

INSTALLATION INSTRUCTIONS

WARNINGS, CAUTIONS, & ENVIRONMENTAL RATINGS:

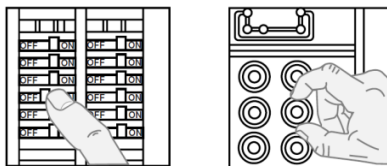
- To be installed and/or used in accordance with appropriate electrical codes and regulations.
- If you are unsure about any part of these instructions, consult a qualified electrician.
- Use with 12V AC dimmable LED, incandescent, or halogen lamps only.
- Must be supplied with 12 to 15V AC secondary side power from a magnetic step-down transformer rated appropriately for the load. (Minimum operating voltage \approx 9.2V AC)
- Control Voltage input range on yellow wires = (5V to 30V AC or DC)
- Total maximum load current must not exceed 10 amps per zone.
- Disconnect power at circuit breaker or fuse box when servicing electrical equipment.
- Use this device only with copper or copper clad wire.
- Zone Controller is integrated into an enclosure designed for outdoor usage.
 - The Zone Controller is IP67 rated with or without the enclosure being sealed due to the electronics being potted.
 - Use waterproof electrical splices in outdoor applications, when not keeping the weatherproof structure of the enclosure intact. Example: When conduit isn't used and knockouts are left open.
- Never install or pass high voltage wires within or through the Zone Controller enclosure.

Recommended tools & other items needed to install your 3 Channel Zone Controller:

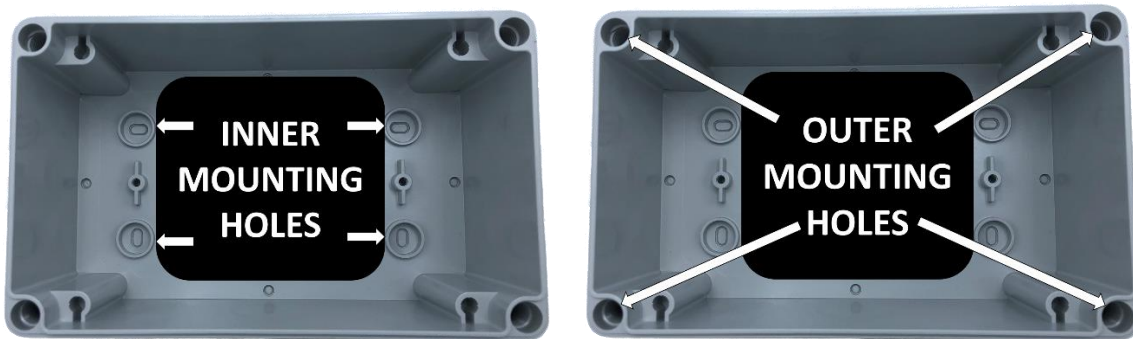
- Slotted & Phillips Screwdrivers
- Pliers
- Cutters
- Wire strippers
- Electrical Tape
- Small Screwdriver for settings
- Masonry drill bit and drill if installing on masonry surfaces
- Other tools may be needed when installing with conduit (recommended)
- Different wire nuts may be needed but varies widely with each installation
- Wire labels of your choosing

INSTALLING YOUR ZONE CONTROLLER

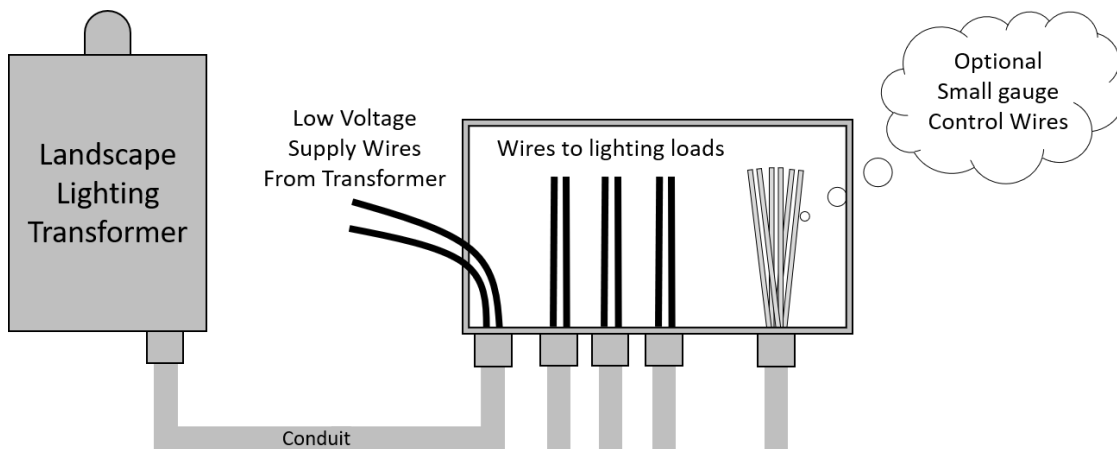
Step 1 WARNING: To avoid fire, arcing, or other dangers; **TURN OFF/REMOVE POWER** at primary side of transformer via circuit breaker, fuse, or power cord and test that power is off before wiring!



