



# Camtraptions PIR Motion Sensor v3 Stills Mode Manual

*Firmware Version 2.2*

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For **Quick Start Settings**, skip to Page 10 of this manual.

## Connecting Camera and Flashes



### Connect a Wired Camera

To connect a camera to the sensor with a wire, remove the bung in the socket on the bottom of the sensor and plug in the camera connecting cable. Connect the other end of the cable to your camera's shutter release port.

### Connect a Wireless Camera

To connect a camera wirelessly:

- Ensure you know which channel the PIR transmitter is set to. By default it is Channel 1.
- Set the Camtraptions wireless receiver to the corresponding channel.
- Connect the camera connecting cable to the "Camera" socket on the receiver and the other end to the camera's shutter release port.

### Wireless Flashes with a Canon or Nikon Camera

To set up wireless flashes follow these steps:

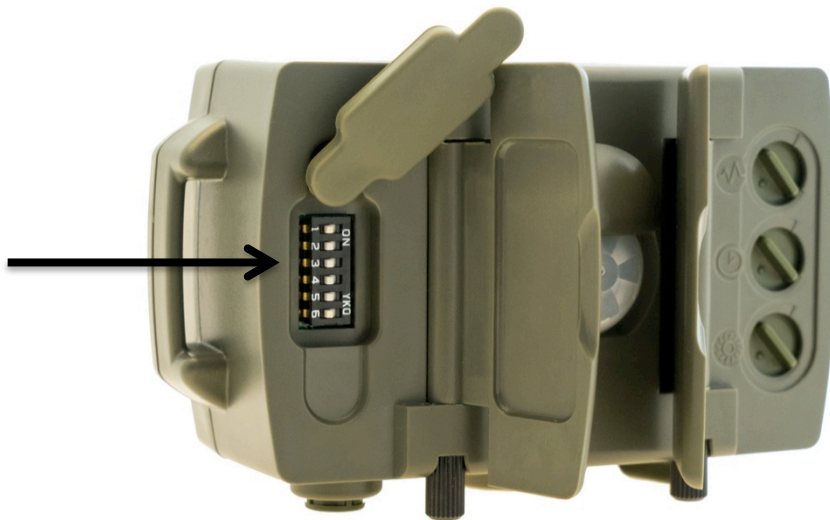
- Place a Camtraptions Wireless Transmitter in the camera's hot shoe and set the channel to the PIR channel plus one. For example, if the PIR is set to channel 3, set the flashes to channel 4. If the PIR is set to channel 7 then the flashes should be set to channel 1.
- Attach flashes to wireless receivers and set them to the same channel as the hot shoe transmitter.
- Connect the camera shutter release port to the "Camera" socket on a separate wireless receiver and set this receiver to the PIR channel.

## Wireless Flashes with Other Cameras

If using a camera other than Canon or Nikon, for example, Sony or Fujifilm, you may need to use a Nikon hot shoe adapter to attach the Camtraptions Wireless Transmitter to the camera's hot shoe. It is possible to source a Sony to Nikon hot shoe adapter from Amazon or Ebay if you are using a Sony camera. Set up the flash transmitter following the steps as above for Canon and Nikon cameras.

Hot shoe adapters will allow the camera to trigger the flashes in sync with the shutter but they don't usually transmit a "wake flash" signal. As a result, the flashes would wake at the first shot and only fire at the second shot. To solve this, there are several "Wake on CH+1" programs in which the PIR can wake the flashes prior to triggering the camera, thus ensuring they fire at the first shot. For these programs to work it is required that the flash channel is one higher than the PIR Channel. See Pages 5 and 6 for additional details about these programs.

## Program Selection



Programs are set via Switches 1 to 6 on the front of the device. These switches are located under the watertight bung, behind the flap, to the left of the sensor dome.

## Switch 1 & 2: Day & Night Cut-off

Switch 1 and 2 can be used to disable operation during the day or at night. When both switches are in the Off position, the sensor will operate all of the time.

When Switch 1 is On, the sensor is disabled when the ambient luminosity is above the threshold set by the luminosity dial (i.e. daytime disabled).

When Switch 2 is On, the sensor is disabled when the ambient luminosity is below the threshold set by the luminosity dial (i.e. nighttime disabled).

When both Switch 1 and 2 are On, the sensor operates in Bulb mode, see Page 7 for details.

A summary of this behaviour is below:

Switch 1 and 2 Off: Regular operation with no luminosity cut-off

Switch 1 ON: Disables daytime operation

Switch 2 ON: Disables nighttime operation

Switch 1 and 2 ON: Bulb mode

## Switch 3

Switch 3 determines the way in which the number and frequency of shots are set.

