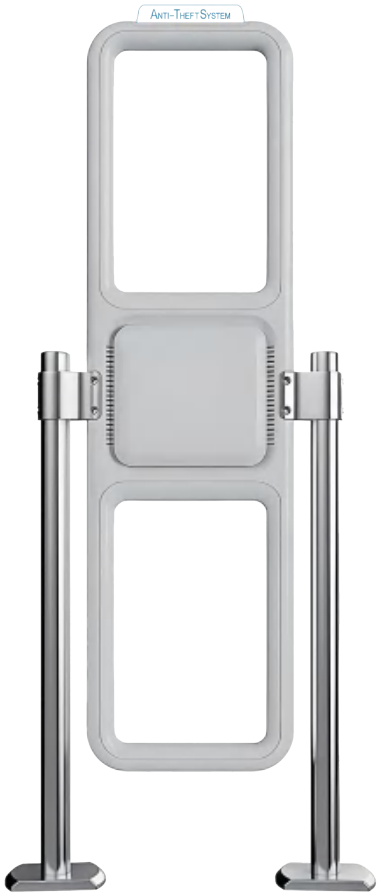


声磁超宽系统防盗设备使用说明书

Operation manual of anti-theft equipment of acoustic magnetic ultra wide system

Please read this manual carefully before using the product.
Please keep the manual for reference



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Dear user

Thank you very much for purchasing EAS security door developed and produced by our company. This product is highly technical. In order to ensure its safe and reliable operation, the precautions for installation and commissioning of the equipment have been explained in this manual. Please read this manual carefully before using the selected product to avoid damage to your rights and interests due to improper operation.

⚠ Safety warning

This product is relatively technical, if the use of equipment failure, should promptly notify our company's after-sales service department for processing.

This product is used with dangerous voltage, regular check to avoid unnecessary personal injury.

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1. Product Overview:

Acoustic magnetic electronic anti-theft system, referred to as EAS system, mainly consists of three parts: detection device, induction label, demagnetizer or nail remover. The acoustic magnetic anti-information system belongs to the single-bit radio frequency identification system, and the modulation method adopted is the amplitude keying (ASK) digital modulation method, wherein the modulated signal is the binary coded signal composed of the single-bit sequence of 0 and 1, and the low-frequency sinusoidal signal with the carrier signal of 58KHZ is the ASK signal with the amplitude modulation coefficient of 100%. Its basic working principle is to use the transmitting antenna to emit an alternating magnetic field, form an induction area between the transmitting antenna and the receiving antenna, and use the resonance principle of electromagnetic waves to search for whether there is a valid label within the detection range (that is, a label that has not been decoded by the decoder), and trigger the system alarm when there is a valid label.

2.Product features:

2.1 The signal processing technology adopts the world's top ARM processor, and the core algorithm independently develops anti-interference capability and the domestic leading level of inspection distance;

2.2 Super-strong detection distance, under the condition that the product is not disturbed, the distance of DR Soft label channel can reach 1.4-1.6m, and the distance of 39 magnetic bar channel can reach 2.4m-2.8m;

2.3 A variety of working methods can be selected, and can be completely set and transformed by remote control, easy to operate (detailed operation later)

2.4 Each security door host can be equipped with two auxiliary machines, auxiliary machines can be independent alarm, and can automatically record the number of alarms;

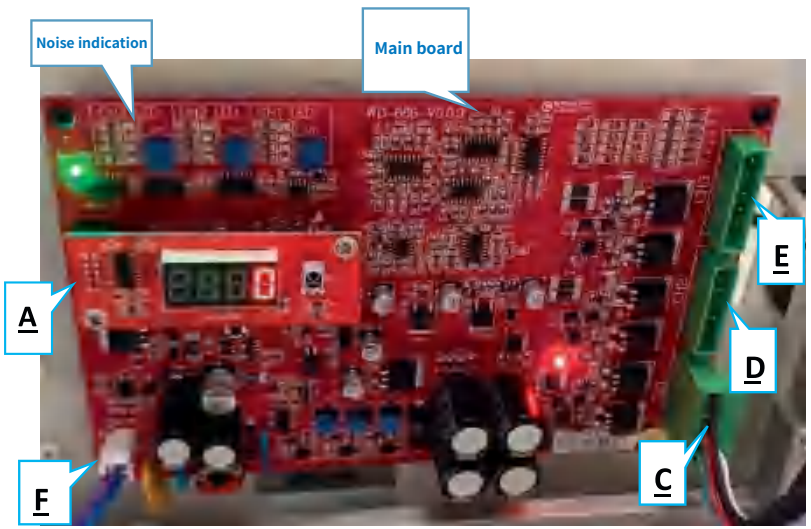
2.5 The whole acoustic magnetic system has stable anti-theft operation, high detection rate, almost zero false alarms, is not shielded by metal foil paper, and has strong anti-interference ability. It is now widely used in retail malls, supermarkets, clothing boutiques and other places.

