

ScaleSync V1.0 Calibration

This guide will walk you through the simple steps to calibrate your ScaleSync Speedometer unit—whether you're experiencing issues or it's not functioning correctly out of the box. Proper calibration ensures your speed readings are accurate and tailored to your specific track layout and scale.

If, when you power on the unit, the screen displays “inf” (infinity) or an unusually high speed (such as 39,483 mph), it means the unit has fallen out of calibration and needs to be adjusted before use. Follow the steps in this guide to get your speedometer up and running smoothly.



(Example of a ScaleSync Unit reading inf)

Step 1: Remove the front leg

- Locate the 3 screws on the front of the unit securing the leg.
- Use a screwdriver to remove all 3 screws.
- Carefully detach the leg from the unit and set it aside.



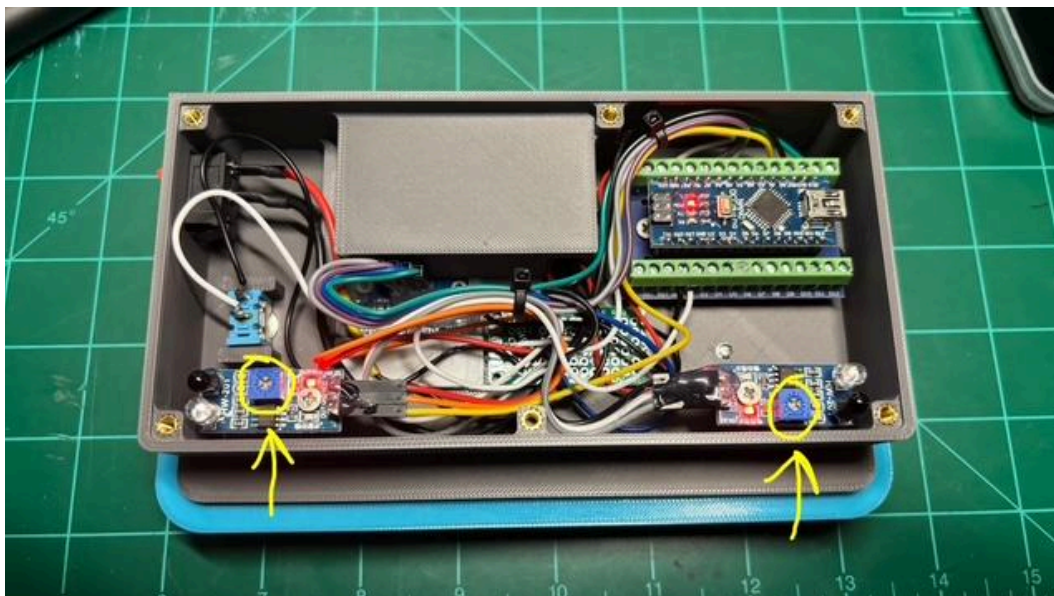
Step 2: Remove the rear cover

- Turn the unit around to access the back.
- Locate the 6 screws securing the rear cover.
- Remove all 6 screws with a screwdriver.
- Gently lift off the rear cover and set it aside.



