

Crestron **MT-1000C**
MiniTouch Handheld Wireless Touchpanel
Operations Guide



This document was prepared and written by the Technical Documentation department at:



Crestron Electronics, Inc.

15 Volvo Drive

Rockleigh, NJ 07647

1-888-CRESTRON

Contents

MiniTouch Handheld Wireless Touchpanel: MT-1000C	1
Introduction	1
Features and Functions.....	1
Specifications	2
Physical Description.....	4
Industry Compliance	7
Setup.....	8
Battery Installation and Replacement.....	8
Docking Station Setup.....	8
Identity Codes	9
User Configuration Menus.....	10
Recommended Care and Cleaning	14
Programming Software.....	15
Earliest Version Software Requirements for the PC	15
Programming with Crestron SystemBuilder	15
Programming with SIMPL Windows.....	15
Programming with VisionTools Pro-e	17
Example Program.....	20
Uploading and Upgrading	21
Microsoft ActiveSync Installation.....	21
Windows Mobile Device Center Installation	22
Establishing Communication	27
Projects and Firmware.....	27
Problem Solving.....	28
Troubleshooting	28
Further Inquiries.....	29
Future Updates	29
Software License Agreement.....	30
Return and Warranty Policies.....	32
Merchandise Returns / Repair Service	32
CRESTRON Limited Warranty	32

MiniTouch Handheld Wireless Touchpanel: MT-1000C

Introduction

Features and Functions

- Stylish and ergonomic handheld design
- 3.8" active-matrix color touchscreen
- 320 x 240 resolution | 16-bit Isys[®] graphics
- Synapse image rendering algorithm
- Backlit pushbuttons and 5-way thumbpad
- WAV file audio feedback
- Auto-shutoff and pick-up sensor
- 1-way RF or IR wireless communication
- Programmable using Crestron VisionTools[®] Pro-e software
- Includes docking station and Li-Ion battery pack

The MT-1000C MiniTouch is a compact wireless touchpanel combining an eye-catching color touchscreen with a streamlined array of backlit pushbuttons in one sleek, stylish handheld package. Its lightweight, ergonomic design affords comfortable and intuitive handheld or tabletop use with a perfect combination of tactile pushbutton control and touchpanel versatility. Stunning 16-bit color graphics and WAV file audio feedback make the MT-1000C both highly functional and fun to use for a host of AV control and automation applications.

Color Touchpanel

Isys[®] graphics and a brilliant 3.8" active matrix display combine to deliver much of the performance of larger touchpanels from Crestron[®] in an incredibly portable size. Like all Crestron touchpanels, the MT-1000C is fully programmable using Crestron's VisionTools[®] Pro-e GUI design software (VT Pro-e), supporting 64K colors and Synapse[™] image rendering for crisp, sharp, anti-aliased objects and text, high-res images, and 3D effects.

Backlit Pushbuttons

The MT-1000C also includes 16 tactile pushbuttons designated for quick access to the most commonly used audio and video control functions. The 5-way thumbpad is

optimized for easy onscreen menu navigation, and all buttons include backlighting to facilitate operation in a darkened home theater or boardroom.

Audio Feedback

Providing an additional dimension to the control experience, the MT-1000C can be loaded with fully-customizable WAV files to provide audible feedback, button clicks, and personalized voice prompts.

RF and IR Wireless

Crestron's proven RF wireless technology affords an operational range of up to 100 feet with complete freedom of movement. Long-range 418 MHz 1-way RF communication enables compatibility with any Crestron control system via the CNRFGWA-418 gateway (sold separately). Range is easily extended by distributing multiple gateways throughout a structure. The MT-1000C is also ideal for use with Crestron's MC2W Integrated Wireless Control System. IR communications is facilitated using the C2N-IRGW Series IR Gateway or CNXRMIRD IR Receiver (sold separately) along with a compatible control system or room solution box.

Li-Ion Rechargeable Batteries

A fast-charging Lithium Ion battery pack provides long-lasting wireless operation without the "memory" issues typical of other rechargeable batteries. Adjustable auto-shutoff preserves the battery for up to a week without recharging. The included docking station simplifies recharging while simultaneously providing operating power when the battery is low.

Pick-up Sensor

An integral movement sensor can be set to automatically wake the touchpanel and turn on the backlight whenever the unit is picked up, readying the complete unit for use without having to wait after touching the touchscreen or buttons.

Specifications

Specifications for the MT-1000C are given in the following table.

MT-1000C Specifications

SPECIFICATION	DETAILS
Touchscreen Display	
Display Type	TFT active matrix color LCD
Size	3.8 inch (9.65 cm) diagonal
Aspect Ratio	4:3 QVGA
Resolution	320 x 240 pixels
Color Depth	16-bit, 64k colors
Illumination	Backlit fluorescent with movement sensor
Touchscreen	Resistive membrane
RF Wireless	
RF Transmitter	418 MHz 1-way RF
Range	50 – 100 feet (typical)
CNRFGWA-418 or MC2W gateway/receiver required (maximum 15 touchpanels per gateway)	

(Continued on following page)

MT-1000C Specifications (Continued)

SPECIFICATION	DETAILS
IR Wireless	
IR Transmitter	38 kHz IR
Format	RC5
IR Range	15 to 25 feet (typical)
C2N-IRGW-Series IR Gateway, MC2W gateway/receiver or CNXRMIRD IR receiver required (maximum 2 touchpanels per gateway)	
Processor	206 MHz RISC Microprocessor
Memory	16 MB User RAM
Graphic Engine	16-bit non-palette graphics; 65,536 colors; Synapse image rendering algorithm
Audio	
WAV File	8 & 16-bit PCM, mono & stereo, 8 – 22 kHz sampling rates
Battery	
Model/Type	MT-1000C-BTP Lithium Ion rechargeable battery pack (included)
Usage per Charge	Approximately 4 hours with display and backlight on full continuous; up to 7 days inactive
Power Requirements	
Docking Station/Charger (MT-1000-DS included)	2 Amps @ 5 Volts DC
Power Supply (included)	0.3 Amps @ 100-250 Volts AC 50/60Hz
Minimum 2-Series Control System Update File ^{1,2}	Version 3.008 or later
Environmental	
Temperature	41° to 104°F (5° to 40°C)
Humidity	10% to 90% RH (non-condensing)
Enclosure	
Construction	High impact black/silver injection-molded case
Dimensions	
Height	1.23 in (3.12 cm)
Width	7.15 in (18.16 cm)
Depth	4.74 in (12.04 cm)
Weight	10.4 oz (0.3 kg) including battery pack

1. The latest software versions can be obtained from the Crestron website. Refer to the NOTE following these footnotes.

2. Crestron 2-Series control systems include the AV2 and PRO2. Consult the latest Crestron Product Catalog for a complete list of 2-Series control systems.

NOTE: Crestron software and any files on the website are for authorized Crestron dealers and Crestron Authorized Independent Programmers (CAIP) only. New users may be required to register to obtain access to certain areas of the site (including the FTP site).