3. Product structure:

3.1 Acoustic magnetic super wide anti-theft system

Acoustic magnetic ultra-wide anti-theft system, set detection, microcomputer processing, sound and light alarm in one, with a variety of modes such as transmission, reception and transceiver, can be single, double and multi-unit installation. The main components are: antenna frame, transmitting and receiving antenna, power supply board, transformer, main control board, transmitting board, alarm light board, buzzer and so on.

3.2 Acoustic magnetic super wide anti-theft system motherboard



A 系统LCD调试板

A System LCD commissioning board

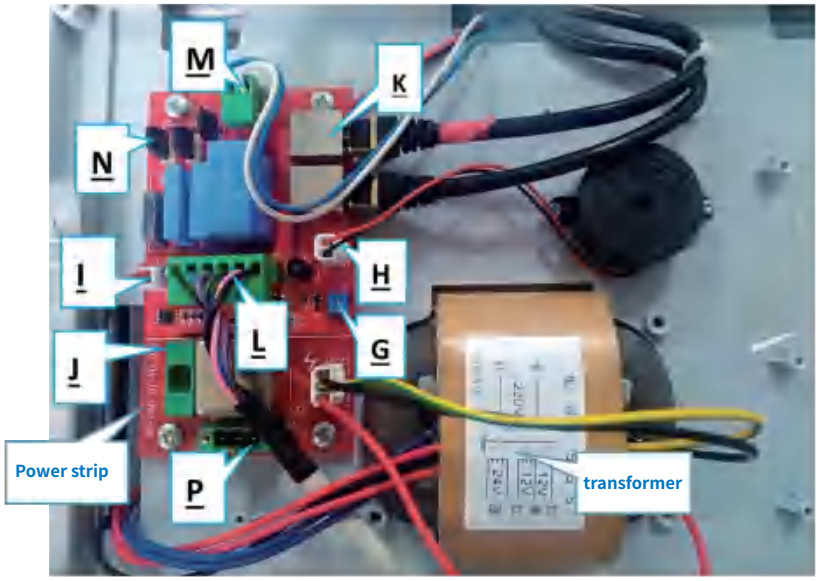
C Host outlet CH1(connected to host transmitter board)

D auxiliary output CH22(connected to the auxiliary launch board

E Auxiliary output CH33(connected to the auxiliary launch board)

F Power input on the mainboard

3.3 Acoustic magnetic super wide anti-theft system host power board, auxiliary board, transformer



P Power input (mains 220V~230V)

G Buzzer Sound adjustment potentiometer

H Buzzer connection port

I Alarm light board connection port

J Blow the fuse

K Receiving antenna connection port

L launch plate input port

M Transmit antenna connection port

N Resonant capacitor regulating terminal

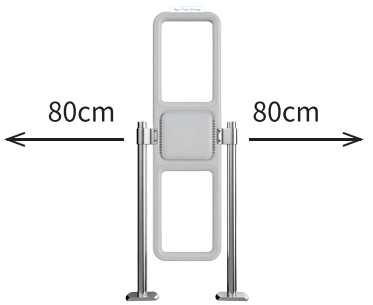
O transmitter gain adjustment gear

Note: The power board and the auxiliary transmitter board are similar here not to go into details!

