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X-RAY

AX9100

User manual



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No. 11, Lijiang Road, Wangzhuang Street, New District, Wuxi, Jiangsu Province.

Before using this product, please read the manual carefully and keep it properly.



Remarks

Remarks

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Please fill in the device model, factory number, purchase date and location in the blank space below. The device label will also have information such as the device number and model.

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AX series X-ray inspection equipment

Model: _____

Numbering: _____

Purchase date: _____

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Preface

Thanks for using Unicom products, and I would like to express my sincere thanks to you.

Unicom has long been committed to the research and development and production of the X field, and provides customers with high-quality, economical and applicable X-ray machines. I hope this product can solve difficult problems for your company.

This X-Ray uses a closed ray source, is equipped with a million-level high-resolution FPD, has a system magnification of 1600X, a maximum 60° tilt detection of the detector and a 8-axis linkage system for high-definition real-time imaging. It is widely used in the following projects:

Semiconductor, SMT, DIP, electronic component inspection

IC, BGA, CSP, flip chip and other package types inspection

Car parts, aluminum die casting mold inspection

New energy testing for LED, battery, photovoltaic industry, etc.

Special industry testing such as molded plastic and ceramic products.

The equipment adopts the most advanced modular control system, which is centrally controlled and managed by a computer through software, which is very conducive to repair and maintenance. The high-resolution flat-panel detector is used to generate faster and clearer images, which is convenient for employees to operate.



Safety instructions

Before using the AX series X-ray machine.....

In order to ensure a more effective test result and user experience, please read the safety instructions carefully before using the X-ray machine.

Please take care to avoid shock or vibration to the device.

This device is a precision machine, so be careful when using it, and don't subject the machine to shock or vibration. Including the use process, the transportation process and the installation process; if the impact or excessive vibration such as falling, collision, etc. during the process, the machine will malfunction and malfunction.

Please avoid using or storing this device in the following places.

Vibrating place

Places with corrosive and flammable dangerous gases

Places with high humidity and dust

Places exposed to direct sunlight, heating appliances, etc., which tend to get hot

Extremely cold place

Where there is oily smoke and steam

Places with large changes in temperature and humidity

Near objects that generate strong magnetism and radio waves

Places exposed to liquids or potential risks

Other places that cause damage or potential risks to the device

Please do not use this device in an environment where chlorine gas is generated.

Chlorine gas can corrode the beryllium of the X-ray irradiation window and damage the vacuum tube.



Safety instructions

Please do not use it in an environment where chlorine gas is generated. Please pay attention to the operation, when using vinyl chloride and other samples that may generate chlorine.

Please do not use power sources other than those specified

If you use a power source other than the specified one, it may cause electric shock and fire.

Please do not use cables other than those specified

If cables other than those specified are used, electric shock and fire may result.

Be sure to ground

To prevent electric shock accidents, be sure to ground the GND terminal of the host and the cable.

If there is any abnormality, please stop using

If there is smoke, peculiar smell or abnormal sound, it will be very dangerous to continue using the device. Please stop using it immediately, turn off the power switch, and unplug the power plug. For countermeasures related to abnormal handling, please talk to our company or sales agents.



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Chapter 1 Introduction to AX9100 Software Functions

1.1 Equipment operation and software description

- Ensure that the ground wire is well connected in accordance with the requirements of chapter 2.2 of the equipment installation manual;
- Ensure that the power supply system provides AC 220V in accordance with the requirements of chapter 2.1 of the equipment installation manual;
- Ensure that the light pipe, flat panel detector, display, and light tower are all correctly connected in accordance with the requirements of chapter 2.3 of the equipment installation manual;
- Turn on the key switch of the control panel clockwise, turn on the main power, press the PC POWER button, and all the machines are powered on;

Double-click the " uxSysWin.exe " icon on the desktop of the computer to start the "AX9100." image processing software;

Precautions:

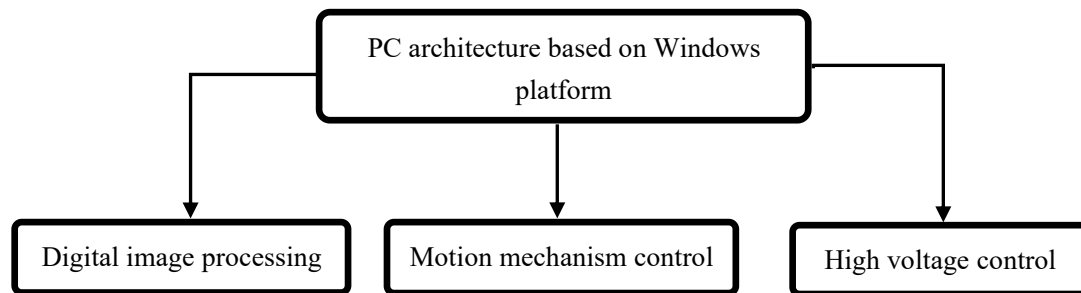
X-Ray equipment has strict pre-heating procedures, which must be strictly implemented:

If it is turned on every day, the device will automatically enter the warm-up program;

If it is not turned on for more than 3 days or more, please do not turn on the X-Ray directly after turning on it. After keeping it warm for 30 minutes, turn on the X-Ray to preheat the tube;

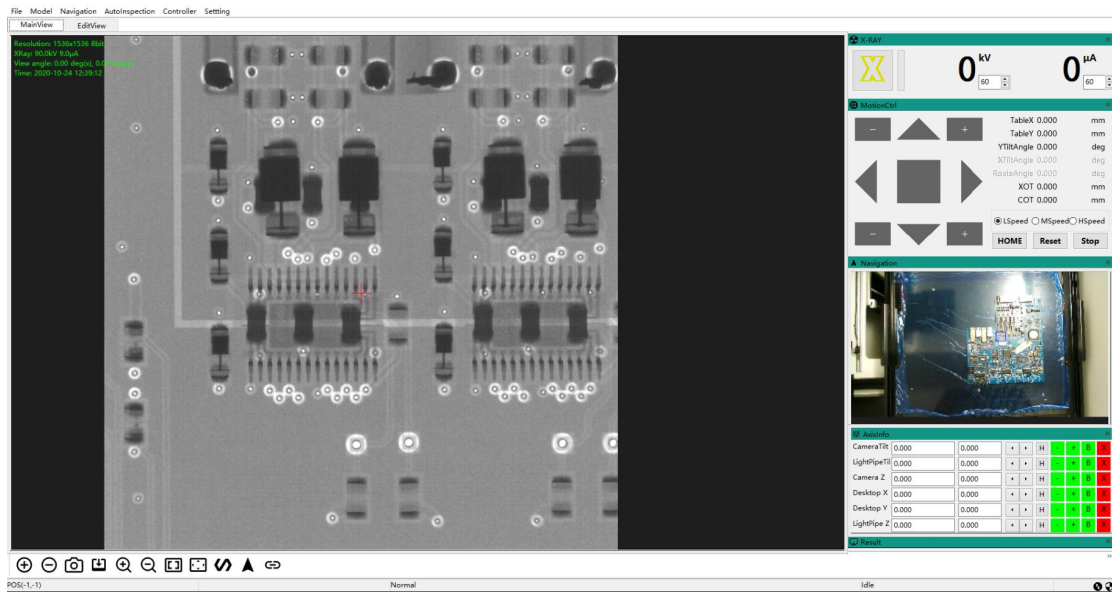
If it has not been turned on for 15 days or more, please keep it warm for 60 minutes after turning on the device, and then turn on the X-Ray to preheat the tube.

1.1.1 Device control framework



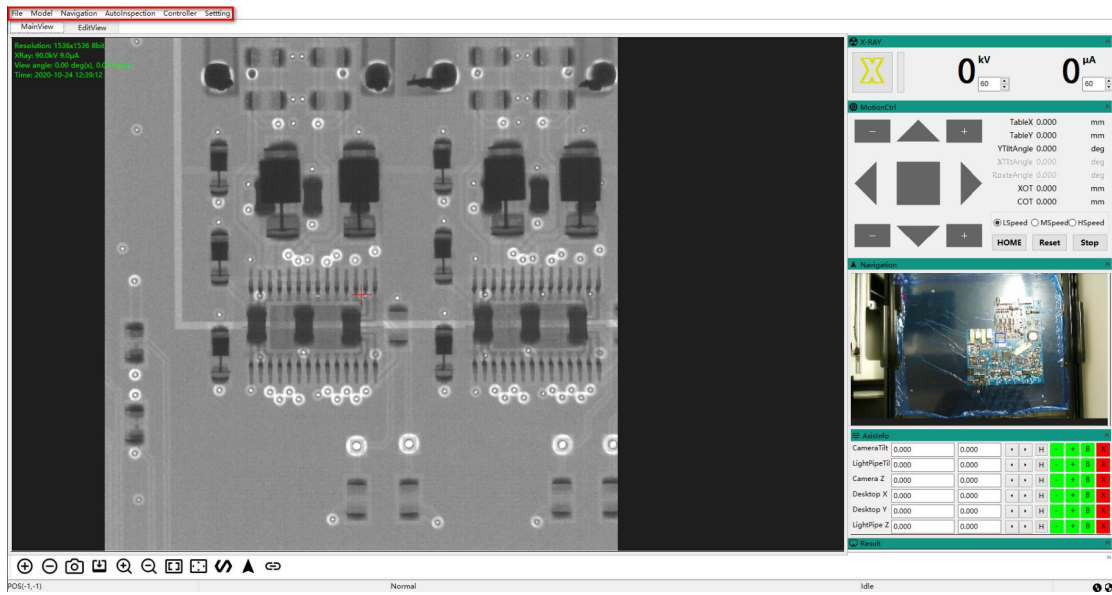


1.1.2 Software main view

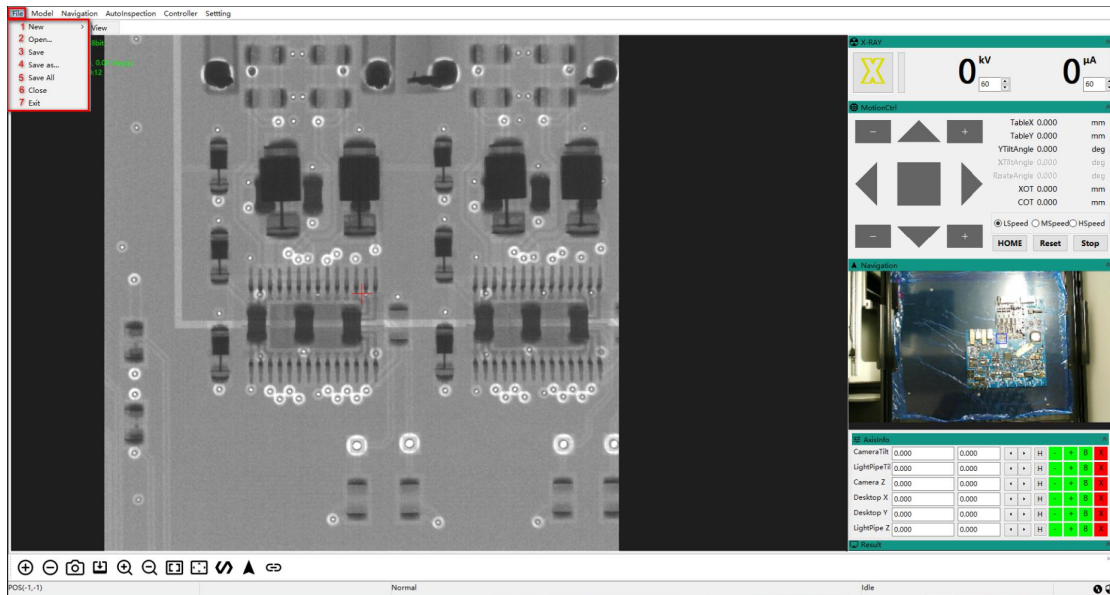


1.1.3 Software main view function introduction

1.1.3.1 Menu Bar



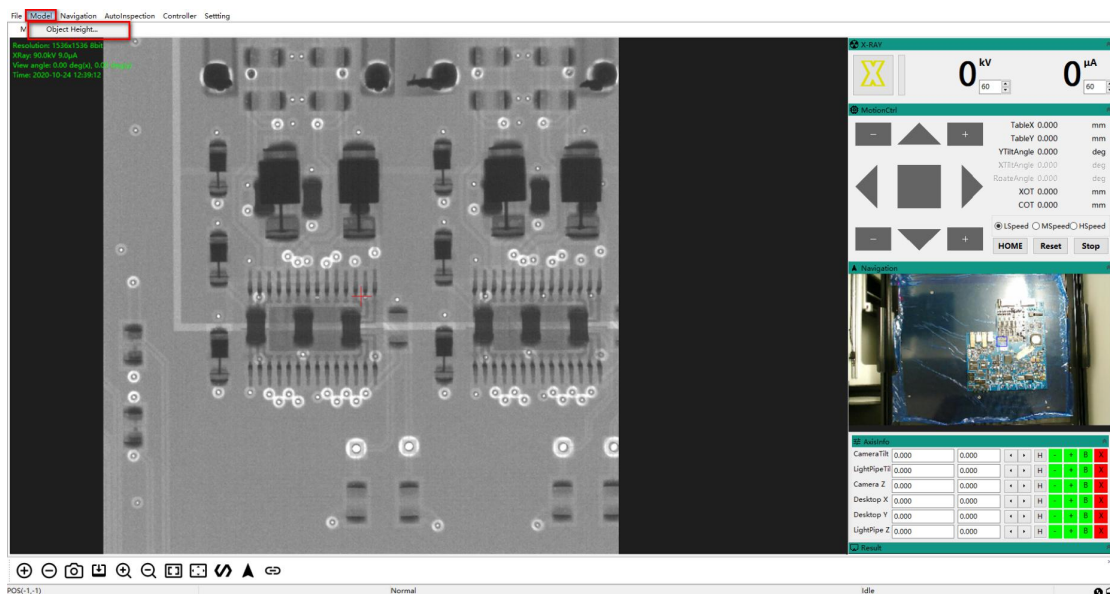
1.File



As marked in the above figure, the function introduction is as follows:

No	Function	Introduction
1	New	Project: Create a new project Algorithm: Create a new algorithm
2	Open	You can open a project locally
3	Save	The current project/algorithm set/image can be saved.
4	Save as	The current project/algorithm set/image can be saved additionally
5	Save all	Save all current projects & algorithm sets & images
6	Close	Close the current project/algorithm set/image.
7	Exit	Exit the application

2.Model



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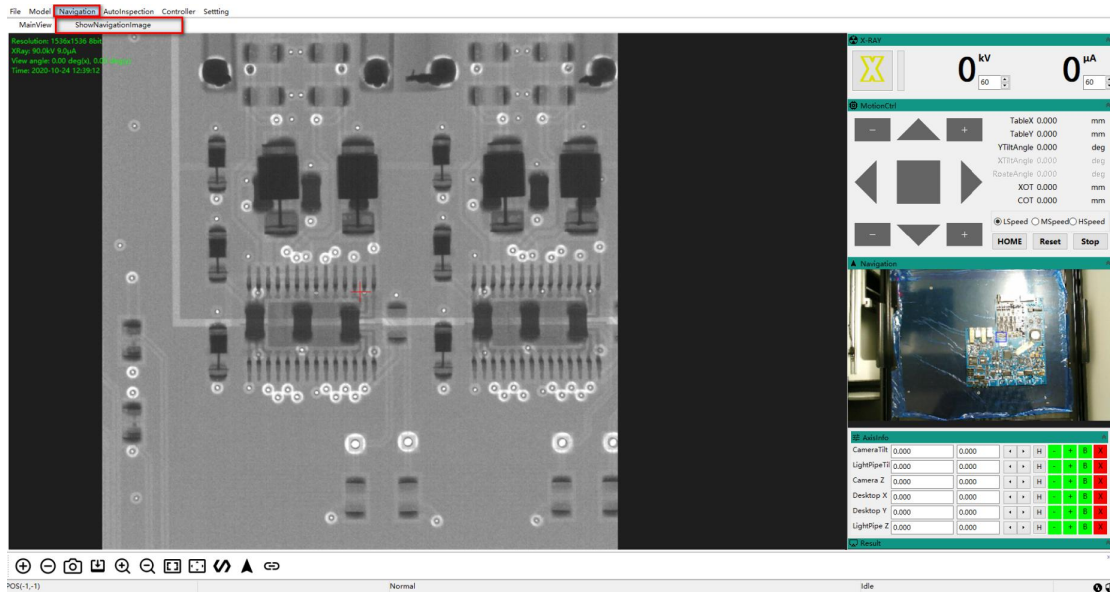
Chapter 1 Introduction to AX9100 Software Functions

- Object Height

Object Height(mm):

Used to enter the height value of the current sample,click "**Update**" to update the height of the detection object to the current value

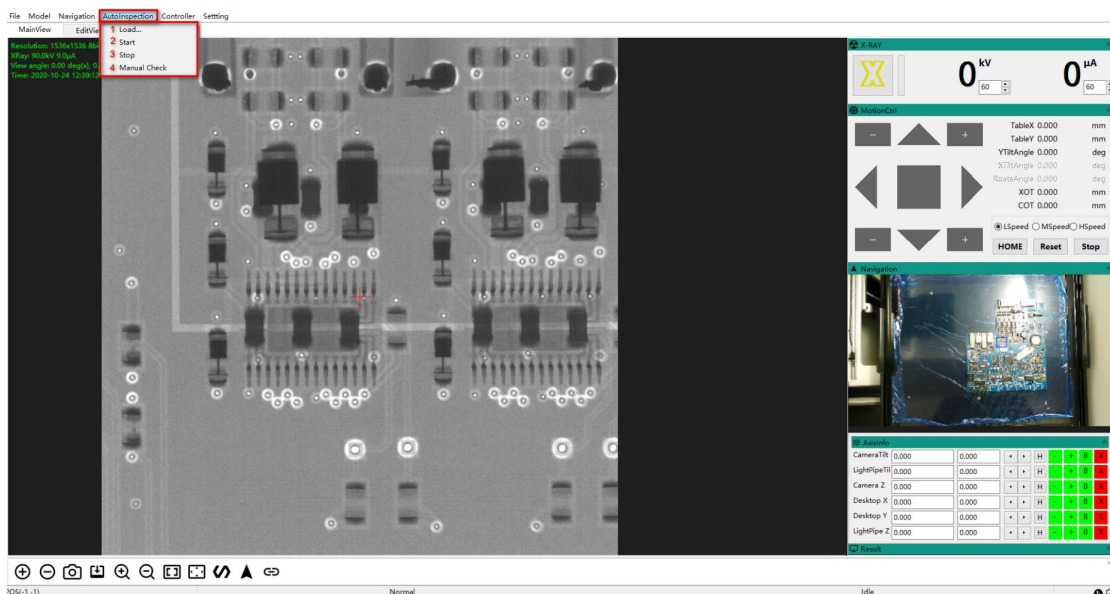
3.Navigation



- Get picture

After clicking the button, the navigation area will display the physical image in real time

4.Auto-inspection(Optional)



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Chapter 1 Introduction to AX9100 Software Functions

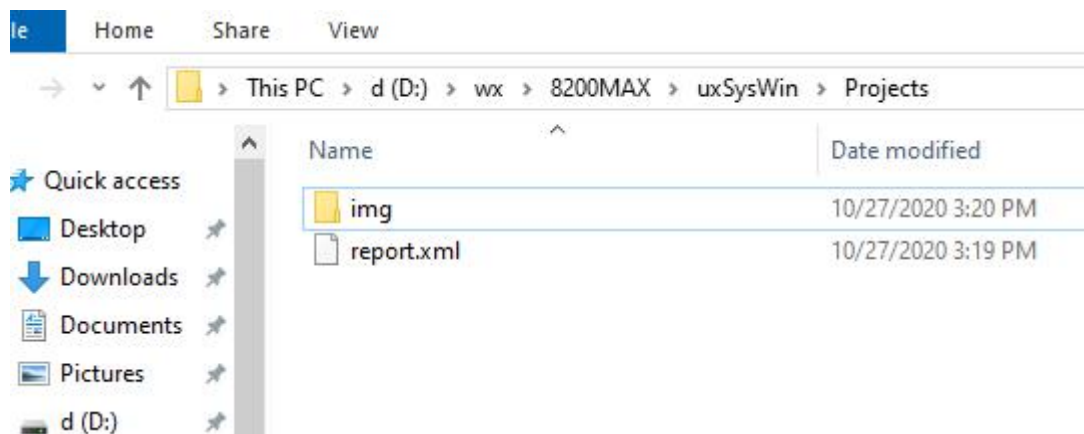
Note: Standard machine equipment only supports automatic charting, and automatic calculation requires a customized algorithm. Automatic measurement is the system according to the template project file selected by the user, which can implement the automatic detection function for the detected object.

Select “**Auto-inspection**” on the menu bar, open the edited project .pro file, and perform automatic running detection.

