

Crestron **ML-500**

Mini LCD RF Wireless Handheld Remote

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Programming Guide



**CRESTRON**

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# Mini LCD RF Wireless Handheld Remote: ML-500

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## Introduction

The Crestron® Mini LCD RF Wireless Handheld Remote (ML-500) is a universal remote control that is used to control a Crestron system. Prior to customer delivery, the ML-500 must be configured and programmed into the control system program with SIMPL Windows. Additionally, labels for functions, pages, and favorites must be programmed using Crestron VisionTools® Pro-e (VT Pro-e) software.

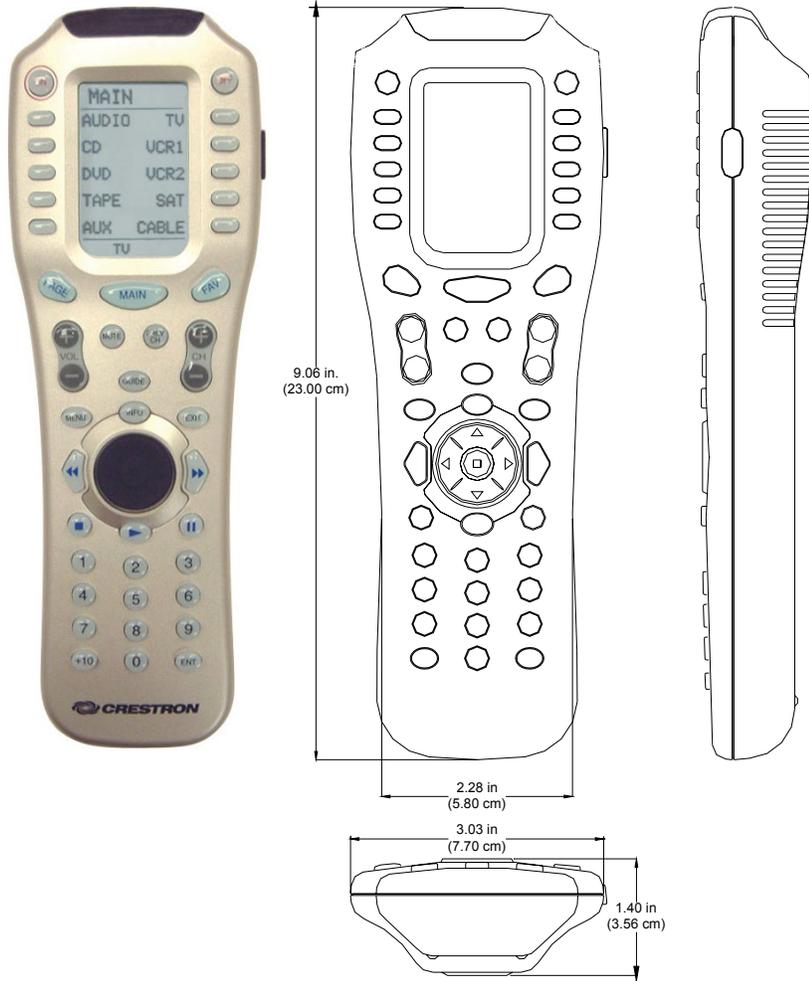
The ML-500 is packaged with an interface cable for uploading a VT Pro-e project from a PC directly to the ML-500. The included AAA batteries must be installed into the remote prior to uploading any VT Pro-e projects. For instructions on installing the batteries, refer to the latest revision of the ML-500 Operations Guide (Doc. 6246) which is included with the ML-500 or can be downloaded from the Crestron website ([www.crestron.com](http://www.crestron.com)).

## Physical Description

The ML-500 (refer to the following illustration) has a 2.10" x 1.40" (5.33 cm x 3.56 cm) backlit Liquid Crystal Display (LCD). The LCD lists the options associated with the 10 programmable soft keys that flank the LCD. Three navigation keys located below the LCD are used to navigate between the various control screens on the remote control. Below the navigation keys are 34 programmable hard keys (including a thumbpad) that can be programmed to perform device-specific functions. A button on the right side of the remote switches the display/keypad backlighting on and off. For information on the operation of the ML-500, refer to the latest revision of the ML-500 Operations Guide (Doc. 6246) which is included with the ML-500 or can be downloaded from the Crestron website ([www.crestron.com](http://www.crestron.com)).

The ML-500 can directly communicate with the Crestron MC2W control system. The ML-500 can communicate with other Crestron control systems via the Crestron CNRFGWA-418 1-Way RF Receiver, which operates at 418 MHz. The ML-500 cannot directly communicate with any devices controlled by a control system.

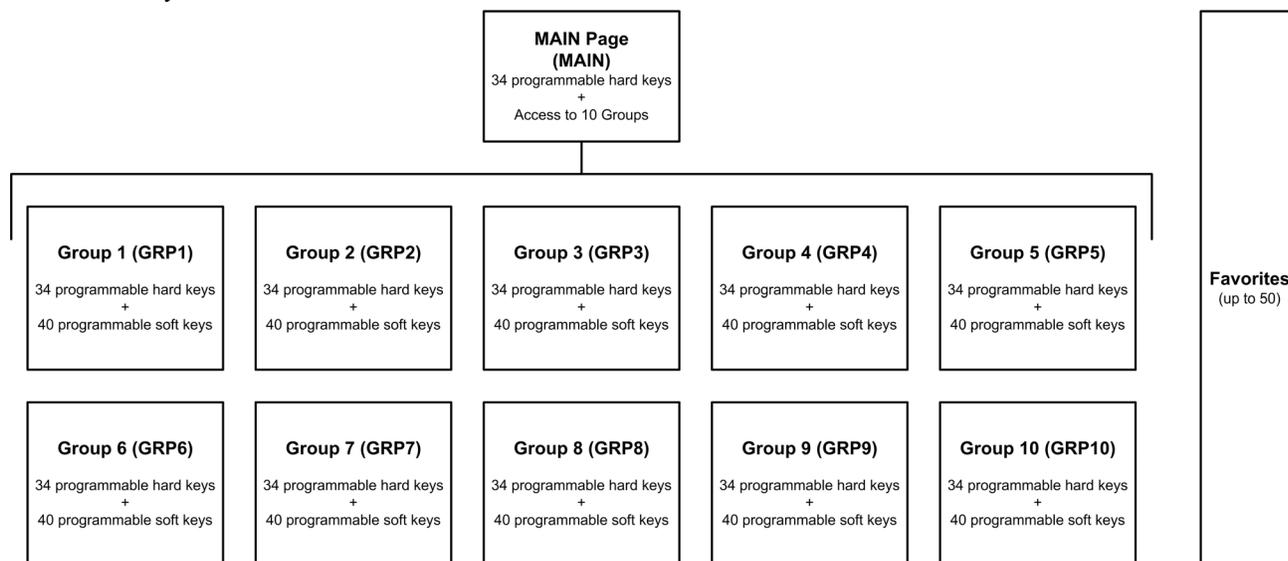
*ML-500*



## Memory Structure

The ML-500 memory structure contains a main page (MAIN) that can access up to 10 separate function groups (Grp groups) as shown in the following diagram.

*ML-500 Memory Structure*



Each of the 34 labeled buttons (hard keys) on the remote can be independently programmed for the MAIN page and each Grp group. Additionally, each Grp group can use the 10 soft keys that flank the LCD to access up to 40 additional functions that can be programmed within the Grp group. For example, the hard keys in MAIN can be programmed to control a receiver while the hard keys in Grp group 8 can be programmed to control a DVD player. Similarly, soft keys can be independently programmed for each Grp group.

The ML-500 can also be programmed with up to 50 “Favorite” functions. Favorites can be defined for any control system operation such as switching to a preset radio station or adjusting lighting to a preset level. These Favorites are independent of the MAIN page and Grp groups and can be programmed for any device controlled by the control system. Additionally, a press of a Favorite button can be programmed to jump the LCD to a page within any Grp group.

