

## 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 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
- 5-year limited warranty with Lutron field service commissioning (3-year standard warranty) from date of purchase  
([http://www.lutron.com/TechnicalDocumentLibrary/Ballast and Driver Warranty.pdf](http://www.lutron.com/TechnicalDocumentLibrary/Ballast%20and%20Driver%20Warranty.pdf))



### Eco-10, case type C

1.18 in (30 mm) W x 1.00 in (25 mm) H x  
18.00 in (457 mm) L



### Eco-10, case type G

2.38 in (60 mm) W x 1.00 in (25 mm) H 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
- Operating Voltage: 120 V~ at 60 Hz, 277 V~ at 60 Hz, or universal voltage (120 V~ 220/240 V~, 277 V~ at 50/60 Hz)
- 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: equal to 1.0 for T5 lamps, 1.0 and 1.17 for T8 lamps
- Power Factor: greater than 0.95
- Total Harmonic Distortion (THD): less than 20%
- Maximum Inrush Current: 7 amps per ballast at 120 V~, 3 amps per ballast at 277 V~
- Grounding: (see EcoSystem®)

### Environment



- Relative humidity: less than 90% non-condensing
- Minimum lamp starting temperature: 50 °F (10 °C)
- Maximum ballast case temperature: 167 °F (75 °C)
- Sound Rating: inaudible in a 27 dB ambient

### Standards

- California Energy Commission (CEC) listed
- 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 9001.2008

<b>Job Name:</b>  <b>Job Number:</b>	<b>Model Numbers:</b>
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### Eco-10 Ballast Models for T5 and T5-HO Linear Lamps

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>T5 linear</b>  5/8 in (15.87 mm) diameter	14 W (22 in 558 mm)	1	C	0.18	E 3 T514 C 120 1	0.08	E 3 T514 C 277 1
		2	C	0.32	E 3 T514 C 120 2	0.14	E 3 T514 C 277 2
	21 W (34 in 863 mm)	1	C	0.25	E 3 T521 C 120 1	0.11	E 3 T521 C 277 1
		2	C	0.44	E 3 T521 C 120 2	0.19	E 3 T521 C 277 2
	28 W (45.3 in 1150 mm)	1	C	0.30	ECO-T528-120-1	0.14	ECO-T528-277-1
		2	C	0.55	ECO-T528-120-2	0.25	ECO-T528-277-2
<b>T5-HO linear high output</b>  5/8 in (15.87 mm) diameter	24 W (21.5 in 609 mm)	1	C	0.31	ECO-T524-120-1	0.13	ECO-T524-277-1
		2	C	0.62	ECO-T524-120-2	0.20	ECO-T524-277-2
	39 W (33.4 in 848 mm)	1	C	0.38	ECO-T5H39-120-1	0.17	ECO-T5H39-277-1
		2	C	0.76	ECO-T5H39-120-2	0.31	ECO-T5H39-277-2
	54 W (45.3 in 1150 mm)	1	C	0.58	ECO-T554-120-1	0.25	ECO-T554-277-1
		2	C	1.1	ECO-T554-120-2	0.45	ECO-T554-277-2



Job Name:	Model Numbers:
Job Number:	

