PHILIPS

Lighting

UL Type B 4' Ballast Bypass Bulb

MasterClass MainsFit (UL Type-B) T8

14.5T8/MAS/48-835/MF20/P/DIM 25/1

Say hello to Philips MasterClass MainsFit (UL Type B) T8 lamps, Designed to be the perfect retrofit solution for traditional fluorescent lamps, they set the standard for performance, longevity (50,000 to 70,000 hours rate life) and efficacy (up to >190 lm/W). This ballast bypass lamp comes with everything needed built into the lamp, including surge suppression, proven energy savings, long life (up to 70k hours), and patented safety features. All lamps in the MasterClass MainsFit family are double-ended to simplify installation.

Product data

General Information	
Cap-Base	G13 [Medium Bi-Pin Fluorescent]
Nominal lifetime	70,000 hour(s)
Switching Cycle	50,000
Lighting Technology	LED

Light Technical	
Color Code	835 [CCT of 3500K]
Beam Angle (Nom)	180 degree(s)
Luminous Flux	2,000 lm
Color Designation	White (WH)
Correlated Color Temperature (Nom)	3500 K
Luminous Efficacy (rated) (Nom)	137.00 lm/W
Color Consistency	6SCDM
Color rendering index (CRI)	80
LLMF At End Of Nominal Lifetime (Nom)	70 %

Operating and Electrical	
Line Frequency	50 to 60 Hz
Input Frequency	50 to 60 Hz
Power Consumption	14.5 W
Lamp Current (Max)	125 mA
Lamp Current (Min)	58 mA
Wattage Equivalent	32 W
Starting Time (Nom)	0.5 s
Warm-up time to 60% light	0.5 s
Power Factor (Fraction)	0.9
Voltage (Nom)	120-277 V
UL Type	UL Type B

Temperature	
T-Case Maximum (Nom)	158 °F

MasterClass MainsFit (UL Type-B) T8

Controls and Dimming	
Dimmable	Only with specific dimmers

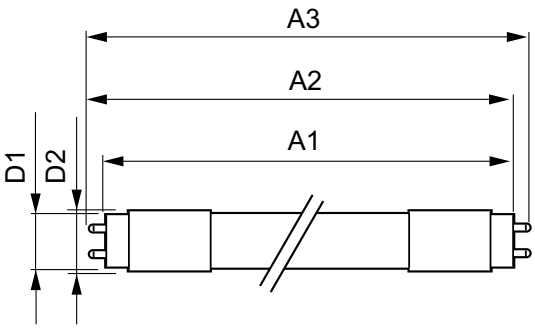
Mechanical and Housing	
Bulb Finish	Frosted
Bulb Material	Plastic
Product Length	47-1/4 inch
Bulb Shape	T8
Net Weight (Piece)	0.463 lb

Approval and Application	
Energy Saving Product	Yes
Approval Marks	RoHS compliance UL certificate DLC compliance
EU RoHS compliant	Yes
Ambient temperature range	-4 °F to 113 °F

Application Conditions	
can it be used in closed luminaires	Yes

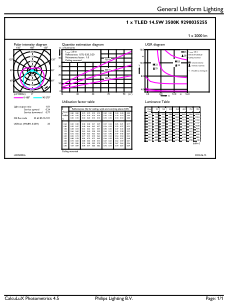
Product Data	
Order product name	14.5T8/MAS/48-835/MF20/P/DIM 25/1
Full product name	14.5T8/MAS/48-835/MF20/P/DIM 25/1
Order code	579482
Material Nr. (12NC)	929003525504
Numerator - Quantity Per Pack	1
EAN/UPC - Product/Case	046677579487
Numerator - Packs per outer box	25
EAN/UPC - Case	50046677579482

Dimensional drawing

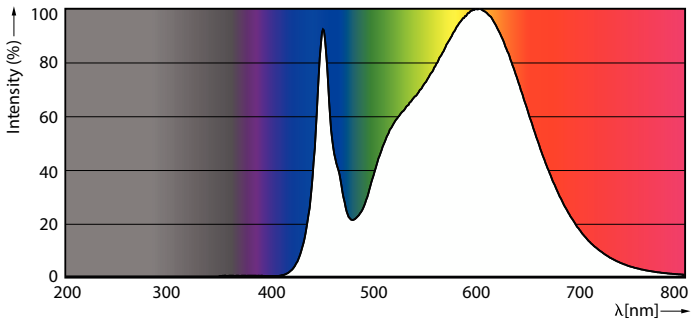


Product	D1	D2	A1	A2	A3
14.5T8/MAS/48-835/ MF20/P/DIM 25/1	1-1/16 inch	1-1/8 inch	47-3/16 inch	47-1/2 inch	47-3/4 inch

Photometric data



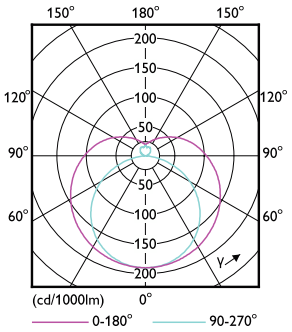
General uniform lighting - 14.5T8/MAS/48-835/MF20/P/DIM 25/1



Spectral Power Distribution Colour - 14.5T8/MAS/48-835/MF20/P/DIM 25/1

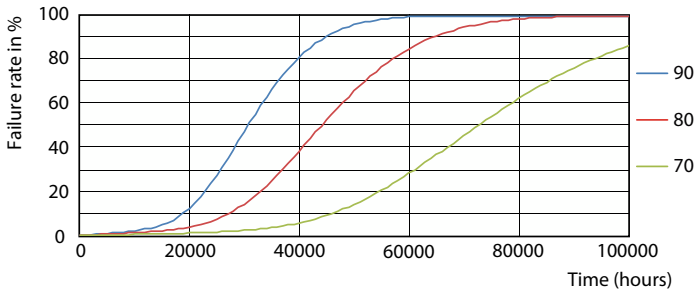
MasterClass MainsFit (UL Type-B) T8

Photometric data

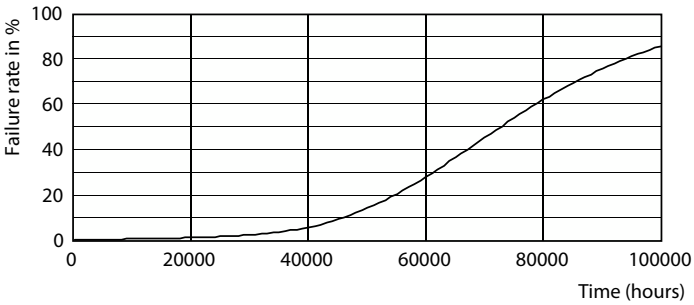


Light Distribution Diagram - 14.5T8/MAS/48-835/MF20/P/DIM 25/1

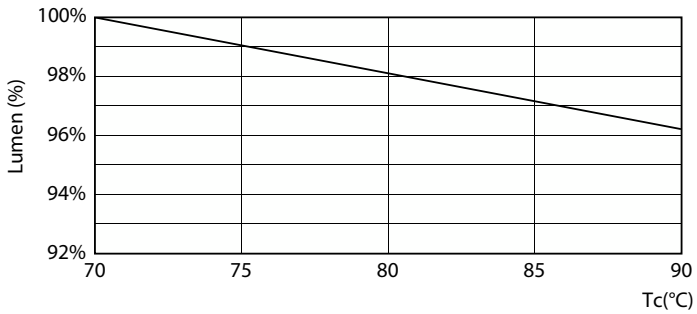
Lifetime



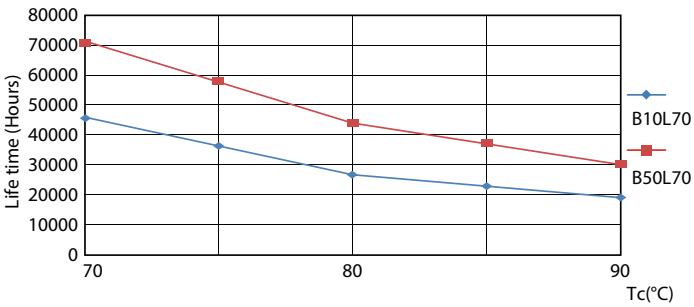
FailureRate



Life Expectancy Diagram



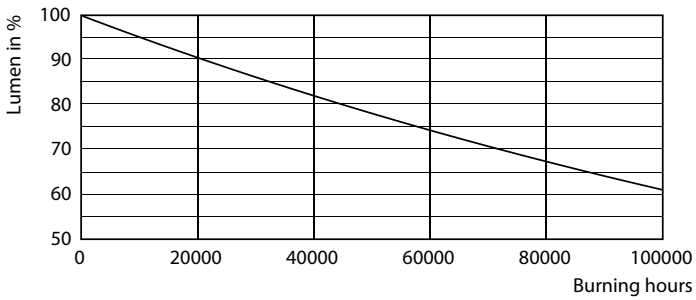
Lumen Maintenance Diagram - 14.5T8/MAS/48-835/MF20/P/DIM 25/1



LifetimeVsTc

MasterClass MainsFit (UL Type-B) T8

Lifetime



Lumen Maintenance Diagram - 14.5T8/MAS/48-835/MF20/P/DIM 25/1

PHILIPS

Lighting

Type C 4'
TLED Lamp

T8

14T8/COR/48-835/IF20/G/DIM 10/1

Our TLEDs are available in InstantFit (Type A / Type C) or MainsFit (Ballast bypass / Type B) versions. The InstantFit lamps work on a broad variety of ballasts and LED drivers. Only InstantFit has over 15,000 lamp & ballast combinations delivering even light output, energy savings and a long lifetime. Our MainsFit products feature a double-ended design, simplifying installation while a proprietary safety circuit minimizes a shock risk. Lamp sizes range from 2-foot to 8-foot and U-bend with a variety of lumen outputs.

Product data

General information	
Base	G13 [Medium Bi-Pin Fluorescent]
EU RoHS compliant	Yes
Nominal Lifetime (Nom)	70000 h
Switching Cycle	50000
Tier	CorePro

Light technical	
Color Code	835 [CCT of 3500K]
Beam Angle (Nom)	240 °
Initial lumen (Nom)	2000 lm
Color Designation	White (WH)
Correlated Color Temperature (Nom)	3500 K
Luminous Efficacy (rated) (Nom)	142.86 lm/W
Color Consistency	<6
Color Rendering Index (Nom)	82
LLMF At End Of Nominal Lifetime (Nom)	70 %

Operating and electrical	
Input Frequency	25000-105000 Hz
Power (Rated) (Nom)	14 W
Lamp Current (Max)	260 mA
Lamp Current (Min)	100 mA
Wattage Equivalent	32 W
Starting Time (Nom)	0.5 s
Warm Up Time to 60% Light (Nom)	0.5 s
UL Type	Type A - works on ballast
Power Factor (Nom)	0.9
Voltage (Nom)	120-277, 347 V

Temperature	
T-Ambient (Max)	113 °F
T-Ambient (Min)	-4 °F
T-Storage (Max)	149 °F
T-Storage (Min)	-40 °F
T-Case Maximum (Nom)	122 °F

Controls and dimming	
Dimmable	Yes

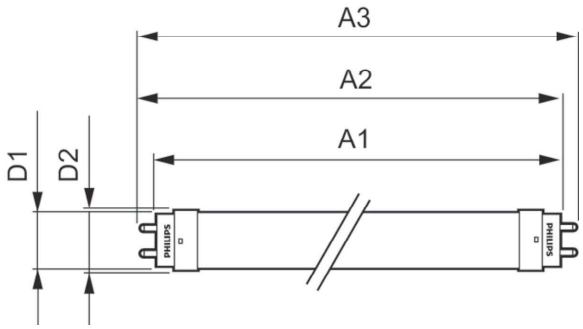
T8

Mechanical and housing	
Bulb Finish	Frosted
Bulb Material	Glass
Product Length	47-1/4 in
Bulb Shape	Tube, double-ended

