Overview

The CR800 is a smaller, research-grade data logger designed for stand-alone operation in harsh, remote environments. It is intended for smaller configurations in which fewer sensors will be measured. Each CR800 reads input from sensors, then transmits the data via a communication peripheral; most sensors and telecommunication devices are compatible.

Multiple CR800s can be configured as a network or units can be deployed individually.

Another data logger, the CR850, is similar to the CR800, but it has an integrated keyboard and display screen for on-site control.

Benefits and Features

- Ideal applications include wind profiling, weather stations, ETo/agriculture, air quality, soil moisture, water level/stage, aquaculture, vehicle testing, Time Domain Reflectometry, SCADA, and water quality
- Simpler in design, the CR800 and CR850 are easier to program and wire.
- Serial communications with serial sensors and devices supported via I/O port pairs
- Contains custom ASIC chip that expands pulse count, control port, and serial communications capabilities
- Compatible with channel expansion peripherals allowing you to expand your system
- Supports PakBus, Modbus, SDI-12, and DNP3 protocols
- Includes both an CS I/O port and an RS-232 port for connecting communication devices
- Gas Discharge Tube (GDT) protected inputs
- Battery-backed clock that ensures accurate time is maintained while data logger is disconnected from battery power
- Program with LoggerNet, PC400, or Short Cut to fit your setup

Detailed Description

The CR800 consists of measurement electronics encased in a plastic shell and an integrated wiring panel. This data logger uses an external keyboard/display and power supply. Low power consumption allows the CR800 to operate for extended periods on a battery recharged with a solar panel—eliminating the need for AC power. The CR800 suspends execution when...
primary power drops below 9.6 V, reducing the possibility of inaccurate measurements.

The on-board operating system includes measurement, processing, and output instructions for programming the data logger. The programming language, CRBasic, uses a BASIC-like syntax. Measurement instructions specific to bridge configurations, voltage outputs, thermocouples, and pulse/frequency signals are included. Processing instructions support algebraic, statistical, and transcendental functions for on-site processing. Output instructions process data over time and control external devices.

### Specifications

- **Operating Temperature Range**
  - Non-condensing environment: -25° to +50°C (standard)
  - -55° to +85°C (extended)

- **Maximum Scan Rate**
  - 100 Hz

- **Analog Inputs**
  - 6 single-ended or 3 differential (individually configured)

- **Pulse Counters**
  - 2

- **Voltage Excitation Terminals**
  - 2 (VX1, VX2)

- **Communications Ports**
  - CS I/O
  - RS-232

- **Switched 12 Volt**
  - 1 terminal

- **Digital I/O**
  - Certain digital ports can be used to count switch closures.
  - 4 I/Os or 2 RS-232 COM I/O ports can be paired as transmit and receive for measuring smart serial sensors.

- **Input Limits**
  - ±5 V

- **Analog Voltage Accuracy**
  - ±(0.06% of reading + offset) at 0° to 40°C

- **ADC**
  - 13-bit

- **Power Requirements**
  - 9.6 to 16 Vdc

- **Real-Time Clock Accuracy**
  - ±3 min. per year (Correction via GPS optional)

- **Internet Protocols**
  - FTP, HTTP, XML POP3, SMTP, Telnet, NTCIP, NTP

- **Communication Protocols**
  - PakBus, Modbus, DNP3, SDI-12, SDM

- **Idle Current Drain, Average**
  - 0.7 mA (@ 12 Vdc)

- **Active Current Drain, Average**
  - 28 mA (100 Hz sample rate @ 12 Vdc with RS-232 communication)
  - 16 mA (100 Hz sample rate @ 12 Vdc without RS-232 communication)
  - 1 mA (1 Hz sample rate @ 12 Vdc without RS-232 communication)

- **Dimensions**
  - 24.1 x 10.4 x 5.1 cm (9.5 x 4.1 x 2 in.)

- **Weight**
  - 0.7 kg (1.5 lb)

---

For comprehensive details, visit: [www.campbellsci.com/cr800](http://www.campbellsci.com/cr800)