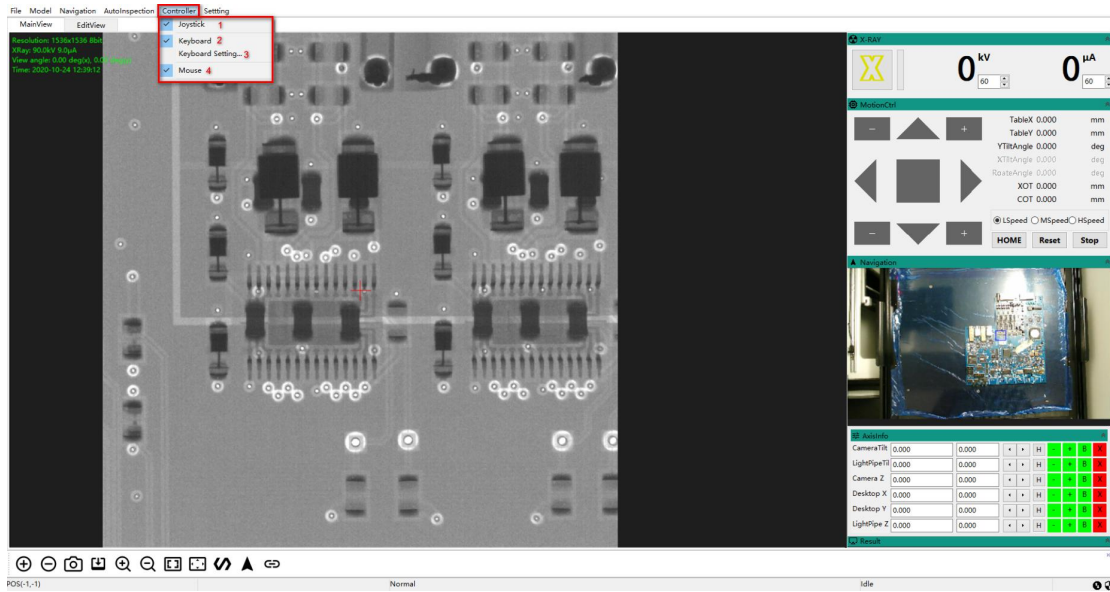
The Auto-inspection function mainly includes:

No	Function	Introduction
1	Loading	Used for loading template project .pro files
2	Start	After loading the template project file, it is used to start Auto-inspection
3	Stop	Used to stop Auto-inspection
4	Manual inspection	Select the project file and move the position, and judge OK/NG manually

After the Auto-inspection is completed, you can view the results in the program execution directory, that is, the directory where the exe is located:



5.Control



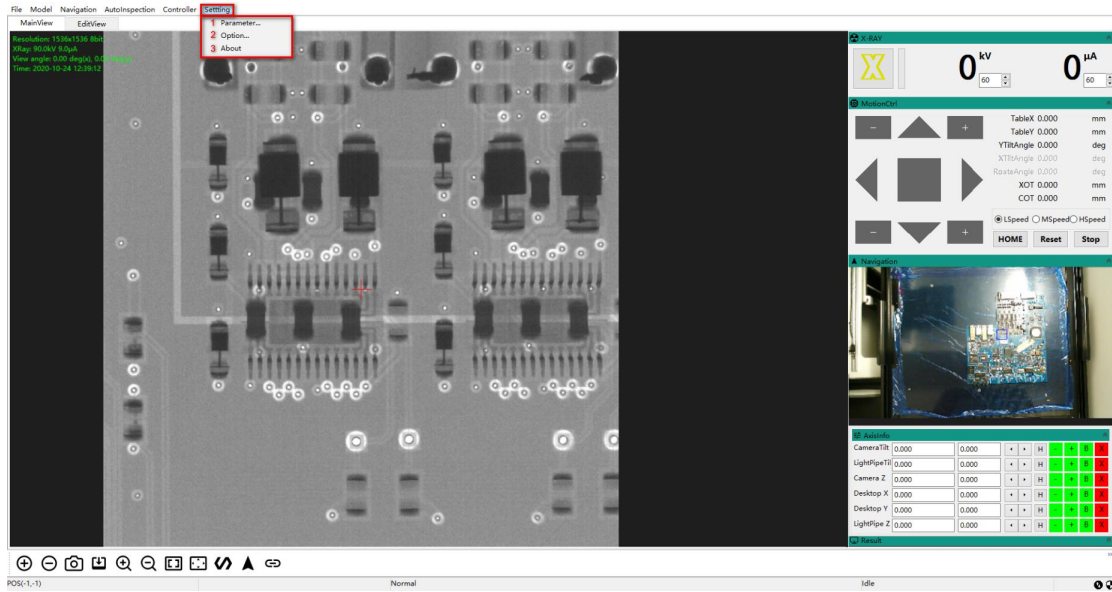
As marked in the above figure, the function introduction is as follows:

No	Function	Introduction
1	Joystick	Choose to use the joystick to control the movement of the desktop and tablet.
2	keyboard	Choose to use the keyboard to control the movement of the desktop and tablet.
3	Hot key setting	You can select the appropriate shortcut keys
4	Mouse	Use the mouse to drag the image.

3. The keyboard setting diagram is as follows:

CameraTilt	Negative	G	H	Positive
LightPipeTilt	Negative	Q	W	Positive
Camera Z	Negative	E	R	Positive
Desktop X	Negative	A	D	Positive
Desktop Y	Negative	K	S	Positive
LightPipe Z	Negative	Z	C	Positive

6.Setting



The setting is used to set the system software and equipment parameters.

1. Parameter

- Components

Components			
	Functions	Interface	
	Components Name	Components Class	Initialized
1	NavCamera	uxCameraDShow	Failed
2	Camera	uxCameraRay	Failed
3	Camera rotation brake	uxComponentOutputPo	Failed
4	Light pipe tilt	uxRotateAxis	Failed
5	MoveCard2	uxMotionCardYako141	Failed
6	Camera tilt	uxRotateAxis	Failed
7	XRay	uxXRayHamamatsu	Successful
8	MoveCard1	uxMotionCardYako141	Failed
9	MotionModel8200S	uxMotionModel8200S	Failed
10	Joystick	uxJoystick	Failed
11	Closed red light	uxComponentOutputPo	Failed
12	Joystick Y+	uxComponentInputPort	Failed
13	Joystick Y-	uxComponentInputPort	Failed
14	Joystick X+	uxComponentInputPort	Failed
15	Joystick X-	uxComponentInputPort	Failed
16	Backdoor signal	uxComponentInputPort	Failed
17	Front door signal	uxComponentInputPort	Failed
18	Light pipe Z	uxAxis	Failed
19	Camera Z	uxAxis	Failed
20	Desktop Y	uxAxis	Failed
21	Desktop X	uxAxis	Failed
22	Back door	uxDoor	Failed
23	Front door	uxDoor	Failed

Refresh



Chapter 1 Introduction to AX9100 Software Functions

Used to display the name, type, and initialization result of each component.

- Function

Components	Functions	Interface		
	Function Name	Function Class	Initialized	Running
1	Stitcher	uxFuncStitcher	Failed	Stop
2	FM	uxFuncFiducialMark	Failed	Stop
3	Engineering Mar	uxFuncProjectManager	Failed	Stop
4	Sport control	uxFuncMotionCtrl	Failed	Stop
5	Equipment mane	uxFuncMacManager	Successfu	Stop
6	Image Processin	uxFuncImageHandler	Failed	Stop
7	Return to zero fu	uxFuncHome	Failed	Stop
8	Automatic detect	uxFuncAutoInspection	Failed	Stop
9	Algorithm mana	uxFuncAlgorithmManag	Failed	Stop
10	Navigation funct	uxFuncNavigation	Failed	Stop
11	Magnification ca	uxFuncCalibMagnificatic	Failed	Stop

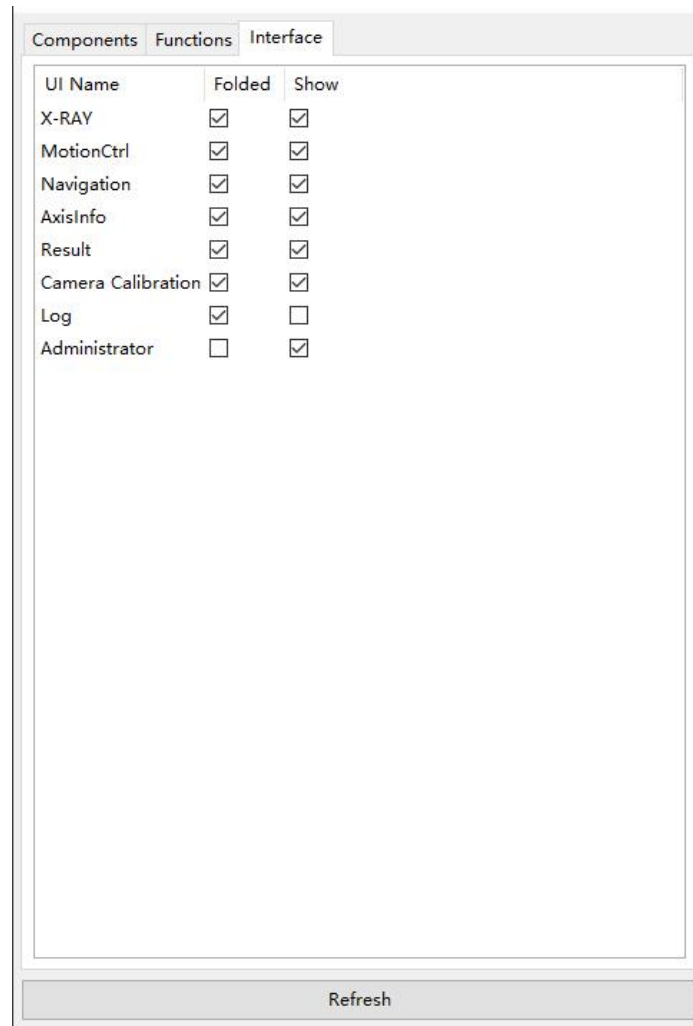
Refresh

Used to display the name, type, initialization status, and running status of each function.

- Interface

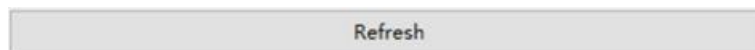


Chapter 1 Introduction to AX9100 Software Functions



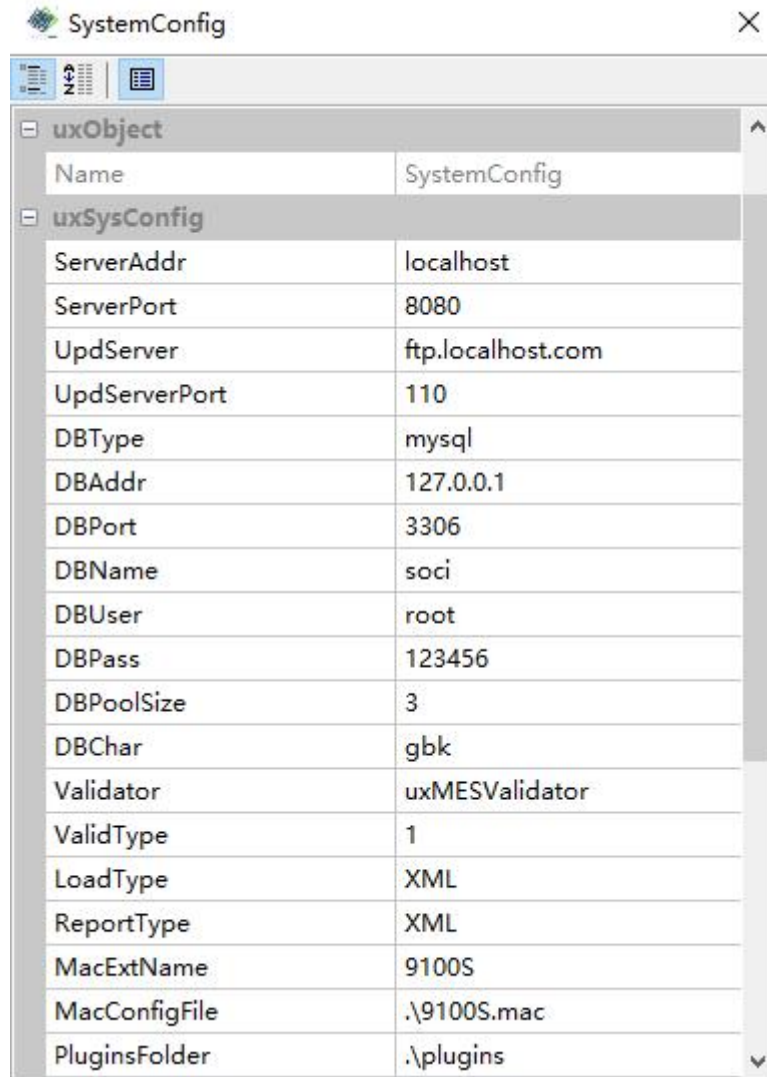
Used to control the folding and display/hide of the control panel on the right side of the main interface.

- Refresh



Used to refresh the component state.

2.Option



Used to view/modify the attribute parameters of the system.

3>About uxSysWin

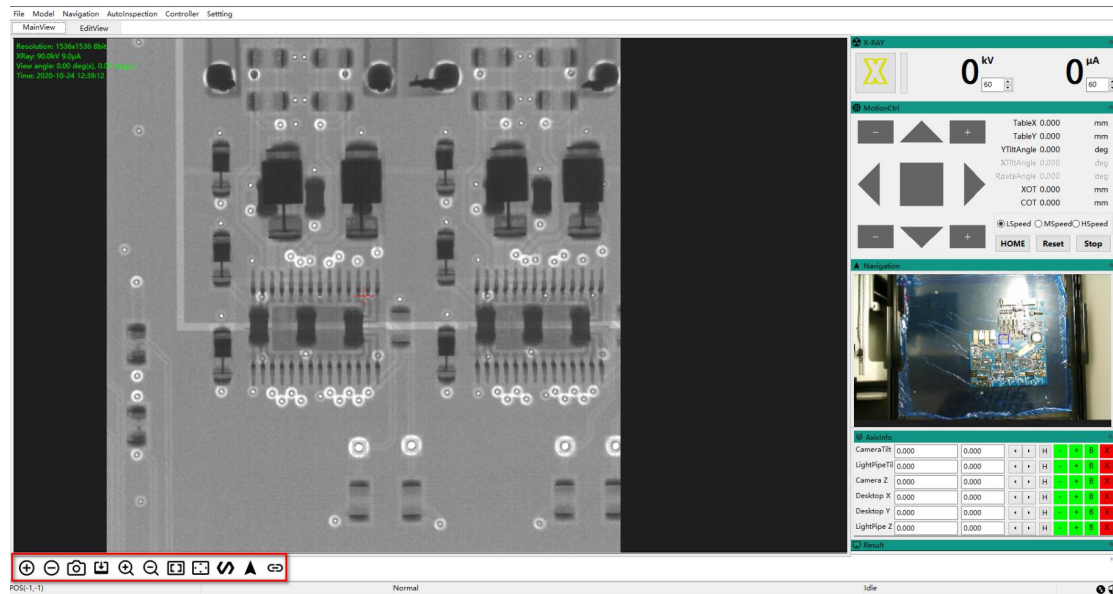


Used to display the version number of the current system.

- Website
The Website of Unicom
- OK button
Used to close the current window

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1.1.3.2 Toolbar

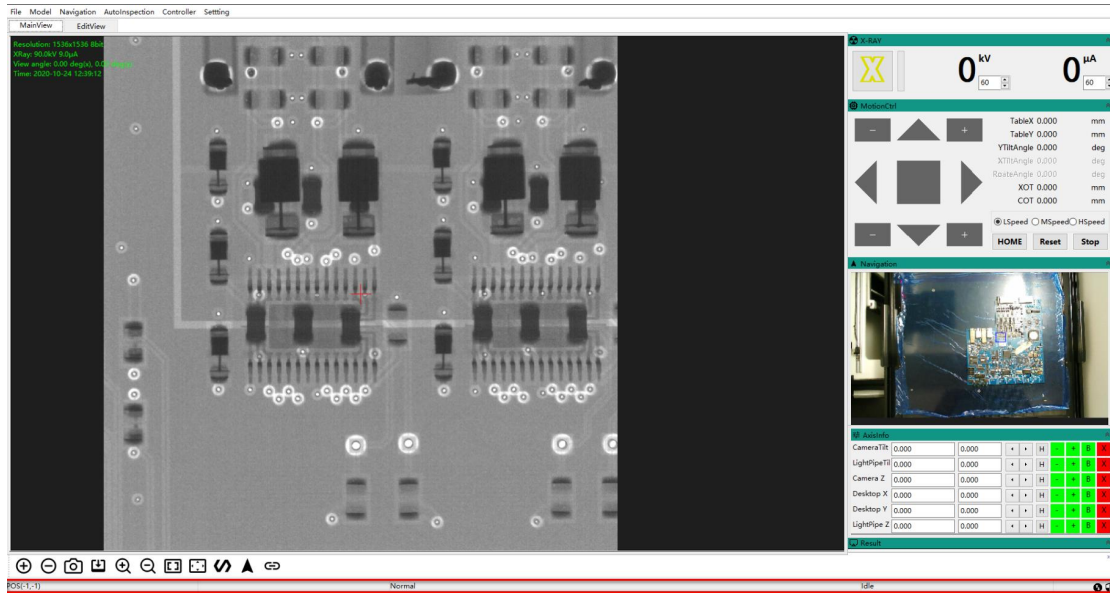


As marked in the above figure, the function introduction is as follows:

No	Symbol	Function	Introduction
1	⊕	Magnification+: Adjust the magnification	It is used to enlarge the detection part of the currently detected object in real time.
2	⊖	Magnification-: Adjust the magnification	It is used to reduce the detection part of the current detected object in real time.
3	📷	Capture	It is used to capture the image displayed in the main view of the current detected object.
4	🔍	ZoomIn	It is used to enlarge the image displayed in the current main view.
5	🔍	ZoomOut	It is used to reduce the image displayed in the current main view.
6	🖼️	1:1	It is used to implement 1:1 restoration of the image displayed in the current main view
7	🖼️	Full screen	It is used display the main view area in full screen.
8	🔧	uxToolCustom	It is used to detect voids
9	📍	CenterCross	Shows the position of the image center point.
10	🔗	DefTools	For pre-setting of tools

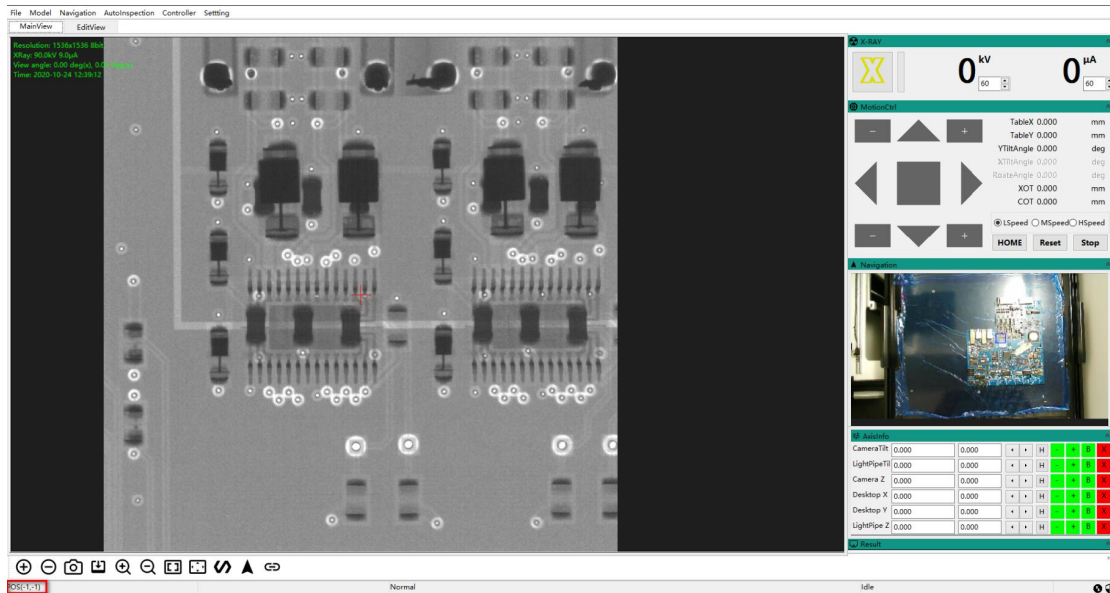


1.1.3.3 Status Bar



In the application software, the status bar is used to display the status of the system task being executed, the coordinate position of the mouse in the view area, and the movement status of the axis in real time.

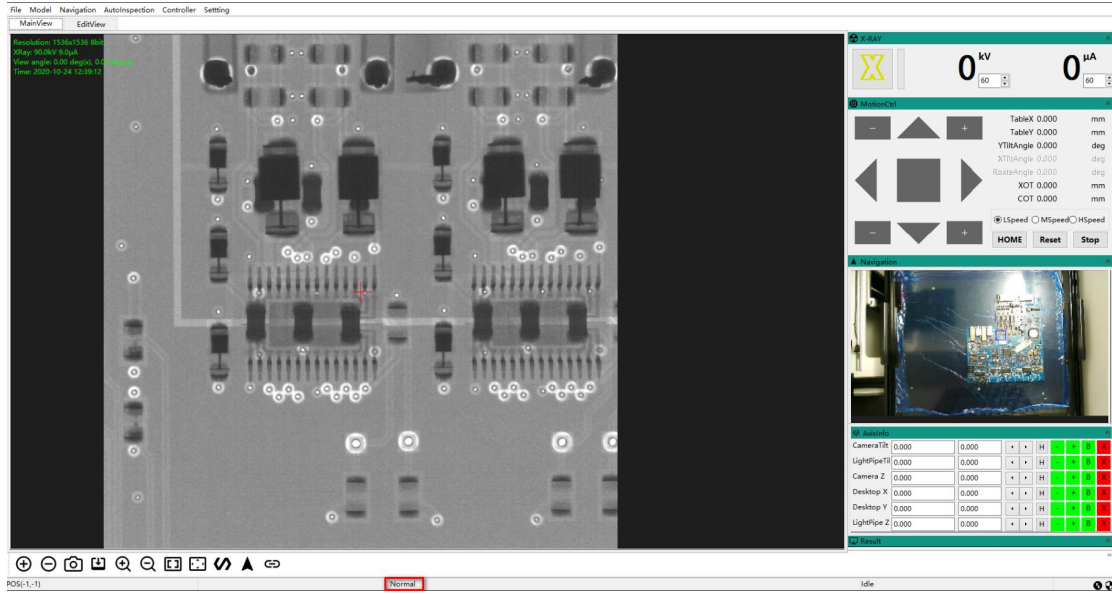
1.Coordinate position



It is used to display the coordinate position of the mouse in the viewing area in real time.

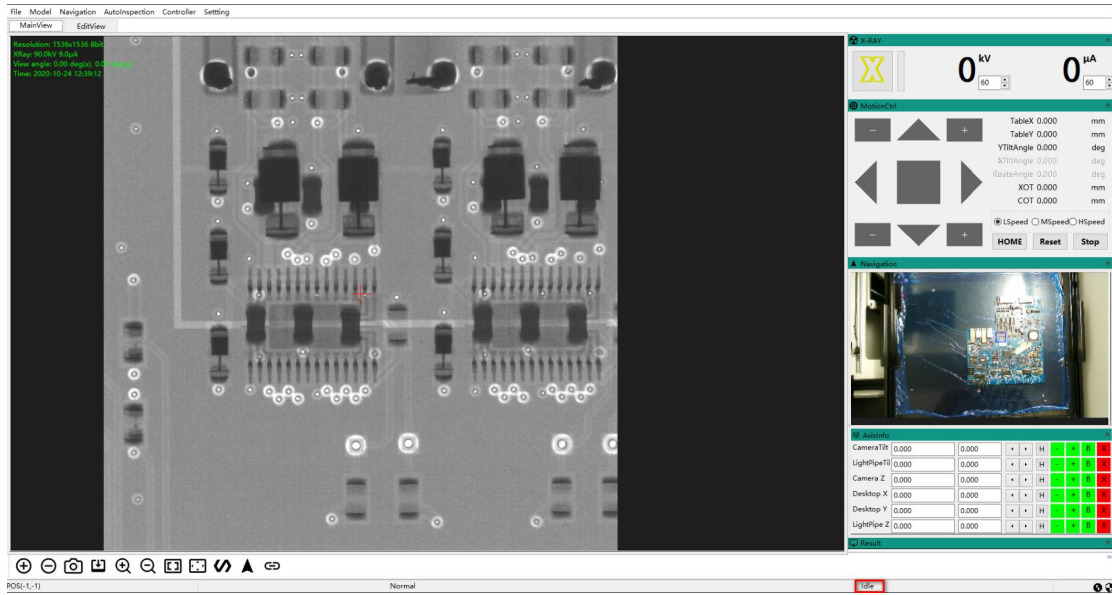
2.Task status

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It is used to display the status of the system in real time.

