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# Using XControls with WinDaq/XL

By Melissa Ray Weimer

DATAQ Instruments

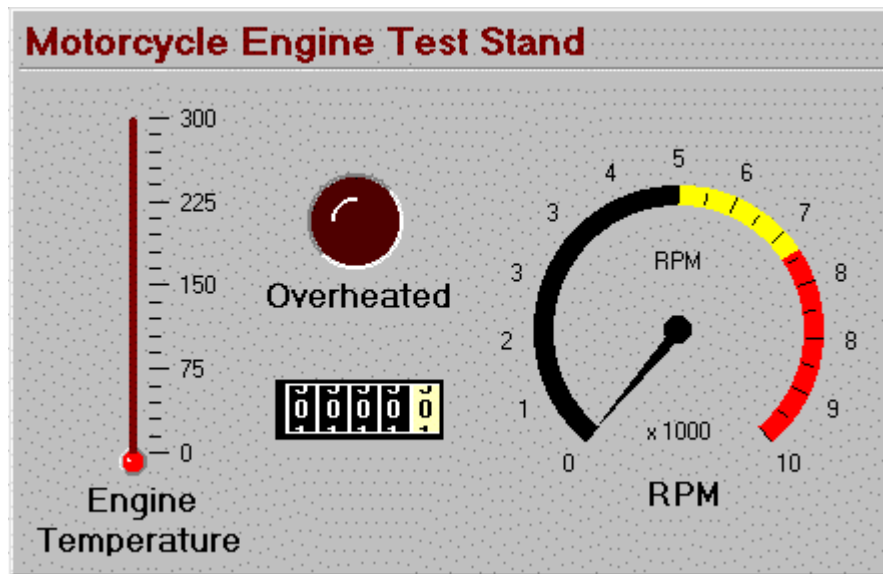
This tutorial will show you how to use XControls with Excel. However, to use XControls with WinDaq software, you will need to use WinDaq/XL. WinDaq/XL is a software add-on to WinDaq/Lite, /Pro, and /Pro+ that allows data acquired by these packages to be ported to a Microsoft Excel spreadsheet. The port can occur either in real time as data is being acquired, or through a direct link between Excel and WinDaq Playback software. WinDaq software performance is unaffected by the WinDaq/XL process, and both a WinDaq and Excel screen may be displayed simultaneously. Once resident in the Excel spreadsheet, the full analytical power of Excel may be brought to bear on WinDaq-acquired data to generate a limitless array of real-time calculations that lend insight and perspective to many applications. Continuous, real-time throughputs as high as 5,000 samples per second are achievable, depending on the speed of the computer. XControls enhance the experience.

XControls is a collection of ActiveX-compliant controls that allow programmers and non-programmers alike to produce stunning graphical user interfaces (GUIs) for their data acquisition applications. This may be accomplished from a programming language such as Visual BASIC or Visual C++, or non-programming environments such as Excel. XControls is commonly required to provide a realistic virtual instrument environment. These include such controls as rotary knobs, sliding knobs, 7-segment displays, LED bars and spirals, linear gauges, thermometer gauges, rocker switches, toggle switches, waveform plotter, and many more. The Professional Pack adds 26 controls to those provided by the Instrument Pack to deliver tank and valve icons, sliding scale gauges, threaded and unthreaded timers, and much more. This vast array of controls may be combined on a virtual panel and organized in any manner dictated by the application to deliver a realistic and completely customized view of the data acquisition process being monitored.

XControls brings the combined experience of software programmers and graphic artists to you in a set of extremely easy-to-use and interchangeable modules that support the ActiveX standard defined by Microsoft. As such, they may be used from any ActiveX-supported environment to develop realistic instrument panels and displays that are customized for the application. Programmers will appreciate the fact that each control is already programmed, feature-packed and aesthetically designed. The only software that needs to be written is short and concise enabling code to unlock the desired features of any given control. Non-programmers especially will appreciate the fact that, from within the Excel environment, absolutely no programming is required to produce a custom virtual instrument that operates in real time. This capability is made possible by the "Linked Cell" property of each control, which provides exceptional power when coupled with WinDaq/XL software. When those cells are linked to any given XControl using their LinkedCell property, the control has real-time access to data: Thermometer columns rise and fall, panel meter displays update, angular display needles rotate to values, and LED bar graphs change color and size. All this and more is possible in real-time and without a single line of programming code.