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**NOTE:** The ML-500 can send commands to the Crestron MC2W control system or to any other Crestron control system via the Crestron CNRFGWA-418 1-Way RF Receiver.

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## Navigation

To view all of the available soft key functions within a Grp group or list of Favorites, the user must use the menu navigation keys located below the LCD. The following sections describe menu navigation for Grp groups and Favorites.

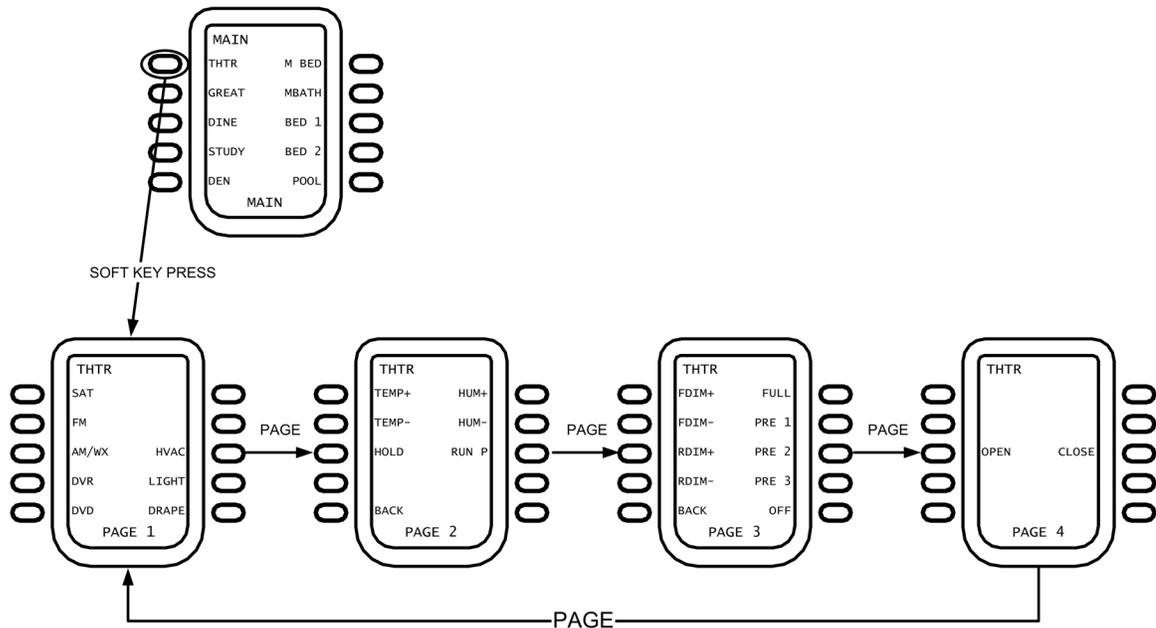
### Grp Group Navigation

Navigating within a Grp group allows the user to view soft key functions that are programmed within a Grp group. For example, a Grp group that controls a specific room may have soft keys programmed for lighting or HVAC control. While viewing a Grp group, the user can view a list of up to 40 functions spread over four pages by pressing the **PAGE** button. Additionally, the 34 hard keys will function as programmed for the Grp group.

The following diagram shows how a soft key press from the MAIN page flips the LCD to the first page of soft keys in a Grp group named THTR. Pressing **PAGE** will show the user all of the programmed soft key functions for the THTR group.

**NOTE:** The name of the page and/or Grp group is shown in the upper-left corner of the LCD. The page number in the group is shown on the bottom of the LCD. The **MAIN** page contains only one page and shows **MAIN** instead of a page number.

*Navigating a Grp Group*

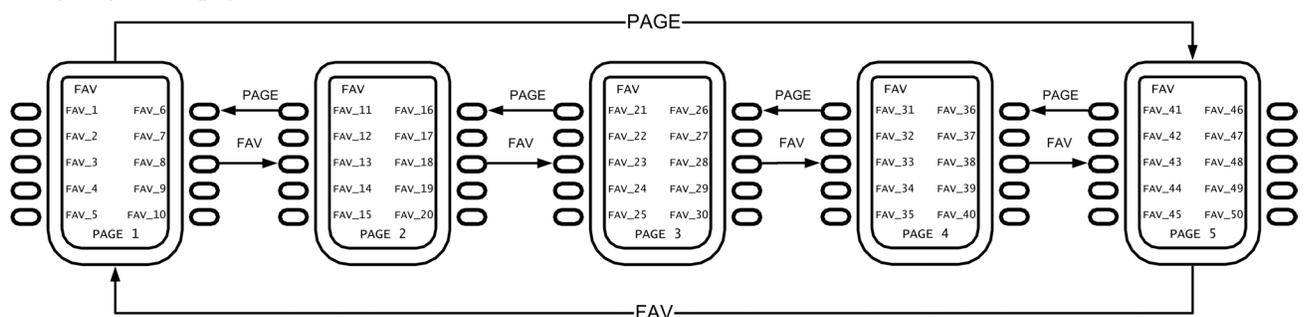


Pressing **MAIN** at any time will return the display to the **MAIN** page. All hard key presses will act as programmed for the **MAIN** page.

**Favorites Navigation**

Pressing the **FAV** key will open the first page of programmed Favorites. Up to 50 Favorites can be stored over five pages (10 favorites per page). Navigation through the list of Favorites is accomplished by using the **FAV** and **PAGE** buttons as shown in the following diagram.

*Navigating “FAV” pages*



Any hard key presses made while viewing Favorites will act as programmed for the previously viewed Grp group. Pressing **MAIN** while viewing Favorites will return the display to the page that was viewed before pressing **FAV**.

**Specifications**

The following table lists specifications for the ML-500.

*ML-500 Specifications*

SPECIFICATION	DETAILS
Required RF Gateway Device	MC2W Control System or CN-RFGWA-418
Default RF ID	10
Control System Update Files <sup>1,2,3</sup>	
2-Series Control System	Version C2-2004.CUZ or later
CEN/CN-TVAV	Version 51130V.UPZ or later
CNMSX-AV/PRO	Version 51125X.UPZ or later
CNRACKX/-DP	Version 51125W.UPZ or later
CNMS, CNRACK, CNLCOMP	Version 3.18.09m, l, c or later
ST-CP	Version 4.02.4S.UPZ or later
Digital Signal Joins	834
Upload Cable (included)	DB9 to 3.5mm plug (Crestron part number 2010129)
Display	
Size	Height: 2.10 in (5.33 cm) Width: 1.40 in (3.56 cm)
Labels per Page	10
Label Size	1 Character High x 5 Characters Wide, fixed font
Dimensions and Weight (with batteries)	Height: 9.06 in (23.00 cm) Width: 3.03 in (7.70 cm) Depth: 1.40 in (3.56 cm) Weight: 0.5 lbs (0.23 kg)

1. The latest software versions can be obtained from the Downloads | Software Updates section of the Crestron website ([www.crestron.com](http://www.crestron.com)). 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.
3. CNX update files are required for either CNMSX-AV/PRO or CNRACKX/-DP. Filenames for CNX update files have a UPZ extension and ST-CP files are in one EXE or zipped UPZ file. To avoid program problems, make certain you are using the update file with the correct suffix letter (e.g., S, V, W, X).

**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).

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## Programming the ML-500

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### 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 ([www.crestron.com](http://www.crestron.com)). Go to <http://support.crestron.com> to post your own question or view questions you have submitted to Crestron's True Blue Support. First-time users will need to establish a user account.

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Adding an ML-500 to a system requires SIMPL Windows to program an ML-500 into a control system program and Vision Tools Pro-e to create soft key labels, Grp group names, and page flips from the Favorites list.

