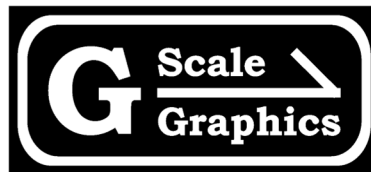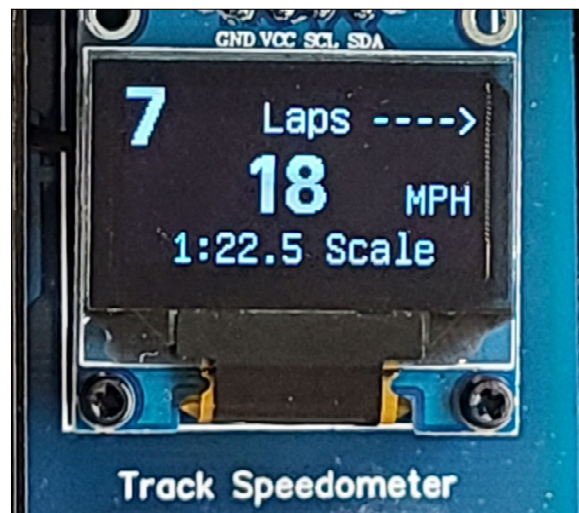# *Speed Trap*

Scale Track Speedometer

Operation and Installation Manual

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Overview

The Speed Trap uses two optical sensors placed under the rails and between the ties of your 45mm track. The sensor shines Infrared (IR) light up and receives the IR light reflected back. When the train breaks the beams, the time between the first and second beam is measured, converted to the scale speed of your choice, and displayed. Direction of travel and number of laps are also shown.

Speed sensor. The camera sees the IR light (pink) that we can't see with the naked eye.

Installation

Note: This device is NOT intended for permanent outdoor installation, unprotected from the weather. However, the sensor can easily be inserted under the track for use during operating sessions, and then removed for proper storage indoors.

Insert the sensor under the rails and between the ties, as shown in the photo. Make sure it is parallel to the ties and perpendicular to the rails. Note: If readings don't look realistic, try moving sensor off center of the rails, while keeping it perpendicular to the rails. You may also have to reposition for different equipment tripping the sensor.

Install a 9V battery by removing the snap-on cover. Carefully insert a screwdriver or something to pry the cover away from the base. Attach the battery clip leads and then place the battery in the battery holder. Replace the cover.
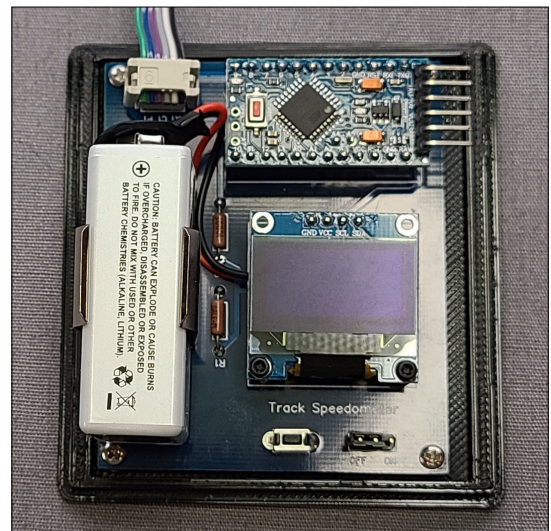
Note: If operating with the cover removed, the red button on the microcontroller can be used to reset the program, which will also reset the lap counter.

Operation

The power "switch" is actually a jumper on a header connector. Remove the jumper from the left two posts and place it on the right two posts to turn power ON.

A short momentary press of the button will change the scale. A long button press will reset the lap counter.

If readings don't look realistic, try moving sensor off center of the rails, while keeping it perpendicular to the rails. You may also have to reposition for different equipment tripping the sensor.

Specifications

Mechanical

Size of Box: 3.0" X 3.2" X 1.7"H.

3D printed PETG enclosure with snap on cover.

Size of Display: 1.0" X 0.6"

Wiring: Ribbon cable between speed sensor and control box. Approximately 7" long.

Size of Sensor: 2.8" X 1.3" X 0.6". For use with large scale (45mm) track.

Electrical

Power from internal 9V battery (not included)

Battery life: 4 hours rechargeable NiMH (200mah)

      10 hours Alkaline (500mah)

Sensor optical IR reflective

Environmental

If using outdoors, the control box and sensor are intended for temporary use during operating sessions only.

The Speed Trap is not weather proof and should be stored indoors.