

Infrared Digital Scouting Camera

User's Manual ***Pocket Camera SG-560***



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1 Instruction

1.1 General Description

This camera, a digital scouting camera, is a surveillance camera working automatically. It can be triggered at once by any movement of human (or animals) in a certain region of interested (ROI) monitored by a high sensitive Passive Infrared (PIR) motion sensor, and then automatically captures high quality pictures (up to 8M pixels) or records video clips (VGA) according to default settings or preset customer settings.

It takes color pictures or videos under sufficient daylight. While at dark night, the built-in infrared LEDs function as flash light, the camera then takes clear pictures or videos (monochrome).

It is resistant against water and snow for outside uses. Furthermore, the camera can be used as a portable digital camera. Pictures or videos can be taken manually by pressing **OK** on the control in **TEST** mode (The wired control needs to be connected).

1.2 Camera Body Interfaces

The camera has the following I/O interfaces: USB connector, SD-card slot, TV output and external DC power connector.

On the head of camera, there is a lock hole for theft-proof.

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

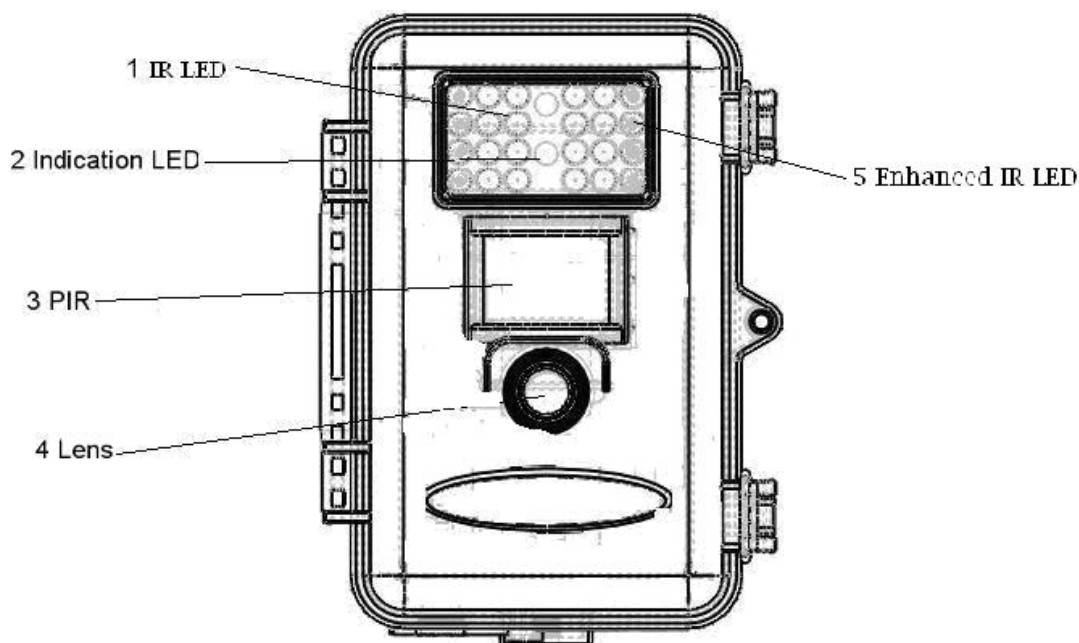


Figure 1

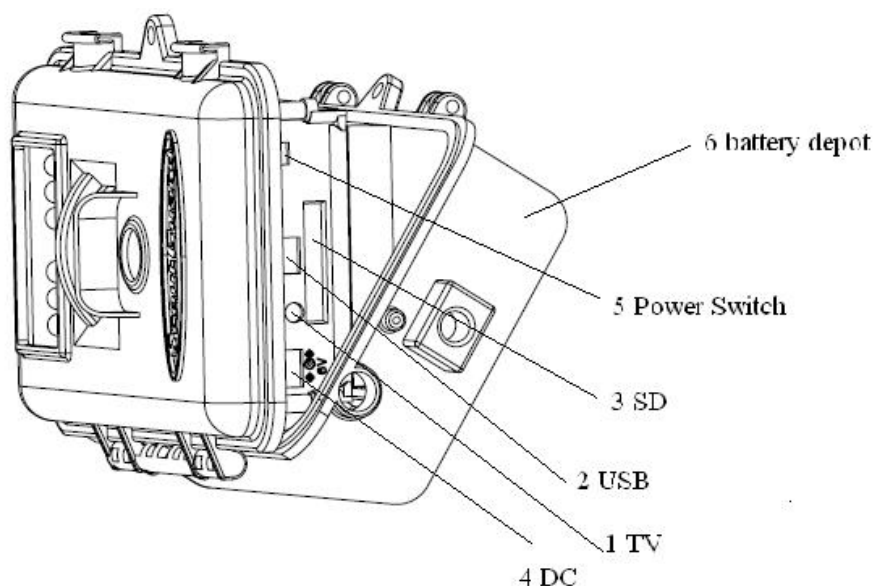


Figure 2

1.3 Shooting Information Display

When the camera is turned on (the power switch is slid to **ON** position), the shooting information will be displayed in the monitor.

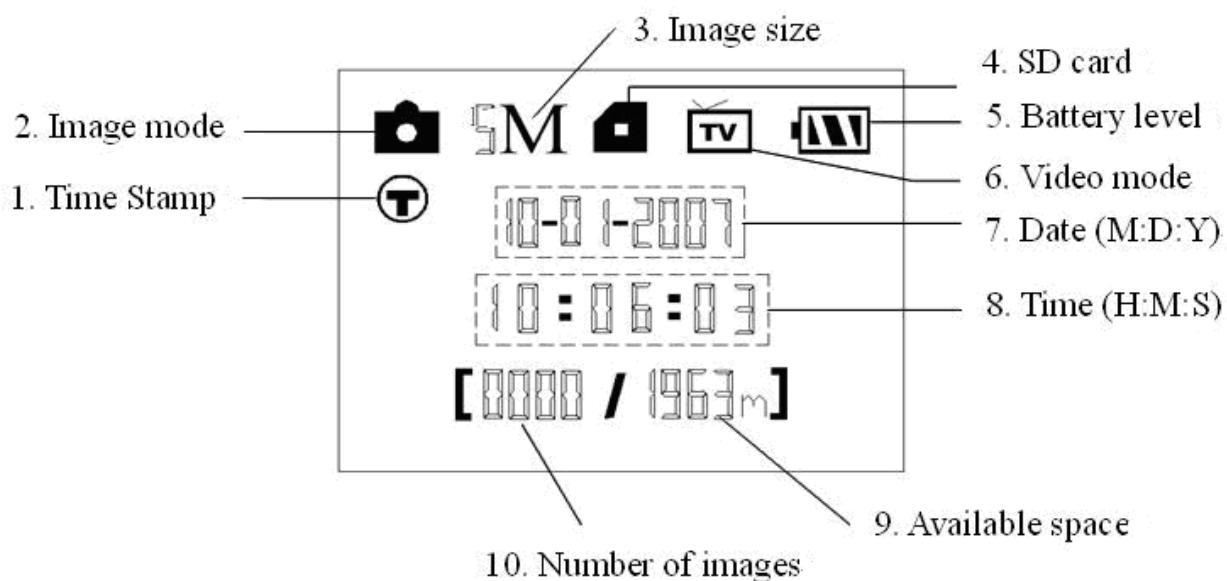


