



# WinControl Software

Operate your Lighting  
Control System with  
One Complete Tool

WINCONTROL USER'S GUIDE

## New Features

- Advanced Analog Input Configuration
- Full Support for AS-100 Functions
- Multiple Occupancy Sensor Profiles
- Advanced Monitoring of Load State Priority Arrays
- Set-up BACnet Interface in Optional Weblink

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# **WinControl User's Guide**

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# Chapter 2. Introduction

WinControl is a software program from Watt Stopper used to document, program, and operation a lighting control system using Watt Stopper's *Lighting Integrator Complete Control* (LI-CC) relay based control panels.

WinControl software adds online monitor and control, program transfer features, trending and analysis, and diagnostics capabilities to our base WinControl Designer software.

WinControl is intended for use in operating lighting control systems based on the LI-CC family of relay based control panels.

Please visit our WinControl web page at <http://www.wattstopper.com/wincontrol> for the latest news and information and updates for WinControl.

## Watt Stopper/Legrand

The primary goal of Watt Stopper/Legrand is to create energy savings through the use of controls. This enables the user to save money on operating costs while positively impacting the environment. We focus on educating the marketplace on what lighting and energy controls can do and what types are available. By demonstrating how waste occurs and how to combat it, we help our customers make the best choices for controls that will work best for them for years.

## Contact Us

Visit us at our web site at <http://www.wattstopper.com>

Our design and tech support center is available at 800-879-8585, and 800-852-2778.

More information on **WinControl Designer** is available at our

*WinControl Designer Home Page* [<http://www.wattstopper.com/designer>]

More information on **WinControl** is available at our

*WinControl Home Page* [<http://www.wattstopper.com/wincontrol>]

# Key features in WinControl

- Question and Answer sequence to help select appropriate system options and default panel options for a new job.
- Job contact information allows tracking of contact information from design to installation.
- New panel wizard to walk through creation of relay panels and selection of option cards.
- Automatic "save" feature.
- Relay schedules are editable in easy to use grid format.
- Simple Channel and Dataline Switch setup emulates the Smart Wiring features of the hardware.
- Reporting capabilities allow creation of hard copy of panel and switch schedules for non-Complete Control field applications (when full WinControl is not used as the front end).
- CAD format (DXF) output of various data that can be loaded into AutoCAD, including the following options:
  - Project Specifications
  - Riser Diagram (including front end, panels and network switches)
  - Typical Wiring Diagrams
  - Relay Panel Schedules
  - Group Switch (Channel) Schedules
  - Dataline Switch Schedules
- Send File to Watt Stopper feature to easily send file for factory review
- Ability to program off line and then transfer programs to system
- Trending features including log reports and runtime charting
- Monitor and control feature

# Requirements for WinControl

Before you begin installing WinControl make sure your computer meets the minimum recommended requirements:

- Microsoft Windows 7 Professional/Ultimate - 32 and 64 bit OR

Microsoft Windows Vista Business - 32 and 64 bit OR

Microsoft Windows XP Professional - 32 bit only

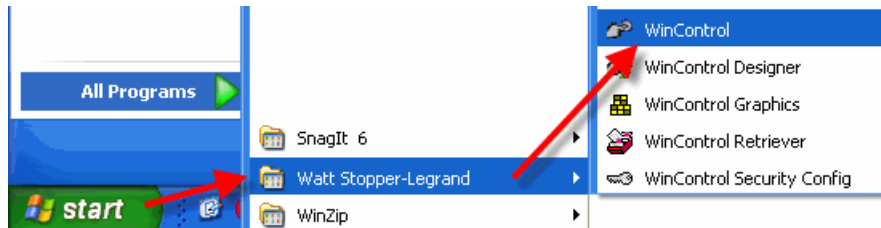
- WinControl requires no memory (RAM) or storage (hard disk) above what is required for your selected operating system; however, a minimum of one gigabyte of RAM is suggested.
- RS-232, 9 pin serial port (use with HLINK) OR  
Ethernet network connection (use with WebLink)
- Software installation requires a CD ROM / DVD drive, a USB jump drive or a connection to the internet.

## Licensing

WinControl is to be licensed after installation on your PC by calling Watt Stopper at 800-852-2778. You will need to have your order information from your purchase of a WinControl license to receive a license code. You will also need administrator access to your PC. WinControl will run for a 30 days without a license. Once the 30 day grace period has expired, WinControl will only run as Designer. WinControl Designer does not include communications capabilities.

# Starting WinControl

**Figure 2.1. Start WinControl**

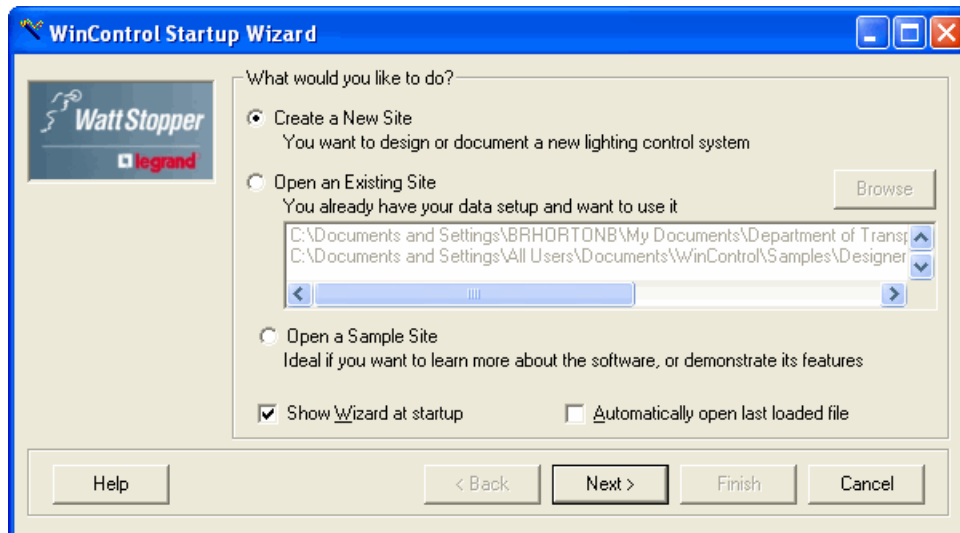


When you launch WinControl, you are presented with the "WinControl Startup Wizard", which provides you with the most common options for startup.

If this is the first time you have used WinControl, you will either Create a New Site, or perhaps Open the Demonstration Site. Later, if you are coming back to WinControl, the default will be to Open an Existing Site, which defaults to the last site you were working with. To start working on a new site simply select Create a New Site and then click "Next".

To make WinControl default to open a certain site, see the section called "Menus" later in this document.

**Figure 2.2. WinControl Startup Wizard**



# Questions and Answers

To design a system with WinControl Designer, you should have documentation available as to the loads that you would like to control, including such information as your breaker schedules and reflected ceiling plans. You will be asked questions such as the following:

- **Approximately how many control panels you expect to use?**

Often, one control panel is used per lighting breaker panel, our largest control panels contain 48 relays. Depending on the number of panels you enter, the appropriate automation and networking card that is best suited to the system size will be selected.

- **Do you want to network your panels together?**

Networking panels together allows loads to be activated via time of day schedule, photocell, and switches that may exist or be connected to a different control panel. If panels are not networked together, each panel and its control points operated completely independently. When networking panels together, a dataline wire (typically 4 conductor) must be installed that connects the panels.

Networking panels together requires a network capable automation card be installed in the panels, and will be automatically included if you check the "Network panels together" box.

- **Do you want to use network (dataline) switches?**

Network switches are wall switches that are wired on a simple 4-wire network, with only one "home run" required back to the lighting control panel. These devices can be programmed to control single or multiple relays, and can be configured to control relay loads in different panels. If you would like to use these switches, an automation card is required in the control panel, and will be included in panels added to the system if you check the box labeled "Include support in panels for dataline switches".

- **Approximately how many dataline switches per panel?**

If you checked the box for the previous question, an estimate of the number of switches helps us determine the appropriate networking card.

- **Do you want to use a PC to monitor, control, and program your system?**

In some applications it may be preferable to use a time clock, handheld programmer, or use only simple grouping features that are driven by a separate device such as a BAS system than to use a PC.

In systems with multiple panels networked together, it is often desirable to have the ability to use a PC to change programming information, monitor, and control the system. PC based communications requires an additional complete control card in the control panel, and will be included in panels added to the system if you check the "Support for optional PC front end" box.

After answering each question, click the Next button.



**Figure 2.3. New System Wizard**

The image shows a Windows-style dialog box titled "New System Wizard" with a blue header bar. Below the title bar, the text "WinControl Designer" and "New System Wizard - Step 1 of 7" is displayed. The main area of the dialog has a light beige background and contains the following text: "Approximately how many Lighting Control panels do you expect to have in your system? (you can change this later!)". Below this text is a label "Number of panels:" followed by a text input field containing the number "5". A "Tip" section follows, stating: "Tip: We offer panels in configurations of 8, 24, and 48 relays. Our 48 relay panel can also be configured with 6 four pole contactors, and the 24 relay panel can be configured with 12 four pole contactors)". At the bottom of the dialog, there is a footer area with the text "Watt Stopper/Legrand" on the left. To the right of the footer are five buttons: "Help", "Cancel", "< Back", "Next >" (which is highlighted with a dashed border), and "Finish".

**New System Wizard**

**WinControl Designer**  
New System Wizard - Step 1 of 7

Approximately how many Lighting Control panels do you expect to have in your system? (you can change this later!)

Number of panels:

Tip: We offer panels in configurations of 8, 24, and 48 relays. Our 48 relay panel can also be configured with 6 four pole contactors, and the 24 relay panel can be configured with 12 four pole contactors)

Watt Stopper/Legrand

Help Cancel < Back **Next >** Finish

# Contact Information

WinControl Designer gives you a central location to record information about the various people involved on the project. The job name is required to be entered and is used as the default file name for the project. Other information such as job location, Electrical Engineer (specifier), Owner, Electrical Contractor, and manufacturer's representative can be entered.

**Figure 2.4. Job Contact Information**

**Job Info and Contacts**

**Job** | Designer / Specifier | Owner | Electrical Contractor | Mfg Rep

**Job Name\*** ABC Office Plaza - Building 100  
Job Name is a required field, and will be used as the default file name for this Site. In WinControl, Job Name is the same as Site Name.

Address 3070 Green Valley Road

City Birmingham State AL Zip 35243

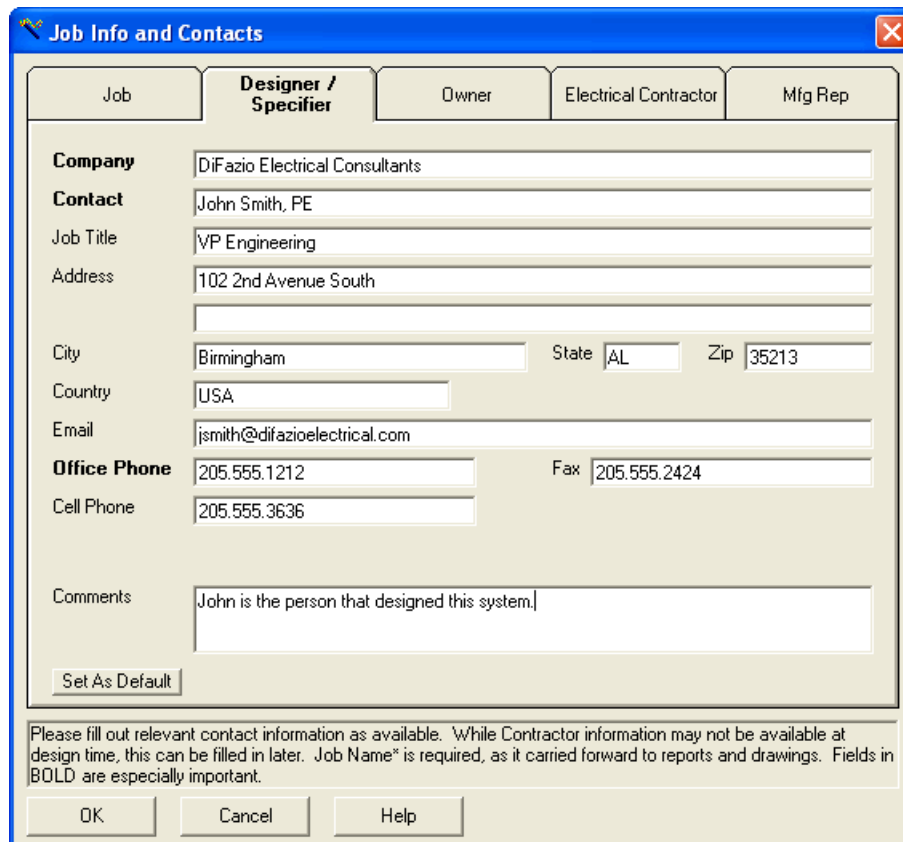
Country USA

Comments This Project is the first of multiple buildings

Please fill out relevant contact information as available. While Contractor information may not be available at design time, this can be filled in later. Job Name\* is required, as it carried forward to reports and drawings. Fields in BOLD are especially important.

OK Cancel Help

All data is saved in the site data file. After filling in any of these particular sets of data, you can choose to save that information for future projects you design using the "Set As Default" button.

**Figure 2.5. Engineering Contact Information**

The image shows a software dialog box titled "Job Info and Contacts". It has a blue title bar with a close button (X) in the top right corner. The dialog is divided into five tabs: "Job", "Designer / Specifier", "Owner", "Electrical Contractor", and "Mfg Rep". The "Designer / Specifier" tab is currently selected. Below the tabs, there are several input fields for contact information. The fields are organized as follows: "Company" (text field), "Contact" (text field), "Job Title" (text field), "Address" (text field), "City" (text field), "State" (dropdown menu), "Zip" (text field), "Country" (text field), "Email" (text field), "Office Phone" (text field), "Fax" (text field), "Cell Phone" (text field), and "Comments" (text area). Below the input fields, there is a "Set As Default" button. At the bottom of the dialog, there is a paragraph of instructional text and three buttons: "OK", "Cancel", and "Help".

Job	Designer / Specifier	Owner	Electrical Contractor	Mfg Rep
<b>Company</b> DiFazio Electrical Consultants				
<b>Contact</b> John Smith, PE				
Job Title VP Engineering				
Address 102 2nd Avenue South				
City Birmingham State AL Zip 35213				
Country USA				
Email jsmith@difazioelectrical.com				
<b>Office Phone</b> 205.555.1212 Fax 205.555.2424				
Cell Phone 205.555.3636				
Comments John is the person that designed this system.				
<input type="button" value="Set As Default"/>				

Please fill out relevant contact information as available. While Contractor information may not be available at design time, this can be filled in later. Job Name\* is required, as it carried forward to reports and drawings. Fields in BOLD are especially important.

# WinControl Helper

**Figure 2.6. WinControl Helper**



Once you have filled in the basic data to get started, you will see the "WinControl Helper" dialog. WinControl Helper is designed to provide a "jumping off" point to quickly access most of the features necessary to design a basic system. When you become more proficient in WinControl Designer, you may elect to close this helper. It can be reopened at any time from the **View** menu, **WinControl Helper** option, or by clicking the appropriate the toolbar icon.

The options on the *WinControl Helper* allow the user to:

- *Specify the Job Information and Contacts*- See the section called "Contact Information" for more information.
- *Create New Panels*- This option allows you to add panels to a new or existing system. Create New Panels allows you to fill in the panels id, name, location, capacity, the number of relays installed in the panel, and if it will support Dataline Switches.
- *Document Panel Schedules*- This option allows you to fill in the individual load descriptions and circuit assignments for the relays. You may also fill in the details for the Global Switch Inputs and optionally add and define Dataline switches to individual panels.
- *Specify System Options*- This option allows you to select special features related to the type of system you select. For Complete Control, you can select the options related to the software, network, and computer options that will be used. For Automation Card systems, you can identify the number of telephone override devices, the photocell controller, or the scheduling device that will be used.
- *View Reports*- This option will generate a hard copy of the panel documentation, panel schedules cards for placement inside panel cover, and other filled in forms, including Group Switch input documentation and assignments, and Dataline Switch documentation and assignments.
- *Generate DXF Diagram*- This option generates a DXF (AutoCAD compatible diagram). Sample diagrams shown on pages that follow do not reflect new hardware which will be shown, and do not detail switch assignments, which will be included for all network types.
- *Exit WinControl*- This option will exit the WinControl program. You will have an opportunity to save the file if it has not yet been saved.









The buttons displayed are organized in a sequence that you may follow to get your project fully defined. After entering your project information, the next step is to "Create New Panels". After clicking this option, proceed to the next step, **Creating Panels**.

# WinControl Toolbar

**Figure 2.7. WinControl Toolbar**



**Table 2.1. Toolbar Buttons**

<b>Toolbar Button</b>	<b>Icon</b>	<b>Function</b>
New		Open a new file.
Open		Open an existing file.
Save		Save the file currently open and all changes to it.
WinControl Helper		Launch the WinControl Helper menu.
Print		Display Report printing options menu.
Generate CAD Drawings		Displays the CAD Generate DXF options menu
Program Relay Panel		Displays Select LCP Relay Dialog so you can select a LCP, then displays Program LCP Relay Dialog
Program Time-of-Day Schedule		Displays Schedule Create/Edit Dialog.
Go Online / Go Offline		Toggles the online status for the current Active System.
Send New Data to Field Panels		Initiates transfer of data to field panels and displays the Monitor Agent.
Control Group of Relays via Switch Code		Displays Select Switch Code for Override Dialog for you to make selection, then displays panel to toggle On or Off.
Select Active System		Displays the select Active System menu (for sites with multiple systems)
System Properties		Displays the System Properties Dialog
Monitor Dataline		Displays the Monitor Dataline Dialog
Monitor Link Status		Displays the Monitor Link Status Dialog.
Test Field Panels		Displays Select LCP to Test Dialog then, after you make the selection, generates a Test LCP Report
Start WinControl Graphics		Starts WinControl Graphics (if installed).

# Troubleshooting

**1. Cannot start WinControl Software.**

When WinControl software is installed, it should appear on the "Start" menu. If not found, check the "Watt Stopper" folder on your start menu. If still not found, make sure you have run the setup (install) kit on the WinControl CD ROM.

Make sure you follow the setup instructions in the Getting Started chapter of this manual and that your computer meets the minimum system requirements (See the section called "Requirements for WinControl").

**2. Cannot Connect to LCP or LINK Device (Direct wire connection)**

Allow approximately 20 seconds for completion of connection.

Make the following checks:

- Check to insure the cable at the back of your PC is properly connected. Check to insure the 9-pin connector is seated firmly in the receptacle.
- Check the end of the cable at the LCP or LINK to insure it is properly seated. Make sure the modular connector is firmly held in the jack.
- The cable from the LCP or LINK to the PC is a special cable. You must use this cable. If your computer has a 25-pin connector, use a HCABLE-C with adapter. If your computer has a 9-pin connector, use the HCABLE-C.
- Are you using a compatible extension cable. You cannot use a standard telephone extension cord to extend the cable. The cable requires that all 6 wires be extended in order to function; standard telephone cables normally extend only 4 wires. Order the necessary length cable from Watt Stopper, or locate the PC closer to the LCP or LINK device.
- Is your LCP or LINK powered up – ON ?

Make sure the power indicator is "ON" on the appropriate device. You cannot "CONNECT" to a LCP or LINK if its power is "OFF".

Verify the COM PORT specified under (Initialize) Site Parameters is correct. The software defaults to COM 1 for direct connections. If you are using COM 2 you must change this setting. All Complete Control computers are setup with COM1 for direct connect, and COM 2 for a modem (if purchased).

**3. LCP does not respond to commands. Cannot send programs to LCP, or cannot turn relays ON or OFF from the computer or by using overrides**

Attempt to CONNECT from the Main Menu if you are not already connected. Was this operation successful?

NO – Go to the Troubleshooting section concerning Connect in this chapter of this manual.

YES. Continue with next step.

Attempt to CONNECT from the Main Menu if you are not already connected. Was this operation successful?



NO. Go to the CONNECT discussion in this manual.

Enter the MONITOR LCP mode for the MONITOR/CONTROL menu. Are you able to enter the MONITOR LCP mode?

NO. Go to the CONNECT discussion in this manual.

YES. Continue with next step.

Have you set the dial switches on the LCP to the appropriate number?

NO. Dial in the appropriate LCP number on the Controller card.

YES. Continue with next step.

Check panel status:

NO CLOCK: Use the INITIALIZE option from the main menu to set the LCP clock. If you have a system with a LINK, the LINK should keep all clocks set and synchronized.

NO PROGRAM: Use the TRANSFER PROGRAMS option from the main menu to load the programs for this LCP into the panel. Until this is done, the relays will not respond to any programmable functions.

RELAY FAILURE: The panel has recorded a failure of a relay to change to an ON or OFF state as directed by the Controller card. This problem will not clear until the failed relay(s) are successfully turned OFF and ON.

If the panel status is GOOD, confirm that the Relay Drivers are in place. The system will confirm that the relay driver cards are properly installed in the relay driver slots. If the system reports a DRIVER FAIL, then confirm that the driver card is properly seated. Replace the appropriate relay driver card if necessary.

Select a relay to test. Turn the relay OFF and wait for it to change state on screen. Next turn the relay ON and then OFF again: Does the relay turn ON and OFF?

NO

Proceed to the next section, TROUBLESHOOTING - RELAYS. If you have already followed that section, have the system serviced.

4. Cannot control relays in a Lighting Control Panel (LCP). No relays in LCP respond to computer overrides.

Attempt to control the relays manually at the LCP panel. Touch a jumper wire from the WHITE to the RED terminals for the problem relay. This should turn the relay ON. Touch the jumper from the WHITE to BLACK terminals. This should turn the relay OFF.

Does the relay turn OFF and ON?

NO. Confirm that power to the LCP is present. When the LCP is properly powered up, the two power indicators (red LEDs) will be illuminated (see figure below). These are located on the circuit board below the termination point for relay 12.

If either of the power LEDs is not illuminated, confirm that proper line voltage is available at the primary of the power supply in the left side of the LCP cabinet. The power supply must have the

line voltage as specified on the power supply. If line voltage is correct and the LEDs are not illuminated, replace the power supply.

If the power LEDs are illuminated, but the relay still does not function, replace the relay. All relays in the Complete Control cabinets are RR9P latching relays.

YES. Your basic low voltage controls are functioning properly. If you have a direct override switch connected to the input for this relay which is not functioning, recheck the wiring.

If the relay can not be controlled from the computer, then continue with the section labeled TROUBLESHOOTING LCP. (If you have already followed that section, then have the system serviced. Call Watt Stopper Field Tech Service at (800) 852-2778

## 5. Fiber Optic Hop Delays.

The WinControl CC dataline is sometimes connected to fiber optic cable (for long runs, or when traveling between buildings). Although fiber cable is very fast, the device that translates the fiber signal to and from the CC dataline signal often is not. In order to compensate for these fiber hop delays, sometimes it is necessary to increase the time that WinControl waits for a response from a relay or panel.

### **Note**

These are advanced settings to edit WinControl's wait for response time. They should only be changed as directed by WattStopper technicians.

1. Open the registry editor "regedit" on the WinControl PC.
2. Using the device tree in the left panel, open the key HKEY\_LOCAL\_MACHINE/SOFTWARE/The Watt Stopper/RLink. (There will probably be a subkey called Ports under RLink, but stop at the RLink key.)
3. Create a new DWORD Value called ResponseWaitTime for this RLink key. If this DWORD already exists, you can edit its value by double-clicking on it in the right panel.
4. Enter a decimal value greater than 800. The number entered is the number of milliseconds WinControl will wait for a response from a panel or relay. Enter 1000 for one second, 5000 for 5 seconds.
5. Close the registry editor.

# WinControl Change History

Version 4.06 – 10 June 2010

1. New: Added "Fiber Optic Hop Delays" to the trouble shooting section of the documentation.
2. Updated: DL card nomenclature has been updated in the code and documentation.
3. Fixed: Device tree icons are now displayed properly on high resolution monitors.
4. Fixed: ARP log entries are now displayed properly in the reports.

Version 4.05 – 16 February 2010

1. Updated: Documentation for commissioning dataline devices has been updated.
2. New: Pressing [F1] during the commissioning process now displays the commissioning help.

Version 4.04 – 15 January 2010

1. Fixed: When commissioning switches, all auto-discovered devices are now display in the list.
2. Fixed: When commissioning switches, the user can now start in "Manual" mode and switch to "Discover" without encountering errors.

Version 4.03 – 18 December 2009

1. New: Transfer cache for LI and DL card programming messages has been added.
2. Updated: The transfer of new programming is now much faster.
3. Updated: Unlicensed WinControl gives a 30 day grace period instead of a nag screen.
4. Updated: Added DST or STD text to LAP Date/Time response.
5. Fixed: Astro calculations during daylight saving time are now working.
6. Fixed: General purpose groups no longer allow duplicate data, and are less prone to cause access violations.

Version 4.00 – 15 September 2009

• **New:**

1. Added native support for LI panel activity logs.
2. Custom queries can now be run on the activity log.
3. Activity log and runtime reports now also output XML data files for importing into other programs such as Microsoft Excel.
4. Activity log data can now be archived and restored for faster report queries.
5. Analog input (photocell) logging can now be turned on and off with a user defined interval.
6. Analog input reports are now available.
7. BACnet configuration now supports a UDP port option.

8. Added support for the DL card to panel document page, reports, drawings, device tree and transfers.

With a DL card the device tree will be able to show the composite state of group codes.

### **Note**

The DL card has not yet been released.

- **Updated:**

1. Added new message details to the monitor dataline page.
2. Added Neuron Id to dataline switch report.
3. Added occupancy sensor behavior to ARP and relay cross reference reports.
4. Converted legacy runtime and activity log databases. New databases are faster and support more features.
5. Now storing previous activity log and runtime report parameters including selected panels/relays.
6. Activity log and runtime reports are now output in HTML.
7. Improved speed of relay status property pages. WinControl no longer *stops responding* while trying to update the status.
8. Can now run a panel status report directly from the panel documentation page.

- **Fixed:**

1. Corrected the maximum number of dataline switches. All 32 switches can now be documented and programmed.
2. Improved auto-discovery of Dataline Switches. Invalid IDs are also now ignored.
3. Program transfer has been updated to prevent a crash that could occur if the link stopped communicating or if the analog input tables were very long.

#### Version 3.16 – 25 July 2008

1. New: Added support for WinControl to communicate with the CCBASE.
2. Fixed: Corrected minor issue authenticating with CCBASE and WebLink.

#### Version 3.12 – 30 January 2008

1. Updated: Support for a second GS card in 48 sized tubs for Automation (LW) only panels.
2. Fixed: Program transfers were unable to perform an optimized transfer following a program transfer to a specific panel.
3. Fixed: LI panel programming issue with an ID equal to 999. This issue affected both GS Input as well as Dataline Switch programming.
4. Fixed: Using the Learn feature in WinControl Graphics often caused crashes in WinControl while GroupDevice updates were taking place.

5. Fixed: Relay behavior settings were not displayed correctly for legacy (CC) panels. This affected both the relay grid and the relay properties page.
6. Fixed: Dataline power supplies were automatically selected for non-Complete Control systems. Now only Complete Control systems with more than one panel will have a dataline power supply automatically installed in the first available and supported panel.
7. Updated: Peanut (LP) panels now support up to 8 GS inputs. Formally, these panels were limited to 4 inputs.

#### Version 3.11 – 31 October 2007

1. Update: This version (or later) of WinControl MUST be used with LI-CC firmware version 19 or higher. This update may effect occupancy sensor and ARP behavior.
2. Fixed: New panels, by default, support Automatic Relay Packs (ARPs). Once the firmware version is discovered to be an older, unsupported version then the ARP checkbox is disabled. If ARP support was enabled prior to discovering an older firmware version then the ARP checkbox text becomes RED indicating an invalid setting. Clearing it will reset ARP relays to SPACE.
3. Fixed: Spurious error message when using Firefox to view reports. The error message has been removed. Firefox can take longer than expected to launch depending on plugins installed.
4. Fixed: The older wiring schedule card report for legacy panels was no longer working. This report has been fixed.

#### Version 3.10 – 21 September 2007

1. New: support for Automatic Relay Packs (ARPs) has been added to WinControl. Support includes control, status and documentation plus a new report. See the updated documentation for more information on ARP support, including programming restrictions.
2. New: relay panel documentation report for panel door sleeve. Best to print in landscape mode.
3. Improved: better support for multi-system site files. A default system is selected at startup but, when needed, a prompt is provided to select the current system.
4. Improved: Astro schedules are now disabled if location and time zone are not set.
5. New: panel and card ROM versions are now persisted and displayed on the panel documentation property page.
6. Updated: The device selection dialog box that normally comes up when running reports and other operations now automatically selects and performs the operation on the device if it is the only one device is in the list.
7. Fixed: Panel coping with Dataline switches did not correctly copy panel IDs if the parent panel matched the programmed panel ID for a button. For CC, the panel ID is always the parent ID and they are now always reset to the new panel ID.
8. Fixed: BACnet documentation support has been added for RTR32 type panels.
9. Updated: The system summary report has been updated to support more system wide information.
10. Updated: report engine code has been updated to be more reliable for HTML based reports.
11. Fixed: now correctly hiding analog input status while running in Designer.

#### Version 3.02 – 10 April 2007

1. Updated: Due to network security issues, temporary files are now saved in the site folder of the LI file.
2. Added: "System Options" to the "Initialize" menu
3. Added: WinControl file association is now automatically enabled during installation.
4. Updated Documentation:
  - BACnet - added documentation support for BACnet with WebLink
  - Security - new section on security in Windows
  - Glossary - list of common Watt Stopper/Legrand lighting control terms and meanings
5. Fixed: Variable Override Duration (VOD) programming bug corrected. Requires program transfer for VOD to be set correctly.
6. Updated: Panel copy now asks if Dataline Switch neuron IDs should also be copied (usually only needed when renumbering panels).
7. Fixed: The "Sync Clock" button was not correctly enabled when direct connected to a panel. This has been fixed.
8. Updated: Internal MSXML files are now using the latest DLLs from Microsoft. This was causing a Windows Update message after installing WinControl.
9. Updated: WinControl connection procedure now waits for CTS to go high before attempting to connect via serial port to panels or links.
10. Fixed: WinControl Graphics running under Windows Vista had a bug that caused the device ID to fail.

#### Version 3.01 – 2 March 2007

1. Updated: Documentation for both WinControl and Designer including more context sensitive help from some new property pages.
2. New: Set State option for System, Panel and Relay to control large groups of relays to a specified state.
3. New: Set Mode option for System, Panel and Relay to quickly set and clear various modes such as schedule occupancy and shed. Can also clear runtime data and activity logs.
4. Updated: Dataline Monitor now has some quick dataline request options at the bottom of the page. Choose the panel and request type and hit 'Request'. The data will be decoded in the dataline monitor list.
5. Fixed: Analog Input programming had some bugs with 'Advanced' and with using the correct default values.

#### Version 3.00 – 5 February 2007

1. Added: Support for Photocells and Analog Inputs for LI-CC panels including up to 32 setpoints per panel and several Photocell predefined
2. Added: Support for BACnet configuration for WebLink 2.0 including default BACnet IDs and MAC addresses for supported devices. To enable BACnet support for LI-CC, open the WinControl Helper

and select "Specify System Options". The BACnet page can be accessed by right clicking on the system device and selecting "BACnet".

3. Added: New support for Occupancy Sensor behavior for LI-CC relays. Options include Auto On/Off, On Only, Off Only and Disabled for both normal hours (scheduled) and after hours.
4. Fixed: Several bugs testing with Microsoft Windows Vista Business Edition have been fixed. Testing will continue with Vista Business and XP Professional SP2.
5. Fixed: Running as restricted user has been improved. Administrative account only required for installation and licensing.
6. Fixed: Daylight Saving Time wasn't showing the correct dates for 2007 on the System property page. It did use the correct dates when programming, however.
7. Updated: System summary report to include analog input documentation and programming
8. Updated: New Site Wizard hitting 'Finish' now takes user to last wizard page instead of immediately to the 'Job Info and Contacts' page.
9. Updated: Added new 'custom' reports to better support paging. To access these new reports, select 'Other' from the report menu and look for files with "Paged" in the name.
10. Updated: Advanced relay page for LI-CC relays now performs better and offers easier commands to control relays and set their mode
11. Updated: Dataline monitor now offers quick panel data requests
12. Updated: Panel test report shows more device information for failed relays and occupancy sensors detected sections
13. Updated: Graphics now correctly accepts the improved license system
14. Still some lingering issues with Windows Vista that are yet to be resolved

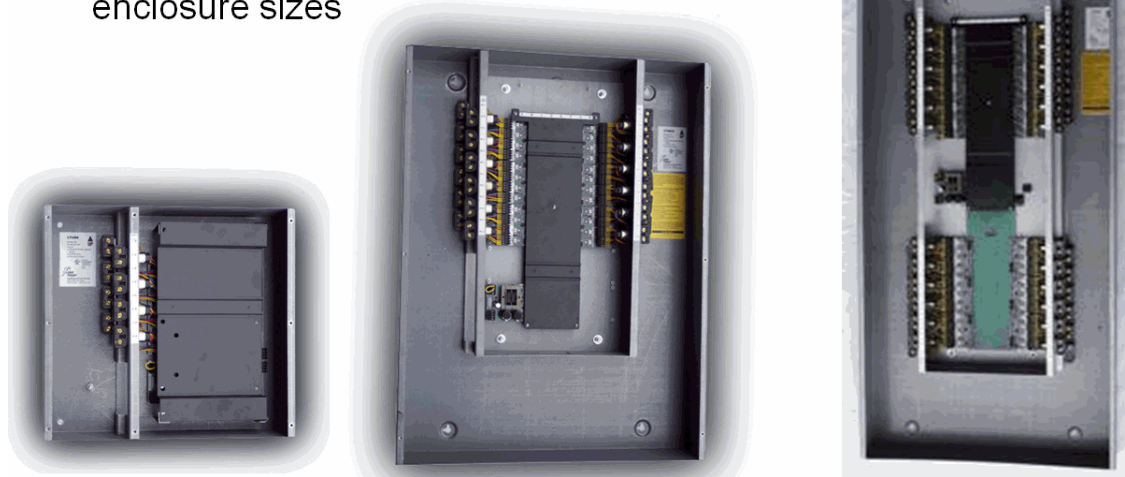
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# Chapter 3. Documenting Panels

This section describes the process of creating and documenting your lighting control panels.

**Figure 3.1. Panel Sizes**

- 3 interiors for 8, 24, or 48 relays, and 3 enclosure sizes



## Creating Panels

After clicking the "Create New Panels" option the New Panel Wizard appears for entering the specifics of the panel.

**Panel Id:** All panels need to be assigned an "id" number. The system automatically assigns the next highest number to the new panel, though you may select any unique id number within the specified range. For Complete Control systems the panels may be numbered from 1-999 and for Automation Card systems the panels may be numbered from 1-99. Some projects associate the id to a floor number, while others number panels by floor skipping ten at a time, for example 10, 20, 30.

**Panel Description:** You may give the panel any description you like. The description will appear on the system riser diagram and on the printed hard copy of any reports or panel schedules.

**Location:** This is typically the room name or number of the electrical room where the panel will be installed. This information will appear on the system riser diagram, and on the printed hard copy of any reports and panel schedules.

**Riser Location:** In this field you may enter a number that specifies the location on the riser diagram to place this panel. A 1 is used for first floor, 2 for second floor, etc. If you have multiple panels on a single floor, you may specify 1.1, 1.2 for instance to place them in a particular sequence. If you leave this field blank, the Panel Id will be used instead to specify a riser location.



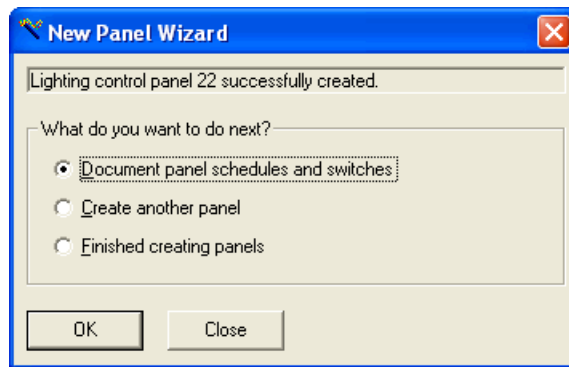
**Figure 3.2. New Panel Wizard**

**Panel Capacity:** You may choose the panel capacity based on the different panel sizes offered by Watt Stopper (see Figure 3.1, “Panel Sizes”). Panels do not have to be fully populated with relays, so you will want to pick the capacity that will provide room for the expansion that you require. You may specify a lower number of installed relays to reduce cost yet maintain flexibility. Panels may optionally have contactors installed to provide control of multi-phase loads, such as parking lot lighting (see Figure 3.4, “Contactors In Panels”).

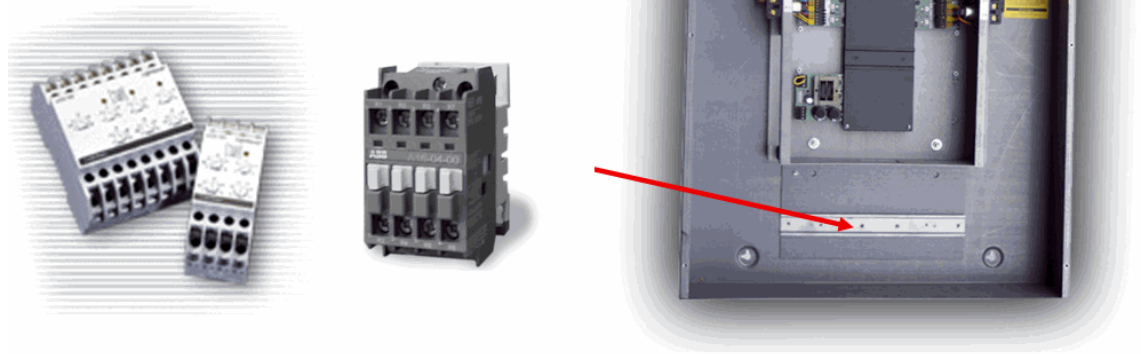
**Dataline Switch Support:** This option is automatically pre-selected for you based on earlier answers. When this option is selected, it automatically includes the necessary option card to support these switches. Dataline switch support is optional for Complete Control. You only need to include this option if this particular panel will need to be a termination point for dataline switches. For example, if you have a panel that is used to control lighting in a parking deck, and none of the dataline switches in the system will be connected to that panel, then the panel does not need the dataline switch support.

After you have filled in the necessary information, click "Create" and the panel will be created for you.

When the panel is created, you will then have the opportunity to document the loads (panel schedules and switches), create another panel, or end the create panel process. We recommend you **document your panel schedules** at this time, if you have the information available.

**Figure 3.3. Next Panel Wizard****Figure 3.4. Contactors In Panels**

The 24 and 48 size panels now have space provided for contactors or Lightsaver components



# Documenting Panels - Basics

Documentation and hardware support for Watt Stopper/Legrand lighting panels.

**Figure 3.5. Panel (LCP) Document**

The screenshot shows a software window titled "LCP: 1: LI Demo Panel". It features a tabbed interface with tabs for "Document", "Relays", "Schedules", "Special", "Load Chart", "Channels A-H", and "Channels I-P". The "Document" tab is selected, displaying the following fields and options:

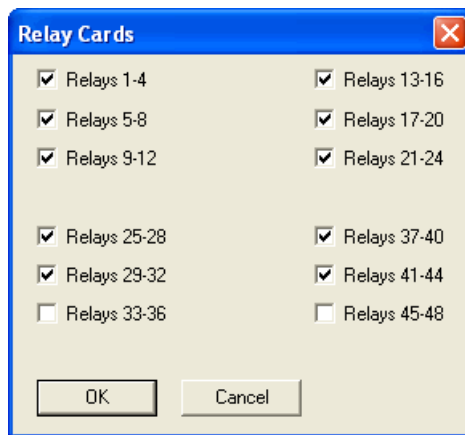
- Description:** LI Demo Panel
- Location:** Birmingham, AL
- Riser Location:**
  - X (Column): -30
  - Y (Level): 1
- Panel type:** LI Series (dropdown)
- Interior size:** 48 (dropdown)
- Enclosure type:** Surface (dropdown)
- Enclosure size:** 48 (dropdown)
- Panel Circuit:** (empty text field)
- Power supply:** 115/277 Volts (USA) (dropdown)
- Relay count:** 11
- Buttons:** Relay Cards, Status
- Version Summary:**
  - Panel: 4.00
  - Cards: CC:19, PS:21, LW:17
- Checkboxes:**
  - ☒ Dataline switch support
  - ☒ ARP support
  - ☒ Contactor support
- Smartwired Programming:**
  - ☐ Manually in panel
  - ☒ Remotely from WinControl
- Buttons:** DL Card, Help, OK, Cancel, Apply

On this screen, you may fill in or modify:

- Description... you may enter text by which you would like to use to refer to this panel.
- Location... text which describes the physical location of this panel, such as electrical room number.
- Riser location... a decimal number referring to the location of this panel on the riser diagram (used by DXF file). If more than one panel is on a certain level, specify sequence with a number after the decimal point, e.g. 1.1, 1.2, 1.3.
- Panel type... Select LI for Lighting Integrator series, Legacy for pre-LI panels (only LI series supports dataline switches).
- Interior size... capacity of the panel to hold relays, 8, 12, 24, 48 (12 is for Legacy only).
- Enclosure type... surface, flush, NEMA3, etc.
- Enclosure size... select enclosure size (smaller interiors can be installed in larger enclosures).
- Panel circuit... the circuit number that controls power to the panel.
- Power supply... power supply type installed in the panel.

- Relay Cards... click to select the relay driver cards installed in the panel.

**Figure 3.6. Relay Cards**



- Status... click to run a status report for the panel.
- Dataline switch support... check to support dataline switches in the panel via the Automation Card.
- ARP support... if the panel has Dataline Switch support then Automatic Relay Packs (ARPs) may be used with the panel if the CC firmware is version 18 or higher. If an ARP is defined before the panel firmware version is discovered and the discovered version is less than 18 then the checkbox will be red indicating an error. Uncheck the ARP option and hit OK to clear the error.
- Contactor support... document contactors for this panel. Contactors are supported for all but LP (Peanut) panels.
- Smartwired Programming... click "Manually in panel" if you would like to allow Smartwiring within the panel itself. The default, "Remotely from WinControl", allows button programming to be performed from WinControl. Local Smartwiring is ignored.
- DL Card... click to document the DL card (if any) installed in the panel (see the section called "Documenting Panels - DL Card"). DL cards can only be installed in LI panels with interior sizes greater than eight.

