

SUNY8000B Main Control-box

Instruction to controller-box SUNY8000:

- ★ This product can work normally once powered, does not need any debugging.
- ★ Under bad surrounding environment, following debugging can make the system reach the best performance.

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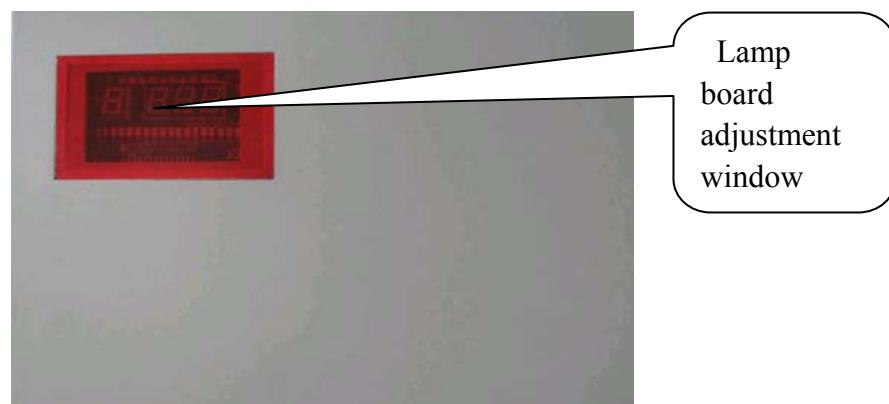
1. Overview

1.1 Product introduction

SUNY8000B control-box is one of accessory of EAS system. Generally, the device is installed at entrance of retail stores and supermarkets. Once article carrying not deactivated tag passes through the interrogation zone, transceiver of the control-box will receive unique signal giving by the tag, and sends alarm signal within less than 1 second. As a result, probable loss may be prevented for supermarket. The accessory can realize plug-and-play, without the presence of professionals. In comparison with other products, the controller is of high operability and functional advantage.

Thank you for purchasing our SUNY8000B control-box. Here is the operation guide for the controller.

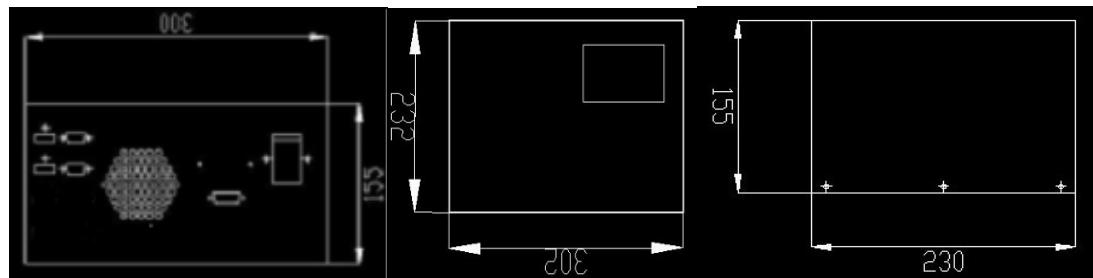
The following is the surface picture.



