

SENSOR DOCUMENTATION	31/01/2005	SPEED	Speed sensor for CAR applications
Notes: Speed sensor for CAR applications technical documentation, dimensions and pinout.- Version 1.01			

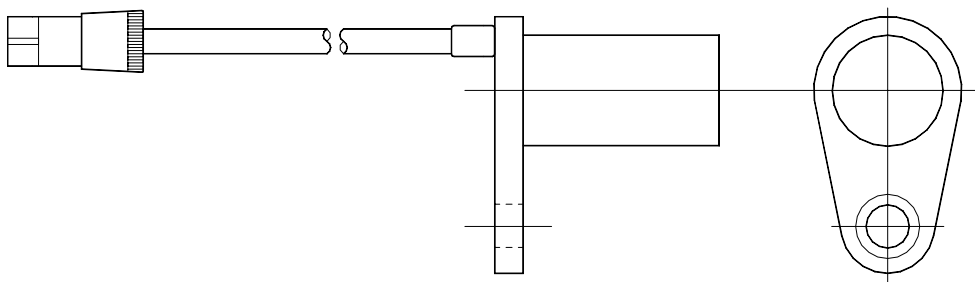


Figure 1: Speed sensor for CAR applications (front and side view)

Introduction

The wheel speed sensor for gear tooth belongs to the “non contact” devices and it needs a ferrous metal trigger to pass the sensor face.

The instrument’s measure range is included between 0.5 and 2 mm; the speed sensor is supplied with a 80 mm long cable.

Installation notes

- Install the speed sensor on a self-made metal bracket;
- Make sure that the distance between the sensor and the phonic wheel is included between 0.5 and 2 mm and then fix the sensor on the bracket;
- Plug the speed sensor in your data logger;
- Optimum sensor performance depends on the following variables, which must be considered in combination: trigger material, geometry and speed, sensor trigger gap, magnetic material in close proximity.

In **Figure 2** is shown a speed sensor installation drawing.

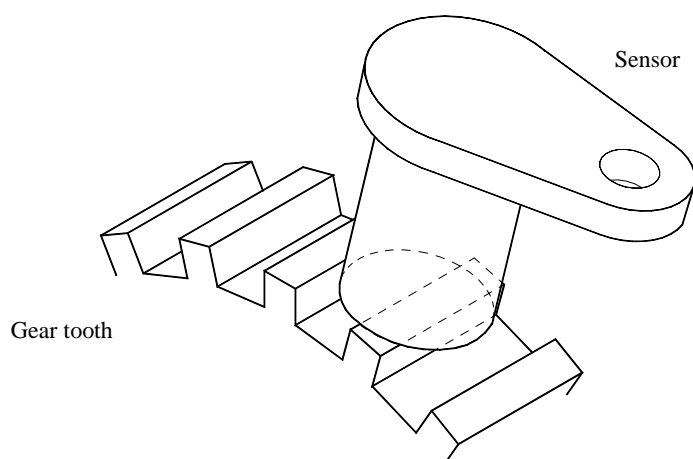


Figure 2: “How to” install the speed sensor for CAR applications

Software

Once the speed sensor has been installed and plugged in your data logger, to acquire consistent and correct information, it is necessary to configure it. 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

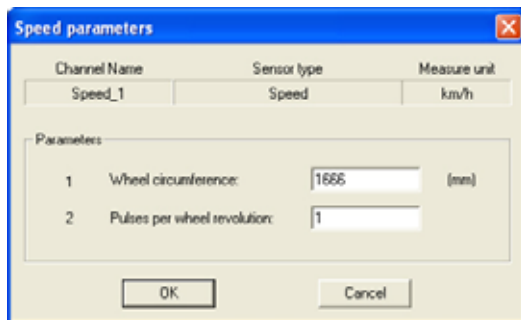
In **Race Studio 2** main window you can choose your data logger. Please select the gauge and “*System manager*” button.

Sensor configuration – EVO 3, Dash ST1

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 the “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 to the car speed.

Once the correct wheel circumference value and the number of pulses have been set, it is necessary to transmit the configuration to the instrument pressing “*Transmit*” button.

Sensor configuration – MyChron 3 CAR

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

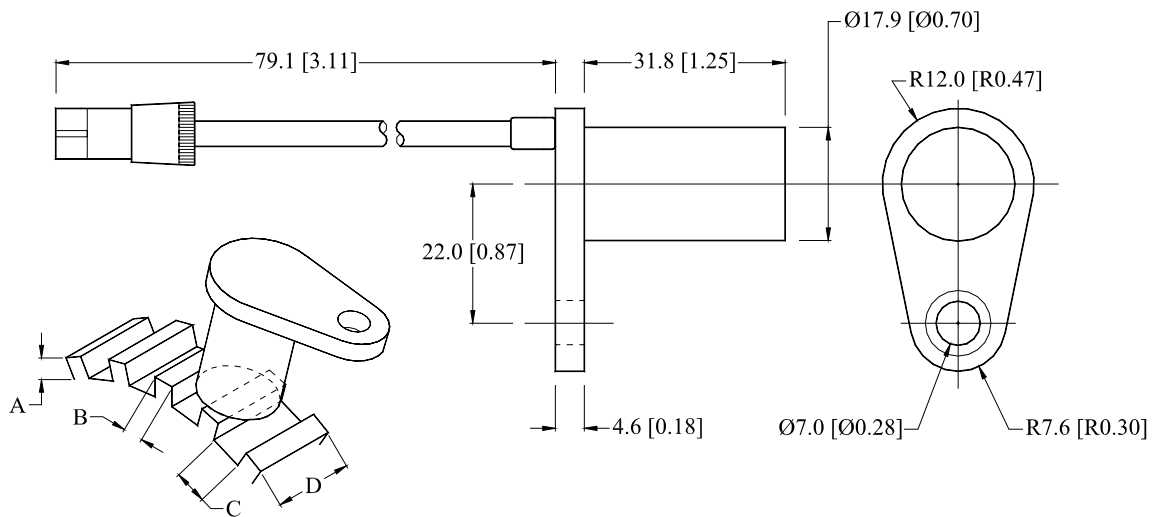


To acquire a correct speed signal, you are requested to set two parameters:

- *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 car speed.

Once the correct wheel circumference value and the number of pulses have been set, it is necessary to transmit the configuration to the instrument pressing “*Transmit*” button.

Dimensions



Dimensions in millimetres [inches]

Trigger dimensions

Description	Value (minimum)
Tooth height (A)	5.06 mm
Tooth width (B)	2.54 mm
Tooth spacing (C)	10.16 mm
Thickness (D)	6.35 mm

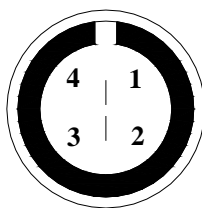
Connector details

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

Technical characteristics

Electrical characteristics	Value
Supply voltage	4.5-24 V DC
Supply current	10 mA (typ.) 20 mA (max)
Output signal type	Pulse 0-50 Volts
Maximum output current	20 mA
Maximum operating frequency	100 kHz
Sensing distance	From 0.5 to 2 mm
Recommended distance	1 mm

Mechanical characteristics	Value
Operating temperature range	From -40 to +150 °C
Cable length	80 mm



4 pins Binder 719 male connector: solder termination view