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fluorescent dimming systems | selection guide



Lutron controls your light.™

www.lutron.com

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Lutron World Headquarters,
Coopersburg, Pennsylvania

Innovation and quality from the world leader in lighting controls.

Lutron invented the world's first electronic dimming ballast over 30 years ago. From that point forward, Lutron has delivered value through a wide range of fluorescent dimming options.

Lutron offers an extensive selection of ballasts and controls, providing complete fluorescent dimming systems to our customers.



Lutron's first principle:
Taking care of you, our customer.

World-wide sales and service

The Lutron Team is here to support you wherever and whenever you need us.

Technical Support:

24 Hours/7 Days
1.800.523.9466

Customer Service:

8am-8pm ET
1.888.LUTRON1

Internet Support:

www.lutron.com

Lighting Control Institute:

1.610.282.6280

Field Service:

1.800.523.9466

Commitment to innovation

For over 40 years, Lutron has been dedicated to providing innovative products, services and technologies. We help you design, specify, and deliver the best performance, quality, and value to your customers.

World-class quality

Lutron quality is fueled by a relentless pursuit of the highest standards. Constant improvement includes an integrated quality system, strict engineering guidelines, and world-class quality and manufacturing processes.

Comprehensive lighting control solutions

Lutron is your comprehensive resource for lighting control solutions for any commercial or institutional application.

How to use this selection guide:

The Lutron Fluorescent Dimming Systems Selection Guide helps you:

- Determine the dimming range required for your application
- Choose the appropriate Lutron dimming ballast
- Choose your Lutron fluorescent control

In other sections of the Lighting Controls for Commercial Applications binder you will find information on:

- Architectural dimming systems
- Low-voltage switching systems
- Architectural dimming ballasts
- Theatrical dimming capabilities
- Integrated lighting automation systems
- Motorized window treatments
- Floor plan based control software
- Factory service plans

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Please see the Lutron Fluorescent Dimming Systems Technical Guide (P/N 366-606) for details on dimming ballast installation, wiring, and other important information.

The benefits of dimming

Create enticing ambiance

Dimming creates a rich visual experience and adds flexibility to any room, providing the right lighting environment for a variety of activities.

Give employees greater personal control

Allowing employees to set preferred light levels for specific tasks results in greater employee comfort and improved performance.

Save electricity, maintain lamp life, and save the environment

Dimming saves electricity and reduces the demand on HVAC systems. Dimming fluorescent lighting instead of repeated switching helps to maintain lamp life.

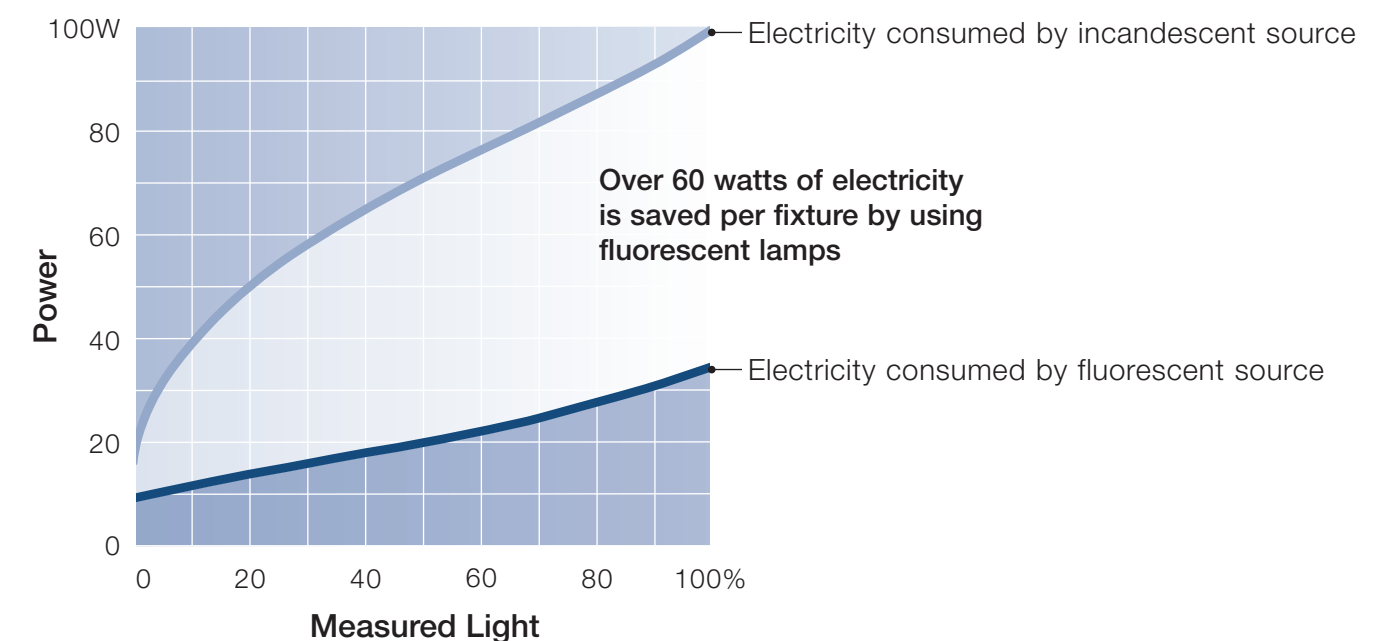
Combine lighting control strategies to enhance building performance

Using occupancy sensors, daylight sensors and time clocks with fluorescent dimming can help manage the lighting in an entire building and further reduce electric demand.

Dimming fluorescents saves energy

Fluorescent lighting uses much less power than incandescent lighting. In a typical installation, a 32 watt compact fluorescent lamp provides approximately the same light output as a 100 watt incandescent lamp.

As both sources are dimmed, fluorescent lamps continue to be a more energy efficient light source.





100% Test

Lutron tests the performance of every ballast prior to shipment. This important step eliminates ballasts that do not meet specifications.

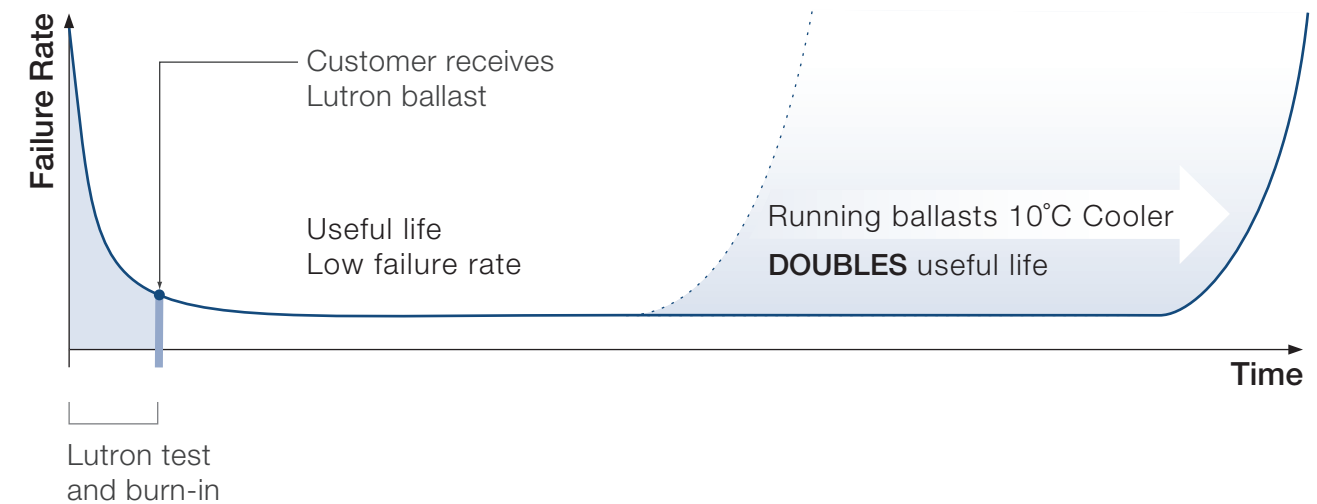
100% Burn-in

Lutron “burns in” every ballast prior to shipment. Defects due to faulty components are screened out in this process, resulting in a dramatic reduction of early failures in the field.

