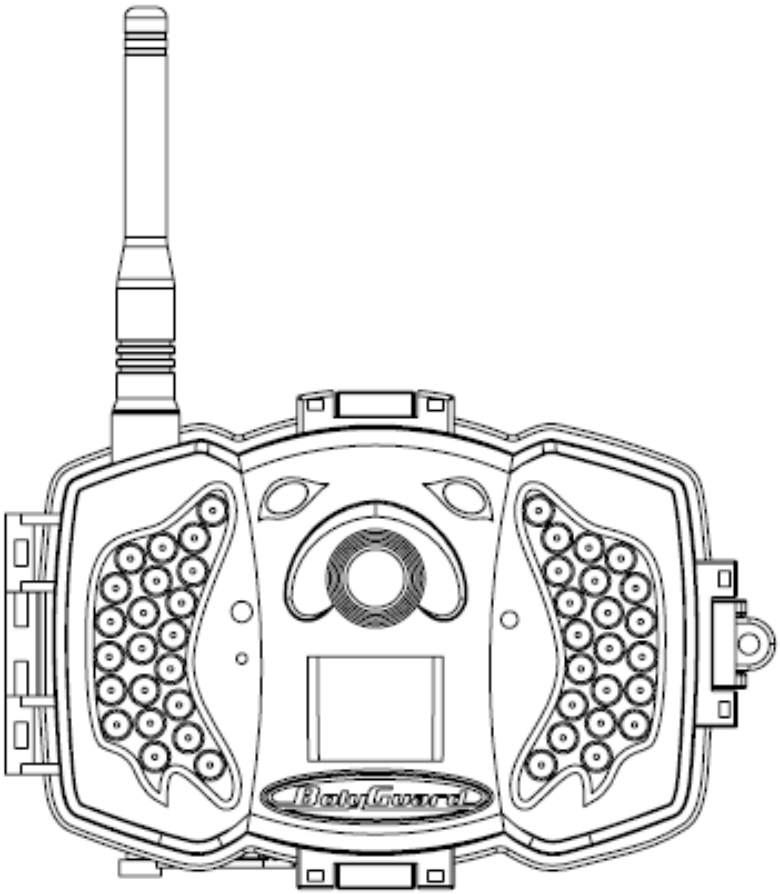
Infrared Mobile Digital Scouting Camera

User's Manual

SG983G series



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1 Instruction

1.1 General Description

This camera, a digital scouting camera with 3G communication function, is a digital infrared surveillance camera, triggered by any movement of human or animal monitored by a high sensitive Passive Infrared (PIR) motion sensor, and then automatically captures high quality pictures (up to 30M pixels) or records video clips (1080 FHD). It sends picture instantly to your mobile device or video (less than 10M) to your e-mail via GPRS network. You'll be alerted just when the camera is triggered or per custom settings.

It takes color pictures or videos under sufficient daylight. While at night, the built-in infrared LEDs can help to take clear pictures or videos (monochrome).

There is a 3" color LCD display screen on the camera and a sound recorder embedded in the camera. A laser pointer is used to help target the photo area of the camera.

It is resistant against water and snow. The camera can also be used as a portable digital camera.

1.2 Application

This camera can be used as an automatic surveillance device for guarding and recording unexpected intrusion to homes, shops, schools, depots, offices, taxis, work sites, etc. It can also be used as a trail camera for hunting or monitoring animals by recording the traces of wild animals. It can be left alone for weeks and months and it will save event records automatically in digital format.

1.3 Camera Overview

Take a few moments to familiarize with the camera controls and displays. It is helpful to bookmark this section and refer to it when reading through the rest of the manual.

