



K-Type Thermocouple Sensor

User's Guide



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1 INTRODUCTION

The GET K-Type Thermocouple temperature sensor is designed to measure temperatures between 300°C and 1000°C.

It is characterized by a quick response at every temperature variation.

The total loom length is about 1 m.

2 TYPICAL APPLICATION:

Usually the K-Type thermocouple sensor is used to monitor the exhaust gas temperature of 2 and 4 stroke engines.

Please make sure that you are using the sensor in its correct working range: an incorrect application may cause damages or wrong measurements.

3 INSTALLATION RULES:

For best performance and reliability, please follow these rules:

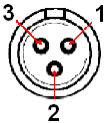
- Don't place the sensor less than 40 cm from exhaust stirrup
- No tension in the sensor wire

3.1 Connecting the sensor to M1/MD4 data logger:

The GET K-Type Thermocouple sensor must be powered at +12 V. An electronic regulator circuit provides to obtain the output signal between 0 and 5 V.

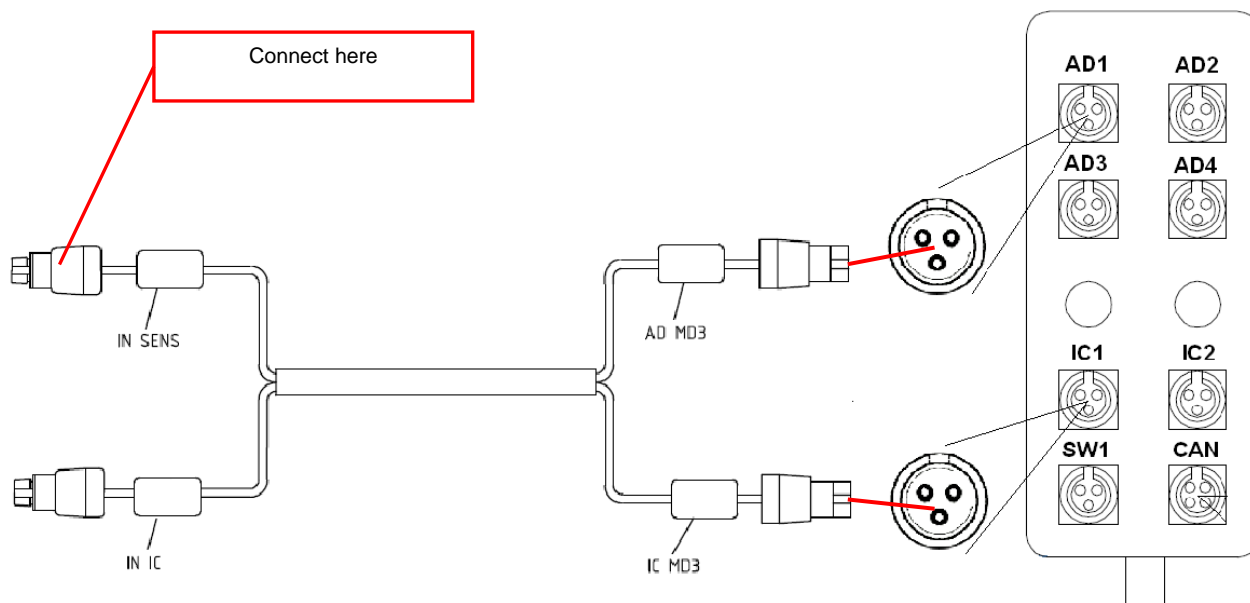
The Thermocouple sensors can be connected to GET data loggers by a Binder connector.

3 pole Binder pinout (wire output side):

	Pin	Wire Color	Description
	1	Red	+12 V power supply
	2	White (or Green)	Segnale
	3	Black	Ground

3.2 Connecting the sensor to MD3 data logger:

Connect the sensor to one of the analog inputs on the MD3 Series logger using the adapter as shown below:



WARNING: CONNECT THE ADAPTER FOLLOWING THE NAMES ABOVE THE CONNECTORS (SEE PICTURE).

