LUXOR *ZD*

Hunter® | **FX**Luminaire.

TABLE OF CONTENTS

FX LUMINAIRE LUXOR SERIES TRANSFORMER COMPONENTS

Core Cover

Chassis

Facepack Connection

Chassis LED

Terminal Blocks

Fuse Cover

Facepack

LCD Screen

Home Button

Help Button

Clickable Scroll Wheel

Fixture Programming Ports
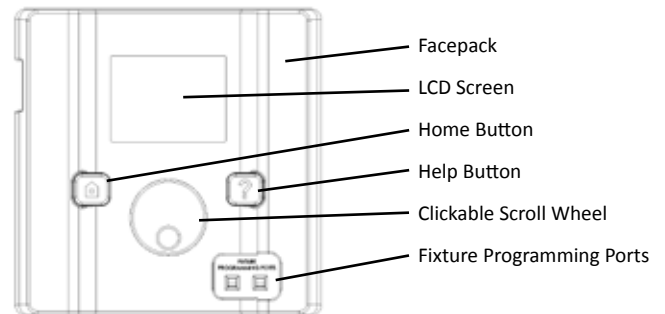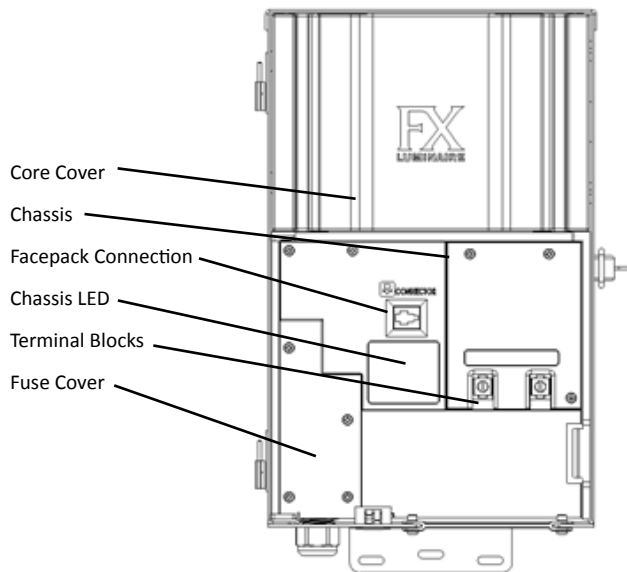
LUXOR ZD OVERVIEW

The Luxor ZD 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. For best results use high quality, waterproof, UL rated wire splices and proper wiring techniques for good communication to fixtures and long service life.

> ⚠️ **NOTE: The Luxor is only intended for use with FX ZD LED Fixtures. Use of other fixtures is not recommended due to the absence of communication capabilities. The Luxor is not for use with incandescent fixtures.**

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 and intensities that can be called to action by the Program setting.

Fixture/Luminaire – Light unit that contains an FX ZD LED board.

Intensity – Value rating from 1-100% of a fixture's dimming capability.

Event – A single setting of a Group (on/off/change in intensity) within the MANUAL or PROGRAM function.

Securing the Transformer

1. The LZD150 and LZD300 must be secured to an external or internal wall, at least 12 inches above grade.

2. The unit should never be left unattended without the door attached and securely fastened using the attached door latch.

Connecting Fixtures

1. The Luxor is only intended to be used with FX ZD LED Low Voltage Landscape Luminaires that are intended to be run on voltage not exceeding 15V.

2. Connect one side of the paired run wire to the left side common terminal and the other side to the right side 14V terminal.

3. Secure each cable with the standard set screw on each terminal.

Powering ON the Unit

1. Connect the Luxor to a 120V GFCI receptacle.

2. The unit will power on with the main LCD screen illuminating.

3. On the chassis, behind the main facepack, a Green LED will be flashing to indicate power.

Determining Shorts and Overload Conditions

1. If the unit has been overloaded above its rated 150 watt or 300 watt respective version, the unit will fault to "Error Overloaded".

