AM SYSTEM（AS002） Manual

Contents

Chapter 1

AM-Mono System Overview

1.1. System Description

AM-Mono is a single pedestal Electronic Article Surveillance system that works with any 58kHz tags and labels. This system is plug and play, does not require professionals to operate.

AM-Mono is software driven EAS system, which can detect any 58KHz tags and labels. The system's transceiver listens for the unique signal that any 58KHz tag produces, and then verified it in less than one second.

Technical Data	Europe	USA
Height	1540mm	61"
Width	440mm	17.3"
Thickness	140mm	5.1"
Weight	20Kg	44lbs
Power	220-240vac	100-120vac
Operating Frequency	58kHz	58kHz
Micro Pencil Tag Detection	0.9 meters on either side	3 feet on either side
Operating temperature	0°C to 49°C	32°F to 120°F

1.2. Features

Digital Signal Process

AM-Mono uses a large number of the latest DSP technology to solve security problems.

Self adapting Electronics

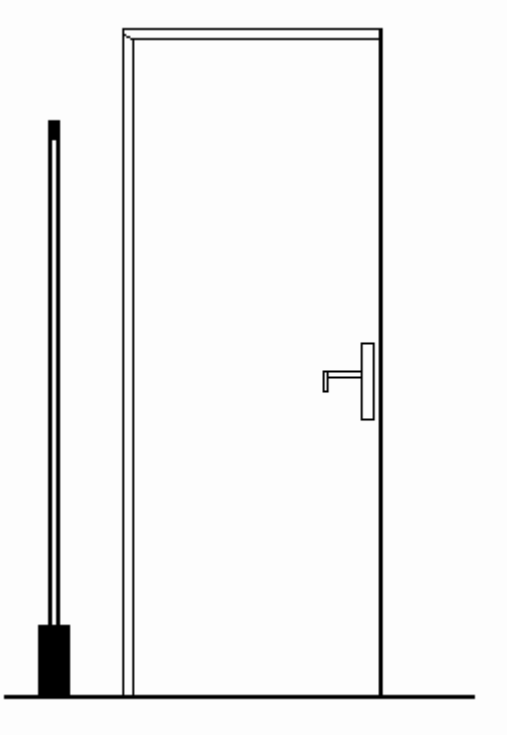
AM-Mono， because of the fully digital technology， keep on testing environment, automatically adapts to the change of the environment based on the current environment. It will always operate at its optimum performance from the beginning.

Software Driven

As the AM-Mono is fully digital software driven system, it has the unprecedented flexibility, especially in the future product upgrades. This means that you only need to do a little input and always have the latest version of the most advanced EAS system on the market.

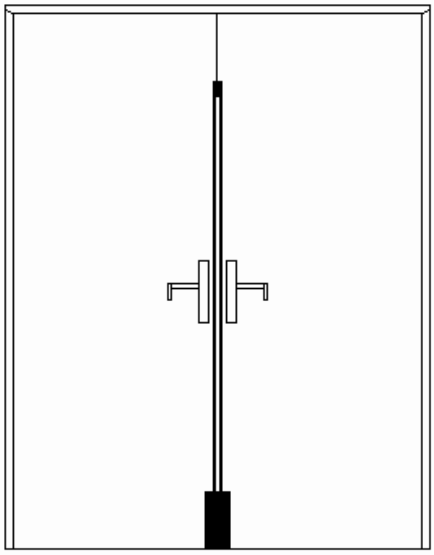
1.3. Applications

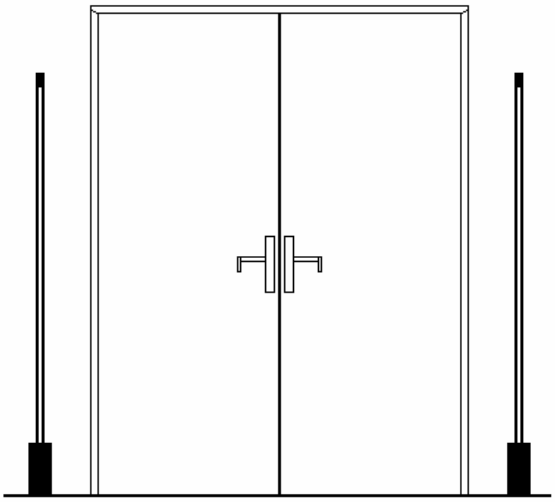
1. This type of installation consists of a single AM-Mono pedestal with



coverage of a 6 feet wide opening. The pedestal can be installed in the middle of the door, 3 feet on each side of the detection range with using of Micro pencil tag. AM-Mono system can be installed closed to the metal door or frame without decreasing the detection range. But we need to note that the system needs to be installed 12 feet away from the neon lights. If it can not meet this requirement, you need to add a transformer shield to eliminate the noise problem.

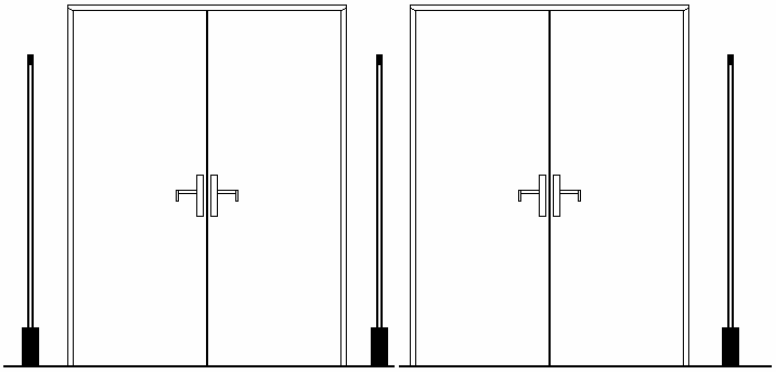
2. This type of installation consists of a single AM-Mono pedestal with coverage of a 6 feet wide opening. The pedestal can be installed in the middle of the door, 3 feet on each side of the detection range with using of Micro pencil tag. AM-Mono system can be installed closed to the metal door or frame without decreasing the detection range. But we need to note that the system needs to be installed 12 feet away from the neon lights. If it can not meet this requirement, you need to add a transformer shield to eliminate the noise problem.





