LED Control Solutions

Smooth, flicker-free dimming for every application

Table of Contents

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.

SENSORS

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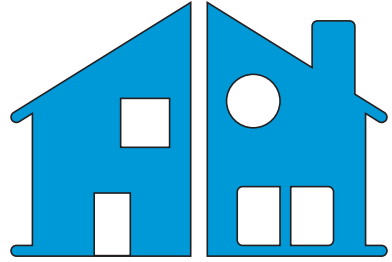
Dimmers with LED+ technology don't require 75° C wire to operate, unlike some other dimmers.

50%

Homes built before 1980
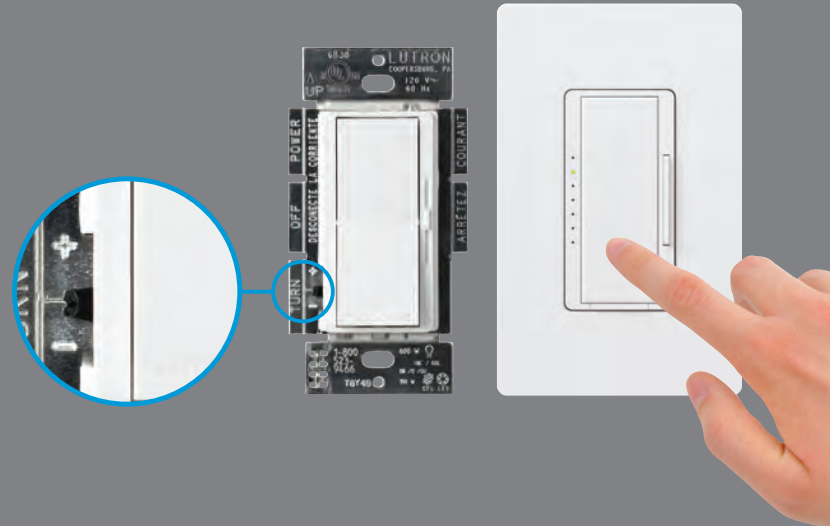
Temp rating: 60° C – 75° C

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	
	150 W	150 W	150 W	250 W	150 W	150 W
Model number - Gloss	STCL-153P	MACL-153M	DVCL-153P	DVCL-253P	CTCL-153P	CTCL-150
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

	Skylark	Ariadni		Nova T☆	Caséta	Maestro Sensor⁺
	150 W	150 W	250 W	250 W	150 W	150 W
Model number - Gloss	SCL-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

Neutral optional

NEUTRAL OPTIONAL

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

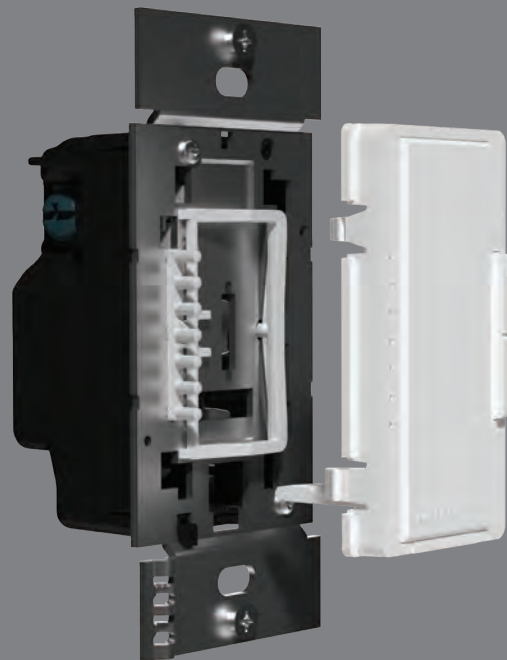**Phase Selectable —** works in both forward or reverse phase for optimal dimming

