LTL ACORN ®

Infrared Scouting Camera
Ltl-6310-3G
WCDMA Cellular Mobile Communication Series
1080P HD Video
Trigger Time 0.8 Seconds

USER'S MANUAL

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General Information

This manual applies to model Ltl-6310WMG-3G and Ltl-6310MG-3G, the top 3G WCDMA cellular mobile communication scouting camera by Ltl Acorn, with unique WCDMA 3.5G wireless module and high speed of communication. The module of Ltl-6310-3G scouting camera is able to send full size picture of 12MP or video file up to 50MB to your email at high communication speed with 3G WCDMA network, however, the other brands 3G scouting camera is sending thumbnail only. Furthermore, Ltl-6310-3G series camera optimizes the 3G communication, users can either choose to send picture immediately after shooting or send all unsent picture to email at the specified time intensively (or when checking the remote control SMS), the 3G module is working at the sending time (or when checking remote control SMS) only to reduce power consumption greatly. In order to save 3G traffic, users can set the camera to send thumbnail to mobile or email and control the 3G module to send back the full size picture which is valuable by SMS remote control function, this function supports change camera parameters, get camera shooting and sending picture back by sending SMS remote control command to 3G module, make it convenient to operate.

Ltl-6310-3G series camera, with its highly sensitive Passive Infra-Red (PIR) sensor, detects the sudden change of ambient temperature caused by moving game in a region of interest (ROI), triggers to take pictures/videos and sends the images to your cell phone or E-mail account.

Please read the USER'S MANUAL in details before starting for better operation of Ltl-6310-3G series scouting camera.

1. 1 Features

- High quality picture of 12MP resolution.
- Real high-definition video with audio record of 1440x1080, H.264 format.
- Ltl-6310-3G equipped with WCDMA 3.5G wireless module, upload speed is up to 5.76Mbps.
- Support to send picture and video by MMS or E-mail to mobile or E-mail account immediately after shooting or intensively at the specified time, file size is up to 50M.
- SMS remote control function supports to change the camera settings, trigger camera remotely and control camera to send back full size picture by sending SMS command.

- Function of intensive transmission, make it possible to send all unsent picture or video at once to reduce power consumption greatly.
- LTL-6310W wide angle series products with high quality wide lens of 100 degrees to wider the shooting range.
- Cam + Video mode enables camera to take both picture and video at every trigger.
- Burst shooting with 1 second interval.
- Optional to equip with invisible infrared flash 940nm LED light for great night vision.
- Ultra-long standby time of 6 months with 12 AA alkaline batteries.
- Working temperature: -45℃ ~ +70℃ (-49℉ ~ +158℉)
- Tight waterproof housing: IP66
- Applying patented technology of two passive infrared sensors, the camera detects animals in advance from wide scope in two stages, then quick trigger to shoot.
- The trigger time is less than 0.2s when animals pass by from sides.
- Quick trigger speed (0.8s).
- Two high accuracy timers make the camera work in two specified periods as request.
- Set an ID for the camera, the prefix of file name could be same as the ID, makes it easy to classify the pictures from mufti-place.
- 2.36" TFT color LCD display makes it easy to preview and set parameters.
- Time, date, temperature and moon phase could be shown on time stamp of the picture.
- Password protected to prevent unauthorized operation.
- Flexible setting selection: setting parameters of camera and 3G data on PC setup, or android mobile APP.
- Optional memory overwrite function: delete the early pictures or videos automatically to make room for new records.
- Security box is optional for purchase.
- Support to fix by tripod.
- 3G WCDMA supports the frequency bands as below:
  - **A:** Dual-Band UMTS/HSPA+ 850/1900MHz
    Quad-Band GSM/GPRS/EDGE 850/900/1800/1900MHz
  - **(J) E:** Dual-Band UMTS/HSPA+ 900/2100MHz
    Quad-Band GSM/GPRS/EDGE 850/900/1800/1900MHz
  - **J (D):** Dual-Band UMTS/HSPA+ 800 (850) /2100MHz

1．2 **Application**

- Wildlife animal and plants observation
- Security and surveillance

1．3 **Illustration**

- Figure 1.1 shows the front view of the camera
- Figure 1.2 shows the bottom view of the camera
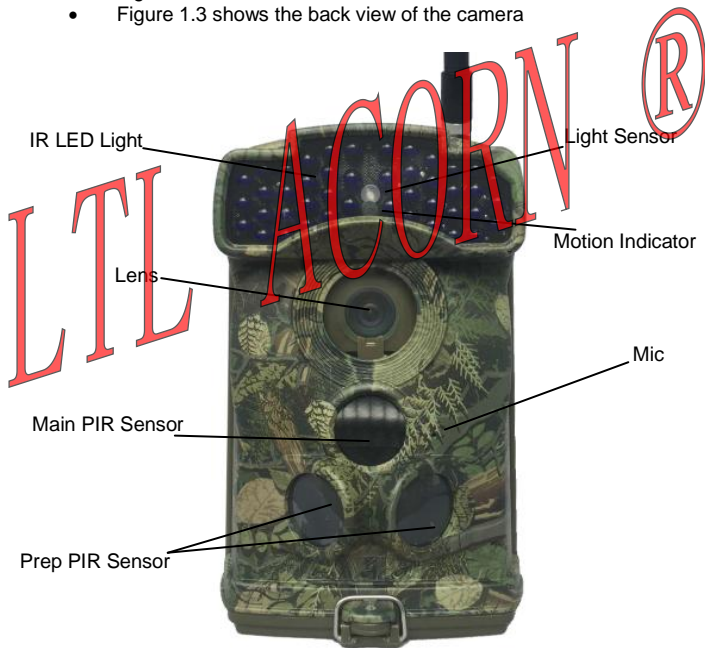- Figure 1.3 shows the back view of the camera

