New peripherals enhance CR200s

Expand your system with enclosures, power supplies, sensors, and antennas

Our CR200, CR205, CR210, and CR215 dataloggers are small measurement and control devices (see previous newsletters). We have several new peripherals to use with our CR200-series dataloggers:

Enclosures

The CR200-series logger requires a protective enclosure when it is exposed to dust, water, sunlight, or environmental pollutants. The ENC200 (6.7" x 5.5" x 3.7", 17 x 14 x 9.5 cm internally) can house a CR200-series logger and the small #16869 Sealed Rechargeable Battery. The logger and battery are mounted on an internal backplate. The outside of the enclosure has one power connector and one antenna connector that allow you to connect a solar panel/charger and an antenna without opening the enclosure door. Five individual compression fittings are provided for sensor cable entry. A larger enclosure, such as our ENC 10/12 or ENC 12/14, is required to mount a barometric pressure sensor or a larger battery with the logger.

Power Supplies

The #16869 battery is a 12 Vdc,

0.8 Ahr sealed rechargeable battery that should be float-charged with a solar panel or ac power. The battery connects to the logger's terminal strip via the battery's power and ground wire and a connector that is shipped with the battery.

Two solar panels, the SP1.6 (#15677) and SP5 (#16851), are offered for use with our CR200-series dataloggers. The SP1.6 Solar Panel produces 1.6 watts of power at a 20 V peak, and the SP5 Solar Panel produces 5 watts of power at a 17.1 V peak. Solar panels are typically used to float-charge the sealed rechargeable battery. Both solar panel models include a cable that plugs into the ENC200's power connector.

The #15988 and #16876 Wall Chargers differ only in their cables. The #15988 charger has a 7 ft cable that connects directly to the logger's terminal strip, and the #16876 charger has a 20 ft cable that plugs into the ENC200's power connector. Both chargers provide power to the CR200-series loggers while float-charging the battery. The

chargers convert 90 to 264 Vac (47 to 63 Hz) to 18 Vdc @ 1 A.

Sensors

The CR200-series loggers can measure our standard barometric pressure, precipitation, relative humidity, and

An ENC200 houses a CR205 logger and a 16869 battery.

PConnectCE adds support for processors, communication, graphing

We have released a new version of PConnectCE, our Pocket PC datalogger support software. PConnectCE Version 1.1 adds support for the new Intel® Xscale processors (PXA250), datalogger communication using our RF400-series

radios, and graphing of collected data on the Pocket PC device. A patch is available on our web site or on CD to upgrade existing PConnectCE 1.0 customers to this latest release.

PConnectCE requires a device running

Windows® CE Pocket PC. The Handheld PC operating system is not supported. Additionally, the Pocket PC device must be capable of serial communication, and requires a PDA cable that terminates in a 9-pin serial port.

Message from the President

Maintaining a strong commitment to service

By Paul Campbell

Campbell Scientific maintains a strong commitment of service to our customers. This is first and foremost manifest in the availability of competent and courteous advice on products and systems from our staff of over 30 application engineers. Our application engineers bridge the gap between customer needs and Campbell Scientific products. With our breadth of products and applications, there is some specialization among our AEs. It is my hope and expectation that you will receive reliable information or advice within a reasonable time when you contact Campbell Scientific.

In addition to direct communication with our AEs, there is technical information on our web site at www.campbellsci.com under "Support". A web site page of white papers explains our approach to making electrical measurements. Technical papers and magazine articles are available, such as an article that explains the advantages of digital filtering and Fast Fourier Transform functions available in the CR9052DC module of the CR9000 Data Acquisition System. Application notes explain specific details about using our products with certain sensors or under certain conditions. For example, an application note on power supplies covers a broad range of applications with respect to different battery types, solar panels, and capacities under different operating conditions. There is an opportunity under our web site support to review FAQs (frequently asked questions) and to ask your own question. Web-based support provides an opportunity to study background material in depth and at your convenience if more

direct communication by phone is not required.

Technical training is available either at the factory in Logan, Utah, or at your location as specifically arranged. Training classes provide an opportunity for you to work on your specific application while going through a structured presentation of how dataloggers work and the operation of related software.

Some custom services provided by our AEs may include site assessment, installation, and application specific programming of dataloggers. Such services, along with training, may be part of commissioning a new site for a customer.

Trade shows and conferences often provide an opportunity for face to face meeting with our application engineers. There is a "calendar" key or link at the bottom of our web site's home page that connects to a schedule of upcoming training classes and exhibits.

