CAMPBELL SCIENTIFIC, INC.®

Measurement & Control Systems

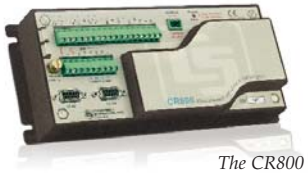
Sales & Support:
Intermountain Environmental, Inc.
(800)948-6236 or (435)755-0774
http://www.inmtn.com

SCADA

www.campbellsci.com/scada

Benefits of Our Systems

1. Control units perform advanced measurement and control—independent of the central computer.
2. Control continues, even if communications to the main computer are lost.
3. Control systems have their own UPS. During AC power loss they continue to measure and store time-stamped data.
4. Control units have many channel types to measure almost all commercially available sensors.
5. Control units provide onboard statistical and mathematical capabilities.
6. Systems are easily expandable—add new sites or sensors to existing sites.
7. Systems are compatible with our own or other vendors' HMI software packages (ModBus, OPC, DNP3).
8. Control units have wide operating temperature ranges and operate in rugged environments with minimual power consumption.
9. Easily send Data from one unit to another or route over a network of RTU's for very robust M2M communications.



The CR800

Campbell Scientific SCADA systems consist of a supervisory computer running HMI (Human-Machine Interface) software and control units performing data acquisition and control functions. The control units make measurements as well as report back to and execute commands from the supervisory computer. The feature that sets our systems apart from others is the versatility and reliability of our control units. These units provide many benefits that PLCs do not.

Control Units

Our control units, the CR800, CR850, CR1000, or CR3000 function as PLCs (Programmable Logic Controllers), RTUs (Remote Terminal Units), or DCUs (Distributed Control Units). These control units can be linked using ethernet (10 or 100 MB Tlink) or other communications options. Because they have their own operating systems, they can be programmed, without ladder logic, to perform advanced measurement and control functions. This eliminates the need for the supervisory computer to do the minute-by-minute control and data acquisition and means that control continues, even if communications to the supervisory computer are lost. The control units also provide onboard statistical and mathematical capabilities for data reduction at the remote site and can store up to 2 million time-stamped data points, depending on the model used.

Power Supply

Another major advantage of our systems is that they are easily equipped with an Uninterruptible Power Source (UPS)—typically rechargeable batteries and/or solar panels. During power loss, they continue to measure and store time-stamped data which can be later transmitted to the supervisory computer.

Measurement Capabilities

Each of our control units features a variety of channel types for flexibility in measuring many different types of sensors. For example, magnetic flowmeters can be measured using pulse counting channels instead of being measured as 4-20 mA. Likewise, ultrasonic level transmitters can be measured using SDI-12 protocol on digital ports instead of as 4-20 mA. Our control units also provide extensive signal conditioning and are easily expandable.

Communications

Our control units support multiple communications options, including: Ethernet, radio, telephone, cellphone, voice synthesized phone, and satellite. They also feature peer-to-peer event and polled communication, and can call out to a computer, telephone numbers and/or pagers. Remote lift stations, reservoirs, and pumping stations transmit data via dial up leased phone lines, cell phone, radio, or wide area network T1 links.

HMI Software

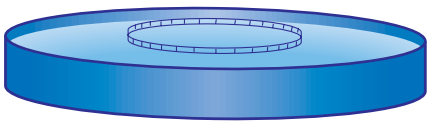
The supervisory computer consists of a PC running either Campbell Scientific's HMI software or another vendor's software. InTouch, Intellution, Lookout, and other software packages can be used in conjunction with our OPC client/server software application. Like other HMI software packages, our software provides a graphical interface that the operator uses to view the status of remote sites, acknowledge alarms, and control the units.

Measurement Capabilities by Model	CR206	CR850	CR1000	CR3000
Input channels[2] for 4-20 mA, differential and single-ended voltage, and vibrating wire sensors	4	6	16	28
Pulse counters for magnetic flowmeters	2	2	2	4
Switched excitation channels for load cells and valve position potentiomenters[3]	2	2	3	4
Digital ports for input status, control output, SDM BUS peripherals, and SDI-12 instruments[4], such as ultrasonic level transmitters.	2	4	8	8

1-The number of channels on these units is expandable.
2-Halve the numbers shown for differential channels.
3-Some resistive devices can be excited in parallel.
4-Each digital port supports up to 10 SDI-12 devices.

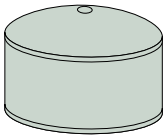
Example SCADA Application: Mantua

Because of their versatility, Campbell Scientific systems are used in a variety of SCADA applications. Below is an example of a rural water application in Mantua, Utah. For more information regarding this specific application visit www.campbellsci.com/ruralwater.



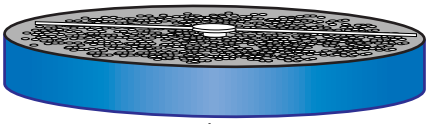
Sedimentation Tank

- Monitor on/off status of pumps
- Control coliform, TSS, and on/off status of pumps



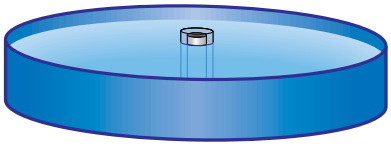
Digester

- Monitor and conrol temperature



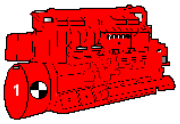
Trickling Filter

- Monitor on/off status of pumps and blowers, dissolved oxygen, flow
- Control on/off status of pumps and blowers



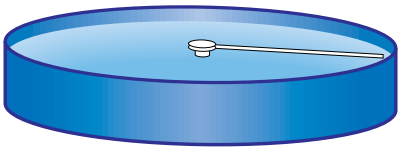
Chlorine Contact Tank

- Monitor ORP
- Control Cl_2 and SO_2 injection



Generator

- Monitor and control temperatures and flow rates within exhaust heat recovery unit and heat exchanger



Clarifier

- Monitor torque
- Control on/off status and torque alarms

Sales & Support:
Intermountain Environmental, Inc.
(800)948-6236 or (435)755-0774
http://www.inmtn.com

© Copyright 1999, 2009 Campbell Scientific, Inc. (435) 753-2342 (435) 750-9540 fax info@campbellsci.com www.campbellsci.com Printed October 2009