A Data Acquisition System (DAS) is used to gather, process, and analyze data regarding temperature, pressure, and voltage, among others. A few types of instrumentation used with the DAS system are pressure transducers, Resistance Temperature Devices (RTD) and thermocouples. Pacific Instruments Model 9355 signal conditioning amplifiers are used to provide excitation voltage to an instrument and/or filter and gain to the signal of a measured parameter. Transducers convert a physical measurement into an electrical signal, such as pressure>strain>voltage>Engineering Unit of Pressure.

Objective is to test, adjust, and/or repair the issues associated with the Model 9355 amplifiers. My contribution is:
- benefitting Stennis Space Center’s DAS Upgrade Project allowing the engineers to focus on other aspects of the Upgrade Project
- providing the team with reliable hardware that is being used to operate the DAS system during integrated checkouts and future test projects

The Upgrade Project is integrating and combining the heritage hardware with the newer DAS hardware. Together, this system will retain the dependability of the heritage equipment and provide reliability and better capability with the new equipment.

Introduction

Objectives

Outcomes

Summary

1.) A cross section of a pressure transducer.

2.) Schematic of a typical Wheatstone bridge circuit used in bridge type transducers.

End-to-End diagram of the of a pressure measurement.

Photo of ACS2000 system used to test and verify Pacific 9355 amplifiers.

60% of all amplifiers tested passed with little adjustments
5% of all amplifiers tested required no adjustment
Failed amplifiers made up the remaining 35% and will require additional repair and testing
The type of failure for each failed amplifier will determine the additional repair and testing

*1.) Web: industrial-electronics.com
*2.) Web: cnx.org

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