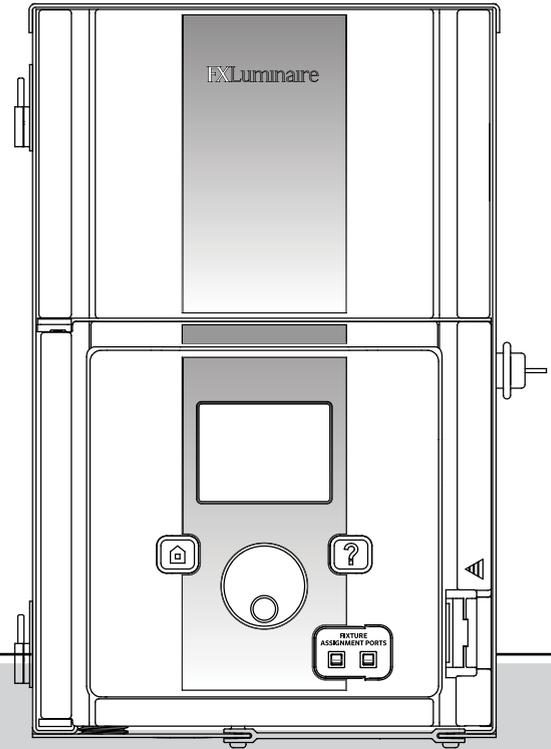


LUXOR[®]

ZD

ZDC

LED Landscape
Lighting Controller



Owner's Manual and Installation Instructions for
Luxor ZD and Luxor ZDC

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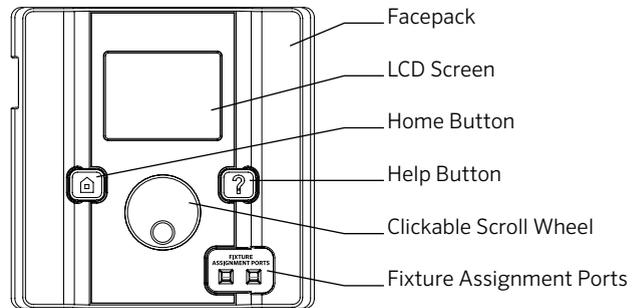
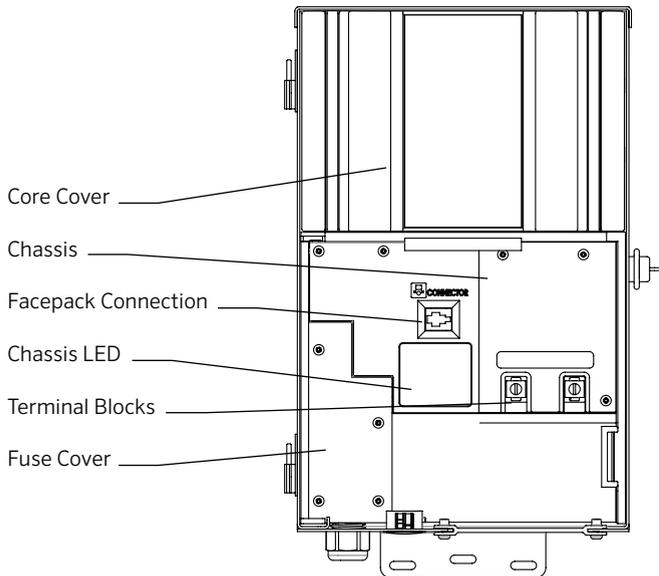
LUXOR® ZD/ZDC Overview

The Luxor ZD/ZDC is a lighting transformer and controller capable of controlling groups of lights that are initiated by programmed events. These events are adjustments of light intensity at set times. All lights within a system are communicated with and powered via two wire connections. All lights within a system communicate with the same two wire connections that also power the system.



NOTE: The Luxor is intended for use with FX LED fixtures or devices containing FX Zoning, Dimming, or Color Technology. Use of other fixtures is not recommended due to the absence of communication capabilities. The Luxor is not for use with incandescent fixtures.

Luxor Components



Luxor® ZD/ZDC Overview

Glossary of Terms

Group: An addressed set of lights that is designated numerically and controlled as a set by the controller.

Theme: A predetermined set of groups, intensities, and colors (ZDC only) called to action by the program or manual functions.

Fixture/Luminaire: Light unit that contains an FX LED board or device with FX Zoning, Dimming, or Color capabilities.

Intensity: Value indicating the measurable amount of brightness, from 1% to 100%.

Event: The initiation, adjustment, or conclusion of a selected theme or group with specific intensity and/or color settings.

Duration: The length of time an event will run.

Hue: The primary attribute of a color. It is represented by numeric values between 0 and 359.

Saturation: The richness of a color mixed with white light, from 0% to 100%.

Color: The visual combination of hue and saturation.

Primary Controller: Luxor ZD/ZDC controller containing a facepack

Satellite Controller: Controller without a facepack

Safety Information

These cord-connected units consist of step-down, isolated two-winding type transformers, circuit breakers, and associated circuitry intended to supply power to low-voltage, submersible fountain lighting fixtures.

WARNING — Risk of Electric Shock. Install power unit 5 feet or more from a pool or spa and 10 feet or more from a fountain. Where the power unit is installed within 10 feet of a pool or spa connect power unit to a GFCI-protected branch circuit. Do not use an extension cord when connecting the power unit to the 120V source. The grounding conductor shall be 12 AWG minimum. Outdoor power unit shall be connected to a GFCI-protected hooded flush type cover plate receptacle marked “Wet Location” while in use.

Caution: The supply circuit for the landscape lighting system shall be protected by a Class A type ground fault circuit interrupter, unless it is provided with the landscape lighting system. This device is accepted as a component of a landscape lighting system where the suitability of the combination shall be determined by local inspection authorities having jurisdiction. Do not connect two or more power supplies in parallel. Not for use in dwelling units. This presents a risk of fire. Do not place insulation under terminal plate. Check connector after installation.

Circuit Protection

11 amps for 150 watt power controller

22 amps for 300 watt power controller

Installing the Luxor® ZD/ZDC Transformer

Step 1: Locating the Transformer

1. Locate transformer(s) in a well-ventilated area away from direct irrigation spray and central to the proposed installation site of the majority of the lighting fixtures. The primary goal is to minimize the length of cable runs from your transformer to the lighting fixtures, which minimizes voltage drop and cable size. A common mistake is to locate the single transformer on the service side of the house or in the garage, which might result in excessively long cable runs to reach lighted areas.

Transformer(s) with power cords must be located adjacent to a 120-volt GFCI-protected exterior electrical receptacle. If a 120-volt power source is not available at the desired transformer installation location, it is advised that you hire a licensed electrician to run a dedicated 120-volt, 15-amp circuit to the desired location. For the international/export Luxor version, the previously mentioned information applies for 230-volt, 10 amp circuits.

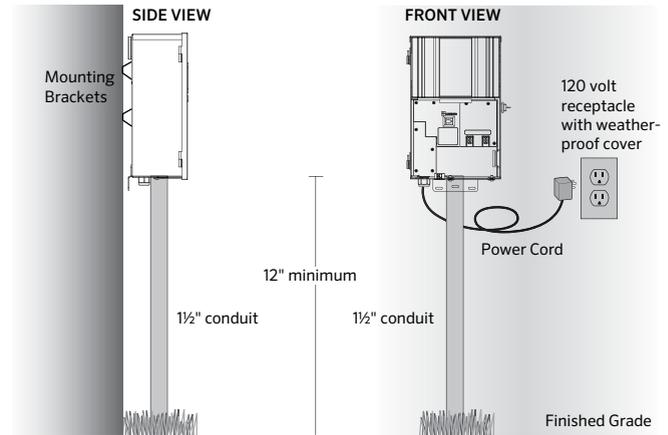
2. Test all existing receptacles with both a receptacle tester and a digital voltmeter or amp clamp to verify proper wiring and voltage at the receptacle.

Step 2: Mounting Transformers

Wall Mount Installation:

1. Install all transformers a minimum of 12" above finish grade, as measured from finish grade to the bottom of the transformer and according to code.
2. Drill pilot holes into mounting surface, insert anchors and install screws into anchors leaving approximately $\frac{1}{8}$ " of thread exposed on the screw. Mount transformer on screw.

