
Walk Through Metal Detector

USER MANUAL

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1. Chapter i : Summary

Thank you for choosing WTMD(WALK THROUGH METAL DETECTOR). The following are installation and daily operating instructions for our WTMD. In addition to these instructions, this should be in accordance with local laws and regulations and government requirements.

Before installing or using this WTMD, please read and learn this manual

This manual includes information required by the user about the structure, installation and operation. Follow the proper operation and maintenance procedures to keep the WTMD in reliable status.

It is a multi-zone Walk Through Metal Detector (WTMD).

Total WTMD include two parts by the electronic control unit and two detectors. The electronic control unit includes a variable magnetic field generator, receivers, signal processors and process controllers; the door frame contains two transmitting and receiving antennas, which are pre-installed on the inner side of the two door panels. Among the above parts are connected via cables (electronic control unit out lead two pcs of cables, these cables connect control unit to the two detectors).

WTMD out frame is consisting of two door panels and a main box. One side of the door panels has power connector at the bottom, while the other side has not. Main box is fixed with two door panels to shape the door arch. Electronic control unit are fixed inside the main box. Inside the two door plates, LED light bars are installed from top to bottom.

1.1 Definition

The following are definition for some special name mentioned in this manual.

- Sensitivity – is used to define parameters for alarm metal object size. Raise the sensitivity; smaller metal objects can be detected.
- Discriminating – the ability for WTMD to distinguish metals (especial metal weapon) and other articles. WTMD alarm rate can indicate the ability to WTMD discriminating. It is affected by many factors, such as sensitivity levels, passengers' body shape, season (temperature) and so on.
- Useless alarm – alarm caused by carrying harmless metal objects
- False alarm - alarm caused by the reasons other than by a metal object (such as electronic interference). For WTMD, the alarm caused by the metal objects (useful or useless) is not false alarms.
- Alarm rates - alarm times (caused by metal objects) / Passengers *100%. Alarm rate is affected by WTMD discriminating ability. If discriminating ability is poor, for example: there are many alarms caused by harmless metal objects, the alarm rate will be higher. Alarm rates don't include alarms caused by electronic interference and other reasons.

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- **Pass rate - at a given time, maximum number of passengers allowed. Pass rate shows the WTMD recover ability after the former detect. In practice, due to the check process and the maximum walk speed and other factors, while the maximum rate is only for theoretical.**
 - **Speed response –the ability for WTMD to maintain the same level of sensitivity, while inspecting passenger walk at different speed.**
 - **Calibration - in order to achieve optimum performance; set the parameter values for WTMD at the installation site.**
 - **Side by side use - if two or more WTMD work side by side, their electromagnetic field will affect each other. Choose different frequency to reduce the interference.**
 - **Operating Frequency - frequency generated by WTMD electromagnetic field. During the calibration at site, choose different frequencies at the lowest interference level. WTMDs can be installed side by side**

1.2 Installation, operation and attentions

Please read the follow introduction before installation

Supplier is not response for damages caused by disobedience of follow instruction.

- **Read this manual carefully before installation and operation. Take away of this manual for future reference.**
- **Manual has a detailed description of the installation, debugging method. Supplier is not responsible for the damage caused by human.**
- **Sensitivity and detection method are selected by the end user. The user should do commissioning work under supervision by professional and technical personnel for debugging.**
- **Whenever the WTMD has problem, the user must keep the WTMD in safe place to avoid accident, and requests for assistance.**

The following problems are considered:

- **A visual signal display of WTMD is not normal.**
- **The WTMD does not work well.**
- **WTMD was stored in unsatisfactory condition for a long time.**
- **WTMD suffered high pressure during shipment.**
- **Liquid has been spilled inside the WTMD**
- **Carefully select the installation site. Do not install the WTMD in a location near a heat source. Also, avoid do not install in a location, where could have vibration, dust, moisture, high or low temperature place.**
- **Installation must be performed by specially trained the person. Keep enough space to do the installation job, to avoid hurting anybody. Keep the site in tidiness.**
- **Install the WTMD away from the location, where could emit electromagnetic interference, such as a location with transformer or motor.**
- **For best performance, the WTMD should be fixed on the ground. All connection between WTMD and power supply or other external line must be properly secured and protected in order to avoid unexpected accidents and injuries to passengers.**
- **Before power equipment, make sure the power supply voltage is accordance to the voltage indicated on the WTMD. Different voltage may cause damage. Only after the completion of all required connections, user can connect WTMD to electricity power.**
- **Power line connect to the WTMD, must have switch or any other component which**

can cut the power in case of accident.

- If the WTMD is powered through an external autotransformer to normal voltage, ensure that the autotransformer common terminal is connected to the power supply circuit hub. Socket must be grounded. Disconnect the ground without permission is strictly prohibited. If the WTMDs are not grounded, in exceptional circumstances may cause damage.
- Disconnect the power supply with a closing pull of the plug, not the wire.
- Standard configuration of the power adapter for non- waterproof type: Keep it in ventilated and dry place. Once get wet, there is the danger of electric shock and damage to WTMD.
- Electronics parts of WTMD may cause a fire. Do not install at flammable explosive location. In case of fire, don't use water or foam extinguisher to the power on WTMD.
- In case; thunderstorms, disconnect the power.
- Do not use WTMD in an explosive place. Avoid contact with flammable substances and explosive.
- Maintenance the WTMD in periodic (Refer to "Maintenance" chapter). Do not use water, detergents or chemicals for cleaning. Use a damp, smooth cloth.
- Disconnect the WTMD power before maintenance, cleaning or moving.
- Please read the "Maintenance" chapter. No matter what kind of problems encountered, only the factory qualified engineer is permitted to do maintenance.
- Any necessary replacement parts must be factory original.
- Avoid maintained WTMD while power on. If have to, the engineer must be professional and fully understand the risks.
- Recommendations about the battery inside the WTMD:
 - When replacing batteries, use the factory supplied battery.
 - Do not throw used batteries in normal trash. Throw to the use battery collection facility, according to local regulations; or return to supplier.
 - When handling the problem of WTMD, remove the battery from WTMD in advance. Supplier is not responsible for damage caused by incorrect using of batteries.

