

# X2

KEYPAD

## Installation Guide



### Model

X2-ND - KetraNet Mesh Keypad 120-277 V~

X2-INC - KetraNet Mesh + 600 W Incandescent Dimmer 120 V~

# Warning

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Risk of electric shock. Use in dry locations only.

Turn power OFF at circuit breaker or remove fuse. Damage to this product caused by wiring with power on voids the warranty.

Due to the risk of electric shock, a licensed electrician should install this power supply unit in strict compliance with the National Electrical Code and any state or local code which may apply.

This 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, and (2) this device must accept any interference received, including interference that may cause undesired operation.



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

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

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# Product Overview

Ketra's X2 keypad offers users a classic button-style interface for the complete control of a lighting system.

X2s come in two models: a wireless KetraNet Mesh controller and a wireless KetraNet Mesh controller with onboard incandescent dimmer. The latter is ideal for spaces where both Ketra and traditional lighting sources need to be controlled. Fitting within a standard wall box and either Decora® or Claro wall plates, the X2 is perfect for retrofit installations as well as new construction.

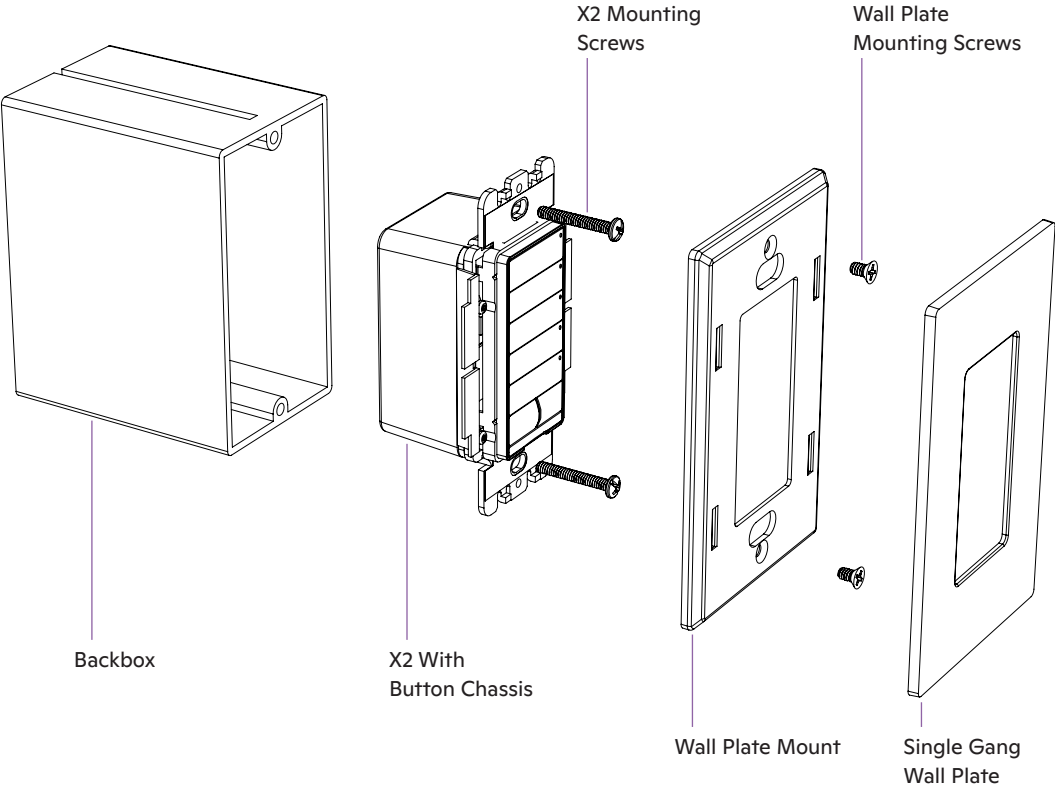
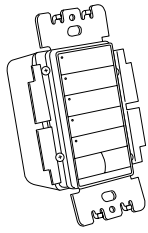
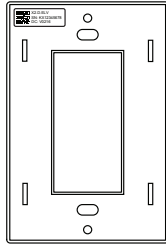


fig. 1

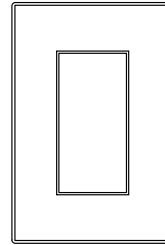
# Included Components/Specs



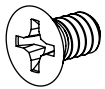
X2 with button chassis



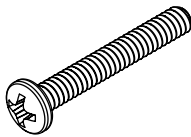
Wall plate mount



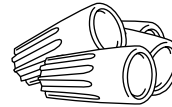
Single gang wall plate



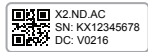
(2) #6-32 × 0.75 in (6.35 mm)  
wall plate mounting screws