SUNY8000B

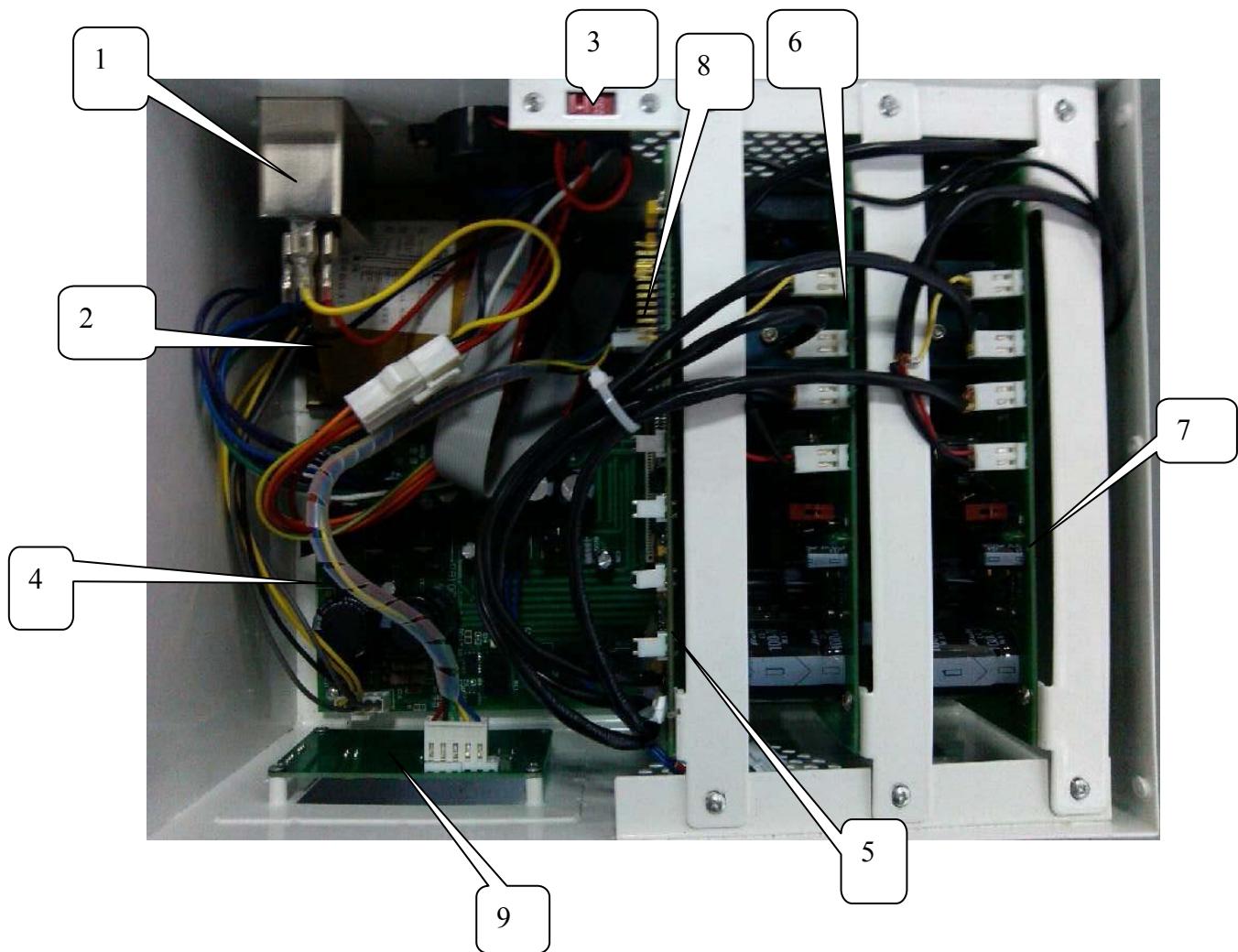
1.2 Out dimension

Dimension Overview



1.3 Framework of SUNY8000B control-box

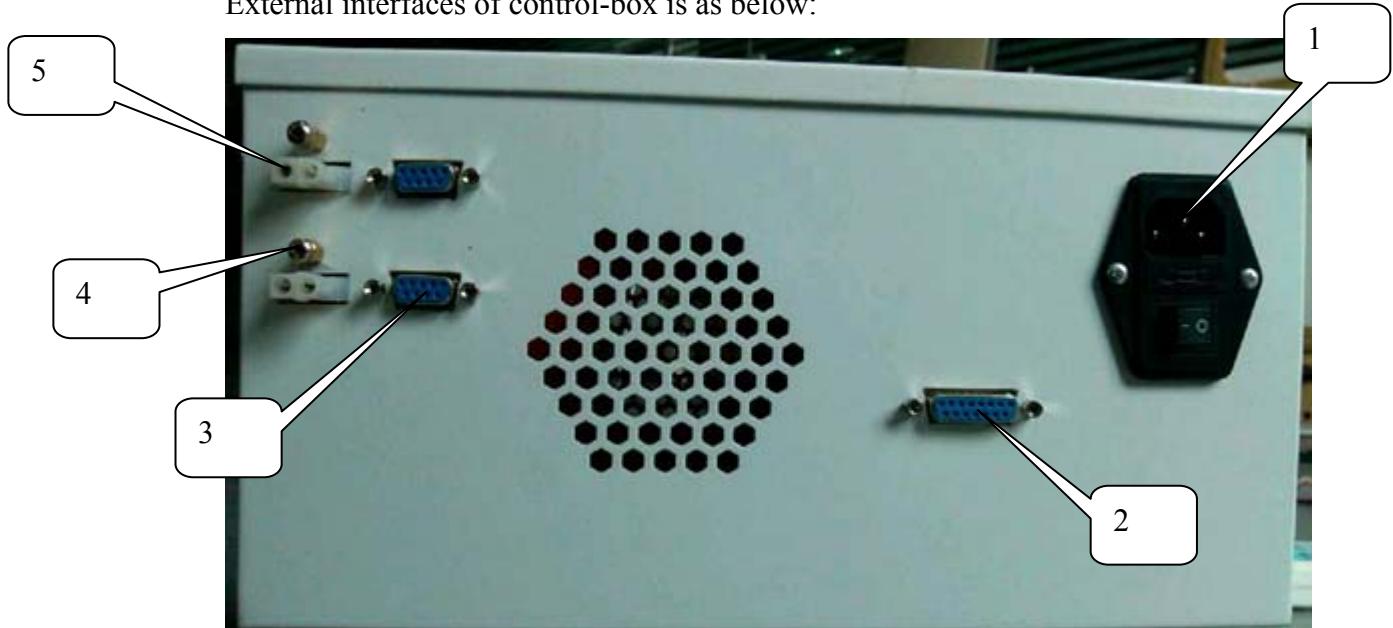
The inside framework of SUNY8000B control-box is as follows:



The followings are the functions of above 9 parts:

1. Power supply filter, hampering the electro-magnetic noise.
2. Transformer, degrading the voltage and provide the working-voltage to the machine.
3. Dial switch, used to change the voltage from 110V to 220V.
4. SUNY8000B power supply, providing the working voltage to other parts.
5. SUNY8000B digital board, used to amplify, demodulate, re-amplify the input signal and calculate the signals through A/D, lastly provides them to CPU.
6. SUNY8000B RF board, CPU produces 58 KHz signals through peripheral circuit oscillation, and outputs signals through amplifying.
7. SUNY8000B RF board, CPU produces 58 KHz signals through peripheral circuit oscillation, and outputs signals through amplifying.
8. Interface for the digital lamp board, offering power and signals to the lamp board adjustment window.
9. Adjustment board for anti-interference, used to adjust the system when the outside environment is very bad.

External interfaces of control-box is as below:



The function description of 1-5 interfaces for SUNY8000B control-box is as follows:

1. Power supply interface of control-box
2. Interface connecting to external alarm apparatus
3. Power supply interface for antennas board and LED lamp board
4. Load earthing interface
5. Interface of control-box for receiving and transmitting signal

2. Preparation for use

2.1 Product inspection

1. Inspection Acceptation

Inspect all the packing and make sure there is no damage.

If there is any damage, contact the transportation representative.

2. Equipment Inspection

Unpack the package, make sure there is nothing lost according the manual.

Please pay attention the following tips:

- 1) Whether every connection is loose, or even falling-down.
- 2) Whether every connection line has damage.
- 3) Whether every fasten screw is loose, or even falling-down.

Please contact to our representative if there is any damage or the products is not what you ordered. Please do not power the machine until you have contacted us.

If there is no problem, please refer to this instruction.

2.2 Requirements for the power line

1、This controller uses the stable AC power supply of 110/220V.50-60Hz. Power line must be separated from the nearest power distribution box leads of instruction site, and must be with earth wire.

