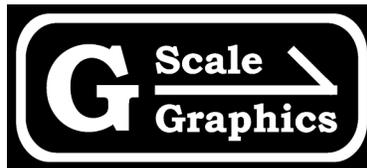
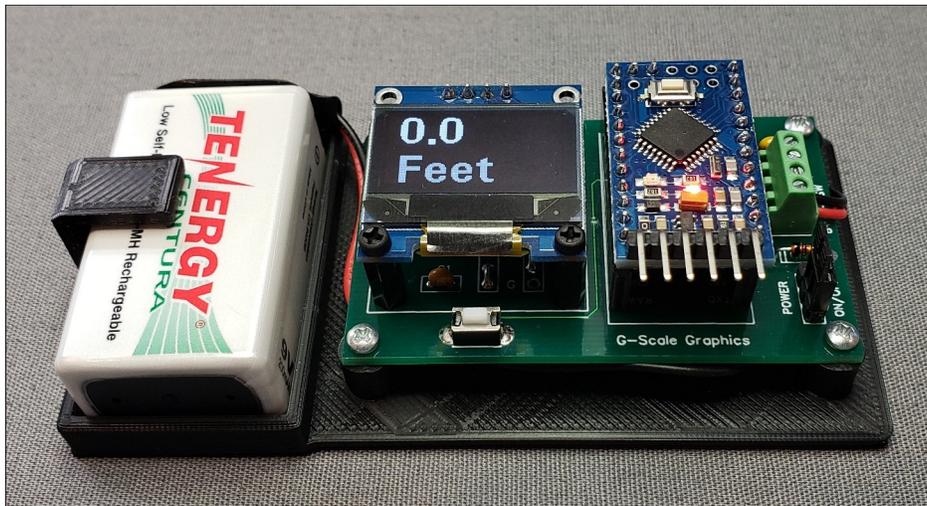


Track

Odometer

Operation and Installation Manual



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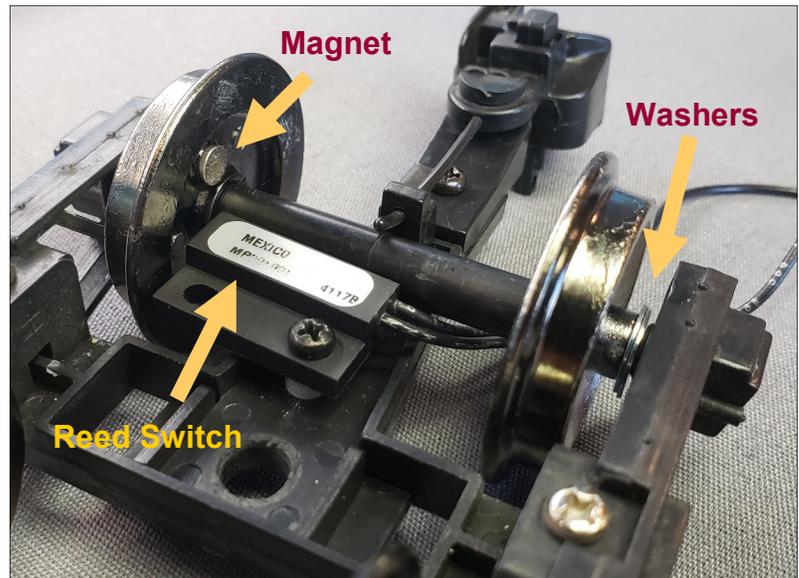
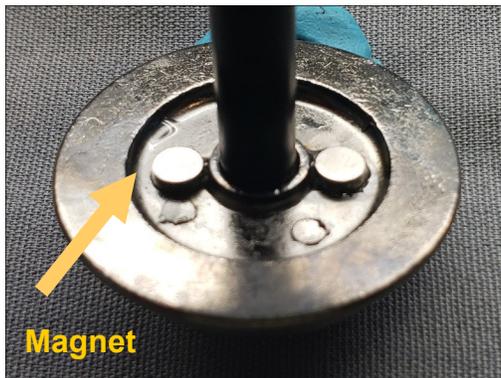
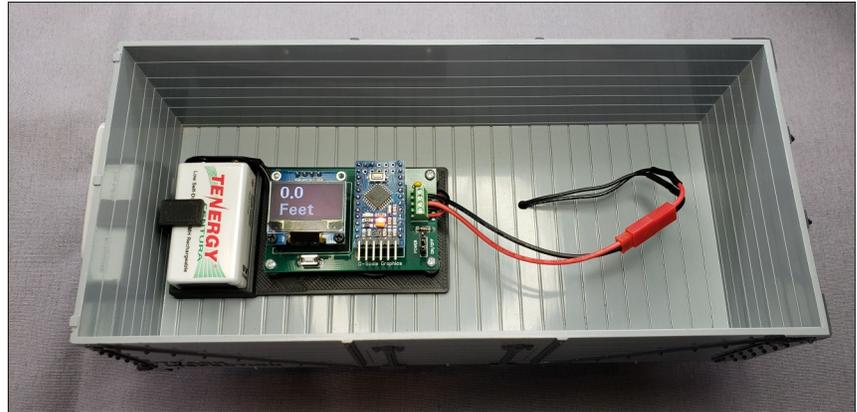
GScaleGraphics@comcast.net
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Track Odometer