Figure 1.1 Font View of the Camera

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TV out jack
SD card slot
External DC Power in jack
SIM card slot
Battery door
USB Port
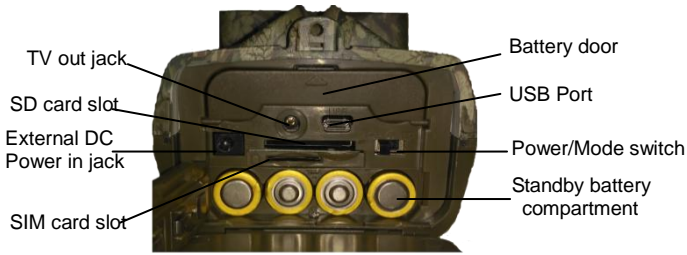Power/Mode switch
Standby battery compartment

Figure 1.2 Bottom View of the Camera

The camera provides the following connections for external devices: USB 2.0 port, SD card slot, TV out jack, and external DC power in jack.

The 3-way Power/Mode Switch is used to select the different operation modes: OFF, ON and TEST.

Antenna

LED display
Keypad
Loudspeak

Figure 1.3 Back View of the Camera

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CAUTION: If you are not using the camera for an extended period of time, it is highly recommended that you 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

A SIM card is needed from a Mobile Phone Network Operator (MPNO). Make sure it supports WCDMA 3G network and provide Short Messaging Service (SMS), Multimedia Messaging Service (MMS) and data traffic service.

Figure 2.1 Insert SIM Card

Open standby battery compartment, you can see the SIM card slot, insert SIM card as the sign aside to finish SIM card insertion.
Pay attention to the right direction to insert SIM card when insertion.

2. 2 Load Batteries

- Open the bottom cover by pulling down the lock hole.
- Push to open the front battery door and load 4 AA batteries. Open the battery door of standby battery compartment and load 8 AA batteries (make sure the polarity matches the sign on the cover).
- Push to close the battery door.
- Make sure the 12 new and full AA alkaline batteries are loaded.
-

2. 3 Insert SD Card and Format It

Open the hasp and bottom cover, then you can see the SD card slot, insert the SD card as the sign aside the card slot.

Figure 2.2 Insert the 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 on the off side of the SD card (NOT in the "Lock" position). The supported memory capacity is up to 32GB, please always format the SD card on camera before starting.

2. 4 Enter Test Mode

Switch to Test to enter test mode. In this mode, the camera could be operated as a general digital camera to take picture and video.

Figure 2.3 Keypad

- Press 🎥 key to set the camera to take video clips (press up arrow key in MENU or REPLY mode).
- Press 📷 key to set the camera to take pictures (press down arrow key in MENU or REPLY mode).
- Press ▶ **SHOT** key to manually trigger the shutter. A photo or video clip will be taken and saved in the SD card. Please press

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SHOT key to play or stop playing when replaying video.

- Press OK **REPLAY** key to enter REPLY mode (to confirm setting in menu mode). Press up arrow key and down arrow key to turn page, left and right arrow key to zoom in and restore picture.
- Press **MENU** key to enter menu, set the parameters to make camera work as request. Please refer to the section of **Advanced Settings** for better operation.
- Press ◁ key to enter setting of 3G parameters and status, please refer to section **3.3 Set up 3G Parameters on Camera.**.

In the Test mode, you can test the working area of PIR (Passive Infrared) sensor, specifically the sensing angle and distance. To perform the test:

- First position the camera at proper height and aim at the region of interest (ROI).
- Walk slowly from one side of the ROI to the other side parallel to the camera. Try different distances and angles from the camera.
- If the Motion Indicator flashes blue, it means that the position you located is detected by one of the side Prep PIR sensors. If the Motion Indicator flashes red, it indicates that position is captured by the main PIR sensor.

The best position to place the camera could be found through this test. Generally, it is recommended to place the camera at the height of 3 to 6 feet (1 to 2 meters) to the ground.

2.5 Enter Live Mode

Switch camera to the ON position to enter the live mode. The motion indicator will flash red for about 10 seconds and the camera starts working after flash. It will immediately take pictures or record videos when person or animal enters the area of the PIR sensor.

The camera with the double area remote infrared sensing technology and is able to be triggered and powered on before the object entering the shooting area, it will shoot immediately when the object enters the shooting area. It makes the camera is able to capture the objects which passing by quickly and object would be in the centre of the picture. If, however the object roams away after a while and never alert the main sensor, the camera will power off and resume standby mode, wait to activate to shoot till the object pass by again.

Caution: To avoid potential false triggers due to temperature and motion disturbances, please do not aim the camera at a heat source (e.g.: the sun, heated stone or metal) or nearby tree branches and twigs. The ideal direction to aim at is the north and the open place without heat source. Also, remove any twigs close to the front of the camera.

