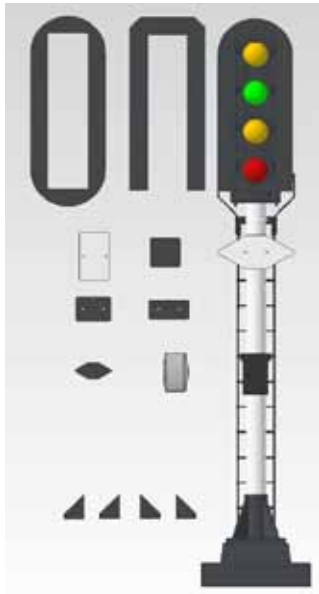


# Routemex

## O Gauge 4 Aspect Signal Kit



Multi Option

**Makes One Signal**

**Contains small parts - Unsuitable for children**

This kit enables you to build one 4 aspect O Gauge model signal. Different target boards allow a choice of three main versions with an assortment of ID plates to suit different eras. Operation is by 12VDC.

The kit is designed to be assembled with adhesive but the ladder and some of the metal parts can be soldered if desired. The LED cluster is pre-wired but you will need to solder the wires to resistors and the 12V DC supply.

**Although assembly is straightforward**, I advise reading **all** the assembly information before starting, as there are some areas that are best done in a specific way.

### **Adhesive**

For the ladder assembly and ID plate wires, use thin runny superglue like ROKET HOT but for all other parts, 5 minute epoxy is best. The entire project *can* be completed with superglue but it makes proper alignment difficult and is **not recommended**.



4 Aspect Contents

### **Contents**

- Base
- Back box - *pre-threaded*
- Front plate
- Target board and ID fret
- Ladder Fret
- Brass post 75mm
- Brass support tube 9mm
- Old style Tel Box casting
- Modern Tel Box casting
- 12BA screws x 4
- 0.4mm Rod - 3 x 150mm
- LED Assembly - prewired
- Resistors x 4
- Diode
- 12mm wood former rod
- 0.4mm brass wire 60mm
- 0.4mm drill bit
- 12mm x 3mm screws x 2

## **PREPARATION**

Preparation and cleaning of all parts will improve glue, solder and paint adhesion.

Clean of flash and debris from all plastic parts – pay particular attention to the angle plate slots in the base.

Clean metal parts by first washing in warm water and detergent to remove surface contaminants and etching residue.

Clean the brass post and 0.4mm rods with fine steel wool to a high polish.

I recommend **CARRS SURFACE CONDITIONER** for a final clean of metal parts as this will remove the invisible oxide layer and greatly improve paint and glue adhesion and simplify soldering.

## **LADDER**

**The ladder stiles are joined by 4 connecting bars which form a temporary jig – leave these in place at this stage.**

The rung holes in the ladder stiles are etched and as this is a variable process may not be quite big enough. If so, use the supplied 0.4mm drill to open up the rung holes in the stiles, hoop and stand-off.

**Do this while still in the fret.**

Remove the ladder assembly from the fret by cutting the half etch tabs at the **end** of the stiles. **DO NOT REMOVE THE 4 THE CONNECTING BARS AT THIS STAGE**

With the half etch marks upwards carefully fold up the ladder sides with pliers. **DO THIS SLOWLY IN STAGES** to avoid distorting the sides and ensure they are parallel. Check the ladder is true in all aspects.

Cut 12 pieces of 0.4mm rod at approx. 25mm and 2 pieces at approx. 30mm.

**INSERT** the 12 lower pieces of wire into the stiles as shown. **DO NOT** insert rods into the two top holes for the hoop and stand off at this stage.

**TAPE** the ladder assembly to a **PIECE** of **PAPER** rather than the work surface in case glue adheres the assembly to the bench

Use a thin runny superglue. **DO NOT** use the bottle nozzle to apply glue as it will cause blobs necessitating a lot more cleaning up later. Instead, use a pin or a piece of wire to apply the superglue to the **INSIDE** of the stiles. Do a few at a time and use a clean pin to remove excess whilst wet.

Once cured, carefully **Remove the Connecting Bars** by cutting in the middle with fine nosed cutters and then trimming back flush with the stiles.

