



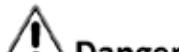
# User Manual

## TW100100(AI)

### AI-Based X-Ray Baggage Scanner

## Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
	Provides additional information to emphasize or supplement important points of the main text.
	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.

Label	Description	Label	Description
	Danger electric shock.		Requirements of luggage placement.
	Film safety.		
	Danger radiation.		Watch your hand.
	Forklift.		

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# Chapter 1 Caution and Warnings

Please read this chapter before proceeding.



- Operators must complete radiation protection training in accordance with local laws and regulations.
- Operators should be familiar with radiation protection regulations and requirements.
- When the X-ray generator is powered off for a long time, the operator should preheat the device to ensure the working life of the X-ray generator.
- The operation and storage environment should avoid direct sunshine, humidity air, conductive dust, chemical gas, etc.
- Before powering the device, make sure that the power supply voltage of the device in the actual working environment is the same as that of the device. Power supply power should be no less than the power used by the device.
- When installing or replacing device component, please contact professional maintenance personnel or local after-sales service department.
- When conveyor belt, indicator light, lead curtain, or external cable of device is damaged, disable the device and contact local after-sales service department.
- Operators are not allowed to open device shield for internal components operation or change source operation. The operation should be carried out by professional maintenance personnel.
- Make sure there are staff on duty when boot the device.
- Make sure that the item to be inspected is placed on the conveyor belt as required.
- When the transmission device is enabled, the operator should avoid objects falling or clogging the transmission channel.
- Avoid liquid flowing into device. If the situation occurs, stop and clear the device immediately.
- When the device is working, make sure the device is heat-dissipated, and avoid blocking the enclosure panel ventilation port.
- Disconnect power supply when cleaning and maintaining device.
- No person or living object is allowed to enter the channel when the device is working.
- Make sure that the device power supply is grounded properly. Do not use the device when the grounding condition does not meet the requirements.
- In case of danger, press emergency stop button.

## Pre-Check

**Step 1** Make sure there is no obvious gap or damage between the lead curtains in the entrance and exit channels of the device.



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 **Note**

If the gap between the lead curtains in the entrance and exit channels of the device is too large or damaged, the device should be turned off and the local after-sales service department should be contacted.

**Step 2** Make sure the conveyor belt is intact and there is a space between the edge of the conveyor belt and both sides.

 **Note**

When the conveyor belt tension is not enough, or the conveyor belt is stuck in the enclosure board, the conveyor belt position should be adjusted under the guidance of a professional.

**Step 3** Before booting the device, make sure the device power supply cable is connected; the device power supply is grounded; the scram button can be pressed and the device can be rotated for reset. Check if the keyboard button is not stuttered.

 **Note**

If the cable skin is damaged, the scram button is invalid, or the keyboard is on fault, the device should be turned off and the local after-sales service department should be contacted.



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## Chapter 2 Product Introduction

X-ray intelligent security inspection system combines intelligent recognition, person-package linkage and other functions to better solve problems such as missing inspection caused by low concentration of inspectors, and excessive stress for security inspection during peak periods. The product is applicable to government agencies, transportation hubs, logistics industries, etc., and can be used for security inspection of various packages, including satchels, parcels, expresswares, and carry-on baggages.

- Advanced recognition technology of material attribute : It can effectively recognize the equivalent number of atoms in the test object and assign different colors.
- Intelligent recognition technology: A deep-learning recognition algorithm with complete and independent intellectual property. It achieves deep fusion of intelligent recognition algorithm and X-ray imaging software, and better recognition effect.
- Low Radiation Dose: The radiation leakage dose rate reaches the natural background level, which is well below GB requirements.
- Security inspection network: Supports accessing to upper-level security inspection network management platform for data uploading management.
- Data storage: Supports storing, viewing, and calling the pictures and alarm information of the security inspection system.



## Chapter 3 Keyboard Operation



Table 3-1 Operation Keyboard Function

No.	Function	Function Description and Requirements
1	Key Switch	<p>It is used to power on the device control system, and prevent anyone other than the operator from operating the Device.</p> <ul style="list-style-type: none"> <li>Turn the switch clockwise to the "ON" state to power on the control system. You can press the start key to turn on the Device. At this time, the first green power indicator light is on, but the industrial PC and X-ray sources are not powered on.</li> <li>Turn the switch counterclockwise to the "OFF" state for one-click shutdown. At this time, the software exits, the industrial PC is turned off, and the system is powered off.</li> </ul> <p> <b>CAUTION</b></p> <p>The key cannot be removed unless it is in the "OFF" position.</p>
2	Start Button	Press the button to connect to the main panel power supply.
3	Fingerprint Recognition Area	Used for fingerprint recognition.
4	Scram Button	Press the scram button to cut off the power supply of the radiation source and the transmission system. Rotate the button clockwise and press start button to release the scram status.
5	Radiation Source Indicator	When the radiation source is releasing, the indicator is red. When the ray is off, the indicator goes out.
6	Self-Test Indicator	After powering on, the system enters self-test status and the indicator is yellow. After self-test, the indicator will turn off.
7	Power Indicator	After powering on the system, the indicator is green.
8	Color/Black & White	Press this button to switch from color mode to B/W mode. And press again to turn back to the color mode.
9	ORG / ORG + (Dual-Energy Keyboard)	Press this button to enter ORG mode. Press again to enter ORG + mode. Press the third time to restore.
	Image Brightening (Single-Energy Keyboard)	Press to improve image brightness.



10	INORG/INORG (Dual-Energy Keyboard)	Press this button to enter INORG. Press again to enter ORG -. Press the third time to restore.
	Image Darkening(Single-Energy Keyboard)	Press to decrease image brightness.
11	NEG	Press this button to enter NEG. Press again to restore.
12	High/Low(Dual-Energy Keyboard)	Press this button to enter High. Press again to enter Low. Press the third time to restore.
13	Range	Move the mouse point to the suspicious position in the image, press this button to enlarge the area of interest by the default magnification, which can be continuously magnified three times and then restored to the initial state. At the same time, move the mouse position and move the enlarged position accordingly.
14	Atomic Sequence 7, 8 and 9 (Dual-Energy Keyboard)	Press this button to display the corresponding number of atoms in pink. Press again. 8 for the equivalent number of atoms, and 9 for the equivalent number of atoms.
14	Pseudo-Color (Single-Energy Keyboard)	Press this button to switch between Pseudo-Color 1 and Pseudo-Color 2.
15	Save Button	Press this button to save the image to local HDD or USB flash drive.
16	Menu Button	Press this button to enter the interface of system menu settings.
17	Exit Button Restore Default Status	Press this button to exit menu mode or package detection mode. Press this button to enter the initial default image processing status.
18	ABS+	Press this button, the default step size increases once. Hold this button to increase continuously until it reaches the maximum.
19	ABS-	Pressing this button, the default step size reduce once. Hold this button to reduce continuously until it reaches the minimum.
20	SEN	Press this button to enter SEN. Press again to restore.
21	Edge	Press this button to enter Edge, and press again to restore.
22	Zoom-Out Button	Zoom out the current picture.
23	Zoom-In Button	Zoom in the current picture.



24	Mark Tag Button	Used for TIP evaluation.
25	Auto Switch Button	Press this button to enter alarm settings interface of intelligent recognition.
26	F1 Function Button	Customize the function of combination buttons as needed.
27	F2 Function Button	Customize the function of combination buttons as needed.
28	F3 Function Button	Customize the function of combination buttons as needed.
29	Forward Pull Back	Press this button to pull an image forward, hold it to pull back continuously.
30	Reverse Pull Back	Press this button to pull an image backward, hold it to pull back continuously.
31	Reverse Operation	Press this button to rotate the conveyor backward, hold it to enter ultra-thin scan.
32	Stop Button	Press this button to stop running, hold it for 3 secs to enter the speed change interface.
33	Forward Operation	Press this button to rotate the conveyor forward, hold it to enter ultra-thin scan.
34	Up Button	Used to move the image up after zooming in.
35	Left Button	Used to move the image to the left side after zooming in. Used to delete the input.
36	Right Button	Used to move the image to the right side after zooming in.
37	Down Button	Used to move the image down after zooming in.
38	Confirm Button	Used to confirm the selected items during the configuration process.
39	OUT	Used to connect to mobile storage or mouse keyboard.
40	IN	USB input of security inspection system.
41	Enhanced Scanning	Press this button to enter/exit the enhanced scanning mode.



## Chapter 4 Power on



Before operation, please read Caution and Warnings in this manual.

### Checking Before Powering on

The device needs to be preheated when powering on.

Table 4-1 Preheating Timetable

Off Time	Preheating Time
0 to 12 hours	No
> 12 hours, < 7 days	4.5 minutes
> 7 days	12 minutes
> 14 days	27 minutes

### Starting Device



- Keep the Device installed horizontally on the stable place.
- Before starting the Device, make sure that the supply voltage input meets the power supply requirements.
- To ensure stable operation and long service life of this Device, follow international standards and provide a power supply with reliable voltage and low ripple interference.
- To ensure safe use of this Device, connect with other cables before connecting with the power supply.

Before starting this Device, finish the connection of all cables. For details, see "2.2 Cable Ports."



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- After the power cable is connected, turn on the power supply button on the rear panel to start this Device.
- Turn off the Device by soft shutdown, and you can press the power supply button on the front panel to start this Device.

**Step 1** Before powering the device, make sure that the power supply voltage of the device in the actual working environment is the same as that of the device. Power supply power should be no less than the power used by the device.

**Step 2** The device will auto-correct after pre-heating.

**Step 3** Connect the power supply.



**Step 4** Turn the power key on the keyboard to ON.



**Step 5** Press to start the device.

**Step 6** After the device is started, it will self-check and then log in, finally enter “Clear Channel” interface. Enter “Activate” interface if the device is used for the first time.



### Caution

- When conveyor or X-ray generator fails during security inspection system start-up, press scram button to turn off the power.
- When the scram button is triggered, you need to press the start button to restart the device after resetting.



# Chapter 5 Initialization

## 5.1 Activation

If security inspection system is used for the first time, you need to activate after powering on.

Enter and confirm the password. Click “Activate” to activate the device.



- Admin user has the permission to activate the device by default. Other users need to change the login password when logging in for the first time.
- The activation password will be used as login password for admin users.
- Activation password should contain no less than 8 characters, including digits and letters.



- X-rays generated when activated.
- X-ray hazard. Do not place any part of the body inside the cabinet when system is activated.