“How many feet of track do you have?” A common question with the usual answer being “I don’t know, about ...”. Now you will know for sure! The Track Odometer can measure distance in either Feet or Meters. It does this using a counting wheel on the car; i.e. magnets glued to the inside of the wheel trigger a nearby reed switch, generating pulses. The odometer counts the pulses and calculates the distance based on stored calibration data (distance traveled per pulse).

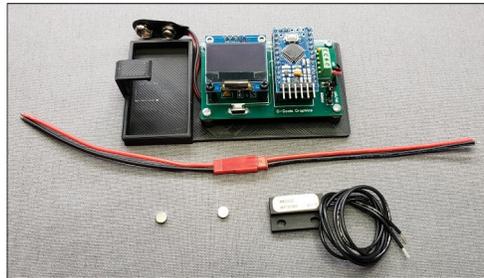
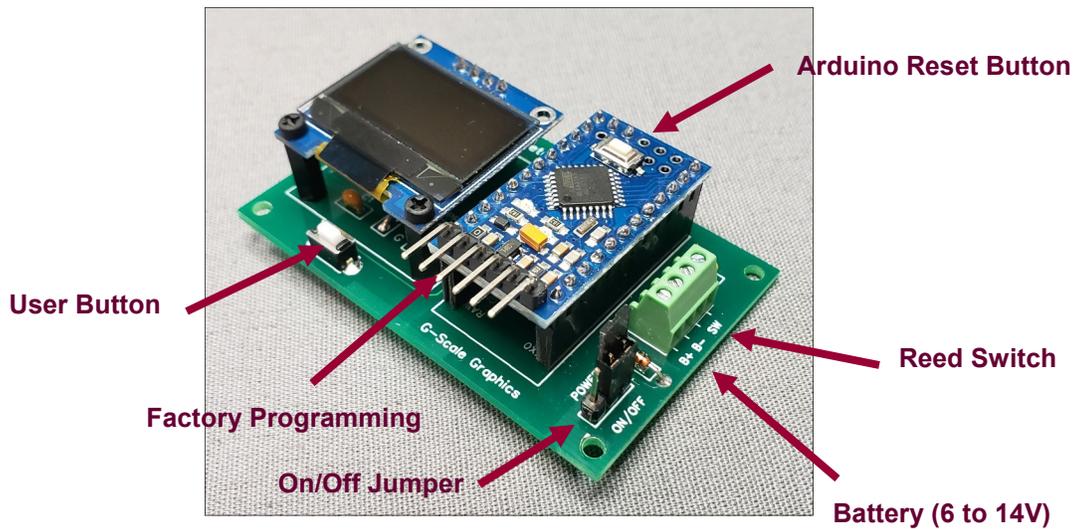
Installation

An open car is the best candidate for this project, as it will allow easy access and viewing of your Track Odometer. You will need to mount 1-4 magnets spaced equally around the inside of the wheel. We recommend little 0.2"x0.03" Neodymium magnets. Although the magnets are thin enough to clear the guard rails of turnouts, it's better to mount them towards the axle to make sure. Magnets need to be spaced at least 0.3" apart. The reed switch needs to be mounted such that the spacing between the magnets and the reed switch is about 1/8" or less. You may need to shim the axle with washers to reduce lateral movement of the wheels away from the magnets.



