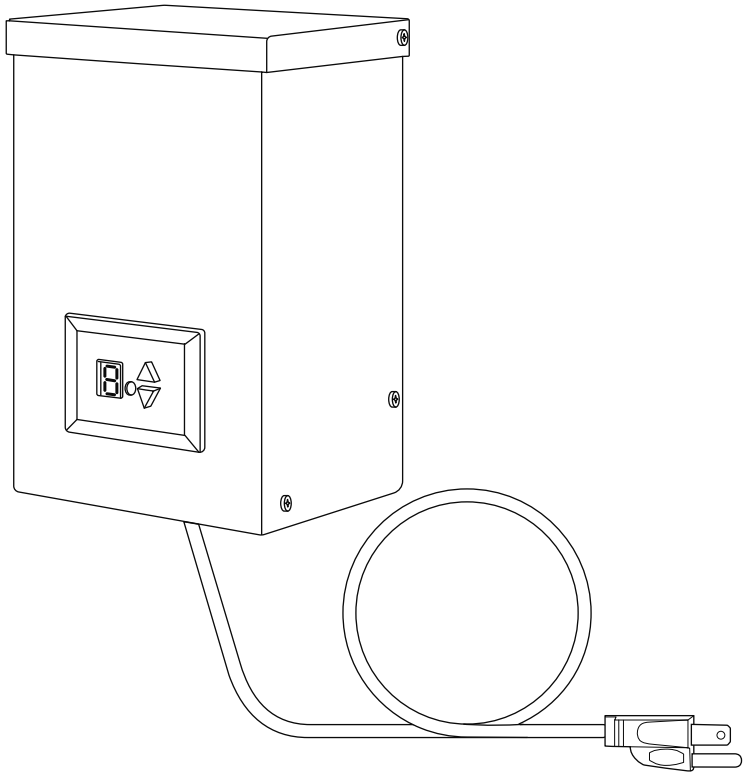
ITEM #1237384/1237386/1237387
MODEL #LVT200MBK/LVT120MBK/LVT60MBK

# LOW VOLTAGE TRANSFORMER



Español p. 15

**ATTACH YOUR RECEIPT HERE**



APPROVED FOR USE
IN WET LOCATIONS

**Purchase Date** _____

Thank you for purchasing this HARBOR BREEZE product.

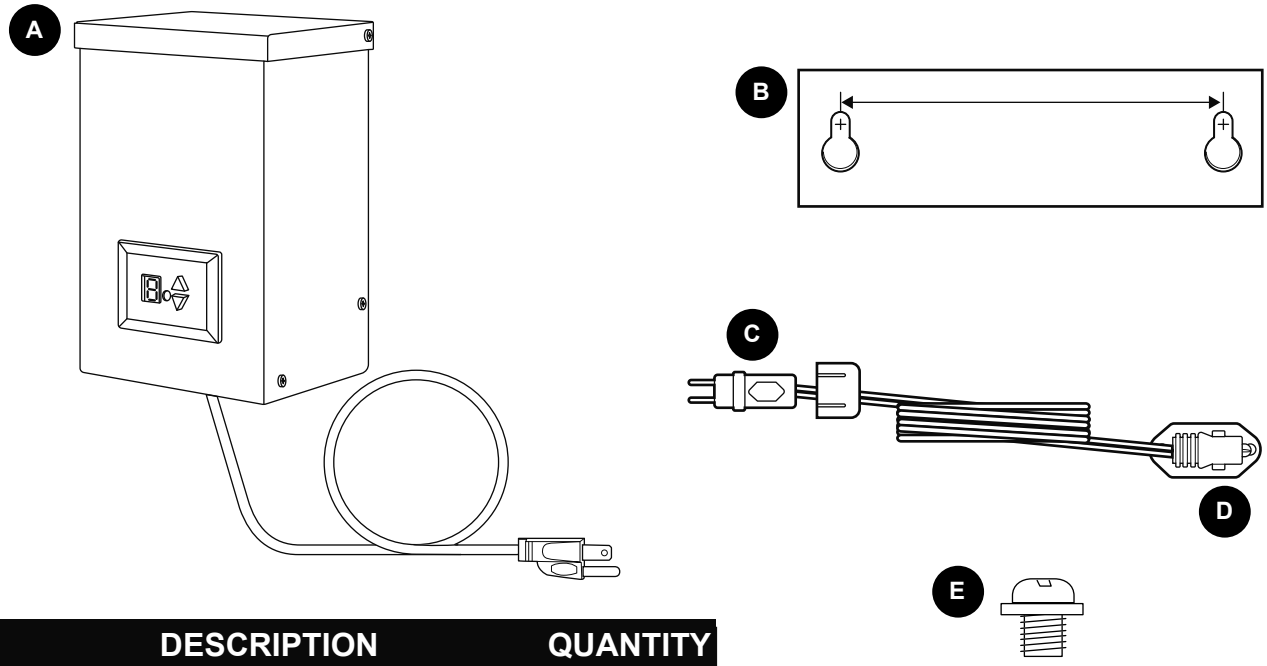
Questions, problems or missing parts?