2、Prevent using or installing other electrical equipment near power lines, and the power lines should stay away from other high-voltage power lines.

3、Power supply wire must be ≥ 1.5 square millimeters, and bestly is the standard couple power supply wire.

4、Power supply base should be of high quality, and prevent the poor contact with the plug to make the high-frequency spark and cause the system's instability.

5、Power base should be installed 1-3 meters away from the installation of the system, but can not be far away to 5 meters. If the power line is cited under from the ceiling, the line should be 1 meter away from the load, or it will interfere the load.

2.3 Protection and attention notes

The following is the important safety guide for the installation persons and the handling person. Please do as this safety information, especially the hidden danger of fire and electric shock injury to personnel.

All outshells and attachments required in the instruction must be open by experienced person. Considering reducing risk of electric shock, please do as instruction.

2.4 Dangers

Even if the power supply is turned off, some potential electro-differences still exist between internal components. To avoid electrical shock, before operation on the internal components, ensure the cutting off the AC power line. At the moment when the system is out of power, there would be still a residual voltage in result of the large capacity power slowly discharging. Before the operation of system, please let the capacitor discharge for 30 seconds.

2.5 warnings

- (1) Please avoid handling system near water or in water.
- (2) Cut off all the AC power supply before installing any components.
- (3) Three-phase socket should be used with the system.
- (4) The system realizes the grounding trough grounded power line conductor. To avoid electrical shock, before power the input and output of the system, please power the power supply of equipment with the appropriate socket.
- (5) Increase the durability of the system with the formal power.
- (6) When debugging, such as supplying power, please don't wear hand jewelry and watches.
- (7) To remove the risk of hidden fire danger, please use the components mentioned in the components list (demanded type, rated current and voltage)
- (8) The exchange of the fuse needed be done by the experienced person.
- (9) To avoid explosion, please do not operate the equipment in explosive environment.
- (10) Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2.6 Important reminders

1. When do the fuse replacement, to make the equipment undamaged, before power the machine, please find the reason why the fuse damaged and solved the problem.
2. Ensure all the power indicator lights are off, before cut off power and moved the machine.
3. Do the exchange with the demanded type of components.
4. To prevent the damage of the system, please select proper input voltage range according the instruction.

2.7 Notice

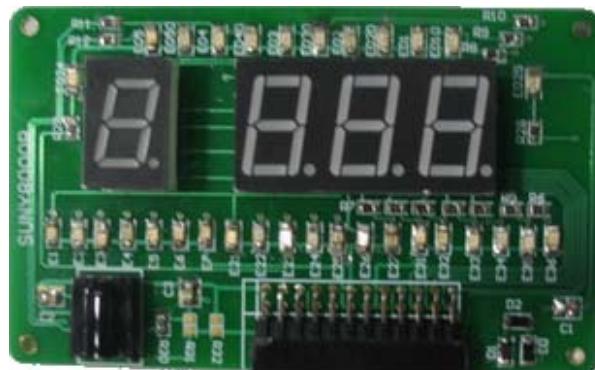
1. Please operate the machine and instruct, train the operator as the instruction.
2. Any other question, please call the after-sales representative.

3. Quick start and debugging

3.1 Quick start

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 both part of the panel, two program running indicator lights will flash regularly.

★ If the product can work normally, no any debugging is needed. It can work once powered. If the product can not work normally, please do debugging as followings.



3.1.1 Function description of remote controller



Control Keys Description and Default Parameter Table

Key ID	Button	Parameters Description	Default Value	Valid range
A	GN	Gain Adjustment	1	0, 1
B	NSE	Noise Display	0	0—6
H	MIN	Minimum Signal Adjustment	40	0—200
C	MOD	Configuration Loading Mode Setting	0	1, 2

3.1.2 Operation guide of the remote controller

Normally, the panel will display the alarm times, just as the following picture 1. The number on the plate means how many times it alarms.

Press [PSW]. Then screen will show value of 100. Press [\blacktriangle] button until the display of 108. Enter into the system.