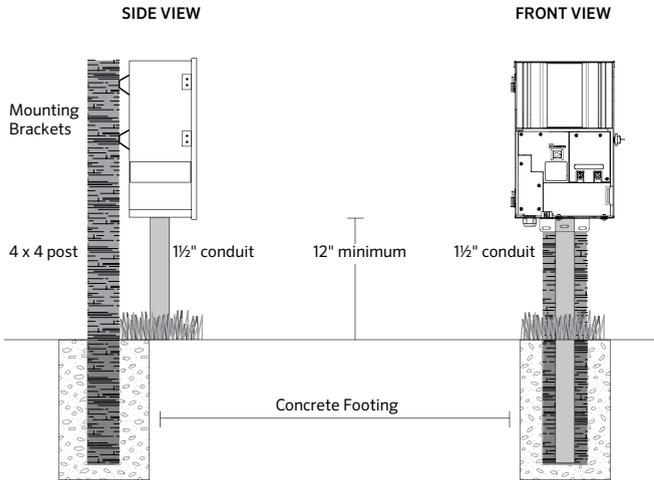
3. Use a level and a pencil to determine and mark locations for bottom anchors. Remove transformer from wall. Drill bottom anchor holes and install anchors.
4. Place transformer back on top of uppermost mounting screw and install screws into anchors at bottom of transformer to secure it to the wall.



NOTE: When installing the Luxor Wi-Fi module, consider increasing the installation height to improve signal strength and visibility of the screen.

Installing the Luxor® ZD/ZDC Transformer

Post Mount Installation: Install pressure treated 4" x 4" x 36" (min) post in concrete footing. Repeat wall mount installation instructions from page 5, without the use of wall anchors.



For additional information regarding installation techniques, visit www.fx1.com, and click on the Resources and Tools link.

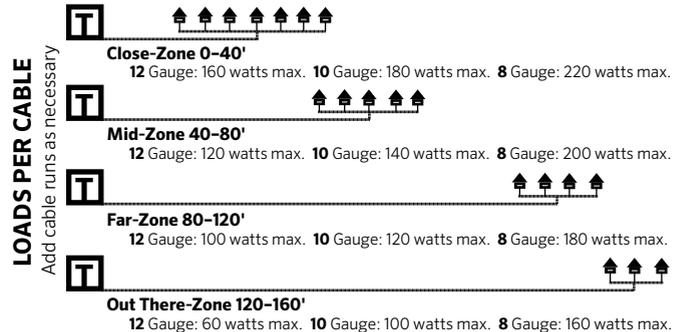
All Luxor Series Transformers come equipped with a 5-foot, 12-gauge, 3-prong electrical power cord. Only use the Luxor power cord in conjunction with a GFCI-protected 120 volt exterior receptacle (or 230 volt for international/export version).

Step 3: Running Cable to the Fixtures

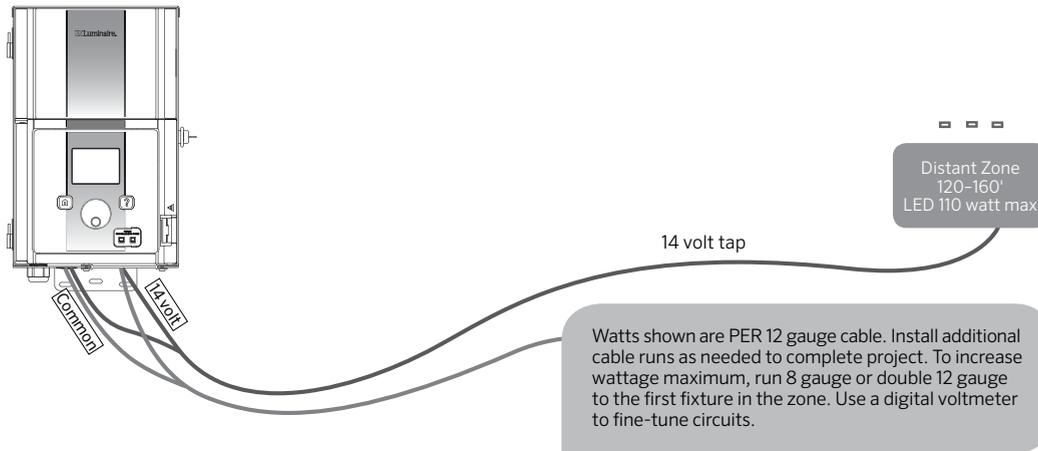
Once the transformer has been installed and determined all fixture locations, the next step is to run the correct size cable from the transformer to the fixtures. FX LED fixtures require between 10 and 15 volts for optimal operation and longevity. This is accomplished by the following:

1. Grouping fixtures into distance zones as illustrated below. Do not have a fixture that is 10 feet away from the transformer on the same cable run as one that is 100 feet away.
2. Use the proper cabling method for the application. Try to center-load all cable runs when possible to minimize the voltage differential between fixtures.
3. Use the correct size cable to accommodate voltage drop. As a general rule of thumb, limit the wattage load per cable run to no more than 160 watts.

CIRCUITING GUIDELINES



Installing the Luxor® ZD/ZDC Transformer



Summary

For maximum light output and LED life, each luminaire should be provided with between 10 to 15 volts.

Cable Stats

Low voltage lighting systems are typically installed using direct burial rated stranded cable. The most common cable used is referred to as 12/2 stranded cable. The size of cable used in wiring the lighting system will be determined by the wattage load and length of cable run from the transformer to the lighting fixtures.

It is very important to note that all low voltage cable has a maximum rating. Overloading cable can create a dangerous safety hazard so be sure to choose the proper size cable for your lighting system.

Installing the Luxor® ZD/ZDC Transformer

Low Voltage Cable

Each low voltage lighting cable consists of two parts. One part of the cable is designated to carry the voltage load and is referred to as the Common lead. The Common section is installed into one of the low volt Common lugs on the terminal block. The other section is referred to as the 14V lead and is installed into the lugs labeled 14V. Voltage is carried out from the transformer to the fixtures via the Common side of the cable and returns back to the transformer 14V tap via the other half of the cable, thus completing the circuit.

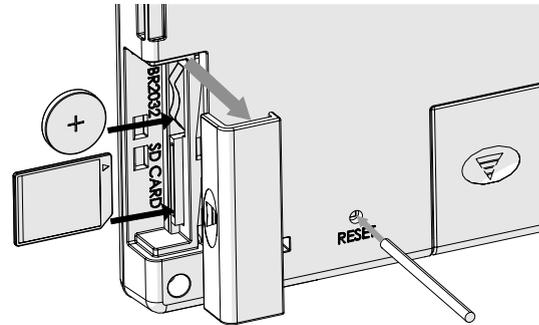
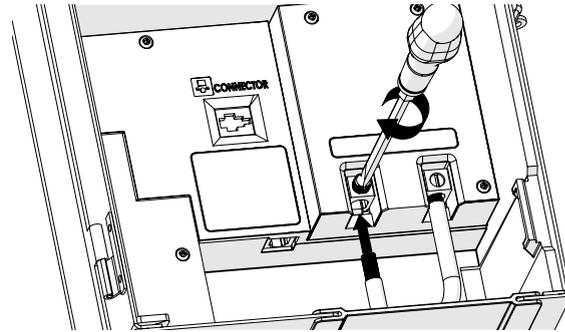
Cabling Methods

Within each cabling zone, you may utilize any of a number of cabling methods. The primary objective is to minimize voltage drop by installing the proper size feeder cable (home run) to each zone, and to make sure each fixture on each cable run is receiving between 10 and 15 volts. Center feeding the “home run” (the main cable run from the transformer to the first fixture on the circuit) will help minimize the voltage differential between the first fixture and the last fixture on the cable run.

Connecting Cables at the Terminal Block

Transformer terminal block: The Luxor Series Transformer includes one Common lug, and one 14V lug.

Common Lug: One conductor from each cable run coming from the lights to the transformer must be connected to one of the common lugs. The other conductor will be installed into the 14V hot lug.



