

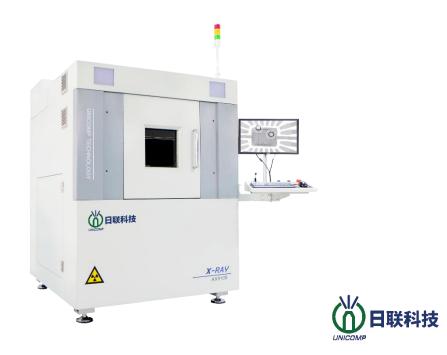
The best value option

Thank you for choosing us as a partner, Unicomp will wholeheartedly provide you with the best quality service



AX9100

User manual



Copyright © Unicomp Technology Co., Ltd. No. 11, Lijiang Road, Wangzhuang Street, New District, Wuxi, Jiangsu Province.

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





The information related to this version may be changed and upgraded in the future. During this period, Unicomp does not undertake the obligation to communicate the changes and upgrade information to each user. The change and upgrade information will be compiled into the new version directly or in the form of auxiliary documents.

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.

Without the permission of Unicomp, you are not allowed to copy, extract or reprint any information in this version at will.

AX series X-ray inspection equipment

Model:

Numbering:

Purchase date:_____

The name and label of Unicomp has been registered by Unicomp. Any company or individual is not allowed to copy or use it at will, otherwise Unicomp will pursue its legal responsibility.



Preface

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

Unicomp 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.



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.



Contents

Contents

Chapter 1 Introduction to AX9100 Software Functions	1
1.1 Equipment operation and software description	1
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	2
1.1.3.2 Toolbar	11
1.1.3.3 Status Bar	
1.1.3.4 View	14
1.1.3.5 Control panel 1.1.4 Edit view	
1.1.5 Edit view function introduction	
1.1.5.1 View	
1.1.5.2 Control tree	
1.1.5.2.1 Edit Engineering	
1.1.5.2.2 Editing algorithm	
1.1.5.2.3 Image editing	
1.1.5.3 Toolbar	40
1.1.5.3.1 Engineering view toolbar	40
1.1.5.3.2 Algorithm view toolbar	40
1.1.5.3.3 Image view toolbar	
Chapter 2 Software Operation Guidelines	
2.1 Basic operation steps of X-Ray on	
2.1.1 Log in system	42
2.1.2 System operation	42
2.2 Steps to view images automatically	45
2.2.1 Create new project	
2.2.2 Editing project	46
2.3 BGA IC Blob detection steps	.错误!未定义书签 [。]
2.3.1 Parameter settings	.错误!未定义书签。
2.4 Calibration navigation steps	49
2.4.1 Get navigation guide	
2.4.2 Navigation calibration	49
2.5 Magnification calibration steps	
2.6 Edit view BGA IC Blob detection steps	



Contents

Chapter 3 Contact information



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:

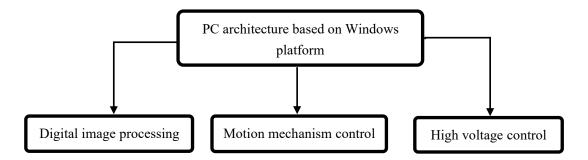
X-Ray equipment has strict pre-heating procedures, which must be strictly implemented:

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;

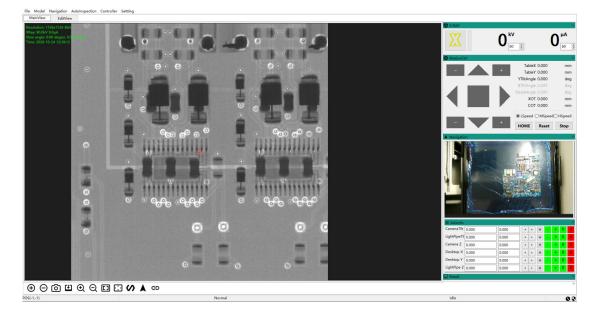
If it has not been turned on for 15 days or more, please keep it warm for 60 minutes after turning on the device, and then turn on the X-Ray to preheat the tube.

1.1.1 Device control framework



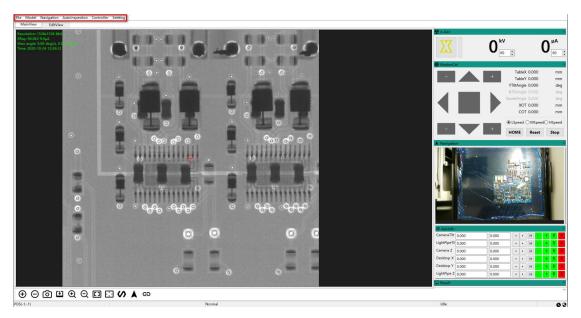


1.1.2 Software main view



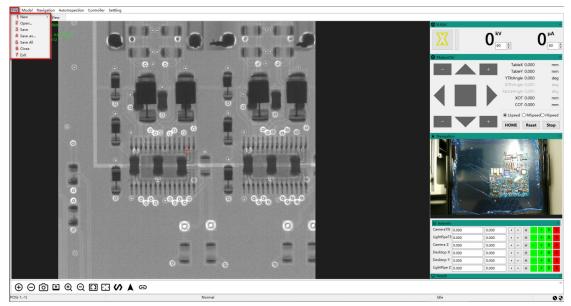
1.1.3 Software main view function introduction

1.1.3.1 Menu Bar



1.File

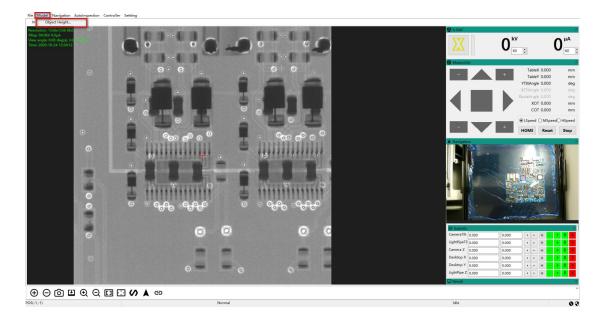




As marked in the above figure, the function introduction is as follows:

No	Function	Introduction
1	New	Project: Create a new project
1	INEW	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



This document is a confidential company document and cannot be circulated without permission.



