



# METAL DEFENDER

AFFORDABLE PROFESSIONAL SECURITY

## MD-H USER MANUAL



### Contact

772 Twin Rail Drive  
Minooka, IL 60447

Phone: (815) 467-6464

Email: [support@metaldefender.com](mailto:support@metaldefender.com)

Website: [www.metaldefender.com](http://www.metaldefender.com)

# MEDICAL SAFETY

Metal Defender makes every effort to ensure its products are safe for use. Extensive research by Metal Defender has produced no information which would indicate that its products have any adverse effects on medical implants, pregnancy, recording media or magnetic strips. Metal Defender makes every effort to cooperate with medical device manufacturers and to communicate with agencies such as the United States Food and Drug Administration and Health Canada as a means of assuring product safety. The electromagnetic fields produced by Metal Defender products are similar to those encountered in the daily environment and meet U. S. and International standards for electromagnetic emissions.

Metal Defender recognizes that certain medical devices may have additional requirements which may require special care. Any recommendations or directives issued by personal physicians or medical device manufacturers should be followed. If, for any reason, (e.g. doctors orders, etc.), a patron objects to being scanned with a metal detector, it is recommended that alternative procedures be used.

The following should be considered when developing a security checkpoint screening plan.

- **Traffic Flow** - Traffic flow should remain consistent and encourage unrestricted traffic flow as a means of minimizing the time a person remains within the archway of a walk-through metal detector.
- **Alternative Screening** - Alternative screening methods such as scanning with a handheld metal detector, hand searching or denial of access should be clearly defined in checkpoint screening procedures as approved alternatives to screening with the walk-through metal detector.
- **Personnel Training** - Security screening personnel should be instructed in the care of persons with special medical needs and use of alternative screening methods that meet the requirements of medical practitioners or medical device manufacturers

## PLEASE READ THE FOLLOWING INSTRUCTION CAREFULLY BEFORE OPERATON



Regarding to how to how to use the machine correctly and safely, please pay attention to the following instructions. make sure you have read it before operation.

1. It's available for both indoor and outdoor use, please use canopy to protect it against rain.
2. Choose the smooth and stable installation place, don't touch the detector during security checking to avoid false alarm.
3. Make sure there's no big metal object or strong magnetic field around the detector within 2 meters.
4. Keep the detector far from the power line and communication cable.
5. Detector probe must not install in high temperature or wet circumstance.
6. Do not disassemble the control units except the professional technician.
7. Please wait 1 minute for its self-diagnosing when machine starts.
8. We advise to have a power cord on the ceiling for easier connection to the detector.

## INTERFERENCE

### Electronic Jamming

Working frequency for the Walk Through metal detector is 4KHz-8KHz. Work environment should exclude any electronic products that have a similar working frequency such as generator, TV etc.

### Moving metal objects Interference

The Walk Through metal detector will be interfered by any moving metal objects. The work environment should not have turnstile or vehicles etc. big moving metal objects.

### Interference Between Products

When using 2 or more Walk Through metal detectors, you should avoid using the same frequency (the work frequency can be seen on the packing box). The minimum distance between two units should be above 0.5m to avoid the mutual interference for the Walk Through metal detectors.

# Technical Specifications

Metal Defender's MD-H Walk-through Metal Detector provides pinpoint accuracy and discrimination features. This detector is effective in all environments including but not limited to airports, government buildings, correctional facilities, and sports venues. While being cost effective it also provides the same security that professionals worldwide receive from other brands.

<b>Sensitivity</b>	5 Adjustable Zones with sensitivity levels 0-255
<b>Zone Indications</b>	5 Zones
<b>Overhead Control Unit</b>	All Electronics- LED, Alarm light, LED bar graph, Control Touch pads- Integrated to eliminate wire exposure
<b>Password protection</b>	Settings 4- Digit customizable password
<b>Self Diagnostics</b>	Upon Startup/Reset Unit will Self-Diagnose
<b>Warranty</b>	24-Month standard warranty Limited Parts/Labor
<b>Dimension</b>	78.74in(H)x15.75in(W)x5.51in(D)
<b>Shipping weight</b>	1 Pieces per unit - 88.18 lbs
<b>Temperatures</b>	-20C to 60C Operating-20C to 50C Storing
<b>Power</b>	110-230VAC $\pm$ 10%
<b>Weatherproofing</b>	IP55 Water/Dust resistant

## Product Features

- Alarm Display, LED lights determine metal objects on both side
- Built in power supply
- Water Resistant for mild outdoor usage

## General Information

### **Regional Sensitivity:**

The maximum sensitivity can detect metal content as small as a coin, in self-regulation between 0-255 sensitivity detection requirements may need to be adjusted. Be sure to determine the items you are looking for beforehand and remove keys, jewelry, belt buckles, and steel toe boots to prevent false alarms. Also make sure that the unit is at least 4 feet from any metal frame door or revolving door.