Before returning, contact us on: **888-251-1003**, 8 a.m. - 8 p.m., EST, Monday - Sunday or **ascs@lowes.com**.

## TABLE OF CONTENTS

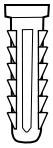
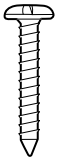
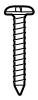


## PACKAGE CONTENTS




| PART | DESCRIPTION | QUANTITY |
|---|---|---|
| A | Transformer | 1 |
| B | Mounting Template | 1 |
| C | Photoeye cable | 1 |
| D | Photoeye holder (preassembled to photoeye cable (C)) | 1 |
| E | Terminal Screw (preassembled to transformer (A)) | 4 |

## HARDWARE CONTENTS (shown actual size)

| AA | BB | CC |
|---|---|---|
|  |  |  |
| Wall Anchor | Wall Anchor Screw | Screw |
| Qty. 2 | Qty. 2 | Qty. 2 |

## SAFETY INFORMATION

**READ AND SAVE THESE INSTRUCTIONS**

**Please read and understand this entire manual before attempting to assemble, install or operate the product. Review the accompanying assembly diagrams.**

- This transformer has a minimum loading that is at least a total of 1 Watts.

### DANGER

- RISK OF FIRE OR ELECTRICAL SHOCK.
- For your protection and safety, carefully read and understand the information provided in this manual completely before attempting to assemble, install or operate this product. Failure to do so could lead to fire, electrical shock or other injuries that could be hazardous or even fatal.
- ALWAYS disconnect the transformer from the electrical outlet when working on the lighting system.
- This transformer is for use with low-voltage landscape lighting systems ONLY.
- The maximum wattage output of this transformer is:
  - 60W (1237387)
  - 120W (1237386)
  - 200W (1237384)
- DO NOT overload the transformer. Be sure the total cumulative wattage of all 12 volt or 15 volt fixtures connected to the transformer is equal to or less than 60/120/200 watts. Otherwise it causes higher temperature than the transformer's protection temperature.
- DO NOT connect transformer to an electrical system that does not provide a means for equipment grounding.
- DO NOT connect two or more transformers in parallel. This could lead to over-powering of fixture and cause serious injury or death from electrical shock
- To reduce the risk of fire or electric shock, DO NOT use smaller than 16 gauge cable. Using the correct gauge cable is essential to obtain proper lighting performance. Use with SPT-2W underground low-voltage cable with a 25-foot length minimum. Using larger gauge cable can help reduce the voltage drop issue.
- To reduce the risk of personal injury, electrical shock or death use only on a branch circuit protected by a Class A-type ground fault circuit interrupter (GFCI). ONLY connect the transformer cord to a covered 120-volt Class A-type GFCI protected hooded flush type cover plate outlet that is marked “WET LOCATION”.
- DO NOT submerge the transformer in water.
- DO NOT mount transformer within 10 ft. of a pool, spa or fountain.

## SAFETY INFORMATION

### DANGER

- DO NOT damage or cut the wire insulation (covering) during installation of the transformer. DO NOT permit wires to contact any surface having a sharp edge. To do so may damage or cut the wire insulation, which could cause serious injury or death from electrical shock.
- DO NOT tamper with or repair cord or plug.
- DO NOT mount the transformer upon combustible material.
- To reduce the risk of fire, DO NOT place wiring insulation under terminal plate.

### WARNING

- THIS PRODUCT MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION CODE BY A PERSON FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE PRODUCT AND THE HAZARDS INVOLVED.
- DO NOT bury the connectors or cables at a depth greater than 6 inches.
- To avoid water damage to transformer or possible electrical malfunction, transformer MUST be installed vertically and with the base at least 20 inches above the ground/floor.

### CAUTION

- DO NOT use the transformer with a dimmer switch.
- DO NOT install all landscape fixture in the last 1/3 length of the run wire. Lights installed in this section may not work properly.
- Screw connections must be tight. DO NOT mix solid and stranded wires under one screw.
- If you are not sure the lighting system has a grounding means, DO NOT attempt to install this transformer. Contact a qualified, licensed electrician for information regarding the proper grounding methods as required by the local electrical code in your area.
- A cord-connected landscape lighting system MUST NOT be used with an extension cord.
- The device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, (2) this device must accept any interference received, including interference that may cause undesired operation.
- Changes or modifications not approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Note**: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient or relocate the receiving antenna.
* Increase the separation between the equipment and receiver.
* Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Distributed by: Litex Industries Inc., P.O. Box 535639, Grand Prairie, TX, 75050; 800-527-1292

## PREPARATION

Before beginning assembly of product, make sure all parts are present. Compare parts with package contents list and hardware contents list. If any part is missing or damaged, do not attempt to install, operate or assemble the product.

