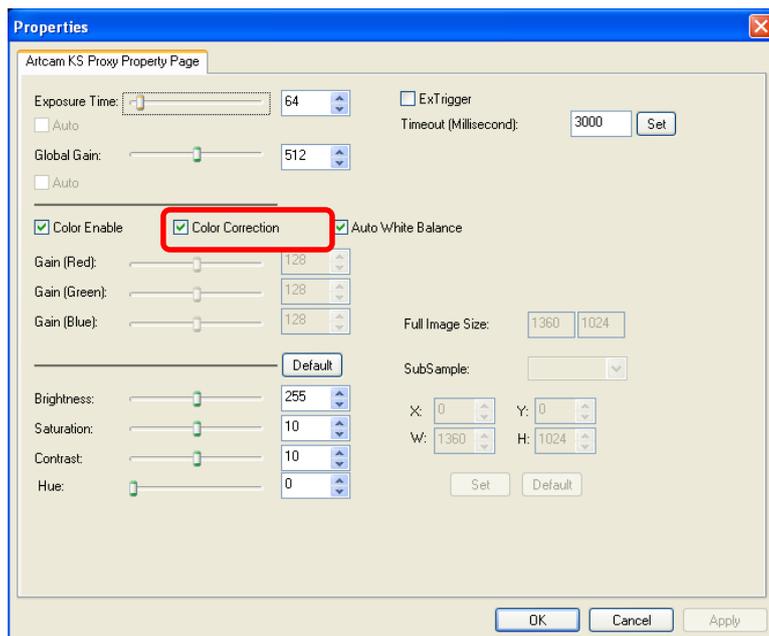
Please click on “Color Enable” from the Details Settings screen.

Tick or untick the box to switch to color output mode or monochrome output mode accordingly.



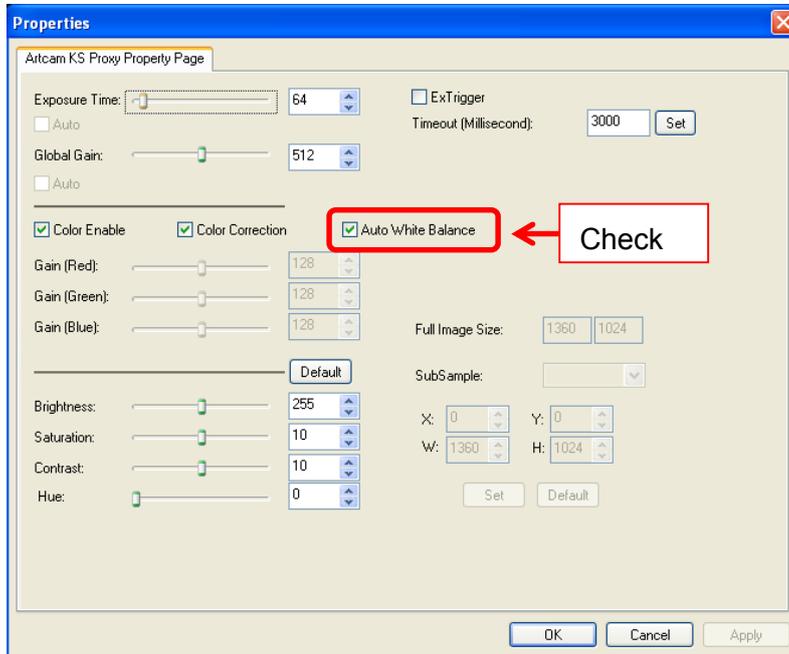
Color Correction

Please click on “Color Correction” from the Details Settings screen.



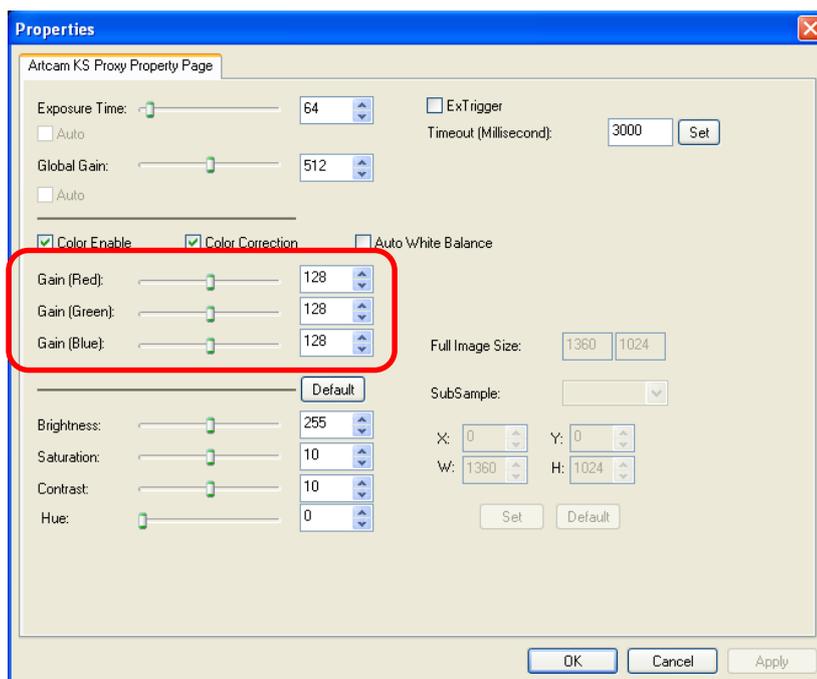
Auto White Balance

Check “Auto White Balance” from the Details Settings screen to apply Auto White Balance.



Adjust RGB Gain

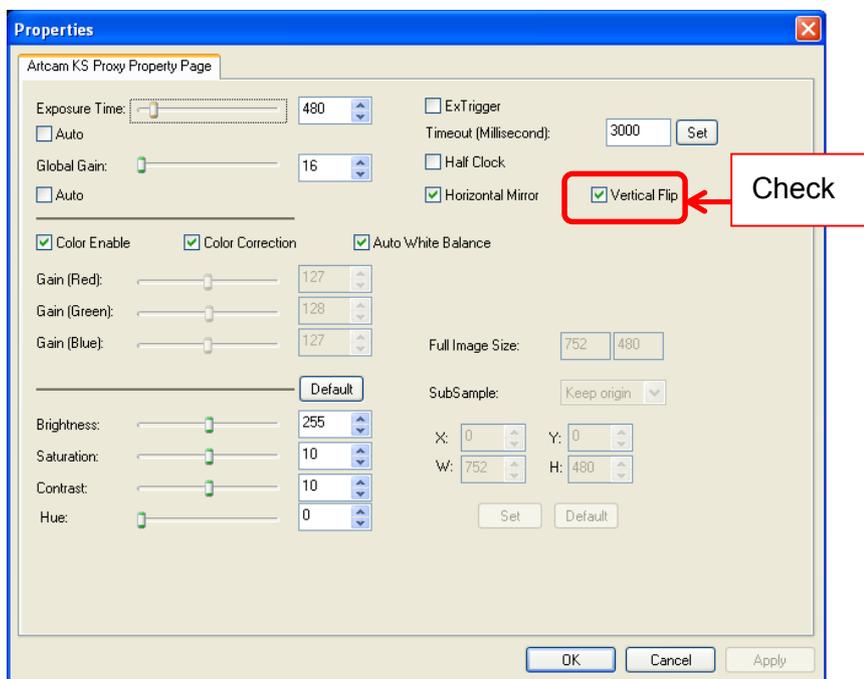
To adjust RGB Gain each by each, please check “Auto White Balance” box, and then adjust “Red Gain”, “Green Gain”, or “Blue Gain” by moving the slide controllers on the Details Settings screen.



Vertical Flip

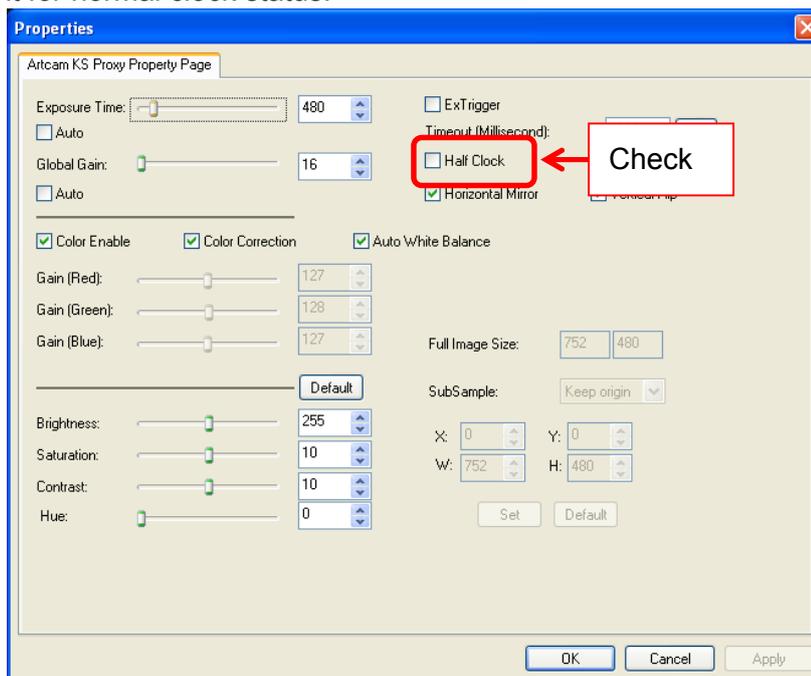
✘ Not applicable on CCD Cameras

Please check on “Vertical Flip” on the Details Settings screen to flip the image vertically.



Clock Setting

Please check on “Half Clock” for half clock function on the Details Settings screen and uncheck it for normal clock status.



※ NOTICE

- λ For models compatible with high-speed clock, please choose cock under Combo Box interface.
- λ Depends on camera model, you cannot modify clock settings. For the details, please refer to [AVAILABLE SOFTWARE FUNCTIONS BY CAMARA](#) on page 185.

