LTL ACORN®

Infrared Digital Scouting Camera Ltl-3310 Series

Two high accuracy timers

Download picture and video via Wireless

Connection on mobile



USER'S MANUAL

Version: Ltl-3310-01

TABLE OF CONTENTS

General Information	1
1.1 Features	1
1.2 Application	2
1.3 Illustration	2
Getting Started	5
2.1 Load Batteries on the Camera	5
2.2 Insert SD Card and Format It	5
2.3 Set up Camera on PC	6
2.4 Enter Test Mode	
2.5 Enter Live Mode	10
Advanced Settings	11
3.1 Parameter Settings	11
3.2 File Format	
Ltl-3310 Series Products	15
4.1 3310 Series Model	15
4.2 Models for Purchase	15
Important Information	16
5.1 Power Supply	16
5.2 SD Card	16
5.3 Auto Adjustment on Video Length	16
5.4 850nm and 940nm IR LED	16
5.5 Mount on Tripod	17
5.6 Low Battery Alarm	17
Firmware Upgrades	18
6.1 Firmware Upgrades	18
Warranty Information	19
Appendix I Technical Specifications	20
Appendix II Package Contents	22

GENERAL INFORMATION

Introduction

This manual applies to model Ltl-3310A and Ltl-3310B, Ltl-3310A is the general model with TFT LCD screen and without function of wireless connection with mobile, users can preview pictures and video clips on the TFT LCD screen directly. Ltl-3310B supports wireless connection with mobile instead of TFT LCD screen, the pictures and video clips could be downloaded via wireless connection on mobile.

Ltl-3310 series camera, with its highly sensitive Pyroelectric Infrared Radial (PIR) Sensor, detects the sudden change of ambient temperature caused by moving game in a region of interest (ROI), triggered to take photos/videos.

Forty-four LEDs make Ltl-3310 series the most outstanding quality of night picture, ideal for security and surveillance purposes. Ltl-3310 series camera allows a field of view of 80 degrees and sensing angle of 60 degrees, can detect object or changes in the larger field of surroundings.

1.1 Features:

- Two high accuracy timers.
- For Ltl-3310B, download picture and video via wireless connection on mobile phone.
- For Ltl-3310A, postposition screen to avoid erosion from battery leakage and potential damage caused by the accidental falling of camera during installation.
- 1.3MP/3MP/5MP high resolution.
- $640 \times 480 / 320 \times 240$ video resolution.
- Ltl-3310 series camera allows a field of view of 80 degrees.
- Ltl-3310 series infrared night vision LEDs 850nm flash range is up to 20m, low-glow 940nm 15m.
- "Cam + Video" mode enables camera to take both picture and video at every trigger.
- Take multiple consecutive pictures with an interval time of about 1.5 seconds.
- Extremely long in-field battery life (in standby mode, up to 6 months with 8 AA batteries).
- Perform in the most extreme temperatures from -40°F (-40°C) to 158°F (70°C).
- Compact size. Well designed to deploy covertly.
- 1.2 seconds trigger time.
- Programmable to work as Time-Lapse, camera would take pictures/videos as per the time setting. It is useful to observe plants growth and monitor parking area.
- When Timer setting is turned on, programmable to only work in specified period every day. This feature can be used together with Time Lapse feature to meet your timetable.
- For Ltl-3310A, review images and videos on the built-in 2.0 inch TFT LCD color screen at the back of the camera.

- Date, time, temperature, moon phase and battery level can be stamped on picture.
- Lockable and password protected
- For Ltl-3310B, the 320×240 thumbnail would be generated automatically at the shoot and could be downloaded to the mobile phone for review via wireless connection, it is recommended to retrieve SD card from camera and view the original picture on mobile device or PC directly (SD card reader may be needed).
- Setup is a snap. Just run the user-friendly software on the enclosed CD on the computer, or do it directly on the built-in TFT LCD screen.
- When battery level gets low, the message "Low Battery" would be shown on the screen in the TEST mode. For Ltl-3310A, you can view the message on the TFT LCD display.
- Turn on the serial No. setting, the picture/ video name would start with serial No., makes the file easy to be classified.



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 intrusion evidence and live alerts are needed

1.3 Illustration

- Figure 1.1: Front view of the camera (Part # Ltl-3310)
- Figure 1.2: Bottom view of the camera (Part # Ltl-3310A)
- Figure 1.3: Back view of the camera (Part # Ltl-3310A)



Figure 1.1. Front view of Ltl-3310



Figure 1.2: Bottom view of Ltl-3310A

The camera provides the following connections for external devices: SD card slot 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 8 AA batteries.