3. This type of installation consists of two AM-Mono systems. There are no interconnections between the pedestals. Using the same power line in the same phase to synchronize the two systems. The pedestals are located on both sides of an opening space. The distance between the two pedestals is 6 feet with the use of DRAGON GUARD SYSTEM CONFIRMED Micro pencil tag. The AM-Mono can be installed closed to the metal door or frame without decreasing the detection range. But we need to note that the system needs to be installed 12 feet away from the neon lights. If it can not meet this requirement, you need to add a transformer shield to eliminate the noise problem.

4. This type of installation consists of three AM-Mono systems. Each gate-to-gate distance is 6 feet with use of Micro pencil tag. There are no interconnections between the pedestals. Using the same power line in the same phase to synchronize the two systems. The AM-Mono can be installed closed to the metal door or frame without decreasing the detection range. But we need to note that the system needs to be installed 12 feet away from the neon lights if it can not meet this requirement, you need to add a transformer shield to eliminate the noise problem.



1.4. Parts List

Part Name	Order Number
1.Transceiver Pedestal	AM－ＴＰ
２.Working State Indicator Board	AM－ＷＤ
３.Base	AM－ＢＳ
４.Remote Control	AM－ＲＣ
5.Power Line Connector	AM－ＰＬＣ
6.Installation Tool	AM－ＩＴ
7.Installation Manual	AM－ＩＭ

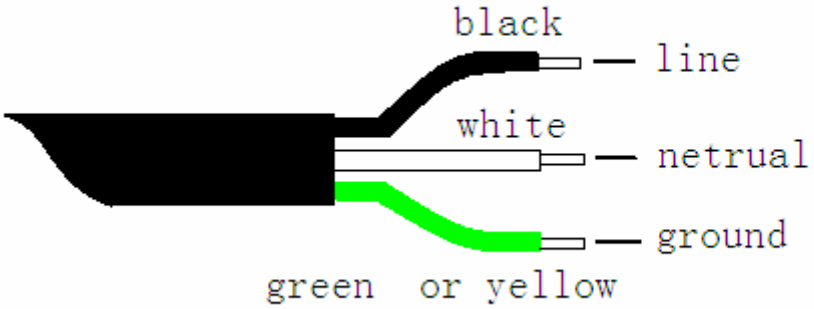
Chapter 2

Power Cord Notices

North American Power Supply Cords

This equipment is supplied with an external power line at one end and a molded receptacle terminal block at the other end. Conductors are color coded white (neutral), black (line) and green/yellow (ground).

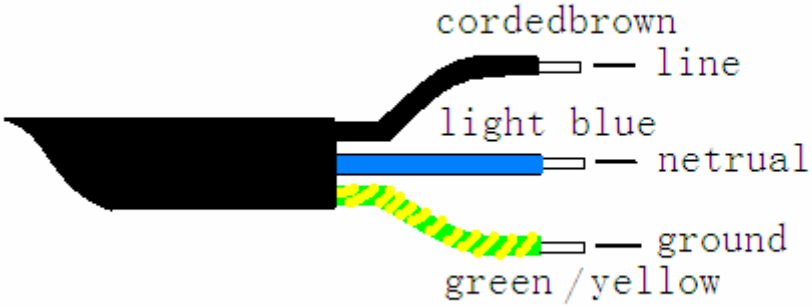
If the device operating voltage over 130VAC, the power cord required to comply with NEMA (International Electrical Manufacturers Association) construction requirements.



International

This equipment is supplied with an external power line at one end and a molded receptacle terminal block at the other end. Conductors are CEE (International Electrical Equipment Conformity Certification Committee) color-coded —light blue(neutral), brown(line), and green/yellow(ground). In addition, IEC (International Electrotechnical Commission) 320 C-13 type

power line can be used if they meet the safety standards of the country where they are installed.



We recommend that you use a CE (user engineers) recognized the power cord H05 VV-F or H05 VVH2-F2 (refer to the electrical code which governs your country for installation of an Anti-Theft Unit to the Main Power Supply)

Chapter 3

Installation Procedures

In the nearest place where you want to place the base layout of the power cord.

Attach the power cable to the connector as shown below.

Please set voltage selector in the following states

1.If the input voltage is between 100 V -120 V, please place it on the position of 115V.

2.If the input voltage is between 220 V -240 V, please place it on the position of 230V.

Note: The distance to external equipment is limited to 20 feet.

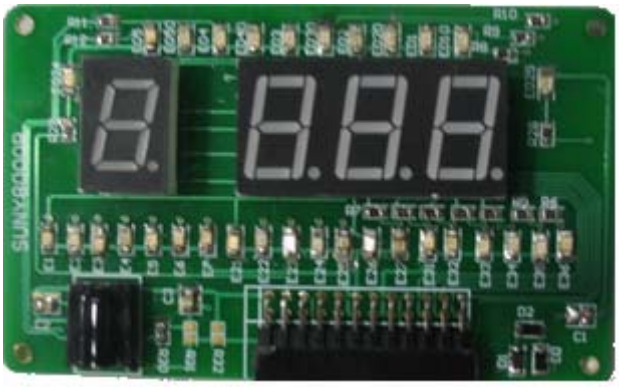
Fuse Replacement Notice

Fuse box is located on the left side of the bottom of the PC board in pedestal.

Chapter 4

Quick Start Instructions

Turn the power on, the system will start the program. Wait for a moment, you will see the LED indicator light stop flashing and stay at the number 0(alarm count mode). On the left part of the panel, a program running indicator light will flash regularly, and on the right corner, a self-detection indicator light will on during the system is under auto-detection statues to configure all the parameters (Please see Appendix [MOD]).



Chapter 5

Problems

If you have ensured that every step in installation is correct and all connections are ok, but the system still have trouble, our technicians will help with phone support. For tech support in your country please visit our web site www.dragon-guard.com .

Chapter 6

Accessories

The system needs to be installed 12 feet away from the neon lights. If it can not meet this requirement, you need to add a shield for neon light to eliminate the noise problem.

