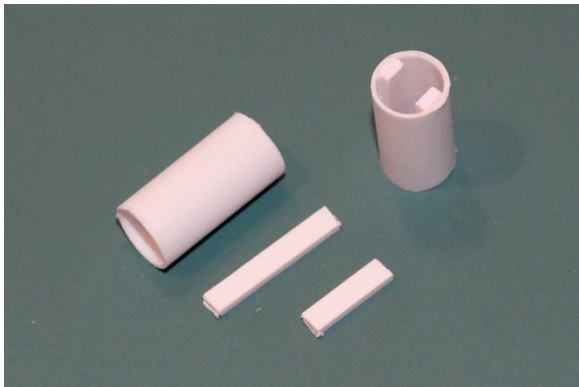


## Holder for ISE CKT-IRSENSE-2PC

A technique for holding and installing Iowa Scaled Engineering's CKT-IRSENSE-2PC two piece IR detector. The technique is particularly suitable for HO installations.



Here is the parts list for the detector holder:

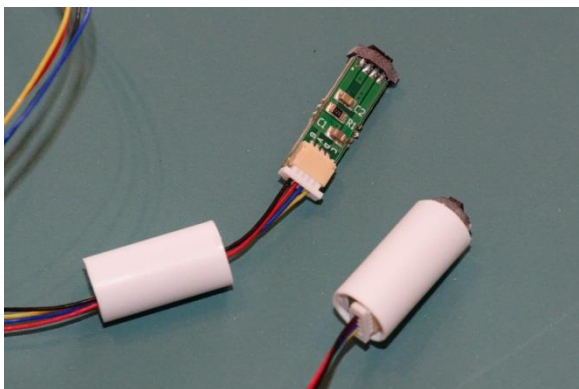
- Plastruct Fineline 3/8" tube, 3/4" long (TBFS-12)
- Evergreen strip styrene, 0.060" x 0.125"
  - One piece 3/4" long
  - One piece 1/2" long
- Evergreen strip styrene, 0.040" x 0.250", 3/4" long (not shown). (Because of a very tight fit, in one case I had to use 0.030" x 0.250" strip.)



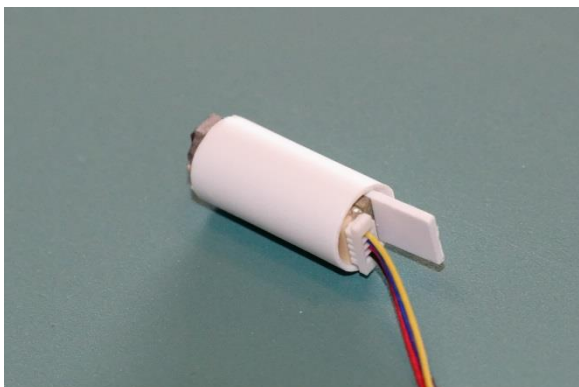
The styrene strips are glued to opposite sides of the interior of the tube.

I drilled a hole in a piece of scrap plywood to serve as a holder for the tube as I was gluing in the strips.

Any glue for styrene is fine.

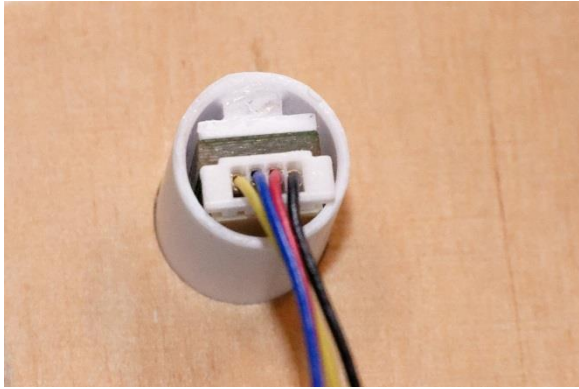


With the detector wires connected, insert the detector into the tube. Orient the connector of the detector toward the shorter strip inside of the tube.



To secure the detector within the tube, slide a 3/4" long Evergreen styrene 0.040" x 0.250" strip behind the detector. The fit will be tight. If the 0.040" strip can't be inserted, a 0.030" thick strip should work.