Back of facepack showing SD Card, Battery Door, and Reset Button

Operating the Luxor® ZD/ZDC

Navigating the Luxor

The Luxor contains only three user interface elements:

- **HOME** button: opens main screen while on any other function
- **HELP** button: displays text about the current page
- Clickable scroll wheel: primary interaction and selection tool

HOME Screen

All functions on the Luxor are accessible through the **HOME** screen. The default display on the **HOME** screen includes the following:

- Current Time
- Current Date
- Sunrise/Sunset for the current day (dependent on location, see **SET LOCATION**)
- All category options are listed

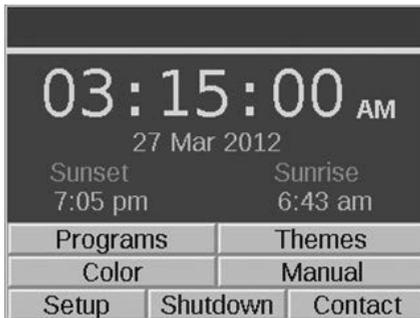


Figure 1: Home Screenshot

All category options are placed at the bottom of the **HOME** screen and are selected using the main scroll wheel. Turn the gray scroll wheel clockwise or counterclockwise until the desired category is highlighted in orange. Press the scroll wheel inward to select and enter the desired category.

- While in any screen, the **HOME** button can be pressed to return to the **HOME** screen.

Operating the Luxor® ZD/ZDC

ACTIVITY Screen

After five minutes of inactivity, an **ACTIVITY** screen will appear on the LCD screen if the lights are running. The wait time is reduced to only five seconds when the current screen is the **HOME** screen.

The **ACTIVITY** screen displays:

- All currently running groups with their intensity level. Three groups are shown in Figure 2, with a maximum of six groups viewable at any given time. Turn the clickable scroll wheel to show additional groups if more than six are in operation.
- Current Time
- System Load in Percent and Amps

No selections can be made on this screen; it is simply an activity display. Press the **HOME** button to return to the **HOME** screen.

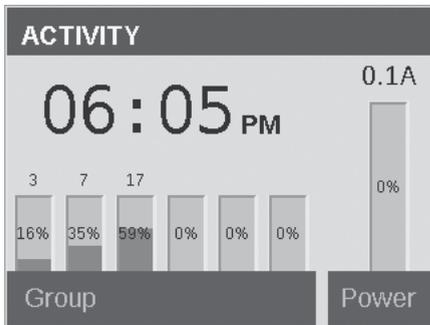


Figure 2: Activity Screenshot

DIAGNOSTICS Screen

Assigned

- Controller assigned

Communicating

- Controller communicating

Overload

- Controller overload indication

Load Status

- Controller load in percent

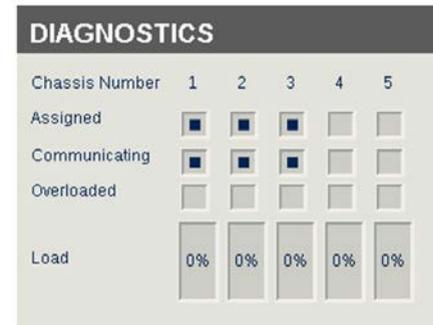


Figure 3: Diagnostics Screenshot

Operating the Luxor® ZD/ZDC

SETUP Screen

All background tools and settings (except color) are accessible in the **SETUP** screen. Scroll through the various options to set up the controller.

Time/Date

- Set the three time categories (Hr:Min:Sec) to the current time settings by pushing the scroll wheel when the appropriate field is highlighted, scrolling through the numeric options, and pressing the scroll wheel again to finalize the selection.
- Turn past 12 on the hour (“Hr”) setting to adjust AM and PM, as displayed next to the seconds (“Sec”).
- To convert clock to 24-hour convention, select the “24 Hour” selection box.
- Set the three date categories (Month, Day, Year) to the current date by pushing the scroll wheel when the appropriate field is highlighted, scrolling through the options, and pressing the scroll wheel again to finalize the selection.
- Setting the month, day and year automatically sets the day of the week which appears to the right of the year.
- Daylight savings time (DST), when activated, will adjust time forward or backward by 1 hour at the appropriate dates each year. To initiate it, select ON. To deactivate it, select OFF.



Figure 4: Setup Screenshot

Operating the Luxor® ZD/ZDC

Language

In the **SETUP** screen, select the language field by pressing the scroll wheel and turning it to the desired language. Press the scroll wheel again to finalize the selection.

- The language change will not take effect until either the **HELP** or the **HOME** buttons are pressed.

Location

The **LOCATION** menu is designed to graphically represent a Luxor's location on a map for accurate Sunrise and Sunset times based on the current date, time zone, and longitude/latitude settings.

First, set the time zone in the **SETUP** screen. While still in the **SETUP** screen, enter the **LOCATION** screen to adjust longitude and latitude coordinates.

- The full screen crosshairs designate the user's location on the map.
- Latitude is first adjusted by rotating the scroll wheel to move the crosshair up and down. Numeric indicators at the top right display the actual coordinate. Press the scroll wheel to select the Latitude; it is set by pressing the click-wheel.
- Longitude is next adjusted by rotating the scroll wheel to move the crosshairs left and right.
- The coordinate settings are automatically saved after each press of the scroll wheel. Select the **HOME** button to leave the **LOCATION** screen.
- Reset or adjustment is initiated by pressing the scroll wheel and then repeating the above Latitude and Longitude steps.

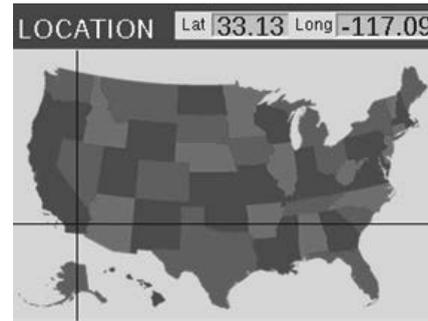


Figure 5: Location Map of US

Operating the Luxor® ZD/ZDC

Additional Countries

The USA map is the default country. To view additional countries, do one of the following:

- In the picture below, the Canadian map appears when the crosshairs reach the upward edge of the screen. To return to the map of the USA, move the crosshairs to the bottom of the screen. Only the USA and Canada maps are available for transformers shipped for 110V.
- For international versions (230V), select the desired region in the **SETUP** menu to view the appropriate map.

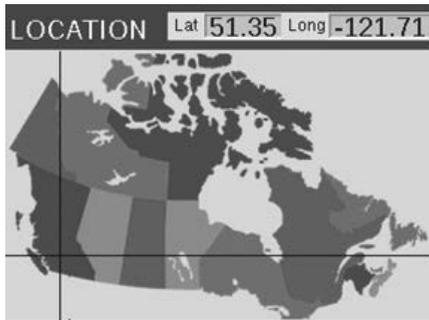


Figure 6: Location Map of Canada

Assign

When compatible fixtures are plugged into the fixture programming ports, the assign screen will automatically display. The **ASSIGN** screen is also accessible under the **SETUP** menu.

Network

The Wi-Fi or Ethernet tab will appear instead of “network” when the FX Wi-Fi module or FX LAN module is inserted into the accessory port in the back of the facepack. On ZDC systems the Wi-Fi tab is displayed in place of the network tab. For more information on using the Wi-Fi, refer to the separate owner’s manual for Luxor Wi-Fi.

Restrict

The restrict function prevents changes to themes.

- ① From the **HOME** screen, navigate to the **SETUP** and then **RESTRICT** screens using the scroll wheel.
- ② Select the box next to “Prevent the user changing themes.”
- ③ To remove the restriction, follow the same steps to restrict, but click the box next to “Allow themes to be changed...”

Operating the Luxor® ZD/ZDC

Backup

The backup function saves all user input information, including programs, themes, colors (ZDC only), and setup data. To create a backup file for your Luxor, follow the steps below.

- ① Remove the plastic cover from the side of the Luxor facepack and insert an SD card with the pins facing the front of the facepack. Press the card completely inward and then release. The card will lock into place.
- ② From the **HOME** screen, navigate to the **SETUP** and then **BACKUP** screens using the scroll wheel.
- ③ Input a file name for the backup file. You do not need to use all available spaces.
- ④ Press **BACKUP**.
- ⑤ After backup is successful, press the SD card inward and then release to remove the card from the facepack. Replace the cover to the facepack.

