LTL ACORN ®

Infrared Digital
Scouting Camera
Ltl-5610 Series
GPS Coordinate Input
1920×1080 Video

USER'S MANUAL

Version: Ltl-5610-02
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General Information

This manual applies to model Ltl-5610A, Ltl-5610MC, Ltl-5610MG, Ltl-5610WA, Ltl-5610WMC and Ltl-5610WMG. Ltl-5610 is new generation product of LTL ACORN. With its highly sensitive Pyroelectric Infrared Radial (PIR) Sensor, detects the sudden change of ambient temperature caused by moving game in a region of interest (ROI), triggered to take photos/videos. Ltl-5610MG/WMG has the function of sending MMS to mobile or sending E-mail to computer. Well-developed SMS remote control feature allows users to change the parameters of the camera or control photographing (returns MMS meanwhile) remotely. In addition, with the camera's unique GPS function, you can input the GPS coordinates of the shooting location into the camera by camera menu or parameter setting files, so that each photo taken will have photo attributes of GPS coordinates. Making it easy for users to check location information or positioning the coordinate by the third party map software.

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1.1 Features

- 5MP/12MP picture resolution.
- 1920×1080/ 1280×720/ 640×480/ 320×240 video resolution.
- Excellent quality of audio record.
- 44pcs LEDs improve the quality of night picture and video.
- Ltl-5610W wide lens angle series camera with a field of view of 100 degrees.
- For Ltl-5610 non-wide lens angle series camera, the flash range of infrared night vision LEDs 850nm is as far as 30m, low-glow 940nm 18m.
- For Ltl-5610W wide lens angle series camera, infrared night vision LEDs 850nm flash range is as far as 18m, low-glow 940nm 13.5m.
- “Cam + Video” mode takes both picture and video at every trigger.

- Ultra-long in-field battery life (up to 6 months with 12 AA batteries in standby mode).
- With two Preparatory PIR sensors and main photograph PIR sensor, forming a 100 degrees sensing range, so that the camera can be powered on in advance with the status of ready to shoot when the animal enters from side PIR in the 100 degrees sensing rang, at this time, the camera can take pictures immediately within 0.2 seconds if the animal enters into the sensing range of main photograph PIR sensor. Therefore it does not miss any of the passing animals and the animal would be in the middle of the picture.
- Perform in the most extreme temperatures from -49°F (-45°C) to +158°F (+70°C).
- Compact size. Well designed to deploy covertly.
- Quickly trigger time (0.8 seconds). The trigger time begins to calculate from the animal entering into Main PIR sensing range after closing the side PIR to the time of taking photo.
- 1 second to 24 hours interval period of photograph setting range, camera can take pictures/videos automatically in the setting period time. It's very useful to observe the plants growth and monitor cold-blood animals. Period photographing can use together with induction photographing, or can close one of them.
- The timer settings between two start time and off-time. The camera can be set individually by two fixed shooting time buckets. This feature can be used in monitoring animals' fixed feed or shooting of the time buckets concerned by users.
- High precision timing accuracy, less than 10 seconds for 24 hours.
- Convenient to be mounted on trunk or tripod.
- The camera serial number can be set as letters and digits and will be stamped on the photo, generally used for location mark.
- Supports to turn on the function of prefix file name with serial

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number, convenient for classification.

- Serial number, date, time, temperature, and moon phase can be stamped on pictures.
- Lockable and password protected.
- Users can run Ltl Acorn application software on the computer (with a CD or download from Ltl Acorn website), configure camera parameters and MMS setting parameters, generate settings file separately, or configure the camera parameters directly on the camera menu.
- SMS remote control, send text messages via cell phone to camera to change the camera settings parameters or trigger the camera.
- Separate design of camera and wireless module gives users more flexibility: MC models can add wireless module battery case to be upgraded to MMS camera.
- If the local mobile signal is too poor to send MMS, you can choose to send text messages. Message content includes shooting time and serial number of the camera. Compared with other products on the market, we have advanced remote control technology with low power consumption and shorter transmission time to send pictures to the user's cell phone or email account continuously.
- Modules will send text messages automatically to remind users when battery level gets low.
- The information such as signal strength on site could be seen on the camera TFT monitor.
- In the THUMBJPG file directory, there are all sending MMS small picture file, the file number is consistent with the full size picture.
- Internal or external antenna selectable.

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1.2 Application

- Digital scouting camera
- Animal or plants observation
- Motion-triggered security camera, for home, office and community.

1.3 Illustration

- Figure 1.1: Front view of the camera (Part # Ltl-5610A)
- Figure 1.2: Bottom view of the camera (Part # Ltl-5610A)
- Figure 1.3: Back view of the camera (Part # Ltl-5610A) and front view of battery box(Part # Ltl-BM3)

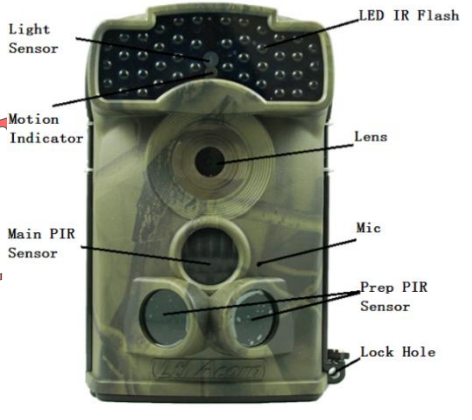

Figure 1.1: Front view of Ltl-5610A

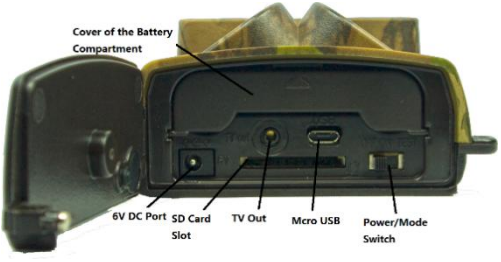

Figure 1.2: Bottom view of Ltl-5610A

The camera provides the following connections for external devices: Micro USB interface, SD card slot, TV out jack, and external DC port. The 3-way Power/Mode Switch is used to select the main operation modes: **OFF**, **ON** and **TEST**.

Users can load 4 to 12 high-performance alkaline AA batteries or AA-size lithium batteries to supply power to the camera. For the condition of low temperature and long using time, we recommend using high-energy lithium AA batteries. In addition, it is recommended to install the additional battery box, filled with all new batteries so that the working time can be greatly extended. (For details, please see Appendix III Install Battery Box)

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Figure 1.3: Back view of Ltl-5610A

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CAUTION: If you are not using the camera for an extended period of time, it is highly recommended to remove the batteries from the camera to avoid possible acid leak that may damage the camera and void the warranty.

