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# Architectural Control Processor Configuration Manual

1.2.0

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# Introduction

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Welcome to the SmartLink Architectural Control Processor (S-ACP) Configuration Manual. This manual contains the procedures for successful programming of the SmartLink ACP when used in a Unison DRd rack enclosure.



The SmartLink ACP is designed for installation in a Unison DRd rack enclosure and provides centralized access to the dimming, switching, rack enclosure settings, DMX setup, and configuration of your SmartLink control network.

The SmartLink ACP is a LinkConnect enabled product and provides the DRd with rack to rack synchronization of preset and sequence commands over the LinkConnect network.

An optional SmartLink Station Power Module (S-SPM) fits in the module slot directly above the SmartLink ACP and provides power for up to 16 SmartLink wall stations on the topology-free LinkConnect control network. Reference the related [SmartLink Station Power Module Installation Guide](#) for details.

The SmartLink ACP features a dynamic user interface with a touch wheel for easy menu navigation, a numeric button pad for direct selection, and a bright, easy to read graphic LCD. Additionally, the Secure Digital (SD) media card slot facilitates backup and easy loading of both the SmartLink and DRd rack configurations.

## Warnings and Notice Conventions

These symbols are used throughout this manual to alert you to danger or important information.



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**Note:** *Notes are helpful hints and information that are supplemental to the main text.*

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**CAUTION:** *A Caution statement indicates situations where there may be undefined or unwanted consequences of an action, potential for data loss or an equipment problem.*

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**WARNING:** *A Warning statement indicates situations where damage may occur, people may be harmed, or there are serious or dangerous consequences of an action.*

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**WARNING:** ***RISK OF ELECTRIC SHOCK! This warning statement indicates situations where there is a risk of electric shock.***

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## Contacting ETC

For questions about Unison system delivery, contact ETC Systems Group. For general information, your most convenient resources are the references provided in this manual. To search more widely, use the ETC web site at [www.etcconnect.com](http://www.etcconnect.com).

For technical questions about Unison systems, contact ETC Technical Services directly at one of the offices listed below. Emergency service is available from all ETC offices outside of normal business hours. When calling for assistance, please have the following information handy:

- Your location and job name or job number.
- A complete list of ETC equipment.
- A complete list of other installed products and components connected to the system you are troubleshooting.
- DMX control source, if any.

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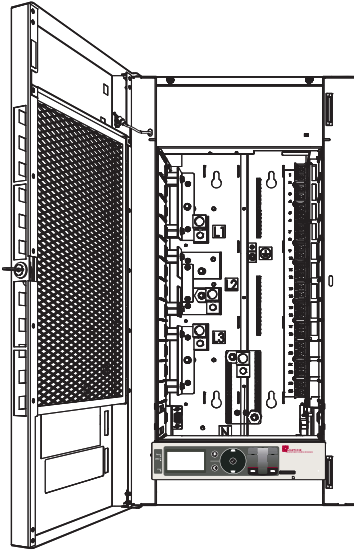
Please email comments about this manual to: [TechComm@etcconnect.com](mailto:TechComm@etcconnect.com)

# Overview

---

## SmartLink System Components

SmartLink is a control system that uses Echelon® LonTalk® with LinkPower™ protocol. SmartLink provides the Unison DRd racks with additional features such as rack to rack synchronization of the built-in presets and sequence.



The SmartLink ACP is designed to slide in the bottom module slot of a Unison DRd rack (6 or 12 module) enclosure. All data terminations used with the SmartLink ACP are terminated to the right I/O board in the DRd. Reference the [Unison DRd Rack Enclosure Installation Manual](#) for data termination details.

## SmartLink ACP Features

### Configuration

All setup and programming are accomplished from the SmartLink ACP user interface. No external software is required.

### LinkConnect Enabled

The LinkConnect control network uses Echelon® LonTalk™ with LinkPower protocol for rack to rack synchronization of the 64 built-in presets and sequencer. The addition of a SmartLink station power module (S-SPM) in the Unison DRd rack enclosure provides LinkPower for up to 16 SmartLink wall stations. LinkPower utilizes topology-free, polarity independent low-voltage, Class II twisted pair wiring.

### **Presets**

Up to 64 presets are recordable from the SmartLink ACP user interface using the snapshot record feature or from the SmartLink wall station using the remote record feature. Each preset is programmable from the SmartLink ACP with up, down, and hold times. You may also configure presets to run in the built-in sequencer.



## Sequencer

The sequencer allows up to 64 pre-recorded presets to run in a looped sequence. Presets run in this sequence starting at preset 1 and step sequentially through the presets 2, 3, 4, 5... The sequence may be set to run only once or to run indefinitely.

## Wall Stations

Up to 16 SmartLink stations can be configured to activate presets and the sequence as programmed in the SmartLink ACP user interface.

## Storage

The DRd rack configuration and SmartLink configuration are stored in non-volatile flash memory.

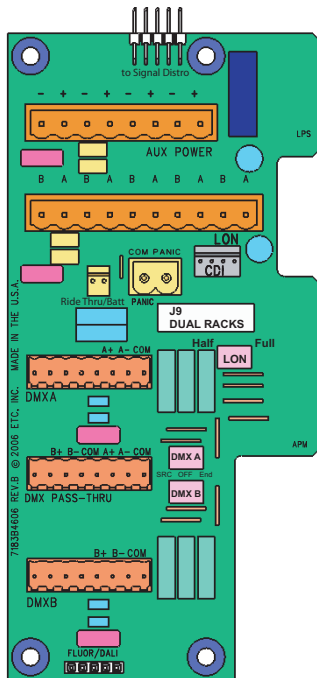
## Backup

The SmartLink ACP features a secure digital (SD) media card slot on the front of the unit. Use an SD card (not provided) to backup your configurations (both the dimming engine and SmartLink configurations) for rapid programming of a replacement dimming processor. [See "SD Media" on page 12.](#)

## Rack Feedback

The SmartLink ACP provides you feedback of DMX input status, rack power status, and rack error status on LEDs visible from the front panel of the processor with the door closed.

## Inputs



The right I/O board on the DRd rack enclosure provides a selection of control inputs into the system. All connections are pluggable for ease of installation.

- 24 VDC Auxiliary power on an eight pin pluggable connector (for use with Paradigm ACPs only - not available with the SmartLink ACP).
- SmartLink / LinkPower (labeled "LON") input connector for up to five SmartLink wall station home runs. Total run of SmartLink is limited to 500m (1,640 feet).
- UL 924 listed emergency contact input on a two pin pluggable connector for control bypass.
- DMX input and DMX thru on an eight pin pluggable connector labeled "DMXA". The connector labeled "DMXB" is for use with the Paradigm ACP only.
- All rack option connections are located on the right I/O including a termination point for either the DALI option (DRd-DALI) or Fluorescent option (DRd-FLO), and a termination point for either the Unison Ride Through Option (URTO) or the Unison Battery Pack Option (UBPO).

## Cross-bussed Rack

One SmartLink ACP can be configured to control up to two DRd rack enclosures when configured in a cross-bussed application with an auxiliary rack enclosure.

## UL 924 Emergency Bypass

The SmartLink ACP accommodates an Emergency Bypass mode of operation of the DRd rack enclosure. This mode is listed under UL Section 924 for Emergency Bypass Lighting use. Configuration of an emergency "master level" sets the default level for all circuits designated for use in emergency.

In an emergency, all circuits that are not designated as emergency loads are shed. The SmartLink ACP user interface locks-out the “Dimming Setup” menu, all choices of the “Restore Defaults” menu, including the load dimming configuration and update firmware menu lists found within the “File Operations” menu and all control stations from manual override. The “recent commands” shortcut will also disable when the rack is in emergency.

### Control Priorities

The SmartLink ACP has default priorities for all control features of the system.

- Emergency UL 924 has the highest priority. When in emergency mode, the Unison DRd rack (dimming engine) drives selected circuits to full while load shedding un-selected circuits. Emergency settings are specified from the SmartLink ACP user interface, but the SmartLink ACP is not the source for emergency levels and therefore is not required for emergency functionality.
- Manual control, using “*Set Levels*” has the second highest priority.
- DMX, Preset (including the Sequencer), and SmartLink control are equal priority to each other and combine using a highest level takes precedence (HTP) behavior. The output value equals the highest level of all input values.

### Dimmer Module Attributes

- The SmartLink ACP provides access to two selectable dimming output curves including IES modified square law and linear.
- The SmartLink ACP also provides access to selectable dimming modes including normal, dimmer doubled, switched (unregulated on/off with adjustable threshold), Fluorescent with adjustable threshold, always on, and always off.

### Power / Control Signal Loss Behavior

- Configurable control signal loss behavior including “Hold Last Look”, “Play Preset”, or “Wait and Fade to Off”.
- Configurable control signal power on behavior includes “Play Preset”, “Play Sequence”, “Play Previous”, or “None”.

### Multi-language capability

- The SmartLink Architectural Control Processor (S-ACP) menu may be user configured for English, Spanish, German, or French operation. By default, the SmartLink ACP is set to English.

## Installation Environment Requirements

The SmartLink ACP installs inside the Unison DRd rack enclosure. Environmental conditions should adhere to the requirements set for the Unison DRd rack enclosure. Reference the [Unison DRd Rack Enclosure Installation Manual](#) for complete details.

- A clean (not dusty), temperature controlled environment with the following conditions:
  - ambient temperature 32-104°F / 0-40°C
  - ambient Humidity 30-90%, non-condensing



**CAUTION:** *HVAC systems must at all times maintain the specified ambient temperature at the Unison DRd rack enclosure.*

---

# Chapter 2

## Installation and User Interface Overview

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This chapter contains the following sections:

- [Install the SmartLink ACP](#) ..... 7
- [User Interface Overview](#) ..... 9

# Install the SmartLink ACP

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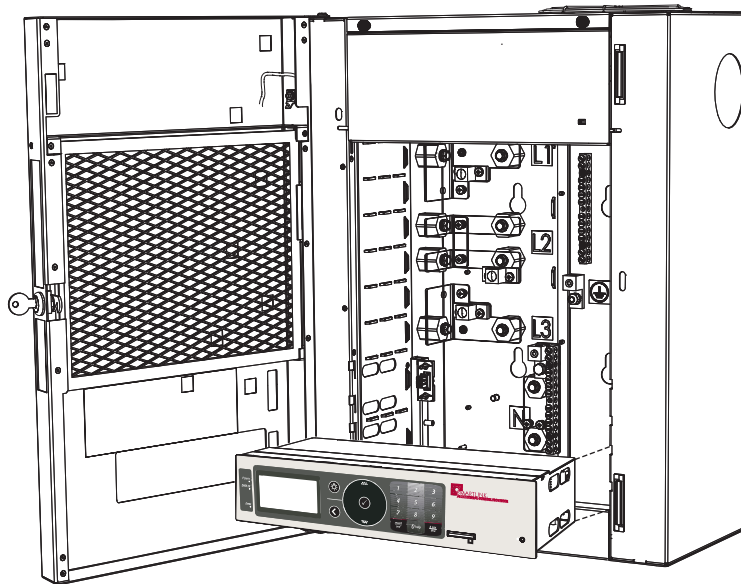
The SmartLink Architectural Control Processor (S-ACP) is designed to slide in the bottom module slot of a Unison DRd rack (6 or 12 module) enclosure. All data terminations used with the SmartLink ACP module are terminated to the right I/O board in the DRd rack enclosure. Reference the [Unison DRd Rack Enclosure Installation Manual](#) for data termination details.



**Note:**

*Install the SmartLink ACP only after the DRd rack has been installed and all wires have been terminated properly. Reference the [Unison DRd Rack Enclosure Installation Manual](#) for final power up procedures after SmartLink ACP installation.*

---



Step 1: Open the DRd rack door



**Note:**


*DRd rack enclosures are shipped standard with a module retention bar which secures all modules into the rack. A tool is required for module removal. Before installing the SmartLink ACP module, or any other modules, be sure to remove the retention bar first, install the modules then replace the retention bar to the rack. This retention bar must be installed on all 230 VAC DRd racks to maintain CE compliance.*

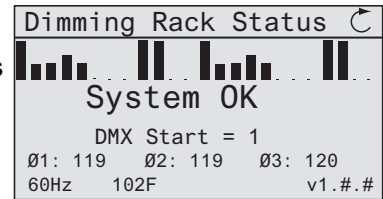
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- Step 2: Rest the SmartLink ACP on the bottom lip of the DRd rack enclosure, aligning both left and right edges with the module slots.
- Step 3: Slide the SmartLink ACP into the rack.
- Step 4: Press gently on each corner of the SmartLink ACP to ensure proper connection with the card edge connector on the right I/O board.
- Step 5: Reference the [Unison DRd Rack Enclosure Installation Manual](#) for power up procedures. When power is applied, the status LEDs will illuminate and the ACP will load the operating software.

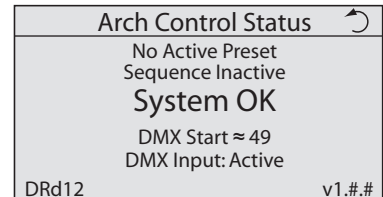
## System Status

When the SmartLink ACP is installed properly and power is applied to the DRd rack enclosure, the LCD will illuminate and display system status.

- Clockwise rotation on the touch wheel  changes the status display to ACP status.



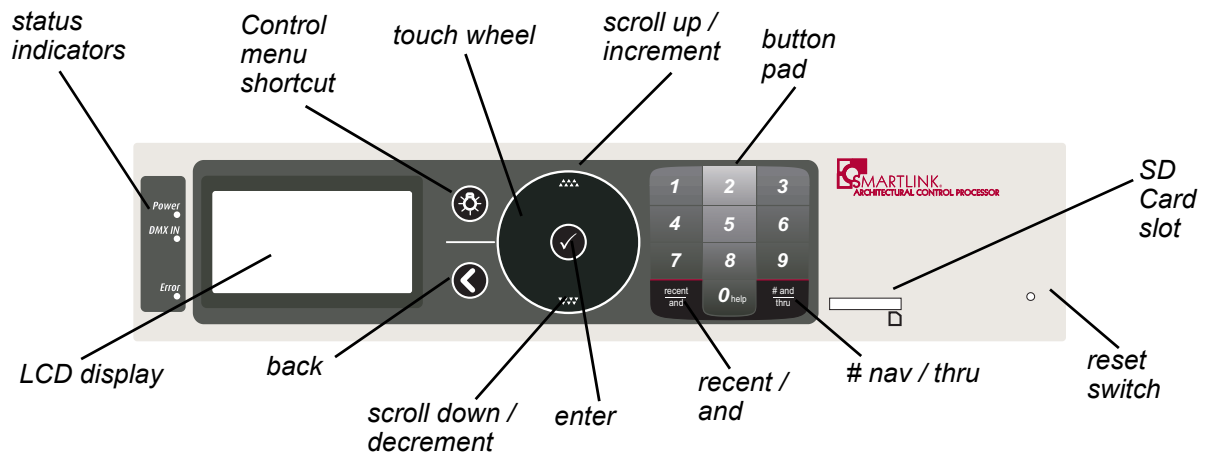
- Counter-clockwise rotation on the touch wheel  changes the status display back to Dimmer status.



Check the status LEDs for indication of power, control, and rack status.

- The "Power" LED indicates in blue when power is applied to the rack and the SmartLink ACP is installed properly.
- The "DMX" LED indicates in solid green when a DMX signal is present.
- The "DMX" LED flashes green when no DMX signal is present.
- The "Error" LED flashes red when there is a rack error condition. Check the system status message on the LCD display for error verification. [See "Status / Error Messages" on page 17.](#)

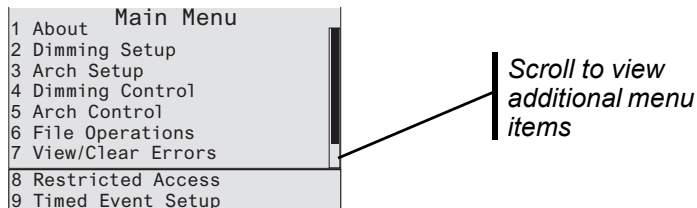
# User Interface Overview



The ACP user interface features a numeric button pad, multiple function buttons, a touch wheel interface, a large LCD display, and a SD media card slot.

## LCD Display

The SmartLink ACP features a backlit LCD display. The first row of the LCD display is reserved for the menu title. The last character of rows two through eight are reserved to display a proportional scroll bar. The scroll bar is visible only when the menu list requires scrolling to see the entire menu list.





## Wake



The LCD display and backlight are set, by default, to sleep after one minute of inactivity. Any button press, including the back ( < ) button wakes the LCD display and backlight.

The inactivity time setting is user selectable from the "Arch Setup" menu. [See "Inactivity Time" on page 34](#). Settings include 30 secs, 1 min, 5 mins, 15 min, and never.

## Touch wheel

Scroll the menu by moving your finger lightly around the touch wheel to highlight a menu item.

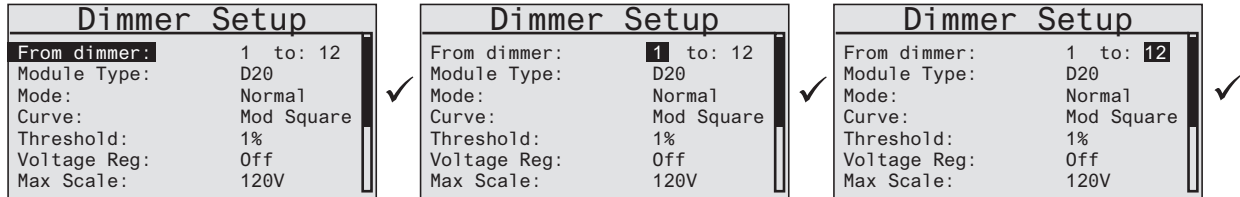
- You may move your finger clockwise  to scroll down the menu list or counter-clockwise  to scroll up the menu list.

