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# BRISBANE TRAINING

Campbell Scientific offers multi-day training courses for our data loggers and software.

These comprehensive courses are designed for those without much data logger experience, or for those wanting to increase their knowledge.

The courses have an emphasis on programming; see individual courses for itinerary.

"Hands-on" programming exercises and course handouts are used to reinforce the concepts covered by the instructors.

Our next training course will be held in Brisbane, this is a popular training course and spots are filling quickly.

**MARCH 2-3**

**BRISBANE**

Programming Training Course

**MARCH 4-5**

**BRISBANE**

Communications Training Course

**2015 TRAINING SCHEDULE**

March 2 - 5	Brisbane
May 11 - 15	Sydney
July 20 - 24	Townsville
September 7 - 11	Melbourne

# MESSAGE FROM THE MD

Robert Kurz



Welcome to the first of our 2015 newsletters. Once again we have a range of new products being released this year to follow the recent CR6 data logger release.

I am encouraged by the take up of our introductory CR6 offer in December 2014 and we now have stocks in our warehouse ready to ship to customers. Please ensure you download the latest CR6 OS version from our website.

I am pleased to announce a new product concept, CRVW3 is also now available. The CRVW3 is the first version of application specific devices created by combining functionality from several CS products. CRVW3 incorporates elements of the CR200X, AVW200, and the RF451 capability into one device. As always, we welcome your feedback on our latest product releases in order to help our design team engineer useful and practical products for our customers. See the

newsletter article below for more information and contact our application engineers for more details.

It was great to catch up with many of our readers at the biannual 2014 AHA conference in Sydney. Please check our website news and events page for the latest information.

We at Campbell Scientific Australia appreciated your business in 2014 and hope we can continue to assist you with your measurement needs in 2015.

A handwritten signature in black ink, appearing to read 'R Kurz'.

**Robert Kurz**  
Managing Director

# CYCLONE CHASING

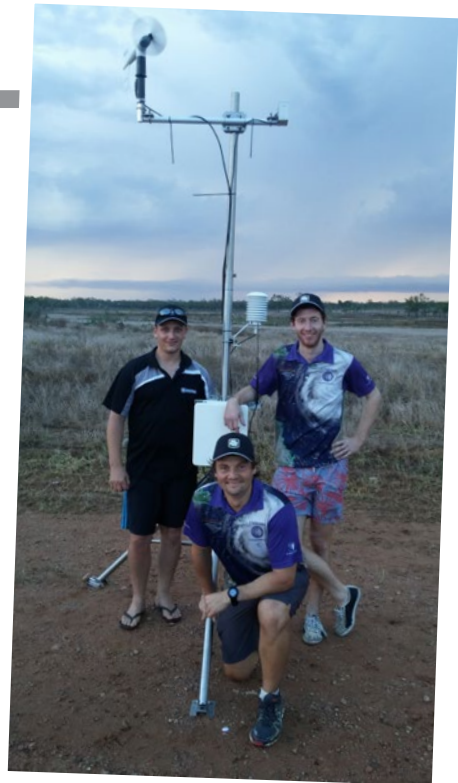
## All Systems Go for Oz Cyclone Chasers

It's all systems go for the Oz Cyclone Chasers team following a successful test deployment of the OCC Campbell Scientific Weather Station near Charters Towers on December 6th during a day of severe thunderstorm activity for Northern Queensland.

Dr David Hammond, Application Engineer Manager at Campbell Scientific Australia, who joined the OCC team in a technical support role for the test deployment, reported that the system functioned as expected and final preparations

are now underway regarding data transfer and presentation on the OCC website. We'll have more updates on the OCC Campbell Scientific Weather Station in our next newsletter, plus you can visit the Oz Cyclone Chasers website ([www.auscyclonechasers.com](http://www.auscyclonechasers.com)) for cyclone updates and to view the weather station data during cyclone events.

For further information on the range of Campbell Scientific Weather Stations, visit our website ([www.campbellsci.com/weather](http://www.campbellsci.com/weather)) or call our Application Engineering team on +61 (0)7 4401 7700.



