



CR1000 / CRBasic Training Course Schedule -Date Changes & New Courses Announced

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We're well and truly into the new year with our Melbourne course over and done with, and now we're gearing up for our Gold Coast course in just over two months time. Training courses are a great way to "get to know" the Campbell loggers and their full capabilities. The course covers hardware, software and programming for all models using our CRBasic programming language including - CR200, CR800 & 850, CR1000, CR3000 & CR5000.

In our last issue of Online we advised that our Gold Coast course would be held 27th - 29th March 07. Unfortunately due to conflicts in our schedule we have had to push the course back to the 17th - 19th April 07. See our schedule below for more information on upcoming courses in your area.

CSA TRAINING COURSE SCHEDULE 07
GOLD COAST - 17th - 19th April
PERTH - 22nd - 24th May
TOWNSVILLE - 26th - 28th June
SYDNEY - 26th - 28th Nov



SEATS ARE LIMITED, so contact us today on training@campbellsci.com.au for more information and pricing.

JANUARY 2007 PRICE LIST IS NOW AVAILABLE

To obtain a copy of our 2007 price list please contact info@campbellsci.com.au



Gone But Not Forgotten! Our CR510 & CR10X Loggers no longer available

As most of you would be aware, over the past 12 months the CR10X & CR510 data loggers have been slowly phased out due to unavailability of parts. As such both units are no longer available for order from Campbell Scientific Australia.

For those using our CR10X model, our new CR1000 data logger has been designed as a replacement for the older unit, and provides all the standard features of a CR10X and more. Users of the CR510 loggers have the choice of using either the CR200 series - ideal for measuring one or two simple sensors OR our CR800 & 850 models, perfect for those who need research grade measurements in a small package. As well as supporting all of the CR510 capabilities the CR800 series uses PakBus®, can measure intelligent sensors without using interfaces and are fully compatible with channel expansion peripherals and thermocouples. For more information on our new loggers please contact our sales and tech team on info@campbellsci.com.au Full support for the CR510 & CR10X data loggers will continue to be provided to our customers free of charge.

CONGRATULATIONS....

..To the winners of our CSA Case Study competition. Doug Walker and James Turtle were the lucky winners and each picked up a Garmin GPS navigation system, just for submitting their project summary!

Keep an eye out over the next month or so - you'll see all of our case study submissions profiled on our website. And we're still on the lookout for submissions to add to our site - so write in and tell us about your project. For more info please contact marketing@campbellsci.com.au

More Flexible Displays with RTMC Pro

Many LoggerNet users are familiar with RTMC (Real-Time Monitoring and Control) software that is included with LoggerNet. They've come to appreciate the flexibility of this easy-to-use software package that lets them analyse their data on screen by displaying variables and final storage data in the form of graphs, dials, status bars, visual alarms, and tables. A good thing is now even better...

RTMC Pro is an enhanced version of RTMC. It includes more powerful alarm capabilities such as rate of change and multistate alarms, as well as the ability to send a message to an email address on an alarm event. The new Command components let you run or open a file, execute CoraScript commands (LoggerNet's command-line utility), or insert HTML hotspots. Other new components include a logarithmic gauge and status bar, a wind rose, an oscilloscope, and an XY chart. Couple these features with more layout components and the ability to save a snapshot of the current display to an image file, and you'll be creating even better displays for your computer or images for displaying on a web site.

RTMC Pro is purchased separately from LoggerNet. When it is installed, a button is added to the LoggerNet toolbar so that it can be opened easily from within the LoggerNet application. The standard version of RTMC is still installed and available, and the RTMC Run-Time product supports both versions. Please note that projects developed in, or converted to, RTMC Pro cannot be opened in standard RTMC. However, when an RTMC project is opened in RTMC Pro and



RTMC Pro includes multistate, text, and email alarm capabilities.

subsequently saved, you will be prompted for a new file name upon saving. This helps to ensure your original file is still available for use in RTMC if desired.

Our goal is for RTMC and RTMC Pro to support the graphics needs of all our clients who require data displays. To that end, we will begin phasing out our other data display products, such as ViewDAQ and RTDM.

Visit <http://www.campbellsci.com.au/rtmcp> for more information and a link to our demo version of RTMC Pro.



A button for RTMC Pro is added to the LoggerNet toolbar.

Upgrade your Data Logger Operating System!

One of the major benefits of our data loggers is the ability to download the latest firmware additions - meaning you can take advantage of the new features and communication protocols as they are released.

Go to the downloads section of our website <http://www.campbellsci.com.au/downloads#cat4> to download the current operating system for your logger.

FINANCE NOW AVAILABLE

Campbell Scientific Australia in conjunction with Macquarie Equipment Rentals can now provide an equipment rental agreement for your next Campbell Scientific purchase. Periods of 24, 36, 48 and 60 months are available at competitive prices. To take advantage of this tax-effective strategy, contact our office on 07 47720 444 or email info@campbellsci.com.au now for the latest rates.

Want more information on these products?

Simply email our technical team on info@campbellsci.com.au

New ET107 Weather Station Replaces ET106

With the CR10X now unavailable for order, Campbell Scientific has also replaced its ET106 ETo Weather Station with a new model, the ET107.

