Ltl Acorn®

Mobile Scouting Camera

Ltl-5210M Series

USER'S MANUAL

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GENERAL INFORMATION

1.1 Introduction

The Ltl Acorn M Series (Model Ltl-5210MC and Ltl-5210MM) is the second generation of our Ltl-5210 scouting camera. Bundled with the MMS-module (Multimedia Messaging Service) battery box (Part # LTL-MM), the standard scouting camera (Part # Ltl-5210M) can be upgraded to work as a remote cellular camera. With its highly sensitive Passive Infra-Red (PIR) sensor, the camera 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 via GSM network to the user's cell phone or email account.

Features:

- Programmable 5 or 12-Megapixel high-quality resolution.
- Infrared night vision LEDs for flash range as far as 65 feet
- In "Cam + Video" mode, camera takes both pictures and video at every trigger event
- Ultra low standby power consumption. Extremely long in-field life (in standby mode, up to 6 months with 8 x AA batteries)
- Unique side Prep Sensor design provides wider sensing angle and enhances camera's response speed
- Perform in the most extreme temperatures from -22°F to 158°F
- Compact size (5 ½ x 3 ½ x 2 ½ inches). Well designed to deploy covertly
- Impressively quick trigger time (1.2 second)
- In Time Lapse setting, the camera automatically and constantly takes pictures/videos at specified interval. This is very useful when observing plants flowering, birds building nest, or when monitoring unattended properties such as parking lots
- With Timer setting on, the camera can be programmed to only work in specified period every day. This feature can work together with Time Lapse feature
- Backpack-looking tree grabber makes mounting and aiming a snap
- Serial Number setting enables you to code locations in the photos. This helps multi-camera users identify the location when reviewing the photos
- Built-in 2 ¼" TFT color display to review images and videos
- Date, time, temperature and moon phase can be stamped in the pictures
- Lockable and password protected
- Two MMS image sizes to choose: 640 x 480 or 320 x 240
- Users can configure the Camera and MMS function either by running the enclosed CD on the computer, or directly on the built-in TFT display.
- Separation of the Camera and the MMS module provides users flexibility: starting with the value model as a standard scouting camera, and upgrading to the premium model with MMS function.
- If local area mobile signal is bad , Could not send MMS, Also can choose to send a text

message(SMS). Message content is taking pictures time and Camera serial number.

- Our Advanced Remote Cellular Technology transmits images to your cell phone and email account constantly at lower battery consumption and shorter transmission time, compared to products of its kind on the market.
- Automatically send text alert when battery power level goes low
- Check cellular signal information on the built-in TFT display in the field
- All MMS pictures saved in SD card as well as the original ones
- Internal antenna design makes the camera portable while still emitting strong signal
- Operates globally via GSM/GPRS network. Supports four bands: 850 / 900 / 1800 / 1900MHz.

1.2 Application

- Trail camera for hunting
- Animal or event observation
- Motion-triggered security camera, for home, office and community
- All other indoor/outdoor surveillance where invasion evidence needed

1.3 Illustration

- Figure 1.1 shows the front view of the camera (Part # Ltl-5210M)
- Figure 1.2 shows the bottom view of the camera (Part # Ltl-5210M)
- Figure 1.3 shows the back view of the camera (Part # Ltl-5210M) and front view of the battery box (Part # LTL-BM1 or LTL-MM1)