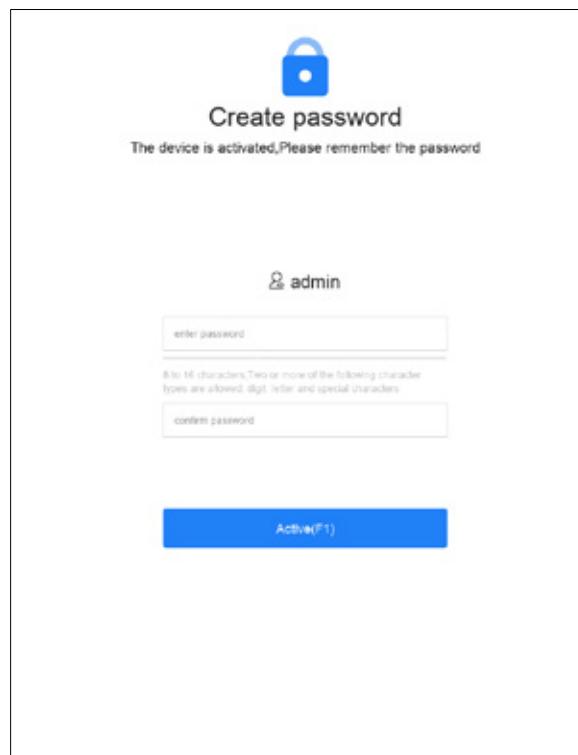


Figure 5-1 Activation Interface

You can export GUID file after activation or password change. If the password is forgotten, you can import GUID to reset the password.



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 **Note**

- Before exporting GUID file, please check if the USB flash drive is correctly inserted into the USB interface.
- Go to Export GUID interface.
- Select the device name and folder to be exported.
- Click “Export” to export the GUID file to the specified folder directory of the USB flash drive.

## 5.2 Scene Selection

Step 1 After the security inspection system is activated, you can select the scene. You can click “Skip” to skip the settings.

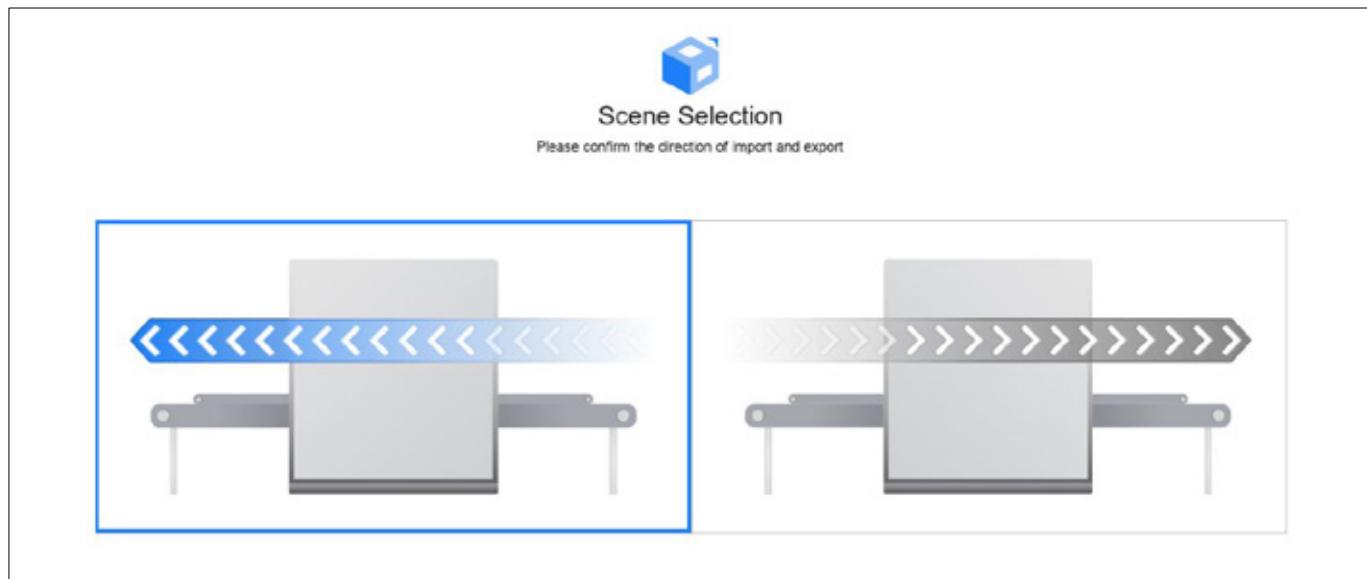


Figure 5-2 Scene Selection

Step 2 Click the corresponding picture to select the import and export direction of the package and then click “Next Step”.



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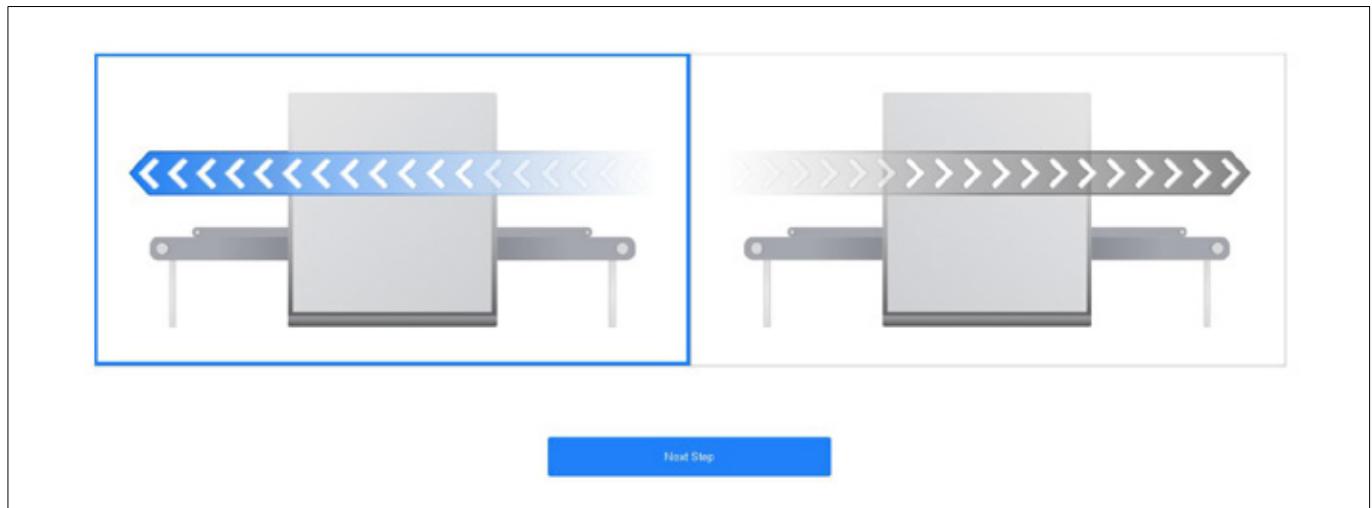


Figure 5-3 Import/Export Direction of Package

Step 3 Click corresponding pictures to select the direction of passing package image, and then click “Next Step”.

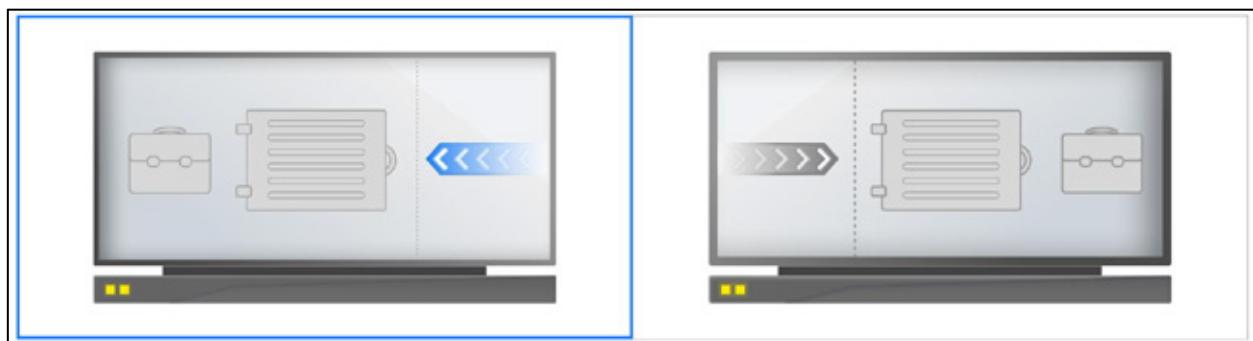


Figure 5-4 Direction of Pictures

### 5.3 Scene Configuration

Drag the screen to switch the camera position and then click “Next”.



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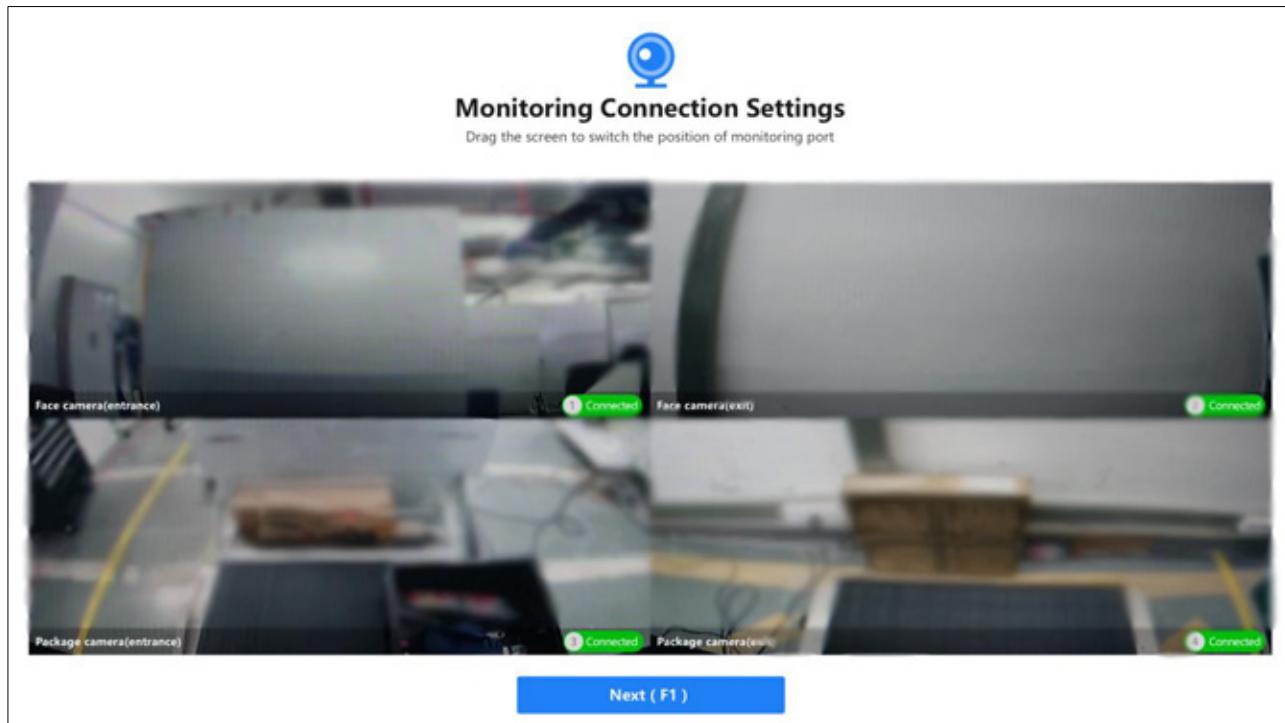


Figure 5-5 Camera Scene Configuration



You can view camera connection status during configuration. Click in the upper-right corner to switch the channel.