Older Than Version 2.x

Enable the Filter

■ Filter functions ■

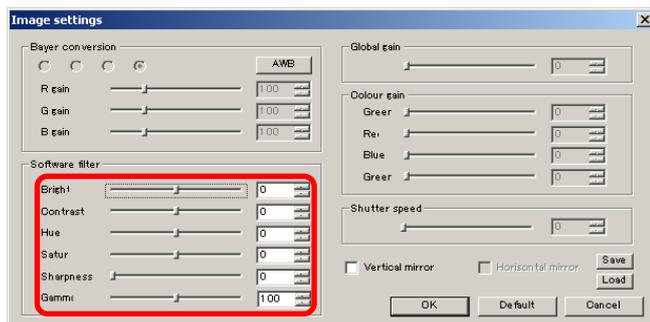
Brightness, Contrast, Hue, Saturation, Sharpness and Gamma

※ NOTICE

With Software Filters enabled, the CPU load may increase and result in display delays.

< Simple Setting >

On “Software Filter”, put numbers in edit boxes or move slide controllers to adjust settings of filter.

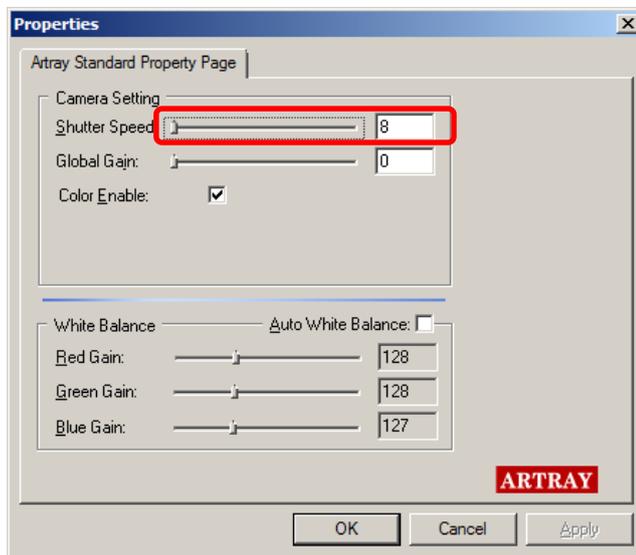


Gamma value 100 stands for $\gamma = 1.00$.

With the sharpness filter enabled, the frame rate may decrease due to slow operation speed.

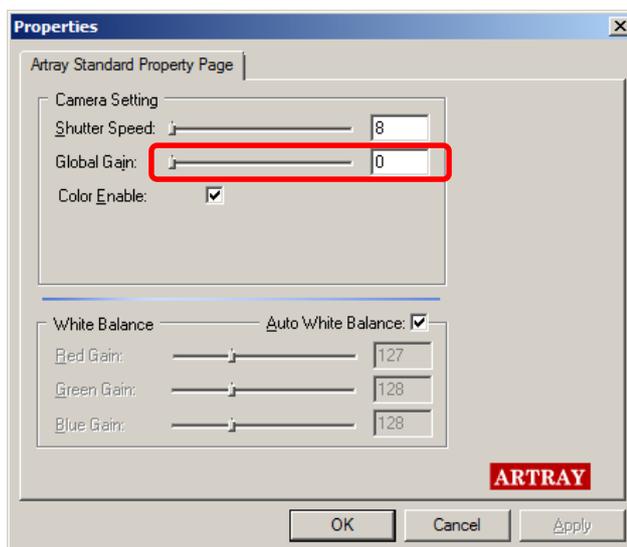
Adjust Shutter Speed

Please adjust the Shutter Speed by either entering a number into the edit box or moving the slide controller of “Exposure Time” from the Details Settings screen.



Adjust Global Gain

Please adjust the Global Gain by either entering a number into the edit boxes or moving the slide controller from the Details Settings screen.

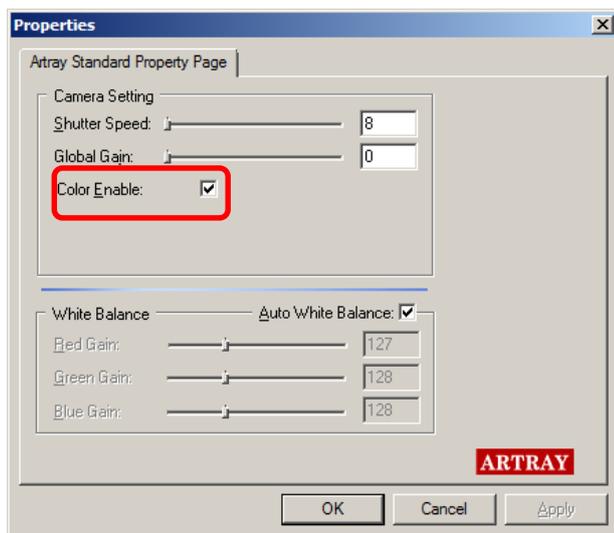


Enable Color Output

✘ Not applicable on Monochrome Cameras

Please check on “Color Enable” from the Details Settings screen.

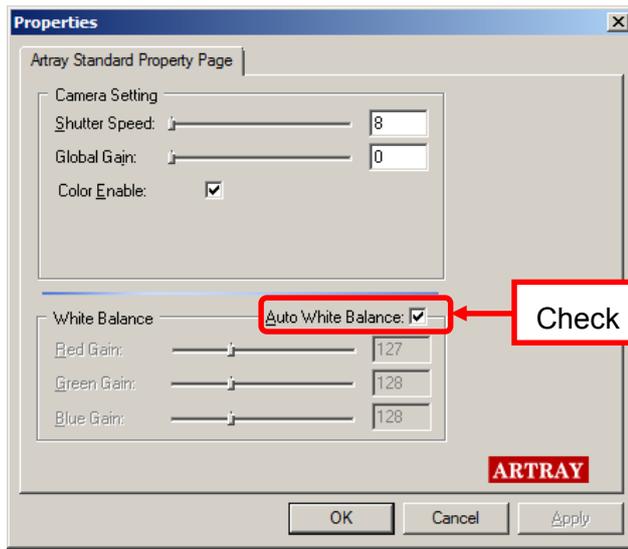
Check or uncheck the box to switch to color output mode or monochrome output mode accordingly.



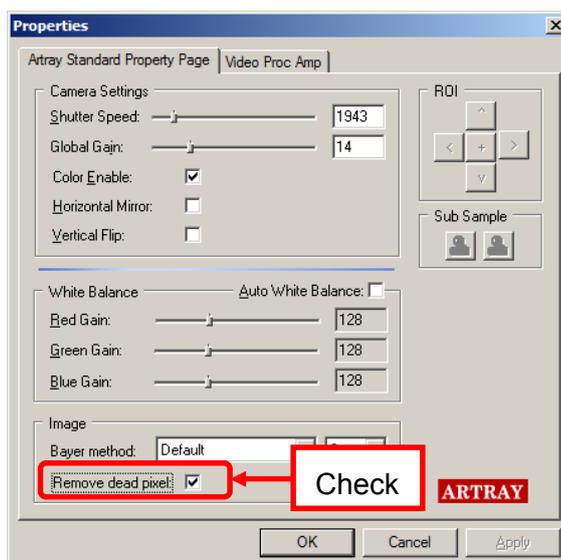
Apply Auto White Balance

Check on “Auto White Balance” from the Details Settings screen to apply Auto White Balance.

<CCD Camera>

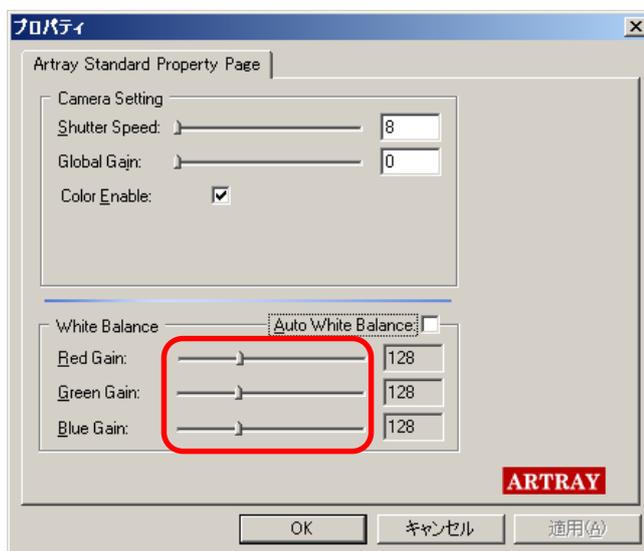


<CMOS Camera>



Adjust RGB Gain

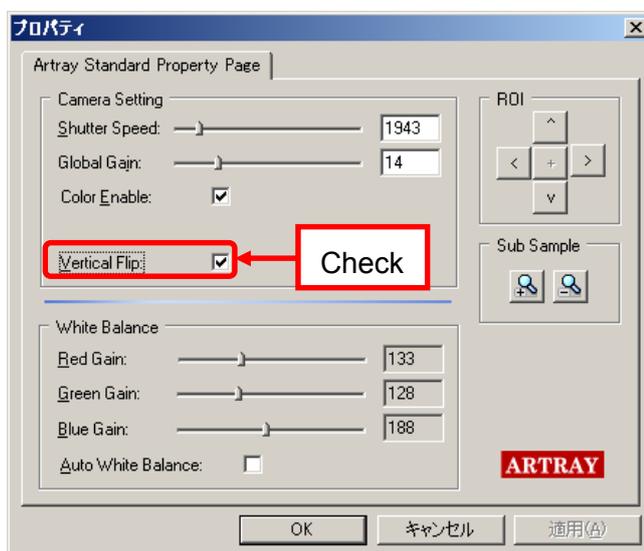
Before adjust RGB Gain, make sure uncheck “Auto White Balance” on Detail setting.
Put numbers into the edit boxes or move slider controllers to adjust RGB Gain.



Vertical Flip

※ Not applicable on CCD Cameras

Check on “Vertical Flip” on the Details Settings screen to flip the image vertically.

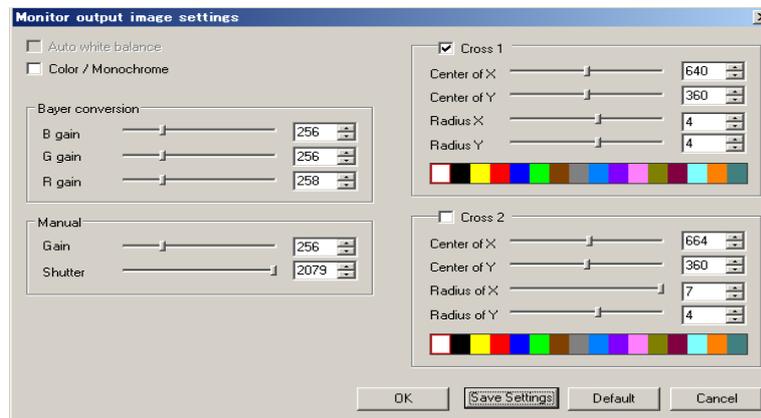


8.7. MONITOR SETTINGS

※ “Monitor Settings” is applicable only on monitor output cameras.