Restore an existing file, follow steps below:

- ① Remove the plastic cover from the side of the Luxor facepack and insert an SD card (pins facing the front) with the pre-loaded file. Press the card completely inward and then release. The card will lock into place.
- ② From the **HOME** screen, navigate to the **SETUP** and then **BACKUP** screens using the scroll wheel.
- ③ Input the file name of the desired database to restore. The filename must match exactly.
- ④ Press **RESTORE**.

- ⑤ After a successful restore, press the SD card inward and then release to remove the card from the facepack. Replace the cover to the facepack.

Contact Card

Every Luxor ships with the FX Technical Support contact information as the default image. The image is changed by following the steps below:

- ① Save desired image on an SD card. Images on the SD card that are not formatted correctly will not display. The saved image must have the following characteristics:
 - 320 X 240 pixels
 - 256 color bitmap
 - Landscape orientation
 - Named "contact.bmp"
- ② Remove the plastic cover from the side of the Luxor facepack.
- ③ From the **HOME** screen, navigate to the **SETUP** and then **CONTACT** screens using the scroll wheel.
- ③  Insert the SD card with the saved image. Press the card completely inward and then release. The card will lock into place.
- ⑤ Select the **LOAD** button using the scroll wheel. The image is now loaded. Press the **HOME** button and then the **CONTACT** button to see the new image.
- ⑥ Press the SD card inward and then release to remove the card from the facepack. Replace the cover to the facepack.

Operating the Luxor® ZD/ZDC

Assigning Light Fixtures into Groups

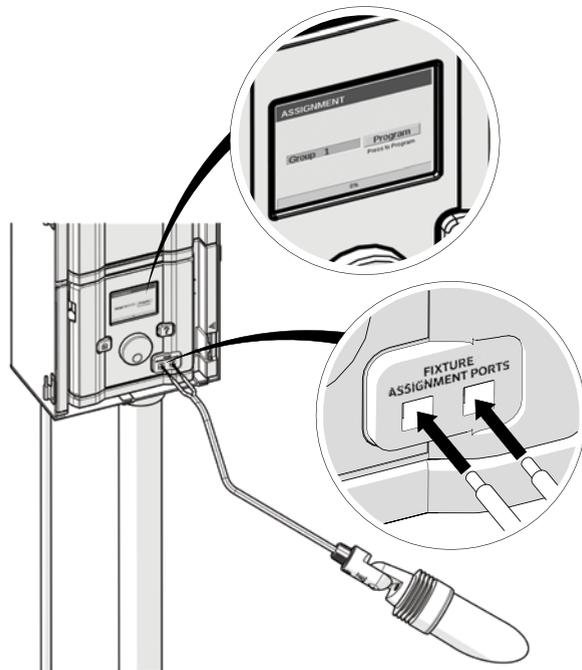


Figure 7: Fixture Assignment Wire Diagram

The lighting assignment screen is automatically displayed when an FX LED fixture or device containing FX Zoning, Dimming, or Color technology is connected into the assignment ports of the facepack. This mode can also be forced by navigating to **SETUP** and selecting **ASSIGN**.

- Enter this mode by placing two separate wires from a single FX LED fixture or device containing FX Zoning, Dimming, or Color technology into each of the assignment ports on the front of the facepack. The wires must maintain contact inside the assignment ports during the entire process.
- Navigate to **PROGRAM** and press the scroll wheel to initiate assignment. When complete, the screen will show “Assignment Successful” or “Assignment Failed.” If failed, reposition wires and try again. If the problem persists, the board or device may either be defective or not programmable.
- The assigned group number is stored in the device and not in the facepack. Thus, power loss or other errors within the Luxor controller will not affect the fixture assignment. If a device (LED board, lamp, CUBE, etc.) is replaced, the new device must be programmed to the desired group number.

NOTE: Only one fixture can be addressed at a time. Attempting to address more than one fixture at a time can result in assignment failures.

Operating the Luxor® ZD/ZDC

Setting up Programs

The **PROGRAMS** screen is where all daily running programs are set up. Programs are set by calling up fixtures that have been assigned to groups or themes. For more about assigning fixtures to groups, see “Assigning Light Fixtures into Groups.”

- Each program is designated by a letter (“A” through “G”) at the top right section of the screen. Select the desired letter using the scroll wheel prior to selecting the days of the week.
- Selecting days of the week designates which days the program will run based on the event settings. Select or remove each day by highlighting the corresponding box over each day with the scroll wheel and pushing to select or deselect.
- The event time specifies what time a specific action will occur. Every event must have an initiation time. The fixtures affected by the event are selected by the user’s choice of a group, theme, or all lights under the “Group/Theme” column. For ZDC systems, a color column is available. Lastly, the intensity is required for groups and “all lights” or on/off for themes.
- Multiple events can be created to initiate/change various intensities, but must be designated to “off” using a separate event in order for them to extinguish.
- In addition to a fixed time setting for an event, a Sunrise or Sunset setting is available for each event. This is based on astronomical timing determined by the set location of the unit. The unit must have a location setting under **SETUP** in order for it to accurately adjust at the actual Sunrise or Sunset times.

NOTE ON DAY BEGINNING AND END: Days within the Luxor are designated to start and end at noon (12:00 p.m.). This allows lights to continue running after midnight within a single day’s program setting.



Figure 8: Programs Screenshot

Themes

A theme is a planned set of groups at stated colors (ZDC only) and intensities. A user can call up themes in the **PROGRAM** menu for quick setting of a series of groups, or in the **MANUAL** menu for on-demand control. Common uses for themes include location-based (e.g. gazebo) and lifestyle-based (e.g. vacation, party, etc.).

- Themes are set initially by selecting the **THEME** function from the **HOME** screen.
- Each theme is designated by a letter (“A” through “Z”) at the top right section of the screen. Select the desired letter using the scroll wheel.
- Enter the various groups selected for the theme, with corresponding colors (ZDC only) and intensities.

Operating the Luxor® ZD/ZDC

- Select the **TEST THEME** checkbox to temporarily turn on all groups that have been set in a theme. While the “test theme” function is active, the user can make adjustments to the theme and see the changes in real time. Test theme function will end when a key has not been pressed for 5 minutes, the home key is pressed, or another theme is selected.
- To completely clear the theme, select the **ERASE** button. The erase function not only clears all fields in the theme, but it also removes the erased theme from any existing programs.

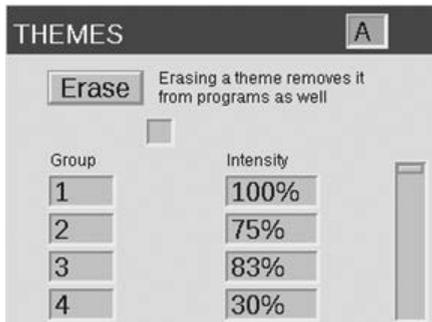


Figure 9: Themes Screenshot

Manual Mode

The manual mode is used to turn on and adjust lights outside of the set programs. Manual settings will always take precedence over any currently running programs.

- ① From the **HOME** screen, navigate to the **MANUAL** screen using the scroll wheel.

- ② Designate a group number and then the intensity at which the given group should be illuminated. For ZDC, a color number from the color library is required as well.
- ③ Set the duration, or the amount of time that the group will run.
- ④ Navigate to and select the **START** button with the scroll-wheel.
- ⑤ To stop the countdown, the **STOP** button should be activated. This will only pause to allow for adjustments and should not delete any settings above.

If the group is currently running within a program, the Manual setting will take precedence.

When the manual settings are finished, the regularly scheduled program will immediately continue its operation at the next event time, even if it was interrupted.

After manual settings have been started, the intensity and time can be adjusted while it is still running.