## 5.4 Device Self Check

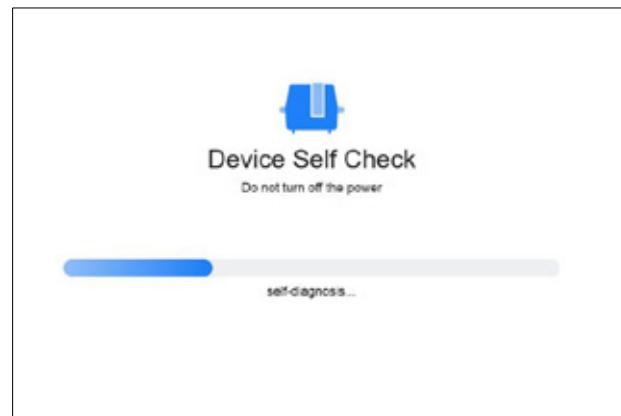


Figure 5-6 Device Self Check

After self-checking, health status of modules will be listed, including: main controller communication status, emergency button status, tampering status, radiation source status, motorized roller status, and CTS communication status.



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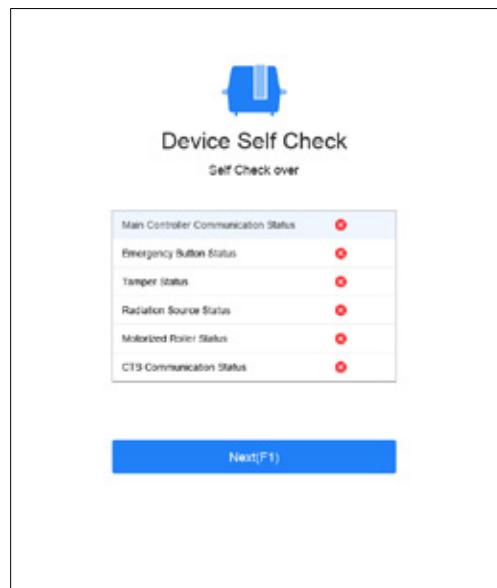


Figure 5-7 Health Status

## 5.5 Clear Channel

To make sure the security inspection system run normally, you need to clear the channel after power-on. After clearing the channel, the system will automatically enable self-check.

### **Before you start**

For activated devices, the device will enter Clear Channel mode directly after powering on and enabling the device. For unactivated devices, you need to activate first. Please refer to *Activation*.

#### Steps

- Step 1 In the Clear Channel interface, click or to move the conveyor belt to the left or right to clear the items in the channel.



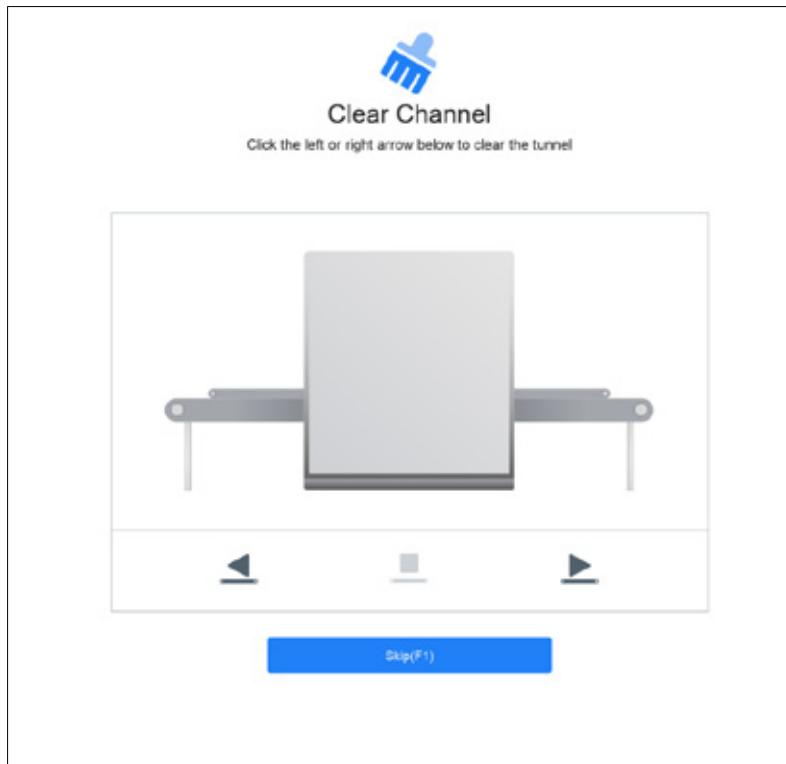


Figure 5-8 Clear Channel



Step 2 Click  to stop the conveyor belt when there is no item in the channel.

Step 3 Click “Skip” to enter the pre-heating interface.

## 5.6 Light Barrier Self-Check, Warm-up, and Correction

After clearing the channel, the security inspection system will enter the status of light barrier self-test, pre-heating and calibration.

### Light Barrier Self-check

The system will mark the fault light barrier and click “Next” to complete self-check.



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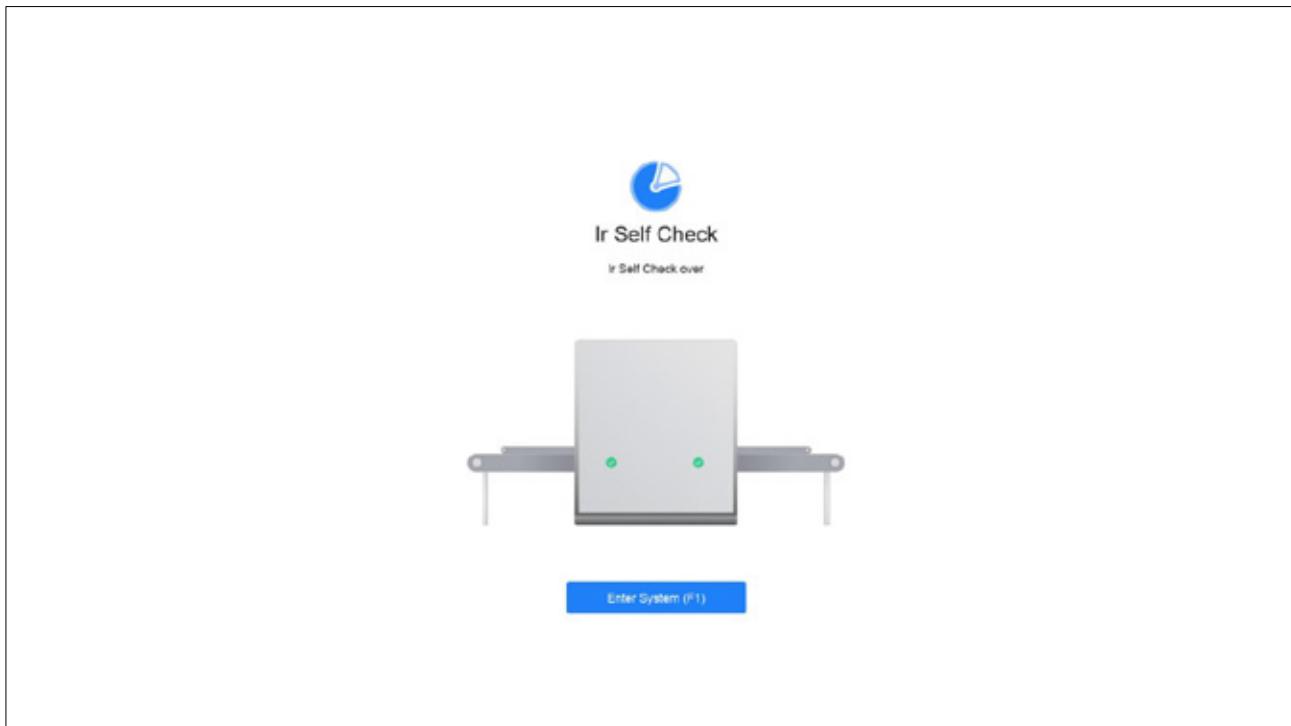


Figure 5-9 Light Barrier Self-Test

### Warm-up

Click to preheat the device.



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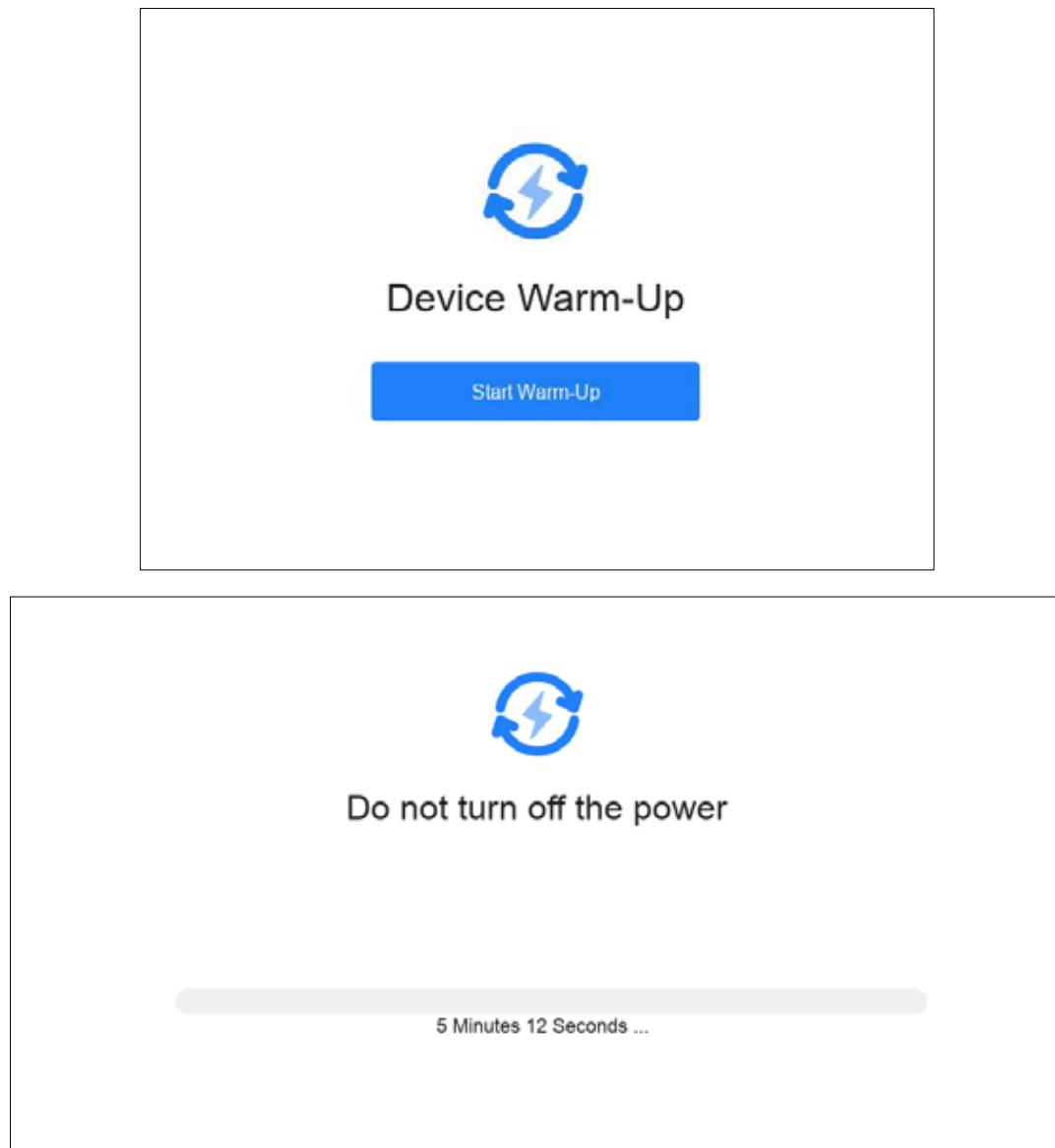


