

# TRIGGERSMART

## ACCESSORIES AND CONFIGURATIONS

### INTRODUCTION

As you may know, the Triggersmart is one of the most cost effective and flexible systems on the market today. Because of its flexibility, it gives rise to questions regarding complexity added to which there is a range of add-on modules available to further extend Triggersmart's capability.

The Triggersmart manual supplied with the Basic Kit explains in detail the operation of the system and attempts to show the user how to connect the system initially. This booklet outlines a different way in which the sensors may be connected using the basic kit and the additional modules. It also describes the limitations that may be encountered – some environmental and some by the design of the equipment and its intended use. Triggersmart is made of three major elements, namely the MCT-1 controller, the modules and linking cables. As the controller is fully described in the main handbook, we will concern ourselves with the latter two only.

A key feature of Triggersmart is that the component of the system may be connected in a variety of ways. There is no wrong way, it is just that some cable configurations may be more convenient than others. It should be noted at the outset that the MCT-1 controller and most of the sensors have two sockets. At first it may seem to be confusing as to why it is that way. In practice it does not matter whether one or both sockets are used on each module to connect the system.

### KITS AND ACCESSORIES

The basic kit allows the user to get started with the intended project, and in most cases no extra hardware will be required. However, some users may want to push the boundaries and experiment further which could mean that extra hardware and cables may be needed.

#### THE BASIC KIT

The kit consists of:–

- The main MCT-1 Control Unit
- Infrared receiver and light intensity sensor
- Infrared transmitter and sound sensor
- Mini tripods
- Set of cables
- 2<sup>o</sup> infrared beam baffle

#### WILDLIFE KIT

Many photographers want to capture wildlife images. Whilst the basic kit is capable of doing this, there are a few extra items which will enhance the operation. The kit comprises of:–

- Infrared receiver
- Infrared transmitter
- 4 x Stakepods
- Set of cables
- 2 x Cable anchors
- 4 x Weather resistant covers
- Beam alignment aid
- 2<sup>o</sup> Baffle



Some of the above items are available separately and are described in detail later on.

## RADIO LINK

A very useful addition to the range is the Radio Link kit. The purpose is to replace the cable link from the MCT-1 to the sensors. When using the original cable link it may be inconvenient to lay out the cable in some environments, added to which, extending the length will always present logistics problems. The Radio Link has a range of up to 100m, depending on the site conditions. It is fully encrypted which means that interference and false triggering is virtually eliminated.

The kit consists of a receiver, transmitter and two short connection cables. The transmitter and receiver are supplied as a unique pre-programmed pair.

The receiver is connected to the MCT-1 via one of the cables provided. This module will receive the signal from the remote site to trigger the Controller in the normal way. Its power is derived from the Controller, it does not need batteries.

The Transmitter has a number of functions, the first, of course, is to send the sensor data to the Radio Link receiver connected to the MCT-1. The second function is to power the sensors as these would normally get power via the MCT-1 link cable. The third function is to drive the infrared beam in the sensor. As with the power, this is normally sent down the link cable from the MCT-1. The Radio transmitter is connected to the sensor with the short cable provided. The batteries are inside the transmitter and will have to be changed periodically. When the transmitter is not triggered by the sensors it is in the 'sleep' mode and does not send out any radio transmission.

The Radio Link will work equally well with the Tilt Sensor. As with most encrypted links, there will be a delay in activating the MCT-1 trigger input by up to 0.25 seconds and the minimum trigger time will also be 0.25 seconds. Therefore, whilst it is supremely useful for most outdoor subjects, it cannot be used in conjunction with the sound or light sensors, nor can it be used as a fast IR beam breaker.