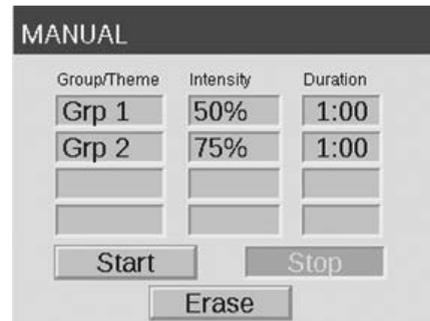
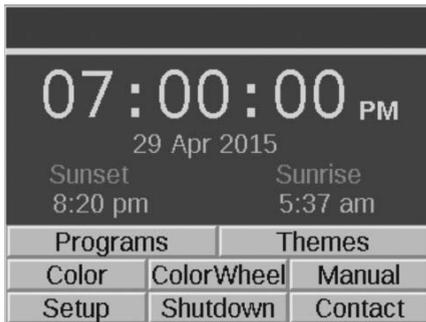


Figure 10: Manual Screenshot

Operating the Luxor® ZD/ZDC

Color

The Luxor ZDC system adds color to existing zoning and dimming options. A color system requires that a ZDC LED board is installed into each desired FX LED fixture. It also requires replacing the existing Luxor ZD facepack with a Luxor ZDC facepack. Standard and ZD enabled FX fixtures will zone and zone/dim (respectively) on a ZDC facepack, but color is achieved only through the use of specific ZDC LED boards. The ZDC screen layout is similar to that of the standard ZD, with a few additional features.



Color Palette

Colors are selected on the Color Palette screen. The Luxor can store up to 250 preset colors, labeled numerically as seen in Fig. 10. Each color requires hue and saturation values. Hue is the primary attribute of a color. The selected value is found on the standard color wheel and is represented by numeric values between 0 and 359. Saturation is the percentage of hue seen with white light filling in the remainder (e.g. 80% saturation is 80% of the selected hue and 20% of white light).

Label	Color	Hue(Deg)	Sat(%)	Test Grp
C1		16	80	Off
C2		59	40	Off
C3		167	20	Off
C4		340	95	Off

Figure 11: Color Palette Screenshot

- Access the color palette by selecting the **COLOR** function from the **HOME** screen.
- Only four colors are displayed at a time. Turn the scroll wheel clockwise to access the remaining 246 color labels.
- Use the scroll wheel to highlight the desired color label (e.g. C1). Adjust the Hue/Saturation settings using one of two methods:
 1. **Color Swatch:** Scroll one click to the right to highlight the color swatch and press the scroll wheel to open the Color Selection screen. Adjust the hue (top) and/or saturation (bottom) by selecting the appropriate chart, scrolling left or right until the desired setting is located, and pressing the scroll wheel again to finalize the setting.
 2. **Hue/Sat Values:** Scroll to highlight the hue or saturation numeric values. Press the scroll wheel to select, then scroll to select the desired values. Press scroll wheel again to finalize the setting.

Operating the Luxor® ZD/ZDC

- The test group column allows the user to view the created color of a specific group. The color will remain active until the color palette screen is exited or the test group is set to off. Scroll to the test group box and select a group to activate a color label onto that group.
- Changes to colors in real time are made when the color is active through a test group, a theme, a program, or a manual program.

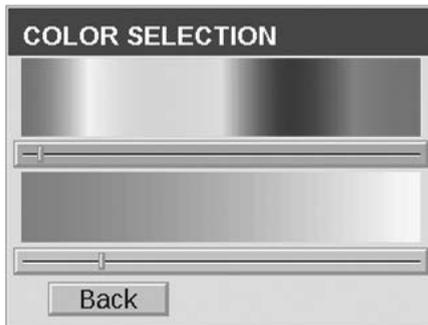


Figure 12: Color Selection Screenshot



Incorporating Color into Luxor

With color, the basic principles of Luxor remain the same: fixtures are assigned to groups, groups are built into themes, and programs incorporate a variety of themes and groups as events throughout the evening. Color is just one more added variable.

Themes now require an assigned color along with the intensity. The color swatch is always displayed next to the color label for an

easy reference. Refer to the Themes section in this guide for more information regarding themes.

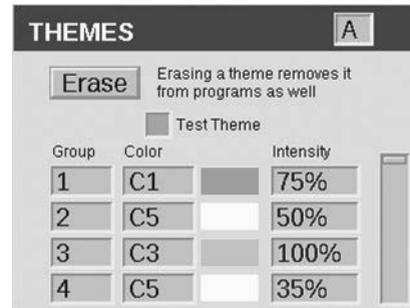


Figure 13: Color Palette Screenshot

For programs, each event time requires a fixture category (e.g. group, theme, or all lights), a color, and an intensity. Refer to the Programs section in this guide for more information regarding programs.

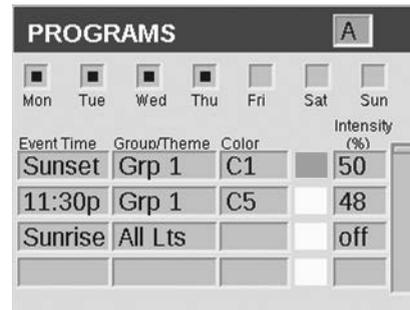


Figure 14: Programs Screenshot on ZDC Luxor

Operating the Luxor® ZD/ZDC

Lastly, the manual mode is used as an override to existing programs. Groups and “all lights” are assigned a color, intensity, and duration, but themes are not, because each theme is built with user-defined colors already. Refer to the manual section in this guide for more information regarding manual mode.

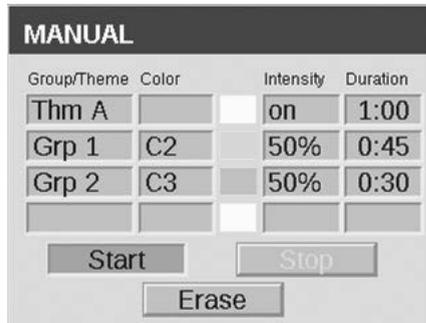


Figure 15: Programs Screenshot on ZDC Luxor

Color Wheel

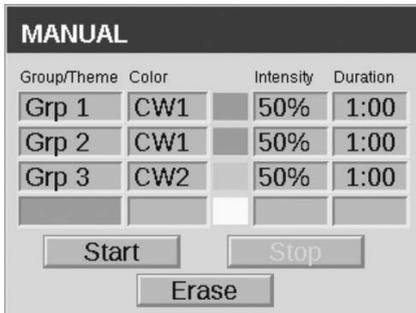
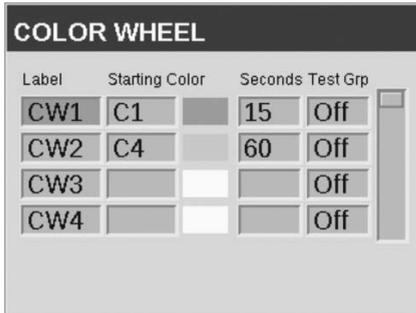
The color wheel feature scans through all 300 hues constantly at intervals determined by the user. The scan is applied at the group level, allowing various groups to cycle at different colors and rates.

- ① Access the color wheel menu by selecting the **COLOR WHEEL** function from the **HOME** screen.
- ② Choose a label for your wheel (e.g. CW2)
- ③ Select a starting color. This is a user-defined color from the **COLOR Palette** menu.
- ④ Select the number of seconds in which the Luxor will scan through all 300 hues, beginning first at the "Starting Color". For rapid color changes, choose a lower number of seconds.
- ⑤ Apply the color wheel into programs, themes, and manual modes using the same principles described in the "Incorporating Color into the Luxor" section on page 18. Rather than applying a single color to each group (e.g. C1), scroll the reverse direction to apply a color wheel (e.g. CW1).



NOTE: Color and non-color LED boards must be assigned to different groups.

Operating the Luxor® ZD/ZDC



Mixing FX LED, ZD, and ZDC

FX offers a variety of LED boards with ascending functionality when used on the Luxor. The standard board is zoneable, the ZD board offers zoning and dimming, and ZDC encompasses the first two and adds color to the mix.

	Standard	ZD	ZDC
Zoning	●	●	●
Dimming		●	●
Color			●

When a standard FX LED or ZD board is put onto a Luxor ZDC system, the board can operate only at its designed potential. Therefore, a user can assign a standard board to groups, but is unable to dim or change colors using the Luxor. Likewise, the ZD boards are zoneable and dimmable, but not color changing. Only the ZDC board is capable of performing all three functions. Conversely, if a ZDC board is placed on a ZD system, the board is placed into zones and is capable of dimming, but will display only a standard white color.