4. Installation guide(Please read the instructions carefully before installation):

4.1 System Configuration (The system factory Settings for the host and secondary are transceiver and transceiver)

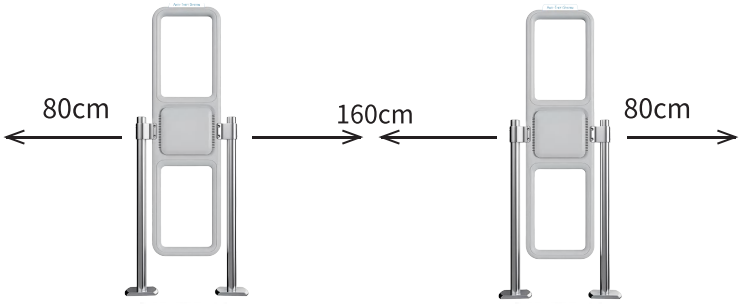
4.1.1 A Host (The secondary host cannot work alone)



Host (Transceiver)

4.1.2 One host + One secondary (Two independent transceivers)

A host + a auxiliary unit is paired with a gate, the host launch board is connected to the CH1 port on the main board, and the auxiliary launch board is connected to the CH2 port on the main board.

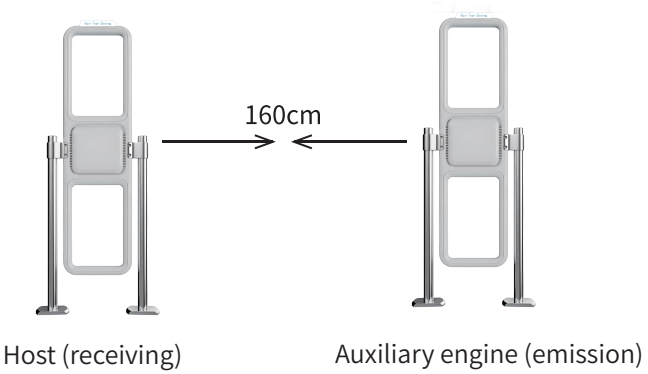


Host (Transceiver)

Secondary (Transceiver)

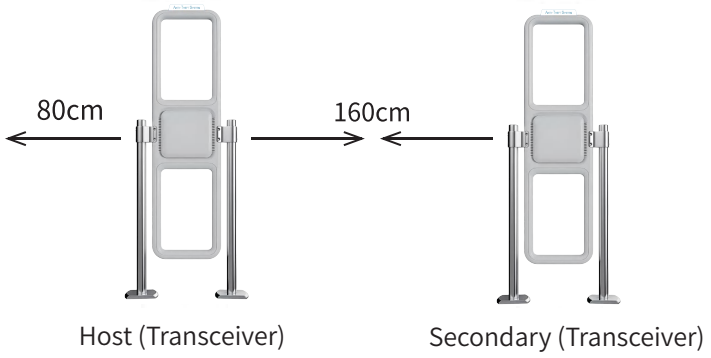
4.1.3 One host + One secondary

A host + a auxiliary unit is used to receive the host + transmit the auxiliary unit. The host transmitter board is connected to the CH1 port on the main board, and the auxiliary transmitter board is connected to the CH2 port on the main board.(System adjustment P1 is described in detail)



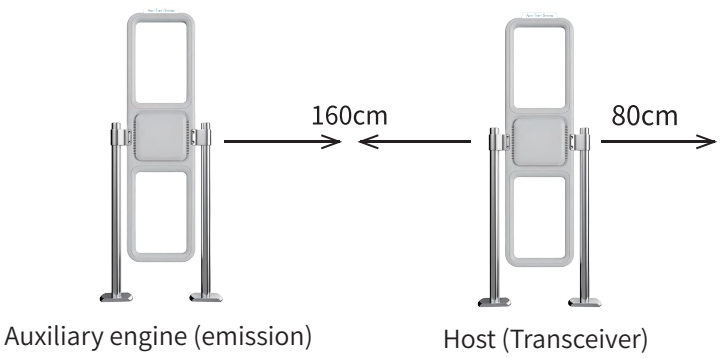
4.1.4 One host + One secondary

A host + a auxiliary unit is formed into a host transceiver integration + auxiliary launch, and the host launch board is connected to the CH1 port on the mainboard, and the auxiliary launch board is connected to the CH2 port on the mainboard.(System adjustment P3 is described in detail.)