## Earliest Version Software Requirements for the PC

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**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 Downloads | Software Updates section of the Crestron website ([www.crestron.com](http://www.crestron.com)).

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The following are the earliest useable software version requirements for the PC:

- SIMPL Windows version 2.05.17 or later with library update file 276. Requires SIMPL+® Cross Compiler version 1.1.
- Crestron Database version 16.1.3 or later. Required by SIMPL Windows.
- VisionTools Pro-e (VT Pro-e) version 3.2.1.0 or later. For creating soft key labels, Grp group names, and page flips from Favorites list.

## Programming with SIMPL Windows

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**NOTE:** The following are acceptable file extensions for programs that include a ML-500, developed for specific control system types:

.smw: *projectname.smw* (SIMPL Windows source file)  
.spz: *projectname.spz* (compiled file for 2-series)  
.bin: *projectname.bin* (compiled file for CNX generation)  
.csz: *projectname.csz* (compiled file for CNX generation with SIMPL+)  
.ush: *projectname.ush* (compiled file for CNX generation w/ SIMPL+ header file)  
.usp: *projectname.usp* (source code module for SIMPL+)  
.umc: *projectname.umc* (user macro for SIMPL)

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SIMPL Windows is Crestron's software for programming Crestron control systems. It provides a well-designed graphical environment with a number of workspaces (i.e., windows) in which a programmer can select, configure, program, test, and monitor a Crestron control system. SIMPL Windows offers drag and drop functionality in a familiar Windows® environment.

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**NOTE:** The following assumes that the reader has knowledge of SIMPL Windows. If not, refer to the extensive help information provided with the software.

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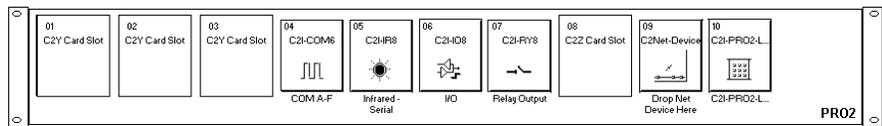
**NOTE:** In the following, the PRO2 control system is used.

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This section describes a sample SIMPL Windows program that includes an ML-500 remote control.

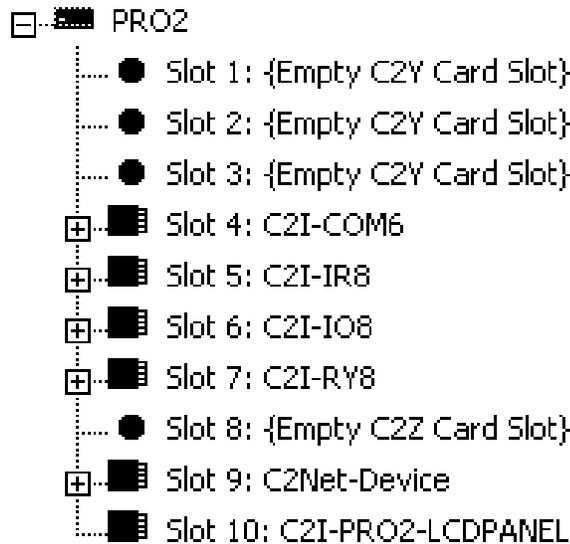
Configuration Manager is where programmers “build” a Crestron control system by selecting hardware from the *Device Library*. In Configuration Manager, drag the PRO2 from the Control Systems folder of the *Device Library* and drop it in the upper pane of the *System Views*. The PRO2 with its associated communication ports is displayed in the *System Views* upper pane.

**PRO2 System View**



The *System Views* lower pane displays the PRO2 system tree. This tree can be expanded to display and configure the communications ports.

**Expanded PRO2 System Tree**



**C2Net-Device Slot in Configuration Manager**

To incorporate a ML-500 into the system, a gateway device is required. The C2Net-Device Slot can accept a gateway such as the CNRFGWA-418. Once a gateway is configured in a C2Net-Device Slot, the slot allows Cresnet communication between the ML-500 and the control system.

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**NOTE:** An MC2W control system operating at 418 MHz can be used without the CNRFGWA-418.

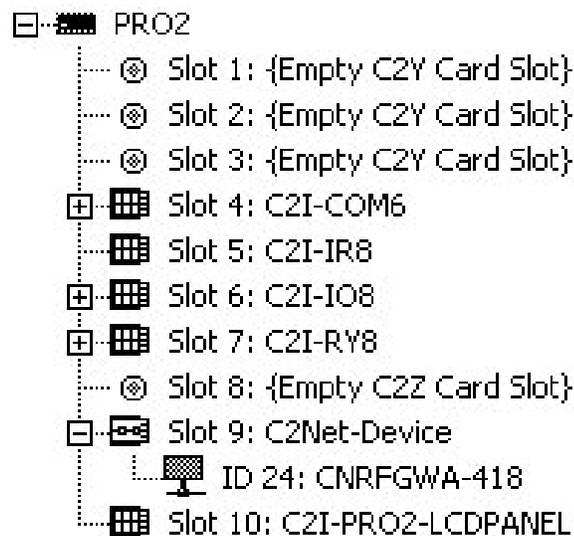
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To incorporate the CNRFGWA-418 into the system, drag the CNRFGWA-418 from the Wireless Receivers | Wireless Receivers (RF) folder of the *Device Library* and drop it in the *System Views*. The PRO2 system tree displays the RF gateway in slot 9 with a default Net ID of 24 as shown in the following illustration.

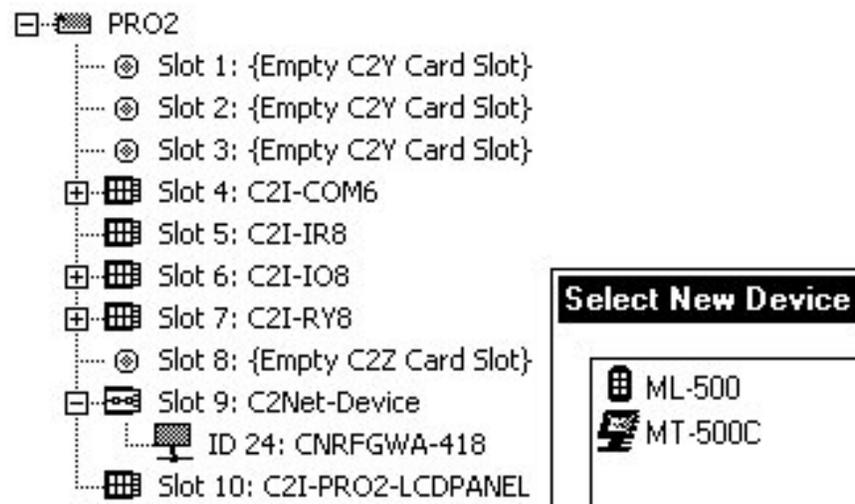
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**NOTE:** The first CNRFGWA in a system is preset with a Net ID of 24, when its symbol is dragged into the upper pane of *System Views*. Additional CNRFGWA units are assigned different Net ID numbers as they are added.

