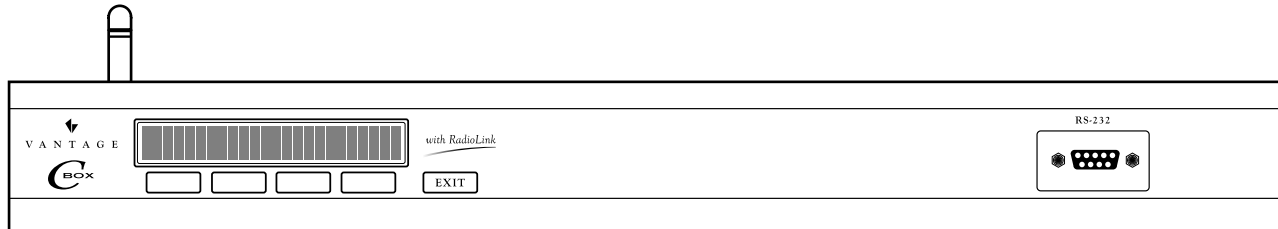


DESKTOP C-Box

INSTALLATION GUIDE FOR
CD1000 & CD1000RF



INSTALLATION GUIDE OVERVIEW

- I. Locate C-Box in an optimal location for installation and performance
 - A. RF antenna considerations
 - B. AC power outlet
- II. Mount C-Box
- III. Setup hardware
 - A. Master Address
 - B. Master Network Termination
- IV. Wire low-voltage connections (optional)
 - A. Master Bus
 - B. Station Bus
 - C. RS-232
- V. Plug C-Box into AC receptacle
- VI. Setup software
- VII. Configure stations



VANTAGE



OWNER'S WARRANTY

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Note: All time periods mentioned in this Attachment refer to time elapsed from date of invoice to dealer.

1. VANTAGE Q-Series products are warranted to be free from defects in materials and workmanship for a period of five years.
 2. VANTAGE Vision products are warranted to be free from defects in materials and workmanship for a period of two years.
 3. This warranty does not apply to any defect arising from abnormal use, abuse, negligence, equipment alteration, improper installation, products misapplication or acts of God.
 4. Products that VANTAGE obtains through third parties (such as remotes and sensors) maintain the original equipment manufacturer's warranty, and are not covered by VANTAGE's standard product warranty.
 5. VANTAGE reserves the right, to determine whether products have been subject to abnormal use, abuse, negligence, equipment alteration, improper installation, product misapplication or acts of God.
 6. VANTAGE reserves the right, to inspect all returned components to determine the cause of the malfunction and to determine if it will be repaired or replaced under the warranty agreement.
 7. VANTAGE shall not be liable for incidental or consequential damages, including, but not limited to, installation or replacement labor costs, and disclaims the implied warranty of merchantability and fitness for a particular purpose. Some states do not allow limitations on duration of implied warranty periods and do not allow the exclusion or limitation of incidental or consequential damages. Some of the above limitations may not apply to every purchaser.
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WARNING: To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

	CAUTION RISK OF ELECTRIC SHOCK. DO NOT REMOVE SCREWS EXCEPT SPECIFIED USER SERVICE SCREW.	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS EXCEPT LAMP UNIT. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		