Chapter 7

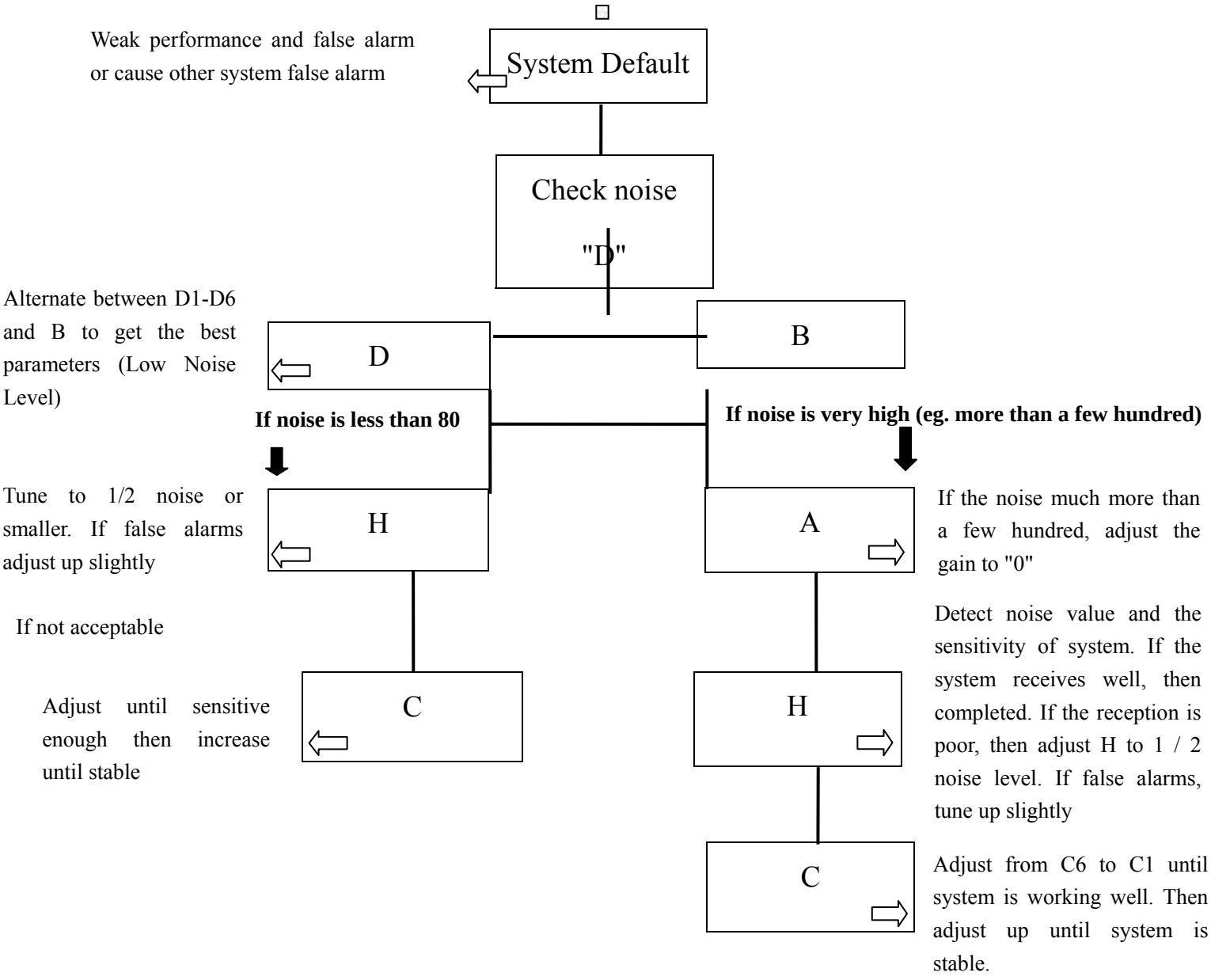
Appendix

7.1. Control Keys Description and Default Parameter Table

Control Keys Description and Default Parameter Table

Key ID	Button	Parameters Description	Default Value	Valid range
A	GN	Gain Adjustment	1	0，1
B	SYN	Sync Adjustment	1	0-460
C	RE	Receiving Window Delay	4	0-14
H	MIN	Minimum Signal Adjustment	40	0-200
E	MOD	Configuration Loading Mode Setting	0	1，2
D	NSE	Noise Display	0	0-6

7.2. Flow Chart of Tuning Procedures



***Watch the system continuously for about an hour to ensure that you have chosen stable parameters**

7.3. Tuning Procedures &Tips

When tuning the system, the most important is to set the variable parameters of synchronous. The value is set at default value (B1), usually this is very suitable. In some cases, Environmental conditions need to be adjusted due to other systems' environment of the phase problems, rapid pads etc. The best way to get the appropriate synchronization value is to work with the remote control in conjunction with the noise display. Please see the following examples so that you can find the best solution for any special environment.

Problem: System is weak and or false alarming

Step 1: Press [ST] button to start, than [PSW].Then screen will show value of 100. Press [▲] button until the display of 108. Enter into the system.

Step 2: Press [CON] button, the screen will be empty. Press [NSE] button, screen will show value of D. You can choose between d1-d5 to get the value of different noise. You will need to alternate between D and B to find how changing the value of B affects the noise. The lower the noises level the better. We suggest that you incrementally go up a value of 5 until the lowest overall average noise is show numerically.

Tip: If (D1, D2) are lower than (D3, D4), which indicates the environment is very well.

Tip: A good noise level for (D1, D2) is in the range of (10-30).

Tip: A higher level of (20-40 points) is normal for (D3, D4).

Tip: Change the gain control from 1 to 0 if noise level is 80 or above.

Tip: If the system is not sensitive enough, bring H down to the 1/2 noise of the current (after the gain adjusted to 0).

Tip: If the system is not picking well enough, bring the value of the receiving window(C) down by a value of 1 until system is sensitive enough. Wait to make sure that the system doesn't start false alarming. If in fact you can bring the value up 1 number and still have a good pick, this is a safe choice.

Tip: Observe the system up to 1 hour after tuning to make sure that you have chosen the stable parameters.

There are mainly two problems that affect the system's function and performance. One is the system's ability to identify the tags and labels are too poor. The other is that system false alarms (or cause other system to do so) without tags or labels in detection zone.

Problem: Low identification rate or low sensitivity

Solution: 1.Check noise "D"(range from 0 to 999, >400 is serve noise)

2. Adjust MIN, GN, RE to increase sensitivity (see diagram below)

3. Reduce the distance between the pedestals or use stronger tags like DRAGON GUARD sysetem confirmed Pencil tags.

Problem: False alarm or cause other systems false alarms

Solution: 1."Self-detection"(see [MOD] button)

2. Switch the L and N lines of power supply plug

3. Adjust SYN "B" step by step (detail procedures see next page)

The diagram below explains how the major three tuning parameters influence the performance of system.

