

Monitor - ISSN 1472-0221

The Newsletter for PC-Based Data Acquisition and Control
Issue 217, September 2016

Welcome to Monitor, the data acquisition and control newsletter. Don't forget you can download our measurement software, ComDebug, from <http://www.windmill.co.uk/jsampsr.htm>

You can download Monitor as a pdf file from <http://www.windmill.co.uk/monitor/monitor217.pdf>.



Contents

- * [When to use Current to Transmit Signals](#)
- * [Your Questions Answered: Using one Windmill license for two computers](#)
- * [Spreadsheet Corner: Data Collection with Libre and OpenOffice](#)
- * [Data Acquisition News Round-up](#)

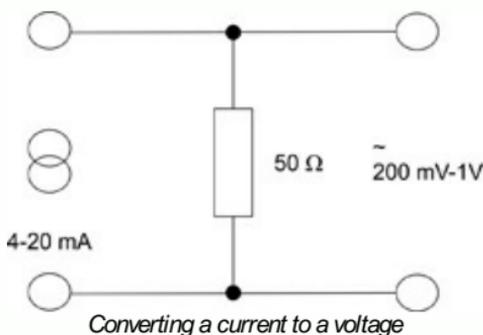
When to use Current to Transmit Signals

Current is often used to transmit signals in noisy environments, especially when it's a long way from the measurement point to the data acquisition system. This is because current is much less affected by environmental noise pick-up.

The full scale range of the current signal is normally either 4-20 mA or 0-20 mA. A 4-20 mA signal has the advantage that even at minimum signal value there should be a detectable current flowing. The absence of this indicates a wiring problem.

Before the data acquisition equipment can digitise the current signal and transfer it to the computer, a current-sensing resistor is usually used to convert the current to a voltage.

The resistor should be of high precision (consider how much resolution the analogue-to-digital converter will give you). It should also match the signal to an input range of the analogue input hardware. For 4-20 mA signals a 50 ohm resistor will give a voltage of 1 V for a 20 mA signal ($V=IR$). In this case an analogue input range of 0-1 V would be suitable.



Choose 0.03% or 0.01% resistor accuracy. The accuracy is a measure of the long-term stability of the resistor and its tolerance to temperature changes.

Using a current-sensing resistor gives you a normal voltage input.

[Contact us](#) for more on when and how to measure current.

Your Questions Answered: Using one Windmill license for two computers

Question

Weblink: <http://www.windmillsoft.com/>

Hello,
If I purchase the Enhanced Windmill is that per PC or can I install it on both my test machines? What if one of them is Windows XP?
Thanks

Answer

Yes, you can install Enhanced Windmill (and indeed any of our software) on two computers and the software does work on Windows XP.

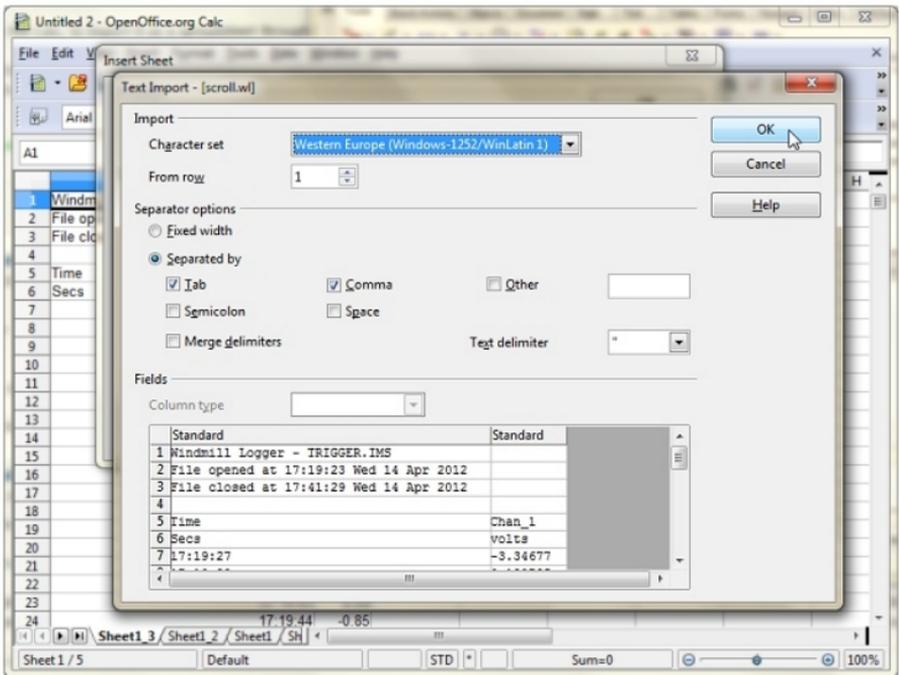
Spreadsheet Corner: Data Collection with LibreOffice and OpenOffice

Web link: <http://www.windmill.co.uk/openoffice.html>

LibreOffice and OpenOffice are two very similar suites of office software.

