CAMPBELL SCIENTIFIC
Australia, Pty Ltd

CONNECTIONS

Issue 26
Sept - Nov 09

- Latest Version of Loggernet - Just Released
- Converting Old Programs for New Dataloggers
- Lake Weather & Water in Yunnan Province
- CSA Prices Have Come Down - September 1
- Final CR1000 Training for 2009 - October in Sydney

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news

Last Chance CR1000 Training for 2009

Sydney Oct 26 - 30

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. For all pricing and info please contact tracy@campbellsci.com.au

COURSE	WHERE	WHEN	SEATS
CRBASIC 3 DAY	Vibe Hotel Goulburn St. Sydney	26-28th OCT	12
ADVANCED 2 DAY	Vibe Hotel Goulburn St. Sydney	29-30th OCT	5

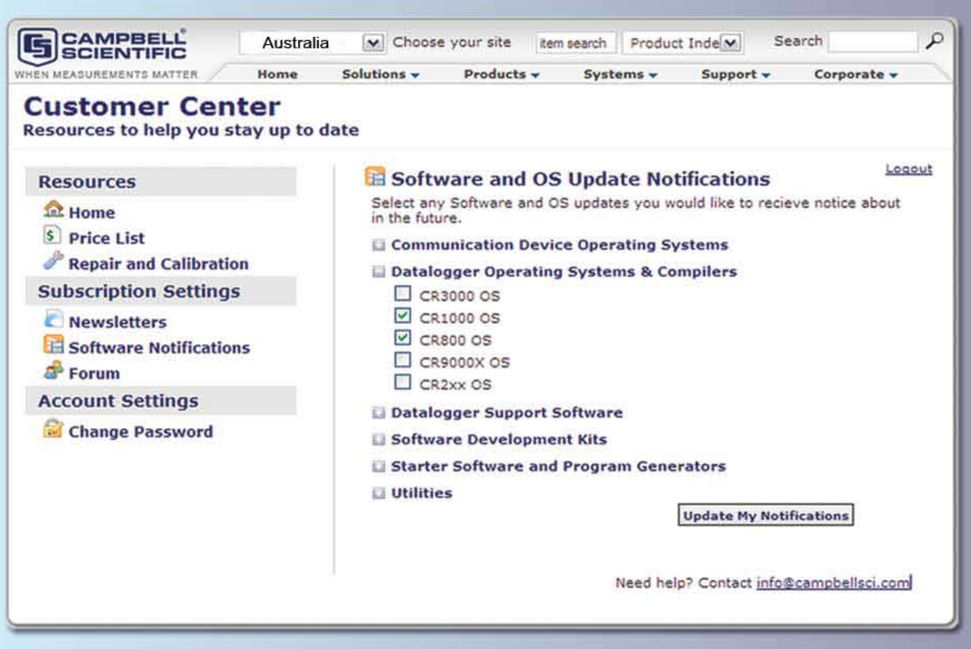
At the conclusion of each course we ask our participants to complete a short survey. We have been gathering this information for several years now in an effort to continually improve every aspect of our training courses. This year our trainees rated our trainers knowledge at a not insignificant 98% approval rating, the course content at 92%. and the overall value at 83%. We appreciate your feedback at all times and endeavour to implement changes where necessary. Generally speaking we are very pleased with the feedback this year and a big slap on the back for our trainers, particularly Gavin Shaw for keeping the bar so high!

New User Forum

We've launched a new **User Forum** to help you collaborate with other users of Campbell Scientific equipment.

You can use the forum to:

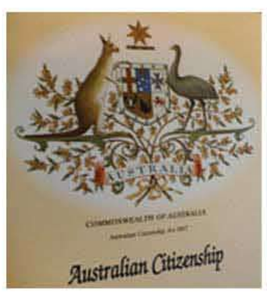
* Ask questions
* Discuss your application
* Share programming tips
* Get ideas for solving your measurement needs