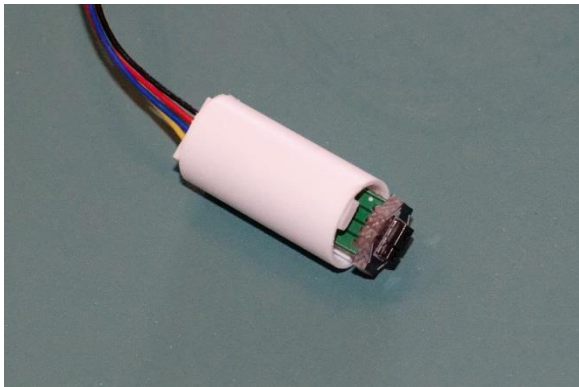
Push the strip up until it is flush with the top of the tube.



When the styrene strip is fully inserted, the bottom end of the holder will look like this.

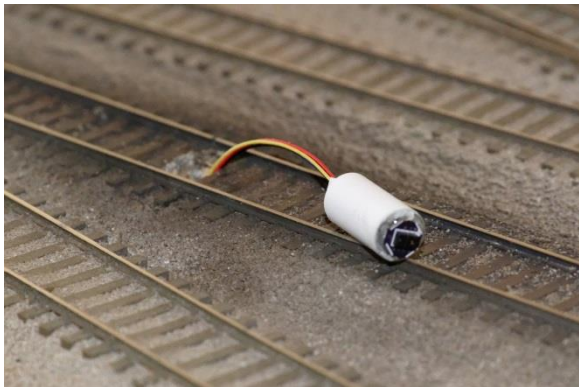


The top end of the holder will look like this.



Pushing the detector up from the bottom of the tube will provide room for careful application of epoxy to the top of the styrene strips that contact the top "hat" of the detector. After the epoxy is applied, push the detector onto the top of the holder so that the "hat" sits down on the tube and styrene strips.

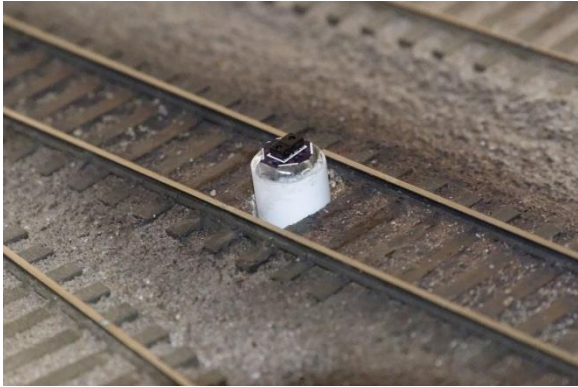
I also apply epoxy along the open spaces between the tube and the top sensor PCB to stop "leakage" of ballast into the tube when installed.



Remove the tie at the detector location, and drill a 3/8" hole between the adjoining ties. There's almost always just enough room for this.

Turn the holder upside down and make sure that it will slide into the hole. I have to enlarge the hole to 25/64' in some cases. The fit should allow the holder to remain in place when inserted.

Thread the wire of the detector into the hole followed by the detector in the holder.



The inserted detector and holder are ready to align with the ends of the removed tie and to be pushed down into position.



Use a straight edge to level the sensor head of the detector with the adjacent ties.

In this photo, I will use long nosed pliers on the edges of the “hat” of the detector to rotate the sensor head so that it aligns with the tie ends. Having done this, I will push the holder up a small amount and then relevel using the straight edge.

When level and alignment are correct, I carefully apply ACC to the edges of the holder and the hole to secure the holder in place.



When installed, the detector will look like this. This was a retrofit, so it isn't as neat as an original installation will be.

Apply masking tape to just the top of the sensor head before ballasting and painting.

**DO NOT WRAP MASKING TAPE** around the edges of the sensor. If you do, it will be nearly impossible to remove. Mask only the top of the sensor with tape trimmed to the outer edges of the sensor block.



After adding short segments of tie material\* on each side of the sensor, add ballast and weathering. Remove the masking tape and the sensor will become pretty hard to find.

\*I use stripwood that matches the width of ties and the height of the sensor head. In this example, I used 8" x 3" dimensional stripwood.

Trade-offs	<p><u>On the plus side:</u></p> <ul style="list-style-type: none"><li>• The detector is far easier to handle when installing it into the layout.</li><li>• Accurate positioning the detector is easy.</li></ul> <p><u>On the minus side:</u></p> <ul style="list-style-type: none"><li>• Adjustment is difficult if the 3/8" hole isn't in exactly the right location or is not perpendicular to the plane of the track.</li><li>• Adjacent ties will be damaged if the space between the adjoining ties is less than 3/8" or the hole is off center between the ties.</li><li>• May not be suitable with foam subroadbed and plywood roadbed thicker than 1/2"</li><li>• May not be suitable for other model railroad scales.</li></ul>
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