(2) #6-32 × 1 in (25.4 mm)  
X2 mounting screws



Wire nuts



Serial number stickers

## Specifications

### Environmental

|                               |                            |
|-------------------------------|----------------------------|
| Ambient Operating Temperature | 0° to 40°C                 |
| Storage Temperature           | -20° to 80 °C              |
| Humidity                      | 0–95%, Non-condensing      |
| Certification                 | UL, cUL, FCC Class B, RoHS |
| Location                      | UL Damp Location, IP20     |

### Mechanical

|                  |                         |
|------------------|-------------------------|
| Weight           | 8.8 oz/250 kg           |
| Housing Material | Flame Retardant Polymer |

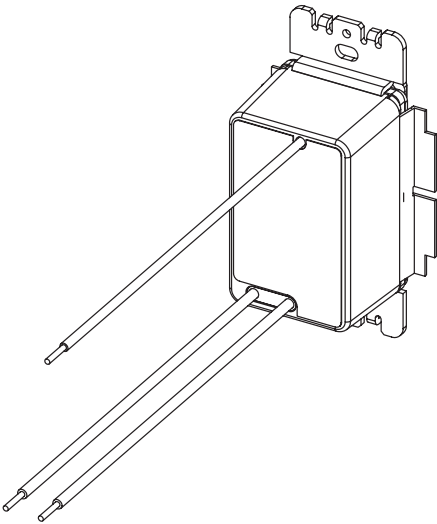
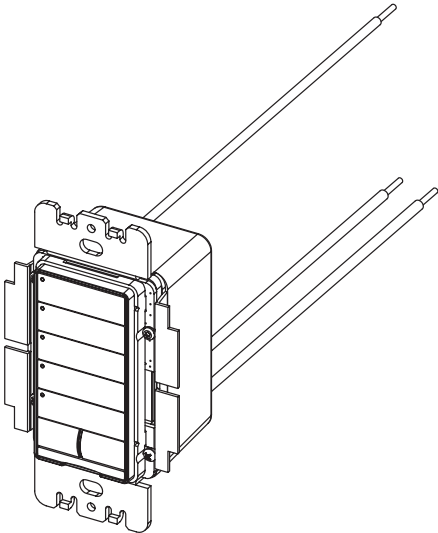
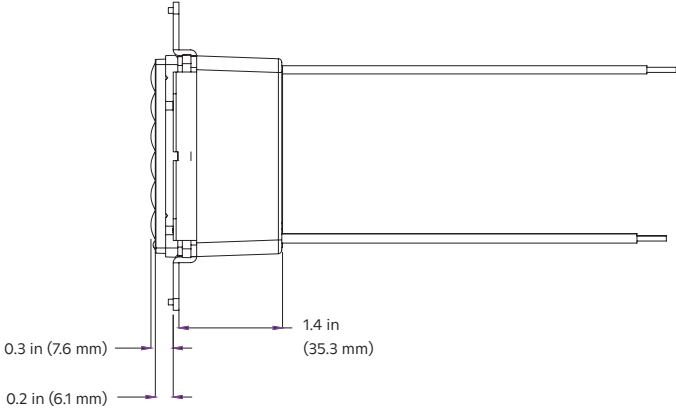
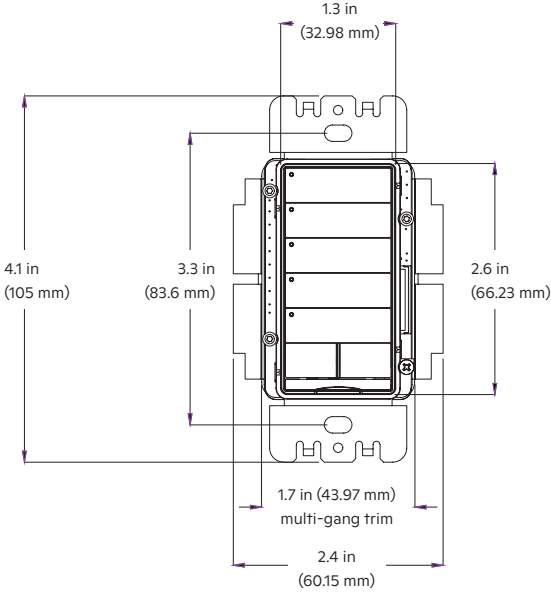
### Wireless

|              |               |
|--------------|---------------|
| Frequency    | 2405–2480 MHz |
| Output Power | 18–20 dBm     |

