

## Eco-10 Overview

Eco-10 lighting management electronic dimming ballasts are designed to maximize the benefits of a lighting management system. Eco-10 offers 100% to 10% dimming, and is ideal for use in any space where saving energy is the primary goal of the design.

### Features

- Continuous, flicker-free dimming from 100% to 10%
- Standard 3-wire line-voltage phase-control technology for consistent fixture-to-fixture dimming performance
- Models available for T5 and T5-HO linear, T8 linear and U-bent, and T5 twin-tube lamps
- Programmed rapid start design preheats lamp cathodes before applying full arc voltage
- Lamps turn on to any dimmed level without flashing to full brightness
- Low harmonic distortion throughout the entire dimming range maintains power quality
- Frequency of operation ensures that ballast does not interfere with infrared devices operating between 38 and 42 kHz
- Inrush current limiting circuitry eliminates circuit breaker tripping, switch arcing, and relay failure
- End-of-lamp-life protection circuitry (for T5 and T5-HO linear models) ensures safe operation throughout entire lamp life cycle
- For linear lamps, ballasts maintain consistent light output for different lamp lengths, ensuring uniformity
- Ultra-quiet operation
- Protected from miswires of any input power to control lead
- 100% compatible with all Lutron 3-wire fluorescent controls
- 100% performance tested at factory
- Designed and assembled in the USA
- 5-year limited warranty with Lutron field service commissioning (3-year standard warranty) from date of purchase



### Eco-10, case type C

1.18 in. w (30 mm) x 1.00 in. h (25 mm) x  
18.00 in. l (457 mm)



### Eco-10, case type D

1.58 in. w (40 mm) x 1.00 in. h (25 mm) x  
9.50 in. l (241 mm)



### Eco-10, case type F

2.38 in. w (60 mm) x 1.50 in. h (38 mm) x  
9.50 in. l (241 mm)

Job Name:

Model Numbers:

Job Number:

## Specifications

### Performance



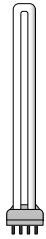
- Dimming Range: 100% to 10% measured relative light output
- Lamp Starting: programmed rapid start
- Minimum Lamp Starting Temperature: 10 °C (50 °F)
- Ambient Temperature Operating Range: 10 °C (50 °F) to 60 °C (140 °F)
- Relative Humidity: maximum 90% non-condensing
- Operating Voltage: 120 V or 277 V at 60Hz
- Lamp Current Crest Factor: less than 1.7
- Lamp Flicker: none visible
- Light Output Variation: constant  $\pm 2\%$  light output for line voltage variations of  $\pm 10\%$
- Lamp Life: average lamp life meets or exceeds rating of lamp manufacturer
- Ballast Factor: greater than .85 for T8 and T5 twin-tube lamps, equal to 1.0 for T5 lamps
- Power Factor: greater than .95
- Total Harmonic Distortion (THD): less than 20%
- Maximum Inrush Current: 7 amps per ballast at 120 V, 3 amps per ballast at 277 V
- Sound Rating: Inaudible in a 27 dBa ambient
- Maximum Ballast Case Temperature: 75 °C (167 °F)

### Standards

- UL Listed (evaluated to the requirements of UL935)
- CSA certified (evaluated to the requirements of C22.2 No. 74) – specific model numbers only
- Class P thermally protected
- Meets ANSI C82.11 High Frequency Ballast Standard
- Meets FCC Part 18 Non-Consumer requirements for EMI/RFI emissions
- Meets ANSI C62.41 Category A surge protection standards up to and including 4 kV
- Manufacturing facilities employ ESD reduction practices that comply with the requirements of ANSI/ESD S20.20
- Lutron Quality Systems registered to ISO 9001.2000

<b>Job Name:</b>	<b>Model Numbers:</b>
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Eco-10 Ballast Models