2. When this occurs the unit will shut off power to all fixtures and show "Error Overload on the LCD Screen."

3. The chassis LED will illuminate in RED.

4. Once the short or overload has been remedied, press the HOME button to restore power and navigate away from the Error Screen.

LUXOR ZD OVERVIEW

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

Replace the cover and 4 screws, reattach fixture wires and restore power to the unit.
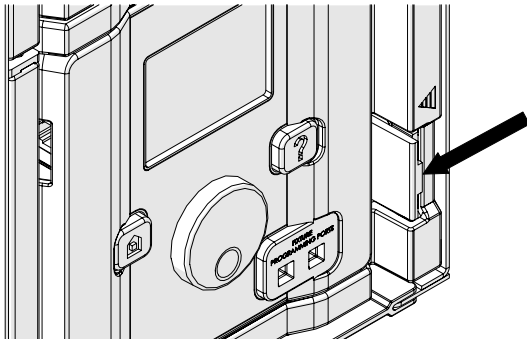
Figure 1.
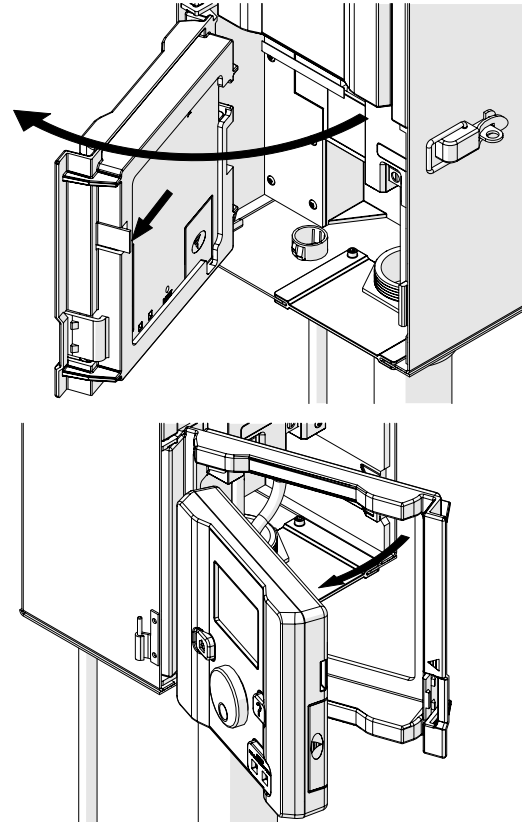
Figure 2. Facepack removal requires latch to be pressed from the inside in order to release from frame.

LUXOR ZD OVERVIEW

Figure 3.

Chassis LED
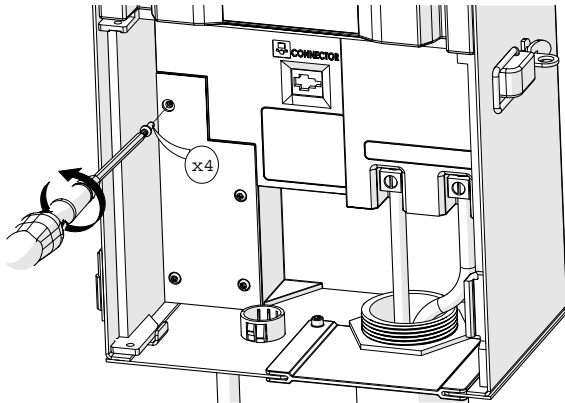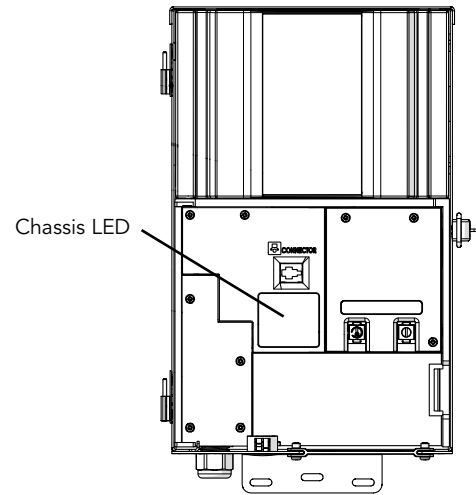
Figure 4.