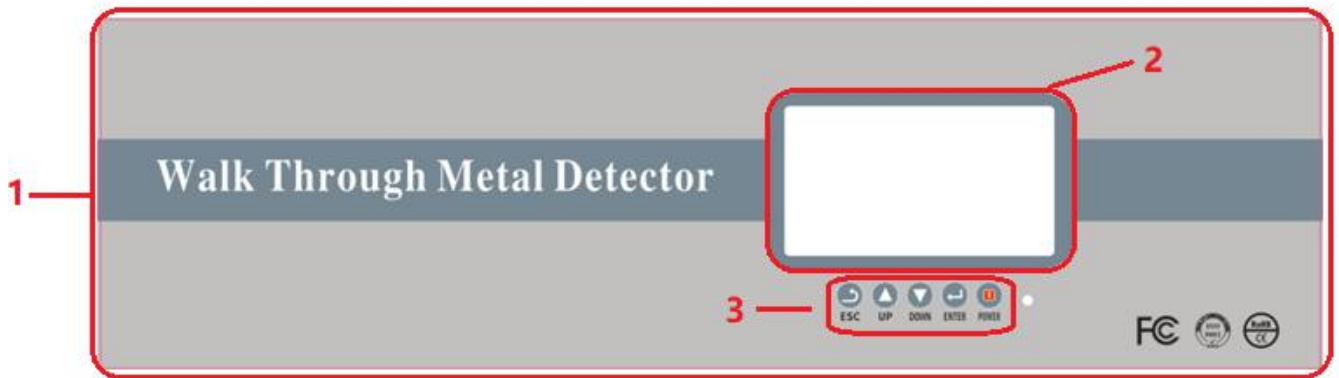
MARKS

Only professional engineer are allowed to maintain components with follow marks.



- ✚ Before opening the package, please read carefully the following introduction. If not follow the installation procedure specification, supplier will not responsible for any problems that may occur.

1.3 The electronic control unit



1. Sticker
2. LCD menu
3. Keypad

1.4 Door panels

Use special synthetic material.

With a specially designed transmit and receive coil to ensure uniform magnetic field distribution and high sensitivity of detection

1.5 Power Adapter

Input power: AC100 to 240V

Output power: 15VDC, 3A

Adapter size (L*W*H): 114*50*30mm

Weight: 0.5 kg



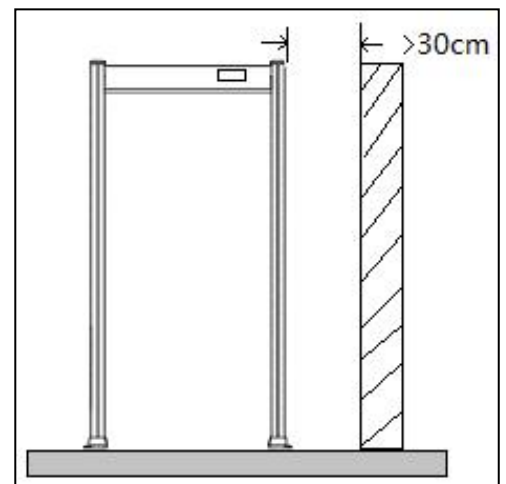
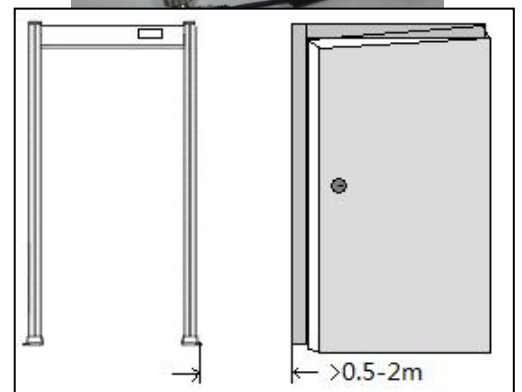
2. Chapter ii : Installation

2.1 Installation attentions

2.1.1 Choose the installing location

Exclude or deduce the negative effects, when install WTMD. This is to ensure that WMTD perform the best and fast.