Figure 5-10 Warm-up

### Correction

After the pre-heating is completed, the device will automatically enter correction mode.

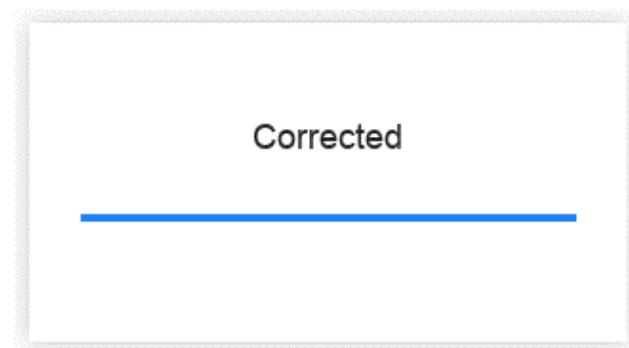


Figure 5-11 Correction



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# Chapter 6 Login

You can log in to the device via password and fingerprint.



Non-admin user should change the password when logging in for the first time.

Steps

Step 1 Enter the user ID.

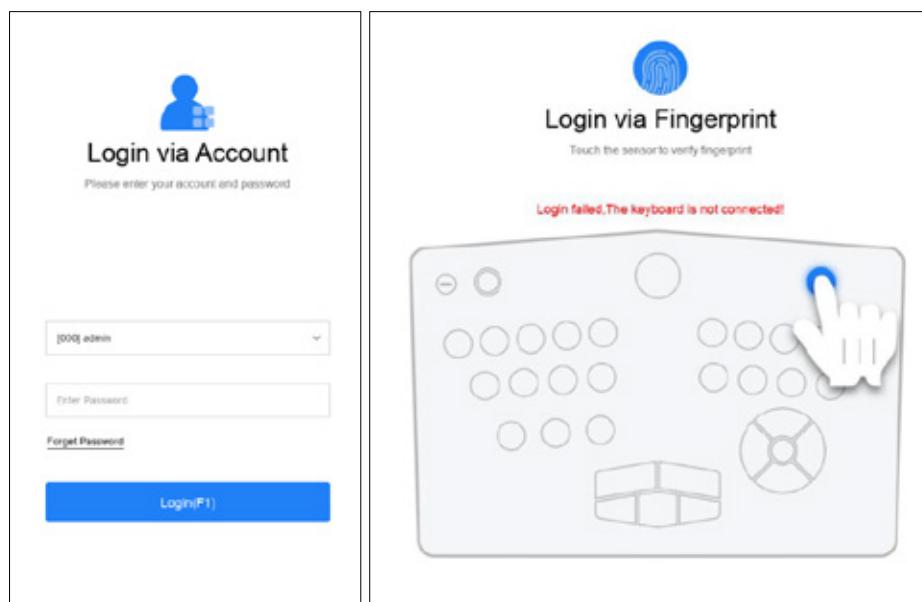


Figure 6-1 Login Interface

Step 2 Verify user permission.

Verification Method Description

<b>Password Verification</b>	Enter password and click "Login" to complete user permission verification.
<b>Fingerprint Verification</b>	Click "FP Login". Put your finger in the keyboard recognition area for fingerprint verification.



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 **Note**

- Fingerprint login and account login can be achieved through shortcut keys F1, F2 and F3. See *Function Settings* for details.
- After 5 failed login attempts, you need to click “Re-Login”.

Step 3 Click  in the upper-right corner of the interface to log out.



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## Chapter 7 Passing Package Check

You can check the package-passing status of the item in the home page with the keyboard. Please refer to *keyboard operation*.

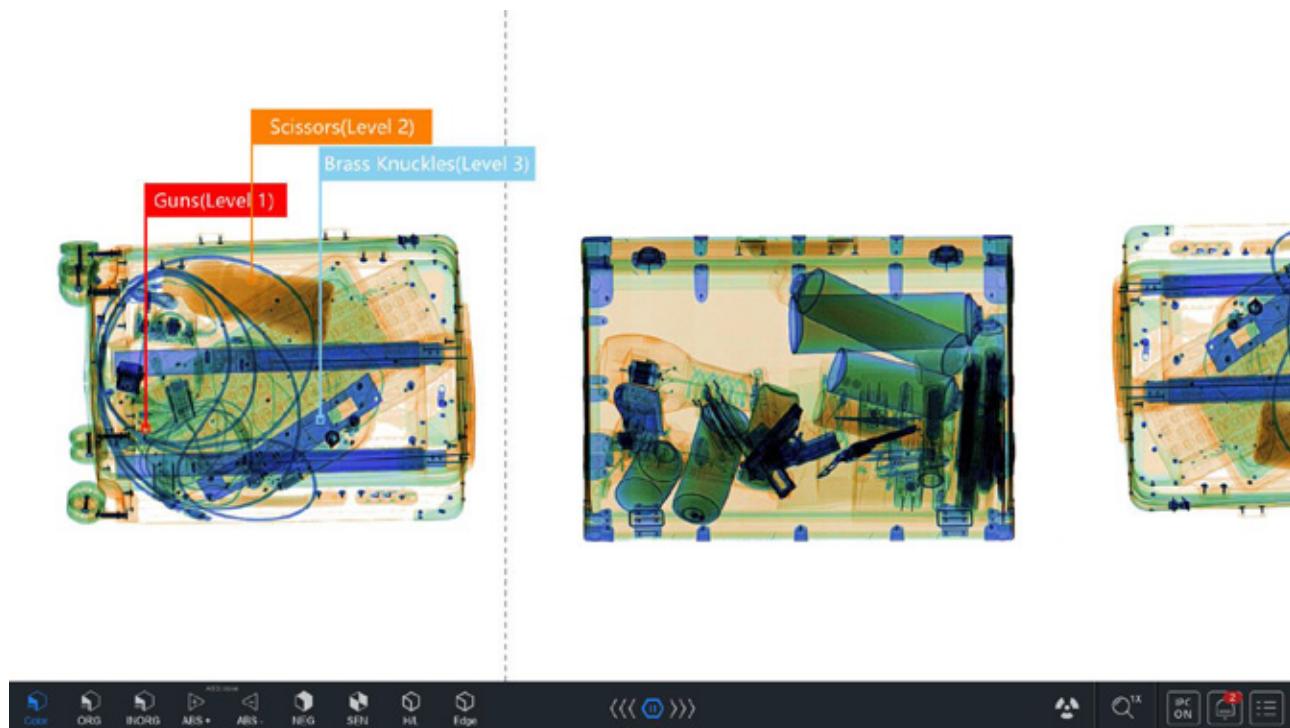


Figure 7-1 Package-passing

### Package-passing Check

The left side button of the main interface can process the picture, such as tagging, image enhancement, image brightening/darkening, absorption rate increase/decrease, and color reverse.

In the middle of the main interface, you can view the real-time pictures of the camera and security inspection system. Click  to close the pictures.

In the lower-right part of the main interface you can view the status of the radio source, connection status of network camera, exception alarm, as well as the configuration menu.

In the lower-left part of the main interface, you can view the time, current user ID and the cumulative number of passing packages.

In the lower-middle part of the main interface, you can view conveyor running status.



Type	Icon	Description
View Running Speed		Low/Medium/High Speed Running Leftward
		Low/Medium/High Speed Running Rightward
		Pause
View Zoom-In Status of Image		Zoom in images. The number represents the zoomed-in ratio.
View Camera Picture		View Real-Time Images of Camera
View the working status of the radiation source.		Radiation Source On/Off
View Alarm		View Alarm Information
Menu		Enter Configuration Menu

The main interface is marked with exit line. The package pass across the exit when it pass across the line, which helps inspectors to recognize packages.



# Chapter 8 Configuration



You can click  in the main interface of the security inspection system, or right click to enter the menu.

## 8.1 User Settings

Different user has different permissions which are divided into Admin (super administrator), administrator, maintainer, and operator.

Table 8-1 User Type and Permission

Main Menu	Submenu	Function	Super Administrator	Administrator	Maintainer	Operator
User Management	/	Edit Yourself	Yes	Yes	Yes	Yes
	/	Edit Other Users	Yes	Yes	No	No
File Management	/	Export Linked Video	Yes	Yes	Yes	No
	/	Package-passing Picture to TIP Picture	Yes	Yes	Yes	No
	/	Lock/Unlock Files	Yes	Yes	No	No
	/	File Download	Yes	Yes	Yes	No
	/	Export Original Data Before Normalization	No	No	Yes	No
	/	Delete file	Yes	Yes	No	No
Image Settings	/	Blank and Pixel Settings	No	No	Yes	No
System Settings	System Maintenance	Enter	Yes	Yes	Yes	No
		Add Maintenance Log	No	No	Yes	No
		Delete Maintenance Log	Yes	Yes	Yes	No



	Alarm Settings	Sensitivity Settings	No	No	Yes	No
	Advanced Settings (Only maintainer has permission to export normalized data).	Enter	Yes	Yes	Yes	No
	Channel Settings	Enter	Yes	Yes	Yes	No
Log Management	/	Enter	Yes	Yes	Yes	No
System Information	/	Enter	Yes	Yes	Yes	Yes
TIP Settings	/	Enter	Yes	Yes	No	No
AI Platform	/	AI Model Configuration	Yes	Yes	No	No
Training System	/	Enter	Yes	Yes	Yes	Yes
Other	/	Change of Position Reminder	Yes	Yes	Yes	Yes
	/	TIP Reminder	No	No	No	Yes

Step 1 Click “User Management” to enter the user management interface.