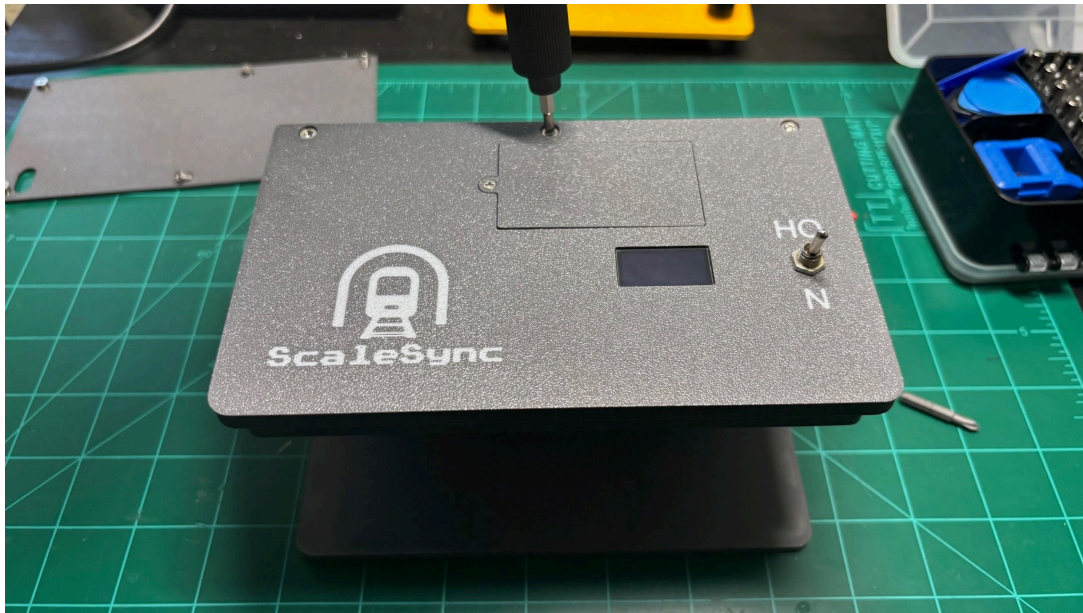
Step 3: Identify the IR sensors

- Look near the bottom of the unit to locate the two infrared (IR) sensors.
- Each sensor has a small square blue potentiometer on top, which can be adjusted using a Phillips head screwdriver.
- If there is any hot glue covering the potentiometers, gently remove it with a small tool or your fingers—take care not to damage the components.
- These potentiometers will be used to calibrate the unit in the upcoming steps.



Step 4: Reattach the leg

- With the internal components now accessible and the IR sensors identified, go ahead and reattach the leg to the front of the unit.
- Align it with the original mounting holes and secure it using the 3 screws you removed earlier.



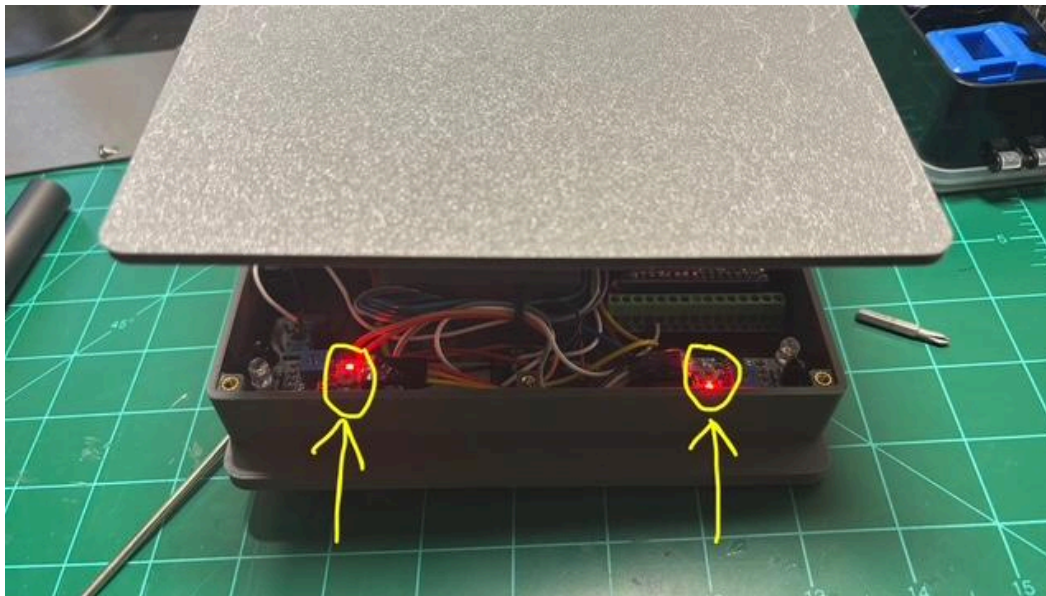
Step 5: Power on the unit and turn it over

- Turn on the unit using the power switch.
- Carefully flip the unit over so the internal components are facing up.
- Make sure you have a clear view of the two blue potentiometers on the IR sensors, as these will be adjusted during calibration.

