

# **GSM guard against theft and alarm system**

## **User specification:**

### **GSM annunciator**

#### **1. System foreword**

Wireless GSM intelligent commercial/household guard system employs imported microprocessor together with advanced GSM digital signal handling technology to creatively research and produce GSM wireless mobile intelligent alarming system. It is a high integration of digital speech, Chinese short messages, study-mode wireless coding, long-distance home appliances controlling, short messages identification and other technologies. When alarming, it will automatically inform the theft condition and location through speech or short messages. It is stable, reliable and safe. With humanization manipulation and telecom phone line removed, it can be comprehensively applied to shops, offices, villas, residence community, garage, storage and other places at which wire phone network can not cover but protection needed. It is able to protect users' property and personnel safety.

#### **2. General introduction of functions**

- two groups of timing arming and disarming function, which leaves out frequent manual arming and disarming
- ten defense districts, which can be set as normal, at-home, intelligent or closed types, etc.
- using phone (cellphone) or short message to systematically set the host computer in long-distance. Creatively compatible with China Mobile's Fetion so as to decrease short messages cost made by users' sending short messages to systematically set the host computer.
- four wire routes, six wireless defense district, defense district can be equipped with many accessories.
- six groups of speech phone, three groups of short message receiving alarm phone, 10 seconds ISD automatic leaving message record
- one group of normally open signal output, which can be externally linked to appliances linkage alarming output.
- many built-in speeches, letting alarm receivers know the accurate alerting location
- many built-in short message contents. Users can send short messages or use Fetion to check the status of host computer. Short message content from alarming defense district can be amended.
- wireless intelligent study coding, compatible with 2, 262 normal encoding and a million group encoding, convenient and flexible for adding or reducing accessories.
- telephone (phone) long-distance telecontrol for arming, disarming, monitoring, talkbacking, shouting, and controlling appliances, etc.
- EEPROM information protection, information never lost
- built-in NI-HI pile ricaricabili automatically transferred to stand-by battery after outage with short message prompting.

- both AC and DC, twenty-four-hour ordinary guarding without interruption
- host computer using double, triple and quadruple GSM/GPRS wireless industry module, which is stable and reliable.

### 3. Manipulation specification

#### Arming

Arming means that when there are no persons at home, it is needed to conduct all-around detection and guarding on the alerting site. All detectors from the alerting annunciator are working. When something triggers the anti-theft, anti-fire or anti-gas-leakage detectors, the alerting system will function at once. After arming operation, arming light in the host computer will be always on duty.

Remote control operation: pressing on the arming key in the remote-control-unit once is OK.

#### At-home arming

At-home arming means that when there are some body at home, for the sake of security, it is needed to make the peripheral doors, windows, balconies, and around detectors of the alerting system work. But, it is also needed to avoid the person at home from triggering the domestic detectors to alert wrongly. At that time, we choose at-home arming, letting some detectors work and the other not. At-home arming function needs to be settled for normal usage. The arming light in the host computer will flicker when at-home arming is open.

Remote control operation: pressing on the at-home arming key in the remote-control-unit once is OK.

#### Disarming operation

Disarming means that when host computer alerts, it can terminate the alerting or make the alerting system be on the non-alerting status. After disarming, even triggering detectors can not make the host computer alert, except the detectors in emergency defense district or emergency key in the remote-control-unit. After disarming, arming light dies out.

Remote control operation: pressing on the disarming key in the remote-control-unit once is OK.

#### Emergency alerting

When emergency happens, press on the emergency key in the remote-control-unit.

### 4. Installation and debugging

#### ■host computer installation

We should try our best to install the host computer in the central zone of the guarding place so as to make sure that all wireless detectors can give the best receiving effect. Take care and keep away from large-scale metal objects or household appliances with high-frequency interference. And at the meantime, the host computer should be away from the steel-bar concrete wall and anti-fire door, and other barriers.

The control panel in the host computer:

- ☐power input hole
- ☐siren output port
- ☐linkage output port
- ☐earthing cable
- ☐wired defense district input
- ☐SIM card switch

- ☐ set key
- ☐ stand-by electricity switch
- ☐ antenna pedestal

- A. defense district indicating light
- B. [arming] light
- C. [signal] light
- D. antenna pedestal

#### ■SIM card installation

The first step: using bradawl press down the yellow switch besides cassette, SIM cassette will automatically pop out.