**Estimated Assembly Time: 90 minutes**

Tools Required for Assembly (not included): Flathead Screwdriver, Phillips Screwdriver, Wire Strippers, Pliers, Wire Cutters, Safety Glasses, Drill, 1/4 in. Drill bit, Pencil/Marker

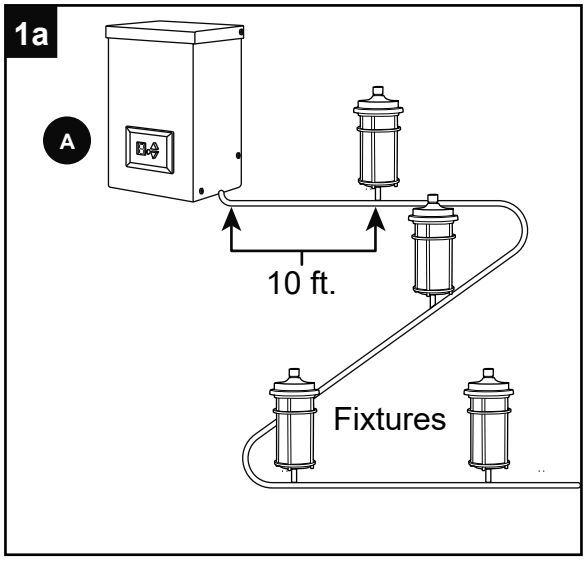
Helpful Tools (not included): A/C Tester Light, Do-It-Yourself Guide

## WIRING METHOD

1. This transformer is suitable for indoor and outdoor use. Determine the wiring method you would like to use for your landscape wiring.
   **A.** Straight Method
   **B.** Looping Method

1a. **A.** Straight Method: The straight wiring method is a “straight” run of low-voltage cable (not included) with fixtures (not included) connected directly to the transformer (A) in a straight line. The fixture located farthest away from the power may experience the largest voltage drop and therefore could be the dimmest; likewise, the fixture closest to the transformer (A) may be the brightest. Voltage drop may occur in lengths longer than 100 ft (see below).

**NOTE**: The first fixture should be a minimum of 10 ft. away from the transformer (A).

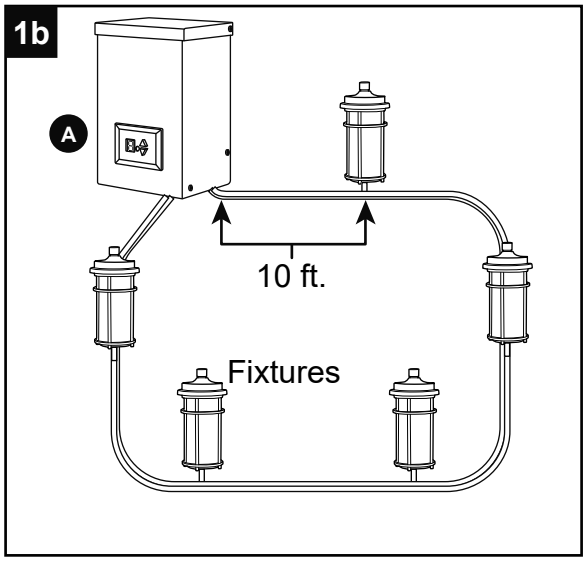



**NOTE**: Voltage drop is the decrease of electric potential along the path of a current flowing in a circuit. Voltage drop may occur on any run of low-voltage cable and may cause a fixture to dim. This can be seen when fixtures closer to the transformer (A) are brighter than fixtures further from the transformer (A) on the same low-voltage cable. Voltage drop depends on the number of fixtures on a run, the distance from the transformer (A), gauge of the cable or the wiring method. If you are experiencing voltage drop, consider the corrective action table to help boost the voltage.

| CORRECTIVE ACTION TABLE | |
|---|---|
| Modify cable size. | Thicker gauge cable can carry more voltage. For example, you may experience more voltage drop with an 18 AWG than with a 12 AWG cable. |
| Change wiring method. | Using the looping method can boost voltage. (Refer to 1b on the next page.) |

## WIRING METHOD

1b. **B.** Looping Method: The looping wiring method is a “loop” run of low-voltage cable (not included) with fixtures (not included) connected to the transformer (A) by looping the low-voltage cable back to the terminal blocks. This is an easy way to eliminate voltage drop. Make sure not to cross the wires when attaching them back to the terminal blocks. The cable being looped that are coming out of the terminal block must be connected back to the same terminal block and terminal screws (E).




When determining the wiring method, refer to the tables below. **NOTE**: If the cable length is longer than the cable length listed below, it is recommended to use the looping wiring method to help reduce voltage drop.

| 12-Volt Transformer Terminal | | |
|---|---|---|
| Cable Length | Total Fixture Wattage | Wire Gauge |
| 100 ft | 0 - 60 | 16 |
| | 61 -120 | 14 |
| | 121 - 200 | 12 |
| 150 ft | 61 -120 | 14 |
| | 121 - 200 | 12 |

| 15-Volt Transformer Terminal | | |
|---|---|---|
| Cable Length | Total Fixture Wattage | Wire Gauge |
| 100 ft | 1 - 120 | 16 |
| | 121 -240 | 14 |
| | 241 - 300 | 12 |
| 150 ft | 61 -120 | 14 |
| | 121 - 200 | 12 |

