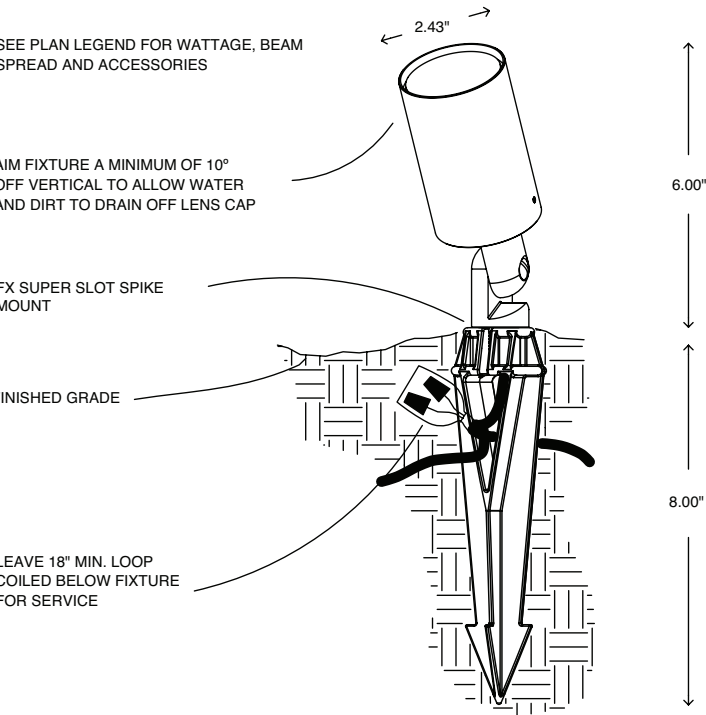


INSTALL NOTES: LO

We have developed this series of field installation guidelines to assist you in correctly installing fixtures and transformers, ensuring customer satisfaction and trouble-free service. If you have any questions, please call your local distributor or the FX TechLine at 800-733-2823 before proceeding. Follow all NEC guidelines and local electrical codes. For more information, visit: fxl.com

TYPICAL INSTALLATION:



RISK OF FIRE WARNING: DO NOT USE FX FIXTURES WITH ANY STYLE OF TRANSFORMER THAT EXCEEDS 15 VOLTS ON THE SECONDARY.

INSTALLATION GUIDELINES:

DO NOT EXCEED 50 WATTS IN THIS FIXTURE

To relamp turn lens cap as if it is threaded, remove lamp and carefully insert new one. Do not touch the actual lamp bud with fingers as this will shorten lamp life. If you do touch lamp bud clean off with cloth and alcohol. Apply hi-temp dielectric grease into socket to prevent moisture damage to lamp base. To install cap start it on an angle so it's halfway on, then twist and push down as if it was threaded. Lens cap can be lubricated on inside to ease installation. Always try to locate fixtures behind plant material or boulders to get them out of sight. To relamp turn lens cap as if it is threaded, remove lamp and carefully insert new one. Do not touch the actual lamp bud with fingers as this will shorten lamp life. If you do touch lamp bud clean off with cloth and alcohol. Apply hi-temp dielectric grease into socket to prevent moisture damage to lamp base. To install cap start it on an angle so it's halfway on, then twist and push down as if it was threaded. Lens cap can be lubricated on inside to ease installation. To minimize clean-up keep plastic shipping bag on fixture until just before system testing. For high performance and predictable lamp life, supply fixture with between 11-11.5 volts with all lamps installed and operating.

Use FX LUMINAIRE Transformers only — FX WILL NOT WARRANTY OR REPLACE ANY COMPONENTS DAMAGED BY OTHER MANUFACTURER'S EQUIPMENT. The FX transformer is specifically designed for the high tech lamps used in our fixtures — the use of inferior power supplies can cause premature lamp failure and other problems including the risk of fire.

SAVE THESE INSTRUCTIONS:

WARNING - To reduce the risk of FIRE OR INJURY TO PERSON:

- Turn off/unplug and allow to cool before replacing lamp.
- Lamp gets HOT quickly. Contact only switch/plug when turning on.
- Do not touch hot lens, guard, or enclosure.
- Keep lamp away from materials that may burn.
- Do not touch the lamp at any time. Use a soft cloth.
- Oil from skin may damage lamp.
- Do not operate the luminaire fitting with a missing or damaged shield.

WARNING - Risk of Electric Shock

- Install all luminaires 10 feet (3.05 m) or more from a pool, spa, or fountain.
- A luminaire shall not use tungsten halogen lamps unless the luminaire is marked for such lamps.