### **Water Resistant:**

Made of PVC synthetic materials, the unit is water resistant for mild outdoor usage.

### **Smart Statistics:**

Intelligent traffic and alarm counting function; can automatically detect the number of passing individuals and the number of alarms that have gone off.

### **Anti-Interference Ability:**

Digital, analog, and left and right balanced technology help in preventing false alarms and false negatives, and greatly improve the anti-jamming capability.

### **Safety Protection:**

Double password protected, allowing only authorized personnel operation and access. Multiple passwords allow for better security parameters. Parameter settings are automatically stored without interrupting power supply protection, both safe and convenient.

**Electromagnetic Radiation:**

EMC electromagnetic radiation standards; use of weak magnetic field technology, safe for pregnant women, cell phones, film, video tapes and other sound equipment.

**Installation:**

This series metal detector has an integrated design. Plug & Play.

NOTES: When you set up two units together, please set them at the distance of 30-36 inches.

**Field of Use:**

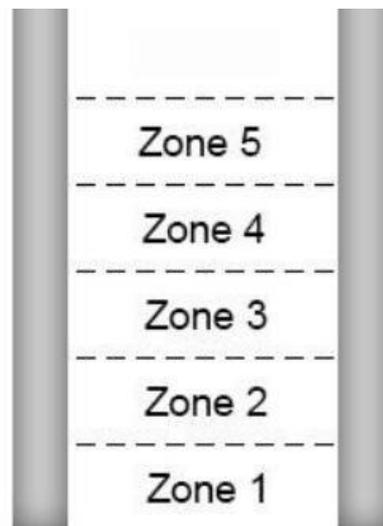
Airport, schools, concert venues, events, railway stations, docks, entertainment facilities, prisons, courts, government departments, factories, examination room, shopping malls, community channels, security check, and prohibited items inspection areas.

## Installation Instructions

Please read through the following instructions to properly install, program, and adjust the sensitivity of the Metal Defender walk-through metal detector.

1. Open the boxes and take out the main body and the cables.
2. If installing two units, please install them at a distance of 30-36 inches apart.
3. Plug the AC plug into an electric outlet. Turn the orange power button on. Your unit should light up. If it does, your unit is up and running. You can adjust sensitivity for the entire unit or for each of the individual zones (see below).

## Understanding the Zones



A: Alarm Zone Locations – There are 5 unique and precise zones that will monitor and attempt to detect for metal each time somebody walks through. Each zone can be individually programmed for a specific sensitivity. Each individual zone will light up when metal is detected and a beep will sound to alert security as to where the metal is located.

B: Infrared Sensor – Records each person that passes by.

## Understanding the Panel



**IN:** Will count the number of people that pass through the detector

**ALARM:** Will count the number of times the detector found metal

**Enter:** startup and close, enter the option.

"←": left option, return, parameters to be the left or upward options.

"→": right option, parameters to be the right or downward options.

"↑": upward option, parameters to be incremental adjustment.

"↓": downward option, parameters to be reduction adjustment.

The specific function, please reference keypad operating instructions in the relative setting pages.

## Debugging

### TURN ON

After finishing cable connection, press the orange button the door panel to turn on the detector.

### ENTER IN TO SETTING INTERFACE

Press "ENTER" to input password so as to enter in to setting interface.