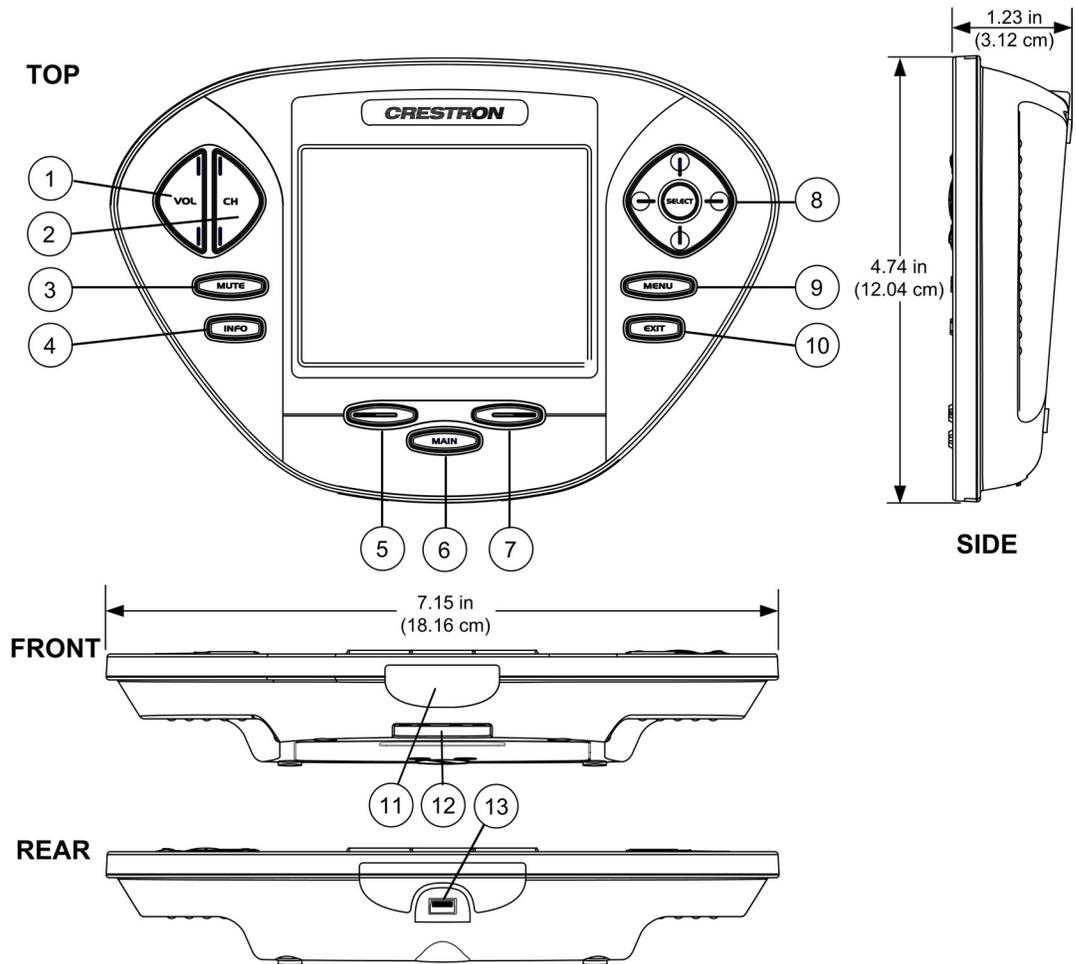
Physical Description

This section provides information on the connections, controls and indicators available on your MT-1000C and MT-1000-DS (included).

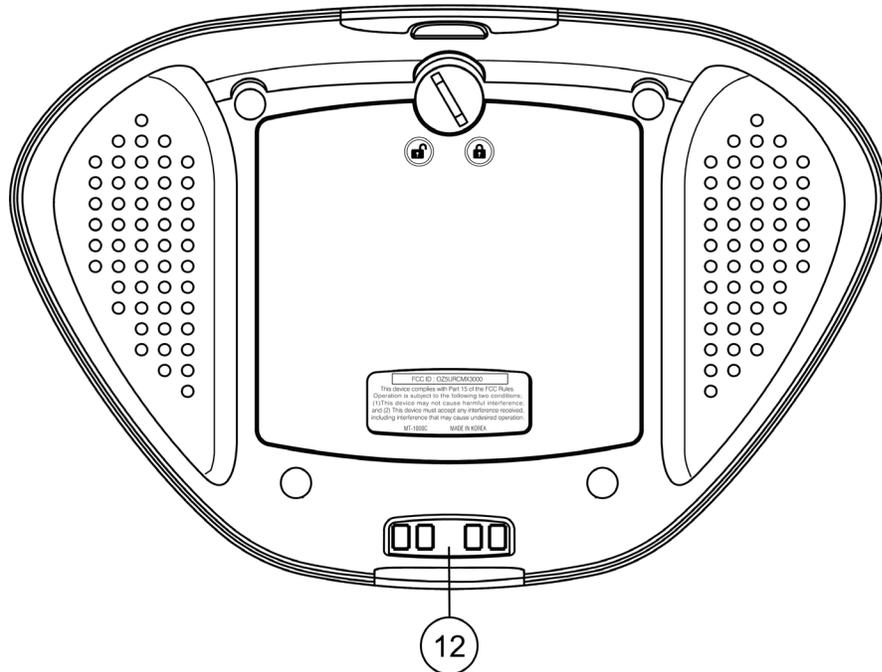
MT-1000C Physical View



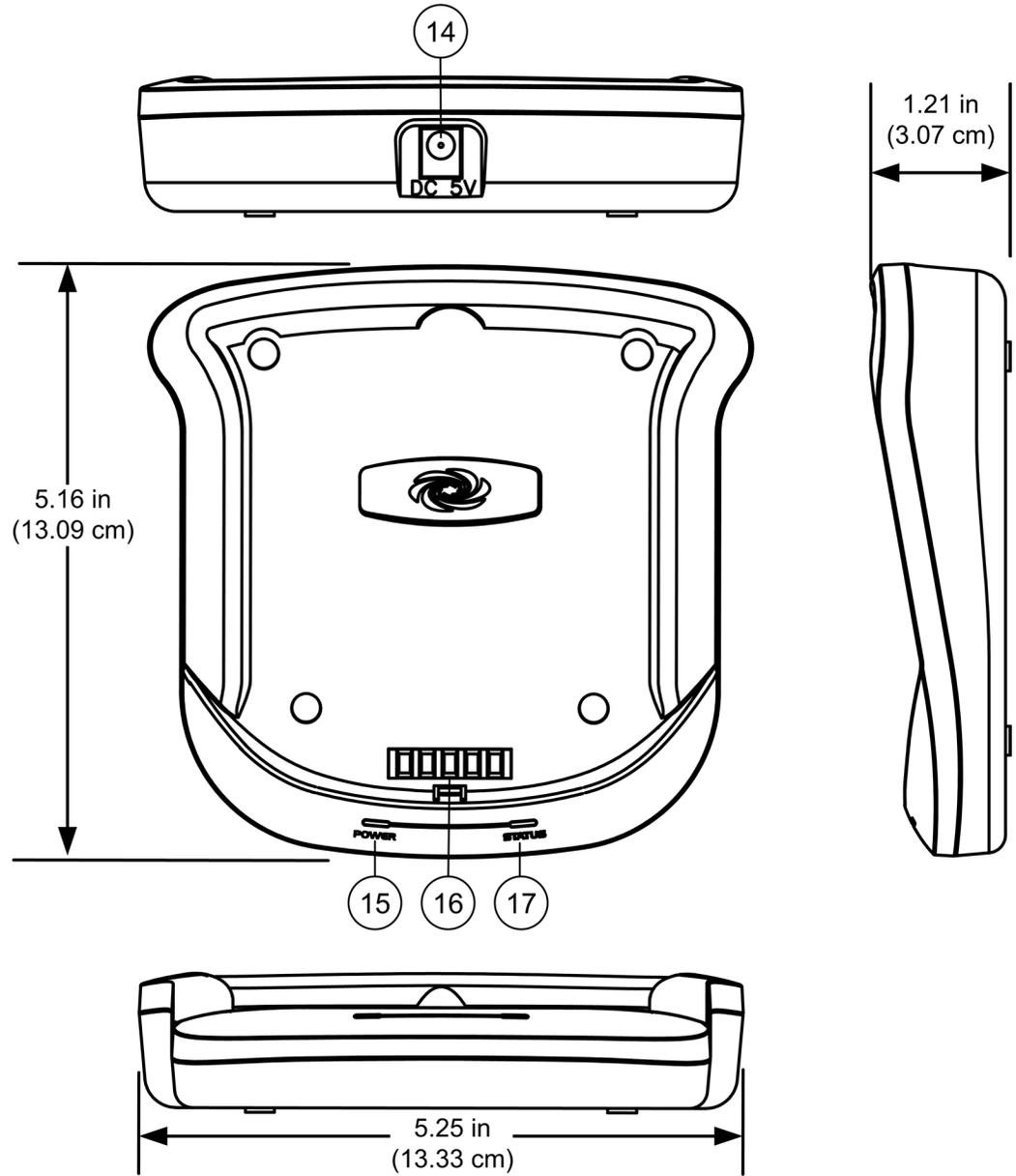
MT-1000C Overall Dimensions



MT-1000C Bottom View



Docking Station Overall Dimensions



Connectors, Controls & Indicators

#	CONNECTORS, CONTROLS & INDICATORS	DESCRIPTION
1	VOL	Volume up/down - programmable pushbutton
2	CH	Channel up/down - programmable pushbutton
3	MUTE	Programmable pushbutton
4	INFO	Programmable pushbutton
5	Page Back	Moves back one page – programmable pushbutton
6	MAIN	Returns to main page - programmable pushbutton
7	Page Forward	Moves forward one page - programmable pushbutton
8	Thumbpad	Up, down, right, left, and SELECT - programmable pushbuttons
9	MENU	Programmable pushbutton
10	EXIT	Programmable pushbutton
11	IR Transmitter Lens	Protective cover over IR emitter
12	Battery charge contacts	Enable charging of the touchpanel battery
13	USB Port	For uploading firmware and touchpanel projects
14	Power input port	Connects power supply to docking station
15	POWER Indicator	Red LED indicates power applied to docking station
16	Battery charge contacts	Power source for docked touchpanel
17	STATUS Indicator	LED is red when battery is charging; blue when battery is fully charged.

Industry Compliance

As of the date of manufacture, the MT-1000C has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.



NOTE: 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.