### Eco-10 Ballasts for Linear and U-Bent T8 Lamps

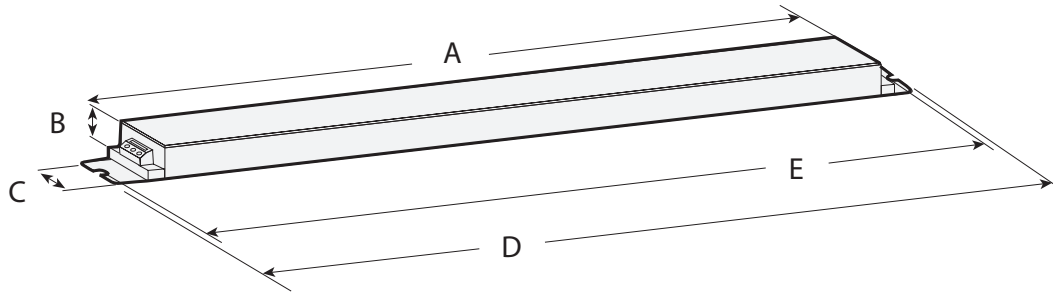
Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	Eco-10® Model Number	Input Voltage (VAC)	Ballast Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)	
	32 W (48 in 1219 mm)	1	C	EC3 T832 C U 1 10	277	0.13	1.00	34.8	3000	86	2.87	0.92	
			G	EC3 T832 G U 1 10	240	0.15	1.00	35.0	3000	86	2.85	0.91	
		1	C	EC3 T832 C U 1 17	277	0.15	1.17	39.7	3510	88	2.95	0.94	
			G	EC3 T832 G U 1 17	240	0.17	1.17	40.0	3510	88	2.92	0.94	
		2	C	EC3 T832 C U 2 10	277	0.24	1.00	65.7	6000	91	1.52	0.97	
			G	EC3 T832 G U 2 10	240	0.28	1.00	66.3	6000	90	1.51	0.97	
		2	C	EC3 T832 C U 2 17	277	0.28	1.17	75.4	7020	93	1.55	0.99	
			G	EC3 T832 G U 2 17	240	0.31	1.17	76.5	7020	92	1.53	0.98	
		3	G	EC3 T832 G U 3 10	277	0.37	1.00	93.5	9000	96	1.07	1.03	
						240	0.40	1.00	94.9	9000	96	1.05	1.01
		3	G	EC3 T832 G U 3 17	277	0.41	1.17	105.7	10,530	100	1.11	1.06	
						240	0.47	1.17	106.5	10,530	99	1.10	1.05
	25 W (36 in 914 mm)	1	C	EC3 T825 C U 1 10	277	0.11	1.00	29.1	1900	65	3.44	0.86	
						240	0.12	1.00	28.9	1900	66	3.46	0.87
						120	0.25	1.00	29.9	1900	64	3.34	0.84
		2	C	EC3 T825 C U 2 10	277	0.22	1.00	56.0	3800	68	1.79	0.89	
						240	0.24	1.00	56.0	3800	68	1.79	0.89
						120	0.49	1.00	59.0	3800	64	1.69	0.85
	17 W (24 in 609 mm)	1	C	EC3 T817 C U 1 10	277	0.08	1.00	22.9	1300	57	4.37	0.74	
			G	EC3 T817 G U 1 10	240	0.09	1.00	22.6	1300	58	4.42	0.75	
		2	C	EC3 T817 C U 2 10	277	0.14	1.00	38.7	2600	67	2.58	0.88	
			G	EC3 T817 G U 2 10	240	0.16	1.00	38.4	2600	68	2.60	0.89	
		3	G	EC3 T817 G U 3 10	277	0.21	1.00	57.2	3900	68	1.75	0.89	
						240	0.25	1.00	56.9	3900	69	1.76	0.90
				120	0.48	1.00	57.5	3900	68	1.74	0.89		

\* Actual number may vary with lamp model. Please consult lamp manufacturer for lamp-specific data.  
 Note: Above ballasts are UL listed only.

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

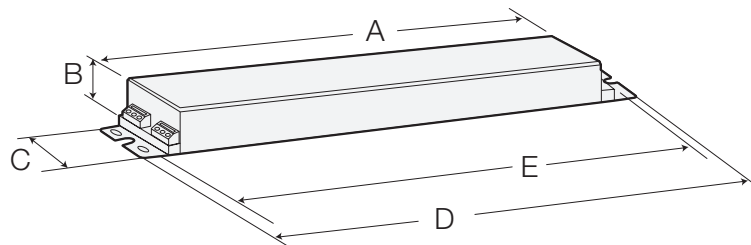
**Eco-10 Case Dimensions**

**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)

**G**



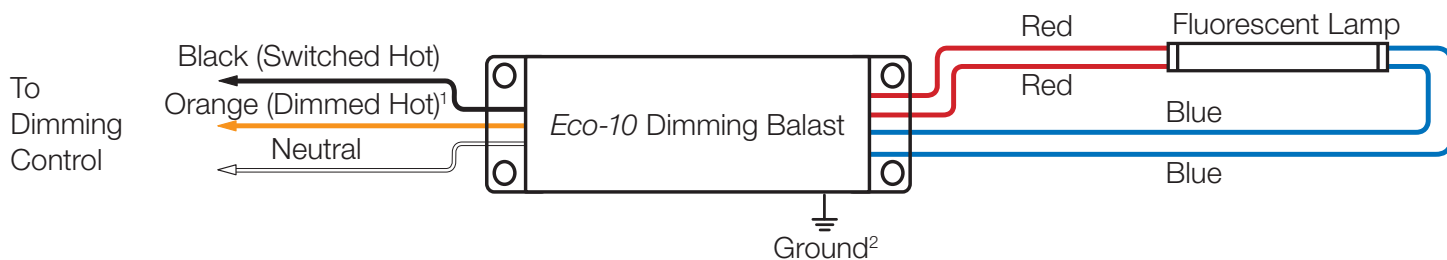
- A 7.13 in (181 mm)
- B 1.00 in (25 mm)
- C 2.38 in (60.5 mm)
- D 9.50 in (241 mm)
- E 8.91 in (226 mm)  
(slot mounting centers)

