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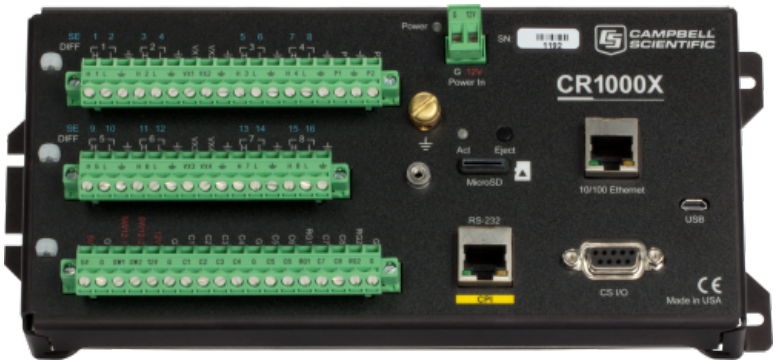
WHEN MEASUREMENTS MATTER

CR1000X

Measurement and Control Data Logger



Flagship Data Logger

Accurate, rugged, reliable

Overview

Please ask us about the lead time on this product due to component shortages.

The CR1000X is our flagship data logger that provides measurement and control for a wide variety of applications. Its reliability and ruggedness make it an excellent choice for remote environmental applications, including weather stations, mesonet systems, wind profiling, air quality monitoring, hydrological systems, water quality monitoring, and hydrometeorological stations.

The CR1000X is a low-powered device that measures sensors, drives direct communication and telecommunications, analyzes data, controls external devices, and stores data and programs in onboard, nonvolatile storage. The electronics are RF-shielded by a unique sealed, stainless-steel canister. A battery-backed clock assures accurate timekeeping. The onboard, BASIC-like programming language, common to all contemporary Campbell Scientific dataloggers, supports data processing and analysis routines.

Benefits and Features

- Operational in extreme environments with a standard operating range of -40° to +70°C and an extended operating range of -55° to +85°C
- Connects directly to a computer's USB port
- Captures quickly changing data values with fast analog measurement capabilities (300+ Hz)
- Differentiates even slight changes in data values with higher-resolution measurements (24 bit Adc)
- Includes two non-isolated current input channels for directly connecting sensors with 0-to-20 mA or 4-to-20 mA current outputs
- Contains an onboard CPI port for hosting Campbell high-speed sensors and distributed modules (CDM)
- Directly connects to Ethernet
- Includes microSD card drive for extended memory requirements
- Provides simple serial sensor integration and measurement with SDI-12, RS-232, and/or RS-485
- Supports full PakBus networking
- Includes embedded web page for direct connection via web browser

Detailed Description

The CR1000X is a low-powered device designed to measure sensors, drive direct communication and telecommunications, analyze data, control external devices, and store data and programs in on-board, non-volatile storage. The electronics are RF-shielded and glitch-protected by a unique sealed, stainless-steel canister. A battery-backed clock assures accurate timekeeping. The on-board, BASIC-like programming language—common to all Campbell Scientific

data loggers—supports data processing and analysis routines.

The CR1000X wiring panel includes two switchable 12 V terminals, analog grounds dispersed among 16 analog terminals, and unpluggable terminal blocks for quick deployment.

Specifications

-NOTE-	*Additional specifications are listed in the CR1000X Specifications Sheet.*
Operating Temperature Range	❱ -40° to +70°C (standard) ❱ *Non-condensing environment* ❱ -55° to +85°C (extended)
Maximum Scan Rate	1000 Hz
Case Material	Anodized aluminum
Analog Inputs	16 single-ended or 8 differential (individually configured). Two analog inputs can measure 4 to 20 mA or 0 to 20 mA natively. Four analog inputs can provide pulse/digital I/O functions.
Pulse Counters	10 (P1 to P2 and C1 to C8)
Voltage Excitation Terminals	4 (VX1 to VX4)
Maximum Source/Sink Current	❱ ±40 mA (voltage excitation) ❱ 50 mA (switched regulated)
Communications Ports	❱ RS-422 ❱ Ethernet ❱ USB Micro B ❱ CS I/O ❱ RS-232 ❱ CPI ❱ RS-485
Data Storage Ports	microSD
Switched 12 Volt	2 terminals
Digital I/O	8 terminals (C1 to C8) configurable for digital input and output. Includes status high/low, pulse width modulation, external interrupt, edge timing, switch closure pulse counting, high-frequency pulse counting, UART, RS-232, RS-485, SDM, SDI-12, I2C, and SPI function. Terminals are configurable in pairs for 5 V or 3.3 V logic for some functions.
Input Limits	±5 V
Analog Voltage Accuracy	❱ ±(0.04% of measurement + offset) at 0° to 40°C ❱ Accuracy specifications do not include sensor or measurement noise. ❱ ±(0.08% of measurement + offset) at -55° to +85°C (extended temperature range) ❱ ±(0.06% of measurement + offset) at -40° to +70°C
ADC	24-bit
Power Requirements	10 to 18 Vdc input
Real-Time Clock Accuracy	±3 min. per year (Optional GPS correction to ±10 µs)
Internet Protocols	Ethernet, PPP, RNDIS, ICMP/Ping, Auto-IP (APIPA), IPv4, IPv6, UDP, TCP, TLS (v1.2), DNS, DHCP, SLAAC, Telnet, HTTP(S), SFTP, FTP(S), POP3/TLS, NTP, SMTP/TLS, SNMPv3, CS I/O IP, MQTT
Communication Protocols	CPI, PakBus, SDM, SDI-12, Modbus, TCP, DNP3, UDP, NTCIP, NMEA 0183, I2C, SPI, and others
Battery-backed SRAM for CPU Usage & Final Storage	4 MB
Data Storage	4 MB SRAM + 72 MB flash (Storage expansion of up to 16 GB with removable microSD flash memory card.)
Idle Current Drain, Average	< 1 mA (@ 12 Vdc)
Active Current Drain, Average	❱ 55 mA (20 Hz scan @ 12 Vdc) ❱ 1 mA (1 Hz scan @ 12 Vdc)
Dimensions	23.8 x 10.1 x 6.2 cm (9.4 x 4.0 x 2.4 in.) Additional clearance required for cables and leads.
Weight	0.86 kg (1.9 lb)

For comprehensive details, visit: www.campbellsci.com.au/cr1000x