# AHA 2014

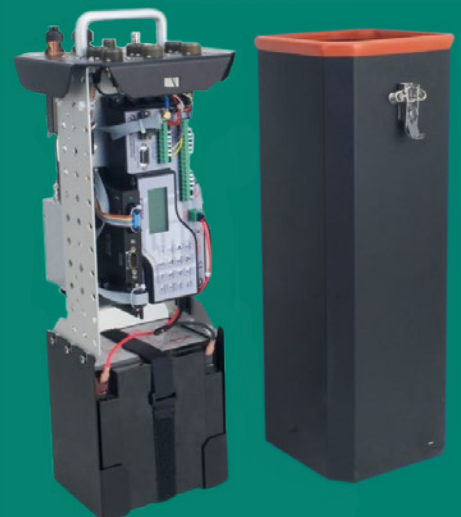
**CSA staff Rob Kurz, Gavin Hewitt and Jordan Marano attended the biennial Australian Hydrographers Association (AHA) Conference. The conference was held in Sydney's ANZ Stadium and once again provided an excellent opportunity to network with the hydrographer community, catch up with old contacts and talk all things water.**

Also joining the CSA team was Gary Swanson and Greg Bangerter from CSI. Greg and Gary were able to gain some insight into the hydrography market, meet and greet users as well as other industry representatives from Australia and South East Asia.

AHA was also the first time the new RDP121A ALERT systems were demonstrated. THE RDP121A is a

rugged, turn-key system designed for both ALERT and ALERT2 systems. These systems can be easily configured in the field and are simple to maintain. Systems are currently being deployed in projects around Australia.

See you all at the next AHA in 2016!



## NEW LOGGER IN OUR FAMILY OF VIBRATING-WIRE PRODUCTS

Vibrating-wire technology is used in many sensors, including strain gages, pressure transducers, piezometers, tilt meters, crack meters, and load cells. These sensors benefit a wide variety of structural, hydrological, and geotechnical applications because of their stability, accuracy, and durability. While vibrating-wire sensors have their benefits, they suffer from one major problem—external noise.

To provide better vibrating-wire measurements, Campbell Scientific developed the vibrating-wire spectral-analysis technology (VSPECT). This innovative, patented technology delivers the most accurate measurement for vibrating-wire sensors. VSPECT observes the incoming sensor signal, performs a Fourier transform and a spectral analysis (transforming the time series into individual sinusoidal components in the frequency spectrum), and determines the sensor frequency by identifying the largest signal in the acceptable range and disregarding noise.

Our first products to include VSPECT were the AVW200-series vibrating-wire interfaces, introduced in 2008. These were followed by the CDM-VW300 series of dynamic vibrating-wire analysers, released in 2013, and the CR6

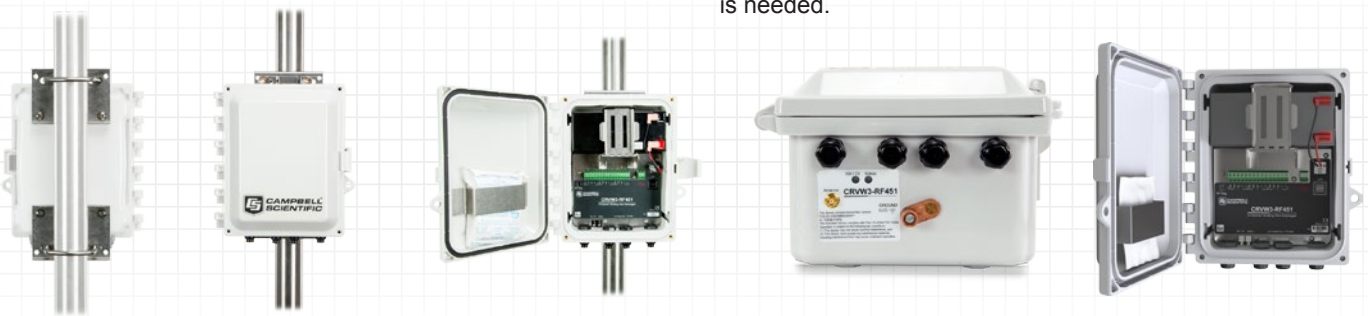
Measurement and Control Datalogger, released in September of this year (see article on page 2). In a few months, the CRVW3 Vibrating-Wire Datalogger, our newest VSPECT product, will be released.

The CRVW3 is a small datalogger mounted in an IP66-rated enclosure with either a rechargeable or alkaline battery. Designed exclusively for vibrating-wire measurements, the CRVW3 has three channels for directly connecting vibrating-wire sensors (no

interface required). Optional internal radios will support wireless routing communication.

The CRVW3 is designed to be either an independent datalogger, or a reliable component in a larger data-acquisition system. It arrives field ready and is configured to monitor vibrating-wire sensors; no coding by users is needed.