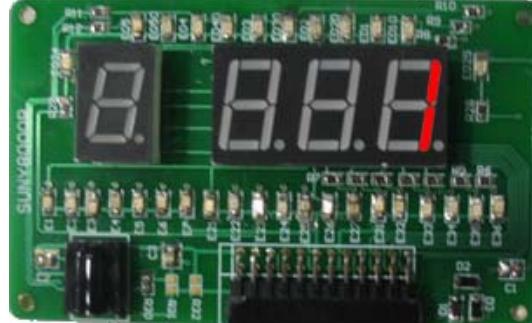


Fig. 1

Input password 108 (the password 108 can not be changed, and it is compatible to all the remote controller)

Press [\blacktriangle] and [\blacktriangledown] to choose the password.

Press [CON] to accept the password.

When the password is confirmed, the plate will display as figure. 2, then wait to input the configuration parameters.



Fig. 2

A. Gain adjustment (range:0-1)

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

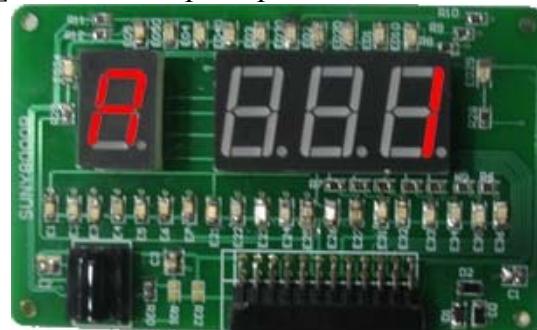


Fig. 3

B. 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.4.
- Press [\blacktriangle] and [\blacktriangledown] button to select parameters.
- Press [CON] button to accept the parameters, panel shows Fig.5.

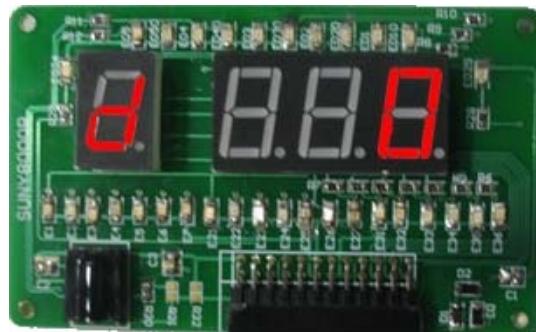


Fig. 4

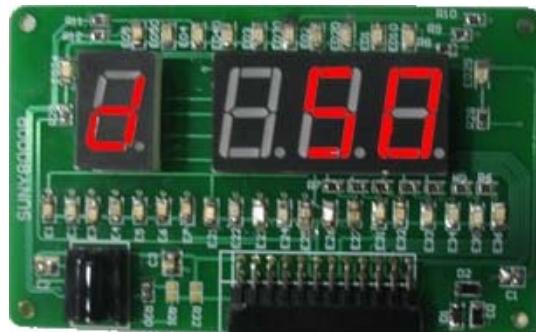


Fig. 5

Noise Condition Display Configuration Table		
Value	Function Description	Detection Purpose
0	Close tag or noise window display	
1	Tag window display for figure 8 load(channel one)	Detect tag entering vertically
2	Tag window display for rectangular load(channel two)	Detect tag entering horizontally
3	Average noise window display for figure 8 load(channel 4one)	Monitor average
4	Average noise window display for Rectangular load(channel two)	noise
5	Instantaneous noise window display for figure 8 load(channel one)	Monitor instantaneous noise
6	Instantaneous noise window display for rectangular load(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 level, 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).

Change the parameters to admit the signal amplitude to the minimum. In other words, any smaller value will be ignored.

Reduce this value will increase sensitivity of the system, but it also will the unexpected false alarming caused by uncontrollable environmental noise.

- Press [MIN] button, panel shows as Fig.6.
- Press [\blacktriangle] and [\blacktriangledown] button to select parameters.
- Press [CON] button to accept the parameters.

