

# User Manual

## Walk Through Metal Detector

ZK-D2110

Date: March 2024

Doc Version: 1.0

English

Thank you for choosing our product. Please read the instructions carefully before operation. Follow these instructions to ensure that the product is functioning properly. The images shown in this manual are for illustrative purposes only.



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If there is any issue related to the product, please contact us.

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## About the Company

ZKTeco is one of the world's largest manufacturer of RFID and Biometric (Fingerprint, Facial, Finger-vein) readers. Product offerings include Access Control readers and panels, Near & Far-range Facial Recognition Cameras, Elevator/floor access controllers, Turnstiles, License Plate Recognition (LPR) gate controllers and Consumer products including battery-operated fingerprint and face-reader Door Locks. Our security solutions are multi-lingual and localized in over 18 different languages. At the ZKTeco state-of-the-art 700,000 square foot ISO9001-certified manufacturing facility, we control manufacturing, product design, component assembly, and logistics/shipping, all under one roof.

The founders of ZKTeco have been determined for independent research and development of biometric verification procedures and the productization of biometric verification SDK, which was initially widely applied in PC security and identity authentication fields. With the continuous enhancement of the development and plenty of market applications, the team has gradually constructed an identity authentication ecosystem and smart security ecosystem, which are based on biometric verification techniques. With years of experience in the industrialization of biometric verifications, ZKTeco was officially established in 2007 and now has been one of the globally leading enterprises in the biometric verification industry owning various patents and being selected as the National High-tech Enterprise for 6 consecutive years. Its products are protected by intellectual property rights.

## About the Manual

This manual introduces the operations of the ZK-D2110 Walk-through Metal Detector.

All figures displayed are for illustration purposes only. Figures in this manual may not be exactly consistent with the actual products.

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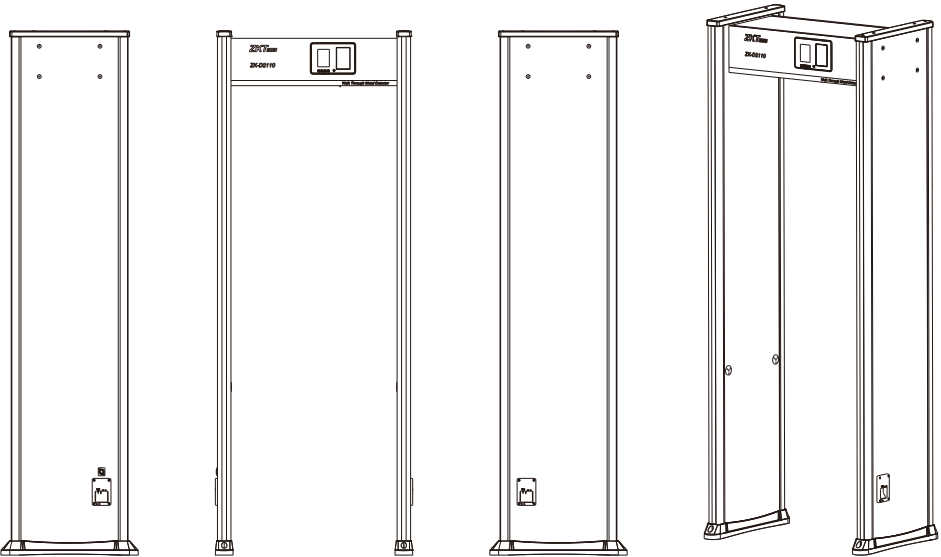
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# 1 Overview