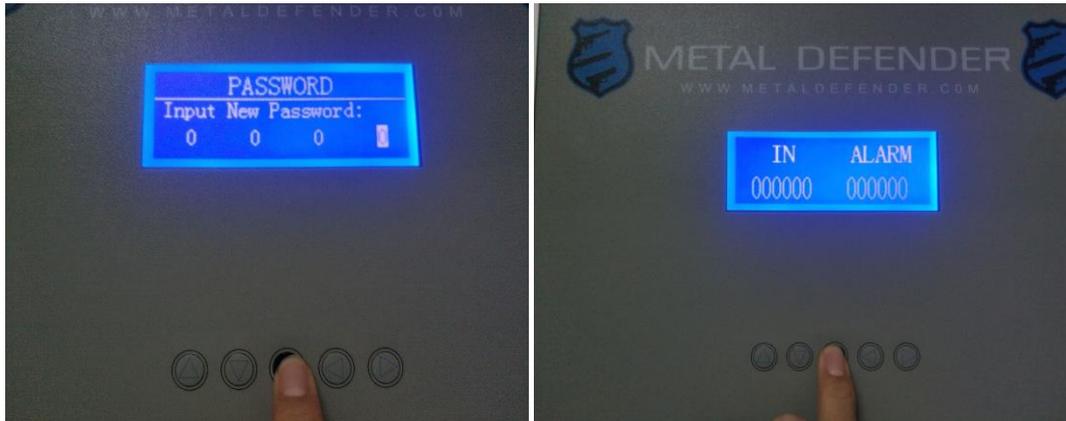
Factory Password: 1234

Universal Password: 8888

### SENSITIVITY SETTING

Press button "←" or "→" to opt the setting, the panel displays H--0 200.

## QUICK SETTING OF MD-H

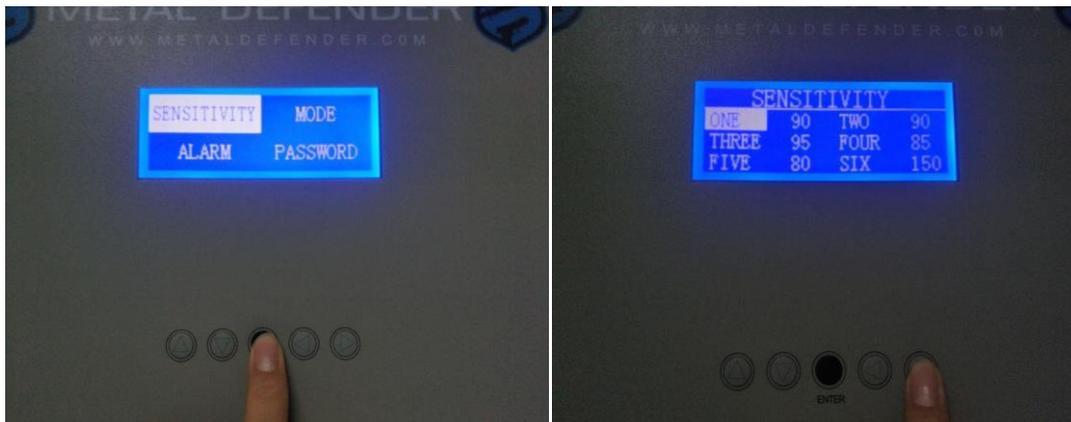


### ENTER INTO SETTING INTERFACE

Press button "ENTER" and then input password by pressing button "↑" or "↓" and then press button "ENTER" so as to enter in to setting interface.

Factory Password: 0000

Universal Password: 8888



### SENSITIVITY SETTING

Press button "ENTER" into the interface. Press button "←" or "→" to opt the detection zone.

H--1: Sensitivity of zone 1 (bottom)(0-255)

H--2: Sensitivity of zone 2 (0-255)

H--3: Sensitivity of zone 3 (0-255)