Chassis Indicator Lights

LEFT ROW

- BLINKING GREEN – Communication established

- AMBER – Communication error / facepack unplugged

- RED – Short or Overload detected on the system

Control Buttons

- HOME – Brings MENU screen up while on any other function screen

- HELP – Displays text about the current function

- Clickable Scroll Wheel – Main interaction and selection input

INSTALLING THE LUXOR ZD TRANSFORMER

Step 1 – Locating the Transformer

Locate transformer(s) in a well-ventilated area away from direct irrigation spray and central to where the majority of the lighting fixtures will be installed. The goal is to minimize the length of cable runs from your transformer to the lighting fixtures, which minimizes voltage drop and cable size.

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.

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.

When using only one transformer, it is very important to center the transformer on the wattage load. If the project calls for 135 watts in both front and back yard, the LUXOR Series Transformer should be centered on the side of the house that will receive the most lighting. 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. The primary goal in laying out low voltage systems is to minimize cable runs because of voltage.

Step 2 – Mounting Transformers

Wall Mount – By code, all transformers must be installed a minimum of 12" above finish grade as measured from finish grade to the bottom of the transformer. Drill pilot holes into mounting surface, insert anchors and install screws into anchors leaving approximately 1/8" of thread exposed on the screw. Mount transformer on screws.

Mark locations for bottom anchors with permanent marker. Remove transformer from wall. Drill bottom anchor holes and install anchors. Place transformer back on top of anchors and install screw(s) into anchors at bottom of transformer to secure it to the wall.
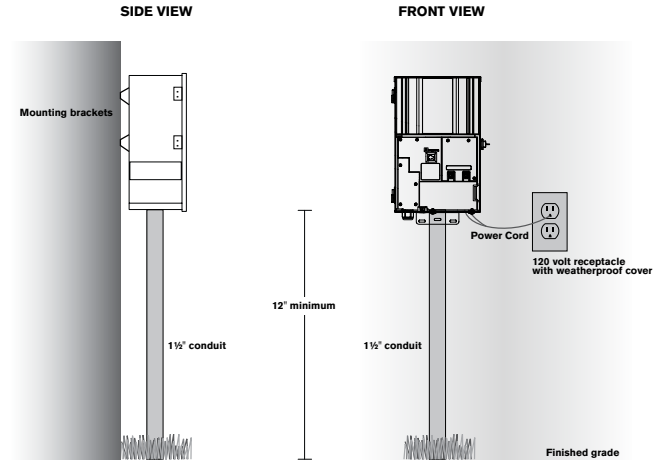
Post Mount Installation: Install pressure treated 4" x 4" x 36" (min) post in concrete footing. Install single anchor screw 11/2"–2" below the top of post. Place transformer on screw. Once level, secure transformer to post by installing 1 or 2 screws on the bottom-mounting bracket.

INSTALLING THE LUXOR ZD TRANSFORMER

SIDE VIEW   FRONT VIEW

Mounting brackets

4 x 4 post   1½" conduit   12" minimum   1½" conduit

Concrete Footing

For additional information regarding installation techniques, visit www.fxl.com, and click on the Learning Center link.

All LUXOR Series Transformers come equipped with a 6-foot, 12-gauge, 3-prong electrical power cord. The LUXOR power cord should be used only in conjunction with a GFCI protected 120 volt exterior receptacle.

Step 3 – Running Cable to the Fixtures

Once the transformer has been installed and all fixture locations determined, the next step is to run the correct size cable from the transformer to the fixtures. LED fixtures should be provided between 10 and 15 volts. This is accomplished by:

1. Grouping fixtures into distance zones as illustrated below. Do not have a fixture that is 10' away from the transformer on the same cable run as one that is 100' 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 each cable run to no more than 100 to 160 watts.