User management interface will be different when users with different permissions logged in. Different devices support different functions, which may result in different permissions.

Step 2 Click “Add” to add new user.

Step 3 Select user type, enter user name, and user password.



Password should contain no less than 8 characters, including digits and letters.

Step 4 Click the fingerprint icon to start recording fingerprint. Put your finger on the recognition area of the keyboard to record fingerprint.





You can enter up to one fingerprint.

**Step 5** Click “Import” to import face picture in the face picture recording area on the right part.  
 Click “Take a picture”, align face with the dotted line.



Face picture function is only supported in some models.

**Step 6** Click “Save” to save the user information.

Click Edit, Delete, and Freeze to perform corresponding operations.

Button	Note
	Delete Selected Users
	Edit Selected User Information
	<p>Freeze Selected Users   Note</p> <p>Only the administrator can freeze/activate the users. The frozen user cannot log in, but the data is still kept by the system.</p>

Enter user name, user ID, or user type to search for user information.

Click “Import” to import user information.

Click “Export” to export user information.

## 8.2 File Management

### 8.2.1 File Management

Steps

**Step 1** Click “File Management” to enter the interface.

**Step 2** Select search conditions such as start time, end time, lock status, hazardous article type, picture type, user ID, etc., and click “Search” to view the file. Click “Reset” to reset the search condition.



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Hazardous article categories will be displayed in file management according to custom categories.

Click the picture in the file list to view the picture details.

With maintainer account, you can configure “source RAW data management”.

#### Note

User manually marks the saved pictures. This type of picture can be transferred. When the USB flash drive is inserted into the device, the picture will be automatically transferred to the USB flash drive. When the picture type is Save, you can click  to sort the picture space.

Click the picture in the file list to view the picture details.

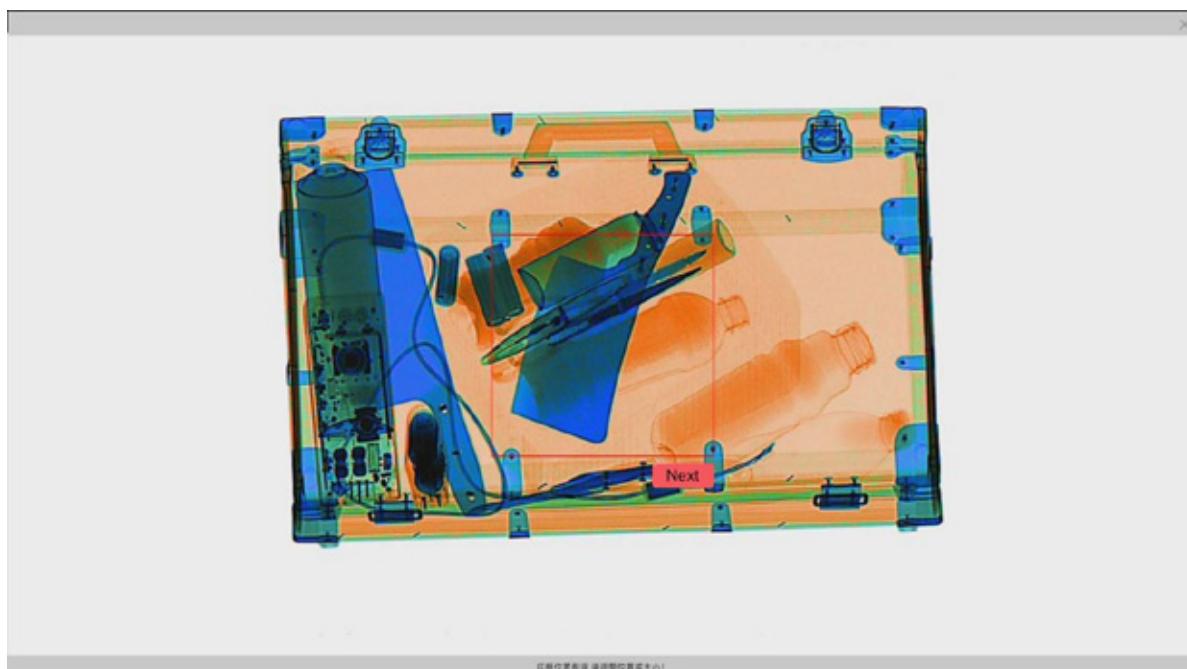


Figure 8-1 Picture Details

#### Note

Click the thumbnail on the right side of the interface to view the magnified image.

Click  to lock the file. The icon will become  when the file is locked. After locking, the file will not be deleted automatically. Otherwise, the file will be deleted automatically.



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i Note

When the file capacity is full, the system will overwrite the file according to the storage time. The locked document will be kept.

Click  to download the file. You can also click “Download Selected” to download the file in the selected list, or click “Download All” to download all the results.

### 8.2.2 Package Statistics

Click “File Management” and select “Statistics Report” to enter the interface.

Select start time and end time and check the device to search. Click “Search” to view the report. Click “Reset” to restore the original status. Click “Export” to export the report.

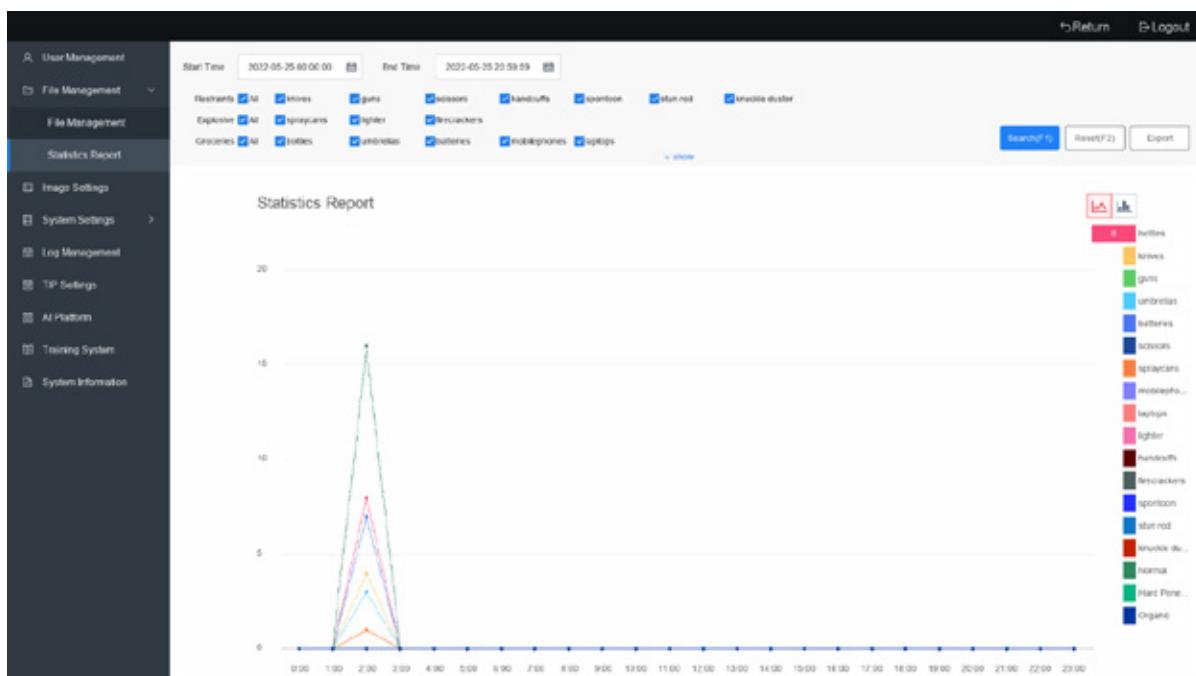


Figure 8-2 Statistics Report

### 8.3 Image Settings

Click “Image Settings” to set the package mode, picture moving direction, belt moving direction, default magnification, and whiteness parameter.



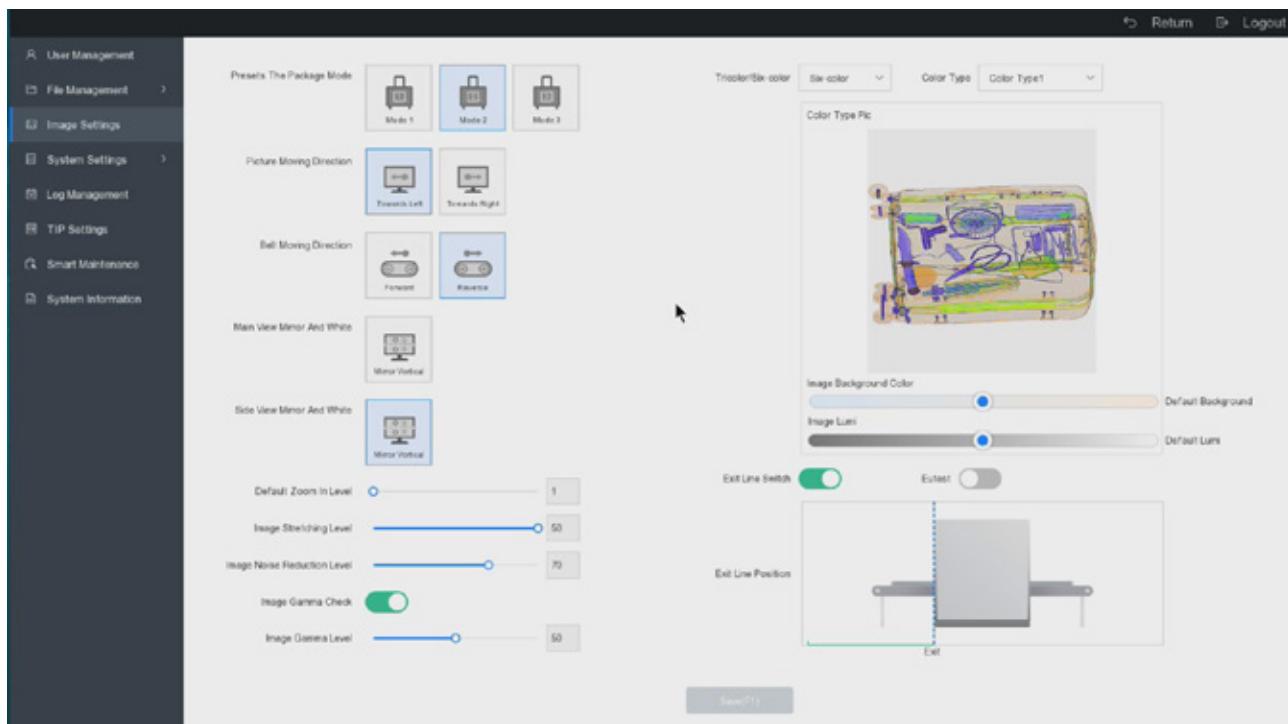


Figure 8-3 Image Settings

#### Presets the Package Mode

You can preset 3 kinds of package modes.