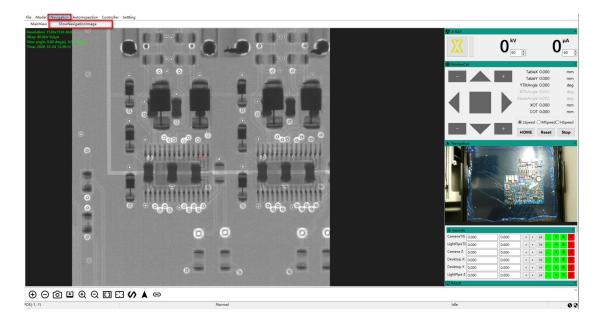


• Object Height

Object Height(mm):	1.000	Update
object reight(min).		opulate

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

<complex-block><complex-block>

4.Auto-inspection(Optional)



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:

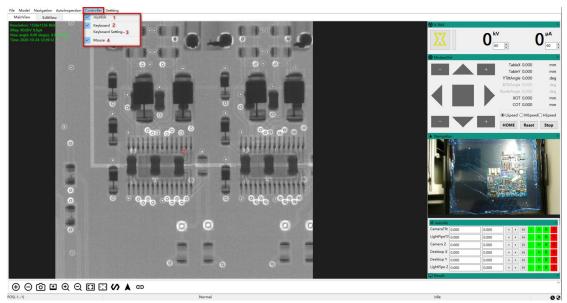
No	Function	Introduction
1	Loading	Used for loading template project .pro files
2	Start	After loading the template project file, it is used to start Auto-inspection
3	Stop	Used to stop Auto-inspection
4	Manual inspection	Select the project file and move the position, and judge OK/NG manually

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:

÷ ~ ↑ 📘	> This	sPC > d (D:) > wx > 8200MAX > u	xSysWin > Projects
	^	Name	Date modified
Quick access		📙 img	10/27/2020 3:20 PM
Desktop	*	report.xml	10/27/2020 3:19 PM
Downloads	*		
Documents	*		
Pictures	*		
d (D:)	*		

This document is a confidential company document and cannot be circulated without permission.





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

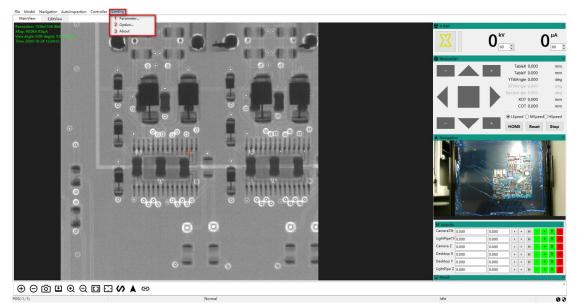
No	Function	Introduction		
1 Joystick		Choose to use the joystick to control the movement of the		
1	JOYSTICK	desktop and tablet.		
2	Irorda o and	Choose to use the keyboard to control the movement of the		
	keyboard	desktop and tablet.		
3	Hot key setting	You can select the appropriate shortcut keys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

3. The keyboard setting diagram is as follows:

CameraTilt	Negative	G	н	Positive
Camera nic				POsitive
LightPipeTilt	Negative	Q	w	Positive
Camera Z	Negative	E	R	Positive
Desktop X	Negative	A	D	Positive
Desktop Y	Negative	К	S	Positive
LightPipe Z	Negative	z	с	Positive

6.Setting





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

1.Parameter

• Components

	Components Name	Components Class	Initialized
1	NavCamera	uxCameraDShow	Failed
2	Camera	uxCameraiRay	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
<			3

This document is a confidential company document and cannot be circulated without permission.



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

• Function

	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 mana	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	uxFuncCalibMagnificatio	Failed	Stop

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

• Interface



Components Fu	nctions Inte	rface		
UI Name	Folded	Show		
X-RAY				
MotionCtrl				
Navigation				
AxisInfo	\square			
Result	\square			
Camera Cali <mark>bra</mark> t	ion 🗹	\checkmark		
Log	\checkmark			
Administrator		\checkmark		
		Refresh		

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

• Refresh

Refresh

Used to refresh the component state.

2.Option



SystemConfig	×	
🗉 uxObject		^
Name	SystemConfig	
uxSysConfig		
ServerAddr	localhost	
ServerPort	8080	
UpdServer	ftp.localhost.com	
UpdServerPort	110	
DBType	mysql	
DBAddr	127.0.0.1	
DBPort	3306	
DBName	soci	
DBUser	root	
DBPass	123456	
DBPoolSize	3	
DBChar	gbk	
Validator	uxMESValidator	
ValidType	1	
LoadType	XML	
ReportType	XML	
MacExtName	9100S	
MacConfigFile	.\9100S.mac	
PluginsFolder	.\plugins	~

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

3.About uxSysWin



Used to display the version number of the current system.

• Website

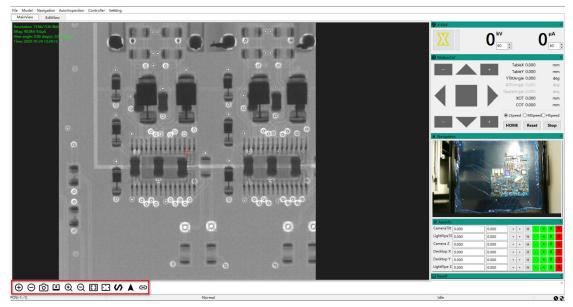
The Website of Unicomp

• OK button

Used to close the current window

This document is a confidential company document and cannot be circulated without permission.

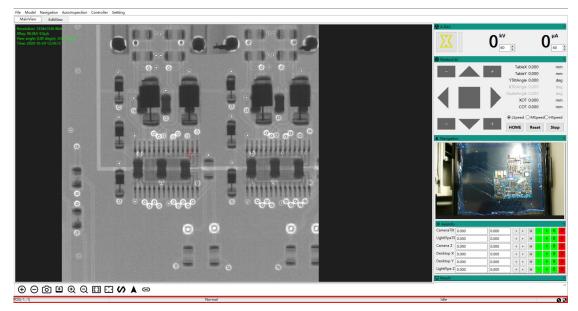




As marked in the above figure, the function introduction is as follows:

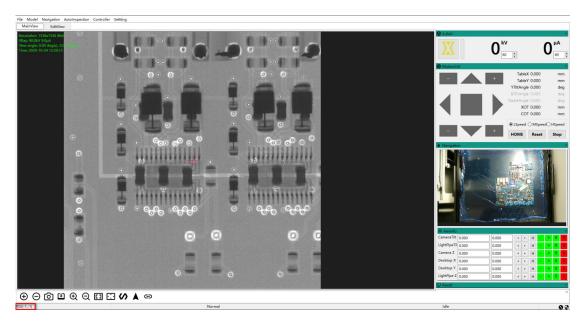
No	Symbol	Function	Introduction
1	Ð	Magnification+: Adjust	It is used to enlarge the detection part of the
	Ð	the magnification	currently detected object in real time.
2	0	Magnification-: Adjust	It is used to reduce the detection part of the current
2	Θ	the magnification	detected object in real time.
3	രി	Contune	It is used to capture the image displayed in the main
3		Capture	view of the current detected object.
4	Ð	ZoomIn	It is used to enlarge the image displayed in the
4	Q	Zoomm	current main view.
5	Q	ZoomOut	It is used to reduce the image displayed in the
5	ų.	Zoomout	current main view.
6	[]	1:1	It is used to implement 1:1 restoration of the image
0		1.1	displayed in the current main view
7	• Ĵ•	Full screen	It is used display the main view area in full screen.
8	S	uxToolCustom	It is used to detect voids
9		CenterCross	Shows the position of the image center point.
10	Θ	DefTools	For pre-setting of tools





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.

