A thermocouple and a resistance temperature detector (RTD) are both commonly used temperature sensors, but they operate on different principles.They are known for their wide temperature range, fast response time, and ruggedness, making them suitable for various industrial applications.A thermocouple consists of two different metals joined at one end, which generates a voltage that is proportional to the temperature difference between the joined end and the other end.On the other hand, an RTD measures temperature by correlating the resistance of the RTD element with temperature.