Reverse Phase Control*

OR

Forward Phase Control

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**
		250W	250W	250W
	Model number - Gloss	NTRP-250	DVRP-253P	CTRP-253P
	Model number - Satin		DVSCRP-253P	
	Voltage	120V	120V	120V
Pole/Wiring	Single pole	•	•	•
	3-way		•	•
Maximum Capacity	250W LED 500W inc/hal/ELV		•	•
	250W LED 600W 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
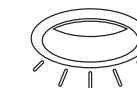
Phase Select Dimmers

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

*Dim from up to 5 locations by using companion devices
**For 3-way and multi-location applications, use Pico remote controls

Works with these loads

LED

Incandescent / Halogen

Electronic low-voltage

Magnetic low-voltage

Track

Can
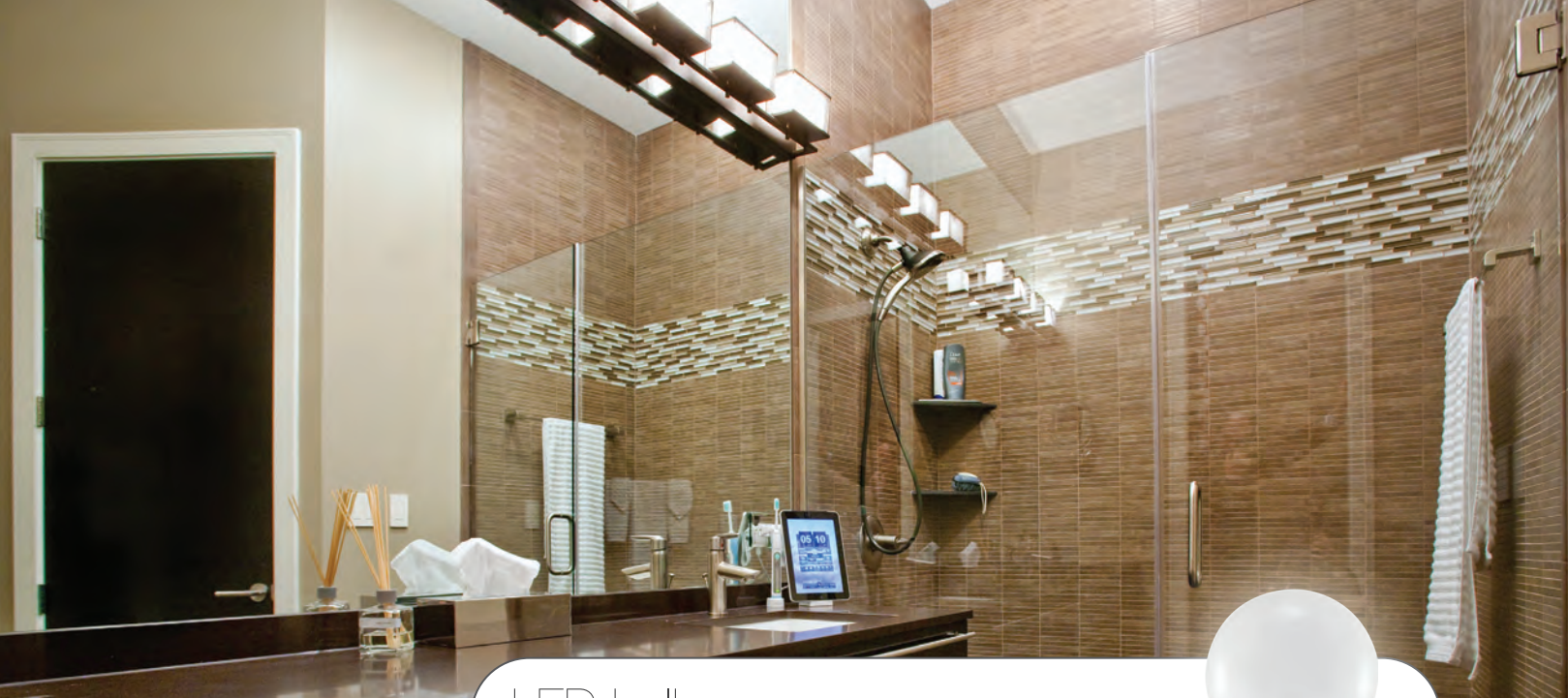
Dimmer Capabilities

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.

