



# CR300

## Compact data logger



### Ideal for small applications

The CR300 is a multi-purpose, compact measurement and control data logger. This small, low-cost, high-value data logger offers fast communications, low power requirements, built-in USB, and excellent analog input accuracy and resolution. The CR300 can measure most hydrological, meteorological, environmental, and industrial sensors. It concentrates data, makes it available over varied networks, and delivers it

using your preferred protocol. It also performs automated on-site or remote decision making for control and M2M communications. The CR300 is ideal for small applications requiring long-term, remote monitoring and control.

The CR300 includes Wi-Fi, cellular, or the following radio options for different regions:

- CR300-RF407: US and Canada
- CR300-RF412: Australia and New Zealand
- CR300-RF422: Europe
- CR300-RF427: Brazil

### Benefits and Features:

- Connects directly to a computer’s USB port
- Differentiates even slight changes in data values with higher resolutions measurements (24 bit Adc)

- Provides simple serial sensor integration and measurement with SDI-12 and/or RS-232
- Supports full PakBus networking
- Includes embedded web page for direct connection via web browser.

### Detailed Description:

The CR300 is a low-powered data logger designed to measure sensors, analyze data, and store data and programs. A battery-backed clock assures accurate timekeeping. The on-board, BASIC-like programming language— common to all MUNRO data loggers—supports data processing and analysis routines. The CR300 wiring panel includes a switchable 12 V terminal, and analog grounds dispersed among six analog terminals.

## Technical Specifications

<b>Note</b>	Additional specifications are listed in the CR300-Series Specifications Sheet.
<b>Operating Temperature Range</b>	• Non-condensing environment • -40° to +70°C (standard)
<b>Maximum Scan Rate</b>	10 Hz
<b>Case Material</b>	Powder-coated aluminum
<b>Analog Inputs</b>	6 single-ended or 3 differential (individually configured)
<b>Pulse Counters</b>	8 (P_SW, P_LL, C1, C2, and SE1 to SE4)
<b>Voltage Excitation Terminals</b>	2 (VX1, VX2)
<b>Communications Ports</b>	• RS-232 • USB Micro B
<b>Switched 12 Volt</b>	1 terminal
<b>Digital I/O</b>	7 terminals (C1, C2, P_SW, and SE1 to SE4) configurable for digital input and output. Includes status high/low, pulse width modulation, external interrupt, and communication functions. Exception: The SE4 terminal doesn't do external interrupt.
<b>Input Limits</b>	-100 to +2500 mV
<b>Analog Voltage Accuracy</b>	<ul style="list-style-type: none"> <li>• Accuracy specifications do not include sensor or measurement noise.</li> <li>• <math>\pm(0.04\%</math> of measurement + offset) at 0° to 40°C</li> <li>• <math>\pm(0.1\%</math> of measurement + offset) at -40° to +70°C</li> </ul>
<b>ADC</b>	24-bit
<b>Power Requirements</b>	<ul style="list-style-type: none"> <li>• 16 to 32 Vdc for charger input (CHG) (Current limited to 0.9 A maximum for power converter or solar panel input.)</li> <li>• 10 to 18 Vdc for external batteries (BAT)</li> </ul>
<b>Real-Time Clock Accuracy</b>	$\pm 1$ min. per month
<b>Internet Protocols</b>	Ethernet, PPP, RNDIS, ICMP/Ping, Auto-IP(APIPA), IPv4, IPv6, UDP, TCP, TLS (v1.2), DNS, DHCP, SLAAC, NTP, Telnet, HTTP(S), FTP(S), SMTP/TLS, POP3/TLS
<b>Communication Protocols</b>	PakBus, Modbus, DNP3, SDI-12, TCP, UDP, and others
<b>CPU Drive/Programs</b>	80 MB serial flash
<b>Data Storage</b>	30 MB serial flash
<b>Idle Current Drain, Average</b>	1.5 mA (@ 12 Vdc)
<b>Active Current Drain, Average</b>	<ul style="list-style-type: none"> <li>• 23 mA (@ 12 Vdc with processor always on)</li> <li>• 5 mA (@ 12 Vdc for 1 Hz scan with 1 analog measurement)</li> </ul>
<b>Dimensions</b>	13.97 x 7.62 x 4.56 cm (5.5 x 3.0 x 1.8 in.) Additional clearance required for cables and leads.
<b>Weight</b>	242 to 250 g (0.53 to 0.55 lb) depending on communication option selected
<b>CR300-RF407 OPTION</b>	
<b>Radio Type</b>	Frequency Hopping Spread Spectrum (FHSS)
<b>Output Power</b>	5 to 250 mW (user-selectable)
<b>Frequency</b>	902 to 928 MHz (US, Canada)
<b>RF Data Rate</b>	200 kbps
<b>Receive Sensitivity</b>	-101 dBm
<b>Antenna Connector</b>	RPSMA (External antenna required)
<b>Idle Current Drain, Average</b>	12 mA (@ 12 Vdc)
<b>Active Current Drain, Average</b>	< 80 mA (@ 12 Vdc)
<b>CR300-RF412 OPTION</b>	
<b>Radio Type</b>	Frequency Hopping Spread Spectrum (FHSS)
<b>Output Power</b>	5 to 250 mW (user-selectable)
<b>Frequency</b>	915 to 928 MHz (Australia, New Zealand)
<b>RF Data Rate</b>	200 kbps
<b>Receive Sensitivity</b>	-101 dBm
<b>Antenna Connector</b>	RPSMA (External antenna required)