## 1.1 Introduction

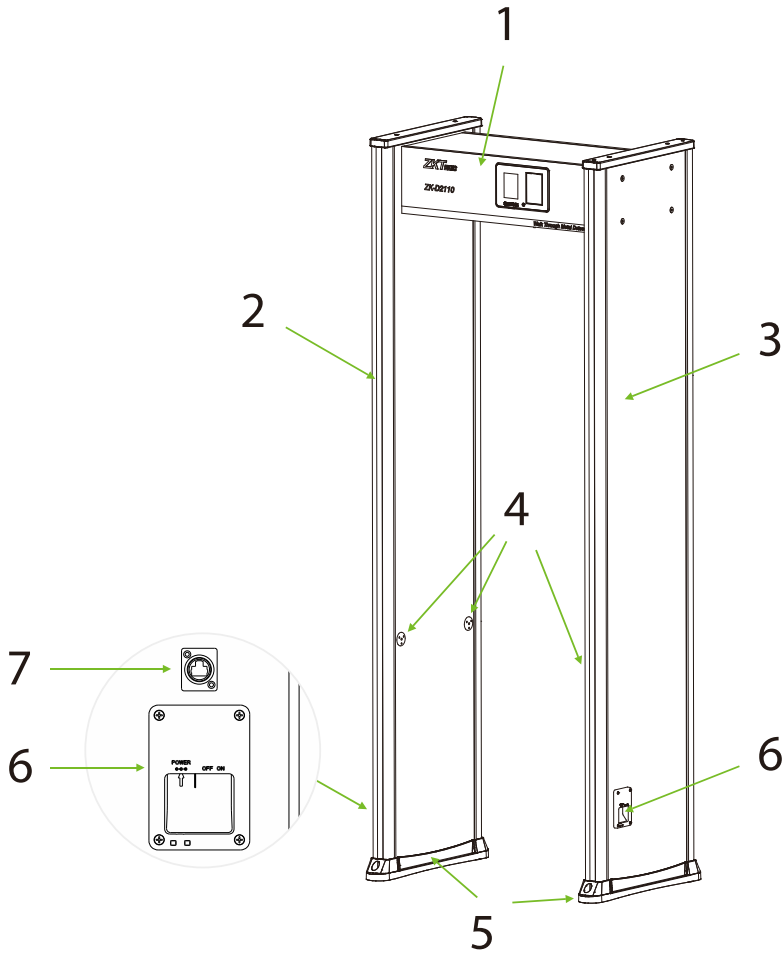
ZK-D2110 is a walk-through metal-detector that is used for security screening at access points in the factory, prison, and metro. ZK-D2110 is very high sensitivity to all metal contraband, include non-ferrous and ferrous metals. It used to detect the concealed metal weapons on a person's body. It offers high-speed detection capability. It can detect large metal objects like knives and guns, and It have high screening capacity compared to hand-held metal detectors.

## 1.2 Appearance





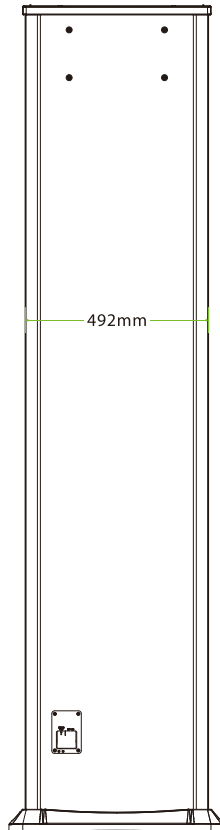
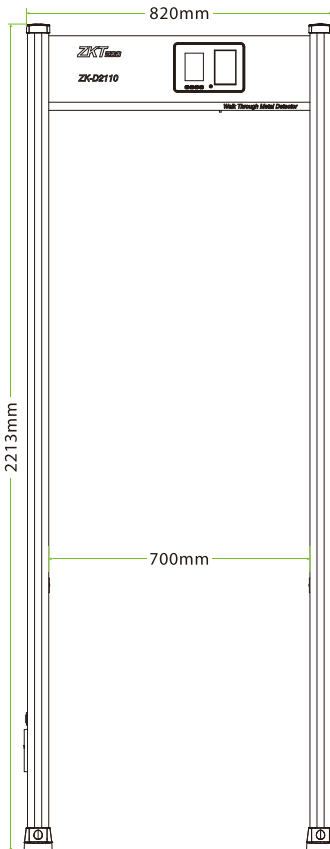
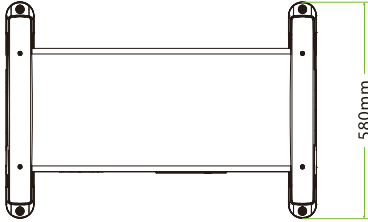
### 1.3 Components