The touch wheel features two alternative scroll areas including increment  and decrement  buttons. When navigating through a menu list, you may use these areas to move up or down the list one menu item at a time. The scroll areas also serve to edit numeric values, increment or decrement by one with each press.

## Enter

The enter button ( ✓ ) is used to commit an edit or action such as to make a selection from the menu list or to commit a selected value.

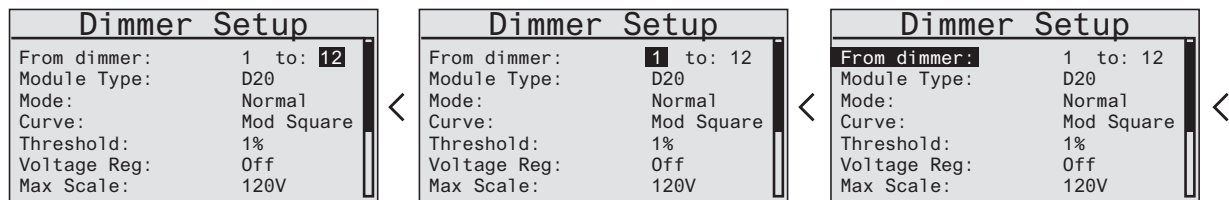
When selection focus is on the first text value (From Dimmer: in the example below) and an edit or change to the selection is desired, press enter ( ✓ ). The focus will move to the next selectable value (dimmer 1 in this example). Press enter ( ✓ ) again to change focus to the next selectable value (dimmer 12 in this example). When all selections have been made and you press enter ( ✓ ), the focus returns to the first text value.



To advance through the list of setup options, use the touch wheel to scroll.


## Back

To cancel an entry or selection and return to the previous menu, press the back button ( < ). When selection focus is on a specific value (dimmer 12 in this example) and you cancel the edit by pressing the back ( < ) button, focus moves up one level to the previous selectable value (dimmer 1 in this example).



Multiple presses of the back button will eventually take you to the Main menu then to the status display, either the dimming rack status display or the arch control status display, whichever was viewed last.

## Control Menu Shortcut

The control menu shortcut button (  ) provides easy access to the dimming and architectural control menus.

Press the control menu shortcut button once to access the dimming control menu, press it again to access the arch control menu.

## Numeric Button Pad

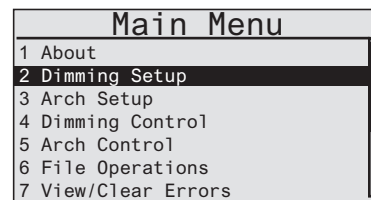
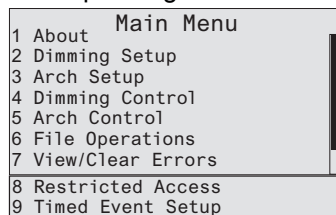
The numbers on the button pad may be used to select specific menu items when (#nav) is enabled, or to enter a specific value such as a dimmer number, intensity value, etc., while in a selectable menu.

### The [recent / and] button is a dual function button.

- Used as a menu navigation shortcut, pressing **[recent]** at any point in navigation displays a list of the last seven device menus that have been selected, with the most recently selected first in the list. Selecting any of the listed items automatically directs you to that menu, similar to a shortcut. Recent command navigation relies on the current user access level to display only accessible options.
- Alternatively, while navigating certain menu items, such as the “Dimming Setup” or “Dimming Control” menus and selecting specific dimmers, use the **[and]** button to select dimmers out of sequence. For example, **[1] [and] [5] [and] [10]** ( ✓ ), selects dimmers 1, 5 and 10. Once selected you may use the numeric button pad to add a value to the selected dimmers or use the touch wheel to scroll to a desired value.

### The [#nav / thru] button is a dual function button.

- Pressing the **[#nav]** button toggles the appearance of numbers to the left of menu items. When numbers are visible, pushing the number selects and enters the corresponding item. This is called number navigation (#nav).



- Alternatively, use the **[thru]** button while in certain menu items, such as the “Dimming Setup” or “Dimming Control” menus, and selecting a range of dimmers. For example, **[1] [thru] [1][0]** ( ✓ ), selects dimmers 1 through 10. Once selected you may use the numeric button pad to add a value to the selected dimmers or use the touch wheel to scroll to a desired value.



# SD Media

---

The SmartLink ACP includes a secure digital (SD) media card slot located on the front panel. The SD media card is not included and must be purchased separately.

Use a compatible 16MB to 1GB SD card to store and load backup files of your architectural and dimming configurations.



**CAUTION:** *The following related memory card types are incompatible with the SmartLink ACP, even if they fit the form factor of the SD card slot:*

- *SD high capacity (HC) card*
- *Multimedia Memory (MMC) card*
- *miniSD card*
- *MicroSD card with adaptor*
- *Transflash card with adaptor.*

---

### To insert a compatible SD card into the ACP SD card slot -

The SD card is small and rectangular in shape with a notched corner on the top right side. Gently press the card into the slot, face side up with the notch on the top right side, until you hear an audible click and the card end is flush with the front panel of the SmartLink ACP. Reference the [“File Operations Menu”, page 41](#) for instructions to save or load configuration files.

### To remove a compatible SD card from the ACP SD card slot -

Once the save or upload process is completed, gently press the end of the card until you hear an audible click and the card releases from the slot.

### Format the SD Media Card



**Note:** *The SD card must be formatted with a FAT or FAT16 file system. FAT32 or other file systems are not compatible.*

Most SD media of 1GB or less is pre-formatted with the correct FAT file system as standard. As needed you can format the SD card yourself using a PC with Windows® operating system or an Apple® Macintosh® computer with an SD card reader.

Reference the related operating systems online help for instructions to format the SD media card.

## Reset Switch

Reset the SmartLink ACP software and hardware by pressing the reset switch located on the front panel of the unit. You can access this reset switch using the tip of a ball point pen, or other pointed object.



During reset the DRd rack holds levels for the last look until the SmartLink ACP has rebooted and takes control again.

# Chapter 3

## SmartLink Basic Menu Navigation

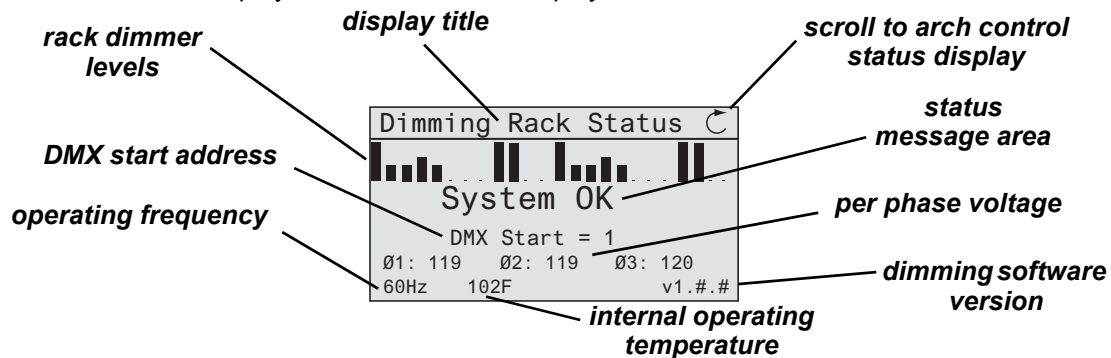
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This chapter contains the following sections:

- ***Rack Enclosure Status Display*** .....14
- ***ACP Status Display*** .....16
- ***Status / Error Messages*** .....17
- ***Menu Navigation*** .....19

# Rack Enclosure Status Display

SmartLink ACP provides all of the basic rack and system information on the dimming rack status display. This is the default display.



- **display title** - A menu's title appears in the first row of every display for easy navigation.
- **scroll to next display** - When the clockwise symbol (↻) appears in the display use the touch wheel to scroll clockwise for the next display. When the counter-clockwise symbol (↺) appears, use the touch wheel to scroll counter-clockwise for the previous display.
- **rack dimmer levels** - A DRd rack enclosure with 1 to 24 channels will display all dimmers with proportional levels on the line beneath the display title (as pictured above). Cross-bussed DRd dimmer racks display dimmers 1-24 on the top line beneath the display title and dimmers 25-48 on the next line.
  - When a dimmer is at 0% intensity, the dimmer placeholder is indicated with a single pixel on the bottom left-most corner of each level bar. When a dimmer is at its full intensity, the level is indicated for the full height of the available row.
  - Similarly, a channel that is configured for switching will display with a single pixel on the bottom left-most corner of each level bar. This represents the switched load placeholder in the "off" position. When the switched load is "on" the level is indicated for the full height of the available row.
- **status message area** - Status messages are common to both the dimming rack and ACP status displays. When a system error is detected, the message changes to reflect the specific error type. When multiple errors are detected, each error message cycles, in increasing numerical order (i.e. Dimmer 1 error, Dimmer 2 error, etc.) on the display for 1 second each. Reference ["Status / Error Messages"](#), page 17 for a complete listing of possible errors and the actions required to clear them.
- **DMX start address** - Indicates the DMX start address of the first circuit in the DRd rack enclosure. An equal sign (=) before the address number indicates a 1 to 1 patch of DMX address to the dimmers in the rack. An approximate equal sign ≈ before the address number indicates advanced patching. Reference the ["Dimming Setup Menu"](#) on page 22 for details on patching.

- **per phase voltage** - Each phase of power is measured and represented on the rack enclosure status display. When the rack is configured for bi-phase, only phases 1 and 2 are shown, when the rack is configured for single phase, only the single phase data is available.



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**Note:**

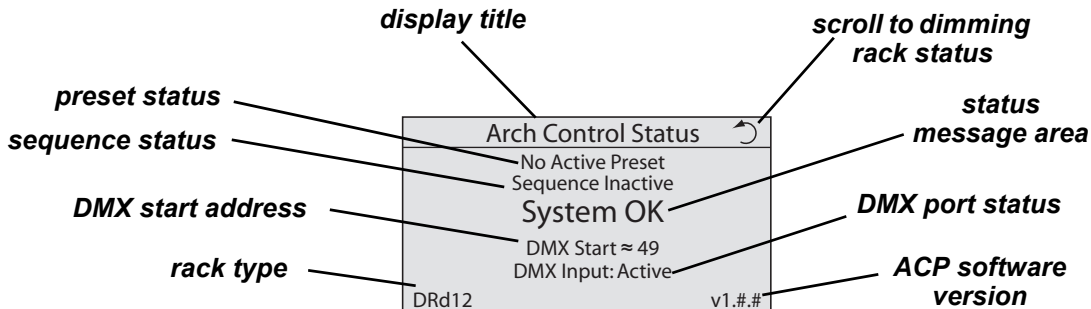
*Voltage displayed is a user convenience and is only an approximate. It is not as accurate as using proper voltage measurement equipment.*

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- **operating frequency** - The operating frequency is measured and represented on the dimming rack status display.
- **internal operating temperature** - The internal operating temperature is measured and displays on the dimming rack status display. By default temperature is displayed in °F when the rack power is set up for 120 or 277 VAC, and temperature display's in °C when the rack is set up for 230 or 240 VAC.
- **rack software version** - The rack software is specific to the dimming engine and may differ from the ACP software version. The SmartLink ACP conveniently packages the rack configuration with the ACP configuration for easy setup.


# ACP Status Display

SmartLink ACP provides all of the architectural control and system information on the status display which is viewable by scrolling clockwise ↻ from the dimming rack status display.



- **display title** - A menu's title appears in the first row of every display for easy navigation.
- **scroll to previous display** - When the counter-clockwise symbol ↻ appears in the display use the touch wheel to scroll counter-clockwise for the previous display.
- **preset status** - When a preset is active, the display will indicate the preset number that is active on the host rack. When no preset is active, "NO Active Preset" displays. The SmartLink ACP allows you to only one active preset at any given time.
- **sequence status** - When the sequence is active, the display will indicate that the sequence is active for the host rack. "Sequence Inactive" will display when the sequence is no longer activated. There is only one sequence for the SmartLink ACP which may consist of up to 64 presets in sequential order.
- **status message area** - Status messages are common to both the dimming rack and ACP status displays. When a system error is detected, the message changes to reflect the specific error type. When multiple errors are detected, each error message cycles, by chronological occurrence, on the display for 1 second each. Reference "[Status / Error Messages](#)" on page 17 for a complete listing of possible errors and the actions required to clear them.
- **DMX start address** - Indicates the DMX start address of the first dimmer in the DRd rack enclosure. An equal sign = before the address number indicates a 1 to 1 patch of DMX address to the dimmers in the rack. An approximate equal sign ≈ before the address number indicates advanced patching. Reference the "[Dimming Setup Menu](#)", page 22 for details on patching.
- **DMX port status** - Indicates whether or not the DMX input port is actively receiving DMX from an external DMX 512A control source.
- **rack type** - Displays the host rack type which has either been automatically detected or manually set in "Quick Rack Setup" in the Dimming Setup menu. The SmartLink ACP automatically detects the rack type as either a DRd6, DRd12, or DRd12AX12X.
- **ACP software version** - The ACP software is specific to the SmartLink architectural control processor and may differ in version number from the dimming engine software version. Reference the "[File Operations Menu](#)" for detail of how to packages the rack configuration and the SmartLink ACP software for easy setup and configuration.

# Status / Error Messages

Status messages display on both the dimming rack status display and the ACP status display. Use the touch wheel to scroll clockwise  to view the ACP status display when accessible.

Status messages provide you with system wide, rack specific, and even dimmer specific information and errors.

## Status / Error Messages Generated by the SmartLink ACP

Message Displayed	Description	Action
System OK	No errors exist	No action required
Emergency Active	Panic / emergency bypass operation is active.	The programmed Emergency Bypass look is played. If load shedding is set to "On", all loads not in emergency are shed. The "Dimming Setup" menu, all selections in "Restore Defaults" menu, and the load dimming configuration and update firmware actions found in the "File Operations" menu are locked out from user intervention.
Dimming Firmware/ Mismatch Detected	Firmware version mismatch between the DRd and SmartLink ACP.	This is resolved only through a firmware update procedure. Reference <a href="#">"File Operations Menu"</a> , page 41.
Dimming Engine Communication Failure!	SmartLink ACP cannot communicate with the DRd dimming engine properly.	The error is only clearable by correcting the failure point.
ACP & DRd Configuration Mismatch	Occurs when the dimming configuration stored locally on the SmartLink ACP does not match the configuration running within the DRd.	The menu locks out additional navigation and requires you to confirm use of either the dimming rack configuration or use of the copy of the dimming configuration stored on the SmartLink ACP. Alternatively you can select "Quick Rack Setup" to create a new configuration.
AX12X ACP Position Error	Warns you when the SmartLink ACP is installed in "Rack 2" of a cross-bussed application.	This error cannot be cleared except by correctly installing the AX12X interconnect cable or by moving the SmartLink ACP to the rack with the interconnect cable end labeled "rack 1".
DMXDataError	DMX is being received, but the data is corrupted.	Check the cable and termination.
DMXNoData	The DMX port is enabled but isn't receiving any data.	The rack performs the user defined DMX Loss Behavior. Check the cable is plugged and the DMX source is operating properly.

## Status / Errors Messages Generated by the DRd Dimming Engine

Message	Description	Action
Rack Error / Rack Overtemp	Ambient temperature is above rated temperature range	All dimmers in the rack are disabled from use until the ambient temperature is within an acceptable operating range.
Rack Warning / High Operating Temp	Ambient temperature is approaching maximum temperature	Correct the ambient temperature to within specification.
Rack Warning / Low Operating Temp	Ambient temperature is below rated temperature range	Correct the ambient temperature to within specification.
Rack Error/Freq out of Range	Input power frequency is out of operating range	All dimmers in the rack are disabled from use until the input power frequency is within acceptable operating range.
Dimmer Overtemp/ Dimmer ## or Dimmers ## and ##	Dimmer is in an overtemp condition	The specified dimmer module(s) automatically disable. Verify loads are within acceptable limits. Try swapping dimmer modules to isolate if the problem is within a module.
Rack Error/Phase 1 Missing	Phase A is off	Check mains power feed.
Rack Error/Phase 2 Missing	Phase B is off	Check mains power feed.
Rack Error/Phase 3 Missing	Phase C is off	Check mains power feed.
Rack Error/Phase 1 Overvoltage	Phase A voltage is above rated voltage range	All dimmers in the rack are disabled from use until Phase A voltage is within acceptable operating range.
Rack Error/Phase 2 Overvoltage	Phase B voltage is above rated voltage range	All dimmers in the rack are disabled from use until Phase B voltage is within acceptable operating range
Rack Error/Phase 3 Overvoltage	Phase C voltage is above rated voltage range.	All dimmers in the rack are disabled from use until Phase C voltage is within acceptable operating range
Rack Error/Phase 1 Undervoltage	Phase A voltage is below rated voltage range	Correct input voltage to acceptable range.
Rack Error/Phase 2 Undervoltage	Phase B voltage is below rated voltage range.	Correct input voltage to acceptable range.
Rack Error/Phase 3 Undervoltage	Phase C voltage is below rated voltage range	Correct input voltage to acceptable range.
Rack Error/Fan Error or Failure	Fan is not operating properly	Verify that the fan is not obstructed. The fan may be unplugged, check connection.

