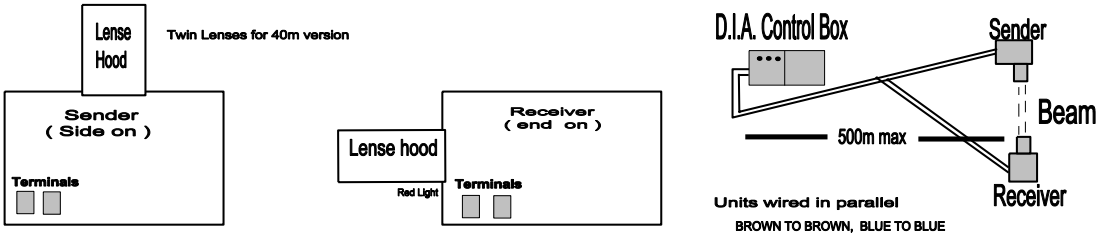


DIACON3H 09/04

IR. DRIVEWAY INTRUDER ALARM INSTRUCTION SHEET

The alarm is designed with an integral power supply to run off 240V Mains. (Battery version, only to special order, 12V DC.)
The relay switch in the control box is coupled to the internal Function Timer Module. The contacts are rated 240V 10A resistive. Both Make and Break contacts available.

There are three small knobs on the front panel.

a) Buzzer Time. Adjustment between 1 second and 1 minutes.
b) Delay. (Relay) Adjustment between 1 second and 2 minutes.
c) On Time. (Relay) Adjustment between 1 second and 3 minutes

The Buzzer time is completely independent of the other two. An extra buzzer can be connected to two terminals in the box. (see diagram page 3) These are available from Sutcliffe Electronics.

Wiring (see diagram)

The sender and receiver boxes both have two screw terminals. The control box has four terminals for its two channels through holes on the left hand side. These only have 12V on them. The centre two terminals are the Common + terminals, the outer ones are the combined channel terminals. **The 5 terminals under the cover, are not for connecting the beam.** Wire one Cable pair to **ONE** channel. Connect **Brown** to **Brown**, and **Blue** to **Blue**. Control box, sender and receiver, are wired in parallel. The terminals in the sender and receiver boxes have no polarity, just wire a brown and a blue to each The sender and receiver boxes can be wired independently, or from one to the other, whichever is the most convenient. (Accessory power supplies are available for SENDER ONLY to be connected to a separate mains supply.) Upto four mixed modules can be wired to the control box, thus two sender and two receivers, or four receivers only etc. If not working in pairs, an Accessory power supply will be required for the senders. **Make sure the cable is not blocking the optical area between lens and detector, or lens and sender diode, at the rear of the housings. We suggest that it can be better to strip off the outer insulation, such that only the inner blue and brown wires go through the hole. This prevents capillary action allowing extra moisture into the beam boxes if the outer cable has become damaged. It also is much easier to wire**

To prevent insects from going into the boxes, use "blutak" or equivalent, to seal the hole round the wires.

MOUNTING

Mount with the flat lid down, to ensure the units are weatherproof. **Do not seal the boxes,** this causes corrosion. **Please Note**, Some people have used **"Silicone Sealer"** to mount or seal the boxes. This usually gives off **Acetic acid fumes** as it cures, which will corrode the circuit boards causing the intruder alarm to fail.
When mounting the sender and receiver boxes, use one of the four blind holes on the corner

PLEASE LEAVE THESE SHEETS WITH THE CUSTOMER

of the boxes to fix the bracket with the supplied screw and rubber washer. **Do not drill extra holes for mounting, or connecting the cable.**The mounting brackets supplied, are a simple right angle. With one side is fixed to the flat top of the housing, and the other to a vertical, the beam can be swivelled left and right, up and down. Rubber washers are supplied to provide resistance to movement. Fit one between the bracket and the box, and the other between the bracket and the mounting point. It is then possible to adjust the beams without undoing them. See diagram.
The central hole in the bottom is for ventilation only, please do not use for the cable.
The other hole in the bottom has been drilled for the cable. Please use the screwdriver supplied, for the terminals. It is very easy to over tighten the screws if a larger driver is used.
It is better to mount the boxes **inside** posts than on them. This reduces the chance of someone damaging them. The alarm will go off once, but you have lost your security. Also the boxes will not be so easily seen. The system is most efficient if it is mounted covertly.

