



## Rugged Data Logger

Multipurpose data logger for monitoring and control

### Overview

The CR1000 is our most widely used data logger. It can be used in a broad range of measurement and control functions. Rugged enough for extreme conditions and reliable enough for remote environments, it is also robust

enough for complex configurations. Used in applications all over the world, it will be a powerful core component for your data-acquisition system.

### Benefits and Features

- ▶ Ideal applications include fire weather, mesonet systems, wind profiling, weather stations, air quality, ET0/agriculture, soil moisture, water level/stage, aquaculture, avalanche forecasting, time-domain reflectometry, vehicle testing, SCADA, and water quality
- ▶ Serial communications with serial sensors and devices supported via I/O port pairs
- ▶ Collects and stores data and controls peripherals as the brain of your system
- ▶ Flexible power and communication options make it ideal for remote locations.
- ▶ 4-MB memory can be expanded with add-on memory systems.
- ▶ Supports PakBus, Modbus, SDI-12, and DNP3 protocols
- ▶ Compatible with channel expansion peripherals allowing you to expand your system
- ▶ Program with LoggerNet, PC400, or Short Cut to fit your setup
- ▶ Communicates via various options: TCP/IP, email, FTP, web server.
- ▶ Gas Discharge Tube (GDT) protected inputs
- ▶ Battery-backed clock that ensures accurate time is maintained while data logger is disconnected from battery power
- ▶ Program and control on site with addition of CR1000KD keyboard and display unit.
- ▶ Contains custom ASIC chip that expands pulse count, control port, and serial communications capabilities

### Detailed Description

The CR1000 consists of a measurement and control module and a wiring panel. This datalogger uses an external keyboard/display and power supply. Low power consumption allows the CR1000 to operate for extended time periods on a battery recharged with a solar panel—eliminating the need for AC power. The CR1000 suspends

execution when primary power drops below 9.6 V, reducing the possibility of inaccurate measurements.

The CR1000's module measures sensors, drives direct communications and telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage. The electronics are RF

shielded and glitch protected by the sealed, stainless-steel canister. A battery-backed clock assures accurate timekeeping. The module can simultaneously provide measurement and communication functions. The on-board, BASIC-like programming language supports data processing and analysis routines.

The CR1000WP is a black, anodized aluminum wiring panel that is compatible with all CR1000 modules. The wiring panel includes switchable 12 V, redistributed analog grounds (dispersed among analog channels rather than grouped), unpluggable terminal block for 12 V connections, gas-tube spark gaps, and 12 V supply on pin 8 to power our COM-

series phone modems and other peripherals. The control module easily disconnects from the wiring panel allowing field replacement without rewiring the sensors.

Originally, the standard CR1000 had 2 MB of data/program storage, and an optional version, the CR1000-4M, had 4 MB of memory. In September 2007, the standard CR1000 started having 4 MB of memory, making the CR1000-4M obsolete. Dataloggers that have a module with a serial number greater than or equal to 11832 will have a 4 MB memory. The 4 MB dataloggers will also have a sticker on the canister stating "4M Memory".

## Specifications

-NOTE-

*Additional specifications are listed in the [CR1000 Specifications Sheet](#).*

Operating Temperature Range	<ul style="list-style-type: none"> <li>› Non-condensing environment</li> <li>› -25° to +50°C (standard)</li> <li>› -55° to +85°C (extended)</li> </ul>
Analog Inputs	16 single-ended or 8 differential (individually configured)
Pulse Counters	2
Voltage Excitation Terminals	3 (VX1 to VX3)
Communications Ports	<ul style="list-style-type: none"> <li>› Parallel peripheral</li> <li>› RS-232</li> <li>› CS I/O</li> </ul>
Switched 12 Volt	1 terminal
Digital I/O	<ul style="list-style-type: none"> <li>› 8 I/Os or 4 RS-232 COM I/O ports can be paired as transmit and receive for measuring smart serial sensors.</li> <li>› Certain digital ports can be used to count switch closures.</li> </ul>
Input Limits	±5 Vdc
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
Warranty	3 years
Battery-backed SRAM for CPU Usage & Final Storage	4 MB
Idle Current Drain, Average	< 1mA (@ 12 Vdc)
Active Current Drain, Average	<ul style="list-style-type: none"> <li>› 28 mA (100 Hz sample rate @ 12 Vdc with RS-232 communication)</li> <li>› 16 mA (100 Hz sample rate @ 12 Vdc without RS-232 communication)</li> <li>› 1 mA (1 Hz sample rate @ 12 Vdc without RS-232 communication)</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>› 23.8 x 10.1 x 5.4 cm (9.4 x 4.0 x 2.1 in.)</li> <li>› 25.2 x 10.2 x 7.1 cm (9.9 x 4.0 x 2.8 in.) with CFM100 or NL116 attached</li> </ul>
Weight	1.0 kg (2.1 lb)

For comprehensive details, visit: [www.campbellsci.com.au/cr1000](http://www.campbellsci.com.au/cr1000) 



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