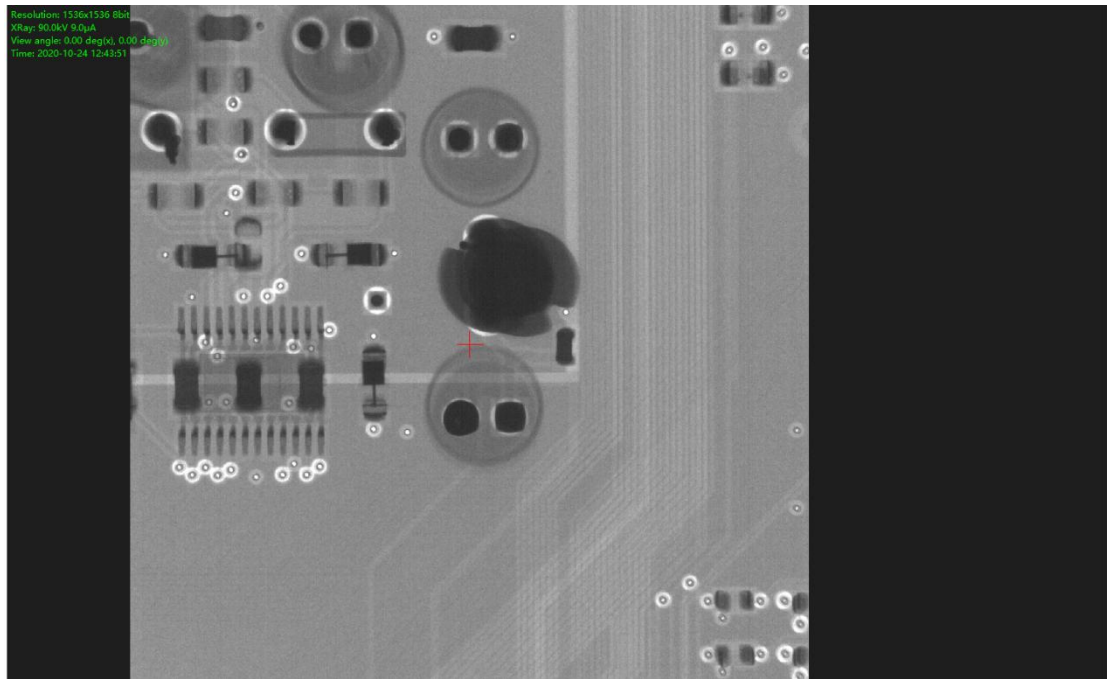
3.Axis motion state



It is used to display the movement status of the equipment axis in real time.

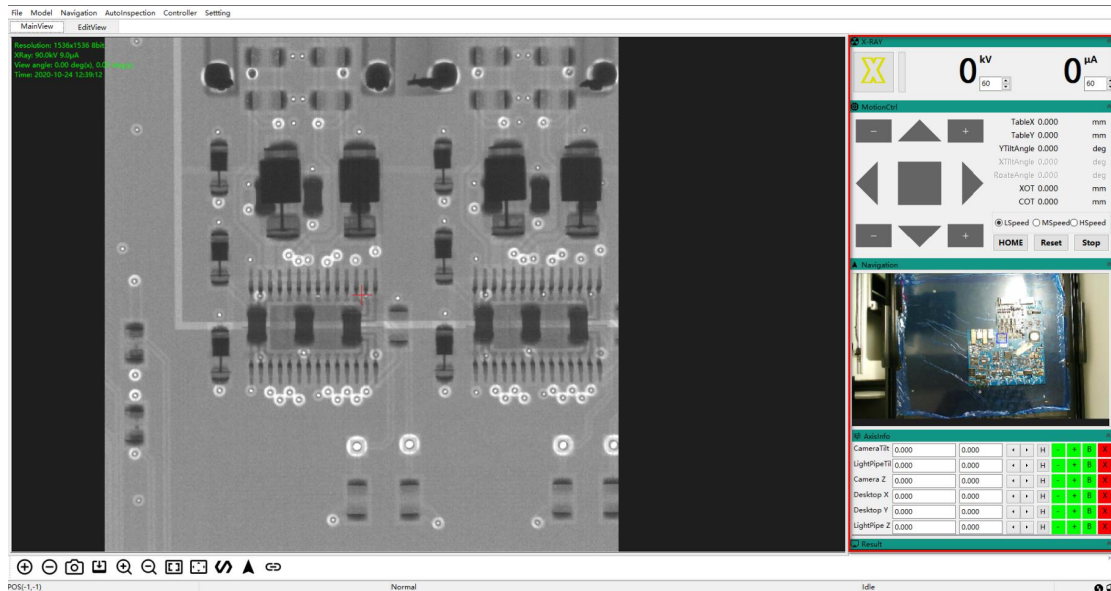


1.1.3.4 View

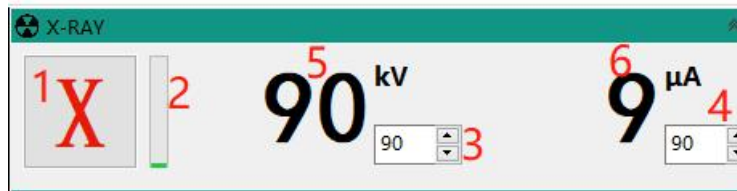
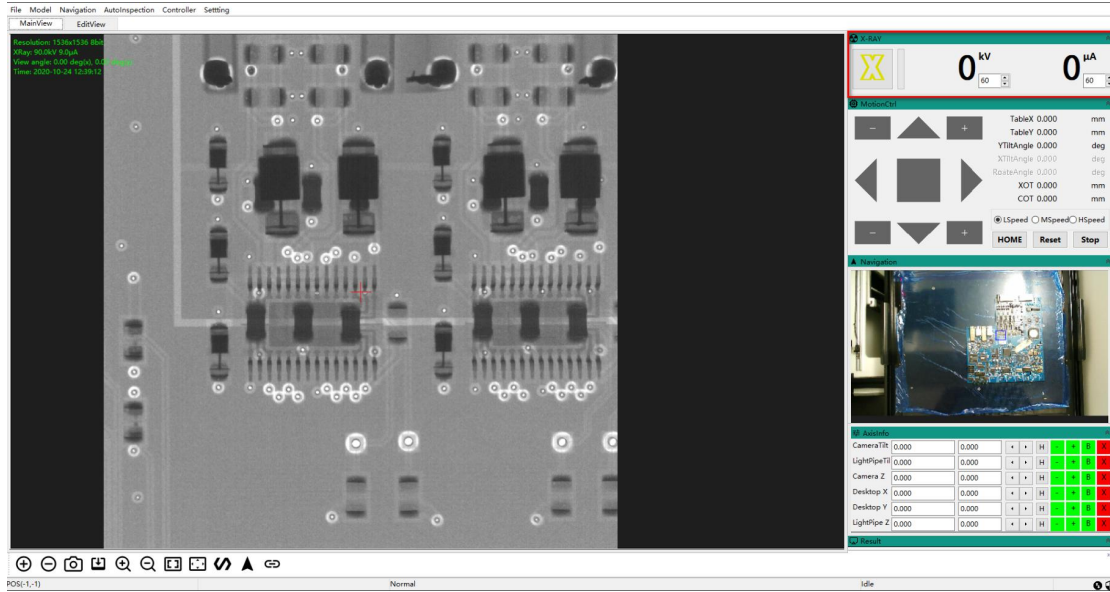


The image taken by the detected object is displayed, and the upper left corner displays the size of the current image, the voltage and current values used, the rotation angle of the camera/light tube, and the current time.

1.1.3.5 Control panel



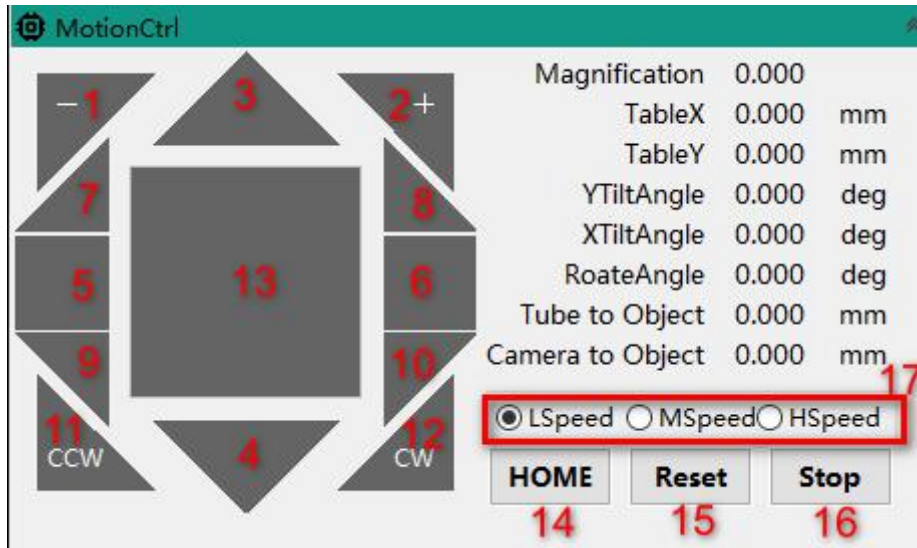
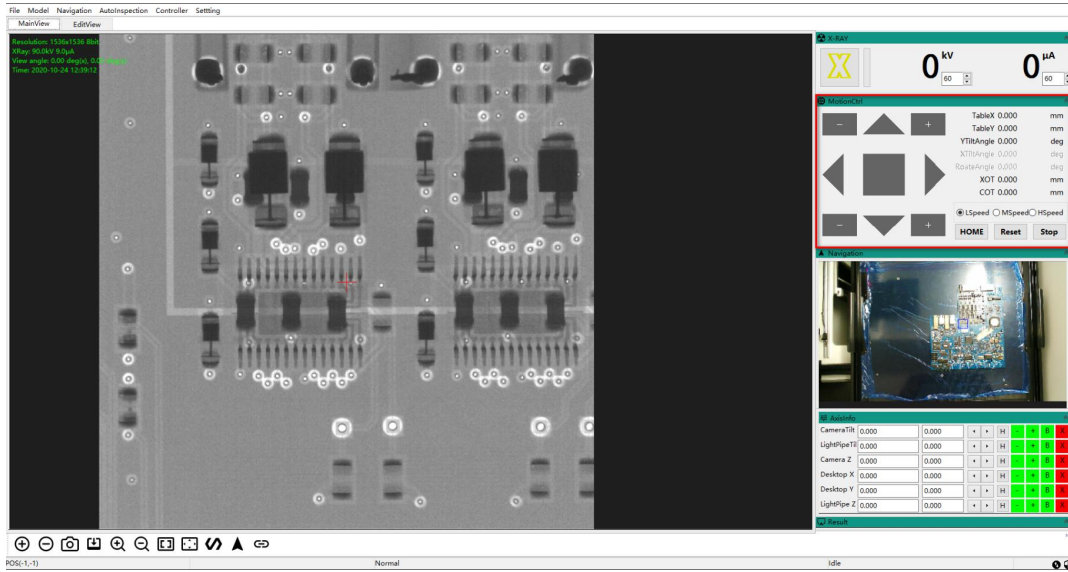
1.X-Ray Control



As marked in the above figure, the function introduction is as follows:

No	Introduction
1	It is used to control the opening and closing of the X-Ray tube.
2	The higher the current and voltage value, the higher the green energy column.
3	It is used to adjust the voltage rise and fall.
4	It is used to adjust the current rise and fall.
5	Real-time display of feedback voltage.
6	Real-time display of feedback current.

2.Sport control

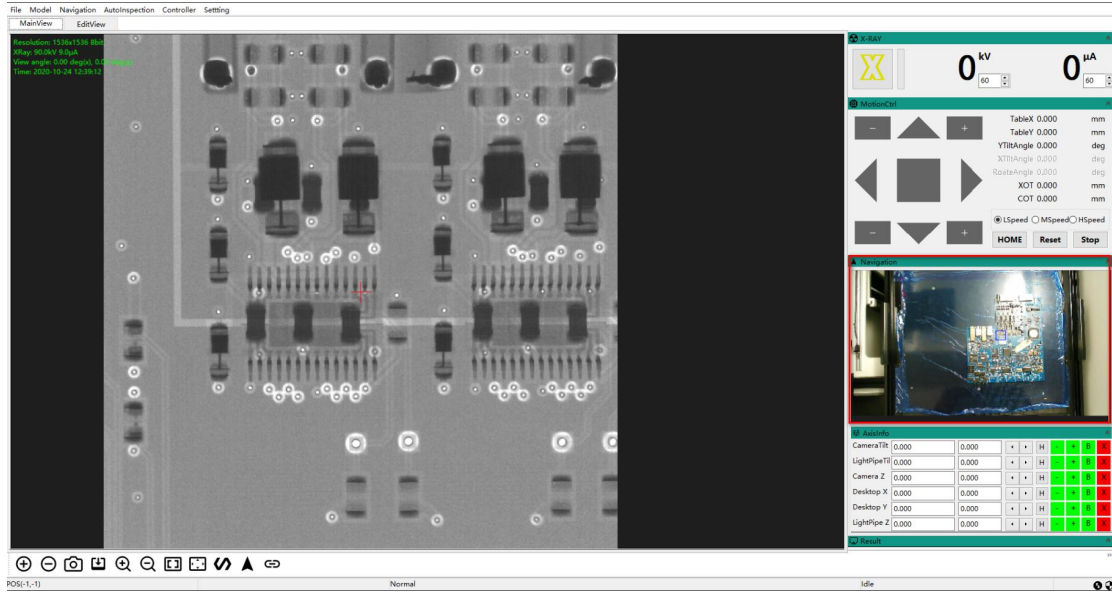


It is used to control the zero return of the equipment, the directional movement of each axis and the real-time display of the axis movement state after the movement.

No	Introduction
1&2	Control the desktop to move up and down.
3&4	Control the distance from the X-Ray tube to the object.
5&6	Control the desktop to move back and forth.
7&8	Control the camera to move left and right.
9&10	Control the tube to move left and right.
11&12	Control the desktop to rotate clockwise/counterclockwise.
13	Control the tilt and movement of the camera.
14	The device returns to the initial point.
15	The device returns to the set position.
16	Stop the current movement.

3.Navigation

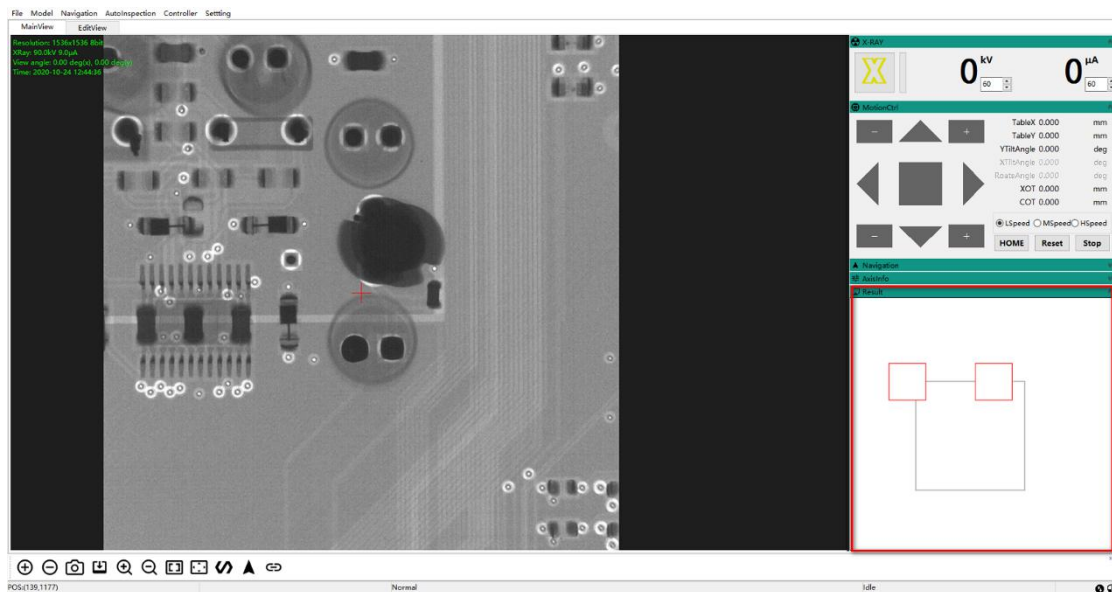
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Navigation is used to quickly locate each part of the detected object according to the navigation map.

The navigation panel is used to display the navigation map of the detected object.

4. Test results



It is used to display the detection results of various parts of the detected object in real time.

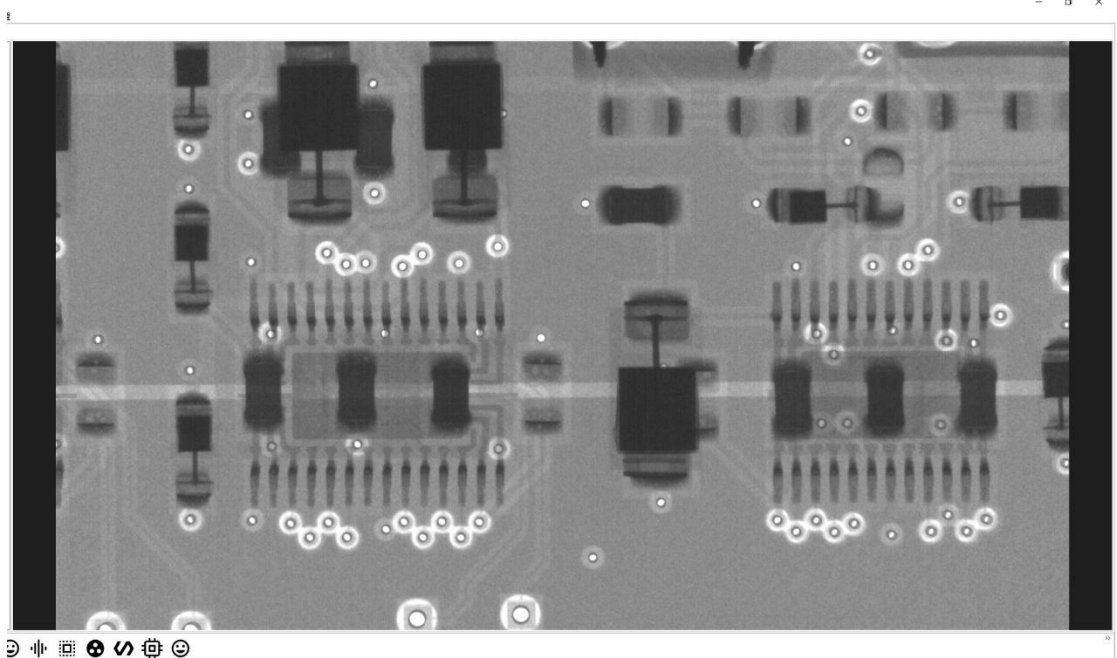


1.1.4 Edit view



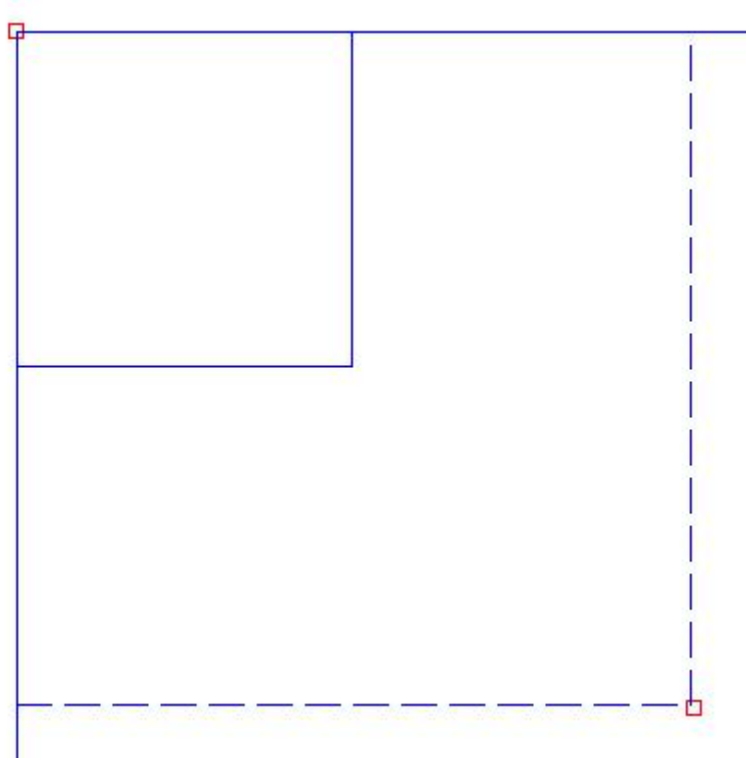
1.1.5 Edit view function introduction

1.1.5.1 View



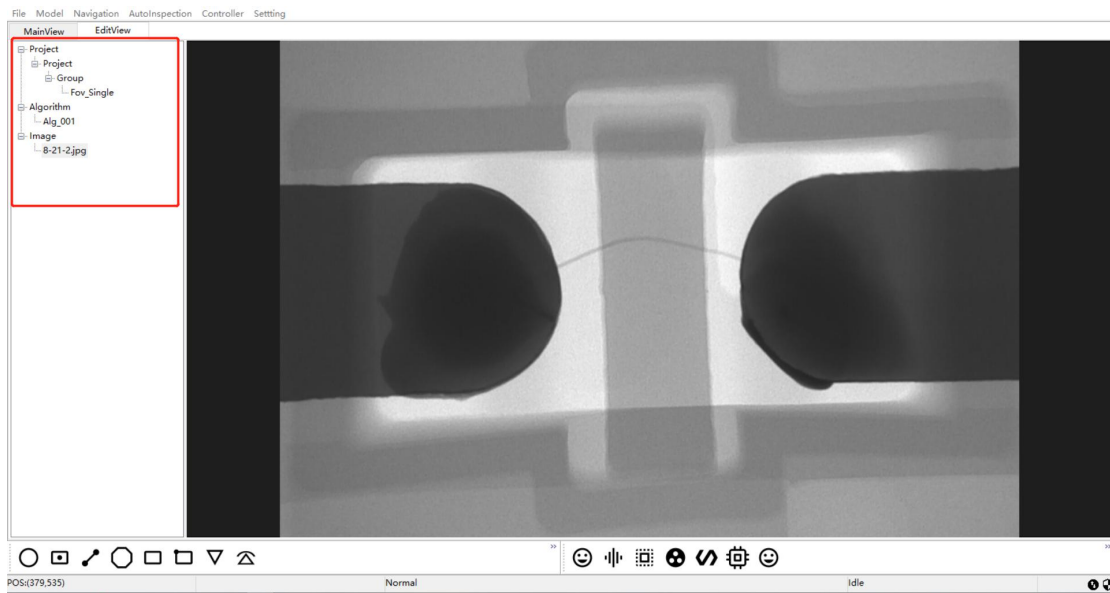
It is used to display the project view, image view and algorithm view being edited in real time.