## TILT SWITCH

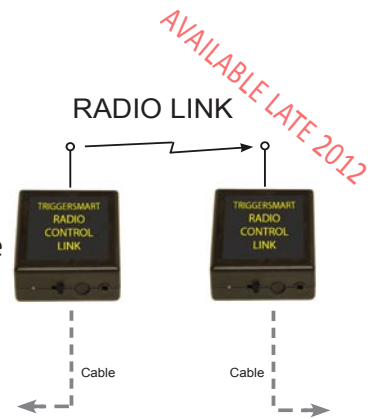
The Tilt Sensor is specifically designed to work with the Triggersmart MCT-1. When mounted correctly, it will trigger the MCT-1 when the sensor is tilted by 5° or more. Whilst there could be other uses for this device, it would mainly be used for wildlife subjects using a tilting platform. It can also be use in conjunction with the infrared sensors described later.

## BATTERY POWERED INFRARED TRANSMITTER

In some situations, it may be inconvenient or impossible to site the IR transmitter and associated cable easily. In these instances the battery powered version may be the answer. It works in the same way as the IRTX in the Basic kit but is self-contained, ie it has the beam driver built in along with the batteries and, of course, it is cableless.

## INFRARED ALIGNMENT AID

In some situations it may be difficult to line up the infrared beams correctly as described in the Triggersmart manual, especially when the MCT-1 is remotely situated from the sensors. The Alignment Aid module is a handy addition to the family. It can be plugged into any of the sensors via the short cable provided. When the IR beam is misaligned, a very bright LED will glow on the module. The LED will extinguish when the beam is lined up. When the beam is lined up it can be unplugged or switched off and left in situ.



## STAKEPOD

In the basic kit two mini tripods are supplied to mount and position the sensors. The 'STAKEPOD' is supplied as part of the wildlife kit or can be obtained separately. It is a simple but unique device which allows the user to mount the sensors by simply pushing the Stakepod directly into soft ground. The top of the Stakepod has a standard camera tripod thread so it could be used to mount cameras, etc.

Cable anchors are provided in the Wildlife Kit to hold the connecting cables in place.

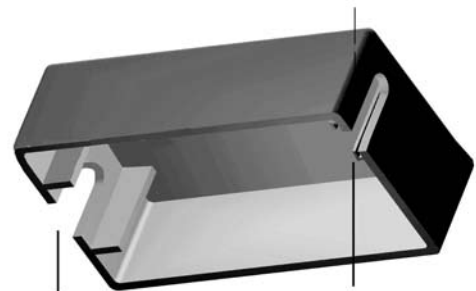


## WEATHERPROOF COVER

The sensors in the Triggersmart range need to be protected from adverse weather conditions. At an early stage in the development of the range it was decided not to make them waterproof as the connection and cable plugs would be prohibitively expensive. It was also noted that many of the systems would not be operated outside and so they would be over engineered for the purpose.

However, Sabreswitch has come up with a cost effective solution using a weatherproof cover that simply sits over the sensor and cable connection. At one end the IR beam looks through an opening. The sensor is set back into the cover to protect against splashing. At the back end there is a filter mount to slide in a piece of ND or spectrum filter to cut down the light to the LIS when using the Sensor in that mode.

Four are provided in the Wildlife Kit or they can be obtained separately in pairs.



