

# **Pix**<sup>TM</sup> **CONTROLLER**

Trail Cameras and Remote Surveillance Systems

## **UndercoverEye<sup>TM</sup> Power Box Instruction Manual**



**Revision 1.00B**

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## 1. Introduction

The PixController UndercoverEye™ Power Box is a system designed to power 12V devices such as IR Arrays and/or 12V Wireless Video Transmitter and cameras in conjunction with the PixController UndercoverEye™ camera systems.

The PixController UndercoverEye™ Power Box was designed to provide remote IR lighting or turn on a wireless video camera (assuming a video receiver is connected to the PixController UndercoverEye™ camera system upon trigger from the RF Wireless motion sensor.

The PixController UndercoverEye™ Power Box will give the user the ultimate ability to use the PixController UndercoverEye™ product series with an unlimited number of configurations depending on the situation.

The UndercoverEye™ Power Box system utilizes advanced battery savings sleep mode whereby its passive infrared, wireless motion detector (PIR) automatically switches the UndercoverEye™ system from sleep mode to active mode when someone walks into the target area. This mode will enable the UndercoverEye™ system to be deployed unattended for long periods of time. The UndercoverEye™ system also comes with a wireless keyfab option for manually triggering the base recording unit for various surveillance setups/operations.

The UndercoverEye™ Power Box includes a 16' cable with (3) 2.1mm 12V center positive connectors allowing (3) different 12V devices to be connected to the Power Box. One of the 12V connectors is setup to be powered up only at night via the built in light sensor on the main UndercoverEye™ Power Box unit. This is the connection made when using a IR array to light the area only in darkness.

The UndercoverEye™ Power Box can be buried in the ground and video camera placed in a hidden location for the ultimate covert system. The unit is triggered by PixController Long Range RF Wireless PIR motion sensor.

## **2. What's included with your UndercoverEye™ Power Box System**

Your UndercoverEye™ Power Box system contains the following items:

- UndercoverEye™ Power Box water proof system case/motion control electronic
- Removable Tilt-Swivel RF Antenna w/ SMA connector
- 16' 12V Device Power cable with (3) 2.1mm 12V DC Connectors
- RF Wireless PIR Sensor (optional)
- 12V 4.5AH Removable Li-Ion Battery
- 12V battery charging unit

### **Inspection/Acceptance of received products**

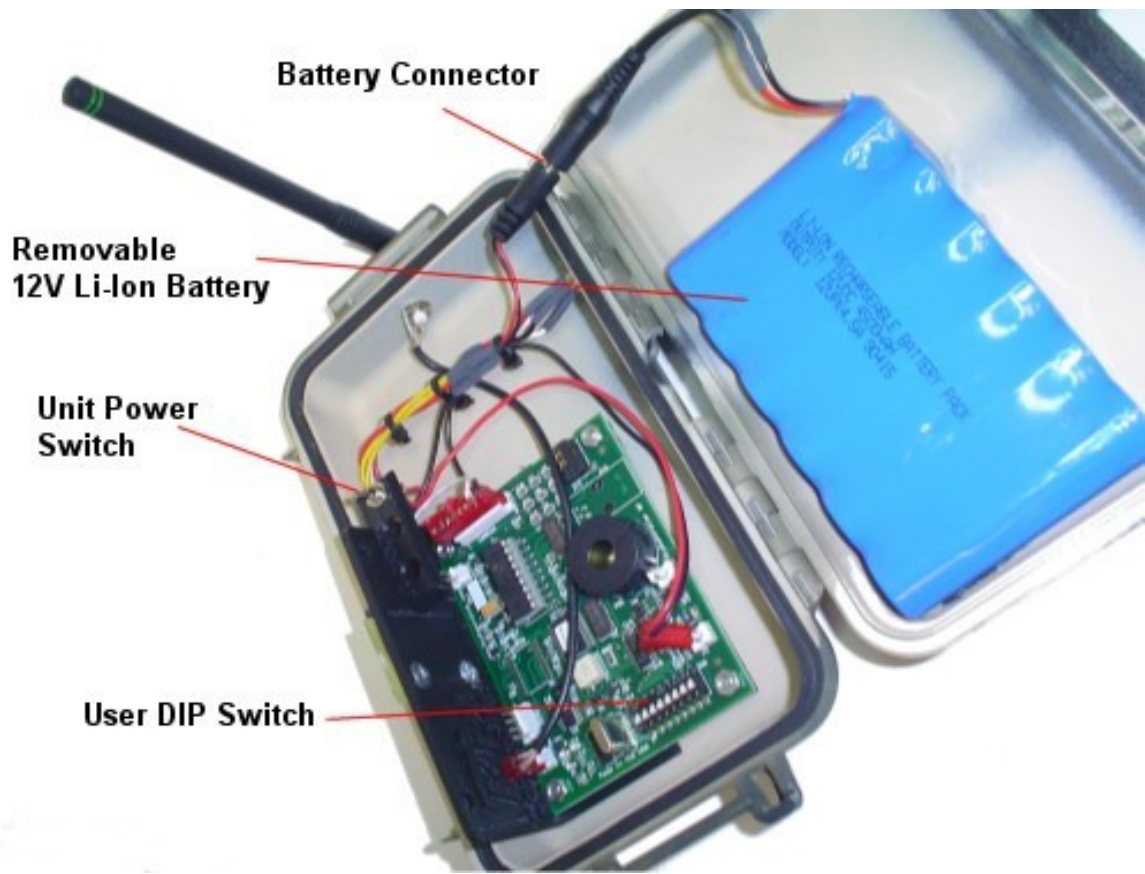
The buyer shall be responsible for inspecting all products shipped prior to acceptance; provided, however, that if Buyer shall not have given PixController, Inc. written notice via email of rejection or shorted items to [support@pixcontroller.com](mailto:support@pixcontroller.com) within ten (10) days following receipt by Buyer, the products shall be deemed to have been accepted by Buyer.