1.View operation



After double-clicking to select, you can drag to modify properties.

1.1.5.2 Control tree



It is used to control the view being edited. For example: project creation, deletion, saving, project element addition, deletion, modification attributes, etc.

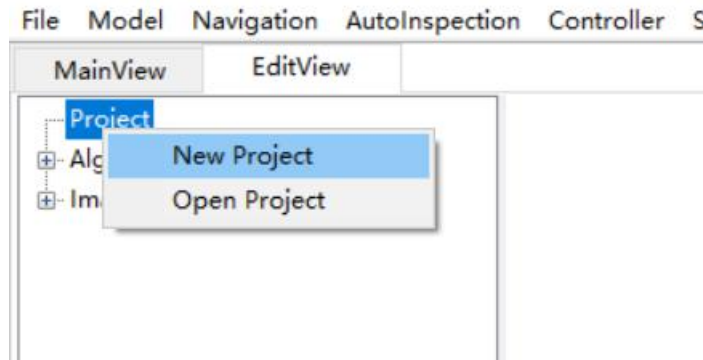


1.1.5.2.1 Edit Engineering

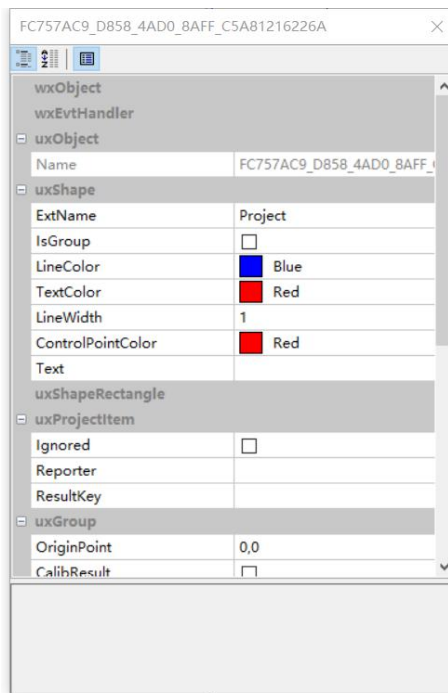
Edit engineering is used to edit and generate template project files. The template project file is a design file used to mark the location of detection points and add algorithms for a batch of the same detection objects.

1.Create project

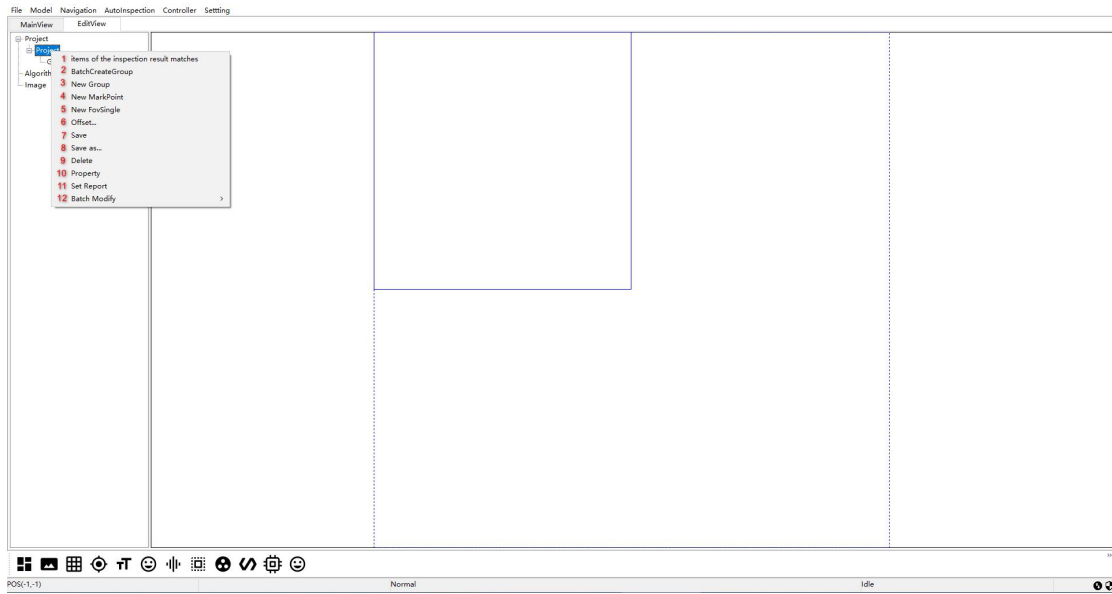
Right-click the “Project” node in the edit view and click the “Create Project” menu.



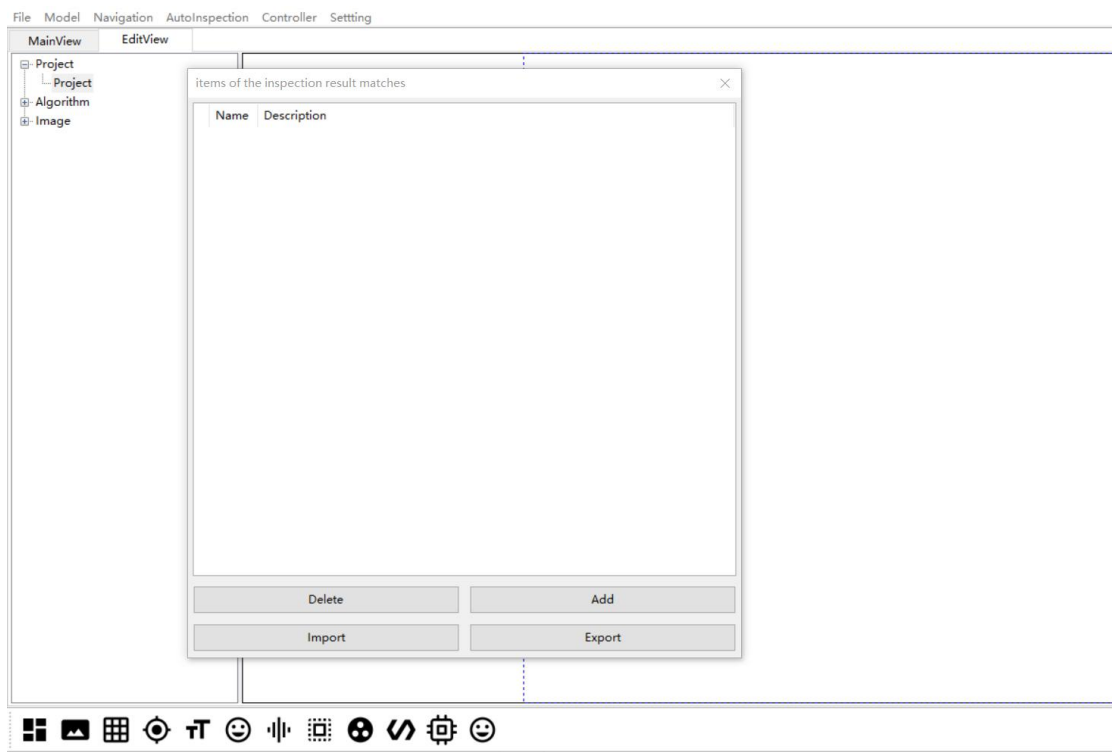
After that, the attribute table of the created project will pop up, and the attribute values such as line color and font color of the created project can be modified in this table.



After pressing the Enter key or closing the window, the project will be created according to the attribute values in the attribute table.



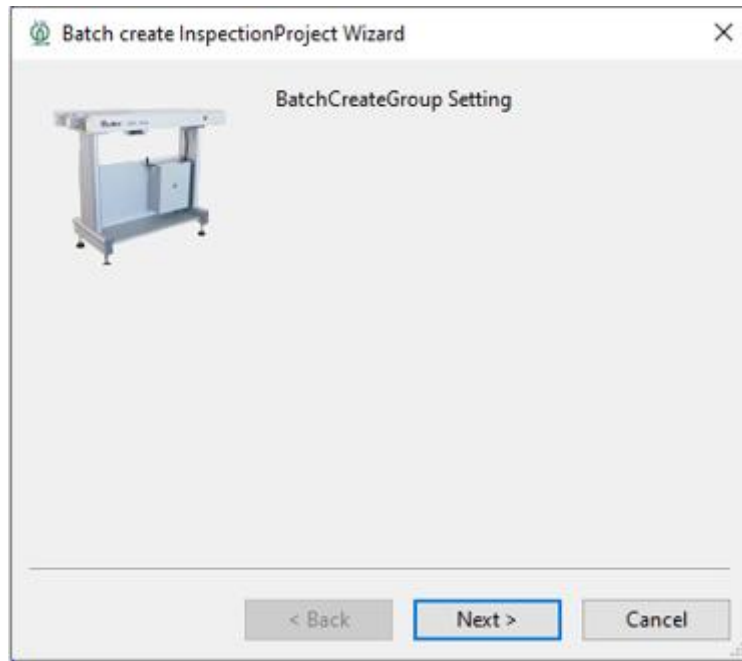
1. Items of the inspection result matches



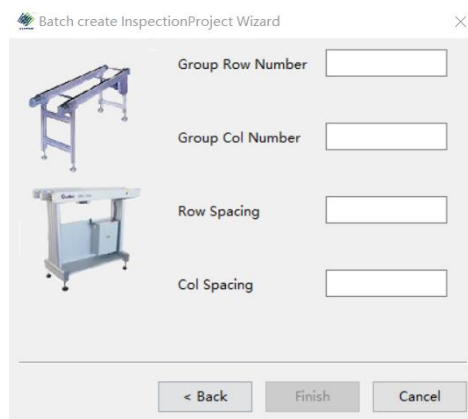
2. Batch Create Group (Note: Project has one and only one Group, then this Group and its subnodes can be created in batches)



Chapter 1 Introduction to AX9100 Software Functions



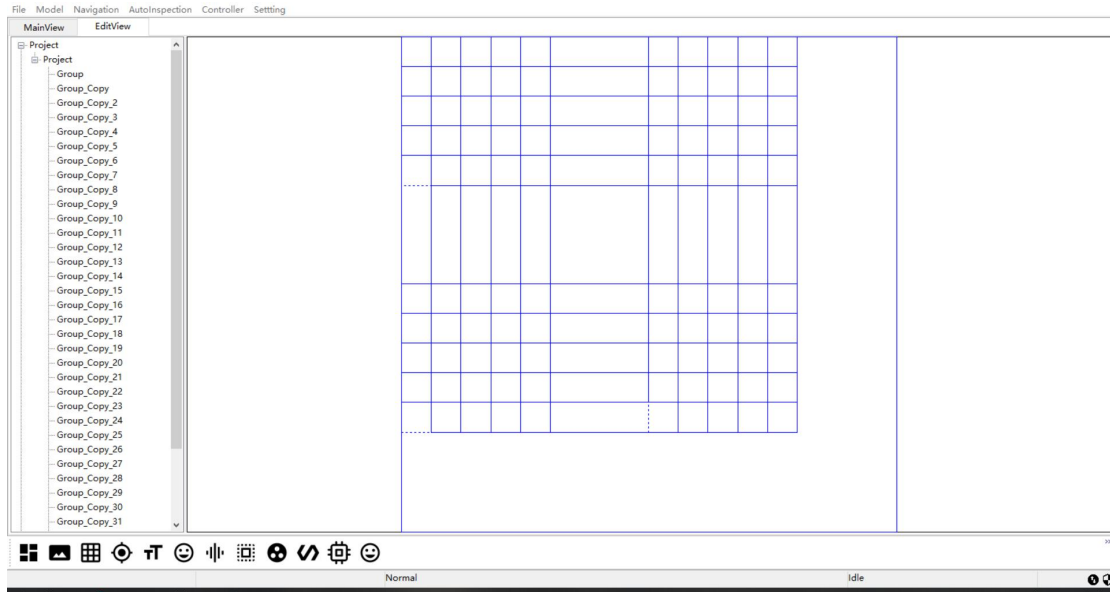
Click “Next”, as shown in the figure below, enter the number of rows and columns of the Group and the distance between rows and columns, in mm.



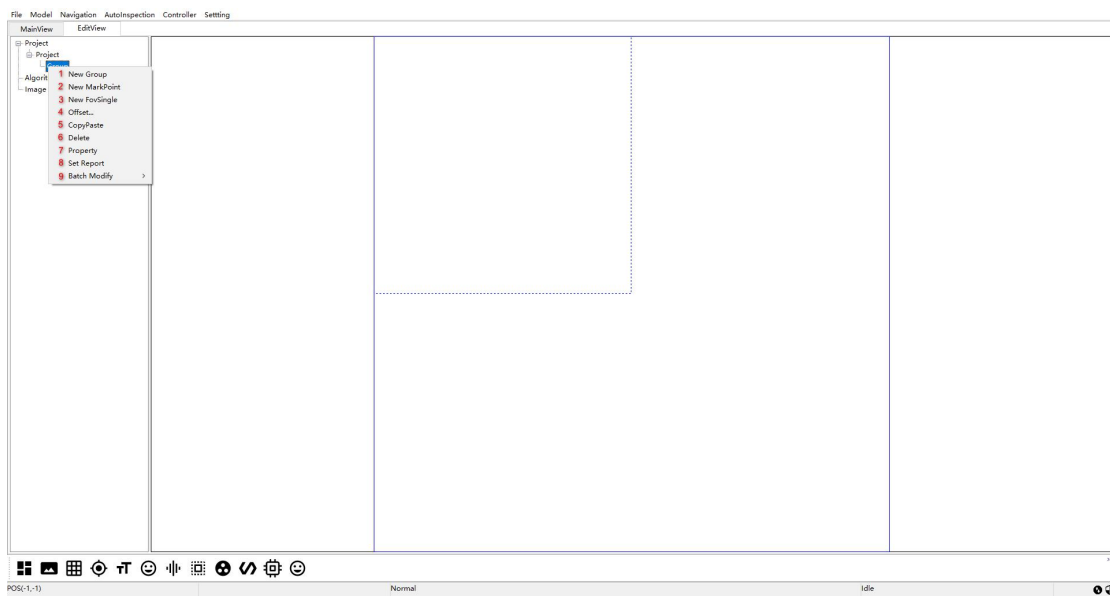
Click “Finish” to complete batch creation



Chapter 1 Introduction to AX9100 Software Functions

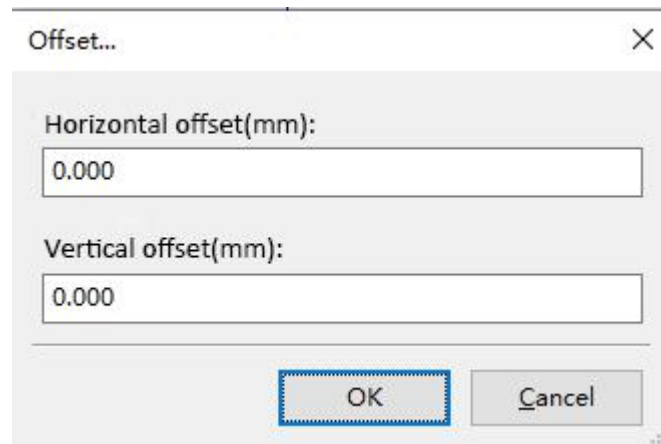


3.New Group



1&2&3.Group can create Group, Mark Point, FovSingle

4.Position shift



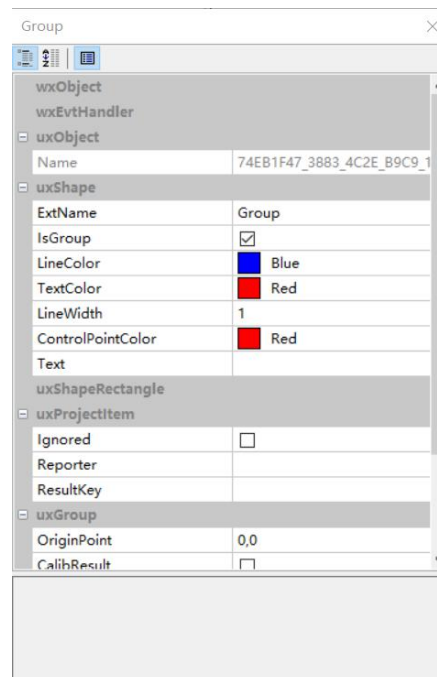
You can set the offset position adjustment when the editing view position is offset

5.Copy and paste

The function of copy and paste is used to quickly copy the configured Group, Fov, and Tool to reduce the same creation and configuration.

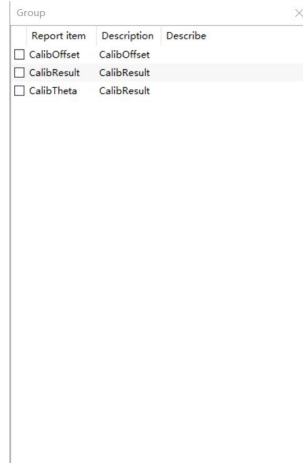
6.Delete the current group

7.Attributes



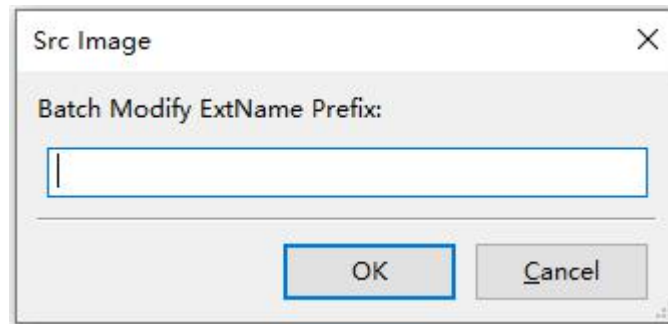
It is used to modify the attribute parameters of the current Group.

8.Output report settings



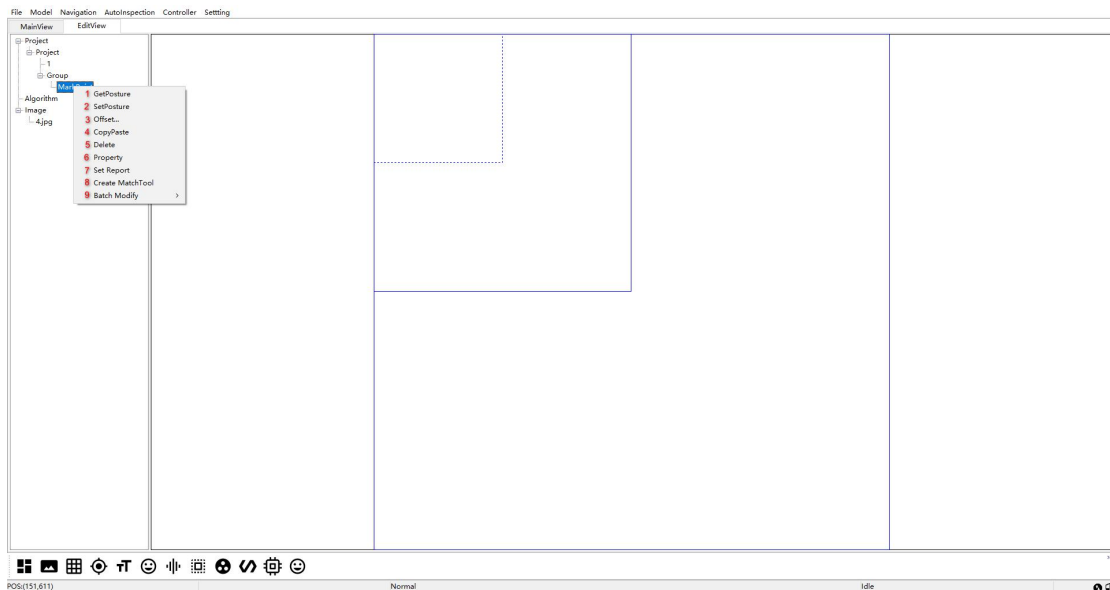
Select the current Mark Point and select the report item to be output.

3.9. Batch Edit



When there are too many points created or created in batches, and the names of the created projects need to be modified in batches, the names can be modified in batches.

4. New Mark Point



1. Get posture



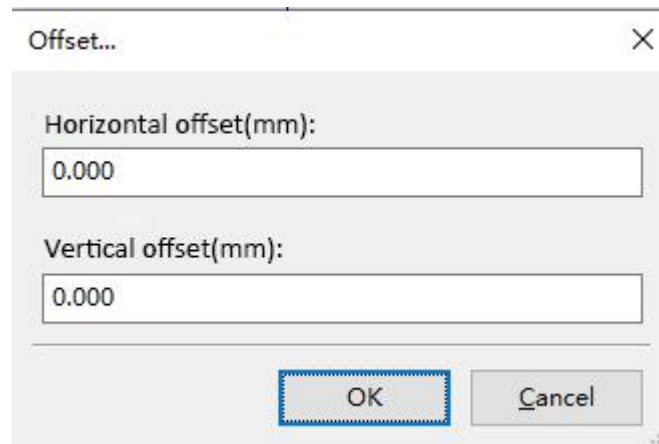
Chapter 1 Introduction to AX9100 Software Functions

The device must have been [return to zero], and the user can adjust the posture in real time on the main interface, and then return to the editing interface to obtain the posture again.

2. Calibrating posture

The device must have been [returned to zero], and the current Fov must have acquired the posture. The calibration posture means to restore the device to the posture that Fov has acquired, and it can be restored to the posture that Fov has acquired.

3. Position shift



Select the horizontal and vertical offset distance when Fov obtains the posture position and wants to offset

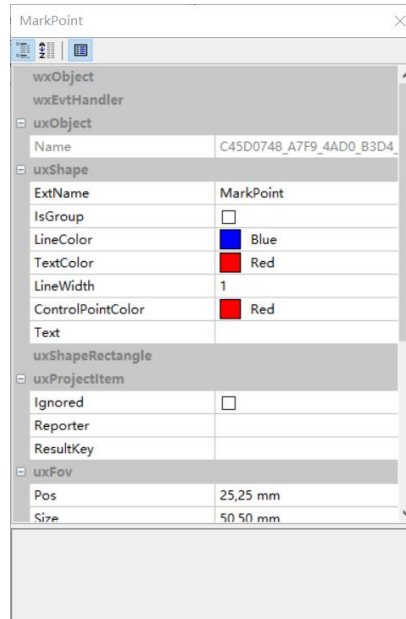
4. Copy and paste

The function of copy and paste is used to quickly copy the configured Group, Fov, and Tool to reduce the same creation and configuration.

5. Delete

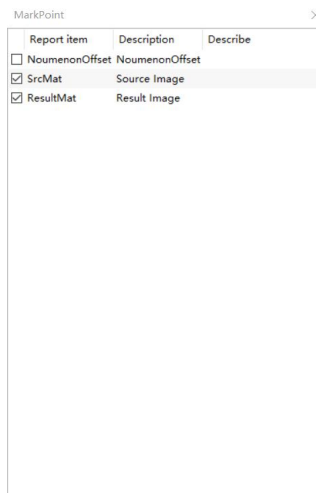
Delete the current MarkPoint.