Settings related to external monitor outputs can be changed from “Monitor Output Image Settings” screen.

To access “Monitor Output Image Settings”, please left-click on  Monitor settings from the menu.



- λ Click “OK” to apply changes, or click “Cancel” to cancel.
- λ To retrieve default settings, click “Default”.
- λ Click “Default” for defaulted values on all settings

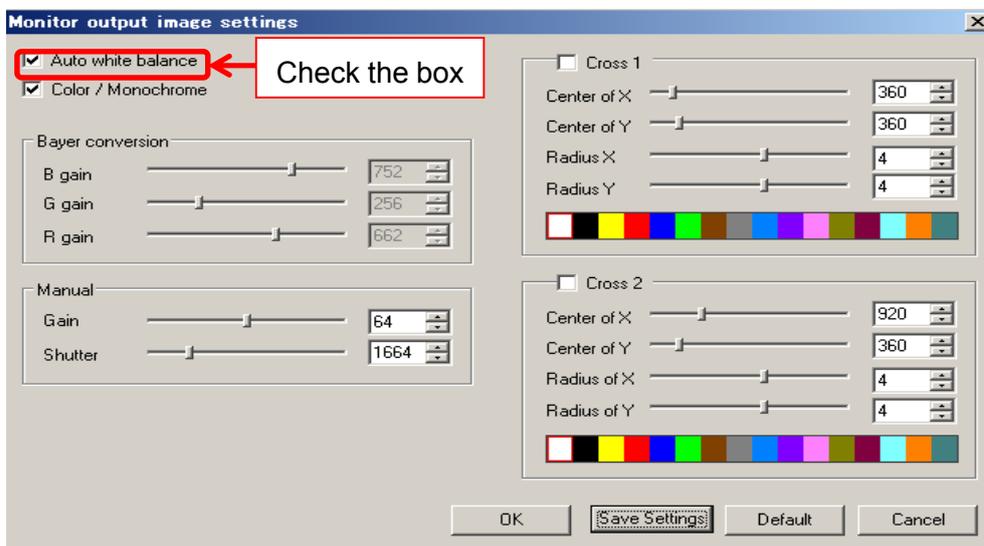
※ NOTICE

This change of settings takes effect to images on external monitor.

Please note that outputs on an external monitor might be different from the image on the PC.

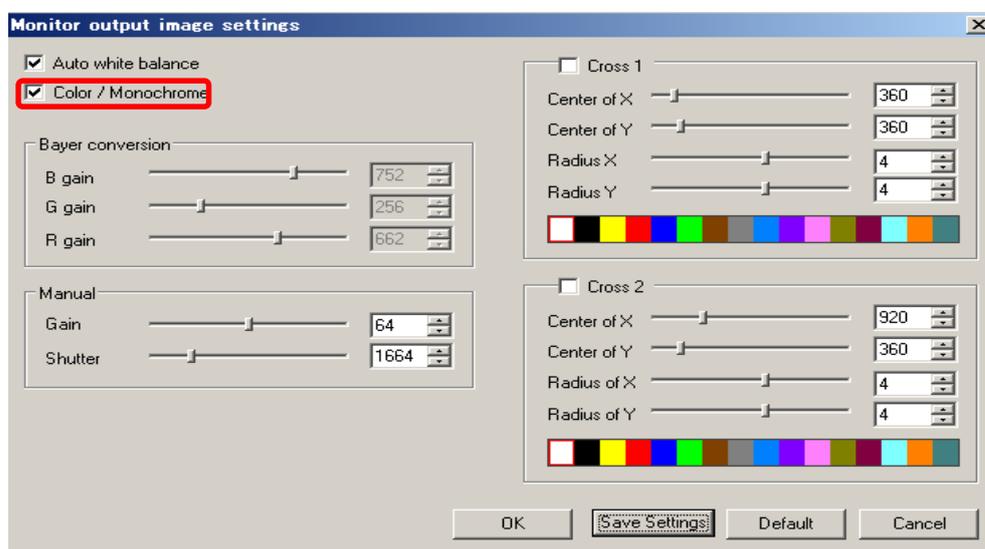
Auto White Balance Setting

Check the box for Auto white balance function.



Switch the Color Mode (Color-Black/White)

For color mode, check the Color/Monochrome box. For monochrome mode, uncheck the Color/Monochrome box.

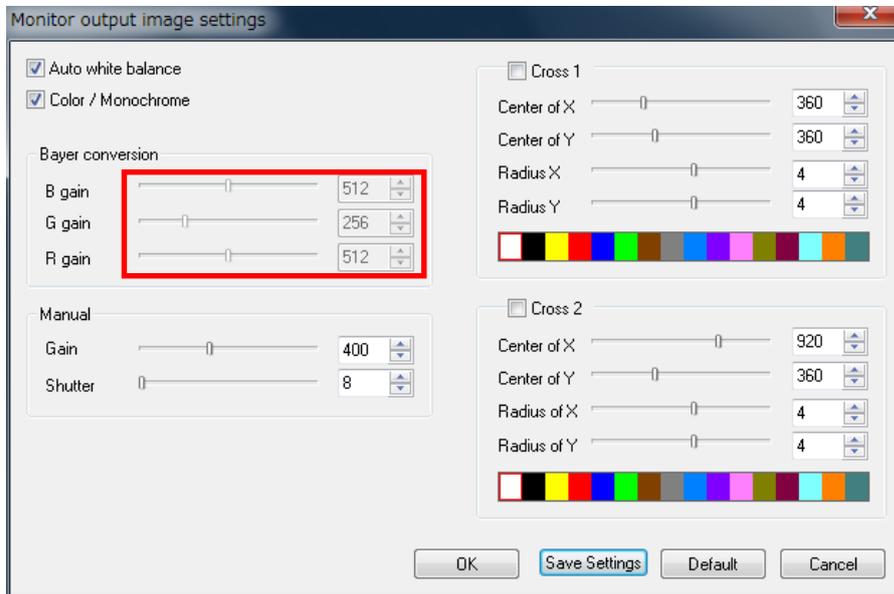


※For monochrome mode, please make sure that the Color/Monochrome box is unchecked.

Adjust RGB Gain

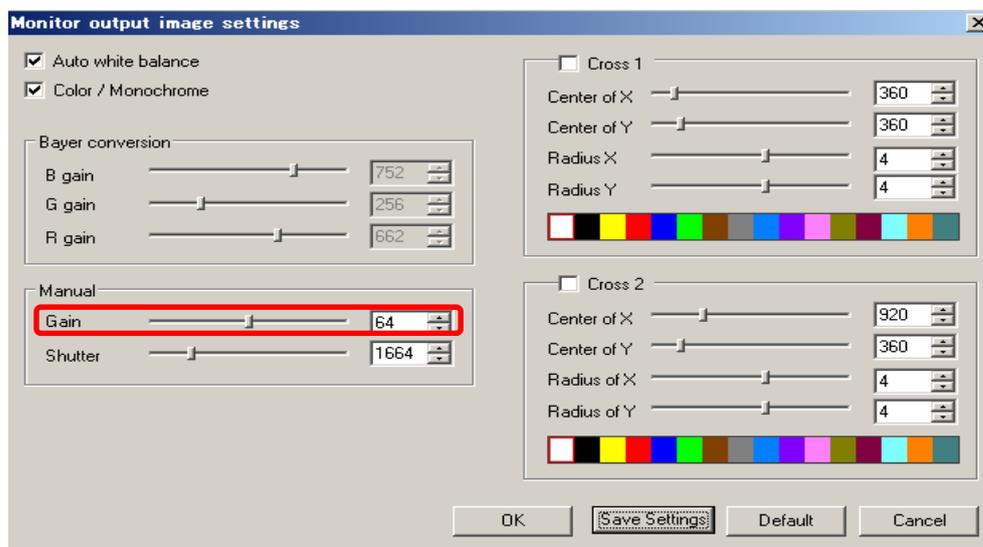
Before adjust RGB Gain, make sure uncheck “Auto White Balance”.

Put numbers into the edit boxes or move slider controllers to adjust RGB Gain.



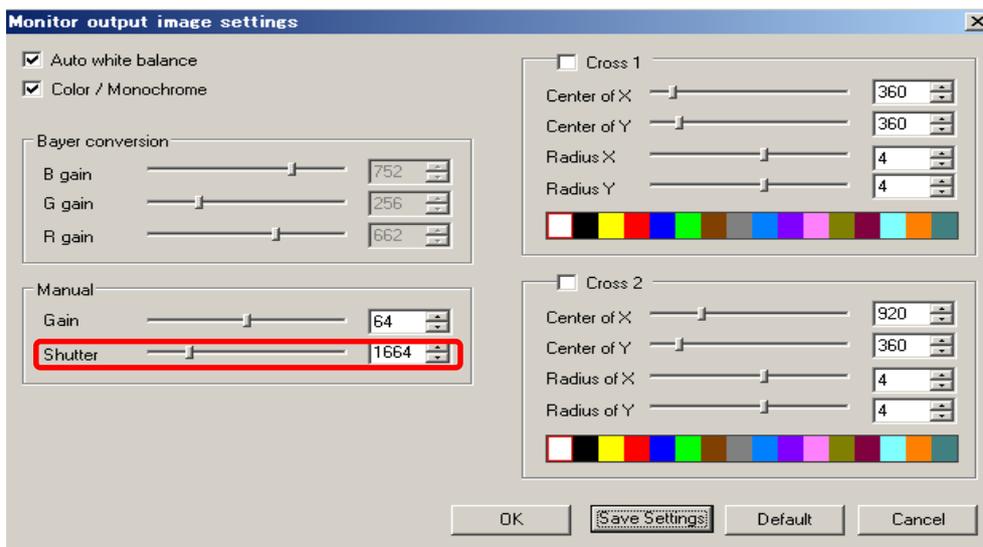
Adjust Global Gain

Please adjust the Global Gain by either entering a number into the edit boxes or moving the slide controller from the Details Settings screen.