INSTALLING THE LUXOR ZD TRANSFORMER

14 volt tap

Distant Zone
120–160'
LED 110 watt max

Watts shown are PER 12 gauge cable. Install additional cable runs as needed to complete project. To increase wattage maximum, run 8 gauge or double 12 gauge to the first fixture in the zone. Use a digital voltmeter to fine tune circuits.

Summary: For maximum light output and lamp life, each lamp should be provided with between 10 to 15 volts. To stay within a 0.5 to 1.0 volt differential between the first light and the last light on a given circuit (while LED lights can support several volts of difference, good design practice is to minimize the voltage difference), you must group the fixtures into distance zones and not overload the cable with excessive wattage. As a rule of thumb, limit the distance between the first fixture and the last fixture on any given run to no more than 50 feet.

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.

INSTALLING THE LUXOR ZD TRANSFORMER

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 cable your lighting system with the proper size cable.

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 lug 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 lugs – 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.
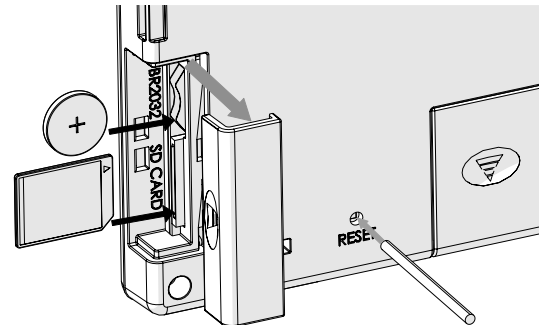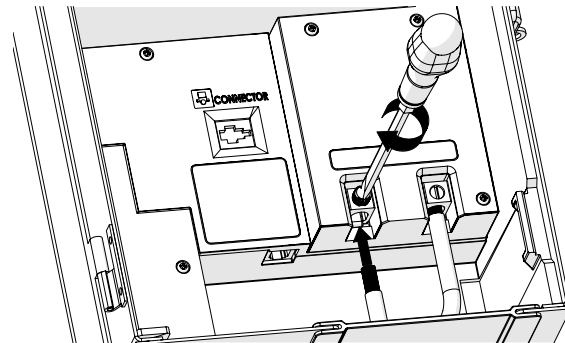
Figure 5. Facepack back showing SD Card, Battery Door, and Reset Button.

INSTALLING THE LUXOR ZD TRANSFORMER

Circuit Overload – If the amperage load on any given common lug exceeds the transformer capacity the circuit breaker will trip and the display will read "Error Overload". Test the amperage load on all cables on the common lug using an amp clamp. Test each individual cable on the common lug with the amp clamp. To remedy an overload, reduce the wattage of the system.

Short Circuit – The LCD will read "Error Overload" and shut off power if there is a short somewhere in the cabling. This message will continue to be displayed until any button is pressed. To test for a short circuit, check each cable on the common lug.

Example: A circuit with 100 watts of load should have an amp reading of approximately 8 amps. If the cable is reading significantly more, it has a short somewhere in the cable.

> ⚠️ **NOTE: Shorts and overloads are NOT covered by the FX warranty and can only be detected 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.

Transformer maintenance – Perform the following annually:

- Tighten all terminal lugs on transformer
- Blow out all bugs and webs

Lighting fixtures and LED Boards

Important: When replacing LED Boards, be sure to replace with FX ZD LED Boards. Use of non ZD boards will not function properly.