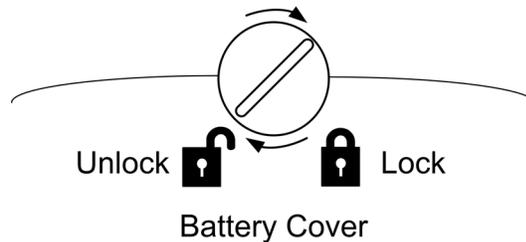
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate 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.

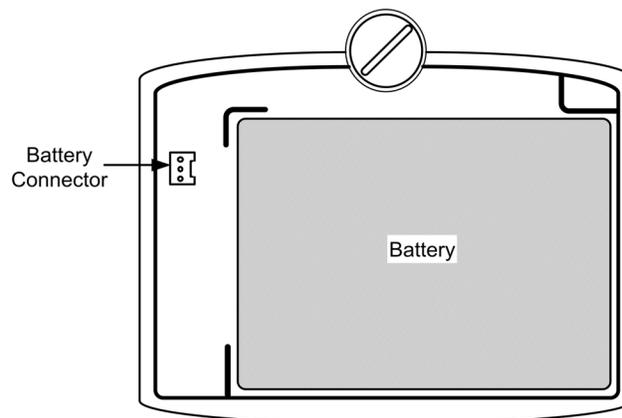
Setup

Battery Installation and Replacement

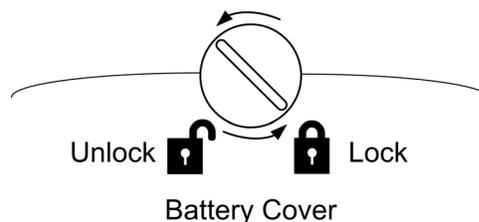
1. Unlock the bottom battery cover by rotating the locking screw clockwise.



2. Lift out the battery and disconnect the plug from the battery connector.
3. Connect the new battery. The connector is keyed so that it will only insert one way.



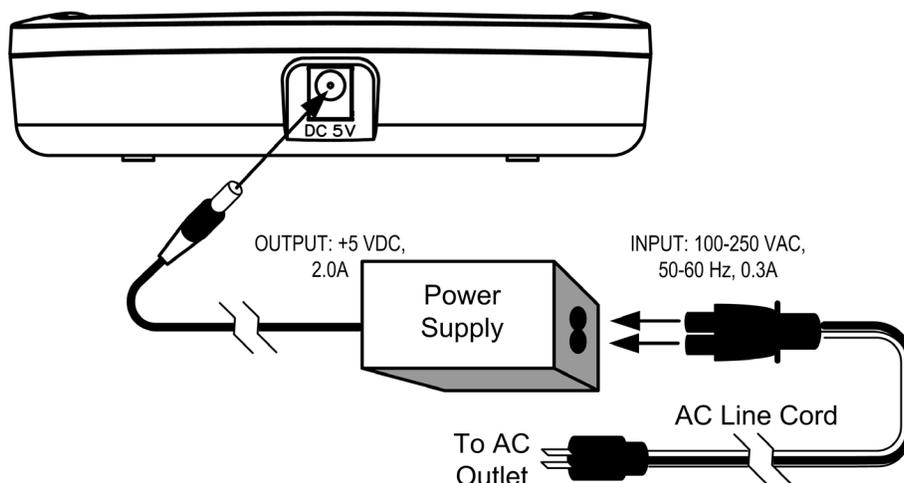
4. Place the battery in the opening, ensuring that the battery wires will not be pinched when you replace the battery cover.
5. Replace the battery cover and rotate the locking screw counterclockwise to lock.



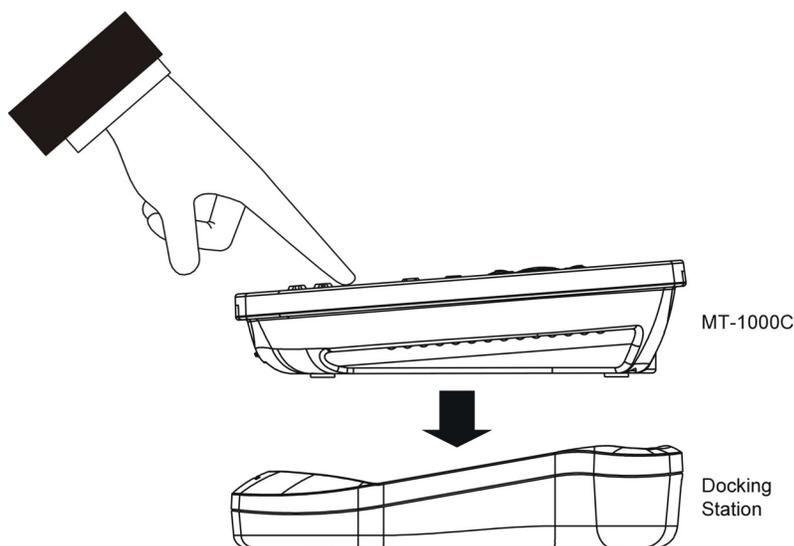
NOTE: A replacement battery may be ordered from Crestron.
Use part number 6002767.

Docking Station Setup

Plug the power supply (included) into an AC power outlet using the AC line cord provided. Plug the cord from the power supply into the port provided on the back of the docking station labeled “DC 5V”. The red **POWER** LED should turn on.

Docking Station Power Supply Hookup

Place the MT-1000C in the cradle of the docking station and press down until you hear a click.



When the MT-1000C is properly seated on the docking station, the **STATUS LED** lights up red while the battery is charging. The status LED turns blue when the battery is fully charged.

Identity Codes

The MT-1000C touchpanel uses two distinct types of identity codes: RF ID and IR ID. These codes are assigned to the touchpanel when the unit is configured in VT Pro-e. For the touchpanel to be identified within the Cresnet system, these assignments must match assignments made in the SIMPL Windows program.

RF ID

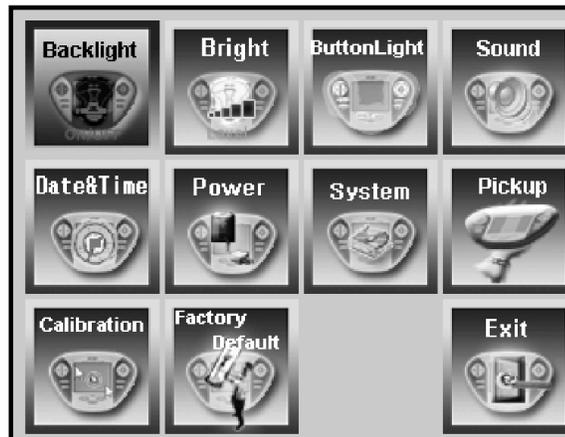
Every MT-1000C touchpanel communicating via RF with a Cresnet control system through a CNRFGWA-418 gateway or directly to an MC2W control system requires a unique RF ID. The RF ID is a two-digit hexadecimal number, limited to increments of the most significant digit (i.e., 00, 10, 20), that can range from 00 to F0. The RF ID of the unit, set in VT Pro-e, must match the RF ID specified in the SIMPL Windows program.

IR ID

Every MT-1000C touchpanel communicating via IR with a Cresnet control system through a CNXRMIRD receiver, a C2N-IRGW Series IR gateway or directly to an MC2W control system, requires a unique IR ID to secure IR communications. There are two useable codes (two-digit hexadecimal numbers): 00 and 10; the default is 00. The IR ID of the unit, set in VT Pro-e, must match the IR ID specified in the SIMPL Windows program.

User Configuration Menus

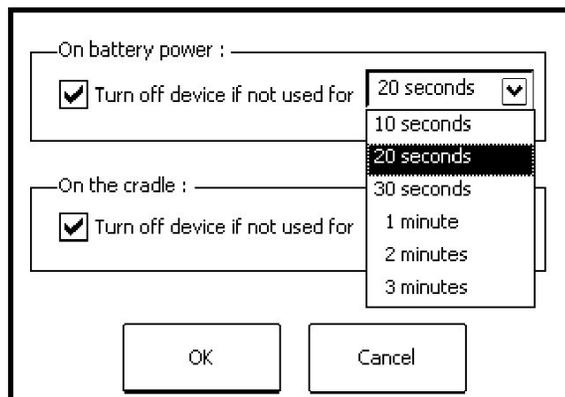
To display the User Configuration screens, press and hold the **MAIN** button for five seconds. The following menus are displayed in the settings screen.



NOTE: The configuration screen automatically times out after 30 seconds of inactivity and returns to normal operation.