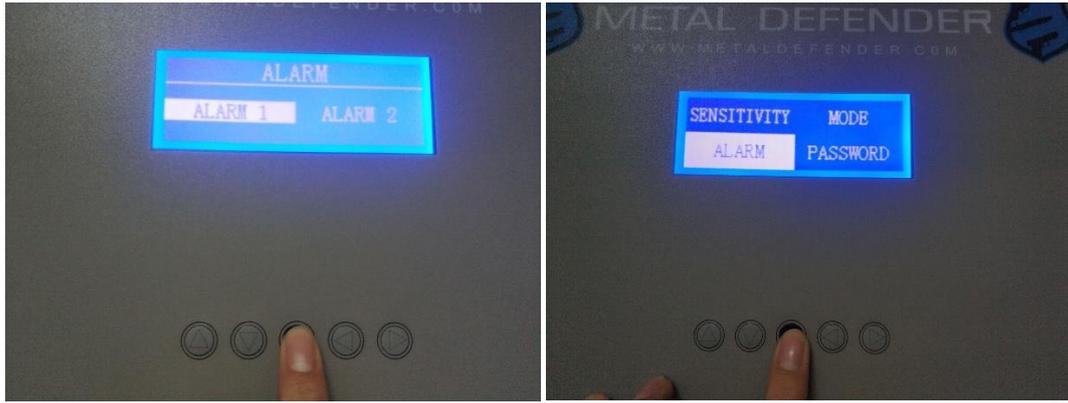
H--4: Sensitivity of zone 4 (0-255)

H--5: Sensitivity of zone 5 (top)(0-255)

H--6: Overall sensitivity (0-255)

Press button "↑" or "↓" to turn on/down sensitivity.

After setting, press button "ENTER" to save and exit.



**ALARM SETTING**

Press button "↑" or "↓" to opt the setting, the panel displays A--1, 200.

**ALARM SETTING**

Press button "ENTER" into the interface. Press button "←" or "→" to Alarm tones.

After setting, press button "ENTER" to save and exit.

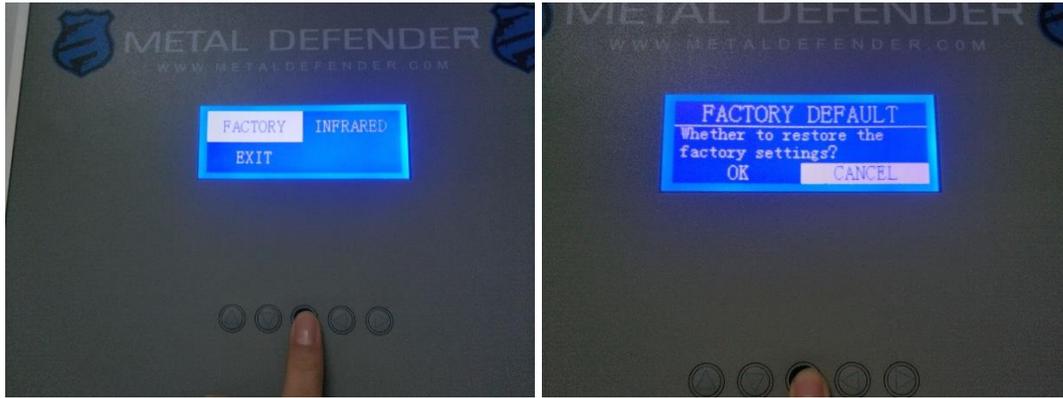


**PASSWORD SETTING**

Press button "ENTER" into the interface. Press button "←" or "→" to opt the position.

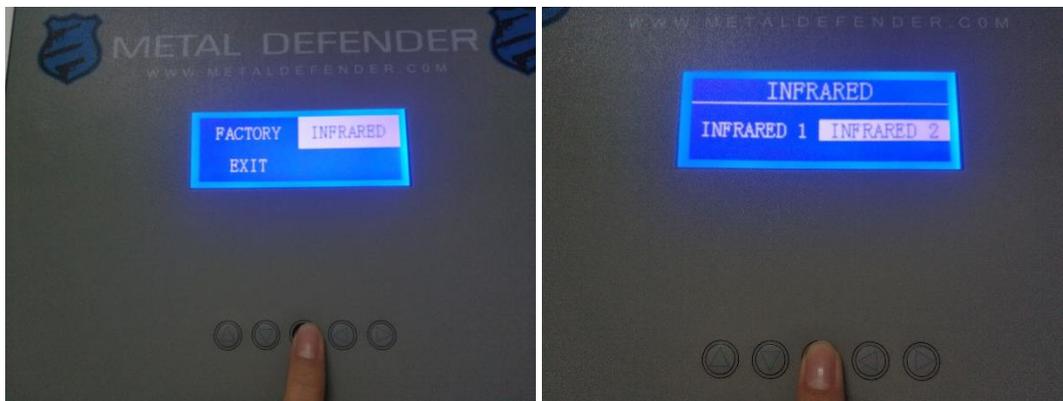
Press button "↑" or "↓" to opt the figure.