Each LCP is identified with an "address" between 1 and 999 (99 for Automation Card). This address is assigned when creating the LCP before you can make any entries for documentation of the LCP. The address is used to refer to the LCP whenever programming the relays, or performing any monitor or control functions for the relays in the LCP. The address is set on the intelligence card in the LCP. There are two or three red rotary switches on the card used to set the appropriate number. In a system using CC cards, the CC card determines the address with three rotary dials. With only an Automation Card (AC), the AC card has two rotary dials to determine the address.

The minimum amount of documentation required for a LCP is the address and total number of relays available in the panel.

After Documenting the basic info for the panel, you may document individual relays (see the section called "Documenting Panels - Relays").

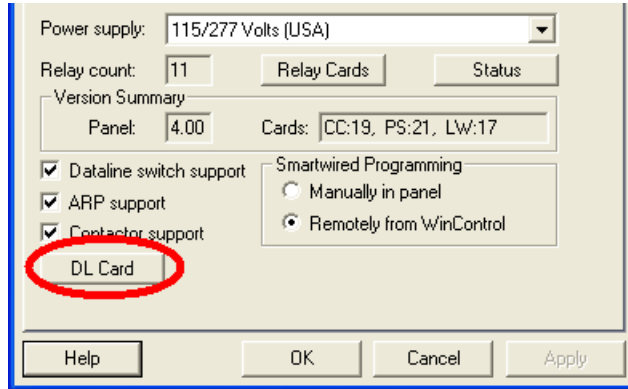
## Documenting Panels - DL Card

### Note

The DL card has not yet been released.

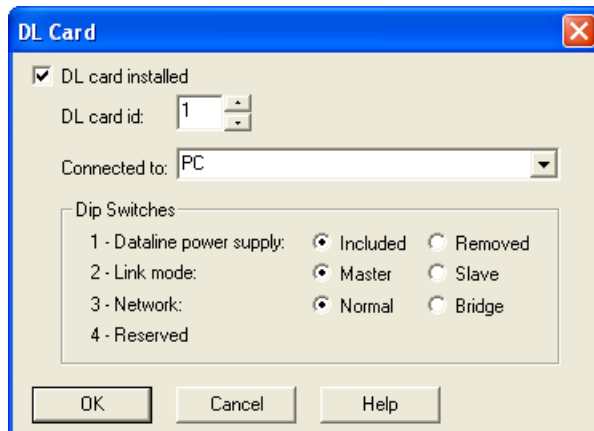
DL cards are documented by pressing the DL Card push button on the panel (LCP) document page (see the section called “Documenting Panels - Basics”).

**Figure 3.7. DL Card Push Button**



The DL card combines the function of the Dataline Power Supply and Link into a single card. In addition to the legacy RS232 interface, it supports a USB connection (only one port can be active at a time). It also provides a source of composite state information for the Dataline Switches or Group Switch Inputs that will resolve the true global state based on the switch/group programming contained in all panels and the state of all relays/ARPs in the network. Finally, the DL card provides a means for joining two separate global networks (each with their own DL card), into one larger network via a RS232 based tunnel that will support connection to standard RS232 to Fiber converters.

**Figure 3.8. DL Card**



On this screen, you may fill in or modify:

- DL card installed... check if a DL card is installed in this panel.

## **Note**

DL cards can only be installed in LI panels with interior sizes greater than eight.

- DL card Id... each DL card on the dataline requires a unique address between 0 and 9. In order for the composite switch state information to be processed, one DL card should be addressed as 1.
- Connected to... select the device the DL card is connected to. Typically this would be a PC, Weblink or another DL card.
- Dataline power supply... select Included if this DL card will be part of the global dataline or Removed if it will be isolated from the global dataline.
- Link mode... select Master if this is the master link in charge of keeping the panel clocks in sync or Slave if this is a slave link. Only one link can be set as master.
- Network... select Normal for normal DL card applications or Bridge if this DL card is being used to connect multiple datalines via a fiber optic bridge.
- The fourth switch is currently unused.

## **Note**

The information on this dialog is for documentation purposes only.

# Documenting Panels - Relays

The Relay tab provides a summary of relay documentation and programming for all relays within the current panel.

**Figure 3.9. Panel - Relay Documentation**

LCP: 1: WLRP1A

Document Relays Contactors Channels A-H Channels I-P Dataline Switches

Options: ☒ Document ☐ Program ☐ Control ☐ All

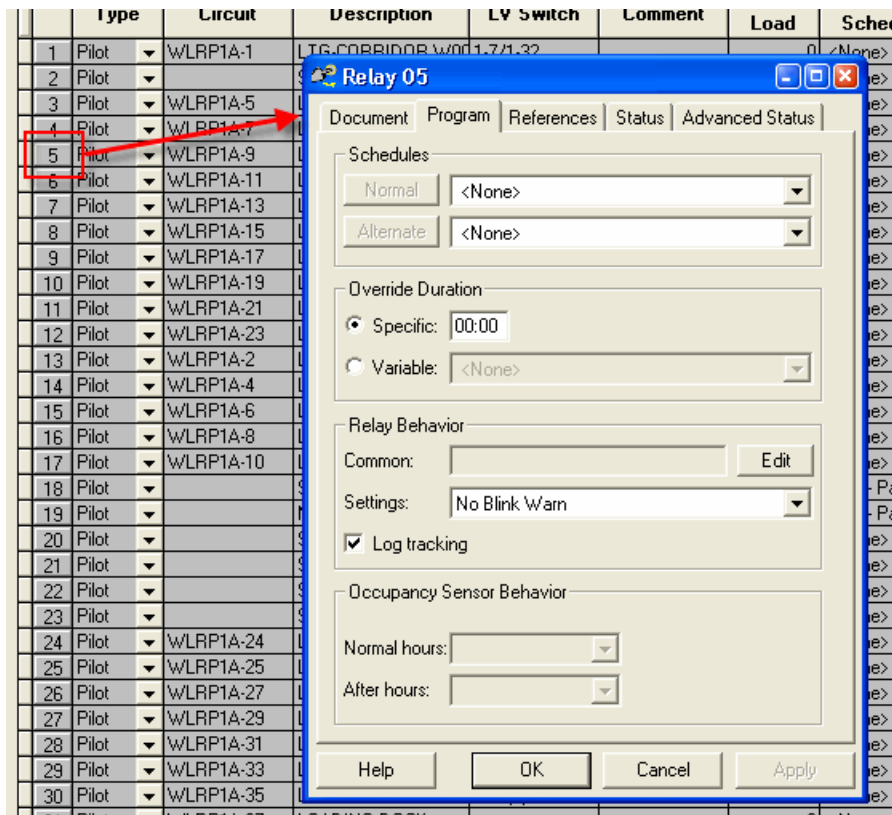
Columns:

	Type	Circuit	Description	LV Switch	Comment	Circuit Load
1	Pilot	WLRP1A-1	LTG-CORRIDOR W0034	1-7/1-32		0
2	Pilot		SPARE	1-2		0
3	Pilot	WLRP1A-5	LTG-TELECOM W0003			0
4	Pilot	WLRP1A-7	LTG-MECH MEZZ	1-33		0
5	Pilot	WLRP1A-9	LTG-MECH RM	1-34		0
6	Pilot	WLRP1A-11	LTG-CORRIDOR W0033	1-8		0
7	Pilot	WLRP1A-13	LTG-PREF W0525	1-12/1-11		0
8	Pilot	WLRP1A-15	LTG-DOCK			0
9	Pilot	WLRP1A-17	LTG-COMP TRG W0600	1-10		0
10	Pilot	WLRP1A-19	LTG-COMP TRG W0600	1-9(1)		0
11	Pilot	WLRP1A-21	LTG-COMP TRG W0600	1-9(2)		0
12	Pilot	WLRP1A-23	LTG-COMP TRG W0600	1-9(3)		0
13	Pilot	WLRP1A-2	LTG-PREF W0425	1-14/1-13		0
14	Pilot	WLRP1A-4	LTG-PREF W0325	1-16/1-15		0
15	Pilot	WLRP1A-6	LTG-PREF W0225	1-18/1-17		0
16	Pilot	WLRP1A-8	LTG-TRAINING W0100	1-23(1)/1-22(1)		0
17	Pilot	WLRP1A-10	LTG-TRAINING W0100	1-23(2)/1-17(2)		0
18	Pilot		South Parking via Contactor			0
19	Pilot		North Parking via Contactor			0

Help OK Cancel Apply

Information for each relay may be easily edited including copy and paste features. The default relay **Type** is "Pilot", however you may set them to Status Only, Non-Pilot, ARP or Space. ARP is only displayed if ARP support is selected in the panel documentation page. Set some positions to "Space" if no relay is to be installed in that position, saving room for later expansion. Detailed information includes the **Circuit**, **Description** of load, information on (optional) low voltage switches (**LV Switch**) controlling the relay, as well as an optional **Comment**. An additional field allows you to specify the total load (in watts) that is connected to the relay.

By clicking on the relay number at the right of the window, a pop up window will appear to allow you to edit some of the advanced properties.

**Figure 3.10. Panel - Relay Documentation**

The relay page offers an option that is not available on the panel relay page. The Occupancy Sensor Behavior effects how the relay responds to an occupancy sensor input depending whether the relay is currently in Normal Hours (occupied) or After Hours (unoccupied).

Other tabs available for panels include the the section called “Documenting Panels - Channels (Group Switch Cards)” and **Dataline Switch** pages as required.



# Documenting Panels - Contactors

The Contactors tab is where details regarding the contactors installed in a panel may be recorded.

On this screen, you may add contactors to the documentation, by clicking on the "Add Contactor" option. Further, to remove a contactor, choose the contactor and select "Delete Contactor". The coil voltage is documented on this screen as well (the assumption is that all contactors share the same coil voltage). For individual contactors, you may select either a Normally Open (N/O, the default), or Normally Closed (N/C) contactor. Contactors may be installed in the panel (Internal) or may be documented as installed separately in another enclosure (External) in the Location column. The controlling relay may be selected for each contactor. Four pole contactors are the standard when ordered with your Lighting Integrator panel. For each pole in the contactor, you may specify the circuit and description of the load controlled.

A report is available to that will list all of the contactors that you have documented your panels. See the section called "Contactors".

**Figure 3.11. Panel - Contactor Documentation**

**LCP: 1: WLRP1A**

Document | Relays | **Contactors** | Channels A-H | Channels I-P | Dataline Switches | Special | Load Chart

Add Contactor    Delete Contactor    Coil voltage: 277

Contactor	Type	Location	Controlling Relay	Pole	Circuit	Description
1	N/O	Internal	Relay: 1-18: South Parking	1		Zone 1
				2		Zone 2
				3		Zone 3
				4		Zone 4
2	N/O	Internal	Relay: 1-19: North Parking	1		Zone 7
				2		Zone 8
				3		Zone 9
				4		Zone 10

OK    Cancel    Apply

# Documenting Panels - Channels (Group Switch Cards)

## Why would I want a Group Switch Card?

Group Switch cards are for terminating low voltage inputs, such as **wall switches**, **occupancy sensors** inputs, and **photocells**

Each group switch card provides 8 channel inputs, each of which can be configured to control any or all relays within a panel. When used with the PC automation card, you can setup the channel input to be connected to a photo sensor, which can be then programmed for various foot-candle set points. Each input that is terminated to a channel requires 2, 3, or 4-conductor cable to be wired from the Channel to the input device. Each channel supports 2 or 3 wire inputs, and a fourth wire can be used for a pilot feedback. For systems with Complete Control, you also have the option to have the button control a group that includes relays in multiple panels. Such a group can have a functional profile such as Master, Blink, Clean, Shed, Force On, and Force Off.

**Figure 3.12. Channel Documentation**

Channels	Description	Function	On/Off	Loads Controlled
A:	Loading Dock	Local On/Off	On/Off	LCP 1:30,31
B:	Training	Local On/Off	On/Off	LCP 1:16,17,37
C:		Local On/Off	On/Off	
D:		Local On/Off	On/Off	
E:	All Outside	Local On/Off	On/Off	LCP 1:30,31,39
F:		Local On/Off	On/Off	
G:		Local On/Off	On/Off	
H:	Corridors	Local On/Off	On/Off	LCP 1:1,6,32

In this example, we have setup Channel A to control relays 30 and 31 in panel 1, which correspond to Room 101 and Room 102, and Channel B to control relays 16, 17, and 37:

Normally, channels default to the "On/Off" function, which means the relays are all controlled to either an ON or an OFF state as a group, based on the state of the input connected to the Channel on the Group Switch Card.

You may optionally choose to control some relays to an ON state and some to an OFF state based on the activation of the Channel input. This is known as a Pattern, and you will specify the relays to control ON and the relays to control OFF separately.

If you click on the "On/Off" or the "On" or "Off" button in the Loads Controlled area of the dialog, a pop up window will display allowing you to pick the relays to control. There is a check box at the top of this screen labeled "Pattern". This option is comparable to the Pattern button on the Group Switch Card when Smart Wiring the device. Further, you can click on the buttons that display individual relay numbers. When Pattern mode is not selected for the channel, click once to include the relay for "ON/OFF" control (displayed in Red). Click again to remove the relay from control.

**Figure 3.13. Channel - Selecting Loads to Control**

**Select Local Relays for Relay Panel 1 WLRP1A, Channel A Loading Dock**

Relay Panel: 001 - WLRP1A

☐ Pattern Click button to toggle relay selection

Relay	Description (circuit)	Description (circuit)	Relay
1	LTG-CORRIDOR W0034 {WLRP1A-1} 1-7/1-32	LTG-PREF W0425 {WLRP1A-2} 1-14/1-13	13
2	SPARE 1-2	LTG-PREF W0325 {WLRP1A-4} 1-16/1-15	14
3	LTG-TELECOM W0003 {WLRP1A-5}	LTG-PREF W0225 {WLRP1A-6} 1-18/1-17	15
4	LTG-MECH MEZZ {WLRP1A-7} 1-33	LTG-TRAINING W0100 {WLRP1A-8} 1-23(1)/1-22(1)	16
5	LTG-MECH RM {WLRP1A-9} 1-34	LTG-TRAINING W0100 {WLRP1A-10} 1-23(2)/1-17(2)	17
6	LTG-CORRIDOR W0033 {WLRP1A-11} 1-8	South Parking via Contactor	18
7	LTG-PREF W0525 {WLRP1A-13} 1-12/1-11	North Parking via Contactor	19
8	LTG-DOCK {WLRP1A-15}	SPARE	20
9	LTG-COMP TRG W0600 {WLRP1A-17} 1-10	SPARE	21
10	LTG-COMP TRG W0600 {WLRP1A-19} 1-9(1)	SPARE	22
11	LTG-COMP TRG W0600 {WLRP1A-21} 1-9(2)	SPARE	23
12	LTG-COMP TRG W0600 {WLRP1A-23} 1-9(3)	LTG-MAINTENANCE {WLRP1A-24} 1-5	24
25	LTG-CONF W0700 {WLRP1A-25} 1-4(1)	LTG-TRAINING W0100 {WLRP1A-26} 1-21(1)	37
26	LTG-CONF W0700 {WLRP1A-27} 1-4(2)	SPARE	38
27	LTG-CONF W0700 {WLRP1A-29} 1-4(3)	LTG-EXTERIOR {WLRP1A-30}	39
28	LTG-COMP TRG W0500 {WLRP1A-31} 1-31(1)/1-30(1)	LTG-PREFUN W0125 {WLRP1A-32} 1-19/1-20	40
29	LTG-COMP TRG W0500 {WLRP1A-33} 1-31(2)/1-30(2)	Space	41
30	LOADING DOCK {WLRP1A-35} 1-26(1)	Space	42
31	LOADING DOCK {WLRP1A-37}	Space	43
32	WEST CORRIDOR {WLRP1A-39} 1-26(2)	Space	44

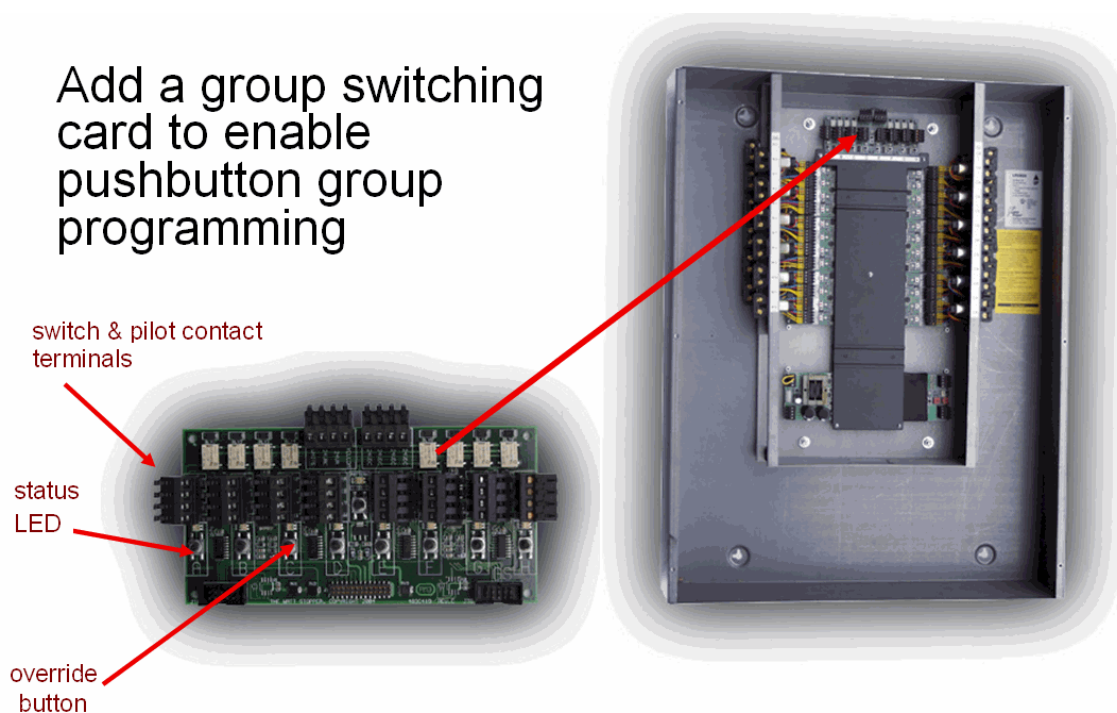
Legend: Exclude On/Off

Command: All All

OK Cancel

If Pattern mode is selected, the first click will include the relay for ON control (displayed in Red), and a second click will set the Relay for OFF control (and display the relay in Green). A third click will remove the relay from control, and return it to the Grey color.

This selection process, as well as the color coding (Red and Green), matches the Smart Wiring process when performing this programming at the panel.

**Figure 3.14. Group Switch Card in Panel**

The Channel page is the location to document and program the Group Switch card inputs known as Channels. Each group switch card provides 8 channel inputs, and each channel can be Smartwired or programmed from the PC to control an individual or a group of relays. When used with Complete Control, a channel input can be used to terminate an analog input (such as a photocell sensor). See the section called “Analog Inputs and LI-CC Panels” for more information on programming analog inputs.

Programming the Channel inputs on the Group Switch card allows you to specify either directly ON/OFF control or Pattern Control of a list of relays. In either case, all relays must be in the same panel as the Channel input. In the case of Complete Control, each channel may optionally be setup to control a Group Code. Group codes do allow the ability to control relays in any number of panels in the system.

You may select the relays by clicking on the On/Off button, or by typing in the list of relays in the "Loads Controlled" field. The Description field is used to indicate the location or area of the switch connected to a given channel. Use the Function drop down list to select the On/Off or Pattern option, as well as to choose or create a Group Code. See the section called “Group Codes” for more information.

**Figure 3.15. Documenting Panels - Channels**

**LCP: 1: WLRP1A**

Document | Relays | Contactors | Channels A-H | Channels I-P | Dataline Switches | Special | Load Chart

☒ Group Switch Card 1 Installed

Channels	Description	Function	Loads Controlled
A:	Loading Dock	Local On/Off	On/Off LCP 1:30,31
B:	Training	Local On/Off	On/Off LCP 1:16,17,37
C:	Low Level	Local Pattern	On LCP 1:25 Off LCP 1:26
D:		Local On/Off	On/Off
E:	All Outside	Local On/Off	On/Off LCP 1:30,31,39
F:		Local On/Off	On/Off
G:		Local On/Off	On/Off
H:	Corridors	Local On/Off	On/Off LCP 1:1,6,32

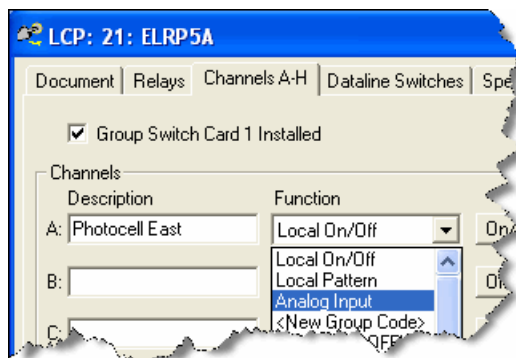
Help OK Cancel Apply

## Analog Inputs and LI-CC Panels

Analog Input connections are supported in LI-CC panels with CC firmware versions 18 or higher when a GS card is installed. These connections provide support for WattStopper/Legrand photocell sensors as well as supported third party analog device termination. The analog input supports a voltage range from 0 to 4 volts and the output action is completely configurable from WinControl.

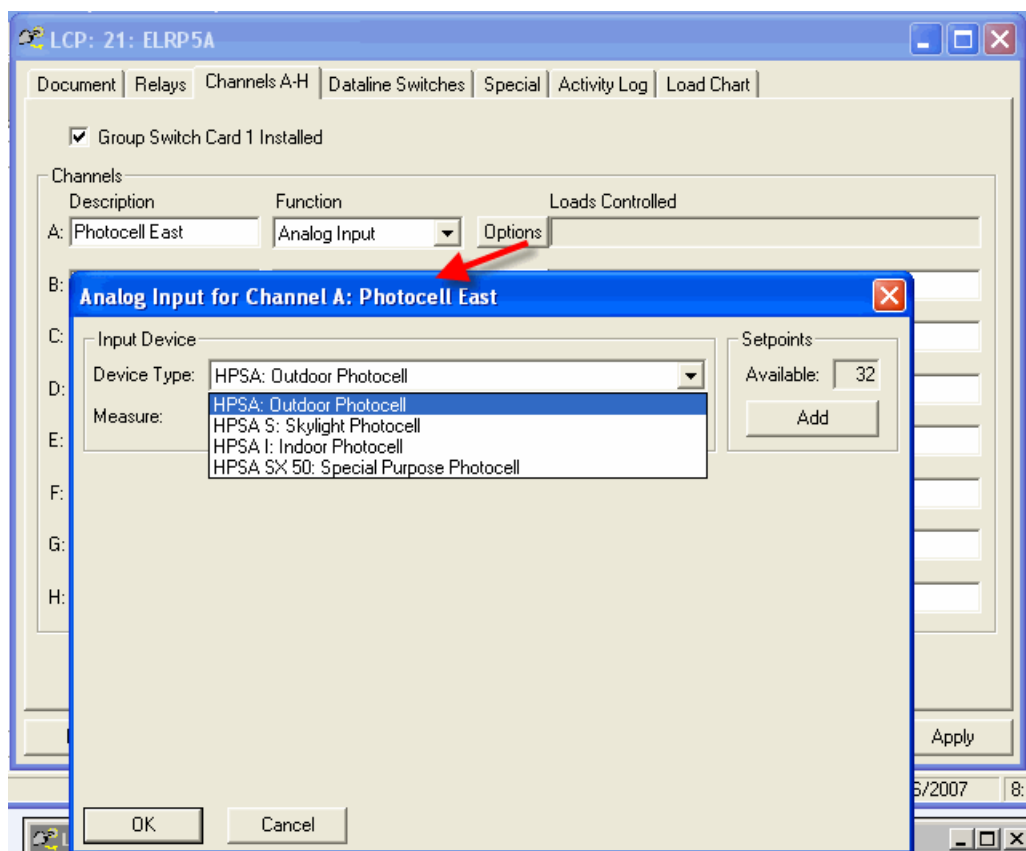
To setup an analog input, you will Program the Lighting Control panel in which the input is terminated. Choose Program - LCP - Channels from the WinControl menu and choose the panel, or right click on the panel in the tree view and choose Properties. When the panel information is displayed, choose the "Channels" page. After locating the Channel to which the photocell is terminated, click the *Function* button to choose the Analog Input as the type of device.

**Figure 3.16. Analog Input Function**



After choosing Analog Input, click the Options button to continue to the next stage of setup. You will need to select the type of Analog Input device. Watt Stopper offers a number of different photocell sensors for various applications. These devices will be presented in a selection list. Choose your particular device type.

**Figure 3.17. Analog Input Device Options**



After selecting your input device, you will need to add a setpoint. Each analog input should have at least one setpoint to define its use, which determines the level at which the controlled group will go ON and OFF. A total of 32 setpoints may be added per panel, but one setpoint is typically used per input. After clicking Add, a default setpoint will be added based on the device type selected above. The only other required step is to select the group to be controlled, using the Group Code selector.

**Figure 3.18. Analog Input Setpoint**

**Analog Input for Channel A: Photocell East**

Input Device  
 Device Type: HPSA: Outdoor Photocell  
 Measure: Footcandles (fc) Max: 200 fc Step: 1 fc

Setpoints  
 Available: 31  
 Add

Setpoint 1

Group code: 601: OPEN OFFICE 2W-200, 300  
 Setpoint: 601: OPEN OFFICE 2W-200, 300  
 602: OPEN OFFICE 2W-200, 300  
 603: OPEN OFFICE 2W-200, 300  
 722: Open Office 2E-700, 800, 9C  
 723: OPEN OFFICE 2E-700, 800,  
 724: OPEN OFFICE 2E-700, 800,  
 1001: OPEN OFFICE 3W-200, 30  
 1002: OPEN OFFICE 3W-200, 30  
 1003: OPEN OFFICE 3W-200, 30  
 1122: OPEN OFFICE 3E-700, 800

Advanced Settings  
 Low: On  
 High: Off

Setpoint Status  
 Value  
 Last Output  
 Current Status  
 Refresh

Using a single setpoint normally requires no adjustments to trigger levels or time delays. The system will provide a default setpoint value and deadband range as well as delay and timers. An ON command to the selected group is sent when below the setpoint, and an OFF command is sent when above the setpoint (a small deadband is factored in). A short time delay is also used with the deadband to prevent false fast triggers if sensor readings fluctuate. By default, the default On time delay is much shorter than the default Off delay but this value is device dependent.

Advanced analog input programming allows for many more options for more complicated scenarios. The High and Low actions may be reversed or disabled depending on the need. Any setpoints (with in range of the analog device) can be used including minimizing the deadband. And the time delays may be customized from zero seconds up to 59 minutes and 59 seconds (nearly 1 hour).

Setpoint status may be read if WinControl is Online. The values displayed are only valid if the latest analog program settings have been transferred to the panel. See Chapter 10, *Transfer Data Options* for more information on transferring your programs. The values are automatically updated when the Setpoint tab is changed. Click the *refresh* button to request the latest values if actively monitoring analog device readings.

Multiple setpoints can be programmed for each input which allows for very powerful lighting control scenarios to be easily handled. Each setpoint typically uses a unique Group Code however, they can be the same. For example, using unique Group Codes allows a photocell sensor to shed lights more aggressively as more daylight is available.

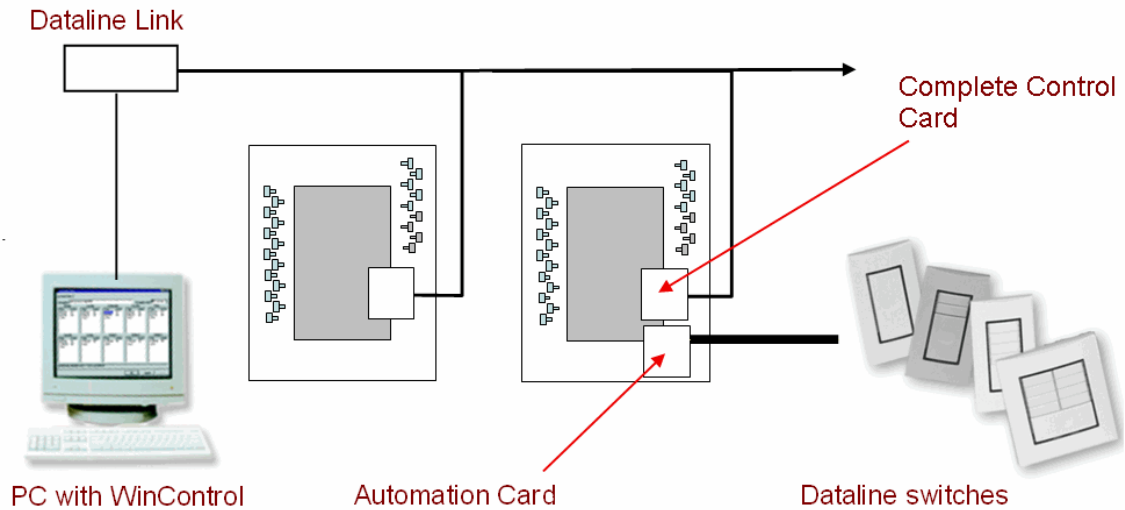
## Note

The Unit of Measure is provided by the analog device database and indicates the type of reading from the analog device. The value is based on the DC voltage from the device. These values should be considered relative as they will vary based on sensor lens type and installation orientation.

# Why would I want a Dataline Switch?

Dataline switches can have from 1 to 8 buttons on each device with built in status indicators. Unlike the Group Switch card Channels, a separate home run is not required for each switch station. Multiple dataline switches can exist on a single, 4 conductor cable, network bus thereby reducing the number of *home runs* required. Each button can be programmed to control an individual relay, a group of relays (ON/OFF or Pattern), or one of the Channels on the Group Switch Card. For Complete Control, you also have the option to have the button control a group that includes relays in multiple panels. Such a group can have a functional profile such as Master, Blink, Clean, Shed, Force On, and Force Off. The figure below shows Dataline Switches connection in such a network.

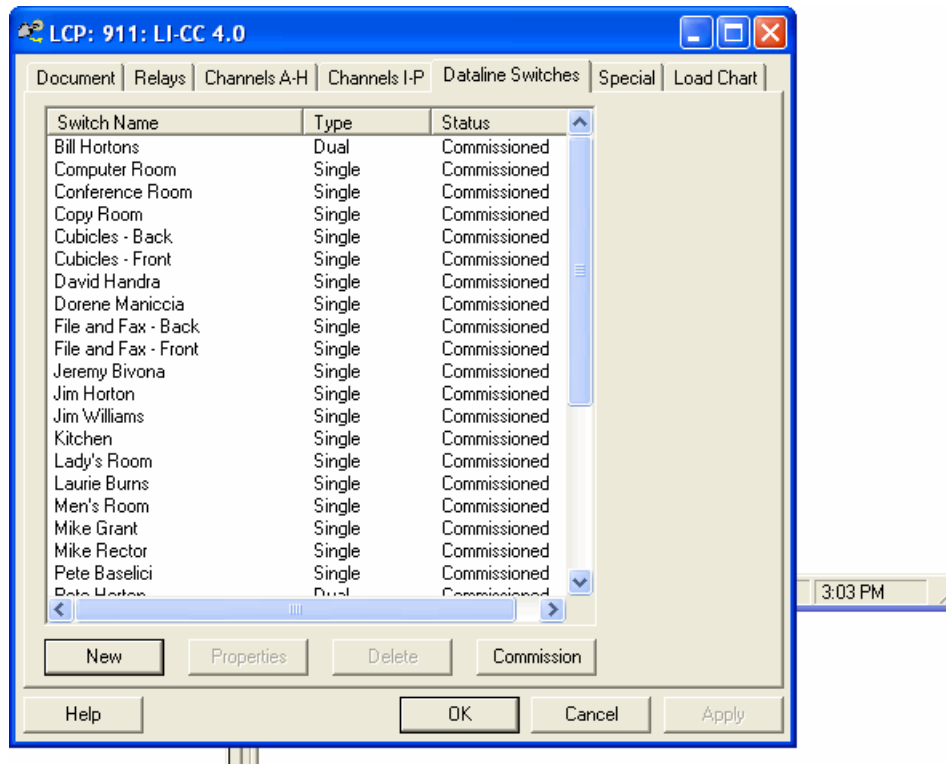
**Figure 3.19. Dataline Switches with LI-CC network**





# Documenting Panels - Dataline Switches

**Figure 3.20. Dataline Switches**



You can create, edit, delete or commission dataline switches from this "Dataline Switches" page.

You can create dataline switches by clicking "New". You may name each dataline switch according to your own needs; the name of the dataline switch *will appear on the riser diagram*.

**Figure 3.21. New Dataline Switch**



After naming the switch, you will be allowed to document it (see the section called "Documenting Dataline Switches").

You can edit a dataline switch by selecting one and clicking "Properties", or you can edit one by just double clicking on it (see the section called "Documenting Dataline Switches").

You can delete a dataline switch by selecting one and clicking "Delete". All programming and documentation for this switch will be removed.

You can commission dataline switches by clicking "Commission" (see Chapter 9, *Dataline Switch Commissioning*).

# Documenting Dataline Switches

**Figure 3.22. Document Dataline Switch**



Once you have created a dataline switch, you can specify the type of device. Available types include:

- One Button \*
- Two Button \*
- Four Button \*
- Eight Button \*
- Universal Switch Module

\* One, two, four, and eight button switches may optionally be keylock switches.

A picture of the device will appear so you can see the physical configuration. Dataline Switches have DIP switches on the back for configuring the device. By selecting the functional profile for the device on the right, the display at the bottom right will show you how to set the DIP switches before the device is installed.

You may optionally create button labels for two, four, and eight button switches by checking the "Edit Labels" check box. Once checked, edit boxes will be displayed over the appropriate buttons for you to label. If no descriptions have been entered, on the "Program Dataline Switch" page (see the section called "Programming Dataline Switches"), these labels will be inserted as the default descriptions.

After selecting the basic documentation and setup for the dataline switch, you can click on the "Program Dataline Switch" tab (see the section called "Programming Dataline Switches") to setup the programming for the switch.

---

# Chapter 4. Programming Basics

The following options are advanced features of Complete Control that are used in common lighting scenarios.

## Group Codes

*Group Codes* can be used to control relays in multiple panels. Once created, Group Codes can be assigned to buttons on Dataline Switches, as well as to Channels on Group Switch cards. Group Codes have an id number from 1-16000. Group Codes are setup with a function that defines how the control of the group is processed. These functions are:

### Master

The master function (the default) will simply turn all associated relays ON/OFF. When a master group code is turned on, the associated relays come on, and when it is turned off, the relays turn off. No Blink warning is provided. If time delays are enabled, scheduled off or turned off by a Blink Warn switch, then turning this group code ON will start the time delay process specified for the relay. Master is typically used for occupant override switches.

### Blink Warn

Relays programmed for this group code (and specified as Blink enabled in relay properties) will Blink when the group code is turned off, and then go off five minutes later. A group code setup as Blink Warn will simulate the schedule scenario. When this group code is turned ON, the relay(s) come on. An ON action on this group code will disable time delays, and an OFF action by this switch type will enable time delays for any subsequent overrides (just as a scheduled action would do so). The 5 minute Blink window is adjustable on a panel basis. Blink Warn is typically used when you want to emulate schedule behavior from an input, such as an external clock.

### Cleaning

This group code is designed for cleaning crew operation. Relays controlled by a cleaning group code will go on when requested, but the group code cannot turn off relays if the area is in Normal Hours mode (aka occupied, or the relay is ON due to some other type of override actions). This function does initiate the count down of time delays, and will Blink before off (due to time delay) if Blink is enabled. The cleaning switch time delay defaults to the same as the relay time delay. The cleaning crew time delay may be specified separately for each LCP. Cleaning is typically used with switches that are centrally located and used by janitor services after hours.

### Shed

The shed function is used for daylighting and demand shed scenarios. Relays associated with a shed group code will track the operation of the switch (photo-switch/demand contact) when the area is in Normal Hours mode. If an occupant overrides the shed off action, the shed function for this area is deactivated until the next day. The shed override feature may be disabled on a per panel basis using Special Features for the panel. Shed is typically used with daylighting or demand shed scenarios.

## Force ON

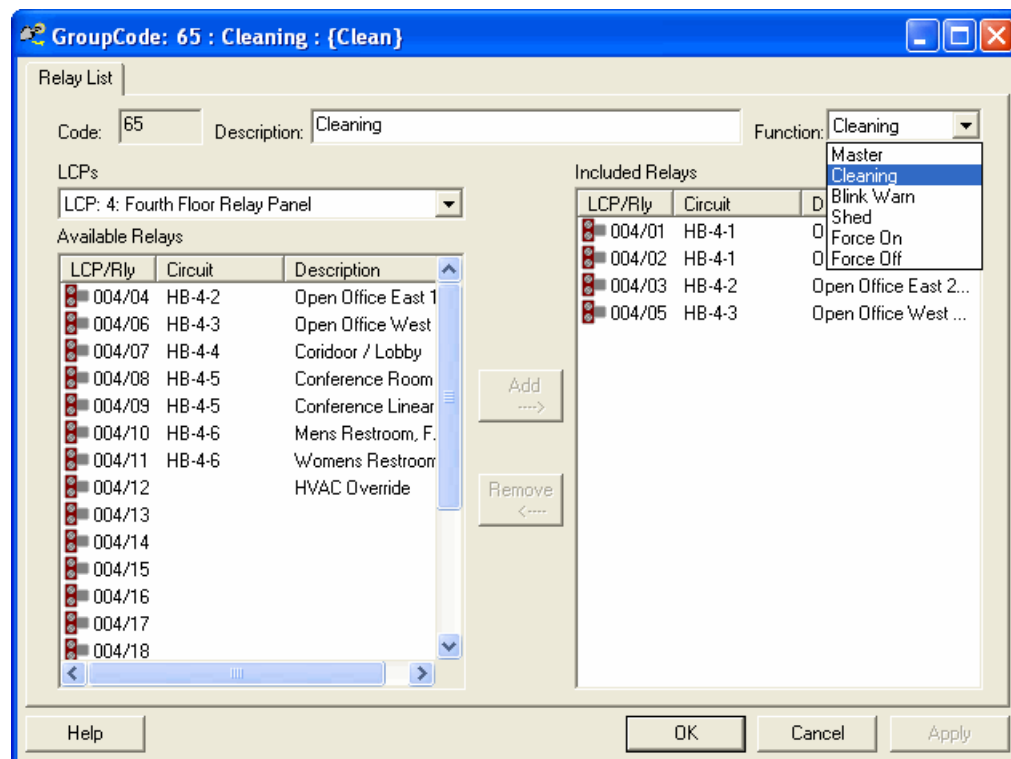
This feature on a group code allows you to setup a switch that when turned ON will Force ON the relays in the group. When turned OFF, relays return to normal operation. Force ON may be useful as an input from a security system to activate lights when an alarm is active.

## Force OFF

This feature on a group code allows you to setup a switch that when turned ON will Force OFF the relays in the group. When turned OFF, relays return to normal operation. Force OFF may be useful to keep lights OFF without allowing an occupant override (such as Shed allows).

Any relay in a Force mode will not be allowed to change state from schedules or other programmable commands.

**Figure 4.1. Program Group Codes**



# Phone Codes

Phone Codes are code numbers that can be programmed in your Complete Control system. They are typically activated by use of a Telephone Override Device (HPHONE). Phone Codes allow you to group multiple relays and control the group with a single command. The Phone Code command is convenient to used for occupant overrides. In addition to commands via Telephone Override, any Phone Code can be activated via the Tree View portion of the WinControl software and from the available WinControl Graphics interface.

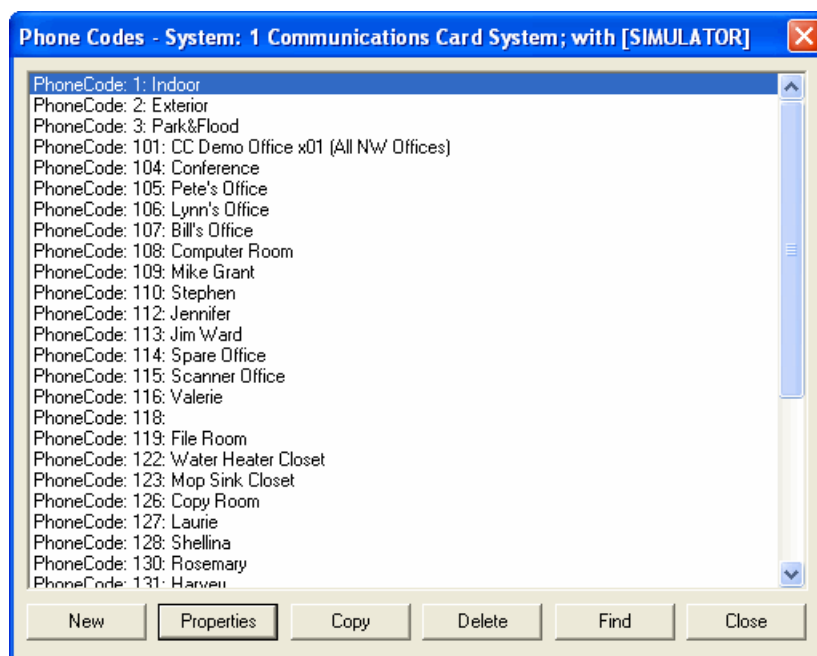
The Phone Code Create/Edit dialog allows you to view the list of all Phone Codes that have been programmed in the system. In addition to scrolling through the list of Phone Codes, Phone Codes can be Created, Edited, or Deleted using this dialog.