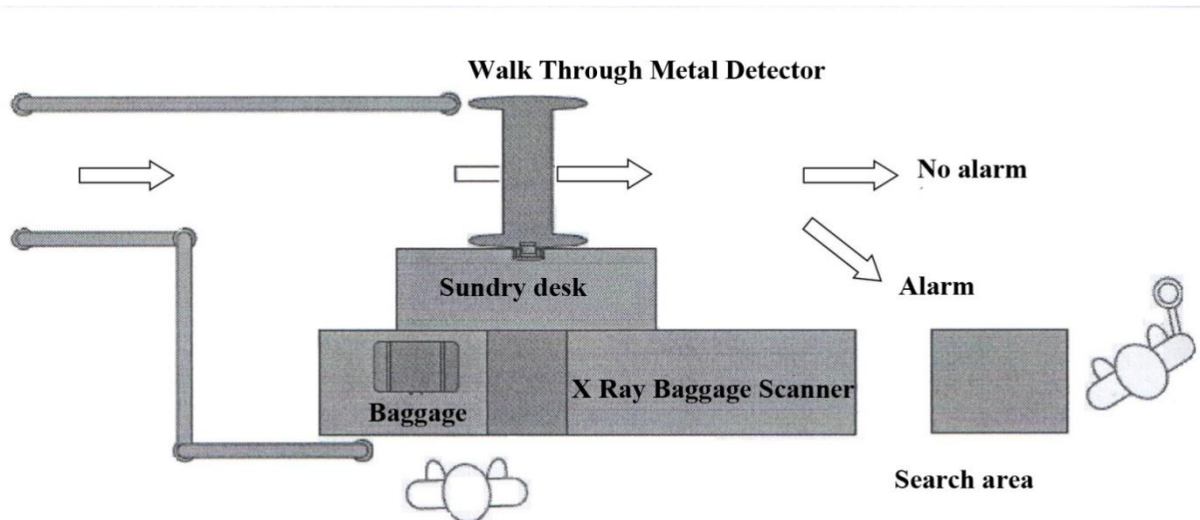
- Still large metal objects should be at least 30 cm away from WTMD. The farer the better. When only 30cm away, there is few affect to the sensitivity, but WTMD could be easier affected by vibration.
- The installation ground should be flat, with strong support, to prevent vibration. Especially when there is unstable metal articles under the WTMD, the vibration will course unnecessary alarm, when passenger pass the WTMD.
- The moving large metal objects should be 0.5m to 2 m away from the WTMD, to avoid an



unnecessary alarm. The distance is decided according to the size of the metal objects.

- Electronic interference sources should be far away from the WTMD. The minimum distance is 0.5m to 4 m. However, the actual distance is decided by the environment. You can move the interference sources or WTMD, until you find the best position. Interference source can be the electronic control panel, radio, computer, image display, high power motor, transformer, electricity wire, silicon tube control circuit, the flashing fluorescent tube, welding equipment and so on.
- Connect the power cord to circuit, which is not connecting to high power consumption device (for example high power motor).

2.1.2 Design the checkpoint

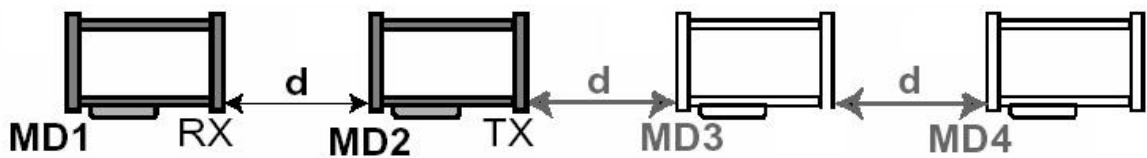


In order to have the best traffic, please design the checkpoint before installation. Besides considering mechanical and electronic interference (please refer to: 2.1.1), effective safety inspection is also be appropriate. The efficiency of the checkpoint is greatly affected by the following factors:

- Keep the passengers in queue. Make sure people pass one by one.
- Check the alarm passenger in other place, where will not affect the work of WTMD.
- Check the bag by X Ray or manually. Don't let the passenger with bag pass WTMD.
- If no need to check the bag, please store the back in locker before accept inspection.

2.2 Tips for install more than one pieces WTMD side by side.

- When more than two WTMD are installed side by side (distance no more than 10m), program different Channel for each device.
- When more than two WTMD are installed side by side, distance between each WTMD should be at least 0.5 meter (Actual distance is depends on the sensitivity level. Farer is sensitivity high)
MD is short for Walk Through Metal Detector.



NL = 0 !
d ≥ 50cm

2.3 Assemble

- When opened the package, put out the parts gently. Take away all the tools (screw, wrench, etc.) There are marks stick on frame(R- right door frame; L-left door frame)
- Choose reasonable installation location
- Make sure components are fixed well. When stand the WTMD, check whether the two doors panels are vertical to the ground and the distance between the upper and bottom for each door panel is equal.
- Make sure the WTMD is working in stable condition. There should be no big metal object moving or vibrating nearby.
- Prohibit to dill any hole or thwack screws in the door panel.
- Power: Before power on the WTMD, be sure to check the local power supply voltage matches the WTMD input voltage.