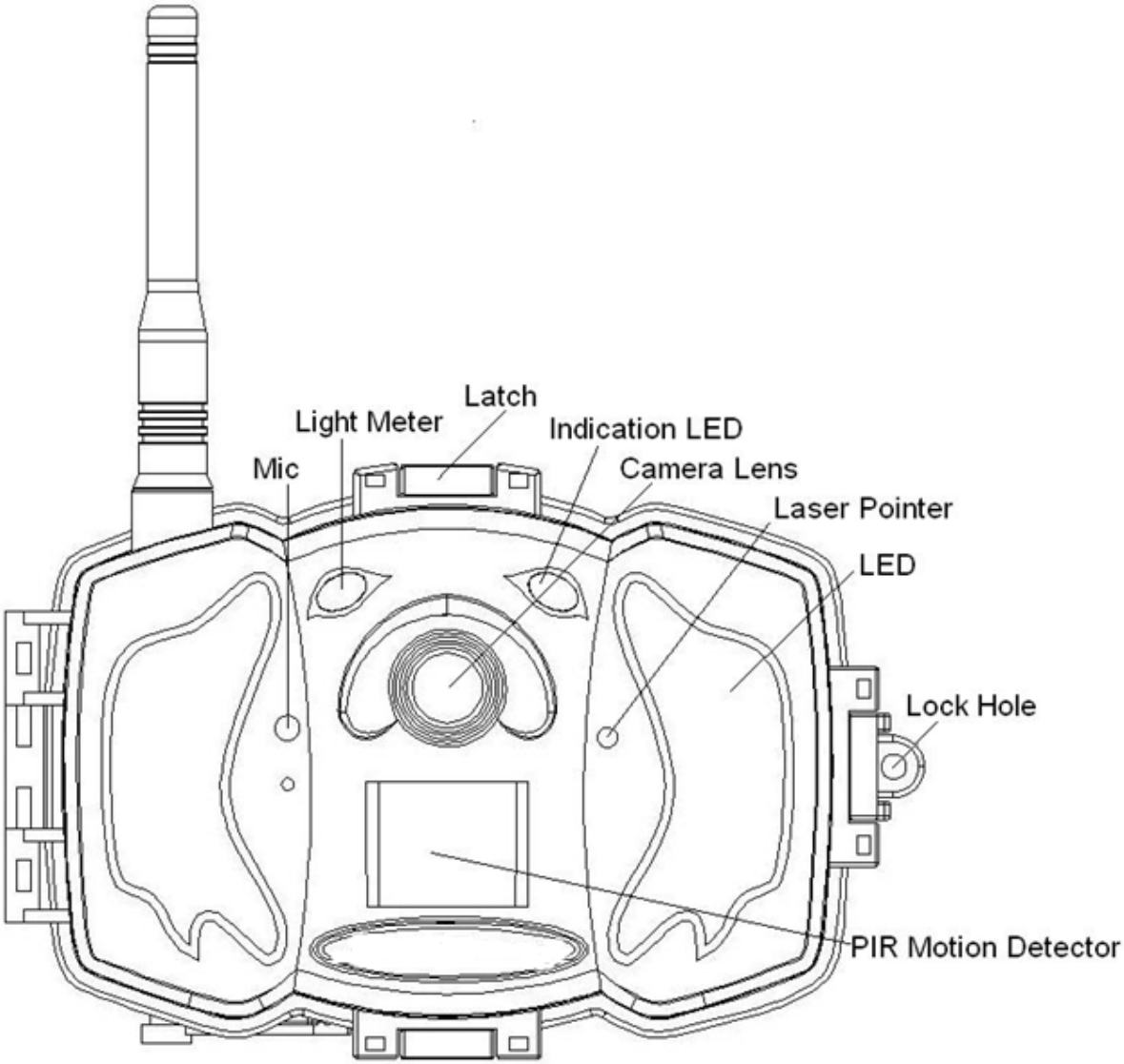


Figure 1 Diagram of camera functional indicators

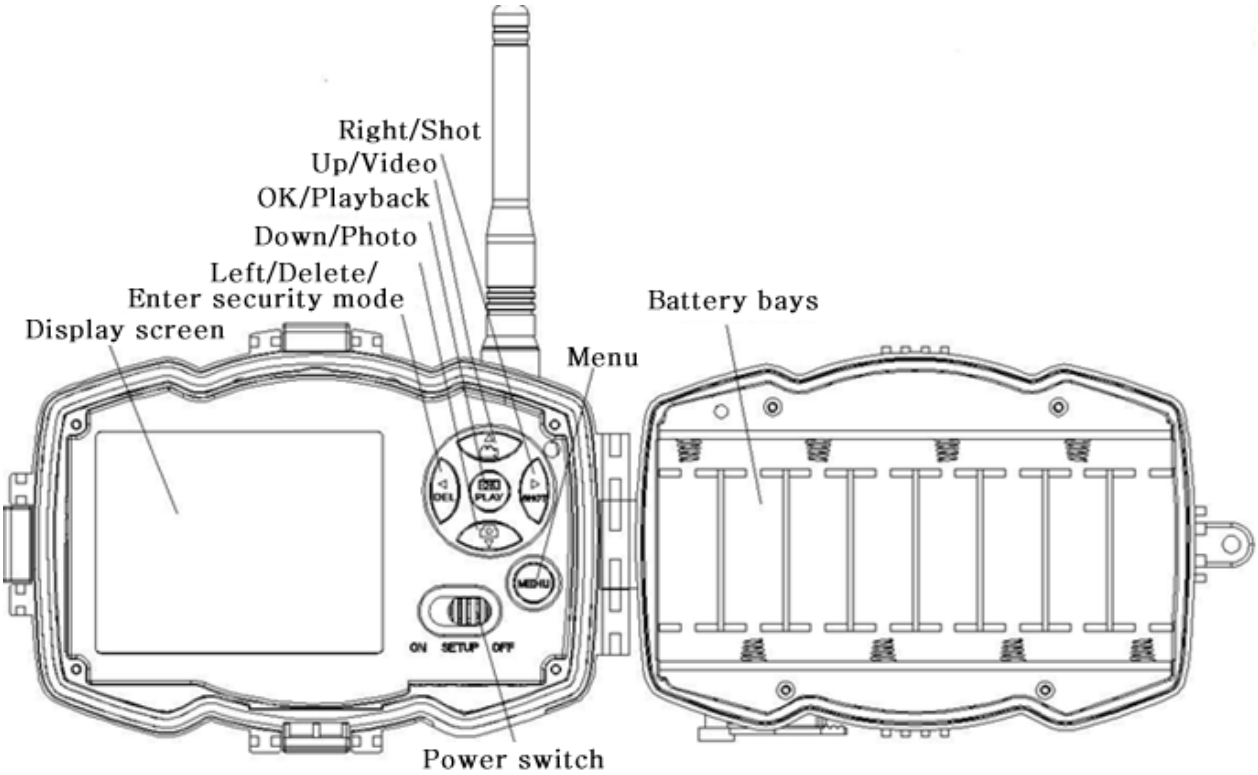


Figure 2 Inner panel view

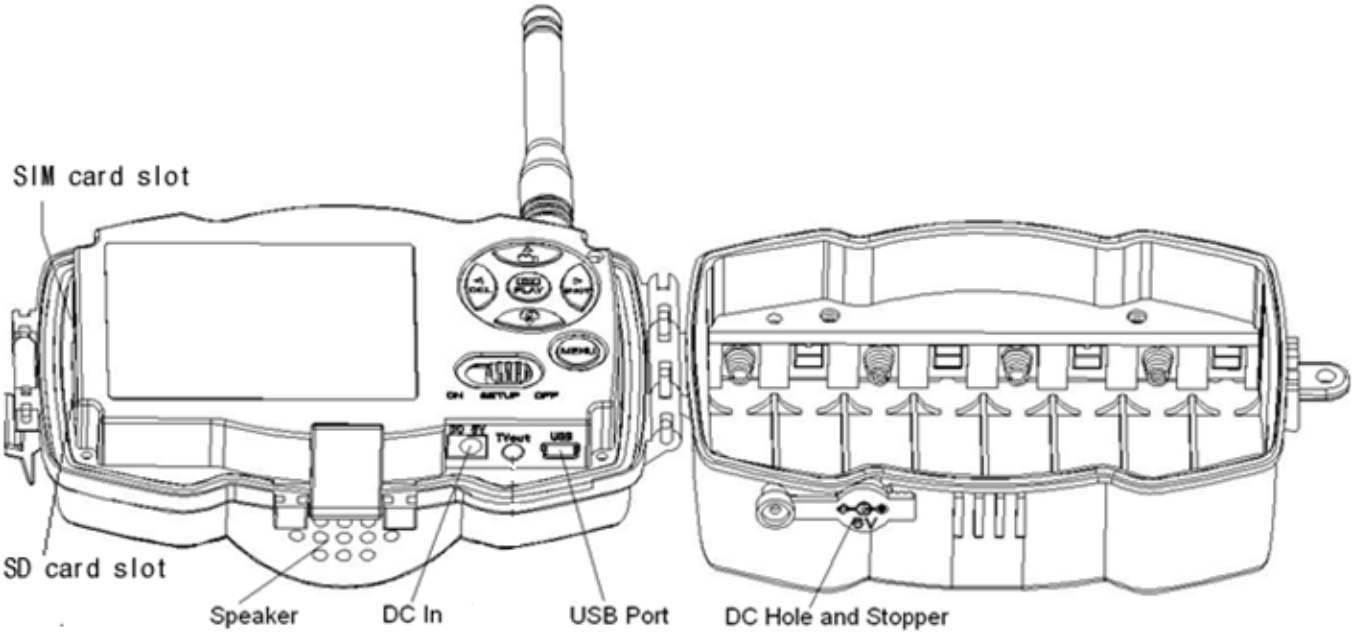


Figure 3 Diagram of camera interfaces

1.4 Shooting Information Display

When the camera is turned on (the power switch is slid to SETUP position), the current settings will be displayed on screen.

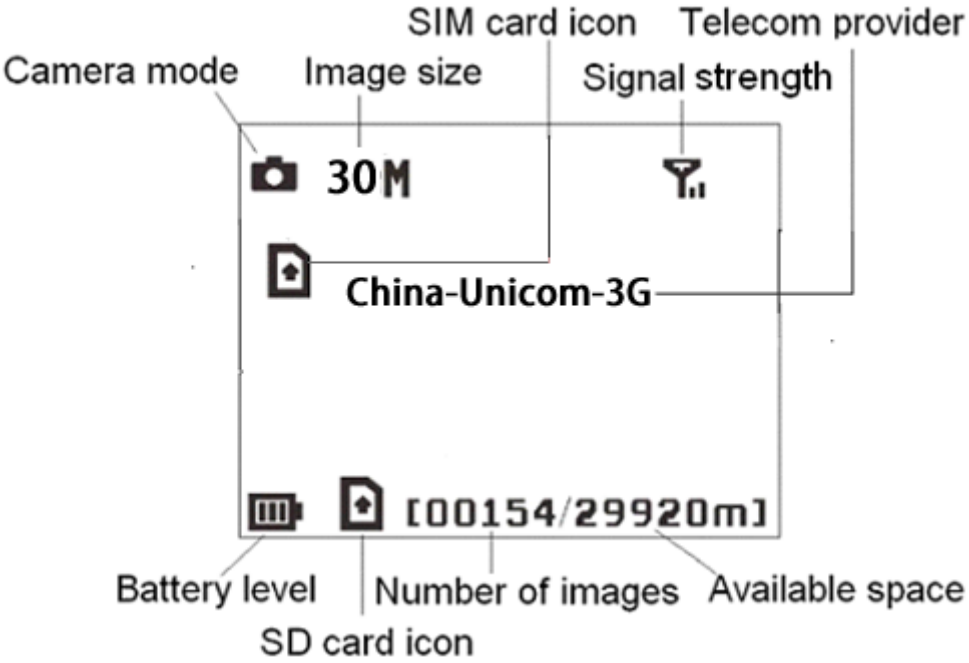


Figure 4 Shooting information display

is the correct SIM card status and the available space of SD card should be a none zero value.

1.5 Two Way Communication

You can set SMS control submenu as ON to open the two way communication function. Under this setting, the camera can receive and respond to your SMS command or the Android APP command.

This camera can send pictures instantly to your mobile device via WCDMA/GSM(GSM not work in USA and Canada) network. You'll be alerted just when a picture or video has been taken. The camera sends MMS or Email message through MMSC(MMS Service Center) or GPRS network, so before using this function, you need to open MMS and GPRS service from

your service provider. It supports following bands ： GSM with 850MHz, 900MHz, 1800MHz and 1900MHz； WCDMA with 850MHz, 900MHz, 1900MHz and 2100MHz.

2 Cautions

* The working voltage of the camera is 6V. The camera is supplied by the power adapter or 8 AA batteries.
* Please install batteries according to shown polarity.
* Please insert the SD card before power on camera. The camera has no internal memory for saving images or videos. The camera will not work if there is no SD card.
* Please unlock the write-protect switch before inserting the SD card.
* Please do not insert or take out the SD card when the power switch is at ON position.
* Please make sure that your SIM card supports the MMS and GPRS data business.
* When going into the SETUP mode, allow approximately 10-20 seconds for the camera to acquire a signal.
* It is recommended to format the SD card by the camera when used for the first time. Many other SD cards formatted by other cameras have poor compatibility with different brands of cameras. So it is best to format the SD card with this camera or on a computer.
* In the SETUP mode, the camera will shut down automatically after 3 minutes if no operation is done. Please turn on the power again if you want to continue to work with the control.

3 Quick Start Guide

3.1 Power Supply

Use 8 AA batteries. High-density and high-performance alkaline or lithium batteries are recommended.

Also 6V external power supply and solar panel are supported. The battery can be just a backup for emergency use (6V support).

