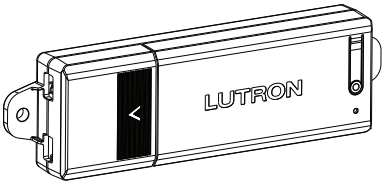
Rania Natural White Tape Light Solutions

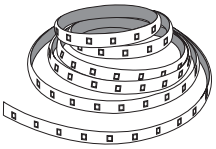
PRODUCT DESCRIPTION

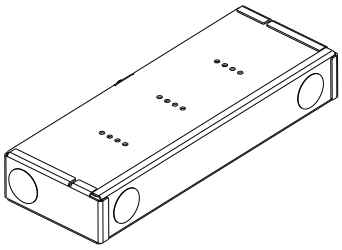
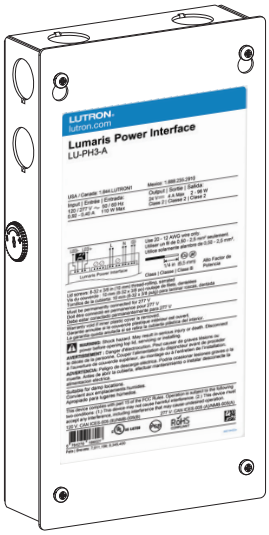
The Rania natural white tape light solution takes scene control to the next level, offering a simple and seamless way to add accent lighting to Lutron connected home projects.

A complete Rania natural white tape light solution consists of field-cuttable LED tape, a wireless controller with integrated LED drivers, high-reliability punch connectors, dedicated wiring, and a power supply or interface. For an added level of quality, install the tape light inside the Lutron LED tape extrusions.

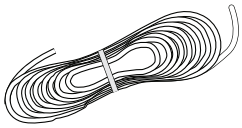


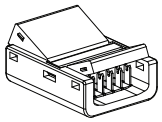
Multi-Channel Wireless Controller


LED Tape

Power Interfaces


Cable


Connectors

FEATURES

Lighting System

- HomeWorks QSX seamless integration
- User-programmable intensity and color temperature presets
- Warm dim to mimic the dimming curve of an incandescent lamp
- Automatically changes color temperature based on time of day
- Manual adjustments via the app or integration

Multi-Channel Wireless Controller

- Dimming Range 0.1%–100%
- 96 W rated LED load
- 50,000 hours rated lifetime
- Uses Clear Connect–Type X wireless communication
- Compact, easy to hide

Power Interface

- Powers up to three Multi-Channel Wireless Controllers and 96 W of tape
- Class 2 separation
  - LU-PH3-A: Barrier provided for in the wiring compartment
  - LU-PH3-B: Barrier pre-installed
- Terminal block or flying lead connection methods
  - LU-PH3-A: Terminal block
  - LU-PH3-B: Flying Leads

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P/N 3663141 Rev B
Specifications are subject to change without notice

SPECIFICATIONS

MULTICHANNEL WIRELESS CONTROLLER

Regulatory Approvals

Certifications	**cULus Listed for USA and Canada** **FCC Part 15 Class B compliant** **ICES-005 compliant**

Electrical

Input	**24 V⎓ 4.0 A**
Output	**24 V⎓ 96 W max**
Electrical Protection	**Output short-circuit and overload protection**

Environmental

Ambient Temperature	**32 °F to 104 °F (0 °C to 40 °C)**
Humidity	**0% to 95%, Non-condensing**
Location	**Indoor use only**
Warranty	**For warranty information, please visit https://assets.lutron.com/a/documents/043492.pdf** **The warranty will not cover issues caused by use of incompatible devices (including non-Lutron LED tape and/or power supplies).**

POWER INTERFACE

Regulatory Approvals

Certifications	**cULus Listed for USA and Canada** **FCC Part 15** **– Class A compliant (277 V~)** **– Class B compliant (120 V~)** **Meets UL® 8750/CSA C22.2 No. 250.13-14, "Light Emitting Diode (LED) Equipment For Use in Lighting Products"** **Class 2 output; meets UL® 1310/CSA C22.2 No. 223-M91**