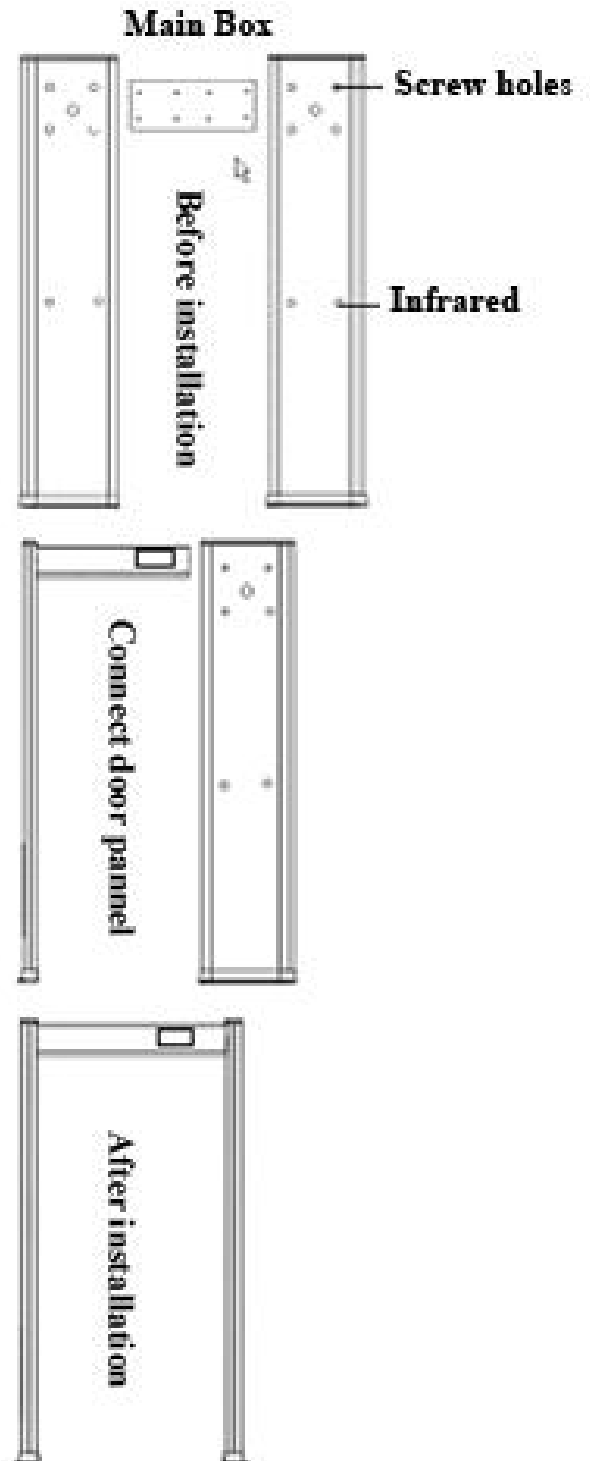
Warning:

Connect to incorrect power supply, may cause the damage to the WTMD.

Avoid moving metal articles within distance of 70cm.

Avoid power cable within distance of 50cm.

Installation:





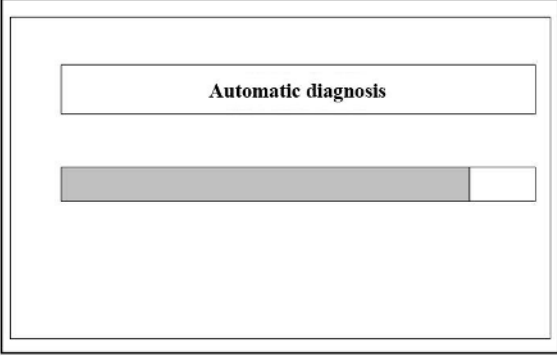
1. Connect the door panels to main box by screws, use special wrench to tighten.
2. Connect the two cables from electronic control unit to each door. The two cables looks same, please connect left cable to left door panel, right cable to right door panel.

3 Chapter iii: Boot and screen display and procedures setting.

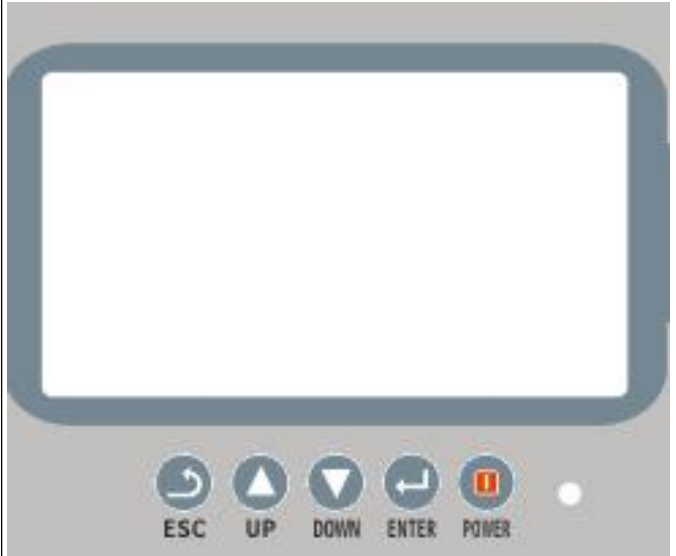

3.1 Power on the WTMD and boot

The power interface part see the attached pictures below. After turning on the power supply, security will send out the alarm sound of a few seconds, and the following content is displayed on LCD screen

Operation	Introduction
	<p>Power plug</p>
	<p>1. Brand LOGO</p>

	<p>Start automatic diagnosis</p> <ol style="list-style-type: none"> 1. Diagnosis the WTMD 2. Scan the current environment 3. Automatically Calibration to adapt environment.
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3.2 Screen Menu and program setting

Operation interface	Introduction
	<p>There are five buttons on the operation panel.</p> <p>ESC: return to the upper menu or exit the program Settings</p> <p>▲▼ : feature shift and increase parameter</p> <p>◀▶ : feature shift and reduce parameter</p> <p>ENTER: save data or enter to next interface</p> <p>POWER: turn on/off</p>
	<p>Normal working status information:</p> <ol style="list-style-type: none"> 1. Serial number: SN: 000000 2. NET CNT: No. of all pass passenger 3. ALARM CNT: Number of alarm 4. EXIT CNT: number of exit person 5. ENTER CNT: No. of entrance person

- 6. Calendar and time
- 7. Number of detect zones
- 8. Current working Channel
- 9. Press "ESC" key for long, to clear the current information.