Figure 3

1.4 Supported Format

Item	Format
Image	JPG
Video	AVI
File format	FAT32

Here are some important notices. You don't need to concern about the file system

format of the camera unless you have problems with reading the SD-card by your other equipments. If this happened, please format the SD-card in the camera or in a computer at first and then reinsert the card into your camera to make a try.

2 Cautions

- ★ The working voltage of the camera is 6V. The camera is supplied by four AA batteries.
- ★ Please install batteries according to shown polarity.
- ★ Please unlock the write-protect before inserting the SD-card.
- ★ Please insert the SD-card when the power switch is at **OFF** position before testing the camera. The camera has no internal memory for saving images or videos. If no SD-card is inserted, the camera will shut down automatically after a continuous indication sound.
- ★ Please do not insert or take out the SD-card when the power switch is at **ON** position.
- ★ It is recommended to format the SD-card by the camera when used at the first time.
- ★ The camera will be in USB mode when connected to a USB port of a computer. In this case, the SD-card functions as a removable disk.
- ★ In the **TEST** mode(insert the control into the USB interface then switch the camera at **ON** position), 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.
- ★ Please ensure sufficient power when having firmware upgrade, otherwise the upgrade process could be interrupted incorrectly. If any fault occurs after improper upgrading process, the camera may stop function properly.

