

- Automated Test System Solutions
- Data Acquisition and Control Systems
- Software & Hardware Development Services
- Build to Print Services



## Data Acquisition and Control Systems

WinSoft offers high-channel-count, modular, and scalable Data Acquisition (DAQ) and control systems for use in aerospace, defense, industrial, and commercial applications. With our DAQ systems, you can acquire and digitize signals from measurable sources and sensors, store the digitized data, analyze it, and present the results in local and remote locations.

In addition, our DAQ systems include optional control capabilities such as closed-loop PID control, single and multiple axes motion, analog outputs, and discrete on/off controls. Many of our DAQ solutions are customized to our customers' requirements and delivered as a turn-key system.

Our DAQ systems provide the highest performance in accuracy, precise timing and synchronization, signal conditioning, and can support virtually unlimited channel-count. You can choose from stand-alone operation or remote control options.

WinSoft is a National Instruments (NI) Gold Alliance Partner and our DAQ systems are mostly based on National Instruments' hardware and software platforms. Our 18 years of strategic partnership with National Instruments allows us to include the highest performance and top quality DAQ related hardware and software available on the market.

When your design requires DAQ hardware or software that is not available from National Instruments, WinSoft either uses proven commercial off-the-shelf (COTS) solutions, or our engineers will develop the hardware, drivers and application software to meet your DAQ system specifications.

Our commitment to you and your customers' success does not stop with delivery of our products and systems. Our dedicated customer support engineers will assist you or your customers with installation, training and maintenance of the systems.

Whether you need a single DAQ system or 100 identical systems, WinSoft has the engineering and production expertise, advanced facilities, proven processes, and ISO 9001:2008 quality management system to deliver the highest quality products and services to you.

### Features

- Modular and scalable hardware and software for data acquisition, analysis, reporting, and display
- Optional control capabilities such as closed-loop PID control, single and multiple axes motion, analog outputs, and discrete on/off controls
- A large selection of COTS hardware modules such as SCXI, PXI, PCI Express, PXI Express, USB, and wireless
- Hierarchical-level password protected GUI for local and remote system configuration, operation, and maintenance with email and text message alerts
- Real time monitoring via LabVIEW R/T and LabVIEW FPGA
- Reusable WinSoft's DAQ software library increases reliability and reduces lead times
- NI LabView software platform offers ease of use and unparalleled integration with NI and third-party data acquisition hardware
- Precise timing and synchronization between multiple measurements including events triggering
- Dedicated server for acquisition and storage in databases such as SQL
- Web server interface facilitates remote monitoring over the Internet
- Embedded computer for real-time processing and control

## WinSoft DAQ System Example

### Large-channel-count DAQ System for Environmental Testing of a Spacecraft and a Satellite

A satellite manufacturer tasked WinSoft to design, develop, and build a computerized data acquisition (DAQ) and control system for the environmental testing of spacecraft and satellite in a thermal vacuum chamber. Our customer required to record the data continuously every few seconds over a period of several months. The following were the main system requirements:

- Monitor up to 2,000 temperature sensors and 10,000 telemetry and command signals of various types.
- Perform user-defined calculations on the acquired data in real-time and control up to 225 heaters based on the temperature readings and the calculations results.
- Store the acquired data and status information and display the results in a highly configurable GUI.
- Seamlessly integrate into the DAQ system 250 PID control loops that would run in parallel with the measurements tasks.
- Allow the operator to view up to 50 different windows with various graphical and image displays in real time.
- Link requirements documents to test and control applications.
- Use graphical coverage and impact analysis views to visualize traceability relationships.
- Enable several DAQs to run independently while acquiring and storing the data in a central Oracle database.

WinSoft designed, integrated, and built dozens of systems using the following hardware and software components:

- NI PXI platform and several NI SCXI chassis for data acquisition and control.
- A host-server PC for data storage, communication, and user access management.
- Multiple client PCs for display and GUI.
- LabVIEW Real-Time and FPGA Modules and the LabVIEW PID Control Toolkit to implement control algorithm.
- Several SCXI multiplexer modules that route the sensor inputs to PXI DMM modules and provide high-speed acquisition of all the various sensor types.



Front and back sides of the DAQ System

## Typical Measurements

- Temperature
- Pressure
- Flow
- Acceleration
- Strain
- Force
- Speed
- Torque
- Relative humidity
- Voltage
- Current
- Position
- Light
- Sound
- Carbon dioxide
- pH

## Industries

- Aerospace
- Defense
- Automotive
- Electrical Power
- Electronics
- Oil and Gas
- Semiconductor Test
- Solar Energy
- Structural Test
- Wind Energy

## About WinSoft

Founded in 1994, WinSoft is a technology company that offers engineering services (software and hardware development) and turn-key solutions in the test and measurement field. In addition, our Build-to-Print division manufactures systems, products, equipment and sub-assemblies according to customers' specifications and ANSI/IPC-A-610 standards.

WinSoft has the engineering and production expertise, advanced facilities, proven processes and ISO 9001/2008 quality management system to service the demanding aerospace, defense and commercial markets. All of our products are developed, manufactured and assembled in the USA.



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