Lamp Type				120 VOLTS		277 VOLTS	
	Lamp Watts (length)	Lamps per ballast	Case Type	Ballast Current (amps)	Eco-10 Model Number	Ballast Current (amps)	Eco-10 Model Number
 T5 linear 5/8 in. diameter	14 W (22 in.)	1	C	.17	E 3 T514 C 120 1	.08	E 3 T514 C 277 1
		2	C	.32	E 3 T514 C 120 2	.14	E 3 T514 C 277 2
	21 W (34 in.)	1	C	.25	E 3 T521 C 120 1	.11	E 3 T521 C 277 1
		2	C	.43	E 3 T521 C 120 2	.19	E 3 T521 C 277 2
	28 W (45.3 in.)	1	C	.30	ECO-T528-120-1	.14	ECO-T528-277-1
		2	C	.55	ECO-T528-120-2	.25	ECO-T528-277-2
 T5-HO linear high output 5/8 in. diameter	24 W (21.5 in.)	1	C	.26	ECO-T524-120-1	.13	ECO-T524-277-1
		2	C	.45	ECO-T524-120-2	.20	ECO-T524-277-2
	39 W (33.4 in.)	1	C	.38	ECO-T5H39-120-1	.17	ECO-T5H39-277-1
		2	C	.76	ECO-T5H39-120-2	.31	ECO-T5H39-277-2
	54 W (45.3 in.)	1	C	.58	ECO-T554-120-1	.25	ECO-T554-277-1
		2	C	1.1	ECO-T554-120-2	.45	ECO-T554-277-2
 T5 Twin-Tube 5/8 in. diameter	36/39 W (16 in.)	1	F	.33	ECO-T539-120-1*	.14	ECO-T539-277-1*
		2	F	.58	ECO-T539-120-2*	.25	ECO-T539-277-2*
		3	F	.85	ECO-T539-120-3*	.35	ECO-T539-277-3*
	40 W (22 in.)	1	F	.33	ECO-T540-120-1*	.14	ECO-T540-277-1*
		2	F	.61	ECO-T540-120-2*	.25	ECO-T540-277-2*
		3	F	.88	ECO-T540-120-3*	.38	ECO-T540-277-3*
	50 W (22 in.)	1	F	.38	ECO-T550-120-1*	.17	ECO-T550-277-1*
		2	F	.69	ECO-T550-120-2*	.32	ECO-T550-277-2*

\*UL certified only



<b>Job Name:</b>	<b>Model Numbers:</b>
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Eco-10 Ballast Models continued ...

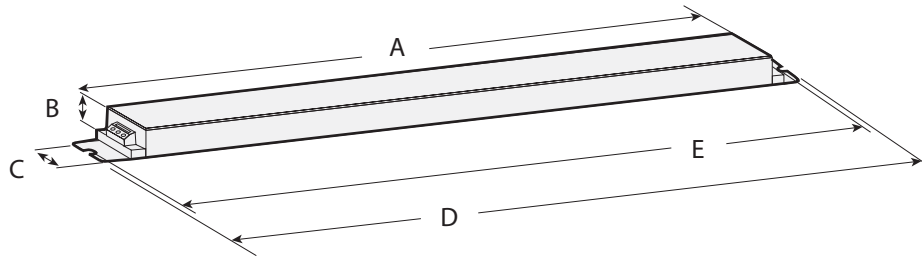
Lamp Type				120 VOLTS		277 VOLTS	
	Lamp Watts (length)	Lamps per ballast	Case Type	Ballast Current (amps)	Eco-10 Model Number	Ballast Current (amps)	Eco-10 Model Number
<b>T8 linear and U-bent</b>  1 in. diameter	17 W (24 in.)	1	F	.19	ECO-T817-120-1	.08	ECO-T817-277-1
		2	F	.31	ECO-T817-120-2	.15	ECO-T817-277-2
		3	F	.43	ECO-T817-120-3	.20	ECO-T817-277-3
	25 W (36 in.)	1	F	.24	ECO-T825-120-1	.12	ECO-T825-277-1
		2	F	.43	ECO-T825-120-2	.19	ECO-T825-277-2
	32 W (48 in.)	1	C	--	--	--	--
		1	D	.34	ECO-T832-120-1-L	.14	ECO-T832-277-1-L
		1	D	.34	ECO-T832-120-1-T	.14	ECO-T832-277-1-T
		1	F	--	--	.15	ECO-T832-277-1
		2	C	--	--	--	--
2		D	.53	ECO-T832-120-2-L	.23	ECO-T832-277-2-L	
2		D	.53	ECO-T832-120-2-T	.23	ECO-T832-277-2-T	
2	F	--	--	.22	ECO-T832-277-2		
3	F	.82	ECO-T832-120-3	.35	ECO-T832-277-3		