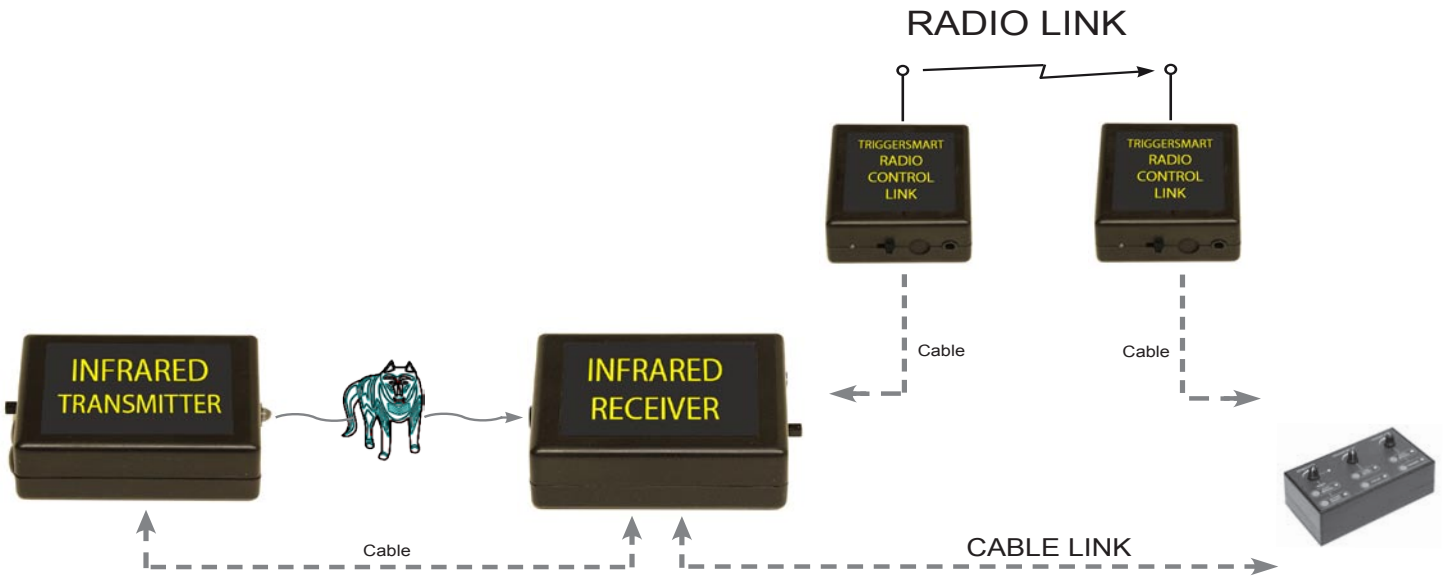
## SETUP CONFIGURATIONS

Having got this far into the document, we now turn to the ways in which the sensor and cables can be configured. Some of the setups are shown to give insight into the various ways the system can be used. Others are simply to reduce the number of cables used or both.

Being one of the most flexible systems on the market, there is likely to be more uses and configurations than we can sensibly document, but the following may give the user ideas on other configurations and applications.

