

PixTM CONTROLLER

PixController, Inc.

RaptorTM Wireless Camera System for M2M Connect Cloud User's Manual



Revision: 4.00a

PixController Limited 1-Year Warranty

- PixController, Inc. warrants its products to be free from defects in material and manufacture for a period of one (1) year from the date of shipment.
- PixController will, at its sole option, repair or replace any components that fail in normal use.
- Such repairs or replacements will be made at no charge to the customer for parts or labor.
- The customer is responsible for all transportation/shipping costs.
- This warranty does not cover failures due to abuse, misuse, accident, fire, water damage, theft, disappearance, misplacement, or unauthorized alterations or repairs. This warranty also does not cover normal wear and tear or cosmetic damage that does not affect functionality.

PixController Return Policy

**All camera systems are made-to-order.
We do not accept returns on any of our camera systems.
Detailed information for every product is available on our
website.
Please know what you are ordering.**

Our previous Return Policy was far more generous until we realized that some customers ordered our systems for short term/one time use and then returned the product. Customers have also purchased the systems to dissect in an attempt to replicate them.

****PixController is not responsible for operational problems we deem related to cellular service or WiFi network connection.****

FOR REPAIR CONTACT:

PixController, Inc.
1001 Corporate Lane, Suite 100
Export, PA 15632

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2. What's Included & System Updates

PixController Raptor Systems contain the following

- Raptor Unit in waterproof/weather proof enclosure
- Appropriate removable antennas for installed wireless radios
- 12V SLA 3.4AH rechargeable battery
- 12V SLA AC wall charger
- USB Flash Drive
- CD with system manual

Raptor Wireless System Updates

Firmware updates and upgrades will be available free of charge from PixController, Inc. for the life of your product. Certain versions encompassing new product features will be available for sale.

Radio updates, new radio installations, and internal/external sensor updates will be available from PixController, Inc. for purchase at anytime. Customers choosing these updates will need to contact PixController, Inc. before sending the product back for these enhancements. Please contact us at:

PixController, Inc.
1001 Corporate Lane, Suite 100
Export, PA 15632

Phone: 724-733-0970
Fax: 724-733-0860
Email: support@pixcontroller.com
Web: <http://www.pixcontroller.com>

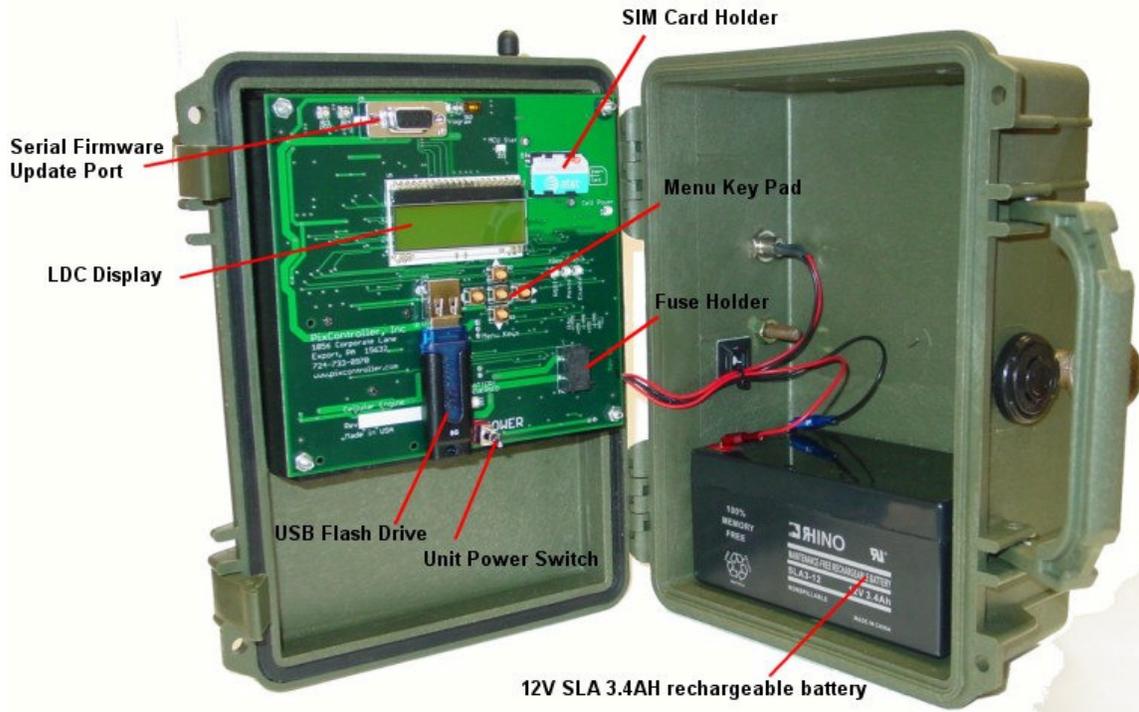
3. Raptor System Overview



Raptor Wireless System with built in motion sensor – Exterior



Raptor Wireless System with external wireless motion sensor – Exterior



Raptor Wireless System Internal Components

3.1 Introduction

The Raptor Wireless System will capture a photo and email it to you via a cellular network (*cellular radio option*) or Wi-Fi access point (*Wi-Fi radio option*) upon motion-activation. Cellular system includes an unlocked 3G HSPA cellular radio or CDMA cellular radio that will work on cellular networks worldwide. To activate the unit you will need to purchase a SIM card from any of these providers. You can either purchase a cellular data contract or use pay-as-you-go cards.

Photos are attached to an email using the popular POP3/SMTP protocol. Emails include the time, date, battery level, radio signal strength, and internal unit temperature.

The built-in camera will capture color photos at day and IR stealth photos at night that can be stored on the systems UBS Flash Drive. This battery operated system can last several months in a remote location making it the perfect security device.

PC software to setup the system is included. Features include day, night, 24 hr. operation, motion or time-lapse activation, delays between photos, option to send a daily status text email giving unit battery life, and a scheduler to disable to system during different times of the day - example: disable the system MON-FRI 8AM - 5PM for jobsite applications.

The system includes a rechargeable 12V battery and charger. Battery life depends on the number of photos taken but typically lasts several months on a single charge. There is an external charging port for solar panels or external batteries to extend field battery life.

The wireless motion sensor option allows the system to be located 50-80 feet away from the motion sensors. There is no limit to the number of wireless motion sensors that can be used.

4. Raptor System Specifications

- Size: 9-1/4"L x 7-3/4"W x 4-1/2"D
- Weight: 8 Pounds
- Waterproof Case
- Cast Steel Eye Bolts - Use MasterLock Python cable (sold separately) for unit locking
- 1/4"-20 Tri-Pod Camera Mount
- LCD Setup Screen
- Menu Setup Buttons
- On-board USB Host Port - Allows USB Flash Drive Devices for storage and program updates
- PC Setup Software Included
- Scheduler Included
- 12V 3.4AH SLA Battery & Charger
- PIR Trigger Time ~1 second
- Wireless Sensor Option for Covert Setup
- CDMA 850MHz/1900MHz or 3G HSPS 850/900/1800/1900 MHz Cellular Radio
- SMA Cellular Antenna Connector
- 2 Mega Pixel Camera (1600 x 1200) resolution
- Cellular Transmission time ~30 second per photo
- PIR Motion Detection to 80 Feet
- PIR & Day/Night Sensitivity Adjusting POTS
- Email Protocol: SMTP/POP3
- FTP (File Transfer Protocol)
- Emails include photo, time/date, battery level
- Time-Lapse Mode
- Daily text status email of battery life (optional)
- Set delays between photos