2. 6 Advantages of Prep PIR Sensors

In general, to save battery power, an Infer-Red camera is in sleep/standby mode, with only the PIR sensor working. When a person or an animal is detected by the PIR sensor, the camera powers on and starts shooting, then it would enter standby mode after shooting. The time period from being activated to taking the photos is called trigger time. The trigger time varies among different scouting camera brands on the market, generally from 1 to 5 plus seconds. Our LTL ACORN scouting camera has an impressive 0.8 seconds trigger time. The shorter of the trigger timer, the higher possibility to capture the animal. Generally, when the object passes very quickly, it is possible that only part or even nothing is captured in the picture by those cameras with long trigger time.

With the unique side prep PIR sensors design, our LTL ACORN cameras reduce the trigger time greatly. The combination of the two side prep sensors and the main sensor comes up with a 100 degrees angle of induction, when the object first reaches the PIR area, the camera powers on in advance and gets ready to shoot, the sensing angle of the main PIR is smaller than the shooting angle of the lens. If the object continues into the PIR area of the main sensor, the camera takes pictures immediately, capturing the whole body of the object as possible as it can. That process could be as short as 0.2 seconds.
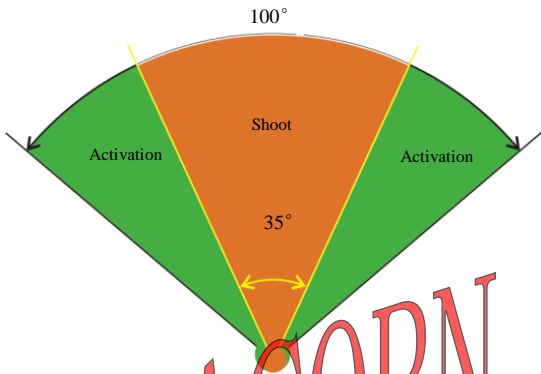
In the case the object only wanders in the PIR area of the prep sensors, the system is designed to be powered off after 5 seconds.

Advanced Settings

3. 1 Set up Parameters on Camera

The LTL ACORN scouting camera comes with preset default settings. You can change the settings as your requirements. Switch to TEST mode after installation of batteries and SD card, then you can start setting parameters.

Press **MENU** key to enter/exit the menu. Press ▲, ▼ to move the marker. Press ◀, ▶ to change the setting, and always press **OK** to confirm and save the change, or the new setting would not be saved.

Parameter	Settings (Bold = default)	Description
Mode	**Camera,** Video, Cam+Video	Select to take photo or video clips. In Camera+Video mode, camera takes photos first then video.

Format	**Enter**	All files will be deleted after formatting the SD card. Highly recommended to format the SD card on the camera at the first suing. Caution: make sure the important files on the SD card are backed up.
Photo Size	5MP, **12MP**, 2MP	Select desired resolution for photos from 2 to 12 megapixels. Higher resolution produces higher quality photos, but creates larger files that occupy more space and take longer time to write to the SD card, which slightly affects the shooting interval.
Video Size	(1080P)1440×1080 **(720P)1280×720** (VGA)640×480	Higher resolution produces better quality of video, but creates larger files that occupy more space of the SD card.
Set Clock	**Setup**	Press Setup to set up date and time.
Picture No.	**01 Photo**, 02 Photos, 03 Photos	Select the number of burst shooting at per trigger.
Video Length	**AVI 10s**, optional from 1s to 60s	Select the duration of recording a video.
Interval	**1 Min,** optional from 0 second to 60 minutes	Select the length of time that the camera will wait from when the last picture was taken and written on the SD card, to when it responds to any new triggers. During the selected interval, the camera will not take pictures/videos. It prevents the SD card from filling up with too many redundant images of the same object.
Sense Level (Sensitivity)	High, **Normal**, Low, Off	Select the sensitivity of the PIR sensor. The PIR would stop sensing with Off setting. Higher sense level with longer sensing distance, but easier to be interfered. The Normal/Low setting suits outdoors while the High setting suits indoors or environment with higher temperature.

Time Stamp	**On**, Off	Select On if you want the camera ID, temperature, moon phase, date & time to be imprinted on photo. Notice: The temperature shown is internal temperature of the camera, the camera will heat at work, it makes the difference between internal and external temperature, and the difference will be small if the camera does not work long time in the field.
Timer1	**Off**, On	Select On if you only want the camera to work within a specified period of the day. For instance, if the starting time is set at 18:00 and the ending time at 6:00, the camera will function from 18:00 to 6:00 next day. Outside this period the camera will not be triggered no matter if people (or animal) pass by or not.
Timer2	**Off**, On	A second timer is available in case you need the camera to function in two separate specified periods. Same with Timer1.
Password Set	**Off**, On	Set up a password with 4 digits to protect your camera from unauthorized users with On setting. Notice: Please remember the password well, or the camera should be returned to factory to unlock.
Serial No.	**Off**, On	Select On to assign an ID for the camera with 4 digits and/ or alphabets, 0~9 and A~Z, the ID will be printed on photo with time stamp On.

Time Lapse	**Off**, On	Select On, the camera takes photos/videos automatically at the preset interval (note: in this mode, the PIR sensor is disabled). This is helpful to observe the ectotherm or the process of plant growing, etc. 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 and power on the camera before game entering main PIR sensor area so as to catch the game at quick speed when it enter shooting area, especially for those games move fast.
Beep Sound	**On**, off	To turn on or off the beep sound caused by pressing the keys. The default setting is On.
SD Cycle	**Off**, On	Choose On to overwrite the SD card, which automatically deletes the oldest files when the SD card becomes full to make room for the latest pictures or videos.
Default Set	**Enter**	Press **OK** key to return all settings to default setting (including the 3G setting).