# Menu Navigation

The ACP menu is designed for consistent navigation from the user interface either using the numeric button pad or the touch wheel. The menu is arranged such that no more than three basic levels of the menu are required to reach the operation, edit, and action functions.

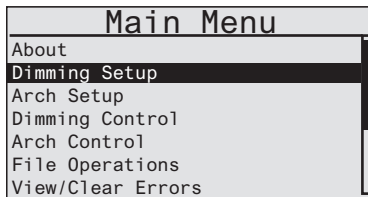


**Note:** *To navigate the menu using the numeric button pad, press the #nav/thru button on the button pad. This enables number navigation and displays the specified numbers to the left of existing menu list.*

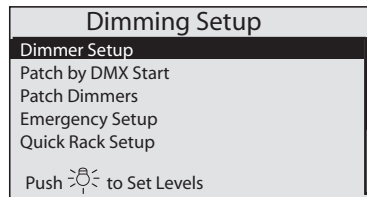
The main menu is the root for all menu navigation. When a menu item is selected from the main menu, a secondary menu list may display and may include multiple functions for selection.

When a menu list item is selected, the operation menu displays for your action or edit of objects. Operations for your action and/or edit use descriptive text which is followed by a colon (:) and a value.

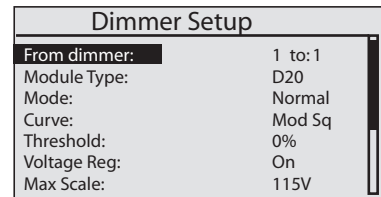
Main Menu



Menu List



Operation Menu



The numeric button pad or the touch wheel may be used to edit specific objects from the operation menu, such as dimmer number, levels, etc. Once an edit has been made, press the enter ( ✓ ) button to accept the selection.

Use the touch wheel to navigate to the next object for action or edit. To return to the previous operation, press the back ( < ) button. Continue pressing the back ( < ) button to return to the menu list or eventually the main menu.

The back ( < ) button may also be used with any “Yes” or “No” dialog box. Pressing the back ( < ) button is similar to selecting “No”.



# Chapter 4

## Programming

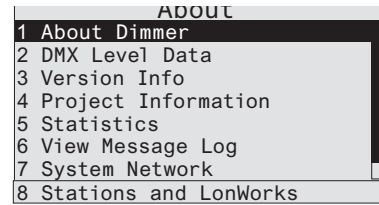
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This chapter contains the following sections:

- **About Menu** ..... 21
- **Dimming Setup Menu** ..... 22
- **Arch Setup Menu** ..... 33
- **Dimming Control Menu** ..... 37
- **Arch Control Menu** ..... 39
- **File Operations Menu** ..... 41
- **View/Clear Errors Menu** ..... 48
- **Restricted Access Menu** ..... 49

# About Menu

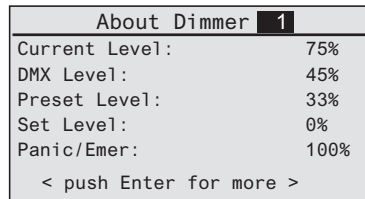
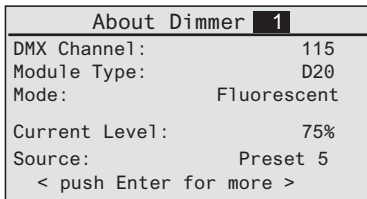
The “About Menu” provides you direct access to view details about your dimmers, current DMX level data and software version information.



**Note:**

*The “About Menu” is provided for you to view information only. There are no editing tools available.*

## About Dimmer Menu



The “About Dimmer” menu automatically selects and displays the data for the first dimmer in your rack. Notice the title bar displays the selected dimmer number.

Use the touch wheel to scroll to a different dimmer or use the numeric button pad to specify a dimmer number. Dimmer data updates when a new dimmer is selected. Push enter ( ✓ ) to view additional details about your selected dimmer.

To exit the “About Dimmer menu and return to the previous menu press the back button ( < ).

## About DMX Level Data Menu

Chan:	Level:
1	255
2	0
3	115
4	0
5	161
6	186
7	255

The “About DMX Level Data” menu displays the current DMX level input data for each dimmer channel (up to channel 512) in the rack. Levels are displayed in values 0 - 255, zero meaning the channel level is null and 255 meaning the channel level is at full.

DMX level data displays only when there is an active DMX input to the system. When no DMX input is active “---”is displayed in the level column to indicate no level information is available.

Use the touch wheel to scroll through all channels in the list or use the numeric button pad to specify a channel.

To exit the About DMX Level Data menu and return to the previous menu press the back button ( < ).

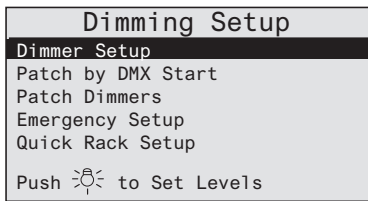
## Version Info

### Menu for DRd12-48 with AX12X

Version Info
Paradigm ACP App:
1.0.0.0.0.05
DRd: 1.0.0.0.0.04
FLO: 1.0.0.0.0.06
Kernl: 12.3.5.7.8.123
Uboot: 12.3.5.7.8.123
CoProcessor:
12.3.5.7.8.123

The “Version Info” menu displays the current full software version numbers, including build numbers, for each software type installed in the rack. FLO and DALI options only appear if they are presently installed in the DRd host rack. Each DRd may have only 1 option installed, except when the rack type is the DRd12AX12X. In this case, you will notice a “1” or “2” following the option type. This indicates to which rack the software relates.

# Dimming Setup Menu



The “Dimming Setup” menu provides you with a range of options to setup your DRd rack enclosure. Dimming setup can be a more simplified setup using the default values as found in the Quick Rack Setup menu, or you can use the detailed menus for specific settings.

When viewing the “Dimming Setup” menu, press the control menu shortcut ( [lightbulb icon] ) button to directly access set levels and dimmer check functions.

## Dimmer Setup

In the “Dimmer Setup” menu, default values are automatically applied for the dimmers in the rack and the dimmers are, by default, set to a one to one patch. Each menu allows you to specify alternative dimmer properties about your dimmer channels including the dimmer module type, the mode of operation, curve, etc. Dimmer patch is specified in the next sections, reference [“Patch By DMX Start”, page 27](#) or [“Patch Dimmers”, page 28](#).

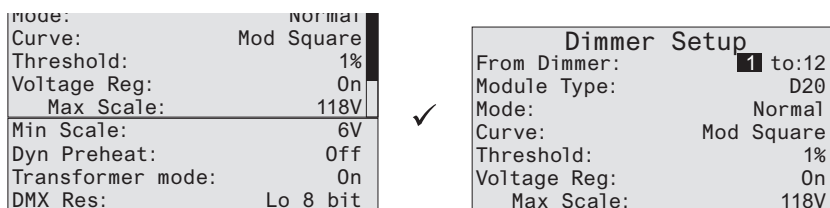
This menu provides you with the ability to set dimmer properties individually, one dimmer at a time, or set by a range of dimmers. The range of dimmers cannot exceed the number of dimmers in the specified rack enclosure. For instance, a DRd6 rack will allow a range up to dimmer 12, a DRd12 rack will allow a range up to dimmer 24, and DRd12 AX12X cross-bussed racks allow a range up to dimmer 48.



### Note:

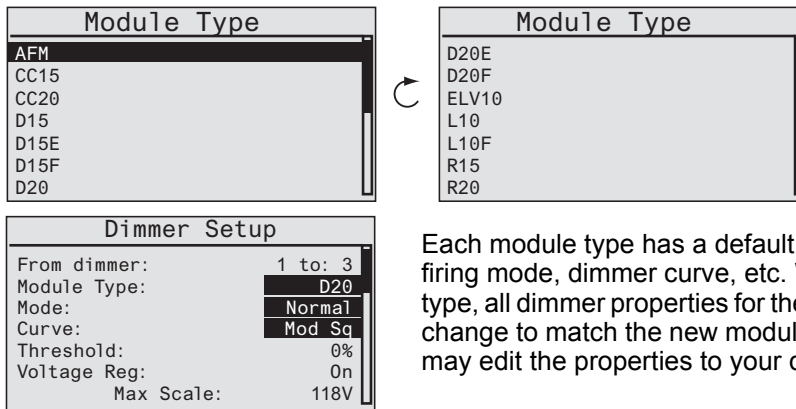
*When exiting dimmer setup using the back button ( < ), and the DMX patch has been modified, a dialog will display requesting your confirmation of patch edits. Choose “Yes” to go back to the previous patch operation for further editing or choose “No” to return to the Dimming Setup menu.*

### From dimmer:



- Step 1:** Press enter ( ✓ ) to change focus “From dimmer” to the beginning dimmer channel number for setup. Default is dimmer 1.
- Step 2:** Use the touch wheel or the numeric button pad to change the beginning dimmer number. Notice that when the beginning dimmer number is 1, and you change to a different number, the ending number also changes to reflect the same beginning number selected. This maintains individual dimmer settings.
- Step 3:** Press enter ( ✓ ) to change focus to the ending dimmer number.
- Step 4:** To maintain individual dimmer settings, press ( ✓ ) again. To change the ending number and select a range of dimmers, use the touch wheel or the numeric button pad to change the ending number.
- Step 5:** Press enter ( ✓ ) to change focus back to “From dimmer”.

## Module Type:



*This graphic represents the 120 VAC module list.*

Each module type has a default set of properties such as the firing mode, dimmer curve, etc. When changing a module type, all dimmer properties for the specified dimmer(s) will also change to match the new module type property defaults. You may edit the properties to your desired values as needed.

- Step 1:** Use the touch wheel to scroll down to “Module Type” and press enter ( ✓ ). The “Module Type” menu will display all possible dimmer module types available for the rack and voltage selection.
- Step 2:** Scroll down the module list and press enter ( ✓ ) to select a module type. Changing a module type defaults all dimmer properties for the specified dimmer(s). Reference “[Dimmer Module Defaults](#)” on [page 59](#) for a listing of all dimmer properties and defaults.



**Note:** *Module types available for selection are dependent on the rack input voltage, either 120 VAC, 230 VAC, 240 VAC, or 277 VAC.*

100 - 120 VAC Racks		
Module Type	Description of Purpose	Compatible Loads
AFM	required in empty dimmer slots	not applicable
CC15 and CC20	direct connection from line lug to load lugs protected by 15 or 20 amp circuit breaker	constant loads such as power supplies or other constant-on loads
D15 and D20 D15E and D20E	standard 15 or 20 amp dimmer enhanced dimmer with 500µs rise time	Incandescent, 2 and 4 wire fluorescent, low voltage, neon, cold cathode (CC) and non-dim
D15F and D20F	15 and 20 amp fluorescent dimmer	3 wire dimmable electronic fluorescent ballast
R15 and R20	15 or 20 amp, level activated mechanical relay	any switched load
ELV10	10 amp reverse phase module	electronic low voltage loads

277 VAC Racks		
Module Type	Description of Purpose	Compatible Loads
AFM	required in empty dimmer slots	not applicable
ACC15 and ACC20	direct connection from line lug to load lugs protected by 15 or 20 amp circuit breaker	constant loads such as power supplies or other constant-on loads
AD15 and AD20	standard 15 or 20 amp dimmer enhanced dimmer with 500µs rise time	Incandescent, 2 and 4 wire fluorescent, low voltage, neon, cold cathode (CC) and non-dim
AD15F and AD20F	15 and 20 amp fluorescent dimmer	3 wire dimmable electronic fluorescent ballast
AR15 and AR20	15 or 20 amp, level activated mechanical relay	any switched load
AELV5	5 amp reverse phase module	electronic low voltage loads

230 and 240 VAC Racks		
Module Type	Description	Compatible Loads
AFM	required in empty dimmer slots	not applicable
ECC15 and ECC25	15 or 25 amp circuit breaker	constant loads such as power supplies or other constant-on loads
ED15 ED15E and ED25E ED15N ED15NE and ED25NE ED25NS	standard 15 amp dimmer 15 or 25 amp enhanced 400 $\mu$ s rise time dimmer neutral disconnect dimmer enhanced 400 $\mu$ s neutral disconnect dimmer 25 amp 400 $\mu$ s neutral disconnect (single module)	Incandescent, 2 and 4 wire fluorescent, low voltage, neon, cold cathode (CC) and non-dim
ED15RE and ED25RE ED15RS and ED25RS ED25S	15 or 25 amp RCD module 400 $\mu$ s rise time dimmer 15 or 25 amp RCD module 225 $\mu$ s rise time dimmer 25 amp 400 $\mu$ s rise time (single) dimmer module	3 wire dimmable electronic fluorescent ballast
ER15 and ER25	15 or 25 amp level activated mechanical relay	any switched load
ER25AF	25 amp level activated mechanical relay	any switched load
HD15 HD25F	240 VAC 15 amp dimmer module 240 VAC 25 amp fluorescent dimmer module	Incandescent, fluorescent, low voltage, neon, cold cathode (CC) and non-dim
HELV5	5 amp reverse phase module	electronic low voltage loads

### Mode:

The firing mode menu allows you to set a dimmer or a range of dimmers to a specific firing mode. Available firing modes include:

- **Normal:** use for standard dimming of non-specialized load types. The dimmer operates with a modified square curve by default.
- **Dimmer Doubled:** dimmer operates as two controllable circuits with two channels of control. This mode is for use with the 120 VAC / 60Hz systems utilizing ETC Dimmer Doubling™ only.
- **Switched:** dimmers output unregulated AC voltage when the control level is above the set threshold level.
- **Fluorescent:** used with 2 and 3 wire fluorescent loads. The dimmer operates with a linear dimming curve.
- **Always On:** the dimming device is in full conduction.
- **Off:** turns the dimmer off.
- **4 Wire Fluorescent:** instructs the DRd rack enclosure that the Fluorescent option card is required to control up to 24 outputs on the FLO option board (up to 12 outputs for a DRd6 rack enclosure and 24 outputs for a DRd12 rack enclosure). The dimmer is on when the control level is greater than the threshold setting which is "0" by default.
- **DALI:** instructs the DRd rack enclosure that the DALI option card is required to control DALI compatible ballast. The dimmer is in an always on mode.
- **Reverse Phase:** used with the ELV10, HELV5 and AELV5 module.

Changing the dimmer firing mode automatically changes the default settings for curve, threshold, voltage regulation, minimum voltage and maximum voltage.



### Note:

Reference ["Dimmer Module Defaults"](#), page 59 for a complete list of firing modes and default properties.

**Step 3:** You can change dimmer properties from default by using the touch wheel to scroll down to "Mode" and press enter ( ✓ ). A full list of dimmer modes will display.

**Step 4:** Scroll the list and press enter ( ✓ ) to select a new mode.

### **Curve:**

The curve menu allows you to set a dimmer or a range of dimmers to a specific curve. A dimmer curve is a mathematical function that maps control levels to RMS output voltage. Curves are scaled from the minimum voltage to the maximum voltage. The SmartLink ACP provides two dimmer curves for use: including Modified Square Law and Linear. [See “Dimmer Module Defaults” on page 59.](#)

**Step 5:** Scroll to “Curve” and press enter ( ✓ ). Selectable dimmer curves will display.

**Step 6:** Scroll the list and press enter ( ✓ ) to select a new curve.

### **Threshold:**

Threshold allows you to set a dimmer or a range of dimmers to a specific threshold control level (0-100%) at which it begins to respond. Below that threshold level, the dimmer remains off. The default value is 0%.

**Step 7:** Scroll to “Threshold” and press enter ( ✓ ). The focus changes to the value field.

**Step 8:** Use the touch wheel to scroll to the desired value or use the numeric button pad to enter the desired value (0-100%). Press enter ( ✓ ) to accept the selection.

### **Voltage Reg:**

Voltage Reg: is an On or Off setting. When enabled, the dimmer or range of dimmers will regulate to the desired output voltage as determined in Minimum Scale and Maximum Scale settings. When disabled, the dimmer or range of dimmers will be set to a constant firing time based on the control level. When voltage regulation is disabled, Max Scale voltage is not displayed for setting.

**Step 9:** Scroll to “Voltage Reg:” and press enter ( ✓ ). The voltage regulation menu displays.

**Step 10:** Use the touch wheel to scroll to the desired On or Off value. Press enter ( ✓ ) to accept the selection.

### **Minimum Scale:**

Minimum scale allows you to set a dimmer or a range of dimmers to a minimum output voltage, which is the bottom of the scaled output of the dimmer(s). The dimmer will switch on to an RMS output voltage of minimum scale voltage when the control level reaches the value set for threshold.

- 120 VAC systems, default is 6V (min/max 1-140 VAC)
- 240 VAC systems, default is 12V (min/max 1-280 VAC)
- 277 VAC systems, default is 12V (min/max 1-300 VAC)

**Step 11:** Scroll to “Min Scale:” and press enter ( ✓ ). The voltage regulation menu displays.

**Step 12:** Use the touch wheel to scroll to the desired value. Press enter ( ✓ ) to accept the selection.

### **Maximum Scale:**

Maximum scale allows you to set a dimmer or a range of dimmers to a maximum output voltage that is the top (100% control) of the scaled output for the dimmer(s).

- 120 VAC systems, default is 115V (min/max 60/140 VAC)
- 230/240 VAC systems, default is 230V (min/max 120/280 VAC)
- 277 VAC systems, default is 250V (min/max 140/300 VAC)

**Step 13:** Scroll to “Max Scale:” and press enter ( ✓ ). The voltage regulation menu displays.

**Step 14:** Use the touch wheel to scroll to the desired value. Press enter ( ✓ ) to accept the selection.

### **Dynamic Preheat**

Dynamic preheat is the amount of time a dimmer or selected range of dimmers will go to zero output after the control channel is brought to zero from a higher level. After completing that off time it will then fade back up to the minimum scale voltage. This feature allows a true blackout to happen in the facility if only for a few moments. Default is Off, available settings also include 0, 2, 5, and 10 seconds.