Extending ballast lifetime

All electronic ballasts use components with a finite lifetime. The determining factor for ballast lifetime is operating temperature. Lutron dimming ballasts are designed to maximize ballast lifetime.

You have an opportunity to extend the lifetime of the ballast even further by designing or choosing fixtures that operate the ballast at a lower temperature. For every 10°C reduction in ballast case temperature, the ballast lifetime will be doubled.



Superior components

Lutron ballasts are manufactured to the highest level of quality, using carefully selected components. Maximum ballast lifetime is achieved by using only long-life components with significant performance history. In many cases, Lutron works with component suppliers to design custom parts in order to improve overall ballast quality. Additionally, Lutron uses only metal ballast enclosures, allowing for optimal heat transfer to the lighting fixture.

Factory Trained Ballast Installer Program for OEMs

Lutron offers the Factory Trained Ballast Installer (FTBI) program to OEM fixture manufacturers. Our goal is to improve the overall fluorescent dimming experience by providing education and support to those who are installing dimming ballasts or designing fluorescent fixtures.

For more information on the FTBI program, please contact Lutron directly at 1.888.LUTRON1.

Lutron® | ballast control types

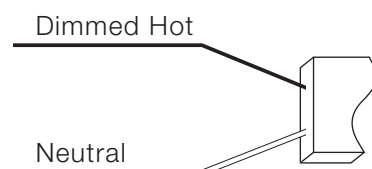
In addition to offering ballasts with different low-end dimming levels, Lutron offers dimming ballasts with a variety of industry-standard control options.

3-wire



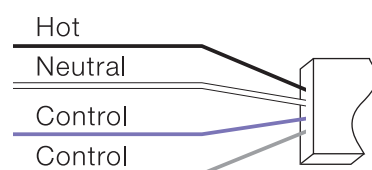
3-wire control is a line-voltage phase-control dimming method. Along with Hot and Neutral, the dimming signal is communicated via a third wire called Dimmed Hot. All three wires are rated Class 1 and can be run within the same conduit. 3-wire control is stable over long wire runs, allows for maximum circuit loading, and is very easy to wire.

2-wire



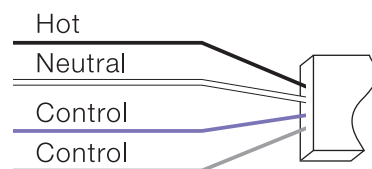
2-wire control is a line-voltage phase-control dimming method. The ballast receives the dimming signal through the Dimmed Hot wire. Intended for small-scale retrofit applications, the 2-wire control method is often the easiest way to implement dimming in existing fluorescent fixtures.

0-10V



0-10V control is a low-voltage DC dimming method. Power wires are rated Class 1 and control wires are rated Class 2. This separation allows multiple circuits to use the same dimming signal without additional power equipment. 0-10V control is not recommended for dimming below 10%, as fixture-to-fixture tracking can be significantly affected by control wire length.

Multi-input digital



Multi-input digital control is a wired communication technology that facilitates individual ballast addressing, connection of multiple control devices, and control of ballasts individually or in groups. The digital wires are polarity insensitive and may be wired in any topology. Digital communication wires may be run with the mains voltage (Class 1) or isolated from mains (Class 2). Multi-input digital control allows for the quick connection of devices and re-configurability.

Lutron® | EcoSystem™



A revolution in light control for open offices and classrooms

A breakthrough in fluorescent lighting control, EcoSystem™ solutions start with a simple but essential building block – the EcoSystem ballast – which replaces a non-dim ballast in a fixture. This single fixture is now the centerpiece of an efficient lighting ecosystem, in which a variety of sensors and wallstations are connected directly to the ballast. Personal control can be achieved via IR receiver and remote. Benefits of EcoSystem lighting controls:

Simple to design

- Fewer components
- Can be wired topology- and polarity-free
- No interfaces required

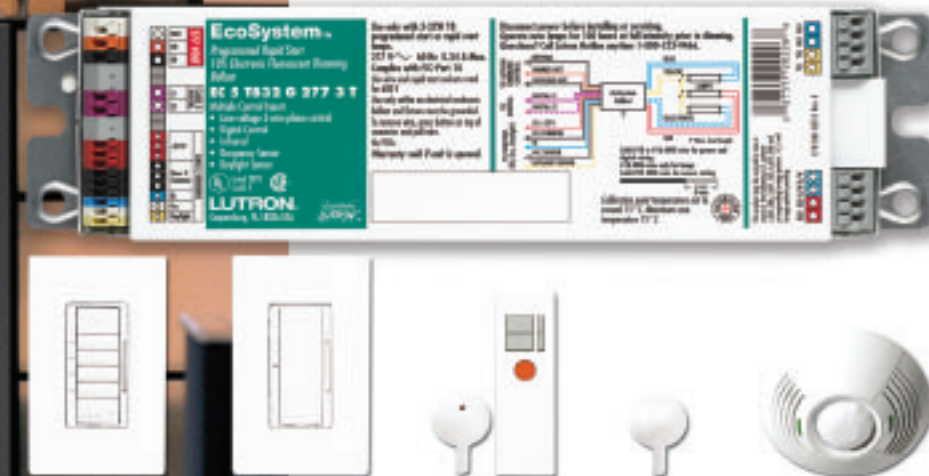
Easy to maintain

- No reprogramming when components are replaced
- Infinite re-configurability without Class 1 rewiring

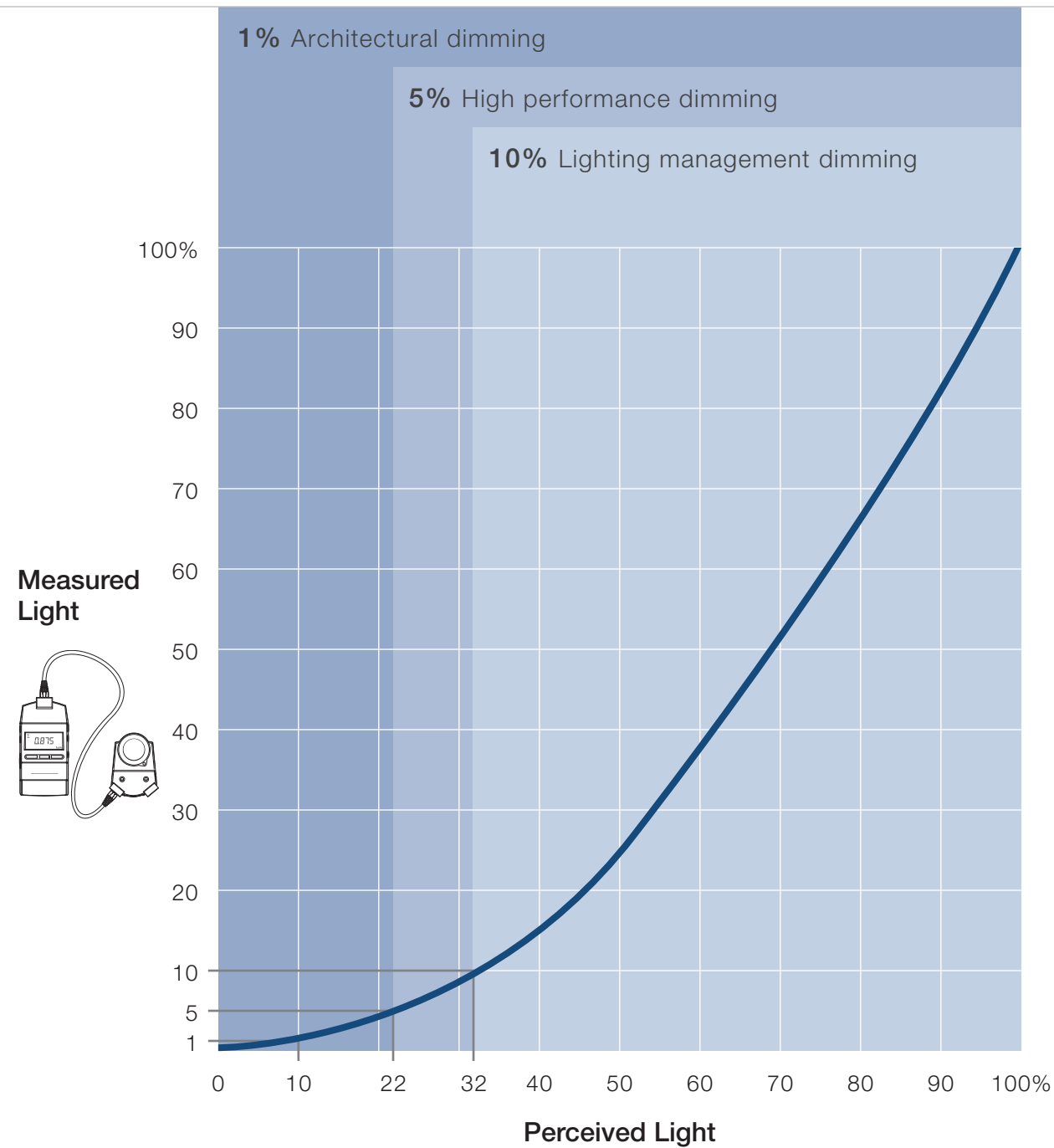
Cost effective

- Costs less than current Eco-10™ ballasts
- Fewer parts and pieces to install

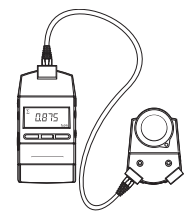
For detailed information, please visit www.lutron.com/ecosystem.