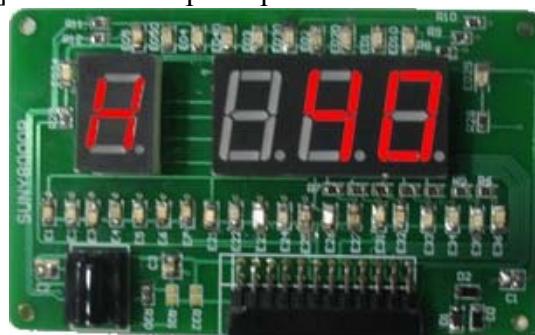


Fig. 6

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.

C. Mode button

The panel will show as Fig.7.

- Press [MOD] button.
- Press [\blacktriangle] and [\blacktriangledown] button to select parameters.
- Press [CON] button to accept the parameters.

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

0	Initial state (no functions)
1	Load default parameters immediately
2	Start self-detection mode immediately

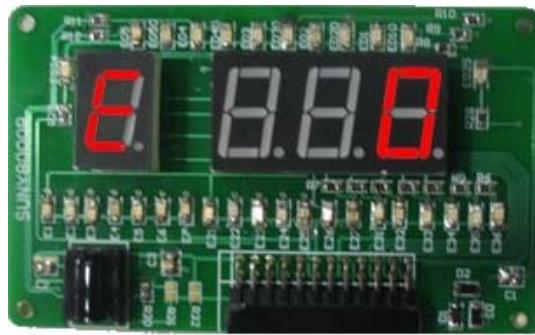


Fig. 7

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.8.
- Press [\blacktriangle] and [\blacktriangledown] button to select 1.
- Press [CON] button to accept the current parameters.

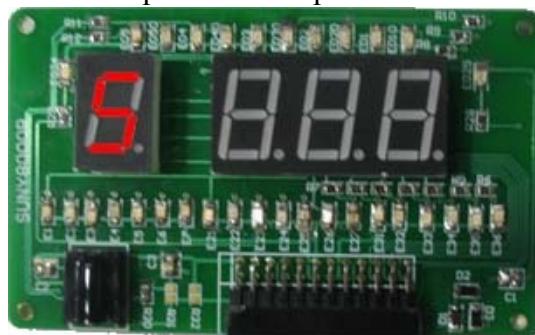
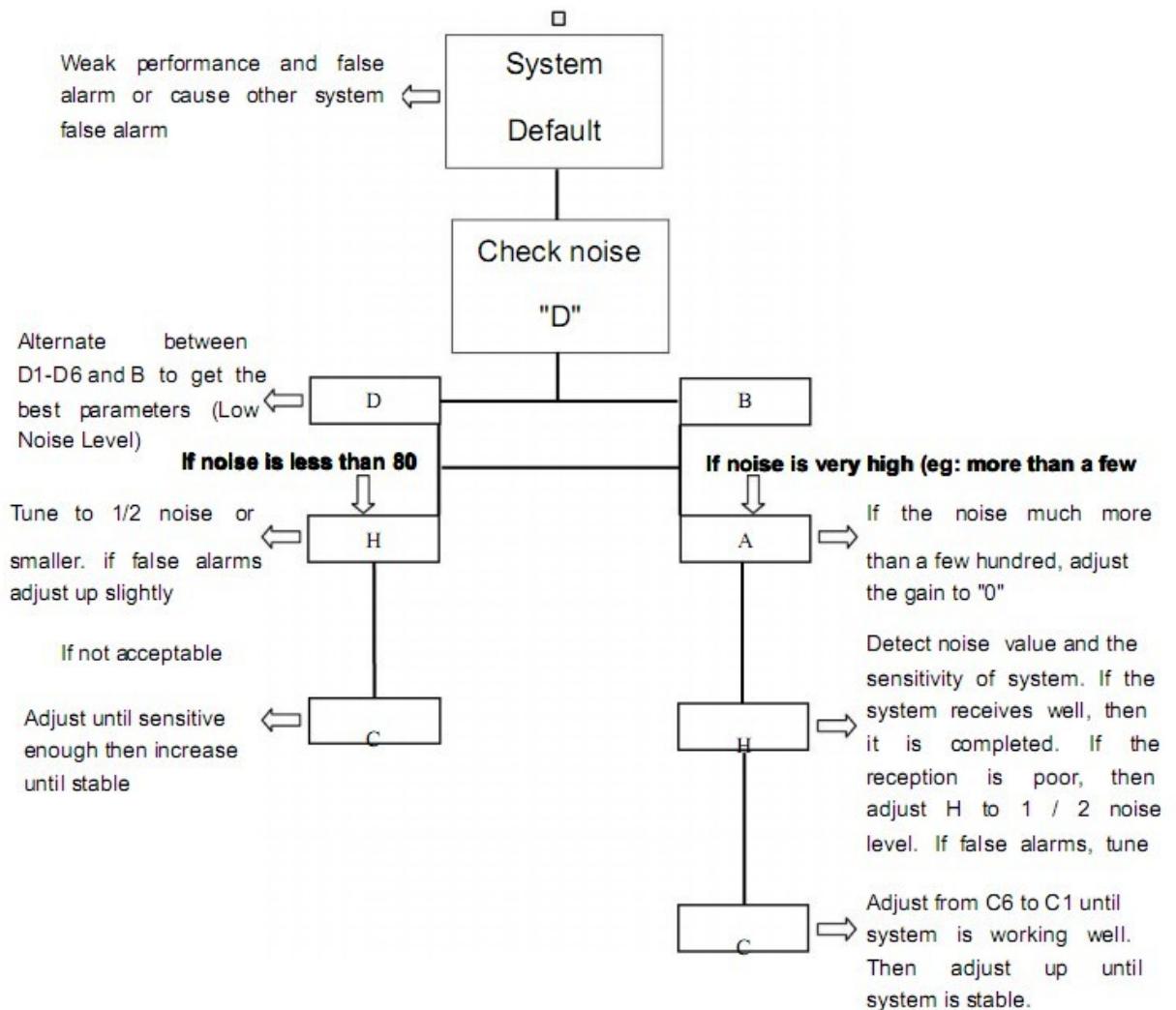