After setting, press button "ENTER" to save and exit.



### RECOVERY SETTING

Press button "ENTER" into the interface. Press button "←" or "→" to recover or not. After setting, press button "ENTER" to save and exit.



### INFRARED SENSOR SETTING

Press button "ENTER" into the interface. Press button "←" or "→" to chose IR 1 or IR 2. After setting, press button "ENTER" to save and exit.

Note: For two units, please make sure they are with different IR sensor on to avoid the interference between them.

After setting, opt "EXIT" & Press "ENTER" to exit.

## QUICK SETTING

1. Put up the metal detector.
2. Cover the IR sensor to see if there is any interference or false alarm.
3. Turn down the sensitivity of the zones that give out false alarm.
4. Turn down the Sensitivity of overall if all the zones alarm.
5. If you set up two units together, please put them at a distance of 30-36 inches, and then set them one by one. When you are setting the unit1, please turn off unit2. After setting them well, please leave them several mins for fitting each other. If there is still false alarm from the zone, turn down the sensitivity.

## Calibration Guide for XLD

**First: Make sure there is no metal or other metallic objects within a 3-4 foot radius of the desired location for your XLD units. (Metal Doors, Air Ducts, Pipes, ect.).**

**Any metal railings, moving metal doors, or overhead duct will interfere with the device.**

**STEP 1:** Set the uprights so that the LED Control Interface is facing each other at a width of 36 inches apart.

**STEP 2 :** Turn on one leg/upright only (Either left or right) and let the unit sit for 30 to 60 seconds to calibrate/cycle.

Set all sensitivities to: (These are baseline settings)

Zone 1: 90

Zone 2: 85

Zone 3: 85

Zone 4: 85

Zone 5: 85

Zone 6: 135 (OVERALL SENSITIVITY ADJUSTMENT ZONE)

Now with a test piece that is equivalent to the size of a pocket knife or small gun, proceed to walk through the unit testing each individual zone. One at a time. Starting at the lowest zone. You should hold your test piece 15-16 inches away from the upright. If the zone alarms, it is ok. If multiple zones alarm, you will need to decrease Zone 6 by 5.

Repeat for Zone 1 if necessary.

Continue this until ONLY Zone 1 Alarms. Zone 2 may periodically alarm as well, depending upon the density of your item and location. Make sure that you have NO OTHER METAL on your person when testing.

**STEP 3:** Repeat for Zones 2 thru 5. At this point only adjust Zone 6. The goal is to adjust zone 6 to the point where you can pass through each zone with the unit alarming but not triggering every zone or connected zone.

So as you test zone 1 thru 5 keep a close eye on the LED lights to make sure when the unit detects metal and alarms it is only setting off in or near the zone detected.

depending upon the density and location of your test piece, you may get 1 or more zones alarmed.

(EXAMPLE) If you are testing zone 3 (waist) and you notice that zone 4 (Stomach/Chest) or Zone 2 (shin/leg) is also alarming, this is normal. The two main reasons being, majority of the time when metal is tested at this area it is not exactly parallel with zone 3, it is usually touching the zones of 2 or 4. The other reason being a persons height. The zones on the unit will never change so if someone extremely short or extremely tall passes through the unit, it will still alarm in the necessary area.

**STEP 4:** (Fine Tuning) Once you have successfully adjusted zone 6 to the point where only 2-3 connected zones are alarming while testing, you can focus on dialing in the individual zones.

If you test zone 5 and the unit does not go off, go into the sensitivity menu and adjust zone 5 by 5 clicks up. Now go out of the menu screen and test again. Continue to adjust zone 5 up or down depending on your results. Repeat this for the remaining 4 zones. Once complete turn off this leg.

**STEP 5 :** Turn on the Right/other leg only and set all sensitivities to:

Zone 1: 90  
Zone 2: 85  
Zone 3: 85  
Zone 4: 85  
Zone 5: 85  
Zone 6: 135

Repeat the same steps from the previous leg until it is operating to your desired preferences. Once complete turn off this leg.

Lastly, once both legs have been calibrated, turn each one on and allow one minute for the units to self-diagnosis and adapt to its environment.

Then test the units working together. If you find any “Dead Area’s” – increase only that zone on one side or the other, by increments of 5.