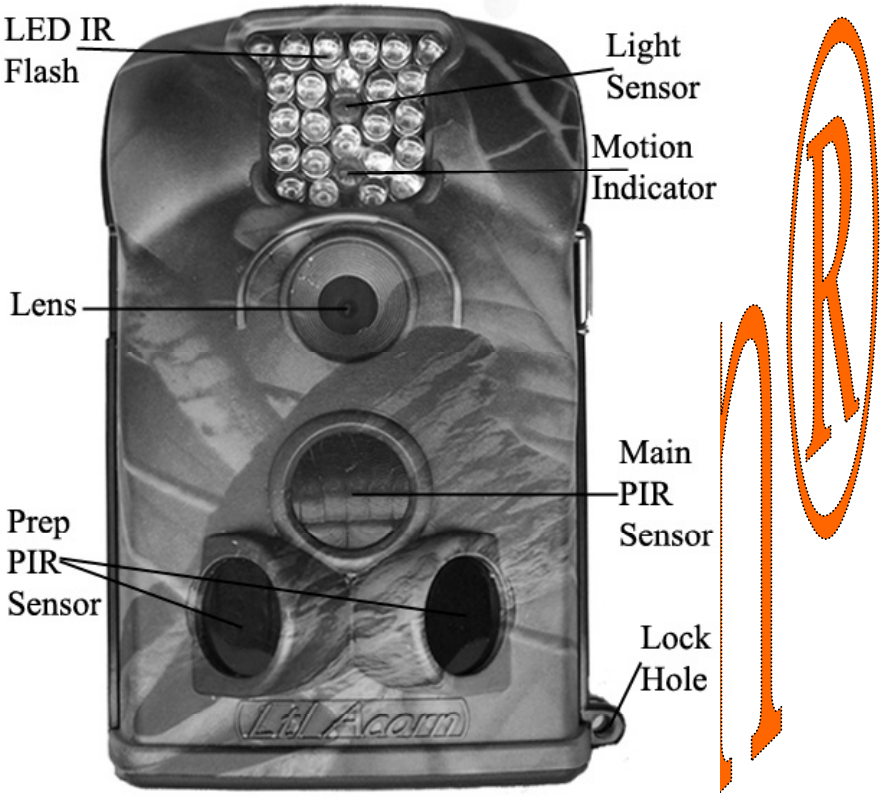


Figure 1.1: Front View of Ltl-5210M

Figure 1.2: Bottom View of Ltl-5210M

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 main operation modes: **OFF**, **ON** and **TEST**.

To power up the camera, install four **NEW** high-performance alkaline or lithium AA batteries in the camera. FOR BETTER PERFORMANCE, WE RECOMMEND USING **ENERGIZER LITHIUM AA BATTERIES.** To achieve longer in-field life, always install the additional battery box which contains four more AA batteries. (Please reference Appendix III: Instruction on Installing Battery Box)

Figure 1.3: Back View of Ltl-5210M and Front View of Battery Box

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 which would void the warranty.

QUICK START

2.1 Insert SIM Card (Only for Model Ltl-5210MM)

You need to purchase the SIM card from your local Mobile Phone Network Operators (MPNO), making sure they provide Multimedia Messaging Service (MMS). Ask them for the relevant information to configure the MMS settings on your camera. (Please reference 3.4 Set up MMS Function on PC in the Advanced Operation section.)

Open the battery compartment cover, slide the SIM card in the slot and lock it.

Figure 2-1 MMS-module Battery Box

2.2 Load Batteries

To install batteries on the camera (Part # Ltl-5210M), please follow the instructions below.

- Open the bottom cover by pulling down the lock hole.
- Push the cover of the battery compartment and release. It will pop out.
- Install 4 AA batteries. Make sure the polarity matches the sign on the cover.
- Replace the cover.

To install the additional battery box (Part # LTL-BM1 or LTL-MM1), please reference Appendix III: Instructions on Installing Battery Box)

Alternatively the camera can run on an external 6V~12V DC power source (optional). When both external power and batteries are connected, the camera will be powered by the external one preferentially. Bundled with our external solar power supply (purchased separately), the camera can work in the field over one year without changing batteries.

When battery level gets low, the Motion Indicator in the LED array will flash blue. On Model Ltl-5210MM, a "Battery Low" text alert will be sent automatically to the user's cell phone or email account.

2.3 Insert SD Card

The camera does not come with internal memory. So it will not work without a SD (Secure Digital) memory card or SDHC (High Capacity) card. Before inserting the SD card into the card

slot, please make sure the write-protect switch on the side of the SD card is “off” (NOT in the “Lock” position). The supported memory capacity is up to 16GB. If you use a card capable of above 16GB, make sure you test it before putting the camera in use.

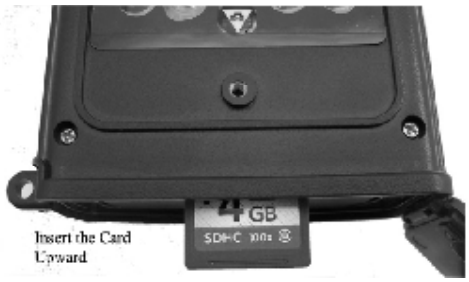


Figure 2-2

CAUTION: ALWAYS SWITCH THE CAMERA TO OFF MODE BEFORE YOU INSTALL OR REMOVE THE BATTERIES OR THE SD CARD.

2.4 Enter Test Mode

Switch to the **TEST** position to enter the Test mode. In this mode you can take pictures or video clips like a regular digital camera, or enter the Menu to set up parameters. On the keypad there are four “shortcut” functional keys (see Figure 2-3) working as below:

Figure 2-3

- Press the ▲ key to set the camera to shoot video clips.
- Press the ▼ key to set the camera to take still pictures.
- Press the ▶ **SHOT** key to manually trigger the shutter. A photo or video (depending on the camera setting) will be taken and saved to the SD card. If the display shows “CARD PROTECTED” when you press the **SHOT** key, switch the power OFF, remove the SD card and slide its write-protect switch to off.
- Press the OK **REPLAY** key to review/playback photos/videos on the LCD screen, or a connected TV monitor. Use ▲ and ▼ key to navigate.

There is another key, **MENU**, on the keypad that allows you to program the camera to work the way you want. Please make reference to 3.1 Parameter Settings in the Advanced Operation section.

