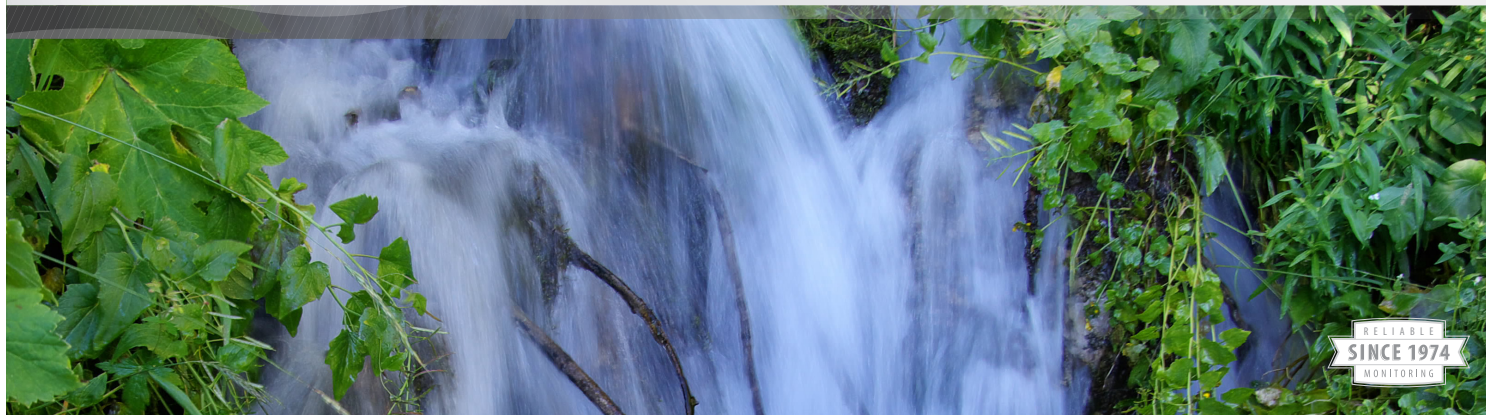




## Water Quality



Products for Stand-alone Water Quality Monitoring and Control



Campbell Scientific builds systems for unattended, long-term monitoring of water quality in many natural and industrial environments, including streams, watersheds, wells, caves, water/wastewater treatment

plants, aquaculture operations, landfills, and processing plants. Our systems include Campbell dataloggers, and a huge variety of sensors and communication peripherals, customized for each application.

### MAJOR SYSTEMS

	Measurements	Datalogger	Power	Communications	Description
<b>TMS120/TMS185</b> Turbidity Monitoring Stations 	turbidity	CR200X	12 Vdc rechargeable battery and solar panel	TMS120 typically PC TMS185 cellular	These low-cost turbidity monitoring stations allow the user to accurately measure sediment in waterways. They can be used in remote locations with no access to AC power.
<b>OBS-3A</b> Turbidity and Temperature Monitoring System 	turbidity, temperature, pressure, conductivity	Integrated	Three D-cell batteries	Laptop	Combines our OBS® probe with pressure, temperature, and conductivity sensors in a battery-powered recording instrument.

### Custom Systems

Most of the systems we sell are customized. Tell us what you need and we'll help you configure a system that meets your exact needs.

#### Dataloggers used in Water Quality Monitoring

Our dataloggers feature wide operating temperature ranges, low power consumption, and the ability to directly interface with a large variety of sensors. Because our dataloggers operate on batteries (with or without solar panels), they are ideal for long-term, stand-alone operation, such as at remote streams or wells. Most of our dataloggers are expandable using multiplexers and other peripherals. Data are typically displayed and stored in the desired units of measure (e.g., specific conductance as mS/m,  $\mu$ S/cm, Ohms).



Powerful on-board instruction sets allow unattended control decisions based on time or conditional events. For example, if measured water quality levels are outside a predetermined range, the datalogger can actuate water samplers, sound alarms, open valves, actuate injectors, and make a phone call to report conditions. The dataloggers can easily provide the necessary water sampler control to meet EPA-mandated first-flush and follow-up sample schedules. All data is time-stamped and data from event-triggered samples is marked for later analysis.

More info: +61 (0)7 4401 7700

[campbellsci.com.au/water-quality](http://campbellsci.com.au/water-quality)



## Sensors for Water Quality Measurements



CS511 Dissolved  
Oxygen Sensor

Almost any water quality sensor, individual or multiparameter, may be used with the system, allowing the system to be customized for each application. We helped create the original SDI-12 standard, so you can be sure our systems are SDI-12 compatible. In addition, nearly all available flow, level, and meteorological sensors can be measured, generally without external signal conditioning.



OBS300 Turbidity Probe

## Communications

The availability of multiple telecommunications and on-site options for retrieving data also allows systems to be customized to meet exact needs. Options include: voice-synthesized phone, telephone, cellphone, satellite, radio, Ethernet, short haul, meteor burst, coaxial cable, and storage module. Protocols supported include SCADA, DNP3, and Modbus.

Systems can be programmed to send alarms or report site conditions by calling out to computers, phones, radios, or pagers. Real-time or historical data can be displayed or processed with Campbell Scientific software. Data can also be exported as ASCII files for further processing by spreadsheets, databases, or analysis programs.

## Water Quality Applications

- › Lakes/Reservoirs
- › Streams/Rivers
- › Groundwater
- › Watersheds
- › Caves
- › Aquaculture/Fisheries
- › Wells
- › Effluent
- › Landfills
- › Tailings ponds
- › Processing plants
- › Water/wastewater plants

## Water Quality Measurements

- › Turbidity
- › Dissolved oxygen
- › Conductivity
- › Temperature
- › pH
- › ORP
- › Chloride
- › Bromide
- › Nitrate
- › Salinity
- › Ammonia

## Water Quality Case Studies

Our systems have helped a variety of organizations reach their goals. The following are just a few of these:

Campbell Scientific's CR850 dataloggers are at the core of measurement stations that monitor water quality in coal-mine runoff at the West Coast of New Zealand. Automatic lime dosing raises the pH of the Mangatini stream to ecologically viable conditions. [www.campbellsci.com/new-zealand-mine](http://www.campbellsci.com/new-zealand-mine)

A Campbell automated monitoring and control system maintains optimal dissolved-oxygen levels on Lee's multiple-pond catfish farm in Macon, Mississippi. Our equipment eliminated the need to manually check dissolved-oxygen concentrations several times a night. Alarms are sent via RF to a computer. [www.campbellsci.com/macon-mississippi](http://www.campbellsci.com/macon-mississippi)

Campbell gear is used to monitor the cleanup of the Susie Mine near Rimini, Montana. Our CR1000 datalogger acquires and stores data from multiple sensors and transmits the data to a stationary ground unit, from where it is sent to an Internet site. The sensors measure temperature, pH, dissolved oxygen, and water flow. [www.campbellsci.com/susie-mine](http://www.campbellsci.com/susie-mine)



For the New Zealand coal-mine, our equipment monitors turbidity, water temperature, pH, water level, general weather, and present weather.

