

INSTALLATION INSTRUCTIONS MOTIONBAR

INTRODUCTION

The MotionBar is a short range active infra red sensor designed specifically to detect the direction of travel. It consists of four synchronised beams separated from each other by approximately 75mm. Maximum guaranteed range of the system is 4 metres. Two sets of clean normally (non-alarm) closed contacts are provided. One set opens if movement is detected in one direction, the other set opens if movement is detected in the opposite direction.

Connections between the receiver and the control unit is via a seven core cable.

Four LEDs are provided which give an indication of the status of each beam. These may be disabled by moving a shorting link.

A mounting bracket is provided which will permit accurate lining up of the beams. Alternatively the beams may be directly mounted onto the wall.

OPERATION

While the MotionBar uses the basic principle of active infra red beams, many of its operational mechanics differ significantly. Unlike a conventional active infra red beam, alarms are generated at the transmitter rather than the receiver. The transmitter controls the sequencing of the receiver. Therefore the transmitter has many more features than a conventional infra red transmitter and is more accurately labelled as a controller. All future references to the transmitter will use the term controller.

The controller and receiver are mounted in similar style housings. They can be easily distinguished externally in that the controller has clear coloured optics while the receiver has dark coloured optics.

There are no concentrating optics in the MotionBar, which is one of the reasons it has such a short range. This has the advantage that the angle of view of the optical components is very wide and hence over shorter distances alignment of the beams is not critical. The beamwidth however is very narrow and very small objects have the potential of interrupting a beam. Alarms are therefore only generated when a sequence of beams are interrupted.

The MotionBar uses a system of time division multiplexing. This means that each infra red beam is activated for a short period in turn. In order to achieve synchronisation between the individual beams it is necessary to pass information between controller and the receiver.

The wiring information which follows allows for all interconnections including power and tamper. There is no need to use separate power connections for the receiver as these are fed from the controller.

As the range of any infra red device may vary over time it is possible that false alarms could be generated if the unit is operating at the extreme of range and some degradation of performance takes place. To overcome this possibility the MotionBar has a range reduction circuit. On the receiver a switch senses when the top has been removed and reduces the range by about 5%. Thus during the setting up procedure the top of the receiver must be left off. When the installation is completed and the top replaced the range should increase slightly which will take into account and system degradation over periods between inspections.

INSTALLATION

Note: If the separation between the transmitter and receiver is greater than 2 metres it is recommended that the adjustable bracket is used. Also note that the MotionBar must be mounted HORIZONTALLY for correct operation.

The two output are clean closed contacts when the unit is clear. The direction for each output is indicated by an arrow showing the direction of travel detected.

FIXING

The housing may be fixed directly on to the mounting surface using the knockouts provided on the rear of the box or the mounting bracket may be used for more accurate alignment.

DIRECT MOUNTING

The MotionBar may be directly mounted onto a all or other surface by removing the rear knockouts and fixing with a pair of number 6 wood screws. If this form of fixing is used then the beams will run parallel to the mounting surface. Some adjustment is possible by sliding the unit across the screws.

FIXED BRACKET

The MotionBar may be fixed so that the beams run perpendicularly away from the mounting surface using the supplied brackets in conjunction with the rear knockouts.

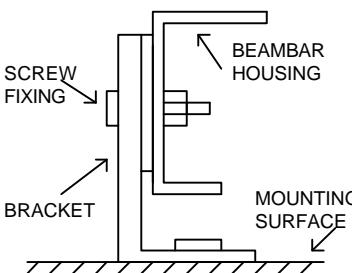
1 Remove the two rear knockouts.

screws to the mounting surface.

3 Using two of the screws and nuts provided fix the

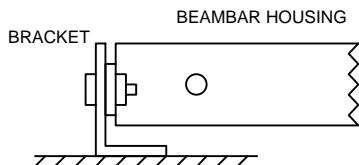
ADJUSTABLE BRACKET

The MotionBar may be more accurately mounted using



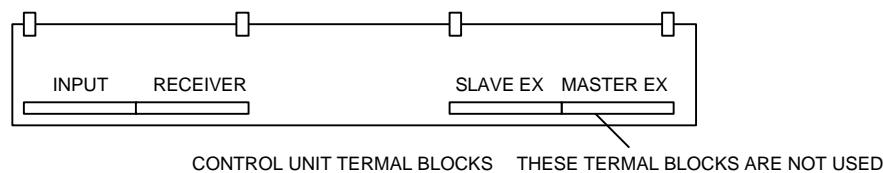
1 Complete the holes started in the sides of the housing.

2 Mark then fix the two brackets using number 6 wood screws to the mounting surface.



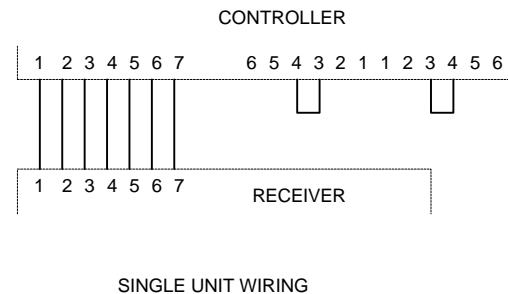
provided fix the MotionBar housing to the brackets. The screw and first plain washer should fit outer most, washer and nut.

4. Adjust the position of the units for correct alignment



UNIT WIRING

1. Cable between Receiver terminal block(marked 'TO RCS') on the Control unit to the terminal block on the receive unit. (pin 1 connects to pin 1, pin2 to pin 2 etc.)
2. Connect power to power terminals on input terminal block.
3. Connect Tamper,<--and --> Alarm outputs as required.
4. Link pins 3 and 4 on the slave expansion terminal block (tamper continuity)



5. Link pins 3 and 4 on the master expansion terminal block (tamper continuity) if tamper detection is required

SETTING UP

Four LEDs are provided on board the control unit which show the status of each beam. The lower LED shows the status of the bottom beam, the second LED shows the status of the second beam and so on. The LEDs illuminate while the corresponding beam is interrupted and are extinguished when the beam is continuous. They may be disabled by moving the link from the ON position to the OFF position.

Positioning of the beams is not critical over short distances because of their wide angle of view. However the wider the separation becomes the more critical the positioning becomes. It is recommended that for the wider separations (2 metres or more) the following procedure be adopted.

1. Wire the control and receive units together as detailed earlier and apply power.
2. Fix the receive unit in position and adjust the position of the control unit until a good signal is accomplished. If necessary readjust the position of the receiver.
3. Now fix the two units in their permanent positions.

When adjusting the positions of the beams it is advisable to find the peak signal. this will reduce the possibility of false alarms if the beams are partially interrupted by a build up of dust or dirt. The method of finding the maximum signal is as follows:

1. With the receive unit fixed in place move the control unit until only one LED is illuminated.
2. Now adjust the position of the control unit until all the LEDs are extinguished and note this position.
3. Carry on moving the control unit until a LED is again illuminated and once more note the position.
4. The position of maximum signal will lie half way between the two positions.
5. The procedure should be repeated for horizontal, vertical and rotational alignments. Note that the greater the distances between the noted positions, the stronger will be the signal.

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