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The Newsletter for PC-Based Data Acquisition and Control
Issue 198, January 2014

Welcome to Monitor. A belated Happy New Year to you all. This month a story of how researchers are investigating the drying and cracking soils; logging weight data; using Excel in Europe and the news round up.

If you wish to download our free data acquisition software please do so from <http://www.windmill.co.uk/jsarpsrr.htm>. Should you wish to remove yourself from our mailing list, go to http://www.windmillsoft.com/dagshop/Monitor_Newsletter.html

You can download Monitor as a pdf file from <http://www.windmill.co.uk/monitor/monitor198.pdf>

Any questions, comments or application stories, get in touch via [email](#), [Twitter](#) or [Google+](#).



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Measuring the desiccation and cracking of soil

Web link: [Measuring the Desiccation and Cracking of Soil](#)

Researchers testing a new system to investigate drying soils are using Windmill software in their experiments.



Desiccation cracks in soil cause all sorts of problems. They open a path for water and pollutant flow. In earth embankments, cracking reduces strength and can lead to seepage. In extreme cases, the cracks may trigger subsidence and even landslides. As the soil re-hydrates it swells, which could produce ground heave and serious structural damage to the fabric of buildings.

The study by American and European engineers, is using non-contact methods

to monitor simultaneous changes in water content, volume change and the pattern of cracks as the soil dries. They use a 2D laser scanner to track changes in the volume of the soil. By combining 2D profiles they achieve a 3D representation.

The experimental setup comprises

- laser scanner
- laser motion controller
- electronic balance
- relative humidity and temperature sensor
- digital camera
- computer with Windmill software and data acquisition system

The scientists use a Mettler Toledo SB-8001 weighing balance to measure water loss during soil desiccation. They connect the balance to a computer and use [Windmill data acquisition software](#) to continuously measure the water loss.

Combining all the data gives the researchers a digital model of the soil. Scans at different times show how the phenomena of crack propagation evolve in time, both on the soil surface and at depth.

The results are published in the journal [Acta Geotechnica](#)

Further Reading:

[Interfacing Mettler Toledo Balances](#), Windmill Software

[Data Acquisition Case Studies](#), Windmill Software

[Exploring desiccation cracks in soils using a 2D profile laser device](#). Sanchez, Marcelo; Atique, Alvis; Kim, Sewon; Romero, Enrique; Zielinski, Marcin. In: Acta Geotechnica, Vol. 8, No. 6, 2013, p. 583-596.

Questions on Using Windmill

Web link: [Connecting an Ohaus Balance](#)

Question

Can you confirm that the Windmill software can interface with my Ohaus Ranger 3000 balance or not?



Answer

Yes. You can use the free [ComDebug software](#) to collect data from an Ohaus Balance.

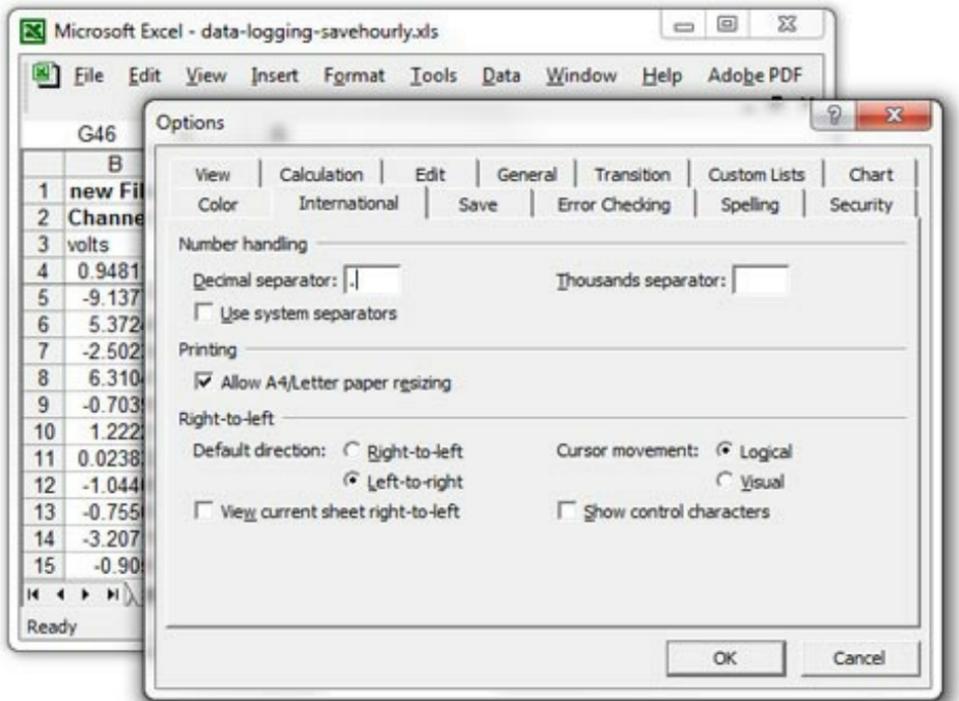
Download [ComDebug](#) and enter the settings which your balance is using. The Default settings for a [Ranger 3000](#) are given on our web site. You can change these with the Ohaus COM1 menu.

