



METAL DEFENDER

AFFORDABLE PROFESSIONAL SECURITY

MD-33

User Manual



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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.

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1. Please assemble and deploy on a flat, vibration-free surface in order to avoid false alarms caused by shaking the security gate.
2. Wait 1 minute after you turn on the metal detector in order to get the best detection results.
3. Please make sure that people walk through the unit at the standby time or alarm time setting (Preset at 1 second), and pass one by one. Do not crowd around the gate, it may cause interference with the infrared sensors. Patrons should pass through one at a time and allow a minimum of 1 second after the person walks through.
4. Do not hit or collide with the gate, if this happens there will be a false alarm.
5. If the unit gets dirty, wipe it gently with a cloth dipped in water or alcohol. Do not use other chemicals.
6. Each unit has a 2 year warranty.

GENERAL DESCRIPTION OF MD-33

Basic Description

The MD-33 is a digitally controlled pulse induction metal detector.

Memory

All program selections and settings are maintained in electrically erasable non-volatile memory. The unit will maintain all settings even when disconnected from power. No battery is required for memory retention.

Superior Target Pinpointing

The MD-33 is an advanced Digital Signal Processor (DSP)-based Pinpointing walk-through metal detector that provides superior target detection with excellent metal discrimination capabilities. Multiple targets are pinpointed on the left, center or right side of the body from head to toe within 33 distinct areas using a unique array of Light Emitting Diodes (LED's) located on the exit side of each panel. Independent zone by zone calibration capability insures optimal archway field uniformity, regardless of installation challenges.

Improved Sensitivity

An improved multi-coil design allows programming for the detection of the Sensitivity smallest of metallic targets regardless of shape and orientation.

Controls/Displays

The MD-33 utilizes backlit Liquid Crystal Displays (LCD's) and LED bar Displays graphs for continuous on-line operating status and self-diagnostic reporting. All controls and settings are simplified with menu selections and touchpad controls.

ADA Compliant

Meets ADA standards

Optional Accessories

Optional accessories include a dolly, casters, and an extended battery.

Installation Environment

1. Large stationary metal items near the installation environment

When installing the units, they should be positioned away from stationary or large fixed metal objects 4.5 feet or more; otherwise it will affect the sensitivity of the unit and may cause false alarms. Some stationary metal objects include: aluminum / stainless steel doors and windows, walls with steel bars, HVAC vents, banisters.

2. Movable metal items near the installation environment

Movable large metal objects should be positioned more than 4-4.5 feet away from the security gate to prevent any false alarms. Any entrance gates, security doors, rolling gates, elevators, or cars can interfere with the unit and cause false alarms.

3. Unit should be installed on smooth, flat surface

Please make sure that the unit is installed on a smooth flat surface to prevent any shaking of the unit or any false alarms.

4. Electromagnetic radiation and electromagnetic interference

Since the unit uses bilateral transceiver technology, any sources of electromagnetic interference and electromagnetic radiation can cause false alarms. The recommended distance from the unit to any source of items that emit electromagnetic radiation or interference is 3-6 feet. Here are some possible sources of electromagnetic interference and electromagnetic radiation: Electrical control box, radio equipment, radios, computer and peripheral equipment, video surveillance, high-power motors, power transformers, AC power cord, thyristor control circuit (power switching power supply, inverter welding machine), engine with a motor machine.