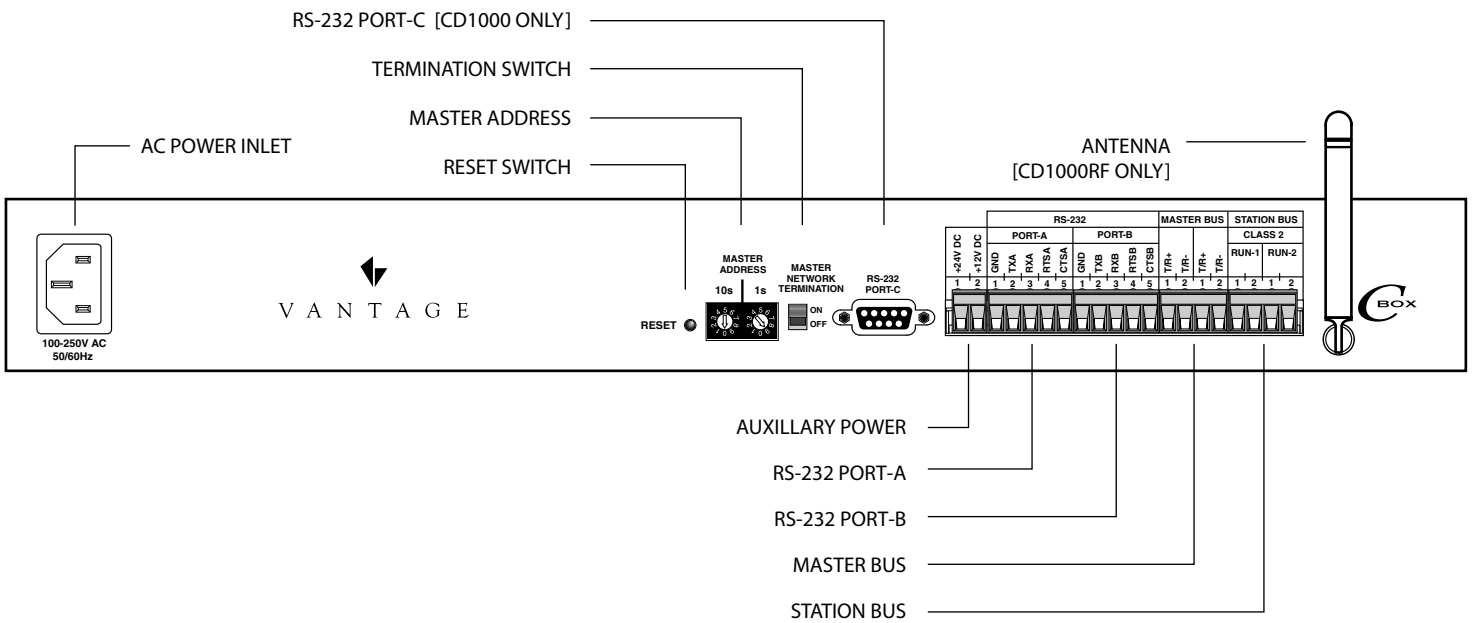
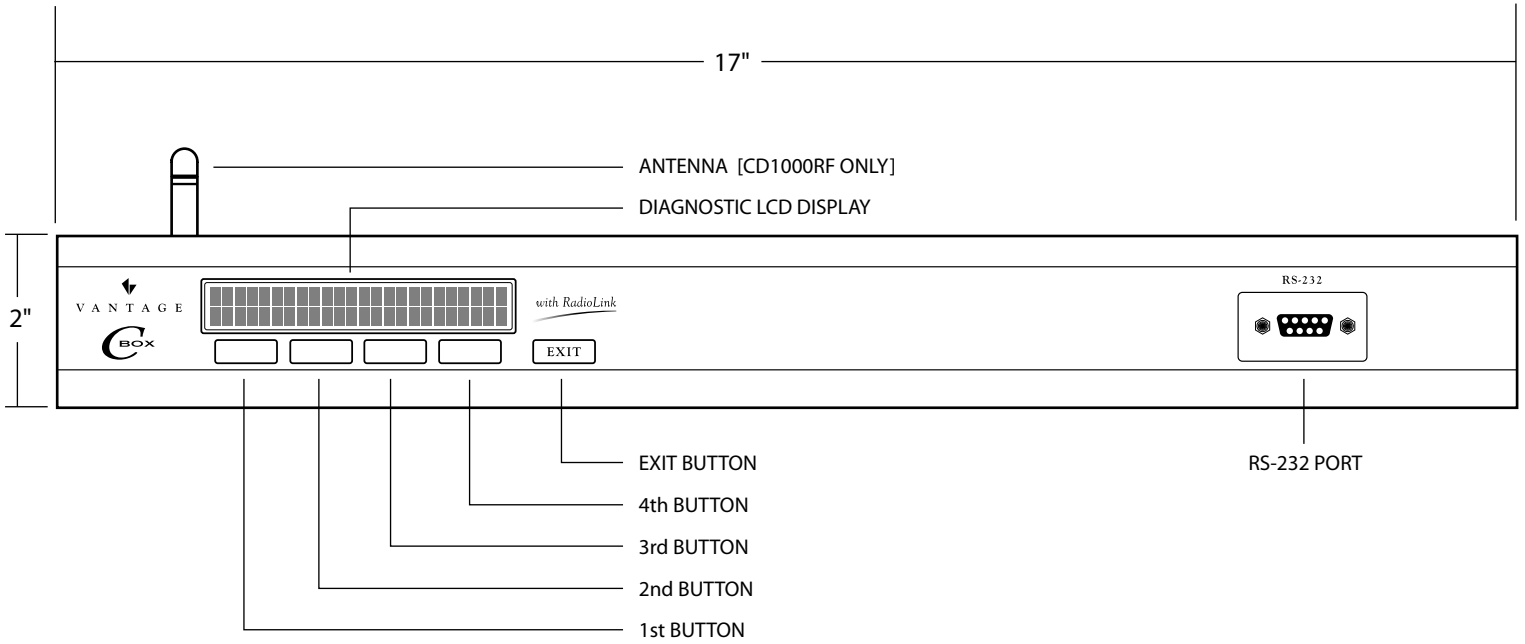
The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk or electric shock to persons.