6. Attributes



It is used to view/modify the current Mark Point attribute value.

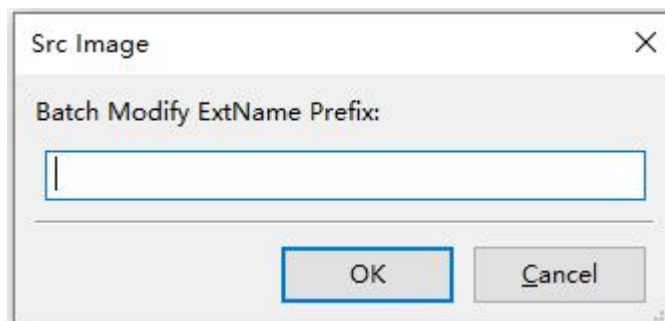
7. Output report settings



Select the report item that the current Mark Point needs to output.

8. Positioning tool settings

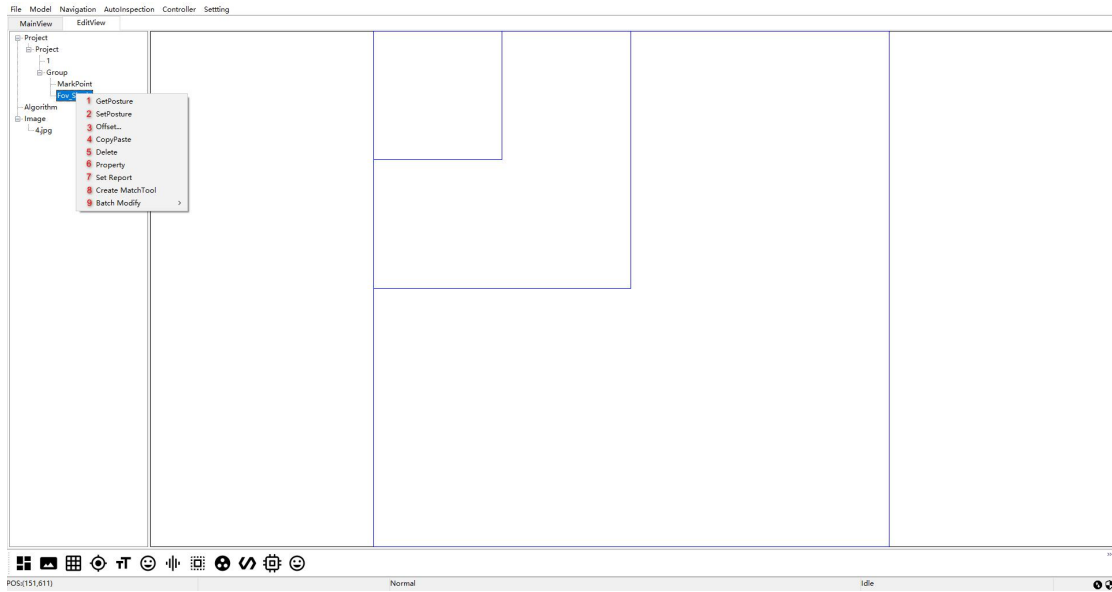
9. Batch Edit



You can modify the prefix names of the created nodes in batches.

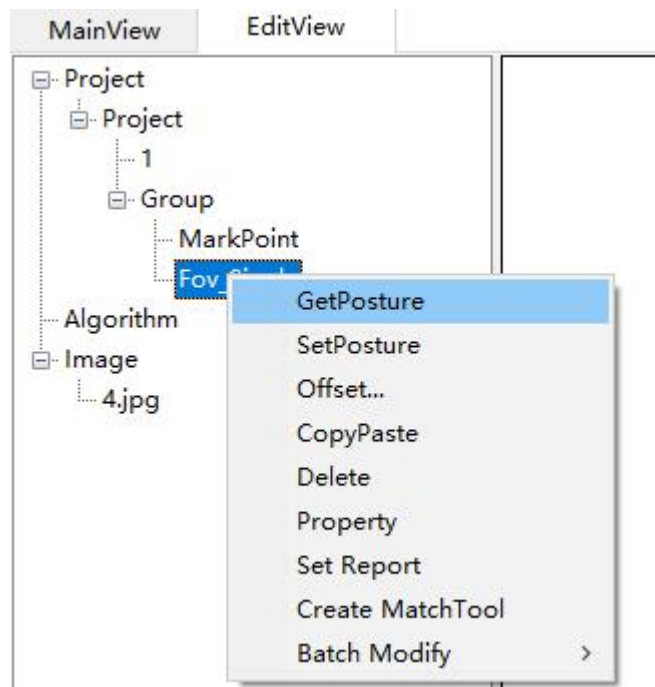
5. New FovSingle

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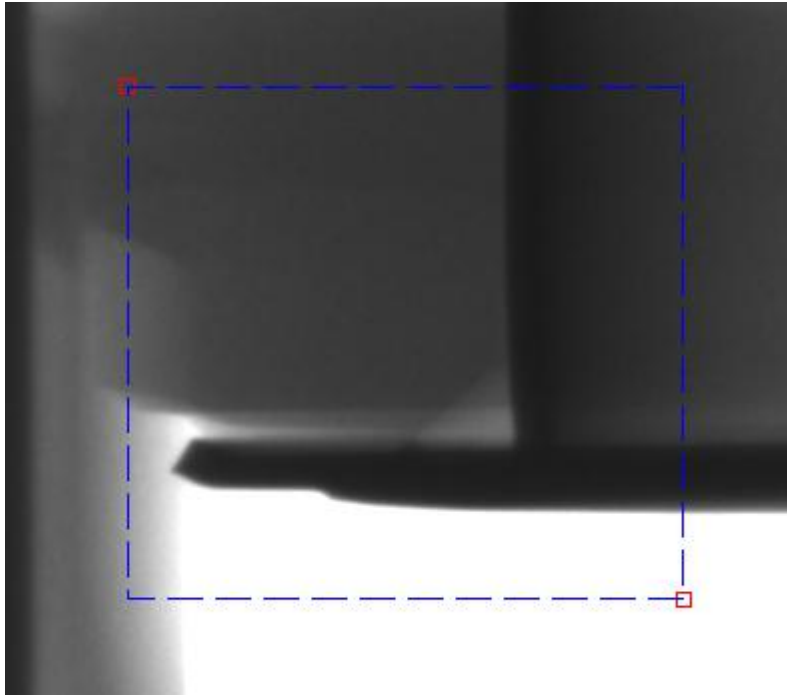
1. Get posture

The device must have been [return to zero], and the user can adjust the posture in real time on the main interface, and then return to the editing interface to obtain the posture again.



Only when the Fov obtains the posture, can the Tool be added to the current Fov posture picture, or you can select the Tool to be added in the toolbar, and drag the image with the mouse to generate the Tool.





➤ **Modify Tool attributes**

Right-click the “**Tool node**” you are editing and click the “**Properties**” menu. Different Tools contain different properties.

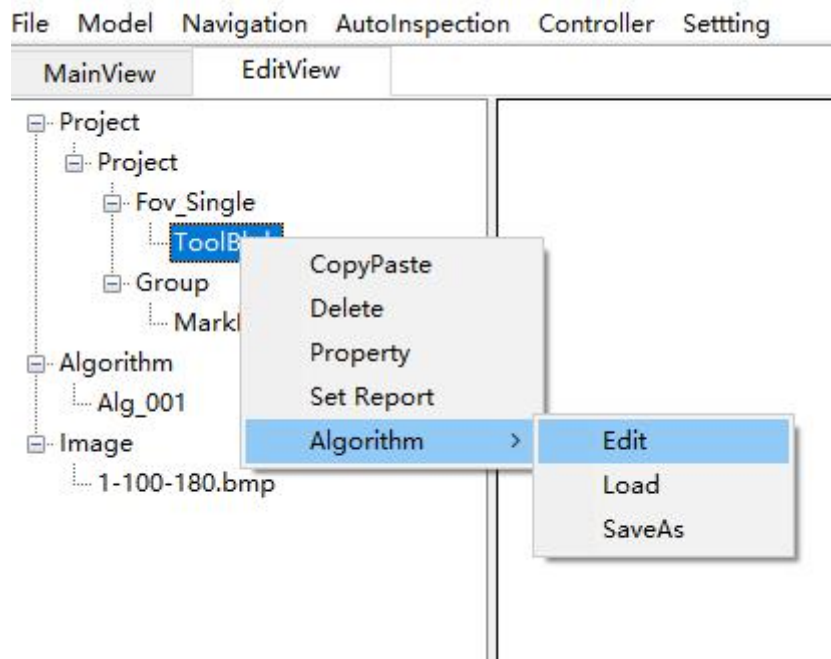
ToolBga	
Text	
State	3
uxShapeRectangle	
uxProjectItem	
Ignored	<input type="checkbox"/>
Reporter	
ResultKey	
uxTool	
UseROI	<input type="checkbox"/>
OriginPoint	-0.279141,0.139571 mm
Size	2.01779,1.19632 mm
uxToolBga	
Filter1	81
Threshold1	10
Filter2	35
Threshold2	5
RegionProcess	5 35
Circularity	0.8
RegionSelectValue	500

➤ **Output report settings**

Report item	Description	Describe
<input type="checkbox"/> OtherMeanGray	OtherMeanGray	
<input type="checkbox"/> AllBlobRatio	AllBlobRatio	
<input type="checkbox"/> LargestBlobPosition	LargestBlobPosition	
<input type="checkbox"/> ObjNumber	Count of Objects	
<input type="checkbox"/> BlobMeanGray	BlobMeanGray	
<input type="checkbox"/> LargestBlobRatio	LargestBlobRatio	

Different tools have different output report items.

➤ Tool algorithm editing



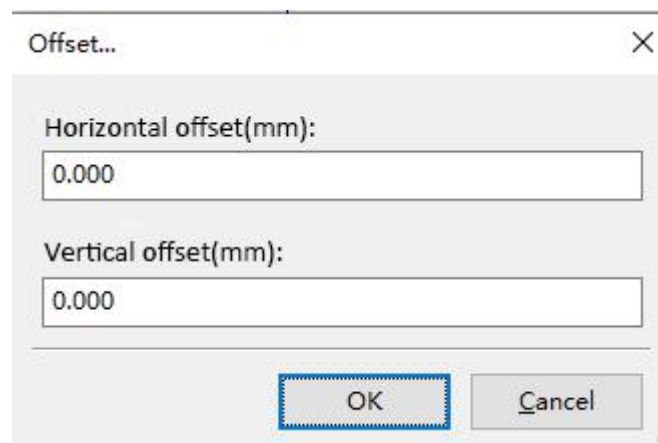
2. Calibrating posture

The device must have been [returned to zero], and the current Fov must have acquired the attitude. The calibration attitude means to restore the device to the acquired attitude of the Fov

3. Delete all Tools

Delete all Tools currently added.

4. Position shift



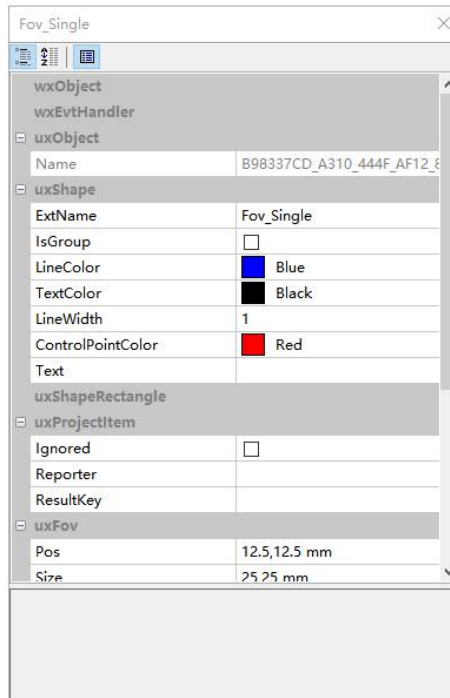
5.Copy and paste

The function of copy and paste is used to quickly copy the configured Group, Fov, and Tool to reduce the same creation and configuration.

6.Delete

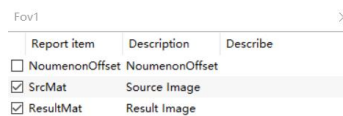
Delete the current FovSingle.

7.Attributes



It is used to view/modify the current FovSingle attribute value.

8.Output report settings



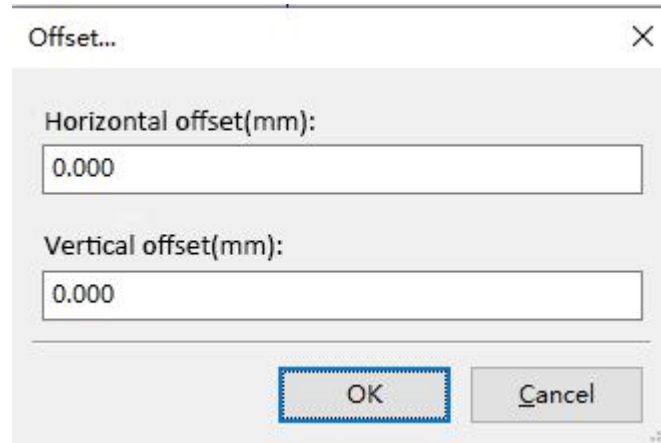
Select the report items to be output by the current FovSingle.

9.Positioning tool settings

10.Batch Edit

When there are too many points created or created in batches, the names of the created projects need to be modified in batches, and the names can be modified in batches.

6.Position offset

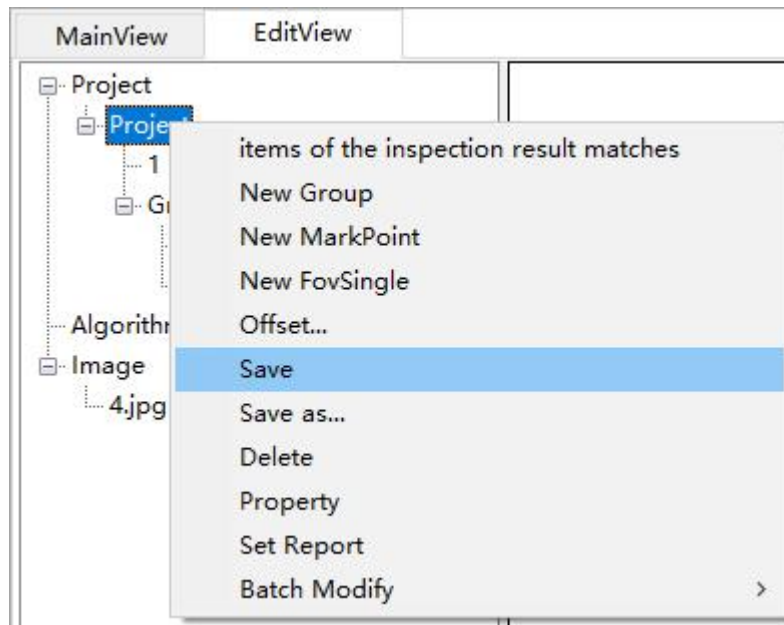


7. Save

Click “**Save**” to save the current.

8. Save as

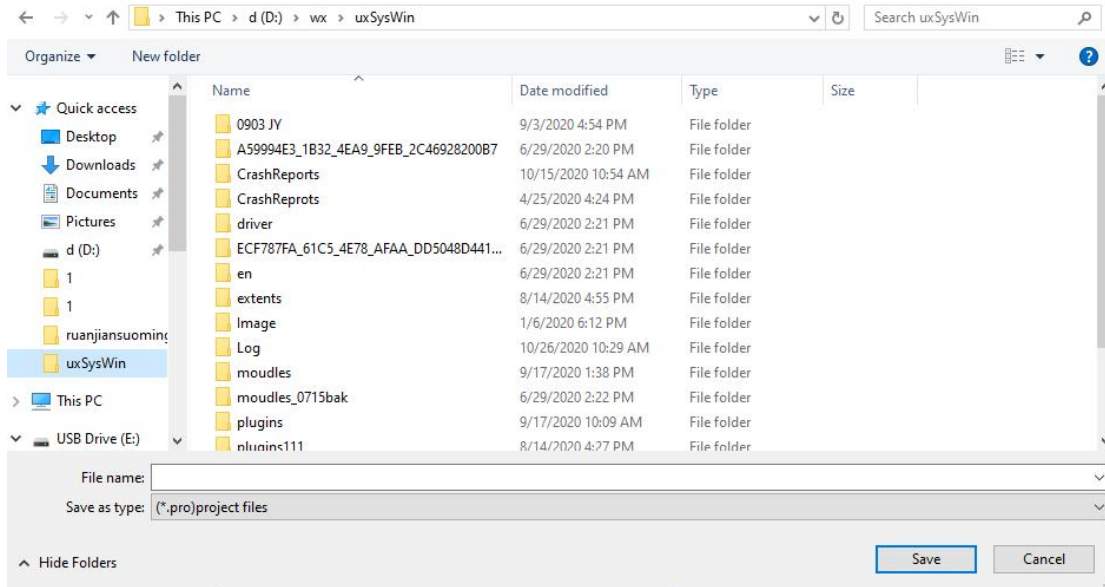
Click “**Save As**” to save as a new file.



Set the project file name, select the save path to save the project.



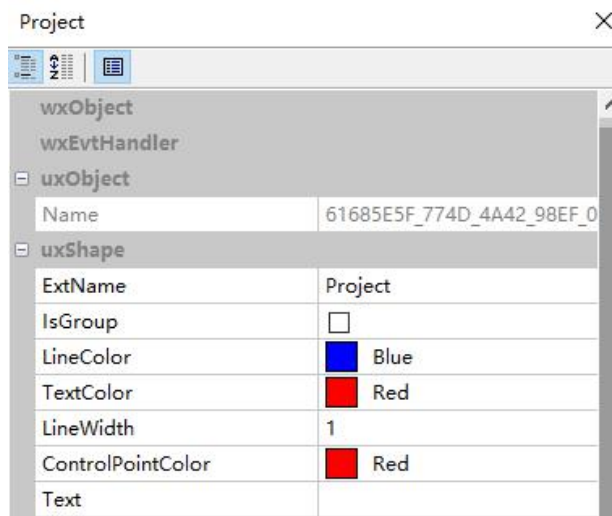
Chapter 1 Introduction to AX9100 Software Functions



9.Delete

Delete current project

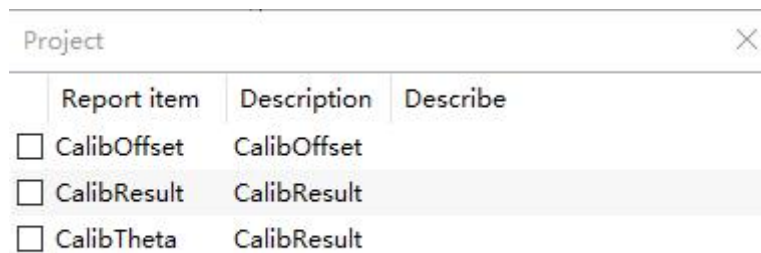
10.Property



Modify the properties of the current project.

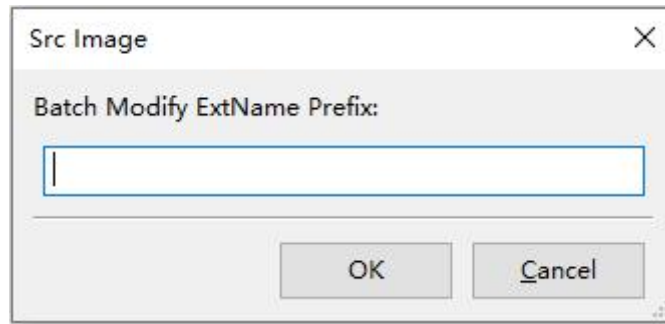
11.Set Report

Select the report items that the current Project needs to output.



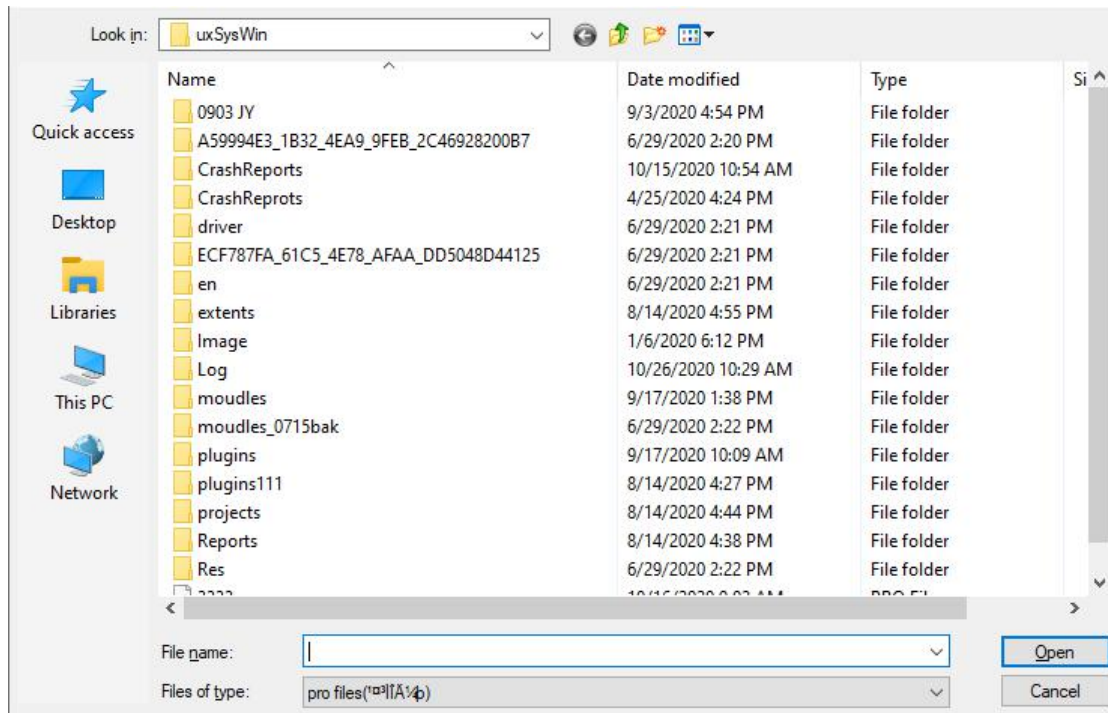
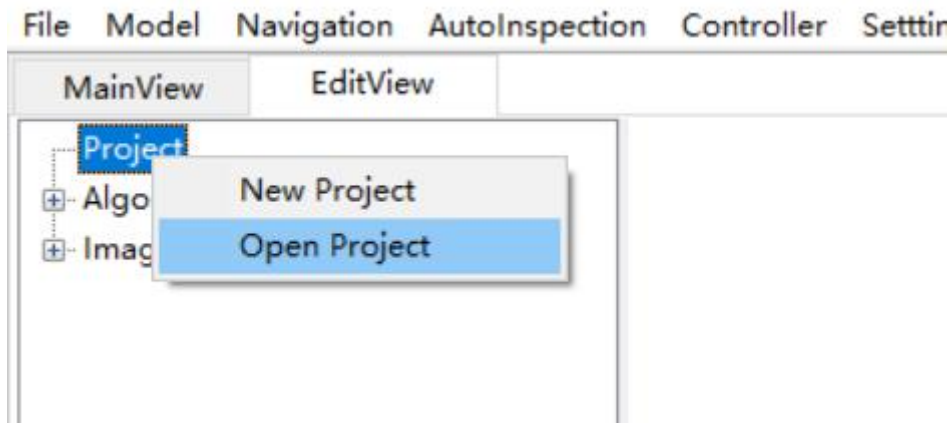


12.Batch Edit



When there are too many points created or created in batches, and the names of the created projects need to be modified in batches, the names can be modified in batches.