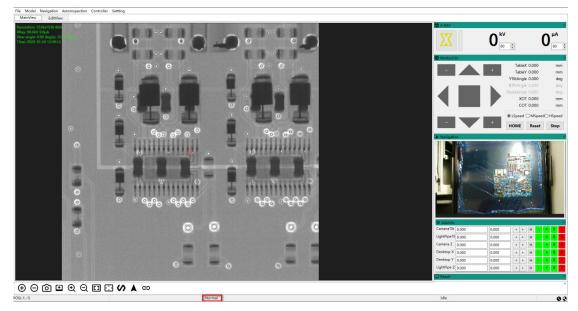
1.Coordinate position



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

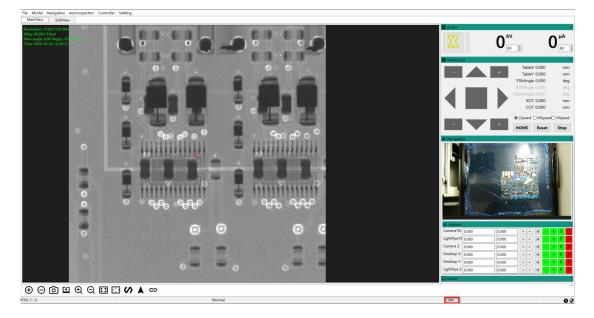
2.Task status





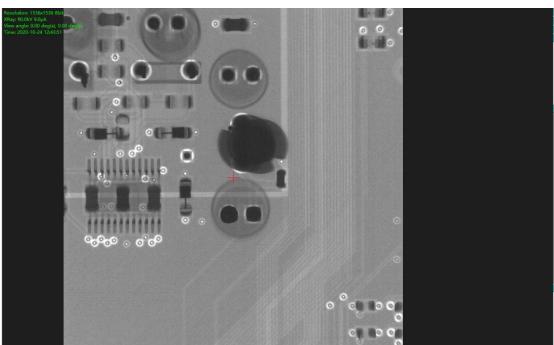
It is used to display the status of the system in real time.

3.Axis motion state

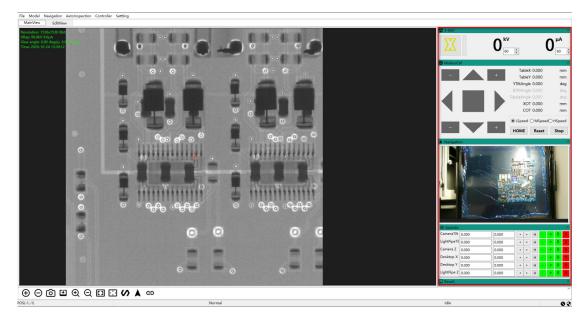


It is used to display the movement status of the equipment axis in real time.





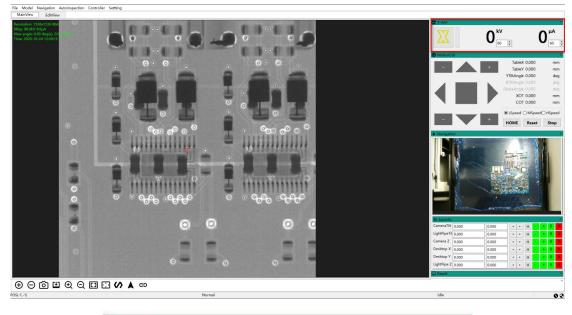
The image taken by the detected object is displayed, and the upper left corner displays the size of the current image, the voltage and current values used, the rotation angle of the camera/light tube, and the current time.



1.1.3.5 Control panel

1.X-Ray Control





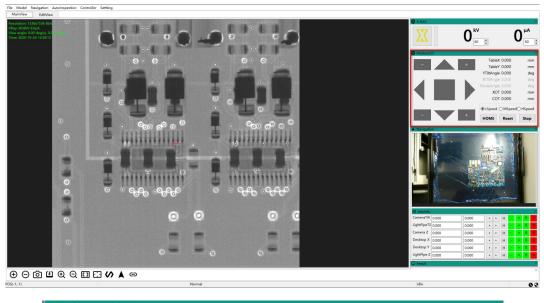


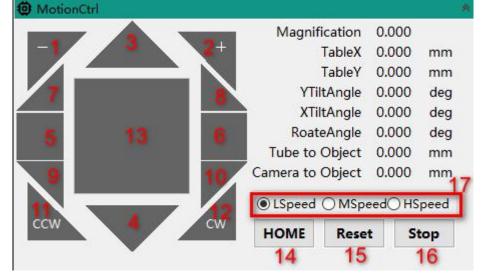
As marked in the above figure, the function introduction is as follows:

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







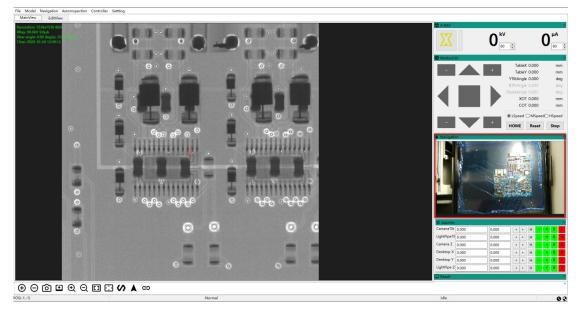
It is used to control the zero return of the equipment, the directional movement of each axis and the real-time display of the axis movement state after the movement.

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

This document is a confidential company document and cannot be circulated without permission.

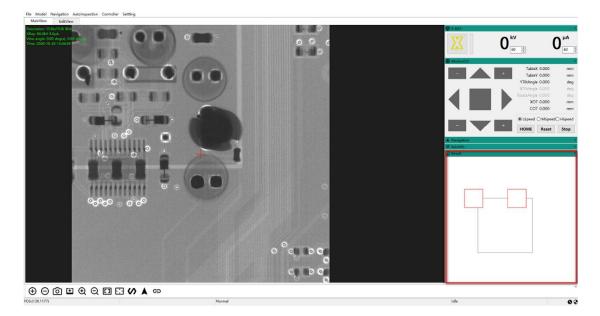




Navigation is used to quickly locate each part of the detected object according to the navigation map.

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

4.Test results



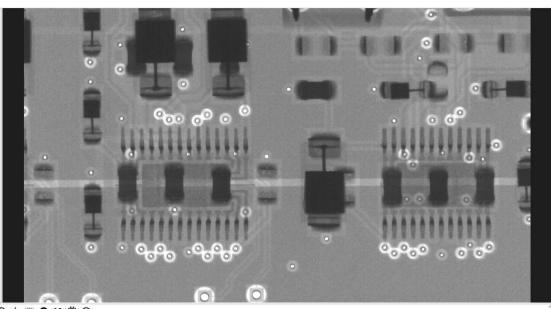
It is used to display the detection results of various parts of the detected object in real time.