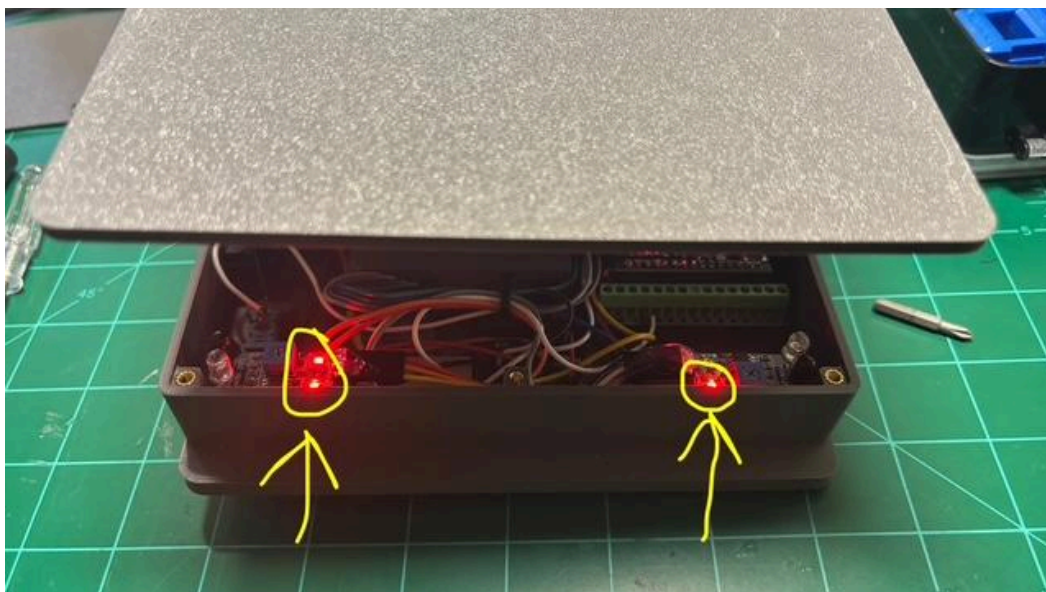


Step 6: Check sensor status and identify any issues

- With the unit powered on and positioned to view the internal components, observe the two IR sensors near the bottom of the unit.
- If this is a calibration, verify that **only one** LED indicator light (on either sensor) is on while the tunnel area is clear.
- If **both lights are on**, one of the IR sensors is too sensitive and needs to be adjusted using its blue potentiometer.
- If **neither light is on**, the affected sensor may be faulty. In that case, please contact the ScaleSync team for further assistance before proceeding.



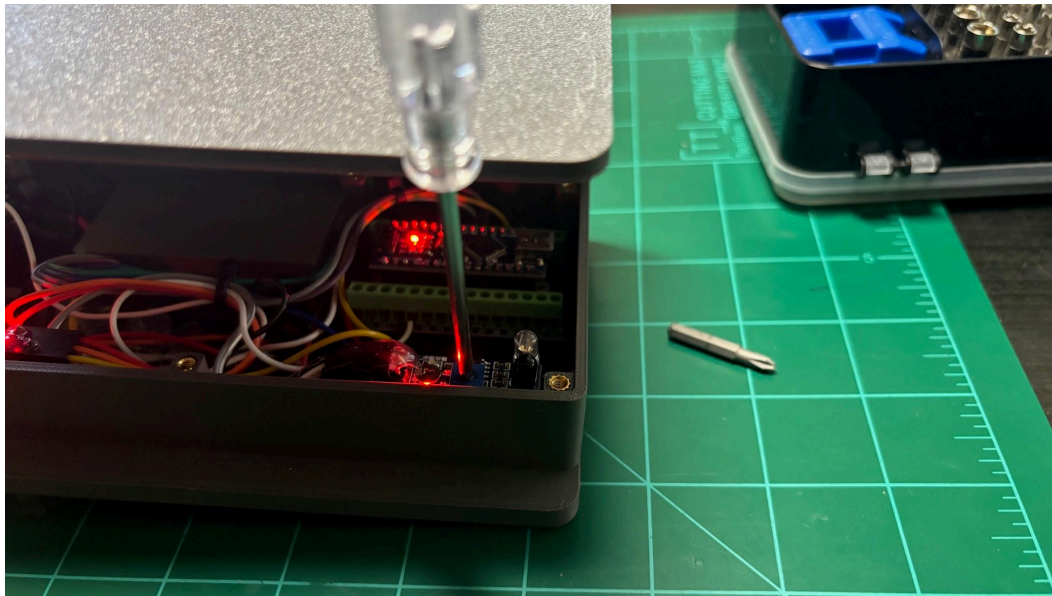
(Both IR sensors with one light on: this is good)