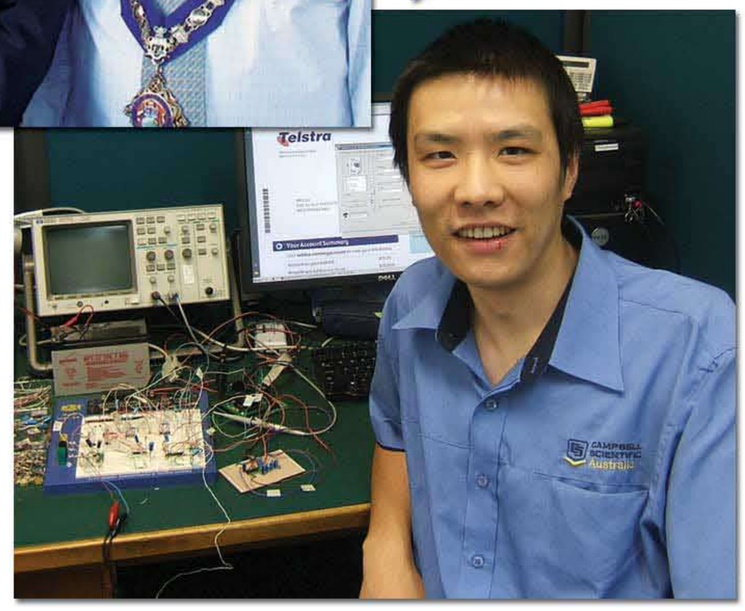


Click here to visit....

CSA CONGRATULATES LIU LIU

Liu with Townsville Mayor Les Tyrell





The team at CSA congratulate Liu on his accomplishment and wish him the best in pursuing the rest of the Aussie dream.

Liu Liu was born in Kunming, the capital city of Yunnan province in the southwest of China. Originally Liu came to Australia for postgraduate studies at the University of Adelaide. After receiving his Bachelor degree of Electronic and Information Engineering from Ningxia University, Yinchuan, China in 2004., he travelled to Australia to finish his Masters degree of Engineering (Advanced) in Telecommunications, at the University of Adelaide in 2007.

Liu now works for CSA as a research engineer with the main responsibility for our new HydroSense II, an exciting R&D project due for commercial release near the end of this year.

Recently Liu acquired Australian citizenship. "So, I am an Aussie now and in the future, I will continue to live and work in Australia, and more importantly, find a girl and establish my family in Australia. I love the beautiful Australia very much," Liu says.

*" We only have one **COM310A** voice synthesised modem left as they have now been superseded by the new **COM320**. The **COM310A** was retired October, 2008 but replacement parts will remain available. If anyone wants to purchase this last unit for compatibility purposes, get in quick!*

*The **COM320** modem provides a **CR800, CR850, CR1000, or CR3000** datalogger with speech capability enabling the user to call a site for a spoken summary of real-time or historical data. This modem is not compatible with mixed-array dataloggers. The **COM320** can also act as a standard modem and offers improved flexibility and ease of use*

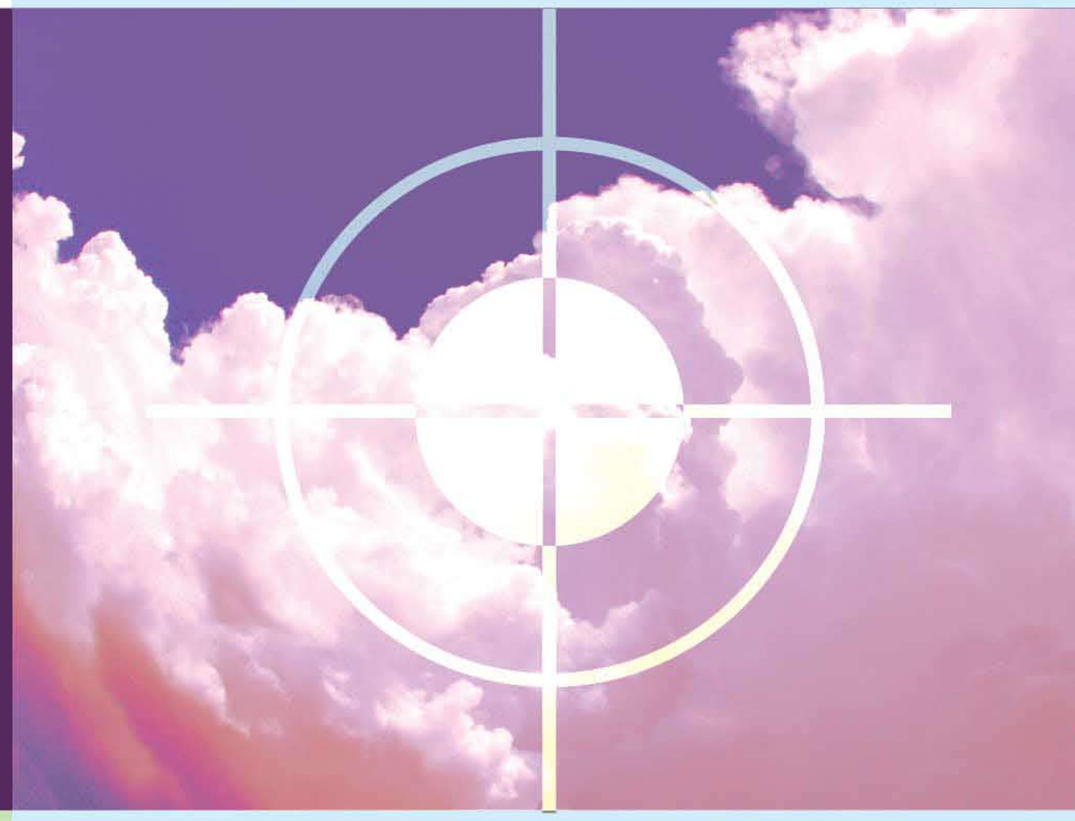
Do you have any corrosion problems on older weather towers?