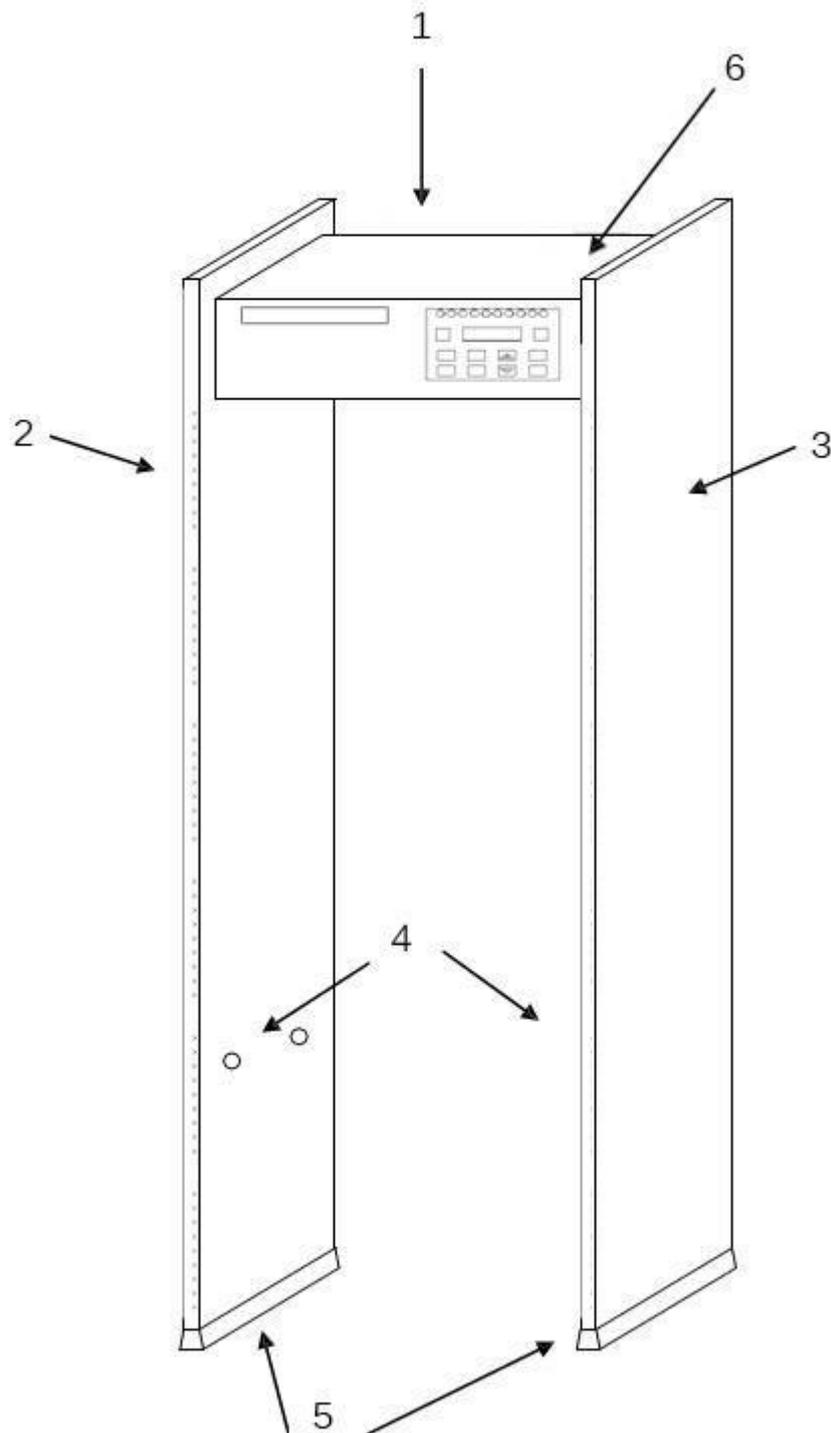
5. When deploying several units together, please make sure that each unit is set to a different frequency

If many units are used in close proximity with one another, each unit would have to be set to a different frequency. The degree of influence depends on the distance between each metal detector and the operating Frequency of each unit. When installed, the distance between the 2 units should not less than 2 feet.

