

SENSOR DOCUMENTATION	21/04/2004	TEMPERATURE	Cylinder head thermocouple
Notes: Cylinder head thermocouple technical documentation, dimensions and pinout – Version 1.01			

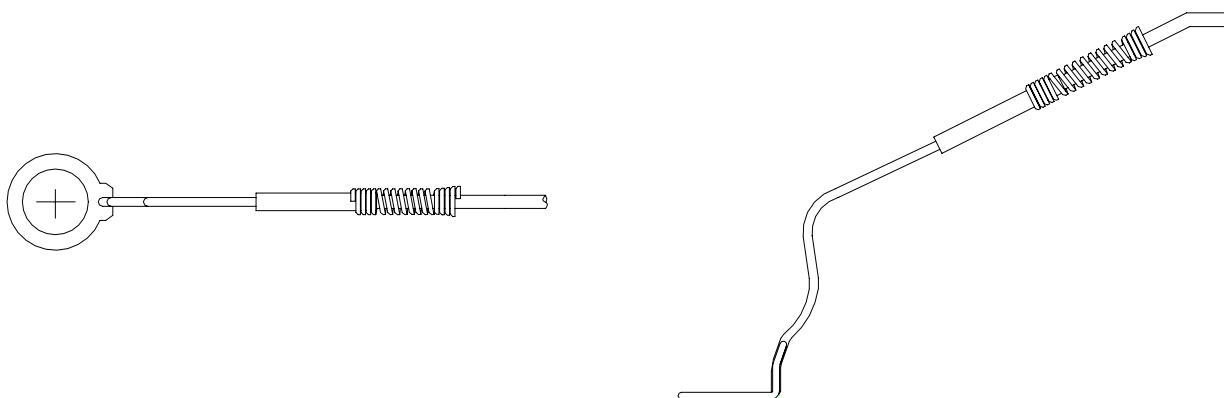


Figure 1: Cylinder head thermocouple (top and side view)

Introduction

Aim instruments can measure and record cylinder head temperature using a sensor (thermocouple) positioned under the spark plug. The thermocouple presents a turn in the lower part to make installation and disinstallation easier.

All Aim thermocouples are **K-type** sensors.

Installation notes

The head temperature sensor sits between the spark plug and the cylinder head. To keep the sensor in contact with the cylinder head, it is necessary to remove the washer from the plug when installing the thermocouple.

While running the thermocouple cable along the chassis, be careful to keep it as far as possible from other cables (such as RPM or lap receiver cables) in order to minimize interferences between the cables.

ATTENTION: Before screwing back the spark plug inside the cylinder head, ensure that the sensor is firmly mated with the cylinder head and, when tightening and loosening the spark plug, minimize movement of the sensor. Failure to observe this precaution may result in damage to the sensor

For a correct installation, please watch **Figure 2:**

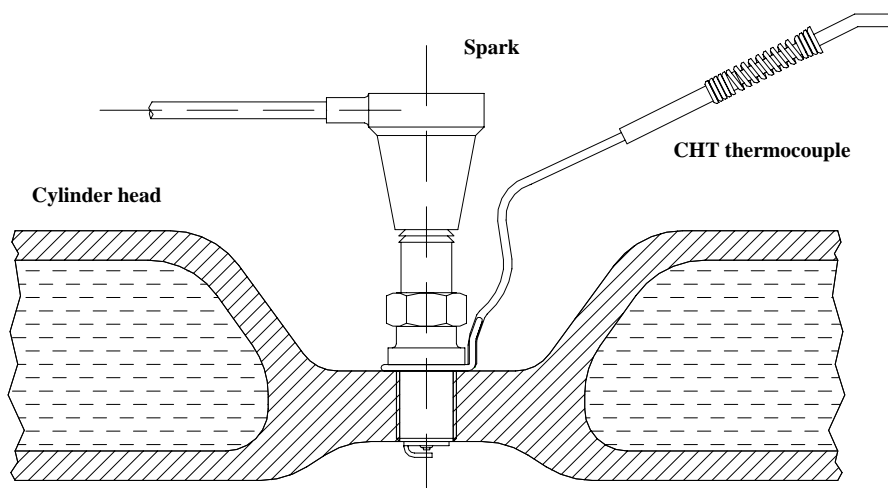


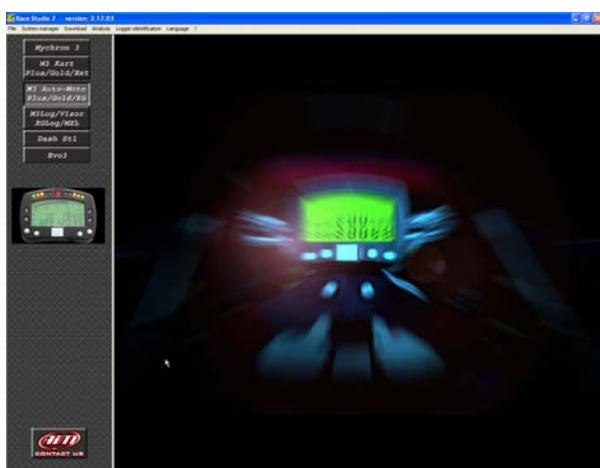
Figure 2: Cylinder head thermocouple installation

Software

Once the thermocouple has been installed, it is necessary to configure it. In order to correctly configure the sensor, please use **Race Studio 2**, the software properly developed by Aim to configure your data logger and to analyze stored data.