CAUTION RISK OF EXPLOSION IF BATTERY REPLACED BY AN INCORRECT TYPE DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS



Figure 1.3: Back view of Ltl-3310A

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

GETTING STARTED

2.1 Load Batteries





- Open the bottom cover by pulling down the lock hole.
- Follow direction of the arrow, push and release the battery door.
- Install 4 AA batteries or 8 AA batteries in the camera (batteries must be leaned to one side without empty in the middle). Make sure the polarity matches the sign on the cover.
- Push to close the battery door.

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, and choose it as preferred power source. Connected to Ltl-SUN Solar Panel (optional), the camera can work in the field over one year without changing batteries.

When battery level gets low, the message "Low Battery" would be shown on the screen in the TEST mode. For Ltl-3310A, you can view the message on the TFT LCD display.

2.2 Insert SD Card and Format It

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 into the card slot, please make sure the write-protect switch on the side of the SD card is "off" side (NOT in the "Lock" position). The supported memory capacity is up to 16GB. If you use a SD card which capacity is larger than 16GB, please make sure that you test it in advance.



Figure 2-2

Always format the SD card on the CAMERA at first use. Switch to the TEST position to enter the Test mode. Press MENU button to access the main menu. Scroll down to Format. Press OK to format the SD card.

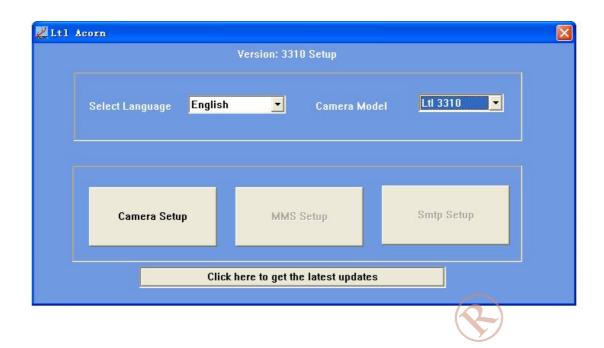
2.3 Set up Camera on PC

After formatting the SD card on the camera, pop the SD card out and insert it into your computer. (If your computer cannot read SD cards on its own, a SD card reader may be needed.)

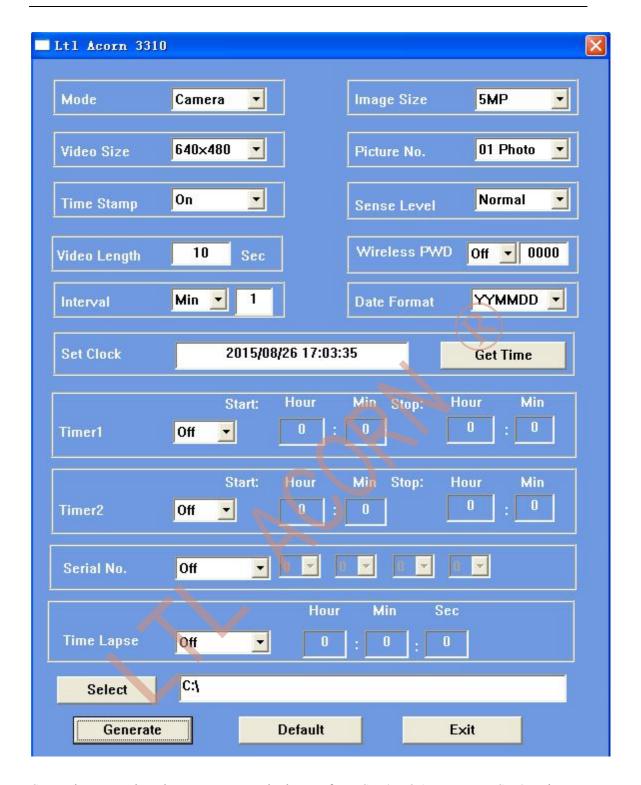
Find the enclosed compact CD in the gift box and put it on the CD tray. (An external disc drive would be needed if the PC does not have a disc drive.) Run the Setup.exe file.

In another way, download the setup file from Ltl Acorn's website: http://www.ltlacorn.cn/about/downloaden.html
(Download→ Classification→ PC Setup→3310 Setup)

The following window prompt would show up once you double-click the **Setup.exe** file:



Select your language and model. Click on Camera Setup, and you will see the following menu:



Set up the camera based on your own need. Please refer to Section 3.1 Parameter Settings in Advanced Settings to find detailed explanations for each setting.

