Track

Odometer

Operation and Installation Manual

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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 better to mount them towards the axel to make sure. Magnets need to be spaced at least 0.3” apart. The reed switch needs 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.

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.

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, or 3 Meters, 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. Note: Calibration for Feet and Meters must be done separately if you want to use both units of measurement.

**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; While holding down the User Button, press the Arduino Reset Button.

To change units from Meters to Feet; just press the Arduino Reset Button.

*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.*

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.