Showcase Miniatures Signal Base

https://www.modelrailroadcontrolsystems.com/signal-base-for-showcase-miniatures-signals/
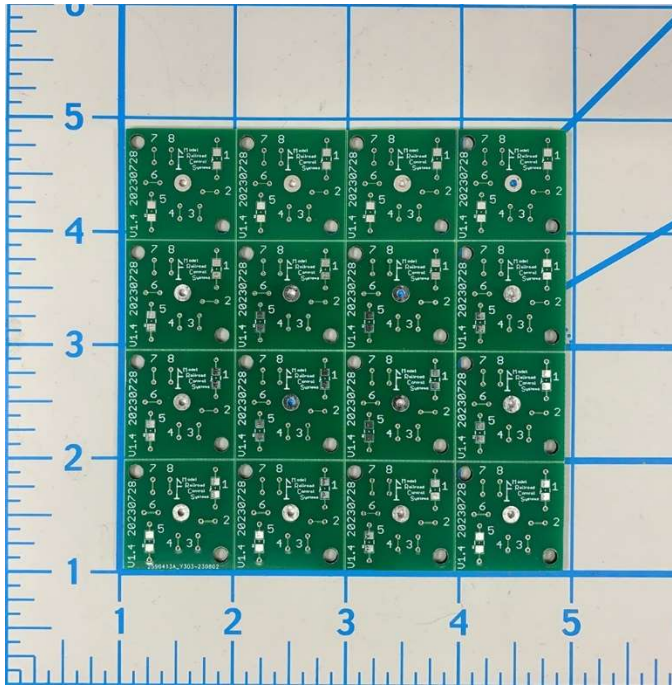

Figure 1- panel of 16

These boards (actually a panel of 16) provide a handy(er) way to connect a Showcase Miniatures single or double headed signal to a cable (usually CAT5/CAT5e wire) to a controller, such as our cpNode or IOX.

The board came about as a request from a customer, (Allison) who wanted to solder the mast to the central hole and bring the 4 wires from each of the heads (1 or 2 heads) down through the mast. The common anode (power) goes to one side of 1 or 5 which have pads for a 1206 surface mount resistor to provide a single current limiting resistor for each head (use 1K for 12V, 470 ohms for 5V). The tie points 2,3 and 4 and 6,7 and 8 go to Red, Yellow and Green respectively. Each line has two holes, one for the wire to the head and the other for whatever connects to your signal system, Allison requested I design for a CAT5 cable (just the wire, no RJ45 connector).

Wiring

Use these suggested connections:

Head	Tie Point	Cat5 color	Designation
Top	2	White/Blue	RED
Top	3	Blue/White	YELLOW
Top	4	White/Orange	GREEN
Top	1	Orange/White	+ voltage (usually 5 or 12)
Bottom	6	White/Green	RED
Bottom	7	Green/White	YELLOW
Bottom	8	White/Brown	GREEN
Bottom	5	Brown/White	+ voltage (usually 5 or 12)

Figure 2 - table of connections

this isn't too intuitive from a signal head perspective, but it makes sense with the standard CAT5 color code.
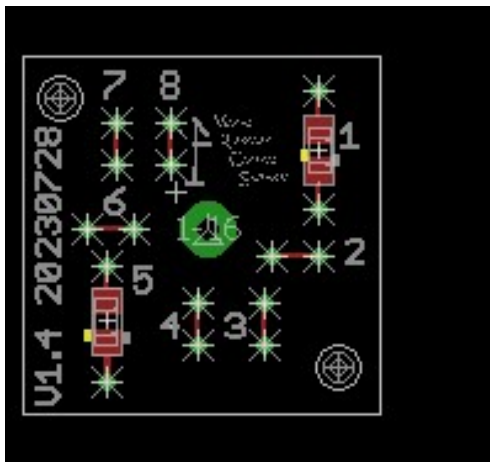
Wire Connections

Figure 3 - Board layout (1 board) top

There are two types of connection:

- 1 and 5 which have the 1206 Surface Mount resistor pads
- 2-4 and 6-8 are just two holes connected with a trace (red in the diagram above).

You bring the leads from the signal up to one hole on each connection and the wire from the CAT5 to the other and solder them in place. I suggest using the assignments above, although the electrons don't care. Some drivers have resistors on board so you can drag a solder blob across the 1206 pads or solder a small piece of wire.

Build and Physical Installation

First, the panels just snap apart. I've had customers complaining about having to saw them. Don't do that: it will wreck your saw and put a lot of nasty dust in the air (wear PPE if you MUST cut circuit boards!).

You still have to hide the base in the scenery unless you want to do this fine soldering from underneath (not me!). Here are some thoughts to consider while planning your build. If you have the skills to build a Showcase Miniatures signal (builds up to a beautiful and accurate model, but lots of tiny Photo-Etch parts!) you probably don't need this advice, otherwise this will be a learning experience!

1 – Consider if you want to protect the top of the circuit board from water soluble scenery stuff, I'd use square piece of sheet styrene, sheet about 1.25" per side. It should go beneath the signal base and over the board. Dig out a pit and allow enough depth so you can get in and solder or drill a clearance hole for the mast and slit the base so it can snap in after the wiring is done. Allow for some depth for the top of the solder joints, maybe .0.020".

2 – Secure the mast/base to the circuit board. If you're doing this before threading the magnet wire from the heads through the mast, soldering (resistance soldering set?) will yield a strong connection. If the wires are already in the mast, the heat of soldering may melt the insulation on the magnet wire, so I'd use epoxy, but use whatever adhesive you prefer for metal to metal joints.

3 – I'd drill a hole in the pit for the bottom of the mast and another about ¼" for the cat5. Figure out how to strain relieve it from below.

4 – dig out a square hole for the base and styrene, allowing everything to sit down as needed.

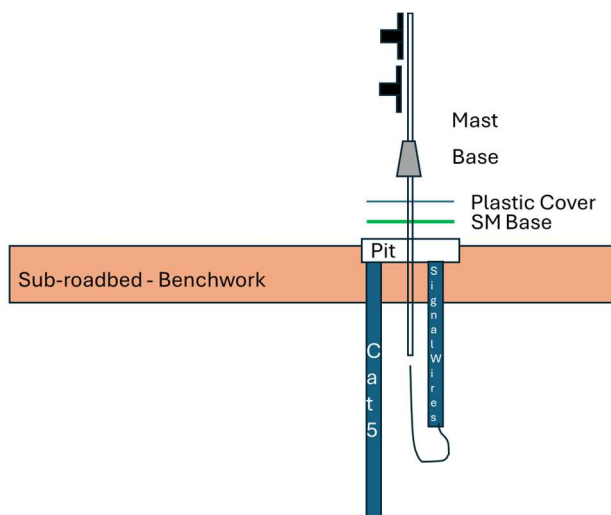5 – scenic over the cover, it may work out as part of a concrete pad, or maybe a concrete footing plus scenic material, usually ballast, up to the footing.

Figure 4 - Signal, cover, SM-Base and pit