Lutron® | dimming ranges



Measured Light



Formula: $\text{Perceived Light (\%)} = 100 \times \sqrt{\frac{\text{Measured Light (\%)}}{100}}$

Source: IESNA Lighting Handbook, 9th Edition, (New York: IESNA, 2000), 27-4.

Dimming applications

1%
Architectural dimming

- Conference room/Boardroom
- Classroom/Lecture hall
- Patient room/Examination and treatment room
- House of worship
- Theater
- Convention area
- Restaurants
- Air traffic control center
- Industrial control room
- Partitioned meeting room
- Graphic art workstation
- CAD/CAM workstation
- Private office

5%
High performance dimming

- Small meeting room
- Customer service area/ Call center
- Lobby
- Hotel guest room

10%
Lighting management dimming

- Load shedding
- Occupant detection
- Daylight harvesting
- Large open office
- Corridor/Stairwell
- Utility room
- Restroom

Design example

At full brightness, the measured light in a space is 60 foot-candles. At the lowest dimmed level, 10% perceived light is desired.

1% measured light (0.6 fcd) is perceived as 10% (desired result)

5% measured light (3 fcd) is perceived as 22% (2x brighter than desired)

10% measured light (6 fcd) is perceived as 32% (3x brighter than desired)

Architectural Dimming

Architectural spaces often have a strong focus on aesthetics and comfort, creating an environment that portrays class and distinction. Architects and designers create these spaces for maximum versatility and require subtle control of the lighting. At Lutron, we design fluorescent dimming ballasts to respond to the finest lighting adjustments required. Hi-lume® dimming ballasts allow control of your fluorescent lights through full-range 100% to 1% light output, providing the greatest available functionality for architectural fluorescent lighting.

Why dim to 1% measured light?

Dimming to 1% is important because the human eye responds to low light levels by enlarging the pupil, allowing more light to enter the eye. This response results in a difference between measured and perceived light levels. A lamp that is dimmed to 10% of its maximum measured light output is perceived as being dimmed to only 32%. Likewise, a lamp dimmed to 1% is perceived to be at 10%.

Hi-lume® 1% applications

For years, 1% dimming has been the standard for conference room lighting. 1% CFL (compact fluorescent lamps) dimming has opened up new areas for fluorescents, giving required performance while meeting strict energy codes.

In **restaurants**, combining Hi-lume with inviting, colored reflectors creates a warm and intimate atmosphere for distinctive dining.

Patient care areas need dimmed lights at night, but require bright light and true color rendering for accurate medical examinations. Fluorescent sources, with their consistent color temperature throughout the dimming range, are an ideal source.

Partitioned spaces, like conference rooms or ballrooms, require 1% dimming for specific tasks, allowing for a variety of activities to use the same space.

Restaurants



Photography: ©Nikolas Koenig

Patient Care Areas



Partitioned Spaces





Hi-lume®

Experience the benefits of true full-range 100% to 1% fluorescent dimming. Designed to meet the most demanding lighting requirements, Hi-lume ballasts enable you to provide the ideal visual environment for any application.

The Hi-lume family is extensive, featuring the world's only 100% to 1% dimming ballasts for T4 compact fluorescent lamps. Integrating Hi-lume 1% technology into your designs affords you full control over the lighting in any space.

For maximum flexibility, Lutron offers a full line of Hi-lume ballasts and compatible 3-wire controls.

Lutron ballasts are tested for performance with Philips®, Sylvania®, and GE® lamps.

For the complete listing of Hi-lume ballasts by Lutron, please see pages 22-25.

Performance

- Continuous, flicker-free dimming from 100% to 1%
- Models available for T4 triple-tube CFL, T5-HO, and T8 lamps
- 3-wire line voltage control for consistent fixture-to-fixture dimming
- Lamps turn on at any dimmed level without flashing to full brightness
- Low harmonic distortion
- Miswire protection
- Slim-profile and standard designs available
- 100% performance tested
- Ultra-quiet operation
- Designed and assembled in the USA
- 5-year warranty (limited) with field service commissioning (3-year warranty standard)

Specifications

- Architectural dimming from 100% to 1% relative light output
- No visible flicker
- Total Harmonic Distortion (THD) less than 10%
- Power factor greater than .95
- Ballast factor greater than .85 for T8 lamps
- Ballast factor greater than .95 for T4 lamps
- Ballast factor equal to 1.0 for T5-HO lamps
- Frequency of operation greater than 25 kHz for T8 lamps
- Frequency of operation greater than 42 kHz for T4 and T5-HO lamps
- Inaudible in 27 dBA ambient environment
- Inrush current limiting circuitry built-in (maximum of 7 amps for 120V and 3 amps at 277V)
- Internal fusing
- Minimum lamp starting temperature 10°C (50°F)
- Maximum ballast case temperature 75°C (167°F)



- Dims T5-HO linear lamps
- Slim-profile design—just 1" high
- Color-keyed push-in connectors



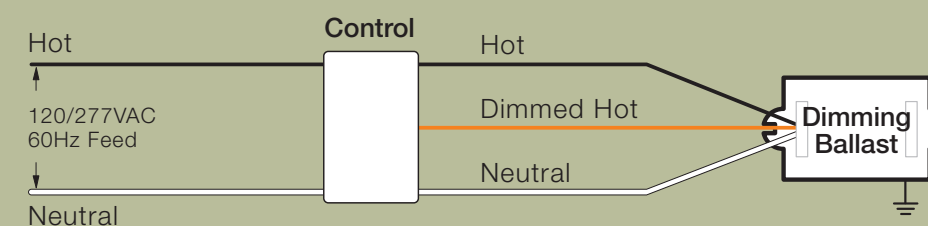
- Dims T8 linear and U-bent lamps



- Dims T4 triple-tube compact lamps
- Slim-profile design—just 1" high
- Color-keyed push-in connectors
- Available with or without mounting studs

3-wire control

For the full offering of Hi-lume dimming ballast controls by Lutron, please see page 32.





Compact SE™

For designs requiring the energy savings and aesthetic appeal of dimmed compact fluorescent lamps, Compact SE dimming ballasts are your solution. The Compact SE product family includes ballasts for nearly every type of compact fluorescent lamp.

Compact SE dimming ballasts deliver high performance 100% to 5% dimming, making them ideal for use in a variety of applications. In addition, Compact SE ballasts are compatible with the full line of 3-wire controls by Lutron.

For the complete listing of Compact SE ballasts by Lutron, please see pages 22-25.