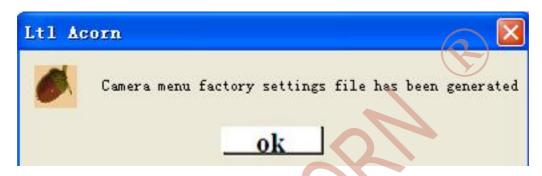
Set up the camera based on your need. Click on GetTime to retrieve the computer time.

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 into the SD card reader and plug it in your computer).

Then, click on Generate . A message window will pop out as below.



You can also use the manufacturer default settings by clicking on lefault if needed.



A file named **menu.dat** would be created and saved in the selected directory. 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 into camera.

Retrieve the SD card and insert it in the camera. Switch to the **TEST** position to enter the TEST mode. For Ltl-3310A, message "Updated menu.dat Successfully" would be shown up on the TFT LCD screen, indicating the setup file has been successfully installed on the camera.

ATTENTION:

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

THE PASSWORD OF WIRELESS CONNECTION COULD BE SET ON THE PC SETUP OR WIRELESS CONNECTION APP.

2.4 Enter Test Mode

For Ltl-3310A, under the test mode, one useful function you may find is testing the working area of the Pyroelectric Infrared Radial (PIR) Sensor, specifically the sensing angle and distance. To perform the test:

- First position the camera at proper height aiming 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 red, it means that the position you stand can be detected by PIR sensor.

You can identify the best position to install the LTL ACORN camera through this test. In general, we recommend placing the camera 3 to 6 feet (1 to 2 meters) above the ground.

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

For Ltl-3310B, put the camera to the TEST mode, it would activate the wireless connection and prepare to be searched by the near device after 15~20s. The search function of wireless connection would be started and the camera would be powered off if doesn't pair with any mobile phone in 3 minutes. Users can configure the camera parameters, change password and download picture and video if the camera connect with the wireless device successfully within 3 minutes, please refer to the **Instruction of Wireless Connection APP**.

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. It will immediately take pictures or record videos when the person or animal enter the PIR area of sensor directly.

Ltl-3310 series camera would only take picture or video in the live mode.

ADVANCED SETTINGS

The LTL ACORN trail camera comes with default settings. You can change the settings to meet your requirements, by manually operating on the camera or programming on your computer.

3.1 Parameter Settings

For Ltl-3310A, switch to the **TEST** position to enter the Test mode. In this mode you can take pictures or video clips like using a regular digital camera, or enter the Menu to set up parameters. On the keypad there are four "shortcut" functional keys (see Figure 3-1) working as below:





Ltl-3310A Figure 3-1

- Press the A key to set the camera to shoot video clips.
- Press the ∇ key to set the camera to take 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 TFT LCD screen.
 Use ▲ and ▼ key to navigate.

Press "MENU" key to enter/exit the Camera Setup menu. Press ♠,▼ to move the marker.

Press ♠,▼ to change the setting, and press OK to confirm the change. Always remember to press OK to save the change.

For Ltl-3310B, please use PC SETUP or Wireless Connection APP to change camera parameters. Refer to the **2.3 Set up Camera on PC** or **Instruction of Wireless Connection APP** for more details.

List of Parameters

Parameter	Settings	Description
	$(\mathbf{Bold} = \mathbf{default})$	
Mode	Camera,	Select whether photos or video clips
	Video,	would be taken. In Camera+Video

	Cam+Video	mode, camera takes photos and video at
		the same trigger.
Format	Enter	All files would be deleted after
		formatting the SD card. Format the SD
		card on the camera when using it for
		the first time. Caution: make sure
		wanted files on the SD card are backed
		up.
Photo Size	5MP , 3MP, 1.3MP	Select desired resolution for photos from
		1.3 to 5 megapixels. Higher resolution
		produces better quality photos, but
		creates larger files that occupy more
		space and take longer time to write to the
		SD card, which slightly affects the
		shutter speed. 5MP is recommended.
Video Size	640×480,	Select video resolution (pixels per
	320×240	frame). Higher resolution produces
		better quality videos, but creates larger
		files that occupy more space. 640 × 480
		is recommended.
Set Clock	Enter	Press Enter to set up date and time.
		Internal capacitor would keep the time
		for 7 minutes when changing batteries.
Picture No.	01 Photo, 02 Photos,	Select the number of photo taken
	03 Photos	consecutively per trigger in Camera
		mode.
Video Length	AVI 10 s, optional	Videos are in AVI format that can be
	from 1s to 60s	played on most media players.
Interval	1 Min, optional from	Select the length of time that the camera
	0second to 60 minutes	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
		would not take pictures/videos. It
		prevents the SD card from filling up with
		too many redundant images.
Sense Level	Normal, High,	Select the sensitivity of the PIR sensor.
(Sensitivity)	Off ,Low	The High setting suits indoors and
		environment with little interference,
		while the Normal/Low suits outdoors
		and environment with more interference.
		Temperature also affects the sensitivity.
		The High setting is suitable when the
		ambient temperature is high, and the