### Electrical

|                   |                                    |
|-------------------|------------------------------------|
| Input Wiring      | 16 AWG Flying Leads                |
| Voltage           | X2.ND 120-277 VAⓈ<br>X2.INC 120 VⓈ |
| Power Consumption | 2 W                                |
| Frequency         | 50/60 Hz                           |

# Dimension Drawings



# Dimmer Load

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**X2-INC** Load Type and Capacity Chart

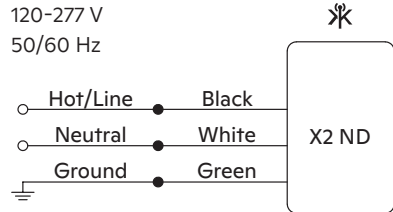
| Load Type    | Single Gang | Multigang |
|--------------|-------------|-----------|
| Incandescent | 600 W       | 500 W     |

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Dimmer capacity rated at 25 °C ambient temperature; derate incandescent and halogen loads an additional 100 W at 40 °C temperature ambient.

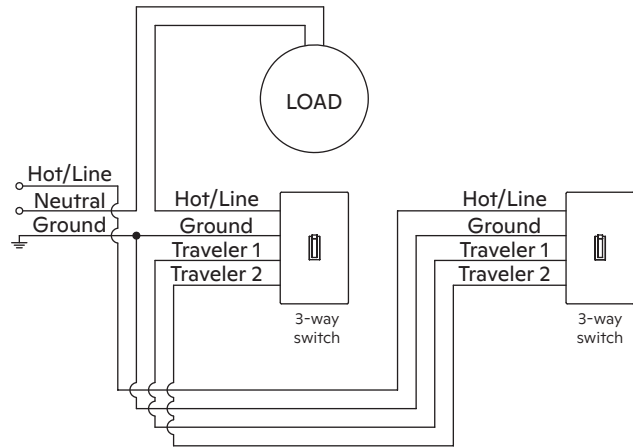
# Wiring Diagrams

## X2 Keypad



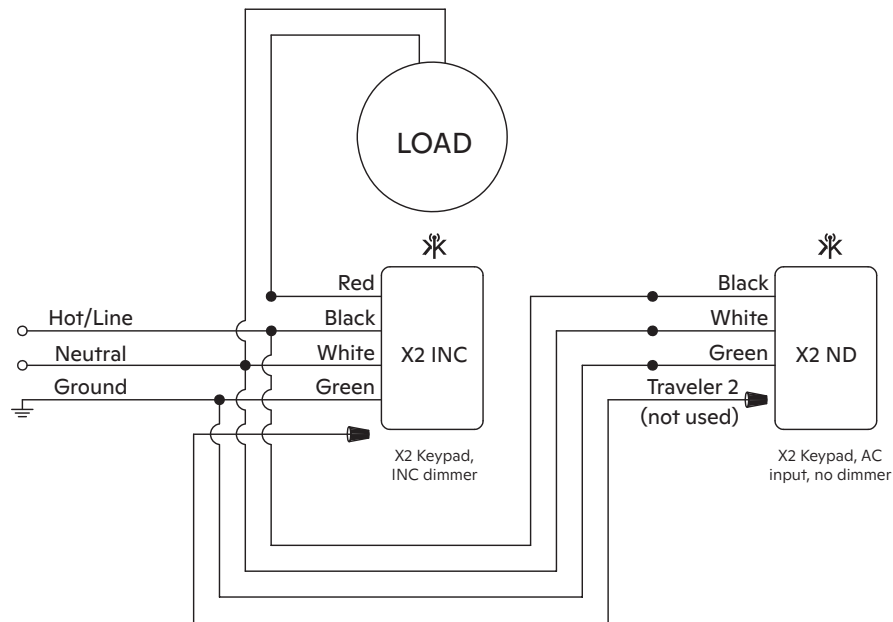
## Switch - Load + Switch

### 3-Way Switch



## Switch - Load + Switch

### X2 Keypad Ketra Retrofit

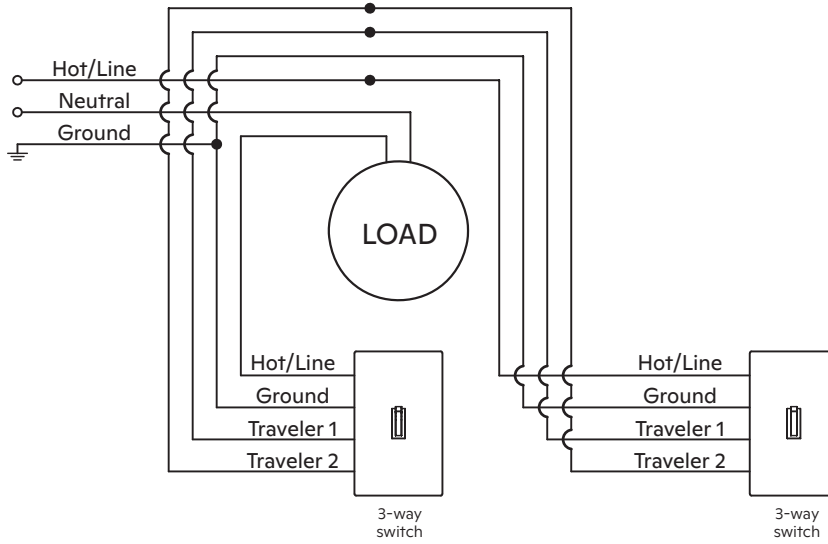