Mark the centre of the hoop with a pen (17mm from side) and bend around the supplied 12mm wood rod. This will produce the required 14-15mm diameter.

Using the etched marks bend the hoop arms and stand-off bracket to the correct shape as shown. **DO NOT REPEATEDLY BEND BACK AND FORTH AS THE METAL IS VERY THIN.** Attach the Hoop and Stand-Off to the two top holes using the remaining 0.4mm rod pieces. **The stand-off fits inside the ladder and the Hoop fits on the outside.**

Once cured, cut off surplus rod with flush cutters. As there are no rungs at the top, also cut off the two top rods used to attach the hoop and stand-off.

Clean up excess glue with a needle file.

## **PAINTING AND ASSEMBLY SEQUENCE**

It is better to make up the ladder assembly and paint it. Then make up the post assembly with the head and paint it before joining the two assemblies. Scrape back paint to apply glue and then do a final touch up.

Whether you hand paint or airbrush, I recommend a priming coat of Halfords spray primer. I find it best to spray an overall coat of white to the post assembly and either a coat of black or white on the ladders, depending on the version before applying the final finishes.

## POST

Fix the ID plates and/or Diamond to the post with a very small blob of epoxy and once set fix the Telephone box to the post with epoxy. Ensure the plates are square to the Tel box. Once the plates are set use runny superglue to attach brass wire as shown and trim once cured.

Fix the base to a piece of scrap wood using the supplied screws and clean out any debris from the slots. **If using the taller angle plates**, then first slide the short length of brass tube over the post **without adhesive**.

Insert the post into the base **without** adhesive and prepare the angle plates and test them in the slots. Then, if all ok, assemble using **epoxy** – ensuring that the telephone box and ID plate are correctly aligned to the front. **DO NOT USE SUPERGLUE FOR THIS STAGE AS IT** is nearly impossible to ensure correct alignment before it sets. The **angle plates** are best fixed by gripping with miniature pliers and dipping into a small blob of glue before inserting in the slots.

Join the ladder to the post with a very small blob of epoxy on the standoff. Once set, use runny superglue to secure the soft brass wire and trim excess wire once set.

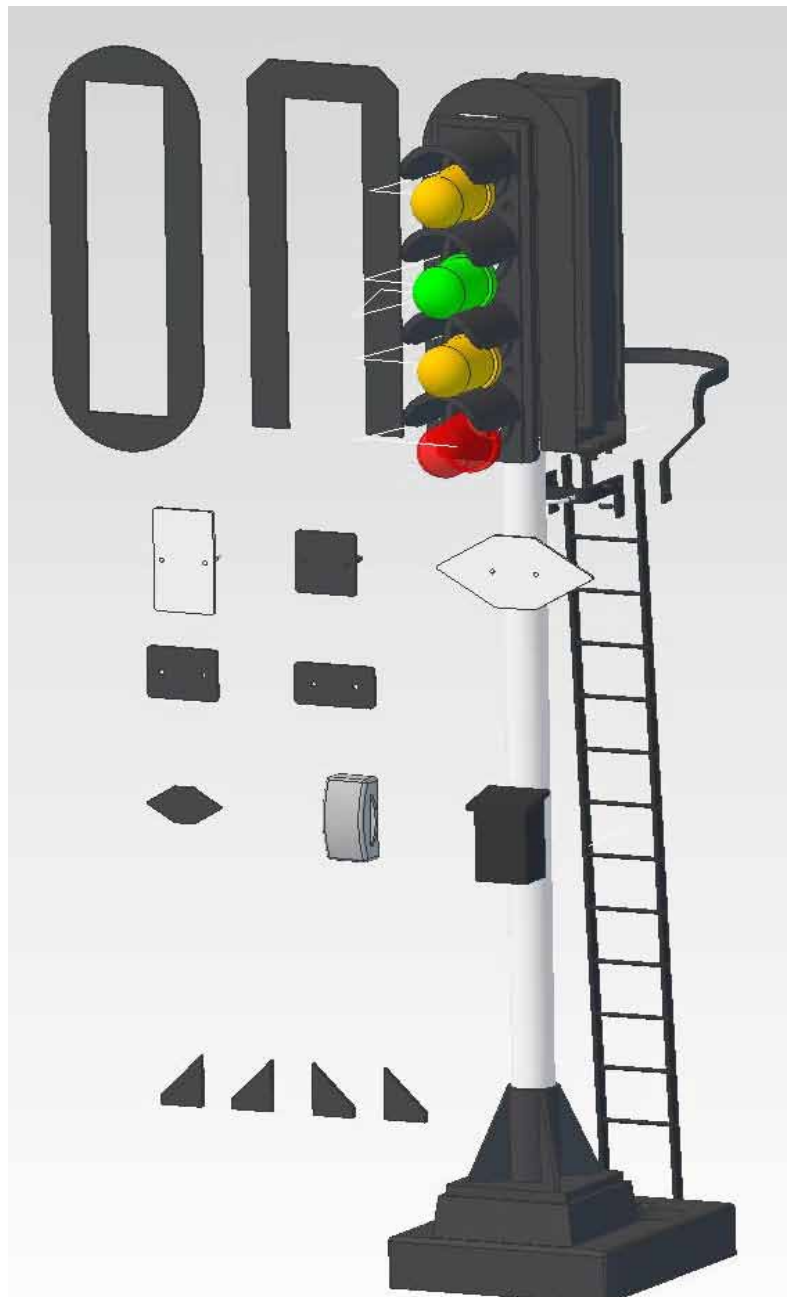
Fix the Head box to the post with epoxy and ensure it is square and plumb. Glue the selected target board to the front plate and fix the front plate with the 12BA screws provided - **Back Box screw holes are already threaded for the screws. DO NOT OVERTIGHTEN THE SCREWS**

