



## The “Beam Break” System

### Theory of Operation:

Your Beam Break sensors are a separate security system within your Pirate Lights V-2. They are intended to be used as additional security protection in conjunction with the standard motion detection **AND** to remain on after you reboard and turn off the motion sensor(s) via the Security FOB or Switch.

The idea behind utilizing the beam break is the same premise of stepping over your garage door safety sensor when you are shutting the garage door and leaving your house without using the remote.

*-You know where the sensor is and you step over it-*

The same idea applies on your boat, the beam breaks are placed on the transom/sugar scoops (and optionally under the hatches), you step over them because you know where they are, but any would-be intruder triggers the alarm.



### Leave “Beam Break” ON all the time!

**- unless you are underway or having a social event-**

*This is designed to protect you from your own complacency.*

### Installation:

Installation of the Beam Break sensors are boat specific but should be placed in a location that is hard to avoid for someone who is unaware of them (usually in the transom or sugar scoops about 6” to 8” off the deck).

When you are deciding where to place them it is recommended that you suspend a string line across your proposed area to ensure that it is something that you are fine with stepping over constantly and without undue difficulty.

Beam Break sensor(s) for boarding area should be well concealed and normally will be recessed into a drilled 18mm (23/32”) hole that has access from behind for wiring.

Use “Reflector” Beam Breaks for distances up to 6’.

Use “Through Beam” Beam Breaks for distances up to 30’.

### Notes:

When aligning the “Through Beam” sensors, begin by lining up the transmitter (the one with two wires) first. The transmitter projects a 3° IR beam where the receiver will detect a range of 20°. Once the system is powered on the beam breaks will have power.

- When the transmitter has power, the red LED on the back side of it will be illuminated.
- When the receiver is triggered or misaligned, the red LED on the back side of it will be illuminated.
- When the receiver is in normal, untriggered, operation the red LED will NOT be illuminated, this is what you are trying to achieve when aligning the beam break sensors.

## **Sensor Alignment:**

Once your location has been determined and the system is completely wired and has power it is time to align and secure your beam break sensors. This is usually a two-person operation.

### **For “Through Beam” sensors:**

- Both the beam breaks will have a lit red LED indicator light on the back of the sensors when not aligned.
- Begin with selectin the transmitter (the one with two wires) ensure that the red led indicator light on the end of the sensor is lit (if it is not illuminated you will need to check the wiring)
- Aim the transmitter at the receiving unit’s planed mounting location and temporally secure.
- Align the receiver unit until the red indicator light on the back of the goes out.
- Permanently secure Transmitter.
- Permanently secure Receiver.

### **For “Reflector” sensors:**

- “Reflector” Sensor will have a lit red LED indicator light on the back of the sensors when not aligned.
- Ensure that the red led indicator light on the end of the sensor is lit (if it is not illuminated you will need to check the wiring)
- Place the reflecting panel in its planned location and temporally secure.
- Align the sensor unit until the red indicator light on the back of the goes out.
- Permanently secure sensor.
- Permanently secure reflector panel.

## **Notes:**

When drilling holes for the Beam Break sensors, use painters’ tape and drill a pilot hole before drilling the final 18mm (23/32”) hole for the sensor.

- Set sensor so that is protrudes a minimal amount from the sensor’s lens side. (*using the provided nut threaded on about three threads is ideal*)
- Once the sensor is aligned, it is suggested to “shim in place” and use Fast Cure 4200 on the hidden side of the hole.
- Use painters’ tape around sensor’s lenses and fill exterior gap around sensor with Fast Cure 4200 in the same method as done with the siren installation. Using the Mineral Spirits or Isopropyl Alcohol, take your time cleaning the around the sensor and all areas of the surface. The only area where adhesive should be seen is between the thin crack between the beam sensor and the surface of your vessel.

Beam breaks for hatches are supplied with their own brackets should be installed with the beam crossing the center area of hatch.

Use “Reflector” Beam Breaks for distances up to 6’.

Use “Through Beam” Beam Breaks for distances up to 30’.

It is recommended to use **SHIELDED** 22ga copper wire for up to 5 sensors, if you are using additional sensors, you can run separate 22ga leads from the Command unit (i.e, a port and starboard line run) Or increase the size of the wire to 20ga.

We recommend using a standard **SHIELDED** 22ga/4 conductor stranded copper alarm wire (It is round, PVC insolated, cost effective, and has its length labeled every foot for easy installation).

**Attach the wires as follows:**

Select the wire bundle labeled “**Beam Break**” from the control box.

Match the wire color to the Beam Break sensor:

Brown = Brown (+)

Blue = Blue (-)

Black = Black (- signal)



*Note: only the receiver uses three wires (power, ground and signal), on the through beam sensors, the transmitter will only have two wires -Brown (+) and Blue (-).*