Step 2 Take the time to layout and plan a clean installation. Know upfront where all wires will enter and exit the back box. Use the provided template to accurately locate and mark the four mounting holes. You can choose the four outside corner holes or the four inner holes. The inner holes allow for some adjustment and are usually better suited when drilling into block walls that may cause the drill bit to walk while drilling. When using the inner holes, 4 small caps are provided to cover the screws and prevent moisture from entering the box.

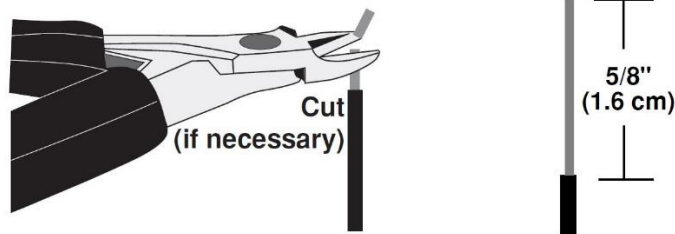


Step 3 Install the back box along with all conduit. Determine and pull the appropriate gauge wires through the conduit as shown below. Verify all wires have adequate length extending from the back box.



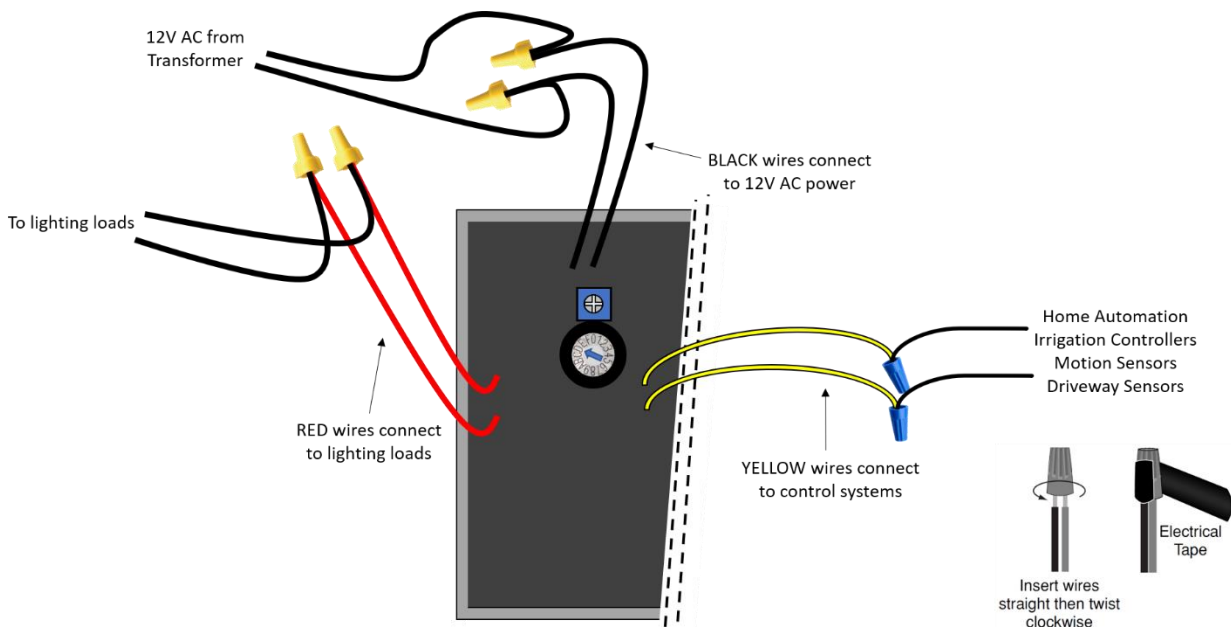
Step 3 Preparing the wires.

