

# Notice BIR3



The infra-red barrier sets off a camera or flash 'intelligently' following the interruption of the IR beam generated by the transmitter.

The barrier's receptor controls the moment that the camera operates, for the flash, the shutter, mirror etc. The infra-red transmitter must be placed in front of the receiver; more precisely, the little red window of the transmitter must be directly facing the metal tube of the infra-red receiver. The IR transmitter is the little box; the receiver is the large box.

## Electrical power supply

Four AA batteries must be installed in the appropriate compartment in the receiver before use. It is possible to use rechargeable batteries. A 9v battery must be installed in the transmitter in the appropriate compartment.

Rechargeable batteries are not recommended. It is possible to use an external power supply, either using a 12v battery or by using the option ALIM1 and a power supply comprised of a number of batteries or / and a cable to attach a 12v battery by crocodile clips

## Description of the receiver

The receiver is equipped with four output jacks, a function selector, a sensitivity dial and an on-off switch. All the output sockets are 3.5mm stereo jacks

### 1. PHOTO Jack

The photo out socket allows a reflex camera to be connected to the IR barrier

This output will control the activation of the camera unit, the flash and mirror in order to have shorter trigger response times and control the opening of the shutter.

### 2. FLASH Flash

This output will directly trigger the flash based on the mode selected without implicating the camera.



### 3. **Relay Jack**

This is a universal output. This output will enable either the basic triggering of a secondary unit without cell management or automated triggering or a flash or secondary unit such as a stroboscope. The noise of the relay also indicates the proper functioning of the barrier.

### 4. **IN BIRX Jack**

This is an input jack which when connected to another JAMA BIR2 or BIR3 infra-red barrier will trigger if BOTH barriers detect an interruption of their IR beams at the same time. This crossed barrier mode functions with modes 1, 2 and 5. In this case barriers N°1 and N°2 are set off. In modes 7, 8 and 9, BIR3 will be set off if one or other of the beams is cut.

- *At the right of the 4 jacks, the selector enables a choice of function; it has 16 positions which are described later.*
- *To the far right is the on off switch.*
- **On the far left is a sensitivity selector**
  - *Insect position is very sensitive and will trigger at the slightest interruption of the beam*
  - *Bird position is moderately sensitive but will not trigger due to a water droplet or an insect that flies through by accident*
  - *Squirrel position which is ideal for the detection of a mammal*

1. On the left hand side is a potentiometer with a time adjustment and certain other functions.
2. On the right hand side, is a 3.5mm jack which allows for a 9 to 12v external power supply protected against polarity inversions.
3. At the back there is a metallic tube which protects the IR receiver from sunlight and focuses the IR beam of the transmitter. Next to it there is a red LED which enables alignment verification and a choice of function.



## **Description of the IR transmitter.**

On each side there is a sliding contact protected by a small piece of rubber. One is the on / off switch. On the other side, a similar sliding switch, which when on the highest setting the beam will be powerful with a range of 9m, at its lowest, less powerful but will detect an insect or a drop of water at a range of one to two metres.

## **Choice of function**

***Herewith a rapid description of functionality:***

- Simple triggering of the photo box, the flash and the switch on beam interruption.
- Mirror-up mode. The reflex's mirror is raised every 30s and opens the shutter if the beam is cut.
- The flash is reactivated every 90s, to enable it to be ready and available if the beam is triggered.

- The flash is reactivated if the beam is cut. The photo box is triggered two seconds later in order to give the flash time to recharge.
- Special 'bat' function. Opens the shutter for a maximum of 45s, if the IR beam is cut by a bat, the flash is triggered and the shutter is closed.
- Special 'drop of water' function. Opens the shutter and triggers the flash after a time-delay which can be varied by the potentiometer.
- The following functions are identical to the previous ones but are triggered either because the BIR3's IR beam is cut or because a second IR barrier detected a beam being cut. The two barriers are linked by a cable which is plugged into the BCROIX IN socket.
- Simple triggering
- Mirror up mode
- Special 'bat' function.

Functions 1 to 6 take account of BCROIX mode if a second barrier is connected to your BIR3. In this case, the second barrier is responsible for the triggering of your BIR3.

To choose the required function, simply turn the function selector. In order to verify the correct position, it is possible to determine the number of times the red LED lit up. For example, if the LED blinks 5 times is function 5.

## **Complete description of the functions.**

In all cases, the autofocus should be deactivated; the diaph priority or speed chosen is dependant on the circumstances. It is best to wrap the box with a thick jumper or piece of clothing or an anti-noise muffler in order to muffle the noise of the mechanism.

### **Mode 1**

With this function, the barrier triggers the camera, the flash and the switch directly. The switch may delay the triggering of the mechanism by 1/100 s (0.01s).

If the unit is set off by a bird or insect in flight, there is a delay related to the response time of the camera, even with the fastest units. It requires several hundred milliseconds for the unit to raise the mirror and open the shutter.

If the unit is to be used for rapid subjects, it is necessary to proceed in stages in order to determine the most appropriate viewfinder zone. Initially, use a wide angle and adjust the angle based on the result of initial trials. In order to correctly capture movement, several flashes need to be installed, set to minimum power, even in full daylight. If the light allows it, select the highest speed on your camera with a diaph of 8 which would then not require a flash.