The second step: extracting SIM cassette and putting GSM card into cassette according to the correct direction.

The third step: horizontally putting cassette loaded with the SIM card and making the card side upward

The forth step: finally turning the host computer back, letting the bottom upward, and slowly pushing cassette with its card side upward into the card trough in the horizontal direction, and pressing it tightly and tying it firmly.

### 5. The host computer settling

#### ■indicating information

function	Operational order	comment
buzzer	“clank” shortblast once	Key-pressing indication
	“clank”longblast once	Affirming indication
	“clank”continuous shortblast for three times	Error indication
	“clank”ring at intervals	SIM card unloaded

Defense district light	Always lighting	Defense district alerting
	flickering	Defense district coming into delayed alerting

Arming light	Always lighting	Arming status
	Flickering quickly	Coming into at-home arming status
	Flickering slowly	Coming into delayed arming status

GSM signal light	Flickering every one second	GSM signal weak, or SIM card unloaded
	Flickering every three seconds	GSM module, and SIM card regular
	Dying	Without electricity

#### ■first-time energization

We successively install SIM card of host computer, wired connection and GSM antenna according to installation methods. Then, we put the galvanical AC adapter output port into the host computer power hole. At that time, six defense district lights and two functional indicating lights from the host computer flicker once in order and the buzzer “clanks” for a long time. Later, the host computer begins to check the GSM network with the continuous “clank” sound. The signal indicating light is on and then off for one second—China Mobile network detection time is about twelve seconds and China Unicom a little slower. Until network becomes normal, “clank” sound stops and signal indicating light flickers every three seconds, the GSM signal and SIM card is both regular.

At last, putting the stand-by battery switch to be [ON] is OK.

#### ■labor recording

On the status of disarming, pressing [SET] key for three seconds, host computer “clanks” for a long time, then stop, the [arming] light flickers and the recording begins. Confronted with host computer with a distance of 30cm, use average speech and standard mandarin to record user information. For example, “this is XX residence community. There is an alert here. Please come for assistance as soon as possible”. After ten seconds, the recording automatically stops. [Arming] light stop its flickering.

#### ■remote control coding

##### Remote control coding

On the status of disarming, enter into the setting, slightly press the [SET] key once again. The host computer “clanks” once and all defense district lights flicker for long time. Then enter into the remote control coding. Select the remote controller necessary for encoding and press any key to send a wireless signal to the host computer. When host computer receives signal “clanks” twice, it means remote controller encoding success. If learning many remote controllers, on the status of all defense district lights in long light, press the keys from the remote controllers waiting to learn. “Clanks” twice means successful learning, a short “clank” means that the remote controller has learned. Pressing [SET] key once again until all defense district lights die out, it leaves out of learning status.

Attention: to the most, host computer can code with twenty remote controllers. Other remote controllers coding methods are identical.

##### Remote control deletion

On the disarming status, slightly pressing [SET] key once, the host computer “clanks” for a long time and all defense lights in long light, enter into remote controller coding. At the time, pressing [SET] key for three seconds, host computer “clanks” for a long time and all defense district lights die out.

Attention: for the remote controller deletion operation, each operation will delete all remote controllers.

#### ■defense district coding

##### Defense district coding

On the disarming status, slightly press [SET] key once, enter into remote controller coding, and slightly press [SET] key once again, defense district one indicating light shines. Thereafter, select the detector necessary for coding, trigger alert to send a wireless signal to the host computer. After

receiving it, host computer will “clank” twice and defense district one coding succeed. If defense district one needs to learn many detectors, please trigger the necessary coding detectors when defense district one indicating light shines. To send wireless signal to host computer, if it “clanks” twice, the learning is successful. If it “clanks” once for a short time, that means the system has learned that detector. “Clanks” for three times means a mistake.

Attention: on the status of disarming, enter into settling, skip remote controller coding and continue to slightly press [SET] key, the defense indicating lights shines one by one in order. Select the coding defense district, defense district indicating light shines. Repeat above coding operation and code for other defense districts. In total, it can learn thirty-two different coding detectors.