1. Main Unit	2. LED Alarm Zones	3. Built-in Probe
4. Infrared Sensors	5. Waterproof Foot Cover	6. Power-line Interface
7. Network Interface		

## 2 Product Specifications

### 2.1 Dimensions



## 2.2 Technical Specifications

Feature	Specifications	
Power Supply	AC 100V to 240V	
Operating Temperature	-20°C to 55°C	
Operating Humidity	< 95% RH (non-condensing)	
Operating Frequency	5.7KHz to 9.6KHz	
Input Voltage	DC 12V	
Operating Current	1.5A	
Running Power	18W	
Gate Shape	Panel	
Dimensions	External	2213 * 820 * 580mm (L*W*H)
	Channel	1982 * 700 * 492mm (L*W*H)
Weight With Packing	Door Panel	46kg
	Main Unit	11kg
Support Software	Mobile App: ZK Metal Detector App (Android OS and MS Window OS only, need to install by individual apk and exe file) / ZKBio SIS	

## 3 Installation Setup

### 3.1 Safety Precautions

- Install the detector in a stable and smooth area. Make sure that the detector is installed firmly in the selected area.
- Before installation, make sure the left and right door panels are placed at the corresponding location. Avoid high temperatures and wet environments.
- Wait for 1 minute for the self-diagnosis of the detector when it starts. Do not touch the detector during a security check to avoid false alarm.
- Install the detector away from radio-frequency devices to avoid interference. Make sure that there is no large metal object or strong magnetic field around the detector for at least 2 meters.
- Do not hit the detector hardy, as it may cause false alarms.
- Do not disassemble the unit without the guidance of a professional technician.
- Each device has a warranty card, with which users can have their devices maintained or repaired free of charge within the warranty period.

### 3.2 Instructions to Pedestrians

- A line must be drawn at 50cm away from the detector. The pedestrians must pass through the detector one-by-one.
- Pedestrians should line up one-by-one to ensure the smooth operation of the detector.
- Pedestrians should walk at a normal speed. They must not intentionally form a crowd, rush, walk slowly, or crush the door panel.
- Before passing through the metal detector, the pedestrians must remove all the carried metal objects (such as keys, mobile phone, watch, coins, etc.),

and place it on the security chute or a table, and pick it up after the security check.

- If the detector alarms when someone passes through, that means there is/are some metal object(s) hidden in the body. The security guard can use a hand-held metal detector to accurately detect the hidden position according to the alarm zones.

## 3.3 Installation Site

The following section describes the requirements of the installation environment.

### 3.3.1 Stationary Metallic Items

The detector must be installed away at 50cm from the stationary metallic items such as aluminum alloy/stainless-steel windows, doors, etc. to prevent false alarms and affecting the sensitivity of the detector.

### 3.3.2 Portable Metallic Items

The portable metallic objects must be kept away at 2 meters from the detector to avoid false alarms.

### 3.3.3 Floor Vibration

The installation floor must be flat and fixed to avoid false alarm from the movement of the people walking through the detector.

### 3.3.4 Electromagnetic Radiation and Interference

Since the detector uses Bilateral receiver technology, the detector must be installed away at a distance of at least 1 meter from the sources of electromagnetic radiation or electromagnetic interference. The parameters that define the distance are determined by the installation environment and the parameters vary for different installation environments.

The sources of electromagnetic radiation and electromagnetic interference are given below:

Electrical Control Box, Radiofrequency equipment, Interphone, High Power Motor, Power Transformer, Ac Power Lines, Thyristor Control Circuit (High Power Switching Power Supply, Inverter Welder), Engine, Motor, etc.