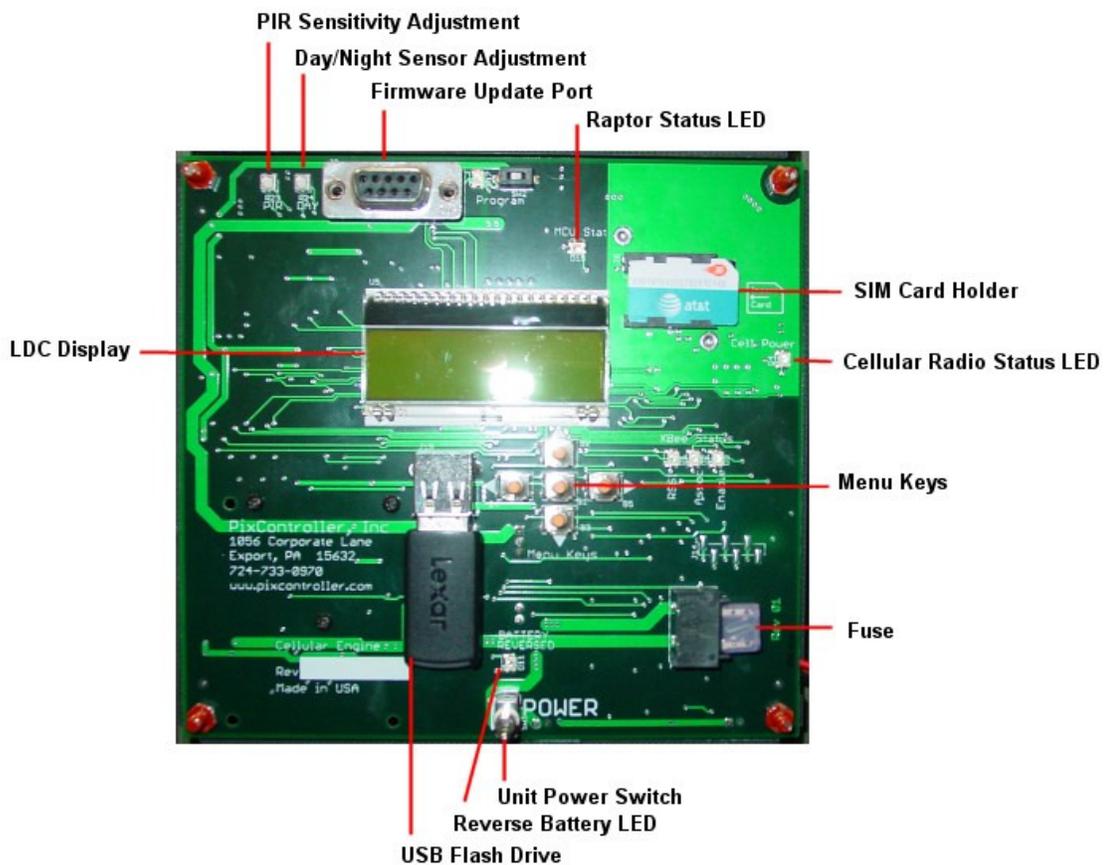
5. Raptor System Setup

5.1 Getting Started

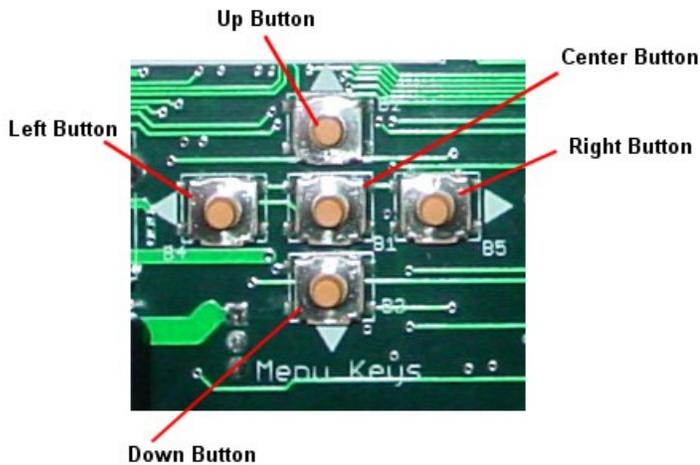
Before you power on your Raptor Wireless System we suggest you become familiar with the systems interior and exterior components as we will refer to them throughout this document. The Raptor cellular customers have the option to purchase cellular data plans through PixController, Inc. for Verizon Wireless, AT&T, or T-Mobile cellular networks. PixController managed cellular data plans include free set up including programmed email addresses and no activation fee.

Be sure that your 12V battery is fully charged. There is a 12V wall charger which was included with your Raptor system. We suggest you remove the battery and charge the system before starting.

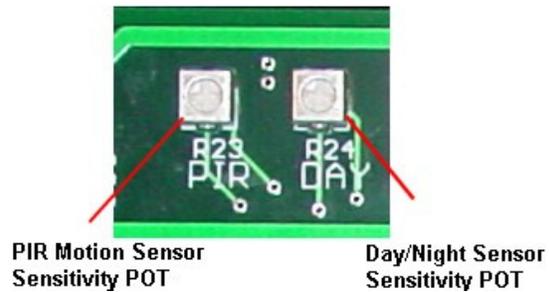
5.2 Raptor Electronics Overview



Raptor System Board



Raptor Menu Keypad



Adjusting Sensors

PIR Sensitivity Adjustment

You can adjust the sensitivity of the PIR motion sensor by adjusting the PIR Sensitivity POT. Typically you will not need to adjust this setting. However, if you need to make the PIR motion sensor more or less sensitive use a small Philips.

Note: This is a single turn POT and does not rotate continuously. Extreme caution must be made when turning the POT not to damage it.

- Rotate the POT ¼ turn to the Right to make the motion sensor “Less Sensitive”
- Rotate the POT ¼ turn to the Left to make the motion sensor “More Sensitive”
- The middle POT setting is the default sensitive setting

Day/Night Sensor Adjustment

You can adjust the sensitivity of the Day/Night sensor by adjusting the Day Sensitivity POT. The Day/Night sensor is located behind the PIR lens on the front of the Raptor Wireless Camera system. Typically you will not need to adjust this setting. However, if you need to make the PIR motion sensor more or less sensitive use a small Philips.

Note 1: This is a single turn POT and does not rotate continuously. Extreme caution must be made when turning the POT not to damage it.

Note 2: You must put the Raptor system into Diagnostic mode before adjusting this setting. Power on the Raptor system and press the “Center” menu button to go into Diagnostic mode. Move to configure mode by pressing the right or left menu keys until the first line of the LCD display says “[cfg] Cam Pwr”. Watch the “MCU Stat LED”. The MCU Stat LED will be lit when the sensor sees day and not lit when the sensor sees dark.

- Rotate the POT ¼ turn to the Right to make the day/night sensor “Less Sensitive”
- Rotate the POT ¼ turn to the Left to make the day/night sensor “More Sensitive”
- The middle POT setting is the default sensitive setting

Firmware Update Port

The port is for updating the firmware on your Raptor Wireless System. Using a RS-232 to USB cable we can update the firmware on your Raptor Wireless System. See section 13 of this manual for information on updating the Raptor Firmware

Raptor Status LED

The Status LED will blink for errors, system power up, and PIR walk test mode detection.

SIM Card Holder

This is where you will place the SIM card from your cellular provider. The card slides in/out from the right.

Cellular Radio Status LED

The LED will light up upon power up of the Raptor System letting you know if you have cellular connection.

Menu Keys

These 5 push button keys are used for changing or displaying Raptor System Settings shown on the LCD display.

Fuse

There is a 12V 3A fuse that will protect your Raptor System from any over power battery damage. If the fuse is blown please contact PixController, Inc. for a replacement.

Unit Power Switch

This is the main power switch of the Raptor Wireless System. Simply turn the power switch on when activating the Raptor System.

Reverse Battery LED

If the user connects the 12V SLA battery backwards by mistake, this LED will light up. Your Raptor System will not be damaged. Simply switch the battery connectors to fix the problem.

USB Flash Drive

Your Raptor System includes a 2Gb USB Flash Drive. This Flash Drive should be removed from the system and inserted into your PC when setting the system up for email and cellular provider settings and replaced into the Raptor System before use. Photos taken by your Raptor system will also be stored on the USB Flash Drive.

LCD Display

The LCD display will show you the status and settings of the Raptor System.

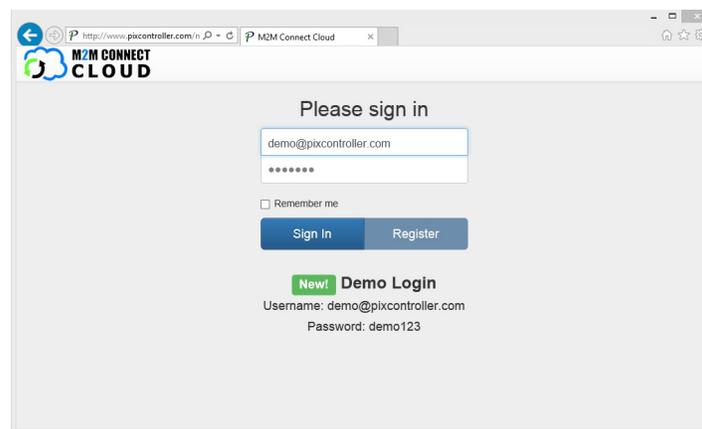
5.3 Logging into the M2M Connect Cloud

The PixController, Inc. M2M Connect Cloud is a complete IoT "Internet of Things" web-based cloud solution for all wireless PixController, Inc. wireless products. The cloud provides an easy to manage dashboard interface for all of your remotely deployed systems whether they are security cameras, environmental data loggers, or streaming video systems. Manage all of your devices from your PC, Mac, Table, and Smart Phone devices with a browser app.

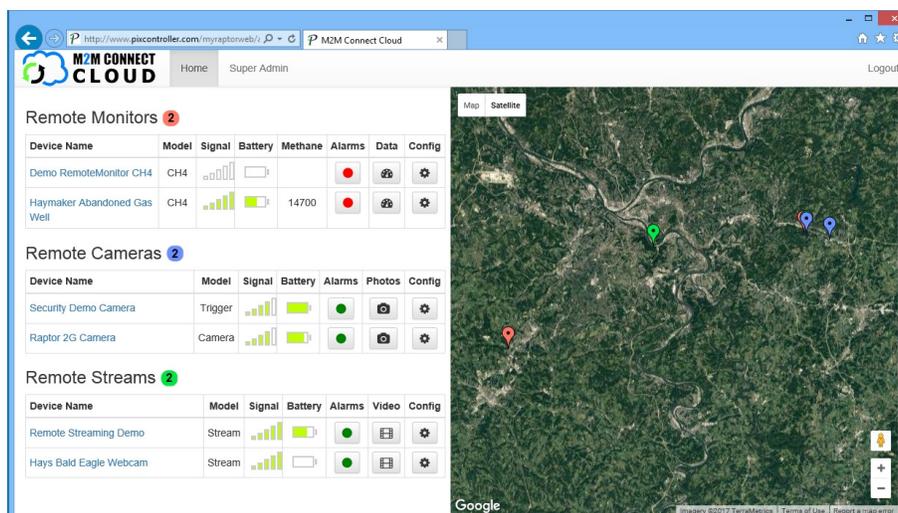
Note: Your system is pre-configured for the M2M Connect Cloud before shipping.