All electronic products sent back for a full refund are subject to a 15% restocking within thirty (30) days from purchase. Products authorized for return must be in their original unopened packaging to receive credit. Unauthorized returns will not be accepted. After thirty (30) days from purchase items may not be returned for a full refund. Your electronics are covered for a full 6 month period covering all part failure under normal use.

### 3. UndercoverEye™ Power Box System Components



*UndercoverEye™ Power Box Exterior Components*



*UndercoverEye™ Power Box Interior Components*

## 4. Setting up the UndercoverEye™ Power Box



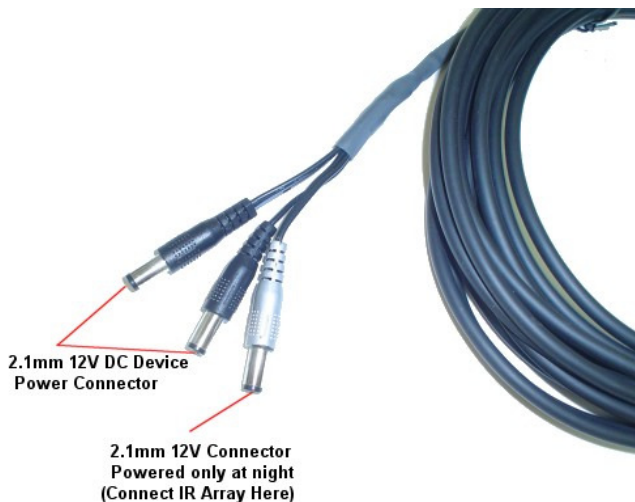
### Step 1

Connect the RF antenna to the SMA antenna connector as shown. The RF antenna is a tilt-swivel antenna and should be pointed up when installed. The Power Box case can be oriented in any direction.



### Step 2

Connect the video cable to the Power Box as shown. The connection is keyed. Once the connection is made twist the cable end to make a tight fit.



### Step 3

The Power Device cable fits most standard 12V video camera, video transmitters, and IR Arrays that use a 2.1mm center positive connector.

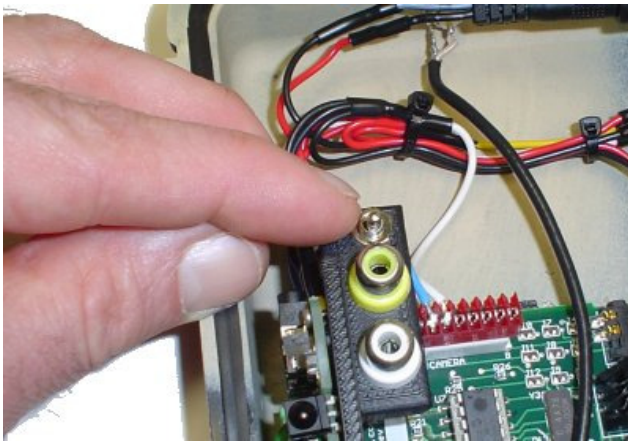
You will note that one connector is silver in color. This 12V connector will only be powered at night via the day/night sensor on the Power Box Unit. This is where you would connect the IR Array.