Fig. 8

3.2 Debugging

3.2.1 Flow Chart of Tuning Procedures



3.2.2 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.

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: System is weak and or false alarming

Step 1: Press [ST] button to start, then [PSW]. Then screen will show value of 100. Press [Δ] 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: If the noise value is 80 or higher than it, change gain control from 1 to 0.

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

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 sunsysysetem 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

If you are sure all the installation procedures are correct, and all the connection is correct, however the system still have malfunction, please call our service phone or log on our website www.shanglisystem.com, there will be technician to help you.

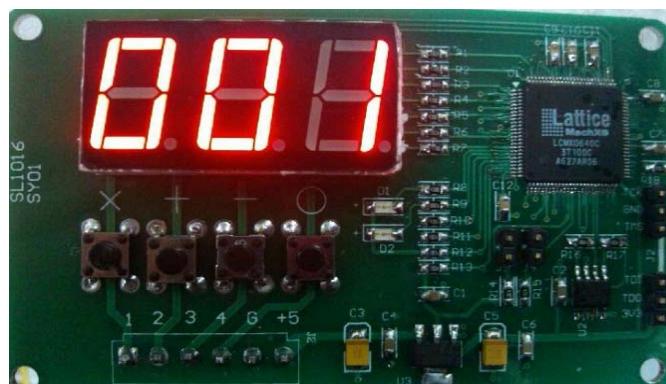
3.2.3 Receive Window Delay and SYNC window

Note: do the following adjustment when the noise value plate displays the larger noise line.

Before power the machine, please take the SYNC plate as the following picture.



