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The Newsletter for PC-Based Data Acquisition and Control
Issue 242, November 2018

Welcome to Monitor - thanks for subscribing. Any comments or questions email monitor@windmillsoft.com.

You can download this issue as a pdf file from <http://www.windmill.co.uk/monitor/monitor242.pdf>.



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Why and When to Calibrate Measurement Instruments

Web Link: <http://www.windmill.co.uk/drift-recalibration.html>

Measurement and control devices are delivered tested and calibrated to international standards. Over time, though, they will lose their accuracy and measurements will "drift".

Drift is a slow variation of a performance characteristic such as gain or offset.

An offset drift results in a reading other than zero, for a zero condition. A gain drift is an error multiplied by the measured value. A gain drift of +/-0.05%, for example, means that the measurement will be out by 0.05%.

Drift is due to ageing components or environmental changes: such as changes in temperature or humidity. It is especially significant when you are measuring low-level signals (a few microvolts) over long periods of time, or in difficult environmental conditions.

The way to deal with drift is to re-calibrate the instrument periodically. Calibration compares the instrument's actual performance to an accuracy standard. To do this you may need to return the instrument to the manufacturer or receive an on-site visit from them. You will then receive a calibration certificate which will be valid until the next recommended calibration date, often a year later. The higher the accuracy required, the more frequently the instrument will need to be calibrated.

Some instruments, like many in our [Microlink range](#), are able to re-calibrate themselves periodically. They measure a reference voltage and compensate for offset and gain drifts.

Self-calibration is useful for long term monitoring since drifts do not accumulate. You need to be careful not to set the re-calibrations too far apart as this can lead to small discontinuities in the recorded data as the re-calibrations occur.

Further Reading

[Measurement devices which auto-recalibration](#)

Your Data Acquisition Questions Answered

Question

I am interested in the [Microlink 751-SG](#) or [851-SG](#) for strain gauge logging. Information mentions you supply precision 350 ohm resistors for quarter bridge configurations, but I can't find them on web site. How much are they and how do I order them? Thanks

Answer

The precision resistors are included in the price of the 751-SG and 851-SG strain gauge logging units. We will usually configure the unit with the required resistors for you (two 1 kOhm termination resistors mounted in half bridge configuration or 350 and 120 Ohm resistors for the completion of quarter bridges), although if you prefer to do it yourself you can do so.



More details of our strain gauge logging options are at <https://www.windmillsoft.com/daqshop/strain-measurement.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 grab our [rss feed](#).

Gravity measurement sensors map subterranean environment

New quantum cold-atom sensors will detect and monitor objects beneath the ground better than existing technology, reducing the need for time-consuming and disruptive drilling or digging, according to Gravity Pioneer project.

Source: The Engineer

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

Handheld sensor precisely measures crop health

The device scans a plant for physiological features, such as moisture, nutrient and chlorophyll levels, as well as different chemical spraying effects and disease symptoms to determine whether it is healthy or under stress.

Source: Purdue University

<https://www.purdue.edu/>

New composite material regulates its temperature

A cutting-edge material, inspired by nature, can regulate its own temperature and could equally be used to treat burns and help space capsules withstand atmospheric forces.

Source: Nottingham University

<https://www.nottingham.ac.uk/>

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