

HOMEWORKS INTERACTIVE

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Getting Started

Before you begin your first project, familiarize yourself with some of the navigational tools used in the HomeWorks Interactive Utility.

Toolbar: The Toolbar is divided into logical sections.

1. File/Project Input and Output -



- **New** - Creates a new project and launches the **Project Wizard**.
- **Open** - Opens an existing HomeWorks Interactive project.
- **Save** - Saves the current HomeWorks Interactive project to disk.
- **Reports** - Displays the list of reporting options for the current project.

2. Information Editing -



- **Cut** - When enabled, cuts the highlighted item (to be pasted at a later time).
- **Paste** - Pastes the last item cut or copied.
- **Swap** - Swaps the position of two controls (within a control station or between two control stations).
- **Add New** - Used to create a new object (area, room, control station, etc.).
- **Rename** - Used to rename an object (area, room, control station, etc.).

3. Mode/Screen Selection -



- **Control Station Mode** - Define areas, rooms and control stations in each room.
- **Lighting Mode** - Define the fixtures in each room.
- **Load Schedule** - Define the zone information (Fixture type, load type, wattage, etc.).
- **Control Station Assignment** - Assign fixtures to specific dimmers, switches, GRAFIK Eyes, etc.).
- **Panel Assignment** - Define the panels/enclosures and RPM assignment.
- **Programming** - Define programming for control stations, the time-clock, sequences, Vacation Mode, Security Mode and processor links.
- **Terminal** - Real-time communication with a processor.

5. Miscellaneous -



- **Contact Closures** - Define output closures for programming.
- **Fixture Definition** - Create/Maintain global and project fixture lists.
- **Toolbox** - Opens/closes the toolbox.
- **User Preferences** - Define all the global preferences.
- **Where Programmed** - Display where fixtures, keypads, interfaces and global functions have been programmed.
- **Help** - Opens the Online Help Manual.

For help with any of the toolbar icons, move the mouse pointer over the button in question and a tool tip will appear, informing you of the title of the button.

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1.1 Overview

When creating HomeWorks Interactive, we had to take into account the many different types of users that would be using the software. Because of the integrated design and programming utilities, attention was paid to making the interface user-friendly for *all* users.

When creating a project in HomeWorks Interactive, you'll find that there are many different ways of accomplishing the same task. Some will find that the **Project Wizard** works great, others will want to skip it and go straight to the **Floorplan**. Designers may want to detail each and every fixture that is used in the system - programmers may use only the generic fixtures provided.

The important point is that there is no right or wrong way to design a project. Whether you use the **Project Wizard** or the **Floorplan**, use the toolbar or the menus, you should find a method that is most comfortable for you.

1.2 Creating a New Project

The HomeWorks Interactive software provides an easy way to create an initial layout using the **Project Wizard**. Click on the **File** menu option and choose **New** or click on the corresponding  icon on the toolbar.

The **Project Wizard** is divided into sections (or tabs), arranged in logical order:



- By default, the **Areas** tab is displayed first. Areas are the large sections inside/outside the house (i.e. 1st Floor, Landscape, etc.).
- The next level of subdivision is the **Rooms** tab. These are smaller sections of an area which allow you to manage your design more easily (i.e. Living Room, Dining Room, Back Yard, etc.).
- The last tab allows you to define the number of **Control Stations** (control points within a room - A grouping of three HomeWorks Varesos ganged at the Foyer Entry would represent one Control Station.) and **Lighting Zones** (the individually controllable lighting zones in each room).

1.3 Floorplan Design

After you have finished with the **Project Wizard**, a floorplan design of the job will be created. Defining fixtures, renaming rooms, inserting keypads, etc. are all done on the **Floorplan**. The areas in the project will be grouped across the top of the floorplan as tabs. Within each tab are rooms, designated by columns.

For optimum viewing performance, HomeWorks Interactive must be viewed on a PC with a resolution of no less than 800 x 600. At this resolution, 6 rooms will be able to be viewed at a time without having to scroll. If your project has more than 6 rooms in any given area, you will have to scroll through the rooms by using the navigational arrows at the bottom of the screen on the floorplan.



1.3.1 Inserting Control Stations

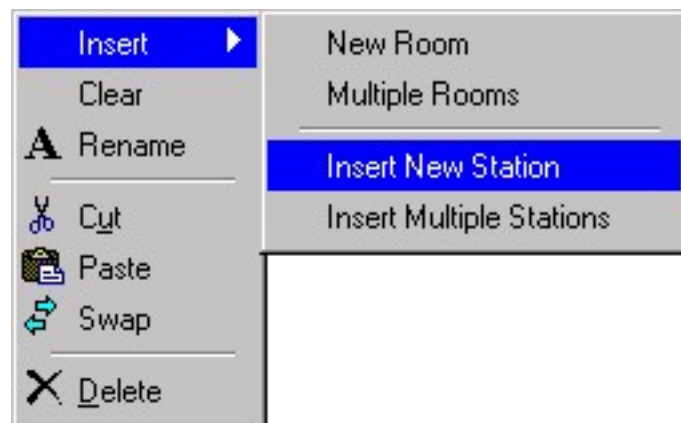
Before you begin to insert control stations, make sure you are in the **Control Station Mode**. To enter the Control Station Mode, press the  button on the toolbar or select **View... Floorplan • Control Station Mode** from the menu bar.

Think of a **Control Station** as a box in the wall where you can gang devices together. Lets say, for instance, you wanted to gang three HomeWorks Vareo Dimmers together near the front door in a foyer. A control station would be the "container" for these three dimmers.

When in Control Station mode, the toolbox will contain dimmers, switches, phone jacks, receptacles, etc.

To insert a control station:

1. Click the right mouse button in the room and select **Insert •** and then **Insert New Station** (for just one station) or **Insert Multiple Stations** (for multiple stations) from the pop-up menu.





2. An empty control station will be inserted into the room.

3. Select a device from the toolbox, then click in the control station where you want to add the device.



4. To create a multi-gang control station, select another device from the toolbox and then click in the control station that you want to be multi-gang.



Devices can be inserted into rooms without predefined control stations by selecting a device from the toolbox, and dropping it into a room. Any time a device is dropped outside of a control station, a new one will automatically be created.

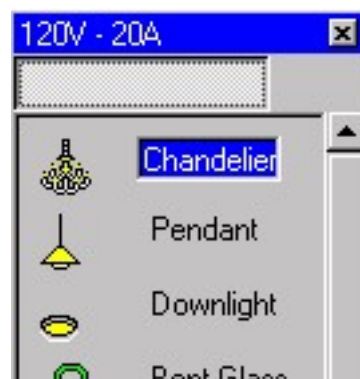
1.3.2 Creating Lighting Zones on the Floorplan

Creating lighting zones or control stations on the floorplan are very similar. Before you begin to insert lighting zones, make sure you are in **Lighting Mode** on the floorplan. To enter **Lighting Mode**, click on the  button on the toolbar or select **View... Floorplan • Lighting Mode** from the menu bar. If either of these options is greyed-out (inactive), press the  button the toolbar or select **View... Floorplan • Control Station Mode** from the menu bar. This will make the  button active.

A good indication of which mode is active is by looking at the toolbox on the right-hand side of the screen. It displays Keypads, Vareos, NovaT devices, etc. when in Control Station Mode and fixtures when in Lighting Mode.

To insert a zone into a room :

1. Click on either the fixture icon or name in the toolbox. You will notice that the mouse pointer will change to an arrow with a question mark when moved out of the toolbox.

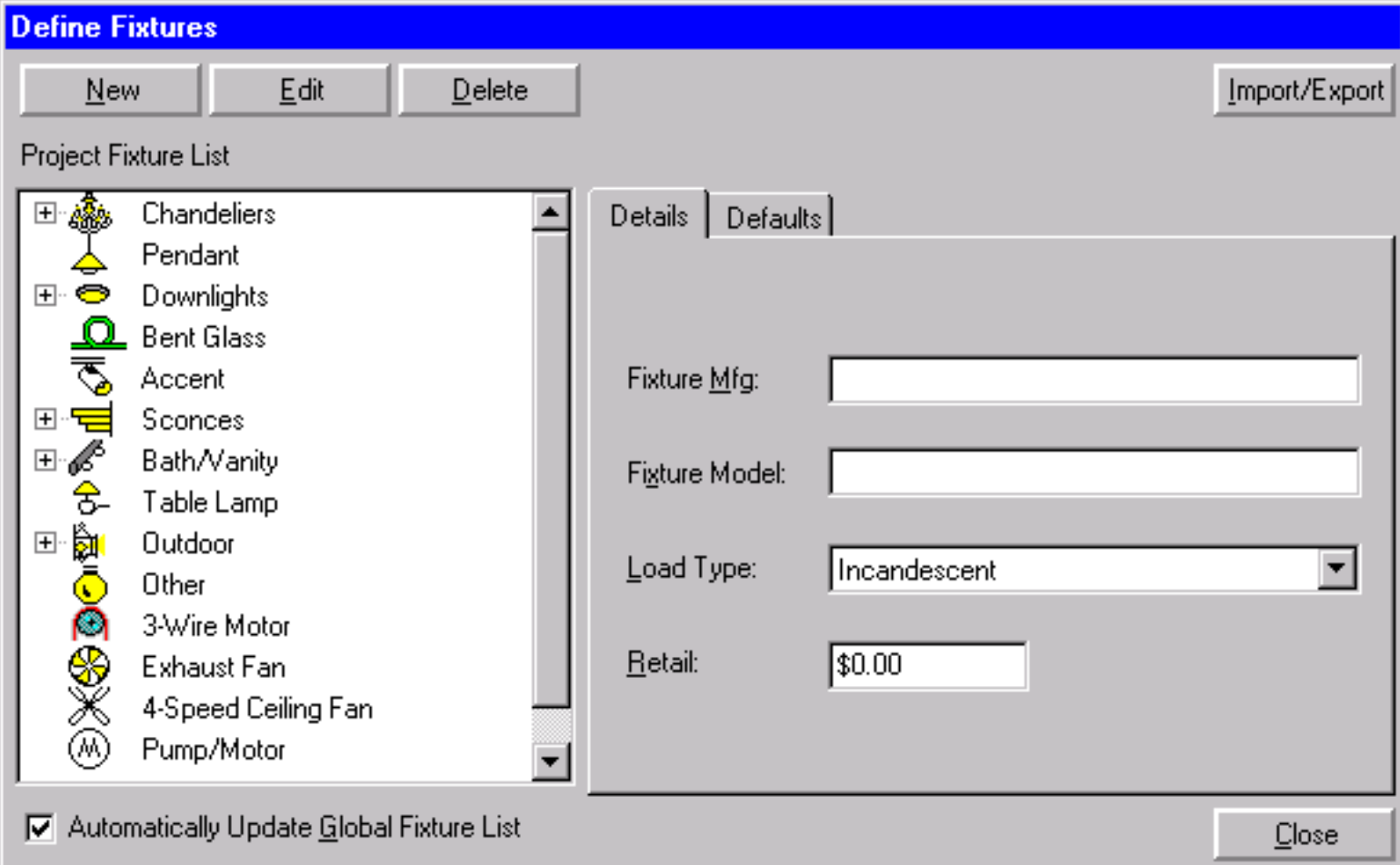


2. Next, click on the room you wish to place the zone in. You will see the fixture appear in the room.

1.4 Fixtures Definition

In HomeWorks Interactive, different fixtures can be defined on a project-by-project basis. However, many designers, specifiers and contractors like to use some of the same fixtures across multiple projects. For this reason, a global fixture list becomes a great asset. Fixtures can be created in the **Define Fixtures** screen. To display this screen, press the  button on the toolbar or select **View... Fixtures** from the menu bar.

1. If a fixture is intended for use on the current project only, the **Automatically Update Global Fixture List** check box should not be checked.
2. If the fixture is intended for use on future projects as well as the current project, check the check box for **Automatically Update Global Fixture List** and it will be added to the global fixture list as well.



The **Define Fixtures** dialog box is shown with a blue title bar. It contains buttons for **New**, **Edit**, **Delete**, and **Import/Export**. Below these is the **Project Fixture List** section, which includes a list of fixture types with expandable icons: Chandeliers, Pendant, Downlights, Bent Glass, Accent, Sconces, Bath/Vanity, Table Lamp, Outdoor, Other, 3-Wire Motor, Exhaust Fan, 4-Speed Ceiling Fan, and Pump/Motor. To the right of the list are tabs for **Details** and **Defaults**. The **Details** tab is active, showing input fields for **Fixture Mfg:**, **Fixture Model:**, **Load Type:** (set to Incandescent), and **Retail:** (set to \$0.00). At the bottom, there is a checked checkbox for **Automatically Update Global Fixture List** and a **Close** button.

Fixture Type	Fixture Mfg	Fixture Model	Load Type	Retail
Chandeliers			Incandescent	\$0.00
Pendant			Incandescent	\$0.00
Downlights			Incandescent	\$0.00
Bent Glass			Incandescent	\$0.00
Accent			Incandescent	\$0.00
Sconces			Incandescent	\$0.00
Bath/Vanity			Incandescent	\$0.00
Table Lamp			Incandescent	\$0.00
Outdoor			Incandescent	\$0.00
Other			Incandescent	\$0.00
3-Wire Motor			Incandescent	\$0.00
Exhaust Fan			Incandescent	\$0.00
4-Speed Ceiling Fan			Incandescent	\$0.00
Pump/Motor			Incandescent	\$0.00

1.4.1 Adding a Fixture

To add a new fixture to your project's fixture list:

1. With the mouse, select a fixture group from the tree on the left to place the new fixture in.
2. Click the **New** button at the top of the screen.
3. Give the new fixture a name.

Once this information has been entered, the remaining fixture details may be entered.

Details Defaults

Fixture Mfg:

Fixture Model:

Load Type: ▼

Retail:

Fixture Details

Details Defaults

Dimmed: ☒

Lamp Wattage: 100 W

Lamp Qty: 1

Fixture Defaults (non-fluorescent loads)

Details Defaults

Lutron Model: FDB-4827-120-2

Ballast Type: Hi-Lume

FL Lamp Type: T-8

Lamp Length: 48

Lamp Wattage: 32

Lamp Quantity: 2

Non-Dim

Dim

Fixture Defaults (fluorescent loads)

NOTE: As shown above, there will be variations of the **Defaults** tab based on the load type you select for a fixture. Fluorescent loads have fields to enter lamp types, lengths, wattages, etc. when dimmed. The Lutron ballast model number is calculated automatically for you.

Fixtures can also be moved from one fixture group to another.

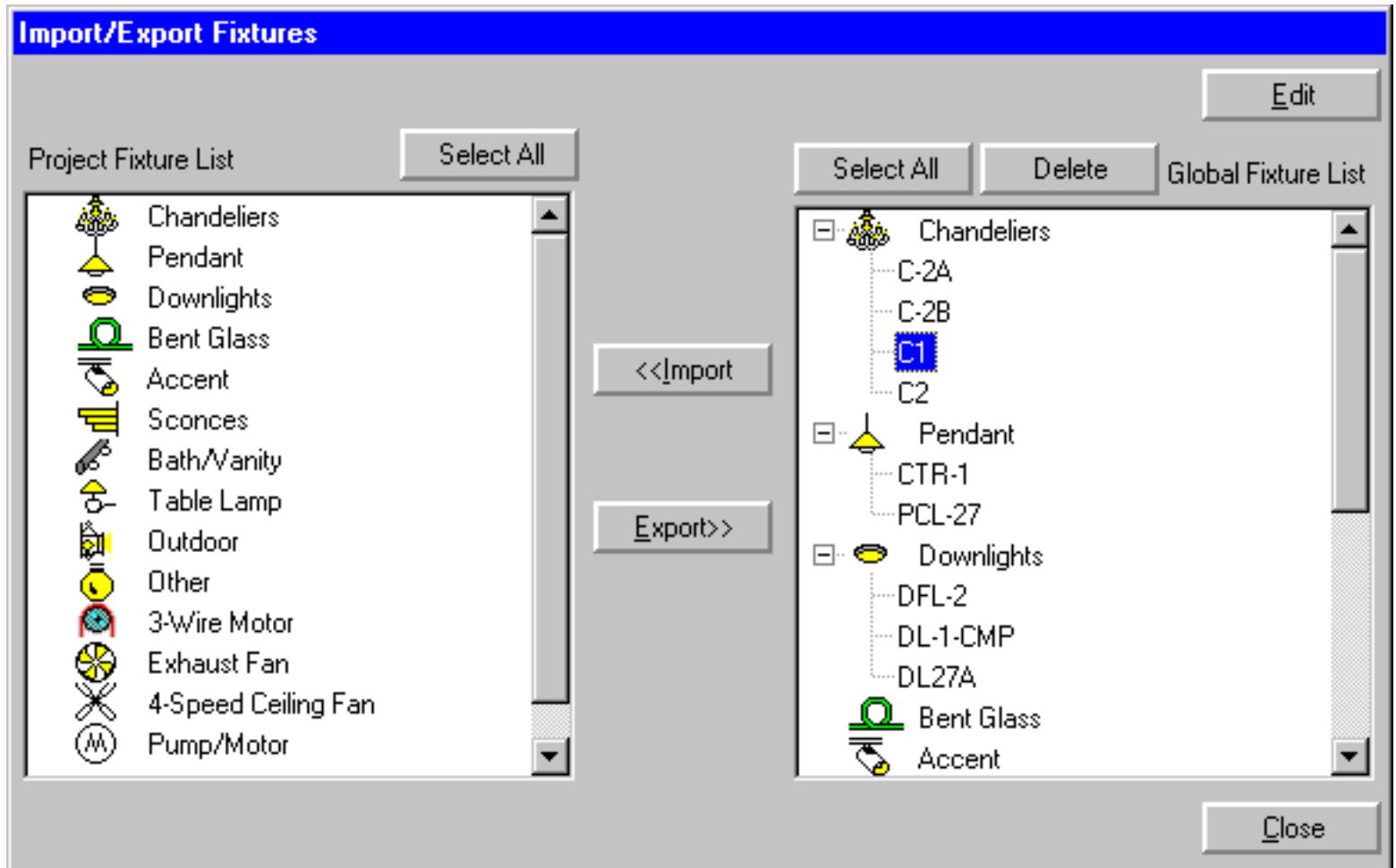
1. Select a fixture by pressing and holding the right mouse button.
2. Drag the fixture on top of the destination fixture group and release the right mouse button.

Once changes have been made to a fixture, they will be saved when you either

close the fixture screen, click on a different fixture, or create a new one.

When editing the characteristics of previously defined fixtures, having the **Automatically Update Global Fixture List** check box checked, will result in the fixture being edited or possibly added to the global fixture list.

1.4.2 Using the Global Fixture List



Importing and exporting fixtures is as easy as selecting the items to move, then clicking on the corresponding **<<Import** button. In the diagram above, the fixture **C1** has been selected in the global fixture list. If the **<<Import** button is pressed, the fixture will be imported into the current project.



Fixtures can be easily exported from the project fixture list to the global fixture list, as shown by fixture **C2** in the diagram above. To export fixtures:

1. Select the fixture in the project fixture list.
2. Click on the  button.

The import/export screen also allows moving of fixtures on the Global Fixture List from one fixture group another :

1. Select a fixture by pressing and holding the right mouse button.
2. Drag the fixture on top of the destination fixture group and release the right mouse button.

1.5 User Preferences

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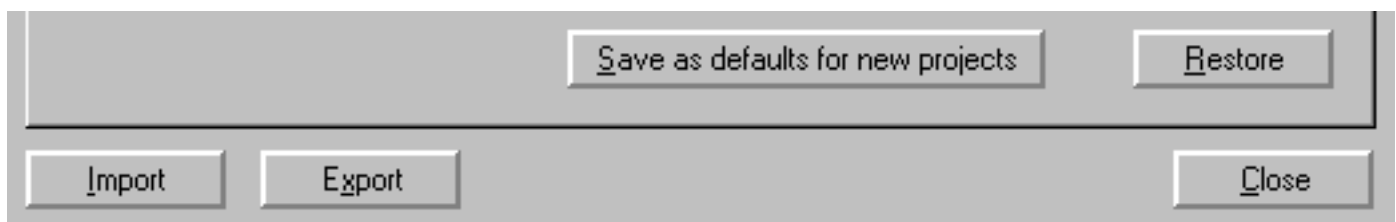
[1.5.8 Printing](#)

[1.5.9 Global Defaults](#)

The User Preferences screen is accessed by pressing the  button on the toolbar or by selecting User Preferences in the View menu. This screen is used to set the default values for many options in the HomeWorks Interactive system, and it features nine tabs to define the different categories of default values. Unless explicitly stated, any changes made in the User Preferences screen will not affect any of the information already existing in the current project.

Preferences For Current Project vs. For New Projects

The User Preferences screen displays the default values for the current project. These values will be applied to any new information added to the current project. Present on every tab is the **R**estore button, which replaces the current project settings displayed on that tab with the original factory default settings.

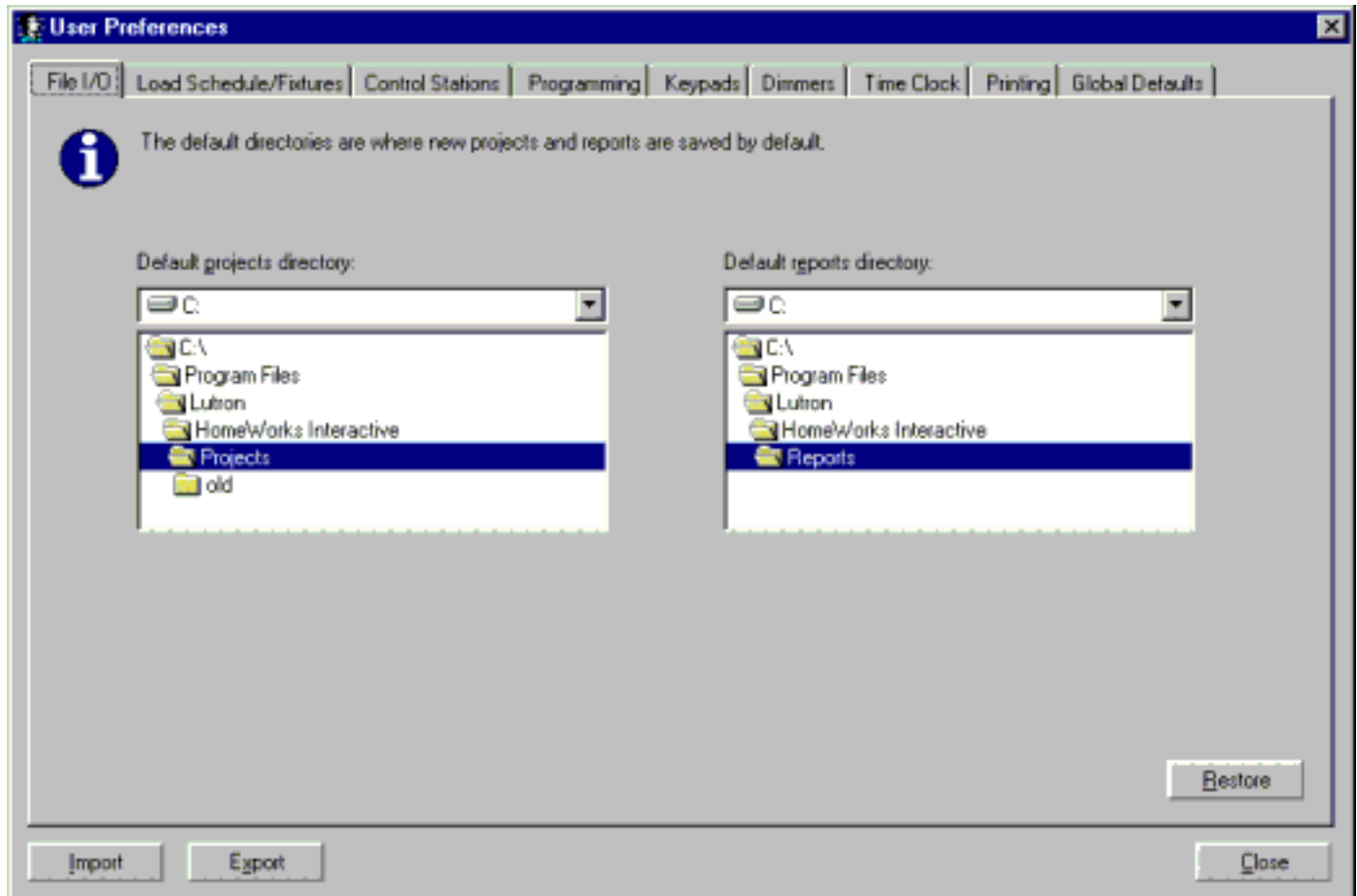


Most tabs also have a **S**ave as defaults for new projects button. The preferences on those tabs only apply to the current project, not new projects. Pressing the **S**ave as defaults for new projects button will save the displayed settings as defaults for any new project. The tabs without a **S**ave as defaults for new projects button display preferences for the current project and for new projects.

The three bottom buttons always appear on the User Preferences screen. The **Export** and **Import** buttons can be used when HomeWorks Interactive is installed on more than one computer. The **Export** button allows the user to save all new project preferences as an initialization (*.ini) file. This file can then be imported into another installation of HomeWorks Interactive using the **Import** button. The **Close** button closes the User Preferences screen.

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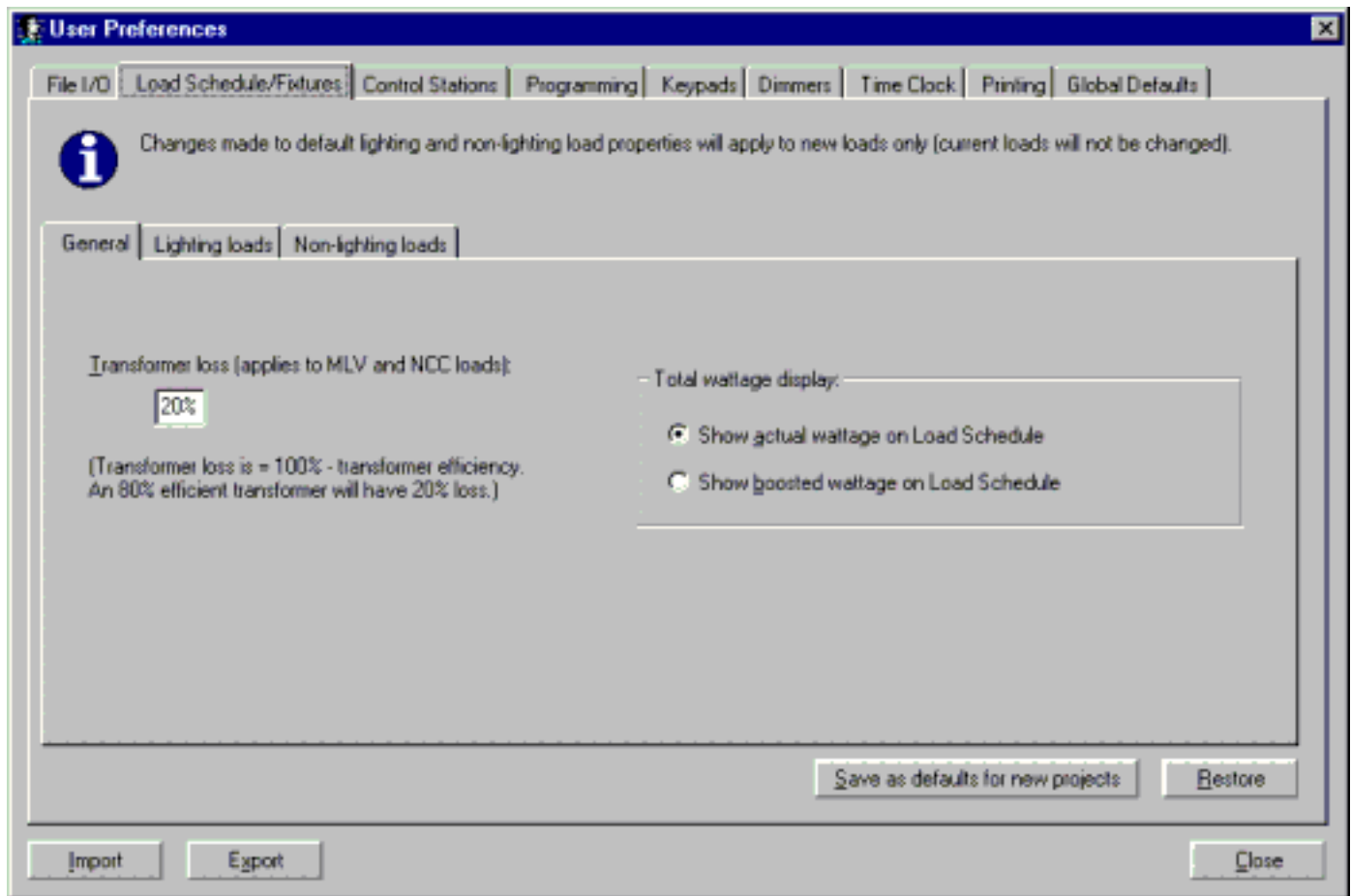
1.5.1 File I/O



This first tab contains default directory preferences. When saving a project, the software assumes that a project is to be saved into the Default projects directory. When opening an existing project, the software assumes that it is in the Default projects directory. Therefore, the Default projects directory displays where projects will be saved and where existing projects will be found by default. Reports use the Default reports directory in the same manner as projects use the Default projects directory. To make changes to the default directories, use the upper dropdown box to change drives and the lower box to change folders.

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1.5.2 Load Schedule/Fixtures



The second tab on the User Preferences screen is the Load Schedule/Fixtures tab. The information on this tab is subdivided into three tabs, the first of which is the General tab.

Located on the General tab is the Transformer loss setting and the Total wattage display setting. The Transformer loss setting is used to determine how much additional load should be attributed to a load using a magnetic transformer. This setting only applies to Magnetic Low Voltage (MLV) and Neon/Cold Cathode (NCC) loads. The default value is 20% based on worst-case testing done by Lutron. For example, the device (e.g. RPM output) controlling a 100 W MLV lamp will could need to supply 120 W to account for the 20% transformer loss.

Whenever a change to the Transformer loss is made, a message appears indicating that the boosted wattage for MLV and NCC loads will be recalculated. Even though the Transformer Loss setting affects loads already entered into the project, the **Save as defaults for new projects** button still needs to be pressed in order to change the preferences for new projects.

The Load Schedule screen can display either the actual or boosted wattage for a load using a magnetic transformer. The Total Wattage Display sets which to display by default. Using the earlier example, 100 W is the actual wattage and 120 W is the boosted wattage. Selecting "Show actual wattage on Load Schedule" would display the Total column and show 100 this load. Selecting "Show boosted wattage on Load Schedule" would display the Boosted column and show 120 this load. When the Total column is being displayed, clicking the **Show Boosted** button will change the Total column into a Boosted column and the 100 actual wattage into the 120 boosted wattage .

General | **Lighting loads** | Non-lighting loads

Default lighting load properties for new loads:

Load type	Manual override	Electronic bypass
INC	0 %	0 %
MLV	0 %	0 %
ELV	0 %	0 %
FL	0 %	0 %
FL-TU-WIRE	0 %	0 %
NCC	0 %	0 %
RLY	Off v	Off v
NONDIM	Off v	Off v

The second portion of the Load Schedule/Fixtures tab is the Lighting loads tab. This tab displays the default Manual override and Electronic bypass settings for the different load types. Refer to [Lighting Special Properties](#) for more information on these settings. Any lighting loads added after changes are made on this tab will use these values.

General | **Lighting loads** | Non-lighting loads

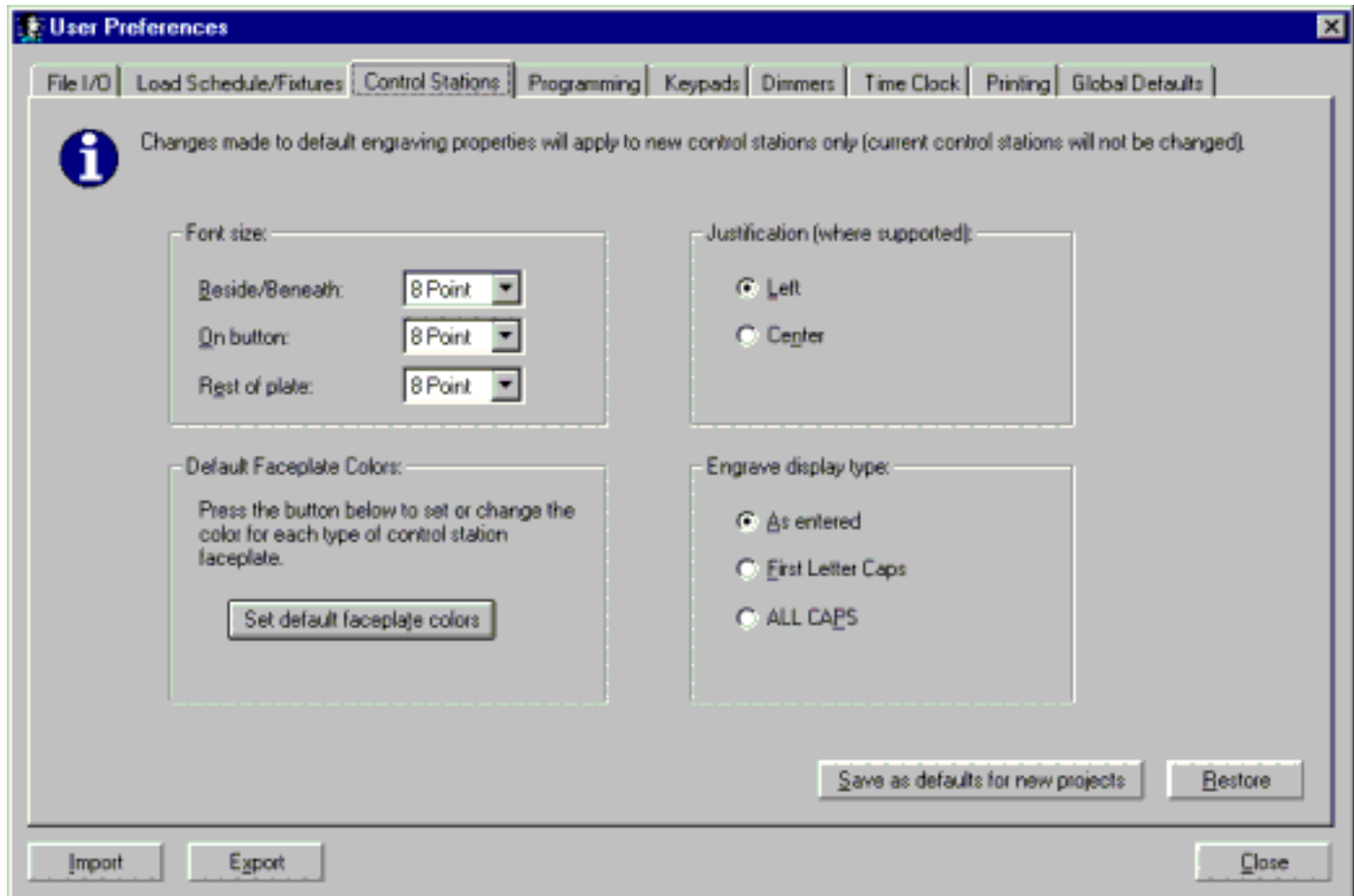
Default 3 wire motor load properties for new loads:

Load type	Time to off (mm:ss)	Interlock (s)	Jog time (ms)
Motor	03:04	.56 v	80

The third and final section of the Load Schedule/Fixtures tab is the Non-lighting loads tab. This tab displays the default Time to off, Interlock and Jog time settings for motors. Refer to [Motors Special Properties](#) for more information on these settings. Any motor loads added after changes are made on this tab will use these values.

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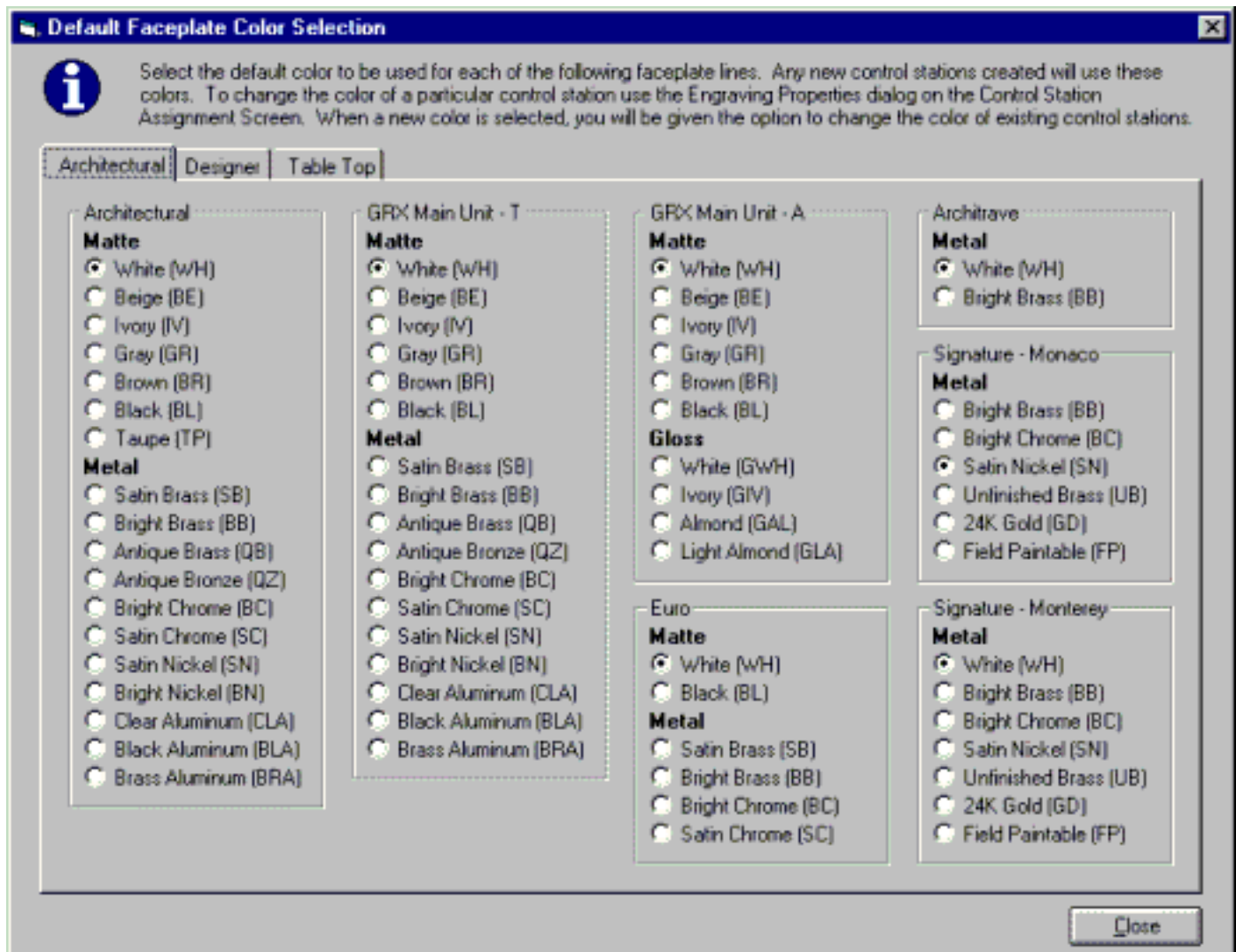
1.5.3 Control Stations



The next tab on the User Preferences screen is the Control Stations tab, which displays the default settings that will be used when control station engraving is specified. The Font size is adjustable to 8 point, 10 point or 12 point for each section of the control station. (Note: A seeTouch keypad can only support 10 point font.) There are three sections engraving can exist on a control station. Depending on the device type, engraving can be beside or beneath the button. It can also be on the button. It could also be somewhere on the rest of the faceplate. To make changes to the font size of an existing device, refer to [Engraving properties](#) of the Control Station Assignment screen. The Control Station Engraving report shows a true representation of the size of the engraving.

Depending on what device is being engraved and where that engraving is located, the justification may be specified. The default value for this preference can be set under Justification. To make changes to the justification of an existing device, refer to [Engraving properties](#) of the Control Station Assignment screen or to [Engraving Details](#) on the Programming screen.

The Engrave Display Type determines how the engraving entered will be displayed on the faceplate. The engraving can be displayed as entered, with only the first letter capitalized, or with all letters capitalized. The Engrave Display Type for an existing device can be modified in the same fashion as the justification, described above.

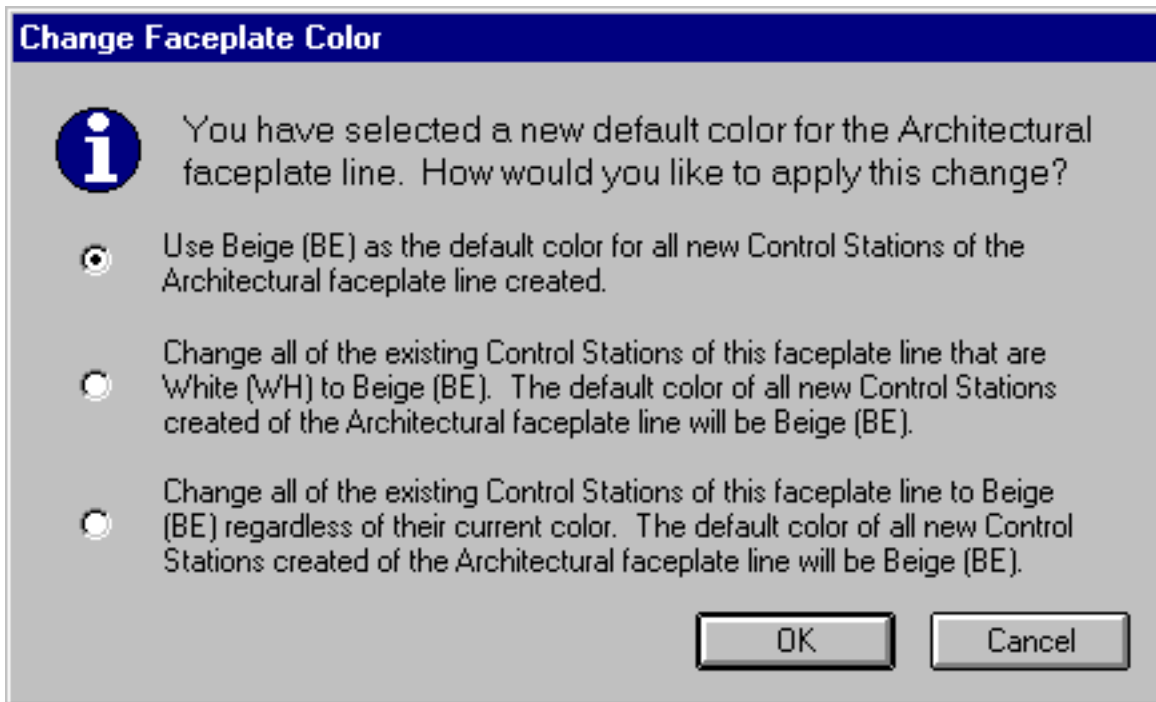


Pressing the **Set default faceplate colors** button will show the Default Faceplate Color Selection window. From this window, the default faceplate colors can be set for all new control stations in each faceplate line. The faceplate color for a single existing control stations can be modified in the same fashion as the font size, described previously.

Selecting a new default color will show the Change Faceplate Color window. This window provides an opportunity to change the current faceplate colors on multiple existing control stations in that faceplate line. All three options will set the default faceplate color for all new control stations in that faceplate line but will affect the faceplate color of current control stations differently.

- The first option does not affect any current control stations.
- The second option changes the color of control stations in that faceplate line with the previous default color.

- The third option changes the color of all control stations in that faceplate line. Clicking the **OK** button will accept an option. Clicking the **Cancel** button will cancel the change, i.e. not set the default color for new control stations.

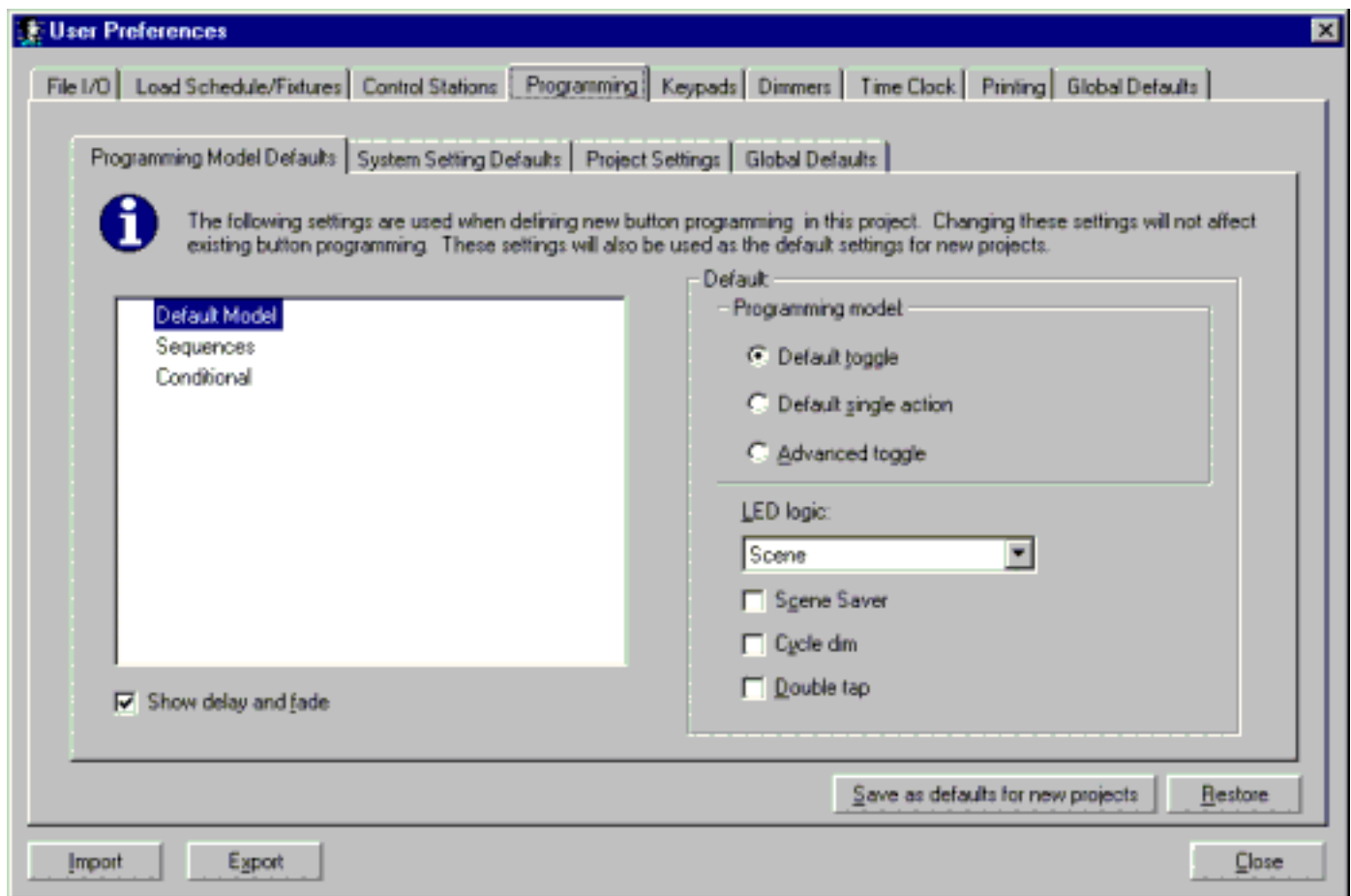


Pictured above is the result of selecting Beige in the Architectural faceplate line.

- Selecting the first option and clicking the **OK** button will set the default color to Beige for new control stations in the Architectural faceplate line.
- Selecting the second option and clicking the **OK** button will not only set the new default color to Beige for new control stations in the Architectural faceplate line but also change White control stations in the Architectural faceplate line to Beige.
- Selecting the third option and clicking the **OK** button will not only set the new default color to Beige for new control stations in the Architectural faceplate line but also change all control stations in the Architectural faceplate line to Beige.
- Clicking the **Cancel** button will set the default color back to White for new control stations in the Architectural faceplate line, undoing the selection of Beige.

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1.5.4 Programming



The Programming tab is the fourth on the User Preferences screen. This tab lists the default programming settings for any new button programmed or any button that uses a new programming model. The programming tab is further divided into four different tabs, Programming Model Details, System Setting Defaults, Project Settings and Global Defaults.

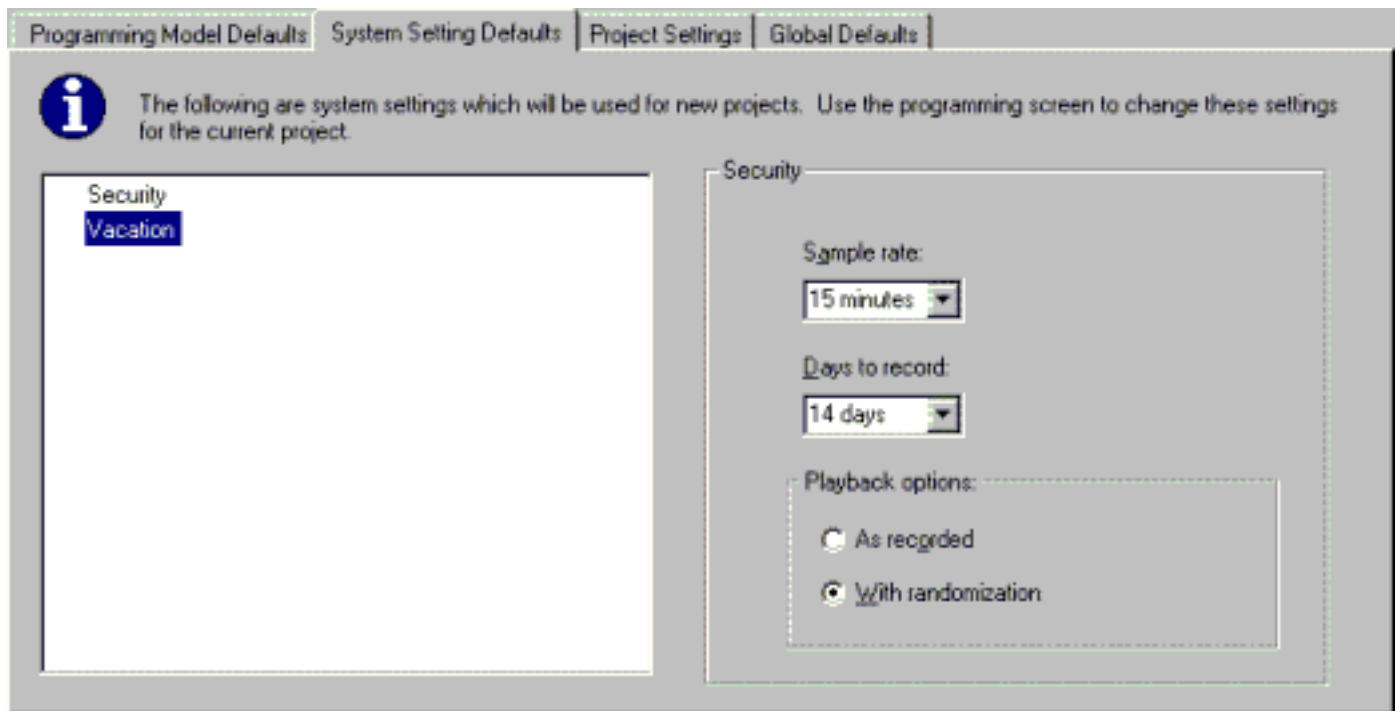
The Programming Model Details tab displays all the settings for the Default Model, Sequences and Conditional models, as shown in the list box on the right. The first item on the list is the Default Programming Model. This setting determines the default programming model for a button on a new keypad. The choices are the default programming model using the toggle option, the default programming model using the single action option or the advanced toggle programming model. The default LED logic can also be set to either Room, Scene or Pathway. Finally, the Cycle dim option, Double tap option or the Scene Saver option can be set as the default. The Show delay and fade checkbox applies to all programming models and determines if the Fade and Delay columns will be displayed in the preset area.

The screenshot shows the 'Programming Model Defaults' tab. At the top, there are four tabs: 'Programming Model Defaults', 'System Setting Defaults', 'Project Settings', and 'Global Defaults'. Below the tabs is an information icon and a text box stating: 'The following settings are used when defining new button programming in this project. Changing these settings will not affect existing button programming. These settings will also be used as the default settings for new projects.' On the left, there is a list of programming models: 'Default Model', 'Sequences', and 'Conditional'. 'Sequences' is currently selected. On the right, under the heading 'Sequences:', there is a label 'Number of Presets:' followed by a text box containing the value '5'. At the bottom left, there is a checked checkbox labeled 'Show delay and fade'.

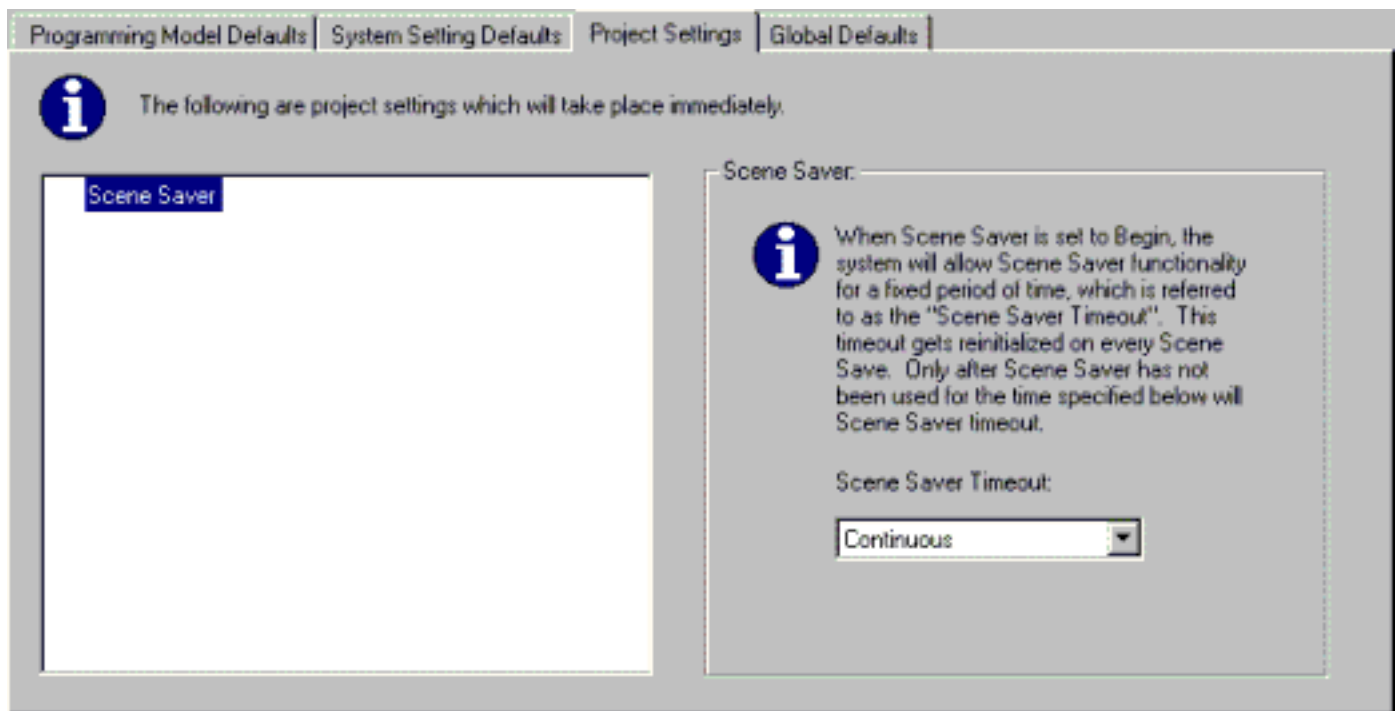
The other two items in the list (Sequences and Conditional) are used to the default Number of Presets for these programming models. Sequences includes both the Manual Sequence and Automatic Sequence programming models. The default value for each is 5 but can be set to any value from 1 to 99.

The screenshot shows the 'System Setting Defaults' tab. At the top, there are four tabs: 'Programming Model Defaults', 'System Setting Defaults', 'Project Settings', and 'Global Defaults'. Below the tabs is an information icon and a text box stating: 'The following are system settings which will be used for new projects. Use the programming screen to change these settings for the current project.' On the left, there is a list of system settings: 'Security' and 'Vacation'. 'Security' is currently selected. On the right, under the heading 'Security:', there are two settings: 'Flash rate:' with a dropdown menu showing 'Medium', and 'Timeout:' with a text box containing the value '10:00'.

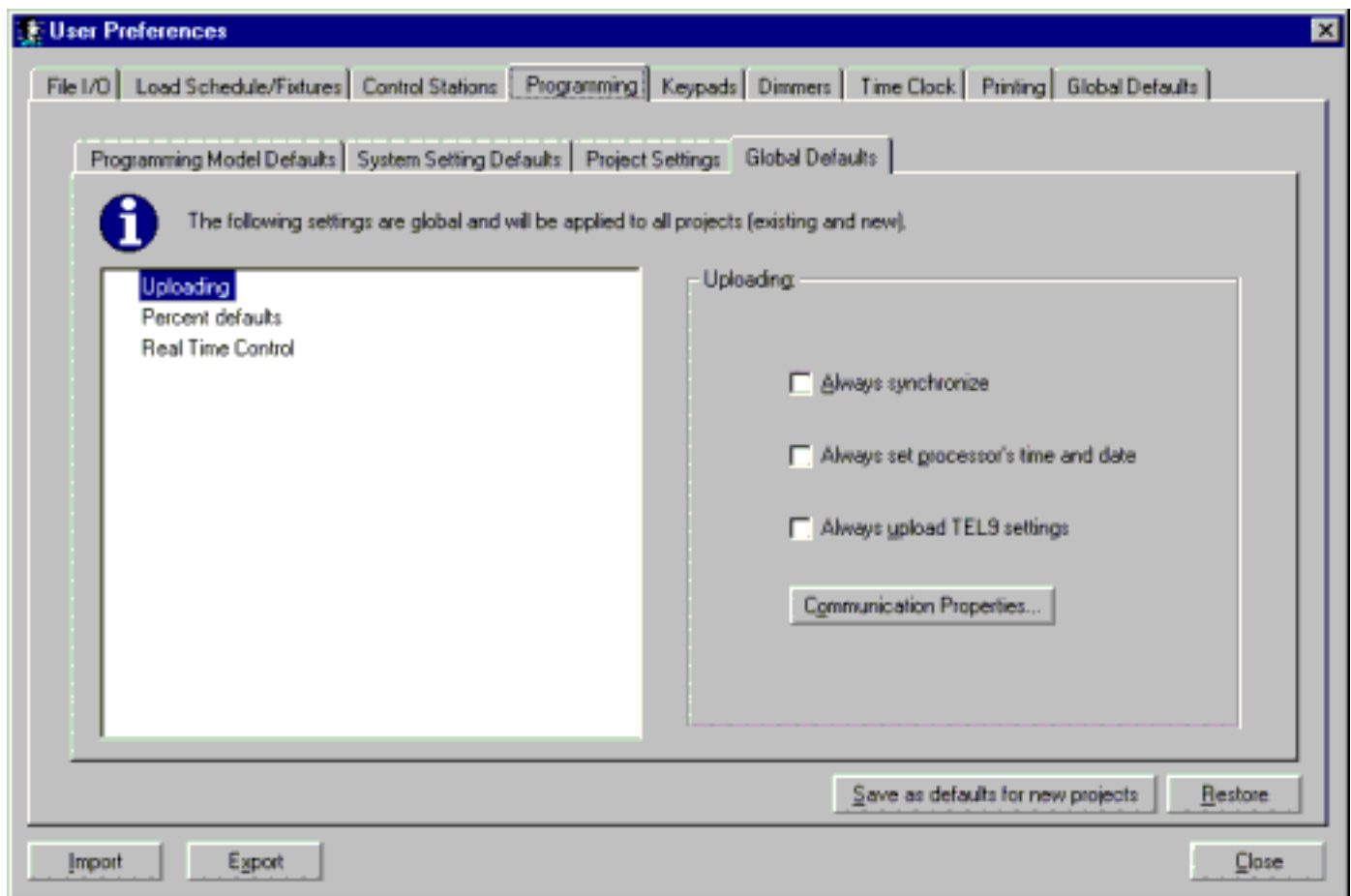
The next tab, System Setting Defaults, is used to set the defaults for Security Mode and Vacation Mode. The default flash rate for lights to be flashed by Security Mode can be set as well as the default timeout. The Flash Rate, which determines how quickly the lights will flash when Security Mode is activated, can be set to Slow, Medium or Fast. The Slow setting will cause the lights to flash at 4 second intervals. Medium causes the lights to flash at 2.5 second intervals and the Fast setting flashes the lights at 1.5 second intervals. For all of the Flash Rate settings, the on time is the same as the off time. The timeout feature is used to exit Security Mode automatically after the specified time.



For Vacation Mode, the sample rate, days to record and the type of playback options can be set, as shown above. The Sample rate is how often the HomeWorks Interactive system will record the settings of the dimmers included in Vacation Mode. The default value can be set to 5, 15, 30, 45 or 60 minutes.

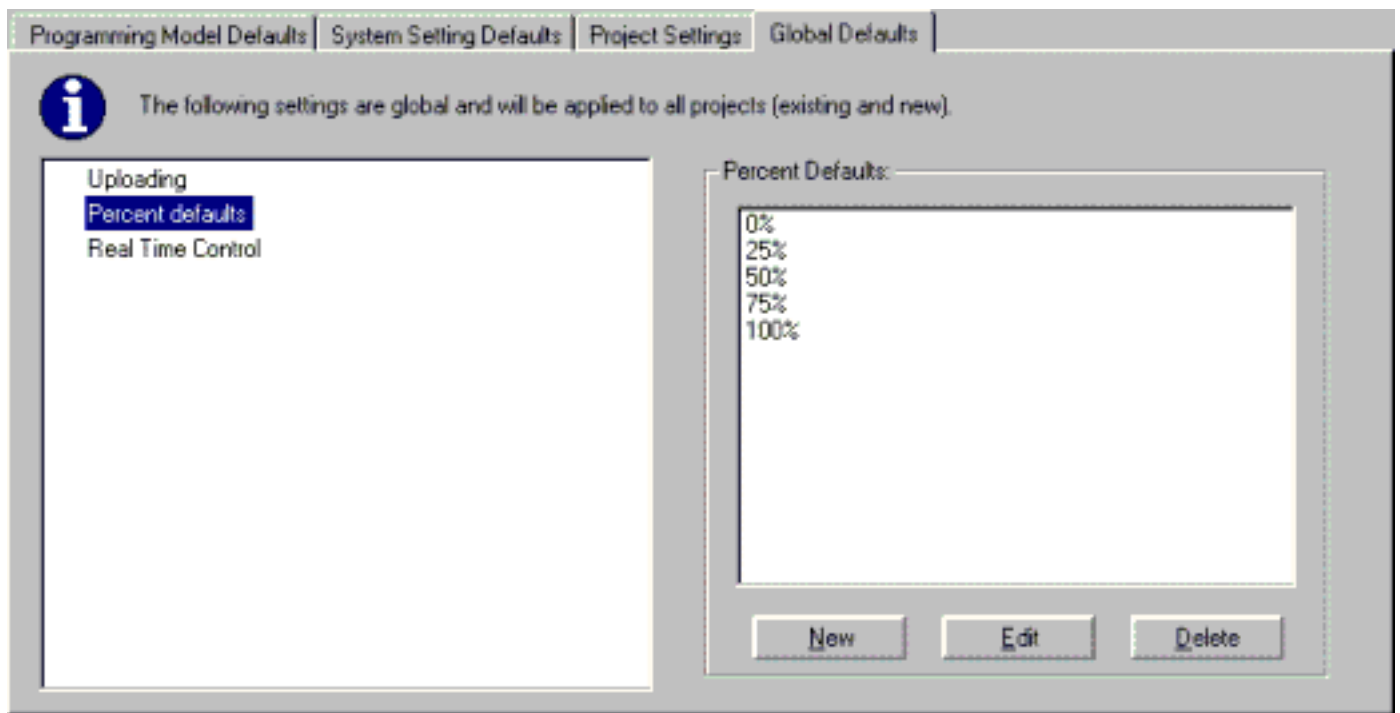


The Project Settings tab is used to set the Scene Saver Timeout. When Scene Saver is set to Begin, the system will allow Scene Saver functionality for a fixed period of time, which is referred to as "Scene Saver Timeout." This timeout gets reinitialized on every Scene Saver operation. Only if Scene Saver has not been used for the amount of time specified will Scene Saver mode timeout. The choices for timeout are limited to the following: 10, 15 or 30 minutes, 1 hour or continuous. If continuous is selected, the timeout feature is disabled.

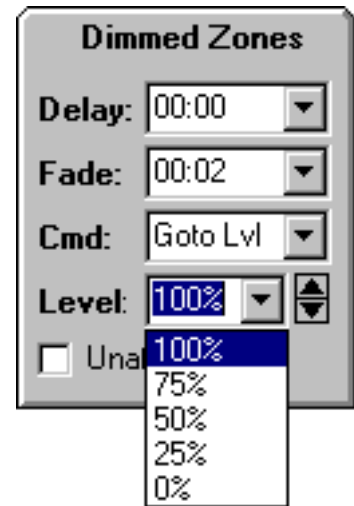


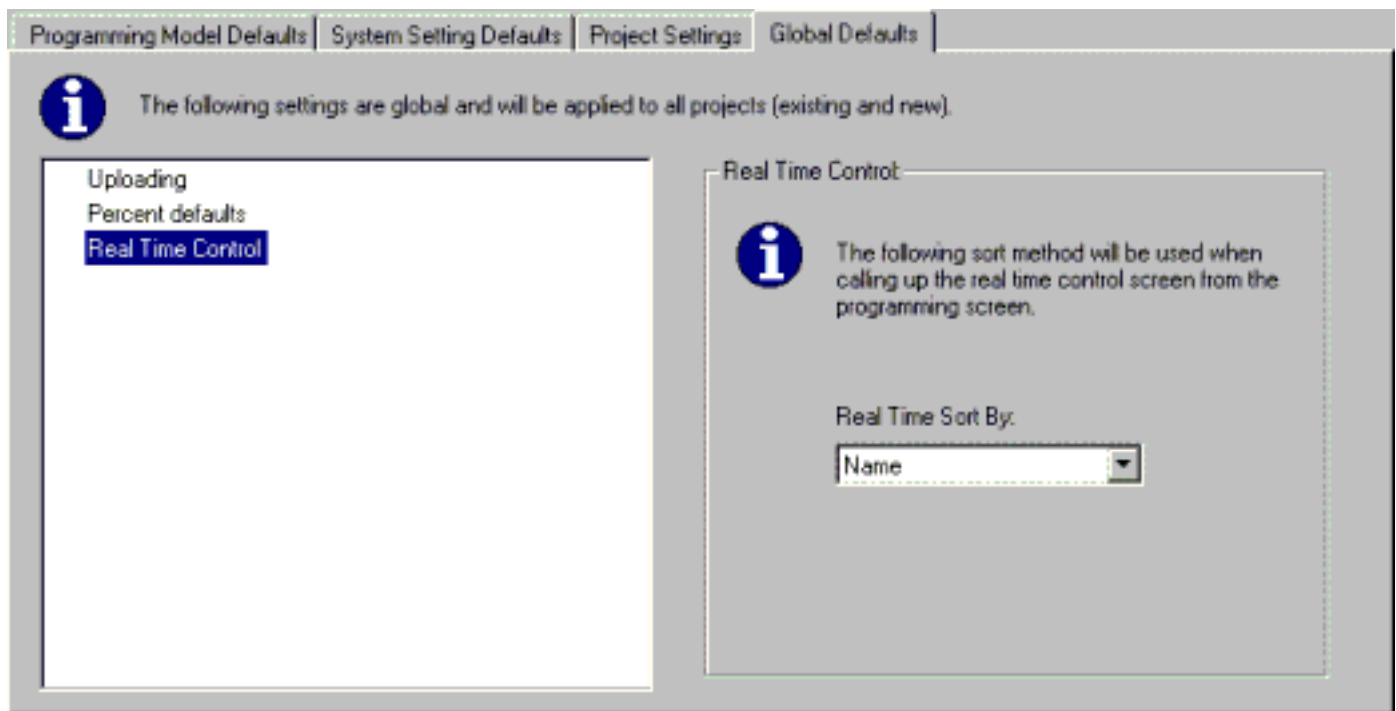
The final tab in the Programming tab is the Global Defaults tab, which features a list box on the left side of the screen. In this list box are the three categories of Global Defaults: Uploading, Percent defaults and Real Time Control, as shown below.

The Uploading defaults include Always synchronize, Always set processor's time and date, Always upload TEL9 settings and the communication properties. If the Always synchronize option is checked, the Minimum option on the upload screen can never be selected. The only way to select the Minimum upload option is to change the Always synchronize option in User Preferences. If the Always set processor's time and date option is selected, the corresponding option on the upload screen will be checked by default. The Set system date/time to PC option can be selected and deselected at any time without changing the option in User Preferences. The Always upload TEL9 settings option works in much the same way as the Set system date/time to PC option. Selecting this option will set the corresponding option on the upload screen but it can be changed at any time. The final Uploading option sets the default communication properties for the Terminal screen. Press the **Communication Properties ...** button to access the [Communication Properties](#).



The next item on the list is the Percent defaults. This setting populates the list of dimming percentages used to create presets in the Programming Mode. Any integer between 0 and 100 may be added to the list. Changes made to the Percent Defaults will appear on the dropdown box as soon as the User Preferences screen is closed. No programmed preset in the project will be affected.

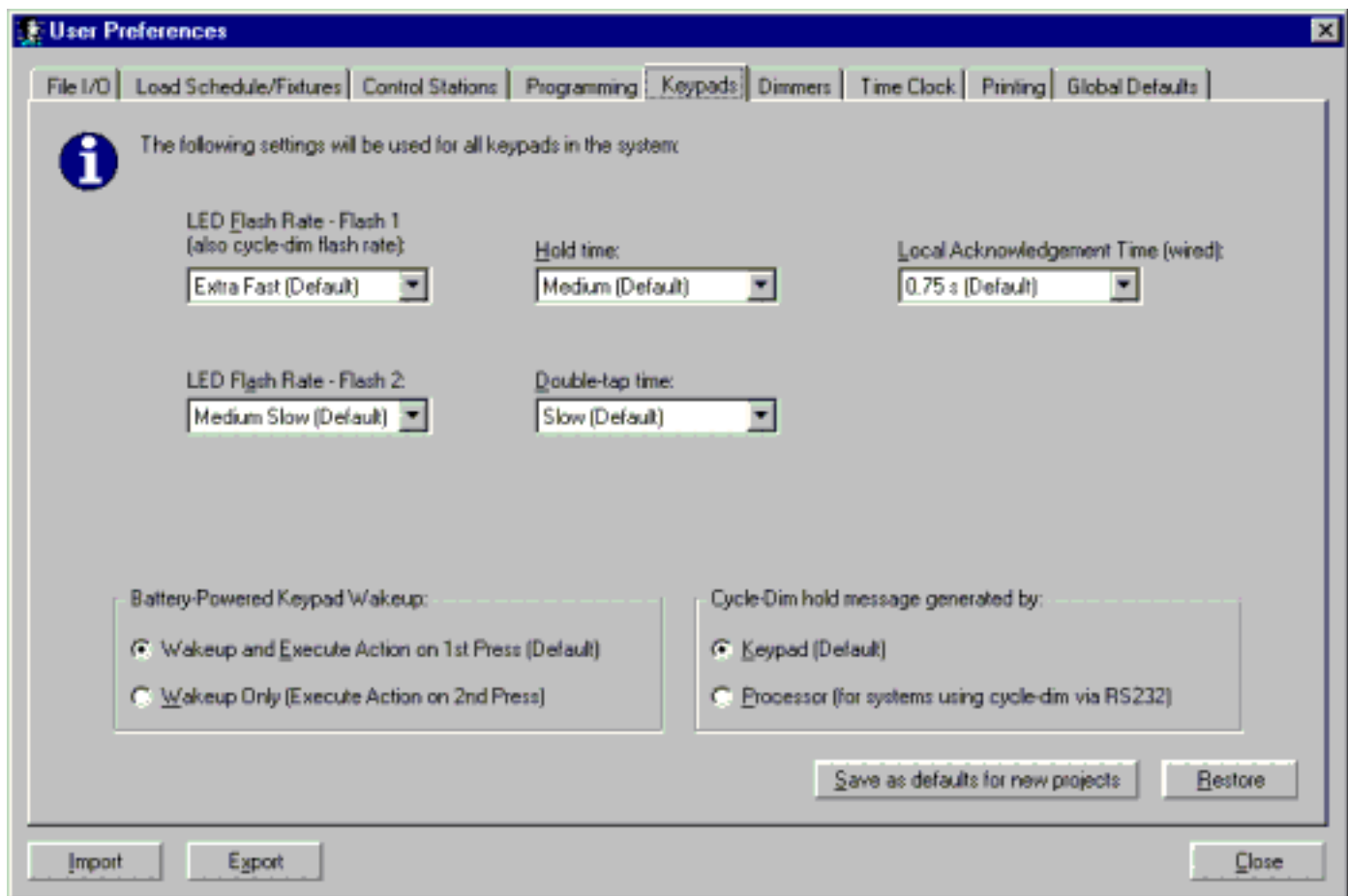




The last item on the list of Global Defaults is Real Time Control. The Real Time Control settings allows the real time control screen to be either sorted by zone name or by circuit number.

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1.5.5 Keypads



The next tab on the User Preferences screen is the Keypads tab. The information on this tab is used in the configuration of keypads.

LED Flash Rate - Flash 1 and Flash 2

The first two options are the LED Flash Rates for Flash 1 and Flash 2. These flash rates are used on the Programming screen for the Manual Sequence programming model. When the LED Logic Type (Properties tab) is set to State Dependent, the LED state can be set to Flash 1, Flash 2, On, or Off for each preset in the sequence. Flash 1 can be set for Medium, Fast, or Extra Fast and Flash 2 can be set for Extra Slow, Slow, or Medium Slow. Regardless of these settings, Flash 1 is always a faster flash rate than Flash 2.

Hold Time

The Hold time setting is the next option on the Keypads tab. This setting is used by the keypads to determine how long a button must be pressed before it is considered held. (Holding a keypad button will activate Cycle-Dim if it is programmed to that button.) The hold time can be set to Short, Medium, Long, or Very Long. Refer to [Cycle Dim](#) for more information. This hold time setting does apply to Scene Saver, which always uses 4 seconds.

Double-Tap Time

The next setting displayed on the Keypads tab is the Double-tap time. This time represents the maximum time between successive button presses that will generate a double-tap message. This option can be set to Disabled, Fast, Medium, or Slow. The Disabled setting will disable the double-tap function without deleting the associated programming.

Local Acknowledgement Time

The next option on the Keypads tab is the setting for Local acknowledgement time for wired keypads only. The Local acknowledgement time is used whenever a button on a keypad is pressed. Pressing the button will light the associated LED immediately. If the LED is programmed to turn on, it will stay on. If the LED is not programmed to turn on, the LED will turn off after the Local acknowledgement time has expired. The Local acknowledgement time can be set to values from the list ranging from 0.75 seconds to 3.75 seconds.

Battery Powered Keypad Wakeup

Battery powered RF table top keypads go to "sleep" (turn off) after being unused for a period of time. To "wakeup" (turn on) a battery powered keypad, press any button. This wakeup button press may be configured to Wakeup and Execute on 1st Button Press (default option) or Wakeup Only. Wakeup and Execute on 1st Button Press will execute the wakeup button press programming. Wakeup Only will not execute the wakeup button press programming and will only update the keypad LEDs.

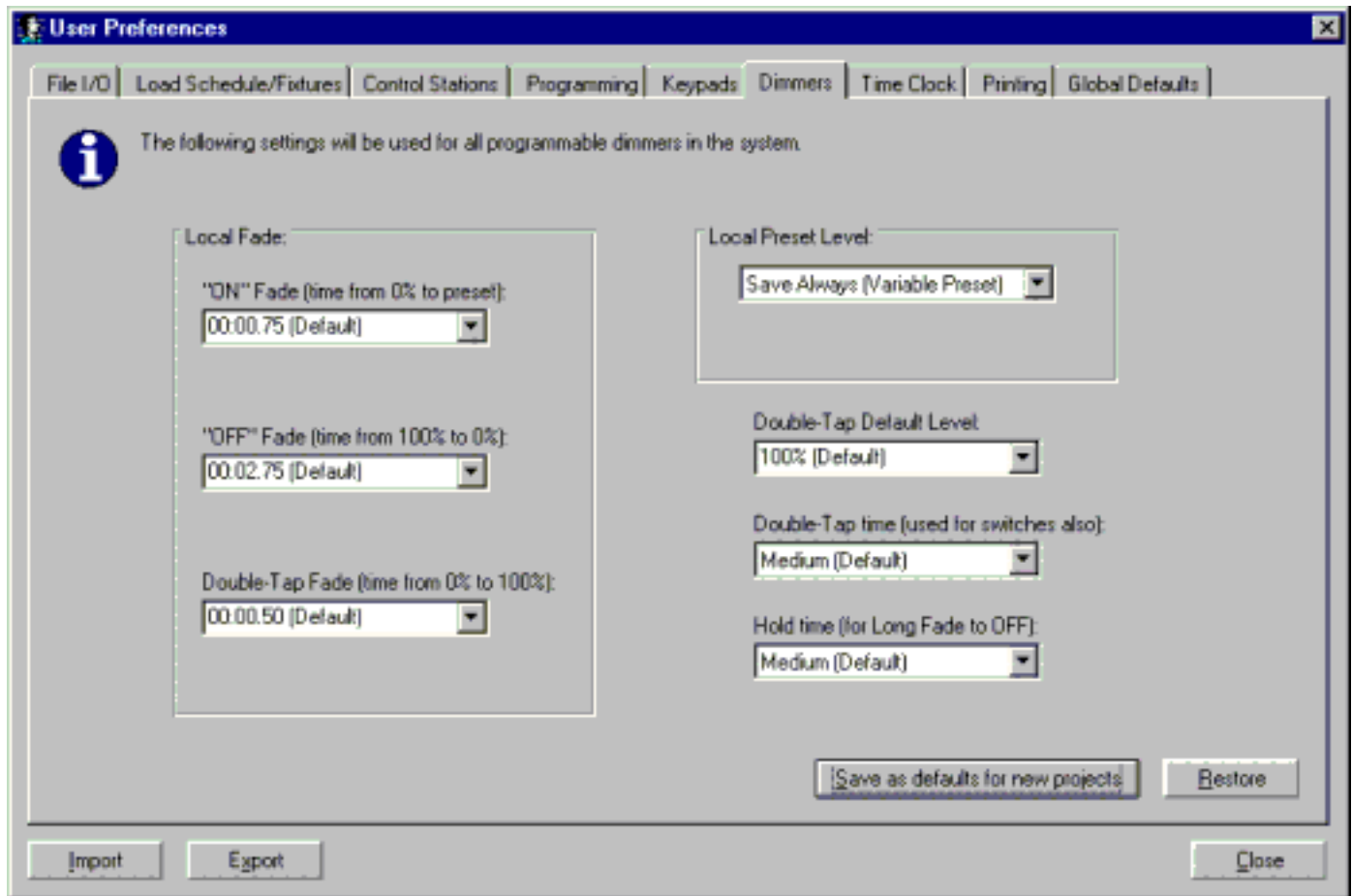
Cycle-Dim Hold Message Generation

The final setting on the Keypads tab is concerned with how the Cycle-Dim hold message is generated. A keypad sends a Keypad Button Press (KBP) message to the processor when a button is pressed and then a Keypad Button Hold (KBH) message when the button is not released (held) for the time defined by the Hold time, described above. The Cycle-Dim hold message is by default generated from the Keypad, i.e. the Cycle-Dim is activated when the keypad sends its KBH.

The other option is for the Cycle-Dim hold message to be generated by the Processor. Using this option, when the processor receives a KBP message and not a Keypad Button Release (KBR) message within the Hold time, it will automatically generate the KBH message and cause the cycle-dim mode to be activated. This option is needed when another system is sending RS-232 strings for KBP and KBR but cannot send an RS-232 string for KBH.

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1.5.6 Dimmers



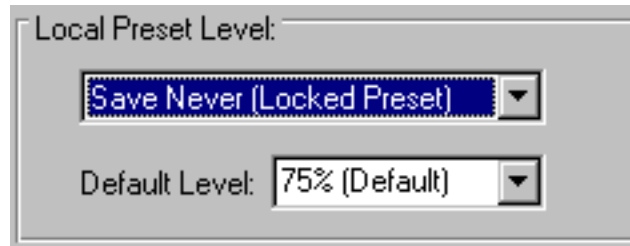
The next tab on the User Preferences screen is the Dimmers tab. The information on this tab is used in the operation of programmable dimmers. See [Programmable Dimmers](#) for more information.

Local Fade

A programmable dimmer will fade the local load to its new level via a Press ON, a Press OFF, and a Double-Tap. The first three options configure their Local Fade times. To set the local fade time, select a time from the dropdown box or type in a time in the format "mm:ss.ss". For example, "00:02.75" is 2 $\frac{3}{4}$ seconds. These local fade times are with all programmable dimmers using the Local (Typical) model. Other programming models allow the fade times to be individually set. In those cases, when its fade is individually set to "Local", each of these local fade times are used. See [Programmable Dimmers](#) for information on individually setting the fade times. Since switches cannot fade, these settings apply to dimmers only.

Local Preset Level

This preference determines the behavior of all programmable dimmers in the system. If set to Save Always (Variable Preset), dimmers remember their last ON level and turn on to that level when pressed. This is the default behavior. If set to Save Never (Locked Preset), dimmers turn on to a fixed level. In this behavior, every press of the tap switch will give a known level.



When Save Never is selected, the Default Level dropdown box becomes visible so the default fixed ON level may be set. To set the default level, select a level from the dropdown box or type in a level. The ON level can still be set individually for each dimmer, and this value is used when the Level is individually set to "Default". See [Programmable Dimmers](#) for information on individually setting the fixed Press ON level. Since switches have only one ON level, this setting applies to dimmers only.

Double-Tap Default Level

Double-tapping the tap switch of a programmable dimmer will send the local load to a defined ON level. The level is typically full ON (100%) and this default can be configured using this setting. To set the double-tap default level, select a level from the dropdown box or type in a level. Local (Typical) programmable dimmers use this setting directly, while the other two programming models allow the double-tap level to be individually set. This setting is used on those dimmers when the double-tap level is individually set to "Default". See [Programmable Dimmers](#) for information on individually setting the fixed Press ON level. Since switches have only one ON level, this setting apply to dimmers only.

Double-Tap Time

Much like the keypads setting, the Double-Tap time represents the maximum time between successive tap switch presses that will generate a double-tap message. To set the double-tap time, select Fast, Medium or Slow in the dropdown box. Unlike keypads, Disabled is not a valid option because dimmers always have a double-tap. This setting applies to both dimmers and switches.

Hold Time

This setting is used by programmable dimmers to determine how long the tap switch must be pressed before the dimmer starts its Long Fade to OFF. To set the hold time, select Short, Medium, Long or Very Long in the dropdown box. Since switches cannot fade, this setting applies to dimmers only.

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1.5.7 Time Clock

The screenshot shows the 'User Preferences' dialog box with the 'Time Clock' tab selected. The dialog has a title bar with a close button. Below the title bar is a tabbed interface with tabs for 'File I/O', 'Load Schedule/Fixtures', 'Control Stations', 'Programming', 'Keypads', 'Dimmers', 'Time Clock', 'Printing', and 'Global Defaults'. The 'Time Clock' tab is active, displaying a message: 'Changes made to the location information will apply to this project only. To restore deleted default locations, click on Restore.' Below this message are two sub-tabs: 'Location' and 'General'. The 'General' sub-tab is selected, showing fields for 'Country' (United States), 'State' (PA), 'City' (Philadelphia), 'Latitude' (39.6 N), 'Longitude' (75.1 W), and 'Time zone' (Eastern Time). To the right of these fields is a section for 'Daylight savings adjustment: Enabled', which includes an 'Adjustment time' of 60 minutes and a table for setting the clock ahead and back. The table has columns for 'Month', 'Day of week', 'Week', and 'Time'. The 'Date to set clock ahead' column shows 'April', 'Sunday', '1st Week', and '02:00 AM'. The 'Date to set clock back' column shows 'October', 'Sunday', 'Last Week', and '02:00 AM'. At the bottom of the 'Daylight savings adjustment' section are buttons for 'New...', 'Edit...', 'Delete', and 'Set as Default'. At the bottom right of the 'General' sub-tab is a 'Restore' button. At the bottom of the 'Time Clock' tab are 'Import' and 'Export' buttons. At the bottom right of the entire dialog is a 'Close' button.

Date to set clock ahead		Date to set clock back	
Month:	April	Month:	October
Day of week:	Sunday	Day of week:	Sunday
Week:	1st Week	Week:	Last Week
Time:	02:00 AM	Time:	02:00 AM

The Time Clock tab is the next tab on the User Preferences screen. The information displayed on this screen is chiefly concerned with the locations used to determine daylight savings. New locations can be added by pressing the **New** button, which opens the New Location screen.

New Location

Country: United States New Delete

State: PA New Delete

City:

Latitude: 39.6 N Longitude: 75.1 W

Time zone: Eastern Time

☒ Adjust for daylight savings time

Daylight Savings Adjustment

Adjustment time 60 minutes

Date to set clock ahead: April Date to set clock back: October

Month: April October

Day of week: Sunday Sunday

Week: 1st Week Last Week

Time: 02:00 AM 02:00 AM

OK Cancel

Entire new countries can be added to the country list from the New Location screen by pressing the **New** button to the left of the Country list box. States can only be added to the following countries: United States and Canada. A new city can be added to any country. Associated with each city is the Longitude, Latitude and Time zone. In addition, the adjustment for Daylight Savings can be set and if set, what those adjustments are and when they take affect.

The **Edit** button on the Time Clock tab will allow the user to edit the name and associated attributes of the city currently displayed. This is done via a screen similar to the New Location screen. The **Delete** button will delete the city currently being displayed. Once all the appropriate changes to a location are made, the **Set as Default** button can be used to set the current location as the default location for all new projects.

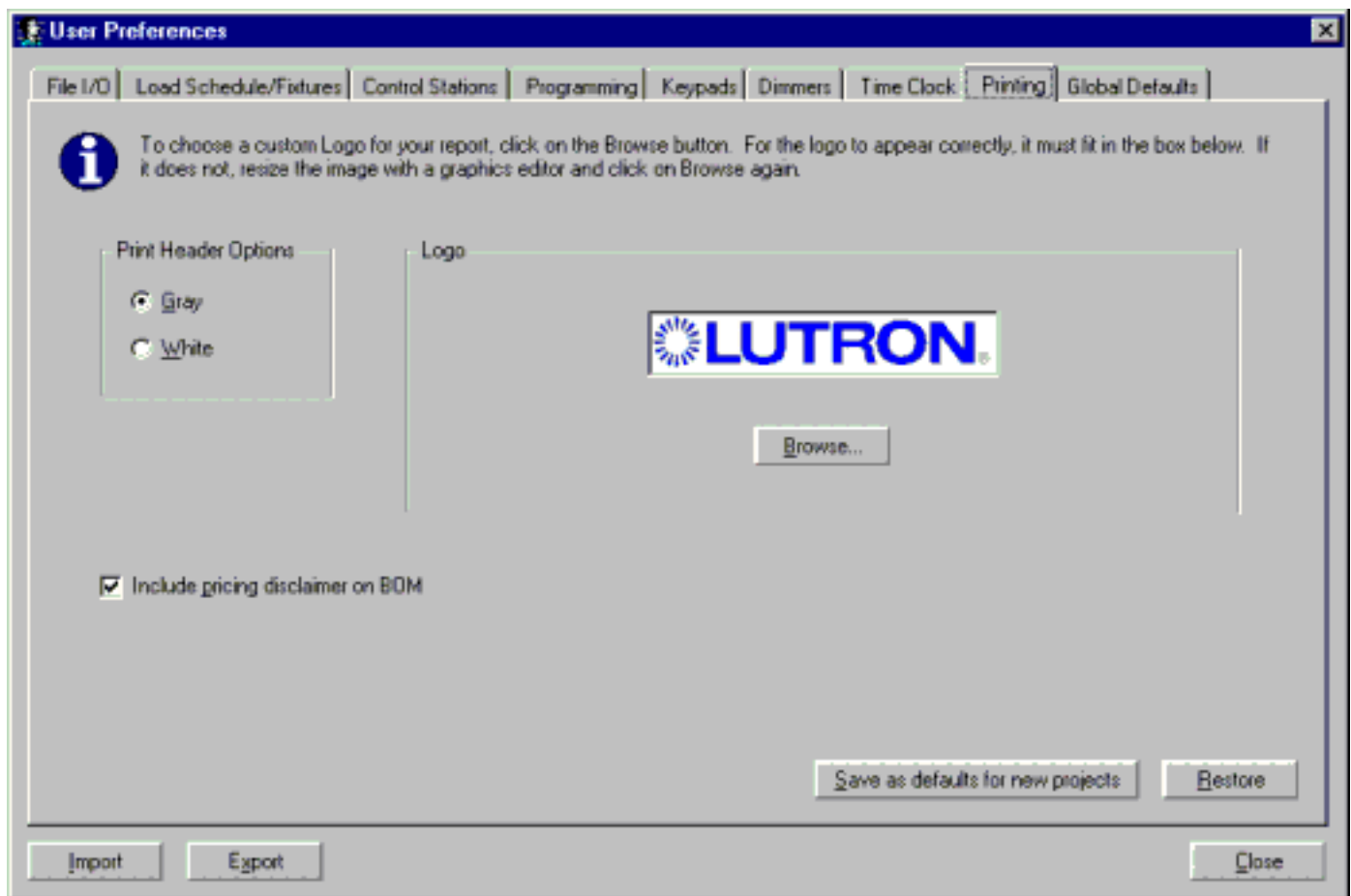


The screenshot shows a dialog box titled "User Preferences" with two tabs: "Location" and "General". The "General" tab is selected. Inside the "General" tab, there is a section labeled "Clock format:" with two radio button options: "AM/PM" (which is selected) and "24 Hour".

The General tab has a single preference. Time clock events based on the time of day can be displayed on the Programming screen using the AM/PM format or the 24 hour format.

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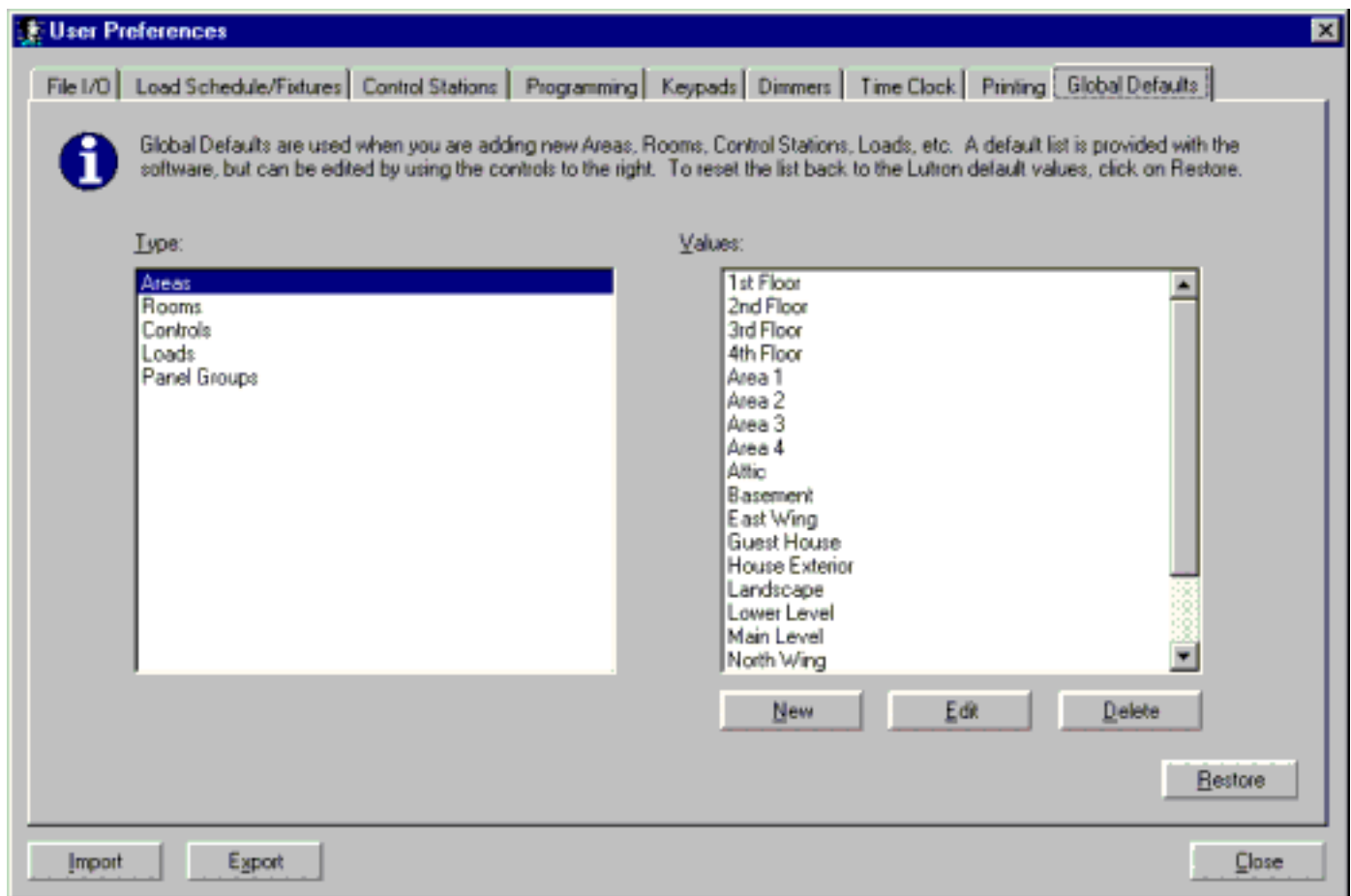
1.5.8 Printing



The Printing tab has a few default values concerning reports displayed on it. First, the header of all the reports can be set to either gray or white. Second there is a check box used to determine if the pricing disclaimer is to be included on the Bill Of Material. The pricing disclaimer simply states that all pricing is in U.S. Dollars and is displayed at the bottom of every page of the BOM. Finally, there is a logo box that appears on both the Control Station Installation Report and the Control Station Engraving Report. The logo appears in the lower left hand corner of page 2 of each report. This logo can be added by the user by pressing the **Browse ...** button and selecting a Windows Bitmap (*.bmp) file that fits in the box above the button.

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1.5.9 Global Defaults



The Global Defaults tab is the final tab on the User Preferences screen. This tab contains all the names of Areas, Rooms, Controls, Loads and Panel Groups used by the Wizards and the rename options. To edit the list of names, select the Type of name to be edited in the left box. Then add a New value or Edit or Delete an existing value by pressing the appropriate buttons.

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1.6 Load Schedule

Contents

- [1.6.1 Lighting Special Properties](#)
- [1.6.2 Motors Special Properties](#)
- [1.6.3 Copying Special Properties](#)
- [1.6.4 Default Special Properties](#)

Room:

Master Bath

<

>

Contact Closures

Override Levels

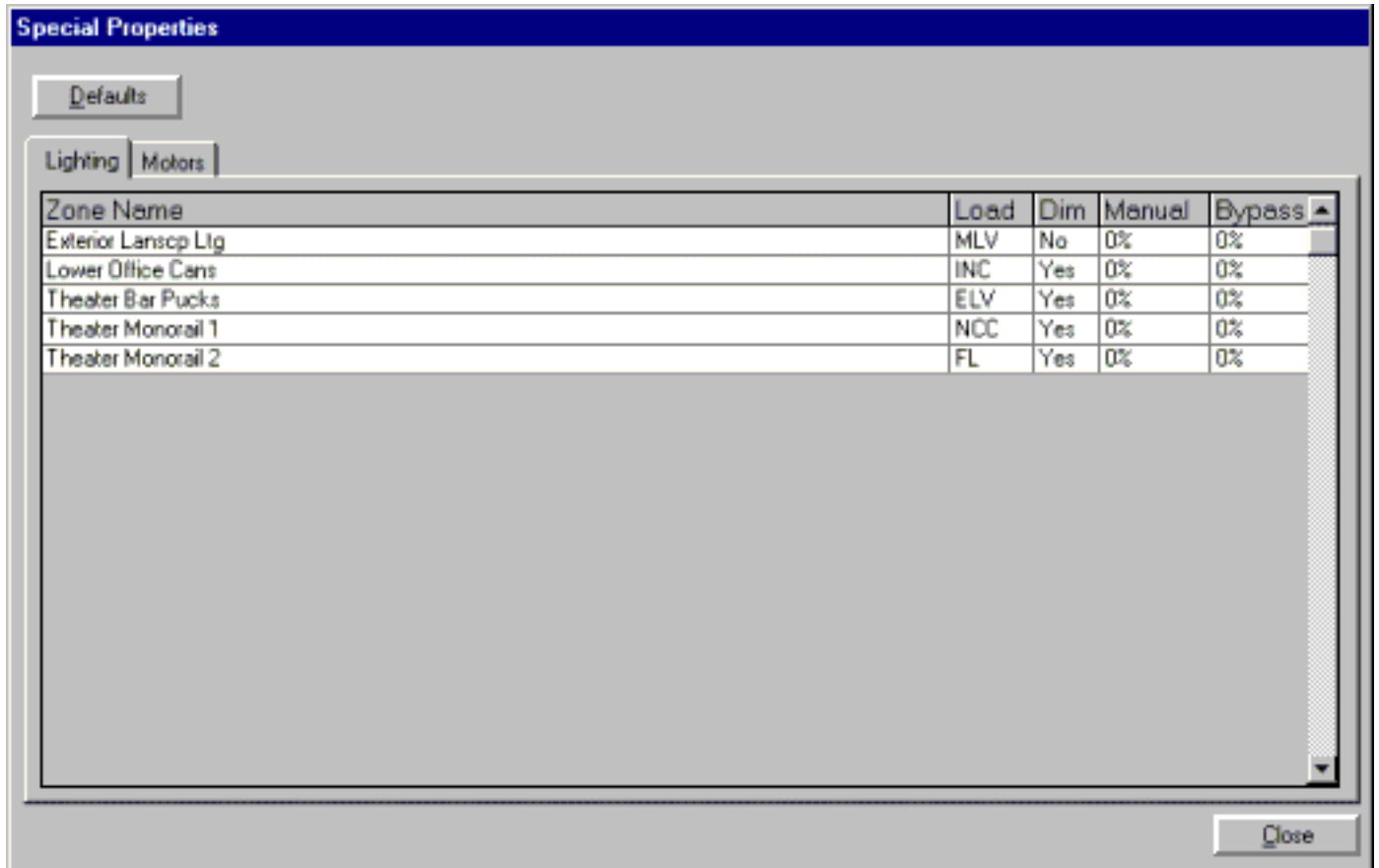
Show Boosted

Ckt #	Feed	Zone Name	Fixture	Load Type	Dim	Fixt (W)	Fixt (Qty)	Total
255		Downs	DL1	MLV	No	75	2	150
258		Fan	Motor	MTR	No	100	1	100
257		Sconces	WS1	INC	Yes	75	1	75
256		Sink	DL2	MLV	No	100	2	200

NOTE: Each room can have a maximum of 32 loads.