Please open and tune the systems one by one if there are multiple pedestals working together. It will help to find out which system is causing problem.

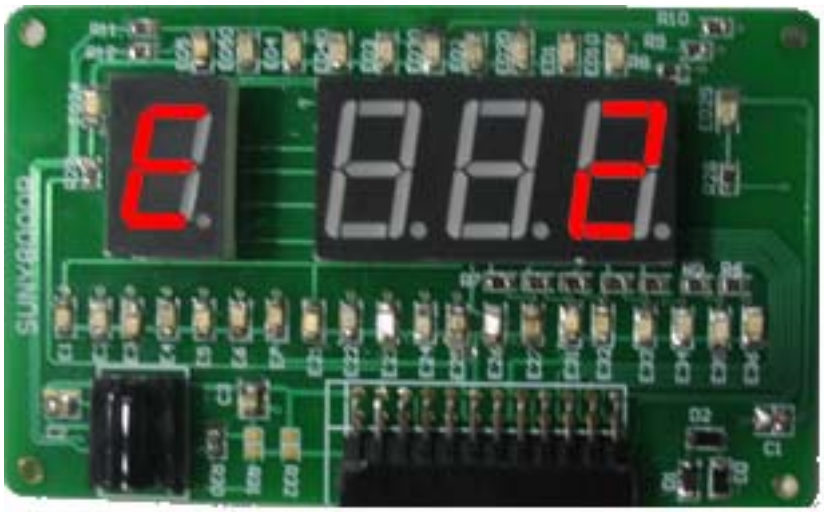
It is recommended sync use the default value B1 when our system is working together with other systems. In most cases, B1 can work with other AM products peacefully. But some special cases of cross talk, please try self-tuning mode, or adjust B value step by step to find a proper phase to eliminate the cross interference.

A.Self-tuning mode , open a system

1.Use [MOD] button to load self-tuning mode

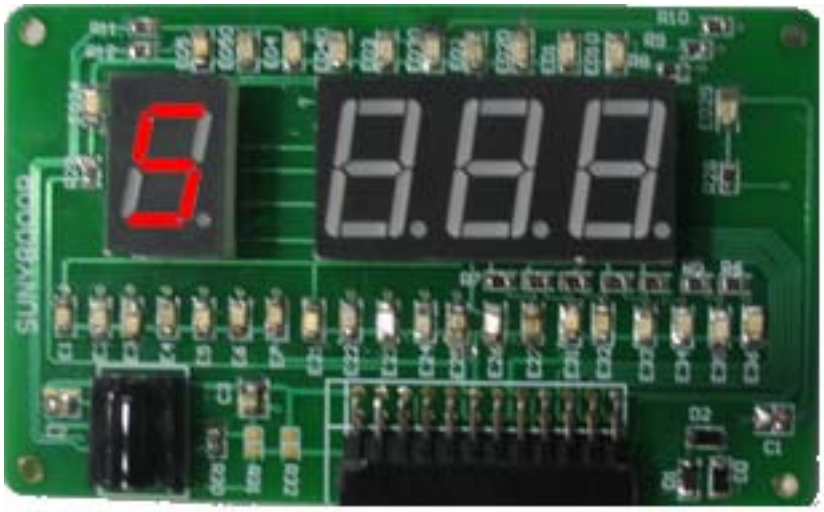
- Press [MOD] button to enter Mode Configuration
- Press [▲] and [▼] button to select 2
- Press [CON] button

Note: After press [CON], E return to "0"



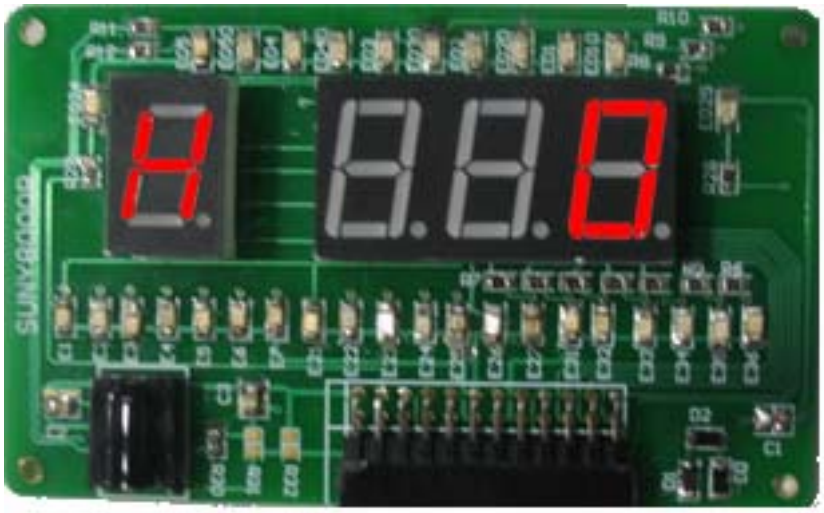
2.Save self-tuning parameters

- Press [SA] button
- Press [CON] button



3.Check self-tuning results

All parameters of self-tuning can be displayed except for MIN (Minimum Signal Adjustment, see H). H will only display 0 after self-tuning.



The result of other parameters of self-tuning can be checked through the entries below

Key	ID	Parameter
[GN]	A	Gain adjustment
[SYN]	B	Sync adjustment
[RE]	C	Receiving window delay

If one system is tuned ok, copy sync value to other systems.