Backlight

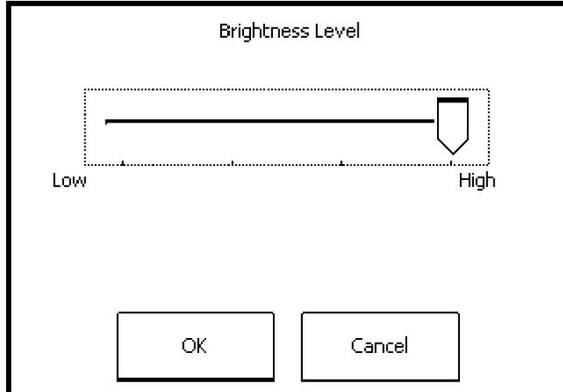
Adjust the timeout of the backlight both on and off the docking station (cradle). You can select up to three minutes for on the battery operation and up to four minutes for on the docking station operation.



Bright

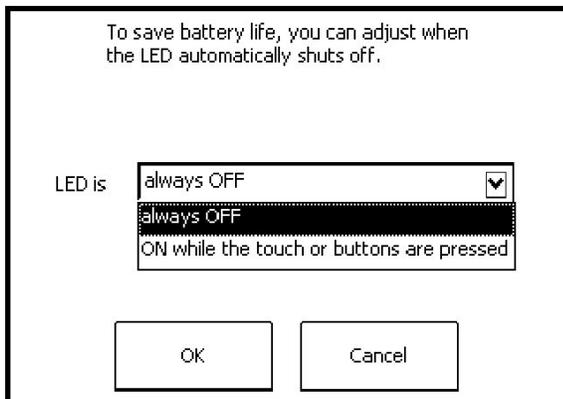
Adjust the display brightness slider.

NOTE: A brighter display reduces battery life.



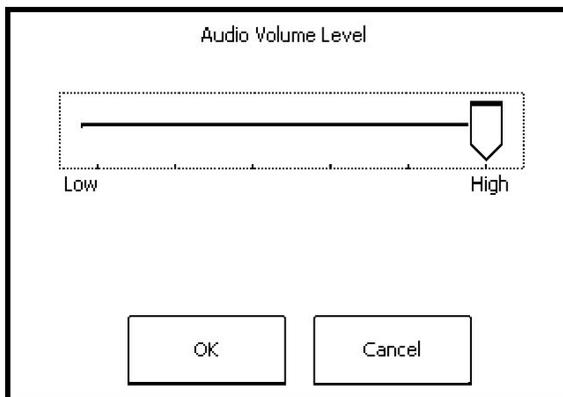
Button Light

Buttons can be backlit when touched, or always off to conserve battery life.



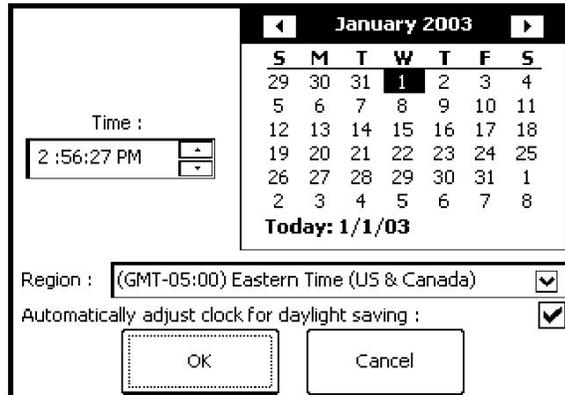
Sound

Adjust the volume of programmed audio.



Date & Time

Set the date and time.



Time :

2 :56:27 PM

Region : (GMT-05:00) Eastern Time (US & Canada)

Automatically adjust clock for daylight saving :

OK Cancel

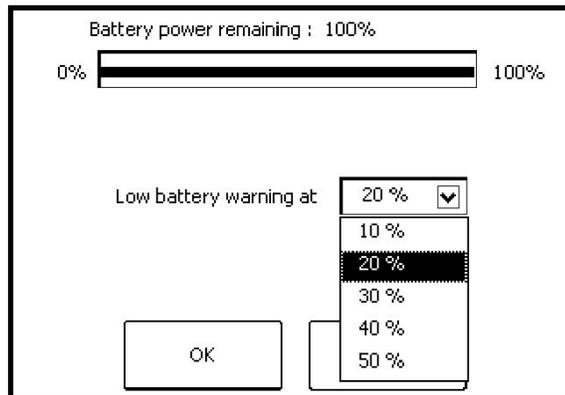
January 2003

S	M	T	W	T	F	S
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8

Today: 1/1/03

Power

Displays the remaining charge and sets the low battery indication level.



Battery power remaining : 100%

0%  100%

Low battery warning at

20 %

10 %

20 %

30 %

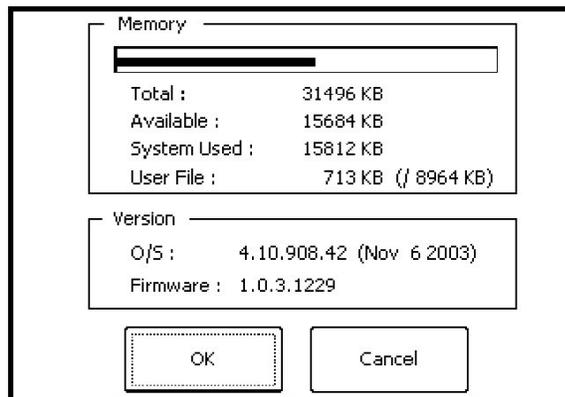
40 %

50 %

OK

System

Displays system memory and version information.



Memory



Total : 31496 KB

Available : 15684 KB

System Used : 15812 KB

User File : 713 KB (/ 8964 KB)

Version

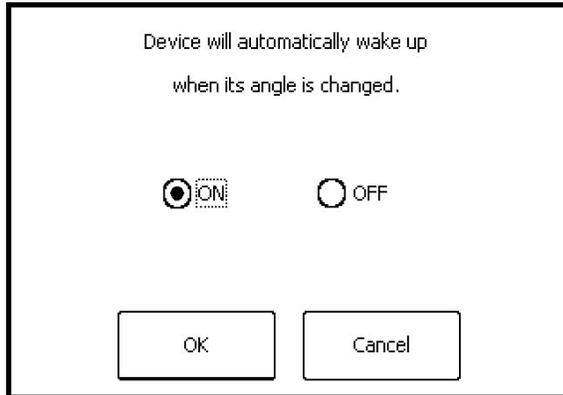
O/S : 4.10.908.42 (Nov 6 2003)

Firmware : 1.0.3.1229

OK Cancel

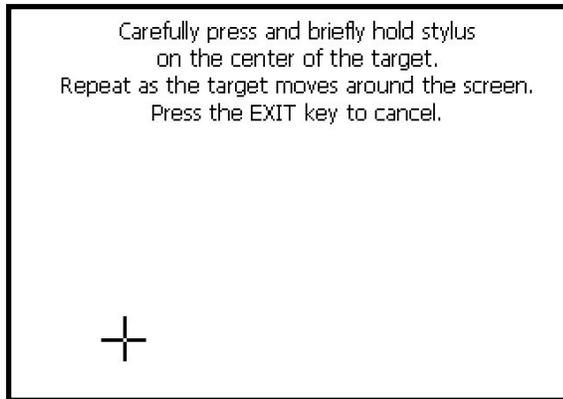
Pickup

Sets the MT-1000C to turn on when picked up or moved.



Calibration

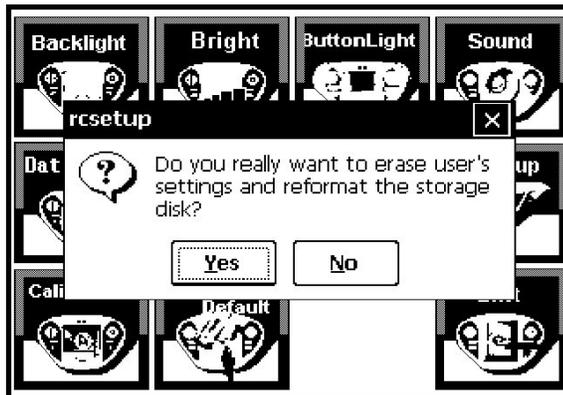
Calibrates the touchscreen. Use a stylus or pen top (not a finger) and follow the directions on the screen.



Factory Default

Resets the memory to the factory condition.

WARNING: All programming will be lost. Do not use this button unless directed to do so by technical support personnel.



Exit

The Exit button returns the MT-1000C to normal operation.

Recommended Care and Cleaning

Keep the surface of the touchscreen free of dirt, dust or other materials that could degrade optical properties. Long-term contact with abrasive materials can scratch the surface, which may detrimentally affect image quality.

- To avoid scratching the touchscreen, do not use a pen, pencil, or any sharp object. Use a plastic pen top, PDA stylus, or your finger.
- The MT-1000C is not waterproof. Avoid using it in damp or wet locations.
- Keep the MT-1000C away from extreme heat or cold.
- The touchscreen contains a glass element; avoid dropping or impacting against anything.
- If water is spilled on the MT-1000C, remove the battery pack and allow the MT-1000C to dry for 48 hours before using.