Individual Phone Codes can be created and edited by:

- Selecting **Program** on the menu bar, then
- Left click the mouse on the **System** command
- Left click the mouse on **Phone Codes** on the submenu

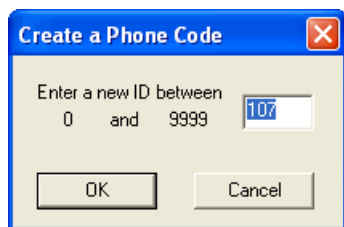
The Phone Code Create/Edit dialog is displayed (see Figure 4.2, “Phone Code Create/Edit Dialog”)

**Figure 4.2. Phone Code Create/Edit Dialog**



The Phone Code Dialog is a simple to use approach to creating or editing the phone codes. You can Create a new phone code doing the following:

- Left click the **New** button at the bottom-left portion of the dialog.
- Enter the new phone code in the specified 4-digit format.

**Figure 4.3. Create a Phone Code**

- Click OK

The Phone Code Edit dialog displays (see Figure 4.4, “Phone Code Editor”). Enter a Description by:

- Pointing to the box to the right of the Description label,
- Left click the mouse, and
- Typing in the text description.

Similarly, you may Edit a group code by:

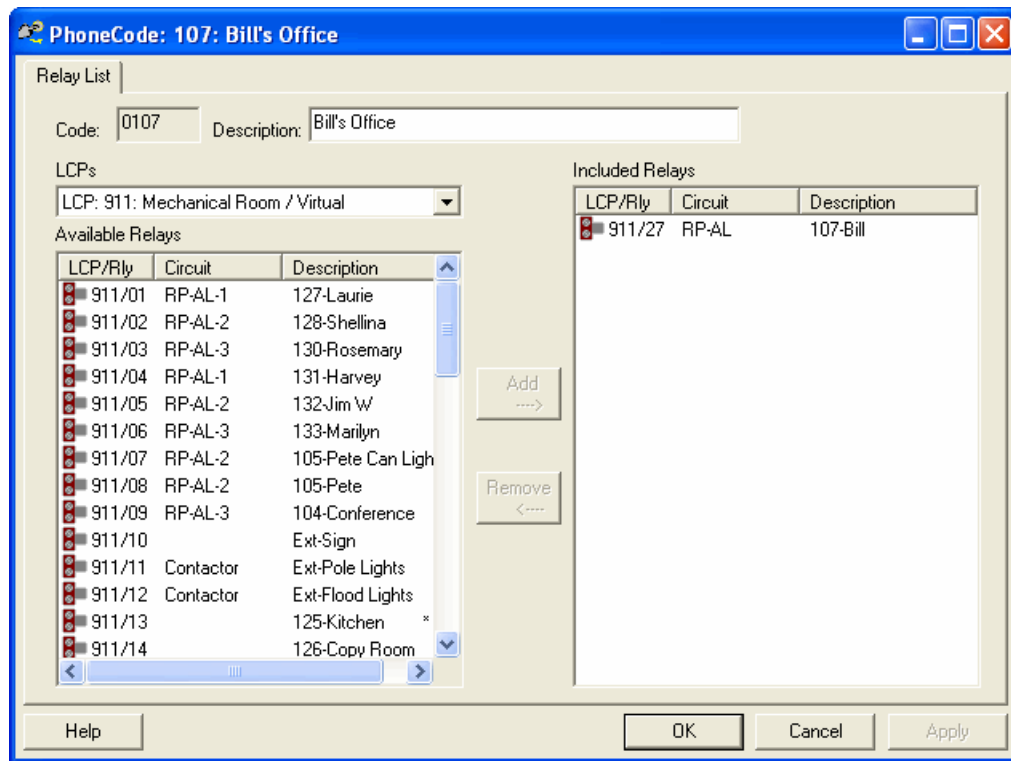
- Pointing to one of the codes in the displayed list,
- Left click the mouse to select it,
- Point to the Edit command and left click.

You may also select one of the displayed codes, then double left click to instantly display the Group Code Create/Edit dialog.

The Phone Code Edit Dialog displays two lists. The list on the left side of the dialog includes all of the available relays not currently part of the Phone Code group. The list on the right is the list of relays included in the Phone Code group. WinControl offers you a number of options to simplify the maintenance of the list:

- You may select a relay to include from the left list by pointing to it, left click the mouse, then point to Add and left click to move the relay over to the Include list.
- Point to a relay on the Include list on the right, left click the mouse, then point to the Remove command and left click to move the relay over to the Available list.
- Click on the LCP/Relay, Circuit, or Description column to sort the list by the corresponding field.
- Click on a relay, or shift + left click to select multiple relays, then Drag to the other list.

**Figure 4.4. Phone Code Editor**



Click on a relay, or click using the Shift or Control keys to select multiple relays, and then Drag to the other list.

## Common Area Relays

Common area relays function as follows:

- A relay designated as a "common area" is programmed with a list of relays that may include as few as one, or as many as all other relays in the panel. The list of relays consists of those corresponding to *Occupant Areas*. When any of the *Occupant Area* relays are turned ON, the Common Area relay will be turned ON if it is not ON already. The common area relay status will show the relay ON due to inter-lock.
- When all relays listed as Occupant Areas for the Common Area relay are turned OFF, then the Common Area relay will be turned OFF. If the Common Area relay is programmed with a time delay, then the time delay will be counted down as an Egress Delay. The Egress Delay provides the last occupant with common area lighting for the time specified. If *Blink* function is enabled for the Common Area relay, the relay will Blink at the end of the Egress time delay period, then turn Off five minutes later if no occupants turn ON their relays.
- To program a relay as a *Common Area* relay, move the cursor to the row of the desired relay, and select Common. Enter the list of relays to be designated as Occupant relays for this Common Area. Click OK to keep the modifications. You will then return to the standard relay program options. Note that the common area relay capability is only in LCP devices (HPCU48CC) with ROM version 1.4 or higher. You may use the Test Field Devices function to determine your ROM version in each LCP. If you program relays as common areas and the feature is not supported in your panel, you will see a warning message when transferring the programs.

If you program a relay as a Common Area Relay, you will:

- Usually not schedule the relay,
- Not program switches or phone codes to control the common area relay.

Instead, you should allow common area relays to be controlled automatically by the Occupant relays. Occupant relays, in turn, are activated by schedules, switches, and phone codes. *You must remember that if a Common Area relay is scheduled or overridden directly, it defeats the common area capability.*

**A Common Area relay programmed with Blink Warn allows the relay to have an egress time delay.**



# Programming Dataline Switches

After selecting the basic documentation and setup for the dataline switch (see the section called “Documenting Dataline Switches”), you can program the switch from this “Program Dataline Switch” tab.

## Figure 4.5. Program Dataline Switch



Dataline switch button programming is very similar to group switch card channel input programming (see the section called “Documenting Panels - Channels (Group Switch Cards)”) with the addition of the *channel function* (see Figure 4.6, “Channel Function”). You can enter a description, function and the loads controlled for each button.

The “Description” field is used to indicate the location or area controlled.

The “Function” drop down is used to determine how the loads are controlled. Possible functions include:

- Local On/Off - Controls the list of relays entered in the “Loads Controlled” field. For CC systems, the relays must be in the *local* panel. For Automation systems, the relays can be in any *one* panel.
- Pattern - Applies a pattern to the list of relays entered in the “Loads Controlled” field. For CC systems, the relays must be in the *local* panel. For Automation systems, the relays can be in any *one* panel.
- Channel - Activates the channel programming for the selected channel. For CC systems, channel programming in the *local* panel is activated. For Automation systems, channel programming in up to *twelve* panels (or *all* panels) can be activated.

## Figure 4.6. Channel Function



- Group Code - Controls the relays in the group code (see the section called “Group Codes”). Group codes can span multiple panels, but they are only allowed in CC systems (not in Automation systems).

The “Loads Controlled” field lists the specific panels, relays and/or group codes that are to be controlled. You may select the relays to be controlled by clicking on the On/Off button, or you may enter them in the edit box.

## Using the AS-100 Automatic Switch with LI-CC Panels

The AS-100 is an automatic wall switch from Watt Stopper that can be installed on a relay controlled circuit. The AS-100 automatic control switch can be set up to receive on and off signals. A typical application would have multiple AS-100 wall switches downstream from a single relay load. See the AS-100 installation instructions for more detailed information <http://www.wattstopper.com/getdoc/1149.pdf>

**Figure 4.7. IntelliSwitch® AS-100 Automatic Control Switch**



### **Occupant Operation:**

- Manual on and off control at each switch is always available by pressing the ON/OFF button on the wall switch.

### **Lighting Control Panel Operation:**

- The lighting control panel sends *power interrupt* signals (using various length OFF pulse of the relay) to turn the switch on, off or off after a five-minute time delay.
- The lighting control panel always restores the relay to the ON state to allow local occupant control.

### **Power Interrupt Signals::**

All automatic commands to delay off, shut off or turn on the AS-100 come from interrupting power to the switch for a specified time duration, listed here (resolution for timing must be +/- one-quarter of a second):

- **Automatic-ON:** 3 sec. Turns lights on (if Automatic-ON Setup Mode option is enabled, see AS-100 instructions).
- **Automatic-OFF:** 5 sec. Turns lights off.
- **Automatic Delayed-OFF:** 1 sec. Initiates a five - minute delay before shutting off lights.

### **Note**

Note: During the Delayed-off setting, the lights flash once (when power is interrupted for 1 second); the center (red) locator LED begins to blink once every two (2) seconds; and an audible beep will sound once every minute (if enabled, see AS-100 setup documentation). During the final

minute, the LED will blink once every second and the beep will sound every five (5) seconds until the lights are turned off. At any time, pushing the ON/OFF button before the lights turn off will cancel the countdown and keep the lights on until the next control signal from the lighting control panel, or until the AS-100 is manually turned off.

### Using AS-100 devices with your LI-CC panel

The LI-CC panel has special handling routines for use with the AS-100 device. Setup is extremely simple. On the Relay properties page, in the section labeled *Relay Behavior* is an option for selecting AS-100 operation. There are two settings available for AS-100 devices (see the section called “Program - Relay - Behavior”):

- **AS-100 Blink Warn** (recommended)

This is the setting to use for most common applications. In this application, a schedule OFF (or a Blink Warn group OFF) will result in a 1 second pulse, which starts the Automatic Delayed Off feature. In addition, the schedule OFF signifies the start of a periodic OFF sweep.

- **AS-100 No Blink Warn**

This setting is typically only used when you know you don't want to activate the grace period feature of the AS100. In this application, a schedule OFF (or a Blink Warn group OFF) will result in a 5 second pulse, which specifies the Automatic Off feature of the AS100.

In addition to the behaviors listed above, other features also work differently when choosing AS-100 behavior. For instance, the Override Duration is used to specify a sweep effect that starts after scheduling OFF the loads. These behaviors include:

- **Override Duration** is used to specify sweep interval that repeats after a Schedule OFF command.
- **Schedule OFF** commands (as well as Blink Warn Group OFF) result in a sweeping effect, repeating the Automatic Delay Off command according to the Override Duration setting. The repeating sweeping effect will stop at either a Schedule ON command, a Blink Warn Group ON command, or at the specified Occupancy Time for the schedule.
- **Occupancy Time** on the relay's schedule is used to specify the time that the sweep effect process ends.
- **Schedule ON** (e.g. morning schedule), while not required, will force switches into the ON state. In fact, any ON command results in the Automatic-ON 3 second pulse.

## Incompatible Features

Certain intelligent scenarios of the LI-CC system are not practical in combination with the AS-100 feature. The following functions and features do not function as intended when used with AS-100 type loads, and thus are not recommended:

- **Common Area**
- **Clean**
- **Shed**
- **Force ON**
- **Force OFF**

- **Activity Log and Run Time** (not capable of reflecting local switch activity)
- **Relay State** (will always indicate ON, not the state of the connected AS-100 load)

## Using Occupancy Sensors with LI-CC Panels

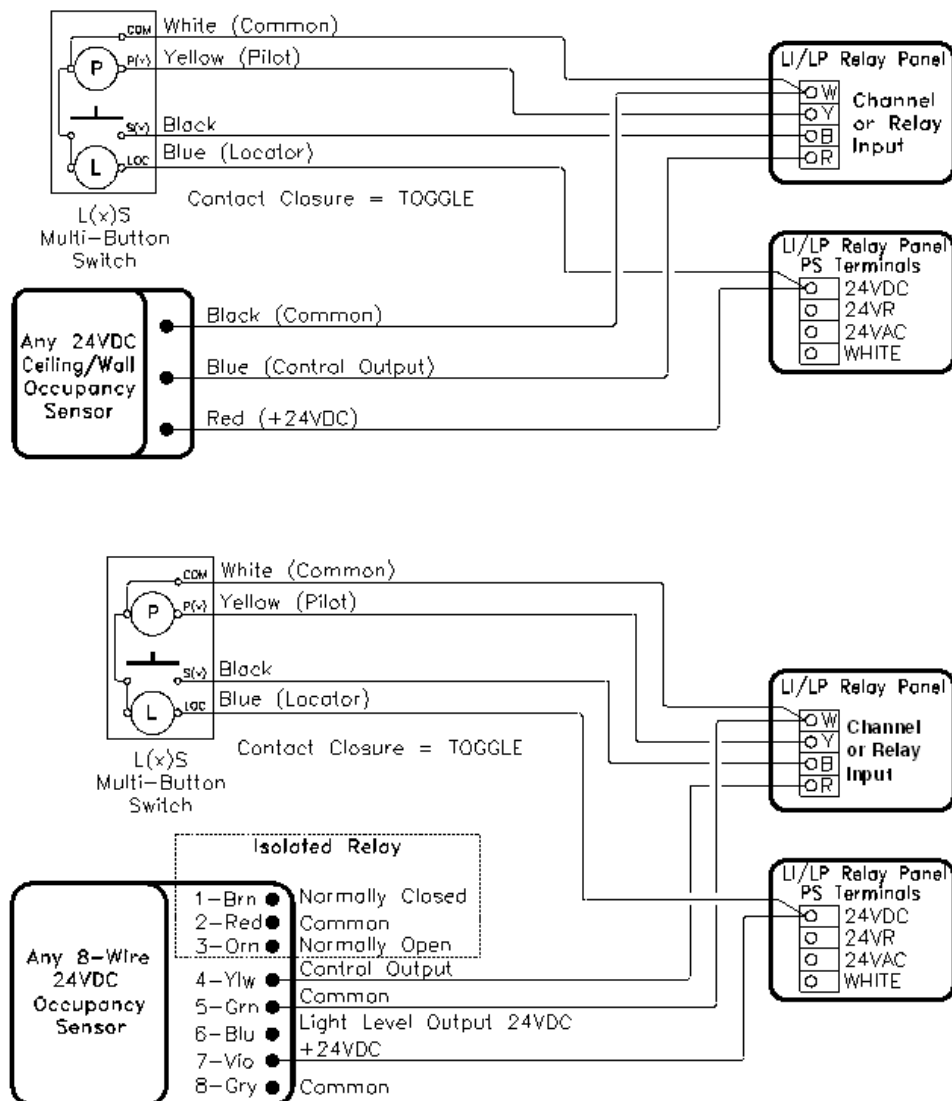
Watt Stopper makes a full line of Occupancy Sensors. Our Lighting Integrator CC panel may be used with most of our sensors that provide a low voltage contact closure (Note that some sensors offered are a line voltage based device for switching purposes, and are not compatible as described in this section). The 24 volt signal contact closure on Watt Stopper Occupancy Sensors is automatically detected by the LI-CC panel as an Occupancy Sensor input, and the LI panel adjusts its operation accordingly. Occupancy Sensors are automatically detected as such when connected to the Red, Black, and White wires on the RD (Relay Driver) board in an LI-CC panel. In addition, an Occupancy Sensor is also automatically detected in the same way when connected to the Red, Black, and White terminals on the GS (Group Switch) board in an LI-CC panel.

A wiring diagram for connecting our sensors to the LI CC panel is shown below. This link will take you directly to a variety of Wiring Diagrams on our CAD Resource Center for our Lighting Integrator panels <http://www.wattstopper.com/products/cad-resource.html?doctype=136>.

For an index of all wiring diagrams by document id, you may go to: <http://www.wattstopper.com/products/wiring-diagrams.html>

A more detailed version of this wiring diagram as well as many others are available on our CAD Resource Center [<http://www.wattstopper.com/products/cad-resource.html>].

**Figure 4.8. Occupancy Sensor Wiring Diagram 60-601**



LI CC Occupancy Sensor Processing

## Multiple Sensor Tracking

The LI-CC panel will track up to four sensors controlling a single relay. Sensors are associated directly to a relay simply by terminating the sensor to the relay contacts on the RD (Relay Driver) board. Sensors may also be terminated to GS inputs, and configured to directly control a single relay or multiple relays in the panel. When an Occupancy Sensor is connected in this way, the panel logic will allow multiple sensors to control the relay load. The first sensor to detect occupant activity will cause the load to turn ON, and the last sensor to signal a lack of occupancy will turn the load OFF. This ability to manage multiple sensors is an automatic feature and applies to RD terminated sensors as well as sensors terminated to the GS input and programmed to control relays directly. The list of sensors tracked is associated with the relay load itself, and sensors that are in the ON state controlling the relay load can be reviewed in the LI Advanced

Relay Status screen. A side effect of this feature is that in order for a sensor to turn a load OFF it must have first sent an ON signal via contact closure.

## Manual and Automatic Modes

Normally by connecting a sensor to a relay load it seems a reasonable assumption that you will want the load to turn ON when occupancy is sensed and OFF when there is no occupancy. This behavior is in fact the default for our LI CC panels, and is referred to as "Auto On / Auto Off". We do offer other types of operation for a sensor, and the operation mode may be different depending on normally scheduled (or 'normal occupancy' time) vs after hours or non-schedule time (non occupied time).

Note that **Auto On** refers to the concept that the lights will turn ON when the sensor detects activity. You may optionally decided whether you want the load to go On automatically at a predetermined time via a schedule. In this context, Auto On refers only to the sensor activation of the load.

Note that **Auto Off** refers to the concept that the lights will turn OFF when sensor activity is no longer detected. You may optionally decided whether you want the load to go Off automatically at a predetermined time via a schedule. In the case where you schedule a load Off at a certain time, the load will not go Off if any of the sensors continue to detect activity (the sensor has priority over the schedule Off). In this context, Auto Off refers only to the sensor control of the load.

## Important items to remember regarding sensor operation:

- Default operation is Auto On / Auto Off if the relay load does not follow a schedule
- Default operation is Auto On / Manual Off if the relay load follows a schedule and is currently scheduled ON or in a Normal Hours mode.
- Occupied and Unoccupied Sensor operation is adjustable
- Manual On / Auto Off mode has automatic grace period of 1 minute in case of a False Off Trigger
- Sensor activity is tracked with a unique Priority Array slot assignment.
- Sensor time delay may be set to minimum on sensor device and programmed to a longer time in Win-Control

### Note

Automatic sensor detection and logic only applies to sensors connected the RD input or GS input. Furthermore, if you use a group code with a function profile such as Master, Blink, Clean, Shed, Force ON, or Force OFF, these function profiles cause non-sensor logic to be applied.

### Occupant Operation:

#### Occupancy Sensor Operation

When an Occupancy Sensor is detected, it is processed with special handling.

There is a reserved position in the Priority Array for occupancy sensors.

By default, Occupancy Sensor activity is handled in an "Auto ON" and "Auto OFF" configuration when connected to an individual relay. This means that when the Sensor detects and occupant in the room, the relay will be controlled ON, and when there is a lack of activity, the relay will be controlled to the OFF state.

Furthermore, there is additional processing that is done if the relay is in a mode indicated by the Occupancy status. Occupancy status is automatically set to "Normal Hours" (or Occupied) at 3:01 AM by default if the relay is scheduled. By default during Normal Hours, a relay will go on automatically when occupant activity is detected (Auto ON) and will NOT go OFF when there is a lack of occupant activity detected (Manual OFF). During "After Hours", the behavior for a relay controlled by a sensor is Auto ON and Auto OFF.

These settings are overridable in WinControl. The following options are available for Normal Hours as well as for After Hours modes: Auto ON Auto OFF

Currently, the implementation of Sensor overrides is such that the system performs Auto ON and Auto OFF during if load is in Normal Hours mode, and does Auto ON and Manual OFF if After Hours mode. The intent would be to have four enumerated types for the Sensor definition, for each of the Normal Hours and After Hours modes. Examples would be Auto ON/Auto OFF, Auto ON/Manual OFF (most occupant friendly), and Manual ON/Auto OFF (most energy efficient). This would require 4 bits of data storage for the properties. The following summarizes the four sensor control definitions, and should be available as a separate setting for each of *Normal Hours* mode and *After Hours* mode.

- Auto On / Auto Off

This scenario is the most typically considered for sensor control. Load automatically turns ON when motion is sensed, and OFF when no motion is sensed at end of a pre-determined period of elapsed time.

### Note

This is the behavior for a sensor used in CC Legacy panels for occupancy sensor inputs, regardless of Normal or After Hours mode. This is used in LI panels for occupancy sensor inputs during times outside of normal occupancy hours (which is this default if the relay does not follow a schedule).

- Auto On / Manual Off

This scenario is generally the most occupant friendly, while least energy efficient. Load automatically turns ON when motion is sensed, and is not turned OFF even when activity is no longer detected. This scenario could be used during Normal Hours, allowing lights to stay on once activated during the normal expected time of occupancy. This scenario would not be desirable without a local override switch to turn the lights off.

### Note

This is used in current LI panels for occupancy sensor inputs when the current status is considered as 'normal occupied' time. This will be true for relays scheduled on or for relays following a schedule that incorporate a default occupancy time of 3:00 AM and before any OFF schedule event.

- Manual On / Automatic Off

This scenario is generally the most energy efficient, but not as occupant friendly. The load must be manually activated via a switch. The load automatically turns OFF when no motion is sensed during a pre-determined period of elapsed time. This scenario would only make sense when a local override switch is available.



## Note

Note that when an Automatic OFF is executed, the system will monitor the Occupancy Sensor for any ON activity during the "Blink Warn" time if Blink is enabled. We recommend using "Blink Warn" enabled on the relay to allow this extra level of occupant sensitivity, which helps prevent a false Off from keeping lights Off when Manual On is selected.

- Manual On / Manual Off

This scenario is typically not used with a sensor because it completely defeats the automatic control aspects of the sensor. This scenario would not be desirable without some type of local override device.

## Note

Not likely to be used, this could be used if you wanted to disable the Occupancy Sensor completely during either an Normal Hours or After Hours mode.

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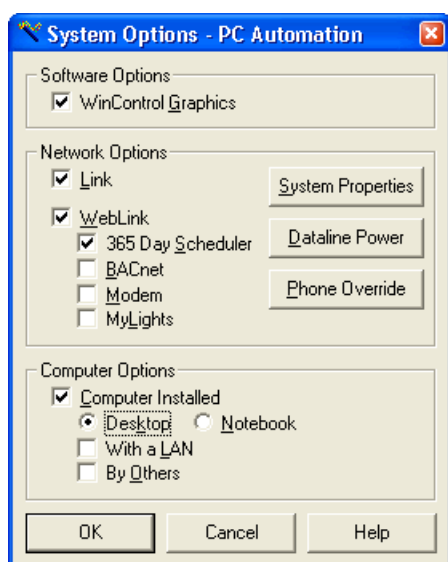
# Chapter 5. Specify System Options

The system options will vary based on whether the system you are designing supports a PC and software for programming and control. Complete Control Card (CC) systems are designed exclusively for use with WinControl as the front end, thus the options described here are for Complete Control only.

## System Options

The following image shows the various system and front end options available for an LI-CC based system. These options may be accessed via the WinControl Helper by choosing the System option.

**Figure 5.1. System Options - PC Automation**



The options you select will be included on the Riser Diagram of the Lighting Control system. These features are as follows:

- **Software Options**

By choosing this option the WinControl Graphics software package is added to WinControl to provide graphical floor plan display of the project. The graphical display has the ability to have real time updates and control.

- **Network Options**

**Link:** A Link device is typically located near the PC to provide RS-232 connectivity from the PC to the Global Dataline of the Lighting Control system.

**WebLink:** The WebLink device offers Internet based connectivity to the Lighting Control system. The WebLink acts as a type of router between the lighting control network and the customer's LAN. With WebLink in place, WinControl can communicate through the customers network rather than require a Link connection direct to the PC. In addition, the following WebLink options are available:

- 365-day Scheduler

Allows schedule configurations from anywhere on the LAN using a standard web browser, with ability to setup repeating schedules, and ability to easily override schedules in advance.

- BACnet

BACnet is an ASHRAE standard for connectivity to Building Automation Systems. Watt Stopper offers a BACnet add-on to WebLink that allows a BACnet capable BAS system to interface to the Lighting Control system.

- Modem

Allows remote dialup access to WebLink over a phone line when a network connection is not available.

- MyLights

Allows occupant control of lighting from their desktop PC, either through a web page or via the automatic desktop override feature.

- **Computer Options:** You may specify the type of computer front end that should be included on the Riser diagram.

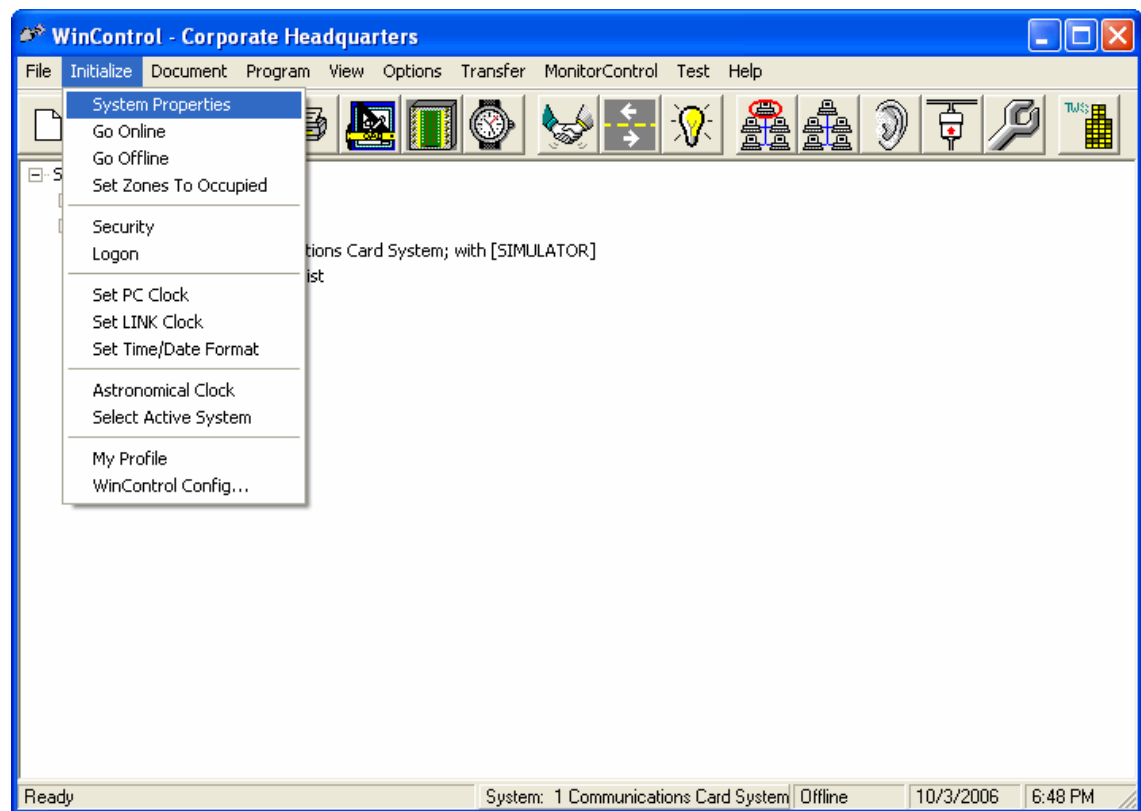
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# Chapter 6. Initialize Menu Options

Use the mouse to point to the Initialize on the menu bar and left click the mouse. The Initialize menu appears with the following commands:

- **Select Active System** For sites with multiple lighting control systems in a common file, you may use this option to select the *Active* system
- **My Profile** Allows you to specify information about yourself that is carried into site files when you create or update files. This is very useful if you will be sending your files to Watt Stopper for review.

**Figure 6.1. Initialize Menu Command**



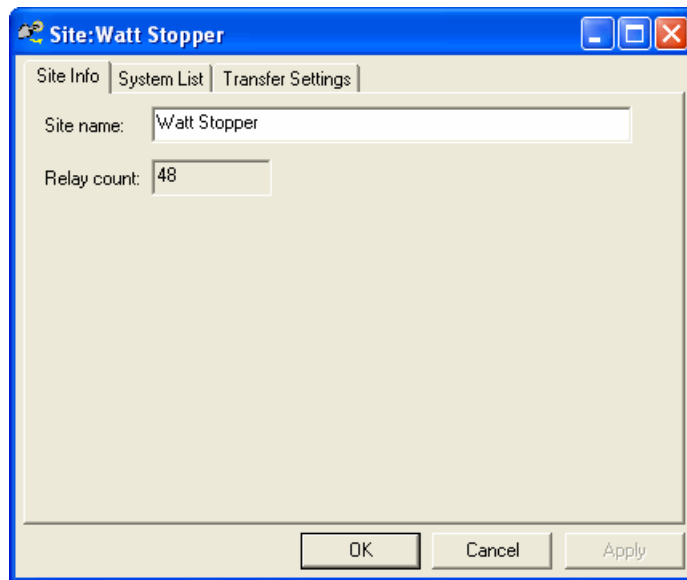
## Site Properties

The Site Properties options are available by right clicking with your mouse on the Site option in the tree view.

There are three tabs with options as described below.

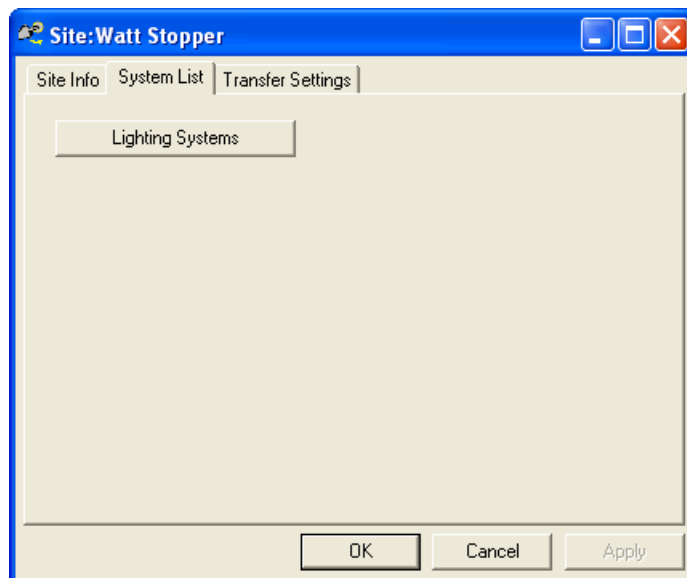
- **Site Info** Display site name and number of relays in the system.

**Figure 6.2. Site Info**

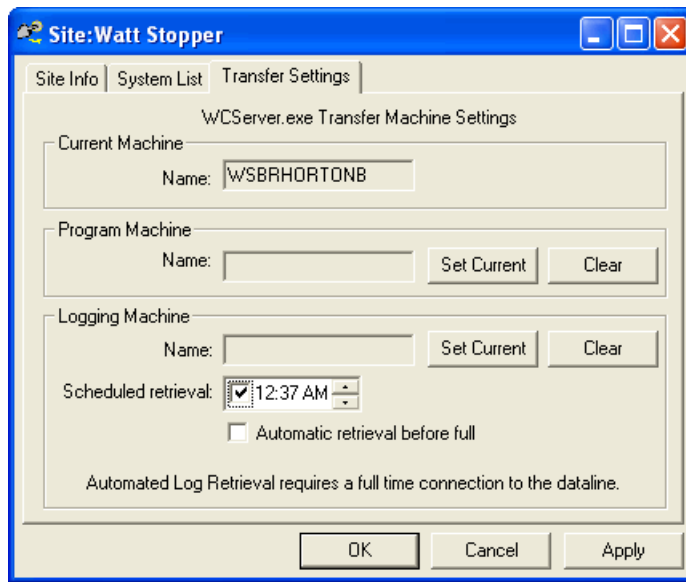


- **System List** Provides a button from which you can access the various lighting control systems in the site.

**Figure 6.3. System List**



- **Transfer Settings** Provides a number of options that you can modify that affects the transfer of data to the various systems in the site.

**Figure 6.4. Transfer Settings**

By default, the Transfer settings are enabled to transfer activity log data every day at 12:38am. This can be changed or disabled on this screen. In addition, there are settings here that allow you to specify a specific computer that is allowed to do transfers of programs and/or historical data. This may be of interest in situations with multiple computers, in which you want to make sure that only one computer acts as the master computer. The Program Machine Name indicates the computer that is allowed to transfer program information. The Logging Machine Name indicates the computer that is allowed to transfer historical data. Because transfer of log history removes that data from the panels, you normally only want a specific computer to do such transfers. The default for both machine settings is to allow any computer to do the transfer.

See Chapter 11, *Trend Reporting Overview* for more information on historical data and Trend reporting options.

See Chapter 10, *Transfer Data Options* for more information on the transfer of historical data.

# System Properties

This option allows input or edit of overall system parameters.

**Figure 6.5. Initialize System Properties Dialog**

The screenshot shows the 'System: 1 Building 47; with COM1' dialog box. It features several tabs: System Info, Devices, Programs, Dataline, Link Status, BACnet, and Load Chart. The 'System Info' tab is selected. The dialog contains the following sections and controls:

- System name:** A text field containing 'Building 47'.
- System Type and Networking Options:**
  - System type:** A dropdown menu set to 'LI with Complete Control Card'.
  - SystemCode Format:** A dropdown menu set to 'Group Code'.
  - A note below states: 'Complete Control Card includes support for Automation Card and PC connectivity.'
- Connection Information:**
  - Connection:** A dropdown menu set to 'COM1'.
  - Connection type:** A dropdown menu set to 'Serial'.
  - Simulator:** A dropdown menu set to 'None'.
  - Baud rate:** A dropdown menu set to '19200'.
  - Phone number:** An empty text field.
- Daylight Saving Time:**
  - ☒ Enable DST ☐ Manually set DST schedule
  - Begin DST:** Month (Mar), Week (2), Day (Sun), Hour (2 am). The date is 'Sunday, March 11, 2007'.
  - End DST:** Month (Nov), Week (1), Day (Sun), Hour (2 am). The date is 'Sunday, November 04, 2007'.
- Global Hardware Settings:**
  - Dataline power supply:** A dropdown menu set to 'DatalinePowerPanel: 1'.
  - Master clock:** A dropdown menu set to '<Master HLink>'.
- Current Demand (in watts):** A text field showing '0' and a 'Refresh' button.

At the bottom of the dialog are four buttons: 'Help', 'OK', 'Cancel', and 'Apply'.

This dialog allows you to set the communications port the system will use, the baud rate (rate of transfer of data) of the port, and the mode of the simulator. The simulator mode determines the extent to which the system will emulate the physical controls for test and offline use.

- System Name is available for a user defined text field to describe this lighting control system. Each individual network of lighting control panels is designated as a system. The only higher level on the hierarchy is the 'Site' which also has a name field. Often there is a one to one correlation of one system per site, but in fact you may have multiple lighting control systems in a single site.
- System Type is used to designate the type of lighting control panels that make up a network. Different types of communications and automation are available for lighting control panels from Watt Stopper. Our newest generation of panels is the Lighting Integrator series, and LI with Complete Control Card is used to designate this system type.
- *System Code* format is used to designate whether 'group codes' used in the system should be in a *Group Code* (single number) format of 1-16000 (recommended for LI CC) or *Switch Code* format of xxx/yy, (where xxx is 0-999 and yy is 1-16) recommended for our legacy CC panels.
- Connection Information allows you to specify how WinControl will communicate with this lighting control system. The most common connection is a Serial connection type on COM1, using the HCABLE-C, at 19200 baud rate. Other options include using the WebLink device, which will require you to change to Socket communicates with a designated IP address, on port 3001. In this case, baud rate is not used. Another option is to 'simulate' a system by setting Simulator to Full. This is useful for demonstrations.

- Daylight Savings Time options allow you to configure the dates that the clock in your lighting control system is set forward and backward due to Daylight Savings. WinControl 2.50 introduces new algorithms to automatically support the new daylight savings rules that go into affect in 2007. Lighting Integrator panels support these changes in WinControl and will automatically adjust the clock with the new dates. Legacy panels are also will work with the new WinControl options, but will require a program transfer at least every two years to ensure the proper dates are set for DST.



# Go Online / Go Offline

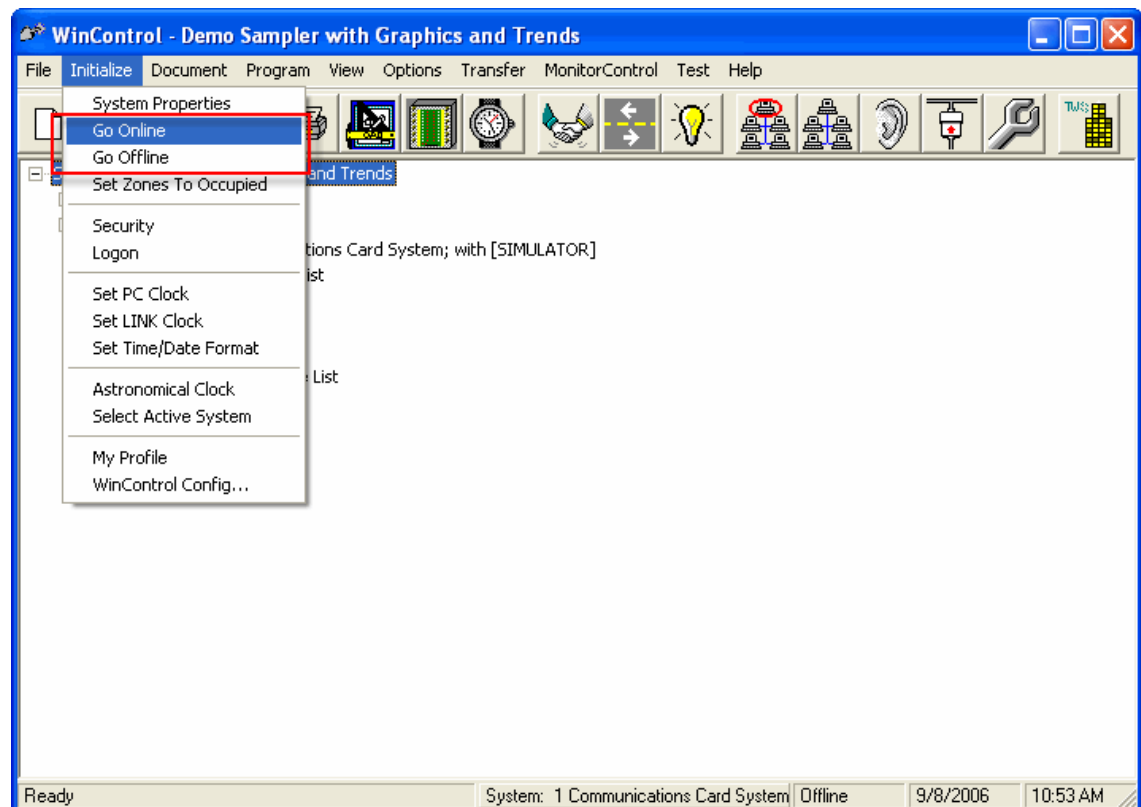
- **Go Online** Connect to the system.
- **Go Offline** Disconnect from system.

Point to the Go Online or Go Offline command allows you to connect or disconnect communications with the field panels using a simple click of the left mouse button (see Figure 6.6, “Initialize Menu Go Online / Go Offline (Connection) Command”) . You must select Go Online to allow the system to communicate with the field panels. The connection must be made to:

- Test the hardware
- Transfer program changes to the hardware and have them take affect.
- Perform control functions or determine status of devices.

If the Go Online command is selected and the connection is made a green *ON* will appear on the Tree View at the *System* branch. If the Go Offline command is selected and the system is not connected a red *OFF* will appear at the System branch.

**Figure 6.6. Initialize Menu Go Online / Go Offline (Connection) Command**



# Initialize - Security Features

This option allows you to Create or edit WinControl system security options.

WinControl's security features are designed to meet current and emerging security requirements for control systems.

## Note

**We recommend you resist the temptation to make this one of the first areas you explore.**

Activating security does not make the system easier to use, and greatly increases the likelihood that a particular feature will not work for a particular user when needed. (e.g. proper roles were not given to the user, or the user has forgotten the user id or password). Therefore we strongly suggest planning and testing the security setup with a 'test' site separately from your primary site file before you 'go live' with your security configuration.

The security component in WinControl is based on:

- Privileges,
- Roles,
- A unique User Identification (UserId), and
- User Password.

A *Privilege* is a permission category, which allows a specified user to perform a given function or functions. Users are granted privileges to do things within the system based on need, so different users will have different privileges. For example, for a User to turn a relay on requires the relay control privilege. The LCP Description function requires the user to have the Document Write privilege. You cannot create new privileges or alter the required privilege for a given function within the security system.

A *Role* is an end user defined collection of privileges. The end user can create as many roles as they like and assign any combination of the privileges that have meaning in their organization. The same privilege can be assigned to more than one role. A "SuperUser" role should be establish that includes all of the available privileges.

A User of WinControl will be assigned a unique *UserID* and *password*. Each user is assigned a single role. This completes the security profile. A User is assigned a role, which is granted zero or more privileges which that user may perform in WinControl. The System Administrator can, at any time, grant or limit a user's access in WinControl as may be needed.

WinControl provides for two different ways to implement user authentication. The default method, WinControl Logon, requires that a user log in with user id and password when opening the Site file. This method uses a user id and password that is stored as part of the site file (in an encrypted way). WinControl is responsible for the authentication process (i.e. the user enters the proper password).

The second method is enabled via the checkbox *Use Windows Logon*. With this option, WinControl uses the currently logged on user id in the Windows environment as the user id. In this case, the authentication of password is done by the Windows operating system. In this scenario, the password stored by WinControl is NOT RELEVANT. The password is set via normal Windows user id and setup processes. This means also that the user is NOT authenticated when the site is opened, but credentials (roles) are validated according to the Windows user. In this scenario you must still do all of the user id setup and role configuration, the

only difference from a setup perspective is that the password is unused, and user ids and passwords must be setup in the Windows operating system security.