The following display is an example of what you can do with XControls from within Excel. Let's say you need to measure the power and endurance of a motorcycle engine. You may want to test the engine to see how long it can run at its maximum level without overheating. This would

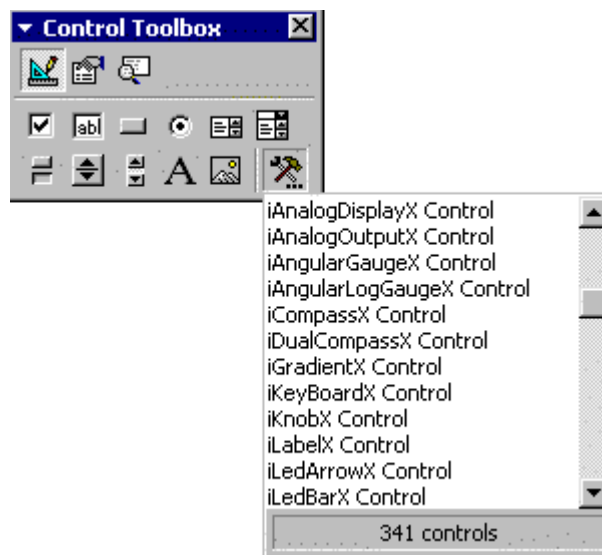
involve a control to measure RPM, a control to measure the temperature, an odometer control, and an LED control that will let you know immediately when the engine has overheated. When you place all of these controls on a panel, it might look something like this:



To create and link controls in Excel takes only three simple steps:

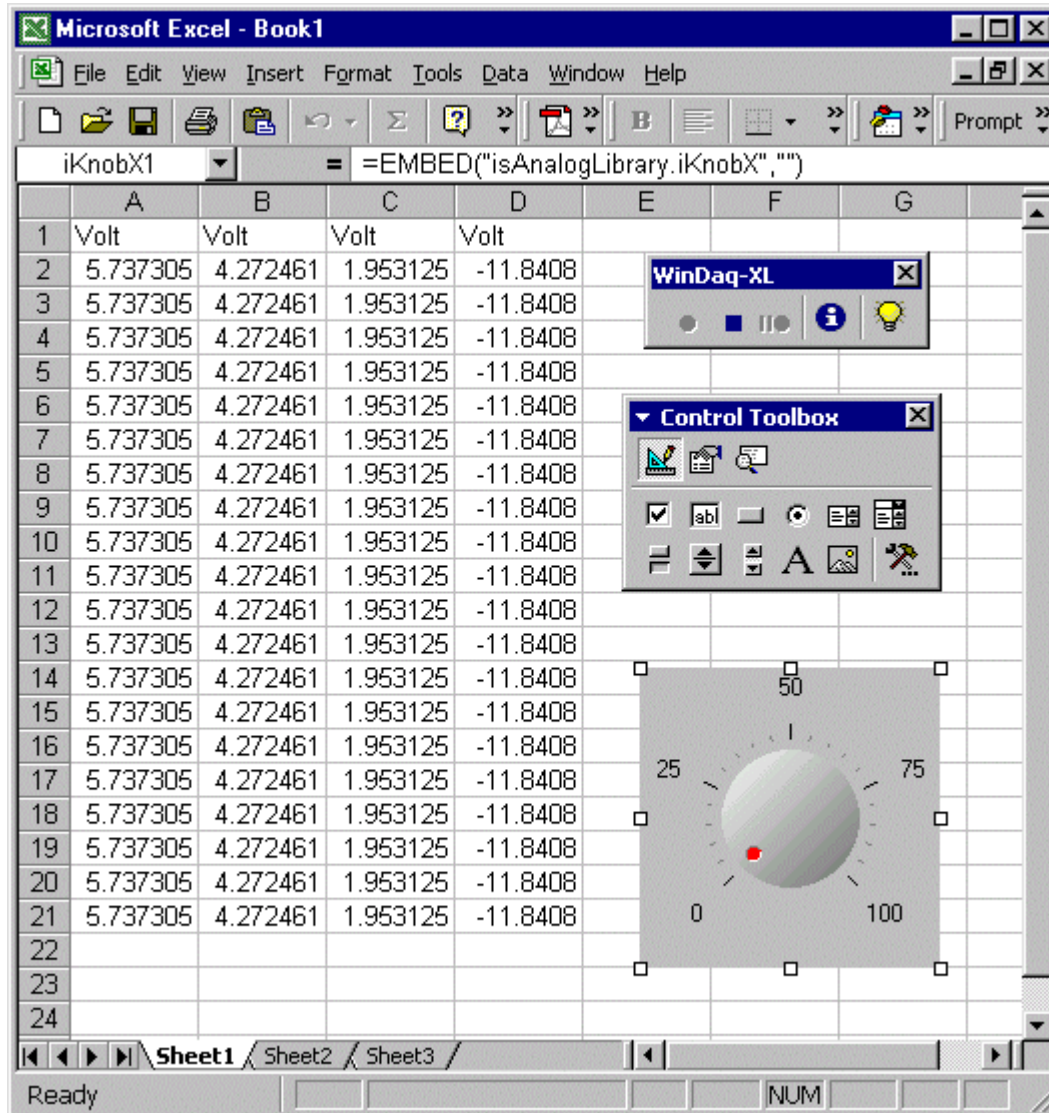
1. Go to View > Toolbars > Control Toolbox. This will display the Control Toolbox. Click on