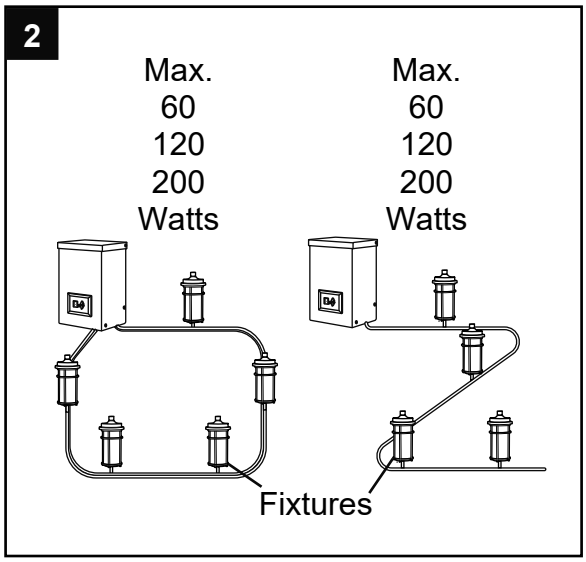
2. ⚠ **WARNING**: Terminal screw (E) connections must be tight. Do not mix solid and stranded wires under one terminal screw (E).

⚠ **WARNING**: The total output wattage of two terminals blocks must NOT exceed:

- 60W (1237387)
- 120W (1237386)
- 200W (1237384)

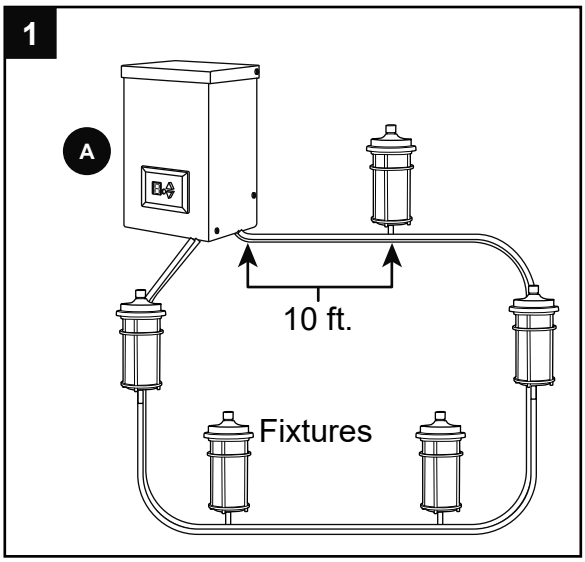
To determine the maximum number of fixtures that can be safely connected to the transformer (A), add up the individual wattages of all fixtures.

**NOTE**: This transformer is rated for 12V AC and 15V AC.



## ASSEMBLY INSTRUCTIONS

1. Determine the length and layout of landscape cable (not included) by laying a length of low-voltage cable in the general area where the fixtures will be installed.

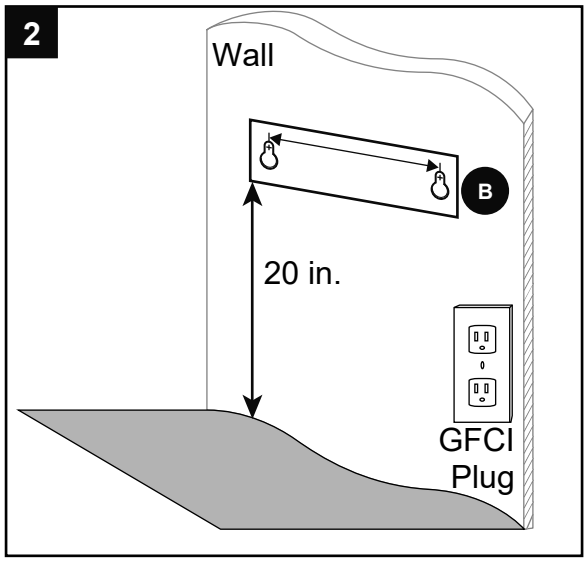



2. Select location near a 120-volt covered GFCI outlet with cover plate marked for WET LOCATION. Using mounting template (B), mark holes for transformer (A) so that the BASE of the transformer (A) will be mounted at least 20 in. above ground level.

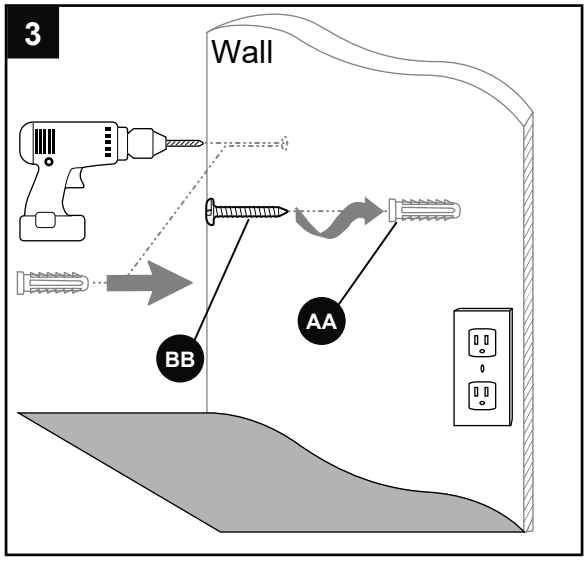
   The distances between the mounting template (B) keyslot holes are as follows:

   - 60W: 3.54in / 9 cm
   - 120W: 3.74in / 9.5 cm
   - 200W: 3.94in / 10 cm

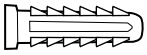
   **NOTE**: Select a location that will receive direct sunlight during the day. DO NOT mount the transformer (A) where it could sense artificial lights, as this may cause the lighting system to shut off unexpectedly. The proper area for the transformer (A) is an area where the photoeye can sense direct sunlight. This is needed so the photoeye cable (C) feature works properly. If the photoeye cable (C) cannot sense direct sunlight, the fixtures may not turn on and off properly.




