

LED Control Solutions

Smooth, flicker-free dimming for every application



 **LUTRON**

Dimmers

- 3 LED+ dimmers
- 9 PRO dimmer with LED+™ technology
- 13 Reverse phase dimmers
- 15 Phase select dimmers
- 17 Dimmer capabilities
- 19 0–10V dimmers
- 24 Testing LED bulb performance

Sensors

- 29 In-wall sensors

THE LUTRON DIFFERENCE

What sets Lutron apart from the rest

This guide covers our extensive line of reliable LED controls and the features that make them stand out from the rest. Whether your job requires a dimmer, sensor, or both, you can count on the Lutron difference to give your customers the best LED control experience.





LED+ Dimmers

Dimmers with LED+ technology (formerly C-L dimmers) are forward phase dimmers specifically designed for controlling dimmable LEDs, incandescent, and halogen bulbs. They're the result of our commitment to providing the best LED dimming experience to our customers. Part of that commitment also includes working with bulb manufacturers to find and test bulbs that work well with these dimmers through our LED Center of Excellence (see page 25 for more information).

LED+ technology (formerly C-L)

We're renaming our line of forward phase dimmers, as well as rolling out new packaging for them, so that our customers can clearly identify which Lutron dimmers control LEDs.

Going forward, C-L dimmers will now be LED+ dimmers.

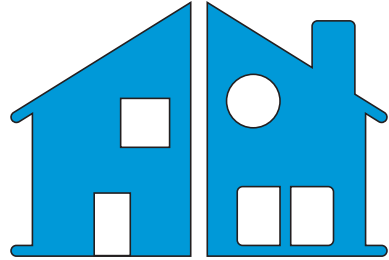
New name and look. Same trusted technology.

	C-L	LED+
Works with these loads:   LED Inc/Hal	✓	✓
Superior dimming of LEDs, incandescent, and halogen bulbs	✓	✓
No neutral or special wire temperatures required	✓	✓
Easy low-end trim	✓	✓
Eliminates dimmer interaction	✓	✓

LED+ Dimmers

Works with all wire temperature ratings

With LED+ dimmers,
a neutral wire isn't required



Dimmers with LED+ technology don't require 75° C wire to operate, unlike some other dimmers.

50%

Homes built before 1980

Temp rating: 60° C – 75° C

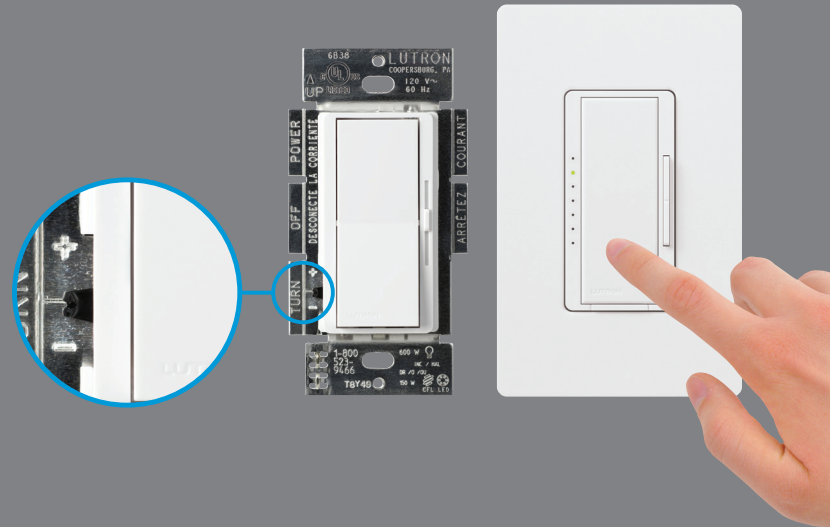
50%

Homes built after 1980

Temp rating: 75° C

Easily set the low-end trim

To improve performance and reduce flicker, optimizing the dimmer's low end is easy. Simply adjust the lever on the side or use button-press setup (for digital dimmers).



Eliminate dimmer interaction

Dimmer interaction is a common problem that occurs in a home with multiple dimmers. When you adjust one of the dimmers, the lights in the other room(s) with dimmers flicker.