International Excel Corner - Changing the Decimal Separator

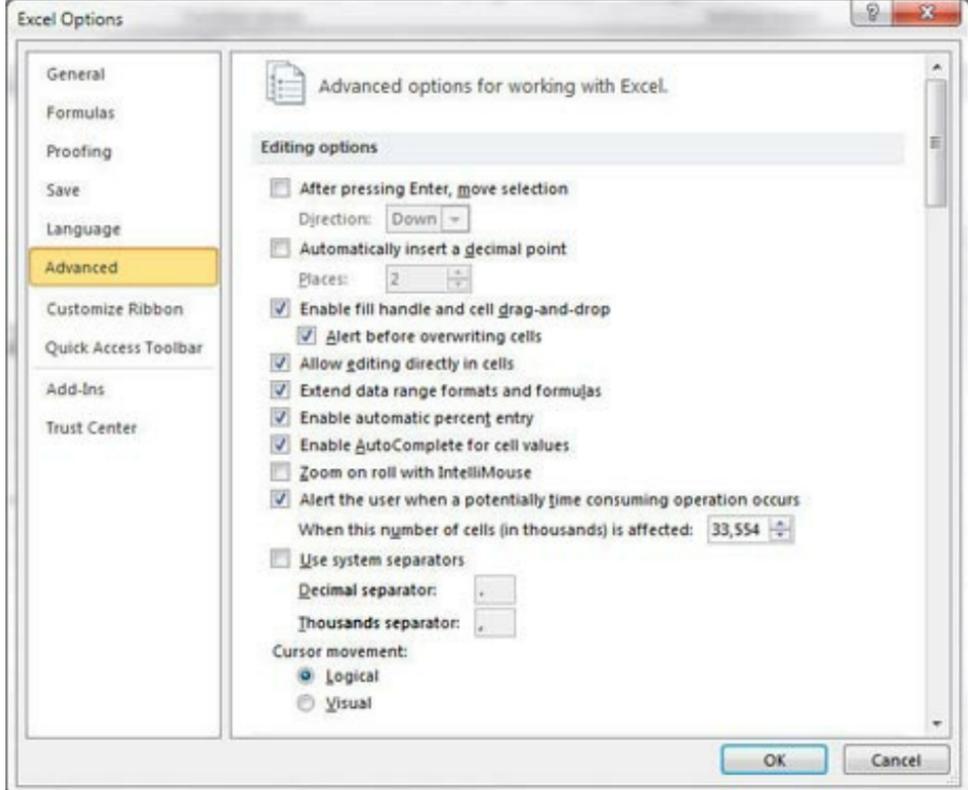
A engineer from Belgium is using Windmill to collect data and automatically send it to Excel. However, like in many European countries, he has his system set-up to use a comma as the decimal separator. His measurement device though sends the data using a decimal point. Windmill captures this data and sends it to Excel, still using a decimal point. Once in Excel it remains as 10.0 (for example) rather than being shown as 10,0 and any calculations and formulae applied to the data won't work. Our customer wanted to know if he could change the settings in Excel to show the data from Windmill with a comma, without changing them in the rest of his system.

To do this

1. From Excel's Tools menu choose Options (or in Excel 2007 open the Excel Options window)
2. Select the International tab (in Excel 2007 select Advanced and look for the Editing Options section)
3. Clear the Use system separators box
4. Enter a comma as the Decimal separator



Changing the decimal separator to a decimal point



or in Excel 2007

Read more Excel tips at <http://www.windmill.co.uk/excel/excel-tips.html>

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 [Google+](#) - <https://plus.google.com/107072683025496630222/>

Smart keyboard cleans and powers itself, and can tell who you are

In a novel twist in cybersecurity, scientists have developed a self-cleaning, self-powered smart keyboard that can identify computer users by the way they type. The device could help prevent unauthorised users from gaining direct access to computers.

Source: Georgia Tech

<http://www.news.gatech.edu/>

Networked Gadgets Waste 400 Terawatt-Hours of Energy Every Year

Consumers are losing money in the form of wasted energy, which is leading to more costly power stations and more distribution infrastructure being built than we would otherwise need - not to mention all the extra greenhouse gases that are being emitted. The bulk of the wasted energy comes when devices sit idle in standby mode. While in that mode they often spend energy to maintain a network connection, rather than actually going to "sleep" and using very little. There are easy and often cheap technical fixes to this issue available today.

Source: IEEE Spectrum

<http://spectrum.ieee.org/>

Global Sensors market to grow by 9.2 percent

TechNavio's analysts forecast the Global Sensors market to grow at a CAGR of 9.2 percent over the period 2013-2018.

Source: Report Linker

<http://www.reportlinker.com/>

International collaboration aims to launch eco-friendly ships

Research collaboration will address the emission of harmful gases like sulphur oxides (SOx), nitrous oxides (NOx), particulate matter and greenhouse gases - in particular CO2 - from ships' heavy fossil fuel burning combustion engines.

Source: The Engineer

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

Leap second to be added in June

The International Earth Rotation and Reference Systems Service (IERS) has announced that a leap second will be added to Coordinated Universal Time (UTC) at the end of June this year.

Source: NPL

<http://www.npl.co.uk/>

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For previous issues by subject see

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

FREE DATA ACQUISITION SOFTWARE

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

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

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