A typical scenario to establish WinControl might be as follows:

- Define Users and privileges needed
  - Joe: System Administrator. Super User.
  - Sam: Facility Engineer. All privileges and Super User (Backup SysAdmin)
  - Elaine: Operator. Should be able to control relays and Switches and run diagnostics.
  - Natia: Event Manager. Control event sound and lighting.
  - Jim: Accountant. Needs to be able to turn on his own lights.
- Solution: Create 5 roles as follows:
  - SuperUser: Granted all privileges
  - Supervisor: Granted all privileges except 'Administer Security'
  - Maintenance: Control Relays, Control Switches, Run Diagnostics, General Access
  - General: General Access privileges as required.
  - Technician: Create Devices, Diagnostics, Document Write, Program Write, General Access

Create a user account for each person and assign the Roles.

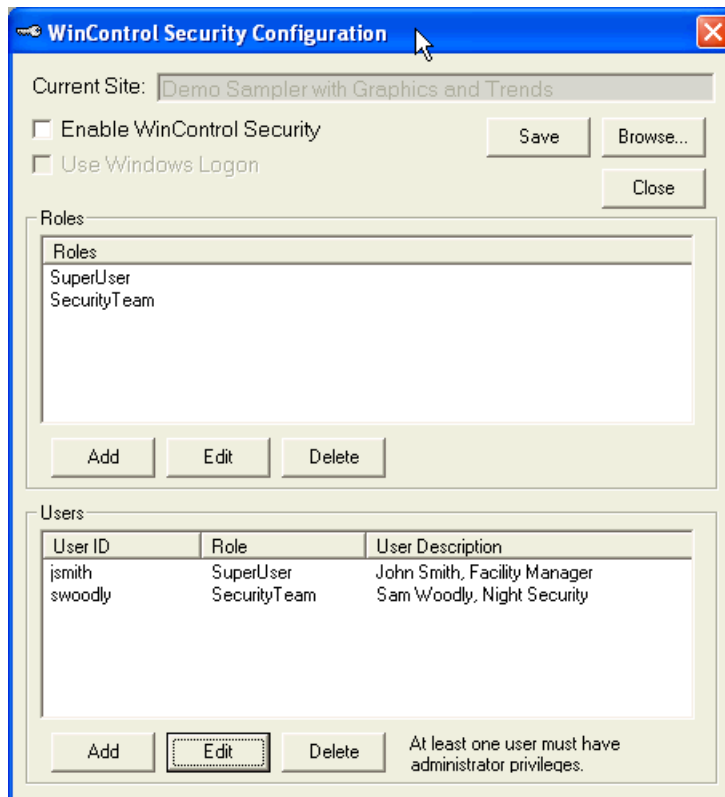
## Security Setup

This is the initial dialog box for establishing your system's security. When you have completed setting up your site security, this screen will display both the roles and users permitted for your system (see Figure 6.7, "Security Dialog Box").

This series of dialogs allows you to establish the level of system security you deem appropriate, or is required at your site. You define who the system users are and what role they will have when using the system. As you identify the users you must:

- Assign their respective roles,
- Set their passwords to control access (unless using Windows logon), and
- Specify what each user will be allowed to do by assigning privileges .

The roles and users are displayed in the respective text boxes.

**Figure 6.7. Security Dialog Box**

When you select Edit on the menu bar the menu provides a New Role and New User command option. If you select New Role, the Edit Role dialog is displayed (see Figure 6.8, “Security Edit Role”). This dialog allows you to identify specific roles and user for the system. You enter:

- The name of the new role,
- A description for the role, then
- Specify the users you want to have the role.

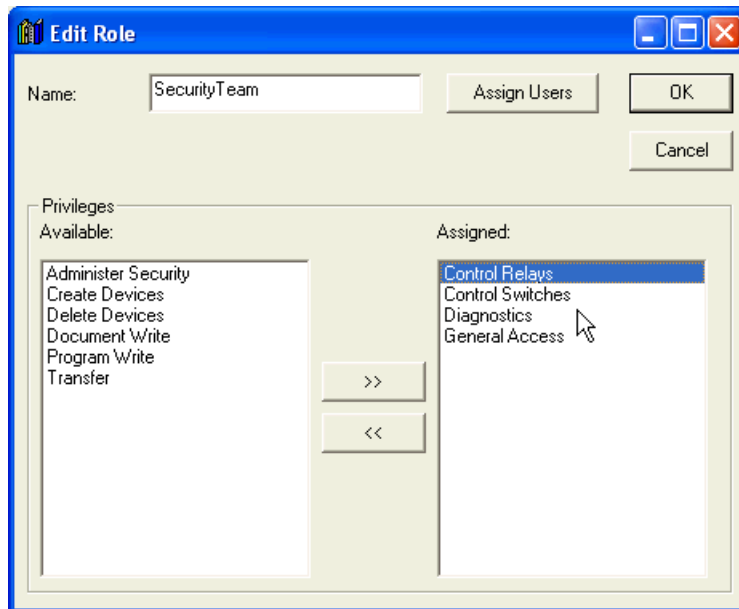
At least one person must be assigned the *Administer Security* privilege for the system. Only staff members with this privilege are permitted to assign roles and privileges. Assign a Security Administrator first, before identifying other users and access.

To assign users, point to the Assign Users command button, left click on it, then:

- Point to the Name text box and left click.
- Enter the Name of the new role.
- Point to the Description text box and left click
- Enter you description for the new role.
- Point to the Assign Users command button and left click.

- Point to the Assigned Privileges list box, point to the privilege to be assigned, left click the mouse to highlight it, then use the arrows between the two list boxes to add the privilege. You can select more than one privilege for a user by repeating the selection/add step.
- Click on OK.

**Figure 6.8. Security Edit Role**



Selecting the New User command displays the Edit User dialog, Figure 6.9, “Security Edit User”. To add a user:

- Point to the Name text box and left click.
- Type in the name of the user.
- Point to the User Description text box and left click.
- Type in the user description.
- Point to the Password text box, left click, then enter the user's password.
- Point to Role text box down arrow and select a role from options in the list box.
- Point to OK and left click.

**Figure 6.9. Security Edit User**

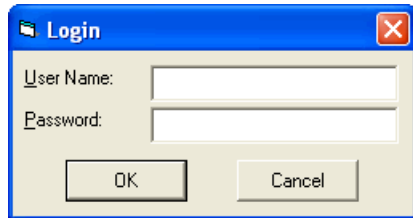
The 'Edit User' dialog box is shown with the following fields and controls:

- User ID:** A text box containing 'jsmith'.
- User Description:** A text box containing 'John Smith, Facility Manager'.
- Password:** A text box with masked characters (asterisks).
- Retry Password:** A text box with masked characters (asterisks).
- Role:** A dropdown menu with 'SuperUser' selected.
- Buttons:** 'OK' and 'Cancel' buttons are located in the top right corner.

# Logon

Selecting this command allows you to Logon on to the system for the selected site. You are only prompted to Logon only if *WinControl Security* has been enabled using the Security option  
See the section called “Initialize - Security Features” for more information on enabling security.

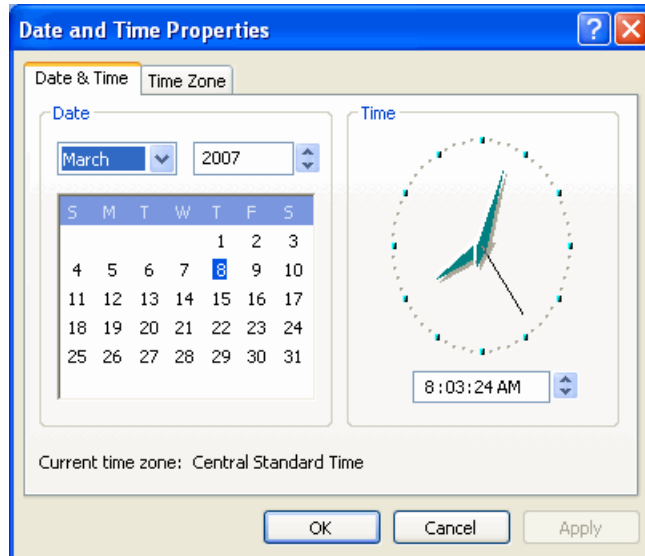
**Figure 6.10. Logon Command**



# Set PC Clock

This command provides direct access to the Windows clock dialog where you can set the date and time information for the PC. The time set in the PC is available to synchronize the Link clock. Figure shown may differ for your version of Windows.

**Figure 6.11. Set PC Clock Command**





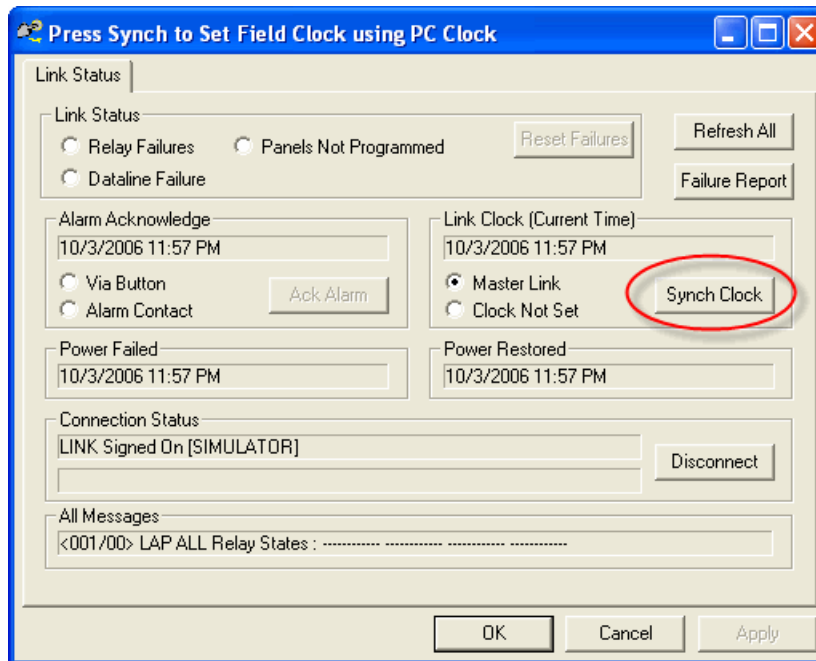
## Set LINK Clock

This command allows you to set the clock functions and synchronize times for the Link (Figure 6.12, “Set Link Clock”). Selecting the Sync Clock button on this dialog institutes a command to synchronizes the Link timing with the PC system timing. If you are plugged directly into a panel, this option will set the clock in the panel only.

The Refresh button invokes a command to "refresh" the displayed status and time information.

The Link Status box displays the current status of various link components and portions of the Complete Control system.

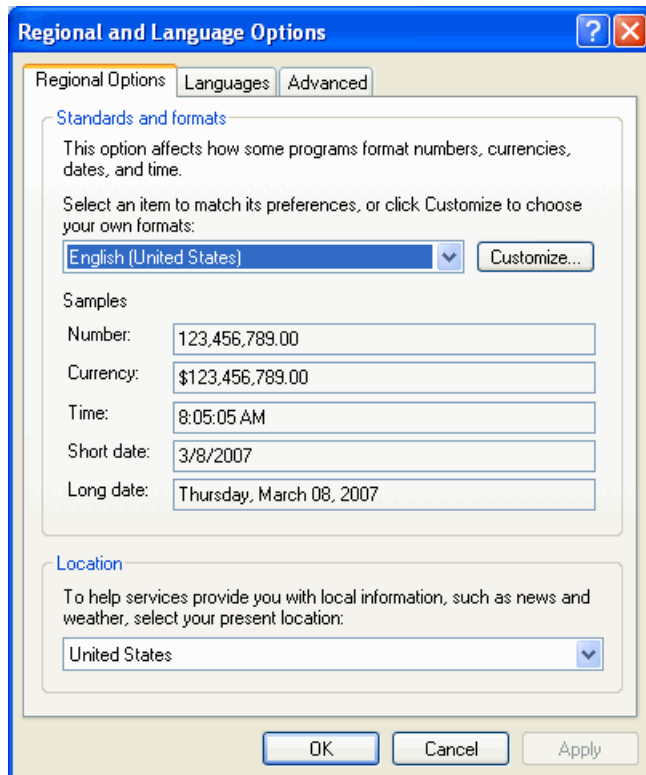
**Figure 6.12. Set Link Clock**



# Set Time/Date Format

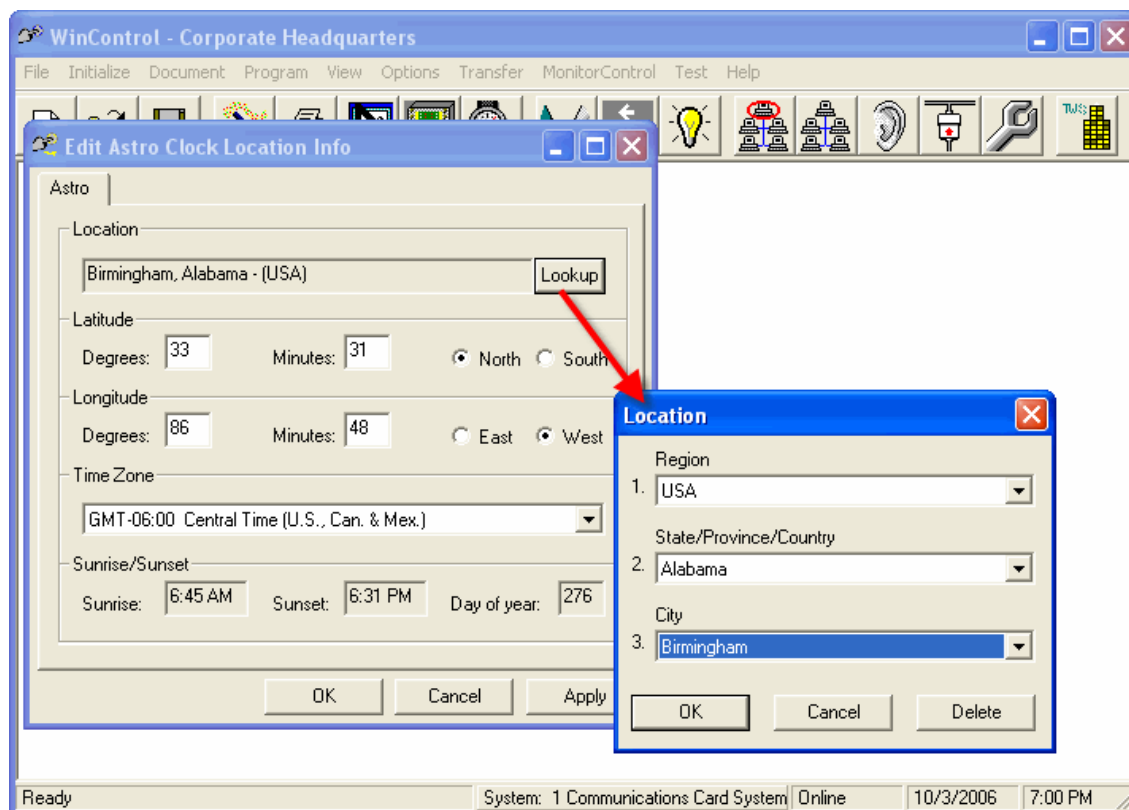
The Set Date/Time format option brings up the operating system Regional Options dialog. This allows you to set the various format options for date and time for your selected region. The format selected is used by WinControl to format the display of time and date in user input dialogs. This option also provides features to define decimal places for numbers and currency data (not used by WinControl) as part of your operating system. Figure shown may differ for your version of Windows.

**Figure 6.13. Set Time/Date Format**



# Astronomical Clock

**Figure 6.14. Astronomical Clock Location**



The astronomical clock feature in WinControl allows you to specify your geographical location so that the system can accurately estimate sunrise and sunset times. This feature lets the system allow the use of natural light in your area without use of a photocell. By setting up the astronomical clock you can also specify in your schedules that devices will be turned On or Off at sunset or sunrise, as well as offsets from that time using a variable number of minutes. The feature thus contributes to insure the schedule-dependent features of the system actually work in a way that is consistent with the natural (available) light in your time zone. See the section called “Program - System - Schedules” for more information on using sunrise / sunset times in your schedules.

When you select the Astronomical Clock command from the menu, the Edit Astro Clock Location Info dialog is displayed (Figure 6.14, “Astronomical Clock Location”). You may enter your location information directly if you know the geographic coordinates (latitude and longitude) of your location, or use the *Lookup* feature.

To enter location information directly, use a mouse click to set the cursor to the Latitude, Degrees text box. The 0 will be highlighted blue. Enter the number of degrees, then touch the Tab key. The cursor will move to the Minutes text box and highlight 0. Enter the number of minutes. You must now select North or South by pointing to one or the other of the options and left clicking the mouse. Repeat this procedure to enter the Longitude of your location.

If you do not know the geographic coordinate information for your site, WinControl provides a convenient *lookup* feature. On the Astronomical Clock Dialog (see Figure 6.14, “Astronomical Clock Location”) use the mouse to point to the *Lookup* button, left click the mouse, and the location dialog appears.

- Point to the Region drop down arrow (right end of the text box), select one of the region options by pointing to it, then left click the mouse,
- Point to the State/Province/Country drop down arrow, make a selection and left click the mouse,
- Point to the drop down arrow for the city, make a selection by pointing to it, then left click the mouse.
- When you've made your selections left click on OK. The system will return you to the Edit Astro Clock Location Info screen and fill in the information derived from your selections.

# WinControl Configuration

This option allows you to customize this installation of WinControl by modifying which options are displayed on the menu, in addition to other configuration options.

See the following topics...

WinControl Config Options

the section called “General”

the section called “WCServer”

the section called “Menus”

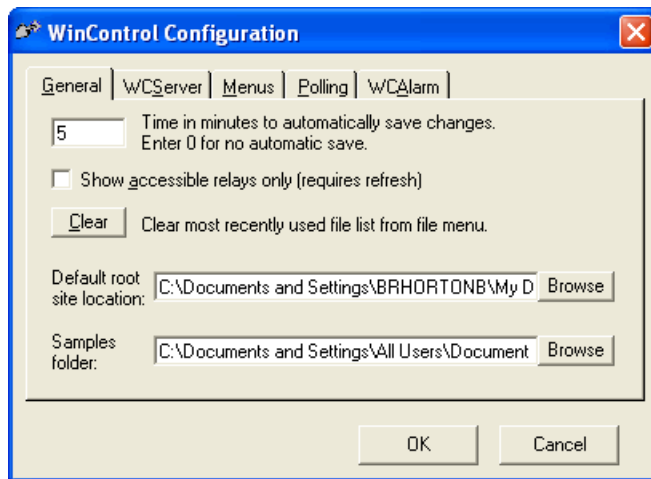
the section called “Polling”

the section called “WCAAlarm”

## General

Access this screen via "Initialize" then "WinControl Config". On this screen you may fill in or modify:

- Time in minutes to automatically save changes... you may enter the number of minutes that WinControl will wait before automatically saving changes. This could help in the event of a power outage to prevent changes or new data from being lost since the last save. If you do not wish to automatically save changes, enter 0 in this field.
- Show accessible relays only... if this box is checked, relay slots that are empty or lack a driver card will not be displayed in the device tree. If this box is unchecked, all relays will be displayed. If you modify this option, you will have to refresh the tree view in order to see the changes. To refresh the tree view select View->Refresh from the main WinControl menu.
- Clear... if you wish to clear the files listed in the most recently used list, press this button. The most recently used file list is located near the bottom of the File menu.
- Default root site location... specifies where you want you site files stored. You can enter the directory location or browse for it.
- Samples folder... specifies where the samples folder is located. The samples folder contains sample site files that display a variety WinControl features. You can enter the directory location or browse for it.

**Figure 6.15. Configuration - General**

- *OK...* saves all information entered on the WinControl Configuration dialog and then closes the dialog.
- *Cancel...* closes the dialog without saving any changes.

## WCServer

WCServer is the runtime engine that performs background processing for WinControl. It runs as a separate, hidden application and its behavior can be configured from WinControl. Access this screen via "Initialize" then "WinControl Config". On this screen you may fill in or modify:

- Use Windows Login

Allows you to use the Windows Logon instead of logging into WinControl each time a site file is opened. Using Windows Logon requires that users be setup in the security database BEFORE enabling security. Disabling Windows Logon authentication requires users to login each time a WinControl site file is opened. The default is disabled.

- Enable DCOM

Allows WinControl to communicate across network boundaries. An instance of the server, WCServer, could be running on one machine, and an instance of the user interface, WinControl, could be running on another.

- Connect to Local WinControl

Tells WinControl to connect to WCServer locally. This option is disabled if Enable DCOM is disabled.

- Connect to Remote WinControl

Tells WinControl to connect to WCServer remotely. This option is disabled if Enable DCOM is disabled.

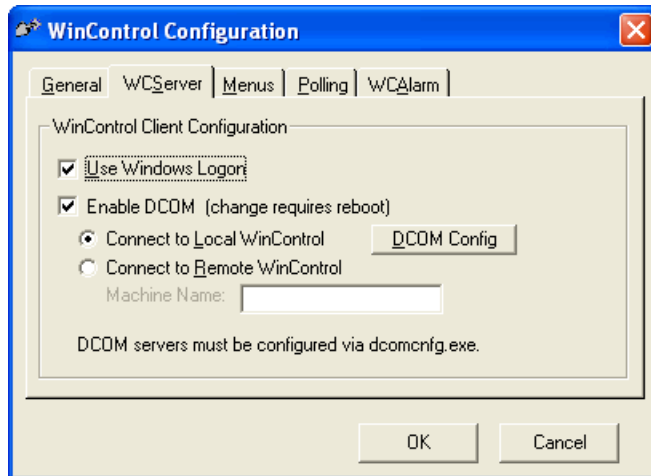
- Machine Name

Tells WinControl which machine to connect to in order to locate WCServer. This option is disabled if Enable DCOM is disabled or if Connect to Local WinControl is selected.

- DCOM Config

Launches dcomcnfg.exe if this file is in the path. This option is disabled if Enable DCOM is disabled.

**Figure 6.16. Configuration - WServer**



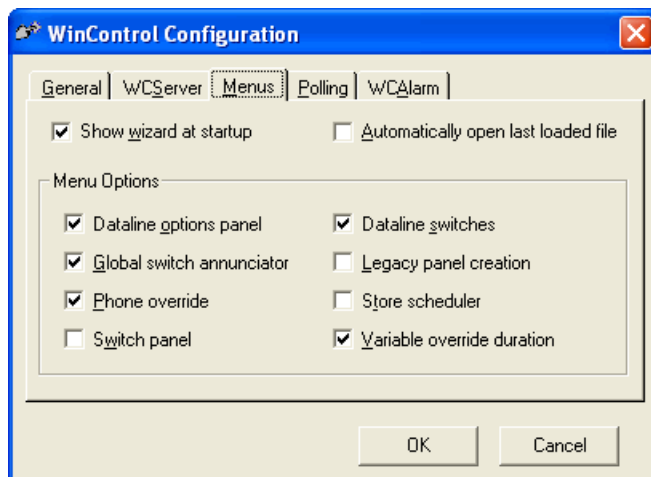
- *OK...* saves all information entered on the WinControl Configuration dialog and then closes the dialog.
- *Cancel...* closes the dialog without saving any changes.

## Menus

- Show wizard at startup... if you wish to see the startup wizard (See the section called “ Starting WinControl ”) every time you launch WinControl, you should check this box. The startup wizard helps guide you through creating or opening a site. Note this option is mutually exclusive with "Automatically open last loaded file".
- Automatically open last loaded file... if you wish to bypass the site file selection process and just open the last loaded site, you should check this box. Note this option is mutually exclusive with "Show wizard at startup".
- Menu Options
  - Dataline options panel... check this box if your site will have dataline options panels. Dataline options panels provide power to the dataline, and they can contain global switch cards and phone override devices.
  - Global switch annunciator... check this box if your site will have global switch annunciators/cards. Global switch annunciators/cards are installed in dataline options panels, and they allow for single switch inputs to control multiple relays or switch/system codes.
  - Phone override... check this box if your site will have phone override devices. Phone override devices are installed in dataline options panels, and they allow users to control relays via the telephone.
  - Switch panel... check this box if your site will have switch panels (aka PSS panel). Switch panels provide extra switch inputs. Each switch input generates a switch/system code. Because these devices are no longer in production, this option defaults to disabled.

- Dataline switches... check this box if your site will have dataline switches (See the section called "Why would I want a Dataline Switch?"). Dataline switches are only available with LI panels, and they are different from other switches in that they do not require a home run for each switch station.
- Legacy panel creation... check this box if you need to create legacy panels for your site. Legacy panels are the old style panels with 12 relay driver cards, as compared to LI panels which were introduced in 2006, and have a relay driver card for every 4 relays.
- Store scheduler... check this box if your site will be programmed with a store schedule. A store schedule provides a convenient way to build schedules around the opening and closing of a store.
- Variable override duration... check this box if your site will use variable override duration schedules. Relays can be programmed for a specific override duration, or they can be programmed to follow a schedule for their override duration. This schedule can vary the override duration based on the day of the week or holiday.

**Figure 6.17. Configuration - Menus**



- *OK*... saves all information entered on the WinControl Configuration dialog and then closes the dialog.
- *Cancel*... closes the dialog without saving any changes.

## Polling

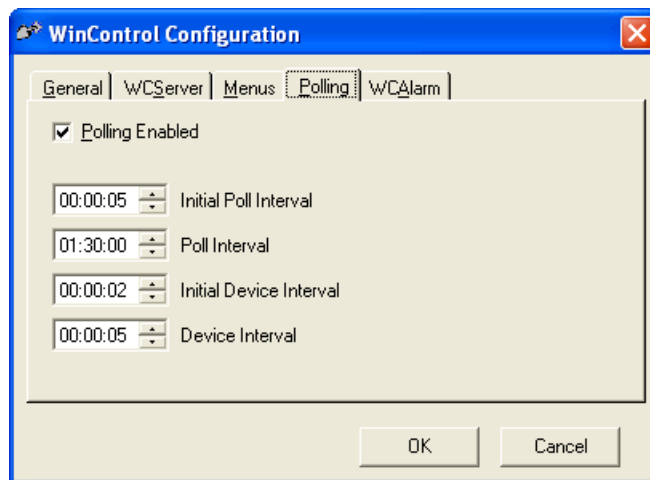
Access this screen via "Initialize" then "WinControl Config". Polling is a process of checking each of the lighting control panels (LCPs) in the system whenever you are 'connected' or 'on-line'. During the polling process, each LCP is queried to verify that the device is responding. This is helpful because without periodic polling, you might not be aware of a non-responsive panel. Each LCP automatically sends out information when its status changes, such as relay changes or a loss of programs, but a panel that is no longer communicating is not able to tell you that, thus we offer the polling feature. Normally you will not need to change any of these parameters. Note that the values below are set in a way to quickly check all panels after first connecting, and then reverting to a slower sequence that generates less activity over time. On this screen you may fill in or modify parameters that affect the polling routines.:

- Polling Enabled... check this box if you want to enable polling for this site. If not checked, panels will not be periodically queried. The default is Enabled



- **Initial Poll Interval...** This is the amount of time that must elapse after first connecting before the system begins to poll the LCP devices. The default is 5 seconds after connecting. This means 5 seconds after connecting, panels will start being queried, one at a time.
- **Poll Interval...** This is the amount of time after completing an entire polling sequence of all LCP devices before another poll sequence will begin. The default is 1 hour and 30 minutes. If this is set to a shorter interval it will cause more dataline activity.
- **Initial Device Interval...** This is a time in seconds that must elapse before a query to the next LCP in the list of devices is performed. This value is used only on the initial poll sequence after connecting. The default is 2 seconds, meaning that two seconds will elapse between checking each panel on the initial polling sequence after connecting.
- **Device Interval...** This is a time in seconds that must elapse before a query to the next LCP in the list of devices is performed. This value is used only after the initial poll sequence has been completed after connecting, which would be approximately 1 hour and 30 minutes after connecting. The default is 5 seconds, meaning that five seconds will elapse between checking each panel on the polling sequences after the initial (faster) sequence.
- **OK...** saves all information entered on the WinControl Configuration dialog and then closes the dialog.
- **Cancel...** closes the dialog without saving any changes.

**Figure 6.18. Configuration - Polling**



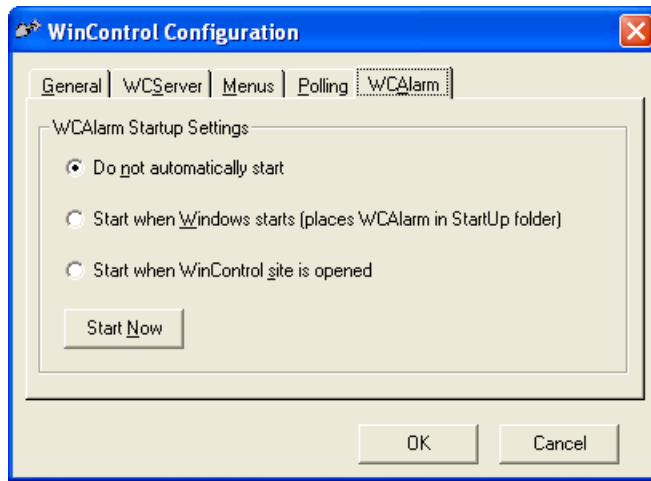
## WCAAlarm

WCAAlarm monitors the lighting control system via an icon in the Windows system tray. Access this screen via "Initialize" then "WinControl Config". On this screen you may fill in or modify:

- **WCAAlarm Startup Settings...** WCAAlarm alarms the user when relay failures occur.
  - **Do not automatically start...** if you do not wish to automatically run WCAAlarm, select this radio button.
  - **Start when Windows starts...** if you wish to automatically run WCAAlarm when Windows starts, select this radio button. This will place WCAAlarm in the StartUp folder.
  - **Start when WinControl site is opened...** if you wish to automatically run WCAAlarm when a WinControl site is opened, select this option.

- Start Now... if you wish to start WCAAlarm now, select this option.

**Figure 6.19. Configuration - WCAAlarm**



- *OK...* saves all information entered on the WinControl Configuration dialog and then closes the dialog.
- *Cancel...* closes the dialog without saving any changes.

---

# Chapter 7. Programming Options

When you have finished documenting your devices, there are a number of programming options that allow you to configure how your system will operate, including

- Scheduling of loads ON and OFF according to time of day
- Choosing which loads should blink before a scheduled OFF
- Selecting which loads are controlled by specific switch inputs
- Creating groups to easily control multiple loads with a single command
- Choosing how long a load should stay ON after hours when overridden by the occupant

The above is a summary of some of the common programming options that are selected. There are many additional options that are also available that are used less frequently, but are described in the sections that follow.

## Program - System - General

The System Info page allows system level options to be set. For non-Complete Control based systems, this and the 'Name' are the only options available.

**Figure 7.1. System Info**

The screenshot shows a software window titled "System: 1 Mixed LI and Legacy Panels; with 10.87.225.225". It has several tabs: "System Info", "Devices", "Programs", "Dateline", "Link Status", "BACnet", and "Load Chart". The "System Info" tab is active. It contains the following sections:

- System name:** A text field containing "Mixed LI and Legacy Panels".
- System Type and Networking Options:**
  - System type:** A dropdown menu set to "LI with Communications Card".
  - SystemCode Format:** A dropdown menu set to "Group Code".
  - A note: "Communications Card includes support for Automation Card and PC connectivity."
- Connection Information:**
  - Connection:** A dropdown menu set to "10.87.225.225".
  - Connection type:** A dropdown menu set to "Socket".
  - Port Number:** A text field containing "3001".
  - Simulator:** A dropdown menu set to "None".
  - Baud rate:** A dropdown menu set to "19200".
- Daylight Saving Time:**
  - ☒ Enable DST ☐ Manually set DST schedule
  - Fields for Month, Week, Day, and Hour for both "Begin DST" and "End DST".
  - Begin DST: Mar, 2, Sun, 2 am. Sunday, March 11, 2007.
  - End DST: Nov, 1, Sun, 2 am. Sunday, November 04, 2007.
- Global Hardware Settings:**
  - Dateline power supply:** A dropdown menu set to "LCP: 124: LI-24 in Mike".
  - Master clock:** A dropdown menu set to "<Master HLink>".
- Current Demand (in watts):** A text field showing "0" and a "Refresh" button.

At the bottom are buttons for "Help", "OK", "Cancel", and "Apply".

For LI-CC and Legacy CC systems, a variety of connection options exist. Generally you can type in the connection string and the Connection type is automatically determined.

- Serial - via COM port or USB-COM adapter. BAUD rate should default to 19200.
- Modem - connect to a TAPI supported modem attached to the computer. Phone number of remote modem with the HLink is required.
- Pipe - rarely used. Connections to legacy HServer product, socket communication is used instead by the newer WebLink device.
- Socket - connections to WebLink or other Internet IP socket connection. Supports IP address or hostname.

Also included in connection information is a Simulator option. This is useful when you would like to test different lighting scenarios without actually controlling occupant lighting. Full simulator mode is very helpful when working with WinControl Graphics. Partial simulation allows for some panels to respond and others to be simulated. This mode is typically useful for sales demonstrations.

In 2007, the Daylight Saving Time schedule has changed for most of North America and with it we have added a more flexible way to update the actual DST schedule. By default, DST is enabled and follows the schedule shown. For regions that do not observe DST, uncheck the DST checkbox. The DST can also be manually set for regions that do not follow the same DST schedule as North America. In these cases, you may set the month, week of the month, day of the week and the hour that your region starts and stops DST.

Global Hardware Settings allows the dataline power supply and the master clock to be documented. Only LI-24 and LI-48 panels support an internal DL card (with 1 per system), otherwise a Dataline Options panel is required to power the dataline. The master clock broadcasts the current time to all panels. Usually the HLink provides this feature but LI-CC panels can also be programmed to broadcast the clock as well. Only one device should be allowed to broadcast the time.

# Program - System - Schedules

## Schedules Overview

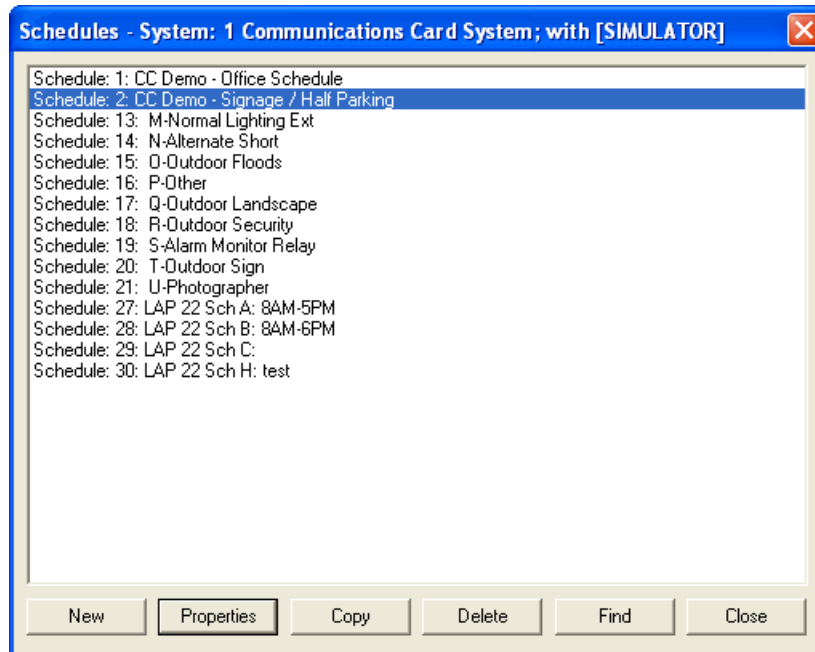
WinControl uses numbers to identify schedules and relies on a “system wide” approach to defining them. A specific schedule defines an entire week, Sunday through Monday, plus three optional holiday schedules. Schedules are defined at the system level, and then are referenced by individual relays. There is a limit in that you cannot use more than 24 of these system wide schedules in a single panel, and there is a system maximum of 999 schedules.

The Program - System - Schedules selection dialog Figure 7.2, “Program - System - Schedule Selection Dialog” can be used to either create a new schedule or edit one currently in your system.

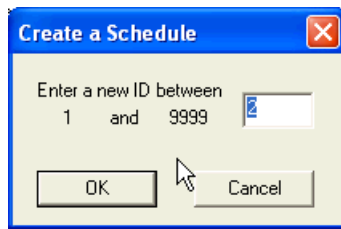
To Create a schedule:

- Click the *New* button in the Selection dialog.
- Enter the new schedule number (1-9999), and click OK (see Figure 7.3, “Create a Schedule”).
- WinControl displays the Schedule Editor shown in Figure 7.4, “Schedule Editor Dialog”.
- Enter the Time and Action applicable for the new schedule for all events in each day by pointing and clicking on the *new* label in the day. Enter your schedule time and the appropriate action.
- Verify your entries are correct, then select either Apply to save the information, or OK to complete the task. If you select Apply, you will then have to select OK to complete the session.

**Figure 7.2. Program - System - Schedule Selection Dialog**



**Figure 7.3. Create a Schedule**



To Edit a schedule:

- From the Create/Edit dialog select the appropriate schedule by using the mouse to point to it, then left click to select it.
- The schedule you selected will highlight.
- Point to the Edit command button using the mouse and left click.
- The Schedule Editor will display Figure 7.4, “Schedule Editor Dialog”.
- Enter the Time and Action applicable for the schedule changes for each day by point to the day with the mouse and left clicking to select the box. Enter your schedule information and the appropriate action.
- Occupancy time is used in a "Manual On/Scheduled Off" scenario. Check the Occupancy time check box to enable manual on and set a time for the scheduled relay to become occupied. Time delays are disabled for relays during occupied periods. Schedules using the Occupancy time should have a scheduled off event for each of the schedule days, including Holidays. Generally, no automatic On events are scheduled providing the most energy efficient control solution.
- Verify your entries are correct, then select either Apply to save the information, or OK to complete the task. If you select Apply, you will then have to select OK to complete the session.

**Figure 7.4. Schedule Editor Dialog**

**Schedule Editor**

Description: CC Demo - Signage / Half Parking      Occupancy time: ☒ 3:01 AM

Monday		Tuesday		Wednesday		Thursday		Friday	
Time	Action	Time	Action	Time	Action	Time	Action	Time	Action
10:00 PM	Off	10:00 PM	Off	10:00 PM	Off	10:00 PM	Off	10:00 PM	Off
Set + 0:00	On	Set + 0:00	On	Set + 0:00	On	Set + 0:00	On	Set + 0:00	On
<new>		<new>		<new>		<new>		<new>	

Saturday		Sunday		Holiday 1		Holiday 2		Holiday 3	
Time	Action	Time	Action	Time	Action	Time	Action	Time	Action
10:00 PM	Off	10:00 PM	Off	10:00 PM	Off	10:00 PM	Off	10:00 PM	Off
<new>		<new>		<new>		<new>		<new>	

Monday schedule event 2 - On at sunset

Store Schedule

OK Cancel Apply

### Schedule Event

The Schedule Event Dialog Figure 7.5, “Schedule Event Dialog”. allows you to select the time of day for a relay to be controlled ON or OFF. Normal time of day entry (specific time) as well as Astronomical values (relative to sunrise or sunset) are allowed. For Astronomical events, the user can specify either before or after sunrise or sunset, and can specify an offset of up to 8:00 (8 hours and 0 minutes).

**Figure 7.5. Schedule Event Dialog**

**Monday**

Schedule Time Event

Time: 1:00      Action: ☒ On ☐ Off

Special Time Options

☒ Astronomical

☐ Before sunrise

☐ After sunrise

☐ Before sunset

☒ After sunset

Turn on at sunset

OK Cancel Delete

# Program - System - Override Duration Schedules

Override Duration Schedules allow for differing duration overrides depending on the day of the week. Override Duration Schedule is also known as Variable Override Duration (VOD).

WinControl uses numbers to identify override duration schedules and relies on a “system wide” approach to defining them. A specific override duration schedule defines an entire week, Sunday through Monday, and Holidays. Override Duration Schedules are defined at the system level, and then are referenced by individual relays. There is a limit in that you cannot use more than 4 of these system wide schedules in a single panel, and there is a system maximum of 99 override duration schedules.

Override Duration Schedules are considered “in use” when a particular relay in a panel is programmed to follow that Override Duration schedule number.

The Variable Duration Override Create/Edit Dialog Figure 7.8, “Override Duration Schedule Editor Dialog” can be used to either create a new schedule or edit one that you have in your system.

VOD allows you to create a schedule of weekdays and specify an override duration for each day of the week. For instance, if you want overrides to last one hour on weekdays and two hours on weekends, you specify these time durations on the VOD dialog. Later, you program individual relays to follow the VOD schedule.

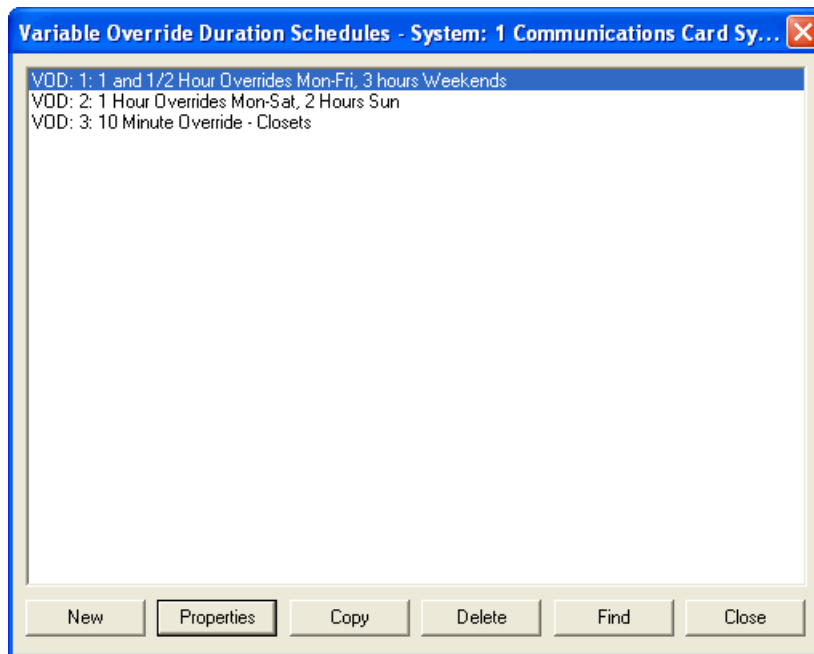
The Program - System - Schedules selection dialog Figure 7.2, “Program - System - Schedule Selection Dialog” can be used to either create a new schedule or edit one currently in your system.