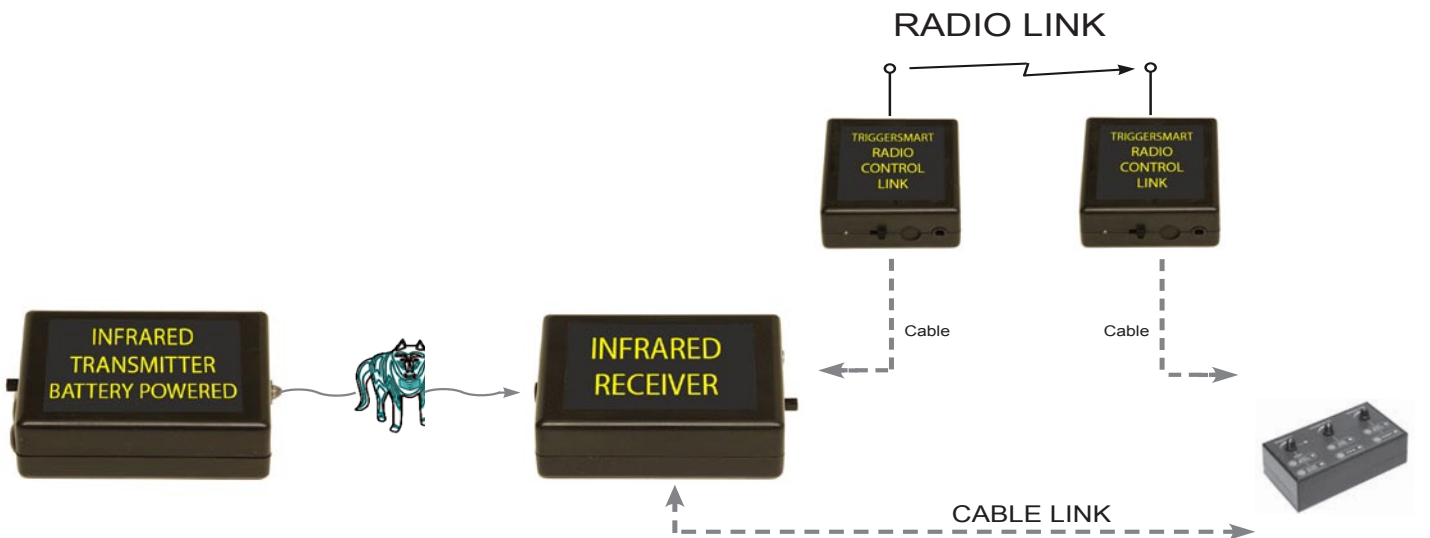
## INFRARED BEAM SETUP

The diagram shown below is a standard setup using either a cable to link back to the controller or the Radio Link.



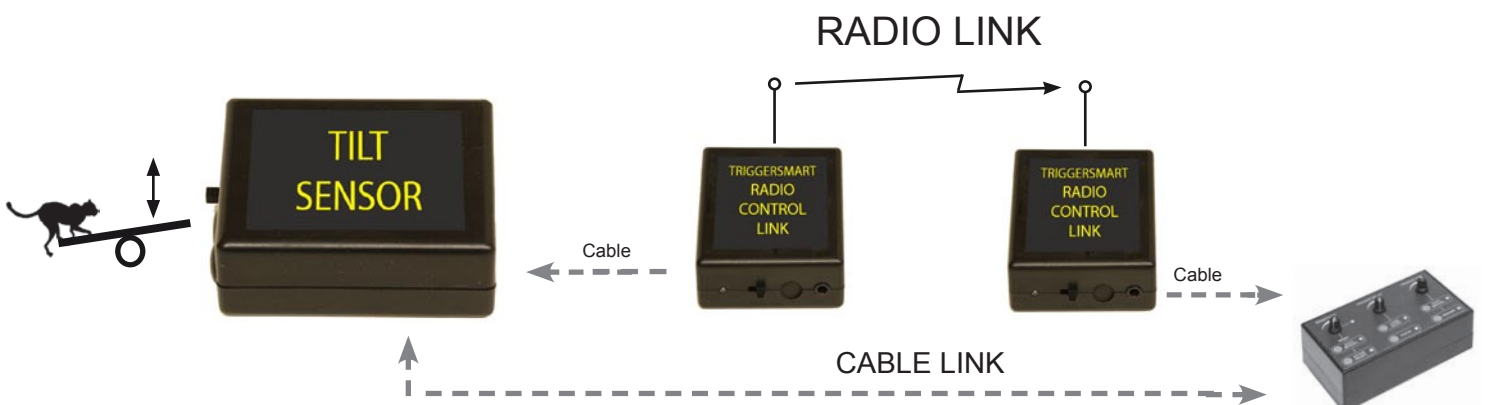
## USING THE BATTERY POWERED INFRARED BEAM

The diagram shown below is a modified setup using either a cable to link back to the controller or the Radio Link. Note that the cable that would power the IR Transmitter is not required as it uses the self contained battery powered IR Transmitter.



## THE TILT SENSOR SETUP

In this configuration the IR Beam has been removed and replaced with the Tilt Sensor. Again setup uses either a cable link or the Radio Link back to the controller.

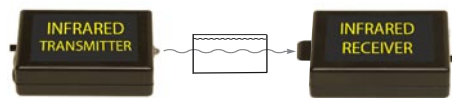


## CAPTURING SMALL OBJECTS

In this configuration the IR Beam is employed to capture small objects such as liquid dripping etc. Note that the baffle has been connected to the IR Receiver to ensure that very small objects are captured. The option of the Radio Link has been removed as it would not be fast enough to capture the event, therefore the Cable Link is required every time.

