LTL ACORN
Scouting Camera
Ltl 5210（5MP）& Ltl 5210A（12MP）

USER'S MANUAL

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GENERAL INFORMATION

1.1 Introduction

The Ltl Acorn (Model: Ltl-5210 & Ltl-5210A) scouting camera (also called game camera/trail camera) is a scouting device. It can be triggered by sudden change of ambient temperature caused by moving game in a region of interest (ROI), which is detected by a highly sensitive Passive Infra-Red (PIR) sensor, and then take pictures or video clips automatically.

The Ltl-5210 and Ltl-5210A feature:

- 5 Mega Pixels CMOS sensor. Interpolable to 12 Mega Pixels on Ltl-5210A
- Sharp and bright color pictures in daytime and clear black/white pictures at night
- Ultra low standby power consumption. Extremely long in-field life (in standby mode, up to 3 months with 4 x AA batteries and 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 second)
- Backpack-looking tree grabber makes mounting and aiming a snap
- Serial Number function enables you to code locations in the photos. This helps multi-camera users identify the

location when reviewing the photos
- Date, time, temperature and moon phase can be stamped in the pictures
- Lockable and password protected

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

Figure 1.1: Front View

Figure 1.2: Bottom View

The camera provides the following connections for external

devices: USB 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 supply power, it is recommended to use four new high-performance alkaline AA batteries or low self-discharge Ni-MH chargeable AA batteries. To achieve longer in-field time, install the additional battery box which contains four more AA batteries.

LCD Screen

Keypad

Lock Buckle

Additional Battery Box

Hand Screw

Figure 1.3: Back View

QUICK START

2.1 Load Batteries

Let us begin with loading the batteries. 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.

Alternatively the camera can run on an external 6V DC power source (optional, user provided). When both external power and batteries are connected, the camera will be powered by the external one.

2.2 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 2.1

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

2.3 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 2-1) working as below:

Figure 2.2

- 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 monitoring 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 were detected by one of the

side Prep PIR sensors. If the Motion Indicator flashes red, it indicates the position from where you were 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.

2.4 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.

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 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 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, Camera+Video (Ltl-5210A only)	Select whether still photos or video clips are taken. In **Camera+Video** mode, Ltl-5210A can first take photos and then shoot videos afterward.

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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 in other devices. *Caution: make sure wanted files on the SD card have been backed up first!*
Photo Size (affects still photos only)	3MP, **5MP**, (12MP on Ltl-5210A only)	Select desired resolution for still photos from 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.
Picture No. (affects still photos only)	**01 Photo**, 02 Photos, 03 Photos	Select the number of photos taken in sequence per trigger 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 video players.
Interval	**1 Min**, optional from 1S to 60M	Select the shortest length of time that the camera will wait until it responds to any subsequent triggers from the PIR sensor after a game is first detected. 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 Switch	**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.
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 according to the set interval, regardless of whether the PIR sensor has detected any game. This is helpful when observing cold-blooded animals like snakes, or the process of flowering, etc.
Side PIR	**On**, Off	The default setting is **On**. The two side prep PIR sensors provide

		wider sensing angle and detect more potential triggers. In some situations, you only want to monitor a narrow spot. Too many irrelevant triggers by the side sensors outside of that spot will keep the camera on and off, which drains the battery power rapidly. Or in some other situations you have difficulty removing the interfering branches, or avoiding the sunlight. If so, you have the option to turn off the side sensors.
Default Set		Press **OK Enter** to return all your previous settings back to the manufacturer default.

3.2 File format

The camera stores photos and videos in the folder \DCIM\100IMAGE in the SD card. Photos 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.

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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 a limited warranty.

We guarantee our products to be free of defects in materials and workmanship for a limited warranty of the original purchase date. This warranty does not cover consumer caused damages such as misuse, abuse, improper handling or installation, or repairs attempted by someone other than our authorized technicians.

We will, at our option during the warranty period, repair your camera or replace it with the same or comparable model free of charge. 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.

If you need to return a Ltl Acorn product under this warranty, please contact your dealer or our distributor.

Appendix I: TECHNICAL SPECIFICATION

Model	Parameters	Ltl-5210	Ltl-5210A
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 = 2560x1920;	And 3MP = 2048x1536	And 12MP =4000x3000
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 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	No	Yes
Playback Zoom In	1~16 Times	No	Yes
Time Stamp	On /Off; Include serial no., temperature and moon phase	Yes	Yes
Timer	On /Off; Timer Set	Yes	Yes
Password	4-Digit Numbers	Yes	Yes
Device Serial No.	4 digits and 26 alphabets set by yourself	Yes	Yes

Time Lapse	1 Second ~ 24 Hours	Yes	Yes
Power Supply	4xAA; Expandable to 8xAA (With additional battery box)	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 while no keypad controlling	Yes	Yes
Power Consumption	150mA (+500mA when IR LED lights up)	Yes	Yes
Low Battery Alarm	4.2~4.3V	Yes	Yes
Interface	TV out; USB; SD Card Slot; 6V DC External	Yes	Yes
Mounting	Strap; Tripod Nail	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
Digital camera	1
Additional battery box(optional)	1
TV AV IN cable	1
USB cable	1
Strap	1
External DC cable (optional)	1
Instruction Manual	1
Warranty Card	1

Appendix III: INSTRUCTION ON INSTALLING ADDITIONAL BATTERY BOX