Getting Started

2.1 Insert SIM card

Please buy the SIM card from the local mobile operator, make sure they can provide the MMS of GSM 2G network and data service. Ask them for data information of MMS configuration. For detail settings of camera parameters information, please refer to section 3.4 and 3.5.

Open the battery compartment, insert the SIM card to the card slot and fasten it.

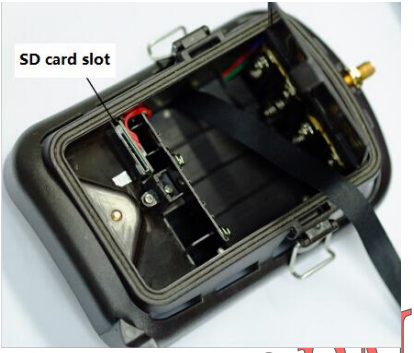

Figure 2.1 Wireless module battery box

2.2 Load Batteries on the Camera

Follow below instruction to load batteries on camera (Part # Ltl-5610A):

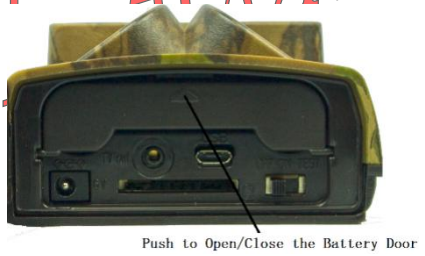

Figure 2.2 Battery door

- Unlock and open the bottom cover of the camera.
- Push and release the battery door.
- Install 4 AA batteries in the camera. Make sure the polarity matches the sign on the battery door.
- Push the battery box again, it will get closed.

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Please refer to **Appendix III Install Battery Box** to install additional battery box (Part # Ltl-BM3).

Alternatively the camera can run on an external 6V~12V DC power source (optional). When external power and batteries are both connected, the camera will prefer to choose and powered by external power source with higher voltage. When the external power voltage is lower than battery voltage or external power without outputting, camera would change automatically to be powered by the internal batteries. It is recommended to connect the camera with external power source Ltl-SUN Solar Panel (optional for purchase), the camera can work in the field over one year without changing batteries.

When battery level gets low, the message “Low Battery” would be shown on the screen in the TEST mode.

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2.3 Insert SD Card

The camera does not come with internal memory. It will not work without a SD (Secure Digital) memory card or SDHC (High Capacity) card. Before inserting the SD card, please make sure the write-protect switch is in “OFF” side (NOT in the “LOCK” position). The supported memory capacity is up to 32GB. If you use a SD card which capacity is larger than 32GB, please make sure that you test it in advance.

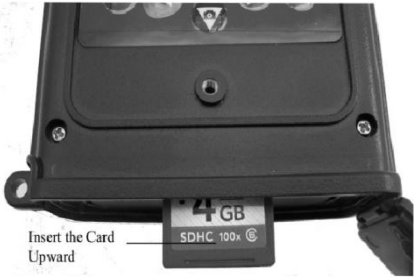

Figure 2.3

Attention: Please switch to OFF mode before loading or removing batteries/ SD card.

2.4 Enter Test Mode

Switch to the **TEST** position to enter the Test mode. In this mode, the camera can be used as a regular digital camera to take pictures or video clips, or you can enter the Menu to set up parameters. There are four "shortcut" functional keys , , **SHOT** and **REPLAY** on the keypad (see Figure 2.4), working as below:

Figure 2.4

- Press the ▲ key to set the camera to shoot video clips.
- Press the ▼ key to set the camera to take pictures.

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- Press the ▶ **SHOT** key to manually take the picture/ video (depending on the camera setting), the picture/ video would be saved to the SD card. If the display shows “CARD PROTECTED” when you press the **SHOT** key, please switch the power off, remove the SD card and slide its write-protect switch to OFF. In addition, press **SHOT** to replay or end replaying the video.
- Press the OK **REPLAY** key to preview/playback photos/videos on the TFT LCD screen or a connected TV with AV cable. Use ▲ and ▼ key to navigate the page, ◀ and **OK** key to zoom in image, ▲, ▼, ◀ and ▶ to move, **MENU** key to restore.

In addition, press **MENU** key to set up parameters as required. Please refer to **3.1 Parameter Settings** for details.

In the test mode, one useful function you may find is testing the working area of the Pyroelectric Infrared Radial (PIR) Sensor, especially the sensing angle and distance. To perform the test:

- Firstly, tie the camera on the tree by using the strap, aiming at the region of interest (ROI).
- Walk slowly from one side of the ROI to the other side parallelly. Try different distance and angle from the camera.
- If the Motion Indicator flashes blue, it means that the position you stand is detected by side PIR sensor. If the Motion Indicator flashes red, it means that the position you stand is detected by main PIR sensor.

Through this test, you can identify the best position to install the LTL ACORN camera. In general, it is recommended to place the camera 3 to 6 feet (1 to 2 meters) above the ground.

To avoid potential false triggers due to temperature and motion disturbances, please do not aim the camera at a heat source (i.e. the sun) or nearby tree branches and twigs. The ideal direction to aim at is the North or South orientation. Also, remove any twigs close to the front of the camera.

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2.5 Enter Live Mode

Switch to the ON position to enter the live mode. The Motion Indicator will flash red for about 10 seconds and the camera starts working. When the animal or human comes into the main PIR area, the camera takes pictures or videos immediately. If the animal enters side PIR areas, the side PIR sensor will be activated, if it keeps entering into main PIR area, the camera will shoot, but if the animal left from the side PIR area, the camera will power off and enter sleep mode.

2.6 Advantages of Prep PIR Sensors

In general, the Infra-Red camera is in “sleep” mode to save battery power with only the PIR sensor working. When the animal is detected by the PIR sensor, the camera will be powered on and prepare to shoot. The time period from being activated to shooting picture is called trigger time. The trigger time varies from different scouting camera brands on the market, generally from 1 to 5 plus seconds. Our LTL ACORN Infra-Red scouting camera has an impressive 0.8 seconds trigger time. If the animal passes across very quickly, the slow speed camera (which trigger time is 1-5 seconds) may only capture the part of the body, or even nothing at all. So for the trigger time: the shorter, the better.

With LTL ACORN unique side prep PIR sensors design, our LTL ACORN Infra-red camera solves this problem ideally. The two side prep PIR sensors and the main PIR sensor form a 100° angle of induction range which is far over the 55 ° lens angle. When the animal first crosses the PIR area of the side PIR sensor, the camera is activated and ready to shoot. If the animal keeps entering the area of the main PIR sensor, the camera will take picture immediately to catch the whole body of the animal. This process could be short as 0.2 seconds.