SETTING UP

Connect the boxes as per diagram, close the lids. You will note a red light next to the lens of the receiver. When the beam is **near** alignment this will go out, and remain so except when the beam is broken. When fitting a long beam, it can help to use a fishing line to get the angles.
To ensure the beam is correctly centred, sender on receiver, receiver on sender, first adjust the receiver UP DOWN LEFT RIGHT to position it centred on the beam. (The middle of the dead area when the red light does not show) Then go to the sender, you can see the red light on the receiver, by looking down the beam. Adjust the sender in the same way. UP DOWN LEFT RIGHT . If you are finding it difficult to see the red light, is easier to see if this is done at dusk. Then use a piece of card to partly cover the **receiver** lens. The red light should not come on until the receiver lens is covered to within 1/4 inch / 6mm or less of the far side in any direction. Ie Most of the lens covered. (At night this could be as little as 1/8 inch. / 3mm) UP DOWN LEFT RIGHT. **Please note the beam is not set up until this is possible.** Time spent getting the beam right will save false triggering later. Final setting up is best not done at night, if this is when you set it up, recheck the receiver during daylight. When you are satisfied, cover the red light with a small piece of insulating tape to hide it.

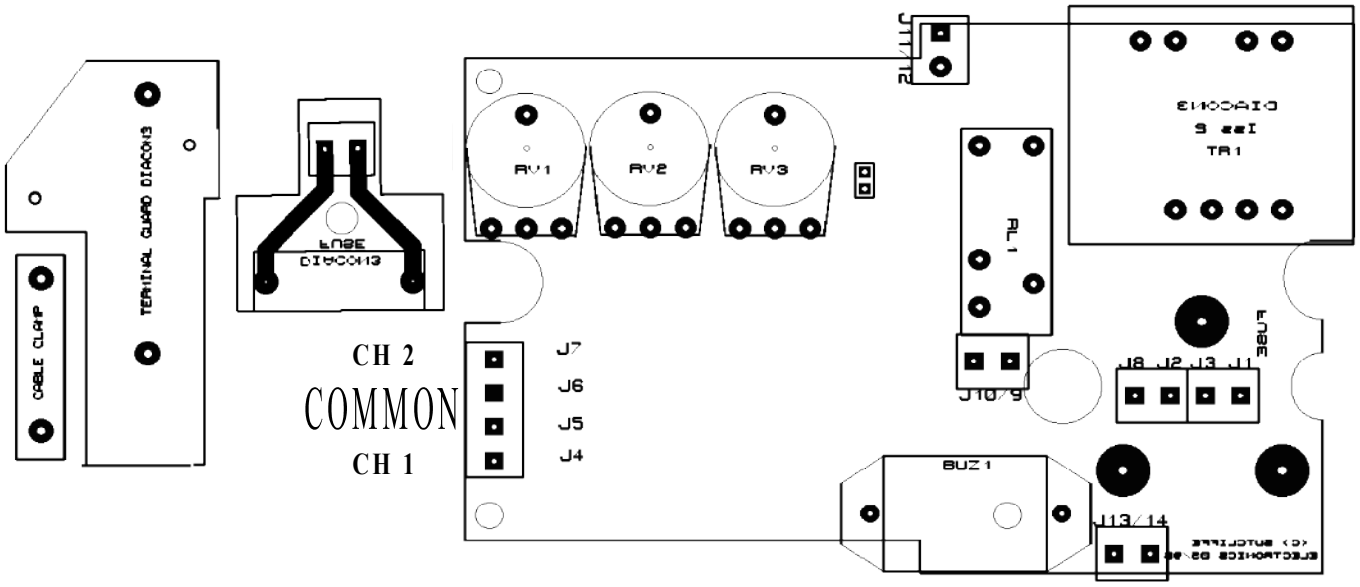
The senders and receivers are fitted with lens hoods and louvers, this is to protect against low sun causing false alarms by swamping the receiver. It also protects against frost on the lenses destroying the focus. When planning the position of mounting, mount the receiver pointing away from the light. In the UK, if the beam set North South, it is best to mount the receiver pointing North. Also, try not to mount directly East West into the rising or setting sun. There is no reason why it should not be mounted diagonally. The louvres can be pulled out and turned, which can help if the sun is causing a problem.
Please try out the alarm indoors before fitting in the final position. It is better to make your mistakes on a dry run, not outside in the rain Make sure the box lids are **on**, the units are affected by lights.

