

## **Experimental methods – list of questions „temperature measurement“**

1. Which principle the resistance temperature detectors (RTD) are based on?
2. Specify requirements which must be met for the materials used as temperature sensors (resistance temperature detectors - RTD) in order that good and reproducible measurements can be made.
3. How do a thermocouples work?
4. What is the response time of a thermocouple?
5. How to choose between thermocouples, resistance temperature detectors (RTD's), thermistors and infrared devices?
6. What is a Thermowell?
7. What do mean accuracies and temperature ranges of the various thermocouples?
8. How to choose between thermocouples, resistance temperature detectors (RTD's) and thermistors?
9. Describe the approach of a thermocouple choice. (How to choose a thermocouple)
10. What aspects have to be taken into account at the thermocouple choice?
11. How to choose a thermocouple type?
12. What criteria should be taken into account in selecting a thermocouple?
13. What is a thermocouple, and what wires are used for?
14. What are the different types of thermocouple wire available?
15. What is purpose of compensation for a thermocouple?
16. How are usually RTDs connected with other fixed resistors?
17. What is the output voltage of a typical thermocouple?
18. How does IR thermometer work?
19. Which factors do influence accuracy of IR temperate measurement?
20. What are advantages of IR technology of temperature measurement?
21. Which parameters do influence of the accuracy measurement when using IR thermometer (camera).
22. What is meant by Field of View, and why is it important?
23. How to Choose an Infrared Thermometer?
24. What is principle IR thermography based on?
25. Why is resolution of IR camera (image) important?
26. What should be consider about particular application when selecting a thermal imager?
27. What is emissivity, and how is it related to infrared temperature measurements?
28. What is relation between IR thermometer (camera spectrum) wave length and temperature to be measured?

[https://library.e.abb.com/public/c037f06cf0fe45d1c1257bf600344ae9/03\\_TEMP\\_EN\\_D.pdf](https://library.e.abb.com/public/c037f06cf0fe45d1c1257bf600344ae9/03_TEMP_EN_D.pdf)

<http://www.omega.com/temperature>

<http://www.flir.com>

<http://www.iranalyzers.com/operatingprinciples.htm#sthash.DcWBqVKq.dpuf>

[https://library.e.abb.com/public/c037f06cf0fe45d1c1257bf600344ae9/03\\_TEMP\\_EN\\_D.pdf](https://library.e.abb.com/public/c037f06cf0fe45d1c1257bf600344ae9/03_TEMP_EN_D.pdf)

<http://www.omega.com/temperature>

<http://www.flir.com>

<http://www.iranalyzers.com/operatingprinciples.htm#sthash.DcWBqVKq.dpuf>

[http://www.energcorp.com/temp/Thermistors\\_comparision.html](http://www.energcorp.com/temp/Thermistors_comparision.html)

<https://www.scribd.com/document/276037446/Comparison-of-Thermocouple-and-Resistance-Temperature-Detector>

<http://www.pyromation.com/Literature/Brochures.aspx>

<http://www.industrialcontrolsonline.com/training/online/temperature-measurement>

<http://www.inmes.hr/pdf/thermography.pdf>

[http://support.flir.com/apstories/AppStories/R&D/Near\\_Infrared\\_\(NIR\)\\_cameras\\_EN.pdf](http://support.flir.com/apstories/AppStories/R&D/Near_Infrared_(NIR)_cameras_EN.pdf)

<http://web.utk.edu/~jbeard8/IT570/Introduction%20to%20Infrared%20Thermography.pdf>