3 Easy Operations

3.1 Power Supply

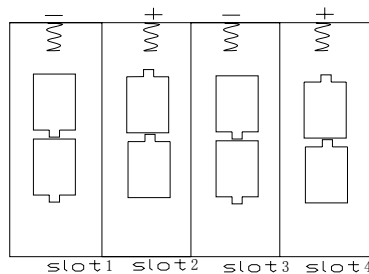
To supply power for the camera, four AA size batteries are needed.

Open the bottom cover. Confirm that the power switch is at the **OFF** position. Install the fully charged batteries into the depot according the polarities sign shown below. The following batteries with 1.5V output can be used:

1. High-density and high-performance alkaline batteries (Recommended)
2. Rechargeable alkaline batteries
3. Rechargeable NiMH batteries

There are two battery slots.

When in low-battery state, camera will be automatically shut down after two indication sounds. Please change the batteries in time.



3.2 Insert the SD-card

Open the bottom cover. Insert SD-card into the card slot with unmarked side upwards. Please note that the SD-card can only be plugged in one direction. Make sure that the write-protect switch of the SD-card is on the “write” position otherwise the camera cannot be switch on.

3.3 Power on and Entering into the ON Mode

Before switching on, please pay attention to the follows:

1. Avoid temperature and motion disturbances in front of the camera such as big leaf, curtain, air-conditioner, air outlet of the chimney and other heat sources to prevent from false triggering.
2. The height from ground for placing the camera should vary with the object size appropriately. In general, **one to two meters** are preferred.

Slide the power switch to the **ON** position to power on the camera and enter into the **ON** mode.

After switching on the camera, the motion indication LED (red) will blink for about 10s. The 10s is a buffering time before autonomic capturing photos or videos, e.g. for closing and locking the bottom cover, fixing the camera on a tree and walk away.

In **TEST** mode, it requires to connect the control then to do further customizing

settings, when the user complete the settings, it requires to unplug the control to enter into normal use, that is, **if the wired control still be connected with the camera, the camera will not work.** The camera (the control must be unplugged when in **ON** mode) will take pictures or videos automatically according to the default settings or preset customer settings.

3.4 Enter into the TEST Mode

Connect the wired control, then switch to the **ON** position and enter into the **TEST** mode. There are some functions in **TEST** mode: Customer settings, manual capture and preview. The control is needed in this mode.

3.4.1 Customer Settings

Press **MENU** on the control to enter into menu settings. The camera can be taken over control to manually customize the camera settings which display on the LCD screen on the camera or external TV monitor. The detailed operations will be described in “Advanced Operations” chapter.

3.4.2 Manual Capturing

The TV-in connector should be unconnected, and then press **SHOT** to manually capture photos or record videos. It is also SHOT key to stop the manual capturing of the video.

3.4.3 View Images or Videos

There are two ways to view the captured images or videos:

1. LCD screen on the control
2. TV monitor which connect to camera with TV cable

Press **OK** to view images, the latest image will be shown in the LCD screen on the control or TV monitor. Press **UP** to view the previous image and press **DOWN** for the next. Please note that video cannot be played in the LCD screen and only thumbnail of the video is showed.

The detailed operations like deleting images or videos will be described in “Advanced Operations” chapter.

3.5 Power Off

Switch the camera to **OFF** position to power off the camera. Please note that even in the **OFF** mode, the camera still consumes certain power at μA level. Therefore, please remove the battery if the camera will not be used for a long time.

4 Advanced Operations

From the basic operations of the camera in previous chapter, we know that **the camera has three basic operation modes**:

1. **OFF mode**: Power switch is at **OFF** position.
2. **ON mode**: Power switch is at **ON** position.
3. **TEST mode**: Power switch is at **ON** position and the control needs to be connected.