If the animal enter into the area of the side PIR sensors only, such as stopping to eat grass, the system is designed to work as following ways to avoid the camera being powered constantly: If the animal does not enter the

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area of the main PIR sensor, the camera will power off after 5 seconds. If the trigger events consecutively happened twice in the area of the side PIR sensors only, the camera will no longer be activated by the side prep PIR sensors, but only by the main PIR sensor. If the animal enters the area of the main PIR sensor continuously, the whole body of the animal will be captured thanks to the 0.8 seconds response time.

Advanced Settings

The LTL ACORN Infra-red scouting camera comes with preset manufacturer settings. Users can change the settings in TEST mode as required.

3.1 Parameter Settings

Press “MENU” key to enter/ exit the camera setup menu. Press ▲, ▼ to move the marker. Press ◀, ▶ to change the setting, and press OK to confirm the change. Always press OK to save the change, otherwise the new setting would not be saved.

Parameter	Settings (**Bold** = default)	Description
Mode	Camera,Video, Cam+Video	Select whether picture or video to be taken. In **Cam+Video** mode, camera first takes photos then video.
Format	**Enter**	All files will be deleted after formatting the SD card. Format the SD card on the camera at the first use. ***Caution: make sure the files on SD card have been backed up first!***

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Photo Size	**12MP**, 5MP, 1.3MP(MMS camera only)	Select picture resolution 1.3MP(MMS camera only) ,5MP or 12MP. Higher resolution produces better quality photos, but occupies more space and takes longer time to write to the SD card, which slightly affects the shutter speed. 5MP is recommended.
Video Size	1920×1080 **1280×720** 640×480 320×240	Higher **resolution** produces better quality videos, but occupies more space. **1280×720** is recommended.
Set Clock	**Enter**	Press **Enter** to set up date and time. Internal capacitor will remain the clock time for up to 7 minutes when changing batteries.
Picture No.	**01 Photo,** 02 Photos, 03 Photos	Select the number of photo burst at every trigger.
Video Length	**AVI 10s**, optional from 1s to 60s	AVI format videos can be played on most media players.
Interval	**1 Min**, optional from 0s to 60min	Select the length of time that the camera will wait from when the last picture was taken and written in the SD card, until it responds to next new triggers. During the selected interval, the camera will not take pictures/ videos. This prevents the SD card from filling up with too many redundant images.

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Sense Level	High, **Normal**, Low, Off	Select the sensitivity of the PIR sensor. The High setting suits indoors and environments with little interference, while the Normal/Low suits outdoors and environments with more interference. Temperature also affects the sensitivity. The High setting is suitable to the high ambient temperature, and the Low setting is helpful in cold weather.
Time Stamp	**On**, Off	Select **On**, serial No., date, time, temperature and moon phase would be stamped on photo.
Timer1	**Off**, On	Select **On**, camera works in a specified period every day. For instance, if the starting time is set at 18:35 and the ending time at 8:25, the camera will function from 18:35 the current day to 8:25 the next day. Outside the setting period, the camera will not be triggered. This feature can be used together with **Time Lapse** feature.
Timer2	**Off**, On	**Timer2** is help to set another working time period. The function is same as above **Timer1.**
Password Set	**Off**, On	Set up a password to protect your camera from unauthorized users. The length is 4 digits (0~9).

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Serial No.	**Off**, On	Select **On** to assign a serial number to every camera. Use 4 digits (0~9) and/or alphabets (A~Z) to record the location in of photos (e.g. YSP1 for Yellow Stone Park). This helps camera users to identify the location when organizing the photos. **Note: Please set a serial number in advance if you want to prefix the photo/video name with the device serial number. It would take effect only if the camera is restarted**
Time Lapse	**Off**, On	Select **On**, the camera takes photos/videos automatically at the time set. It can be used in taking photos of plant growth or cold-blood animal. This feature can work together with **Timer** feature.
Side PIR	**On**, Off	The default setting is **On**. The two side PIR sensors provide wider sensing angle, activate the camera before game entering main PIR sensor area so as to catch the game, especially for those move fast. To avoid power consumption when the side PIR sensor is being activated constantly in the situation of game hangs around in side PIR sensor area but not trigger main PIR sensor, the side PIR would only work twice at one interval.

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GPS Coordinates	**Enter**	Click **Enter**, input the coordinate manually, the GPS information would be saved to photo properties, it is helpful to check the location where the camera placed when review pictures.
MMS Phone No.	**On**	One mobile number could be set on the camera only, please refer to the section 3.4 for setting more mobile number or E-mail account. 11 digits is max limitation for mobile number. The daily max limitation of sending MMS could be set on menu too, **00 stands no limited**, 1~99/Day stands 1~99 photo(s) could be sent daily.
SMS Remote Control	**0H**, **1~24H**, **Off**	Interval time of receiving SMS, **0H** stands 10 minutes, **1~24H** stands receiving interval is 1~24 hour(s), **Off** stands turn of the SMS remote control function.
MMS Status	**Off**, VGA, SMS	Default setting is Off. Choose VGA or SMS to turn on the function. VGA: the camera will send 640x480 picture. SMS: send text (date, time and serial no.)
Recycle	**Off** ,On	Choosing On enables the SD card overwrites function, which automatically deletes the oldest files when the SD card becomes full to make room for the latest pictures or videos.
Default Set		Press **OK Enter** to restore the manufacturer default settings.

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3.2 GPS Coordinate

●Obtain GPS Coordinate

Obtain the GPS coordinate via mobile APP which developed by LTL ACORN, or via the third party map software.

●GPS Coordinate Input

The GPS Coordinate could be inputted on camera menu, as well as on PC SETUP software or Mobile SETUP APP, please refer to **3.4 Set up Camera on PC** or **3.5 Set up Camera on Mobile Phone** for details.

3.3 File Format

The original pictures and videos would be saved in DCIM\100IMAGE folder in SD card, MMS pictures would be saved in DCIM\THUMBJPG folder. Picture serial number of original and MMS would be corresponding. E.g.: Original picture named IMAG0001.JPG in 100IMAGE, video name should be IMAG0001.AVI, and MMS picture should be named 100_0001.JPG in THUMBJPG folder.

When Serial No. is on, the name of pictures and videos would be started with serial number, which is helpful to be classified.

When Serial No. is off, the name of pictures and videos would return to default name.