Input Password



1) User level: include 5 different accounts

Input password before programming

(All account Original password : 100000)

- 1. Operator Beginner
- 2. Operator intermediate
- 3. Operator Advanced
- 4. Manager
- 5. Engineer

2) Can change password in the menu "Password"



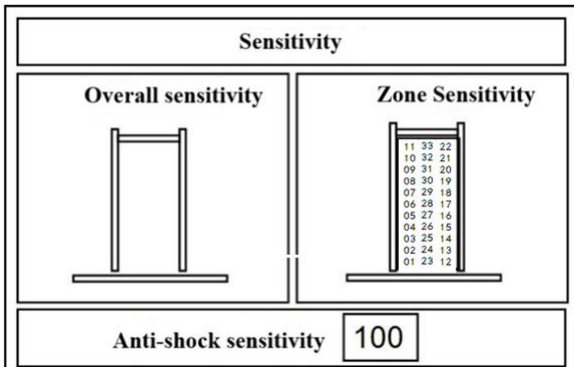
Operation interface

Introduction

Program setting	
Sensitivity Level	Display
Alarm	Diagnosis
Zone	Register
Time	Location
Language	Records
System	Password

To program the WTMD :

1. Press ENTER to select
2. Press ▲ or ▼ to shift
3. Press ENTER to enter to next menu

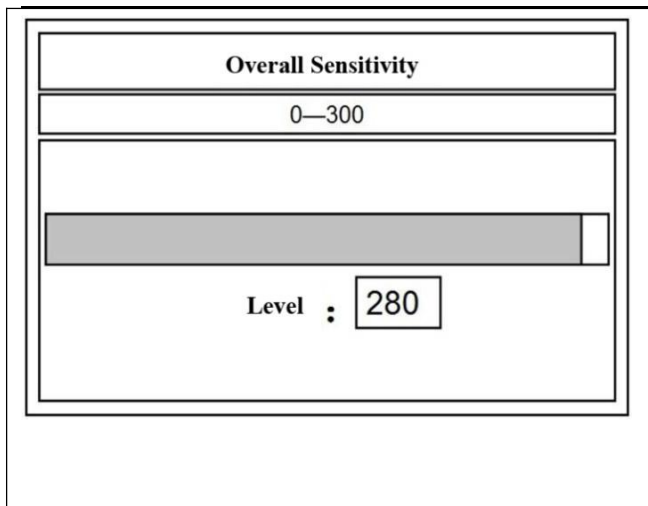


Sensitivity setting:

1. Overall sensitivity: when overall sensitivity level change, all zones sensitivity change.
2. Zone sensitivity: adjust different sensitivity for each zone separately.

Overall sensitivity:

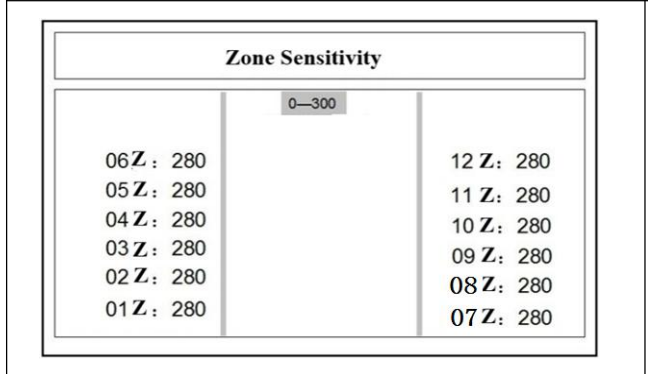
1. Change overall sensitivity level to change sensitivity of all the detect zones.
2. Overall sensitivity level range from 1 to



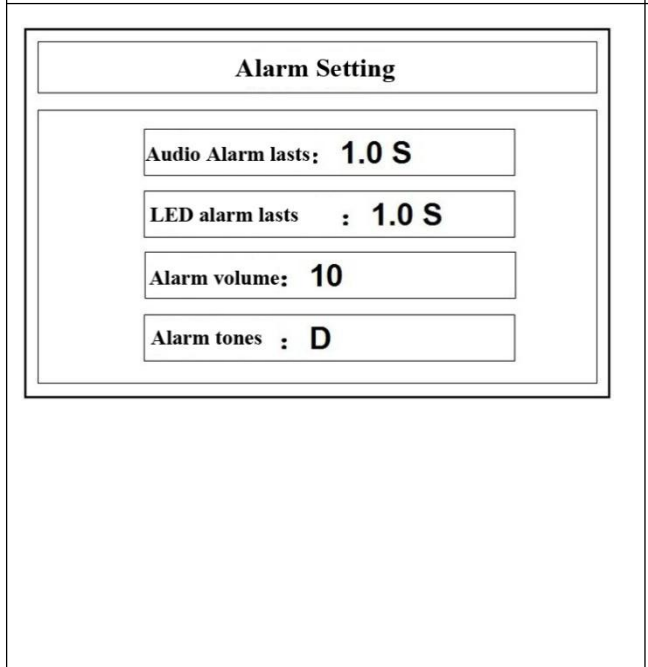
- 300, the bigger number, the higher sensitivity.
3. Progress bar show the parameters
 4. Press ENTER to save the sensitivity level