		Low setting is helpful in cold weather.
Time Stamp	On, Off	Select On if you want the date & time
	0, 0	stamped on every photo.
Timer1	Off, On	Select On if you only want the camera to
	011, 011	work within a specified period every
		day. For instance, if the starting time is
		set at 18:35 and the ending time at 8:25,
		the camera will function from 18:35 the
		current day to 8:25 the next day. The
		camera would not be triggered or take
		photos/videos outside the period you set.
		This feature can be used together with
		Time Lapse feature.
Timer2	Off, On	A second timer is available in case you
11111012	On, On	need the camera to function in two
		separate periods.
		separate perious.
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. 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. Turn on the
	Y	serial No. setting, the picture/ video
		name would start with serial No., makes
		the file easy to be classified.
		Attention: Please set serial No. in
		advance if you want to change the
		picture/ video name, it would take
		effect only if the camera is restarted.
Time Lapse	Off, On	If On , the camera will automatically take
		photos/videos at the set interval. This is
		helpful when monitoring fields in long
		range, or the process of flowering, etc.
		This feature can work together with the
		Timer feature.
Default		Press OK Enter to return all your
		camera settings back to the manufacturer

3.2 File Format

Ltl-3310 series, there are two default folders DCIM and MISC to save pictures and videos, MISC is standby folder. The SD card stores all original pictures and videos in the folder DCIM\100MEDIA. Pictures are saved with filenames like IMAG0001.JPG and videos like IMAG0001.AVI.

Turn on the serial No. setting, the picture/ video name would start with serial No., makes the file easy to be classified.

Turn off the serial No. setting, the picture/ video name would be returned to the default setting.

ATTENTION: PLEASE SET SERIAL NO. IN ADVANCE IF YOU WANT TO CHANGE THE PICTURE/ VIDEO NAME, IT WOULD TAKE EFFECT ONLY IF THE CAMERA IS RESTARTED.

For Ltl-3310B, the camera would generate corresponding thumbnail (320×240) of original picture. The thumbnails are saved in DCIM/THUMB. Pictures are saved as folder sequence number-file sequence number.JPG.

Eg: picture IMAG2087.JPG in the 100MEDIA folder, the corresponding thumbnail named 100-2087.JPG.

Eg: picture IMAG0001.JPG in the 101MEDIA folder, the corresponding thumbnail named 101-0001.JPG.

For Ltl-3310A, you can insert the SD card into a SD card reader, plug in a computer, and browse the files on the computer without downloading.

For Ltl-3310B, the picture also could be downloaded via wireless connection on mobile device besides reading SD card directly. Please refer to the **instruction for wireless connection APP** for more details.

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

Ltl-3310 SERIES PRODUCTS

4.1 3310 Series Model:

Ltl-3310A (TFT LCD, No Wireless Connection)

Ltl-3310B (Wireless Connection, No TFT LCD)

4.2 Models for Purchase:





(Color Picture)

(Black and White Picture)

IMPORTANT INFORMATION

5.1 Power Supply

The working voltage of Ltl-3310 Series is up to 12V. The 4 AA batteries or 8 AA batteries in the camera (batteries must be leaned to one side without empty in the middle), and the external power supply form a three-path parallel circuit. Each path is isolated and does not charge or discharge each others. In addition, the camera can be powered by an external solar panel, Ltl-SUN, to extend its life in the field.

5.2 SD Card

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

5.3 Auto Adjustment on Video Length

To extend battery life, we strongly recommend using 8 AA alkaline batteries when operating the camera in Video mode or Cam+Video mode. Compared to similar products on the market, our camera takes thirty percent more video clips. Moreover, when battery power gets low, our camera automatically shortens the video length so as to take more clips of more events. As a result, the number of video clips would be double, even triple to other brand camera, provide more useful records.

Note: Our camera performs at extreme cold environment as low as -40°C (-40°F), in which the battery power capacity deteriorates drastically. Therefore, the numbers of video clips decreased accordingly.

5.4 850nm and 940nm IR LED

There are two types of IR LED for Ltl-3310 series camera: 850nm and 940nm. 850nm provides 20m flash range and 940nm provides 15m.