Attention: Please set a serial number in advance if you want to prefix the photo/video name with serial number, the setting would only take effect after restarting the camera (such as turn the switch to OFF position then to TEST position).

Use a Micro USB cable to download the files to computers in any operating mode or get the SD card reader inserted into computer to view the files.

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The GPS coordinate could be inputted on Ltl-5610 series camera, allows users to check the longitude and latitude where the camera located in photo properties, or locate the photos position by the third party map software.

The AVI video can be played on most popular media players, such as Windows Media Player, etc. Please try another player if the video cannot be played.

3.4 Set up Camera on PC

To get the Setup.exe

After formatting the SD card on the camera, use Micro USB cable to connect the camera to computer. Or insert the SD card into the computer (a SD card reader may be needed).
Get enclosed CD from gift box and run on computer (an external disc drive would be needed if the computer without disc drive) to find Setup.exe.

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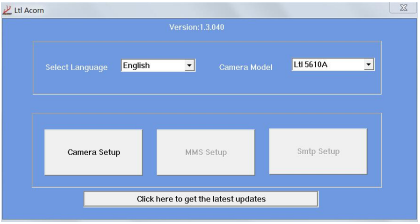
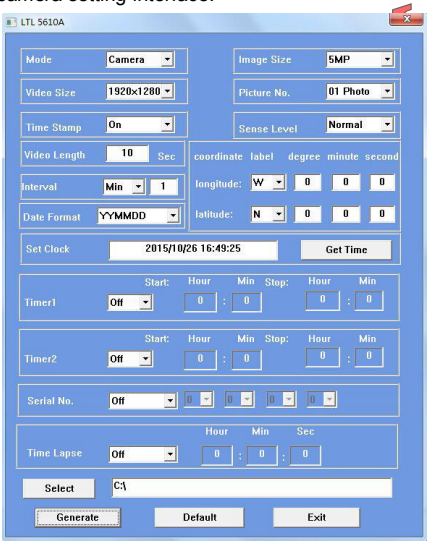
Or download from LTL ACORN's website:
http://www.ltlacorn.cn/about/downloaden.html
(Download→ Classification→ PC Setup→Setup.exe)

Setup.exe icon:

Double click the **Setup.exe** icon to enter Setup homepage:

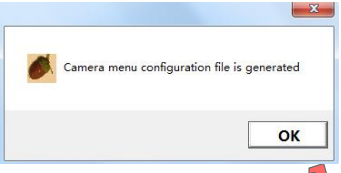


Select language and camera model **Ltl 5610A/Ltl 5610MG**. Click **Camera Setup**, enter camera setting interface:

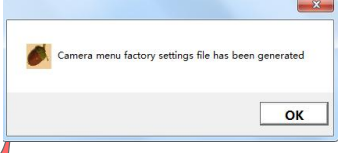


Set up the camera based on your requirements. Please refer to section **3.1 Parameter Settings** for more details.

Click GetTime to retrieve the computer time. Click Select to choose the save directory, SD card root directory is recommended (insert SD card into computer first). Click Generate, a message window will pop out as below.



Click Default to restore to default settings.



Click **OK**, a file named **menu.dat** has been created and saved in the selected directory. If the **menu.dat** is not saved in SD card, you have to move it to the SD card. Setup has been finished.

Click Exit to exit Camera Setup page. Retrieve the SD card and insert it into the camera. Switch to the **TEST** position to enter the TEST mode. The message “Updated menu.dat Successfully” would be shown on the TFT LCD screen, the setup file has been successfully updated.

Attention:

The password should be set on the camera only, Not on PC.

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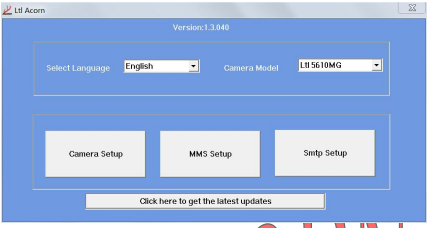
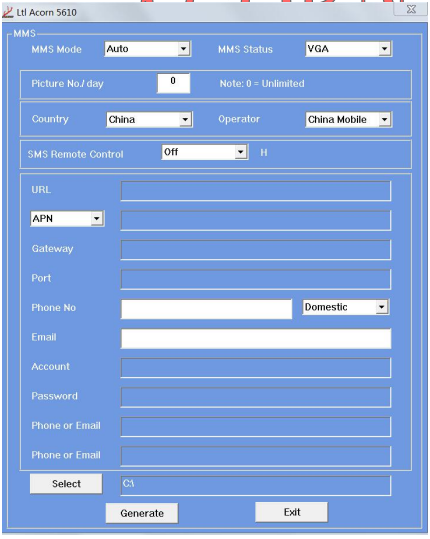
3.5 Set up MMS Function on PC

Click Exit to exit from the camera setting interface, back to the following window reminder again.



Click MMS Setup, pop up the following interface:



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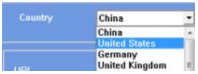
Firstly, you need to set MMS mode as **Auto** or **Manual**. Choose **Auto** (recommended), then choose country 

and the Mobile Phone Network Operator (MPNO). If you choose **Manual** to input all the parameters manually, please contact your Mobile Phone Network Operator (MPNO) to obtain all the required information such as URL, APN, Gateway, and Port. Input the phone number and/or email address which you'd like to receive MMS pictures. Up to three different phone numbers and/or email accounts could be entered, one phone number or email account should be inputted at least.

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Note: In the CD that came with the program, we preset parameters for each major mobile operator. If the parameter settings are different provided by operators, or the parameters settings got from the local operators is not in the menu, then please let us know, so that the correct parameters could be updated to the new version program.

Click on Select to choose save path, generally can choose to save in the path of SD card (Need to insert the SD card into SD card reader, then insert the card reader to the computer USB port). Then click on Generate. A file named **setup.dat** has been created and saved in the selected path. If you didn't choose to save in the SD card at first, then please copy the **Setup.dat** file to the SD card from the saved path before insert the SD card to camera.

Click on Exit to exit from the MMS setting interface. Retrieve the SD card and insert it into the camera. Switch to the **TEST** mode. The information “Updated setup.dat Successfully” will show up on the TFT display, indicating the MMS parameters have been successfully upgraded.

3.6 SMS Remote Control

DSP SMS receipt content definition

- All the SMS contents start with LTL (ltl), end with AA (aa).
- All the order codes indicated by 2 digits.