The analog input can be selected among the AD1, AD2, AD3 or AD4 (in the picture we used AD1), same thing for IC1 and IC2.

DO NOT CONNECT AN AD INPUT TO THE IC INPUT OF THE MD3 !

Once the adapter is connected, the **IN IC** connector is ready for any digital signal (for instance RPM or speed) coming from the MD3 Series logger.

If you have an MD3 PRO logger, connect the signal to any 5V or 12V analog input following the signal order as describe in chapter 3.1 above.

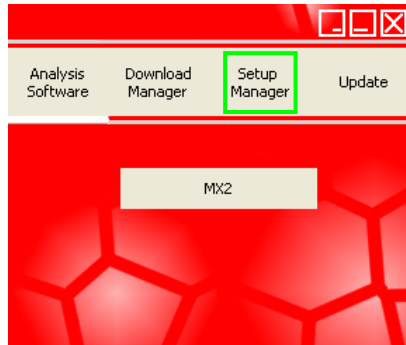
4 IDENTIFYING THE SENSOR IN GET DATA LOGGER SETUP

Connect the sensor to one of the analog inputs of GET data logger using the correct connectors. The Thermocouple temperature sensor are suitable for any other data logger because they generate a tension depending the temperature.

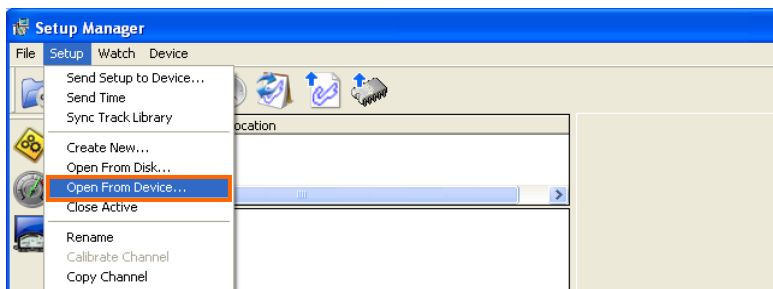
After connection at the analog input (AD1, AD2, etc..) the user needs to configure the sensor by using Setup Manager software, under the Analog Channels tree.

Please follow these steps:

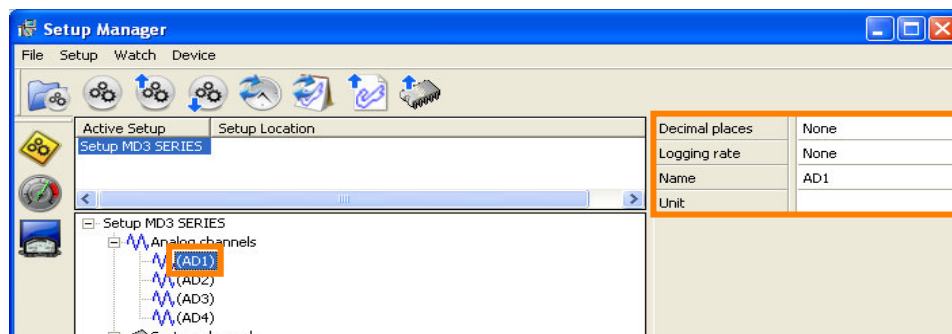
- Click and run the **Setup Manager** from the **GATE** window as shown below.



- Download the setup from the device to your computer by clicking on the download icon on the menu bar or by clicking on **Open from Device** in the **Setup** menu.



