

Congratulations!

Congratulations? Why do user manuals always start with congratulations as if you've accomplished some tremendous feat?

What is it?

This is a "G" gauge speedometer which can measure speed and distances in feet and miles in any of the common, and a few uncommon garden scales, including 1:1.

Battery

Put 2 AAA batteries in the holder on the back. Be careful of polarity. The – end of the battery goes to the spring. Your speedometer will immediately say "Barefoot Electronics.com" and turn itself off. If you want to power it from some other source, do not exceed 4.5v (3 cells) or you'll confuse the tiny power supply circuit and the black smoke may leak out. It should work as low as 2v. Since it uses about 5mA when turned on, 2 AAA's should last a long time.

Buttons

There are 3 little white buttons along the top.

- On – Turns the gizmo on and off. Press to turn on, press to turn off.
- Clear – Press to reset the distance to zero.
- Scale – Press to change the scale. It will display the measured distance in any of the built in scales:
 - 1:20.3
 - 1:22.5
 - 1:24
 - 1:29
 - 1:19.1
 - 1:1

It will remember the selected scale and distance measured while turned off, but not with the batteries removed.

Magnet Sensor

The magnet sensor on the end of the red, black and white lanyard is electronic. Notice that it's a flat thing about 2 tenths of an inch square. It detects a magnet passing the edge, from one side to another. Mount this on the truck so your magnet passes it on each revolution. You can use more than one magnet for better precision. Plug the other end of the lanyard into the white connector on back of the display.

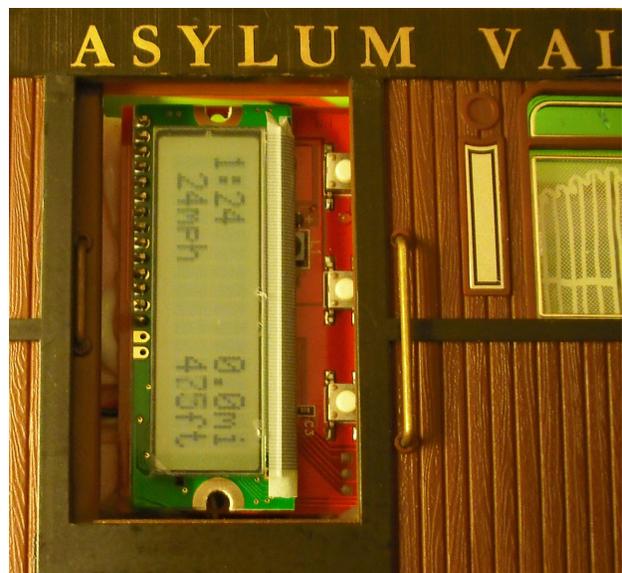
Play with the sensor a bit. With the scale set to something besides 1:1, you should see the distance increase whenever the magnet passes the sensor.

Don't worry about what the distance is yet, we'll calibrate it in a minute.

Mounting the Display

Mount the display anywhere that makes sense. If the lanyard is too short, you can splice into it. Just be careful to connect red to red, black to black and white to white. You know how electronic things are when the black smoke leaks out. I put it behind a door so I could hide it when not using it. In a box car, your door might be wide enough to accommodate it without standing on end.

Be sure you can reach the 3 little buttons.



Calibrate

We calibrate the speedometer by setting the car on track and rolling it 10ft. Take a tape measure and measure out 10ft of track. Works best if this is straight.

To enter calibrate mode, hold the Scale button and turn it on. Hold the scale button until the display says, "Roll car 10ft then press Clear."

Roll the car 10ft. Be sure you roll it a full 10 ft. The tiny computer doesn't know if you go back or forward, either will work, but if you pass the 10ft mark, it won't help to back the car up. Just turn it off and try again.

Once you've rolled the car 10 ft, press the Clear button. The odometer will remember this calibration factor forever. Well, till you calibrate it again. You can calibrate it as many times as you like. Once done, you should only need to do it again if you change the wheels or the magnet.

If you accidentally put it in calibrate mode and did not mean to, press the On button instead of the Clear button. The odometer will turn off. When you turn it back on, it will not be in calibrate mode and will be using the calibration information you saved before.

Use

Turn the speedometer on and off with the On button. Turned off, it uses about 1/10 of a microamp, so your batteries will run themselves down faster than the speedometer will.

Add the car to your train and run it. As long as the speedometer is turned on, it will count the distance and display the speed. When you stop, it will show the fastest speed since you last cleared it. Select what scale you want to see with the Scale button. It calculates the distance when it displays, so you don't have to run the distance again to see it in a different scale.

To reset the distance to zero, press the scale button.