To Create a schedule:

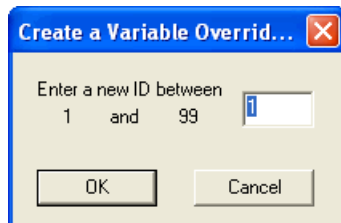
- Click the *New* button in the Selection dialog.
- Enter the new override duration schedule number (1-99), and click OK (see Figure 7.7, “Create an Override Duration Schedule”).
- WinControl displays the Override Duration Schedule Editor shown in Figure 7.8, “Override Duration Schedule Editor Dialog”.
- Enter the Description for the new VOD by pointing to the Description box using the mouse and left clicking to select the box. The blinking cursor bar will display. Enter the description.
- Use the mouse to point to the appropriate day(s), left click to select it, then enter the time(s)
- Verify your entries are correct, then select either Apply to save the information, or OK to complete the task. If you select Apply, you will then have to select OK to complete the session.



**Figure 7.6. Program - System - Variable Override Schedule Selection Dialog**



**Figure 7.7. Create an Override Duration Schedule**



To Edit a schedule:

- From the Create/Edit dialog select the appropriate schedule by using the mouse to point to it, then left click to select it.
- The schedule you selected will highlight.
- Point to the Edit command button using the mouse and left click.
- The Override Duration Schedule Editor will display Figure 7.8, "Override Duration Schedule Editor Dialog".
- Enter the Override Time applicable for the each day by pointing with the mouse and left clicking to select the box. Enter your override duration desired for that day.
- Verify your entries are correct, then select either Apply to save the information, or OK to complete the task. If you select Apply, you will then have to select OK to complete the session.

**Figure 7.8. Override Duration Schedule Editor Dialog**

**VOD: 1: 1 and 1/2 Hour Overrides Mon-Fri, 3 hours Weekends**

Variable Override Duration

vod ID:

Description:

Mon	Tue	Wed	Thu	Fri	Sat	Sun	Hol
<input type="text" value="1:30"/>	<input type="text" value="1:30"/>	<input type="text" value="1:30"/>	<input type="text" value="1:30"/>	<input type="text" value="1:30"/>	<input type="text" value="3:00"/>	<input type="text" value="3:00"/>	<input type="text" value="1:00"/>

OK Cancel Apply

## Program - System - BACnet

WinControl provides a convenient interface to initialize and assign BACnet Device IDs and MAC addresses used with WebLink 2.0. By default, no device IDs are assigned but they can be easily initialized by clicking the *Initialize* button and clicking OK on the Initialize dialog.

**Figure 7.9. BACnet Device Initialization**

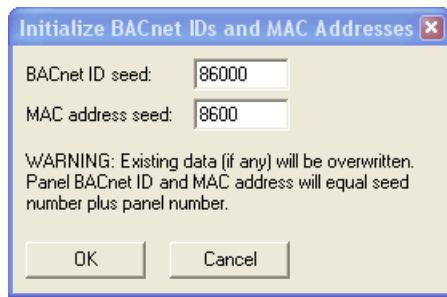
Panel ID	Description	BACnet ID	MAC
1	Ground Floor Relay Panel	86001	8601
2	Second Floor Relay Panel	86002	8602
3	Third Floor Relay Panel	86003	8603
4	Fourth Floor Relay Panel	86004	8604
5	Fifth Floor Relay Panel	86005	8605
11	Ground Floor Exterior	86011	8611
22	Suitable for Live Demo	86022	8622
31	Stadium Application / Virtual	86031	8631
32	Stadium Application / Virtual	86032	8632
33	Stadium Application / Virtual	86033	8633
911	Mechanical Room	86911	9511

The BACnet device values that can be set are listed below. The default values are shown in parenthesis. See notes below on how these values are used to initialize the BACnet system for Complete Control.

1. Virtual Network Number (86) - valid range is from 0 to 65534
2. Network Type (BACnet-IP) - only value allowed
3. WebLink Device ID (86000) - valid range is from 0 to 4194303
4. UDP port (47808) - valid range is from 1 to 65535
5. Virtual Group Codes Device ID (86999) - valid range is from 0 to 4194303
6. Virtual Group Codes MAC address (9599) - valid range is from 0 to 65534

If the *Initialize* dialog is used, the panels will have their values automatically set based on the System Information given. The virtual panel Device IDs are assigned values based on the panel ID plus the WebLink Device ID. The panel virtual MAC addresses are assigned based on the default MAC address seed value in the Initialize dialog plus the panel ID. Both of these values can be changed in the Initialize dialog.

**Figure 7.10. Panel Auto-initialization**

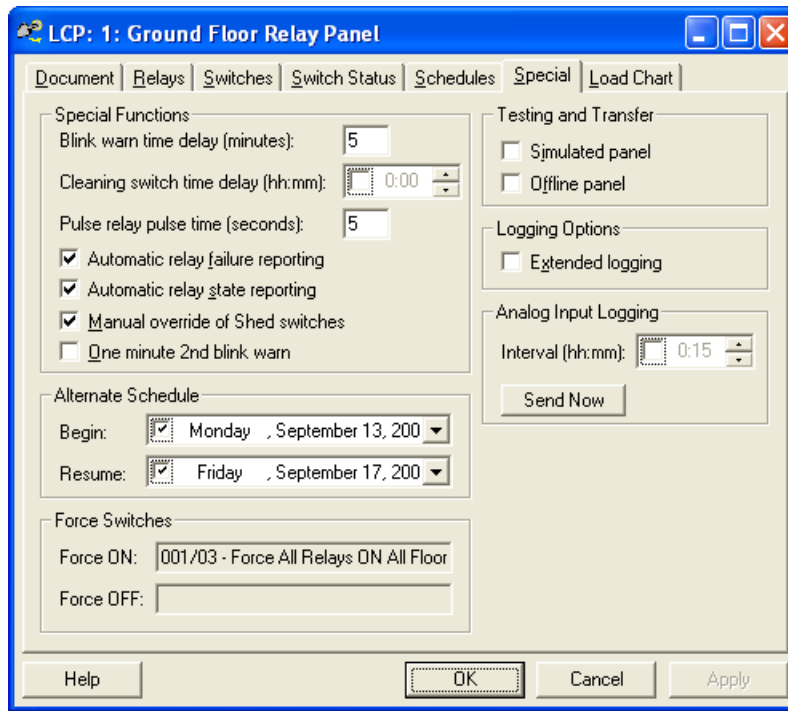


All Device IDs and MAC addresses must be unique and red text will be displayed when duplicate values are found. These values should be corrected before transferring to the WebLink (via program transfer).

To remove all BACnet related device values from the system, click the *Clear* button. All BACnet values are removed from the site data file and will be cleared from the WebLink on the next program transfer. The BACnet property page may be hidden by clearing the values in this screen and removing "BACnet" from the WebLink System Options. See the section called " System Options " for more information

# Program - Panel - Special

**Figure 7.11. Program LCP Special Settings**



Certain **special functions** are adjustable on a per panel basis. These include:

- **Adjustable Blink Warn Courtesy Time**

The Blink Warn courtesy time (grace period) defaults to 5 minutes, but is adjustable from 3 to 99 minutes.

- **Cleaning Crew switch Time Delay**

By default, the override duration time delay used for cleaning crew overrides is the same as the override duration programmed for each individual relay. You have the option of programming a specific duration just for cleaning crew overrides.

- **Adjustable Pulse Relay Pulse Time**

When using the pulse output relay option, you may specify per panel how many seconds the pulse will last. This is adjustable from 1 to 60 seconds. Note that there is also a special feature specifically for AS-100 type loads, which does not use this parameter. The default is 5 seconds.

- **Automatic Relay Failure Reporting**

Normally a relay failure is automatically transmitted on the dataline. You may disable this feature here.

## Note

There is rarely any need to change this setting, which defaults to enabled.

- **Automatic Relay State Reporting**

Normally a relay state change is automatically transmitted on the dataline. You may disable this feature here.

## Note

There is rarely any need to change this setting, which defaults to enabled.

- **Manual override capability for Shed switches**

The shed function is used for daylighting and demand shed scenarios. Relays associated with a shed switch will track the operation of the switch (photo-switch/demand contact) when the load is ON. If an occupant overrides the shed off action, the shed function for his area is deactivated until the next day. The feature that allows an occupant to override the shed function may be disabled on a per panel basis. The default is to allow an occupant to override the Shed feature.

- **One minute 2nd blink warn**

The Blink warn feature provides a five minute default window of relay ON after a blink warn. A 'second' blink warn with 1 minute remaining may be enabled by clicking this option. This option defaults to disabled.

- **Alternate Schedule**

A begin date and resume date may be entered on a per panel basis to specify when the Alternate schedule assigned to individual relays should be in effect. If no resume date is specified, the alternate schedule will stay in effect once the begin date is reached or passed. If the current date is not in range of the begin and resume date specified, the Normal schedule assigned to the relay will be used.

- **Force Switches**

Only one Force ON and one Force OFF switch code or group code may be referenced in a panel (See the section called “ Group Codes ”). This field allows you to see the value of any such reference. (to change you must edit the switch code or group code shown).

- **Test / Transfer Options**

- Simulated Panel

This option is only used in conjunction with demonstration sites, and will not be selected for normal applications. It specifies to WinControl that the software should respond to commands in a simulated manner for demonstration purposes.

- Offline panel

This settings is used to indicate that no transfer of data to the panel should be performed. This is useful if the panel is not available, or if it is a 'phantom' panel used in special applications.

- **Extended logging**

This feature allows LI-CC panels to provide more extensive logging. Only enable at the request of service technicians, as it can cause the log to overflow more quickly.

- **Analog Input Logging**

This feature allows LI-CC panels with CC firmware versions 18 or higher to log analog inputs at a user determined interval. If the interval box is checked (enabled), then all analog inputs (See the section

called “Analog Inputs and LI-CC Panels”) will record their voltages in the activity log at the specified time interval. For example if you have five analog inputs with a fifteen minute polling interval, you will generate five analog input activity log messages every 15 minutes (or 480 messages per day). This can cause the log to overflow more quickly, so normally this option is only turned on to calibrate a photocell, and then it is turned back off again.

### **Note**

The "Send" button is a handy way to immediately update the logging interval. Alternatively you could transfer the entire programming for this LCP (See Chapter 10, *Transfer Data Options*).

# Program - Relay - Options

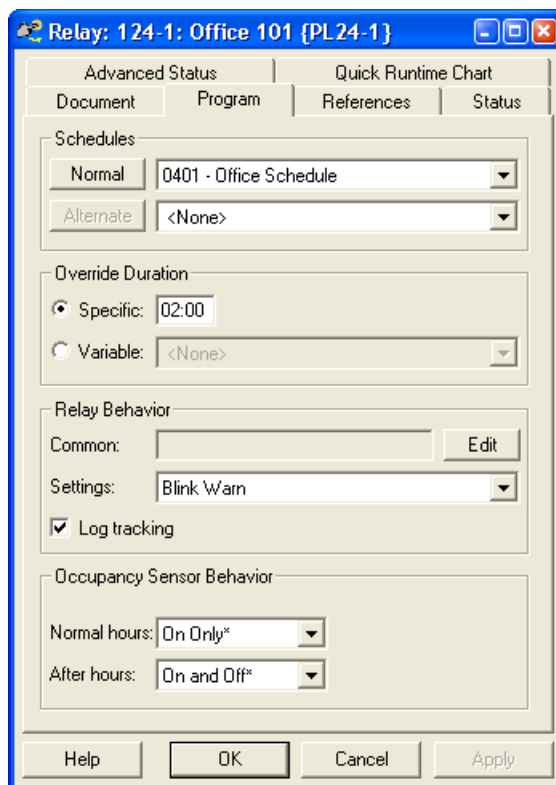
Relays have multiple programming options as follows:

- the section called “Program - Relay - Schedules”
- the section called “Program - Relay - Override Duration”
- the section called “Program - Relay - Behavior”

## Log Tracking

By default, On/Off activity for each relay is tracked in the activity log in the panel. Because the activity log is shared among all relays in each panel, and because the panel has a finite capacity in the log, you may want to disable Log Tracking for relays generating an unusual amount of activity. Though not typically necessary, you may uncheck this option in such a special circumstance.

**Figure 7.12. Program Relay Options**



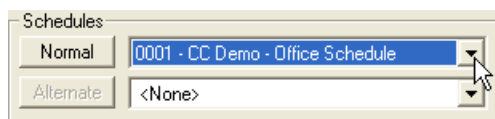


## Program - Relay - Schedules

Typically you will want to schedule relay loads to turn ON and/or OFF during the day. Each relay may be programmed to follow one of the system wide schedule numbers. While you can define as many schedules as you may need, each relay can follow only one schedule except for an alternate schedule during a pre-specified date range. For information on creating Schedules for your system, see the section called “Program - System - Schedules”.

If no schedule is selected for a relay, then that relay will have no scheduled ON and OFF activity, and will only respond to overrides of some type. If a relay is not programmed to follow a schedule, then Override Durations will always be enabled if programmed for the relay (see the section called “Program - Relay - Override Duration”). If a relay is programmed to follow a schedule, then Override Durations are automatically disabled for that relay according to the Occupancy Time for the numbered schedule. See the section called “Program - System - Schedules” for more information on Occupancy Time.

**Figure 7.13. Relay Program Schedules**



The normal schedule features provided in the LI-CC system will probably meet your general needs. However, there may be occasions where you need the system to operate on a different schedule for a specified or predetermined amount of time, then return to normal schedule. As an example, a winter break for a school, or during the holiday shopping season in a shopping mall. Other examples might include construction periods, or tax season for an accounting office. In these situations, you might like to define an entirely different schedule that you would like to be in effect between two specific dates. The LI-CC *alternate schedule* feature provides this capability.

An alternate schedule is programmed by selecting a schedule to be followed per relay during the panels override alternate schedule period. You can do this by selecting an existing schedule number in the Alternate Schedule column. Note that the alternate schedule period is defined on a per panel basis, on the *Special* options page for a panel. See the section called “Program - Panel - Special”. You will specify the beginning and ending dates for running the alternate schedule. On and between these two dates, relays will follow the alternate schedule.

### Notes and Limitations

The Normal and Alternate buttons on this page will allow you make changes to the schedule selected. Other relays may be programmed to follow the same schedule, so be aware editing the schedule may impact other relays. Also, in order to create new schedules, you must use the *Program - System - Schedules* option on the WinControl menu.

Although you may define up to 999 system wide schedules, each panel is limited to referencing no more than 24 different schedules, including both normal and alternate schedules. This limit is automatically monitored by the software. You will be provided a warning when you reach this limit.

If no Alternate Schedule is selected for a specific relay, it will follow its normal schedule between the Alternate Schedule Dates. After the override date end is completed, all relays revert to their normal schedules.

## Program - Relay - Override Duration

Each relay may be programmed for an override duration of up to 23 hours and 59 minutes. This refers to a timer feature that turns loads OFF automatically after a preset amount of time (following an override). Override Duration is used by the system to turn the relay OFF after the relay has been overridden to ON by the occupant. Override Duration may be disabled automatically by the system at the time specified (Occupancy Time) for the schedule selected for each relay. See the section called “Program - System - Schedules” for information on setting the Occupancy Time, which is associated with the relay via its schedule.

Override duration is disabled automatically when a relay is scheduled ON, or when it is turned ON with a Blink Warn switch. Override Duration is enabled again when a relay has been scheduled OFF (or turned OFF) by a switch that has been defined as Blink Warn. If a relay does not have a schedule number specified, the Override Duration is not automatically disabled at a specific time each day.

In some cases it may be desirable to impose a different (variable) Override Duration based on the day of the week. WinControl allows you to select Override Duration schedules for particular relays. You may create up to 99 different Override Duration schedules in your system. For information on creating Variable Override Duration schedules for your system, see the section called “Program - System - Override Duration Schedules”. To use a Variable Override Duration rather than a fixed override time, simply select an Override Duration schedule using the "drop down" arrow in the Variable Override Duration column.

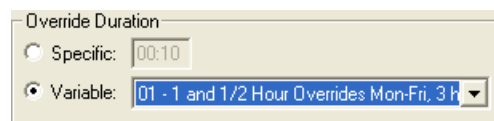
### Limit of four Override Duration schedules per panel

Although you may define many Override Duration schedules, each panel is only able to reference four unique such schedules among all of the relays in the panel. If you exceed this limit, you will receive an error message.

### ARP Support

Variable Override duration is not supported for ARP relays.

**Figure 7.14. Relay Program Override Duration**



Override Duration

☐ Specific: 00:10

☒ Variable: 01 - 1 and 1/2 Hour Overrides Mon-Fri, 3 h

# Program - Relay - Behavior

Relays may be programmed with certain behaviors, based on the type of connected load, and desired performance characteristics. The behaviors described here are adjustable on a per relay basis. Additional settings are adjustable on a per panel basis, see the section called “Program - Panel - Special”.

## Common Area

A relay may be designated as a "common area". It is programmed with a list of relays that may include as few as one, or as many as all other relays in the panel. The list of relays consists of those corresponding to Occupant Areas. When any of the Occupant Area relays are turned ON, the Common Area relay will be turned ON if it is not ON already. The common area relay status will show the relay ON due to common area.

When all relays listed as Occupant Areas for the Common Area relay are turned OFF, then the Common Area relay will be turned OFF. If the Common Area relay is programmed with an override duration, then the override duration will be counted down as an Egress Delay. The Egress Delay provides the last occupant with common area lighting for the time specified. If Blink is enabled for the Common Area relay, the relay will Blink at the end of the Egress duration period, then turn Off five minutes later (if no occupants turn ON their relays).

## Common and Blink Warn Enable

For Common Area Relays, Blink Warn enable is meaningful only when an Override Duration (Egress) time is programmed.

To program a relay as a Common Area relay, click the Edit button to the right of the *Common* label. In the editor, choose relays to be designated as Occupant relays for this Common Area. Think of the common area relay as the relay that will 'watch' the occupant area relays. When an occupant has his area occupied, the common area should be illuminated as well. If you program a relay as a Common Area Relay, you will:

- Usually not schedule the relay,
- Not program switches or phone codes to control the common area relay. Instead, you should allow common area relays to be controlled automatically by the Occupant relays. Occupant relays, in turn, are activated by schedules, switches, and phone codes. You must remember that if a Common Area relay is scheduled or overridden directly, it defeats the common area capability.

Available Settings for behavior are dependent on the panel capabilities, those listed here are for our LI-CC lighting control panels

## Relay Behavior Settings

### • Blink Warn

Blink Warn is a feature that prevents an immediate OFF due to schedule or override duration timeout. If a relay is ON and Blink Warn is enabled for that relay, the relay will turn OFF for 1 second, then back ON in the following situations:

- When it is scheduled OFF,
- When it is turned off by a BLINK WARN group or switch code , or
- When it reaches the end of an override duration timeout.

This feature allows the system to provide the occupant a warning that the lights will be turned off in 5 minutes (the grace period). The occupant may override the system by applicable override, such as switch, phone, or PC. The duration of the grace period is adjustable per panel.

- **No Blink Warn**

If No Blink Warn is selected, OFF commands due to schedule, and OFF at the end of an override duration timeout cause an immediate OFF command.

- **AS-100 Blink Warn**

See the section called “ Using the AS-100 Automatic Switch with LI-CC Panels ” for more information.

- **AS-100 No Blink Warn**

See the section called “ Using the AS-100 Automatic Switch with LI-CC Panels ” for more information.

- **HID**

HID is similar to Blink Warn in that an extra 5 minute grace period is allowed at an OFF due to schedule or override duration timeout. However, unlike Blink Warn, the relay does NOT go OFF at all, until the grace period expires. Therefore, it is best to have some other load that is Blink Warn enabled and visible to the occupant to provide the visual blink warning. As it's name implies, HID is typically used with HID type loads.

- **Pulse N/O**

When a relay is defined as Pulse N/O (normally open contact), the relay may be turned ON (manually, or through any switch or program command), but it will turn itself OFF (open) automatically after 5 seconds. This is useful for connection to contactors that require a momentary pulse (such as mechanically held contactors).

- **Pulse N/C**

A relay defined as Pulse N/C (normally closed contacts) will only turn OFF for 5 seconds in response to an OFF command. The relay will automatically revert to the ON-state after 5 seconds have elapsed. This type of program may be used with a device known as a Sentry Switch. Watt Stopper offers the AS-100 as a smarter alternative to the Sentry Switch, see the section called “ Using the AS-100 Automatic Switch with LI-CC Panels ” for more information.

## **Pulse time is adjustable per panel**

The time of 5-second pulse is adjustable per panel. See the section called “Program - Panel - Special”

## **ARP Support**

The Pulse and AS/100 options are not supported for ARP relays.

**Figure 7.15. Program Relay Behavior**

Relay Behavior

Common:

Settings:  ▼

☒ Log tracking

# Chapter 8. Status Monitoring

There are a variety of ways to monitor and control your lighting system via WinControl. The device tree is displayed after a site file is opened. If a connection is made then the states of the relays can be seen directly. For a more in-depth understanding of the current status of your system, the following items may assist you.

## System Dataline

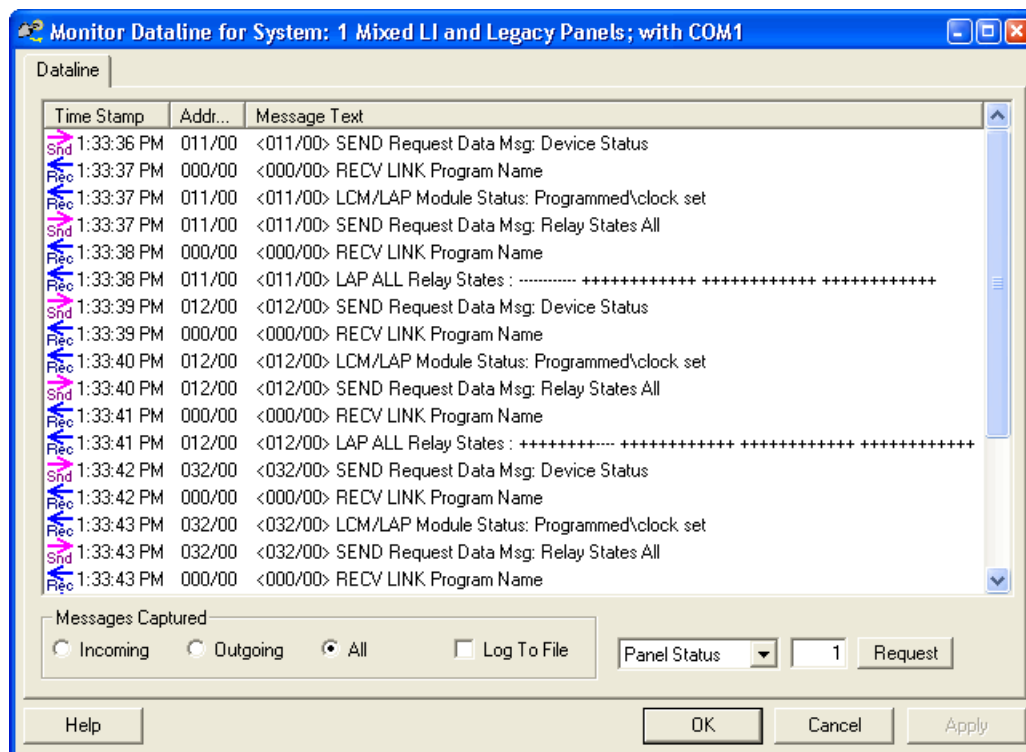
Low level system activity can be monitored from the Dataline Monitor screen. To access the Dataline Monitor, select *MonitorControl* then *Monitor Dataline* on the menu (or, click the "Ear" on the WinControl toolbar).

**Figure 8.1. Show Monitor Dataline Screen**



From here, you can monitor current activity on the dataline including relay changes of state, Group Codes (Switch Codes), Phone Codes, program transfers and other activity.

**Figure 8.2. Monitor Dataline**



# Advanced Relay Status

The Advanced Relay Status page provides information as to why the given relay is in the state that it is. Often times a relay may appear to be 'stuck' either On or Off and this page can tell the reason for its current state.

**Figure 8.3. Advanced Relay Status Screen**

Slot	Value	Initiator	Group	Timer
8-Master	On	CC Network		2
9-Sensor	On	CC Network		0

The table near the top of the screen reveals the internal Priority Array state of the relay which is similar to a BACnet priority array. Typically, a relay is On due to a Master override, by schedule, or by sensor. Each of these On commands use a different priority slot and higher priority (lower numbered) slots 'override' lower priority commands. These 'slots' are numbered from 1 to 16, with 1 being the highest priority. The highest priority (or current) slot is listed at the top of the table. The highest commands that CC supports are the Force commands with Force On at slot 2 and Force Off at slot 3.

The page will automatically refresh whenever it detects a change of relay state (On or Off) but you can click 'Refresh' to read current values and monitor the Timers.

The other status items show:

1. Time stamp: time of last event
2. Mode: Indicates whether the relay is in Normal Hours (Occupied) or After Hours (Unoccupied) related to time schedules.
3. Sensor List: the list, of up to 4, sensors that control this relay.
4. Shed Status: 'Inactive' indicates normal relay behavior. 'Active' indicates the relay has been Shed Off (slot 4). 'Warned' indicates that the relay has been overridden by Master once, blinked and turned back

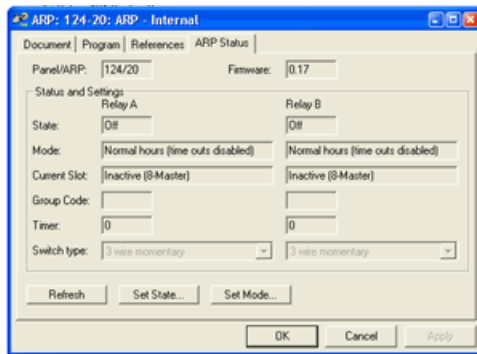
off. 'Exempted' indicates the relay has been overridden a second time by Master and can be kept On. Shed Exemption is a panel programming feature.

Set state allows the relay to be commanded to a specific slot state. This can be a very powerful command and should be used with care. Setting the mode is also available and allows various properties of the relay to be set or cleared including Normal/After Hours, shed, runtime data, and relay failures.

## ARP Relay Status

An ARP (Automatic Relay Pack) is defined as having 2 small, independent relays that act as one relay for control purposes.

**Figure 8.4. ARP Status**



This screen shows the current state of each of the relays and what the current occupancy mode is. The current slot indicates the *active* priority array slot for each relay as well. Other lower priority slots may also be active but that data is not available from the ARP. The status information is not as full featured as a normal LI-CC relay.

The status page also shows the Group Code that last controlled this ARP and the current count down timer value, if it is in effect. The switch type indicates the current DIP switch settings inside the ARP that defines the type of switch attached to the ARP inputs.

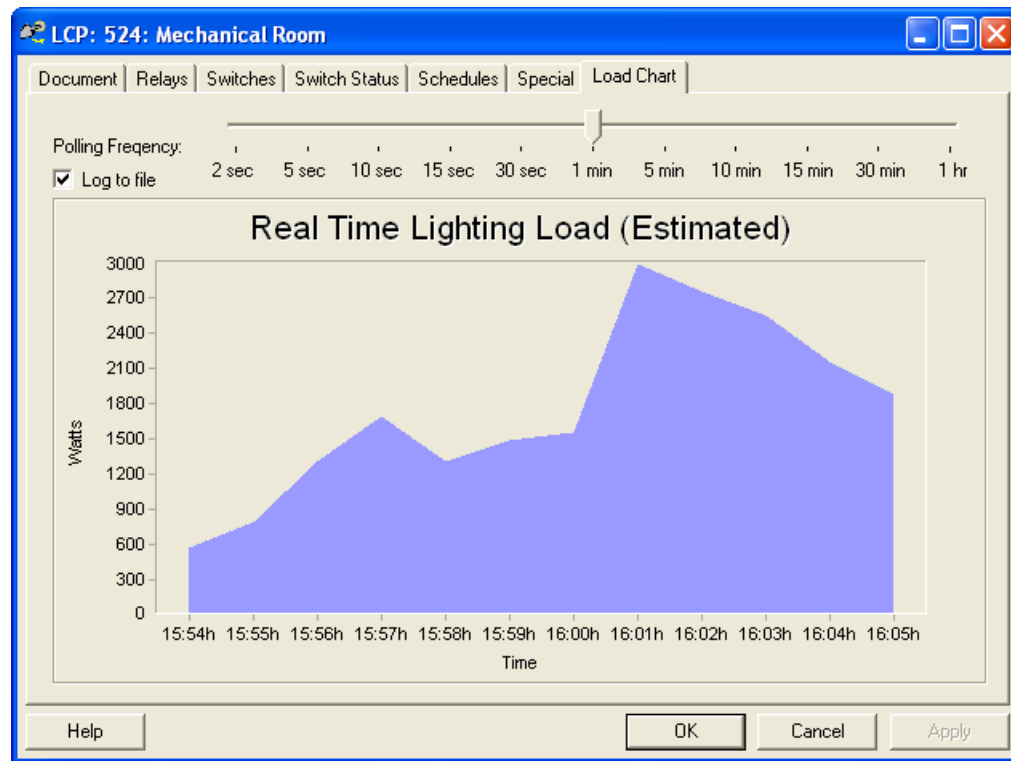
The Refresh button may be pressed at any time to get the latest status of the ARP, however, any time the ARP changes state the screen should automatically update. Set State will set the priority level and state of both relays in the ARP. Set Mode also sets or clears various internal modes of the ARP, both relays, including shed and occupancy.



# Load Chart

Real time load charting is available for both panels and systems.

**Figure 8.5. Load Chart**



Simply click the "Load Chart" tab when viewing the panel properties or the system properties, and if you are connected you will see a real time load chart for that device. Select a polling frequency of between two seconds and one hour, and the chart will automatically be updated on that interval.

If the "Log to file" check box is checked, all data displayed on the chart will also be logged to a comma-separated values (CSV) file. This file will be located in the site's "Report" folder, and it will be named after the device it is logging. For the example above, this file would be named "RelayPanel524Load.csv", and it would contain values as seen below:

```
"2010/01/07 15:49:16", 20
"2010/01/07 15:50:16", 40
"2010/01/07 15:51:16", 60
"2010/01/07 15:52:16", 150
"2010/01/07 15:53:16", 210
"2010/01/07 15:54:16", 570
"2010/01/07 15:55:16", 790
"2010/01/07 15:56:16", 1310
"2010/01/07 15:57:16", 1690
"2010/01/07 15:58:16", 1310
"2010/01/07 15:59:16", 1480
"2010/01/07 16:00:16", 1560
"2010/01/07 16:01:16", 3000
"2010/01/07 16:02:16", 2760
"2010/01/07 16:03:16", 2550
"2010/01/07 16:04:16", 2160
"2010/01/07 16:05:16", 1890
"2010/01/07 16:06:16", 1560
```

### Note

The load is calculated by adding up all of the documented circuit loads for all of the relays that are currently turned *On* in the device. If no circuit loads have been documented or if they are all set to 0, then this chart will have nothing to display (see the section called “Documenting Panels - Relays”).

---

# Chapter 9. Dataline Switch Commissioning

Unlike Lighting Control Panels and Relays, Dataline Switches do not have a physical address id that is set on the device. Instead, each Dataline Switch has an internal identifier (a 'neuron id') much like a serial number which allows each device to be uniquely identified. Because this internal address is not visible to the user, it is necessary to perform a 'commissioning' process for all dataline switches that will allow the user to connect WinControl documentation and programming to the physical device installed in the field. This section describes how this process is performed using WinControl.

The commissioning process is normally only performed once, at time of installation of the dataline switch devices. Dataline Switch commissioning is done on a 'per panel' basis, for each panel installed in the system that has dataline switch devices installed.

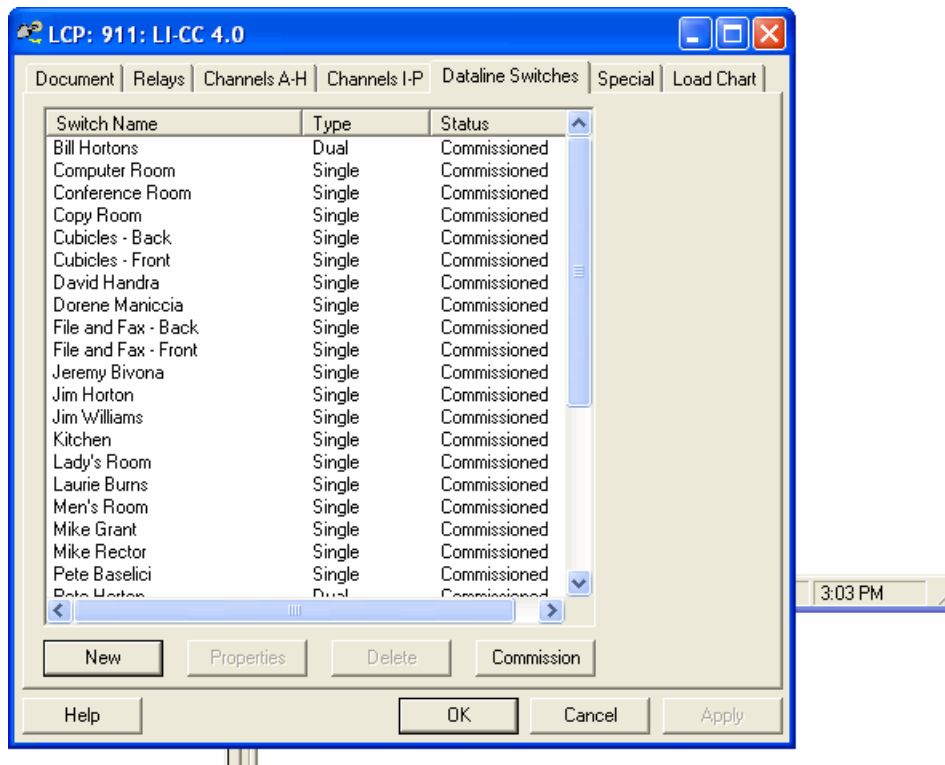
Depending on the situation, you may handle the commissioning in different ways. Here are some common scenarios:

- New Installation... Dataline Switches are documented and programmed in WinControl.
- New Installation... Dataline Switches are not documented in WinControl, but have been smartwired and are function.
- Existing Installation... A Dataline Switch needs to be replaced in the field.
- Existing Installation... A new Dataline Switch is added to the system.

## Commissioning Process

To start the commissioning process, the user first selects the panel to commission and then chooses the Dataline Switches property page.

**Figure 9.1. Dataline Switches**



At the bottom of the page is the "Commission" button. This button is always enabled and allows the user to commission dataline switches whether or not they are already documented.

When the user clicks the "Commission" button, they will be asked if they would like to discover dataline devices.

**Figure 9.2. Discover Dataline Devices**



If the user answers "Yes" to this question, the "Commission" dialog will be displayed in "Discover" mode, and the discovery process will start automatically. If the user answers "No", the "Commission" dialog will be displayed in "Manual" mode, and dataline switches will be discovered when they are manually activated.

In either mode, a list of discovered devices (if any) will be displayed to the user. (see the section called "Commission Dialog")

# Commission Dialog

The commission dialog is used to match up the documented devices with the actual devices found on the dataline. This dialog initially contains a grid with two commissioning modes, "Discover" and "Manual", plus a couple of check boxes and buttons.

**Figure 9.3. Commission Dialog**



## Commission Dialog Controls

- **Advanced** - This check box adds the two commissioning modes "Bindings" and "WinControl" (see Commissioning Modes) to the dialog.
- **Show all discovered devices** - This check box is only available when the "Discover" tab has been selected. When checked all discovered devices are displayed, when unchecked only *uncommissioned* devices are displayed.
- **Dataline Devices Grid**

**Table 9.1. Dataline Devices Grid**

Column	Description
ID	Discovery table slot id (not persisted)
Time	The time that device was discovered. During manual operation, this time shows when the device's <i>SmartWire</i> pin was pressed.
Type	"Single", "Dual", "Quad", "Octal", or "USM" (Single, Dual, Quad and Octal may optionally be keylock switches)
Neuron Id	Each device on the dataline should have a unique neuron id.
Status	"Commissioned" indicates a discovered devices has been associated with a documented device and has been assigned a slot. "Activated" indicates the <i>SmartWire</i> button was pressed but still NOT commissioned. "Not Commissioned" indicates the device has not been commissioned yet.
Name	The name assigned to the switch. Typically the user assigns names during the switch documentation phase (see the section called "Documenting Dataline Switches"), but the switch could have automatically been assigned a name during automatic discovery (see Figure 9.4, "Auto Create New Devices").
Version	Displays internal dataline device version information.
Slot	Displays the assigned slot (1 to 63) for the dataline device. Any devices with a slot of 0 have not yet been commissioned.

- **Commission...** - This button allows the user to commission the selected dataline device (see the section called "Select Device to Commission").
- **Properties...** - This button allows the user to edit the documentation and programming for the selected device (see the section called "Documenting Dataline Switches").

## Commissioning Modes

- Discover - Devices are automatically discovered and displayed in the grid. If any new undocumented devices are found at the end of this auto discovery process, the user will be asked if they wish to automatically create and commission them.

### Figure 9.4. Auto Create New Devices



- Manual - Devices are discovered and displayed when they are manually activated. To commission the dataline switches in this mode, the user must visit each switch and press the *SmartWire* button. This button is covered by the switch plate, so it will need to be removed for this process. As each button is pressed, the table fills with the information for that switch including the time the button was pressed (computer time).
- Bindings - Displays information from the panel's perspective by querying the slots on the Automation card. This tab is only available when the "Advanced" check box is checked (see Commission Dialog Controls).
- WinControl - Displays the information known by and stored in WinControl (site data file). This tab is only available when the "Advanced" check box is checked (see Commission Dialog Controls).

This dialog will attempt to automatically commissions switches that have a type that is unique within the panel. For example, if there is only one Quad defined and it is discovered, then the documented switch is automatically bound to the discovered switch. If, on the other hand, there are multiple Quads defined, then the user will have to manually identify and bind the switches by using the "Commission..." button (see the section called "Select Device to Commission"). Up to 63 dataline devices per panel are supported.

### Note

Any of the information entered on screen is stored in the memory (RAM) of the computer. This information must be permanently saved by selecting *File* from the Menu Bar, then selecting *Save*. This will save the new data as part of the site data file on the PC.

Also for this commissioning to take effect, the programming must be transferred into the panel. (see Chapter 10, *Transfer Data Options*).

## Select Device to Commission

This dialog is used to individually match a device found on the dataline with a documented device. To access this dialog, the user first selects a discovered switch from the Commission Dialog (see Figure 9.3, "Commission Dialog"), and then presses the "Commission..." button.

### Figure 9.5. Select Device to Commission



This dialog will display different switches based on the check boxes below.

- Only Show Not Commissioned - When checked, only uncommissioned switches are displayed in the list. This is the default, and it helps narrow down the available choices for commissioning a new switch.

When unchecked, commissioned and uncommissioned switches are displayed. This allows for re-commissioning switches that were incorrectly commissioned or to replace malfunctioning switches. Selecting a previously commissioned switch and pressing "OK" will overwrite the previous commissioning data.

- Matching Types Only - When checked, only switches of the same type (Single, Dual, Quad, Octal, USM or Keylock) are displayed in the list. This is the default, and it helps ensure that the documented switch type matches the actual switch type. When unchecked, switches of any type are displayed in the list.

To commission the switch, the user selects the appropriate documented device from the list, and clicks "OK". If the desired device is not listed, the user can uncheck one or more check boxes, or the user can press "New" to document a new switch. If "New" is pressed, the user will be asked to name the switch (see Figure 3.21, "New Dataline Switch"), and then the switch will automatically be created (based on the current button count) and commissioned.

## Replace Malfunctioning Switch

To replace a malfunctioning switch and commission it, enter commissioning mode (see the section called “Commissioning Process”). When the discovery process is complete, select the newly installed switch (there should only be one) which is the one that is not commissioned. Press the "Commission" button to enter the "Select Device to Commission" dialog (see the section called “Select Device to Commission”). Uncheck "Only Show Not Commissioned", select the documented switch that is being replaced, and press "OK" to overwrite the old commission data.

### **Note**

For this commissioning change to take effect, the programming must be transferred into the panel again. (see Chapter 10, *Transfer Data Options*).



---

# Chapter 10. Transfer Data Options

Select Transfer from the Menu Bar to display the transfer options (see Figure 10.1, “Transfer Menu”). Note that the *All Data* and the *Historical Data* options have submenus (see Figure 10.2, “Transfer All Menu”).