In the above three modes, the **OFF** mode is the specified safe mode when replacing the SD-card or batteries and transporting the camera.

This chapter explains the advanced operations for customizing the camera settings. The settings can only be customized in **TEST** mode and control is needed.

4.1 Settings Menu

To view the camera settings menu, press **MENU** in the **TEST** mode (Power switch is at **ON** position; control needs to be connected). The settings menu will be shown on the LCD on the camera or the external TV monitor (only when the camera is connected to a TV).

Setting Items	Description
Camera Mode	Choose capturing images or recording videos.
Format	Format the SD-card. All images and videos in the SD-card will be deleted.
Image Size	Choose the image size, 5 mega pixels or 8 mega pixels.
Video Size	Choose the video size, e.g. 640×480 (VGA).
Set Clock	Set camera date and time.
Capture Number	Choose the continuous shooting numbers after each triggering.
Video Length	Choose duration of recording video.
Interval	Choose how long the camera will stop functioning after each triggering. The camera's PIR will be disabled during this interval.
Sense Level	Choose sensitivity of PIR. The higher, the easier the motion sensor would be triggered. It is recommended to use Normal mode. The sensitivity of PIR is strongly related to the temperature. Higher temperature leads to lower sensitivity.
Time Stamp	Date and time of capturing can be imprinted on image or video.
Timer Switch	The camera will be awoken up at certain time duration in a day. In the rest of the time the camera is shut off.
Default Set	Restore all customer settings to default values.

4.1.1 Default Settings

Default settings are listed below:

Setting Items	Default	Options	Submenu
Camera Mode	Image	Video	
Format	Enter		Yes, No
Image Size	8M Pixel	5M Pixel	
Video Size	640×480	320×240	
Set Clock	Enter		Adjust Clock
Capture Number	1 Photo	2 Photo, 3 Photo	
Video Length	Avi 10 seconds	Avi 1–60 seconds	
Interval	1 Minute	0–59 seconds, 1-60 minutes	
Sense Level	Normal	High, Low	
Time Stamp	On	Off	
Timer Switch	Off	On	Start, Stop (00:00 – 23:59)
Default Set			

4.1.2 Set Camera Mode

There are two ways to set the camera mode: 1. Via shortcut key; 2. Via setting menu.

1. Shortcut key: Press **UP** to set the camera mode as **Video** or press **DOWN** to set camera mode as **Image** in info display of **TEST** mode.
2. Setting menu: The following shows how to set camera mode to **Video**, provided that the previous option is **Image**:
 - a) Press **MENU** to display the setting menu.
 - b) Press **UP** or **DOWN** to select **Mode**.
 - c) Press **RIGHT** to select **Video**.
 - d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.3 Format SD-Card

The system will delete all images or videos stored in the SD-card after formatting, make sure that you have made a backup of important data.

- a) Press **MENU** to display the setting menu.
- b) Press **UP** or **DOWN** to select **Format**.
- c) Press **OK** to choose **Enter** to enter into submenu.
- d) Press **RIGHT** to select **Yes**. **Yes** will be highlighted.
- e) Press **OK** to start formatting the SD-card. During formatting, the display screen

will show a message “Formatting...” as below.
Press **MENU** to cancel setting and return to info display.

Formating...

please wait
for format end

4.1.4 Set Image Size

The following shows how to set pixel size as **8M Pixel** provided that the previous option is **5M Pixel**:

- a) Press **MENU** to display the setting menu.
- b) Press **UP** or **DOWN** to select **Image Size**.
- c) Press **RIGHT** to select **8M Pixel**.
- d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.5 Set Video Size

The following shows how to set video size as **320×240** provided that the previous option is at **640×480**:

- a) Press **MENU** to display the setting menu.
- b) Press **UP** or **DOWN** to select **Video Size**.
- c) Press **RIGHT** to select **320×240**.
- d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.6 Set Date and Time

The date format is **month/day/year**, the time format is **hour: minute: second**. The valid value for year is between 2006 and 2031. Provided that the date and time are needed to be set to November 15th, 2007 and half past ten, the steps are as following:

- a) Press **MENU** to display the setting menu.
- b) Press **UP** or **DOWN** to select **Set Clock**.
- c) Press **OK** to **enter** into submenu.
- d) Press **RIGHT** to select item, press **UP** or **DOWN** to change the value.
- e) Press **OK** to save all current setting and return to info display.
Press **MENU** to cancel setting and return to info display.