Without LED+

Lights in dining room can flicker when dimmer in kitchen is adjusted

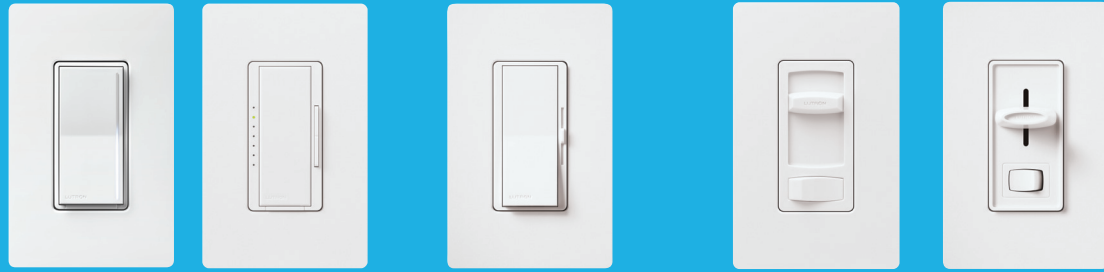


With LED+

Alleviate dimmer interaction for smooth, flicker-free dimming

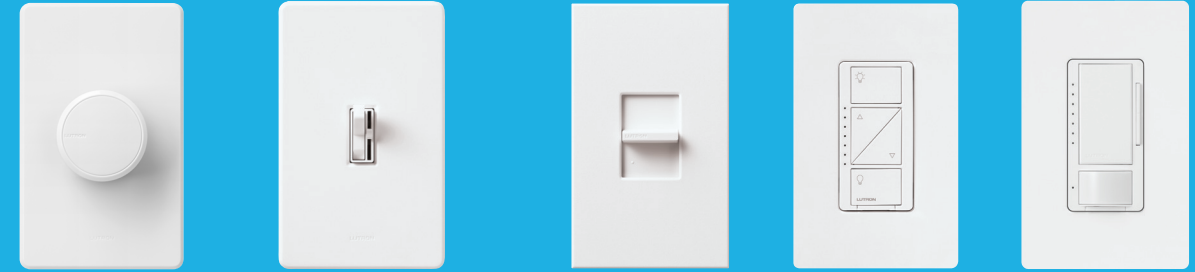


LED+ Dimmers



		Sunnata	Maestro	Diva		Skylark Contour	Skylark
		150W	150W	150W	250W	150W	150W
Model number - Gloss		STCL-153P	MACL-153M	DVCL-153P	DVCL-253P	CTCL-153P	SCL-153P
Model number - Satin			MACL-153M	DVSCCL-153P	DVSCCL-253P		
Voltage		120V	120V	120V	120V	120V	120V
Pole/ Wiring	Single pole	•	•	•	•	•	•
	3-way	•	•	•	•	•	•
	Multi-location		•*				
Maximum Capacity	150W LED / 600W inc./halogen	•	•	•		•	•
	250W LED 600W inc./halogen				•		
Prevents dimmer interaction		•	•	•	•	•	•
Low-end trim		•	•	•	•	•	•
Mixed loads		•	•	•	•	•	•
Neutral wire		Not required	Not required	Not required	Not required	Not required	Not required

*Dim from up to 10 locations by using companion dimmers



		Dalia	Ariadni		Nova T☆	Caséta	Maestro Sensor ⁺
		150W	150W	250W	250W	150W	150W
Model number - Gloss		RCL-153P	AYCL-153P	AYCL-253P	NTCL-250	PD-6WCL	MSCL-OP153M
Model number - Satin							MSCL-OP153M
Voltage		120V	120V	120V	120V	120V	120V
Pole/ Wiring	Single pole	•	•	•	•	•	•
	3-way	•	•	•		•*	•
	Multi-location					•*	•**
Maximum Capacity	150W LED / 600W inc./halogen	•	•			•	•
	250W LED 600W inc./halogen			•	•		
Prevents dimmer interaction		•	•	•	•	•	•
Low-end trim		•	•	•	•	•	•
Mixed loads		•	•	•	•	•	•
Neutral wire		Not required	Not required	Not required	Not required	Not required	Not required

*For 3-way and multi-location applications, using Pico remote controls

**Dim from up to 10 locations by using companion dimmers

*Vacancy-only model available (MSCL-VP153M)



PRO Dimmer with LED+ Technology

We designed the PRO dimmer with LED+ technology exclusively for the professional installer. This dimmer provides all the features of our forward phase dimmers with the added flexibility professionals require.

Fast, easy retrofittable installation for any age home, with any wiring



Screw Terminals

- Easy wiring, no wire connectors required

Neutral Optional

- If neutral is available, connect it to enhance LED performance and reduce flicker
- If no neutral is available, provides the same beautiful LED dimming experienced with Lutron dimmers with LED+ technology

Unmatched flexibility equals one dimmer for any job

Phase Selectable — works in both forward or reverse phase for optimal dimming



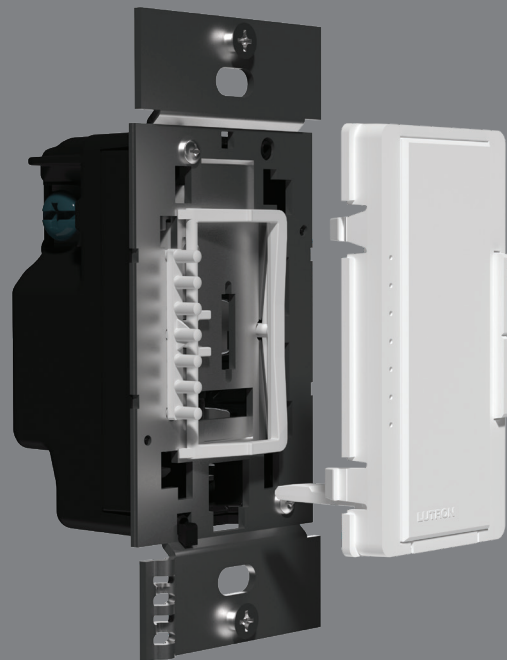
Reverse Phase Control*

OR



Forward Phase Control

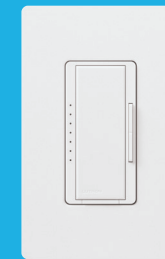
* Default is reverse phase control



Color Change Front Plastics

- Interchangeable plastics to match the decór of any home
- Available in Gloss and Satin Colors

