

## **Development and Validation of a Pt100 Temperature Measurement System for Thermal Vacuum Testing**

This work addresses the electronic preparation, thermal vacuum testing, and calibration of a Pt100 temperature sensor intended for laboratory use under space-representative conditions. The sensor is integrated using a four-wire measurement configuration and connected to an existing data acquisition system for resistance-based temperature measurement.

The work includes the design and implementation of the electronic measurement chain, preparation of the sensor for operation inside a thermal vacuum chamber, and execution of controlled temperature cycling tests. Sensor performance is evaluated with respect to stability, repeatability, and measurement deviation under vacuum conditions.

A calibration procedure is developed using reference temperature measurements, and correction factors are derived based on experimental data. The outcome of this work is a validated preparation and calibration procedure for reliable use of Pt100 sensors in thermal vacuum testing campaigns.