If you are receiving multiple or connected alarms, decrease only that zone on that leg by 5.

Different Test Pieces will give you different results. Be sure to use a test piece that is representative of your desired target.

### **Zones based on body:**

**1: Feet**

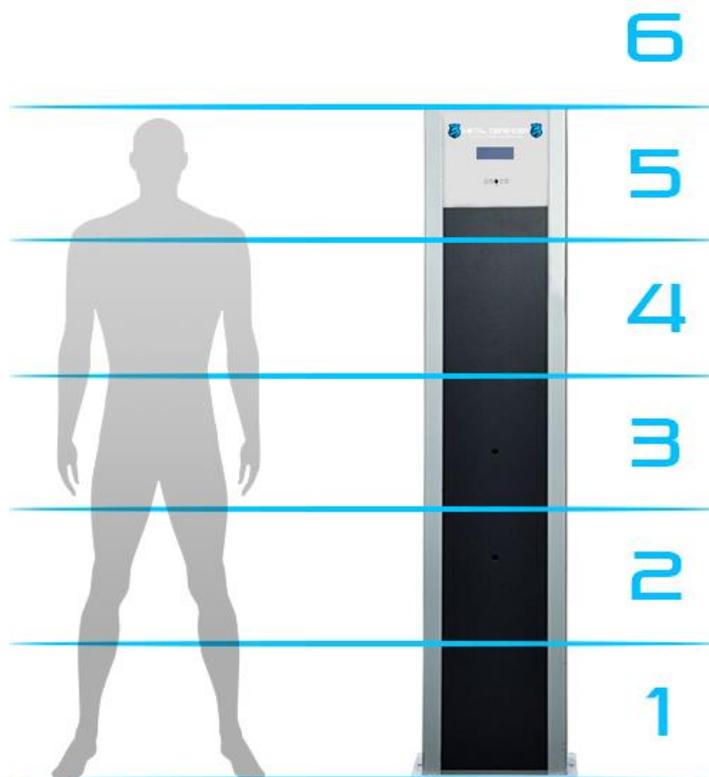
**2: Mid Leg**

**3: Waist and Groin**

**4: Chest**

**5: Head**

**6: Overall Zone, Effects the sensitivity of all zones when adjusted.**



## FAQ

### **What if I cannot put in a location where the signal strength indicator will not go off?**

If you cannot find a fitting location where the signal strength indicator will not turn off, that is ok, it will just make the unit less sensitive. It will still pick up metal from passer bys, but the sensitivity levels will have to be adjusted higher. A good indication is to adjust your sensitivity 2 points higher for every LED that remains lighted on the signal strength indicator. If your desired sensitivity setting is 70, and if your unit's signal strength indicator continuously has 2 LED's lit at all times, adjust your sensitivity to 74 to accommodate for the surrounding metal around the unit. Sometimes, even moving the unit a few inches or even 90 degrees can help decrease the LED indicator.

### **What is the right sensitivity setting for me?**

The best way to determine what sensitivity setting would work best for you is to start on the lowest sensitivity setting – 01 and find an article of metal that you wish to pick up. Walk through with the object and increase gradually until the detector picks up the metal. Start with a smaller piece of metal you wish to detect and work from there. If set for smaller traces of metal, the unit will alarm for larger pieces too. (The unit is defaulted at a 180 sensitivity).

### **Examples of minimum sensitivities settings and what will set unit off:**

240 – Paper clip, 210 – Coin cell batteries, 200 – Ring, Zippers, Buttons

180 – Box cutter, 180 – Gun / Knife, 150 – Cell Phone, 140 – Belt Buckles, Set of Keys

### **I set up my unit, but it will not sound when I walk through with metal?**

Always remember that the control panel with the buttons and LED should always be facing away from the people walking through. Continue with the flowchart and make sure that your alarm time length is not set at A 3-00. If set at A3-00, the unit is on mute mode and will not give an audio alarm when metal is detected. Secondly, please make sure that the internal AC plug is plugged into the panel where the internal power source is plugged in. Also, please make sure that the correct serial ports inside the head unit are securely fastened in the proper locations. Last, replace the buzzer.