3.2 Insert SD card and SIM card

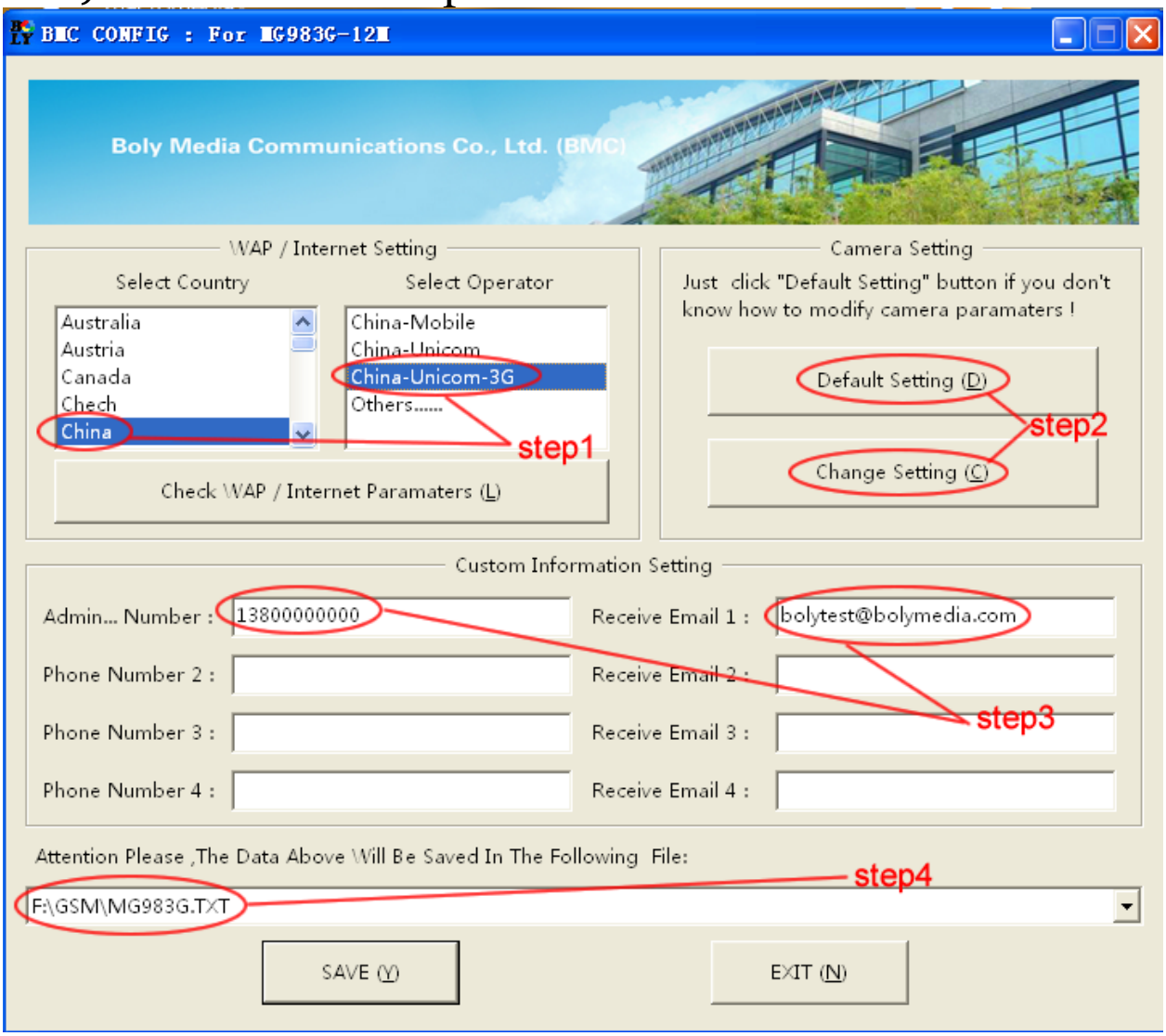
Insert an unlocked SD card and an available MMS and GPRS enabled SIM card.

3.3 Do the Camera Settings

Down load the camera set-up software (BMC-config) from our website. *The specified website is written in the last page of the manual.*

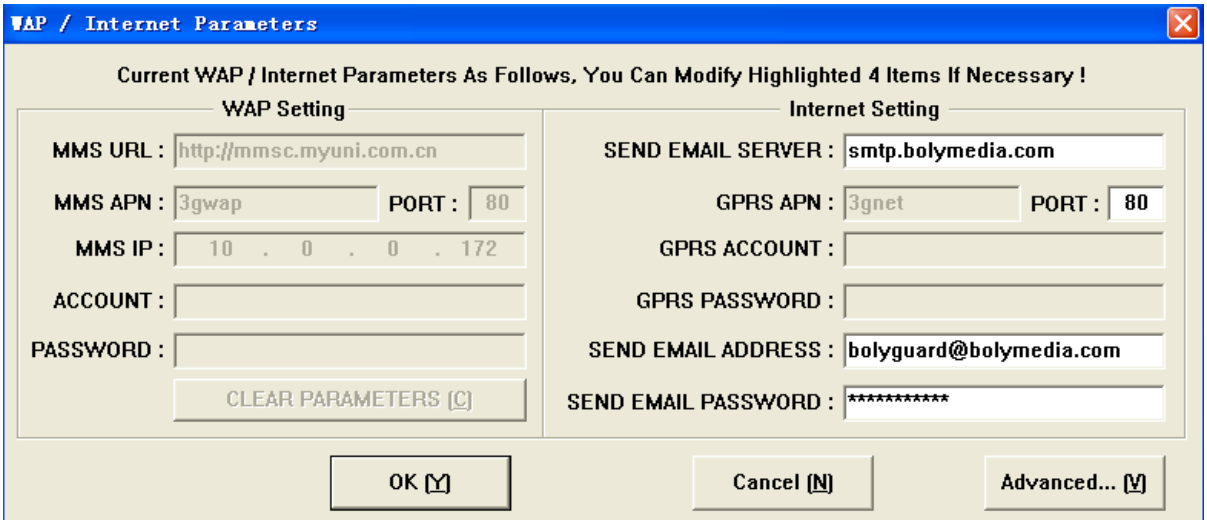
1) Open the software and select camera model:

2) Set the camera parameters

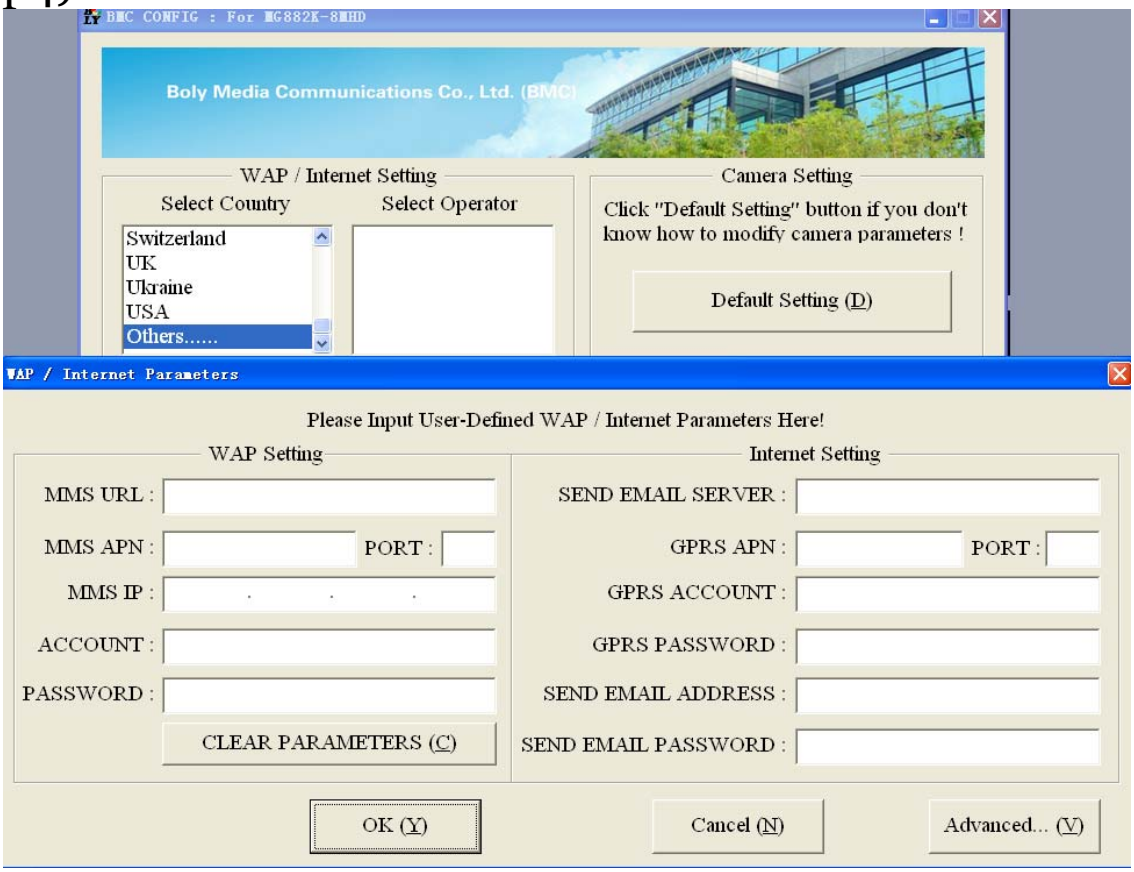


First, select your country and carriers (step1) according to your SIM card and input your receiving phone number in "administrator number" and receiving e-mail address in "Receive Email 1" (step3). For first time use, we suggest you to use default settings (step2), any settings you want to change, please click "Change Setting".