Approval and application	
Energy Saving Product	Yes
Approbation Marks	UL certificate RoHS compliance DLC compliance
Energy Consumption kWh/1000 h	- kWh
Energy Certifications	DLC Standard

Product data	
Order product name	14T8/COR/48-835/IF20/G/DIM 10/1
EAN/UPC - Product	046677452759
Order code	470104
Numerator - Quantity Per Pack	1
Numerator - Packs per outer box	10
Material Nr. (12NC)	929001343134
Net Weight (Piece)	0.474 lb
Model Number	9290013431A

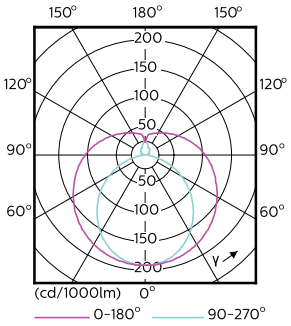
Dimensional drawing



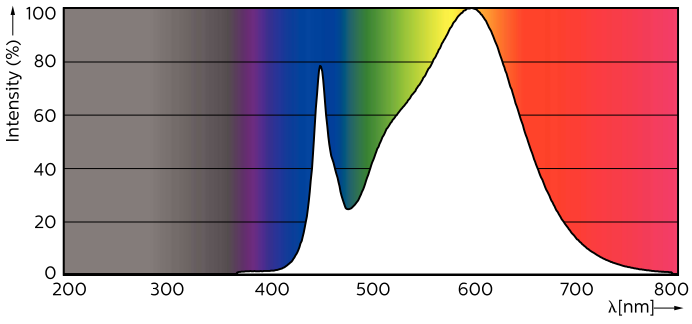
14T8/COR/48-835/IF20/G/DIM 10/1

Product	D1	D2	A1	A2	A3
14T8/COR/48-835/ IF20/G/DIM 10/1	1-1/16 in	1-1/8 in	47-3/16 in	47-1/2 in	47-3/4 in

Photometric data

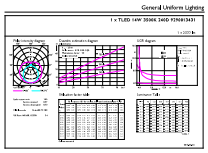


LEDtube 1200mm 17W G13 2100lm



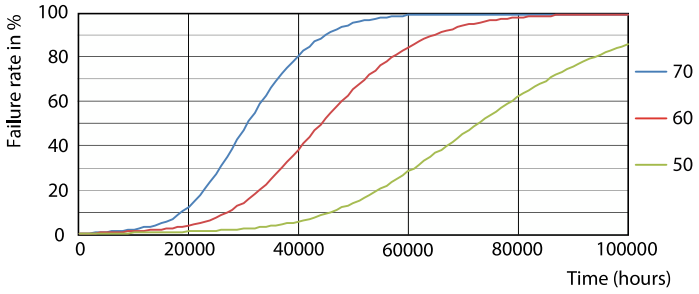
LEDtube PRO 1200mm 14W G13 835 2000lm

Photometric data

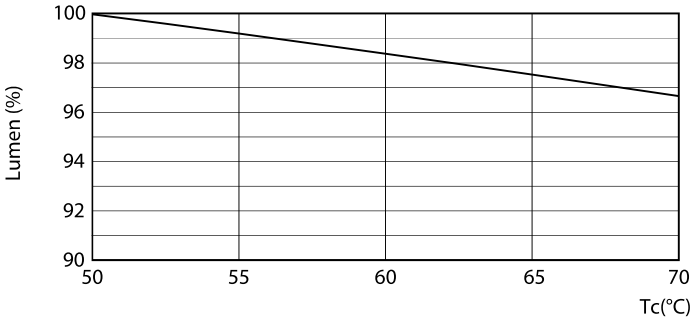


LEDtube PRO 1200mm 14W G13 835 2000lm

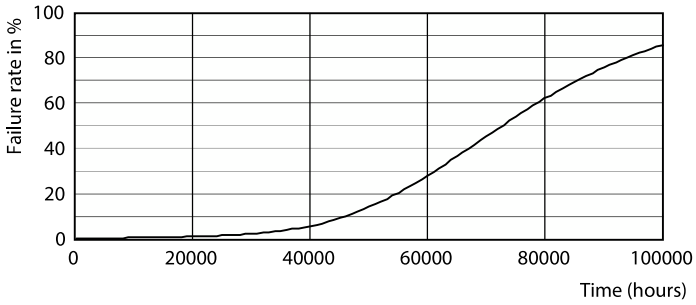
Lifetime



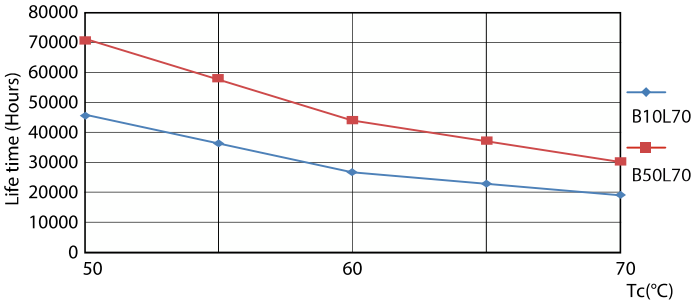
LEDtube 70K 5070 FailureRate-LED



12W G13



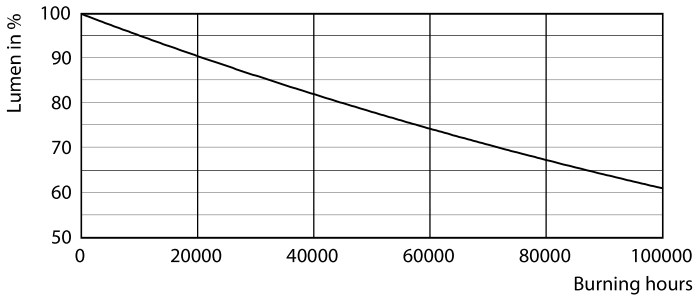
Life Expectancy Diagram



LEDtube 70K 5070 LifetimeVsTc-LED

T8

Lifetime



Lumen Maintenance Diagram

LED Driver

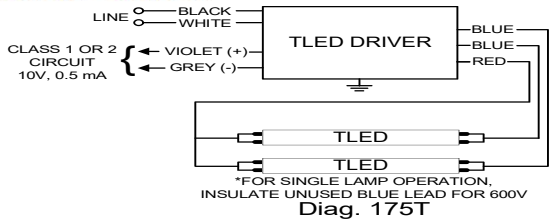
PHILIPS ADVANCE

IZT-2P16-TLED-SC @ 120V	
Brand Name	**Mark 7 0-10V**
Driver Type	**Electronic Dimming**
Lamp Connection	**Parallel**
Input Voltage	**120V**
Input Frequency	**50/60 Hz**
Status	**Active**

Electrical Specifications

Compatible Lamp Information							Driver Specifications @120V					
T8 LED Lamp Brand	T8 LED Lamp Description	T8 LED Lamp Product No.	T8 LED Lamp Model No.	T8 LED Lamp Ordering Code	Bare Lamp Watts (W)	Nom. Initial Lumens	Min. Start Temp (°F/°C)	Num. of Lamps	Input Current (A)	Input Power (W) (Min/Max)	Max THD%	Power Factor
Philips	LED InstantFit T8 - 4' High Output	468306	9290011585C	14T8/48-3000 IF 10/1 HO	14	2000	-13/-25	2	0.31	4 / 37	10	0.99
		468314	9290011586C	14T8/48-3500 IF 10/1 HO		2000						
		468322	9290011587C	14T8/48-4000 IF 10/1 HO		2100		1	0.09	3 / 21	10	0.99
		468330	9290011588C	14T8/48-5000 IF 10/1 HO		2100						
Philips	LED InstantFit T8 - 4' High Output	468892	9290013044	16.5T8 LED/48-3000 IF 10/1 HO	16.5	2300	-13/-25	2	0.32	4 / 40	10	0.99
		463133	9290012267	16.5T8 LED/48-3500 IF 10/1 HO		2400						
		463141	9290012268	16.5T8 LED/48-4000 IF 10/1 HO		2500		1	0.20	3 / 24	10	0.99
		463158	9290012269	16.5T8 LED/48-5000 IF 10/1 HO		2500						

Wiring Diagram

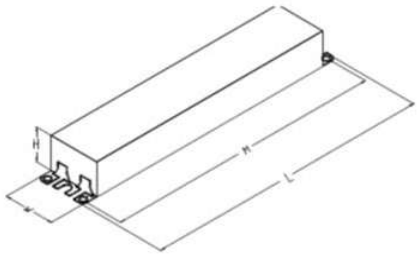


Diag. 175T

Standard Lead Length (inches)

	in.	cm.
Black	24	61.0
White	24	61.0
Blue	28	71.1
Red	43	109.2

Enclosure



Enclosure Dimensions

OverAll (L)	Width (W)	Height (H)	Mounting (M)
9.50 "	1.7 "	1.18 "	8.90 "
9 1/2	1 7/10	1 9/50	8 9/10
24.1 cm	4.3 cm	3 cm	22.6 cm

Revised: 01/11/17

Data is based on tests performed by Philips Lighting NA in a controlled environment and is representative of relative performance. Actual performance can vary depending on operating conditions. Specifications are subject to change without notice. All specifications are nominal unless otherwise noted.

Philips Lighting N.A.
10275 West Higgins Road • Rosemont, IL 60018 • www.philips.com/advance
Tel: 800-322-2086 • Fax: 800-423-1882 • Customer Support: 800-372-3331 • OEM Support: 866-915-5886

PHILIPS
ADVANCE

IZT-2P16-TLED-SC @ 120V	
Brand Name	**Mark 7 0-10V**
Driver Type	**Electronic Dimming**
Lamp Connection	**Parallel**
Input Voltage	**120V**
Input Frequency	**50/60 Hz**
Status	**Active**

Electrical Specifications

Notes:

Section I - Physical Characteristics
1.1 Driver shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
1.2 Driver shall be provided with integral leads color coded per ANSI C82.11.

Section II - Performance Requirements
2.1 Driver shall energize compatible LED lamps within 1 second after mains power is applied.
2.2 Driver shall provide Independent Lamp Operation (ILO) allowing remaining lamp(s) to maintain full light output when one or more lamps fail.
2.3 Driver shall contain auto restart circuitry in order to restart lamps without resetting power.
2.4 Driver shall operate from a 50Hz or 60 Hz AC input source of 120V through 277V with sustained variations of +/- 10% (voltage and frequency).
2.5 Driver shall be high frequency electronic type and operate lamps at frequencies above 42 kHz to avoid interference with infrared devices and eliminate visible flicker.
2.6 Driver shall have a Power Factor of 0.94 or above when operating the maximum rated number of compatible lamps, and 0.88 or above when operating the minimum rated number of compatible lamps.
2.7 Driver input current shall Total Harmonic Distortion (THD) of 10% or less when operating the maximum rated number of compatible lamps and 15% or less when operating the minimum rated number of compatible lamps.
2.8 Driver shall have a Class A sound rating.
2.9 Driver shall have a minimum starting temperature of -13°F / -25°C.
2.10 Driver shall tolerate sustained open circuit and short circuit output conditions.
2.11 Driver shall control lamp light output from 100% - 5% relative light output for T8 TLED.
2.12 Driver shall be suitable of operation in up to a 45°C ambient temperature.

Section III - Regulatory Requirements
3.1 Driver shall not contain any Polychlorinated Biphenyl (PCB).
3.2 Driver shall be Underwriters Laboratories (UL) Recognized, Class P, and suitable for Damp and Dry conditions; and CSA Certified where applicable.
3.3 Driver shall comply with ANSI C62.41 Category A Transient protection.
3.4 Driver shall comply with the requirements of the Federal Communication Commission (FCC) rules and regulations, Title 47, CFR part 15, Non-Consumer (Class A) for EMI/RFI (conducted and radiated).
3.5 Driver shall comply with NEMA 410 for in-rush current limits.