LOW VOLTAGE CABLE SHALL:

1. Be protected by routing in close proximity to the luminaire or fitting, or next to a building structure such as a house or deck;
2. Not be buried except for a maximum 6 inches (15.2 cm) in order to connect to the main low voltage cable; and
3. Have the length cut off so that it is connected to a connector within 6 inches (15.2 cm) from a building structure, a luminaire, or fitting.

If using corrosion protection gel, then pump about two squeezes of gel into a baggie and insert both Listed wirenut connections into it. Push out the air and work the gel into the bottom of the wirenut assuring a waterproof connection. Install the cable tie as shown and cinch down to complete the low voltage connection. It's best to leave 12-18" of slack at each fixture to allow for relocation or if you need to splice in additional cables in the future. Since this is a permanent splice solution—you will need to cut it off and start from scratch to add cables to the splice.

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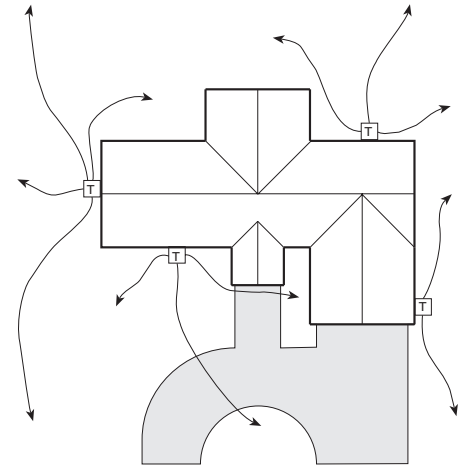
TRANSFORMERS

Single Transformer

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 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 drop.

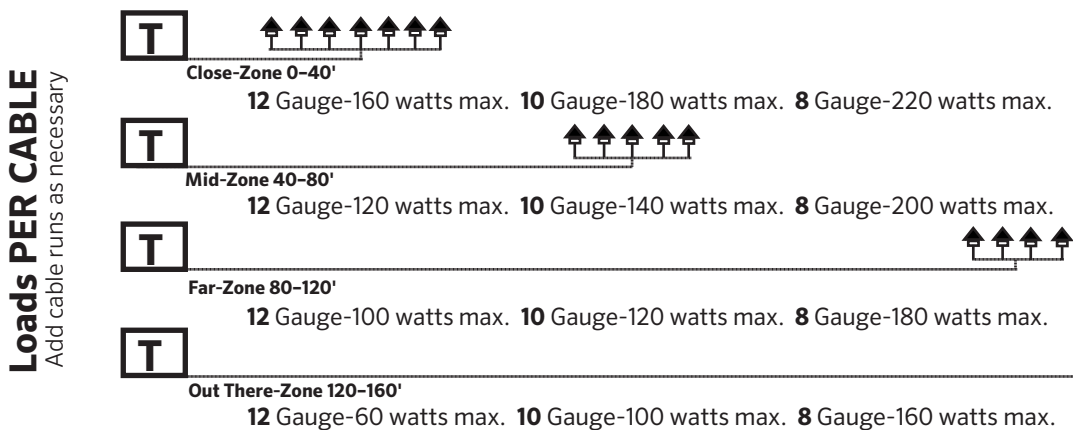
Multiple Transformers

A common mistake in laying out multiple transformer circuits is to group several transformers in one location because of utility or visual considerations only. As with any low voltage layout, the prime directive should be to locate the transformers as close to the fixtures as possible in order to minimize cable runs. The other multi-transformer layout consideration is “use zoning”. Having several transformers allows the client to selectively control light in separate areas. This approach is similar to irrigation design in that the goal is to individually control areas that have similar needs. In lighting, a recreation area has different lighting needs than does a front entry. Therefore, the lights that serve these different lighting use areas need to be on separate transformers and switch controls.



Sample diagram of home with transformer and lamp placement

CIRCUITING GUIDELINES



LAMP LIFE

- Lamp life is rated in hours of operation. If lamps are rated for 4,000 hours at 12 volts it means that at 4,000 hours, 50% of the lamps are still working and 50% are not.
- For maximum light output, tune lighting circuits to provide between 11.5 and 12.0 volts as measured at lamp terminals when all of the lamps on the circuit are operating.
- For longer lamp life, adjust voltage down so lamps receive between 10.5 and 11.5 volts at the lamp terminals.

| Volts at Lamp | Lamp Life of Rated | Lumen Output of Rated |
|---------------|--------------------|-----------------------|
| 13.0* | 75% | 100% |
| 12.5* | 100% | 80% |
| 12.0 | 200% | 75% |
| 11.5 | 300% | 65% |
| 11.0 | 500% | 50% |
| 10.5 | 900% | |
| 10.0 | 350% | |
| 50% | 175% | |

* This voltage is not recommended