#### Picture Moving Direction

You can set the direction of the passing packet as leftward or rightward according to the operator position and actual passing packet direction.

#### Belt Moving Direction

You can set the conveyor belt direction as forward or reverse.

#### Main View Mirror and White

You can set the vertical mirror of the image from main angle or depression angle. The administrator can set the blank on the upper or lower side of the image. Enter pixels to set the width of the blank area.

#### Side View Mirror and White

You can set the main/top view angle image to be vertically mirrored. The administrator can set the blank on the upper or lower side of the image. Enter pixels to set the width of the blank area.

#### Default Zoom In Level

You can set the default magnification of the image.

#### Image Stretching Level

You can set the default stretching factor for the image.

#### Image Noise Reduction Level

You can set the default noise reduction factor for the image.

#### **Image Gamma Check/Image Gamma Level**

You can choose to enable/disable the GAMMA switch, and once enabled, you can set the threshold adjustment range.

#### **Tricolor/Six-color**

You can choose between a three-color mode or a six-color mode.

#### **Image Background Color**

Drag the slider to set the screen color temperature.

#### **Image Lumi**

Drag the slider to set the brightness of the screen.

#### **Export Line Switch**

You can enable or disable the export line.

#### **Distortion Correction**

Enable distortion correction to correct the distortion effect caused by the difference in detector distance from the source space.

#### **Export Line Position**

You can set the location of the export line. When the image reaches the location of the line, the package reaches the relative location of the exit of the device.

## **8.4 System**

### **8.4.1 System Maintenance**

#### **I. Detector Test**

You can check if the detector is running properly.

Steps

Step 1 Click “System Settings → System Maintenance → Detector Test” to enter the interface.



The benchmark curve, integration time, and the temperature of the radiation source are only visible to the maintainer user.

Step 2 Select High/Low Energy or display simultaneously.

Step 3 Click “Start Collect”.

Step 4 Click “Beam”.

Step 5 Observe if there is an exception in the waveform.

Step 6 Click “Stop” to stop the beaming of the ray source.



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Step 7 Click “End Collect” to finish the test.

Step 8 You can also click “Benchmark Curve” to view, and click “Save Benchmark” to save the benchmark curve.

## II. Radiation Source Test

You can check if the working status of the radiation source is normal.

Steps

Step 1 Click “System Settings → System Maintenance → X-Ray Generator Test” to enter the interface.

Step 2 Click “Start Test”. The working information of the radiation source will be displayed in the interface. Check if the curve of current and voltage is normal.

Step 3 Click “Edit” to edit the voltage and current.



The voltage and current settings of the radiation source, 12-hour pre-heating, and the fast/medium/slow speed settings are only available to the maintainer.

Step 4 Check if the working status of the radiation source is normal.

Step 5 If there is pre-heating problem, click “Preheat” to manually preheat the device.

Step 6 If there is a preheating problem with the device, select "preheating level" to manually preheat the device.

Step 7 Ray Source Configuration: For dual view devices, a ray source can be selected for use. The default main perspective ray source and the secondary perspective ray source are used simultaneously, and you can also choose a single perspective ray source for parameter configuration and use.

Step 8 Low temperature preheating switch: When enabled, when the device is used in a low temperature environment, a pop-up prompt will pop up to preheat, ensuring that the temperature of the radiation source is raised to the normal range and avoiding affecting the quality of the device's image.

## III. Keyboard Test

Click “System Settings → System Maintenance → Operation Keyboard Test” to enter the interface. See Chapter 1 for keyboard interface.

Click “Keyboard” to see if it is linked to the interface.



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There is no test function in key button, start button, scram button, and fingerprint recognition area.

## IV. Maintenance Record

Click “System Settings → System Maintenance → Maintenance Record” to enter the interface.

Select time, maintainer ID, and task name. Click “Search” to view maintenance records in the selected search conditions. Click “Reset” to reset search conditions.

Click “Add” to select task name, enter maintenance remarks, and click “Save ”to finfish the operation.



Only the maintainer can add maintenance records.

Click “Delete” to delete the selected maintenance record.

Click “Download Selected” to download the selected maintenance record.

Click “Download All” to download all records.

Click “Export Maintenance Log” to export the maintenance log (The log types can be selected from main control log, terminal log, or all logs).

The following information will be formatted selectively when initializing the master control: the total time of the two source beaming, the total time of running, the end time of the beaming, the total time of device running, and local log.

Click “Radiation Source” to format the ray source.



The value of the image of the device should be the total time, total time of operation, and end time of the image of the device.

Click “Total Device Running Time” to format the total device running time.

Click “Local Log Record” to format local log record.

Click “All” to format all.



## V. System Diagnosis

Click “System Settings → System Maintenance → System Diagnosis Test” to enter the interface.

Click “Diagnosis” or press Keypad F1 to diagnose.

Click “Export All” to export.

## VI. Other Test

Click “System Settings → System Maintenance → Other Test” to enter the interface.

Click “Test” to check the communication status of the linked module and search the temperature of the Main Control Board.

Click “Enable” to start the status lamp test of the ray source.



Click , and observe conveyor running status and test the drum motor.

Select low/medium/high speed to test speed.



The speed test function will vary according to model.

Select the drum motor model.

Click “Test” of the light barrier test to detect the inner light barrier of the security inspection system.

### I/O Test

Test if IO status is correct, including Montage IO, open source IO, and scram IO.

## 8.4.2 Alarm Settings

### Intelligent Identification Alarm Settings

Click “System Settings → Alarm Settings → Intelligent Identification & Alarm” to enter the configuration interface.

#### Enable Upload Center

Alarm information will be uploaded to the receiving center after enabling.

#### Enable Smart Recog Alarm

After enabling this function, the security inspection system will automatically recognize the attributes of the packages and display alarm as needed.

#### Enable Auto-stop



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The conveyor belt will stop running automatically after alarm.

**Enable Light Alarm**

Alarm light flashes after alarm.

**Enable Sound Alarm**

Alarm will sound after alarm.

**Display Settings**

Display alarm object name on package passing interface.

**Suspected Degree**

Show suspected levels of package and alarm items.

**Alarm Settings**

You can customize and match the 5 kinds of prohibited goods in the interface. Click  to configure the prohibited goods type.

Select the type of prohibited goods to be displayed in the alarm box.



The specific functions of prohibited goods category will vary according to models.

**Alarm Mode**

Set alarm prompt mode.

**Alarm Frame Color**

Configure display properties of alarm frame.

**Alarm Frame Line Type**

Configure the frame line type of alarm.

**Alarm Frame Size**

Configure size of Alarm frame.

## I. Impermeability Alarm Settings

Click “System Settings → Alarm Settings → Impermeability Alarm” to enter the configuration interface.

**Enable Impermeability Alarm**

After enabling this function, the security inspection system will alarm items that cannot be crossed by X-ray.



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**Enable Auto-stop**

The conveyor belt will stop running automatically after alarm.

**Alarm Sensitivity**

Set sensitivity of detecting impassable items for alarm. The higher the sensitivity, the easier the alarm will be triggered.

## II. Organism Alarm Settings

Click “System Settings” → “Alarm Settings” → “Organism Alarm” to enter the configuration interface.

**Enable ORG Alarm**

After enabling the function, the alarm will be triggered when organics passing through.

**Enable Auto-stop**

The conveyor will stop running automatically when alarm is triggered.

**Alarm Sensitivity**

Set the sensitivity of detecting organic matters for alarm. The higher the sensitivity, the easier the alarm will be triggered.

## 8.4.3 Advanced Settings

### I. Function Settings

Click “System Settings → Advanced Settings → Function Set” to enter the interface.

**Customize key Combination**

Assign functions to F1\\F2\\F3.

**Operator Change of Duty Reminder**

When the security inspectors change the duty, the system will generate the event. Enable “Change Reminders” and set the time interval. The system will remind you according to the time. The following pop-up box will pop up when changing the guard.

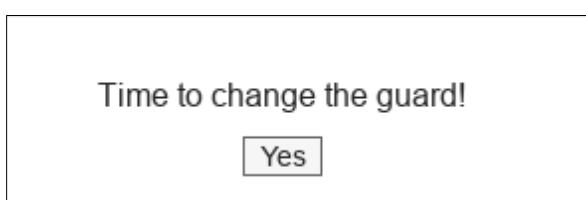


Figure 8-4 Change of Duty Reminder



## II. Others

Click “System Settings → Advanced Settings”. You can also configure the functions, network, platform, time, storage, default, local upgrade, algorithm, path, and LED for security inspection system.

- **Function Settings:** Set custom key combination, enable change-of-duty reminder, set change-of-duty time, set energy saving mode, etc.
- **Network Settings:** Configure basic network parameters, such as NIC mode, NIC type, IP address, DNS server, etc.
- **Platform Settings:** Enable platform function and configure platform parameters. After configuration, the fault will be reported to management platform.
- **Time Settings:** Set device time.
- **Storage Management:** View HDD information and initialize HDD.
- **Default Configuration:** Restore default parameters, factory settings, and inactive.
- **Local Upgrade:** Import upgrade file and upgrade device locally.
- **Algorithm Configuration:** Select algorithm configuration mode.
- **Path Configuration:** Select the default storage path of package image, saved image, and xRaw data. When the path is not configured, the image and data will be saved to root directory. When the path is configured, the picture and data will be saved to corresponding path.
- **LED Configuration:** Enable character display and set font color, action method, font speed, dwell time, font size, display content, etc.; enable voice broadcast, select broadcast method, cycle times, play interval, volume, and content.

### 8.4.4 Channel Management

#### I. IPC Channel Configuration

Click “System Settings”, select “Channel Settings” to enter the interface. Drag the screen to switch the camera position and then click “Next”. You can view camera connection status during configuration.