We want to hear from you because we can now supply sacrificial anodes to assist with this problem.

Call Dave Boadle on 07 4772 0444 or email him at davidb@campbellsci.com.au for more information

CSA Price Decrease

We are thrilled to announce a price decrease for the majority of our products. After a rocky start to the year, the AU/US dollar exchange rate has stabilised to the extent that we now feel confident about decreasing our prices. The last time prices were this low was mid 2008 before the global financial crisis. We don't anticipate reviewing prices again until January of 2010 so if you intend to purchase Campbell Scientific products, now's the time to get in quick while the prices are low. Call and speak to one of our application engineers for our **new price list!**



New Faces

Since our last newsletter there's been a few people move on, and a few others move in. Jason Gunthers has ventured out into his own hose/hydraulics franchise and has been replaced by Jeeva Prakasan. Bree Dixon decided to venture deeper into the corporate world and has been replaced by Tracy Russell in the Marketing department, Sarah Fraser has been replaced by Michelle Zilm in reception and order entry, Hannah, our deliveries clerk is studying full-time and has been replaced with Shaun Pope and Dave Boadle replaces Michelle Douglas on our intrepid application engineers team.

Dave Boadle *Michelle Zilm* *Jeeva Prakasan* *Shaun Pope*

Big Discounts on Compact Flash Cards

The manufacturer discounted these items so we've decided to pass the discount straight on to you. At these prices they won't last long.

Call Corinne or Gav on 07 4772 0444

	Old Price		New Price
CFM64M	$120	→	$86
CFM256M	$180	→	$135
CFM1G	$280	→	$150
CFM2G	$450	→	$305

OZFLUX 09

by Dave Boadle

Campbell Scientific Australia were recently invited to the OzFlux conference in Darwin from 24th to 26th June 2009. The conference was hosted by Charles Darwin University and chaired at different times by Ray Leuning, Mike Liddell, Lindsay Hutley, Jason Beringer, Steve Zeglin and Peter Isaac. The conference was attended really not knowing what to expect and hoping to at least enjoy the sparkling Darwin weather. The conference was most interesting and informative and gave a real insight into the ongoing issues involved in running one of these systems.

Figure 1: Flux system at Howard Springs

Ray Leuning started off with an open discussion on the directions of the TERN network which proved lively and after morning tea the presentations started. The presentations on some of the research work being done were both fascinating and informative. From Eva's talk on gravity waves and atmospheric drainage around flux sites to Jorg's airborne adventures, the talks were entertaining to say the least and gave me a far greater understanding of the issues involved in siting and running these complex systems. With the proceedings over for the day there was an informal chat and drinks in the courtyard before a stunning conference dinner at the Hanuman Thai Restaurant in town.

The next morning was every bit as interesting especially from a Campbell Scientific perspective. With talks about proposed Eddy Covariance sites around the country in Tasmania, around Alice Springs and near Renmark in South Australia there was a consensus to use Campbell Scientific products in these and all new flux systems. The CR3000, a proven workhorse, has the processing speed and the inputs to serve this purpose well.