<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

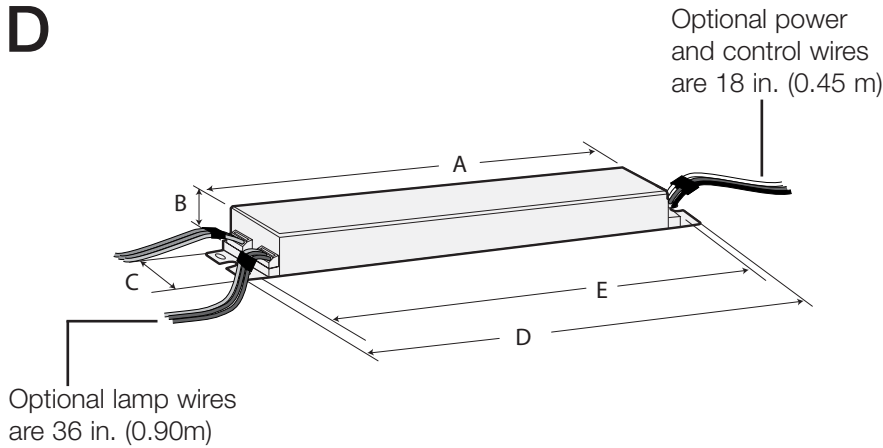
Eco-10 Case Dimensions

C



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

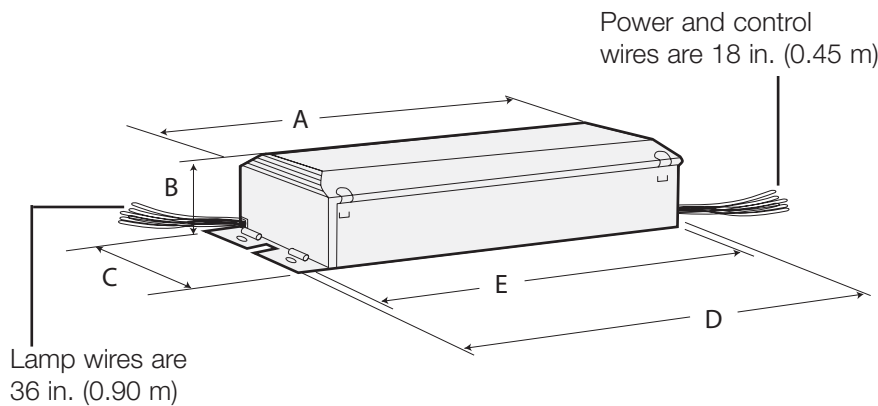
D



- A 7.13 in. (181 mm)
- B 1.00 in. (25 mm)
- C 1.58 in. (40 mm)
- D 9.50 in. (241 mm)
- E 8.91 in. (226 mm)  
(slot mounting centers)

If using four hole mount, mounting centers are 9.00" (229 mm) x 1.06 in. (27 mm).

F



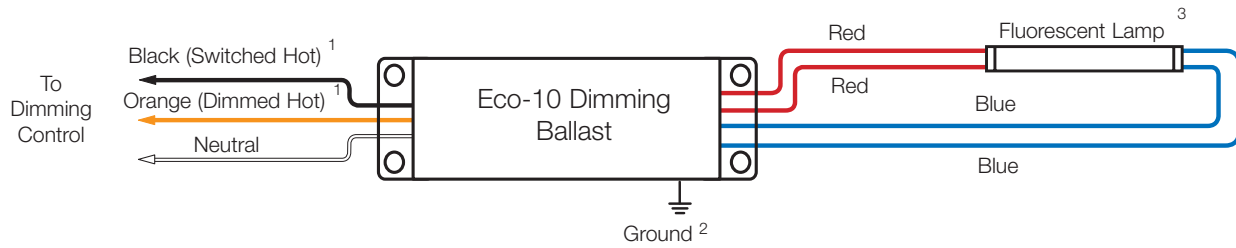
- A 8.30 in. (211 mm)
- B 1.50 in. (38 mm)
- C 2.38 in. (60 mm)
- D 9.50 in. (241 mm)
- E 8.91 in. (226 mm)  
(slot mounting centers)

If using four hole mount, mounting centers are 9.21 in. (234 mm) x 1.70 in. (43 mm).