For best cleaning results use a clean, damp, non-abrasive cloth with any commercially available non-ammonia glass cleaner. Bezels may not provide a complete watertight seal. Therefore, apply cleaning solution to the cloth rather than the surface of the touchscreen. Wipe touchscreen clean and avoid getting moisture beneath the bezels.

Programming Software

Have a question or comment about Crestron software?

Answers to frequently asked questions (FAQs) can be viewed in the Online Help section of the Crestron website. To post a question or view questions you have submitted to Crestron's True Blue Support, log in at <http://support.crestron.com>. First-time users will need to establish a user account.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends that you use the latest software to take advantage of the most recently released features. The latest software is available from the Crestron website.

Crestron has developed an assortment of Windows®-based software tools to develop a Cresnet system. For the minimum recommended software versions, visit the Version Tracker page of the Crestron website (www.crestron.com/versiontracker).

Programming with Crestron SystemBuilder

Crestron SystemBuilder is the easiest method of programming but does not offer as much flexibility as SIMPL Windows. For additional details, download SystemBuilder from the Crestron website and examine the extensive help file.

Programming with SIMPL Windows

NOTE: While SIMPL Windows can be used to program the MT-1000C, it is recommended to use SystemBuilder for configuring a system.

SIMPL Windows is Crestron's premier software for programming Crestron control systems. It is organized into two separate but equally important "Managers".

Configuration Manager

Configuration Manager is the view where programmers "build" a Crestron control system by selecting hardware from the *Device Library*.

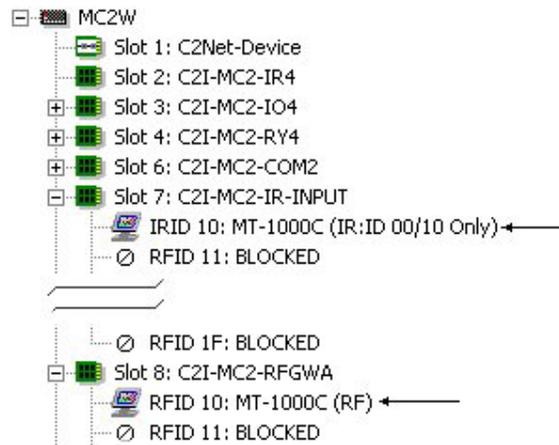
The MT-1000C can be programmed to operate either as an RF device or as an IR device. Either configuration requires that the MT-1000C communicate via a gateway device: a C2N-IRGW Series for IR; a CNRFGWA-418 for RF, or via a control system such as the M2CW that has built-in gateways for both RF and IR. The total number of MT-1000Cs that can be incorporated into a given system depends on the number and properties of the specific gateway(s) selected.

The following procedures are based on using an M2CW control system.

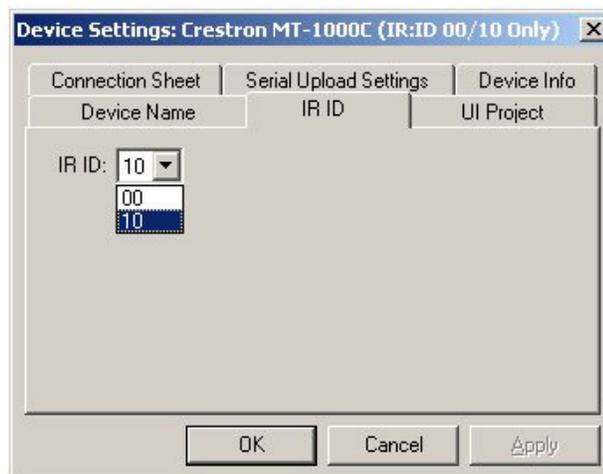
- To incorporate the MT-1000C into the system, drag the appropriate MT-1000C from the Touchpanels | Touchpanels (Wireless One-Way) folder of the *Device Library* and drop it in the *System Views*.
- Both instances of the MT-1000C are shown in the *Device Library*. Select either one or both, as appropriate.

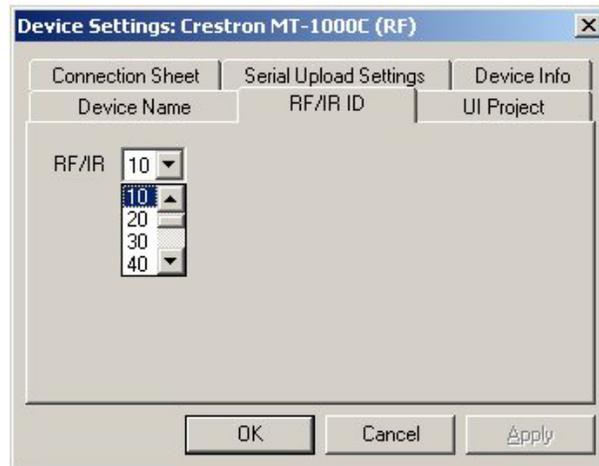
Locating the MT-1000C in the Device Library

The system tree of the control system displays the device in the appropriate slot(s) with a default RF ID or IR ID as shown in the following illustration.

C2Net Device, Slot 7 and/or 8

- Additional MT-1000C devices are assigned different IR ID or RF ID numbers as they are added.
- If necessary, double click a device to open the “Device Settings” window and change the RF ID or IR ID, as shown in the following figures.

“MT-1000C Device Settings - IR” Window

“MT-1000C Device Settings - RF” Window

- The ID code specified in the SIMPL Windows program must match the RF ID or IR ID of each unit. Refer to “Identity Codes” on page 9.

Program Manager

Program Manager is the view where programmers “program” a Crestron control system by assigning signals to symbols. The symbol can be viewed by double clicking on the icon or dragging it into *Detail View*. Each signal in the symbol is described in the SIMPL Windows help file (F1).

Programming with VisionTools Pro-e

Touchpanel screens should be created in VisionTools Pro-e to allow accessing the embedded applications, switching of source signals to desired outputs as well as selection of the system mode. There are no special programming requirements to use the functions of the MT-1000C in a room-control system.

WAV File Audio Messages

The MT-1000C touchpanels are capable of playing audio messages as system prompts and responses. These files are recorded as WAV files on a PC using an audio utility such as Sound Recorder that is packaged with Microsoft Windows 95/98/Me/XP/NT/ 2000/Vista™. Files from other sources may also be converted to an acceptable format by using this or a similar utility. Many other audio utilities are available commercially or as shareware. The MT-1000C touchpanels only accept the following WAV file formats: **8 and 16-bit PCM, 8KHz, mono and stereo, 8 – 22 kHz sampling rates**. For more information about how to use Sound Recorder, refer to its User’s Guide and extensive help information provided with the software. Also refer to the help file in VT Pro-e to learn how to use its audio tool, Sound Manager, to attach WAV files to a touchpanel project.

Pre-recorded WAV files for voice prompts and responses are available from Crestron. These files can be stored into and programmed for use in the touchpanel directly or may be edited with the Sound Recorder. For example, the individual files can be combined to create custom messages.

NOTE: Touchpanel WAV files can be obtained from the Wave LC Library of the Crestron FTP site.

Bit Depth and File Size

A bit depth refers to the number of memory bits used to store color data for each pixel in a raster image. A touchpanel raster image consists of a rectangular grid of

picture elements (pixels). Each pixel uses the same amount of memory to store its color data. The amount of memory is called the bit depth of the image.

Greater bit depths are required to represent finer gradations of color. Increasing bit depth necessarily increases file size. A black and white drawing requires only one bit per pixel to store all the available color information. Using a 32-bit per pixel bit depth for a black and white image increases the file size 32 times without adding anything to the black and white image quality.

In an 8-bit per pixel system, the associated 8-bits of video memory for every screen pixel contain a value referring to a location in an 8-bit color table. In this way any one of the specific 256 color table locations is assigned to a pixel.

A 16-bit highcolor system is considered sufficient to provide life-like colors. It is encoded using 5-bits to represent red, 5-bits to represent blue and (since the human eye is more sensitive to the color green) 6-bits to represent 64 levels of green. These can therefore be combined to provide 65,536 mixed colors ($32 \times 32 \times 64 = 65,536$).

In a 24-bit graphics display, the video memory allocates 24 bits for each pixel on the screen enabling each pixel to take on any one of a possible 16.7 million colors. Each 24-bit value is composed of 8-bits for red, 8-bits for green and 8-bits for blue. These triplets of 8-bit values are also referred to as the red, green and blue color planes. A 24-bit image is actually composed of three component images which combine to create the truecolor picture. The reason this is called truecolor is that this is near the maximum number of colors the human eye is able to detect.