1.1.5 Edit view function introduction

1.1.5.1 View



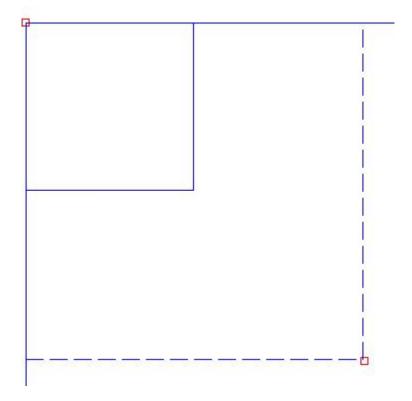
9 🕂 🗉 🛛 🗸 🗇 😳

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

time.

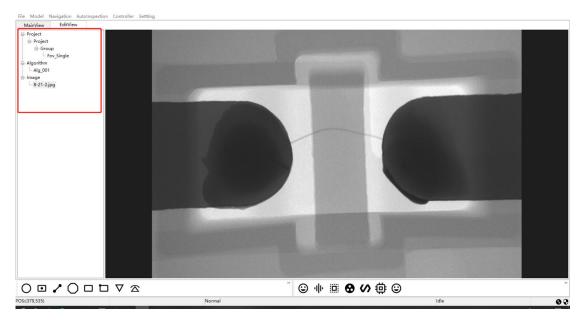
1.View operation





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.

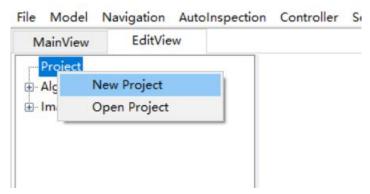


1.1.5.2.1 Edit Engineering

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.

 211 B wxObject		^
wxEvtHandler		
uxObject		
Name	FC757AC9_D858_4AD0_8AFF	1
uxShape		
ExtName	Project	
IsGroup		
LineColor	Blue	
TextColor	Red	
LineWidth	1	
ControlPointColor	Red	
Text	10.650	
uxShapeRectangle		
uxProjectItem		
Ignored		
Reporter		
ResultKey		
uxGroup		
OriginPoint	0,0	
CalibResult		Y

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



File Model Navigation AutoInspection Controller Settling		
MainView EditView		
Mahifue for insection result matches Project Agonta 2 BankCasarGroup Agonta 2 BankCasarGroup (C) 2 Bank Group 4 New MarkSolet 5 Other. 9 Dates 10 Property 11 Sen Report 12 Bank Modify ,)		
‼ 🗖 🌐 🔶 न 🙄 🚸 🖻 🔂 🗸 🗇 😳		
S(-1,-1)	Normal Id	le Ø

1.Items of the inspection result matches

MainView EditVie	ew .		
roject			
Project	items of the inspection result matches	×	
Igorithm			
Image	Name Description		
	Delete	Add	
	Import	Export	
		1	

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



Batch create Insp	BatchCreateGroup Setting	×
	< Back Next >	Cancel

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.

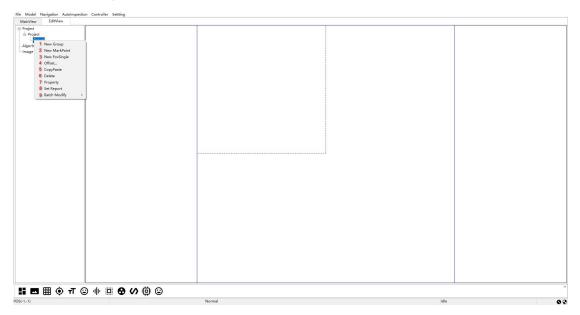
Batch create Inspe	Group Row Number	
K	Group Col Number	
TH	Row Spacing	
	Col Spacing	

Click "Finish" to complete batch creation



ainView EditView			-	_		_			
Project									
Group		-						-	
Group_Copy									
- Group_Copy_2		-						-	
- Group_Copy_3									
- Group_Copy_4		_	-					-	
- Group_Copy_5									
Group_Copy_6								-	
-Group_Copy_7									
- Group_Copy_8								-	
- Group_Copy_9									
- Group_Copy_10									
Group_Copy_11									
- Group_Copy_12									
Group_Copy_13									
- Group_Copy_14									
Group_Copy_15									
- Group_Copy_16		_	_				 		
- Group_Copy_17									
- Group_Copy_18									
- Group_Copy_19									
- Group_Copy_20									
- Group_Copy_21									
- Group_Copy_22									
- Group_Copy_23									
- Group_Copy_24									
Group_Copy_25				-					
- Group_Copy_26									
- Group_Copy_27									
- Group_Copy_28									
- Group_Copy_29									
- Group_Copy_30									
- Group_Copy_31 v									
🗖 🆽 💿 नт 😳 🚸 🖽 🔂 🗸 🤅	i ©								
	Normal							Idle	

3.New Group



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

4.Position shift



lorizontal offset	t(mm):
0.000	ų
/ertical offset(m	nm):

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

wxObject	
wxEvtHandler	
uxObject	
Name	74EB1F47_3883_4C2E_B9C9_1
uxShape	
ExtName	Group
IsGroup	
LineColor	Blue
TextColor	Red
LineWidth	1
ControlPointColo	r Red
Text	
uxShapeRectang	le
🗉 uxProjectItem	
Ignored	
Reporter	
ResultKey	
🗉 uxGroup	
OriginPoint	0,0
CalibResult	·

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

8.Output report settings

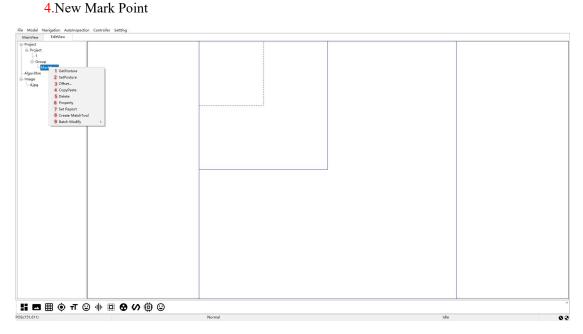


Report item	Description	Describe	
CalibOffset	CalibOffset		
CalibResult	CalibResult		
CalibTheta	CalibResult		

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

Src Image X Batch Modify ExtName Prefix: OK <u>C</u> ancel	3.9.Bat	tch Edit		
		Src Image		×
		Batch Modify ExtNa	· · · · ·	<u>C</u> ancel

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.



1. Get posture

This document is a confidential company document and cannot be circulated without permission.