B.If the problem still exists ,switch L&N

1. Return to default settings

- Press [MOD] button to enter the Mode Configuration
- Press [▲] and [▼] button to select 1
- Press [CON] button

2. Save default parameters

- Press [SA] button
- Press [CON] button

3. Switch L&N of power plug

Live wire: black or brown

Neutral wire: white or blue

Ground: Yellow and green

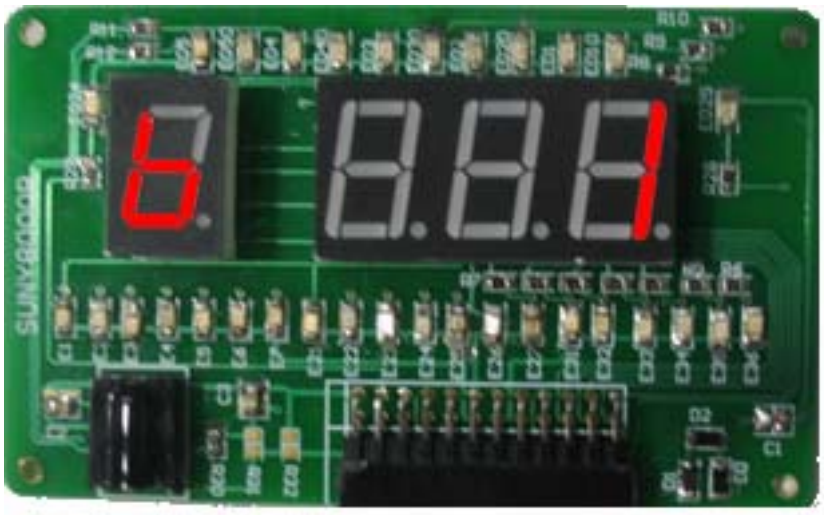
C.If the problem still exists ,adjust SYN"B"

1. Adjust SYN"B" step by step

- Press [SYN] button to enter SYNC configuration
- Press [▲] and [▼] button step by step to sweep the whole sync range

(1 to 460)

- Press [CON] button after each step



If one system is tuned ok, copy sync value to other systems.

7.4. Programming for remote control

The panel will show the result of alarming count if without receiving the control signal from remote control box. The alarming count result shows as Fig.1. The number indicates the times that system has alarmed.

Fig. 1

Press [ST] button to open remote control, and then press [PSW] button to enter into password input state. Panel shows as Fig.2 and wait for entering password. The Number starts from 100, and it is easy to access to the password 108.

Fig. 2

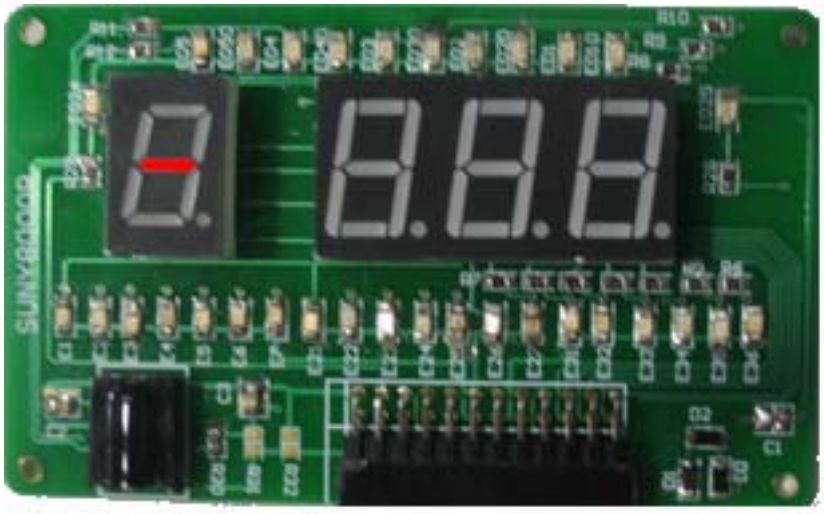
Input password 108

(The code 108 is not subject to change, it applies to every remote control)

Press [▲] and [▼] button to select password number.

Press [CON] button to accept the password.

When the password is verified, panel will show as the following picture and wait for configuration type input.



A.Gain Adjustment (range: 0-1)

- Press [GN] button, panel shows as Fig.3.
- Press [▲] and [▼] button to select parameters.
- Press [CON] button to accept the parameters.

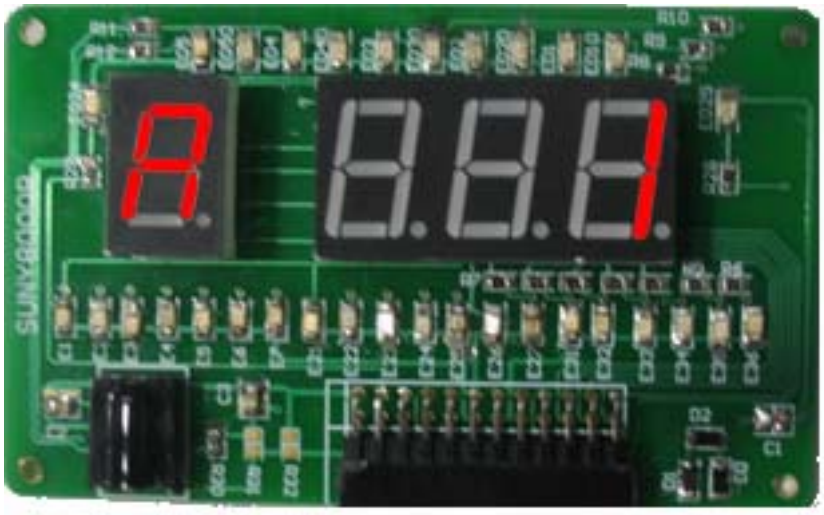


Fig. 3

B. Sync Adjustment (range: 0-460; increment: 1)

It is the time from zero crossing point to the start point of transmitting burst. It is useful to eliminate crosstalk between different systems.

- Press [SYN] button, panel shows as Fig.4.1.
- Press [▲] and [▼] button to select parameters.
- Press [CON] button to accept the noise conditions.

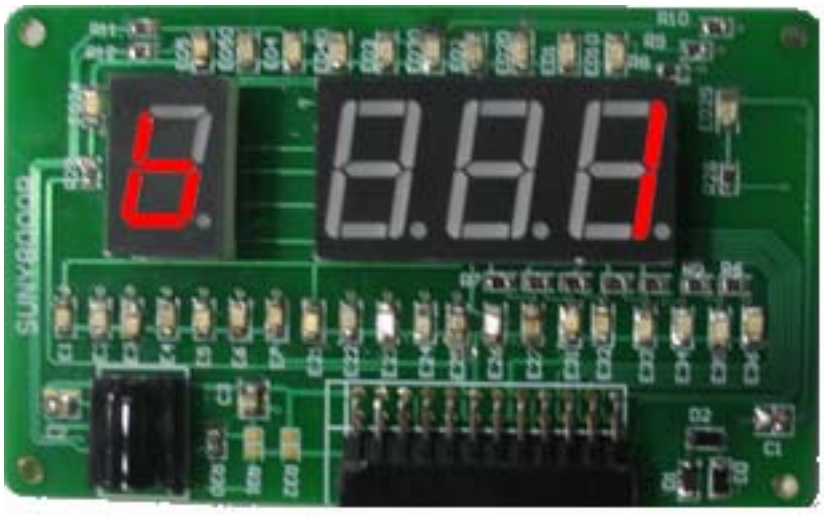


Fig. 4. 1

Under this state, you can see the different noise condition (from the number indication and the light segment display) at a difference phase when the adjustment goes on. It will help you to select a relative "clean" phase environment to set the system on.