The exclamation point within a triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

WARNING: In order to comply with the FCC RF exposure requirements, this product must be installed and operated in such a way that a minimum separation distance of 20 cm (approximately 8 inches) is maintained from the antenna to any persons. Operations that do not meet these requirements must be avoided.

DESKTOP C-BOX INSTALLATION



1. OPTIMAL LOCATION

A. RF considerations for C-Box (antenna) location (CD1000RF Only)

The C-Box location must be carefully chosen. Many factors affect the performance of the radio such as:

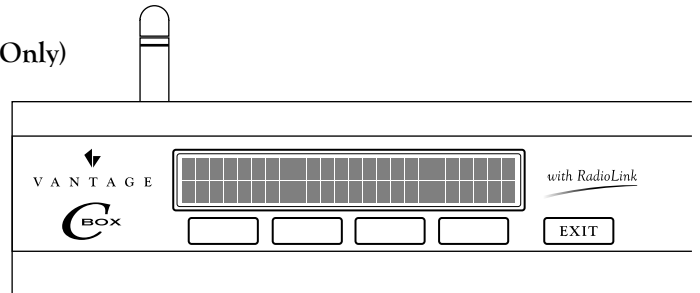
1. Distance between the C-Box and the Stations
2. Construction of walls between the C-Box and the Stations
3. Size and shape of the building

B. For optimum RF performance: (CD1000RF Only)

1. Install the C-Box so that the antenna is not near other metal enclosures, equipment or wires (a minimum of 6 inches clearance is recommended).
2. Install the C-Box in a central location in the building.
3. If the C-Box is being installed in a closed metal A/V enclosure, a non-RadioLink C-Box version must be used in conjunction with a RadioLink Enabler. The Enabler should be connected to one of the RS-232 ports of the C-Box and then mounted externally (outside of) the A/V enclosure.

C. Locate C-Box less than two meters from AC receptacle

The (supplied) power cord is 78" (2 meters) in length.



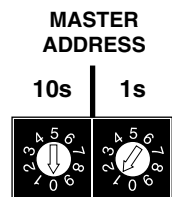
2. MOUNT C-BOX TO RACK (OPTIONAL)

The C-Box can be mounted in an audio/video rack with the optional rack-mount kit. The kit includes 2 side brackets and a front trim strip to dress a finished 2U (3½") opening.

3. HARDWARE SETUP

A. Master Address Switches

The Master Address switches come factory set to '01'. If the installation has multiple C-Boxes or Q-Masters, each of their address switches must be set to a unique address. Valid addresses are 01 through 15.



Extra care should be taken to ensure that the address is set correctly. The switches have been labeled identifying the left switch as the "ones" digit and the right switch as the "tens" digit of the address.

Note: The Master Network consists of up to fifteen 'Masters'. A 'Master' is any one of the following Vantage products: Q-Master, C-Box, C-Box with RadioLink.

IMPORTANT!! Do not allow C-Boxes or Masters to operate with identical Master Addresses. Unpredictable system behavior will result.

B. Master Network Termination Switch

Set the Master Network Termination Switch to "ON" if the C-Box is physically at the end of a 'daisy-chained' or 'home-run' Master Network.

Set the Master Network Termination Switch to "OFF" if the C-Box is in the middle of a 'daisy-chained' Master Network.

A C-Box that is not physically wired to other C-Boxes or Masters MUST have its termination switch set to 'ON'.



C. Reset Button

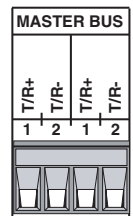
When the reset button is pressed, the C-Box and all connected stations will reset. RF stations will reinitialize and be inoperable for a few minutes.