Electrical

Operating Voltage	**120 V~ / 277 V~ 50/60 Hz**
Output	**24 V⎓ constant voltage at high-end**
Output Load Range	**2 W to 96 W at high-end**
Electrical Protection	**Output open-circuit, short-circuit and overload protection**

Environmental

Ambient Temperature	**32 °F to 104 °F (0 °C to 40 °C)**
Humidity	**LU-PH3-A** **– 0% to 95%, Non-condensing** **LU-PH3-B** **– 5% to 95%, Non-condensing**
Location	**Indoor use only**
Warranty	**For warranty information, please visit https://assets.lutron.com/a/documents/043492.pdf** **The warranty will not cover issues caused by use of incompatible devices (including non-Lutron LED tape and/or power supplies).**

ACCESSORIES AND CONNECTORS

Wiring

LU-WK1-4W	**4 × 22 AWG (0.5 mm²) cable 50 ft (15.2 m)**

Connectors

LU-CK1-4W	**4-pin wire-to-tape connectors (qty: 10)**

Extrusions

Compatible with the full list of extrusions. Refer to Specification Submittal PN 3691292 at www.lutron.com for further details

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TAPE LIGHT SOLUTIONS

P/N 3663141 Rev B
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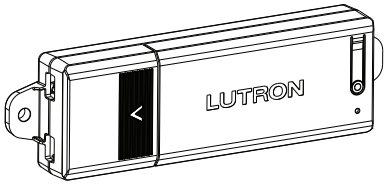
CONTROLLER ORDERING GUIDE

HWL-	MWCL-	WH
Product Line	Model	Finish



Multi-Channel Wireless Controller

Order code: **HWL-MWCL-WH**

Product Line	Code
Residential (HomeWorks compatible)	**HWL-**

Finish	Code
White	**WH**

Model	
Multi-Channel Wireless Controller	**MWCL-**

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TAPE LIGHT SOLUTIONS

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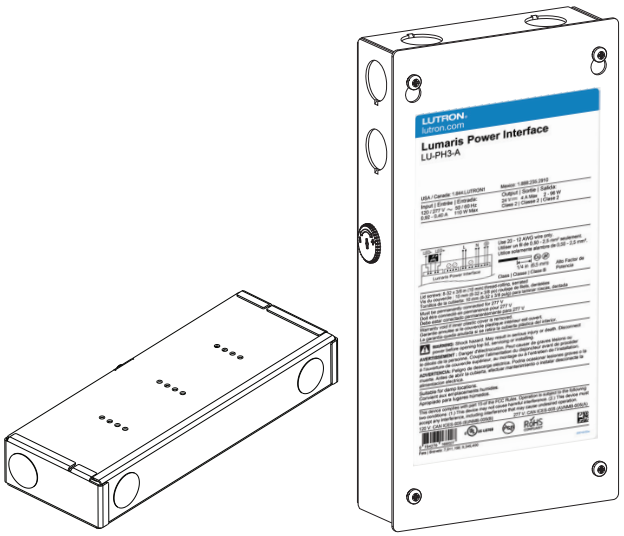
POWER INTERFACE ORDERING GUIDE

Power interface	**LU-PH3-A**
Power interface with flying leads	**LU-PH3-B**

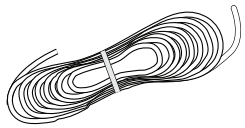


LU-PH3-B LU-PH3-A

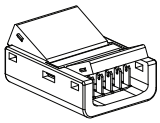
CABLE AND CONNECTOR ORDERING GUIDE

4×22 AWG (0.5 mm²) cable 50 ft (15.2 m)	**LU-WK1-4W**
4-pin wire-to-tape connectors (qty. 10)	**LU-CK1-4W**

NOTE: LU-CK1-4W MUST be used to connect the wire to the cut tape segments. Use LU-WK1-4W to guarantee proper electrical connection with LU-CK1-4W.