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1.6.1 Lighting Special Properties



The image shows a software window titled "Special Properties". It has a "Defaults" button at the top left. Below it are two tabs: "Lighting" (which is selected) and "Motors". The "Lighting" tab contains a table with the following data:

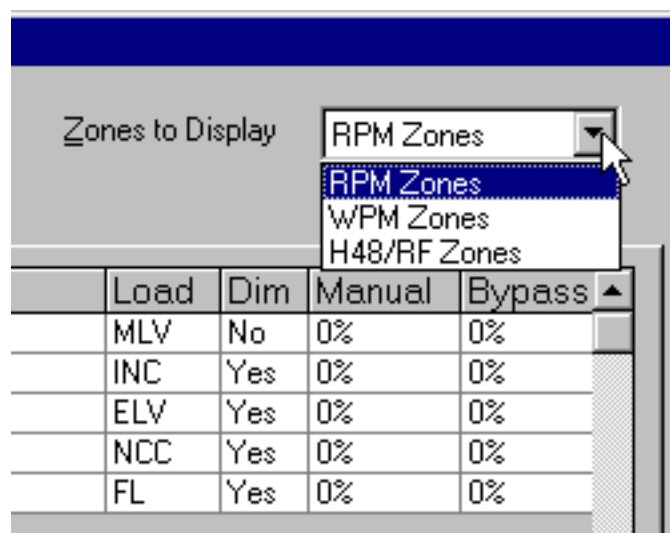
Zone Name	Load	Dim	Manual	Bypass
Exterior Landscp Ltg	MLV	No	0%	0%
Lower Office Cans	INC	Yes	0%	0%
Theater Bar Pucks	ELV	Yes	0%	0%
Theater Monorail 1	NCC	Yes	0%	0%
Theater Monorail 2	FL	Yes	0%	0%

Below the table is a large empty rectangular area. At the bottom right of the window is a "Close" button.

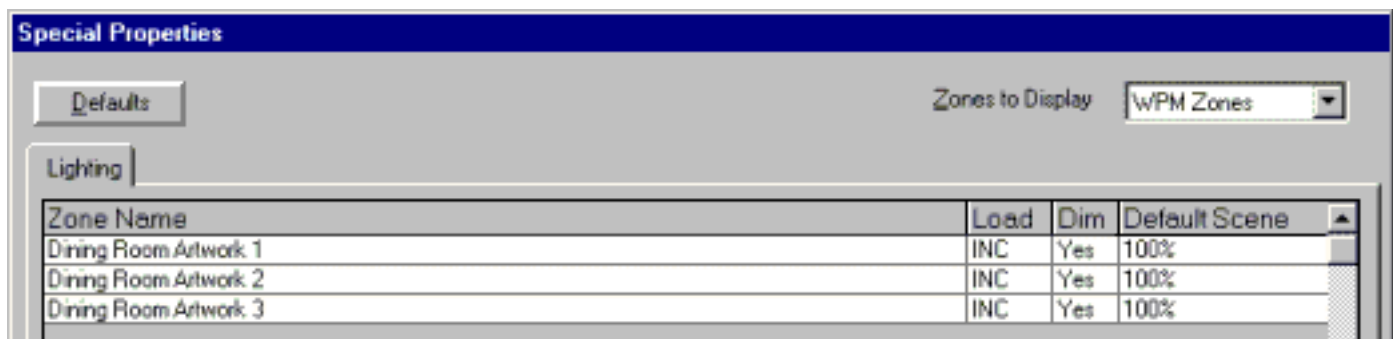
Lighting loads associated with Remote Power Modules (RPM) have some properties that can be modified using the Special Properties window.

1. **Manual Override** - Manual Override is a feature that is not typically used during normal operation. It is used to provide control of lights when keypads are not functioning properly. The manual override level is accessed by providing an auxiliary contact closure to the manual override terminal blocks on the Module Interface (MI) driving the Remote Power Module (RPM). When the closure is made, all lights on the RPMs connected to the MI will go to the level set in the Manual column on the Special Properties window.
2. **Electronic Bypass** - Electronic Bypass is also a feature not used during normal operation. This feature is used when the processor is not communicating with the MI driving the RPM. If the MI is not receiving information from the processor and power is cycled to the RPM, all lights on the RPM will go to the level set in the Bypass column on the Special Properties window.

Other Lighting Zones to Display

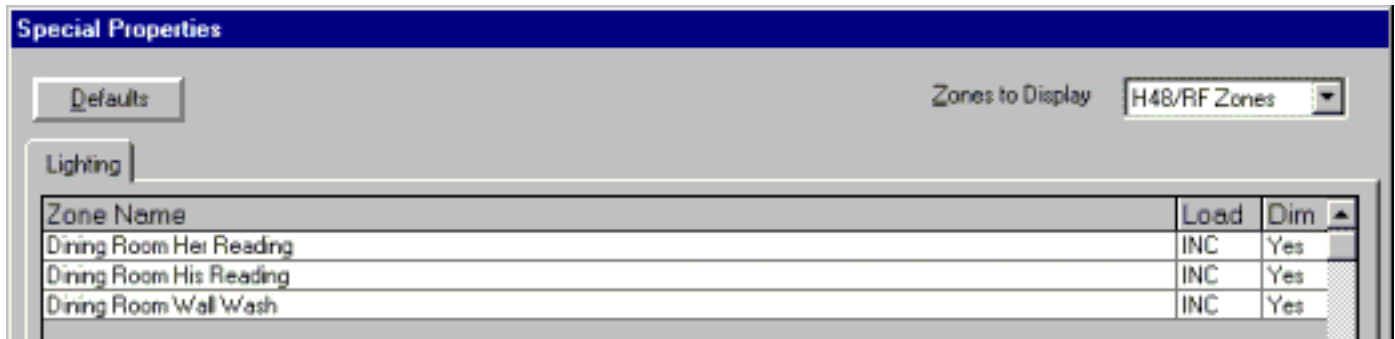


The Special Properties window can display the special properties of lighting loads controlled by devices other than RPMs. The Zones to Display dropdown box (pictured above) appears when the project has a load associated with a Wallbox Power Module (WPM) output, a H48 dimmer/switch, or an RF dimmer/switch.



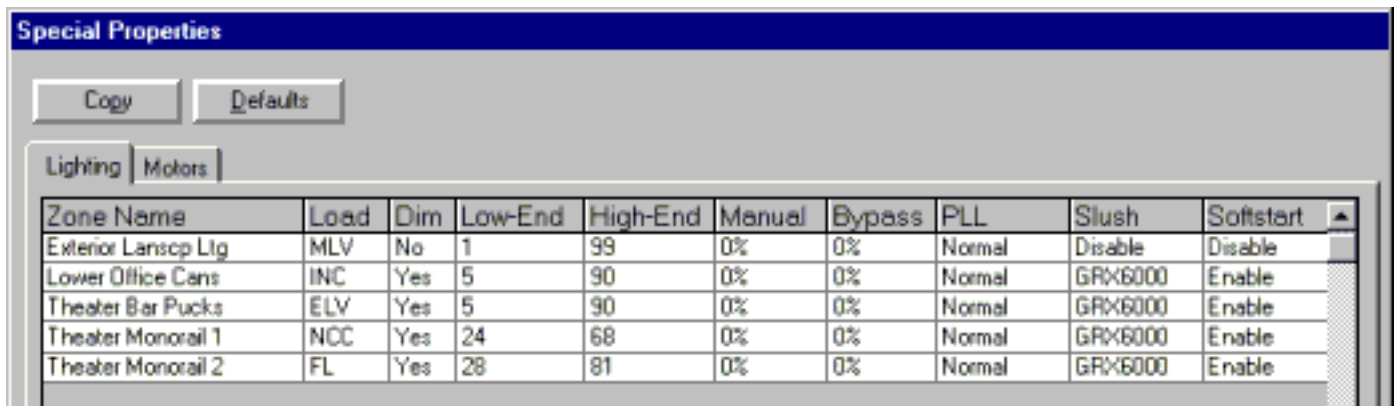
Lighting loads associated with WPMs have a property that can be typically modified using the Special Properties window.

1. **Default Scene** - Default Scene is a feature that is not typically used during normal operation. It is used to provide control of lights when keypads are not functioning properly. The default scene is accessed by pressing the button on the WPM. When the button is pressed, all lights on the WPM will go to the level set in the Default Scene column on the Special Properties window.



Lighting loads associated with H48 dimmers/switches or RF dimmers/switches have no properties that can be typically modified using the Special Properties window.

Additional Lighting Special Properties for RPM Zones



When the Special Properties window is displayed, pressing the **F5** key will display some additional properties for RPM zones.

1. **Low-End** - Low-End is the minimum light level setting for the lighting zone. The Low-End should be changed if one of the following conditions apply:
 - A. The light level is too high.
 - B. The lamp is dropping out prematurely when dimming below a certain level.
 - C. The lamp is flickering at low-end.
2. **High-End** - High-End is the maximum light level setting for the lighting zone. The High-End of a lighting zone may be lowered in order to achieve one of the following conditions:
 - A. Save Energy.
 - B. Increase lamp life.
3. **Phase Lock Loop (PLL)** - Phase lock loop is a type of filtering system used by the dimmer to accommodate variations in the line voltage. PLL uses the frequency of the line voltage to stabilize the output of the dimmer. These settings should only be changed if experiencing problems like flickering lights or spontaneous light changes. The PLL feature has three settings:
 - A. Normal - This setting should be used when there are minor fluctuations in the line voltage and the frequency is relatively stable. The PLL circuitry locks on to the frequency of the incoming line voltage and stabilizes the output of the dimmer. The circuitry constantly compares the "locked" frequency to the incoming frequency and adjusts accordingly. When there are large shifts in the incoming frequency, the circuitry unlocks PLL, reacquires the frequency of the line voltage and then locks PLL again.
 - B. Disabled - This setting should be used when there are constant changes in the line voltage frequency. For example, if the incoming voltage is being provided by an emergency generator, the disabled setting should be used. In addition, if the dimmed lights demonstrate a "breathing" effect, where the lights constantly dim up and down by themselves over 1-3 seconds, the disabled setting should be used.
 - C. Hard - The hard setting for PLL has the same features of normal except that it does not reset itself when there are large fluctuations in the line frequency. The hard setting should only be used when the normal setting exhibits the breathing effect and disabling PLL results in flickering lights.

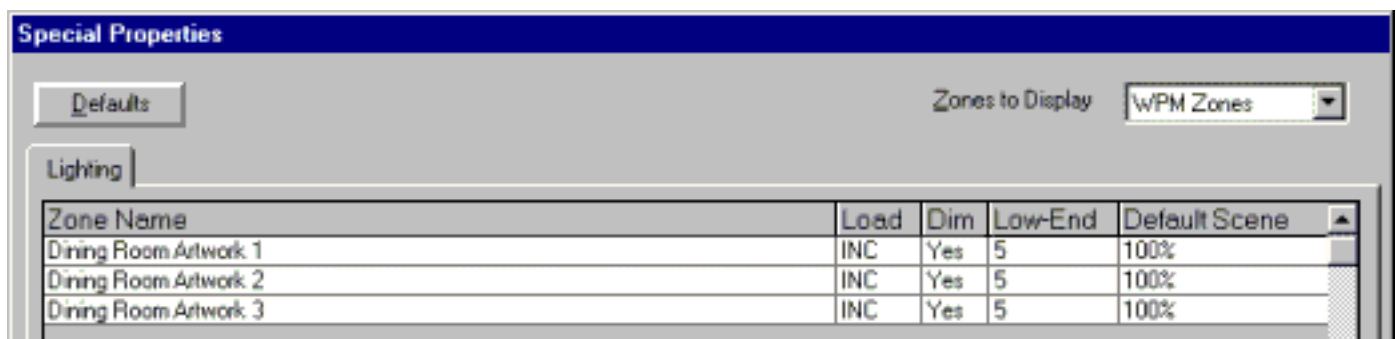
NOTE: Newer models equipped with the RTISS filter will no longer need the PLL feature. Changing the PLL settings will have no effect on the function of the dimmer.

4. **Slushing** - The slushing setting is used to determine the rate which a Remote Power Module or a GRAFIK Eye Dimming Panel changes from one intensity to another. A slower slush rate will provide more individual intensity changes during a change in intensity. A faster slush rate will

provide less individual light changes over an intensity change and will appear to step from one intensity to the next. The slush rate is based upon four different settings.

- A. RESI - This setting is the slowest of the slush rates. The RESI slush rate takes approximately 1 second to change from one intensity to another.
 - B. GRX4000 - This setting is the same as the RESI slush rate when the change in intensity is less than 30%. When the change in intensity is greater than 30%, the change is relatively instantaneous.
 - C. GRX6000 - This setting is a little faster than the RESI slush rate. For example, most intensity changes take approximately half of one second.
 - D. Disabled - This setting disables all of the slush rate and allows the dimmer to change light levels in certain steps of percentage. For example, if a dimmer is at 25% and then told to raise to 30% with slush disabled, the light will appear to go to 26%, then 27%, then 28%, then 29% and finally 30%. Each step would be visible to the naked eye.
5. **Softstart** - In the GRAFIK Eye dimmers and the relay RPMs, the Softstart™ circuitry is used to reduce the damage to the mechanical relay during the power on sequence. Softstart uses a relay and a triac in parallel to the load relay to handle the initial current of the power on sequence. This feature can either be left enabled as the default or disabled to provide a faster response time in the on position.

Additional Lighting Special Properties for WPM Zones

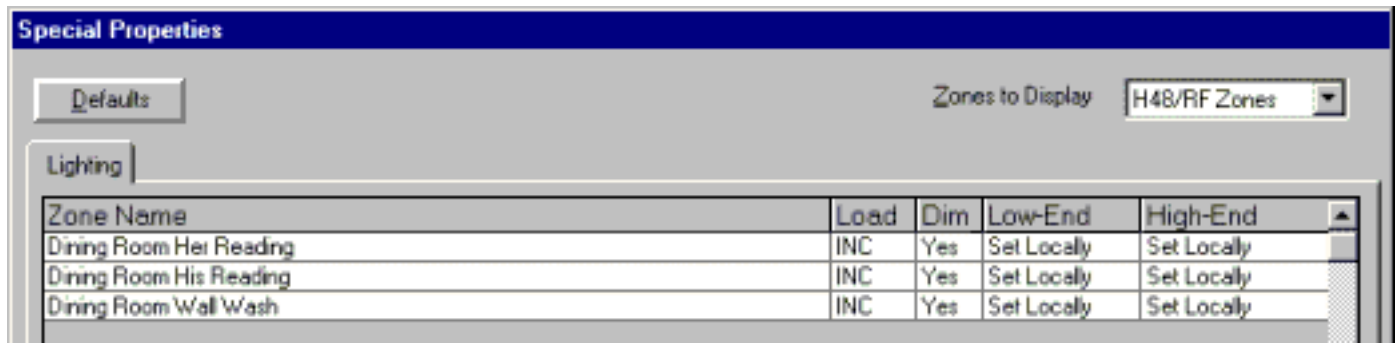


Zone Name	Load	Dim	Low-End	Default Scene
Dining Room Artwork 1	INC	Yes	5	100%
Dining Room Artwork 2	INC	Yes	5	100%
Dining Room Artwork 3	INC	Yes	5	100%

When the Special Properties window is displayed, pressing the **F5** key will display an additional property for WPM zones.

1. **Low- End** - Low-End is the minimum light level setting for the lighting zone (see RPM zone description above).

Lighting Special Properties for H48 / RF Zones

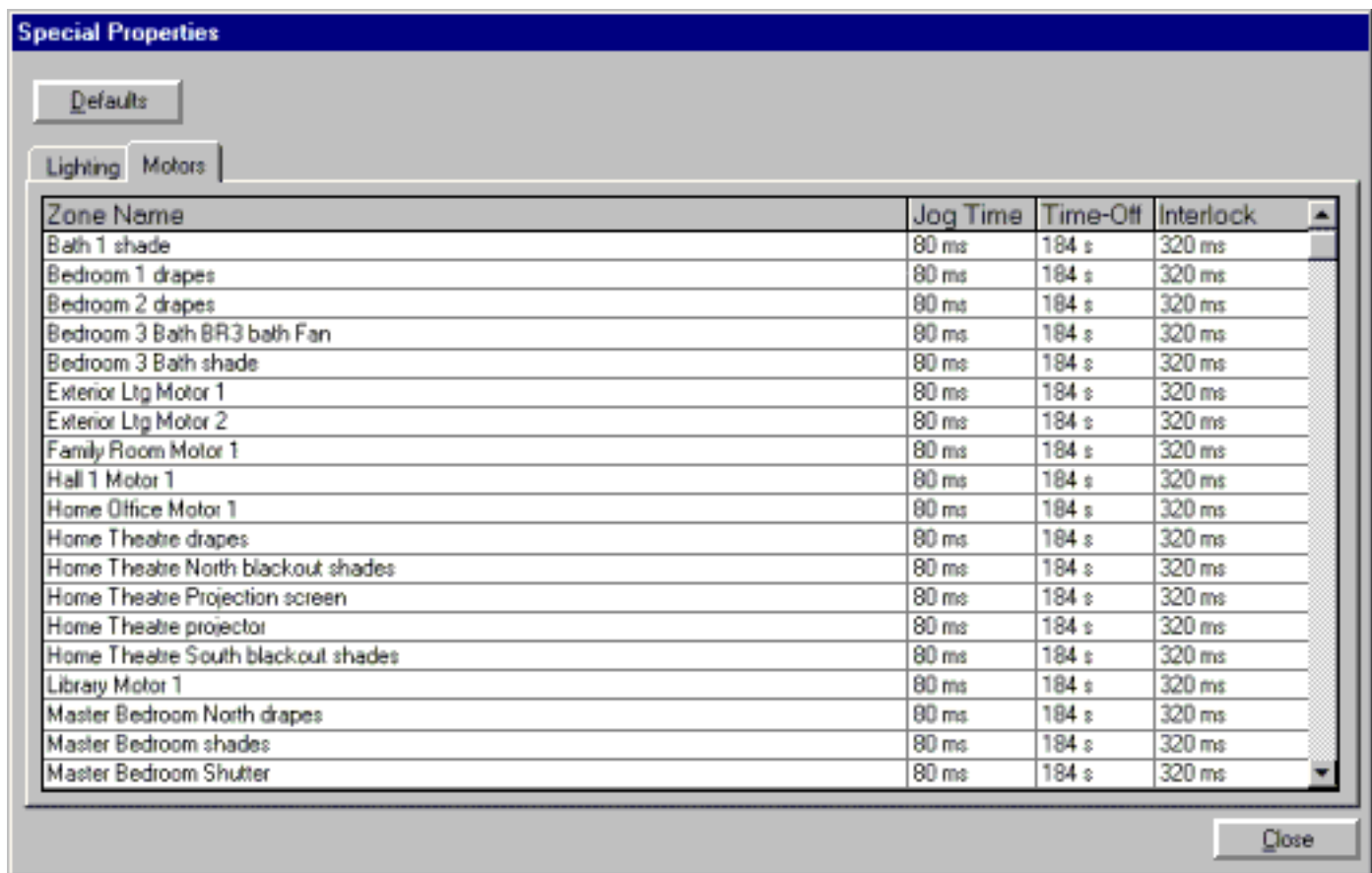


When the Special Properties window is displayed, pressing the **F5** key will display two additional properties for H48/RF zones.

1. **Low-End** - Low-End is the minimum light level setting for the lighting zone (see RPM zone description above). Selecting "Set Locally" allows the H48 and RF dimmer/switch to set this value locally (i.e. via the device in the space). See the device's installation instructions for information on setting the Low-End.
2. **High-End** - High-End is the maximum light level setting for the lighting zone (see RPM zone description above). Selecting "Set Locally" allows the H48 and RF dimmer/switch to set this value locally (i.e. via the device in the space). See the device's installation instructions for information on setting the High-End.

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1.6.2 Motors Special Properties

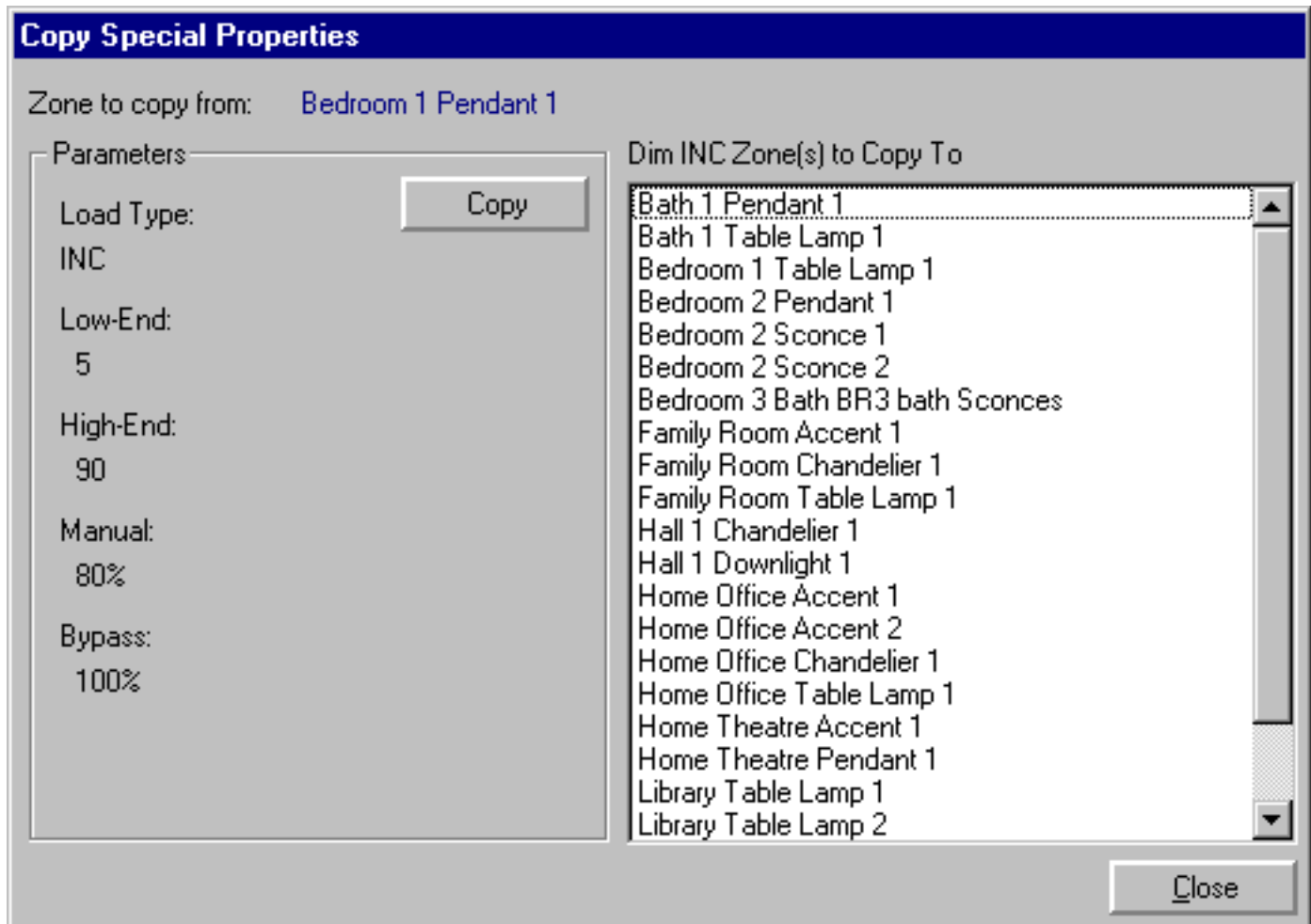


Motor loads associated with Remote Power Modules (RPM) have some properties that can be modified using the Special Properties window.

1. **Jog Time** - Jog Time is the amount of time a motor output (raise or lower) is engaged when performing a jog. Jog Time may be adjusted from 80 milliseconds to 3.52 seconds. The longer the Jog Time, the farther a motor jogs. For fine control, the Jog Time should be reasonably small.
2. **Time-Off** - Time-Off is the maximum amount of time a motor output (raise or lower) is continuously engaged before turning off. Time-Off may be adjusted from 10 seconds to 7 minutes, 31 seconds. The minimum amount of time allowed for Time-Off should be the time it takes to fully raise or lower a motor. This time should be set in accordance with recommendations of the manufacturer of the equipment being controlled by each motor zone.
3. **Interlock Delay** - Interlock Delay is the minimum amount of time between a raise output being engaged and a lower output being engaged (and vice versa). Interlock Delay may be set at 320, 560, or 960 milliseconds. Typically, the default value is acceptable.

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1.6.3 Copying Special Properties



The Copy Special Properties window allows the user to copy a lighting zone or a motor configuration to other lighting zones or motors.

1. Select the lighting zone or motor in the Special Properties window that has the desired properties to copy.
2. Press the **F5** key to show the **Copy** button on the Special Properties window.
3. Click the **Copy** button to open the Copy Special Properties window.
4. Select the lighting zones or motors to copy the special properties to.
5. Click the **Copy** button to copy the lightings zone's or motor's properties.
6. Click the **Close** button.

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1.6.4 Default Special Properties

The **Defaults** button on the Special Properties window opens the [User Preferences](#) screen to the Load Schedule/Fixtures tab.

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2.4 Using Output Contact Closures

Contents

[2.4.1 Design / Layout](#)

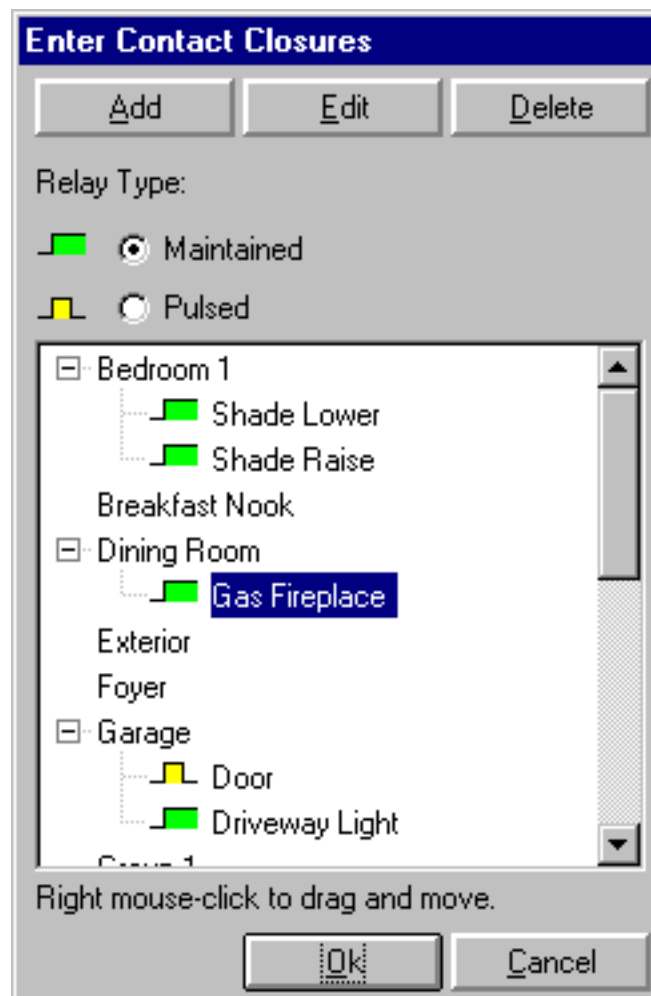
[2.4.2 Assignment / Addressing](#)

[2.4.3 Programming](#)

Low-voltage dry contact outputs, found on an HWI Contact Closure Output Board (HWI-CCO-8), allow the HomeWorks system to provide an output signal to other systems and control devices besides lights (e.g. shades, HVAC, etc.). Because each closure board has eight dry contact outputs, up to eight output closures can be assigned to each closure board. An output closure is defined in the utility as either maintained or pulsed and can be programmed to any system event (i.e. keypad button press, contact closure input, time clock event, etc.).

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2.4.1 Design / Layout



Output Closures

In the utility, output closures can be created, edited, deleted, and moved between rooms using the Contact Closures screen. This screen can be accessed by navigating to the  [Programming](#) screen and clicking the  button in the main toolbar. The Contact Closures screen can also be accessed by navigating to the  [Load Schedule](#) screen and clicking the  button in the main toolbar or clicking the **Contact Closures** button.

To select an existing output closure, expand its room and click it in the tree. Use the right mouse button to drag-drop a closure into a different room.

- Clicking the **Add** button creates a closure in the selected room.
- Clicking the **Edit** button renames the selected closure.
- Clicking the **Delete** button removes the selected closure.
- Clicking the **Ok** button closes the Contact Closures screen, accepting all changes.
- Clicking the **Cancel** button closes the Contact Closures screen, rejecting all changes.

Maintained v. Pulsed

A contact closure is defined in the utility as either maintained or pulsed. A maintained contact closure switches to ON or OFF, providing a latched state to other equipment. A pulse contact closure closes for a fixed time (.52 s, 1.04 s, etc.) and then reopens. Since the closure board (HWI-CCO-8) offers both normally-open and normally-closed contacts, outputs can be configured to pulse open or pulse closed.

The output closure type can be set using the Contact Closures screen. Selecting the Maintained option changes the selected closure to maintained and selecting the Pulsed option changes the selected closure to pulsed.

Closure Boards

Each closure board (HWI-CCO-8) is placed in an enclosure which is in a room. Using the  Panel Assignment screen, a closure board can be added to the project, removed from the project, or moved to a different enclosure or room. See the [Panel Assignment](#) screen for more information.

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2.4.2 Assignment / Addressing

Each closure board has eight dry contact outputs, so up to eight output closures can be assigned to each closure board. The  Address Assignment screen is used to assign an output closure to a dry contact output on a closure board. It is also used to assign the closure board to a wired keypad link. See the [Address Assignment](#) screen for more information.

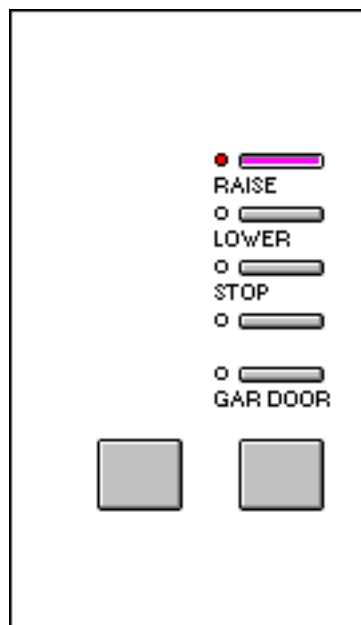
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2.4.3 Programming

An output closure can be programmed to any system event (i.e. keypad button, contact closure input, time clock, etc.) using the  [Programming](#) screen.

Programming Example

In this example, a five button keypad will be programmed to control the shade in the first bedroom and to open/close the garage door. Two maintained output closures will be used to control the shade (Shade Raise and Shade Lower). A pulsed output closure will be used to control the garage door.



In Control Station Programming, select the Interfaces tab on the upper right of the Programming screen.

To program the RAISE button of the five button keypad:

- Click the button that is to be programmed as the RAISE button.
- Select the Default programming model with the Toggle option.
- Select the Maintained Output Closure "Bedroom 1 Shade Raise".
- Use the Delay dropdown box to change the delay to 00:00.25.
- Select the state ON and click the **Add/Update** button.
- Select the Maintained Output Closure "Bedroom 1 Shade Lower".
- Use the Delay dropdown box to change the delay to 00:00.
- Select the state OFF and click the **Add/Update** button.

The 0.25 second delay between commands is necessary to prevent both the Raise and Lower outputs from being on simultaneously. The button programming appears as follows:

	Name	Delay	Fade	Lvl/Cmd
	Bedroom 1 Shade Lower	00:00	00:00	OFF
▶	Bedroom 1 Shade Raise	00:00.25	00:00	ON

To program the LOWER button of the five button keypad:

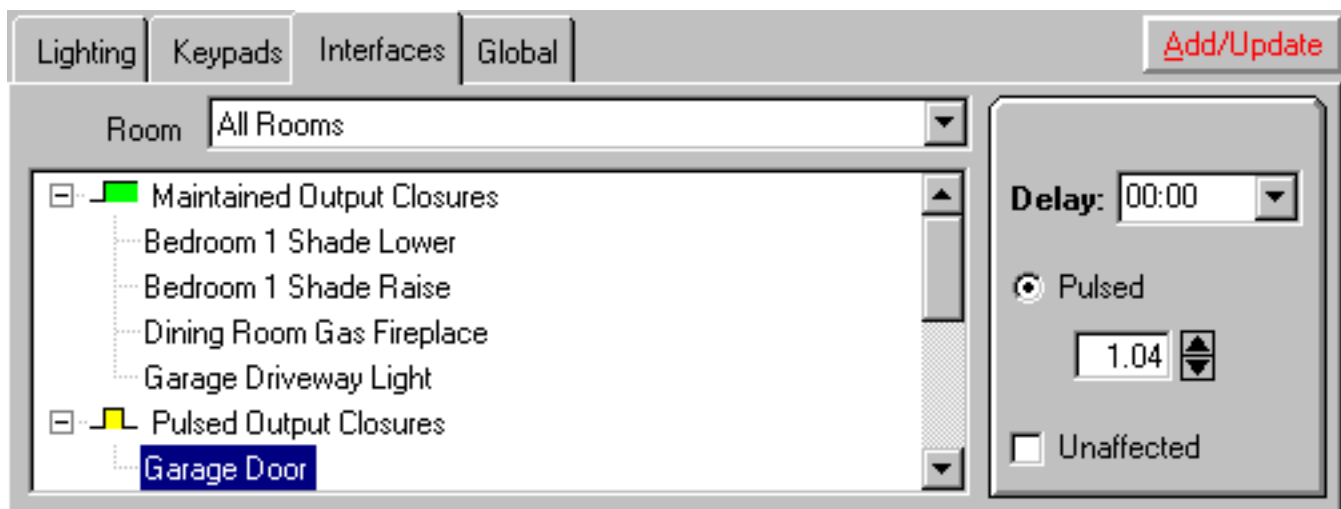
- Click the button that is to be programmed as the LOWER button.
- Select the Default programming model with the Toggle option.
- Program the "Bedroom 1 Shade Lower" closure to ON with a 0.25 second delay.
- Program the "Bedroom 1 Shade Raise" closure to OFF with a 0 second delay.

Note: Since the RAISE and LOWER buttons are both programmed as Default Toggle buttons, a second press of either button will stop the shade. For this reason, a STOP button is not necessary. However, if the buttons were programmed as Single Action, a third button would be necessary to stop the shade.

To program the STOP button of the five button keypad:

- Click the button that is to be programmed as the STOP button.
- Select the Default programming model with the Single Action option.
- Program the "Bedroom 1 Shade Lower" closure to OFF with a 0 second delay.
- Program the "Bedroom 1 Shade Raise" closure to OFF with a 0 second delay.

The garage door equipment requires about a half second pulse to open or close the door. The garage door button programming appears as follows:



To program the GAR DOOR button of the five button keypad:

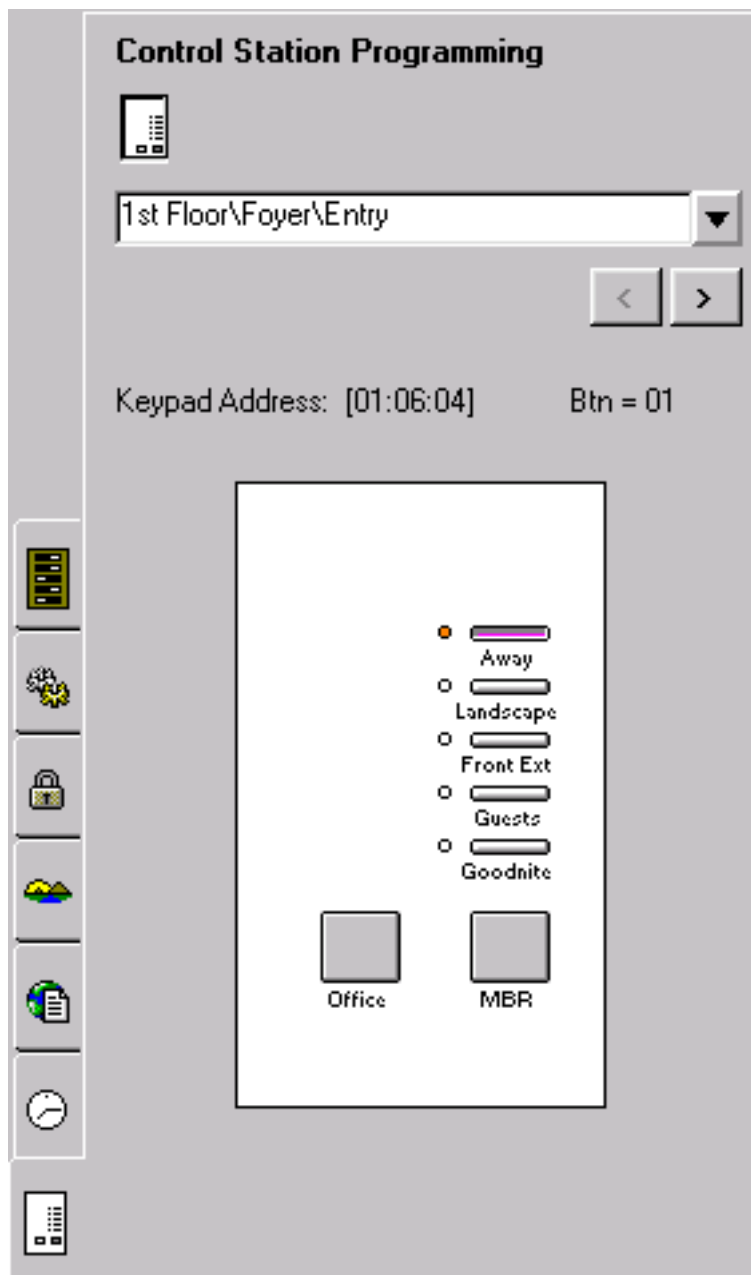
- Click the button that is to be programmed as the STOP button.
- Select the Default programming model with the Single Action option.
- Select the Pulsed Output Closure "Garage Door".
- Use the up and down buttons to change the pulse time to 0.52 seconds.
- Click the **Add/Update** button.

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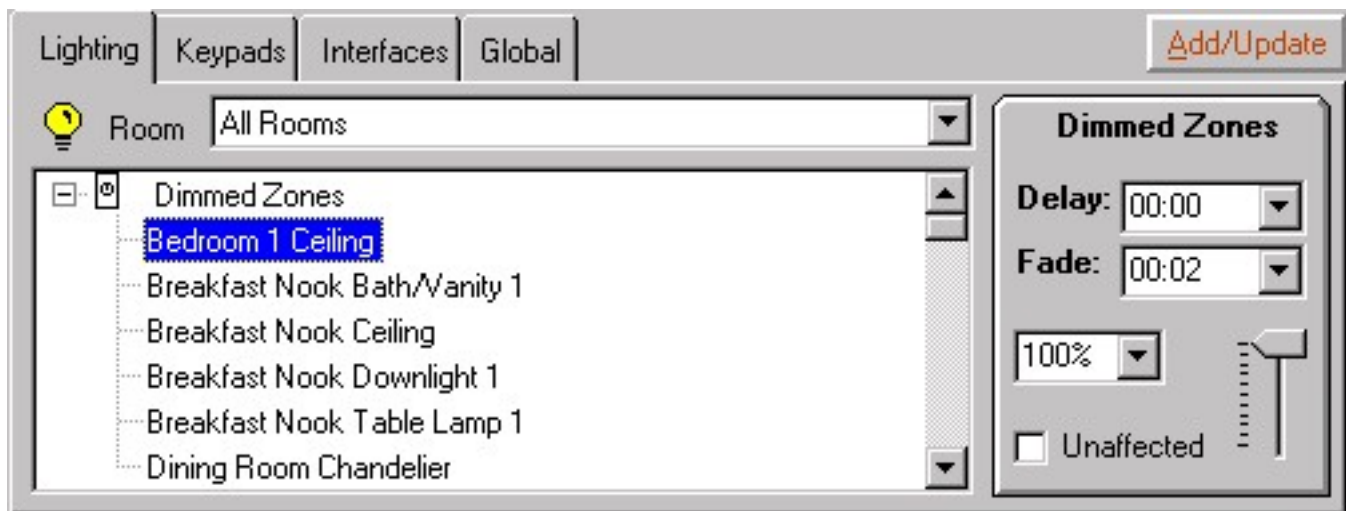
2.1 Overview

The Programming screen is home to keypad button programming , time clock programming , global scenes / sequences programming , vacation programming , security programming , and initialization programming .

Previous to revision 5.0, the addressing tab  provided access to the device addressing. Currently, the  tab describes how to gain access to the addressing screen, via the addressing button  on the toolbar.

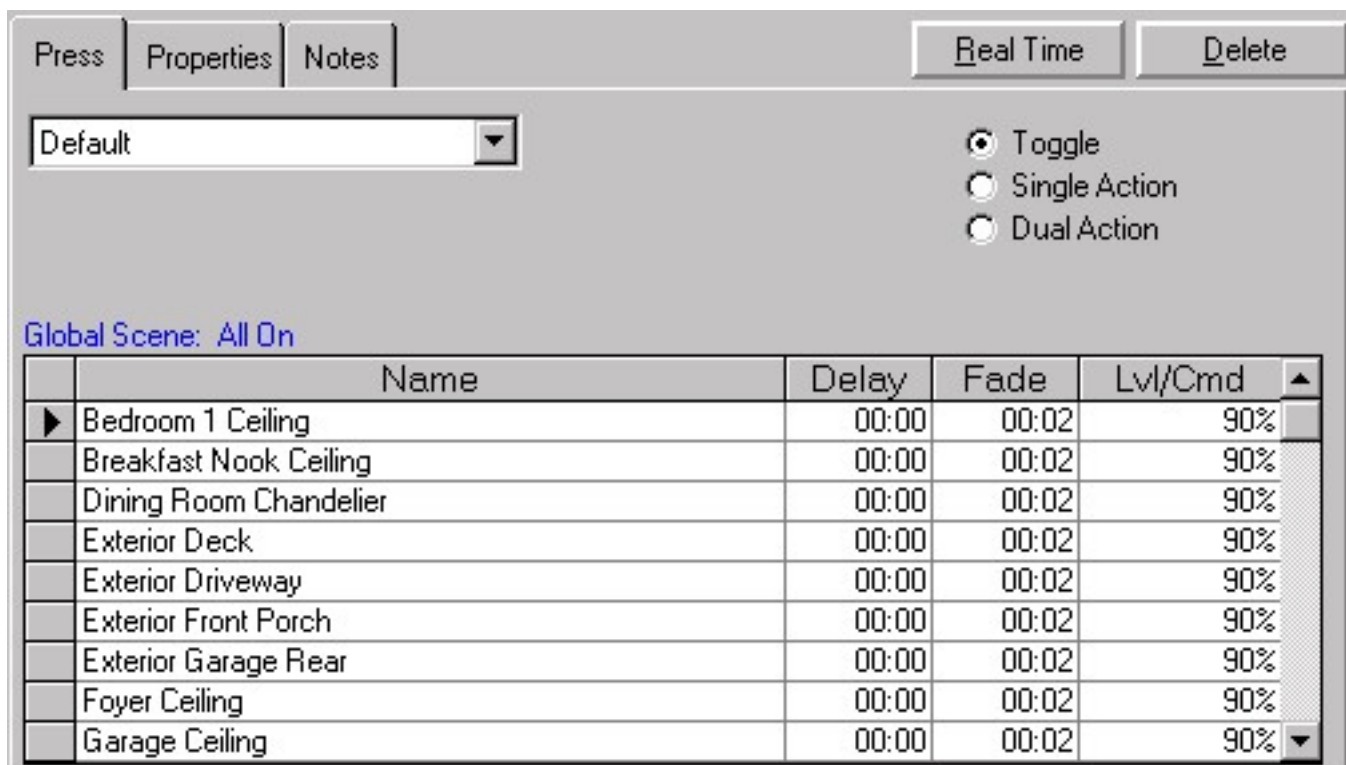


The programming screen is divided into 3 main sections. On the left are the tabs, as described above, for the different items that can be programmed. The drop-down box located at the top of this screen allows you to navigate to different rooms to select a device. Selecting the box or the down-arrow will display all the control stations in the current project. Engraving details may also be entered here by clicking underneath a button with the left mouse button.



The upper right hand side of the screen shows the items which can be assigned to a Preset (shown in the lower right).

1. Choose the items which are to be assigned (Dimmers, Switches, GRAFIK Eyes, Output Closures, Variables, etc.) from the pick list in one of the Items to be Assigned tabs.
2. Adjust the **Fade**, **Delay**, and **Level** properties as desired.
3. Click on the **Add/Update** button. The items will appear in the Preset list in the lower right.



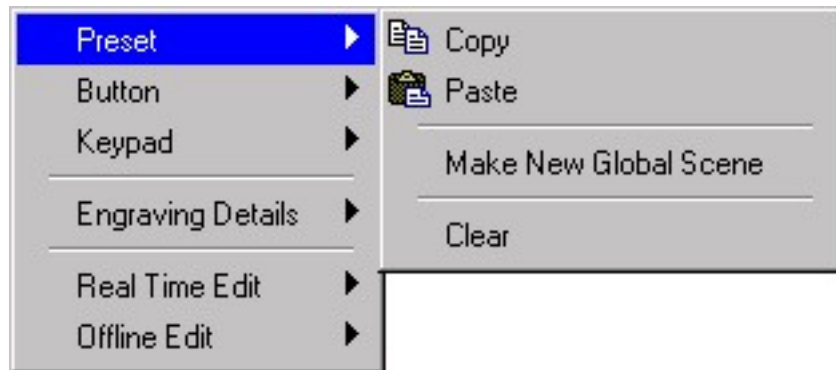
The lower right hand side of the screen shows the programming for the current button, time-event, global scene, global sequence, etc..

Different program models are used to accomplish different functions (see Programming Models).

To delete items from a preset list :

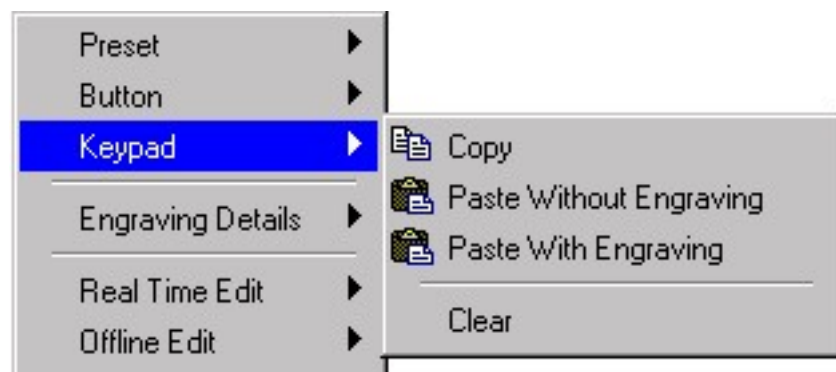
1. First click on the item to be deleted in the list (click on the gray box to the left).
2. Next click on the  button.

Click the right mouse button when on the preset list to access clear, copy, and paste functions for the programming screen.

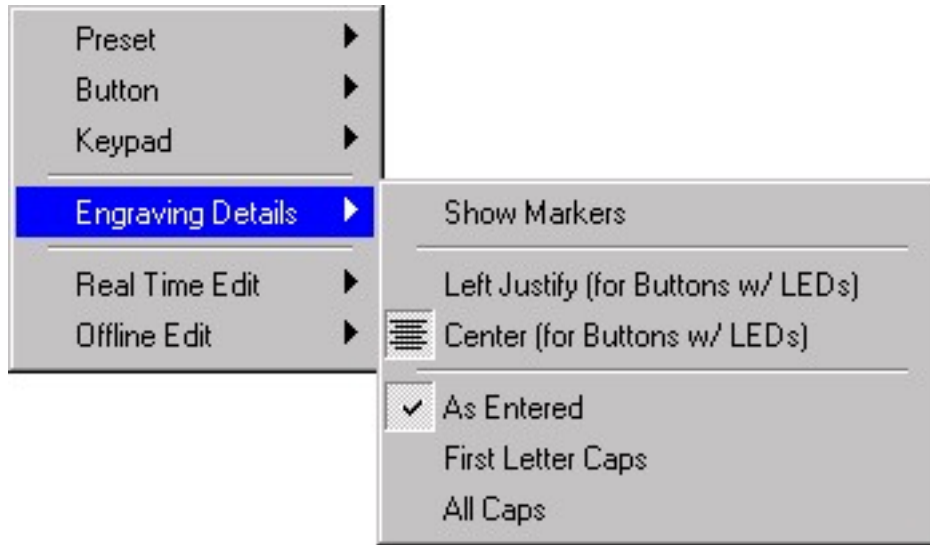


The Preset submenu allows the user to copy, clear, or paste the current preset to another preset. This submenu also allows the current preset to be made into a new global scene.

The Button submenu allows the user to copy, clear, or paste the current button to another button.



The Keypad submenu allows the user to copy, clear, or paste the current keypad onto another keypad. When copying a keypad, you can either paste the keypad with the engraving or without it.



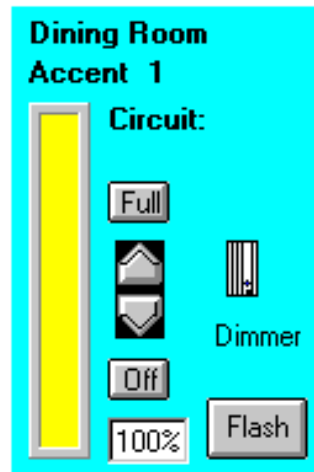
The Engraving Details submenu allows the user to show the markers or areas where the control station can be engraved. This submenu also allows the user to either left justify or center the engraving under the button. Finally, the user can choose how the engraving information will be displayed: Either as entered, with the first letter of each word capitalized or with all characters capitalized.

[Real-Time Edit](#) and [Offline Edit](#) allows the user to manipulate the loads through a user-friendly graphical interface. The changes made in this interface can be automatically reported in the keypad button preset if the user chooses to save. For [Real-Time Edit](#) the computer must be connected to the processor. The user can change directly in real time without uploading.

2.10 Real-Time and Offline Edit

2.10.1 Real-Time Edit

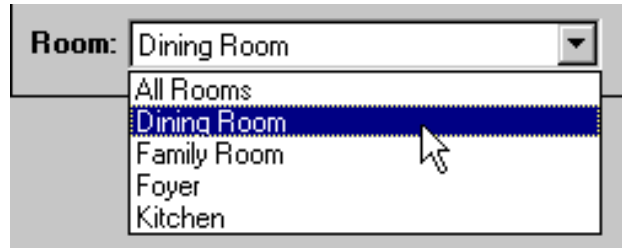
The Real-Time Edit screen may be accessed on the programming screen by pressing the  button. When in Real-Time Edit mode, the loads defined in the currently active preset are displayed on the screen in a way that allows intuitive and easy update.



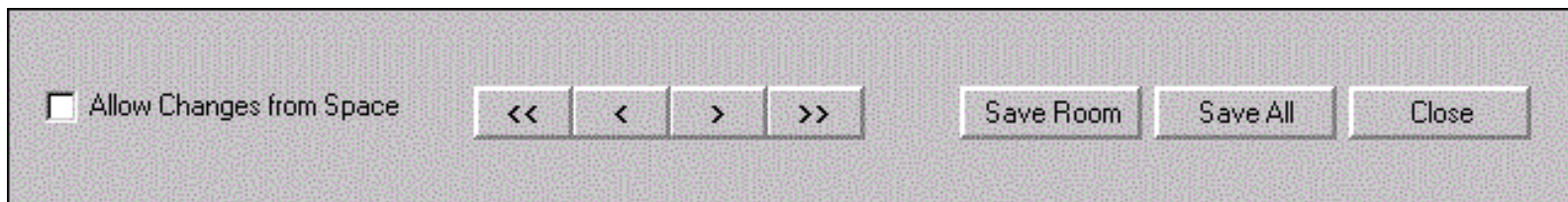
On the top of the zone layout, the name and room of the zone is indicated. The zone layout contains several elements:

- The yellow bar on the left shows the current light level.
- The up/down arrow buttons  increase/decrease the light level. This function can be accomplished with hotkeys (**A ; Z**), (**' ; I**), (**Page Up ; Page Down**)
- The Full button  sets the load to the maximum light level. This function can be accomplished with hotkeys **S**, **;** or **Home**.
- The Off button  sets the load to off. This function can be accomplished with hotkeys **X**, **.** or **End**.
- The Flash button  flashes the load so it's easier to locate it in the house. This function can be accomplished with the **space bar**.

The directional keys allow the user to navigate through the different zones easily.



On the top of the Real-Time Edit screen, a combo box allows the user to restrict the zones displayed on screen to zones coming from a specified room.



A toolbar is also available at the bottom part of the Real-Time Edit screen.

- ☐ **Allow Changes from Space** Allows the user to modify light levels from the Space using Keypads, HomeWorks Vareos and GRAFIK Eye Main Units. The changes that are made will be updated on the screen allowing the user to capture "on the fly" changes.
 If unchecked, the lights in the preset will only respond to changes made from the computer (changes made from Keypads, HomeWorks Vareos and GRAFIK Eye Main Units will not be allowed for the preset displayed).
- navigation buttons to go from one zone to another.
- navigation buttons to go from one page of zones to another.
- saves the state of the zones only in the room displayed on the Real-Time screen.
- saves the current state of all the zones.
- closes the Real-Time Edit screen.

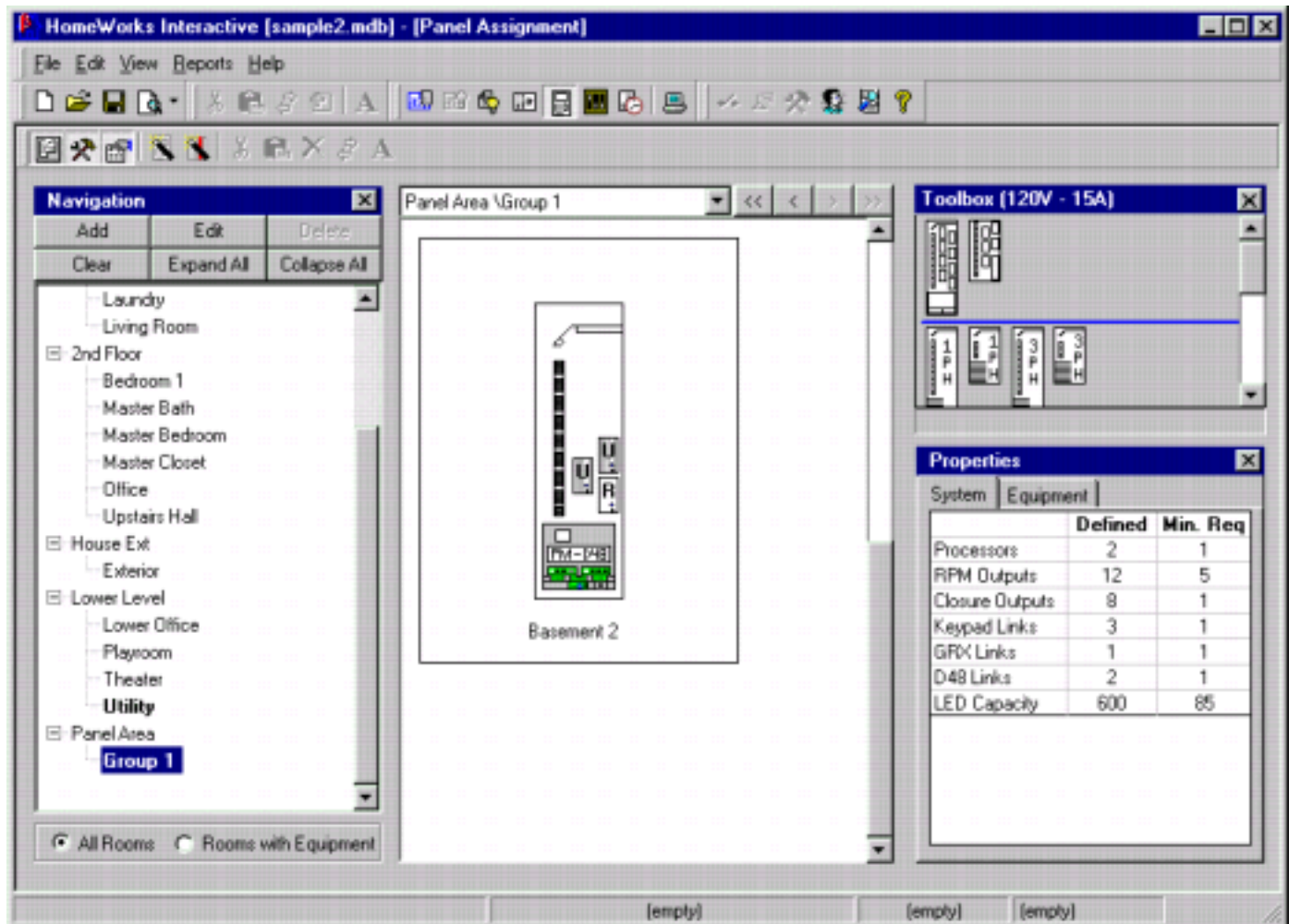
2.10.2 Offline Edit

The Offline Edit screen may be accessed on the programming screen from the right mouse menu or by pressing F2. This screen works exactly like the [Real-Time Edit](#), but does not send the changes to the HWI system. This provides the user with a graphical way of changing light level settings without having to be connected to the system.

1.8 Panel Assignment

Contents

- [1.8.1 Panel Toolbar](#)
- [1.8.2 Panel Toolbox](#)
- [1.8.3 Properties Box](#)
- [1.8.4 Navigation Box](#)
- [1.8.5 Equipment Viewer](#)



This screen is used to add equipment to rooms in the project. Equipment includes line-voltage panels (e.g. HWI-PNL-5), low-voltage enclosures (e.g. HWI-LV32-120), components that can go in these panels (e.g. HWI-PO-D48-120, HW-RPM-4U-120, HWI-CCI-8), and other devices that do not require panels (e.g. H-RFP-2P, HWI-TEL9, HWI-PS). Equipment does not include devices appearing on the [Floorplan](#) screen (e.g. keypads, dimmers, loads).

Equipment is added from the Panel Toolbox (upper right section) and placed in the room displayed by the Equipment Viewer (center section). The Navigation Box (left section) is used to locate rooms in the project. The Properties Box (lower right section) displays information about the entire system or specific panels and components.

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1.8.1 Panel Toolbar



The Panel Toolbar shows available operations while using this screen.

Show/Hide Navigation Box

Click the  **Navigation Box** button to show or hide the Navigation Box.

Show/Hide Panel Toolbox

Click the  **Panel Toolbox** button to show or hide the Panel Toolbox.

Show/Hide Properties Box

Click the  **Properties Box** button to show or hide the Properties Box.

Equipment Wizard

Click the  **Equipment Wizard** button to generate a complete set of equipment for all devices and zones in the project. The wizard will first delete existing panel equipment, generate a new set of equipment, and address everything in the project. All unassigned zones will be placed on RPM outputs.

RPM Optimization Wizard

Click the  **RPM Optimization Wizard** button to reassign RPM loads in a panel or room or across the entire project. This wizard will also delete existing unused RPMs and add new RPMs as required but will not create or delete panels.

Cut

This operation removes the selected item and stores it temporarily. Select an item in the Equipment Viewer and click the  **Cut** button, which can be found on the toolbar or in the right-click menu. If a cut item is not pasted, it is permanently removed. Default equipment in a panel (like an MI in a PNL-5) can not be cut.

Paste

This operation places the cut item into a selected location. Pasting can be done in two ways.

- Right-click a location and click the  **Paste** button in the right-click menu.
- Select a location and click the  **Paste** button in the toolbar.

If the cut item is an entire panel, it is placed at the bottom of the current room.

Delete

This operation permanently removes the selected equipment. Select an item in the Equipment Viewer and click the  **Delete** button, which can be found on the toolbar or in the right-click menu. Default equipment in a panel (like an MI in a PNL-5) can not be deleted.

Swap

This operation swaps two items, if each item fits in the other's location.

- Select an item in the Equipment Viewer.
- Click the  **Swap** button, which can be found on the toolbar or in the right-click menu.

The mouse icon will change into the  swap wand.

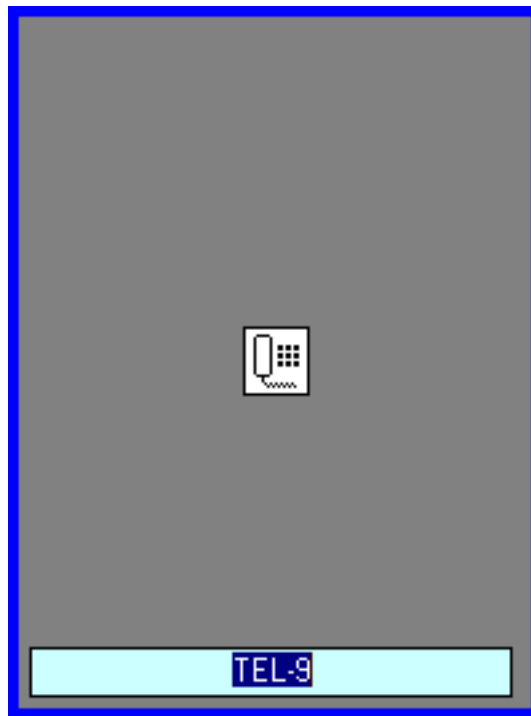
- Select a second item in the Equipment Viewer.

Rename

This operation renames the selected panel. Renaming panels can be done in two ways using the Equipment Viewer.

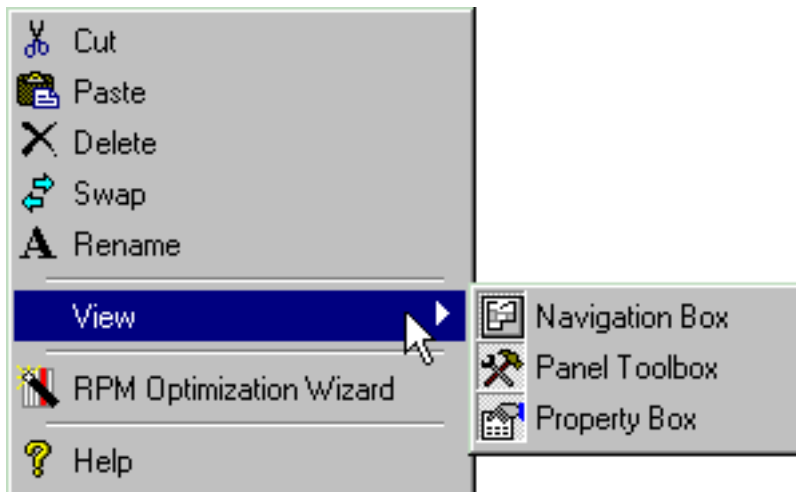
- Select a panel and click the  **Rename** button.
- Click on the name of the panel twice.

Either method will highlight the panel text so that it can be edited.



Using the Properties Box, named equipment can be renamed by selecting the equipment in the Equipment Viewer, selecting the Equipment tab, and double-clicking the Name value.

Right-Click Menu



Many features can be activated from the right-click menu. The right-click menu can be accessed by right clicking the Equipment Viewer.

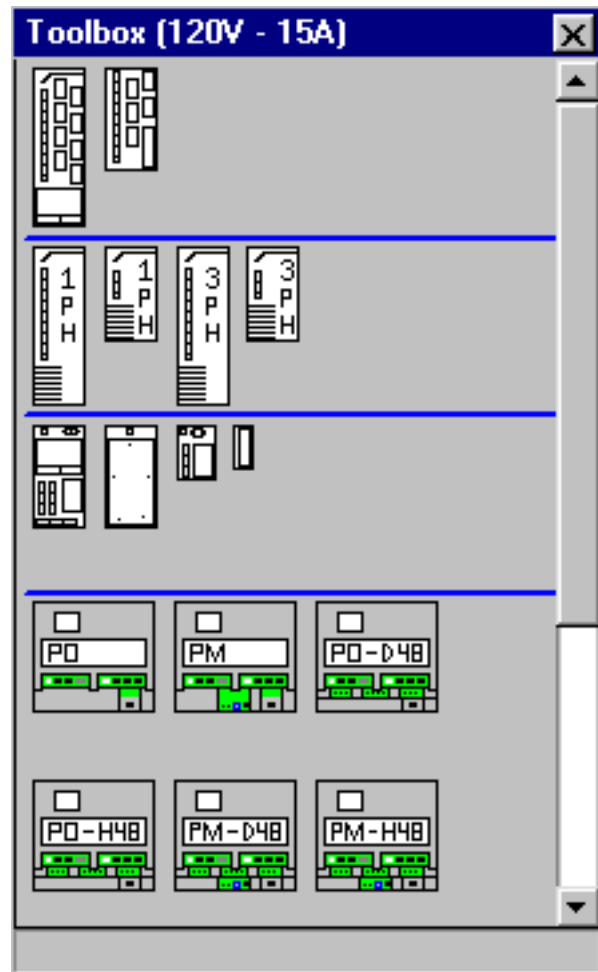
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1.8.2 Panel Toolbox

The Panel Toolbox displays all equipment that can be added to the project.

Equipment

The equipment in the panel toolbox is divided into groups of like equipment. These groups include feed through panels, panels with breakers, low voltage panels, processors, routers (MIs, D48 boards, H48 boards, RF repeaters), interface equipment (CCI boards, CCO boards, TEL9s), RPMs, and other equipment (power supplies, wire landing boards, high induction filter chokes). Selecting equipment in the Panel Toolbox will highlight it with a blue border to indicate that it can be added to the current room. See [Example: Adding Equipment](#) for more information about adding panels and equipment to the project.



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1.8.3 Properties Box

Properties		
System Equipment		
	Defined	Min. Req
Processors	3	3
RPM Outputs	12	9
Closure Outputs	8	1
RF Links	1	1
Keypad Links	1	2
GRX Links	2	1
D48 Links	2	1
H48 Links	1	1
LED Capacity	600	315

The Properties box displays the defined and required system properties and the properties of the selected equipment.

System Tab

The System tab displays information and basic requirements for the entire project. Listed on each row is a system property (e.g. RPM Outputs), its Defined number (e.g. 12), and its Minimum Required number (e.g. 9). The Defined number refers to equipment/links that currently exist in the system. The Minimum Required number refers to equipment/links that are needed to have a functional system based on the information provided to this point. When the Defined number is less than the Minimum Required number, the value in the Defined column is displayed in red.

The possible row information could be: Processors, RPM Outputs, RF Links, Keypad Links, GRX Links, D48 Links, H48 Links and LED Capacity. Only valid information will be displayed in the System tab. For example, if there are no D48 Links defined and no minimum required (because there are no Vario dimmers or switches with loads assigned in the system) the D48 Links information is omitted. Information on the System tab can not be directly edited.

The possible row information could be as follows.

- Processors. A system can have 16 wired or RF processors.
- RPM Outputs. This shows the number of outputs, not the number of RPMs. There are 4 outputs for every RPM.
- Closure Outputs. This shows the number of closure outputs, not the number of closure boards. There are 8 outputs for every closure board.
- RF Links. A link can hold 64 RF dimmers, 32 RF keypads, and 4 RF repeaters.
- Keypad Links. A link can hold 32 keypads, closure boards, or telephone interfaces.
- GRX Links. A link can hold 8 GRAFIK Eye control units or Wallbox Power Modules (WPM).
- D48 Links. A link can hold 4 D48 boards. Each board can hold 48 Architectural dimmers or switches.
- H48 Links. A link can hold 4 H48 boards. Each board can hold 48 Designer dimmers or switches.
- LED Capacity. Wired processors and power supplies define LED capacity. The total current draw from all keypad devices determines the minimum capacity required.

Equipment Tab

Properties	
System	Equipment
Model	HWI-PM-D48-120
Current Draw	45 LEDs
Unit Address	16
Link 4 (D48)	5/192
Link 5 (GRX)	1/8
Link 6 (KP)	4/32
Internal Device Addresses	
MI	[16:1:0]
D48	[16:4:1]

The Equipment tab displays information about the currently selected equipment. The row information on this tab changes based on the selected equipment. The first column displays the type of information and the second column displays the value. Only certain information in the second column can be modified. The mouse cursor will change into the I-bar when it is moved over a field in the second column that can be changed. Clicking on the field will select the value so that it can be changed. Other information, like a processor's unit address, is changed by selecting a new value from the dropdown box. If no equipment is currently selected, no columns will be displayed and a message will indicate no equipment is selected.

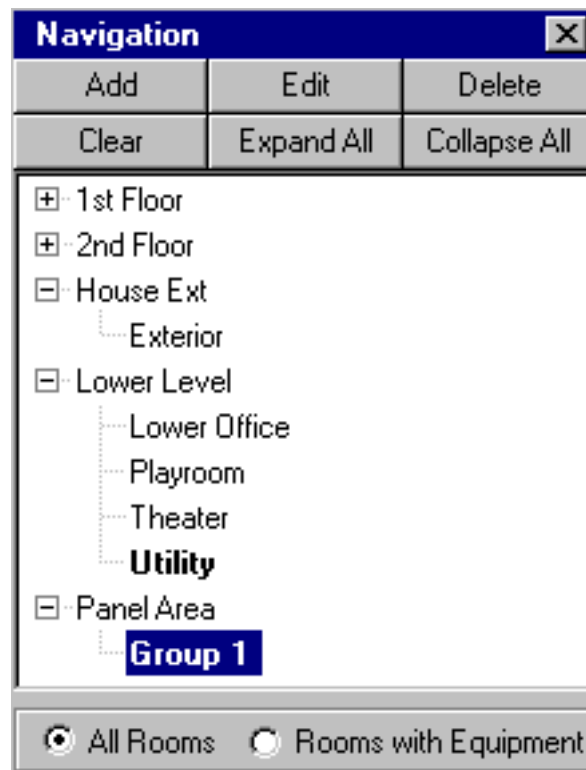
Processor Addressing

Properties	
System	Equipment
Model	HWI-PM-D48-120
Current Draw	45 LEDs
Unit Address	16
Link 4 (D48)	-
Link 5 (GRX)	2
Link 6 (KP)	3
Internal Device Address	4
MI	5
D48	6
	[16:4:1]

A processor is the only equipment addressed on the Panel Assignment screen. To change the address of a processor, select a new value from the Unit Address dropdown box. Addresses being used by other processors are not displayed in the list. Selecting "-" will allow the current address to be used by another processor. For example, pictured above is a processor with unit address 16 and there is another processor with unit address 1. To swap addresses, select "-" on the first processor. Then, select address 16 on the second processor. Finally, select address 1 on the first processor. All processors should have a real unit address before leaving this screen.

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1.8.4 Navigation Box



The Navigation box displays all of the areas and rooms in the project. Rooms that have equipment are displayed in bold text (e.g. **Utility**). Double-click an area to expand or collapse it. Click a room to select it and display its equipment in the Equipment Viewer.

Navigation Buttons

These buttons provide basic functionality for the Navigation box and become enabled or disabled based upon what is selected.

- The **Add** button creates a new area or room.
- The **Edit** button renames a selected area or room.

- The **Delete** button removes the selected area or room from the project. Deleting an area will delete all its rooms as well. Rooms, or areas with rooms, containing control station devices or zones cannot be deleted from this screen.
- The **Clear** button removes all the equipment from the selected area or room. Clearing an area will clear all its rooms.
- The **Expand All** button expands all the nodes in the tree. All areas and rooms allowed by the filter are displayed.
- The **Collapse All** button collapses all the nodes in the tree. Only areas allowed by the filter are displayed.

Navigation Filter

The filter option at the bottom of the Navigation box allows all areas and rooms to be displayed or only areas and rooms that contain equipment.

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1.8.5 Equipment Viewer

The Equipment Viewer displays all of the equipment in the selected room. Equipment includes line-voltage panels, low-voltage enclosures, components that can go in these panels, and other devices that do not require panels. Equipment does not include devices appearing on the [Floorplan](#) screen (e.g. keypads, dimmers, switches, loads).

Equipment/panels can be selected by clicking on the box around the equipment. Equipment within panels can be selected by clicking on the equipment. Double-clicking equipment will select it and change the Properties box to the Equipment tab (displaying the properties of the selected equipment). Right-clicking equipment displays the [right-click menu](#).

Equipment Room

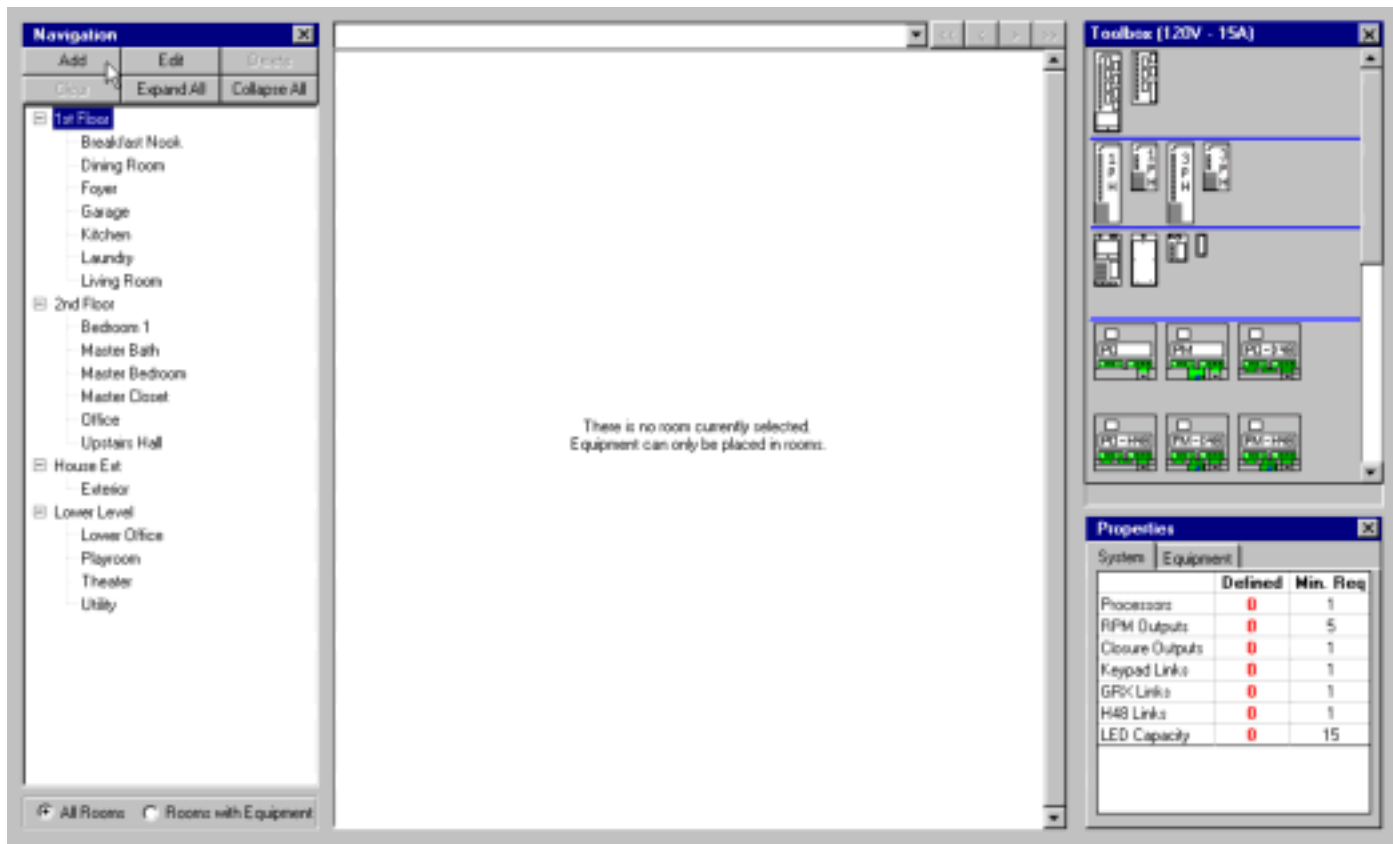


The Equipment Room dropdown box is located above the equipment viewer and contains rooms that have equipment in them (e.g. "Group 1" in "Panel Area"). If there is no equipment in any room, the equipment room listbox will be empty. The equipment room listbox features buttons to go to the next room with equipment, the previous room with equipment, and the first and last rooms with equipment.

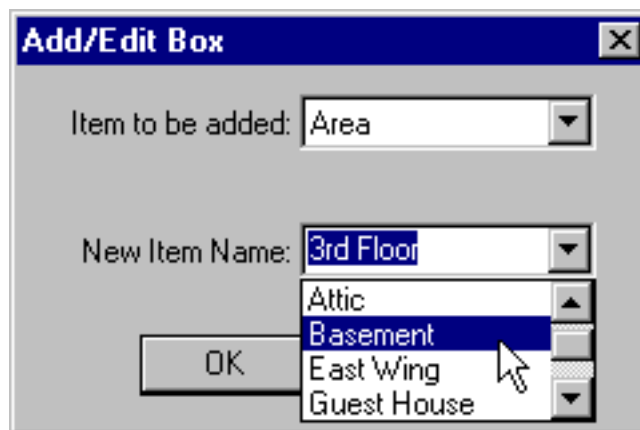
Example: Adding Equipment

This example demonstrates how to add panels and equipment to a project. Pictured below is a 120V-15A project without any equipment. To meet design requirements, the following equipment will be added to an equipment room in the basement.

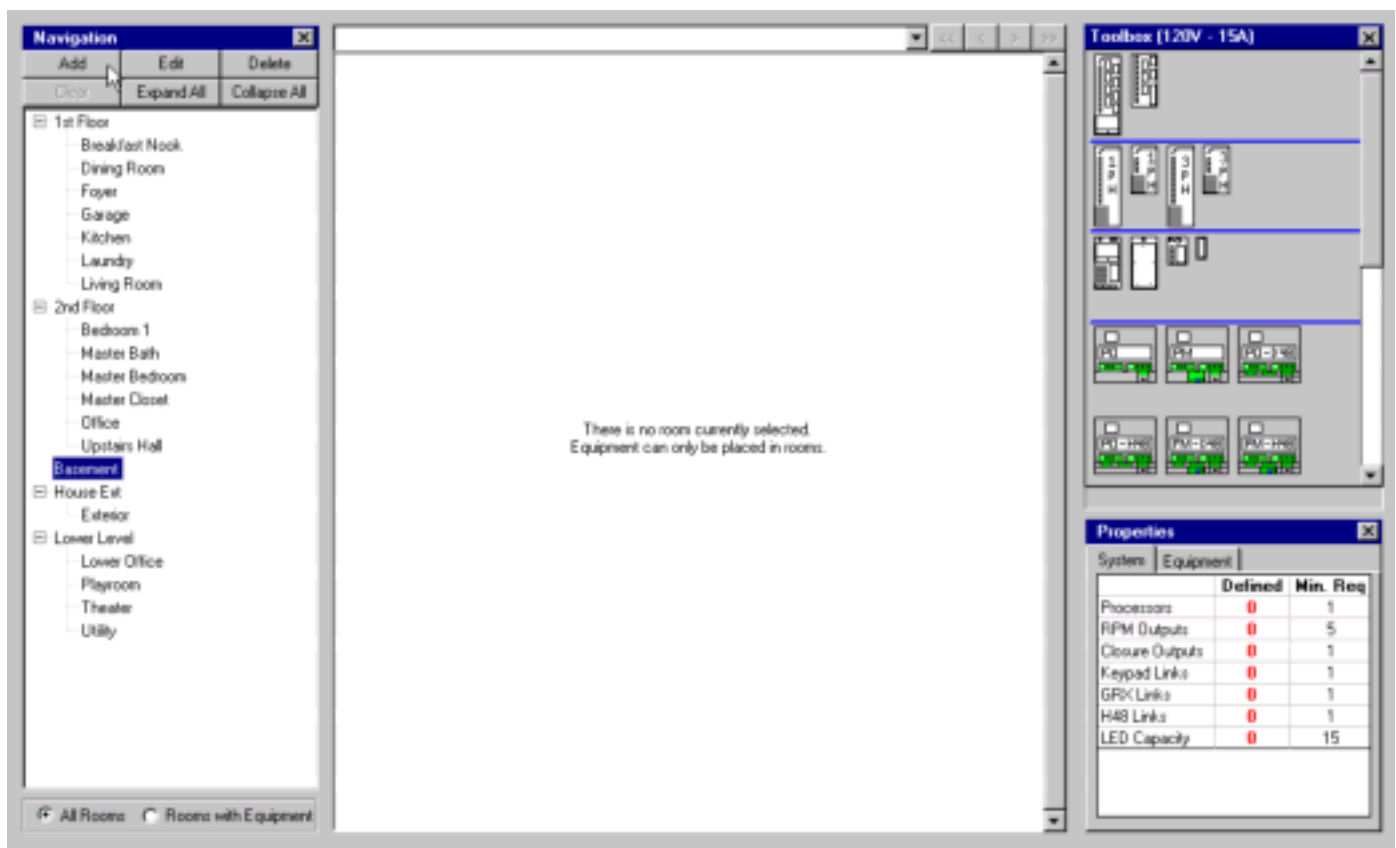
- An enclosure to hold the low-voltage equipment.
- One processor with an internal H48 board.
- A panel to hold the line-voltage equipment.
- One module interface.
- Two remote power dimming modules.
- One closure output board.
- Three wire landing boards.
- One telephone interface.



The equipment room in the basement has not been added to the project yet. Instead of going back to the floorplan to add this area and room, click the **Add** button in the Navigation box, which will pop up the dialog box pictured below.



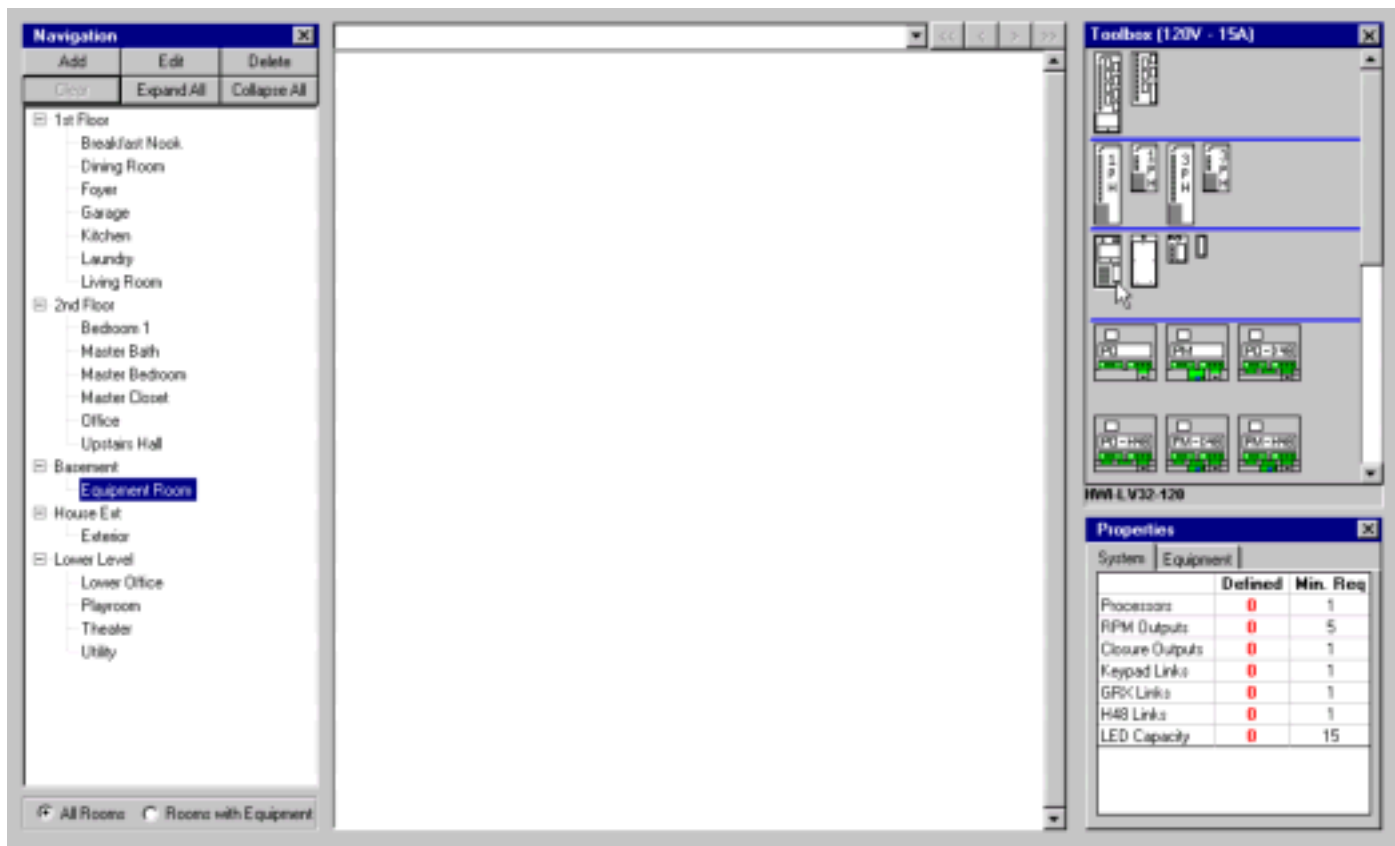
To add the basement area to the project, select "Basement" from the New Item Name dropdown box and click the **OK** button. Typing "Basement" and clicking the **OK** button would have also added the basement. Pictured below is the project with the newly created Basement area.



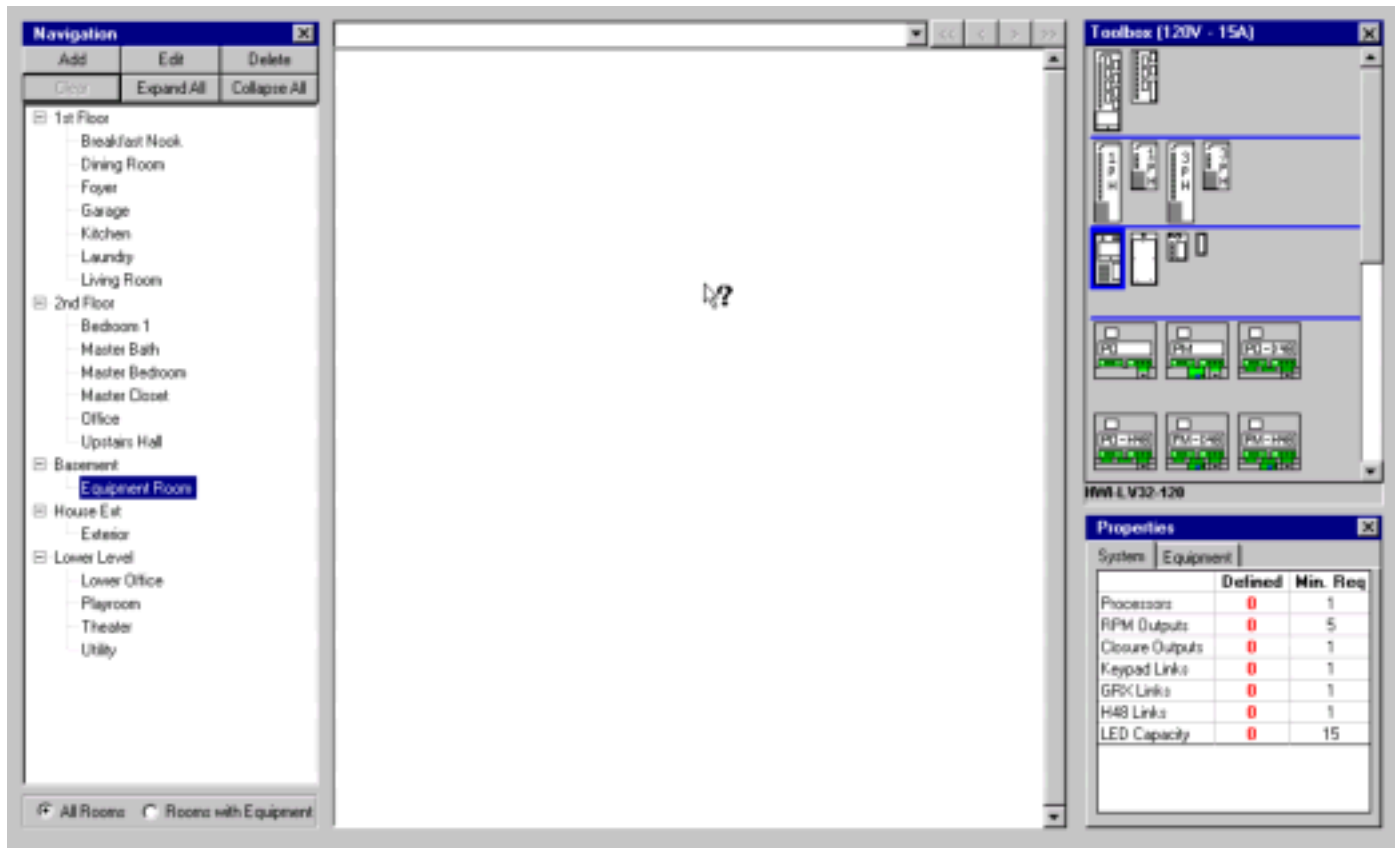
To add the equipment room to the basement, select the Basement area in the Navigation box and then click the **Add** button.



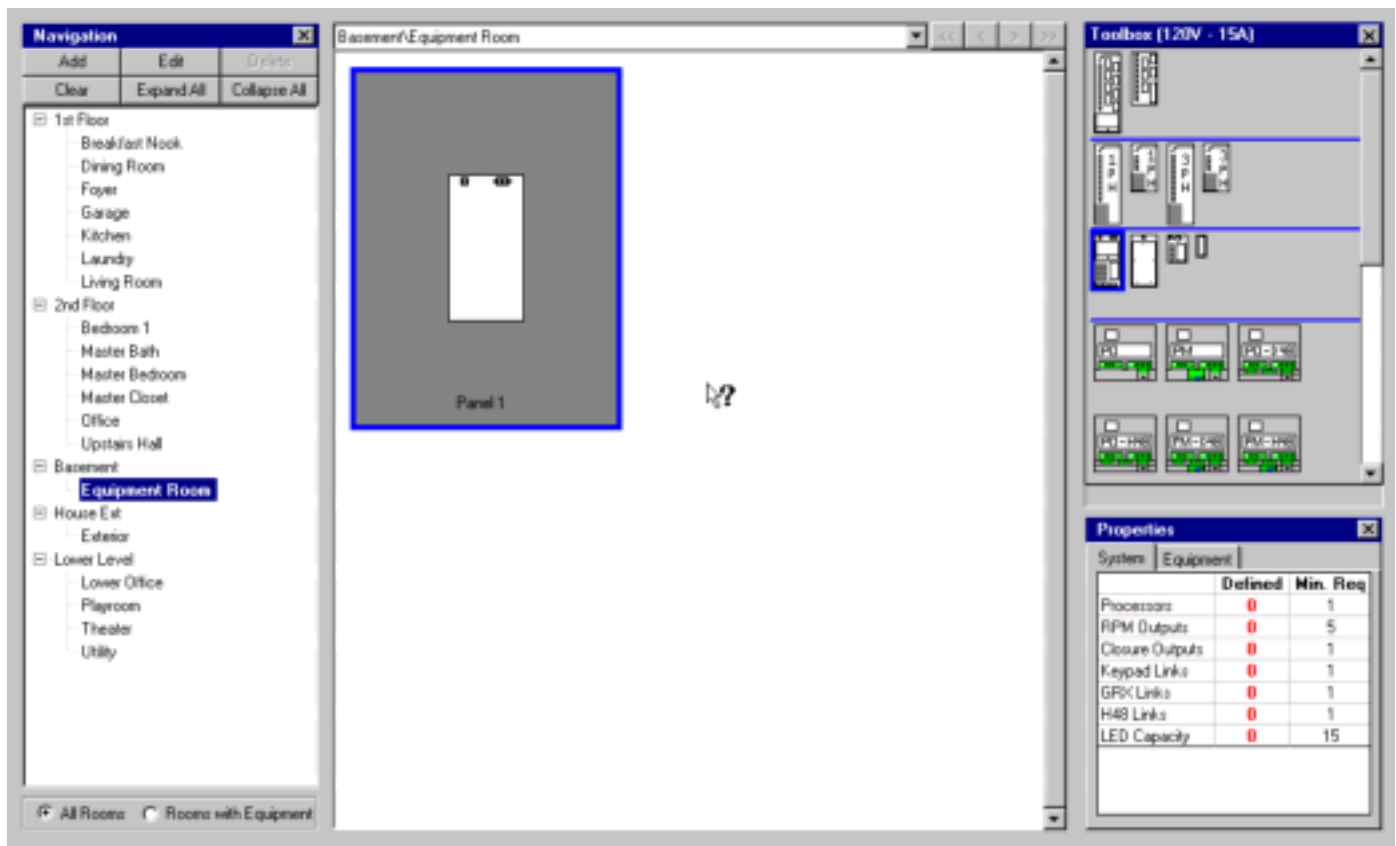
Select "Room" as the item to be added. Since the Basement area was selected in the Navigation box before clicking the **Add** button, the software assumes the new room is to be added to the Basement area. Select "Equipment Room" and click the **OK** button to finish adding the room. Pictured below is the project with the newly created Equipment Room.



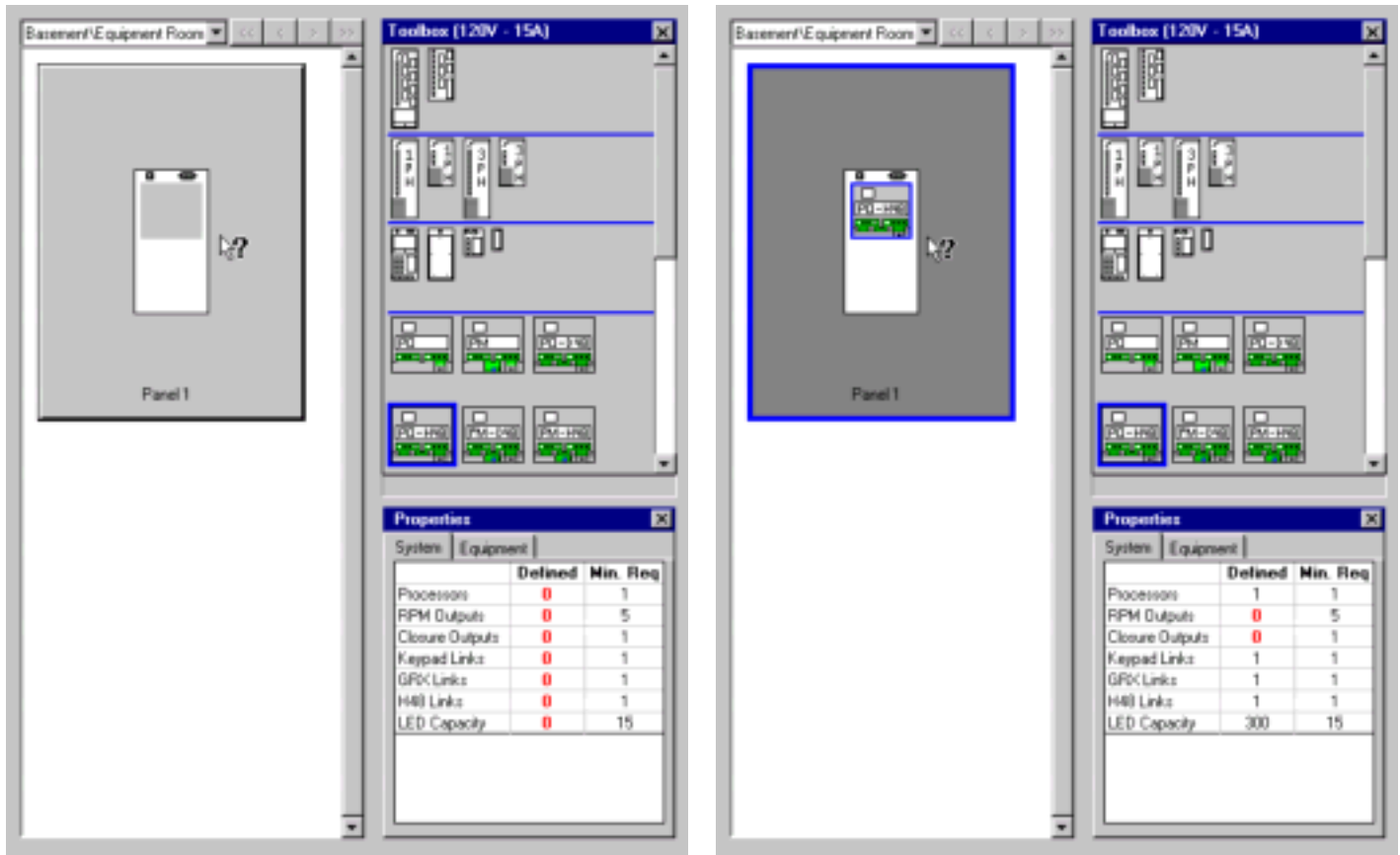
Notice that the Properties box indicates that some minimum equipment is required, i.e. the project requires at least one processor, five RPM outputs, etc. To add equipment to the project, select the equipment to be added in the Panel Toolbox, in this case the low-voltage enclosure HWI-LV32-120. When selected as pictured below, the equipment is highlighted with a blue border and the mouse cursor changes into the  question cursor. This indicates that the system is ready to add this item to a room.



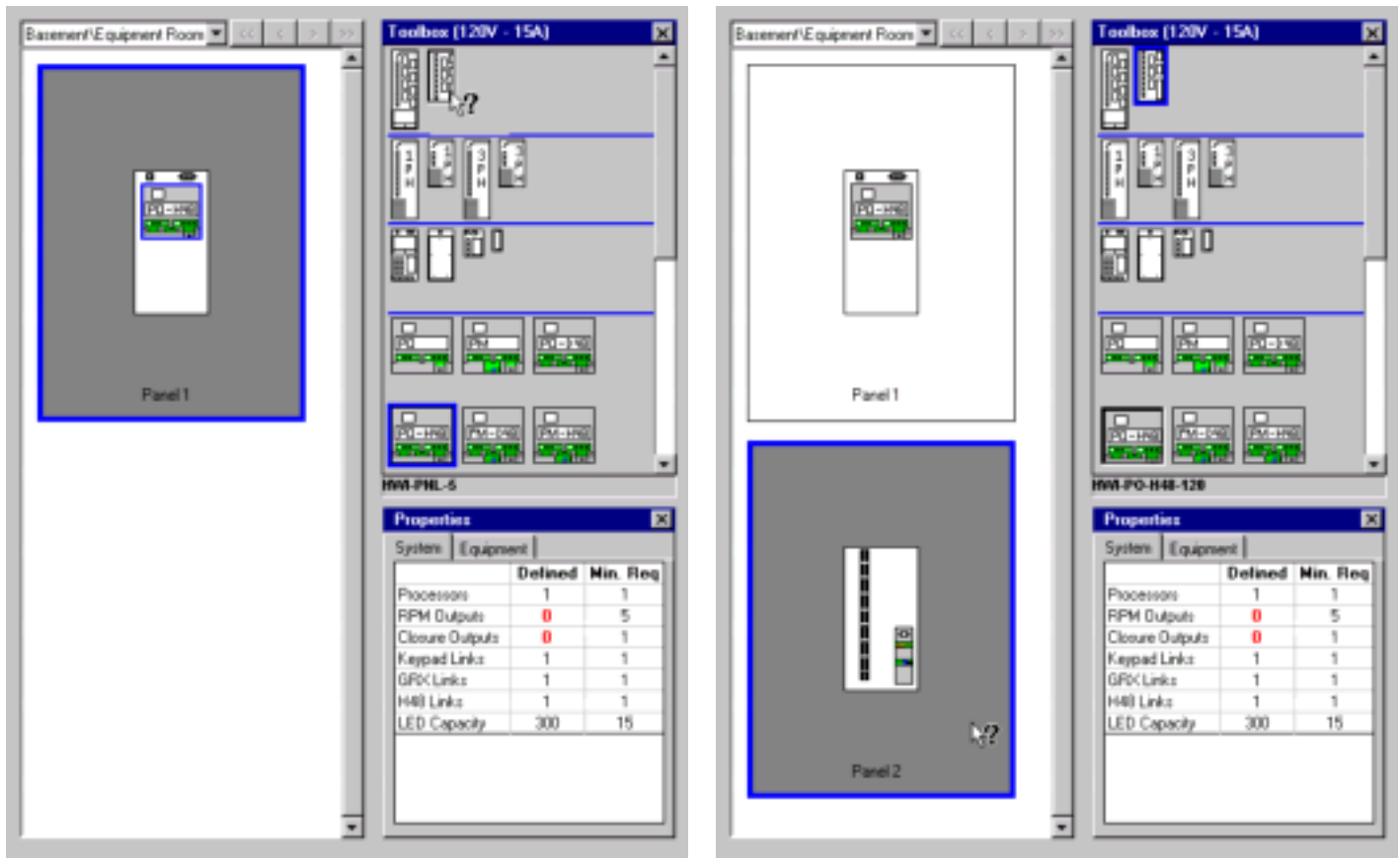
Click in the Equipment Viewer to add this low-voltage enclosure. Pictured below is the newly created enclosure. Because this room now has equipment, the Navigation box shows the Equipment Room in bold text and the viewer's Equipment Room dropdown box shows "Basement/Equipment Room".



