



SES-1300 Strain Gage
Conditioning Module

SES-1200 Power Supply

Strain Gage Data Acquisition System

StrainDAQ Software



Simplicity and Performance in an Economical, High-Channel Count Data Acquisition System

StrainDAQ is a powerful and user-friendly system that integrates hardware and software features essential for the acquisition and processing of virtually every signal type used in structural testing.

Its versatile and modular design makes StrainDAQ a complete data acquisition solution. Leveraging NI's popular SCXI and PXI hardware translates to a considerable cost savings compared to systems based on custom developed strain gage platforms. Each StrainDAQ SCXI slot provides for 32 channels of input which means increased performance at a lower per channel cost. Users can build economical, high channel count systems by simply "daisy-chaining" additional SCXI chassis.

StrainDAQ combines the advanced technology of National Instruments products with the software and systems engineering expertise of SES to offer a data acquisition system that delivers high-speed performance, precise measurement accuracy, and complete customer satisfaction.

Quarter Bridge, Half Bridge
and Full Bridge Input Capabilities

Hardware Wizard for Simple and
Accurate Channel Setup

Extreme Application Flexibility
with Variable Sample Rates

Extensive Plot, Display and
Data Reduction Features

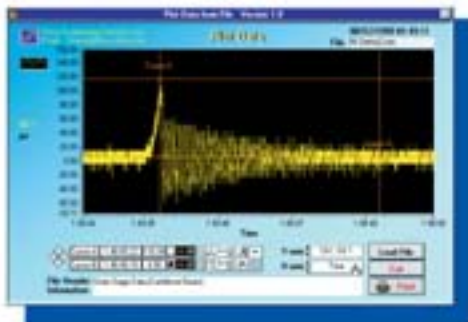
Industrial Grade Laboratory
and Field Designs

Software

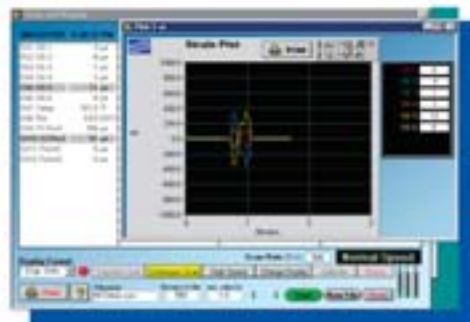
StrainDAQ software is a ready-to-run, comprehensive program designed to insure precise measurement, variable scanning rates, accurate reporting, graphic rendering and extensive reduction options. Strain gage channels are easy to set up. Input types are identified (i.e. strain gage, voltage, transducer, thermocouple) and automatic two-point (zero and span) calibrations are performed. Using simple to follow menu driven instructions, hardware and channel setups, scan data, archives, and data reduction are quick and easy.



The StrainDAQ system automatically corrects for Wheatstone bridge nonlinearity, transverse sensitivity (when applicable), and calculates temperature induced apparent strain values. In addition, by using the calculated channel option, the acquired strain values for single, biaxial (Tee), and triaxial (Rectangular and Delta) rosettes can be reduced to principal stresses stress orientation (Phi), and equivalent stresses (vonMises failure criteria). The data reduction can be performed in "real time" or in the post-processing utility.



StrainDAQ monitors the excitation voltage and automatically corrects for power supply drift during long term testing. Sample rates up to 600 samples-per-second are user definable. StrainDAQ also allows the user to select specific input channels to acquire, plot, display, and store for each test period run. Data is stored in a binary format and can be exported as comma-delimited ASCII files.



Hardware

The industrially hardened StrainDAQ system is designed for both field and laboratory use and available in two powerful formats. The StrainDAQ-px offers PC based, high-performance data acquisition technology based on National Instruments combination chassis for PXI/CompactPCI and SCXI modules.

For customers who already own a PC and wish to add strain gage and full-bridge data acquisition capabilities, SES offers the SCXI based StrainDAQ-sc. Both systems are equipped with advanced precision instrumentation including the SCXI-1102 32-Channel Multiplexer / Amplifier and the SES-1300 32-channel Strain Gage Conditioning Module. Strain gage excitation is provided from the SES-1200 which supplies a standard excitation level of 5 volts.



It's versatile and modular design makes a StrainDAQ system a complete data acquisition solution by allowing for the differential input of sensors including strain gages, thermocouples and voltage / current inputs. Systems are available in 32-channel increments up to 384-channels per chassis. A cost effective high channel count system can be achieved by simply "daisy chaining" additional SCXI chassis.

The proprietary SES-1300 Strain Gage Completion Module optionally accepts strain gage inputs of 120, 350 and 1,000 Ohms. Several variations to half-bridge configurations and optional filtering levels are available to achieve maximum system performance. Full-bridge devices such as load cells and pressure transducers are terminally housed and connected using a National Instruments SCXI-1102 / SCXI-1303 Multiplexer / Amplifier Card.