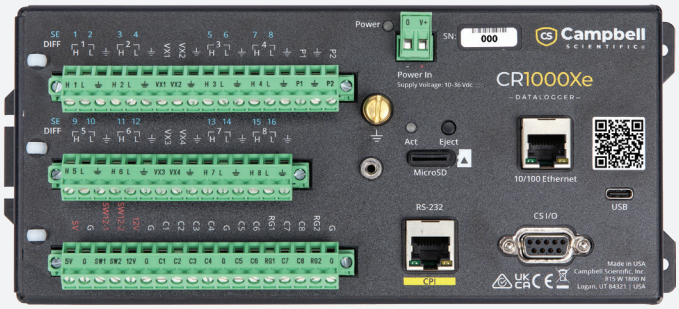
PRODUCT INFORMATION

CR1000Xe

Measurement and Control Datalogger



Flagship Data Logger

Accurate, Rugged, Reliable

Overview

The CR1000Xe 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 CR1000Xe is a low-powered device that measures sensors; drives direct communications and telecommunications; analyzes data; controls external devices; and stores data and programs in onboard, non-volatile 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 Campbell Scientific data loggers—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 (0–100% RH, non-condensing)
- 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 microSD card drive for extended memory requirements
- Directly connects to Ethernet
- Supports full PakBus networking
- Controls CS I/O power to external modems
- 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 Scientific high-speed sensors and distributed modules (such as the GRANITE™ Series)
- Includes embedded web page for direct connection via web browser
- Provides simple serial sensor integration and measurement with SDI-12, RS-232, RS-422, and/or RS-485
- Offers a broad input voltage range of 10 to 36 Vdc
- Provides regulated 12 Vdc power output

Specifications

Operating Temperature Range	-40° to +70°C (standard) -55° to +85°C (extended)
Storage Temperature Range	-60° to +85°C
Operating Humidity	0–100% RH, non-condensing
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 (regulated 3.3 or 5 V)
Communications Ports	USB-C Ethernet RS-232 RS-485 RS-422 CS I/O CPI
Data Storage Slots	microSD
Switched 12 Volt	2 terminals, plus CS I/O pin 8
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, plus UART, RS-232, RS-485, SDM, SDI-12, I2C, and SPI serial-communications functions. Terminals are configurable in pairs for 5 V or 3.3 V logic for some functions.
Input Limits	±5 V
ADC	24-bit
Analog Voltage Accuracy	Accuracy specifications do not include sensor or measurement noise. ±(0.04% of measurement + offset) at 0° to 40°C ±(0.06% of measurement + offset) at -40° to +70°C ±(0.08% of measurement + offset) at -55° to +85°C (extended temperature range)
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
Real-Time Clock Accuracy	±3 min. per year (optional GPS correction to ±10 µs)
Power Requirements	10 to 36 Vdc input
Communications Protocols	CPI, PakBus, SDM, SDI-12, Modbus, TCP, DNP3 outstation, UDP, NTCIP, NMEA 0183, I2C, SPI, and others
Battery-Backed SRAM for CPU Usage and 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	< 1.5 mA (@ 12 Vdc)
Active Current Drain, Average	1.1 mA (1 Hz scan @ 24 Vdc) 1.7 mA (1 Hz scan @ 12 Vdc) 57 mA (20 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 is required for cables and wires.
Weight	0.86 kg (1.9 lb)