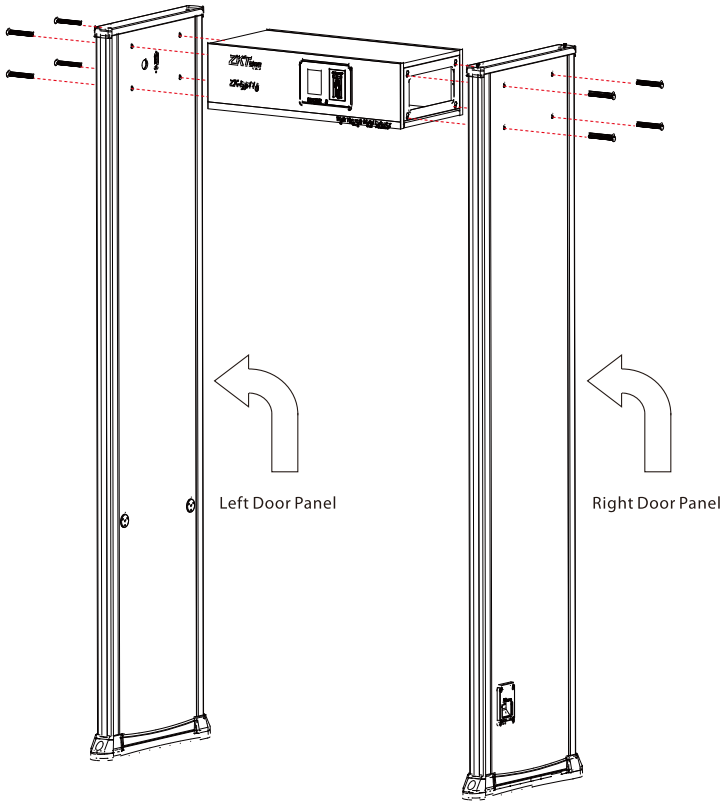
### 3.3.5 Parallel Installation

When two detectors are installed parallel to each other, the distance between two detectors must be greater than 50cm. When three detectors are installed parallel to each other, the distance between each detector must be greater than 80cm. They must operate at a different frequency to avoid interference. The distance varies according to the actual working environment, it is not recommended to mount three detectors in parallel, the frequency can be adjusted according to the environment.

## 3.4 Installation Steps

Make sure that the device is installed as per the following installation instructions. If you want to open the chassis, you should contact the agent for permission. Otherwise, you will bear any consequence resulting from your actions.

1. Open the Control unit and Door panel package.
2. Install the control unit and the door panels as shown in the above diagram. Connect the door panels to the control unit with bolts and tighten the screws.
3. Insert the probe-lines of the left and right door panels to the corresponding sockets on the mainboard. Note: The left door panel has a network cable in addition to the aviation cable.
4. Then lift the Walk-through metal detector vertically and place it in the required area.
5. Finally, plug in the power cable to start working.



## 4 Performance and Technical Features

**Accurate Positioning:** There are 11 overlapping detection zones with bilateral transmit and receive technology. The detection zones can accurately detect the objects with an intuitive display of the target location.

**Micro Processor Technology:** The Microprocessor Control Unit generates the electromagnetic waves for scanning and the scanning rate can be precisely controlled.

**Adjustable Sensitivity:** ZK-D2110 detection zones have 256 sensitivity levels (0 to 255). You can preset the metal size, by excluding the false alarm of coins, keys, jewelry, belt buckle, etc.

**Digital Pulse Technology:** Digital signal processing and filtering system in the detector has excellent anti-interference ability.