Adjust Shutter Speed

Please adjust the Shutter Speed by either entering a number into the edit boxes or moving the slide controller from the Details Settings screen.

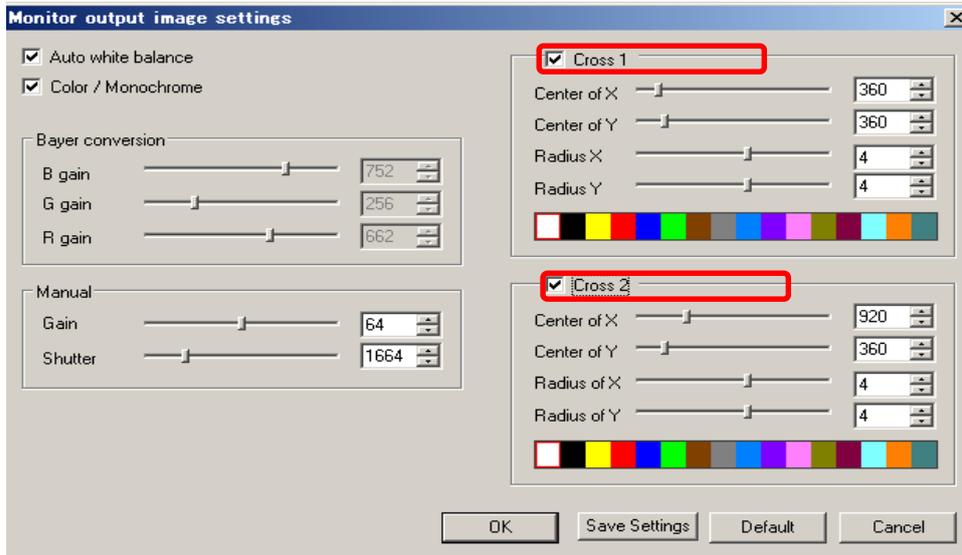


Cross Line Setting

Up to 2 cross lines can be set up to display on the screen.

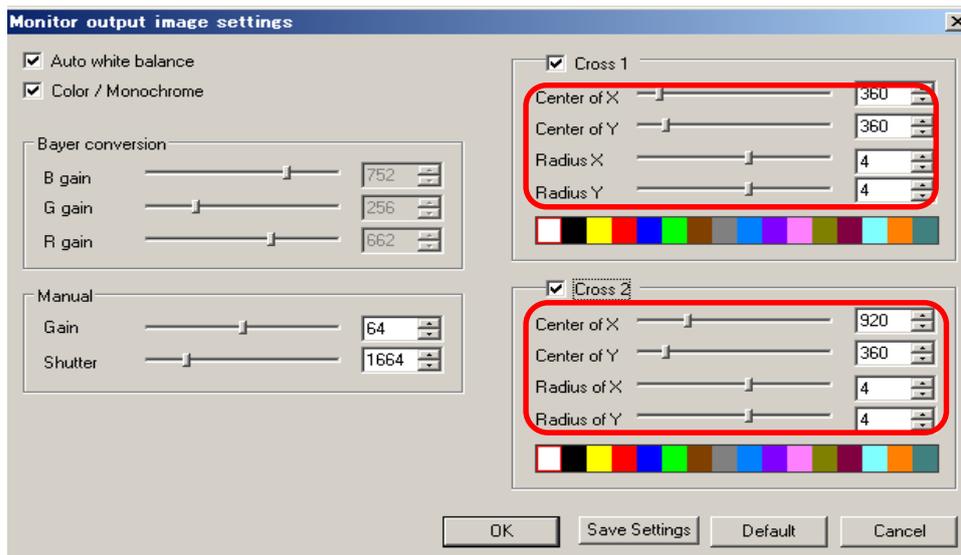
Cross Line Display

Choose and Click either Line 1 or Line 2 for display.

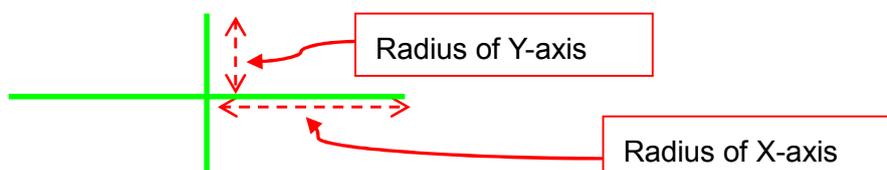


Setting on Center and Radius of X and Y

Please adjust Center of X,Y and Radius of X,Y by either entering a number into the edit boxes or moving the slide controller.

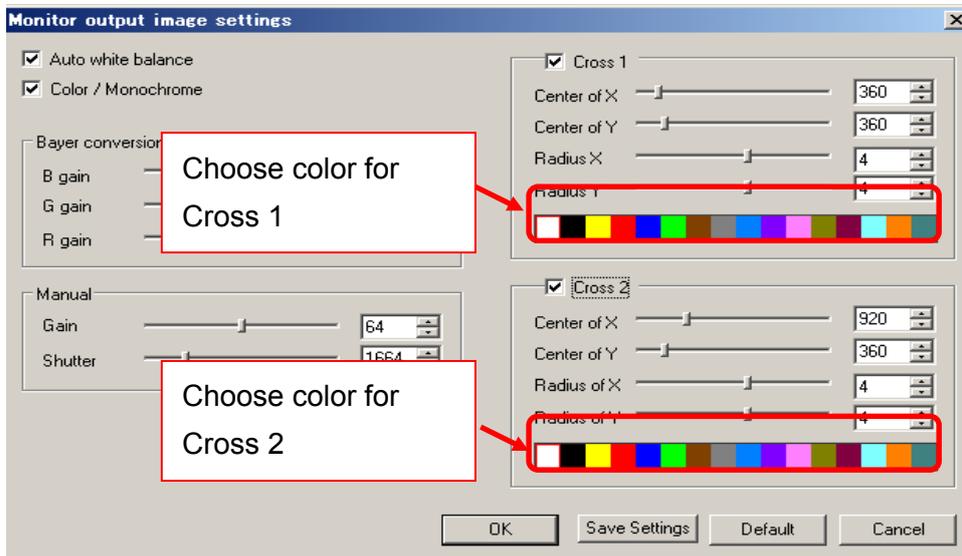


※ Radius of X-axis, Radius of Y-axis



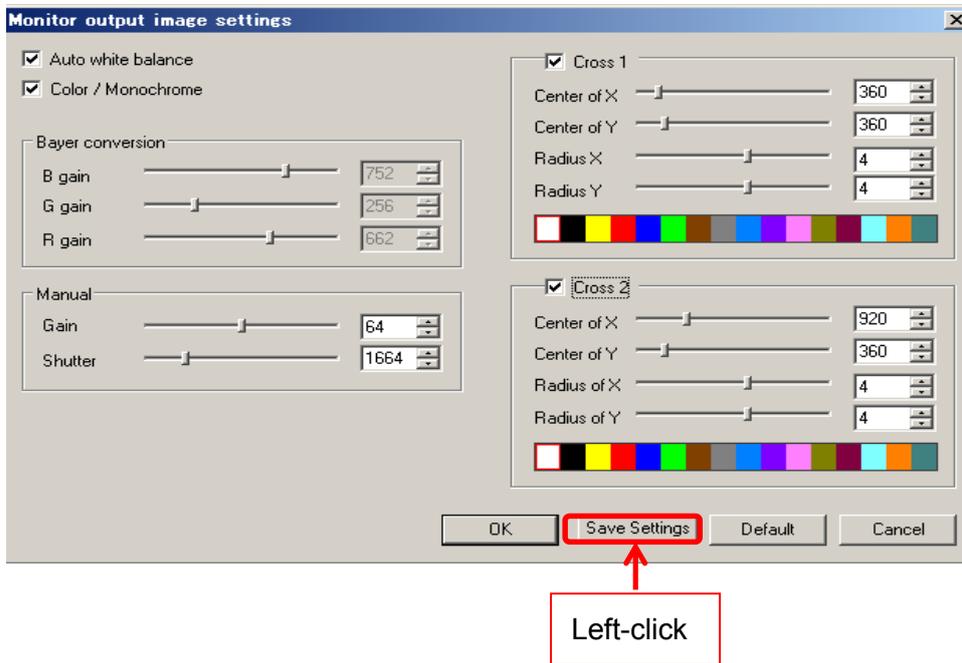
Setting on Color of Cross Line

Choose color of cross line from color palette.

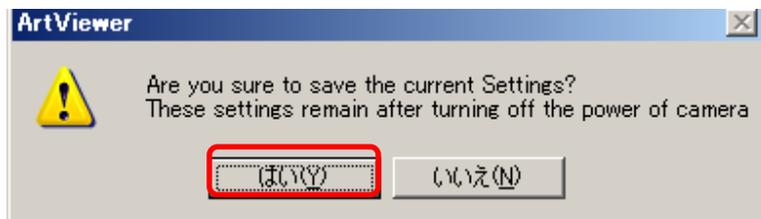


Save Settings

1. For saving the current setting, please click the "save settings"



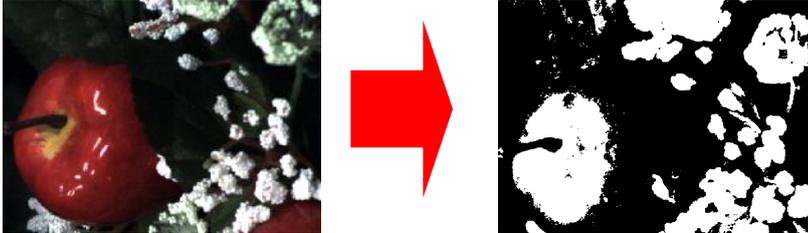
2. Confirmation message as below will be shown and please click "Ok"



9. SPECIAL PROCESSING

9.1. BINARY

Convert images to binary images.

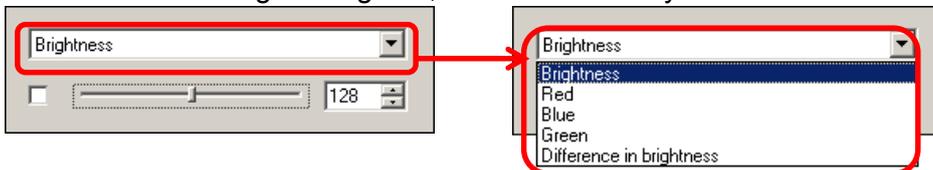


<Auto Binary>

Please click on  Binary from “Special process” on the Menu.