#### Defense district code deletion

On the disarming status, enter into settling, skip remote controller coding, slightly press on [SET] key once, and defense district one indicating light shines. Thereafter, press [SET] key for three seconds and the host computer “clanks” for a long time, defense district one indicating light dies out. The defense district coding deletion succeeds. Likewise, other defense district deletion is also after the defense district light shining, press [SET] key for three seconds, defense district light dies out. This means detector deletion in that defense district is successful.

### **6. Cellphone long-distance-control programming**

**All programming for this host computer are completed through cellphone or fixed phone connecting host computer GSM card, or through pressing on the keys in fixed phones or cellphones or sending short messages via cellphone.**

On working status, GSM network detection is normal. Use cellphone or fixed phone to dial SIM card number in the host computer, it will automatically receive the call. The voice indicates “please enter passwords”. Then enter password—the leave-factory-value is 1234, after host computer indicates that the password is correct, directly press # key to enter into phone long-distance function settling.

Number settling and detailed explanation of function settling command.

**Following commands can be used both in long-distance short message control and long-distance phone settling.**

[12]+[0/1]+[#]	<p><b>Open or closed of host computer sending short message function,0 means closed, 1 means open, system initially regard it as open</b></p> <p>Example: to close short message function, please send short message 12#0#,this can stop host computer sending short message function.</p>
[31]+[phone number]+[#]	<p><b>Used to store first-group alerting number or delete first-group number</b></p> <p>For example: if the user wants to set 13812345678 as the first-group number, please send short messages 1234#3113812345678# to host computer.</p> <p>This means set first-group speech alerting number as 13812345678</p> <p>For example: if the user wants to delete second-group number, please send short message 1234#31# to host computer, this means to delete first-group speech alerting number.</p>

[32]+[user number]+[#]	<b>Used to store second-group alerting number(ditto)</b>
[33]+[user number]+[#]	<b>Used to store third-group alerting number(ditto)</b>
[34]+[ user number]+[#]	<b>Used to store forth-group alerting number(ditto)</b>
[35]+[ user number]+[#]	<b>Used to store fifth-group alerting number(ditto)</b>
[36]+[ user number]+[#]	<b>Used to store sixth-group alerting number(ditto)</b>
[37]+[ user number]+[#]	<p><b>Used to store first-group alerting number or delete first-group short-message-alert-receiving number</b></p> <p>For example: if the user wants to set 13712345678 as the first-group short-message-alert-receiving number, please send short messages 1234#3713712345678# to the host computer.</p> <p>This means the first-group short-message-alert-receiving number is 13812345678</p> <p>For example: if user wants to delete first-group short-message-alert-receiving number, please send short message 1234#37# to the host computer, this means to delete the first-group short-message-alert-receiving number.</p>
[38]+[ user number]+[#]	<b>Used to store second-group short-message-alert-receiving number</b>
[39]+[ user number]+[#]	<b>Used to store third-group short-message-alert-receiving number</b>
[50]+[new password]+[#]	<p><b>Used to modify user operation password, after factory delivery or total deletion, the user password is 1234</b></p> <p>For example: if user wants to set new user password as 4321, please send short message 1234#504321# to the host computer, this means to set new user password 4321.</p>
[51]+[00-99]+[#]	<p><b>Set system delayed arming time, when press the arming key from the remote controller, it will not enter into arming status at once but to delay for a certain time, which can be set from 0 to 99 seconds.</b></p> <p>For example: to set system delayed arming time as 10 seconds, send short message 1234#5110# to the host computer, this means after press the arming key from the remote controller, the host computer will wait 10 seconds and then enter into arming status.</p>
[52]+[00-99]+[#]	<p><b>Set system delayed alerting time, on the arming status, if a detector is triggered to alert, the host computer will not alarm at once. It will prolong a certain time and then dial the phone and ring the siren. The time can be set from 0 to 99 seconds.</b></p> <p>For example: to set system delayed alerting time as 10 seconds, send short message 1234#5210# to the host computer. This means after the defense district is triggered for alerting, it will be delayed for 10 seconds to the real alarming.</p>
[53]+[0/1]+[#]	<b>Open and close of alert linkage. If the host computer alerts, the Relay whether input linkage or not, 1 means linkage needed,</b>