Cable



Connectors

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LUTRON

TAPE LIGHT SOLUTIONS

P/N 3663141 Rev B
Specifications are subject to change without notice

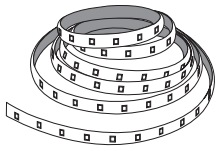
TAPE LIGHT ORDERING GUIDE

For specifications, refer to the Rania Natural White Tape Light spec submittal (P/N: 3663102) at www.lutron.com

HIGH-OUTPUT TAPE ORDERING GUIDE

Please download this PDF to use the interactive drop down features of the ordering guide.

LU-	T05-	RANIA-	IN
Product	Tape Length	Product Line	Location



LED Tape

Order code: LU-T05-RANIA-IN

Product	Code
Lutron	**LU-**

Product Line	Code
Rania	**RANIA-**

Location	Code
Indoors	**IN**

Tape Length	
16.4 ft (5 m)	**T05-**
98.4 ft (30 m)	**T30-**

LONG RUN TAPE ORDERING GUIDE

Please download this PDF to use the interactive drop down features of the ordering guide.

LU-	T10-	RAN-	IN-	LR
Product	Tape Length	Product Line	Location	Type

Order code: LU-T10-RAN-IN-LR

Product	Code
Lutron	**LU-**

Product Line	Code
Rania	**RAN-**

Location	Code
Indoors	**IN-**

Tape Length	
32.8 ft (10 m)	**T10-**
98.4 ft (30 m)	**T30-**

Type	Code
Long Run	**LR**

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Wiring

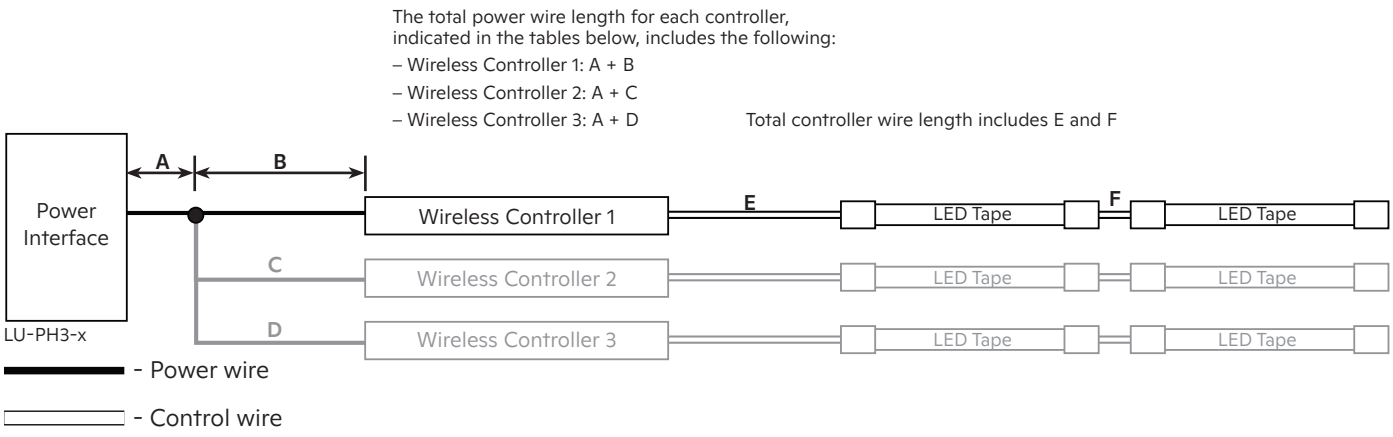
Power Interfaces (LU-PH3-A; LU-PH3-B)

- Power up to three wireless controllers and 96 W of LED tape.
- LU-PH3-A: Terminals on the power interface accept 12 AWG to 20 AWG (4.0 mm^2 to 0.75 mm^2).
  - Each screw terminal may only accept one wire.
  - Barrel-to-terminal adapter terminals accept 16 AWG to 20 AWG (1.5 mm^2 to 0.75 mm^2). Torque to 5 in-lbs (0.5 N•m).
  - If using 14 AWG (2.5 mm^2) or 12 AWG (4.0 mm^2) wire for LED+ and LED- wires from the power interface to the barrel-to-terminal adapter, splice a small piece of 16 AWG (1.5 mm^2) wire onto a 12 AWG (4.0 mm^2) or 14 AWG (2.5 mm^2) wire to insert into the barrel-to-terminal adapter.
- LU-PH3-B: Use provided wire connectors to connect flying leads to wire per instructions printed on the connector bag.
- LU-PH3-A is grounded by a terminal connection. LU-PH3-B is grounded by a grounding screw.