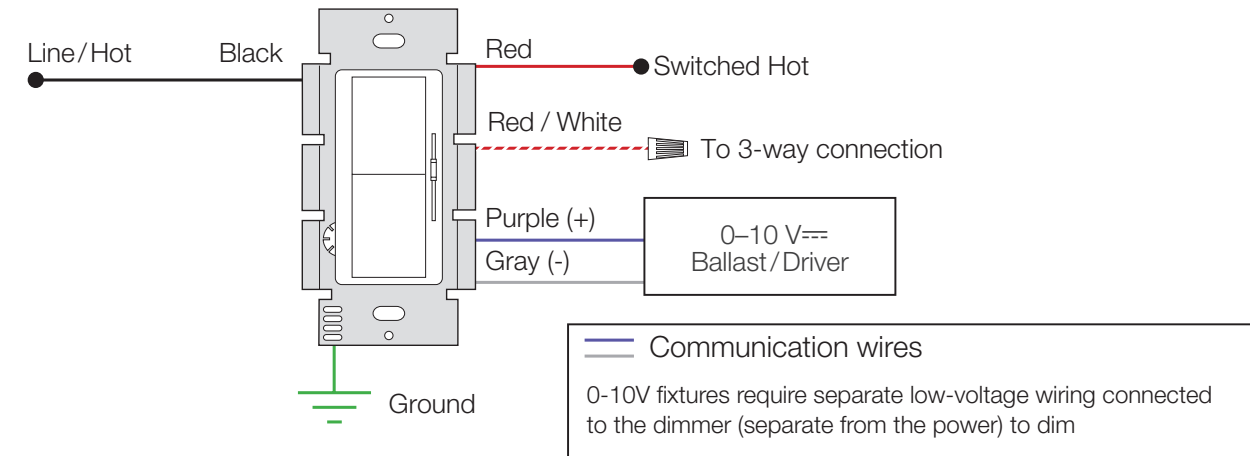|	Lutron LED+	Lutron PRO LED+	Lutron reverse phase	Lutron phase select	Universal by others
Prevents dimmer interaction	Yes	Yes	No	Yes	No
Low-end trim	Easy	Easy	No	Easy	More difficult
Mixed loads	Yes	Yes	Yes	Yes	No
Neutral wire	Not required	Optional*	Required	Required	Depends on the product
Phase selectable	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.
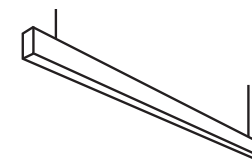
How is a 0–10V dimmer different from other dimmers?

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.
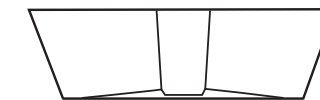
Line/Hot — Black — Red — Switched Hot

Red / White — To 3-way connection

Purple (+)
Gray (-)
0–10 V⎓ Ballast/Driver

Ground

Communication wires

0-10V fixtures require separate low-voltage wiring connected to the dimmer (separate from the power) to dim