Order code	Function code	Example	Meaning
01	Mode: camera (0), video (1), camera+ video (2)	01*1#	Set to video mode
02	Image size: 12MP (0), 5MP (1), 1.3MP (2)	02*1#	5MP
03	Video size: 1080P (0), 720P (1), 640x480(2)	03*1#	720P
04	Picture No.: 01 photo (0), 02 photo (1), 03 photo (2)	04*2#	3 photos
05	Video length: 1-60 indicates different value	05*59#	59s
06	Interval: beginning with S (s) represents Second, with M (m) represents minute, 1-60 indicates different value.	06*s30#	Interval:30s
07	Serial No.: off (0), on (1), refer to camera setting, figure+ letter, turn off Serial NO.: 07*0xxxx#	07*1AbCD#	Serial number: AbCD
08	PIR sense level: Low (0), normal (1), High (2), off (3)	08*1#	normal
09	Time Stamp: off (0), on (1)	09*0#	off

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10	Side PIR: off (0), on (1)	10*1#	on
11	MMS status: off (0), VGA (1), SMS (2)	11*2#	SMS
12	Phone No. 2 or Email: Maximum 48 bytes	12*15197611542#	Phone number 15197611542
13	Phone No. 3 or Email: Maximum 48 bytes	13*info@ltlacorn.cn#	Email info@ltlacorn.cn
14	Email: Maximum 48 bytes	14*info@ltlacorn.cn#	Email info@ltlacorn.cn
15	Maximum photo number setting: 0 (no limit)	15*0#	No limit
16	Time lapse: off (0), on (1). Time indicated with 2 figures, E.G.: 1h 33m 2s, indication: 01 33 02.	16*1013302#	1h 33m 2s shooting a set of specified image
17	Timer 1: off (0), on (1). Time indicated with 2 figures, E.G.: 1h 33m, indication: 01 33.	17*101330200#	1h 33m~2h
18	Timer 2: off (0), on (1). Time indicated with 2 figures, E.G.: 1h 33m, indication: 01 33.	18*101330200#	1h 33m~2h
19	SMS receipt time: 0-24h, 0 indicates 10 minutes, 25 indicates off. 1~24 indicates receiving interval of SMS.	19*25#	Off (need to switch manual at next using)
20	Shooting or not for this time: off (0), on (1)(After the receipt of the order by camera module, there will be a picture be shot and sent back to your phone/MMS or email/GPRS)	60*1#	Shoot and return picture
21	Order 12 and13 are ineffective in SMTP mode.		

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- All the order code ends with“*”, all the value ends with“#”.
  E.G.:
  LTL01*0#02*2#06*S30#07*10A3Z#AA
  Definition: camera mode, 1.3MP, interval: 30s, serial No.: 0A3Z.
  The message represents: take pictures and send back after receiving the message.
- For SMS remote control setting, different value with different extra power consumption, “0” the highest, “off” zero. Recommended setting is “1” or “2”.
- Maximum 60 bytes for all the SMS content, for multiple parameters setting please send by multi times. Please do not send SMS continuously, send again only when you confirm the success of the last order by checking. (Mobile will receive message as “Message format OK”, it means the received message with right format).
- SMS received by module, after the identification of the phone number (the mobile number in the first of parameter settings) the module will response immediately on parameter set format success or failure.

Note: When use order code 12, 13 to set phone number or email address, 12 is priority for use, which means if you set 13 only without 12, order 13 would be out of work.

When use order code 12, 13 to set email address, 14 is priority for use, which means if you set 12 or 13 only without 14 ,order 12 or 13 would be out of work.

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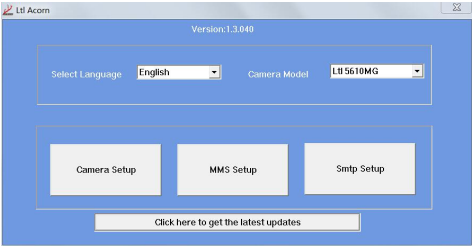
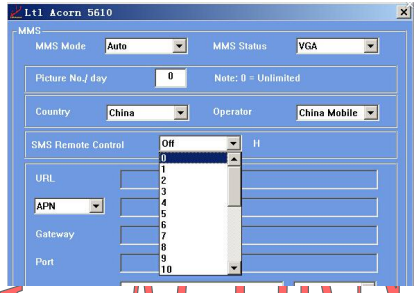
- **Set SMS remote control parameters in PC**



Click **SMTP Setup** to popup the following menus:

In **Auto** mode, first select country and operator. In **Manual** mode, you need to fill in **APN/ Account/ Password**. These parameters should be obtained from local mobile operator.

Fill in your **SMTP server, SMTP port, sender E-mail, sender Password and Recipients E-mail.**



SMS remote control, the value ranges from "0" o "off "which represents the SMS receipt interval time, "0" indicates 10mins, "1~24" indicates the interval time 1~24h to receive SMS, "off" indicates the close of the SMS remote control.

Select the related value based on your requirements. Recommend "1" or "2".

Click on **Select** to save the parameters in SD card, insert the SD card to the camera and turn on after generate the files, parameters setting upgrade finished .

3.7 Wireless MMS Camera Working

For camera model Ltl-5610MG/WMG, or the camera Ltl-5610MC/WMC upgraded by installing the wireless module battery box, it is able to send photo to your mobile or email by following instruction but not only work as basic trail camera.

- The camera is powered on and functioning well. The SD card has enough space. 12AA batteries with enough power capacity. The camera starting up by timing or by induction. Send MMS in Cam mode or Cam+Video mode only, not in Video mode.
- SIM card has been installed correctly. The MMS service has been activated (some MMS services need pre-paid balance). The SIM card is not password-protected.
- When the camera is switched to the “OFF” position, it can be installed with wireless modules battery box.
- In the real environment, the signal must be strong enough (3 cells or more). The recipient’s phone number must be correct. It is highly recommended to do the send-and-receive test on site.
- MMS parameters should be set correctly.
- The Timer need to be OFF. If you have the Timer on, make sure the time set is covered in the period you want to send MMS.
- MMS Status VGA If you need to send MMS, make sure MMS Status is not set OFF or SMS.
- Picture No./ day 0 Note: 0 = Unlimited The setting “0” indicates there is no limit to shoot picture daily. If the daily limit has been reached, you can reset that number on your computer or on the TFT display. Then the daily limit starts to count from “1”.
- The camera should be stationary while sending MMS pictures.