Customer service includes efficient

CSAT3 sonic anemometer sees improved performance in rain

Campbell Scientific's CSAT3 sonic anemometer has established itself as a leader in high-fidelity turbulence measurements. However, the CSAT3's performance was compromised in wet/rainy conditions. An upgrade to improve performance in the rain is now available. It is comprised of three changes: a surface coating on the transducers, updated embedded code, and a revised factory calibration procedure. The rain upgrade maintains the CSAT3's current wind accuracy, wind resolution, and speed-of-sound accuracy. Although the rain upgrade

reduces the CSAT3's speed-of-sound resolution from the previous version, the resolution is still a factor of 10 better than the CSAT3's closest competitor. The new speed-of-sound resolution for 10 Hz, over-sampled measurements is now 0.007 m^{-2}, or about $0.012°C$ on sonic temperature. It typically adds a random uncertainty to 10 Hz, 15-minute sonic sensible heat fluxes of less than 0.5 W m^{-2}. The CSAT3 rain upgrade can be retrofitted to existing anemometers. Contact an applications engineer to upgrade your CSAT3.

Share data with RTMC Web Server

You can use our RTMC Web Server to share real-time data with others using browsers such as Internet Explorer. The RTMC Web Server is a standalone LoggerNet client that converts RTMC displays into HTML. The RTMC Web Server is much simpler to set up than other web servers. It offers an HTML version of an RTMC screen, the latest

record for any station, or the statistics for the entire network.

For security, the RTMC Web Server is limited to read-only access. You may be able to use it on the Internet from behind a firewall—with the cooperation of your IS department.

Look for a brochure or download a pre-release trial version from our website.

Three surge suppressor kits now available

Three surge suppressor kits are available to help protect our communication devices from electrical transients conducted through the antenna cable. The kits have the same surge suppressor, but use different cables to connect the surge suppressor to the communication devices. A Type N male connector attaches the surge suppressor to the antenna cable.

14462 Surge Suppressor Kit—the cable has an RPSMA connector that attaches to our 900 MHz transceivers. The kit is not compatible with our 2.4 GHz transceivers.

16980 Surge Suppressor Kit—the cable has a BNC connector that attaches to our VHF/UHF narrow-band transceivers (RF310, RF312, or RF313).

16981 Surge Suppressor Kit—the cable has a Type N male connector that attaches to our SAT HDR GOES Satellite Transceiver.

The 05106 Marine Grade Wind Monitor is built to withstand maritime environments.

RM Young Marine Grade Wind Monitor added to product line

Wet corrosive environments typical of buoys, boats, lakes, and seashores can be hard on sensors. To accommodate customers that need to monitor wind in such environments, we have added the RM Young 05106 Marine Grade Wind Monitor to our product line. With a sealed cable entry and special waterproof bearing lubricant, this is the sensor of choice for maritime wind measurements. The programming and installation are nearly identical to the 05103 Wind Monitor.

New radiation shields protect sensors better

New radiation shields with redesigned plates for better sensor protection are now available. The 41303 is a 6-plate shield that replaces the 41301. The 41303 houses our 107, 108, or 109 Temperature Sensors. It also is used with the CS500 Temperature and RH Sensor. The 41003 10-plate Radiation Shield replaces the 41002 to house the HMP45C Temperature and RH Sensor. Although the 41003 has 10 plates instead of 12, they are essentially the same size.

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The RM Young 41003 10-plate Radiation Shield, shown with the HMP45C (left), and the 6-plate 41303 shield have been redesigned to better protect sensors.

ThermaTrak 600: Go to the extreme

Initially developed for Roto Mold research, the ThermaTrak 600 withstands long duty cycles in extreme temperature environments while tracking temperature and transmitting data. This self-contained, wireless system consists of an insulated stainless steel enclosure, CR10X datalogger, rechargeable power supply, and two RF400 Spread Spectrum Radios. The ThermaTrak 600 is pre-programmed to measure one internal and five external type K thermocouples. LoggerNet Datalogger Support Software is included to support real-time data retrieval and allow customized programming for individual applications.
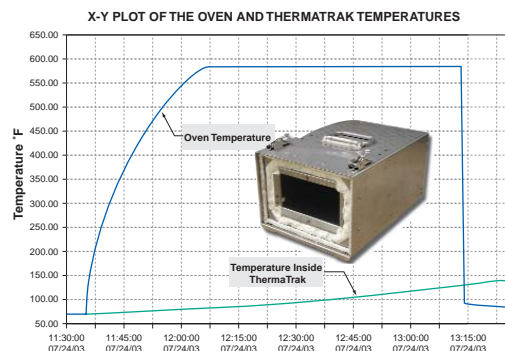
A sliding tray eases the loading of equipment into the ThermaTrak 600, where data is then safely collected even in extreme temperatures.

Service

Continued from Page 2

processing of transactions and error-free, timely delivery of materials. It also includes the availability of timely repair or recalibration service by our technicians. Our administrative personnel who enter orders, process orders, and prepare shipping documents are an important part of the service you receive.