<Detailed Binary Settings>

1. Make a right-click on  Binary from “Special process” on the Menu.
2. From the details settings dialog box, choose the binary factor.



3. Choose the binary value on the details settings dialog box by either entering the value into the edit box or dragging the slider.



4. Tick on the box on the left to activate Binary outputs.



Check

9.2. AUTO IRIS

Set Auto IRIS function.

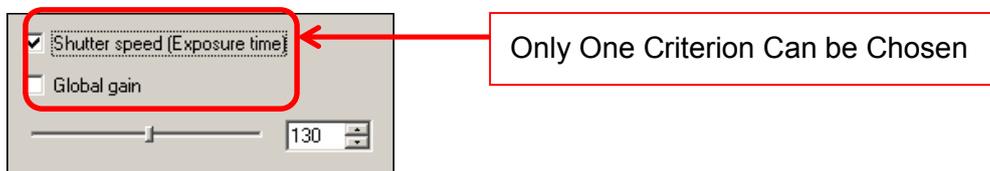


<Auto IRIS>

Please click on  Auto iris from “Special process” on the Menu.

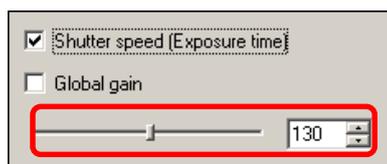
<Detailed Auto IRIS Settings>

1. Make a right-click on  Auto iris from “Special process” on the Menu.
2. From the details settings dialog box, choose the criterion for Auto IRIS.



- λ If “Shutter speed (Exposure time)” is chosen, the value of Global Gain is fixed and the Shutter Speed will be adjusted automatically.
- λ If “Global Gain” is chosen, the Shutter Speed is fixed and the Global Gain is adjusted automatically.

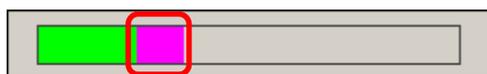
3. Choose the value on the details settings dialog box by either entering the value into the edit box or dragging the slider.



9.3. FOCUS VALUE

Please left-click on  Focus value from “Special process” on the Menu.

The Focus Value is shown in a bar graph.



The pink part shows the portion that is out of focus.

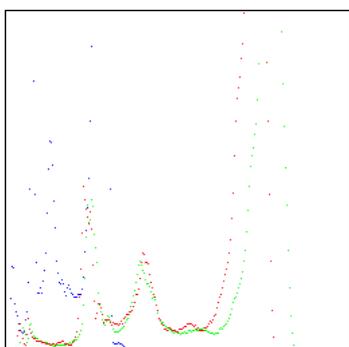
To close the Focus Value bar, please make a right click on the bar.

The Focus Value is assigned by a sobel edge detecting filter, generating a grayscale edge outline. The green part in the bar graph is the sum of the edge, and represents the image in focus. On the contrary, the pink part shows the portion that is out of focus.

When adjusting the focus, please try to get a bigger green part and reduce the pink part for the best image quality.

9.4. RGB HISTOGRAM

Please left-click on  RGB histogram from “Special process” on the Menu.



To close the RGB histogram, please make a right click on the histogram.

9.5. MULTI-FOCUS

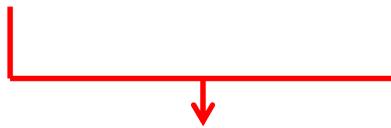
Combine 2 images with different focuses into one.



Focus on the Apple

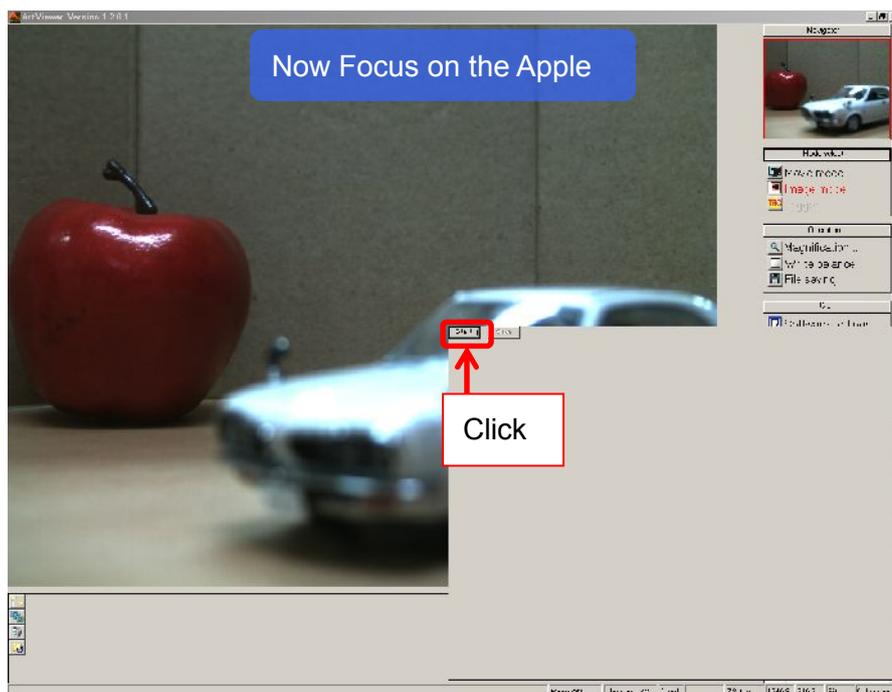


Focus on the Toy Car

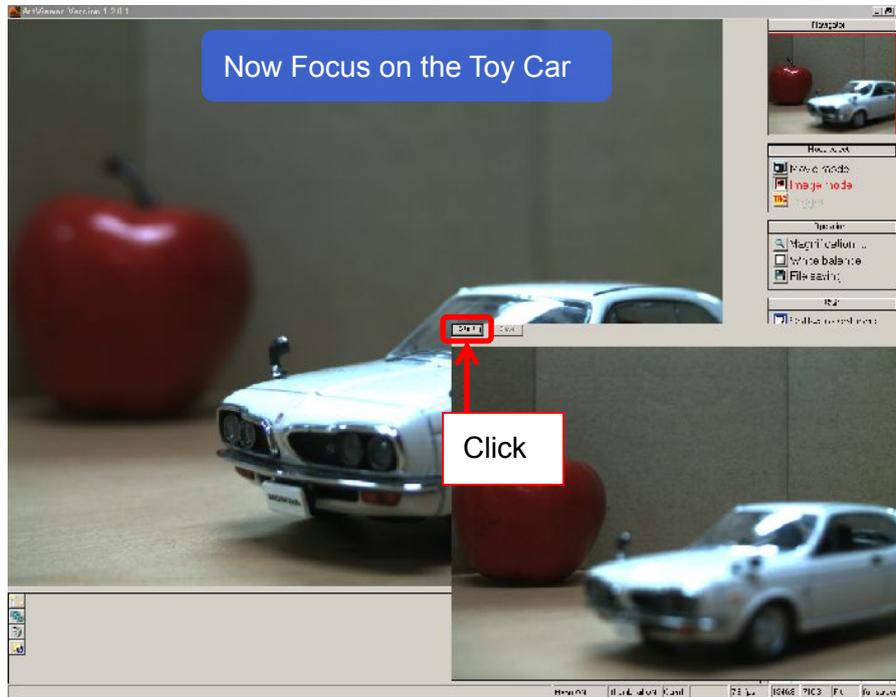


Processed Image with Focus Both on the Apple and Toy Car

1. Please left-click on  Multi-Focus from "Special process" on the Menu.
2. Focus to one point, and click on "Start" from the Multi-Focus screen.



- Adjust the focus to another point, and click on “Start” again.



- A composite image is created.

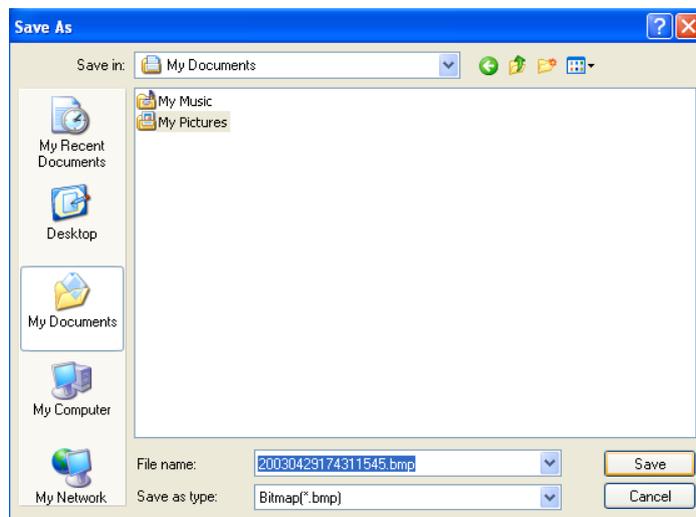


You can do the process by clicking on “Start” again.

5. To save the Multi-Focus processed image, click on “Save”.



The save file dialog box appears. Please specify the filename and location, and then click on “Save”.



