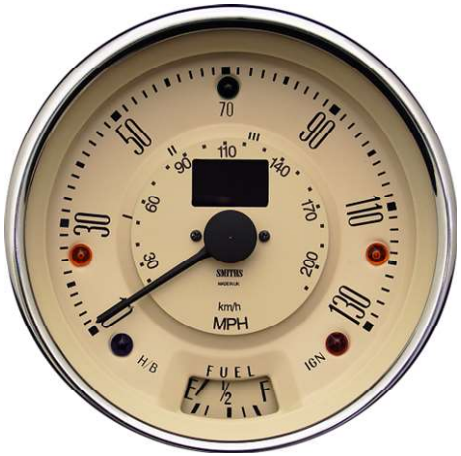
Caerbont Automotive Instruments

Instructions for Electronic Mini Speedometer



Application Notes

- For fitment to negative earth petrol powered vehicles only.
- Operating voltage 10-16 volts DC.

Caution: Disconnect the negative battery cable prior to any installation.

Electrical Connections

The speedo is fitted with a 16 way plug connector and supplied with a mating half. The mating half is fitted with flying leads and a push button. The leads should be connected as described in the following table.

Green	Ignition +12Volts.
Red	Connect to +12V only if speed sensor requires resistive load. Contact CAI if advice is needed.
Green/White	Right hand indicator warning light. Connect to +12V to illuminate
Blue/White	Main beam warning light. Connect to +12V to illuminate.
Brown/Yellow	Battery warning light. Connect to ground to illuminate.
Green/Black	Fuel sender signal
Red/White	Instrument illumination. Connect to +12V (side light feed).
Black	Ground
White/Black	Speed signal from 3 wire sender, if fitted.
Red/Blue	Speed signal from 2 wire sender, if fitted
Green/Red	Left hand indicator. Connect to +12V to illuminate.
Purple	Left hand amber oil pressure warning light. Connect to ground to illuminate.
White/Brown	Right hand amber oil pressure warning light. Connect to ground to illuminate.
Pink	5Volt output for speed sender, if required.
Red/Black	Instrument illumination,. Connect to ground.

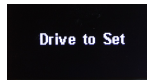
Programming

Once the electrical connections have been made, reconnect the battery cable.

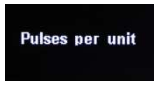
Using the push-button in the harness, press and hold the button whilst switching the ignition on. The words 'Release Button' should be displayed on the OLED screen. The speedo is now in programming mode. Now release the button. From now on, each momentary push of the button will increment through the programming menu in the following order.

Release Button

Drive to set for speedo calibration.



Pulses per unit, alternative method of speedo calibration.



Once in programming mode, each momentary press of the button moves through the major menu headings. With a major heading displayed, pushing and holding the push-button for one to two seconds will take you into the programming section for that heading.

Speedometer Calibration

There are two methods of setting the speedometer calibration:

(i) Drive to set

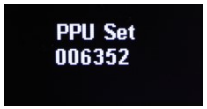
(ii) Manually input the PPU number

Drive to Set

In programming mode, press the programming button momentarily until the display reads 'Drive to set'. Push and hold the button until the display shows 'Drive' together with the current PPU (pulses per unit) count and a zero.

Now drive the vehicle exactly one mile and then press the programming button. While driving, the speedo will count the number of pulses generated by the sender.

On the completion of the one mile trip, the display will still show the old PPU, the 'zero' will have incremented to the new PPU figure. Press the button momentarily and the display will read 'PPU SETxxxxxx' where xxxxxx is the number just generated. After approximately five seconds the display returns to the main menu 'Drive to set' and the new PPU figure is implemented.



Note: The new PPU figure must be greater than 400 and less than 125,000 or no new figure will be stored.

Manually Inputting the PPU Number

(i) Calculate the PPU Number

To begin, you need to know the number of times your wheels revolve per mile (or kilometre). Stand the vehicle on a flat surface and mark the tyre at the closest point to the ground, mark the ground at the same point. Move the vehicle forward by one complete wheel revolution and measure the distance travelled.

Wheel revs per mile = 63360 divided by the distance travelled in inches.

Wheel revs per km. = 1000 divided by the distance travelled in metres.

To Calculate the PPU Number (pulses per mile/km)

- For magnetic sensor, magnets or bolt heads moving past the sensor (eg. prop shaft mounting).

PPU number = (wheel revs per mile/km) x (diff ratio) x (number of magnets or bolts).

- For sender driven from transmission cable drive.

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

Cable turns per mile (or km) = (Wheel revolutions per mile ÷ 6) x cable turns counted.

PPU number = Cable turns per mile (or km) x number of pulses per sender revolution.

(ii) Input PPU Number

In programming mode, press the button momentarily until the main menu heading is 'Pulses per unit.'

Press and hold the button until the display changes to show 'PPU Now' together with a number (showing current setting and row of six zeros.

The row of zeros is to be replaced with your newly calculated PPU number. Pressing the button momentarily will increment the last zero (the least significant figure) by one. Repeat the action until this digit matches the least significant figure of your new PPU number. When the two digits match, press and hold the button, the next digit in line is highlighted. Keep pressing the button (momentarily) until the second digit matches that of the new PPU number. Press and hold the button to bring the third digit into play. Repeat the actions until the full PPU number is shown.

Note: All six digits must be set ie. including any zeros. Pressing and holding the button when the last digit is set will result in the display reading 'PPU Set xxxxxx.' Where xxxxxx is your new PPU number. After approximately five seconds the display will return to the main menu 'Pulses per unit' heading.' The new PPU number is now in force.

Fuel Gauge

For information. The fuel gauge is calibrated to match the original fit Smiths fuel sender.

For technical advice contact:
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For other information contact:
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