3. Drill holes using 1/4 in. drill bit (not included). Install wall anchors (AA). Install anchor screws (BB), leaving enough space for the transformer (A).

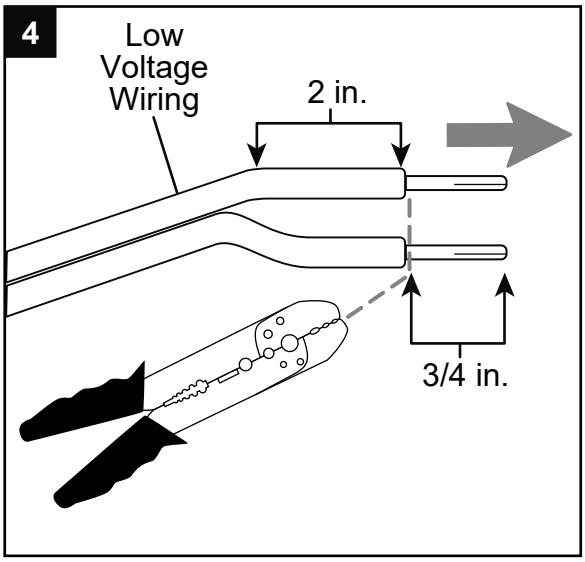



### Hardware Used

| | | | |
|---|---|---|---|
| AA | Wall Anchor |  | x 2 |
| BB | Wall Anchor Screw |  | x 2 |

## ASSEMBLY INSTRUCTIONS

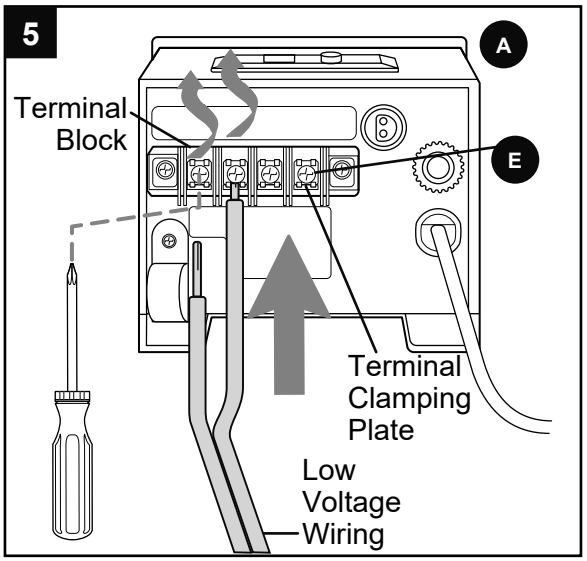
4. For low-voltage cable connections, split one end of the low-voltage cable approximately 2 in., and then strip about 3/4 in. of insulation of each wire using wire strippers (not included) before twisting strands (if applicable) together tightly.




5. ⚠ **CAUTION**: If the cable is 12V, use the 12V side, if the wiring is 15V, use the 15V side.

   ⚠ **CAUTION**: To reduce the risk of fire, electrical shock or damage to the transformer (A), ensure there is no cable insulation under the terminal clamping plate and the terminal screws (E) that connect the wire to the transformer (A) terminals are securely tightened.

   Loosen the terminal screws (E) located on the underside of the transformer (A) and insert one of the pre-stripped cables under the terminal clamping plate. Securely tighten the terminal screw (E). Repeat this process for the other terminal screw (E).