PRO Dimmer with LED+ Technology



	Maestro
	250 W
Model number	MA-PRO
Voltage	120V
Pole/ Wiring	Single pole
	Multi-location*
Maximum Capacity	250 W LED
	500 W inc/hal
	400 VA/300 W MLV
	500 W ELV
	Prevents dimmer interaction
	Low-end trim
	Mixed loads
Neutral wire	Optional**
Phase selectable	Forward or Reverse (default)

Works with these loads



LED



Incandescent/
Halogen



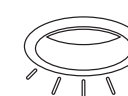
Electronic
low-voltage



Magnetic
low-voltage



Track



Can

*Dim from up to 10 locations by using companion dimmers

**Neutral required for ELV and MLV loads



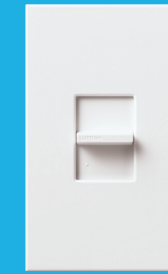
Reverse Phase Dimmers

Reverse phase dimmers control dimmable LEDs, as well as incandescent, halogen, and ELV loads.



Reverse Phase Control

Reverse Phase Dimmers



	Nova T☆	Diva	Skylark Contour
	250 W	250 W	250 W
Model number - Gloss	NTRP-250	DVRP-253P	CTRP-253P
Model number - Satin		DVSCR-253P	
Voltage	120V	120V	120V
Pole/Wiring	Single pole	•	•
	3-way		•
Maximum Capacity	250 W LED		
	500 W inc/hal/ELV	•	•
	250 W LED		
	600 W inc/hal/ELV	•	
Prevents dimmer interaction	•	•	•
Low-end trim			
Mixed loads	•	•	•
Neutral wire	Required	Required	Required
Phase selectable	Reverse	Reverse	Reverse

Works with these loads



LED



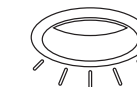
Incandescent/
Halogen



Electronic
low-voltage



Track



Can



Phase Select Dimmers

You can program phase select dimmers to work in either forward or reverse phase, for optimal performance. These dimmers were specifically designed for the pro and control dimmable LEDs, as well as incandescent, halogen, MLV, and ELV loads.



Phase Select Dimmers



	GRAFIK T	Caséta
	250W	250W
Model number	GT-5NEM	PD-5NE
Voltage	120V	120V
Pole/Wiring	Single pole	•
	3-way	•*
	Multi-location	•*
Maximum Capacity	250W LED 500W inc/hal/ELV 400VA/300W MLV	•
	Prevents dimmer interaction	•
	Low-end trim	•
	Mixed loads	•
	Neutral wire	Required
	Phase selectable	Forward or Reverse