**Step 15:** Scroll to “Dynamic Preheat:” and press enter ( ✓ ). With each press of enter ( ✓ ), the dynamic preheat value changes to the next setting (0, 1, 2, 3...) for the selection.

### **Transformer Mode**

Transformer mode allows you to prevent temporary DC offset by matching the half waves of the AC output.



---

**Note:**

*If the dimmer mode is set to “Dimmer Doubled”, “Transformer” mode defaults to off and “DMX res” defaults to lo 8 bit. Neither dimmer property may be changed from this default when dimmer doubling is the selected mode.*

---

**Step 16:** Scroll to “Transformer mode:” and press enter ( ✓ ). The focus changes to the value field.

**Step 17:** Use the touch wheel to scroll to the desired value. Press enter ( ✓ ) to accept the selection.

### **DMX Res:**

DMX resolution is the mode used to set the movement resolution or accuracy of the controlled dimmer. Options include Lo 8 bit which requires one DMX address and Hi 16 bit which requires two DMX addresses.

Normally, output levels are set from 0% to 100%, however, the actual DMX level is an 8 bit number ranging from 0 to 255. When in 16 bit mode, the resolution changes from 255 steps to 65535 steps creating the ability for long fade times a smooth transition.

**Step 18:** Scroll to “DMX res:” and press enter ( ✓ ). The DMX resolution value toggles between 8 bit mode and 16 bit mode with each press of the enter ( ✓ ) button.

**Step 19:** Press the back button ( < ) twice to return to the Dimming Setup Menu.

## Patch By DMX Start

Patch by DMX Start	
Dimmer 1 Start:	1
Dimmer 12 End:	12
Patches all dimmers Sequentially with a DMX start address End is info only.	

When patching by DMX start address, all dimmers in the rack are set to default address values determined by the DMX address of the first dimmer in the rack.

By default, the dimmers are patched 1 to 1. This means that dimmer 1 is patched to DMX address 1, dimmer 2 is patched to DMX address 2, and so on.

There is one universe of DMX control available in the SmartLink architectural control processor. A universe is a group of 512 contiguous control channels. When using the “Patch by DMX Start” menu, addresses may start at one, or any number up to 512 minus the minimum number of dimmers in the rack enclosure, depending on the type of rack enclosure(s) you are programming.

Rack limits include:

- DRd6= channel 501
- DRd12= channel 489
- DRd12-48 = channel 465.

The highest DMX address for any dimmer allowed is 512.

Dimmer module types that have less than two controllable channels, such as the CC20 or D20F dimmer module, will not be assigned a DMX address from the “Patch by DMX Start” operation. Dimmer modules set for dimmer doubled mode or to hi-resolution 16 bit DMX operation from the Dimmer Setup menu require are provided with two DMX addresses.

- A dimmer set for dimmer doubled mode requires two DMX addresses. By default, the second address (called the “b” side) will be set to +256 addresses above the first address (the first address is called the “a” side). For example if dimmer 1 is set to dimmer doubled mode and DMX address 1, the second channel of control for dimmer 1 would be DMX address 257, by default. The default offset for the “b” side cannot be greater than 512. When these conditions exist, the “b” side will be set to equal the “a” side (example 260a and 260b).
- A dimmer set for hi-resolution 16 bit mode requires two DMX addresses. By default, the second address (called the “H” side) will be set to +1 address offset from the starting address (called the “L” side). For example if dimmer 2 is set to hi-resolution 16 bit mode and DMX address 2, the second channel of control for dimmer 2 would be DMX address 3, by default. The above statement is true if “Patch by DMX Start” is selected after setting a dimmer to hi-resolution in “Dimmer Setup”. If the patch is not adjusted after setting a dimmer to hi-resolution, both the hi and low side of the dimmer will be patched to the same DMX address it was set to before changing to hi-resolution.



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**Note:**

*Any change in the default 1 to 1 patch or to an advanced patch creates a warning dialog for your attention. You must confirm whether or not the existing dimmer patch should be overwritten by the newly specified dimmer patch.*

---

Second control channels will not display in the Patch by DMX Start menu, reference [“Patch Dimmers”](#) for address details about each dimmer.

**Step 1:** Use the touch wheel to scroll or use the numeric button pad to select the desired dimmer 1 start address. Notice that the ending dimmer in the rack will automatically assume a DMX address following the start address. For example in a DRd6 dimmer rack, if the first dimmer is set to address 115, the ending dimmer address will be 126, by default.

**Step 2:** Press enter ( ✓ ) to accept the selection. The Dimming Setup Menu will display.



## Patch Dimmers

Patch Dimmers			
Mode	Dim	DMX	DMX
	1:	111	
DD	2:	121a	377b
DD	3:	122a	378b
	4:	112	
HiRes	5:	115H	116L
	6:	---	

When patching your dimmers using the advanced patch menu, you can edit any existing dimmer in your rack that is patched, including that which had been set using the Patch by DMX Start menu. You are limited to only one universe (512 channels) of DMX.

- “-” is displayed when a dimmer is not patched to a DMX address.
- Entering a DMX channel of “0” removes the DMX patch for selected dimmers.
- Dimmer module types that have less than two controllable channels, such as a D20F or CC20, display the un-editable channel as “NA”. Un-editable dimmer channels cannot be selected except when it is within a range selection.

You may use “and / thru” functions to specify a selection or range of dimmers for patch editing. Once your selection is made, press enter ( ✓ ) to accept the selection and begin editing. To remove the last selected dimmer from the selection, press the back button ( < ). Continue pressing the back button ( < ) to clear all undesired dimmers from the selection.

### Using “and”

1 and 3			
Mode	Dim	DMX	DMX
	1:	111	
DD	2:	121a	377b
DD	3:	---a	---b
	4:	112	
HiRes	5:	115H	116L
	6:	125	

### Using “thru”

1 and 3 thru 6			
Mode	Dim	DMX	DMX
	1:	111	
DD	2:	121a	377b
DD	3:	---a	---b
	4:	---	
HiRes	5:	---H	---L
	6:	---	

In the examples above, the start address for each selected dimmer is highlighted and ready for editing. When a hi-resolution 16-bit dimmer is selected, both the high and low channels are selected for editing.

- Step 1:** Make a selection of channels for advanced patch using either the touch wheel or the numeric button pad. Press enter ( ✓ ) to accept the selection.
- Step 2:** Assign a DMX address to the first dimmer in the selection and press enter ( ✓ ). The focus changes back to the dimmer number. When dimmer doubling is enabled for a selected dimmer, the focus changes to the second channel (b) selection for the affected dimmers.
- Step 3:** Assign a DMX address to the (b) channel of the dimmer doubled dimmer in the list and press enter ( ✓ ) to accept the selection. The focus changes back to the dimmer number.

### Step 2:

1 and 3 thru 6			
Mode	Dim	DMX	DMX
	1:	100	
DD	2:	121a	377b
DD	3:	---a	---b
	4:	---	
HiRes	5:	---H	---L
	6:	---	

### Step 3:

1 and 3 thru 6			
Mode	Dim	DMX	DMX
	1:	100	
DD	2:	121a	377b
DD	3:	---a	390b
	4:	---	
HiRes	5:	---H	---L
	6:	---	

1 and 3 thru 6			
Mode	Dim	DMX	DMX
	1:	100	
DD	2:	121a	377b
DD	3:	101a	390b
	4:	102	
HiRes	5:	103H	104L
	6:	105	

Assigning a DMX address to the first selected dimmer automatically assigns consecutive numbering to the remaining selected dimmers based on the first entry of the selection. When hi-resolution dimmers are in the selection, the low (L) channel of the dimmer

assumes the next consecutive address number after the high (H) channel.



**Note:**

**Attention:**  
One or more DMX addresses are already in use. Would you like to unpatch from the previous dimmers?  
**Yes**  
No

If a specified DMX channel is already assigned to another dimmer, a dialog will display for your confirmation.

Select “Yes” to remove the DMX channel from the conflicting dimmer and apply it to the new dimmer. Select “No” to allow multiple dimmers to share the same patched DMX address.

## Emergency Setup

Emergency Setup	
Emergency Dimmers	
Emergency Level:	100
Load Shedding:	On
Input Type:	Maintained
Active when:	Closed

The “Emergency Setup” provides access to the setup and operation of dimmers when the integrated emergency bypass operation is triggered. This operation is UL 924 Listed.

The DRd rack enclosure detects a contact input and immediately triggers the panic/emergency preset prior to processing any control levels, regardless of the condition of the rack enclosure (physical, configuration or firmware). When panic is triggered in a DRd rack enclosure, the “Dimming Setup”, “Restore Defaults”, “Load Dimming Config”, “Update Firmware”, and “Recent Commands” menus are not accessible for view or edit.

Emergency operation uses the emergency settings that are provided by the dimming engine, as set in Emergency Setup menu, even if the SmartLink ACP configuration and the dimming engine configuration do not match.

## Emergency Dimmers

From the Emergency Setup menu, scroll to “Emergency Dimmers” and press enter (✓). “Emergency Dimmers” displays for dimmer assignment.

Emergency Dimmers		
1: On	2: On	3: --
4: On	5: --	6: On
7: --	8: On	9: --
10: On	11: On	12: --
13: --	14: On	15: On
16A: On	16B: On	17A: On
17B: On	18: --	19: --

Assign dimmers to be on when the panic input is active and assign other dimmers to turn off (also known as load-shedding).

### Settings include:

- “On” indicates the dimmer will turn on to the emergency preset level when the emergency input is active.
- “--” indicated the dimmer is not in the emergency preset or is “Off”.
- “NA” indicates a dimmer that is not applicable such as the CC20 or any single density or no density dimmer.



**Note:**

Modules with single density or no density, such as the D20F or CC20 modules do not allow edits to the second un-editable dimmer position. The second dimmer position defaults to “NA”.

For example, if the first dimmer in the rack (slot #1) is a D20F, a single density fluorescent dimmer module, you would notice that dimmer number 1 could be set to be “On” or “Off” depending on your operation requirements. Dimmer number 2 would be automatically set to “NA”.

**Step 1:** Use the touch wheel or the numeric button pad to select dimmers. You may also use “and/thru” to specify specific or a range of dimmers. When the dimmer

selection, as seen in the title bar, is longer than the allowed 21 characters, an ellipsis “...” will display at the beginning of the title bar. Press enter ( ✓ ) to accept the selection. The focus changes to the emergency value field.



**Note:**

*Dimmer doubled dimmers are shown with both “a” and “b” dimmers. When you have selected the dimmer number, the “a” dimmer will be selected only by default. Use the touch wheel to scroll and select the “b” side of the dimmer.*

- Step 2:** Use the touch wheel to set the dimmer to either “On” or “--”. Press enter ( ✓ ) to accept the selection.
- Step 3:** Continue until all dimmers are set to the desired value.
- Step 4:** Press the back button ( < ) to return to the Emergency Setup menu.

**Emergency Level**

The Emergency level is the value that the emergency circuits will activate to when the emergency panic input is active. The emergency level defaults to 100% but can be set to a minimum setting of 80%.

- Step 5:** Within the Emergency Setup menu, use the touch wheel to scroll to “Emergency Level” and press enter ( ✓ ).
- Step 6:** Use the touch wheel or numeric button pad to change the emergency level to any value between 80% and 100%. Press enter ( ✓ ) to accept the selection.

**Load Shedding**

Emergency Setup	
Emergency Dimmers	
Emergency Level:	100
Load Shedding:	On
Input Type:	Maintained
Active when:	Closed

When the DRd rack enclosure senses the loss of normal power, it bypasses the SmartLink ACP and drives selected emergency load circuits to the emergency level.

Load circuits not set for emergency can either be turned off (via load shedding “On” setting) or the DRd dimming engine can continue to allow control levels for the circuits that are excluded from emergency (via load shedding “Off” setting).

- Step 7:** Within the Emergency Setup menu, use the touch wheel to scroll to “Load Shedding” and press enter ( ✓ ).
- Step 8:** Use the touch wheel to change the value for load shedding to “On” or “--”. By default load shedding is set to “On” and all load circuits not in emergency will turn off when the contact input is active.
- Step 9:** Press enter ( ✓ ) to accept the selection.

**Input Type / Active When**

Emergency Setup	
Emergency Dimmers	
Emergency Level:	100
Load Shedding:	On
Input Type:	Maintained
Active when:	Closed

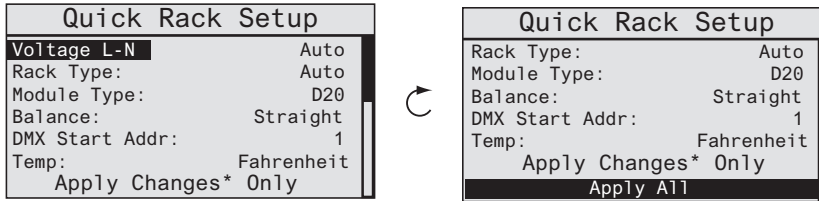
The emergency contact input supports a “Maintained” or “Momentary” input configured for “Active Open” or “Active Closed”. The default input configuration is a maintained input, active when closed.

- Step 10:** Within the Emergency Setup menu, use the touch wheel to scroll to “Input Type” and press enter ( ✓ ). The “Input Type” menu displays.
- Step 11:** Use the touch wheel to select either “Momentary” or “Maintained”. Press enter ( ✓ ) to accept the selection.

**Step 12:** Use the touch wheel to scroll to “Active When” and press enter ( ✓ ). The “Active When” menu displays.

**Step 13:** Use the touch wheel to select either “Open” or “Closed”. Press enter ( ✓ ) to accept the selection.

## Quick Rack Setup



The “Quick Rack Setup” menu provides you with easy access to the most important dimmer rack properties.

Voltage, rack type and temperature settings are automatic settings (Auto) made by the SmartLink ACP. Notice also that rack property defaults have already been made for you and are indicated in the default menu. You may change any of these settings as desired.



**CAUTION:** *Use extreme caution when adjusting settings that default to “Auto” as these affect important aspects of your dimming configuration. For example, the voltage setting determines which dimmer modules are available for selection.*

When changing a value, an asterisk “\*” will display next to the changed value. When you have made all value adjustments desired, scroll to the bottom of the menu. Select “Apply Changes \* Only” to save only the changes (indicated with an asterisk\*) or select “Apply All” to save all of the settings in the “Quick Rack Setup” menu.

### Voltage L-N

This setting is automatically detected by the SmartLink ACP and should not need to be changed. Other settings include 100-130, 220-240, and 277 VAC.

**Step 1:** Use the touch wheel to scroll to “Voltage L-N”, press enter ( ✓ ) repeatedly to cycle through the available options.

**Step 2:** When the desired value is displayed, use the touch wheel to scroll to the next setup option or scroll to “Apply Changes Only” or “Apply All”. Press enter ( ✓ ) to select.

### Rack Type

This setting may be automatically detected by the SmartLink ACP. These settings are: DRd6, DRd12 and DRd12AX12X.

**Step 1:** Use the touch wheel to scroll to “Rack Type”, press enter ( ✓ ) repeatedly to cycle through the available options.

**Step 2:** When the desired value is displayed, use the touch wheel to scroll to the next setup option or scroll to “Apply Changes Only” or “Apply All”. Press enter ( ✓ ) to select.

### Module Type

Module type allows you to quickly set all dimmers in the rack to a single type. Available modules are determined by the voltage which is normally automatically determined. Reference “[Dimmer Module Defaults](#)” on [page 59](#) for dimmer module property defaults.

- For a 100-130 VAC dimmer rack, the default is a D20 dimmer module.
- For a 230-240 VAC dimmer rack, the default is an ED15 dimmer module.

- For a 277 VAC dimmer rack, the default is an AD20 dimmer module.

- Step 1:** Use the touch wheel to scroll to “Module Type”, press enter ( ✓ ). The module type menu list displays for selection.
- Step 2:** Use the touch wheel to scroll the module type list, press enter ( ✓ ) to make your selection.
- Step 3:** Use the touch wheel to scroll to the next setup option or scroll to “Apply Changes Only” or “Apply All”. Press enter ( ✓ ) to select.

### **Balance:**

This setting is automatically defaulted to “Straight”. Other settings include “3 Phase Bal” or “1 Phase Bal”.

- Step 1:** Use the touch wheel to scroll to “Balance”, press enter ( ✓ ) repeatedly to cycle through the available options.
- Step 2:** When the desired value is displayed, use the touch wheel to scroll to the next setup option or scroll to “Apply Changes Only” or “Apply All”. Press enter ( ✓ ) to select.

### **DMX Start Address**

This setting is automatically defaulted to “1”. Start address corresponds to the first address you wish to patch DRd dimmers. When using the “DMX Start Addr” setting, addresses may range from 1 to 500 depending on the type of dimmer rack. The highest DMX address for any dimmer allowed is 512.

- DRd6 = channel 500
- DRd12 = channel 488
- DRd12-24 = channel 465




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**Note:** *More than one dimmer could be patched to address 512 if the start address specified doesn't allow for the full rack of dimmers in a one-to-one patch.*

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- Step 1:** Use the touch wheel to scroll to “DMX Start Addr” and press enter ( ✓ ) to select.
- Step 2:** Use the touch wheel to scroll or use the numeric button pad to specify a start address. Press enter ( ✓ ) to select.
- Step 3:** Use the touch wheel to scroll to the next setup option or scroll to “Apply Changes Only” or “Apply All”. Press enter ( ✓ ) to select.