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

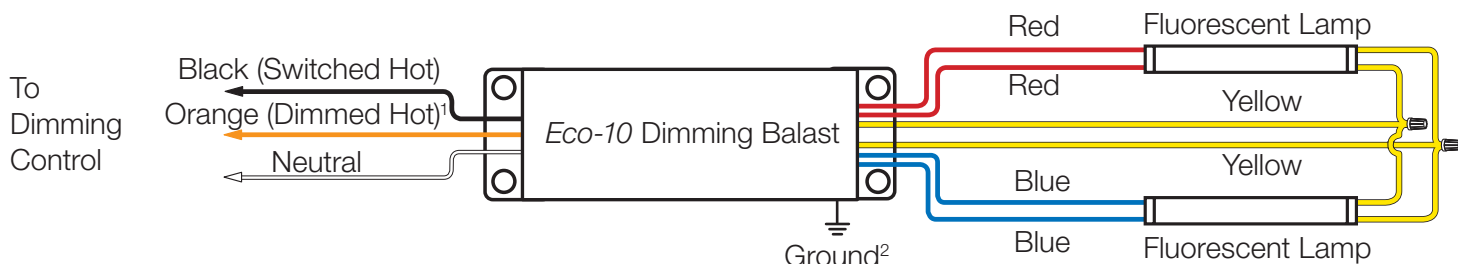
Job Name:	Model Numbers:
Job Number:	

### Eco-10 Wiring Diagrams

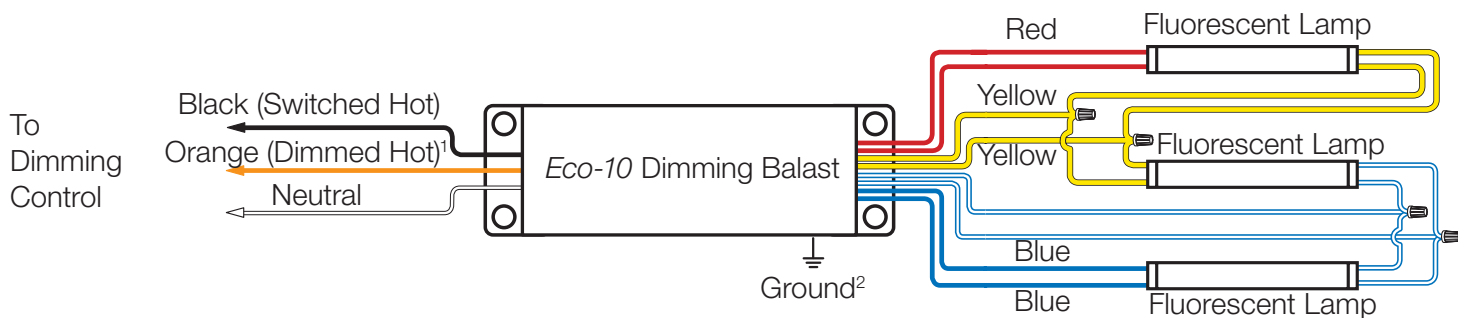
#### One T5 or T8 Lamp



#### Two T5 or T8 Lamps



#### Three T8 Lamps



¹ 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.

² Ballast and lighting fixture must be effectively grounded.

**Note:** For T5 and T8 lamps, maximum lamp-to-ballast wire length is 7 ft (2,1 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 (2,1 m) for T5 and T8 lamps.

### Lamp Sockets

Quality lamp sockets as per IEC 60400 are required to ensure positive lamp-pin to socket contact. T5 linear lamps require rotary locking sockets. U-bent lamps require locking sockets and proper lamp support to hold lamp pins in full contact with the socket.

### Lamp Mounting

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 lamp glass to be 1/2 in (12.7 mm) ± 1/4 in (6.35 mm) away from the grounded metal surface (for T8 lamps) or 3/8 in (9.52 mm) ± 1/8 in (3.17 mm) away from the grounded metal surface (for T5 lamps).

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.

### 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 167 °F (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 Requirements

Some fluorescent lamp manufacturers recommend that new fluorescent lamps be operated at full output (“seasoned”) before they can be dimmed. This is to render lamp impurities inert, ensuring proper dimming performance and average rated lamp life. Please contact your lamp manufacturer for seasoning requirements.

### 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.

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