# WIRING DIAGRAMS

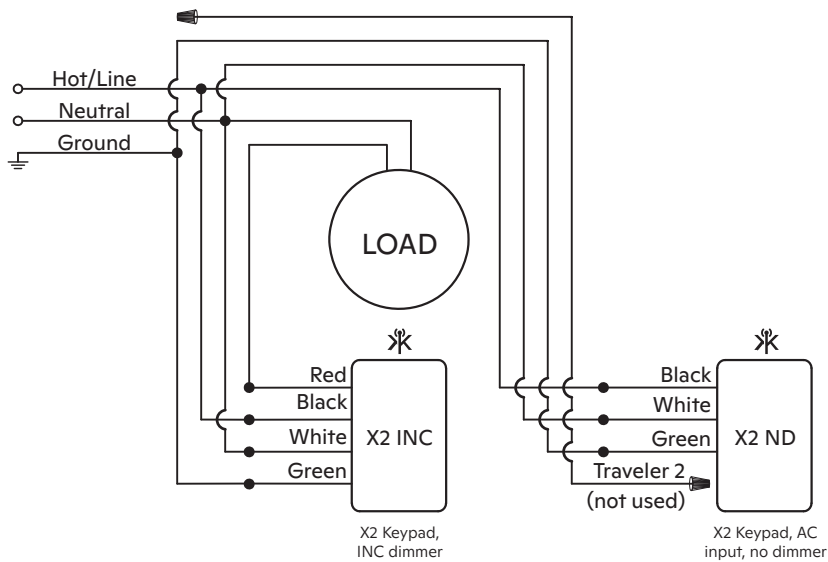
## Load - Split Switches

### 3-Way Switch



## Load - Split Switches

### X2 Keypad Ketra Retrofit



# Installation

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## X2-ND AC Input, Non-dimming

### New Construction

1. Install wall box (single gang wall box with at least 14 in<sup>3</sup> volume only).
2. If installing in a multigang box, the side-fins must be removed for fit (see figures 2 and 3).

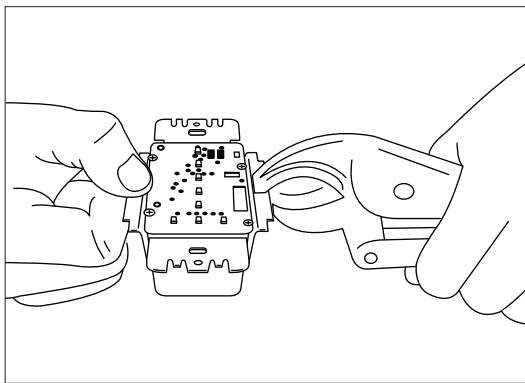


fig. 2

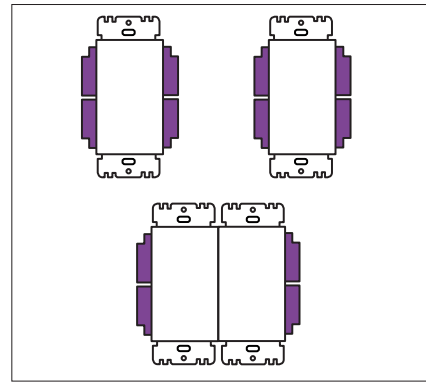


fig. 3

3. Run power to wall box utilizing stranded or solid core 12-18 AWG wire (see figure 4).
4. Prepare the wire for connection to lead wire: **A.** Strip 8.5 mm of wire for insertion into the wire nut. **B.** Twist the stranded wire to prevent fraying (tinning optional).
5. Using the provided wire nuts, attach each X2 lead wire to the corresponding conductor. Black-Line, White-Neutral, Green-Ground (see figure 5).