Wire Length Recommendations (power interface LU-PH3-x only)

The tables on the next pages demonstrate how power wire and control wire lengths can be varied to increase installation flexibility and maintain optimum performance. Refer to the diagram below for control wire and power wire.

Wiring Diagram 1: Rania Tape Light Installation



High-Output Installations

All Rania high-output installations > 11 ft (3.4 m) should consider connecting the wireless controller to both ends of the tape, see **Wiring Diagram 2.**

Table 1: Power wire and control wire lengths for hgh-output Rania tape lights

Tape Length ft (m)	Power Wire [a]		Total Controller Wire Length ft (m) [b]				
	Wire Gauge AWG (mm^2)	Total Wire Length ft (m)	12 AWG (4.0 mm^2)	14 AWG (2.5 mm^2)	16 AWG (1.5 mm^2)	18 AWG (1.0 mm^2)	22 AWG (0.5 mm^2)
0 – 4 (0 – 1.2)	20 (0.75)	15 (4.6)	315 (94.5)	210 (63.0)	140 (42.0)	70 (21.3)	35 (10.6)
	16 (1.5)	40 (12.2)					
	14 (2.5)	65 (19.8)					
	12 (4.0)	100 (30.5)					
4.1 – 8 (1.2 – 2.4)	20 (0.75)	7 (2.1)	108 (32.9)	72 (21.9)	48 (14.6)	24 (7.3)	12 (3.7)
	16 (1.5)	20 (6.1)					
	14 (2.5)	30 (9.1)					
	12 (4.0)	50 (15.2)					
8.1 – 11 (2.4 – 3.4)	20 (0.75)	5 (1.5)	45 (13.7)	30 (9.1)	20 (6.0)	10 (3.0)	5 (1.5)
	16 (1.5)	12 (3.7)					
	14 (2.5)	20 (6.1)					
	12 (4.0)	35 (10.7)					
11.1 – 16.4 (3.4 – 5.0) [c]	20 (0.75)	–	1 (0.3)	–	–	–	–
	16 (1.5)	–					
	14 (2.5)	–					
	12 (4.0)	1 (0.3)					

[a] Refer to **Wiring Diagram 1** for what the total power wire length indicates.

[b] Refer to **Wiring Diagram 1** for what the total control wire length indicates.

[c] To allow for more flexibility with controller wire lengths, for Rania high-output tapes > 11 ft (3.4 m), consider connecting both ends of the tape to the wireless controller. Use **Table 2** on the next page for wire lengths when such a connection is made.

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Wiring (cont.)

Wiring Diagram 2: Rania high-output installation with connection to both ends of the tape (Use Table 2)

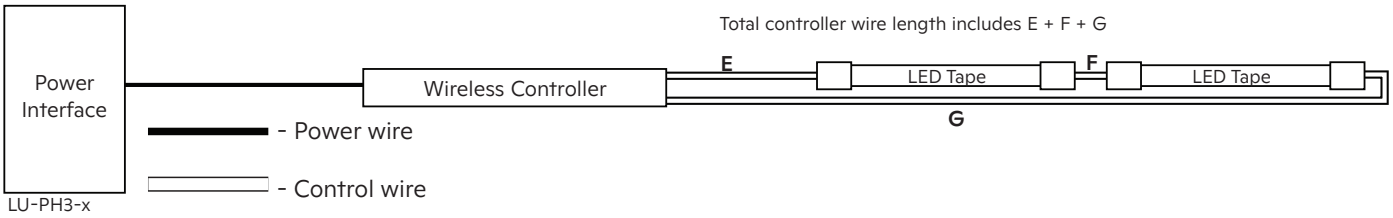

Table 2: Power wire and control wire lengths for high-output Rania tape lights with connection to both ends of the tape