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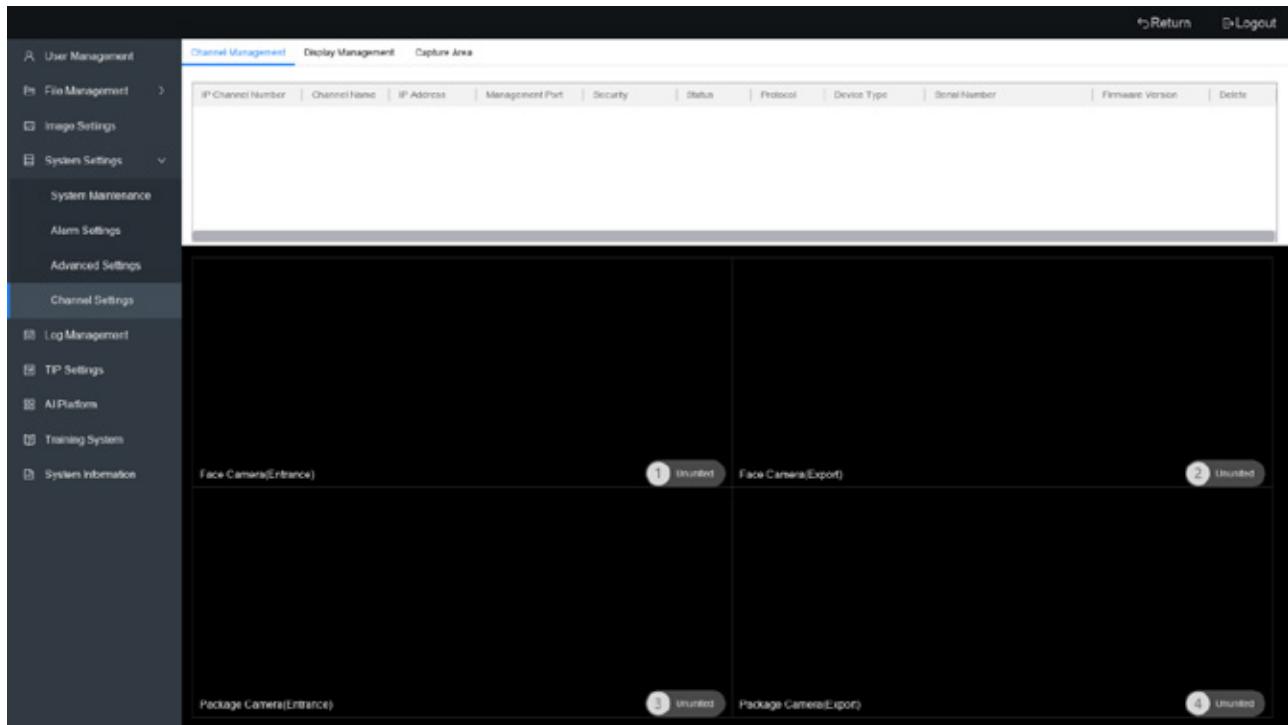


Figure 8-5 Channel Management

## II. Display Management

Click “Channel Settings”, select “Display Management” to enter the interface. Click “Open the preview IPC screen” to view the live view of the camera. You can select Main Screen or Auxiliary Screen to display, select a channel, and enable connection to walk-through metal detector.

Click “Apply”.

## III. Status Monitor

Click “Status Monitor” to enter the interface. Enable “Upload Platform” to upload status to the platform. You can also enable status reminder and select monitor level. Click “Re-map Detection



Area” to select the detection area, or select the default detection area. Click in the upper-right corner to switch the channel.

Click “Save” to save the configuration.

## IV. Capture Area

Click “Capture Area” to configure the face camera. You can select whether to enable face capture and set the minimum recognition threshold. Click “Re-map Detection Area” to select the detection area, or select the default detection area.

Click “Apply”.



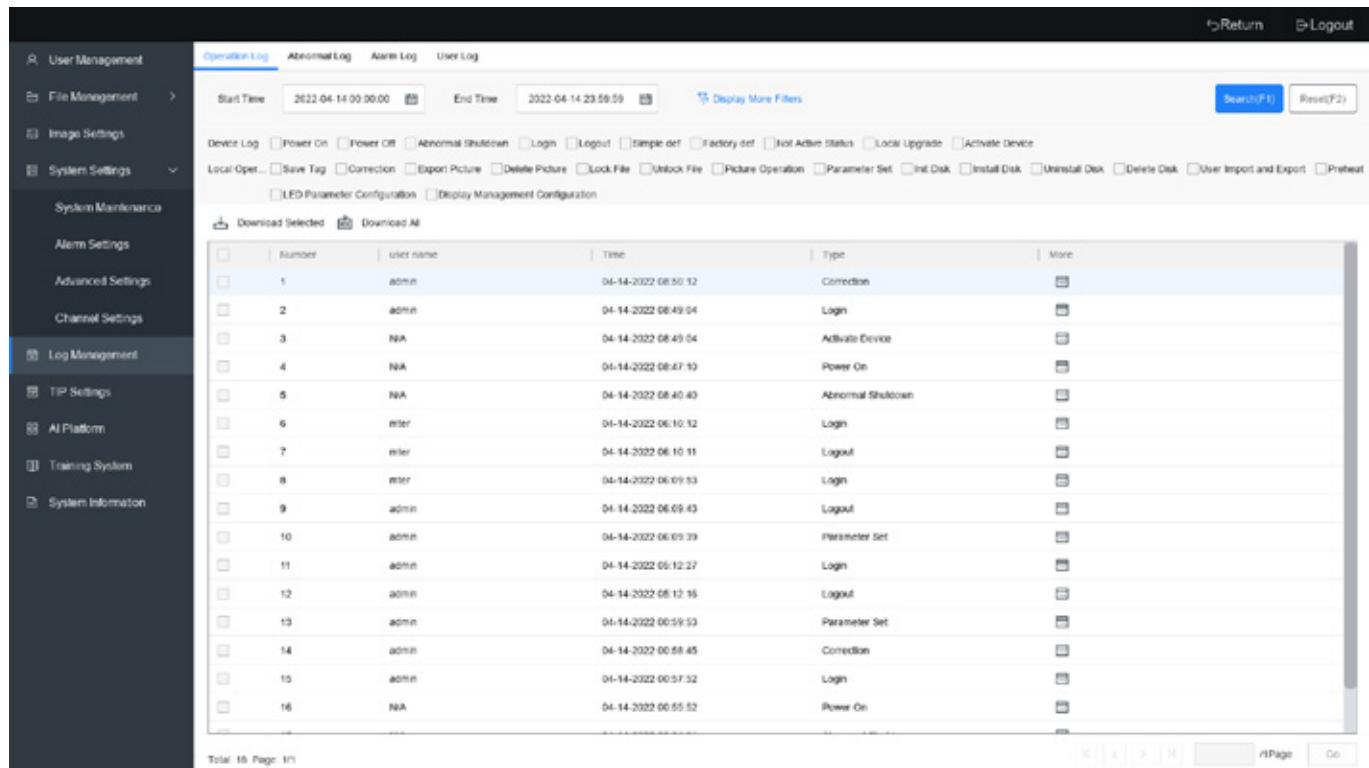
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## 8.5 Search and View

### 8.5.1 View Log Information

The number of exits triggered by security inspector status will be reflected in the user log. Click “Log Management” in the configuration menu. You can search the operation log, abnormal log, alarm log, and user log.



Number	user name	Time	Type	More
1	admin	04-14-2022 08:50:12	Connection	
2	admin	04-14-2022 08:49:04	Login	
3	N/A	04-14-2022 08:49:04	Activate Device	
4	N/A	04-14-2022 08:47:19	Power On	
5	N/A	04-14-2022 08:40:40	Abnormal Shutdown	
6	mter	04-14-2022 06:10:12	Login	
7	mter	04-14-2022 06:10:11	Logout	
8	mter	04-14-2022 06:09:53	Login	
9	admin	04-14-2022 06:09:43	Logout	
10	admin	04-14-2022 06:09:39	Parameter Set	
11	admin	04-14-2022 06:12:27	Login	
12	admin	04-14-2022 06:12:16	Logout	
13	admin	04-14-2022 06:09:53	Parameter Set	
14	admin	04-14-2022 06:08:45	Connection	
15	admin	04-14-2022 06:07:32	Login	
16	N/A	04-14-2022 06:05:52	Power On	

Figure 8-6 View Log Information

Select search condition: Time and user name. Click “Search” to get the search result. You can also click “Reset” to reset the search conditions.

Select the log in the search result list. Click “Download Selected” to download the selected log. Click “Download All” to download all search results.

### 8.5.2 View Device/Version Information

Click “Device Information” and “Version Information” in the configuration menu to view the information of current device.

## 8.6 AI Platform

You can check SDK version, algorithm version, and other information of the device, import model library file from AI platform, and apply to the actual security inspection environment.



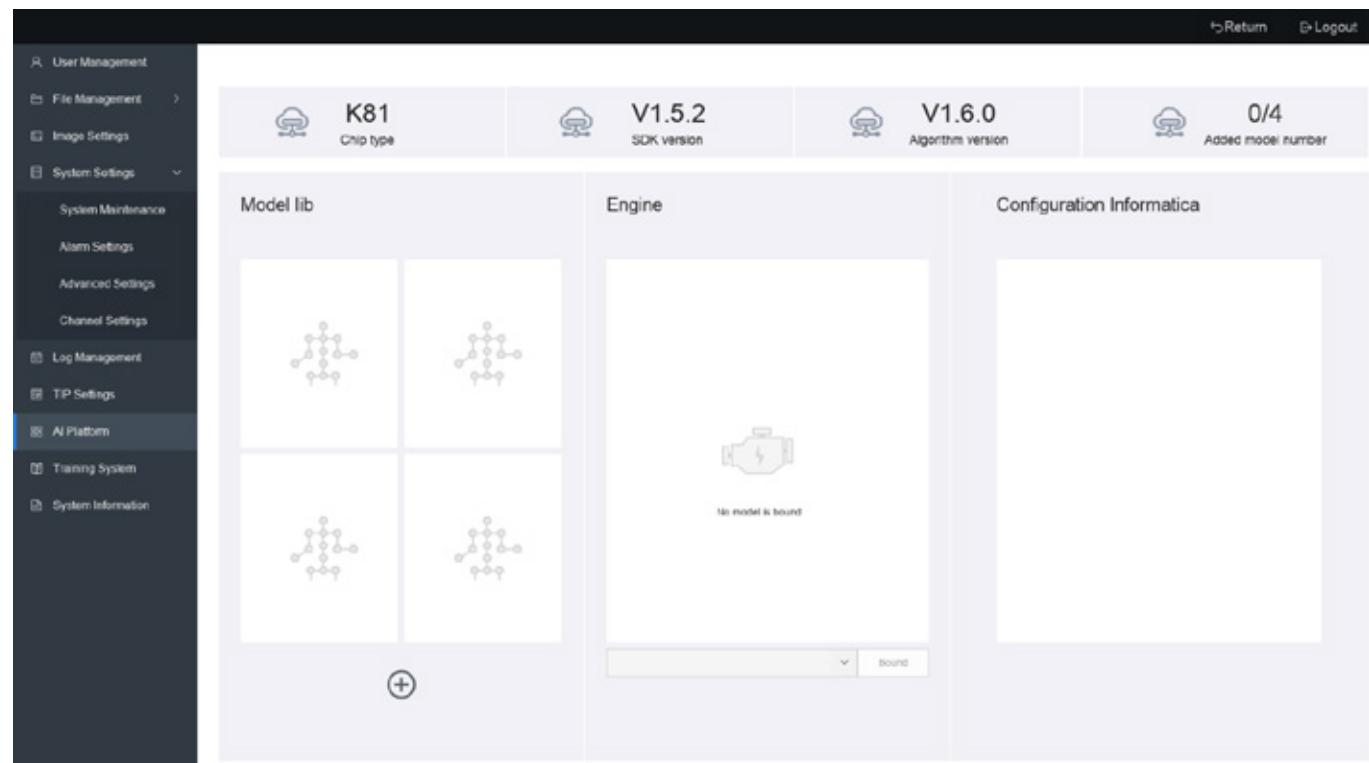


Figure 8-7 AI Open Platform

Step 2 Click “AI Platform” to enter the interface.

