

Training 2009

Our Townsville course discounted to \$700-ex GST

It's our home base so we've discounted our Townsville course to \$700-ex GST! Why not escape the cold southern winter and head up to visit us in sunny North QLD?

Our CRBasic 3 day training course offers users the chance to learn how to use and program Campbell data loggers in a hands on environment. Our two day advanced course takes users to the next level of programming, however it's only suitable for those who are up to speed with LoggerNet and the CRBasic programming language.

Below is our training schedule for 2009, for all pricing and info please contact bree@campbellsci.com.au

COURSE	WHERE	WHEN	SEATS
CRBASIC 3 DAY	Townsville	6-8th JUL	16
ADVANCED 2 DAY	Townsville	9-10th JUL	6
CRBASIC 3 DAY	Sydney	26-28th OCT	18
ADVANCED 2 DAY	Sydney	29-30th OCT	7

In this Issue...

- **CSA News** p2
New Products - 03002,
CS450/455, RF500
- **Tech Tip** p3
TroubleShooting Guide
- **CSA Case Study** p4
Road Weather Monitoring

Who said CS Data Loggers Won't Operate Under Water?

One of our long-term customers sent us these pics, to show just how reliable CS loggers really are!

This particular site in NSW was recently subject to flooding, the shelter shown in the image was totally submerged under flood waters and significant damage was caused to the structure.

Located inside the shelter was a CR211 & enclosure, **which continued to operate!** No data was lost and site level datums were sustained - the logger continued to operate as per the installed program, in fact the only thing needed was to dry out the enclosure.

Just goes to show - you can't beat a Campbell data logger for reliability, even in the most harshest conditions!

CSA Systems Upgrade

Currently we are in the process of implementing an entire new software system that will take the place of older, less integrated packages. As this is a major overhaul that involves every facet of the company, there may be slight delays in response times and deliveries.

While we have taken every step to ensure that disruption to customers is minimised, we do ask you to bear with us at this time. Please carefully check order verifications, including shipping, billing and other important contact details.

You may receive a request to update your contact details with us in the near future. We ask that you do update and return this information to ensure that we have the correct details on file.



03002-L - RM Young Wind Sentry Set

RM Young have released the new 03002-L Wind Sentry Set, replacing the very popular 03001-L sentry set. While the sensor uses the same vane and anemometer as it's predecessor, the new model includes a junction box – allowing connection via a single cable, rather than the multiple cables and connectors utilised by the 03001.

The compact, rugged design provides quality instrumentation at a modest price, and interfaces directly with Campbell data loggers, no signal conditioning required.



CS450/CS455 - Submersible Pressure Transducer

After providing third party pressure transducers for many years Campbell Scientific have now developed their own range of rugged, reliable transducers - the CS450 & CS455.

Both sensors operate in the same way – however the CS450 has a stainless steel casing suited to freshwater applications while the CS455 has a titanium casing, specifically designed for corrosive environments such as saltwater.

Measuring pressure with a static accuracy within $\pm 0.1\%$ FS over a 0°C-to-60°C temperature range, the sensors outputs either a digital SDI-12 or RS-232 signal to specify observed pressure/level. The pressure sensor interfaces with all Campbell CRBasic data logger models, .



RF500 - RF Modem and Base Station for PAKBUS Networks

The RF500M and RF500B radio modem and base station are for PakBus® networks with UHF/VHF radios. They work with our MAX RF, or any radio and modem combination that outputs a demodulated byte stream via RS-232. The RF500M avoids all collisions within a network, thus increasing polling speeds and reducing overall current drain.

The RF500M can serve as a field modem connected to a PakBus data logger or as a standalone repeater. At the field station, the RF500M functions as the communication interface between the data logger and radio. When the modem is configured as a repeater station, a PS100 Power Supply fitted with an A100 adapter can power the RF500M.

The RF500B resides at the computer site and serves as a link between field stations and repeater stations. It includes an RF500M Radio Modem connected to a PS100 Power Supply.