- Annually clean dirty lenses to minimize calcium deposits
- Check aiming angles of fixtures semi annually
- Straighten all pathway lights quarterly
- Trim all plant material as needed; relocate fixtures as needed as plant materials mature
- 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
- Check, adjust, and replace all cable and cable ties in trees as needed

OPERATING THE LUXOR

Operating the Luxor

HOME Screen

The HOME screen is where all functions take place as well as the current date and sunrise/sunset times are shown. The HOME Screen is where the following are displayed:

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

The Luxor can be awakened by pressing any button. When it is awoken, the following should be shown on the display screen:

To Set the Current Time and Date please see the SETUP section

- All MENU options are placed at the bottom of the screen and are selected using the main scroll wheel. Press down to enter each screen option.
- The HOME screen is the default screen that is navigated to:
    - An input is received while on the Idle Screen
    - The HOME Button is pressed on the facepack
- While in any screen, the HOME button can be pressed to return to the HOME screen

ACTIVITY Screen

When interacting with the Luxor ZD while lights are running it will display the Activity Screen. The Activity screen displays:

- All Currently Running groups with their intensity. Six groups are shown. Turn the clickable scroll wheel to show additional groups if more than six are in opeation.
- Current Time
- System Load in Percent and Amps
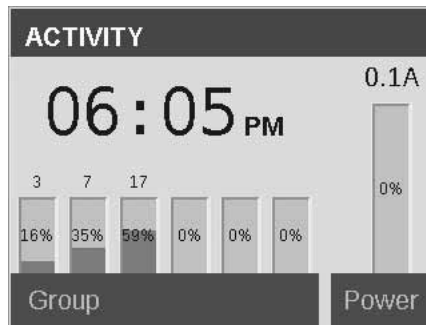
OPERATING THE LUXOR

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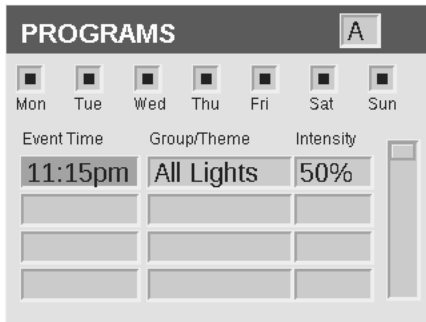
- Press the HOME button to return to the HOME screen

- The Activity screen will reactive when no inputs have been given for 5 seconds while on the Menu screen or 5 minutes while on any other Function screen

Setting up Programs

The PROGRAM Screen is where all daily running Programs designated by a letter are setup. Programs are set by calling up fixtures that have been assigned to Groups or Themes. *For more about assigning fixtures to Group see "Programming Light Fixtures into Groups".*

- Each Program is designated by a letter at the top right section of the screen. Select this first before moving on to the days of the week.

- Setting days of the week designates which days the fixtures will run based on the event setting below. Select or remove each day by highlighting it with the scroll wheel and pushing to select or deselect.

- The next area that needs to be set are the actual initiation events. Each Group or Theme has a setting that can be determined with an intensity level (on or off for Themes) or off at a particular time. Lights can be adjusted at any time after they have been initiated at a different intensity and must be designed to off using a seperate event in order for them to extinguish.

- In addition to a time setting for an event, a Sunrise or Sunset setting is available for each event. This is based on astronomical timing with the 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.

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

OPERATING THE LUXOR

MANUAL Mode
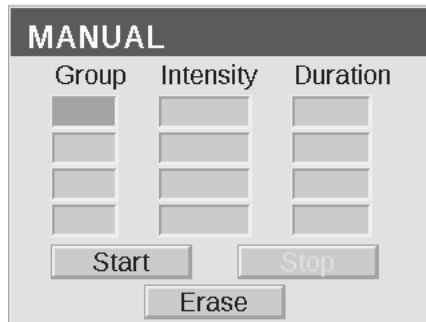
- The MANUAL mode is used to set lights outside of typically running programs. Manual settings will always take precedence to any currently running Programs.

- Begin by designating a Group number and then the intensity at which the given group should be illuminated

- Set an amount of time that the Group will run at the given intensity

- Once parameters have been set for all Group(s) indicated, navigate to the START button and select with the scroll-wheel

- The countdown timer will immediately activate the set Group(s)

- If the Group is currently running within a program, the Manual setting will take precedence

- To stop the countdown the Stop/Pause button should be activated. This will only pause to allow for adjustments and should not delete any settings above.

