

ABS Solenoid Test Bench



SPECIFICATIONS / FEATURES

Pressure control solenoids used to manage pneumatic brake pressure via electrical control.

Data acquisition of temperature and current through NI hardware.

Graphical representation of performance for solenoid DUTs.

Automated ON/OFF control signals for solenoid operation.

CHALLENGE

Testing Anti-lock Brake System (ABS) solenoids requires precise measurement and control of pneumatic brake pressure, temperature, and current across multiple DUTs.

SOLUTION

TMCS developed a custom ABS Solenoid Test Bench integrating NI Hardware for data acquisition and control. The system features a dedicated panel for NI hardware. It automates data capture and analysis for multiple solenoids simultaneously, ensuring high precision and repeatability.

TEST TYPE	DESCRIPTION / PARAMETERS MONITORED
Pressure Response Analysis	Evaluates system performance under varying pressure conditions.
Temperature Monitoring	Tracks thermal behavior to ensure stable operating conditions.
Current Consumption Analysis	Measures electrical load and efficiency during operation.
Solenoid Functionality Test	Validates ON/OFF operation and response of solenoid components.

TECHNOLOGY USED

- NI DAQ Hardware: Real-time measurement and control.
- LabVIEW Software: Automated test, control, and visualization.
- Pneumatic System: Precise brake pressure regulation.
- Signal Conditioning: Enhances accuracy, reduces noise.
- Temperature Sensors: Monitor solenoid temperature.