Once you have received your username and password to your M2M Connect Cloud account go to the M2M login page and log into your account. If you do not have an account you can register for an account at the login page. To access the M2M Connect Cloud type this address into your web browser:

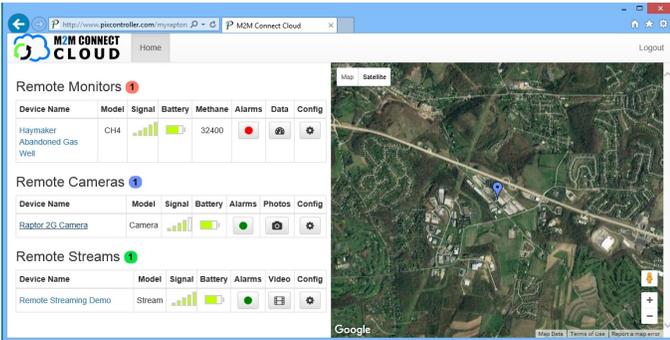
<http://www.pixcontroller.com/myraptorweb/admin/>



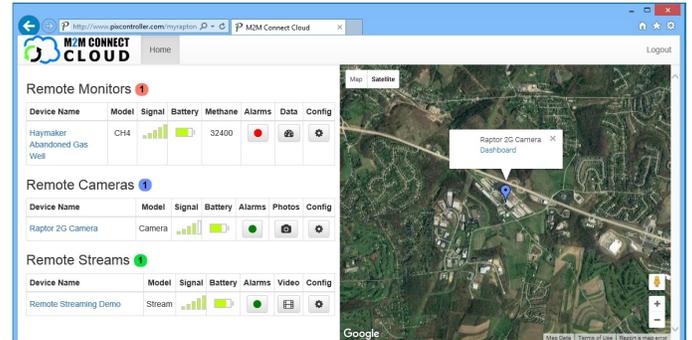
The M2M Connect Cloud dashboard displays all of your connected PixController devices on an easy to manage Google Maps display. Device status information including signal level, battery level, and alarm status are readily available from the dashboard interface. Quick links provide access to device data display and device management.



M2M Connect Cloud Dashboard



Click on the device name to center the Google Map pin location of the device installed in the field.



Click on the Google Map pin to access the Device data panel.

6. M2M Connect Cloud Configuration

The M2M Connect Cloud supports all Remote Camera, Remote Stream, and Remote Monitor devices manufactured by PixController, Inc. Each device type will be displayed under the appropriate category listed below.

Remote Cameras 2

Device Name	Model	Signal	Battery	Alarms	Photos	Config
Security Demo Camera	Trigger					
Raptor 2G Camera	Camera					

If the device has been off over a 24-hour period the signal and battery will not be lit.

6.1 M2M Connect Cloud Introduction

The console panel will show the model type, current signal, current battery level, alarm status, link to the device page listed at "Photos", and a link to the device configuration listed at "Config". Click on the "Config" icon to change any of the Raptor camera settings while the camera is in the field.

6.2 M2M Connect Cloud Configuration Setup – General Tab

The screenshot shows the 'Remote Camera Configuration - Raptor 2G Camera' interface in the M2M Connect Cloud web application. The 'General Settings' tab is active, showing configuration options for the camera. The 'Trigger Mode' section has 'Sensor Events' selected. The 'Minimum Time Delay Between Triggers' section has 'Hours' set to 0 and 'Minutes' set to 0. The 'Time Lapse Interval' section has 'Daily' selected with 'Minutes' set to 30. The 'Time Lapse First Trigger' section has 'Top of the next hour after system startup' selected. The 'Low Battery Shutdown' section has a value of 10.2. The 'LED Trigger Indicator' section has 'Off' selected. The 'Bridge Timeout (secs)' is set to 0. There are checkboxes for 'Send Startup Notification' (checked), 'Disable Trigger', 'Disable Camera', and 'Power Peripheral On Startup'. A 'Save Camera Configuration' button is at the bottom.

Trigger Mode

The Raptor System can be configured to be triggered by the internal PIR motion sensor, or external wireless motion sensor depending on which system you have purchased, or the Raptor system can be setup in a Time Lapse Mode

When setting the Raptor System in PIR motion trigger mode select the “Sensor Events” option. Here you can setup the “**Minimum Time Delay Between Triggers**” in hours/minutes. This option is for limiting the number of photos that will be sent by the Raptor System. For setting in high traffic areas you may want to adjust the setting to 5 or 10 minutes. In low traffic areas you can keep the setting at the default setting of 1 minute.

Keep in mind that your battery life will be impacted greatly by the number of photos you send a day. If you are setting the Raptor System up in a high traffic area where you may be sending as many as 100 photos a day we highly recommend using a solar panel or external battery for keeping the system charged.

When setting the system up in “**Time Lapse**” mode you can specify the time between photos in the “**Time Lapse First Trigger**” box.

Low Battery Shutdown Slider

Slider control for setting the voltage below which normal camera operation will be suspended. Range is 10.0 – 11.9 volts in steps of 0.1 volt. On systems equipped with solar panels, the battery will be re-tested every 24 hours and the camera operation will be resumed when the voltage rises 0.25 volts above this setting.

Low Battery Shutdown

User-defined threshold voltage from the config program is used to shut down the Raptor to prevent battery damage. The battery voltage is compared to this threshold whenever a normal event occurs (sensor trigger, time-lapse trigger, or status e-mail). If the voltage is below this threshold, then the e-mail will be sent normally, but will include a “low-battery shutdown” message. The Raptor will then go into a low-power shut-down mode and stop responding to events. Every 24 hours, the battery will be re-tested, and if the voltage has recovered to at least 0.25 volts above the threshold, such as if a solar charger is installed, the Raptor will return to normal operation, and will send an e-mail notification of this fact.

Low Battery Start-up Warning

During self-test, if the battery voltage is below the user-defined threshold, startup will pause and a warning message will be displayed. Press the center button to continue start-up. Be advised, if the start-up is completed in this condition, the system will most likely go into shutdown mode after the first event (as described previously). In other words, only start up in this mode if you don't mind missing (at least) the first 24 hours and are confident the solar charger will bring the battery up to normal charge.

Low Battery Start-up Error

During self-test, if the battery voltage is below an absolute minimum value (set to 9 volts at this time), an error message will be displayed and the system will not start up. As with all failed self-tests, in Diagnostic Startup you can press the center button to continue into Diagnostic Mode.

LED Trigger Indicator

When this mode is set a LED will blink every time motion is detected from the PIR sensor. This will be lit up through the PIR lens on the Raptor System. The default mode is off.

Bridge Timeout (General Tab):

For systems that utilize a Wifi/Cellular bridge, this is the maximum amount of time to wait to establish communication with the cellular network on power-up. Leave this setting at zero (0) for normal Raptor camera systems. When this is non-zero, there will be a phase during start-up during which the Raptor will try to connect to the network, and the time remaining before timeout will be shown on the LCD display.

Send Startup Notification (General Tab):

If this is checked, the Raptor will send a status e-mail when the system switches to Auto Mode during a normal start-up.

Disable Trigger And Camera (General Tab):

This new control carries over from previous versions, but is related to the above two functions so it is repeated here. Checking this box will cause the Raptor firmware (V1.15a or later) to ignore the sensor/trigger module and camera module. This is intended for non-Raptor applications, where sensor and camera functionality is not needed. Note that, when checked, the label for this check-box turns red as a warning to the user to make sure this is what they really want.

Be sure to press the “Save Camera Configuration” button at the bottom of the tab for changes to take place.

6.3 M2M Connect Cloud Configuration Setup – E-Mail Tab

The screenshot shows a web browser window with the URL <http://www.pixcontroller.com/myraptorweb/admi>. The page title is "Remote Camera Configuration - Raptor 2G Camera". The navigation tabs include "General Settings", "Email", "Camera", "Schedule", "COTA", and "Alarms / Alerts". The "Email" tab is active.

Trigger Email Format

- Attach Image
- Text Only
- None

Status E-Mails

- None
- Daily Hours: 8
- Weekly Monday

E-Mail Format

- Plain Text
- HTML

E-Mail Composition

Email Recipients (One Per Row)

- kris@pixcontroller.com
- photos@pixcontroller.com

Subject Line SXH Camera Test

Sending Address

Save Camera Configuration

Trigger E-Mail Format

The Trigger E-Mail Format box lets you adjust how you are notified by the Raptor System. Selecting the “**Attach Image**” option will send a photo and text message with every trigger. Selecting the “**Text Only**” option will only send a text message when a trigger event happens, but the photo will be saved on the USB Flash Drive. The Text Only option can be used in situations where you are limited by cellular bandwidth or do not wish to charge your cellular account with data fees. Lastly, there is a “**None**” option. In this mode the Raptor System will not attempt to send any data via the cellular radio. This setting is used in areas where there is no cellular coverage but you wish to still collect photos with your Raptor System. In this mode photos will be stored to the USB Flash Drive only.

Status E-Mails

The Status E-Emails box lets you setup the Raptor System to send you a system status email based on the settings. If activated the Raptor System will email you once a day, or once a week, depending on how you set it up and give you a battery status, cellular signal status, and internal temperature status. This setting is very useful to make sure your Raptor System is working fine in the field.

E-Mail Composition

The E-Mail Composition window will let you enter the email addresses the Raptor System will send the emails too. Up to 10 email addresses can be entered. Note: you must change the default email address on initial setup by changing or removing the null@null.com email address. This is just a place holder.

In this box you can also change the “Subject Line” and “Senders Address”

Be sure to press the “Save Camera Configuration” button at the bottom of the tab for changes to take place.

6.4 M2M Connect Cloud Configuration Setup – Camera Tab

The screenshot shows a web browser window with the URL <http://www.piccontroller.com/myraptorweb/admin>. The page title is "Remote Camera Configuration - Raptor 2G Camera". The navigation tabs are "General Settings", "Email", "Camera", "Schedule", "COTA", and "Alarms / Alerts". The "Camera" tab is selected. The form contains the following fields:

- Camera Description:** A text input field containing "SXH Camera Test".
- Camera ID:** A dropdown menu showing "1" with the note "(Used For Creating Image Names)".
- Camera Trigger Speed:** A slider control with "Speed: 1.2" and a range from 1.0 to 2.0.
- Image Resolution (Built-In Camera Only):** A dropdown menu showing "1280 x 960" pixels.
- Trigger Parameters:** A section with "Trigger Response Delay" set to "0" Mins and "0" Secs.
- Save Camera Configuration:** A button at the bottom of the form.