3.2 **File Format**

All photos are in JPEG format and video in AVI format of H.264.
All original picture and video saved in folder DCIM\100IMA3G in the SD card, picture would be named like IMAG0001.JPG and video like IMAG0001.AVI.
In the Test mode, you can use a provided USB cable to connect the camera to PC to read or download the file, or insert the SD card into a SD card reader, plug in PC, and view the files on the computer without downloading. The AVI video file can be played on most popular media players, such as Windows Media Player, etc. If it cannot be played by the player you used, please try another.

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3.3 Set up 3G Parameters on Camera

In Test mode, please press ◀ to enter 3G setting menu. Press ▲ and ▼ key to move the marker, press ◀ and ▶ key to change setting and always press OK key to confirm and save the changes, or the new setting cannot be saved.

Parameter	Settings (Bold = default)	Description
Language	**English,** Deutsch, Suomi, Italiano, Français, Magyar, Slovenščina, Čeština, 日本語, Dansk, Nederlands, Русский, Polski	Select the language as your requirement.
3G Send Status	**Off**, MMS, Email	Off: Turn off the 3G communication function, then the camera would work as a basic scouting camera and 3G function would not be activated and consume power MMS: Set the recipient mobile number and email address for MMS. Email: Set the recipient email address and sender email address of camera for email.
3G Operator	**Auto Settings**, Manual Setting	Auto Settings: The camera with pre-load setting of main operators from the worldwide, choose the operator name to finish the setting easily. Manual Setting: Enter the data of SIM card operator manually.

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3G Send Time	**Immediately,** 00-23 o' clock	Immediately: The camera will send the photo/ video to mobile/ email address by MMS/ email after shooting. The full size photo can be sent by email only but not MMS. The thumbnail, full size photo and video all can be sent to the pre-set email account**.** 00-23 o'clock: time to send MMS or email intensively. All the photos/ videos taken from the time you set to the setting time at next day would be sent to mobile/ email account by MMS or email at once at the pre-set time. The camera would control the email size smaller than 50M by itself.
Max Sent Num Day	**49,** 1-999	The max number to send file per day. Used to control the limitation of MMS number or 3G traffic.
SMS Remote Control	**Off,** 10Min, 01~24 Hour	Default setting is Off: Cannot change camera setting by sending SMS command. 10 Min, 01~24 Hour: Interval time to receive SMS command. E.g.: remote interval set as 10 Min, the 3G module of the camera would wakeup to receive SMS command every 10 minutes, so it is possible to respond near to 10 minutes after sending command. Remote control function is able to change camera setting, control
Query IMEI Number	OK	Press OK to confirm and show the IMEI number of the module.
3G Default Set	OK	Press OK key to confirm, the 3G parameters would return to default setting (it would not return the camera parameters to default setting).

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TV System	NTSC, PAL	Set the TV system of the TV out.
Software Version	OK	Show the software version of the camera.

Notice: After setting the Max Sent Num/ Day, the number sent cannot exceed the pre-set value, or the camera would no longer to send MMS or email at that day. **When set the intensive sending time and turn on the SMS remote control function, the camera would send all unsent photo or video taken at that day to email intensively when the camera module is checking and receiving SMS command.**

3. 4 Set up Camera on PC

After formatting the SD card on camera, retrieve the SD card and insert into PC. The SD card reader may be needed if your PC cannot read SD card directly. Or you can connect the camera to PC with the USB cable to read SD card in the Test mode.

Obtain the CD from the gift box and insert into PC, the disc drive may be needed if the PC without the disc drive. Then run the 3G-Setup.exe software from the CD.
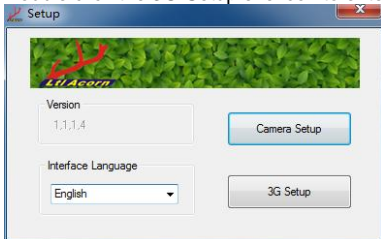
Or download the software from website of Ltl Acorn:
http://www.ltlacorn.cn/about/downloaden.html
(Download→Classification→PC Setup→3G-Setup.exe)
Below is the icon of the 3G-Setup.exe software:

3G_Setup.exe

Double click the 3G-Setup.exe icon to enter Setup homepage:

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Select language **English** and click Camera Setup to enter camera setting interface:

Set the camera as your requirements. Please refer to section **3.1 Set up Parameters on Camera** for better operation.

Save Path
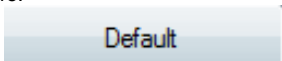
Click **Browse** to choose the save directory, SD card root directory is recommended (connect SD card with computer first). Click

Notice

Generate Success!

Generate
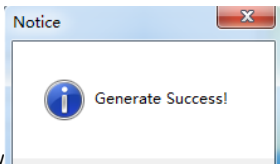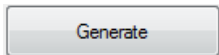
and the window

will pop out. Then click OK to exit. A file named **menu.dat** has been created and saved in the selected directory, please copy the **menu.dat** file to the root directory of the SD card if you didn't choose SD card to save the file before.
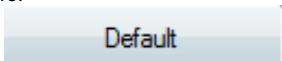
Default

Click _____ to restore to default settings, generate **menu.dat** file. Click [x] to exit the setting interface. Copy the **menu.dat** file to the **root directory of the SD card,** retrieve and insert the SD card into camera. Switch to TEST mode, *Updated menu.dat Successfully* would be shown on TFT display, means the setting was updated successfully.
ATTENTION: THE PASSWORD SHOULD BE SET ON THE CAMERA ONLY, NOT ON PC.