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<b>Idle / Active Current Drain, Average</b>	12 mA (@ 12 Vdc) / < 80 mA (@ 12 Vdc)
<b>CR300-RF422 OPTION</b>	
<b>Radio Type</b>	868 MHz SRD 860 with Listen Before Talk (LBT) and Automatic Frequency Agility (AFA)
<b>Output Power</b>	2 to 25 mW (user-selectable)
<b>Frequency</b>	863 to 870 MHz (European Union)
<b>RF Data Rate</b>	10 kbps
<b>Receive Sensitivity</b>	-106 dBm
<b>Antenna Connector</b>	RPSMA (External antenna required)
<b>Idle Current Drain, Average</b>	9.5 mA
<b>Active Current Drain, Average</b>	20 mA
<b>CR300-RF427 OPTION</b>	
<b>Radio Type</b>	Frequency Hopping Spread Spectrum (FHSS)
<b>Output Power</b>	5 to 250 mW (user-selectable)
<b>Frequency</b>	902 to 907.5 MHz/915 to 928 MHz (Brazil)
<b>RF Data Rate</b>	200 kbps
<b>Receive Sensitivity</b>	-101 dBm
<b>Antenna Connector</b>	RPSMA (External antenna required.)
<b>Idle Current Drain, Average</b>	12 mA (@ 12 Vdc)
<b>Active Current Drain, Average</b>	< 80 mA (@ 12 Vdc)
<b>CR300-WIFI OPTION</b>	
<b>Operational Modes</b>	Client or Access Point
<b>Operating Frequency</b>	2.4 GHz, 20 MHz bandwidth
<b>Antenna Connector</b>	Reverse Polarity SMA (RPSMA)
<b>Antenna</b>	pn 16005 unity gain (0 dBd), 1/2 wave whip, omnidirectional with articulating knuckle joint for vertical or horizontal orientation
<b>Transmit Power</b>	7 to 18 dBm (5 to 63 mW)
<b>CR300-CELL205 OPTION</b>	
<b>Note</b>	The CR300-CELL205 option is not compatible with a Verizon cellular network
<b>Certifications</b>	IC (Industry Canada) 10224A-201611EC21A
<b>Cell Technologies</b>	• 3G (UMTS/HSPA+) • 4G (LTE CAT-1)
<b>3G Frequency Bands</b>	850, 1700/2100 (AWS), and 1900
<b>4G Frequency Bands</b>	700, 850, 1700/2100 (AWS-1), 1900
<b>Antenna Connector</b>	SMA (External antenna required)
<b>SIM Interface</b>	3FF (6 position/contacts) Supports SIMs that require 1.8 or 3V
<b>Radio Output Power</b>	• 23dBm on LTE • 24dBm on UMTS • 27dBm on EDGE • 33dBm on GSM
<b>Radio Sensitivity Range</b>	-99.5 to 110.5 dBm (10 M)
<b>CR300-CELL210 OPTION</b>	
<b>Note</b>	The CR300-CELL210 option is only compatible with a Verizon cellular network
<b>Cell Technologies</b>	4G (LTE CAT-1)
<b>4G Frequency Bands</b>	700, 850, 1700, 1900, 2100
<b>Antenna Connector</b>	SMA (External antenna required)
<b>Power Consumption - Low Power Mode</b>	5 mA
<b>Power Consumption - Idle</b>	35 mA
<b>Power Consumption - Active</b>	70 mA
<b>SIM Interface</b>	3FF (6 position/contacts) Supports SIMs that require 1.8 or 3 V
<b>Radio Output Power</b>	23 dBm on LTE
<b>Radio Sensitivity Range</b>	-99.5 to 110.5 dBm (10 M)