Operation interface

Introduction



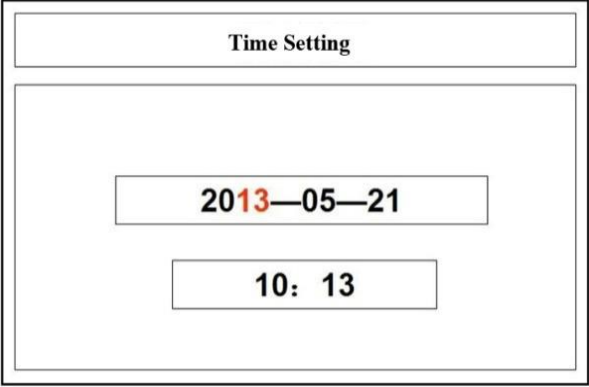
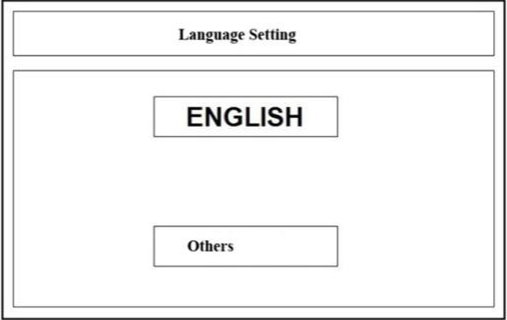
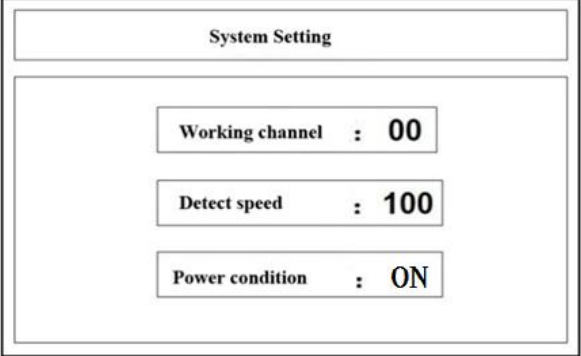
- Zone Sensitivity:
1. Adjust each zone separately
 2. Sensitivity level range from 1 to 300, the bigger number, the higher sensitivity.



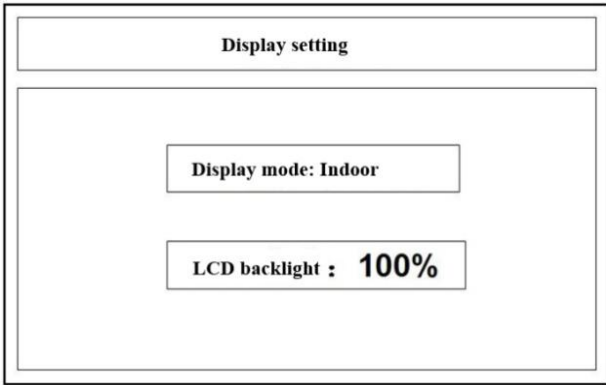
- Alarm Setting:
1. Audio Alarm lasts: the audio alarm time range from 1s to 9s.
 2. LED alarm lasts: LED light alarm last from 1s to 9s.
 3. Alarm volume range from level 1 to 20.
 4. Alarm tones: Change from 1 to F (16 different tones for choosing)

Operation interface

Introduction

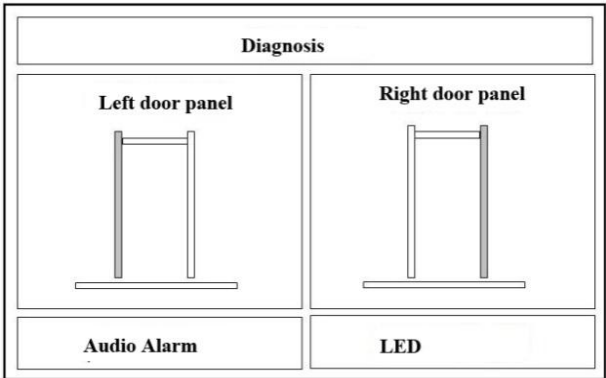
	<p>Date and Time setting</p> <ol style="list-style-type: none"> 1. Sett the WTMD at accurate date and time. Wrong setting will affect the working. 2. Press ENTER to select 3. Press ▲ or▼ to shift 4. Press ENTER to save
	<p>System Language</p> <p>English ready</p> <p>Other language need further upgrade</p>
	<p>System setting:</p> <ol style="list-style-type: none"> 1. Working Channel: total 100 different channels to choose, to avoid interference for WTMD side by side. 2. Detect speed: change from 1 to 100 person per minute 3. Power condition: ON/OFF ON: Once power on, WTMD automatic start to boot OFF: When power on, WTMD standby ,need press POWER button to start

Operation interface	Introduction
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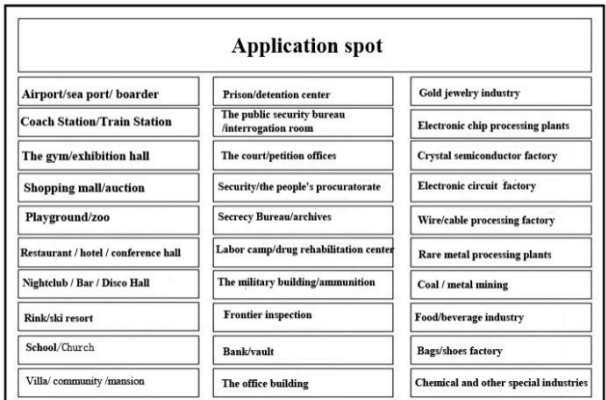
Display setting:

1. Display mode: Indoor/outdoor
2. LCD light: 1% to 100% adjustable
3. Press ENTER to select
4. Press ▲ or ▼ to shift
5. Press ENTER to save



Problem Diagnosis

1. Left/right door panel: select to diagnosis the door panel. Once problem, system will show you error code.
2. Audio Alarm: select to diagnosis, audio alarm will on for test purpose.
3. LED: select to diagnosis, LED alarm light will on for test purpose.