Section IV - Other
4.1 Driver shall be manufactured in a factory certified to ISO 9001 Quality System Standards.
4.2 Driver shall carry a five year warranty from date of manufacture against defects in material and workmanship when operating in a 45°C ambient environment or less.

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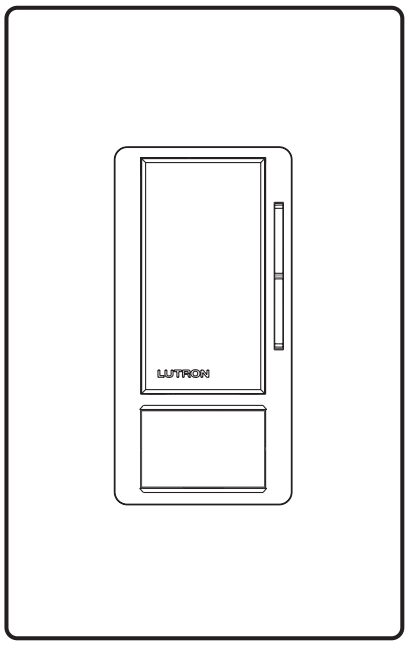
Maestro 0–10 V Dimmer Sensor

Lutron Maestro 0–10 V dimmer sensors are lighting controls with passive infrared sensors that automatically control the lights in an area. These sensors detect heat from occupants moving within an area to determine when the space is occupied. The Maestro 0–10 V dimmer sensor combines a Maestro 0–10 V dimmer with an occupancy or vacancy sensor.



Features

- Controls 0–10 V⎓ electronic fluorescent ballasts or LED driver load types*
- Passive infrared motion detection with exclusive Lutron XCT Technology for fine motion detection
- 180° sensor field-of-view
- Up to 30 ft × 30 ft (9 m × 9 m) [900 ft^2 (81 m^2)] major motion coverage and 20 ft × 20 ft (6 m × 6 m) [400 ft^2 (36 m^2)] minor motion coverage
- Occupancy version can be set to auto-on/auto-off or manual-on/auto-off
- Vacancy version available to meet CA Title 24 requirements
- Adjustable timeout (1, 5, 15, or 30 minutes)
- Adjustable settings for auto-on light level (occupied level): 100%, 50%, last light level, or locked preset light level
- Adjustable sensitivity level: High, Med, Low, Min
- Off warning fades lights to off over a period of 10 seconds
- Advanced Maestro dimmer features available (locked preset, fade-to-on, and fade-to-off, etc.)
- Adaptive switching algorithm for extended relay life
- Smart ambient light detection (ALD)
- All models have single pole and 3-way capability
- Works with a single standard mechanical 3-way switch or up to 9 companion switches (MA-AS or MSC-AS)*
- High-end trim and low-end trim to adjust maximum and minimum light levels
- Selectable dimming curve—linear or square law
- Miswire and incompatible load alert

* When using with standard mechanical 3-way switch, some rewiring is required. Not compatible with MA-R.

Models Available

Model Number	Description	Sensor Operation	Maximum Capacity	TAA Compliant
MS-Z101-XX[1, 2]	Occupancy/vacancy Single-pole/multi-location	Auto-on/auto-off or manual-on/auto-off	8 A electronic fluorescent ballasts or LED driver[3]	No
MS-Z101-V-XX[1]	Vacancy Single-pole/multi-location	Manual-on/auto-off ONLY	8 A electronic fluorescent ballasts or LED driver[3]	No
WMS-Z101-XX [1, 4]	Occupancy/vacancy Single-pole/multi-location	Auto-on/auto-off or manual-on/auto-off	8 A electronic fluorescent ballasts or LED driver[3]	Yes

1 XX in model number represents color/finish code.
2 For a bulk pack of 6 pieces, order MS-Z101-WH-6. Available in WH only.
3 Works with all ballasts and drivers that provide a current source compliant to IEC 60929 Annex E.2.
4 Available in Gloss colors only. For other BAA/TAA compliant products, please visit our website at www.lutron.com/BAA and select “download BAA product list”.

LUTRON SPECIFICATION SUBMITTAL Page 1

Job Name:	Model Numbers:	
Admin Services Lighting Project	MS-Z101-XX (color varies, see floor plan and switch count documents)	
Job Number:		

Specifications

Regulatory Approvals

- UL Listed to U.S. and Canadian safety requirements
- Title 20/24 certified lighting control device
  – Complies with Title 20 and Title 24 Section 110.9

Power

- Operating voltage: 120–277 V~ 50/60 Hz

Loads

- 8 A 0–10 V⎓ electronic fluorescent ballasts or LED drivers
- Works with all ballasts and drivers that provide a current source compliant to IEC 60929 Annex E.2, and whose inrush current does not exceed NEMA410 standards for electronic ballast/driver loads of 8 A steady state current.
- 50 mA max sink current
- Controls up to 25 ballasts or drivers (IEC 60929 Annex E.2 requires the ballast/driver to limit the current draw to 2.0 mA maximum)

Environment

- Ambient operating temperature: 32 °F to 104 °F (0 °C to 40 °C), 0%–90% humidity, non-condensing; indoor use only

Warranty

- 5 Year Limited Warranty

  For additional Warranty information, please visit: www.lutron.com/TechnicalDocumentLibrary/Sensor_Warranty.pdf

Key Design Features

Dimmer

- On a single-tap, lights fade ON or OFF
- On a double-tap, lights go to full ON
- Light levels can be fine-tuned by pressing and holding the dimming rocker until the desired light level is reached
- High-end trim (adjust maximum light level that can be achieved, for energy savings)
- Low-end trim (adjust minimum light level that can be dimmed down, to prevent flickering lights)

Additional Information on Sensors

- For single-circuit PIR Maestro occupancy sensor switch models, refer to Lutron P/N 369666
- For Maestro occupancy sensor C•L dimmer models, refer to Lutron P/N 369748
- For dual-circuit PIR Maestro occupancy sensor switch, refer to Lutron P/N 369758
- For dual technology occupancy sensor switch models, refer to Lutron P/N 369773
- For more information, please see www.lutron.com/occvacsensors
- Lutron Customer Assistance: 1.844.LUTRON1

Select Design Feature Details

- Selectable dimming curve—linear or square law. Drivers exist with linear response and some exist with square law response. By providing a selectable dimming curve from the 0–10 V dimmer sensor, the user is able to choose his/her preferred response for optimized dimming performance.
- Miswire and incompatible load alert. The user will receive a visual alert when the product's 0–10 V⎓ control wires are incorrectly connected or an incompatible load is detected. In these conditions, the product will still function as a switch. Refer to Application Note 048536 for more details.
- Fade-to-On and Fade-to-Off.

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Load Type and Capacity

Control	Vacancy Only	0–10 V⎓ Current[1,2]	Voltage/Load Type/Maximum Load (Anywhere in gang)[3]	Minimum Load	3-Way with Mechanical Switch	Multi-Location with Accessory Switch
MS-Z101-	—	50 mA max sink	120–277 V~ Electronic fluorescent ballast or LED drivers, 8 A 120 V~ Fan 4.4 A (1/6 HP)[4]	0 A	✓	✓
MS-Z101-V	✓	50 mA max sink		0 A	✓	✓
WMS-Z101-	—	50 mA max sink		0 A	✓	✓

1 The 0–10 V⎓ control wires are not to exceed 250 ft (76.2 m) in length, and must have a size of no less than 20 AWG (0.75 mm^2).

2 The 0–10 V⎓ wires must be installed as Class One per NEC® or local jurisdiction.

3 Dimmer sensor load type: Designed for use with permanently installed electronic fluorescent ballast or LED driver lighting loads. Do not install dimmers to control receptacles or motor-operated appliances.

4 When controlling light and fan loads simultaneously on a single circuit, maximum load capacity per circuit is 4.4 A at 120 V~.

Notes:

- Ground or neutral is required for product to function.
- Connect green-sleeved wire to ground only in retrofit and replacement applications. When neutral connection is available, remove green sleeve and connect to neutral. If neither is present, consult a licensed electrician.
- When power is applied, the dimmer sensor can be manually turned on or off after the first 10 seconds and will automatically control the load after 2 minutes.
- Works with all ballasts and drivers that provide a current source compliant to IEC 60929 Annex E.2.

Custom Settings (default settings shown in **bold**)

: Timeout

- 30 min
- **15 min**
- 5 min
- 1 min

Mode: Sensor Modes

Lights automatically turn off in all sensor modes

- **Occ: Occupancy mode (No ALD)**
- Lrn: Occupancy with learning ALD mode
- Fixd: Occupancy with fixed ALD mode
- Vac: Vacancy mode (No ALD)

PIR: Passive Infrared Sensitivity

- **Hi**
- Med
- Low
- Min

Additional Settings

Fixed ALD Light Level

- Hi
- Med
- **Low***
- Min

* *Low* is the default setting for any sensor that is set by the user to "Occupancy with fixed ALD mode"

Manual Off-While-Occupied

- **Enabled**
- Disabled

Walk-Thru Mode

- Enabled
- **Disabled**

Occupied Level

A programmable setting that determines the light level the dimmer sensor will turn on to, once occupancy has been detected

- **100%**
- 50%
- Preset Level
  - When the Occupied Level is set to *Preset Level*, the dimmer sensor will automatically and manually turn on to the selected Preset Level.

Fade On Rate

- 15 sec
- 5 sec
- **2.5 sec**
- 0.75 sec

Fade Off Rate

- 15 sec
- 5 sec
- **2.5 sec**
- 0.75 sec

Preset Level**

- Locked (High range)
- Locked (Med range)
- Locked (Low range)
- Locked (Min range)
- **Unlocked**
  - When the Preset Level is set to a *locked* level, the dimmer sensor will turn ON to the predetermined "locked" level with a single tap of the Tap button.
  - When the Preset Level is set to *unlocked*, a single tap of the Tap button will turn the dimmer sensor ON to the light level to which it was adjusted the last time the light was on.

Low-End Trim**

- High range
- Med range
- Low range
- Min range

High-End Trim**

- High range
- Med range
- Low range
- Min range

** Setting is fully variable within each range.

Job Name:	Model Numbers:	
Admin Services Lighting Project	MS-Z101-XX (color varies, see floor plan and switch count documents)	
Job Number:		

Custom Settings: Details (default settings shown in **bold**)

Ambient Light Detection (ALD) mode

Lights turn on only when natural light in the room is below the set threshold.

- Enabled
  - Learning: The ambient light threshold adjusts to the user's preference via manual interaction with the dimmer sensor.
  - Fixed: Choose a fixed ALD light level from 4 pre-set options: High, Medium, Low, Minimum.
- **Disabled**

Manual Off-While-Occupied Options

- **Enabled**
  - When the dimmer sensor is manually turned off, the sensor switch will not turn the lights back on automatically while the room is occupied.
  - Once the room is vacated, the auto-on feature returns to normal operation after the timeout period has expired.
  - This may be the preference in conference rooms or classrooms while viewing presentations. This feature requires motions to keep the lights off.
- Disabled
  - When the dimmer sensor is manually turned off, the auto-on feature will return to normal operation after 25 seconds.
  - This may be the preference in a restroom if the user always wants the lights to turn on upon entering and the lights to turn off when the room is vacant.

Walk-Thru Mode

- Enabled*
  - If motion is not detected within 3 minutes after initial occupancy, the lights will turn off after 3 minutes, instead of the current timeout.
  - This setting may be the preference in commercial applications where personnel may briefly trigger sensors during non-working hours.
- **Disabled**
  - When motion is detected, the lights will ALWAYS remain on for the entire timeout duration regardless of the duration of occupancy detection.

* 1 minute timeout would be overridden if walk-thru mode is also *Enabled*

Fade-On Rate

The time required for the lights to reach the preset light level when the tap button is pressed.

Fade-Off Rate

The time required for the lights to turn off (from the ON state) when the tap button is pressed.

Low-End Trim

Lowest achievable light level to which the dimmer sensor can be adjusted.