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<b>CR300-CELL215 OPTION</b>	
<b>Note</b>	The CR300-CELL215 option is intended for use in EMEA countries
<b>Cell Technologies</b>	• 2G (GSM/GPRS/EDGE) • 3G (UMTS/HSPA+) • 4G (LTE CAT-1)
<b>2G Frequency Bands</b>	900 and 1800 MHz
<b>3G Frequency Bands</b>	850, 900, and 2100 MHz
<b>4G Frequency Bands</b>	800, 850, 900, 1800, 2100, and 2600 MHz
<b>Antenna Connector</b>	SMA (External antenna required)
<b>SIM Interface</b>	3FF (6 position/contacts) Supports SIMs that require 1.8 or 3 V
<b>Radio Output Power</b>	
<b>CR300-WIFI OPTION</b>	
<b>Operational Modes</b>	• 23dBm on LTE • 24dBm on UMTS • 27dBm on EDGE • 33dBm on GSM
<b>Radio Sensitivity Range</b>	-99.5 to 110.5 dBm (10 M)
<b>CR300-CELL220 OPTION</b>	
<b>Note</b>	The CR300-CELL220 option is intended for use in Australia and New Zealand
<b>Cell Technologies</b>	• 4G (LTE CAT-1) • 3G (UMTS/HSPA+)
<b>3G Frequency Bands</b>	• 850, 900, 1900, and 2100 MHz (EC-21AU) • 850 and 2100 MHz (EC-21AUT)
<b>4G Frequency Bands</b>	• 700, 900, 1700, 1800, 1900, 2100, and 2600 MHz (EC-21AU) • 700, 850, 1800, 2100, and 2600 MHz (EC-21AUT)
<b>Antenna Connector</b>	SMA (External antenna required)
<b>SIM Interface</b>	3FF (6 position/contacts) Supports SIMs that require 1.8 or 3 V
<b>Radio Output Power</b>	• 24 dBm on UMTS • 23 dBm on LTE
<b>Radio Sensitivity Range</b>	-99.5 to 110.5 dBm (10 M)
<b>CR300-CELL225 OPTION</b>	
<b>Note</b>	The CR300-CELL225 option is intended for use in Japan
<b>Cell Technologies</b>	4G (LTE CAT-1)
<b>4G Frequency Bands</b>	800 (lower), 800 (upper), 850+, 900, 1800, and 2100 MHz
<b>Antenna Connector</b>	SMA (External antenna required)
<b>SIM Interface</b>	3FF (6 position/contacts) Supports SIMs that require 1.8 or 3 V
<b>Radio Output Power</b>	23 dBm on LTE
<b>Radio Sensitivity Range</b>	-99.5 to 110.5 dBm (10 M)