Under the test mode, one useful function you would like is testing the work area of the PIR (Passive Infrared) sensor, specifically the sensing angle and distance. To perform the test:

- First strap the camera on a tree aiming the region of interest (ROI).
- Walk slowly from one side of the ROI to the other parallel to the camera. Try different distances and angles from the camera.
- If the Motion Indicator flashes blue, it indicates the position from where you are detected by one of the side Prep PIR sensors. If the Motion Indicator flashes red, it indicates the position from where you are captured by the main PIR sensor.

By doing this test, you can find the best placement when mounting and aiming the Ltl Acorn camera. In general, you are 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 limbs. The ideal direction to aim at is North or South. Also, remove any limbs close to the front of the camera.

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 by itself without any manual handling. It will at once shoot pictures or record videos when game or other objects enter the PIR area of the main sensor directly. If the game enters the PIR area of the prep sensors from the side, the prep sensors detect the movement and activate the camera. While the game keeps moving into the PIR area of the main sensor, the camera takes photos/videos immediately. If the game roams away after entering the PIR area of the prep sensors, the camera will power off and enter standby mode.

2.6 Advantages of Prep Sensors

In general, to save battery power, an Infer-Red camera is in “sleep” mode, with only the PIR sensor working. When game is detected by the PIR sensor, the camera is powered on and starts shooting pictures. The time period from being activated to starting firing is called trigger time. The trigger time varies among different scouting camera brands in the market, generally from 1 to 5 plus seconds. Our Ltl Acorn scouting camera has an impressive 1.2 second trigger time. However, when game passes across very quickly, the picture may only capture the rear part of the body, and possibly nothing at all.

With the unique side prep PIR sensors design, our Ltl Acorn solves this issue. The combination of the two side prep sensors and the main sensor comes up with a 100 to 120° angle of induction, a very wide scope far outweighing the 50 ° angle of the camera lens. When game first crosses the PIR area of the prep sensor, the camera is activated and ready to shoot after 1 second. If the game continually enters into the PIR area of the main sensor, the camera takes pictures immediately, therefore catching the whole body of the game. This split-second process could be

as short as 0.2 second.

In the case the game browses only in the PIR area of the prep sensors, to avoid the camera being powered on constantly, the system is designed to work in the following way: If the game does not enter the PIR area of the main sensor and therefore not trigger the main sensor, the camera will power off after 3 seconds. If the trigger events consecutively happened twice only in the PIR area of the prep sensors, the camera will not be activated by the side prep sensors, but only by the main sensor. So later on when the game enters the PIR area of the main sensor eventually, since it is not in fast movement, the picture will by all means capture the whole body of the game based on our standard 1.2 second response time.

ADVANCED SETTINGS

The Ltl Acorn trail camera comes with preset manufacturer settings. You can change the settings to meet your requirements. Please make sure the camera is in the test mode.

3.1 Parameter Settings

Press "MENU" key to enter/exit the menu. Press ▲, ▼ to move the marker, ◀, ▶ to change the setting, and OK to confirm the change. Always remember to press OK to save the change. Otherwise you will lose your new setting.

Parameter	**Settings** (**Bold** = default)	**Description**
Mode	**Camera**, Video, Cam+Video	Select whether still photos or video clips are taken. In **Camera+Video** mode, camera first takes photos and then shoots videos immediately.
Format	**Enter**	All files will be deleted after formatting the SD card. Highly recommend you format the SD card if it has been used previously on other devices. ***Caution: make sure wanted files on the SD card have been backed up first!***
Photo Size (affects still photos only)	**5MP**, 12MP, 1.3MP	Select desired resolution for still photos from 1.3 to 12 megapixels. Higher resolution produces better quality photos, but creates larger files that take more of the SD card capacity. Besides, larger files require longer time to write to the SD card, which will slightly slow the shutter speed. **5MP** is recommended.
Video Size (affects video clips only)	**640×480**, 320×240	Select video resolution (pixels per frame). Higher resolution produces better quality videos, but creates larger files that take more of the SD card capacity. **640×480** is VGA mode in standard 4:3 format.
Set Clock	**Enter**	Press **Enter** to set up date and time. Internal capacitor will retain the clock time for up to 7 minutes when changing batteries.
Picture No. (affects	**01 Photo**, 02 Photos,	Select the number of photos taken in

still photos only)	03 Photos	sequence per burst in Camera mode. ***Please also refer to the* Interval *parameter.***
Video Length (affects video clips only)	**Avi 10 s**, optional from 1s to 60s	Videos are in AVI format that can be played back on most media players.
Interval	**1 Min**, optional from 1S to 60M	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 any new triggers from the PIR sensor. During the selected interval, the camera will not take pictures/videos. This prevents the SD card from filling up with too many redundant images.
Sense Level	**Normal**, High, Low	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 when the ambient temperature is warm, and the Low setting is helpful in cold weather.
Time Stamp (affects still photos only)	**On**, Off	Select **On** if you want the date & time imprinted in every photo.
Timer	**Off**, On	Select **On** if you only want the camera to work within a specified time 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 time period the camera will not be triggered or take photos/videos. This feature can be used together with **Time Lapse** feature.
Password Set	**Off**, On	Set up a password to protect your camera from unauthorized users.
Serial No.	**Off**, On	Select **On** to assign a serial number to each camera you have. You can use the combination of 4 digits and/or alphabets to record the location in the photos (e.g. YSP1 for Yellow Stone Park). This helps multi-camera users identify the location when reviewing the photos.