**There seems to be a lot of alarm detections occurring, more than we want or expected. Why is this?**

Before implementing a metal detector into your security, one must have a plan as to how the equipment is going to best work for them. The best way is to consult who is going to be monitoring the unit and what is the purpose of the unit. For example, if you are looking to catch people stealing small computer IC chips in their pockets, you are going to need a high sensitivity to detect them. One must have a plan as to which items are needed to be put aside before walking through. If you are not sure, or would like a product specialist to assist creating a plan, feel free to contact us at (815) 467-6464.

**The passerby units are not adjusting or are continuously increasing. What should I do?**

The black circular discs on the inside of the panels are the infrared sensors. These pick up when a person walks through the unit. If the unit is not picking up the passerbys, the sensors may have fingerprints or dirt on them. With a cloth towel with rubbing alcohol or window cleaner, rub around the sensor to clean. Also, please check and make sure that the cables are securely fastened to the metal detector leg panels and PC board. If this connection is loose, the unit may not work.

## BRIEF MAINTENANCE

### 1. Can't Start The Machine

- 1) Check whether power sockets properly.
- 2) Check whether the power switch is on.
- 3) Check the fuse blew out (Only for Walk Through model).

### 2. Can't Account Passengers

- 1) Don't work in the strong sunlight as it use infrared sensor.
- 2) Check the left and right infrared sensor probe whether in parallel.

### 3. Alarm Without Metal

- 1) First, exclude all the metal in ourself and go through the detector. Find out which zones alarm and low down the zone sensitivity accordingly until it is not alarm.
- 2) Check whether have interference nearby such as big movable machine, high-power equipment.
- 3) Check whether there are similar products nearby, if so change the frequency (Original frequency show on the package carton box).
- 4) Make sure no big wind and smooth around installation place.

### 4. With Metal But No Alarm

- 1) Follow the user manual and increase the zone sensitivity and total sensitivity.
- 2) The factory default setting can detect a coin diameter 25mm. Make sure the metal size is bigger, if not adjust the sensitivity accordingly.

### 5. Single Zone No Alarm

Make higher sensitivity then test again. Change the corresponding zone signal collection card if problem is the same in highest sensitivity.

### 6. Unnormal Communications

- 1) Follow the user manual and confirm whether is the problem of left sensor or right sensor.
- 2) When confirmed which door frame have communication problems, pull out its probe and reinsert for several times, then test again. If problem the same, then replace the corresponding signal collection card, main board and wire step by step until confirm the problems.

### 7. Whole Machine Non-inductivity

Check whether the communication is ok, follow above 6 steps.

If communication is ok, replace the mainboard or signal board step by step.

### 8. LCD Screen Problems, LED Bar Graph Not Lighting, Buttons Not Working

- 1) Replace the parts from other Walk Through metal detector to find the failure parts

## 2 YEAR WARRANTY INFORMATION

Metal Defender warrants that each piece of security equipment manufactured by Metal Defender is protected by the following limited parts and labor warranty for a period of 24 (twenty-four) months (the "Warranty"). During this 24-month period Metal Defender will inspect and evaluate all equipment returned to its authorized repair station or factory to determine if the equipment meets Metal Defender's performance specifications. Metal Defender will repair or replace at no charge to the owner all parts determined faulty. This Warranty does not cover batteries nor any and all failures caused by abuse, tampering, theft, failure due to weather, battery acid or other contaminants and equipment repairs made by an unauthorized party.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE BUYER ACKNOWLEDGES THAT ANY ORAL STATEMENTS ABOUT THE MERCHANDISE DESCRIBED IN THIS CONTRACT MADE BY SELLERS' REPRESENTATIVES, IF ANY SUCH STATEMENTS WERE MADE, DO NOT CONSTITUTE WARRANTIES, SHALL NOT BE RELIED UPON BY THE BUYER, AND ARE NOT A PART OF THIS CONTRACT FOR SALE. THE ENTIRE CONTRACT IS EMBODIED IN THIS WRITING. THIS WRITING CONSTITUTES THE FINAL EXPRESSION OF THE PARTIES' AGREEMENT AND IS A COMPLETE AND EXCLUSIVE STATEMENT OF THE TERMS OF THIS AGREEMENT.

The parties agree that the Buyers' sole and exclusive remedy against Seller shall be for the repair and replacement of defective parts. The Buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost sales, lost profits, injury to person or property) shall be available to him.



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