6. To close the Multi-Focus screen, please make a right click on it.

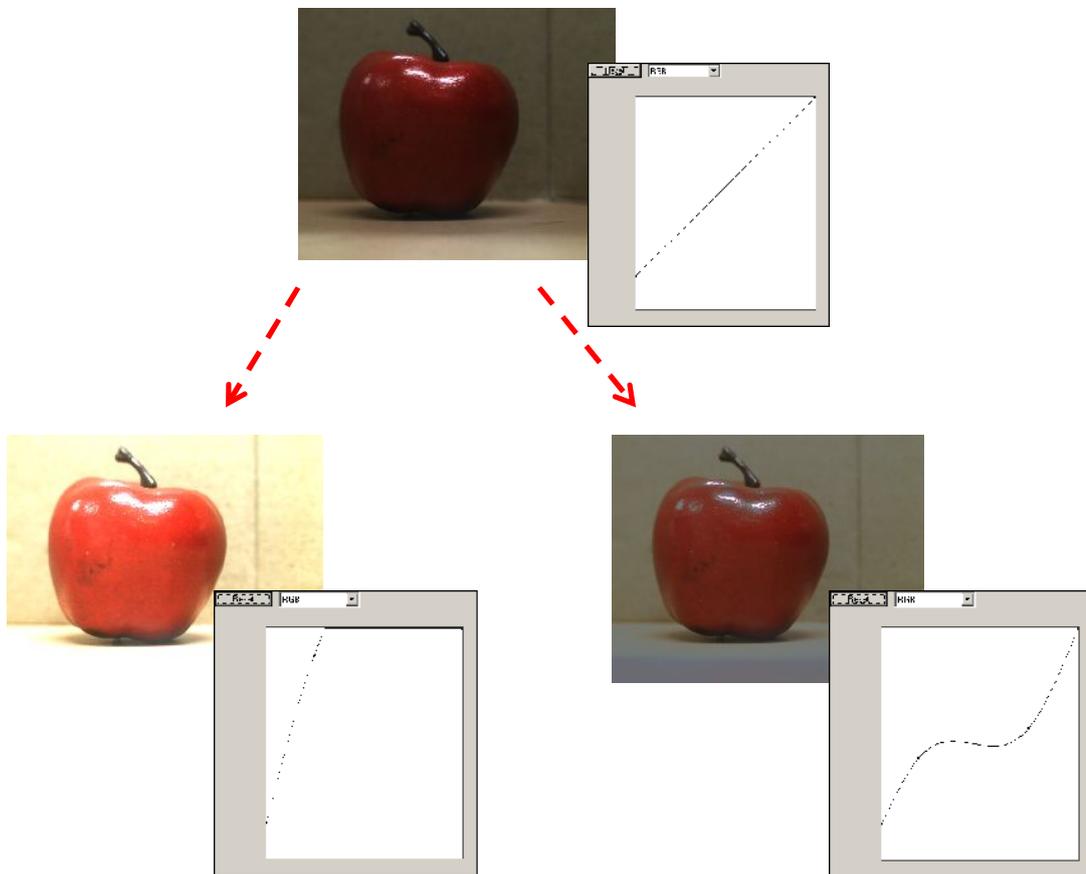
※ NOTICE

Producing a multi-focus image may take a while depending on the resolution of the image and the specifications of your computer.

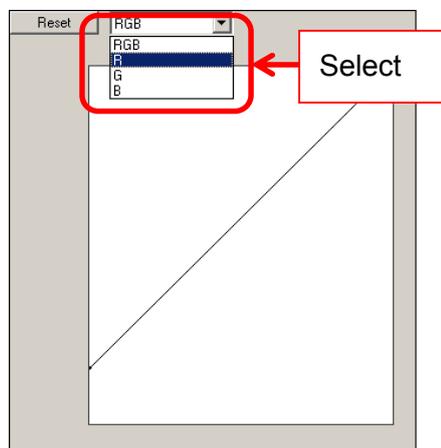
During the image processing, the “Start” letter turns grey. Please do not close the Multi-Focus screen during the process because it may cause errors or crashes.

9.6. TONE CURVE

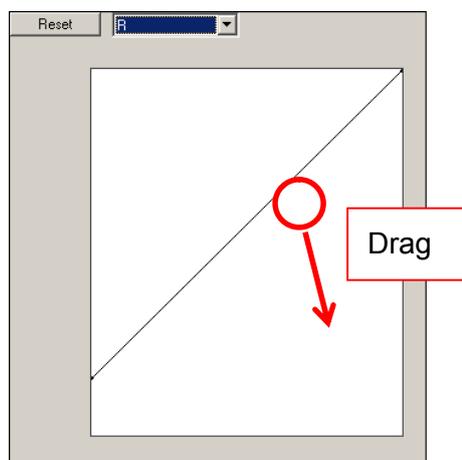
Adjust the Tone curve.



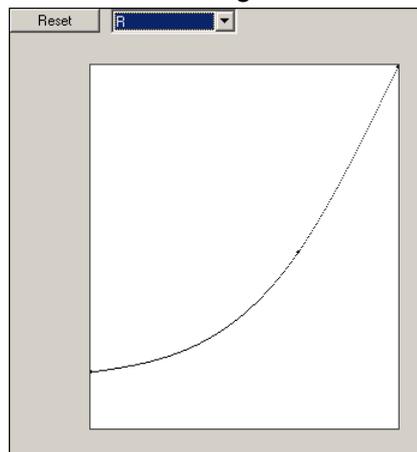
1. Please left-click on Tonecurve from “Special process” on the Menu.
2. From the Tune Curve settings screen, select the color factor you wish adjust.



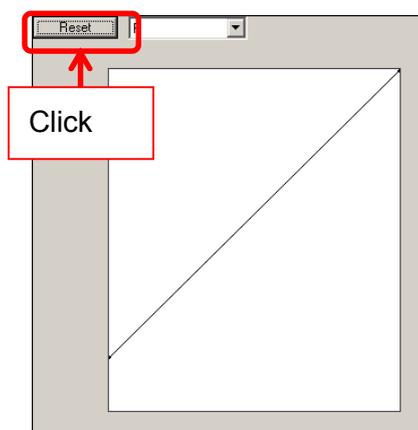
3. Left click, hold and drag to adjust the Tune Curve.



4. The color tune is changed.



5. To retrieve the default settings, click on "Reset".



6. To close the Tune Curve Settings screen, make a right click on it.

10. SPECIAL USE

10.1.2 CAMERA MODE

2 Camera Mode allow the use of 2 units of the same camera simultaneously.

Please note that there is no synchronization between the 2 cameras.

※DS cameras and eSATA cameras are not applicable to this mode.

Start and Display

1. Connect the cameras to the PC.

Make sure the lenses are properly placed, and connect the cameras to the PC's USB2.0 ports.

The two cameras must be same model.

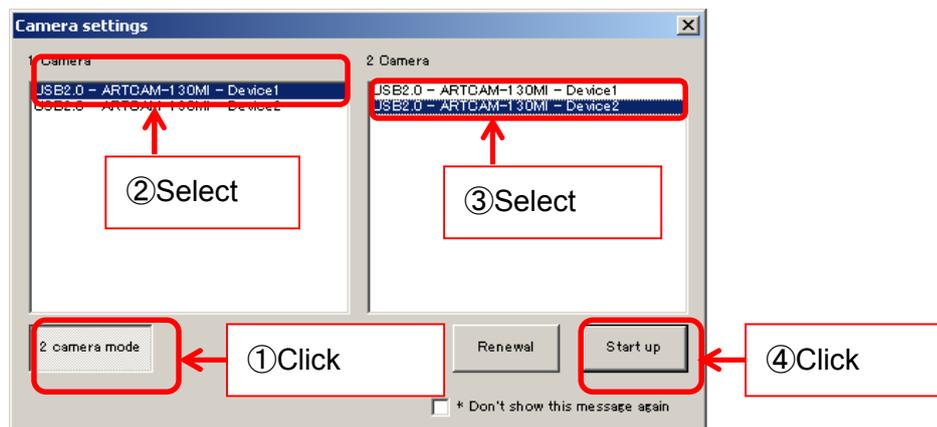
2. Start the Measure Software.

Use same process for one camera mode.

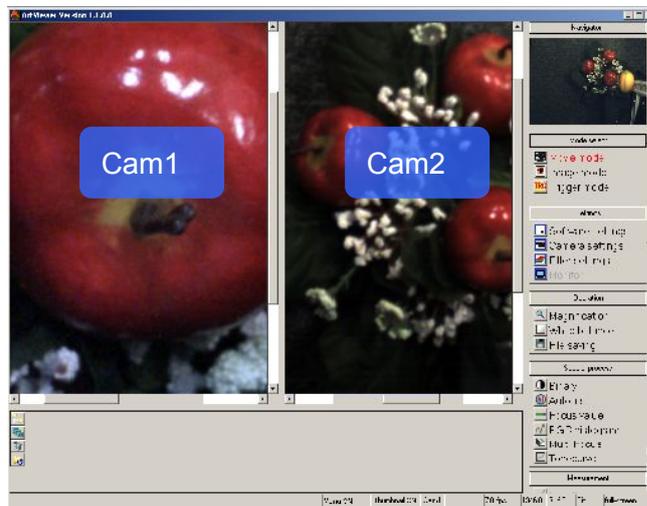
For the details, please refer to "[START AND DISPLAY](#)" on page 29.

3. Choose the ARTCAM you would like to use.

Click on "2 camera mode", select your camera each from "1 Camera" and "2 Camera" on the Camera settings dialog box, and then click on "Start up".



4. The Viewer Software runs in the movie mode.



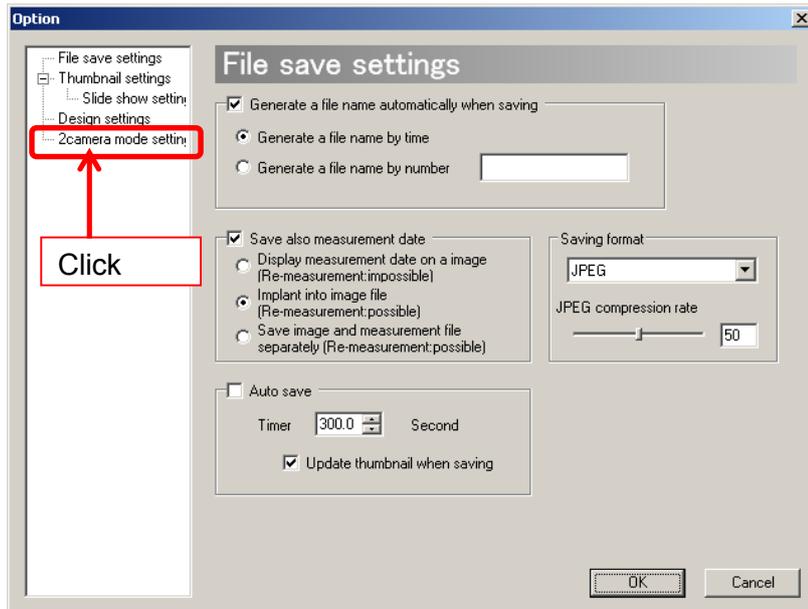
※ NOTICE

- λ The settings of the 2 cameras may be different. If so, please change the settings of the cameras each by each.
- λ The images from the dominant camera are shown in the Navigator.
- λ To switch the dominant camera, please click on the image screen of the camera which you would like to switch to.