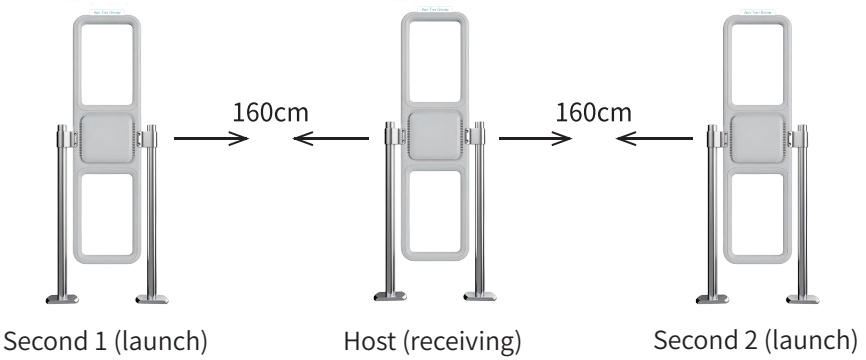
4.1.5One host + One secondary

A host + a auxiliary unit is formed into a host transceiver integration + auxiliary launch, and the host launch board is connected to the CH1 port on the mainboard, and the auxiliary launch board is connected to the CH2 port on the mainboard.(System adjustment P3 is described in detail.)



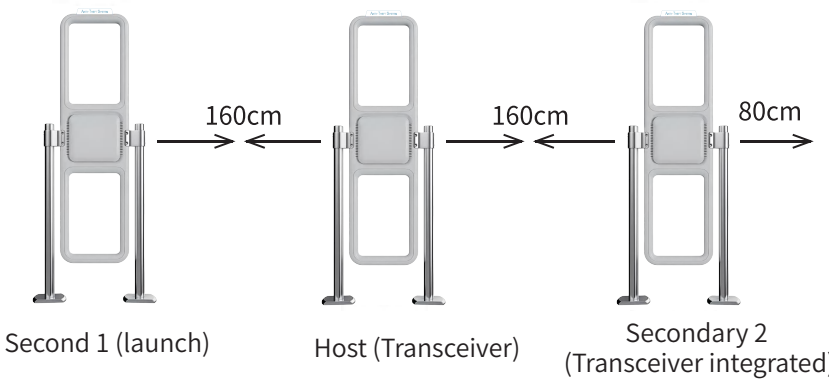
4.1.6 One main engine + one Auxiliary engine (door engine)

A host + two auxiliary units are paired with a gate, and the host launch board is connected to the CH1 port on the main board, the 1st auxiliary launch board is connected to the CH2 port on the main board, and the 2nd auxiliary launch board is connected to the CH3 port on the main board. (System adjustment P1 is described in detail)



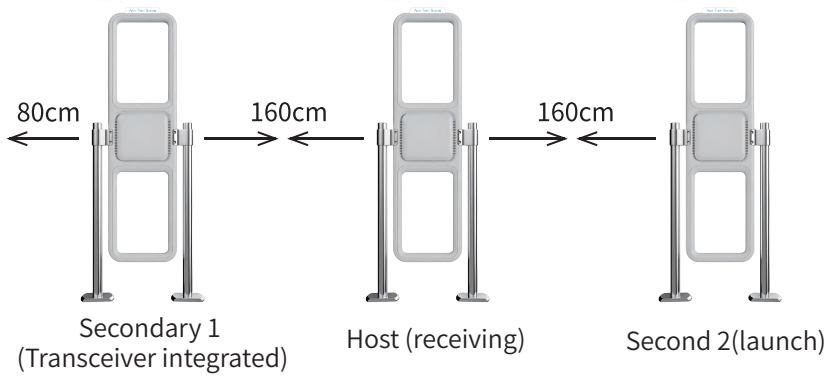
4.1.7 One host + One secondary

A host + two auxiliary units are paired with a gate, and the host launch board is connected to the CH1 port on the main board, the 1st auxiliary launch board is connected to the CH2 port on the main board, and the 2nd auxiliary launch board is connected to the CH3 port on the main board. (System adjustment P3 is described in detail)



4.1.8One host + One secondary

A host + two auxiliary units are paired with a gate, and the host launch board is connected to the CH1 port on the main board, the 1st auxiliary launch board is connected to the CH2 port on the main board, and the 2nd auxiliary launch board is connected to the CH3 port on the main board. (System adjustment P4is described in detail)



4.2 Detection parameters (cm) :

Installation mode	Soft label		Hard label	
	Detection distance	Recommended installation distance	Detection distance	Recommended installation distance
Transceiver integrated mode	100～120	160	150～170	280
Opposite door mode	90～100	140	140～160	260

Note:

If hard and soft labels are used together, the installation distance is based on the soft label. The recommended installation distance is for reference only. The installation distance depends on the site environment.