Works with these loads



LED



Incandescent/
Halogen



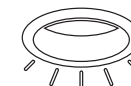
Electronic
low-voltage



Magnetic
low-voltage



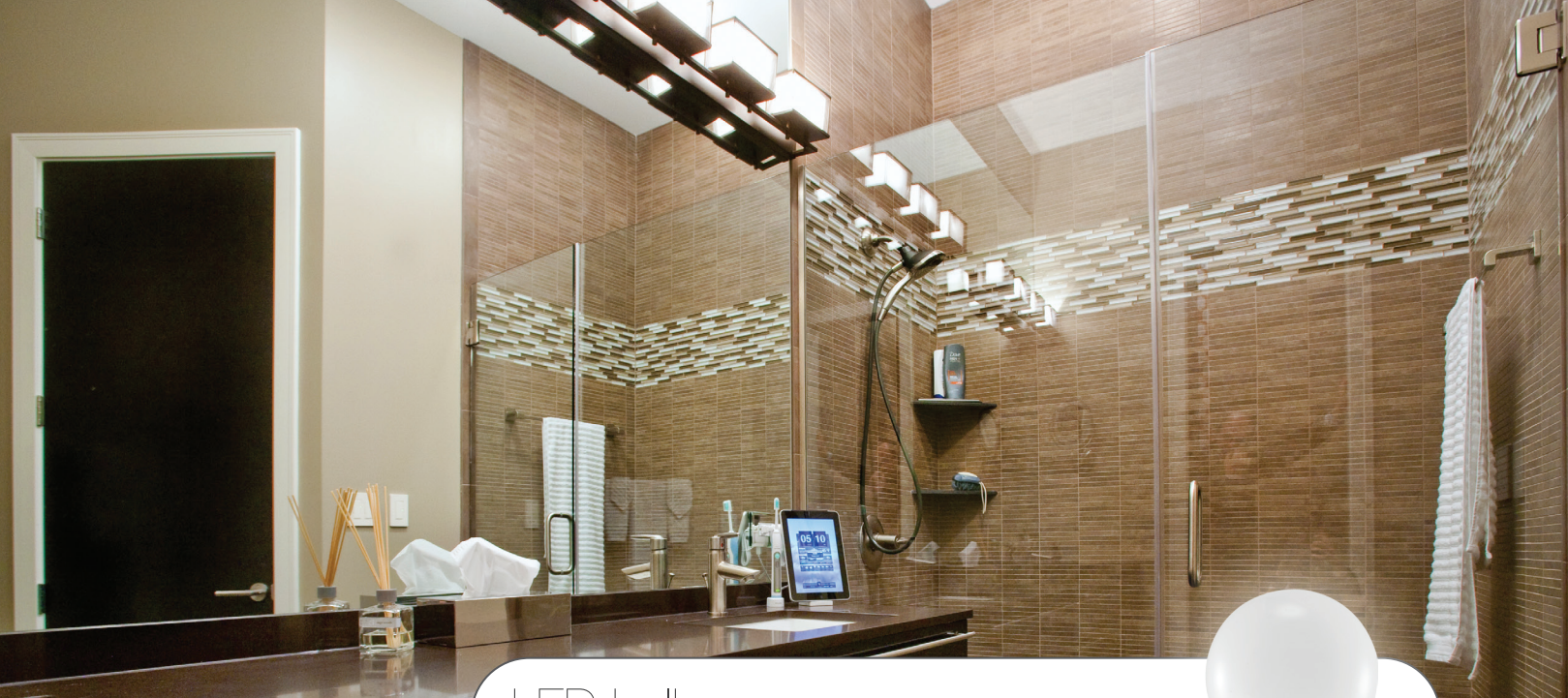
Track



Can

*Dim from up to 5 locations by using companion devices

**For 3-way and multi-location applications, use Pico remote controls



Dimmer Capabilities

LED bulbs

No dimmer currently on the market is designed to work with all LED bulbs. That's why we're committed to testing LED bulb and dimmer performance through our LED Center of Excellence.



LED

Comparing Dimmer Capabilities

The chart below compares the three dimmer types we just covered, as well as "universal" dimmers from others.

	Lutron LED+	Lutron PRO LED+	Lutron reverse phase	Lutron phase select	Universal by others
Prevents dimmer interaction	Yes	Yes	No	Yes	No
Low-end trim	Easy	Easy	No	Easy	More difficult
Mixed loads	Yes	Yes	Yes	Yes	No
Neutral wire	Not required	Optional*	Required	Required	Depends on the product
Phase selectable	Forward only	Forward or Reverse	Reverse only	Forward or Reverse	You may not have an option
Color change front plastics	No	Yes	No	No	Depends on product

*Neutral required for ELV and MLV loads



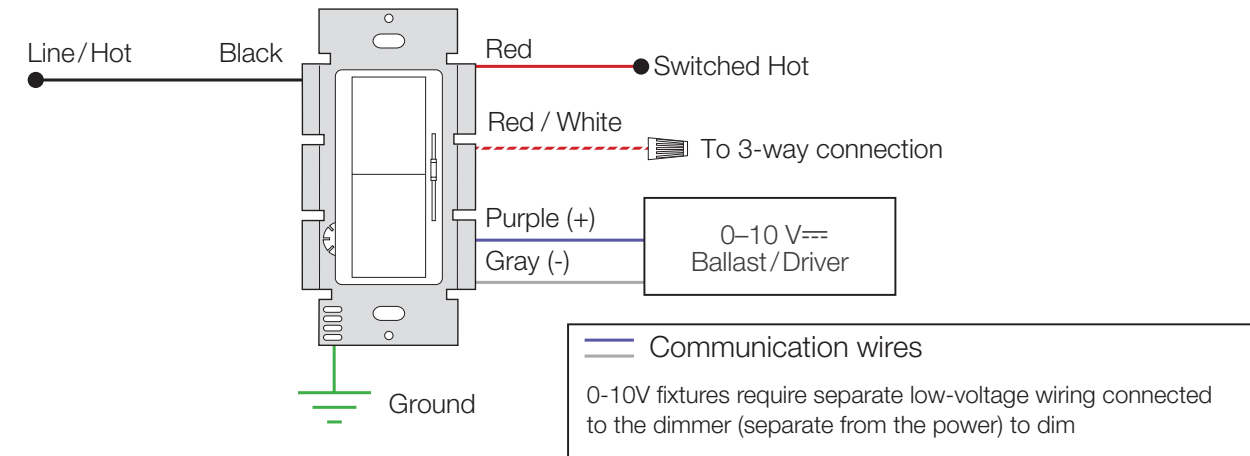
0-10V Dimmers

0-10V dimmers have two separate communication wires that send a signal to the fixture indicating the light level that needs to be achieved. These dimmers, which require a 0-10V driver or ballast, are used extensively in commercial buildings.