High-End trim

Highest achievable light level to which the dimmer sensor can be adjusted.

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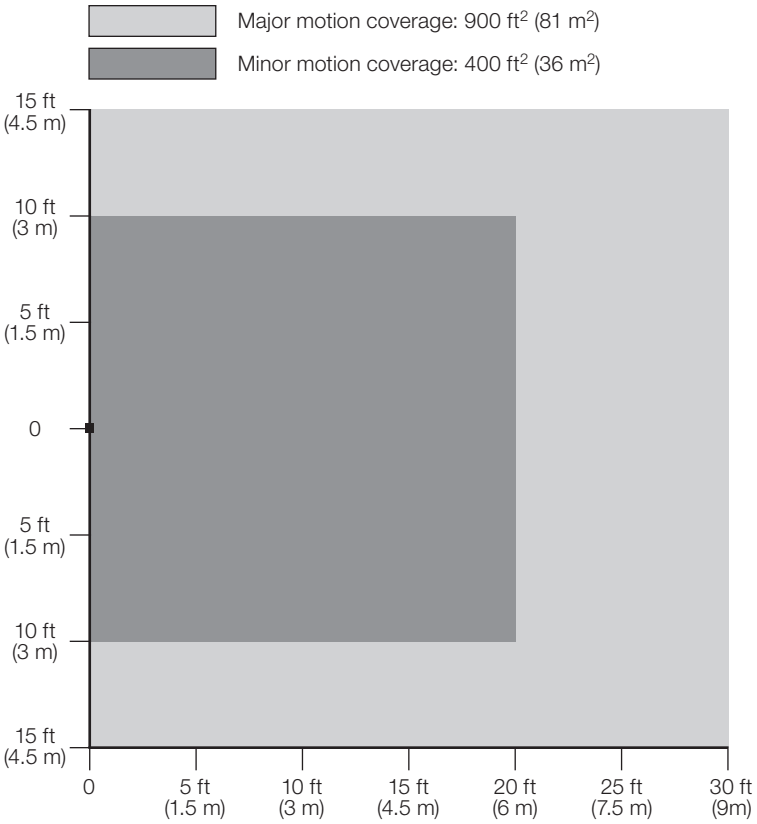
Maestro 0–10 V Dimmer Sensor Placement and Operation

- The ability of the dimmer sensor to detect motion requires line-of-sight of room occupants. The dimmer sensor must have an unobstructed view of the room.
- Hot objects and moving air currents can affect the performance of the dimmer sensor. For best performance, the dimmer sensor should be mounted at least 4 ft (1.2 m) away from HVAC vents and light bulbs.
- The performance of the dimmer sensor depends on a temperature differential between the ambient room temperature and that of room occupants. Warmer rooms may reduce the ability of the dimmer sensor to detect occupants.

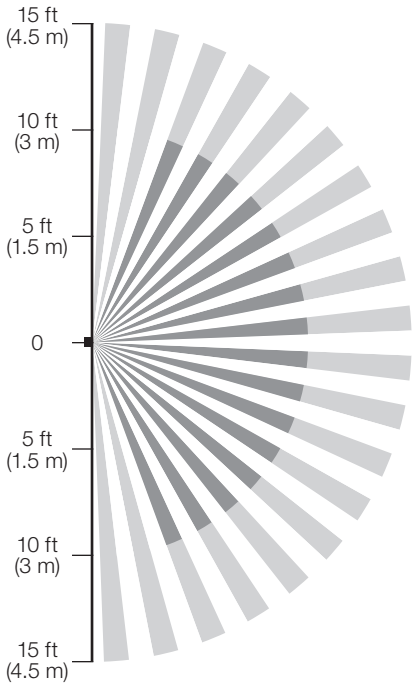
NEMA WD7 Test Grid Coverage

(High Sensitivity Setting)



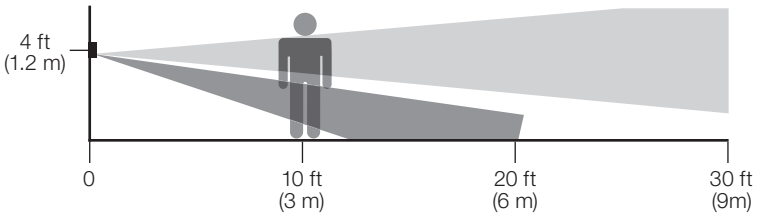
Horizontal Beam Diagram

(For Reference Only)



Vertical Beam Diagram

(For Reference Only)



Job Name:	Model Numbers:	
Admin Services Lighting Project	MS-Z101-XX (color varies, see floor plan and switch count documents)	
Job Number:		

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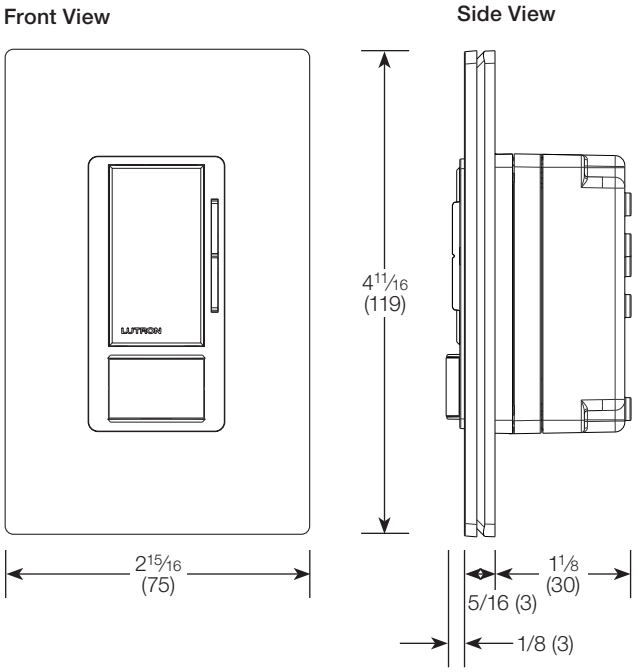
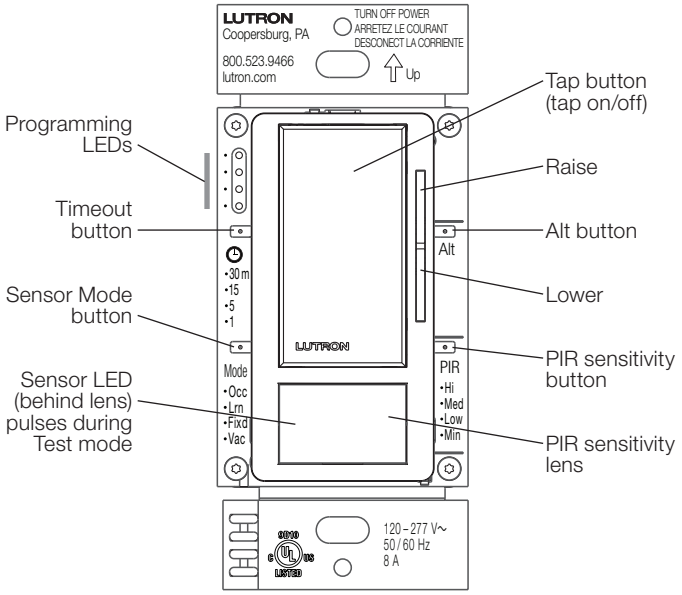
Dimensions

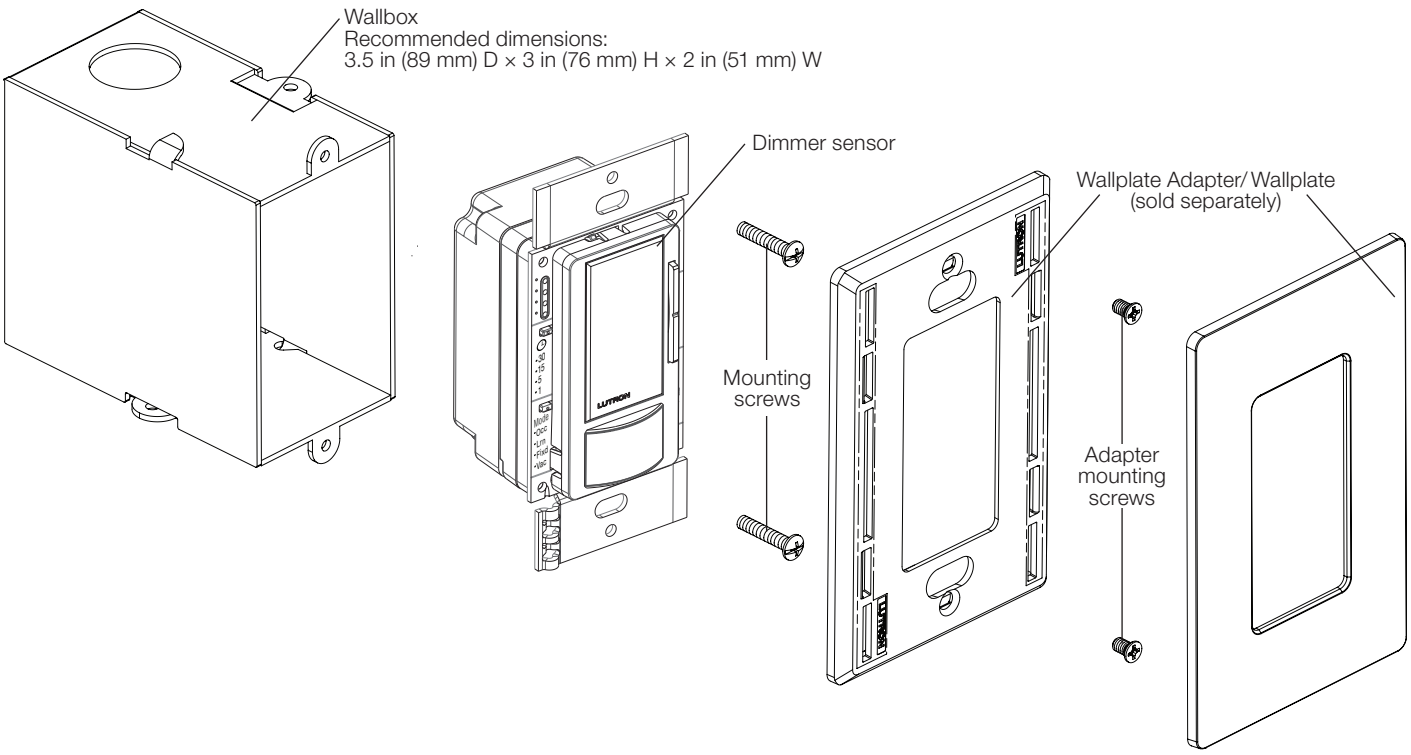
Measurements shown as: in (mm)



Operation



Mounting



Job Name:	Model Numbers:	
Admin Services Lighting Project	MS-Z101-XX (color varies, see floor plan and switch count documents)	
Job Number:		

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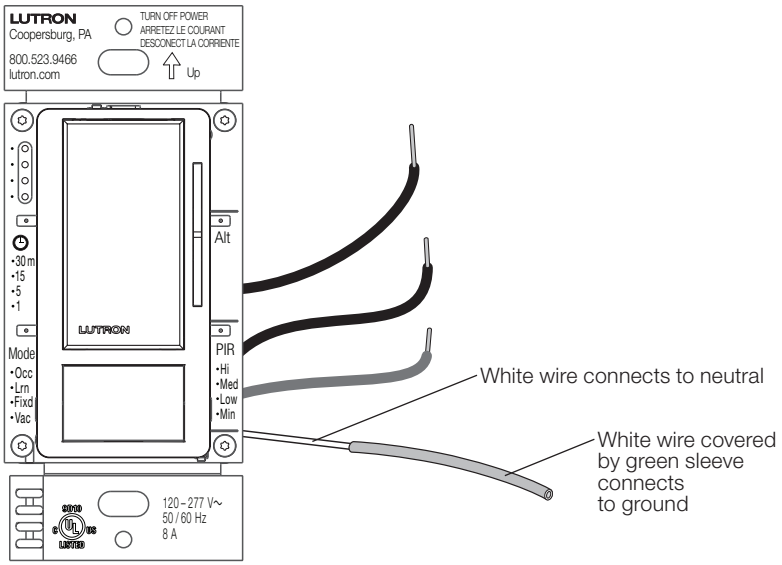
Wiring Installations with the Maestro 0–10 V Dimmer Sensor