Time Lapse	**Off**, On	If set **On**, the camera will automatically take photos/videos at the set interval (Note: in this mode, the PIR sensor is disabled). This is helpful when observing cold-blooded animals like snakes, or the process of flowering, etc. This feature can work together with **Timer** feature.
Side PIR	**On**, Off	The default setting is **On**. The two side prep PIR sensors provide wider sensing angle and enhance response time. (Reference **2.5 Advantages of Prep Sensors.**) However, in some situations you have difficulty removing the interfering branches, or avoiding the sunlight. If so, you have the option to turn off the side sensors.
MMS Phone No.	**Enter**	Press **Enter** to input the phone number you want to send MMS to. To input more phone numbers, or to set up email accounts, reference **3.4 Set up MMS Function on PC.** In the submenu, you can set the daily number of pictures sent via MMS. **0** stands for **Unlimited**. **1-99/Day** gives you flexibility sending up to 99 pictures per day
MMS Status	**Off,** VGA, QVGA	The default setting is **Off**, which turns the MMS function off. To turn it on, choose either VGA=640x480 or QVGA=320x240, which defines the resolution size of the MMS picture. If the original picture's size too large, its MMS picture will be converted to QVGA format to save transmission time and power consumption.
Default Set		Press **OK Enter** to return all your camera settings back to the manufacturer default. However, all the MMS function settings will remain except for **MMS Phone No.** and **MMS Status.**

3.2 File Format

The SD card stores all original pictures and videos in the folder \DCIM\100IMAGE, and all MMS pictures in the folder \DCIM\MMS\100IMAGE with the same filename. Pictures are saved with filenames like IMAG0001.JPG and videos like IMAG0001.AVI.

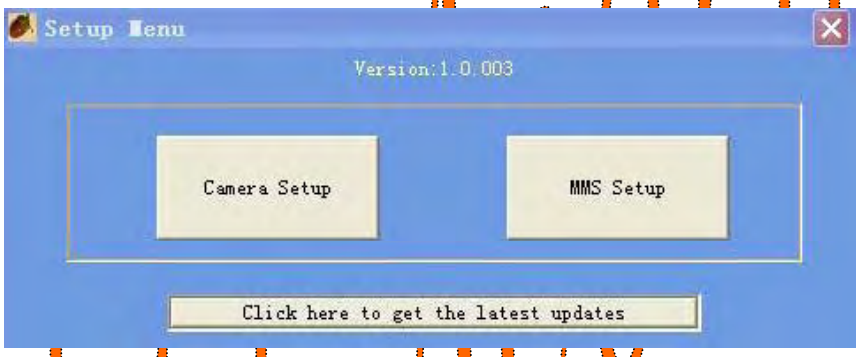
In the **OFF** mode, you can use the provided USB cable to download the files to a computer. Or you can put the SD card to a SD card reader, plug in a computer, and browse the files on the computer without downloading.

The AVI video files can be played back on most popular media players, such as Windows Media Player, QuickTime, etc.

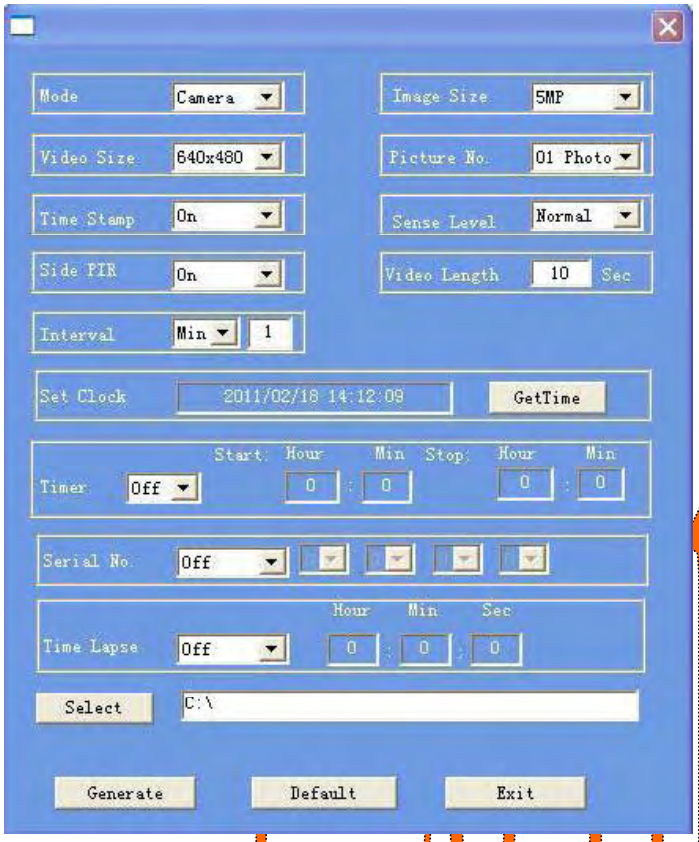
3.3 Set up Camera on PC

You can set up your camera and/or MMS function on your home PC. Run the Setup.exe file on the enclosed CD. You can also visit the national distributor's website to download the program, or download from http://www.sendspace.com/folder/7zd6ic