- When the MANUAL settings are finished the regularly scheduled program will immediately continue its operation, even if it was interrupted

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

Themes
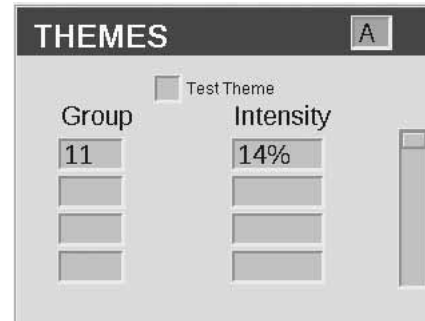
- A Theme is a predetermined set of Groups that can be called up in the PROGRAM menu for quick setting of a set of groups. Use of themes can be used for an area of lights that holds more than one group, or predetermined setting for a different time of year.

- Themes are set initially by selecting the THEME Program Letter (A–Z)]

- To test a Theme use the checkbox at the top of the screen marked "Lights On". This will temporarily turn on all Groups that have been set in a theme.

- 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

OPERATING THE LUXOR

Programming Light Fixtures into Groups
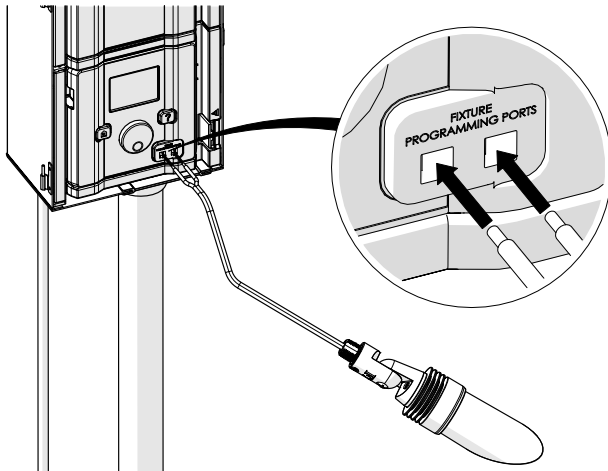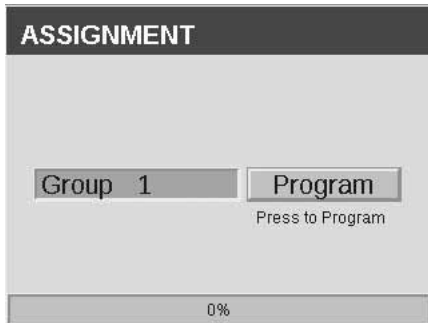
The lighting assignment screen is an automatically displayed screen when an FX ZD fixture or board is connected into the Programming Ports of the facepack. This mode can also be forced by navigating to SETUP and selecting ASSIGNMENT MODE.
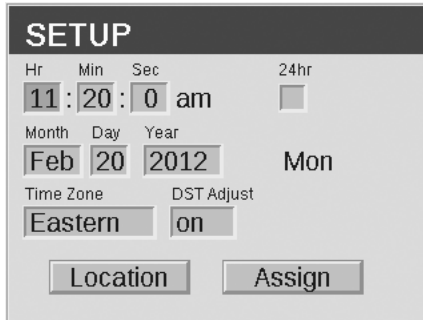
- Enter this mode by placing two separate wires from a single Luxor ZD fixture or board into each of the PROGRAMMING PORTS on the front of the facepack. The fixture must remain connected to the facepack during the entire process.

- Once connected and at the Assignment Screen, select the group that you would like the fixture to be a part of

- Then navigate to PROGRAM and press the scroll wheel to initiate assignment. When complete the screen will show "Assignment Succesful" or "Assignment Failed". If failed reposition wires and try again, if the problem persists the board may be defective or not a ZD board.

- FX LED boards can also be attached to a socket and programmed through the Fixture Programming Ports.

