

What is a Thermocouple? Applications Thermocouples are used in numerous fields, including: Industrial Processes: Monitoring temperatures in kilns, gas turbines, and manufacturing processes. Voltage Measurement: The voltage produced is typically in the microvolt range, and it requires careful measurement to obtain accurate temperature readings. Disadvantages of Thermocouples Accuracy: While they are generally reliable, achieving high accuracy can be challenging, especially in low-temperature applications. When this junction experiences a temperature change, it generates a voltage that can be correlated to the temperature difference between the measuring junction and a reference junction, which is kept at a constant temperature [1][3]. Seebeck Effect: The fundamental principle behind thermocouples is the Seebeck effect, where a voltage is produced due to a temperature difference between the two junctions. A thermocouple consists of two dissimilar metal wires joined at one end, known as the measuring junction. Advantages of Thermocouples Wide Temperature Range: They can measure a broad range of temperatures, making them versatile for various applications. Conclusion Thermocouples are essential tools for temperature measurement across various industries due to their .wide range, durability, and fast response times