Application spot

There are 30 different choices. The user can choose the accurate spot and then adjust sensitivity to get the best match setting.

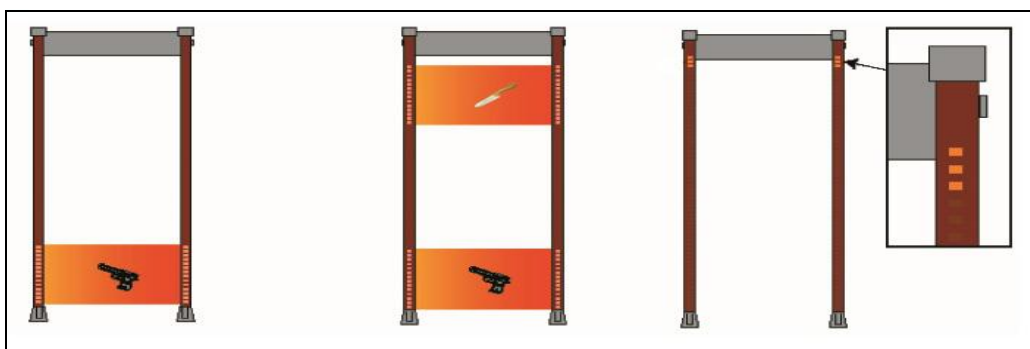
Operation interface

Introduction

<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Records</p> <p>Working hours: 00003H</p> <p>Passenger NO.: 0000006</p> <p>Alarm records</p> <p>From: 2013 - 11-04 8:30</p> <p>To: 2013 - 11-05 8:30</p> </div>	<p>Records</p> <ol style="list-style-type: none"> Show alarm records, system working hours, passenger amount. Input start and end time to find record Press ENTER to select Press ▲ or ▼ to shift Press ENTER to save
<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">PASSWORD</p> <p>Old Password : * * * * *</p> <p>New Password : * * * * *</p> </div>	<p>Password:</p> <ol style="list-style-type: none"> Amend password ; Press ENTER to select Press ▲ or ▼ to choose number. Press ENTER to save

3.3 Multi-zone display

WTMD can give LED light alarm to locate the metal threats, at the corresponding height. When alarm, one or more sets of LED lights will be on, indicating the position of metal objects. In the case of no alarm, two power lights on top of each door panel will keep flashing.



Alarm for single metal threat

Alarm for two metal threat

Power indicator lights

In 33 zones mode : There are four choices of alarm zone: single zone, 6 zones, 11 zones, 33 zones.

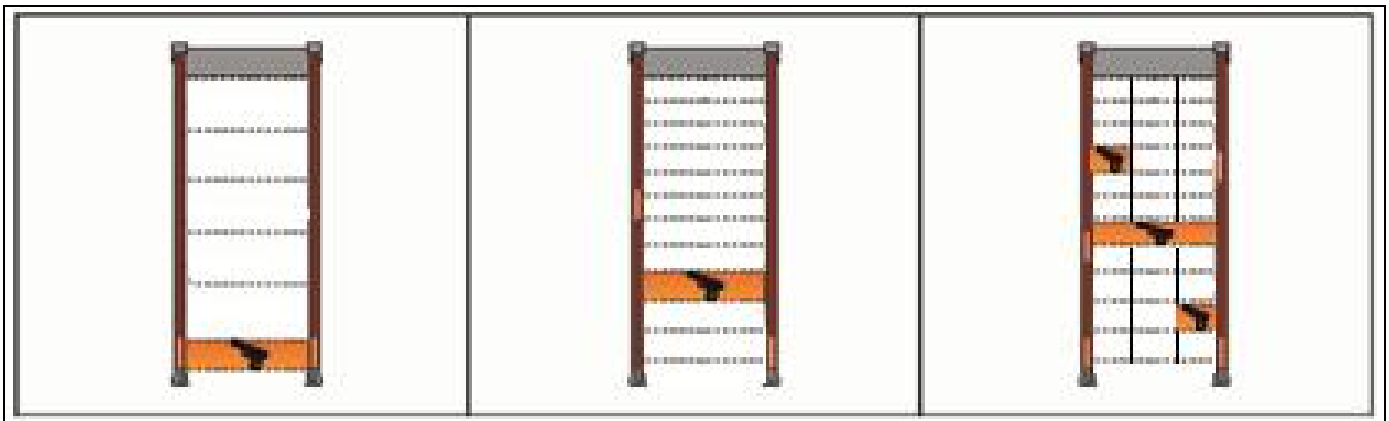
The user can

program in menu **Zone Setting**. Sensitivity level of each zone can be adjusted separately

LED alarm for 6 Zone setting	LED alarm for 11 Zone setting	LED alarm for 33 Zone setting
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In 24 zones mode : There are four choices of alarm zone: single zone, 8 zones, 15 zones, 24 zones. The user can program in menu **Zone Setting**. Sensitivity level of each zone can be adjusted separately

LED alarm for 8 zone setting	LED alarm for 15 zone setting	LED alarm for 24 zone setting
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3.4 Power saving mode and standby mode

WTMD will automatically program to Power saving mode, if device not working in 5 minutes.
Once passengers pass, WTMD will automatically back to normal working condition.