A further talk by Ray Leuning about the 'Tale of 2 flux towers' again reinforced some of the issues faced by the people at the 'coal face' of this industry.

Figure 2: Fogg Dam Wetland

Friday saw the conference moved into the field so participants gathered at the University carpark in anticipation of a tour to some of the sites of interest. First stop was the Holmes Jungle vine forest. This was an oasis amongst the savannah and one of 18,000 patches of rainforest scattered throughout Northern Territory. These areas are of particular concern with many being encroached by residential areas. Due to fire and population pressure their sustainability is in question. The Howard Springs flux site was then visited in the savanna woodland where a halyard for the tower was changed. The final site was to the beautiful Fogg Dam wetland where we saw many different waterbirds as well as one of the top predators that Darwin is so famous for, the estuarine crocodile.

After lunch the participants visited the ARM (Atmospheric Radiation Measurement) site at Darwin Airport. Good to see they use some Campbell Scientific gear as well. Thanks to Lindsay Hutley from Charles Darwin University for talking us through the tour.

All in all the conference was a success. It was extremely useful to see how our loggers and gear are being used and some of the peculiar field problems being faced such as feral cattle eating everything on site, corrosion on the towers and stays, bushfires and lightning.
Many thanks to all the organisers of OzFlux such as Lindsay Hutley, Sam Grover, Jason Beringer, Peter Isaac, Ray Leuning and Mike Liddell for the invitation and the famous Darwin hospitality.

If you already have a flux system and want to be included in the OzFlux community please contact Mike Liddell on 07 4042 1275 or subscribe to the OzFlux email distribution list run by Jason Beringer on **https://muskox.arts.monash.edu.au/mailman/listinfo/ozflux**

Figure 3: Holmes Jungle vine forest site

An **Eddy Covariance Station** measures CO2, water vapor, or heat fluxes using the eddy covariance technique. A standard equipment set includes a CSAT3 Sonic Anemometer, a CR3000 data logger, LI-7500 Open Path Infrared Gas Analyser, FW05 fine-wire thermocouple.

Customers can add sensors to customise a system for their requirements. If the system will be solar powered, a 64 watt solar panel is the mimimum required.

Features

* Measures water vapor, carbon dioxide, and heat flux using Eddy Covariance techniques
* Key system components (each purchased separately):
    - o CR3000
    - o CSAT3 Sonic Anemometer
    - o CS7500 Open Path Infrared Gas Analyser
    - o FW05 Fine Wire Thermocouples
    - o TGA100A Trace Gas Analyser
* Variables measured:
    - o Wind and temperature via CSAT3
    - o CO2 and H2O molar density via CS7500
    - o Temperature via fine wire thermocouple

If you would like further information on Eddy Covariance systems, call Dave at Campbell Scientific Australia on 07 4772 0444

new range of professional rain gauges

CSA has incorporated two new high-quality rain gauges into their current list of products. These are the RIM7499 (Rimco 7499 series) and RIM8000 (Rimco 8000 series) gauges.

RIM7499

The RIM7499, designed to Australian Bureau of Meteorology requirements, is a professional grade tipping bucket rain gauge with 8" (203mm) diameter collecting funnel and 0.2mm tip. It utilises a cast metal base, spun copper collecting funnel with machined gunmetal rim and gold plated tipping bucket to provide a proven accuracy of +/- 1% at rainfall intensities up to 250mm per hour and +/- 3% at rates up to 500mm per hour.

The RIM8000 series is a commercial grade rain gauge that uses the same tipping bucket and siphon assembly as the RIM7499 series but with a spun aluminium base and a spun copper collecting funnel and rim. The RIM8000 is accurate to within +/- 3% at intensities up to 380mm per hour and +/- 5% at rates up to 500mm per hour.

Both gauges come with dual reed switch, built-in bubble level, low friction, non-seizing bearings, and rugged, corrosion resistant construction.

Both gauges can be ground mounted or mounted on galvanised pipe using Campbell Scientific's CM240 rain gauge mount. Other bucket sizes are available on request.

For further details and pricing on these new products, contact info@campbellsci.com.au

RIM8000

Loggernet 4.0 is here!