When "all lights on" is activated in the manual mode with an assigned color, non-color lights (e.g. standard and ZD) will not turn on. Select the white color (0 hue and 0 sat) to ensure all lights come on in this mode.

Operating the Luxor® ZD/ZDC

Using Other Devices with the Luxor

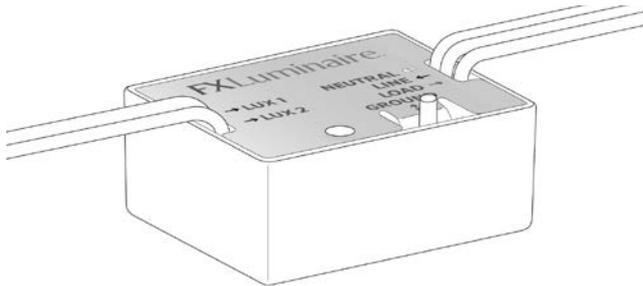
The Luxor can communicate with devices other than FX integrated LED boards. Two of those devices include the Luxor CUBE and the Luxor ZD MR-16.

CUBE

The Luxor CUBE allows the Luxor ZD and ZDC to control, zone, and dim lighting fixtures and other devices that don't have built-in FX ZD technology. Install the CUBE in-line prior to the fixtures or devices you wish to control as a zone. When that zone is activated by the Luxor, all fixtures or devices in-line after the CUBE will initiate and dim according to the commands of the Luxor.

The cube is offered in three models to ensure maximum flexibility:

- Low Voltage Lighting (LCM-LV)
- Line Voltage Lighting (LCM-HV)
- Relay and 0-10V Dimming (LCM-RLY-010V)



ZD MR-16

The ZD MR-16 is a convenient high-quality LED replacement lamp that converts incandescent fixtures to energy-efficient LED fixtures. When connected to a Luxor ZD transformer, the ZD MR-16 adds zoning, dimming, and control capabilities to any brand of low voltage landscape lighting fixture utilizing an MR-16 socket.



Operating the Luxor® ZD/ZDC

Shutdown

The **SHUTDOWN** menu option is a way to completely shut down all lighting events in the **MANUAL** and **PROGRAM** modes regardless of time or status, indefinitely. This mode does not turn off the unit but rather suspends all lighting events until the user decides to reactivate. The lights will remain off after a reactivation is executed and will not turn back on until the next event (program or manual) occurs.

- ① **SHUTDOWN** is accessed from the **HOME** screen.
- ② When **OFF** is initiated via pressing the scroll wheel, the unit will immediately shut down all fixtures in **PROGRAMS, MANUAL** or **THEMES**.
- ③ While **OFF** is initiated, all lights will remain off and the lights will not reactivate until **REACTIVATE** is selected. If in the **OFF** state and a manual event is initiated, it will run until finished or another **SHUTDOWN** is performed.
- ④ The **HOME** screen will show "**OFF**" in place of the current time when the unit is shut down.

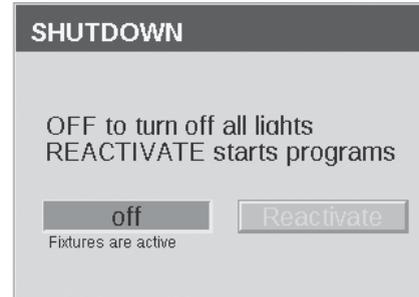


Figure 16: Shutdown Screenshot

Luxor Linking Setup

Linking allows for a single point of control for sites that require multiple Luxor ZDs or Luxor ZDCs. Primary and Satellite controllers are linked using a Cat5 connection. A linking system can contain a total of nine Satellite controllers.

Primary Controller- Luxor installed with Facepack. Linking firmware is required for both Facepack and Chassis

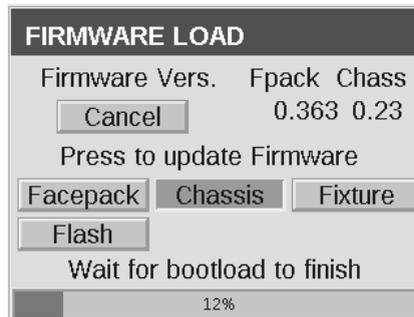
Satellite Controller- No Facepack installed. Linking firmware is required for Chassis

Note: Prior to running a Linking system, verify Primary and Satellite Luxors have the latest version of linking firmware for both the Facepack and Chassis.

Updating to Luxor Linking

- ① From Luxor ZD and Luxor ZDC product pages, download the latest Facepack and Chassis Luxor Linking firmware onto an SD Card.
- ② Update Facepack firmware
- ③ Update Chassis firmware

Chassis firmware updates take about 15 minutes. The Progress Bar, shown at the bottom of Facepack, indicates the progress of the firmware update. Do not unplug power or Cat5 connections while firmware updates are in process.



Note: More information on updating firmware can be found under Care and Maintenance - Firmware Updates

Luxor Linking Setup

Connecting Satellite Controllers

- ① Disconnect power to Primary and Satellite controllers.
- ② Insert one end of Cat5 cable into "Linking Port" of Primary Controller.

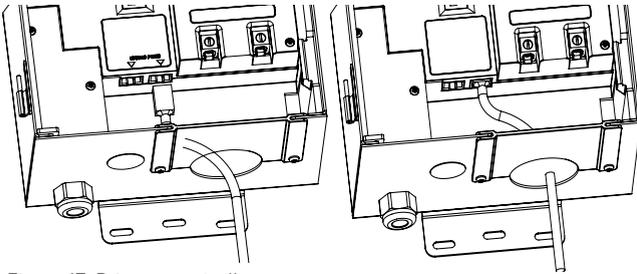


Figure 17: Primary controller

- ③ Insert opposite end of Cat5 cable into "Linking Port" of desired Satellite controller.

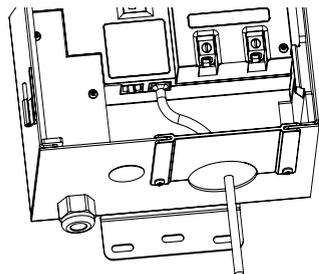


Figure 18: Satellite controller

- ④ If site requires multiple Satellite controllers, insert new Cat5 cable into unused "Linking Port" of previous Satellite controller.

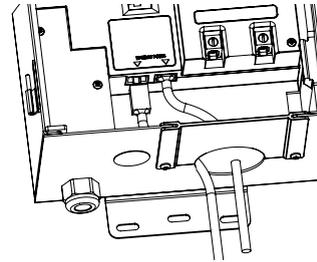


Figure 19: Satellite controller

- ⑤ Insert opposite end of Cat5 cable into unused "Linking Port" of next Satellite controller

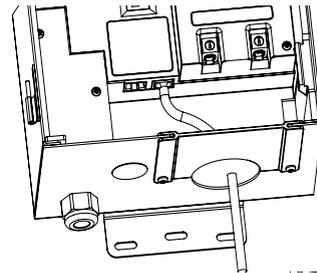


Figure 20: Satellite controller

Continue this connection method until all Satellite units are installed in series with the Primary controller

Luxor Linking Setup

Chassis Communication and Assignment

- ① Apply power to Primary controller
- ② On Facepack diagnostic screen, verify Primary controller has been "Assigned" and is "Communicating"

DIAGNOSTICS					
Chassis Number	1	2	3	4	5
Assigned	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communicating	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overloaded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Load	0%	0%	0%	0%	0%

- ③ Apply power to Satellite controllers
- ④ On Facepack diagnostic screen, verify Satellite controllers have been "Assigned" and are "Communicating"

DIAGNOSTICS					
Chassis Number	1	2	3	4	5
Assigned	<input checked="" type="checkbox"/>				
Communicating	<input checked="" type="checkbox"/>				
Overloaded	<input type="checkbox"/>				
Load	0%	0%	0%	0%	0%

Before proceeding, confirm that the number of total Chassis' assigned and communicating equal the total number of Primary and Satellite controller.

Note: The assigned Chassis numbers do not always correspond with the installed Primary and Satellite controllers shown on the display.