3) Do WAP/Internet settings



After finish above settings, click “Check WAP/Internet Parameters” to check whether you have all parameters filled in. Then save the GSM folder to the root directory of your SD card (step4).

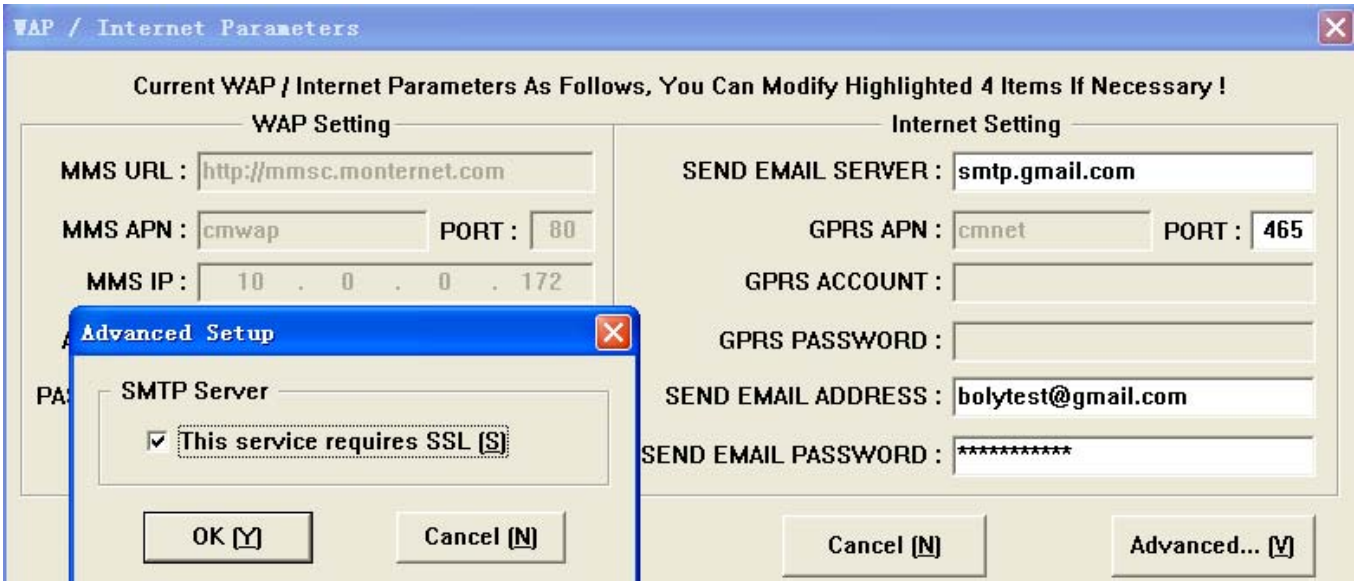


If your country or SIM card operator is not in the list, try to find “Others”, then ask the SIM card operator for the parameters you need(MMS URL, MMS APN, Port, MMS IP, Account, Password, GPRS APN,GPRS account, GPRS password)

and fill in. Also you need to fill in some parameters(send email server, port, email address and password) of an email account as sending email. We suggest you use a gmail.

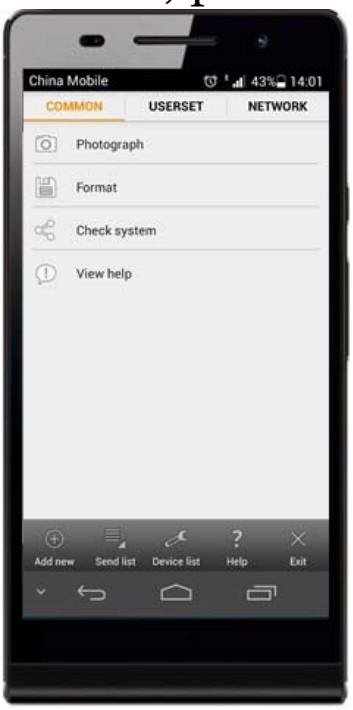
Note, only SMTP is supported by the camera when sending email.

If you use an SSL email such as Gmail as sending email, please click "Advanced" button to mark it.



3.4 Manually Send a MMS or GPRS Photo

After you generate a setting file in your SD card, please slip the power switch to SETUP position. When the camera acquires signal and the SIM card icon appears, target an object and press "SHOT" to take a photo manually.



Then press "OK" to playback the photos, press "▲" and "▼" to switch to previous or next photo. Press "MENU" and you can see a Send Phone [MMS]/Email GPRS interface, press "OK" to send out the MMS or Email.

After a few seconds (Usually less than 1Min), you will receive an MMS in your

phone or Email in your mailbox.

3.5 SMS Control

When the camera is working, you can send a text message "#T#" to your camera's SIM card number to get an on spot image or use our Android application tools. Note you need to set **SMS control as ON** when using SMS command.

Down load the Android control software from our website. *The specified website is written in the last page of the manual.*

For iPhone, just download it from the App Store by searching BGTools.

4 Advanced Operations

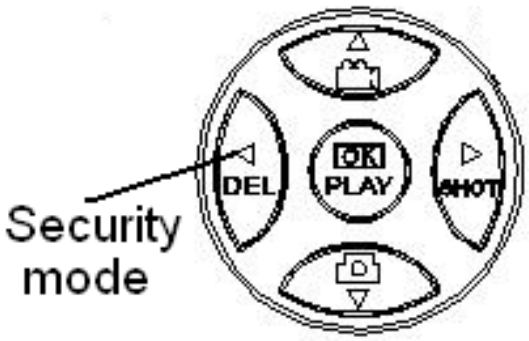
This chapter explains the advanced operations for customizing the camera settings.

4.1 Work Mode

Setup mode: to program camera or to playback the photos or video clips.

Hunting mode: when animal or human intrudes into the monitoring region, the camera will take pictures or videos automatically according to the previous programmed settings. After switching the camera to ON position, the motion indication LED (red) will blink for about 10 seconds. This time interval is for you to position the camera for automatic surveillance operation.

Security mode: similar to hunting mode, but needs more power to supply. So it's suitable for indoor use and needs to use the power adapter. Only in security mode you can use the remote control to easily arm or disarm.



If the power switch is in ON position and the Security Mode is ON, the camera will work in Hunting Mode.

4.2 Settings Menu

Press MENU on the keyboard to enter into the menu setting. The settings menu will be shown on the LCD.

Use "▲" or "▼" key to select the menu item, use "► "

or "◀" to change different item pages or select the different options. Press "OK" to save the settings.

4.2.1 Setting Items

Setting Items	Description
Camera Mode	There are three camera modes: Photo, Video and Pic+Video. You can enter the main menu to set the camera mode. If you choose Pic+Video mode, the camera takes a picture with a video clip.
Security Mode	To set if you will use security mode. Security mode is suitable for indoor use. **You need to use the power adapter to power supply.** The battery can be just a backup for emergency use. Otherwise, the battery will be quickly consumed. The remote control is available only when **Security Mode is ON**.
Photo Size	Choose the image size: 14MP, 20MP or 30MP.
Video Size	Choose the video size: 1920x1080, 1280x720 or 640x480.
Photo Burst	This parameter affects the number of pictures taken for each triggering in camera mode. It's from "1 Photo" to "3 Photos".
Video Length	Choose duration of recording a video. It's from 5 seconds to 180 seconds.
Set Clock	Set camera date and time. You can change the date and time by setting this parameter when necessary, e.g., after every battery change. The date format can be changed, the time format is hour: minute: second.