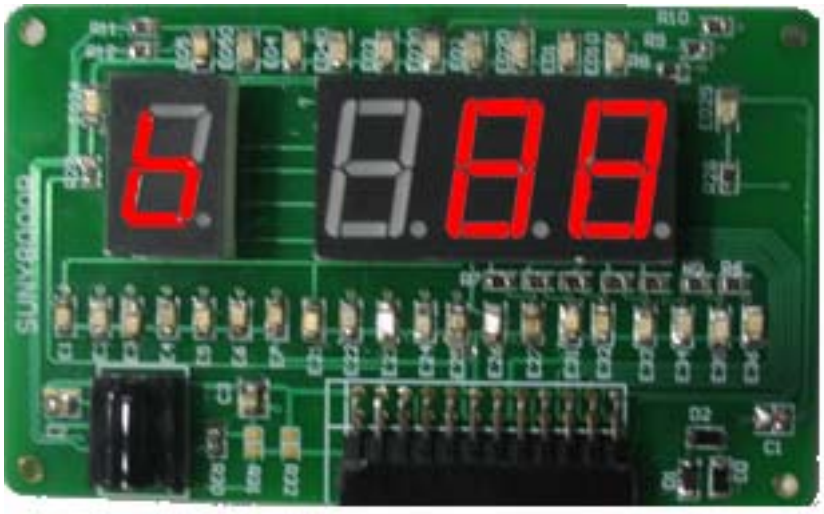


Fig. 4. 2

C. Receiving window delay (range: 0-14; increment: 1)

You can input a number from 1 to 14, the bigger the number, the latter the receiving window will be opened.

- Press [RE] button, panel shows as Fig.5.
- Press [▲] and [▼] button to select parameters.
- Press [CON] button to accept the parameters.

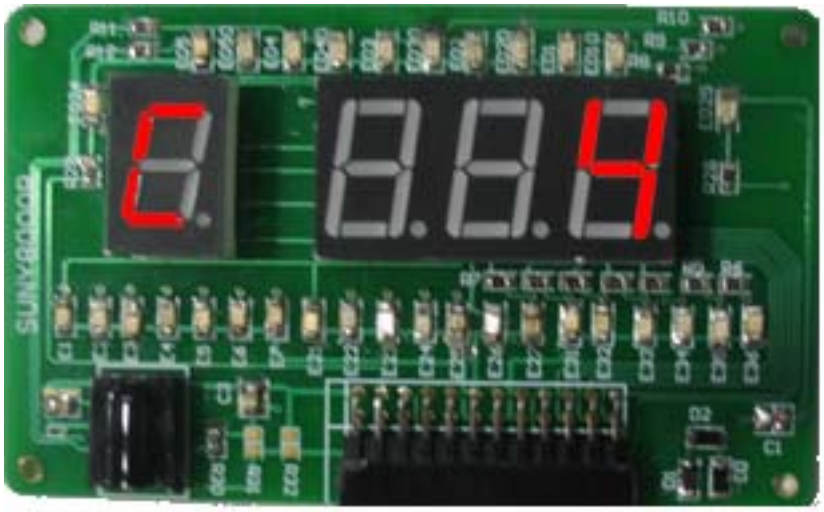


Fig. 5

D. Noise condition display (range: 0-3)

The LEDs show the signal level by figures, while the light segments bar shows the level by the number of segments.

(Note: If noise condition display is open, alarm will be deactivated unless you input 0 to shut down the display.)

- Press [NSE] button, panel shows as Fig.6.1.
- Press [▲] and [▼] button to select parameters.
- Press [CON] button to accept the parameters, panel shows as Fig.6.2.