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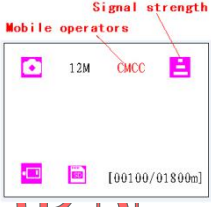
3.8 View Local MPNO Name and Signal Strength on TFT Display

Install the SIM card in the wireless module battery box, load 4 AA batteries in camera main unit and 8AA batteries in the wireless module battery box, install the wireless modules battery box to the camera

correctly in the OFF mode, then switch the camera to the TEST mode and begin to work. It is supported to connect the camera with TV for monitor, the MPNO symbol and the signal strength would be shown on the TV with successful connection in 1 minute. If it's not connected with the TV, you can separate the battery box and the camera after 1 minute, the information would be shown on the camera TFT display.



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When it appears with name of mobile operator, the camera buzzer will beep. Signal strength can display up to 5 cells. In order to make the MMS function work properly, require at least 2 bars of cell signal.

If the TFT display contents are not mobile carrier information, it may reflect the following questions:

- **SIM**: No SIM card or installed incorrectly.
- **CSQ**: No signals.
- **CREG**: SIM card is password-protected, or deactivated due to zero balance in the account, or not able to register with the GSM system.
- **CGREG**: Not able to register in GPRS network.
- **COPS**: Searching for the MPNO of the SIM card. Once found, the operator's symbol and the signal strength will be shown on the display.

If **No MM1** is shown on the screen, it means the MMS module is not found (or not installed). The buzzer will make alerts "Di Di Di" at this moment, **please reinstall the wireless module battery box to insure the correct connection.**

Note: When installing wireless module battery box, the camera must be in OFF mode. Make sure the battery compartment is locked by the side clips. Otherwise, the MMS feature may not work properly. When viewing the operator's name and the signal strength, if not wait up to **1 minute** to separate the camera and battery box, it is less likely to obtain the mobile network successfully. In this case, please switch the camera off and reinstall the battery box to try again.

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3.9 Set up Camera on Mobile Phone

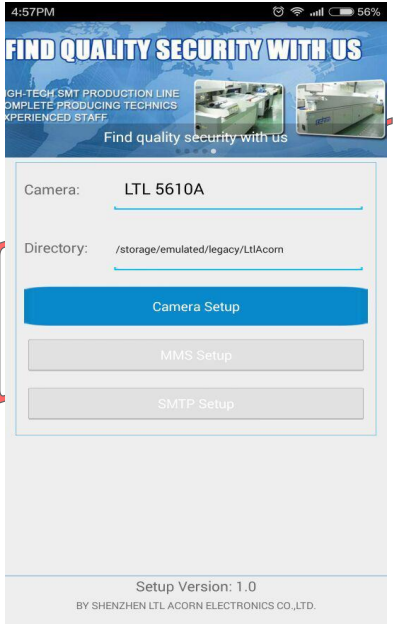
- Download and install mobile Setup APP

Get the Setup.apk from CD or download it from Ltl Acorn's website:
http://www.ltlacorn.cn/about/downloaden.html
(Download →Classification → APP→ Setup)
Copy the Setup.apk to mobile phone with USB or by any other methods, and then install the APP.

Attention: An external disc drive may be needed if your computer is without disc drive. Please turn on the mobile GPS function when install the APP, otherwise the mobile phone would not be able to achieve the coordinate information.

Icon of Setup APP:

Click to enter the Setup interface:



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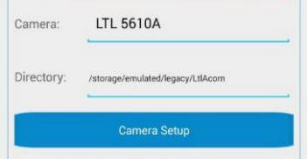
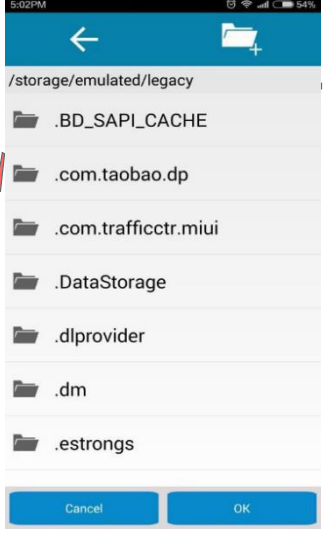
- **Select the directory to save configuration**



Camera: LTL 5610A is set as default model.
Directory: The saving path and **LtlAcorn** folder would be created in mobile phone and as default saving folder. Directory may be different on different mobile phone.

Users can choose other directory by clicking **Directory** to save configuration, as below picture:



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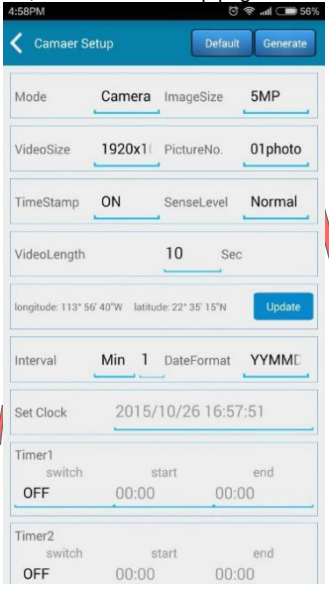
Attention: Remember the selected directory for searching file.

- **Set up camera**

Click Camera Setup, enter camera setup page:



Set up the camera according to users' requirements, please refer to **3.1 Parameter Settings** in **Advanced Settings** to find detailed explanations. Click Update to obtain the GPS coordinate. With camera setup finished, click Generate, a message will pop out as below. Click Default to obtain default setting if needed. A file named **menu.dat** would be created and saved in specified directory.

menu.dat find under the profile has been generated, please set the save directory

After camera setup finished, copy the configuration file to SD card for installation. Switch the camera to **TEST** mode, the massage “Updated menu.dat Successfully” would be shown on TFT LCD screen, the configuration has been updated successfully.

After camera setup finished, copy the configuration file to SD card for installation. Switch the camera to **TEST** mode, the massage “Updated menu.dat Successfully” would be shown on TFT LCD screen, the configuration has been updated successfully.

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Ltl-5610 Series Products And Components

4.1 Ltl-5610 Series Component Parts

1. Ltl-5610A/ WA/ MC/WMC/MG/ WMG camera main unit
2. Ltl-BM3 standard battery box (without MMS module), 8AA batteries loadable
3. Ltl-MM3 wireless module battery box, 8AA batteries loadable

4.2 Models for Purchase:

- Ltl-5610A 55° lens angle scouting camera
- Ltl-5610WA 100° wide lens angle scouting camera
- Ltl-5610MC= Ltl-5610M camera+Ltl-BM3 Standard battery box
- Ltl-5610WMC= Ltl-5610WM camera+Ltl-BM3 Standard battery box
- Ltl-5610MG= Ltl-5610M camera+ LTL-MM3 wireless modules battery box
- Ltl-5610WMG= Ltl-5610WM camera+LTL-MM3 wireless modules battery box
- Ltl-BM3 Standard battery box

Ltl-5610A

Ltl-5610WA

Ltl-BM3

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Important Information

5.1 Prevent Short Circuit of Electric Contacts

There are 2 or 5 electric contacts above the TFT LCD screen on the camera and 2 or 5 above the battery compartment of the battery box. To avoid short circuit or damage to the camera, please NEVER contact these electric contacts with any metallic materials.