Sutcliffe Electronics offer help on the telephone during normal working hours, if problems occur during setting up.

Tel 01233 634191 Email help@sutcliffeelectronics.co.uk
Sutcliffe Electronics 15 West Street, Hothfield, Ashford, Kent. TN26 1ET

DIACON3 CONTROL BOX DIAGRAM

(C) Sutcliffe Electronics 16-05-96



J1	**Mains live**
J2	**Mains Neutral**
J3	**Mains Earth**
J8	**Relay common**
J9	**Relay normally open**
J10	**Relay normally closed**

J4	**Channel 1 Beam**
J5	**Channel 1 Common**
J6	**Channel 2 Common**
J7	**Channel 2 Beam**
J13	**Extra buzzer - (black)**
J14	**Extra buzzer + (red)**
J11	**Accessory + (Not necessarily**
J12	**Accessory - available)**

IMPORTANT

The wires from the beam boxes must only be connected to Channel 1 + Common or Channel 2 + Common (J4 - J7). We supply a screwdriver for use with the small terminals in the boxes.

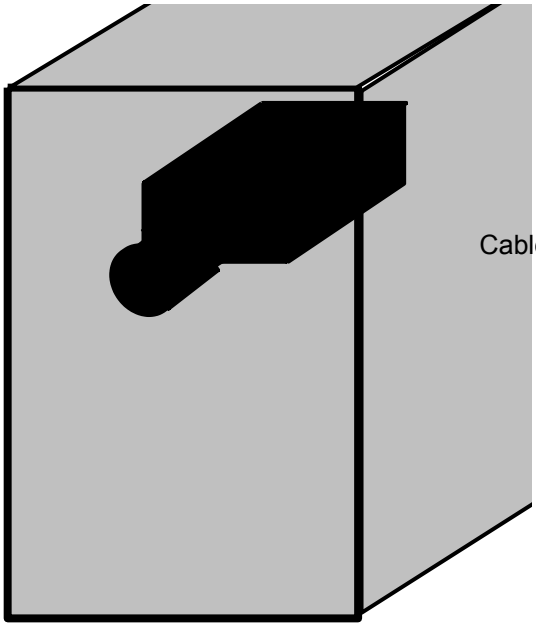
If you need to expose the Mains input terminals for wiring, unscrew the two posidrive screws which hold the terminal guard. Wire the unit to match your chosen configuration, and refit the guard. Use the cable clamp to hold the cables. Wire Switched relay functions Via the 10A fuse in the lid to protect the tracks on the circuit board and the relay contacts. Diagrams only supplied if particular configuration requested.
Please note. The terminal guard holds the circuit board in position.