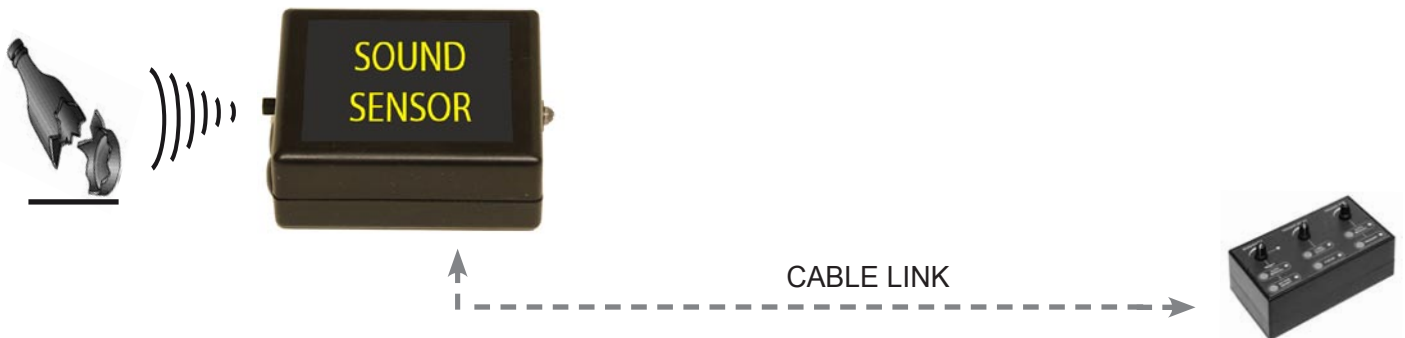


**The IR beam will also travel through water!** This gives rise to all sorts of cool possibilities. Simply place the IR modules either side of a glass tank or tumbler and then drop the object into it thus breaking beam **under-water**. Another possibility is to drop opaque or dark liquid into tank - this will also break the beam



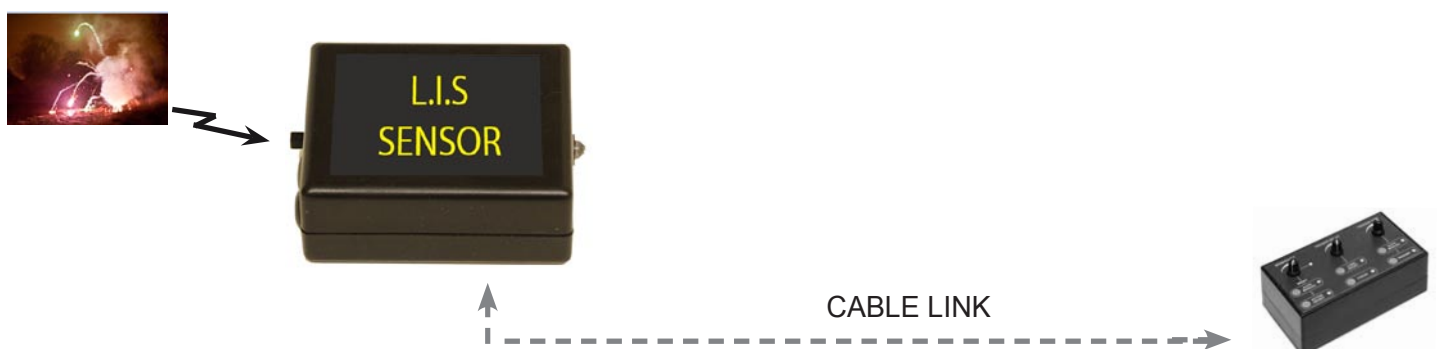
## THE SOUND SETUP

In this configuration the Sound Sensor is employed to capture the sound of objects breaking such as glass hitting a surface, balloons bursting or weapons firing, etc. The Sound Sensor is in fact housed in the IR Transmitter Module but works completely independently from the Transmitter. Again the option of the Radio Link has been removed as it would not be fast enough to capture the event, therefore the Cable Link is required every time.



