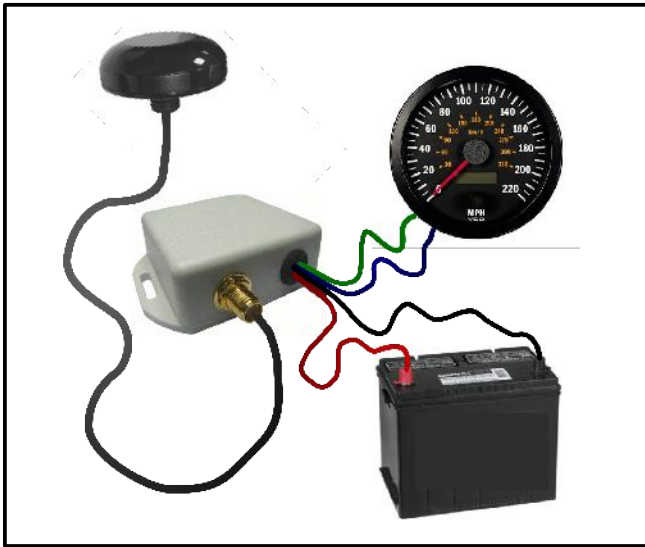




# GPS Speed Sender

## *Installation and setup instructions*

Installation of a GPS Speed Sender (GSS) is straightforward as long as a few critical points are noted. Critical items will be highlighted in ***bold italics*** in this document for your quick reference.



*Typical GPS Speed Sender installation*

### Installation Instructions

1) ***GSS must be provided with permanent power.*** Ideally the unit should be connected directly to the vehicle's battery (through a fuse). If switched power is provided, the unit will re-start each time power is applied, and pulses, representing distance travelled, may be lost during satellite acquisition time.

2) ***Some tachometers and speedometers require two pulses*** for correct operation. GSS provides two pulses, which are the inverse of each other. When only one pulse is needed, the other can be left disconnected, but please ensure that it does not short to the chassis of the vehicle.

3) The amplitude of the output pulses provided by GSS is 9.1V. ***Please check that this voltage is suitable for use with your equipment.*** Other voltages are available if required. Please contact your distributor or Hummingbird Electronics for more information.

4) For optimum performance, ***the antenna or GSS-passive should be mounted horizontally and upright;*** and should have a clear view of the sky. Typical positions for mounting the various units are:

- magnetic mount or passive: suitable for mounting in the interior of the vehicle, for example under the dashboard or rear window sill.
- bulkhead mount: suitable for exterior mount, for example on the roof of the cab.

For active units that require an external antenna, ***please ensure that the antenna cable is never tightly bent or twisted*** but is folded gently around corners. The antenna is attached to the GSS using the gold plated SMA connector provided on the side of the GSS.

5) A red and a green LED are provided to give the user status information. At power on, the red LED will light for approximately 2 seconds and will then begin to flash at 2Hz, indicating that the unit has power and is searching for satellites. ***When satellites have been acquired, the red LED will stop flashing and remain on.*** The green LED flashes in sympathy with the pulse output, and so will flash faster as the vehicle speed increases.

6) ***The GSS has a built in test function*** that can be used to check that the GSS pulse outputs are correctly driving the end equipment, and that the GSS is powered correctly. In order to activate the test function, open the unit by removing the two screws securing the back-plate. Place the link provided across pins 1 and 2 of the connector (see page 2). The GSS will now provide a pulse output simulating 60km/h. The end equipment should respond to the pulse output as expected. If the end equipment responds, but the speed shown is incorrect, then the wrong pulse-per-kilometer (ppk) value has been selected and either a GSS with a different ppk value should be used, or the ppk value should be set using the instructions on the next page. ***Please take care when opening the GSS not to short any of the internal pins to either chassis, ground or positive voltage.***

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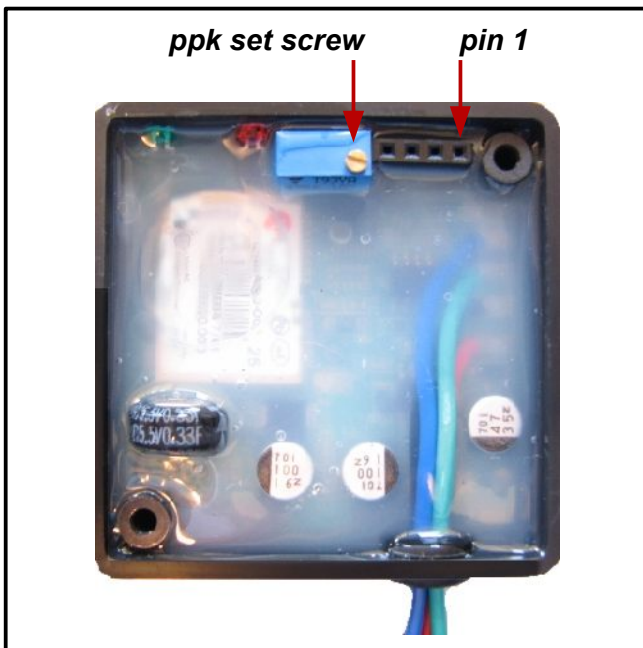
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# GPS Speed Sender