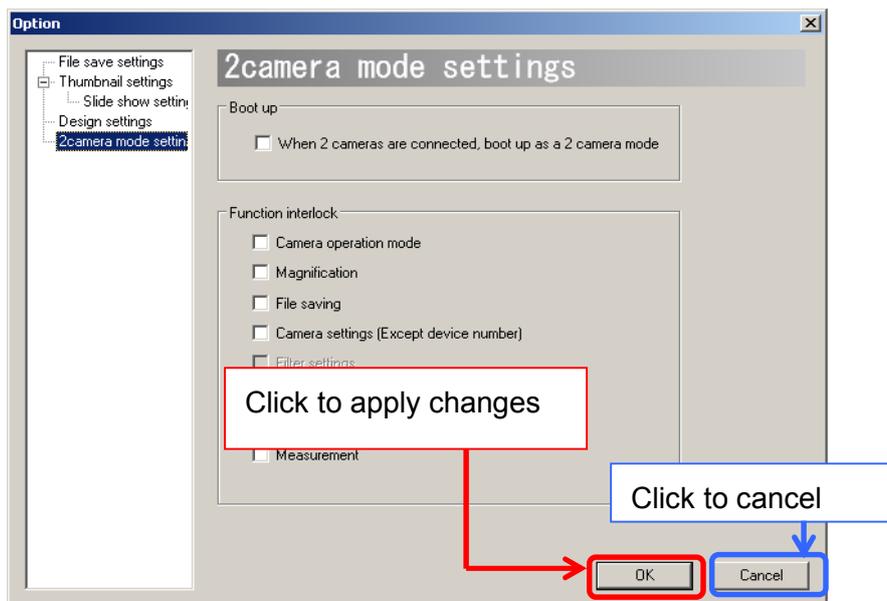
2 CAMERA MODE SETTINGS

Settings for 2 Camera Mode can be made from “2 Camera Mode Settings” screen. To access 2 Camera Mode Settings screen, follow the steps below.

1. Click on  Software settings from “Settings” on the Menu.
2. Click on “2 camera mode settings” on the left.



3. 2 Camera mode settings tab appears. Changes can be made.

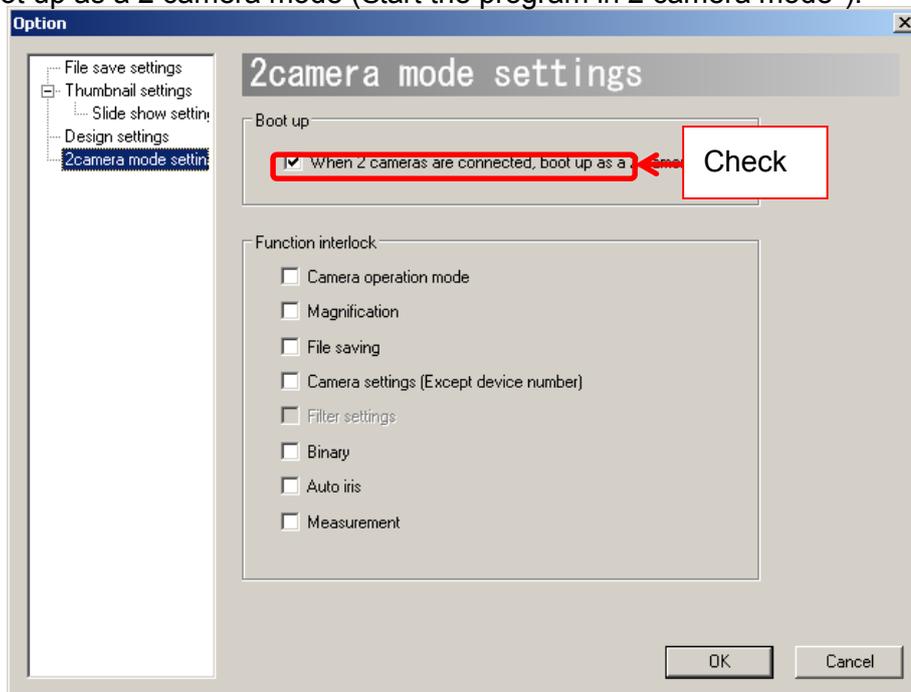


Click “OK” to apply changes, or click “Cancel” to cancel.

Automatically Start the Program With 2 Camera Mode

When starting the program, the Camera Settings dialog box pops up by default. You can choose to start the program with the 2 camera mode without the Camera Settings dialog box's popping up.

1. Set the Camera Settings dialog box to be hidden when starting.
For the details, please refer to "[Do not Show the Camera Settings Dialog Box When Starting](#)" on page 132.
2. On the 2 Camera Mode settings screen, click on "When 2 cameras are connected, boot up as a 2 camera mode (Start the program in 2 camera mode*)." **Check**



※ NOTICE

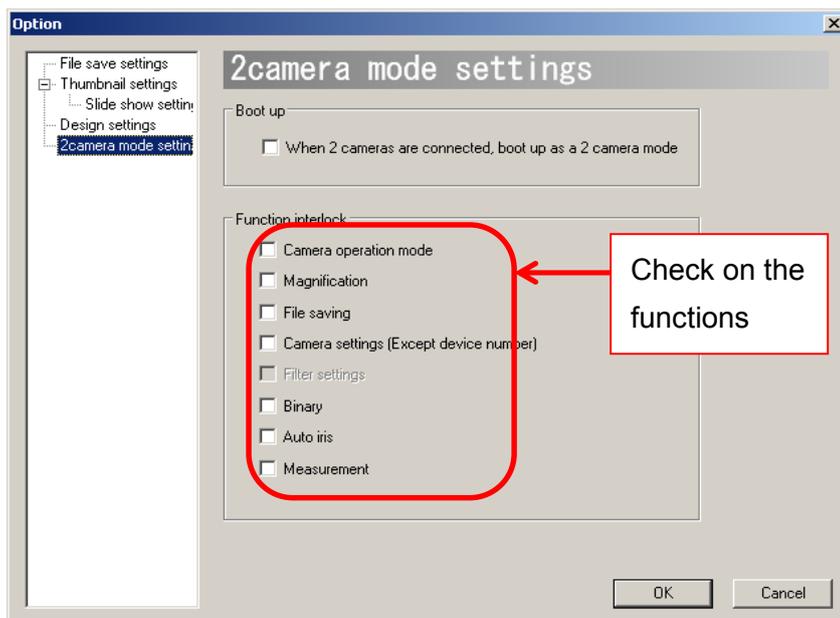
When starting the program, please must have 2 cameras of the same model connected to the PC if you have set "Automatically start in 2 camera mode".

If the program is set to automatically start in 2 camera mode, connecting 1 camera or 2 cameras of different kinds to the PC may cause a crash.

Interlock Functions between 2 Cameras

The settings of the 2 cameras are not interlocked by default. The users can lock the functions of one camera to another by changing the 2 Camera Mode Settings.

On the 2 Camera Mode Settings Screen, tick on the functions that you want to link together.



※ NOTICE

- λ If an interlock for “Save File” is set but the save file names are not set to be generated automatically, save dialog boxes for images from camera 1 and camera 2 will appear by turn.
- λ Interlock for filter settings is not available with the current version.

11. CAUTIONS ON USE

11.1. CLEANING THE SENSOR

When changing the lens of the camera, you may get dust on the sensor.

To clean the sensor, please follow the instructions below.

1. Dust may come from the lens.
Please use air spray to remove dust.



2. Dampen a cotton swab in ethyl alcohol, and lightly tab the sensor from the center to the outside edge.
Please be careful because depending on the quality of the cotton swabs, the cotton fibers may shed.
Recommend: Johnson's Cotton Swab (Johnson & Johnson)



11.2. ABOUT THE USE OF OTHER USB DEVICES

The connection of the camera to the PC may not operate correctly if you are using other USB devices excluding USB mice or keyboards (EX. external hard disk or USB memories) at the same time.

If you need to use other USB devices, please adopt USB port expanders (EX. PCI, PCIMCIA) to connect other USB devices.

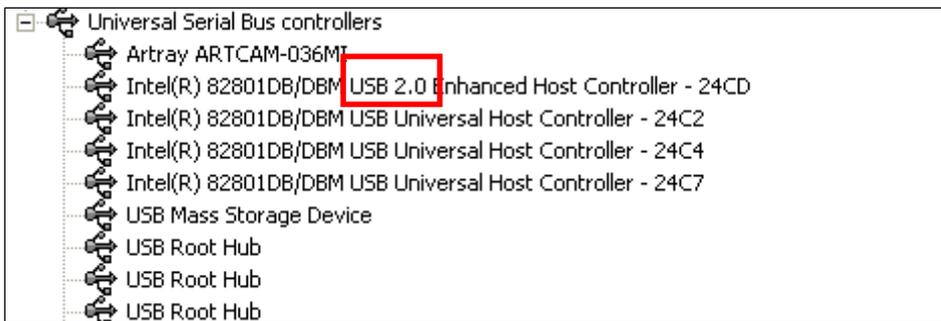
11.3. OTHER PROBLEMS ABOUT INSTALLATION AND DISPLAY

ARTRAY's USB2.0 cameras and ARTCNVII are designed to run at a high transmission speed, so the devices may not function properly if the PC is not equipped with an Intel USB2.0 chipset.

If your PC is not equipped with an Intel USB2.0 chipset, please contact ARTRAY sales representatives.

To check if the PC is equipped with an Intel USB2.0 chipset, please open device manager and check the "USB Controller" of device driver.

The following shows an example of Intel USB2.0 chipset equipped PC.