3. 5 Set up MMS Function on PC

Obtain the CD from the gift box and insert into PC, the disc drive may be needed if the PC without the disc drive. Then run the 3G-Setup.exe software from the CD.
Or download the software from website of Ltl Acorn:
http://www.ltlacorn.cn/about/downloaden.html
(Download→Classification→PC Setup→3G-Setup.exe)
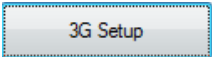
Below is the icon of the 3G-Setup.exe software:
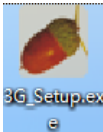
Double click the 3G-Setup.exe icon to enter Setup homepage:
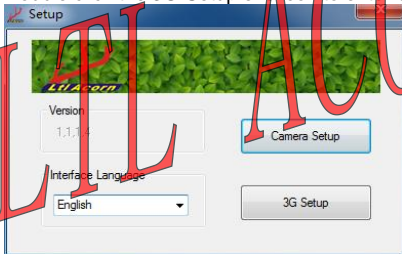
Click to pop out 3G Parameter Settings interface:

3G Parameter Settings

3G Send Options
MMS

3G Parameter Options
Select Operator

Operator Selection

Country
China

Operator
China Unicom

MMS Parameters

URL

APN

Gateway

Port

Account

Password

Mail Parameters
3G Network Settings

APN

Account

Password

Sender Settings

Server

Port

Email Address

Account

Password

Next Page

3G Send Settings

To Destination

Phone Number 1

Phone Number 2

Email Address 1

Email Address 2

Send Image Size | Thumbnail

Max Sent Num | 49 | /Day

Send Mode

3G Send Mode | Send Immediately

Daily Send Time | 00 o'clock

Remote Control

Remote Interval | Remote Off

Remote Phone Number

Remote Receiver Email

Save Path

Browse

C:\Users\Administrator\AppData\Local\Temp\HZ$D.790.3406\HZ$D.790.

Previous Page | Generate
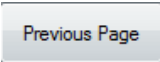
There are 2 pages of the 3G Parameter Settings, click **Next Page**

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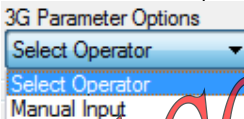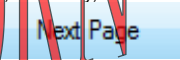
to enter next page, click to turn to previous page, change the 3G setting parameters as your request in this interface, please refer to **3.3 Set up 3G Parameters on Camera** for details.
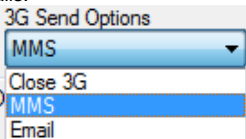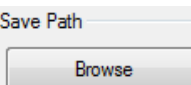
In this interface, you can set 3G Send Options
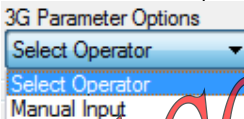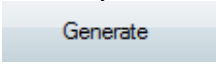
"MMS or Email", operator information of the SIM card (choose the pre-load operator or input URL, Gateway, APN and Port

etc. manually) and Sender Settings, etc. Click to set recipient number and email account, Max Sent Num/ Day, 3G Send Mode, Remote Control Phone Number, Remote Receiver Email and Remote

Interval, etc. Also you can click to return the 3G setting to default setting.

After finishing the setting, please click to choos the directory to save the file, SD card root directory is recommended (connect

SD card with computer first). Click and the window
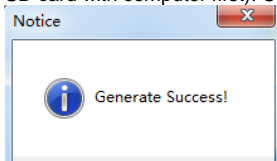
will pop out. Then click OK to exit. A file

named **CFG.BIN** has been created and saved in the selected directory, please copy the **CFG.BIN** file to the root directory of the SD card if you didn't choose SD card to save the file before.

Click [X] to exit the setting interface. **Copy the CFG.BIN file to the root directory of the SD card**, retrieve and insert the SD card into camera. Switch to TEST mode, *Updated* **CFG.BIN** *Successfully* would be shown on TFT display, means the setting was updated successfully.

3. 6 SMS Remote Control & Table of Command Code

In order to communicate well with your camera via text message/SMS, format your texts and send in a certain way is needed. Or please download the mobile APP to send command, it would be easier.

- All the SMS commands should start with "LTL(ltl)" and end with "AA(aa)".
- Between "ltl" and "aa", insert the specific commands you want the camera to perform. You can choose one command at a time, but it saves time to combine commands to send together.
- A specific command is made up with four parts in the following sequence: a two-digit command code, an asterisk (*), a code value (a number or a combination of number and letter), and lastly a pound/hash sign (#).
- Both capitalized and non-capitalized letters can be used in a same command.
- Do NOT leave any spaces between any of the letters and symbols.
- Do NOT put a comma or period in the command. Do NOT include any quotation marks in a command; they are used here just for explanation purposes.
- The maximum for text messages is 60 bytes. If you want to send multiple commands, please do so in separate texts to avoid failure sending.

An example of a command: LTL01*0#02*2#06*S30#07*10A3Z#60*1#AA It means to ask the camera to 1) be in camera mode and take only pictures, 2) set image size to 2MP, 3) take pictures with an interval of 30 seconds, 4) turn on serial number and set it to "0A3Z", and 5) immediately take a picture and send it to you.

- For SMS remote control interval, different value with different power consumption: "0" the highest and "off" zero.
- The camera would respond after receiving SMS command, it would send you a text message saying "Message format ok" if

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the command you sent is in the correct format, "Message format error" for the incorrect command.