Performance

- Continuous, flicker-free dimming from 100% to 5% (for 1% dimming of compact fluorescent lamps, see page 12)
- 3-wire line voltage control for consistent fixture-to-fixture dimming
- Lamps turn on at any dimmed level without flashing to full brightness
- Low harmonic distortion
- Miswire protection
- Slim-profile design
- 100% performance tested
- Ultra-quiet operation
- Designed and assembled in the USA
- 5-year warranty (limited) with field service commissioning (3-year warranty standard)

Specifications

- High performance dimming from 100% to 5% relative light output
- No visible flicker
- Total Harmonic Distortion (THD) less than 10%
- Power factor greater than .95
- Ballast factor greater than .85 for T5 twin-tube lamps
- Ballast factor greater than .95 for T4 quad- and triple-tube compact lamps
- Frequency of operation greater than 27 kHz for T5 twin-tube lamps
- Frequency of operation greater than 42 kHz for T4 quad- and triple-tube compact lamps
- Inaudible in 27 dBA ambient environment
- Inrush current limiting circuitry built-in (maximum of 7 amps for 120V and 3 amps at 277V)
- Internal fusing
- Minimum lamp starting temperature 10°C (50°F)
- Maximum ballast case temperature 75°C (167°F)



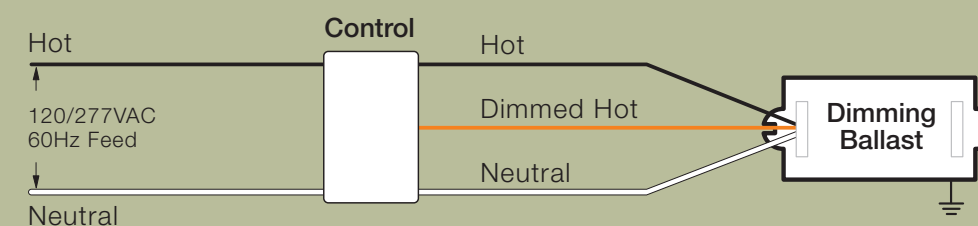
- Dims T5 twin-tube lamps



- Dims T4 quad- and triple-tube compact lamps
- Slim-profile design—just 1" high
- Color-keyed push-in connectors
- Available with or without mounting studs

3-wire control

For the full offering of Compact SE dimming ballast controls by Lutron, please see page 32.





Tu-Wire®

Retrofit and small-space applications can benefit from the ease of installation offered by Lutron Tu-Wire dimming ballasts. Tu-Wire ballasts offer high performance 100% to 5% dimming for linear and compact fluorescent lamps.

Tu-Wire ballasts require only two wires (hot and neutral) for power and control. Lutron offers a wide range of compatible 2-wire controls, making Tu-Wire a perfect choice for many applications. Additionally, one-lamp T4 models have been designed to meet FCC Part 18 consumer requirements.

For the complete listing of Tu-Wire ballasts by Lutron, please see page 26.

Performance

- Continuous, flicker-free dimming from 100% to 5%
- 2-wire line voltage control for retrofit applications
- Lamps turn on at any dimmed level without flashing to full brightness
- Low harmonic distortion
- Slim-profile design
- One-lamp T4 models meet FCC Part 18 consumer requirements for EMI/RFI emissions (FCC ID: JPZB001)
- 100% performance tested
- Ultra-quiet operation
- Designed and assembled in the USA
- 5-year warranty (limited) with field service commissioning (3-year warranty standard)

Specifications

- High performance dimming from 100% to 5% relative light output
- No visible flicker
- Total Harmonic Distortion (THD) less than 20%
- Power factor greater than .95
- Ballast factor greater than .85 for T4 lamps
- Ballast factor equal to 1.0 for T8 lamps
- Frequency of operation greater than 42 kHz
- Inaudible in 27 dBA ambient environment
- Inrush current limiting circuitry built-in (maximum of 7 amps inrush current per ballast)
- Internal fusing
- Minimum lamp starting temperature 10°C (50°F)
- Maximum ballast case temperature 75°C (167°F)



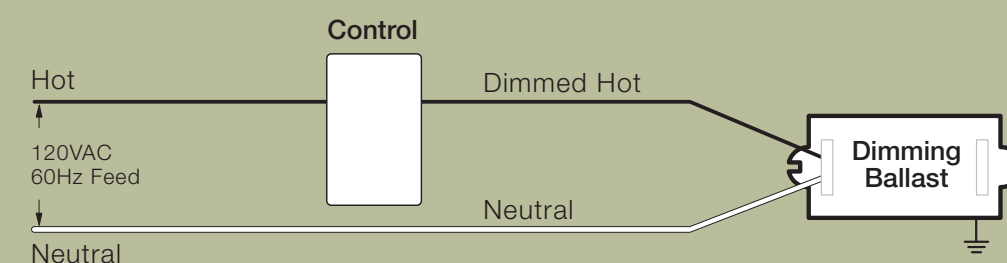
- Dims T8 lamps
- Slim-profile design—just 1” high
- Color-keyed push-in connectors



- Dims T4 quad- and triple-tube compact lamps
- Slim-profile design—just 1” high
- Color-keyed push-in connectors
- Available with or without mounting studs

2-wire control

For the full offering of Tu-Wire dimming ballast controls by Lutron, please see page 33.





Eco-10™

To maximize the benefits of a lighting management system, use Eco-10 dimming ballasts by Lutron. Eco-10 offers 100% to 10% dimming, and is ideal for use in any space where saving energy is the primary goal, and critical performance is secondary.

Eco-10 ballasts are available for a large range of lamps, making them an ideal choice for applications with many different fixture types. In addition, Eco-10 ballasts are fully compatible with Lutron's complete line of 3-wire fluorescent controls.

For the complete listing of Eco-10 ballasts by Lutron, please see pages 22-25.

Performance

- Continuous, flicker-free dimming from 100% to 10%
- 3-wire line-voltage control for consistent fixture-to-fixture dimming
- Lamps turn on at any dimmed level without flashing to full brightness
- Low harmonic distortion
- Slim-profile and standard designs available
- 100% performance tested
- Ultra-quiet operation
- Designed and assembled in the USA
- 5-year warranty (limited) with field service commissioning (3-year warranty standard)

Specifications

- Lighting management dimming from 100% to 10% relative light output
- No visible flicker
- Total Harmonic Distortion (THD) less than 20%
- Power factor greater than .95
- Ballast factor greater than .85 for T8 lamps and T5 twin-tube lamps
- Ballast factor equal to 1.0 for T5 and T5-HO lamps
- Frequency of operation greater than 25 kHz for T8 lamps and T5 twin-tube lamps
- Frequency of operation greater than 42 kHz for T5 and T5-HO lamps
- Inaudible in 27 dBA ambient environment
- Inrush current limiting circuitry built-in (maximum of 7 amps for 120V and 3 amps at 277V)
- Internal fusing
- Minimum lamp starting temperature 10°C (50°F)
- Maximum ballast case temperature 75°C (167°F)



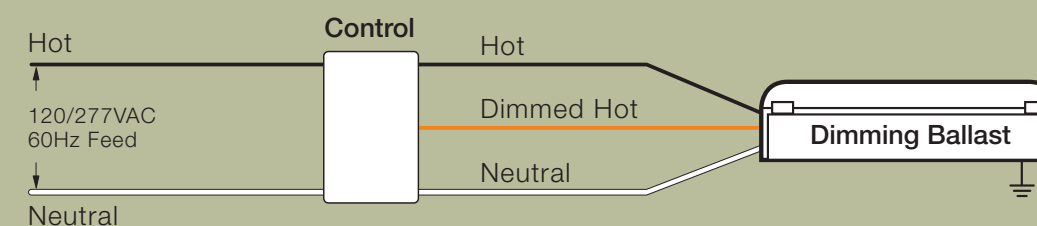
- Dims T5 twin-tube lamps



- Dims T8 linear and U-bent, T5 linear, and T5-HO linear lamps
- Dims 2' and 3' T5 lamps
- Slim-profile design—just 1" high
- Color-keyed push-in connectors

3-wire control

For the full offering of Eco-10 dimming ballast controls by Lutron, please see page 32.





TVE™

For applications requiring the use of 0-10V control, Lutron offers the TVE family of fluorescent dimming ballasts. TVE ballasts are designed to work seamlessly with 0-10V lighting management systems, including daylight harvesting and occupancy detection schemes.

Lutron offers many choices for 0-10V controls, including interfaces to many of our dimming systems.

For the complete listing of TVE ballasts by Lutron, please see page 27.