Truecolor images are sometimes represented by a 32-bit value. The extra 8-bits do not enhance the precision of the color representation but act as an alpha channel that represents pixel translucence. 32-bit truecolor has become popular on the computer desktop to provide effects such as translucent windows, fading menus and shadows.

In graphics intensive applications such as touchpanels, raising or lowering the color depth of the displayed graphics can achieve a balance of performance and quality. Lower color depths do not require as much frame buffer memory or display bandwidth, allowing them to be generated and displayed more quickly. Increasing color depth results in higher color quality at the expense of display speed and responsiveness. By using mostly 8-bit or 16-bit graphics and holding 32-bit graphics to a minimum (e.g. for a family photo, etc.), you can create a sophisticated project that will fit in the memory space provided and have the touchpanel remain very responsive.

Relationship of Bits to Colors

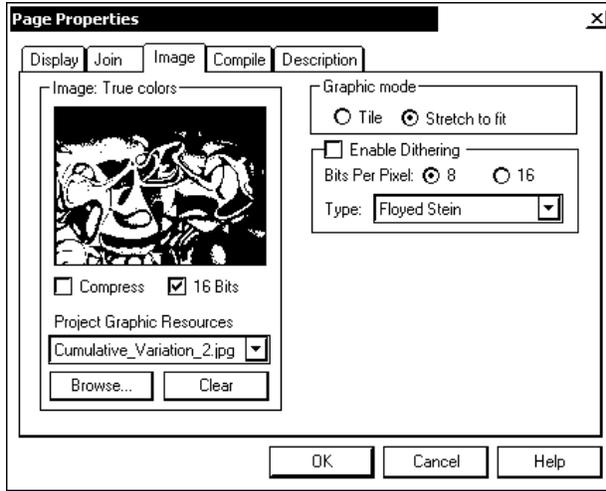
NUMBER OF BITS	NUMBER OF COLORS
1 bit	Black and White
2 bits	4 Colors
4 bits	16 Colors
8 bits	256 Colors
16 bits	65,536 Colors (Highcolor)
24 bits	16.7 million Colors (Truecolor)
32 bits	16.7 million Colors plus Transparency

When creating a VT Pro-e project you can elect to compress and reduce the image size in the “Page Properties” window for the entire page and/or perform the same function of reducing the image size using the “Image Properties” window. A reduction in image size will save a considerable amount of memory space for your project.

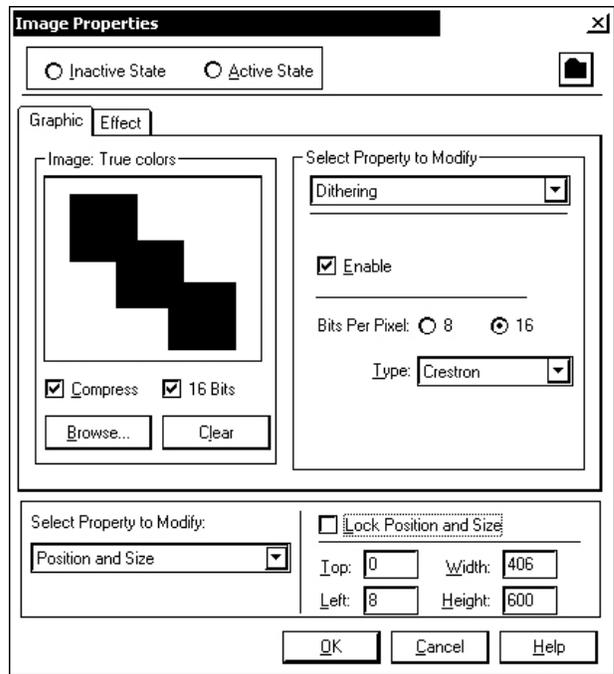
In VT Pro-e, the **Compress** checkbox permits the image to be compressed when compiling. The **16 Bits** checkbox converts a 24-bit or 32-bit image to 16 bits. This

conversion to a 16-bit image may cause the loss of some subtle shading. To compensate for this, use the dithering to simulate the original shading. Various dithering types are available. Refer to the following illustrations.

VT Pro-e “Page Properties” Window – Bit Depth Selection



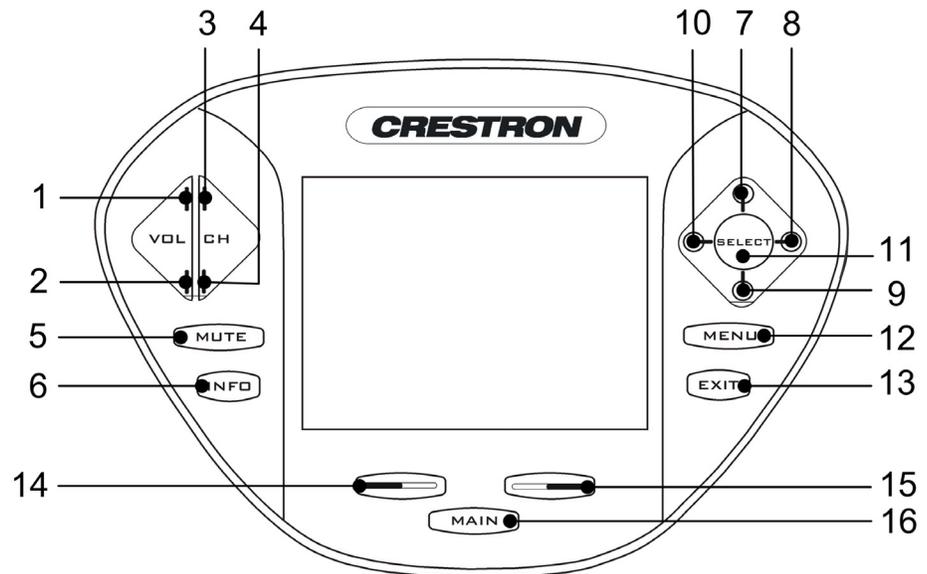
VT Pro-e “Image Properties” Window – Bit Depth Selection



Pushbutton Programming

The MT-1000C buttons can be programmed to access any frequently used command. Each button has a permanently fixed digital join number. Refer to the following diagram for their assigned join numbers. A description for each button signal is described in the SIMPL Windows help file (F1).

Pushbutton Layout and Join Number Assignment



MultiByte International Characters

Most languages use a single byte of eight bits to represent a character, e.g. English, French, German, Hebrew, Russian, Thai, etc.

Multibyte character fonts require more than the usual eight bits to specify a character. This occurs when a language has more than 256 characters (2^8) in a font. For example, Chinese fonts contain several thousand characters. Other multibyte languages include Japanese and Korean.

There are two separate applications with multibyte characters – static text on buttons and indirect text on buttons. No Isys touchpanel firmware changes are required in either case.

Indirect text on a button is entered in VisionTools Pro-e and the actual string to be displayed is entered in SIMPL Windows.

Of course you can always use the workaround of showing a graphic that displays the string but it is not dynamic. To compile and use multibyte characters it is essential that the operating system understand the language. Windows XP and Vista are available in many international languages and add-on software is available for other versions of Windows.

Example Program

An example program for the MT-1000C is available from the Crestron website (<http://www.crestron.com/exampleprograms>).

Uploading and Upgrading

Crestron recommends using the latest programming software and that each device contains the latest firmware to take advantage of the most recently released features. However, before attempting to upload or upgrade it is necessary to establish communication.

For PCs running Windows 2000 or XP operating systems, the MT-1000C requires Microsoft® ActiveSync® for communication with Crestron Toolbox.

For PCs running the Windows Vista™ operating system, the MT-1000C requires Windows Mobile Device Center™ for communication with Crestron Toolbox.

Crestron Toolbox includes the driver for the MT-1000C.

Microsoft ActiveSync Installation

NOTE: Begin the installation process with the equipment disconnected.

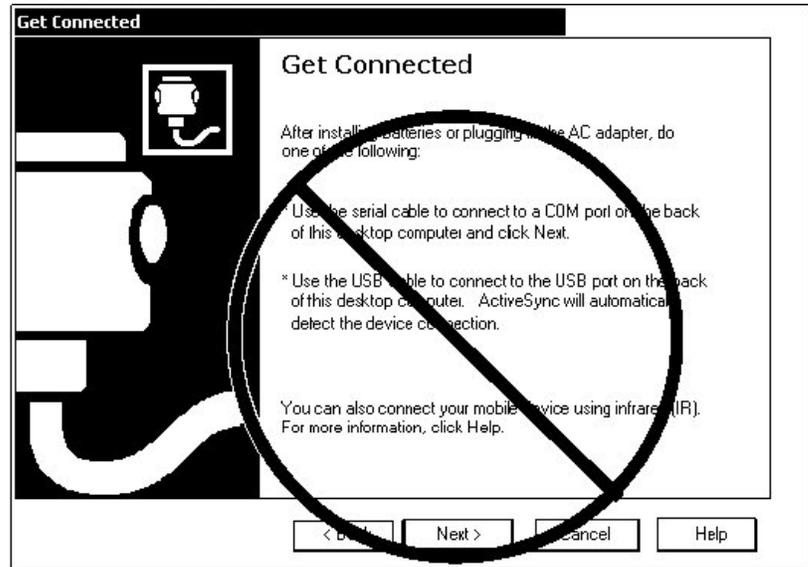
Use the following steps to install ActiveSync.