Table of Command Code			
Command Code	Function of Command 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), 2MP (2)	02*1#	5MP
03	Video Size: 1080P (0), 720P (1), VGA (2)	03*1#	720P
04	Picture Number: 01 Photo (0), 02 Photos (1), 03 Photos (2)	04*2#	3 photos
05	Video Length: 1-60 indicates value of second	05*59#	59 seconds
06	Interval: beginning with S(s) represents second, with M(m) represents minute, 1-60 indicates different value	06*s30#	Interval: 30 seconds
07	Serial Number: Off (0), turn off serial number 07*0xxxx#; On (1), refer to camera setting, digit+ letter.	07*1ABCD#	Serial Number: ABCD
08	Sense Level: Low (0), Normal (1), High (2), Off (3)	08*1#	Normal

09	Time Stamp: Off (0), On (1)	09*0#	Off
10	Side PIR: Off (0), On (1)	10*1#	On
11	Send Status: Off (0), MMS (1), Email (2)	11*2#	MMS
12	Recipient Phone Number 1: Maximum 48 types	12*15197611542#	Phone Number: 15197611542
13	Recipient Phone Number 2: Maximum 48 types	13*18578208363#	Phone Number: 18578208363
14	Recipient Email 1: Maximum 48 types	14*info1@ltlacorn.cn#	Email Address: info1@ltlacorn.cn
15	Recipient Email 2: Maximum 48 types	15*info2@ltlacorn.cn#	Email Address: info2@ltlacorn.cn
16	Remote Receiver Email (receive full size picture of command code 22): Maximum 48 types	16*info@ltlacorn.cn#	Email Address: info@ltlacorn.cn
17	Max Sent Num/ Day: 1-999	17*22#	Send max 22 photos per day.
18	Time Lapse: Off (0), On (1). Time indicated with 2 digits, e.g.: 1 Hour 30 Min 0 Sec, indication: 013300.	18*1013000#	The camera takes photo/video every one and a half hour no matter triggered or not.
19	Timer1: Off (0), On (1). Time indicated with 2 digits, e.g.: 13 Hour 30 Min, indication: 1330.	19*113301530#	Camera works at 1:30pm ~3:30pm
20	Timer1: Off (0), On (1). Time indicated with 2 digits, e.g.: 13 Hour 30 Min, indication: 1330.	20*113301530#	Camera works at 1:30pm ~3:30pm

21	Remote Interval: 0-24, 0 indicates interval of 10 minutes, 25 indicates Off. 1-24 indicates interval time to receive SMS command.	21*25#	Off (need to turn on manually after turning off)
22	Request full size picture: The camera would send the full size picture to the remote recipient email address after receiving the SMS command. The folder name which the file existed or the file name should follow the character * (folder/file name must be in capital letter).	22*100IMA3G\IMAG0001.JPG #	Request full size picture "100IMA3G\IMAG0001.JPG"
60	Get the camera to take picture immediately and send to your remote control mobile. On (1). This code is workable in these mode: Camera, Video, Camera+Video	60*1#	The camera would take a picture immediately and send to the remote control mobile number after receiving the SMS command.
Note: Command code 12 and 13 are ineffective in SMTP mode			

3.7 View Local MPNO Name and Signal Strength on TFT Screen

Install SIM card and 12 AA batteries. Switch the camera to TEST mode and wait about 1 minute till you hear a short beep, then you will be able to see the MPNO symbol and the signal strength on the LCD.

Mobile Operators   Signal
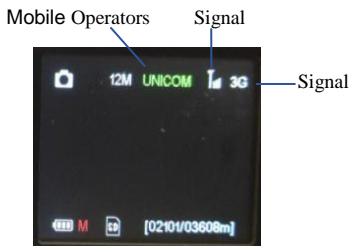
Signal

To make sure the MMS module works well, at least two bars of signal are required. If there is only one bar of the signal, it may not assure the MMS works well.

If a code other than the MPNO symbol shows up on the screen, it indicates something is wrong. Specifically as:

- **NO SIM:** No SIM card or installed incorrectly
- **WAIT..:** Searching signal or no signal received.
- **ErCxGx:** Error of network registry, please check if SIM card is password-protected, deactivated due to low balance in the account, or the signal is too poor.
- **NO MDM:** 3G module is not found or detected.

3. 8 Features and Working Condition of 3G Wireless Module

Ltl-6310-3G series camera is able to take photo/ video automatically and send to mobile and computer with 3G wireless module working, also users can control camera or change setting by sending SMS command to 3G wireless module on mobile.

Features of 3G module:
- ✧ Supports to send all full size photos and videos up to 50MB to email by 3G network.
- ✧ High speed of transmission: It costs less than 1 minute from triggering to finishing sending 1.5M size photo to email, less than 2 minutes from shooting 1080P video for 10s to finishing sending to email.
- ✧ Save traffic: Send thumbnail to mobile or email by MMS, users can

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send SMS command make camera send the full size picture or video to recipient email if needed.

✧ 3G send options: 1. Send immediately after shooting. 2. Send all unsent picture at the specified time intensively, the 3G module is working at the sending time only to reduce power consumption greatly.

✧ Supports to send SMS commands to 3G module to modify the camera parameters and trigger remotely.

✧ Supports to send SMS commands to 3G module to transmit the full size picture to email according to the thumbnail received on mobile.

✧ SMS remote control function is realized by timing wakeup to the 3G module, SMS wakeup interval could be set as 10 minutes or 1 ~ 24 hours, the shorter of the interval, the faster of command responding, but more power would be consumed.