	<p><b>and 0 not.</b></p> <p>For example: host computer relay output is connected to flashlight and other equipments. If output alerting, it needs linkage flashing. Send short message 1234#531#. When siren happens, the output relay at the back of the host computer will be closed, and external equipment will start up.</p>
[54]+[0/1]+[#]	<p><b>Used to set remote control arming and disarming, the siren rings or not. 1 means ringing needed, and 0 not. System initially regards ringing needed.</b></p> <p><b>For example: send short message 1234#541#, meaning siren without indicating voice when arming and disarming by remote controller.</b></p>
[55]+[AAAA]+[#]	<p><b>Used to calibrate system time.</b></p> <p><b>For example: to set system time as half past 20 o'clock, send short message 1234#552030#. This means to set system time as half past 20 o'clock.</b></p>
[56]+[0000]+[0000]+[#]	<p><b>Used to set timing arming and disarming time.</b></p> <p><b>For example: send short message 1234#5622000800# to host computer. This means from 22 o'clock at night, it automatically enters into arming status, and automatically disarms at 8 o'clock in the morning.</b></p>
[60]+[AA]+[B]+[C]+[#]	<p><b>This command is used to set six defense districts status. AA is double subarea and 01 to 06 means defense districts 1 to 6. B means the type of defense district. 1 means normal defense district, 2 means at-home defense district, 3 means intelligent defense district, 4 means emergence defense district, 5 means closed defense district. C has two types of status. 0 means no rings in that defense district when alarming, and 1 means ringing in that defense district when alarming.</b></p> <p>For example: to set five defense districts as normal defense district, and the fifth defense district alarming requires siren ringing. At that time, send short message 1234#600511# to host computer.</p>
[61]+[AA]+[B]+[C]+[D]+[#]	<p><b>This command is used to set the status of the four wired defense districts. AA is double subarea, use 07 to 10 to refer to defense districts 7 to 10. B means the type of defense district. 1 means normal defense district, 2 means at home defense district, 3 means intelligent defense district, 4 means emergence defense district, 5 means closed defense district. C has two types, 0 and 1. 0 means no rings in that defense district when alerting. 1 means ringing in that defense district when alerting. D has two types, 0 and 1. 0 means open circuit alerting and 1 means short circuit alerting.</b></p> <p>For example: set defense district 7 as emergency defense district, no siren ringing when the seventh defense district alerts, and short</p>

	circuit alarming. At that time, send short message 1234#6107101# to host computer.
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**Following commands only for short message long-distance operation and settlement:**

0#	Long-distance short message disarming, send short message 1234#1# to host computer.
1#	Long-distance short message arming, send short message 1234#0# to host computer.
2#	Long-distance short message at-home arming, send short message 1234#2# to host computer.
3#	Long-distance short message Relay opening, send short message 1234#3# to host computer.
4#	Long-distance short message Relay closing, send short message 1234#4# to host computer.
[20]+[#]	To inquire arming and disarming status.
[21]+[#]	To inquire alerting number and alert-receiving number already kept in the host computer.
[80]+[#]	Used to inquire short message contents from all defense districts. For example: send short message 1234#80# to host computer.
[81]+[defense district one, short message content]+[#]	Used to set short message content given by host computer when the first defense district alerts. Short message content can not exceed twelve characters. For example: send short message “1234#81 the front door is opened #” to host computer. At that time, when the first defense district is triggered, the short message of “the front door is opened” will be sent to the short-message alarming number.
[82]+[defense district two, short message content]+[#]	Used to set short message content given by host computer when the second defense district alerts. ditto
[83]+[defense district two, short message content]+[#]	Used to set short message content given by host computer when the third defense district alerts. ditto
	The forth to ninth defense district can be inferred as above.
[90]+[defense district ten, short message content]+[#]	Used to set short message content given by host computer when the tenth defense district alerts. ditto

■ **Telephone alert-receiving**

After host computer alerts, it will automatically dial all pre-set telephones and cellphones in sequence. When the user picks up the phone, it will immediately broadcast alerting record and let user obtain the alarming information. After phone received, if only listen to alerting voice without long-distance control but directly hang up, the host computer will continuously dial the latter phone for alerting, until some one picks up. If there is no person receiving calls, the host computer will dial all phones in circulation for three times, then automatically hang up and at the same time, it conducts long-distance remote control on the alerting host computer through telephone and cellphone keyboard operation:

[1] key: arming

[2]key: disarming



[3] Key: monitoring open      [4] key: monitoring closed

[5] key: talkback open      [6] key: talkback closed

[7] key: siren ringing      [8] key: siren closed

[9] key: Relay open      [10] key: Relay closed

[\*] key: Quits from the status and hang up, the system will not dial the next group of numbers.

