1. LX - Troubleshooting Overview

Problem **No power at plug**	Cause • **Tripped breaker or GFCI**
	Solution • **Reset circuit breaker in main panel or the GFCI usually located in a bathroom, garage, or kitchen.**
Problem **GFCI keeps tripping**	Cause • **Ground problem or defective GFCI**
	Solution • **Use a high-grade model such as the Hubbell #GF5252I.**
Problem **One cable run not working**	Cause • **Cut cable or short**
	Solution • **Test cable for voltage. If none, it is cut. If there is very low voltage and the cable is hot, there is a short. Check all fixtures and splices for defects**
Problem **Lamps are burning out prematurely**	Cause • **Excessive voltage at lamp**
	Solution • **Drop the affected cable run down to the next lower voltage tap or increase wattage load on that cable to drop voltage. Also, some lamps are rated for a very short life such as the 4414 (300 hours). Use halogen lamps.**
Problem **The closest lamp to the transformer is burning out prematurely**	Cause • **Excessive voltage at lamp**
	Solution • **The closest lamp will always have a higher voltage reading than the last lamp. Cable fixtures so that there is about 40' from first to last within a lighting zone. See system layout for details.**

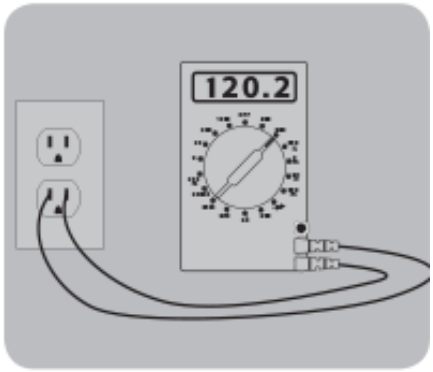
Problem **Lamps have a yellow or golden tone**	Cause • **Voltage too low**
	Solution • **Move affected cable to the next higher voltage tap or reduce load on cable. If possible, run additional cable to first fixture to reduce voltage loss.**
Problem **Lamp goes on and off when fixture is moved**	Cause • **Too much tension on socket leads**
	Solution • **With spring type sockets, it is important to leave some slack so the socket contacts make a good connection to the lamp base.**
Problem **System is getting dimmer with age**	Cause • **Splices are corroding**
	Solution • **As non-waterproof splices corrode, they create electrical resistance, which reduces voltage.**
Problem **Photocell transformer is coming on too soon**	Cause • **Transformer is in dark location**
	Solution • **In order to operate properly, the photocell must have a good look at daylight. Move to a brighter location.**
Problem **Fixtures have a white mineral deposit on them**	Cause • **Irrigation water is hitting them**
	Solution • **Schedule the irrigation to come on after the lights have gone off. This is especially true with the 50 W spots — very hot.**

2. LX - Checking Voltage Using Voltmeter

Using a digital voltmeter allows you to take important voltage readings at the transformer, at each fixture and at the receptacle the transformer will be plugged into. Dial the digital voltmeter to the 200 ~ setting for measuring AC voltage.

Checking Voltage at Outlet

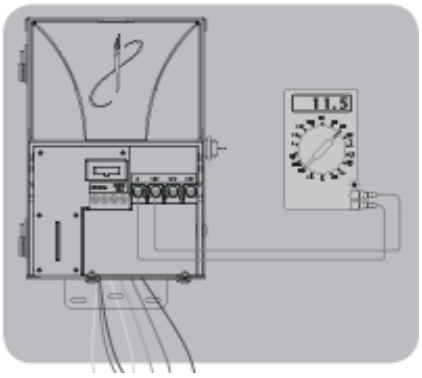
This tool tells you whether or not the 120 volt receptacle you are plugging the FX Transformer into is wired properly. Follow the tool manufacturers instruction manual to assure proper wiring on the receptacle you will be using.



<u>This procedure should only be performed by a licensed</u>

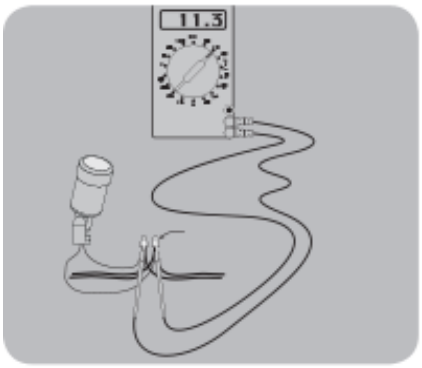
Checking Voltage at Transformer Lugs

Each lug should read no more than +/– 0.3 to 0.9 volts of rated output. Both the LX-150 and LX-300 models have a 12V, 13V, and 14V lug inside the controller. The FX MultiTap Transformer allows you the opportunity to utilize the voltage tap that will provide each circuit with the proper voltage. For cable runs in the “distant zone” you would typically select the 13 or 14 volt tap. For cable runs in the “close zone,” you would typically install the cable run into the 12 volt tap depending upon the wattage load and size of cable.



Checking Voltage at Fixture Splice

Insert voltmeter probes into each wire connector (Optimum reading between 10.5 and 11.5 VAC for incandescant fixtures and 10-15 VAC for LED fixtures).



3. LX - Incoming Power to the Transformer

The quickest way to see if the Transformer is receiving power is to plug a working lamp or radio into the outlet to see if outlet is providing power.

If unit is hardwired to power supply, testing power should only be performed by a licensed electrician.

If the outlet is not providing power check to see that the GFCI receptacle has been tripped. Note that sometimes the GFCI that protects the circuit for your Transformer is NOT the one the Transformer is plugged into! It may be found in the kitchen, laundry room or other location within the house! If the GFCI has tripped, reset it and test your Transformer again.