✧ Supports to power off the module by camera setting when the 3G function is not in using, it won't consume any additional power and would work as the basic camera without 3G function.

3G communication of Ltl-6310-3G is working with below conditions:

- Camera is in On mode and functioning well, SD card with enough storable capacity. Correct installation and enough power of 12 AA batteries. MMS sending by timing or triggering should be workable in Camera mode or Camera+ Video mode only, not in Video mode, text message would be sent in Video mode. When the camera is performing the remote control, MMS sending is workable in Camera, Video and Camera+ Video mode by sending SMS command code 60 to the module.

- The SIM card supports 3G WCDMA has been installed. SMS, MMS and data traffic service are activated (some MMS services need pre-paid balance in the account).The SIM card is not password-protected.

- The signal is sufficiently strong in the field.

- The SMS sending number should be the same with the phone number set on camera, or the camera will not accept the command.

- MMS/email parameters and email password should be correct.

- If you have the Timer on, please make sure the specified time of timer is in the period of MMS sending.

  3G Send Options

- MMS   Make sure the 3G Send Options is not

closed for sending MMS picture.

- Max Sent Num 49 /Day 49 indicates the number of the picture is taken per day, 00 indicates no limit. You can choose other number for the limitation of MMS sending. If the daily limit has been reached, you can reset it on PC or TFT screen, or wait the camera to count it from 1 at next day.
- The camera is stationary while working.

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Ltl-6310 Series Products

Ltl-6310 scouting camera includes 3 series, Ltl-6310-3G, Ltl-6310 and Ltl-6310W.
Ltl-6310-3G is the latest 3G wireless communication scouting camera, equipped with the 3G wireless communication module which with perfect performance of message transfer, optional lens angle of 55 degrees and 100 degrees.

The only difference between Ltl-6310-3G and Ltl-6310W-3G is the lens: Ltl-6310-3G with 55 degrees standard angle lens, while Ltl-6310W-3G with 100 degrees wide angle lens.

4. 1 Ltl-6310-3G Series Model:

Ltl-6310-3G (equipped 3G wireless module):
1. **Ltl-6310MG-3G Scouting Camera (55 degrees standard angle lens)**
2. **Ltl-6310WMG-3G Scouting Camera (100 degrees wide angle lens)**

IMPORTANT INFORMATION

5. 1 Power Supply

Ltl-6310-3G Series scouting camera works on electricity up to 12 voltages. The 4 AA batteries in the front of camera, the 8 AA batteries in the back of camera (supply power as two groups) and the external power supply form a four-path parallel circuit. Each path is isolated from others and does not charge or discharge others. So it is easy to connect with external solar power source of 6V~12V. The camera can extend its life with 12 AA alkaline batteries in the field and by being powered by an external solar panel Ltl-SUN of Ltl Acorn. It can work up to 1 year in field with ample sunshine and small number of shooting, but please check it and replace batteries regularly for avoiding battery leakage if it works for long time.

5. 2 SD Card

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

5. 3 Auto Adjustment on Video Length

To extend battery life, we strongly recommend loading 12 AA alkaline batteries when the camera works in Video mode or Camera+Video mode. Compared to similar products on the market, our camera takes thirty percent more video clips. Moreover, when battery power gets low, the camera automatically shortens the video length so as to take more clips of more events. As a result, the total number of video clips doubles, even triples that of other products, which provides users with more useful records.

Attention: The camera performs at extreme cold environment as low as -45°C (-49°F), in which the battery power capacity deteriorates drastically. Therefore, the number of video clips decreases accordingly.

5. 4 850nm and 940nm IR LED

There are two types of IR LED for optional of Ltl-6310-3G series scouting camera, 850nm and 940nm. For Ltl-6310-3G series (standard angle lens), 850nm provides flash distance up to 115 feet/ 35m whereas 940nm up to 59 feet/ 18m. For Ltl-6310W-3G series (wide angle lens), 850nm provides flash distance up to 98 feet/ 30m, 940nm up to 42 feet/ 13m.
The benefit of 940nm IR LED, however, is it emits black flash that is almost invisible in the dark.

5. 5 Mount on Tripod

The camera can be mounted on a 1/4" tripod. But please be noted that always turn the knob in position to secure the bottom cover to avoid breakage.

5. 6 FAQs on 3G MMS Function

- **The camera stops sending MMS to the pre-set mobile number suddenly:** Please check if the SIM card balance is enough and local signal is well, if the operator sets limits to the number of MMS sending or if the mobile number was blacklisted.
- **It takes so long to receive MMS picture or cannot receive:** The signal is too weak or the batteries is near to be ran out.
- **Set the camera to have burst shooting, but some pictures were not sent:** The camera is able to send MMS constantly, but if the signal is too weak, it may not work stably.
- **Receive partial image or some is incomplete:** The camera was in motion when sending pictures. Or the signal was unstable. Besides, the SD card may be damaged.

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5. 7 Low Battery Alert

The camera shows the battery level on each MMS picture. When the battery level is high, a code B3 shows on the bottom left corner of the image. After the battery level drops, the code changes to B2. When the battery level gets very low, the code changes to B1, which means it's time to change the batteries. So you can decide when to change batteries.
You will receive a text alert message from the camera when the battery level is low.