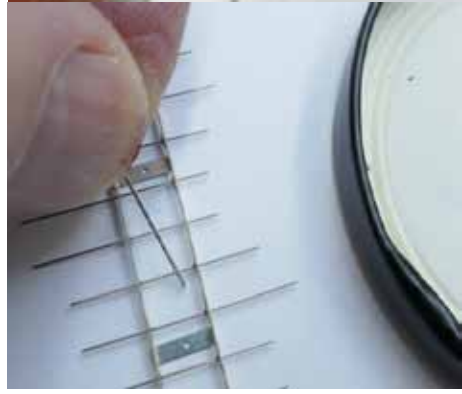
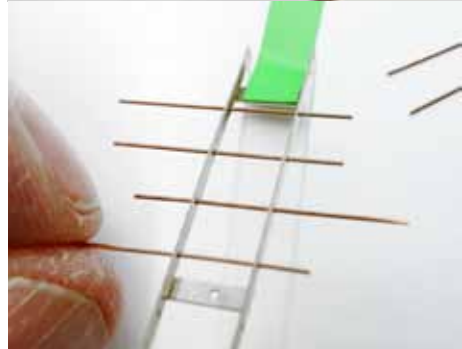
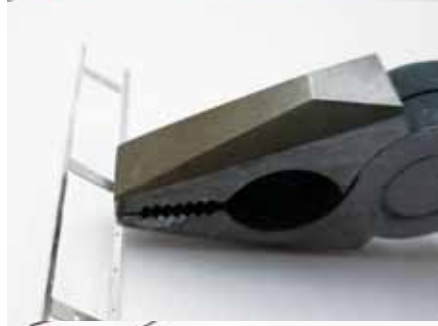
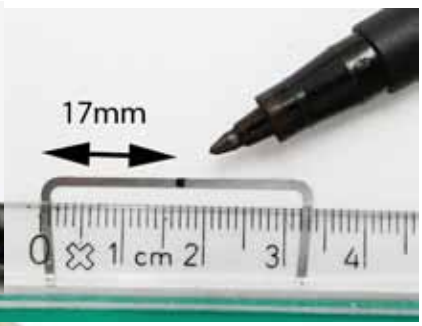
All painting should be completed before dealing with the LEDs

## LEDs

Insert the LED wires into the head box and then fix the front plate with the supplied 12BA screws. **DO NOT OVERTIGHTEN THE SCREWS** Solder the supplied resistors to the wires - colour indicates LED colour. Then connect to 12VDC supply.