4. WIRE LOW-VOLTAGE CONNECTIONS (Optional)

A. Master Bus

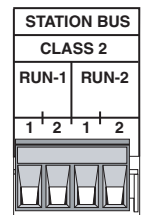
The C-Box may be included in a 'wired' Master Network. Two conductor 18AWG wire should be used. 1000 total feet of wire is the maximum allowed, regardless of the number of Masters or C-Boxes on the network. See the sections detailing the Master Address Switches and the Master Network Termination Switch.



IMPORTANT!! The Master Network is polarized. Extra care MUST be taken to connect this master's T/R+ terminal to the next master's T/R+ terminal, as well as this master's T/R- terminal to the next master's T/R-terminal.

B. Station Bus Network

The C-Box Station Bus can be used to control up to fifty "wired" stations. These stations are in addition to the "wireless" stations. Any of the stations currently available from Vantage may be connected to this bus, such as LCD, Low-voltage Relay, Contact Input, RS-232 and DMX Stations and all the varieties of keypad stations.

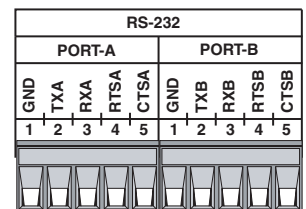
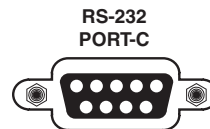


Two conductor 18AWG wire should be used. 1,000 total feet of wire is the maximum allowed on each run, regardless of the number of stations on the network.

NOTE: The station network is not polarized.

C. RS-232

The C-Box has four* RS-232 Ports. The port on the face of the chassis is the Diagnostic Port and is used for temporary connection to a laptop computer for programming or updating the Vantage System. The remaining three ports A, B, and C, are available for permanent connection to third party equipment such as a video projector, audio/video matrix switcher or security system. A null modem, cross type cable should be used (Diagnostic Port and Port-C).

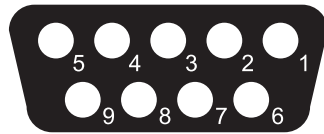


***IMPORTANT!! Port C is NOT available on the C-Box with RadioLink (CD1000RF).**

The C-Box typically uses RX, TX and GND for RS-232 communications. RTS and CTS are also implemented for hardware that requires them.

The default protocol for RS-232 communication is:

Signal Format: Conforms to RS-232 C standard
 Baud: 19200
 Parity: none
 Total Bits: 8
 Stop Bits: 1
 Flow Control: None



**FRONT VIEW OF PORT-C
& DIAGNOSTIC PORT**

C-BOX RS-232 CONNECTIONS

Signal Name	Vantage DB9 Pin	Screw Terminals	External Devices
RX Data In	2	3	Data out (TX)
TX Data Out	3	2	Data In (RX)
GND	5	1	Ground (GND)
CTS	7	4	Handshake Out (RTS)
RTS	8	5	Handshake In (CTS)

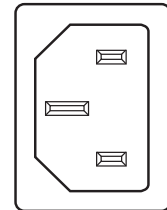
D. NOTE

The C-Box provides +24VDC at 100mA and +12VDC at 250mA. These voltages are available for external hardware such as motion detectors, light sensors, etc.

C-Box low-voltage circuits are classified as Class 2 circuits (USA). As Class 2 circuits, they comply with the requirements of NFPA 70, National Electrical Code (NEC). When installing and wiring to these C-Boxes, follow all applicable national and/or local wiring regulations. External connections to any low-voltage C-Box terminal must be from a Listed Class 2 Source.

5. PLUG C-BOX INTO AC RECEPTACLE

After carefully checking all low-voltage wiring, (if any), proceed to plug the C-Box into a grounded AC receptacle using the supplied power cord. Although not suggested, if additional length is required, a longer cord may be used as long as it contains a ground conductor.



**100-250V AC
50/60Hz**

6. SETUP SOFTWARE

A. LCD Control & Menu Structure

Overview:

The front panel of the C-Box has five buttons that allow control of, or status of the following elements:

1. Set Load Levels By:
 - a. Master
 - b. Module
 - c. Load
 - d. Level, Toggle or Increment (10%)
2. Set Station Switch Status (not implemented)
3. Set Master Time
 - a. Time
 - i. Month/Date/Year/Hour/Minute/Second
 - b. Calibrate Time Clock
 - i. '+' or '-' number of seconds per day
4. Diagnostics of:
 - a. Master
 - i. Version
 - ii. Network Communications
 - iii. TeleAccess Installed Status: Yes/No
 - iv. Generate - Displays Master Address
 - b. Station (not implemented)
 - c. RS232
 - i. Displays Current RS 232 Settings Only, i.e. 19200, N, 8, 1
 - d. Gen (Generate)
 - i. Load Backup Flash (reprogram C-Box from Flash Memory)

Implementation:

If navigation stops working press the **reset** button on the C-Box. (Always do step "A" first before starting each of the steps below) Press any of the four buttons on the C-Box to access the menu functions.