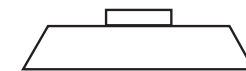### Works with these loads

A 0-10V driver or ballast

Pendant

Troffer

Recessed Fixture

Diva 0-10 V

- Patented technology extends relay life more than 10 years

- No derating for 277V installations

- Low- and high-end trim in one product

NO NEUTRAL REQUIRED

Nova T☆ 0-10 V

- 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

NO NEUTRAL REQUIRED

Maestro 0-10 V 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

NEUTRAL OPTIONAL

Maestro Wireless 0-10 V 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

NEUTRAL REQUIRED

	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:
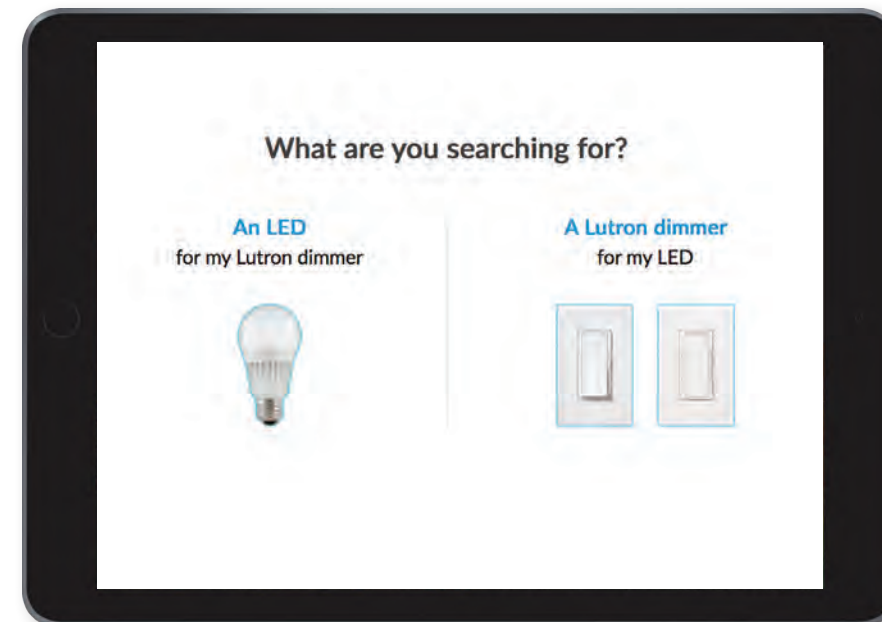
PHILIPS   GE   **SYLVANIA**   **E:T•N**   GREENCREATIVE

SATCO   **LITHONIA LIGHTING**   TCP   **CREE**

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

What are you searching for?

An LED for my Lutron dimmer

A Lutron dimmer for my LED

tED BEST OF THE BEST WINNER 2017

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**
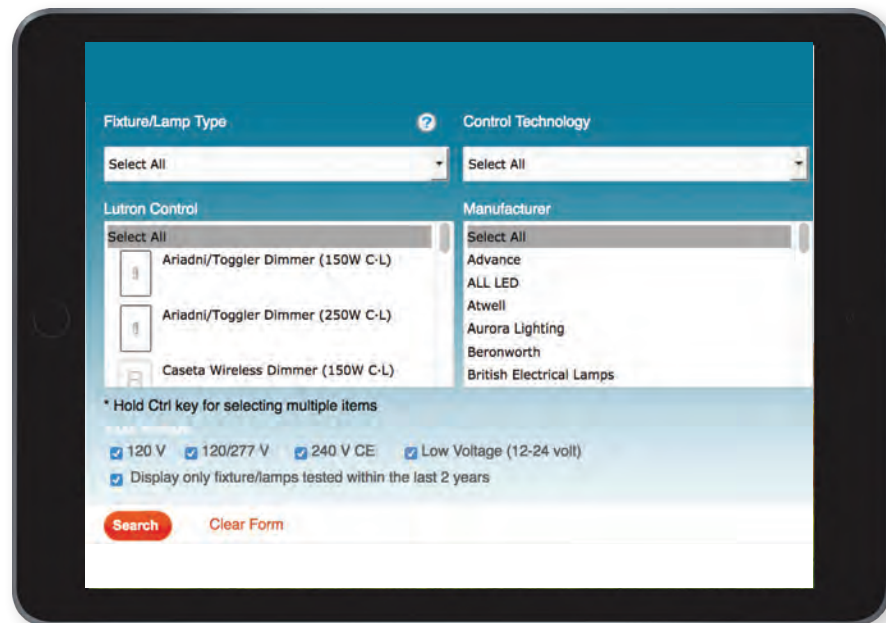
LED product selector tool