Switch 3 OFF: Interval mode

Switch 3 ON: 3-shot burst mode

### Interval Mode

In Interval Mode, the time dial sets the number of frames from 1 frame (fully anti-clockwise) to 6 frames (fully clockwise) per detection.

If a day or night luminosity cut off is set then the frame rate is 1 frame per second. Otherwise, the frame rate can be set via the Luminosity Dial from between 1 frame every second (fully anti-clockwise) to 1 frame every 7 seconds (fully clockwise).

The gap after each burst is 2 seconds.

### 3-shot Burst Mode

In 3-shot Burst Mode, the PIR will always send 3 trigger signals.

The time dial sets the shot frequency from between 1 frame every second (fully anti-clockwise) to 1 frame every 7 seconds (fully clockwise).

If a day or night luminosity cut off is set then the gap after each burst is 2 seconds. Otherwise, the Luminosity Dial sets the gap after burst from between 2 seconds (fully anti-clockwise) to 30 seconds (fully clockwise).

## Switches 4 to 6: Transmitter Programs

There are 8 Transmitter Programs to support different cameras and camera settings. These programs are selected via configuration switches 4, 5 and 6.

The table below shows the switch position and corresponding program numbers:

	Switch		
	4	5	6
1	off	off	off
2	off	off	on
3	off	on	off
4	off	on	on
5	on	off	off
6	on	off	on
7	on	on	off
8	on	on	on

### Program 1: Standard

Wirelessly triggers a camera on the PIR Wireless Channel.

### Program 2: Wake Flashes on CH+1

Wakes flashes on the flash channel (PIR Channel plus 1) and then triggers a camera on the PIR Channel.

This allows any camera to be used as a still camera trap triggering flashes connected to wireless receivers. See Page 3 for more.

### **Program 3: Wake Only**

The sensor just sends a wake signal on the PIR channel. A second sensor can then be used to trigger the camera. This mode is useful to give flashes time to charge up before triggering.

### **Program 4: Wired Only**

The Wireless Transmitter is disabled completely. Only the wired connection is active.

### **Program 5: Speed Boost**

The PIR will respond to motion approximately 0.2 seconds faster, however, battery life of the PIR will be approximately halved.

### **Program 6: Wake on CH+1 & Periodically Charge Flashes**

Wakes flashes on the flash channel (PIR Channel plus 1) and then triggers a camera on the PIR channel.

Additionally, the PIR sends a period wake signal to flashes on the flash channel (PIR Channel plus 1) so that the flash capacitors remain topped-up.

Battery life of the PIR will be approximately halved in this mode.

### **Program 7: Speed Boost & Periodically Charge Flashes**

The PIR will respond to motion approximately 0.2 seconds faster.

Additionally, the PIR sends a period wake signal to flashes on the flash channel (PIR Channel plus 1) so that the flash capacitors remain topped-up.

Battery life of the PIR will be approximately halved in this mode.

### **Program 8: Speed Boost & Keep Camera Awake**

The PIR will respond to motion approximately 0.2 seconds faster.

A wake signal is also sent to the camera every minute to prevent it from sleeping or powering off.

Battery life of the PIR will be approximately halved in this mode.

## Bulb Mode

When both Switch 1 and 2 are On, the sensor operates in Bulb Mode.

This experimental mode allows the PIR sensor to control the shutter speed of the camera. To facilitate these programs, the camera shutter speed must be set to “Bulb”.

In automatic shooting modes, the camera will usually be limited to a maximum exposure time of 30 seconds. These programs allow exposure times of up to 5 minutes in length. This can be useful for exposing stars or moonlit backgrounds.

In Bulb Mode, Switches 3 to 6 serve the following functions:

### Switch 3: Enable Day Shot

When On, the PIR takes a 0.1s exposure during the day. When Off, the PIR is disabled during the day.

Note that the minimum bulb time on most cameras is around 0.1s or slow so some ghosting may occur with moving subjects during daylight exposures.

### Switch 4: Enable Two Night Shots

When Off the PIR takes 1 long exposure at night, when On the PIR takes 1 short exposure followed by 1 long exposure per detection. This means the first image is a “safety shot” with a black background. The second shot can be used to expose the night sky and background but there is high risk of ghosting if there is too much ambient light.

### Switches 5 & 6: Transmitter Program

The Transmitter Program is set as shown below:

		Switch	
		5	6
Program	1	off	off
	2	off	on
	3	on	off
	4	on	on

## **Transmitter Program 1: Wired**

This program requires the camera to have a wired connection to the PIR.