- Make sure the end of the wires coming into the zone controller (or back box) are **straight (cut if necessary)**.
- Remove approximately 5/8" (1.6cm) of insulation from each wire as shown.



Pro Tip: Test each lighting zone with the transformer output prior to connecting the zone controller wires. This verifies your system is properly wired and all lamps are functioning.

Step 4 Typical Device Wiring (1 of 3 zones)



NOTE: Multiple zones may share the same power source, but never connect red wires in parallel as each output circuit must remain independent. When connecting more than 2 wires be careful to use the correct size wire nut. Yellow wire nuts are provided for the larger wires and blue are provided for the smaller control wires. Please refer to wire nut sizing charts when connecting multiple wires. The yellow wire nuts provided have a maximum capacity of (3) 12ga wires.

Step 4 cont'd Typical Device Wiring.**Connect wires per WIRING DIAGRAMS above as follows:**

Screw wire nuts on clockwise making sure no bare conductors show below the wire connections. Secure each connector with electrical tape.

- Black wires connect to 12-15V AC low voltage wiring from transformer secondary.
- Red wires connect to load side wiring.
- Yellow wires connect to control systems.

If running in standalone mode (no control wires used), simply short the two yellow wires together and cap off using one of the supplied blue wire nuts. The yellow wires can also be left open but should be capped off or taped.

Step 5 Testing Zones prior to completely securing the Zone Controller to the electrical back box.

- Set each zone to mode "0" using the rotary switch.
- Turn the dimmer adjustment full clockwise for each zone.
- Power on the transformer.
- Each zone should turn on to full brightness.
 - Manually adjust dimming for each zone to verify dimming performance.
 - If lamps cycle on and off continuously there is too much load on that zone.
 - If a zone doesn't illuminate, troubleshoot that zone to find the fault. (Excessive loads can trip the short circuit protection and prevent the lamps from illuminating.)
 - If all zones illuminate correctly continue to the next steps.
- Turn transformer power off.
- Set each zone to the desired mode of operation using the rotary switch.
- Refer to the appendices in this manual for details on how each mode works.
- Turn transformer power back on and complete testing of each zone based on the mode used.
- When testing is completed, turn power back off.

Step 6 Securing Zone Controller:

- Label wires as desired (Labels not provided)
- Dress wires with a bend to allow less stress on wiring prior to attaching the controller to the back box.
- Gently press the controller/cover lid into position.
- Secure the controller/cover lid using the 4 plastic insert screws provided.

Step 7 Restore Power:

- Do any final tests.
- **Installation is complete.**

DEVICE PROTECTION FEATURES FOR EACH ZONE

- Average over current protection activates above 10 amps.
 - Lamps cycle on and off continuously to indicate average over current.
 - Automatically clears when load is reduced.
 - Typically caused by low power factor (inefficient) lamps.
 - Load calculations were done incorrectly or power factor was not considered.
 - LED lamps vary widely as some pull higher currents when dimmed around 50%, while others pull higher currents when not dimmed.
- Instantaneous over current activates above 30 amps.
 - Typically occurs when using halogen lamps.
(Halogens typically have a 10 to 1 start-up current pulse.)
 - Automatically retries for a fixed number of times.
 - Lamps usually warm up and will reach normal operation.
 - Protects dimmer in the event of a short circuit.
 - After fixed number of retries (\approx 10 secs), lamps remain off to protect the zone
 - Reset by cycling power, or.....
 - Reset in some modes via control lines.

TROUBLESHOOTING

- Lamps Flickering
 - Lamp has a bad connection.
 - Wires not secured firmly with wire connectors.
 - LED lamps (verify they are dimmable).
- Lamps not turning ON
 - Circuit breaker or fuse has tripped, (look for a short circuit).
 - Verify low voltage present at zone controller wiring using a voltmeter.
 - Lamp is burned out.
 - Lamp wiring may be disconnected.

LIMITED 1 YEAR WARRANTY AND EXCLUSIONS

Letzgo Products, Inc. warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Letzgo Products, Inc. is free of defects in materials and workmanship under normal and proper use for one year from the purchase date. Letzgo Products, Inc.'s only obligation is to correct such defects by repair or replacement, at its option, if within such one-year period the product is returned prepaid, with proof of purchase date, and a description of the problem to **Letzgo Products, Inc.** This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. **There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose,** but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to one year. **Letzgo Products, Inc. is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, lost sales or profits or delay or failure to perform this warranty obligation.** The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.