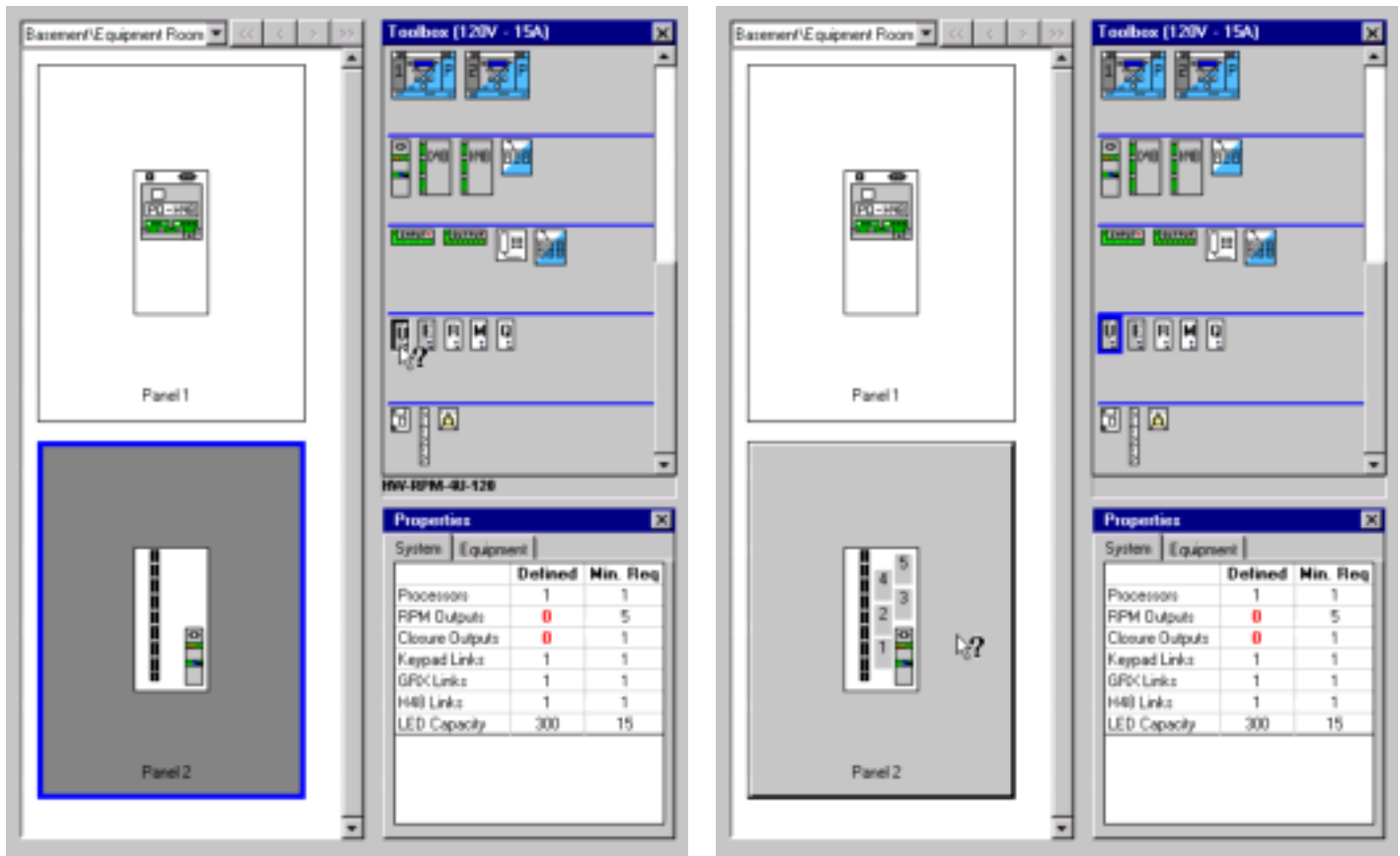
The mouse cursor remains as a question cursor, indicating that the system is still ready to add this item to a room. In this example, the project does not need another low-voltage panel. Press ESC or click an empty area in the Panel Toolbox to clear the mouse cursor. It is not necessary to clear the mouse cursor before selecting another item to add in the Panel Toolbox. To add a processor to the system, select it in the Panel Toolbox. For this example, select a processor with an internal H48 board, HWI-PO-H48-120.



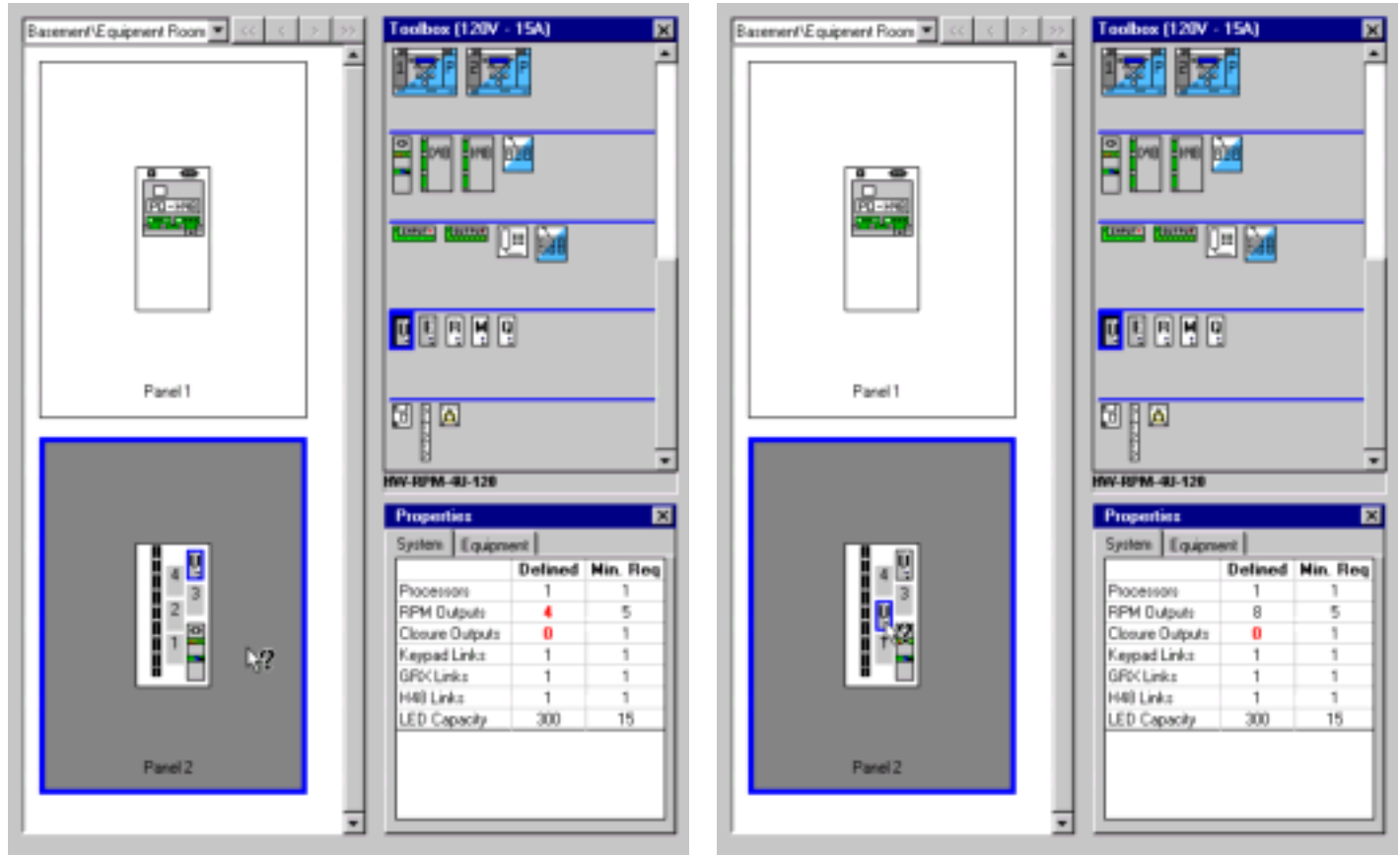
A processor, like most equipment, cannot be added directly to the room by clicking the white space in the Equipment Viewer. Rather, it must be added into a specific panel or enclosure. In the left picture above, the software indicates where an HWI-PO-H48-120 may be added to this low-voltage enclosure. Moving the mouse cursor over a enclosure displays the gray indication box where the processor may be added in the enclosure. Clicking the gray indication box in the panel adds the processor to the enclosure, as in the right picture above. Notice that the Properties box now shows the defined processor.



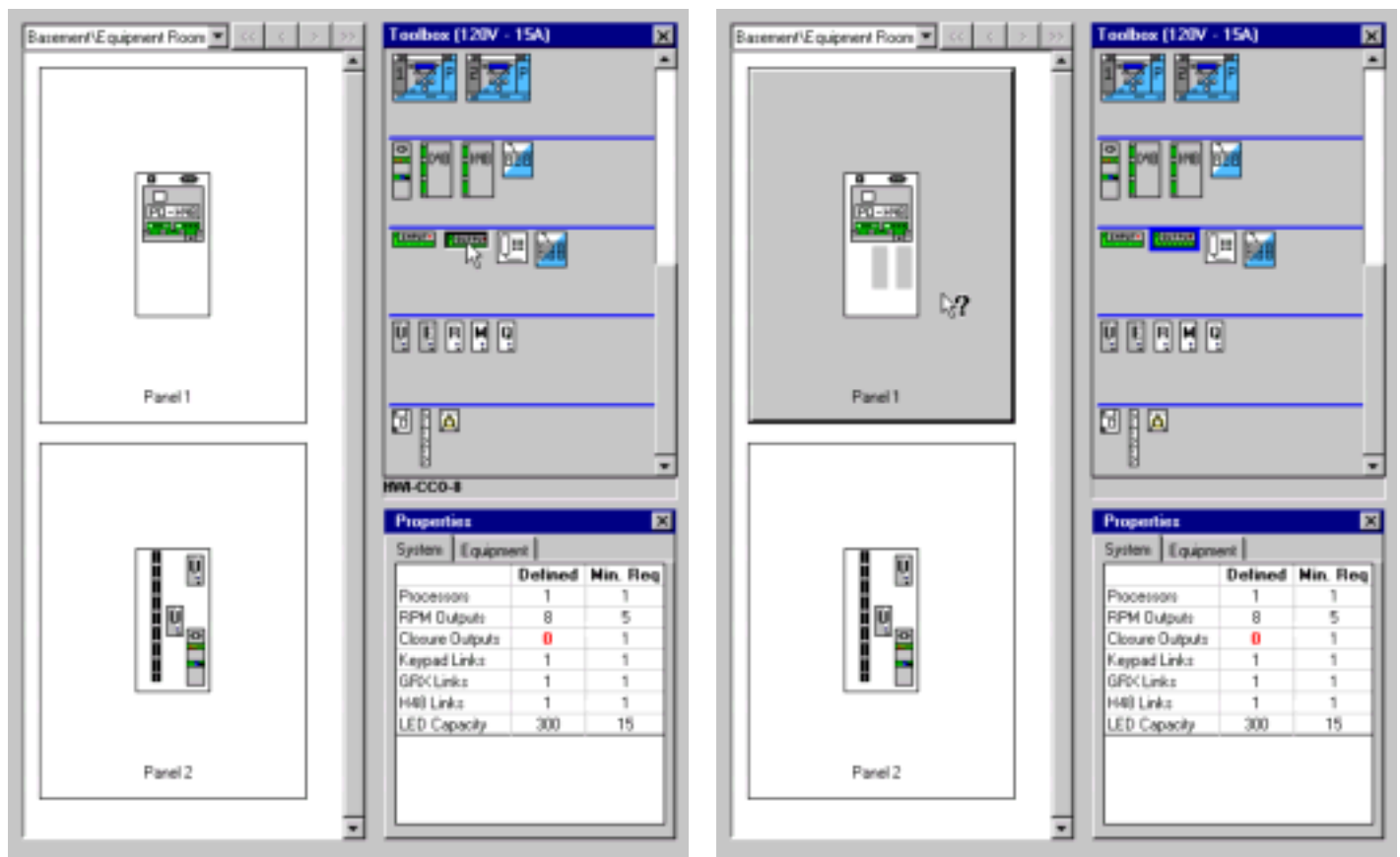
To define RPM outputs, add a line-voltage panel (HWI-PNL-5), a module interface (HWI-MI-120), and two remote power modules (HWI-RPM-4U-120). Notice that a module interface is automatically added with the panel. This is because for an HWI-PNL-5, an HWI-MI-120 is the default equipment, i.e. equipment that must exist in a panel.



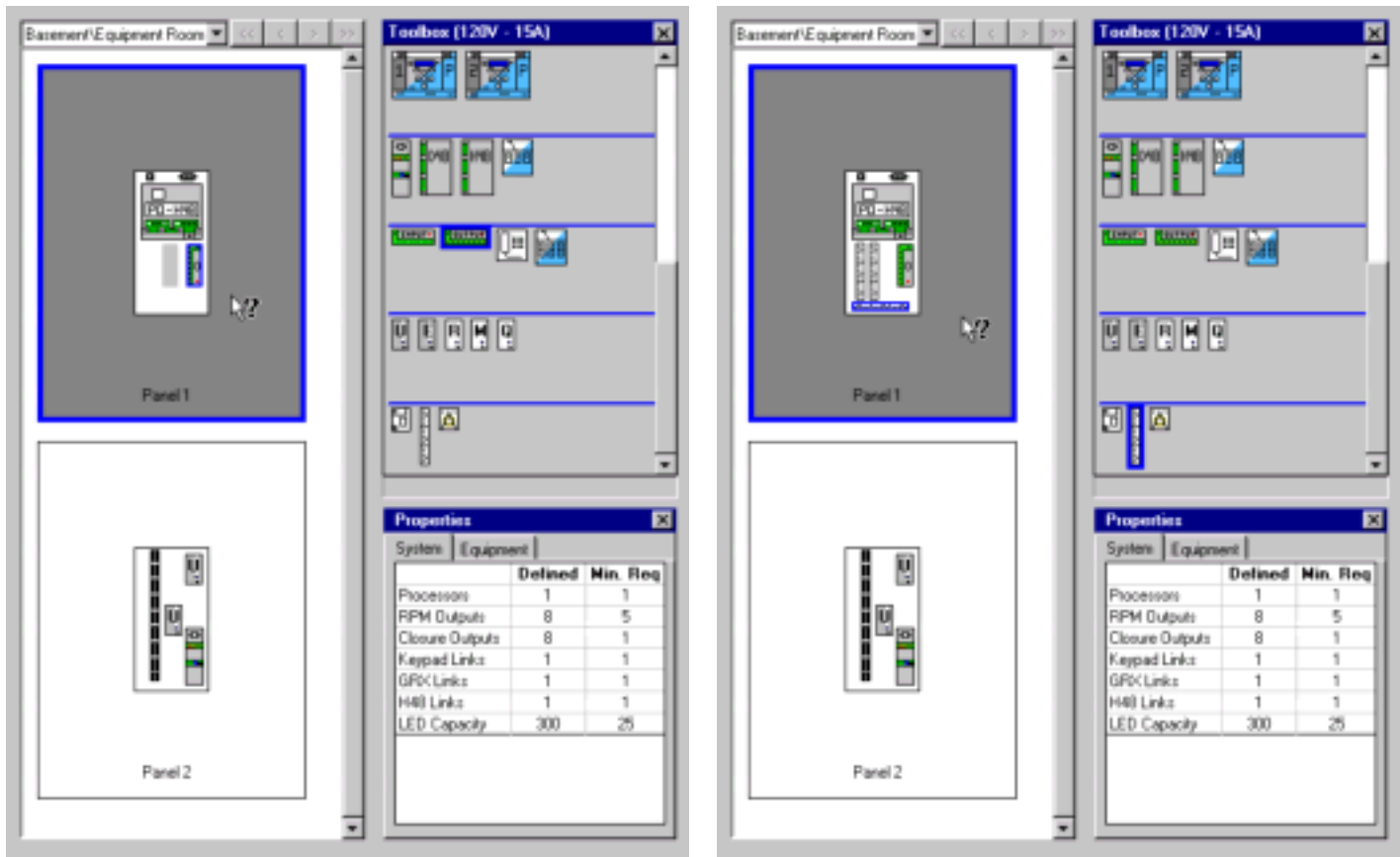
When adding remote power modules, move the mouse cursor over the line-voltage panel to show where in the panel it may be added. In the right picture above, the software uses gray boxes to indicate that the RPM-4U can be added to any of five numbered locations. For remote power modules, the location number represents its unit address. Use the  [Address Assignment](#) screen to change the type (e.g. RPM-4U to RPM-4E) of an existing RPM.



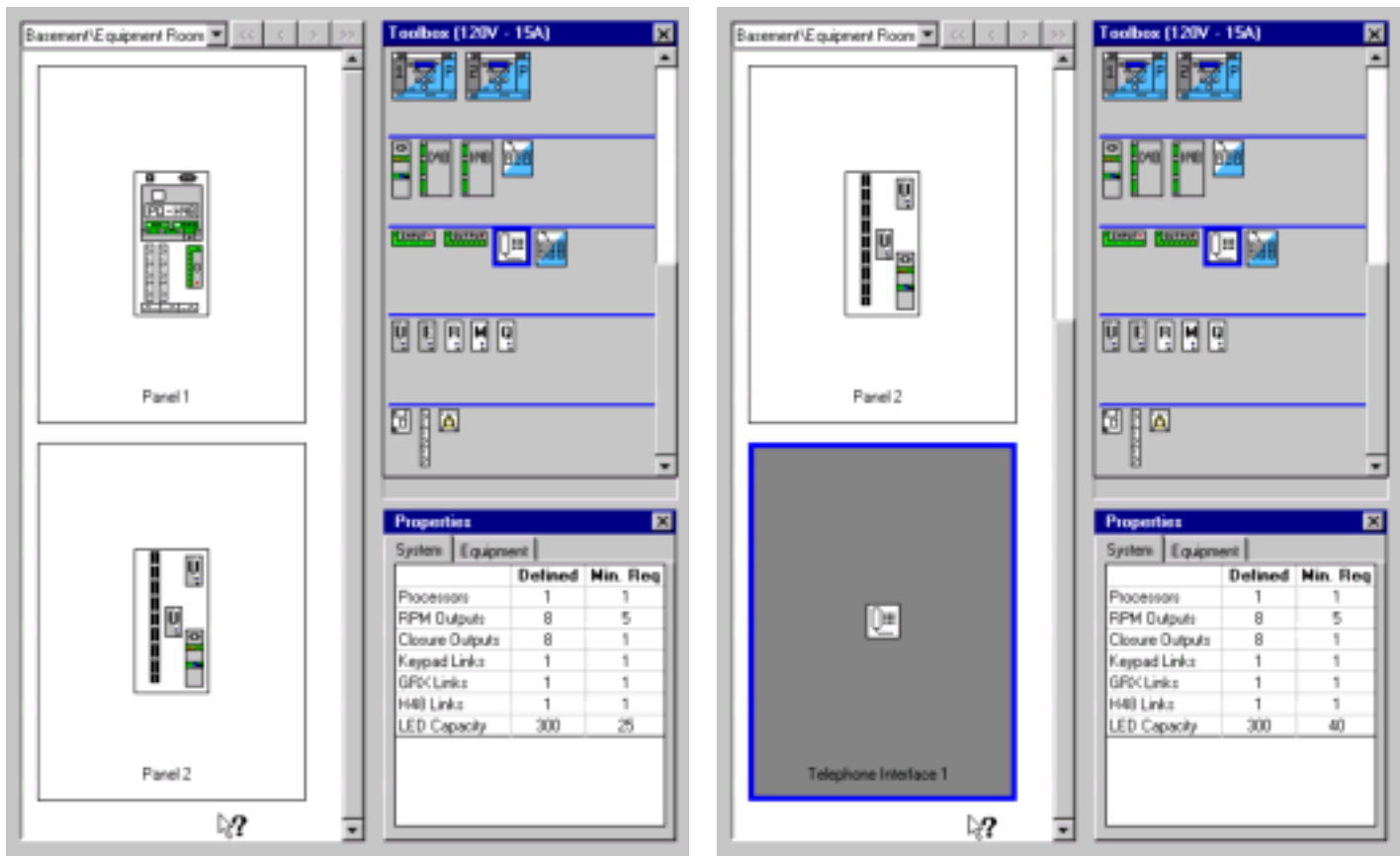
If the panel is clicked somewhere other than a gray indication box, the software determines a location to add the equipment. For example, the first RPM was added to the panel in location 5 by clicking the panel (left picture above). The second RPM was added specifically to location 2 by clicking the gray indication box numbered 2 (right picture above).



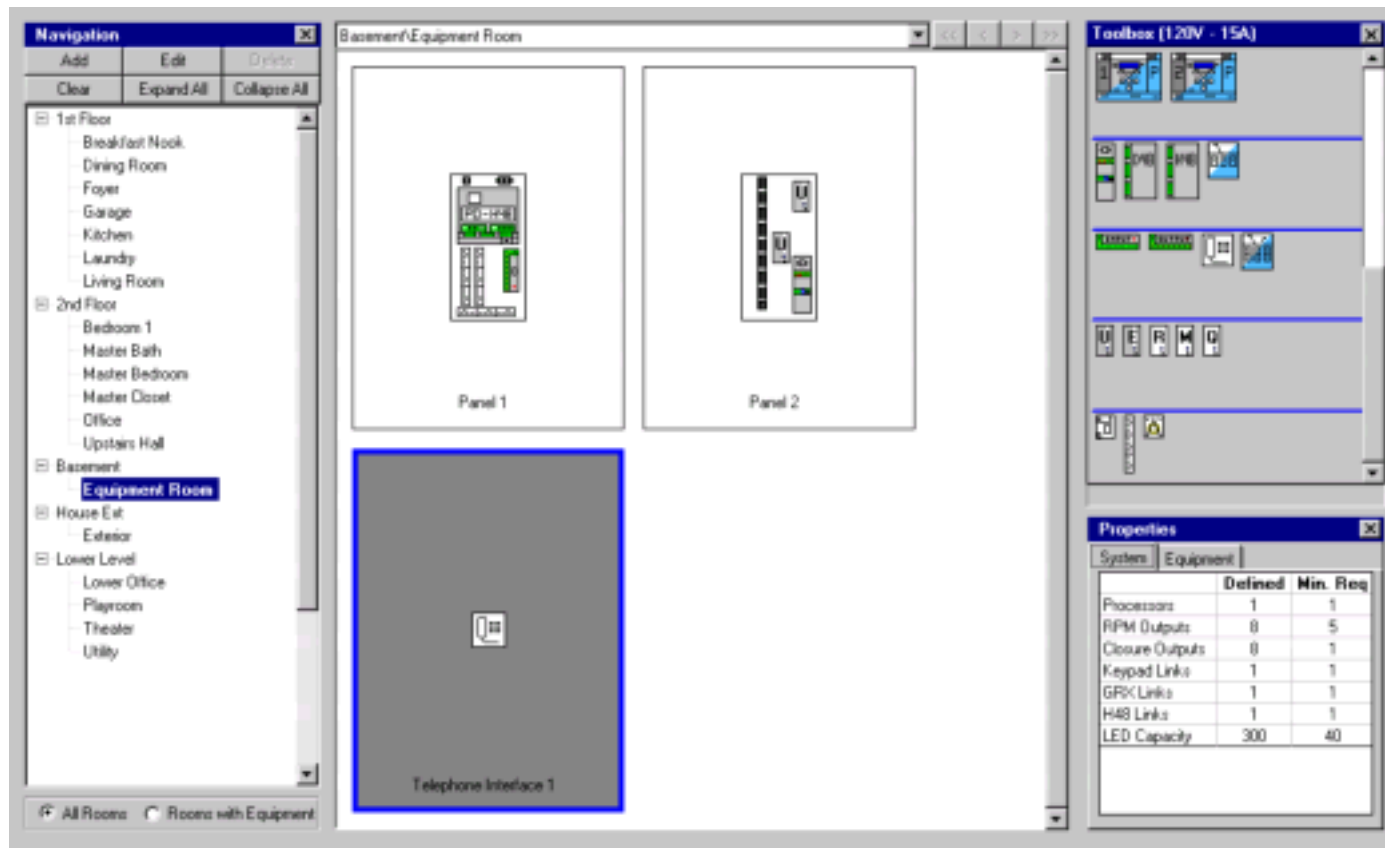
Certain equipment can be added to multiple locations in an enclosure. In this case, moving the mouse cursor over the low-voltage enclosure displays more than one gray indication box where the closure board may be added in the enclosure. Clicking an indication box will add the equipment in that location. If the enclosure is clicked somewhere else, the software determines a location to add the equipment.



Multiple clicking gives multiple added equipment. For example, selecting an HWI-WLB and clicking the panel three times adds three wire landing boards to the panel.



Some equipment do not get added into a panel. For example, a telephone interface must be added to the room directly by clicking the white space in the Equipment Viewer. If equipment cannot be added directly to the room, a message will indicate that the equipment needs to be added to an enclosure.



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1.9 Address Assignment

Contents

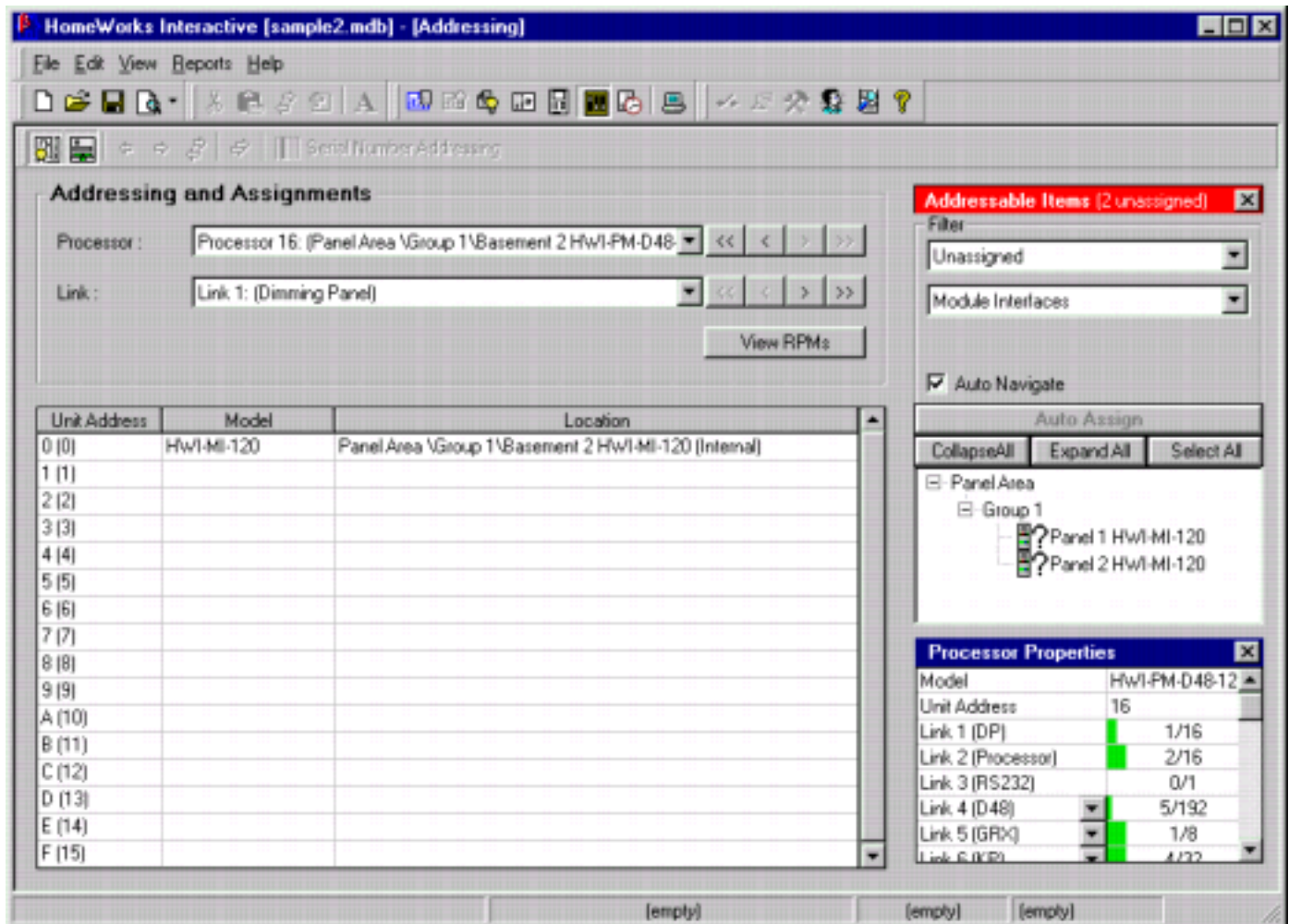
[1.9.1 Address Toolbar](#)

[1.9.2 Addressable Items Box](#)

[1.9.3 Processor Properties Box](#)

[1.9.4 Address Selector](#)

[1.9.5 Address Viewer](#)



This screen is used to assign addressable items to addresses. An addressable item is any zone, closure or equipment that can take an address – this address can be set through a dipswitch or through serial addressing. An addressable item can be assigned to a processor link, router bus, closure board or a RPM through the Address Assignment screen.

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1.9.1 Address Toolbar



The Address Toolbar shows available operations while using this screen.

Show/Hide Addressable Items Box

Click the  **Addressable Items** button to show or hide the Addressable Items box.

Show/Hide Processor Properties Box

Click the  **Processor Properties** button to show or hide the Processor Properties box.

Assign

Assigning an item to an address can be done in two ways.

- Select an item from the Addressable Items box and click the  **Assign** button.
- Select an item from the Addressable Items box. Click a valid address in the grid.

Unassign

Unassigning an item can be done in two ways.

- Select an item in the Address Viewer and click the  **Unassign** button.
- Double click the item in the Address Viewer.

Swap

This operation swaps two assigned items or moves an assigned item to an unassigned address.

- Select an item in the Address Viewer.
- Click the  **Swap** button.

The mouse cursor will change into the  swap wand.

- Select a destination address in the Address Viewer.

If the destination address already has an assigned item, those two items swap addresses. Otherwise, the item moves into the destination address.

Internal routers, i.e. located inside the processor, can not be swapped or moved. For example, the MI and H48 board in an HWI-PM-H48 are assigned to addresses 0 and 1 respectively and can not have other addresses.

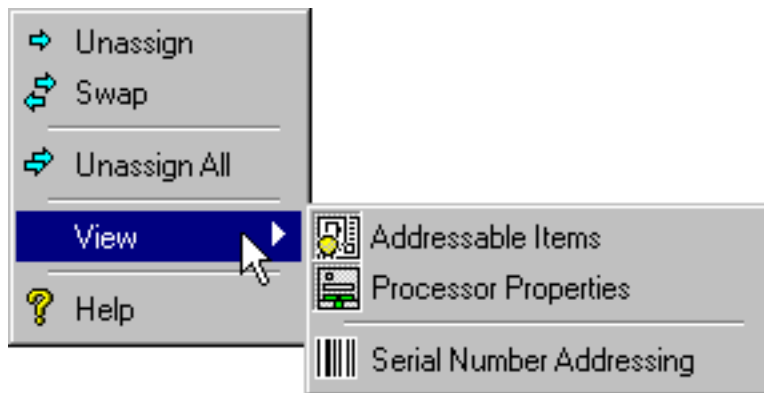
Unassign All

This operation unassigns every addressable item being displayed on the current link, router, or board. Click the  **Unassign All** button. Internal routers can not be unassigned and would be left assigned.

Serial Number Addressing

After all addressable items have been assigned, click the  **Serial Number Addressing** button to set the unit address for H48 Dimmers, RF Dimmers, RF Keypads and RF Repeaters.

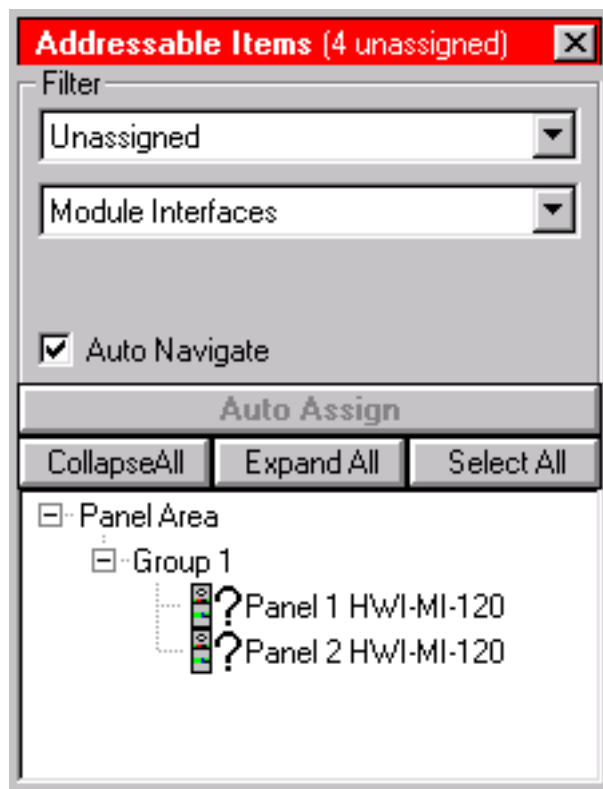
Right-Click Menu



Many features can be activated from the right-click menu. The right-click menu can be accessed by right clicking the Address Viewer.

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1.9.2 Addressable Items Box



All the addressable items found in the project can be viewed in this box. The different filters are used to view small groups of addressable items.

Unassigned Items Count

The Addressable Items box has an unassigned items count in the title. If the count is more than 0, there are unassigned items in the system. To view all unassigned items, change the first filter to "Unassigned" and the second filter to "All".

Addressable Items Filter

The Addressable Items box has three filter dropdown boxes.

- The first filter dropdown box displays the addressable items based on whether they are assigned.
For example, an assigned HWI-KP10 may be displayed if this filter was "Assigned" or "All". An unassigned device may be displayed if this filter was "Unassigned" or "All".
- The second filter dropdown box displays items based on the type of device.
For example, an HWI-KP10 may be displayed if this filter was "Wired Keypads" or "All".
- The third filter dropdown box appears only when the second filter is set to RPM Zones. This third filter displays zones by module type or load type.

Auto Navigate

Auto navigation is enabled when the Auto Navigate checkbox is checked. This feature works in two ways.

- Selecting an addressable item in the Addressable Items box will find an assignment space on the current processor and show it in the Address Viewer.
- Selecting a link, router, or closure board in the Address Selector will change the second addressable item filter showing only items assignable to it.

Toolbox Buttons

These buttons provide basic functionality for the Addressable Items box.

- The **Collapse All** button collapses all the nodes in the tree. Only areas containing items displayed by the filters would be seen in this state.
- The **Expand All** button expands all the nodes in the tree. All addressable items displayed by the filters would be seen in this state.
- The **Select All** button selects all displayed addressable items.
- The **Auto Assign** button assigns each selected item to an available address on the current processor. If any items could not be assigned, the utility would suggest how to address them.

Addressable Items

There are several ways to select items in the Addressable Items box.

- Click a single item to select it.
- Click a room to select all the items in that room.
- Click an area to select all the items in that area.
- Click the **Select All** button to select all displayed items.
- To select consecutive items, click the top item, press and hold SHIFT, and click the bottom item.
- To select individual items, click an item, press and hold CTRL, and click each other item in the group.

Tips and Shortcuts

Double click an assigned item in the Addressable Items box to go to its address.

Unassigned items will have an icon with a question mark and no RS-232 address. Assigned items will have no question mark and a full RS-232 address.



An addressable item can be associated with an unassigned router or a closure board. This item will have a partial RS-232 address and yet it will be unassigned. This allows an assigned router or closure board to be reassigned to a different link without losing any of its associated items. Assigning a router or closure board automatically assigns any items associated with it, and therefore the unassigned count could drop by more than one from a single assignment.



A dimmer will not appear in the Addressable Items box if it has no zone assigned. To assign a zone to a dimmer, use the  [Control Station Assignment](#) screen.

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1.9.3 Processor Properties Box

Processor Properties		
Model	HWI-PO-D48-120	
Unit Address	1	
Link 1 (DP)		0/16
Link 2 (Processor)		2/16
Link 3 (RS232)		1/1
Link 4 (KP)		3/32
Link 5 (D48)		13/192
Link 6 (KP)		3/32
Link 7 (RS232)		0/1
Zone Limit		13/256
LED Limit		40/300

The Processor Properties box shows all the link information for the current processor. It also allows changing link types of configurable links. Use the  [Panel Assignment](#) screen to change the Unit Address of a processor.

Link Information

Besides each link, the progress bar indicates how full the link is. The first number represents the number of items assigned to this link. The second number represents the link's capacity, i.e. the maximum number of items that can be assigned to this link. The link is full when both numbers are equal. In the picture above, link 6 has 3 assigned keypads and can have 32. Link 5 has 13 assigned D48 dimmers and switches and can have 192. Only link 3 is full because it has 1 assigned serial driver and can only have 1.

Link Types

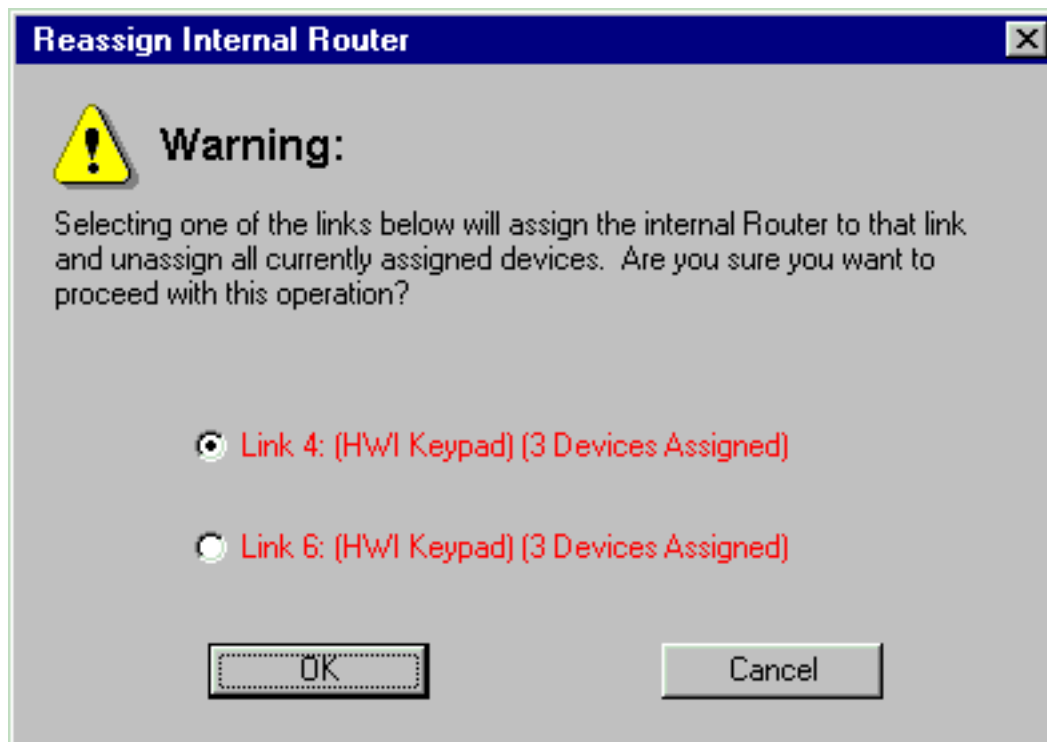
To change a configurable link type, click its dropdown box and choose a new link type. This unassigns any items on the link. For example, choosing "Link 4 (GRX)" in the picture above would unassign the three keypads currently on link 4 and would change link 4 from a keypad link to a GRAFIK Eye link.

To swap two configurable links, click the dropdown box of the first link and select one of the swap options. Swapping links does not unassign items from either link.

Internal D48 and H48 Boards

Occasionally, it is useful in the software to change the link on which an internal D48 or H48 board resides. This can be done by swapping two configurable links: the link on which the board currently resides and the link on which the board will be.

This could also be done by changing the current link type. For example, say that an internal D48 board is currently assigned to link 5 but should be assigned to a link 4. Change the type of link 5 to "Link 5 (GRX)". The software will ask for the link where the internal board will be reassigned. This is done so that the internal D48 board does not become disassociated from the processor.



Select the destination link (in this case, link 4) and click the **OK** button. All the D48 boards originally on link 5 are then unassigned as well as all keypads originally on link 4. The link type changes to D48 for link 4 and GRX for link 5. The internal D48 board is reassigned to link 4. Neither the keypads nor the other D48 boards are reassigned.

Zone Limit

The zone limit progress bar shows how many zones are assigned to this processor in relation to the maximum number that can be assigned. If a processor zone limit is exceeded, some items (RPM zones, H48 Dimmers, D48 Dimmers, or GRAFIK Eyes) need to be unassigned from the processor to lower the number of zones below the zone limit. Those items should then be assigned to a different processor or removed from the system.

LED Limit

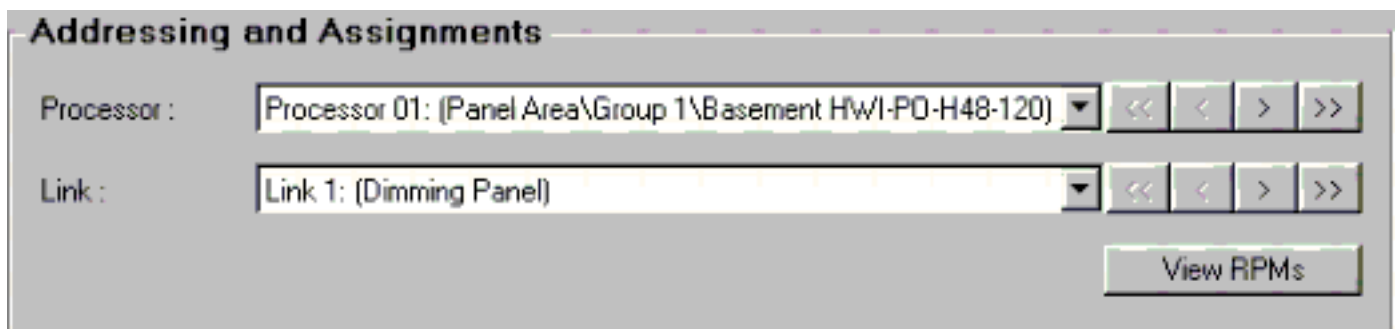
The LED limit progress bar shows how many LEDs the processor is controlling in relation to the maximum number of LEDs the processor can control. If a processor LED limit is exceeded, either the number of LEDs controlled by the processor needs to be lowered (i.e. unassigning some keypads) or a power supply needs to be added on the  [Panel Assignment](#) screen. Unassigned keypad should be assigned to a different processor or removed from the system. Adding power supplies will not update the LED limit because they can not be associated with a processor's keypad link.



Only one H48 link is allowed for every wired processor. If there exists an H48 link on the processor, another link cannot be changed into an H48 link.

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1.9.4 Address Selector



The dialog box titled "Addressing and Assignments" contains two rows. The first row is labeled "Processor :" and has a dropdown menu showing "Processor 01: (Panel Area\Group 1\Basement HWI-PO-H48-120)". To the right of the dropdown are four navigation buttons: "<<", "<", ">", and ">>". The second row is labeled "Link :" and has a dropdown menu showing "Link 1: (Dimming Panel)". To the right of the dropdown are four navigation buttons: "<<", "<", ">", and ">>". At the bottom right of the dialog is a button labeled "View RPMs".

The Address Selector chooses a processor's link, router, or closure board to display in the Address Viewer.



There are two ways to select the current item, i.e. processor, link, etc.

- Select an item directly in its dropdown box.
- Click an arrow button to move to the first "<<", previous "<", next ">", or last ">>" item.

Processor and Link

Both the Processor dropdown box and the Link dropdown box are visible at all times.

Router or Closure Board

The Router dropdown box is visible in the following cases.

- A MI link is being viewed and the **View RPMs** button has been clicked. To view MIs again, click the **View MIs** button.
- A D48 link is being viewed and the **View D48 Dimmers** button has been clicked. To view the D48 boards again, click the **View D48 Boards** button.
- A H48 link is being viewed and the **View H48 Dimmers** button has been clicked. To view the H48 boards again, click the **View H48 Boards** button.

The Closure Board dropdown box becomes visible when a HWI Keypad link is being viewed and the **View Closures** button has been clicked. The button would only be visible if a CCO board exists on the link. To view the keypads again, click the **View Keypads** button.

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1.9.5 Address Viewer

The Address Viewer allows fundamental operations like assign, unassign, and swap (see [1.9.1 Address Toolbar](#)). It also shows the address location of each assigned addressable item.

Items are assigned to different address locations depending on their type.

- Routers, Keypads, GRX devices, RS-232 devices, RF devices are assigned to a link.

- D48 Devices are assigned to a D48 router.
- H48 Devices are assigned to an H48 router.
- Closures are assigned to a closure board.
- Zones are assigned to an RPM.

Example: Assign, Unassign, and Auto Assign

This example demonstrates how to assign an addressable item, unassign the item, and auto assign multiple addressable items to an address location. Pictured below are two unassigned wired keypads that can be placed on this keypad link.

Addressing and Assignments

Processor: Processor 01: (Panel Area\Group 1\Basement HWI-PD-H48-120) << < > >>

Link: Link 5: (HWI Keypad) << < > >> View Closures

Unit Address	Model	Location
1	HWD-10KP	2nd Floor/Master Bedroom/At Door
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

Addressable Items (2 unassigned)

Filter: Unassigned
Wired Keypads
All

☒ Auto Navigate

Auto Assign
Collapse All Expand All Select All

- 1st Floor
 - Foyer
 - Entry
 - Kitchen
 - Hallway Keypad

To assign a wired keypad, first select it (see [Addressable Items](#)). The mouse cursor will change into the  question cursor. This indicates that the system is ready to assign this item to an address.

Addressing and Assignments

Processor: Processor 01: (Panel Area\Group 1\Basement HW1-PD-H48-120) << < > >>

Link: Link 5: (HW1 Keypad) << < > >>

Unit Address	Model	Location
1	HW1D-10KP	2nd Floor\Master Bedroom\At Door
2		?
3		
4		
5		
6		
7		
8		
9		
10		
11		

Addressable Items (2 unassigned)

Filter:
 [Unsigned]
 [Wired Keypads]
 [All]

☒ Auto Navigate

Auto Assign
 [Collapse All] [Expand All] [Select All]

- 1st Floor
 - Foyer
 - Entry
 - Kitchen
 - Hallway Keypad

Find an unused address location. Address 1 already has a 10 button design keypad assigned named "At Door" (Area: "2nd Floor" and Room: "Master Bedroom"). Address 2 is available; click on that address location to assign the "Entry" keypad (see [Assign](#)). The mouse cursor will change back to an arrow.

Addressing and Assignments

Processor: Processor 01: (Panel Area\Group 1\Basement HW1-PD-H48-120) << < > >>

Link: Link 5: (HW1 Keypad) << < > >>

Unit Address	Model	Location
1	HW1D-10KP	2nd Floor\Master Bedroom\At Door
2	HW1D-5KP	1st Floor\Foyer\Entry
3		
4		
5		
6		
7		
8		
9		
10		
11		

Addressable Items (1 unassigned)

Filter:
 [Unsigned]
 [Wired Keypads]

☒ Auto Navigate

Auto Assign
 [Collapse All] [Expand All] [Select All]

- 1st Floor
 - Kitchen
 - Hallway Keypad

If the "Entry" keypad could not be assigned, the system would indicate why. For example, if it was a telephone interface (and not a 5 button designer keypad), the system would indicate that telephone interfaces can only be assigned to address 32.

To unassign the wired keypad, double-click it in the Address Viewer (see [Unassign](#)).

Addressing and Assignments

Processor : Processor 01: (Panel Area\Group 1\Basement HW1-PD-H49-120) << < > >>

Link : Link 5: (HW1 Keypad) << < > >>

Unit Address	Model	Location
1	HW1D-10KP	2nd Floor\Master Bedroom\At Door
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

Addressable Items (2 unassigned)

Filter:
 [Unsigned]
 [Wired Keypads]

☒ Auto Navigate

Auto Assign
 [Collapse All] [Expand All] [Select All]

1st Floor
 Foyer
 Entry
 Kitchen
 Hallway Keypad

To auto assign items, first select the items (see [Addressable Items](#)).

Addressing and Assignments

Processor : Processor 01: (Panel Area\Group 1\Basement HW1-PD-H49-120) << < > >>

Link : Link 5: (HW1 Keypad) << < > >>

Unit Address	Model	Location
1	HW1D-10KP	2nd Floor\Master Bedroom\At Door
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

Addressable Items (2 unassigned)

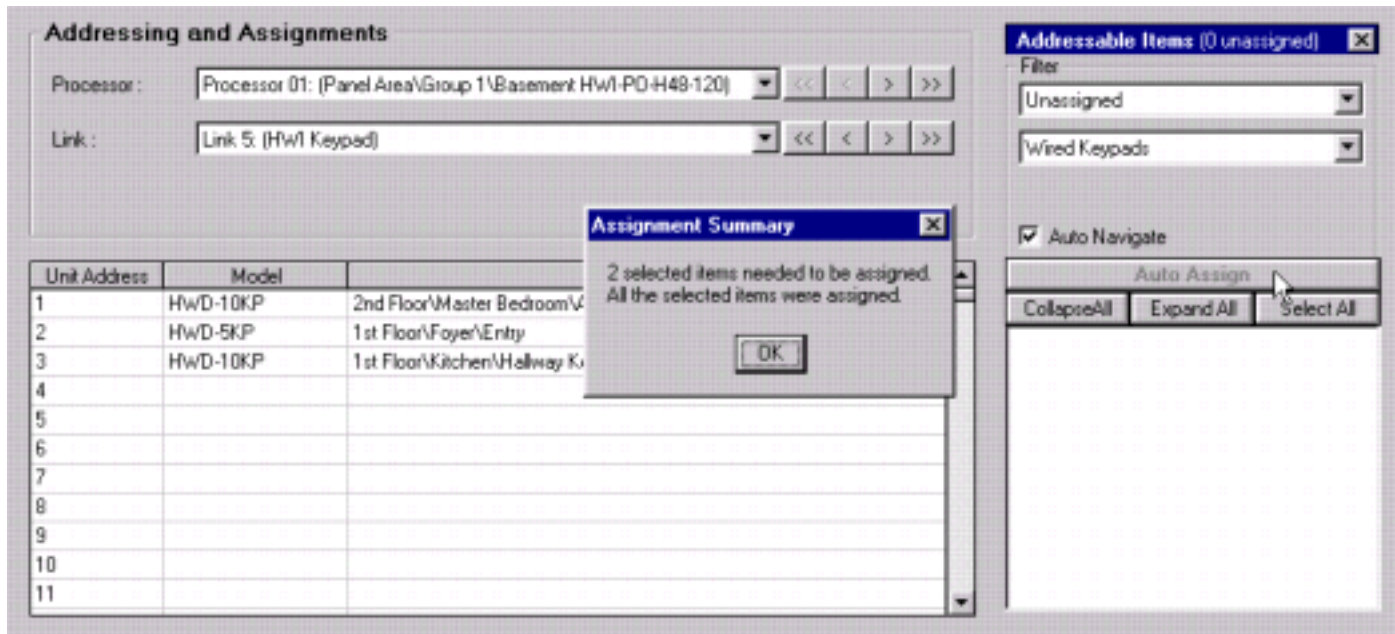
Filter:
 [Unsigned]
 [Wired Keypads]

☒ Auto Navigate

Auto Assign
 [Collapse All] [Expand All] [Select All]

1st Floor
 Foyer
 Entry
 Kitchen
 Hallway Keypad

Click the **Auto Assign** button (see [Toolbar Buttons](#)). A summary will be shown indicating the number of items that were assigned and if necessary why any items were left unassigned.



Serial Numbers

Serial numbers can be manually typed in for assigned items that require serial number addressing. Click the serial number column of the item and type in the serial number.

Bus : Address	Model	Serial Number	Location
1:1	HwD-6D		Lower Level\Playroom\Ceiling
1:2	HwD-6D	020000001013	1st Floor\Living Room\Sconces
1:3	HwD-6D	020000002022	Lower Level\Theater\Cans
1:4	HwD-6D	020000003031	2nd Floor\Upstairs Hall\Ceiling

The color of the serial number indicates the state of the device in the project.

- Black: The serial number was typed in and not validated against the device in space.
- Blue: The serial number was validated against the device in space.
- Red: The serial number is invalid and needs to be validated against the device in space.

Special Note: Assigning RF repeaters on a link is slightly different from assigning other items. When a repeater is being assigned, it must take the lowest available address to form a valid repeater chain. Furthermore, unassigning a repeater causes all repeaters to get unassigned. Because making changes to a repeater chain could cause some devices to lose communication with the processor, it also invalidates (red) all RF devices on that processor forcing them to be re-validated against the device in space.

RPM Zones

Basement 2 (HWI-PNL-8) - 16:1:0:2:Output						
Output Name			Lock	Interface	Wattage	
Module	1	Lower Level\Lower Office\Cans		None	▼	260
2	2	Lower Level\Theater\Monorail 1		ELVI-1000	▼	25*
Type	3	Lower Level\Theater\Monorail 2		HP-2	▼	25*
4U	4				▼	
* - Power Booster used						Total Wattage 310*

To change the RPM type, select another RPM type from the Type dropdown box.

Basement 2 (HWI-PNL-8) - 16:1:0:4:Output						
Output Name			Lock	Interface	Wattage	
Module	1					
4	2	An RPM doesn't exist at this position.				
Type	3	To create an RPM, select an RPM type				
▼	4	from the 'Type' drop down box.				
* - Power booster used						Total Wattage

An RPM can be added by selecting an RPM type for a non-existent RPM. "4E" represents RPM-4E, "4F" represents RPM-4FSQ, etc.

RPM Zone Lock and Interface

Every time a zone is addressed or unaddressed to an RPM, the system calculates the interfaces used on that RPM for the unlocked zones. If a zone is locked, the system will not change its interface. Click the  picture to unlock the zone and the  picture to lock the zone.

Select from the Interface dropdown box to specify that zone's interface. This action will lock that zone.

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3.2 Serial Number Addressing

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[3.2.1 Navigation](#)

[3.2.2 System Check](#)

[3.2.3 Address Repeaters](#)

[3.2.4 Auto Address Devices](#)

[3.2.5 Manually Address Devices](#)

[3.2.6 Upload Project and Launch Diagnostics](#)

Navigate to either the [Address Assignment](#) screen or the [Terminal](#) screen and click the  button in the toolbar to start the Serial Number Addressing tool.

The unit address of most HomeWorks devices is set with a physical DIP switch on the device. With RF devices and H48 Maestro-style dimmers and switches, devices are addressed using the software utility via Serial Number Addressing. This tool makes it possible to address devices without removing them from the wall.

Serial Number Addressing takes place in several steps.

- **System Check (3.2.2)** - Checks system communication and uploads databases needed to perform Serial Number Addressing.
- **Address Repeaters (3.2.3)** - RF repeaters are associated with the corresponding entries in the HWI Utility.
- **Auto Address Repeaters (3.2.4)** - Devices with serial numbers already entered into the system (from the [Address Assignment](#) screen) are automatically associated with their corresponding entries in the HWI Utility.
- **Manually Address Devices (3.2.5)** - Devices without entered serial numbers are individually associated with the corresponding entries in the HWI Utility.
- **Upload Project and Launch Diagnostics (3.2.6)** - Upload the project and launch the  [Diagnostics](#) tool.

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3.2.1 Navigation



- The **Help** button launches this help file.
- The **<< Previous** button returns to the previous step in the tool.

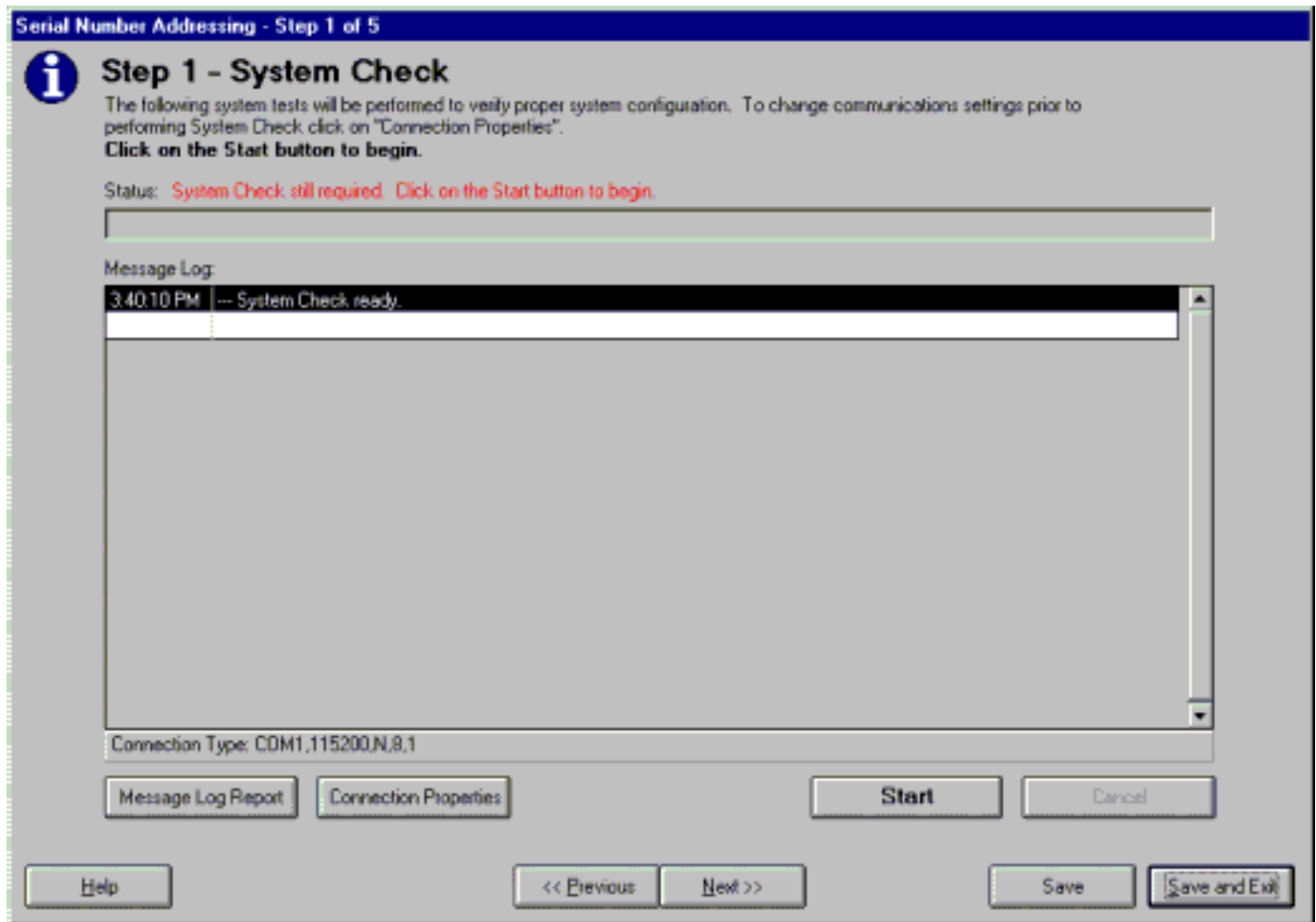
- The **Next >>** button goes to the next step in the tool.
If this button is disabled as shown above, something must be completed on the current step before continuing to the next step. For example, on the System Check step, the **Next >>** button will be disabled until a successful system check is done.
- The **Save** button saves the database without closing the tool.
- The **Save and Exit** button saves the database and closes the tool.



Some steps in the Serial Number Addressing tool provide instructions which list the basic procedure. The blue colored line in the procedure is active one, i.e. it needs to be done next. Clicking the **Hide Instructions** button removes the instructions, freeing up space from the screen. The addressing instructions can be displayed by clicking the **Show Instructions** button.

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3.2.2 System Check



System Check is the first actual step in Serial Number Addressing. Connect the computer to any of the HomeWorks processors in the system and click the **Start** button to begin the System Check portion of Serial Number Addressing.

Preparing the System

System Check will automatically do the following.

- Update the processor operating system (OS) if old revisions are present.
- Check for and allow the capture of any scene saver changes.
- Synchronize the frequency and subnet for all RF processors.
- Upload a specialized database for Serial Number Addressing.
- Ensure the routers are communicating (if H48s exist in the system).

Reporting the Results

If System Check encounters problems, the errors can be viewed by clicking the **Message Log Report** button.

Connection Properties

Comm port settings can be modified on the System Check step by clicking the **Connection Properties** button. Refer to [Connection Properties](#) for more information. Modem connections are currently not supported for Serial Number Addressing.

Completing this Step

Click the **Next >>** button to continue when System Check has successfully completed.



After a system check, the project must be uploaded to function properly. This can be done in the [final step of Serial Number Addressing](#) or by using the [Terminal](#) screen.

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3.2.3 Address Repeaters

Serial Number Addressing - Step 2 of 5

Step 2 - Address Repeaters Hide Instructions

Addressing Instructions:

- (1) Select the processor whose repeaters are to be addressed.
- (2) Activate the appropriate repeater in the space by pressing the activate button on the repeater. Repeaters must be activated starting with the repeater closest to the selected processor. The serial number for the activated repeater will appear as the Repeater Ready For Addressing.
- (3) Select the appropriate repeater in the unaddressed list which matches the serial number of the "Repeater Ready For Addressing".
- (4) Click on "Address >>" to complete the addressing.
- (5) Repeat (2) to (4) for all repeaters on the selected processor.
- (6) Repeat (1) to (5) for all processors in the system until Total Unaddressed Repeaters In System = 0.

Processor: No Processor Selected

Total Unaddressed Repeaters In System: **1**

Total Addressed Repeaters In System: **0**

Unaddressed Repeaters on Processor: **Processor 01: H-RFP-2P (1 Unaddressed)**

Addressed Repeaters on Processor: **0**

Repeater Ready for Addressing

Serial Number:

RF Location: [proc:link:RF link]

Device Type:

Clear

Address >>

<< Unaddress

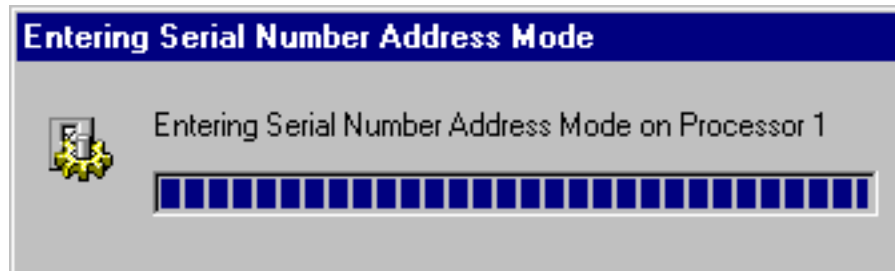
Help << Previous Next >> Save Save and Exit

NOTE: If the project has no RF repeaters, this step will not appear.

The Address Repeaters step sets the address of all RF repeaters by directly communicating with them.

Processor Selection

From the Processor dropdown list, select an RF processor that has repeaters. The selected RF processor will enter Serial Number Addressing mode.



After the RF processor has entered Serial Number Address mode, all unaddressed repeaters will be displayed in the Unaddressed Repeaters list.

Serial Number Addressing - Step 2 of 5

i Step 2 - Address Repeaters Hide Instructions

Addressing Instructions:

- (1) Select the processor whose repeaters are to be addressed.
- (2) Activate the appropriate repeater in the space by pressing the activate button on the repeater. Repeaters must be activated starting with the repeater closest to the selected processor. The serial number for the activated repeater will appear as the Repeater Ready For Addressing.
- (3) Select the appropriate repeater in the unaddressed list which matches the serial number of the "Repeater Ready for Addressing".
- (4) Click on "Address >>" to complete the addressing.
- (5) Repeat (2) to (4) for all repeaters on the selected processor.
- (6) Repeat (1) to (5) for all processors in the system until Total Unaddressed Repeaters In System = 0.

Processor: Processor 01: H-RFP-2P (1 Unaddressed)

Total Unaddressed Repeaters In System: 1
Total Addressed Repeaters In System: 0

Unaddressed Repeaters on Processor: 1

Unaddressed Repeaters

Location
Area 1\Room 1\RF Repeater 1

Repeater Ready for Addressing

Serial Number:

RF Location:
(proc:link;RF link)

Device Type:

Clear

Address >>

<< Unaddress

Addressed Repeaters on Processor: 0

Addressed Repeaters

Location

Help << Previous Next >> Save Save and Exit

Addressing Repeaters

The following actions associate an RF repeater with the corresponding entry in the HWI utility.

- Press the Activate button on the repeater that is located closest to the RF processor. This will transmit the device serial number to the processor.
- A valid serial number that is received will be displayed in the Repeater Ready For Addressing box and devices in the Unaddressed Repeaters list that are valid choices for addressing will become blue.
- Select the unaddressed device from the list that corresponds to the actual device that was just activated.
- Press the **Address>>** button to assign an address to the actual device and associate the serial number of the device with the address just assigned in the software.
- When the repeater is successfully addressed it will be moved from the Unaddressed Repeaters list to the Addressed Repeaters list.

Continue the above process for all other repeaters on the selected processor, always selecting the closest unaddressed repeater to the RF processor.

Clearing the Serial Number Display

The **Clear** button removes the Serial Number, RF Location, and Device Type information displayed in Repeater Ready for Addressing box. This information is displayed when a device is activated in the space. Since this button only clears the displayed information, it does not change the addressing for repeaters or any other devices.

Unaddressing Repeaters

This step can also be used to remove an RF repeater from the system. After selecting the proper RF processor, select the RF repeater from the Addressed Repeaters list and click the << **Unaddress** button.

Completing this Step

Addressing of all system repeaters is complete once all repeaters have been associated for every RF processor in the system. This is indicated by the following.

- Unaddressed Repeaters On Processor count is 0 for each processor in the system. This number indicates the number of unaddressed repeaters on the currently selected processor.
- Total Unaddressed Repeaters In System count is 0. This number indicates the total number of unaddressed repeaters on every RF processor in the system.

Click the **Next >>** button to advance to the addressing dimmers, switches, and keypads.

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3.2.4 Auto Address Devices

Serial Number Addressing - Step 3 of 5

Step 3 (Optional) - Auto Address Dimmers, Switches, and Keypads
 Select the processors whose devices are to be Auto-Addressed (for serial #'s entered in the project) and click on the Start button.

Processor	# of Devices Left to Auto Address	# of Devices Left to Manually Address
☒ Processor 01: (Area 1\Room 1\RF Processor 1 H-RFP-2P)	1	4

Status: Auto-Addressing Ready. Click on the Start button to begin.

Message Log:

3:55:23 PM	... Auto-Addressing ready

This Auto Address Dimmers, Switches, and Keypads step is an optional one. It eliminates the need to walk out to each dimmer, switch, or keypad in the space and activate them. To utilize this step, serial numbers must already be entered for devices.

This can be done by clicking the **Save and Exit** button and navigating to the [Address Assignment](#) screen. If no devices have had serial numbers entered, it is safe to skip this step.

Auto Addressing Devices

This screen will list every processor in the system. Each processor that has auto addressable devices will be selected. Click the **Start** button to run auto addressing. It will attempt to assign the devices with user-entered serial numbers to the corresponding device in the space. It will report all assignments, highlighting the failed attempts in red.

Auto addressing will do the automatically do the following.

- Enter the system into serial addressing mode.
- Attempt to assign each device with an user-entered (black) serial number to its device in the space.
- Attempt to revalidate devices with invalid (red) serial numbers.
- Report to the Message Log the result of every assignment attempt.
- Exit the system out of serial addressing mode.

Reporting the Results

The Message Log will display which processor is in address mode and all the devices that are being addressing on that processor. Any devices that show up in red in the Message Log have failed to auto address; click the **Error Report** button to view them in a report. Click the **Message Log Report** button to display Message Log text in a printable format.

Completing this Step

Click the **Next >>** button to advance to manual addressing of dimmers, switches, and keypads in the system.

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3.2.5 Manually Address Devices

Serial Number Addressing - Step 4 of 5

Step 4 - Manually Address Dimmers, Switches, and Keypads Hide Instructions

Addressing Instructions:

- (1) Select the processor whose devices (dimmers/switches/keypads) are to be addressed.
- (2) Activate the appropriate dimmer, switch, or keypad in the space by triple-tapping the device. The serial number for the activated device will appear as the "Device Ready for Addressing".
- (3) Select the appropriate device in the unaddressed list which matches the serial number of the "Device Ready for Addressing".
- (4) Click on "Address >>" to complete the addressing.
- (5) Repeat (2) to (4) for all devices on the selected processor.
- (6) Repeat (1) to (5) for all processors in the system until Total Unaddressed Devices In System = 0.

Processor: No Processor Selected

Unaddressed Dimmers: Processor 01: H-RFP-2P (5 Unaddressed)

Device Ready for Addressing

Serial Number:

Wired Location: [proc:link:H48:bus]

Device Type:

Clear

Address >>

<< Unaddress

Addressed Dimmers:

Total Unaddressed Devices In System: **5**

Total Addressed Devices In System: **0**

Addressed Devices on Processor: **0**

Help << Previous Next >> Save Save and Exit

Manually Address Devices is the last step in this process that does actual addressing. This step applies for all devices (dimmers, switches, and keypads) that either have not had serial numbers previously entered or have possibly failed to address on the auto addressing step.

Processor Selection

From the Processor dropdown list, select a processor whose dimmers, switches, and keypads are to be addressed. The selected processor will enter Serial Number Addressing mode.

Entering Serial Number Address Mode

 Entering Serial Number Address Mode on Processor 1

[Progress Bar]

After the processor has entered Serial Number Address mode, all dimmers and switches that need to be addressed will be displayed in the Unaddressed Dimmers list. For the purposes of addressing, switches are considered the same as dimmers. All keypads that need to be addressed to an RF processor will be displayed in the Unaddressed Keypads list. Wired processors will not have this second tab because there are no wired keypads that use Serial Number Addressing.

Serial Number Addressing - Step 4 of 5

Step 4 - Manually Address Dimmers, Switches, and Keypads Hide Instructions

Addressing Instructions:

- (1) Select the processor whose devices (dimmers/switches/keypads) are to be addressed.
- (2) Activate the appropriate dimmer, switch, or keypad in the space by triple-tapping the device. The serial number for the activated device will appear as the Device Ready for Addressing.
- (3) Select the appropriate device in the unaddressed list which matches the serial number of the "Device Ready for Addressing".
- (4) Click on "Address >>" to complete the addressing.
- (5) Repeat (2) to (4) for all devices on the selected processor.
- (6) Repeat (1) to (5) for all processors in the system until Total Unaddressed Devices In System = 0.

Processor: Processor 01: H-RFP-2P (5 Unaddressed)

Total Unaddressed Devices In System: **5**
Total Addressed Devices In System: **0**

Unaddressed Devices on Processor: **5**

Unaddressed Dimmers Unaddressed Keypads

Location
Area 1\Room 1\Other 1
Area 1\Room 1\Pendant 1

Device Ready for Addressing

Serial Number:

RF Location:
(proc:link:RF link)

Device Type:

Clear

Address >>

<< Unaddress

Addressed Devices on Processor: **0**

Addressed Dimmers Addressed Keypads

Location

Help << Previous Next >> Save Save and Exit

Addressing Devices

The following actions associate an actual device with the corresponding entry in the HWI utility.

- Activate the device to transmit its serial number to the processor. Dimmers and switches are activated by triple-tapping the tap switch; keypads by triple-tapping any button; devices with recessed buttons (e.g. HR-CCI-6) by single-tapping any recessed button.
- A valid serial number that is received will be displayed in the Device Ready For Addressing box. Depending upon the type of device activated, devices in the Unaddressed Dimmers or Unaddressed Keypads list that are valid choices for addressing will become blue.

- Select the unaddressed device from the list that corresponds to the actual device that was just activated.
- Press the **Address>>** button to assign an address to the actual device and associate the serial number of the device with the address just assigned in the software.
- When the device is successfully addressed it will be moved to the Addressed Dimmers or Addressed Keypads list.

Continue the above process for all other devices on the selected processor.

Devices vs. Repeaters

The process to manually address dimmers, switches, and keypads is very similar to the process to address repeaters. There are a few notable differences.

- Repeaters need to be addressed in a specific order; other devices do not.
- Repeaters activate by pressing the Activate button; other devices by triple-tapping.
- Devices have an optional auto addressing method; repeaters do not.

Clearing the Serial Number Display

The **Clear** button removes the Serial Number, Location, and Device Type information displayed in the Device Ready for Addressing box. This information is displayed when a device is activated in the space. Since this button only clears the displayed information, it does not change the addressing for any devices.

Unaddressing Devices

This step can also be used to remove a device (dimmer, switch, or keypad) from the system. After selecting the proper processor, select the device from the Addressed Dimmers or Addressed Keypads list and click the **<< Unaddress** button.

Completing this Step

Addressing of all system devices is complete once all devices have been associated for every processor in the system. This is indicated by the following.

- Unaddressed Devices On Processor count is 0 for each processor in the system. This number indicates the number of unaddressed devices on the currently selected processor.
- Total Unaddressed Devices In System count is 0. This number indicates the total number of unaddressed devices on every processor in the system.

Click the **Next >>** button to advance to resuming normal system functionality and launching diagnostics.

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3.2.6 Upload Project and Launch Diagnostics

Serial Number Addressing - Step 5 of 5

i Step 5 - Upload Project and Launch Diagnostics
To have your system resume normal programming and functionality, select "Upload Project."
To ensure your system has been properly serial addressed, select "Launch Diagnostics."

☒ Upload Project
☒ Synchronized

☒ Launch Diagnostics

Help << Previous Next >> Save Save and Finish

This optional step can restore the normal operation and functionality of the system and can verify proper Serial Number Addressing.

Upload Project

Since System Check wipes out all system programming, check the Upload Project checkbox to restore all programming by uploading a full, synchronized project.

Launch Diagnostics

Check the Launch Diagnostics checkbox to run the  [Diagnostics](#) tool after the upload has completed. This will allow verification of proper addressing within the system.

Completing this Step

Click the **Save and Finish** button to exit the tool and start any checked operations.

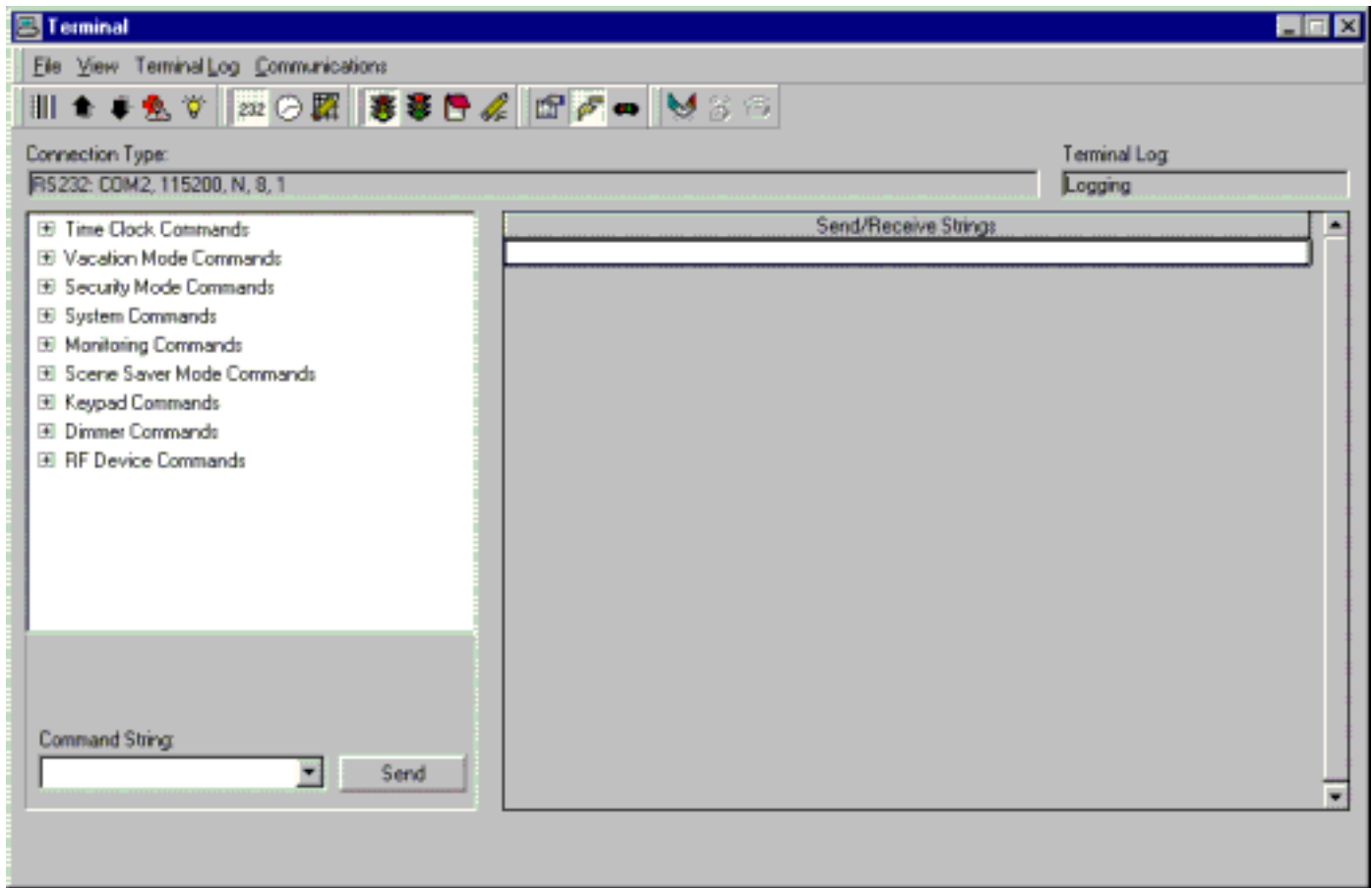
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3.1 Terminal Overview

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[3.1.1 Terminal Toolbar](#)

[3.1.2 Connection Properties](#)



The communications program, or Terminal, included with the HomeWorks Interactive system provides two-way RS232 communication between the computer and an HWI processor panel. The Terminal screen is accessed by clicking the  button on the toolbar or by selecting Terminal in the View menu. In order for the Terminal screen to function properly, your computer must be connected to an HWI processor. This can be done with a modem or via a communications port on the PC. For multi-processor systems, any processor in the system can be connected to the PC running the communications program. Once the Terminal screen has been opened, it can be minimized to allow other operations in the HomeWorks Interactive software.

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3.1.1 Terminal Toolbar

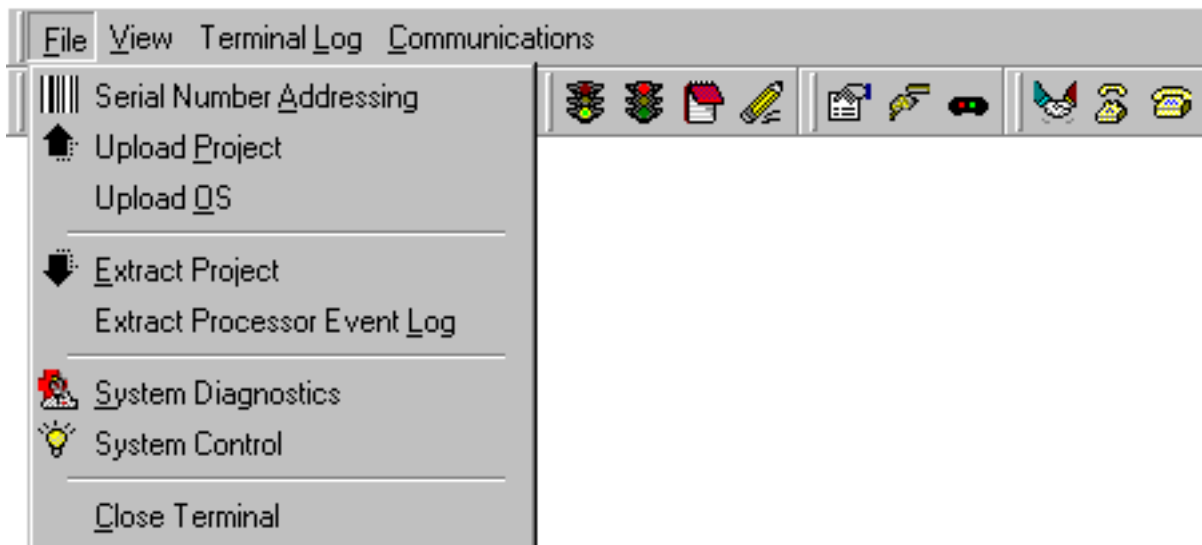


The Terminal screen has a unique toolbar and associated menus. The buttons on the toolbar are divided into five groups.

File Group

The first group is the File group, which contains five buttons.

-  **Serial Number Addressing** - Opens the [Serial Number Addressing](#) tool, which is used to address devices from the software utility (see [Serial Number Addressing](#) for more information).
-  **Upload Project** - Opens the Upload Project screen, which can be used to compile the current project, upload it to the processor, synchronize databases, and set the password and other options (e.g. Cycle-dim\Raise-Lower). Clicking this button also automatically checks that all processors have the latest version of the operating system (OS).
-  **Extract Project** - Retrieves the database that is currently loaded in the processor and prompts the user to save it for future use.
-  **Diagnostics** - Opens the [Diagnostics](#) screen that allows the user to run diagnostics on a specific processor (see [Diagnostics](#) for more information).
-  **System Control** - Opens the System Control screen, which functions like [Real-Time Edit](#) for the whole system. The System Control screen allows adjustment of all of the lights in the project. This feature can also be used to quickly locate and troubleshoot lighting loads.



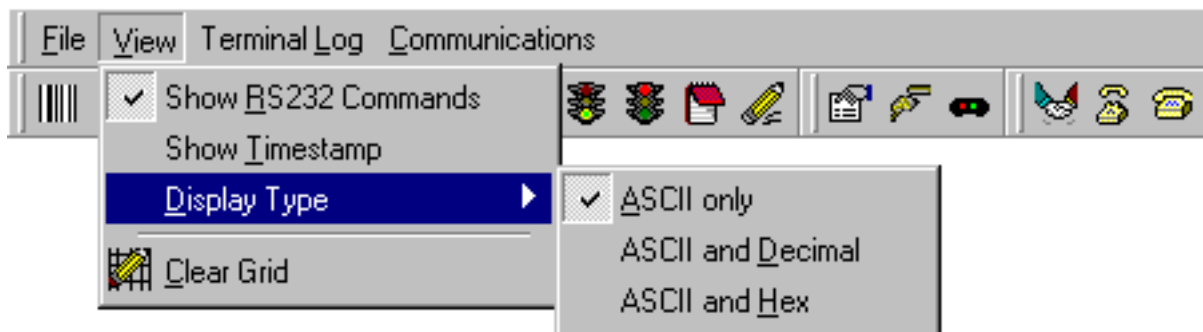
The File menu contains all the options on the toolbar listed above as well as the following choices.

- **Upload OS** - Updates all the processors in the project with the latest version of the operating system (OS). The operating system is stored in the processor separate from the project information. The utility automatically checks that all processors have the latest OS when the  **Upload Project** button is clicked.
- **Extract Processor Event Log** - Retrieves the event log stored in the specified processor. The event log is used for troubleshooting purposes and keeps track of the last 3,000 events which have occurred in the system (e.g. keypad button press, release, double-tap, etc.).
- **Close Terminal** - Closes the Terminal screen.

View Group

The View group allows the user to change how the Terminal screen is displayed.

-  **RS232 Commands** - Shows/Hides the display of selected RS232 command functions, located on the left side of the Terminal. When a command function is selected in the tree, the actual RS232 command string is displayed in the Command String box to the left of the **Send** button. If a command has a configurable settings, they will be displayed above the Command String box. To send the command, press the **Send** button.
-  **Show Timestamp** - Shows/Hides the display of the Time column to the left of the Send/Receive Strings column in the grid. This will provide the computer's time when each string was sent or received.
-  **Clear Grid** - Deletes all the displayed Send/Receive strings.



The View menu has all the features listed above in addition to one other display choice.

- **Display Type** - Determines how the Send/Receive Strings are displayed: ASCII only (default), ASCII and Decimal, or ASCII and Hex. Both the ASCII and Decimal and the ASCII and Hex options display an additional column showing the Send/Receive Strings in the associated format. Displaying the Decimal or Hex equivalent values is useful when troubleshooting RS232 drivers when the data is easier to interpret in Decimal or Hex format.

Terminal Log Group

The Terminal Log group allows the user to capture and view RS232 messages using the following buttons. The log file is stored in the Log folder with the name "Terminal".

-  **Start Logging** - Begins recording the communication between the processor and the Terminal screen. Events such as changes in Dimmer Levels, Keypad Buttons, Keypad LEDs or GRAFIK Eye Scenes will be recorded in the Terminal log, if the monitoring of each has been enabled.
-  **Stop Logging** - Ends recording the communication between the processor panel and the Terminal screen.
-  **View Log File** - Displays the Terminal log. The log file will contain all the events from opening of Terminal mode to present, unless the Stop Log button was pressed.
-  **Clear Log File** - Deletes all the information contained in the Terminal log and enters a new header in the file to start recording.

Connection Group

The forth and fifth toolbar groups deal with aspects of communication. The Connections toolbar features the following buttons.

-  **Connection Properties** - Displays the Connection Properties screen for the current connection. For RS232 Direct connections, the port settings and type of handshaking are displayed. Modem connections display the type of modem, the phone numbers and the dial properties.
-  **Use Direct Connect** - Sets the communication type for the Terminal screen to an RS232 communications port using the properties that were last set. The default settings are COM1, 8 data bits, 1 stop bit, no parity and 115200 baud rate. To change these settings, press the  button.
-  **Use Modem** - Sets the communication type for the Terminal screen to use a modem. For more information, see [Using a Modem to Upload](#).

Dial Group

The fifth group is the Dial group which has three buttons.

-  **Re-establish Communications** - Makes a new connection to the processor (i.e. modem or direct connect). Press this button to auto detect the current baud rate settings of the processor.
-  **Dial** - Dials the last phone number selected. If no number is selected, pressing this button opens the connection screen and allows the user to choose a phone number to dial out via the modem.

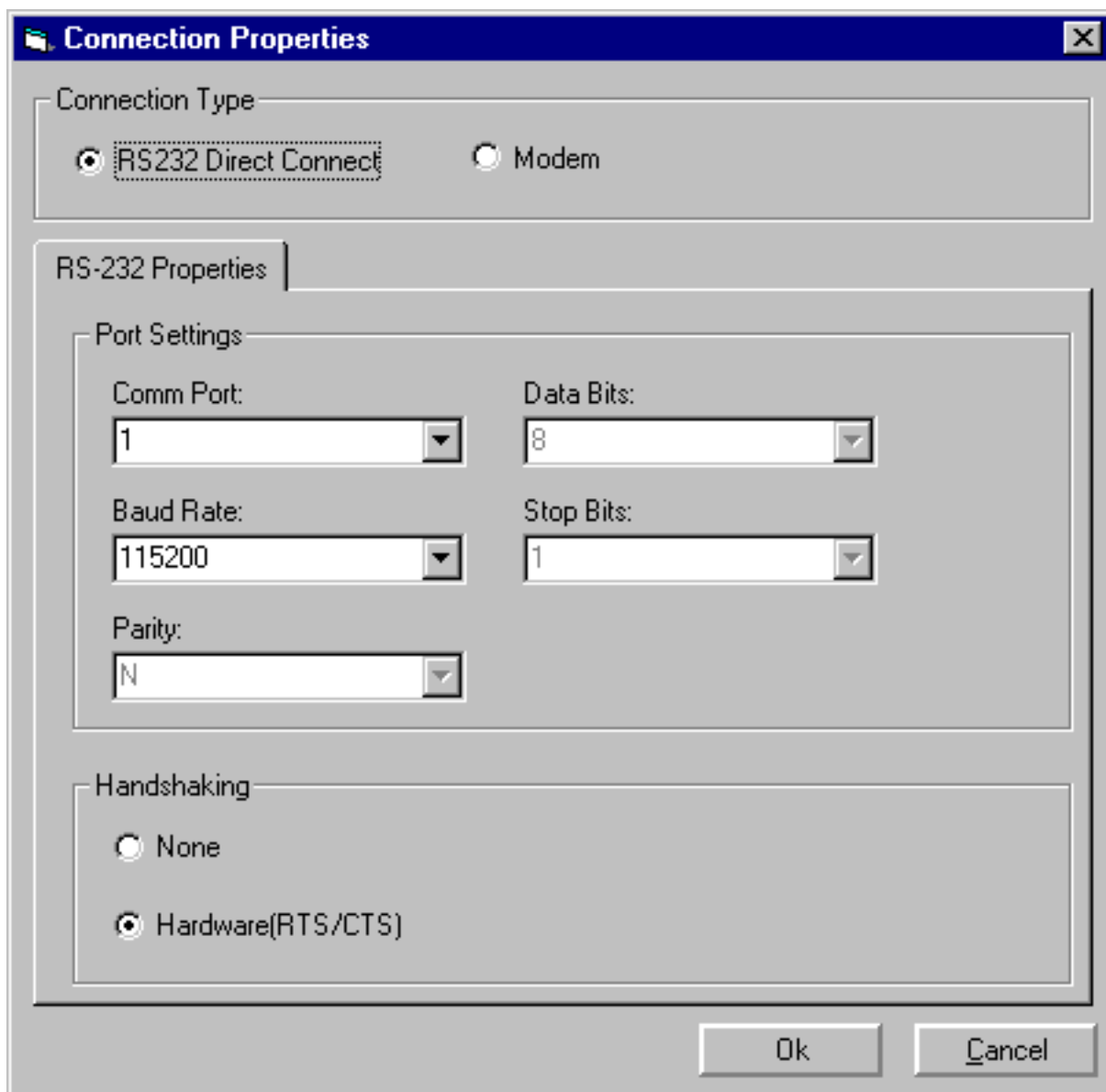
-  **Hang-up** - Hangs up the modem and closes communication between the processor panel and the Terminal screen.

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3.1.2 Connection Properties

The Communication Properties settings are used to determine how the Terminal will connect to the processor. The Connection Type has two options, RS-232 Direct Connect and Modem.

RS232 Direct Connection



The image shows a Windows-style dialog box titled "Connection Properties". It has a close button (X) in the top right corner. The dialog is divided into three main sections. The first section, "Connection Type", contains two radio buttons: "RS232 Direct Connect" (which is selected) and "Modem". The second section, "RS-232 Properties", is highlighted with a tab and contains a "Port Settings" group box. Inside this group box, there are five dropdown menus: "Comm Port:" (set to 1), "Data Bits:" (set to 8), "Baud Rate:" (set to 115200), "Stop Bits:" (set to 1), and "Parity:" (set to N). The third section, "Handshaking", contains two radio buttons: "None" and "Hardware(RTS/CTS)" (which is selected). At the bottom right of the dialog are "Ok" and "Cancel" buttons.

Connection Properties

Connection Type

☒ RS232 Direct Connect ☐ Modem

RS-232 Properties

Port Settings

Comm Port: 1 Data Bits: 8

Baud Rate: 115200 Stop Bits: 1

Parity: N

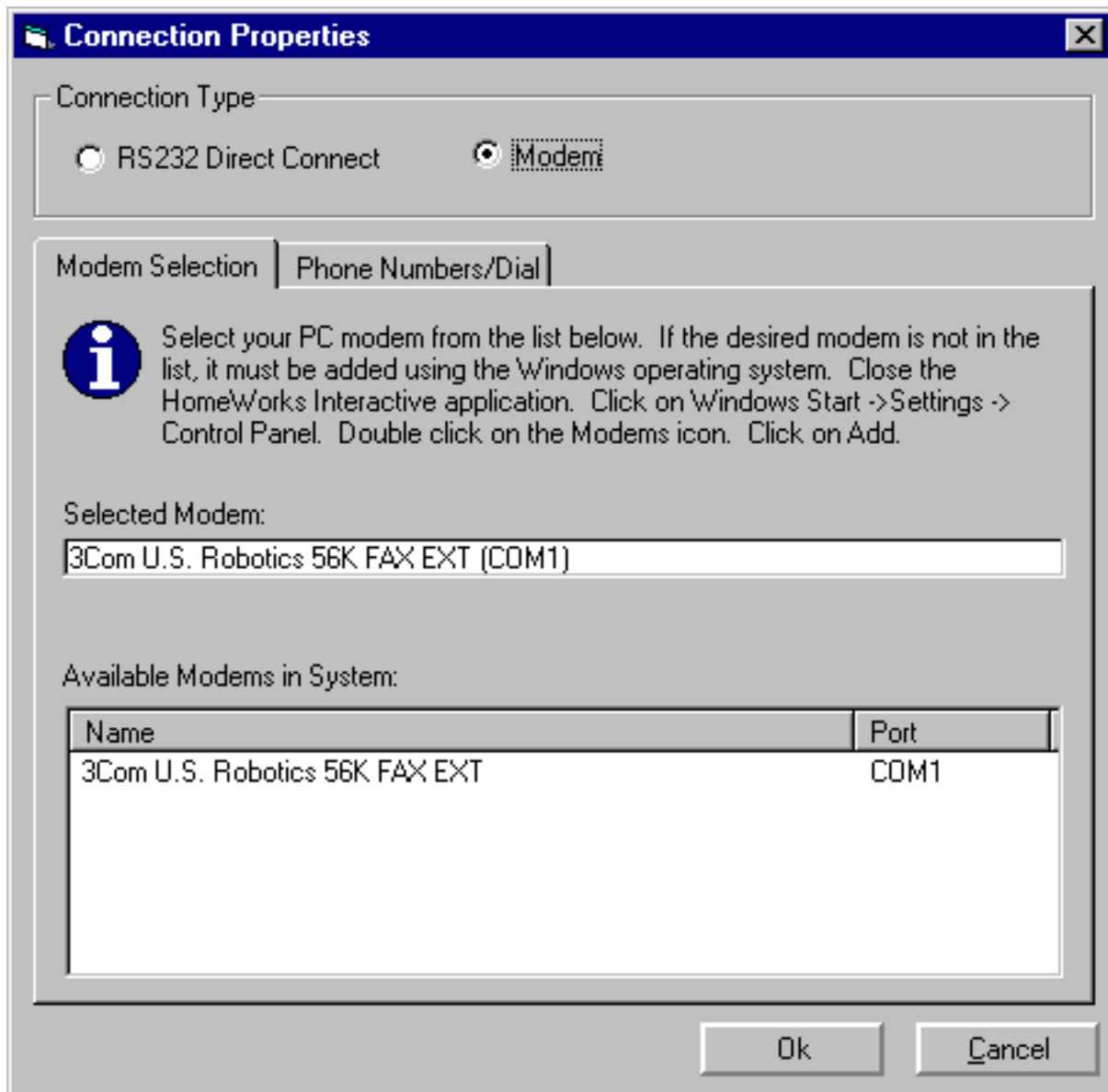
Handshaking

☐ None ☒ Hardware(RTS/CTS)

Ok Cancel

The RS-232 Direct Connect option allows the Comm Port to be selected, ranging from 1 to 16. The baud rate can also be set for the chosen Comm Port for values of 300 to 115200. The Parity, Data Bits and Stop Bits cannot be set. Lastly, the Handshaking can be set to Hardware (RTS/CTS) or None. These settings must match the port settings in the processor. If the Connection Type is set to Modem, the PC's modem is selected.

Modem Connection



The Modem Connection Type also allows the setup of the phone number to dial on the modem.

The screenshot shows the 'Connection Properties' dialog box with the 'Phone Numbers/Dial' tab selected. The 'Connection Type' section has 'Modem' selected. The 'Phone Numbers' section contains five rows, each with a radio button, a text field for the phone number, and a text field for notes. The first row is selected, showing '1-800-867-5309' and 'Jennie's HomeWorks Interactive System'. The 'Baud' section has 'Automatic' selected. The 'Dial Properties' section has 'Number of Attempts' set to 3 and 'Timeout' set to 45 seconds. A red 'Dial' button is visible. At the bottom are 'Ok' and 'Cancel' buttons.

Connection Type	
☐ RS232 Direct Connect	☒ Modem

Phone Numbers	
☒ 1-800-867-5309	Jennie's HomeWorks Interactive System
☐	
☐	
☐	
☐	

Baud	
☒ Automatic	
☐ Custom	

Dial Properties	
Number of Attempts:	3
Timeout:	45 seconds

[Dial](#)

Ok Cancel

Up to five numbers can be stored in the modem dialing tab. The modem baud rate can be set to automatic (preferred) or can be set to a custom baud rate. This baud rate is used between the modem on the PC you are calling from and the modem that is connected to the processor. The number of attempts (i.e. how many times to try connecting to the modem before the Terminal gives up) and timeout (i.e. how long the Terminal will wait before retrying) can also be set.

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3.5 Diagnostics

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[3.5.1 Startup Screen](#)

[3.5.2 Diagnostics Results Screen](#)

[3.5.3 Test Dialogs](#)

[3.5.4 Battery Powered Device Diagnostics Screen](#)

Navigate to the [Terminal](#) screen and click the  button in the toolbar to start the Diagnostics tool. Diagnostics may also be started from the last step of the [Serial Number Addressing](#) tool.