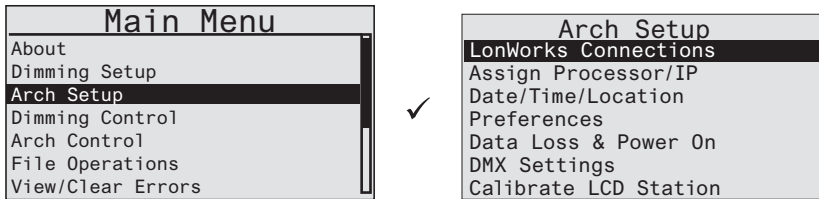
### **Temp**

This setting is automatically defaulted for you. When the dimmer rack’s voltage is set or defaulted to 100-130 or 277 VAC, “Fahrenheit” will be the default. When the dimmer rack’s current voltage is set or defaulted to 230-240 VAC, “Celsius” is the default.

- Step 1:** Use the touch wheel to scroll to “Temp” and press enter ( ✓ ) repeatedly to cycle through the options.
- Step 2:** When the desired value is displayed, use the touch wheel to scroll to the next setup option or scroll to “Apply Changes Only” or “Apply All”. Press enter ( ✓ ) to select.

# Arch Setup Menu

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The “Arch Setup” menu provides you with a range of options for complete control of your architectural system including SmartLink station operation, DMX control input function, user interface preferences, DMX loss behavior and power on behavior settings.

## Station Master

One DRd rack in a SmartLink control system should be configured as the “Station Master”. When other SmartLink enabled products, such as the SmartPack, SmartSwitch, or the Sensor+ with CEM+, are on the same SmartLink control network, only one product should be enabled as the Station Master.



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**Note:** *ETC recommends configuring the SmartLink enabled product with the station power supply as the “Station Master”.*

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The station master tracks and updates button LED states for connected wall stations when preset or sequence changes occur. In addition, the station master sends messages to other SmartLink-enabled products in the system. The default setting for “Station Master” is “On”.

- Step 1:** Use the touch wheel to scroll to “Station Master” in the “Arch Setup” menu and press enter ( ✓ ) to cycle through the options “On” or “Off”.
- Step 2:** When the desired value is displayed, use the touch wheel to scroll to the next setup option or press back ( < ) to return to the “Main Menu”.

## Remote Record

Enable “Remote Record” within the station master for user ability to record presets from SmartLink wall stations. Disable “Remote Record” within the station master to lock-out the ability to record presets from SmartLink wall stations. The default setting for “Remote Record” is “Off”.

- Step 1:** Use the touch wheel to scroll to “Remote Record” in the “Arch Setup” menu and press enter ( ✓ ) to cycle through the options “On” or “Off”.
- Step 2:** When the desired value is displayed, use the touch wheel to scroll to the next setup option or press back ( < ) to return to the “Main Menu”.

## DMX Input

Enable or disable the DMX input into the SmartLink architectural control system from this setting. When the DMX input has been disabled, the green DMX LED will turn off. When the DMX input has been enabled, but there is no DMX present, the DMX LED and the “Error” LED on the SmartLink ACP will flash.

- Step 1:** Use the touch wheel to scroll to “DMX Input” in the “Arch Setup” menu and press enter ( ✓ ) to cycle through the options “On” or “Off”.
- Step 2:** When the desired value is displayed, use the touch wheel to scroll to the next setup option or press back ( < ) to return to the “Main Menu”.

## Preferences

Preferences	
Click Volume:	Low
Inactivity Time:	1 min
Backlight:	Auto
Language:	English
Boot Logo:	On

“Preferences” is a menu of available settings related to the user interface such as the touch wheel’s click volume, inactivity time setting before the unit sleeps, the backlight time setting before the backlight dims, and the language setting for the menu.

### Click Volume

- Step 1:** Use the touch wheel to scroll to “Preferences” from within the “Arch Setup” menu and press enter ( ✓ ). The Preferences menu list displays.
- Step 2:** Use the touch wheel to scroll to “Click Wheel” and press enter ( ✓ ) repeatedly to cycle through the options “Low” or “Hi” or “Off”.
- Step 3:** When the desired value is displayed, use the touch wheel to scroll to the next setup option or press back ( < ) to return to the “Arch Setup” menu.

### Inactivity Time

Inactivity time is the specified amount of time after which the user interface times out to the status display. The inactivity time is also the backlight timer (when the backlight is set to Auto) and the number navigation timer for any unfinished number navigations. Time setting options include “Never”, “30secs”, “1min”, “5min” and “15min”. Default is set to “1min”. If the inactivity timer is set to “Never”, the backlight will time out after one minute.

A wake event (any button press) wakes the main menu and backlighting. Any touch wheel use wakes the status display and backlighting.

- Step 1:** Use the touch wheel to scroll to “Preferences” from within the “Arch Setup” menu and press enter ( ✓ ). The Preferences menu list displays.
- Step 2:** Use the touch wheel to scroll to “Inactivity Time” and press enter ( ✓ ) repeatedly to cycle through the options.
- Step 3:** When the desired value is displayed, use the touch wheel to scroll to the next setup option or press back ( < ) to return to the “Arch Setup” menu.

### Backlight

The backlight setting specifies the performance of the user interface backlight. When the backlight setting is set to “Auto”, the inactivity timer is also the backlight timer, except when the inactivity timer has been set to “Never”. In this case the backlight will time out after one minute.

Backlight settings include:

- “Auto” (LCD dims when the inactivity timer has expired)
- “On (the backlight is always on)
- “Off” (the backlight is always off).

- Step 1:** Use the touch wheel to scroll to “Preferences” from within the “Arch Setup” menu and press enter ( ✓ ). The Preferences menu list displays.
- Step 2:** Use the touch wheel to scroll to “Backlight” and press enter ( ✓ ) repeatedly to cycle through the options.
- Step 3:** When the desired value is displayed, use the touch wheel to scroll to the next setup option or press back ( < ) to return to the “Arch Setup” menu.

## Language

The multi-language user interface includes English, Spanish, German and French.

**Step 1:** Use the touch wheel to scroll to “Preferences” from within the “Arch Setup” menu and press enter ( ✓ ). The Preferences menu list displays.

**Step 2:** Use the touch wheel to scroll to “Language” and press enter ( ✓ ) repeatedly to cycle through the options.

**Step 3:** When the desired value is displayed, use the touch wheel to scroll to the next setup option, or press back ( < ) to return to the “Arch Setup” menu.

## **DMX Loss & Power On**

DMX Loss Behavior	
Mode:	Hold Last Look
Wait Time:	Forever

or

DMX Loss Behavior	
Mode:	Play Preset
Preset #:	12

or

DMX Loss Behavior	
Mode:	Wait and Fade
Wait Time:	1 min 0 sec
Fade Time:	0 min 3 sec

Power On Behavior	
Mode:	Play Preset
Preset #:	10

or

Power On Behavior	
Mode:	Play Sequence

or

Power On Behavior	
Mode:	Play Previous

Both “DMX Loss Behavior” and “Power On Behavior” have default settings which can be customized to fit your installation.

## DMX Loss Behavior

DMX loss behavior may be set to “Hold Last Look”, “Wait and Fade”, or “Play Preset”. DMX loss behavior is set to “Hold Last Look” by default.

- Hold Last Look - holds any active dimmers at whatever levels they were receiving prior to the loss of data. The last levels are retained until data is restored or the SmartLink ACP is reset.
- Wait and Fade - holds the last levels received when the data was lost for a user-defined amount of time and then fades those input levels to zero intensity using a user-defined fade time. The default wait time setting is three minutes and zero seconds. The default fade time setting is zero minutes and three seconds. Wait and fade times can range from zero minutes and zero seconds to 60 minutes and zero seconds.
- Play Preset - plays a user-defined preset when data is lost. Any preset from 1 to 64 is allowed.

**Step 1:** Use the touch wheel to scroll to “DMX Loss & Power On” from within the “Arch Setup” menu and press enter ( ✓ ). The DMX Loss Behavior and Power On Behavior menu lists display. Notice the two settings are separated vertically on the screen. You cannot select the heading, only the mode and options from within.

**Step 2:** Use the touch wheel to scroll to DMX Loss Behavior “Mode:” and press enter ( ✓ ) repeatedly to cycle through the options.

**Step 3:** When the desired value is displayed, and depending on the value selection, additional setting options may display. Use the touch wheel to scroll to the next setting option, if there is one, and press enter ( ✓ ) or press back ( < ) to return to the “Arch Setup” menu.

### **When “Wait and Fade” is the mode selection:**

a: “Wait Time” and “Fade Time” displays for additional settings. Use the touch wheel to scroll to “Wait Time” and press enter ( ✓ ). The focus changes to the minutes field.

b: Use the touch wheel or numeric button pad to select the desired value and



press enter ( ✓ ) to change the focus to the seconds field.

- c: Use the touch wheel or numeric button pad to select the desired value and press enter ( ✓ ) to accept the new values.

**When “Play Preset” is the mode selection**

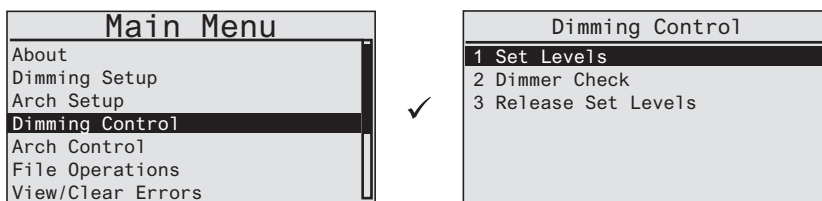
- a: “Preset #” displays for additional settings. Scroll to “Preset #” and press enter ( ✓ ). The focus changes to a preset value field.
- b: Use the touch wheel or numeric button pad to select the desired value and press enter ( ✓ ).


**Power On Behavior**

Power on behavior may be set to “None”, “Play Preset”, “Play Sequence” and “Play Previous”.

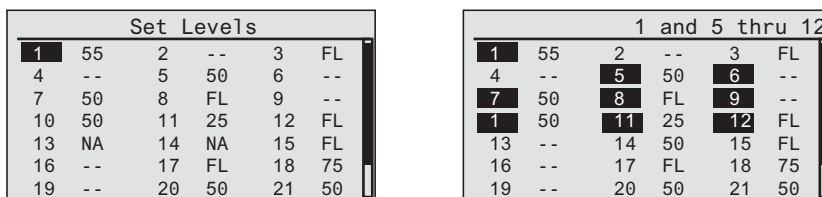
- None - the controller has no power-on event configured.
- Play Preset - plays the specified preset when power is restored. All configured wait and fade timing is derived from the configured preset.
- Play Sequence - plays the specified sequence when power is restored. All configured wait, fade and loop timing is derived from the included preset and sequence settings.
- Play Previous - plays the last event, whether a preset or the sequence, that was active at the time of power loss.




# Dimming Control Menu

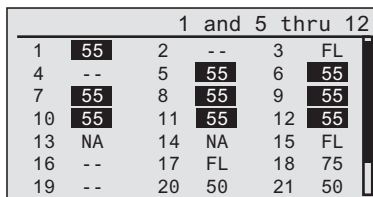


The “Dimming Control” menu is provided to set dimmer levels, check dimmers and release any set dimmer levels. Direct access to the “Dimming Control” menu is also selectable from the Control Menu Shortcut (  ) button.



## Set Levels



All configured dimmers are displayed in the “Set Levels” menu list. You may use “and / thru” functions to specify a selection or range of dimmers for level setting. Once your dimmer selection is made, press enter (  ) to accept the selection. The focus changes to the level value setting. To remove the last selected dimmer from the selection, press the back button (  ). Continue pressing the back button (  ) to clear all undesired dimmers from the selection.





Setting a level value when multiple dimmers are selected will set all selected dimmers to that level value.

- Step 1:** Use the touch wheel to scroll to “Set Levels” from within the “Dimming Control” menu and press enter (  ). The Set Levels menu list will display.
- Step 2:** Use the touch wheel to scroll through the list to select a specific dimmer or use the numeric button pad and the “and/thru” functions to select specific or a range of dimmers. Press enter (  ) to accept the selection. The focus changes to the level value field.



**Note:** “NA” indicates a dimmer that cannot be set to a level such as a CC20.

- Step 3:** Use the touch wheel to scroll, or the numeric button pad, to enter a specific level value for the selected dimmers. This value can be between zero (displayed as --) and 100% (displayed as FL). Press enter (  ) to accept the selection.
- Step 4:** When all dimmers are set to the desired level, press back (  ) to return to the “Dimming Control” menu.

**Step 5:** When you exit the “Set Levels” menu, you will be prompted for confirmation if you would like to “Release Set Levels”. Selecting “Yes” returns all set levels to the default value. Selecting “No” causes all set levels to remain until released.



**Note:**

*Dimmers that are controlled from the “Set Levels” action cannot be controlled from the architectural system or DMX until they are released.*

## Dimmer Check

scroll to “Next Dimmer” and press enter ✓ to step through the dimmer list.

scroll to “Previous Dimmer” and press ✓ to step back through the dimmer list.

Dimmer Check	
Dimmer Number:	1
Level:	100
Next Dimmer	
Previous Dimmer	

current dimmer in check

level that the dimmer will illuminate to. Can be set to any value 1 - 100.

The “Dimmer Check” menu provides a quick and easy method to step through all your individual dimmers. This is useful for checking lamps or checking focus. Only one is illuminated at a time.

**Step 1:** Use the touch wheel to scroll to “Dimmer Check” from within the “Dimming Control” menu and press enter ( ✓ ). The Dimmer Check menu will display.

**Step 2:** Choose which navigation method you would like to use to initiate the dimmer check.

**Scroll to “Next Dimmer” or “Previous Dimmer” and press enter ( ✓ ).**

- Each press of enter ( ✓ ), when using “Next Dimmer” or “Previous Dimmer”, increments to either the next dimmer in the list or the previous dimmer in the list. When using this method the dimmer list rolls-over continuously from the last dimmer in the list to the first dimmer in the list.

**Select the dimmer value field (dimmer 1 in the example graphic above).**

- a: Press enter ( ✓ ) to change the focus from “Dimmer Number” to the dimmer number value.
- b: Use the touch wheel to scroll through the dimmer list. When using this method, the dimmer list does not roll-over from the last dimmer in the list to the first dimmer in the list.
- c: Use the touch wheel’s increment ▲▲▲ or decrement ▼▼▼ buttons to step through the dimmer list. When using this method, the dimmer list does not roll-over from the last dimmer in the list to the first dimmer in the list.
- d: Specify the dimmer number using the numeric button pad.

## Release Set Levels

Release Set Levels
All set levels control has been released

When “Release Set Levels” is selected all levels that had been set by the “Dimming Control” menu are released.

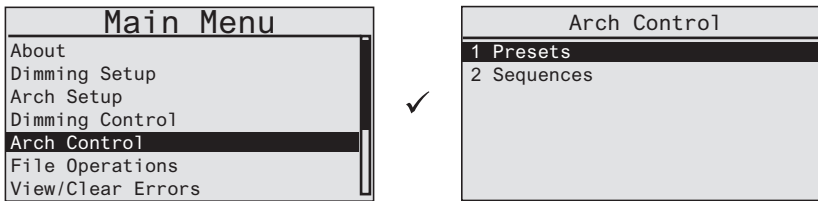
This message screen is displayed for only one second, then the menu returns to the “Dimming Control” menu.



**Note:**

*Dimmers that are controlled from the “Set Levels” action cannot be controlled from the architectural system, DMX, or sACN until they are released.*

# Arch Control Menu



The “Arch Control” menu provides you access to the setup and timing of the SmartLink control system presets and sequence.

## Presets



The “Presets” menu provides you with the tools to select, activate, deactivate, record, and configure your SmartLink presets.

The title of this menu display changes to indicate which preset is currently active, or when no preset is active.

### Select Preset #

- Step 1:** Press enter ( ✓ ) to change the focus from “Preset #” to the preset value. If no preset has been selected previously, preset 1 will be the default preset displayed. SmartLink in Unison offers 64 presets per system. Other SmartLink-enabled products may a different amount of presets.
- Step 2:** Use the touch wheel to scroll or the numeric button pad to specify a preset selection. Press enter ( ✓ ) to accept the selection.
- Step 3:** Change the current status of the preset:
- If the preset has never been recorded, scroll to “Record” and press enter ( ✓ ).
  - If the preset has been previously recorded and you would like to activate it, scroll to “Activate” and press enter ( ✓ ).
  - If the preset is currently active and you would like to deactivate it, scroll to “Deactivate” and press enter ( ✓ ).
- Step 4:** Change the current timing values of the selected preset.
- Timing values include “Up Time”, “Hold Time” and “Down Time”. Each timing value can be 0 - 60 minutes, 0 - 59 seconds. Each timing value is set with defaults as indicated in the sample graphic above.
- a: Use the touch wheel to scroll to “Up Time” and press enter ( ✓ ). The focus changes to the minutes value.
  - b: Use the touch wheel to scroll to, or the numeric button pad to enter, a specific minutes value for the selected preset up time. Press enter ( ✓ ) to accept the selection. The focus changes to the seconds value.
  - c: Repeat for “Up Time” seconds and press enter ( ✓ ) to accept the selection.
  - d: Repeat for all preset timing values.



### Note:

When the “Up Time” and “Down Time” is 0 min. - 0 seconds, the “Hold Time” must be set to a minimum of 0 min. 1 seconds. The maximum is 60 minutes and zero seconds. Hold times are only used when the preset is included in a sequence.