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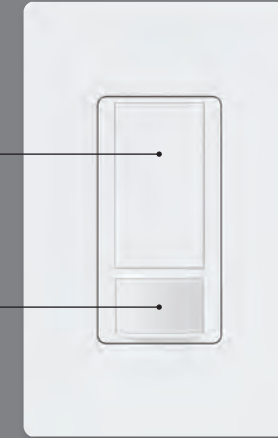
lutron.com/LEDtool

SENSORS

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
  (120 V-only sensors also available)

• Ambient light detection
  (set to learnable or fixed)

• Available in 25 Gloss and
  Satin Colors

Works with all lighting loads

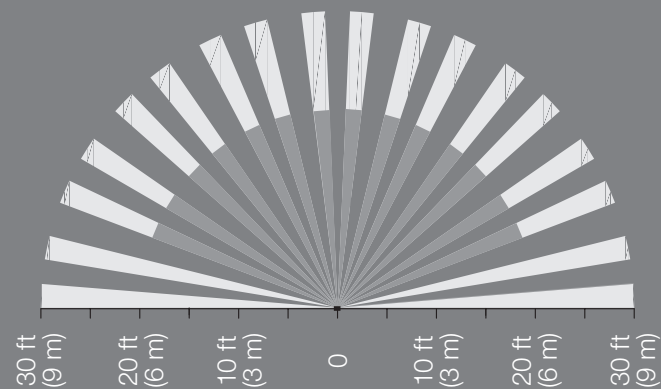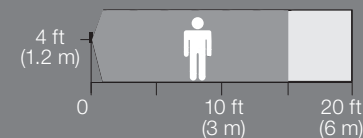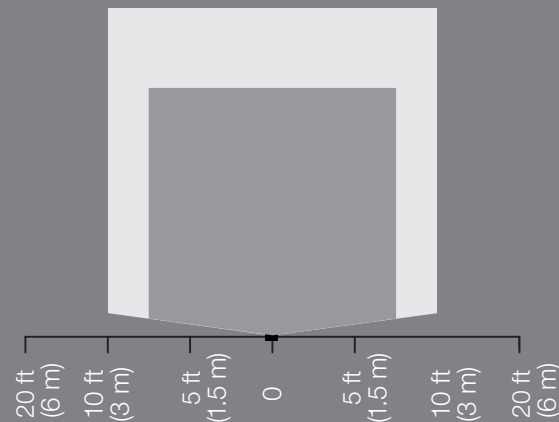| LED	Incandescent / Halogen	Magnetic low-voltage	Electronic low-voltage	Low-voltage LED	Fluorescent / LED

Coverage patterns

Major motion coverage

Minor motion coverage

PIR beam diagram
(for reference only)

| 30 ft (9 m) | 20 ft (6 m) | 10 ft (3 m) | 0 | 10 ft (3 m) | 20 ft (6 m) | 30 ft (9 m) |

4 ft (1.2 m)

0   10 ft (3 m)   20 ft (6 m)   30 ft (9 m)
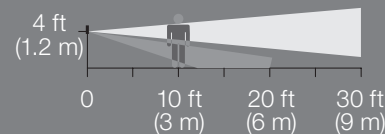
Ultrasonic coverage
(for reference only)

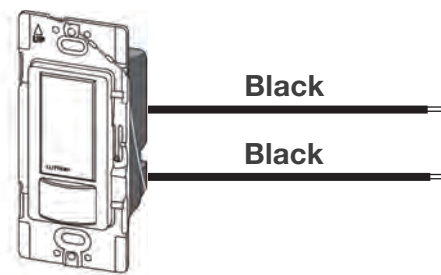| 20 ft (6 m) | 10 ft (3 m) | 5 ft (1.5 m) | 0 | 5 ft (1.5 m) | 10 ft (3 m) | 20 ft (6 m) |