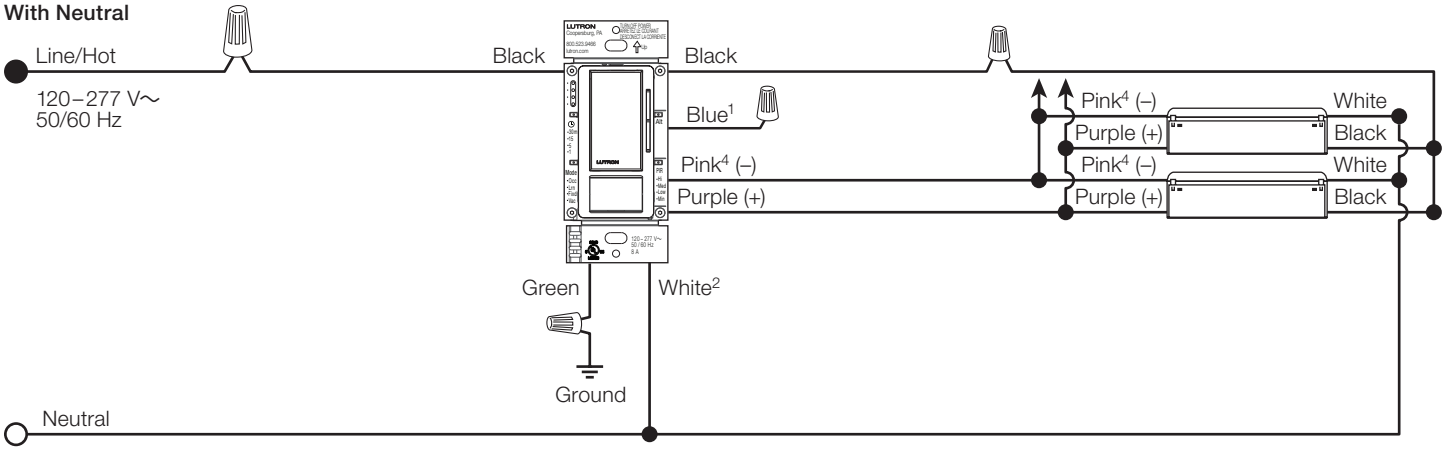
In order to function, the 0–10 V dimmer sensor must have the green-sleeved wire connected to ground, or the white wire connected to neutral.

Before installing wallplate, program all desired settings.

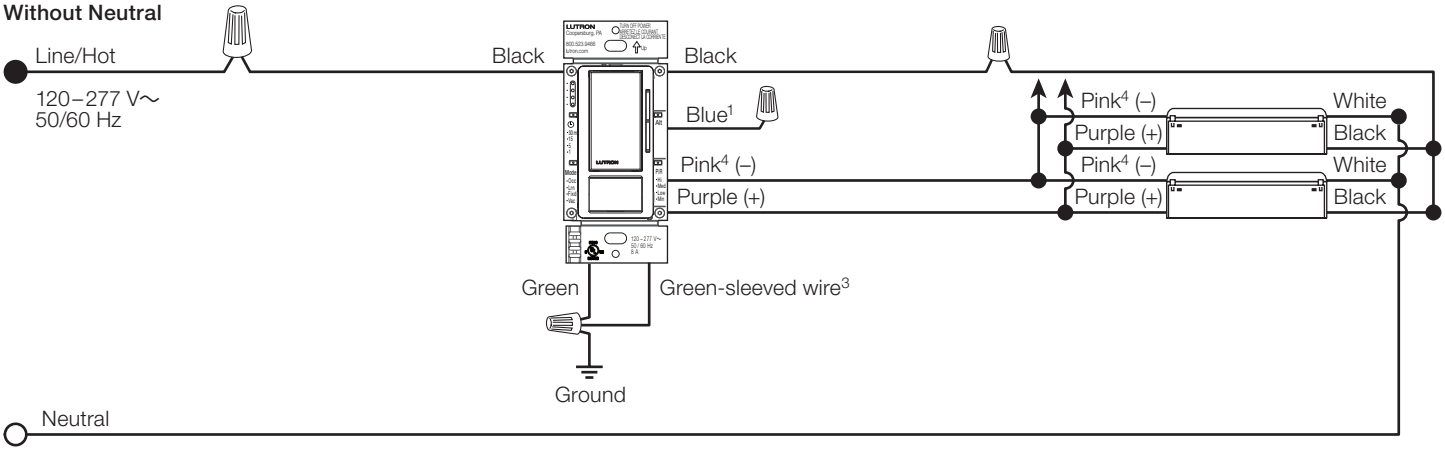


Wiring: Single-Pole Installation

With Neutral



Without Neutral



1 When using controls in single location installations, cap the blue wire. Do not connect the blue wire to any other wiring or to ground.
2 When neutral is present in wallbox, remove green sleeve from the white wire and connect the white wire to neutral.
3 If no neutral is present, connect green-sleeved wire to ground.
4 This wire/terminal may be gray on older products or in retrofit applications.

Job Name:	Model Numbers:	
Admin Services Lighting Project	MS-Z101-XX (color varies, see floor plan and switch count documents)	
Job Number:		

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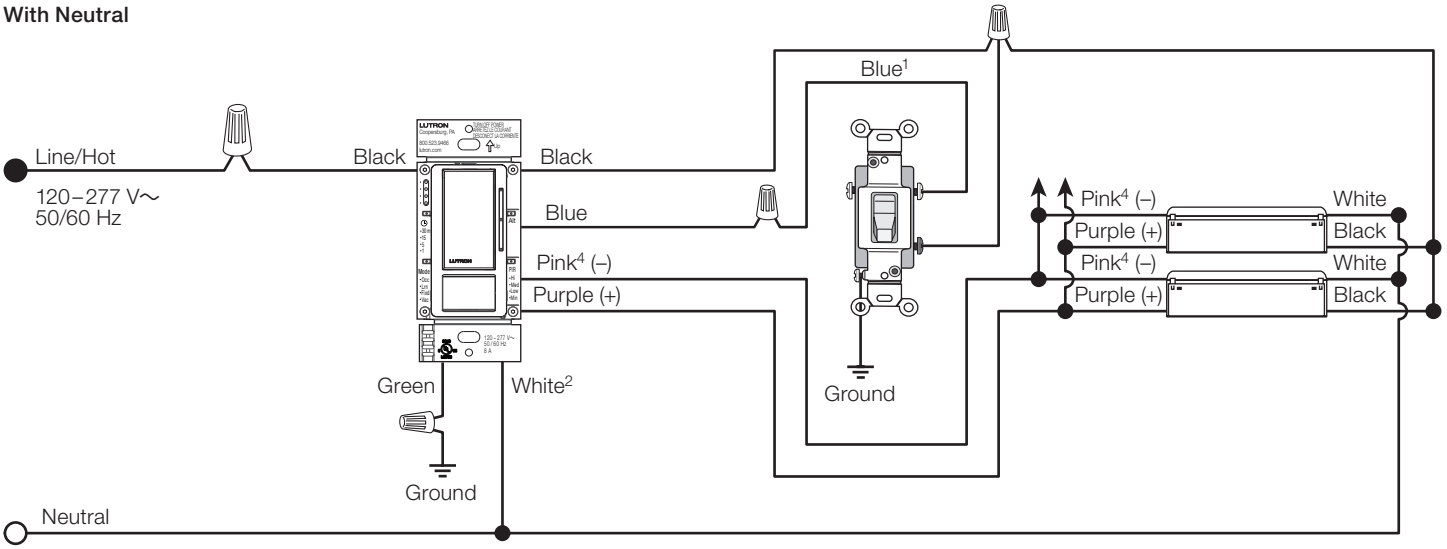
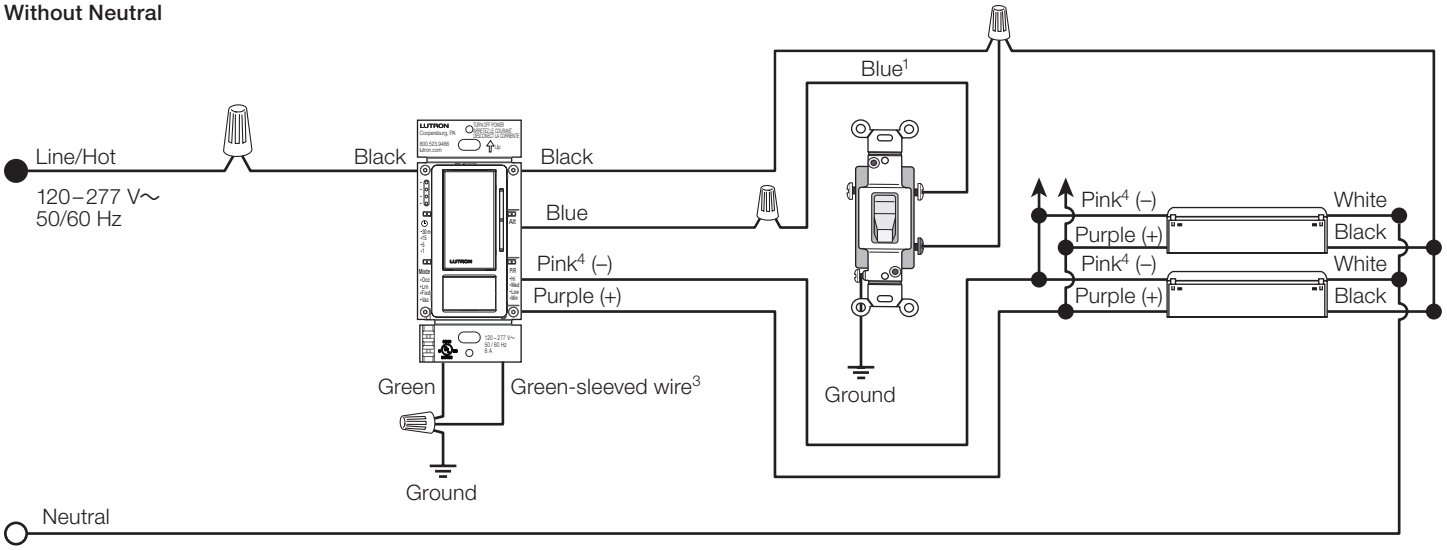
Wiring: 3-Way Installation* with Standard Mechanical Switch**

With Neutral



Without Neutral



* One dimmer sensor can be installed in any location.

** **Important:** Some rewiring of 3-way mechanical switch is required. See page 10 for instructions.

1 The length of the blue wire (3-way wire) must not exceed 150 ft (45.72 m).

2 When neutral is present in wallbox, remove green sleeve from the white wire and connect the white wire to neutral.

3 If no neutral is present, connect green-sleeved wire to ground.

4 This wire/terminal may be gray on older products or in retrofit applications.

Job Name:	Model Numbers:	
Admin Services Lighting Project	MS-Z101-XX (color varies, see floor plan and switch count documents)	
Job Number:		

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3-Way Retrofit Installation

For retrofit 3-way installations, the mechanical switch needs to be rewired as shown in the diagram below after wiring the dimmer sensor. Otherwise, the 3-way installation will not work as expected. Single-pole mechanical switches may also be used in a 3-way installation with MS-Z101, MS-Z101-V and WMS-Z101 models.