**THE CRVW3 IS  
DESIGNED TO BE EITHER  
AN INDEPENDENT  
DATALOGGER, OR A  
RELIABLE COMPONENT IN A  
LARGER DATA-ACQUISITION  
SYSTEM.**



**Vibrating-wire sensors are an important long-term monitoring tool in structural, transportation, and geotechnical applications, and our VSPECT products make better measurements for these applications. The CRVW3 promises to be a valuable new addition to our VSPECT family.**

## TECH TIP:

# CS VBW MEASUREMENT OPTIONS

Campbell Scientific is renowned for our VSPECT vibrating wire measurement hardware. Development of vibrating wire measurement technology has been among the most cutting edge in the world at Campbell Scientific with new methods emerging for static and dynamic measurements every year. When using vibrating wire the most appropriate solution can make a big difference to your deployment and costs.

MODEL	CR6	CRVW3	CDM-VW300 SERIES	AVW200 SERIES
Defining Characteristics	Fully functional datalogger with on board vibrating wire measurements	3-channel stand-alone vibrating wire datalogger	2-channel dynamic vibrating wire analyser	2-channel vibrating wire analyser
USB Configuration	✓	✓	✓	
LAN	✓			
Expandable Memory	✓			
Wireless Communications	Wi-Fi and radio options (available soon)	Radio Options		Radio Options
Channel Count	12 Universal	3 Vibrating Wire	2 to 8 Vibrating Wire	2 Vibrating Wire
Multiplexer Capable	✓			✓
Static VW	✓	✓	✓	✓
Dynamic VW	With CDM-VW300 Series		✓	
Power Input	12 to 32 Vdc	12 to 28 Vdc	9.6 to 32 Vdc	12 Vdc

## RMA

# PROCEDURE

When sending back equipment to CSA for repair or calibration, you will need to follow the below procedure:

1. Contact CSA and obtain an RMA number for the items to be returned. This RMA number allows CSA to track your device when received at our shipping dock. CSA will create a ticket ([helpdesk.campbellsci.com.au](http://helpdesk.campbellsci.com.au)) for this repair/calibration so that it can be followed by all people involved in the process (customer, administration, shipping, repair and application engineer groups)
2. Fill in an RMA form (including the RMA number provided) and the decontamination form.
3. Email back the filled RMA form and Decontamination form through the ticketing system.
4. Send the unit(s) to CSA with a printed copy of the RMA form and decontamination form.

If you ever forget this procedure or lose the forms, you can find all of these details on our website: [www.campbellsci.com.au/repair](http://www.campbellsci.com.au/repair)

When shipping equipment back to CSA, please use the following delivery address:

Campbell Scientific Australia  
411 Bayswater Road, Garbutt QLD 4814  
AUSTRALIA

**Contact: Shaun Pope ([info@campbellsci.com.au](mailto:info@campbellsci.com.au))**

We appreciate your cooperation on the matter and assisting us in making your repair and calibration process with CSA as fast and efficient as possible.

NOTE: If the above procedure is not followed, goods may be returned back to the customer at their charge.

## TECH TIP:

# CR1000 OR CR6?

Campbell Scientific's CR1000 datalogger has become a valued central component in tens of thousands of applications, worldwide.

It has been proven in the harshest environments, and trusted to operate reliably in remote, standalone installations. We have now developed the CR6 datalogger to have that same type of wide-ranging usefulness and ruggedness, with new features to expand on the history and reputation our products have built for decades.

Many of you have used the CR1000 for many years, and have become accustomed to its capabilities. As you plan future projects or expansion or maintenance of existing installations, we can help you determine if the CR1000 is still the best choice, or if the CR6 will better suit your needs.

### What problems are best solved by the new CR6 Measurement and Control Datalogger?

- My secure socket connections are a little on the slow side.
- I wish my datalogger-hosted web page were a little more responsive.
- I wish there were more ports for serial sensors.
- I want a datalogger that will communicate directly to my RS-232, RS-422, or RS-485 sensors without an external interface.
- When doing analogue measurements, I need better resolution.
- I need a built-in charge regulator to connect directly to my solar panel and battery.
- I want the datalogger to be powered from my 24 Vdc power system without extra hardware.