Appendix

SWITCH POSITION 0

[DIMMER MODE]

DESCRIPTION

- Zone turns on when transformer is powered on and turns off when transformer is powered off.
- Zone functions as a set-and-forget dimmer. The zone dimming trimmer sets zone brightness.
- Control input (YELLOW WIRES) should be shorted together and capped off with a wire nut.

DESCRIPTION

• This mode was designed to turn off a zone at a fixed time after the transformer powers on and is typically used when the zone controller operates as a standalone device. The transformer in these installations may operate from a photocell or other timing device. The site may have lights in multiple yard locations and the user wants certain lights to turn off later into the evening. An example would be the front yard remaining illuminated all night (Switch position 0), while the rear yard would have its lights turn off 6 hours after all the lights were first turned on (Switch position 4).

Accuracy is $\pm 1\%$ for these timers as shown in parenthesis

SW POSITION 1	→	1 HOUR ZONE TIMER	($\pm 0:36$)
SW POSITION 2	→	2 HOUR ZONE TIMER	($\pm 1:12$)
SW POSITION 3	→	4 HOUR ZONE TIMER	($\pm 2:24$)
SW POSITION 4	→	6 HOUR ZONE TIMER	($\pm 3:36$)
SW POSITION 5	→	8 HOUR ZONE TIMER	($\pm 4:48$)
SW POSITION 6	→	10 HOUR ZONE TIMER	($\pm 6:00$)
SW POSITION 7	→	12 HOUR ZONE TIMER	($\pm 8:32$)

CONTROL FEATURES

- At transformer power on, the zone turns on.
- When the selected timer expires, the zone turns off.
- The dimming trimmer sets the constant/default brightness level.
- Applying a control voltage to the (YELLOW WIRES) for at least 2 seconds does the following:
 - If zone timer is active, zone goes to full brightness and returns to the dimmer setpoint 1 minute after the control voltage is removed.
 - If timer has expired, zone goes to full brightness and returns to off 1 minute after the control voltage is removed.
 - Anytime the control voltage is re-applied during the 1-minute countdown timer, the 1-minute timer restarts its countdown.

NOTES

- If control feature isn't used simply short together and cap off the yellow wires for that zone.
- The control voltage can be supplied from a motion detector, driveway sensor, etc.
- Most sensors will either have a voltage output compatible with the control voltage input (YELLOW WIRES) or will have a relay output that can be wired to supply the necessary control voltage.

SWITCH POSITIONS 8 - B**[SENSOR MODE]****DESCRIPTION**

- This mode was designed to be used with sensors (motion, driveway, etc.). Simply select how long the zone is to stay on with the switch position.
- Most sensors will either have a voltage output compatible with the control voltage input (YELLOW WIRES) or will have a relay output that can be wired to supply the necessary control voltage.

SW POSITION 8 → 1 MINUTE [CONTROL ACTIVATED](#) TIMER
SW POSITION 9 → 5 MINUTE [CONTROL ACTIVATED](#) TIMER
SW POSITION A → 10 MINUTE [CONTROL ACTIVATED](#) TIMER
SW POSITION B → 15 MINUTE [CONTROL ACTIVATED](#) TIMER

CONTROL FEATURES

- At transformer power on, the zone turns on.
- The dimming trimmer sets the constant/default brightness level.
- Applying a control voltage to the (YELLOW WIRES) for at least 2 seconds does the following:
 - The zone goes to full brightness and returns to the dimmer setpoint 'X' minute/s after the control voltage is removed.
 - Anytime the control voltage is re-applied while the timer is running, the timer restarts its countdown.
 - If the control voltage stays applied while the timer is running, the timer resets but won't begin counting down until the control voltage is removed.

NOTES

- The installer may choose to have the dimming trimmer turned to the full counterclockwise position. In this case, the zone will remain off until a control voltage is applied for at least 2 seconds.

DESCRIPTION

• This mode was designed to be used with home automation systems that supply the control voltage via a relay closing. This allows the home automation system to take full control of the lighting schedule.

CONTROL FEATURES

- At transformer power on, the zone remains off.
- The dimming trimmer sets the constant/default brightness level.
- Applying a control voltage to the (YELLOW WIRES) turns on the zone.
- Removing the control voltage to the (YELLOW WIRES) turns off the zone.

NOTES

- There is a 2 second delay from the time the relay is activated/deactivated for the zone to turn on/off.