#### **Step 4**

Connect the Power Device cable as show to the device you wish to power. The photo shows an IR Array connected.



#### **Step 5**

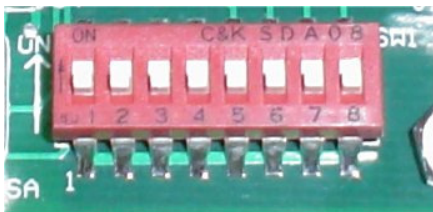
Power on the Power Box system as show.

Note: Before powering up the Power Box system please read the remainder of the manual to become familiar with the settings and sensors.

## 5. Powering up the UndercoverEye™ Power Box

To power up the system turn the Power on/off switch to the "on" position. You will hear a short melody from the Power Box letting you know it's powered on. Next there will be a 30 second delay. After this time expires you will hear 4 quick beeps which let you know the system is going into a 1 minute auto walk test phase. If you walk past the Wireless PIR motion sensors at this point you will hear 1 beep for a "A" Sensor or trigger sensor, and 2 beeps for a "B" sensor or power up sensor. You may want to keep the case open so you can hear this from a distance. After this 1 minute walk test phase expires you will hear 4 quick beeps again letting you know the system is going "active". After this point the system is active.

## 6. How to customize the Power Box settings



**Power Box User DIP Switch**

The Power Box DIP Switch will let you customize how the remote sensors will trigger the Power Box controller. Here you can adjust the address of which sensors to respond to trigger the Power Box, Walk-Test mode, use KeyFob or PIR sensor, and camera test mode.

Sensor Address	Switch 1	Switch 2
"A" Address	Down	Down
"B" Address	Down	Down
"C" Address	Down	Up
"D" Address	Down	Up

Walk-Test Mode	Switch 7
Test Mode Off	Down
Test Mode On	Up

Wireless PIR or KeyFob Mode	Switch 3
Use Wireless PIR Sensor	Down
Use KeyFob	Up

Power Camera	Switch 8
Camera test off	Down
Camera test on	Up

Power On Time	Switch 4	Switch 5	Switch 6
30 Sec./Cont.	Down	Down	Down
30 Seconds	Down	Down	Up
10 Seconds	Down	Up	Down
45 Seconds	Down	Up	Up
1 Minute	Up	Down	Down
2 Minutes	Up	Down	Up
5 Minutes	Up	Up	Down
10 Minutes	Up	Up	Up

### Setting the Address Code

Switches 1 & 2 control the address code of the UndercoverEye™ Power Box controller box. Both the SlimFire Remote Control or Wireless PIR Sensor, and UndercoverEye™ Power Box controller box need to be set to the same address code in order for the unit to function properly. There are 4 unique address codes you can set the UndercoverEye™ Power Box to respond to.

The UndercoverEye™ Power Box is compatible with the SlimFire remote and PIR wireless motion sensors. The address code here is the "house code" from A-P, however, the

UndercoverEye™ Trekker MiniDVR only will recognize “house codes” A-G. For more information about setting the house code on your SlimFire remote or Wireless PIR Motion Sensor.

***Out of the box both the SlimFire remote, Wireless PIR sensor, and Remote VideoEye™ will be defaulted to the “A” Address Code.***

Why set different address codes? There may be a situation when you want to have several UndercoverEye™ Power Box units in a recording session. You may want to only have several UndercoverEye™ units respond to SlimFire or Wireless PIR motion sensors. For this you have the ability to set the address between each of these devices. It is a good idea to use a marking pen and write the address code on your SlimFire remote or Wireless PIR motion sensor if not set in the default “A” address code.

### **Wireless PIR Sensor or KeyFob Mode**

Switch 3 is the setting to let the UndercoverEye™ Power Box know if you are using the KeyFob or PIR sensor. **Note: This mode does not apply to systems sold after 9-15-2010. The KeyFob option is not available on the new units.**

In the Wireless PIR sensor mode, DIP switch 3 in the DOWN position the Power Box will respond wireless PIR sensors. Note, the unit will still respond to the KeyFob by pressing the “on” button on the KeyFob unit, however, it will not respond to the KeyFob “off” button. If using the KeyFob in this mode the recording time is setup by switches 4, 5, and 6.