Tape Length ft (m)	Power Wire [a]		Total Controller Wire Length ft(m) [b]				
	Wire Gauge AWG (mm²)	Total Wire Length ft (m)	12 AWG (4.0 mm²)	14 AWG (2.5 mm²)	16 AWG (1.5 mm²)	18 AWG (1.0 mm²)	22 AWG (0.5 mm²)
11.1 – 16.4 (3.4 – 5.0)	20 (0.75)	–	90 (27.0)	60 (18.0)	40 (12.0)	20 (6.1)	10 (3.0)
	16 (1.5)	10 (3.0)					
	14 (2.5)	15 (4.6)					
	12 (4.0)	25 (7.6)					

[a] Refer to **Wiring Diagram 1** on the previous page for what the total power wire length indicates.

[b] Refer to **Wiring Diagram 2** for what the total control wire length indicates.

Long Run Installations

All Rania long run tape light installations >16.4 ft (5 m) should use one of the two wiring methods:

– Split into parallel runs, each no more than 16.4 ft (5 m), see **Wiring Diagram 3.**

– Wireless controller connection should be made to both ends of the tape, see **Wiring Diagram 4.**

Table 3: Power wire and control wire lengths for long run Rania tape lights

Tape Length ft (m)	Power Wire [a]		Total Controller Wire Length ft (m) [b]				
	Wire Gauge AWG (mm²)	Total Wire Length ft (m)	12 AWG (4.0 mm²)	14 AWG (2.5 mm²)	16 AWG (1.5 mm²)	18 AWG (1.0 mm²)	22 AWG (0.5 mm²)
0 – 8 (0 – 2.4)	20 (0.75)	10 (3.0)	270 (81.0)	180 (54.0)	120 (36.0)	60 (18.2)	30 (9.1)
	16 (1.5)	35 (10.7)					
	14 (2.5)	60 (18.3)					
	12 (4.0)	95 (29.0)					
8.1 – 16.4 (2.5 – 5.0)	20 (0.75)	5 (1.5)	45 (13.5)	30 (9.0)	20 (6.0)	10 (3.0)	5 (1.5)
	16 (1.5)	20 (6.1)					
	14 (2.5)	30 (9.1)					
	12 (4.0)	45 (13.7)					

[a] Refer to **Wiring Diagram 1** on the previous page for what the total power wire length indicates.

[b] Refer to **Wiring Diagram 1 and 3** for what the total control wire length indicates. Refer to **Wiring Diagram 3** for installations > 16.4 ft (5 m) split into parallel runs, each no more than 16.4 ft (5 m).

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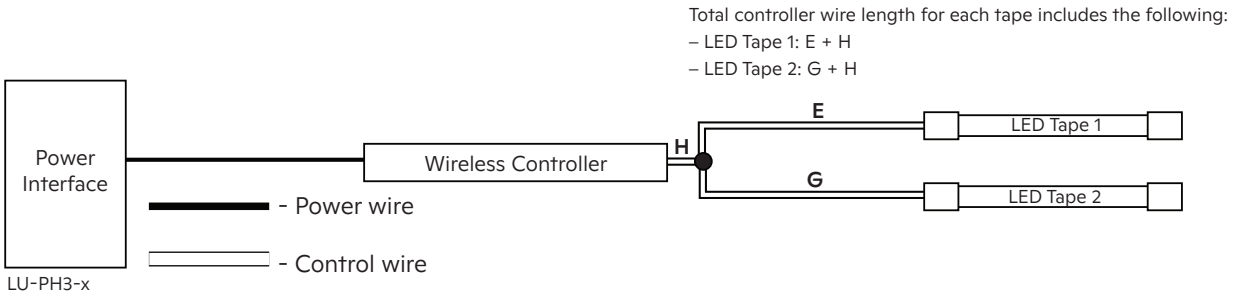
Wiring (cont.)