1. How to set Load Levels:

- a. Press arrow keys so the cursor is on the L in **Load**, then press the button under **Sel**.
- b. Move the cursor to **Ma1** (Master#), **Mo1** (Module#), **Ld1** (load#). Each of these selections can be changed by pressing the **Inc** (increment) button when the cursor is on that item, i.e. change the **Ma1** to **Ma2**, etc.
- c. When selections are made the load can be toggled or incremented in 10% steps.

2. How to set Station Switch Status:

- a. Currently not implemented

3. How to set or calibrate Master Controller Time:

- a. Press arrow keys so the cursor is on the T in **Time**, then press the button under **Sel**.
 - i. To set/change the time and date on the C-Box, place the cursor on **Set** and press **Sel**. Each component of the date and time can be decremented or incremented.
 - ii. To calibrate the C-Box's internal clock, place the cursor on **Calibrate** and press **Sel**. The internal C-Box clock speed can be decremented or incremented to + or - 58 seconds daily.

4. How to run Diagnostics and Reports:

- a. Press the arrow keys so the cursor is on the D in **Diag**, then press **Sel**.
 - i. For Master diagnostics place the cursor on **Mast** and press **Sel**.
 - (1) Select **Ver** for Master Firmware Version.
 - (2) Select **Net** for network communications.
 - (3) Select **Tele** to see if TeleAccess has been installed.
 - (4) Select **Gen** to see the Master Address.
 - ii. For Station diagnostics (not implemented)
 - iii. For RS232 diagnostics place the cursor on **RS232** and press **Sel**.
The current port, baud rate, parity, Total bits, and Stop bits are displayed.
 - iv. For Gen diagnostics place the cursor on **Gen** and press **Sel**.
With the cursor on **Ldbk Flsh**, press **Sel** and the C-Box will be **reprogrammed from the Backup Flash**. When display reads "Backup Flash Loaded," press **Exit** until display returns to normal.


B. Connect to computer

Connection to the computer can be temporary using the front diagnostic RS-232 Port, or permanently wired to the C-Box using Port-A, B, or C. (**Port-C is not available on the CD1000RF**)

C. Update Firmware

The C-Box may be shipped with a firmware update. The first time you connect to the C-Box Q-Link may prompt you to update the system firmware to the latest version.

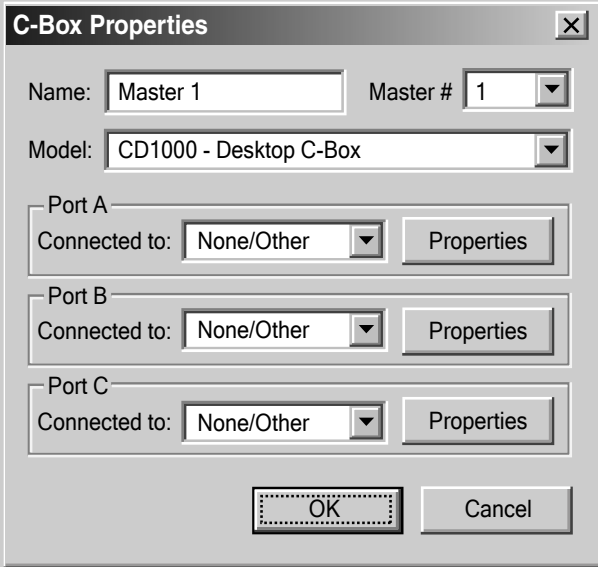
D. Setup C-Box Controller in QLink

A C-Box Controller may be added in the Wiring view by right clicking on  **New Project** and selecting **Add C-Box Controller**

or **RadioLink C-Box Controller**. Typically you should first create Floors and Rooms before creating the C-Box.

If you first create floors and rooms and then try to add a station, load or any item that requires a C-Box Controller the software will automatically add the Controller you specify to the project.

The C-Box Properties window is opened when a C-Box Controller is created. Specify the model number and make sure the proper items is selected for the Ports intended use. Please refer to online help in the Q-Link software and your training manual for addition explanation.