2.Open the project



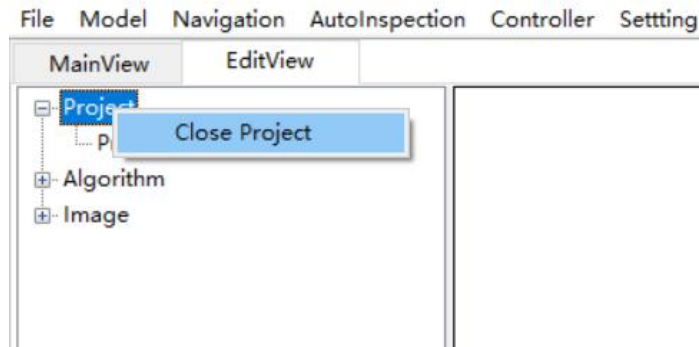
The edited project can be opened locally.

3.Close project

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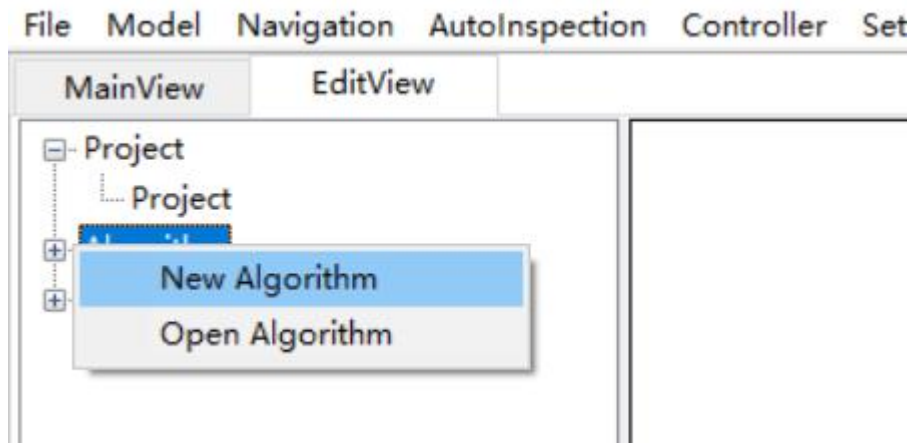


Close the currently selected project.

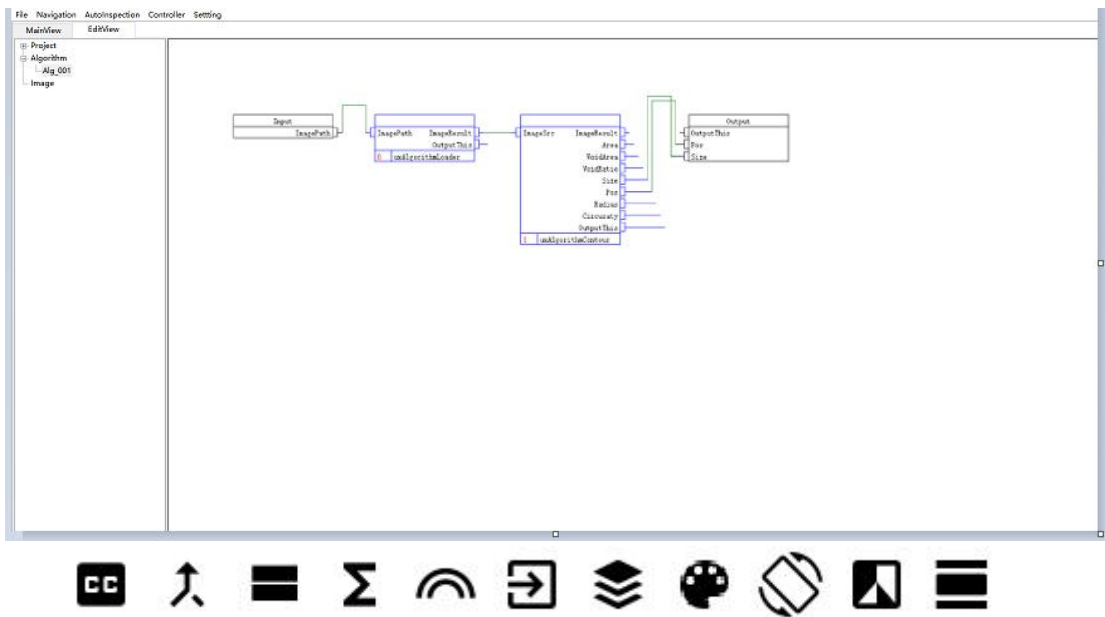


1.1.5.2.2 Editing algorithm

1. Create algorithm

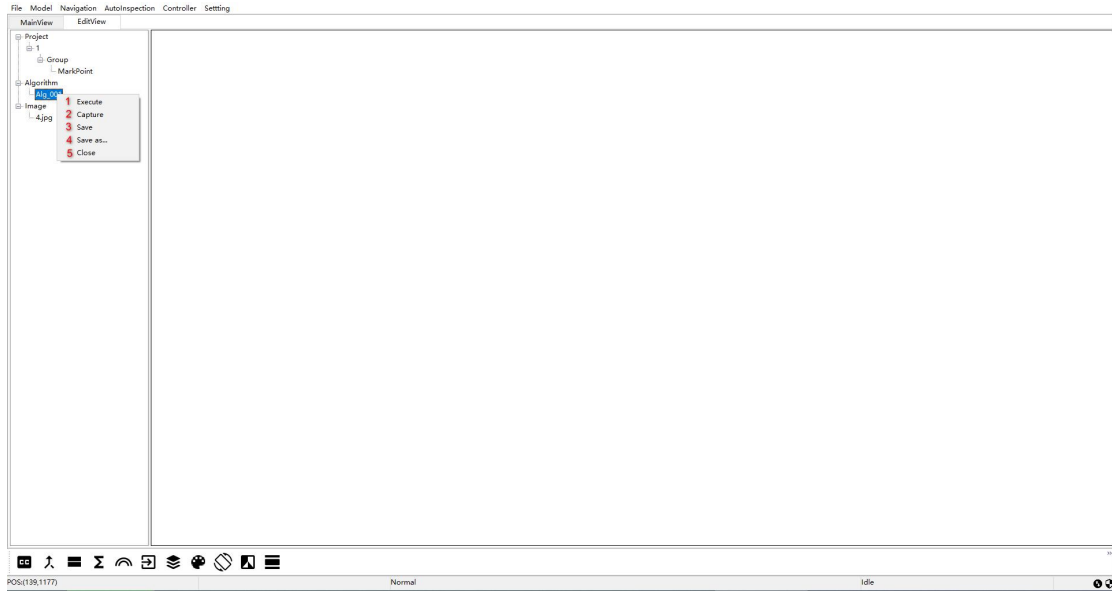


Right-click the “Algorithm” node in the edit view and click the “Create Algorithm” menu, the algorithm is created successfully.



Use the algorithm menu bar to draw the algorithm on the edit view

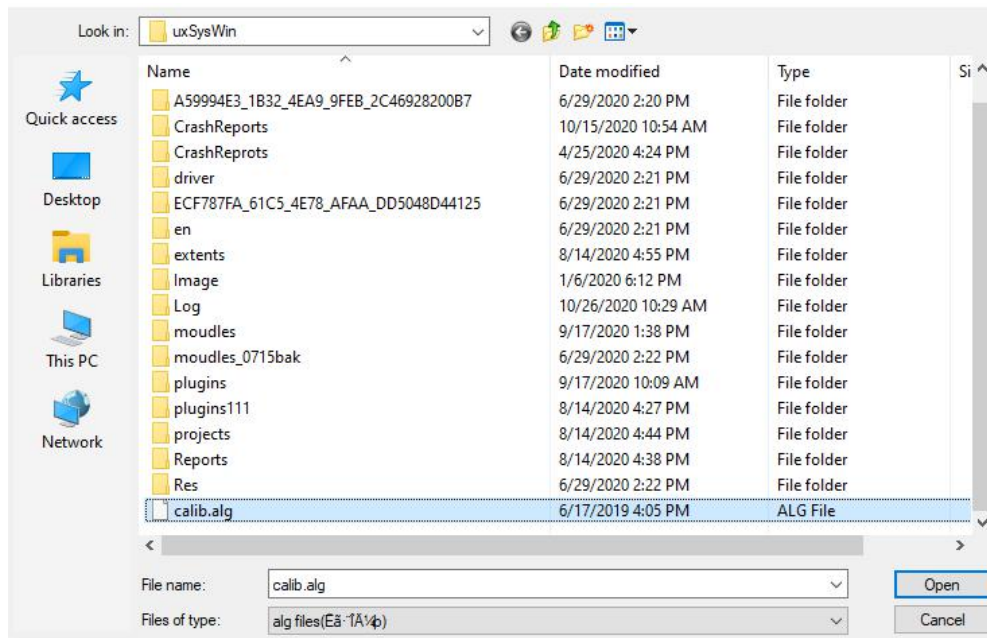
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As marked in the above figure, the function introduction is as follows:

No	Function	Introduction
1	Running	Start to run the current algorithm.
2	Capture	Capture the image and the device must have 【return to zero】 .
3&4	Save/save as	Save the current algorithm locally according to the storage path.
5	Close	Close the current algorithm.

2.Open algorithm

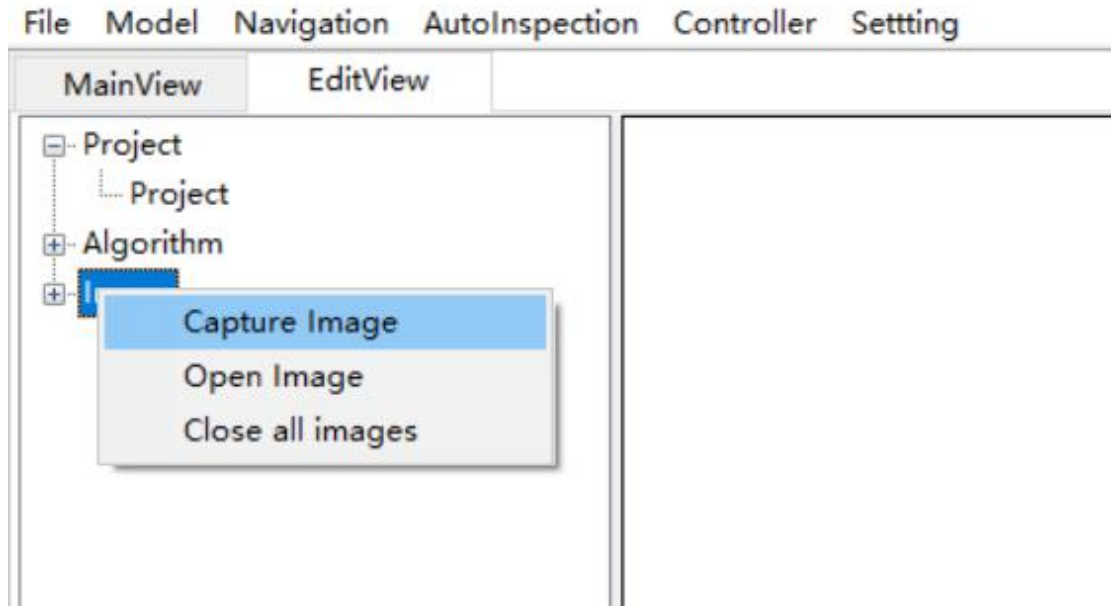



The edited .alg format algorithm file can be opened locally.



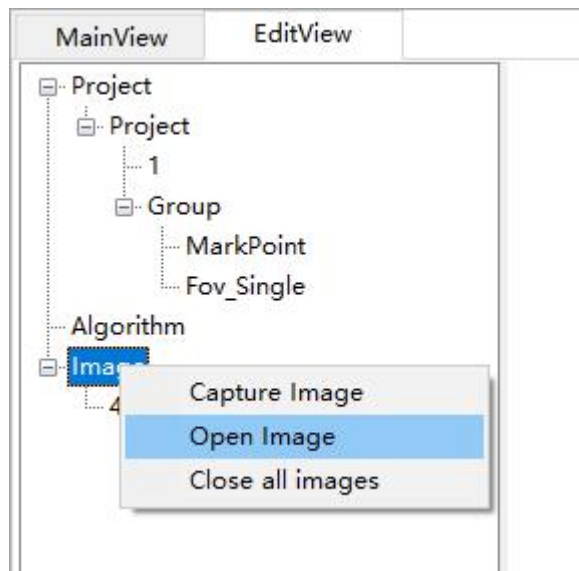
1.1.5.2.3 Image editing

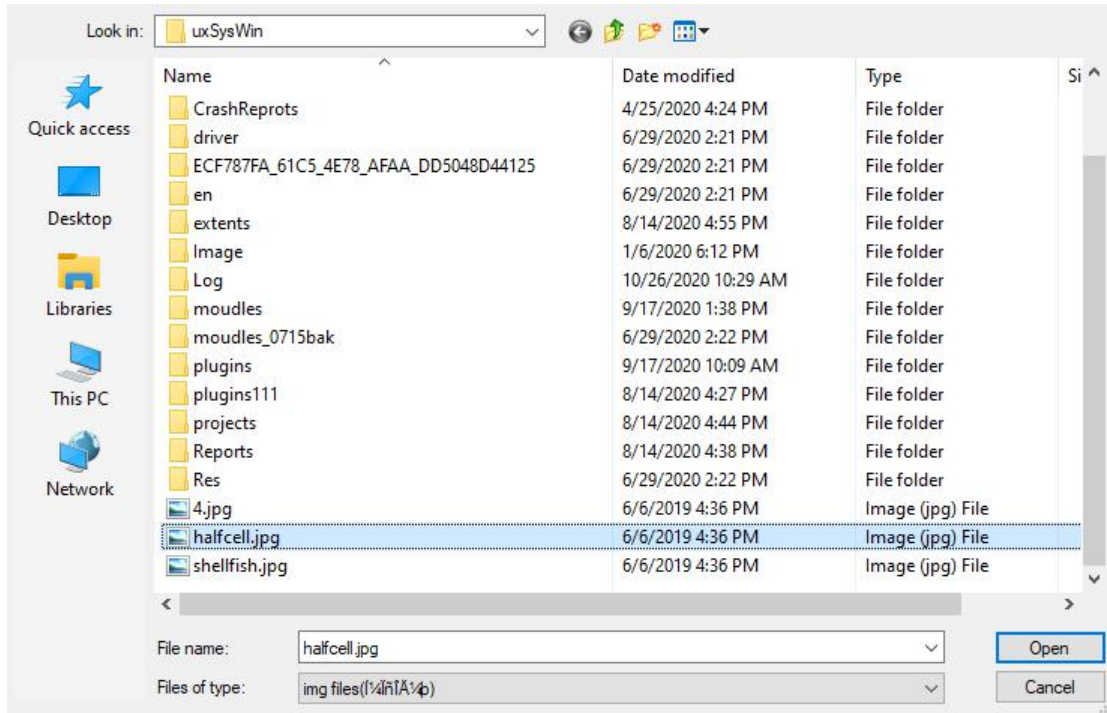
1. Capture image



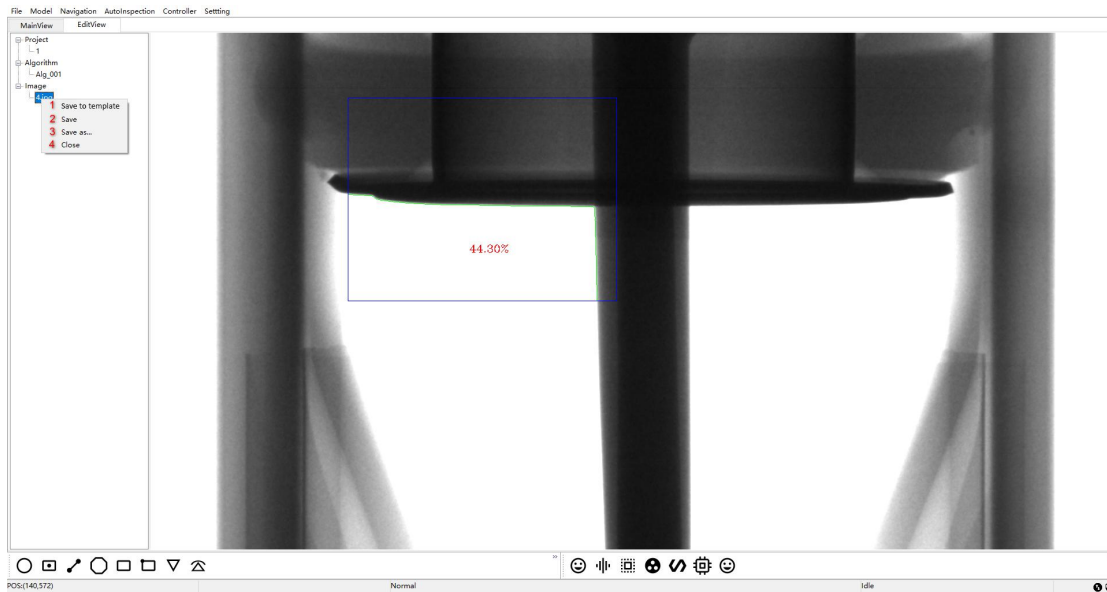
The condition for capturing a picture is that the device must have also been [return to zero]. The picture can be captured through the right-click menu of “**Image**”, or through the toolbar  of the main interface.

2. Open image





You can open the saved image locally for editing.



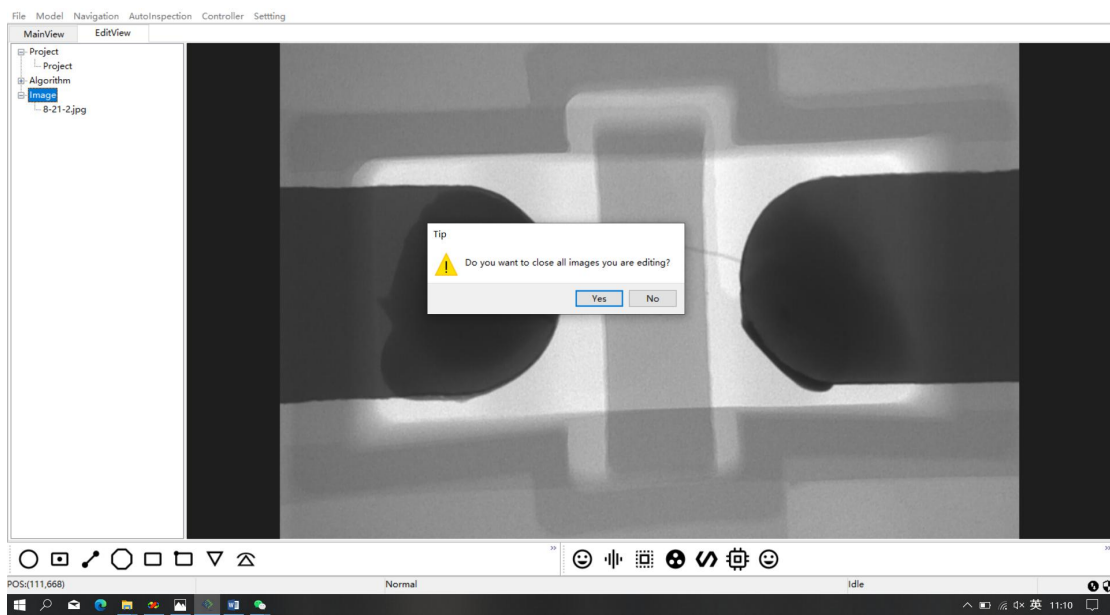
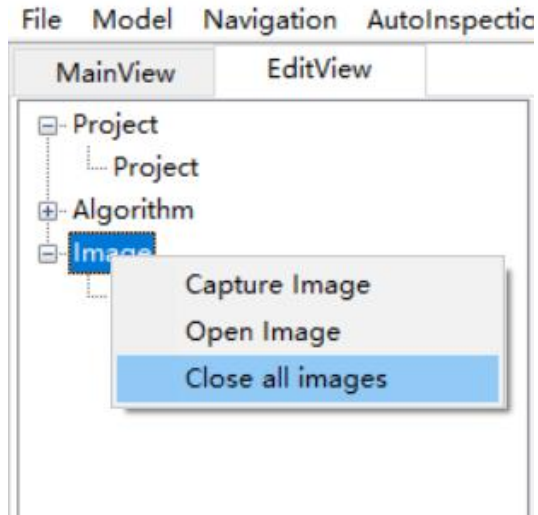
As marked in the above figure, the function introduction is as follows:

No	Function	Introduction
1	Save to template	Save this image as a template
2&3	Save/save as	Save the current image to the local according to the selected path.
4	Close	Close the current image.

3.Close all images



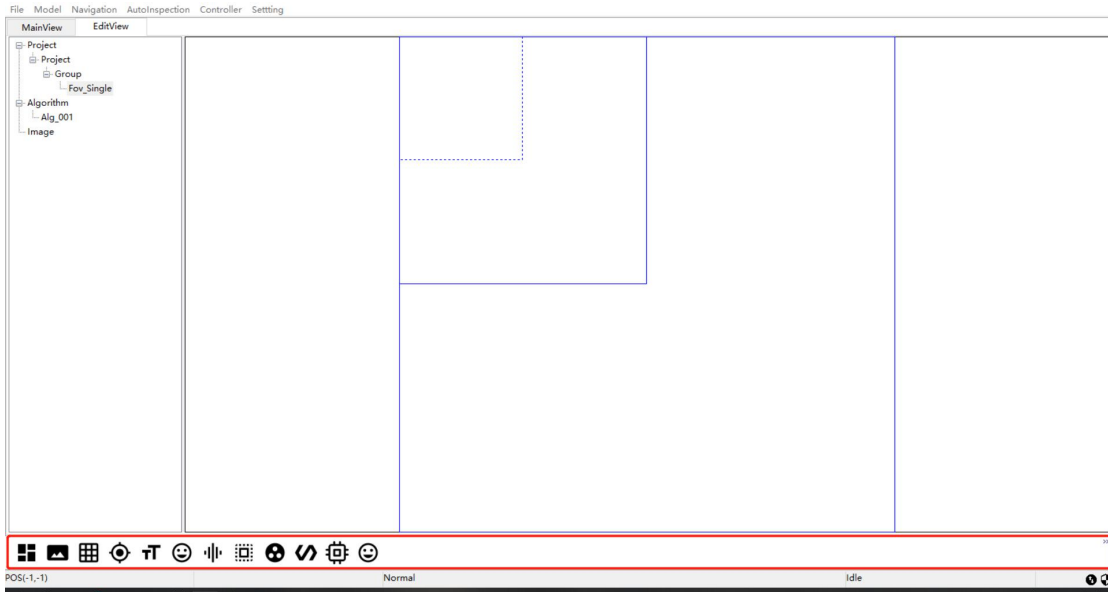
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It is used to close all the editing. images



1.1.5.3 Toolbar



The toolbar is used to perform various auxiliary operations on the view being edited.