4 ft (1.2 m)

0   10 ft (3 m)   20 ft (6 m)

Easy installation

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

Single-circuit (including dimming)

Black

Black

Any voltage 120 V & 120 V – 277 V

Any phase Phase A, B, or C

Dual-circuit
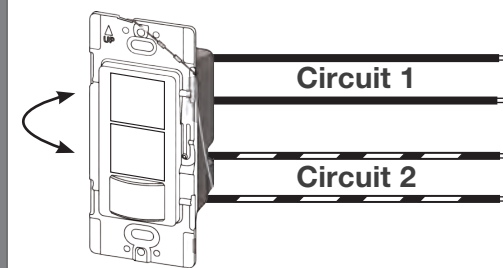
Circuit 1

Circuit 2

Any voltage 120 V – 277 V

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
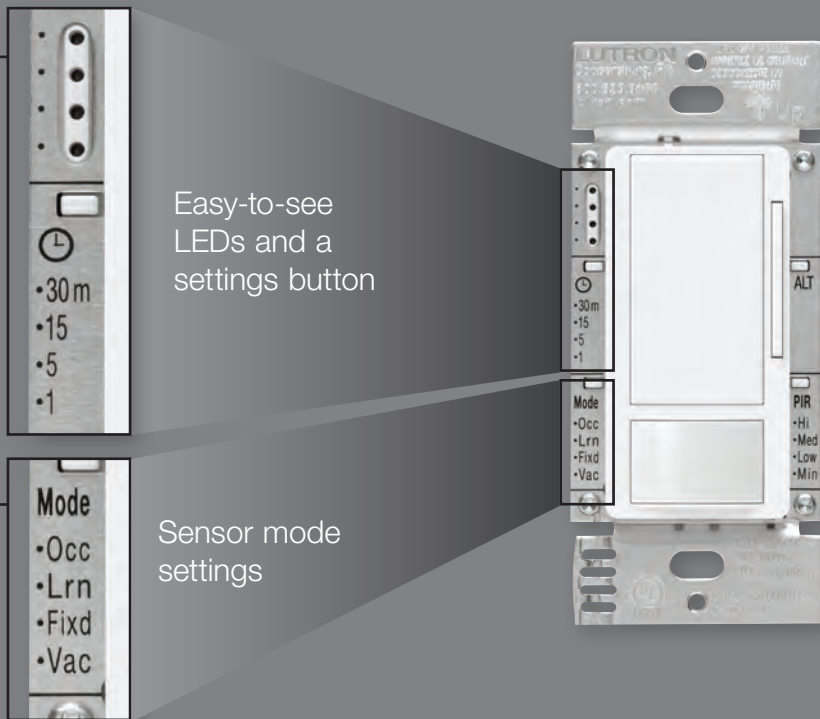
Simple button-press changes settings
· Timeout
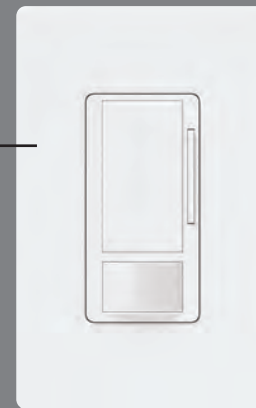· Sensitivity

Easy-to-see LEDs and a settings button

Mode

· Occupancy

· Ambient light detection

· Vacancy

Sensor mode settings

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

Dual-circuit models feature independent settings per circuit

Left table

	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	•	•	•	•	•

*Occupancy/vacancy model numbers shown. Vacancy-only models available in all models.
**For 3-way and multi-location applications, use Pico remote controls