The following window prompts:



Click on Camera Setup, and you will see the following interface:



Set up the camera based on your need. Click on GetTime to retrieve the computer time.

Click on Select to choose the directory to save your settings, usually under the root directory of the SD card (You need to insert the SD card in the SD card reader and plug it in your computer.) Then, click on Generate. A file named **menu.dat** will be created and saved in the directory you just selected. If you selected a directory other than the SD card, you need to move the **menu.dat** file to the root directory of the SD card before inserting the card in the camera later on.

If you like, you can use the manufacturer default settings by clicking on Default.

At this point, if your camera is Model Ltl-5210MM, or you've just upgraded your standard scouting camera, Model Ltl-5210MC, to Model Ltl-5210MM by purchasing the MMS-module battery box (Part # LTL-MM1), skip the following step and go directly to **3.4 Set up MMS Function on PC.** If your camera is Model Ltl-5210MC, the standard scouting camera, you're done with the camera setting. Click on Exit to exit the interface.

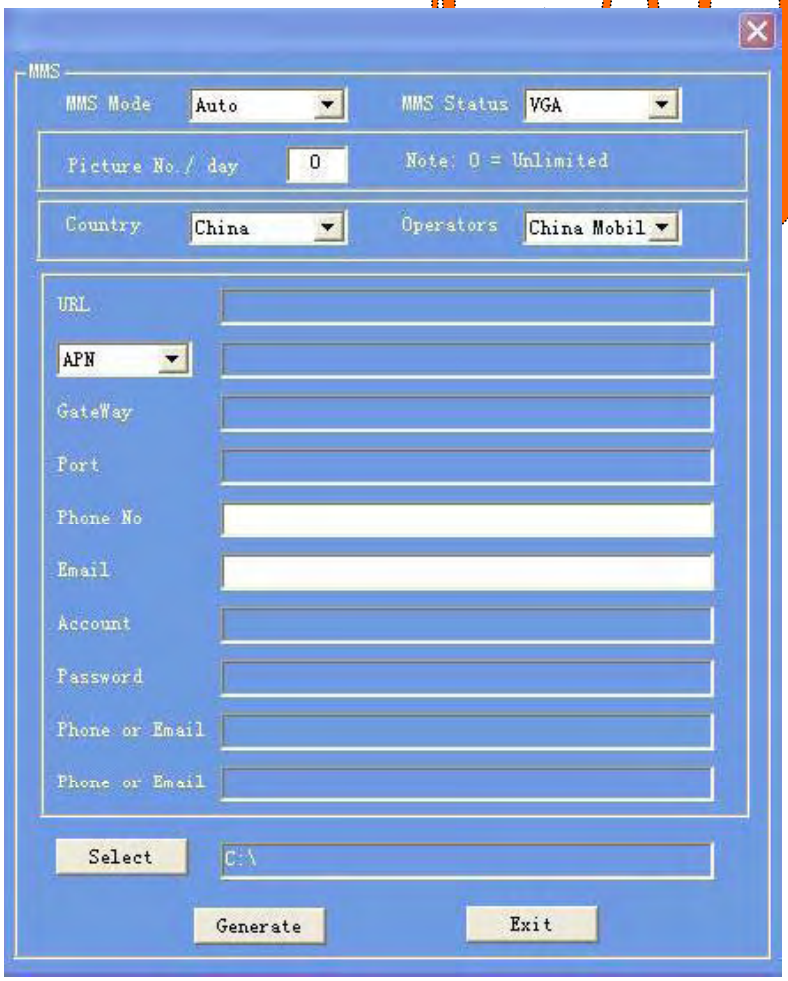
Retrieve the SD card from the computer and insert it in the camera. Switch to the **TEST** position to enter the TEST mode. A message will show up on the TFT display, indicating the Camera has been successfully set up. You are set with the camera.

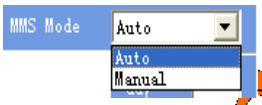
ATTENTION: THE PASSWORD CAN ONLY BE SET UP ON THE CAMERA, NOT ON THE PC.