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*C2Net Device, Slot 9*

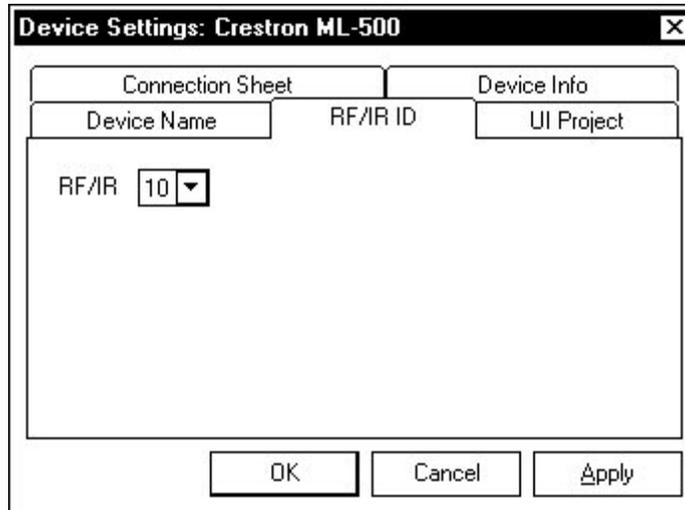
Right click on the CNRFGWA-418. Select **Add item to: "CNRFGWA-418"** and choose an ML-500 from the "Select New Device" window as shown in the following diagram. Alternatively, the ML-500 device can be dragged from the Wireless Remotes (RF) folder of the *Device Library* to the CNRFGWA-418 device in the C2Net-Device slot.

*Adding an ML-500*

### Setting the RF ID in Device Settings

Double-click the ML-500 icon to open the “Device Settings” window. This window displays the ML-500 device information. If necessary, select the *RF/IR ID* tab to change the RF ID, as shown in the following figure.

“Device Settings” Window for the ML-500



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**NOTE:** The first ML-500 in a system is preset with a RF ID of 10 when its symbol is dragged into the upper pane of *System Views*. Additional ML-500 units are assigned different RF ID numbers as they are added.

**NOTE:** The hardware and software settings of the RF ID must match. RF ID setting for the hardware is limited to numbers in increments of the most significant digit (i.e., 00, 10, 20). The RF ID must also be set in VT Pro-e. Refer to “Setting the RF ID” on page 16 for more information.

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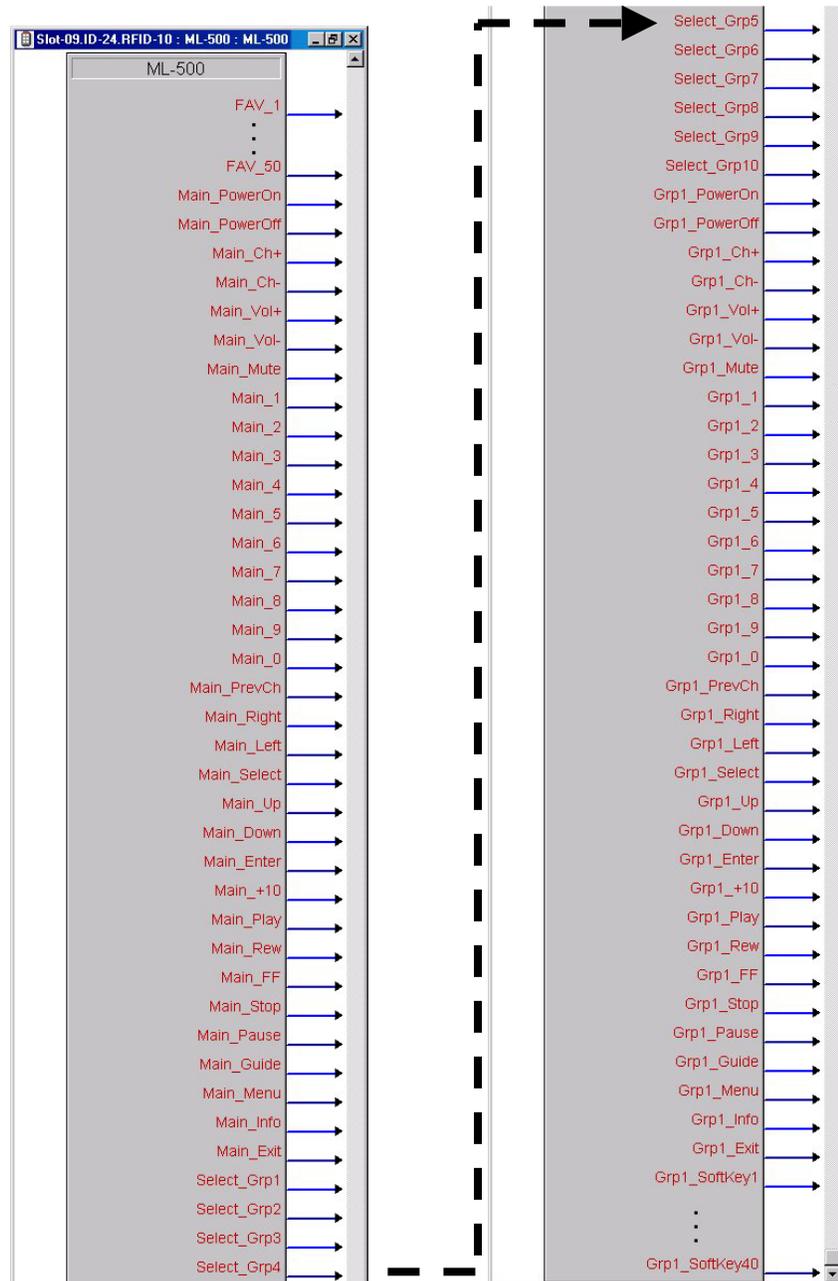
### ML-500 Symbol in Programming Manager

Programming Manager is where programmers “program” a Crestron control system by assigning signals to symbols. The following describes the ML-500 symbol in the SIMPL Windows Programming Manager.

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**NOTE:** The diagram is for illustration purposes only and does not list all of the signals contained in the symbol.

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*Detail View of the ML-500 in SIMPL Windows' Programming Manager*

The ML-500 can transmit up to 834 unique signal joins to a control system. Every button (with the exception of **PAGE**, **MAIN**, **FAV**, and **LIGHT**) can be programmed with multiple functions.

**FAV Button Presses**

When using the remote, the first page of “FAV” button presses (FAV\_1 through FAV\_10) can be viewed by pressing **FAV** on the remote. The remote can store up to 50 “favorite” system commands. For more information on navigating through the list of Favorites, refer to “Favorites Navigation” on page 4.

When viewing any of the five “FAV” pages, pressing a soft key will cause the control system to perform the function assigned to the corresponding “FAV” button press. Each soft key can be assigned a five-character length label in VT Pro-e to provide a descriptive name to the assigned function. Additionally, a jump to a page within a Grp group can be assigned to a FAV button press.

**ML-500 Digital Output Signal Descriptions for “FAV” Presses**

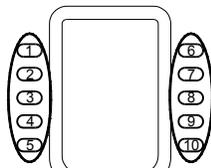
OUTPUT	DESCRIPTION
FAV_1 through FAV_50	Goes high when the corresponding FAV button is pressed.

**NOTE:** *FAV* button presses will send a momentary signal pulse regardless of how long a button is held.

**Select Grp Button Presses**

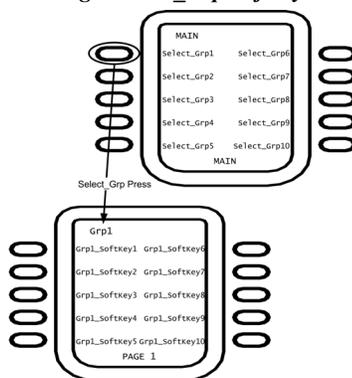
When viewing the MAIN page, a user can select one of (up to) ten Grp groups by pressing any of the soft keys flanking the LCD (Select\_Grp1 through Select\_Grp10). The soft keys can be labeled in VT Pro-e to describe specific devices, rooms, etc.

**ML-500 Digital Output Signal Descriptions for “Select\_Grp” Presses**

BUTTON PRESS	OUTPUT	DESCRIPTION
	Select_Grp1 through Select_Grp10	Goes high when a Select_Grp button is pressed. A button press also sets the hard keys to operate under the selected Grp group. Additionally, the LCD display will jump to the first page of the selected Grp group.