5.2 Power Supply and Battery Box

The working voltage of Ltl-5610 Series is up to 12V. The 4 AA batteries in the camera main unit, 4 or 8 AA batteries in the battery box and the external power source form a four-path parallel circuit. Each path is isolated and does not charge or discharge each others. In addition, the camera can be powered by an external solar panel, Ltl-SUN, to extend working time in the field.

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5.3 SD Card

There are various brands of SD card on the market. We tested on our camera as many brands as we can. However, we cannot guarantee every brand would be compatible with the camera. It is recommended to format the SD card before use. If it doesn't work, please try another brand.

5.4 Auto Adjustment on Video Length

To extend battery life, we strongly recommend using 12 AA alkaline batteries when operating the camera in Video mode or Cam+Video mode. Compared to similar
products on the market, our camera takes thirty percent more video clips. Moreover, when battery power gets low, our camera automatically shortens

the video length so as to take more clips of more events.
As a result, the number of video clips would be double, even triple to other brand camera, and provide more useful records.

Attention: Our camera performs at extreme cold environment as low as -45°C, the battery power capacity will deteriorate drastically at extreme low temperature, accordingly, the number of video clips will decrease.

5.5 850nm and 940nm IR LED

There are two types of IR LED for Ltl-5610 series camera, 850nm and 940nm. For Ltl-5610 normal lens angle series camera, 850nm provides 30m flash range and 940nm provides 18m. For Ltl-5610W wide lens angle series camera, 850nm provides 18m flash range and 940nm provides 13.5m.
The advantage of 940nm IR LED is it emits black flash which is invisible in the dark.

5.6 Mount on Tripod

The camera can be mounted on a 1/4" tripod. But please note and ensure the knob of bottom cover is locked in position to avoid the breakage of the hinge of bottom cover.

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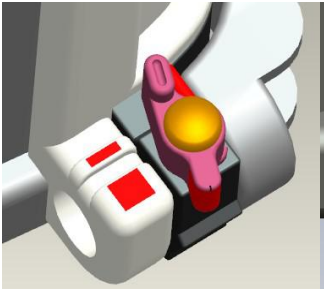

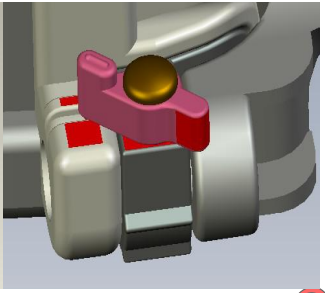

5.7 FAQs on MMS Function

- *I set up a new receiving phone number. But the **MMS pictures are still being sent to the old number**. What should I do?*

--Switch the camera OFF. Wait for at least two minutes. Then switch it ON.

Or, switch the camera OFF, take all batteries out of the camera, and then reinstall it.

- *Why did it **take so long to receive the MMS pictures** / why **didn't I receive any MMS pictures**?*

--The signal is too weak. Try different spots. Or the batteries ran out.

- *I programmed the camera to constantly take pictures. But **some pictures were not sent to my phone**. How?*

--If the signal is too weak, it may not work stably.

- *Why did I **just receive some pictures** or **damaged picture**?*

--The camera was in motion when sending pictures. Or the signal was unstable.

- *I was pretty sure the battery was quite low. But I **didn't get any text alert**. Why?*

--The camera "assumes" you install new batteries when you start the camera. It tracks the usage of the batteries and texts you when the power is low. However, if you replace the present batteries with some "used" ones in a point before receiving a text alert, the camera will get "confused" and not send a text alert later on.

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Firmware Upgrades

6.1 Firmware Upgrades

The manufacturer reserves the right to upgrade the camera and the firmware. Follow the steps below to implement the upgrades:

- Back up the contents in the SD card to your computer.
- Insert SD card into the camera and load batteries.
- Format the SD card.
- Obtain the firmware from LTL ACORN's website http://www.ltlacorn.cn/about/downloaden.html (Download→Classification→Software→Ltl-5610), or from authorized distributor.
- Retrieve the SD card and insert it into the computer (SD card reader may be needed). Copy and paste the FW5610.bin and ENA.BIN file to the root directory of the SD card, both files are necessary.
- Retrieve the SD card and lock it, insert it into the camera. Switch camera to TEST mode, till the "**UPDATE…**" shown and camera is off. Don't turn off or disconnect power before blank screen, otherwise it might be upgraded unsuccessfully and need to return factory for repair.
- Switch the camera to the OFF mode, then retrieve SD card and switch the SD card to the normal position to unlock it.

  Enter **MENU**, navigate the marker to **DEFAULT SET**, and press **OK**.
- Re-format the SD card on the camera. The upgrade will have been completed

Attention: The upgrade firmware for one model is not compatible with other models. In other word, a firmware for model Ltl-5610A/WA only applies to that model. If a camera is accidently upgraded by running a non-compatible program, it would quit working and need to be sent back for repair. This is not covered under warranty.

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Warranty Information

We take great pride in our products. We always stand behind our promises and provide leading warranty term and service. Every LTL ACORN trail camera comes with a limited warranty period.

We guarantee our trail cameras to be free of defects in materials and workmanship under normal use and service for a one-year warranty after the registered date of purchase. This warranty does not cover damages caused by misuse, abuse, improper handling or installation, by user installed batteries, or by repair attempts of someone other than our authorized technicians.

In the event of a defect under this warranty, we will, at our option, repair your camera or replace it with the same or comparable model free of charge, provided the product is returned postage paid. This warranty only extends to the original retail buyer from our authorized dealer. Purchase receipt or other proof of the date of the original purchase is required to receive warranty benefits. The warranty on any replacement product provided under the original warranty shall be for the remaining portion of the warranty period applicable to the original product.

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This warranty extends solely to failures due to defects in materials or workmanship under normal use. It does not cover normal wear of the product

Please contact our tech support department to determine the nature of the problem before you return a LTL ACORN product under this warranty for repair or exchange.