3.4 Set up MMS Function on PC

After you click on **Exit** on the Camera Setup interface, the following window prompts again:

Click on MMS Setup, and you will see the following interface:



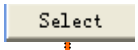


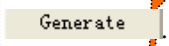
First, you need to choose how you like to set up the MMS Mode --**Auto** or **Manual**. If you choose **Auto**, then you need to choose the country

and the Mobile Phone Network Operator (MPNO). After doing that, the below section will populate with parameters pertaining to the selected MPNO, such as URL, APN, Gateway and Port. Then you can input the phone number and email address you'd like the MMS pictures to be sent to. You can enter up to three different phone numbers or email address.

If you choose **Manual** to manually input all the parameters, you need to contact your Mobile Phone Network Operator (MPNO) to have them provide you all the required information.

Note: Because each local MPNO has their own settings for their MMS service, and those settings can change over time, we recommend you verify all the settings with your MPNO, even you choose **Auto** to let the system to configure the settings. We pre-store those settings for each major MPNO in the program on the enclosed CD. If you find out those settings have changed according to the information provided by your MPNO, or you have settings from your MPNO that is not on our Operators list, please notify us so we can update our program.

Click on 

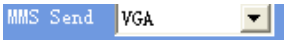
to choose the directory to save the settings, usually under the root directory of the SD card (You need to insert the SD card in the SD card reader and plug it in your computer.) Then, click on 

. A file named **menu.dat** will be created and saved in the directory you just selected. If you selected a directory other than the SD card, you need to move the **menu.dat** file to the root directory of the SD card before inserting the SD card in the camera later on.

Click on **Exit** to exit the MMS Setup interface. Retrieve the SD card and insert it in the camera. Switch to the **TEST** position to enter the TEST mode. A message will show up on the TFT display, indicating the MMS function has been successfully set up. Congratulations! You camera (Model Ltl-5210MM) is all set to send color pictures to your cell phone and/or email account every time it is triggered.

3.5 Camera Working with MMS

When you have the Model Ltl-5210MM, or you have upgraded your Model Ltl-5210MC by purchasing the MMS-module battery box (Part # LTL-MM1), not only will your camera work as a standard trail camera, but also send pictures to your cell phone and/or email account, when it meets the following requirements.

- The camera is ON and functions. The SD card has enough space. 8 AA batteries with enough power capacity. The camera is in Cam mode or Cam+Video mode, not Video mode.
- SIM card is installed. The MMS service is active (some MMS services need pre-paid balance in the account.) The SIM card is not password-protected.
- Only when the switch is in **OFF** position, you install the MMS-module battery box.
- The signal is strong in the field. The recipient's phone number is entered correct. You are suggested to take the receiving phone with you and do the send-and-receive test on site.
- MMS parameters are set correct.
- The Timer function is OFF. If you have the Timer ON, make sure you are in the specified time period when expecting incoming MMS pictures.
- 

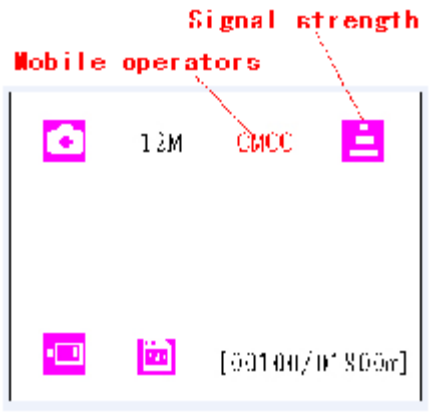
Make sure MMS Status is not set OFF or SMS.
- 

The setting is "0", or the daily limit has not been reached. 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 One.
- The camera is stationary while sending MMS pictures.

3.6 View Local MNPO name and Signal Strength on TFT Display

You can find your local Mobile Phone Network Operator's name and the signal strength on the TFT display on the camera, just like you can see the information on a regular cell phone.

Install the SIM card and 8 AA batteries. Make sure the camera is switched in OFF position. Attach the MMS-module battery box to the camera. Switch to the TEST position. If you like, you can connect the camera to a TV using provided TV AV IN cable. Wait for 1 minute and then you will be able to view the MPNO name and the signal strength on the TV. If you don't have an access to a TV, wait for 1 minute and detach the battery box. Then you can view the information on the TFT display.



There are three bars indicating the signal strength. To allow the MMS function to perform, at least one bar is required.

If a code, instead of the MPNO information, shows on the screen, it indicates something is wrong, missing, or going on. Specifically,

- 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 with GPRS network.
- COPS: Searching for the MNPO of the SIM card. Once it is found, the operator's name and the signal strength will show on the screen.

If **No MM1** shows on the screen, it means the MMS-module is not found (installed). Make sure the battery box has the MMS-module, not a standard one.

Attention: The camera **MUST** be set in **OFF** position when attaching the MMS-module battery box to it. Secure the battery box by locking up the buckle. Otherwise, the MMS function may not perform normally. When trying to view the operator's name and the signal strength, if you wait less than one minute before detaching the battery box, you will more than likely see one of the codes aforementioned. You need to switch the camera to OFF position, install the battery box securely, wait for one minute, and then try it again.