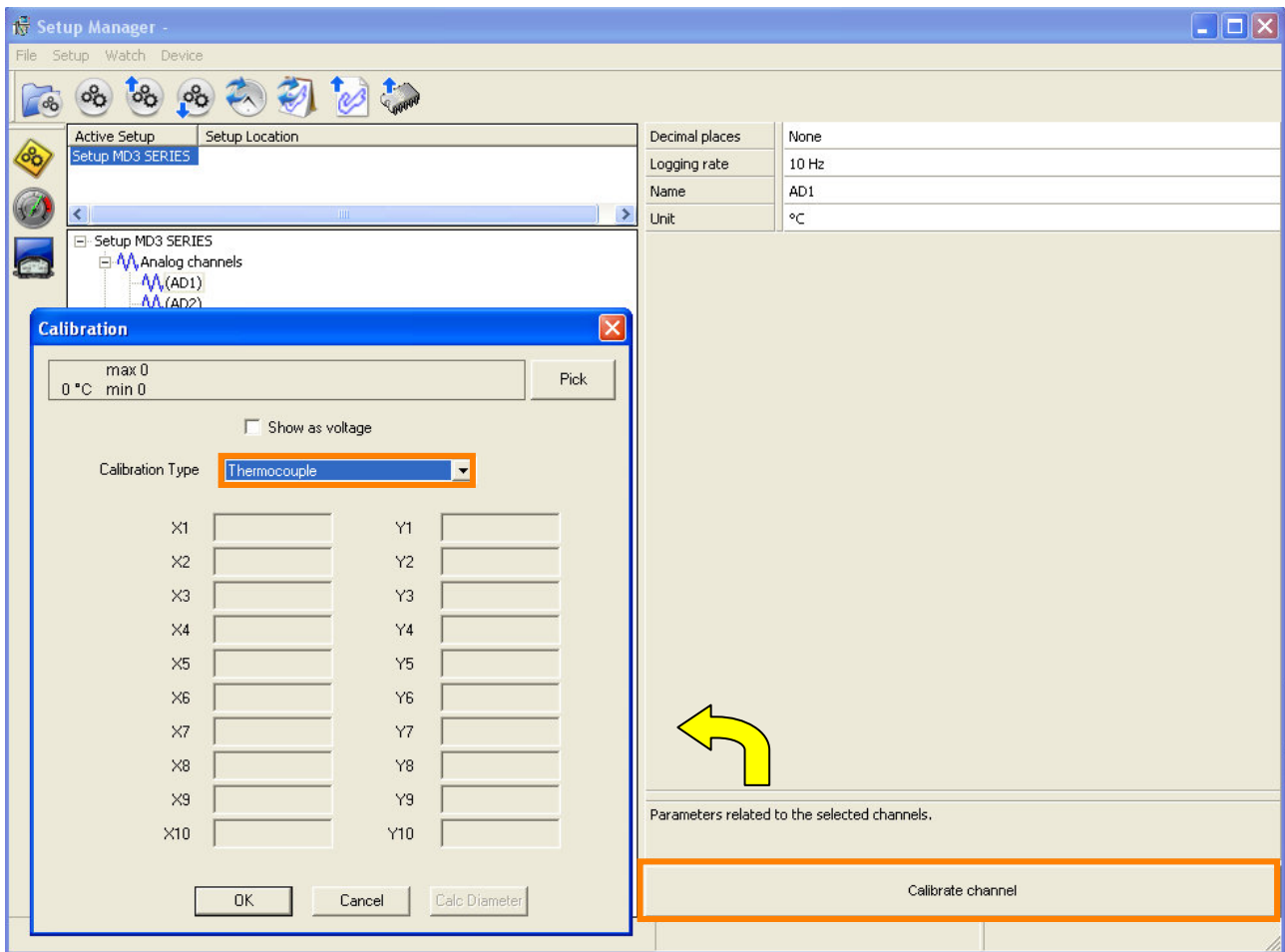
- Once downloaded, the setup is displayed in **Setup Manager**.
- For instance if you have connected the sensor signal to the **AD1** analog input; click on **AD1** in the **Analog Channels** tree: channel properties are shown on the right.