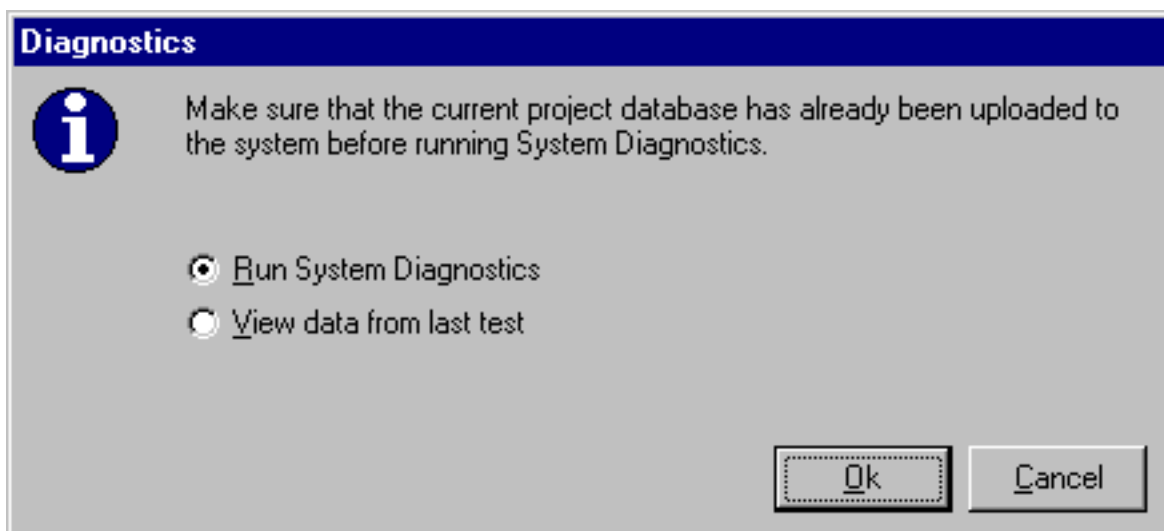
Diagnostics is a tool that determines the status of devices in the system. When running a diagnostics test, the Diagnostics tool asks the connected processor for the status of devices on a specific link for a specific processor. The processor checks the status of all devices on the requested links, returning the data back to the Diagnostics tool. The Diagnostics tool then compares this data with the data in the project database and displays the results.



The current project must be uploaded to the system prior to running diagnostics. Diagnostics will be unpredictable and inaccurate if the project database is not uploaded first.

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3.5.1 Startup Screen



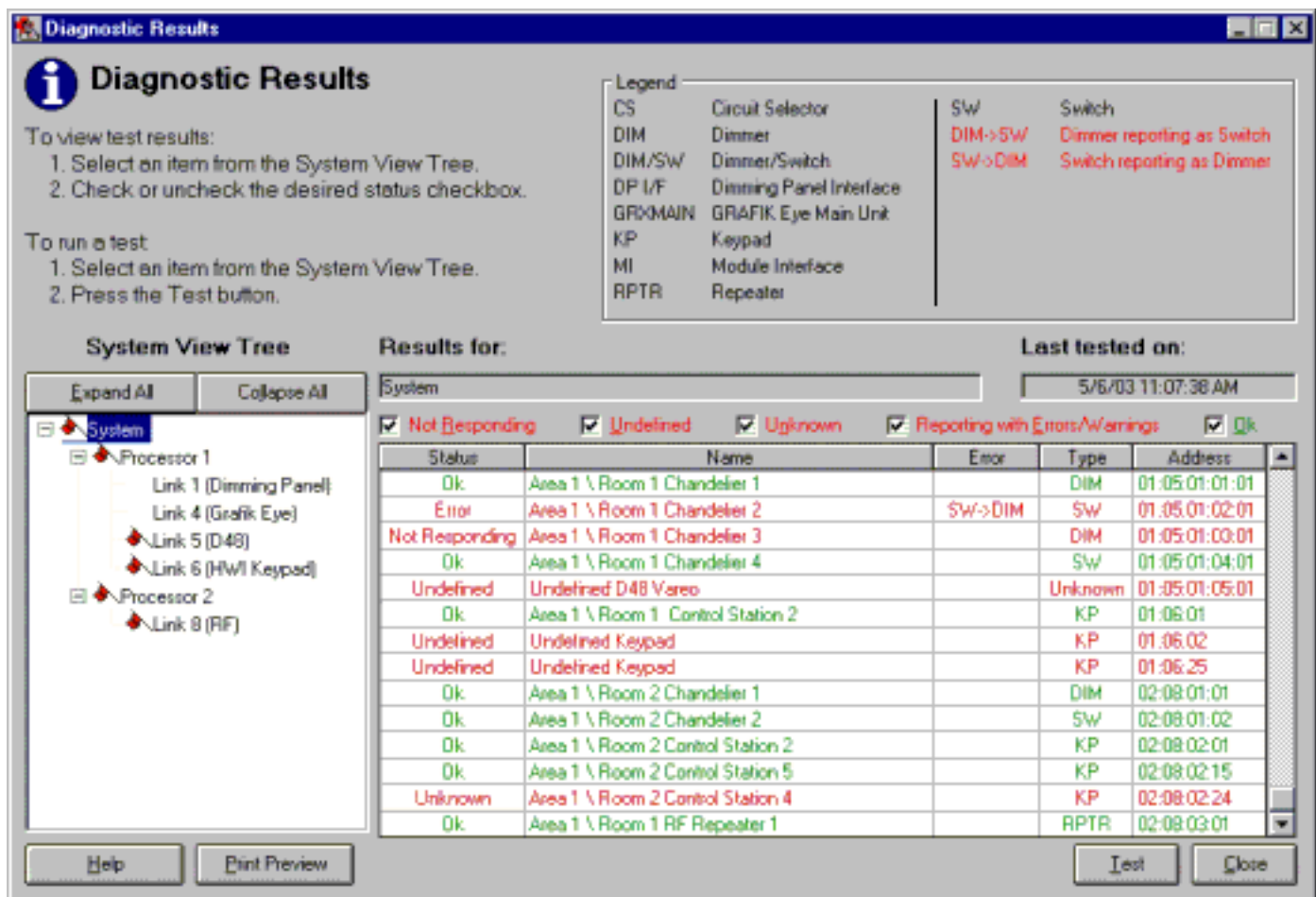
The Startup screen, i.e. first screen displayed when clicking the  button, gives the option to either start a system level diagnostics test or to view data from the last test run.

Selecting the option to run system diagnostics and clicking the **Ok** button opens a [Test dialog](#) which asks for confirmation before running the system test. If the project contains any [battery powered devices](#) (e.g. RF tabletop cordless keypads), a checkbox will be displayed which is used to determine if those devices should be tested. Clicking the **Ok** button in the Test dialog starts the diagnostics test. A progress box shows the progress of the diagnostics. When complete, the [Diagnostics Results](#) screen shows the test results.

Selecting the option to view data from last test and clicking the **Ok** button retrieves the stored diagnostic results from the database and displays it in the [Diagnostics Results](#) screen. The option to view data from last test is unavailable whenever there is no diagnostics data in the database, i.e. a diagnostics test has never been run with this project.

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3.5.2 Diagnostics Results Screen



The Diagnostic Results screen displays the status data for each device in the project. The screen is organized with four interactive sections: System View tree (on the left), Results grid (on the right), Status filter (above the grid), and Button area (across the bottom).

System View Tree

The System View tree displays the whole system in a tree format. The top item named "System" represents the whole system and contained under it are items representing each processor and the links on the processors. The processor items are named based on their address, e.g. "Processor 2" is a processor with a unit address of 2. Hovering the mouse cursor over the processor item displays a box with the processor's location (area/room/panel). Under each processor item are items representing each link that can have diagnostic results. The link item names are based on their number and type.

Displaying Results

Selecting an item in the tree displays the results in the Results grid for that item. For example, clicking a processor or link item displays only the results for that processor or link respectively. To display the diagnostic results for all processors, click the system item.

Running a Diagnostic Test

A diagnostic test can be started in two ways.

- Double-click an item in the System View tree.
- Select an item in the System View tree and click the **Test** button in the Button area.

Either method opens one of the [Test dialogs](#). When the test is completed, the Results grid is updated with the new device information.

Expand All / Collapse All Buttons

The Expand button will expand the tree, making all links in every processor visible. The Collapse All button will collapse the tree, showing only the top system item.

Red Flag

When at least one device on a link has a status besides Ok, a red flag is displayed for that link item. A processor item has a red flag when at least one of its link items has a red flag. If the system item has no red flag, all devices have an Ok status.

Results Grid

The Results grid displays the test results for devices based on the selected item in the System View tree. Each row contains information for a single device.

Information about each device is separated into the following columns.

- **Status** - the status of the device when the test was run.
- **Name** - the device location and name.
- **Error** - a short message if the device was found with an error or warning.
- **Type** - an abbreviation of the device's type.
- **Address** - the RS-232 address of the device.

A device status can be one of the following.

- **Ok** (green) - The device in the database was found in the system.
- **Not Responding** (red) - The device in the database was not found in the system.
- **Undefined** (red) - A device found in the system was not in the database.
- **Unknown** (red) - The status of a device in the database could not be determined (e.g. battery powered device that did not respond).
- **Error** (red) - The device in the database was found in the system with an error or warning (e.g. dimmer in database reports as a switch).

Status Filter

The Status filter contains five checkboxes, each one representing a device status. When unchecked, devices with that status will not be displayed in the results grid, i.e. filtered out. When the Diagnostics Results screen is first opened, only the Ok checkbox is unchecked, i.e. Ok (green) devices are filtered out leaving only problem (red) devices.

Button Area

The Button area contains the following four buttons.

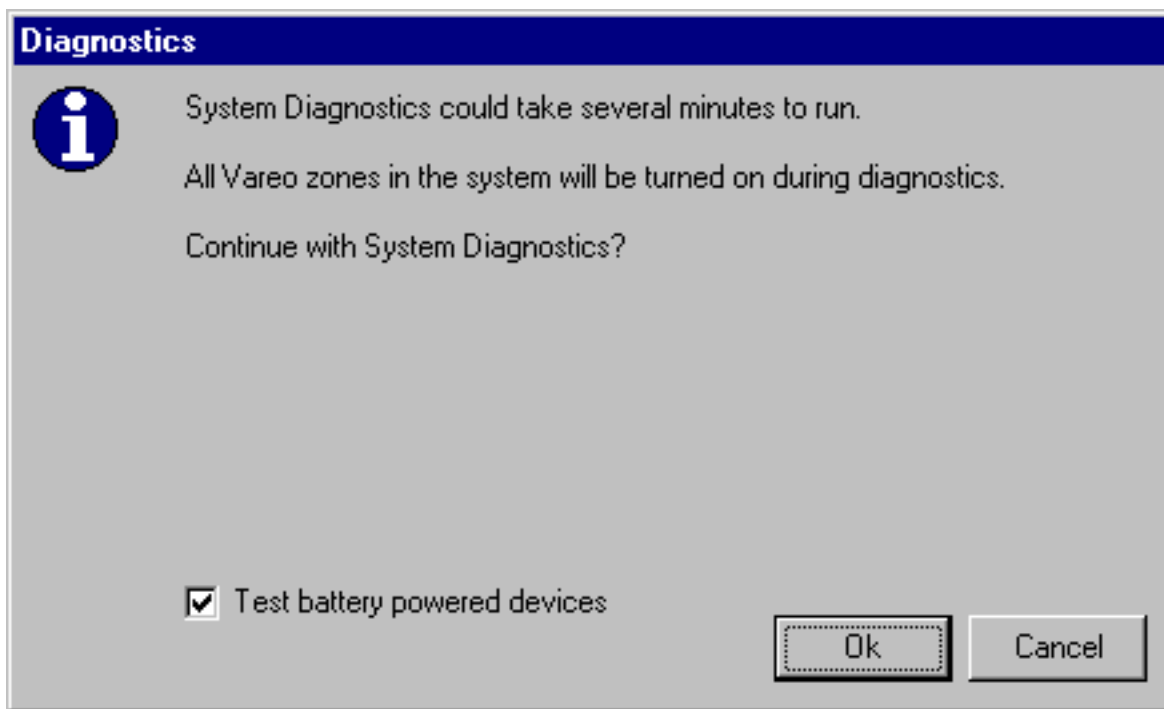
- The **Help** button displays this help page.
- The **Print Preview** button displays a preview of the Diagnostics Results report which contains the results for all of the devices in the system.
- The **Test** button starts the diagnostic test for the selected item in the System View tree.
- The **Close** button closes the Diagnostics Results tool.

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3.5.3 Test Dialogs

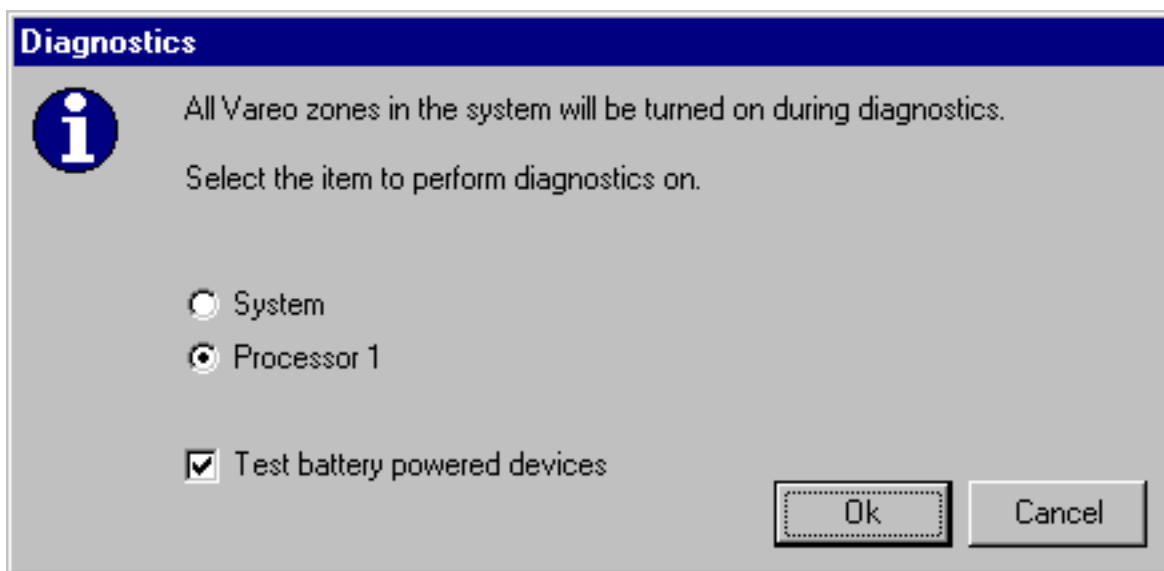
A Test dialog is displayed when clicking the **Ok** button from the Startup screen or running a test from the Diagnostics Results screen. The Test dialog that is displayed depends on the test type, which is determined by which item was selected in the System View tree. Clicking the **Ok** button from the Startup screen will always start the System test. See the [Battery Powered Devices Diagnostics screen](#) for information about the purpose of the Test battery powered devices checkbox.

System Test



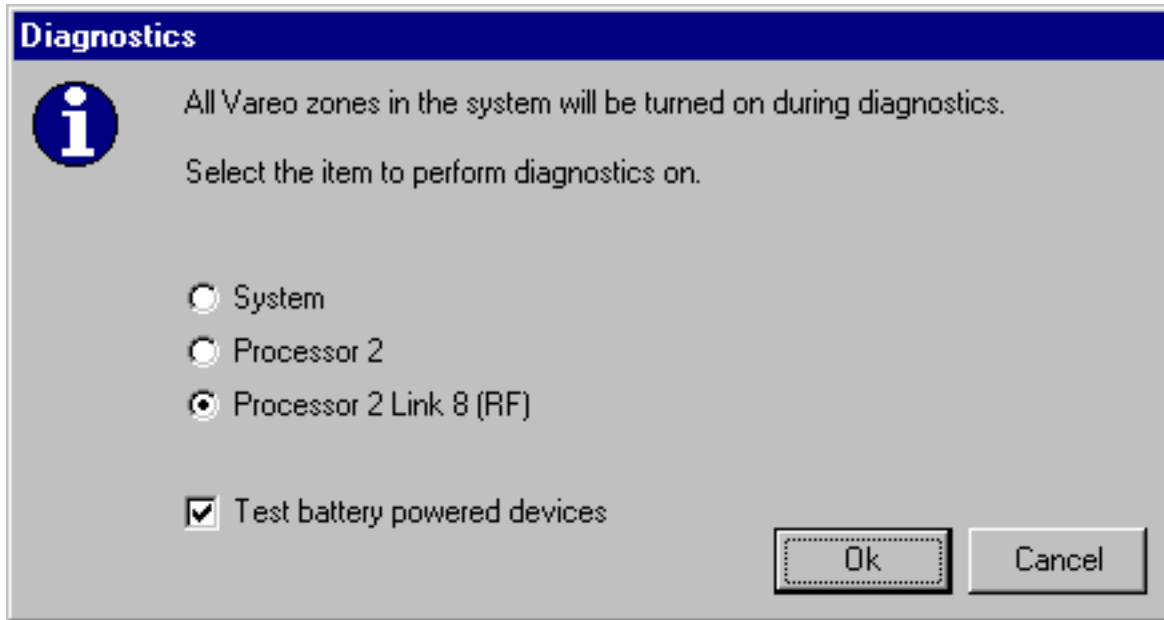
This comprehensive test checks the status for all devices on all links on all processors. As a result, projects with multiple databases could require several minutes to complete. Clicking the **Ok** button starts the test and clicking the **Cancel** button aborts it.

Processor Test



This test checks the status for all devices on all links of a specific processor. An option is provided to test the whole system, instead of just the specified processor. Clicking the **Ok** button starts the selected test and clicking the **Cancel** button aborts it.

Link Test



This test checks the status for all devices on a specific processor's link. An option is provided to test the whole system or all links on the specified processor, instead of just the specified link. Clicking the **Ok** button starts the selected test and clicking the **Cancel** button aborts it.

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3.5.4 Battery Powered Device Diagnostics Screen

When a battery powered device (e.g. RF cordless tabletop keypad) does not respond to a diagnostics test, the cause could be that it was sleeping, out of range, or not configured properly. The Battery Powered Devices Diagnostics screen is used to assist testing these possibilities.

Battery Powered Device Diagnostics

i Battery Powered Device Diagnostics

System Diagnostics did not detect some battery powered devices. These devices are listed below in red in the 'not detected' grid. These devices may have been asleep, out of range or not configured properly.

To verify communications with these devices:

1. Press any button on a 'not detected' device.
2. Verify that the software has detected the device button press and has removed the device from the 'not detected' grid and added it to the 'detected' grid.
3. Repeat steps 1 and 2 for all 'not detected' devices.

To not verify communications for the 'not detected' devices:

1. Select the Ok button.
2. Devices not detected will have an Unknown status in the results grid.

Battery powered devices not detected

Name	Address
Area 1 \ Room 2 Control Station 4	02-08:02:24

Battery powered devices detected

Name	Address

Ok

This screen shows two groups of battery powered devices, those detected by the system (green) and those not detected (red). All devices in the detected group have a status of Ok and those in the not detected group have a status of Unknown.

For each device that is not detected, verify that it is awake by pressing any button on the device. If the device is asleep, pressing a button causes the system to detect the awakened device. If not, its batteries could be dead or the device could be out of range or configured improperly. (See [RF Keypad Troubleshooting](#) for more information.) When the problem is corrected, the device is moved from the not detected group to the detected group. Clicking the **Ok** button exits the screen and completes the diagnostic test.

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7.4.2 RF Keypad Troubleshooting

RF Wall Mounted Keypad

Problem	Cause	Remedy
LEDs don't light up when buttons are pressed.	Power is not present at keypad. Circuit breaker OFF.	Turn ON breaker.
	Power is not present at keypad. Wiring error.	Check wiring to be sure it agrees with installation.
Button presses on keypad cause the keypad to quickly flash all of its LEDs simultaneously.	Keypad has not been addressed.	Check keypad address .
Button presses on keypad cause the keypad to slowly flash all of its LEDs simultaneously.	Keypad has an address, but does not have valid programming.	Upload database to keypad (upload project).
Keypad cannot be addressed.	Keypad is out of RF communications range.	Reposition RF Signal Repeater or RF Processor to within 30 feet of keypad.
LEDs light when pressed, but the system response isn't correct.	Improper programming.	Check system programming.

RF Tabletop Keypad

LEDs on an adapter-powered keypad do not light.	No power available to keypad.	Verify adapter is plugged in.
	Faulty adapter.	Replace adapter.
A battery-powered keypad will not "wake up" when a button is pressed.	Dead, low, or no batteries in keypad.	Replace the batteries.
	Batteries are incorrectly installed.	Install batteries as indicated inside the keypad.
	Batteries are not making contact with the battery terminals.	Adjust the batteries so they make contact with the terminals.
A battery-powered keypad "wakes up" but goes to "sleep" quickly after a button press.	Batteries are low.	Replace the batteries.
A battery-powered keypad's LEDs cycle up and down during "wake up", but the system lights do not respond to button presses.	Keypad is out of system communications range.	Move the keypad to within 30 ft. (10m) of an RF Signal Repeater or RF Processor.
	Button being pressed has not been programmed.	Check system programming.
Button presses on keypad cause the keypad to quickly flash all of its LEDs simultaneously.	Keypad has not been addressed.	Check keypad address .
Button presses on keypad cause the keypad to slowly flash all of its LEDs simultaneously.	Keypad has an address, but does not have valid programming.	Upload database to keypad (upload project).

See also:

[Keypad Monitoring](#)

[Processor Troubleshooting](#)

KBMON

Keypad/Dimmer/Sivoia Control Button Monitoring On

Syntax

KBMON

Processor Responds

Keypad button monitoring enabled

Description

Enables keypad button monitoring on this processor. When any keypad button in the system is pressed, a monitoring message will be output from this processor indicating which processor, link, keypad address and button was activated.

Also enables dimmer button monitoring on this processor. When an H48 or RF dimmer/switch in the system is pressed, a monitoring message will be output from this processor indicating which processor, link, and dimmer was activated.

Also enables Sivoia control button monitoring on this processor. When any keypad button in the system is pressed, a monitoring message will be output from this processor indicating which processor, link, Sivoia control address and button was activated.

Example

Enable keypad/dimmer/Sivoia control button monitoring

```
L232> KBMON
```

```
Keypad button monitoring enabled
```

See Also

[KBMOFF - Keypad/Sivoia Control Button Monitoring Off](#)

[Keypad Button Press Monitoring Output Format](#)

[Keypad Button Release Monitoring Output Format](#)

[Keypad Button Hold Monitoring Output Format](#)

[Keypad Button Double Tap Monitoring Output Format](#)

[Dimmer Button Press Monitoring Output Format](#)

[Dimmer Button Release Monitoring Output Format](#)

[Dimmer Button Hold Monitoring Output Format](#)

[Dimmer Button Double Tap Monitoring Output Format](#)

[Sivoia Control Button Press Monitoring Output Format](#)

[Sivoia Control Button Release Monitoring Output Format](#)

[Sivoia Control Button Hold Monitoring Output Format](#)

[Sivoia Control Button Double Tap Monitoring Output Format](#)

KBMOFF

Keypad/Dimmer/Sivoia Control Button Monitoring Off

Syntax

KBMOFF

Processor Responds

Keypad button monitoring disabled

Description

Disables keypad button monitoring on this processor. When a keypad button in the system is pressed, this processor will not send a monitor output string.

Also disables dimmer button monitoring on this processor. When an H48 or RF dimmer/switch in the system is pressed, this processor will not send a monitor output string.

Also disables Sivoia control monitoring on this processor. When a Sivoia control button in the system is pressed, this processor will not send a monitor output string.

Example

Disable keypad/dimmer/Sivoia control button monitoring

```
L232> KBMOFF
```

```
Keypad button monitoring disabled
```

See Also

[KBMON - Keypad/Sivoia Control Button Monitoring On](#)

[Keypad Button Press Monitoring Output Format](#)

[Keypad Button Release Monitoring Output Format](#)

[Keypad Button Hold Monitoring Output Format](#)

[Keypad Button Double Tap Monitoring Output Format](#)

[Dimmer Button Press Monitoring Output Format](#)

[Dimmer Button Release Monitoring Output Format](#)

[Dimmer Button Hold Monitoring Output Format](#)

[Dimmer Button Double Tap Monitoring Output Format](#)

[Sivoia Control Button Press Monitoring Output Format](#)

[Sivoia Control Button Release Monitoring Output Format](#)

[Sivoia Control Button Hold Monitoring Output Format](#)

[Sivoia Control Button Double Tap Monitoring Output Format](#)

KBP Monitor String

Keypad Button Press Monitor String

Syntax

KBP, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	button number that was pressed	1 - 24

Description

The KBP monitor string is output from a processor when a keypad button is pressed

Example

Someone presses button 1 on processor 1, link 4, keypad address 4

KBP, [01:04:04], 1

See Also

[KBR Monitor String](#)

[KBH Monitor String](#)

[KBDT Monitor String](#)

[KBMON - Keypad button monitoring on](#)

[KBMOFF - Keypad button monitoring off](#)

Device Address Formatting

- Every physical device in the system (RPM zone, D48 zone, GRAFIK Eye, etc) has a system device address.
- Each device address is separated into 3-5 elements as shown in the tables below
- Device address elements are listed in the order shown, separated by a period, colon, slash, backslash or dash.
- The entire device address may be enclosed in [brackets] if desired.
- All letters and spaces in the address are ignored and may be used to improve readability
- Examples of device address formats for Processor 1, Link 1, Module Interface Address 3, RPM Module 2, RPM zone 4

[01:01:03:02:04]

1:1:3:2:4

1.1.3.2.4

1/1/3/2/4

[proc 1 : link 1 : mi 3 : module 2 : zone 4]

RPM Dimmer/Switch

Processor	Link	Router (MI)	Module	Output
1-16	1	0-15	1-8	1-4

D48 Dimmer/Switch

Processor	Link	Router (D48)	Bus	Dimmer
1-16	4-6	1-4	1-12	1-4

H48 Dimmer/Switch

Processor	Link	Router (H48)	Bus	Dimmer
1-16	4-6	1-4	1-6	1-8

RF Dimmer/Switch

Processor	Link	Device Type	Dimmer
1-16	8	1	1-64

RF Keypad

Processor	Link	Device Type	Keypad
1-16	8	2	1-32

RF Repeater

Processor	Link	Device Type	Repeater
1-16	8	3	1-4

Keypad/Sivoia Control/CCO/CCI/TEL-9

Processor	Link	Keypad

1-16	4-6	1-32

RS232 Port

Processor	Link	Port
1-16	3 or 7	1

GRAFIK Eye Main Unit

Processor	Link	GRAFIK Eye
1-16	4-6	1-8

GRAFIK Eye Main Unit Single Zone

Processor	Link	GRAFIK Eye	Output
1-16	4-6	1-8	1-8

KBR Monitor String

Keypad Button Release Monitor String

Syntax

KBR, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	button number that was released	1 - 24

Description

The KBR monitor string is output from a processor when a keypad button is released

Example

Someone releases button 1 on processor 1, link 4, keypad address 4

KBR, [01:04:04], 1

See Also

[KBP Monitor String](#)

[KBH Monitor String](#)

[KBDT Monitor String](#)

[KBMON - Keypad button monitoring on](#)

[KBMOFF - Keypad button monitoring off](#)

KBH Monitor String

Keypad Button Hold Monitor String

Syntax

KBH, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	button number that was held	1 - 24

Description

The KBH monitor string is output from a processor when a keypad button is held

Example

Someone holds button 1 on processor 1, link 4, keypad address 4

KBH, [01:04:04], 1

See Also

[KBP Monitor String](#)

[KBR Monitor String](#)

[KBDT Monitor String](#)

[KBMON - Keypad button monitoring on](#)

[KBMOFF - Keypad button monitoring off](#)

KBDT Monitor String

Keypad Button Double Tap Monitor String

Syntax

KBDT, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	button number that was double tapped	1 - 24

Description

The KBDT monitor string is output from a processor when a keypad button is double tapped

Example

Someone double taps button 1 on processor 1, link 4, keypad address 4

KBDT, [01:04:04], 1

See Also

[KBP Monitor String](#)

[KBR Monitor String](#)

[KBH Monitor String](#)

[KBMON - Keypad button monitoring on](#)

[KBMOFF - Keypad button monitoring off](#)

DBP Monitor String

Dimmer Button Press Monitor String

Syntax

DBP, <address>, <button number>

Parameter	Description	Format
address	system address of the H48 or RF dimmer/switch	see device address formatting description
button number	button number that was pressed	1

Description

The DBP monitor string is output from a processor when the tap switch for an H48 or RF dimmer/switch is pressed. This string is not generated when the tap switch for a D48 dimmer/switch is pressed nor when the raise/lower rocker for any dimmer is pressed.

Example

Someone presses the H48 tap switch on processor 1, link 4, router 1, bus 3, dimmer 2.

DBP, [01:04:01:03:02], 1

Someone presses the RF tap switch on processor 1, link 8, dimmer 54. (The device type is 1 for all RF dimmers/switches.)

DBP, [01:08:01:54], 1

See Also

[DBR Monitor String](#)

[DBH Monitor String](#)

[DBDT Monitor String](#)

[KBMON - Keypad button monitoring on](#)

[KBMOFF - Keypad button monitoring off](#)

DBR Monitor String

Dimmer Button Release Monitor String

Syntax

DBR, <address>, <button number>

Parameter	Description	Format
address	system address of the H48 dimmer/switch	see device address formatting description
button number	button number that was released	1

Description

The DBP monitor string is output from a processor when the tap switch for an H48 dimmer/switch is released. This string is not generated when the tap switch for a D48 or RF dimmer/switch is released nor when the raise/lower rocker for any dimmer is released.

Example

Someone releases the H48 tap switch on processor 1, link 4, router 1, bus 3, dimmer 2.

DBP, [01:04:01:03:02], 1

See Also

[DBP Monitor String](#)

[DBH Monitor String](#)

[DBDT Monitor String](#)

[KBMON - Keypad button monitoring on](#)

[KBMOFF - Keypad button monitoring off](#)

DBH Monitor String

Dimmer Button Hold Monitor String

Syntax

DBH, <address>, <button number>

Parameter	Description	Format
address	system address of the H48 dimmer/switch	see device address formatting description
button number	button number that was held	1

Description

The DBH monitor string is output from a processor when the tap switch for an H48 dimmer/switch is held. This string is not generated when the tap switch for a D48 or RF dimmer/switch is held.

Example

Someone holds the H48 tap switch on processor 1, link 4, router 1, bus 3, dimmer 2.

DBH, [01:04:01:03:02], 1

See Also

[DBP Monitor String](#)

[DBR Monitor String](#)

[DBDT Monitor String](#)

[KBMON - Keypad button monitoring on](#)

[KBMOFF - Keypad button monitoring off](#)

DBDT Monitor String

Dimmer Button Double Tap Monitor String

Syntax

DBDT, <address>, <button number>

Parameter	Description	Format
address	system address of the H48 or RF dimmer/switch	see device address formatting description
button number	button number that was double tapped	1

Description

The DBP monitor string is output from a processor when the tap switch for an H48 dimmer/switch is double tapped. It is output from a processor when the tap switch for an RF dimmer/switch is double tapped only if the dimmer has keypad-like programming. This string is not generated when the tap switch for a D48 dimmer/switch is double tapped.

Example

Someone double taps the H48 tap switch on processor 1, link 4, router 1, bus 3, dimmer 2.

DBDT, [01:04:01:03:02], 1

Someone double taps the programmed RF tap switch on processor 1, link 8, dimmer 54. (The device type is 1 for all RF dimmers/switches.)

DBDT, [01:08:01:54], 1

See Also

[DBP Monitor String](#)

[DBR Monitor String](#)

[DBH Monitor String](#)

[KBMON - Keypad button monitoring on](#)

[KBMOFF - Keypad button monitoring off](#)

SVBP Monitor String

Sivoia Control Button Press Monitor String

Syntax

SVBP, <address>, <button number>

Parameter	Description	Format
address	system address of the Sivoia control	[processor : link : address] see device address formatting description
button number	button number that was pressed	1 - 24

Description

The SVBP monitor string is output from a processor when a Sivoia control button is pressed

Example

Someone presses button 1 on processor 1, link 4, Sivoia control address 4

SVBP, [01:04:04], 1

See Also

[SVBR Monitor String](#)

[SVBH Monitor String](#)

[SVBDT Monitor String](#)

[SVS Monitor String](#)

[KBMON - Keypad/Sivoia control button monitoring on](#)

[KBMOFF - Keypad/Sivoia control button monitoring off](#)

SVBR Monitor String

Sivoia Control Button Release Monitor String

Syntax

SVBR, <address>, <button number>

Parameter	Description	Format
address	system address of the Sivoia control	[processor : link : address] see device address formatting description
button number	button number that was released	1 - 24

Description

The SVBR monitor string is output from a processor when a Sivoia control button is released.

Example

Someone releases button 1 on processor 1, link 4, Sivoia control address 4

SVBR, [01:04:04], 1

See Also

[SVBP Monitor String](#)

[SVBH Monitor String](#)

[SVBDT Monitor String](#)

[SVS Monitor String](#)

[KBMON - Keypad/Sivoia control button monitoring on](#)

[KBMOFF - Keypad/Sivoia control button monitoring off](#)

SVBH Monitor String

Sivoia Control Button Hold Monitor String

Syntax

SVBH, <address>, <button number>

Parameter	Description	Format
address	system address of the Sivoia control	[processor : link : address] see device address formatting description
button number	button number that was held	1 - 24

Description

The SVBH monitor string is output from a processor when a Sivoia control button is held

Example

Someone holds button 1 on processor 1, link 4, Sivoia control address 4

SVBH, [01:04:04], 1

See Also

[SVBP Monitor String](#)

[SVBR Monitor String](#)

[SVBDT Monitor String](#)

[SVS Monitor String](#)

[KBMON - Keypad/Sivoia control button monitoring on](#)

[KBMOFF - Keypad/Sivoia control button monitoring off](#)

SVBDT Monitor String

Sivoia Control Button Double Tap Monitor String

Syntax

SVBDT, <address>, <button number>

Parameter	Description	Format
address	system address of the Sivoia control	[processor : link : address] see device address formatting description
button number	button number that was double tapped	1 - 24

Description

The SVBDT monitor string is output from a processor when a Sivoia control button is double tapped.

Example

Someone double taps button 1 on processor 1, link 4, Sivoia control address 4

SVBDT, [01:04:04], 1

See Also

[SVBP Monitor String](#)

[SVBR Monitor String](#)

[SVBH Monitor String](#)

[SVS Monitor String](#)

[KBMON - Keypad/Sivoia control button monitoring on](#)

[KBMOFF - Keypad/Sivoia control button monitoring off](#)

SVS Monitor String Sivoia Scene Command Monitor Output String

Syntax

SVS, <address>, <scene command>, <status>

Parameter	Description	Format
address	system address of Sivoia control that changed	[processor : link : address] see device address formatting description
scene command	Sivoia scene command	1 = Preset 1 2 = Preset 2 3 = Preset 3 R = Raise L = Lower C = Close o = Open S = Stop
status	current status of the scene command	STOPPED or MOVING

Description

The SVS monitor string is output from a processor when a Sivoia changes scene commands.

Example 1

Someone selects Preset 1 on the Sivoia controlled by processor 1, link 6, Sivoia control address 3.

SVS, [01:06:03], 1, MOVING

When the same Sivoia stops at Preset 1.

SVS, [01:06:03], 1, STOPPED

Example 2

Someone selects the raise command on the Sivoia controlled by processor 1, link 6, Sivoia control address 3.

SVS, [01:06:03], R, MOVING

When the same Sivoia stops raising.

SVS, [01:06:03], S, STOPPED

See Also

[SVBP Monitor String](#)

[SVBR Monitor String](#)

[SVBH Monitor String](#)

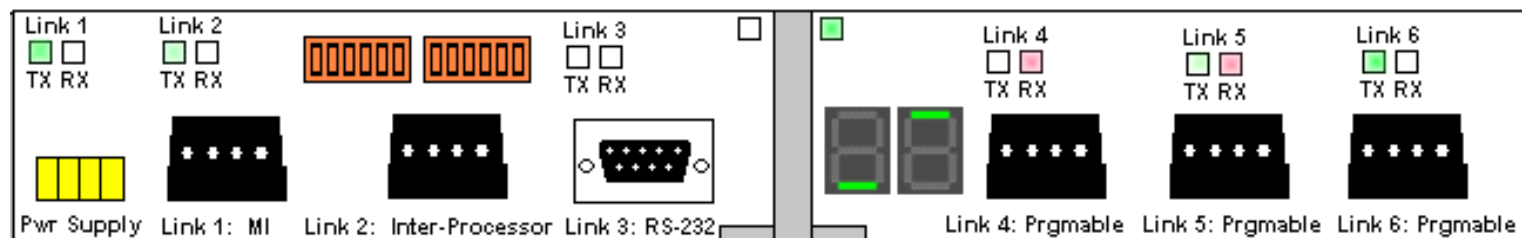
[SVBDT Monitor String](#)

[KBMON - Keypad/Sivoia control button monitoring on](#)

[KBMOFF - Keypad/Sivoia control button monitoring off](#)

7.1 Processor Troubleshooting

The figure below demonstrates the typical LED indications found on a properly running processor.



Example: The processor has one MI connected to Link 1. Another HWI processor is connected to Link 2. Link 3 is connected to the laptop, Link 4 is connected to GRAFIK Eyes, Link 5 is connected to a D48 and Link 6 is connected to keypads.

Important: The LEDs for links 1, 2, and 3 are not directly over the link connectors. Please refer to the processor label for indicator location

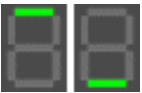
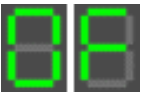
For other configurations refer to the chart below.

	Transmit LED (green)	Receive LED (orange)
MI Link (link 1)	<i>When processor has a valid OS and database:</i> Flashes continuously (bright) ■ ■	<i>When an MI is connected to link:</i> Flashes occasionally (dim) ■ ■ <i>When no MI is connected to link:</i> Off ■ ■
Inter-processor Link (link 2)	Flashes continuously (dim) with occasional bright flashes ■ ■	<i>When another processor is connected to link:</i> Flashes continuously (dim) with occasional bright flashes ■ ■ <i>When not connected to another processor:</i> Off ■ ■

RS-232 port (link 3)	<i>During upload:</i> Flashes occasionally (bright)   <i>Other times:</i> Flashes once every time a RS-232 message is sent from processor	<i>During upload:</i> Flashes occasionally (bright)   <i>Other times:</i> Flashes once every time a RS-232 message is sent to processor
GRAFIK Eye Link (link 4, 5, or 6)*	Flashes once every time a keypad or timeclock event changes a GRAFIK Eye to a different scene  	<i>When addressed GRAFIK Eye main units are connected to link:</i> Flashes continuously   <i>When no addressed GRAFIK Eye units are connected to link:</i> Off  
D48 Link (link 4, 5, or 6)*	<i>When processor has a valid OS and database:</i> Flashes continuously (real dim)  	<i>When a D48 is connected to link:</i> Flashes continuously   <i>When no D48s are connected to link:</i> Off  
Keypad Link (link 4, 5, or 6)*	<i>When processor has a valid OS and database:</i> Flashes continuously (bright)  	<i>When a Sivoia control is connected to the link:</i> Flashes approximately twice every second   <i>When a Sivoia control is NOT connected to the link:</i> Flashes once every time a keypad button is pressed on a keypad attached to this link  
H48 Link (link 4, 5, or 6)*	<i>When processor has a valid OS and database:</i> Flashes continuously (bright)  	<i>When a H48 is connected to link:</i> Flashes continuously   <i>When no H48s are connected to link:</i> Off  

* The configurable links (links 4, 5, and 6) and the MI link (link 1) are shutdown during an upload and are restarted when the upload is complete. If the upload fails, the links will not be restarted. If the upload is successful, the HWI utility will pop up a message box that says "Upload Successful".

7-Segment LED Display

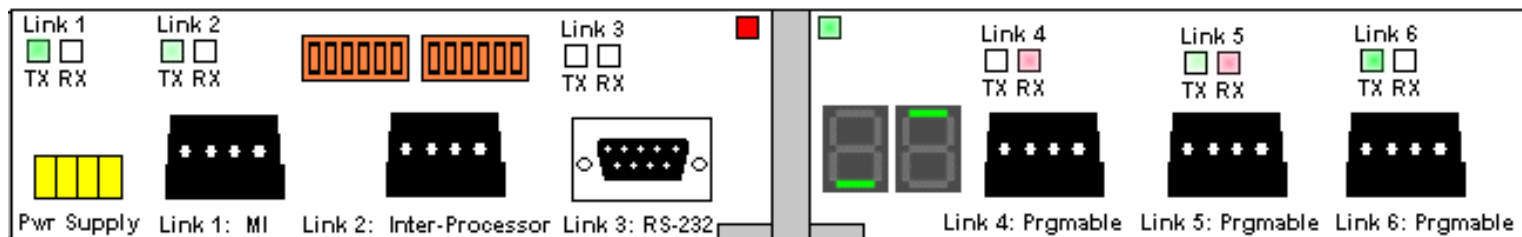
	Cycling clockwise	Normal operation - System idle					
	0F	Processor either in OS update mode or needs to have the OS uploaded.					
	d	Last device pressed on devices connected to this processor. This is followed by the device address.					
	for keypads:		Proc d 01	Link 06.	Keypad 12	Button 04.	Button 04
	for D48 Vareo Dimmers and Switches:		Proc d 01	Link 05.	D48 01	Bus 08.	Vareo 03
	for GRAFIK Eyes:		Proc d 01	Link 04.	GRX 01	Scene 03.	Scene 03
	for H48 Dimmers and Switches:		Proc d 01	Link 05.	H48 01	Bus 05.	Dimmer 07

Note: When a device on a keypad link is initially powered up, it will show up on the display with "99" as the button number. This can be used to verify CCO addresses by removing and reinstalling the keypad link connector. This is useful because the only other input on the CCO is the IR input.

Button



Link Shorted



The processor has circuitry that can detect and protect against a short circuit between GND and +15V (terminals 1 & 2) on links 1, 2, 4, 5 and 6. Unlike original HomeWorks, the processor will continue to run if a short exists. The indication of a short is a bright red LED that is located just to the left of the center support bracket on the front edge of the processor board. To determine which link is shorted, remove the link terminal blocks one at a time until the LED turns off. After the wiring problem has been fixed, watch the LED as each link is reconnected to make sure that no additional faults exist.

3.4 Using a Modem to Upload

3.4.1 Processor Modem Setup

The HomeWorks Interactive processor can use a modem connected to either Link 3 or Link 7 to allow remote communication via a phone line. The processor has been tested for use with the following US Robotics (3Com) modems:

- Sportster 14400
- Sportster 28800 V34
- Sportster 28800 VFC
- Sportster 33600
- Sportster 57600
- 56K FaxModem (Model No. 5686)

Modem DIP switch settings should be set as follows:

- Data Terminal Ready Override
- Verbal Result Codes
- Suppress Result Codes
- No Echo, Offline Commands
- Auto Answer
- Carrier Detect Normal
- Load Factory Defaults
- Smart Mode

A NULL Modem adapter is required between the processor and the modem. Please read the [Serial Cables and Modems - FAQs](#).

3.4.2 Uploading the Modem Initialization String

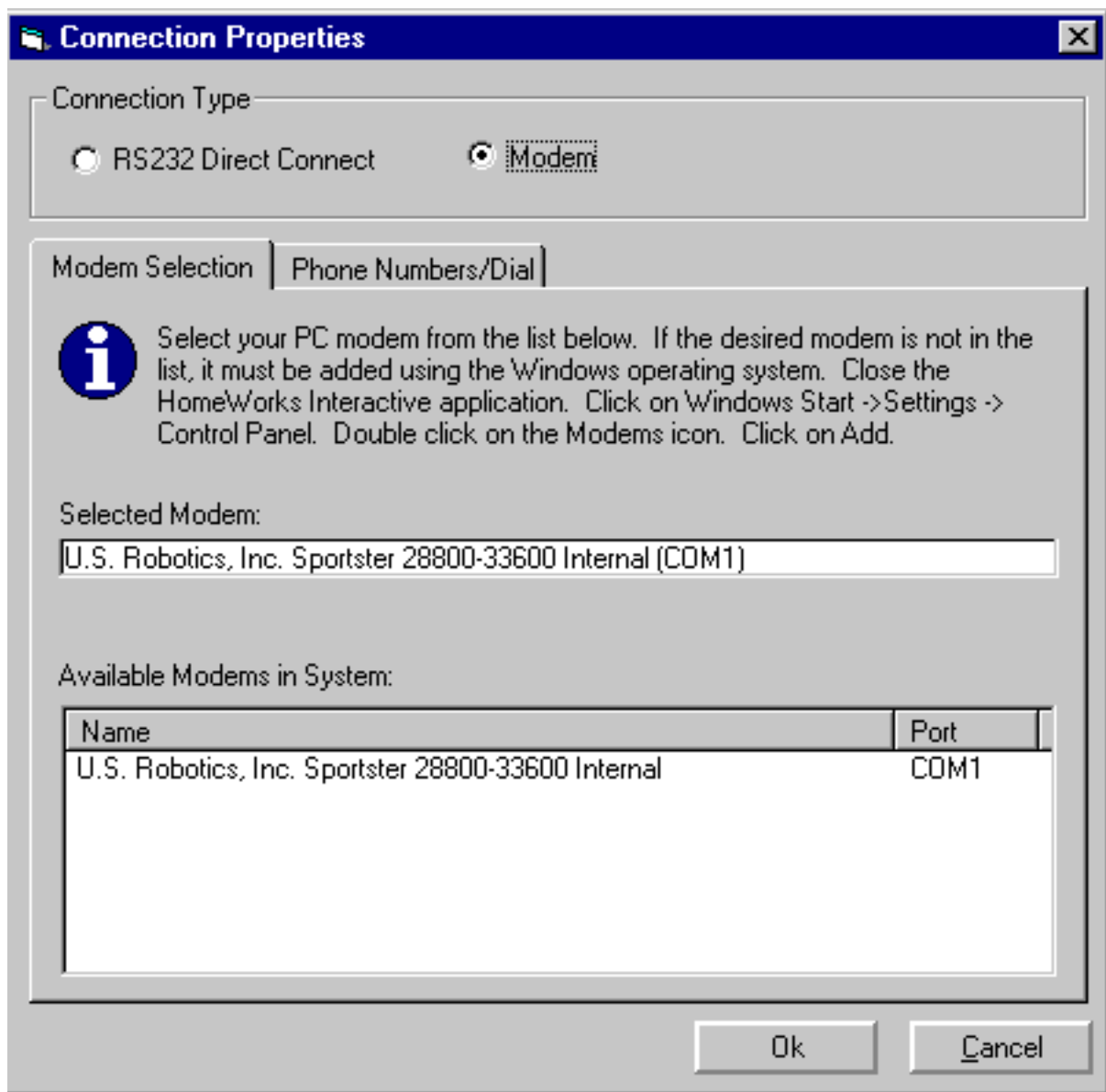
Before connecting via a modem, the processor must be uploaded via RS-232 Direct Connect. This step is required to make sure the processor contains the modem initialization string which will be sent out whenever the processor is cycled or a modem is attached to the serial port.

After uploading the project to the processor, connect a modem listed above to Link 3 or Link 7 and cycle processor power OFF, then back ON (the processor will initialize the modem when power is cycled). Once the processor modem is properly setup and connected, you can setup the Terminal screen for a modem connection.

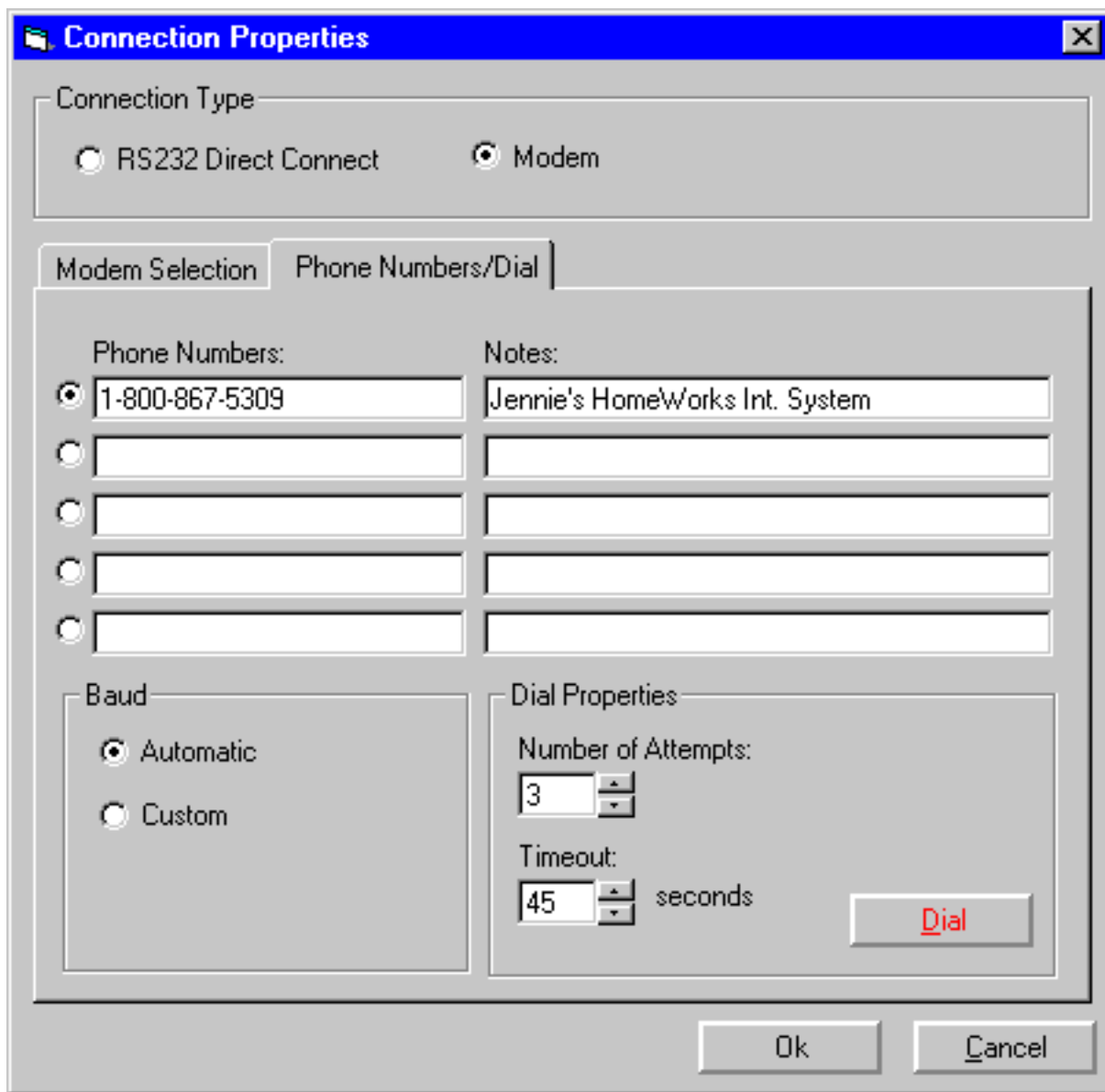
To change from RS-232 Direct Connect to Modem, first open the Terminal screen

by pressing the  button on the toolbar. Then, press the  button to change to Modem connection. To view the type of modem and the dial

properties, press the  button on the Terminal toolbar.



The Modem Selection tab of the Connection Properties screen displays the Selected Modem and the list of Available Modems in System. Select the modem that is being used for the connection. If the desired modem is not on the list, it must be added using the Windows operating system. Close the HomeWorks Interactive application. Select Start-> Settings -> Control Panel and double-click the Modems icon. Click Add to add a new modem.



The Phone Numbers/Dial tab of the Connection Properties screen is used to select a phone number and dial a HomeWorks Interactive processor. To dial:

1. Select a phone number from the list of previously entered numbers using the round selection button on the left side of the phone number.
2. If no numbers appear in the list, select the first Phone Numbers box and type in the phone number of the modem connected to the processor. Fill in any Notes, where applicable.
3. Select the baud rate for the current connection. If Automatic is selected, the Terminal program will attempt to use the highest baud rate possible. If Custom is selected, a drop-down list will appear displaying the possible baud rate choices. Automatic should be used unless connection problems exist (i.e. the modem hangs up or communications are unreliable). In these instances, select custom and choose successively lower baud rates until communications are reliably maintained.
4. Select the Number of Attempts the Terminal program will try to connect

before giving up. The default value is 3 but the user can select between 1 and 9 attempts.

5. Select the Timeout period, which determines how long each attempt will last. The Timeout is user selectable from 45 to 180 seconds. The default value is 45 seconds.
6. After verifying all the information is correct, press the  button and the Terminal program will attempt to connect to the processor panel.

Once the Terminal program connects to the processor panel, all of the feature available using RS232 Direct Connect are available using Modem.

4.6 Serial Cables and Modems FAQs

1. If I am not using a modem, what kind of cable do I use to connect my laptop to the HomeWorks Interactive processor?

Most laptops have serial ports that use a DB9 with male pins. The HomeWorks Interactive processor has a DB9 with female pins. An **all-pins-straight-through** cable DB9F to DB9M is the appropriate cable (*do not use a null modem cable or an original HomeWorks 3-wire cable*). This is a commonly available cable. For lengths greater than 6 feet, we recommend using a high quality shielded or double-shielded cable. Below are some sources and part numbers for these cables. They can also be purchased at virtually any store that sells computers. The prices range from \$6 to \$40, depending upon length and shielding. Although serial cables longer than 50 feet are available, we don't recommend their use for reliability reasons.

Source	Model	Description
Radio Shack	26-117	6 foot DB9F to DB9M
Black Box	BC00200	6 foot DB9F to DB9M (shielded)
1-724-746-5500	EDN12H-0050-MF	50 foot DB9F to DB9M (shielded)
Global Computer Supply	THC4157A	6 foot DB9F to DB9M (shielded)
1-800-845-6225	THC4157B	10 foot DB9F to DB9M (shielded)
	THC4157C	15 foot DB9F to DB9M (shielded)

2. What kind of cable do I use to connect my external US Robotics modem to the HomeWorks Interactive processor?

Most external modems have serial ports that use a DB25 with female pins. Unlike with the connection above, a null modem adapter is required. There is more than one type of null modem adapter, and unfortunately, the naming convention is not standard. Using non-custom parts, it takes a gender adapter, a null modem adapter,

and a 25-to-9 adapter to get it all to match up. To simplify this, we have had Black Box build us a custom cable that can connect directly from our processor to the external modem without any extra adapters. They charge less than \$25 for a 10-ft version, and it is well worth it.

Source	Model	Description
Black Box	CBPS104615	custom modem cable
1-724-746-5500		(they will make any length)

3. What do I need to do to tell the processor that I will be connecting a modem?

In the HomeWorks Interactive Utility, go to the help screen. Under "Welcome to HomeWorks Interactive", choose "Communications" and then "Using a Modem" to get the specific information on this topic.

4. What do I do if I go back to the jobsite after a modem has been installed and want to connect directly to the processor?

Simply unplug the modem serial cable from the HWI processor and plug in the laptop serial cable instead. In the HWI terminal screen, set your laptop up for direct RS-232 connection. You will always want to leave the "Modem will be connected to processor" box checked so that the modem will work again after you are finished. Make sure you reconnect the modem serial cable and then cycle power to the processor when you are done.

5. What do I need to do to make the modem answer a call from a remote location so I can program the system from my office?

The modem will answer the phone line that it is connected to on the first ring. The easiest option is to install a phone jack next to the modem and ask the homeowner to plug the phone cord into the jack just prior to your dialing into the system. If the house has a KSU or PBX phone system with direct inward dialing (DID), you can put the modem on an analog extension that is programmed to only be accessible through DID. Another option would be to put it on an analog extension that is set for delayed ring of 5 or greater on one CO line and no ring on all others.

6. If I want to build my own cable to go between the processor and the modem, what is the pinout?

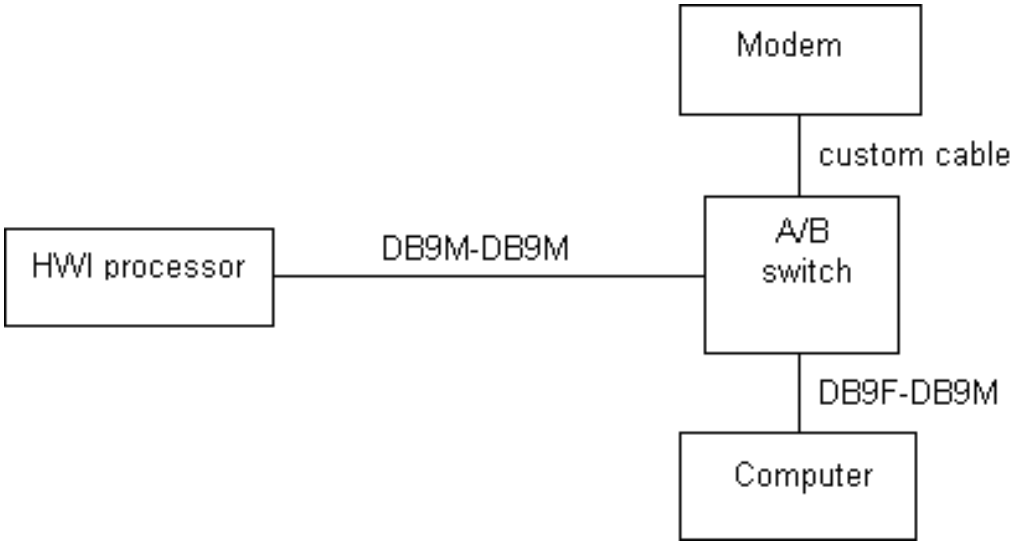
DB9 (male)	DB25 (male)
1 & 6	20
2	2
3	3
4	6 & 8
5	7
7	5
8	4
9	22

RS-232 communications are limited to 50 feet with standard shielded cable. Unshielded CAT5 cable will typically go 10 to 20 feet without a problem, but it will not work well in environments that have high levels of electromagnetic noise. For best results, use a high-quality, low-capacitance, shielded communications grade cable. Belden Model # 8135FO is a good bet and is widely available. Go to Belden's web page at www.belden.com to get a list of distributors. We buy it from Newark (800-463-9275) who has it under their catalog # 03F4134 in 100 foot spools (~\$75). Their page is at www.newark.com

7. What configuration should I use if I want to switch between connecting the HWI processor to the homeowner's computer and a dedicated modem?

In this configuration, we are assuming that the processor is in one location and the modem, A/B switch (used to switch between the computer and modem), and computer are in another. Refer to diagram and part numbers below (the A/B switch is ~\$45). The A/B switches that we found in catalogs had all DB9F connectors, so a DB9M to DB9M cable (all pins straight through) is required for the run from the processor to the A/B switch. From the A/B switch to the computer, we use the same cable that we use when we connect directly to the processor with a laptop, a DB9F to DB9M (all pins straight through). See #1 above. From the A/B switch to

the modem, we use the same cable that we use when we connect directly to the processor with a modem, which is the custom Black Box cable. See #2 above.



Source	Model	Description
Black Box	SWL-030A	A/B switch with DB9F connectors
1-724-746-5500	EDN12H-0010-MM	10 foot DB9M to DB9M (shielded)
	BC00200	6 foot DB9F to DB9M (shielded)
	EDN12H-0050-MF	50 foot DB9F to DB9M (shielded)
	CBPS104615	custom modem cable
Global Computer Supply	HCC4794	A/B switch with DB9F connectors
1-800-845-6225	THC4157A	6 foot DB9F to DB9M (shielded)
	THC4157B	10 foot DB9F to DB9M (shielded)
	THC4157C	15 foot DB9F to DB9M (shielded)

8. What panel configurations will allow me to easily connect my external modem?

HWI-ENC-LV32 enclosures shipped after May 15, 1999 have a knockout in the cover that allows a serial cable to be permanently installed with the cover on the panel. Any units prior to those will need to have the

necessary cutout made in the field. Make sure you oversize the cutout so that the connector housing fits through the hole even if your panel cover isn't perfectly aligned.

HWI-PNL-8 enclosures shipped after May 15, 1999 have a knockout that must be used with an HWI-KIT-RS232 to get a serial connection with the cover installed. This is definitely not the preferred solution – the LV32 solution is much cleaner. The reason the knockout wasn't put directly over the processor is fairly complicated, but it boiled down to the need to make sure no holes were put in covers for panels that contain HWI-MI-120s. If you want to make a field modification to the cover such that there is a cutout directly over the serial connector, you will still be OK with the NEC as long as you only do that for the enclosures that contain processors.

Important Note: If you aren't going to leave a cable permanently connected to the processor, the NEC requires that you cover the cutout. We have been covering them with a blank wallplate (requires drilling two holes for the screws). Another possibility would be to cover it with your company nameplate – assuming it is made of a sturdy enough material.

9. How do I set up the modem dip switches on the modem that I will be connecting to the processor?

The HomeWorks Interactive processor has been tested for use with the following US Robotics (3Com) modems:

- Sportster 14400
- Sportster 28800 V34
- Sportster 28800 VFC
- Sportster 33600
- Sportster 57600 (uses Sportster 33600 settings)
- 56K FaxModem (Model No. 5686)

For the modems listed above, the dip switch settings should be set as follows:

- Data Terminal Ready Override
- Verbal Result Codes
- Suppress Result Codes
- No Echo, Offline Commands
- Auto Answer
- Carrier Detect Normal
- Load Factory Defaults
- Smart Mode

DIP Switch Settings



10. *My modem isn't working. What should I do?*

The first thing to do is to check to see if the modem is answering the incoming phone call. Take a normal phone (or your cell phone) and call the phone number that the modem is supposed to be connected to. You should hear the modem answer and start "shrieking" at you. Turn off the power switch on the modem and the noise should stop. If it doesn't stop, you are probably calling the wrong phone number and are getting a fax or modem at that wrong number. If you never hear the modem answer, check to see if the phone cord is plugged into the right jack on the modem. The sticker on the modem shows a cord connected to a wallplate – that is the right jack. The sticker on the modem also shows a cord connected to a phone – that is the wrong jack. If the modem still doesn't answer when you call into it, read section C below to make sure your dipswitches are correct. If the modem is answering and "shrieking" as described above, start with section A below and work your way through each of the sections.

A. The most common problem that I've encountered with modem setups is the cable. If you aren't using the custom cable from Black Box (see #2 above), I would strongly urge you to use them in the future. They cost between \$10 and \$25 for typical lengths and can save hundreds of dollars of troubleshooting time. They have a typical lead-time of 4 weeks so it's a good idea to order a few extra and have them sitting in your stockroom so you have one when you need one. If you are in a bind and need to get a site up right away, another alternative is to build your own cable to match the specs of the Black Box cable. The specs on how the cable should be pinned out are in #6 above. Make sure you ohm out all of the connections after you build it. Unless you are really adept at making cables, I think you'll agree with me that I'd rather let Black Box make them than make them myself. You can test your cable by going through the steps in "B" below and observing the status LEDs on the modems. If that test fails and you aren't using the Black Box cable, it is definitely worth the time to get the ohm meter and check the pinout of whatever conglomeration of adapters and cables you are using.

B. If you've got the cable right, you may have a problem with the dipswitch settings on your modem. Refer to #9 above for the proper dipswitch settings. Keep in mind that you must turn the modem off and back on after any dipswitch changes in order for them to take effect. If the dipswitches on the modem are correct, the AA, TR, and CS indicators on the modem should be turned on anytime the modem is powered, whether it is connected to the processor or not. After the processor is turned on and it initializes the modem, the CD indicator on the modem will turn on as well. If you watch very closely, you'll also see the SD indicator on the modem flicker for a few seconds after the processor is powered up.

C. If you've got the dipswitches right, the next possibility is that you've got something wrong with your modem initialization. The most common source of this problem is that people power up the HWI system before they power up the modem. This causes problems because the HWI system tries to initialize the modem when the system is powered up, but the modem doesn't get the initialization because it is still turned off. If you have just installed the modem or have recently powered it off and back on, power the processor off and back on so that it will re-initialize the modem. Anytime you disconnect the serial cable to the modem or power the modem off, be sure to cycle power on the processor after the serial cable is reconnected and the modem is turned back on. We strongly urge you to put the modem on the same power feed (or UPS) that the processor is on so that they power up together after a power outage. This will ensure that the modem is properly initialized. **NOTE:** Some installers have the homeowner (or his representative) leave the modem turned off and then have them turn it back on right before the installer attempts to dial into the system. In this scenario, the installer should also instruct the homeowner to cycle the breaker that powers the processor (after the modem is turned on) to initialize the modem. A much better way to give the homeowner a "firewall" that allows them to control when the system is accessed remotely is to have them leave the modem turned on and disconnect the phone line from it. That allows the modem to stay initialized and saves them the trouble of cycling a breaker. I prefer to

have the homeowner disconnect the phone cord at the wallplate, not at the modem, because there are two phone jacks on the modem and they might plug into the wrong one.

D. If you've got everything else right, there may just be a problem with the initialization string in the database that is in the processor. To fix it, open the database on your laptop and go into the floorplan screen. From the pull-down menu, select File and then Repair Database. After you have gone through the repair, save the file. Then go to the terminal screen and select RS-232 direct connect. Compile and upload the database with your laptop connected directly to the processor. After the upload has been successful, connect the modem to the processor and cycle power on the processor. The modem should be properly initialized once the processor has been powered back up. Check the modem indicator lights as given in "B" above.

1.7 Control Station Assignment

Contents

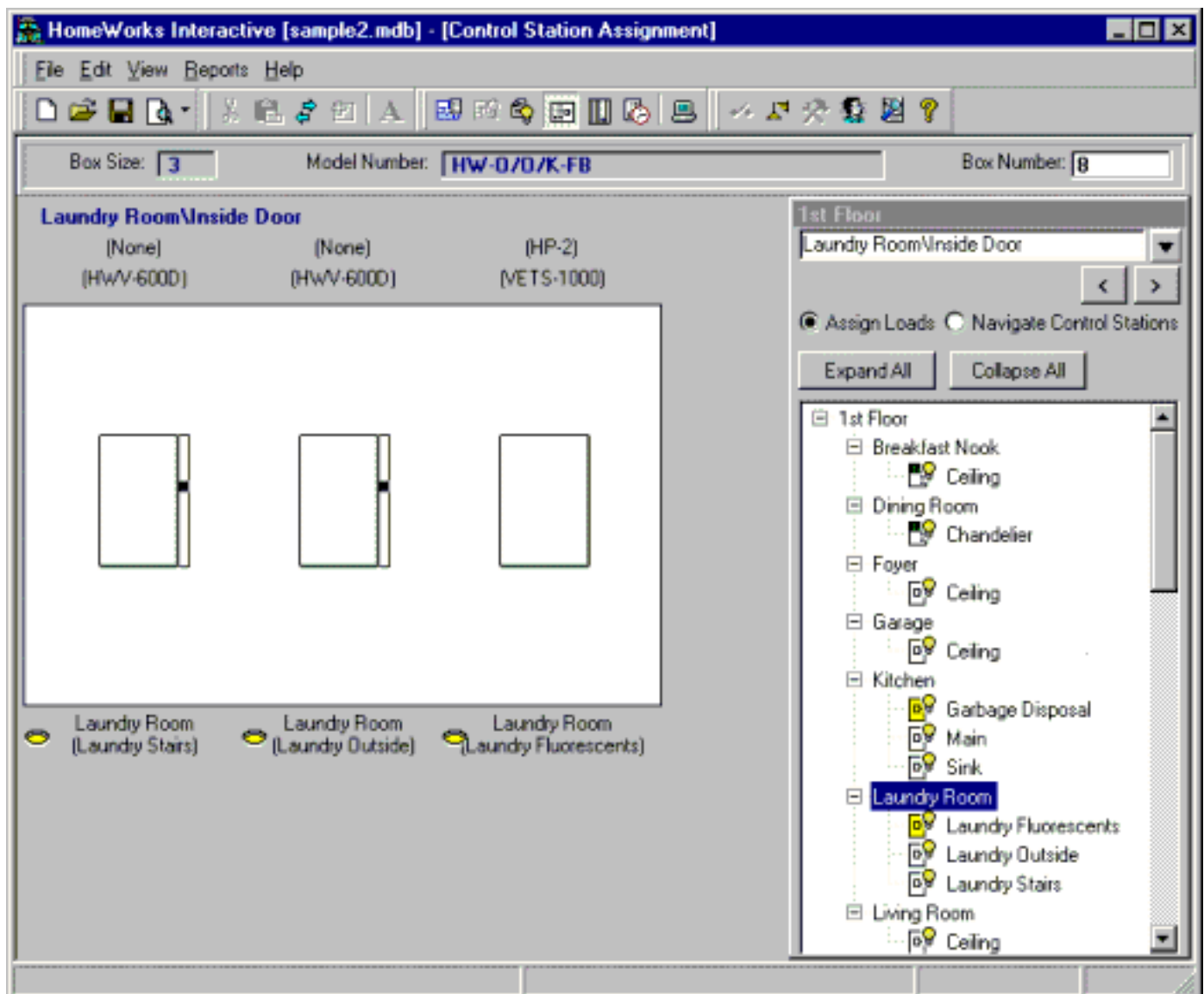
1.7.1 Control Station Viewer

1.7.2 Toolbox: Navigate Control Stations

1.7.3 Toolbox: Assign Loads

1.7.4 Control Station Properties

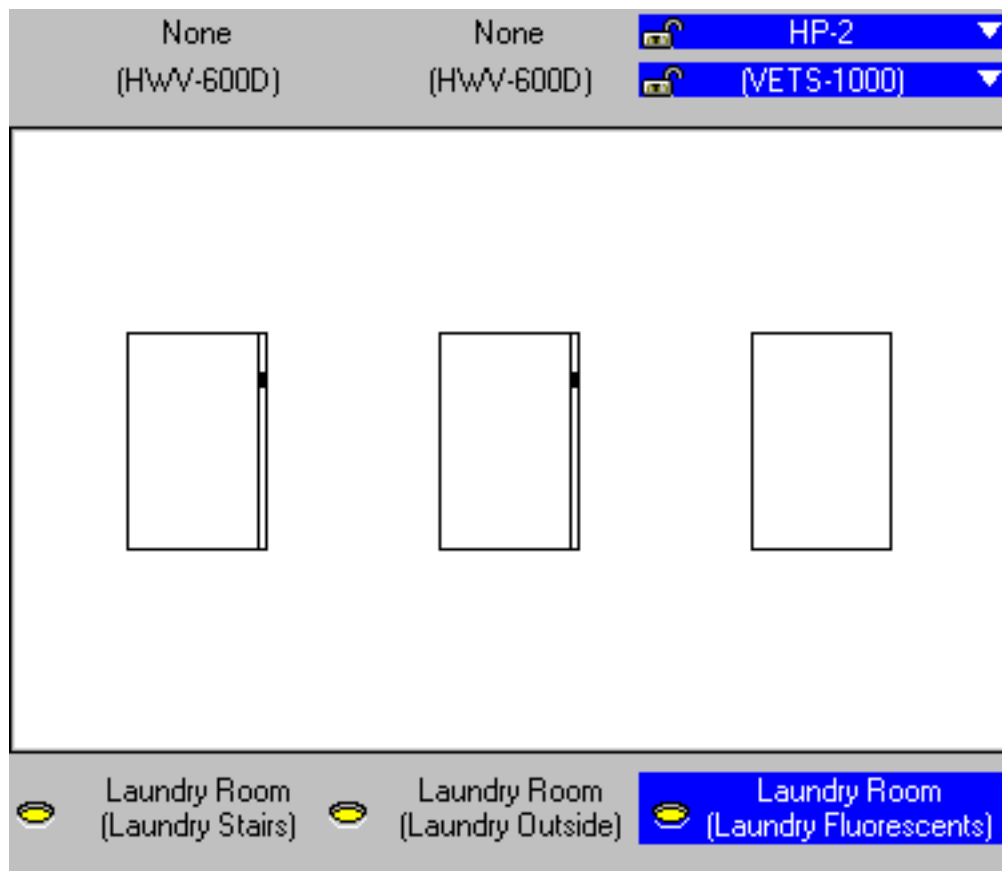
The Control Station Assignment screen assigns lighting zones to the devices that control and power them. For example, after a dimmable lighting load and HomeWorks Vario dimmer are added on the Floorplan screen, the load must be assigned to the dimmer here. This screen can be used to assign loads to HomeWorks dimmers and switches, GRAFIK Eye units, and Wallbox Power Modules (WPMs). Non-system dimmers, switches, and fan speed controls can also be assigned loads using this screen.



The Control Station Viewer (left side of the screen) contains an image of what the control station looks like and gives device model information, power booster information, and names of associated loads. The Toolbox (right side) is used to select control stations for display in the Control Station Viewer and to select loads for assignment.

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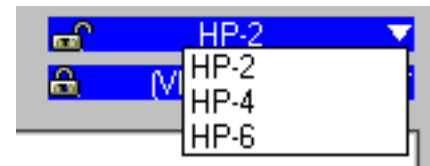
1.7.1 Control Station Viewer



Above each control station device is the equipment required for the device, i.e. the power boosters/interfaces and device model number. Below each control station device is a label indicating the load associated with the device.

The properties (on the [Load Schedule](#) screen) for the selected zone will determine the type of equipment required. For instance, the control station with three dimmers pictured above originally consisted of two HomeWorks Vareo dimmers (on the left) and a non-system Vareo Dimmer (on the right). Because the load named "Laundry Fluorescents" was a non-dim fluorescent zone, the application automatically changed the dimmer to a switch. Because the zone consists of twelve 100 watt fixtures, the application recognizes that it will require an HP-2 to function properly. If for some reason, you would like a higher wattage power booster, you have the option to change it by selecting the white arrow to the right of the power booster model. Selecting from this list will lock the zone's interface.

The system automatically calculates the interfaces and devices used to control zones. If a zone's interface and/or device is locked (as indicated by the picture of the lock to the left of the interface/device model), the system will not change its interface and/or device. Double-click the  picture to unlock the zone's interface and/or device and the  picture to lock the zone's interface and/or device.

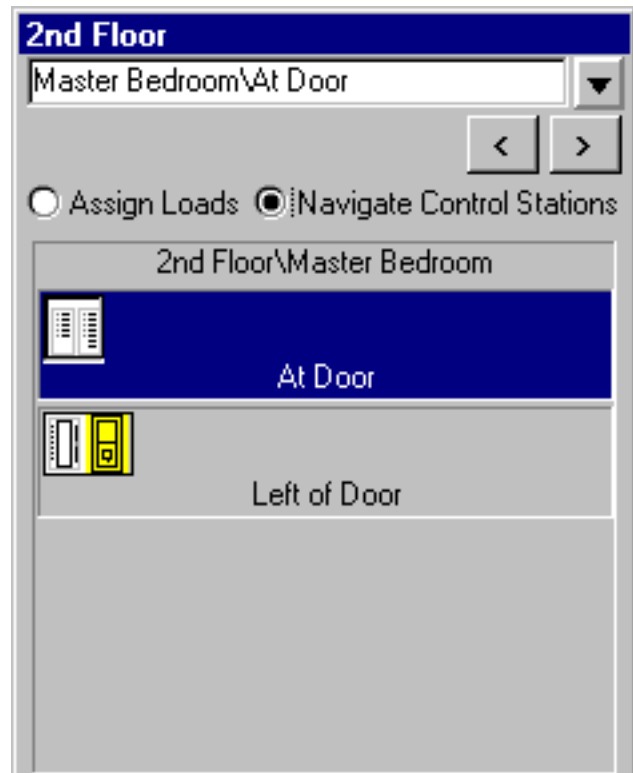


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1.7.2 Toolbox: Navigate Control Stations

The Control Station dropdown box and the < and > buttons at the top of the Toolbox are used to select a control station to display in the Control Station Viewer.

Selecting a control station to display can also be done using the Navigate Control Station option. This option shows all control stations in the current room. Click the image of the control station to display it in the Control Station Viewer.

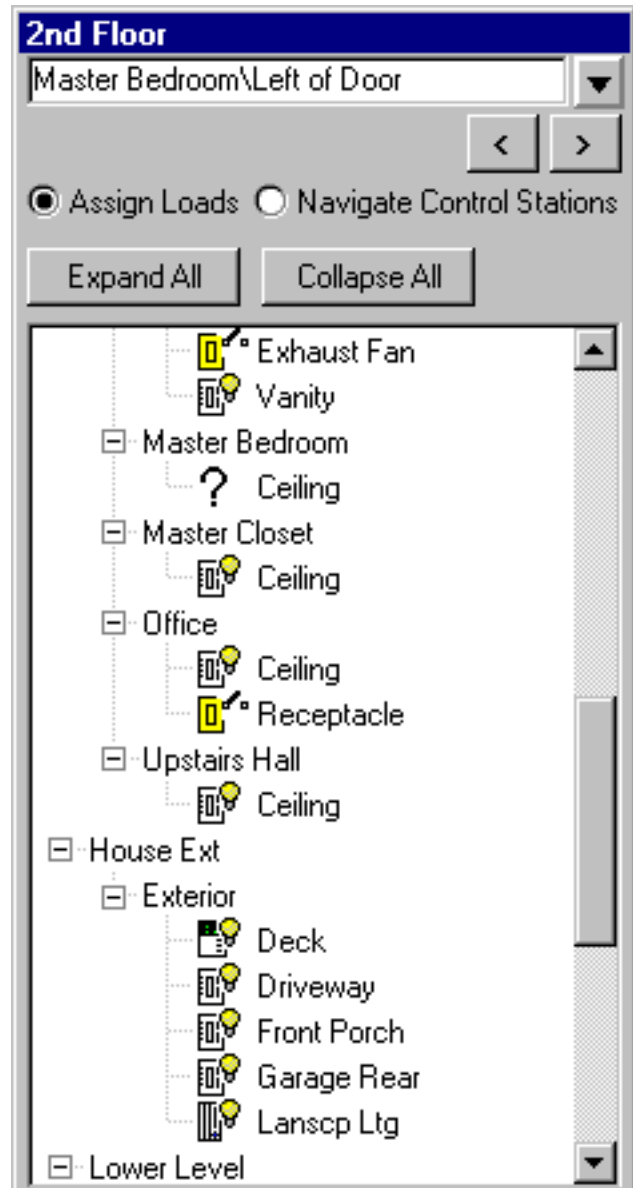


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1.7.3 Toolbox: Assign Loads

The icon to the left of each load name indicates to what type of device the load has been assigned.

- ? None. The load is unassigned.
- [Icon: Dimmer/Switch] HomeWorks Vareo dimmer/switch.
- [Icon: Dimmer/Switch] HomeWorks Wired Maestro dimmer/switch.
- [Icon: Dimmer/Switch] HomeWorks RF Maestro dimmer/switch.
- [Icon: Dimmer/Switch] HomeWorks RF tabletop dimmer.
- [Icon: Dimmer/Switch] GRAFIK Eye zone.
- [Icon: Dimmer/Switch] HomeWorks RPM output.
- [Icon: Dimmer/Switch] Vareo dimmer/switch.
- [Icon: Switch] Architectural switch.
- [Icon: Fan-Speed Control] Architectural fan-speed control.
- [Icon: Dimmer/Switch] Maestro dimmer/switch.
- [Icon: Dimmer/Switch] Designer dimmer/switch.
- [Icon: Fan-Speed Control] Designer fan-speed control.



Assigning Loads to Control Station Devices

- Select the control station to which a load needs to be assigned.
- Click the Assign Loads option in the Toolbox.
- Select a load in the tree. The mouse cursor will change to the picture of the load.
- Click the dimmer, switch, GRAFIK Eye output, or WPM output to assign the load.

Expand All / Collapse All Buttons

The **Expand All** button will expand the tree, making all loads in every room visible. The **Collapse All** button will collapse the tree, showing only the areas.

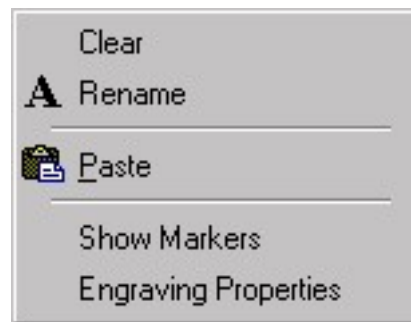
Remote Dimmers / Switches

In order for system wiring information to be correct, all remote dimmers and switches (e.g. VETS-R, HD-RD) must have loads assigned to them. Loads must be assigned to a dimmer or switch before being assigned to a remote dimmer or switch.

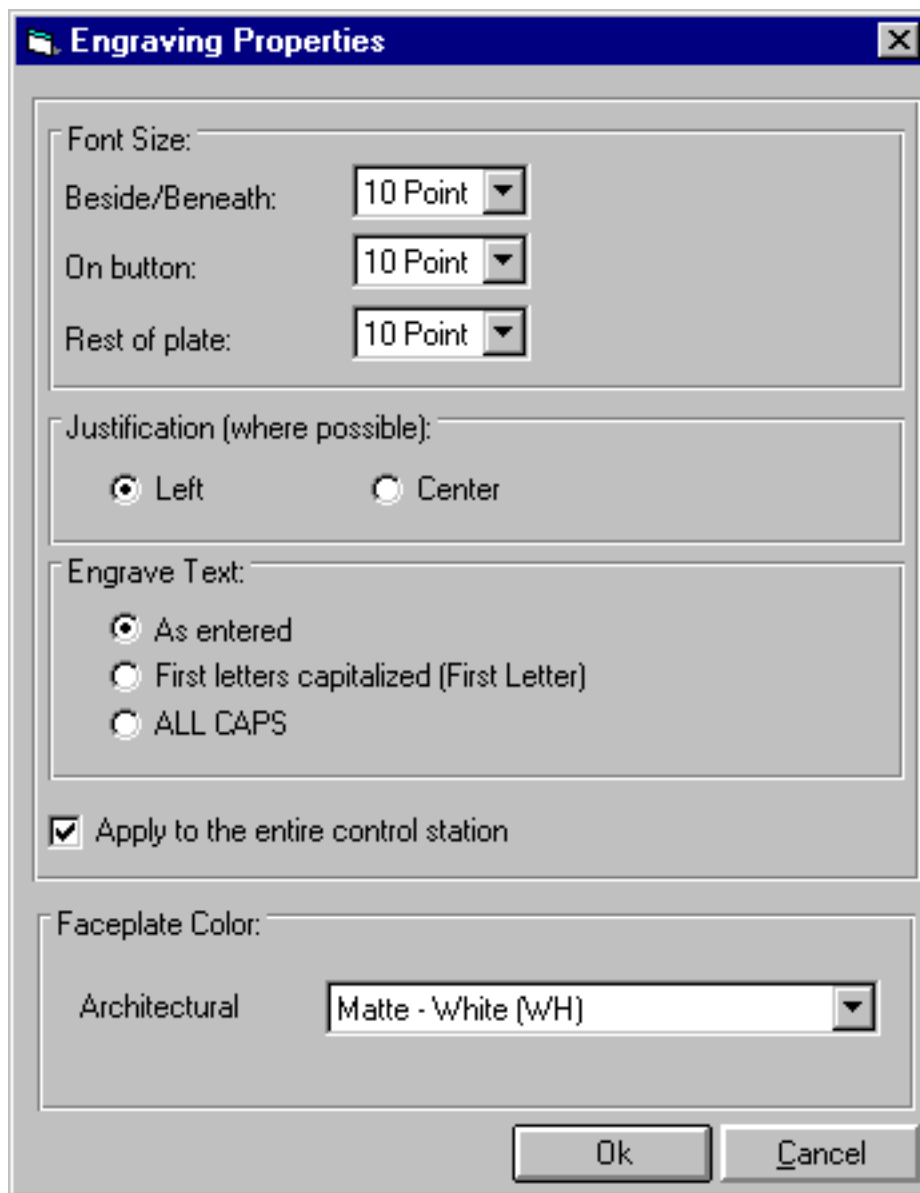
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1.7.4 Control Station Properties

Even though nothing can be assigned to keypads in the Control Station Assignment screen, engraving and engraving options can be set for each control station device (e.g. keypads, dimmers, etc.). The Engraving properties and other control station properties can be accessed by right mouse-clicking underneath a control station in the viewer. A menu pops up:



- **Clear** deletes all the devices in the selected control station.
- **Rename** renames the control station.
- **Paste** inserts the cut device in the clipboard.
- **Show Markers** highlights the engraving locations.
- **Engraving Properties** pops up a window with the engraving properties of the selected control station device. The Engraving Properties window also has the faceplate color of the selected control station. See [User Preferences](#) for information on setting control station defaults.



To change only the selected control station device, uncheck the Apply to the entire control station checkbox. Clicking the **Ok** button in the Engraving Properties window updates the control station device (or the entire control station) immediately.

NOTE: seeTouch keypads can only have a 10 point font size.

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2.2 Programming Model Details

HomeWorks Interactive supports six different programming models, allowing the user to accomplish different programming functions (toggle, sequencing, raise/lower, etc.).

Default (Toggle, Single Action, Dual Action)

Advanced Toggle

Manual Sequence

Automatic Sequence

Raise / Lower

Conditional

Important Information on Default States

When programming a toggle feature, it is important to take into consideration the default state of the item you are programming. If you have a load programmed to a toggle button at 75%, the load will toggle between 75% and OFF. In this case, a dimmer's default state is OFF. If you program the default state of an item to a toggle button, it will not toggle. For instance, if a button is programmed to set the level of a specific load to 0% (OFF), pressing that button again will not toggle it to anything other than OFF. The following is a list of programmable items and their respective default states.

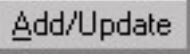
<u>Type</u>	<u>Default State</u>
Dimmer/Switch	OFF
GRAFIK Eye	OFF
Maintained Contact Closure	OFF
Pulsed Output Closure	OFF
Serial	(none)
Time Clock Schedule	Enabled
Keypad	Enabled
True/False Variables	False
State Variables	OFF State
Sequences	If Paused, Start - Otherwise, Stop

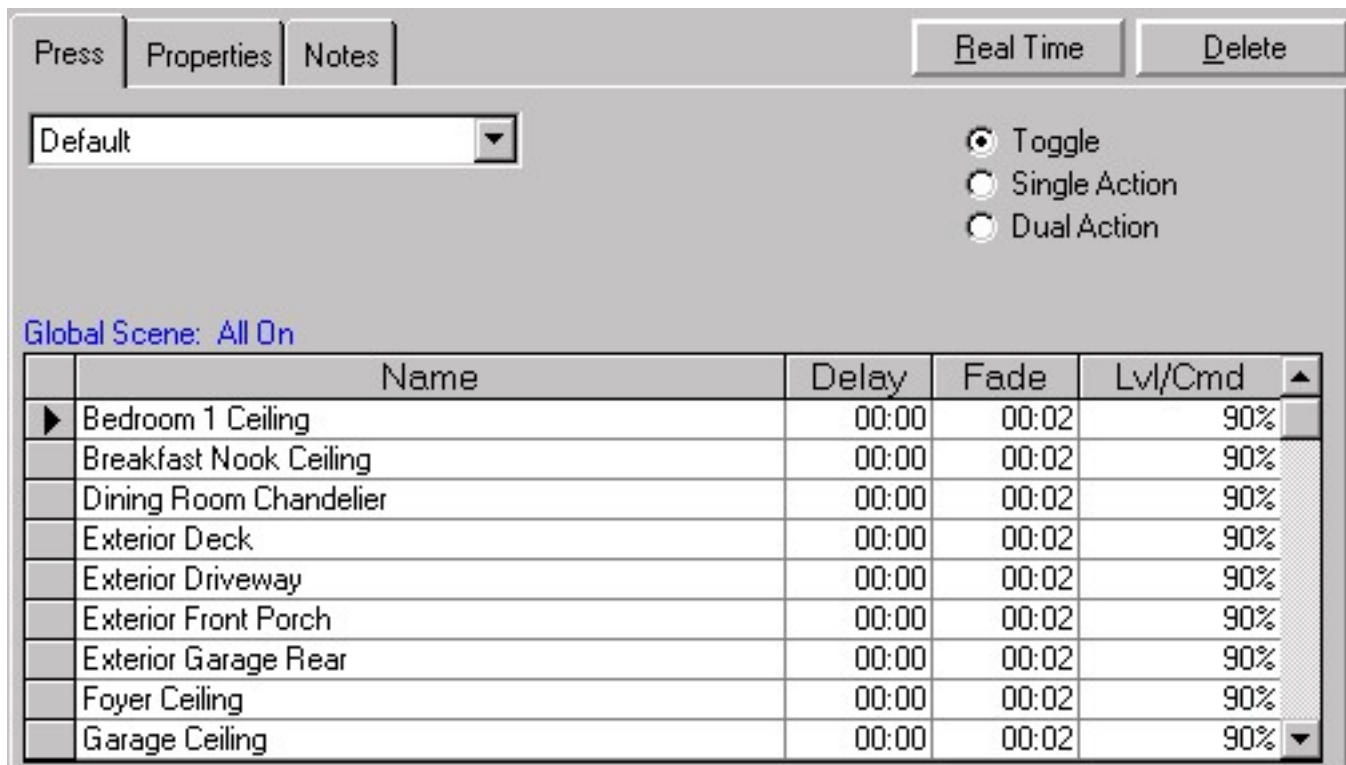
Vacation Mode	Stop
Security Mode	Terminate
Scene Saver Mode	Terminate
Motors	Stop
Ceiling Fans	OFF
Sivoia Controls	Stop

2.2.1 Default Model

The **Default model** is used to accomplish the most commonly desired functions such as turning on lighting zones to a preset level, then turning them off.

Presets are defined by selecting items from **Lighting, Keypads, Interfaces, Global**, etc. and assigning them to the grid for the current button by clicking the

 button.



Name	Delay	Fade	Lvl/Cmd
Bedroom 1 Ceiling	00:00	00:02	90%
Breakfast Nook Ceiling	00:00	00:02	90%
Dining Room Chandelier	00:00	00:02	90%
Exterior Deck	00:00	00:02	90%
Exterior Driveway	00:00	00:02	90%
Exterior Front Porch	00:00	00:02	90%
Exterior Garage Rear	00:00	00:02	90%
Foyer Ceiling	00:00	00:02	90%
Garage Ceiling	00:00	00:02	90%

The properties tab allows you to add more features to a button (cycle dim, double-tap, etc.) and to set up the LED logic. By checking **Double-Tap**, you'll notice a second tab appear, allowing a separate double-tap preset to be programmed.

Press	Double-Tap	Properties	Notes	Real Time	Delete

Display
☒ Show Delay and Fade

LED Logic
☐ Reverse LED Logic

Actions
☐ Scene Saver
☐ Cycle Dim
☒ Double-Tap

Type:

Scene
 Room
Scene
 Pathway
 Always ON
 Momentary ON when Pressed
 via RS-232 LED

LED Logic may be set to any of the following types:

1. **Room** - LED is on (true) when at least one of the zones programmed on the Press preset is on. Otherwise, the LED is off (false). Room logic is typically used as a monitoring function (i.e. Are any of the basement lights on?).
2. **Scene** - LED is on (true) when all of the zones are at the exact levels programmed on the Press preset. Otherwise the LED is off (false). Scene logic is typically used to tell what state a room is in (i.e. Is the Family Room in the Entertain Scene?).
3. **Pathway** - LED is on (true) when all of the zones programmed under the Press preset are on at any level. Otherwise the LED is off (false). Pathway logic is typically used to tell whether or not a path is lit up. (i.e. Is the Kitchen to MBR pathway lit up?).
4. **Always On** - LED is always on, regardless of what the button does.
5. **Momentary On when Pressed** - LED is on only while the button is pressed. As soon as the button is released, the LED is off.
6. **via RS232 LED** - LED is turned on and off via an RS232 command. The default state of the LED is off. When the RS232 command to turn on the LED is received, the LED will turn on and stay on until the RS232 command to turn off is received. If power to the processor is lost and then restored, the LED will return to its previous state.

If Reverse LED Logic is checked, the LED will be on when the logic is false and off when the logic is true. **NOTE:** Reverse LED logic only applies to **Room**,

Scene and Pathway logic.

Cycle Dim mode can be added to a button by checking the cycle dim box on the properties tab in the control station programming screen. Cycle Dim mode is only available for Default and Advanced Toggle programming models. By default, cycle dim mode operates as follows: When the keypad button is pressed for more than 0.5 seconds, cycle dim mode is activated and the zones in the preset will raise intensity while the button is held. When the button is released, the zones will stop raising and remain at the current intensity. When the button is pressed again, it will lower the intensity of the zones. When the button is released again, it will stop lowering. This alternation between raise and lower will continue until the level that the user desires is achieved. Four seconds after the last raise or lower operation, cycle dim mode is deactivated and the button returns to its normal operation.

If the user desires further fine-tuning, he/she merely presses and holds the button for more than 0.5 seconds and the cycle dim mode will be reactivated.

2.2.2 Advanced Toggle Model

Advanced Toggle allows the user to toggle between two programmable presets. Unlike default toggle which toggles between a programmable "ON" state and the default OFF state, Advanced Toggle toggles between a programmable "ON" and a programmable "OFF". Among other things, this allows the fade rate to be different for the ON and OFF presets.

	Name	Delay	Fade	Lvl/Cmd
▶	Bedroom 1 Ceiling	00:00	00:02	75%
	Breakfast Nook Bath/Vanity 1	00:00	00:02	66%

Use the navigational arrows  to move between presets.

2.2.3 Manual Sequence Model

Manual Sequence is used when multiple scenes and/or functions are needed from a single button. A good analogy of a manual sequence is to think of a ceiling fan. When you pull the chain, the fan is on High. Pulling the chain again sets it on Medium, etc. There is no way to go from Medium to High without going past Low and Off. The manual sequence works the same way. Five presets are created by default. To add a preset, press the  button. To delete a preset, press the  button. **NOTE:** It is important to delete any unused presets in the manual sequence. If an unused preset is left in the sequence, the button that advances the presets will do nothing for that press.

Press

Properties

Notes

Real Time

Delete

Manual Sequence

LED State: ON

Preset: Bedroom light on

Preset 1 of 5

<<

<

>

>>





	Name	Delay	Fade	Lvl/Cmd
▶	Bedroom 1 Ceiling	00:00	00:02	100%

Next Preset on Press

Each preset in the sequence has an associated LED state. The possible LED states are **Flash 1**, **Flash 2**, **OFF** and **ON**. Flash 1 flashes at a faster rate than Flash 2 but both can be changed in the [User Preferences](#) screen.

The default transition from one preset to the next is to advance to the next preset on a button press. A sequence can also be setup to automatically advance to the next preset. To change the default transition, click on the down-arrow in the bottom list box displaying **Next Preset on Press** and select **Next Preset on Press or After:**. This will display a new time box.

A screenshot of a software interface element. It consists of a rectangular box with a light gray border. Inside the box, on the left, is a text label 'Next Preset on Press or After:' followed by a small downward-pointing arrow icon. To the right of this is a text field containing the value '00:01'. To the right of the text field is a small square button containing two upward-pointing arrows.

Press the raise/lower  buttons to change the time or type the time in the format mm:ss. This is the time the sequence will wait before automatically advancing to the next preset. This automatic advance is useful when programming a raise-stop-lower-stop sequence.

2.2.4 Automatic Sequence Model

Automatic Sequence allows one to play a series of presets in succession and terminate after a given number of loops, a given amount of time, or upon a button press. This has useful applications for security sequences, landscape lighting displays, artwork gallery displays, and house tours.

	Name	Delay	Fade	Lvl/Cmd
▶	Breakfast Nook Bath/Vanity 1	00:00	00:02	100%
	Breakfast Nook Ceiling	00:00	00:02	100%
	Breakfast Nook Downlight 1	00:00	00:02	100%
	Breakfast Nook Table Lamp 1	00:00	00:02	100%

1. Setup the presets you wish to display in the Automatic Sequence (use the navigational tools , add / remove preset buttons).
2. Set the Dwell time for each state in the sequence to indicate how long it will stay in that state before changing to the next (the Dwell time for a state should be set to a time $\geq$ the maximum combined time of the delay and fade for that state's preset). *Note: Dwell time does not equal fade + delay.*
3. Decide how long the sequence is to run: 1 loop, 10 loops, 50:00, etc.

4. Decide what will happen when the Automatic Sequence terminates. Do you want the lights to turn OFF when the sequence is through running? Select the Terminate tab and setup the termination preset.

2.2.5 Raise/Lower Model

The HomeWorks Interactive system allows any button to be programmed as a **Master** or **Single Scene Raise/Lower** button for lighting. A Master Raise/Lower button will raise/lower the last button affected on that control station. A Single Scene Raise/Lower button will raise/lower the lighting preset assigned to the button.

The screenshot shows a software window with tabs labeled 'Press', 'Properties', and 'Notes'. On the right side, there are buttons for 'Real Time' and 'Delete'. In the main area, there is a dropdown menu set to 'Raise/Lower' and two radio buttons, 'Raise' (which is selected) and 'Lower'. Below this, there is a 'Type' label followed by a dropdown menu set to 'Master (Ltg)'.

The screenshot shows the same software window, but the 'Type' dropdown is now set to 'Single Scene (Ltg)'. Below the 'Type' dropdown, there is a table with a header 'Name' and a list of lighting presets. The first item in the list is 'Breakfast Nook Bath/Vanity 1', which is highlighted with a mouse cursor. The other items are 'Breakfast Nook Ceiling', 'Breakfast Nook Downlight 1', and 'Breakfast Nook Table Lamp 1'.

	Name
▶	Breakfast Nook Bath/Vanity 1
	Breakfast Nook Ceiling
	Breakfast Nook Downlight 1
	Breakfast Nook Table Lamp 1

The HomeWorks Interactive system also allows any button to be programmed as a **Jog** or a **4-Stage Jog** for motors. Both Jog and 4-Stage Jog are used for motors that have been assigned to HW-RPM-4M modules. Jog will raise or lower the motor for the jog time set in [User Preferences](#). A 4-Stage jog button works as follows:

- Stage 1 – push and release programmed button for less than $\frac{1}{2}$ sec. and the shade will JOG.
- Stage 2 – push the programmed button for more than $\frac{1}{2}$ sec. and the shade will first JOG and then continue in the same direction.
- Stage 3 – release the programmed button after $\frac{1}{2}$ sec. but before 2 secs. and the shade will STOP.
- Stage 4 – release the programmed button after 2 sec and the shade will continue to it's limits.

2.2.6 Conditional Model

The Conditional model is used when the desired button action is dependent upon some other system device, variable, sequence state, etc..