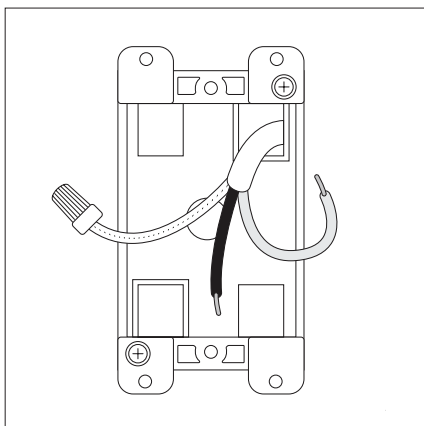


fig. 4

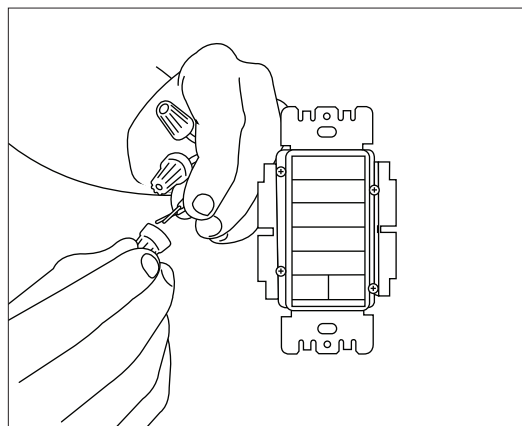


fig. 5

*continued on next page*

## INSTALLATION

6. Ensure that no conductors are visible after insertion, and that no stray wires are exposed.
7. Carefully tuck wires back into wall box.
8. Mount the X2 to the wall box using supplied fasteners. Leave the fasteners snug, not fully tight (see figure 6).
9. Secure Wall Plate Mount to the X2 using the supplied fasteners (see figure 7).

**Note:** If the X2's button chassis is not aligned with the wall plate mount, remove the mount and adjust the position of the X2. Secure the wall plate mount with the fasteners when satisfied.

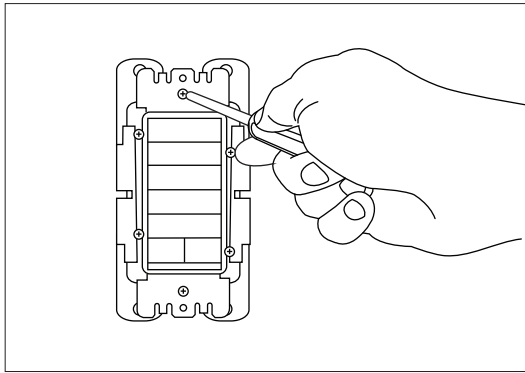


fig. 6

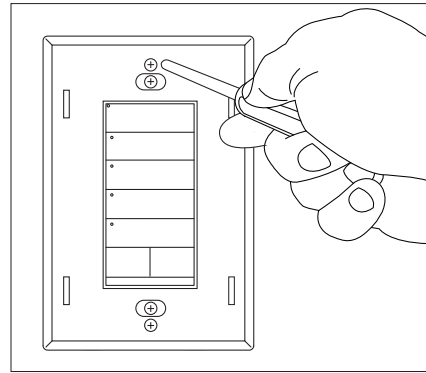


fig. 7

10. Place one serial number sticker on the back of the wall plate. The other can go on building plans or control drawings (see figure 8).
11. Attach Wall Plate to Wall Plate mount. It will snap into place (see figure 9).
12. Energize circuit.