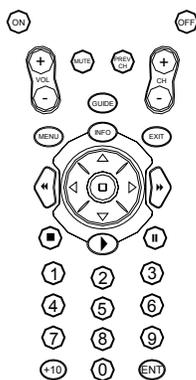
Pressing a soft key will change the LCD to show the first page of up to 40 programmed soft key commands within the Grp group as shown in the following diagram.

**Pressing a Select\_Grp Softkey**



**NOTE:** *Select\_Grp* button presses will send a momentary signal pulse regardless of how long a button is held.

After a Select\_Grp button has been pressed, all of the hard keys will operate as programmed for the selected Grp group. For descriptions of each hard key, refer to “Hard Key Button Presses”.



### Hard Key Button Presses

Pressing a hard key sends a unique signal to the control system that is determined by the page location shown on the LCD. A hard key can be programmed to send different commands for the MAIN page, a Grp1 page, a Grp2 page, etc. For example, if the ON button is pressed while viewing the MAIN page, the signal “MAIN\_PowerOn” will go high. If the ON button is pressed while viewing a page in the Grp3 group, the signal “Grp3\_PowerOn” will go high.

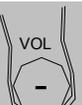
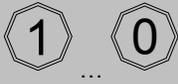
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**NOTE:** Hard key button presses will continuously send signal pulses as long as a button is held.

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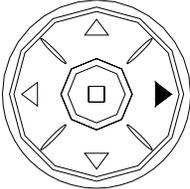
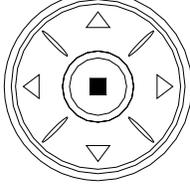
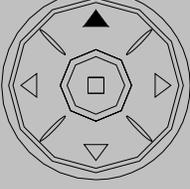
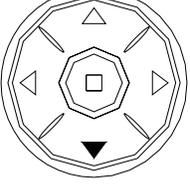
If a hard key is not defined, the button will have no function when pressed.

### ML-500 Digital Output Signal Descriptions

BUTTON PRESS	OUTPUT	DESCRIPTION
	XXXXX_PowerOn*	Goes high when the <b>ON</b> button is pressed.
	XXXXX_PowerOff*	Goes high when the <b>OFF</b> button is pressed.
	XXXXX_Ch+*	Goes high when the <b>CH+</b> button is pressed.
	XXXXX_Ch-*	Goes high when the <b>CH-</b> button is pressed.
	XXXXX_Vol+*	Goes high when the <b>VOL+</b> button is pressed.
	XXXXX_Vol-*	Goes high when the <b>VOL-</b> button is pressed.
	XXXXX_Mute*	Goes high when the <b>MUTE</b> button is pressed.
	XXXXX_1 through XXXXX_0*	Goes high when a number key ( <b>0</b> through <b>9</b> ) on the numeric keypad is pressed.
	XXXXX_PrevCh*	Goes high when the <b>PREV CH</b> button is pressed.

*(continued on next page)*

*ML-500 Digital Output Signal Descriptions (continued)*

BUTTON PRESS	OUTPUT	DESCRIPTION
	XXXXX_Right*	Goes high when the ► button on the right side of the thumbpad is pressed.
	XXXXX_Left*	Goes high when the ◄ button on the left side of the thumbpad is pressed.
	XXXXX_Select*	Goes high when the ■ button in the center of the thumbpad is pressed.
	XXXXX_Up*	Goes high when the ▲ button at the top of the thumbpad is pressed.
	XXXXX_Down*	Goes high when the ▼ button at the bottom of the thumbpad is pressed.
	XXXXX_Enter*	Goes high when the <b>ENT</b> button is pressed.
	XXXXX_+10*	Goes high when the <b>+10</b> button is pressed.
	XXXXX_Play*	Goes high when the ► button is pressed.
	XXXXX_Rew*	Goes high when the ◀◀ button is pressed.

*(continued on next page)*

*ML-500 Digital Output Signal Descriptions (continued)*

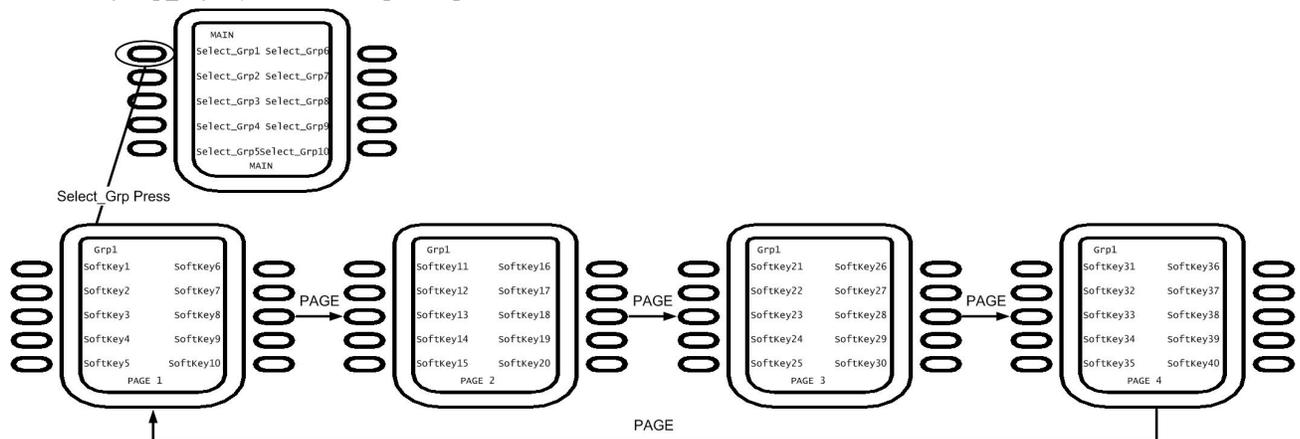
BUTTON PRESS	OUTPUT	DESCRIPTION
	XXXXX_FF*	Goes high when the ►► button is pressed.
	XXXXX_Stop*	Goes high when the ■ button is pressed.
	XXXXX_Pause*	Goes high when the    button is pressed.
	XXXXX_Guide*	Goes high when the <b>GUIDE</b> button is pressed.
	XXXXX_Menu*	Goes high when the <b>MENU</b> button is pressed.
	XXXXX_Info*	Goes high when the <b>INFO</b> button is pressed.
	XXXXX_Exit*	Goes high when the <b>EXIT</b> button is pressed.

\* “XXXX” can represent “Main”, or any Grp group (Grp1 through Grp10).

**Grp Softkey Button Presses**

After pressing a Grp group soft key from the MAIN, the LCD will display the first page of the Grp group’s soft keys. Each Grp group can be programmed with up to 40 soft key presses (in addition to the hard key presses described previously) as shown in the following diagram.

*Location of Grp\_Softkeys Within a Grp Group*



*ML-500 Digital Output Signal Descriptions (continued)*

OUTPUT	DESCRIPTION
GrpX_Softkey1 through GrpX_Softkey40*	Goes high when a Grp group soft key goes high,

\* Where “GrpX” represents Grp group 1 through 10.

**NOTE:** Grp group soft key presses will continuously send signal pulses as long as a button is held.

Each soft key can be labeled in VT Pro-e to provide a descriptive name to the assigned function.

**Example Program**

An example program for the ML-500 is available from the Crestron FTP site (<ftp://ftp.crestron.com/Examples/>). Search for the file named ML-500.ZIP that contains the example program, associated files and a README.TXT file that describes the program.

**Programming with VT Pro-e**

The RF ID for communicating with the RF receiver, Grp group names, and labels for all of the soft keys are stored on the ML-500 using VT Pro-e. VT Pro-e can also be used to program page jumps for FAV soft key presses.