the "More Controls" button  in the lower right corner to reveal additional controls.



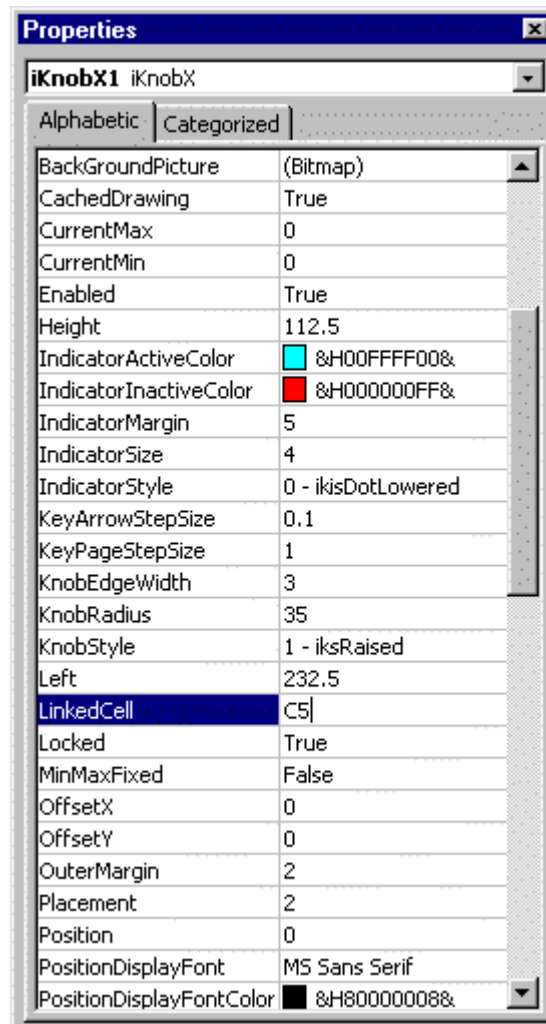
2. The controls that have an "i" in front of them are the XControls. When you find the one you want, click on it once. Your cursor will become a crosshair. Click and drag to size the control

or just click where you want it to be placed on the screen and it will appear at its default size. In the example below, the iKnob control was placed at its default size.