4.1.7 Set Continuous Capturing Number

This parameter affects the number of pictures taken for each triggering in **Camera** mode. The following shows how to set continuous capture number to **3 Images** provided that the previous option is **1 Image**:

- a) Press **MENU** to display the setting menu.

-
- b) Press **UP** or **DOWN** to select **Capture Number**.
 - c) Press **RIGHT** to select **3 Images**.
 - d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.8 Set Video Length

Press **RIGHT** to decreases or increases the value by 1 second.

The following shows how to set video length to **5 Seconds** provided that the previous value is **1 Seconds**:

- a) Press **MENU** to display the setting menu.
- b) Press **UP** or **DOWN** to select **Video Length**.
- c) Press **RIGHT** to increase to **5 Seconds**.
- d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and exit.

4.1.9 Set Triggering Interval Time

This parameter means that 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 animals). The minimum interval is 0 second, it means the PIR works all the time. The maximum interval is 1 hour, it means the PIR will be disabled for 1 hour after each triggering. The default value is 1 minute.

Press **RIGHT** to decreases or increases the value by 1 second or 1 minute.

The following shows how to set triggering interval time to **5 Minutes** provided that the previous value is **1 Minute**.

- a) Press **MENU** to display the setting menu.
- b) Press **UP** or **DOWN** to select **Interval**.
- c) Press **RIGHT** to decrease or increase to **5 Minutes**.
- d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.10 Set PIR Sensitivity

This parameter defines the sensitivity of the PIR. There are four parameters: **High**, **Normal**, **Low** and **PIR off**. The default value is "Normal". The higher degree indicates that the Camera is more easily to be triggered by motion, taking more pictures or recording more videos. It is recommended to use high sensitivity degree 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. Furthermore, the sensitivity of the PIR is strongly related to the temperature. Higher temperature leads to lower sensitivity. Therefore it is suggested to set a higher sensitivity for high temperature environment.

It is recommended to use **Normal** mode. The following shows how to set PIR sensitivity as **Low** provided that the previous option is **Normal**.

- a) Press **MENU** to display the setting menu.
- b) Press **UP** or **DOWN** to select **Sense Level**.

-
- c) Press **RIGHT** to select **Low**.
 - d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.11 Set Date and Time Stamp

The following shows how to set time stamp as **Off** provided that the previous option is **On**.

- a) Press **MENU** to display the setting menu.
- b) Press **UP** or **DOWN** to select **Time Stamp**.
- c) Press **RIGHT** to select **Off**.
- d) Press **OK** to save the current setting and the option will be un-highlighted.
Press **MENU** to cancel setting and return to info display.

4.1.12 Set Timer

This parameter defines a certain time lapse in a day when the camera can be triggered, while in the rest of the time lapse the device is shut off. The effective value ranges from 00:00:00 to 23:59:59.

Timer Switch OFF means the camera works all along; Timer switch ON means the camera works only during the time lapse according to the preset settings.

Please note that the start and stop time can only be effective when the timer is set as **On**. Provided that the camera should work from eight a.m. to five p.m., the steps are as following:

- a) Press **MENU** to display the setting menu.
- b) Press **UP** or **DOWN** to select **Timer Switch**.
- c) Press **RIGHT** to select **On**.
- d) Press **OK** to enter into submenu.
Press **MENU** to cancel setting and return to info display
- e) Press **RIGHT** to select item, press **UP** or **DOWN** to change the value.
- f) Press **OK** to save all current setting and the option will be un-highlighted.
Press **MENU** to return to previous menu.

4.1.13 Reset to Default Settings

To reset the setting to the default values, the steps are as follows:

- a) Press **MENU** to display the setting menu.
- b) Press **UP** or **DOWN** to select **Reset**.
- c) Press **OK** to reset to default settings and return to info display.
Press **MENU** to cancel setting and return to info display.

4.1.14 View Image or Video

we know that the camera has three basic operation modes:

OFF mode: Power switch is at **OFF** position.