SWITCH POSITION D**[IRRIGATION CONTROLLER MODE]****DESCRIPTION**

- This mode allows an irrigation controller to take full control of the lighting system from a single zone or multiple zones.
- The 2 wires normally used to connect a sprinkler valve (valve output) on an irrigation controller are connected to the control input (YELLOW WIRES).

CONTROL FEATURES

- At transformer power on, the zone remains off.
- The dimming trimmer sets the constant/default brightness level.
- Do the following to control the lighting zone:
 - Turn the irrigation valve output on for 5 seconds to 1 minute. (Lighting zone turns on).
 - Wait 2 minutes or longer.
 - Turn the irrigation valve output on for 5 seconds to 1 minute. (Lighting zone turns off).
 - Wait 2 minutes or longer before repeating.

NOTES

- Most irrigation controllers have a minimum valve on time of 1 minute while a few allow for on times of less than 1 minute and may offer precision timing in the seconds.
- This mode requires a wait time of 2 minutes or longer between applications of the control voltage.
- A single sprinkler valve output can drive multiple sets of (YELLOW WIRES).
- Each lighting zone can be controlled by a separate sprinkler valve output.

SWITCH POSITION E

[MASTER CONTROL MODE]

DESCRIPTION

- This mode was designed to provide single knob dimming for larger scale projects or remote dimming of a few zones.
- It requires a Letzgo Products “Master Control Knob”. [PN:10791]
- A single Master Control Knob can control up to 300 amps of current or 3,600 watts of landscape lighting at 12V AC.

CONTROL FEATURES

- At transformer power on, any zone connected to the Master Control Knob will be set to the dim level set by the Master Control Knob.
- The Master Control Knob provides a 100 hertz square wave with a duty cycle from 0 to 100%.
- The Master Control Knob is powered by 2 black wires from the 12V AC landscape lighting transformer.
- The Master Control Knob provides the 100 hertz signal from 2 yellow wires which then connect to the control input (YELLOW WIRES) on one or more zones within the zone controller.
- Parallel connecting control inputs (YELLOW WIRES) to the Master Control Knob yellow wires allows up to 30 zones to be controlled via one Master Control Knob.
- The minimum brightness level for each zone can be set using the dimming trimmer for each zone. The dimming trimmer can also be used to make the brightness of one zone track another. These features help in multiple scenarios. Here is one example:
 - 3 different light sources are being used on a large back patio.
 - Zone #1 → Hardscape Lights
 - Zone #2 → MR16 Sconces
 - Zone #3 → Tape Lights
 - Zone #1 - The hardscape lights are dimmable but flicker at the low end. Zone #1 dimming trimmer is turned up to remove low end flicker on the hardscape lights.
 - Zone #2 - The MR16 lamps need to be a little brighter across the full dimming range to better track with the brightness of hardscape lights. Zone #2 dimming trimmer is turned up by 20% to give the MR16s a default 20% brightness boost. When the Master Control Knob is turned up, Zone #2 turns on at 20% while Zone #1 turns on at 1%. Zone #2 will be 20% brighter through the entire range until it reaches max brightness.
 - Zone #3 - The tape lights have zero flicker, and no adjustment is made to the Zone #3 dimming trimmer.
 - All 3 zones are connected to the master control knob and can now be dimmed in unison.

NOTES

- Different lamp types/brands have different turn-off thresholds when dimming. Another use for the dimming trimmers is to adjust them so that all zones connected to the Master Control Knob turn off at exactly the same point.
- When using Master Control Mode ensure all dimming trimmers are initially set to full counter clockwise. Then, make adjustments as necessary.

SWITCH POSITION F

[PERCENTAGE MODE]

DESCRIPTION

• This mode was designed to be used with home automation systems AND/OR irrigation controllers that provide seconds resolution for timing. The output of the home automation system usually comes from a relay wired to supply a control voltage, while the irrigation controller supplies a control voltage from a valve output signal. In either scenario, the control voltage connects to the (YELLOW WIRES) on the zone/zones being controlled. This allows either of the above controllers to adjust dimming and scheduling for each lighting zone.

CONTROL FEATURES

- At transformer power on, the zone remains off.
- A control voltage applied to the (YELLOW WIRES) does the following:

Example Settings

- 5 Second Pulse → 5% Brightness
- 25 Second Pulse → 25% Brightness
- 50 Second Pulse → 50% Brightness
- 70 Second Pulse → 70% Brightness
- ...
- ...
- ...
- 100 Second Pulse → 100% Brightness

- A ≈1 second pulse will turn the zone off.

NOTES

- A wait time of at least 2 seconds should be provided between successive control signals.