## THE L.I.S. FACILITY

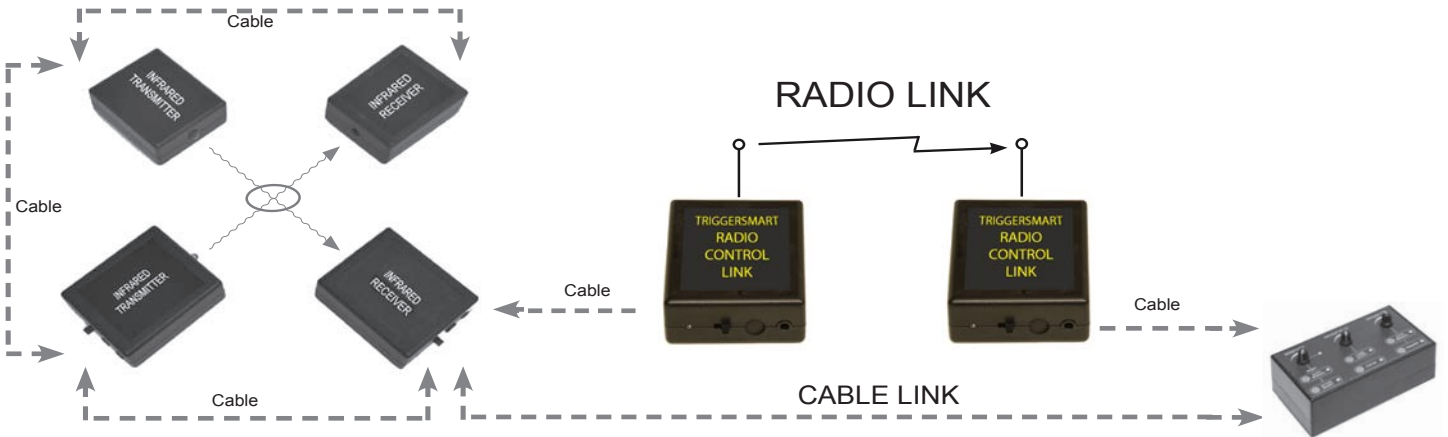
In this configuration the LIS (light Intensity Sensor) is employed to capture sudden changes in light such as lightning or firework displays. The LIS is housed in the IR Receiver Module but works completely independently from the IR Receiver. Again the option of the Radio Link has been removed as it would not be fast enough to capture the event, therefore the Cable Link is required every time. It should be noted that the Sensor will only work in dark conditions. However, it is possible to extend the range a little by using a piece of ND filter over the sensor.



## MAKING A SWEET SPOT

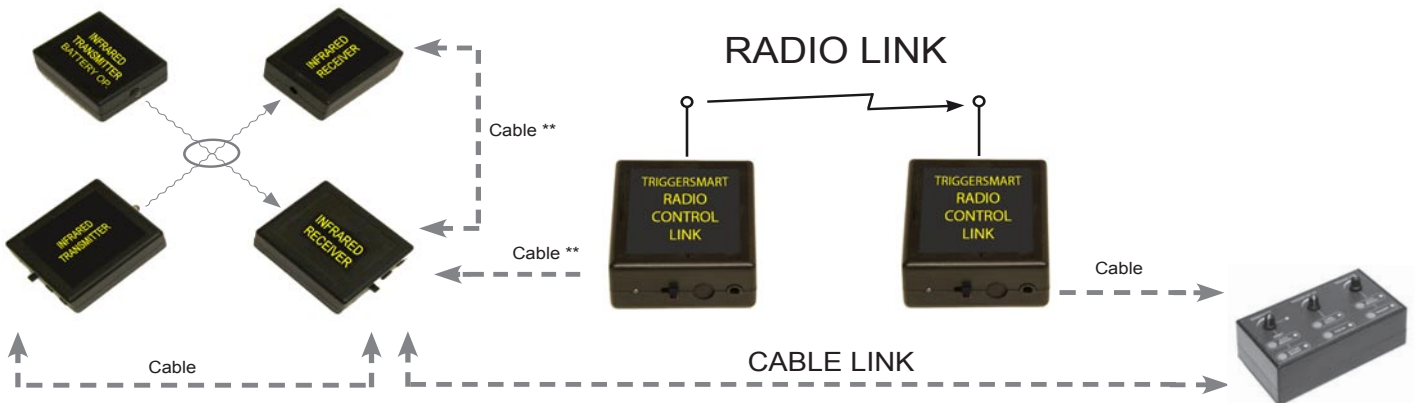
Up to this point we have shown how to configure the Infrared Sensors using only a single pair. Of course this means that the subject can trigger the camera anywhere along the beam line, which could be up to 2m or more - hence not within the camera field of view. The setup below shows two pairs of sensors being used in a cross formation. Now when the subject comes into view the camera will trigger only when BOTH beams are broken, this is our definition of a 'Sweet Spot'.