ON mode: Power switch is at **ON** position.

TEST mode: Power switch is at **ON** position and the control needs to be connected.

- a) Switch to **TEST** mode and enter into info display.
- b) Press **OK** to view the latest picture (or video) in LCD screen on camera, TV monitor or Image viewer with TV-in connector.
- c) Press **NEXT** to start playing the video clip in TV monitor. NOTE: Video clip cannot be played in LCD screen on the control.
- d) Press **NEXT** to stop playing and return to playback mode.
- e) Press **UP** to view the next picture (or video) and **DOWN** for the previous.
- f) Press **OK** to return to info display.

When view images, the total number of all images in the SD-card and the index of the displaying image will be shown respectively.

4.1.15 Delete Image or Video

- a) View the image (or video) which to be deleted.
- b) Press **MENU** to display the DELETE SELECT menu.
- c) Press **SHOT** to select **delete One or All image** . **One** is highlighted.
- d) Press **OK**, **No** and **Yes** are prompted. **No** is highlighted.
- e) Press **SHOT** to highlight **Yes**.
- f) Press **OK** to delete the image or video.

Press **MENU** to cancel and return to playback.

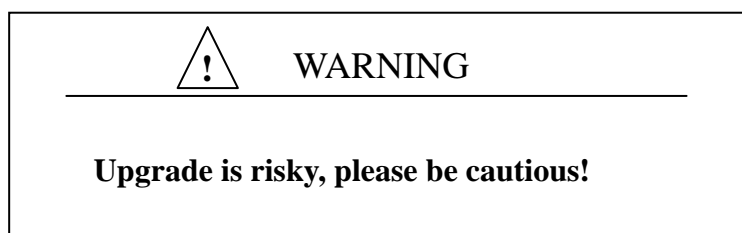
Please note that after deleting a picture or a video file, the deleted files can't be restored! Furthermore, in order to delete all images and video clips in the SD-card, it is suggested to format the SD-card.

4.2 File Numbering

Images and videos are saved in the pre-named folder. File numbering continues by adding one to the last number for each new image or video. The saving name likes IM000001.JPG or IM000001.AVI. Through the suffix you can distinguish whether the file is an image (with suffix .jpg) or a video (with suffix .avi).

4.3 Firmware Upgrade

This camera is equipped with an automatic upgrade function for you. Upgrading is needed only when an improved firmware is available.



Appendix I: PIR Detection Zone

The figure4 shows the detection range in different detection angle. When the detection angle is 35° , the detection range is 50ft. When the detection angle is 52° , the detection range is 30ft.

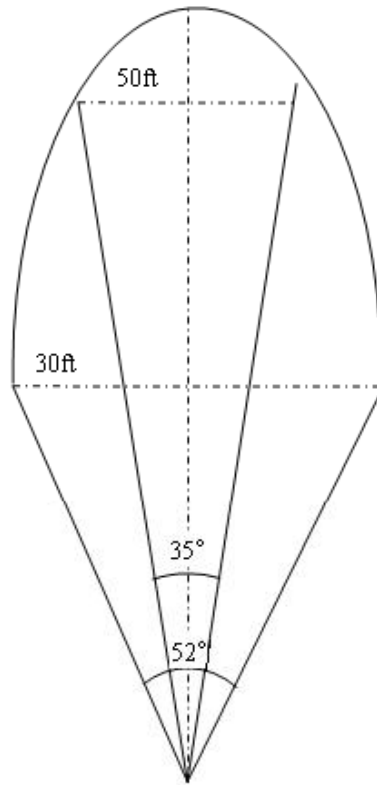
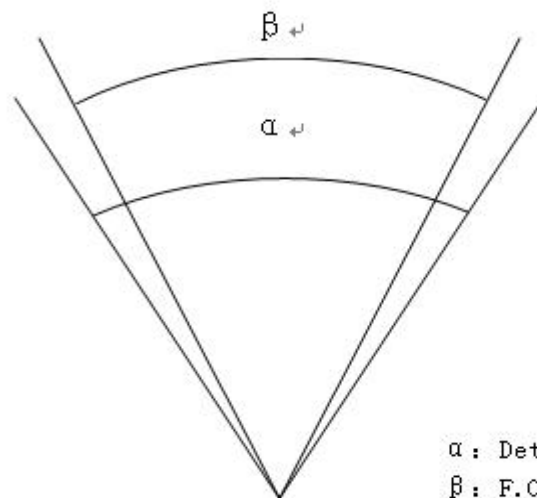


Figure 4

The PIR detection angle (α) is just barely larger than the field of view angle(β). The advantage of this design is to avoid empty pictures and get available pictures.