1.1.5.3.1 Engineering view toolbar



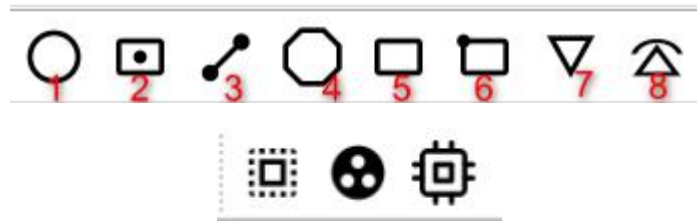
For the engineering view, you can use the toolbar to add various inspection tools to Fov, etc.

1.1.5.3.2 Algorithm view toolbar



For the algorithm view, you can use the toolbar to add specific detection algorithms

1.1.5.3.3 Image view toolbar



For the image view, you can use the toolbar to perform operations such as measurement between two points and angle measurement of the rectangular frame on the image captured in the main view area in real time.



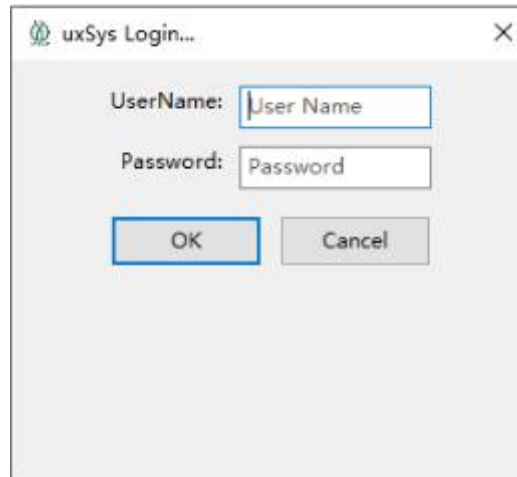
Chapter 1 Introduction to AX9100 Software Functions

No	Function	Introduction
1	Circle	It can be used to draw the size of the circle on the image and calculate the size and area drawn.
2	DirectedRectangle	It can be used to draw a rotated rectangle on the image and can measure the length and width of the drawn rectangle.
3	Line	It can be used to draw the distance between two points on the image and measure the length between two points.
4	Polygon	It can be used to draw irregular shapes such as octagons.
5	Rectangle	It can be used to draw a rectangular area and measure the length and width of the rectangular area.
6	RotateRectangle	It can be used to draw oblique rectangular areas and measure the length and width of obliquely rotated rectangles.
7	Triangle	It can be used to draw a triangular area, and measure the degree of drawing angle.
8	Curvature	It can be used to draw a triangular area and measure the curvature of the triangle.

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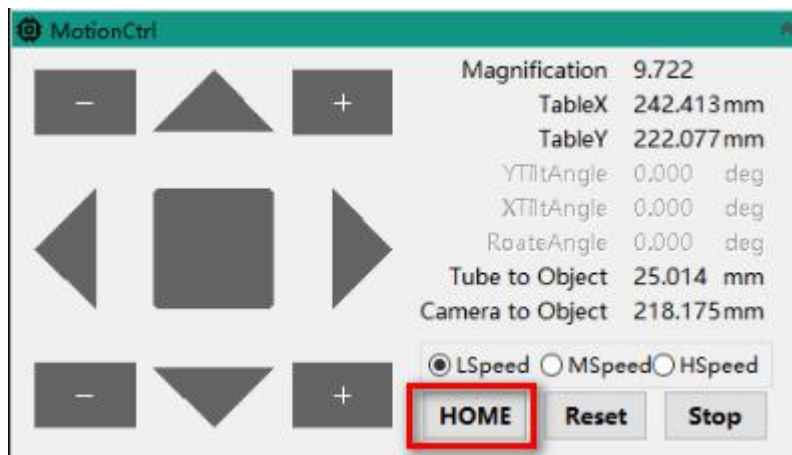
2.1 Basic operation steps of X-Ray on

2.1.1 Log in system



1. Switch on the uxSysWin system, and then enter the user name and password to log in (default login user name: admin, password: admin123)

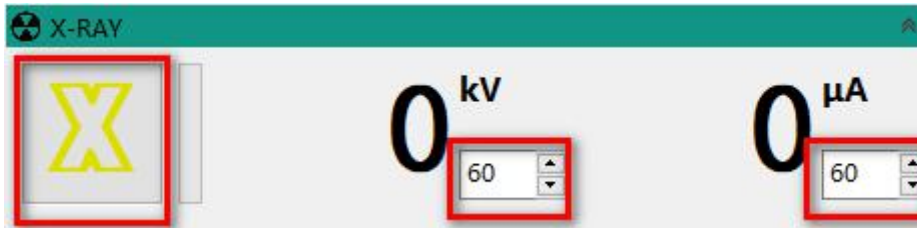
2.1.2 System operation



1. Under the motion control module on the right control panel, click the “return to zero” button.



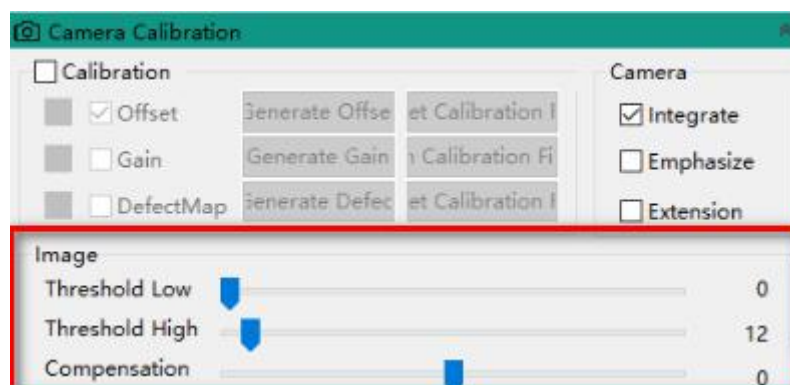
2. Select and click the “navigation” under the menu bar, and click the "Get Image" button.



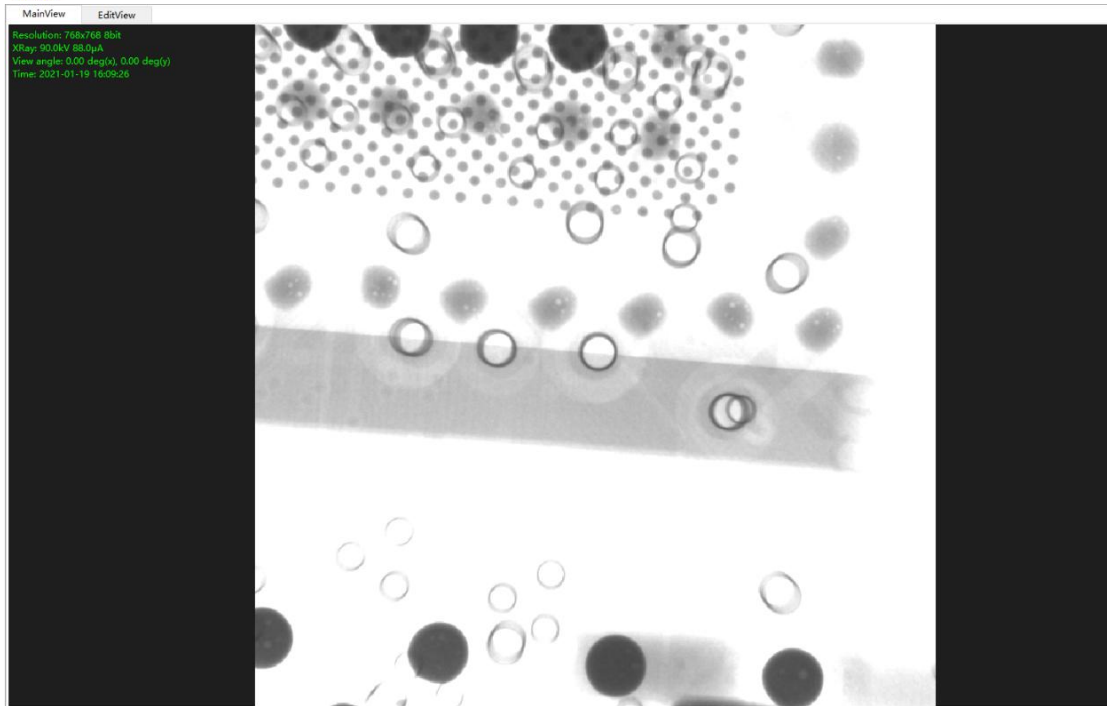
3. Under the X-Ray control module on the right control panel, turn on the X-ray and adjust the voltage and current.



4. Under the navigation module on the right control panel, double-click the position of the detection object to move the navigation aperture to the specific position of the detection object or control the movement to the position of the detection object.



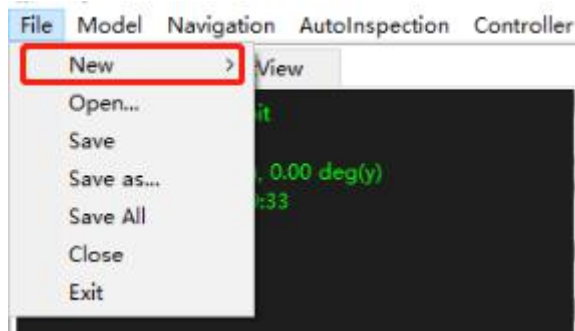
5. Under the camera calibration module on the right control panel, adjust the image parameters, including low threshold, high threshold (low threshold cannot exceed high threshold), compensation value and number of superimposed frames.



6. Observe the detected image in the main view, you can move to other locations, save images, etc.

2.2 Steps to view images automatically

2.2.1 Create new project



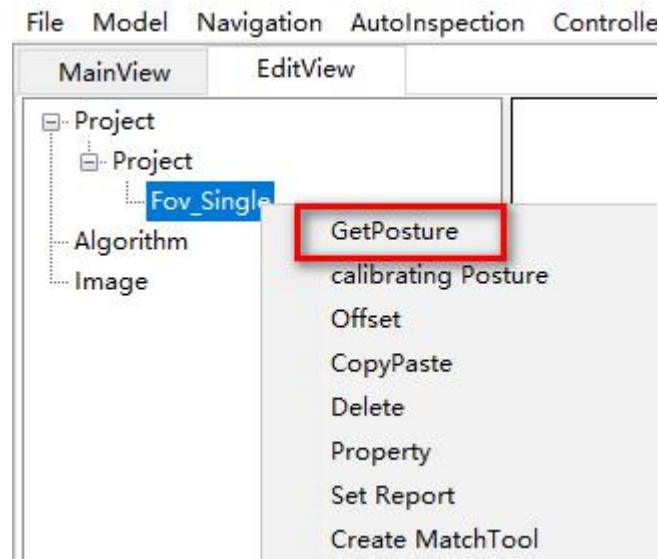
1. Click **"File"** in the upper left menu bar, select **"New"**, click **"Project"**, it will jump to the editing view and pop up the **"Project Edit"** column.



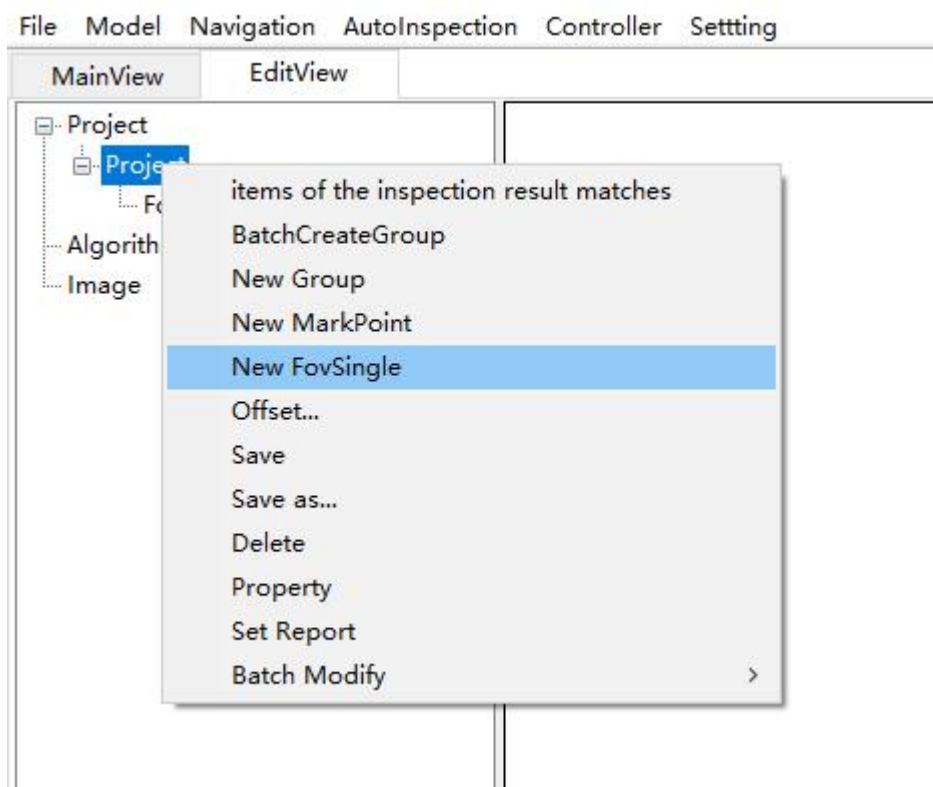
2.2.2 Editing project

11533DE3_A948_437F_B944_E5AD21212B25	
wxObject	
wxEvtHandler	
uxObject	
Name	11533DE3_A948_437F_B944_E
uxShape	
ExtName	Project
IsGroup	<input type="checkbox"/>
LineColor	■ Blue
TextColor	■ Red
LineWidth	1
ControlPointColor	■ Red
Text	
uxShapeRectangle	
uxProjectItem	
Ignored	<input type="checkbox"/>
Reporter	
ResultKey	
uxGroup	
OriginPoint	0,0
CalibResult	<input type="checkbox"/>
CalibTheta	0
CalibOffset	0,0
Size	100,100
BatchCreateInterval	0,0
uxProject	
Version	1.0.0
Desc	
ObjectHeight	0 mm
Online	<input type="checkbox"/>
Order	ShortestPath
ReportPath	./Reports/
ReportName	11533DE3_A948_437F_B944_E
TrayID	
ResultDescCollection	
AutoInspDelegateObjName	

1. You can set project attribute parameters (for example: project name, set the shortest route for running positions, set report generation path, etc.).

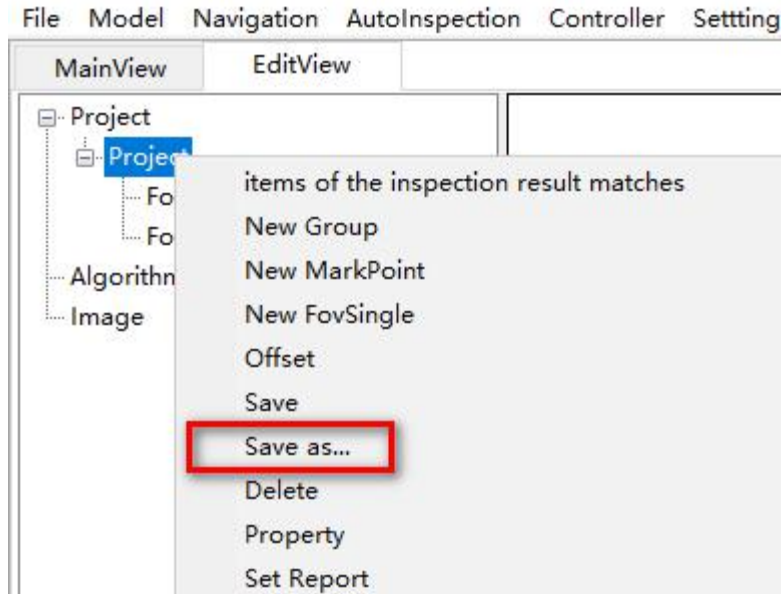


2. Right-click the “**created project**”, right-click to “**create FovSingle**”, and left-click “**Get Posture**” to get the image of the current main view positioning.

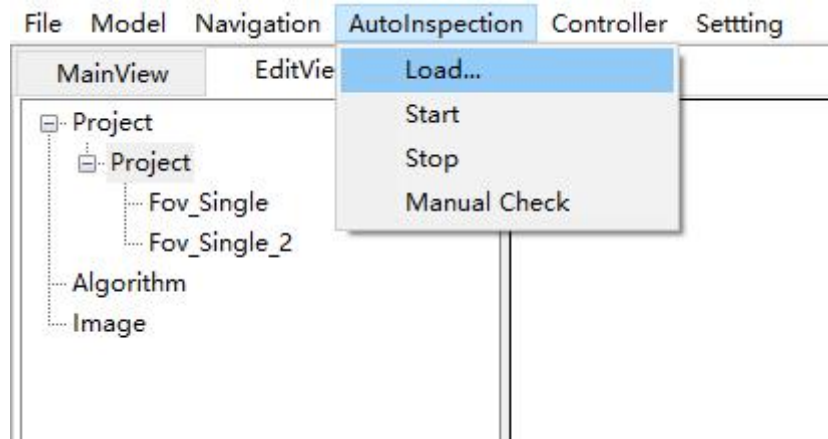


3. Switch to the main view, move the motion control to the second point, create a second FovSingle in the edit view Project, right click to “**get the posture**”, and get the second main view image.

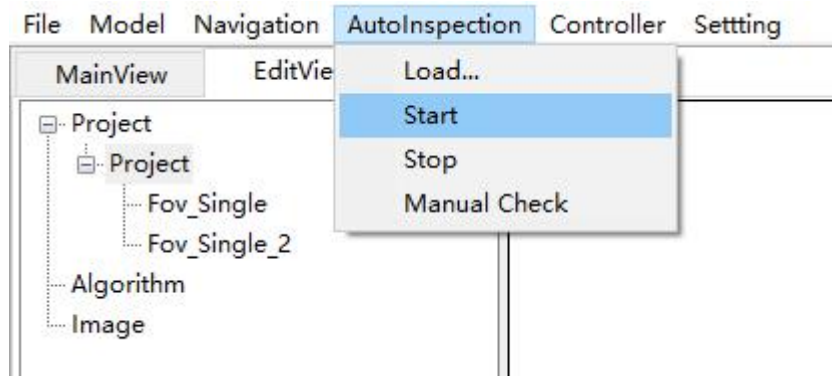
4. Repeat step 3 to create the third point.



5. After creating the point, right-click the **“Project file”** and select **“Save As”** to save it.



6. Under Automatic calculation in the menu bar, click **“Load”** and select the project file you named xxx.pro.



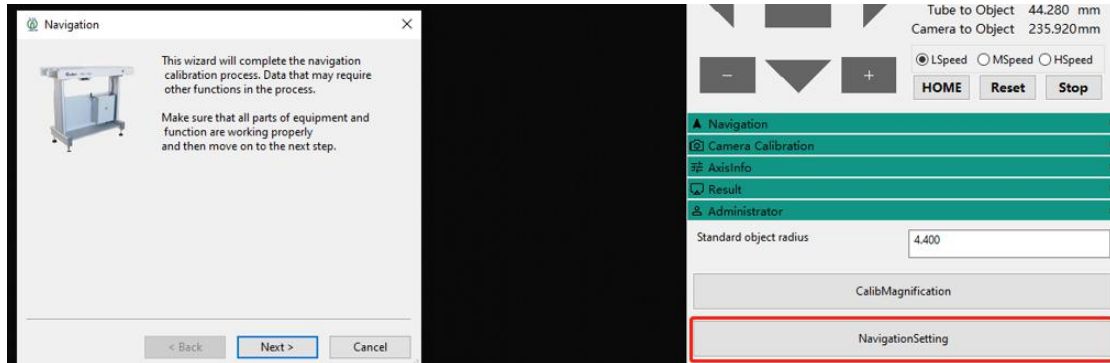
7. Click **“Start”** under the automatic calculation of the menu bar, it will automatically move the position, in the root directoryGenerate running image.

2.3 Calibration navigation steps

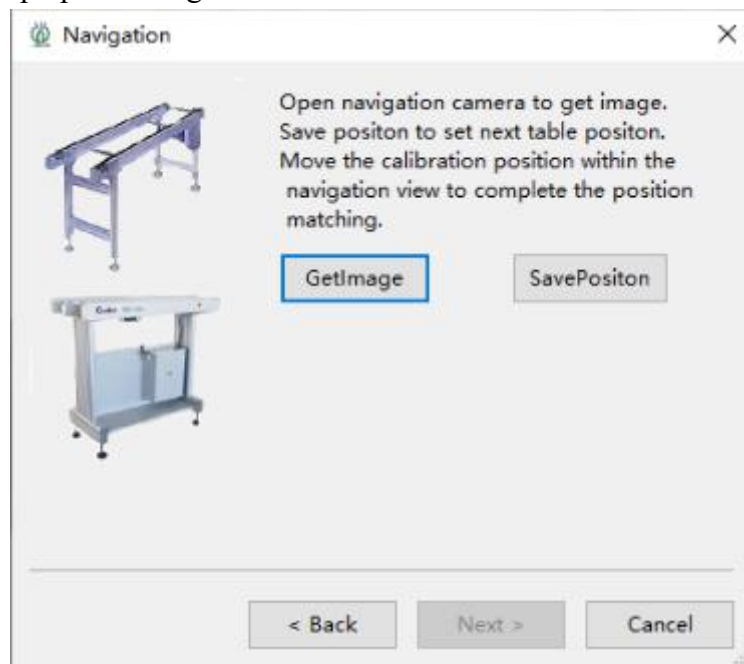
2.3.1 Get navigation guide

After performing magnification calibration, perform navigation calibration.

Remarks: Precondition (X-Ray ON).



1. Under the administrator module on the right control panel, click “**Navigation Wizard**” to pop up the navigation interface.