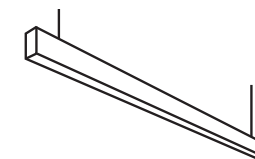
How is a 0-10V dimmer different from other dimmers?

It has additional wires that communicate with the fixture by sending signals between 0 volts and 10 volts. These signals correlate to the fixture's brightness level.

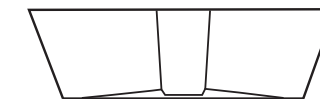


Works with these loads

A 0-10V driver or ballast



Pendant



Troffer



Recessed Fixture

Diva 0-10V



- Patented technology extends relay life more than 10 years
- No derating for 277V installations
- Low- and high-end trim in one product



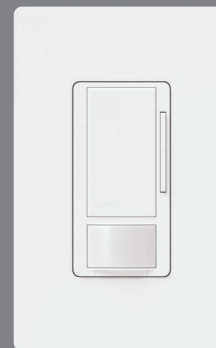
Nova T☆ 0-10V



- Spec grade with heavy-duty components for surge protection and long life
- No derating for 277V installations
- Low- and high-end trim in one product



Maestro 0-10V dimmer sensor



- Lutron's XCT sensing technology
- Lutron's Adaptive Zero-Cross Switching extends relay lifetime
- Miswire and load incompatibility alert
- Optimized dimmer performance with selectable dimming curve and smooth fade to on and off



Maestro Wireless 0-10V dimmer sensor



- Lutron's XCT sensing technology
- Lutron's Adaptive Zero-Cross Switching extends relay lifetime
- Communicates with Pico remote controls and Radio Powr Savr occupancy/vacancy sensors via radio frequency
- Compatible with the Vive wireless hub





		Diva		Nova T☆	Maestro sensor	Maestro Wireless sensor
	Model number	DVSTV	DVTV	NTSTV	MS-Z101	MRF2S-8SD010 ⁺
	Voltage	120V - 277V	120V - 277V	120V - 277V	120V - 277V	120/277V
Pole/ Wiring	Single pole	•	•	•	•	•
	3-way	•			•	•**
	Multi-location				•	•**
Maximum Capacity	8A	•		•	•	•
	16A		•*	•*		

*Requires an external power pack

**For 3-way and multi-location applications, use Pico remote controls

*Vacancy-only model available (MRF2S-8SDV010)



Testing LED Bulb Performance

We test bulbs on an ongoing basis for performance with our dimmers, and receive hundreds of test requests annually. Through our LED Center of Excellence, we test each bulb across multiple parameters before listing it as compatible.

We first test bulbs for UL safety.

A bulb must pass this test in order to move on to performance testing.

Each bulb is then tested for:

- | | |
|--------------------------|---------------------------|
| Minimum and maximum load | Flicker/shimmer |
| Buzzing/audible noise | Stability from line noise |
| Start-up time | Electrical properties |



Bulb manufacturers

Here are just some of the many bulb manufacturers that participate in our compatibility testing:

PHILIPS



SYLVANIA

EAT•N



GREENCREATIVE

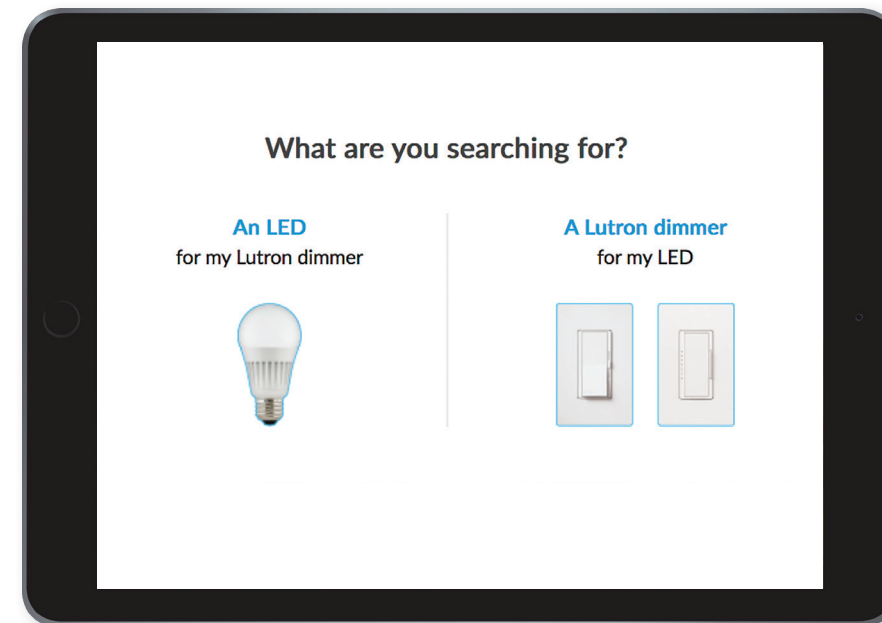
SATCO

LITHONIA LIGHTING

TCP

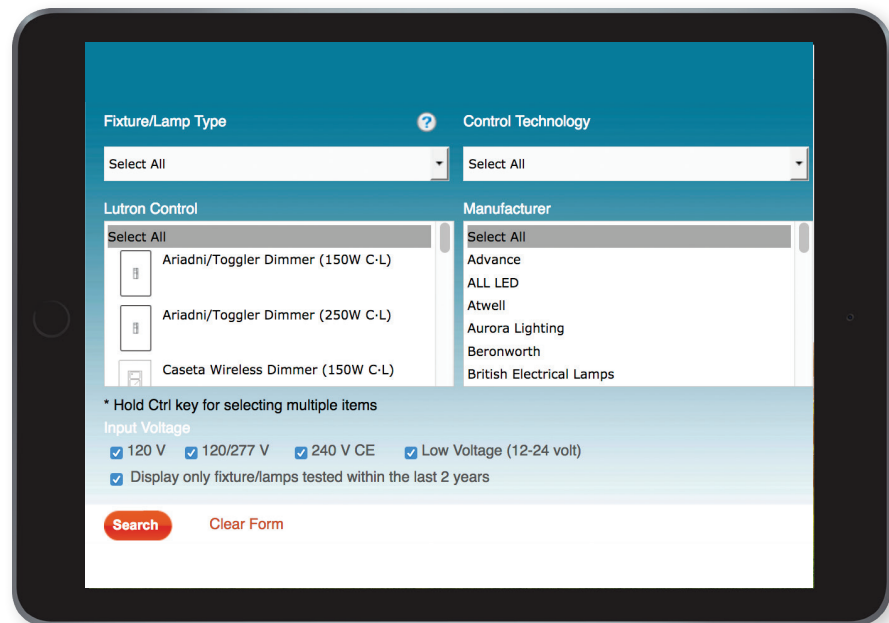
CREE

Once a bulb is deemed compatible we add it to our LED tools:



LED compatibility tool

Easily find an LED bulb for a Lutron dimmer with LED+ technology or a Lutron dimmer for an LED bulb
lutron.com/LEDfinder



LED product selector tool

- Detailed results of fixture/bulb performance for dimming controls
 - Ideal for specification
- lutron.com/LEDtool



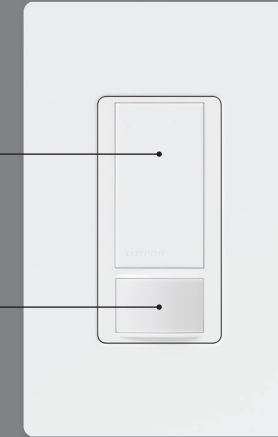


In-Wall Sensors

Our occupancy/vacancy sensors are engineered with robust components, combined with an award-winning design.

Extended relay lifetime
(250,000 on/off switch cycles)

Tamper-resistant lens



- Any voltage, any phase (120V-only sensors also available)
- Ambient light detection (set to learnable or fixed)
- Available in 25 Gloss and Satin Colors

Works with all lighting loads



LED



Incandescent/
Halogen



Magnetic
low-voltage



Electronic
low-voltage



Low-voltage
LED

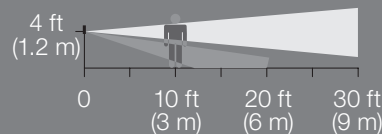
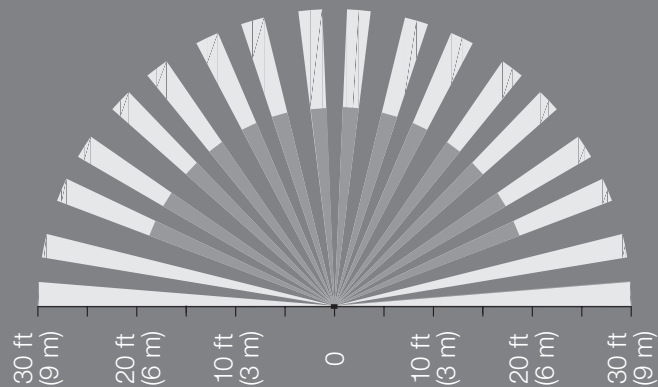


Fluorescent/
LED

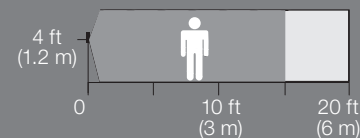
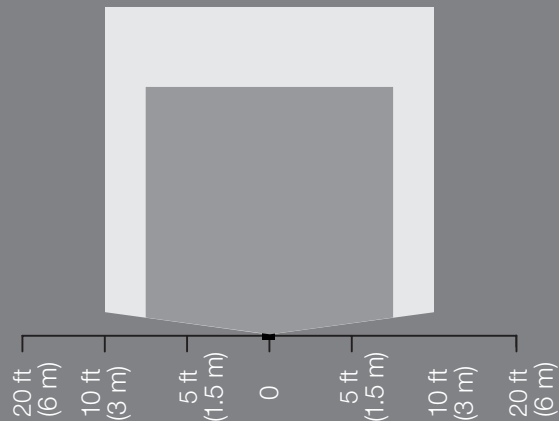
Coverage patterns