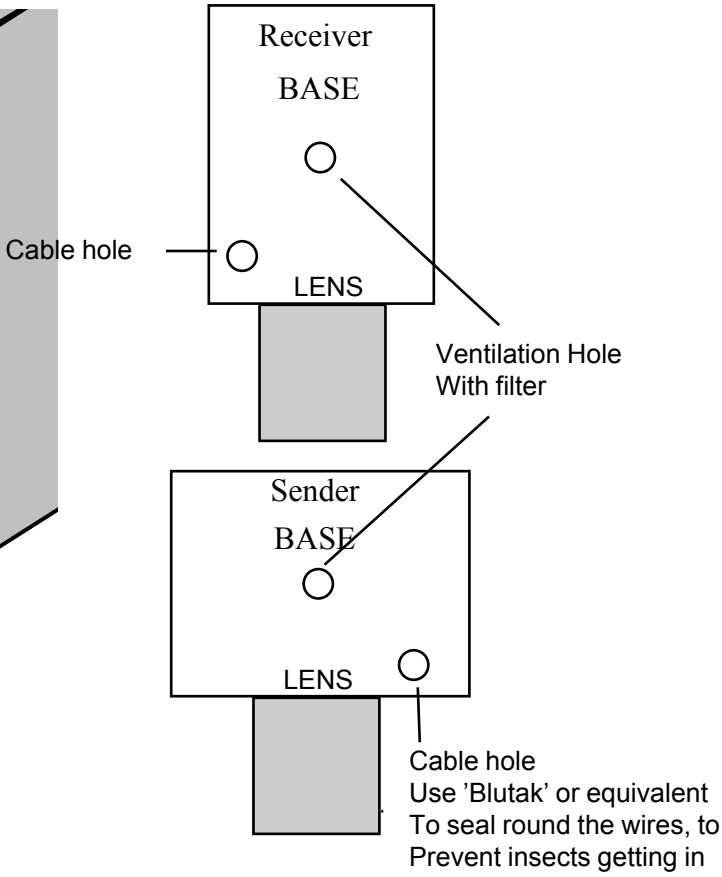
DO NOT PLUG UNIT INTO THE MAINS WITH THE GUARD UNFITTED

The two possible Beams, channel 1 and channel 2 are wired through the holes in the case specially drilled for them.

POSTCRIPT

the units are designed to run continuously. Condensation will form in the sender and receiver, destroying them if regularly switched on and off and allowed to cool. When the system is not required, just turn the buzzer to minimum. Any external sounder can be isolated separately.



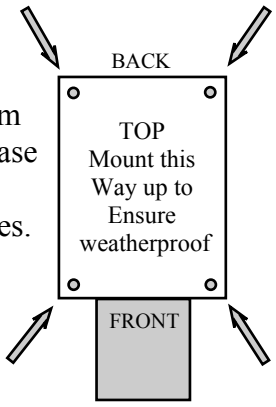


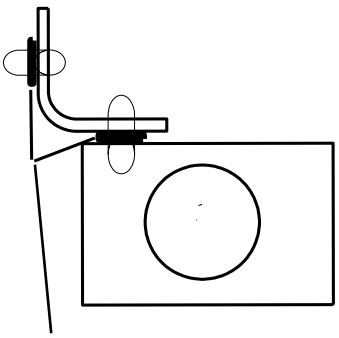
Mount the beam boxes inside rather than on a post. Hollow posts can be made from four planks nailed together

Mounting Holes

There are four blind holes in the top, one of which is used for the mounting bracket. (Screw supplied) We do not specify which, since the best position depends on where and on what the beam is mounted. Please note how the rubber washers are used.

For maximum stability, please mount using the front holes.





Mounting bracket

It is recommended that the box is mounted from the side and not from the back, otherwise it will not be possible to adjust the box to point up and down.

Note the overhang is to allow left/right movement, and where the Rubber washers are fitted.

Cable & ventilation holes

The Beam boxes have a central hole drilled in the bottom. This is covered with a filter material, and is designed to allow the units to breathe. The hole round the cable should be blocked with a little "bluetak" to prevent insects from getting in. The correct way round for the bases is indicated by the **LENS** label.-

Cable

To prevent capillary action on the cable outer drawing water into the boxes and causing corrosion, strip the outer cable longer, such that it is only the blue and brown wires which enter the boxes. This may look more untidy, but will improve the reliability of the system

Driveway Intruder Alarm check list

We have written and rewritten the instruction sheets for the 20 plus years this product has been in production. If you have followed the suggested methods of mounting and wiring, your Driveway alarm should give you good service.

