True Productivity for Spreadsheet Users

The spreadsheet is one of the most commonly used software packages among engineering, manufacturing, and management personnel. Whether the job is archiving test data, analyzing experiment results, charting process trends, or tracking design specifications, the spreadsheet has proven to be a powerful tool for scientists and engineers. Using National Instruments Measure™, a set of Microsoft Excel add-ins, you can further increase productivity with spreadsheets by integrating data collection tasks directly into Microsoft Excel worksheets.

Entering test results or process monitoring data into a spreadsheet can be difficult, tedious, and expensive. Manual entry is time consuming and error-prone, and custom programs to convert acquired data into spreadsheet formats require programming expertise and code maintenance.

Measure replaces these less efficient spreadsheet data entry methods with direct add-ins for acquiring data from plug-in data acquisition (DAQ) boards, IEEE 488.2-controlled instruments, and serial-controlled instruments. With Measure, acquired data can be placed directly into user-specified cell ranges – with no programming or conversion algorithms required. After Measure places the data into your worksheet, you are free to use the familiar built-in Excel analysis and display functions to analyze experiment results and create reports.

Interactive, Easy-to-Use Dialogs

With Measure, you define how data is input and output from the worksheet through intuitive, pop-up dialogs. From the data acquisition control dialogs, values are entered to specify input channels, acquisition rate, number of points to acquire, and a cell range in which to place the data. You also can highlight a cell range of values to convert into voltages and generate an analog waveform with your DAQ board. For temperature measurements, choose from a selection of thermocouple linearization formulas for accurate conversion to temperature readings.

From the serial and GPIB control dialogs, you specify communication parameters like COM port, baud rate, parity and stop bits, GPIB address, and individual command strings to prompt the instrument for measurements. As you set up each operation, you can interactively run it to view your data and ensure that it is configured correctly. With the Measure pop-up configuration dialogs, point-and-click data acquisition and control are at your fingertips.

Define Your Own Measurement Tasks

For each instrument, you can define your own measurement and control tasks from the Task Dialog Menu. Enter the command strings that your instrument understands to acquire data or generate a signal and specify an Excel range in which to place the results. You can even develop parsing rules for each task to keep only the important information. You can interactively test each of the tasks that you define with Measure using the Task Run button. Once you have verified your task operation, you are free to use these tasks in more complex macros in Visual Basic for Applications (VBA).

To simplify measurement and automation operations from Excel, you can customize Excel menus to include tasks that you create with Measure. Simply add your instrument control tasks to the GPIB, serial, or DAQ menu in Excel for quick and easy access.

Simplified DAQ Operations from Excel

With Measure, you can easily acquire or generate analog signals directly from Microsoft Excel using a variety of National Instruments data acquisition (DAQ) products. For large applications, you can take advantage of the multiplexing power of SCXI™ for high-channel counts, isolation, or amplification.

Measure automatically locates any National Instruments DAQ products configured in your computer. Simply select a device and specify the parameters for analog I/O operations using the Task Configuration dialogs. From the analog input configuration dialog, enter input channels, the number of points to acquire from each channel, the acquisition rate, and a cell range in which to place the data. You also can configure more advanced analog input features for your tasks, such as using external triggering and timing lines. Analog output tasks are defined in a similar fashion. You specify an Excel range of values as voltage, waveform, or level, from a specified analog output channel at a specified rate.