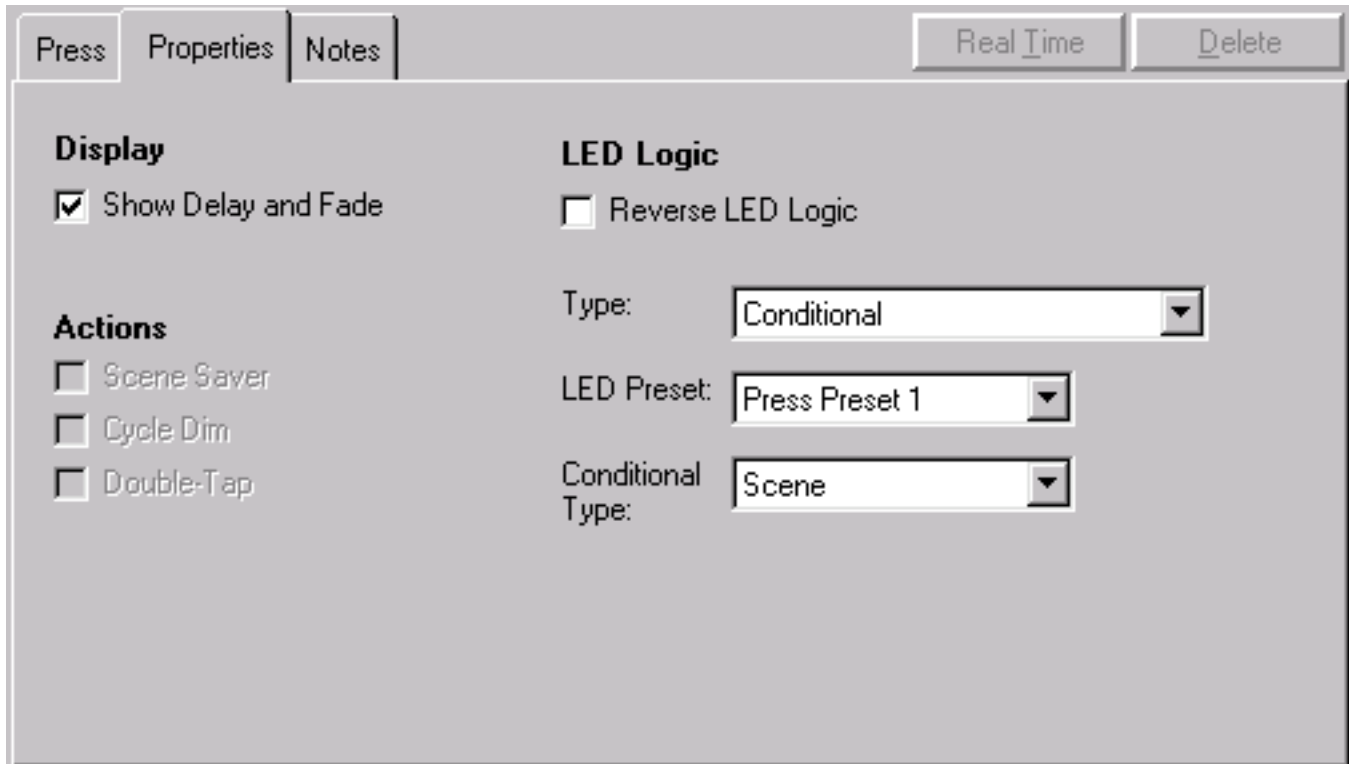
1. Setup the presets which are to be executed.
2. Name the presets (i.e. Goodnight Scene, Landscape Lighting Full On, Breakfast Nook On etc.) so that the names appear in the actions tab of the conditional programming screen.

The screenshot shows a software window for configuring a Conditional model. At the top, there are tabs for 'Press', 'Properties', and 'Notes', with 'Properties' being the active tab. To the right of these tabs are buttons for 'Real Time' and 'Delete'. Below the tabs is a dropdown menu currently set to 'Conditional'. The main area of the window is titled 'Preset: Breakfast Nook On'. To the right of this title, it says 'Preset 1 of 2' and includes navigation buttons: '<<', '<', '>', '>>', a document icon, and a red 'X' icon. Below this is a table with four columns: 'Name', 'Delay', 'Fade', and 'Lvl/Cmd'. The table contains four rows of data, all with a delay of '00:00' and a fade of '00:02'. On the left side of the window, there is a vertical sidebar with two buttons: 'Conditional' (which is highlighted) and 'Presets'.

	Name	Delay	Fade	Lvl/Cmd
▶	Breakfast Nook Bath/Vanity 1	00:00	00:02	100%
	Breakfast Nook Ceiling	00:00	00:02	100%
	Breakfast Nook Downlight 1	00:00	00:02	100%
	Breakfast Nook Table Lamp 1	00:00	00:02	100%

3. Setup the conditional statements which will determine when the presets are executed.
4. Click on the **Conditional** tab to view/edit the conditional statements.
5. Click on the Insert Condition  icon to pop up a selection box.

For further information go to the [Conditional Programming section](#).



The screenshot shows the 'Properties' tab of a software interface for a Conditional model. At the top, there are tabs for 'Press', 'Properties', and 'Notes', along with 'Real Time' and 'Delete' buttons. The 'Properties' tab is active and contains two main sections: 'Display' and 'LED Logic'. In the 'Display' section, the 'Show Delay and Fade' checkbox is checked. In the 'LED Logic' section, the 'Reverse LED Logic' checkbox is unchecked. Below these are three drop-down menus: 'Type' (set to 'Conditional'), 'LED Preset' (set to 'Press Preset 1'), and 'Conditional Type' (set to 'Scene'). On the left side of the 'Properties' tab, there is an 'Actions' section with three unchecked checkboxes: 'Scene Saver', 'Cycle Dim', and 'Double-Tap'.

The Properties tab of the Conditional model differs slightly from the programming models. The LED Logic type has an additional choice called Conditional. When selected, two more choices become available. These are the LED Preset and the Conditional Type drop-down list boxes. The LED Preset list box determines which preset will be used to determine if the LED lights. For example, if Press Preset 1 is selected, the LED will light only when conditional preset 1 is selected. Finally, the Type of LED logic can be set to either Room, Scene or Pathway. Refer to [LED Logic](#) listed above.

2.8 Conditional Programming

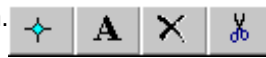
2.8.1 Creating a Conditional Program

To define a conditional model:

1. Go to the Programming screen.
2. Select the Conditional model in the combo box.
3. Click on the Conditional Tab.



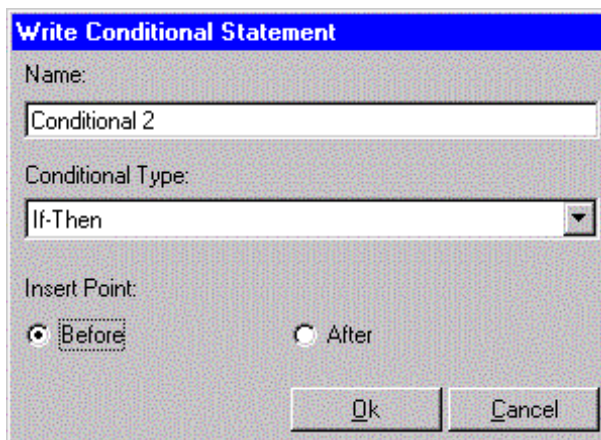
A new toolbar appears on the conditional screen.



Each icon has a unique function:

-  Create a conditional event.
-  Rename the event highlighted.
-  Delete a condition.
-  Clear all the conditions.

4. Click on the  button. A pop up box will appear.



The dialog box titled "Write Conditional Statement" has a blue header bar. It contains the following fields and controls:

- Name:** A text input field containing "Conditional 2".
- Conditional Type:** A dropdown menu with "If-Then" selected.
- Insert Point:** Two radio buttons labeled "Before" (selected) and "After".
- Buttons:** "Ok" and "Cancel" buttons at the bottom right.

5. Type in the name.

6. Choose the type of condition:

If-Then: Used to determine if a condition is met (true) before executing a preset.

Example: Before turning on the sprinklers, we want to know if it rained (in which case we wouldn't turn them on).

If Rain Sensor = False Then Execute Preset1 (Turn on the sprinklers).

If-Else: Used to determine if a condition is met (true) before executing a preset. If the condition is not met (false) a different preset is executed.

Example: If it is day time and I leave my house, turn all lights off, otherwise (Else) turn off all lights except the landscape.

If Time of Day = Day Time Then Execute Preset1 (Turn off all the lights)

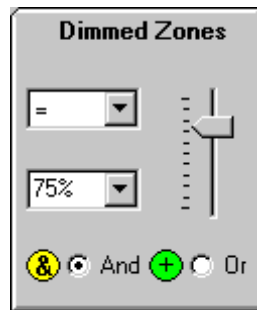
Else Execute Preset2 (Turn off all the lights except the landscape)

Always: This expression is always executed.

7. Click the  button.

Five different device conditions exist:

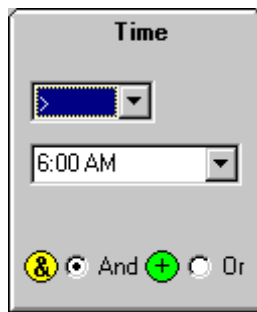
1. **Dimmed Zones** test if the light selected is greater, lower, different or equal to the specified level. It may also test if the light is on (at any level) or off.



2. **GRAFIK Eye Main Units** test if the GRAFIK Eye selected is on or off, if the scene selected is greater, lower, different or equal to a specific scene.



3. **Time** tests if the current time is greater, lower, different or equal to a specified time.



Time

☒ And ☒ Or

4. **Vacation Mode** tests if the vacation mode is Playing Back, Recording or Stopped.

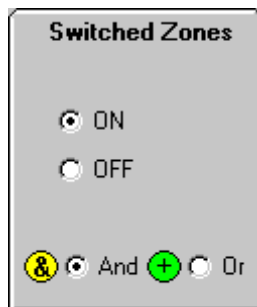


Vacation Mode

☒ Playing Back
☐ Recording
☐ Stopped

☒ And ☒ Or

5. The other types (**Switched Zones, Interfaces, Keypads**, etc.) test if the specified device is in one of two states (on/off, true/false, enable/disable, start/terminate, etc.).



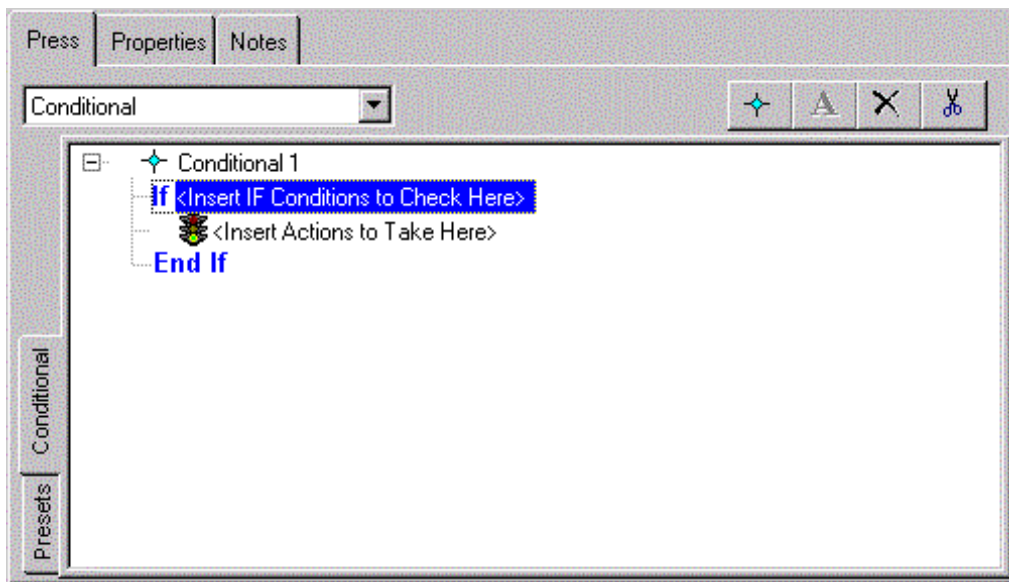
Switched Zones

☒ ON
☐ OFF

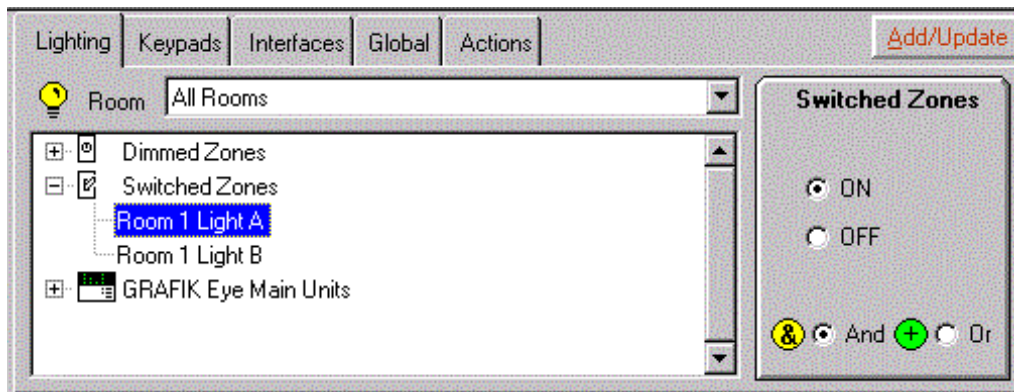
☒ And ☒ Or

To test several conditions use **And/Or**. For example, light A is ON **And** light B is OFF. To create this conditional:

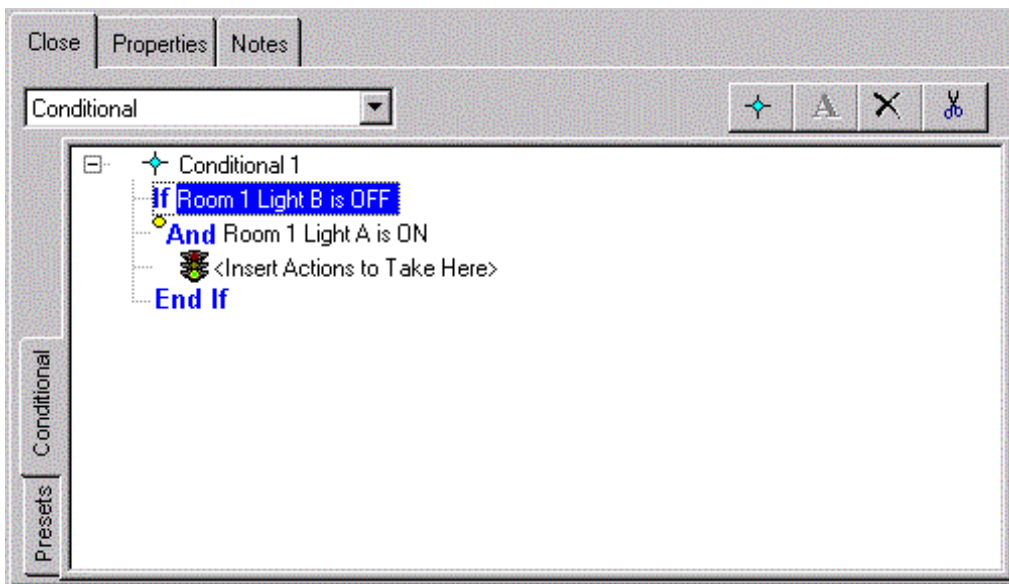
1. Click on the  button.
2. Select the If-Then condition.
3. Click the "If" line in the condition tab (<Insert IF Conditions to Check Here>).



4. Select Light A in the assignment list.



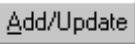
5. Choose the state: ON.
6. Click the  button.
7. Select Light B.
8. Choose state OFF.
9. Select the radio button **And**.
10. Click the  button.

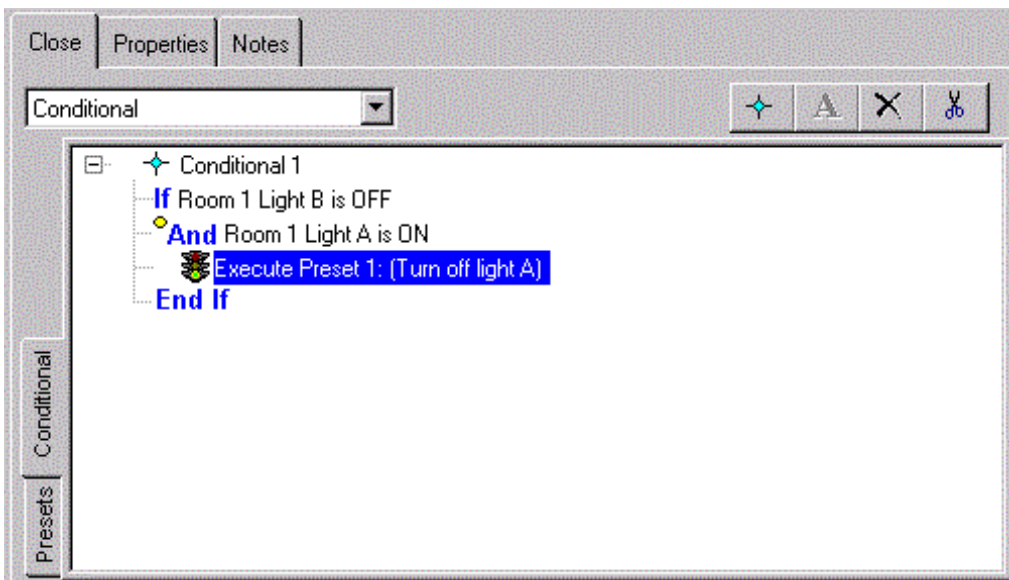


To create a conditional event with Or, follow the same procedure and select Or instead of And.

Note: By double clicking on the And (Or) you can change from And (Or) to Or (And).

To assign the action to be taken when the condition is met:

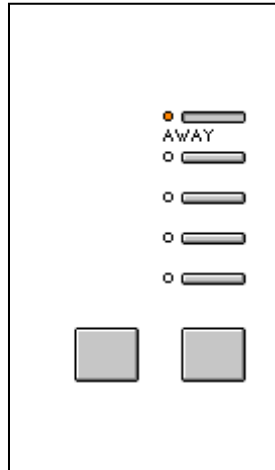
1. Click on the Actions tab. 
2. Select the preset to assign.
3. Select the place in the condition where the action is to be inserted (<Insert Actions to Take Here>).
4. Click on the  button.



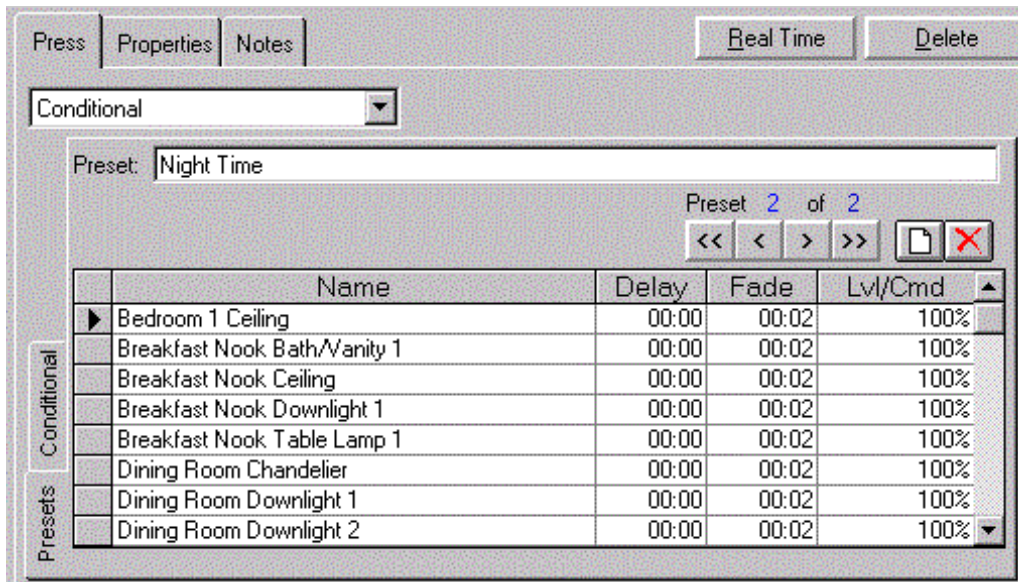
2.8.2 Programming Example - Away Button

During the day, the Away button will turn all lights off. At night, the Away button will turn all lights off except the landscape. Two presets are needed: Night Time scene and Day Time scene. To create the conditional event for the Away button:

1. Go to the Programming screen.
2. Select the Away button on the left of the Programming screen.



3. Select Conditional in the combo box on the right.
4. Setup Preset 1 as the day time scene and name it Day Time.
5. Setup Preset 2 as the night time scene and name it Night Time.

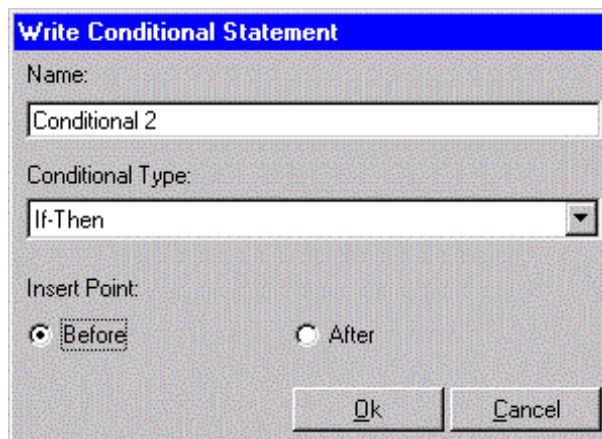


6. Click on the Conditional tab.

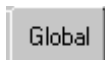


7. Click on the  button.

8. Select the If-Then Condition.

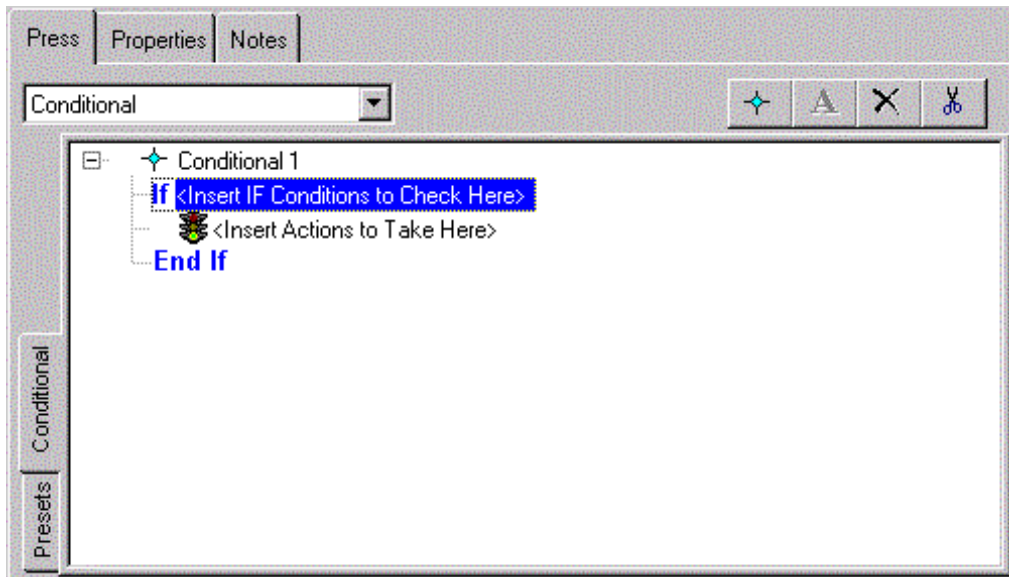


9. Select the Global tab on the top.

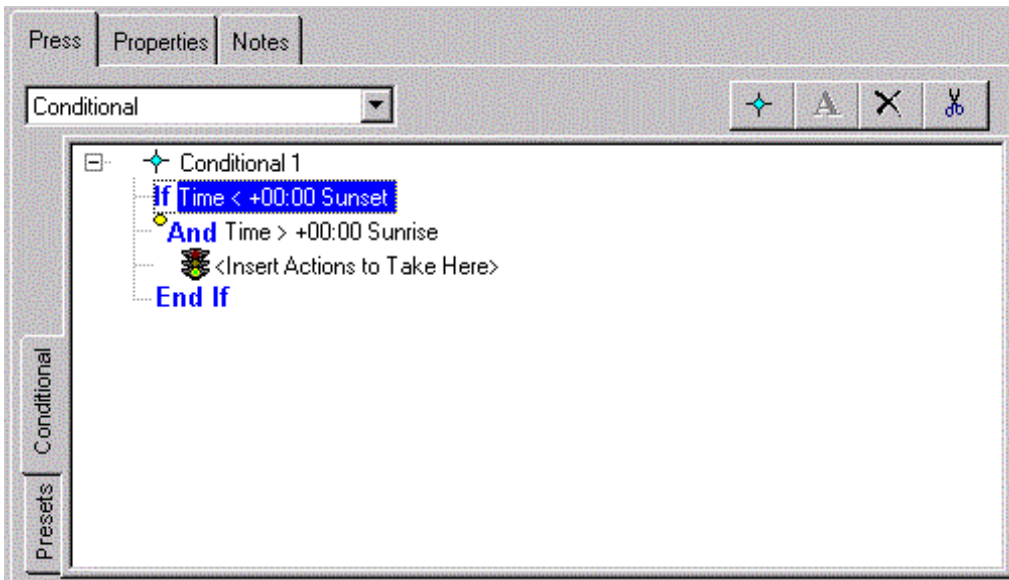


10. Select Astronomic Time.

11. Select where the condition is to be inserted (<Insert IF Conditions to Check Here>).



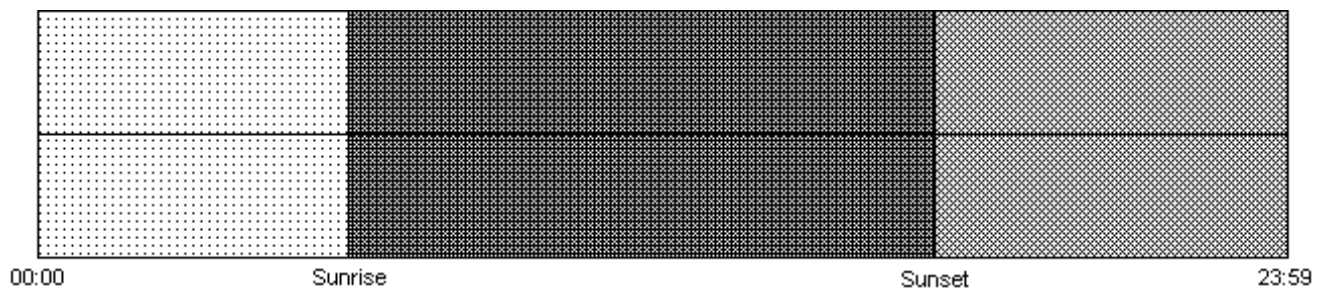
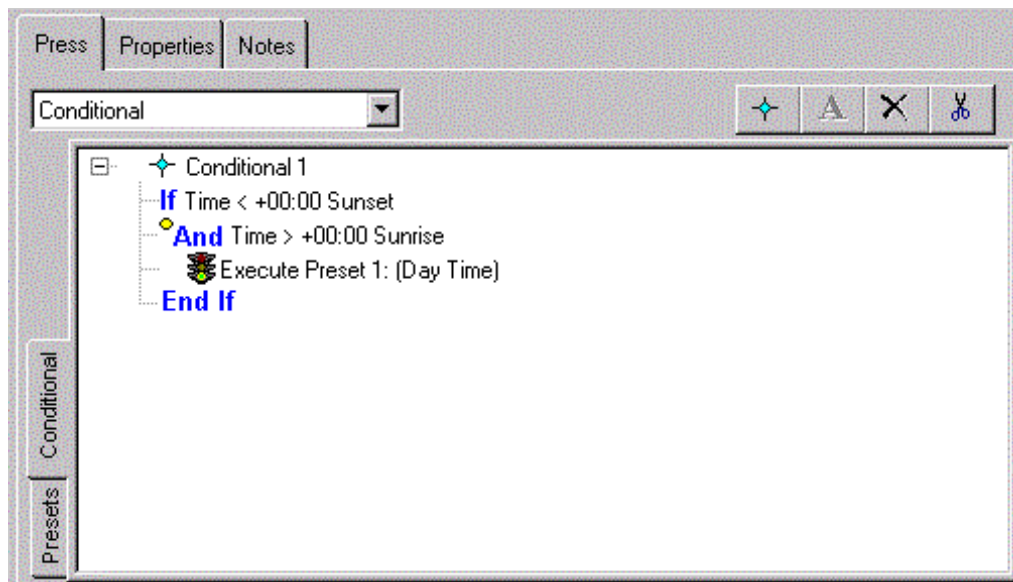
12. Add the condition "Time > +00:00 Sunrise" **And** "Time < +00:00 Sunset".



13. Click on the Actions tab.



14. Select the Preset that corresponds to the condition, Preset 1: (Day Time).



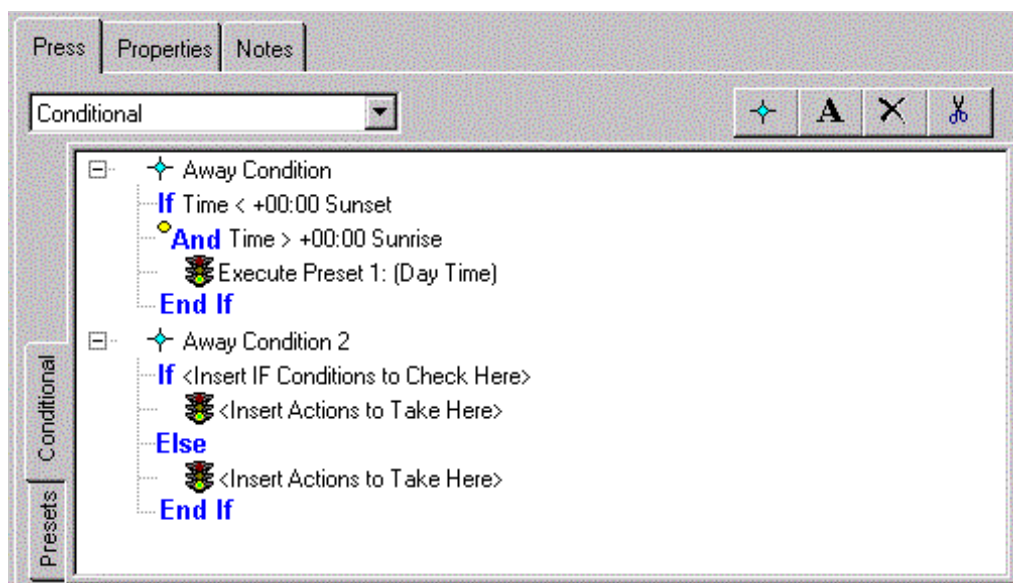
Time < +00:00 Sunset
 Time < +00:00 Sunset **And** Time > +00:00 Sunrise
 Time > +00:00 Sunrise

15. To execute the Night Time scene (Preset 2) the condition has to be changed to an If-Else condition (for example purposes we have started with If-Then to show how to move conditions).

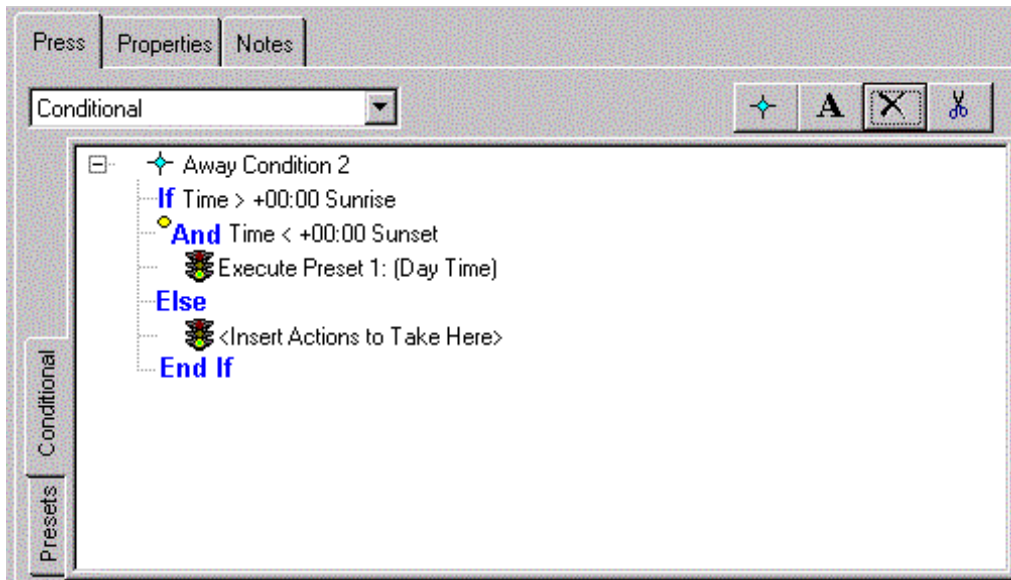
16. Click on the  button.

17. Select the condition If-Else.

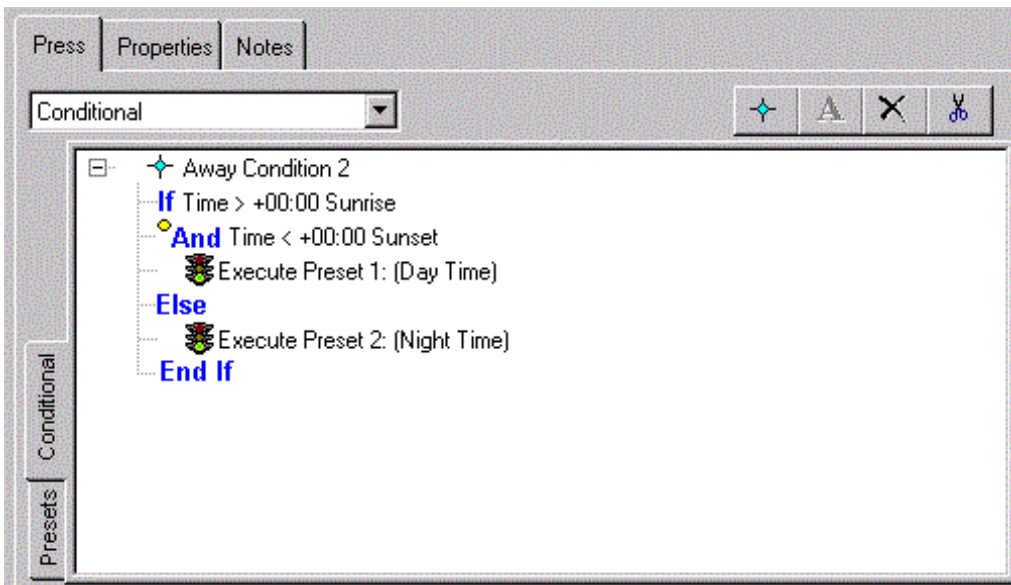
18. Click on the  button.



19. To move the conditions, right-click on them. Then drag and drop them on Away Condition 2.
20. Do the same thing with Execute Preset 1: (Day Time) and drop it on Away Condition 2.
21. Click on the Away Condition and delete it by clicking on the  button.



22. Assign the Preset 2: (Night Time) to the action just after the Else.



2.8.3 Programming Example - Toggle Between Presets Based On Time of Day

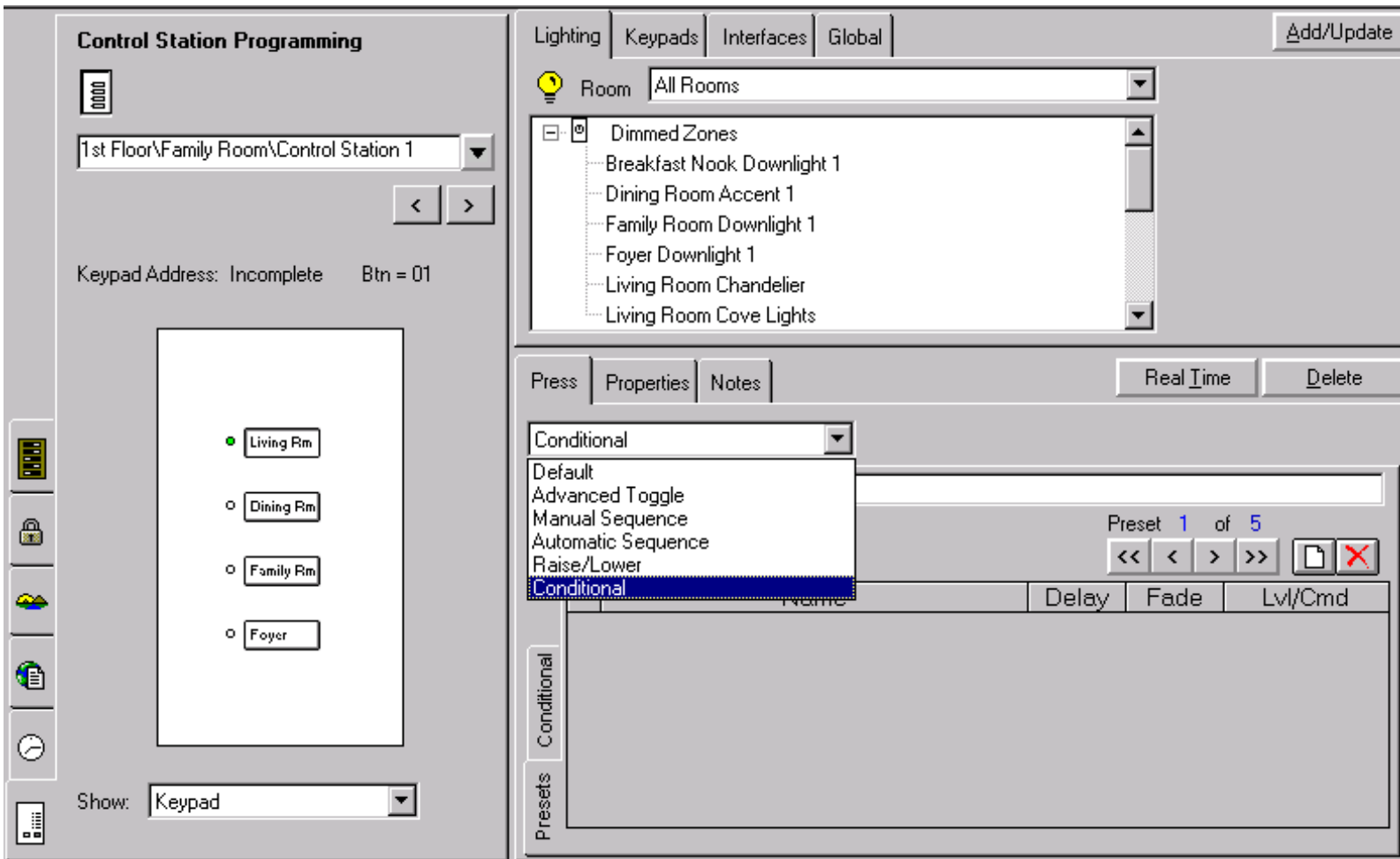
A typical button function is to toggle between an on preset and an off preset with alternate button presses. It is often desirable to choose between two presets based upon the time of day. The only way to combine these two functions is with conditional programming. The desired function is to execute either a day preset or a night preset, based upon the time of day, with the first button press and then execute an off preset with a second button press. In the following example, lights in the Living Room will be used to create the Toggle Between Presets Based Upon Time of Day function.

1. In order to determine if the lights are on in the Living Room, either the Day Preset or the Night Preset, a True/False Variable needs to be created. A State Variable is not required, since the Living Room lights will either be on, either from the Day Preset or the Night Preset, or the lights will be off.
 - a. To add the True/False Variable, go to the Programming screen by pressing the  button on the toolbar.

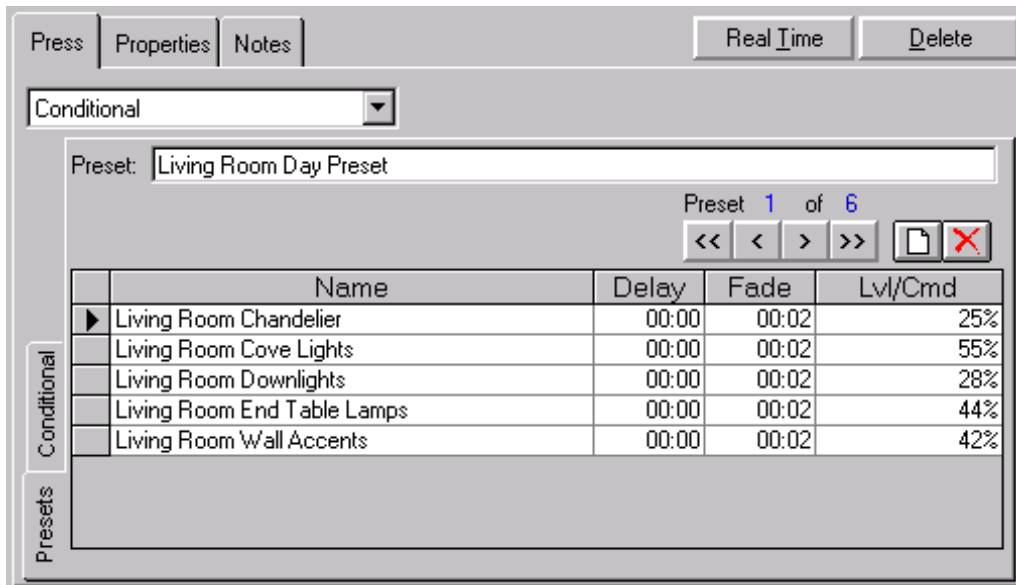
- b. In the Programming screen, select the Global tab in the upper right-hand side.
- c. Select the True/False Variables in the list box and press the **Add** button.
- d. Type "Living Rm Lights On" into the Enter Variable Name box that appears.



2. In the Programming screen, select the button on the control station that will have the Toggle Between Presets Based Upon Time of Day function.
3. In the drop-down list in the lower right of the Programming screen, select the Conditional programming model.



4. This conditional will need six presets so press the  button to add preset number 6.
5. The first preset will be the Day Preset for the living room. The image below shows an example of a Day Preset.

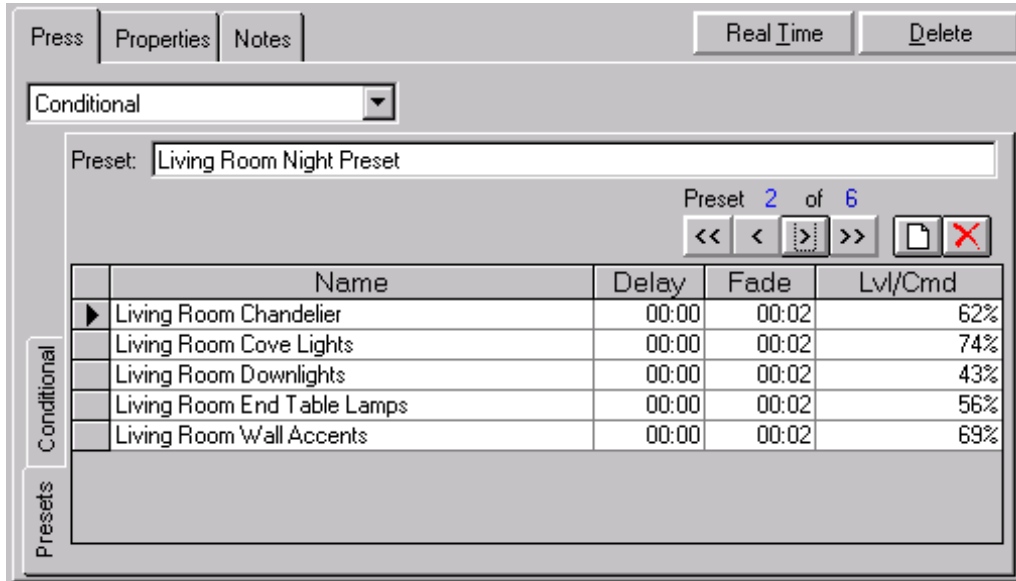


The screenshot shows a software window titled 'Conditional' with tabs for 'Press', 'Properties', and 'Notes'. The 'Conditional' dropdown is selected. Below it, the 'Preset' field is set to 'Living Room Day Preset'. To the right, it says 'Preset 1 of 6'. Navigation buttons include '<<', '<', '>', '>>', an 'Add' button (document icon), and a 'Delete' button (X icon). A table lists the light fixtures and their settings:

	Name	Delay	Fade	Lvl/Cmd
▶	Living Room Chandelier	00:00	00:02	25%
	Living Room Cove Lights	00:00	00:02	55%
	Living Room Downlights	00:00	00:02	28%
	Living Room End Table Lamps	00:00	00:02	44%
	Living Room Wall Accents	00:00	00:02	42%

On the left side of the window, there are two vertical labels: 'Conditional' and 'Presets'.

6. The second preset will be the Night Preset for the living room. The image below shows an example of a Night Preset. When compared to the previous image, the light levels for each zone are lower in the Day Preset to make use of available daylight.

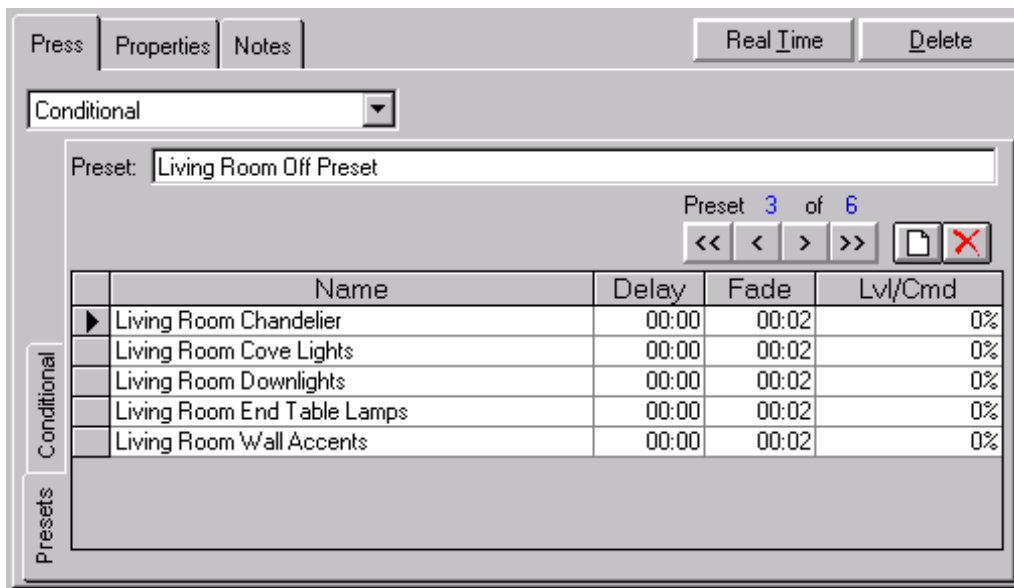


The screenshot shows the same software window, but the 'Preset' field is now 'Living Room Night Preset'. It indicates 'Preset 2 of 6'. The 'Add' button is highlighted. The table shows the following settings:

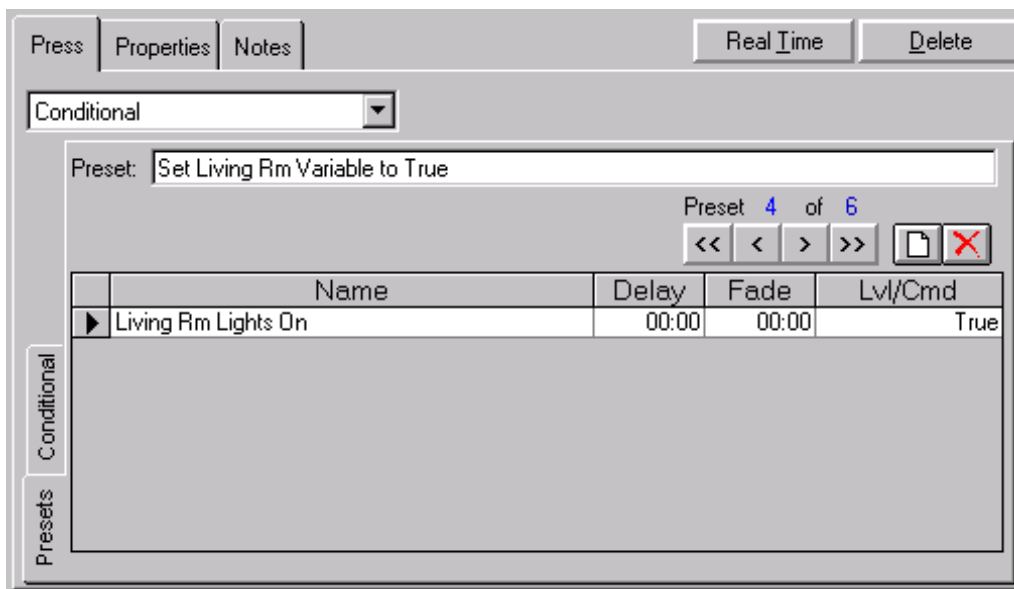
	Name	Delay	Fade	Lvl/Cmd
▶	Living Room Chandelier	00:00	00:02	62%
	Living Room Cove Lights	00:00	00:02	74%
	Living Room Downlights	00:00	00:02	43%
	Living Room End Table Lamps	00:00	00:02	56%
	Living Room Wall Accents	00:00	00:02	69%

The 'Conditional' and 'Presets' labels are still visible on the left.

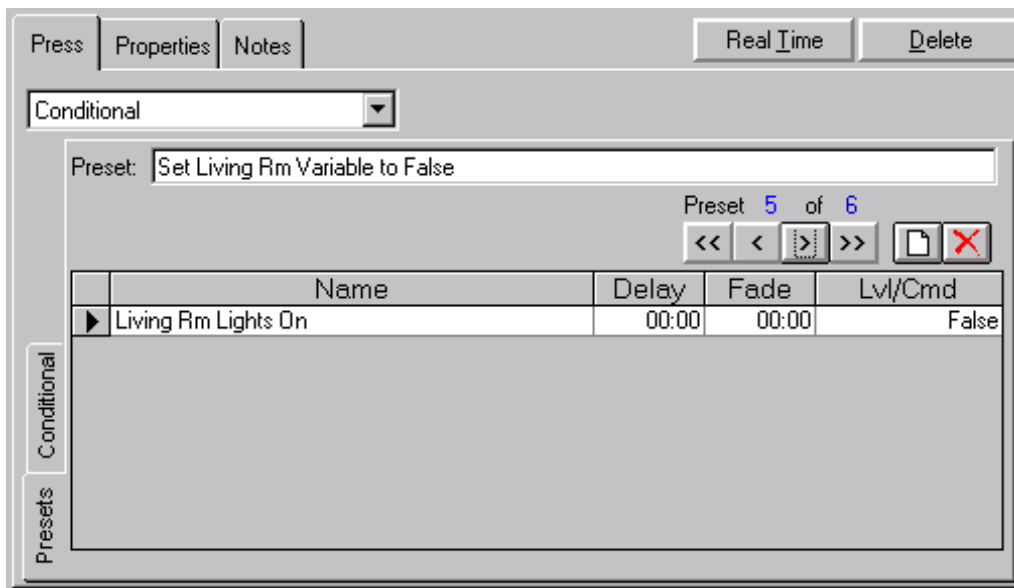
7. The third preset will be the Off Preset, as indicated in the image below.



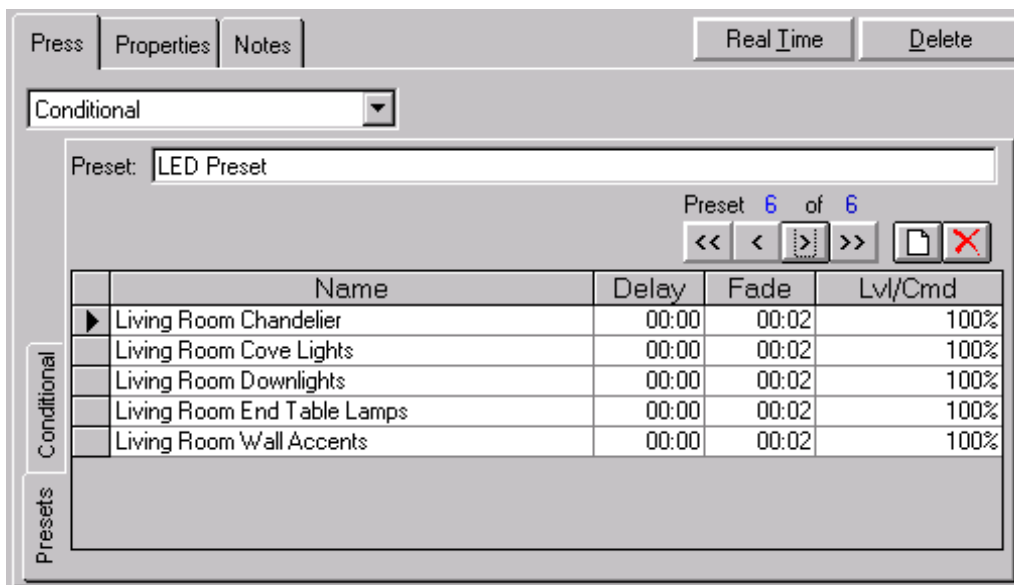
8. The next preset is used to set the True/False Variable "Living Rm Lights On" to true. This action could have been added to both the Night Preset and the Day Preset. For explanation purposes, this action is a preset of its own, as shown below.



9. The fifth preset is used to set the True/False Variable "Living Rm Lights On" to false. This action also does not to be a separate preset. It could be part of the Off Preset, but is in a preset by itself for clarity of explanation.



10. The last preset is used to turn on the LED associated with this button. The image below shows all the intensities of the Day and Night Presets set to 100%. Any value other than 0% is acceptable for this preset.



11. In order for the LED Preset to drive the LED on the keypad, the LED properties need to be set. Click on the Properties tab and set the LED Logic Type to [Conditional](#), the LED Preset to Press Preset 6 and the Conditional Type to [Pathway](#).

Press Properties Notes Real Time Delete

Display

☒ Show Delay and Fade

Actions

☐ Cycle Dim

☐ Double-Tap

LED Logic

☐ Reverse LED Logic

Type: Conditional

LED Preset: Press Preset 6

Conditional Type: Pathway

12. Click the Conditional tab  to begin building the conditional.

13. Click on the  button to add a new conditional and select an If-Else conditional from the drop down list. In the example below, the conditional was named "Check If Lights Are Off."

Write Conditional Statement

Name:

Check If Lights Are Off

Conditional Type:

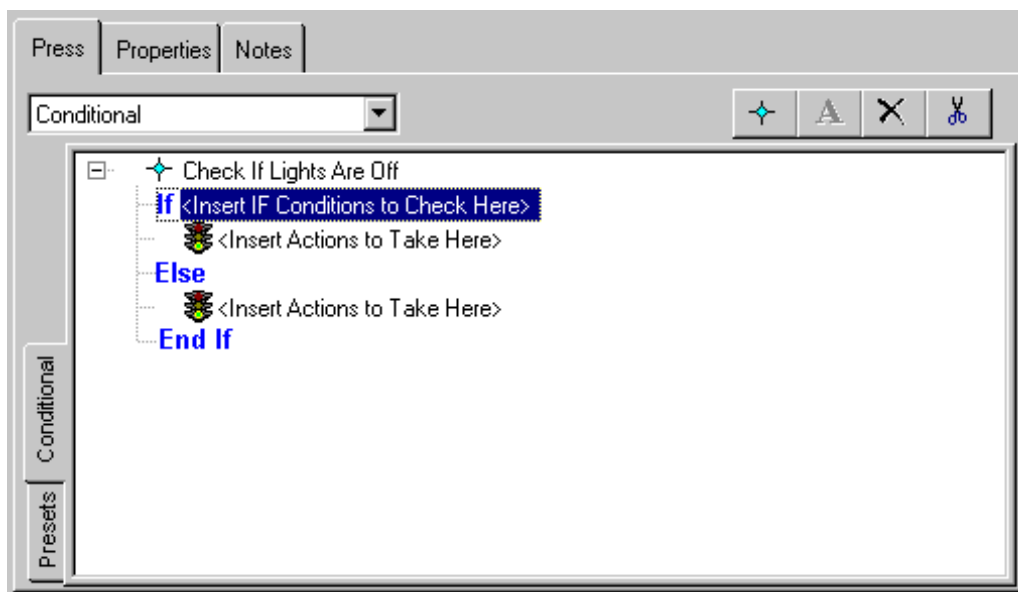
If-Else

Insert Point:

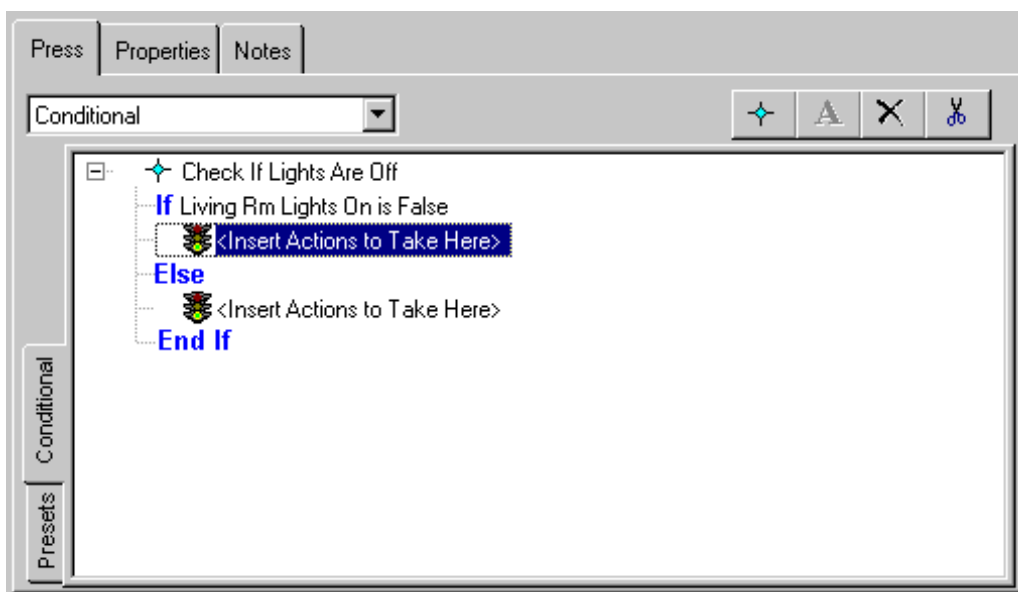
☒ Before ☐ After

Ok Cancel

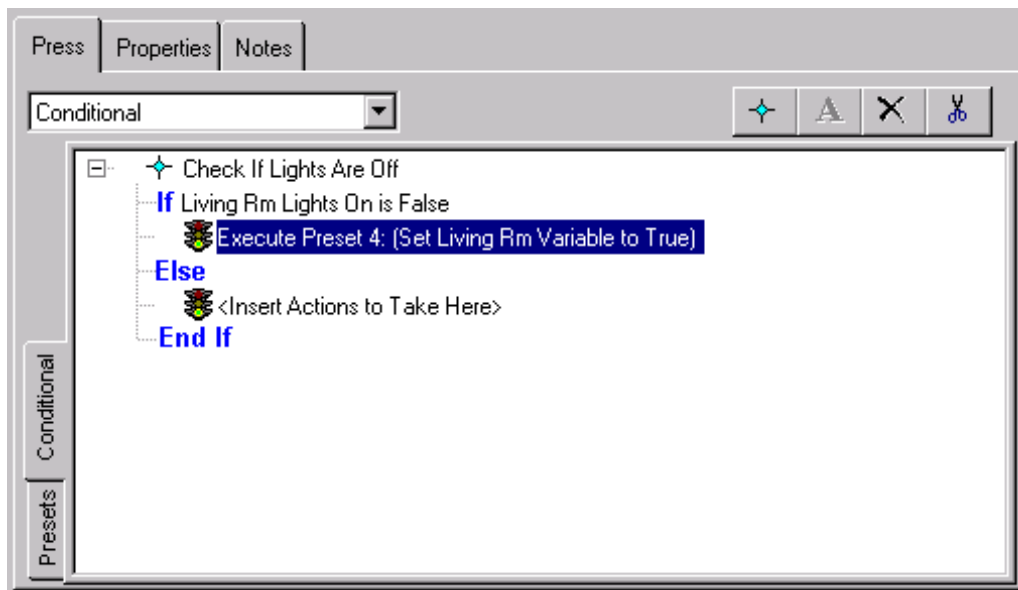
14. The contents of the conditional tab should look like the example below.



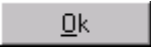
15. Add the IF Condition to check in the **If** portion of the conditional. In this example, the True/False Variable "Living Rm Lights On" should be False. First, select the **If** line of the condition where the IF Condition will be inserted, as shown above. In the Global tab, select the variable and set the state to False, then press the **Add/Update** button. The conditional statement should now look like the example below.

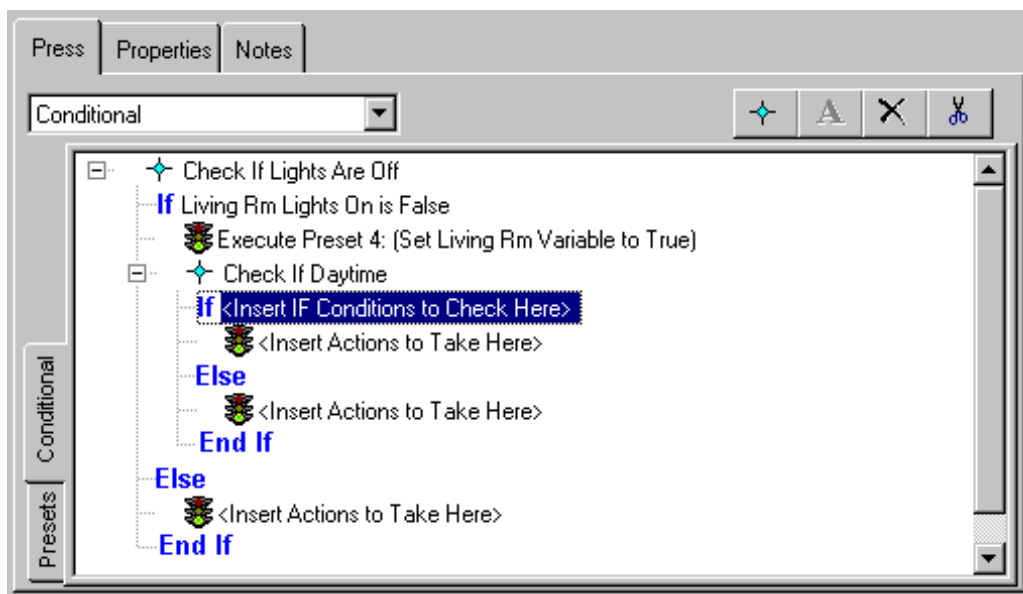


15. Select the first "<Insert Actions to Take Here>", as shown above. This action needs to set the Variable "Living Rm Lights On to true, since this action can only be executed if it was false. Select the Preset labeled "Preset 4:Set Living Rm Variable to True" in the Actions tab and press the **Add/Update** button. Reselect "Execute Preset 4: ..." for the next step, as indicated below.

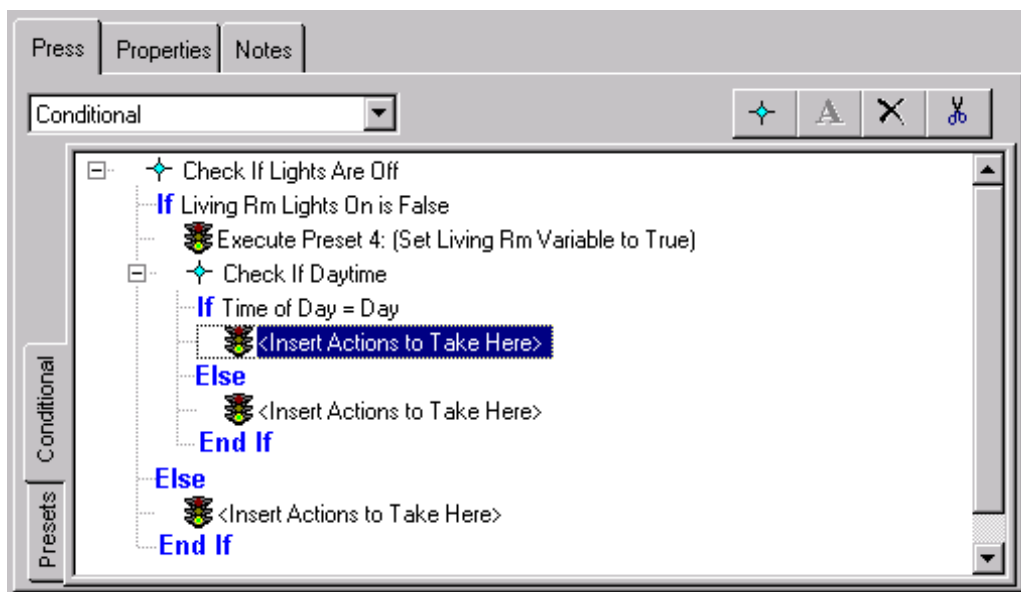


16. Press the  button to add another conditional. Select If-Else from the drop-down list for Conditional Type and select the After option for the Insert Point. Rename Conditional 2 to Check If Daytime.

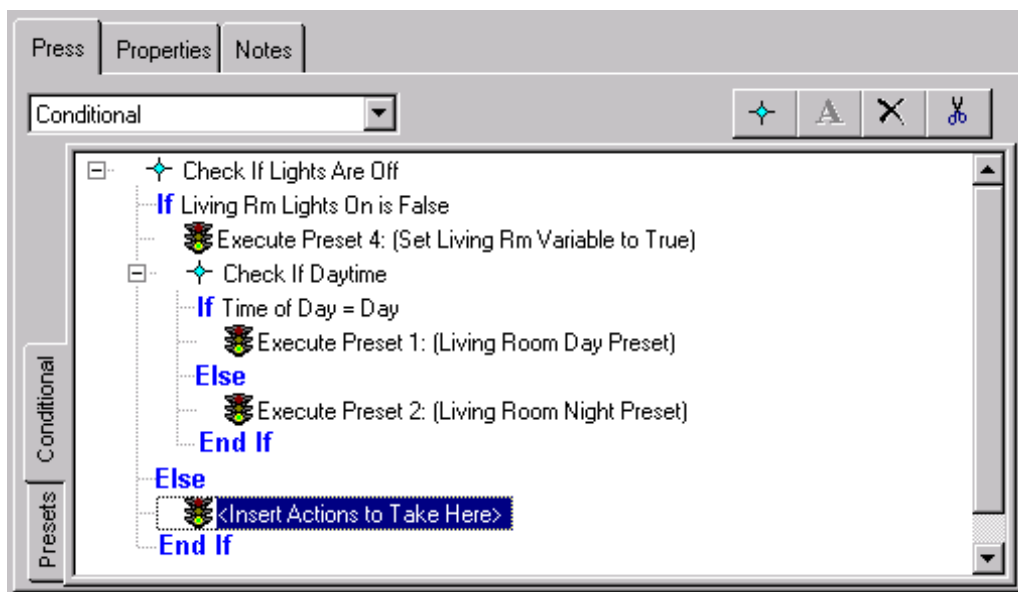
17. Press the  button on the Write Conditional Statement screen to add the new conditional statement. Select the new **if** condition as indicated below.



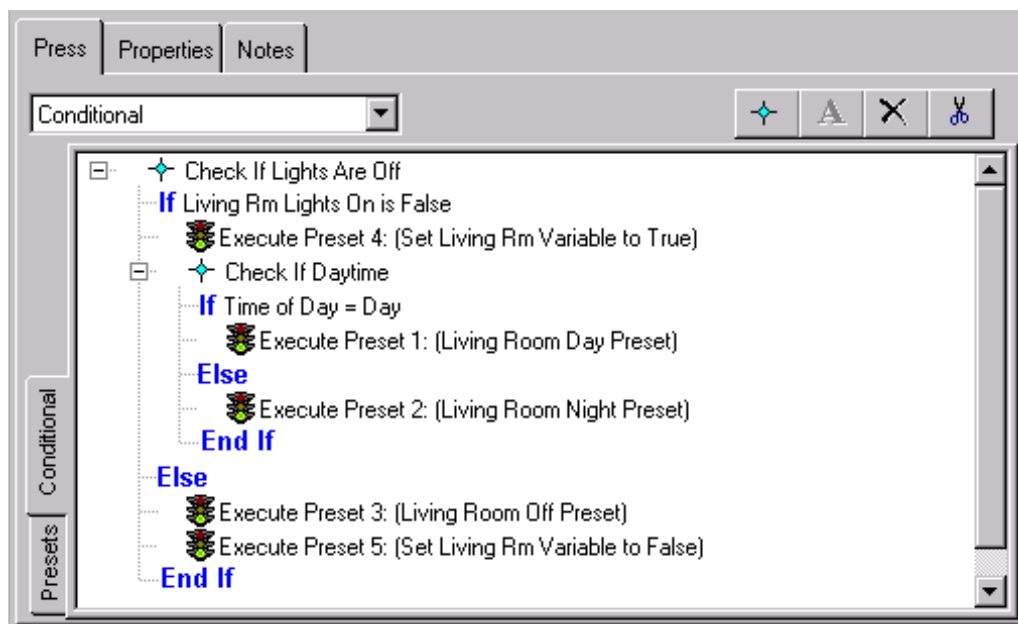
18. As this conditional statement is checking if it is daytime, we need to check the State Variable "Time Of Day", which gets set by the astronomic time clock. In the **Global** tab, select the Time Of Day variable. With the arithmetic symbol set to equals (=), set the state to Day and press the **Add/Update** button.



19. With the first execute highlighted, as shown above, select Preset 1: Living Room Day Preset in the Actions tab and press the **Add/Update** button.
20. Highlight the second action of the Check If Daytime conditional, select Preset 2: Living Room Night Preset in the Actions tab and press the **Add/Update** button. The Conditional tab should now look like the example below.



21. Highlight the **Else** action of the Check If Lights Are Off conditional, as shown above. The else condition requires two actions, set the Living Rm Lights On variable to False and select the Living Room Off Preset. Select Preset 3 in the actions tab, press the Shift key, then select Preset 5 and press the **Add/Update** button. The conditional statement is now complete and should look like the example below.



2.3 Using Programmable Dimmers

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[2.3.1 Introduction](#)

[2.3.2 Local \(Typical\)](#)

[2.3.3 Default Toggle \(local\)](#)

[2.3.4 Advanced Toggle \(local\)](#)

[2.3.5 Settings and Applications](#)

Requirements for Programmable Dimmers

All RF dimmers/switches as well as all devices wired to an H48 board are programmable dimmers. A device wired to a D48 board cannot be a programmable dimmer.

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2.3.1 Introduction

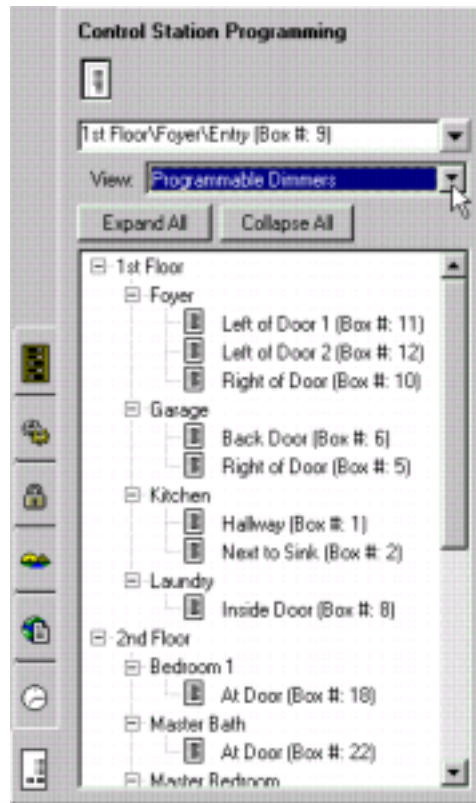
Types of Dimmers

The standard non-system dimmer or switch can only locally control a load. Two examples are the Vareo dimmer and the Nova T* single pole switch.

The standard HomeWorks system dimmer or switch can locally control a load and can be activated by a system keypad, time-clock event, etc. An example of the standard dimmer is the HWI Vareo-style dimmer.

The programmable HomeWorks dimmer or switch (a.k.a. programmable dimmer) is an advanced version of the standard HomeWorks dimmer or switch. A programmable dimmer not only acts like a standard HomeWorks dimmer but also can affect other zones and system components.

Selecting a Dimmer to Program

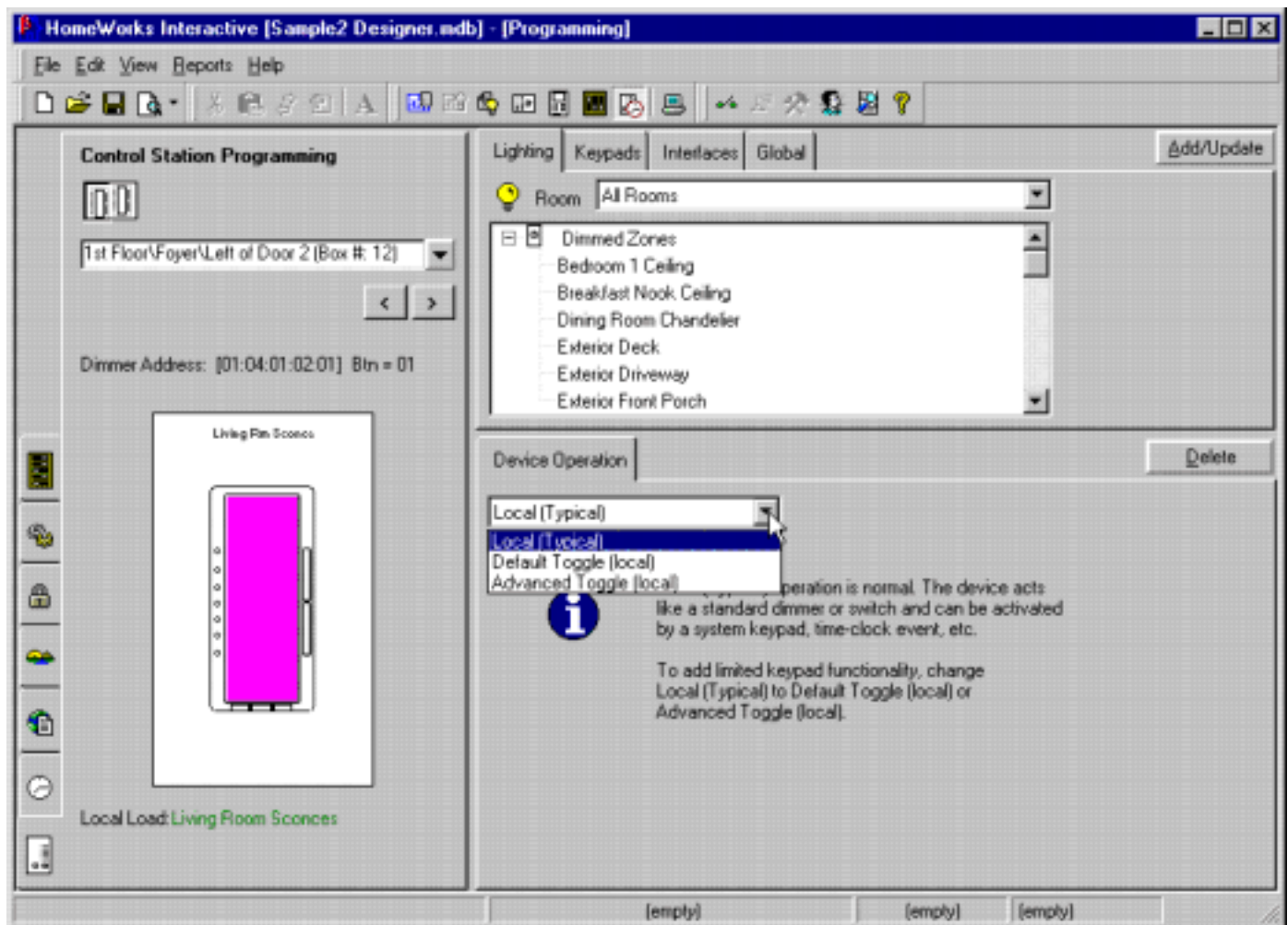


Go to Control Station Programming on the  [Programming](#) screen. Click the Control Station dropdown box and select "Programmable Dimmers" or "All" in the View dropdown box.



Above and below the programmable dimmer picture is the address of the dimmer and the local load respectively. The programmable dimmer must have a local load and an address to operate properly in the system, even though it can still be given programming. If there is no attached load, use the  [Control Station](#) [Assignment](#) screen to assign a load to this dimmer. If the dimmer address is incomplete, use the  [Address Assignment](#) screen to assign an address to this dimmer and the  [Serial Number Addressing](#) screen to assign this dimmer to one in the space.

Programming Models for Programmable Dimmers



Programmable dimmers have three programming models: Local (Typical), Default Toggle (local), and Advanced Toggle (local). Use the dropdown box to change the programming model for this programmable dimmer. All programmable dimmers use the Local (Typical) programming model when first created on the  [Floorplan](#) screen in Control Station mode.

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2.3.2 Local (Typical)

Local (Typical) is the default option for dimmers. A Local (Typical) dimmer has only the standard HomeWorks system dimmer features. To add limited keypad functionality, select one of the other programming models.

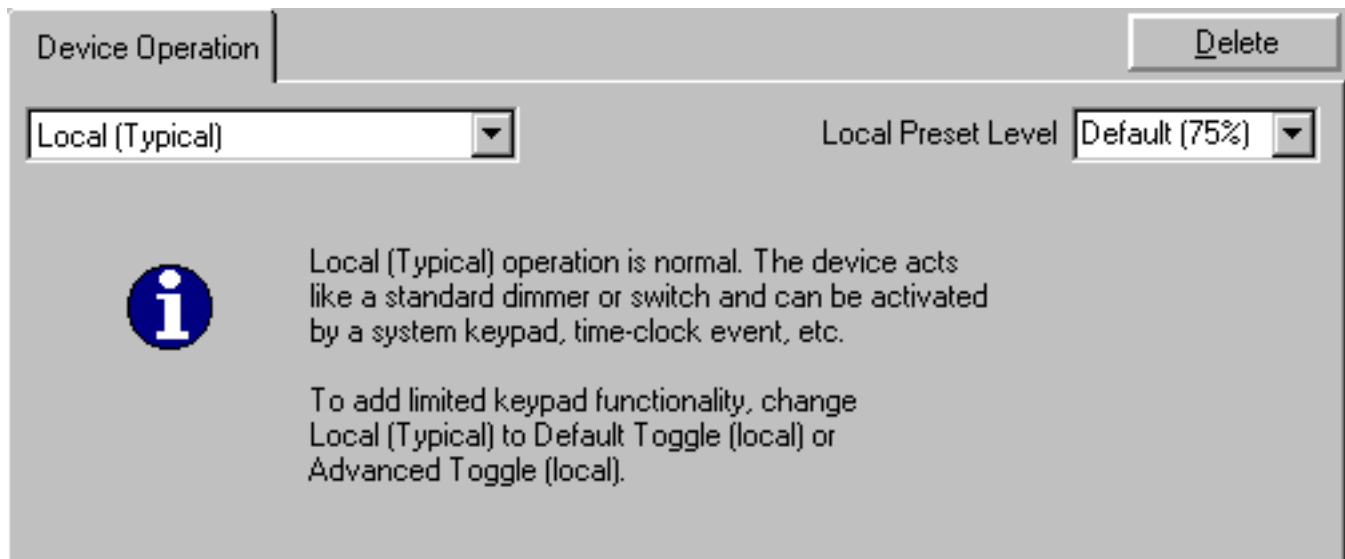
Features

The following features are available using Local (Typical).

- When the load is ON, pressing the tap switch will turn the load OFF.
- When the load is OFF, pressing the tap switch will turn the load either to the last known level or to a fixed level. The behavior is determined by a project setting (see [User Preferences](#)).
- Double-tapping (pressing the tap switch twice quickly) will send the local load to a preset level. The level is typically 100% and may be configured as a project setting (see [User Preferences](#)).
- When the tap switch is pressed and held, the local load will fade OFF over a fixed period of 10 seconds (Long Fade to OFF).
- The local load of a dimmer can be raised or lowered. See the dimmer's instruction sheet for more information.
- The dimmer will fade its load according to the configurable project settings for ON, OFF, and Double-Tap fading (see [User Preferences](#)).

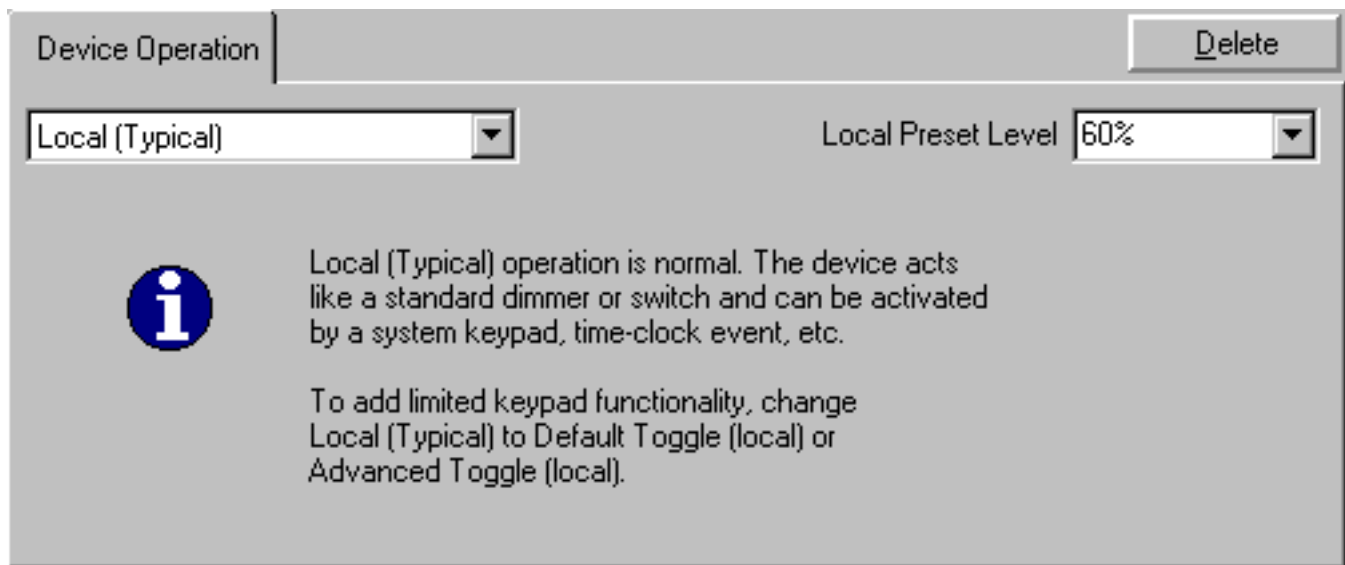
Programming Example

This example demonstrates using a Local (Typical) dimmer with the programming pictured below. This example shows a project with Save Never selected in User Preferences, the default set to 75%, and a double-tap level set to 100%.



When the local load is OFF, executing these actions in this order will give the following results.

- **Tap Switch Press:** Sends the local load to 75% using the project's Press ON fade.
- **Lower Rocker Button:** Decreases the level slightly.
- **Tap Switch Press:** Sends the local load to 0% using the project's Press OFF fade.
- **Tap Switch Double-Tap:** Sends the local load to 100% using the project's Double-Tap fade.
- **Tap Switch Press / Hold:** Sends the local load to 0% using the Long Fade to OFF.



The results change if the local level is set individually (see [Individual Settings](#)).

- **Tap Switch Press:** Sends the local load to 60% using the project's Press ON fade.
- **Lower Rocker Button:** Decreases the level slightly.
- **Tap Switch Press:** Sends the local load to 0% using the project's Press OFF fade.
- **Tap Switch Double-Tap:** Sends the local load to 100% using the project's Double-Tap fade.
- **Tap Switch Press / Hold:** Sends the local load to 0% using the Long Fade to OFF.

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2.3.3 Default Toggle (local)

Default Toggle (local) gives the dimmer basic keypad functionality similar to the [Default Toggle](#) programming model for a keypad button. Using this model, the dimmer can send other zones to programmed levels when its tap switch is toggled ON or double-tapped. Toggling the dimmer OFF will send the other zones to their default OFF levels. The local load can not be programmed because it is already being directly controlled by the dimmer (see [Constraints for Programmable Dimmers](#)).

Features

The following features are available using Default Toggle (local).

- All Local (Typical) programming model features.
- When the load is OFF, pressing the tap switch will also send other programmed zones to their preset levels with preset delays and preset fades.
- When the load is ON, pressing the tap switch will also send the programmed zones to their default OFF levels using the same delays and fades.
- Double-tapping will also send the programmed zones to their preset levels with preset delays and preset fades.
- The local load Press and Double-Tap fade times can be set individually. The Press fade is the same for the Press ON and OFF (see [Individual Settings](#)).
- The local load double-tap level can be set individually (in addition to the press level).
- Notes can be entered allowing the programming purpose to be recorded.

Programming Example

This example demonstrates using a Default Toggle (local) dimmer with the programming pictured below. This example shows a project with Save Never selected in User Preferences, the default set to 75%, and a double-tap level set to 100%.

Press

Double-Tap

Properties

Notes

Default Toggle (local) ▼

Local Load: **Living Room Sconces**

Fade

Local ▼

Level

Default (75%) ▼

	Name	Delay	Fade	Lvl/Cmd
▶	Living Room Ceiling	00:00	00:02	50%

Press	Double-Tap	Properties	Notes	
Local Load: Living Room Sconces Fade Local Level Default (100%)				
	Name	Delay	Fade	Lv/Cmd
▶	Living Room Ceiling	00:00	00:00.50	95%

When the local load (Living Room Sconces) is OFF, executing these actions in this order will give the following results.

- **Tap Switch Press:** Sends the local load to 75% using the project's Press ON fade and also sends the Living Room Ceiling load to 50% with no delay and a 2 second fade.
- **Lower Rocker Button:** Decreases the level of the local load slightly.
- **Tap Switch Press:** Sends the local load to 0% using the project's Press OFF fade and also sends the Living Room Ceiling load to 0% with no delay and a 2 second fade.
- **Tap Switch Double-Tap:** Sends the local load to 100% using the project's Double-Tap fade and also sends the Living Room Ceiling load to 95% with no delay and a ½ second fade.
- **Tap Switch Press / Hold:** Sends the local load to 0% using the Long Fade to OFF and also sends the Living Room Ceiling load to 0% with no delay and a 2 second fade.

Press	Double-Tap	Properties	Notes	
Default Toggle (local)				
Local Load: Living Room Sconces Fade 00:03 Level 60%				
	Name	Delay	Fade	Lv/Cmd
▶	Living Room Ceiling	00:00	00:02	50%

Press	Double-Tap	Properties	Notes
Local Load: Living Room Sconces			
Fade 00:01		Level 90%	
	Name	Delay	Fade
▶	Living Room Ceiling	00:00	00:00.50
			Lvl/Cmd
			95%

The results change if the local fades and levels are set individually (see [Individual Settings](#)).

- **Tap Switch Press:** Sends the local load to 60% with a 3 second fade and also sends the Living Room Ceiling load to 50% with no delay and a 2 second fade.
- **Lower Rocker Button:** Decreases the level of the local load slightly.
- **Tap Switch Press:** Sends the local load to 0% with a 3 second fade and also sends the Living Room Ceiling load to 0% with no delay and a 2 second fade.
- **Tap Switch Double-Tap:** Sends the local load to 90% using the project's Double-Tap fade and also sends the Living Room Ceiling load to 95% with no delay and a ½ second fade.
- **Tap Switch Press / Hold:** Sends the local load to 0% using the Long Fade to OFF and also sends the Living Room Ceiling load to 0% with no delay and a 2 second fade.

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2.3.4 Advanced Toggle (local)

Advanced Toggle (local) gives the dimmer more advanced keypad functionality similar to the [Advanced Toggle](#) programming model for a keypad button. Using this model, the dimmer can send other zones to programmed level when its tap switch is toggled ON, toggled OFF, or double-tapped. The local load can not be programmed because it is already being directly controlled by the dimmer (see [Constraints for Programmable Dimmers](#)).

Features

The following features are available using Advanced Toggle (local).

- All Default Toggle (local) programming model features.
- The delays, fades, and levels can be can be independently programmed for the Press ON and OFF presets.
- The local load fade can be independently configured for the ON and OFF presets.

Programming Example

This example demonstrates using a Advanced Toggle (local) dimmer with the programming pictured below. Assume the project has Save Never selected in User Preferences with the default set to 75% and a double-tap level set to 100%.

Press
Double-Tap
Properties
Notes

Advanced Toggle (local)

Local Load: **Living Room Sconces**
"ON" Fade: Local
Level: Default (75%)
Preset 1 of 2 "ON" Preset
<< < > >>

	Name	Delay	Fade	Lvl/Cmd
/	Living Room Ceiling	00:00	00:02	50%

Press
Double-Tap
Properties
Notes

Advanced Toggle (local)

Local Load: **Living Room Sconces**
"OFF" Fade: Local
Preset 2 of 2 "OFF" Preset
<< < > >>

	Name	Delay	Fade	Lvl/Cmd
/	Living Room Ceiling	00:00	00:04	10%

Press
Double-Tap
Properties
Notes

Local Load: **Living Room Sconces**
Fade: Local
Level: Default (100%)

	Name	Delay	Fade	Lvl/Cmd
▶	Living Room Ceiling	00:00	00:00.50	95%

When the local load (Living Room Sconces) is OFF, executing these actions in this order will give the following results.

- **Tap Switch Press:** Sends the local load to 75% using the project's Press ON fade and also sends the Living Room Ceiling load to 50% with no delay and a 2 second fade.
- **Lower Rocker Button:** Decreases the level of the local load slightly.
- **Tap Switch Press:** Sends the local load to 0% using the project's Press OFF fade and also sends the Living Room Ceiling load to 10% with no delay and a 4 second fade.
- **Tap Switch Double-Tap:** Sends the local load to 100% using the project's Double-Tap fade and also sends the Living Room Ceiling load to 95% with no delay and a ½ second fade.
- **Tap Switch Press / Hold:** Sends the local load to 0% using the Long Fade to OFF and also sends the Living Room Ceiling load to 10% with no delay and a 4 second fade.

Press	Double-Tap	Properties	Notes	
Advanced Toggle (local) ▼				
Local Load: Living Room Sconces		"ON" Fade 00:03 ▼	Level 60% ▼	
		Preset 1 of 2	"ON" Preset	
		<< < > >>		
	Name	Delay	Fade	Lvl/Cmd
⌘	Living Room Ceiling	00:00	00:02	50%

Press	Double-Tap	Properties	Notes	
Advanced Toggle (local) ▼				
Local Load: Living Room Sconces		"OFF" Fade 00:05 ▼		
		Preset 2 of 2	"OFF" Preset	
		<< < > >>		
	Name	Delay	Fade	Lvl/Cmd
⌘	Living Room Ceiling	00:00	00:04	10%

Press	Double-Tap	Properties	Notes	
Local Load: Living Room Sconces Fade 00:01 Level 90%				
	Name	Delay	Fade	Lvl/Cmd
▶	Living Room Ceiling	00:00	00:00.50	95%

The results change if the local fades and levels are set individually (see [Individual Settings](#)).

- **Tap Switch Press:** Sends the local load to 60% with a 3 second fade and also sends the Living Room Ceiling load to 50% with no delay and a 2 second fade.
- **Lower Rocker Button:** Decreases the level of the local load slightly.
- **Tap Switch Press:** Sends the local load to 0% with a 5 second fade and also sends the Living Room Ceiling load to 10% with no delay and a 4 second fade.
- **Tap Switch Double-Tap:** Sends the local load to 100% with a 1 second fade and also sends the Living Room Ceiling load to 95% with no delay and a ½ second fade.
- **Tap Switch Press / Hold:** Sends the local load to 0% using the Long Fade to OFF and also sends the Living Room Ceiling load to 10% with no delay and a 4 second fade.

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2.3.5 Settings and Applications

Load "LED" Logic

The LED Logic for all programmable dimmers is solely based on the state of the local load. When the load is ON, an LED is ON; pressing the tap switch will turn the load OFF and activate the OFF Preset. When the load is OFF, all LEDs are OFF; pressing the tap switch will turn the load ON and activate the ON Preset.

Constraints for Programmable Dimmers

As a rule of thumb, programmable dimmers can enhance a dimmer's basic function but never remove or replace this basic function. For example, the local load cannot be programmed because it is already being directly controlled by the dimmer. Programmable dimmers do not support reverse LED logic, conditional logic, scene saver actions, cycle dim actions, assignment of global scenes, toggling the local load between two ON levels, or programming on the raise/lower buttons.

RS-232 Commands

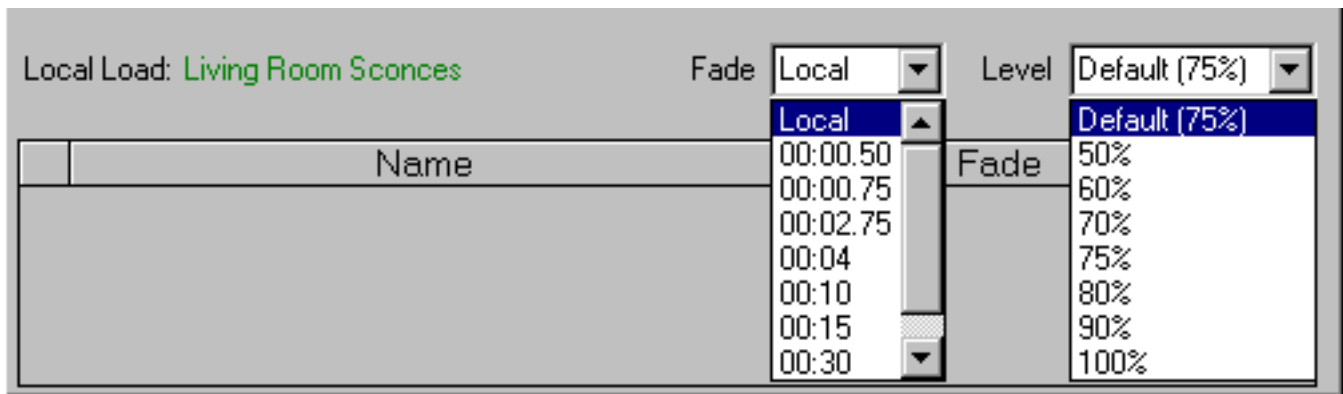
RS-232 commands can be used to simulate the programmable dimmer's [press \(DBP\)](#) or [double-tap \(DBDT\)](#). These commands affect the local load and activate any keypad-like programming.

An RS-232 monitor string is output from a processor when the programmable dimmer tap switch is [pressed \(DBP\)](#), [released \(DBR\)](#), [held \(DBH\)](#), or [double-tapped \(DBDT\)](#) with some noted exceptions (see the Description section for each RS-232 string). These output strings can be used to integrate with any other system supporting RS-232 communication.

Project Settings

See the  [User Preferences](#) screen for a description of Save Always (Variable Preset) versus Save Never (Locked Preset) and how to set the default values for the local fades and levels.

Individual Settings



Local Load: Living Room Sconces																									
Fade	Local																								
Level	Default (75%)																								
	<table border="1"> <thead> <tr> <th>Name</th> <th>Fade</th> <th>Level</th> </tr> </thead> <tbody> <tr><td></td><td>00:00.50</td><td>50%</td></tr> <tr><td></td><td>00:00.75</td><td>60%</td></tr> <tr><td></td><td>00:02.75</td><td>70%</td></tr> <tr><td></td><td>00:04</td><td>75%</td></tr> <tr><td></td><td>00:10</td><td>80%</td></tr> <tr><td></td><td>00:15</td><td>90%</td></tr> <tr><td></td><td>00:30</td><td>100%</td></tr> </tbody> </table>	Name	Fade	Level		00:00.50	50%		00:00.75	60%		00:02.75	70%		00:04	75%		00:10	80%		00:15	90%		00:30	100%
Name	Fade	Level																							
	00:00.50	50%																							
	00:00.75	60%																							
	00:02.75	70%																							
	00:04	75%																							
	00:10	80%																							
	00:15	90%																							
	00:30	100%																							

A programmable dimmer will use the values set in User Preferences by default. These values can be overridden by setting the fade time or level for a dimmer individually. To change a fade time, use the Fade combobox to type in or select a new time. Selecting "Local" will use the local fade time set in User Preferences. To change a level, use the Level combobox to type in or select a new level. Selecting "Default" will use the default level set in User Preferences.



Setting the local level to "75%" or "Default (75%)" will result in the same level. However, if the default level is later changed to 80% in User Preferences, only the second case would be updated to "Default (80%)" resulting in different levels.

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DBP

Dimmer Button Press

Syntax

DBP, <address>, <button number>

Parameter	Description	Format
address	system address of the H48 or RF dimmer/switch	see device address formatting description
button number	button number to press	1

Description

Simulates the press action of the tap switch for an H48 or RF dimmer/switch. This will affect the local load and activate any keypad-like press programming. This does not simulate a true keypad button press that is followed by an immediate release or a delayed hold and release. This does not simulate the press action of the tap switch for a D48 dimmer/switch. This does not simulate the press action of the raise/lower rocker for any dimmer.

Example

Press H48 tap switch on processor 1, link 4, router 1, bus 3, dimmer 2.

```
L232> DBP, [1:4:1:3:2], 1
```

Press RF tap switch on processor 1, link 8, dimmer address 54. (The device type is 1 for all RF dimmers/switches.)

```
L232> DBP, [1:8:1:54], 1
```

See Also

[DBDT - Dimmer button double tap](#)

DBDT

Dimmer Button Double Tap

Syntax

DBDT, <address>, <button number>

Parameter	Description	Format
address	system address of the H48 or RF dimmer/switch	see device address formatting description
button number	button number to double tap	1

Description

Simulates the double tap action of the tap switch for an H48 or RF dimmer/switch. This will affect the local load and activate any keypad-like double tap programming. This does not simulate a true keypad button double tap that is preceded by a press and release and followed by a second release. This does not simulate the double tap action of the tap switch for a D48 dimmer/switch.

Example

Double tap H48 tap switch on processor 1, link 4, router 1, bus 3, dimmer 2.

```
L232> DBDT, [1:4:1:3:2], 1
```

Double tap RF tap switch on processor 1, link 8, dimmer address 54. (The device type is 1 for all RF dimmers/switches.)

```
L232> DBDT, [1:8:1:54], 1
```

See Also

[DBP - Dimmer button press](#)

1.10 Reports

Contents

[1.10.1 Reports Overview](#)

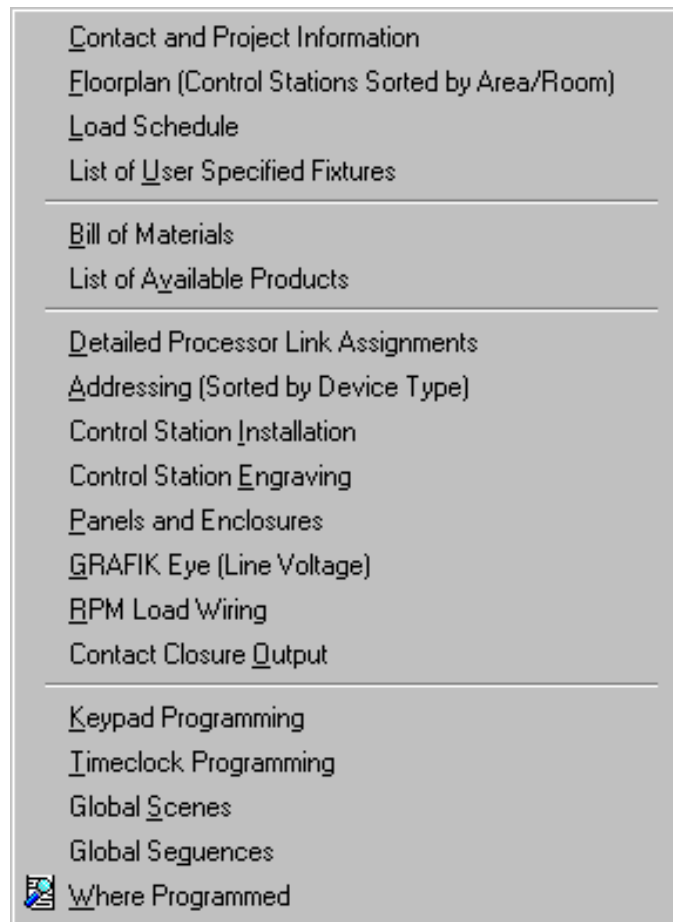
[1.10.2 Project Layout Reports](#)

[1.10.3 Bill of Materials Reports](#)

[1.10.4 Equipment / Installation Reports](#)

[1.10.5 Programming Reports](#)

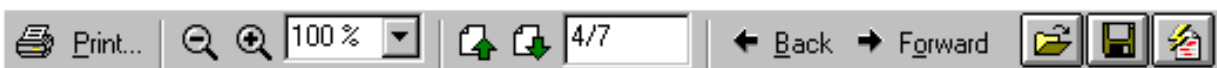
To view a report (i.e. open a Print Preview window), click the  button in the main toolbar and select the report to view.