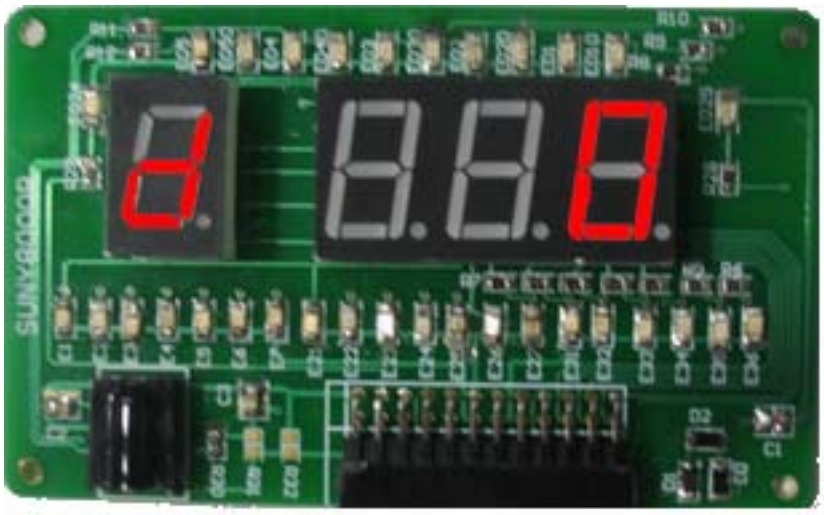


Fig. 6. 1

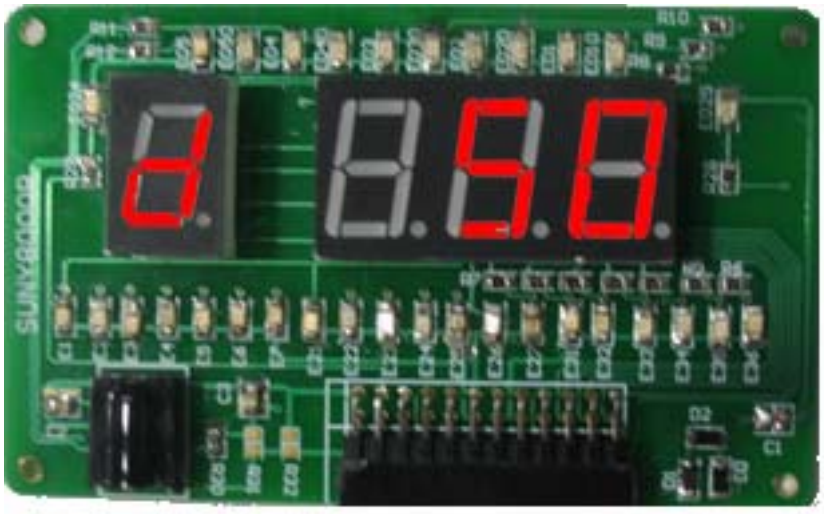


Fig. 6. 2

7.5. Noise Condition Display Configuration Table

Noise Condition Display Configuration Table		
Value	**Function Description**	**Detection Purpose**
0	Close tag or noise window display	
1	Tag window display for figure 8 antenna(channel one)	Detect tag entering vertically
2	Tag window display for rectangular antenna(channel two)	Detect tag entering horizontally
3	Average noise window display for figure 8 antenna(channel one)	Monitor average noise
4	Average noise window display for rectangular antenna(channel two)	

5	Instantaneous noise window display for figure 8 antenna(channel one)	Monitor instantaneous noise
6	Instantaneous noise window display for rectangular antenna(channel one)	

Note: D3, D4 not only show the average noise level but also show the value of the minimum signal adjustment value. It gets the max value between average noise and min value. Therefore, if min (H value) is bigger than average noise level, D3, D4 will only show H value instead of average noise value.

H. Minimal signal adjustment (valid range: 0-200; suggested increment: 20)

Changing the parameters to admit the minimum signal amplitude. In another word, any smaller value will be ignored. Reduce this value will increase sensitivity of the system, but it also at the risk of false alarming. Vice versa, increase this value will decrease sensitivity of the system, and it can overcome the unexpected false alarming caused by uncontrollable environmental noise.

- Press [MIN] button, panel shows as Fig.8.
- Press [▲] and [▼] button to select parameters.
- Press [CON] button to accept the parameters.

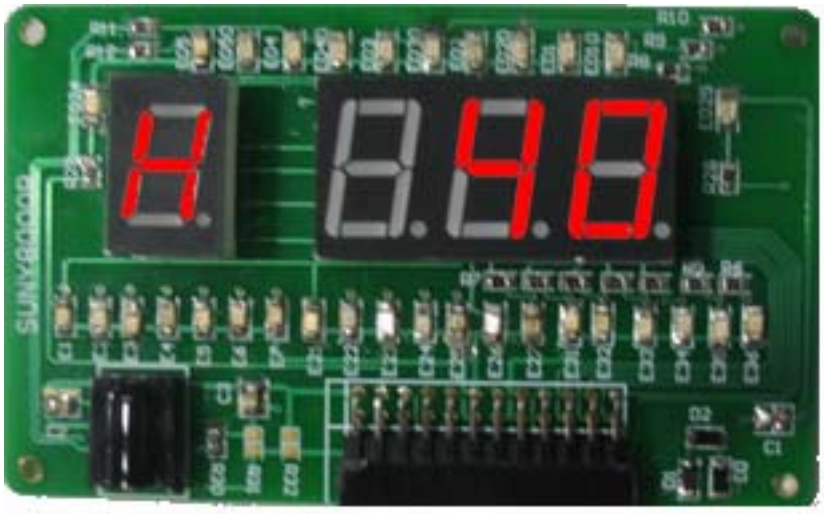


Fig. 8

Note: If the automatically configured parameters of self-detection are saved to flash ROM (see entry E mode button).Minimum signal adjustment will only show 0 to indicate this.

E. Mode button

The panel will show as Fig.9.

- Press [MOD] button.
- Press [▲] and [▼] button to select parameters.
- Press [CON] button to accept the parameters.

Note: Don't forget to save all the loaded parameters before system power off or reboot.

0 Initial state（no functions）

1 Load default parameters immediately

2 Start self-detection mode immediately

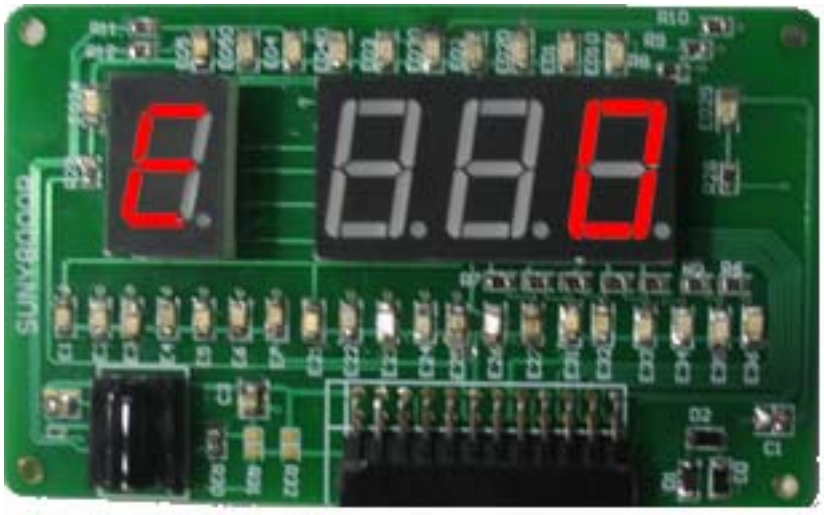


Fig. 9

Exit button

Press [EX] to return to alarm counter display state.

Save button

This button will save all current parameters to Flash ROM, so when power is shut down the parameters will not be lost. And it will load all the parameters from Flash ROM when next time system reboots.

- Press [SA] button, panel shows as Fig.10.
- Press [▲] and [▼] button to select 1.
- Press [CON] button to accept the current parameters.