The 940nm IR LED emits black flash which is invisible in the dark.

5.5 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.



5.6 Low Battery Alarm

When battery level gets low, the message "Low Battery" would be shown on the screen in the TEST mode. For Ltl-3310A, you can view the message on the TFT LCD display.

FIRMWARE UPGRADES

6.1 Firmware Upgrades

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

- Back up the contents in the SD card on your computer.
- Install batteries and the SD card into the camera.
- Format the SD card on the camera.
- Retrieve the SD card and plug it in your computer (SD card reader may be needed). Copy and paste the FW3310.bin file in the root directory of the SD card. (Consult with the national distributor if there is an upgrade available and where to download it.)
- Retrieve the SD card and lock it, insert SD card back into the camera. Switch
 camera to TEST mode. For Ltl-3310A, the "Update FW3310.bin Successfully"
 would be shown on the TFT LCD screen.
- Retrieve card, and unlock it. Switch camera to TEST mode again, the source program FW3310.bin would be deleted automatically.
- For Ltl-3310A, insert the SD card into the SD card slot. Enter **MENU**, navigate the marker to **DEFAULT SET**, and press **OK**. For Ltl-3310B, please format the SD card in other ways.
- Re-format the SD card on the camera or in other ways. The upgrade will have been completed.

Attention: The firmware upgrade program for one model is not compatible with other models. In other word, an upgrade for Model Ltl-3310A/B only applies to that model. If a camera is accidently upgraded by running a non-compatible program, it would quit working and need to be sent back for repair. This is not covered under warranty.

LIMITED WARRANTY

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

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

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

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

Item	Parameters	
Lens	F/NO=2.4; FOV=80°; Auto IR-Cut	
IR Flash	850nm LED: 20 meters	
	940nm LED (black flash): 15 meters	
LCD	2.0" TFT LCD	
Screen(Ltl-3310A)		
Operation	6 keys	
Keypad(Ltl-3310A)		
Memory	SD card (8MB ~ 16GB)	
Photo Size	1.3MP(1280×960), 3MP(2048×1536), 5MP(2560×1920)	
Video Size	640×480(30fps), 320×240(30fps)	
PIR Sensitivity	High/Normal/Low/Off	
PIR Sensing Distance	15 meters (below 77°F/25°C at the Normal level)	
PIR Sensing Angle	60°	
Operation Mode	Day/Night	
Trigger Time	1.2 seconds	
Trigger Interval	0 Sec ~ 60 Mins; Programmable	
Shooting Numbers	1~3	
Video Length	1~60 Secs; Programmable	
Camera + Video	First take photo then video.	
Time Stamp	On/Off; Including serial No., temperature, moon phase, date and	
	time.	
Timer1	On/Off; Programmable; Accuracy error≤10s	
Timer2	On/Off; Programmable; Accuracy error≤10s	
Password	4-digit numbers(0~9)	
Device Serial No.	4 digits and/or alphabets(0~9, A~Z);	
	Turn on the serial No. setting, the picture/ video name would start	
	with serial No., makes the file easy to be classified.	
Time Lapse	On/Off; 0 Sec ~ 23 Hrs 59 Mins 59 Secs	
	Programmable	
Power Supply	8×AA	
External DC Power	Plug size: 4.0mm×1.7mm	
Supply	$6 \sim 12V (1 \sim 2A)$	
Stand-by Current	0.2 mA~0.25mA	
Stand-by Time	4~6 months (4×AA~8×AA)	
Auto Power Off	Auto power off in 3 minutes without operation.	

Power Consumption	Test mode working current(without operation):	
•	Ltl-3310A: 110mA~160mA	
	Ltl-3310B: 80mA~130mA	
	Live mode working current(with IR LED on):	
	Take video: 750mA(first 10s)~450mA(after 10s)	
	Take photo: 700mA~650mA	
Low Battery Alert	When battery level gets low, the message "Low Battery" would be	
	shown on the screen in the TEST mode.	
Interface	SD card slot; 6V DC port	
Mounting	Strap; Tripod	
Ingress Protection	IP66	
Operation	-40°F ~+158°F/-40°C ~+70°C	
Temperature		
Operation Humidity	5% ~ 95%	
Certificate	FCC & CE & RoHS	

Appendix II: PACKAGE CONTENTS

Part name	Quantity (Ltl-3310A)	Quantity (Ltl-3310B)
Digital Camera	1	1
Strap	1	1
CD	1	1
Warranty Card	1	1
User's Manual	1	1
External DC cable	1	1
(optional)		