Functions and Features

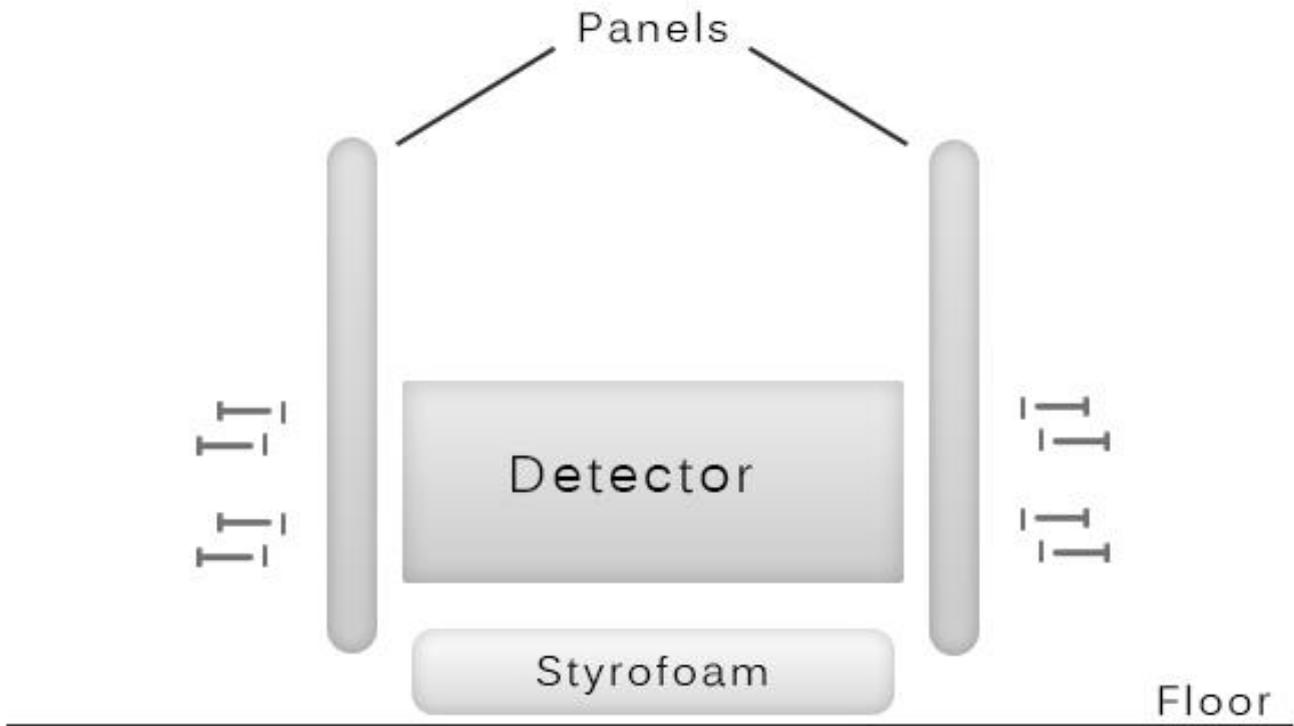
- 1.** Pin-point positioning: 33 overlapping mesh detecting areas, bilateral emission, bilateral receiving, can accurately detect the location of the metal on the patron's body.
- 2.** Microprocessor technology: Electromagnetic waves are produced by a microcomputer control circuit with precisely controlled scans. The user can adjust the unit by use of the control panel.
- 3.** Sound and light alarm: 3 options for adjustable volume: high, low, or mute.
- 4.** Adjustable sensitivity for each zone: Each zone has 100 sensitivity levels (0 to 99).
- 5.** Digital pulse technology: Digital signal processing filter systems, has excellent anti-jamming capability.
- 6.** Password protection: The user can only make adjustments to the unit after entering the correct password. Password is 4-digits and can be set and changed by the user.
- 7.** Counting Statistics: Counts the quantity of the passed people and the times of alarm.
- 8.** Harmless: Harmless to heart pacemakers, pregnant women, magnetic floppy disk ect.
- 9.** Weather resistant: Made of PVC composite material, IP55 rated.
- 10.** Easy installation: The system is an integrated design which only takes 20 minutes to complete the installation or removal.
- 11.** ADA compliant: The MD-33 meets ADA standards.

