

ORAL WORK ON TEMPERATURE SENSORS

EXERCISE N°1

Fill in the blank :

Temperature sensors convert into an quantity. The 2 temperature sensors studied are the LM35DZ sensor and the sensor. The first sensor converts temperature into a whereas the second sensor converts temperature into a

EXERCISE N°2

While calibrating a temperature sensor the following measurement table is obtained.

Temperature θ (°C)	20	30	40	50	60	70	80	90	100
Voltage U_s (V)	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1

- Draw voltage U_s against temperature θ graph.
- Is the temperature sensor a linear one or a non-linear one? Why?
- Give the value of θ when $U_s = 0.85$ V.
- Give the name of a temperature sensor which gives the same graph.
- The temperature sensor is an IC. What does it need to function ?

EXERCISE N°3

We are going to study a non-linear temperature sensor: the NTC type thermistor
The resistance R of the sensor is related to the temperature θ by the following

equation: $R = \frac{900000}{\theta^2}$ with θ between 40°C and 100 °C

- Sketch the graph of R against θ .
- The NTC sensor is a non-linear one. Why?
- Calculate the temperature θ if resistance $R = 200 \Omega$.