4.3 Environment Requirements

1. Ensure that there are no large metal objects 2 meters away from the antenna.
2. Do not place labels around the antenna.
3. Do not have high-power power equipment powered by inverter in the close distance of the antenna.

Warning! Do not be near where flammable or explosive products are stored

4.4 Power Requirements:

1. Power supply 220VAC according to site.
2. The system needs a good independent power supply, and the 220VAC used by all devices must be the same power supply, and the position of the live line and the neutral line is the same (the left neutral line and the right live line).At the same time, it should be equipped with safety grounding.
3. The firewire should choose a power line without power equipment as the firewire of the antenna system.
4. Do not use the power supply provided by the generator or the UPS.

Warning! Electric shock hazard! Non-professional maintenance engineers do not open the equipment, there is a high pressure danger!

4.5 Functional Tests before Installation:

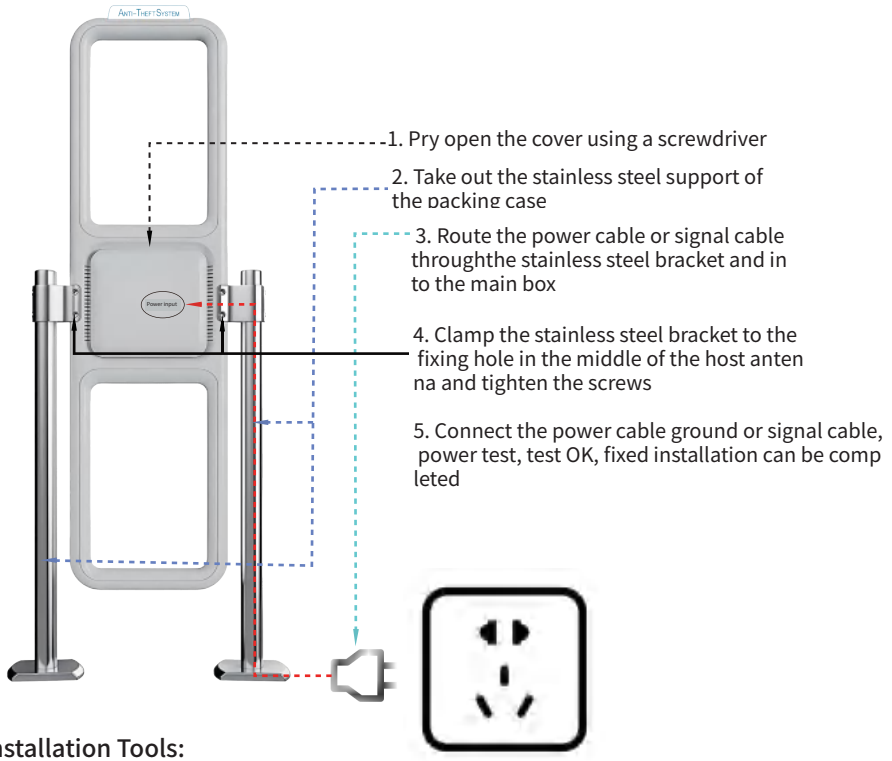
1. Unpack the package, connect the system with the equipped cable at the installation site, and turn on the power to check the system performance
2. Keep the three antennas at an appropriate distance to detect the sensitivity of the system.
3. If the system works normally, there is no hardware problem, and there is no strong interference around the installation site, the antenna can be fixed.

4.6 Fixed Devices:

1. Determine the installation distance based on the actual situation, and ensure that the antennas are horizontal.

2. Mark the positions of screw holes on the floor and drill holes.

3. Fix the antenna on the ground and keep it perpendicular to the horizontal plane.



4.7 Installation Tools:

- ◎ Percussion drill +O12 bit
- ◎ Wire stripper
- ◎ 2mm flat-head screwdriver
- ◎ 2 # Phillips screwdriver
- ◎ Cutting tools for cutting floors

» 5. Remote control debugging system:

The system implements automatic saving mechanism. After entering the debugging interface, the system automatically saves all the debugging parameters by pressing △ and▽keys and then CON. If you want to give up the debugging function item during debugging, you can cancel the current debugging item by pressing PSW key or pressing Exit key (EX).

