

Propellant DAQ



CHALLENGE

Propellant testing requires precise measurement of rapidly changing chamber pressure during ignition and firing under harsh conditions. Capturing accurate ignition delay, peak pressure, and pressure-time characteristics is challenging due to high dynamics, safety constraints, and signal noise. A reliable, high-speed data acquisition system is essential to ensure repeatable results and meaningful performance analysis.

SOLUTION

- Integrated pressure sensors for static and dynamic pressure measurement
- High-speed DAQ hardware with software-controlled monitoring
- Real-time data logging and P-T curve plotting
- Robust system design ensuring signal consistency (± 10 V range)

PLATFORM

DAQ-based system with pressure sensors, monitoring software, and firing console

KEY BENEFIT	DESCRIPTION
Accurate Ignition Measurement	Precisely captures ignition delay and peak chamber pressure (Pmax)
Real-Time Data Visualization	Displays live pressure-time (P-T) curves during propellant firing
High Measurement Reliability	Ensures consistent, repeatable results across multiple test cycles
Fast Data Acquisition	High-speed DAQ enables capture of rapid pressure transients
Data-Driven Evaluation	Supports detailed analysis for propellant performance optimization