Appendix I:Technical Specifications

Model	Parameters	Ltl-5610 A/MC	Ltl-5610 WA/WMC	Ltl-5610MG	Ltl-5610WMG
Image Sensor	5 Mega Pixels Color CMOS	Yes	Yes	Yes	Yes
Lens	FOV=55°; Auto IR-Cut	Yes	N/A	Yes	N/A
	FOV=100°; Auto IR-Cut	N/A	Yes	N/A	Yes
IR Flash Distance	850nm LED	30 meters	18 meters	30 meters	18 meters
	940nm LED (invisible flash)	18 meters	13.5 meters	18 meters	13.5 meters
LCD Screen	2.36″ TFT LCD Screen;16.7M Color	Yes	Yes	Yes	Yes
Operation Keypad	6 Keys	Yes	Yes	Yes	Yes
Memory	SD Card (8MB ~ 32GB)	Yes	Yes	Yes	Yes
Picture Size	1.3MP(1280*960) 5MP(2592*1944) 12MP(4000*3000)	N/A	N/A	Yes	Yes
Video Size	1920×1080(15fps), 1280×720(30fps), 640×480(30fps), 320×240 (30fps), With audio record.	Yes	Yes	Yes	Yes

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PIR Sensitivity	High/Normal/Low /Off	Yes	Yes	Yes	Yes
PIR Sensing Distance	20 Meters (below 77°F/25°C at the Normal level)	Yes	Yes	Yes	Yes
Prep PIR **Sensing Angle**	Left and right light beams form an angle of 100°; Each one covers 10°	Yes	Yes	Yes	Yes
Main PIR Sensing Angle	35°	Yes	Yes	Yes	Yes
Working Mode	Day/Night	Yes	Yes	Yes	Yes
Trigger Time	0.8 Seconds	Yes	Yes	Yes	Yes
Trigger Interval	0 Sec ~ 60 Mins; Programmable	Yes	Yes	Yes	Yes
Burst Shooting	1~3	Yes	Yes	Yes	Yes
Video Length	1~60 Secs; Programmable	Yes	Yes	Yes	Yes
Camera + Video	First take photo then video.	Yes	Yes	Yes	Yes
Playback Zoom In	1~4 Times	Yes	Yes	Yes	Yes
Time Stamp	On/Off; Including serial No., temperature, moon phase, date and time.	Yes	Yes	Yes	Yes
Timer1	On/Off; Programmable; Accuracy error≤10s	Yes	Yes	Yes	Yes

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Timer2	On/Off; Programmable; Accuracy error≤10s	Yes	Yes	Yes	Yes
Password	4-digit Numbers(0~9)	Yes	Yes	Yes	Yes
Device Serial No.	4 digits and/or alphabets (0~9, A~Z);Turn on the serial No. setting, the picture/ video name would start with serial No., makes the file easy to be classified.	Yes	Yes	Yes	Yes
Time Lapse	On/Off; 0 Sec ~ 23 Hrs 59 Mins 59 Secs; Programmable	Yes	Yes	Yes	Yes
GPS Coordinates	GPS Coordinates Input	Yes	Yes	Yes	Yes
SD Card Overwrite	On/Off;	Yes	Yes	Yes	Yes
Power Supply	4xAA; Expandable to 12xAA (with battery box)	Yes	Yes	Yes	Yes

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External DC Power Supply	Plug Size: 4.0mmx1.7mm 6 ~ 12V (2 ~ 1A)	Yes	Yes	Yes	Yes
Stand-by Current	0.4mA	Yes	Yes	Yes	Yes
Stand-by Time	3~6 Months (4xAA~12xAA)	Yes	Yes	Yes	Yes
Auto Power Off	Auto power off after 3 minutes without operation.	Yes	Yes	Yes	Yes
Power Consumption	150mA (+650mA with 850nm LED lights on);150mA (+700mA with 940nm LED lights on);	Yes	Yes	Yes	Yes
Low Battery Alert	When battery level gets low, the message "Low Battery" would be shown on the screen in the TEST mode.	Yes	Yes	Yes	Yes
Interface	TV Out ; Micro USB; SD Card Slot; 6V DC Port	Yes	Yes	Yes	Yes
Mounting	Strap; Tripod	Yes	Yes	Yes	Yes
Ingress Protection	IP54	Yes	Yes	Yes	Yes

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Operation Temperature	-49°F(-45°C) ~+158 °F(+70°C)	Yes	Yes	Yes	Yes
Operation Humidity	5% ~ 95%	Yes	Yes	Yes	Yes
Certificate	FCC & CE & RoHS	Yes	Yes	Yes	Yes

Appendix II: Standard Package Contents

Part Name	**Quantity (Ltl-5610A/WA)**	**Quantity (Ltl-5610MC/WMC)**	**Quantity (Ltl-5610MG/WMG)**
Digital Camera	1	1	1
Ltl-BM3 Standard Battery Box	1	1	0
Ltl-MM3 Wireless Module Battery Box	0	0	1
TV AV IN Cable	1	1	1
Micro USB Cable	1	1	1
Strap	1	1	1
External DC Cable (Optional)	1	1	1
CD	1	1	1
Warranty card	1	1	1

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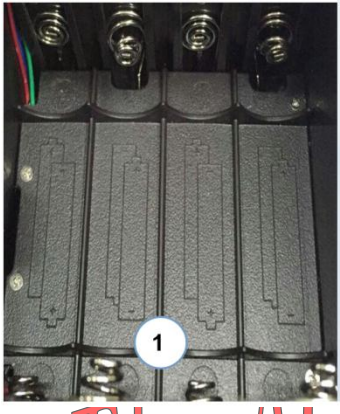
Appendix III: Install Battery Box



Load battery: load batteries as figure 1 to match the sign + and -. Place the drawstring and load 4 underlying batteries from *left to right side* as figure 2 and figure 3, place the drawstring on the underlying batteries and load the upper 4 batteries as figure 4 and figure 5. Close the battery cover as figure 6 to finish loading batteries.
8 batteries could be loaded in the battery box.

Install the battery box to camera unit as below:

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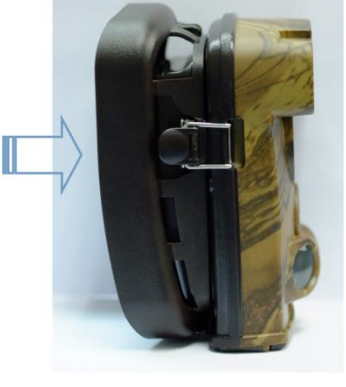

Unload the batteries as below:

1. Pull the drawstring to unload batteries.

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§ 15.19 Labelling requirements.

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

§ 15.21 Information to user.

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

§ 15.105 Information to the user.

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.

RF EXPOSURE

The device complies with RF specifications when the device used at 30cm form your body.