Step 3 Click “+” in Model Lib, select model file and Label file, create model name, and click “OK”.

Step 4 Select an added model in Engine, and click “Bound”.

Step 5 After finishing the operation, you can view the information in the configuration information field.

Step 6 Start the task in configuration information.

Step 7 Save Settings.



AI Platform is not supported by 5030SA.

## 8.7 Training System

You can learn how to use keyboard in the training system.



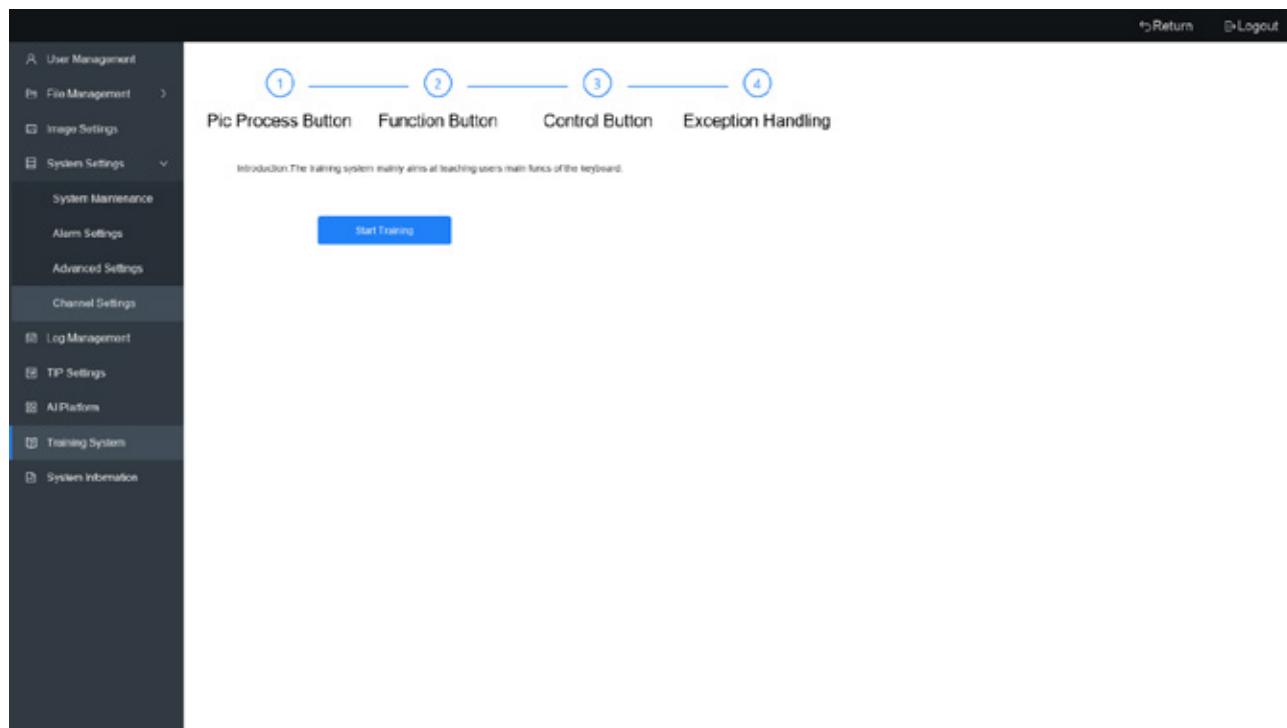


Figure 8-8 Training System



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# Chapter 9 Maintenance of Security Inspection System

Daily maintenance is required during operation so as to improve device operation efficiency and service life.

## Clean External Part of Device

The surface of the device is sensitive to dust and stains. Use humid towel to clean the device cover and column regularly to ensure the device running normally.



### Caution

When cleaning the surface of the device, power supply and external power supply of the device should be cut off.

## Clean Photoelectric Sensor

When the device does not enable Force Scanning, but the device scans the beam immediately when the conveyor is enabled. This might means the photoelectric sensor is blocked or sheltered. You should turn off the device and remove the keyboard key and check if the photoelectric sensor on the inner wall of the channel of the lead door curtain is blocked. Wipe the photoelectric sensor with a humid cotton ball to restore the cleanliness.

## Clean the Display

The display surface is easily covered with dust and fingerprints, which will affect the clarity of the image. When powering off the display, clean the surface and adjust the brightness.

## Check Conveyor

The conveyor belt may deviate from the center position in long-term operation. Please contact professional maintenance personnel to make adjustment.

## Check the lead curtains of the entrance and exit of the channel

If the lead curtain is peeled off, damaged, or large gap appears, please contact professional maintenance personnel.



### Caution

When adjusting the lead curtain, the operator should wear gloves.



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## Check X-ray and Power Indicator



Administrator and maintainer of device can check the status of X-ray indicator according to the operation in the diagnostic maintenance program.

## Check scram button

If the scram button on the device shield and operation keyboard is loose and the enclosure is damaged, the device should be shut down immediately, and professional maintenance personnel should be contacted to maintain or change scram button.



After the device is repaired, when the scram button is pressed, the system motor stops running, the X-ray generator stops releasing the line, and the display shows the prompt message that the scram button is pressed, indicating the scram button will resume normal operation.



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## A. FAQ

### **A. 1: Can USB interface on keyboard be used to charge mobile phone and other devices?**

USB interface on keyboard does not support charging. To make sure the device running properly, the interface shall not be used for charging.

### **A. 2: Can DB15 cable on keyboard be plugged with electricity?**

The DB15 cable on the keyboard does not support power-on or unplugged. It can only be inserted or unplugged when not on.

### **A. 3: What to do next if the security inspection system cannot be powered on?**

Answer: Please conduct compliance check before startup in the following order:

1. Make sure the power supply plug is running normally.
2. Make sure the air switch is closed (contact is up).
3. Make sure the emergency stop switch is not pressed.
4. Make sure the TAMPER switch is closed.
5. Make sure the keypad cable connection is correct.
6. Make sure the key is turned to ON, and the indicator turns blue after pressing the start button.

If the problem remains unsolved, please contact maintenance personnel.

### **A. 4: What to do next if keyboard fingerprint cannot be recognized or no response?**

Make sure the cable connection is normal and reboot the device. Try fingerprint recognition again after rebooting. If the problem still remains unresolved, please contact maintenance personnel.

### **A. 5: What to do next when there is no response after the mouse is inserted?**

Make sure that the mouse is not damaged. Check if the USB cable drawn from the security inspection system is inserted into the IN port and the mouse is inserted to OUT port. If the problem remains unsolved, please contact maintenance personnel.

### **A. 6: Can the display be replaced?**



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The security inspection system should be used with a dedicated display. To make sure the device working properly, it is not recommended to changing display.

## A. 7: What to do next when the interface prompts that ray source is abnormal?

Click System Settings-System Maintenance-Ray Source Maintenance to test the ray source. If the ray source is abnormal, please contact maintenance personnel.

## A. 8: What to do next when the light of the ray source is solid and the ray source is enabled without passing package?

Please follow the steps below:

1. Press the scram button immediately.
2. Clear the channel to make sure there is no physical legacy.
3. Go to System Settings-System Maintenance-Other Test, and click “Detect” under Light Barrier Test Function.

If the test is normal, the package interface will be returned. If the test is abnormal, please contact maintenance personnel.

## A. 9: What to do next when black vertical stripe appears in the image?

If the image occasionally appears, please operate training and management. If it appears more than 3 times within 1 minute or no improvement occurs after training and management, please contact maintenance personnel.

## A. 10: What to do next if the security inspection system cannot be powered off normally?

Please check if keyboard key is in place (OFF). If power failure remains, please unplug air switch.

If it occurs multiple times, please contact maintenance personnel.

## A. 11: What to do next if the security inspection system cannot be moved, or cannot be locked after moving?



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Lift up the stemboard before moving the device and lower the stemboard when the device is moved to the right place.

### **A. 12: What to do next when the conveyor does not run properly?**

Check if the weight of the package on the conveyor exceeds the load rating when keyboard and security inspection system are running normally. If the load is exceeded, please make adjustment. If the problem remains unsolved, please contact maintenance personnel.

### **A. 13: What to do next when the noise of security inspection system becomes higher?**

A: Please contact maintenance personnel.

### **A. 14: What to do next when the belt deviates severely?**

A: Please contact maintenance personnel.

### **A. 15: What to do next when the conveyor belt stopped suddenly during the operation?**

Click System Settings-Alarm Settings-Intelligent Recognition Alarm/Passing Impervious Alarm to check if auto-pausing or energy saving function is enabled.

### **A. 16: What to do next when smudge appears in live view pass interface?**

Check if there are too many debris in the channel. Right-click “Manual Correction” in the live view pass page after clearing the debris.

If the problem remains, please contact maintenance personnel.

### **A. 17: What to do next when security inspection system cannot be operated?**

Check fault prompt first to see if the scram button is pressed. If yes, restore the scram button, and then press the start button. The device will restore to normal after 8 secs. If the problem remains, please contact maintenance personnel.



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## A. 18: What to do next when the system prompts light barrier error triggering?

Check if internal light barrier is blocked when conveyor belt stopped.

The light barrier position of the security inspection system is shown as follows: If the problem remains, please contact maintenance personnel.

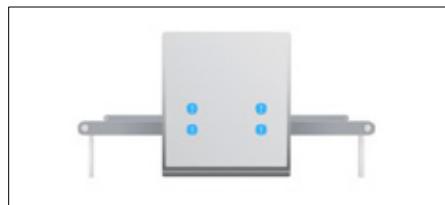


Figure 9-1 Light Barrier Position

## A. 19: How do I exit the Pull Back interface?

- If you enter the pull-back in the package-passing interface, press the stop button of the conveyor belt on the keyboard to exit.
- Right-click to exit if you enter the pull-back in the picture search interface.
- Press “Default” to exit the pull-back interface.

## A. 20: After pressing the scram button to reboot, the screen blank, stripe or other abnormalities appears, how to deal with?

Right-click and select “Manual Correction”. If the problem remains, please contact maintenance personnel.



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