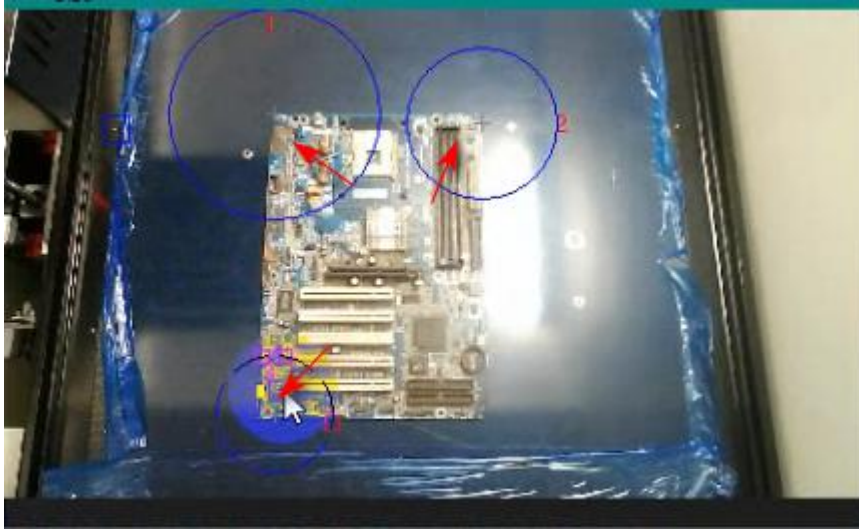


2. On the navigation interface, click to “**get the navigation image**”, and navigate the view under the motion control module on the right control panel to check the image location.

3. In the navigation view, click to “**obtain the navigation image**”, and to obtain a suitable location in the navigation, click to “**save the location**”.

2.3.2 Navigation calibration

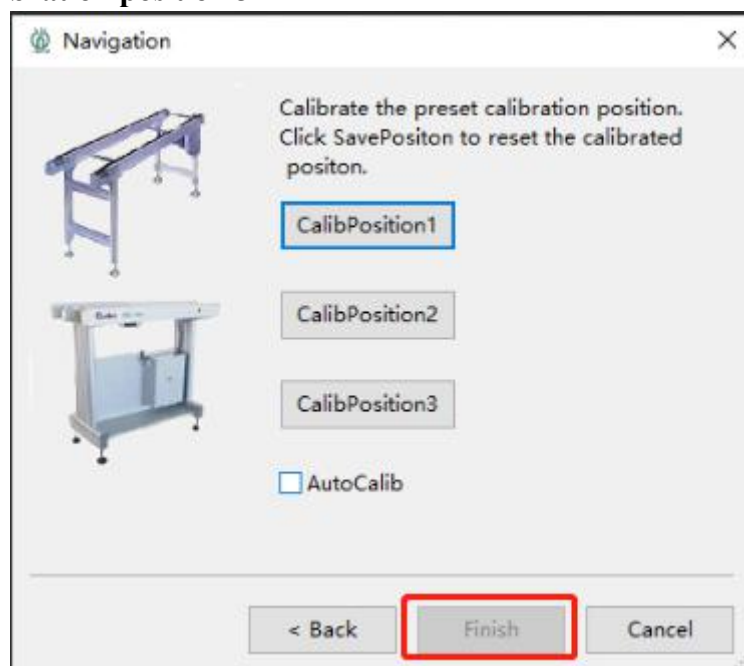
1. There will be 3 adjustment points in the upper left corner of the navigation interface, drag the adjustment points so that 3 points correspond to 3 points of the detection object, and then click “Next”.



2.1. Calibrate the preset 3 calibration positions, find 3 calibration points in the main view, find point 1, alt+ right click in the main view, and adjust the movement to make the calibration position 1 at the center of the main view, click “**calibration Position 1**”.

2.2. Find the navigation calibration position 2 in the main view motion adjustment, and click the “**calibration position 2**”.

2.3. Main view motion adjustment to find the navigation calibration position 3, click the “**calibration position 3**”.



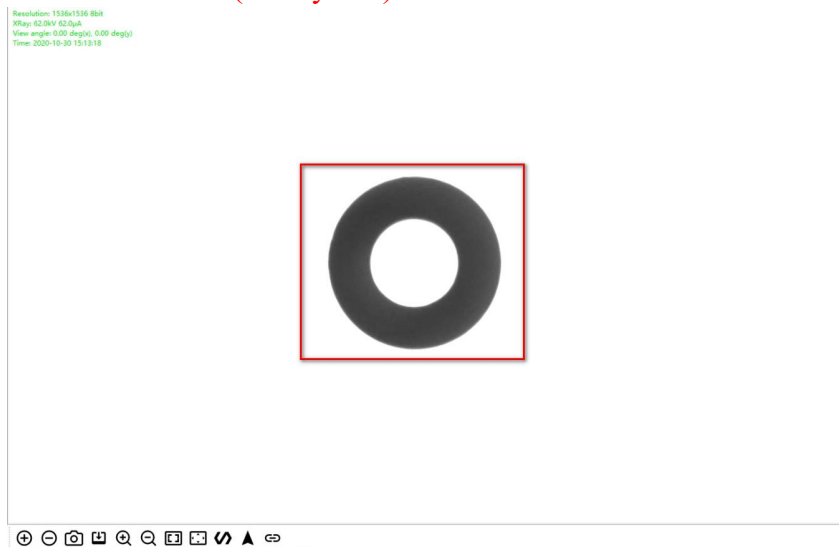


Chapter 2 Software Operation Guidelines

2.4. After calibrating 3 positions, click **“Finish”** to complete the navigation and calibration.

2.4 Magnification calibration steps

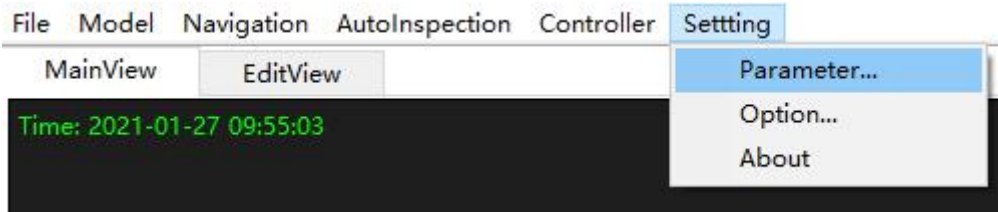
Remarks: Precondition (X-Ray ON)



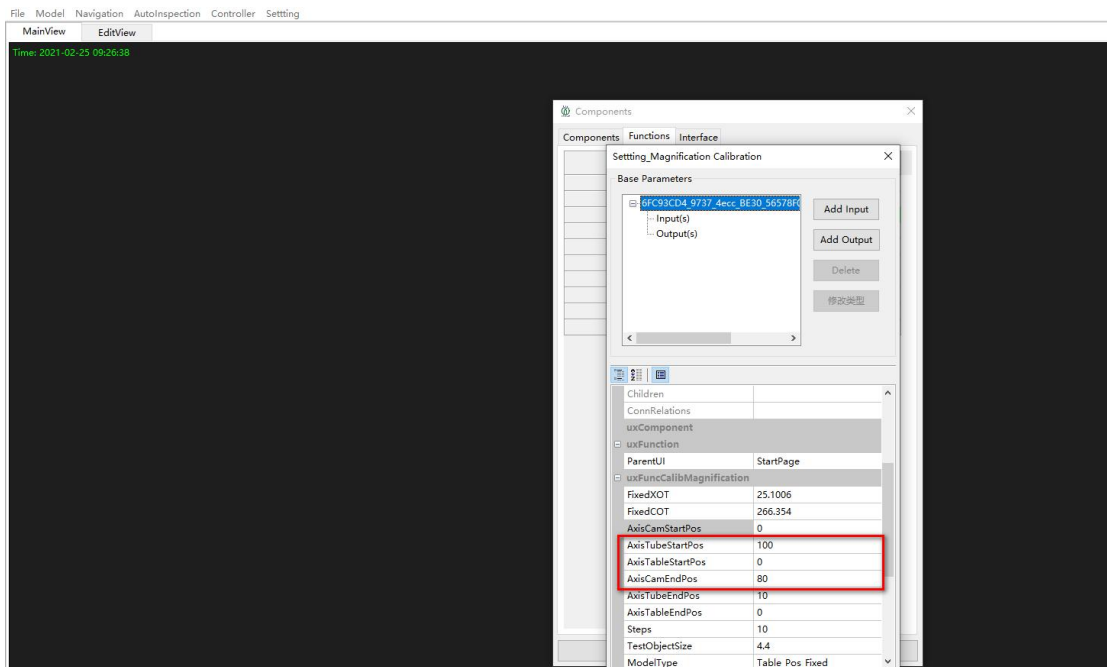
1. First adjust the camera to the farthest distance from the object, and at the same time adjust the distance from the light pipe to the object, set it to the farthest diagonal adjustment.



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	Function Name	Function Class	Initializec	Running
1	Stitcher	uxFuncStitcher	Failed	Stop
2	FM	uxFuncFiducialMark	Failed	Stop
3	Engineering Mar	uxFuncProjectManager	Failed	Stop
4	Sport control	uxFuncMotionCtrl	Failed	Stop
5	Equipment mana	uxFuncMacManager	Successfu	Stop
6	Image Processin	uxFuncImageHandler	Failed	Stop
7	Return to zero f	uxFuncHome	Failed	Stop
8	Automatic detect	uxFuncAutoInspection	Failed	Stop
9	Algorithm mana	uxFuncAlgorithmManag	Failed	Stop
10	Navigation funct	uxFuncNavigation	Failed	Stop
11	Magnification ca	uxFuncCalibMagnificatic	Failed	Stop

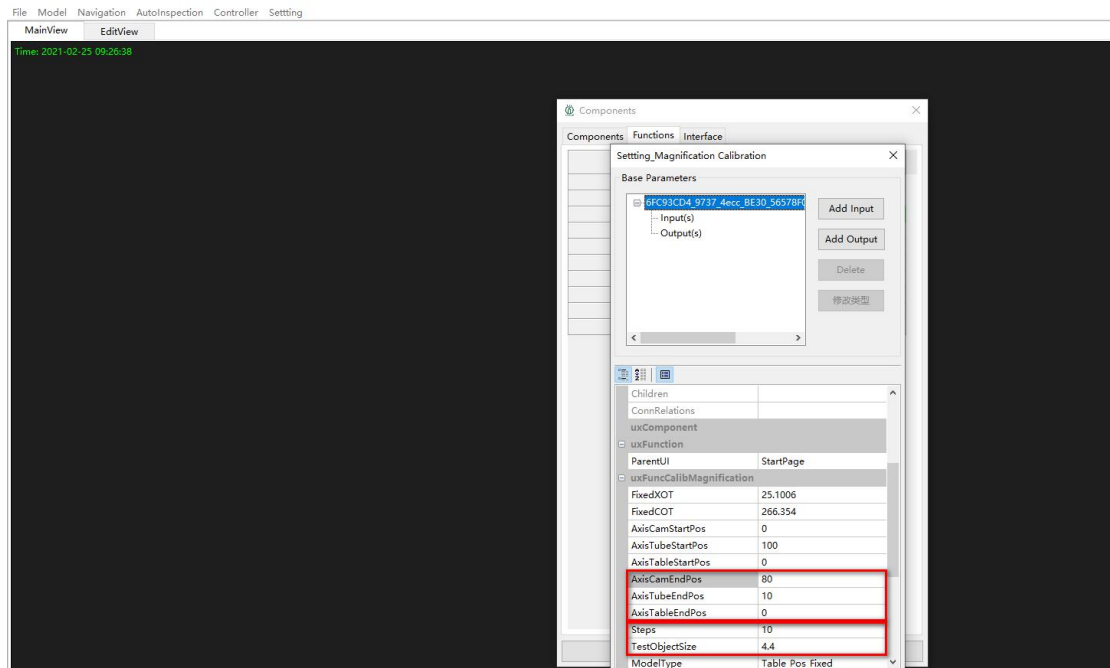


2. Click “Settings->Function->Magnification Calibration” in the menu bar, and modify the values of AxisCamStartPos and AxisTubeStartPos in the property bar below to the value of the current axis information camera Z and the value of the light

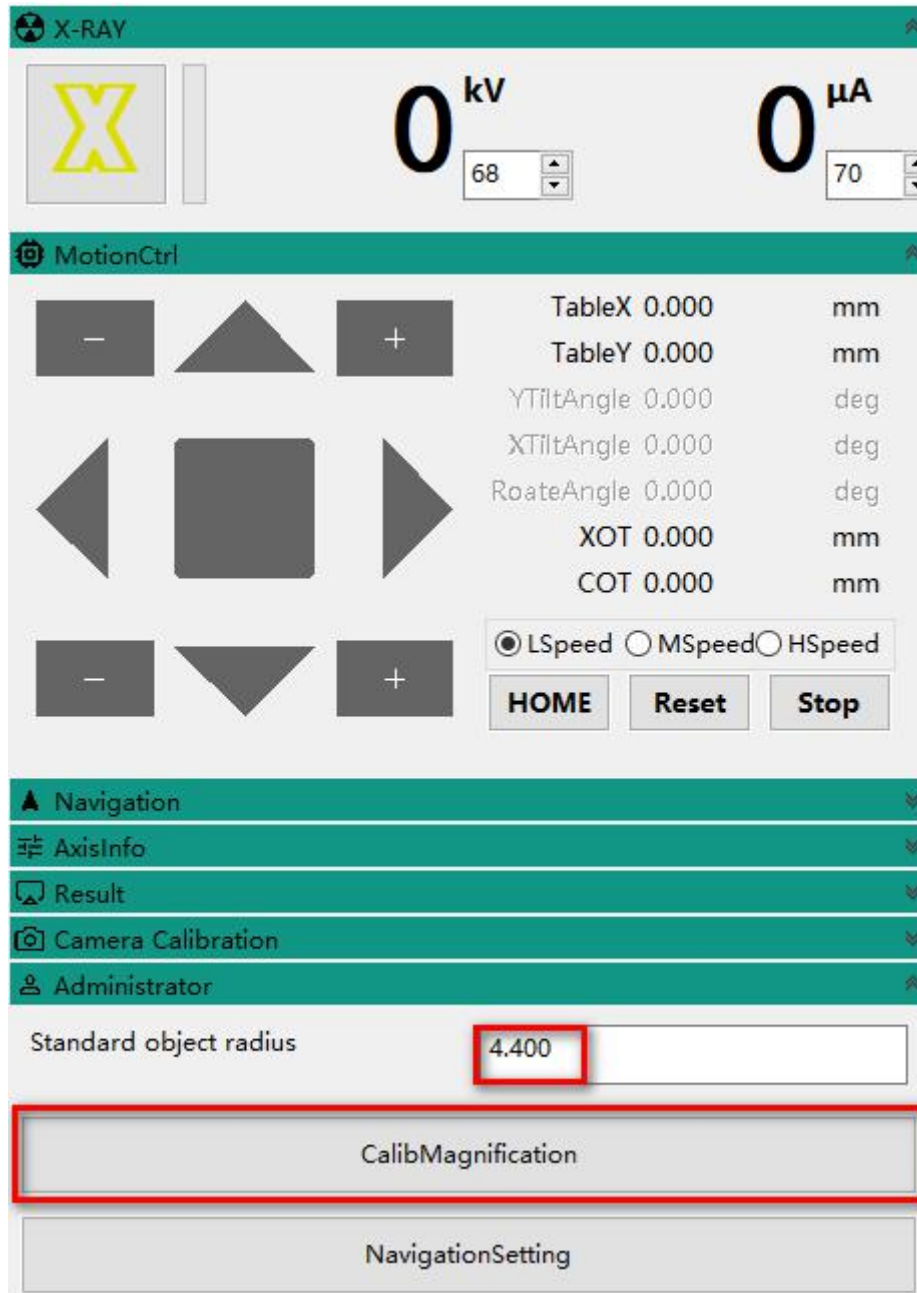
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pipe Z.

3. Close the current function page, reduce the distance between the object and the light pipe and the distance between the object and the camera.



4. Click the “single column Settings -> Function -> Magnification Calibration”, modify the values of AxisCamEndPos and AxisTubeEndPos to the current axis information camera Z value and light pipe Z value in the property column below, and set Steps (usually 10) , Enter the true value of the sample in TestObjectSize.



5. Close the current function page, enter the standard part radius in the right function bar -> Administrator function, click the “**magnification calibration**”, and wait for the first calibration

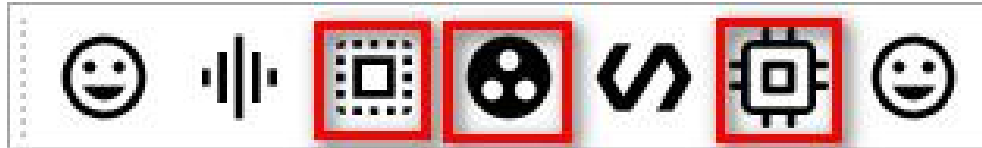
6. After the first calibration is done, click “**Capture**” in the toolbar below and use the tool to measure. If the current measured value is too different, you can click the “**magnification calibration**” again to complete the calibration.

2.5 Edit view BGA IC Blob detection steps

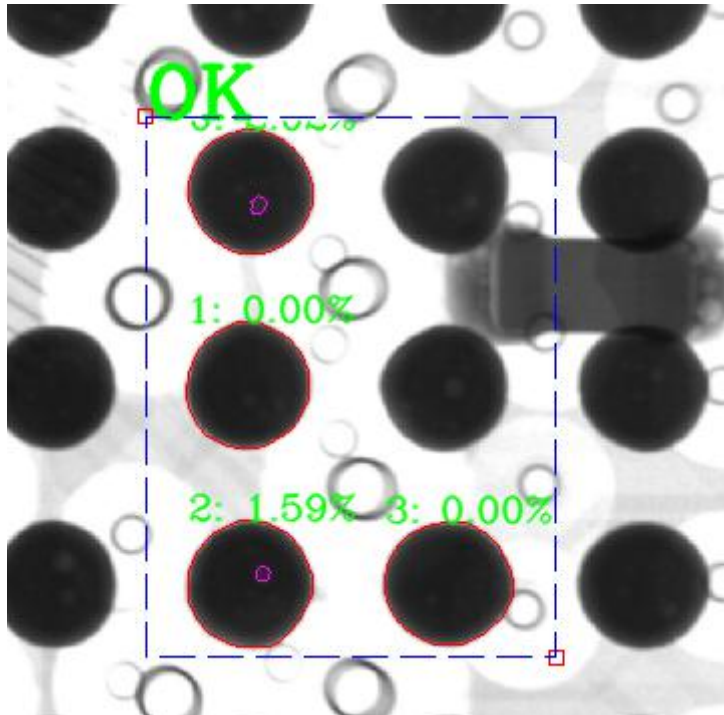
Remarks: Precondition (X-Ray ON)



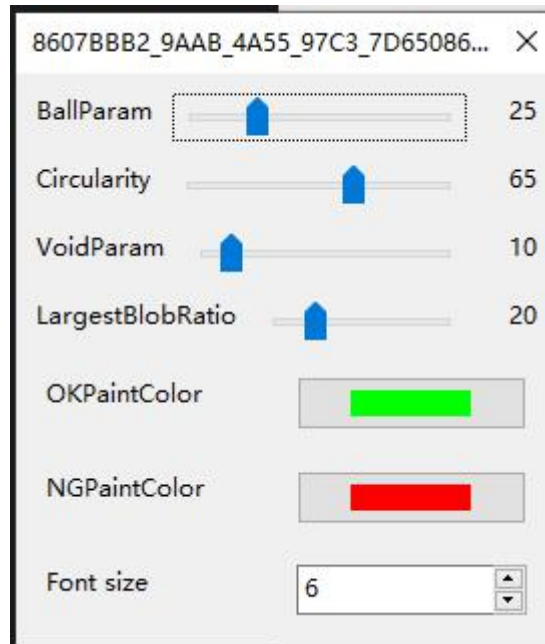
1. Find the location to be detected in the main view, click the “Capture” in the following menu bar to enter the edit view.



2. Find the toolbar BGA, IC, Blob in the menu bar of the edit view.

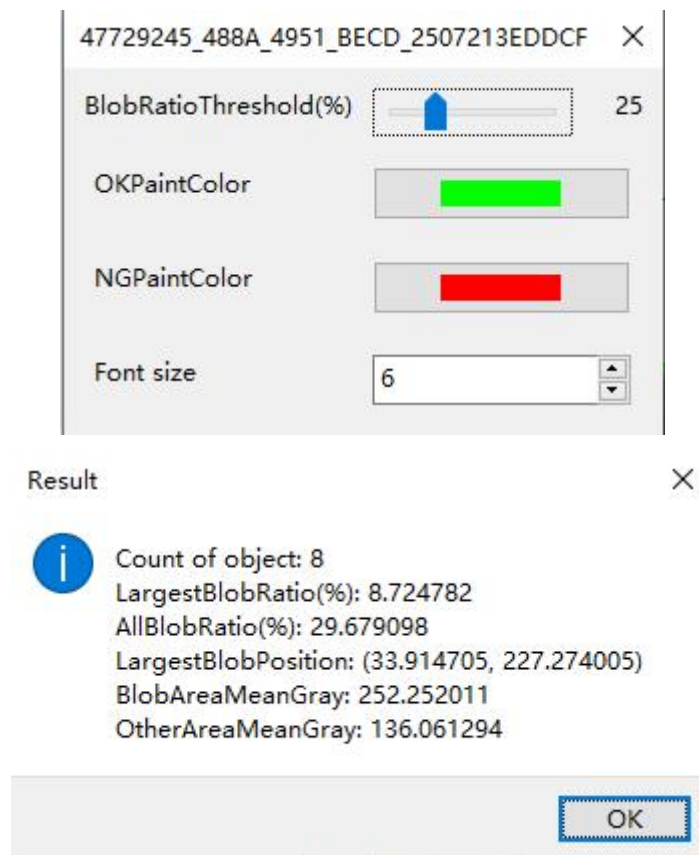


3. After selecting BGA, select the area to be detected on the image, as shown above.



4. After selecting the area, right-click to “confirm”, and then double-click to edit the “detection attributes”, as shown in the figure above.

5. Right-click the area to view the test report form, as shown in the figure above.





Chapter 2 Software Operation Guidelines

D2E23A8B_9462_41EB_8F82_28C934F27D3A

PadParam 100

HoleParam 240

MinPadRate 5

VoidParam 20

VoidSize 50

HoleFillupType
 NotFillup Fillup

BlobRatioThresholdType
 LargestBlobRatioThresholdType AllBlobRatioThresholdType

BlobRatioThreshold 25

OKPaintColor

NGPaintColor

Font size 6

6. Blob, IC, like BGA, can also adjust and edit detection attribute settings and reports.



Chapter 3 Contact information

If users have any questions during the installation, commissioning, operation, and subsequent maintenance and repair of the machine, please call Unicom's consultation telephone 400-880-1456. We will provide you with the most sincere service!

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