Time Lapse	Time lapse means the camera can capture images or videos at a preset time interval regardless of whether motions are detected. The default parameter is Off, which means the time lapse function is disabled. Changing this parameter to a non-zero value turns on the Time Lapse mode, and camera will take photos at given time interval. ***Please note that if the PIR Trigger is set to* Off*, then Time Lapse can't be set to* Off*.***
PIR Trigger	Choose sensitivity of the PIR. The higher sensitivity indicates that the camera is more easily triggered by motion and takes more pictures or records more videos. It is recommended to use high sensitivity in room or environment with little interference, and to use lower sensitivity for outdoor or environment with lots of interference like hot wind, smoke, near window, etc. For normal use of the camera, the Normal mode is recommended and is the default setting.
PIR Interval	This parameter indicates how long the PIR (Passive Infrared motion sensor) will be disabled after each triggering in ON mode. During this time the PIR of the device will not react to the motion of human (or animal). The minimum interval is 0 second. It means the PIR can work all the time.
Work Day	Choose the days of the week to let the camera work. **This item is available only in Security Mode.**
Work Hour	Choose a time period of a day to let the camera work. The camera will awake at the

	setting time duration in a day. In the rest of the time the camera is sleeping. Set Work Hour as off means the camera works all day.
Send to	There are 2 Send to modes: 1 Phone MMS: send images to mobile phone. 2 Email GPRS: send images to an e-mail address via GPRS use SMTP. You should set your receiving phone number and your receiving e-mail address in the APP program to function it.
Send Mode	There are 4 Send modes: “Manual” works in SETUP mode， “Daily” and “Instant” work in ON mode. “OFF” means to close the communication function. 1. “Manual”: Choose “Manual” in SETUP mode. Please ensure a SIM card is inserted properly. Video information can’t be sent in SETUP mode when you choose Phone MMS; but you can send photos or videos(less than 10M) when you choose Email GPRS. 2. “Daily”: Daily means the camera will report the summarized information at a preset time (if the preset time is, eg. 20:00 PM) on how many pictures it had taken per day. So, you will get a summarized text message until 20:00 PM. If it is on Photo or Pic+Video mode, the camera will send an MMS at the preset time. The MMS will show you the latest photo and the total quantity of the pictures taken. If it is

	on Video mode, the camera will send a SMS or video at the preset time. The SMS will show you how many video clips the camera has taken within 24 hours. If you choose “Daily”, you need to set the daily report time: xxH, xxM. 3. “Instant”: Instant, just works in ON mode, which means the camera will send an MMS to your phone instantly after it captures a photo or to your email with a Video(less than 10M). You can choose the number of pictures you want it to send out per day. If it is on Photo mode and you choose the Instant mode, and set the MAX number as 10, the camera will send 10 MMS within 24 hours. It then continues to capture photos and save them on the SD card. After 24 hours, the camera will send MMS again when it captures photos. If it is on Video mode, the Camera will send only SMS instead of MMS when send to is set as Phone MMS. If you choose “Instant”, you need to set how many MMS you want to send for economic consideration. 4. “Off”: to disable communication function.
SMS Control	SMS Control can enable two way communication functions. It means if you choose SMS Control as ON, this camera can receive and respond to your SMS command. Also you can retrieve live pictures any time. But the power consumption will be a little more than normal hunting status.
Game Call	It means this camera can play audio file at a

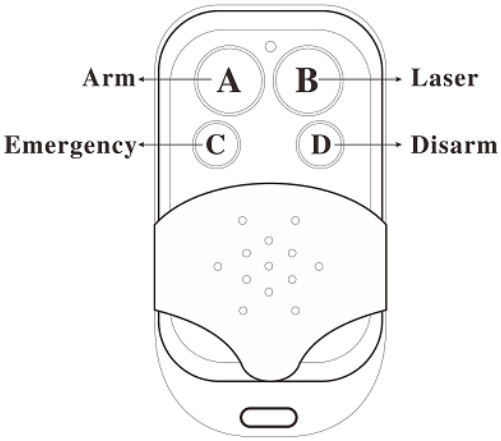
	preset time clock for preset times. The audio file must be saved in the directory of \DCIM\100BMCIM\ with a name of AUDIxxxx(from 0000 to 9999).WAV after format the SD card and setting the game call as on mode, or choose the audio file(format of WAV, AVI,MP3) in Windows APP. Note that Game Call will not function if the SD card is full or there is a trigger when it is time to playback the audio.
Study Code	It means to pair the camera with a specified 433MHz wireless device, such as PIR sensor, wireless door magnet, wireless smoke detector, etc. The specified wireless sensor can be set as part of the alarm system. All device should be paired with this camera first. Please see following chapters to find the method to connect or remove a wireless sensor. **Please note this item is available only in Security Mode.**
Language	Choose the language you need.
Beep Sound	Enable or disable the beep sound.
Camera Posit	You can set A-Z position for your camera, so that you can distinguish which photo is taken by which camera.
Format SD	Format the SD card. All images and videos in the SD card will be deleted.
Default Set	Restore all customer settings to default values.
Version	Version information

4.2.2 Default Set

Setting Items	Default	Options	Description
Camera Mode	Photo	Video, Pic+Video	
Security Mode	Off	On	
Photo Size	30MP	20MP 14MP	
Video Size	1920x1080	1280x720 640x480	
Photo Burst	1 Photo	2-3 Photos	
Video Length	10 Sec.	5-180 Sec.	
Set Clock	Enter		Adjust Clock
Time Lapse	OFF	5Min-8H	
PIR Trigger	Normal	High, Low,Off	
PIR Interval	5 Sec	0-55 Sec, 1-60 Min	
Work Day	Enter		
Work Hour	Off	00:00-23:59	
Send to	Phone[MMS]	Email[GPRS],	
Send Mode	Manual	Daily,	

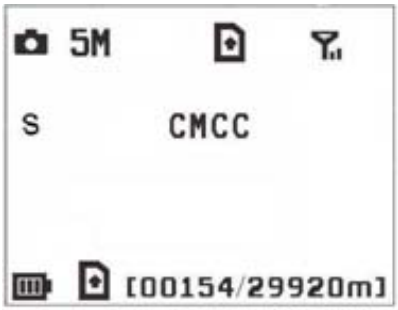
		Instant, Off	
SMS Control	On	Off	Two way communication
Game Call	Off	On	Set the time and frequency of audio playback
Study Code	Enter		
Language	English	Suomi, Deutsch, Svenskt, Dansk Norsk, čeština Italiano, Русский	
Beep Sound	On	Off	
Camera Posit	Off	A to Z Position	
Format SD	Enter		Yes, No
Default Set	Save		
Version	Enter		

4.3 Use the Remote Control

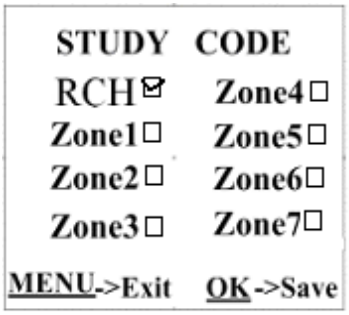


When it's in **Security Mode**, you can use the remote control to easily arm (button A) or disarm (button D). Also you can dial the emergency numbers via button C in case of emergency. Press button B to open or close the laser (you can easily mount the camera with the help of the laser pointer).

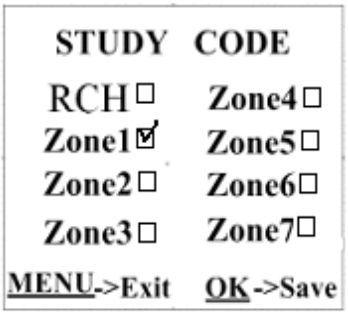
Button A: Arm the camera
Button D: Disarm the camera
Button C: Emergency call button
Button B: Laser pointer



Setup status



Study Code Menu



Study Code Menu

Method to add remote control(s) to the camera:

Set Security Mode as On, Enter the Setup status, press **Menu** and enter the **Study Code** submenu. Choose "**RCH,**"

press **OK** button, then press button **A** of the remote control . When it's successful, there will be a "√" before **RCH**.

Note, it has not entered Security mode even you set security mode as on, you need to press the left key to enter security mode quickly or wait for about two minutes till there is an "A" instead of "S" on the display screen.

4.4 Load or Remove a Wireless Sensor

We support three customized kinds of 433MHZ sensors, infrared body sensor, wireless door magnet and wireless smoke detector that can be set as an alarm sensor of the camera.