**Count Statistics:** The detector displays the number of pedestrians passed and Alarm count accurately.

**Harmless:** The detector is harmless to heart pacemakers, pregnant women, magnetic floppy disks, recording tapes, etc.

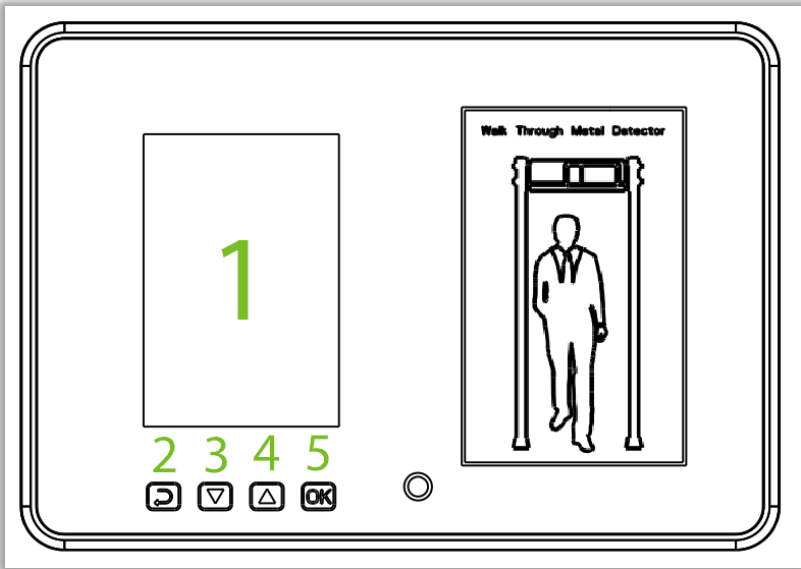
**Waterproof Foot Cover:** The waterproof foot cover not only can fix the device firmly but also protect the device against water.

**Safety:** The Control Unit case and the panels are waterproof. The cover is made of PVC synthetic material which makes the detector waterproof, fireproof, and shockproof.

**Easy to install:** The detector has an integrated design and it can be effortlessly installed or disassembled in 15 minutes.



## 5 Control Panel



The components of the Control Panel are given below:

1. **LCD:** Displays the Pass count, Alarm count, Password settings, and other information.
2. **ESC:** Press to discard the settings and exit the menu.
3. **▽:** Adjustment (decrement) key to decrease the parameter values.
4. **△:** Adjustment (increment) key to increase the parameter values.
5. **OK:** Opens the Menu interface, saves the settings, and exits the menu.

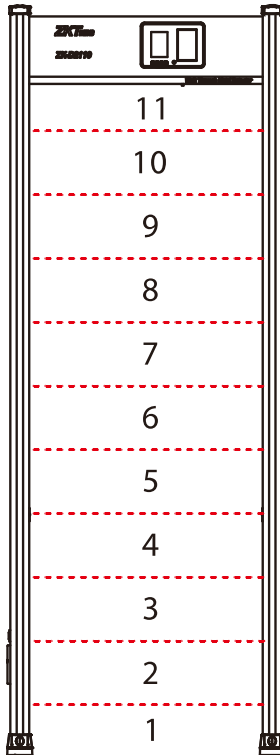
**Note:** There is a network interface on the left door panel of ZK-D2110.

## 6 Detection Zones

The ZK-D2110 detectors can detect a wide range of threat objects/weapons composed of magnetic, non-magnetic metals and alloys.

**Chassis panel:** The screen shows the number of people passing the detector and the number of alarms.

**Alarm zones:**



**11 zones:** The zones are classified as 1 to 11 from bottom to top.

There are 11 unique sets of precise positioning LED's evenly distributed on the door panels, which means 11 detection zones. If the metal composition reaches or exceeds the preset value, the red LED glows and an alarm will be triggered. If there are multiple alarm targets, the LED of each target location will glow with alarm.

## Infrared Sensor

After connecting the power supply, the metal detector starts to work. When there is no person or object passes through the detector, the infrared sensors can effectively stop alarming to avoid false alarms. It also helps to maintain an accurate count of pedestrians and alarms.