### **Mode 2**

This function will enable great improvements in the response time of the camera. Instead of a response time of several hundred milliseconds, the response time is reduced to around thirty milliseconds depending on the unit. This improvement will avoid the time lag between the moment when the beam is interrupted and the moment when the shutter opens. It is necessary to activate the 'mirror raised' function in your reflex. Not all reflexes support this function. Nikon cameras take a photo when the mirror is on the way down. This is unavoidable. When this function is activated, the mirror can be heard to drop and go up every 30 seconds. Note that this resembles the noise of a frame being taken except with the Nikons where it really is a frame being taken. As soon as the beam is broken, the shutter is opened for the shot. The shutter then closes; the mirror drops and goes back up again straight away in order to be ready for another shot.

**Assembly:** It is sufficient to connect the reflex to the PHOTO output of the BIR3 and if necessary the flash or flashes to the reflex using the cable corresponding to your unit supplied with the BIR3.



### Mode 3

This function maintains the flash ready to use.

This is the ideal solution for photographing birds of prey for example, but care should be taken over the flash's additional electricity consumption since the unit is effectively solicited every 90s.

This is a solution which will only function for a few hours, due to the battery life of rechargeable flash batteries.

**Assembly:** It is sufficient to connect your reflex unit to the PHOTO output of the BIR3 and the flash directly to the flash carrying clip of your unit or by TTL cable. Your flash must be TTL compliant and specific to your unit.

### Mode 4

This function will wake-up the flash two seconds before the opening of the shutter. This solution is well adapted to the photography of night-time mammal traps. It is important that the flash batteries are at maximum capacity, otherwise the unit will trigger before the flash is ready.

**Assembly:** It is sufficient to connect your reflex unit to the PHOTO output of the BIR3 and the flash directly to the flash carrying clip of your unit or by TTL cable. Your flash must be TTL compliant and specific to your unit.

### Mode 5

This function is explicitly intended for the photography of bats or ultra rapid movements which can be achieved in the dark room or closed studio. The BIR3 will manage the unit and the flash independently. The unit must be set to shutter open shot B. The BIR3 will open the shutter for a maximum of 45s and as soon as the IR beam is cut, the flash is triggered and the shutter closes. The shutter is then re-opened awaiting any further break in the IR beam. If the beam has not been cut within the 45 seconds, the shutter is closed, moving on to the next shot.

This type of shot requires a lot of energy from the unit, which should only be turned on just before the sequence.



**Assembly:** It is necessary to have two cables, one to connect the flash to the BIR3 and the other to link the reflex unit to the BIR3. The flash is not necessarily TTL compliant but you may use a simple model with a variable power setting. The main flash is triggered by the central connector. If the flash is TTL compliant, there are adaptors which allow an electric connection but on certain flashes the connection exists. Ideally, several flashes should be used so that the subject is well illuminated. A flash is required on each side of the subject, another to back-lighting the subject and if necessary a further one to light the background. The secondary flashes may be triggered by auto-trigger cells.

## Mode 6

The special 'drop of water' mode is intended to photograph water droplets, but also drops of milk, exploding balloons, other objects falling into water and other subjects you may imagine carried out in a dark room or at night. The principal is to detect a moving object and to slightly delay the triggering of the flash in order to give the object the time to complete its trajectory.

**Assembly:** To take a photo of a drop of water, a drop of water can be created with a plastic bottle for example having a needle hole in the lid which allows droplets to escape. A thread of cotton can also be fed through the hole in order to ensure that the drops fall where desired. The hole needs to be different with milk since milk is more viscous.

The bottle should be placed at a minimum distance of 1m from the bowl or recipient. The effect is different depending on the height of the bottle. Ideally a piece of white or coloured paper should be placed at the bottom of the recipient in order to reflect the light of the flash. It is necessary to have two stable supports, ideally two tripods. The bottle will generate drops more or less frequently depending on how much the cap of the bottle is opened.

The drops must fall just in front of the metallic tube of the BIR3. The infra-red transmitter should be set to low power (small circle). The BIR3 should be set to the 'insect' position. A little experimentation can be used to find the best parameters to detect water droplets. It is sometimes not necessary to perfectly line up the selectors as long as the red LED does not light up.

Once the water droplet consistently sets off the barrier, the main flash should be connected to the flash output of the BIR3. The flash is not necessarily TTL compliant. A simple model may be chosen but with a variable power setting. The main flash is triggered by the central connector. If the flash is TTL compliant, there are adaptors which allow an electric connection but on certain flashes the connection exists. Ideally, several flashes should be used so that the water droplet is well illuminated.

Next, the delay between the moment that the drop is detected and the moment that the flash is triggered should be set. This is done with the potentiometer situated on the left side of the BIR3. Next, the unit is connected to the BIR3 or the shutter is opened manually. As soon as the flash goes off, the shutter is re-closed automatically by the BIR3.

## Mode 7, 8 and 9

Identical to the above functions but with the possibility of installing a second IR barrier in parallel to the first such as a BIR2 in order to have a greater probability of triggering. In effect, if one of the two beams is cut, the unit will be triggered. **Mode 7** is identical in behaviour to normal mode 1 but with two barriers.

**Mode 8** is identical in behaviour to normal mode 2 mirror raised but with two IR barriers.

**Mode 9** is identical in function to normal mode 5, 'bat' mode but with two IR barriers.

**Assembly:** It is necessary to have on one end of a 2m cable, a 3.5mm jack cable and on the other end a 2.5mm jack. The second barrier is connected to the IN BIR X input connector on the BIR3 using the 3.5 mm jack. The other end is connected to the camera output or relay of the BIR2. It is possible to connect another triggering system such as a manual switch or a radio remote control TEL80 JAMA in order to trigger the unit manually. The rest of the assembly is identical to normal mode. Beware: the two transmitters should not be installed on the same side as one another. One transmitter should be installed in front of the receiver and at the other end for the second. It is also possible to install a single transmitter for both receivers if they are side by side.