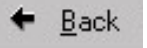
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1.10.1 Reports Overview

A Print Preview window opens with a Report Toolbar at the top of the window.



-  **Print Button** - Print the current report.

-  **Zoom In Button** - Increase magnification of the report.
-  **Zoom Out Button** - Decrease magnification of the report.
-  **Zoom Dropdown Box** - Displays current magnification. Change the magnification level by selecting a percentage in the dropdown box or by typing a value.
-  **Previous Page Button** - Turn back to the previous page in the report.
-  **Next Page Button** - Turn forward to the next page in the report.
-  **Page Textbox** - Displays current page versus total pages in the report. Turn to a specific page by typing a page number.
-  **Back Button** - Return to the page of the current report that was previously viewed. This button is similar to a Web Browser Back Button in that it will remember all pages previously viewed.
-  **Forward Button** - Return to the page of the current report that was viewed previous to pressing the **Back Button**. This button will also remember all pages previously viewed.
-  **Open Report Button** - Open a report that was previously saved as a *.rdf file.
-  **Save Report Button** - Save the current report as a *.rdf file.
-  **Export to PDF Button** - Export the current report to *.pdf file.

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1.10.2 Project Layout Reports

[Contact and Project Information Report](#)

[Floorplan \(Control Stations Sorted by Area/Room\) Report](#)

[Load Schedule Report](#)

[List of User Specified Fixtures Report](#)

Contact and Project Information Report

The Contact and Project Information Report displays all the Information entered into the Project Information screen. This includes the project name and revision as well as all the contact information related to this project.

Project Information Report

Job Name: Derk Residence
Revision: 5

System Designer

Company:

Lutron Electronics

Name:

Charlie Derk

Address:

7200 Suter Road

Coopersburg, PA 18036

Contact Information

Office 610-282-3800 x5049

Office Fax 610-282-6314

Floorplan (Control Stations Sorted by Area/Room) Report

The Floorplan Report displays an overview of all the control stations, within areas/rooms.

1st Floor

Bath 1

1. HWV-600D



Bath 1 Bath/Vanity 1

2. NTFSQ



Entry

Box #. 1

HWV-O/S-FB

Bedroom 1

1. HWM-KP-LB6



Entry

Box #. 2

The first column displays the control station name, box number, and faceplate. The second column indicates the devices inside the control station. The third column displays any loads assigned to the devices and any required power boosters.

Load Schedule Report

The Load Schedule Report shows the load information defined on the [Load Schedule](#) screen.

Load Schedule Report

Circuit #	Feed	Area\Room\Zone Name	Fixture	Load Type	Dim	Fixture		Total Load (W)
						(W)	(Qty)	
		1st Floor\Bath 1\Accezi 1	 Accezi	INC	Yes	100 W	1	100 W
		1st Floor\Bath 1\Bentl Glass 1	 Bentl	INC	No	200 W	1	200 W
		1st Floor\Bath 1\Pendant 1	 Pendant	INC	Yes	150 W	1	150 W
		1st Floor\Bath 1\shade	 Motor	MTR	No	745 W	1	745 W
		1st Floor\Bath 1\Table Lamp 1	 Table Lamp	INC	Yes	75 W	1	75 W
		1st Floor\Bedroom 1\Accezi 1	 Accezi	INC	Yes	100 W	1	100 W

After the Load Schedule Report has been viewed, the results can be sorted. Press the

Options

button on the toolbar to open the sort options box.

Sort by:

OK Cancel

Sort by:

- Circuit #
- Zone Name
- Feed/Circuit #
- Feed/Zone Name

Click the Sort by dropdown box to display the sorting options. The Load Schedule report can be sorted by Circuit Number, Zone Name, Feed Number then Circuit Number, or Feed Number then Zone Name.

List of User Specified Fixtures Report

The List of User Specified Fixtures Report gives a listing of all the fixtures that were defined in the [Fixtures window](#).

Name	Model	Manufacturer
 C1		
 Chandelier	Generic	Generic
 P1		
 P2		
 Pendant	Generic	Generic
 D1		
 D2		
 D3		

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1.10.3 Bill Of Materials Reports

[Bill of Materials \(BOM\) Report](#)

[List of Available Products Report](#)

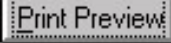
Bill of Materials (BOM) Report

The Bill of Materials Report lists all of the products required for the job with the corresponding price. The quantity, model, description, price and total are all editable allowing for last minute additions. Additional equipment may be added to the list by typing in lines at the bottom of the grid. Two tabs are available. The Generated Items tab contains the items on the BOM that are generated from equipment entered into the program from the toolbox, and equipment required as calculated by the program (interfaces, power boosters). The Line Items tab contains the additional equipment entered by the user to be placed on the BOM (Line Items may include installation charges, programming charges, IR controls, spare equipment, etc.). Line Items are preserved when "Generated Items" are recalculated.

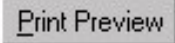
Note: Faceplate pricing is not called out. This must be added by the user.

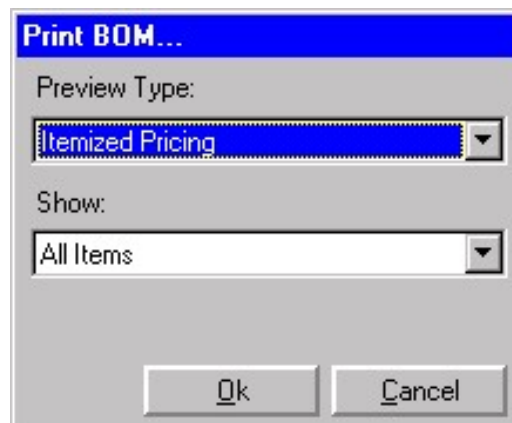
	Qty	Model	Description	Price	Total
	1	GRX-3503-T	3 zone, 16 scenes, low voltage controls, all sources and	\$970.00	\$970.00
	1	GRX-3504-T	4 zone, 16 scenes, low voltage controls, all sources and	\$1,050.00	\$1,050.00
	7	HW-RPM-4U-120	Remote Power Module, 4 zones, 1920 watts, dimming	\$550.00	\$3,850.00
	1	HWI-2B	2 Button Multi-function Keypad	\$200.00	\$200.00
	1	HWI-CCI	8 Input Contact Closures w/ IR input	\$360.00	\$360.00
	1	HWI-CCO	8 Output Contact Closures w/ IR input	\$440.00	\$440.00
	9	HWI-KP-LB6	Architectural Style 6 Large button keypad	\$260.00	\$2,340.00
	5	HWI-KP-LB9	Architectural Style 9 Large button keypad	\$350.00	\$1,750.00

The BOM report has some special buttons available.

-  Reset the "Generated Items" BOM List.
-  Create the report to be printed.
-  Lets you change the price factor (The price factor is how much above or below list price is to be charged).
-  Delete the item selected from the BOM list.

To create a BOM report:

1. Use the delete button to delete items you don't want in the BOM.
2. Select the Price Factor.
3. Type items into the grid or change items in the grid as desired.
4. Type in Faceplate pricing where appropriate.
5. Click the  button, which opens the Print BOM... window.



6. Use the Preview Type dropdown box to select which BOM is to be printed.
 - **Generated Items** - Show only the products on the Generated Items tab.
 - **Line Items** - Show only the products on the Line Items tab.
 - **All Items** - Show the products on both tabs.
7. Use the Show dropdown box to select the report type.

- **Itemized Pricing** - Show the price for each device and the total price at the end.
 - **Total Pricing Only** - Show only the total price at the end.
 - **No Pricing** - Show no pricing.
8. Click the **Ok** button to open a Print Preview window displaying the BOM report.
 9. To go back to the BOM from the Print Preview window, click the  button.

List of Available Products Report

The List of Available Products Report gives a list of HomeWorks Interactive devices available in the program along with their corresponding list price.

	Model	Description	List Price
	ELVI-1000	Electronic Low Voltage Interface	\$210.00
	GRX-3502-A	2 zone, 16 scenes, low voltage controls, all sources and interfaces	\$890.00
	GRX-3502-T	2 zone, 16 scenes, low voltage controls, all sources and interfaces	\$890.00
	GRX-3503-A	3 zone, 16 scenes, low voltage controls, all sources and interfaces	\$970.00

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1.10.4 Equipment / Installation Reports

[Detailed Processor Link Assignments Report](#)

[Addressing \(Sorted by Device Type\) Report](#)

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[Panels and Enclosures Report](#)

[GRAFIK Eye \(Line Voltage\) Report](#)

[RPM Load Wiring Report](#)

[Contact Closure Output Report](#)

Detailed Processor Link Assignments Report

The Detailed Processor Link Assignments Report gives a list of all the low voltage links connected to the processor and details the addresses of each device connected to these links.

Detailed Processor Link Report

Panel Area / Group 1 / Basement - Processor Address: 01



Device	Model Name	Address [Proc: Link: Control]
Panel	HMI-PNL-8	-
Processor	HMI-PM-D48-120	1
Internal MI	HMI-MI-120	01:01:00
Internal D48	HMI-D48	01:04:01

Link #1: Dimming Panel Link Wire Style C

Model Name	Device Name	Address [Proc: Link: MI Mod: Output]
HVV-RPM-4R	House Ext / Exterior / Lanscp Ltg	01:01:00:01:01
HVV-RPM-4U-120	Lower Level / Lower Office / Cans	01:01:00:02:01
HVV-RPM-4U-120	Lower Level / Theater / Bar Pucks	01:01:00:02:02
HVV-RPM-4U-120	Lower Level / Theater / Monorail 1	01:01:00:03:01
HVV-RPM-4U-120	Lower Level / Theater / Monorail 2	01:01:00:03:02

Link #2: Inter-Processor Link Wire Style C

No devices are connected to this link.

Link #3: RS232 Link

No devices are connected to this link.

Link #4: D48 Link Wire Style A

Model Name	Device Name	Address [Proc: Link: D48: Bus: Control]
HVV-600D	1st Floor / Foyer / Ceiling	01:04:01:01:01

Addressing (Sorted by Device Type) Report

The Address Report gives the addresses for each device defined in the project. Each type of device (Vareos, Remote Power Modules, Keypads and GRAFIK Eye Main Units) has its own grouping in the report. If the device has no address defined, a red flag is shown in the addresses column. This report may be sorted by Name, Address or Circuit/Box # by clicking on the  button.

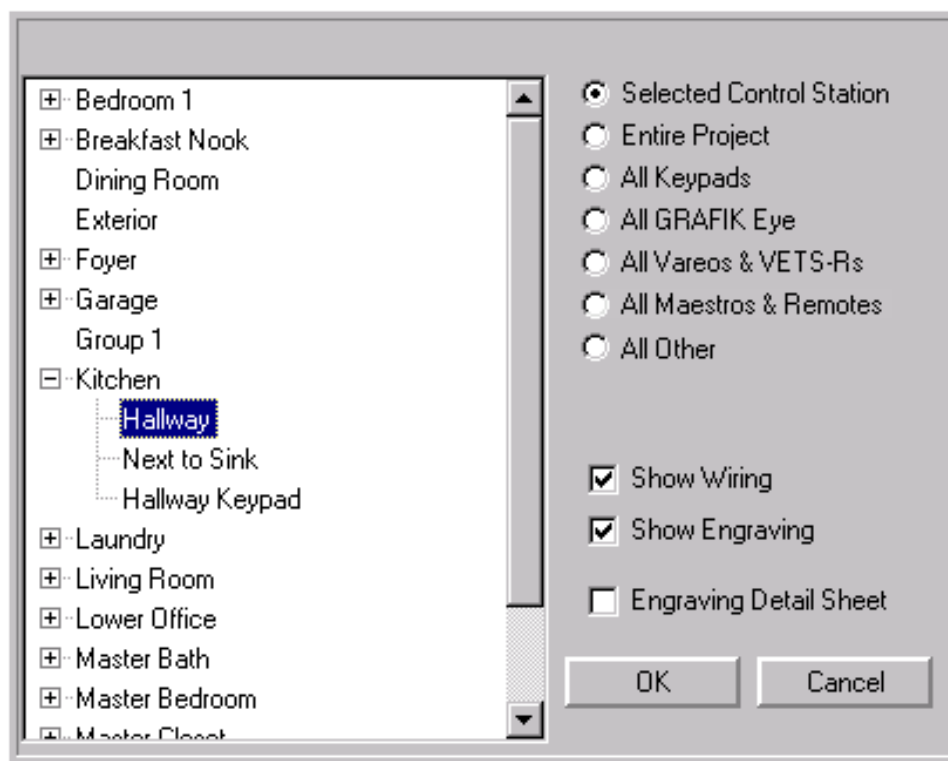
Address Report

HomeWorks Vareos

Box	Circuit	Area	Name (Room, Zone)	Panel Termination (Group, Panel, Bus)	Address [Proc:LinkD4&Bus:Control]	
					RS-232	Ctrl
10		1st Floor	Foyer Ceiling	Group 1,Basement 2,01	[16:04:01:01:01]	1
5		1st Floor	Garage Ceiling	Group 1,Basement,05	[01:05:01:05:02]	2
1	151	1st Floor	Kitchen Main	Group 1,Basement 2,03	[16:04:01:03:01]	1
2	149	1st Floor	Kitchen Sink	Group 1,Basement 2,04	[16:04:01:04:01]	1
8		1st Floor	Laundry Ceiling	Group 1,Basement 2,02	[16:04:01:02:01]	1
11		1st Floor	Living Room Ceiling	Group 1,Basement,02	[01:05:01:02:03]	3
12		1st Floor	Living Room Sconces	Group 1,Basement,02	[01:05:01:02:01]	1
18		2nd Floor	Bedroom 1 Ceiling	Group 1,Basement,03	[01:05:01:03:02]	2
22		2nd Floor	Master Bath Vanity	Group 1,Basement,04	[01:05:01:04:02]	2
24		2nd Floor	Master Bedroom Ceiling	Group 1,Basement,04	[01:05:01:04:01]	1

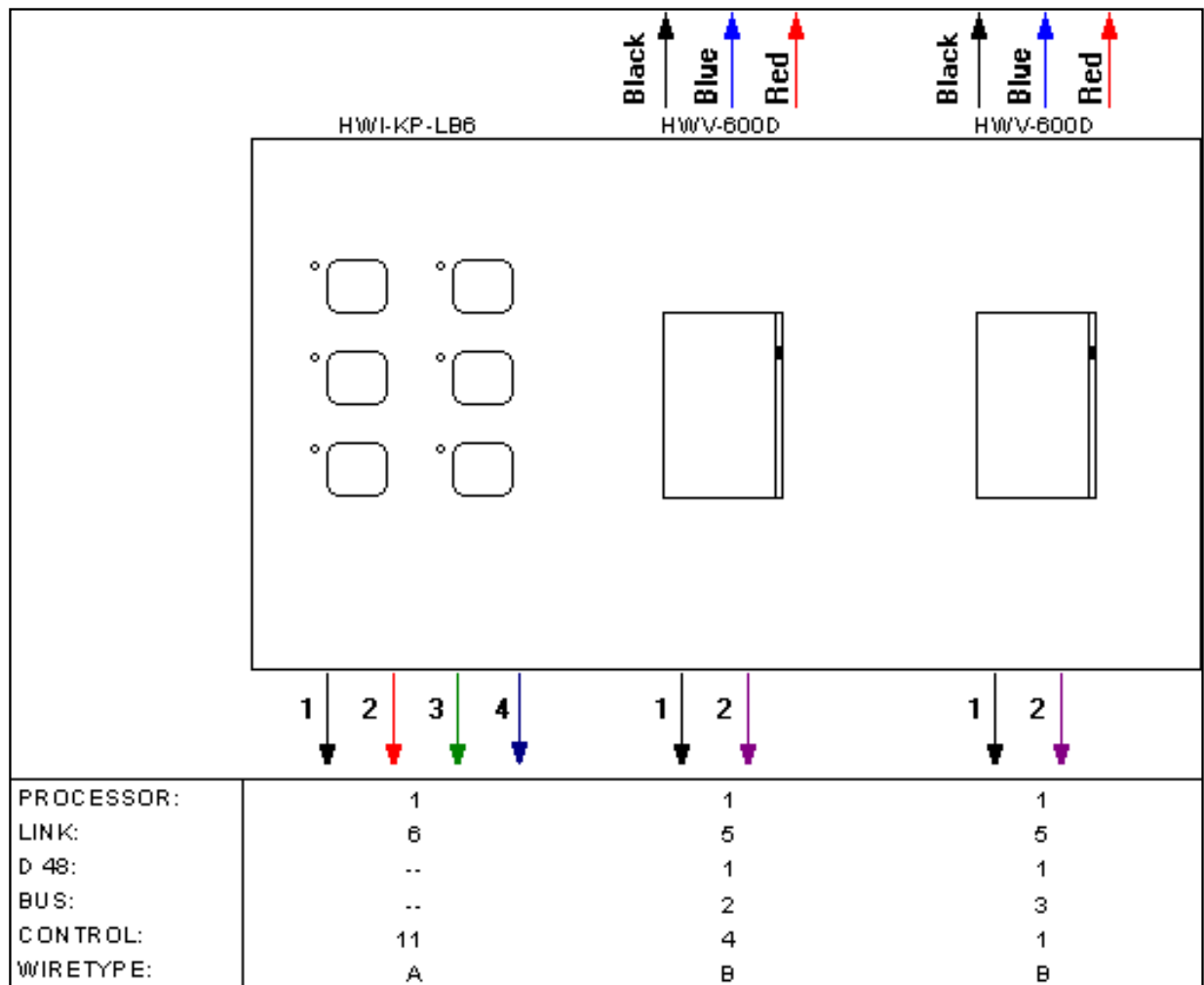
Control Station Installation Report

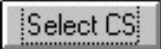
The Control Station Installation Report shows all the devices in a control station and gives the device type, how the devices are wired, the device addresses, and the appropriate wire types. After selecting the Control Station Installation Report, a Control Station Selection Screen will be displayed.



The Control Station Selection Screen is used to determine which control station to display and what information will be displayed on the report. The following instructions detail how to use the Control Station Selection Screen.

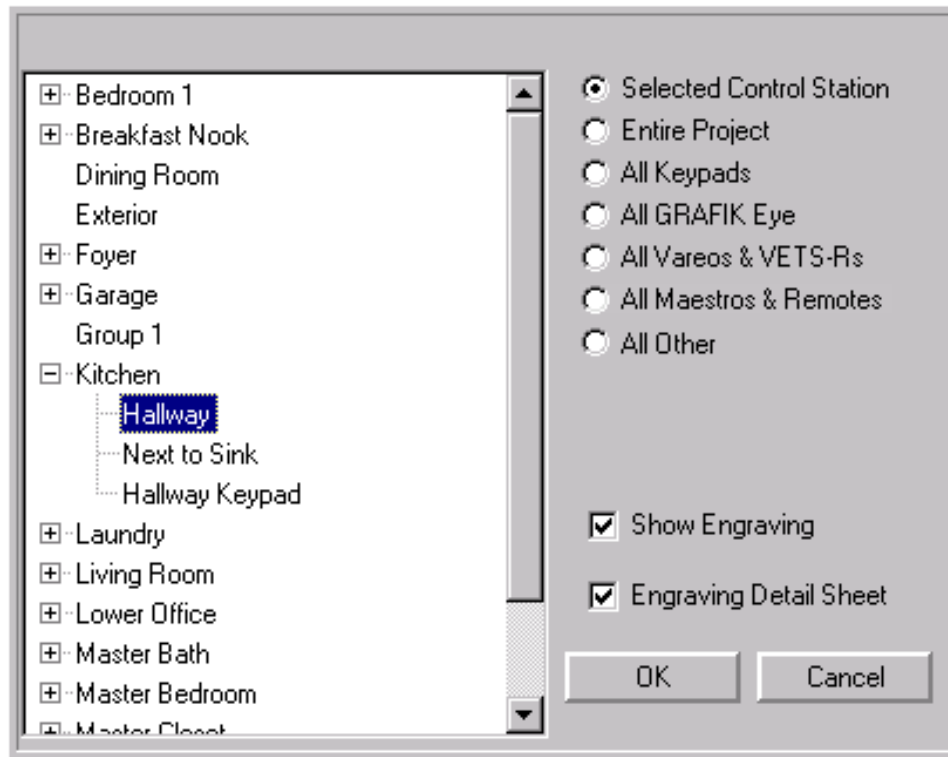
- Select the type of control stations to show.
 - **Selected Control Station:** Show the one control station selected in the list box on the left.
 - **Entire Project:** Show all the control stations in the project.
 - **All Keypads:** Show all the control stations with keypads.
 - **All GRAFIK Eye:** Show all GRAFIK Eyes.
 - **All Vareos & VETS-Rs:** Show all control stations with Vareos and VETS-Rs.
 - **All Maestros & Remotes:** Show all control stations with Maestros and Remotes.
 - **All Other:** Show all control stations with devices other than those previously mentioned.
- Check the Show Wiring checkbox to indicate the wiring information on the report. **NOTE:** Wiring information is not included on the Control Station Engraving Report.
- Check the Show Engraving checkbox if you want the engraving to be shown on the report.
- Check the Engraving Detail Sheet to show the Control Station Engraving Report. Uncheck it to show the Control Station Installation Report.



Shown above each device is the high voltage wiring and power boosters (if required) connected to it. Below each device is the device's address information and type of low-voltage wire. To change the Control Station displayed, press the  button to redisplay the Control Station Selection Screen.

Control Station Engraving Report

The Control Station Engraving Report provides a life-size printout of all of the devices in a control station displaying the engraving information on each device. The font size on the report is a scalar representation of the actual font size. After selecting the Control Station Engraving Report, the Control Station Selection Screen will be displayed.



This Control Station Selection Screen function is detailed in the [Control Station Installation Report](#). When the Control Station Engraving Report is selected, the Engraving Detail Sheet is selected by default. A sample Engraving Detail Sheet is shown below.

Control Station Engraving Detail Sheet				
AREA: 1st Floor ROOM: Dining Room CS NAME: At Door BOX #: 6 BOX SIZE: 3	FACE PLATE MODEL #: HNR3R3C3-FB-WH COLOR: White For faceplate ordering, see note		NOTES 	
JUSTIFICATION: FILL COLOR: FONT TYPE: FONT SIZE: Beside/Beneath: On Button: Rest of Plate:	As shown Black Helvetica 8 Point 8 Point 8 Point	As shown Black Helvetica 8 Point 8 Point 8 Point	As shown Black Helvetica 8 Point 8 Point 8 Point	
SK-432R-WH-E SK-4PS-WH-E SK-3B-WH-E ☐ Party ☐ Romance ☐ Entertain ☐ Setup ▼ ▲ ☐ Kitchen ☐ Foyer ☐ Front Porch ☐ Family Room ☐ All On ☐ All Off ☐ Raise ☐ Lower ☐ Stop				
When ordering the faceplate, you must order the indicated button faceplate kits as well. ()				
		JOB NAME: LOCATION:		DATE: REVISION:

Panels and Enclosures Report

The Panels and Enclosures Report shows all of the RPM devices and details all of the loads connected to them.



Panel Name:	Panel 1	RPMs:	#1 HW-RPM-4U-120						
Panel Type:	HVM-PNL-8		#2 HW-RPM-4U-120						
Processor Type:	HVM-PM-D48-120		#3 HW-RPM-4U-120						
	<table border="1"> <tr> <td>Proc #</td> <td>1</td> </tr> <tr> <td>M #</td> <td>0</td> </tr> <tr> <td>D48 #</td> <td>1</td> </tr> </table>	Proc #	1	M #	0	D48 #	1		#4 HW-RPM-4U-120
Proc #	1								
M #	0								
D48 #	1								
			#5 HW-RPM-4U-120						
			#6 HW-RPM-4U-120						
			#7 HW-RPM-4U-120						
Standalone D48 #	-								
Standalone M #	-								
Quantity of Wire Landing Boards:									



Remote Power Modules

Module # 1 **Module Type:** HW-RPM-4U-120

	Circuit #	Zone Name	Feed	Interface	Wattage
1		Back Yard Back Door		None	100 W
2		Back Yard Outdoor		None	100 W
3		Bath 2 Bath/Vanity 1		None	100 W
4		Bath 2 Shower		None	100 W
Total Wattage:					400 W

Note: A red flag  near the module type indicates that the RPM is not correctly configured. To correct the problem, go to the  [Address Assignment](#) screen and change RPM type. Red flags also appear when interface choices are undetermined.

Module # 1 **Module Type:** HW-RPM 

	Circuit #	Zone Name	Feed	Interface	Wattage
1		Back Yard Back Door		Undetermined 	100 W
2		Back Yard Outdoor		Undetermined 	100 W
3		Bath 2 Bath/Vanity 1		Undetermined 	100 W
4		Bath 2 Shower		Undetermined 	100 W
Total Wattage:					400 W

GRAFIK Eye (Line Voltage) Report

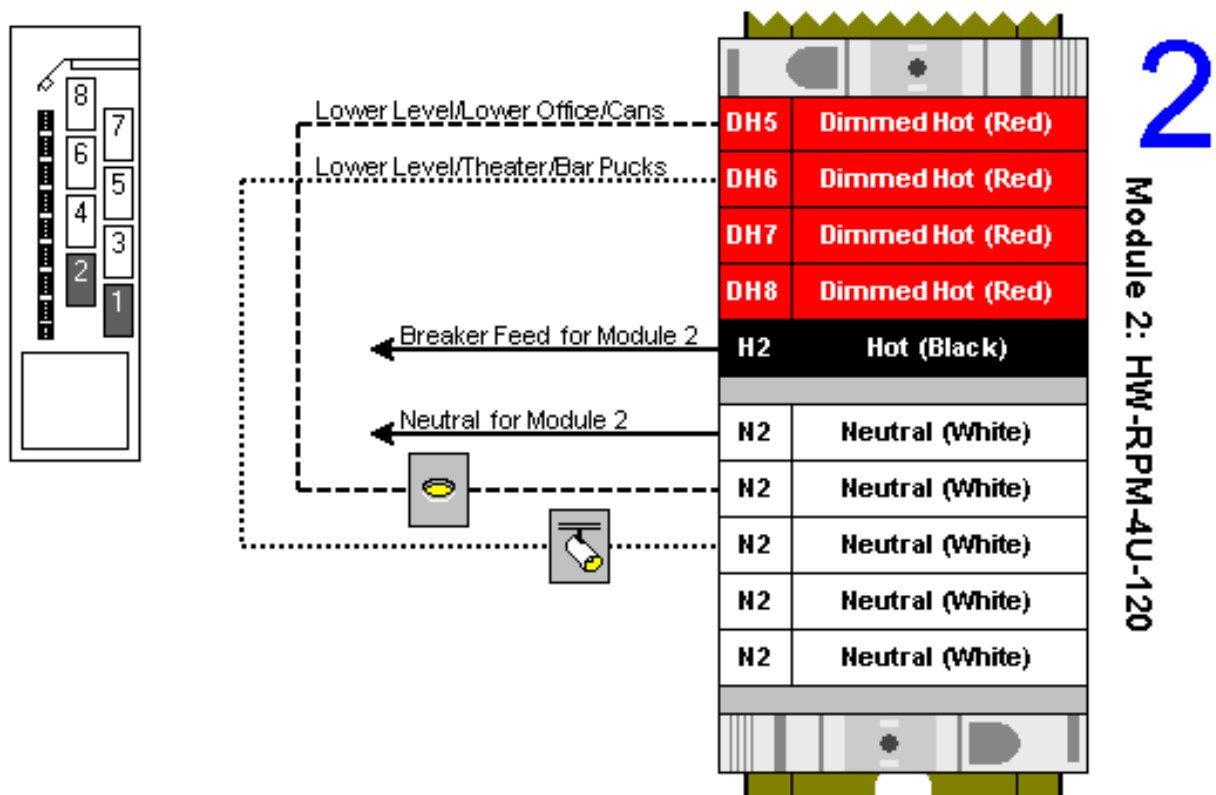
The GRAFIK Eye Report lists all the GRAFIK Eye Main Units defined in the project. It shows the loads assigned to each GRAFIK Eye Main Unit along with the corresponding wattages.

GRX-3503- T 				
Room:		Dining Room		Processor Address: 1 (Panel 1)
Name:		GRAFIK Eye		Link Number: 4
Box #:		14		GRX Address: 1
Feed 1:				
#	Circuit #	ZoneName	Interface	Wattage
1		Master Bedroom\Table Lamp 1	None	100 W
2		Master Bedroom\Table Lamp 2	None	100 W
3		Master Bedroom\Downlight 1	None	100 W
			Total Wattage:	300 W

RPM Load Wiring Report

The RPM Load Wiring Report provides a full-size representation of all of the line voltage connections required for all of the Remote Power Modules (RPMs) on the project. An electrician can use this report as a reference when landing the wires on the terminal blocks in the panel.

RPM Load Wiring Report: Group 1/Basement 2



Contact Closure Output Report

The Contact Closure Output Report lists all the contact closure output boards defined in the project. It shows the contact closures assigned to each output and indicates whether the closures are maintained or pulsed.

Contact Closure Output (CCO)	
 — Maintained  — Pulsed	Notes: See Instructions for Relay Contact Ratings.

Room Name: Utility

Proc. Address: 16 Link #: 6 CCO Address: 2  CCO Board\CCO 1	Output #1 —  Garage Door Output #2 —  Garage Driveway Light Output #3 Output #4 —  Master Bedroom Gas Fireplace Output #5 Output #6 —  Bedroom 1 Shade Lower Output #7 —  Bedroom 1 Shade Raise Output #8

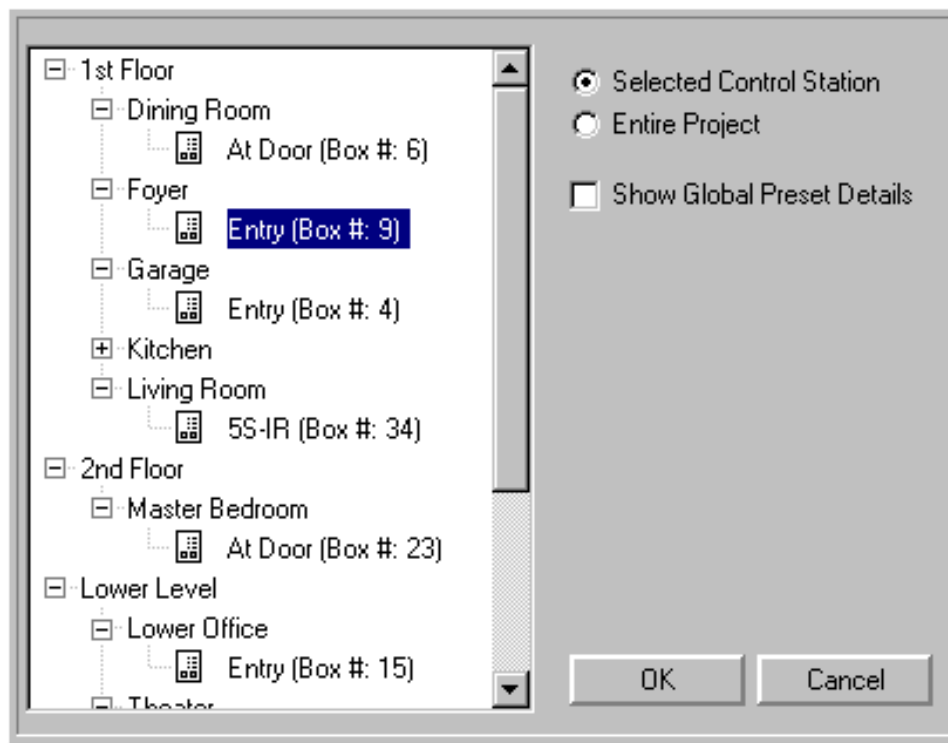
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1.10.5 Programming Reports

[Keypad Programming Report](#)[Time Clock Programming Report](#)[Global Scenes Report](#)[Global Sequences Report](#)[Where Programmed Report](#)

Keypad Programming Report

The Keypad Programming Report gives the programming for keypads in the system. After selecting the Keypad Programming Report, a Control Station Selection Screen will be displayed.



The Control Station Selection Screen is used to determine which control station to display and what information will be displayed on the report. Use the option buttons to select the type of control stations to show.

- **Selected Control Station:** Show the one control station selected in the list box on the left.
- **Entire Project:** Show all the control stations in the project.

Check the Show Global Preset Details checkbox to display all the keypad programming and detail all the global scenes. Global Scenes may be listed as one line ("Global Scene: Panic") or as several lines detailing the actual programming of the global scene. The default is to list the global scene as one line (i.e. unchecked). Click the **Ok** button to view the report (i.e. open the Print Preview window).

1st 1st Stair	
Model #: HWI-KP5 Gang Position: 1 Address: [02:04:07] Notes:	

Button #: 1	Engraving: STAIRS	
Options: Press	LED Logic: Scene	
Type: Default (Toggle)		
Press Preset 1		
Name	Delay	Fade
2nd Mnhll PICS	0 m 0 s	0 m 2 s
2nd Mnhll SC	0 m 0 s	0 m 2 s
Main Hall SC	0 m 0 s	0 m 2 s

To change the Control Station displayed, press the button to redisplay the Control Station Selection Screen.

Time Clock Programming Report

The Time Clock Programming Report displays the Time Clock configuration (latitude, longitude), the events defined in the Time Clock Screen (Astronomic or Time-of-Day event) along with their corresponding programming. Global Scenes may be listed as one line ("Global Scene: Panic") or as several lines detailing the actual programming of the global scene. The default is to list the global scene as one line. To list the detail of the global scene, press the button.

☒ Show Global Preset Details

OK
Cancel

Check the Show Global Preset Details checkbox and the report will redisplay all the keypad programming and detail all the global scenes.

Time Clock Programming Report

Time Clock Summary



Nearest City: Coopersburg, PA

Latitude: 40.5 N **Longitude:** 75.4 W

 Astronomic Events	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Special
Name: Lutron - Day Event Time: +00:00 Sunrise	✓	✓	✓	✓	✓	✓	✓	
Name: Lutron - Night Event Time: +00:00 Sunset	✓	✓	✓	✓	✓	✓	✓	

Event: Sprinklers On	Schedules: All Days		
Time: 02:45 PM			
Type: Default			
Event Preset 1			
Name	Delay	Fade	Level/Cmd
Back Yard Sprinklers	0 m 0 s	0 m 0 s	ON

Event: Sprinklers Off	Schedules: All Days		
Time: 04:30 PM			
Type: Default			
Event Preset 1			
Name	Delay	Fade	Level/Cmd
Back Yard Sprinklers	0 m 0 s	0 m 0 s	OFF

Global Scenes Report

The Global Scenes Report shows the programming for all the global scenes defined in the project.

Panic			
Panic			
Name	Delay	Fade	Level/Cmd
Back Yard Back Door	0 m 0 s	0 m 2 s	100%
Back Yard Driveway	0 m 0 s	0 m 2 s	100%
Back Yard Outdoor	0 m 0 s	0 m 2 s	100%
Bath 1 Bath/Vanity 1	0 m 0 s	0 m 2 s	100%
Bath 1 Downlight	0 m 0 s	0 m 2 s	100%

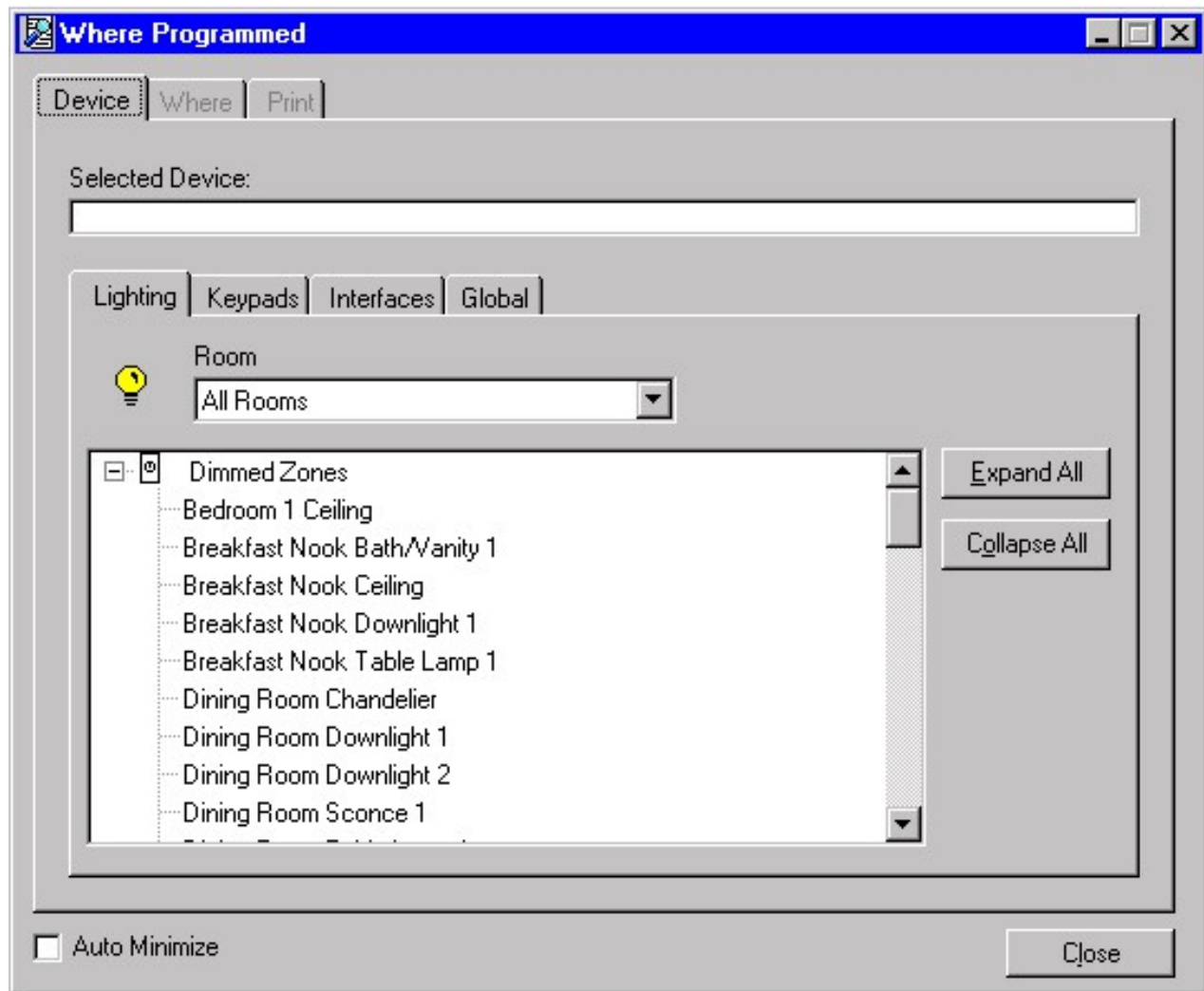
Global Sequences Report

The Global Sequences Report shows the programming for all the global sequences defined in the project.

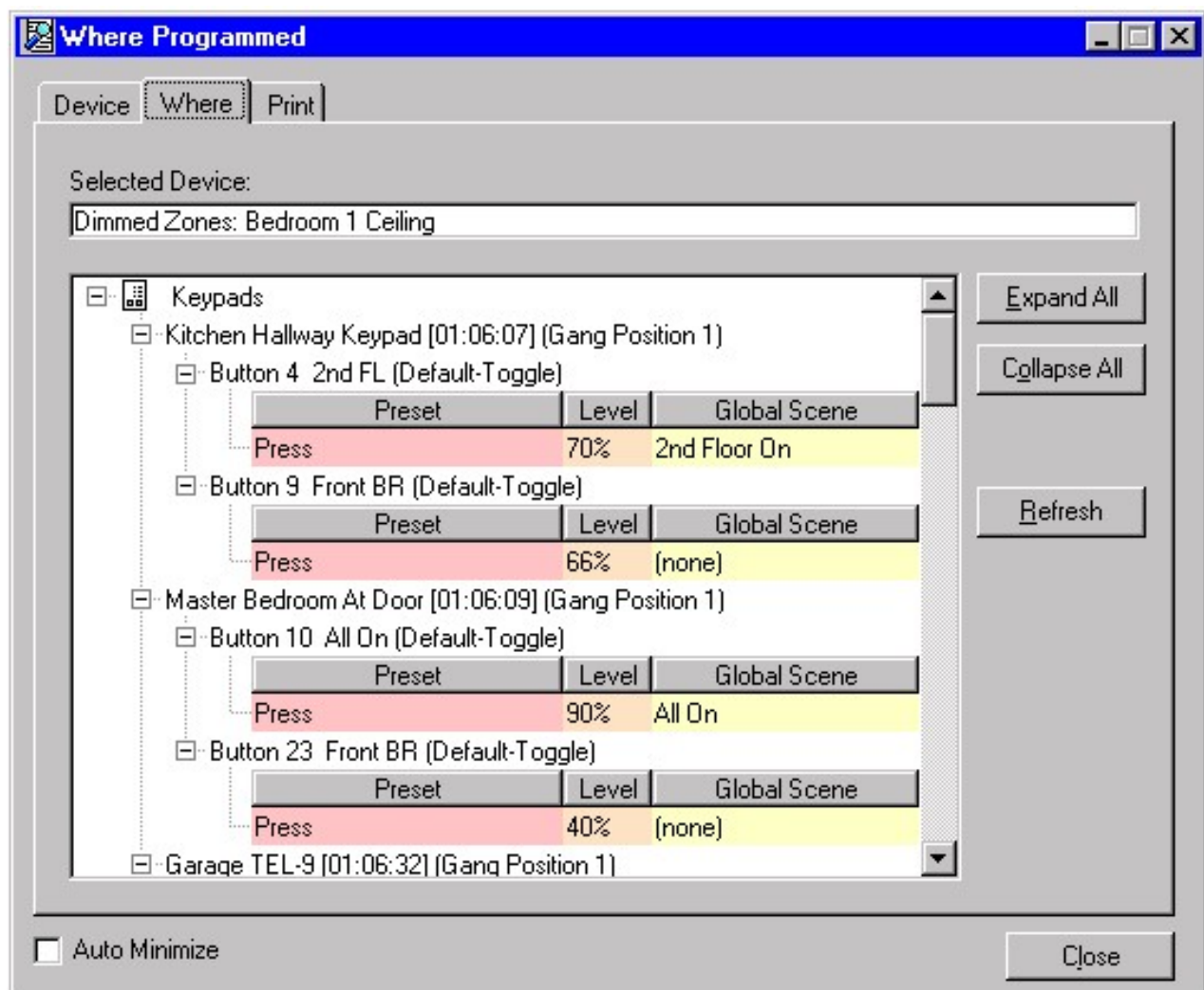
Landscape			
Preset 1	Dwell:	0 m 2 s	
Name	Delay	Fade	Level/Cmd
Back Yard Back Door	0 m 0 s	0 m 2 s	100%
Back Yard Driveway	0 m 0 s	0 m 2 s	100%
Back Yard Outdoor	0 m 0 s	0 m 2 s	100%
Preset 2	Dwell:	0 m 2 s	
Name	Delay	Fade	Level/Cmd
Back Yard Back Door	5 m 0 s	0 m 2 s	45%

Where Programmed Report

The Where Programmed Report is used to determine where a device, keypad or global function has been assigned specific values. For example, if you wanted to find out what devices assign an intensity value to the Vareo dimmer in the Master Bedroom, you would use the Where Programmed Report. This report is available from the reports list and is also directly from the toolbox by pressing the  button. The Where Programmed Report opens with the device selection screen.



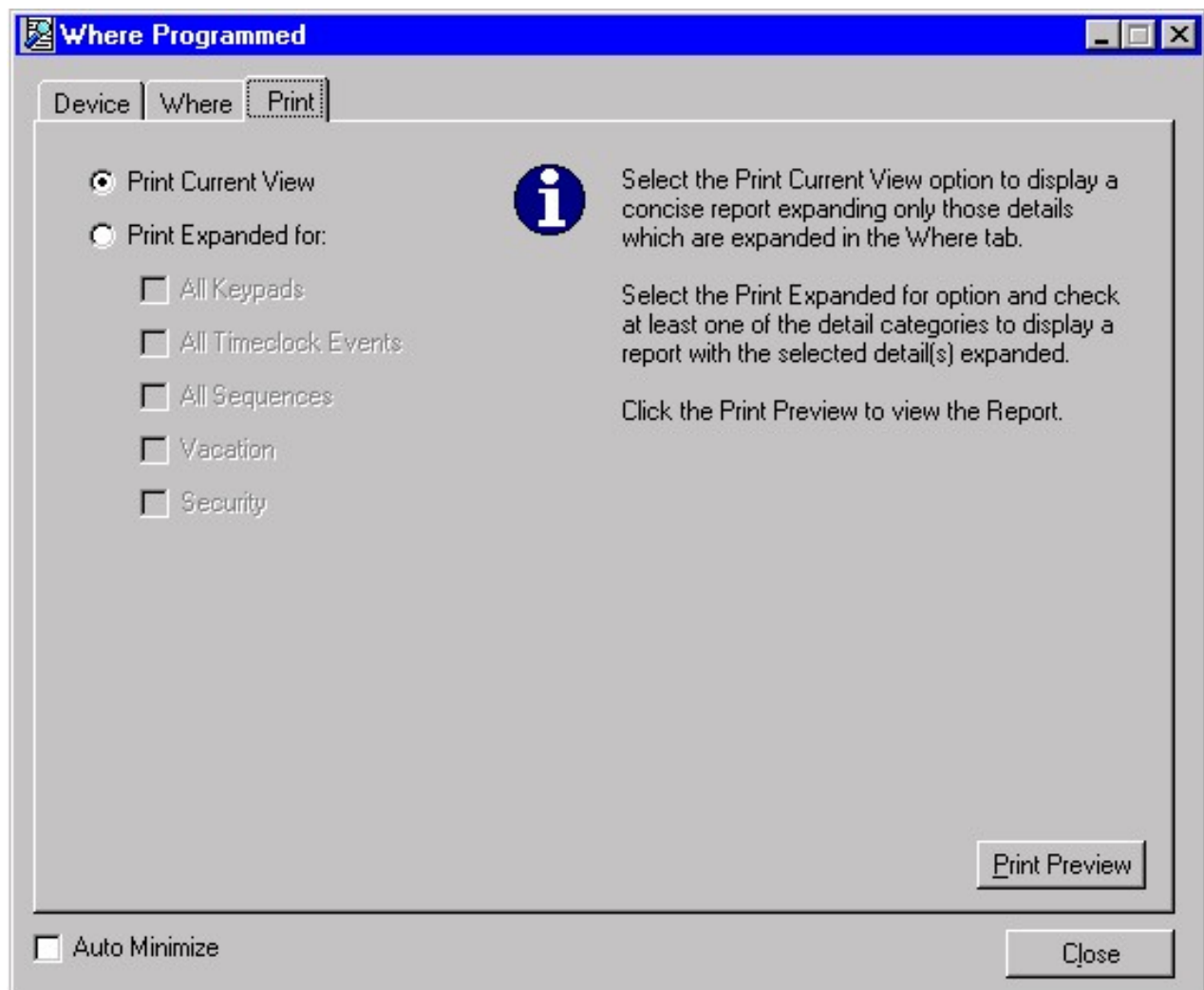
The devices are divided into four tabs: Lighting, Keypads, Interfaces and Global functions. These tabs are identical to the tabs found in the [Programming](#) screen. The **Expand All** button will show all devices in each group in the current project and the **Collapse All** button will only show the groups above. Select one of the devices from one of the four tabs and it will appear in the Selected Device text box. To change the selected device, select a different device from the lists. Once a device appears in the text box, the Where and Print tabs at the top of the screen become active. Select the Where tab to display where the device is programmed.



The Where tab displays where the selected device is assigned to a specific level by a Keypad, Time Clock and/or Global Sequence, and/or by the Vacation mode and/or the Security mode. The Where screen opens with all the above devices collapsed, showing just the groups. To expand all groups, simply press the **Expand All** button. To expand an individual group, keypad or button, click on the plus sign in a box to the left of the item. Once expanded, all information about the item is displayed. For keypads, the location, address and gang position are given as well as the specific button on the keypad. Listed for each button is the preset action that assigns a level (press, release, double-tap, etc.), the level assigned and the global scene, if applicable.

The Auto Minimize checkbox located at the bottom of the screen is used to toggle the auto minimize mode. When auto minimize is enabled, either changing modes from the toolbar or pressing the **Print Preview** button on the print tab will automatically minimize the Where Programmed screen. While the Where Programmed screen is minimized, it is possible to make changes to the programming of devices. Once changes are made, the Where Programmed screen will not reflect the recent changes. In order to have these changes appear on the screen, press the **Refresh** button.

To print the contents of the Where Programmed screen, press the Print tab.



The Print tab of the Where Programmed screen will allow you to choose what you want to print. The default is to print only the items that were expanded on the Where tab, as indicated by the Print Current View option. If you would like to print more than what was expanded on the Where tab, select the Print Expanded for: option and check the appropriate items as required. Once you have indicated everything that you want to print, press the **Print Preview** button.

Where Programmed Report

Dimmed Zones: Bedroom 1 Ceiling

Keypads



Kitchen Hallway Keypad

Button #: 4	Engraving: 2nd FL	Type: Default-Toggle
Preset	Level/Cmd	Global Scene
Press	70%	2nd Floor On

Button #: 9	Engraving: Front BR	Type: Default-Toggle
Preset	Level/Cmd	Global Scene
Press	66%	(none)



Master Bedroom At Door

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2.0 PROGRAMMING

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2.5 Time Clock Programming

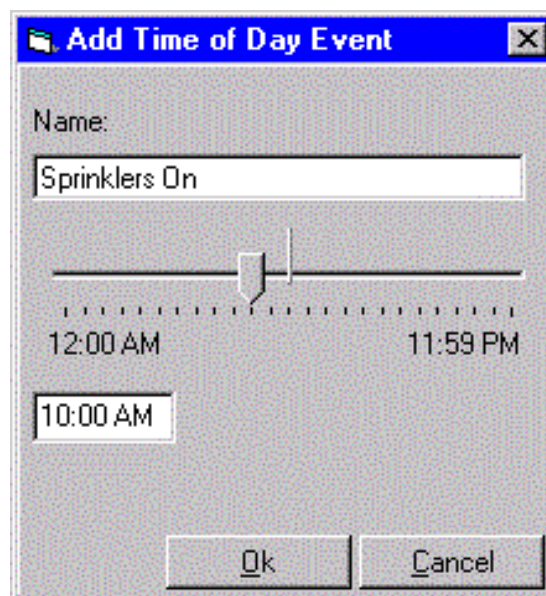
The Time Clock allows the user to define events to occur at fixed or periodic times. These times may be defined relative to time of day (1:30 PM, 2:30 PM, etc.) or relative to sunrise/sunset. Sunrise and sunset times are automatically calculated based on your location. Lutron automatically creates two time clock events called "Lutron - Day Event" and "Lutron - Night Event". These are used to set the state of a variable called Time of Day (also automatically created by Lutron). The Time of Day variable is set to Day at sunrise and is set to Night at sunset. This variable can be used in conditional button programming. These time clocks events may be deleted if not used.

2.5.1 Creating a Time of Day Event

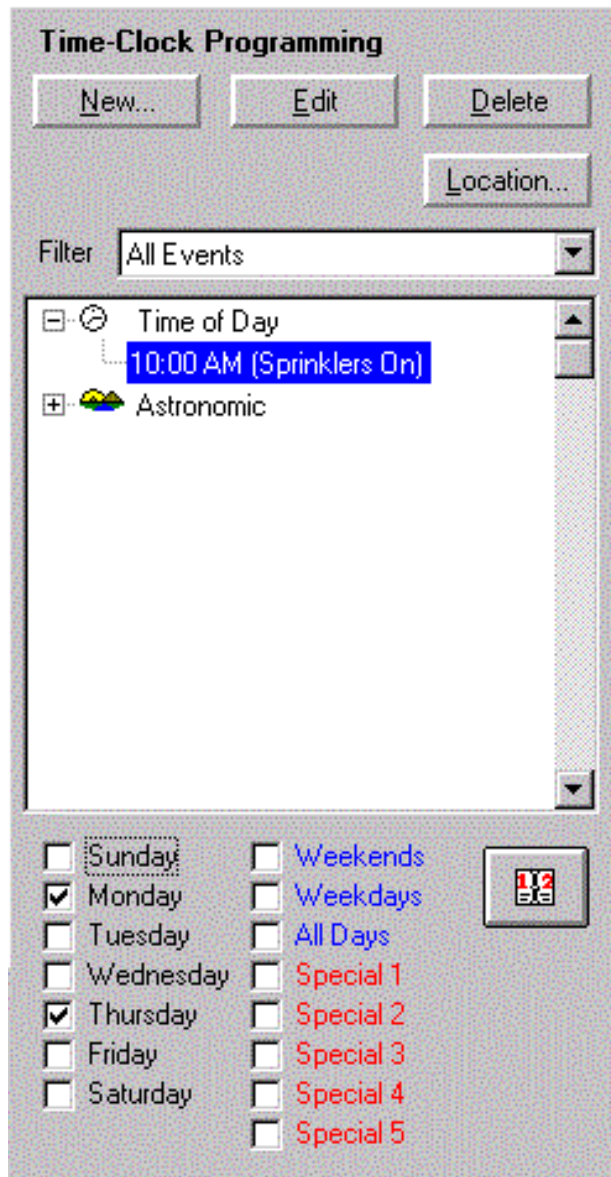
1. Go to the Programming screen.
2. Select the Time Clock Programming tab.



3. Click on Time of Day in the tree.
4. Click on the  button. A popup box will appear.



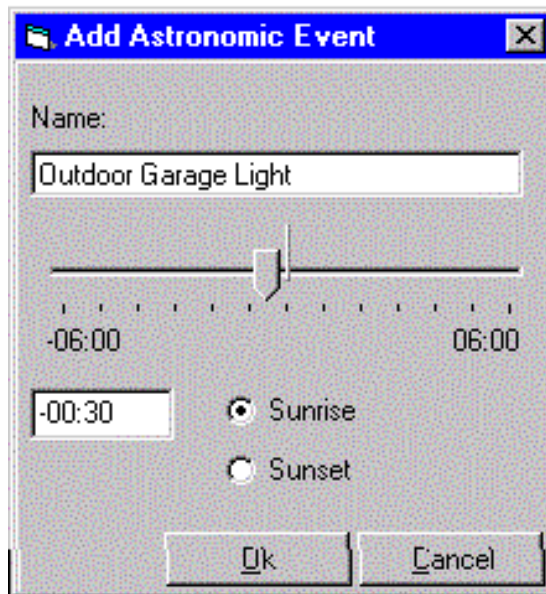
5. Type the name of the event in the text box labeled "Name".
6. Slide the bar to the time the event will occur, or type the time in the text box below the slide bar.
7. Click the  button.
8. A new event is now displayed under Time of Day in the tree. It can now be programmed.



9. Select the days the event will be performed by clicking on the corresponding check boxes (in the above example the "Sprinklers On" event will occur every Monday and Thursday).
10. For this sprinklers example, we would also create a "Sprinklers Off" event, so that the sprinkler do not stay on forever.

2.5.2 Creating an Astronomic Event

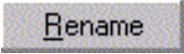
1. Click on Astronomic in the tree.
2. Click on the  button.
3. A popup box will appear.



4. Type the name of the event in the text box labeled "Name".
5. Choose if the event is relative to sunrise or sunset.
6. Specify the time the event will occur before or after sunrise/sunset.
7. Click the  button.
8. A new event is now displayed under Astronomic in the tree. It can now be programmed.
9. Select the days the event will be performed by clicking on the corresponding check boxes.

2.5.3 Defining Special Calendars

Five special calendars are available for specifying events to occur on specific dates and/or at specific intervals (i.e. every 3 days). To define special calendars:

1. Click on the calendar  button.
2. Select the special calendar to be defined.
3. The special calendar may be renamed by clicking the  button.
4. Select the type of event (Weekdays, Periodic, or By Dates).
5. Select the starting and ending dates for this schedule or click on Annual for this schedule to occur every year.
6. Weekdays: select the days and months for the special calendar. The calendar to the right will highlight the specific dates.

Define Special Events

Name: Summer

Rename

Type: Weekdays

Annual: ☐

Start: 01/01/2000

End: 12/31/2000

Days to Include:

- ☒ Sunday
☒ Monday
☒ Tuesday
☒ Wednesday
☒ Thursday
☒ Friday
☒ Saturday

Months to Include:

- ☐ January
☐ February
☐ March
☒ April
☒ May
☒ June
☒ July
☒ August
☒ September
☐ October
☐ November
☐ December

2000																													
January							February							March							April								
Sun	1						Sun	1	2	3	4	5	Sun	1	2	3	4	Sun	1	2	3	4	5	6	7	8			
2	3	4	5	6	7	8	6	7	8	9	10	11	12	5	6	7	8	9	10	11	2	3	4	5	6	7	8		
9	10	11	12	13	14	15	13	14	15	16	17	18	19	12	13	14	15	16	17	18	9	10	11	12	13	14	15		
16	17	18	19	20	21	22	20	21	22	23	24	25	26	19	20	21	22	23	24	25	16	17	18	19	20	21	22		
23	24	25	26	27	28	29	27	28	29	26	27	28	29	30	31	23	24	25	26	27	28	29	30						
30	31																												
May							June							July							August								
Sun	1	2	3	4	5	6	Sun	1	2	3	Sun	1	2	3	4	5	6	7	8	Sun	1	2	3	4	5				
7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12		
14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19		
21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26		
28	29	30	31	25	26	27	28	29	30	23	24	25	26	27	28	29	27	28	29	30	31								
														30	31														
September							October							November							December								
Sun	1	2	3	4	5	6	Sun	1	2	3	4	5	6	7	Sun	1	2	3	4	Sun	1	2	3	4	5	6	7	8	9
3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9		
10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16		
17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23		
24	25	26	27	28	29	30	29	30	31	26	27	28	29	30	24	25	26	27	28	29	30	31							

Ok

Cancel

7. Periodic: select the occurrence rate (i.e. every 2 days, every 8 days, etc.) and the months when the event is to occur.

Define Special Events

Name:

Type:

Annual: ☐

Start:

End:

Recur Every:

Months to Include:

☒ January ☐ July
☒ February ☒ August
☒ March ☐ September
☐ April ☒ October
☒ May ☒ November
☒ June ☒ December

2000																											
January							February							March							April						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1			1	2	3	4	5				1	2	3	4							1
2	3	4	5	6	7	8	6	7	8	9	10	11	12	5	6	7	8	9	10	11	2	3	4	5	6	7	8
9	10	11	12	13	14	15	13	14	15	16	17	18	19	12	13	14	15	16	17	18	9	10	11	12	13	14	15
16	17	18	19	20	21	22	20	21	22	23	24	25	26	19	20	21	22	23	24	25	16	17	18	19	20	21	22
23	24	25	26	27	28	29	27	28	29					26	27	28	29	30	31	23	24	25	26	27	28	29	
30	31																		30								
May							June							July							August						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5					1	2	3							1				1	2	3	4
7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
28	29	30	31				25	26	27	28	29	30	23	24	25	26	27	28	29	27	28	29	30	31			
													30	31													
September							October							November							December						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2	1	2	3	4	5	6	7				1	2	3	4						1	2
3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9
10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
24	25	26	27	28	29	30	29	30	31					26	27	28	29	30	24	25	26	27	28	29	30		
																		31									

8. By Dates: highlight each specific day of the year for the schedule to occur on.

Define Special Events

Name: First of the month

Rename

Type: By Dates

Annual: ☐

Start: 01/01/2000

End: 12/31/2000

2000																											
January							February							March							April						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1			1	2	3	4	5				1	2	3	4							1
2	3	4	5	6	7	8	6	7	8	9	10	11	12	5	6	7	8	9	10	11	2	3	4	5	6	7	8
9	10	11	12	13	14	15	13	14	15	16	17	18	19	12	13	14	15	16	17	18	9	10	11	12	13	14	15
16	17	18	19	20	21	22	20	21	22	23	24	25	26	19	20	21	22	23	24	25	16	17	18	19	20	21	22
23	24	25	26	27	28	29	27	28	29					26	27	28	29	30	31	23	24	25	26	27	28	29	
30	31																			30							
May							June							July							August						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6					1	2	3							1			1	2	3	4	5
7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12
14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
28	29	30	31				25	26	27	28	29	30		23	24	25	26	27	28	29	27	28	29	30	31		
														30	31												
September							October							November							December						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2	1	2	3	4	5	6	7				1	2	3	4						1	2
3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9
10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
24	25	26	27	28	29	30	29	30	31					26	27	28	29	30		24	25	26	27	28	29	30	
																				31							

Ok

Cancel

2.5.4 Programming a Time Clock Event

A time clock event is programmed like a [keypad button](#). Select the event, then assign loads, devices, etc. to the event.

2.5.5 Specifying Location

Specifying location is important for correct daylight savings and sunrise/sunset determination.



1. From the  tab on the programming screen, click on the .
2. This will open the User Preferences screen at the Location tab.
3. Refer to [User Preferences](#) for more information.

2.6 Vacation Mode Programming

Vacation Programming

Record

Sample Rate
Every 5 Minutes

Number of Days to Record
14 Days

Playback

☐ As Recorded
☒ With Randomization

Lighting Interfaces

Add/Update

Room All Rooms

Dimmed Zones

Bedroom 1 Ceiling
Breakfast Nook Ceiling
Dining Room Chandelier
Exterior Deck
Exterior Driveway
Exterior Front Porch

Vacation Devices

Delete

Name
▶ Bedroom 1 Ceiling
Breakfast Nook Ceiling
Dining Room Chandelier
Exterior Deck
Exterior Garage Rear
Foyer Ceiling
Kitchen Sink
Living Room Ceiling
Living Room Sconces
Master Bath Vanity
Master Bedroom Ceiling
Office Ceiling
Upstairs Hall Ceiling

Vacation Mode is a unique feature of the HomeWorks Interactive system. This mode is used to simulate the homeowner's movements through the house via lighting changes and is typically used when the homeowner is away. Vacation Mode does this by recording the light levels intensity values of selected devices at certain intervals throughout the day and then playing back these recordings. The Vacation Mode Programming screen is used to specify information about the vacation mode.

To view the Vacation Mode Programming screen, go to the programming screen by pressing the  button

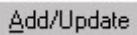
on the toolbar. Next, press the  tab on the left side of the programming screen. The Vacation Mode

Programming screen displays the following settings that can be modified.

1. **Record Sample Rate** - This setting determines how often the HomeWorks Interactive system records the intensity value of the selected devices. This option can be set to every 5, 15, 30, 45 or 60 minutes.
2. **Number of Days to Record** - This option is used to determine how much of the Vacation Mode's recording will be saved. It can be set to either 1 Day, 7 Days or 14 Days. If set to 1 Day, than only the previous day's lighting changes will be saved. This does not mean that vacation mode will automatically record for 1 Day. The Record and Stop record functions are executed with a button press or a time clock event. For example, a time clock event could be set up to Record Vacation

Mode all day Saturday and Sunday and then Stop recording at 11:59 PM on Sunday. If the Number of Days to Record is set to 14 Days, it would take 7 weekends to fill the 14 Days worth of recordings. On the 8th weekend, the 1st weekend would be lost and only weeks 2-8 would be saved.

3. **Playback** - The playback option can be set to one of two choices; As Recorded or With Randomization. The As Recorded option is just that; the recorded lighting changes are played back at the same sample rate at which they were recorded. If the Record Sample Rate is set to Every 5 Minutes, updated information is sent to the selected devices every 5 minutes. The With Randomization option changes the playback rate based upon half of the Record Sample Rate. If the Record Sample Rate is set for Every 30 Minutes, then the playback of the recorded lighting intensities can vary plus or minus 15 minutes. For example, if a recording was made at 4:30 PM, it can be played back any time from 4:15 PM to 4:45 PM.
4. **Vacation Devices** - The right half of the Vacation Mode Programming screen is used for determining which devices are to be recorded during Vacation Mode. All Dimmed Zones, Switched Zones and GRAFIK Eye Main Units on the Lighting tab can be added to the list of selected devices. In addition, all Maintained Output Closures on the Interfaces tab can be selected. NOTE: When adding Output Closures, be careful not to add the closures connected to devices such as garage doors, motorized gates or motorized windows. Opening the garage door while on vacation would not be desirable. To add a device to the selected device list, highlight the device in the upper list box and press the



button. To delete a device on the list, select the device in the lower list box by selecting the box to the left of the device and press the  button.

2.7 Security Mode Programming

2.7.1 Security Mode Features

Security Programming

☒ Enter Security Mode Preset
☐ Lights/CCOs to be Forced to a Level
☐ Lights/CCOs to be Flashed
 Flash Rate: Medium
☐ Keypads to be Disabled
☐ Exit Security Mode Preset
 (occurs after restore)
☐ Restore All Lights/CCOs affected to Previous Level/State
 Security Mode Timeout:
☒ Enable Timeout 10:00

Lighting | Interfaces | Global Add/Update

Room: All Rooms

Dimmed Zones

- Bedroom 1 Ceiling
- Breakfast Nook Ceiling
- Dining Room Chandelier
- Exterior Deck
- Exterior Driveway
- Exterior Front Porch

Dimmed Zones

Delay: 00:00
 Fade: 00:02
100%
☐ Unaffected

Security | Notes Real Time Delete

Name	Delay	Fade	Lvl/Cmd
Breakfast Nook Ceiling	00:00	00:02	100%
Dining Room Chandelier	00:00	00:02	100%
Foyer Ceiling	00:00	00:02	100%
Living Room Ceiling	00:00	00:02	100%
Office Ceiling	00:00	00:02	100%

Delete

Security Mode is a another unique feature of the HomeWorks Interactive system. The Security Mode allows the user to set up a series of events to occur in the event of an emergency/security violation situation. Security Mode is typically activated by a CCI Input Closure but can also be activated by a keypad button press. The Security Mode Programming screen allows the user to modify the series of events. The following options are available for adjustment.

1. **Enter Security Mode Preset** - The Enter Preset is the preset that is selected when Security Mode is initiated. This preset is only used to setup the Setup Mode. All dimmed and switched zones and GRAFIK Eyes are available for the Enter Preset as well as Interfaces and Global Devices. Typically the Enter Preset is used to turn all zones off to setup the next events. It can also be used to send a single closure to equipment by others on a one-time basis. To add devices to the Enter Security Mode Preset, select the appropriate device in the upper right-hand box and press the Add/Update button. To delete a device from the Enter Security Mode Preset, select the device in the lower list box by selecting the box to the left of the device and press the Delete button.
2. **Lights/CCOs to be Forced to a Level** - This is the preset scene that is maintained throughout the duration of Security Mode. As indicated, only dimmed and switched zones, GRAFIK Eyes and Output

Closures are available for the Forced to Level preset. Adding and removing device from this preset is accomplished using the same steps used in the Enter Security Mode Preset.

3. **Lights/CCOs to be Flashed** - Similar to the Forced to a Level preset, this function will flash all selected devices instead of forcing them to a level. Only dimmed and switched zones, GRAFIK Eyes and Output Closures are available for this function. The flash rate is determined by the list box located under the option button on the left panel. Available flash rates are Slow, Medium and Fast. Determining which rate best fits your system is a matter of trial and error.
4. **Keypads to be Disabled** - This function will disable all the buttons on selected keypads for the

duration of the Security Mode. Simply select a device in the upper list and press the **Add/Update** button to have the keypad disabled. It is desirable to have all keypads disabled except perhaps one or two that are not easily accessible. These keypads would be used by the homeowner to disable Security Mode in the event of a false trip.

5. **Exit Security Mode Preset** - As defined above, the Enter Security Mode Preset is used to setup the Security Mode. Likewise, the Exit Preset is used to cleanup after the Security Mode. The Exit Preset is the last action that occurs during Security Mode, including the Restore to Previous State option (see below). As in the Enter Preset, all dimmed and switched zones, GRAFIK Eyes, Interfaces and Global Devices are available for the Enter Preset as well as Keypads to be enabled/disabled. All Keypads that appear on the Keypads to be Disabled list will automatically be added to this list as well.

NOTE: To prevent a room from being put into darkness after Security Mode is disabled, all lights should include a 10 second fade rate.

Flash Rate: Medium

☐ Keypads to be Disabled

☒ Exit Security Mode Preset
(occurs after restore)

☐ Restore All Lights/CCOs affected to Previous Level/State

Security Mode Timeout:
☒ Enable Timeout 10:00

Name	Delay	Fade	Lvl/Cmd
Bedroom 1 Ceiling	00:00	00:10	100%
Breakfast Nook Ceiling	00:00	00:10	100%
Dining Room Chandelier	00:00	00:10	100%
Exterior Deck	00:00	00:10	100%
Exterior Driveway	00:00	00:10	100%
Exterior Front Porch	00:00	00:10	100%
Foyer Entry	00:00	00:00	Enabled
Garage Entry	00:00	00:00	Enabled
Kitchen Hallway Keypad	00:00	00:00	Enabled
Living Room SS-IR	00:00	00:00	Enabled
Lower Office Entry	00:00	00:00	Enabled
Utility CCI	00:00	00:00	Enabled

6. **Restore All Lights/CCOs affected to Previous Level/State** - If this option is checked, all lights will be restored to the level they were at before Security Mode was enabled. All Output Closures will also be restored to their previous state.

NOTE: This is not the last action of the Security Mode. The restoration process is executed prior to the Exit Security Mode Preset. Anything restored by this option would be changed in the Exit Security Mode Preset.

7. **Security Mode Timeout** - The timeout option allows the HomeWorks Interactive system to exit Security Mode without any actions from a keypad or CCI Input Closure. If Enable Timeout is checked, the system will exit Security Mode after the time specified in the timeout value box to the right.

Security Mode Timeout:

☒ Enable Timeout 10:00

The timeout value can be user defined at 00:00 to 4:00:00 (0 minutes to 4 hours) but 10:00 is the recommended default.

2.7.2 Activating Security Mode from a CCI

Once Security Mode has been programmed, it needs to be activated. This is typically done by a contact closure provided by the security system. This contact closure should be connected to the input terminals of a Contact Closure Interface. To begin, press the button on the toolbar to open the Programming screen. Then select the CCI Control Station to which you will connect the contact closure. In the example below, input closure #5 has been used for the security mode activation.

The screenshot displays the 'Control Station Programming' window. On the left, a sidebar shows a tree view of the system hierarchy: 'Lower Level\Utility\CCI' is selected. Below this, a 'Keypad Address' field shows '[16:06:01]' and 'Btn = 14'. A 'Show:' dropdown is set to 'Closure Board'. The main area has tabs for 'Lighting', 'Keypads', 'Interfaces', and 'Global'. The 'Global' tab is active, showing a list of closures: 'Weekend', 'Time', 'Time Clock Schedules', 'Security', 'Security Mode' (highlighted), 'Vacation', and 'Vacation Mode'. To the right of this list is a 'Security Mode' configuration panel with a 'Delay' dropdown set to '00:00', radio buttons for 'Start' (selected), 'Terminate', and 'Unaffected'. Below the tabs are buttons for 'Close', 'Open', 'Properties', and 'Notes'. A 'Default' dropdown is also present. At the bottom, a table lists the programmed actions for the 'Security Mode' closure.

Name	Delay	Fade	Lvl/Cmd
Security Mode	00:00	00:00	Start

This closure is programmed as a Default programming model and Dual Action has been selected. This changes the programming tabs to display both an open and a close mode for this closure. To program Security Mode to the closure, first select the Close tab. Next, select the Security Mode Start command, found on the Global tab, and press the **Add/Update** button. By default, the Security Mode Terminate command is added to the closure's Open tab.

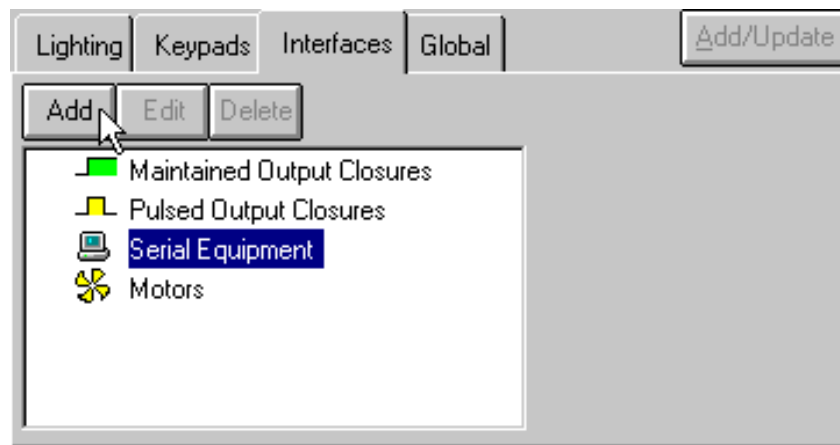
2.9 Serial Strings

2.9.1 Creating a Driver

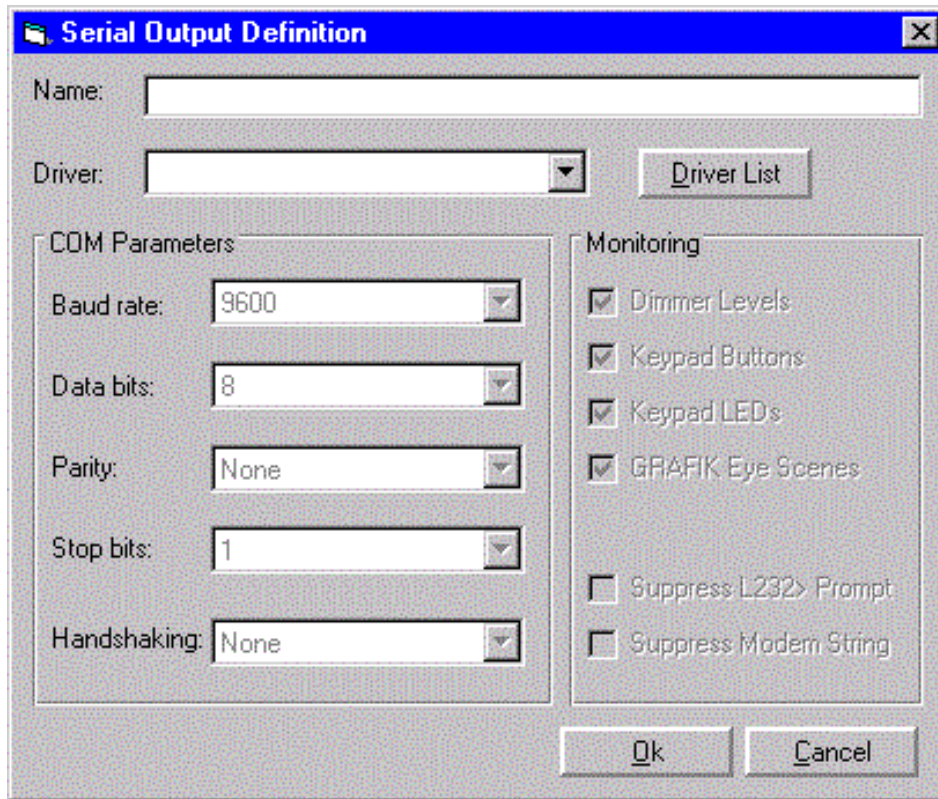
1. Click on the toolbar to go to the Program Mode screen. 
2. Click on the Interfaces tab in the upper right of the screen.



3. Select Serial Equipment.



4. Click on the  button.



The image shows a Windows-style dialog box titled "Serial Output Definition". It has a blue title bar with a close button (X) in the top right corner. The dialog is divided into several sections. At the top, there is a "Name:" label followed by a text input field. Below that is a "Driver:" label followed by a dropdown menu and a "Driver List" button. The main body of the dialog is split into two panes. The left pane is titled "COM Parameters" and contains five settings, each with a label and a dropdown menu: "Baud rate:" set to "9600", "Data bits:" set to "8", "Parity:" set to "None", "Stop bits:" set to "1", and "Handshaking:" set to "None". The right pane is titled "Monitoring" and contains six checkboxes: "Dimmer Levels" (checked), "Keypad Buttons" (checked), "Keypad LEDs" (checked), "GRAFIK Eye Scenes" (checked), "Suppress L232> Prompt" (unchecked), and "Suppress Modem String" (unchecked). At the bottom of the dialog are two buttons: "Ok" and "Cancel".

Serial Output Definition

Name:

Driver:

COM Parameters

Baud rate:

Data bits:

Parity:

Stop bits:

Handshaking:

Monitoring

☒ Dimmer Levels

☒ Keypad Buttons

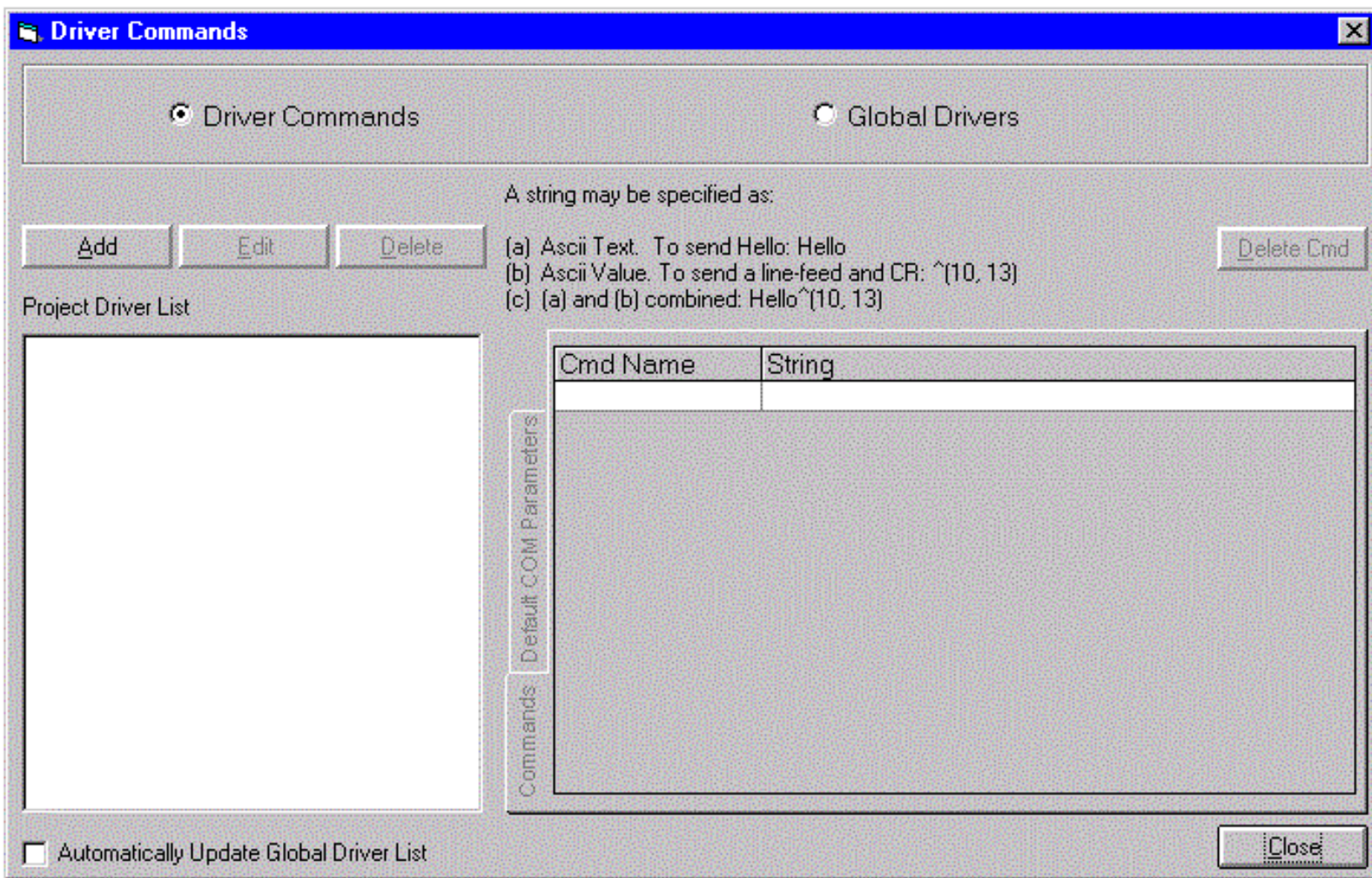
☒ Keypad LEDs

☒ GRAFIK Eye Scenes

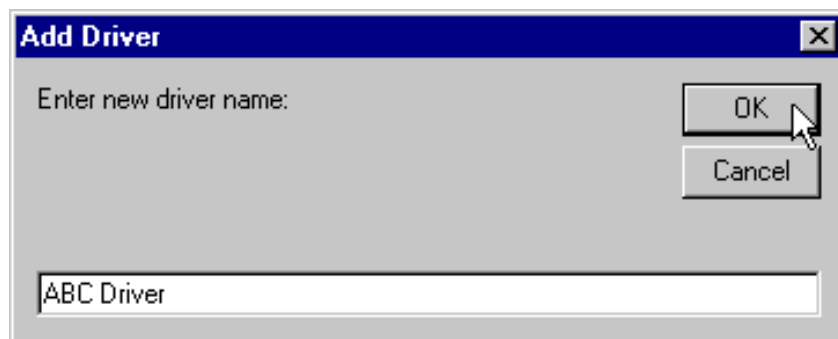
☐ Suppress L232> Prompt

☐ Suppress Modem String

5. Click on the button to define a new serial driver (or choose a previously defined driver from the driver list).



6. Click on the **Add** button. A window will pop up. **NOTE:** The Edit button allows you to change the name of the selected driver. The Delete button allows you to delete an existing driver from this project.

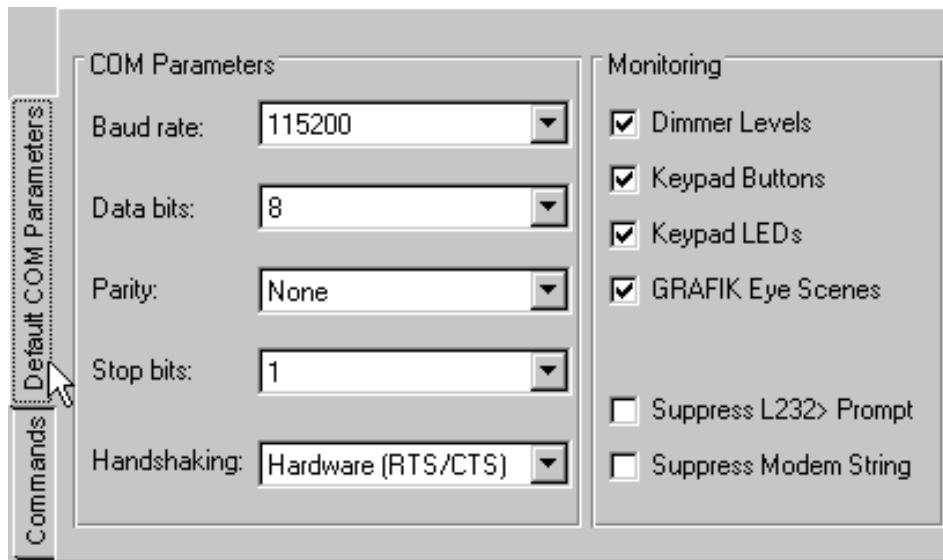


7. Type a name for the new driver and click the  button.
8. The list of commands for this driver is in the right part of the Driver Commands window.
9. Type in the command name and the corresponding string which will be outputted from the RS-232 port when this command is executed. The command is written in ASCII. To send an ASCII value (for example a LF/CR), use "^" followed by the ASCII numerical value in parenthesis (for example ^(10,13) for LF/CR)

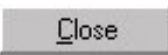


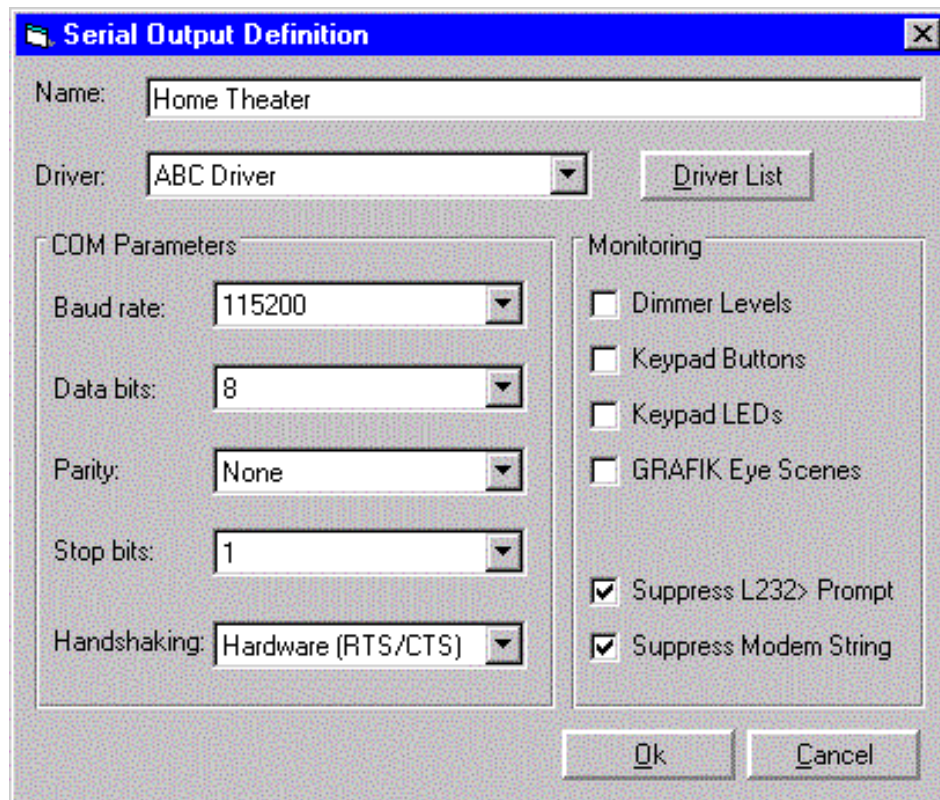
Cmd Name	String
Power - Z1	K0101w01K0100^(10,13)

10. Fill in the different commands for your driver. **NOTE:** The  button allows you to delete the selected command in the command screen.
11. Select the Default COM Parameters tab on the right of the command screen.

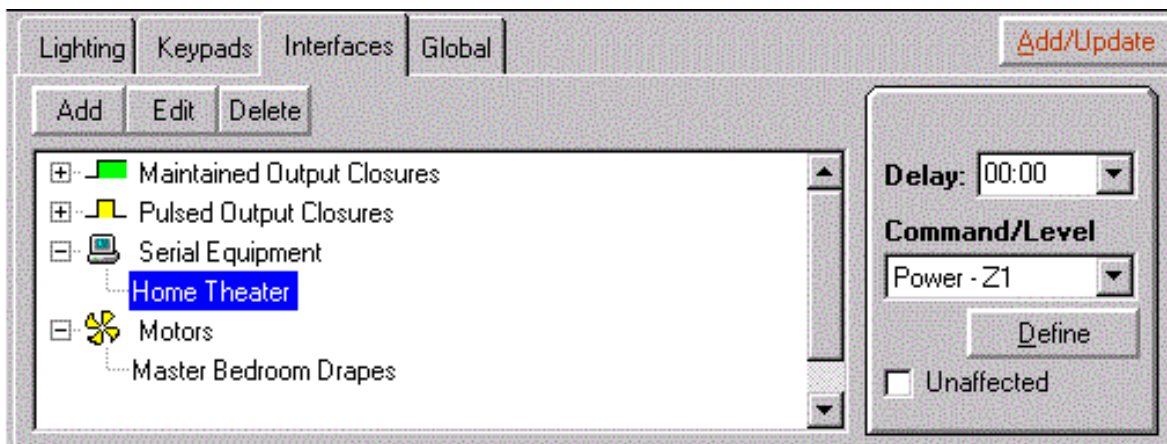


COM Parameters		Monitoring	
Baud rate:	115200	☒	Dimmer Levels
Data bits:	8	☒	Keypad Buttons
Parity:	None	☒	Keypad LEDs
Stop bits:	1	☒	GRAFIK Eye Scenes
Handshaking:	Hardware (RTS/CTS)	☐	Suppress L232> Prompt
		☐	Suppress Modem String

12. Specify the default COM Parameters which define how the processor will communicate to the RS-232 equipment tied to it.
13. When finished with the driver, click on the  button.
14. Give a name to the Serial Equipment, and choose the driver you just defined.

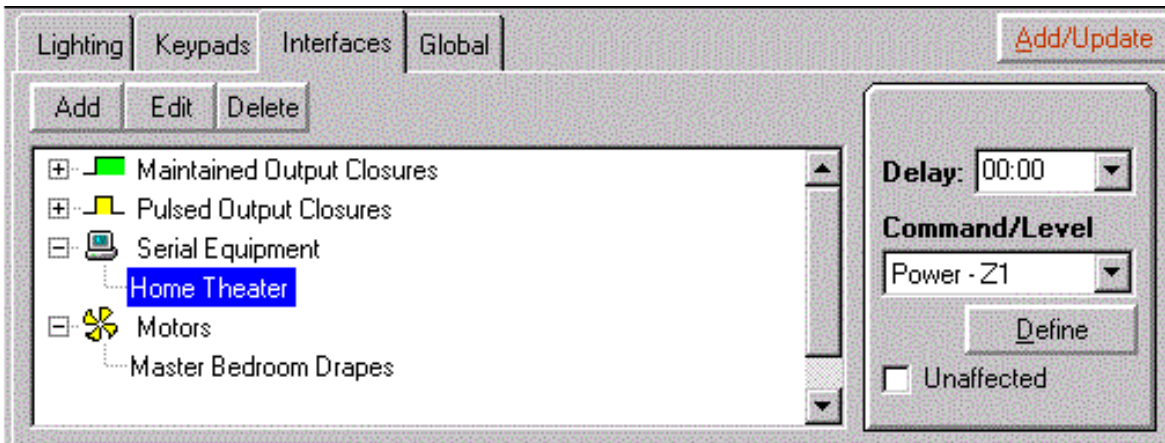


15. The default COM and Monitoring Parameters can be overridden here.
16. Click the  button when finished.
17. A new Serial Equipment has been added under the Interfaces tab in the programming screen.

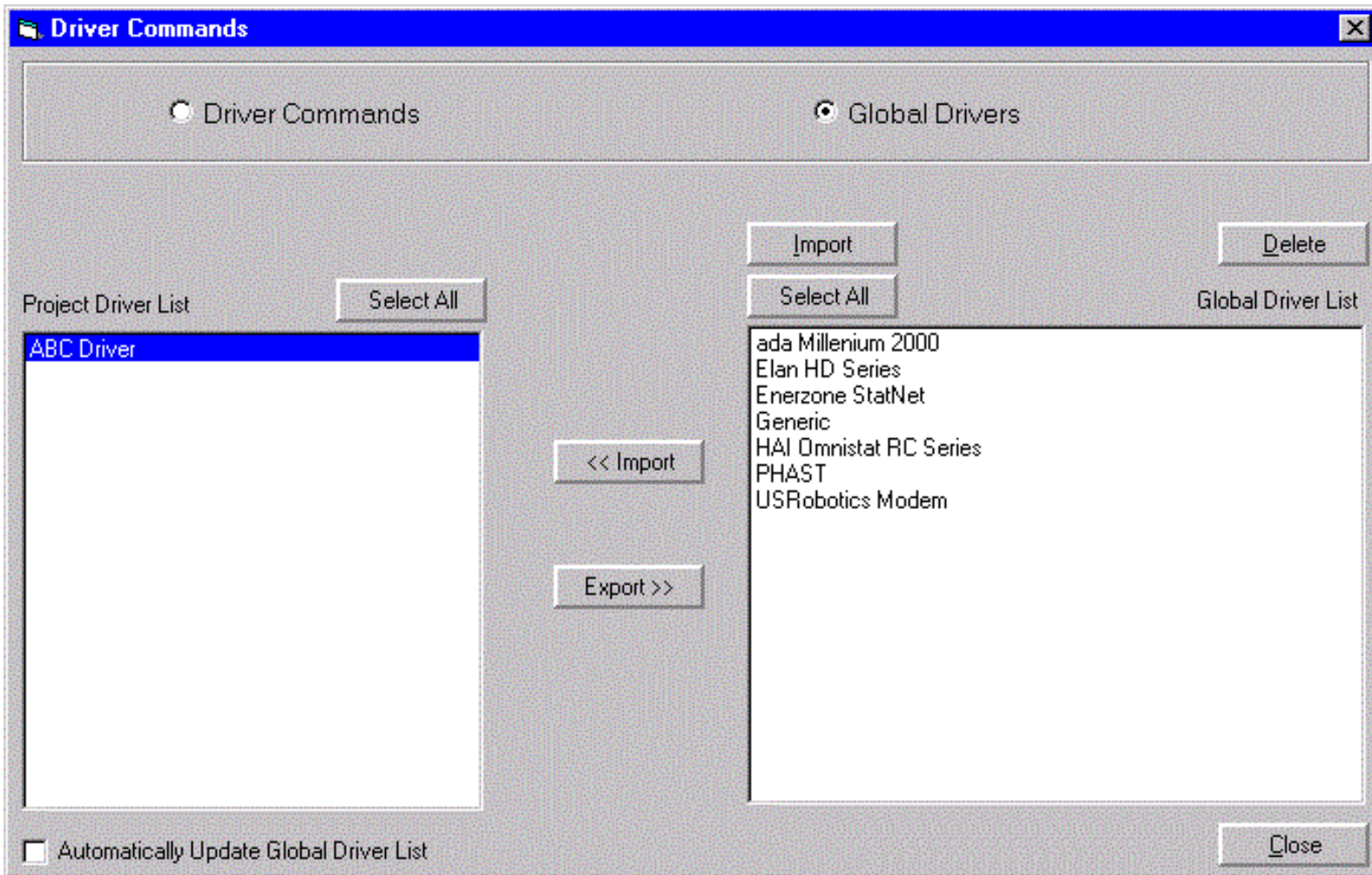


2.9.2 Adding a new driver to your Global Drivers List

1. Click on the toolbar to go to the Program Mode screen. 
2. Click on the Interfaces tab in the upper right portion of the screen. 
3. Click on the Serial Equipment defined previously (see section 2.7.1).



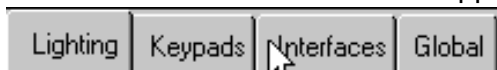
4. Click on the  button.
5. Click on the Global Drivers  Global Drivers option at the top of the Driver Commands window.



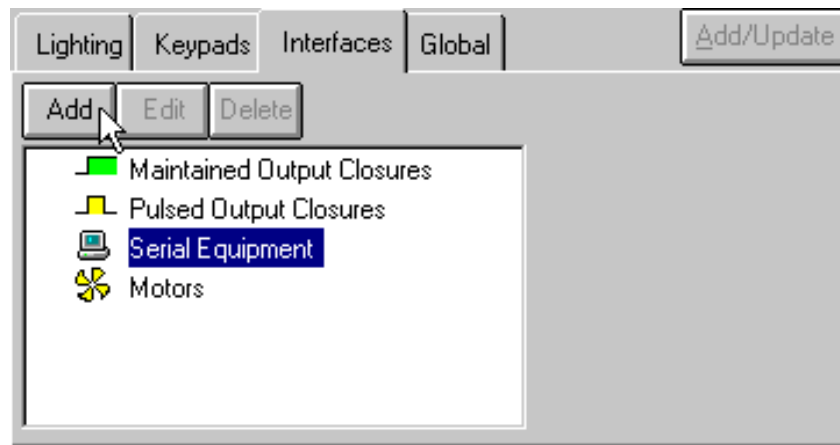
6. Select the serial driver to export from the Project Driver List on the left. Click the **Export>>** button to add the selected driver to your Global Driver List on the right.
7. To import a driver list that is not in the Project Driver List, click the **Import** button located above the **Select All** button. In order to be imported into the Global Driver List, the file must be a *.xls file. Select the *.xls file from the directory it is located in and click the **OK** button to import the file.
8. Click **Close** on the Driver Commands window.
9. The serial driver has now been exported to the Global Driver List.

2.9.3 Adding a Global Driver to your Project Driver List

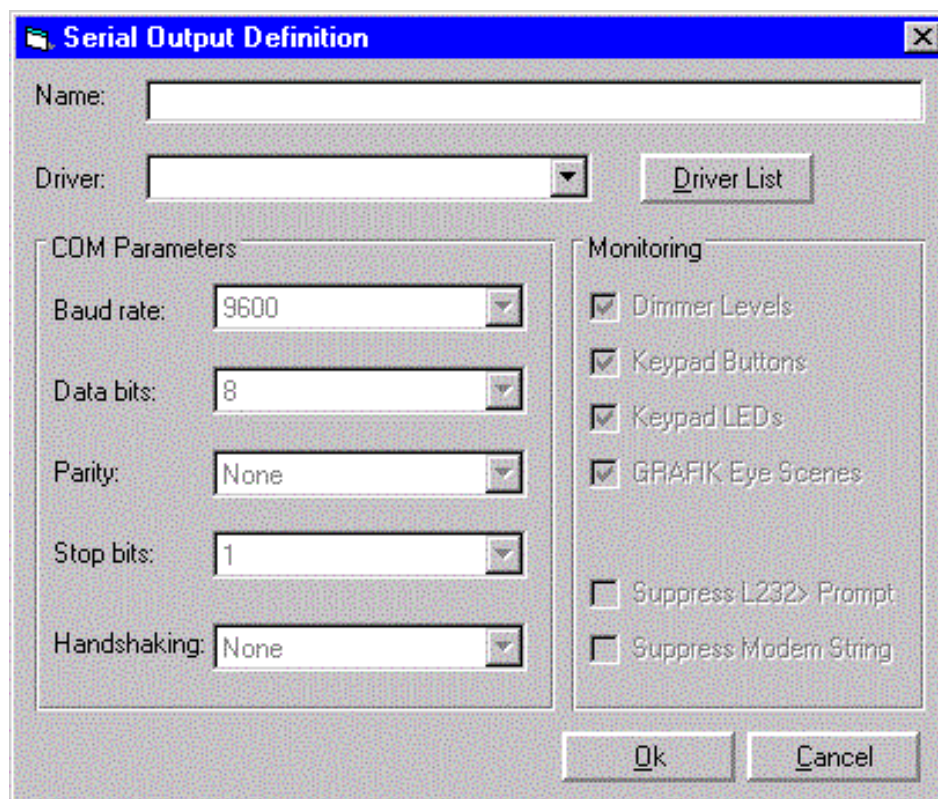
1. Open your destination database.
2. Click on the toolbar to go to the Program Mode screen. 
3. Click on the Interfaces tab in the upper right of the screen.