This is not an exhaustive list but should help with the usual questions received.

1 The beam wired into one of the centre terminals and one outer terminal of the control box.---- There are four terminals to make it easier to connect two separate beams.

2 It is usual for both sender and receiver to be powered by the 12 Volt from the Control Box, but where they are coupled together does not matter. If there is an Accessory Power Supply for the Sender. Make sure it is the **Sender** it is wired to, not the receiver which must be connected to the Control box.

3 **It does not usually help to try to set up the beam with a laser pointer.** It can help however to use a television remote control to find out if the receiver is pointing off line. Walk slowly back, following the sensitive area, you will soon find if it is pointing up into the air, or down the the ground. This is particularly valid for 20 and 40 metre beams. 2 degrees out at 40 metres is a long way.

4 The hole in the centre of both sender and receiver bases, is not to be used. It is only for ventilation.

5 The other hole pre drilled, is for the cable. If the base is positioned as indicated, it will route the cable out of harms way, such that it has little effect on the quality of the projected / received beam. Please take particular note of this point as it is difficult to explain over the phone that this is the only reason that false alarms are occurring.

6 The beam is centred with the aid of the red light on the receiver, there is no need to be able to hear the buzzer in the control box.

7 When correctly set up, it is possible to almost completely cover the receiver lens without the red light showing. It will be the same from which ever direction the lens is covered. Though the receiver may be adjusted perfectly, the job is not finished until the sender is also centred. No one wants false alarms. We regularly check 10m sets at 30m to prove that they will work correctly, so there should be no problem setting them up at 10m.

8 There is no need to drill the boxes for the mounting bracket. The screw supplied fits the blind holes in the boxes. (spare sets of screws and rubber washers are available)

9 Please use the rubber washers (see diagram). We have learnt from practical experience that they prevent the beam from moving with time. (False alarms) If you have Lost them, We can supply replacements.

10 A beam which is out of true or has the cable shading the sender or receiver diodes will be affected by daylight, or at least sunlight. Comment “It works perfectly all night, but false alarms all day” Answer, “Please make sure the cables are not in the optical area, and realign your beam”

11 If the receiver has power, but is not receiving anything, the red light will glow continuously. You can prove whether it is working by using a television remote control. You should be able to get some effect up to about 5m. If it will not work with the television remote, there is a fault. This could be a damaged cable, or the system itself. Prove it is not the cable by doing a bench test. (2 or 3 metres apart)

12 40m beams only.--- Make sure both senders are equal, using a card, covering each lens in turn, and then checking how far the second lens can be covered.

13 If you are fitting the system for someone else, involve them with the setting up. There is nothing worse than being called back to move the receiver by 4 mm, because the post has shifted slightly. Your customer will be much happier.

14 A quarter of an hour at the end of the job, spent making sure the beam is as good as you can get it, will save a lot of heartbreak later.

15 If you are joining two cables not in the boxes, Use ordinary screw connectors, then smother with grease, and put them a plastic bottle to keep the rain and moisture out. Make sure you have not left one strand of wire shorting it out. If required, the bottle can be buried upside down [nozzle down], such that water cannot get to the joint.

16 False alarms, but only when it is windy and or raining. ---- Something has grown up into the beam path. (In my case nettles)

17 False alarms, but only after rain. Gets better in dry periods. ---- Damaged cable or joint in the cable.

18 Sender does not seem to be working but receiver is. ---- Damaged cable between sender and receiver under the road.

19 Sometimes the control box continuously retriggers when the delay time is set very short. Cure:-Set the delay time to be longer than the buzzer time even if you are not using a siren