LibreOffice was built on the original OpenOffice code and so offers more-or-less the same functionality as OpenOffice. All the software applications have the same names, for example "Calc" for the spreadsheet. Of the two, LibreOffice appears to be updated the more often. Whichever you choose you can use it to automatically log data from instruments and devices connected to your computer.

You can collect data with the Windmill Logger application, and after collection has finished import it into your Calc spreadsheet. Alternatively you can transfer data as it arrives, using dynamic data exchange. To do this use the Windmill DDE Panel as a gateway to transfer data values between your instruments and Calc.



Importing logged files into Open Office

You can read more details of exactly how to go about automatically logging data with Calc at <http://www.windmill.co.uk/openoffice.html>. Here we've newly updated the spreadsheet macro example which works with both LibreOffice and OpenOffice.

If you have a question about using spreadsheets for data acquisition and analysis - be it Calc, Excel or other software - email monitor@windmillsoft.com.

DAQ News Round-up

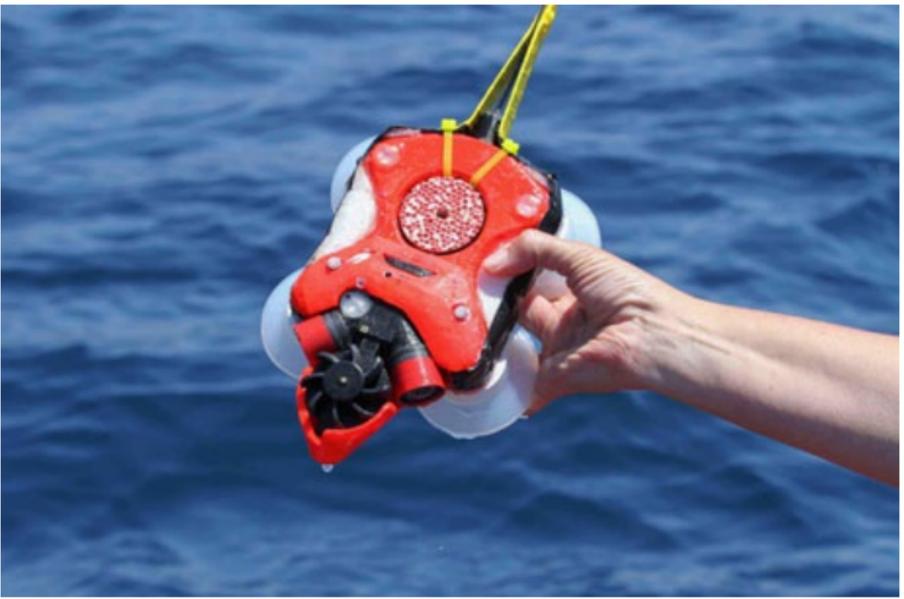
Welcome to our round-up of the data acquisition and control news. If you would like to receive more timely DAQ news updates then follow us on [Twitter](#) - [@DataAcquisition](#) - or grab our [rss feed](#).

Sensors and video reveal the unique feeding habits of whales

By attaching new sensor technology to whales just before they dive, researchers from Stanford's Hopkins Marine Station have captured whales' energetically expensive feeding activity in more detail than ever before.

Source: SCUBA News

<http://news.scubatravel.co.uk/>



Sensor and video package to be attached to blue and humpback whales

Factory automation needs protection

Factories of the future will demand advanced circuit protection technology to keep everything connected.

Source: BBC

<https://www.isa.org/>

Chaos-based microchips possible alternative to Moore's Law

Researchers have developed chaos-based integrated circuits that enable computer chips to perform multiple functions with fewer transistors. These could lead to novel computer architectures that do more with less circuitry and fewer transistors.

Source: Newswire

<http://newswise.com/>

Robot swarm exhibits Turing Learning

Researchers have created a robot swarm capable of learning how other systems work, and whose learned behaviour can pass a Turing Test.

Source: The Engineer

<https://www.theengineer.co.uk/>

Harmful algal blooms in their true colours

Some algal blooms are toxic, but which? One new way to analyse algal blooms is with hyperspectral imaging (HSI). Whereas the human eye sees color in three broad bands - red, green, and blue - HSI collects spectral data in dozens of very narrow wavelength bands and builds up detailed composite images which can be used to predict toxicity of blooms.

Source: NIST

<https://www.nist.gov/>

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* For more articles see <http://www.windmill.co.uk/>

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For previous issues by subject see

<http://www.windmill.co.uk/monitorindex.html>

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As a thank you for subscribing we offer you the ComDebug data logging and Com port trouble-shooting software. Log data over RS232, RS422, RS485 or Modbus. Also included is a month's trial of the Windmill 7 logging, charting and control programs. To download go to

<http://www.windmill.co.uk/jsampsr.htm>

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