



Magpie
Computer Developments
Ltd
www.magpiecd.com

Rev Counter for Model Locomotives and other vehicles



Standard Features:

- Quality Moving-Coil Meter – 70 mm x 60 mm
- Operates from Optical Shaft-rotation Sensor (supplied)
- Other Scales available – ask for details

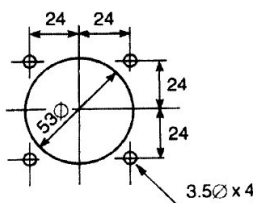
Installation

What's in the Box?

1. Meter
2. Meter fixing nuts & washers
3. Wiring Connectors
4. Optical Sensor

Meter mounting

Cut holes to mount the meter as shown below.



Mounting the Sensor

The Sensor is a combined Infra-Red Emitter and Detector. It must be mounted perpendicular to the Shaft whose speed is being monitored. A reflective target must be attached to the shaft. This can be anything that will reflect light (e.g., a spot of white paint, or a piece of white paper). If the shaft itself is reflective, then a NON-reflective target must be used – e.g. an area of matt black paint.

The sensor needs to be mounted such that it is around 3-5 mm from the surface of the shaft / wheel; the distance that gives the most reliable differentiation between the reflective / non-reflective states must be chosen. The meter can be set into an 'adjustment mode' to help you find this optimum distance.

See page 4 for details.

Wiring Connections

The following connections need to be made to the Speedo.

POWER connection

Terminal 1. Positive (7-30V DC)

Terminal 2. Negative (0V DC)

The unit is protected against damage from accidental reverse-connection – it simply won't operate.

SENSOR connection

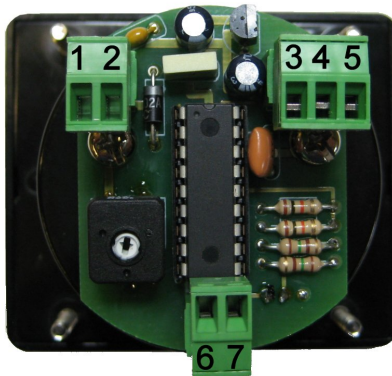
Terminal 3 goes to the Sensor GREEN Wire

Terminal 4 goes to the Sensor BLUE wire

Terminal 5 goes to the Sensor RED wire.

The Sensor MUST be connected as described above. Failure to do so may result in permanent damage to the Sensor!!

Terminals 6 and 7 have NO CONNECTIONS made to them for normal operation – they are used only when setting up the Shaft Speed detector position (see page 4)



Whenever power is applied to the unit, the meter needle will swing to 5000, and back to zero, so you can observe that everything's working.

Terminals 6 and 7 are used only when setting up the Sensor Position. With the power OFF, connect 6/7 together, then turn the power ON. The needle will be on the 1000 mark when the sensor can see no reflection, and on the 4000 mark when it can.

Rotate the shaft so that the Sensor is over a reflective portion of it. Adjust the sensor gap until the needle is on the 4000 mark.

Now position the shaft so that the Sensor is over a non-reflective portion. The needle should now be on the 1000 mark. If not, adjust the sensor in the required direction until it is.

Now re-check for the reflective position.

When the adjustment is correct, the meter needle should reliably indicate reflective / non-reflective shaft positions as the shaft is rotated.

When satisfied with the positioning, remove power from the unit, then remove the link from terminals 6 & 7,

Document Revision	
1st Dec 2010	Rev A. Clarifications & Corrections
17th Nov 2009	Initial Release