Method to load or remove a wireless sensor:

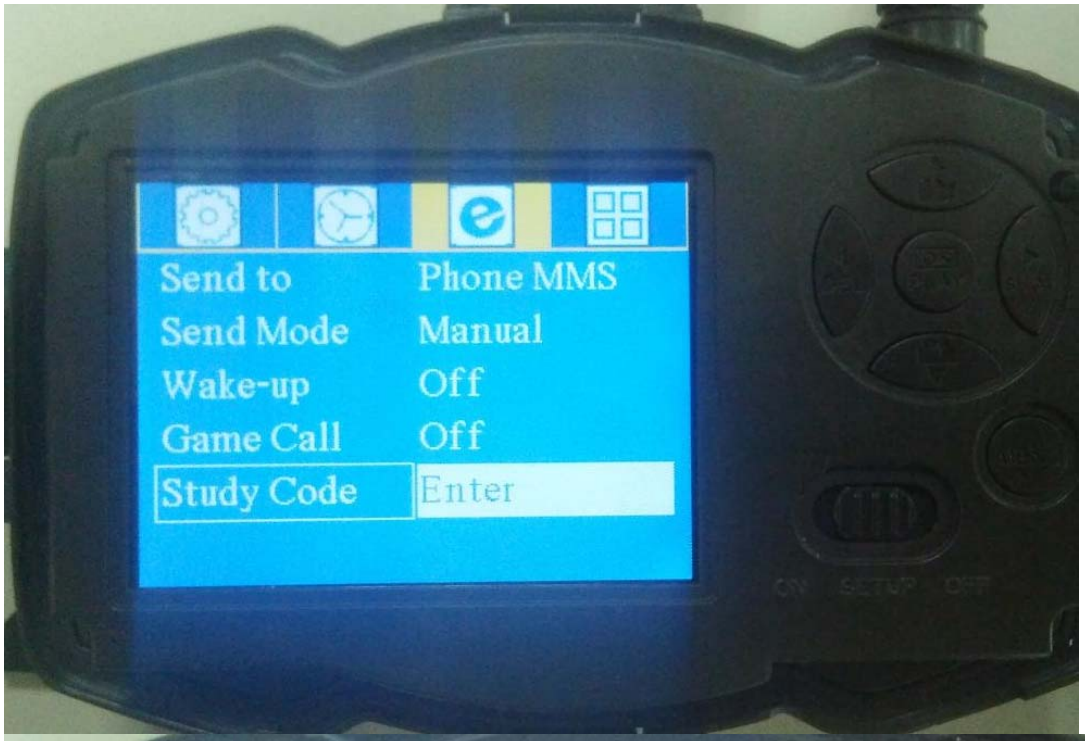
1. Power on the wireless sensor.

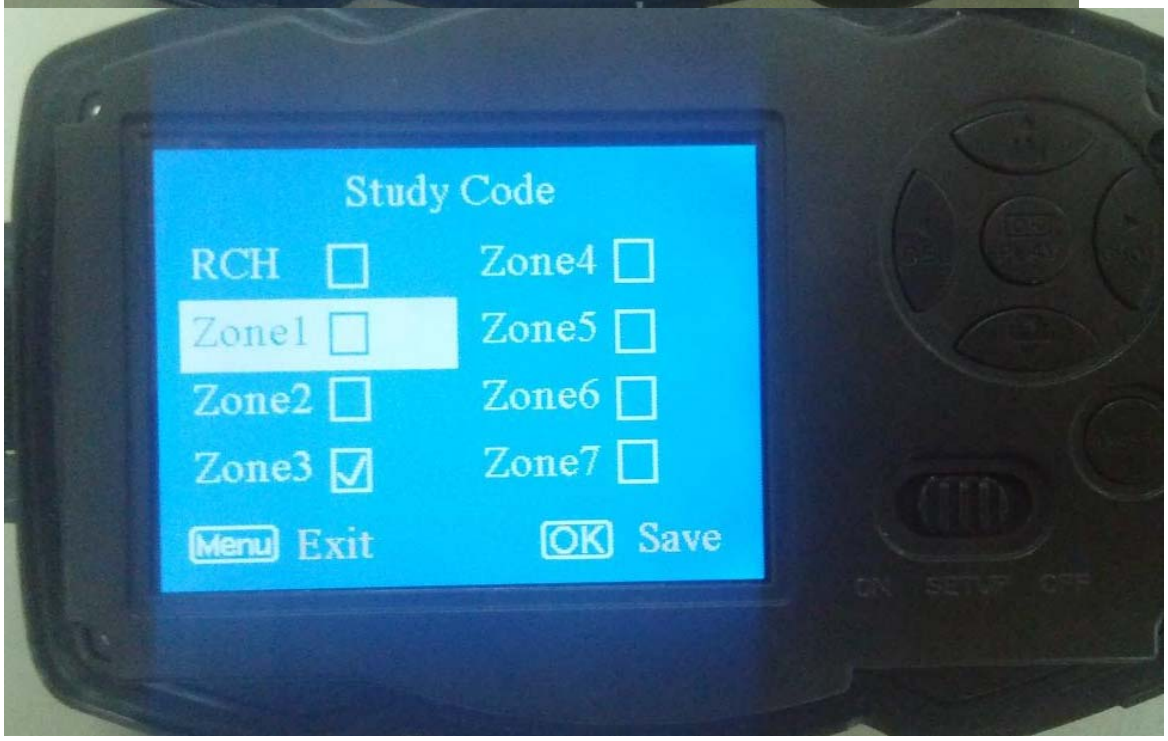
2. Enter the Setup status, press Menu and enter into the Study Code submenu. Choose a zone, for example Zone1, press OK button, then trigger the wireless sensor to check if the sensor is loaded successfully. When it's successful, there will be a " √ " after the zone number.

For example，to load a infrared body sensor :

1. Choose a zone to start study code;
2. Power on and trigger the wireless sensor;
3. When you want to remove the wireless sensor, please enter the study code menu, press "◄" or "►" button to cancel the " √ ."

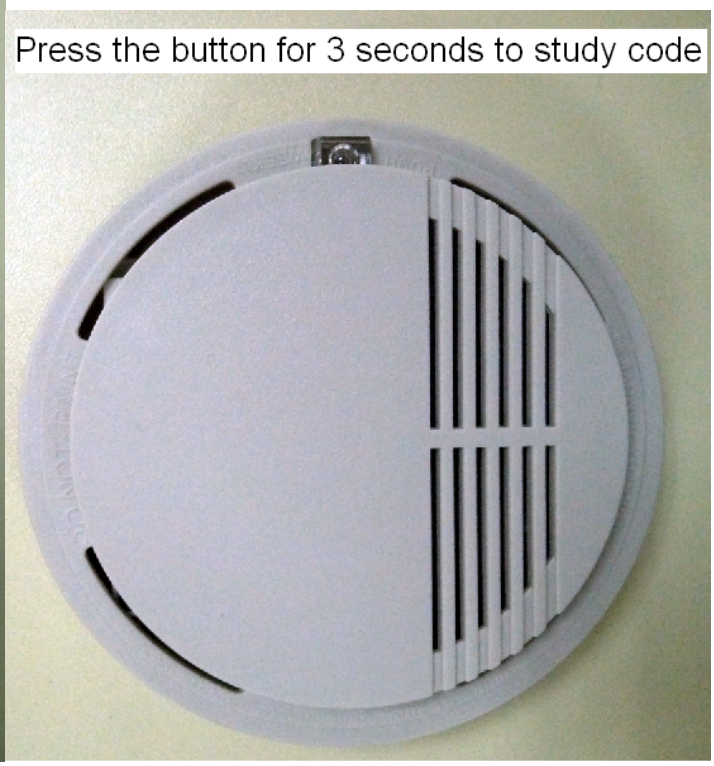
Please note that the wireless sensors just can be used in **Security Mode**. In Hunting Mode, the wireless sensors will not function.

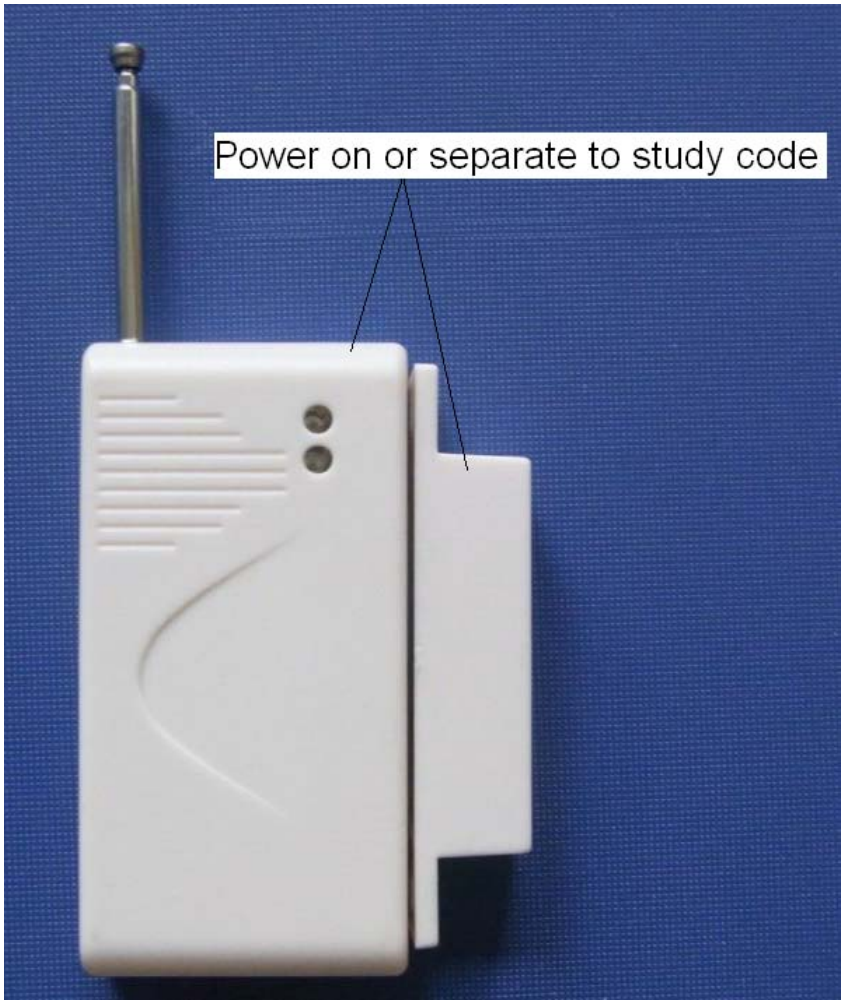

Send to
Phone MMS
Send Mode
Manual
Wake-up
Off
Game Call
Off
Study Code
Enter


Study Code
RCH
Zone1
Zone2
Zone3
Zone4
Zone5
Zone6
Zone7
Menu Exit
OK Save

Please trigger the annunciator!