- I would really like to reduce system cost by doing static vibrating-wire measurements directly with my datalogger.
- I place great value on having removable wiring terminals in the field.
- I wish there were a second SW12 terminal.
- I wish I could measure more than two anemometers with low-level ac outputs.
- I'd like to have the best interface for my new CSAT3B 3-D sonic anemometer or IRGASON.
- I will use multiple CDM devices on my datalogger.

If none of the above applies, the CR1000 is probably still the right datalogger for you.



## TECH TIP:

# WHAT IS A UNIVERSAL TERMINAL?

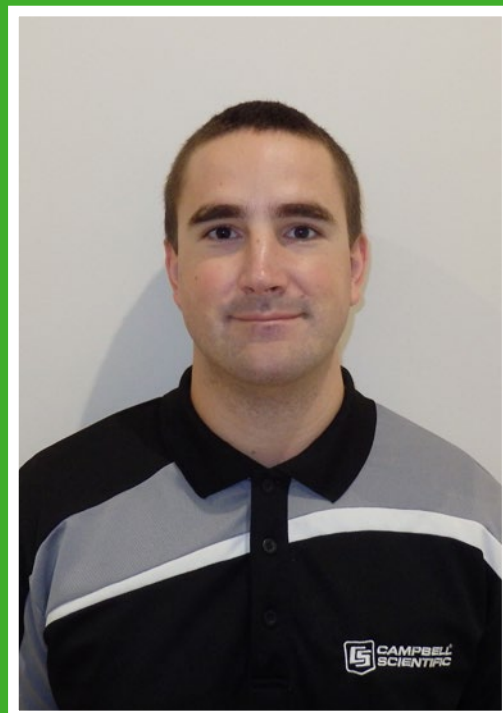
The CR6 is equipped with many new innovative features that allow more functions and applications than ever before. Among the most diverse of these new features are the universal terminals that allow every measurement channel to be used for virtually any sensor (analogue, digital or smart). The CR6 knows what measurement to perform on each of the twelve U Terminals by declarations in the program operating on the data logger and can be software configured.

### Analog functions consist of:

- Analog inputs: 12 single-ended or 6 differential with  $\pm 5000$  mV,  $\pm 1000$  mV,  $\pm 200$  mV ranges 24 bit ADC
- Analog outputs:  $\pm 2.5$  V or  $\pm 2.5$  mA ranges for bridge measurements 12 bit DAC
- Static frequency-analyzed vibrating wire: terminal pair both excites to 12 V p-p and 100 Hz to 6.5 kHz and reads vibrating wire transducers using our patented spectral-analysis technology (VSPECTM)
- Thermistor: completion resistor internal 5 k $\Omega$
- Period average: up to 200 kHz, amplitude dependent
- Low level ac: 1 Hz to 20 kHz, amplitude dependent

### Digital I/O functions consist of 5 V or 3.3 V logic levels for:

- General status/control
- Voltage source: 5 V, 3.3 V, 20 mA @ 3.5 V
- Timer I/O
- Switched closure (150 Hz) or high frequency counter (1 MHz)
- Pulse width modulation
- Interrupts
- SDI-12 and SDM
- Serial asynchronous communication Tx/Rx pairs



## MEET OUR STAFF:

# FLORENT

Working in the AE team since April 2013, Florent is originally from France. He grew up in a farm in the west of France before moving to Paris for his Environment studies.

Following his graduation he worked three years at Campbell Scientific's French office before moving to Australia for the weather and lifestyle! Florent specialises in renewable energy applications and remote camera monitoring systems, and he is a valuable addition to the Application Engineering team at CSA.

Florent likes playing volley-ball and enjoys morning fishing trips (especially since he moved in Townsville). He is also interested in the more traditional Australian, like rugby league, AFL and cricket that are not so popular in France.

# OUT AND ABOUT: CAMPBELL SCIENTIFIC INC. AND FACE PROJECT VISIT

Our parent company CSI, based in Logan, Utah, have strongly supported CSA to establish the appropriate business structure in Australia to best serve our customer needs. In 2014 Gary Swanson retired from CSI and as a CSA Board Director. Gary was replaced by Greg Bangerter and both visited us last year coinciding with the 2014 AHA conference. It was a chance to meet and visit with Australian customers.

Not far from the AHA venue is the University of Western Sydney Hawkesbury Campus where Professor David Ellsworth and his team have built a Free Air Carbon Exchange (FACE) facility. It was an opportunity to visit the site to learn about the research being done and how Campbell Scientific instrumentation is being used in practice. A special thanks to David for an interesting tour in 40 degrees celcius temperatures!