Performance

- Continuous, flicker-free dimming from 100% to 10%
- 0-10V control
- Lamps turn on at any dimmed level without flashing to full brightness
- Low harmonic distortion
- 100% performance tested
- Ultra-quiet operation
- Designed and assembled in the USA
- 5-year warranty (limited) with field service commissioning (3-year warranty standard)

Specifications

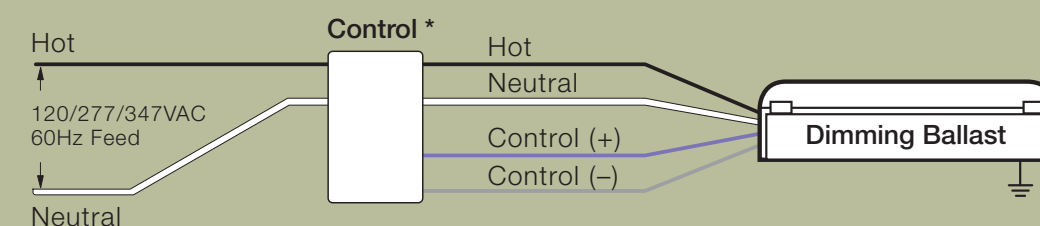
- Lighting management dimming from 100% to 10% relative light output
- No visible flicker
- Total Harmonic Distortion (THD) less than 20%
- Power factor greater than .95
- Ballast factor greater than .85
- Frequency of operation greater than 25 kHz
- Inaudible in 27 dBA ambient environment
- Inrush current limiting circuitry built-in (maximum of 7 amps for 120V, 3 amps for 277V and 347V)
- Internal fusing
- Minimum lamp starting temperature 10°C (50°F)
- Maximum ballast case temperature 75°C (167°F)



- Dims T8 linear and U-bent lamps
- 0-10V control
- 347V ballasts available

0-10V control

For the full offering of TVE dimming ballast controls by Lutron, please see page 33.






* Based on control signal, wiring method and other.




Lutron® | Hi-lume®, Compact SE™, Eco-10™
120 volt 3-wire dimming ballasts

► **NEW!**
For the latest model numbers:
www.lutron.com/ballasts

► **NEW!**
For the latest model numbers:
www.lutron.com/ballasts

Lamp Type	Lamp Watts (Length)	Lamps per Ballast	Case Type ¹	1% Dimming	5% Dimming	10% Dimming	Ballast Current ² – Amps
				Hi-lume	Compact SE	Eco-10	
T5 Linear  5/8" Dia	14W (22")	1	C	—	—	► E 3 T514 C 120 1	.17
		2	C	—	—	► E 3 T514 C 120 2	.32
	21W (34")	1	C	—	—	► E 3 T521 C 120 1	.25
		2	C	—	—	► E 3 T521 C 120 2	.43
	28W (45.3")	1	C ³	—	—	ECO-T528-120-1	.30
		2	C ³	—	—	ECO-T528-120-2	.55
T5-HO Linear  5/8" Dia	24W (21.5")	1	C ³	FDB-T524-120-1	—	ECO-T524-120-1	.26
		2	C ³	FDB-T524-120-2	—	ECO-T524-120-2	.45
	39W (33.4")	1	C ³	FDB-T539-120-1	—	ECO-T5H39-120-1	.38
		2	C ³	FDB-T539-120-2	—	ECO-T5H39-120-2	.76
	54W (45.3")	1	C ³	FDB-T554-120-1	—	ECO-T554-120-1	.58
		2	C ³	FDB-T554-120-2	—	ECO-T554-120-2	1.1
T8 Linear and U-Bent  1" Dia	17W (24")	1	F	FDB-2427-120-1	—	ECO-T817-120-1	.19
		2	F	FDB-2427-120-2	—	ECO-T817-120-2	.31
		3	F	FDB-2427-120-3	—	ECO-T817-120-3	.43
	25W (36")	1	F	FDB-3627-120-1	—	ECO-T825-120-1	.24
		2	F	FDB-3627-120-2	—	ECO-T825-120-2	.43
		3	F	FDB-3627-120-3	—	—	.62
	32W (48")	1	F	FDB-4827-120-1	—	—	.30
			D	—	—	ECO-T832-120-1-L	.34
		2	D	—	—	ECO-T832-120-1-T	.34
			F	FDB-4827-120-2	—	—	.57
		2	D	—	—	ECO-T832-120-2-L	.53
			D	—	—	ECO-T832-120-2-T	.53
		3	F	FDB-4827-120-3	—	ECO-T832-120-3	.82
	40W (60")	1	F	FDB-6027-120-1	—	—	.36
		2	F	FDB-6027-120-2	—	—	.64

1 For case type information, see page 28.
2 To calculate ballast input power, use the following formula: Watts = Ballast Current x 120.
3 Standard with terminals. Leaded options available. Please consult factory.

Lamp Type	Lamp Watts (Length)	Lamps per Ballast	Case Type ¹	1% Dimming	5% Dimming	10% Dimming	Ballast Current ² – Amps
				Hi-lume®	Compact SE™	Eco-10™	
T4 4-Pin Quad-Tube  1/2" Dia	18W	1	A ³	—	► FDB-T418-120-1-S	—	.20
		2	B ³	—	FDB-T418-120-2-S	—	.42
	26W	1	A ³	—	FDB-T426-120-1-S	—	.26
		2	B ³	—	FDB-T426-120-2-S	—	.50
T4 4-Pin Triple-Tube  1/2" Dia	18W	1	A ³	—	► FDB-T418-120-1-S	—	.20
		2	B ³	—	FDB-T418-120-2-S	—	.42
	26W	1	A ³	HL3-T426-120-1-S	FDB-T426-120-1-S	—	.26
		2	B ³	—	FDB-T426-120-2-S	—	.50
	32W	1	A ³	HL3-T432-120-1-S	FDB-T432-120-1-S	—	.31
		2	B ³	—	FDB-T432-120-2-S	—	.59
	42W	1	B ³	—	► FDB-T442-120-1-S	—	.36
		2	B ³	—	► FDB-T442-120-2-S	—	.67
T5 Twin-Tube  5/8" Dia	36/39W (16")	1	F	—	FDB-1643-120-1	ECO-T539-120-1	.33
		2	F	—	FDB-1643-120-2	ECO-T539-120-2	.58
		3	F	—	FDB-1643-120-3	ECO-T539-120-3	.85
	40W (22")	1	F	—	FDB-2227-120-1	ECO-T540-120-1	.33
		2	F	—	FDB-2227-120-2	ECO-T540-120-2	.61
	50W (22")	2	F	—	FDB-2227-120-3	ECO-T540-120-3	.88
			F	—	FDB-2243-120-1	ECO-T550-120-1	.38
				FDB-2243-120-2	ECO-T550-120-2	.69	

1 For case type information, see page 28.
2 To calculate ballast input power, use the following formula: Watts = Ballast Current x 120.
3 Mounting studs standard. Delete suffix -S if mounting studs not desired.

Lutron® | Hi-lume®, Compact SE™, Eco-10™
277 volt 3-wire dimming ballasts

► **NEW!**
For the latest model numbers:
www.lutron.com/ballasts

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For the latest model numbers:
www.lutron.com/ballasts




Lamp Type	Lamp Watts (Length)	Lamps per Ballast	Case Type ¹	1% Dimming	5% Dimming	10% Dimming	Ballast Current ² —Amps	
				Hi-lume	Compact SE	Eco-10		
T5 Linear  5/8" Dia	14W (22")	1	C	—	—	► E 3 T514 C 277 1	.08	
		2	C	—	—	► E 3 T514 C 277 2	.14	
	21W (34")	1	C	—	—	► E 3 T521 C 277 1	.11	
		2	C	—	—	► E 3 T521 C 277 2	.19	
	28W (45.3")	1	C ³	—	—	ECO-T528-277-1	.14	
		2	C ³	—	—	ECO-T528-277-2	.25	
T5-HO Linear  5/8" Dia	24W (21.5")	1	C ³	FDB-T524-277-1	—	ECO-T524-277-1	.13	
		2	C ³	FDB-T524-277-2	—	ECO-T524-277-2	.20	
	39W (33.4")	1	C ³	FDB-T539-277-1	—	ECO-T5H39-277-1	.17	
		2	C ³	FDB-T539-277-2	—	ECO-T5H39-277-2	.31	
	54W (45.3")	1	C ³	FDB-T554-277-1	—	ECO-T554-277-1	.25	
		2	C ³	FDB-T554-277-2	—	ECO-T554-277-2	.45	
T8 Linear and U-Bent  1" Dia	17W (24")	1	F	FDB-2427-277-1	—	ECO-T817-277-1	.08	
		2	F	FDB-2427-277-2	—	ECO-T817-277-2	.15	
		3	F	FDB-2427-277-3	—	ECO-T817-277-3	.20	
	25W (36")	1	F	FDB-3627-277-1	—	ECO-T825-277-1	.12	
		2	F	FDB-3627-277-2	—	ECO-T825-277-2	.19	
		3	F	FDB-3627-277-3	—	—	.28	
		32W (48")	1	F	FDB-4827-277-1	—	ECO-T832-277-1	.14/.15 ⁴
			1	D	—	—	ECO-T832-277-1-L	.14
			1	D	—	—	ECO-T832-277-1-T	.14
	40W (60")	1	C	—	—	► E 3 T832 C 277 1	.14	
		2	F	FDB-4827-277-2	—	ECO-T832-277-2	.25/.22 ⁴	
		2	D	—	—	ECO-T832-277-2-L	.23	
		2	D	—	—	ECO-T832-277-2-T	.23	
		2	C	—	—	► E 3 T832 C 277 2	.23	
		3	F	FDB-4827-277-3	—	ECO-T832-277-3	.35	
40W (60")	1	F	FDB-6027-277-1	—	—	.16		
	2	F	FDB-6027-277-2	—	—	.30		