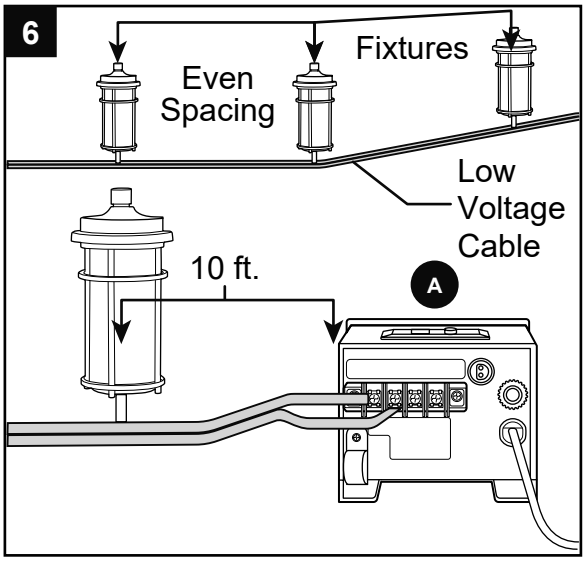


## ASSEMBLY INSTRUCTIONS

6. Distribute fixtures as evenly as possible along the low-voltage cable.

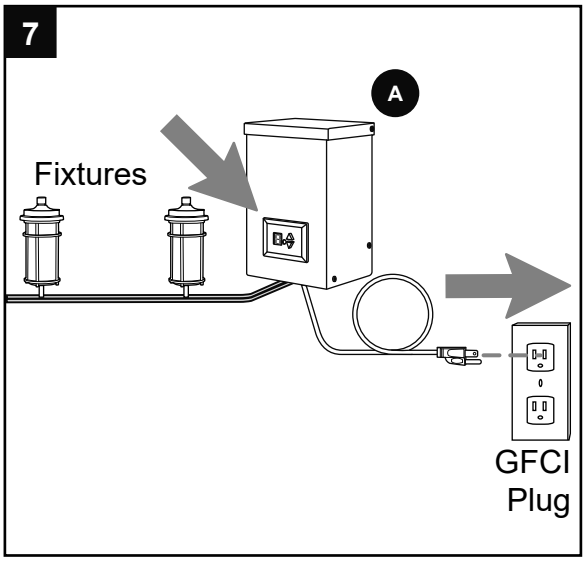
   **NOTE**: The first fixture should be a minimum of 10 ft. away from the transformer (A).

   ⚠ **CAUTION**: A loose cable increases the risk of fire; tighten all connections securely.




7. Plug the transformer (A) into the GFCI outlet and turn the transformer (A) on (refer to “Operating Instructions” on Page 12).

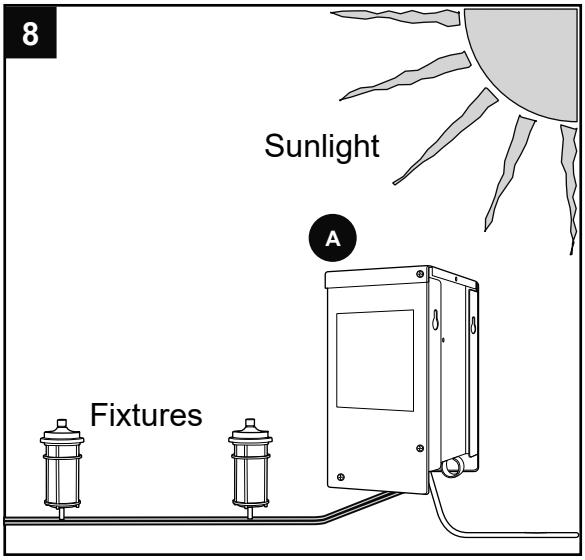
   Follow the instructions for the fixtures to connect the fixtures to the low-voltage cable using fixture connectors, and test the system before finalizing installation. Once testing is complete and the system is operational, the cable may be covered with landscape material (mulch, rock, etc.) or buried up to 6 in. deep.



8. If the transformer (A) has been installed in a location that will receive direct sunlight during the day, installing the photoeye cable (C) will not be necessary and you may proceed to Step 12 on the following page.

   If the transformer (A) has been installed in a location that will NOT receive direct sunlight during the day, it will be necessary to install the photoeye cable (C). Proceed to Step 9 **to install the** photoeye cable (C).

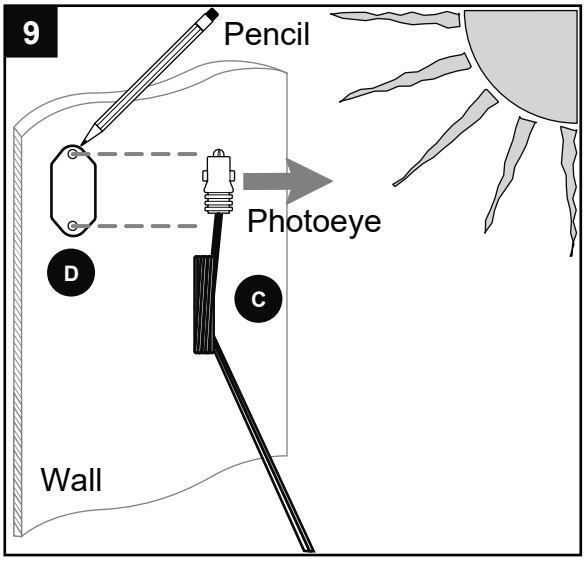
   **NOTE**: The transformer (A) has a built-in photoeye and the included 15-ft. photoeye cable (C). If you use the photoeye cable (C), the built-in photoeye will turn off. If you do NOT use the cable, the transformer will automatically use the built-in photoeye.




9. Determine mounting location for the photoeye cable (C).

   **NOTE**: When selecting a location for the photoeye cable (C), make sure it will receive direct sunlight during the day. DO NOT mount the photoeye cable (C) where it could sense artificial light, as that might cause the lighting system to shut off unexpectedly.

   Remove preassembled photoeye holder (D) from photoeye on photoeye cable (C). Place the photoeye holder (D) against the wall and mark the location of the holes on the photoeye holder (D) using a pencil or a marker (niether included). Set photoeye holder (D) aside.