Camera ID

The Camera ID setting is used to set the filenames the Raptor Systems sends to you, In the case that you are using more than one Raptor System you can set the Unit ID to let you know which system the file is sent from

Camera Description

This is a text box that will send this message in the body of each email sent by the Raptor System. You can include information about location of the unit and such.

Camera Trigger Speed

The Camera Trigger Speed setting lets you adjust how long the camera is powered on before the photo is taken. The longer the camera trigger speed the longer the camera sensor automatic gain can adjust to the lighting and produce a more color accurate photo. When adjusting the trigger time down to 1.0 second or under photos will have a pinkish tint to them.

Trigger Response Delay

This setting is only used for Raptor Remote Trigger camera models. This setting keeps the camera powered on after a trigger event looking for commands to trigger the solenoid trap. In order to use this setting the Ten Minute/Trap setting must be selected in the COTA Tab.

Image Resolution (Built-In Camera Only)

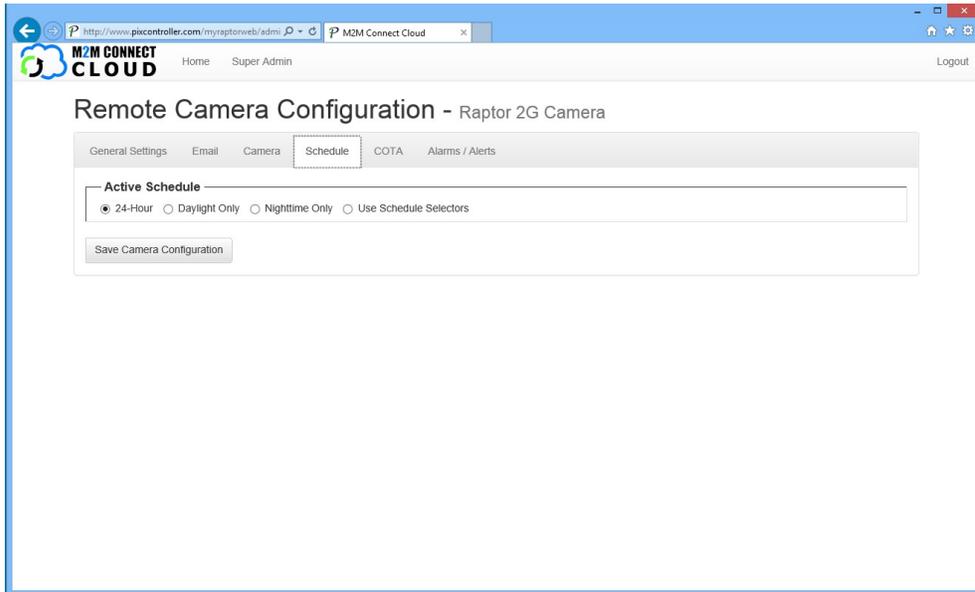
This setting allows you to adjust the camera resolution the photo is captured in. Lower resolution setting will transmit photos faster and save you on cellular data charges.

Video Clip Duration (DVR Cameras Only)

This setting is only for our Law Enforcement Systems which include a built-in DVR.

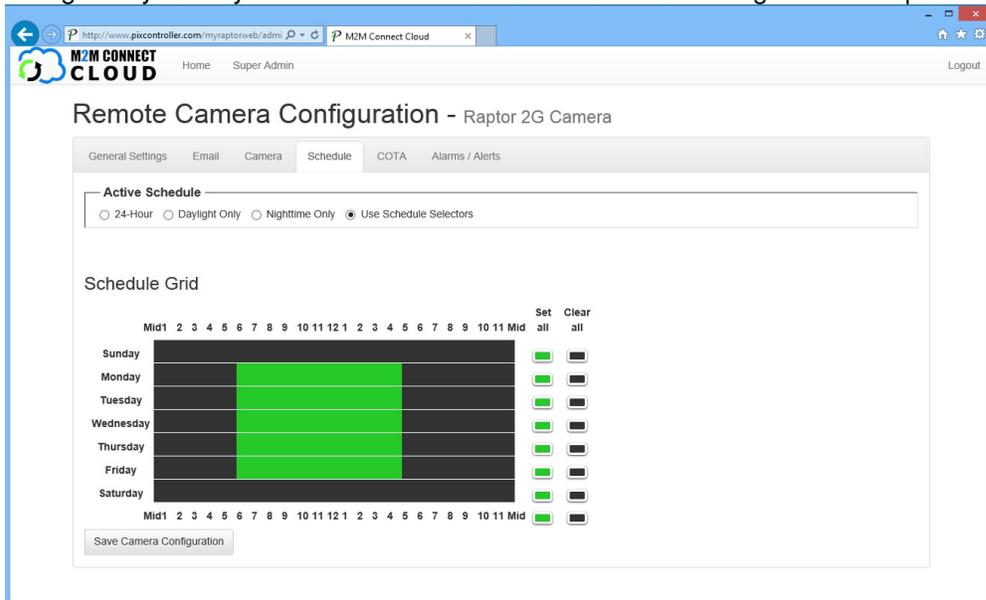
Be sure to press the "Save Camera Configuration" button at the bottom of the tab for changes to take place.

6.5 M2M Connect Cloud Configuration Setup – Schedule Tab



Active Schedule

The Active Schedule box lets you setup the Raptor System for 24-hour activity, Day only activity, or Night only Activity. There is also a “Use Schedule Grid” setting which is explained below.



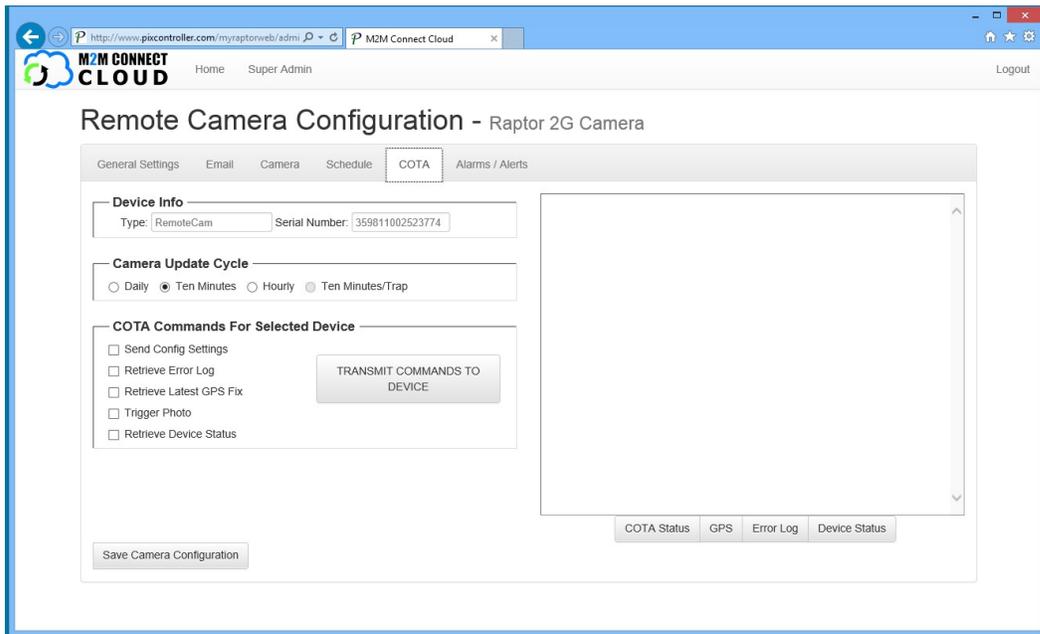
Use Schedule Grid

When selecting the “Use Schedule Grid” setting this allows you to setup blocks of time where the Raptor System will not take trigger events. This is very useful when setting the Raptor System up in a work place setting where you want the Raptor System to be inactive during work hours. Simply drag you mouse across the blocks to fill them in. The green high lighted colors will let you set times the Raptor System will be active. You can also set the “Set” or “Clear” buttons off to the right to set a whole day or clear a whole day.

In the above example the Raptor system will be set up to only look at trigger events or time-lapse events from 8:00 AM to 5:00 PM Monday through Friday.

Be sure to press the “Save Camera Configuration” button at the bottom of the tab for changes to take place.

6.9 M2M Connect Cloud Configuration Setup – COTA Tab



The screenshot shows the M2M Connect Cloud web interface for configuring a Raptor 2G Camera. The 'COTA' tab is active, showing the following configuration options:

- Device Info:** Type: RemoteCam, Serial Number: 359811002523774
- Camera Update Cycle:** Radio buttons for Daily, Ten Minutes (selected), Hourly, and Ten Minutes/Trap.
- COTA Commands For Selected Device:** Checkboxes for Send Config Settings, Retrieve Error Log, Retrieve Latest GPS Fix, Trigger Photo, and Retrieve Device Status. A 'TRANSMIT COMMANDS TO DEVICE' button is located to the right of these checkboxes.
- Buttons:** A 'Save Camera Configuration' button is at the bottom left. At the bottom right, there are buttons for 'COTA Status', 'GPS', 'Error Log', and 'Device Status'.

This option allows a user to remotely configure all Raptor settings by transmitting configuration files to Raptor camera units in the field from the M2M Connect Cloud.

Device Info

You can modify the Device Type in this section. **Caution: Be sure to only set this option if you have the proper device model hardware otherwise the device may not function properly.**

Camera Update Cycle

The Camera Update Cycle will wake the Raptor hardware up to perform COTA tasks on the scheduled cycle. Shorter update cycles will enable faster response to commands but will use more battery power.

COTA Commands For Selected Device

Select all functions you wish to send to the Raptor device. Once selected press the “TRANSMIT COMMAND TO DEVICE” button. The action will happen on the next Camera Update Cycle.

Buttons

COTA STATUS: Displays the current COTA status from the Raptor device.

GPS: If the GPS position was requested this will display the position.

Error Log: Displays the error log if requested.

Device Status: Displays battery and signal if requested.