1 For case type information, see page 28.

2 To calculate ballast input power, use the following formula: Watts = Ballast Current x 277.

3 Standard with terminals. Leaded options available. Please consult factory.

4 Eco-10 ballast current.

Lamp Type	Lamp Watts (Length)	Lamps per Ballast	Case Type ¹	1% Dimming	5% Dimming	10% Dimming	Ballast Current ² —Amps	
				Hi-lume®	Compact SE™	Eco-10™		
T4 4-Pin Quad-Tube  1/2" Dia	18W	1	A ³	—	► FDB-T418-277-1-S	—	.08	
		2	B ³	—	FDB-T418-277-2-S	—	.17	
	26W	1	A ³	—	—	FDB-T426-277-1-S	—	.12
		2	B ³	—	—	FDB-T426-277-2-S	—	.21
T4 4-Pin Triple-Tube  1/2" Dia	18W	1	A ³	—	► FDB-T418-277-1-S	—	.08	
		2	B ³	—	FDB-T418-277-2-S	—	.17	
	26W	1	A ³	HL3-T426-277-1-S	FDB-T426-277-1-S	—	.12	
		2	B ³	—	FDB-T426-277-2-S	—	.21	
	32W	1	A ³	HL3-T432-277-1-S	FDB-T432-277-1-S	—	.13	
		2	B ³	—	FDB-T432-277-2-S	—	.24	
	42W	1	B ³	—	► FDB-T442-277-1-S	—	.16	
		2	B ³	—	► FDB-T442-277-2-S	—	.29	
T5 Twin-Tube  5/8" Dia	36/39W (16")	1	F	—	FDB-1643-277-1	ECO-T539-277-1	.14	
		2	F	—	FDB-1643-277-2	ECO-T539-277-2	.25	
		3	F	—	FDB-1643-277-3	ECO-T539-277-3	.35	
	40W (22")	1	F	—	FDB-2227-277-1	ECO-T540-277-1	.14	
		2	F	—	FDB-2227-277-2	ECO-T540-277-2	.25	
		3	F	—	FDB-2227-277-3	ECO-T540-277-3	.38	
50W (22")	1	F	—	FDB-2243-277-1	ECO-T550-277-1	.17		
	2	F	—	FDB-2243-277-2	ECO-T550-277-2	.32		




1 For case type information, see page 28.

2 To calculate ballast input power, use the following formula: Watts = Ballast Current x 277.

3 Mounting studs standard. Delete suffix -S if mounting studs not desired.



Lutron® | Tu-Wire® 120 volt
2-wire dimming ballasts

For the latest model numbers:
www.lutron.com/ballasts

Lamp Type	Lamp Watts (Length)	Lamps per Ballast	Case Type ¹	1% Dimming	5% Dimming Tu-Wire	10% Dimming	Ballast Current ² – Amps	
T8 Linear and U-Bent  1" Dia	32W (48")	1	C ³		2W-T832-120-1		.37	
		2	C ³		2W-T832-120-2		.70	
Contact Lutron for other lamp lengths.								
T4 4-Pin Quad-Tube  1/2" Dia	18W	2	B ⁴		2W-T418-120-2-S		.41	
		26W	1	A ⁴		2W-T426-120-1-S⁵		.27
		2	B ⁴		2W-T426-120-2-S		.53	
T4 4-Pin Triple-Tube  1/2" Dia	18W	2	B ⁴		2W-T418-120-2-S		.41	
		26W	1	A ⁴		2W-T426-120-1-S⁵		.27
			2	B ⁴		2W-T426-120-2-S		.53
	32W	1	A ⁴		2W-T432-120-1-S⁵		.33	
		2	B ⁴		2W-T432-120-2-S		.58	


Lutron® | TVE™ 120/277/347 volt
0-10V dimming ballasts

For the latest model numbers:
www.lutron.com/ballasts

Lamp Type	Lamp Watts (Length)	Lamps per Ballast	Case Type ¹	1% Dimming	5% Dimming	10% Dimming TVE	Ballast Current ² – Amps		
T8 Linear and U-Bent  1" Dia	17W (24")	1	F			TVE-T817-120-1	.14		
		25W (36")	1	F			TVE-T825-120-1	.24	
			32W (48")	1	F			TVE-T832-120-1	.34
				1	F			TVE-T832-277-1	.15
			2	1	F			TVE-T832-347-1	.11
				2	F			TVE-T832-120-2	.55
				2	F			TVE-T832-277-2	.25
3	2	F			TVE-T832-347-2	.19			
	3	F			TVE-T832-120-3	.80			
		3	F		TVE-T832-277-3	.35			
T5 Twin-Tube  5/8" Dia	40W (22")	2	F			TVE-T540-120-2	.61		
		2	F			TVE-T540-277-2	.25		

Lutron® | EcoSystem™ 277 volt
dimming ballasts

For the latest model numbers:
www.lutron.com/ecosystem

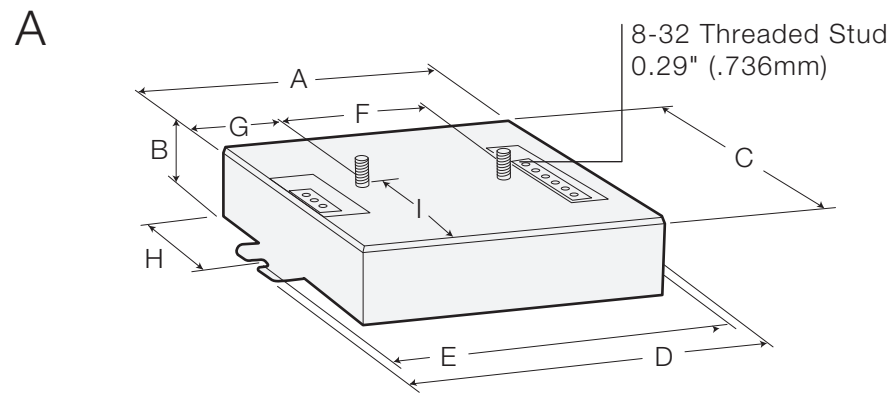
Lamp Type	Lamp Watts (Length)	Lamps per Ballast	Case Type ¹	1% Dimming	5% Dimming	10% Dimming EcoSystem	Ballast Current ² – Amps
T8 Linear and U-Bent 	32W (48")	2	G			EC-5T832-G-277-2	.23
		3	G			EC-5T832-G-277-3	.35

Use EcoSystem ballast module (C5-BMF-2A) to integrate any Lutron Eco-10™ or Hi-Lume® phase-control ballast into the EcoSystem bus.