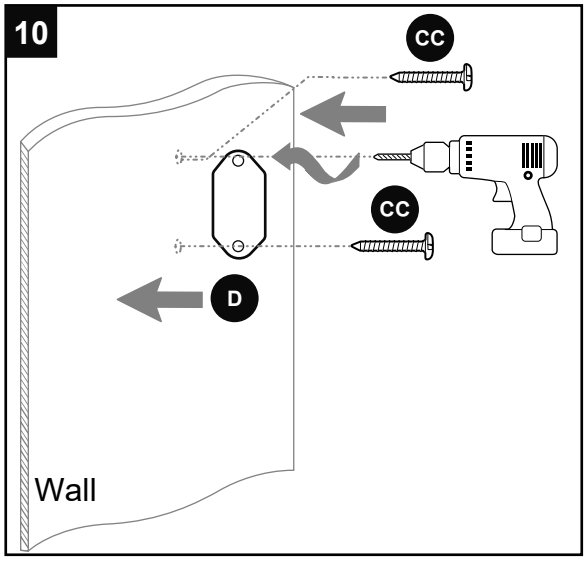


## ASSEMBLY INSTRUCTIONS

10. Drill two holes using a 1/4 in. drill bit (not included) at the marked locations on the wall. Secure photoeye holder (D) by inserting the screws (CC) through the photoeye holder (D) and into the wall.

### Hardware Used

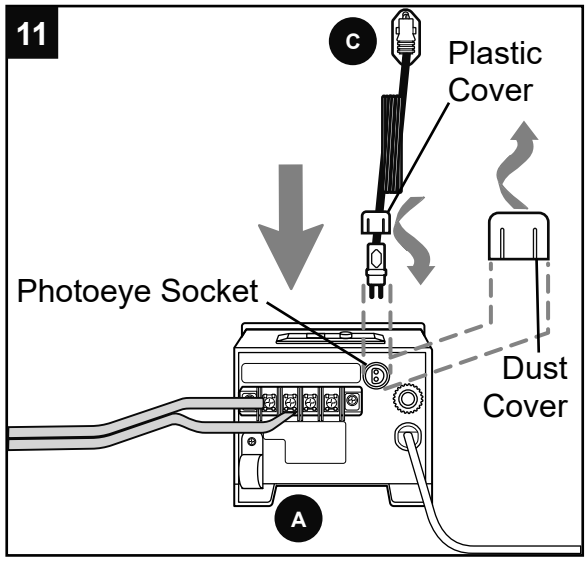
CC Wall Anchor Screw  x 2



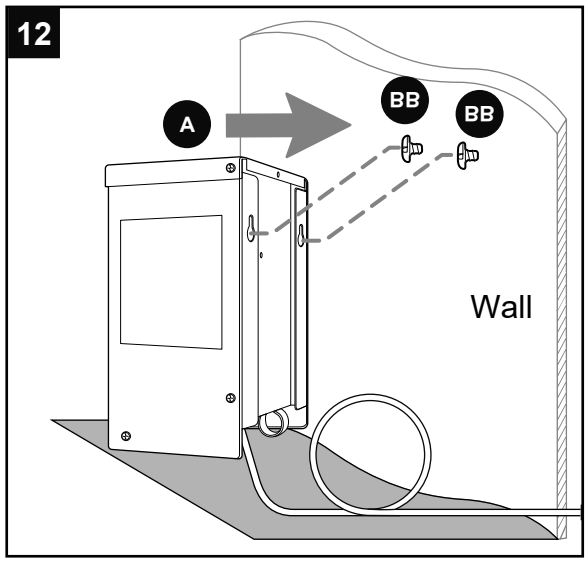

11. Remove the dustproof cover on the photoeye socket on the transformer (A) by turning it counterclockwise.

    Align and plug the male plug of the end of the photoeye cable (C) into the female plug of the photoeye socket on the transformer (A). Then securely tighten the plastic cover by screwing the photoeye cable (C) on clockwise.

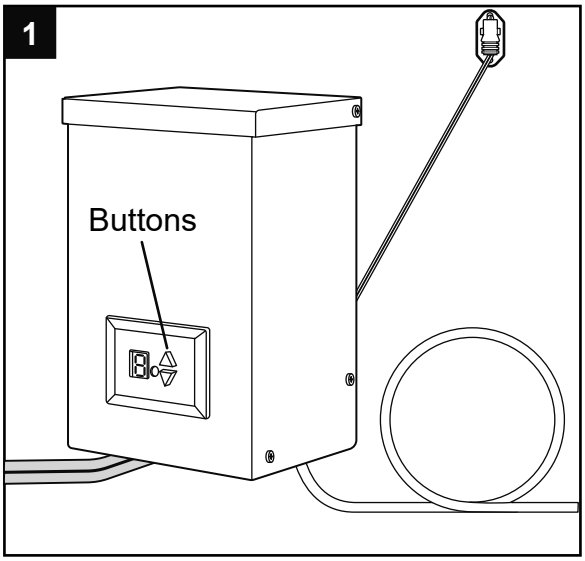
    Replace the photoeye in the photoeye holder (D). Make sure the photoeye cable (C) is not crimped in any way.




12. Carefully hang the transformer (A) on the wall anchor screws (BB) previously installed (Step 3, page 7) using the keyhole slots on the back of the transformer (A).



