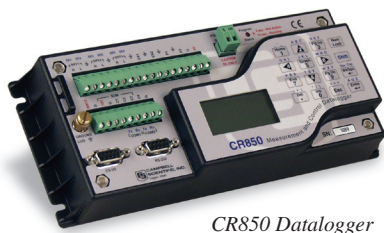


[www.campbellsci.com/rural-water](http://www.campbellsci.com/rural-water)

# Rural Water

## System Benefits

1. Automated control of pumps, chlorinators, gates, and PRVs
2. Remote control—monitor critical parameters, change set points, and control pumps by phone, computer, or even the Internet.
3. Alarms for reservoir level, pumps, and security
4. Cost savings—operate pumps and other equipment only when needed or during off-peak hours.
5. Long-term operation from rechargeable 12V batteries and solar panels
6. Versatility—monitor ORP, pH, turbidity, temperature, and pump status.
7. Easily expandable—add sensors to existing sites or add new sites to the network.
8. Compatible with most HMI software packages via OPC or Modbus



CR850 Datalogger



CR205 Wireless Datalogger



*Our equipment was used to monitor the Cedar River Watershed, which provides a major portion of the culinary water to Seattle, WA and several nearby cities.*

Campbell Scientific provides automated monitoring and control (SCADA) products for rural water systems. Our systems consist of sensors that measure desired parameters, and control units (dataloggers) that make decisions based on those measurements. Our automated systems provide continuous monitoring of your water system 24 hours a day, 365 days a year. You can program your system to automatically maintain the desired state, but still have the ability to view system status and make changes—even when you are off site. All of your monitored sites can be networked into one integrated system. Our products have been proven in hundreds of applications worldwide.

## Smart Monitoring and Control

We can measure almost any sensor with an electrical output: level, flow, chlorine, turbidity, conductivity, pump performance, and more. Based on these measurements, time, or other events, our systems can control pumps, valves, alarms, injectors, and gates. This combination of monitoring and components such as control can provide you with any number of options for configuring a system to automatically manage your water system according to your needs.

## Alarms

Alarms can trigger voice-synthesized phone calls (your system can speak to you), on-site audible alarms, or visual alarms. Possible alarms include reservoir level, pump failure, and intrusion. These alarms can be triggered by measured values that fall outside of your programmed range or by other events. If implemented properly, alarms can contribute to your homeland security plan.

## Telemetry

With wireless communications, you can eliminate cables and their associated cost and hassles. Wireless options include radio, cellphone, or satellite. Hardwire options include ethernet, telephone lines, short haul, or multidrop. Many telemetry options can be combined for unique system requirements.

## Integrated System View

Monitor all your sites from one central computer running our software or a third-party software package. Our software provides a graphical interface that displays the status of your remote sites and allows you to acknowledge alarms and change setpoints and alarm conditions. If you want to use another HMI software package, our system is compatible via Modbus or OPC.

## Cost Savings

Automated control turns pumps and other equipment on only when needed or only during low-power-rate periods. This can help conserve both water and power. One city cut their power costs in half in the first month of operation because of increased efficiencies in operation.

## Typical Systems

The following is a list of systems common to rural water applications. Sometimes systems are combined at a single site.

## Tank/Reservoir Monitoring

At a tank or reservoir, level measurements are made and transmitted via radio (or other option) to the pump control site or to the base station. Additionally, other parameters can be monitored, including water quality (e.g., turbidity, conductivity) and intrusion (or other security parameters).

## Pump Control / Well Monitoring

At the pump, the datalogger turns the pump on and off based on communication from the tank monitoring site or base station. By adding a current sensor, the datalogger can also monitor pump status and power consumption. With the addition of a pressure transducer in the well, pump drawdown can also be monitored. Other features, such as controlling backup pumps and PRV valves, can be added if needed.

## Base Station

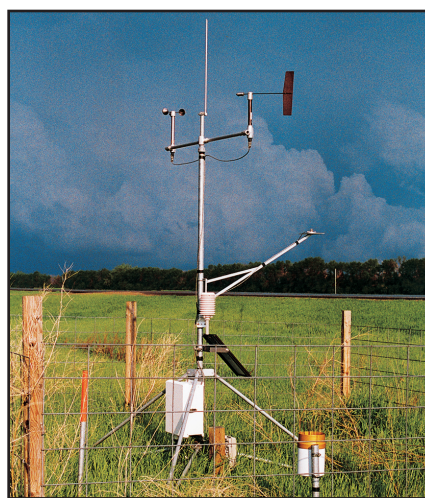
The entire water system can be monitored from the base station. If desired, a datalogger can collect the data and make control decisions for the entire system, or this process can occur at each site. A voice modem is typically present at the base station to provide information about the system around the clock through a simple phone call. System data can also be posted to the Internet.

## Weather Station

A weather station consists of a set of meteorological sensors such as wind speed, wind direction, rainfall, solar radiation, temperature, and relative humidity sensors. Weather stations can automatically calculate evapotranspiration and provide real-time or historical records of hydrological conditions. Data from weather stations is often useful to many organizations.



*A system monitors water and meteorological parameters at a pump control site for the Mantua, UT, water system*



*Weather stations can be integrated into water systems to provide real-time and historical data for a wide variety of uses.*