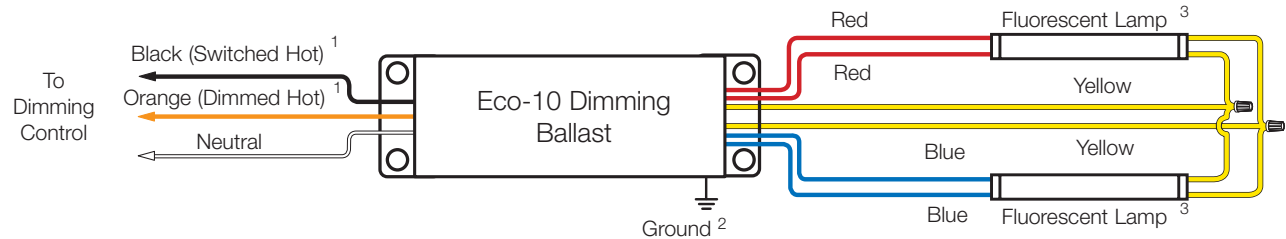
<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

## Eco-10 Wiring Diagrams

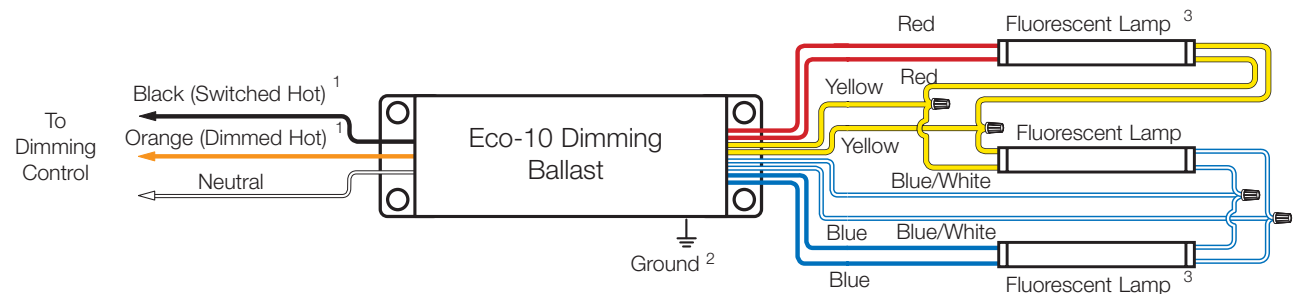
### One T5 or T8 lamp



### Two T5 or T8 lamps



### Three T8 lamps



<sup>1</sup> Dimming control wire colors do not necessarily match ballast wire colors (e.g. control 'dimmed hot' may be yellow, and ballast 'dimmed hot' may be orange). Wire colors shown are for Lutron ballasts and controls only.

<sup>2</sup> Ballast and lighting fixture must be effectively grounded.

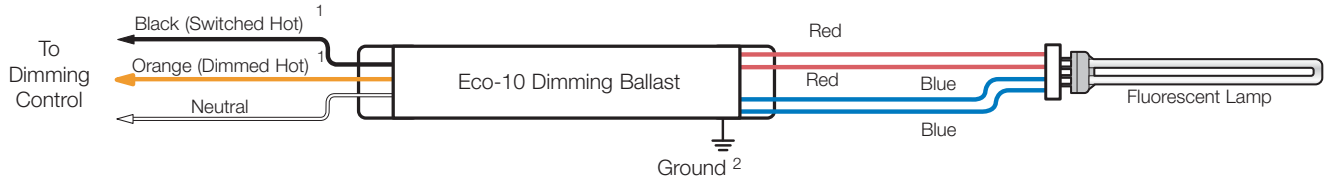
<sup>3</sup> Includes 31 W T8 U-bent lamps

Note: For T5 and T8 lamps, maximum lamp-to-ballast wire length is 7 feet (2 m).

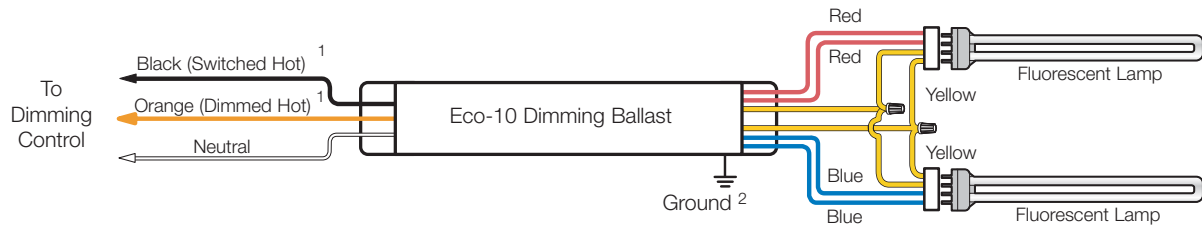
<b>Job Name:</b>	<b>Model Numbers:</b>
<b>Job Number:</b>	