Major motion coverage Minor motion coverage

PIR beam diagram
(for reference only)



Ultrasonic coverage
(for reference only)

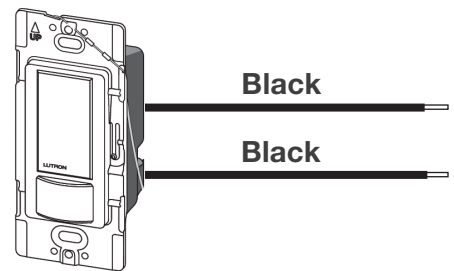


Easy installation

Simplified wiring

Mistake-proof wiring — no polarity for line- or load-side wiring

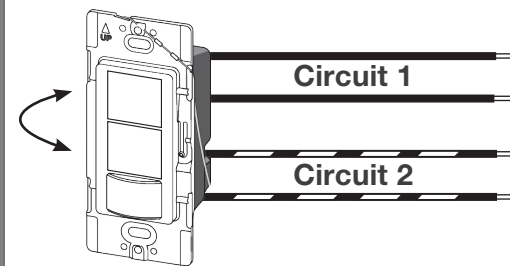
Single-circuit (including dimming)



Any voltage 120V & 120V–277V

Any phase Phase A, B, or C

Dual-circuit



Any voltage 120V–277V

Any phase Phase A, B, or C

Easily reassign

Change circuit with button press; no rewiring

* Dual-tech, no-neutral models require line- and load-specific wiring

Easy setup

No dip switches or dials

Simple button-press changes settings

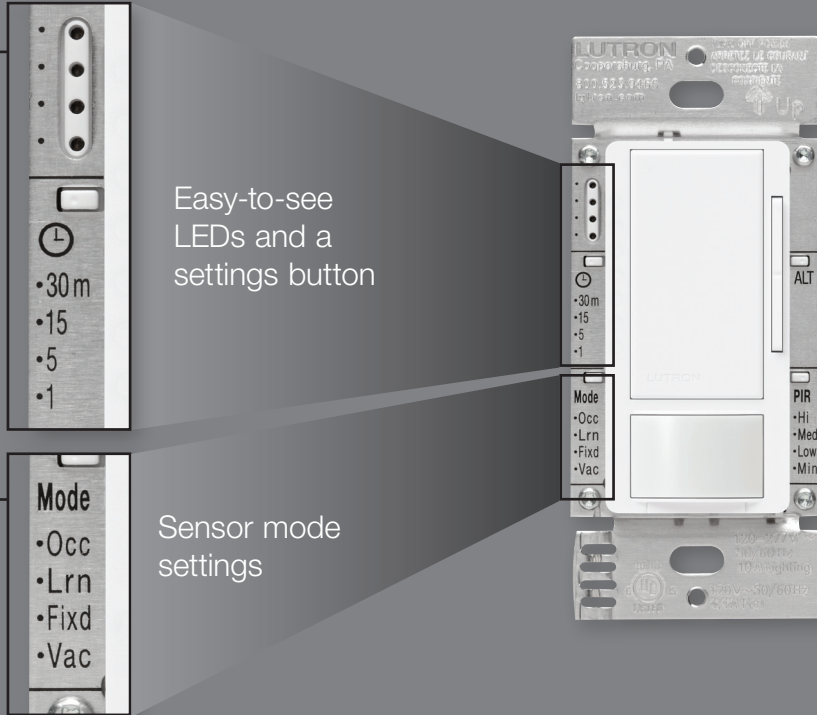
- Timeout
- Sensitivity

Easy-to-see LEDs and a settings button

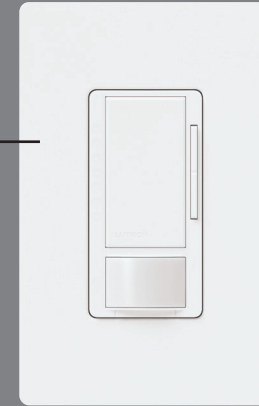
Mode

- Occupancy
- Ambient light detection
- Vacancy

Sensor mode settings

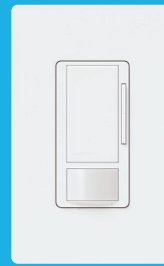


0–10V dimmers and dual-tech models feature easy-to-see LEDs to indicate settings



Dual-circuit models feature independent settings per circuit





	2A PIR	5A PIR	6A PIR	RF PIR	PIR dual-circuit
Model number*	MS-OPS2 neutral optional	MS-OPS5M neutral optional	MS-OPS6M2-DV neutral optional	MRF2S-8SS neutral required	MS-OPS6-DDV no neutral required
Technology	XCT PIR	XCT PIR	XCT PIR	XCT PIR	XCT PIR
Coverage (sq ft)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)
Timeout	1/5/15/30 minutes	1/5/15/30 minutes	1/5/15/30 minutes	1/5/15/30 minutes	1/5/15/30 minutes per circuit
Voltage	120V	120V	120-277V	120/277V	120-277V per circuit
Amperage/wattage	2A lighting	5A lighting 3A fan	6A lighting 3A (120V) fan	8A lighting	6A lighting per circuit 4.4A fan (120V) per circuit
Single pole, 3-way, Multi-location	Single pole	Single pole / 3-way / multi-location	Single pole / 3-way / multi-location	Single pole / 3-way**/ multi-location**	Single pole
Ambient light detection	Smart	Smart	Smart	Smart or fixed	Smart
Tamper-resistant lens	•	•	•	•	•

	Dimmer with LED+ technology	0-10V dimmer	RF 0-10V dimmer	Dual- tech	Dual- tech dual-circuit
Model number*	MSCL-OP153M no neutral required	MS-Z101 neutral optional	MRF2S-8SD010 neutral required	MS-A102 no neutral required MS-B102 neutral required	MS-A202 no neutral required MS-B202 neutral required
Technology	XCT PIR	XCT PIR	XCT PIR	XCT dual-technology (PIR and ultrasonic)	XCT dual-technology (PIR and ultrasonic)
Coverage (sq ft)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)
Timeout	1/5/15/30 minutes	1/5/15/30 minutes	1/5/15/30 minutes	1/5/15/30 minutes	1/5/15/30 minutes per circuit
Voltage	120V	120-277V	120/277V	120-277V	120-277V per circuit