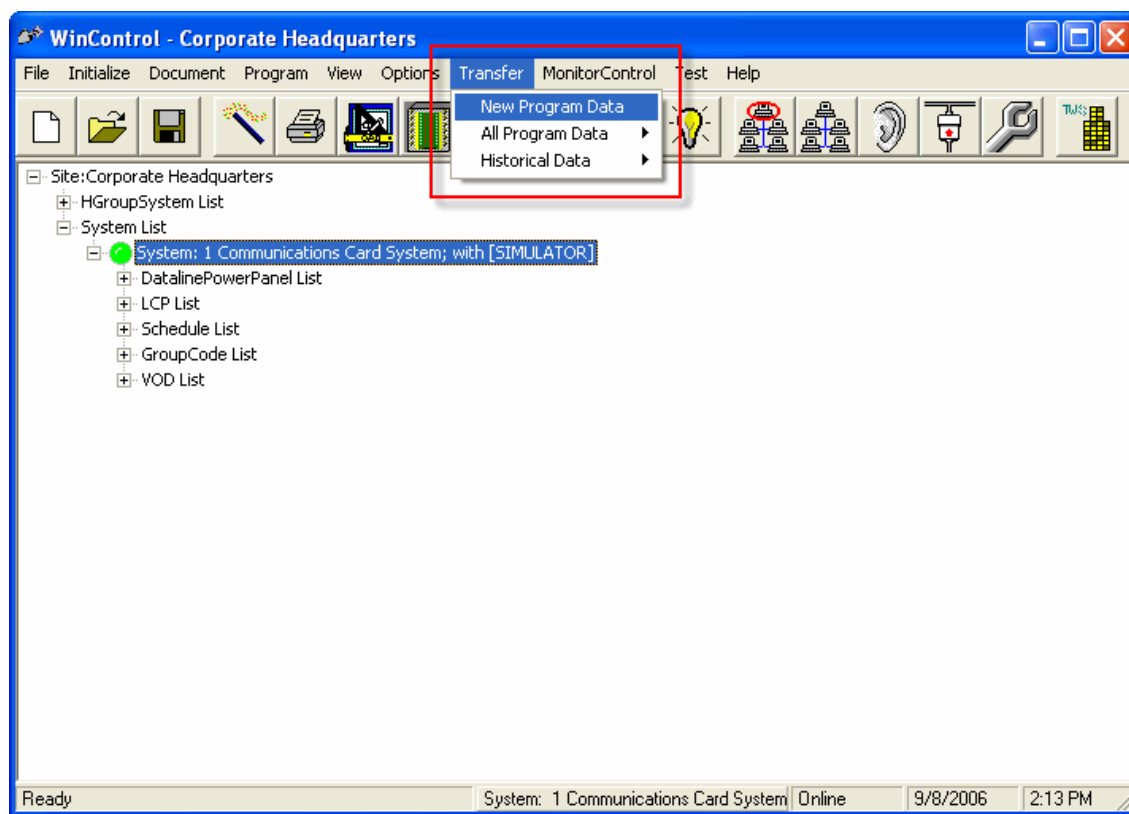
- New Program Data
- All Program Data
- Historical Data

Any of the information you enter on screen is stored in the memory (RAM) of your computer. This information must be permanently saved by selecting *File* from the Menu Bar and selecting *Save*.

The *New Data* option is the preferred method for sending all of the device programming information you enter using the software and PC to the field hardware (LCP, Global Switch, and Phone Override devices). By selecting this command you send your data over the communications link to the field hardware. *Until you transfer the data to the devices, the lighting control system will not operate according to the program information you entered to the system.*

For any transfer operation, a list box will display the status of the transfer as well as any errors. LCP devices hold the most information and will require the most time to update. A progress bar will show the progression of the transfer for individual panels.

See the section called “Site Properties” for more information on transferring your programs with multiple computers as well as automatically transferring historical data.

**Figure 10.1. Transfer Menu**

If any problems are encountered during the transfer processing, such as devices not responding, the *Transfer Agent* dialog will display the information. Be sure to scroll through the Transfer Agent Dialog after completion of the transfer to determine if there were any noted errors.

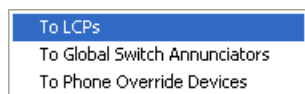
## New Data

Use the *Transfer New Data* to insure update of all devices.

The New Data command sends all of the device programming information you enter to the PC to the field hardware (LCP, Global Switch, and Phone Override devices). By selecting this command you send your data over the communications link to the field hardware. Until you transfer the data to the devices, the lighting control system devices will not operate according to the program information you entered to the system

## All Data

The (Transfer) All Data command allows you to send all data to the field hardware, whether or not the information has changed. Point to All Data. A sub-menu is displayed (Figure 10.2, "Transfer All Menu"). Slide the pointer over to the sub-menu, point to the option you want to use, left click the mouse. Use this option if you want to update a single device or particular devices only.

**Figure 10.2. Transfer All Menu**

- To LCPs Option

This option transfers all LCP programming information to all selected LCPs. If you are connected directly to an LCP then only that LCP will be updated.

To select multiple panels in the "Select Device" dialog, hold down the Shift key and left click on devices selected consecutively. If the devices are not in order, hold down the Ctrl key and left click the devices. Each device you select will highlight.

- To Global Switch Annunciators

This option transfers both new information to the selected GSAs, or any modifications you have made to existing GSA.

- Phone Override Devices

Transfers both new or changed information to the selected Phone Override devices.

## Historical Data

The (Transfer) Historical Data command allows you to retrieve historical data from the field hardware, and store it on the PC. There are various types of historical data available through the Options - Trend reporting menu. There are also options to automatically retrieve this data, see the section called "Automatic Retrieval of Log and Runtime Data" for more information. These options include Activity Log and Run Time data.

- Get All History

This transfer option is recommended, as it retrieves all data from the field devices, including both runtime and historical activity log data, for all panels. See systems for information on automatically retrieving history data.

- Get Log Data

This option transfers log data collected by the LCPs to the computer, thus allowing you to create a permanent record of the activity log information. When you transfer the log data to your computer the system clears the log in the panel. The activity log information can be accessed through the Trend reporting options.

- Get Run Time

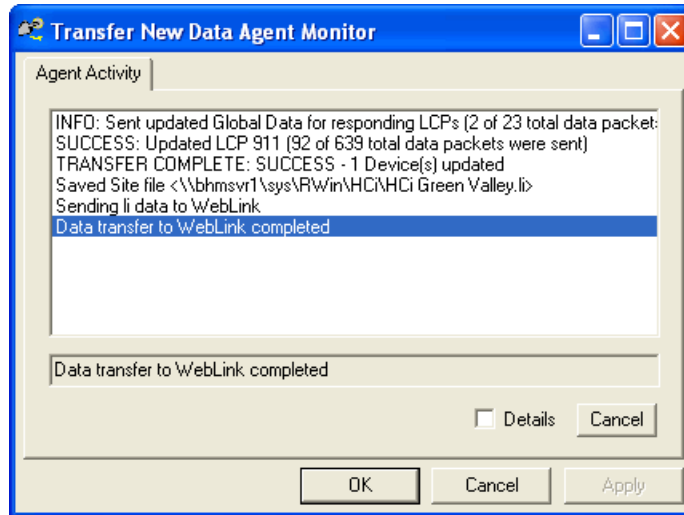
This transfer option transfers relay run-time data for a LCP. The information is stored on disk and can be used by the Trend option.

## Transfer Monitor

During the transfer process, of either programs or historical data, the Transfer Monitor window will display. This window is a convenient and expedient way to monitor the status of the transfer that is being performed

by WinControl. It provides a real-time view of the steps being performed by the application at two levels of detail. Checking the Details box displays a step-by-step accounting of the action being performed by the system, at the device level. By default, only major events are shown

**Figure 10.3. Transfer Monitor**



# Chapter 11. Trend Reporting Overview

Demonstration based on Sample Trends Data in Sample Site

Full data for date range 6/11/00 to 6/15/00 on panel 911 is available for both activity log and daily runtime in a sample site. To access the trend reporting features, open the demonstration site *1 - Demo Sampler with Graphics and Trends*, and select Options/Trends on the WinControl main menu.

## Activity Log Reporting

The activity log shows detailed on/off activity for each relay including the time, why it was controlled and what initiated the new state.

Select the following options for an Activity Log report. First select the start and end date ranges. Then select the panel of interest under “Device Selection”. In this case we are only interested in Panel 911. Select Relays 1 thru 6 which represent typical office workers.

**Figure 11.1. Activity Log Report Parameters**

**LCP Activity Report Parameters**

Report Header  
Title: Sample Activity Log Author: Company:

☒ Standard Report

Date Range  
Start: 6/11/2000 12:00 AM  
End: 6/17/2000 11:59 PM

Sort By  
☒ Date ☐ Device

Activity Details  
☐ Analog Inputs  
☒ Detailed  
☐ Failures Only  
☐ No Clean  
☐ Phone Codes Only  
☒ Show Panel Messages  
☒ Show Diagnostics  
Build Custom

Device Selection  
LCP: 911: Mechanical Room / Virtual Edit Groups

Relay: 911-1: 127-Laurie (RP-AL-1)  
Relay: 911-2: 128-Shellina (RP-AL-2)  
Relay: 911-3: 130-Rosemary (RP-AL-3)  
Relay: 911-4: 131-Harvey (RP-AL-1)  
Relay: 911-5: 132-Jim W (RP-AL-2)  
Relay: 911-6: 133-Marilyn (RP-AL-3)  
Relay: 911-7: 105-Pete Can Light (RP-AL-2)  
Relay: 911-8: 105-Pete (RP-AL-2)  
Relay: 911-9: 104-Conference (RP-AL-3)  
Relay: 911-10: Ext-Sign  
Relay: 911-11: Ext-Pole Lights (Contactor)  
Relay: 911-12: Ext-Flood Lights (Contactor)  
Relay: 911-13: 125-Kitchen \*  
Relay: 911-14: 126-Copy Room \*  
Relay: 911-15: 111-103 Sconce \* (RP-AL-11)  
Relay: 911-16: 119-File Room \* (RP-AL-10)  
Relay: 911-17: 118-Cubicles  
Relay: 911-18: 102-Train Halogens \* (RP-AL-12)  
Relay: 911-19: 120-Men's Bath (RP-AL-10)  
Relay: 911-20: 122-Water Heater Cls  
Relay: 911-21: 104-Conference Can  
Relay: 911-22: 121-Women's Bath (RP-AL-10)  
Relay: 911-23: 123-Mop Sink Cls (RP-AL-10)  
Relay: 911-24: 135-Warehouse Front

☐ Custom Report

SELECT System, datetime(EventTime) EventTime, Type, Panel, Relay, Value, GroupCode, Slot, IsLastActive, IsOccupied, IsFailed, Shed, Initiator, Message FROM PanelActivityLog WHERE EventTime >= datetime('2000-06-11 00:00:00') AND EventTime <= datetime('2000-06-17 23:59:00') AND ((System=1 AND Panel=911 AND (Relay=1 OR Relay IS NULL)) OR (System=1 AND Panel=911 AND (Relay=2 OR Relay IS NULL)) OR (System=1 AND Panel=911 AND (Relay=3 OR Relay IS NULL)) OR (System=1 AND Panel=911 AND (Relay=4 OR Relay IS NULL)) OR (System=1

Archive Run Cancel

Then click “Run” to execute the report. If an error was made in your selections, you can click “Stop” to halt processing and correct the report parameters. The progress indicator will roughly indicate how far along report execution is. Other parameters of interest include:

- Report Header – The information to be displayed at the top of the report.
  - Title – The title of the report.
  - Author – The author of the report.
  - Company – The company.
- Standard Report – Select this option to run a standard predefined report.
  - Date Range – Select the dates and times for the report. The dates and times are inclusive, meaning any activity on or after the Start date/time and on or before the End date/time will be included in the report.
  - Sort By – When multiple devices are selected, you may choose to see activity by Date or by Device.
  - Activity Details – Determines the type of report to run.
    - Analog Inputs – Show voltage and converted footcandles for all analog inputs documented for the panel.

### **Note**

This report requires the user to select panels not relays. If a relay is selected, its parent panel will be used as the selected panel.

- Detailed – Show all activity for period.
- Failures Only – Show only devices that have failed for period.
- No Clean – Exclude devices activated by clean command.
- Phone Codes Only – Show only devices activated by phone codes.
- Show Panel Messages – Show panel messages such as relay states or power failures (only if sorted by Date).
- Show Diagnostics – Show messages generated by WinControl such as log retrieval date, time and count (only if showing panel messages).
- Device Selection – Select the device(s) upon which to run the report.
  - Select the device type for the report. Choices include general purpose groups, dual devices, panels (LCPs), or relays in a specific panel.
  - Select the specific device(s) in the list below the type selection.
  - Edit Groups – Press this button to create or edit a general purpose group. General purpose groups can span multiple relay panels.
- Build Custom – Press this button to build a custom SQL query string using the information selected for the standard report. You can edit this string in the Custom Report section below.

- Custom Report – Select this option to run a custom SQL query against the database. Output from a custom query will be displayed in a grid format. You can build a starting query string by pressing the Build Custom button above.

The following columns are defined for the PanelActivityLog table:

- System (integer)
- EventTime (datetime)
- Type (integer)
  - 00 = empty entry - all bytes zeroed
  - 01 = normal panel relay event
  - 02 = debug/detail panel relay event
  - 03 = power fail and power restore times
  - 04 = clock set
  - 10 = event output
  - 11 = process minute timer (diagnostic)
  - 12 = ARP command
  - 13 = ARP change of state
  - 14 = relay failures
  - 15 = relay states
  - 16 = analog input reading (stored in analoginputactivitylog table)
  - 27 = resent a drive command to a relay
  - 256 = diagnostic entry generated by wincontrol (not the panel)
- Panel (integer)
- Relay (integer)
- Value (integer)
- GroupCode (integer)
- Slot (integer)
  - 01 = priority 1 (highest priority slot)
  - 02 = force on
  - 03 = force off
  - 04 = priority 4

- 05 = warn
- 06 = shed
- 07 = priority 7
- 08 = master
- 09 = sensor
- 10 = common area
- 11 = egress
- 12 = schedule (blink)
- 13 = priority 13
- 14 = clean
- 15 = priority 15
- 16 = grace
- IsLastActive (1 = yes; 0 = no)
- IsOccupied (1 = yes; 0 = no)
- IsFailed (1 = yes; 0 = no)
- Shed (character)
  - 'A' = Active
  - 'E' = Exempt
  - 'I' = Inactive
  - 'W' = Warned
- Initiator (integer)
  - 00 = local/none
  - 01 = PSS
  - 02 = phone
  - 03 = network event CC
  - 04 = network event LW
  - 05 = schedule
  - 06 = interlock (common area) relay
  - 07 = occupancy sensor



- 08 = slot 1 timeout
- 09 = slot 2 timeout
- 10 = slot 3 timeout
- 11 = slot 4 timeout
- 12 = slot 5 timeout
- 13 = slot 6 timeout
- 14 = slot 7 timeout
- 15 = master timeout
- 16 = slot 9 timeout
- 17 = slot 10 timeout
- 18 = egress timeout
- 19 = slot 12 timeout
- 20 = slot 13 timeout
- 21 = clean timeout
- 22 = slot 15 timeout
- 23 = grace timeout
- 24 = local button
- 25 = RD input
- 26 = GS input
- 27 = RD sensor input
- 28 = GS sensor input
- 29 = relay override
- 30 = RD relay state - read during reset all
- 31 = grace
- Message (text string)

The following columns are defined for the AnalogInputActivityLog table:

- System (integer)
- EventTime (datetime)
- Panel (integer)

- Chanel (character 'A' thru 'P')
- VoltageReading (integer)
- InputType (integer)
- ConvertedValue (text string)
- Select the specific device(s) in the list below the type selection.
- Edit Groups – Press this button to create or edit a general purpose group. General purpose groups can span multiple relay panels.
- Archive or Import – Click this button to archive or import database records (see the section called “Archiving Activity Log Data”). If you have legacy data that you have not imported into the new format, this button will read “Import”. Reports cannot be run against legacy data until it has been imported into the new format. If no legacy data exists or once the data has already been imported, this button will read “Archive”. Archiving will speed up report query time by moving unneeded old records into an archive database. If later you wish to run reports on data that you previously archived, that is not a problem because you can use the archive function again to move them back into the active database.

### **Note**

The active database file is named "LiLog.wdb", and the archive database file is named "LiLog-Archive.wdb". These files are located in the same directory as the site file.

Here is the resulting report.

## Figure 11.2. Log Report 1

### Sample Activity Log Demo Sampler with Graphics and Trends

Detailed with Panel and Diagnostic Messages Report for User Defined Group (Sorted by Date)  
Sunday, June 11, 2000 12:00 AM to Saturday, June 17, 2000 11:59 PM  
Communications Card System

Date	Time	Device	State	Initiator	Action
Sun 6/11/2000	5:30 PM	Relay: 911/01 - 127-Laurie {RP-AL-1}	Off	Local/None	Schedule
		Relay: 911/02 - 128-Shellina {RP-AL-2}	Off	Local/None	Schedule
		Relay: 911/04 - 131-Harvey {RP-AL-1}	Off	Local/None	Schedule
		Relay: 911/02 - 128-Shellina {RP-AL-2}	Off	Local/None	Master
	6:00 PM	Relay: 911/03 - 130-Rosemary {RP-AL-3}	Off	Local/None	Schedule
		Relay: 911/05 - 132-Jim W {RP-AL-2}	Off	Local/None	Schedule
		Relay: 911/06 - 133-Marilyn {RP-AL-3}	Off	Local/None	Schedule
Mon 6/12/2000	7:58 AM	Relay: 911/06 - 133-Marilyn {RP-AL-3}	On	Phone	Phone code: 133 Plan Room Master
	8:11 AM	Relay: 911/03 - 130-Rosemary {RP-AL-3}	On	Phone	Phone code: 130 Rosemary Master
	8:21 AM	Relay: 911/05 - 132-Jim W {RP-AL-2}	On	Phone	Phone code: 132 Jim Williams Master
	8:22 AM	Relay: 911/01 - 127-Laurie {RP-AL-1}	On	Phone	Phone code: 127 Laurie Master
	2:13 PM	Relay: 911/05 - 132-Jim W {RP-AL-2}	Off	Phone	Phone code: 132 Jim Williams Master
	3:06 PM	Relay: 911/05 - 132-Jim W {RP-AL-2}	On	Phone	Phone code: 132 Jim Williams Master
	5:30 PM	Relay: 911/02 - 128-Shellina {RP-AL-2}	Off	Local/None	Schedule
		Relay: 911/04 - 131-Harvey {RP-AL-1}	Off	Local/None	Schedule
	5:35 PM	Relay: 911/01 - 127-Laurie {RP-AL-1}	Off	Local/None	Grace
	5:59 PM	Relay: 911/06 - 133-Marilyn {RP-AL-3}	Off	Phone	Phone code: 133 Plan Room Master
	6:00 PM	Relay: 911/06 - 133-Marilyn {RP-AL-3}	Off	Local/None	Schedule
	6:04 PM	Relay: 911/03 - 130-Rosemary {RP-AL-3}	Off	Local/None	Grace
	6:05 PM	Relay: 911/05 - 132-Jim W {RP-AL-2}	Off	Local/None	Grace
	6:28 PM	Relay: 911/05 - 132-Jim W {RP-AL-2}	On	Phone	Phone code: 132 Jim Williams Master
		Relay: 911/05 - 132-Jim W {RP-AL-2}	Off	Phone	Phone code: 132 Jim Williams Master
	6:56 PM	Relay: 911/01 - 127-Laurie {RP-AL-1}	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/02 - 128-Shellina {RP-AL-2}	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/04 - 131-Harvey {RP-AL-1}	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/05 - 132-Jim W {RP-AL-2}	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/06 - 133-Marilyn {RP-AL-3}	Off	PSS	Group code: 14580 Security Armed Master
Tue 6/13/2000	5:08 AM	Relay: 911/01 - 127-Laurie {RP-AL-1}	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/02 - 128-Shellina {RP-AL-2}	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/03 - 130-Rosemary {RP-AL-3}	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/04 - 131-Harvey {RP-AL-1}	Off	PSS	Group code: 14580 Security Armed Master

The report includes a standard header bearing the name of the site and the date. The subheading shows the report information that the user entered in the report dialog including devices selected, date range and how it is to be sorted. Each item that is enumerated shows its device information, date and time the event happened and the event details themselves.

In this example, these relays are only scheduled off so the users must override their lights when they come into the office. On Sunday, the relays show only the schedule off which is what we would expect. During the week we see normal office operations starting around 8 am and concluding sometime around 5:30 pm. Additional overrides are logged after the security system is armed which forces these lights off (as a backup feature).

For the next report example, select Relay 14 which controls the copy room, a common area. You will get the following report. It shows how the common area lighting stays on when there is at least one person occupying the building. Notice that on Tuesday, someone stopped by at 4:50 am and left at 5:08 am (probably picking up a briefcase on the way to the airport).

## Figure 11.3. Log Report 2

### Sample Activity Log

#### Demo Sampler with Graphics and Trends

Detailed with Panel and Diagnostic Messages Report for Relay: 911-14: 126-Copy Room \* (Sorted by Date)  
 Sunday, June 11, 2000 12:00 AM to Saturday, June 17, 2000 11:59 PM  
 Communications Card System

Date	Time	Device	State	Initiator	Action
Mon 6/12/2000	7:55 AM	Relay: 911/14 - 126-Copy Room *	On	Local/None	Common
	6:56 PM	Relay: 911/14 - 126-Copy Room *	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/14 - 126-Copy Room *	Off	Local/None	Common
Tue 6/13/2000	4:50 AM	Relay: 911/14 - 126-Copy Room *	On	Local/None	Common
	5:08 AM	Relay: 911/14 - 126-Copy Room *	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/14 - 126-Copy Room *	Off	Local/None	Common
	8:05 AM	Relay: 911/14 - 126-Copy Room *	On	Local/None	Common
	7:57 PM	Relay: 911/14 - 126-Copy Room *	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/14 - 126-Copy Room *	Off	Local/None	Common
Wed 6/14/2000	7:57 AM	Relay: 911/14 - 126-Copy Room *	On	Local/None	Common
	7:29 PM	Relay: 911/14 - 126-Copy Room *	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/14 - 126-Copy Room *	Off	Local/None	Common
Thu 6/15/2000	7:50 AM	Relay: 911/14 - 126-Copy Room *	On	Local/None	Common
	3:09 PM	Panel: 911 - Mechanical Room / Virtual			Diagnostic Transferred 169 entries in 160 minutes
	4:23 PM	Panel: 911 - Mechanical Room / Virtual			Diagnostic Transferred 49 entries in 0 minutes
	8:39 PM	Relay: 911/14 - 126-Copy Room *	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/14 - 126-Copy Room *	Off	Local/None	Common
Fri 6/16/2000	7:54 AM	Relay: 911/14 - 126-Copy Room *	On	Local/None	Common
	9:45 AM	Panel: 911 - Mechanical Room / Virtual			Diagnostic Transferred 4127 entries in 16 minutes
	7:45 PM	Relay: 911/14 - 126-Copy Room *	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/14 - 126-Copy Room *	Off	Local/None	Common
Sat 6/17/2000	12:13 PM	Relay: 911/14 - 126-Copy Room *	On	Local/None	Common
	12:47 PM	Relay: 911/14 - 126-Copy Room *	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/14 - 126-Copy Room *	Off	Local/None	Common
	3:13 PM	Relay: 911/14 - 126-Copy Room *	On	Local/None	Common
	4:02 PM	Relay: 911/14 - 126-Copy Room *	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/14 - 126-Copy Room *	Off	Local/None	Common
	10:37 PM	Relay: 911/14 - 126-Copy Room *	On	Local/None	Common
	10:59 PM	Relay: 911/14 - 126-Copy Room *	Off	PSS	Group code: 14580 Security Armed Master
		Relay: 911/14 - 126-Copy Room *	Off	Local/None	Common

Now, for a more interesting report, we will select relays that are attached to occupancy sensors. To do this (on Panel 911), select Relay 19 (men's bathroom) as you normally would and then hold down the Ctrl key to add other selections. Click on Relays 22 (women's) and 40 (warehouse), scrolling as needed. Change the start and end date to 6/12/2000 and the start time to 12am and the end time to 11:59pm (so it covers just one entire day).

**Figure 11.4. Log Report 3**

**Sample Activity Log**  
**Demo Sampler with Graphics and Trends**

**Detailed with Panel and Diagnostic Messages Report for User Defined Group (Sorted by Date)**  
**Monday, June 12, 2000 12:00 AM to Monday, June 12, 2000 11:59 PM**  
**Communications Card System**

<b>Date</b>	<b>Time</b>	<b>Device</b>	<b>State</b>	<b>Initiator</b>	<b>Action</b>
Mon 6/12/2000	12:43 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	12:45 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	1:44 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	1:46 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	2:43 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	2:44 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	2:45 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	2:47 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	4:31 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	4:32 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	6:54 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	6:55 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	7:45 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	On	Local/None	Master
	7:48 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	Off	Local/None	Master
	7:50 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	On	Local/None	Master
	8:03 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	Off	Local/None	Master
	8:12 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	On	Local/None	Master
	8:18 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	8:19 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	8:24 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	Off	Local/None	Master
	8:27 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	On	Local/None	Master
		Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	8:29 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	8:31 AM	Relay: 911/22 - 121-Women's Bath {RP-AL-10}	On	Local/None	Master
	8:32 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	8:33 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	Off	Local/None	Master
	8:34 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	8:42 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	On	Local/None	Master
	8:55 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	Off	Local/None	Master
	8:58 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	9:00 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	9:02 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	On	Local/None	Master
	9:07 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	9:08 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	Off	Local/None	Master
	9:10 AM	Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	On	Local/None	Master
	9:12 AM	Relay: 911/19 - 120-Men's Bath {RP-AL-10}	Off	Local/None	Master
	9:15 AM	Relay: 911/22 - 121-Women's Bath {RP-AL-10}	Off	Local/None	Master

In order to see more details about how occupants are using their lights we can choose to view only relays overridden using phone codes. For this report enter 6/12/2000 as on the previous report. Select Sort by Device and show Phone Codes Only. For device selection choose LCP List and below select LCP 911. The report produces the following output.

## Figure 11.5. Log Report 4

### Sample Activity Log Demo Sampler with Graphics and Trends

**Phone Codes Only Report for LCP: 911: Mechanical Room (Sorted by Device)**  
**Monday, June 12, 2000 12:00 AM to Monday, June 12, 2000 11:59 PM**  
**Communications Card System**

Device	Date	Time	State	Initiator	Action
Relay: 911/01 - 127-Laurie {RP-AL-1}	Mon 6/12/2000	8:22 AM	On	Phone	Phone code: 127 Laurie Master
Relay: 911/03 - 130-Rosemary {RP-AL-3}	Mon 6/12/2000	8:11 AM	On	Phone	Phone code: 130 Rosemary Master
Relay: 911/05 - 132-Jim W {RP-AL-2}	Mon 6/12/2000	8:21 AM	On	Phone	Phone code: 132 Jim Williams Master
		2:13 PM	Off	Phone	Phone code: 132 Jim Williams Master
		3:06 PM	On	Phone	Phone code: 132 Jim Williams Master
		6:05 PM	On	Phone	Phone code: 132 Jim Williams Master
		6:28 PM	Off	Phone	Phone code: 132 Jim Williams Master
Relay: 911/06 - 133-Marilyn {RP-AL-3}	Mon 6/12/2000	7:58 AM	On	Phone	Phone code: 133 Plan Room Master
		5:53 PM	Off	Phone	Phone code: 133 Plan Room Master
Relay: 911/08 - 105-Pete {RP-AL-2}	Mon 6/12/2000	8:06 AM	On	Phone	Phone code: 105 Pete's Office Master
Relay: 911/17 - 118-Cubicles	Mon 6/12/2000	9:21 AM	On	Phone	Phone code: 118 Master
		6:00 PM	On	Phone	Phone code: 118 Master
		6:28 PM	Off	Phone	Phone code: 118 Master
Relay: 911/26 - 106-Lynn {RP-AL-5}	Mon 6/12/2000	10:06 AM	On	Phone	Phone code: 106 Lynn's Office Master
Relay: 911/28 - 108-Computer Room {RP-AL-4}	Mon 6/12/2000	10:35 AM	On	Phone	Phone code: 108 Computer Room Master
Relay: 911/29 - 109-Mike Grant {RP-AL-5}	Mon 6/12/2000	10:35 AM	On	Phone	Phone code: 109 Mike Grant Master
		5:20 PM	Off	Phone	Phone code: 109 Mike Grant Master
			On	Phone	Phone code: 109 Mike Grant Master
Relay: 911/33 - 114-Spare Office {RP-AL-6}	Mon 6/12/2000	8:11 AM	On	Phone	Phone code: 114 Spare Office Master
		5:00 PM	On	Phone	Phone code: 114 Spare Office Master
		5:48 PM	Off	Phone	Phone code: 114 Spare Office Master
Relay: 911/34 - 115-Scanner Office {RP-AL-4}	Mon 6/12/2000	8:18 AM	On	Phone	Phone code: 115 Scanner Office Master
Relay: 911/35 - 116-Valerie {RP-AL-5}	Mon 6/12/2000	8:29 AM	On	Phone	Phone code: 116 Valerie Master
		5:23 PM	Off	Phone	Phone code: 116 Valerie Master

Here again we see typical office workers overriding their lights on in the morning (the lights are scheduled off in the evening). Some more frugal workers may even turn off their lights during their lunch break.

## Archiving Activity Log Data

Activity log data can be archived (or restored) by pressing the Archive push button on the Activity Log Reporting screen (see the section called “Activity Log Reporting”).

**Figure 11.6. Archive Button**

The screenshot shows a 'Custom Report' dialog box. At the top, there are checkboxes for 'Show Panel Messages' and 'Show Diagnostics', both of which are checked. Below these is a 'Build Custom' button. To the right, a list of relay messages is displayed, including 'Relay: 911-19: 120-Men's Bath {RP-AL-10}', 'Relay: 911-20: 122-Water Heater CIs', 'Relay: 911-21: 104-Conference Can', 'Relay: 911-22: 121-Women's Bath {RP-AL-10}', 'Relay: 911-23: 123-Mop Sink CIs {RP-AL-10}', and 'Relay: 911-24: 135-Warehouse Front'. Below the list is a 'Custom Report' section with a text area containing a SQL query: `SELECT System, datetime(EventTime) EventTime, Type, Panel, Relay, Value, GroupCode, Slot, IsLastActive, IsOccupied, IsFailed, Shed, Initiator, Message FROM PanelActivityLog WHERE EventTime >= datetime('2000-06-11 00:00:00') AND EventTime <= datetime('2000-06-17 23:59:00') AND ((System=1 AND Panel=911 AND (Relay=14 OR Relay IS NULL))) ORDER BY EventTime, ROWID`. At the bottom right, there are three buttons: 'Archive' (highlighted with a red circle), 'Run', and 'Cancel'.

Activity log data can be archived to improve performance. When a report is run, the entire active database is queried to find the relevant matching records. If older unneeded records can be moved from the active database to the archive database, the reports will run faster. Archived records can also be restored from this dialog. If you accidentally archived too much data, or if you wish to run a report on some older records, you can restore the records you need here.

**Figure 11.7. Archive Dialog**

The screenshot shows the 'Activity Log Archive' dialog box. It has a title bar with a close button. The dialog is divided into two main sections: 'Current Active Database' and 'Archived (Inactive) Database'. The 'Current Active Database' section shows 'Number of records: 16398', 'Newest entry: Mon 7/17/2000', and 'Oldest entry: Sat 4/1/2000'. The 'Archived (Inactive) Database' section shows 'Number of records: 0', 'Newest entry:', and 'Oldest entry:'. Below these sections is the 'Archive / Restore Records' section, which includes an 'Archive date:' dropdown set to '4/ 1/2000', an 'Archive / Restore Records' button, and a 'Stop' button. At the bottom of the dialog is a 'Close' button.

The stats for both the Current Active Database and the Archived (Inactive) Database are displayed at the top of the screen. To archive or restore records, simply enter or select an "Archive date", and then click the "Archive / Restore Records" push button. All records before (older than) the archive date will be archived. All records on or after (same date or newer than) the archive date will be restored. If you wish to stop the archive/restore process while in progress, you can press the "Stop" button.

# Daily Runtime Reporting

Daily runtime reports show the total On time for each day and device selected. Comparisons can be made with other selected relays (part of an automatically created group) based on a specific runtime, mean runtime or number of standard deviations from the mean. In this way, relays with exceptional runtimes (generally on to long) can be revealed while ignoring “average” or expected runtimes.

To run a daily runtime report, select Runtime Reports from the Trends menu and select the dates and other items as shown. For device selection, click Relays 1, 14, and 40.

**Figure 11.8. Daily Runtime Report Parameters**

**LCP Runtime Report Parameters**

**Report Header**

Title: Sample Daily Runtime

Author:

Company:

☒ Use Kilowatts/Hour

**Date Range**

Start: 6/11/2000

End: 6/17/2000

**Sort By:**

☒ Date ☐ Device

**Exception Reporting**

☒ Detailed ☐ Greater Than

☐ Summary ☐ Less Than

☐ Specific Value 00:00

☐ Mean

☐ Std Deviation 0

**Device Selection**

LCP: 911: Mechanical Room / Virtual

- Relay: 911-1: 127-Laurie (RP-AL-1)
- Relay: 911-2: 128-Shellina (RP-AL-2)
- Relay: 911-3: 130-Rosemary (RP-AL-3)
- Relay: 911-4: 131-Harvey (RP-AL-1)
- Relay: 911-5: 132-Jim W (RP-AL-2)
- Relay: 911-6: 133-Marilyn (RP-AL-3)
- Relay: 911-7: 105-Pete Can Light (RP-AL-2)
- Relay: 911-8: 105-Pete (RP-AL-2)
- Relay: 911-9: 104-Conference (RP-AL-3)
- Relay: 911-10: Ext-Sign
- Relay: 911-11: Ext-Pole Lights (Contactor)
- Relay: 911-12: Ext-Flood Lights (Contactor)
- Relay: 911-13: 125-Kitchen \*
- Relay: 911-14: 126-Copy Room \*
- Relay: 911-15: 111-103 Sconce \* (RP-AL-11)
- Relay: 911-16: 119-File Room \* (RP-AL-10)
- Relay: 911-17: 118-Cubicles
- Relay: 911-18: 102-Train Halogens \* (RP-AL-12)
- Relay: 911-19: 120-Men's Bath (RP-AL-10)
- Relay: 911-20: 122-Water Heater Cls
- Relay: 911-21: 104-Conference Can
- Relay: 911-22: 121-Women's Bath (RP-AL-10)
- Relay: 911-23: 123-Mop Sink Cls (RP-AL-10)
- Relay: 911-24: 125-Water Heater Front

Edit Groups

Run Cancel

This report yields the following results:



## Figure 11.9. Runtime Report 1

### Sample Daily Runtime Demo Sampler with Graphics and Trends

Report for User Defined Group (Sorted by Date)  
Sunday, June 11, 2000 to Saturday, June 17, 2000  
Communications Card System

	<b>Runtime</b>	<b>WattHours</b>
<b>Total Group Runtime for 7 Days:</b>	126:10	40156 WH
<b>Mean Group Runtime per Day:</b>	18:01	5737
<b>Mean Device Runtime for 7 Days:</b>	42:03	13385
<b>Mean Device Runtime per Day:</b>	6:00	1912

**Total Devices:** 3

Date	Group Runtime	Runtime/Device	Std.Dev.	WattHours	WattHours/Device
Sunday, June 11, 2000	1:09	0:23	0:32	879	293

<b>Device</b>	<b>Runtime</b>	<b>WattHours</b>
Relay: 911/01 - 127-Laurie {RP-AL-1}	0:00	0
Relay: 911/14 - 126-Copy Room *	0:00	0
Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	1:09	880

Date	Group Runtime	Runtime/Device	Std.Dev.	WattHours	WattHours/Device
Monday, June 12, 2000	22:51	7:37	3:36	6857	2286

<b>Device</b>	<b>Runtime</b>	<b>WattHours</b>
Relay: 911/01 - 127-Laurie {RP-AL-1}	9:13	2212
Relay: 911/14 - 126-Copy Room *	11:01	2644
Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	2:37	2002

Date	Group Runtime	Runtime/Device	Std.Dev.	WattHours	WattHours/Device
Tuesday, June 13, 2000	24:18	8:06	3:48	7407	2469

<b>Device</b>	<b>Runtime</b>	<b>WattHours</b>
Relay: 911/01 - 127-Laurie {RP-AL-1}	9:08	2192
Relay: 911/14 - 126-Copy Room *	12:10	2920
Relay: 911/40 - 135-Rear Warehouse {RP-AL-7}	3:00	2295

Again we see the differences between a typical office worker (Relay 1), a common area (Relay 14) and an occupancy controlled relay (40). On Monday, Relay 1 runs for 9 hours. Relay 14 is a common area relay and we expect it to stay on as long as the building is occupied which on this day was 11 hours. The warehouse light is the most interesting, though, here we see only 2½ hours of runtime because it only comes on as needed thus saving energy.

To see what relays are using the most energy we run an exception report. In this case we wish to see any runtimes greater than 1 standard deviation from the mean for the week of 6/11/2000. Here we show Tuesday and Wednesday runtimes and mostly the common area relays show up which is what we expect. We could create a group of relays that excluded common area relays to find relays with runtimes that could be reduced.

## Figure 11.10. Exception Report

Sample Daily Runtime  
Demo Sampler with Graphics and Trends

Exceptions Greater than (Mean + 1 Standard Deviation(s)) Report for LCP: 911: Mechanical Room (Sorted by Date)  
Sunday, June 11, 2000 to Saturday, June 17, 2000  
Communications Card System

	<b>Runtime</b>	<b>WattHours</b>
<b>Total Group Runtime for 7 Days:</b>	1781:07	499 KWH
<b>Mean Group Runtime per Day:</b>	254:27	71333
<b>Mean Device Runtime for 7 Days:</b>	37:06	10403
<b>Mean Device Runtime per Day:</b>	5:18	1486

**Total Devices:** 48

Date	Group Runtime	Runtime/Device	Std.Dev.	WattHours	WattHours/Device
Sunday, June 11, 2000	58:21	1:12	3:08	9383	195

Device	Runtime	WattHours
Relay: 911/10 - Ext-Sign	9:07	2735
Relay: 911/41 - Ext-Outside WH ?	9:37	769
Relay: 911/42 - Spare	9:37	0
Relay: 911/43 - Ext-Outside Front Dr	9:37	769
Relay: 911/44 - Ext-Back Porch	9:37	769
Relay: 911/47 - LowVoltage Landscape {Circ 73}	9:37	3462

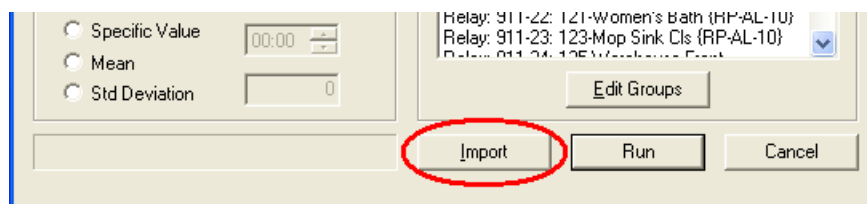
Date	Group Runtime	Runtime/Device	Std.Dev.	WattHours	WattHours/Device
Tuesday, June 13, 2000	318:25	6:38	4:51	92526	1928

Device	Runtime	WattHours
Relay: 911/13 - 125-Kitchen *	12:10	2920
Relay: 911/14 - 126-Copy Room *	12:10	2920
Relay: 911/15 - 111-103 Sconce * {RP-AL-11}	12:10	1825
Relay: 911/16 - 119-File Room * {RP-AL-10}	12:10	4380
Relay: 911/18 - 102-Train Halogens * {RP-AL-12}	12:10	14600
Relay: 911/37 - 102-Training Room *	12:10	8760
Relay: 911/38 - 101-Waiting Can Lit*	12:14	1957
Relay: 911/39 - Sconces Core & Upl*	12:10	2798
Relay: 911/46 - 136-Mechanical * {RP-AL-7}	12:10	2920
Relay: 911/48 - Alarm Activated Comm {None}	12:10	0

### Note

The "Import" button – Click this button to import legacy database records. If you have legacy data that you have not imported into the new format, an "Import" button will be displayed next to the "Run" button. If no legacy data exists or once the data has already been imported, this button will not be displayed. Reports cannot be run against legacy data until it has been imported into the new format. The runtime database file is named "LiDailyRT.wdb", and it is located in the same directory as the site file.

## Figure 11.11. Runtime Import

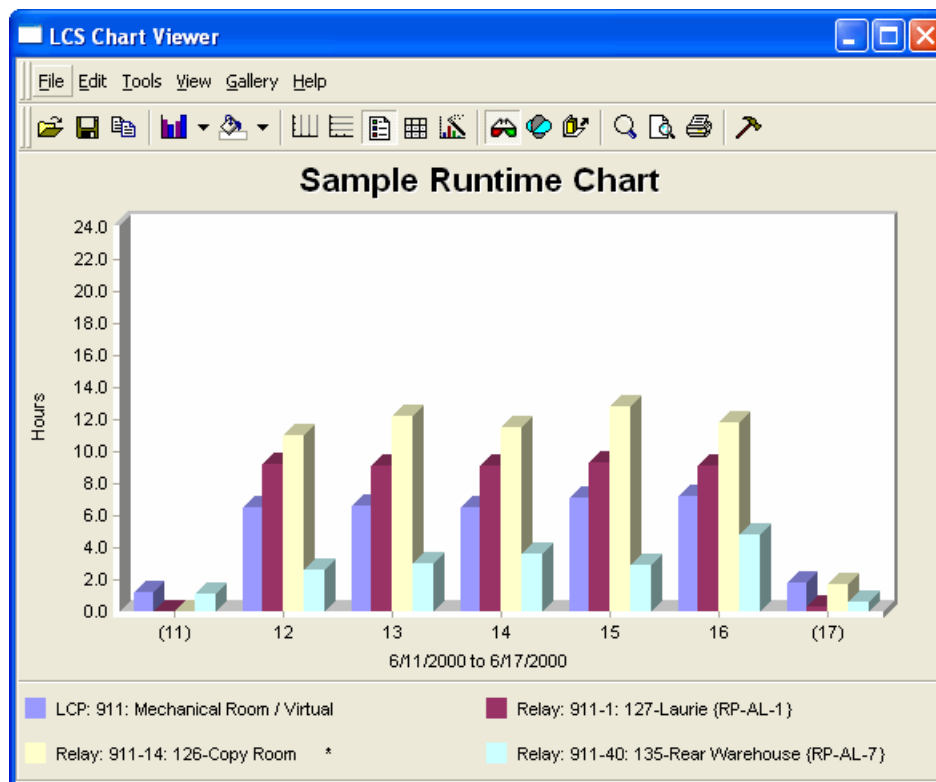


# Runtime Charting

Another new and feature in WinControl is Runtime Charting. Runtime charting takes the data we saw in the Daily Runtime Reports and produces a graphical equivalent. The difference is that we may want to compare the overall panel mean with selected relays to show how they might standout. To do this, select LCP List and on the left and select LCP 911. Then click the right facing arrow to make the whole panel one of the charting series. Then select LCP 911 in the drop down selector and again select Relays 1, 14 and 40 and make them additional series as shown. Be sure to use mean runtime when referencing the panel and total runtime for the individual relays. That way the total relay runtime can be compared to the mean panel runtime. Also, be sure that series is displayed by device so that they can be compared to one another. Click OK to display the chart.