All Rania long run tape light installations > 16.4 ft (5.0 m) should implement one of the following wiring techniques:

Wiring Diagram 3: Rania long run Installation- split into parallel runs, each no more than 16.4 ft (5 m) (Use Table 3)



Wiring Diagram 4: Rania long run installation with connection to both ends of the tape (Use Table-4)

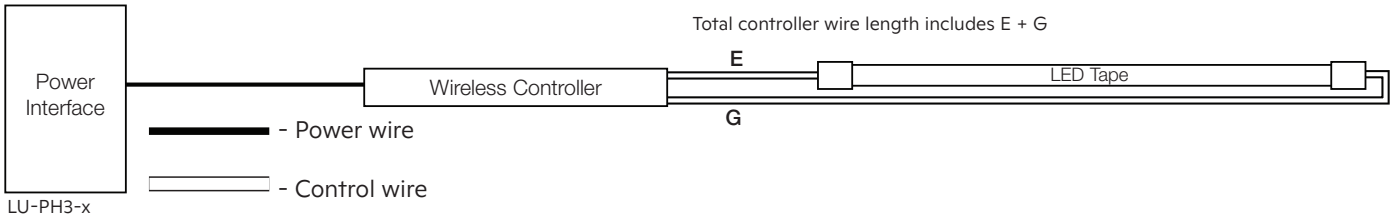


Table 4: Power wire and control wire lengths for long run Rania with connection to both ends of the tape

Tape Length ft (m)	Power Wire [a]		Total Controller Wire Length ft (m) [b]				
	Wire Gauge AWG (mm²)	Total Wire Length ft (m)	12 AWG (4.0 mm²)	14 AWG (2.5 mm²)	16 AWG (1.5 mm²)	18 AWG (1.0 mm²)	22 AWG (0.5 mm²)
16.1 – 24.0 (4.9 – 7.3)	20 (0.75)	5 (1.5)	135 (40.5)	90 (27.0)	60 (18.0)	30 (9.1)	15 (4.6)
	16 (1.5)	12 (3.7)					
	14 (2.5)	20 (6.1)					
	12 (4.0)	30 (9.1)					
24.1 – 32.8 (7.3 – 10.0)	20 (0.75)	–	45 (13.5)	30 (9.0)	20 (6.0)	10 (3.0)	5 (1.5)
	16 (1.5)	10 (3.0)					
	14 (2.5)	15 (4.6)					
	12 (4.0)	20 (6.1)					

[a] Refer to **Wiring Diagram 1** for what the total power wire length indicates.

[b] Refer to **Wiring Diagram 4** for what the total control wire length indicates.

NOTE: Due to the nature of the insulation displacement connectors used for wire-to-tape connections, ONLY Lutron-provided 22 AWG (0.5 mm²) stranded wire may be used on the inlet of the wire-to-tape connectors, and consistent connection can only be guaranteed using LU-WK1-4W. Solid wire and other sizes are not supported. If using another gauge, splice a piece of LU-WK1-4W to the end for insertion into the connector.

NOTE: If using more than six connectors on any individual series-wired LED tape run, each additional connector reduces the maximum length of the control wire allowed by 6 in (152.4 mm), regardless of gauge.