**Note:** Indicator lights will power on if unit is properly wired.

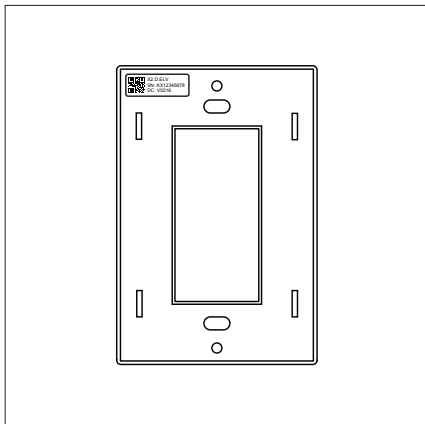


fig. 8

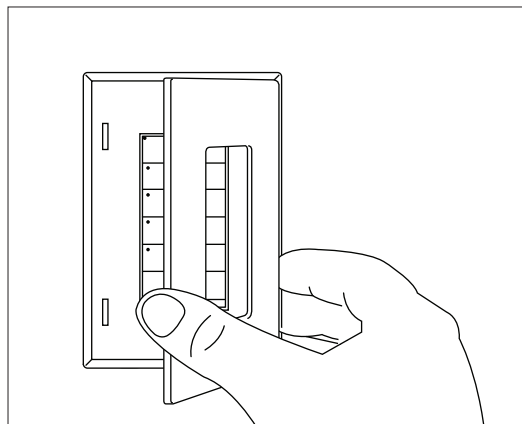
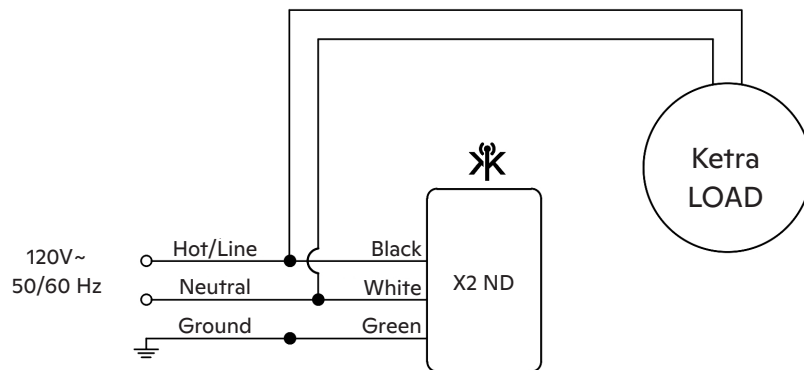


fig. 9

Installation is complete.  
Refer to Design Studio Software for commissioning details.

## Retrofit Important Notes

- This wiring scheme is for standard in-line 2-Way light switches.
- The wall box should have a volume of 14 in<sup>3</sup> or greater.
- The X2 does not have to be on the same circuit as any Ketra fixtures, as all control signals are wireless.
- Ketra fixtures to be controlled by the X2 should have an uninterrupted source of power. They should NOT be wired to a light switch or other intermediary device that could cut their power. If you are replacing lamps that are already wired to a light switch, it is recommend that the light switch be physically replaced by the X2 (see figure 10).



\* X2 and load on same circuit should be wired in parallel, not series.

## Retrofit Instructions

1. Turn off power feed to the switch to be replaced.
2. Remove existing switch.
3. Continue with step 3 in the New Construction section, page 13.

## X2-INC Incandescent Dimmer

### NEW CONSTRUCTION

1. Install wall box (single gang wall box with at least 14 in<sup>3</sup> cubic inch volume only).
2. Run power to wall box utilizing stranded or solid core 12-18 AWG wire (see figure 10).
3. Prepare the wire for connection to lead wire: **A.** Strip 0.3 in (8.5 mm) of wire for insertion into the wire nut. **B.** Twist the stranded wire to prevent fraying (tinning optional).
4. Using the provided wire nuts, attach each X2 lead wire to the corresponding conductor. Black-Line, White-Neutral, Green-Ground, Red-Dimmed Line (see figures 11 & 12).

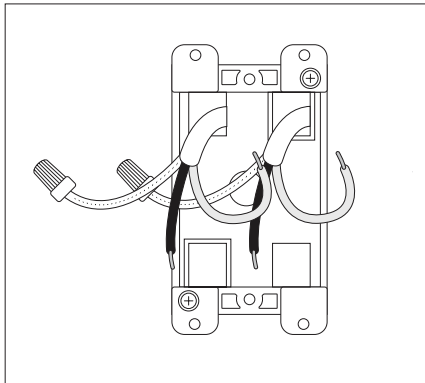


fig. 10

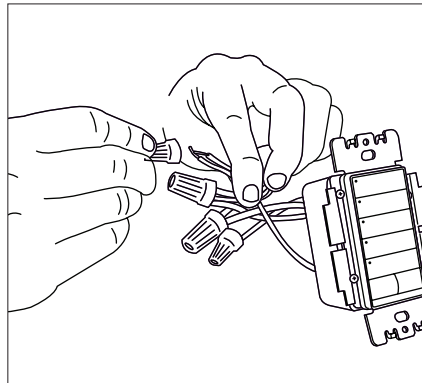


fig. 11

### X2 Keypad - INC

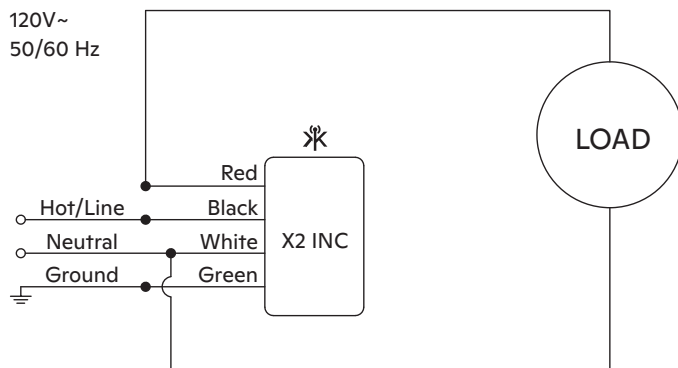


fig. 12

**Warning:** Do not connect Dimmed Line (Red) to AC Input Line (Black)

5. Ensure that no conductors are visible after insertion, and that no stray wires are exposed.
6. Carefully tuck wires back into wall box.