The wireless transmitter is disabled.

Flashes should be triggered via a transmitter in the camera's hot shoe.

The Luminosity Dial sets the luminosity cut-off threshold for the long bulb exposure.

## **Transmitter Program 2: Wired with delay**

This program requires the camera to have a wired connection to the PIR.

The wireless transmitter is disabled.

Flashes should be triggered via a transmitter in the camera's hot shoe.

The Luminosity Dial sets a camera wake delay of between 0.2s (fully anti-clockwise) to 3 seconds (fully clockwise). This is necessary if a short day shot or two-shot night sequence is selected, as without the delay, the camera might not wake up in time for the short 0.1s exposure.

## **Transmitter Program 3: Wireless Camera**

The sensor will wirelessly trigger the camera.

Flashes should be triggered via a transmitter in the camera's hot shoe.

The Luminosity Dial sets the luminosity cut-off threshold for the long bulb exposure.

## **Transmitter Program 4: Wireless Flash**

This program requires the camera to have a wired connection to the PIR.

The PIR can either wirelessly wake the flashes or can fire the flashes after a specified delay. The flash receivers should be set to the PIR channel.

When the Luminosity Dial is fully anti-clockwise, only a flash wake signal is sent prior to the exposure. This allows any camera to trigger the flashes in time with the shutter via a Wireless Transmitter connected to the hot shoe.

As the Luminosity dial is turned clockwise, the PIR will start sending a flash trigger signal after a delay so a separate flash transmitter on the camera is no longer required. The minimum delay that can be set is 0.2s and the maximum is around 3 seconds. The necessary delay will depend on how quickly the camera wakes up and fires the first shot. If the delay is too short the flash will fire before the shutter opens. If the delay is longer than necessary then the animal may move further from the trigger area by the time the flash fires. Finding the most appropriate delay time will take a



bit of trial and error. Note that it may not be possible to time the flash reliably with the short 0.1s exposure if either Switch 3 or 4 are on.

If the Luminosity Dial is turned fully clockwise, the flash will instead be timed to fire just as the exposure ends. This is known as rear-sync or second curtain sync.

### **Time Dial in Bulb Mode**

In all programs, the Time Dial sets the length of the nighttime bulb exposure from between 5 seconds (fully anti-clockwise) to 5 minutes (fully clockwise).

### **Luminosity Dial in Bulb Mode**

In Program 1 and 3, the Luminosity Dial set the light cut-off threshold. The bulb time set by the time dial will only will be used in complete darkness. As it gets brighter the bulb time will be prorated down to 5 seconds at the luminosity cut-off threshold. This means that as it gets brighter, there is less chance of blowing out the background.

In Program 2 and 4, the Luminosity Dial sets the timing of the wireless signal as explained above.

## Quick Start PIR & Camera Settings

If you just want to start shooting still photographs without reading this entire manual then the following settings should work in a wide range of scenarios:

Set-up the PIR as follows:

- Push all six configuration switches to the Off position.
- Set the top dial to somewhere in the middle for medium sensitivity.
- Set the middle dial fully anti-clockwise to take 1 photo per detection or somewhere in the middle to take 3 photos per detection.
- Turn the bottom dial fully anticlockwise.

Connect the camera:

- Use a camera connecting cable to plug the camera directly into the socket on the bottom of the sensor or the “camera” socket on the side of a Camtraptions Wireless Receiver.
- If using a Camtraptions Wireless Receiver, set it to Channel 1 as this is the default PIR Channel.

Configure the camera as follows:

- Manual focus (focus on the spot you expect the animal to be)
- One shot mode rather than continuous drive mode
- Manual exposure mode: shutter speed of 1/250s to ensure no ghosting and aperture of around f/8 to ensure plenty of depth of field.
- Auto ISO so the camera will adjust the ISO to correctly expose the image. You may want to limit the maximum ISO setting to 1600 or 3200 to avoid getting excessive noise at night.
- If the lens has image stabilisation/vibration reduction then disable it.
- Check that the menu option is activated that allows the camera to power down automatically after around 30 seconds.
- Turn off automatic image review after each shot to conserve the camera battery.
- If you are using a single flash then connect it to the camera via an off-camera TTL cord and allow the flash output to be set via TTL metering.
- If you are using multiple flashes then you will need to set the power of each flash manually so the image is correctly exposed in darkness.
- Shoot in RAW to give yourself more flexibility to adjust the image brightness afterwards.