### 6.1 Adjustment of Detection Zone's Sensitivity

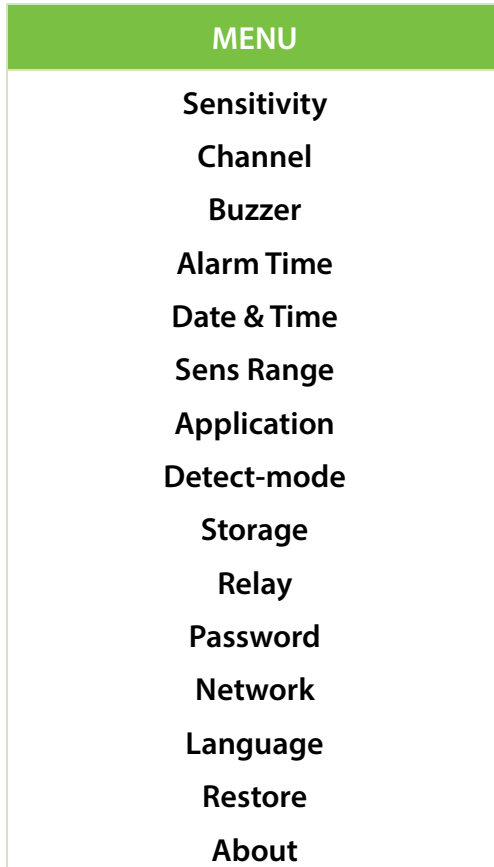
1. The device must be in a stable position to achieve the best detection effect (refer [Installation Site](#)). To check whether the device is in a stable state, perform the following steps:
  - a) Power on the detector and check whether it is not shaking after one minute.
  - b) The device should not alarm when the testing person did not carry any metal items while walking through the detector.
2. You can exclude the small portable metal objects such as rings, key, belt buckle, shoes, and so on, by following the steps given below:
  - a) Choose a small metal as a sample. Increase the sensitivity, so that when the testing person carries the sample and pass through the detector, and it would alarm.
  - b) Decrease the sensitivity a little, carry the sample, and pass through the detector again. If it still alarms, once again reduce the sensitivity, until the device does not alarm when the sample is passed through.

**Note:** If you want to decrease the sensitivity in a certain zone, you must only adjust the sensitivity of the relative zone. After implementing the above adjustments, the metal which smaller than the sample will not alarm, but the metal objects bigger than the sample can be detected accurately.

## 7 Operational Procedure

Connect the power supply to the detector. After 2 seconds of initialization, you can perform the following operations.

Press the **OK** button on the Control panel to open the main menu.



## 7.1 Sensitivity Adjustment

On the main menu, select **Sensitivity** and press **OK** to set the sensitivity level of each detection zone. Press “▽” and “△” to select the detection zone and then press **OK** to confirm. Then press “▽” and “△” to change the sensitivity values. The larger the sensitivity value, the higher the sensitivity. Then press **OK** to save the settings.

Sensitivity
Overall: 186
ZoneALL : 242
Zone 6 : 242
Zone 5 : 242
Zone 4 : 242
Zone 3 : 242
Zone 2 : 242
Zone 1 : 242

**Note:** There are only have 6 true zones, other 5 zones are virtual zones, which can't be set in the zone setting.

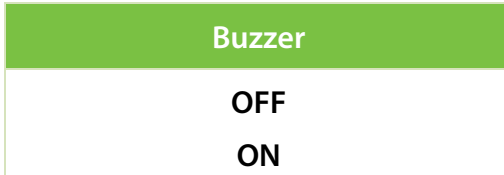
## 7.2 Operating Frequency

In the main menu, select **Channel** and then press **OK**. The channel range is from 1 to 40. The default value is 14. Press “△” and “▽” to select the **Channel** and then press **OK** to save the settings.

Channel
01——40

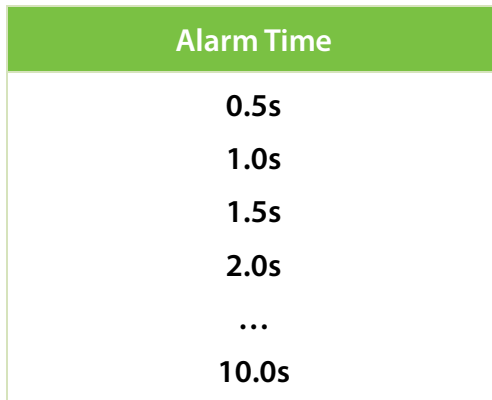
## 7.3 Buzzer Settings

In the main menu, select **Buzzer** and then press **OK** to confirm. Press “ $\Delta$ ” and “ $\nabla$ ” to select whether to turn on or off the buzzer and press **OK** to save the settings.