Note: monitoring time is 20 seconds. If continue to monitor, user needs to press 3 key again. To support talkback function, the host computer needs to connect to another passive loudspeaker, which are 8 ohm and its power above 0.5 W.

#### ■ Telephone long-distance operation

Dial the phone number connected to the alerting host computer through telephone or cellphone. After a cycle of ringing, the receiver speech indicates “please input passwords”. Input password—factory delivery value of long-distance remote control password is 1234, through pressing phone or cellphone keys. The password is correct.

Concrete operation is as follows:

[1] key: arming      [2] key: disarming

[3] key: monitoring open      [4] key: monitoring closed

[5] key: talkback open      [6] key: talkback closed

[7] key: siren ringing      [8] key: siren closed

[9] key: Relay open      [10] key: Relay closed

[\*] key: Quits from the status and hang up, the system will not dial the next group of numbers.

[#] key: Enters the system settling.

If without any operations, the host computer will automatically hang up and quit after 20 seconds.

#### 7. Specifications about the defense districts:

1. Normal defense district: the host computer only works on the arming status. When disarming, there is no response.
2. At-home defense district: can be shut off solely through the remote controller to avoid the Infrared Detectors and other in-room detectors from misinformation when master is resting at home.
3. Intelligent defense district: if the detector in the defense district is triggered only once, it will not immediately alarm. But if being triggered once again within 30 seconds after the first triggering, it will not alarm immediately.
4. Emergency defense district: no matter on arming or disarming status, if detector is triggered it will alert. Usually used in connecting with Smoke Detectors, Gas Detectors and emergency button, etc.
5. Closed defense district: no matter arming or disarming status, detectors will not alert even being triggered.

#### 8. Leaving-factory default

Programming password:	8888#	Long-distance control:	open
Operational password:	1234*	Ringing times:	once
Siren timing:	1 分钟	Aural remote control siren:	open
Delayed arming:	0 秒	Delayed alerting:	0 second

## 9. Technical parameters

Input voltage: DC 9V – 12V

Standby current: <25mA

Alerting current: <450 mA

Wireless frequency: 315/433/868/915MHZ, 2262/1.5--4.7M, EV1527/300K.

GSM SYSTEM: supporting GSM850/900/1800/1900MHz

Standby battery: NI-HI AAA\*6 DC7.4V

Siren loudness: 110dB

Accessories parameters: this annunciator is compatible with PT2262 code; PT2240 code and EV1527 shorten code. In use of PT2262 code, timing resistor is suggested 1.5M to 4.7M. In use of EV1527 shorten code, timing resistor is 300K. The address code A0-A7 of door status switch, infrared and other accessories can be any code. We do not suggest it is all empty. Data code D3-D0 is any code except D001, 001D, or 010D. It is suggested to use 101D.

## 10. Installation and usage of door status switch

The door crack detector is installed on the active door. In the first place, user should tidy up the corresponding place on the door, extract wireless door crack detector, and stick double faced adhesive tape at the bottom. When installing door crack detector, we should pay attention to the following points:

1. Door crack detector A (emitter) and door crack detector B (magnet) should be installed in separation. That is, emitter should be installed on the fixed door frame. But magnet should be placed on the active door. Emitter indicating light side should face the magnet.
2. The magnet should be directly above the emitter. The distance between them should not exceed 1cm.
3. After installation, once open the door, the indicating light one will shine for one second. This means installation completed.
4. Door status switch indicating light one shines for one second, that is alarming indication. Indicating light two shines for a long time, that is insufficient power indication.
5. Door status switch detectors A, B can be fastened by screws. Extracting the bottom lid of A, fasten screw in the bottom lid, and put down the surface lid onto the bottom lid. B can be re-fastened by directly fixing the screw.