Be sure to press the “Save Camera Configuration” button at the bottom of the tab for changes to take place.

7. Powering the system on

Before powering on your UndercoverEye Raptor system in the field be sure you have the external video cable and bullet camera connected to the UndercoverEye Raptor system. Next, setup the wireless PIR motion sensors within range of your UndercoverEye system.

When turning power on to your Raptor System LCD screen will display the current firmware version number then begin a self test of all of the modules present in your Raptor System. These modules will be shown on the LDC screen they are tested.

Next, if the Raptor System is configured with a cellular radio the Raptor will connect to the cellular network and display the cellular signal strength. Note, if you need do increase your cellular signal level you can attach a Yagi Direction antenna in place of the small monopole cellular antenna included with your Raptor system.

Next, the system will show you the battery level and system time & date pulled from the cellular tower. After this period the Raptor System will enter a 1-minute walk test mode. The red LED will blink 5 times letting you know it's entering this mode.

At this point you can move around the camera setup and check out the PIR area. The green LED's will light when motion is detected. After the 1 minute automatic walk-test phase expires the red LED will blink 5 times letting you know the camera system will now become active.

The Raptor system will now enter a sleep mode to save battery power. Once a wireless sensor is triggered the Raptor system will wake up, capture a photo from the camera and start the DVR into recording mode. The photo will then be emailed to the email addresses setup on the USB flash drive. After complete the Raptor system will be put back into sleep mode.

NOTE: Be sure not to power on/off and back on the system too quickly. This will cause the internal motion sensor to lock up and disable the Raptor system. Let the system off for a minimum of 30 seconds before powering it on again.

8. Diagnostics Mode

To enter diagnostic mode power the System on and hold down the center menu key button. In this mode you can check the status of the cellular or WiFi signal, battery voltage, and see all of the system parameters. This is a powerful option to test the Raptor Wireless System. Photos can be manually taken and sent via SMTP (Cellular or WiFi) or FTP (Cellular or WiFi). Diagnostic mode will also allow you to edit most of the Raptor settings in the field without using a PC.

Usage:

Press the “Right” and “Left” menu keys to go to each Diagnostic Menu item. Press the “Up” and “Down” menu button to see all options available for each displayed option.

1. Power on the Raptor main power switch. You will see the following screen on the LCD display showing the current version number of the Raptor Firmware installed on the system:



2. Just after you turn the main power switch on press the “center” menu key to enter Diagnostic Mode.



3. Press the “Right” or “Left” menu buttons to access each function of Diagnostic mode. Below we will cover each Diagnostic mode by selecting the “Right” menu button.



A. SIGNAL



The SIGNAL mode will continually show the signal strength of the radio, either Cellular or WiFi. In this mode you can adjust your external antenna or move the Raptor system to gain the best signal level.

B. BATTERY LEVEL



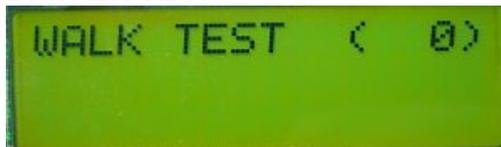
Displays the current battery level in volts. Note, if you have a solar panel attached to the system we suggest you remove it to view the current battery level under no charge.

C. DATE/TIME

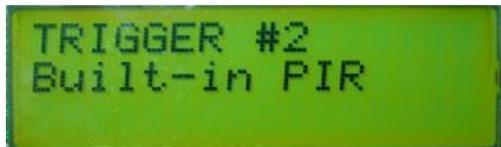


Displays the current date and time from the network. If the cellular modem is installed this will pull the date/time from the cell tower where the WiFi modem will pull the date/time from the router network.

D. WALK TEST

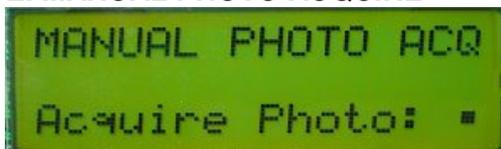


Walk-Test mode will let you test the sensor detection from either the built in sensor or external wireless sensor. When the Raptor system is triggered in this mode it will display the trigger event and from which type of sensor triggered the system.



This is a very useful mode when setting up the Raptor system in the field.

E. MANUAL PHOTO ACQUIRE



This mode will let you manually take a photo with the Raptor camera. Press the "Center" menu button to acquire the photo. Photos will be stored on the USB Flash Drive.

F. MANUAL PHOTO SEND PLUS ATTACHMENT



This mode will send the photo taken in manual acquire mode over your modem device to test out the wireless network. Photos will be sent email addresses setup in the configuration settings. This is a very useful mode to test all aspects of the wireless network, either cellular or WiFi, in the field or office before deployment.

G. MANUAL TEXT EMAIL



Manual test email mode will send a text email sending all of the Raptor information such as time/date, battery level, modem signal level to the email addresses setup in the configuration settings. This will let you test your wireless network before deployment of the Raptor unit.

H. MODEM STATUS



Displays all modem settings such as the IMEI number, phone number in the cellular modem, or SSID if the WiFi modem is installed.

I. CONFIGURE RAPTOR SETTINGS



The Configuration [Cfg] option will let you see and adjust most of the Raptor settings. Typically, the Up/Down buttons are used to select the previous and next config parameter, and the Center button is used to go into Edit Mode for a particular parameter. The Right/Left buttons move out of the Config Menu and to the next/previous diagnostic screen.

In Edit Mode, the Up/Down buttons are used to adjust the parameter setting, while the Center button is used to finish editing and accept the modified parameter. For parameters with a fixed number of choices, each Up or Down button press/release will advance to the next value. For those with a numerical range of values, pressing the Up or Down button will cause the value to change one step; continuing to hold the button will change the value to rapidly until released.

Configuration values for Wifi network name, Wifi security protocol, Wifi password/key, Wifi time servers, and Wifi time specs. Note that these values will only be visible when the Raptor hardware is configured for Wifi operation. The APN specs for Cellular internet connection is now only visible when the Raptor hardware is configured for Cellular operation. The new Config menu lineup is shown below:

Label	Editable?	Values
Cam Pwr	Yes	Off, On (not saved in config file)
FileStamp	No	Date/time that file was saved, preceded by source: P=PC; L=Local; C=Config-over-the-air
Sched	Yes	24-hour, Daylight only, Nighttime only, Schedule Grid
Mode	Yes	Sensor, Time Lapse
Next Trig	Yes	0 – 1439 minutes
Email Fmt	Yes	None, Text Only, Attach Image
Stat Mail	No	Status e-mail frequency and time
Low Batt	Yes	10.0 – 11.9 volts in 0.1 volt increments
LED	Yes	Off, On
Bridge T/O	Yes	0-600 seconds
Strt Mail	Yes	DISABLED or ENABLED
Cam/Trig	Yes	DISABLED (camera and trigger modules disabled) or ENABLED (normal operation)
Cam AGC	Yes	0.100 – 5.000 sec in 0.1 sec increments
DVR Mode	Yes	Continuous, Fixed, None
DVR Time	Yes	30 – 600 minutes (this item is only visible when DVR Mode is set to Fixed)
DVR Rate	Yes	5-30 frames per second
DVR Format	Yes	QVGA (320x240) D1 (720x480)
Cam ID #	Yes	1 – 99
Cam Descrp	No	Camera description text
APN Addr	No	APN server address ³
APN User	No	APN username ³
APN Pass	No	APN password ^{1,3}
Wifi SSID	No	Name of the Wifi network selected ⁴
Wifi Cxn	No	Security Protocol: Unsecured, Secure (WEP64), Secure (WEP128), Secure (WPA), Secure (WPA2) ⁴
Wifi Key	No	Wifi Passphrase (WPA) or key (WEP) ^{1,4,5}
Time Srv1	No	Primary time server address ⁴
Time Srv2	No	Secondary (backup) time server address ⁴
Wifi Time	No	Time zone specifier (hour offset from UTC/GMT) and daylight-savings setting. ⁴
COTA Cyc	Yes	Disabled, Every 10 Minutes, Hourly, Daily
COTA Addr	No	COTA server address
COTA User	No	COTA username
COTA Pass	No	COTA password ¹
FTP Addr	No	FTP server address ²
FTP User	No	FTP username ²
FTP Pass	No	FTP password ^{1,2}
SMTP Addr	No	SMTP server address
SMTP Misc	No	SMTP port number, Authentication (Y or N)

		and SSL (Y or N)
SMTP User	No	Username for SMTP authentication
SMTP Pass	No	Password for SMTP authentication ¹
Subject	No	E-mail subject line
Mail From	No	E-mail sender address
Rcpt n	No	One or more e-mail recipient addresses

Note 1: Passwords are hidden with **** format

Note 2: FTP items are only displayed when FTP is selected in the RaptorConfig program.

Note 3: APN items are only displayed when the Raptor is configured with cellular hardware.

Note 4: Wifi items are only displayed when the Raptor is configured with Wifi hardware.

Note 5: Wifi Key is only displayed when the Raptor is configured for a secure connection.

For the un-editable text fields, if they are too long to display on the 2nd and 3rd line of the LCD display, they will be truncated with an ellipsis (...) at the end. If more than one e-mail recipient is configured, each will be displayed as a separate parameter.

Self-Test: During self-test, a new step will be seen if Wifi is installed. This is noted as “Flashing NVRAM” where the configuration settings are checked and the Wifi NVRAM is updated if necessary. Note that if certain items are changed in the configuration program, this step can take up to 30 seconds for the changes to register. The “Flashing NVRAM” message will be displayed during this process.

Signal Meter: In Wifi mode, the signal meter will display the name of the Wifi network at the bottom of the LCD display. In diagnostic mode, the signal level is reported as 0-100% (rather than the dB display used for Cellular).

Modem Information Menu: The modem information menu in Diagnostic mode contains information relevant to the Wifi modem and the current Wifi connection, including modem software revision, and connection security protocol. The modem information menu is unchanged when a Cellular modem is installed.