## 7.4 Alarm Time

In the main menu, select **Alarm Time** and then press **OK** to confirm. The default alarm time is 1 second. Press “ $\nabla$ ” and “ $\Delta$ ” to select the alarm time as per your requirements and press **OK** to save the settings.



## 7.5 Date and Time

In the main menu, select **Date & Time** and then press **OK** to open the time and date setting interface. Press “ $\Delta$ ” and “ $\nabla$ ” to adjust the time. Press **OK** after setting the time. Then press **ESC** and then switch to date. Set the date and then press **OK** to save the changes.

Date & Time
2024-01-23
12:00

## 7.6 Sensitivity Range

In the main menu, select **Sens Range** and then press **OK** to set the intensity of the sensitivity levels. Press “ $\Delta$ ” and “ $\nabla$ ” to select the sensitivity settings for all the zones. Press **OK** to save the settings.

Sens Range
High
Medium
Low

## 7.7 Application Area

In the main menu, select **Application** and then press **OK** to confirm. Press “ $\Delta$ ” and “ $\nabla$ ” to adjust the real-time application area. Press **OK** after setting the application area.

Application
Airport
Customs
Port
Prison
Detention
Conference
Train Station
Motor Station

**Police Office**  
**School**

## 7.8 Detect-mode

In the main menu, select **Detect-mode** and then press **OK** to confirm. Press “ $\Delta$ ” and “ $\nabla$ ” to select the mode. Press **OK** to save the settings. Note: When set to non-ferrous metal mode, the device will have high sensitivity to non-ferrous metals, When set to ferrous metal mode, the device will have high sensitivity to ferrous metals.

**Detect-mode**

**non-ferrous metal**  
**ferrous metal**

## 7.9 Data Storage

In the main menu, select **Storage** to open the data storage interface. Use the “ $\Delta$ ” and “ $\nabla$ ” to select whether to save the data or not. You can also delete the pedestrian count and Alarm count. Press the **OK** to save the settings.

**Storage**

**Save**

**Don't Save**

**Clear Pass (Clear Pedestrian Count)**

**Clear Alarm (Clear Alarm Count)**

## 7.10 Relay Settings

In the main menu, select **Relay** to open the extended output interface. Use the “ $\nabla$ ” and “ $\nabla$ ” to select the required function. When “Close” is selected, the relay function will be disabled. When “No Metal” is selected, the detector will send a signal to the

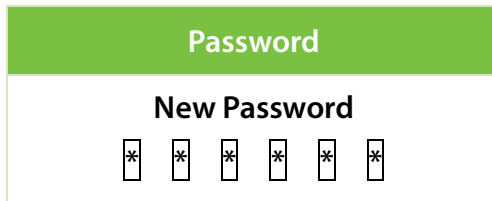


relay when the person does not carry any metal during detection. When “With Metal” is selected, the detector will send a signal to the relay when the person carries any metal during detection. Then press **OK** to save the changes.



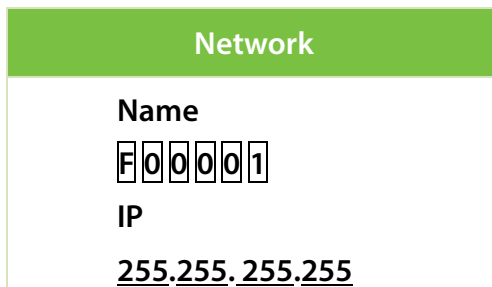
### 7.11 Modify Password

In the main menu, select **Password** to modify the Password. Press “ $\Delta$ ” and “ $\nabla$ ” to set the password, and press **ESC** to clear the entered value. Press **OK** to save the settings.



### 7.12 Network Settings

In the main menu, select **Network** to open the network setting interface. Use the “ $\nabla$ ” and “ $\Delta$ ” buttons to select the Device Name, Network Address, and Gateway Address. Press **OK** enter the next digit or **ESC** set back the previous digit. After the last digit is modified, press **OK** to save the settings.