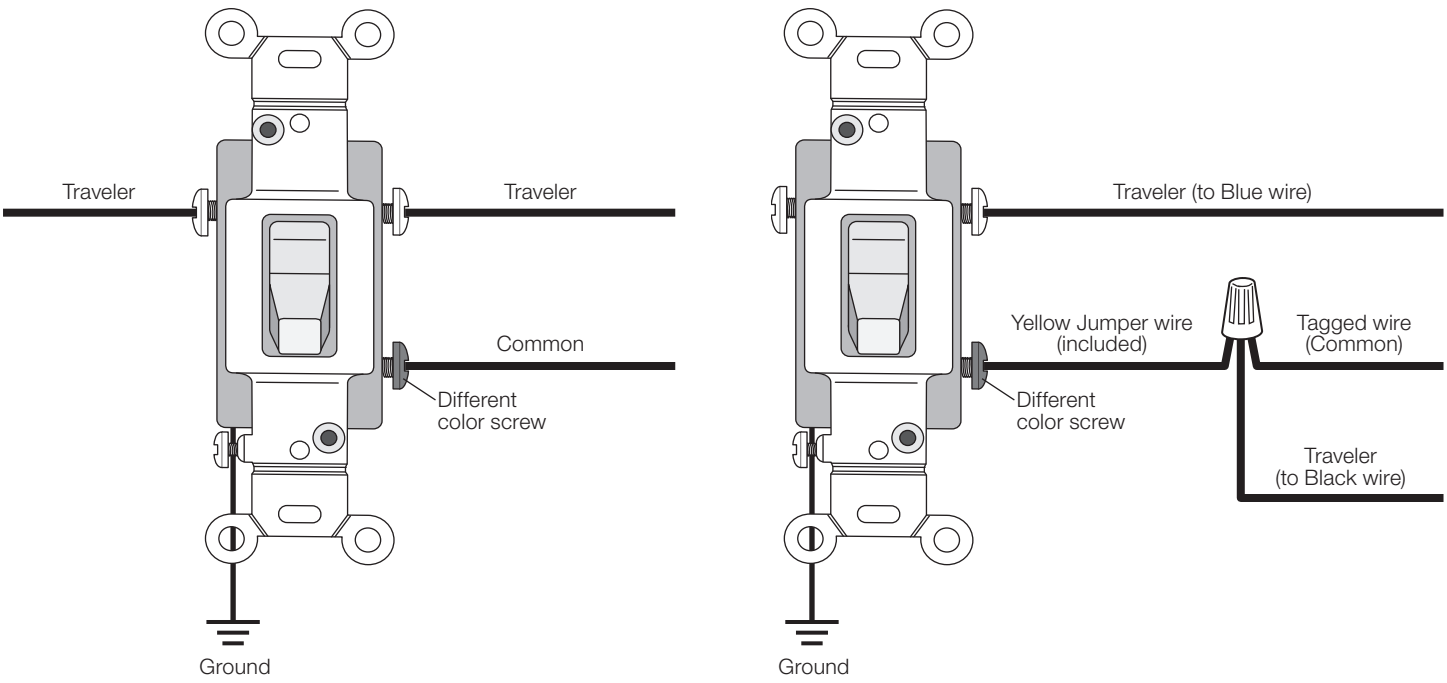
1. Connect Ground: Ensure that the bare copper or green ground wire from the wallbox is connected to the green ground screw of the mechanical switch.
2. Tag circuit Common: Your 3-way mechanical switch should have three screw terminals, two of the same color, and one of a different color. Tag the wire that is connected to the screw terminal of a different color.
3. Identify the wire that matches the color of the wire you connected to the blue wire of the Maestro dimmer sensor. Connect this wire to one of the two terminals of the same color.
4. Combine the tagged wire, the remaining wire, and the yellow jumper wire (included) using a wire connector. Connect the other end of jumper wire to the different color screw.

Note: If the 0–10 V dimmer sensor is first installed with a traditional 3-way mechanical switch and the mechanical switch is later replaced with a Maestro accessory switch, the 0–10 V dimmer sensor will need to be returned to factory default settings in order to function correctly.

Traditional 3-Way Mechanical Switch Wiring

Rewired to →

3-Way Mechanical Switch Wiring with Dimmer Sensor

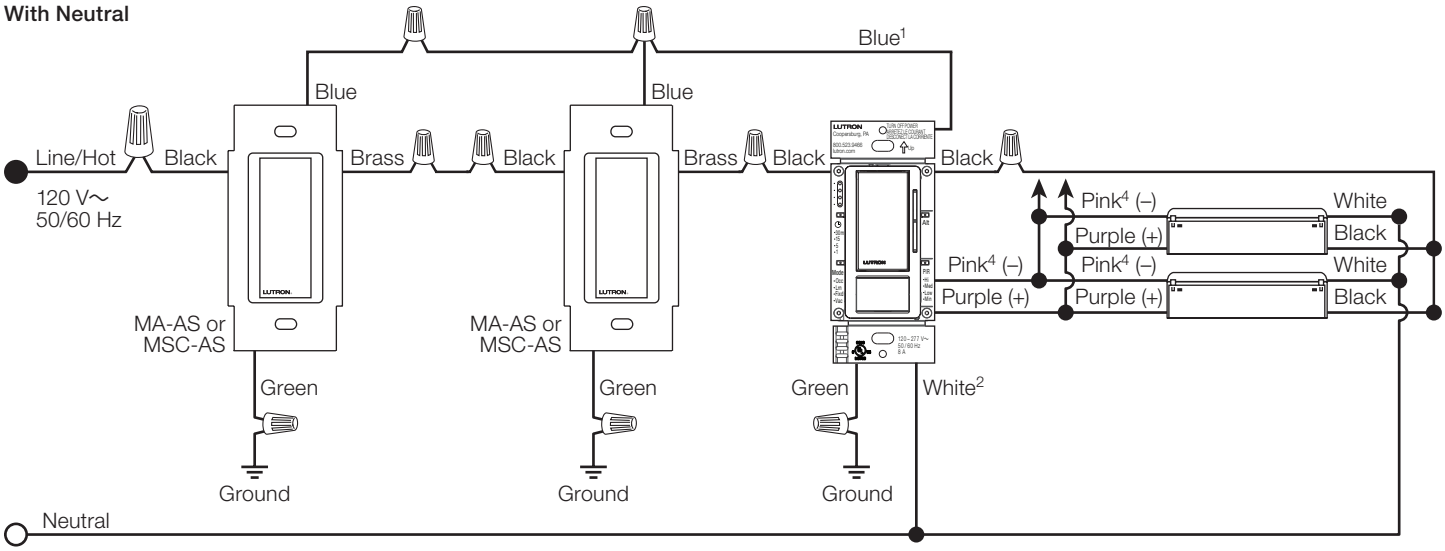


Job Name:	Model Numbers:	
Admin Services Lighting Project	MS-Z101-XX (color varies, see floor plan and switch count documents)	
Job Number:		

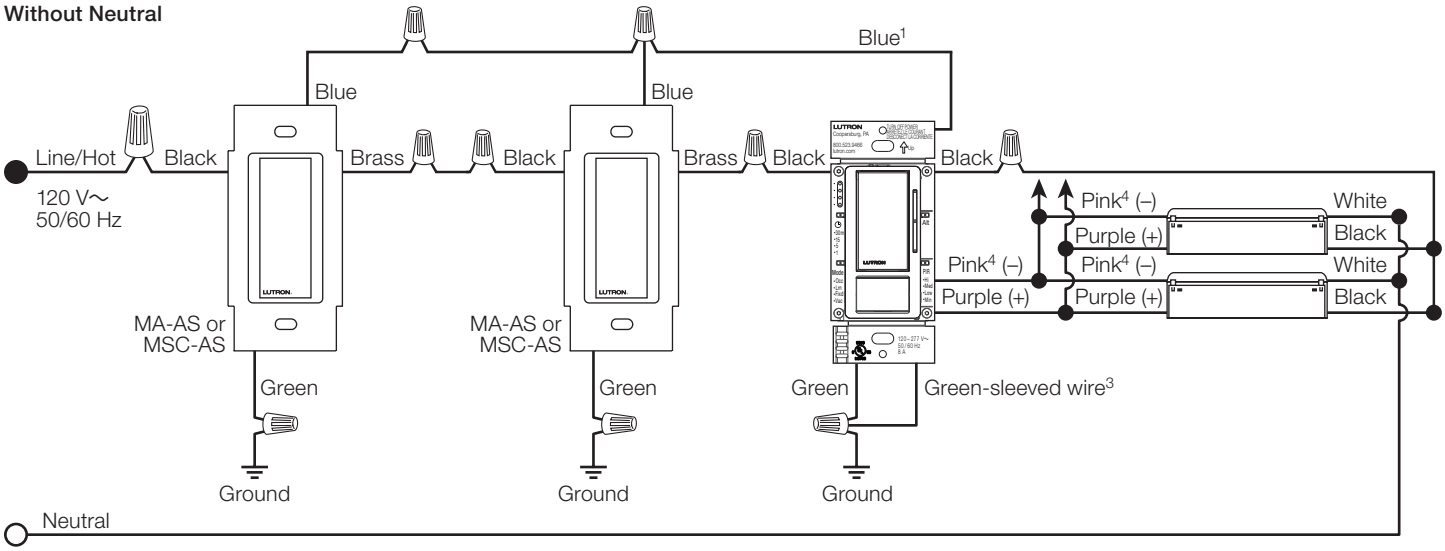
Wiring: 120 V~ Multi-Location Installation* with Maestro Accessory Switches

Note: If the 0–10 V dimmer sensor is first installed with a traditional 3-way mechanical switch and the mechanical switch is later replaced with a Maestro accessory switch, the 0–10 V dimmer sensor will need to be returned to factory default settings in order to function correctly.

With Neutral



Without Neutral



* One dimmer sensor can be installed in any location.

1 The length of the blue wire (3-way wire) must not exceed 150 ft (45.72 m).

2 When neutral is present in wallbox, remove green sleeve from the white wire and connect the white wire to neutral.

3 If no neutral is present, connect green-sleeved wire to ground.

4 This wire/terminal may be gray on older products or in retrofit applications.

Job Name:	Model Numbers:	
Admin Services Lighting Project	MS-Z101-XX (color varies, see floor plan and switch count documents)	
Job Number:		