5.1 Remote control instructions:

5.1.1 Entering Debugging Mode

1. Press PSW to enter the password;

2. Press ▼ or ▲ key to 101, press CON key to enter the system debugging mode;

3. Press ▼ or ▲ key to 99 to clear the number of alarms;

4. Press ▼ or ▲ key to 98 to restart the system;

5. Press the ▼ or ▲ key to 97 to view the software version number.

5.1.2 Function Key Parameter Input

1. Press the function key after entering the system debugging mode;

2. Then press ▼ or ▲ key to enter a reasonable value;

3. Press the CON key again.



Remote control panel diagram

5.2 Remote control function keyboard debugging parameter table:

Serial number	Key name	Parameter function	Default value	Effective range
1	enter	Enter debug mode	101	97-101、111
2	verify	verify		
3	quit	quit		
4	mode	Door mode adjustment	0	0 to 5
5	threshold	Dynamic threshold	40	0 to 200
6	gain	gain	8	0 to 8
7	synchronization	synchronization	0	0 to 250
8	delay	Receiving window delay	4	0 to 14
9	Feature	Enter debug mode		0 to 6
10	noise	Noise display		0 to 6

5.3 Debugging Parameters:

5.3.1 Adjusting the Door Mode (GM)

Adjust the door mode: press GM key to enter the display (Px), through the △ and △ keys to change the value of x, the following is the function description.

P0:CH1, CH2, and CH3 transceiver.

P1:CH1 receive, CH2, CH3 transmit (pure door mode);

P2:CH2, CH3 receive, CH1 transmit (pure door mode);

P3:(CH2 outside closed)CH2 only launches,CH1, CH3 transceiver (the opposite door and transceiver coexist);

P4:(CH3 outside closed)CH3 only emits,CH1, CH2 transceiver (opposite door and transceiver);

P5: Only the CH1 transceiver is enabled. The CH2 and CH3 are disabled (single transceiver).

5.3.2 Dynamic Threshold Adjustment (MIN)

Adjust the alarm threshold, detect the signal noise size, automatically calculate the signal noise energy, and automatically control the continuous trigger number, so as to effectively identify the existence of the label, the smaller the value, the higher the sensitivity, but too small the risk of false positives, too large will cause insufficient sensitivity, should find an optimal operating point between the sensitivity and false positives (40-80 is a reasonable range). CH1, CH2, and CH3 channel thresholds exist independently and can be adjusted as required.

5.3.3 Gain (GN)

There are nine modes ranging from 0 to 8. 0 indicates low gain and low sensitivity, and 8 indicates high gain and high sensitivity. The higher the value is, the better the inspection distance is.

5.3.4 Receiving Window Delay (RE)

The smaller the value, the better the sensitivity, but too small the pulse residual vibration of the transmitter will enter the listening window, triggering the system to think that the label signal will produce false positives, too large the signal strength that the label can be effectively detected will be weakened, resulting in insufficient sensitivity and a decrease in the detection distance (4-8 is a reasonable range).

5.3.5 Synchronizing Data (SYN)

Synchronize all transmissions (eliminate the interference caused by the non-synchronization of multiple systems). When the systems are not synchronized and interfere with each other, it is necessary to search for the synchronization position with special patience and adjust step by step in the whole B-value range until the noise value is the least.

5.3.6 Detecting Signal Noise (NSE)

D1 detects the signal strength of the listening CH1 channel;

D2 Detects the signal strength of the listening CH2 channel;

D3 detects the signal strength of the listening CH3 channel;

The noise level reflects both the intensity of interference in the field environment (when there is no label in the detection area) and the intensity of detected labels (when the label is placed in different positions and directions in the detection area). If the D1, D2, and D3 values of the label in the detection area are more than twice the noise reading when there is no label, the system can detect the label at this position.

5.3.7 Entering Debugging Mode (MOD)

E0: empty;

E1: Restore factory Settings.