**GWIP**

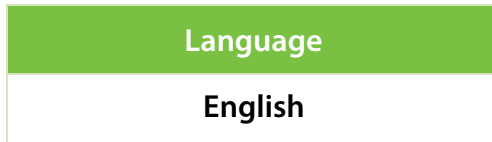
**192.168. 1. 1**

**Note:**

The Factory Default IP is shown in the figure. If the DHCP function is turned on in that default IP, the server will automatically assign IP to the Walk-Through Metal Detector. The connection will be completed without setting the Walk-Through Metal Detector IP. If the server does not have the DHCP function, you need to set the Walk-Through Metal Detector IP and the server IP in the same gateway for the connection.

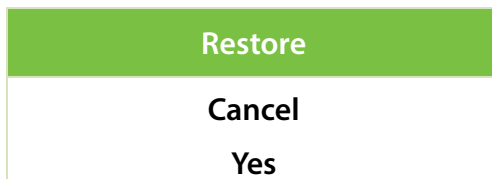
## 7.13 Language

In the main menu, select **Language** and then press **OK** to confirm. The default language is English. Press "▽" and "△" to select the language your requirements and press **OK** to save the settings.



## 7.14 Restore

In the main menu, select **Restore** to restore the factory settings. Select "**Yes**" and press **OK** to restore the original factory settings. Select "**Cancel**" or press **ESC** to cancel the operation.



## 7.15 About

Show firmware version number and Walk-Through Metal Detector IP.

About
<b>Ver: rus-11-N-1.5.4-Pro</b>
<b>Name: F00001</b>
<b>IP: 192.168.161.168</b>
<b>GWIP: 192.168.161.1</b>
<b>MASK: 255.255.255.0</b>

## 7.16 Default Parameters

Parameter	Default Value
<b>Sensitivity</b>	221
<b>Channel</b>	14
<b>Buzzer</b>	ON
<b>Alarm Time</b>	1.0 s
<b>Application Area</b>	Train Station
<b>Data Saving</b>	Save
<b>System Password</b>	100000
<b>Relay Settings</b>	Close
<b>Network Settings</b>	Name: F00001 IP: 255.255.255.255 GWIP: 192.168.1.1

# Troubleshooting

## **What to do if the Sensor could not count?**

- a) Check whether the probe cables are connected firmly with the door panels.
- b) Check whether there is any infrared interference beside the device, such as infrared surveillance system, infrared remote control, outdoor sunlight, etc.
- c) If both a and b are OK, replace the infrared sensor.

## **What to do if the detector gives a false alarm?**

- a) If the device gives false alarms frequently after installation, perform the following steps:
  - Firstly, check the installation environment. Make sure there are no movable or stationary large metal objects around 1.5 meters from the detector. If there is any metal object, try to place the device away from the large metal objects.
  - Make sure that the installation location is stable and free from physical movements.
- b) If the false alarm is not caused by the environment, reduce the sensitivity level of all zones.
- c) Change the frequency.
- d) Change the installation location.

# Packing List

The package consists of the following items:

No	Component	Quantity
1	Power Adapter	1 set
2	Power Cable	1 set
3	Hexagon Socket Set Screw	8 pcs
4	Inner Hexagon	1 pc
5	User Manual	1
6	Main Unit	1 pc
7	Door Panel	2 sets
8	Infrared Remote Control	1 pc

# Warranty Card

1. Please keep this card safe and produce the same during maintenance.
2. This card will be invalid without the signature or stamp of the designated dealer.
3. This card will be regarded as invalid if the details are not filled in three guarantees column and the acknowledgment of the receipt. Please confirm whether the data filled in the three guarantees column and acknowledgment of receipt is correct or not when purchasing it, and then hand it over to the dealer.
4. This card will not be issued again if it is lost.

Model Number	
ID	
Date of Acquisition	
User	
Post Code	
Address	
User's Phone Number	
Fax	

Date of Maintenance	Record of Maintenance	Technician

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