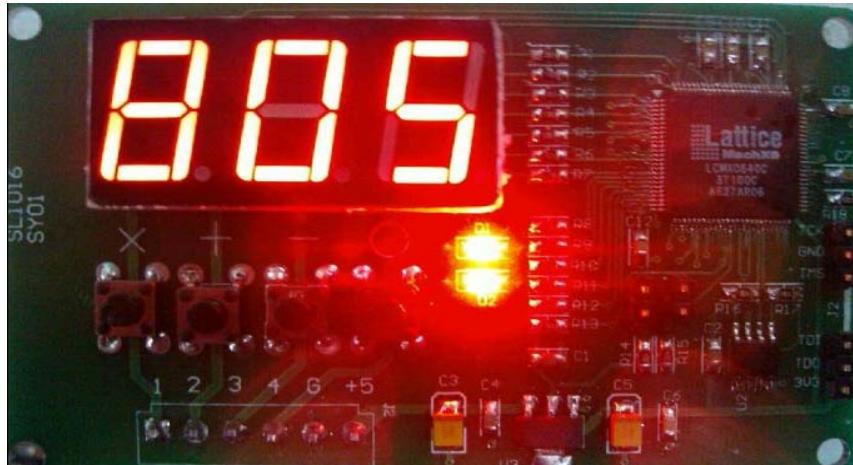
Power the machine, then the SYNC window will display as following picture



There are four buttons, from left to right, they are respectively

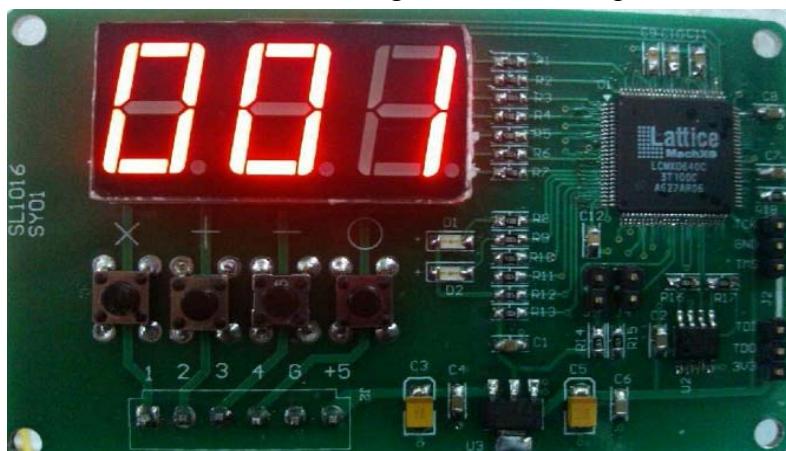
“SEL”, “+”, “-”, “SAVE”.

Press on “SEL” until the two red lights are on as picture 9 ,then do the adjust of Receive Window Delay.(The value is caught at random)



Press “+” to “807”

Press on “SEL” until the two lights are off as the picture



Press “+”, if it is necessary, press “-” to do the adjust, until the

noise value is less than “40”. Bestly, suggest to lastly press on “sel” make “807” back to “805”, then press “SAVE”, so all the settings will be saved.

4. Appendix

4.1 Appendix 1: SUNY 8000B system component list

component	code
1.Transmitter base	DDD_F SJZ
2.Indicator plate of work status	DDD_DB
3.Basement	DDD_DZ
4.Remote controller	DDD_YKQ
5.Connector of power line	DDD_LJX
6.Installation tool	DDD_GJ
7.Installation manual	DDD_SC

※ We require the system should be away from the neon lamp 12 feet, if it can not be get, please install a metal shield cap to the neon lamp.

4.2 Appendix 2: SUNY 8000B system technological parameters list

SUNY 8000B system technological parameters list	
1.Input voltage	110/220V.50-60Hz/AC
2.Working current	0.330/0.168.50-60Hz/AC
3.Central frequency	58KHz
4.Fuse	250V/1A
5.Working temperature	-10- 60°C
6.Power Consumption	<35W
7. Dial switch	110V/220V
8.Buzzer	Adjustable volume
9.RF gain	Adjustable
10.SYNC frequency range	50Hz
11.Hamper of load input	390Ω
12.Working humidity	0%-95%
13.Band width	0Hz

FCC warning statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.