After many months of eager anticipation, Loggernet 4.0 has been released.
Loggernet 4.0 has a new look and feel, but continues to provide support for all current and previous Campbell Scientific logger models. In addition to this, Loggernet 4.0 offers a range of new features, some of which include a Pakbus Network Planner, a built-in Numeric Monitor on the Connect screen, XML data output format options, enhanced data viewing capabilities and more advanced IP networking capabilities to allow more easily configured logger-initiated callbacks across wireless or wired IP networks.
Upgrade versions for users with an existing version of Loggernet are available and purchasing or upgrading to v4.0 entitles you to free ongoing upgrades and patches for all v4 releases.
Visit the website to download a free 30 day trial of Loggernet 4.0.
www.campbellsci.com/downloads

It is fully functional for 30 days and can be registered for unlimited use by contacting CSA and purchasing a Loggernet 4.0 license key.

LR4

The LR4 is a latching, 4 channel relay module that can be controlled from a data logger using SDI-12 or MODBUS over RS-232. The LR4 provides a low power interface to control the state of up to 4 relays using a single control port. The relay states of the LR4 are non-volatile and as such offer a useful way to supply power to a communications device or critical piece of hardware. As the relays are mechanically latched when switched, they don't require any power to remain in the desired state. This offers a much lower power solution than traditional relays and is ideal for installations in sites where the power budget is tight.

For more information about the LR4, visit the CSA website or contact one of our technical team.