LTL-5210M SERIES PRODUCTS

4.1 Ltl-5210M Series Consists of Three Parts:

1. **Ltl-5210M** Camera
2. **LTL-BM1** Standard battery box (without MMS-module)
3. **LTL-MM1** MMS-module battery box

4.2 Models for Purchase:

- Ltl-5210MM = Ltl-5210M Camera + LTL-MM1 MMS-module battery box
- Ltl-5210MC = Ltl-5210M Camera + LTL-BM1 Battery box
- LTL-MM1 ----- MMS-module battery box

Ltl-5210M Camera

LTL-MM1 MMS-module battery box

LTL-BM1 Standard battery box

IMPORTANT INFORMATION

5.1 Prevent From Short-Circuits

There are five electric contacts above the TFT display on the camera and above the battery compartment of the battery box, respectively. NEVER contact these electric contacts with any metallic materials. Otherwise it would cause a short circuit and therefore irreversible damage to the camera.

5.2 Power Supply and Battery Box

Ltl-5210M Series camera can work on up to 12 voltages. The 4 AA batteries in the camera, the 4 AA batteries in the battery box, and the external power supply form a three-path parallel circuit. Each path is isolated from others and does not charge nor discharge others. As a result, the camera can extend its life in the field by being powered by an external solar panel.

5.3 SD Card

There are plenty of different brand SD cards on the market. We tested on our camera as many brands as we can. However, we cannot guarantee every brand SD card will work compatibly with our camera. Please format the SD card on the camera before use. If it doesn't work,

please try another brand SD card.

5.4 Auto Adjustment on Video Length

To extend the battery life, you are strongly suggested to use 8 AA alkaline batteries when having the camera running in Video mode or Cam+Video mode. Compared to products of its kind on the market, our camera takes thirty percent more full-length video clips. Besides that, when battery power gets low, our camera automatically shortens the video length so as to take more clips of more game. As a result, the total number of video clips doubles, even triples that of products of its kind, which provides users with more useful information.

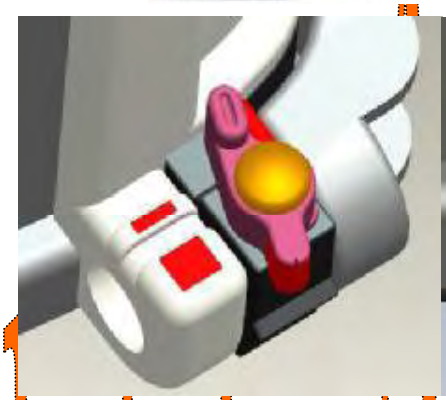
Note: Our camera performs at extreme cold environment as low as -30°C (-22°F), in which the battery power capacity deteriorates drastically. Therefore, the number of video clips decreases accordingly.

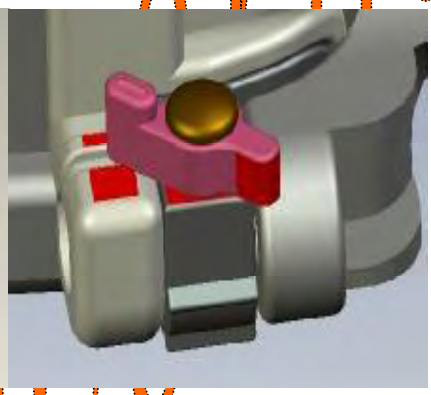
5.5 850nm and 940nm IR LED

There are two selects of IR LED on the Ltl-5210M series camera, 850nm and 940nm. The former provides up to 65-foot flash range whereas the latter up to 30-foot flash range. The benefit of 940nm IR LED, however, is it emits very low-glow flash that is almost invisible from 5 feet away.

5.6 Mount on Tripod

The camera can be mounted on a 1/4" tripod. **CAUTION: To avoid breakage, always turn the knob in position to secure the bottom cover.**





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 one battery out of the MMS-module battery box, 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 was too weak. Or the batteries ran out.
- *I programmed the camera to constantly take pictures. But some pictures were not sent to my phone. How?*
  The Ltl-5210M series camera is designed to constantly send MMS pictures to the recipient's phone. However, if the signal is too weak, it may not work stably.
- *Why did I receive some pictures with partial image, and some with "red X"?*

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.

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:

- Install batteries and the SD card.
- Format the SD card on the camera. Back up the contents on the SD card.
- Retrieve the SD card and plug it in your computer (SD card reader may needed). Copy and paste the FW5210A.bin file in the root directory of the SD card. (Inquire the national distributor if there is an upgrade available and where to download it.)
- Retrieve the SD card and insert it back in the camera. Switch to **TEST.**
- Enter **MENU,** navigate the marker to **DEFAULT SET,** and press **OK.** The upgrade has been installed successfully.
- Re-format the SD card on the camera.

Attention: A firmware upgrade program for one model is not compatible on other models. In other word, an upgrade for Model Ltl-5210M only applies to that model. If a camera is falsely 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.