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FIRMWARE UPGRADES

The manufacturer reserves the right to upgrade the camera firmware and 3G module program, please consult with the local distributor for the website to download the program.
Make sure the camera with enough power before upgrade to avoid the unsuccessful upgrade or the fault caused by low battery after upgrade.
Please follow below instruction to upgrade:

Prepare SD card

- Connect the SD card to camera and back up the SD card contents to computer (SD card reader may be needed).
- Retrieve the SD card from computer, insert it into camera and load batteries.
- Format the SD card on the camera

Upgrade camera firmware

- Retrieve the SD card and plug it into your computer (SD card reader may be needed). Copy the program file FW63103G.bin to the root directory of the SD card (consult with the local distributor to obtain the file).
- Retrieve the SD card from computer, lock it and insert into the camera.
- Long press left key ◀ and switch camera to TEST mode from OFF, *Updated Firmware Successfully* would be shown on LCD. Release left key ◀, press MENU key to enter menu and move to default setting, press OK to confirm.
- Retrieve the SD card and unlock it, then re-insert into camera and format it. The upgrade will have been finished successfully.

Attention: The upgrade program of Ltl-6310-3G is not compatible to other models. In other word, an upgrade for Ltl-6310-3G only applies to Ltl-6310-3G model. If a camera is accidently upgraded by running a non-compatible program, it will quit working and needs to be sent back for repair. This issue is not covered under warranty.

Upgrade 3G module program

- Copy the program file ebdat_cust_entry.elf to the root directory of the SD card.
- Retrieve SD card from computer and insert into camera.
- Set the "3G Send Status" as "MMS" or "Email", "3G Send Mode" as "Send Immediately", input the remote mobile number (to receive message of finishing upgrade).
- Switch the camera to ON mode and trigger it to take picture. The module would be activated after shooting and start the upgrade. The file ebdat_cust_entry.elf would be deleted after the upgrade is finished, then the module would send the message of upgrade successfully to the remote mobile number.

LIMITED WARRANTY

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

We guarantee our trail cameras to be free of defects in materials and workmanship under normal use and service for a period of a limited time after the registered date of purchase. This warranty does not cover damages caused by misuse, abuse, or 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.

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.

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Appendix I: TECHNICAL SPECIFICATION

Model	Parameters
Image Sensor	5 Mega Pixels Color CMOS
Lens	FOV=55°; Auto IR-Cut
	FOV=100°; Auto IR-Cut
IR Flash	940nm (55 degrees standard lens flashes 18 meters/ 59 feet)
	940nm (100 degrees wild angle lens flashes 13 meters/ 42 feet)
	850nm (55 degrees standard lens flashes 35 meters/ 115 feet)
	850nm (100 degrees wild angle lens flashes 30 meters/ 98 feet)
Auto IR Adjustment	Automatically adjust brightness of IR LED in black and white video, reduce current after about 10s to lower power consumption.
TFT Display	40.8x30.6mm(2.0");960(RGB)*240DOT;16.7M Color
Operation Keypad	6 keys
Memory Card	SD Card (8MB~32GB)
Picture Size	12MP(4000x3000), 5MP(2560x1920), 2MP(1600x1200)
Video Resolution	1440x1080: 15 fps ;1280x720: 30fps; 640x480: 30fps;
PIR Sensitivity	High/ Normal/ Low/ Off
PIR Sensing Distance	25 meters (below 25℃ at the Normal sensitivity)
Prep PIR Sensing Angle	Left and right light beams form an angle of 100°; Each lens covers 10°
Main PIR Sensing Angle	35°
Operation Mode	Day/ Night
Trigger Time	0.8 Seconds

Trigger Interval	0sec - 60min; Programmable
Photo Burst	1~3
Video Length	1-60sec.; Programmable
Camera + Video	First take Picture then Video
Playback Zoom In	1~16 Times
Time Stamp	On/Off; Include serial No., temperature, moon phase, date and time.
Timer1	On/Off; Programmable
Timer2	On/Off; Programmable
Password	4 Digits (0~9)
Serial No.	4 digits and alphabets (0~9, A~Z)
Time Lapse	Off/ On; 0 Sec~23 Hour 59 Min 59 Sec; Programmable
Beep Sound	On/ Off
SD Cycle	On/ Off
3G Send Options	MMS, E-mail, Close 3G= does not send MMS/Email; Programmable
Max Sent Num/ Day	1~999/ Day
MMS Recipient Phone Number	1~2 Phone Numbers
MMS/Email Recipient E-mail Address	1~2 E-mail Addresses
SMTP E-mail	1 Sender E-mail Address
Remote Control	1 Remote Recipient Phone Number, 1 Remote Receiver E-mail
Power Supply	12 x AA;
External DC Power Supply	Plug Size: 4.0mmx1.7mm DC 6 ~ 12V (2 ~ 1A)

Stand-by Current	0.4mA
Stand-by Time	4~6 Months (4xAA~12xAA)
Auto Power Off	Auto power off in 3 minutes without any operation in TEST mode.
Power Consumption	180mA (+620mA when 940nm IR LED lights up)
Interface	TV out; USB; SD Card Slot; SIM Card Slot; 6V DC External
Mounting	Strap; Tripod
Ingress Protection	IP66
Working Temperature	-45℃ ~ +70℃
Working Humidity	5% ~ 95%
Certificate	FCC & CE & RoHS

Appendix II: PACKAGE CONTENTS

Part name	Quantity (PCS)
Digital Camera	1
TV AV IN Cable	1
USB Cable	1
Strap	1
External DC Power Cable (Optional)	1
CD	1
Warranty Card	1
User's Manual	1