While working to improve the efficiency required in a competitive business environment, we strive to keep in mind the value to you of high quality, personal customer service.

Our friendly order entry staff inputs orders while our applications engineers provide technical and sales support.

CR200s

Continued from Page 1

wind speed and direction (except CSAT3) sensors. However, the CR200-series loggers cannot make differential voltage measurements or measure sensors with negative output voltages. The CR200-series loggers have a single 0 to +2.5 voltage range with limited resolution for sensors with small voltage outputs. Therefore, some of our standard sensors such as our solar radiation sensors cannot be measured by these loggers.

The ENC200 Environmental Enclosure protects against dust, water, sunlight and pollutants.

Campbell Scientific designed the 109 Temperature Probe and CS625 Water Content Reflectometer specifically for the CR200-series loggers. The 109 incorporates a thermistor similar to our 107 and 108 temperature probes. The 109 has an output range our CR200-series dataloggers can measure. The CS625 is a modified version of our CS616 Water Content Reflectometer which outputs a 0 to 3.3 V square wave (the CS616 outputs a ±0.7 V square wave).

The CR200-series loggers can also measure SDI-12 sensors such as our CS408 Submersible Pressure Transducer, CS445 Submersible Pressure Transducer, and SR50 Ultrasonic Distance Sensor. The CS408 uses a piezoresistive sensor with an isolated stainless steel diaphragm housed in a welded stainless steel or titanium case. Available measurement ranges are 0-5, 15, 30, 50, and 100 psig. The CS445 uses an isolated silicon strain gauge sensor housed in a stainless steel package. Available measurement ranges are 0-5, 15, 30, 50, and 100 psig.

Antennas

Campbell Scientific offers the following antennas that are compatible with our 900 MHz dataloggers (CR205, CR210) and radios (RF400, RF410):
• 14204 omnidirectional 0 dBd antenna 1/2 wave whip—may be used indoors or inside an enclosure. This antenna has a right angle knuckle joint that can be oriented vertically or at right angles. The antenna attaches directly to the datalogger or radio; no antenna cable is needed.
• 15970 dipole 1 dBd RPSMA window/wall mount antenna—may be used indoors or inside an enclosure. This antenna has an adhesive backing that can be adhered to a wall, rear-view mirror, window, or other suitable flat, non-conductive surface. The antenna is supplied with a 10-foot cable that connects to the datalogger or radio.
• 14221 omnidirectional 3 dBd antenna—may be used outdoors.* The 14221 is ideal for applications in which the datalogger or radio will need to communicate with other dataloggers/radios located in different directions. This antenna requires the purchase of an antenna cable to connect it to the datalogger or radio.
• 14201 Yagi 9 dBd antenna with mounts—may be used outdoors.* The 14201 has a narrow beam width, so precise aiming is mandatory. However, this antenna supports longer transmission ranges. The 14201 requires the purchase of an antenna cable to connect it to the datalogger or radio.

The following antennas are compatible with our 2.4 GHz CR215 datalogger and RF415 Spread Spectrum Radio:
• 16005 omnidirectional 0 dBd antenna 1/2 wave whip, articulating—may be used indoors or inside an enclosure. This antenna has an articulating knuckle joint that can be oriented vertically or at right angles. The antenna attaches directly to the datalogger or radio; no antenna cable is needed.
• 16755 Yagi 13 dBd antenna with mounts—may be used outdoors.* The 16755 has a narrow beam width, so precise aiming is mandatory. However, this antenna supports longer transmission ranges. The 16755 requires the purchase of an antenna cable to connect it to the datalogger or radio.

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* *When using antennas outdoors, a surge protector is recommended; see Page 3.*

CAMPBELL SCIENTIFIC CALENDAR

Date	Event	Location
September		
7-10	Association of State Dam Safety Officials	Minneapolis, MN
October		
1	Utah Wind and Solar Energy Conference	Salt Lake City, UT
12-15	Water Environment Federation (WEFTEC)	Los Angeles, CA
21-24	Flood Warning Systems Technologies	Dallas, TX
29-31	Testing Expo 2003	Detroit, MI
November		
2-5	Geological Society of America (GSA)	Seattle, WA
2-6	Am. Society Agronomy (ASA, CSSA, SSSA)	Denver, CO
5-7	North America Lake Management Society	Mashantucket, CT
18-20	Irrigation Association Annual Meeting (IA)	San Diego, CA
December		
8-12	American Geophysical Union (AGU)	San Francisco, CA
January		
12-15	American Meteorological Society (AMS)	Seattle, WA
February		
12-14	Golf Course Superintendents Association	San Diego, CA
March		
8-11	Society of Automotive Engineers (SAE)	Detroit, MI

visit our web site for additional listings and training class schedules