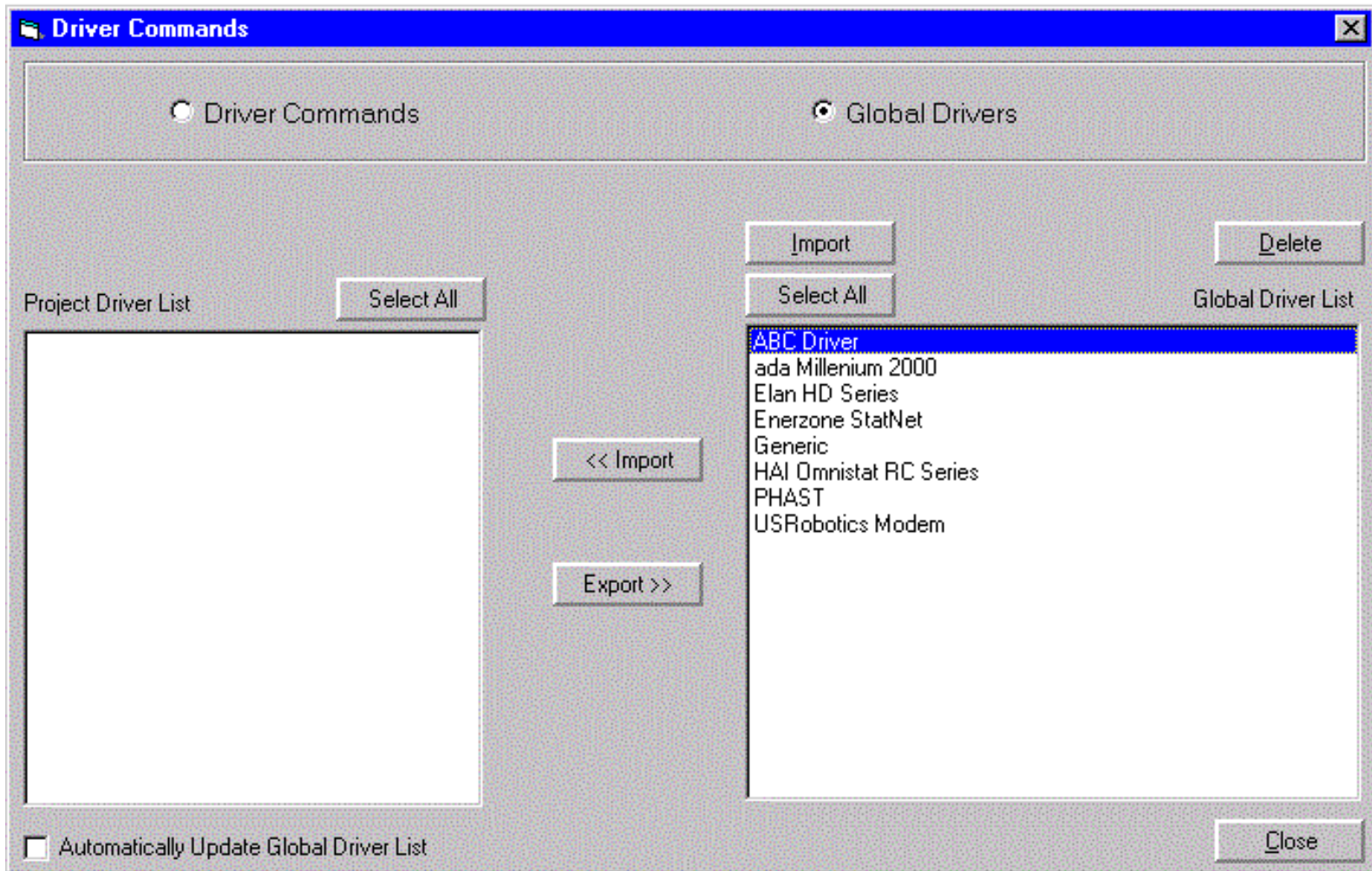
4. Select Serial Equipment.

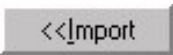
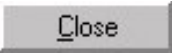


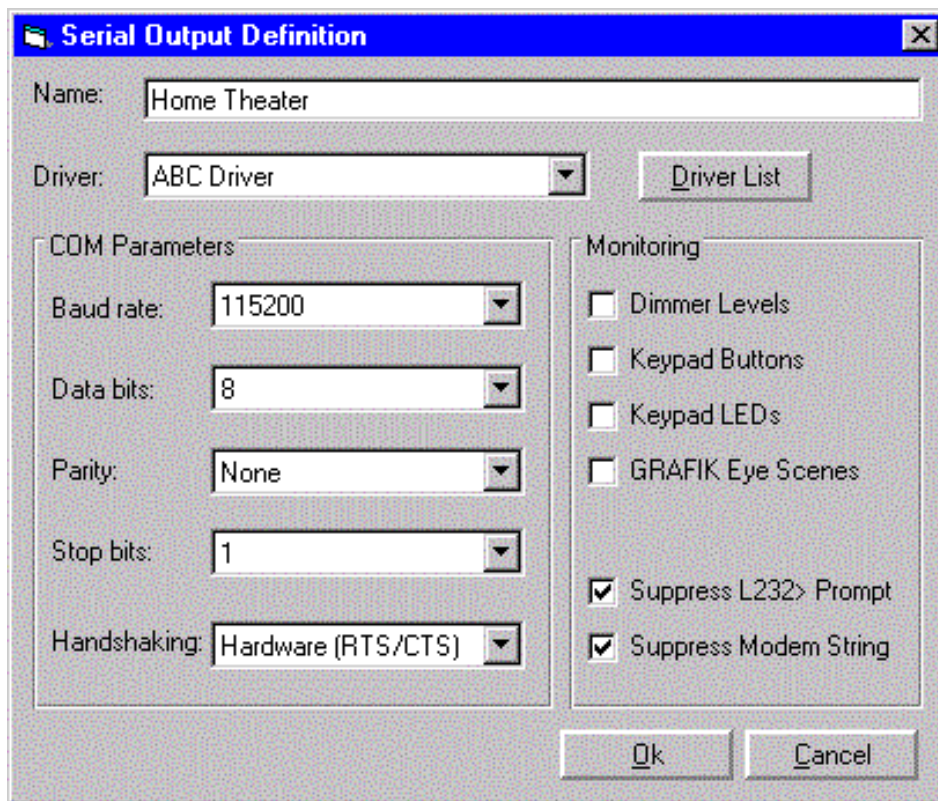
5. Click on the **Add** button.



6. Click the **Driver List** button.
7. Click on the Global Drivers  **Global Drivers** option at the top of the Driver Commands window.



8. Select the serial driver to use from the Global Driver List on the right. Click the  button to add the selected driver to your Project Driver List on the left.
9. Click  on the Driver Commands window.



10. Type in a name for the Serial Equipment you are adding to your project.
11. Set the parameters and monitoring message states.

2.9.4 Programming Serial Strings to Buttons

1. Select the command to send from the drop down list on the right and click the **Add/Update** button to add the command to a preset.

Lighting | Keypads | Interfaces | Global | Add/Update

Add Edit Delete

+

 Maintained Output Closures

+

 Pulsed Output Closures

-

 Serial Equipment

- Home Theater

+

 Motors**Delay:** 00:00
Command/Level
CD - Z1
Define
☐ Unaffected

2. To add multiple commands to the same button, put a delay between the commands to ensure they are transmitted in the desired order. The delay can be any value from 0.25 seconds to 4 hours.

Lighting | Keypads | Interfaces | Global | Add/Update

Add Edit Delete

- Maintained Output Closures
- Pulsed Output Closures
- Serial Equipment
 - Home Theater
- Motors

Delay: 00:01

Command/Level: Play - Z1

Define

☐ Unaffected

Press | Properties | Notes | Real Time | Delete

Default

☒ Toggle
☐ Single Action
☐ Dual Action

	Name	Delay	Fade	Lvl/Cmd
▶	Home Theater	00:00	00:00	CD - Z1
	Home Theater	00:01	00:00	Play - Z1

2.9.5 Addressing

The  Address Assignment screen is used to assign a serial driver to an RS-232 link (i.e. link 3 or link 7). See the [Address Assignment](#) screen for more information.

3.0 COMMUNICATIONS

3.1 Terminal Overview

3.1.1 Terminal Toolbar

3.1.2 Connection Properties

3.2 Serial Number Addressing

3.2.1 Navigation

3.2.2 System Check

3.2.3 Address Repeaters

3.2.4 Auto Address Devices

3.2.5 Manually Address Devices

3.2.6 Upload Project and Launch Diagnostics

3.3 Uploading to the Processor

3.4 Using a Modem to Upload

3.4.1 Processor Modem Setup

3.4.2 Uploading the Modem Initialization String

3.5 Diagnostics

3.5.1 Startup Screen

3.5.2 Diagnostics Results Screen

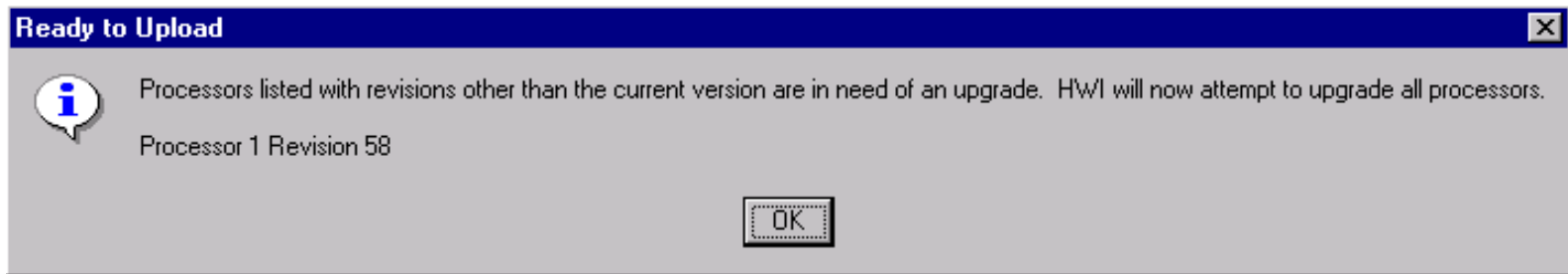
3.5.3 Test Dialogs

3.5.4 Battery Powered Device Diagnostics Screen

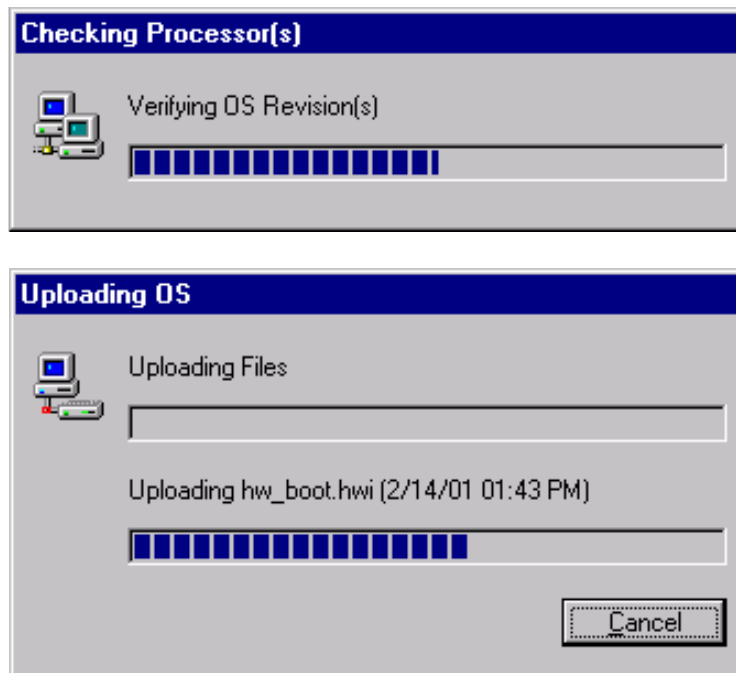
3.3 Uploading to the Processor

Once the Terminal screen is open, click the  button to upload a project.

Before HomeWorks Interactive begins each upload, it checks the processor's Operating System (OS) to ensure it is the most current file. If it finds an old version of the OS, it will ask you to upload the latest Operating System before uploading any databases. If you do not upload the newest version of the OS, you will not be able to upload a database.



Newer versions of the OS (uploaded on or after HomeWorks Interactive version 3.50) will be upgraded by simply clicking the  button. The OS of all processors on the project will be updated at the same time. There is no need to change any DIP switches or connect to each processor. The software will check the processor to verify the OS revision and then upload the OS files.



For older versions of the Operating System (uploaded prior to HomeWorks Interactive version 3.50), each processor must be upgraded, one at a time, in the following fashion.

1. Connect the RS232 cable to the processor to be upgraded.
2. Put **Dip Switch 1** on **SW1** up and cycle power OFF, then back ON. After this is complete, the processor is ready to receive the Operating System.
3. Click on the  button in the Terminal Screen and then press the  button and the upload will begin.
4. After the upload is complete, you must reverse the process (put Dip Switch 1 down on SW1 and cycle power OFF, then back ON) before uploading your project database to the processor.
5. Repeat steps 1 through 4 for all processors on the project.

NOTE: Older (Pentium I and some Pentium II) PC's may not be able to communicate through their serial port at 115200 bps efficiently. If your computer hangs or times out while uploading the Operating System, you will need to upload at 9600 bps. To do this, put Dip Switch 1 on SW2 up and cycle power OFF, then back ON.

Once the OS has been updated, it is possible to upload the current project to the processor.

To Upload the current Project:

1. If you have not already done so, click on the  button.

Upload Project - Last compiled on 4/2/01 3:31:30 PM

Data to Upload | Cycle-dim\Raise-Lower Options |

i Listed below are the upload options. Check off the options which apply. To store a copy of the current database in the processor(s) being uploaded, choose "Synchronized" for the Upload type.

☒ Vacation

☐ TEL9 Access code, Pickup code, and list

☒ Set System date/time to PC

PC date/time: 4/11/01 2:09:44 PM

Compile type

☒ Compile and Upload

☐ Upload Last Compile

☐ Compile Only

Upload type

☐ Minimum

☒ Synchronized

Processor database will be synchronized with PC

Login Password: jetski

OK Close

2. The Upload Project screen opens and the date of the last compile (if applicable) is displayed in the title bar.
3. The Data to Upload tab displays the various upload options. If the project has already been previously uploaded, only those data items that have been changed since the last upload will be checked and disabled. Check all the data items that are to be uploaded to the processor panel.
4. The Compile type option box determines how the database will be compiled. The Compilation process uses the database to create the actual files that the processor uses to run the system. The default setting is the Compile and Upload option, which compiles the database and immediately uploads the compiled files to the processor. If you are not connected to a processor and would like to verify that your database has no critical errors, select the Compile Only option. This option can also be used to save time during uploads. If a database is compiled before connecting to a processor, the Upload Last Compile option can be selected. The files that were created during the previous compile will be uploaded to the processor.
5. The Upload type option box determines how much information will be sent to the processor. If the database has never been uploaded to the processor or the OS was upgraded, then the Synchronized option will be selected by default. If the database has been uploaded to the processor previously, then the Minimum option will be selected. Selecting the Synchronize option will store a backup copy of the current project in the processor. This backup copy can be extracted at a later date, if necessary. For example, if the computer that was last used to upload to the processor was run over by a steamroller, it would be

necessary to extract the backup copy. A synchronized upload will take longer than a Minimum upload. To reduce upload time, only select the Synchronize option during the last upload of the day.

6. Select the Cycle-dim\Raise-Lower Options tab to set the Cycle-dim and the Raise-Lower options.

Upload Project - Last compiled on 09/22/2000 2:18:28 PM

Data to Upload: **Cycle-dim\Raise-Lower Options**

Change the settings below to optimize your desired raise-lower performance.

Initial direction on cycle dim

☒ Raise

☐ Lower

Activate cycle-dim preset upon

☒ Press (better toggle response)

☐ Release (better cycle-dim functionality)

Raise-lower rate

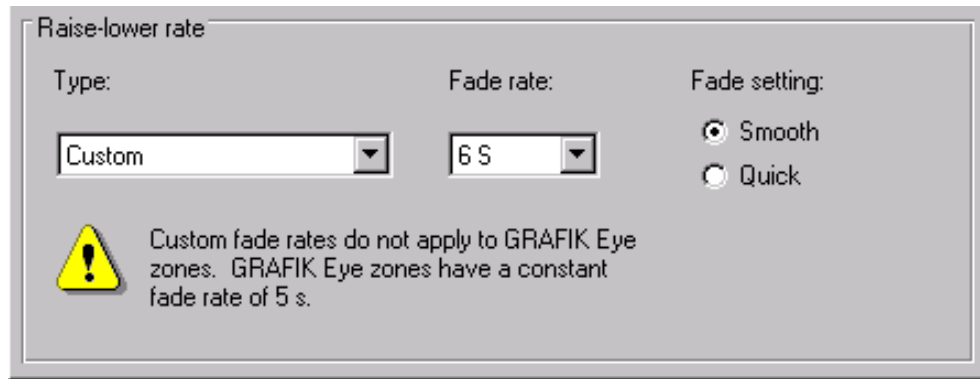
Type:

Default

Compile Only Upload Last Compile Compile and Upload Cancel

7. Set the Initial Direction on Cycle Dim option to either Raise or Lower.
8. Select one of the two choices for the Activate Cycle-Dim Preset Upon option: Press (better toggle response) or Release (better cycle-dim functionality). This option is used to determine when the preset on the Press tab is to be activated. If set to Press, the preset will be selected as soon as the button is pressed and the associated lights could change intensity. Once cycle-dim mode is activated, the associated lights will begin dimming in the direction set by the Initial Direction setting. The Press choice is used if a quick response to button presses is required. If the Activate Cycle-Dim Preset Upon option is set to Release, the preset will not be activated until the button is released. This setting is used if the cycle-dim option is used frequently. If this option is set to Press and a noticeable change in the light level occurs prior to cycle-dim mode being activated, change to the Release option for a more seamless operation.
9. Set the Raise-Lower Rate to one of the three choices displayed in the list box. The first choice, the Default choice, uses a standard Raise-Lower Rate for all the dimmers on the project. This is the best setting for a project that has mostly Vareo dimmers. The second choice, RPM System, is the best fit for a project that is comprised mostly of RPM dimmers. If neither of these choices provides the best Raise-Lower Rate, the Custom choice allows

the end user to define a custom Raise-Lower Rate.



Raise-lower rate

Type:

Fade rate:

Fade setting: ☒ Smooth ☐ Quick

 Custom fade rates do not apply to GRAFIK Eye zones. GRAFIK Eye zones have a constant fade rate of 5 s.

10. The Custom Raise-Lower Rate setting allows the end user to set the fade rate 6, 7, 8, 9 or 10 seconds. The Fade Setting can be adjusted to either Smooth, for less noticeable changes in light level, or Quick, for a faster response from the dimmer.

4.0 APPLICATION NOTES

4.1 Using HWV Keypads with HomeWorks Interactive

- 4.1.1 Comparison of HWI and HWV Keypad Links
- 4.1.2 Specifying an old HomeWorks Keypad (HWV) Link
- 4.1.3 HomeWorks Interactive Software Utility Issues when Using HWV Keypad Links

4.2 HomeWorks Interactive Sivoia Control FAQ

4.3 Using Phantom Keypads

4.4 Controlling Motors (Shades, Blinds, Fans)

- 4.4.1 Direct Control
- 4.4.2 Direct Control via RS232
- 4.4.3 Direct Control via Manual Sequence
- 4.4.4 Multiple Asynchronous Motors on a Single Output
- 4.4.5 Indirect Control
- 4.4.6 Controlling Fans

4.5 Using Scene Saver

- 4.5.1 Introduction
- 4.5.2 Requirements for Scene Saver
- 4.5.3 Programming Scene Saver to a Button
- 4.5.4 Using Scene Saver
- 4.5.5 Details
- 4.5.6 Opening a Locked Database

4.6 Serial Cables and Modems FAQs

4.1 Using HWV Keypads with a HomeWorks Interactive System

Each HomeWorks Interactive Processor has 3 configurable links (4, 5, 6). These links may be individually configured for use with new HomeWorks Interactive keypads (HWI) or old HomeWorks keypads (HWV). Note: HWI and HWV keypads can not be placed on the same link. Because the HomeWorks Interactive Software Utility was designed to allow for the new expanded functionality of the HomeWorks Interactive keypads (HWI) it is important to understand what functions are not available when using old HomeWorks keypads (HWV). For old HomeWorks keypads (HWV) some keypad features can not be taken advantage of due to limitations in the old HomeWorks keypad protocol (as listed in section I). The HomeWorks Interactive Software Utility allows you to enter all keypad features to provide easy transfer from HWV to HWI keypads (for future system upgrades).

4.1.1 Comparison of HWI and HWV Keypad Links

Options	New HWI Keypads	Old HWV Keypads
Button Functions		
Press	Yes	Yes
Release	Yes	Yes

Double-Tap	Yes	No
Cycle-Dim	Yes	No
LED Operation		
ON	Yes	Yes
OFF	Yes	Yes
Flash 1	Yes	No – LED will turn ON
Flash 2	Yes	No – LED will turn ON
All LEDs Flash if Keypad Disabled and Button Pressed	Yes	No
Flashes During Master Raise-Lower	No	No
Interfaces		
Telephone Interface	Yes	Yes ¹
Contact Closure Inputs	Yes (CCI)	Yes ² (HWV-IP5)
Contact Closure Outputs	Yes (CCO)	Note ³
Addressing		
Address Range	1-32	1-16, 32 ⁴

Split Addressing (1-5, 6-10, 11-15)	No	Note ⁵
Duplicate Addresses Allowed	No	Note ⁶
2B Allowed on Floorplan	Yes	Note ⁷
Diagnostics		
Keypad LEDs Cycle when Link is not Configured Properly	Yes	No
Keypad Diagnostics Available	Yes	No – Keypads Report as Not Responding
IR Codes		
Supports GRX-4IT & 8IT Codes	Yes	Yes
Supports Spacer Remote Codes	Yes	No – Large button IR Code not supported

Notes:

¹ Old TEL9: Button 0 may only be used to toggle Vacation Mode between Record and Playback (this button will appear as button 14 via RS-232).

² Maintained and Momentary Features are accomplished by programming Press and/or Release presets.

³ Contact Closure Outputs can only be accomplished using HWI-CCO-8 boards on a separate HomeWorks Interactive keypad (HWI) link.

⁴ TEL9 uses address 32.

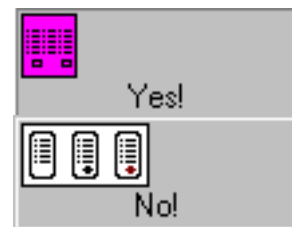
⁵ Split addressing for old HWV Keypads (5S-NM, 5S-M, 5S-IR, KP5-DN, KP5-DW) can be accomplished by entering a Phantom keypad in the software in

place of multiple keypads with split addresses.

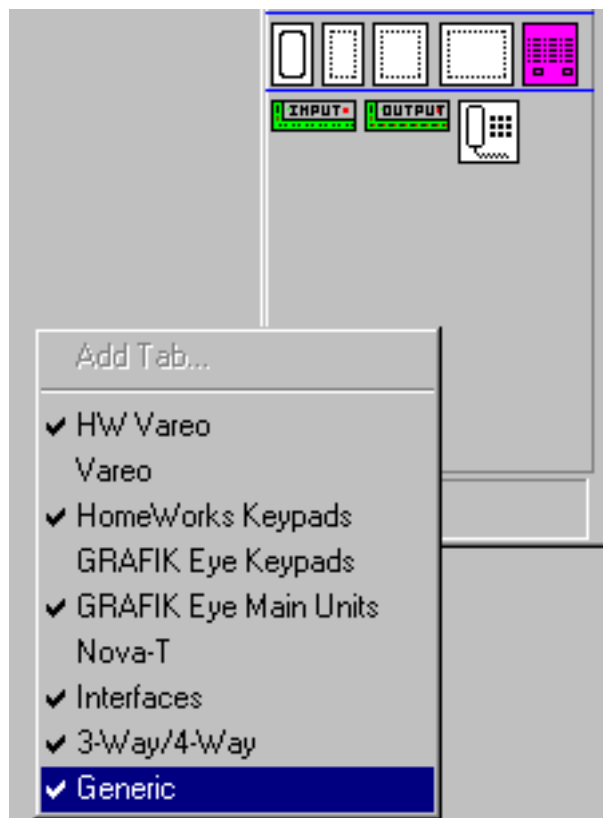
Example: When using an HWV-5S-NM, -5S-M, and -5S-IR in one backbox with the following address settings:

Device	Address	Buttons
HWV-5S-NM	1	1-5
HWV-5S-M	1	6-10
HWV-5S-IR	1	11-15

A Phantom keypad must be specified in the Floorplan to replace all three units.



The Phantom keypad can be made available in the toolbox by right mouse clicking on the toolbox and selecting "Generic", as in:



⁶ Duplicate addresses are not allowed in the HWI Software Utility. If two old HWV keypads are to operate exactly the same, only 1 may be entered into the software (address both keypads the same in the space, but only enter 1 in the software). User must take into account added current draw for keypad not entered into software.

⁷ An old HWV-2B must be specified as a Phantom keypad in the Floorplan. This is because an old 2B has buttons 1 and 2, not 24 and 23. Buttons 1 and 2 on the phantom keypad are then programmed instead of buttons 24 and 23. When entered in the Floorplan, it should look as follows:



4.1.2 Specifying an old HomeWorks Keypad (HWV) Link

Using the  Address Assignment screen, select a configurable keypad link dropdown box in the Processor Properties box. Press SHIFT then F12 to change the keypad link to an old keypad link. See the [Address Assignment](#) screen for more information about changing configurable link types.

4.1.3 HomeWorks Interactive Software Utility Issues when Using HWV Keypad Links

1. Addressing

- a. HWV-KP-LB6 and HWV-KP-LB9 keypads must be addressed with DIP switch 6 down to map buttons 5 and 10 appropriately.
- b. HWV-2B keypads must be addressed with DIP switch 5 up and DIP switch 6 down to select the proper mode ("Two-Scene Mode") for operation with HomeWorks Interactive.
- c. HWV and HWI keypads can not be wired on the same link.

2. "Release" Messages

Some early production HWV Keypads do not support "release" messages. HWV Keypads without "release" messages will not allow raise/lower or release functions. The following indicate HWV keypads which have "release" messages:

- a. All HWV-5S-NM, -M, -IR, HWV-KP-LB6, -LB9, and HWV-2B keypads have "release" messages.
- b. All keypads with small LED holes have "release" messages.
- c. HWV-KP5-DN, -DW keypads with DIP switches have "release" messages.

3. BOMs

- a. Bills of Material will call out HWI keypads, not HWV.

4.

2 HomeWorks Interactive Sivoia Control FAQs

Model #: HWI-SV-5BNI-xx (No-Insert) and HWI-SV-5BI-xx (Insert)

where xx = color

What is the HWI Sivoia Control?

The new HomeWorks Interactive Sivoia control allows seamless integration of Sivoia Motorized Window treatments and the HomeWorks Interactive Lighting control system. Each HWI Sivoia keypad acts as a group control, controlling up to 64 Sivoia Motorized Window treatments.

When tied into the HomeWorks Interactive system the control acts as a gateway, allowing HomeWorks Interactive keypads to control the attached group of Sivoia Motorized Window treatments.

How many Sivoia Motorized Window treatments can the HWI Sivoia control?

It can control up to 64 Sivoia Motorized Window treatments. All of the Motorized Window treatments controlled by the HWI-SV-5B must work together as one group. There can not be any sub-grouping.

Can the buttons control lights in the HomeWorks Interactive system?

No, the buttons control all Sivoia Motorized Window

treatments wired to the control. Motorized Window treatments can be sent to open and close positions as well as three user programmable presets. In addition, dedicated raise/lower buttons provide fine tune adjustment.

How do I control lights and Sivoia Motorized Window treatments together?

Use a HomeWorks keypad. The new HomeWorks software, version 4.20 and higher, allows you to add program HWI keypads to control HWI Sivoia controls, as well as lights.

Where does the control get wired?

The control gets wired on the HomeWorks keypad link and the Sivoia MDU link. The control takes up an address on the HomeWorks keypad link.

The control receives its power from a Sivoia transformer and is should be connected to the AC terminals of one Sivoia MDU.

What configurations/colors are available?

The keypad comes in seven standard colors (white, beige, ivory, black, gray, brown, and taupe) and is available in both architectural (HWI-SV-5BNI) and decorator (HWI-SV-5BI) styles. All controls have buttons engraved with "Open", "Preset 1", "Preset 2", "Preset 3", and "Close".

When will the control be available?

The controls will be available July 1 2002.

How much does the control cost?

The list price for the Control is \$360.

Last Revised 08-06-02

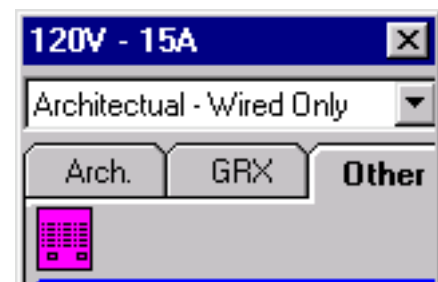
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4.3 Using Phantom Keypads

HomeWorks Interactive supports the use of Phantom Keypads, which are used when serial commands are sent to the processor from an external source like a touch-screen. A phantom keypad allows the touch-screen programmer to reference a single button press and have that press do multiple functions. In addition, changes can be made to the function of a button on the touch-screen without causing the touch-screen to be reprogrammed.

For example, a homeowner has a touch-screen in the Home Theater. On the touch-screen, there is a button that puts the Home Theater lights into the "view movie" mode. This sends the downlights to 11% intensity, the wall sconces to 23%, and turns on the non-dim floor strip lights. Instead of sending three separate intensity commands to the processor via RS232, a phantom keypad is added to the system and a preset is created on button one of the keypad. This preset has the downlights at 11%, the wall sconces at 23% and the floor strip light on to 100%. The touch-screen then sends a Keypad Button Press (KBP) to activate the preset associated with button one. If the homeowner decides that the "view movie" mode should have the downlights at 9% instead of 11%, the required modifications are made to the preset of button one of the phantom keypad. No further modifications are needed. The touch-screen sends the same KBP to activate the preset of button one on the phantom keypad.

To the HWI processor, a phantom keypad looks exactly like any other keypad. It even has its own address. Adding a phantom keypad is done in the same manner as adding any other keypad. From the floorplan, select the phantom keypad from the toolbox. The phantom keypad is the  item.



Once the keypad is inserted into a room, continue to address it and program it just as any other keypad.

To access items programmed on the phantom keypad from an external RS-232 source, use the appropriate commands to simulate Keypad Button Presses, Releases, Double-Taps, etc. Refer to [Keypad Commands](#) for more information.

HomeWorks Interactive RS-232 Command Set

Technical Specs

Command Format

Device Address Format

Time Format

Date Format

Keypad Button Numbering

Monitor Output Format

- Keypad button press
- Keypad button release
- Keypad button hold
- Keypad button double tap
- Keypad led states
- Dimmer button press
- Dimmer button release
- Dimmer button hold
- Dimmer button double tap
- Dimmer level change
- GRAFIK Eye scene select
- Sivoia scene command change
- Sivoia control button press
- Sivoia control button release
- Sivoia control button hold
- Sivoia control button double tap

Dimmer Commands

Actions

- [Fade a system dimmer](#)
- [Raise a system dimmer](#)
- [Lower a system dimmer](#)
- [Stop a dimmer raise/lower](#)
- [Flash a system dimmer](#)
- [Stop dimmer flashing](#)
- [Dimmer button press](#)
- [Dimmer button double tap](#)

Requests

- [Request dimmer level](#)

GRAFIK Eye Commands

Actions

- [Select GRAFIK Eye scene](#)

Requests

- [Request GRAFIK Eye scene](#)

Keypad Commands

Actions

- [Keypad button press](#)
- [Keypad button release](#)
- [Keypad button hold](#)
- [Keypad button double tap](#)
- [Keypad enable](#)
- [Keypad disable](#)
- [Set keypad led state](#)
- [Set led states for a whole keypad](#)

- [Pulse CCO relay](#)
- [Close CCO relay](#)
- [Open CCO relay](#)

Requests

- [Request keypad enabled/disabled state](#)
- [Request keypad led states](#)
- [Request last button pressed on a keypad](#)

Sivoia Commands

Actions

- [Select Sivoia scene command](#)

Requests

- [Request Sivoia scene command](#)

Time Clock Commands

Actions

- [Set system time](#)
- [Set system date](#)
- [Time clock enable](#)
- [Time clock disable](#)

Requests

- [Request system time](#)
- [Request system time with seconds](#)
- [Request system date](#)
- [Request time clock state](#)
- [Request today's sunrise time](#)
- [Request today's sunset time](#)

Scene Saver Mode Commands

Actions

- [Begin scene saver mode](#)
- [Terminate scene saver mode](#)
- [Scene save on a keypad button](#)
- [Scene restore on a keypad button](#)

Requests

- [Request scene save mode state](#)

Vacation Mode Commands

Actions

- [Vacation mode record](#)
- [Vacation mode playback](#)
- [Vacation mode disable](#)

Requests

- [Vacation mode state request](#)

Security Mode Commands

Actions

- [Security mode begin](#)
- [Security mode terminate](#)

Requests

- [Security mode state request](#)

Monitoring Output Commands

Actions

- [Dimmer level/Sivoia scene monitoring on](#)
- [Dimmer level/Sivoia scene monitoring off](#)
- [Keypad/dimmer/Sivoia control button monitoring on](#)
- [Keypad/dimmer/Sivoia control button monitoring off](#)
- [Keypad led monitoring on](#)
- [Keypad led monitoring off](#)
- [GRAFIK Eye scene monitoring on](#)
- [GRAFIK Eye scene monitoring off](#)

System Commands

Actions

- [Login to system](#)
- [Logout of system](#)
- [Turn L232> prompt off](#)
- [Turn L232> prompt on](#)
- [Set RS-232 port baud rate](#)
- [Print system event log](#)
- [Set RS-232 port handshaking type](#)

Requests

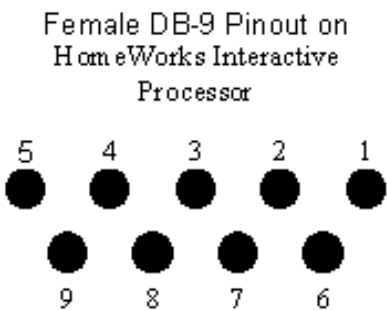
- [Request processor address](#)
- [Request RS-232 port baud rate](#)
- [Request RS-232 port handshaking type](#)
- [Reset RS-232 port parameters to serial driver settings](#)
- [Request system processor O/S revisions](#)
- [Help](#)

Revision History

[back to the top...](#)

Technical Specifications

- HomeWorks Interactive processors require the use of a standard 9-pin DB9 serial cable for communications with external equipment. This cable must be a 9-wire, straight through cable, not a 3-wire cable.
- The available baud rates are 9600, 19200, 38400, 57600, and 115,200 baud. When dip switch #1 on S2 is up the baud rate is 9600 baud, and when it is down the baud rate is set to the user setting according to the [SETBAUD](#) command
- The HomeWorks Interactive processors use hardware handshaking for flow control by default. Software handshaking will not work. The hardware handshaking may be disabled using the [SETHAND](#) command. If hardware handshaking is disabled, Lutron recommends using a low baud rate to avoid buffer overflow problems.
- Other communication settings include, 8 data bits, 1 stop bit, and no parity bit



HWI Pin Number	HWI Pin Name	Description for HWI Processor	Required for Hardware Handshaking	Required for Simple Communications (hardware handshaking disabled)
1	DCD	Data Carrier Detect (input)		
2	TX	Transmit Data (output)	X	X
3	RX	Receive Data (input)	X	X
4	DSR	Data Set Ready (input)	X	
5	GND	Ground	X	X

6	DTR	Data Terminal Ready (output)	X	
7	CTS	Clear To Send (input)	X	
8	RTS	Request To Send (output)	X	
9	RI	Ring Indicate (input)		

General Specifications

- The HWI processor connects to the serial port on a laptop using a standard DB-9 serial cable (all pins straight through)
- The default configuration for the HWI processor is to use hardware handshaking, which requires the pin connections as shown in the table above. The [SETHAND](#) command can be used to disable hardware handshaking if needed.
- When hardware handshaking is used, communications with the HWI processor will be reliable up to 115200 bps. (Note: Some older laptops cannot communicate reliably at 115200 bps)
- The DTR output from the HWI processor is used by the HWI programming software. It indicates to the software that the processor is powered and ready for communications. This line is optional, and the DTR check can be disabled in the HWI programming software. Contact Lutron for more information.
- The DSR input to the HWI processor is used to determine if an external device is controlling the handshaking lines. The DSR line must be asserted for the hardware handshaking to work properly. If the DSR line is unasserted while hardware handshaking is enabled, the processor will ignore the CTS input and always transmit characters.
- All communications lines indicated in the Hardware Handshaking column are required when connecting a modem to an HWI processor.

Using Simple 3-Wire Communications

- If hardware handshaking communications lines are not available on the external serial device, it is possible to communicate to the HWI processor using a simple 3-wire interface. The pins required are shown in the table above.
- The hardware handshaking should be disabled on the processor using the [SETHAND](#) command.
- In this configuration, the HWI processor will be unable to tell the external equipment to stop sending data, and the external equipment will be unable to tell the HWI processor to stop sending data. This can result in buffer overruns if the communications rates are too high.
- Care must be taken to understand the amount of data being sent to/from the HWI processor using the 3-wire interface. Unnecessary monitoring messages should be disabled on the HWI processor to minimize communications.
- Lutron does not recommend using the simple 3-wire interface to connect to external equipment that may send continuous data at a high data rate, or if your external equipment cannot process a continuous stream of monitoring output from the HWI processor.
- The 3-wire interface cannot be used to connect a modem to an HWI processor.

SETBAUD

Set RS-232 port baud rate

Syntax

SETBAUD, <baud rate>

Processor Responds with one of the following

For this change to take effect, you must cycle the processor power.

For this change to take effect, you must first set dip switch #1 on S2 in the down position and then cycle the processor power.

Parameter	Description	Format
baud rate	new RS-232 port baud rate	you must select one of the following baud rates 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200

Description

When dip switch #1 on S2 is in the up position, the processor RS232 port baud rate is fixed at 9600 baud. When dip switch #1 on S2 is in the down position, the processor RS232 port baud rate will be set to the user setting determined by the SETBAUD command. When the SETBAUD command is issued, the processor power must be cycled for the change to take effect. This will allow laptops that have problems communicating at 115200 baud to use an intermediate baud rate that is faster than 9600 baud in order to minimize download times. Also, with dip switch #1 on S2 set to the up position, the processor can be set to a known baud rate (9600 baud), ensuring reliable communications. This adjustable baud rate also provides greater flexibility when connecting to external A/V equipment.

Example

Set RS-232 port baud rate to 57600 bps

```
L232> SETBAUD, 57600
```

For this change to take effect, you must cycle the processor power.

See Also

[GETBAUD - Request the RS-232 port baud rate](#)

GETBAUD

Get RS-232 port baud rate

Syntax

GETBAUD, <port address>

Processor responds with the following

RS232 port baud rate on port <port address> is <baud rate>

Parameter	Description	Format
port address (optional)	the port address the request is for	pp:ll:aaa (see RS232 Port Addressing) This parameter is optional. If omitted, the request will default to the port that receives the command
baud rate	the RS-232 port baud rate	the processor will respond with one of the following 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200

Description

Requests the RS-232 port baud rate setting for an RS232 port in the system.

Example

Get RS-232 port baud rate for the port you are connected to

```
L232> GETBAUD
RS232 port baud rate on port 01:03:001 is 115200
```

Example

Get RS-232 port baud rate for link 7 on processor 2

```
L232> GETBAUD, 2:7:1
RS232 port baud rate on port 02:07:001 is 115200
```

See Also

SETBAUD - Set RS-232 port baud rate

SETHAND

Set RS-232 port handshaking
type

Syntax

SETHAND, <handshaking>

Processor Responds with one of the following

No handshaking enabled

Hardware handshaking enabled

Parameter	Description	Format
handshaking	new RS-232 port handshaking type	you must select one of the following handshaking types NONE, HW (Hardware)

Description

This command is used to specify the 232 port handshaking method to be used. When set to NONE, the HWI processor will ignore the CTS input, and always transmit data. When set to HW (hardware), the HWI processor will only transmit characters if the CTS input is low.

Example

Set RS-232 port handshaking to NONE

```
L232> SETHAND, NONE
```

No handshaking enabled

See Also

[GETHAND - Request RS-232 port handshaking type](#)

GETHAND

Get RS-232 port handshaking
type

Syntax

GETHAND, <port address>

Processor responds with the following

RS232 port handshaking on processor <port address> is <handshaking type>

Parameter	Description	Format
port address (optional)	the port address the request is for	pp:ll:aaa (see RS232 Port Addressing) This parameter is optional. If omitted, the request will default to the processor that receives the command
handshaking type	the RS-232 port handshaking type	The processor will respond with one of the following handshaking types None, Hardware Handshaking

Description

This command is used to request the handshaking method being used on an RS232 port.

Example

Get RS-232 port handshaking for the port you are connected to

```
L232> GETHAND
RS232 port handshaking on port 01:03:001 is Hardware Handshaking
```

Example

Get RS-232 port handshaking for link 7 on processor 2

```
L232> GETHAND, 2:7:1
RS232 port handshaking on port 02:06:001 is None
```


See Also

[SETHAND - Set RS-232 port handshaking type](#)

Command Formatting

- All commands are in ASCII characters.
- Each command is made up of fields, separated by commas, and terminated with a carriage return <CR> = \$0D Hex.
- Spaces are ignored, allowing for visual formatting of commands
- Where letters are used, case is ignored
- Some commands allow parameters to be omitted, and a default value will be used. In this case, the delimiting commas must still be used
- There is a limit of 255 characters per command.

Time Formatting

- Times are used when entering fade or delay times, and for setting the internal processor clock
- When setting the system time, **24 hour format** must be used
- When entering times the following formats may be used:

HH:MM:SS MM:SS SS

HH = Hours

MM = Minutes

SS = Seconds

MM = Minutes

SS = Seconds

SS = Seconds

- Examples

4:23 AM = 04:23:00

3:15 PM = 15:15:00

4 sec fade time = 00:00:04 or 00:04 or 4

1 minute delay time = 00:01:00 or 1:00

Date Formatting

- Dates are used when setting the internal processor calendar
- The month and day must have 2 digits, and the year must have 4 digits
- HomeWorks Interactive is year 2000 compliant
- The following formats can be used for entering the date

MM / DD / YYYY

MM \ DD \ YYYY

MM - DD - YYYY

MM = Month

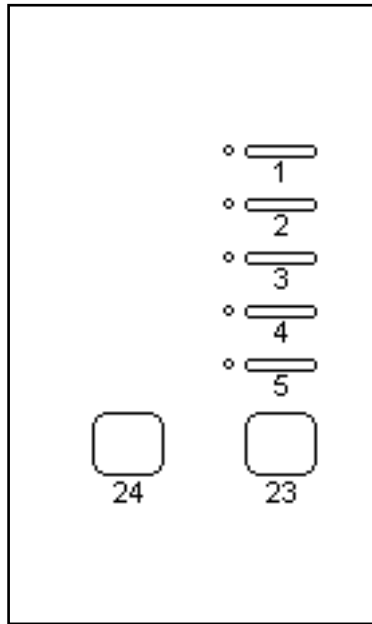
DD = Day of month

YYYY = Year

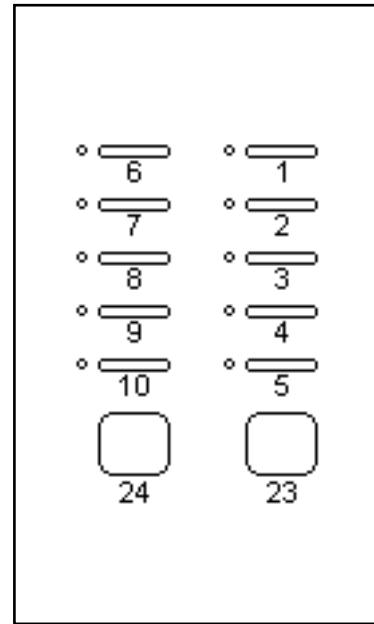
- Example

January 10, 1999 = 01/10/1999

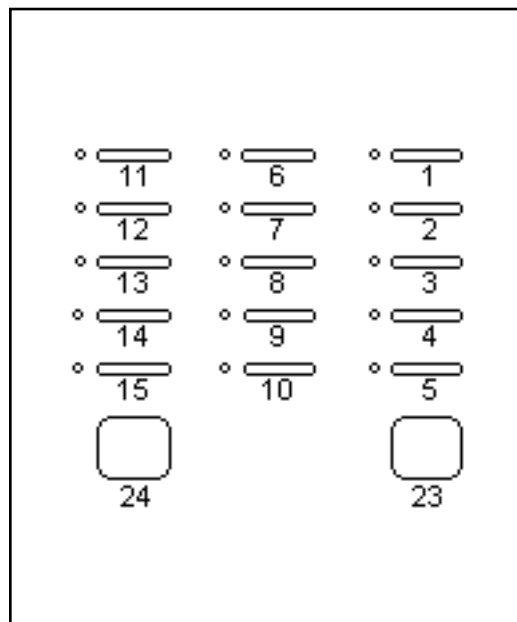
Keypad Button Numbering



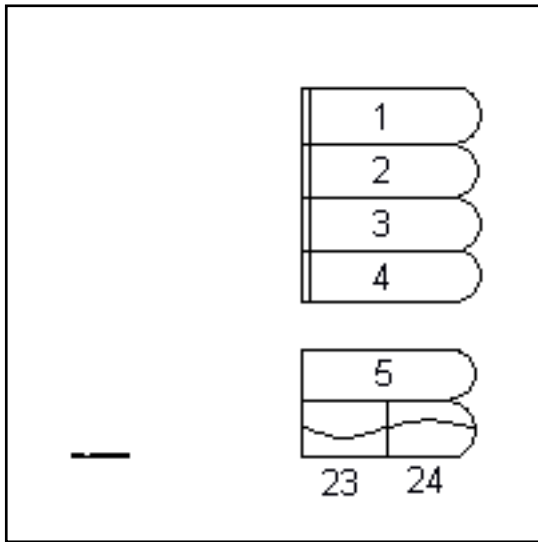
HWI-KP5



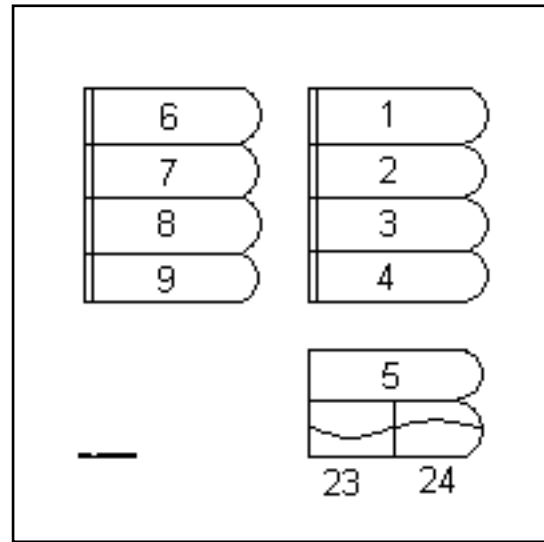
HWI-KP10



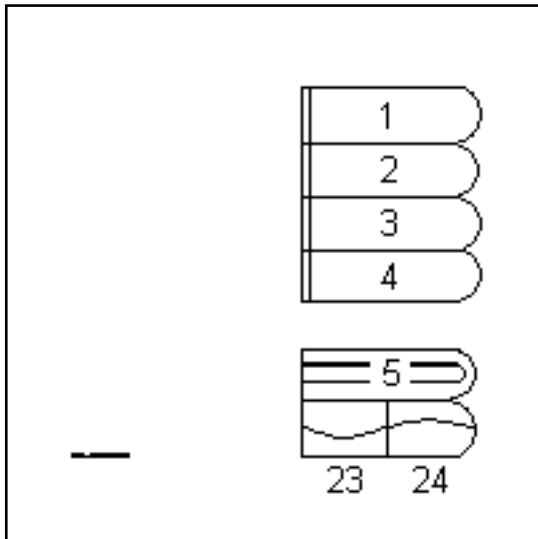
HWI-KP15



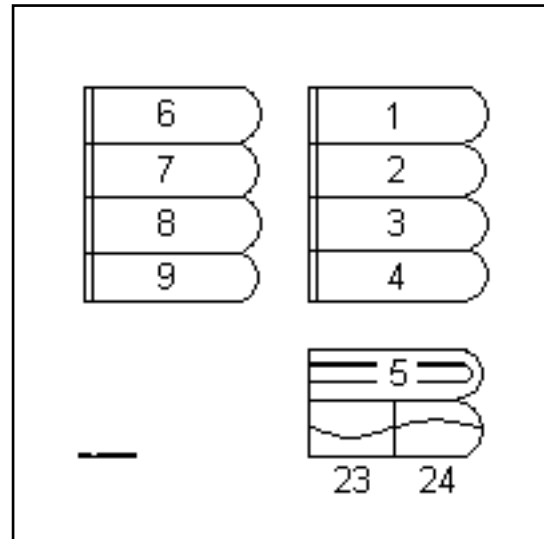
HWI-4SE-M



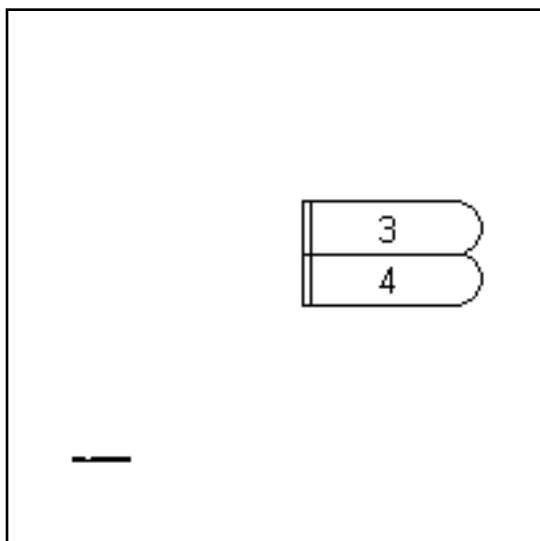
HWI-8SE-M



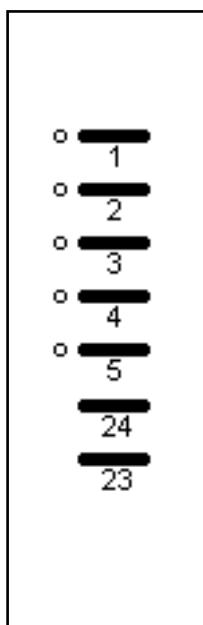
HWI-4SE-IR



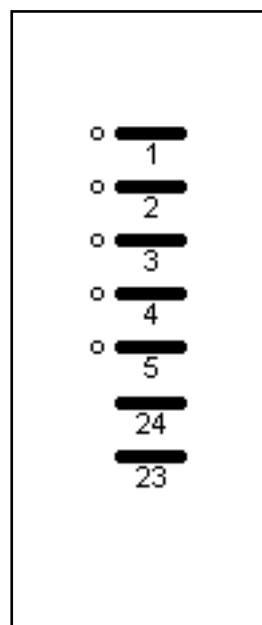
HWI-8SE-IR



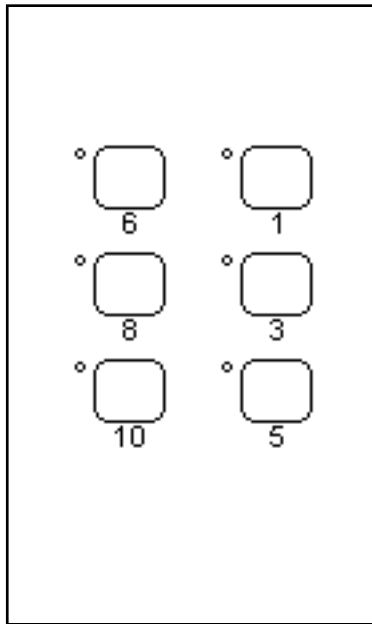
HWI-2SE



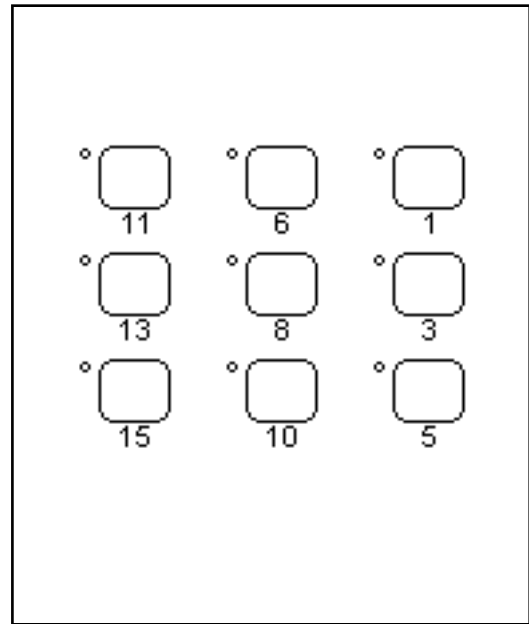
HWI-KP5-DN



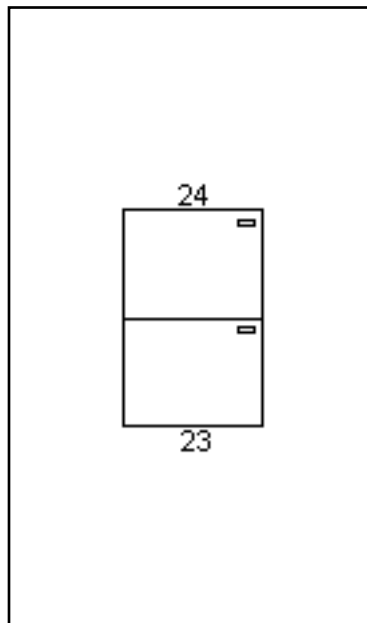
HWI-KP5-DW



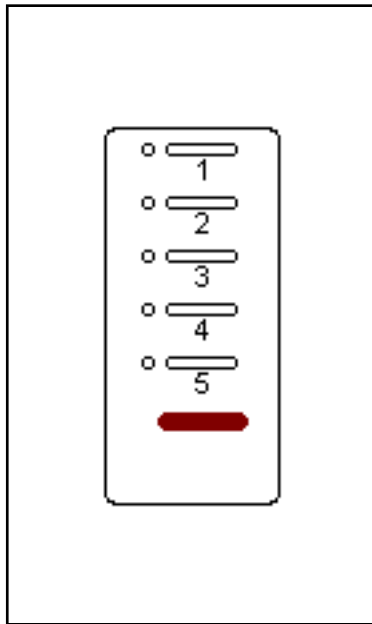
HWI-KP-LB6



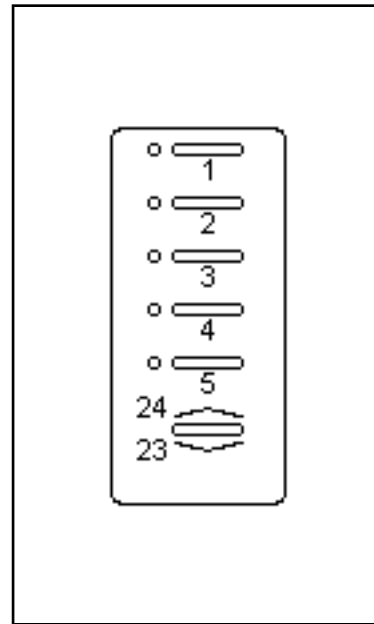
HWI-KP-LB9



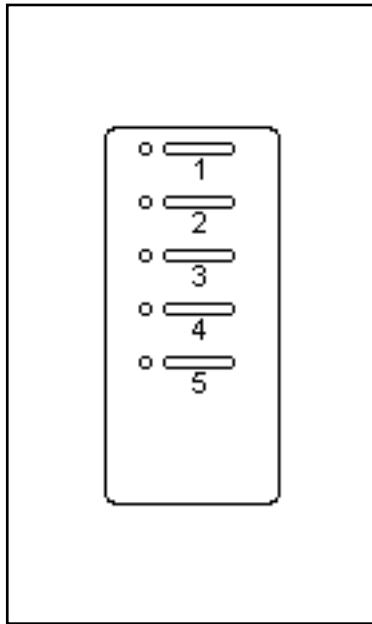
HWI-2B



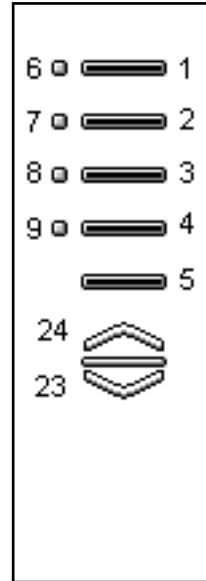
HWI-5S-IR



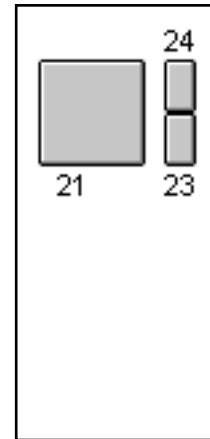
HWI-5S-M



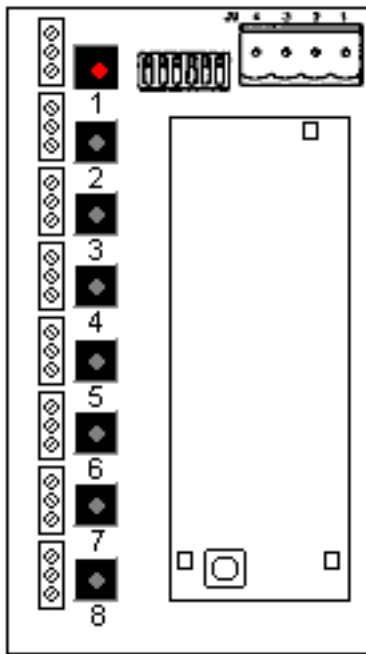
HWI-5S-NM



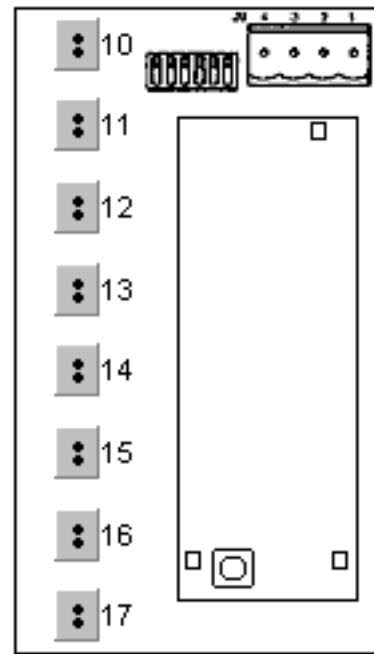
GRX-4/8-IT



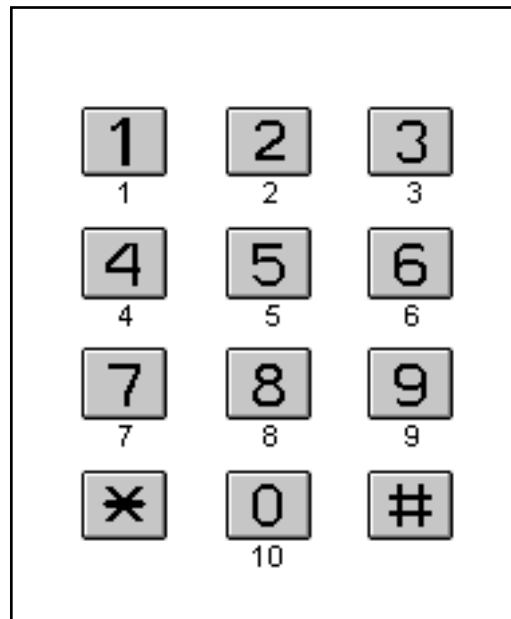
SPACER



HWI-CCO



HWI-CCI



HWI-TEL 9

KLS Monitor String

Keypad LED Monitor String

Syntax

KLS, <address>, <led states>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
led states	the current state of the keypad's LEDs	The first digit is LED 1, the last digit is LED 24 0 = Off 1 = On 2 = Flash 1 3 = Flash 2

Description

The KLS monitor string is output from a processor when any led on a keypad changes state

Example

An led on processor 1, link 4, keypad address 10 changes state

KLS, [01:04:10], 10000000000000000000000000

See Also

[KLMON - Keypad button monitoring on](#)

[KLMOFF - Keypad button monitoring off](#)

KLMON

Keypad LED Monitoring On

Syntax

KLMON

Processor Responds

Keypad led monitoring enabled

Description

Enables keypad led monitoring on this processor. When any keypad led in the system changes state, a monitoring message will be output from this processor indicating which processor, link, interface, address, and its new led state

Example

Enable keypad led monitoring

```
L232> KLMON
```

```
Keypad led monitoring enabled
```

See Also

[KLMOFF - Keypad Led Monitoring Off](#)

[Keypad Led Monitoring Output Format](#)

KLMOFF

Keypad LED Monitoring Off

Syntax

KLMOFF

Processor Responds

Keypad led monitoring disabled

Description

Disables keypad led monitoring on this processor. When any keypad led in the system changes state, this processor will not send an led monitor output string.

Example

Disable keypad led monitoring

```
L232> KLMOFF
```

```
Keypad led monitoring disabled
```

See Also

[KLMON - Keypad Led Monitoring On](#)

[Keypad Led Monitoring Output Format](#)

DL Monitor Output

Dimmer Level Monitor String

Syntax

DL, <address>, <level>

Parameter	Description	Format
address	system address of zone that changed	[processor : link : interface : module or bus : zone] see device address formatting description
level	new level of the zone	0 - 100 (percent)

Description

The DL monitor string is output from a processor when any zone in the system changes level

Example

Processor 1, link 1, MI address 0, RPM module 2, zone 4 changes level to 50%

DL, [01:01:00:02:04], 50

See Also

[DLMON - Dimmer level monitoring on](#)

[DLMOFF - Dimmer level monitoring off](#)

DLMON

Dimmer Level/Sivoia Scene Monitoring On

Syntax

DLMON

Processor Responds

Dimmer level monitoring enabled

Description

Enables dimmer level monitoring on this processor. When any dimmer in the system changes level, a monitoring message will be output from this processor indicating which processor, link, interface and address.

Also enables Sivoia scene selection monitoring on this processor. When any Sivoia MDU in the system changes scene, a monitoring message will be output from this processor indicating which processor, link and Sivoia control address.

Example

Enable dimmer level/Sivoia scene monitoring

```
L232> DLMON
```

```
Dimmer level monitoring enabled
```

See Also

[DLMOFF - Dimmer Level/Sivoia Scene Monitoring Off](#)

[Dimmer Level Monitoring Output Format](#)

[Sivoia Scene Monitoring Output Format](#)

DLMOFF

Dimmer Level/Sivoia Scene Monitoring
Off

Syntax

DLMOFF

Processor Responds

Dimmer level monitoring disabled

Description

Disables dimmer level monitoring on this processor. When a zone in the system changes levels, this processor will not send a monitor output string.

Also disables Sivoia scene monitoring on this processor. When a Sivoia MDU in the system changes scenes, this processor will not send a monitor output string.

Example

Disable dimmer level/Sivoia scene monitoring

```
L232> DLMOFF
Dimmer level monitoring disabled
```

See Also

[DLMON - Dimmer Level/Sivoia Scene Monitoring On](#)
[Dimmer Level Monitoring Output Format](#)
[Sivoia Scene Monitoring Output Format](#)

GSS Monitor String

GRAFIK Eye Scene Select Monitor Output String

Syntax

GSS, <address>, <scene number>

Parameter	Description	Format
address	system address of GRAFIK Eye that changed	[processor : link : address] see device address formatting description
scene number	scene number selected	0 - 16 0 = Off 1 - 16 = scene 1 - scene 16

Description

The GSS monitor string is output from a processor when a GRAFIK Eye changes scenes

Example

Someone selects scene 1 on processor 1, link 4, GRAFIK Eye address 3

GSS, [01:04:03], 1

See Also

[GSMON - GRAFIK Eye scene monitoring on](#)

[GSMOFF - GRAFIK Eye scene monitoring off](#)

GSMON

GRAFIK Eye Scene Monitoring On

Syntax

GSMON

Processor Responds

GRAFIK Eye scene monitoring enabled

Description

Enables GRAFIK Eye scene monitoring on this processor. When any GRAFIK Eye in the system changes scenes, a monitoring message will be output from this processor indicating which processor, link, address and scene.

Example

Enable GRAFIK Eye scene monitoring

```
L232> GSMON
```

```
GRAFIK Eye scene monitoring enabled
```

See Also

[GSMOFF - GRAFIK Eye Scene Monitoring Off](#)

[GRAFIK Eye Scene Monitoring Output Format](#)

GSMOFF

GRAFIK Eye Scene Monitoring
Off

Syntax

GSMOFF

Processor Responds

GRAFIK Eye scene monitoring disabled

Description

Disables GRAFIK Eye scene monitoring on this processor. When any GRAFIK Eye in the system changes scenes, this processor will not send a GRAFIK Eye scene monitoring output string.

Example

Disable GRAFIK Eye scene monitoring

```
L232> GSMOFF
```

```
GRAFIK Eye scene monitoring disabled
```

See Also

[GSMON - GRAFIK Eye Scene Monitoring On](#)
[GRAFIK Eye Scene Monitoring Output Format](#)

FADEDIM

Fade a dimmer

Syntax

FADEDIM, <intensity>, <fade time>, <delay time>, <address 1>, ..., <address n>

Parameter	Description	Format
intensity	target intensity for specified dimmer	0 - 100 (percent)
fade time	time for dimmers to fade from current intensity to target intensity	HH:MM:SS example: 00:00:05 for 5 seconds see time formatting description if omitted, time defaults to 0 seconds
delay time	time for dimmers to delay before starting to fade	HH:MM:SS example: 00:00:05 for 5 seconds see time formatting description if omitted, time defaults to 0 seconds
address	system address of dimmer to fade	[processor : link : address] maximum of 10 address per command see device address formatting description

Description

Fades one or more system dimmers to a target intensity using a specified fade time and after a specified delay time.

Example

Fade processor 1, link1, MI address 0, RPM module 2, zone 3 and processor 2, link 4, D48 address 1, Vareo Bus 4, Vareo address 1 to 100% with a 1 second fade time and a 2 second delay time

```
L232> FADEDIM, 100, 1, 2, [1.1.0.2.3], [2.4.1.4.1]
```

See Also

[FLASHDIM](#) - Flash a system dimmer

[STOPFLASH](#) - Stop flashing a system dimmer

[RAISEDIM](#) - Raise a system dimmer

LOWERDIM - Lower a system dimmer

STOPDIM - Stop a dimmer raise/lower

FLASHDIM

Flash a dimmer

Syntax

FLASHDIM, <intensity>, <flash rate>, <address 1>, ..., <address n>

Parameter	Description	Format
intensity	Intensity to flash the dimmers to	0 - 100 (percent)
flash rate	The amount of time the dimmers are on/off	HH:MM:SS example: 00:00:05 for 5 seconds see time formatting description if omitted, flash rate defaults to 2 seconds
address	system address of zones to fade	[processor : link : address] maximum of 10 address per command see device address formatting description

Description

Starts flashing one or more system zones at a specified rate. The dimmer is flashed between the specified intensity and Off.

Example

Start flashing processor 1, link1, MI address 0, RPM module 2, zone 3 once a second

```
L232> FLASHDIM, 100, 1, [1:1:0:2:3]
```

See Also

[STOPFLASH](#) - Stop flashing a system dimmer

[FADEDIM](#) - Fade a system dimmer

[RAISEDIM](#) - Raise a system dimmer

[LOWERDIM](#) - Lower a system dimmer

[STOPDIM](#) - Stop a dimmer raise/lower

STOPFLASH

Stop flashing a dimmer

Syntax

STOPFLASH, <address 1>, ..., <address n>

Parameter	Description	Format
address	system address of zones to fade	[processor : link : address] maximum of 10 address per command see device address formatting description

Description

Stops flashing one or more system zones

Example

Stop flashing processor 1, link1, MI address 0, RPM module 2, zone 3

```
L232> STOPFLASH, [1:1:0:2:3]
```

See Also

[FLASHDIM](#) - Flash a system dimmer

[FADEDIM](#) - Fade a system dimmer

[RAISEDIM](#) - Raise a system dimmer

[LOWERDIM](#) - Lower a system dimmer

[STOPDIM](#) - Stop a dimmer raise/lower

RAISEDIM

Raise a dimmer

Syntax

RAISEDIM, <address 1>, ..., <address n>

Parameter	Description	Format
address	system address of zones to fade	[processor : link : address] maximum of 10 address per command see device address formatting description

Description

Starts raising one or more system dimmers

Example

Start raising processor 1, link1, MI address 0, RPM module 2, zone 3

L232> RAISEDIM, [1:1:0:2:3]

See Also

- [LOWERDIM](#) - Lower a system dimmer
- [STOPDIM](#) - Stop a dimmer raise/lower
- [FADEDIM](#) - Fade a system dimmer
- [FLASHDIM](#) - Flash a system dimmer
- [STOPFLASH](#) - Stop flashing a system dimmer

LOWERDIM

Lower a dimmer

Syntax
LOWERDIM, <address 1>, ..., <address n>

Parameter	Description	Format
address	system address of zones to fade	[processor : link : address] maximum of 10 address per command see device address formatting description

Description
Starts lowering one or more system dimmers

Example
Start lowering processor 1, link1, MI address 0, RPM module 2, zone 3

L232> LOWERDIM, [1:1:0:2:3]

- See Also**
- [RAISEDIM](#) - Raise a system dimmer
 - [STOPDIM](#) - Stop a dimmer raise/lower
 - [FADEDIM](#) - Fade a system dimmer
 - [FLASHDIM](#) - Flash a system dimmer
 - [STOPFLASH](#) - Stop flashing a system dimmer

STOPDIM

Stop a dimmer raise/lower

Syntax

STOPDIM, <address 1>, ..., <address n>

Parameter	Description	Format
address	system address of zones to fade	[processor : link : address] maximum of 10 address per command see device address formatting description

Description

Stops raising/lowering one or more system dimmers

Example

Stop raising/lowering processor 1, link1, MI address 0, RPM module 2, zone 3

```
L232> STOPDIM, [1:1:0:2:3]
```

See Also

[RAISEDIM](#) - Raise a system dimmer

[LOWERDIM](#) - Lower a system dimmer

[FADEDIM](#) - Fade a system dimmer

[FLASHDIM](#) - Flash a system dimmer

[STOPFLASH](#) - Stop flashing a system dimmer

RDL

Request a Dimmer Level

Syntax

RDL, <address>

Processor responds with

DL, <address>, <level>

Parameter	Description	Format
address	system address of zone to query	[processor : link : interface : module or bus : zone] see device address formatting description
level	current level of the queried zone	0 - 100 (percent)

Description

Returns the current or target level for any zone in the sysyem

Example

Request the current intensity of processor 1, link 1, MI address 0, RPM module 2, zone 4

```
L232> RDL, [1:1:0:2:4]  
DL, [01:01:00:02:04], 50
```

See Also

[FRPM - Fade an RPM Dimmer](#)
[FV - Fade Vareo Dimmer](#)

FRPM

Fade an RPM zone

Syntax

FRPM, <intensity>, <fade time>, <delay time>, <address 1>, ..., <address n>

Parameter	Description	Format
intensity	target intensity for specified zones	0 - 100 (percent)
fade time	time for zones to fade from current intensity to target intensity	HH:MM:SS example: 00:00:05 for 5 seconds see time formatting description if omitted, time defaults to 0 seconds
delay time	time for zones to delay before starting to fade	HH:MM:SS example: 00:00:05 for 5 seconds see time formatting description if omitted, time defaults to 0 seconds
address	system address of zones to fade	[processor : link : address] maximum of 10 address per command see device address formatting description

Description

Fades one or more RPM zones to a target intensity using a specified fade time and after a specified delay time

Example

Fade processor 1, link1, MI address 0, RPM module 2, zone 3 to 100% with a 1 second fade time and a 2 second delay time

```
L232> FRPM, 100, 00:00:01, 00:00:02, [1:1:0:2:3]
```

See Also

[FV - Fade Vareo Dimmer](#)

FV

Fade a Vareo zone

Syntax

FV, <intensity>, <fade time>, <delay time>, <address 1>, ..., <address n>

Parameter	Description	Format
intensity	target intensity for specified zones	0 - 100 (percent)
fade time	time for zones to fade from current intensity to target intensity	HH:MM:SS example: 00:00:05 for 5 seconds see time formatting description if omitted, time defaults to 0 seconds
delay time	time for zones to delay before starting to fade	HH:MM:SS example: 00:00:05 for 5 seconds see time formatting description if omitted, time defaults to 0 seconds
address	system address of zones to fade	[processor : link : address] maximum of 10 address per command see device address formatting description

Description

Fades one or more Vareo zones to a target intensity using a specified fade time and after a specified delay time

Example

Fade processor 1, link1, D48 dimmer interface address 1, Vareo bus 2, Vareo control 3 to 100% with a 1 second fade time and a 2 second delay time

```
L232> FV, 100, 00:00:01, 00:00:02, [1:1:1:2:3]
```

See Also

[FRPM - Fade RPM dimmer](#)

GSS

GRAFIK Eye Scene Select

Syntax

GSS, <address>, <scene number>

Parameter	Description	Format
address	system address of GRAFIK Eye to control	[processor : link : address] see device address formatting description
scene number	scene number to select	0 - 16 0 = Off 1 - 16 = scene 1 - scene 16

Description

Selects a scene on any GRAFIK Eye in the system

Example

Select scene 2 on processor 1, link 5, GRAFIK Eye address 1

```
L232> GSS, [1:5:1], 2
```

See Also

[RGS - Request current GRAFIK Eye scene](#)

RGS

Request a GRAFIK Eye's current scene

Syntax

RGS, <address>

Processor responds with

GSS, <address>, <scene number>

Parameter	Description	Format
address	system address of GRAFIK Eye to query	[processor : link : address] see device address formatting description
scene number	scene number selected on the GRAFIK Eye	0 - 16 0 = Off 1 - 16 = scene 1 - scene 16

Description

Returns the current scene on the specified GRAFIK Eye

Example

Request the current scene for processor 1, link 6, GRAFIK Eye address 4

```
L232> RGS, [1:6:4]  
GSS, [01:06:04], 2
```

See Also

[GSS -Select a GRAFIK Eye scene](#)

KBP

Keypad Button Press

Syntax

KBP, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	button number to press	1 - 24

Description

Simulates the press action of a keypad button. This does not simulate a true keypad button press that might include an immediate release.

Example

Press button 1 on processor 1, link 4, keypad address 10

```
L232> KBP, [1:4:10], 1
```

See Also

[KBR - Keypad button release](#)

[KBH - Keypad button hold](#)

[KBDT - Keypad button double tap](#)

KBR

Keypad Button Release

Syntax

KBR, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	button number to release	1 - 24

Description

Simulates the release action of a keypad button.

Example

Release button 1 on processor 1, link 4, keypad address 10

```
L232> KBR, [1:4:10], 1
```

See Also

[KBP - Keypad button press](#)

[KBH - Keypad button hold](#)

[KBDT - Keypad button double tap](#)

KBH

Keypad Button Hold

Syntax

KBH, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	button number to hold	1 - 24

Description

Simulates the hold action of a keypad button. This does not simulate a true keypad button hold that will include a preceeding press

Example

Hold button 1 on processor 1, link 4, keypad address 10

```
L232> KBH, [1:4:10], 1
```

See Also

[KBP - Keypad button press](#)

[KBR - Keypad button release](#)

[KBDT - Keypad button double tap](#)

KBDT

Keypad Button Double Tap

Syntax

KBDT, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	button number to double tap	1 - 24

Description

Simulates the double tap action of a keypad button. This does not simulate a true keypad button double tap that is preceeded by a press and release, and followed by a release

Example

Double tap button 1 on processor 1, link 4, keypad address 10

```
L232> KBDT, [1:4:10], 1
```

See Also

[KBP - Keypad button press](#)

[KBR - Keypad button release](#)

[KBH - Keypad button hold](#)

KE

Keypad Enable

Syntax

KE, <address>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description

Description

Enable a keypad

Example

Enable processor 1, link 6, keypad 21

```
L232> KE, [1:6:21]
```

See Also

[KD - Keypad disable](#)

[RKES -Request keypad enabled state](#)

KD

Keypad Disable

Syntax

KD, <address>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description

Description

Disables a keypad

Example

Disable processor 1, link 6, keypad 21

```
L232> KD, [1:6:21]
```

See Also

[KE - Keypad enable](#)

[RKES -Request keypad enabled state](#)

RKES

Request Keypad Enabled State

Syntax

RKES, <address>

Processor responds with

KES, <address>, <state>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
state	the enabled/disabled state of the keypad	

Description

Queries the system for the enabled/disabled state of a keypad

Example

Query processor 1, link 4, keypad address 10

```
L232> RKES, [1:4:10]  
KES, [01:04:10], enabled
```

See Also

[KD - Keypad disable](#)

[KE - Keypad enable](#)

SETLED

Set an LED State

Syntax

SETLED, <address>, <led number>, <led state>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
led number	led number on the keypad	1 - 24 The led number is the corresponding button number
led state	state to set the LED to	0 = Off 1 = On 2 = Flash 1 3 = Flash 2

Description

Sets the state of a keypad led. If the designated led is already programmed to indicate the status of something else in the system, this command will have no effect on the led state.

Example

Turn on LED 3 on processor 2, link 5, keypad address 7

```
L232> SETLED, [2:5:7], 3, 1
```

See Also

[RKLS - Request keypad led states](#)

RKLS

Request a Keypad's LED States

Syntax

RKLS, <address>

Processor Response

KLS, <address>, <led states>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
led states	the current state of the keypad's LEDs	The first digit is LED 1, the last digit is LED 24 0 = Off 1 = On 2 = Flash 1 3 = Flash 2

Description

Queries the system for the state of the LEDs on a specified keypad. 24 led digits will be returned regardless of the number of physical leds on the keypad.

Example

Query processor 4, link 6, keypad 1

```
L232> RKLS, [4:6:1]
KLS, [04:06:01], 000001000010000010000000
```

See Also

[SETLED - Set keypad LED state](#)

SETLEDS

Set the LED States for a Whole Keypad

Syntax

SETLEDS, <address>, <led states>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
led states	states to set some or all the LEDs LED #1 is the left most LED in the string	0 = Off 1 = On 2 = Flash 1 3 = Flash 2 x = Don't change

Description

Sets the states of several keypad leds. If the designated leds are already programmed to indicate the status of something else in the system, this command will have no effect on the led state.

Example

Turn on LED #3 & LED #10 on processor 2, link 5, keypad address 7

```
L232> SETLEDS, [2:5:7], xx1xxxxxx1
```

Example

Turn off LED #1 and flash LEDs #11 to #15 on processor 1, link 6, keypad address 4

```
L232> SETLEDS, [1:6:4], 0xxxxxxxxx22222
```

See Also

[RKLS - Request keypad led states](#)

CCOPULSE

CCO Relay Pulse

Syntax

CCOPULSE, <address>, <relay number>, <pulse time>

Parameter	Description	Format
address	system address of the CCO	[processor : link : address] see device address formatting description
relay number	relay number to pulse	1 - 8
pulse time	pulse duration in 0.5 second increments	1 - 245 1 = 0.5 seconds 2 = 1.0 seconds 3 = 1.5 seconds . . 245 = 122.5 seconds

Description

Pulses a specific CCO relay for a specified duration.

Example

Pulse relay 3 on processor 2, link 4, CCO address 6, for 2 seconds

```
L232> CCOPULSE, [2:4:6], 3, 4
```

See Also

[CCOCLOSE](#) - Close a CCO relay

[CCOOPEN](#) - Open a CCO relay

CCOCLOSE

CCO Relay Close

Syntax

CCOCLOSE, <address>, <relay number>

Parameter	Description	Format
address	system address of the CCO	[processor : link : address] see device address formatting description
relay number	relay number to close	1 - 8

Description

Closes a specific CCO relay

Note - The processor does not verify that the given address is ACTUALLY a CCO address. If the address is a normal keypad, the command may temporarily change the state of the leds on that keypad.

Example

Close relay 3 on processor 2, link 4, CCO address 6

```
L232> CCOCLOSE, [2:4:6], 3
```

See Also

[CCOOPEN](#) - Open a CCO relay

[CCOPULSE](#) - Pulse a CCO relay

CCOOPEN

CCO Relay Open

Syntax

CCOOPEN, <address>, <relay number>

Parameter	Description	Format
address	system address of the CCO	[processor : link : address] see device address formatting description
relay number	relay number to open	1 - 8

Description

Opens a specific CCO relay

Note - The processor does not verify that the given address is ACTUALLY a CCO address. If the address is a normal keypad, the command may temporarily change the state of the leds on that keypad.

Example

Open relay 3 on processor 2, link 4, CCO address 6

```
L232> CCOOPEN, [2:4:6], 3
```

See Also

[CCOCLOSE](#) - CLOSE a CCO relay

[CCOPULSE](#) - Pulse a CCO relay

RKLBP

Request Keypad Last Button Press

Syntax

RKLBP, <address>

Processor responds

KLBP, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	the last button pressed on the specified keypad	1-24

Description

Queries the system for the last button pressed on a keypad

Example

Query for the last button pressed on processor 1, link 4, keypad address 10

```
L232> RKLBP, [1:4:10]
```

```
KLBP, [01:04:10], 4
```

SVSS

Sivoia Scene Command Select

Syntax

SVSS, <address>, <scene command>, <delay time>

Parameter	Description	Format
address	system address of Sivoia control	[processor : link : address] see device address formatting description
scene command	Sivoia scene command to select	1 = Preset 1 2 = Preset 2 3 = Preset 3 R or r = Raise L or l = Lower C or c = Close O or o = Open S or s = Stop
delay time	time for Sivoia to delay before activating a scene command	HH:MM:SS example: 00:00:05 for 5 seconds see time formatting description if omitted, time defaults to 0 seconds

Description

Selects a scene command on any Sivoia control in the system.

Example

Select Preset 2 on processor 1, link 6, Sivoia control address 1.

```
L232> SVSS, [1:6:1], 2
```

See Also

[RSVS - Request current Sivoia scene command](#)

RSVS

Request a Sivoia's Current Scene Command

Syntax

RSVS, <address>

Processor responds with

SVS, <address>, <scene command>, <status>

Parameter	Description	Format
address	system address of Sivoia control to query	[processor : link : address] see device address formatting description
scene command	Sivoia scene command currently selected on the Sivoia	1 = Preset 1 2 = Preset 2 3 = Preset 3 R = Raise L = Lower C = Close o = Open S = Stop
status	current status of the scene command	STOPPED or MOVING

Description

Returns the current scene command and status on the specified Sivoia

Example

Request the current scene command for processor 1, link 6, Sivoia control address 4
Response is stopped at Preset 2

```
L232> RSVS, [1:6:4]  
SVS, [01:06:04], 2, STOPPED
```

See Also

[SVSS -Select a Sivoia scene command](#)

ST

Set Time

Syntax

ST, <time>

Processor Responds

Processor Time: <time>

Parameter	Description	Format
time	current time of day in 24 hour format	HH:MM:SS in 24 Hour format see time address formatting description the seconds must be specified

Description

Sets the system time. This will update the time on all processors in the system.

Example

Set the time to 2:34 PM

```
L232> ST, 14:34:00
Processor Time: 14:34
```

See Also

[RST - Request system time](#)

[SD - Set system date](#)

[RSD - Request system date](#)

RST

Request System Time

Syntax

RST

Processor Responds

Processor Time: <time>

Description

Queries the current system time

Example

Request the system time

```
L232> RST
```

```
Processor Time: 12:00
```

See Also

[ST - Set system time](#)

[SD - Set system date](#)

[RSD - Request system date](#)

SD

Set Date

Syntax

SD, <date>

Processor Responds

Processor Date: <date>

Parameter	Description	Format
date	current date	MM/DD/YYYY see date formatting description

Description

Sets the system date. This will update the date on all processors in the system.

Example

Set the date to March 10, 1999

```
L232> SD, 03/10/1999
```

```
Processor Date: Wednesday 03/10/1999
```

See Also

[RSD - Request system date](#)

[ST - Set system time](#)

[RST - Request system time](#)

RSD

Request System Date

Syntax

RSD

Processor Responds

Processor Date: <day of week> <date>

Description

Queries the current system date

Example

Request the system date

```
L232> RSD
```

```
Processor Date: Wednesday 03/10/1999
```

See Also

[SD - Set system date](#)

[ST - Set system time](#)

[RST - Request system time](#)

TCE

Timeclock Enable

Syntax

TCE

Processor Responds

TCE: Timeclock Enabled

Description

Enables the system timeclock

Example

Enable the system timeclock

L232> TCE

TCE: Timeclock Enabled

See Also

[TCD - Timeclock disable](#)[TCS - Timeclock state](#)

TCD

Timeclock Disable

Syntax

TCD

Processor Responds

TCD: Timeclock Disabled

Description

Disables the system timeclock

Example

Disable the system timeclock

L232> TCD

TCD: Timeclock Disabled

See Also

[TCE - Timeclock enable](#)[TCS - Timeclock state](#)

TCS

Timeclock State

Syntax

TCS

Processor Responds with one of the following

TCS: Timeclock Enabled

TCS: Timeclock Disabled

Description

Queries the system for the timeclock state

Example

Query the system timeclock state

```
L232> TCS
```

```
TCS: Timeclock Enabled
```

See Also

[TCE - Timeclock enable](#)

[TCD - Timeclock disable](#)

RST2

Request System Time with
seconds

Syntax

RST2

Processor Responds

Processor Time: <time>

Description

Queries the current system time (including seconds)

Example

Request the system time

```
L232> RST
```

```
Processor Time: 12:00:00
```

See Also

[ST - Set system time](#)

[SD - Set system date](#)

[RST - Request system time](#)

[RSD - Request system date](#)

SUNRISE

Today's sunrise time

Syntax

SUNRISE

Processor Responds with

Today's Sunrise: <time>

Description

Returns the sunrise time for the current day. This can be useful when testing astronomic timeclock events.

Example

Request today's sunrise time

```
L232> SUNRISE
```

```
Today's Sunrise: 06:52
```

See Also

[SUNSET - Today's sunset time](#)

[ST - Set system time](#)

SUNSET

Today's sunset time

Syntax

SUNSET

Processor Responds with

Today's Sunset: <time>

Description

Returns the sunset time for the current day. This can be useful when testing astronomic timeclock events.

Example

Request today's sunset time

L232> SUNSET

Today 's Sunset: 06:52

See Also

[SUNRISE - Today's sunrise time](#)

[ST - Set system time](#)

SSB

Scene Saver Mode Begin

Syntax

SSB, <timeout>

Parameter	Description	Format
timeout	number of minutes scene saver mode will be running	CONT = continuous (no timeout) 0 = 1 minute 1-1440

Processor Responds

Scene Saver Mode Begin

Description

Begins scene saver mode with the specified timeout

Example

Begin scene saver mode without a timeout

```
L232> SSB, CONT  
Scene Saver Mode Begin
```

See Also

[SST - Scene saver mode terminate](#)

[SSS - Request scene saver mode state](#)

[KBSS - Keypad button scene save](#)

[KBSR - Keypad button scene restore](#)

SST

Scene Saver Mode Terminate

Syntax

SST

Processor Responds

Scene Saver Mode Terminated

Description

Terminates scene saver mode

Example

Terminate scene saver mode

```
L232> SST
```

```
Scene Saver Mode Terminated
```

See Also

[SSB - Scene saver mode begin](#)

[SSS - Request scene saver mode state](#)

[KBSS - Keypad button scene save](#)

[KBSR - Keypad button scene restore](#)

SSS

Scene Saver Mode State

Syntax

SSS

Processor Responds with one of the following

Scene Saver Mode is Running

Scene Saver Mode is Stopped

Description

Queries the system for the scene saver mode state

Example

Query the scene saver mode state

```
L232> SSS
```

```
Scene Saver Mode is Running
```

See Also

[SSB - Scene saver mode begin](#)

[SST - Scene saver mode terminate](#)

[KBSS - Keypad button scene save](#)

[KBSR - Keypad button scene restore](#)

KBSS

Keypad Button Scene Save

Syntax

KBSS, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	button number to scene save	1 - 24

Processor Responds

Preset Saved

Description

Scene save the current levels of the preset on the button that has scene saver option checked.

Example

Scene save the preset on button 1 on processor 1, link 6, keypad address 10.

```
L232> KBSS, [1:6:10], 1  
Preset Saved
```

See Also

[SSB - Scene saver mode begin](#)

[SST - Scene saver mode terminate](#)

[SSS - Request scene saver mode state](#)

[KBSR - Keypad button scene restore](#)

KBSR

Keypad Button Scene Restore

Syntax

KBSR, <address>, <button number>

Parameter	Description	Format
address	system address of the keypad	[processor : link : address] see device address formatting description
button number	button number to scene save	1 - 24

Processor Responds

Preset Restored

Description

Restore the preset on the button that has scene saver option checked back to the levels of the uploaded preset.

Example

Restore the preset on button 1 on processor 1, link 6, keypad address 10.

```
L232> KBSR, [1:6:10], 1
```

Preset Restored

See Also

[SSB - Scene saver mode begin](#)

[SST - Scene saver mode terminate](#)

[SSS - Request scene saver mode state](#)

[KBSS - Keypad button scene save](#)

VMR

Vacation Mode Record

Syntax

VMR

Processor Responds

Vacation mode recording

Description

Begins recording vacation mode data

Example

Begin vacation mode recording

```
L232> VMR
```

```
Vacation mode recording
```

See Also

[VMP - Vacation mode playback](#)

[VMD - Vacation mode disable](#)

[VMS - Vacation mode state](#)

VMP

Vacation Mode Playback

Syntax

VMP

Processor Responds

Vacation mode playing

Description

Begins playback of vacation mode data

Example

Begin vacation mode playback

```
L232> VMP
```

```
Vacation mode playing
```

See Also

[VMR - Vacation mode record](#)

[VMD - Vacation mode disable](#)

[VMS - Vacation mode state](#)

VMD

Vacation Mode Disable

Syntax

VMD

Processor Responds

Vacation mode disabled

Description

Stops vacation mode recording or playback

Example

Stop vacation mode recording or playback

```
L232> VMD
```

```
Vacation mode disabled
```

See Also

[VMP - Vacation mode playback](#)

[VMR - Vacation mode record](#)

[VMS - Vacation mode state](#)

VMS

Vacation Mode State

Syntax

VMS

Processor Responds with one of the following

Vacation mode recording

Vacation mode playing

Vacation mode disabled

Description

Queries the system for the vacation mode state

Example

Query the vacation mode state

```
L232> VMS
```

```
Vacation mode recording
```

See Also

[VMR - Vacation mode record](#)

[VMP - Vacation mode playback](#)

[VMD - Vacation mode disable](#)

SMB

Security Mode Begin

Syntax

SMB

Processor Responds

Security mode begin

Description

Begins security mode

Example

Begin security mode

L232> SMB

Security mode begin

See Also

[SMT - Security mode terminate](#)

[SMS - Security mode state](#)

SMT

Security Mode Terminate

Syntax

SMT

Processor Responds

Security mode terminated

Description

Terminates security mode

Example

Terminate security mode

```
L232> SMT
```

```
Security mode terminated
```

See Also

[SMB - Security mode begin](#)

[SMS - Security mode status](#)

SMS

Security Mode State

Syntax

SMS

Processor Responds with one of the following

Security mode active

Security mode terminated

Description

Queries the system for the security mode state

Example

Query the security mode state

```
L232> SMS
```

```
Security mode active
```

See Also

[SMB - Security mode begin](#)

[SMT - Security mode terminate](#)

LOGIN

Login to the system

Syntax

LOGIN, <password>, <port address>

Processor Responds with one of the following

Processor <processor address> logging in RS232 ports

Processor <processor address> RS232 ports logged in

Logging in RS232 port <port address>

RS232 port <port address> already logged in

Missing or incorrect password. Login denied.

Parameter	Description	Format
password	system password defined in the programming software	maximum 32 characters, case-insensitive, spaces and commas not allowed
port address	the specific port to login.	pp:ll:aaa (see RS232 Port Addressing) This parameter is optional. If omitted, the system will perform a systemwide login (all RS232 ports) allowed
processor address	Reply from a processor	1-16

Description

Used to gain access to a system that has not been successfully logged into. The login/logout feature can be used to add a layer of protection against other people gaining access to the system. When logged-out of the system, only two L232 commands are recognized, LOGIN and HELP. This means that database changes and L232 control of the processor cannot be done until after a successful login. This feature is typically used on systems that utilize a modem for remote programming.

Example

Do a systemwide login to a system with password "lutron" and processors 1, 2 and 3 present

```
L232> LOGIN, lutron
```

LOGIN

Processor 1 logging in RS232 ports
Processor 2 RS232 ports logged in
Processor 3 logging in RS232 ports

Example

Login port 7 of processor 2 in a system with password "lutron"

```
L232> LOGIN, lutron, 2:7:1  
Logging in RS232 port 02:07:001
```

See Also

[LOGOUT - Logout of the system](#)

LOGOUT

Logout of the system

Syntax
 LOGOUT, <port address>

- Processor Responds with one of the following**
- Processor <processor address> logging out RS232 ports
 - Processor <processor address> IRS232 ports logged out
 - Logging out RS232 port <port address>
 - RS232 port <port address> logged out

Parameter	Description	Format
port address	the specific port to login.	pp:ll:aaa (see RS232 Port Addressing) This parameter is optional. If omitted, the request will default to the port that receives the command allowed
processor address	Reply from a processor	1-16

Description
 Used to logout of the system. The login/logout feature can be used to add a layer of protection against other people gaining access to the system. When logged-out of the system, only two L232 commands are recognized, LOGIN and HELP. This means that database changes and L232 control of the processor cannot be done until after a successful login. This feature is typically used on systems that utilize a modem for remote programming.

Example
 Logout of the port connected to

```
L232> LOGOUT
Logging out RS232 port 01:03:001
```

Example
 Logout of RS232 port 7 on processor 2

LOGOUT

```
L232> LOGOUT, 2:7:1
```

```
Logging out RS232 port 02:07:001
```

Example

Logout all RS232 ports on processor connected to

```
L232> LOGOUT, PROC
```

```
Processor 1 logging out RS232 ports
```

Example

Logout all RS232 ports in the system with processors 1, 2 and 3 present

```
L232> LOGOUT, ALL
```

```
Processor 1 logging out RS232 ports
```

```
Processor 2 logging out RS232 ports
```

```
Processor 3 logging out RS232 ports
```

See Also

[LOGIN - Login to the system](#)

PROMPTOFF

Turn off the L232> Prompt

Syntax

PROMPTOFF

Description

When the L232> prompt is turned off, a new L232> will not be printed after each command execution. This can be useful when communicating with external A/V systems that would just ignore the prompt.

Example

Turn the L232> prompt off

```
L232> PROMPTOFF
```

See Also

[PROMPTON](#) - Turn the L232> prompt on

PROMPTON

Turn on the L232> Prompt

Syntax

PROMPTON

Description

Re-enables the L232> prompt. After every command execution, a new L232> prompt will be issued.

Example

Turn the L232> prompt on.

PROMPTON

L232>

See Also

[PROMPTOFF - Turn the L232> prompt off](#)

EPRINT

Event Log Print

Syntax

EPRINT

Processor Responds by print the log in the following format

<log entry number><operating system time><event time><event date><operating system task identifier><event description>

Description

This log can be used to determine the date and times of the following types of events:

- Keypad button activity
- Database downloads to the processor
- Timeclock events
- Vacation recording and playback

When the terminal screen is active in the programming tool, all terminal screen activity is logged to a file called cpu.log located in the /log directory under the HomeWorks Interactive directory. To access this file you must exit the programming screen (go to the floorplan for example); this will close the cpu.log file and make it accessible to an editor. You may use notepad or wordpad (if the file is too large for notepad) to view and/or print the file.

Example

Print the event log

```
L232> EPRINT
```

```
0723 8022978 01:12:11 04/21/99 EVPP Keypad [01:03:01], Button 01  
Pressed
```

```
0724 8023040 01:12:11 04/21/99 EVPP Keypad [01:03:01], Button 01  
Released
```

```
0725 8023369 01:12:12 04/21/99 EVPP Keypad [01:03:00], Button 02  
Pressed
```

```
0726 8023414 01:12:12 04/21/99 EVPP Keypad [01:03:00], Button 02  
Released
```

PROCADDR

Processor Address

Syntax

PROCADDR

Processor Responds with

Processor Addresss : <address>

Parameter	Description	Format
address	the address of the processor that received the command	1 - 16

Description

Returns the address of the processor that received the command

Example

Request the processor address

```
L232> PROCADDR
```

```
Processor Addresss : 01
```

RESET232

Reset RS-232 port settings

Syntax

RESET232

Processor responds with one of the following

For the new RS-232 port parameters to take effect for this port, you must cycle the processor power.

Description

This command is used to reset all RS-232 port settings to the serial driver settings assigned to that port using the HomeWorks Interactive software. The settings effected are baud rate, handshaking type, number of data bits, parity type, number of stop bits, and the status of HomeWorks monitoring messages.

All ports will immediately switch to the driver settings except the port connected to.

Example

Reset all RS-232 ports settings for all processors.

```
L232> RESET232
```

For the new RS-232 port parameters to take effect for this port, you must cycle the processor power.

OSREV

Request O/S revision

Syntax

OSREV

Processor responds with the following for each processor in the system

Processor <processor address> O/S Rev = <O/S Rev>

Parameter	Description	Format
processor address	The processor address	1-16
O/S Rev	Revision number of the currently installed O/S	1-100

Description

Returns the O/S revision for all processors in the system

Example

Request the O/S revisions of a system with 3 processors

```
L232> OSREV
```

```
Processor 01 O/S Rev : 22
```

```
Processor 02 O/S Rev : 22
```

```
Processor 03 O/S Rev : 22
```

HELP

L232 Command Help

Syntax

HELP

HELP,<command name>

Description

Typing HELP by itself will print a list of the currently available L232 commands with brief descriptions. To get command specific help, use the HELP,<command name> syntax

Example

Request help for the Keypad Button Press command

L232> HELP, KBP

Keypad button press

Usage: KBP,<address>,<button number>

L232 Help Revision History

v5 5-07-99 OS Rev 18

- Added the following commands to this help document: SMB, SMT, SMS
- Added the keypad button numbering page

v4 4-15-99 OS Rev 18

- Added the following commands FADEDIM, RAISEDIM, LOWERDIM, STOPDIM, FLASHDIM, STOPFLASH, SETHAND
- Made the time formatting more flexible
- Updated HELP command page
- Added the RS-232 specs to the technical specs page
- Converted files for better integration with online help

v3 3-15-99 OS Rev 16

- Fixed a typo in the FV command example
- Added the technical specs section
- Added the following cmds, PROMPTON, PROMPTOFF, PROCADDR
- Fixed incorrect link ranges in the device address section
- Added the following commands, RDL, RKLS, RGS
- Added the following commands, SETBAUD, KBH, RKES, CCOPULSE, CCOCLOSE, CCOOPEN, RKLBP
- Fixed incorrect address designator in RKLS command
- Converted to this HTML document

v2 1-11-99 OS Rev 8

- Added SUNRISE and SUNSET commands

v1 1-4-99 OS Rev 7

- Initial revision

4.4 Controlling Motors (Shades, Blinds, Fans)

Contents

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[4.4.5 Indirect Control](#)

[4.4.6 Controlling Fans](#)

Direct control of motors is accomplished through high voltage switching while indirect control is done through low voltage contact closures. The shade manufacturer usually supplies the input contact closure interface. Using output contact closures from HWI, the shade input contact closure interface may be triggered to accomplish various functions (i.e. raise, lower, stop, etc.).

Reasons for an interface may include:

- Low voltage motors.
- Motors that switch the Neutral, not the Hot wires.
- Manufacturer warranty issues.
- Motors with some digital intelligence.

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4.4.1 Direct Control

Direct control of motors is accomplished through a HomeWorks Motor Remote Power Module (HW-RPM-4M). A motor module switches high voltage between raise and lower outputs to accomplish the desired feature. To stop a motor, both raise and lower outputs are switched off.

Motor Requirements

A dual coil single-phase induction (asynchronous) motor 120 or 240 Volt. This shade motor will have two HOT feeds and one NEUTRAL - one HOT feed to raise the shade and the other HOT feed to lower the shade. Shade motors must have built-in limit switches.