In the KeyFob mode, DIP switch 3 in the UP position the Power Box will respond to the “on” button from the KeyFob to turn the Power Box on into recording mode, and by pressing the “off” button on the KeyFob will power down the Power Box. Note, you can still trigger the unit via the wireless PIR sensor but the unit will power down when the “off” command is sent by the wireless PIR sensor. In default mode this is one minute after a PIR trigger, but this time can be adjusted manually in the PIR sensor. Please see the paper instructions inside the PIR sensor for more information.

### **Power On Time**

Switch 4, 5 and 6 sets the time the UndercoverEye™ Power Box will power up the 12V devices upon a trigger event from a wireless sensor.

### **Walk-Test Mode**

When Test Mode is set to “On” it will let you test out the “line of sight” distance between the triggering unit, i.e., the SlimFire remote control or Wireless PIR motion sensors, and the UndercoverEye™ Power Box unit. This is useful to be sure the camcorder units can see commands from the triggering units.

**Note: To put the UndercoverEye back into “recording mode” when using Test Mode.**

### **Power Camera Test Mode**

Switch 8 controls powers up the video camera and UndercoverEye™ Power Box for reviewing video in the field with a hand held video monitor, viewing video at home on your TV, or making changes to the DVR settings with the DVR remote control.

### **Note:**

**When changing switch setting you must re-boot your UndercoverEye. When re-booting you must wait approximately 30 seconds before turning power on again.**

## 7. Wireless RF Sensors

### 7.1 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.



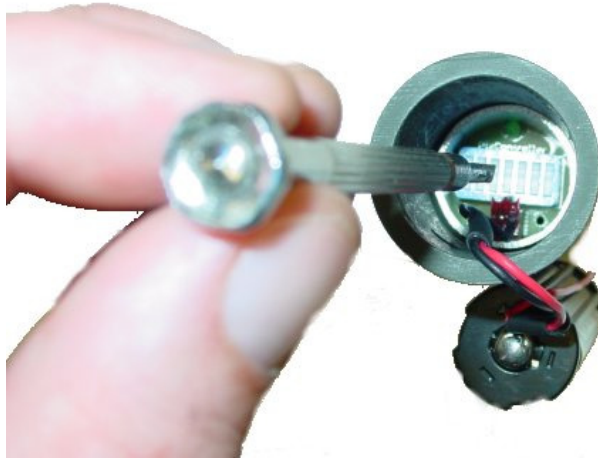
PixController Digital PIR Wireless Motion Sensor

### 7.2 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.

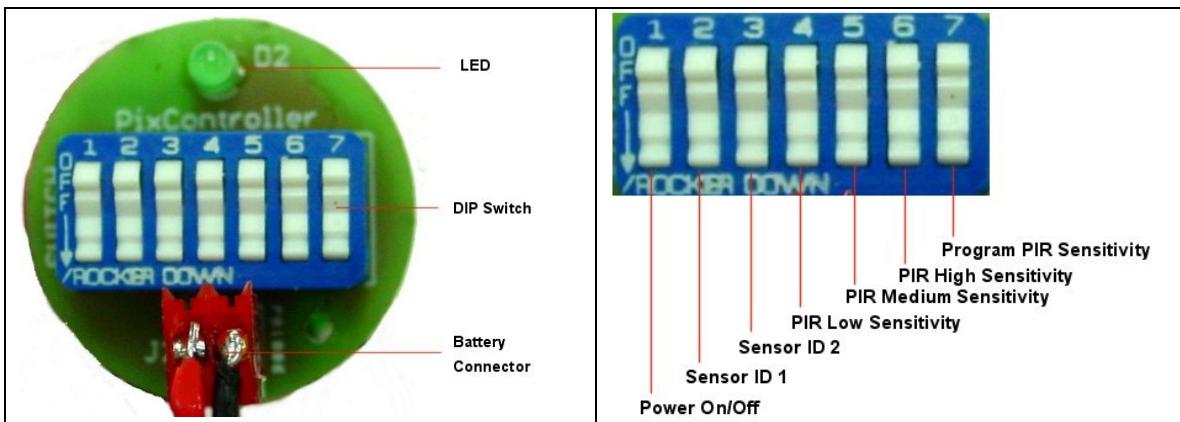
When the sensor is powered on you will notice the LED turn on and blink 5 times. This will let you know that the wireless sensor is going into a 1-minute walk-test mode. If you place your hand in front of the sensor the LED will blink giving you feedback that the PIR sensor is functioning. After 1 minute 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:

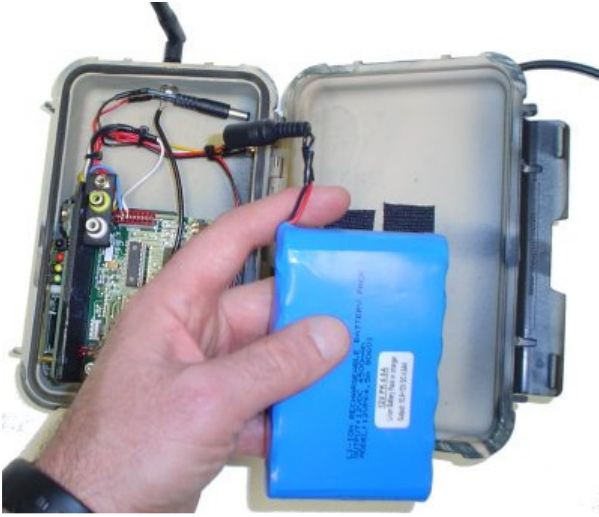
- Switch 4 – Setting Low PIR Detection Sensitivity
- Switch 5 – Setting Medium PIR Detection Sensitivity
- Switch 6 – Setting High PIR Detection Sensitivity
- Switch 7 – Programming PIR Detection Sensitivity

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.

## 8. UndercoverEye™ Power Box 12V Battery & Charger



Included with your UndercoverEye unit is a rechargeable 12V Li-Ion battery and 12V charger. The 12V battery is completely removable from the UndercoverEye unit for replacing or recharging. To recharge the 12V battery simply connect the barrel connector to the 12V wall charger unit.

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 Li-Ion batteries can be purchased from [www.pixcontroller.com](http://www.pixcontroller.com).



## 9. Using your Power Box unit with different 12V devices

### Using a Bullet Camera with Video Transmitter

The Power Box unit can also be used with various cameras and video transmitters for a wireless connection back to the UndercoverEye HDD or Trekker units. The UndercoverEye HDD or Trekker units will need to have a video receiving unit connected as shown below.

**Note: When using a wireless video camera between the Power Box and the recording unit such as the UndercoverEye HDD or Trekker units both units need to be in range of the wireless PIR motion sensor or KeyFob. Both units need to power up at the same time by this trigger device.**

Figure 1 shows how to connect a bullet camera and video transmitter to the Power Box. Connect one of the black 2.1mm power connectors to the bullet camera power input and connect the other black 2.1mm power connector to power input of the video transmitter. Next, connect the video output from the bullet camera to the video input of the video transmitter.

For a situation where you may need an IR array connect the IR array to the silver 2.1mm power connector as shown in figure 2.

You can purchase video cameras with built in IR arrays, but these are typically larger cameras and do not lend themselves well for covert setups.

Figures 3 and 4 show you how to connect the video receiver to your UndercoverEye HDD or Trekker units. Connect the 2.1mm power connector from the video cable to the video receiver and the video input to the video output of the video receiver.

**Note: When using a wireless video transmitter and receiver be sure to check the video signal before connecting the recording device. Video transmission is limited by line of sight, obstructions such as building, cars, or large metal objects, and topography.**



Figure 1: Connecting a Bullet Camera and Video Transmitter



Figure 2: Connecting a Bullet Camera and Video Transmitter and IR Array



Figure 3: Connect the 2.1mm power connector from the video cable to the video receiver and the video input to the video output of the video receiver.





Figure 4: Recording Setup - Video receiver connected to the Trekker video input

### Connecting the Power Box to an IR Array

There are many situations where you may need some sort of IR Illumination for your camera setups. Typically IR Arrays are large and hard to conceal. Using the Power Box for a remote IR Illumination will help with this problem.

Simply setup the IR Array in a location elevated and out of sight within range of your UndercoverEye HDD or Trekker recording unit.

When a trigger event occurs both units will be triggered at the same time. Be sure the day/night sensor is exposed on the Power Box only to power the IR Array in dark conditions.

**Note: When using an IR Array with the Power Box and the recording unit such as the UndercoverEye HDD or Trekker units both units need to be in range of the wireless PIR motion sensor or KeyFob. Both units need to power up at the same time by this trigger device**



Figure 5: Connecting an IR Array to the Power Box for remote IR Illumination UndercoverEye HDD or Trekker units.