3.5 Important Notice to get better waterproof function (if it is waterproof configuration)

3.5.1 See “ image 1” red mark parts :



image 1

The above image red mark part, both side of control box need use glass cement to seal well when installation . the way is to use ” image 3” portable hot melt gun to spurt the glass cement, wait about 5

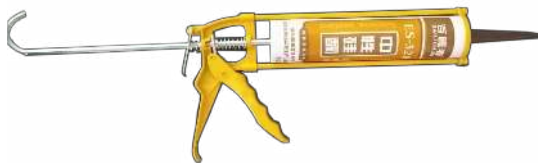
minutes will be ok .

(pls note, once seal with glass cement, the walk through gate can't assembly again, because the glass cement permanent fix the control box and door panel .

if no need to assembly once installation, can seal glass cement, if need often assembly, dont suggest to seal with glass cements)

Glass cement image 2 :

” image 3” portable hot melt gun



4 Chapter iv : maintenance, maintenance, service

4.1 Maintenance & after service

WTMD is high-tech electrical device. The operator is requested not only to understand the technical performance, structural principle and operating procedures, but also good at doing the daily maintenance and maintenance work. This is to guaranty working efficiency and extend device life, and to ensure safety.

4.2 Routine maintenance

To ensure the good working condition, WTMD should be checked and adjusted regularly.

Maintenance job must be done by qualified people.

Cut the electricity, in case of checking hardware.

Daily maintenance work:

- The device should be installed in the ventilation, dust clear, dry environment, avoid high temperature, high humidity and direct sunlight.

LED alarm for 6 Zone setting	LED alarm for 11 Zone setting	LED alarm for 33 Zone setting
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- Clean the dust inside device.
- Tighten the loosen components or wiring plug, if any.
- If any parts damaged, please find out the reason and solve the trouble first, and then replace it. After replacement you need to adjust sensitivity again.
- Don't leave other object inside WTMD. This may course electricity accident.

4.3 Maintenance attentions

-
- Don't leave other object or water inside WTMD
 - Cut the electricity and then check the device. If have to be on power, please know the risk well, and operator should be professional qualified.
 - Before repair, prevent electrostatic damage to the precision electronics.
 - Before power on, make sure that all cables are connecting right.

4.4 Storage conditions , storage period and attentions

Device should be stored in a clean and dry place, excessive heat and moisture can damage the system components. If the device will not use for a long time, it should be stored in the original packaging box.

- **The storage conditions of the equipment**

In the transport or storage packing condition, the device must be set in follow condition

Storage temperature: - 20 ~ + 60 °C (condensate)

Humidity: 20% ~ 95%

The storage time cannot exceed 15 weeks.

- If need long-term storage, device should have good storage conditions. The warehouse should be clean and dry, well ventilated, there shall not be corrosive gas, the relative humidity is not more than 80%, and the equipment should be in the packaging box.

4.5 After service

Thank you for choosing our WTMD. We give one year free after service to buyers. While we will be responsible or device in follow condition:

- Device parts, trade mark or serial number is missing.
- Device is damaged because of incorrect operation.
- Device is damaged by irresistible force.
- Device is dispatched by unqualified people.
- Device is connecting with other products, which is not allowed.

Remote control key:



【Test Report】

Product Name	Walk Through Metal Detector	Model NO.		Serial NO.	
Date of Survey		Checking Equipment	Multimeter, Oscillograph	Ageing Time	48h
Functional Check :					
1、 Infrared	OK	4、 Alarm	OK		
2、 Power Switch	OK	5、 Keypress	OK		
3、 Display	OK	6、 Appearance	OK		
Sensitivity Check :					
System Lever Zone Sensitivity	10	30	60		
1 st Zone	295	260	250		
2 nd Zone	295	260	250		
3 rd Zone	295	260	250		
4 th Zone	295	260	250		
5 th Zone	295	260	250		
6 th Zone	295	260	250		
Object	φ30mmSteel Ball	φ40mmSteel Ball	φ50mmSteel Ball		
Packing	OK	Product	OK		

Verify:

Checker:

【List of Items】

User Manual	()	8 pcs of Screw	()
Power Cord	()	4 pcs Fixing Screw	()
5mm Allen Key	()	1 pcs Remote Controller	()
Test Controller:		Quality Inspector:	

【Warranty Card】

1. Always keep your Warranty Card in a safe place. Show the Warranty Card when product needs to be fixed.
2. Without seal and signature of agent, the warranty card is null and void.
3. The warranty card without the details is null and void. Please confirm the details are full and accurate, and provide to the agent so that we can supply service to you.
4. Do not supply the card again if it missing

Warranty Card

Model NO.		Serial NO.	
Purchase Date		Telephone	
Contact Person		Fax	
Company Name			
Address			

Maintenance Record

Date	Content	Serviceman

【Disclaimer】

1. The manual be aimed at accuracy.
Our firm has no guarantee for the manual without any missing content or wrong explain.
2. Alterations reserved
3. All the rights reserved