Cellular Modem Information Menu: Cellular-equipped Raptor systems will include a new item in the modem information menu (Diagnostic Mode):

- **Phone #:** This is the cellular telephone number associated with the wireless SIM card currently installed in the Raptor.

Wifi Modem Information Menu: Wifi-equipped Raptor systems will include two new items in the modem information menu (Diagnostic Mode):

- **MAC:** This is the Media Access Control address, which is unique to each Wifi modem.
- **IP Addr:** This is the current IP address assigned to the Raptor by the Wifi access point.

Modem Menu (Diagnostic Mode): On Raptor units equipped with cellular capability, a new item will appear in the Modem menu. This item is denoted in the menu as SMS. When this item is displayed, the LCD will show how many received SMS text messages are currently in memory. If there are no messages, this is all that will be displayed. If there are messages, then instructions will show that you can hit the center button to read the SMS messages.

SMS Menu (Diagnostic Mode): Once the SMS menu is displayed, a preliminary screen will be displayed instructing that the East/West buttons can be used to select the next/previous text message; the North/South buttons can be used to scroll through a currently displayed text message; and the center button can be used to bring up a sub-menu.

The Sub-Menu gives 3 or 4 selections:

Selection	Action(s)
QUIT MESSAGE READER	Return to the Modem menu
DELETE MESSAGE	Delete the current message (if applicable)
DELETE ALL	Delete all text messages
BACK TO MESSAGE	Return to displaying the current message without performing any other actions.

When a text message is displayed, the LCD will contain header information and the contents of the text message, all of which can be scrolled using the North/South buttons:

Display Position	Content
Line 1	Message number, where #1 is the most recently received, and sender ID (typically the cell phone number from which the message was sent).
Line 2	Date and time stamp of the message
Subsequent lines	The contents of the text message

Remember that, while displaying a text message, besides scrolling the message with the North/South buttons, you can select the next/previous message with East/West buttons, or bring up the action sub-menu by pressing the center button.

9. Raptor System Emails

When the Raptor Wireless System is setup to send emails in SMTP format this will include a photo attached in JPEG format and the email text body. The email will include a descriptive text body which includes important information about the Raptor Wireless system including battery level, radio signal strength, internal temperature, and GPS position if the GPS receiver option is installed in your unit.

Note: If the GPS unit is installed a link to Google Aerial Map photo and Bing Aerial Map photo are embedded in the email text body. By clicking on these links will bring up a browser window showing you the current location of your Raptor Wireless System.

9.1 Email Example with Photo and GPS

Raptor System Email with Photo Attached Example



Subject: Raptor Cellular Camera
Date: 30 Jul 2010 10:09:46 -0700

Camera Description: PixController, Inc. Raptor Cellular Camera - Cellular Demo Camera #6

Trigger Date: Fri, 30 Jul 2010
Trigger Time: 10:08:26 -0400
Trigger Source: Built-in PIR

Signal Strength: Excellent (5/5)
Cellular Operator: AT&T
Battery Level: 100% (12.7 volts)
Internal Temperature: 88F (31C)

MOST RECENT GOOD GPS POSITION:

Lat/Long: 40.40324°, -79.60368° (40° 24.1946' N, 79° 36.2206' W)
Elev: 1149' (350 m)
Quality: Good
Timestamp: 30 Jul 2010 10:08:00 -0400

```
<html><body><a href="http://maps.google.com/?q=40.40324,-79.60368+(Raptor%20Camera)&z=18&t=h">Click for Google Map</a><br><a href="http://www.bing.com/maps/default.aspx?v=2&cp=40.40324~-79.60368&style=h&lvl=18&sp=Point.40.40324 -79.60368 Raptor%20Camera">Click for Bing Map</a><br></body></html>
```

Filename on flash drive: \PIX\IMAGES\00009\03314433.jpg

Attachment Filename: Cam00_20100730_100826.jpg

<<<This e-mail auto-generated by the PixController Raptor V1.13d>>>

9.2 Status Message Example

Raptor System Status Text Message Example

Subject: Camera 1 Status

Date: 29 Jul 2010 08:01:18 -0700

Camera Description: Raptor Cellular Camera

Trigger Date: Thu, 29 Jul 2010

Trigger Time: 08:00:00 -0400

Trigger Source: No trigger - this is a status e-mail

Signal Strength: Fair (2/5)

Cellular Operator: AT&T

Battery Level: 100% (12.8 volts)

Internal Temperature: 75F (24C)

CURRENT GPS POSITION:

Lat/Long: 40.41424°, -79.65140° (40° 24.8543' N, 79° 39.0839' W)

Elev: 1084' (330 m)

Quality: Good

```
<html>
```

```
<body>
```

```
<a href="http://maps.google.com/?q=40.41424,-79.65140+(Raptor%20Camera)&z=18&t=h">Click for Google Map</a><br><a href="http://www.bing.com/maps/default.aspx?v=2&cp=40.41424~-79.65140&style=h&lvl=18&sp=Point.40.41424 -79.65140 Raptor%20Camera">Click for Bing Map</a><br></body>
```

```
</html>
```

<<<This e-mail auto-generated by the PixController Raptor V1.13b>>>

9.3 Sending photos to your cellular phone

You can send photos to your cellular phone as well as your PC. Sending photos to your cellular phone is a very powerful feature of the Raptor Wireless System. If your cellular contract is setup to receive photos you will need to put the address of your cellular phone into the Raptor Wireless Camera using the following format shown below. These examples show the most common USA cellular providers. Please contact your cellular provider

AT&T

[10-digit phone number]@mms.att.net

example: 2045551234@mms.att.net

Sprint

[10-digit phone number]@pm.sprint.com

example: 2045551234@pm.sprint.com

Verizon

[10-digit phone number]@vzwpx.com

example: 2045551234@vzwpx.com

T-Mobile

[10-digit phone number]@tmomail.net

example: 2045551234@tmomail.net

US Cellular

[10-digit phone number]@mms.uscc.net

example: 2045551234@mms.uscc.net

Rogers (Canada)

[10-digit phone number]@pcs.rogers.com

example: 2045551234@pcs.rogers.com

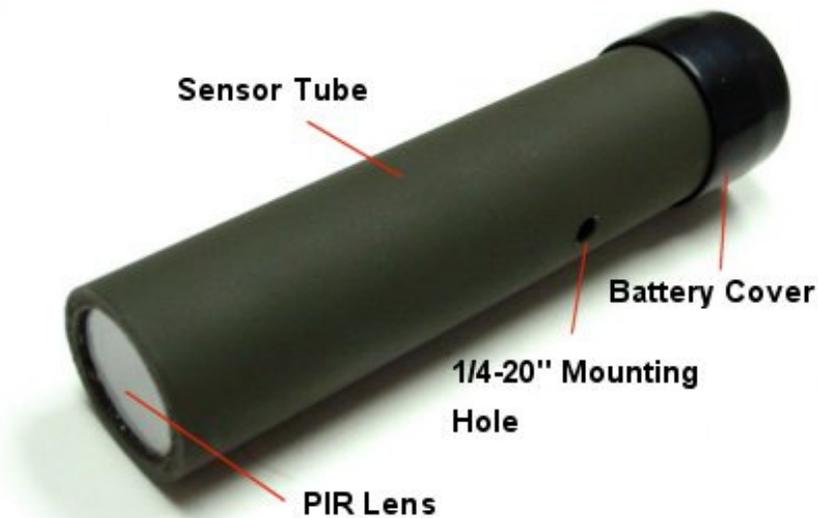
For a list of other cellular network SMTP email addresses please see:

<http://www.notepage.net/sntp.htm>

10. Wireless RF Sensors

10.1 Wireless Sensor Introduction

PixController, Inc. produces several different wireless sensors compatible with the Raptor wireless sensor version. Sensor types range from but not limited to PIR motion detection, magnetic switch contact, vibration sensor, and pressure mat sensor. The most common sensor is the PIR motion detection sensor which is briefly covered in this manual. For detailed information on the sensor used please refer to the sensor manual. Any combination of these sensors will work with the Raptor Wireless Sensor Version.



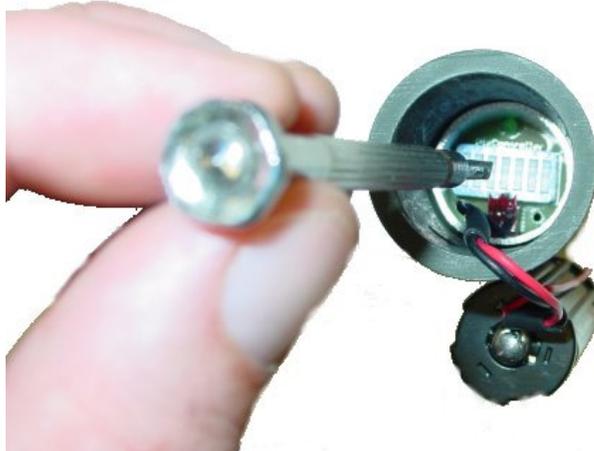
PixController Digital PIR Wireless Motion Sensor

10.2 Using the Wireless PIR Motion Sensor

Powering on the Wireless Digital PIR Sensor

To power the wireless sensor on you must first remove the battery cover and battery holder from the sensor tube as shown above. Using a small screw driver such as a jewelers screw driver press on switch 1 on the DIP switches as shown the photo below. The switches are rocker type switches and you will need to press switch 1 at the top of the switch.