## 11. Installation and usage of infrared detectors

Before usage, open the flank battery switch of the detector. Installation height is about 2.2 meters above ground. And user should try his best to install it in the in-room nook to get the most favorable detection coverage. At the same time, it should form a certain angle with the in-room walking route. If it forms the 90 degree angle with the people walking direction, the detection result will be the best.

Installation method: extract the random pedestal stand; let the stand face the screw hole at the bottom of detector. Use screw to fasten it. Extract the pedestal and fasten it to the wall by two screws. Push the infrared detector with its pedestal installed tightly into the round hole in the center of pedestal. And coordinate the infrared detector to the best angle. This method is suitable for engineering installation.

Infrared detector installation, user should pay attention to the following points:

1. Do not install the infrared detector directly facing the window.
2. In the detection coverage, there should be no screen, instruments, large-scale miniascape or other objects for obstruction
3. In one room, do not install two infrared detectors. It can avoid the disturbing phenomenon caused by two infrared detectors being triggered at the same time.
4. Avoid facing window, cooling or warming machines, furnace where the temperature may change sharply. This could cause misinformation.
5. After infrared detector opened, there needs 5 minutes for it to feel the surrounding environment. Five minutes after opening the infrared detector, use the remote controller for arming.
6. After the invading objects are found by the infrared detector, it takes several seconds for analysis and identification. Then the infrared detector can send the alarm signal. This can avoid misinformation and leak-information.
7. Infrared detector can only be installed indoors. Do not install it outside.

## 12. Stoppage eliminating

Stoppage phenomenon	Reason	Eliminating methods
1. can not dial for alarm	<ol style="list-style-type: none"> <li>1. no arming</li> <li>2. alerting phone unsettled</li> <li>3. parts improperly installed, distance too far away</li> <li>4. code no match</li> <li>5. SIM card overdue</li> </ol>	<ol style="list-style-type: none"> <li>1. do arming operation</li> <li>2. re-settle according to the specification</li> <li>3. coordinating the location of parts</li> <li>4. re-coding</li> <li>5. pay to the SIM card</li> </ol>
2. can not long-distance operation	<ol style="list-style-type: none"> <li>1. password input wrongly</li> </ol>	<ol style="list-style-type: none"> <li>1. password input or changed to new password</li> </ol>
3. no record indication when alerting	<ol style="list-style-type: none"> <li>1. alert record un-taped</li> </ol>	<ol style="list-style-type: none"> <li>1. re-tape alerting record according to the specification</li> </ol>
4. remote controller out of order	<ol style="list-style-type: none"> <li>1. coding unmatched with the host computer</li> <li>2. insufficient power</li> <li>3. battery pieces poor contact or corroded</li> <li>4. unmatched with host computer</li> </ol>	<ol style="list-style-type: none"> <li>1. re-coding</li> <li>2. change battery in the same type</li> <li>3. eliminating the dirt on the pieces caused by corrosion</li> <li>4. contact the local dealer to change the matched remote controller</li> </ol>
5. infrared detector out of order	<ol style="list-style-type: none"> <li>1. insufficient power</li> </ol>	<ol style="list-style-type: none"> <li>1. change to the same type battery</li> </ol>
6. siren without sound	<ol style="list-style-type: none"> <li>1. siren plug or jack in short circuit or broken-line</li> <li>2. plug line in short circuit</li> <li>3. siren closed</li> </ol>	<ol style="list-style-type: none"> <li>1. repair or change plug or jack</li> <li>2. change the jack line</li> <li>3. set siren ringing time on the host computer</li> </ol>
7. the distance for host computer to receive the	<ol style="list-style-type: none"> <li>1. a nearby emitter is sending code</li> </ol>	<ol style="list-style-type: none"> <li>1. find the interfering source and eliminate it</li> </ol>

infrared detector, door status switch and remote controller is shortened	2. host computer receiver stoppage 3. standby battery of the host computer insufficient	2. post back to the factory for amendment 3. check host computer power whether plugged well
8. the signal lights flickering quickly	1. SIM card unloaded 2. SIM card is setting PIN code 3. GSM signal weak	1. load SIM card 2. cancel PIN code 3. change to place with strong signal or adding outdoor wire