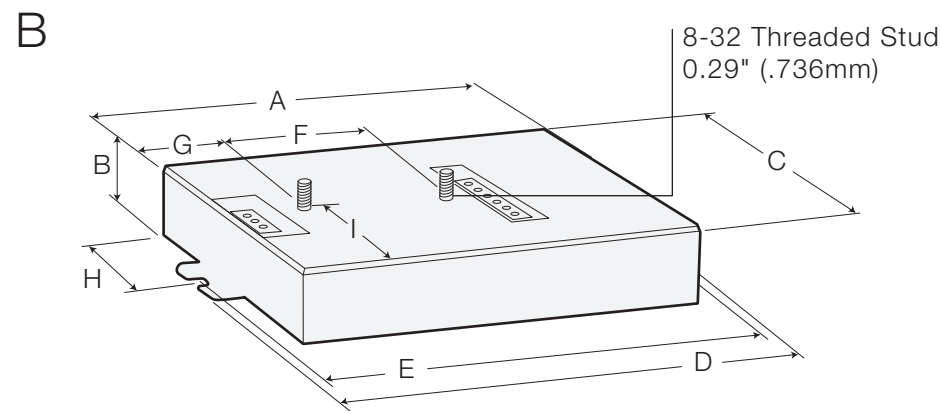
1 For case type information, see page 28.
2 To calculate ballast input power, use the following formula: Watts = Ballast Current x 120.
3 Standard with terminals. Leaded options available. Please consult factory.
4 Mounting studs standard. Delete suffix -S if mounting studs not desired.
5 One-lamp T4 models meet FCC Part 18 consumer requirements for EMI/RFI emissions (FCC ID: JPZB001).

1 For case type information, see page 28.
2 To calculate ballast input power, use the following formula: Watts = Ballast Current x Ballast Voltage.

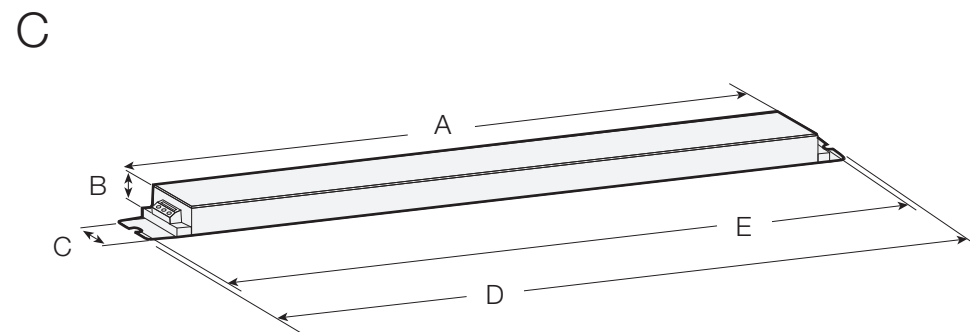
Lutron® ballast case dimensions



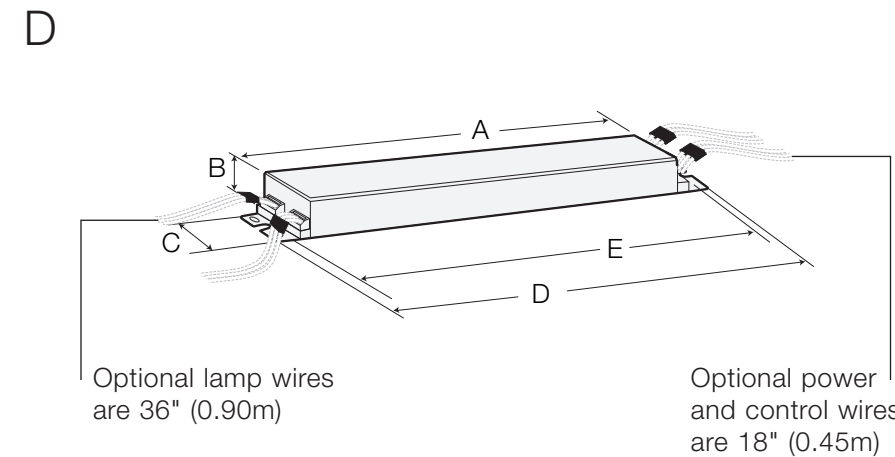
A	4.20" (107mm)
B	1.00" (25mm)
C	3.00" (76mm)
D	4.90" (124mm)
E	4.60" (117mm) C-C (mounting centers)
F	2.00" (51mm)
G	1.08" (27mm)
H	1.60" (41mm)
I	1.39" (35mm)



A	6.00" (152mm)
B	1.00" (25mm)
C	3.00" (76mm)
D	6.75" (171mm)
E	6.50" (165mm) C-C (mounting centers)
F	2.00" (51mm)
G	1.16" (29mm)
H	1.60" (41mm)
I	1.39" (35mm)

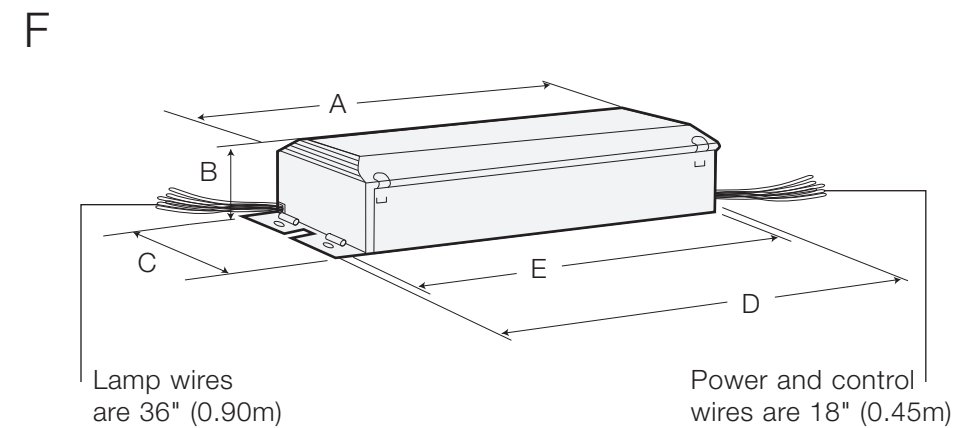


A	16.12" (409mm)
B	1.00" (25mm)
C	1.18" (30mm)
D	18.00" (457mm)
E	17.70" (450mm) C-C (mounting centers)



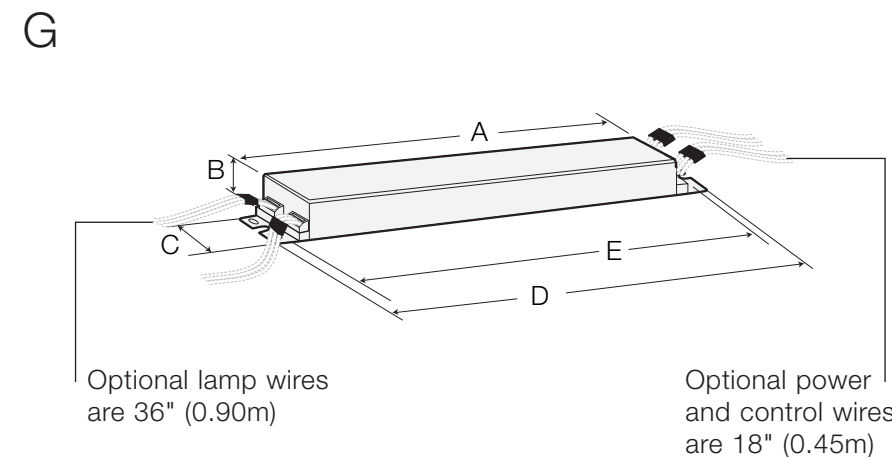
A	7.13" (181mm)
B	1.00" (25mm)
C	1.58" (40mm)
D	9.50" (241mm)
E	8.91" (226mm)

Slot mounting centers
If using 4-hole mount, mounting centers are 9.00" (229mm) X 1.06" (27mm).



A	8.30" (211mm)
B	1.50" (38mm)
C	2.38" (60mm)
D	9.50" (241mm)
E	8.91" (226mm)

Slot mounting centers
If using 4-hole mount, mounting centers are 9.21" (234mm) X 1.70" (43mm).



A	7.13" (181mm)
B	1.00" (25mm)
C	2.38" (40mm)
D	9.50" (241mm)
E	8.91" (226mm)

Slot mounting centers
If using 4-hole mount, mounting centers are 9.00" (229mm) X 1.06" (27mm).

Proper ballast mounting is critical in providing effective grounding and for managing ballast heat. Please refer to the Lutron Fluorescent Dimming Systems Technical Guide (P/N 366-606) for detailed information.