New CRBasic Tutorials Added to Website

Campbell Scientific have recently release two new tutorials for our CRBasic data loggers -

Common CRBasic Programming Errors 1.0

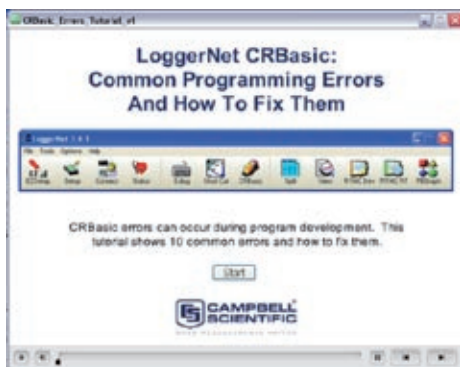
This tutorial shows ten common programming errors and how to fix them.

Updating a Data logger Operating System 1.0

As it's name suggests, this tutorial shows users how to obtain the latest logger operating system and upload it to the data logger.

There are many more helpful tutorials in the downloads section of the website.

Go to - <http://www.campbellsci.com.au/25/1/773>



Data Logger Troubleshooting Guide

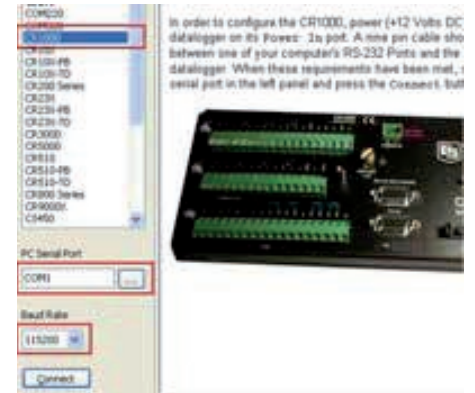
If you are having trouble connecting to a Campbell Scientific Data Logger over a direct connection (a single serial cable between a PC and the data logger) here are some procedures to help troubleshoot the problem...

Use Device Configuration Utility

If communication to a site is failing using PC200W, PC400 or Loggernet, use Device Configuration Utility as your troubleshooting tool. DevConfig has a much simpler interface than the other packages and requires fewer settings to be correct in order to connect to a data logger.

Open DevConfig from the Loggernet / PC400 / PC200W folder in the Start Menu. Choose the data logger type from the device list and select the correct COM port for your computer (this is the name of the physical comport at the back of the computer or the name of the USB to serial converter being used).

The only setting which may not be known is the baud rate. Try 115200 for the CR800, CR1000 and CR3000. Try 9600 for the CR200, CR510 and CR10X. Press Connect.



If the connection fails quickly (less than 2 seconds) then the problem lies on the PC

end. Another application on the computer is using the COM port and is not allowing DevConfig to use it. Make sure Loggernet is closed, if the problem persists, have a look for any SCADA software, sensor configuration software etc. which may be using the COM port.

If the connection takes some time to fail, try another baud rate, most of our data loggers have a configurable baud rate for communication and this may have been changed from the default. If the problem persists at all baud rates, read through the sections below to continue troubleshooting.

If you are able to make a connection using DevConfig, make a note of the baud rate at which you have connected, as well as the pakbus address of the data logger. Close DevConfig and ensure Loggernet / PC400 / PC200W uses these same settings. If the problem persists, there may be a more technical problem with your Loggernet / PC400 / PC200W setup, call one of our Application Engineers and describe the tests you have already performed.

Check Power Supply

Use a multi-meter to make sure that the power supply for the data logger is supplying at least 12V. Some of the data loggers can operate at voltages below this, however communications over a serial link requires more current than normal data logger operation which the battery may not be able to supply at voltages below 12V.

Check Cable

The most common cause for lack of communication on a direct link is an incorrect or faulty cable. First make sure the correct cable is being used (see right).

It is generally a good idea to carry around a spare SC12 RS232 cable when visiting sites as cables have been known to fail. If you have a spare cable, try the DevConfig procedure above using the spare cable.