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

Horizontal offset(mm):	
0.000	
0.000	
Vertical offset(mm): 0.000	

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

Report item	Description	Describe	
NoumenonOffset	NoumenonOffset		
SrcMat	Source Image		
ResultMat	Result Image		

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

- 8. Positioning tool settings
- 9.Batch Edit

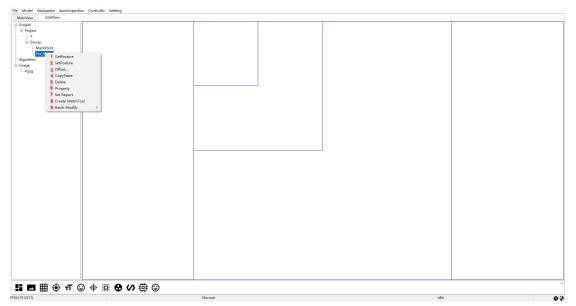
Src Image		>
Batch Modify	ExtName Prefix:	
	ОК	<u>C</u> ancel

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

5.New FovSingle

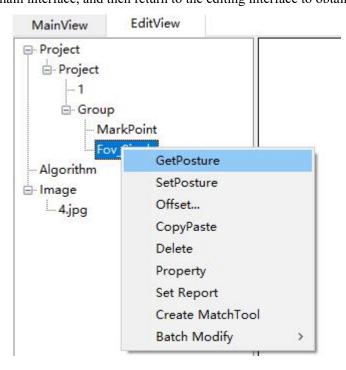
This document is a confidential company document and cannot be circulated without permission.





1.Get posture

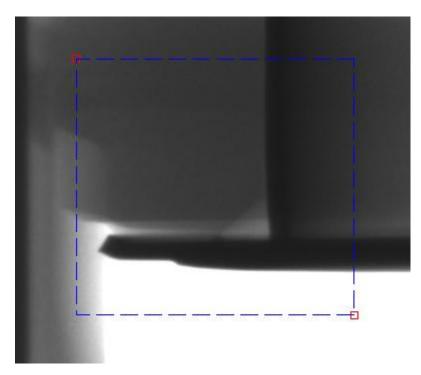
The device must have been [return to zero], and the user can adjust the posture in real time on the main interface, and then return to the editing interface to obtain the posture again.



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.

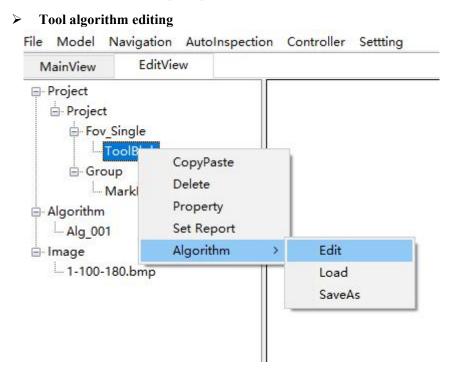
-	2		
	Text		^
	State	3	
	uxShapeRectangle		
	uxProjectItem		
	Ignored		
	Reporter		
	ResultKey		
=	uxTool		
	UseROI		
	OriginPoint	-0.279141,0.139571 mm	
	Size	2.01779,1.19632 mm	
Ξ	uxToolBga		
	Filter1	81	
	Threshold1	10	
	Filter2	35	
	Threshold2	5	
	RegionProcess	5 35	
	Circularity	0.8	
	RegionSelectValue	500	
			~

Output report settings



ToolBlob		
Report item	Description	Describe
OtherMeanGray	OtherMeanGray	
AllBlobRatio	AllBlobRatio	
LargestBlobPosition	LargestBlobPosition	
ObjNumber	Count of Objects	
BlobMeanGray	BlobMeanGray	
LargestBlobRatio	LargestBlobRatio	

Different tools have different output report items.



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.Positio	Offset	×
	Horizontal offset(mm):	
	0.000	
	Vertical offset(mm):	
	0.000	
	OK <u>C</u> ancel	

This document is a confidential company document and cannot be circulated without permission.



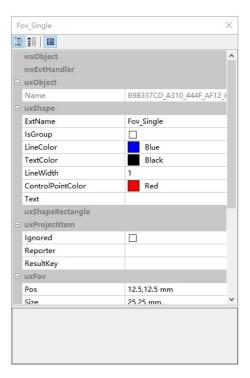
5.Copy and paste

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

Fov1					
	Report item	Description	Describe		
	NoumenonOffset	NoumenonOffset			
	SrcMat	Source Image			
	ResultMat	Result Image			

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



Horizontal offset(mm):	
0.000	
Vertical offset(mm): 0.000	

7.Save

Click **"Save"** to save the current.

8.Save as

Click "Save As" to save as a new file.

MainView	EditView	
Project		
⊖ Proje	items of the inspection result n	natches
⊡- Gi	New Group	
	New MarkPoint	
	New FovSingle	
Algorith	Offset	
🖻 Image	Save	
4.jpg	Save as	
	Delete	
	Property	
	Set Report	
	Batch Modify	>
	11	

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



Irganize 🔻 New folde					-	• 0
^	Name	Date modified	Туре	Size		
A Quick access	0903 JY	9/3/2020 4:54 PM	File folder			
E Desktop 🖈	A59994E3_1B32_4EA9_9FEB_2C46928200B7	6/29/2020 2:20 PM	File folder			
🕹 Downloads 🖈	CrashReports	10/15/2020 10:54 AM	File folder			
🔮 Documents 🖈	CrashReprots	4/25/2020 4:24 PM	File folder			
📰 Pictures 🛛 🖈	driver	6/29/2020 2:21 PM	File folder			
🕳 d (D:) 💉	ECF787FA_61C5_4E78_AFAA_DD5048D441	6/29/2020 2:21 PM	File folder			
1	📙 en	6/29/2020 2:21 PM	File folder			
1	extents	8/14/2020 4:55 PM	File folder			
2	📙 Image	1/6/2020 6:12 PM	File folder			
ruanjiansuoming	📙 Log	10/26/2020 10:29 AM	File folder			
uxSysWin	moudles	9/17/2020 1:38 PM	File folder			
This PC	moudles_0715bak	6/29/2020 2:22 PM	File folder			
	plugins	9/17/2020 10:09 AM	File folder			
USB Drive (E:) 🗸	nlugins111	8/14/2020 4:27 PM	File folder			
File name:						×
Save as type: (*.pro)	project files					,
save as type. (.pro,	project mes					

9.Delete

Delete current project

10.Property

Project	×
1	
wxObject wxEvtHandler uxObject	^
Name	61685E5F_774D_4A42_98EF_0
🖯 uxShape	
ExtName	Project
IsGroup	
LineColor	Blue
TextColor	Red
LineWidth	1
ControlPointColor	Red
Text	

Modify the properties of the current project.