7. CONFIGURE STATIONS

The C-Box must be programmed with the serial numbers of all the stations assigned to it in Q-Link. From the menu bar in Q-Link, select **System/Configure Stations**. A list of all stations will be displayed on the screen. With wired stations, press the **Configure Station** button(s). With RadioLink stations, manually enter the serial number for each RadioLink station to match it with the corresponding programming in Q-Link. After the C-Box is programmed, it will add to its network and configure only the RadioLink stations that it has serial numbers for. This will take several minutes depending on the number of RadioLink stations on the network. The second row on the display of the C-Box will indicate the number of stations on the network. Wired stations show in the "R_" field. RadioLink stations show in the "RS_" field. After the display indicates that all the RadioLink stations are on the network, it is recommended that the installer wait at least 5 minutes before pressing any buttons on the system. This allows the C-Box time to finish configuring all the stations. The Status LED will blink steadily when a station has been added to the network and configured.

FCC ID: PII-CR1000

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B Digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

Changes or modifications to this product not expressly approved by Vantage Controls could void the user's authority to operate this product.



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 For questions or technical assistance, contact Vantage Tech Support
 7AM - 6PM MST at 800-555-9891.

C-BOX SPECIFICATIONS

<i>Product Type</i>	<i>C-Box Home Automation Controller</i>
<i>Model</i>	<i>C-Box with RadioLink Desktop (CD1000)</i>
<i>Rated Voltage</i>	<i>AC 110-120 220-240 V</i>
<i>Input Current</i>	_____
<i>Rated Frequency</i>	<i>50/60 Hz</i>
<i>Power Consumption</i>	_____
<i>Ambient Operating Temperature</i>	<i>41° to 104°F (+5°C to +4-°C)</i>
<i>Storage Temperature</i>	<i>-4°F to 140°F (-20°C to +60°C)</i>
<i>Ambient Operating Humidity</i>	<i>5-95% (non-condensing)</i>
<i>Cabinet</i>	<i>Steel</i>
<i>Dimensions (Approximate)</i>	<i>17" (w) x 2" (h) x 10" (d)</i>
<i>Weight (Approximate)</i>	<i>8 lbs.</i>
<i>Maximum # of Keypad Buttons</i>	<i>400</i>
<i>Maximum # of Slave Buttons</i>	<i>100</i>
<i>Maximum # of Wired Stations</i>	<i>50</i>
<i>Maximum # of RF Stations</i>	<i>60</i>
<i>Maximum # of Timed Events</i>	<i>250</i>
<i>RS-232 Ports</i>	<i>4</i>
<i>LCD Display and Button Interface</i>	<i>yes</i>
<i>Maximum Power Draw</i>	<i>150W @ 120V, 75W @ 240V</i>
<i>Built-in Protections</i>	<ul style="list-style-type: none"> • <i>Transformer isolation between C-Boxes</i> • <i>Static Shock for Master, Station, Slave, RS232</i> • <i>Secondary effects of lightning for C-Box, Station</i>
<i>Lithium Battery Backup</i>	<i>20-year (unpowered)</i>
<i>Flash ROM</i>	<i>yes</i>
<i>Wiring Specifications (device dependent)</i>	<i>2-Conductor, 18 gauge stranded, non-shielded (i.e. Liberty #16218EX)</i>
<i>Maximum Length of C-Box Network</i>	<i>1000 feet (304 meters)</i>
<i>Wiring Configuration C-Box Network</i>	<i>Daisy Chain only</i>
<i>Maximum Length of Station Bus</i>	<i>2000 feet (608 meters)</i>
<i>Wiring Configuration Station Bus</i>	<i>Daisy Chain, Branch, and/or Star</i>

RADIO SPECIFICATIONS (CD1000RF ONLY)

<i>FCC ID#</i>	<i>PII-RFE1000</i>
<i>Frequency Range</i>	<i>902-928 MHz ISM Band</i>
<i>Power Supply</i>	<i>12 VDC</i>
<i>Current required while transmitting</i>	<i>180mA</i>
<i>Current required while receiving</i>	<i>70mA</i>
<i>Antenna Connection</i>	<i>Permanent (Solder)</i>
<i>Antenna Gain</i>	<i>2dBi</i>
<i>Transmit Power</i>	<i>140mW</i>
<i>RF Technology</i>	<i>Frequency Hopping Spread Spectrum</i>
<i>Number of Hop Channels</i>	<i>25</i>
<i>Operating Temperature Range</i>	<i>41° to 104°F (+5°C to +4-°C)</i>