Power ON to study code


Press the button for 3 seconds to study code



4.5 Change the Settings via Android APP or SMS

When you are far away from your house, you can get spot photos or change camera settings via our android application tools or SMS.

4.6 User Level

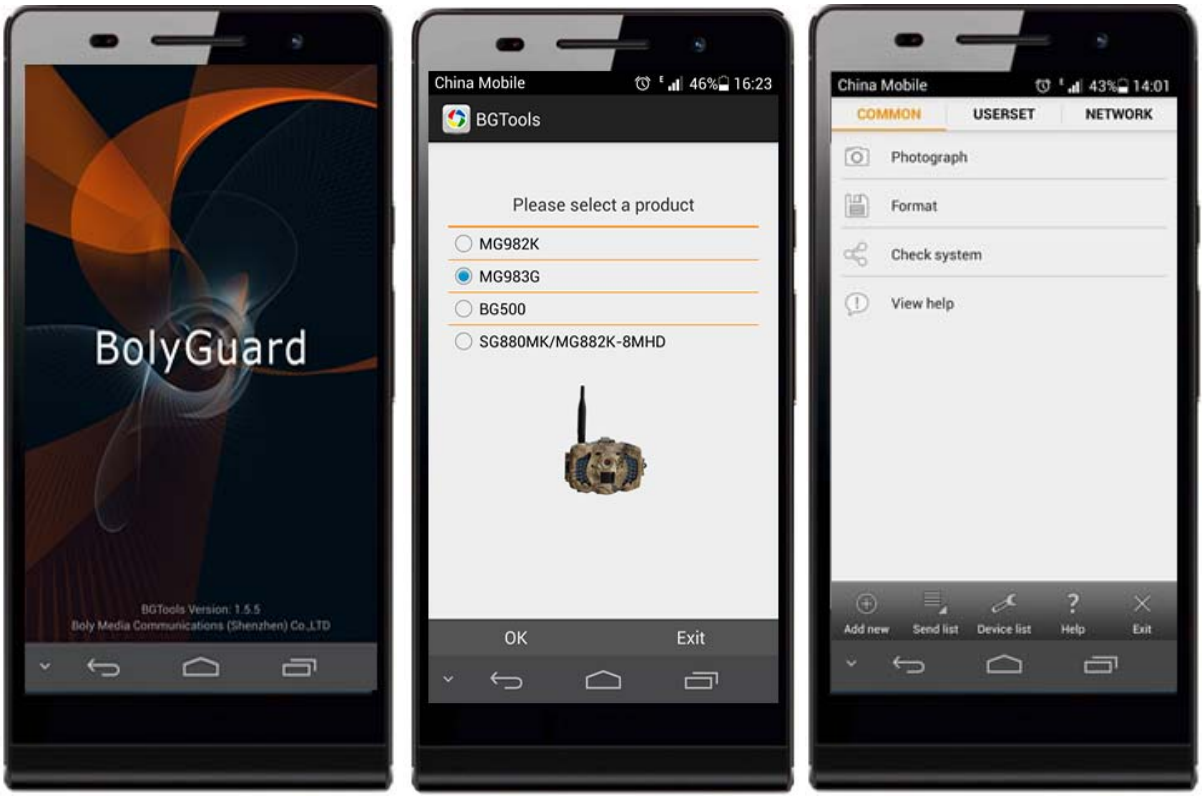
There are two user levels: administrator and normal users. Each user has a different authorization level:

Functions	User Level
Set administrator phone number	Only administrator's password
Set administrator's password	administrator
Set camera parameters	administrator

Set normal user	administrator
Receive emergency calling	administrator, normal user
Send SMS for on spot picture	administrator
Receive MMS when triggered	administrator, normal user
Check camera status	administrator, normal user
Get help information	administrator, normal user

4.7 Use Android APP

It's easy to use the Android APP to communicate with the camera, so you don't need to edit the SMS. You just need to click the button to finish the operation.



4.8 SMS Command List

If you can't use the Android APP for easy operation, the list below shows all the SMS commands for you. You can control your camera via SMS.

A. Set Network Parameters

No	Function	SMS Command
1	Set Normal Users Phone Number	#n#13800138001#13800138002#13800138003#
2	Set MMS Parameters	#m#http://mmsc.monternet.com#10.0.0.172#80#cmwap# name#password# (The example parameters are for the carrier of China Mobile)
3	Set Email Parameters	#s#bmctest123@sina.com#bmc123#25#cmnet#smtp.sina.com#name#password#SSL#
4	Set Receive E-mail Address	#r#mail1@163.com # mail2@163.com#mail3@163.com # mail4@163.com#
B. Normal Control		
No	Function	SMS Command
1	Get On Spot Photo	#T# (Send MMS to phone) #T#E#(Send to email by GPRS)
4	Check Camera Settings	#L#
5	Format SD Card	#F#
6	Set Administrator's Password	#P#0000# (It's suggested that the administrators password be changed at the beginning)
7	Help	#H#
C. Set Menu Parameter		
No	Function	SMS Command
1	Change Camera Mode	#e#cp# (photo mode) or #e#cv# (video mode) or #e#ct#(pic+video)
2	Change Photo Size	#e#s5# (5mp) or #e#s10# (10mp)

3	Change Photo Burst	#e#b1# (1~6 photos)
4	Change Video Size	#e#fh#(720p) or #E#fl#(VGA)
5	Change Video Length	#e#v5# or #E#v30# (the number after V is seconds)
6	Change Date Time	#e#t# (adjustment the time)
7	Change Time Lapse	#e#l1h# (1 hour) or #e#l5m# (5 min)
8	Change PIR Trigger	#e#po# (Off) or #e#ph# (High) or #e#pn# (Normal) or #e#pl# (Low)
10	Change PIR Interval	#e#i30m# (30min) or #e#i30s# (30sec)
11	Change Send To	#e#mp# (phone) or #e#me# (email) or #e#mc# (call) or #e#mg# (e-mail gprs)
12	Change Send Mode	#e#ed# (daily) or #e#ei10# (to set instant mode and the max number per day) or #e#eo# (off) or #e#em#(Manual)
13	Change Game Call	#e#gon18:00[5]# or #e#goff#
15	Change Camera Position	#e#oa# (a~z) to set the camera position function #e#ooff# to off the camera position function
16	Change Work Hour	#e#hoff# or #e#hon10:00-18:00#

Appendix I: PIR Detection Zone

Figure 5 shows Bolymedia's 5 kinds of detection range at different detection angles. This camera is super long range with 60 degree.

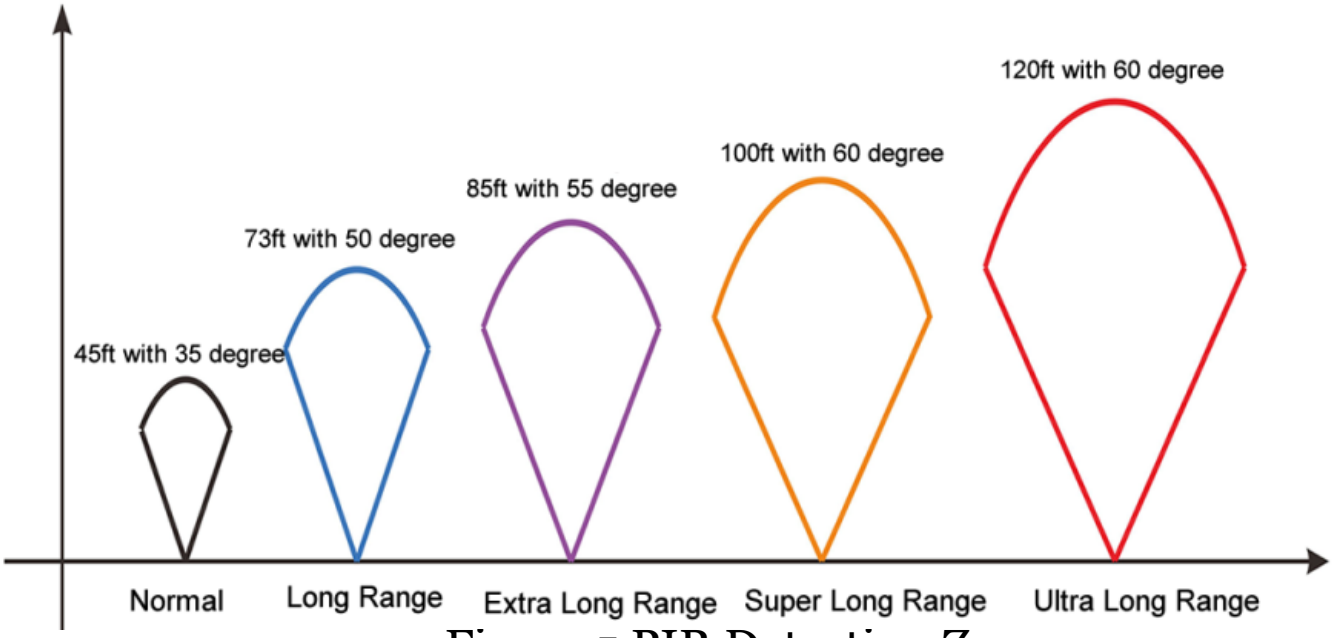


Figure 5 PIR Detection Zone

The PIR detection angle (α) is just smaller than the field of view (FOV) angle (β). The advantage of this design is to reduce empty picture rate and capture most, if not all, motions.