**NOTE:** The following are acceptable file extensions for programs that include a ML-500:

- .vtp *projectname.vtp* (VT Pro-e source file)
- .hex *projectname.hex* (compiled file)

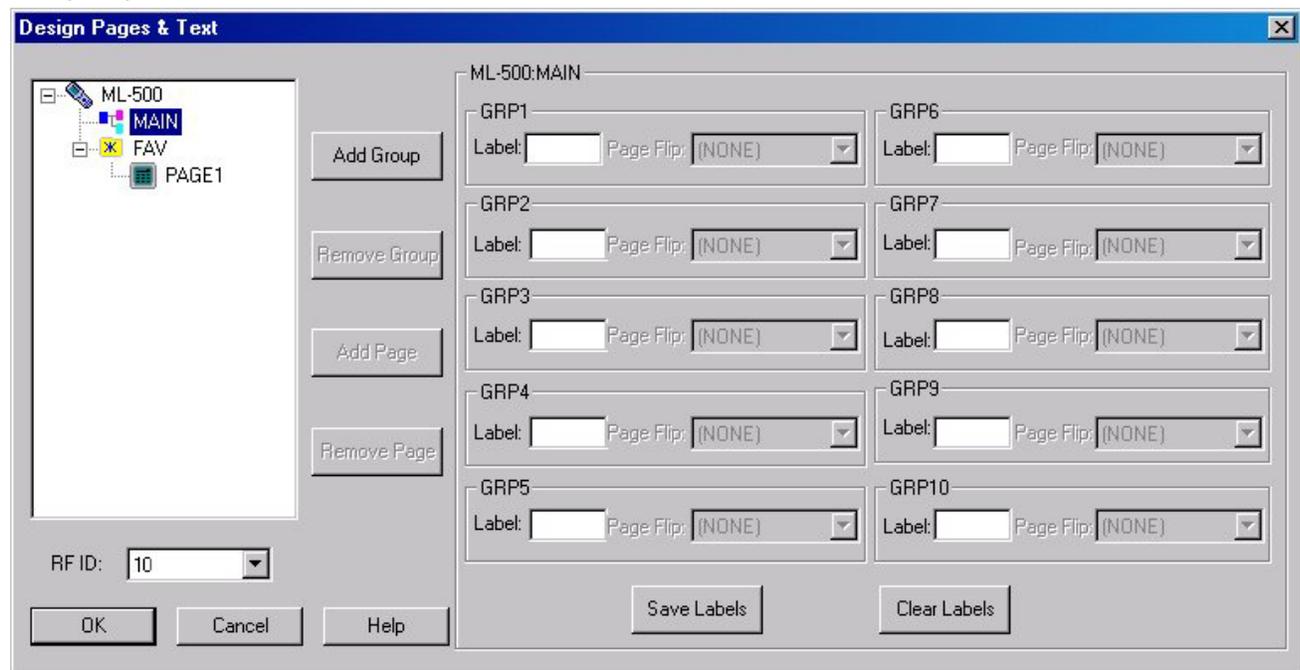
After creating an ML-500 project in VT Pro-e, double-click **Design Pages** (as shown in the following diagram to open the “Design Pages & Text” window.

*Double-Click Design Pages*



**NOTE:** ML-500 projects have a defined page-subpage structure and cannot be converted into VT Pro-e projects for other devices. Similarly, VT Pro-e projects for other devices cannot be converted to an ML-500 project.

The “Design Pages & Text” window, shown in the following diagram, is used to set the RF ID of the ML-500, create Grp groups, create pages within a Grp group, and to create labels for programmed soft keys.

*“Design Pages & Text” Window***Setting the RF ID**

The RF ID must be set to match the RF ID specified in the SIMPL Windows program (refer to “Setting the RF ID in Device Settings” on page 9). Select the desired RF ID from the drop-down list on the lower-left side of the window. If no other changes are to be made to the ML-500 design, click **OK** to save the device setting.

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**NOTE:** The hardware and software settings of the RF ID must match. The RF ID setting for the ML-500 is limited to numbers in increments of the most significant digit (i.e., 00, 10, 20).

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**Adding, Changing, and Deleting Grp Groups**

Up to ten Grp groups can be placed on the MAIN page. To add a Grp Group or to change the name of an existing Grp group, click on the “MAIN” page in the ML-500 directory tree on the left side of the window. Make any additions and/or changes to the Grp group names on the right side of the window. After all additions and changes have been made, click **Save Labels**. When a new Grp group is created, VT Pro-e will automatically create the first page of the new Grp group.

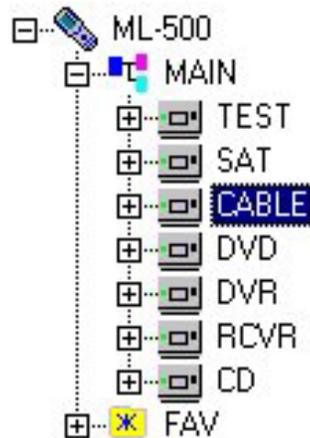
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**NOTE:** All Grp group labels are automatically capitalized. Lower-case type cannot be entered. The maximum label size is one line by five characters wide.

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To delete a Grp group, select the Grp group to be deleted from the directory tree as shown in the following diagram, and click **Remove Group**. All of the Grp groups can be deleted by pressing **Clear Labels** while the MAIN page is selected.

*Select a Grp Group to Delete*




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**NOTE:** Deleting a Grp group will also delete any pages contained within the Grp group.

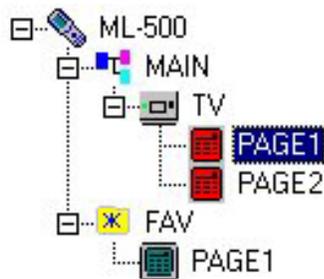
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**Adding, and Removing Pages**

Up to four pages of labels can be placed in a Grp group while up to five pages can be placed in the FAV group. Each page can contain up to ten labels. To add a page, click on a Grp Group or the “FAV” folder in the ML-500 directory tree and click **Add Page**.

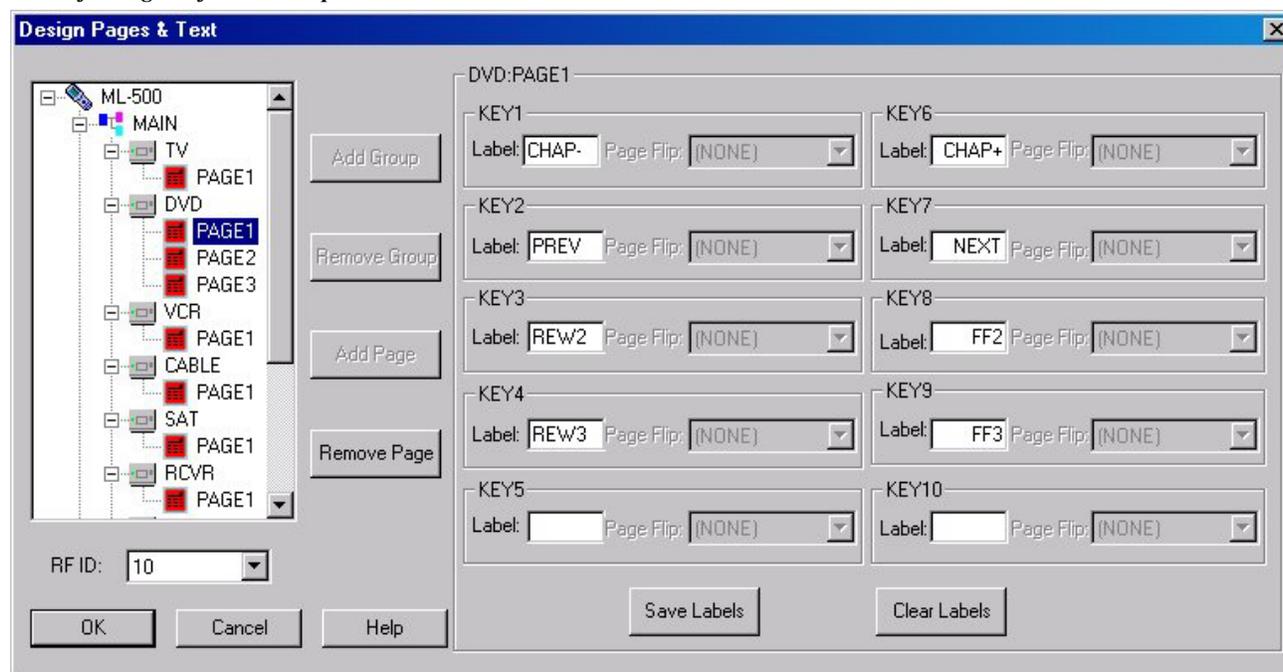
To delete a page, select the page to be deleted from the directory tree as shown in the following diagram, and click **Remove Page**.