Parts of the Detector

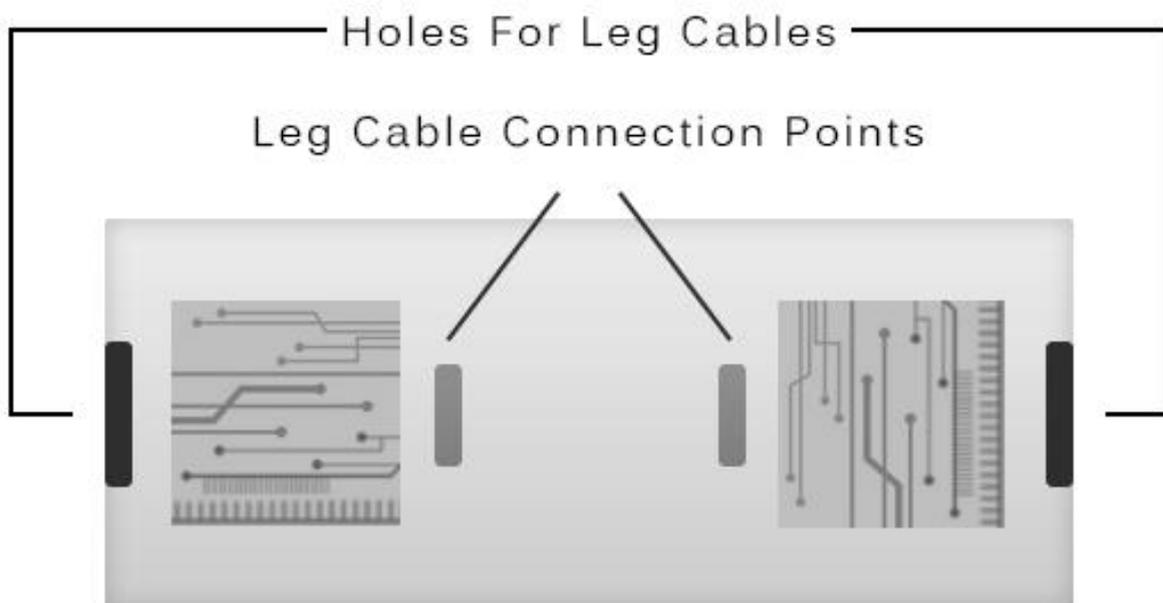


1. Main board
2. Panel
3. Built-in infrared sensor probe
4. Infrared sensor
5. Waterproof feet
6. Power socket

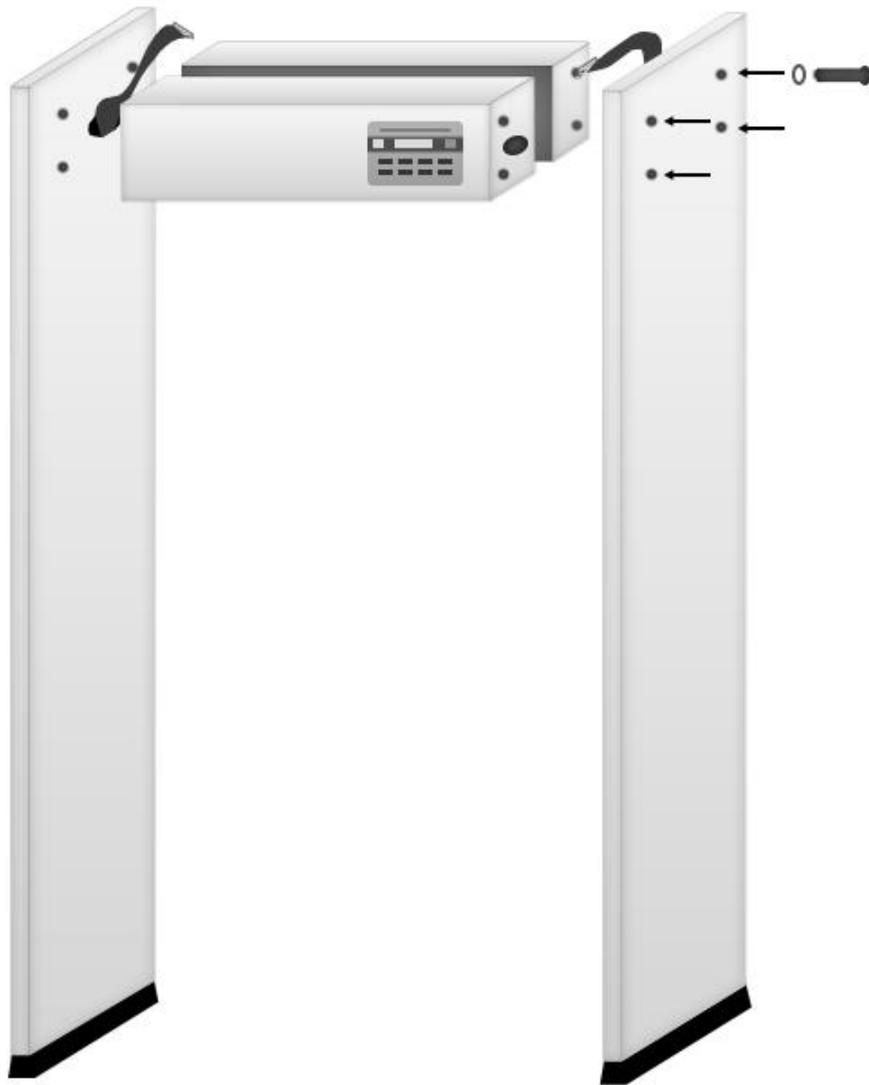
Assembly Instructions



Inside of Detector

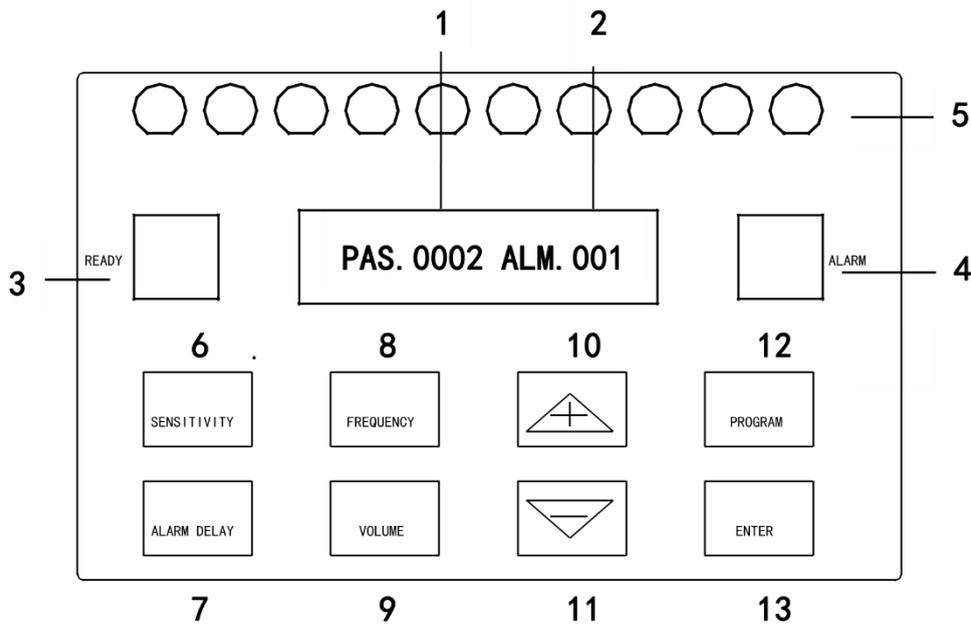


Installation Instructions



1. Open the packages of the main head unit and 2 panels.
2. Put the main head unit display panel facing down, and the left and right side of the door as the above picture. Connect the left / right door by bolts and nuts.
3. Securely plug the left and right probe line into the corresponding socket on the motherboard.
4. Install the main head unit cover screws.
5. Lift the metal detector gate to a vertical position and move it to the work zone.
6. Connect the power socket to power supply, the unit is now in working state.

Panel Interface



1. Pass number: Counts the number of people that pass through the unit
2. Alarm Times: Counts the number of times the unit detects metal
3. Standby indicator: the security door is in non-alarm-status indication (green).
4. Alarm Indicator: the security door is in alarm status indicator (red).
5. Signal interference indicator: From left to right (from weak to strong) total of nine indicators.
6. [SENSITIVITY]: the sensitivity settings.
7. [ALARM DELAY]: the alarm time settings.
8. [FREQUENCY]: the frequency settings.
9. [VOLUME]: the alarm volume settings.
10. [+]: Numerical increase.
11. [-]: Numerical reduction.
12. [PROGRAM]: Enter the menu Settings. If you keep pressing the "Program" key for more than 5 seconds, it will reset.
13. [ENTER]: Confirm (and save). If you keep pressing the "Enter" key for more than 5 seconds, it will switch off the power. If you repeat this action, it will switch on the power again.