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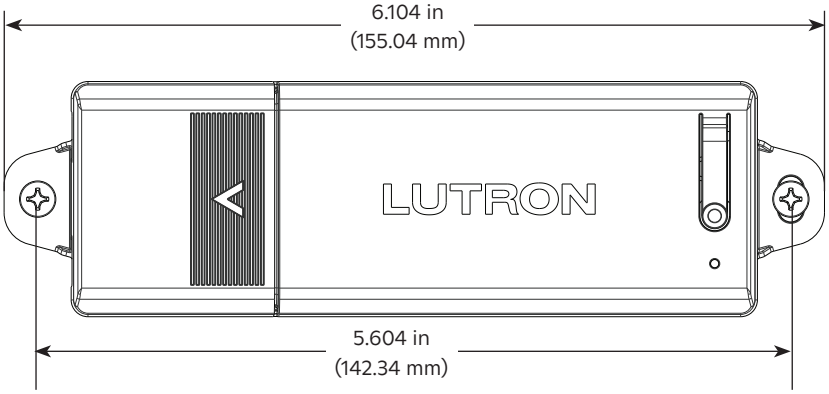
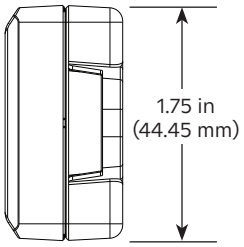
PRODUCT DIMENSIONS

Multi-Channel Wireless Controller (HWL-MWCL-WH)

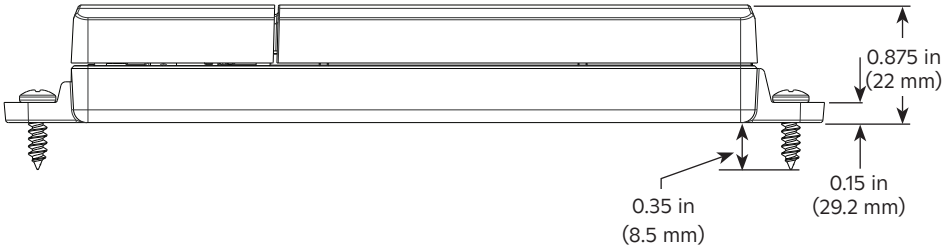
Top View



End View



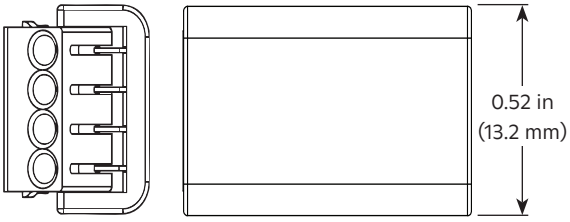
Side View

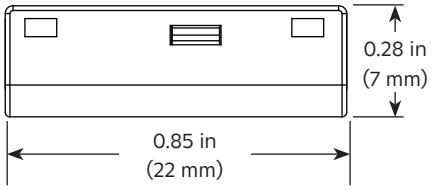


NOTE: The location of the wireless controller must be considered when laying out the Clear Connect - Type X network. For myLutron users, please see Application Note #745 (P/N 048745) at www.lutron.com for additional information on Clear Connect - Type X Best Practices.

NOTE: Do not mount wireless controllers in or on metal enclosures or cabinets.

4-pin Wire-to-Tape Connector (LU-CK1-4W)





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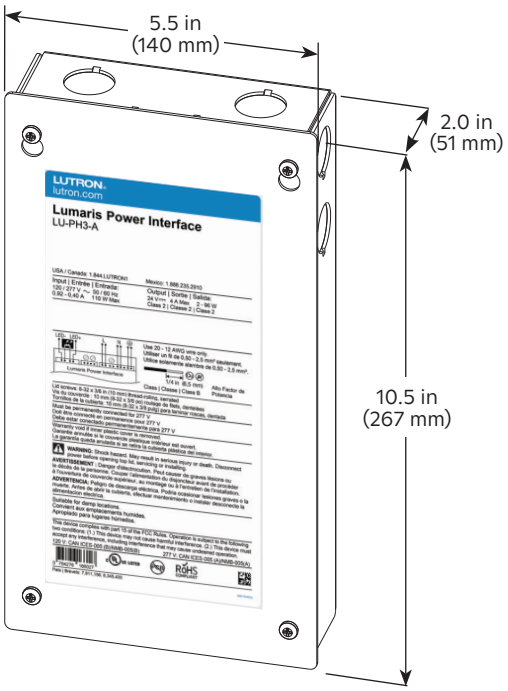
PRODUCT DIMENSIONS (cont.)