LIMITED WARRANTY

We take great pride in our products. We always stand behind our promises. We provide a leading warranty term and service. Buying a Ltl Acorn product, you are covered under the limited warranty.

We guarantee our products to be free of defects in materials and workmanship under normal use and service for a period after registered date of purchase. This warranty does not cover damages caused by consumers' misuse, abuse, or improper handling or installation, by user installed batteries, or by repairs attempted by 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.

Appendix I: TECHNICAL SPECIFICATION

Model	Parameters	Ltl-5210MC	Ltl-5210MM
Image Sensor	5 Mega Pixels Color CMOS	Yes	Yes
Max. Pixel Size	2560x1920	Yes	Yes
Lens	F=3.1; FOV=52°; Auto IR-Cut	Yes	Yes
IR Flash	65 Feet/20 Meters	Yes	Yes
LCD Screen	48x35.69mm(2.36"); 480(RGB)*234DOT; 16.7M Color	Yes	Yes
Operation Keypad	6 Keys	Yes	Yes
Memory	SD Card (8MB ~16GB)	Yes	Yes
Picture Size	5MP/12MP/1.3MP = 2560X1920/4000X3000/1280X960;	Yes	Yes
Video Size	640x480: 20fps; 320x240: 20fps	Yes	Yes
PIR Sensitivity	High/Normal/Low	Yes	Yes
PIR Sensing Distance	65ft/20m（Below 77°F/25°C at the Normal Level）	Yes	Yes
Prep PIR Sensing Angle	Left and right light beams form an angle of 100°; Each lens covers 10°	Yes	Yes
Main PIR Sensing Angle	35°	Yes	Yes
Operation Mode	Day/Night	Yes	Yes
Trigger Time	1.1 Second (When using the 2G SD card)	Yes	Yes
Trigger Interval	0sec. - 60min; Programmable	Yes	Yes
Shooting Numbers	1~3	Yes	Yes
Video Length	1-60sec.; Programmable	Yes	Yes
Camera + Video	First take Picture then Video	Yes	Yes
Playback Zoom In	1~16 Times	Yes	Yes
Time Stamp	On/Off; Include serial No., temperature and moon phase	Yes	Yes
Timer	On/Off; Programmable	Yes	Yes
Password	4-Digit Numbers	Yes	Yes
Device Serial No.	4 digits and 26 alphabets set by yourself	Yes	Yes
Time Lapse	On/Off; 1 Second ~ 24 Hours Programmable	Yes	Yes
MMS Status	VGA = 640x480; QVGA = 320x240; OFF Programmable	Upgradable	Yes
MMS Numbers	“0” = Unlimited; 0 ~ 99/Day	Upgradable	Yes
MMS Phone No.	1 ~ 3 Phone Numbers	Upgradable	Yes

MMS E-mail	0 ~ 3 E-mail address	Upgradable	Yes
SMS	1~3	Upgradable	Yes
Low-Battery SMS Alert	"Battery Low" text alert sent	Upgradable	Yes
Power Supply	4xAA; Expandable to 8xAA	Yes	Yes
External DC Power Supply	Plug Size: 4.0x1.7 6 ~ 12V (1 ~ 2A)	Yes	Yes
Stand-by Current	0.4mA	Yes	Yes
Stand-by Time	3～6 Months（4xAA～8xAA）	Yes	Yes
Auto Power Off	Auto power off in 2 minutes if no keypad input	Yes	Yes
Power Consumption	150mA (+350mA when IR LED lights up)	Yes	Yes
Low Battery Alert	4.2~4.3V	Yes	Yes
Interface	TV out (NTSC); USB; SD Card Slot; 6V DC External	Yes	Yes
Mounting	Strap; Tripod	Yes	Yes
Waterproof	IP54	Yes	Yes
Operation Temperature	-22~+158°F/-30 ~+70°C	Yes	Yes
Operation Humidity	5% ~ 95%	Yes	Yes
Certificate	FCC & CE & ROHS	Yes	Yes

Appendix II: PACKAGE CONTENTS

Part Name	Quantity (Ltl-5210MC)	Quantity （Ltl-5210MM）	LTL-MM1 MMS-module battery box
Digital Camera	1	1	0
Additional Battery Box	1 (Standard)	1 (With MMS module)	1 (With MMS module)
TV AV IN Cable	1	1	0
USB Cable	1	1	0
Strap	1	1	0
External DC Cable (optional)	1	1	0
Installation CD	1	1	1
Warranty Card	1	1	1

Appendix III: INSTRUCTION ON INSTALLING BATTERY BOX

FCC ID: ZF3-LTL-5210MM
Model No.: LTL-5210MM
Manufacturer: Shenzhen Ltl Acorn Electronics Co., Ltd.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

“To comply with FCC RF exposure compliance requirements. The antennas used for this transmitter must be installed to provide a separation distance of at least 25 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.”

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.