α : Detection Angle;
 β : F.O.V Angle;

Figure 5

SG-560 has a new design of PIR and this new PIR is patented. The new patented PIR's detection range can reach to 25m. The figure 6 shows the compared detection zone between normal PIR and the new patented PIR.

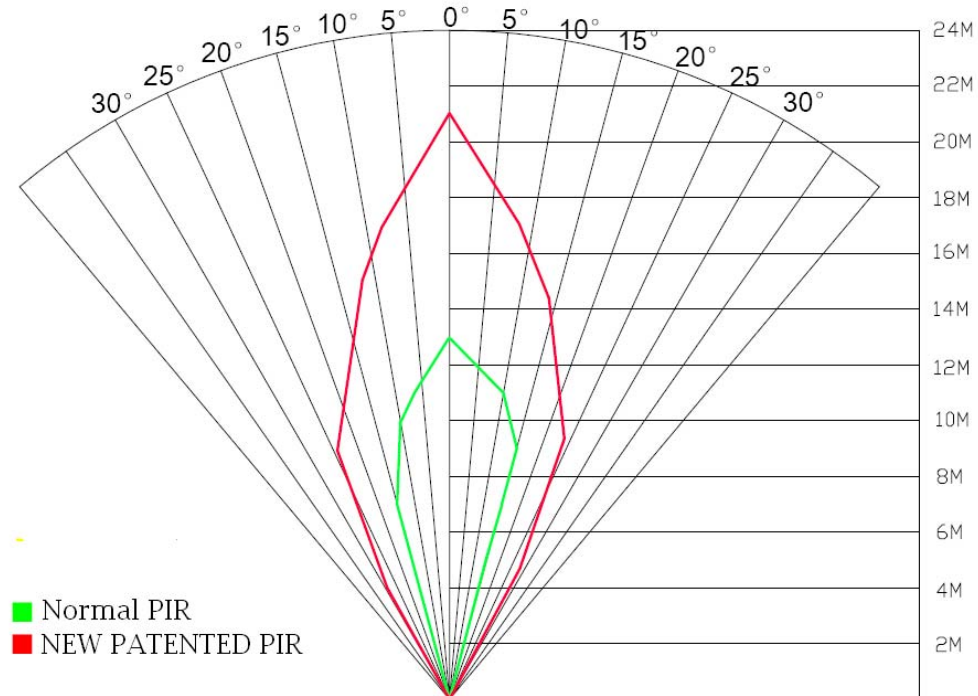


Figure 6

Appendix II : Technical Specifications

Image Sensor	8MP interpolation
Lens	F/NO=3.1mm FOV(Field of View)=40°
Detection range	20m-25m
Display Screen	1.5" LCD
Memory Card	From 8 MB to 8 GB
Picture Resolution	8MP = 3328 ×2496 5MP = 2560×1920
Video Resolution	640×480 (16fps) 320×240 (20fps)
PIR Sensor	Multi Zone
PIR Sensitivity	Adjustable (High/Normal/Low)
Trigger Time	1.2s
Weight *	0.22 kg
Operation/Storage Tem.	-20 - +60°C / -30 - +70°C
Interval	1s – 60 min.
Photo Burst	1–3
Video Length	1–60s
Power Supply	8× AA
Stand-by Current	< 0.3 mA (<7mAh/Day)
Power Consumption	200 mA
Low Battery Alert	LED Indicator
Display Screen	LCD display on control
Mounting	Rope/Belt/Python lock
Dimensions**	130x 80x 45 mm
Operation Humidity	5% - 90%
Security authentication	FCC, CE, RoHS

*without battery

AppendixIII: Parts List

Part Name	Quantity
Digital Camera	One
Wired control	One
USB Cable	One
Belt	One
User Manual	One