

# RACETECH

## Instructions for Programmable Speedometer

**Caution**  
Disconnect the negative battery cable prior to any installation

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For further information go to the  
Racetech website  
'[www.racetechdesign.com](http://www.racetechdesign.com)'

Products designed & manufactured  
under ISO 9001:2000 quality  
standard

### Installation instructions

Speedometers, Stepper motor technology.

Part numbers xES3/5-1Bxx-xx (x indicates any character in the part number)

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### Application notes

The operating voltage is nominally 12 volts. The range of operation is 10 to 16 volts, negative earth only. The speedometer is intended for panel mounting, it is shower proof from the front only and must be protected from environmental damage at the rear. The speedometer must be calibrated to suit the pulses per mile or km of individual vehicles using the programming harness and push button assembly (supplied in your kit as an accessory) or via the reset button on the front of the instrument. This must be done when the speedometer is installed in the vehicle and powered. The calibration range is from 2500 to 128,000 pulses per mile.

<u>Wire Colour</u>	<u>Pin No</u>	<u>Connect to</u>
Green tive	1	Switched Ignition positive 12volt supply ,3A
Brown/slate ness	2	Connected to har- reset switch
	OR not used	
Red	3	Pull Up/Down (if required)
Red/white tion	4	Instrument illumina- 12v supply (side light feed)
Black tery	5	Chassis or bat- negative
White/black	6	Speed signal input (hall ECU)
Red/blue put	7	Speed signal input For low voltage out- senders
Light green/purple	8	Not used

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### Setting the pulses per mile.

The calibration mode is selected by switching on the ignition while simultaneously holding the reset button for 3 seconds. Release the reset button, the speedometer is now in calibration mode, and the odometer will flash and display the current pulses per mile (or Km) setting.

By momentarily pressing and releasing the reset button each number (extreme left side first) can be incremented to your desired value.

When the desired value is selected release the button and wait 3 seconds.

The next number to the right will flash, increment this number in the same way and continue until all the numbers are programmed to your pulses per mile/km.

At the end of the sequence wait 3 seconds and the speedometer will return to normal operation. If you switch off at any time before the end of the sequence no changes will be programmed.

For most of the following calculations you will need to know the number of times that your tyre revolves per mile or kilometre. Stand the vehicle on a flat surface and make a mark on the tyre at the closest point to the ground, mark the floor at the same point. Move the vehicle forwards for one revolution of the tyre and measure the distance covered.

63360 divided by the distance covered in inches = tyre revs per mile

1000 divided by the distance covered in metres = tyre revs per km

### How to calculate the pulses per mile/km (calibration number)

#### **Prop shaft mounted magnetic sensor (magnets or Bolt heads moving past the sensor)**

Calibration number = (tyre revs per mile or km) x (differential ratio) x (no of magnets or bolts)

#### **Sender driven from transmission cable drive**

Push vehicle forward on flat ground for 6 complete tyre revolutions and count the number of cable turns.

Cable turns per mile (or Km) =  
(Tyre revolutions per mile (or Km) / 6) x cable turns counted

Calibration number  
= cable turns per mile (or Km) x number of pulses per  
Sender revolution