## Eco-10 Wiring Diagrams continued

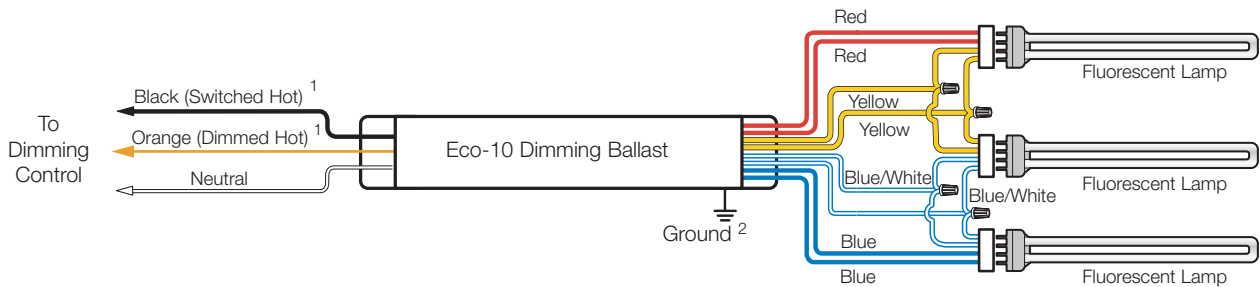
### One T5 twin-tube lamp



### Two T5 twin-tube lamps



### Three T5 twin-tube lamps



<sup>1</sup> Dimming control wire colors do not necessarily match ballast wire colors (e.g. control 'dimmed hot' may be yellow, and ballast 'dimmed hot' may be orange). Wire colors shown are for Lutron ballasts and controls only.

<sup>2</sup> Ballast and lighting fixture must be effectively grounded.

Note: For T5 twin-tube lamps, maximum lamp-to-ballast wire length is 3 feet (1 m).

Job Name:	Model Numbers:
Job Number:	



**ATTENTION ELECTRICIANS AND CONTRACTORS**

**Ballast/Socket Leads**

Lead lengths from ballast to socket must not exceed 7 ft. (2 m) for T5 and T8 lamps, and 3 ft. (1 m) for T5 twin-tube lamps.

**Lamp Sockets**

Quality lamp sockets are required to ensure positive lamp-pin to socket contact. T5 linear lamps require rotary locking sockets. T8 lamps require knife-edge sockets. U-bent lamps require locking sockets and proper lamp support to hold lamp pins in full contact with the socket. T5 twin-tube lamps require sockets that lock into the lamp base and provide proper lamp support to hold lamp pins in full contact with socket.

**Lamp Mounting for T5 Twin-Tube and T8**

Many fluorescent lamp sockets are available with mounting slots to vary the height of the lamp away from the grounded metal surface. Use these slots to get the outside edge of the lamp to be 1/2 in. ± 1/4 in. away from the grounded metal surface.

Having a fluorescent lamp too close to the grounded metal will make the minimum intensity too low and will reduce lamp life. Having a fluorescent lamp too far away from the grounded metal will make the lamp flicker or not turn on at all.

**Lamp Mounting for T5**

Keep lamp at least 3/8 in. ± 1/8 in. away from the grounded metal surface. Having a lamp too close to grounded metal may cause a visible difference in brightness along the length of the lamp.

**Wiring and Grounding**

All wiring from the dimming control to the Eco-10 ballasts is line voltage wiring and may be run together in the same conduit.

Ballast and lighting fixture must be effectively grounded. Ballasts must be installed per national and local electrical codes.

**Ballast Operating Temperature**

Ballast case temperature must not exceed 75 °C at any point on ballast.

**Number of Ballasts Per Control**

To calculate the maximum number of ballasts allowed per control, divide control's current capacity by individual ballast current. Certain controls allow a specific maximum number of ballasts.



**ATTENTION FACILITIES MANAGERS**

**PERFORMANCE**

**Lamps Seasoning**

Consult lamp manufacturer's recommendation on lamp seasoning prior to dimming.

**SERVICE**

**Replacement Parts**

Use replacement parts with exact Lutron model numbers. Consult Lutron if there are questions.

**Further Information**

For further information, please visit <http://www.lutron.com/ballasts> or contact our 24-hour Technical Support Center at 1-800-523-9466.

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