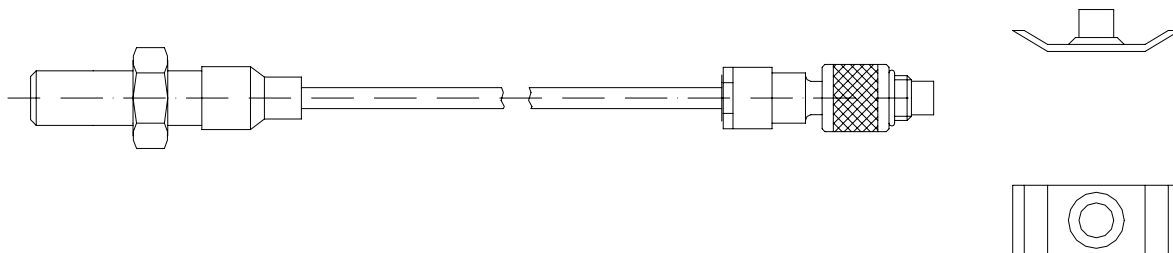


<b>SENSOR DOCUMENTATION</b>	<b>31/01/2005</b>	<b>SPEED</b>	<b>Rear wheel KART speed sensor</b>
Notes: <b>Speed sensor for KART applications</b> technical documentation, dimensions and pinout. – <b>Version 1.01</b>			



**Figure 1:** Speed sensor for KART applications (to be installed on the rear wheel)

## Introduction

The kart speed sensor allows you to measure your kart rear axle rotational speed. This sensor is a “non contact” device and needs a magnetic metal trigger to pass the sensor face. The sensor sensing distance is from 8 mm to 20 mm; the speed sensor is supplied with a 1700 mm long extension cable.

## Kit description

Inside the kart rear axle speed kit you will find the following objects:

- 1 metal plate, equipped with a magnetic cylinder;
- 1 speed sensor, supplied with a 1700 mm long cable.

## Installation notes

- Install the magnetic metal plate on your kart’s rear axle;
- Install the speed sensor on a self-made bracket; use the locknuts provided to fasten the sensor;
- When mounting the sensor, please let the sensitive part pass in front of the magnetic cylinder at a distance included between 8 and 20 mm;
- Firmly screw the bracket on your kart chassis, so to avoid movements of the sensor due to very high vibrations;
- Plug the speed sensor in your data logger (MyChron 3, EVO 3...);
- Do not place the sensor near to magnetic sources of electrical interference.

## Software

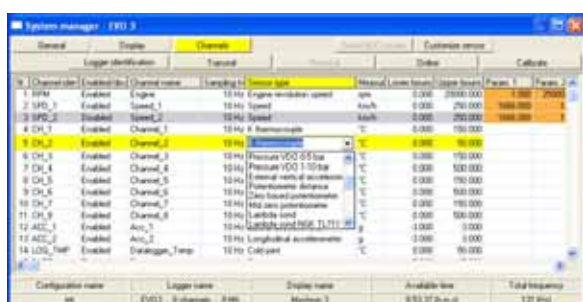
Once the speed sensor has been installed and plugged in your data logger, to acquire consistent and correct information, it needs to be configured. To do so, please use **Race Studio 2**, the software properly developed by Aim to configure its instruments and analyze stored data.

### Race Studio 2

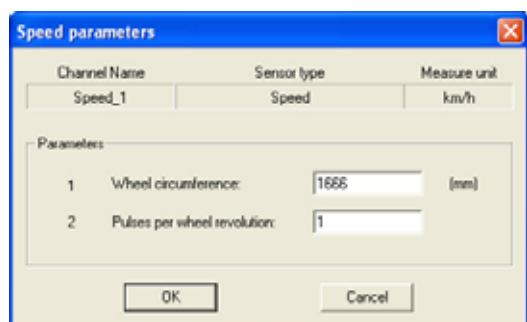
In **Race Studio 2** main window you can choose your data logger. Please select the gauge and press “*System manager*” button.

### Sensor configuration – EVO 3

In “*System manager*” main window, press “*Channels*” button to set the sensor you have installed on your vehicle. The following screenshot appears.



To configure the speed sensor, please click twice in “Param 1” column and in the row corresponding to the “speed” channel. The following screenshot appears:



You are requested to set two parameters:

- *Number of pulses on wheel revolution*: this function allows you to set the number of pulses per wheel revolution. Please fill this box with the number of teeth on the gear wheel.
- *Wheel circumference*: this option allows you to set the wheel circumference (in mm or in inches). This value is fundamental to correlate the wheel revolution speed and the kart speed.

Once the correct wheel circumference value and the number of pulses set, please transmit the configuration to the instrument pressing “*Transmit*” button.

### Sensor configuration – MyChron 3 KART

In “*System manager*” main window, press “*Configuration*” button to set the speed sensor parameters. The following screenshot appears.

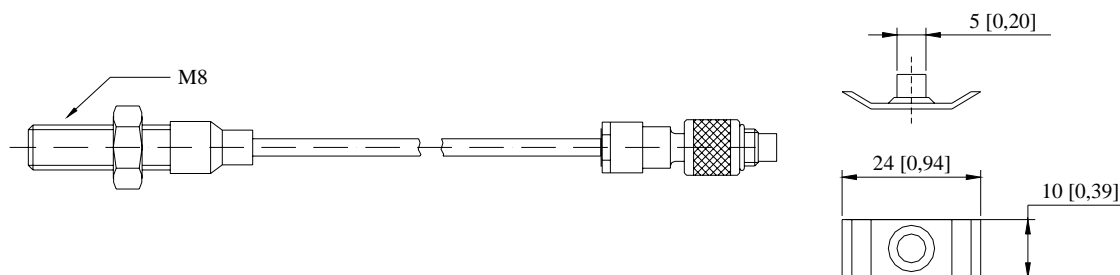


To acquire a correct speed signal, the user is requested to set two parameters:

- *Number of pulses on wheel revolution*: this function allows you to set the number of magnets installed on the wheel. The kart speed kit you have just bought is equipped with one magnet, so fill the “Number of pulses on wheel revolution” box with the value **1**.
- *Wheel circumference*: this option allows you to set the wheel circumference (in mm or in inches). This value is fundamental to correlate the wheel revolution speed and the kart speed. A typical kart wheel circumference value is **830 mm ( 32.7” )**.

Once the correct wheel circumference value and the number of pulses set, please transmit the configuration to the instrument pressing “*Transmit*” button.

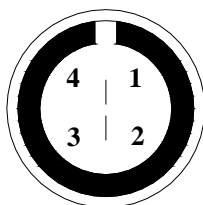
## Dimensions



Dimensions in millimeters [inches]

## Connector details

Pin	Function	Pin	Function
1	Speed	3	V battery
2	GND	4	n.c.



4 pins Binder 719 male connector: solder termination view

## Technical characteristics

Electrical characteristics	Value
Supply voltage	6-24 V DC
Supply current	13.5 mA
Output signal type	Pulse 0-5 Volt
Maximum output current	20 mA
Maximum operating frequency	100 kHz
Maximum sensing distance	20 mm
Recommended distance	10 mm
Number of pulses per revolution	1

Mechanical characteristics	Value
Operating temperature range	From -20 to +85 °C
Cable length	1700 mm