

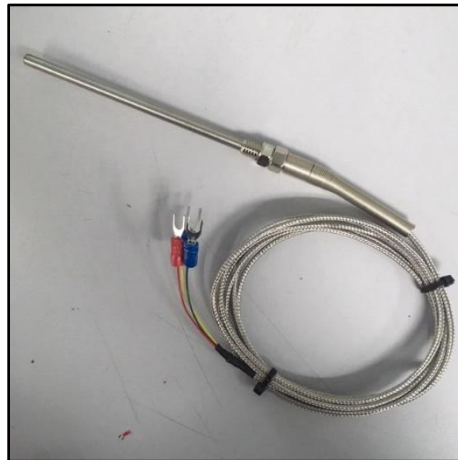
Applications of RTD Probe PT100

Introduction

RTD - or Resistance Temperature Detectors - is a temperature sensor that contain a resistor that changes resistance value as its temperature changes. They have been used for many years to measure temperature in laboratory and industrial processes, and have developed a reputation for accuracy, repeatability, and stability.

Most RTD elements consist of a length of fine coiled wire wrapped around a ceramic or glass core. The element is usually quite fragile, so it is often placed inside a sheathed probe to protect it. The temperature sensor is made from a pure material whose resistance at various temperatures has been documented. The material has a predictable change in resistance as the temperature changes; it is this predictable change that is used to determine temperature.

Among the methods used to measure the temperature is utilizing the fact that for some materials the electric resistance changes with the temperature. RTD increases almost linearly with temperature. A good example material which use extensively is platinum.



Components

- RTD PT100 Probe
- Digital multimeter
- Boiling & Iced water

Objectives:

In this experiment, we will calibrate a Resistance Temperature Detector (RTD) by measuring the resistance of the water.

Procedures:

Step 1: Connect the RTD leads (only two will be used) to the Digital multi-meter to measure the RTD resistance

Step 2: Insert the RTD probe into the boiling water and observe the resistance increasing at the multimeter.

Step 3: Repeat Step 2 with the iced water to observe the resistance drop.

The connection between the RTD PT100 Probe and digital multimeter:

| RTD PT100 | Digital Multimeter |
|-----------|--------------------|
| Red (+) | V |
| Blue (-) | COM |

please make sure the wiring is same as the picture given