new products

Converting Old Programs for the New Dataloggers

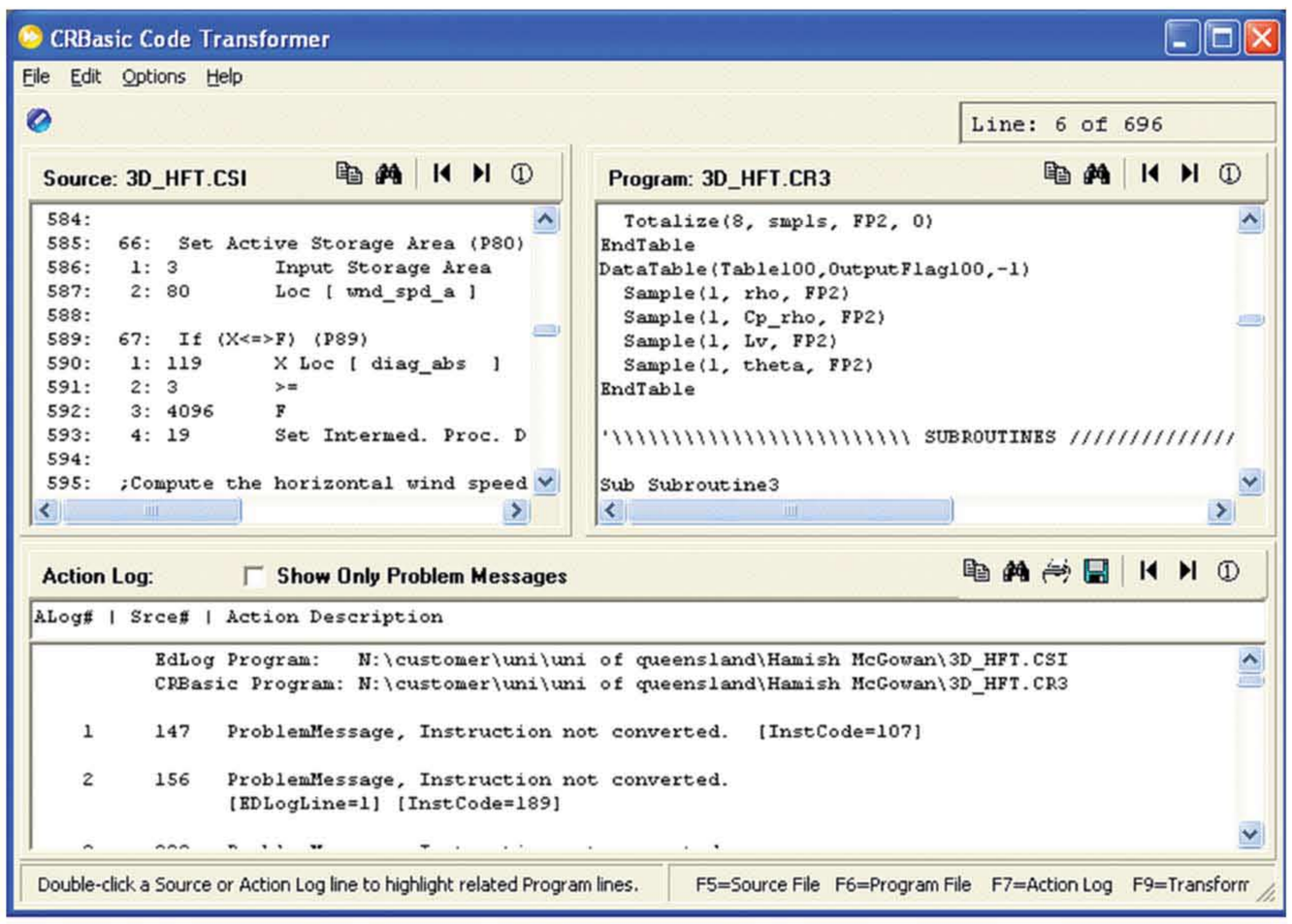
tech tips

The old generation of dataloggers used EdLog or a Keypad to enter numeric instructions to program the datalogger, the new generation of dataloggers use CRBasic to enter text instructions to achieve the same purpose. In most cases, numeric instructions in EdLog have a corresponding text instruction in CRBasic. For example, the P4 (Excite-Delay) instruction in EdLog performs the same measurement as the BrHalf instruction in CRBasic.

```
2:  Excite-Delay (SE) (P4)
 1: 1          Reps
 2: 5          2500 mV Slow Range
 3: 01         SE Channel
 4: 1          Excite all reps w/Exchan 1
 5: 0000       Delay (0.01 sec units)
 6: 2500       mV Excitation
 7: 1          Loc [ WindDir    ]
 8: 0.142      Multiplier
 9: 0.0        Offset
```

```
BrHalf (WindDir,1,mV2500,1,Vx1,1,2500,True,0,250,355,0)
```

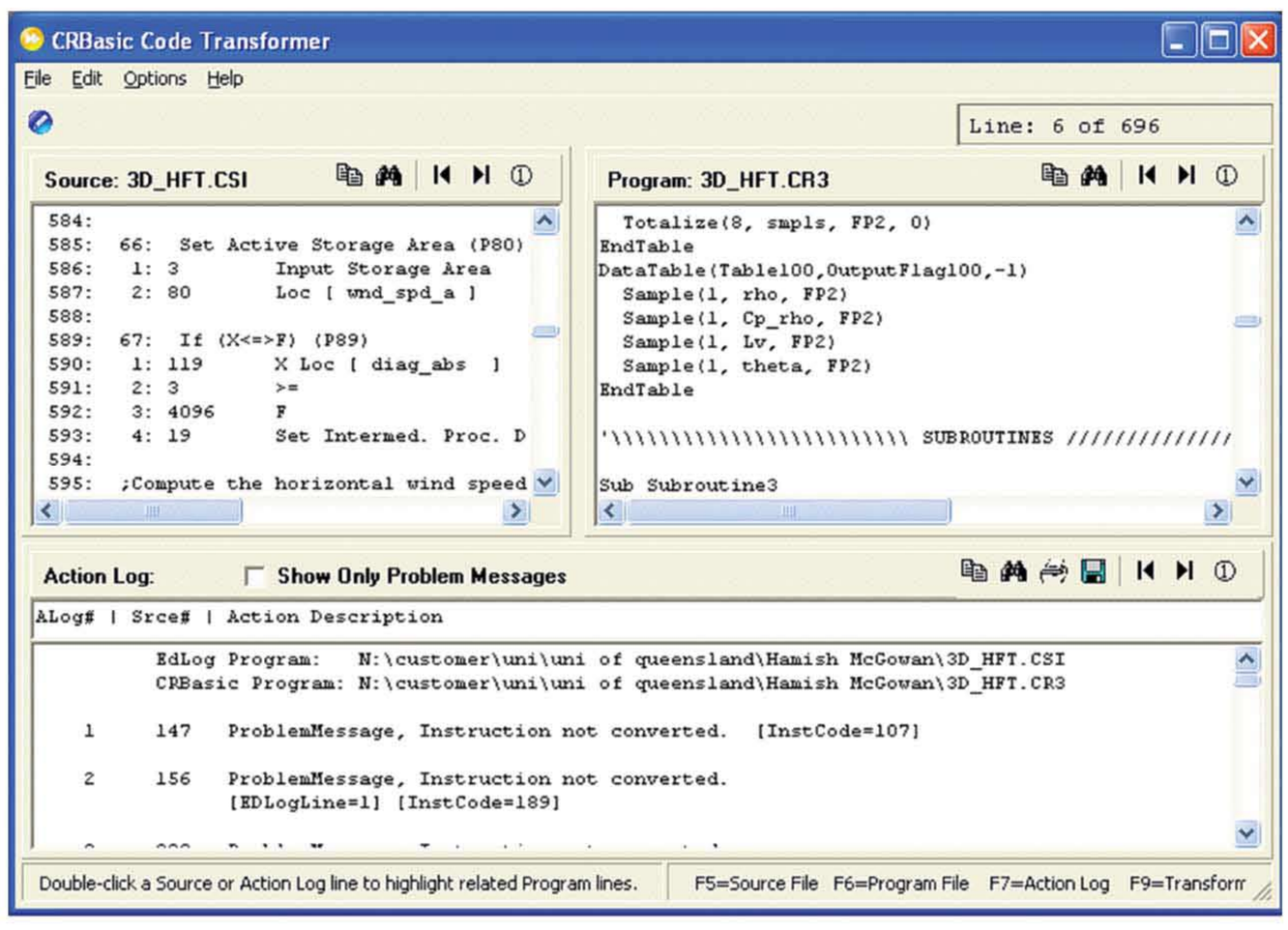
The CRBasic help offers a table listing correlations between EdLog instructions and CRBasic instructions. Open the CRBasic help by choosing Help > CRBasic Editor Help from CRBasic. Then choose the Search tab and search for EdLog. The search results will contain the page titled CR10X/CR1000 Instruction Comparison:



This help page will help decide which instructions to use to recreate an EdLog program in CRBasic, but for users not familiar with Scans and
Datatables, an application called Transformer can be used.
Transformer is installed with Loggernet but does not appear in the Loggernet toolbar.
To open transformer browse to the following folder:

c:\Program Files\CampbellSci\Loggernet\
Then run Transformer.exe.

The software will prompt for .CSI file to convert, browse to file and click Open, then click OK on the next screen.



Transformer will automatically convert EdLog instructions and final storage into CRBasic instructions and Datatables and display them side by side. It will also save a .CR* file (.CR1 for the CR1000 etc.) in the same directory as the .CSI file.

Not all EdLog instructions have a CRBasic counterpart, so when Transformer encounters these instructions, it will flag an error in the Action Log at the bottom of the screen. For simple programs there should not be any errors here, but for more complex programs these errors will have to be resolved manually in CRBasic or the .CSI file can be sent to Campbell Scientific to be converted.

Lake Weather and Water in China

In 2006 a cooperative Japanese-Chinese science organization, the Japan International Cooperation Agency (JICA), began a project to measure the atmospheric boundary-level flux near Erhai Lake in Yunnan province in China.

To correct for the influence of the large lake on the flux measurements, a combination hydrological-meteorological station was installed out on the lake in January 2008. The station was required to be solar powered, communicate via GPRS modems, and not detract from the natural setting.

Beijing Techno Solutions was chosen to design, integrate, and install the system. Their engineers designed the site structure to be an attractive part of the scenery, and the beautiful, carved panels hide most of the technical gear.

The system started with a Campbell Scientific CR1000 datalogger at its core, installed in a weatherproof enclosure mounted on a mast. Beijing Techno Solutions then chose a WXT510 from Vaisala to measure wind speed and direction, atmospheric pressure, and precipitation with a single instrument. To measure dissolved oxygen, pH, algae, and conductivity in the water,Beijing Techno Solutions chose an MS5 sonde from Hydrolab with several sensors bundled together in one product.

The engineers also designed a special floating mount to suspend three PT100 water temperature probes positioned 30 cm, 100 cm, and 200 cm below the lake surface. (See photo below.) The data from all of these sensors is collected by the CR1000 and transmitted to researchers on land.

With no access to land lines for power or communication, the system was set up with a solar panel for power and a GPRS modem for wireless communication. The data has been flowing for over a year, and Beijing Techno Solutions is providing support and training for ongoing operations.

case study