If the GFCI is set properly, next check the Circuit Breaker in the Electrical Panel. If tripped, reset it and test your Transformer.

If you have a Receptacle Tester (RT), insert it into the Receptacle in which your Transformer is plugged. The RT will tell you if the wiring from the Electrical Panel to the receptacle is OK or not. If it does not indicate two orange lights, something is wrong with the wiring. Consult an electrician!

4. LX - Testing Transformer Power

The first test to perform will determine if power is passing through the Transformer to the low voltage taps.

Turn your volt meter on and place one of the probes on the lug labeled "**C**" and the other probe on the voltage tap labeled "**12V**". Repeat this test on the 13 volt and 14 volt AC taps. If your readings are 12 volts +/- 0.5, etc, you will have determined that the Transformer and all switching devices are operating properly.

If your Low Voltage taps are getting power and your lights still don't work, most likely there is a problem with the circuit wire (cut wire), a problem with the lamps or a problem with the wire connectors.

If you've determined that the transformer is getting proper voltage from the electrical panel to the receptacle on the face of the transformer and your system still isn't working, we will next test to see if your timer has malfunctioned.

Note: If your Transformer includes a PhotoCell (PC) you must cover electrical tape in order to assimilate night time.

5. LX - Hard Reset

Electrical surges and voltage spikes can cause anomalies in a transformers face pack.

To return the face pack to its original setting complete the reset procedure listed below:

1. Hold down the GREY ENTER and DOWN button on the face pack.
2. As you are holding the buttons down, press the reset button on the back of the face pack.
3. Release the reset button first, and then release the buttons on the front.

A successful reset will result in 12:00 on the display. You can now reprogram your LX face pack.

6. LX - Moving the Photocell

FX manufactures an extended version of the LX Photocell with a lead to mount photocell up to 26' from transformer

Kit Includes:

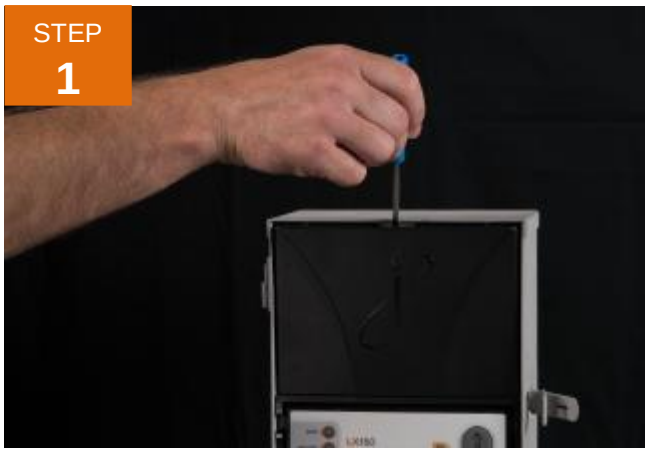
- 26' of cable
- Mounting bracket
- Mounting Screws

The FX part number for the LX extended photocell is LX-PC-KIT

7. LX - No Power on Low Voltage Terminals

If the LX transformer does not power on THE LOW VOLTAGE TERMINALS when plugged into a working outlet, the internal fuse may need to be replaced. NOTE: The front panel will still show power. To protect the LX from ground surges caused by lightning or damaged connections there is a buss fuse contained in the top of the transformer. This fuse does not protect the incoming voltage, just the low voltage side of the transformer. The LX buss fuse is located in the top-wiring compartment of the LX lighting transformer. Replace with a UL Listed 3AG with the following specifications: 10 Amp – 250V.

This procedure should only be performed by a licensed electrician. Disconnect power from the primary and secondary.



Use a flat bladed screw driver to remove cover.

Twist the two sides of the fuse holder in opposite directions to open.

Open fuse holder to change fuse.

8. LX - Circuit Overload and Short Circuit

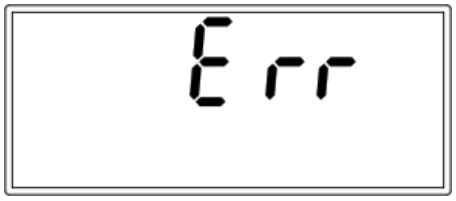
If the amperage load on any given common lug exceeds the transformer capacity, the circuit breaker will trip and the display will read ”Err” (Error). Test the amperage load on all cables on the common lug using an amp clamp. Test each individual cable on the common lug with the amp clamp. To remedy an overload, either reduce the wattage of the lamps in the fixtures or rebalance the amp load between commons.

Short Circuit

The LCD will read “Err” (for Error) 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 tap that is tripping individually.

Example: A circuit with 100 watts of load (five 20 watt fixtures) 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



9. LX - Replacement Lamp Not Working

A common mistake made by many is to replace existing lamps with lamps of higher wattage than those originally installed.

Example: If you have an FX system with a PX-600 watt transformer, 25 fixtures illuminating the landscape and all of the original fixtures have 20-watt lamps in them for a total load on the transformer of 500 watts, when it comes time to replace the lamps 20-watt lamps must be used. The system has already been sized to take into account voltage drop and individual tap output with those 20-watt lamps. If larger 50-watt lamps are installed the design variables that were originally taken into account are now void.

The larger lamps will cause the transformer to overload, and the transformer’s circuit breaker to trip thus shutting the system down. This is a safety measure to insure the transformer survives these maintenance accidents.

Solution: Reinstall lamps with the same wattage as the originals or upsize to a larger transformer.

Finally, if you’ve replaced all the lamps and your system still isn’t working, either the wires have been cut or you'll need to check the transformer and the electrical components on the high voltage side for issues.