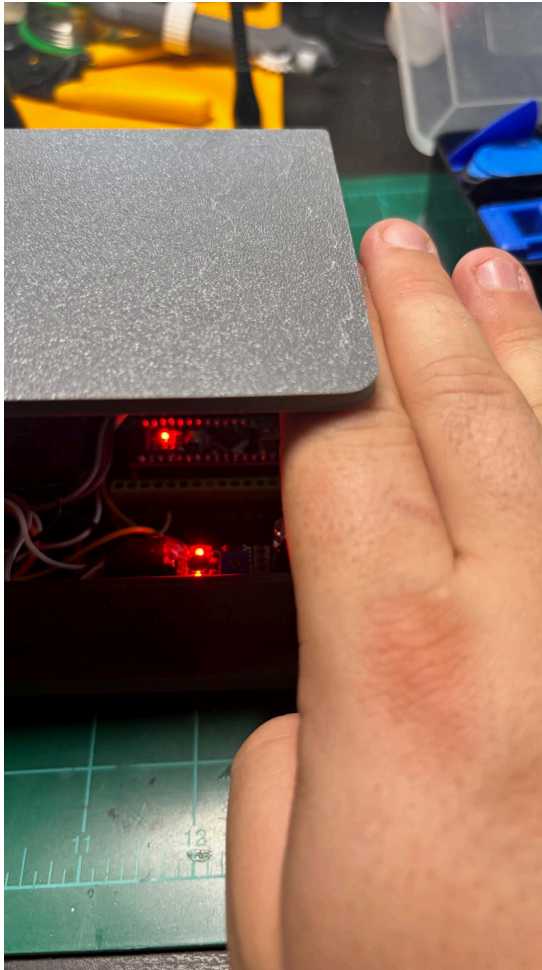


(One sensor has both lights on: this is causing the “inf” or unusually high speed error)

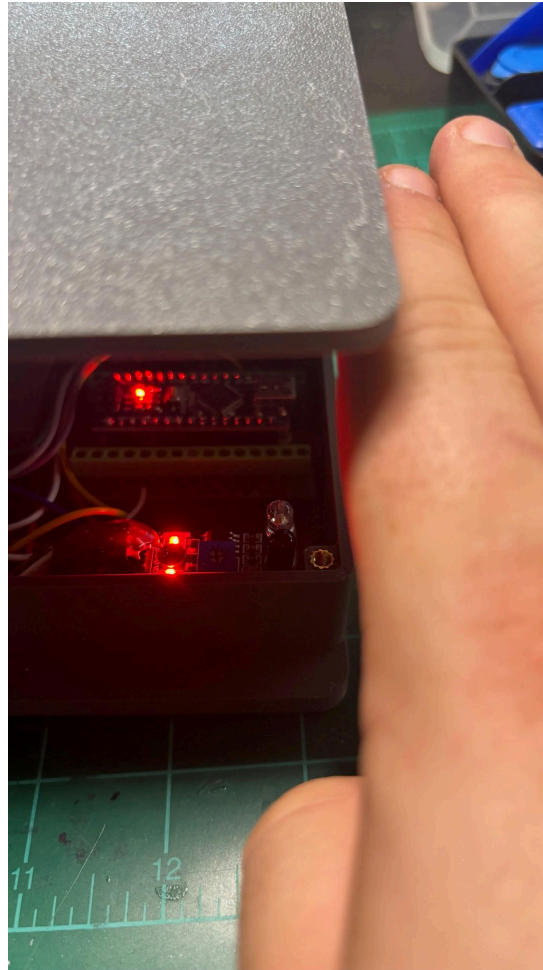
7. Adjust the IR sensor sensitivity

- Use a small phillips head screwdriver to gently adjust the blue potentiometer on the IR sensor that is too sensitive (or not sensitive enough).
- Turn the potentiometer **slowly** while watching the sensor's LED indicator. The goal is to have **only one light on** while the tunnel area is clear.
- To test the sensor: wave your hand or an object slowly over the sensor.
 - The **second light** (on the inactive sensor) should turn on **right as the edge of the object passes over the center** of the IR sensor.
- If the light turns on **too early** (as the object approaches but hasn't passed over), turn the potentiometer **counterclockwise** to reduce sensitivity.
- If the light **does not turn on** when the object is directly above, turn the potentiometer **clockwise** to increase sensitivity.
- When testing, keep the object as far back as possible (close to the tunnel wall) to ensure anything entering the tunnel will reliably trip the sensor.
- Repeat this process for **both sensors**, ensuring they each trigger accurately and at the correct position.
- Place a small dab of hot glue over the potentiometer screw to lock it in place (optional)
- See next page for example





Correct:
Sensor tripped (both lights on) as
hand just passes above midpoint



Incorrect:
Sensor is tripped while hand is still
far away from midpoint

8. Test with lid reattached

- Once both IR sensors have been calibrated and verified in the previous step, remove the leg from the front of the unit.
- Reattach the lid using the screws removed earlier, then reinstall the leg.
- Power the unit back on and verify that everything is working properly.
- Check to ensure the lid itself is not tripping the IR sensors. You can confirm this by looking through the port holes in the lid—only one sensor light should be on when the tunnel is clear.



9. Enjoy running trains!