

GPS Speed Module Interface Specification and Installation

Revision 1.07

1. Description

This product uses GPS technology to generate two road speed dependant outputs. The first output pulses at a frequency proportional to road speed. The second output changes state when a pre-set road speed is exceeded. The interface is easy to install and utilises a built-in antenna. It is suitable for 12v and 24v vehicle electrical systems.

2. Operation

The unit requires a +12/24v permanent (battery) supply in order to maintain open sky hot start capability. When the ignition is switched off, the unit enters a low-current mode but maintains the GPS data required for a 'Fix' for a period of up to 3 hours.

An on-board bi-colour LED (surface mounted on the PCB immediately to the right of the connector) will flash Orange 3 times when the unit is first powered from the permanent supply. The LED will then flash a code to indicate the speed dependant output threshold (see Code Selection Table below). After this code, when the ignition is on, the LED will indicate the state of the interface as follows:-

Red LED on	No Fix
Green LED on solidly	Fix
Green LED flashing	Fix and road speed signal greater than zero

3. Wiring

Red	+ 12/24v	Permanent Supply
Black	0v	Vehicle Earth
Purple	+12/24v	Ignition
Green	Speed Pulse Output	
Brown	Speed Dependant Output	

4. Installation

The unit should be installed with a clear view of the sky without any metal obstruction. A label on the enclosure indicates the correct orientation of the unit. If these criteria are not met, acquisition time will be greater and performance reduced. A suitable installation would be mounted directly underneath the dashboard, with no obstruction, as close to the windscreen as possible.

5. Speed Pulse Output

The digital output pulses between 0v and +12/24v at a frequency of 1 Hz / MPH. Different calibrations are available on request. If there is no Fix, the output will be at 0v. When there is a Fix but speed is zero, the output will be +12/24v.

6. Speed Dependant Output

The speed dependant output has a default threshold of 12 MPH. This setting may be changed by following the procedure detailed below. The setting will be retained when the +12/24v permanent supply is removed. Different default settings are available on request.

When the ignition is switched on, the unit will flash a code once on the LED. The code comprises 5 flashes of either Red or Green and represents the current Speed Threshold in MPH. See Code Selection Table below. Hence for the default of 6 MPH, the flash sequence will be Red, Red, Green, Green, Red.

6.1 Speed Dependant Threshold Programming Procedure

6.1.1 Power the unit up with the ignition input also connected to +12/24v.

6.1.2 Disconnect the ignition input from +12/24v. The LED will flash continuously Red/Green. At this point, the unit is waiting for the first colour code to be selected.

6.1.3 A colour code is selected by applying +12/24v momentarily to the ignition input when the LED indicates the colour that is required. For example, connecting to +12/24v when the Red LED is on, will select the Red colour code. The first time a connection is made to +12/24v, the 1st code is selected. The next connection to +12/24v, the 2nd code is selected etc. All 5 codes must be entered. After the 5th code has been entered, the LED will flash the new code sequence.

Code Selection Table

1 st Flash	2 nd Flash	3 rd Flash	4 th Flash	5 th Flash	MPH
Red	Red	Red	Red	Green	1
Red	Red	Red	Green	Red	2
Red	Red	Red	Green	Green	3
Red	Red	Green	Red	Red	4
Red	Red	Green	Green	Red	5
Red	Red	Green	Green	Green	6
Red	Red	Green	Green	Green	7
Red	Green	Red	Red	Red	8
Red	Green	Red	Red	Green	9
Red	Green	Red	Green	Red	10
Red	Green	Red	Green	Green	11
Red	Green	Green	Red	Red	12
Red	Green	Green	Red	Green	13
Red	Green	Green	Green	Red	14
Red	Green	Green	Green	Green	15
Green	Red	Red	Red	Red	16
Green	Red	Red	Red	Green	17
Green	Red	Red	Green	Red	18
Green	Red	Red	Green	Green	19
Green	Red	Green	Red	Red	20
Green	Red	Green	Red	Green	21
Green	Red	Green	Green	Red	22
Green	Red	Green	Green	Green	23
Green	Green	Red	Red	Red	24
Green	Green	Red	Red	Green	25
Green	Green	Red	Green	Red	26
Green	Green	Red	Green	Green	27
Green	Green	Green	Red	Red	28
Green	Green	Green	Red	Green	29
Green	Green	Green	Green	Red	30
Green	Green	Green	Green	Green	31

7. Specification

Supply Voltage		9.0v to 32.0v d.c.
Supply Current	Operating	35 mA typical Operating, 5 mA maximum Standby
Speed Pulse Output		1 Hz / MPH (0.62 Hz / Km/h) 3600 pulses/mile (2237 pulses / km) Output Current = 100 mA maximum
Speed Dependant Output		+12v/24v below pre-set threshold. 0v above threshold Output Current = 500 mA maximum
Acquisition	Cold Start	28 seconds typical
	Hot Start	2 seconds typical
Operating Temperature		-40 to + 85 deg C
Dimensions (including mounting lug)		65 mm x 44 mm x 16 mm