E2: Static label recognition (If this function is enabled, the current label will be automatically recognized after 12 consecutive alarms. When the label no longer moves, the security door will not alarm, and the detection distance will be automatically restored after the label is removed. The function of this function is that when there is a label near the boot, it will not alarm all the time. If the label identified is not very close (1.5 meters away from 39 hammer), it can also alarm when entering another label. "0" is off, "1" is on);

E3: alarm sound length adjustment (" 0-20 "adjustable);

E4: Alarm type selection (0: intermittent alarm; 1: continuous alarm);

E5: Launch mode switch;

E6: Anti-interference mode switch;

5.4 Debugging Methods:

Enter the system: First press PSW to display 0100 press plus (△ key) to 0101 and then press CON to confirm.

5.4.1 Adjusting the door Mode (range :0-5)

● Press the GM key;

● Press ▼ or ▲ key to select parameters;

● Press CON to receive parameters.

5.4.2 Dynamic Threshold Adjustment (range :0 to 200)

Increasing the H value reduces the false alarm rate

Reduced H value The system is more sensitive, but there is a risk of false alarms.

● Press the MIN key;

● Press the ▼ or ▲ key to select the corresponding channel;

● Press ▼ or ▲ key, select the corresponding parameter adjustment;

● Press CON to receive parameters.

5.4.3 Gain Adjustment (range :0-8)

● Press the GM key;

● Press ▼ or ▲ key, select the corresponding channel,

● Press▼or ▲ key, select the corresponding parameter adjustment;

● Press CON to receive parameters.

5.4.4 Synchronous adjustment (Range :0-250; Default value :0)

Select the best value between 0 and 250, which eliminates interference between two different systems.

● Press the SYN key;

● Press ▼ or ▲ key to select parameters;

● Press CON to see the noise environment;

To enter this state, when continuously adjusted, see different noise levels at different phases (distinguished from the digital display) Adjust the phase to choose a relatively clean phase environment to set.

5.4.5 Receiving window delay (range :0-14)

Input 1-14 numbers, the larger the value, the slower the reaction speed; The smaller the number, the faster the reaction.

● Press the RE key;

● Press ▼ or ▲ key to select parameters;

● Press CON to receive parameters.

5.4.6 Noise value display (range :0-3)

Nixie digital display noise. Note: If the alarm function is suspended when the noise value is detected, unless 0 is entered, the detection state is withdrawn and the normal alarm is resumed.

● Press the NES key;

● Press ▼ or ▲ key to select the corresponding channel parameters;

● Press CON to receive parameters.

Channel gain regulation

In the environment where the ambient difference noise value is high, adjust the adjustable resistance of the channel gain adjustment to reduce the noise value so that the anti-theft system can work normally. After reducing the noise value, the corresponding detection distance is reduced.

D-1 channel gain adjustment Adjustable motherboard potentiometer to adjust D-1 channel gain;

d--2 channel gain adjustment Adjustable motherboard potentiometer adjust d--2 channel gain;

d--3 channel gain adjustment The mainboard potentiometer adjusts the d--3 channel gain.

5.4.7 Mode Selection

When the remote goes into this state

● Press the MOD key;

● Press ▼ or ▲ key to select parameters;

Press CON to receive parameters.

5.4.8 After the debugging is complete, press the Exit key (EX), and press the CON key to confirm, the system automatically saves the selected parameters.

6. Common faults and solutions:

6.1 Troubleshooting Simple Problems

6.1.1 Check whether power cables and signal cables are properly connected.

6.1.2 Ensure that the power supply is turned on.

6.1.3 Check whether the fuse is burned out. If it is damaged, replace the fuse.

6.1.4 Check whether the host is placed in a dry and well-ventilated place to avoid circuit board hardware faults caused by moisture or water.

6.2 System False Alarms

6.2.1 If there are large metal objects (such as metal shopping cart, bag storage cabinet, umbrella rack, etc.) around the antenna, the proximity of the metal objects to the antenna may distort the detection signal, increase the noise value, reduce the detection distance, and cause interference to the antenna, resulting in false positives.

6.2.2 An electronic device with a frequency of 58KHz is working near the antenna, which will cause the same frequency interference to the antenna and cause false positives in the system. Common 58KHz electronic devices are spotlights, LED lights, fluorescent lamps, printers, etc.

6.2.3 There are non-synchronous acoustic and magnetic devices around the antenna. When the antenna is not synchronized with other acoustic and magnetic devices, it is easy to generate system false positives.