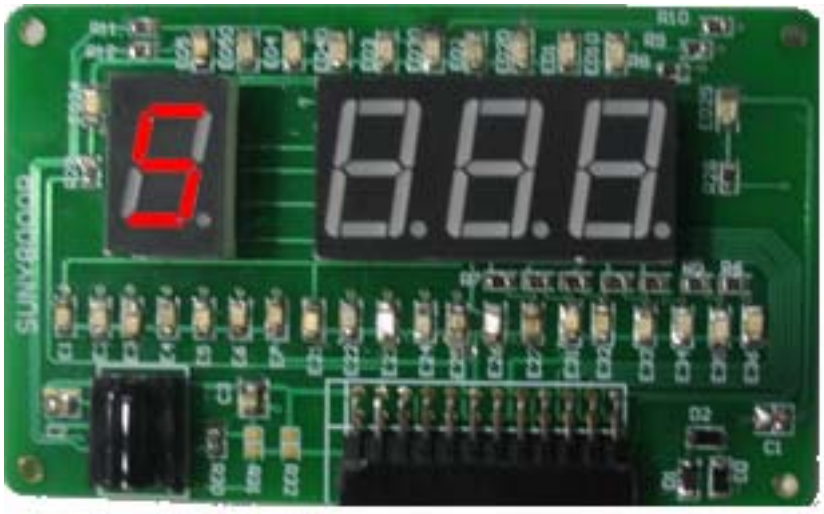


Fig. 10

Chapter 8

Important safeguards and regulatory notices

The next a few pages introduce the safety guidelines which are very important for operators and service personnel. Please follow this important safety information, particular attention to the potential of fire, electric shock injury to persons.

Warnings

You should let only the qualified service personnel open the equipment cover or enclosure. To reduce the risk of electric shock, any operation should be carried out in accordance with the manual.

Danger

Electrical potential is still exist between some internal components, even if the power is turned off. To prevent electric shock, make sure that the AC power cord has been cut off before working on any internal components of this equipment.

The moment when you unplug the system, there will still be residual

voltage because of the slow discharge of large power supply capacitors. Please let capacitor discharge for 30 seconds before working on the system.

Warnings

- Do not operate the equipment near water or in water.
- Disconnect AC power before installing any options.
- The equipment should be used three-phase socket.
- This equipment is grounded through the grounding conductor of the power cord. To avoid electrical shock, connect the power cord to the equipment and insert it into an appropriate socket before connecting the equipment inputs and outputs.
- Use normal power supply to improve product durability
- Do not wear watches or hand jewelry when troubleshooting high-current circuits.
- Do not use the door handles or front panels to lift the equipment during installation. Because they may open abruptly and injure you.
- To eliminate fire hazards, please use the components (the specified type, voltage, current rating) which are mentioned in the parts list.
- Fuse replacement requires qualified service personnel.
- In order to avoid explosion, do not operate this equipment in an explosive environment.
- Have qualified personnel perform security checks after any completed

service.

- Because of the danger of electric shock, please provide the line with over-current protection.
- Test all components before touching.

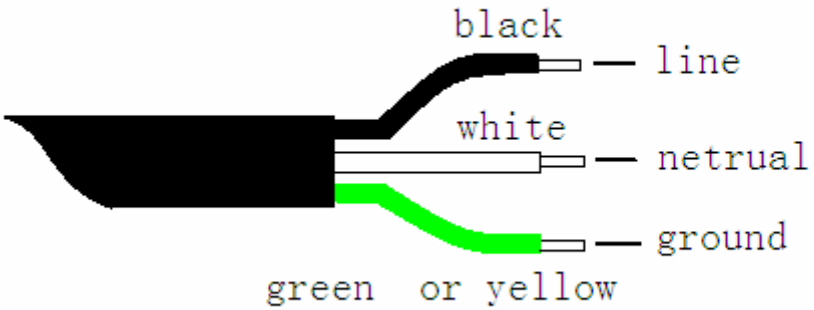
Cautions

- In order to replace the fuse without damage to equipment, locate and correct the troubles that caused the fuse to blow before applying power.
- Ensure that all the power indicator lights are turned off before removing the power supply or servicing equipment.
- Use only specified replacement parts.
- Make sure that vents well ventilated.
- In order to prevent damage to the equipment, please choose a suitable range of input voltage according to the manual.
- Circuit boards in this equipment are densely populated with surface mount and ASIC components. Special tools and techniques are required to safely and effectively troubleshoot and repair modules.

Power cord notices

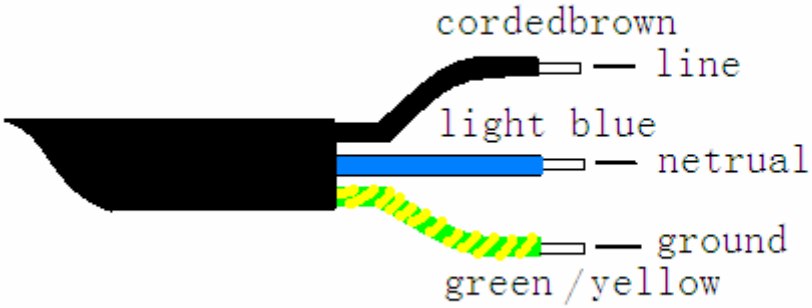
North American power supply cords

This equipment is supplied with an external power line on end and a molded receptacle terminal block at the other end. Conductors are color corded black (line), green or yellow/green (ground) and white (neutral).



International power supply cords

This equipment is supplied with an external power line on end and a molded receptacle terminal block at the other end. Conductors are CEE color corded brown (line), green/yellow (ground) and light blue (neutral). Other IEC 320 C-13 type power supply cords can be used if they comply with the safety regulations of the country in which they are installed.



Before You Install

Introductions

Congratulations on your purchase of the one of the finest EAS System on the market. This is an installation manual.

Receiving Inspection

Check the container to see if there are signs of damage. If any is found, notify the shipping company. If there is no obvious damage, continue unpacking.

Unpacking Instructions

Place the container on a large flat space, open the packaging.

Equipment Inspection

Inspect whether the goods were damaged, in particular the following points:

- All connectors pins for bent or broken.
- Cables for bent or broken.
- Antenna for any obvious signs of damage.

If any item is damaged, do not make any power or signal connections to the unit before contacting customer service.

If there are any discrepancies between the manual set inventory sheet and the manuals received, or between the packing list and items received, contact customer service. If there is no difference and damage, you can follow the manual to get started.