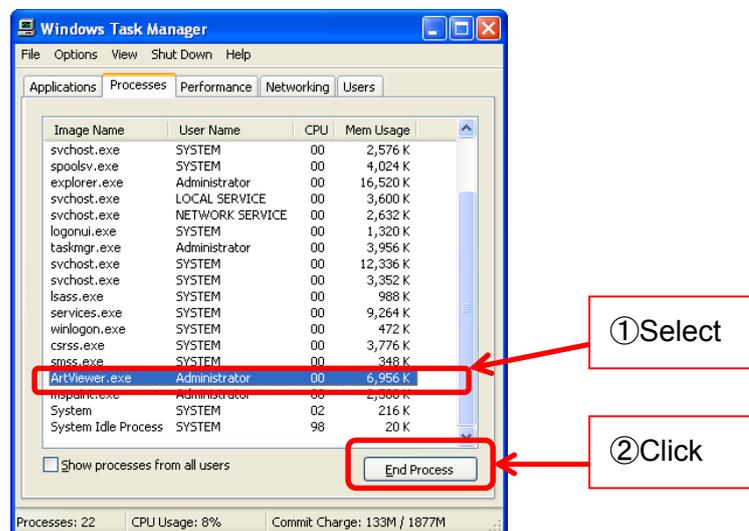


12. TROUBLESHOOTING

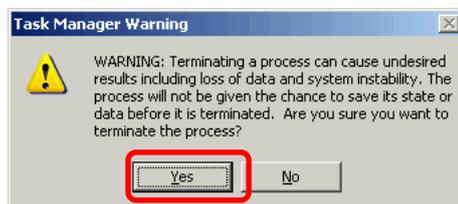
12.1. CANNOT START THE PROGRAM

If you follow the instructions on page 29 “[Start and Display](#)” but still encounter problems starting the Viewer Software program, please follow the instructions below.

1. Please unplug the camera and restart the Viewer Software program.
If the program runs, please go to #2.
If the program does not run, please go to #3.
2. If the program runs, please go “Camera Settings” and select your device type.
For the details of Camera Settings, please refer to “[CAMERA SETTINGS FOR STANDARD MODE \(SDK DRIVER\)](#)” on page 36 or “[CAMERA SETTINGS FOR DS MODE \(DS DRIVER\) CAMERA](#)” on page 50.
 - ① If “Total Horizontal/Vertical Pixels” < ”Horizontal/Vertical Origination” + “Horizontal/Vertical Pixels (effective pixels)”, please adjust the effective pixels.
 - ② Click on “OK” on the Camera Settings dialog box, and then click on  Movie mode .
 - ③ If you cannot switch to the Movie Mode by clicking on  Movie mode , please close the View Software program and reboot the computer.
3. If the program does not run, please open Windows Task Manager by pressing [Ctrl]+[Shift]+[Esc] keys.
 - ① Click the “Processes” tab to see a list of running processes, choose “ArtViewer.exe” and click on “End Process”.



- ② The following Task Manager Warning dialog box appears. Click on “Yes” to close the Task Manager Warning dialog box.



- ③ If process ArtViewer.exe disappears from the task list, please restart the Viewer Software. The problem should have been solved now.
- ④ If process ArtViewer.exe is still listed in the running processes list in Task Manager, please reboot the PC.

If the problem still cannot be solved, please contact our support center.

For contact information, please refer to "[SUPPORTS](#)" on page 189.

12.2. NO IMAGE IS DISPLAYED

If there is no image on the viewer software, please check the following points.

1. Lens

Please make sure that the lens cap is taken off.

Images cannot be displayed if the lens cap is attached to the lens.

2. Device Recognition (For USB2.0/USB3.0•ARTCNVII)

Please go to device manager and check if the camera or ARTCNVII is recognized correctly by the system.

For the detailed methods, please refer to "[CONFIRMING THE INSTALLATION OF ARTCAM / ARTCNV II](#)" on page 11.

If the camera or ARTCNVII is not recognized, please check if the camera or ARTCNVII is connected to the PC or not.

If the camera or ARTCNVII is connected but cannot be recognized by the PC, please unplug the USB cable and plug in again.

3. Administrator authority (For USB3.0 Camera)

To run USB3.0 Camera with the Viewer Software, you need to login as Administrator.

Please refer to "[Notice for USB3.0 Camera and the Viewer Software](#)" on page 14 for the details.

4. Display Mode

Please confirm if the Software is in the Movie Mode.

If the program is in other display modes, please click on  Movie mode.

If you cannot switch to the Movie Mode successfully, please close the Software program and reboot the computer.

5. Camera Settings

Please check if the correct camera is selected on the Camera Settings dialog box.

For the details, please refer to "[Modify the Camera](#)" on page 37.

6. Global Gain · Shutter Speed

Please make sure that Global Gain and Shutter Speed are not at an extremely low level.

For detailed methods for adjustments, please refer to "[Adjust Global Gain](#)" on page

136 and "[Adjust Shutter Speed](#)" on page 137.

If the problem still cannot be solved, please contact our support center.

For contact information, please refer to "[SUPPORTS](#)" on page 189.

13. REFERENCES

13.1. AVAILABLE SOFTWARE FUNCTIONS BY CAMERA

※ NOTICE

- λ It is possible to cut the operation clock down for those models do not support Half Clock Mode.
 - λ Some of the 150PⅢ may not support Half Clock Mode depending on their manufacture date.
 - λ High-speed clock function is available for 150P5-WOM for optional service.
- Please contact our sale representatives for details.

USB2.0 Camera / ARTCNV II

Standard Model

	Trigger Mode	Half Clock※1	HighSpeed Clock	Subsampling	Horizontal Mirror
ARTCAM-036MI	○	○	-	○	○
ARTCAM-130MI	○	○	-	○	-
ARTCAM-200MI	○	○	-	○	-
ARTCAM-300MI	○	○	-	○	-
ARTCAM-500MI	○	○	-	○	-
ARTCAM-900MI	-	○	-	○	-
ARTCAM-1000MI	-	-	-	○	-
ARTCAM-098	-	-	-	-	-
ARTCAM-098II	○	-	-	-	-
ARTCAM-131MT	-	-	-	-	-
ARTCAM-150PII	○	-	-	-	-
ARTCAM-150PIII	○	○※2	-	-	-
ARTCAM-200SH	-	-	-	-	-
ARTCAM-210OV	-	-	-	-	-
ARTCAM-267KY	○	-	-	-	-
ARTCAM-274KY	○	-	-	-	-
ARTCAM-320P	-	-	-	-	-
ARTCAM-445KY	○	-	-	-	-
ARTCAM-445KY2	○	-	-	-	-
ARTCAM-500P	-	-	-	-	-
ARTCAM-500PII	○	-	-	-	-
ARTCAM-625KY	○	-	-	-	-
ARTCAM-150PIII-STRII	○	-	-	-	-
ARTCAM-274KY-STRII	○	-	-	-	-
	Trigger Mode	Half Clock※1	HighSpeed Clock	Subsampling	Horizontal Mirror
ArtUst	-	-	-	-	-
ArtCnv	-	-	-	-	-

MOM Series

	Trigger Mode	Half Clock※1	HighSpeed Clock	Subsampling	Horizontal Mirror
ARTCAM-035IMX-WOM	○	○	○	○	○
ARTCAM-036MI2-WOM	○	○	-	○	○
ARTCAM-130MI-WOM	○	○	○	○	-
ARTCAM-300MI-WOM	○	○	○	○	-
ARTCAM-500MI-WOM	○	○	○	○	-
ARTCAM-1000MI-WOM	-	○	○	○	○
ARTCAM-1400MI-WOM	-	○	○	○	-
ARTCAM-150P5-WOM	○	○	○※3	-	-
ARTCAM-274KY-WOM	○	-	-	-	-
ARTCAM-285CX-WOM	○	-	-	-	-
ARTCAM-407UV-WOM	○	○	-	-	-
ARTCAM-424KY-WOM	○	-	-	-	-
ARTCAM-445KY2-WOM	○	-	-	-	-
ARTCAM-500P2-WOM	○	-	-	-	-
ARTCAM-655KY-WOM	-	-	-	-	-

HDMI Camera

	Trigger Mode	Half Clock \times 1	HighSpeed Clock	Subsampling	Horizontal Mirror
ARTCAM-130MI-HD2	–	–	–	–	–
ARTCAM-500MI-HD2	–	–	–	–	–
ARTCAM-1000MI-HD2	–	–	–	–	–
ARTCAM-150P5-HD2	–	–	–	–	–
ARTCAM-445KY2-HD2	–	–	–	–	–

USB3.0 Camera

	Trigger Mode	Half Clock \times 1	HighSpeed Clock	Subsampling	Horizontal Mirror
ARTCAM-500MI-USB3	–	–	–	○	–
ARTCAM-900MI-USB3	–	○	–	○	○
ARTCAM-1000MI-USB3	–	–	–	○	○
ARTCAM-1400MI-USB3	–	–	–	○	–
ARTCAM-267KY2-USB3	–	–	–	–	–
ARTCAM-274KY2-USB3	–	–	–	–	–
ARTCAM-424KY-USB3	–	–	–	–	–
ARTCAM-655KY-USB3	–	–	–	–	–
	Trigger Mode	Half Clock \times 1	HighSpeed Clock	Subsampling	Horizontal Mirror
ARTCAM-410KAI-USB3	–	–	–	–	–
ARTCAM-810KAI-USB3	–	–	–	–	–
ARTCAM-1600KAI-USB3	–	–	–	–	–
ARTCAM-2900KAI-USB3	–	–	–	–	–

13.2. DISPLAYED NAME OF CAMERAS

	Device Manager	Viewer Software Starting Dialog Box
SS Series (Ex: ARTCAM-036SS)	ARTCAM-036MI	
ARTCAM-022MINI	ARTCAM-036MI	
ARTCAM-130MI-HDMI	ARTCAM-130MI-HDMI	
ARTCAM-130MI-MOUT		
ARTCAM-150P4-HDMI	ARTCAM-150P4-HDMI	
ARTCAM-150P4-MOUT		
HD2 Series (Ex: ARTCAM-1000MI-HD2)	ARTCAM-1000MI-HDMI2	

※ NOTICE

- λ For monochrome cameras, -BW does not appear.
Example: “ARTCAM-036MI-BW” → “ARTCAM-036MI”
- λ For ARTCAM-130MI-HDMI or ARTCAM-130MI-MOUT with device driver version older than ver. 1.4, displayed name on device manager is ARTCAM-130MI-VGA.
- λ For ARTCAM-150P4-HDMI or ARTCAM-150P4-MOUT with device driver version older than ver. 1.00, displayed name on device manager is ARTCAM-150PIII-MOUT.
- λ For cameras other than above, the exact names of models are displayed.

14. SUPPORTS

For questions regarding the cameras and software, please contact us at:

ARTRAY Customer Service Center

4F Ueno Bldg., 1-17-5 Kouenjikota

Suginami-ku, Tokyo 166-0002, JAPAN

TEL : 03-3389-5488

E-mail : support@artray.co.jp

URL : www.artray.us

2 Measurement & Filing Software
ART-MEASURE

2014



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FAX:03(3389)5486

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