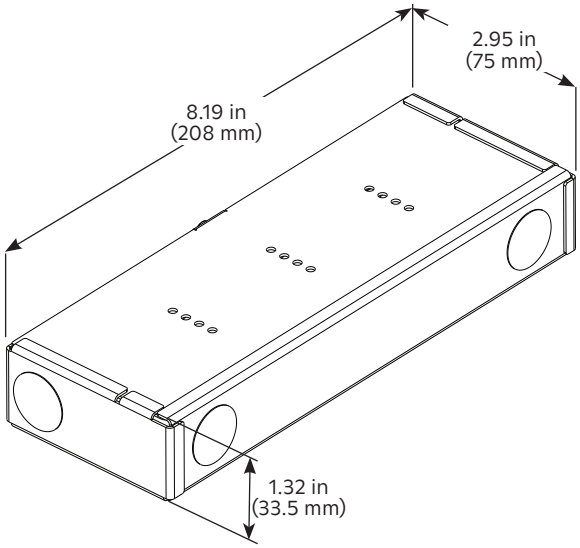
Power Interface Enclosure (LU-PH3-A)



Knockouts

- Sides
  – 4 locations: 1/2 in or 21 mm trade size
- Top
  – 2 locations: 1/2 in or 21 mm trade size

Power Interface Enclosure (LU-PH3-B)



Knockouts

- Sides
  – 6 locations: 1/2 in or 21 mm trade size
- Bottom
  – 2 locations: 1/2 in or 21 mm trade size

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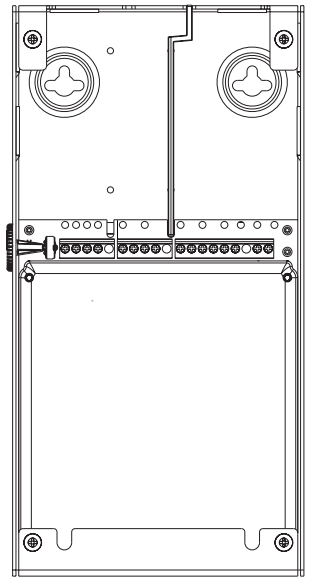
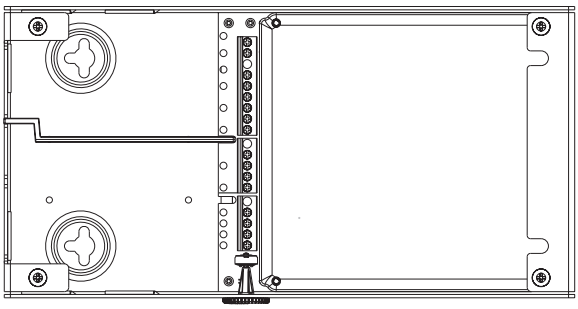
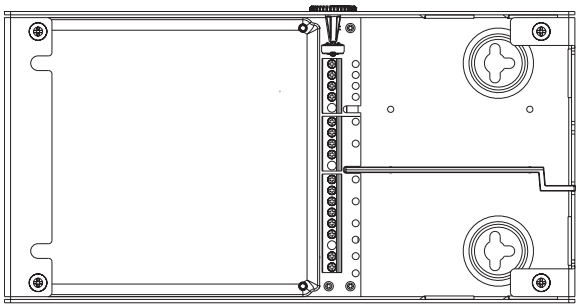
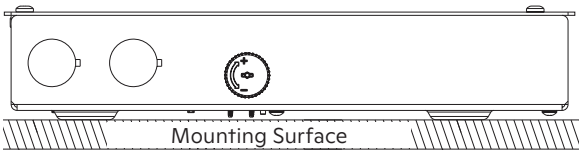
Mounting Options - Power Interface Enclosure (LU-PH3-A) [1,2]









NOTE: The gray knob on the side of the enclosure is not used and does not need to be accessed after installation. This knob has no affect on the operation of the power interface.

1 Any other mounting configuration will require additional mechanical support. Improper installation may result in hazards to personnel or property.

2 Mount the power interface in a position where it can be easily located and accessed if service or troubleshooting is necessary.

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