## Sequence

Sequence Inactive	
<b>Start</b>	
Stop	
Length	64
Loop Sequence:	No
Status: Active	
Preset 1	Hold 00.22

The “Sequence” menu provides you with the tools to start and stop a sequence, specify the length (how many steps), and whether the sequence will loop or not.

The title of this menu display changes to indicate whether or not the sequence is active. When a sequence is active, the status of that sequence is displayed on the last line.

## Start or Stop

Once a sequence has been setup you can start and stop the sequence from the “Sequence” menu. Alternatively you can start and stop the sequence from your connected SmartLink wall stations, if the stations are configured for sequence control.

## Length

The sequence always starts with preset 1 and continues for the specified length, which can include up to 64 presets. By default, the length is set to “64” and loop sequence is set to “No”.

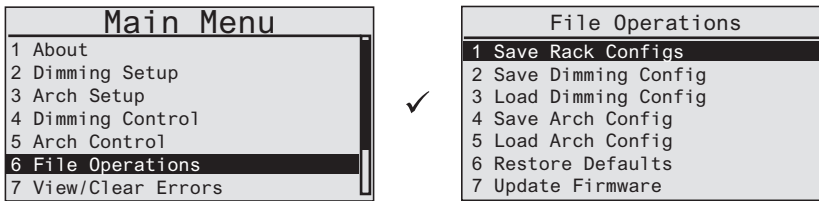
## Loop Sequence

The sequence can be set to loop continuously until the sequence is stopped, or set to run only once.

## Sequence Status

“Sequence Status” is read only text that displays active or inactive. If the sequence is active, the last line displays the current preset being played, the current timing state (Up / Hold / Down), and the time that is left for that specific timing state.

# File Operations Menu



The “File Operations” menu provides you with the tools to save and load your SmartLink ACP and dimming configurations, restore system default properties, and update firmware as required.

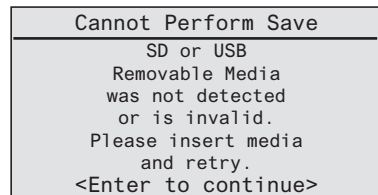
Operations from this menu, with the exception of “Restore Defaults”, provide operations for saving and loading of files using an SD removable media card.



## Note:

*When the SD media card is either not installed properly or is not an approved type, you will receive a display notification.*

*Check the SD media card to ensure it is the proper type reference “SD Media”, page 12. Then press enter ( ✓ ) to continue.*



## Save Rack Configuration

Saving a rack configuration creates two files on the SD media card with the same (user selected) file name but different file extensions. The SmartLink ACP configuration will receive a “.acp” file extension. The dimming configuration will receive a “.drd” file extension. Files are always saved to the root directory of the SD media card.

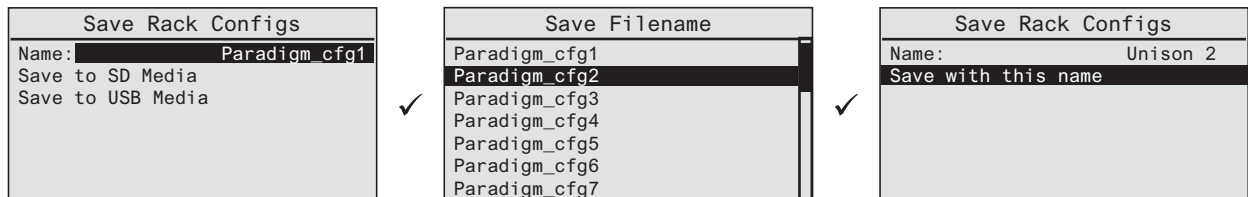
**Step 1:** Install an SD media card into the slot.

**Step 2:** Use the touch wheel to scroll to “File Operations” and press enter ( ✓ ). The File Operations menu displays.

**Step 3:** Use the touch wheel to scroll to “Save Rack Configs” and press enter ( ✓ ) or press “1” when (#nav) is enabled. The “Save Rack Configs” menu list will display. The filename will default to the name of the currently running configuration. When no specific filename has been previously saved or loaded, Unison1 is the default. To change the filename before saving, continue to “Step 5:” through “Step 7:”

**Step 4:** Use the touch wheel to scroll to “Save to SD Media” and press enter ( ✓ ). Continue to “Step 8:”

**Step 5:** Press enter ( ✓ ) to change the rack configuration file name. The “Save Filename” menu list displays for selection. You may choose from a selection of configuration file names (Unison1 to Unison24).

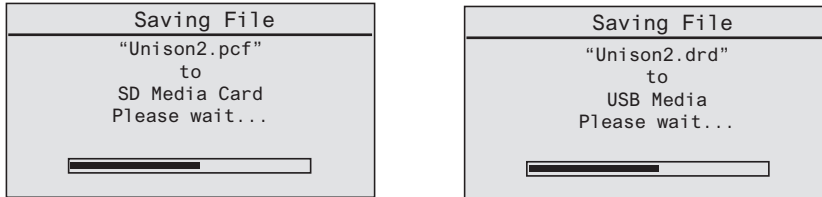


**Step 6:** Press enter ( ✓ ) to accept the selection. The display returns to “Save Rack Configs”.

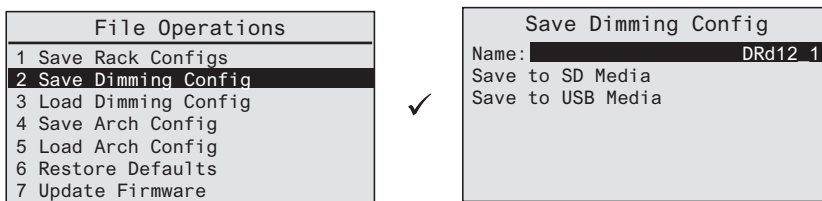
**Step 7:** If you have modified the filename, use the touch wheel to scroll to “Save with this name” and press enter ( ✓ ).

**Step 8:** As the requested configuration is saving, any errors will stop the save process. If an error has stopped the saving process, follow the instructions on the display.

When the save process is successful, you are provided status of the configuration files as they are saving to your SD media card. When the configuration files are saved, the “File Operations” menu displays.



## Save Dimming Configuration



Saving only the dimming configuration is similar in process to the [“Save Rack Configuration”](#) procedure except this operation only saves the dimming configuration file to the root directory of the removable media.

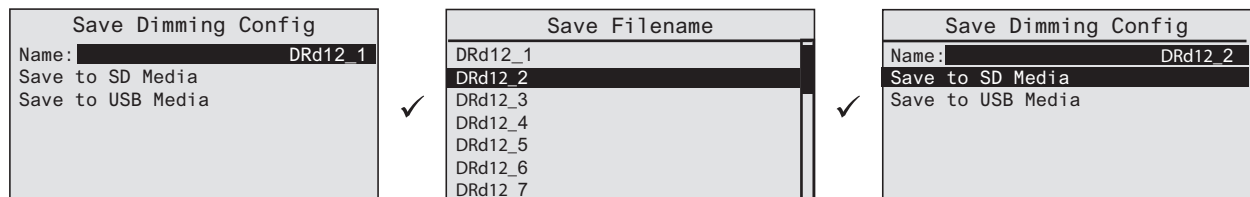
**Step 1:** Install an SD media card into the slot.

**Step 2:** Use the touch wheel to scroll to “File Operations” and press enter ( ✓ ). The File Operations menu will display.

**Step 3:** Use the touch wheel to scroll to “Save Dimming Config” and press enter ( ✓ ) or press “2” when (#nav) is enabled. The “Save Dimming Config” menu list will display. The filename will default to the name of the currently running configuration. When no specific filename has been previously saved or loaded, “DRd12\_1.drd” is the default (DRd and the type of rack you are saving from whether that is a DRd6, DRd12 or DRd1224). To change the filename before saving, continue to [“Step 5:”](#) through [“Step 7:”](#)

**Step 4:** Use the touch wheel to scroll to “Save to SD Media” and press enter ( ✓ ). Continue to [“Step 8:”](#).

**Step 5:** Press enter ( ✓ ) to change the dimming configuration file name. The “Save Filename” menu list displays for selection. You may choose from a selection of configuration file names (Unison1 to Unison24).



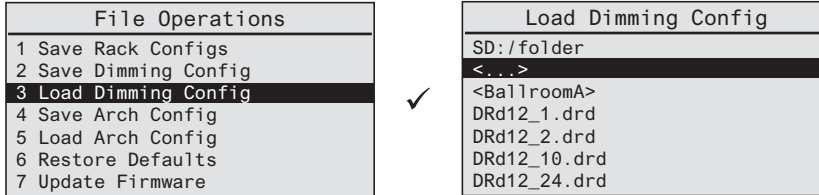
**Step 6:** Press enter ( ✓ ) to accept the selection. The display returns to “Save Rack Configs”.

**Step 7:** If you have modified the filename, use the touch wheel to scroll to “Save with this name” and press enter ( ✓ ).

**Step 8:** As the requested configuration is saving, any errors will stop the save process. If an error has stopped the saving process, follow the instructions on the display.

When the save process is successful, you are provided status of the configuration file while it is saving to your SD media card. When the configuration file is saved, the “File Operations” menu displays.

## Load Dimming Configuration



The “Load Dimming Config” menu provides you with tools to load an existing rack configuration from an SD media card into the SmartLink ACP, overwriting any previous dimming configuration on the ACP.

**Step 1:** Install an SD media card into the slot.

**Step 2:** Use the touch wheel to scroll to “File Operations” and press enter ( ✓ ). The File Operations menu will display.

**Step 3:** Use the touch wheel to scroll to “Load Dimming Config” and press enter ( ✓ ) or press “3” when (#nav) is enabled. The “Load Dimming Config” menu list displays all valid dimming configurations available for loading.

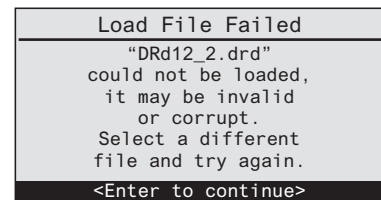
- Valid rack configurations are indicated similar to DRd12\_1.drd. The rack type (DRd12) changes depending on the specified rack type for the saved configuration file. The “\_1” designation may be any number up to \_24.
- Additional folders, indicated in brackets “<text>”, may also display in the menu list. You can select the folder and press enter ( ✓ ) to display that folders configuration file contents. To return to the root directory scroll to select <...> and press ( ✓ ).

**Step 4:** Use the touch wheel to scroll and select the desired valid rack configuration file. Press ( ✓ ) to accept the selection. The configuration file will begin to load. When the load process is complete, the display returns to the “File Operations” menu.



**Note:**

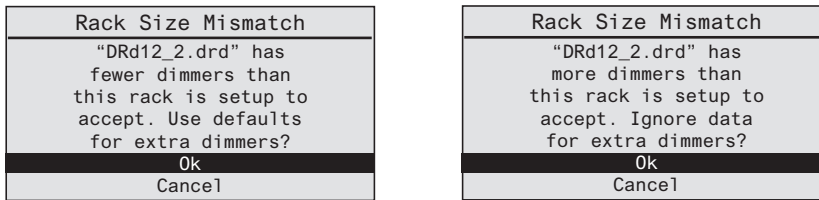
*When the load process fails, due to an invalid or corrupt configuration file, you will be prompted to select a different file and try again.*





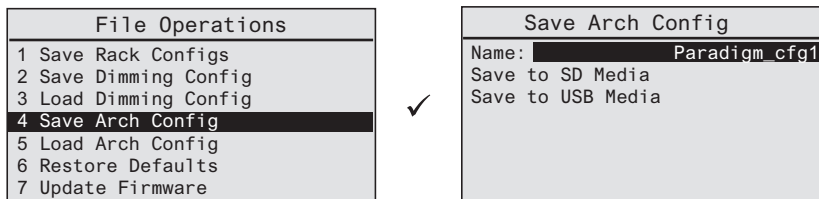
## Rack Size Mismatch

When you have loaded a new rack configuration that differs in rack size from the original rack configuration, you will be prompted with a “Rack Size Mismatch” error. Before proceeding, you are required to select an action. Select “OK” to continue loading the new mismatched configuration file or select “Cancel” to cancel the load process.



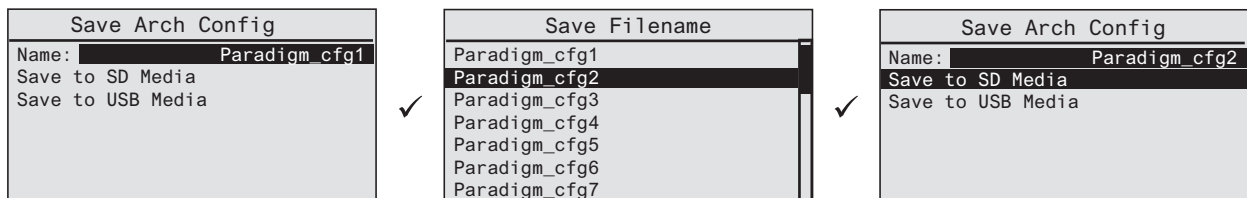
If “Ok” is the selected action, and the mismatch occurred due to the new configuration having fewer dimmers than the original. Reference [“Dimmer Setup”](#), page 22 to configure the “extra” dimmers from the default properties.

## Save Arch Configuration



Saving only the architectural configuration is similar in process as the [“Save Dimming Configuration”](#) procedure. The “Save Arch Config” process saves only the architectural configuration to the root directory of the SD media card.

- Step 1:** Install an SD media card into the slot.
- Step 2:** Use the touch wheel to scroll to “File Operations” and press enter ( ✓ ). The File Operations menu will display.
- Step 3:** Use the touch wheel to scroll to “Save Arch Config” and press enter ( ✓ ) or press “4” when (#nav) is enabled. The “Save Arch Config” menu list will display. The filename will default to the name of the currently running configuration. When no specific filename has been previously saved or loaded, “SLcfg\_1” is the default. To change the filename before saving, continue to [“Step 5:”](#) through [“Step 7:”](#)
- Step 4:** Use the touch wheel to scroll to “Save to SD Media” and press enter ( ✓ ) then continue to [“Step 8:”](#).
- Step 5:** Press enter ( ✓ ) to change the architectural configuration file name. The “Save Filename” menu list displays for selection. You may choose from a selection of configuration file names (SLcfg\_1 to SLcfg\_24).

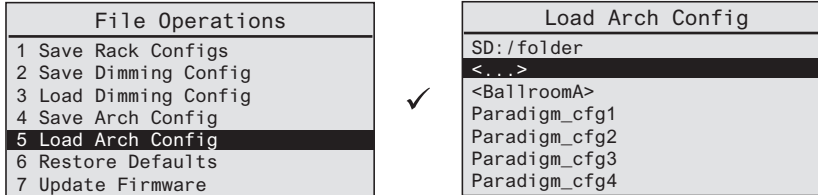


- Step 6:** Press enter ( ✓ ) to accept the selection. The display returns to “Save Arch Configs”.
- Step 7:** If you have modified the filename, use the touch wheel to scroll to “Save with this name” and press enter ( ✓ ).

**Step 8:** As the requested configuration is saving, any errors will stop the save process. If an error has stopped the saving process, follow the instructions on the display.

When the save process is successful, you are provided status of the configuration file while it is saving to your SD media card. When the configuration file is saved, the “File Operations” menu displays.

## Load Architectural Configuration



The “Load Arch Config” menu provides you with tools to load an existing SmartLink architectural configuration from an SD media card into the SmartLink ACP, overwriting any previous SmartLink architectural configuration on the SmartLink ACP.

**Step 1:** Install an SD media card into the slot.

**Step 2:** Use the touch wheel to scroll to “File Operations” and press enter ( ✓ ). The File Operations menu will display.

**Step 3:** Use the touch wheel to scroll to “Load Arch Config” and press enter ( ✓ ) or press “5” when (#nav) is enabled. The “Load Arch Config” menu list displays all valid dimming configurations available for loading.

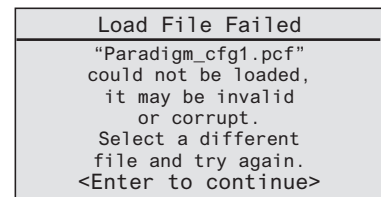
- Valid SmartLink architectural configurations are indicated similar to SLcfg\_1.acp. The “\_1” designation may be any number up to \_24.
- Additional folders, indicated in brackets “<text>”, may also display in the menu list. You can select the folder and press enter ( ✓ ) to display that folders configuration file contents, if any. To return to the root directory scroll to select <...> and press ( ✓ ).

**Step 4:** Use the touch wheel to scroll and select the desired valid SmartLink architectural configuration file. Press ( ✓ ) to accept the selection. The configuration file will begin to load. When the load process is complete, the display returns to the “File Operations” menu.



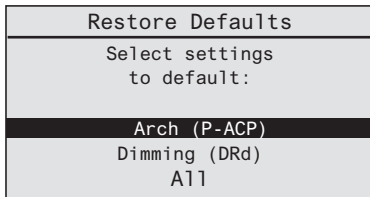
**Note:**

*When the load process fails due to an invalid or corrupt configuration file, you will be prompted to select a different file and try again.*



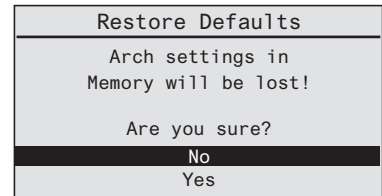
## Restore Defaults

The “Restore Defaults” operation erases all memories, excluding removable media, and returns the specified configuration to factory defaults. You may select to restore defaults to either the “Arch - ACP”, the “Dimming -DR”, or both.