11.Set Report

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

Project			\times
Report item	Description CalibOffset	Describe	
CalibResult	CalibResult		
CalibTheta	CalibResult		

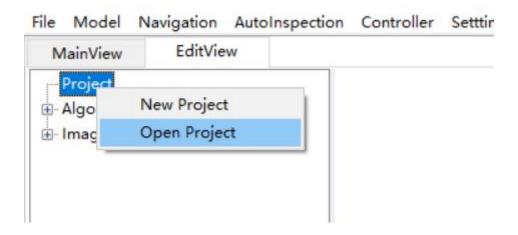


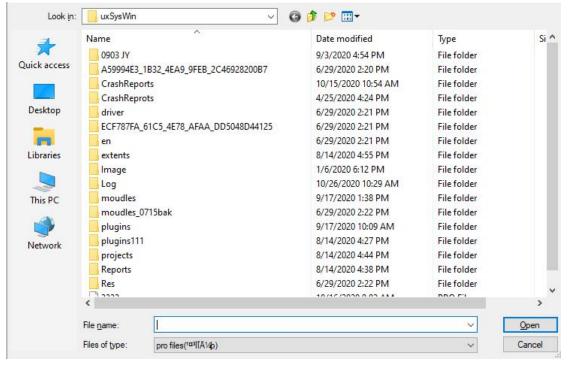
12.Batch Edit

Src Image		>
Batch Modify	ExtName Prefix:	
	70	±11. 1
	ОК	Cancel

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





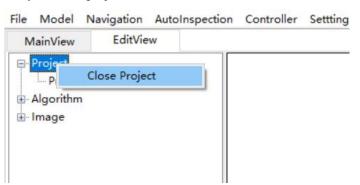
The edited project can be opened locally.

3.Close project

This document is a confidential company document and cannot be circulated without permission.

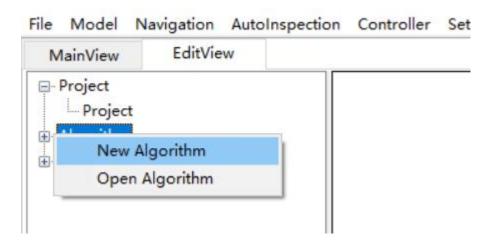


Close the currently selected project.



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.

Norpolo Autompetion Contr Mariñese Editoria Project Project Algorita - Algorita Image	E	Jept Isophys	J (Jaqed	het Saugeboot	i atter	Ingell engl Area Area Area Nation Sare Res Res Careand	Construction of the second sec	<u>04</u>		
CC	۲.		Σ	(€	*		\bigcirc		

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

This document is a confidential company document and cannot be circulated without permission.



File Model Navigation AutoInspection Controller Settling MainView EditView			
© Project ⇒1 →1 →1 →4 →4 →4 →4 →1 →4 →4 →4 →4 →4 →4 →4 →4 →4 →4			
Lájeg 2 Capture 3 Save 4 Save as 5 Close			
🖾 λ = Σ 🔿 Đ 📚 🍄 🚫 🗓 🗮 05(198)1177)	Normal	ldie	0

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

	Name	^	Date modified	Туре	Si ^
X	A59994E3	1B32 4EA9 9FEB 2C46928200B7	6/29/2020 2:20 PM	File folder	
Quick access	CrashRep	orts	10/15/2020 10:54 AM	File folder	
	CrashRep	ots	4/25/2020 4:24 PM	File folder	
	driver		6/29/2020 2:21 PM	File folder	
Desktop	ECF787FA	_61C5_4E78_AFAA_DD5048D44125	6/29/2020 2:21 PM	File folder	
	en		6/29/2020 2:21 PM	File folder	
673	extents		8/14/2020 4:55 PM	File folder	
Libraries	Image		1/6/2020 6:12 PM	File folder	
	Log		10/26/2020 10:29 AM	File folder	
	moudles		9/17/2020 1:38 PM	File folder	
This PC	moudles_	0715bak	6/29/2020 2:22 PM	File folder	
	plugins		9/17/2020 10:09 AM	File folder	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	plugins11	1	8/14/2020 4:27 PM	File folder	
Network	projects		8/14/2020 4:44 PM	File folder	
	Reports		8/14/2020 4:38 PM	File folder	
	Res		6/29/2020 2:22 PM	File folder	
	calib.alg		6/17/2019 4:05 PM	ALG File	
	<				>
	File name:	calib.alg		~	Open
	Files of type:	alg files(Ēã∵ĨĂ¼b)		~	Cancel

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

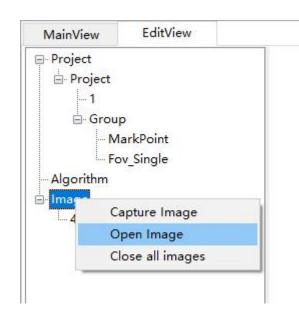




1.Capture image

le Mo	odel N	lavigation	AutoInspe	ction	Controller	Settting
Main	View	EditVie	w			
Proj	roject					
9-1	Capt	ure Image				
		n Image e all image	s			

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 for the main interface.

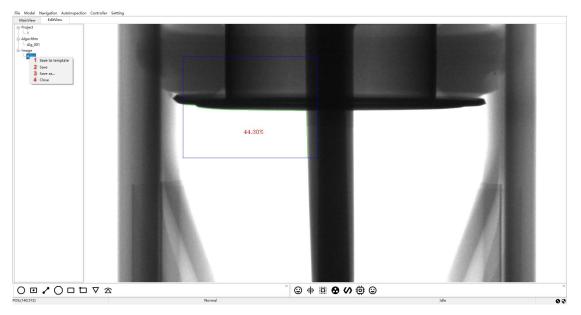


2.Open image



2	Name	<u>^</u>	Date modified	Туре	Si
- 	CrashRep	rots	4/25/2020 4:24 PM	File folder	
uick access	driver		6/29/2020 2:21 PM	File folder	
	ECF787FA	_61C5_4E78_AFAA_DD5048D44125	6/29/2020 2:21 PM	File folder	
2 - A	en		6/29/2020 2:21 PM	File folder	
Desktop	extents		8/14/2020 4:55 PM	File folder	
-	Image		1/6/2020 6:12 PM	File folder	
	Log		10/26/2020 10:29 AM	File folder	
Libraries	moudles		9/17/2020 1:38 PM	File folder	
	moudles_	0715bak	6/29/2020 2:22 PM	File folder	
_	plugins		9/17/2020 10:09 AM	File folder	
This PC	plugins11	1	8/14/2020 4:27 PM	File folder	
-	projects		8/14/2020 4:44 PM	File folder	
	Reports		8/14/2020 4:38 PM	File folder	
Network	Res		6/29/2020 2:22 PM	File folder	
	🔛 4.jpg		6/6/2019 4:36 PM	Image (jpg) File	
	🔚 halfcell.jp	9	6/6/2019 4:36 PM	lmage (jpg) File	
	🔛 shellfish.jj	bg	6/6/2019 4:36 PM	Image (jpg) File	
	<				>
	File name:	halfcell.jpg		~	Open
	Files of type:	img files(1¼ľñľĂ¼b)		~	Cancel

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.