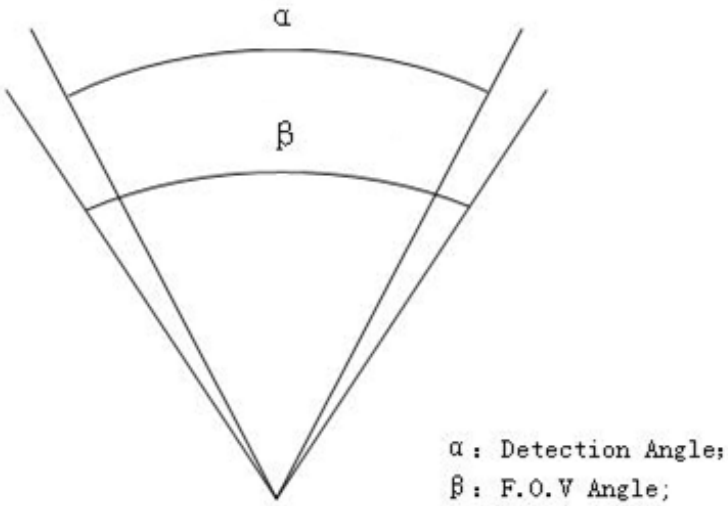


Figure 6 Detection angle vs. FOV angle

This camera has a new design of PIR and the new PIR is

patented. The new patented PIR's detection range can reach to 100ft (in good environments). Figure 7 shows the compared detection zone between normal PIR and the new patented PIR.

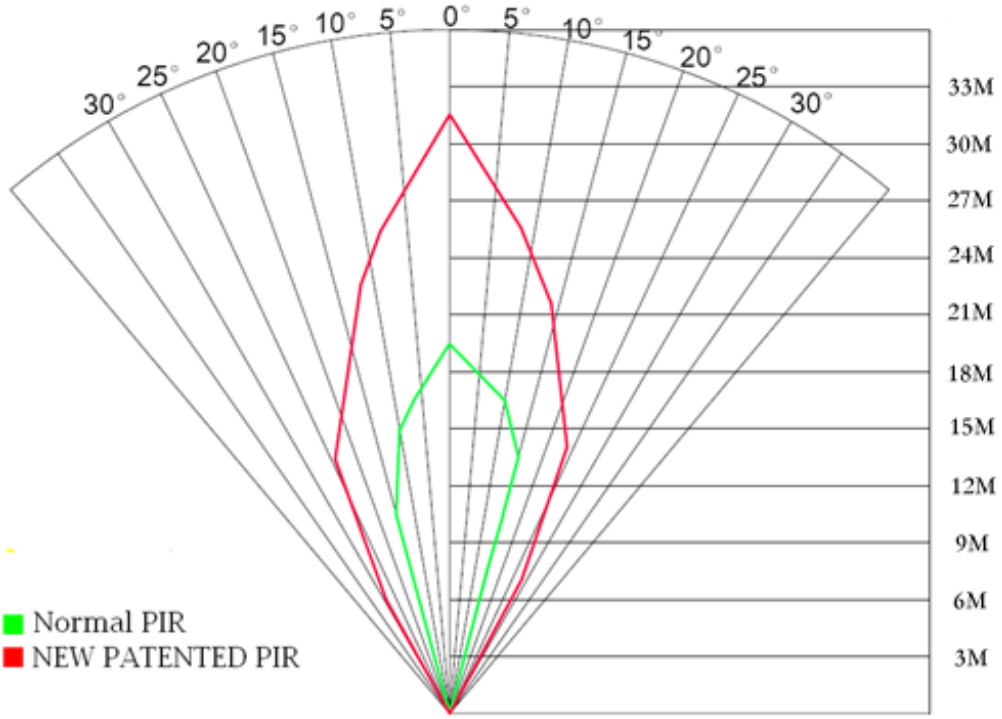


Figure 7 Comparison of Detection Zones of new and existing PIRs

Appendix II: Error Code

Code	Meaning	Description
3915	Non-existent address	Possible cause: 1. The user forgets to input the receiving cellphone number. 2. The user forgets to input the receiving E-mail address. Suggestion: 1. Check the MMS settings, input all the necessary parameters.
3919	File not found	Possible cause: 1. The file means the image file. It shows that the system can't find the image file when sending the MMS. Just when the system is unstable, it will happen (very small probability). Suggestion: 1. When the GSM and GPRS signal are both OK, please resend again. 2. When the GSM and GPRS signal are poor, please change a place to try again; 3. If 1 and 2 do not work and the error code 3919 always appears, please send the camera back for repairs.
3926 3927 3928	MMS busy; Sending MMS stopped; Sending MMS busy	Possible cause: When start a new MMS sending procedure, the previous MMS sending is not finished, so it will show these information. This is a inner use error, we have the correct programmer design, so it won't happen in the consumer's side. Suggestion:

		If it always shows 3926,3927 or 3928, maybe there is a hardware defect. Please send camera back for repair (very small probability).
3939 3941 3942	Failed to open network; Network not deactivated; Network error	Possible cause: 1. The GSM network is not good or not well covered with the GPRS network. 2. The instability in signal transmission leads to some MMS setting parameters missing when the GSM base station do the data analysis. If for the incorrect transmission reason, the camera may show various error code. Suggestion: 1. Contact the network provider if the GPRS network is well covered in that area. 2. Change a place to try again. It's better to try in a public place, where there is always good signal. 3. If the provider said there is GPRS signal covered but the signal is weak, you can try to use a enhanced antenna that is SMA type with antenna gain of 10db.
-85	Not enough balance in SIM card; MMS	Possible cause: 1. The SIM card is not enough balance. 2. Not correct settings. 3.The GSM network is not good leading to a timeout problem (very small probability). Suggestion:

	setting error;	1.Please check to make sure your SIM card has enough balance. 2. Please check the MMS settings.
Other error code		Many codes in the list are used for debugging in the product design phase. Most of them will not be shown to consumers, so please ignore the other error codes and contract us directly. Thanks.

Appendix Ⅲ: Technical Specifications

Image Sensor	14MP Color CMOS, 20MP , 30MP Interpolation
Lens	F/NO=2.2; FOV (Field of View)=60°
PIR Detection Range	30m/100ft
Display Screen	3” LCD
Memory Card	From 8 MB to 32 GB
Picture Resolution	30MP=6400×4800 20MP = 5184×3888 14MP = 4320×3240
Video Resolution	1080FHD(1920×1080) 720P HD (1280×720) VGA (640×480)
PIR Sensitivity	Adjustable (High / Normal / Low/Off)
Trigger Time	1 sec.
Weight	0.30 kg
Operation/Storage Temperature	-20 - +60°C / -30 - +70°C
PIR Interval	0 sec. – 60 min.
Video Length	5–180 sec.
Power Supply	8×AA or 4×AA
Stand-by Current	< 0.25 mA (<6mAh / Day)
Power Consumption	400 videos（interval=5 min, video length=10 sec） >500 MMS (use 8*AA batteries)
Sound Recording	Available
Mounting	Rope / Belt / Python lock
Dimensions	147 x96 x79 mm
Operation Humidity	5 % - 90 %

Security Authentication	FCC, CE, RoHS

*without battery

Appendix Ⅳ: Parts List

Part Name	Quantity
Digital Camera	one
Wireless Remote Control	two
USB Cable	one
Belt	one
User's Manual	one
Antenna	one
Warranty Card	one
433MHz Wireless Sensor	option

Website Information:
Down load the APP software from here:

http://www.bolyguard.com/download.html

(Version 1.0)

FCC Caution:

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference

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

Note: 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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.