**Step 1:** Use the touch wheel to scroll and select the desired operation. Press enter ( ✓ ) to accept the selection.

**Step 2:** You will be prompted for confirmation of your selection. If you choose to erase memories and restore factory defaults, there is no undo tool. Confirm the operation.



**Note:** Before proceeding with “Restore Defaults”, save your rack configurations to a different name so that you can always revert back if needed.

## Update Firmware

Firmware is the embedded operating system for the SmartLink architectural control processor, dimming engine, and DALI and fluorescent option boards. Firmware is available from Electronic Theatre Controls, Inc. and should be saved to the root directory of your SD media card for loading on the SmartLink ACP.

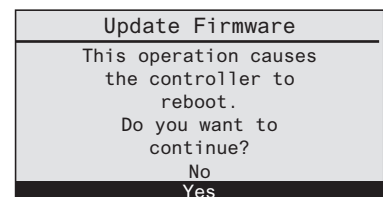


**CAUTION:** Use caution when updating firmware. If reverting to an earlier version of the SmartLink ACP firmware, understand that previous versions may not support newer features and the configuration data for those features will be lost. ETC does not normally recommend updating your system software except to resolve specific system concerns. Please contact ETC Technical Services for assistance as needed.

**Step 1:** Install an SD media card into the slot.

**Step 2:** Use the touch wheel to scroll to “File Operations” and press enter ( ✓ ). The File Operations menu will display.

**Step 3:** Use the touch wheel to scroll to “Update Firmware” and press enter ( ✓ ) or press “7” when (#nav) is enabled. A dialog displays for your action. Updating firmware requires the SmartLink ACP to reboot. You must choose if you want to continue the update operation.



- Choose “No” to cancel the update operation. The display returns to the “File Operations” menu.
- Choose “Yes” to proceed with the update. The “Update Firmware” menu list displays.
- Press the back ( < ) button to return to the previous display. This action is similar to selecting “No”.

**Step 4:** Valid firmware is indicated by the build numbers (for example v1.0.0.0.00.bin).

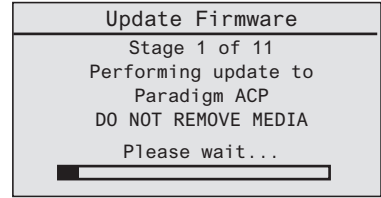
- Additional folders, indicated in brackets "<folder>", may also display in the menu list. You can select the folder and press enter ( ✓ ) to display that folders file contents, if any. To return to the root directory scroll to select <...> and press enter ( ✓ ).

**Step 5:** Use the touch wheel to scroll and select the desired firmware update file. Press enter ( ✓ ) to accept the selection.

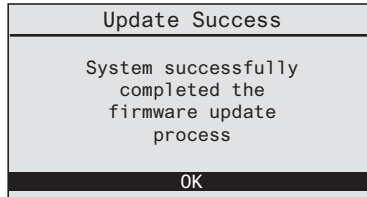
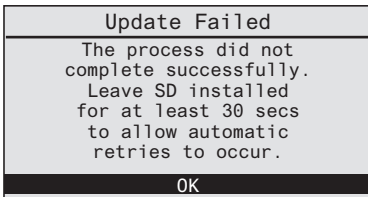


**Note:**

*The update file will begin to load up to 11 possible stages of the update process. The update always processes through these 11 stages, applying only when required based on utilized hardware such as the ACP, DRd dimming engine, DALI option, FLO option, etc. Stages that are not required (no hardware that applies) are bypassed.*

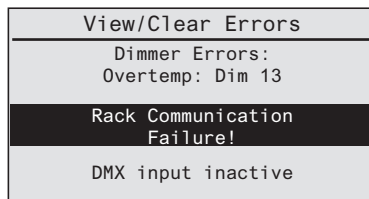
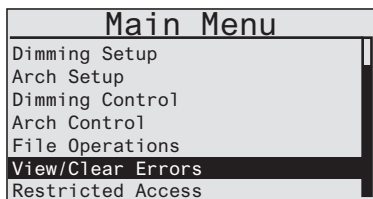


- a: If the update process fails for any reason, you will be notified and prompted for action. Do not remove the SD media card, instead press enter ( ✓ ) to try again.
- b: If the update process is successful, you will receive notification that the update process is complete. Press enter ( ✓ ) to return to the "File Operations" menu.



# View/Clear Errors Menu

---



The “View/Clear Errors” menu list displays current system errors in order of severity, with the most severe listed at the top. When duplicated or new errors are detected, they replace any previous errors of the same type in the list.



**Note:** Reference [“Status / Error Messages”](#), page 17 for a complete list of rack errors and the resulting action.

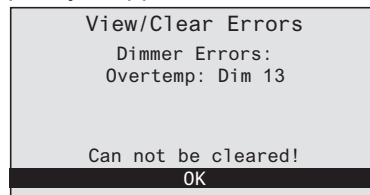
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## Some errors can be cleared from the list or are automatically cleared.

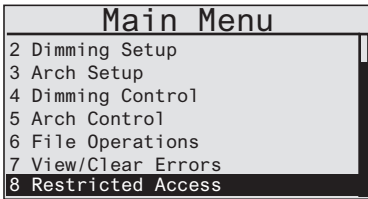
Using the touch wheel, scroll to the error and press enter ( ✓ ) to remove it from the list. Some errors automatically clear themselves from the list when the condition that created the error no longer exists. Errors that are still current will quickly reappear in the list.

## Other errors cannot be cleared from the list.

Some errors do not support clearing. You will receive notification on the display when this condition exists. Scroll to “Ok” and press enter ( ✓ ).



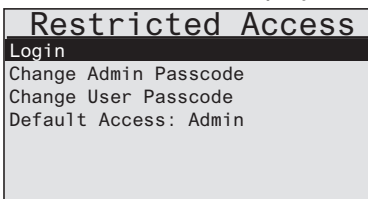
# Restricted Access Menu



The “Restricted Access” menu provides two levels of user access to the SmartLink ACP menu, “User” and “Admin”.

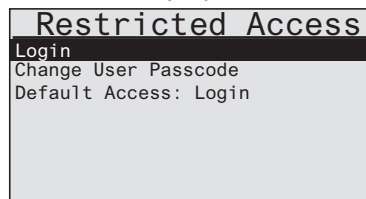
Use the touch wheel to scroll to “Restricted Access” and press enter (✓). The menu that will display is dependant on the current level of access, either “Admin” or “User”.

### Administrator level display



or

### User level display



## Default Access Level (Admin)

By default, when you first receive your SmartLink ACP, the “Default Access” is set to the “Admin” level. The “Admin” level allows access to all menu items and the ability to change the “Admin” and “User” passcodes.

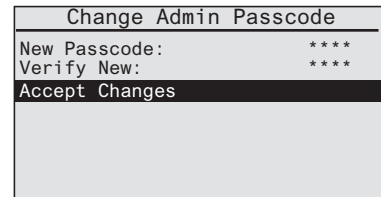
### Change Passcode

The process identified below is identical for changing the “Admin Passcode” and the “User Passcode” when changing the passcode from the “Admin” level. The “Change Admin Passcode” is always viewable but you need an “Admin” user level to gain access.

**Step 1:** Use the touch wheel to scroll to “Change Admin Passcode” and press enter (✓). The “Change Admin Passcode” menu list will display.

**Step 2:** Scroll to “New Passcode” and enter the new four digit passcode. Press enter (✓).

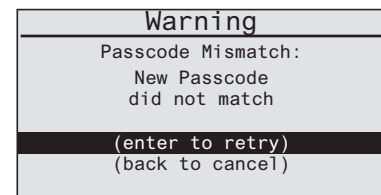
**Step 3:** Scroll to “Verify New” and re-enter the new four digit passcode. Press enter (✓).



### Note:

*When the new passcode and the verified passcode do not match, you will receive notification for action.*

*Press enter (✓) to try again or press back (<) to return to the “Restricted Access” menu.*



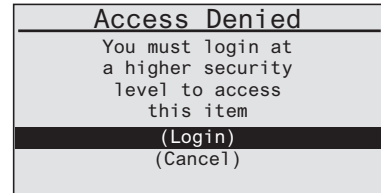
**Step 4:** Scroll to “Accept Changes” and press enter (✓). The display returns to the “Restricted Access” menu.

## Default Access Level (User)

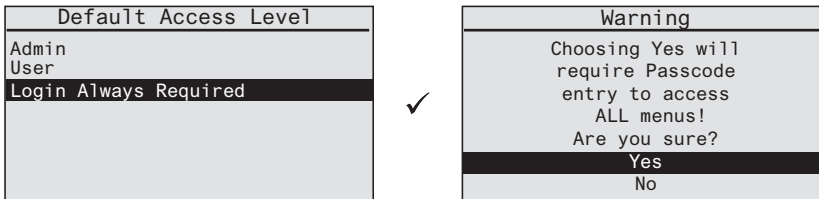
When the default access level is set to “User” you are provided access to:

- View the information in the “About” menu
- Set levels, administer a dimmer check and release set levels from the “Dimming Control” menu.
- Create presets and setup the sequence in the “Arch Control” menu
- Review and clear errors in the “View/Clear Errors” menu
- Change the user passcode in the “Restricted Access” menu.

If you try to access a menu item that is restricted to a “User” level access, you will receive a notification dialog.



## Default Access Level (Login Always Required)



When the default access level is set to “Login Always Required”, a valid login passcode is required to regain access to the main menu. Only the status screen is displayed without login.

# Chapter 5

## Service

---

This chapter contains the following sections:

- ***Service and Maintenance*** ..... 52
- ***Replace a SmartLink ACP*** ..... 52
- ***Hardware Reset Switch*** ..... 52



# Service and Maintenance

---

## Replace a SmartLink ACP

- Step 1: Open the DRd rack door.
- Step 2: Save your rack configuration to an SD media card to keep your programmed dimming rack and architectural configuration data. See [“Save Rack Configuration” on page 41](#). The dimming rack configuration is also retained by the dimming engine.
- Step 3: Remove the existing SmartLink ACP from the DRd rack.
  - a: If the rack is installed with a module retention bar (left side), remove that first.
  - b: Hold both sides of the SmartLink ACP and pull straight out.
- Step 4: Insert the new SmartLink ACP into the DRd rack enclosure.
  - a: Rest the SmartLink ACP on the bottom lip of the DRd rack enclosure, aligning both left and right edges with the guided slots.
  - b: Slide the SmartLink ACP into the rack.
  - c: Press on each corner of the SmartLink ACP to ensure proper connection with the card edge connector on the right I/O board. If power is applied, the status LEDs will illuminate when proper connection is made.
  - d: Reinstall the module retention bar.
- Step 5: Load the configuration files from the SD media card. See [“Load Architectural Configuration” on page 45](#).
- Step 6: If a configuration mismatch occurs, select “Yes” to load the dimming configuration from the DRd rack. Alternatively, select “No” to proceed loading the rack configuration from the SD media card. See [“Load Dimming Configuration” on page 43](#).



### **Note:**

*If you don't get a configuration mismatch error, the SmartLink ACP already has the matching dimming configuration, or it doesn't have any dimming configuration file and therefore will automatically receive the dimming configuration from the DRd rack dimming engine.*

## Hardware Reset Switch

Reset the SmartLink ACP software and hardware by pressing the reset switch located on the front panel of the unit. You can access this reset switch using the tip of a ball point pen, or other pointed object.



During reset the DRd rack holds levels for the last look until the SmartLink ACP has rebooted and takes control again.

# Appendix A

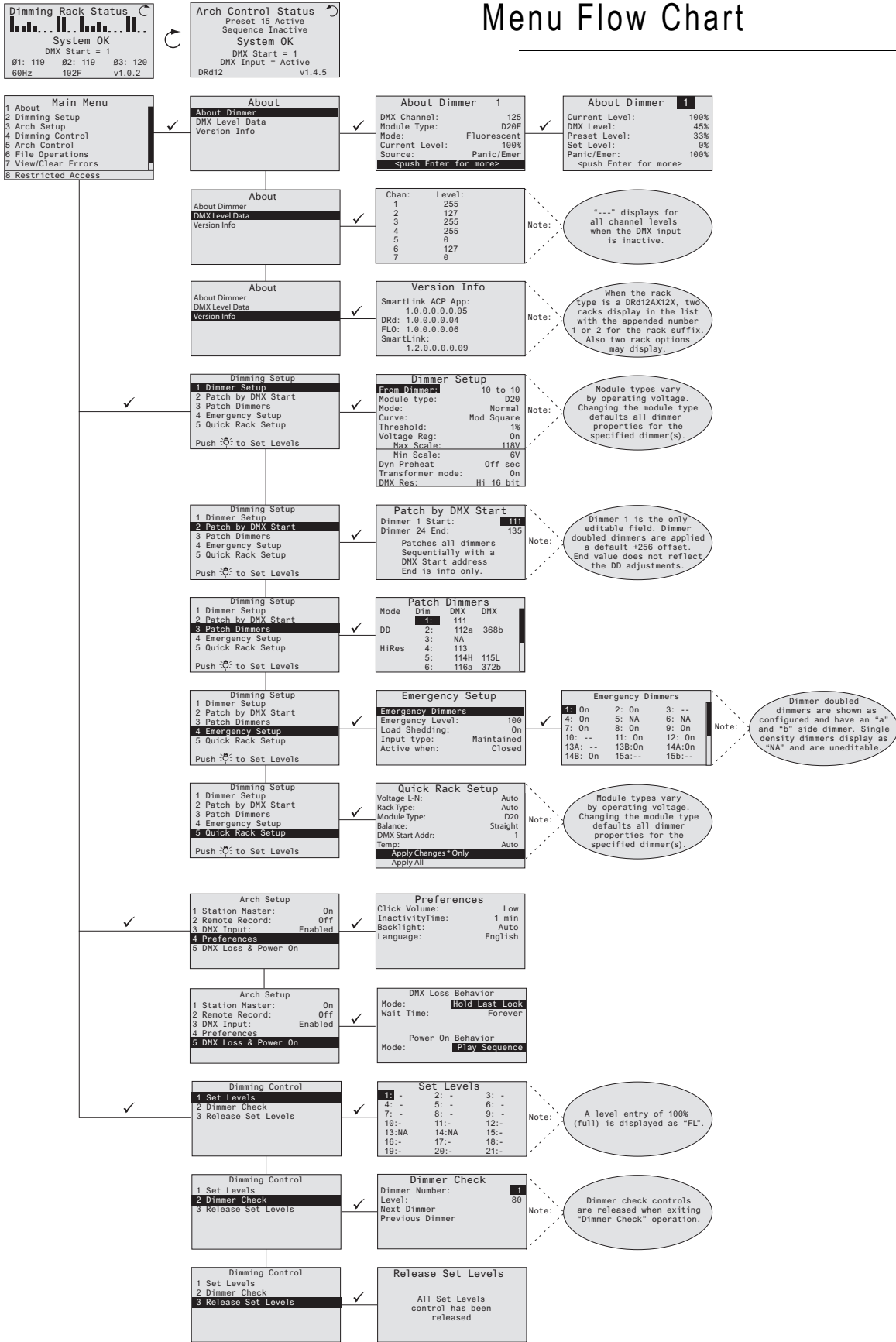
## SmartLink ACP Menu Flow Chart

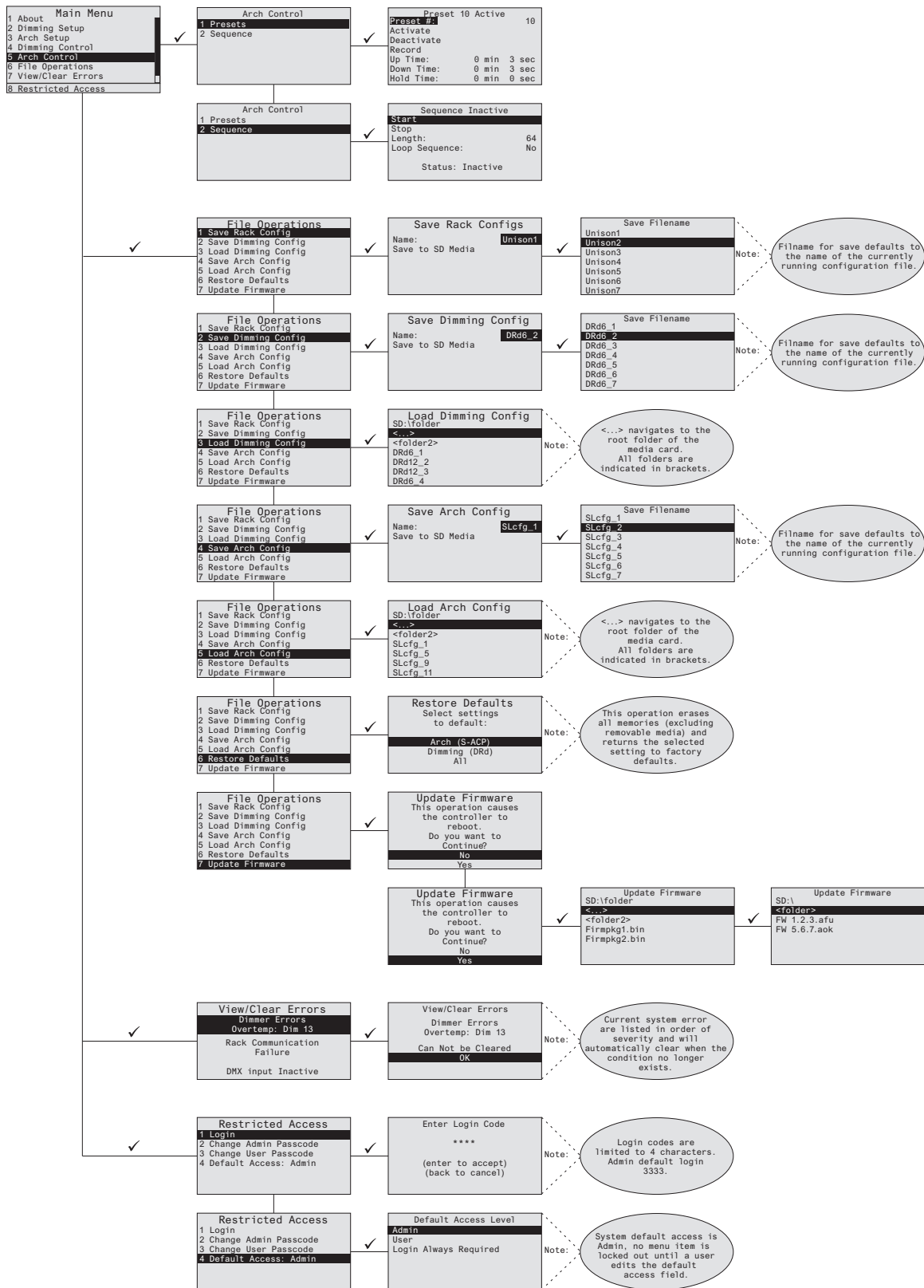
---

This chapter contains the following sections:

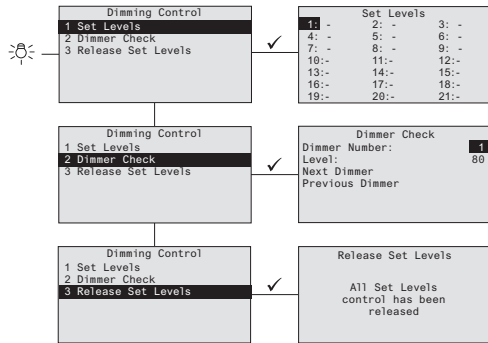
- **Menu Flow Chart** .....54

# Menu Flow Chart





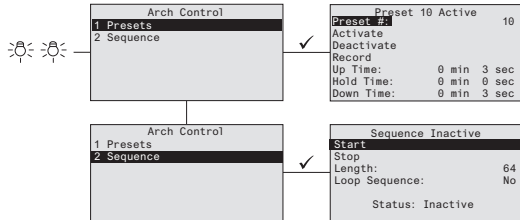
Press the shortcut button to directly access the Dimming Control menu.