## INSTALLATION

7. Mount the X2 to the wall box using supplied fasteners (see figure 13).
8. Secure Wall Plate Mount to the X2 using the supplied fasteners (see figure 14).

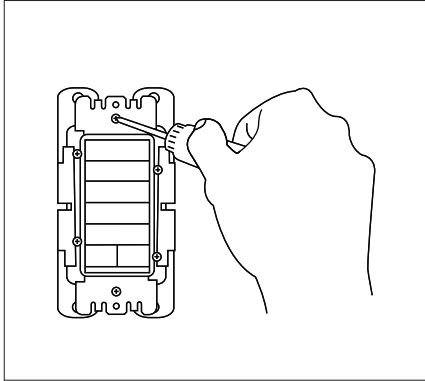


fig. 13

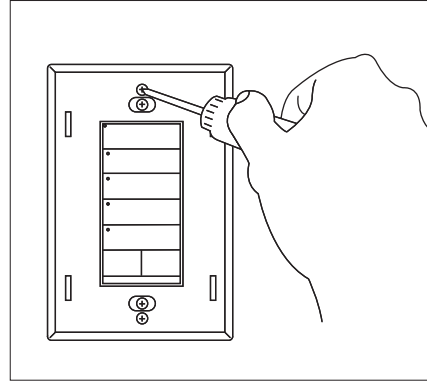


fig. 14

9. Remove Serial Number Sticker from sheet and affix it to the back of the Wall Plate (see figure 15).
10. Attach Wall Plate to Wall Plate mount. It will snap into place (see figure 16).

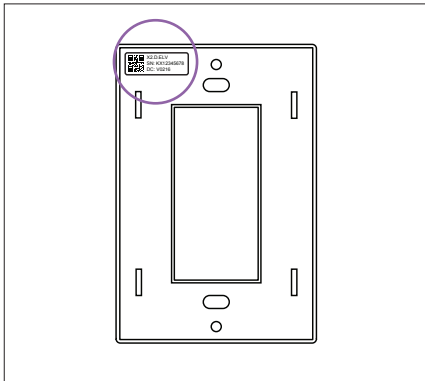


fig. 15

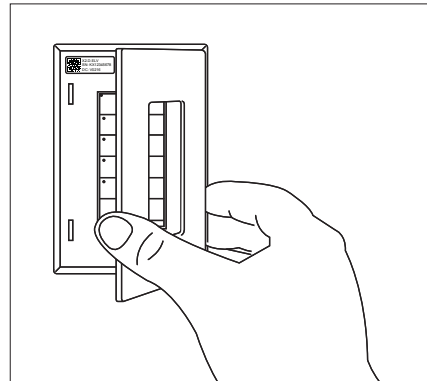


fig. 16

11. Energize circuit.

**Note:** Indicator lights will power on if unit is properly wired.

Installation is complete.

Refer to Design Studio Software for commissioning details.

### Retrofit Important Notes

- This wiring scheme is for standard in-line dimmer.
  - Wall box should have volume of 14 in<sup>3</sup> or greater.
  - The X2 Keypad and Ketra products require a constant, uninterrupted source of electricity. Power needs to be run directly to Ketra fixtures being controlled by the X2 Keypad. Ketra fixtures to be controlled by the X2 Keypad do not have to be connected to the same circuit, as the control signal is wireless. However, non-Ketra fixtures will need to be on the same circuit and wired in-line if they are to be controlled by an X2 with onboard incandescent dimmer.
  - For a dimmer retrofit installation using incandescent loads, the incoming and outgoing line connections should NOT be tied together. Instead, the incoming line should be tied to the X2's black line wire, while the outgoing line is tied to the X2's red dimmed-line wire. Refer to page 13's "X2 Keypad: Incandescent Dimmer" wiring diagram for an illustration of the proper wiring.
1. Turn off power feed to the switch to be replaced.
  2. Remove existing switch.
  3. Continue with step 3 in the New Construction section for the non-dimming model, page 13.