Right table

	Dimmer with LED+ technology	0–10V dimmer	RF 0–10V dimmer	Dual- tech	Dual- tech dual-circuit
	MSCL-OP153M no neutral required	MS-Z101 neutral optional	MRF2S-8SD010 neutral required	MS-A102 no neutral required	MS-A202 no neutral required
				MS-B102 neutral required	MS-B202 neutral required
	XCT PIR	XCT PIR	XCT PIR	XCT dual-technology (PIR and ultrasonic)	XCT dual-technology (PIR and ultrasonic)
	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)	900 (Major) 400 (Minor)
	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
	120V	120-277V	120/277V	120-277V	120-277V per circuit
	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**
	Smart	Smart or fixed	Smart or fixed	Smart or fixed	Smart or fixed
		•	•	•	•

*For 3-way and multi-location applications, use Pico remote controls
**Neutral models only. No-neutral models are single pole only.
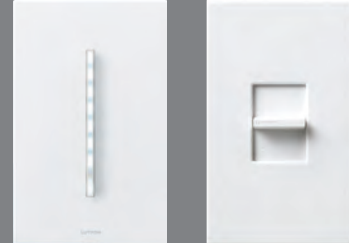
Lutron dimmers are available in a range of styles and colors

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
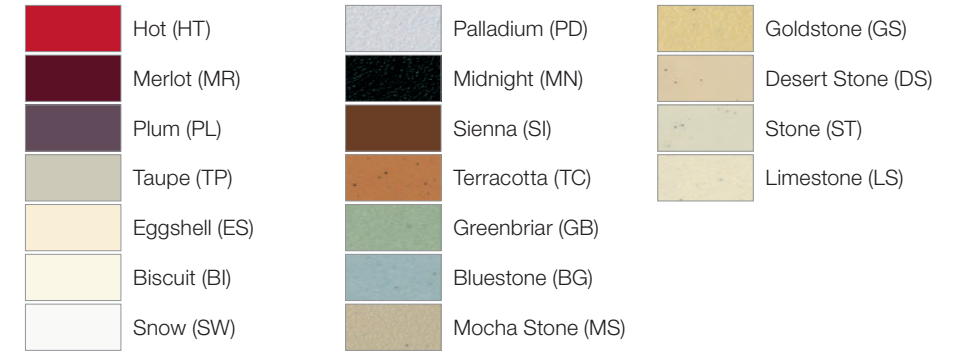
Maestro Wireless sensor dimmer

Wireless controls

Caséta Wireless in-wall dimmer with Pico remote
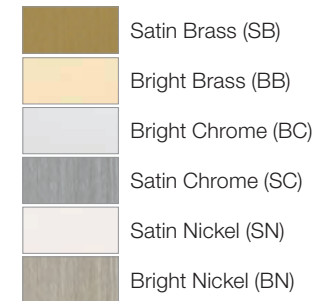
Gloss Colors*

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

Satin Colors*

- Hot (HT)
- Merlot (MR)
- Plum (PL)
- Taupe (TP)
- Eggshell (ES)
- Biscuit (BI)
- Snow (SW)

- Palladium (PD)
- Midnight (MN)
- Sienna (SI)
- Terracotta (TC)
- Greenbriar (GB)
- Bluestone (BG)
- Mocha Stone (MS)

- Goldstone (GS)
- Desert Stone (DS)
- Stone (ST)
- Limestone (LS)

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)
- Beige (BE)
- Ivory (IV)
- Almond (AL)
- Light Almond (LA)

- Gray (GR)
- Taupe (TP)
- Sienna (SI)
- Brown (BR)
- Black (BL)

Glass
(GRAFIK T only)

- Clear White Glass (CWH)
- Clear Black Glass (CBL)
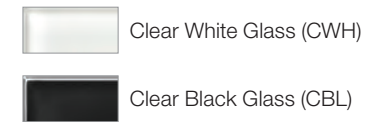
 * For full availability by product refer to our catalog

** Available colors for Caséta Wireless

LUTRON