Amperage/wattage	600W inc/halogen 150W LED/CFL	8A lighting	8A lighting	6A lighting 4.4A fan (120V) per circuit	6A lighting per circuit 4.4A fan (120V) per circuit
Single pole, 3-way, Multi-location	Single pole / 3-way / multi-location	Single pole / 3-way / multi-location	Single pole / 3-way* / multi-location*	Single pole / 3-way** / multi-location**	Single pole / 3-way**
Ambient light detection	Smart	Smart or fixed	Smart or fixed	Smart or fixed	Smart or fixed
Tamper-resistant lens		•	•	•	•

*Occupancy/vacancy model numbers shown. Vacancy-only models available in all models.

**For 3-way and multi-location applications, use Pico remote controls

*For 3-way and multi-location applications, use Pico remote controls

**Neutral models only. No-neutral models are single pole only.

Lutron dimmers are available in a range of styles and colors

Standalone dimmers



Ariadni



Skylark



Lumea



Skylark Contour



Skylark Contour
slide-to-off



Diva

Architectural dimmers



GRAFIK T



Nova T*

Digital dimmers



Sunnata



Maestro



Maestro
sensor dimmer



Maestro Wireless
sensor dimmer

Wireless controls



Caséta Wireless in-wall
dimmer with Pico remote



Gloss Colors*

	White (WH)**
	Ivory (IV)**
	Almond (AL)**
	Light Almond (LA)
	Gray (GR)
	Brown (BR)
	Black (BL)**

Satin Colors*

	Hot (HT)		Palladium (PD)		Goldstone (GS)
	Merlot (MR)		Midnight (MN)		Desert Stone (DS)
	Plum (PL)		Sienna (SI)		Stone (ST)
	Taupe (TP)		Terracotta (TC)		Limestone (LS)
	Eggshell (ES)		Greenbriar (GB)		
	Biscuit (BI)		Bluestone (BG)		
	Snow (SW)		Mocha Stone (MS)		

Architectural Metals (GRAFIK T only)

	Satin Brass (SB)
	Bright Brass (BB)
	Bright Chrome (BC)
	Satin Chrome (SC)
	Satin Nickel (SN)
	Bright Nickel (BN)

Architectural Matte (GRAFIK T and Nova T* only)

	White (WH)		Gray (GR)
	Beige (BE)		Taupe (TP)
	Ivory (IV)		Sienna (SI)
	Almond (AL)		Brown (BR)
	Light Almond (LA)		Black (BL)

Glass (GRAFIK T only)

	Clear White Glass (CWH)
	Clear Black Glass (CBL)

* For full availability by product refer to our catalog

** Available colors for Caséta Wireless

lutron.com

Lutron Electronics Co., Inc., 7200 Suter Road, Coopersburg, PA 18036-1299

Customer Assistance

Online: lutron.com/help

Email: support@lutron.com

Phone: 1.844.LUTRON1 (588.7661) — includes 24/7 technical support

The Lutron Logo, Lutron, Ariadni, Caséta, C·L, Dalia, Diva, GRAFIK T, LED+, Lumea, Maestro, Maestro Wireless, Nova T *, Pico, Radio Powr Savr, Skylark, Satin Colors, Skylark Contour, and Sunnata are trademarks or registered trademarks of Lutron Electronics Co., Inc., in the U.S. and/or other countries.

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