

## Monitor - ISSN 1472-0221

The Newsletter for PC-Based Data Acquisition and Control  
Issue 237, May 2018

Welcome to Monitor, the data acquisition newsletter. Any comments or questions email [monitor@windmillsoft.com](mailto:monitor@windmillsoft.com).

You can download this issue as a pdf file from <http://www.windmill.co.uk/monitor/monitor237.pdf>.



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### When to Isolate Measurement Inputs?

Web link: [windmill.co.uk/isolation-protection.html](http://windmill.co.uk/isolation-protection.html)

In a computerised measurement and control system, a high transient voltage at one input may damage not only the input circuit, but the rest of the data acquisition hardware and, by propagating through the signal conditioning and analogue-to-digital circuits, eventually damage the computer system as well. You can prevent this type of damage by isolating the input from the earth of the data acquisition and computer hardware.

A transient at one input can also propagate across to other input circuits and then cause damage to other equipment connected to those inputs. This is prevented by providing isolation between inputs.

Another case where you may need isolation is when you have very large ground loops. These may occur when the computer and DAQ equipment are widely separated.

Isolation is a special case of **input protection**. Inputs may be protected using components to limit the voltage at an input circuit.

Electrical equipment that may be subject to switching transients, component failure, mis-wiring and so on should only be connected to isolated inputs. So a system used to test electrical equipment following manufacture would be a prime candidate for isolation.

Input protection from high voltages is provided by our [59x range of hardware](#). These units connect to the standard data acquisition equipment and offer them many extra facilities. [More details...](#)

### Your Data Acquisition Questions Answered

Question

*"Does your charting allow different values to be trended together? e.g. Speed maybe is 0 to 20,000rpm and electrical current is 0 to 10amps. Obviously if only one scale is available then one can not be seen easily (too small). In excel there is a primary and secondary Y axis so 2 but some softwares have many Y scales i.e. set independently depending on parameter/channel. And also can I trend historical information or only real-time?"*

Answer

Yes, different values can be trended together on up to eight different axes. Chart doesn't show historical information - you can use the Windmill Replay program to do this - or Excel ([as detailed here](#)).



[Read more about Chart.](#)

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## Data Acquisition Exhibitions and Conferences

The quarterly update of data acquisition and control exhibitions around the world.

### IoT Week

4-7 June 2018

Bilbao Spain

To discuss and identify emerging trends and technologies that will impact the future.

<https://automatica-munich.com/>

### Automatica

19-22 June 2018

Munich Germany

Exhibition for smart automation and robotics

<https://automatica-munich.com/>

### Sensors Expo & Conference

26-28 June 2018

Nurnberg Germany

The measurement fair.

<https://www.sensor-test.de/>

### Sensor and Test

26-28 June 2018

San Jose USA

Event dedicated to sensors, connectivity and systems

<https://www.sensorexpo.com/>

### Instrumentation Scotland

4-5 July 2018

Aberdeen UK

Exhibition for sensors and transducers, control and data acquisition.

<https://www.sensor-test.de/>

### Automation 2018

1-4 August 2018

Taipei

Industrial automation exhibition.

<https://www.autotaiwan.com.tw/>

## Automation Expo 2018

29 August - 1 September 2018

Mumbai India

Aisa's leading automation and instrumentation exhibition

<https://www.automationindiaexpo.com/>

## DAQ News Round-up

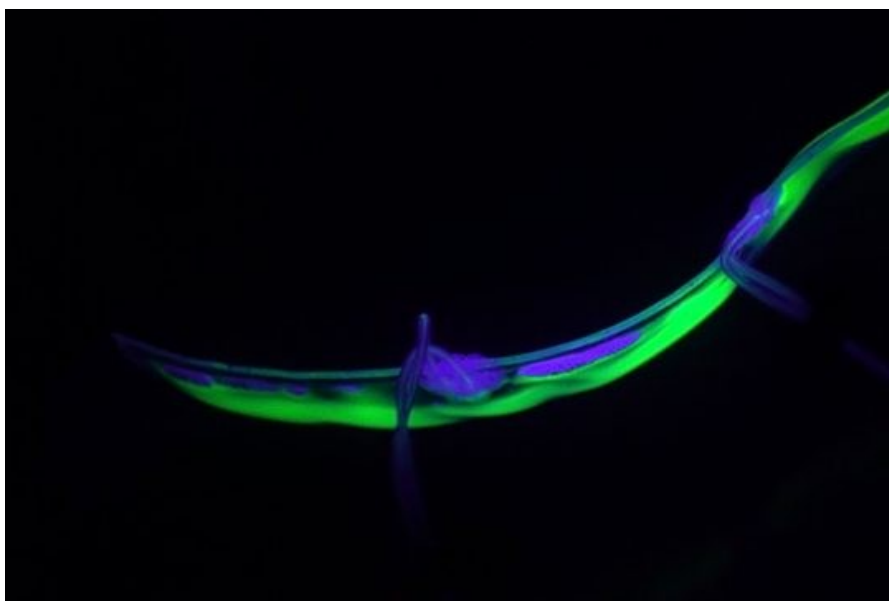
Welcome to our round-up of the data acquisition and control news. If you would like to receive more timely DAQ news updates then follow us on [Twitter](#) - [@DataAcquisition](#) - or grab our [rss feed](#).

### Transparent Eel-like Robot Swims Silently Underwater

A step toward a future when soft robots can swim in the ocean alongside fish and invertebrates without disturbing or harming them.

Source: SCUBA Travel

<https://news.scubatransport.co.uk/>



### Self-repairing circuits a possibility with new material

Autonomously self-healing material said to be a breakthrough for soft-matter electronics.

Source: Carnegie Mellon University

<https://engineering.cmu.edu/>

### Scientists discover new magnetic element

The chemical element ruthenium (Ru) is the fourth single element to have unique magnetic properties at room temperature. The discovery could be used to improve sensors and other devices using magnetic materials

Source: University of Minnesota

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

### The Secret Lives of Roots: Watching Crops Grow Beneath the Surface

Ambitious program to reveal the secret lives of roots that includes using magnetic resonance imaging (MRI) of living plants in the field.

Source: NIST

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

### Magnetic navigation techniques borrowed from birds could help drones find their way

One of the magnetic navigation techniques thought to be used in the natural world could help enable autonomous vehicles find their way without maps or GPS..

Source: The Engineer

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

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

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

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