1. Your MT-1000C comes with a CD that contains Microsoft ActiveSync. Find and run “ActiveSync.exe” from the included CD.
2. When a new setup window opens for ActiveSync, click **NEXT**.

“Microsoft ActiveSync” Setup Window



3. A new window opens to select the installation folder, simply click **NEXT** to accept the defaults.
4. If a new window titled “Get Connected” opens, do not click any button in this window. The “Get Connected” window will automatically update. **Do not click NEXT.**

“Get Connected” Window

5. After Microsoft ActiveSync is installed, you can use VT Pro-e to create a project and use Crestron Toolbox to upload the program to the MT-1000C.
6. Plug the USB cable into your computer and then into the MT-1000C. The hardware wizard will recognize the new addition.

Windows Mobile Device Center Installation

NOTE: Begin the installation process with the equipment disconnected.

Use the following steps to install the Windows Mobile Device Center.

1. Download and install Windows Mobile Device Center (WMDC) from the Microsoft web site:
(<http://www.microsoft.com/windowsmobile/devicecenter.mspx>).
After installation, an icon for the WMDC appears in the control panel of your PC.
2. Double-click the WMDC icon to open the program; refer to the following figure.



3. If not previously installed, run Toolbox installation and answer “Yes” to the install the MT-1000 drivers question. Refer to the following figure.



* OR *

Run MT1000Components.exe in the Toolbox install folder if Toolbox is already installed on your PC.

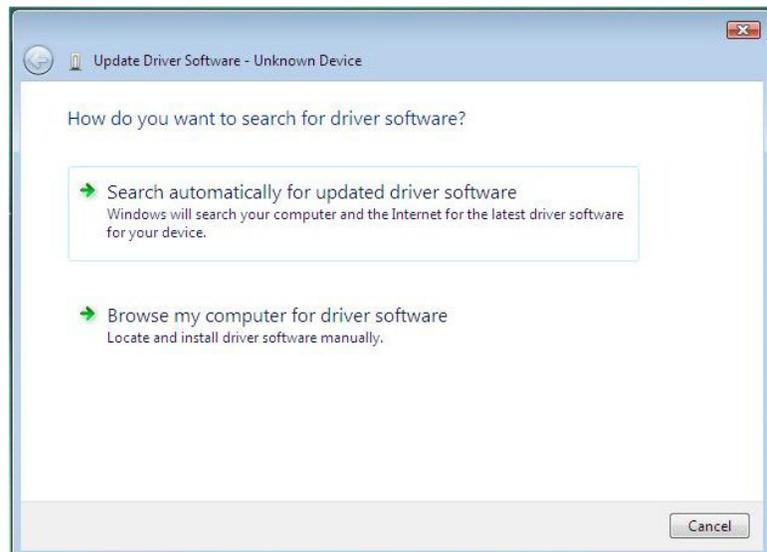
4. Plug in the MT-1000 to the USB port. The following “Found New Hardware” window appears.



5. Click **Cancel** and open the Device Manager from the Control Panel and find “Unknown device” in the list, as shown in the following figure.



6. Right click on this device and select **Update Driver Software**. The following windows appears:



7. Click **Browse my computer . . .**, then browse to and select: "C:\Program Files\Common Files\URC Shared\MT-1000\Usb\windows vista x86" and click **Next**.
8. When the following warning appears, click **Install this driver software anyway**.



Installation should finish and the window should be similar to the following:



9. Open the Windows Mobil Device Center; it should now detect the device and the window should appear similar to the figure on the following page.



10. Click **Connect without setting up your device**; the resulting window should be similar to the following:



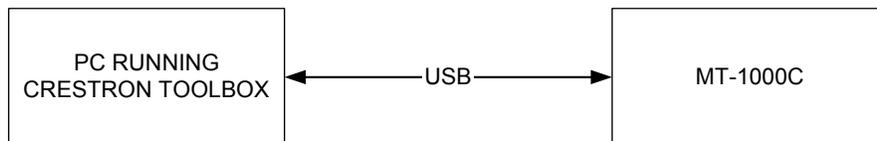
11. Toolbox can only see the MT-1000 if the Mobile Device Center looks like the figure above. If it does not, try reinserting the USB connector and reinstalling the driver.
12. Open Toolbox and select the MT-1000 address book entry.

NOTE: Although keyed, the USB connector can be inserted up side down. This will generate an error message.

Establishing Communication

Use Crestron Toolbox for communicating with the MT-1000C; Crestron Toolbox contains an MT-1000 in the default address book. Refer to the Crestron Toolbox help file for details. There is a single method of communication: USB communication.

USB Communication



- The USB port on the MT-1000C connects to the USB port on the PC via the included USB cable.
- All communication parameters are automatically set.
- Display the MT-1000C's "System Info" window (click the  icon); communications are confirmed when the device information is displayed.

Projects and Firmware

Program, project or firmware files may be distributed from programmers to installers or from Crestron to dealers. Firmware upgrades are available from the Crestron website as new features are developed after product releases. One has the option to upload programs and projects via the programming software or to upload and upgrade via the Crestron Toolbox. For details on uploading and upgrading, refer to the SIMPL Windows help file or the Crestron Toolbox help file.

SIMPL Windows

If a SIMPL Windows program is provided, it can be uploaded to the control system using SIMPL Windows or Crestron Toolbox.

VisionTools Pro-e

Upload the VisionTools Pro-e file to the touchpanel using Crestron Toolbox.

Firmware

Check the Crestron website to find the latest firmware. (New users may be required to register to obtain access to certain areas of the site, including the FTP site.)

- Upgrade MT-1000C firmware via Crestron Toolbox.
- Establish communications with the MT-1000C and display the "System Info" window.
- Select **Functions | Firmware...** to upgrade the MT-1000C firmware.

Problem Solving

Troubleshooting

The following table provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

MT-1000C Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Docking Station Power LED not illuminated	Power supply not connected properly	Check connection to back of Docking Station
		Check connection to Power Supply
		Check connection to wall outlet
Docking Station Status LED not illuminated	MT-1000C not properly seated in cradle	Gently press down on the MT-1000C until you hear a click
Display is black	Battery pack not properly installed	Refer to "Battery Installation and Replacement" in this guide for battery instructions
	Battery pack not charged	
Brightness too low or too high	Adjust brightness	Refer to "User Configuration Menus" in this guide for brightness adjustment instructions
Touchscreen buttons do not respond properly	Touchscreen out of calibration	Refer to "User Configuration Menus" in this guide for touchscreen calibration instructions
Devices do not respond	Devices not powered up	Check power to devices and check that devices are on
	Battery charge is low	Recharge battery
	Gateway not functioning	Check power to Gateway
	Out of range	Distance to Gateway/Receiver too far
	Control system not programmed properly	Check control system program
Battery pack will not charge	Battery pack not properly installed	Refer to "Battery Installation and Replacement" in this guide for proper installation instructions
	MT-1000C not placed properly in docking station	Make sure unit is mounted properly in docking station
	Connection for MT-1000C in docking station is dirty or has an obstruction	Clean contacts, remove obstruction
	Power supply problem	Replace docking station power supply (part number 6002768)

Further Inquiries

If you cannot locate specific information or have questions after reviewing this guide, please take advantage of Crestron's award winning customer service team by calling the Crestron corporate headquarters at 1-888-CRESTRON [1-888-273-7876]. For assistance in your local time zone, refer to the Crestron website (www.crestron.com/offices) for a listing of Crestron worldwide offices.

You can also log onto the online help section of the Crestron website (www.crestron.com/onlinehelp) to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Future Updates

As Crestron improves functions, adds new features and extends the capabilities of the MT-1000C, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron website periodically for manual update availability and its relevance. Updates are identified as an “Addendum” in the Download column.

Software License Agreement

This License Agreement (“Agreement”) is a legal contract between you (either an individual or a single business entity) and Crestron Electronics, Inc. (“Crestron”) for software referenced in this guide, which includes computer software and as applicable, associated media, printed materials and “online” or electronic documentation (the “Software”).

BY INSTALLING, COPYING OR OTHERWISE USING THE SOFTWARE, YOU REPRESENT THAT YOU ARE AN AUTHORIZED DEALER OF CRESTRON PRODUCTS OR A CRESTRON AUTHORIZED INDEPENDENT PROGRAMMER AND YOU AGREE TO BE BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT INSTALL OR USE THE SOFTWARE.

