

## DAQ SYSTEM AS HIGH-SPEED BRAKE TESTING EQUIPMENT

---

### THE ADWIN-GOLD VALIDATES BRAKE PERFORMANCE IN PROTOTYPE CAR

CAS DataLoggers supplied the data acquisition solution for an automotive manufacturer of passenger vehicles who needed to evaluate the reliability of a prototype vehicle's brake system. This would give them a highly accurate view of both component life and servicing expectations. The front disk pad temperatures, MPH, average deceleration and braking duration all needed to be recorded immediately before the brakes were applied. Since performance needed to be tested in a wide variety of traffic conditions automatic data collection was required so that the driver was free during testing. Therefore the customer needed a data acquisition system to work as brake testing equipment which could quickly 'drill down' on the braking event's data and store the data on an external device, and which also offered flexible communications capabilities with a PC.



### INSTALLATION

The manufacturer installed an [ADwin-Gold Real-time Data Acquisition and Control System](#) in the car's backseat, enclosed in a Pelican industrial case. Through the enclosure's side port, the DAQ system was connected to a variety of sensors including thermocouples, an accelerometer, and a road speed sensor to work as brake testing equipment.

The ADwin-Gold was then programmed to start recording when the ignition was turned on and to go back to sleep mode when the car turned off. During operation, the ADwin was also programmed to constantly read all the sensors and record data whenever the brakes were applied.

## USAGE

All measurements on the 16-channel DAQ system were recorded in real-time at 16-bit resolution. The ADwin-Gold system's local real-time DSP CPU supported parallel, individually-controlled real-time processes while running independently of the PC's operating system, providing deterministic operation with 1 second or less response times. Versatile communication with the PC was performed using the system's built-in Ethernet interface.

The ADwin software environment could operate using Windows, LINUX, or as a stand-alone data acquisition system. The system also enabled calibration of the system's analog inputs and outputs and had drivers for many popular programming environments including VB, VC/C++, LabVIEW, [Python](#) and others. The ADwin Gold stored all the test data on the hard drive of the connected laptop providing instant access when the test engineers began analysis.

## BENEFITS

Using the ADwin-Gold system as brake testing equipment, the customer successfully recorded and analyzed all the desired performance data in their prototype during testing. The ADwin provided real-time recording at the extreme speed necessary for highly accurate data capture, along with the deterministic triggering to capture the data exactly when the test engineer's required it. Additionally, data transmission and accessibility were greatly simplified via the system's communications capabilities.



---

For further information on the [ADwin-Gold Real-time Data Acquisition and Control System](#), automotive applications, or to find the ideal solution for your application-specific needs, contact a CAS Data Logger Application Specialist at **(800) 956-4437** or [www.DataLoggerInc.com](http://www.DataLoggerInc.com).