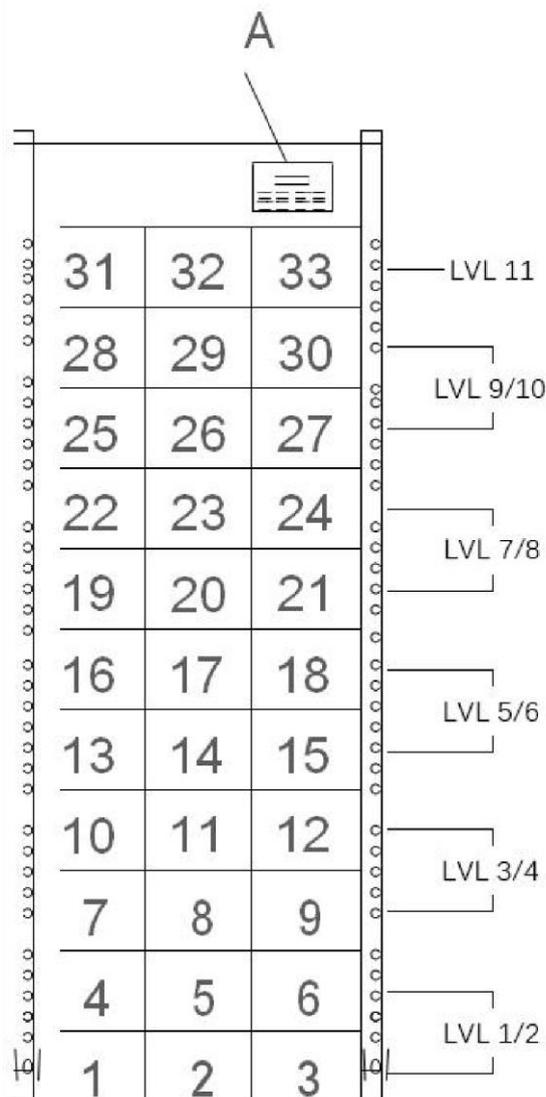
Understanding the Zones

A - Alarm Zone Indicator

On the panel door there are 3 vertical zone columns, each containing 11 zones, for a total of 33 zones. Whenever any metal is detected on a patron, the corresponding zone will light up and the audible alert will sound. If metal is found on the right side of their body, the right LED indicator will light up. If Metal is found in the center of the body, both right and left panels will light up. If Metal is found in the center of the body, both right and left panels will light in the corresponding zone.

Infrared Sensors

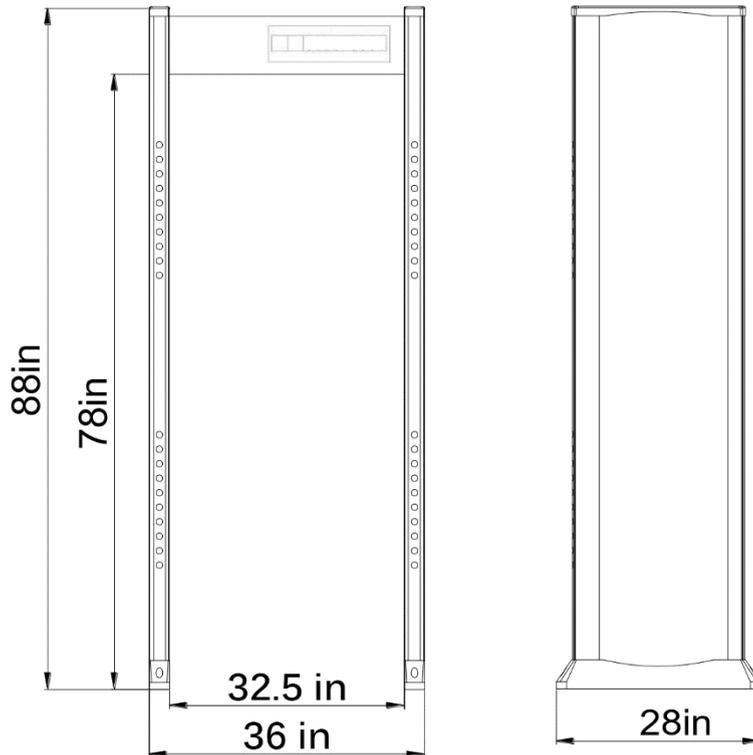
After the power is turned on, the small black discs inside the channel passageway will activate. The unit scans as the person walks through. This activation of the unit will only take place when the infrared sensors measure a person walking through.



Operating Instructions

1. The main interface is displayed after boot up: "Pas. 0000 Alm. 000".
2. Press [PROGRAM] button on the main interface, Enter the password screen and press [Λ] button to change number, press [V] key to switch zones, press [ENTER] key to confirm code.
3. After confirming the password, the password interface will show "Password OK!". If incorrect, the display will show "Pwd. Error!"
4. Under "Password OK!" interface, press [ENTER] key to enter "Press Item Keys", the main settings menu interface. Press [PROGRAM] key to enter new code settings interface, will display "New Pwd. 1***". Press [Λ], [V] keys set new code, press [ENTER] key to save. Exits after setting code.
5. On "Press Item Keys", the main settings menu interface:
 - a. Press [Sensitivity] key to enter sensitivity settings interface, will show "Sens. Lvl1,2: XX". Press [Λ] key to adjust setting, press [V] key to enter next zone sensitivity settings, such as "Sens. Lvl3,4: XX", until shows "Sens. Base: XX" to set the overall sensitivity. The higher the number, the higher the sensitivity.
 - b. Press [Alarm Delay] key to enter alarm time settings. Will show "Alarm Delay:1". Press [Λ], [V] keys to change number, the number will change between 1-3.
 - c. Press [Frequency] key to enter alarm time settings. Will show "Frequency:1". Press [Λ], [V] keys to change number, the number will change between 1-8.
 - d. Press [Volume] key to enter alarm time settings. Shows "Volume: High". Press [Λ], [V] keys to switch between "HIGH, LOW, NONE".
6. The above steps can also be used from any interface mode.