## Installation and setup instructions

### Setting the Pulse-Per-Kilometer Value

After installation and once power has been applied, the unit will enter setup mode if a link is present on pins 1&2 of the connector. In setup mode, pulses will be provided to simulate a speed of 60km/h (37.3mi/h or 32.4knots). The speedometer, tacho or other equipment that is connected will show that the vehicle is moving, but the speed will probably be incorrect. The pulse-per-kilometre (ppk) value must now be set.



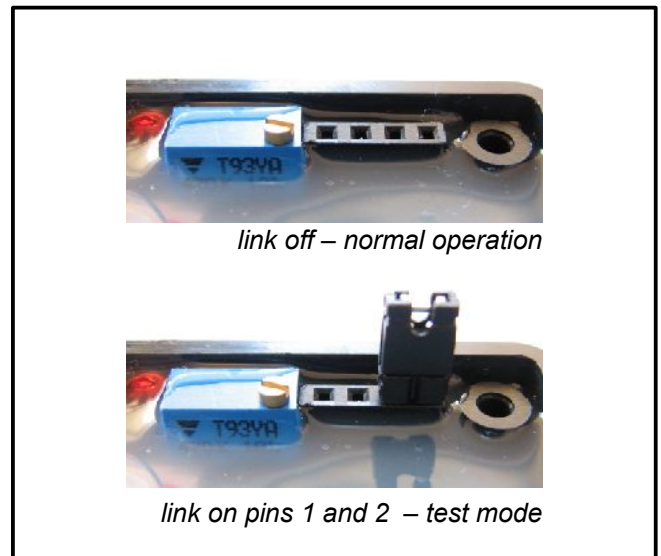
Identify the ppk adjust screw and pins 1&2 of the connector

To set the ppk value, open the GSS by removing the two screws securing the back-plate and gently remove. Identify the ppk set screw. With the unit in test mode, turn the screw clockwise to increase the ppk value and anti-clockwise to decrease the ppk value until the end equipment shows 60km/h (37.3mi/h or 32.4knots). Once the desired ppk has been set, remove the link on pins 1 and 2 of the connector to exit setup mode. Setup mode can be re-entered by replacing the link on pins 1 and 2 as before.

### Wiring Specification:

Red	input voltage (6V to 36V)
Black	ground (0V)
Green	pulse output (0 to 9.1V)
Blue	inverted pulse output

**Please take care when opening GSS not to short any of the internal circuitry to either chassis, ground or positive voltage.**



Insert a link on pins 1 and 2 for test mode

### Electrical Specifications:

#### Input voltage:

minimum 6V for correct operation  
12V to ensure 9.1V output pulse  
maximum 36V

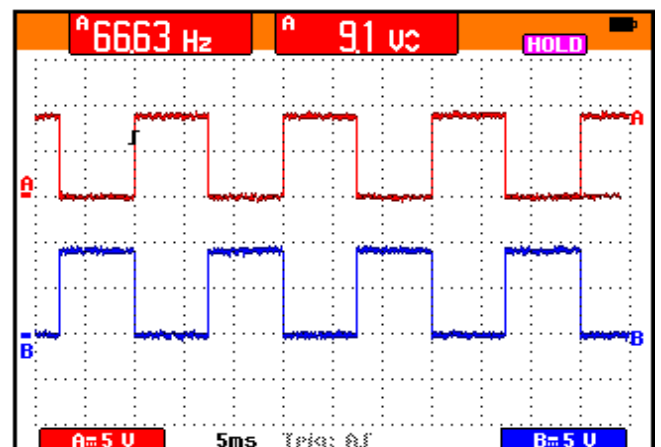
#### Power consumption:

GSS Passive - 240mW  
GSS Active (with antenna) - 480mW

#### Output pulse:

peak to peak voltage - 9.1V  
on time voltage - 9.1V (other value on request)  
off time voltage - less than 250mV

Maximum current drain: 25mA



Output pulses at 60km/h with 4000ppk setting

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