**DO NOT CONNECT THE 12V DC SUPPLY TO LED WIRES UNLESS RESISTORS ARE CONNECTED AS THE LEDS WILL FAIL IMMEDIATELY**







## SAFETY

*Contains small parts - Unsuitable for children under 14*

*Operation is by 12V DC*

*DO NOT, under any circumstances connect LEDs without the specified resistor.*

*This kit uses resistors rated at 1 watt. Do not use a resistor with a lower power rating as it may overheat.*

*Please ensure you use the correct resistors for each kit otherwise the LED's will fail.*

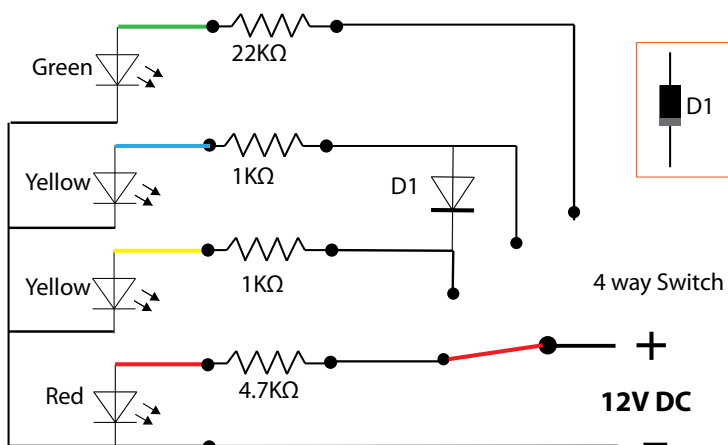
*DO NOT, under any circumstances use batteries to test LEDs without a resistor – The application of batteries of even low voltage can cause the LED to explode and cause injury.*

*DO NOT Stare directly into an LED*

### Connecting the resistors to LEDs

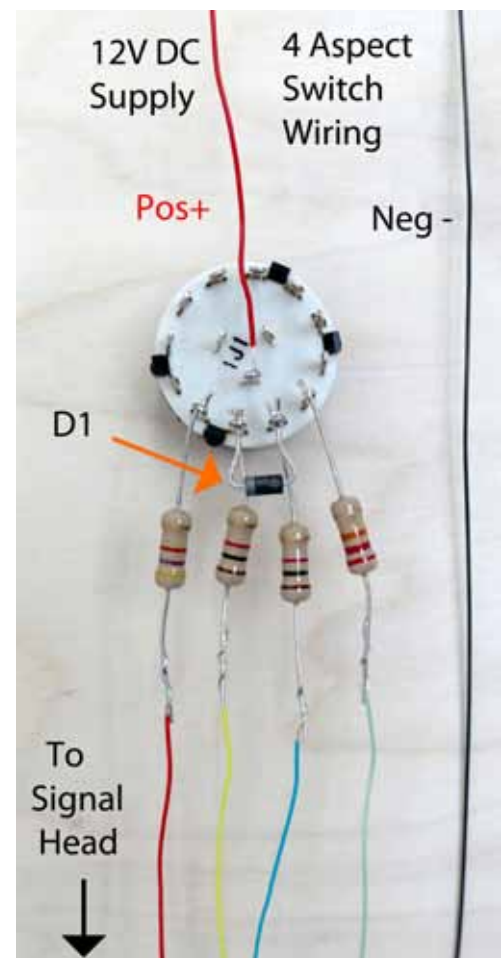
The Black wire on the LED cluster should be soldered direct to the Negative 12V DC

The Coloured wires should be soldered to the resistors and then to the POSITIVE 12V DC supply via a 4 way switch (**3 pole 4 way Break before Make Rotary**) The supplied diode should be soldered between the two yellow wires - on the switch. The positive should go to the single yellow connection and the Negative to the Double yellow.



### SUGGESTED TOOLS

Needle nose pliers  
Flush cutters  
Pin chuck  
Solder  
Paint  
Etching cutters  
Soldering iron  
miniature screwdriver  
Needle files  
emery paper 240 grit  
Fine steel wool  
Superglue - ROKET HOT  
5 Minute Epoxy





1920's - 1960's  
Tall angle plates and  
support tube



1970's - onwards  
Use small angle  
plates only



Any period -similar to  
London Transport  
Tall angle plates and  
support tube

Further copies of these instructions can be downloaded at :

**[www.routemex.com](http://www.routemex.com)**

*Contains small parts - Unsuitable for children under 14*