Wallbox dimmers



NovaT®
Classic, thin-profile
linear-slide dimmer



Nova®
Contractor's choice in
linear-slide dimmers



Vareo®
Elegant thin-profile
TapSwitch™ dimmer



Diva®
Designer dimmer
that matches your
paddle switches



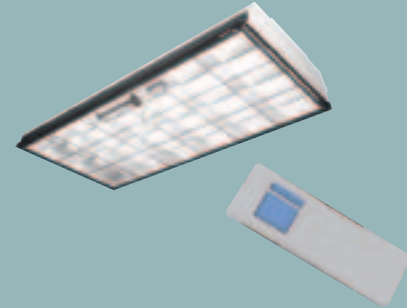
Skylark®
Original designer-
style slide dimmer



Ariadni®
Dimmer that matches
your toggle switches

See the Lutron Commercial Wallbox Catalog (P/N 367-572) for detailed information.

Wireless remote controls



- PerSONNA**®
- Personal control of one or more overhead fluorescent fixtures in open office areas
 - Dim lights to eliminate computer screen glare and reflections
 - Remote controls compatible with Eco-10™ IR ballast

See the Lutron Commercial Wallbox Catalog (P/N 367-572) for detailed information.



- RadioTouch**™
- Wireless control of multiple lighting zones
 - Occupant sensing, motorized shade and A/V equipment control optional
 - Ideal for retrofit applications

See the Lutron Commercial Wallbox Catalog (P/N 367-572) for detailed information.

Preset scene control



- Spacer System**™
- Up to five preset scenes
 - Easy upgrade for enclosed offices and conference rooms
 - Dims multiple sources

See the Lutron Commercial Wallbox Catalog (P/N 367-572) for detailed information.



- GRAFIK Eye**®
- Create and recall 4-16 room lighting scenes
 - Optional accessories for wireless remote control, remote scene selection, and more
 - Controls multiple sources

See the Lutron Commercial Systems Technical Guide (P/N 367-573) for detailed information.







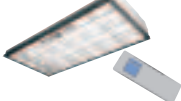




Entire building lighting management system



- Digital microWATT**™
- The industry's first lighting automation system, capable of automatic or manual adjustment of any fluorescent or incandescent lighting
 - Employs integral switching and dimming, real-time monitoring and measurement, occupant sensing, daylight sensing, and load shedding, all accessed through web-based software







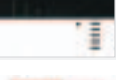

See the Lutron Commercial Systems Technical Guide (P/N 367-573) for detailed information.

3-wire controls for Hi-lume®, Compact SE™ and Eco-10™ ballasts




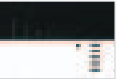
Control Family	Description	Ballast Voltage	Control Model Number	Control Capacity
	NovaT ☆	single pole	120V	NTF-10- 16A
	Thin Profile	single pole	277V	NTF-10-277- 8A
	Slide-To-Off	single pole, 3-way, preset	120V	NTF-103P- 8A
	Dimmer	single pole, 3-way, preset	277V	NTF-103P-277- 6A
	Nova	single pole	120V	NF-10- 16A
	Standard Profile	single pole	277V	NF-10-277- 8A
	Slide-To-Off	single pole, 3-way, preset	120V	NF-103P- 8A
	Dimmer	single pole, 3-way, preset	277V	NF-103P-277- 6A
	Vareo	single pole, 3-way	120V	VF-10- 8A ¹
Tapswitch/Presets Slide Dimmer				
	Diva	single pole, 3-way	120V	DVF-103P- 6A
	Paddle Switch/Presets Slide Dimmer	single pole, 3-way	277V	DVF-103P-277- 6A
	Skylark	single pole	120V	SF-10P- 8A
	Rocker Switch/Presets Slide Dimmer	single pole	277V	SF-12P-277- 6A
		single pole, 3-way	120V	SF-103P- 8A
		single pole, 3-way	277V	SF-12P-277-3- 6A
	Ariadni	single pole, 3-way	120V	AYF-103P- 8A
	Toggle Switch/Presets Slide Dimmer	single pole, 3-way	277V	AYF-103P-277- 6A
	PerSONNA	individual dimmer/receiver	120/277V	PN-IR 20 ballasts
	Wireless Fluorescent Remote Control	system dimmer/receiver remote control	120/277V	PNS-IR-277 20 ballasts PN-HT-GR
	RadioTouch	controller	120/277V	RTA-RX-F- 16A
	Wireless Multi-Zone Control	wallbox transmitter tabletop transmitter		RTA-WX-² RTA-TX-
	Spacer System	single pole	120V	SPSF-6A- 6A ¹
	Wireless Preset Scene Control	single pole	277V	SPSF-6A-277- 6A ¹
		multi-location	120V	SPSF-6AM-³ 6A ¹
		multi-location remote control	277V	SPSF-6AM-277-³ 6A ¹ SPS-4IT-RP
	GRAFIK Eye	control unit	120V/277V	GRX-310-⁴ 16A per zone
	Multi-Scene Preset Control	remote control (optional)		GRX-IT-WH
	Digital microWATT	controller ⁵	120/277V	DMW-LZC1 16A

1 Not to exceed 20 Lutron 3-wire dimming ballasts.
 2 Wallbox transmitter may be powered by 120 or 277V.
 3 Also requires SPS-AD- or SPS-AD-277- for multi-location dimming (10 maximum).
 4 Insert 2, 3, 4, or 6 (number of zones); requires GRX-FDBI interface for 120V ballasts; requires HP-2 for 277V ballasts.
 5 For sensors, central monitoring software, etc., contact Lutron.

2-wire controls for Tu-Wire® ballasts

Control Family	Description	Ballast Voltage	Control Model Number	Control Capacity
	NovaT ☆	single pole	120V	NTFTU-5A- 5A ¹
	Thin Profile Slide-To-Off Dimmer			
	Nova	single pole	120V	NFTU-5A- 5A ¹
	Standard Profile Slide-To-Off Dimmer			
	Diva	single pole, 3-way	120V	DVFTU-5A3P- 5A ¹
	Paddle Switch/Presets Slide Dimmer			
	Skylark	single pole, 3-way	120V	SFTU-5A3P- 5A ¹
	Rocker Switch/Presets Slide Dimmer			
	RadioTouch	controller	120V	RTA-RX-F-² 16A
	Wireless Multi-Zone Control	wallbox transmitter tabletop transmitter		RTA-WX-³ RTA-TX-
	Spacer System	single pole	120V	SPSFTU-5A- 5A ¹
	Wireless Preset Scene Control	remote control		SPS-4IT-RP
	GRAFIK Eye	control unit	120V	GRX-310-⁴ 6.7A per zone
	Multi-Scene Preset Control	remote control (optional)		GRX-IT
	Digital microWATT	controller ⁵	120V	DMW-LZC1² 16A

0-10V controls for TVE™ ballasts

	NovaT ☆	single pole	120/277/347V	NTFTV-⁶	Up to 60 ballasts or Relay Pack Capacity
	Thin Profile Slide-To-Off Dimmer				
	Nova	single pole	120/277/347V	NFTV-⁶	Up to 60 ballasts or Relay Pack Capacity
	Standard Profile Slide-To-Off Dimmer				
	RadioTouch	controller	347V	RTA-RX-F-347	8A/40 ballasts
	Wireless Multi-Zone Control	controller wallbox transmitter tabletop transmitter	120/277V	RTA-RX-F-³ RTA-TX-	16A
	GRAFIK Eye	control unit	347V	GRX-41-⁷	16A/100 ballasts
	Multi-Scene Preset Control	control unit remote control (optional)	120/277V	GRX-310-⁸	16A GRX-IT

1 Minimum capacity: 2 ballasts.
 2 Requires FDI-FTU-16A-120 interface.
 3 Wallbox transmitter may be powered by 120 or 277V.
 4 Insert 2, 3, 4, or 6 (number of zones).
 5 For sensors, central monitoring software, etc., contact Lutron.
 6 Requires relay pack to switch power to ballasts. Please consult factory.
 7 Insert 02, 03, 04, 06, 08, 16, or 24 (number of zones); 347V requires XP Panel with TVM.
 8 Insert 2, 3, 4, or 6 (number of zones); requires GRX-TVI interface.