*Select a Page to Delete*



**Adding, Changing, and Removing Labels in a Grp Group**

Up to ten labels can be placed on a page in a Grp group. To open a page, click on a page in a Grp group within the directory tree to view the labels that are stored as shown in the following diagram.

*Labels for Page 1 of DVD Group*

Additions and/or changes to the label names are made on the right side of the window.

---

**NOTE:** All labels are automatically capitalized. Lower-case letters cannot be entered. The maximum label size is one line by five characters wide.

---

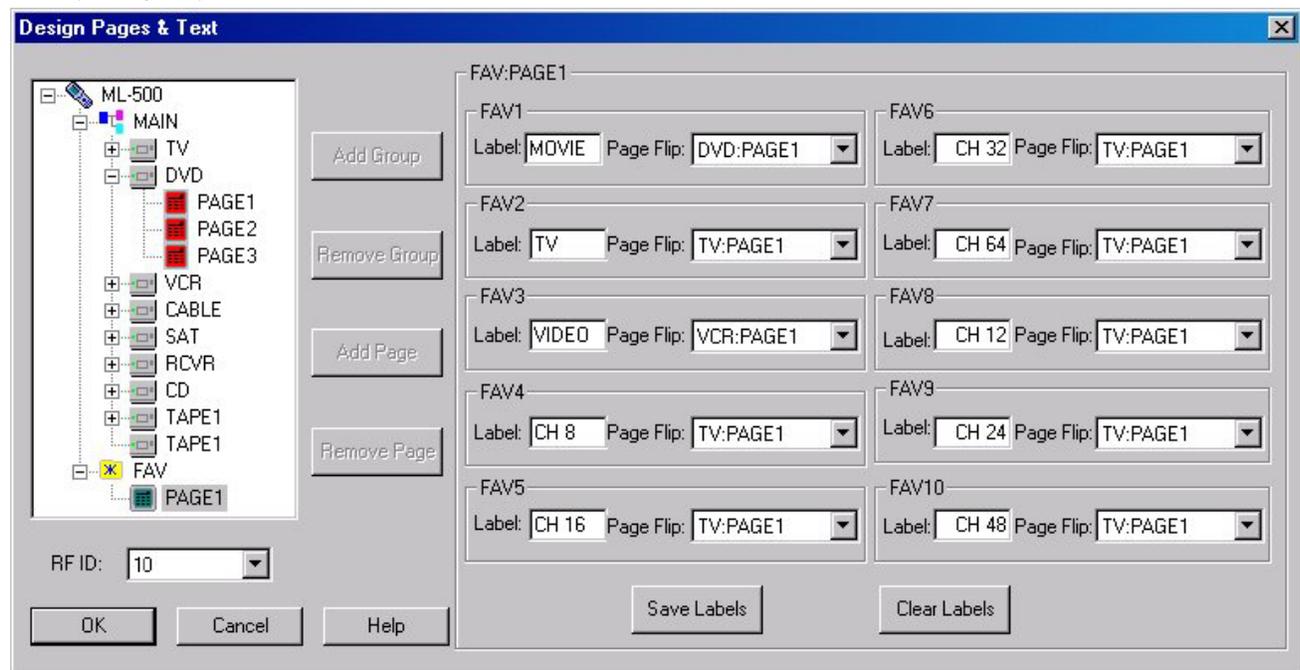
**NOTE:** Page flips cannot be assigned to labels in a Grp group.

After all additions and changes have been made, click **Save Labels**.

To delete all of the labels on a page, click **Clear Labels**.

### ***Adding, Changing, and Removing FAV Labels***

Up to ten favorites can be placed on a page in the FAV section. To open a page, click on a page in the "FAV" folder within the directory tree to view the labels that are stored as shown in the following diagram.

*Labels for Page 1 of Favorites*

Additions and/or changes to the label names are made on the right side of the window. After all additions and changes have been made, click **Save Labels**.

**NOTE:** All labels are automatically capitalized. Lower-case letters cannot be entered. The maximum label size is one line by five characters wide.

When assigning labels to Favorites, page flips can also be assigned. Select a destination page by choosing a page from the drop-down menu next to each label.

**PROGRAMMING TIP:**

Use page flips from a Favorite button press to jump to a relevant page. Using the previous screen as an example, pressing MOVIE, can send a command to the control system to dim lights, set the audio volume and turn on the DVD player. At the same time, the remote display will jump to the first page of the DVD Grp group for further control of the DVD player.

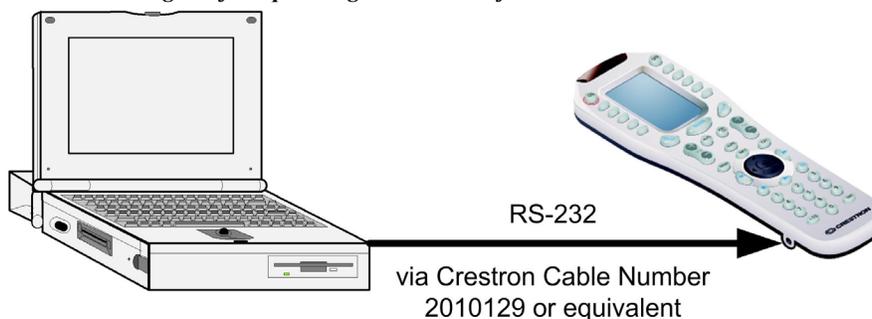
To delete all of the labels on a page, click **Clear Labels**.

After the Grp groups, labels, and page flips have been created, click OK and compile the project for uploading to the ML-500 (**File | Compile Project...** or **F12**).

## Uploading

Once a project has been created and compiled, it can be loaded into the ML-500 using the supplied cable (Crestron cable number 2010129).

Before loading a compiled VT Pro-e project, the serial cable supplied with the ML-500 must be connected to the interface port on the side of the ML-500 and a PC's serial port as shown in the following diagram.

*Connection Diagram for Uploading VT Pro-e Projects to the ML-500*

**NOTE:** You cannot operate the ML-500 while a file is loading.

**NOTE:** All of the communication parameters are automatically set when uploading to the ML-500.

The following table lists the pin assignments for the included serial cable.

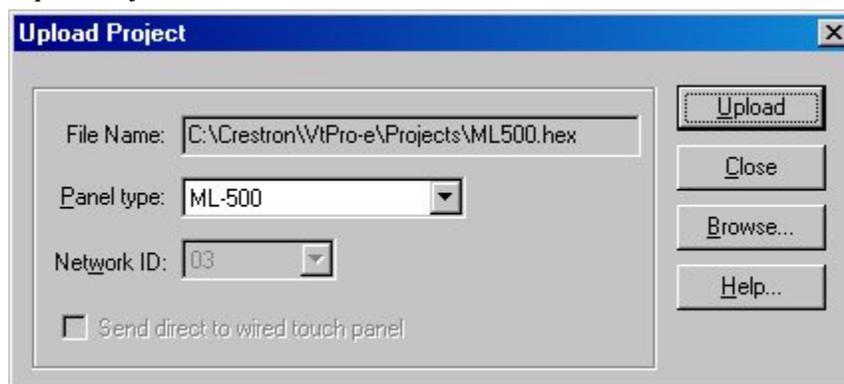
*Serial Cable Pin Assignments*

DB9	3.5mm Plug	DESCRIPTION
3	Tip	Transmit
2	Ring	Receive
5	Shield	Ground

The VT Pro-e project file can be uploaded to the remote using VT Pro-e or via the Crestron Viewport.