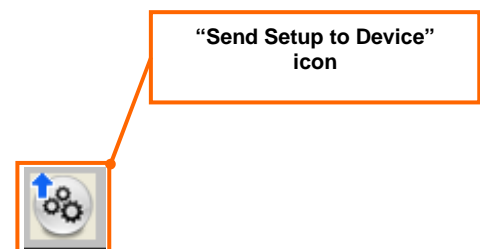
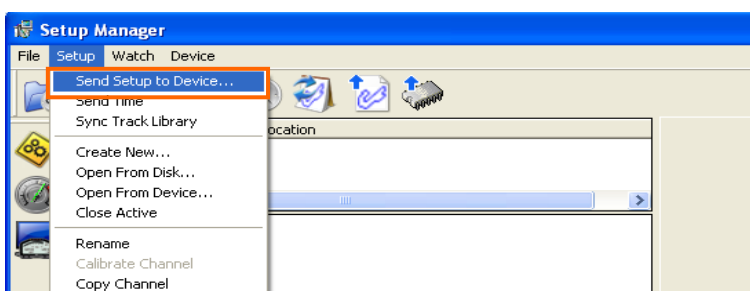
- **Decimal places:** enter the number of decimal places to be displayed in the channel values
- **Logging rate:** enter the channel acquisition frequency . User can choose between None (no acquisition), 1Hz, 5Hz, 10Hz, 50Hz, 100Hz, 500Hz
- **Name:** channel name, in our case, for example, **TEM**
- **Unit:** enter the unit of measurement of the channel value (**C°** in our case)

It is now necessary to calibrate the channel (this operation is necessary to obtain the correct value of the signal being acquired).

- Click on **Calibrate Channel** in the bottom right-hand corner: the calibration window of the channel selected previously will appear:

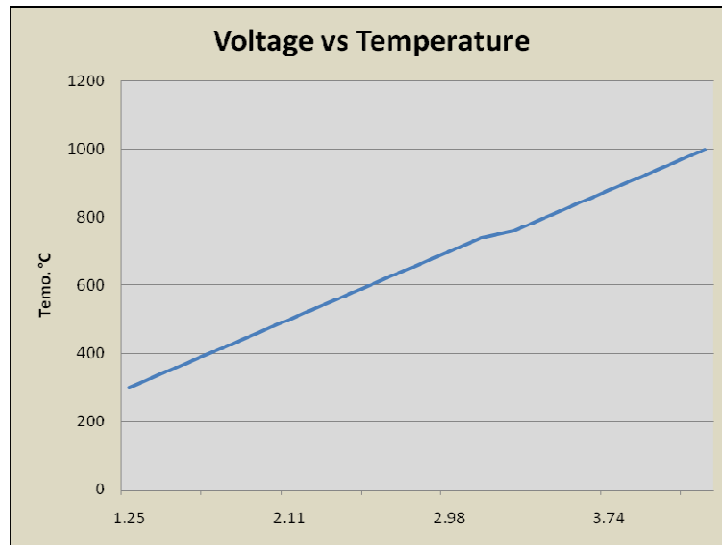


- Once you have entered the calibration window, it is necessary to define:
Calibration Type: defines the type of channel calibration (in this particular case, set **Thermocouple**)
- Send the Setup to the device: click on **Send Setup to Device** in the **Setup** menu.



5 OUTPUT VOLTAGE CHARACTERISTICS

The graphic below show the Voltage vs. Temperature characteristics of the K-Type Thermocouple sensor.



The table below show the output voltage vs. temperature: this data can be useful to connect the temperature sensor to any data logger.

Temperature (°C)	Voltage (V)
300	1.251
360	1.507
400	1.680
460	1.940
500	2.114
560	2.376
600	2.551
660	2.811
700	2.983
760	3.239
800	3.408
860	3.658
900	3.822
960	4.066
1000	4.226

6 TECHNICAL FEATURES

Temperature Measurement Range (°C)	300-1000
Resolution	∞
Case Material	Acciaio Inox per alte temperature
Wrench (mm)	13
Body thread (MA)	M8x1.25
Threading length (mm)	10
Sensitive part diameter (mm)	1.5
Sensitive part length (mm)	12
Electric cable length (mm)	100
Conductors section (AWG)	24
Electrical cable coating	PTFE