Care and Maintenance

Regular Preventative Maintenance

Perform the following regular preventative maintenance procedure:

Category	Description	Timeline
Transformer	Tighten all terminal lugs	Annually
	Blow out all bugs and webs	Annually
Fixtures	Clean dirty lenses to minimize calcium deposits	Annually
	Straighten all pathway lights	Quarterly
	Trim all plant material as needed; relocate fixtures as needed as plant materials mature	Quarterly
	Clean debris off well light lenses and grates	Quarterly
	Check cable and cable connectors	Annually
	Rebury cable and connectors that may have crept to the surface	Semi-annually
	Check aiming angles	Semi-annually
Check, adjust, and replace all cable and cable ties in trees	As needed	



IMPORTANT: When replacing LED boards, be sure to replace with FX LED boards. Use of other brands may cause the unit to malfunction.

Care and Maintenance

Troubleshooting

Problem	Cause	Resolution
Error Message: "Overload" (Uppercase "O")	An uppercase "O" overload indicates current far in excess of normal operating current, typically caused by a short circuit. This is controlled by a hardware circuit and trips the overload immediately.	Check for shorts in the line. Resolve or repair the short circuit.
Error Message: "overload" (Lowercase "o")	A lowercase "o" overload indicates a current in excess of the rated current, but not as much as the uppercase "O". For 150w transformers the limit is 11 Amps, and for 300w transformers the limit is 22 Amps. For this current to trip the overload, it must be continually above these values for 1 second.	Reduce the number of fixtures by one, turning on, and repeating until the "overload" does not occur. Resolve/repair the short circuit.
Error Message: "No Wi-Fi Card Present."	Wi-Fi card not detected.	Pull out the Wi-Fi Card and re-insert. If problem persists, replace with a new Wi-Fi card.
Error Message: "Communications Failure."	Communication between the facepack and chassis is not present.	Replace the cable connecting the facepack to the chassis. If problem persists, call technical services.
Transformer will not turn off when program is complete.	No off time programmed.	Go to programs and add an event time with an intensity of zero for your off time.
The transformer's display is on, but no fixtures are on.	The transformer's fuse has blown.	Replace fuse in transformer.

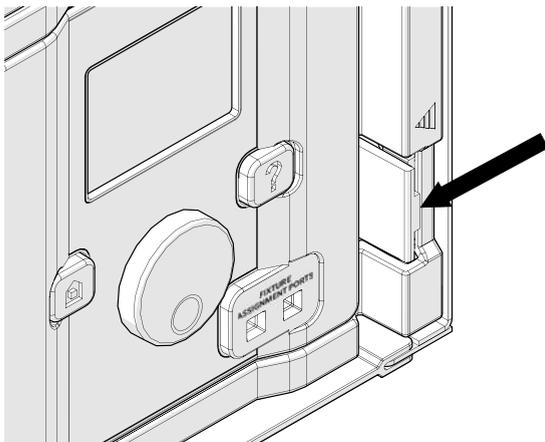
NOTE: Shorts and overloads are NOT covered by the FX warranty and can be detected only when the transformer is tested in the field. Periodic system maintenance is required to keep your FX lighting system operating at peak performance. Practicing these maintenance suggestions will lengthen the life and enjoyment of your lighting design.

Care and Maintenance

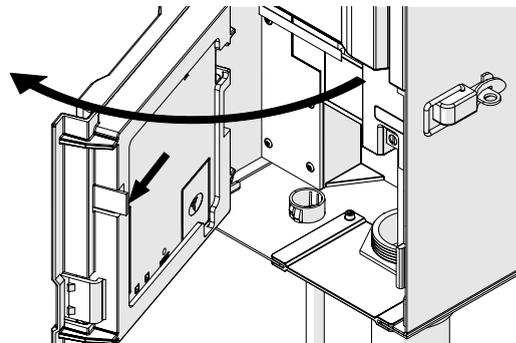
Firmware Updates

Firmware updates are occasionally released to add features or enhance the Luxor® functionality. To update the facepack, chassis, or flash firmware on the Luxor, an SD card is required to transfer the data from a computer to the facepack.

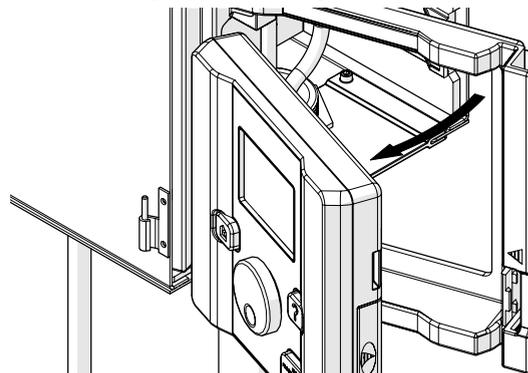
- ① Go to the FX Luminaire website (fxl.com) and navigate to the Luxor product page. The firmware update files are located under the **RESOURCES** tab.
- ② Save the desired firmware onto an SD card.



- ③ Remove the facepack from the chassis by pulling on the tab to the right of the facepack and swinging the facepack door open.

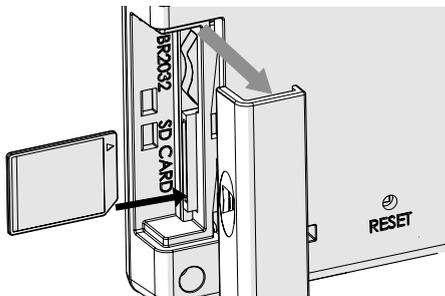


- ④ Pull the black tab outward, while simultaneously pushing the facepack through the door carriage.

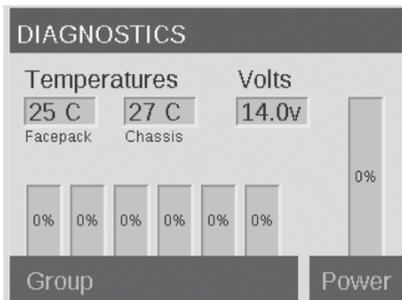


Care and Maintenance

- ⑤ Remove the SD card slot cover by sliding cover toward the back of the facepack.
- ⑥ Insert the SD card with the pins facing the front of the facepack, pressing completely inward and then release to lock card into place.



- ⑦ From the **HOME** screen, push both the **HOME** button and the ? ("**HELP**") button simultaneously to bring up the **DIAGNOSTICS** screen.



- ⑧ Wait two seconds and press the center scroll wheel to enter the firmware load screen.
- ⑨ Navigate to the desired update type and press the scroll wheel to select. The facepack and flash update processes usually take between 5 and 15 seconds, chassis updates typically take a couple of minutes, and fixture updates can take up to 15 minutes.

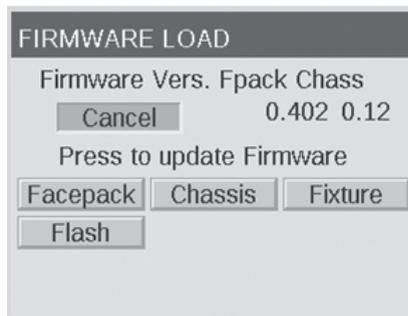


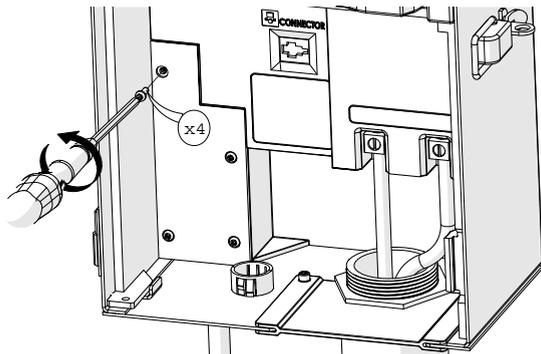
Figure 17: Firmware Load Screenshot

Care and Maintenance

Fuse Replacement

If the unit is powering on, but the fixtures attached are not receiving power, the fuse may need to be replaced. To replace, follow the directions below:

- ① Unplug the Luxor® ZD from power.
- ② Remove all wires from common and 14V terminals on the chassis.
- ③ Remove four screws from the fuse cover.
- ④ Remove and replace the fuse with the following specifications:
 - 5 X 20 mm
 - 250V
 - 10 Amp
 - UL Rated
- ⑤ Replace the cover and 4 screws, reattach fixture wires, and restore power to the unit.