The main point of difference is the internal data logger which has now been upgraded to the CR1000 model.

Previously barometric pressure could not be measured with the ET106 but with the arrival of the ET107 station CSA are now happy to announce we also offer an optional barometric pressure version.



Communicating with RS-232 Sensors

Our winter edition of Online took you through interfacing RS-232 devices to Campbell Scientific data loggers, including wiring configurations such as null-modems, CS I/O-RS-232 interfaces and the difference between DTE and DCE devices. The next step is to program the (CRBasic) data logger to communicate with RS-232 devices.

Depending on the device and the outcome you want to achieve, programming the logger to utilise it can be either a simple or lengthy process. If using an RS-232 modem such as a cell-phone modem to provide dial-up communications with the logger is the task, its operation is transparent and there is no data logger programming required. However, using this same modem to send or receive SMS messages requires some specific data logger programming as the logger needs to send commands and make decisions based on the responses given.



Another example is interfacing a sensor with an RS-232 output to the logger for monitoring its parameter on some regular interval, such as when collecting data from a GPS system. This also requires some data logger programming to either receive data at unknown times or to poll the sensor for data at intervals controlled by the logger. These commands can also be used for entering comments directly into the data file of the logger.

The Commands

Much like a PC, the logger has a number of ports. These ports have labels which indicate their physical position on the logger wiring panel. For the CR1000, these ports are: ComRS232, Com1, Com2, Com3 and Com4. The CS I/O port can also be used as an RS-232 port if used with a converter such as the SC932A or SC32B (See Winter 06 Tech Tip for details).

Each of these ports can be configured individually for baud rates (up to 115200) and port settings. The ports can operate simultaneously, meaning that multiple serial devices can communicate with the logger at the same time (which was not possible in the older generation of loggers). The ports can be opened and closed under user control and user-defined buffers can be assigned to store incoming data.

The group of Serial I/O commands consists of 8 commands, each one with a different series of parameters to specify. In some cases (such as SerialFlush or SerialClose), the only parameter required is the port on which the command should operate. Other commands (such as SerialOpen) require multiple parameters such as baud rate, protocol, buffer size and Transmit delay to be entered.

CRBasic Serial Communication Commands

Command	Purpose
SerialOpen()	Open a serial port for communications
SerialIn()	Retrieve data from the receive buffer into a String variable
SerialOut()	Send data from a string variable out the serial port
SerialInBlk()	Receive binary data from the receive buffer
SerialOutBlk()	Send data in a binary format out the serial port – Useful when data contains a null value
SerialChk()	Check number of characters in the Receive buffer
SerialFlush()	Clear the buffers
SerialClose()	Close the serial port

Other Useful Commands

Other Useful Commands

The CR800, CR1000 and CR3000 data loggers also provide the ability to declare variables as different data types depending on the requirements of the user. These include floating point, long, Boolean and string data types. String data types are extremely useful when dealing with serial communications as they can be used to store data from serial sensors. With the use of some string handling commands, these strings can be manipulated or analysed as required.

Command	Purpose
InStr()	To find a user-defined string within another string
Left(), Right(), Mid()	To split off a part of a string into another variable
StrComp()	Determine if two strings are identical
SplitStr()	Split a string into multiple smaller strings by specifying the delimiting character
LowerCase(), UpperCase()	Change the case of all the characters in a string variable
LTrim(), RTrim(), Trim()	Remove leading and/or trailing spaces from a string variable

For more details or assistance with any of these commands or serial communications, refer to the online help in CRBasic or contact one of the members of our friendly support team.

WHAT WOULD YOU LIKE TO SEE IN OUR ONLINE E-ZINE ?
 CSA is currently looking for article contributions and suggestions for what you'd like to see appear in Online.
 Email your ideas to marketing@campbellsci.com.au - we look forward to receiving them!

Assessing the Water Yield Impacts of Eucalypt Plantations

SOURCE - Sandra Roberts, Forestry Tasmania

Increasing competition for water resources has led to calls for scrutiny of water used by plantations during water management planning. At present the knowledge to quantify plantation water use is quite limited. There have been some small scale studies and generalised models but these are not linked to operational systems that describe plantation distribution and properties to estimate water use on a catchment or regional scale.

The forest estate model operated in Woodstock (Tasmania), permits extrapolation of water usage results from small-scale estimates to the plantation estate. This allows Forestry Tasmania to assess the impacts of plantation development and silviculture on water supply during the planning process and inform catchment managers planning water allocations.

APPLICATION AT A GLANCE

APPLICATION TYPE -
Ecological Research

PROJECT AREA -
Woodstock, Tasmania

DATA LOGGER -
CR10X

COMMUNICATION LINKS -
Direct download to laptop

MEASURED PARAMETERS -
Sap Velocity, Transpiration, Volumetric Water Content.

Data collected from the site is utilised to predict the future availability of wood in native forests and plantations across the forest estate under a variety of management scenarios. It utilises spatial layers of various forest attributes (e.g. Forest type, silvicultural regime, age), and growth models developed from forest inventory to predict the basal area of the forests, now and in the future. The purpose of this project is to clarify the relationships between basal area, sapwood area, leaf area, forest type, age, site quality and water use for the main plantation species in Tasmania.