Race Studio 2

In **Race Studio 2** main window, reported here above, is possible to choose your Aim instrument. Once selected your gauge, please press “System manager” button.



Please note: **MyChron 3 Basic** automatically recognizes the sensor and needs no temperature sensor configuration.

Sensor configuration

Once reached “System manager” main window, please press “Channels” button to configure the sensor you have installed on your vehicle. The following screenshot appears.

N	Channel ider	Enabled/Idler	Channel name	Sampling fr	Sensor type	Measur	Lower bound	Upper bound	Param 1	Param 2
1	RPM	Enabled	Engine	10 Hz	Engine revolution speed	rpm	0.000	20000.000	1.000	25000
2	SPD_1	Enabled	Speed_1	10 Hz	Speed	km/h	0.000	250.000	1558.000	1
3	SPD_2	Disabled	Speed_2	10 Hz	Speed	km/h	0.000	250.000	1558.000	1
4	CH_1	Enabled	Channel_1	10 Hz	K thermocouple	°C	0.000	150.000		
5	CH_2	Enabled	Channel_2	10 Hz	K thermocouple	°C	0.000	50.000		
6	CH_3	Enabled	Channel_3	10 Hz	Pressure VGO 0-5 bar	bar	0.000	150.000		
7	CH_4	Enabled	Channel_4	10 Hz	Pressure VGO 1-10 bar	bar	0.000	500.000		
8	CH_5	Enabled	Channel_5	10 Hz	External-ventral accelerometer	g	0.000	150.000		
9	CH_6	Enabled	Channel_6	10 Hz	Potentiometer distance	cm	0.000	500.000		
10	CH_7	Enabled	Channel_7	10 Hz	Zero based potentiometer	cm	0.000	150.000		
11	CH_8	Enabled	Channel_8	10 Hz	Lambda sond	°C	0.000	500.000		
12	ACC_1	Enabled	Acc_1	10 Hz	Lambda sond (SGE IL711)	g	3.000	3.000		
13	ACC_2	Enabled	Acc_2	10 Hz	Longitudinal accelerometer	g	-3.000	3.000		
14	LOG_TMP	Enabled	Datalogger_Temp	10 Hz	Cold part	°C	0.000	50.000		

To configure the sensor is necessary to double-click in the box corresponding to “Sensor type” column and to “Ch_x” row (where x represents the channel number where you wish to install the sensor): a menu like the one reported in the previous screenshot appears.

Please, select “K Thermocouple” sensor.

Once selected the correct thermocouple type, is necessary to configure the visualization’s lower and upper boundary values.

In order to set these values, please double-click in the row corresponding to the channel where you have installed the thermocouple and in the columns corresponding to lower and upper boundary and fill the boxes with the correct temperature value.

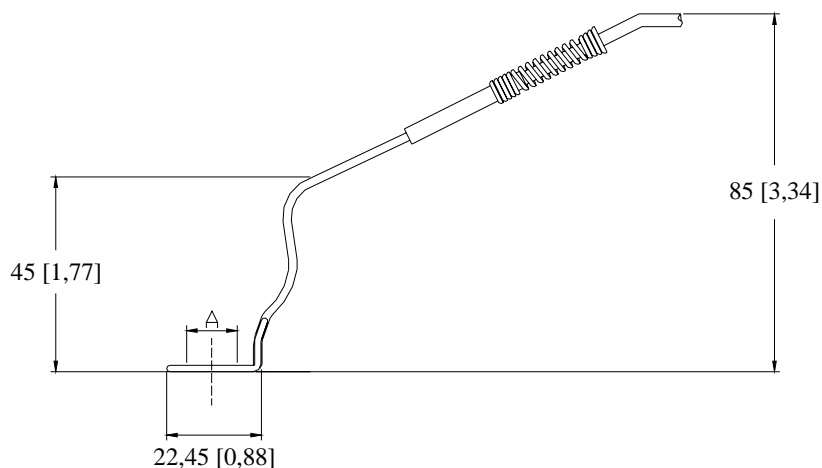
K-type thermocouples do not need to be calibrated.

Transmitting the configuration

Once the sensor has been correctly configured, please transmit the configuration to your gauge pressing “Transmit” button.

During transmission, please do not to switch the gauge off.

Dimensions



Dimensions in millimeters [inches]

Dimensions table – “A”

Applications	Internal Diameter
Air cooled Kart	12 mm
Air cooled Kart /Bike	10 mm

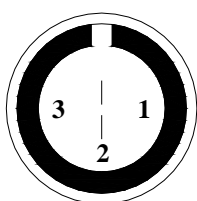
Connector details

Pin	Function
1	Temperature signal 0-50 mV
2	GND
3	Not connected

Technical characteristics

Description	Value
Temperature range	From 0° to 300°C [32° to 572°F]
Cable length	1400 mm [55"]
Cable type	Compensated

Note 1: CHT thermocouple is supplied with a 1400 mm long compensated cable



3 pins male Binder 712 connectors pinout: solder termination view