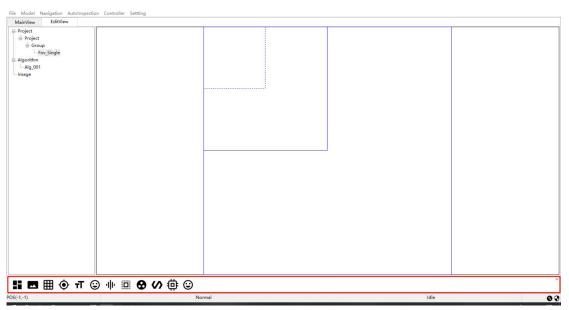
3.Close all images



MainView EditView
Project Algorithm Capture Image Open Image
○ ▫ ✔ ○ □ Ѣ ⊽ ☎
POS(111,668) Normal Idle

It is used to close all the editing. images





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

1.1.5.3.1 Engineering view toolbar



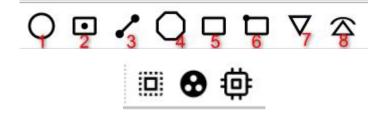
For the engineering view, you can use the toolbar to add various inspection tools to Fov, etc.

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.



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



2.1 Basic operation steps of X-Ray on

2.1.1 Log in system

UserName: Us	er Name
Password: Pa	ssword
ОК	Cancel

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

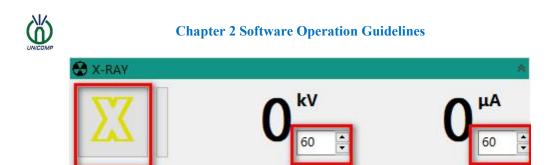
2.1.2 System operation

_	Magnif	ication	9.722	
+		TableX	242.41	3mm
		TableY	222.07	7mm
	ΥT	ItAngle	0.000	deg
	XTI	ItAngle	0.000	deg
	Roat	eAngle	0.000	deg
	Tube to	Object	25.014	mm
	Camera to	Object	218.17	5mm
	Espeed	OMSpe		peed
+	HOME	Rese	t St	ор
	•	+ XTT Roat Tube to Camera to © LSpeed	TableY YTIItAngle XTIItAngle RoateAngle Tube to Object Camera to Object O MSpeed	+ TableX 242.413 TableY 222.07 YTIItAngle 0.000 XTIItAngle 0.000 RoateAngle 0.000 Tube to Object 25.014 Camera to Object 218.179 © LSpeed O MSpeedO HSpeed

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

File	Model	Navigation	AutoInspection	Controller	Settting
N	lainView	ShowN	avigationImage		

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



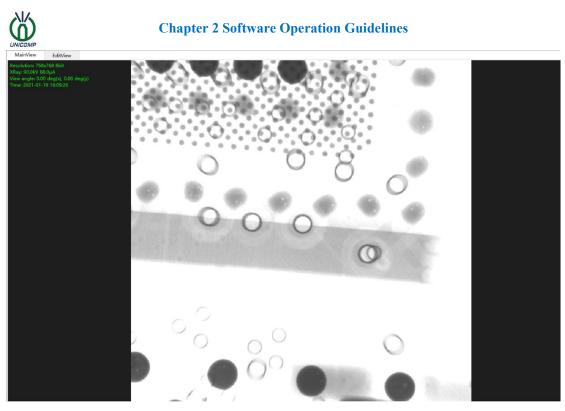
3. Under the X-Ray control module on the right control panel, turn on the X-ray and adjust the voltage and current.



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.

]Calibration			Camera	
📰 🖂 Offset	Jenerate Offse	et Calibration I	Integrate	
Gain	Generate Gain	1 Calibration Fi	Emphasize	
DefectMap	ienerate Defec	et Calibration I	Extension	
nage Threshold Low				
			12	

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

Model Naviga	tion AutoInspection Controller
New >	View
Open	it i
Save	
Save as	, 0.00 deg(y)
Save All	:33
Close	
Exit	
	New > Open Save Save as Save All Close

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.

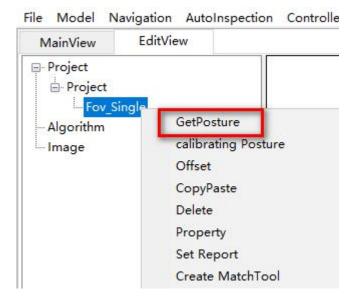


2.2.2 Editing project

1533DE3_A948_437F_B944_E5	AD21212B25
2 2 III	
wxObject	
wxEvtHandler	
🗉 uxObject	
Name	11533DE3_A948_437F_B944_
🗄 uxShape	
ExtName	Project
IsGroup	
LineColor	Blue
TextColor	Red
LineWidth	1
ControlPointColor	Red
Text	
uxShapeRectangle	
🗄 uxProjectItem	
Ignored	
Reporter	
ResultKey	
uxGroup	
OriginPoint	0,0
CalibResult	
CalibTheta	0
CalibOffset	0,0
Size	100,100
BatchCreateInterval	0,0
uxProject	
Version	1.0.0
Desc	
ObjectHeight	0 mm
Online	
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.

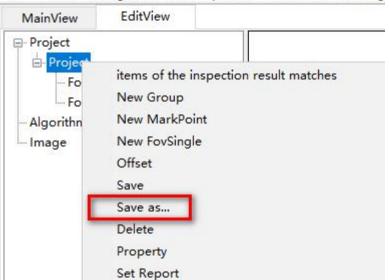
File Model Navigation AutoInspection Controller Settting

Project		
Project Project For Algorith	items of the inspection result matches BatchCreateGroup	
Image	New Group	
	New MarkPoint	
	New FovSingle	
	Offset	
	Save	
	Save as	
	Delete	
	Property	
	Set Report	
	Batch Modify	>

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.

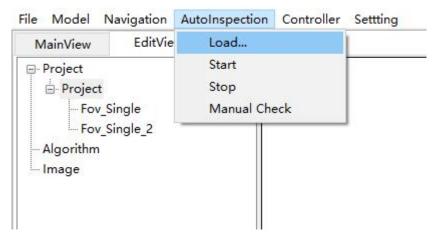
4. Repeat step 3 to create the third point.



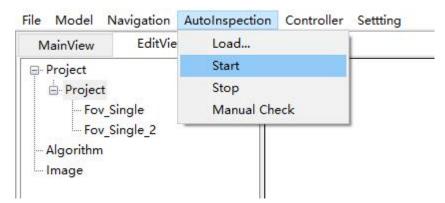


File Model Navigation AutoInspection Controller Settting

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.



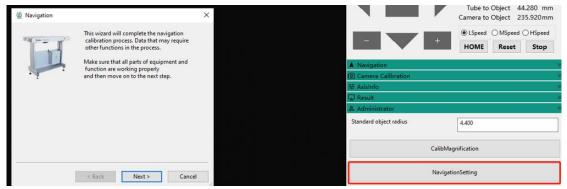
7. Click **"Start"** under the automatic calculation of the menu bar, it will automatically move the position, in the root directoryGenerate running image.