A Campbell Scientific CR10X data logger, two Edward's sapflow sensors and a Theta probe are used to measure and calculate sap velocity, transpiration volume and soil volumetric water content. The relationship between these plantation attributes and water usage may then be used to predict future water needs.

The Woodstock project is unique because it links research results with an operational planning system that contains detailed information of forest type and distribution, allowing water usage of plantations to be assessed in parallel with wood production, which will facilitate economic comparisons.



POST YOUR CASE STUDY ON OUR WEBSITE!!

We are looking for users of Campbell equipment to profile on our website

- contact marketing@campbellsci.com.au for more information

Using Campbell Scientific data loggers & SCADA

The ultimate in Real Time Data presentation

SCADA (Supervisory Control And Data Acquisition) Systems have been used extensively throughout the industrial arena for many years. With their impressive graphics and real time measurement and control capability, SCADA systems have been best suited to manufacturing or processing plants where complex graphical representation of pumps, valves, tanks, gauges and sensors can all be displayed simultaneously on one or more screens (mimics) in real time.

With the advent of faster, long-distance communication links via radio, cellphone and more recently wireless internet protocols, SCADA systems are now seeing applications outside the traditional industrial arena in such areas as flood warning, stream gauging, geotechnical monitoring, weather station networks, irrigation monitoring and control, etc. As these are markets where our low powered data loggers excel, naturally our clients are seeking improved SCADA integration tools and protocols for our products.

By supporting the Modbus protocol (one of the more basic industrial protocols), Campbell Scientific's data loggers have been able to connect to SCADA systems since 1997. This has enabled any system utilising our data loggers (e.g. weather station, measurement system or measurement and control system) to send and receive data and commands to a SCADA mimic screen.

Thanks to our software engineers, Campbell Scientific customers can now take advantage of a variety of SCADA integration tools.

1) RTMC & RTMC Pro

Campbell Scientific's Loggernet software package contains the RTMC (Real Time Monitoring and Control) module. While RTMC is easy to use, it must be remembered that it is an elementary SCADA system which allow users to mimic simple measurement and control systems. RTMC Pro contains additional tools and features for more advanced applications. Further details on these two packages can be found at – <http://www.campbellsci.com.au/loggernet3x> and <http://www.campbellsci.com.au/rtmcpro>

2) MODBUS

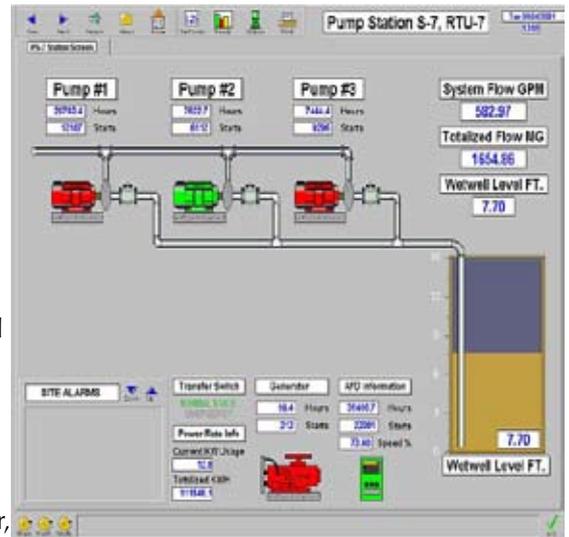
The CR800, CR850, CR1000 and CR3000 all support Modbus communications. As stated earlier, Modbus is

one of the more primitive protocols and doesn't allow many of the advanced features of our own data logger support software including remote clock set, program download/upload and historical data collection. It does allow the remote setting of control ports and reading / changing of input memory locations. By using Modbus with our loggers, you can connect to most of the commercial SCADA packages on the market. CITECT (<http://www.citect.com/>) is an Australian SCADA package that is commonly used by our clients. Outlook from National Instruments is another SCADA package that we recommend for its simplicity and ease-of-use. A working demo version of Outlook can be downloaded and tested with our data loggers from <http://www.ni.com/downloads/> by searching for Lookout.

3) OPC Server

OPC Server is an optional software addition to our Loggernet package that provides simple connectivity to any SCADA system that provides OPC support. Loggernet is used to collect data as required and the OPC driver allows a SCADA system to link elements from the Loggernet database to SCADA "tags". Further details can be found on <http://www.campbellsci.com/pc-opc>.

For more information on SCADA and how it can be used in your application contact our tech team!



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For all issues relating to online please

contact marketing@campbellsci.com.au

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SHE'S BACK.....

After spending more than eighteen months in chilly Tasmania, Michelle has finally succumbed and returned to the warmth of tropical Townsville!

Those of our clients who have been with us for more than eighteen months will be thrilled to learn that Michelle Douglas (aka Mills) has rejoined the CSA team in her previous role as Sales / Application Support Technician. Michelle's bubbly personality, detailed technical knowledge of Campbell products and willingness to assist above and beyond the call of duty made her extremely popular with our many clients.

