Example of using thermocouple reference table to convert mV into °C

Millivoltmeter reading of the K-thermocouple used for measurement is 2,020 mV and the cold junction temperature is +24 °C

Solution:

1)   From K-type thermocouple table in Appendix C can be found that for +24 °C corresponds thermal electromotive force of 0,960 mV;

2)   Sum the cold and hot junction values: 0,960 + 2,020 = 2,980 mV;

3)   From the same table can be found that +73 °C equals 2,975 mV and for 74 °C 3,016 mV;

4)   So, for 2,980 mV corresponds temperature 73+(2,980-2,975)/(3,016-2,975)=73,1 °C

Notation: A linear interpolation gives the result 73.12195 °C. It's reasonable to round the result to one decimal place, which is the real resolution of the temperature measurement with thermocouple.