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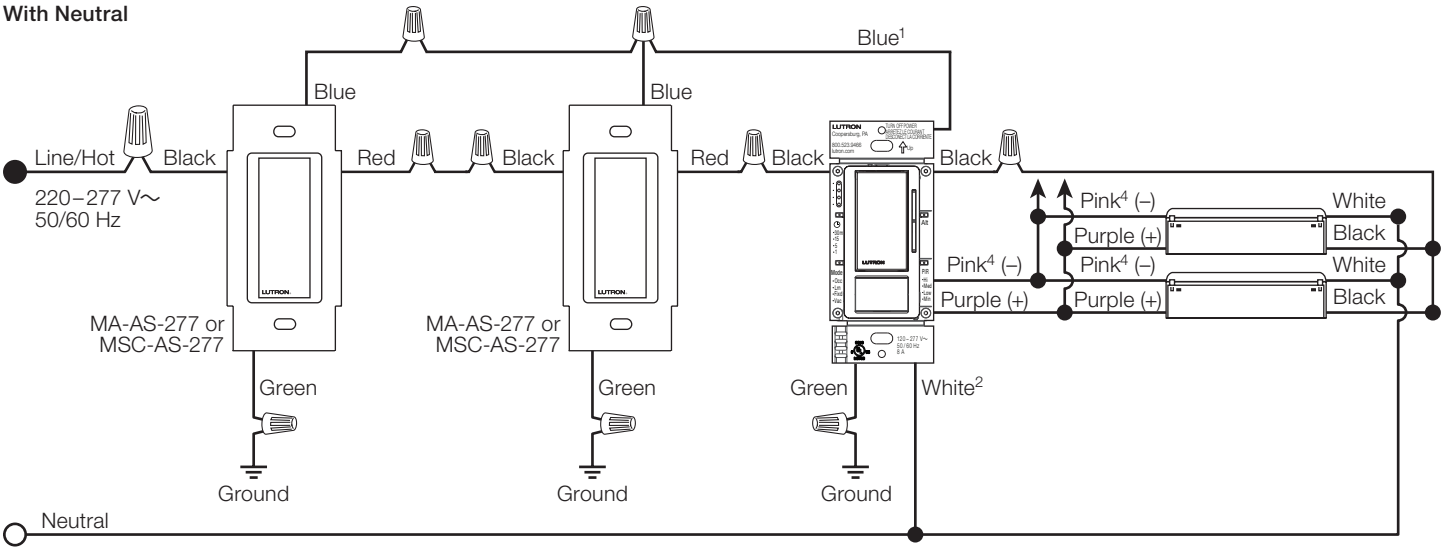
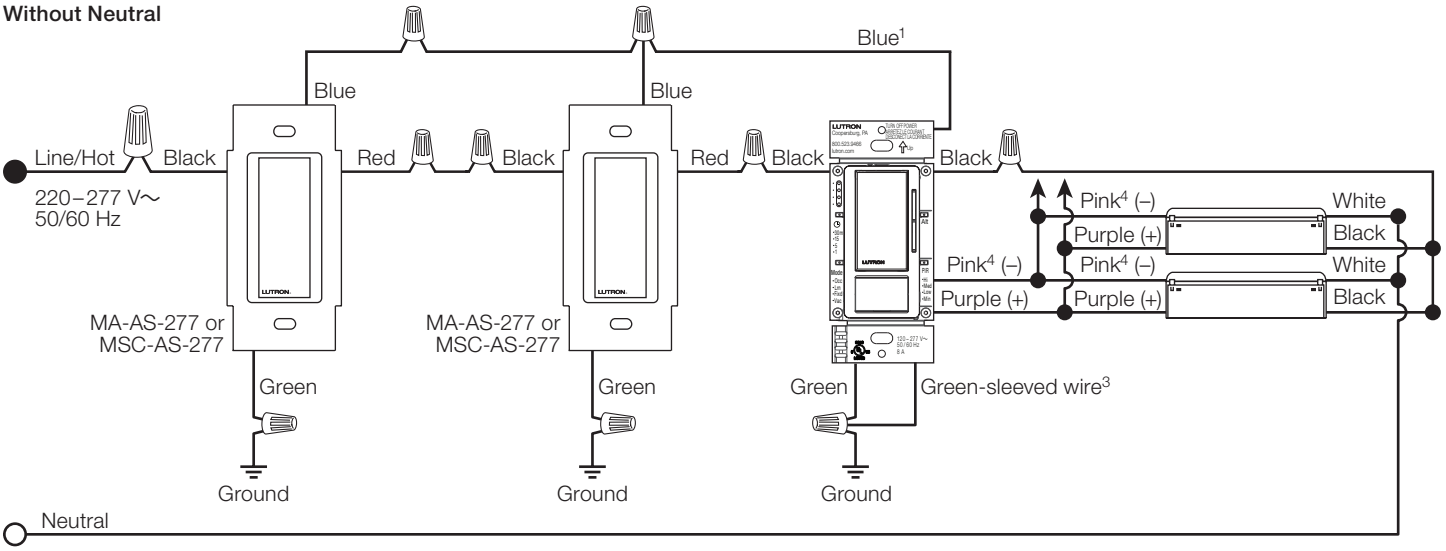
Wiring: 220–277 V~ Multi-Location Installation with Maestro Accessory Switches

Note: If the 0–10 V dimmer sensor is first installed with a traditional 3-way mechanical switch and the mechanical switch is later replaced with a Maestro accessory switch, the 0–10 V dimmer sensor will need to be returned to factory default settings in order to function correctly.

With Neutral



Without Neutral



* One dimmer sensor can be installed in any location.

1 The length of the blue wire (3-way wire) must not exceed 150 ft (45.72 m).

2 When neutral is present in wallbox, remove green sleeve from the white wire and connect the white wire to neutral.

3 If no neutral is present, connect green-sleeved wire to ground.

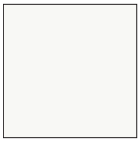
4 This wire/terminal may be gray on older products or in retrofit applications.

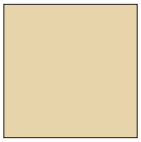
Job Name:	Model Numbers:	
Admin Services Lighting Project	MS-Z101-XX (color varies, see floor plan and switch count documents)	
Job Number:		

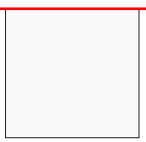
Colors and Finishes

See lamp, fixture, and counts Excel workbook

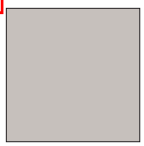
Gloss Finishes

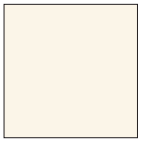

White
WH

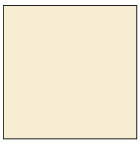

Ivory
IV

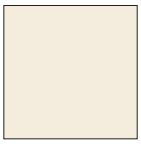

Snow
SW

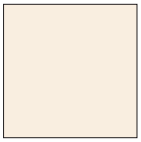

Midnight
MN

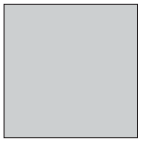

Taupe
TP


Biscuit
BI


Almond
AL

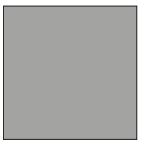

Light Almond
LA


Eggshell
ES


Palladium
PD


Hot
HT

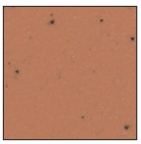

Merlot
MR


Gray
GR


Brown
BR


Plum
PL


Sienna SI

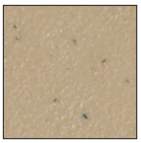

Terracotta
TC

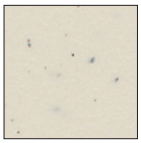

Bluestone
BG


Black
BL

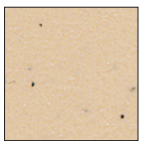

Greenbriar
GB

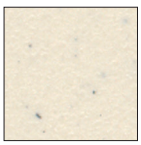

Goldstone
GS


Mocha Stone
MS


Stone
ST

- Due to printing limitations, colors and finishes shown cannot be guaranteed to perfectly match actual product colors.
- Color chip keychains are available for more precise color matching:
  - Gloss Finishes: DG-CK-1
  - Satin Finishes: SC-CK-1


Desert Stone
DS


Limestone
LS

For the latest color offerings please see our website:
http://www.lutron.com/satincolors

Job Name:	Model Numbers:	
Admin Services Lighting Project	MS-Z101-XX (color varies, see floor plan and switch count documents)	
Job Number:		

Catalog Number	FMVCSLS 24IN MVOLT 30K35K40K 90CRI BN M6
Notes	Restroom Vanity Replacement; Set to 35K
Type	

Contractor Select™

FMVCSLS Vanity LED

Contemporary Switchable Square Vanity

Provides an LED lighting platform to deliver general or task lighting for residential and light commercial applications. Light engine delivers long life and excellent color to ensure a quality, low-maintenance light installation. Ideal for use in bathrooms, lavatories, hallways, corridors, stairways, utility areas and more.

FEATURES:

- Available in 24" and 48"
- 24in produces 1550 lumens, standard input = 27 watts.
- 48in produces 2960 lumens, standard input = 36 watts.
- Fixture is rated to deliver L70 performance at 50,000 hours and operates at 120-277 volts.

Catalog Number	UPC	Description	Lumens	Input Watts	Voltage	Color Temperature	Pallet qty.
FMVCSLS 24IN MVOLT 30K35K40K 90CRI BN M6	191848792117	2' LED Vanity	1550	27W	MVOLT	3000K, 3500K, 4000K	108
FMVCSLS 48IN MVOLT 30K35K40K 90CRI BN M4	191848792179	4' LED Vanity	2960	36W	MVOLT	3000K, 3500K, 4000K	48

Specifications

INTENDED USE:

Provides an LED lighting platform to deliver general or task lighting for residential and light commercial applications. Light engine delivers long life and excellent color to ensure a quality, low-maintenance light installation. Ideal for use in bathrooms, lavatories, hallways, corridors, stairways, utility areas and more.

CONSTRUCTION:

The Contemporary Square Vanity is constructed of a polycarbonate diffuser with housings available in a brushed nickel finish. The included canopy/junction box cover is removable for a more low-profile look (2'-4' lengths only). The white diffuser provides even illumination and softens the appearance of the LEDs for improved aesthetics.

OPTICS:

The FMVCSLS Contemporary Square Vanity has an integrated switch to select 3000K, 3500K or 4000K color temperature at the time of installation.

2' delivers 1550 lumens, and 4' delivers 2960 lumens at 3000K CCT with 50,000 hours of life.

See table to the right for delivered lumens at the different CCT color switch settings.

Extruded polycarbonate diffuser is of highly transmissive material to minimize LED image and provides high angle brightness control.

ELECTRICAL:

Long-life LEDs, coupled with a multivolt and dual dimmable capable driver, provide extended service life. Standard input = 27 watts, (2'); 36 watts, (4'). Fixture is rated to deliver L70 performance at 50,000 hours and operates at 120-277 volts.

This fixture is dimmable by either triac or 0-10V dimming. Use with approved triac or 0-10v dimmer only.

LISTINGS:

UL Listed to US and Canadian safety standards. Listed for damp locations.

Complies with 2019 Title 24, Part 6, JA8 High Efficacy LED light source requirements.

WARRANTY:

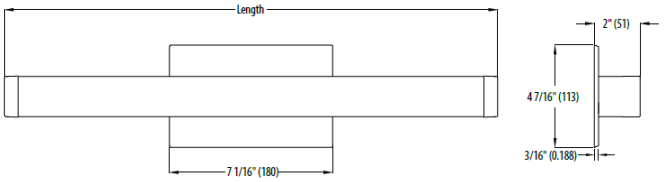
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Dimensions

SPECIFICATIONS	2FT	4FT
Length:	21-7/16 (545)	45-1/16 (1145)
Weight:	2.15 (.98)	3.15 (1.43)
3000K Lumens (LPW)	1550 (87)	2960 (84)
3500K Lumens (LPW)	1725 (99)	3240 (94)
4000K Lumens (LPW)	1740 (96)	3200 (89)

All dimensions are inches (millimeters) unless otherwise indicated. Weights are pounds (kilograms).



REL437 Recessed can down light replacement

4" ECONOMY LED RETROFIT LIGHTING MODULE

SAME DAY SHIPPING AVAILABLE

CRI	90+
COLOR QUALITY	3-Step MacAdam Ellipses
LUMEN OUTPUT	700 Lumens
CCT	27K/30K/35K/40K/50K
OPTIC	45° Cut-Off
WARRANTY	5 Years

CERTIFICATIONS

- cULus
- RoHS
- IECC
- LM97/LM80
- California Title 24
- New York State
- Washington State

JA8E

ENGINEERED FOR VERSATILITY AND PERFORMANCE

The Elite REL437 has been engineered for New Construction, Remodel and Retrofit applications for 4 inch downlights. Dedicated housings install the same way as our standard incandescent downlights. Over 1100 usable lumens are directed from the luminaire to the work surface. Lighting is smooth and comfortable, all while using 75% less energy than the equivalent 50W BR20 and 25% less than the common 18W CFL. Plus the Elite REL437 features 50,000hrs of life, and California Title-24 compliance.

INPUT VOLT.	INPUT FREQ.	THD	POWER FACTOR	INPUT POWER	LUMENS
120	50/60Hz	<20%	>0.9	11W(+/-5%)	700

FEATURES

Greater light output than an 18W CFL or a 50W BR20 while consuming less than 11W of power.

OPTICS

The Elite-Engineered LED Module system is much more than just a simple LED retrofit. The Elite LED system is a highly engineered work of design and optical science which produces over 700 lumens. Our meticulously crafted optics gather the light scattered by the LED chip and shape it into a functional beam with uniform light distribution. The baffle also offers the benefits of a smooth integrated light with glare reduction at a 55 degree cut-off, which minimizes brightness.