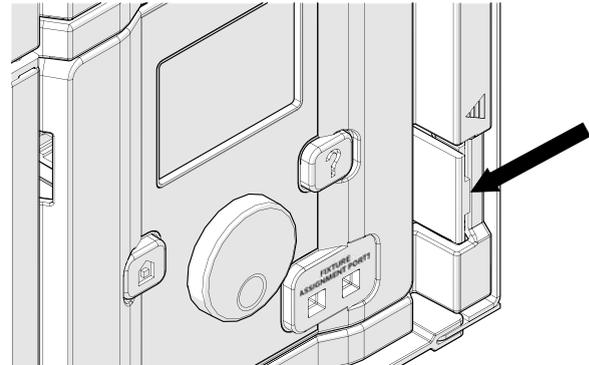


System Reset

There are two types of system resets: facepack reset and database reset. The facepack reset simply removes power to the facepack and restarts the firmware. A database reset deletes the entire database to allow the user to start from scratch. All program data is lost during a database reset, but fixture assignments remain intact.

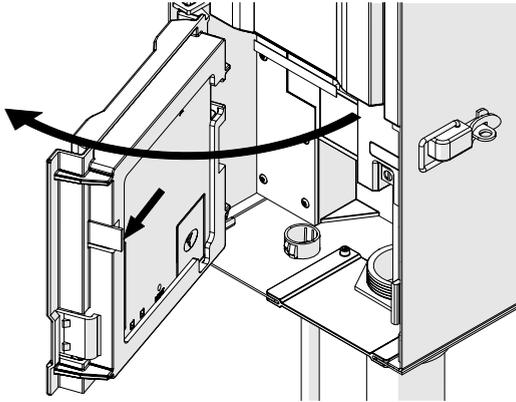
Facepack Reset

- ① Remove the facepack from the chassis by pulling on the tab to the right of the facepack.

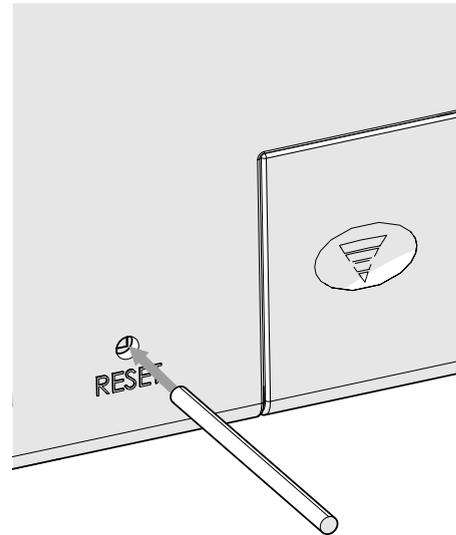


Care and Maintenance

- ② Swing the facepack door open.



- ③ Locate a paperclip, pen tip, or other small point tool.
④ Locate the reset button on the back of the facepack.
⑤ Press and hold the reset button for two seconds using the selected tool.



Care and Maintenance

Database Reset

- ① From the **HOME** screen, push both the **HOME** button and the **? (“HELP”)** button simultaneously to bring up the **DIAGNOSTICS** screen (Figure 12).
- ② Wait two seconds and press the center scroll wheel to enter the firmware load screen (Figure 13).
- ③ Press the **? (“HELP”)** button.
- ④ Navigate to the **CLEAR** option and press the scroll wheel (Figure 17).

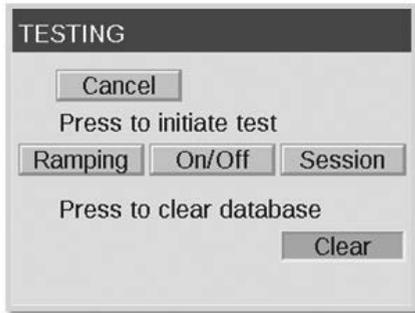


Figure 18: Engineering Testing Screenshot



NOTE: Clearing the database does not erase fixture group assignments. See page 14 for more information.

Chassis Indicator Lights

An indicator light displays the communication status of the chassis to the facepack. The following colors indicate the accompanying status:

- **BLINKING GREEN:** Communication established
- **AMBER:** Communication error/facepack unplugged
- **RED:** Short or Overload detected on the system

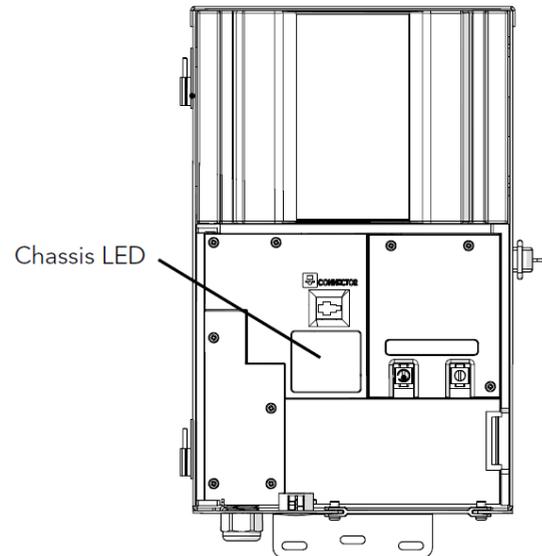


Figure 21: Chassis Indicator Lights

Warranty

Warranty

Hunter Industries Incorporated (“Hunter”) warrants FX Luminaire (“FX”) Transformers to be free of defects in materials or workmanship under normal use for a period of ten (10) years from the original date of installation. Hunter warrants FX Low Voltage Lighting Fixtures to be free of defects in materials or workmanship under normal use for a period of three (3) years from the original date of installation. Hunter extends the warranty on FX Fixtures to ten (10) years from the original date of installation when both FX Fixtures and Transformers are installed on the same project exclusive of any competitor’s product. Hunter warrants FX LED Fixtures to be free of defects in materials or workmanship under normal use for a period of ten (10) years from the original date of installation. If a defect in an FX product is discovered during the applicable warranty period, Hunter will repair or replace, at its option, the product or the defective part. This warranty does not extend to repairs, adjustments, or replacement of an FX product or part that results from misuse, negligence, alteration, modification, tampering, or improper installation and/or maintenance of the product. This warranty extends only to the original installer of the FX product. If a defect arises in an FX product or part during the warranty period, you should contact your local FX Authorized Distributor.

FX LUMINAIRE’S OBLIGATION TO REPAIR OR REPLACE ITS PRODUCTS AS SET FORTH ABOVE IS THE SOLE AND EXCLUSIVE WARRANTY SET FORTH BY FX. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. FX WILL NOT BE LIABLE TO DISTRIBUTOR OR ANY OTHER PARTY IN STRICT LIABILITY, TORT, CONTRACT, OR ANY OTHER MANNER FOR DAMAGES CAUSED OR CLAIMED TO BE CAUSED AS A RESULT OF ANY DESIGN OR DEFECT IN FX LUMINAIRE’S PRODUCTS, OR FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES OF ANY NATURE, INCLUDING WITHOUT LIMITATION LOST BUSINESS OR PROFITS. NOT WITHSTANDING THE FOREGOING, IF FOR ANY REASON FX IS FOUND TO BE LIABLE IN NO EVENT SHALL FX’S LIABILITY EXCEED THE PRICE OF THE PRODUCT WHICH GIVES RISE TO THE CLAIM, LOSS, OR DAMAGE.

Warranty

Any FX Luminaire product being returned must receive a Return Goods Authorization number from Hunter Customer Service prior to returning the product. All returned product is subject to a 25 percent restocking fee. Product must be returned within six (6) months of order date. All product returned must be in its original packaging, be undamaged and unused and never energized. Product not meeting these criteria will be returned to original sender. Hunter Industries is not responsible for product loss or damage during return transit to RMA location.

If you have any questions concerning the warranty or its application, please write to: Customer Service Department, FX Luminaire, 1940 Diamond Street, San Marcos, CA 92078, USA

Find more helpful information on your product; tips on installation, controller programming and more...



fxl.com/luxorhelp



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