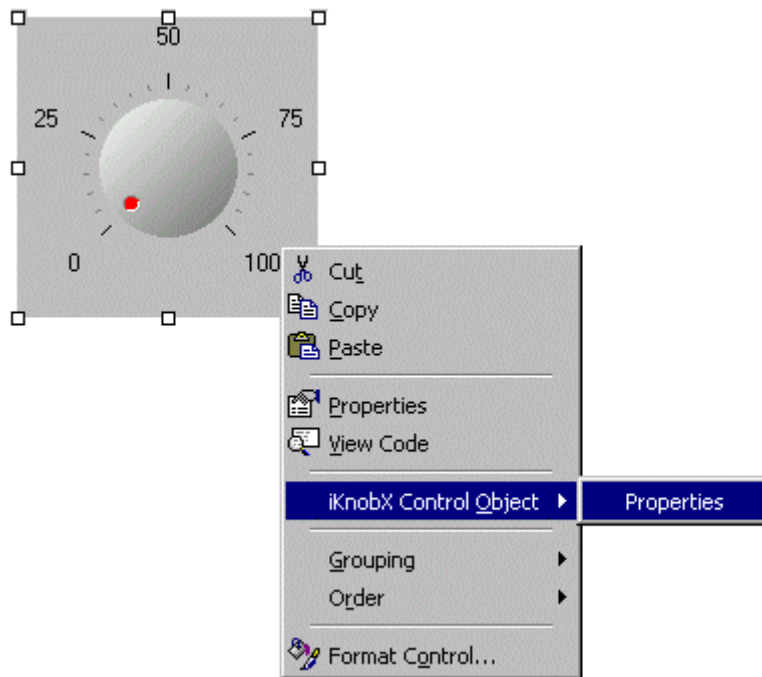


- When the control is placed, you are automatically in "Design Mode". Right click on the control and select "Properties" or just press the Properties button  in the Control Toolbox. Here, you can change many properties of your control, such as size, style, font, etc., but, most importantly, you can link the control to your application. Next to "LinkedCell", type in the

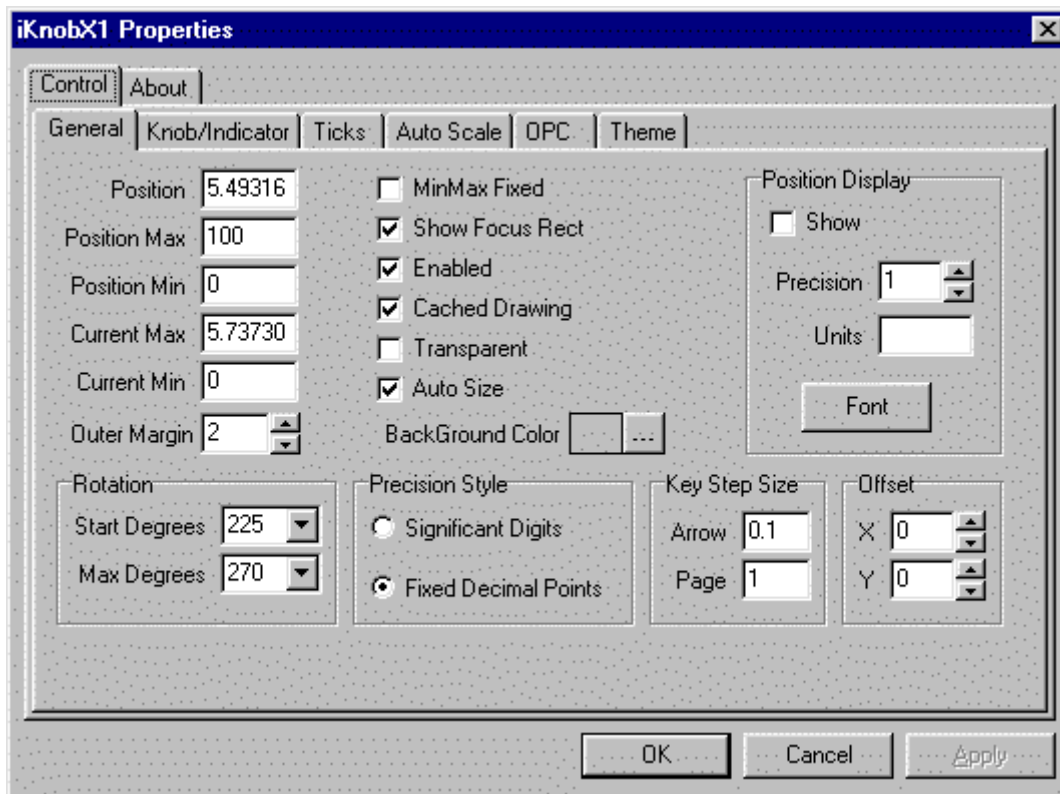
Column and Row of the cell to which you would like the control linked. (For example, to specify a cell in Column "C", Row 5, you would just type "C5", as shown below.)




You can change other properties by right clicking on the control and selecting "(the name of your control) Control Object" and then click on "Properties". (For our example, you would select "iKnobX Control Object" > "Properties".)



This would display another window specific to the control, as shown below for the "iKnob" control.



To exit Design Mode and apply any property changes you have made to the control, click the

"Exit Design Mode" button  on the upper left-hand side of your Control Toolbar. This is also the button you will need to press if you would like to enter Design Mode at any point to make changes to the control.

Your control is now linked!