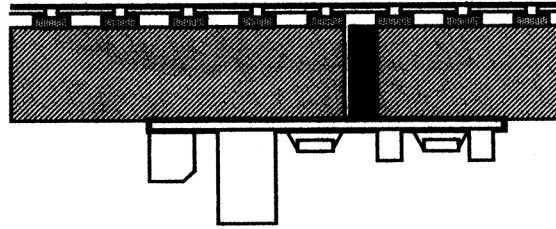


## INSTRUCTIONS FOR #83641 IRDOT-1D and #83642 IRDOT-1DEW (Extended Lead)

**INSTALLATION:** The unit is screwed to the underside of the baseboard with the infra-red emitter and detector located in a hole between the ties.

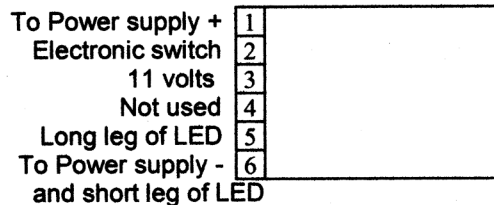
It is easiest to install the units after the track is laid. Drill a small pilot hole between the sleepers. Fit an 8mm drill bit marked with tape for slightly less than the base board thickness. Drill from underneath the baseboard following the pilot hole. Cut or file the small amount of baseboard material left between the sleepers. Install the unit, and then fill the remainder of the hole with modelling material. Blue tack will hold the units in place temporarily. Use 1.2-mm holes for the self-tapping screws that hold the units permanently in place.



When fitted to Z or N gauge track, the gap between ties will be less than the diameter of the infra-red detector and emitter; however, the modules work well provided they are adjusted to fit close to the ties. This positioning prevents reflections off the ties from causing false detection.

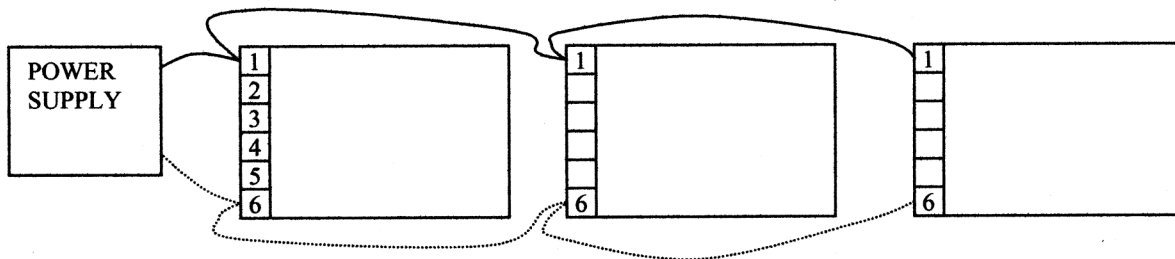
The modules will also operate on their side placed alongside the track. For thick baseboards and restricted space, use units with the emitter and detector fixed with the extended wires.

**OPERATION:** When the IRDOT-1 detects a train, it lights an LED and operates an electronic switch (open collector transistor). When the train moves away from the detector, the delay circuit causes the LED to remain lit for approx 5 seconds longer. While the LED is lit, the electronic switch operates. The IRDOT is supplied with a 5mm diameter red LED connected to the correct screw terminals. This provides an aid while installing the IRDOT to check for reflections off obstructions.



After installation, the LED is wired to the control panel. Ensure that the long leg is wired to terminal 5. If several IRDOTs are used, all the short legs of the LEDs may be connected together and a single connection taken to one of the terminal 6 connections. The LED will be damaged if it is connected directly to the power supply. It requires a current limiting resistor. Note: This is built into the IRDOT.

### POWER SUPPLY



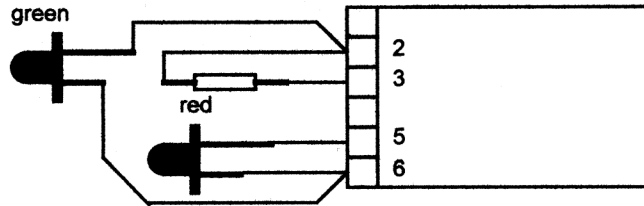
The diagram shows how to connect a number of IRDOTs to the same power supply. As the current consumption is low, many units can be powered by the same supply. The supply should be from 12 to 16 volts. The units work with either AC or DC. If DC is used, the positive connection of the power should connect to every terminal 1. If AC is used, it is important to be consistent and connect all the terminal 1's to the same power supply terminal.

**HIDDEN SIDINGS AND LOOPS:** The infra-red may reflect off low tunnel ceilings, causing permanent detection. The sensitivity of the unit can be lowered in the following ways: Paint the tunnel ceiling matt black to reduce the reflected infrared; bend apart the infra-red emitter and detector; restrict the amount of infra-red transmitted and received by blocking off part of the hole in the rubber covering of the emitter and detector.

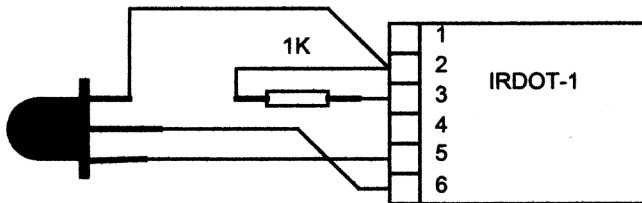
If any rolling stock is not detected by the units, white self-adhesive labels can be stuck to the underside of the rolling stock to increase the amount of infra-red reflection.

**INCREASING INFRA-RED RANGE:** The rubber heat shrink covering the emitter and detector may be trimmed back to increase the range. Do not expose the infra-red detector, as this will allow the infra-red to travel straight from emitter to detector, giving false detection.

**GREEN "NOT OCCUPIED" LED:** The electronic switch of the IRDOT-1 will light an additional green "not occupied" LED. A 1K resistor is used to limit the current through the green LED.



## BI-COLOUR LED



Resistor value should be 1K. Note how the 3 legs of the LED are distinguished by being of different lengths

The IRDOT-1 and IRDOT-2 use the same circuit board. They can be distinguished by the black rectangular relay (next to the terminals) which is only fitted to the IRDOT-2.

## EXTENDED LEAD VERSION

Units attached to the emitter and detector with flexible leads are used in the same way. Both emitter and detector are fitted into a single hole between the ties. A small piece of foam can be used to wedge them in place from the underside of the hole. Some people also find it helpful to fix the emitter and detector together with a piece of insulation tape. The emitter and detector may also be used at the side of the track.

Alternatively, they can be used to form a beam pointing at one another. The train breaks the beam thus reversing the LED indication. The emitter wire may be extended (this is located closest to the edge of the board) and a beam length of 5 to 6 feet will work.

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