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.

MA	Save positon to s Move the calibra	camera to get image. set next table positon. tion position within the to complete the position
F	GetImage	SavePositon
Ŧ		

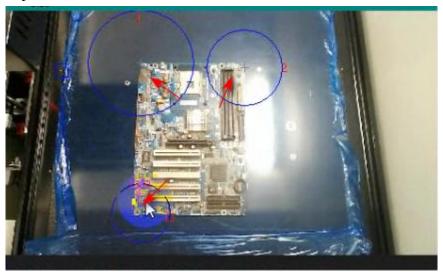
2. On the navigation interface, click to "get the navigation image", and navigate the view under the motion control module on the right control panel to check the image location.

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



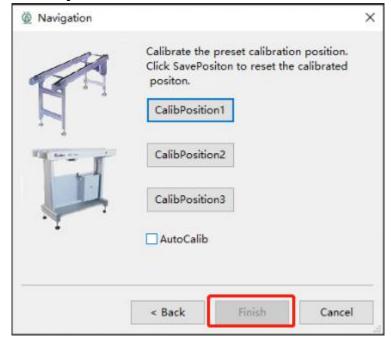
1. There will be 3 adjustment points in the upper left corner of the navigation interface, drag the adjustment points so that 3 points correspond to 3 points of the detection object, and then click "Next".



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".



This document is a confidential company document and cannot be circulated without permission.



2.4. After calibrating 3 positions, click "Finish" to complete the navigation and calibration.



2.4 Magnification calibration steps

Rema	ay 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.



e Model N	avigation AutoInspection (Controller Settting
MainView	EditView	Parameter
ime: 2021-01-3	27 09:55:03	Option
		About

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 mana	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 manag	uxFuncAlgorithmManag	Failed	Stop
10	Navigation funct	uxFuncNavigation	Failed	Stop
11	Magnification ca	uxFuncCalibMagnificatio	Failed	Stop

File Model Navigation AutoInspection Controller Settling

Editive		
Time: 2021-02-25 09:26:38		
	🖗 Components 🛛 🕹	
	Components Functions Interface	
	Settting_Magnification Calibration	
	Base Parameters	
	B 6FC93CD4 9737 4ecc BE30 56578FC	
	Add Input	
	Output(s) Add Output	
	And output	
	Delete	
	修改类型	
	Children	
	ConnRelations	
	uxComponent	
	E uxFunction	
	ParentUI StartPage	
	uxFuncCalibMagnification	
	FixedXOT 25.1006	
	FixedCOT 266.354	
	AxisCamStartPos 0	
	AxisTubeStartPos 100	
	AxisTableStartPos 0 AxisCamEndPos 80	
	AxisCamEndPos 80 AxisTubeEndPos 10	
	AxisTableEndPos 0	
	Steps 10	
	TestObjectSize 4.4	
	ModelType Table Pos Fixed *	

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



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.

odel Navigation AutoInspection Controller Settting		
ew EditView		
	@ Components	
	Components Functions Interface	
	Settting_Magnification Ca	alibration >
	Base Parameters	
		Add Input
	Output(s)	
	- sthat(s)	Add Output
		Delete
		LET US IN DE
		修改类型
	<	>
	III 211 III	
	Children	-
	ConnRelations	
	uxComponent	
	uxFunction	
	ParentUI	StartPage
	😑 uxFuncCalibMagnific	
	FixedXOT	25.1006
	FixedCOT	266.354
	AxisCamStartPos	0
	AxisTubeStartPos	100
	AxisTableStartPos	0
	AxisCamEndPos	80
	AxisTubeEndPos	10
	AxisTableEndPos	0
	Steps	10
	TestObjectSize	4.4
	ModelType	Table Pos Fixed

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.



🔁 X-RAY	weekel	*
57		
	68	70
Ø MotionCtrl		*
	TableX 0.000	mm
	+ TableY 0.000	mm
	YTiltAngle 0.000	deg
	XTiltAngle 0.000	deg
	RoateAngle 0.000	deg
	XOT 0.000	mm
	COT 0.000	mm
	●LSpeed ○MSpeed	d HSpeed
	+ HOME Reset	Stop
A Navigation		*
琸 AxisInfo		*
Result		8
ි Camera Calibration		*
음 Administrator		*
Standard object radius	4.400	
Ca	libMagnification	
Na	avigationSetting	

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

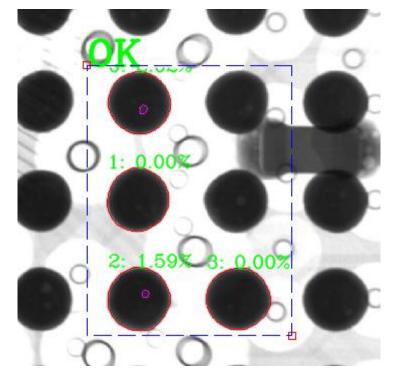
Remarks: Precondition (X-Ray ON)



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.



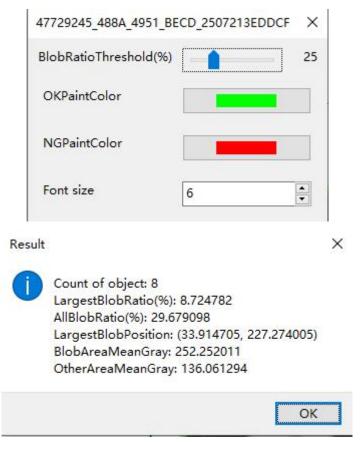
3. After selecting BGA, select the area to be detected on the image, as shown above.



8607BBB2_9AAB_4A55_97C3_7D65086	×
BallParam	25
Circularity	65
VoidParam	10
LargestBlobRatio	20
OKPaintColor	
NGPaintColor	
Font size 6	•

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.



This document is a confidential company document and cannot be circulated without permission.



D2E23A8B_9462_41EB_8F82_28C9	34F27D3A	×
PadParam		100
HoleParam		240
MinPadRate		5
VoidParam		20
VoidSize		50
HoleFillupType		
● NotFillup ○ Fillup		
BlobRatioThresholdType		
○ LargestBlobRatioThresholdTy	pe	noldType
BlobRatioThreshold	1	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 Unicomp's consultation telephone 400-880-1456. We will provide you with the most sincere service!

Wuxi Unicomp Technology Co., Ltd.

11 Li jiang Road, Xin wu District, Wuxi City, Jiangsu ProvinceTel: +86 510 6850 668Website: <u>http://www.unicomp.cn</u>

Shenzhen Unicomp Technology Co., Ltd.

Building A, Bangkai Technology Industrial Park, No. 9 Bangkai Road, High-tech Industrial Park, Guangming New District, Shenzhen Tel: +86 755 2732 5815

Chongqing Unicomp Technology Co., Ltd.

Yingang Industrial Park, No. 71, Tongxing South Road, Beibei District, Chongqing Tel: +86 023 6322 6131