Technical Specifications



Power Supply: 110-240V/50~60HZ

Power: <20W

Net Weight: 147.7lb

Operating environment: -20°C~45°C

Channel dimensions: 78in (height) × 27 9/16in (width) × 23 13/16in (depth)

Dimensions: 88in (height) × 32in (width) × 28in (depth)

Package dimensions (door): 90in (length) × 29in (width) × 10 1/4in (height)

Package dimensions (main chassis): 30 3/4in (length) × 19in (width) × 10 5/8in (height)

Factory Parameters

Factory password	1234
Master Password	8888
Alarm time	1 second
Volume of Alarm	High
Language	Chinese/English

Package Contents

Hex tool, 8 sets of bolts, Key to Head Unit, Manual

FAQ

What does the signal strength indicator mean?

This is how the unit detects metal. This indicates the density and presence of metal. Sometimes if there are any overhead pipes, hvac vents, metal doors, metal cabinets or florescent light fixtures this may trigger this indicator to light up. Ideally you would want to keep 2-3 feet from these items and find a location where this indicator won't light up continuously.

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 passerbys, 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's sensitivity is defaulted at 70).

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

99 – Paper clip, 90 – Coin cell batteries, 80 – Ring/Zippers/Buttons

75 – Box cutter, 70 – Gun/Knife, 65 – Cell Phone, 60 – Belt Buckles/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 y-00. If set at y-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.

There seems to be a lot of alarm detections occurring, more than we want or expected.

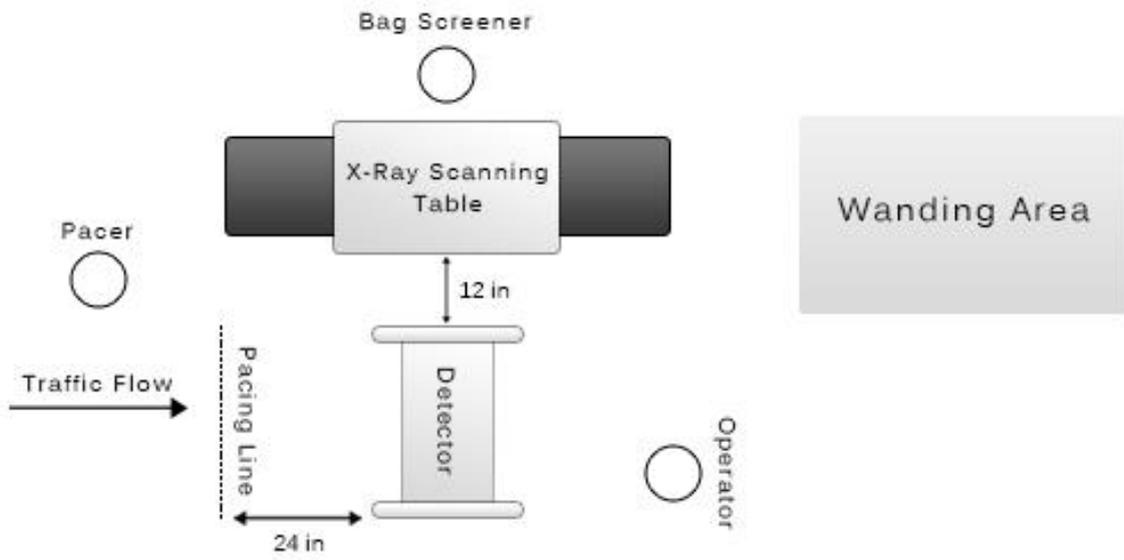
Why is this?

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.