> ⚠️ **NOTE: Only one fixture can be addressed at a time. Attempting to address more than one fixture at a time will result in misprogrammed fixtures.**

OPERATING THE LUXOR

Setup

SETUP is the user management area of the Time, Date, and Time Zone settings. SETUP is also where the Location and Assignment functions are also accessed.

- HR:MIN:SEC is initially setup as an AM/PM function with each setting independently

- To adjust AM and PM rolling past 12 will switch on from AM to PM or PM to AM next to the SEC section

- To set time as 24-hour, check the "24 Hour" selection box

- MONTH, DAY and YEAR is set next

- The Setting of the MONTH, DAY and YEAR automatically sets the day of the week which appears to the right of the YEAR as well as the IDLE and HOME screens

- DST is the final setting which will push the time forward by 1 hour. To initiate it, select ON. To deactivate it, select OFF.

- ASSIGN is a manual way to enter into Fixture Assignment Mode. When compatible fixtures are plugged into the FIXTURE PROGRAMMING this screen will automatically display, but can also be entered under the MANUAL screen.

Location

The LOCATION menu is designed to graphically represent a Luxor's location on a map for correct Sunrise and Sunset times based on the current date.

- A full screen X is the designator for the point on the map for the location of the user

- First input is UP and DOWN Latitude, rotate the scroll wheel to move the crosshair up and down

- Latitude is set by pressing the click-wheel

- Second input is LEFT and RIGHT Longitude. Rotating the scroll wheel moves the crosshair left or right

OPERATING THE LUXOR

- Longitude is set by a final click of the click-wheel

- Once latitude and longitude are set the top right corner of the screen will show "SAVED"

- Reset or adjustment is initiated by a click of the click-wheel and then repeat above Latitude and Longitude steps

Map of Canada

- To activate the map of Canada move the X to the top of the screen and initiate another turn of the click-wheel. The Canadian map should then appear.

- To return to the map of the USA, move the X to the bottom of the screen and initiate another turn of the click-wheel

Contact

The CONTACT screen is a default image that is pulled from the SD card that ships with FX Technical Support contact information

- User navigates to the CONTACT screen from the HOME screen using the scroll wheel and select push

- An additional image can be added in place of the default screen if they are placed on the SD card and are named "contact.bmp" in 320 X 240 pixels, landscape orientation. Images on the SD card that are not formatted correctly will not display

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.

- SHUTDOWN is activated from the HOME screen

- When SHUTDOWN is initiated via a press of the scroll wheel, the unit will immediately suspend all fixtures in PROGRAMS, MANUAL or THEMES

OPERATING THE LUXOR

- When OFF is initiated all lights will remain off and the lights will not reactivate until REACTIVATE is selected

- The SHUTDOWN screen can be left during with OFF or REACTIVATION with the command remaining running

- The HOME screen will show "OFF" in place of the current time when the unit is shutdown

Important Notes

These cord-connected units consists 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 (1.5 m) or more from a pool or spa and 10 feet (3.05 m) or more from a fountain. Where the power unit is installed within 10 feet (3.05 m) 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 (3.3 mm^2) 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
22 amps for 300

Hunter®

FIXTURE GROUP STICKERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	3	4	5	6	7	8	9	10	11	12	13	14

FIXTURE GROUP STICKERS

15	16	17	18	19	20	21	22	23	24	25	26	27	28
15	16	17	18	19	20	21	22	23	24	25	26	27	28
15	16	17	18	19	20	21	22	23	24	25	26	27	28
15	16	17	18	19	20	21	22	23	24	25	26	27	28
15	16	17	18	19	20	21	22	23	24	25	26	27	28
15	16	17	18	19	20	21	22	23	24	25	26	27	28
15	16	17	18	19	20	21	22	23	24	25	26	27	28
15	16	17	18	19	20	21	22	23	24	25	26	27	28
15	16	17	18	19	20	21	22	23	24	25	26	27	28
15	16	17	18	19	20	21	22	23	24	25	26	27	28