**Figure 11.12. Runtime Chart Parameters**

The chart displays runtimes from Sunday to Thursday for Panel 911 together with our 3 relays. Notice that Relay 1 and 14 usually run ahead of the Panel mean runtime while the warehouse relay has much less runtime. Charting gives you another way to see exceptional runtimes where energy could be saved.

**Figure 11.13. Runtime Chart**

Charts can also be resized and printed (either in color or black and white). The style of chart can also be changed to a variety of different types including pie, line and area charts.

# Automatic Retrieval of Log and Runtime Data

WinControl has two options for automatically downloading History data. One option is to keep WinControl running all the time, and using the default settings for automatic history transfer. See the section called “Site Properties” for more information on transferring historical data automatically while WinControl is running.

WinControl also has a special utility called WCRetriever that enables a scheduler program to automatically retrieve log and runtime of panel data. If the program is run standalone, you can select the WinControl site file and what data to retrieve. You should disable the automatic transfer described earlier when using WCRetriever. The command line arguments for running WCRetriever are displayed in the ‘About’ box.

To schedule retrieval of panel data, go to “Scheduled Tasks” in Windows Explorer (usually near Control Panel). Double click “Add Scheduled Task” and click Next. In the list of applications, scroll down and select “WinControl Retriever” and click Next again. Type in a name for this scheduled job such as “Weekly Panel 7 Log Retrieval” or “Monthly WinControl Runtime Retrieval” for example. Then select the retrieval frequency you desire. Beware, busy 48 tub relay panels can fill the logs up in a matter of days so nightly retrievals may be necessary. Click “Next” and enter when the retrieval should take place. Depending of what operating system you are using, you may see a login dialog. Enter the user ID and password for the account you want this task to run under. Normally, this is the same user that typically runs WinControl. On the last dialog there is a checkbox for opening the advanced properties dialog. Check it and click Finish. By default, the wizard enters short file names that can be difficult to read. You will need to add some command line entries for WCRetriever to use. The first parameter is the full path and file name to your site file. Then at least one of the following parameters must follow the file name:

- AllTypes – gets daily runtime, activity log, total on-time and cycle counts
- Activity – gets activity log only
- Daily – gets daily runtime totals only

Without additional parameters, WCRetriever defaults to getting data from all panels in the system. If you wish to limit retrieval to a specific panel then use “Panel” followed by the panel number. For example “Panel 7” to get panel 7 data only. You may only specify one panel on the command line. If you wish to download several specific panels, you will need one task scheduler entry for each panel.

## Sample Command Lines

Sample command line with spaces in directory or file names to get activity log for one specified panel. Filenames with spaces require quotation marks (ignore line wrap):

```
"C:\Program Files\WinControl\bin\WCRetriever.exe"  
"D:\Program Files\WinControl\Site\File.li" -Panel 22 -Activity
```

Sample command line without spaces in directory or file names to get all data from all panels:

```
C:\Programs\WinControl\Bin\WCRetriever.exe  
D:\Programs\WinControl\Site\File.li -AllTypes
```

---

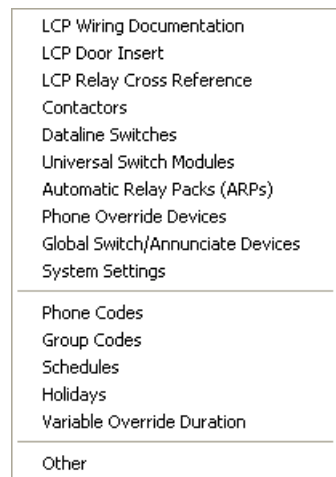
# Chapter 12. Reporting Options

WinControl provides a number of reports that allow you to review your documentation and programming in a number of consolidated formats. In this section, we provide examples of many of the most common reports. Reports are generated in a format known as HTML, which is capable of being displayed by a standard web browser, typically Microsoft's Internet Explorer. When generating a report, WinControl will save the report as an HTML formatted file, and then automatically have it displayed using your default web browser.

The View Menu provides the reports option with a sub-menu listing the primary reports available from WinControl. Other reports are available, but generally used less frequently or with optional software. The process of generating most of the reports involves first selecting a report from the menu, then selecting the devices to be included in the report. For most reports, you can choose a single device, all devices, or a particular combination of devices. To select all devices, simply click on the "Do All" button on the device selection dialog. To select a single device, just click once with the left mouse button, and then click OK. In addition, if you want a particular selection of multiple devices, you can hold down the Shift key while selecting a device, and then click another device while holding down the shift key. This will select all devices in the range selected. To pick a non-connective list, hold down the Control key while selecting devices. Each device clicked (selected) will be included. Press OK when you have completed your selection and WinControl will begin processing the report.

When generated, reports are stored in the My Documents folder ( unless you have changed your WinControl Configuration. A summary of the most commonly used reports follows. The reports shown in the examples are from various sample sites included in the standard WinControl installation.

**Figure 12.1. Reports menu**



# LCP Wiring Documentation

Figure 12.2. LCP Wiring Documentation

LCP Wiring Documentation  
Corporate Headquarters - Communications Card System

Panel ID	Name	Location	Type	Interior/Enclosure	Power Supply	Circuit	
1	WLRP1A		LI	48/48 Surface	115/277	WRP-1	
Rly	Circuit	Description	LV Switch	Rly	Circuit	Description	LV Switch
1	WLRP1A-1	LTG-CORRIDOR W0034	1-7/1-32	13	WLRP1A-2	LTG-PREF W0425	1-14/1-13
2		SPARE	1-2	14	WLRP1A-4	LTG-PREF W0325	1-16/1-15
3	WLRP1A-5	LTG-TELECOM W0003		15	WLRP1A-6	LTG-PREF W0225	1-18/1-17
4	WLRP1A-7	LTG-MECH MEZZ	1-33	16	WLRP1A-8	LTG-TRAINING W0100	1-23(1)/1-22(1)
5	WLRP1A-9	LTG-MECH RM	1-34	17	WLRP1A-10	LTG-TRAINING W0100	1-23(2)/1-17(2)
6	WLRP1A-11	LTG-CORRIDOR W0033	1-8	18		South Parking via Contactor	
7	WLRP1A-13	LTG-PREF W0525	1-12/1-11	19		North Parking via Contactor	
8	WLRP1A-15	LTG-DOCK		20		SPARE	
9	WLRP1A-17	LTG-COMP TRG W0600	1-10	21		SPARE	
10	WLRP1A-19	LTG-COMP TRG W0600	1-9(1)	22		SPARE	
11	WLRP1A-21	LTG-COMP TRG W0600	1-9(2)	23		SPARE	
12	WLRP1A-23	LTG-COMP TRG W0600	1-9(3)	24	WLRP1A-24	LTG-MAINTENANCE	1-5
Rly	Circuit	Description	LV Switch	Rly	Circuit	Description	LV Switch
25	WLRP1A-25	LTG-CONF W0700	1-4(1)	37	WLRP1A-26	LTG-TRAIING W0100	1-21(1)
26	WLRP1A-27	LTG-CONF W0700	1-4(2)	38		SPARE	
27	WLRP1A-29	LTG-CONF W0700	1-4(3)	39	WLRP1A-30	LTG-EXTERIOR	
28	WLRP1A-31	LTG-COMP TRG W0500	1-31(1)/1-30(1)	40	WLRP1A-32	LTG-PREFUN W0125	1-19/1-20
29	WLRP1A-33	LTG-COMP TRG W0500	1-31(2)/1-30(2)	41	**Space**	Space	
30	WLRP1A-35	LOADING DOCK	1-26(1)	42	**Space**	Space	
31	WLRP1A-37	LOADING DOCK		43	**Space**	Space	
32	WLRP1A-39	WEST CORRIDOR	1-26(2)	44	**Space**	Space	
33	No Driver Card			45	No Driver Card		
34				46			
35				47			
36				48			
Group Switch Card 1				Group Switch Card 2			
Channel	Function	Description	Loads Controlled	Channel	Function	Description	Loads Controlled
A	On/Off	Loading Dock	30, 31	I	1909: Master	Executive Room 1	LCP 19: 9
B	On/Off	Training	16, 17, 37	J	1910: Master	Executive Room 2	LCP 19: 10
C	Unused			K	1911: Master	Executive Room 3	LCP 19: 11
D	Unused			L	1917: Master	Executive Room 4	LCP 19: 17
E	On/Off	All Outside	30, 31, 39	M	Unused		
F	Unused			N	Unused		
G	Unused			O	Pattern	Conf Full Lighting	On: 17 Off: 16
H	On/Off	Corridors	1, 6, 32	P	Pattern	Conf Video Lighting	On: 16 Off: 17

# LCP Relay Cross Reference

Figure 12.3. LCP Relay Cross Reference

LCP Relay Cross Reference

Demo Sampler with Graphics and Trends - Communications Card System

Panel ID	Name		Location	Type	Interior/Enclosure	Power Supply	Circuit
1	Ground Floor Relay Panel		Ground Floor	CC	24/24 Surface	115/277	HB-1-15
Rly	Circuit	Description	Settings	Timeout	Schedule	References	
1	HB-1-1	Office 101	Blink	00:10	1 CC Demo - Office Schedule	<b>Phone Codes</b> 101 CC Demo Office x01 (All NW Offices) <b>Group Codes</b> 17 Clean Cleaning 18 Blink Blink Warn Floor On Work/Depart 19 Force Force All Relays ON All On Floors	
2	HB-1-1	Office 102	Blink	00:10	1 CC Demo - Office Schedule	<b>Group Codes</b> 17 Clean Cleaning 18 Blink Blink Warn Floor On Work/Depart 19 Force Force All Relays ON All On Floors	
3	HB-1-2	Open Office East 2/3 Lighting	Blink		1 CC Demo - Office Schedule	<b>Group Codes</b> 17 Clean Cleaning 18 Blink Blink Warn Floor On Work/Depart 19 Force Force All Relays ON All On Floors	
4	HB-1-2	Open Office East 1/3 Lighting	Blink		1 CC Demo - Office Schedule	<b>Group Codes</b> 18 Blink Blink Warn Floor On Work/Depart 19 Force Force All Relays ON All On Floors 84 Shed East Photocell	
5	HB-1-3	Open Office West 2/3 Lighting	Blink		1 CC Demo - Office Schedule	<b>Group Codes</b> 17 Clean Cleaning 18 Blink Blink Warn Floor On Work/Depart 19 Force Force All Relays ON All On Floors	
6	HB-1-3	Open Office West 1/3 Lighting	Blink		1 CC Demo - Office Schedule	<b>Group Codes</b> 18 Blink Blink Warn Floor On Work/Depart 19 Force Force All Relays ON All On Floors 83 Shed West Photocell	
7	HB-1-4	Corridor / Lobby		00:03		<b>Group Codes</b> 19 Force Force All Relays ON All On Floors	
8	HB-1-5	Conference Room Downlights	Blink			<b>Group Codes</b> 18 Blink Blink Warn Floor On Work/Depart	



# Dataline Switches

Figure 12.4. Dataline Switches

## Dataline Switches

### Corporate Headquarters - Communications Card System

Panel ID	Name	Location	Type	Interior/Enclosure	Power Supply	Circuit
1	WLRP1A		LI	48/48 Surface	115/277	WRP-1

Total Dataline Switches: 26

Station Name: 1-10

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-COMP TRG W0600	LCP 1: 9

Station Name: 1-11

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-PREF W0525	LCP 1: 7

Station Name: 1-12

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-PREF W0525	LCP 1: 7

Station Name: 1-13

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-PREF W0425	LCP 1: 13

Station Name: 1-14

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-PREF W0425	LCP 1: 13

Station Name: 1-15

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-PREF W0325	LCP 1: 14

Station Name: 1-16

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-PREF W0325	LCP 1: 14

Station Name: 1-17

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-PREF W0225	LCP 1: 15

Station Name: 1-18

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-PREF W0225	LCP 1: 15

Station Name: 1-19

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-PREFUN W0125	LCP 1: 40

Station Name: 1-2

Button	Function	Label	Description	Loads Controlled
1	On/Off		SPARE	LCP 1: 2

Station Name: 1-20

Button	Function	Label	Description	Loads Controlled
1	On/Off		LTG-PREFUN W0125	LCP 1: 40

Station Name: 1-21

# Group Codes

Figure 12.5. Group Codes

## Switch Codes

### Corporate Headquarters - Communications Card System

**Group Code:** 601

**Description:** OPEN OFFICE 2W-200, 300, 400

**Function:** Master

**Relay Count:** 1

**Relay Panel:** LCP 6: WLRP2B

Relay 6-1: OPEN OFFICE 2W-200,300,400 {WLRP2B-1} 5-1(1)

**Group Code:** 602

**Description:** OPEN OFFICE 2W-200, 300, 400

**Function:** Master

**Relay Count:** 1

**Relay Panel:** LCP 6: WLRP2B

Relay 6-2: OPEN OFFICE 2W-200,300,400 {WLRP2B-3} 5-2(2)

**Group Code:** 603

**Description:** OPEN OFFICE 2W-200, 300, 400

**Function:** Master

**Relay Count:** 1

**Relay Panel:** LCP 6: WLRP2B

Relay 6-3: OPEN OFFICE 2W-200,300,400 {WLRP2B-5} 5-2(3)

**Group Code:** 722

**Description:** Open Office 2E-700, 800, 900

**Function:** Master

**Relay Count:** 1

**Relay Panel:** LCP 7: ELRP2B

Relay 7-22: OPEN OFFICE 2E-700,800,900 {ELRP2B-20} 8-1(1)

**Group Code:** 723

**Description:** OPEN OFFICE 2E-700, 800, 900

**Function:** Master

**Relay Count:** 1

**Relay Panel:** LCP 7: ELRP2B

Relay 7-23: OPEN OFFICE 2E-700,800,900 {ELRP2B-22} 8-1(2)

**Group Code:** 724

**Description:** OPEN OFFICE 2E-700, 800, 900

**Function:** Master

**Relay Count:** 1

**Relay Panel:** LCP 7: ELRP2B

Relay 7-24: OPEN OFFICE 2E-700,800,900 {ELRP2B-24} 8-1(3)

# Schedules

Figure 12.6. Schedules

## Schedule Documentation

### Demo Sampler with Graphics and Trends - Communications Card System

Schedule	Description										Occupancy Time
1	CC Demo - Office Schedule										03:01
<b>Monday</b>		<b>Tuesday</b>		<b>Wednesday</b>		<b>Thursday</b>		<b>Friday</b>			
18:00	Off	18:00	Off	18:00	Off	18:00	Off	18:00	Off		
<b>Saturday</b>		<b>Sunday</b>		<b>Holiday 1</b>		<b>Holiday 2</b>		<b>Holiday 3</b>			
12:00	Off	12:00	Off	12:00	Off	12:00	Off	12:00	Off		

Schedule	Description										Occupancy Time
2	CC Demo - Signage / Half Parking										03:01
<b>Monday</b>		<b>Tuesday</b>		<b>Wednesday</b>		<b>Thursday</b>		<b>Friday</b>			
22:00	Off	22:00	Off	22:00	Off	22:00	Off	22:00	Off		
Sunset	On	Sunset	On	Sunset	On	Sunset	On	Sunset	On		
<b>Saturday</b>		<b>Sunday</b>		<b>Holiday 1</b>		<b>Holiday 2</b>		<b>Holiday 3</b>			
22:00	Off	22:00	Off	22:00	Off	22:00	Off	22:00	Off		

Schedule	Description										Occupancy Time
13	M-Normal Lighting Ext										03:01
<b>Monday</b>		<b>Tuesday</b>		<b>Wednesday</b>		<b>Thursday</b>		<b>Friday</b>			
18:00	Off	18:00	Off	18:00	Off	18:00	Off	18:00	Off		
<b>Saturday</b>		<b>Sunday</b>		<b>Holiday 1</b>		<b>Holiday 2</b>		<b>Holiday 3</b>			
17:30	Off	18:00	Off	18:00	Off	18:00	Off	01:00	On		
								14:00	Off		

Schedule	Description										Occupancy Time
14	N-Alternate Short										03:01
<b>Monday</b>		<b>Tuesday</b>		<b>Wednesday</b>		<b>Thursday</b>		<b>Friday</b>			
17:30	Off	17:30	Off	17:30	Off	17:30	Off	17:30	Off		
<b>Saturday</b>		<b>Sunday</b>		<b>Holiday 1</b>		<b>Holiday 2</b>		<b>Holiday 3</b>			
17:30	Off	17:30	Off	17:30	Off	17:30	Off	17:30	Off		

Schedule	Description										Occupancy Time
15	O-Outdoor Floods										03:01
<b>Monday</b>		<b>Tuesday</b>		<b>Wednesday</b>		<b>Thursday</b>		<b>Friday</b>			

# Variable Override Duration

**Figure 12.7. Variable Override Duration**

Communications Card System

**VARIABLE OVERRIDE DURATION**

**Schedule:** 1  
**Description:** 1 and 1/2 Hour Overrides Mon-Fri, 3 hours Weekends

**Monday :** 01:30  
**Tuesday :** 01:30  
**Wednesday :** 01:30  
**Thursday :** 01:30  
**Friday :** 01:30  
**Saturday :** 03:00  
**Sunday :** 03:00  
**Holiday :** 01:00

**Schedule:** 2  
**Description:** 1 Hour Overrides Mon-Sat, 2 Hours Sun

**Monday :** 01:00  
**Tuesday :** 01:00  
**Wednesday :** 01:00  
**Thursday :** 01:00  
**Friday :** 01:00  
**Saturday :** 01:00  
**Sunday :** 02:00  
**Holiday :** 01:00

# Contactors

**Figure 12.8. Contactors**

## Contactors

### Corporate Headquarters - Communications Card System

Panel ID	Name	Location	Type	Interior/Enclosure	Power Supply	Circuit
1	WLRP1A		LI	48/48 Surface	115/277	WRP-1

**Coil Voltage:** 277

Contactor	Type	Location	Controlling Relay	Pole	Circuit	Description
1	N/O	Internal	Relay 1-18: South Parking via Contactor	1		Zone 1
				2		Zone 2
				3		Zone 3
				4		Zone 4
Contactor	Type	Location	Controlling Relay	Pole	Circuit	Description
2	N/O	Internal	Relay 1-19: North Parking via Contactor	1		Zone 7
				2		Zone 8
				3		Zone 9
				4		Zone 10

Panel ID	Name	Location	Type	Interior/Enclosure	Power Supply	Circuit
2	WLRP1B		LI	48/48 Surface	115/277	WRP-1

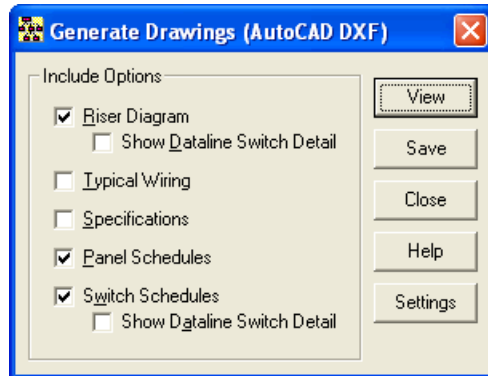
**Coil Voltage:** 277

Contactor	Type	Location	Controlling Relay	Pole	Circuit	Description
1	N/O	Internal	Relay 2-29: East Parking via Contactor	1		Zone 5
				2		Zone 6
				3		
				4		
Contactor	Type	Location	Controlling Relay	Pole	Circuit	Description
2	N/O	Internal	Relay 2-30: Executive Parking via Contactor	1		Upper Area
				2		Lower Area
				3		
				4		

---

# Chapter 13. Generate DXF Diagram

**Figure 13.1. Generate DXF Diagram**



When you have finished specifying the requirements of your Lighting Control system; you are now ready to generate drawings that can be used for bid documents. Click the "Generate DXF Diagram" option.

You may choose to include all options on the drawings, or selectively generate drawings one option at a time. WinControl Designer is provided with a free DXF viewer program so that you can see the drawings generated. If you would like to Print or Edit these drawings, you will need to provide your own CAD program such as AutoCAD for this purpose.

Once the file is generated, the drawing viewer will automatically be launched to display the drawing. If you want to use your own CAD package rather than the basic viewer included with WinControl Designer, use the Settings button to select to use your PC's default program for viewing CAD DXF files. If you want to select a specific name and location for the DXF file generated, click the "Save" button rather than View.

If you don't have AutoCAD or a compatible drawing viewer capable of viewing DXF files, see the section called "Viewing DXF Files" for available free viewers. These tools can display the DXF files generated by WinControl Designer. Note these third party sites are not affiliated with Watt Stopper/Legrand.

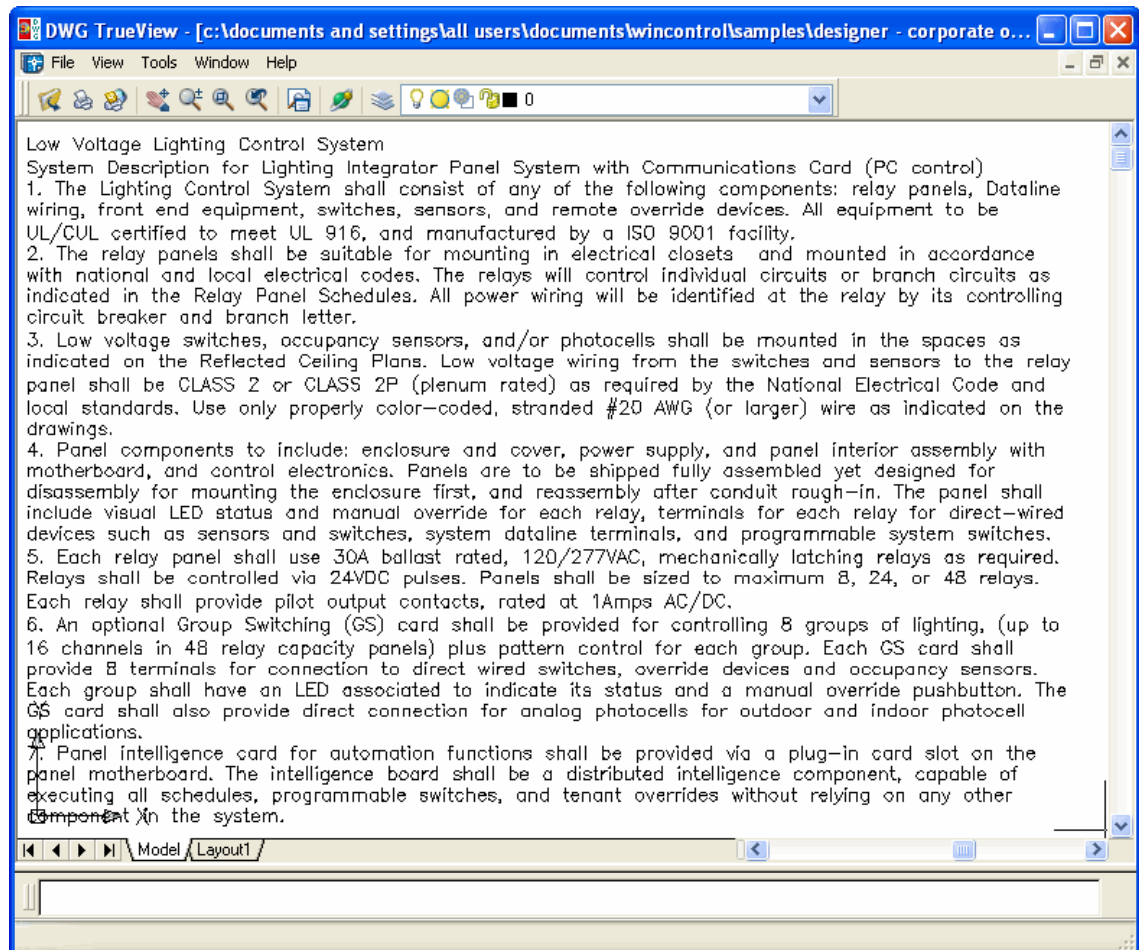
Examples of various portions of the drawings based on the above selections are shown in the sections that follow...

- Specifications
- Typical Wiring
- Riser Diagram
- Panel Schedules
- Switch Schedules

Settings allows you configure additional options, including the viewer.

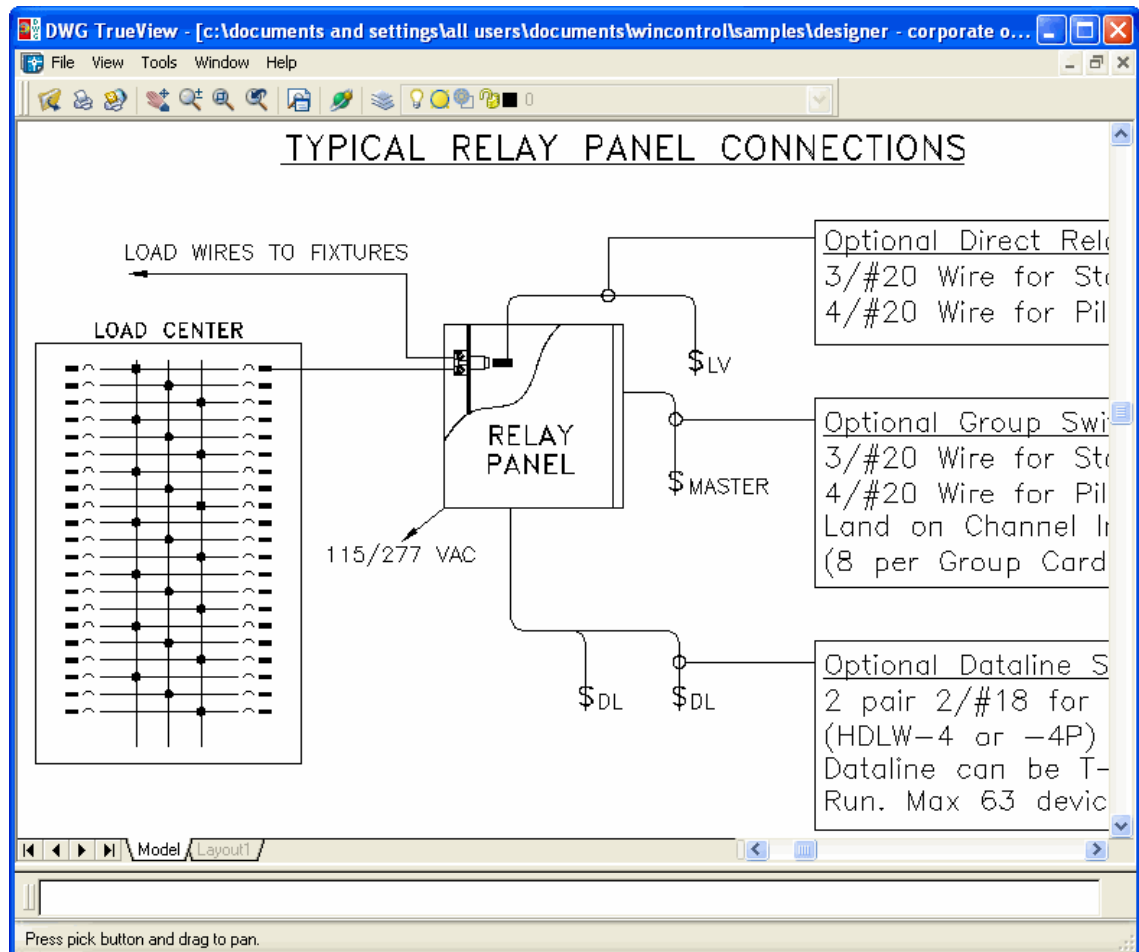
# DXF-Specifications

**Figure 13.2. DXF Specifications**



# DXF-Typical Wiring Details

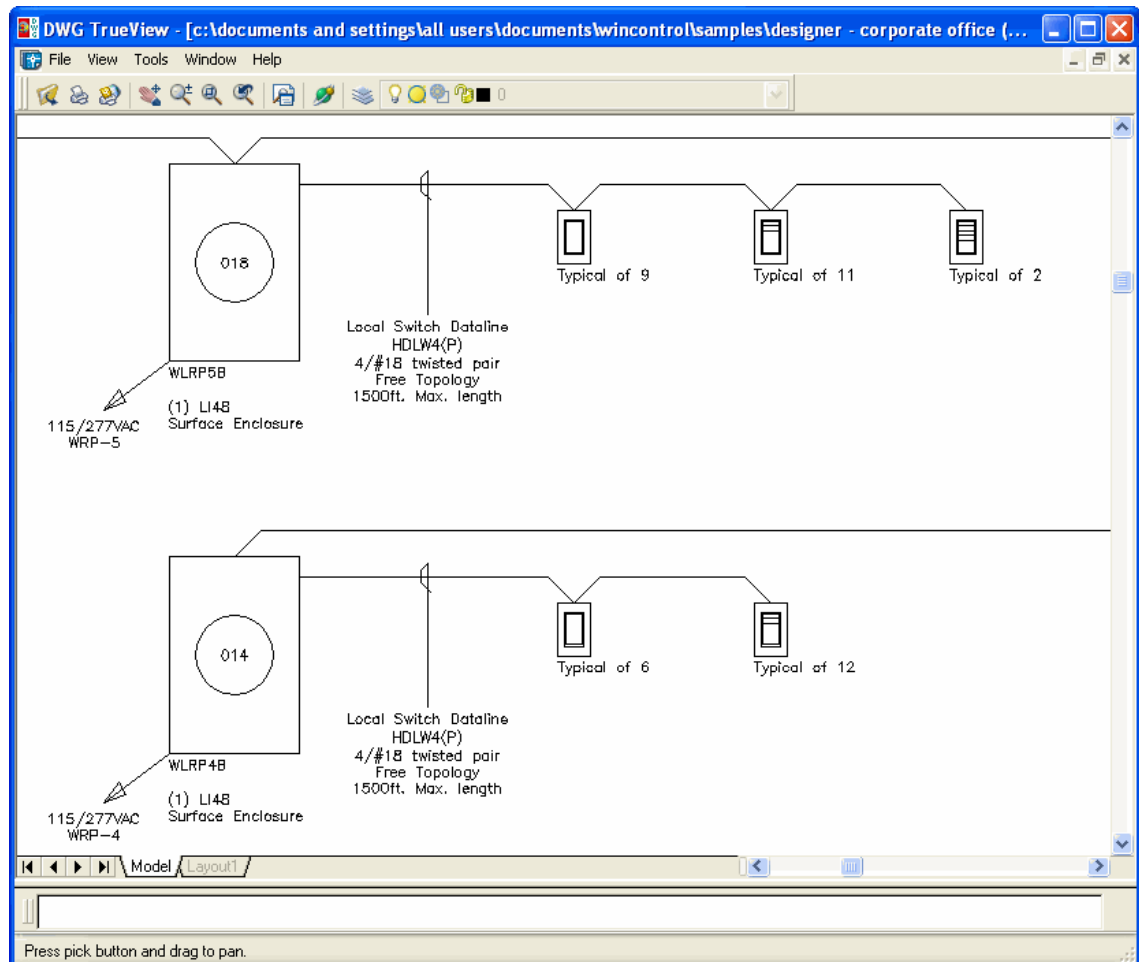
Figure 13.3. DXF Typical Wiring Details





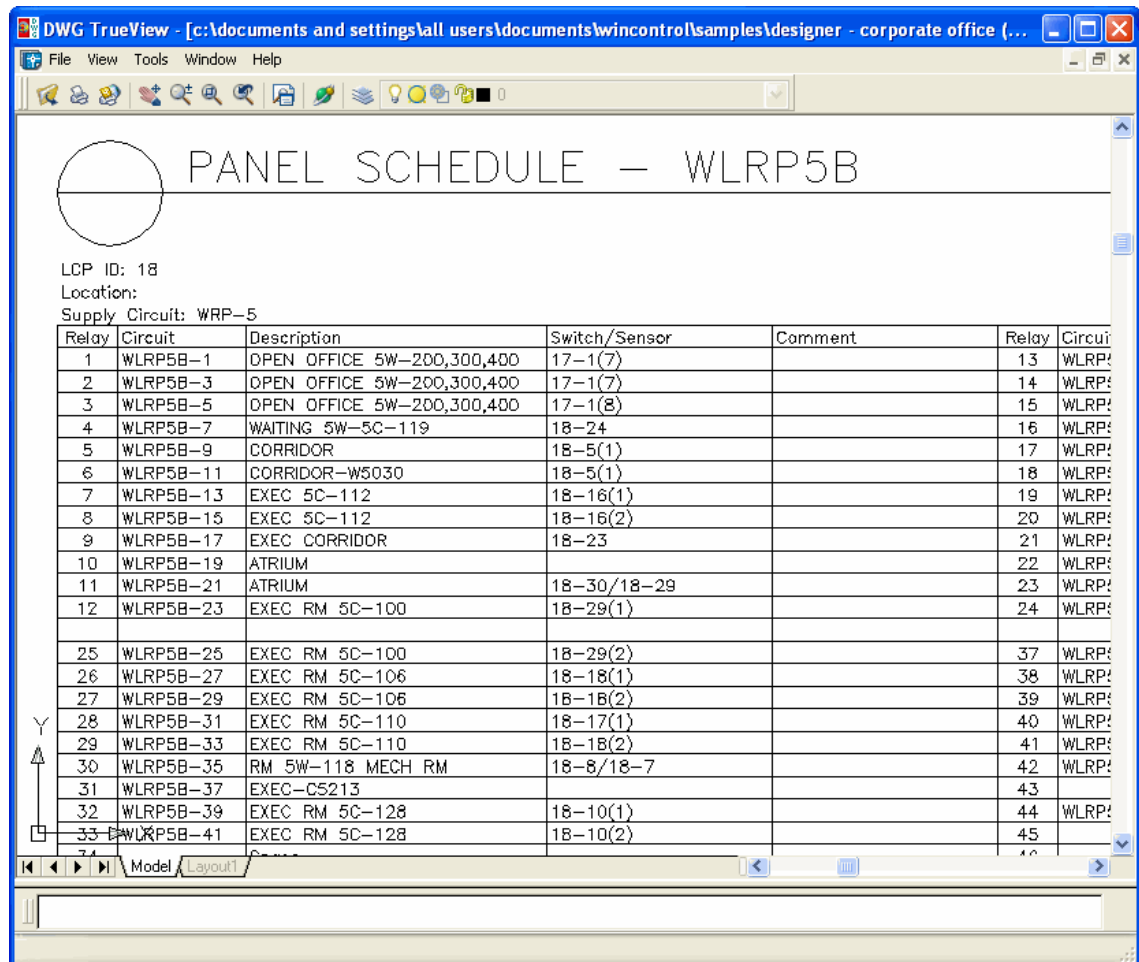
# DXF-Riser Diagram

Figure 13.4. DXF Riser Diagram



# DXF-Panel Schedules

**Figure 13.5. DXF Panel Schedules**



PANEL SCHEDULE — WLRP5B

LCP ID: 18  
Location:  
Supply Circuit: WRP-5

Relay	Circuit	Description	Switch/Sensor	Comment	Relay	Circuit
1	WLRP5B-1	OPEN OFFICE 5W-200,300,400	17-1(7)		13	WLRP5B-13
2	WLRP5B-3	OPEN OFFICE 5W-200,300,400	17-1(7)		14	WLRP5B-14
3	WLRP5B-5	OPEN OFFICE 5W-200,300,400	17-1(8)		15	WLRP5B-15
4	WLRP5B-7	WAITING 5W-5C-119	18-24		16	WLRP5B-16
5	WLRP5B-9	CORRIDOR	18-5(1)		17	WLRP5B-17
6	WLRP5B-11	CORRIDOR-W5030	18-5(1)		18	WLRP5B-18
7	WLRP5B-13	EXEC 5C-112	18-16(1)		19	WLRP5B-19
8	WLRP5B-15	EXEC 5C-112	18-16(2)		20	WLRP5B-20
9	WLRP5B-17	EXEC CORRIDOR	18-23		21	WLRP5B-21
10	WLRP5B-19	ATRIUM			22	WLRP5B-22
11	WLRP5B-21	ATRIUM	18-30/18-29		23	WLRP5B-23
12	WLRP5B-23	EXEC RM 5C-100	18-29(1)		24	WLRP5B-24
25	WLRP5B-25	EXEC RM 5C-100	18-29(2)		37	WLRP5B-37
26	WLRP5B-27	EXEC RM 5C-106	18-18(1)		38	WLRP5B-38
27	WLRP5B-29	EXEC RM 5C-106	18-18(2)		39	WLRP5B-39
28	WLRP5B-31	EXEC RM 5C-110	18-17(1)		40	WLRP5B-40
29	WLRP5B-33	EXEC RM 5C-110	18-18(2)		41	WLRP5B-41
30	WLRP5B-35	RM 5W-118 MECH RM	18-8/18-7		42	WLRP5B-42
31	WLRP5B-37	EXEC-C5213			43	WLRP5B-43
32	WLRP5B-39	EXEC RM 5C-128	18-10(1)		44	WLRP5B-44
33	WLRP5B-41	EXEC RM 5C-128	18-10(2)		45	WLRP5B-45

# Viewing DXF Files

DXF Files are CAD format files that are compatible with AutoCAD or a compatible drawing package.

Please visit our WinControl Designer web page at <http://www.wattstopper.com/designer> for the latest information on available CAD viewing tools.

WinControl / Designer does not come with a CAD program or CAD viewing capabilities. We expect that you will already have a CAD package on your computer; however, if you don't, you have several free options...

- eDrawings [<http://www.solidworks.com/pages/products/edrawings/eDrawings.html>] DXF/DWG viewer/printer from Solidworks [<http://www.solidworks.com>] (approx 6MB).
- Autodesk DWF Viewer [<http://www.autodesk.com/dwfviewer-download>] DXF/DWG/DWF viewer/printer from AutoDesk [<http://www.autodesk.com>] (caution - approx 110MB).
- Free DWG Viewer [<http://www.infograph.com/products/dwgviewer>] DXF/DWG/DWF viewer only from Informative Graphics [<http://www.infograph.com>] (approx 10MB). Be aware this *free* program expires after a period of time, and **does not allow printing. See the Brava desktop below for a version with printing features.**

All of these tools can display the DXF files generated by WinControl Designer.

Additional fee based options available (many more CAD solutions are available, these are just a few options):

- Purchase the **Brava! Desktop (DWG Version)** program from Informative Graphics [www.infograph.com/products/dwgviewer](http://www.infograph.com/products/dwgviewer) [<http://www.infograph.com/products/dwgviewer>]. This tool can display **and Print** the DXF files generated by WinControl Designer.
- Purchase IntelliCAD from CADopia. Visit the CADopia website at [www.cadopia.com](http://www.cadopia.com) [<http://www.cadopia.com>] for pricing.
- Purchase AutoCAD or AutoCADLT from AutoDesk. These programs allow full featured CAD file editing. Visit the AutoDesk web site at [www.autodesk.com](http://www.autodesk.com) [<http://www.autodesk.com>] for more information.

## Note

These sites are not affiliated with Watt Stopper / Legrand.

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# Chapter 14. Application Quick Reference

## Schedule Scenarios in WinControl

This is a quick review of how Lighting may be scheduled in WinControl. This does not cover an "Always ON" or "Always OFF" schedule, since these are rarely used.

See the following topics...

the section called "Auto ON / Auto OFF"

the section called "Manual ON / Auto OFF"

the section called "Dusk to Dawn"

the section called "Dusk to Arbitrary Time"

the section called "Exterior Lighting Schedule with Photocell"

### Auto ON / Auto OFF

Turns ON the lighting automatically in the morning, and turns the lighting OFF automatically at night.

Note that for every scheduled ON command, there is an OFF command later that evening. Because of that, there is **NO NEED** for the "Occupancy Time" to be checked.

Time Delays will automatically occur on any day that does not have a scheduled ON/OFF time (like weekends and holidays).

**Figure 14.1. Auto ON / Auto OFF Schedule**

**Schedule Editor**

Schedule: 1: 8:00am - 6:00pm M-F, 9:00am - 1:00pm Sat.

Description: 8:00am - 6:00pm M-F, 9:00am - 1:00pm Sat. Occupancy time: 3:01 AM

Monday		Tuesday		Wednesday		Thursday		Friday	
Time	Action	Time	Action	Time	Action	Time	Action	Time	Action
8:00 AM	On	8:00 AM	On	8:00 AM	On	8:00 AM	On	8:00 AM	On
6:00 PM	Off	6:00 PM	Off	6:00 PM	Off	6:00 PM	Off	6:00 PM	Off
<new>		<new>		<new>		<new>		<new>	

Saturday		Sunday		Holiday 1		Holiday 2		Holiday 3	
Time	Action	Time	Action	Time	Action	Time	Action	Time	Action
9:00 AM	On	<new>		<new>		<new>		<new>	
1:00 PM	Off								
<new>									

Store Schedule OK Cancel Apply

## Manual ON / Auto OFF

Tenants need to turn ON lighting manually (via a switch or telephone call) in the morning, but lights are automatically turned OFF at night.

Because there is no "ON" command in the morning to disable the Time Delays, the "Occupancy Time" must be checked. This means that **there must be an "Off" command every day** sometime after the Occupancy Time.

If one does not schedule an OFF command every day after the Occupancy Time, any overridden light will stay ON all Saturday, Sunday and/or Holiday.

You may choose to change the Occupancy Time from the default 3:01 AM to 5:01 AM (as shown) to increase their energy savings.

**Figure 14.2. Manual ON / Auto OFF**

**Schedule Editor**

Schedule: 2: Manual ON - 7:00pm M-F, 1:00pm Sat.

Description: Manual ON - 7:00pm M-F, 1:00pm Sat.