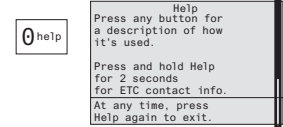
Note: A level entry of 100% (full) is displayed as "FL".

Note: Dimmer check controls are released when exiting "Dimmer Check" operation.

Press twice to access the Arch Control menu.



Press the "Help/0" button to open the Help dialog. Press and hold the "Help/0" button for 2 seconds to display ETC contact info.



# Appendix B

## Dimmer Specifications

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### Unison DRd Rack Compatible Modules

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#### 120 VAC Dimmer Modules

Module Type	Description	Part Number	Module Weight (lbs/kg)
AFM	Air Flow Module	7183A1050	1.3 lbs / .59 kgs
CC15	Dual 15A Constant Circuit Breaker Module	7183A1022	2.1 lbs / 1.0 kgs
CC20	Dual 20A Constant Circuit Breaker Module	7183A1027	2.2 lbs / 1.0 kgs
D15	Dual 15A, 1.8KW, 350µS Dimmer Module	7183A1018	5 lbs / 2.3 kgs
D15E	Dual 15A, 1.8KW, 500µS Dimmer Module	7183A1019	5 lbs / 2.3 kgs
D15F	Single 15A, Fluorescent Dimmer Module	7183A1020	2.4 lbs / 1.1 kgs
D20	Dual 20A, 2.4KW, 350µS Dimmer Module	7183A1023	5 lbs / 2.3 kgs
D20E	Dual 20A, 2.4KW, 500µS Dimmer Module	7183A1024	5 lbs / 2.3 kgs
D20F	Single 20A, 2.4KW Fluorescent Dimmer Module	7183A1025	2.4 lbs / 1.1 kgs
ELV10	Electronic Low Voltage 10A at 120 VAC, Dimmer Module	7183A1017	2.6 lbs / 1.2 kgs
R15	Dual 15A at 120 VAC Relay Module	7183A1021	2.6 lbs / 1.2 kgs
R20	Dual 20A at 120 VAC, Relay Module	7183A1026	2.6 lbs / 1.2 kgs

#### 230 VAC Dimmer Modules

Module Type	Description	Part Number	Module Weight (lbs/kg)
AFM	Air Flow Module	7183A1050	1.3 lbs / .59 kgs
ECC15	Dual 15A, 3KW Constant Circuit Module	7183A1041	2.7 lbs / 1.2 kgs
ECC25	Dual 25A, 5KW Constant Circuit Module	7183A1046	2.5 lbs / 1.1 kgs
ED15	Dual 15A, 3KW, 225µS Dimmer Module	7183A1036	1.3 lbs / .59 kgs
ED15E	Dual 15A, 3KW, 400µS Dimmer Module	7183A1037	5 lbs / 2.3 kgs
ED15N	Dual 15A, 3KW, 225µS Neutral Disconnect Dimmer Module	7183A1039	5.6 lbs / 2.5 kgs
ED15NE	Dual 15A, 3KW, 400µS Neutral Disconnect Dimmer Module	7183A1049	5.6 lbs / 2.5 kgs
ED15R	Dual 15A, 3KW, 225µS RCD Module	7183A1040	5 lbs / 2.3 kgs
ED15RE	Single 15A, 3KW, 400µS RCD Module	7183A1051	5 lbs / 2.3 kgs
ED25	Single 25A, 400µS Dimmer Module	7183A1042	5.5 lbs / 2.5 kgs
ED25E	Single 25A, 5KW, 600µS Dimmer Module	7183A1043	5.5 lbs / 2.5 kgs
ED25NE	Single 25A, 5KW, 600µS, Neutral Disconnect Dimmer Module	7183A1052	5 lbs / 2.3 kgs
ED25N	Single 25A, 5KW, 400µS Neutral Disconnect Dimmer Module	7183A1044	5.5 lbs / 2.5 kgs
ED25R	Single 25A, 5KW, 400µS RCD Module	7183A1045	5 lbs / 2.3 kgs
ED25RE	Single 25A, 5KW, 600µS RCD Module	7083A1053	5 lbs / 2.3 kgs
ER15	Dual 15A, 3KW at 230 VAC, Relay Module	7183A1038	3.1 lbs / 1.42 kgs
ER25	Dual 25A, 5KW at 230 VAC, Relay Module	7183A1054	3.1 lbs / 1.42 kgs

## 240 VAC Dimmer Modules

Module Type	Description	Part Number	Module Weight (lbs/kg)
AFM	Air Flow Module	7183A1050	1.3 lbs / .59 kgs
HD15	Dual 15A, 3.0KW at 240 VAC, 165 $\mu$ S Dimmer Module	7183A1047	5.1 lbs / 2.3 kgs
HD15F	Single 15A, Fluorescent Dimmer Module	7183A1056	5 lbs / 2.3 kgs
HELV5	Electronic Low Voltage 5A at 240 VAC, Dimmer Module	7183A1055	2.4 lbs / 1.1 kgs
HR15	Dual 15A at 240 VAC, Relay Module	7183A1057	3.1 lbs / 1.42 kgs
HCC15	Dual 15A, Constant Circuit Module	7183A1058	2.6 lbs / 1.2 kgs

## 277 VAC Dimmer Modules

Module Type	Material description	Part Number	Module Weight (lbs/kg)
AFM	Air Flow Module	7183A1050	1.3 lbs / .59 kgs
ACC15	Dual 15A at 277 VAC, Constant Circuit Breaker Module	7183A1048	2.7 lbs / 1.2 kgs
ACC20	Dual 20A at 277 VAC, Constant Circuit Breaker Module	7183A1035	2.7 lbs / 1.2 kgs
AD15	Dual 15A, 4.1KW at 277 VAC, Dimmer Module	7183A1029	5 lbs / 2.3 kgs
AD15F	Single 15A, 4.1KW at 277 VAC, Dimmer Module	7183A1030	2.4 lbs / 1.1 kgs
AD20	Dual 20A, 5.5KW at 277 VAC, Dimmer Module	7183A1032	5 lbs / 2.3 kgs
AD20F	Single 20A, 5.5KW at 277 VAC, Fluorescent Dimmer Module	7183A1033	2.4 lbs / 1.1 kgs
AELV5	Electronic Low Voltage, Dual 5A at 277 VAC Dimmer Module	7183A1028	2.6 lbs / 1.2 kgs
AR15	Dual 15A at 277 VAC Relay Module	7183A1031	2.6 lbs / 1.2 kgs
AR20	Dual 20A at 277 VAC Relay Module	7183A1034	2.6 lbs / 1.2 kgs

# Dimmer Module Defaults

Module Types:								
120 VAC	Default Mode	Default Curve	230/240 VAC	Default Mode	Default Curve	277 VAC	Default Mode	Default Curve
<b>AFM</b>	Off	Linear	<b>AFM</b>	Off	Linear	<b>AFM</b>	Off	Linear
<b>CC15</b>	Off	Linear	<b>ECC15</b>	Off	Linear	<b>ACC15</b>	Off	Linear
<b>CC20</b>	Off	Linear	<b>ECC25</b>	Off	Linear	<b>ACC20</b>	Off	Linear
<b>D15</b>	Normal	Mod-Sq	<b>*ED15</b>	Normal	Mod-Sq	<b>AD15</b>	Normal	Linear
<b>D15E</b>	Normal	Mod-Sq	<b>ED15E</b>	Normal	Mod-Sq	<b>AD15F</b>	2/3 wire Fluorescent	Linear
<b>D15F</b>	2/3 wire Fluorescent	Linear	<b>ED15N</b>	Normal	Mod-Sq	<b>*AD20</b>	Normal	Mod-Sq
<b>*D20</b>	Normal	Mod-Sq	<b>ED15NE</b>	Normal	Mod-Sq	<b>AD20F</b>	2/3 wire Fluorescent	Linear
<b>D20E</b>	Normal	Mod-Sq	<b>ED15R</b>	Normal	Mod-Sq	<b>AELV5</b>	277V Reverse Phase	Mod-Sq
<b>D20F</b>	2/3 wire Fluorescent	Linear	<b>ED15RE</b>	Normal	Mod-Sq	<b>AR15</b>	Switched	Linear
<b>R15</b>	Switched	Linear	<b>ED25</b>	Normal	Mod-Sq	<b>AR20</b>	Switched	Linear
<b>R20</b>	Switched	Linear	<b>ED25E</b>	Normal	Mod-Sq			
<b>ELV10</b>	Reverse Phase	Mod-Sq	<b>ED25NE</b>	Normal	Mod-Sq			
			<b>ED25N</b>	Normal	Mod-Sq			
			<b>ED25R</b>	Normal	Mod-Sq			
			<b>ED25RE</b>	Normal	Mod-Sq			
			<b>ER15</b>	Switched	Linear			
			<b>ER25</b>	Switched	Linear			
			<b>HD15</b>	Normal	Mod-Sq			
			<b>HD15F</b>	2/3 wire Fluorescent	Linear			
			<b>HELV5</b>	Reverse Phase	Mod-Sq			
			<b>HR15</b>	Switched	Linear			
			<b>HCC15</b>	Off	Linear			

*\* denotes default module type*



# Dimmer Modes

Normal Mode				
Property	Units	Default 120V	Default 230/240 VAC	Default 277V
Curve	not applicable	Mod-Square	Mod-Square	Mod-Square
Voltage Regulation	On / Off	On	On	On
Pre-Heat	On / Off	Off	Off	Off
Dynamic Preheat	Seconds	0sec / Off	0sec / Off	0sec / Off
Min Scale	Volts	6V	12V	14V
Max Scale	Volts	118V	230V	277V
Transformer Mode	On/Off	Off	Off	Off
Threshold	% Control	1% (>0%)	1% (>0%)	1% (>0%)

*"Normal Mode" typically applies to standard dimmer modules.*

Dimmer Doubled Mode				
Property	Units	Default 120V	Default 230/240V	Default 277V
Curve	NA	Mod-Square	not applicable	not applicable
Voltage Regulation	On / Off	On	not applicable	not applicable
Pre-Heat	On / Off	Off	not applicable	not applicable
Dynamic Preheat	seconds	0sec / Off	not applicable	not applicable
Min Scale	Volts	6V	not applicable	not applicable
Max Scale	Volts	110V	not applicable	not applicable
Transformer Mode	On / Off	not applicable	not applicable	not applicable
Threshold	% Control	1% (>0%)	not applicable	not applicable

*"Dimmer Doubled Mode" applies only to channels using ETC's Dimmer Doubling™ technology.*



**Note:**

*"Dimmer Doubled Mode" does not apply to the DRd12AX12X rack with SmartLink control, or any DRd rack with an operating voltage of 230, 240, or 277 VAC.*

Switched Mode				
Property	Units	Default 120V	Default 230V	Default 277V
Curve	not applicable	Linear	Linear	Linear
Voltage Regulation	On / Off	Off	Off	Off
Pre-Heat	On / Off	Off	Off	Off
Dynamic Preheat	seconds	0sec / Off	0sec / Off	0sec / Off
Min Scale	Volts	120 =Max	230 =Max	277 =Max
Max Scale	Volts	120	230	277
Transformer Mode	On / Off	On	On	On
Threshold	Control	50	50	50

*"Switched Mode" is typically the mode of operation for relay modules.*

<b>2 and 3 Wire Fluorescent Mode</b>				
<b>Property</b>	<b>Units</b>	<b>Default 120V</b>	<b>Default 230V</b>	<b>Default 277V</b>
Curve	not applicable	Linear	Linear	Linear
Voltage Regulation	On / Off	On	On	On
Pre-Heat	On / Off	Off	Off	Off
Dynamic Preheat	seconds	0sec / Off	0sec / Off	0sec / Off
Min Scale	Volts	56V	108V	130V
Max Scale	Volts	120V	230V	277V
Transformer Mode	On / Off	On	On	On
Threshold	Control	1% (>0%)	1% (>0%)	1% (>0%)

<b>4 Wire Fluorescent Mode</b>				
<b>Property</b>	<b>Units</b>	<b>Default 120V</b>	<b>Default 230V</b>	<b>Default 277V</b>
Curve	not applicable	Linear	Linear	Linear
Voltage Regulation	On / Off	Off	Off	Off
Pre-Heat	On / Off	Off	Off	Off
Dynamic Preheat	seconds	0sec / Off	0sec / Off	0sec / Off
Min Scale	Volts	120 =Max	230 =Max	277 =Max
Max Scale	Volts	120	230	277
Transformer Mode	On / Off	On	On	On
Threshold	Control	1% (>0%)	1% (>0%)	1% (>0%)

<b>Always On Mode</b>				
<b>Property</b>	<b>Units</b>	<b>Default 120V</b>	<b>Default 230V</b>	<b>Default 277V</b>
Curve	not applicable	Linear	Linear	Linear
Voltage Regulation	On / Off	Off	Off	Off
Pre-Heat	On / Off	Off	Off	Off
Dynamic Preheat	seconds	0sec / Off	0sec / Off	0sec / Off
Min Scale	Volts	120 =Max	230 =Max	277 =Max
Max Scale	Volts	120	230	277
Transformer Mode	On / Off	Off	Off	Off
Threshold	Control	0	0	0

<b>DALI Mode</b>				
<b>Property</b>	<b>Units</b>	<b>Default 120V</b>	<b>Default 230V</b>	<b>Default 277V</b>
Curve	not applicable	Linear	Linear	Linear
Voltage Regulation	On / Off	Off	Off	Off
Pre-Heat	On / Off	Off	Off	Off
Dynamic Preheat	seconds	0sec / Off	0sec / Off	0sec / Off
Min Scale	Volts	120 =Max	230 =Max	277 =Max
Max Scale	Volts	120	230	277
Transformer Mode	On / Off	On	On	On
Threshold	Control	0	0	0

<b>Off Mode</b>				
<b>Property</b>	<b>Units</b>	<b>Default 120V</b>	<b>Default 230V</b>	<b>Default 277V</b>
Curve	not applicable	Linear	Linear	Linear
Voltage Regulation	On / Off	Off	Off	Off
Pre-Heat	On / Off	Off	Off	Off
Dynamic Preheat	seconds	0sec / Off	0sec / Off	0sec / Off
Min Scale	Volts	0	0	0
Max Scale	Volts	0	0	0
Transformer Mode	On / Off	Off	Off	Off
Threshold	Control	0	0	0

<b>Reverse Phase Mode</b>				
<b>Property</b>	<b>Units</b>	<b>Default 120V</b>	<b>Default 230V</b>	<b>Default 277V</b>
Curve	not applicable	Mod-Square	NA	Mod-Square
Voltage Regulation	On / Off	On	NA	On
Pre-Heat	On / Off	Off	NA	Off
Dynamic Preheat	seconds	0sec / Off	NA	0sec / Off
Min Scale	Volts	6V	NA	14V
Max Scale	Volts	118V	NA	277V
Transformer Mode	On / Off	Off	NA	Off
Threshold	% Control	1% (>0%)	NA	1% (>0%)

*“Reverse Phase Mode” is used only with the RPC module.*



**Note:**

*“Reverse Phase Mode” is selectable only when the module type is the ELV10, AELV5, or HELV5 electronic low voltage module. Reverse phase mode is not compatible with 230 VAC systems.*



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