Note the cable configuration, these are shown in a 'daisy chain', and as with all the IR setups the Radio Link can be used if required.



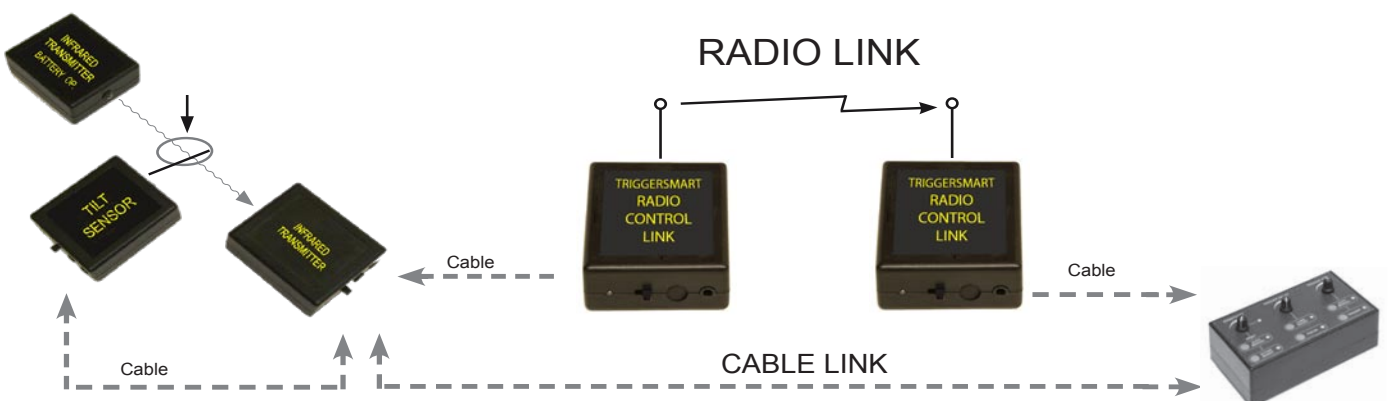
## MAKING A SWEET SPOT WITH LESS CABLE

In this setup one of the IR Transmitters has been replaced with the battery version to reduce cabling. To reduce the cable count even further the second IR Transmitter can also be changed for a battery version, further reducing the number of cables. Ultimately the user can reduce the total number of cables down to two - ie the ones marked \*\*.