DURABILITY

Die-cast aluminum housing and heat management system are engineered for extremely long life and service period. Without proper heat management, any LED luminaire will fail. Our die-cast system pulls the heat from the LED chip, allowing the continued cool operation for years. Life tests have shown the Elite REL437 light output will be maintained at 70% of initial at 50,000 hours of operation. Our LED driver is rated for 50 to 60 Htz at 120V input, produces less than 20% THD, has a power factor between 0.90 and 1.00 and is thermal protected for additional safety.

REPEATABLE

Repeatability means quality. From our chip selection process, to our driver, to the thermal management, the Elite REL437 Module is engineered for quality. All Elite LED luminaries are rated at 85+ and 90+ CRI, also rated and tested to LM-79 and LM-80 standards by a certified laboratory, and meets the California Title-24 compliance standards. Elite's highly selective LED chips produce zero ultraviolet and virtually no infrared light.

DIMMABLE

The Elite REL437 lighting system is dimmable down to 10% by using an approved incandescent dimmer or select electronic low voltage dimmers when ordered with DIMTR-120 option. Refer to dimming matrix for more information.

INTERCHANGEABLE

The Elite REL437 LED system works in our dedicated (LD4IC-AT ,LD4RIC-AT) housings and our existing 4" incandescent housings (B4IC-AT, B4RIC-AT) but is also suitable for use in most 4" recessed downlight housings.

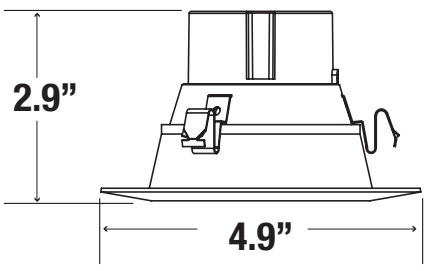
ADAPTABLE

All Elite REL437 luminaries are shipped standard with our custom engineered Edison adapter. This adapter assembly allows the luminaries to install directly into existing Elite 4" downlight housings and most other 4" downlight housings. GU24 style socket base adapters also available upon request.

OUR WORD

The Elite LED lighting system carries a five-year carefree warranty for parts and components. (Labor not included)

DIMENSION



INSTALLATION

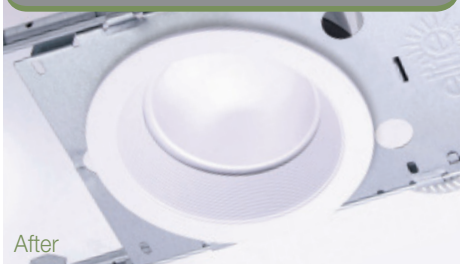
Ez connector to use with special high efficacy housing or Edison base adapter for retrofitting into existing 4" incandescent housings.

REL437

4" ECONOMY LED RETROFIT LIGHTING MODULE

R20 Lamp

REL437 LED Retrofit Series



Elite's innovative LED retrofit downlight modules deliver the brightest, most beautiful and most energy efficient ambient lighting to replace any lamp type on your existing fixture.

Example: **REL437-700L-DIMTR-120-27K/30K/35K/40K/50K-90-W-WH**

TYPE	PERFORMANCE	CCT	CRI	FINISH	OPTION	TRIM OPTIONS	
REL437 (Baffle)	■ 700L-DIMTR-120	■ 27K/30K/35K/40K/50K	■ 90	■ W-WH	❑ GU24SA GU24 SOCKET ADAPTER	BT (Baffle Trim) ❑ REL437-BT-SN-SN	RT (Reflector Trim) ■ REL437-RT-CL-WH

AVAILABLE COLOR INSERTS FOR REL437 - 4" RETROFIT

BAFFLES

REL437-BT-SN-SN

REFLECTORS

REL437-RT-CL-WH

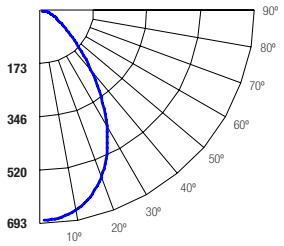
Ordering Guide for Compatible Housing

 IC - New Construction	 Non-IC New Construction	 IC - For Remodel	 Non-IC For Remodel
LD4IC-AT	LD4-AT	LD4RIC-AT	LD4R-AT
HLD4IC-AT	HLD4-AT		HLD4R-AT
B4IC-AT	B4-AT		B4R-AT

REL437-700L-DIMTR-120-27K-30K-35K-40K-50K-90-W-WH TEST NO.: **EL08071945**

INPUT WATTS: **10.916** LUMENS: **904** CRI: **90** EFFICACY: **83** CCT: **4000K** SPACING CRITERIA: **1.02**

Candle Power Distribution (Candelas)



Cone of Light			
2	173	2.7	2.7
4	43.3	5.4	5.4
6	19.2	8.1	8.1
8	10.8	10.8	10.8
10	6.92	13.5	13.5
12	4.81	16.3	16.3
(FT.)Distance to Plane	(FC.) Initial Footcandle at Nadir	(FT.) Beam Vert. Spread	(FT.) Beam Horiz. Spread

BEAM DIA. MEASURED AT 50% OF NADIR F.C.

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixt
0-20	241.11	26.70	26.70
0-30	472.84	52.30	52.30
0-40	677.85	75.00	75.00
0-60	866.59	95.90	95.90
0-80	903.04	99.90	99.90
0-90	903.06	99.90	99.90

Luminance (Average candela/M²)

Angle in Degrees	Average 0°	Average 45°	Average 90°
45	2631	2618	2728
55	1372	1382	1435
65	799	827	889
75	95	144	252
85	4	3	3

Lumens Per Zone

Zone	Lumens
0-10	64.78
10-20	176.33
20-30	231.73
30-40	205.01
40-50	125.82
50-60	62.91
60-70	30.33
70-80	6.13
80-90	0.02

Candela Tabulation

	0
0	692.38
5	684.74
15	626.83
25	502.00
35	323.02
45	154.42
55	65.32
65	28.02
75	2.05
85	0.03
90	0.03

Coefficients of Utilization - Zonal Cavity Method
Effective Floor Cavity Reflectance 0.20

	RC	80%				70%				50%			30%		10%			0%
	RW	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0%
ROOM CAVITY RATIO	0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
	1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	95	94	93	91
	2	105	99	95	91	103	98	93	90	94	91	88	91	88	86	88	86	84	82
	3	99	91	85	80	96	89	84	80	87	82	78	84	80	77	82	79	76	74
	4	92	83	77	72	90	82	76	71	80	75	70	78	73	70	76	72	69	67
	5	87	77	70	65	85	76	69	64	74	68	64	72	67	63	70	66	63	61
	6	81	71	64	59	80	70	63	59	68	62	58	67	62	58	65	61	57	56
	7	77	66	59	54	75	65	58	54	64	58	53	62	57	53	61	56	53	51
	8	72	61	54	49	71	60	54	49	59	53	49	58	53	49	57	52	49	47
	9	68	57	50	46	67	56	50	45	55	49	45	54	49	45	54	49	45	43
	10	64	53	47	42	63	53	47	42	52	46	42	51	46	42	50	45	42	40

***RC** - Ceiling Cavity Reflectance* ***RW** - Wall Reflectance*

Catalog Number	CSS L96 ALO4 MVOLT SWW3 80CRI
Notes	Upper Mechanical Room T12 Replacement, set at 40K
Type	LED

Contractor Select™

CSS

LED Striplight

The light-duty, dimmable, damp-location and DLC® listed CSS LED dual strip lights can easily mount individually to a ceiling, horizontal and vertical wall, or continuous row/daisy chaining. The size and versatility make them suitable for tight spaces and for task lighting, restrooms, under/over cabinet and storage closets.

FEATURES:

- Inspired by classic fluorescent strip channels, this LED fixture offers a traditional appearance that incorporates the latest technology
- Quick and simple to install with the snap-lock tool-less channel cover
- Features a low-glare diffuse lens for enhanced aesthetic

Catalog Number	UPC	Description	Lumens	Wattage	Voltage	Color Temperature	Color Rendering Index	Pallet Quantity
CSS L48 4000LM MVOLT 40K 80CRI	00193048852622	4' MVOLT LED Strip Light	4298	34.2	MVOLT (120-277)	4000K	80CRI	98
CSS L96 8000LM MVOLT 40K 80CRI	00193048852721	8' MVOLT LED Strip Light	8596	68.4	MVOLT (120-277)	4000K	80CRI	102
CSS L48 ALO3 MVOLT SWW3 80CRI	00193048852677	4' MVOLT Switchable LED Strip Light	3190-5274	24.1-39.4	MVOLT (120-277)	35K/40K/50K	80CRI	98
CSS L96 ALO4 MVOLT SWW3 80CRI	00193048852738	8' MVOLT Switchable LED Strip Light	6380-10549	48.3-78.7	MVOLT (120-277)	35K/40K/50K	80CRI	102

More configurations are available. Click here or visit www.acuitybrands.com and search for CSS LED.

Accessories: *Order as separate catalog number.*

HC36	Chain hanger and jack chain, 36" (pair)
ZACVH	Aircraft cable 10' (one pair)
SQ	5/8" Swivel-stem hanger (specify length in 2" increments)
YJ10	Y hanger in multiples of 10

Specifications

INTENDED USE:

Inspired by classic fluorescent strip channels, this LED fixture offers a traditional appearance that incorporates the latest technology. Available in several color temperatures, lumen packages and lengths. Ideal for use in commercial, retail, office, warehouse and display applications. **Certain airborne contaminants can diminish integrity of acrylic. Click here for Acrylic Environmental Compatibility table for suitable uses.**

Certain airborne contaminants may adversely affect the functioning of LEDs and other electronic components, depending on various factors such as concentrations of the contaminants, ventilation, and temperature at the end-user location. **Click here for a list of substances that may not be suitable for interaction with LEDs and other electronic components**.

CONSTRUCTION:

Compact-design channel and cover are formed from code-gauge, cold-rolled steel.

Easy to install row aligner bracket included for continuous row mounting.

Finish: High-gloss, baked white enamel (standard).

OPTICS:

LEDs provide 80+ color rendering index (CRI) at 3500 K, 4000 K and 5000 K. Diffuse polycarbonate lens provides smooth, linear illumination which is designed to resemble the classic look of traditional fluorescent lamps. Lumen output exceeds 1,000 lumens per foot. Luminaire should be installed in applications where ambient temperatures do not exceed maximum ambient operating temperature of 95˚F (35˚C).

ELECTRICAL:

Luminaire Surge Protection Level: Designed to withstand up to 2.5kV/0.75kA per ANSI C82.77-5-2015. For applications requiring higher level of protection additional surge protection must be provided.

INSTALLATION:

Fixture may be surface or suspension mounted with appropriate mounting options (see accessories).

Aligner locks in place for easy continuous row mounting.

LISTINGS:

CSA certified to US and Canadian safety standards and listed suitable for damp locations.

Minimum starting temperature at -40°F (-40°C). Maximum ambient operating temperature of 95˚F (35˚C).

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY:

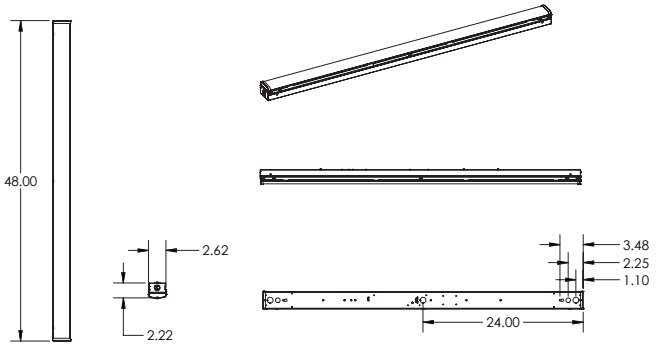
5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/resources/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Dimensions

All dimensions are inches (centimeters) unless otherwise indicated.

4FT Assembly



8FT Assembly