**Upload via VT Pro-e**

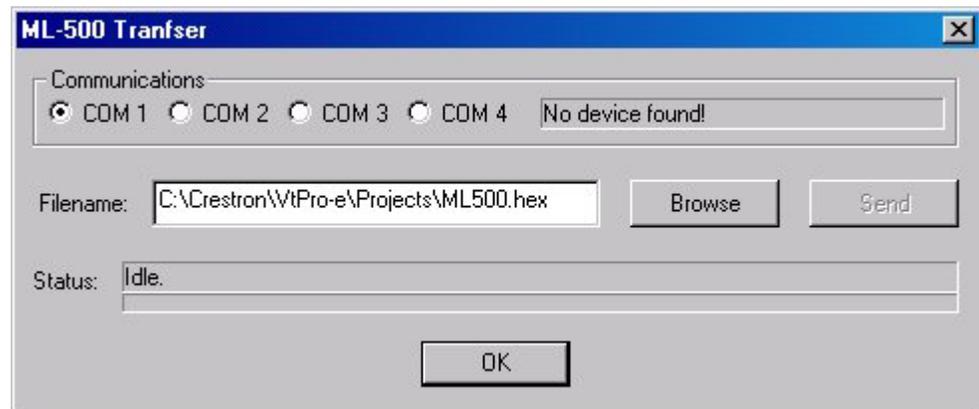
1. Start VT Pro-e.
2. Select **File | Open | Project** to view the “Open” window, navigate to the VT Pro-e file (.vtp), and click **Open**.
3. Select **File | Upload Project**. This automatically selects the compiled .hex file as shown in the following diagram.

*“Upload Project” Window*

4. Click **Upload** to open the “ML-500 Transfer” window. If the ML-500 is connected to the selected serial port, the upload will begin automatically. If the ML-500 is connected to a serial port other than the selected port, a message stating, “No device found” will be displayed to the right of the

COM port listing (as shown in the following diagram). Click the correct COM port to automatically begin the file transfer.

*“ML-500 Transfer” Window*



Once the upload begins, the upload progress will be displayed in the “Status” section of the window. Upon completion, “Success” will be displayed in the “Status” area.

### **Upload via Crestron Viewport**

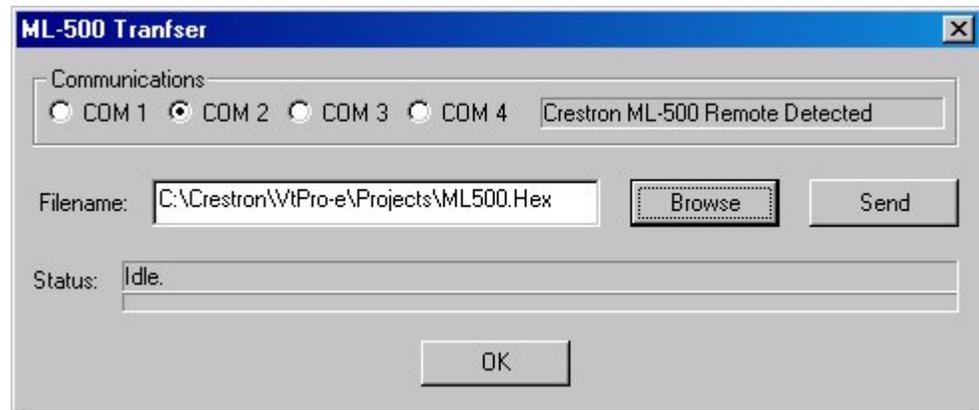
**NOTE:** The Crestron Viewport is available as a pull-down command from SIMPL Windows and VT Pro-e (**Tools | Viewport**) or as a standalone utility. The Viewport utility performs multiple system tasks, primarily via an RS-232 or TCP/IP connection between the control system and a PC. It is used to observe system processes, upload new operating systems and firmware, change system and network parameters, and communicate with network device consoles and touchpanels, among many other tasks. Viewport can also function as a terminal emulator for generic file transfer. All of these functions are accessed through the commands and options in the Viewport menus. Therefore, for its effectiveness as a support and diagnostic tool, the Crestron Viewport may be preferred over development tools when uploading programs and projects.

1. Open the Crestron Viewport.  
Either launch the stand-alone version of Viewport, or start VT Pro-e, and from the menu bar, select **Tools | Viewport**.
2. As shown after this step, select **File Transfer | Send Pages to ML-500...**

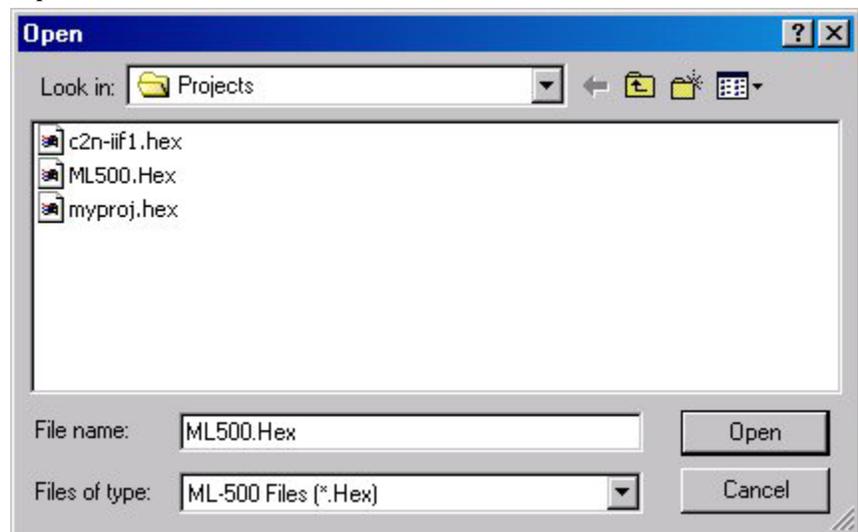
#### *File Transfer | Send Pages to ML-500 Command*



3. The “ML-500 Transfer” window appears as shown in the following graphic.

*“ML-500 Transfer” Window*

4. Select the communications port that is connected to the ML-500. If the ML-500 is connected to a port other than the port selected, a message stating “No Device Found” will be displayed to the right of the COM port selections.
5. Click **Browse** to select the file to upload to the ML-500. The “Open” window appears as shown in the following illustration.

*“Open” Window*

6. Select the ML-500 (.hex) file and click **Open**.
7. Click **Send** to begin the file transfer. Once the upload begins, the upload progress will be displayed in the “Status” section of the window. Upon completion, “Success” will be displayed in the “Status” area.

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## Support Information

### Further Inquiries

If after reviewing this Programming Guide, you cannot locate specific information or have questions, please take advantage of Crestron's award winning customer service team in your area. Dial one of the following numbers.

- In the US and Canada, call Crestron's corporate headquarters at 1-888-CRESTRON [1-888-273-7876].
- In Europe, call Crestron International at +32-15-50-99-50.
- In Asia, call Crestron Asia at +852-2341-2016.
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You can also log onto the online help section of the Crestron website ([www.crestron.com](http://www.crestron.com)) 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 ML-500, 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 ([www.crestron.com](http://www.crestron.com)) periodically for manual update availability and its relevance. Updates are available from the Downloads | Product Manuals section and are identified as an “Addendum” in the Download column.

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