6.2.4 If the soft label or hard label is too close to the antenna, a false positive will be generated when the label on the cash register or clothing store closet is too close to the antenna.

6.2.5 The transmitted signal is delayed or distorted, resulting in false positives.

6.3 Power Supply Faults

6.3.1 The acoustic magnetic system must use an independent power supply, because the acoustic magnetic antenna is a power synchronization device, so other devices on the power supply will cause greater interference to the acoustic magnetic antenna, resulting in system false positives, sensitivity reduction and other problems.

6.3.2 The power supply must be well grounded, and the ground wire can be used to filter the noise from the power supply and reduce interference

6.4 Synchronization Problems

The acoustic magnetic equipment must be synchronized within a certain range, including the synchronization between the newly installed acoustic magnetic equipment and the original acoustic magnetic equipment and other nearby acoustic magnetic equipment. Because the acoustic magnetic system does not allow one system to transmit when the other system receives, if the two systems are not synchronized, they will interfere with each other, reduce sensitivity, and produce system false positives.

1. First, check whether the phase of the power supply in the same system is consistent. The neutral line and the live line cannot be mixed.

2. Debug synchronization parameter B and search for a proper synchronization value to synchronize systems.

6.5 Hardware Faults

When the equipment fails, it can not be solved by on-site inspection and remote control debugging, it may be a hardware failure of the equipment.

6.5.1 Power failure: Whether the fuse is blown or whether the power socket is powered on.

6.5.2 No transmission: Listen carefully for the soft vibration of the transmitting antenna during transmission, or use induction

The pen tests whether there is an electromagnetic field around the antenna, if not, it may be a transmitting motherboard failure.

6.5.3 No alarm: No alarm even if the label is placed very close (the label is sure to be good), check that the horn is

6.5.4 Garbled characters are displayed on the alarm indicator board: Ensure that the cable of the indicator board is not broken and in good contact, and the power supply voltage is normal and stable. Otherwise, the indicator board may be faulty.

6.5.5 Remote control is not working: Check whether the 3V battery power of the remote control is sufficient, whether the alarm light board line contact is good, whether the power supply voltage is stable and normal, whether the remote control is aligned with the infrared receiving tube, otherwise it may be the alarm light board or the remote control is faulty.

7. Installation and maintenance of common fault phenomena and solutions:

Fault category	Fault phenomenon	cause	solution
Not warn	The antenna is connected, the fuse is not blown, but there is no power	Check the power supply board. A plug-in is loose	Reinsert the white plug that connects to the power supply
	Antenna connection is normal, power supply is normal but no alarm	The antenna automatically blocked due to strong interference	Find the interference source is the interference of the LED light in the store, turn off the LED
misstatement	There are large metal objects around the antenna, causing the antenna to be false positive	The space electromagnetic interference signal interferes with the antenna through the reflection of the metal object	Remove large metal objects until false positives are eliminated
	There are a lot of spotlights and fluorescent lights near the antenna, and the antenna is false positive when it is turned on	The starter of spotlights and fluorescent lamps is close to 58KHZ, which interferes with the antenna	Replace starter for spotlights and fluorescent lamps
	When no one is around, the antenna occasionally misfires	Some sudden interference from power or space propagation	Chiang MIN value and RE value are adjusted appropriately
	When no one is around, the antenna occasionally misfires	The cumulative effect of label signals	Move the label further away
	There are a lot of labels around the antenna: the antenna is still false despite a certain distance	Same frequency interference	Patiently adjust SYN values until they are synchronized with each other, enter MOD debug mode, adjust emission mode or anti-jamming mode
Power source	The noise value is too high, the sensitivity is low, and there are even false positives	The power PGND cable is missing	ground
	Two channels of the same power supply, one channel with high sensitivity and one channel with low sensitivity	The channel neutral line with low sensitivity is inversely connected to the live line	Switch the neutral line and the live line
hardware	The antenna barely alarms, and the transmitter doesn't rattle	Launch motherboard failure	Replacement launch board
	The remote control does not work, nor does it alarm, and the power indicator of the light board is on normally	The receiving power supply board voltage is unstable	Replace the receiving power module
	Alarm light board shows garbled code, line contact is good	The alarm indicator board is faulty	Replace the alarm light board