



Figure 1: Speed sensor (magnetic phonic wheel) for Formula Renault 2000 applications (side view)

Introduction

The magnetic phonic wheel speed sensor is an instrument properly designed to be used on Formula Renault 2000 cars. This is a "non contact" devices and needs a magnetic trigger to pass the sensor face.

The instrument's measure range is included between 8 and 15 mm; the speed sensor is supplied with a 1700 mm long cable.

Kit description

Inside the "FR 2000 phonic wheel speed kit" you will find the following objects:

- 2 cylindric magnetic phonic wheels;
- 2 brackets, used to install the sensor;
- 2 speed sensors, supplied with a 1700 mm long cable;
- 1 "double speed" cable, to plug the two speed sensors in a single input.

Installation notes

- Install the two phonic wheels coaxially to the front wheels hub;
- Install the bracket;
- Mount the sensor on the bracket: please ensure that the distance between the sensor and the phonic wheel is included between 8 and 15 mm and then fix the sensor on the bracket using 2 M8 locknuts;
- Plug the two speed sensors in the "double speed" cable. Then plug the "double speed" cable in your instrument (EVO 3 / Drack) "Speed" input.

In Figure 2 is reported a speed sensor installation drawing.



Figure 2: installation of speed sensor (magnetic phonic wheel) for Formula Renault 2000 applications

Note: when plugging the cable in the data logger, please pay a particular attention in inserting the cable inside the front-cockpit, so to avoid damages to the speed cable.

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, reported here below, you can choose your instrument. Please select your instrument and press *"System manager"* button.



Sensor configuration

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

-	<u> </u>	10000		-				-	
		tion and the		1000			144	_	times :
(Darmen	5-04E.	(hereite and	lund.	These sure	10.0	1000-00.	1000	Seren 1	Test 1
1000	7-08-0	1040	10.00	Age to the good			10000	100	
94.2	(Prodict)	Beet 1	10.44	land .	100	14	100-1	internet in	14
100.2	16494	Sec	3444	Tank I	146.2	14	264	and a second	
100.0	in-sec.	diamet.	10.04	1000	1 m				
10.0	in start	(hand)	10.04	Second .	14.1		100		
04.3	(happen)	(Date).3	10.00	Bencheler-genet	14.1		100		
10.0	Trained.	interest of	10.00	Contraction of the local division of the loc	14.1		10.00		
0.0	the state of the s	Daniel 3	1010	1 Balanciate	16.1		14		
104.4	b-mid	Date: 4	10.04	a framework	10		100		
0.00	in state of	(hana)	10.00	a francesco and	16.1				
10.0	distant.	Date: J	10.04	1 have all	10.0		100		
100	10.444	Date 1	1446	i hamilaite	100		100		
i i Ciri	Statut .	- (Automatic Str.)	1000	1. Barran and	- A.		1.00		
6.04.45	instead.	Dame: 12	10.00	1 Department	18.1		100		
100.0	States .	Contraction (10.04	C Kalencergels	14.0				
6 08.30	- Annesi	Converting of		I-Reportedly	100	8	100		
100.1	-	-	10.14	1 data protections	1.00	1.00	1.00		
6.407.5	Traded .	44.2	10.00	International Accession	1.10	-14	1.46		
110.74	in second	Terman, here	10.00	1.00.000	141				
	1.000	and the second s	1.00	And and a second se		14			

Here follows a short description of the speed sensor configuration procedure for the following data logger:

• EVO 3 8c MS / 13c PLUS

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:

Unan	nel Name	Sensor type		
Sp	eed_1	Speed	km/h	
1	Wheel circumference: Pulses per wheel revolu	1666 Alon: 1	(mm)	

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. The magnetic phonic wheel generates two pulses per wheel revolution; for this reason, please set the "number of pulses per wheel revolution" to **2**.
- 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. A typical FR2000 wheel circumference value is **1670 mm** (**65.7**").

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





Dimensions in millimeters [inches]

Connector details

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

4 1

Technical characteristics

Electrical characteristics	Value
Sensing distance Number of pulses per revolution	From 8 to 15 mm 2
Mechanical characteristics	Value
Cable length	1700 mm