IF YOU HAVE PAID A FEE FOR THIS LICENSE AND DO NOT ACCEPT THE TERMS OF THIS AGREEMENT, CRESTRON WILL REFUND THE FEE TO YOU PROVIDED YOU (1) CLICK THE DO NOT ACCEPT BUTTON, (2) DO NOT INSTALL THE SOFTWARE AND (3) RETURN ALL SOFTWARE, MEDIA AND OTHER DOCUMENTATION AND MATERIALS PROVIDED WITH THE SOFTWARE TO CRESTRON AT: CRESTRON ELECTRONICS, INC., 15 VOLVO DRIVE, ROCKLEIGH, NEW JERSEY 07647, WITHIN 30 DAYS OF PAYMENT.

LICENSE TERMS

Crestron hereby grants You and You accept a nonexclusive, nontransferable license to use the Software (a) in machine readable object code together with the related explanatory written materials provided by Crestron (b) on a central processing unit (“CPU”) owned or leased or otherwise controlled exclusively by You and (c) only as authorized in this Agreement and the related explanatory files and written materials provided by Crestron.

If this software requires payment for a license, you may make one backup copy of the Software, provided Your backup copy is not installed or used on any CPU. You may not transfer the rights of this Agreement to a backup copy unless the installed copy of the Software is destroyed or otherwise inoperable and You transfer all rights in the Software.

You may not transfer the license granted pursuant to this Agreement or assign this Agreement without the express written consent of Crestron.

If this software requires payment for a license, the total number of CPU’s on which all versions of the Software are installed may not exceed one per license fee (1) and no concurrent, server or network use of the Software (including any permitted back-up copies) is permitted, including but not limited to using the Software (a) either directly or through commands, data or instructions from or to another computer (b) for local, campus or wide area network, internet or web hosting services or (c) pursuant to any rental, sharing or “service bureau” arrangement.

The Software is designed as a software development and customization tool. As such Crestron cannot and does not guarantee any results of use of the Software or that the Software will operate error free and You acknowledge that any development that You perform using the Software or Host Application is done entirely at Your own risk.

The Software is licensed and not sold. Crestron retains ownership of the Software and all copies of the Software and reserves all rights not expressly granted in writing.

OTHER LIMITATIONS

You must be an Authorized Dealer of Crestron products or a Crestron Authorized Independent Programmer to install or use the Software. If Your status as a Crestron Authorized Dealer or Crestron Authorized Independent Programmer is terminated, Your license is also terminated.

You may not rent, lease, lend, sublicense, distribute or otherwise transfer or assign any interest in or to the Software.

You may not reverse engineer, decompile or disassemble the Software.

You agree that the Software will not be shipped, transferred or exported into any country or used in any manner prohibited by the United States Export Administration Act or any other export laws, restrictions or regulations (“Export Laws”). By downloading or installing the Software You (a) are certifying that You are not a national of Cuba, Iran, Iraq, Libya, North Korea, Sudan, Syria or any country to which the United States embargoes goods (b) are certifying that You are not otherwise prohibited from receiving the Software and (c) You agree to comply with the Export Laws.

If any part of this Agreement is found void and unenforceable, it will not affect the validity of the balance of the Agreement, which shall remain valid and enforceable according to its terms. This Agreement may only be modified by a writing signed by an authorized officer of Crestron. Updates may be licensed to You by Crestron with additional or different terms. This is the entire agreement between Crestron and You relating to the Software and it supersedes any prior representations, discussions, undertakings, communications or advertising relating to the Software. The failure of either party to enforce any right or take any action in the event of a breach hereunder shall constitute a waiver unless expressly acknowledged and set forth in writing by the party alleged to have provided such waiver.

If You are a business or organization, You agree that upon request from Crestron or its authorized agent, You will within thirty (30) days fully document and certify that use of any and all Software at the time of the request is in conformity with Your valid licenses from Crestron of its authorized agent.

Without prejudice to any other rights, Crestron may terminate this Agreement immediately upon notice if you fail to comply with the terms and conditions of this Agreement. In such event, you must destroy all copies of the Software and all of its component parts.

PROPRIETARY RIGHTS

Copyright. All title and copyrights in and to the Software (including, without limitation, any images, photographs, animations, video, audio, music, text and “applets” incorporated into the Software), the accompanying media and printed materials and any copies of the Software are owned by Crestron or its suppliers. The Software is protected by copyright laws and international treaty provisions. Therefore, you must treat the Software like any other copyrighted material, subject to the provisions of this Agreement.

Submissions. Should you decide to transmit to Crestron’s website by any means or by any media any materials or other information (including, without limitation, ideas, concepts or techniques for new or improved services and products), whether as information, feedback, data, questions, comments, suggestions or the like, you agree such submissions are unrestricted and shall be deemed non-confidential and you automatically grant Crestron and its assigns a non-exclusive, royalty-free, worldwide, perpetual, irrevocable license, with the right to sublicense, to use, copy, transmit, distribute, create derivative works of, display and perform the same.

Trademarks. CRESTRON and the Swirl Logo are registered trademarks of Crestron Electronics, Inc. You shall not remove or conceal any trademark or proprietary notice of Crestron from the Software including any back-up copy.

GOVERNING LAW

This Agreement shall be governed by the laws of the State of New Jersey, without regard to conflicts of laws principles. Any disputes between the parties to the Agreement shall be brought in the state courts in Bergen County, New Jersey or the federal courts located in the District of New Jersey. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement.

CRESTRON LIMITED WARRANTY

CRESTRON warrants that: (a) the Software will perform substantially in accordance with the published specifications for a period of ninety (90) days from the date of receipt and (b) that any hardware accompanying the Software will be subject to its own limited warranty as stated in its accompanying written material. Crestron shall, at its option, repair or replace or refund the license fee for any Software found defective by Crestron if notified by you within the warranty period. The foregoing remedy shall be your exclusive remedy for any claim or loss arising from the Software.

CRESTRON shall not be liable to honor warranty terms if the product has been used in any application other than that for which it was intended or if it as been subjected to misuse, accidental damage, modification or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number or license code altered, defaced, improperly obtained or removed.

Notwithstanding any agreement to maintain or correct errors or defects, Crestron shall have no obligation to service or correct any error or defect that is not reproducible by Crestron or is deemed in Crestron’s reasonable discretion to have resulted from (1) accident; unusual stress; neglect; misuse; failure of electric power, operation of the Software with other media not meeting or not maintained in accordance with the manufacturer’s specifications or causes other than ordinary use; (2) improper installation by anyone other than Crestron or its authorized agents of the Software that deviates from any operating procedures established by Crestron in the material and files provided to You by Crestron or its authorized agent; (3) use of the Software on unauthorized hardware or (4) modification of, alteration of or additions to the Software undertaken by persons other than Crestron or Crestron’s authorized agents.

ANY LIABILITY OF CRESTRON FOR A DEFECTIVE COPY OF THE SOFTWARE WILL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF YOUR COPY OF THE SOFTWARE WITH ANOTHER COPY OR REFUND OF THE INITIAL LICENSE FEE CRESTRON RECEIVED FROM YOU FOR THE DEFECTIVE COPY OF THE PRODUCT. THIS WARRANTY SHALL BE THE SOLE AND EXCLUSIVE REMEDY TO YOU. IN NO EVENT SHALL CRESTRON BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, SPECIAL OR PUNITIVE DAMAGES OF ANY KIND (PROPERTY OR ECONOMIC DAMAGES INCLUSIVE), EVEN IF A CRESTRON REPRESENTATIVE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR OF ANY CLAIM BY ANY THIRD PARTY. CRESTRON MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AS TO TITLE OR INFRINGEMENT OF THIRD-PARTY RIGHTS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTIES, NOR AUTHORIZES ANY OTHER PARTY TO OFFER ANY WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY FOR THIS PRODUCT. THIS WARRANTY STATEMENT SUPERSEDES ALL PREVIOUS WARRANTIES.

Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact an authorized CRESTRON dealer. Only authorized CRESTRON dealers may contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number and return address.
2. Products may be returned for credit, exchange or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J. or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee plus shipping costs on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended, or if it has been subjected to misuse, accidental damage, modification, or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced, or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supercedes all previous warranties.

Trademark Information

All brand names, product names and trademarks are the sole property of their respective owners. Windows is a registered trademark of Microsoft Corporation. Windows95/98/Me/XP/Vista and WindowsNT/2000 are trademarks of Microsoft Corporation.

This page is intentionally left blank.

This page is intentionally left blank.

This page is intentionally left blank.



Crestron Electronics, Inc.
15 Volvo Drive Rockleigh, NJ 07647
Tel: 888.CRESTRON
Fax: 201.767.7576
www.crestron.com

Operations Guide – DOC. 6322A
(2011783)
01.08
Specifications subject to
change without notice.