NOTE: *Do not wire 2 shades to the same output or damage to the shade motor could result. See [Multiple Asynchronous Motors on a Single Output](#) below for more information.*

For motor output setup, refer to [Motor Special Properties](#). For motor module installation, see the installation instructions included with the module.

Control

Using the Programming screen, any button or contact closure input can be programmed to command any output of a HW-RPM-4M. These motor commands (raise, lower, and stop) are assigned in the same way that lights are assigned. They can function on any button or contact closure when using toggle, advanced toggle, double tap, manual sequence, automatic sequence, and conditional programming models. The motor commands do not function when using cycle-dim or raise/lower programming.

Special Function: 4 Stage Jog

4 Stage Jog can be programmed to a button from the programming screen. This is done by selecting the Raise/Lower programming model and then selecting 4 stage jog for the category Type.

A 4 Stage jog button works as follows:

- **Stage 1** - Push and release programmed button for less than ½ second and the shade will JOG.
- **Stage 2** - Push the programmed button for more than ½ second and the shade will first JOG and then continue in the same direction.
- **Stage 3** - Release the programmed button after ½ second but before 2 seconds and the shade will STOP.
- **Stage 4** - Release the programmed button after 2 seconds and the shade will continue to it's limits.

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4.4.2 Direct Control via RS232

As indicated in the previous section, direct control of motors is accomplished using HomeWorks Motor Module (HWI-RPM-4M). In order to control the motors via RS232 command strings, the FADEDIM command is used (see [FADEDIM](#) for the command's syntax and description).

When using the FADEDIM command to raise, lower, or stop a motor connected to the output of an HWI-RPM-4M module, it is necessary to use specific intensities. The intensity value for raise is 16, lower is 35, and stop is 0. For example, a motor connected to processor 2, link 1, MI address 0, RPM address 4, output 3 (see [device address formatting](#) for more information) responds to the following raise, lower, and stop RS232 command strings.

- **Raise:** FADEDIM,16,0,0,[2:1:0:4:3]
- **Lower:** FADEDIM,35,0,0,[2:1:0:4:3]
- **Stop:** FADEDIM,0,0,0,[2:1:0:4:3]

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4.4.3 Direct Control via Manual Sequence

As stated above, a HomeWorks Motor Module (HWI-RPM-4M) is required to directly control a motor. A [Manual Sequence](#) allows raise and lower control from a single button. The example below demonstrates the first preset of the four-preset manual sequence. **NOTE:** It is important to delete any unused presets in the manual sequence. If an unused preset is left in the sequence, the button that advances the presets will do nothing for that press.

The screenshot displays the 'Control Station Programming' software interface. The left pane shows a tree view of the system configuration, with 'Home Theater Projection Screen' selected under the 'Motors' category. The right pane shows the 'Manual Sequence' configuration for this motor. The 'Motor' section on the right indicates a 'Delay' of 00:00 and a 'Command' of 'Lower'. The 'Manual Sequence' section shows a 'Preset' of 'Lower Screen' and a table of presets.

Name	Delay	Fade	Lvl/Cmd
Home Theater Projection Screen	00:00	00:00	Lower

The interface also includes a 'Press' button, a 'Properties' tab, and a 'Notes' tab. The 'LED State' is set to 'Flash 1'. The 'Preset' is 'Lower Screen' and the 'Preset 1 of 4' is shown. The 'Next Preset on Press or After' is set to 00:10.

On preset 1 of 4, labeled "Lower Screen", the Home Theater Projection Screen is set to lower. The projection screen is found on the Interfaces tab in the upper right of the programming screen. The command for the screen, listed in the lower right, is set to lower. The LED State is set to Flash 1 to indicate the faster of the two actions. At the bottom of the screen, the option for preset advancement is set to Next Preset on Press or After: with the time set to 10 seconds. This allows the next preset to be selected after 10 seconds, which is the maximum amount of time it would take to fully lower the Home Theater Projection Screen used in this example. This allows the user to either press the button a second time to stop the screen or allow the screen to lower to its limits and have the manual sequence in the correct state for the next press. The next preset stops the screen, as indicated below.

Press Properties Notes Real Time Delete

Manual Sequence LED State: OFF

Preset: Screen Stop Preset 2 of 4

	Name	Delay	Fade	Lvl/Cmd
▶	Home Theater Projection Screen	00:00	00:00	Stop

Next Preset on Press

The "Screen Stop" preset has the LED state set to off, since there is no action on the part of the screen. In addition, the preset advancement setting is left at Next Preset on Press. The third press raises the screen and is very similar in function to the first preset, as shown below.

Press Properties Notes Real Time Delete

Manual Sequence LED State: Flash 2

Preset: Raise Screen

Preset 3 of 4

<< < > >> [Icon] [X]

	Name	Delay	Fade	Lvl/Cmd
▶	Home Theater Projection Screen	00:00	00:00	Raise

Next Preset on Press or After: 00:10

As shown above, the "Raise Screen" preset is exactly like the first preset, except for two differences. The command sent to the motor is raise instead of lower. In addition, the LED state is set to Flash 2 instead of Flash 1. This is so the homeowner can discern the difference between the raise function and the lower function, in case the Projection Screen is not visible from the control station location. The preset advancement setting is set to Next Preset on Press or After: 00:10, just as in the "Lower Screen" preset.

Press Properties Notes Real Time Delete

Manual Sequence LED State: OFF

Preset: Screen Stop

Preset 4 of 4

<< < > >> [Icon] [X]

	Name	Delay	Fade	Lvl/Cmd
▶	Home Theater Projection Screen	00:00	00:00	Stop

Next Preset on Press

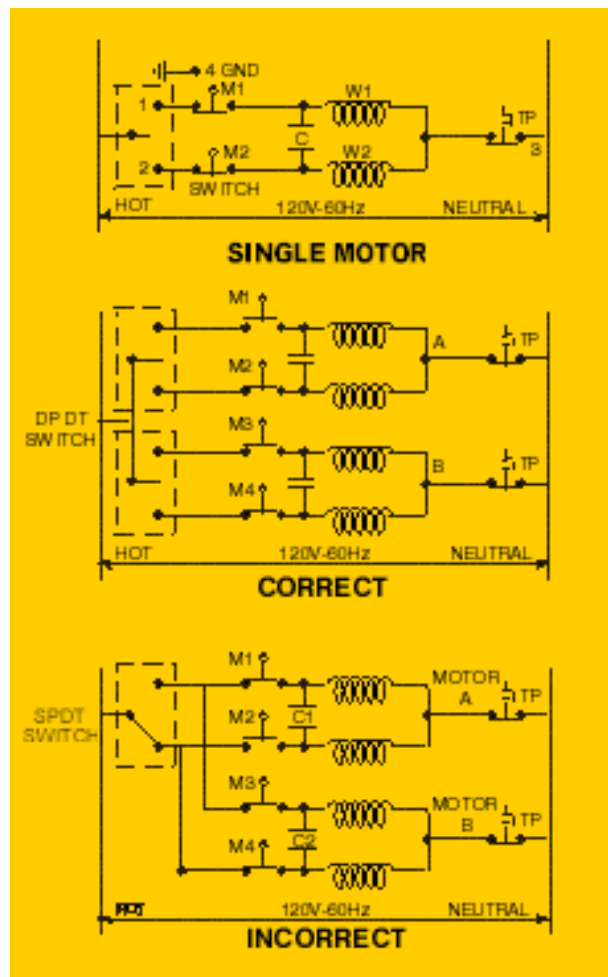
The fourth and final preset of the sequence is exactly the same as the second, as shown above. This preset is required if the homeowner does not want to raise the screen to limits. The "Screen Stop" preset allows the homeowner to stop raising the screen at its current position. With all four of the presets programmed as above, the homeowner can continuously cycle through the functions: lower-stop-raise-stop.

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4.4.4 Multiple Asynchronous Motors on a Single Output

The diagram to the right shows the basic wiring diagram of an asynchronous motor. It also shows the correct way to wire two motors and the incorrect way. Because asynchronous motors have a built-in capacitor, two or more motors cannot be connected to the same output of a HomeWorks Interactive motor module (HW-RPM-4M). There will be constant feedback from one motor to another, so stopping points will not be stable and there is a risk of motor burn out.

The **CORRECT** wiring diagram shows a Double Pole Double Throw (DPDT) switch driving the motors, which is the electrical equivalent of using two individual HW-RPM-4M outputs. The DPDT switch or two individual outputs provides isolation between the two motors.



SYMBOLS			
M1	Microswitch	W2	Motor Winding
M2	Microswitch	TP	Thermal Protector
C	Capacitor	GND	Ground
W1	Motor Wiring		

The Single Pole Double Throw (SPDT) switch shown in the **INCORRECT** diagram is the electrical equivalent of connecting two motors to the same output. In this example, motor A stops at its limit in direction 2 before motor B. Current in motor B feeds back to motor A through capacitor C2 and limit switches M3 and M1. Both operators keep rotating in opposite directions at reduced power. The motors are no longer aligned and the reduced power could cause motor burn out.

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4.4.5 Indirect Control

Most shade, drape, or screen motor interfaces can be controlled using low-voltage dry-contact closure outputs from a HWI-CCO-8. Three questions must be answered before hookup:

- Do you need pulse or maintained closures?
- How many closures per interface are needed (one, two, three, etc)?
- What functions does the interface supply (raise, lower, stop, open, close, etc.)?

Once these questions have been answered, the number of HWI-CCO-8s and associated enclosures can be ordered. There are 8 contact closures per HWI-CCO-8.

Control

On the [Load Schedule](#) screen, each output of a HWI-CCO-8 can be programmed to maintained or pulsed. Any output can be programmed to a button or contact closure input. This includes toggle, advanced toggle, double tap, manual sequence, automatic sequence, and conditional programming models.

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4.4.6 Controlling Fans

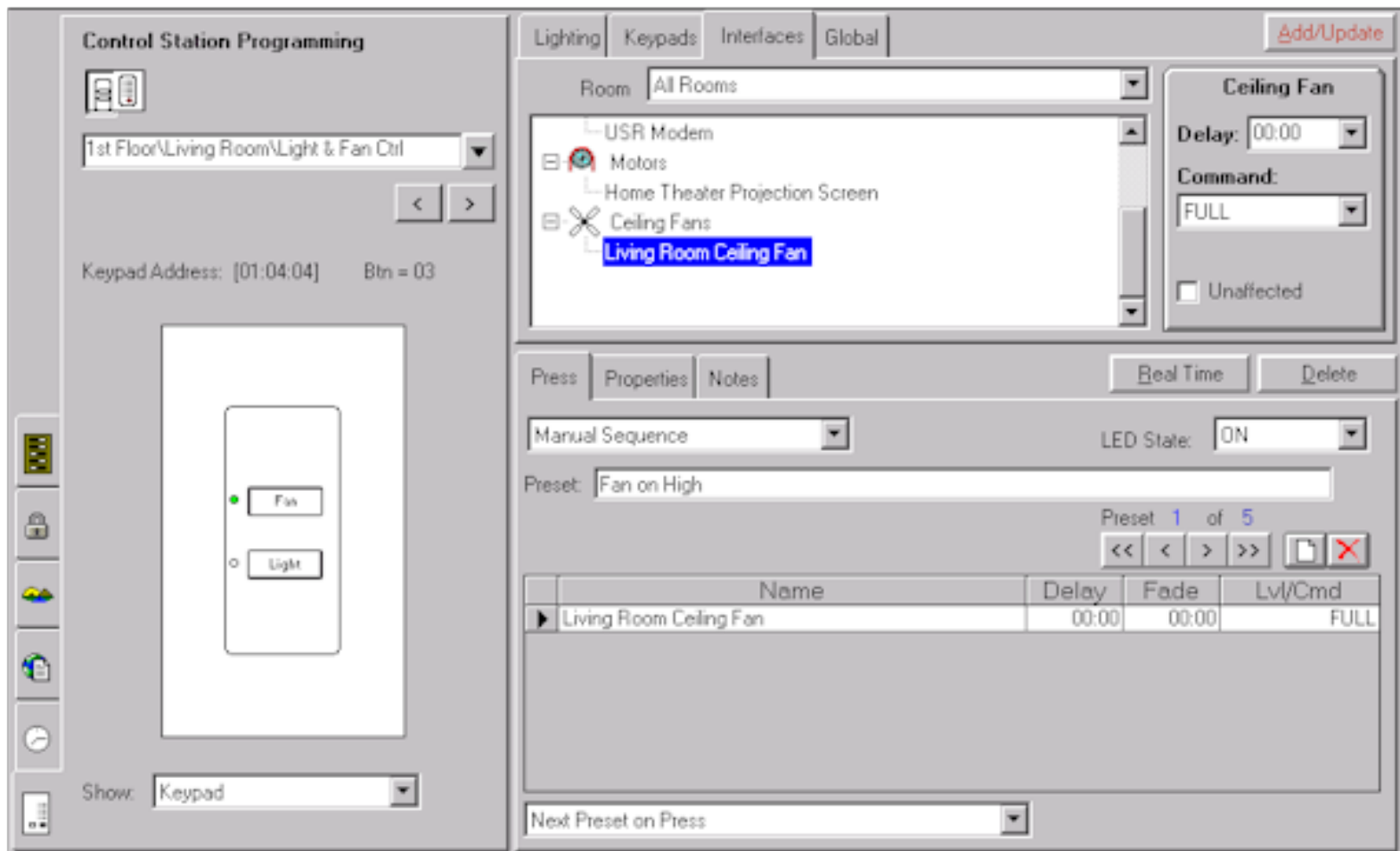
There are two different types of fans that can be controlled by the HomeWorks Interactive system. The first of which is exhaust fans. These fans do not have multiple speeds and are simply switched on and off by the HomeWorks Interactive system. This is done by using either a Remote Power Module or a local system switch.

The other type of fan that can be controlled by the HomeWorks Interactive system is the ceiling fan. Ceiling fans are controlled using the HomeWorks Fan Remote Power Module (HWI-RPM-4FSQ-120), which allows four-speed plus off control. In order to control the ceiling fans via RS232 command strings, the FADEDIM command is used (see [FADEDIM](#) for the command's syntax and description).

When using the FADEDIM command to control a ceiling fan connected to the output of an HWI-RPM-4FSQ-120 module, it is necessary to use a specific intensities. The intensity value for OFF is 0, Low is 25, Medium is 50, Medium-High is 75, and FULL is 100. For example, a ceiling fan connected to processor 2, link 1, MI address 0, RPM address 4, output 3 (see [device address formatting](#) for more information) responds to the following intensity RS232 command strings.

- **OFF:** FADEDIM,0,0,0,[2:1:0:4:3]
- **Low:** FADEDIM,25,0,0,[2:1:0:4:3]
- **Medium:** FADEDIM,50,0,0,[2:1:0:4:3]
- **Medium-High:** FADEDIM,75,0,0,[2:1:0:4:3]
- **FULL:** FADEDIM,100,0,0,[2:1:0:4:3]

The example below shows how to control a fan using a [manual sequence](#) to cycle through the multiple speeds.



The example shows preset one of five on button three of the keypad displayed on the left side of the programming screen. The Living Room Ceiling Fan that appears on the Interfaces tab in the upper right of the programming screen is selected for the "Fan on High" preset. The speed/level selected for the first preset is FULL, so as to be consistent with standard fan speed controls. The LED is on during this preset and it will advance with Next Preset on Press.

Press Properties Notes Real Time Delete

Manual Sequence LED State: ON

Preset: Fan on Medium High

Preset 2 of 5

<< < > >> [Icon] [X]

	Name	Delay	Fade	Lvl/Cmd
▶	Living Room Ceiling Fan	00:00	00:00	Med-High

Next Preset on Press

Preset two or "Fan on Medium High", shown above, has all the same settings as the previous preset except one. The speed/level is set to Med-High, which is slightly slower than Full.

Press Properties Notes Real Time Delete

Manual Sequence LED State: ON

Preset: Fan on Medium

Preset 3 of 5

<< < > >> [Icon] [X]

	Name	Delay	Fade	Lvl/Cmd
▶	Living Room Ceiling Fan	00:00	00:00	Medium

Next Preset on Press

The third preset of the manual sequence only changes the speed/level for the ceiling fan to Medium, which is slightly slower than Med-High. The LED is still on and the preset still advances on Next Preset on Press.

Press Properties Notes Real Time Delete

Manual Sequence LED State: ON

Preset: Fan on Low

Preset 4 of 5

	Name	Delay	Fade	Lvl/Cmd
▶	Living Room Ceiling Fan	00:00	00:00	Low

Next Preset on Press

Preset 4 of 5 shows the last of the four fan speeds available. This preset, "Fan on Low", has all the settings the same as the previous three presets with the exception of the speed/level. The final preset, shown below, has a few changes from the previous four.

Press Properties Notes Real Time Delete

Manual Sequence LED State: OFF

Preset: Fan Off

Preset 5 of 5

	Name	Delay	Fade	Lvl/Cmd
▶	Living Room Ceiling Fan	00:00	00:00	OFF

Next Preset on Press

The "Fan Off" preset is the last step in the manual sequence. Since the level/speed for this preset is off, the LED State is set to OFF as well. The preset advance is still set to Next Preset on Press. The example displayed in the five panels above will allow the homeowner to cycle through the four different speeds plus off with consecutive presses of the same button.

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4.5 Using Scene Saver

4.5.1 Introduction

Scene Saver is a feature in the HomeWorks Interactive system that allows a user to make modifications to scene settings using the local controls of the system. During the programming stage, keypad buttons can be designated as Scene Saver buttons. These buttons have the ability to reprogram the light levels of the scene that they activate. A user may activate a scene from a Scene Saver button and then use other buttons, Vareos or GRAFIK Eyes to adjust the zones in that scene. After the scene is at the desired level, the original Scene Saver button can be pressed and held for four seconds to save the new light levels. If the new scene is not exactly what the user was looking for, the button can be pressed and held in for fourteen seconds to reset the scene back to the way it was when it was initially programmed and uploaded. Saving zones to the OFF state is not permitted. There is no way to add or remove zones from a scene without using the HomeWorks Interactive software. Scene Saver is for modifying light levels only. You cannot change fade or delay times. You cannot adjust levels for contact closures, motors, fans, etc.

Scene saver is not for everyone. Although it's easy to use, your programming style will determine whether Scene Saver will be a good fit. Another thing to consider is which buttons to offer it on. Keeping things consistent will help to make things more intuitive for the homeowner.

Using Scene Saver will require that there be some method of changing the light levels for the scene that is in need of adjustment. Having Scene Saver on a 2-button keypad in a room with no local controls (i.e. GRAFIK Eye or Vareos) may not be appropriate. Keypads that lack raise/lower buttons may also be troublesome when trying to adjust light levels for use with Scene Saver. The ideal setup would be to have a keypad that has some scene buttons with Scene Saver activated, buttons that control individual zones that are part of those scenes, and master raise/lower buttons (having individual zone control from a button with cycle-dim will also work equally well).



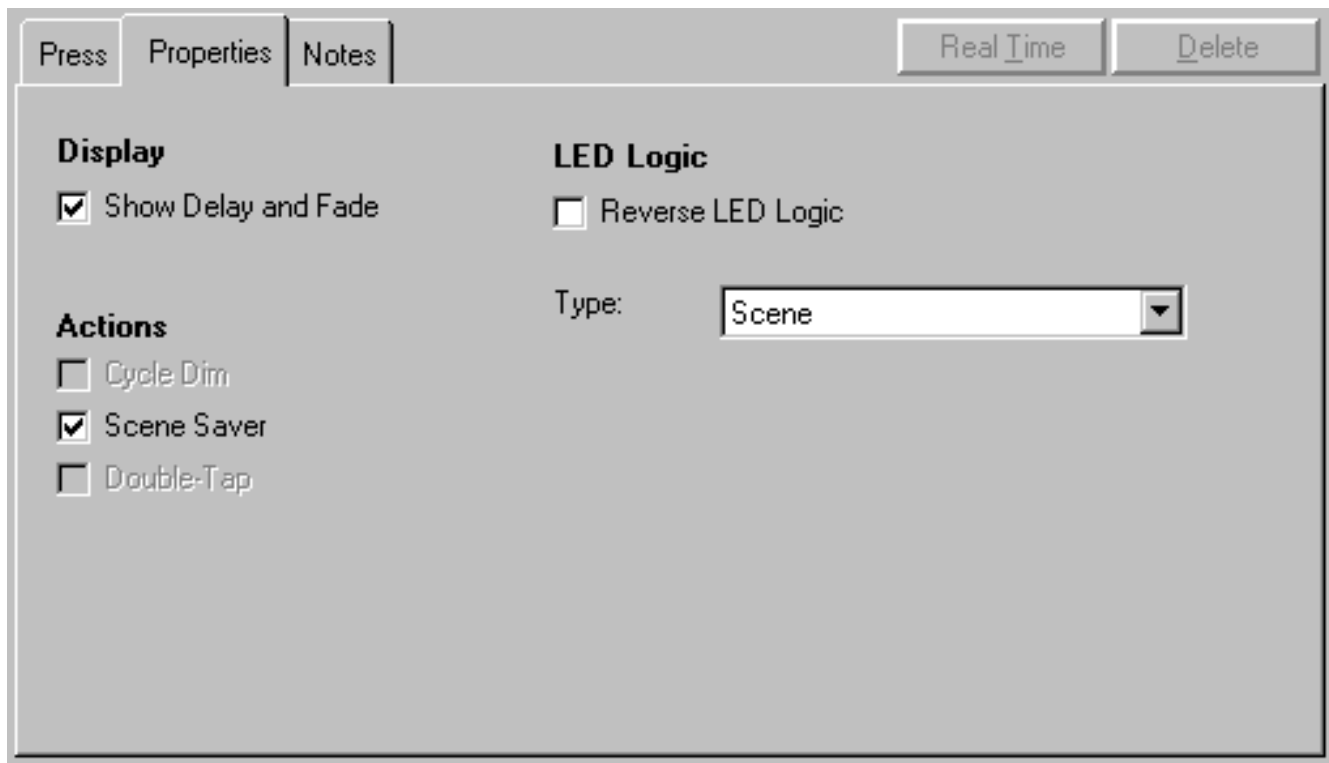
4.5.2 Requirements for Scene Saver

- Version 4.00 or higher of the HomeWorks Interactive Software
- Default-Single Action, Default-Toggle, or Advanced Toggle **keypad** buttons ***without the Cycle-Dim or Double-Tap feature enabled.***
- A button that has an LED.

4.5.3 Programming Scene Saver to a Button

Programming keypad buttons to utilize the Scene Saver feature is simple.

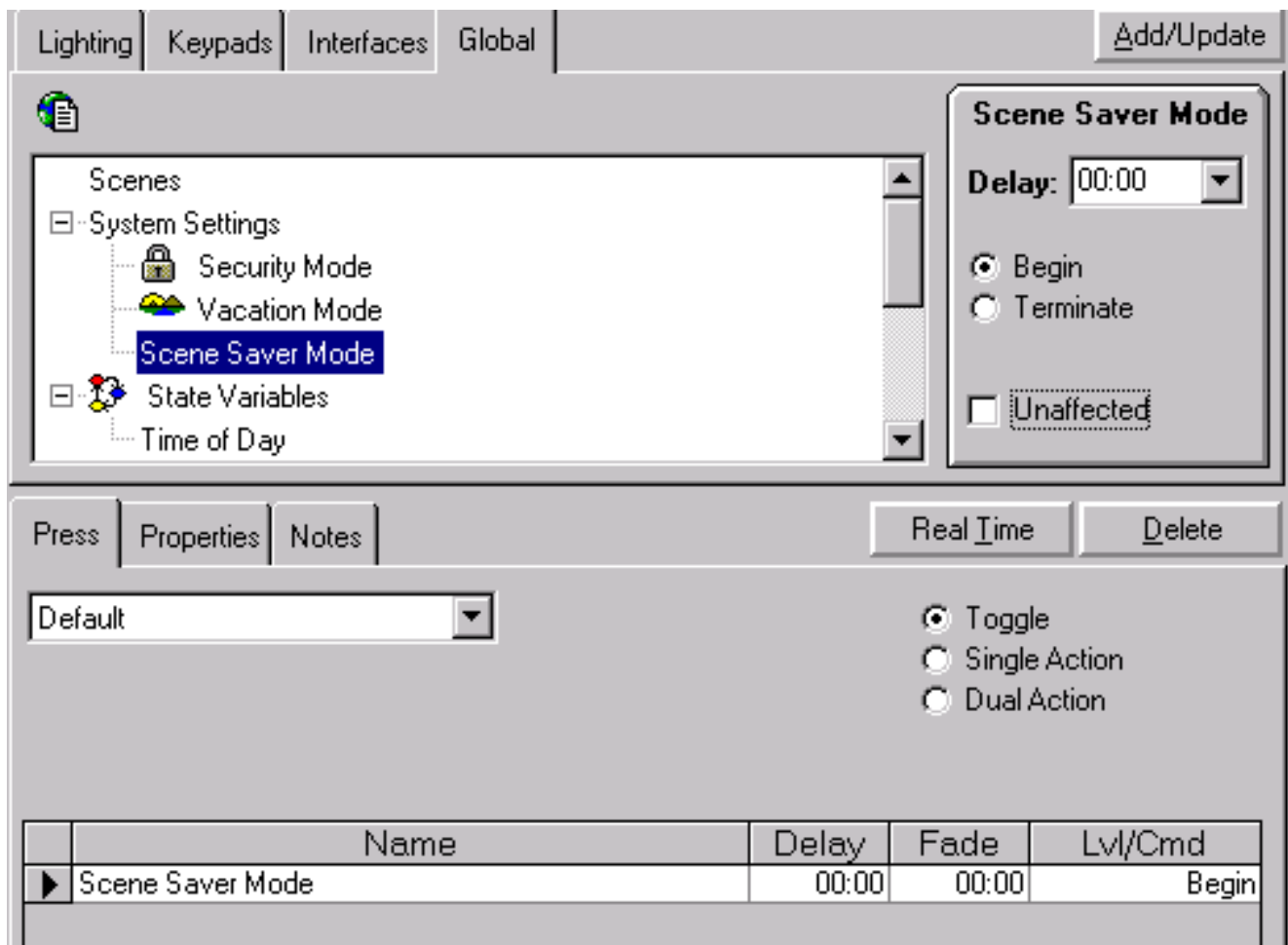
1. Select a Default-Single Action, Default-Toggle or Advanced Toggle button.
2. Select the Properties Tab for the selected button.
3. Check the Scene Saver check box.



NOTE: Cycle Dim and Double-Tap cannot be enabled when Scene Saver is selected.

4.5.4 Using Scene Saver

The first thing that needs to be done is to put the processor into "Scene Saver Mode".



This can be accomplished by programming a button to **Start** Scene Saver. The button can be hidden in a closet, only be accessed from the Master Bedroom Keypad, etc. Once the button is pushed, Scene Saver Mode is active and any of the Scene Saver buttons can be used. This mode will timeout after the time value specified in the User Preferences under the Programming tab (or will run until explicitly **Terminated** if the Continuous option has been selected).

Scene Saver can be activated through the use of any HomeWorks Interactive keypad or by issuing an RS-232 command.

Normally, a user selects a scene, makes a determination that the light levels are in need of adjustment, makes the changes, then saves the new settings with the Scene Saver button. To capture new light levels, simply press and hold a keypad button that has Scene Saver programmed to it for four seconds. After four seconds, the button's LED will begin to blink. This is an indication that the processor has captured the new light levels. From this point on, the button will activate the scene using the light levels that were just captured.

The original light levels (ones that were uploaded via the HomeWorks Interactive software) can be restored if the new setting is undesired. To restore levels back to their original state, press and hold the button with Scene Saver programmed to it for 14 seconds. During this time, the LED will blink after four seconds (indicating that it has captured levels). The LED will stop blinking after another four seconds,

and then begin blinking again 6 seconds later. The original preset that was stored in the processor will then be activated.

In summary, there are three critical points that need to be explained to the end user:

1. Enable Scene Saver Mode.
2. Press and hold button until flashing begins (approximately 4 seconds) – Saves new light levels.
3. Press and hold button until flashing begins a second time (approximately 14 seconds) – Restores original light levels and activates the scene.

The importance of button layout and how keypads are programmed cannot be stressed enough. There is no indication of which buttons have Scene Saver and which ones do not. The overall design becomes a key factor in determining how easy it will be for the end user to understand how the system works.

4.5.5 Details

The biggest change in the software to accommodate Scene Saver is the notion of locking and unlocking a database. The reason we want to lock and unlock the database is to ensure that only one person is making changes at a time. In essence what this is doing is passing control between the laptop (with the HWI software) and the processor (which has Scene Saver capabilities). Once Scene Saver is enabled, the project on the laptop is locked. This prevents the installer from overwriting changes made by the homeowner via Scene Saver. The installer will need to capture Scene Saver changes before working on the project.

After the installer chooses to deploy Scene Saver, a full upload will be performed. There is an option on the upload screen to "Synchronize with Scene Saver Allowed (Lock Database)".

Upload Project

Data to Upload | Cycle-dim\Raise-Lower Options

i Listed below are the upload options. Check off the options which apply. To store a copy of the current database in the processor(s) being uploaded, choose "Synchronized" for the Upload type.

☐ Vacation

☐ TEL9 Access code, Pickup code, and list

☒ Set System date/time to PC

PC date/time: 09/04/01 01:08:39 PM

Compile type

☒ Compile and Upload

☐ Upload Last Compile

☐ Compile Only

Upload type

☐ Minimum

☐ Synchronized

☒ Synchronized with Scene Saver Allowed (Lock Database)

☒ Start Scene Saver Mode after Upload (for Timeout specified in Preferences)

Processor database will be synchronized with PC

Login Password: jetski

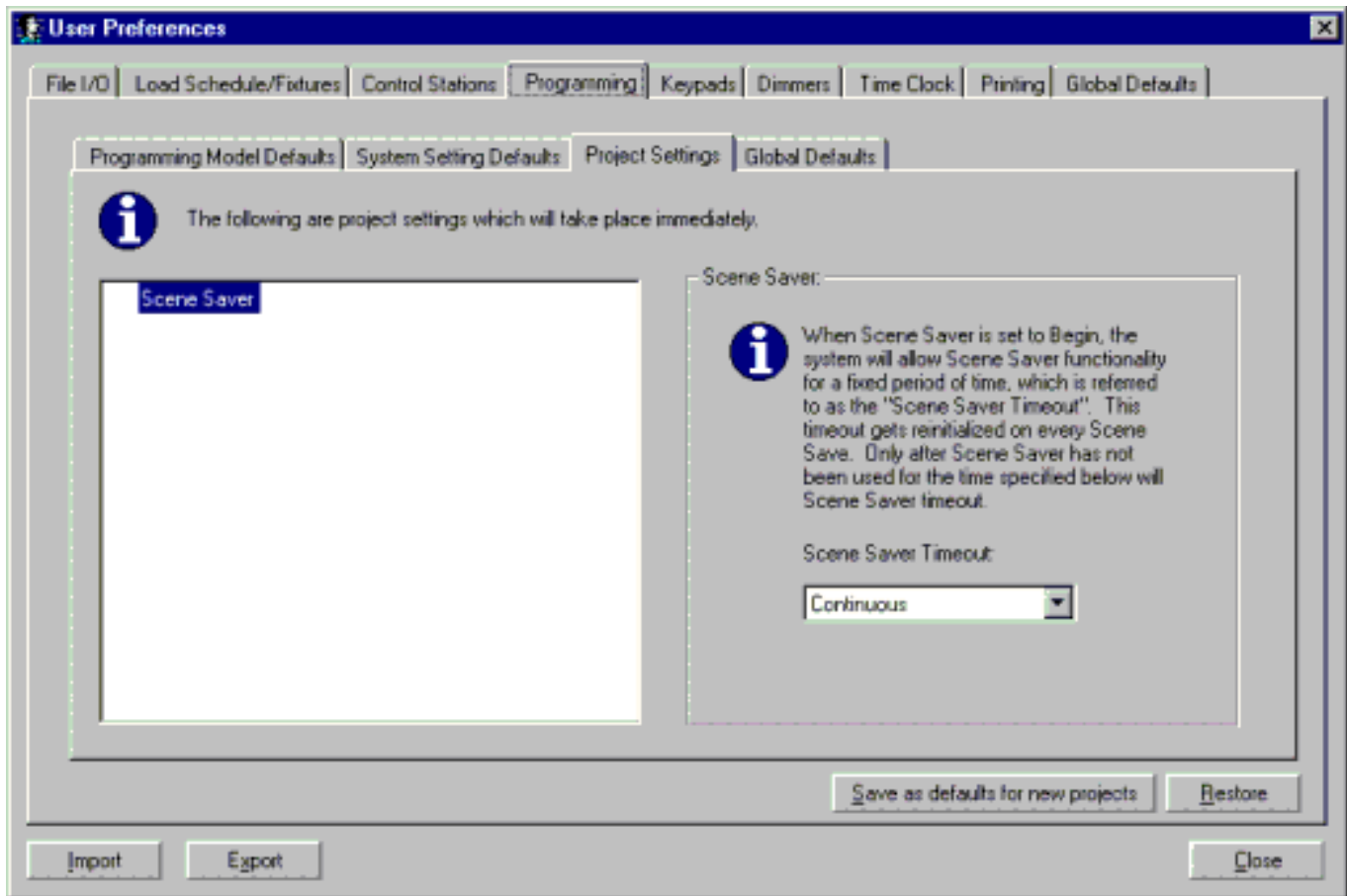
OK Close

The "Synchronized with Scene Saver Allowed (Lock Database)" option renders the database on your computer read-only and passes control to the processor, giving the user the ability to use the Scene Saver feature. The check box to "Start Scene Saver Mode after Upload..." automatically puts the system into Scene Saver mode after a successful upload.

A timeout feature has been implemented to allow for Scene Saver to disable itself after a specified period of time. This is helpful in situations in which the homeowner wants to make an explicit decision to use Scene Saver and reduce the possibility of changing light levels mistakenly. A button can be programmed to toggle Scene Saver mode (Begin, Terminate). If the user forgets to terminate Scene Saver mode it will timeout after the time specified in the User Preferences.

To change the timeout value, open the User Preferences screen in the HomeWorks Interactive software. Under the Programming section, navigate to the

Project Settings section. Highlight the Scene Saver feature in the box on the left. You will be presented with a drop down box on the right that allows you to change the timeout feature to 10, 15 or 30 minutes, 1 hour, or continuous – meaning Scene Saver will be enabled until it is explicitly terminated by another button push or an RS-232 command.



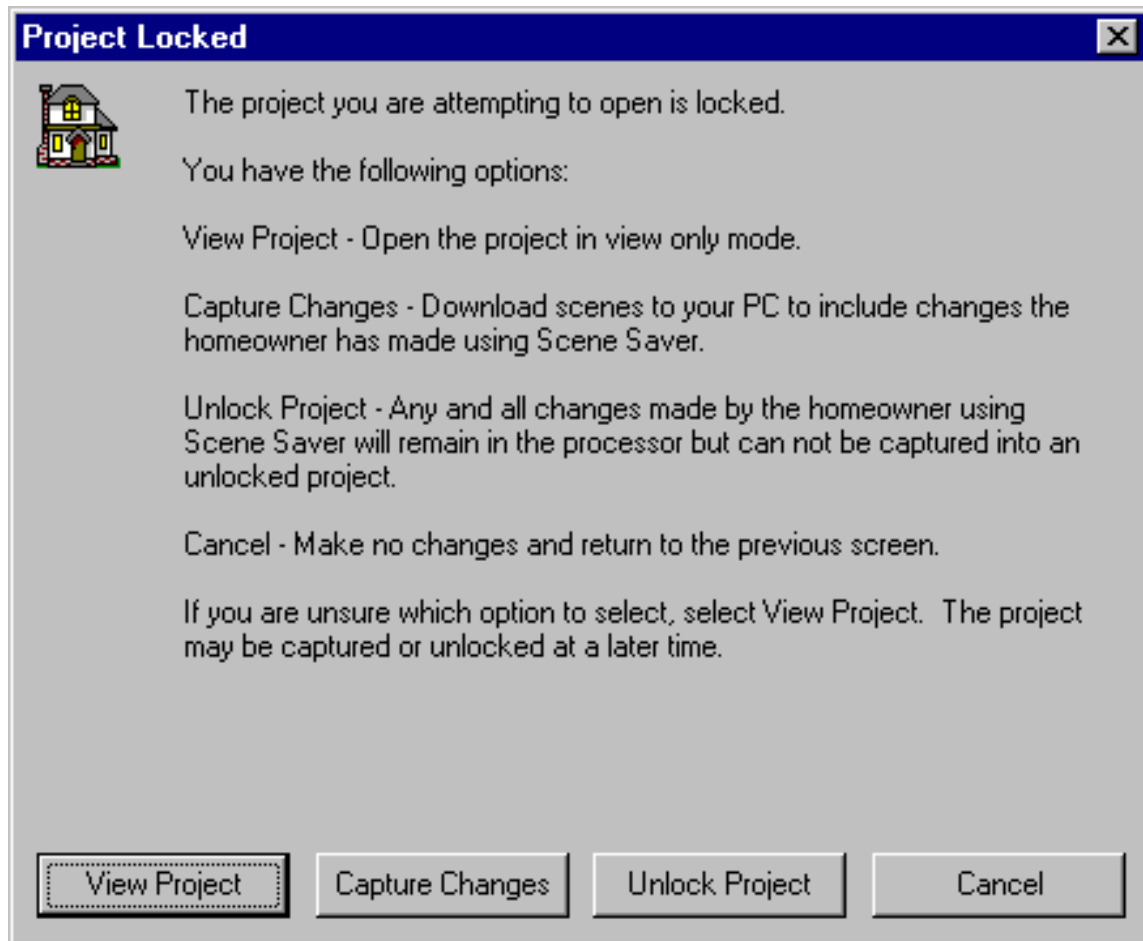
After the upload is complete, a message will be displayed indicating success or failure. If the upload was not successful, the database will not be locked.



If the upload was a success the database will be saved and locked. When the database is locked, the title bar on all windows in the application will turn yellow and all the items on the screen will become read-only. It will still be possible to navigate through the software, but no changes will be permitted.

4.5.6 Opening a Locked Database

When attempting to open a database that has previously been locked, the HWI software will present the user with the following message:



The message explains what each option means.

View Project – This option opens the database in read-only mode. No changes will be permitted, but the user will be able to navigate through the software, look at reports and use the Terminal Screen.

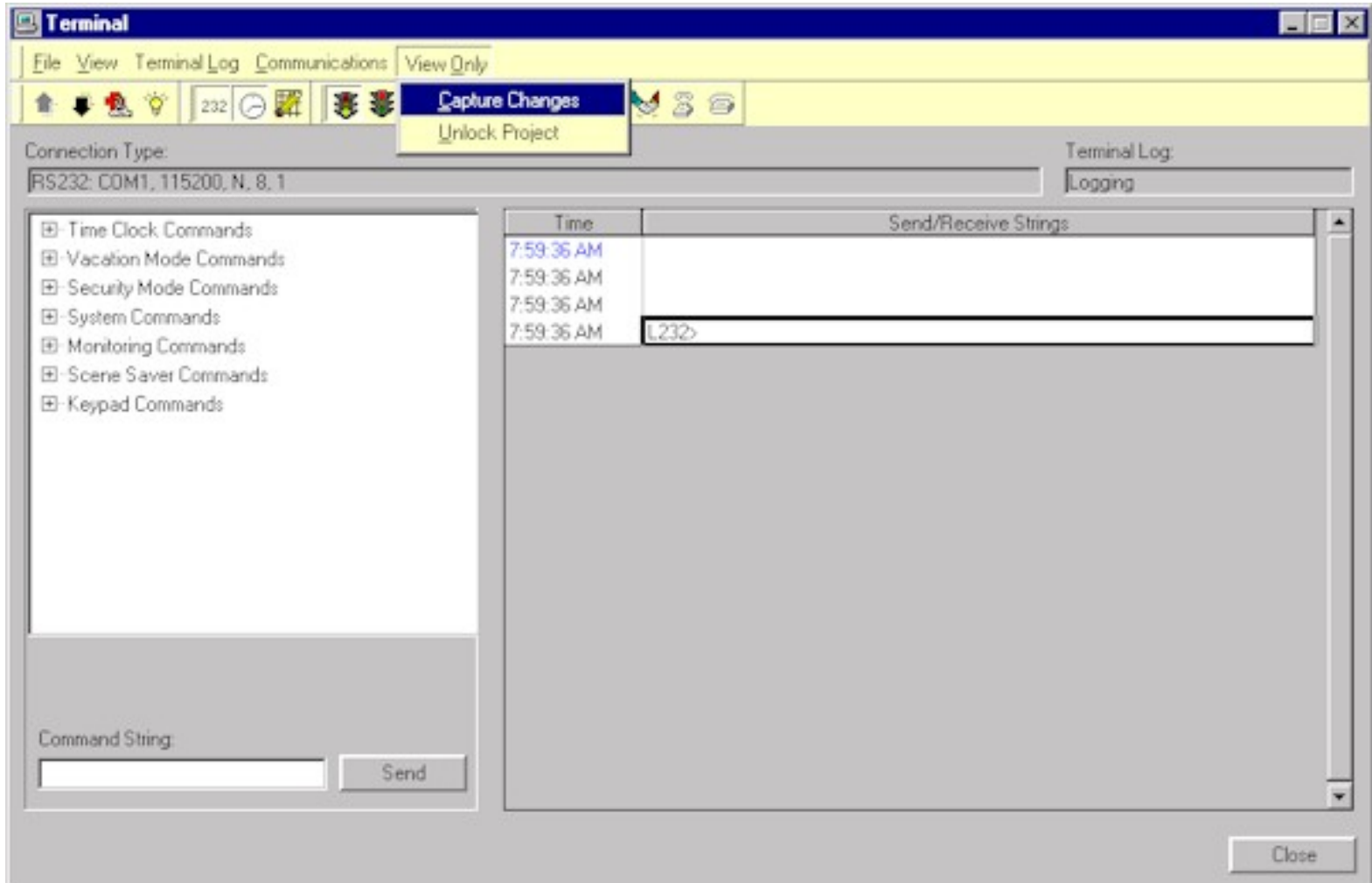
Capture Changes – This option will only work when connected to the HWI processor. It compares the database that is on the computer to the one inside the processor. If changes have been made to scenes via Scene Saver the user will be prompted and have the ability to capture those changes and save them into the HWI software.

Unlock Project – This option will enable the user to unlock the database on the

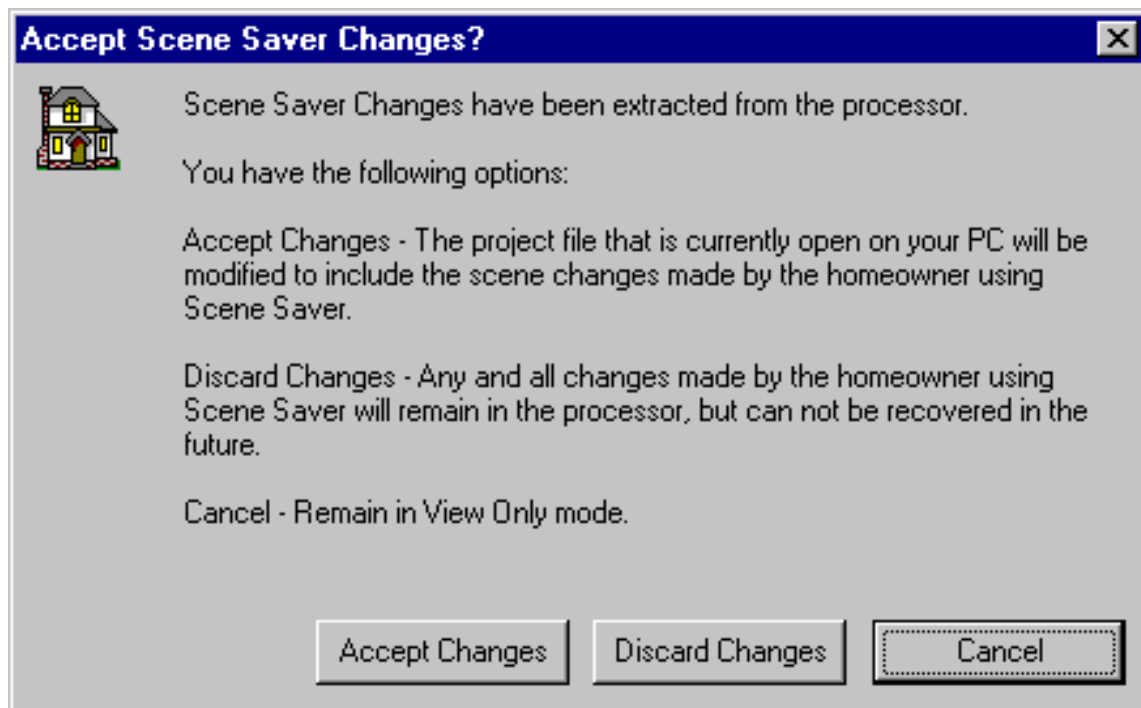
PC and make changes to the project file. ***This will also overwrite ANY and ALL changes made to the system using Scene Saver the next time an upload is performed.***

Cancel – This option cancels the request to open the file.

As indicated in the message, if unsure what to do, open the project in **View Only** mode. From the Terminal Screen, it is possible to Unlock a database or Capture Changes from a read-only database.



When the Capture Changes option is selected, the software queries the processor to determine whether changes have been made. If changes have been detected, the following message is displayed:



If **Accept Changes** is selected, the current project will be updated with the light levels that have been stored in the processor via Scene Saver.

If **Discard Changes** is selected, the current project is unlocked and changes can be made to the database. Any changes that may have been made via Scene Saver will be deleted upon the next upload.

Cancel will disregard the request to download changes and will put the file into view only mode.

Available RS-232 Commands

- [Commands available in Normal Operating Mode](#) (L232>)
- [Commands available in Boot Mode](#) (>)

HomeWorks Interactive Boot RS-232 Command Set

Technical Specs

Command Format

Time Format

Date Format

Boot RS232 Commands

- [Disable all other ports](#)
- [Enable all ports](#)
- [Clean Processor's Databases](#)
- [Login Processor](#)
- [Switch system to OS](#)
- [Check if processor present](#)
- [Display processor's address](#)
- [Display processor's serial number](#)
- [Display processor's status information](#)
- [Set system date](#)
- [Display system date](#)
- [Set system time](#)
- [Display system time](#)
- [Set RS232 port baud rate](#)
- [Set baud rate for specific RS232 port](#)

Revision History

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Time Formatting

- Time formats are used for setting the internal processor clock
- When setting the system time, **24 hour format** must be used
-

HH:MM:SS

HH = Hours

MM = Minutes

SS = Seconds

- Examples

4:23 AM = 04:23:00

3:15 PM = 15:15:00

Date Formatting

- Dates are used when setting the internal processor calendar.
- The month and day must have 2 digits, and the year must have 4 digits.
- American date formatting is used.
- HomeWorks Interactive is year 2000 compliant.
- The following format must be used for entering the date:

MM / DD / YYYY

MM = Month

DD = Day of month

YYYY = Year

- Example

July 12, 2000 = 07/12/2000

ONEPORT

Disable all other RS232 Ports

Syntax

ONEPORT

Processor Responds

>

Description

Disables all RS232 ports on the processor, except the one that receives the ONEPORT command. Disabled RS232 ports will not accept commands or transmit results.

Example

Disable all other RS232 ports

> ONEPORT

See Also

[ALLPORTS - Enable all RS232 Ports](#)

ALLPORTS

Enable all RS232 Ports

Syntax

ALLPORTS

Processor Responds

>

Description

Enables all RS232 ports on this processor. All RS232 ports on this processor will now process commands and respond with results.

Example

Enable all RS232 ports on this processor

> ALLPORTS

See Also

[ONEPORT - Disable all other RS232 Ports](#)

CLEANMEM

Deletes all of a processor's programming

Syntax

CLEANMEM, <processor address>

Processor responds with the following

Memory Cleaned

Description

Deletes all programming data from the processor's memory.

Warning

This erases all programming information. You will not be able to extract the database after this command is used.

Example

Clean the databases of the processor you are connected to.

```
> CLEANMEM  
Memory Cleaned
```

Example

Clean databases of processor 2.

```
> CLEANMEM, 2  
Memory Cleaned
```

LOGIN

Login to all of a processor's ports

Syntax

LOGIN, <processor address>

Processor responds with the following

Logging in processor <processor address>

OR

Already logged in processor <processor address>

Description

This will login all RS232 ports for the processor specified. If none are specified, then it will login only to the processor you are connected to. Logging in to a processor in the Boot will result in the processor being logged in when it switches to the OS.

Example

Login to the processor that you are connected to. (Processor is currently logged out)

```
> LOGIN
```

```
Logging in processor 01
```

Example

Login processor 2. (Processor is currently logged in)

```
> LOGIN, 2
```

```
Already logged in processor 02
```

OSSTART

Switches all processors to the OS mode

Syntax

OSSTART

Processor responds with the following (assuming connected to processor 1, processors 2 & 3 in the system, error messages are shown)

Processor: 02
Switching to OS

Processor: 03
Not valid OS present. Remaining in boot.

Processor: 04
Processor: 05
Processor: 06
Processor: 07
Processor: 08
Processor: 09
Processor: 10
Processor: 11
Processor: 12
Processor: 13
Processor: 14
Processor: 15
Processor: 16
Processor: 01
OS will start when S1-1 is flipped down

Description

Switches all processors to the OS Mode. If an OS is not present (as with processor 3 above) or the dip switch 1-1 is up (as with processor 1 above) then a processor will not switch to the OS.

Example

Switch all processors to OS Mode.

> OSSTART

Processor: 02
Switching to OS

Processor: 03
Switching to OS

Processor: 04
Processor: 05
Processor: 06
Processor: 07
Processor: 08
Processor: 09
Processor: 10
Processor: 11
Processor: 12
Processor: 13
Processor: 14
Processor: 15
Processor: 16
Processor: 01
Switching to OS

PING

Check if a processor is present

Syntax

PING, <processor address>

Processor responds with the following

Processor <processor> OK

Description

Checks a remote processor to see if it is present and communicating properly

Example

Check if processor 2 is present.

```
> PING, 2  
Processor 02 OK
```

See Also

[PROCADDR](#) - Displays the processor address

[SERIAL](#) - Displays the processor's serial number

[STATUS](#) - Displays the processor's status information

PROCADDR

Display a processor's address

Syntax

PROCADDR

Processor responds with the following

Processor Address : <processor address>

Description

Displays the address of the processor you are connected to

Example

Display the address of the processor you are connected to

```
> PROCADDR
```

```
Processor Address : 01
```

See Also

[PING](#) - Check if processor is present

[SERIAL](#) - Displays the processor's serial number

[STATUS](#) - Displays the processor's status information

SERIAL

Display the processor's serial number

Syntax

SERIAL, <processor address>

Processor responds with the following

Serial on processor <processor>: <Serial Number>

Description

Each processor has a unique serial number. This command displays the serial number for a specific processor.

Example

Display the serial number of the processor you are connected to.

```
> SERIAL
```

```
Serial on processor 01: 1903834216,0000000174
```

Example

Display the serial number of processor 2.

```
> SERIAL, 2
```

```
Serial on processor 02: 1907896936,0000000195
```

See Also

[PING](#) - Check if processor is present

[PROCADDR](#) - Displays the processor address

[STATUS](#) - Displays the processor's status information

STATUS

Display the status of a processor

Syntax

STATUS, <processor address>

Processor responds with the following

Processor address : <processor address>
Build Date <date(yymmdd).time(hhmm)> of the boot build date

The time is set to: <current time>
The date is set to: <current date>
Boot flash : <PGM GOOD> or <ERASED>
Boot rev : <boot revision>
Boot upload date : <date(mmddyy)> the Boot was uploaded
OS flash : <PGM GOOD> or <ERASED>
OS rev : <OS revision>
OS upload date : <date(mmddyy)> the OS was uploaded
User baud rate : <Link 3 baud rate>, <Link 7 baud rate>
Processor is <LOGGED IN> or <LOGGED OUT>

A power cycle will start : <OS> or <BOOT>
The boot mode was : <forced via switch S1-1> or <started via command>

Description

Displays the status information for a processor. The description of each status is shown above.

Example

Display the status information for the processor you are connected to.

> STATUS

Processor address : 01
Build Date 000403.0947

The time is set to: 11:04:40
The date is set to: 04/10/00
Boot flash : PGM GOOD
Boot rev : 20

Boot upload date : 040500
OS flash : PGM GOOD
OS rev : 40
OS upload date : 040300
User baud rate : 115K, 115K
Processor is LOGGED OUT

A power cycle will start : the OS
The boot mode was : forced via switch S1-1

Example

Display the status information for processor 2.

> STATUS, 2

Processor address : 02
Build Date 000403.0947

The time is set to: 11:04:40
The date is set to: 04/10/00
Boot flash : PGM GOOD
Boot rev : 20
Boot upload date : 040500
OS flash : PGM GOOD
OS rev : 40
OS upload date : 040300
User baud rate : 115K, 115K
Processor is LOGGED OUT

A power cycle will start : the OS
The boot mode was : forced via switch S1-1

See Also

[PING](#) - Check if processor is present

[PROCADDR](#) - Displays the processor address

[SERIAL](#) - Displays the processor's serial number

SD

Set Date

Syntax

SD, <date>

Processor Responds (Assuming connection to processor 1, processor 2 & 3 in system)

Processor: 02

The date on processor 02 is <date>

Processor: 03

The date on processor 03 is <date>

Processor: 04

Processor: 05

Processor: 06

Processor: 07

Processor: 08

Processor: 09

Processor: 10

Processor: 11

Processor: 12

Processor: 13

Processor: 14

Processor: 15

Processor: 16

Processor: 01

The date on processor 01 is <date>

Parameter	Description	Format
date	current date	MM/DD/YYYY see date formatting description

Description

Sets the system date. This will update the date on all processors in the system.

Example

Set the date to March 10, 2000

L232> SD, 03/10/2000

Processor: 02

The date on processor 02 is 03/10/00

Processor: 03

The date on processor 03 is 03/10/00

Processor: 04

Processor: 05

Processor: 06

Processor: 07

Processor: 08

Processor: 09

Processor: 10

Processor: 11

Processor: 12

Processor: 13

Processor: 14

Processor: 15

Processor: 16

Processor: 01

The date on processor 01 is 03/10/00

See Also

[RSD - Request system date](#)

[ST - Set system time](#)

[RST - Request system time](#)

RSD

Request system date

Syntax

RSD

Processor Responds

The date on processor <processor address> is <date>

Description

Queries the current system date

Example

Request the system date

```
L232> RSD
```

```
The date on processor 01 is 04/10/00
```

See Also

[SD - Set system date](#)

[ST - Set system time](#)

[RST - Request system time](#)

ST

Set time

Syntax

ST, <time>

Processor Responds (Assuming connection to processor 1, processor 2 & 3 in system)

Processor: 02

The time on processor 02 is <time>

Processor: 03

The time on processor 03 is <time>

Processor: 04

Processor: 05

Processor: 06

Processor: 07

Processor: 08

Processor: 09

Processor: 10

Processor: 11

Processor: 12

Processor: 13

Processor: 14

Processor: 15

Processor: 16

Processor: 01

The time on processor 01 is <time>

Parameter	Description	Format
time	current time of day in 24 hour format	HH:MM:SS in 24 Hour format see time address formatting description the seconds must be specified

Description

Sets the system time. This will update the time on all processors in the system.

Example

Set the time to 08:04 PM

L232> ST, 20:04:00

Processor: 02

The time on processor 02 is 20:04:00

Processor: 03

The time on processor 03 is 20:04:00

Processor: 04

Processor: 05

Processor: 06

Processor: 07

Processor: 08

Processor: 09

Processor: 10

Processor: 11

Processor: 12

Processor: 13

Processor: 14

Processor: 15

Processor: 16

Processor: 01

The time on processor 01 is 20:04:00

See Also

[RST - Request system time](#)

[SD - Set system date](#)

[RSD - Request system date](#)

RST

Request the system time

Syntax

RST

Processor Responds

The time on processor <processor address> is <time>

Description

Queries the current time for the processor you are connected to

Example

Request the processor's time

```
L232> RST
```

```
The time on processor 01 is 14:04:46
```

See Also

[ST - Set system time](#)

[SD - Set system date](#)

[RSD - Request system date](#)

SETBAUD

Set the RS-232 port baud rate

Syntax

SETBAUD, <baud rate>

Processor Responds with one of the following

For the new baud rate to take effect, you must cycle the processor power. The port settings will be set to 8 data bits, No parity, 1 stop bit.

Parameter	Description	Format
baud rate	new RS-232 port baud rate	you must select one of the following baud rates 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200

Description

Sets the baud rate for the RS232 port that receives the command. When dip switch #1 on S2 is in the up position, the processor RS232 ports baud rate is fixed at 9600 baud. When dip switch #1 on S2 is in the down position, the processor RS232 port baud rate will be set to the user setting determined by the SETBAUD command. When the SETBAUD or SETBAUD2 commands are issued, the processor power must be cycled for the change to take effect. This will allow laptops that have problems communicating at 115200 baud to use an intermediate baud rate that is faster than 9600 baud in order to minimize download times. Also, with dip switch #1 on S2 set to the up position, the processor can be set to a known baud rate (9600 baud), ensuring reliable communications. This adjustable baud rate also provides greater flexibility when connecting to external A/V equipment.

Example

Set the RS-232 port baud rate to 57600 bps

```
L232> SETBAUD, 57600
```

For the new baud rate to take effect, you must cycle the processor power.

The port settings will be set to 8 data bits, No parity, 1 stop bit.

See Also

[SETBAUD2](#) - Set baud rate for a specific RS232 port
[STATUS](#) - Displays the processor's status information

SETBAUD2

Set the RS-232 port baud rate

Syntax

SETBAUD2, <baud rate>, <Processor>, <Link Number>

Processor Responds

For the new baud rate to take effect, you must cycle the processor power.

The port settings will be set to 8 data bits, No parity, 1 stop bit.

Parameter	Description	Format
baud rate	new RS-232 port baud rate	you must select one of the following baud rates 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
processor	processor number	1-16
link	link number	3 or 7

Description

When dip switch #1 on S2 is in the up position, the processor RS232 ports baud rate is fixed at 9600 baud. When dip switch #1 on S2 is in the down position, the processor RS232 ports baud rate will be set to the user setting determined by the SETBAUD or SETBAUD2 commands. When the SETBAUD command is issued, the processor power must be cycled for the change to take effect. This will allow laptops that have problems communicating at 115200 baud to use an intermediate baud rate that is faster than 9600 baud in order to minimize download times. Also, with dip switch #1 on S2 set to the up position, the processor can be set to a known baud rate (9600 baud), ensuring reliable communications. This adjustable baud rate also provides greater flexibility when connecting to external A/V equipment.

Example

Set Processor 3 Link 3 baud rate to 57600

```
L232> SETBAUD2, 57600, 3, 3
```

For the new baud rate to take effect, you must cycle the processor power.

The port settings will be set to 8 data bits, No parity, 1 stop bit.

See Also

[SETBAUD](#) - Set baud rate for RS232 port connected to.

[STATUS](#) - Displays the processor's status information.

L232 Help Revision History

v1 04/14/00 Boot Rev 19

- Initial Revision

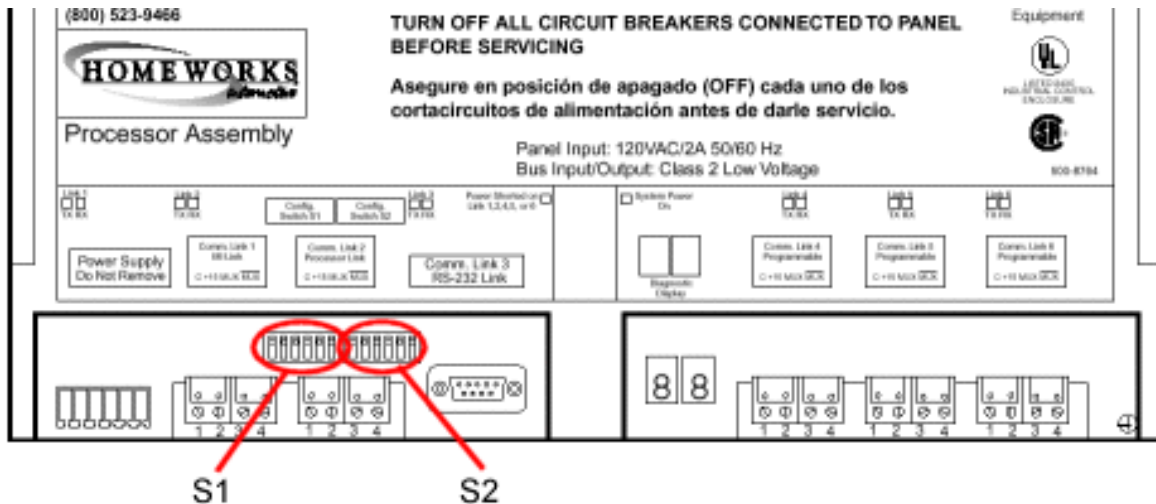
6.0 HARDWARE

6.1 Hardware Addressing

6.1 Hardware Addressing

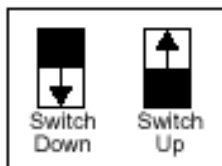
To address RF devices and H48 Maestro-style dimmers and switches, navigate to either the  [Address Assignment](#) screen or the  [Terminal](#) screen and click the  button in the toolbar to start the [Serial Number Addressing](#) tool.

Processor DIP Switch Settings



Addressing: S1-3 through S1-6

Address #	Switch Setting	Address #	Switch Setting
1		9	
2		10	
3		11	
4		12	
5		13	
6		14	
7		15	
8		16	



Operation Mode: S1-1



Down

Normal Mode



Up

OS Upload Mode
(Boot Mode)

Diagnostic Hold: S1-2

S1-2 is used to determine the length of time the LED display on the processor will show the address of a control station that has sent a button press. This feature can be used when trying to diagnose problems alone. In the up position, the processor will also save its event log to file when power is cycled.



Down

Diagnostic Hold
(display address) for
30 seconds



Up

Diagnostic Hold for
5 minutes

Force Baud Rate: S2-1

S2-1 is used to determine the baud rate for both of the RS-232 ports (Links 3 & 7) on the processor.



Down

User defined baud
rate



Up

Force 9600 baud

Battery Setting: S2-6

S2-6 is used to connect the battery to the processor. When the battery is connected, loss of power to the processor will not cause a loss of data.



Down

Battery connected



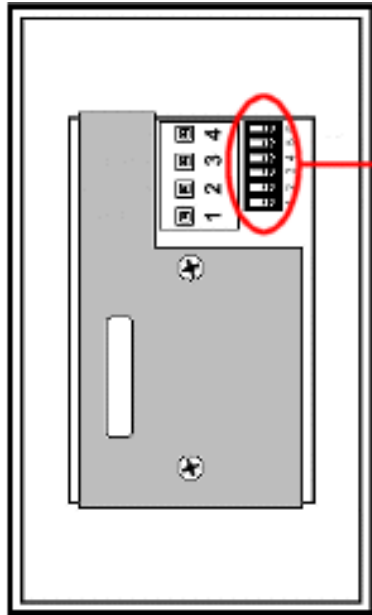
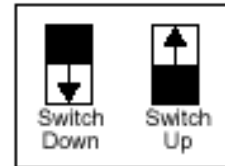
Up

Battery disconnected



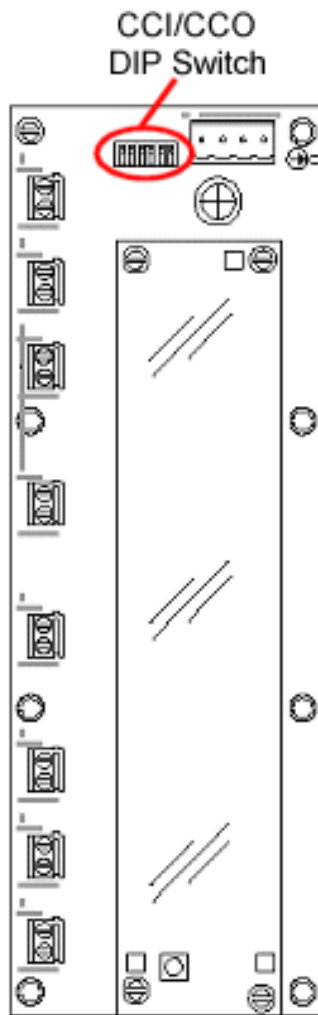
S2-6 must **ALWAYS** be in the down position. If the processor "forgets" its programming whenever power is turned off, S2-6 is in the wrong position.

Keypad DIP Switch Settings

Keypad
DIP Switch

Address #	Switch Setting	Address #	Switch Setting	Address #	Switch Setting	Address #	Switch Setting
1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24		32	

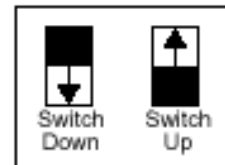
CCI/CCO DIP Switch Settings

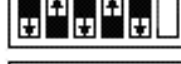
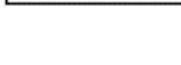
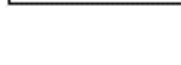
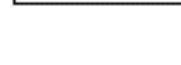
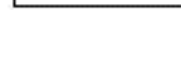


CCO Only

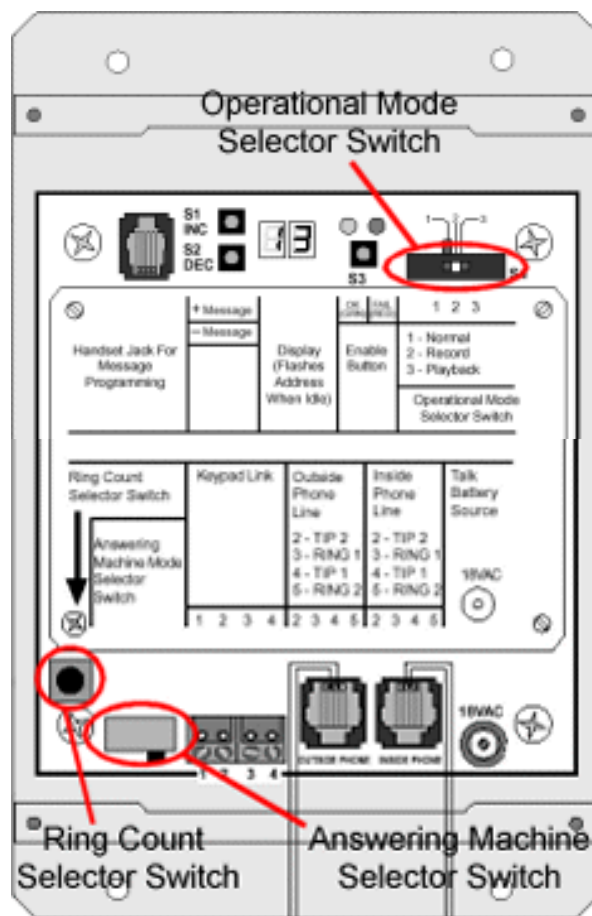
 Normal Mode

 Test Mode



Address #	Switch Setting	Address #	Switch Setting	Address #	Switch Setting	Address #	Switch Setting
1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24		32	

TEL9 Switch Settings



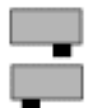
Operational Mode Selector Switch

1. Normal
2. Record
3. Playback

Ring Count Selector Switch

Defines the number (0-9) of rings before the TEL9 answers.

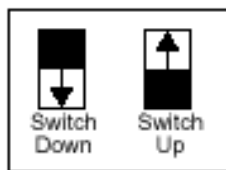
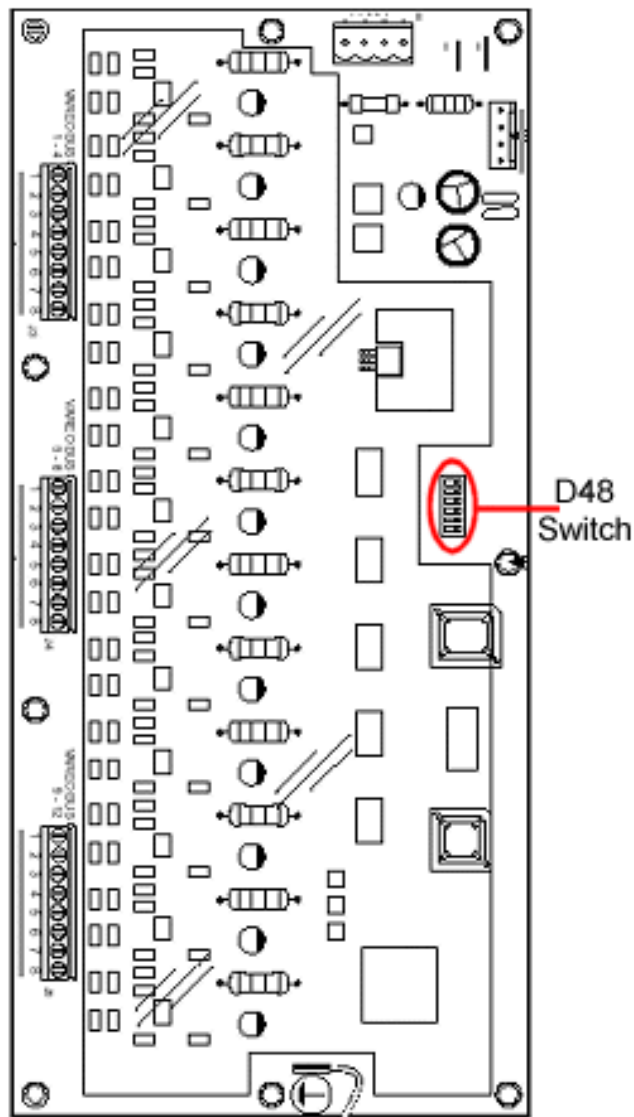
Answering Machine Selector Switch



No Answering Machine Mode

Answering Machine Mode

D48 DIP Switch Settings



Address #
1



Address #
2



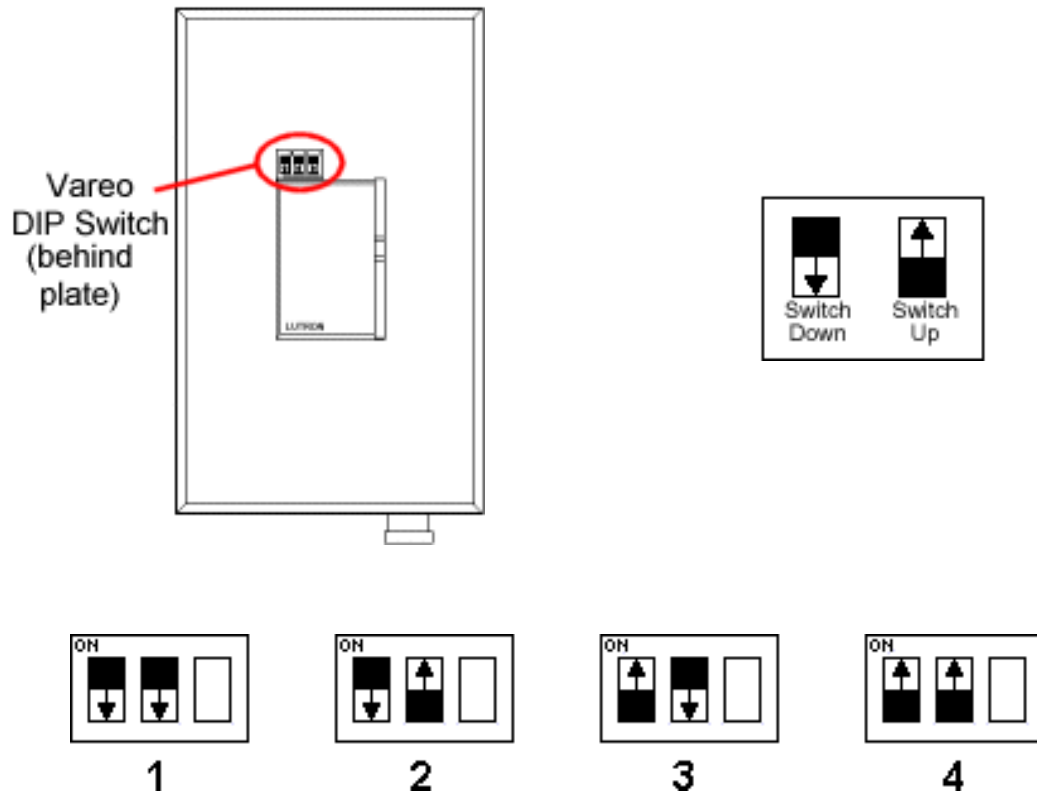
Address #
3



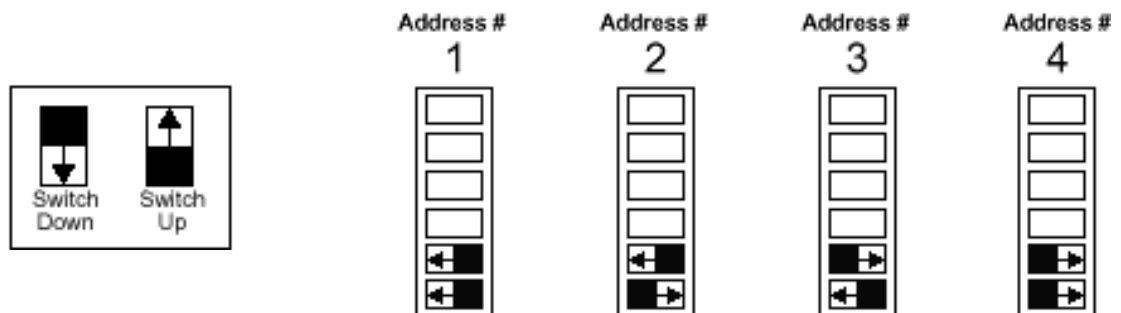
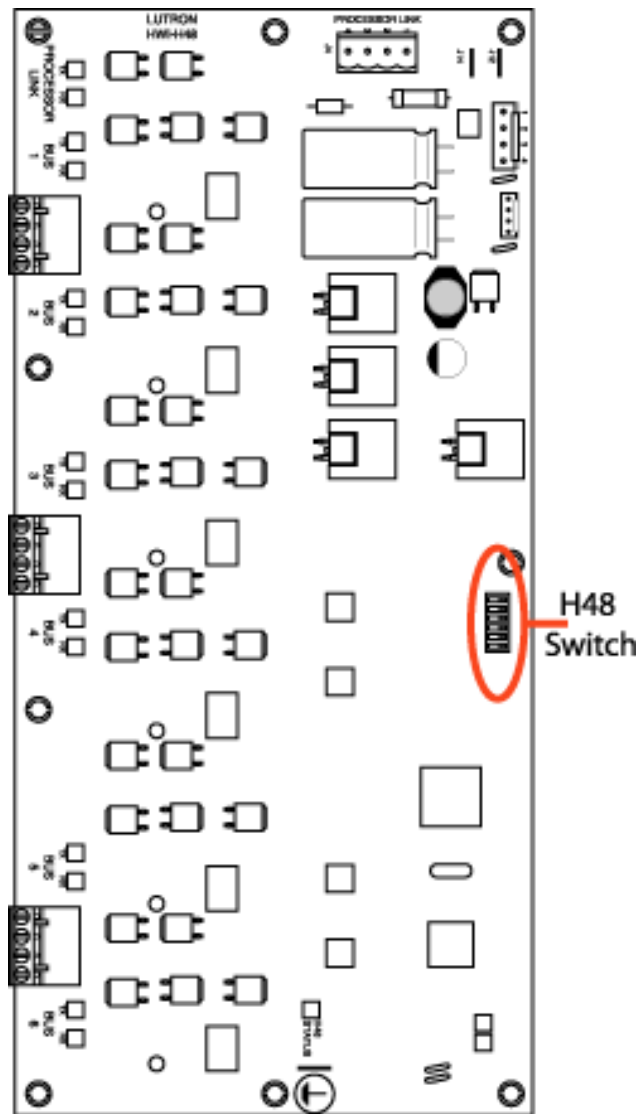
Address #
4



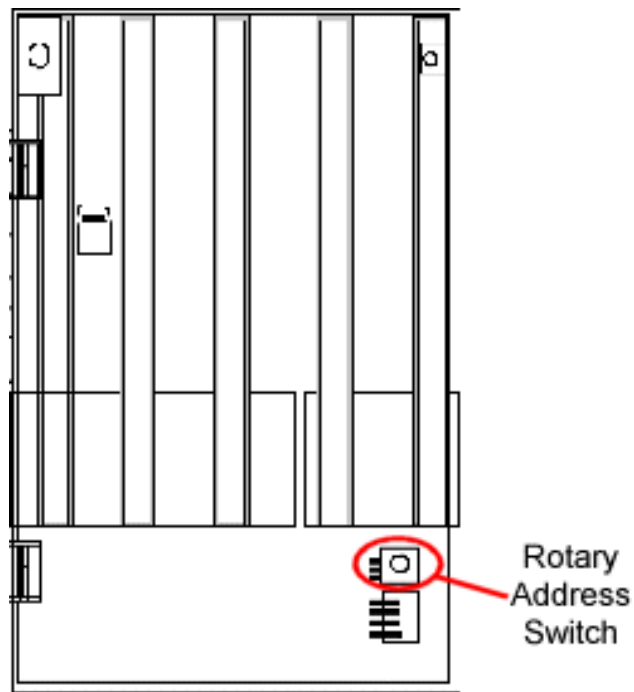
D48 Vario DIP Switch Settings



H48 DIP Switch Settings



RPM Rotary Address Switch



Addressing

The table below shows the rotary address switch position for the following modules.

- HW-RPM-4U
- HW-RPM-4S
- HW-RPM-4R
- HW-RPM-4E
- HW-RPM-4FSQ

Position	Proper Module Output/Purpose
0	Internal relay ON, no output to load
1-8	Address for normal operation
9,A	Not used
B	Output 1 ON to FULL / Use for temporary lighting and/or wire testing.
C	Output 2 ON to FULL / Use for temporary lighting and/or wire testing.
D	Output 3 ON to FULL / Use for temporary lighting and/or wire testing.

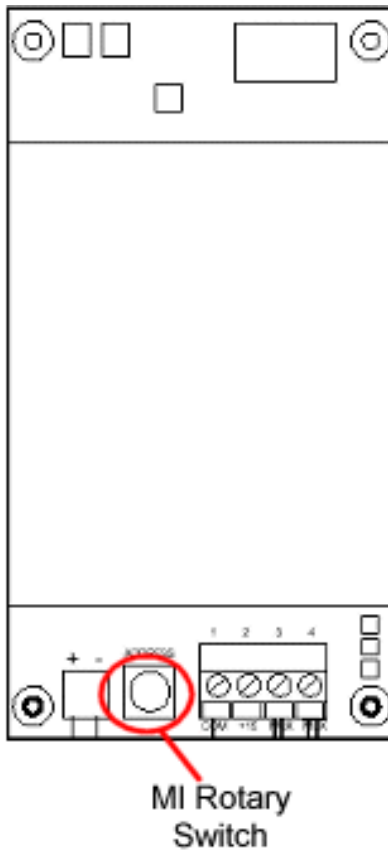
E	Output 4 ON to FULL / Use for temporary lighting and/or wire testing.
F	All outputs ON to FULL / Use for temporary lighting and/or wire testing.

The table below shows the rotary address switch position for the following modules.

• HW-RPM-4M

Position	Proper Module Output/Purpose
0	All Relays OFF
1-8	Address for normal operation
9-D	Not used
E	All Raise Relays ON
F	All Lower Relays ON

MI Rotary Address Switch



Position	Position Purpose
0-F	Address for normal operation

7.0 TROUBLESHOOTING

7.1 Processor Troubleshooting

7.2 Router Troubleshooting

7.2.1 D48 Board Troubleshooting

7.2.2 H48 Board Troubleshooting

7.2.3 MI Troubleshooting

7.2.4 RPM Troubleshooting

7.3 Wired Device Troubleshooting

7.3.1 Vareo Troubleshooting

7.3.2 H48 Dimmer Troubleshooting

7.3.3 Wired Keypad Troubleshooting

7.3.4 Closure Board (CCI/CCO) Troubleshooting

7.3.5 GRAFIK Eye Troubleshooting

7.4 RF Device Troubleshooting

7.4.1 RF Dimmer Troubleshooting

7.4.2 RF Keypad Troubleshooting

7.4.3 RF Repeater Troubleshooting

7.5 Solving Upload Problems

7.2 Router Troubleshooting

[7.2.1 D48 Board Troubleshooting](#)

[7.2.2 H48 Board Troubleshooting](#)

[7.2.3 MI Troubleshooting](#)

[7.2.4 RPM Troubleshooting](#)

7.2.1 D48 Board Troubleshooting

Problem	Cause	Remedy
Heartbeat LED is off (should be flashing slowly).	D48 is not powered.	Check the power connections.
Processor communication LED is off (should be on or blinking).	D48 is not communicating.	Check the connections at the D48 link terminal block on the HWI-D48 and on the processor. Check if the processor is powered. Verify that the connection on the processor is on the correct link. Verify that the correct database has been uploaded.
HomeWorks Vareo units function intermittently.	Wiring error.	Check the D48 wiring. Check the terminator connection (if D48s are more than 50 feet away from the processor).

See also:

[Dimmer Level Monitoring](#)
[Processor Troubleshooting](#)

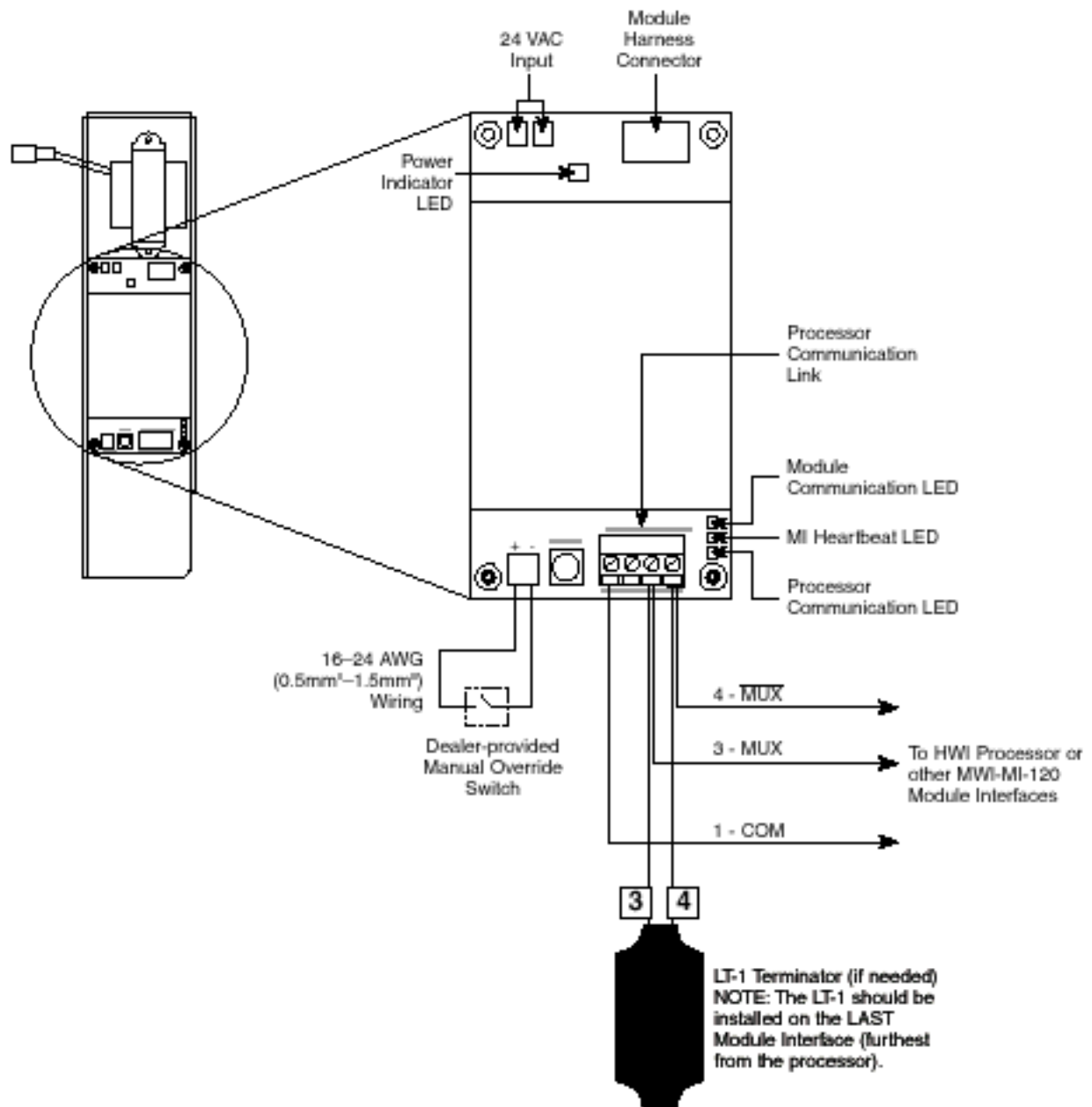
7.2.2 H48 Board Troubleshooting

Problem	Possible Cause	Remedy
H48 Heartbeat LED is off (should be flashing once per second slowly).	H48 is not powered.	Check the power connections.
H48 Heartbeat flashing rapidly (5 times per second).	H48 requires an OS.	Load H48 OS through HWI GUI.
	H48 Boot DIP switch activated.	Return Boot DIP switch to the off position.
Processor TX LED is not flashing.	Database not loaded.	Load database with H48 link.
Processor RX LED is not flashing.	H48 is not powered.	Check the power connections.
	Wiring error.	Check the communication wiring. Check the terminator connection.
H48 Link TX LED is not flashing.	Wiring error.	Check the communication wiring. Check the terminator connection.
H48 Link RX LED is not flashing.	Processor database not loaded.	Load processor database.
	Wiring error.	Check the communication wiring.
Bus TX LEDs not flashing.	Processor communications.	Check connection to processor.
Bus RX LEDs not flashing.	Dimmers not connected.	Check bus connections.
	Dimmers not powered.	Check dimmer power.
	Wiring error.	Check bus wiring.
Bus RX LED on solid and bright.	Shorted bus.	Check bus wiring.

7.2.3 MI Troubleshooting

Problem	Cause	Remedy
Heartbeat LED is off (should be flashing slowly)	MI is not powered.	Check the power connections.
Processor communication LED is off (should be on or blinking).	MI is not communicating.	Check the connections at the MI link terminal block on the HWI-MI and on the processor. Check if the processor is powered.
Connected modules function intermittently.	Miswire	Check the modules wiring. Check the terminator connection (if MIs are more than 50 feet away from the processor).

Terminate the processor communication link on the last Module Interface. If any of the module interfaces are located more than 50 feet (15.25m) from the processor, the last module interface on the chain must utilize a terminator across terminals 3 and 4. (See wiring diagram below.) LT-1 terminators that are included with the processor may be used for this application. If LT-1s are unavailable, a 1/4 Watt resistor between 100 and 150 ohms may be placed from terminal 3 to terminal 4 to provide termination. The processor has a termination resistor built into Link 1 so an LT-1 is not required at the processor.



7.2.4 RPM Troubleshooting

Address switch position for the HW-RPM-4U, HW-RPM-4S, HW-RPM-4R

Position	Proper Module Output/Purpose
0	Internal relay ON, no output to load
1-8	Address for normal operation
9,A	Not used
B	Output 1 ON / Use for temporary lighting and/or wire testing.
C	Output 2 ON / Use for temporary lighting and/or wire testing.
D	Output 3 ON / Use for temporary lighting and/or wire testing.
E	Output 4 ON / Use for temporary lighting and/or wire testing.
F	All outputs ON / Use for temporary lighting and/or wire testing.

Address switch position for the HW-RPM-4M

Position	Proper Module Output/Purpose
0	All Relays OFF

1-8	Address for normal operation
9-D	Not used
E	All Raise Relays ON
F	All Lower Relays ON

RPM LED's diagnostic

LED Status	Possible Cause
Off	No power or defective module
Blinks 1 / sec.	Normal operation "Heartbeat"
Blinks 1 / 7 seconds "Lighthouse"	Not communicating with MI: • control harness not plugged in (or open) • invalid RPM address • MI not communicating to processor (MI wired on wrong link or processor not powered).

7.3 Wired Device Troubleshooting

[7.3.1 Vario Troubleshooting](#)

[7.3.2 H48 Dimmer Troubleshooting](#)

[7.3.3 Wired Keypad Troubleshooting](#)

[7.3.4 Closure Board \(CCI/CCO\) Troubleshooting](#)

[7.3.5 GRAFIK Eye Troubleshooting](#)

7.3.1 Vareo Troubleshooting

Problem	Possible Cause	Test and Repair Procedure
No lights at all.	Circuit breaker tripped.	Turn breaker on. If trips again, check for circuit for shorts.
	FASS slider(s) in the off position.	Make sure all FASS sliders are in the on position. Push Tapswitch. Lights should turn on.
	Wires shorted.	Be sure blue leads are not shorted to any other wires.
	Wiring error.	Check wiring to be sure it agrees with Installation Instructions and wiring diagrams.
	Dioded Lamps.	If dioded lamps are being used, replace with non-dioded lamps.
Lamps turn on when Tapswitch is pressed, then turn off.	Wiring error.	Check wiring to be sure it agrees with Installation Instructions and wiring diagrams. In particular, check that red and black wires are not swapped.
	Tapswitch stuck at another location.	Check to see that Tapswitches are not sticking for all auxiliary switching locations for the circuit.
Lights don't switch when Tapswitch is pressed.	Faceplate not properly attached to control.	Check alignment of faceplate to make sure button is activating the control
	Wires shorted.	Be sure blue leads are not shorted to any other wires.
	Wiring error.	Check wiring to be sure it agrees with Installation Instructions and wiring diagrams.
Lights don't switch On/Off when VETS-R Tapswitch is pressed.	Wires shorted.	Be sure blue leads are not shorted to any other wires.
	Wiring error.	Check wiring to be sure it agrees with Installation Instructions and wiring diagrams.

Lights don't switch On/Off from Master Keypad.	Improper programming.	Check system programming.
	Wires shorted.	Be sure blue leads are not shorted to any other wires.
	Wiring error.	Check wiring to be sure it agrees with Installation Instructions and wiring diagrams.
Faceplate is warm.	Solid-state control dissipation.	It is normal for a solid-state controls to dissipate about 2% of the total connected load. Faceplates will feel warm. Temperatures of the faceplates may go up to 40° C (104° F) under normal operation.

See also:

[Dimmer Level Monitoring](#)
[Processor Troubleshooting](#)

7.3.2 H48 Dimmer Troubleshooting

Problem	Possible Cause	Test and Repair Procedure
Load does not light when device locally activated.	Circuit breaker tripped.	Reset breaker, check for shorts.
	FASS slider in the off position.	Put FASS in the on position.
	Wiring error.	Check wiring.
Load does not come on when remote device is activated.	Wiring error.	Check wiring according to the installation instructions.
Load turns on briefly when device is activated, then turns off.	Communication wiring error.	Verify communication wiring.
Load does not respond to Master Keypad button presses.	Improper programming.	Check system programming.
	Keypad wiring error.	Verify keypad wiring and operation.
	Dimmer communication wiring error.	Verify dimmer wiring.
	Dimmer not addressed.	Verify dimmer has an address.
Activating dimmer does not activate other loads.	Improper programming.	Verify the system programming.
	Dimmer communication wiring error.	Verify dimmer wiring.
	Dimmer not addressed.	Verify dimmer has an address.

Load flashes twice when device activated (i.e. triple-tapped).	System in address mode.	Remove the system from address mode.

See also:

[Dimmer Level Monitoring](#)
[Processor Troubleshooting](#)

7.3.3 Wired Keypad Troubleshooting

Problem	Cause	Remedy
LEDs don't light up when buttons are pushed.	Power is not present at keypad.	Make sure HomeWorks processor is powered up. Check for 15VDC between pins 1 & 2 on the keypad connector. Remove connector from back of keypad and from the panel, check connections and replace.
LEDs cycle from top to bottom sequentially.	Keypad is working properly but is not communicating with the panel.	Verify that the processor is running. Check that keypad wires 3 & 4 are properly connected. Check that keypad link is plugged into correct connector at processor. Verify that link is configured for HomeWorks Interactive keypads.
LEDs light when pressed, but the system response isn't correct.	Incorrect keypad address.	Check keypad address , and make sure keypad is on correct link.
	Incorrect database programming.	Check system programming.

See also:

[Keypad Monitoring](#)
[Processor Troubleshooting](#)

7.3.4 Closure Board (CCI/CCO) Troubleshooting

Problem	Cause	Remedy
Link LED is off	the board is not powered.	Check the connection at the keypad link terminals 1 and 2. Check if the processor is powered.
Link LED is flashing	the board is not communicating.	Check the connection at the keypad link terminals 3 and 4.
IR TALKBACK LED do not flash.	The IR is not programmed properly.	The IR TALKBACK LED flashes when any IR signal is received.
IR VALID LED do not flash	The IR is not programmed properly.	The IR VALID LED flashes when a valid Lutron IR codes is received.

7.3.5 GRAFIK Eye Troubleshooting

Problem	Cause	Remedy
GRAFIK Eye Control Unit Does not turn lights on.	Breaker/MCB is off.	Switch breaker/MCB on.
	Long fade time	Set FADE time to a shorter value (e.g. 0 seconds).
	Low zone settings	Use zone up for each scene.
	Miswire	Connect hot/live and neutral wires to the GRAFIK Eye Control Unit (refer to wiring details). Connect GRAFIK Eye Control Unit's zone wires to loads.
	System short circuit	Find and correct shorts in fixtures and wallbox.
	System overload	Make sure lighting loads don't exceed GRAFIK Eye Control Unit's maximum rated load.
Unit does not control load	Miswire	Make sure load wires are connected to the GRAFIK Eye Control Unit (refer to wiring diagrams). Make sure hot/live wires are connected to HOT/LIVE terminals and neutral wires to NEUTRAL terminals (refer to wiring diagram).
ZONE control does not work.	Disconnected wires	Connect zone wires to loads (refer to wiring diagram).
	Burned-out lamps	Replace bad lamps.
1 or more zones are "full-on" when any scene is on and zone intensity is not adjustable (and zone is not a	Miswire	Make sure loads are connected to the right zones (refer to wiring diagrams).

non-dim).	Shorted triac	Replace GRAFIK Eye Control Unit.
A ZONE control affects more than one zone.	Miswire	Make sure only one zone is connected to each ZONE terminal on the GRAFIK Eye Control Unit.
Accessory Control does not function properly	Miswire or loose connection	Check and tighten loose connections at Class2/PELV terminals on GRAFIK Eye Control Unit and Accessory Controls.
	Accessory Control not programmed properly	Confirm programming
Faceplate is warm.	Normal	Solid-state controls dissipate about 2% of the connected load as heat.
GRAFIK Eye Control Unit does not allow scene changes or zone adjustments.	GRAFIK Eye Control Unit may be set up with an optional Save Option.	Refer to the installation sheets for Save Options.

See also:

[GRAFIK Eye Scene Monitoring Processor Troubleshooting](#)

7.4 RF Device Troubleshooting

[7.4.1 RF Dimmer Troubleshooting](#)

[7.4.2 RF Keypad Troubleshooting](#)

[7.4.3 RF Repeater Troubleshooting](#)

7.4.1 RF Dimmer Troubleshooting

Problem	Cause	Remedy
No lights at all.	Circuit breaker tripped.	Reset breaker, check for shorts.
	FASS slider in the off position.	Put FASS in the on position. Check both the dimmer and all remote dimmers.
	Wires shorted.	Make sure the blue wires are not grounded or shorted to any other wires.
	Wiring error.	Check wiring according to the installation instructions.
	Lamps burned out.	Replace lamps.
	Dioded lamps.	If dioded lamps are being used, replace with non-dioded lamps.
Lights turn ON when the tap switch is press, then turns OFF.	Wiring error.	Check wiring according to the installation instructions.
	Tap switch stuck at another location.	Check to see that tap switches are not sticking for all control locations in the circuit.
Light turns ON and OFF continuously.	Load is less than minimum load requirement.	Make sure the connection load meets the appropriate minimum load requirement for that control.
Lights don't switch when the tap switch is pressed.	Wires shorted.	Make sure the blue wires are not grounded or shorted to any other wires.
	Wiring error.	Check wiring according to the installation instructions.
Lights don't switch ON/OFF when remote dimmer tap switch is pressed.	Wires shorted.	Make sure the blue wires are not grounded or shorted to any other wires.
	Wiring error.	Check wiring according to the installation instructions.

Lights don't switch ON/OFF from Keypad.	Improper programming.	Check system programming.
	Out of RF range.	Reposition RF Signal Repeater or RF Processor to within 30 feet of control.
	Wires shorted.	Make sure the blue wires are not grounded or shorted to any other wires.
	Wiring error.	Check wiring according to the installation instructions.
Wall plate is warm.	Solid-state control dissipation.	Solid-state dimmers internally dissipate about 2% of the total connected load. It is normal for dimmers to feel warm to the touch during operation.

See also:

[Dimmer Level Monitoring](#)
[Processor Troubleshooting](#)

7.4.3 RF Repeater Troubleshooting

Problem	Possible Cause	Test and Repair Procedure
Auxiliary LED on RF Repeater does not light.	No power available to unit.	Faulty power supply. Replace power supply.
Button presses on RF Repeater cause the repeater to fast flash all its LEDs.	Repeater not addressed.	Use the Serial Number Addressing tool to address the repeater.

See also:

[Serial Number Addressing](#)

7.5 Solving Upload Problems

Symptoms of a failed upload:

1. While uploading the processor's databases, the system hangs without completing the upload. No messages are displayed and the Transmit/Receive LEDs on the RS232 port of the processor are not lit. The progress bars stop updating.
2. The HomeWorks utility displays a message box indicating that the upload was aborted. After clicking the **Ok** button, a bunch of C's may show up in the terminal window.

Listed below are some of the methods that can be used to solve communication problems.

NOTE: A 3-wire cable will **NOT** work with Interactive! A nine-pin cable with all pins straight through is the correct cable. Refer to [HWI cable](#) if you intend to make your own cable.

1. Make sure you are using Version 2.66c of the software or later. There are special accommodations for slow laptops in the latest releases.
2. Change the baud rate between the processor and the laptop to 9600 baud using the SETBAUD, 9600 command. This can also be done by setting the S2-1 dipswitch to the "up" position. Note that baud rate changes require the processor to be turned off and back on before the change occurs.
3. Make sure that the laptop is plugged in (not running off the battery). On some laptops, running off of AC automatically disables some of the "Energy Saving" features.
4. Close all other applications, including those found in the task tray (bottom right-hand side of the Windows desktop, where the clock is located).
5. Make sure that all "Energy Saving" settings on the laptop are disabled (located in the Control Panel). These features can cause the serial port response time to be slower than is acceptable.
6. An upload may fail if the Battery Meter is running in the task bar (regardless of whether running on Battery or on AC). Error typically displayed is 105 - File Transfer Failed. Close the battery monitor by right-clicking on it and selecting "close".
7. From the System icon in the Control Panel, go to the Device Manager tab. Click on the COM port you are using, and select Properties. Click the

Advanced button. Adjust the FIFO level for Receive to ensure that it is set to 16 (All the way to the right).

8. If 9600 baud does not work, try 19200. We have seen cases where 115200 baud does not work and 9600 baud does not work, but for some reason a speed somewhere in between works. See #2 above.
9. Disable hardware handshaking between the processor and the laptop using the SETHAND, NONE command. This should only be tried with the lower baud rates (9,600 and 19,200).