Occupancy time: 5:01 AM

Day	Time	Action
Monday	7:00 PM	Off
Tuesday	7:00 PM	Off
Wednesday	7:00 PM	Off
Thursday	7:00 PM	Off
Friday	7:00 PM	Off
Saturday	1:00 PM	Off
Sunday	5:02 AM	Off
Holiday 1	5:02 AM	Off
Holiday 2	5:02 AM	Off
Holiday 3	5:02 AM	Off

Store Schedule

OK Cancel Apply

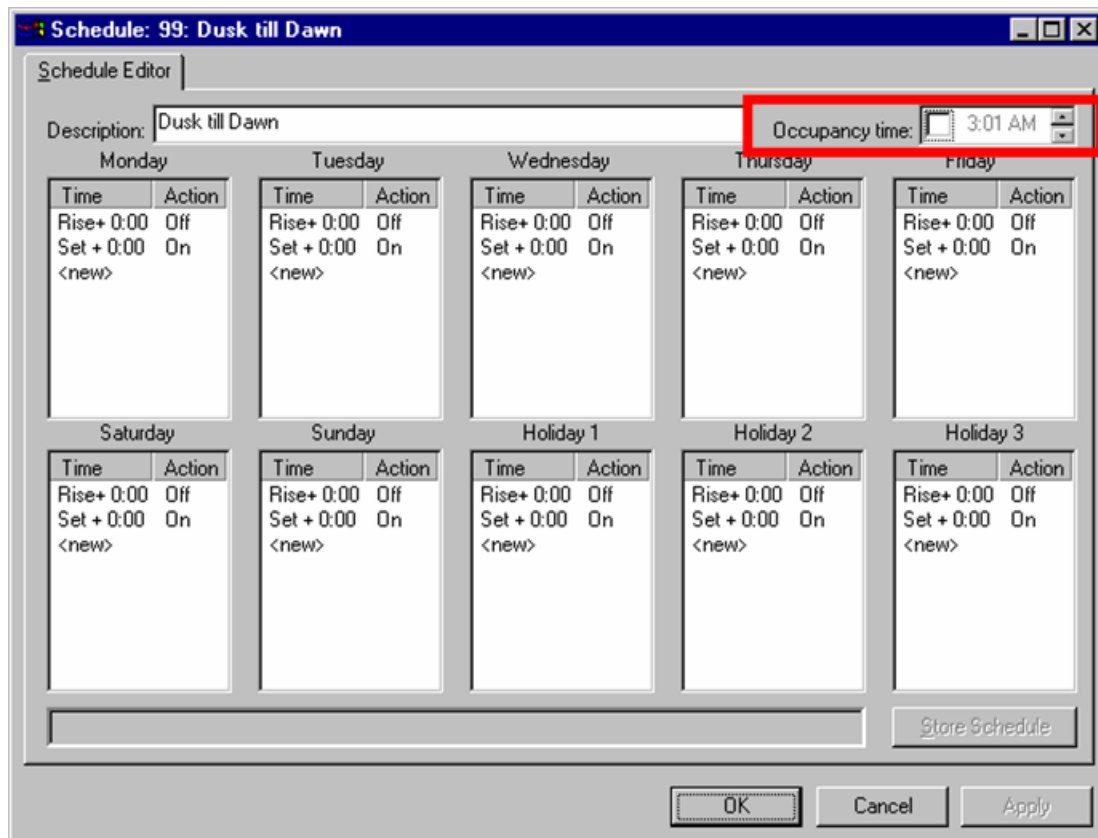
## Dusk to Dawn

### Dusk to Dawn:

Based on the location setting (Choose **“Initialize”** on the main menu, then choose **“Astronomical Clock”** to see the current location), the panel’s microprocessor will calculate the next day’s Sunrise and Sunset time every evening at midnight. This allows “Sunrise” and “Sunset” to be set like any other time setting. Since the times are calculated at midnight, note that an Astro-based schedule WILL NOT work the first evening after it is initially transferred.

Note that since there is an OFF command every day, the Occupancy Time is not checked

Also, most users do not program a Time Delay for Exterior Lights.

**Figure 14.3. Dusk to Dawn**

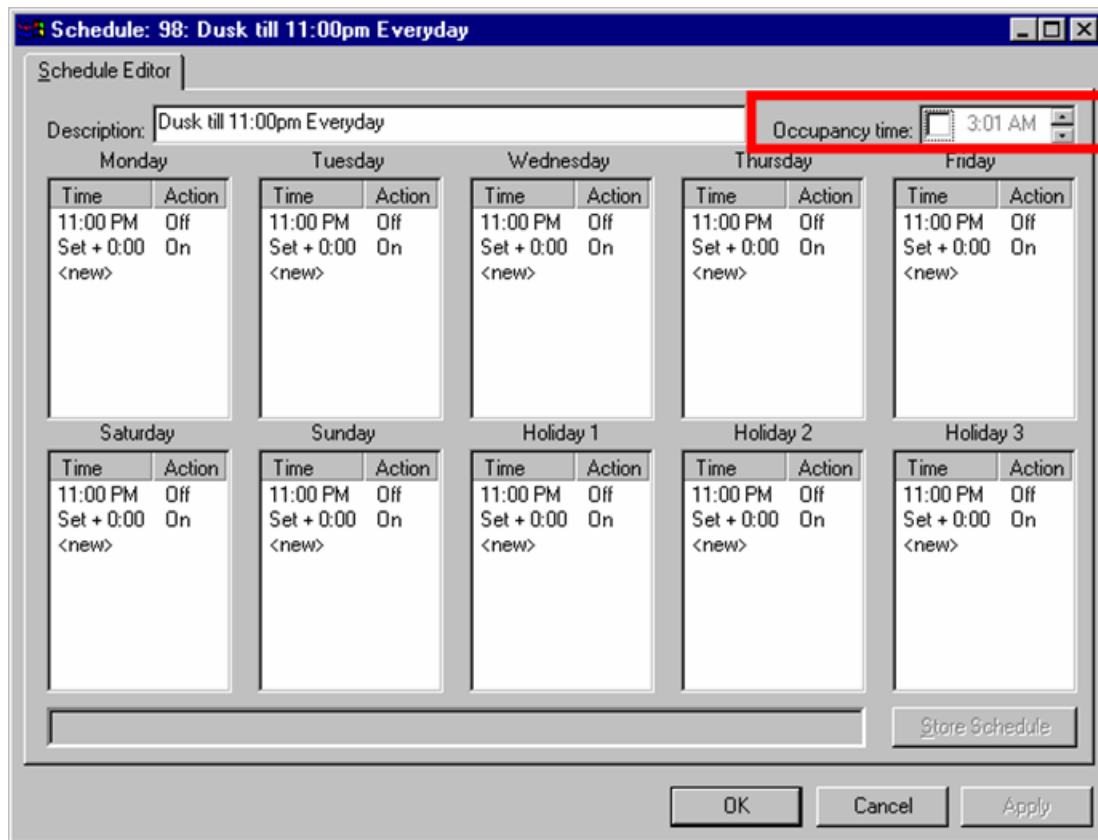
## Dusk to Arbitrary Time

This is a logical extension of the above examples – a mixture of Astro-based and standard times. Offsets can also be used to control Lights some desired time before or after an Astro event (usually no more than 30 minutes).

The Occupancy Time is not needed, so it should be unchecked.

Some users will also want the lights turned back on in the morning an hour before sunrise. In this case use the offset setting of the Astro feature to turn lights ON 1 hour before Sunrise, then turn them OFF at Sunrise.

The trouble with using an early ON command at a fixed time (say 7:00am) is that if the daily “OFF at Sunrise” command happens before the fixed time event turns lights ON (i.e. 7:00am), the exterior lights will be ON all day.

**Figure 14.4. Dusk to an Arbitrary Time**

## Exterior Lighting Schedule with Photocell

With a combination of a photocell and a regular time schedule, exterior lights can be kept on only when necessary. First, create a Group Code with shed and assign the exterior lighting relays. Second, create a regular time schedule for when the exterior area is expected to be used. For example, you might choose 6am to 10pm for a parking lot. With the photocell properly configured to send the shed Group Code, the exterior lighting relays will stay off when there is plenty of sunlight. After sunset, the Group Code sends a shed restore which 'allows' the lights to go on. At 10pm, the schedule will turn the lights off followed by a scheduled on at 6am the next morning. The photocell either keep the lights off or allow them to be turned on by the schedule.



# Temporary Changes to Schedules in WinControl

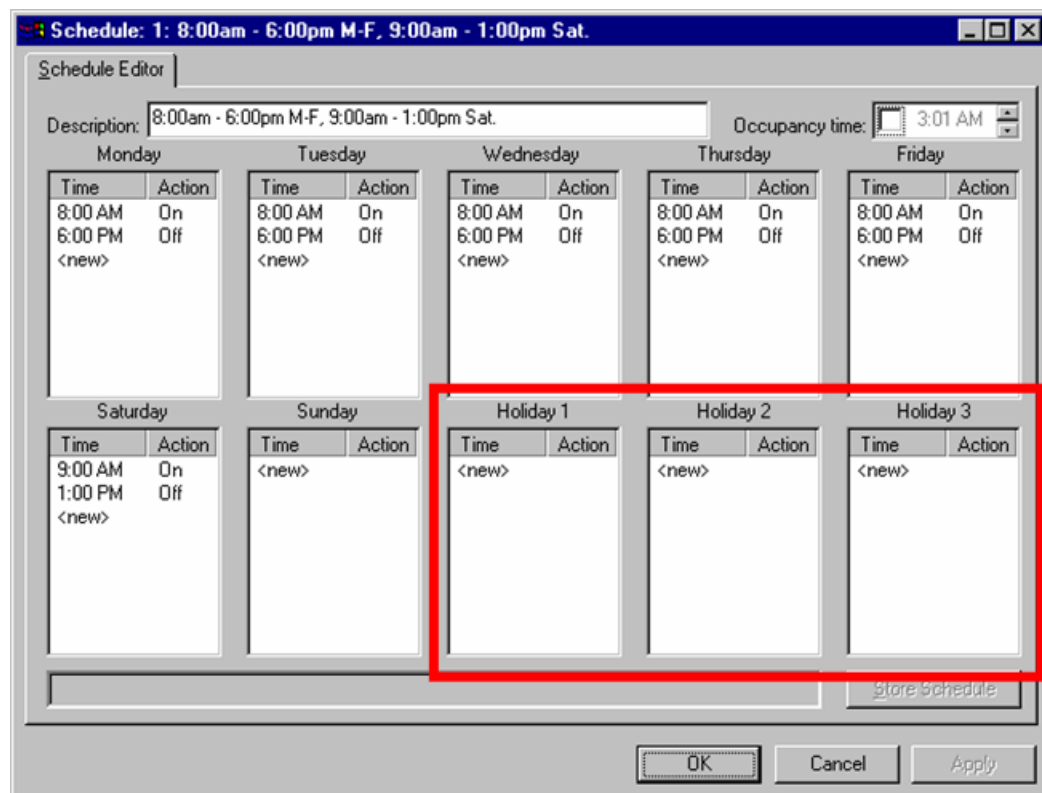
Tenants often ask for temporary changes to their normal lighting schedules due to special events. With WinControl there are at least 4 different options that a user can use to override the standard schedules.

## 1. Use the Holiday Schedules:

WinControl provides three possible Holiday schedules in every individual schedule template. The reason three options are provided is that the facility manager might want to use Holiday 1 for limited hours (similar to many Saturday schedules), Holiday 2 for days with no ON hours (similar to many Sundays), and Holiday 3 for days when people start at a normal time but leave earlier than normal. Despite the multiple options, most sites simply use Holiday 1.

The thing to remember about Holiday schedules is that they are system wide. When identifying a day as a holiday (by choosing **"Program"** from the main menu, then selecting **"System"** and **"Holidays"**) every schedule switches over to the Holiday schedule. Using this method affects all schedules for the entire building – not something you want to use when just a small area needs to be kept on longer than normal.

**Figure 14.5. Holiday Schedules**



## 2. Change the normal schedule that is assigned to the relay:

Changing the normal schedule for a relay is very easy to do. Just go into the property screen for a relay panel (right-click on the panel in the tree view, choose **"Properties"**, and go to the **"Relays"** tab), change the schedule for all the relays that you want to override temporarily to a new schedule, and

transfer the schedule to the relays. This method requires that there is an existing schedule that meets the temporary requirements, or else a new schedule will have to be created.

This method requires that the user remember to change the schedule back to the original schedule once the temporary override is no longer needed.

### 3. Use an Alternate Schedule Function:

This option is useful when somebody asks to have their schedules change for a range of days, i.e. if the financial group needs to keep their lights ON longer than normal during tax season. However, tenants rarely come back at the end of the special project and let the facility manager know to change the schedule back. This can be taken care of automatically by an alternate schedule – the facility manager can assign a specific date to start a new schedule, and the last day to run the alternate schedule before switching back to the normal schedule.

There are two items that must be programmed for the Alternate Schedule to work properly. First, an Alternate Schedule must be set up in the relays tab of the panel properties screen.

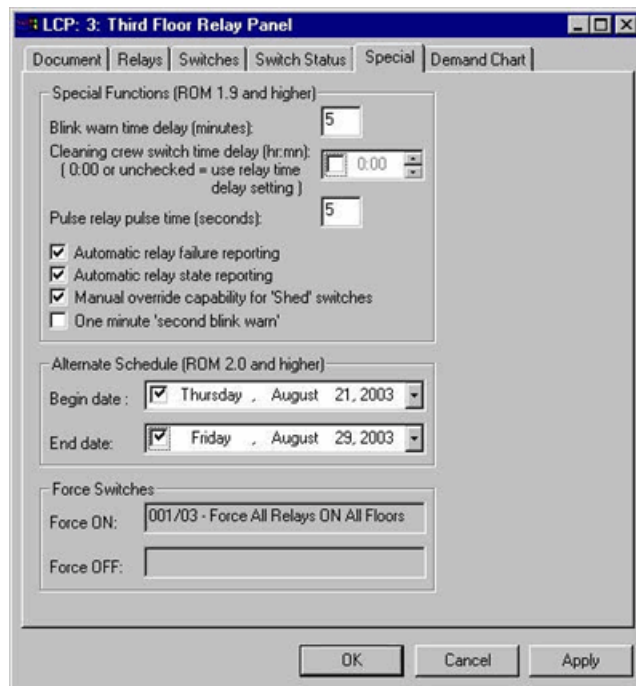
#### Note

The Alternate Schedules column is normally viewable in the data entry grid when the "**Program**" or "**All**" viewing options are selected. However, if the Alternate Schedules column is not there, the facility manager will need to use the "**Configure**" button on the **Relay** tab of the panel properties screen to add that column back.

Once the Alternate Schedules have been entered for all the proper relays, switch to the **Special** tab of the panel property screen. It's in this tab that the specific dates for the Alternate Schedule are assigned.

Once the new info is transferred to the panel, the alternate schedule will automatically start running on the date defined as a "Begin Date", and run up to and including the date defined as the "End Date". After that, the relays will automatically revert to their normal schedule.

Note that the Alternate Schedules and the dates for running the Alternate Schedule need to be defined each panel individually. While this does offer the flexibility of having different Alternate Schedules running in different panels, this complexity might prove more confusing than helpful.

**Figure 14.6. Holiday Schedules****4. Telephone Override with Duration:****Note**

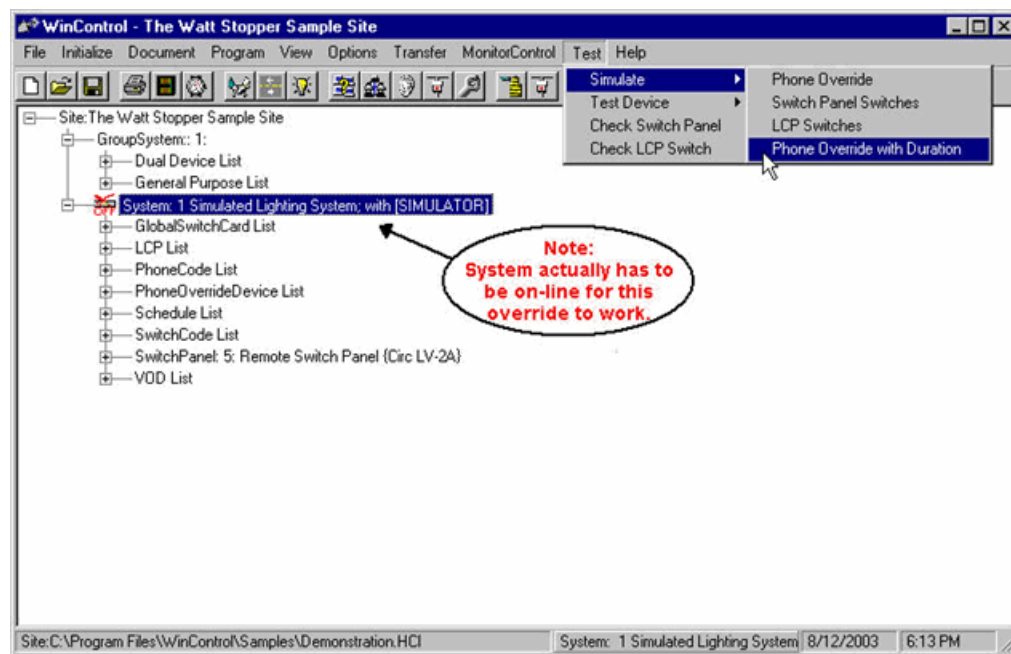
This feature requires WinControl version 1.5.6.1 or higher.

For those instances where a specific area has to stay on several hours longer than normal, and when the area already has a telephone code set up for the area's relays, this option may save a lot of time. Also, people who aren't comfortable programming the system can easily take care of keeping an area ON longer than normal. This option uses a telephone code assign the relays a time delay mode that can be significantly longer than the time delay that's normally assigned to the relays (which is usually 1-2 hours).

Make sure the system is on-line. Then from the main menu choose **"Test"**, then **"Simulate"**, and then **"Phone Override with Duration"**.

In the pop up box that appears, enter the phone code that you want to override, in the next box choose **"ON"**, and in the final box enter the total amount of time in hours and minutes you want the lights overridden. **Remember to enter the total amount of time based on when you enter the override.** For instance, if it's 5:00pm, and the lights should remain ON till 11:30pm, enter 6:30 (6 hours, 30 minutes). A maximum of 24 hours can be entered.

To check that the relays are using the new time delay, pull up the properties of an overridden relay (right click on the relay in the tree view) and check the time delay shown on the **Status** tab. It should be the time delay entered.

**Figure 14.7. Phone Override with Duration****Table 14.1. Summary of Override Options**

Temporary Schedule Method	Override Affects	Must be Programmed	Best Used For
Holiday Override	All Relays in System	1) Holiday Fields in All Schedules 2) Holiday Dates	Holidays that can be set up in advance.
Change Normal Schedule	Chosen Relays	1) Relay's Normal Schedule 2) New Schedule if one doesn't exist	Temporary Override for an unknown number of days
Alternate Schedule	Chosen Relays per Panel	1) Relay's Alternate Schedule 2) New Schedule if one doesn't exist 3) Range of Dates (in each panel's Special Tab)	Temporary Override for a specific date range
Telephone Override with Duration	Telephone Code	1) Telephone Code	One time delay of OFF sweep for just that night.

**One other possibility:**

In a space that requires constantly changing schedules, Watt Stopper does have another solution, although it requires a new piece of hardware. Watt Stopper has a device called WebLink that provides remote access to the Lighting Control system using Ethernet wiring. The WebLink also acts as a Web Server which anyone on the network in the building can monitor and control any relay. All that is needed is a web browser such as Internet Explorer or Firefox

There is an optional software package that can be loaded on the WebLink, which will provide a true 365 day schedule programmer. The schedules are actually setup with actions in an interface that looks similar to Outlook, or any other daily scheduling program. Using this software, a schedule can be changed at any time, and every day can be completely unique. The 365 day scheduler is ideal for places like arenas, museums, and spaces that rent out areas to the public.

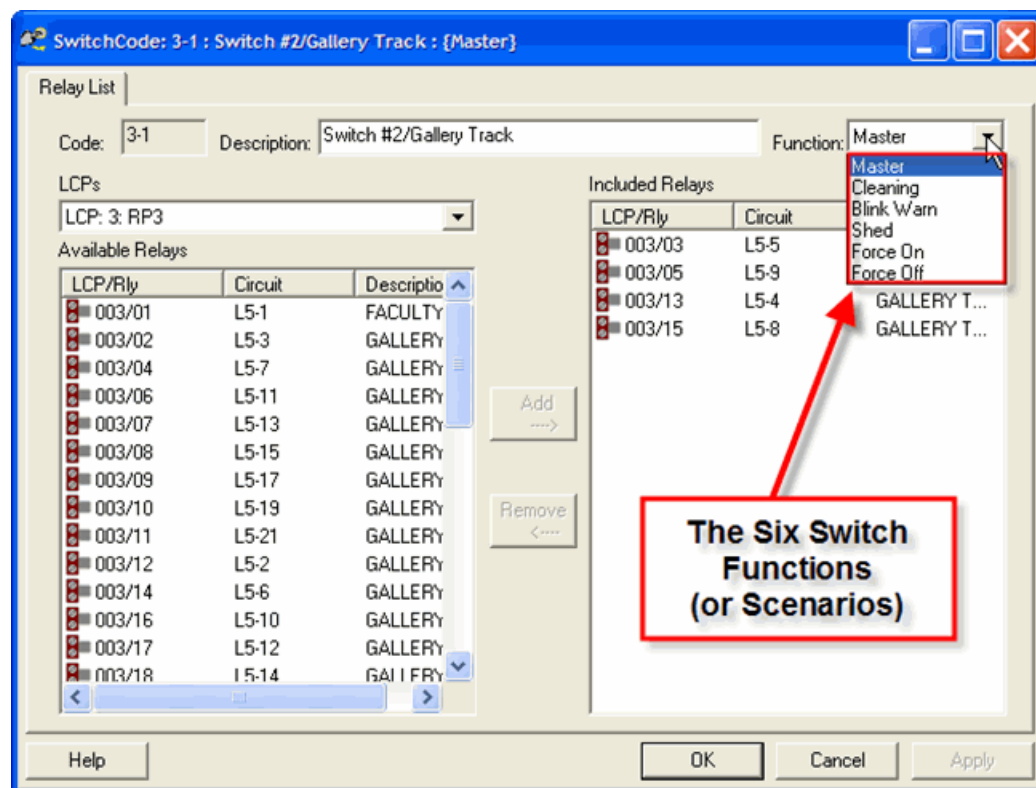
## WinControl's Six Switch Functions

WinControl's goal is to make programming your lighting control system as easy as possible. Sometimes however an “easy to use” feature requires a little patience in the beginning to learn how it is used. For instance, some people don't realize how valuable the six different functions that can be assigned to a programmable switch can be.

Assigning the relays that will be controlled by a switch input is straightforward – bring up “Properties” for the panel where the switch is terminated and select the “Switches” tab. Once you get the dialog below, provide a location / description for the switch you're programming.

After you've entered a description, click the “Program” button. Up comes the relay assignment dialog box...

**Figure 14.8. Relay Assignment Dialog**



From here, choose the relays you want the switch to control using any of the following methods:

- Double-click on a relays “LCP/Rly” info to quickly add it to the included relays, or
- Select relays (using Shift-Click for sequential relays or Control-Click for separate relays), then drag from the Available Relays to the Included Relays, or
- Select relays (using Shift-Click for sequential relays or Control-Click for separate relays), then click the “Add” button.

If you don't see all the info you need, expand or contract the field info by dragging your cursor in the field headers. Once you've assigned the relays you want, you need to select a switch "Function". This choice identifies how you want the switch to operate.

The possible "Functions" are:

#### 1. **Master**

When a switch is assigned a Master function (the default), it will simply turn all associated relays ON/OFF, just as if you had pressed a directly wired switch. When a master switch is pressed on, the associated relays come on; when it is pressed off, the relays turn off. No Blink warning is provided. If time delays are enabled (after a Scheduled Off event for instance), then turning a master switch ON will start the time delay process specified for the relay. Most switches used for occupant overrides are Master switches.

#### 2. **Blink Warn**

Blink Warn switches are used if you want another system (BAS, HVAC, etc...) to schedule Relays ON and OFF.

Before using a Blink Warn switch, relays controlling Incandescent and Fluorescent Lamps should be set to Blink by choosing "Blink Warn" in the relay's "Settings" field. HID Lamps or Mechanical equipment should not be set to Blink. If a "Blink Warn" switch is pressed OFF, it will Blink its assigned relays OFF then back ON, and then turn them off five minutes later. Relays that are not set as "Blink Warn" will turn OFF immediately.

### **Note**

Note that a Blink Switch pressed ON will turn ON its relays AND it will disable their time delays. A Blink Switch pressed OFF turns its relays OFF (either immediately or after five minutes) AND will enable their time delays.

#### 3. **Cleaning**

This function is designed for switches used by cleaning crews. Relays controlled by a cleaning switch will go ON when the switch is pressed ON, but the switch cannot turn off relays if the area is in Normal Hours mode (aka occupied, or the relay is ON due to any other type of override actions). This function acts like other temporary overrides, at the end of a time delay the relays it controls will turn OFF (with a warning if Blink is enabled). The cleaning switch time delay defaults to the same as the relay time delay, although the cleaning crew time delay can be set to a different delay for each LCP.

Note: The Cleaning function is sometimes used when a switch is in a hallway or publicly accessible area, since it prevents people from turning OFF a relay that has been scheduled ON by the system.

#### 4. **Shed**

The shed function is used for interior daylighting zones and load shedding. Relays programmed with a shed group code will track the operation of the photocell or demand contact switch, but only after something else (switch, schedule, etc...) has turned the relays ON. If nothing else turns the relays ON, a Shed switch will do nothing.

If an occupant wants to override a Shed OFF action, they must override it two times. The first time they override it, the relays will turn back OFF. The second time they override it, the relay will stay ON. (This shed override feature may be disabled on a per panel basis using Special Features for the panel).

#### 5. **Force ON**

This function allows you to setup a switch that when turned ON will Force ON the relays in the group. While in a Force ON condition, nothing can turn the relays off, not even a schedule or another network command. A direct wired switch will override a relay OFF for about 2 seconds; but then the system will turn it back ON. When the Force ON switch is turned OFF, relays return to normal operation. Force ON is sometimes used for contacts from a security system, so lights can't be turned OFF after an alarm is triggered.

#### **6. Force OFF**

A Force OFF switch is the opposite of a Force ON switch. Force OFF allows you to setup a switch that when turned ON will Force OFF the relays in the group. When the switch is turned OFF, relays return to normal. Force OFF may be useful to keep lights OFF without allowing an occupant override (such as Shed allows).



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# Chapter 15. Windows Security Issues

Higher levels of security are now required by IT departments and as each update of Windows comes out, security has been tightened. WinControl 3.0 has been updated to work with higher IT and Windows security requirements. Here we try to provide tips and best practices for WinControl when running with tougher security requirements in Windows XP, Windows Vista and Windows 7.

Tip: Before making any changes to your site folder, backup the entire site folder to a medium off of the computer such as CD/DVD, USB Drive, server or tape backup.

## Access Requirements

### User Access Requirements

Traditionally, Windows users typically were setup to run as Administrator of their own machine where they were allowed to install software and make machine level changes to their systems. Now, due to the threat of viruses and the need for IT to manage installed software, most users can no longer configure their own machines. For these reasons, most users now run as a “restricted” or “standard” user. Any software run by these users must not attempt to edit machine level settings on the computer. Most software must be updated to run under these restricted security conditions.

WinControl has been updated in version 3.0 to run with restricted access to the machine. Most functions work normally including documentation, programming, program transfer, log transfer and other WinControl activities.

### Administrative Access Requirements

The only functions in WinControl that require Administrative access include:

1. Installation
2. Automatic Updating
3. Licensing

To perform these functions, the user must either elevate their privileges or request IT to perform the function as an administrator. If the user has the option to elevate their privileges then they will either need to log in as an administrative user or they can launch the application by a special sequence. By holding down the **Shift** key while right clicking the application, a special menu option “Run As...” where you may login temporarily as a privileged user without having to logoff. See the section called “Special Windows 7 and Windows Vista Issues” for more details on shortcuts to running with elevated permissions.

## Site Data Storage Locations

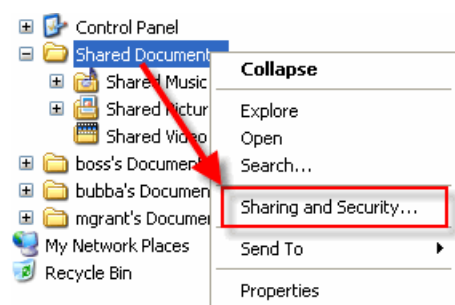
By default, WinControl stores site data under the current user's "My Documents\WinControl" folder. A subfolder is created for each project with the same name as the project. Due to enhanced security requirements, we strongly discourage storing any user data in the "Program Files" folder. This folder requires Administrator access and will force WinControl to be run with those higher privileges. We recommend moving the site folder to either "My Documents\WinControl" or "Shared Documents\WinControl" as soon as it is convenient.

### Sharing Documents on the Same Machine

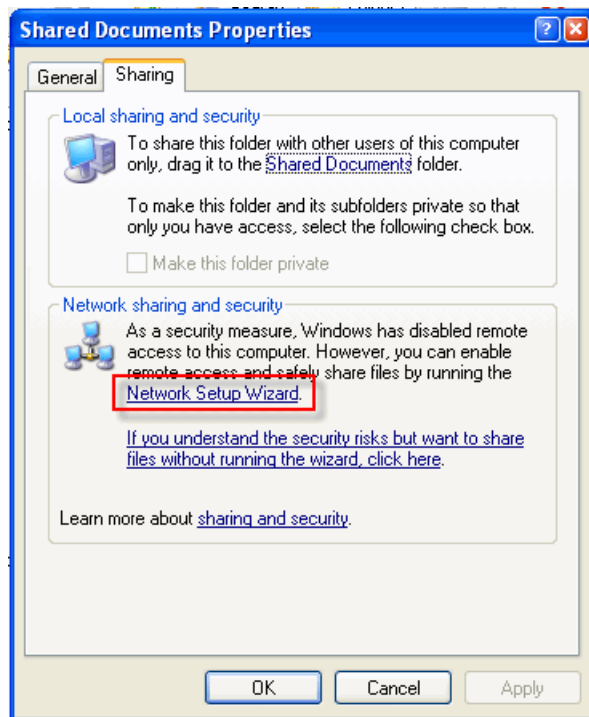
Typically, only one user accesses WinControl LI site files and, by default, they are stored under "My Documents\WinControl". However, if more than one user logs in and needs access to the same files then they must be stored in a common location. "Shared Documents" is used for this reason except there are security issues with sharing files for write access. By default, files copied to Shared Documents are only writable by the owner or creator of the document. You may test this out by creating a simple text document using Notepad and saving it to "Shared Documents". Then, log in as a different user (other than an administrator) to see if you can make any changes to that file.

To enable read/write access for all users on the local machine, Shared Documents security must be modified. Also, if the machine is running XP Pro or Vista while logged onto a Domain (or Active Directory) then Shared Documents will not be displayed under My Computer in File Explorer. It can, however, be found under "Documents and Settings\All Users\Documents".

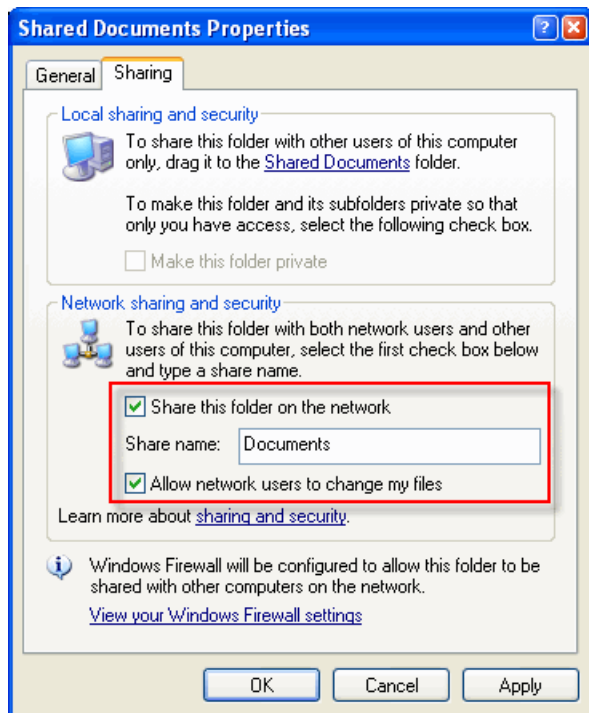
**Figure 15.1. Sharing and Security**



Right click on the folder "Shared Documents" and click the "Sharing and Security..." item (see menu screen shot above). Click the "Network Setup Wizard" and choose the defaults. This wizard changes the options on the "Sharing" page to allow "Shared Documents" to be shared for read/write access.

**Figure 15.2. Shared Documents Properties**

On the updated “Sharing” page, check “Share this folder on the network” and “Allow network users to change my files”. The “Share name” can be left as default.

**Figure 15.3. Shared Properties After Wizard**

For more information regarding the “Shared Documents” folder, please visit: <http://support.microsoft.com/kb/304040>

### **Sharing Documents from a Network File Share**

If configuring WinControl to access files via a network share, the IT department must be consulted in order to open up the shares. Access and security requirements differ across organizations. We recommend access to the WinControl site files to be read-only across a network to minimize accidental data loss. Treat the WinControl data files as you would any other data files like Word or Excel files. If the WinControl file is allowed write access then the user that performs the last write will overwrite changes by anyone else with the file already open.

For projects that utilize devices such as touch screens, we recommend that the site files be copied locally upon start up to improve performance. Generally, the startup procedures for touch screen panels will automatically pull the latest data files from a network file share and launch WinControl Graphics full screen.

## Special Windows 7 and Windows Vista Issues

Windows 7 and Windows Vista have a much higher level of security enforcement while also trying to maintain backwards compatibility with older software. One of the new security features that is hidden to most users is a virtualized area of the registry for Local Machine data. This enables legacy applications to run with restricted user privileges. However, changes to this virtual area are not seen by other users of the computer, causing some software to behave in odd ways when run by a user other than the one that installed the application. For this reason, installation, updating and licensing of WinControl must always be performed while running as an Administrator. If WinControl is licensed while running as a normal user then only that user will be licensed. If another user logs in and runs WinControl, they will get a warning that they are not yet licensed. If this happens, rerun licensing as an Administrator and re-request the license.

Some links for more information on Windows 7 and Windows Vista security:

- <http://msdn2.microsoft.com/en-us/library/aa965884.aspx>
- <http://technet.microsoft.com/en-us/library/cc507844.aspx>
- <http://technet.microsoft.com/en-us/library/dd560691.aspx>

### Note

Administrative Logon Tip - To run as Administrator for either XP or Vista is to right click on the program shortcut while holding down the shift key. This will bring up an extended context menu which will include “Run as...” or “Run as Administrator”. Selecting this option allows you to temporarily run the application at a higher security level. Both XP and Vista will prompt for an administrative user ID and password while allowing you to remain logged in as a normal user. This allows the software to perform the administrative tasks and then exit.

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# Chapter 16. Conclusion

WinControl allows you to design and document a system of lighting controls for a new facility, as well as transfer the operating data to the system, and providing ongoing monitoring, control, and troubleshooting functions, taking advantage of the specific product features necessary to meet the owner's needs and desires.

WinControl is an extension of our WinControl Designer tool, adding the ability to provide online communication, data transfer, and a host of other features for day to day operation of our LI CC based lighting control panels. WinControl includes all of the functionality of our WinControl Designer product as well.

As with WinControl Designer, WinControl provides the framework for setting up the programming of the system, so you are assured that the components you select can be programmed for the features required. Hard copy documentation is generated which can be used by the contractor or startup technician for applications where a PC front end is not of interest or applicable.

Please visit our WinControl web page at <http://www.wattstopper.com/wincontrol> for the latest news and information and updates for WinControl.

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# Glossary of WinControl and LI-CC Terms

## B

Blink	A “Blink” is the process of turning off a relay for 1 second, then turning it back on to warn an occupant, via the blink of his/her lights, that the lights will be automatically shut off in 5 minutes. This feature is enabled by setting the “Blink Warn” parameter to “Yes” for individual relays. Relays that are already OFF are not affected by the Blink Warn function. Blink Warn is programmable on a per relay basis.
Blink Warn Function	This is one of six different switch functions. Blink Warn is a function that can be selected on a per switch basis for programmable switches. When a switch is of a type “Blink Warn”, then turning off the switch will activate a Blink on the loads controlled.

## C

CC	This is an acronym for Complete Control, and is also the catalog number for the intelligent module installed inside a Lighting Integrator panel. The CC card is capable of storing the programs for up to 48 relays and controlling their function. The card is designed to retain programs in the even of a power failures, and has an internal clock to keep schedules functioning even though there may be a power outage, or dataline or PC failures.
Clean Function	This is one of six different switch functions. A switch that has been programmed with the Clean function cannot turn off the lights while they are scheduled ON, and cannot turn off the lights if a non-Clean function has turned them ON. A Clean switch is often used for support of janitorial staff, but may serve as an interface with security systems when it is necessary to get all lights on. If the security system is activated the relay needs to be able to restore the previous state when the alarm is cleared.
COM Port	COM port is computer jargon for communications port. A COM port is a connection on a personal computer that provides an interface to other devices, such as the Complete Control system. The standard COM port is an RS-232 serial communications port. In the Complete Control system, it is connected at the PC to the CDID interface device via an HCABLE-C.
Complete Control	The Complete Control option for Lighting Integrator panels is distinguished by the controller card and the use of WinControl programming the system. All LI-CC systems are programmed from a PC. Each panel in an LI-CC system has an CC controller card, in addition to one or more Relay Driver (RD) cards. The CC card executes all programmable switching and scheduling functions in a fully distributed manner. This manual is devoted to the use of WinControl with the LI-CC family of products.
Controller	The Controller is an electronic board (CC Controller Card) installed in a Lighting Integrator LCP. It contains all of the operating programs for an individual LCP. Each Controller has an internal clock that keeps track of the current date and time

so schedules can be tracked within each panel. This feature allows fully distributed control within the system.

## D

**Dataline Options Panel** The Dataline Options Panel is used to provide power to the dataline, as a mounting box for the Phone Override Card , and as a mounting box for the Global Switch Annunciator card. When set to the Master Mode it acts as the dataline power supply.

**Dataline Power Module** This is a small card that installs inside of a Lighting Integrator panel. This cards provides the necessary dataline power for panels to communicate over the network. Only one panel needs a DP module installed.

## F

**Force Off Function** This is one of six different switch functions. When a switch is programmed as Force OFF, any of the relays that are programmed to respond to the switch will be Forced OFF when the switch is set to the ON position. The ON state of the switch indicates the overridden state for the relays, and Force OFF will turn the relay OFF, and keep the relay in that position, regardless of schedules or other override commands. Turning the switch OFF will restore the relays to their non-force state.

**Force On Function** This is one of six different switch functions. When a switch is programmed as Force ON, any of the relays that are programmed to respond to the switch will be “Forced ON” when the switch is set to the ON position. The ON state of the switch indicates the overridden state for the relays. Force ON will turn the relay ON and keep the relay in that position regardless of schedules or other override commands. Turning the switch OFF will restore the relays to their non-force state.

## G

**Graphical User Interface** A User Interface is a collection of techniques and mechanisms to interact with the computer. A Graphical User Interface provides a collection of elements (called objects) visible to the user that are used to perform actions. The actions include accessing and modifying by pointing, selecting, and manipulating using a pointing device (mouse).

**Group Code** A Group Code is a user selectable group of relays that has a predefined function scenario in addition to the collection of relays. A group code is often used to provide an easy way to control multiple loads, either in one or multiple lighting control panels. A Group Code can be associated with Channel inputs in a Group Switch (GS) card, as well as with individual buttons on a dataline switch. Group Codes are identified by their id, which is a number from 1-16000. Available function scenarios include Master, Blink, Clean Shed, Force ON and Force OFF.

## H

**HCABLE-C** This is a cable required to connect a PC computer to either an HLINK device or directly to a LCP. To connect to a LCP an CC module must be installed.



**HCABLE-M** This is the required cable for connecting a modem to an HLINK device.

**HDR** This relay model is Watt Stopper's exclusive Heavy Duty relay for switching lighting loads. Unlike other relays, this device has a visual state indicator, as well as ability to provide a manual override, even when power is not available to drive the relay coil. The HDR has a special plug-in connector for connection to the LI Relay Driver (RD) board.

**HLINK** This communications devices allows you to connect your PC to a dataline network, then communicate to multiple panels. The HLINK provides clock synchronization functions, and an alarm contact for failure annunciations.

## L

**LCP** Lighting Control Panel. This is a complete assembly which includes a Tub, Interior, Cover, and Power Supply, with Controller Cards and Relay Driver Cards installed.

**Lighting Integrator** This terms describes Watt Stopper's line of Lighting Control Panels.

## M

**Master Function** This is one of six switch functions. The Master switch function can be selected on a per switch basis. Master switches can directly control relays, without regard for current mode. A Master switch programmed with a override duration will initiate a countdown.

**Modem** A modem is a device used to access remote computers or lighting control systems using telephone lines.

## O

**Override Duration** Override Duration is a term used to describe the process of counting down a pre-determined interval of time after an override. Overrides are initiated by an ON command via Phone Code, Master Switch, or Clean switch, as well as direct override switch. At the end of the pre-programmed time delay period, the load will be turned OFF, or blinked if Blink is enabled. Another override before the end of the time delay re-starts the counter.

## R

**Relay** This is the basic point of control for the Lighting Integrator panel system. All ON/OFF control of loads occurs by toggling a relay, which is normally mounted inside a Lighting Integrator Lighting Control Panel (LCP). Relays may also be mounted remotely. A LCP may hold as many as 48 relays.

**Relay Driver** Relay Driver (RD) cards handle the control of up to 4 relays. A 48 relay panel contains as many as 12 RD cards. These must be installed in a panel for the system to be able to check status and control relays.

## S

### Shed Function

Shed is one of six possible switch functions. A switch that has been programmed with the Shed function cannot turn on the lights if they were not previously turned off via the shed function. A Shed switch is often used in daytime lighting applications, or for demand savings in conjunction with a building automation system.

## T

### Transfer Programs

This is the process of sending new operating parameters such as schedules, phone codes, and time delays to the field LCPs after programming in the PC via the WinControl program. You can transfer programs from your computer to the field devices, or in special circumstances, you can also transfer programs from the field devices back to your computer. The latter is normally only necessary if you have more than one front end computer.

## V

### Variable Override Duration

The term used in WinControl for assorted time delays and associated schedule variations. See Time Delay above.

## W

### WinControl

WinControl is the Windows-based Complete Control software for Lighting Integrator panels from Watt Stopper. WinControl is the software installed on PCs delivered with a LI-CC system. This software is designed to support programming of a LI-CC, and provide monitor and control functions for any points in the system. The software does not have to run unless you need to make changes to the system, or have special monitoring requirements.

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