## OPERATING INSTRUCTIONS




1. After properly installing the transformer, turn on the electrical source. There are two buttons for operation. Press either button (▲,▼) for 3 seconds to select mode. The display will flash for 5 seconds and the transformer (A) will initiate the selected mode.

   • 0 -- MANUAL: Press up ▲ to turn the fixture ON, and press down ▼ to turn the fixtures OFF.

   • A -- AUTO: Automatically turn on at dusk and turn off at dawn (within 1 minute of sensing direct sunlight, after which there will be a 30 - 60-second delay). When the photoeye senses the absence of sunlight, the fixtures will turn on within 1 minute.

   • 1-9 -- TIMER: Fixtures turn on at dusk and turn off after the selected number (1 - 9) of hours.

   • C -- TEST: Test your fixtures after installation. Fixtures will turn on and off within 0.5 seconds of photoeye detecting an external light source.

• No matter what mode the product is in, if the up and down arrow buttons are pressed simultaneously for 3 seconds, transformer (A) will reset back to Auto ON/OFF mode.
• To save energy, the display will turn itself off after 30 seconds. Press any key (▲,▼) to re-activate display setting.
• When there is a power outage during the normal use of the transformer (A), the transformer (A) will maintain the pre-power outage working mode after a power outage. However, regardless of the pre-set delay light time, the delay light time will be recalculated at the preset time after the power outage.
• To test the photoeye during the day, plug the transformer (A) into a 120-volt covered GFCI outlet and use a cloth to completely cover the photoeye. Select the mode "C", making sure the photoeye is completely covered, and the fixtures will turn on "within 1 minute (with a 5-20 second delay). When you remove the cloth from the photoeye, and the photoeye senses direct sunlight.
• Note that when switching from photoeye cable (C) to internal photoeye, after unplugging the photoeye cable (C), you must first press and hold the up/down button (▲/▼) for 3 seconds until it flashes to wake up the function selection, or turn off the power before you can operate again.
• The photoeye does not work when the photoeye cable (C) connected. Do NOT attach the photoeye cable (C) if the transformer (A) photoeye receives direct light.

## TROUBLESHOOTING

⚠ **WARNING**: Before beginning work, disconnect the power to the product by unplugging the product to avoid electrical shock.

| PROBLEM | POSSIBLE CAUSE | CORRECTIVE ACTION |
|---|---|---|
| None of the fixtures will turn on. | 1. The cable and the transformer aren't in contact.<br>2. No power to the transformer.<br>3. Transformer is overloaded.<br>4. Power switch is not in an ON setting.<br>5. There is a short circuit in the run cable. | 1. Check the connection between the primary cable and the transformer.<br>2. Check the power to the transformer.<br>3. Check total wattage of all fixtures.<br>4. Check the power switch is in an ON setting.<br>5. Check the entire run cable. |
| Only some fixtures will turn on. | 1. The wire connector is not making correct contact with the landscape cable.<br>2. The fixture lights have burned out. | 1. Make sure brass contact pins pierce the plastic cable insulation and are touching the copper wires inside.<br>2. Replace the lights (if applicable). |
| The fixtures blink. | 1. The photoeye is receiving artificial light (street lights, reflection from light source, set on "test" mode only, etc.).<br>2. Normal voltage drop at the end of the wire or the landscape cable may be too long. | 1. Make sure the photoeye is not receiving artificial light (street lights, reflection from light source,set on "test" mode only, etc.).<br>2. Adjust the position of fixture(s), move it/them near the transformer or change to a thicker gauge cable (Refer to cable gauge and cable length on page 6). |
| The fixtures will not turn off in "Dusk to Dawn" mode (AUTO) during the day time. | 1. The photoeye is covered. | 1. Make sure the photoeye is receiving direct sunlight and is not dirty or covered. |
| The fixtures will not turn on at dusk. | 1. The photoeye is receiving artificial light (street lights, reflection from light source, etc.). | 1. Make sure the photoeye is not receiving artificial light (street lights, reflection from light source, etc.). |

## CARE AND MAINTENANCE

- Before attempting to clean the product, disconnect the power to the product by unplugging the product.
- To clean the product, use a dry or slightly dampened clean cloth.
- DO NOT use any cleaners with chemicals, solvents, or harsh abrasives as damage to the product may occur.
- Periodically check the terminal screws (E) connecting the cable to the transformer terminal blocks to make sure they are tightly secured to prevent overheating.

## WARRANTY

The distributor warrants this product against defects in materials and workmanship for two (2) years from the date of purchase. If within this period the product is found to be defective, take a copy of the bill of sale as a proof of purchase and the product in its original carton to the place of purchase. The distributor will, at its option, repair, replace or refund the purchase price to the consumer. All costs of installation and removal of the product is the responsibility of the consumer. This warranty does not cover product becoming defective due to misuse, accidental damage or improper handling and/or installation and specifically excludes liability for direct, incidental or consequential damages, improper packaging of returned products and acts of God. As some states do not allow exclusions of limitations on an implied warranty, the above exclusion and limitation may not apply. This warranty gives you specific rights and you may also have other rights which may vary from state to state.