



Data Acquisition Solutions

One of the most common operations carried out in large numbers of engineering firms and laboratories is the configuration of, and subsequent data acquisition (DAQ) from, electronically driven instrumentation.

An Old Problem

The data may come in a variety of flavours, from standard resistance and temperature measurements through to hardware specific readings, but the underlying problem is generic. Manual set-up, DAQ, result calculation and report production can be a long, tedious and time-consuming process. Multiple data readings are often required and whilst these are relatively straightforward to obtain, there are often long delays between them, whilst various equipment characteristics are configured.

Even when some of these processes are partly automated, the likelihood is that at some point technicians will be required to transfer data or re-configure settings, allowing the inevitable problem of human error to creep in.

Tessella Solutions

The obvious answer to these problems is to implement a complete process solution. One program can then automate the entire process, controlling the instruments via serial, parallel or USB ports and receiving the data via DAQ cards. It can then carry out any analysis needed and output this, or

alternatively send results to other applications, such as Microsoft Excel.

Due to the hardware-oriented nature of the work, control of the equipment is often programmed using National Instruments LabVIEW software. LabVIEW is ideally suited for most types of data acquisition and real time control, and Tessella is a member of the National Instruments Alliance Programme.

Full automation of the DAQ process requires results to be available as an end report or spreadsheet. This is achievable either by use of LabVIEW reporting tools or via automation of other software.

For instance Microsoft Office applications can be controlled directly from a LabVIEW application using ActiveX technology, whilst spreadsheet calculations or document formatting can be configured using Visual Basic for Applications (VBA) macros.



Results and Benefits

The automation of DAQ procedures means that, following initial set-up phases, experiments can be left to proceed without further input from technicians, whereas prior to automation, significant levels of supervision would be required. So the automated system provides the obvious financial benefit of improving efficiency, whilst at the same time helping to minimise human error.

Tessella have now assisted a large number of companies with varied automation projects, giving them a significant advantage over their rivals in a highly competitive marketplace.

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