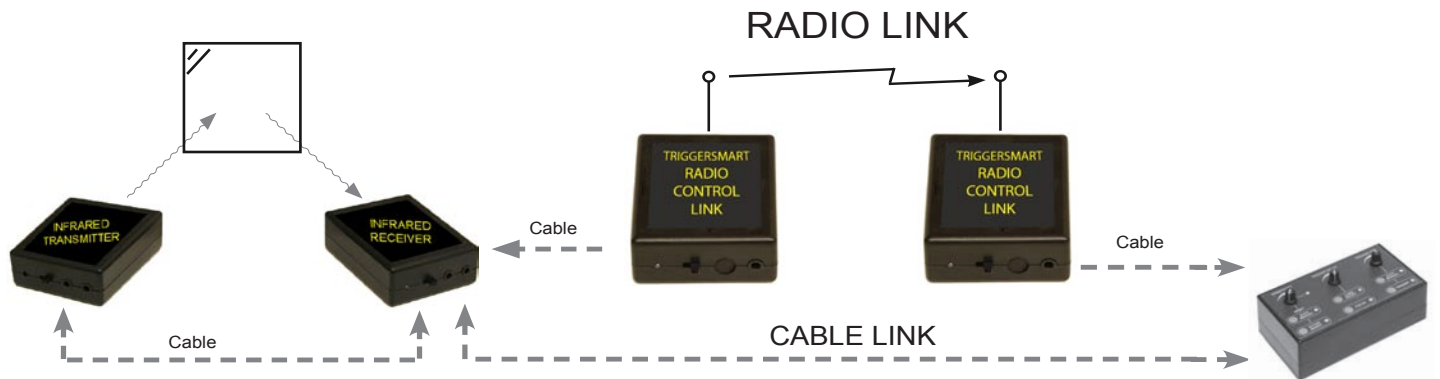
## 3D SWEET SPOT

If a vertical sweet spot is required the user could mount the second IR pair vertically but it may be difficult to achieve. In this example we have used a combination of IR and Tilt to achieve the same effect.



## REFLECTED INFRARED

In this setup the Infrared beam is reflected using a mirror. It is tricky to set up especially in a field environment, but it can be done with care. When trying this outside it could be difficult to mount the mirror. Also the lighting conditions could 'blind' the sensor.

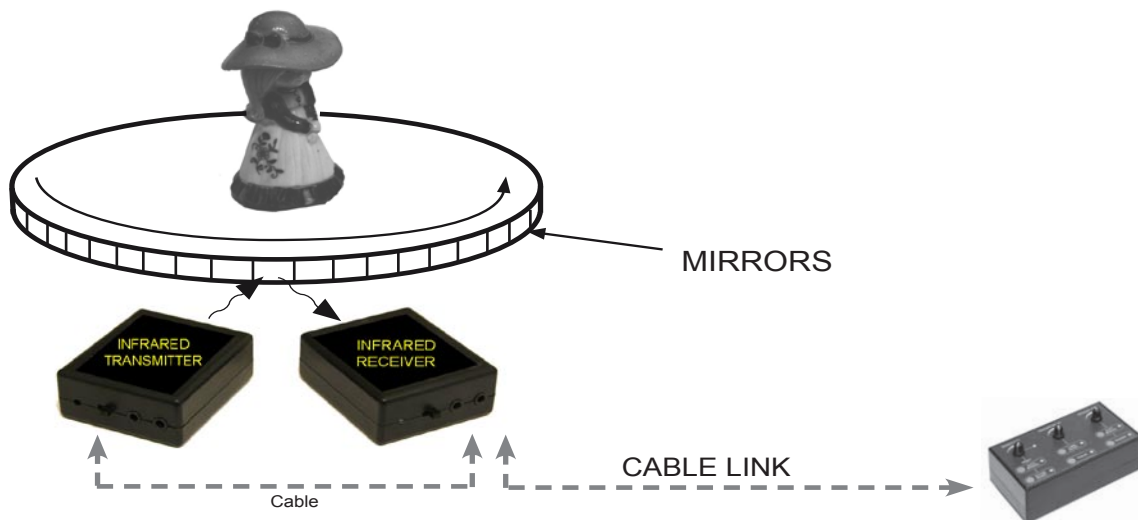


## 360 DEGREE PRODUCT SPIN

This type of project is becoming very popular, especially with the advent of 360 degree rotating images on the Web. To construct these images it is necessary to take a shot every few degrees. Up until now the kit was somewhat expensive, but with Triggersmart it can be achieved quickly and at minimal cost.

The setup below shows a rotating platen with mirrors mounted around the edge. The mirrors could be formed by using cheap mosaic mirror tile strips or it could be a continuous strip of polished chrome, in this instance black tape would have to be added at intervals.

As the platen rotates the beam is interrupted each time it 'sees' the next mirror and triggers the camera via the MCT-1, which can be setup to control the delay and trigger time to control the number of shots per degree of rotation. The Baffle can be added to improve accuracy.



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