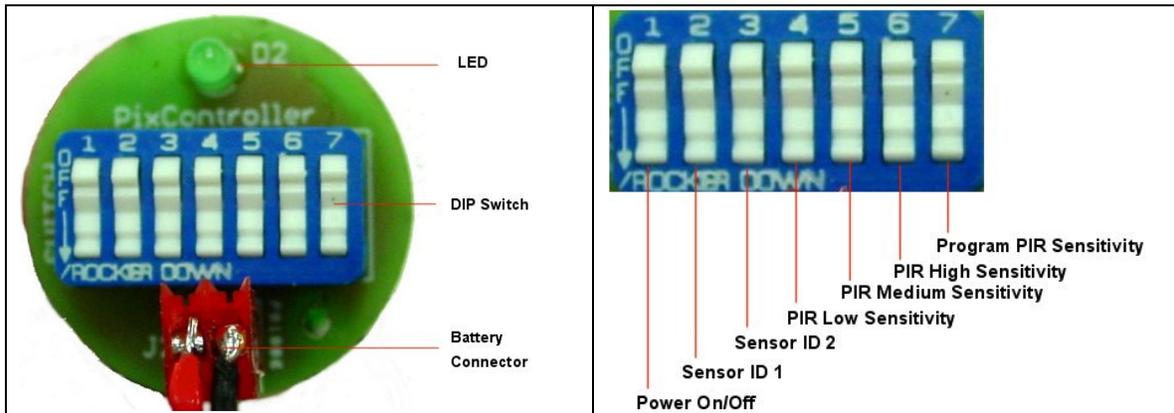
When the sensor is powered on you will notice the LED turn on and blink 5 times. This will let you know that the wireless sensor is going into a 1-minute walk-test mode. If you place your hand in front of the sensor the LED will blink giving you feedback that the PIR sensor is functioning. After 1 minute has expired the LED will blink 5 more times and exit walk-test mode. From this point on there will be no LED activity, but the sensor is armed and active.



Adjusting DIP Switch Settings

Programming the Wireless Digital PIR Sensor DIP Switches

The wireless sensor can easily be programmed by adjusting the small switches on the “DIP Switch”. The sensor is powered on/off by the DIP Switch, and you can also adjust the wireless sensor address and PIR detection sensitivity.



Powering On/Off the Wireless Sensor

Switch 1 will power on/off the wireless PIR sensor unit. Putting the switch in the down position will turn the sensor off, and putting the sensor in the up position will turn the sensor on. When the sensor is turned on the LED will blink 5 times.

The default setting is all switches down (2 – 7), assuming switch 1 is “on” for sensor in operation mode. The sensor is shipped with the PIR sensitivity programmed in medium sensitivity mode.

Setting the Wireless Sensor Address

The wireless PIR sensor can be set to send out 4 different address codes (A through D). DIP switches 2 & 3 are used to set the sensor address. Setting the sensor address code is useful

when using multiple sensors with multiple camera units. Camera units can be set to respond to certain sensor addresses.

Sensor Address	Switch 2	Switch 3
Address A	Down	Down
Address B	Down	Up
Address C	Up	Down
Address D	Up	Up

Note: When changing the sensor address you will need to power the sensor off and back on to take effect.

Setting Range-Test Mode

Range-Test mode puts the sensor into a mode where it will send out trigger commands on 2-second intervals. In this mode the PIR sensor is inactive. This mode is used to set the range between the wireless PIR sensor and the receiving unit.

To set Range-Test mode start with the wireless sensor in the power down state. Turn DIP switches 2 and 3 into the down “off” position. Next, power the sensor on by turning switch 1 into up “on” position. Wait for the LED to blink 5 times. Next, move switches 2 and 3 into the up “on” position. The wireless sensor is now in Range-Test mode.

To take the wireless sensor out of Range-Test mode power the sensor down by turning switch 1 into the “off” position then turning switch 2 and 3 into the “off” position.

Adjusting the Digital PIR Sensitivity

DIP switches 4 – 7 are used to adjust the PIR sensitivity. The DIP switch functions are as follows:

- Switch 4 – Setting Low PIR Detection Sensitivity
- Switch 5 – Setting Medium PIR Detection Sensitivity
- Switch 6 – Setting High PIR Detection Sensitivity
- Switch 7 – Programming PIR Detection Sensitivity

To adjust the PIR detection sensitivity be sure that the sensor is powered on. Next, select the desired sensitivity setting, low, medium, or high from switch settings 4 – 6. Turn that switch to the “on” position, then turn switch 7 to the “on” position for at least 1 second. Lastly, turn both switches “off”. The programming is now complete. Note, programming the sensitivity can be done at time the unit is powered on.

Sensitivity adjustments may be necessary when using the wireless PIR sensor in hot climates. Typically you want to use a lower PIR sensitivity setting under very hot conditions. Under cooler conditions the PIR sensitivity can be increased for longer detection ranges.

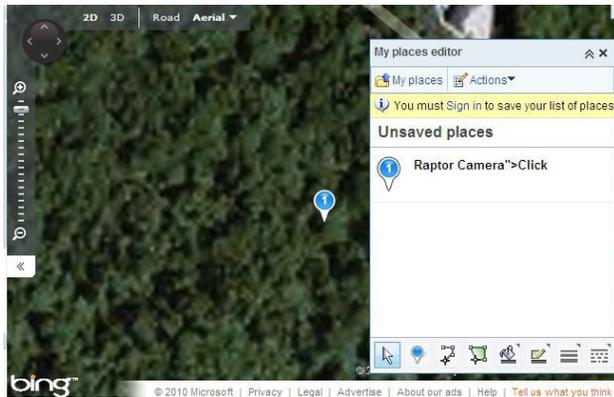
Note: It is always a good idea to place the wireless sensor under a covered area to keep the sensor cool. Avoid placing the sensor on small trees which can blow around in the wind and cause false triggers. Also, trim away any brush directly in front of the PIR lens which can cause false triggers if they are heated by the sun and start moving.

11. GPS Option

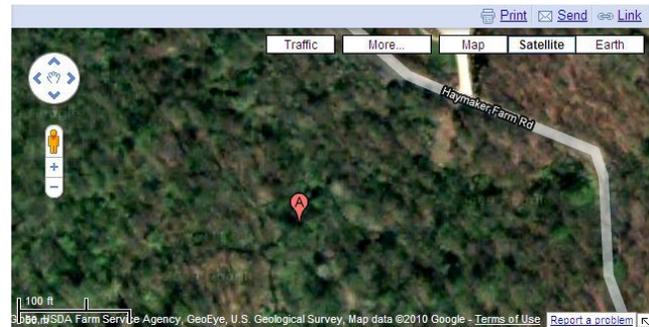
The Raptor Wireless System can be equipped with a 50 Channel GPS receiver at time of purchase or be updated after purchase. The GPS will send the latitude, longitude, and elevation position of your Raptor System upon trigger event or status message. If you need to update a Raptor Wireless System with the GPS receiver contact PixController, Inc. at sales@pixcontroller.com.

Be sure to place your Raptor Wireless System with GPS receiver in an area that has good view of the sky. Obstructions such as inside buildings, metal enclosures, and heavy tree canopy can degrade or block the GPS signal.

The Raptor Wireless System will acquire a new GPS fix upon system power up, trigger event, and status message. When the Raptor Wireless System sends a trigger email or status email links to Google and Bing Aerial maps will be embedded in the text body. Example of aerial maps are shown below.



Bing Aerial Map



Google Aerial Map



Bing "Birds Eye View" Aerial Map

12. Updating the Raptor Firmware

To update the Firmware version on your Raptor Wireless System you will need to purchase a Serial to USB cable. We suggest the Gigware **Model: 26-949** Serial to USB cable or similar. The Gigware cable can be purchased on-line or at your local RadioShack store.

Firmware updates are available from <http://www.pixcontroller.com/downloads.htm>

To update the firmware on your Raptor Wireless Camera follow these steps.

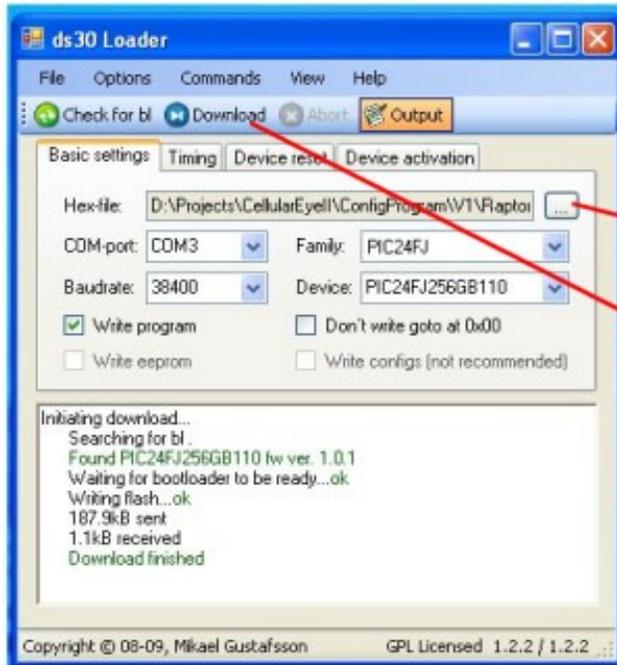
1. Install the ds30 Loader from the Raptor CD on your computer.
2. Connect the Serial to USB cable to your PC. Note, the DB9 Serial cable is connected to the Firmware update port on the Raptor system and USB cable to your computer as shown below.
3. Power up the Raptor system and pressing the “Up” and “Down” menu key buttons at the same time. You should see the following message on the Raptor LCD display:

PIX BOOTLOADER
Firmware update
mode

4. Run the ds30 Loader software and load the .HEX file as shown below. Press the “Download” button to install the Firmware on the Raptor system. The MCU Stat LED will start blinking when the download starts. Do not power down the Raptor system or unplug the cable until the firmware update is complete.



Connect the Serial to USB Cable to your PC



1. Load the .HEX File

2. Press "Download" to install Firmware

Run the ds30 Loader to install the Firmware update on your Raptor System

ds30 Loader Settings:

Be sure the follow setting are set correctly before uploading the Raptor Firmware update

Hex File: (folder the XXXXXX.HEX file is located, example C:\Raptor200c.hex)

COM port: Com port where the serial cable or serial to USB cable is installed on your computer

Baudrate: 38400

Family: PIC24FJ

Device: PIC24FJ256GB110

Check the "Write program" box

Once you have setup the ds30 Loader settings load the firmware update (.HEX) file by pressing the "..." button by the "Hex File" box. After the .HEX file is loaded press the "Download" button and this will start to program your Raptor system.

