

## Universal Speed Sensor Assembly Manual

### (hall sensor TLE4905L + magnets)

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## 1. Introduction

### 1.1. Application

TLE4905L is a hall sensor which can be used as an universal speed sensor for each vehicle. All you need is a single sensor + few magnets.

When to use?

- if vehicle does not have speed signal or,
- speed signal is only available in CAN system or,
- speed signal is incompatible or
- when we need better accuracy.

### 1.2. How it works and how to connect?

Sensor should be installed close to rotating element (eg. half-shaft, wheel hub etc.) where you place some neodymium magnets. The distance between magnets and sensor should be aprox. 0.5 – 3mm. When the vehicle is moving, the half shaft or wheel hub is rotating. Magnets passing sensor generates pulses. These pulses are compatible with onboard computers, navigations systems, car radio etc.

## 2. Assembly kit

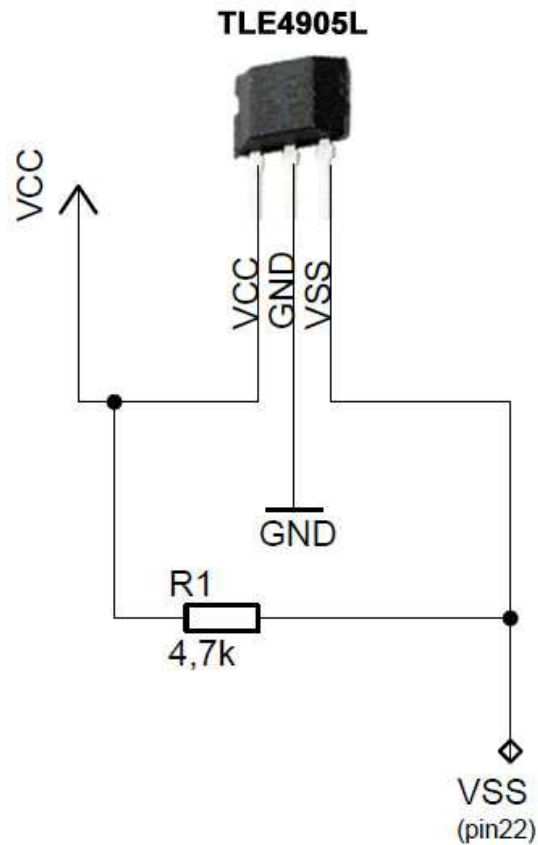
You can buy hall sensor (e.g. TLE 4905L) and neodymium magnets in most electronic shops or from ebay. Recommended dimensions for magnets you will find in Chapter 4.

The kit is also available at Telwis or Reveltronics page ([www.telwis.pl](http://www.telwis.pl) or [www.reveltronics.com](http://www.reveltronics.com)). Kit includes:

- TLE 4905 hall sensor (x1),
- neodymium magnets (x4) – dimensions from 3x3x1 to 5x5x2 mm,
- resistor 4,7k $\Omega$  (x1).

### 3. Connection diagram

The sensor has 3 wires: power supply (VCC), ground (GND) and signal (VSS). You should pull-up signal to VCC with resistor (4,7k – 10k ohm).



	min	max
VCC	+ 4,0 [V]	+20 [V]
GND	0 [V]	+0,5 [V]
R1	4,7k [ $\Omega$ ]	10k [ $\Omega$ ]

#### Tips:

- You can get power supply (VCC) from vehicle circuits (+12V when ignition is ON) or directly from UTCOMP (+5V is at pin6 or pin18),
- GND (0V) you can get from vehicle body or directly from UTCOMP (pin 4,7, 12, 16)

## 4. Magnets

It is recommended to use neodymium magnets with dimensions: 3x3x1, 3x5x1, 5x5x1, 5x5x2 and similar (length x width x height – dimensions in millimeters). Gap between sensor surface and magnet should be not greater then 3mm. For bigger magnets (e.g. 5x5x2) gap can be up to 5mm.

Magnets can be installed e.g. on half-shaft or wheel hub. More magnets gives better resolution. You should use at least 4 magnets in equals distance (e.g. 0deg, 90deg, 180deg, 270deg). With single magnet all will work, but accuracy of vehicle speed will be not good.