Insert 9V Battery from the side

Use of a connector between the reed switch and the Track Odometer terminals allows for easy removal when not in use.



Calibration

Mark a section of track and/or layout a tape measure to define a precise distance of either 10 feet, or 3 Meters. Place the front of the car at the starting point. To change measurement units from feet to meters, or vice versa, hold down the button while turning on the power.

Without moving the car, press and hold the User Button until the calibration display appears (about 3 seconds). It will instruct you to move the car either 10 Feet (3.05 Meters), or 3 Meters (9' 10"), depending on which mode you are in. Move the car until the front of the car is exactly at the end point and press the User Button to record the calibration data.

- Calibration for Feet and Meters must be done separately if you want to use both units of measurement.
- If the display reads "NAN Feet", either your unit has never been calibrated, or it didn't count any pulses during calibration, i.e. the reed switch isn't working. Check spacing and alignment with the magnets.

Operation

Place the car at your starting point and press the User Button to reset the distance to zero. Move the car along the track length to be measured and stop at the end to read the result.

To change units of measurement from Feet to Meters, or Meters to Feet ...

- Turn power OFF.
- Turn power ON while holding down the User Button until the display appears.

Note: The Track Odometer will NOT convert a displayed reading from one unit to the other. Changing units will also reset the distance to zero, but calibration in each unit is always maintained in memory.

Made by G-Scale Graphics in Windsor, Colorado, USA

Track Odometer Specifications

Display -

0 to 99,999.9 Feet (19 Miles)

0 to 9999.99 Meters (10KM)

Resolution and accuracy will depend primarily on the number of magnets used on the counting wheel.

Resolution is the change in the display reading each time a magnet passes by the reed switch. For typical large scale wheel diameters, with two magnets on the wheel, resolution will be about 0.2 feet (2"), or about 0.06 meters (60 cm). Four magnets will increase resolution to 0.1 feet, or 0.03 meters.

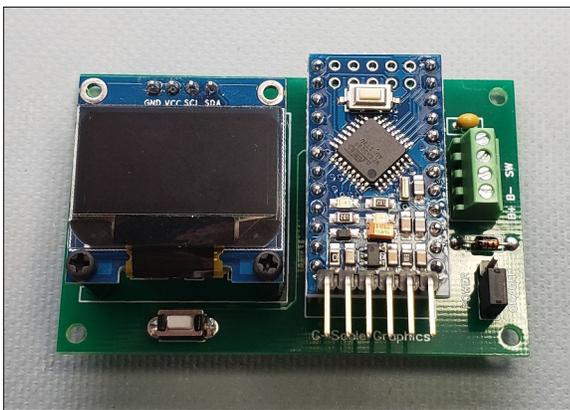
Accuracy is the error accumulated over a long distance, in percent. For typical large scale wheel diameters, with two magnets on the wheel, accuracy will be about +-2%. Four magnets will increase accuracy to about +-1%.

Power Input -

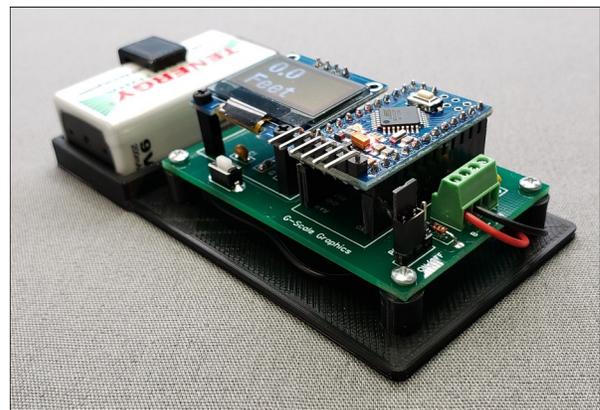
9V battery or 6 to 14V DC power source. Polarity reversal protection. Connect the Power On/Off jumper across the "ON" terminals to operate. Store the jumper in the "OFF" position when not in use. Power consumption: 30ma at 9V.

Switch Input -

Normally open reed switch across "SW" terminals. Spacing between reed switch and magnet should not exceed 1/8". Spacing between magnets should be 0.3" or more. An LED on the microcontroller (lift cover off to expose) will blink OFF every time the reed switch closes.



PCB Assembly
2.5"L x 1.6"W x 0.8"H



Battery/PCB Assembly
4"L x 2.1"W x 1.1"H

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