13. Long-Range WiFi

Your Raptor Wireless Camera system can be equipped with either a Cellular Radio or WiFi Radio. This option can be changed at any time during the life of this product. Contact PixController, Inc., sales@pixcontroller.com for radio update options.

The WiFi option is a 2.4GHz 802.11 protocol radio device. There are many ways to configure the Raptor Wireless Camera with the WiFi radio option. There are many products available on the market today to enhance the signal strength of this popular wireless protocol.

Specially shaped antennas, such as the Yagi antenna, can be used to increase the range of a Wi-Fi transmission without a drastic increase in transmission power. High gain antenna may be of many designs, but all allow transmitting a narrow signal beam over distances of several kilometers, often nulling out nearby interference sources. Obstacles are among the biggest problems when setting up a long-range Wi-Fi. Trees and forests degrade the microwave signal,

and rolling hills make it difficult to establish line-of-sight (LOS) propagation.

To prevent transmission signal loss due to obstacles such as trees and vegetation it will be necessary to mount the Raptor Wi-Fi antenna as high as possible. The Raptor Wi-Fi unit was design with a removable antenna with a standard SMA antenna mount for connecting other antennas.

Using a High Gain Yagi such as the 16dBi ANT001 Raptor Wi-Fi antenna you will need point the antenna in the direction of the Wi-Fi Access Point. It's best to place the Wi-Fi Access Point as high as you can, and also upgrade the Access Point to higher gain antennas such as antenna ANT003, 9dBi OMNI antenna. For the best range possible use ANT002, 15dBi outdoor OMNI antenna for our Wi-Fi Access Point.

The high gain OMNI antennas for your Wi-Fi Access Point are 360° in direction which allows many Raptor Wi-Fi Systems to access a single Access Point. There is not limit to the number of Raptor Wi-Fi systems that can be used with an Access Point. Below are some common antenna setups and expected ranges.

Standard Wi-Fi Antenna - 300 foot range LOS



Using the standard OMNI Raptor Wi-Fi antenna transmitting to the Linksys WAP54G Access Point with the standard Linksys antennas will yield a maximum transmission distance of about 300 feet. This range can be slightly increased by replacing the Linksys Access Point antennas with the 9dBi OMNI antennas under our Accessories page, part number ANT003. To obtain the maximum transmission distance you must have clear line of sight (LOS) between the Raptor Wi-Fi system and the Linksys Wi-Fi Access Point. Be sure your Wi-Fi access point is placed high inside with little obstructions to the outside including metal walls.

High Gain Yagi Antenna - 800 foot range LOS



**Raptor Wi-Fi System
with High Gain Yagi Antenna**

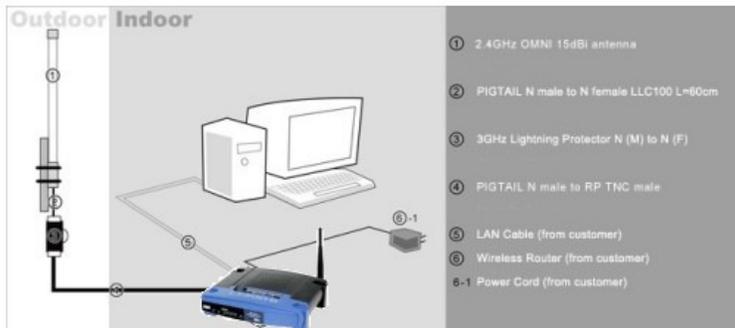


Adding the optional high gain Yagi antenna to your Raptor Wi-Fi system can increase transmission distances up to 800 feet line of sight (LOS). The 16dBi Yagi antenna, part number ANT001 from our [accessories page](#) is a direction antenna meaning it must point towards the Wi-Fi Access Point. This range can be slightly increased by replacing the Linksys Access Point antennas with the 9dBi OMNI antennas under our Accessories page, part number ANT003. To obtain the maximum transmission distance you must have clear line of sight (LOS) between the Raptor Wi-Fi system and the Linksys Wi-Fi Access Point. Placing the Yagi antenna from the Raptor System as high as you can will increase transmission distances. Be sure your Wi-Fi access point is placed high inside with little obstructions to the outside including metal walls.

High Gain Yagi Antenna with High Gain OMNI Access Point Antenna - 1/2 to 1 Mile LOS



**Raptor Wi-Fi System
with High Gain Yagi Antenna**



Transmission distances from 1/2 mile to 1 mile can be obtained by adding the optional 16dBi high gain Yagi antenna to your Raptor Wi-Fi system, and the 15dBi OMNI Mast Antenna, part number ANT002, to your Wi-Fi Access Point. Both antennas can be purchased from our accessories page. The OMNI mast antenna must be placed outside as high as possible. The OMNI mast antenna includes a 23 foot cable and lightning protector, which is cabled back to your Wi-Fi access point. To obtain the maximum transmission distance you must have clear line of sight (LOS) between the Raptor Wi-Fi system and the Wi-Fi Access Point. Placing the Yagi antenna from the Raptor System as high as you can will increase transmission distances.

Parabolic Wi-Fi High Gain Antennas - Several Miles LOS



WiFi biquad dish antenna by [Eliot Phillips](#)

Using a parabolic antenna will net the longest Wi-Fi transmission distances, but these antennas are often expensive, large, and difficult to setup due to their very narrow transmission beam. There are many long range Wi-Fi antennas on the market today due to the popularity of Wi-Fi networks.

One very interesting long range Wi-Fi antenna was built using a DirectTV dish by [Eliot Phillips](#), <http://www.engadget.com/2005/11/15/how-to-build-a-wifi-biquad-dish-antenna/>

. Eliot was able to detect an access point over 8 miles away with his DIY antenna design.

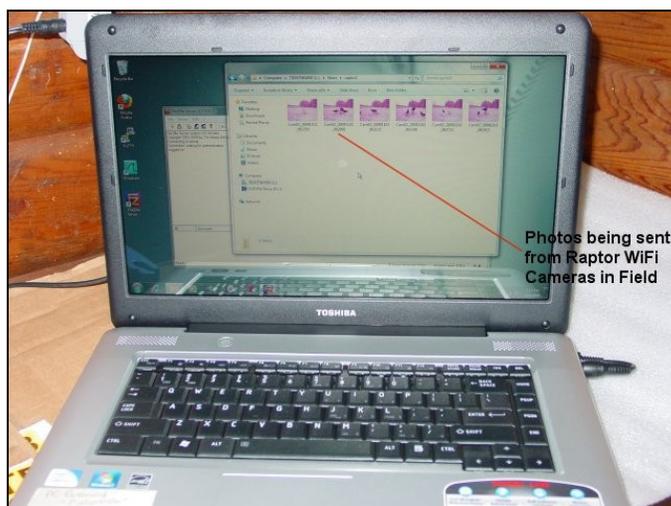
13.1 WiFi Repeaters

The Linksys WRT54G router is capable of working in repeater mode with third party firmware like DD-WRT. A WiFi repeater is a device that will connect to another wireless access point and redistribute the signal. Repeaters are typically used to extend the coverage of a network.

It is possible to place a WRT54G router in a waterproof enclosure using a high gain Omni mast antenna for input and high gain direction output antenna to extend WiFi networks over hilly terrain.

13.2 Using WiFi option without Internet Connectivity

It is possible to setup a WiFi network without Internet connectivity. For remote applications such as building security, border security, or wildlife research which may not have an Internet connection you send photos to a FTP server configured on a standalone computer as shown below. Free FTP server software such as FileZilla Server, <http://filezilla-project.org/>, are an open source, simple to use, and free to download.



“PC Base Station” running FileZilla FTP software receiving Raptor WiFi Photos

14. Raptor Camera

The Raptor camera is a still IR (Infrared) 2 Mega Pixel Camera which will capture photos at a maximum resolution of 1600 x 1200 with data size from 200K to 350K. The smaller resolution is needed to keep image file size down in order to send photos quickly over low bandwidth cellular networks thus saving battery life of the Raptor system.

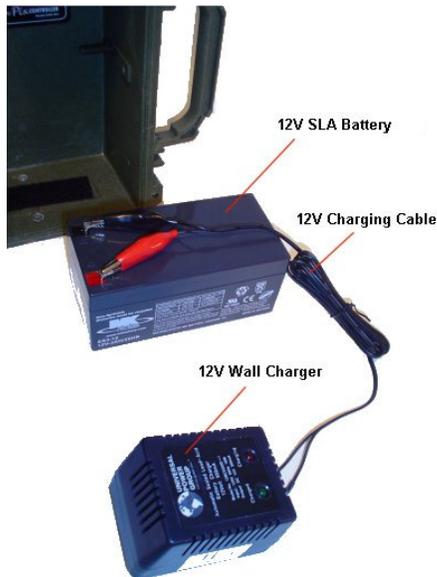


Day-time photo example. Photos will be color during day light hours.



Night-time photo example. Photos will be captured in gray-scale IR mode during dark hours.

15. Charging the 12V Battery



Included with your Raptor unit is a rechargeable 12V SLA (Sealed Lead Acid) battery and 12V charger. The 12V battery is completely removable from the Raptor unit for replacing or recharging. To recharge the 12V battery simply connect the red alligator clip from the 12V wall charger to the positive terminal on the 12V SLA battery, and the black alligator clip to the negative terminal on the 12V SLA battery.

When charging the red LED on the wall charger will be lit and will change to green when the 12V SLA battery is fully charged.

Replacement 12V SLA batteries can be purchased from www.pixcontroller.com, or you can use the UB1234, 12V 3.4AH or similar battery.