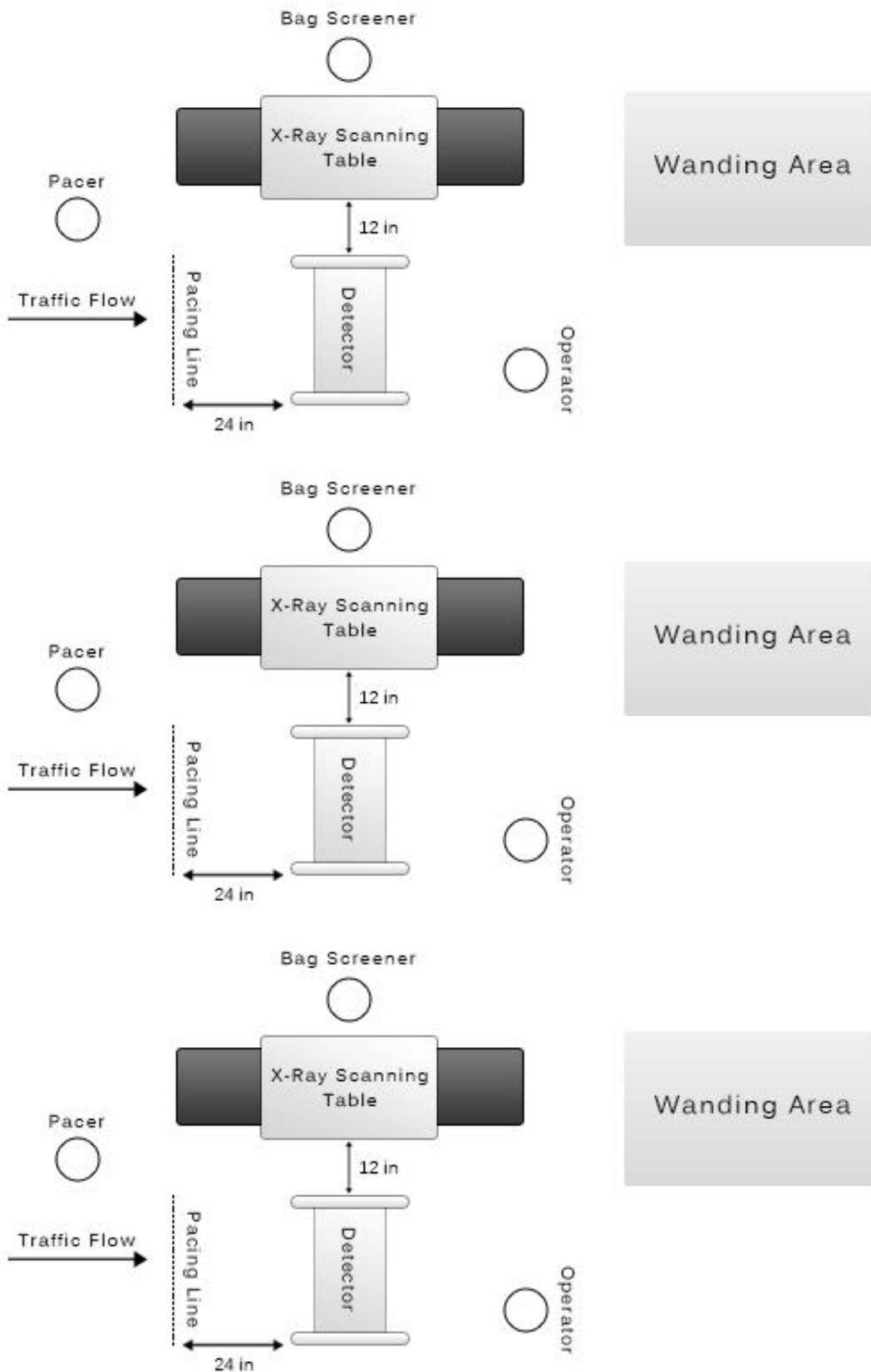
The passerby units are not adjusting or are continuously increasing. What should I do?

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.

SUGGESTED SINGLE LANE CONFIGURATION



SUGGESTED MULTI-LANE CONFIGURATION



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.

Replacement Parts

Replacement Legs	Please Call Us Directly For Price: (815-290-5354) (815-467-6464)
Replacement Head Unit	Please Call Us Directly For Price: (815-290-5354) (815-467-6464)
Speaker	\$19.99
Zone Card	\$22.99
Fuse	\$15.99
Power Supply	\$34.99
Motherboard	\$79.99
Power Cords	\$21.99
Set of Nuts + Bolts	\$14.99
Battery Back Up	\$165.00
Casters	\$140.00
Leg Feet (pair x2)	\$59.99
Infrared Sensors (pair x2)	\$19.99



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