# Replacing Button Chassis

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The X2's button chassis can be replaced. The replacement chassis must have the same button layout as the original. To replace the button chassis, follow these steps:

1. Pull airgap switch out.
2. (If X2 already installed) Snap the wall plate off of its mount, and then unscrew and remove the mount. Save screws.
3. Using a Phillips (PH1) screwdriver, unscrew the bottom-right screw that holds the button chassis in place (see figure 10).
4. Apply pressure to exposed left edge of button chassis until it pops loose, and then gently remove (see figure 11).

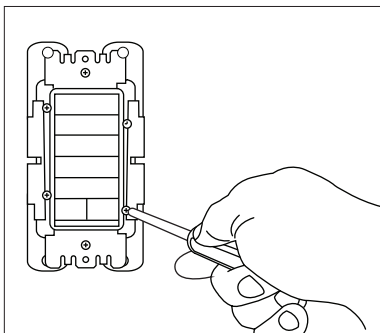


fig. 10

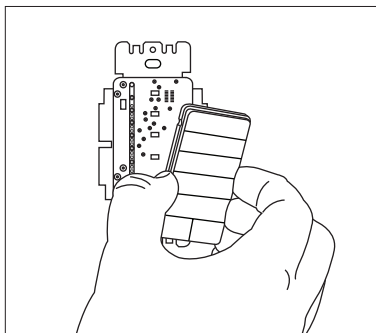


fig. 11

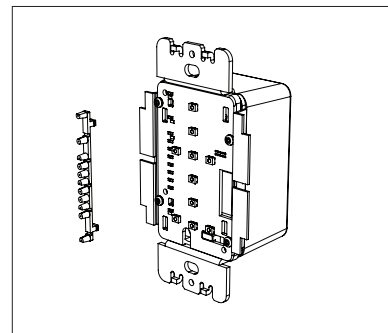


fig. 12

5. If removing the chassis detached the light guide from the board, reapply the light guide. The light guide is a thin, black rubber strip with chimneys on top (see figure 12). To reapply, fit the two pegs on the underside of the light guide into the two square holes on the board.

**Note:** The light guide's orientation matters. Its surface should have a groove at the very bottom, just above the last chimney.

6. Apply replacement button chassis immediately, applying equal pressure to all four corners to ensure that the new chassis snaps into place.

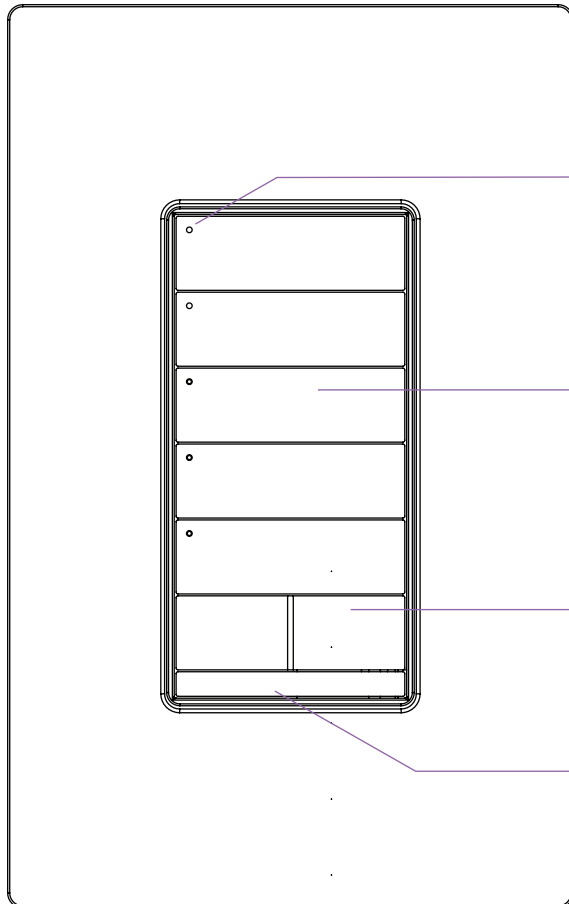
**Note:** Your replacement chassis must have the same button layout as the original.

7. Reapply the bottom-right screw that holds the chassis in place. Ensure airgap switch is pressed in fully.



# Operation

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**Status LEDs**  
Highlight activated button.

**Keypad Buttons**  
Press to activate or deactivate stored scenes or shows.

**Intensity Buttons**  
Increase or decrease light intensity. Double tap up or down to go to the max/min intensity of the selected scene.

**Airgap Switch**  
Pull out to disconnect power to device.

# Warranty & Tech Support

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Limited warranty terms can be found at:

[www.ketra.com/warranty](http://www.ketra.com/warranty)

For questions and technical support please contact:

**(844) 588-6445**

**[ketrasupport@lutron.com](mailto:ketrasupport@lutron.com)**

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