*Straight Through RS232 Cable
CR200, CR800, CR1000, CR3000
Connect to the RS232 Port*



*Campbell Scientific SC9 Cable
CR500, CR510, CR10X
Connect to the CS I/O port.*

Check Program Specifics

The RS232 port on the new generation of data loggers can be used under program control to communicate with a variety of serial devices such as modems, serial sensors and SCADA systems. Depending on the specifics of the program, this may interfere with Loggernet communications, if all other tests have failed, double check this with the program author (which may be Campbell Scientific).

Contact Campbell Scientific

If none of the above steps have helped with the problem, please don't hesitate to give one of our Application Engineers a call about the problem. Let us know what steps you have already performed as this is the procedure we use ourselves to troubleshoot over the phone.

Road Weather Monitoring

Monitoring conditions in the Channel Tunnel, U.K

The Channel Tunnel, owned and managed by Eurotunnel PLC, is a rail link connecting the UK to mainland Europe. The three 50 Km tunnels have a 38Km undersea section which is the longest in the world. The tunnel is listed as one of the 'Seven Wonders of the Modern World' by ASCE (American Society of Civil Engineers). Weather monitoring has an important role to play in the safe operation of the facility.

At each end of the tunnel are sites with miles of roads, various bridges and some fairly steep ramps running down to the platforms where vehicles are loaded on and off the trains. During adverse weather some of these areas need to be gritted and weather warnings need to be displayed. A network of three road weather outstations at each site displays met data in each control centre to allow management decisions to be based on current weather conditions.



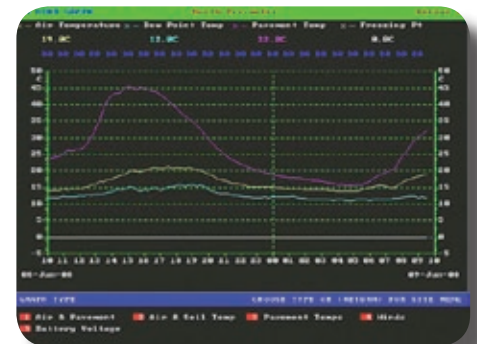
Six road weather stations have been installed to monitor the road during adverse conditions



In adverse weather conditions some areas need to have weather warnings displayed, alerting users to possible danger.

This original road weather information system (RWIS), in place for around 15 years, was in need of replacement due to computer obsolescence and the increasing maintenance requirements of keeping an old system functioning effectively.

Rather than simply replacing the system on a like-for-like basis Eurotunnel considered what improvements could be made before putting the contract out to tender. One specific area highlighted for improvement was the display, as the current system's output was not well liked by operators and weather information was sometimes under-utilised.



Campbell Scientific's RTMC software was used to present the collected data in easy to read, user friendly displays

The contract was awarded to Campbell Scientific whose proposal included an initial thermal mapping of both sites (provided by weather service provider WSI) to identify which specific site locations should be monitored.

Hardware installed included six fully specified road weather outstations, a PWS100 present weather and visibility sensor at each site and additional sensors such as the IRS21 embedded road surface sensor, IR120 infra-red contactless road temperature sensors and additional wind and temperature sensors. The present weather sensor enables operators to identify what type of precipitation is falling (snow, rain, drizzle etc.) and also provides a visibility reading for fog warning.

The contract included installation, training and ongoing maintenance of the system. All the sensors are measured by Campbell Scientific's CR1000 or CR800 data loggers, which in turn pass data to a dedicated server at each site via a variety of communications methods including RF radio. The two servers talk to each other through a private IP connection so that data from each site can be displayed in both control centres.

Application at a Glance

Application

Road Condition Monitoring

Project Area

United Kingdom

Data Logger

CR1000

Sensors

Third party Temperature, Conductivity & Pressure Sensors

Communication

RF411 SS Radio Modem

Custom display screens were created to present data on multiple user's screens in a clear and user friendly format in accordance with Eurotunnel's specification. This customisation was achieved using Campbell Scientific's Loggernet Admin, RTMC Pro and RTMC RT software.