

EcoSystem® H-Series Ballasts Overview

EcoSystem H-Series digitally addressable ballasts provide a low-cost, flexible solution for any space in any application. Industry leading dimming to less than 1% meets the needs of the most demanding applications. Individual control with the *EcoSystem* Digital Link eliminates the need to rewire, reduces design time, and provides a scalable solution from a small area to an entire building.

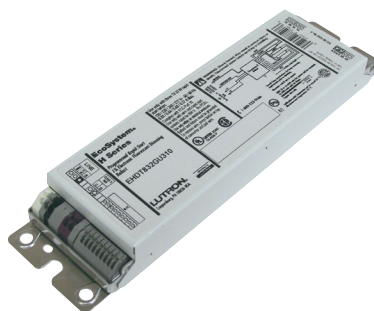
Features

- Continuous, flicker-free dimming from 100% to 1% or less for T8, and 1% for T5 and T5HO lamps
- Compatible with *EcoSystem* Energi Savr Node™ Units, GRAFIK Eye® QS Control Unit, and Quantum® software, allowing for integration into an existing/ planned *EcoSystem* lighting control solution
- Programmed rapid start design preheats lamp cathodes before applying full arc voltage to ensure full-rated lamp life while dimming and cycling
- 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
- Ballasts maintain consistent light output for different lamp lengths, ensuring fixture-to-fixture uniformity
- Ultra-quiet operation
- Protected from miswires of any input power to control lead, or from lamp leads to each other and/or ground
- End-of-lamp-life protection circuitry ensures safe operation throughout entire lamp life
- Nonvolatile memory restores all ballast settings after power failure
- 100% compatible with all *EcoSystem* digital controls
- 100% performance tested at factory
- 5-year limited warranty with *Lutron* field service commissioning (3-year standard warranty) from date of purchase. For additional Warranty information, please visit <http://www.lutron.com/ResourceLibrary/warranty/Limited%20Comm.pdf>



EcoSystem H-Series, case type C

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



EcoSystem H-Series, case type G

2.38 in W (60 mm) x 1.0 in H (25 mm) x 9.5 in L (241 mm)

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

Performance

- Dimming Range: 100% to 0.7% measured Relative Light Output (RLO) for T8, 100% to 1% measured relative light output for T5 and T5HO
- Lamp Starting: programmed rapid start
- 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
- Power Factor: greater than 0.95
- Total Harmonic Distortion (THD): less than 10%
- Operating Voltage: Universal input 120 V \sim , 220/240 V \sim , 277 V \sim at 50 or 60 Hz
- Frequency of Operation: greater than 42 KHz
- Ballast Factor: 1.0/1.17 for T8 lamps and 1.0 for T5 and T5HO lamps
- Maximum Inrush Current: 3 A per ballast at 277 V \sim , 7A per ballast at 120 V \sim

Dimming Range for T8 lamps:

BF	Dimming Range (Max/Min (BF))	Dimming Ratio
1.17	1.17 / 0.0085	138:1
1.0	1.00 / 0.0085	118:1

Dimming Range for T5 and T5HO lamps:

BF	Dimming Range (Max/Min (BF))	Dimming Ratio
1.0	1.00 / 0.01	100:1

Environment

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

Standards

- California Energy Commission Listed
- UL Listed (evaluated to the requirements of UL935)
- CSA certified (evaluated to the requirements of C22.2 No. 74)
- 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

Ballast Wiring & Mounting


- Ballast is grounded via a mounting screw to the fixture
- Ballast mounts using two screws (or sheet metal feature and one screw) within a fluorescent fixture.
- Power and lamp wiring terminals accept only one 16-18 AWG or 0.75 mm²-1.5 mm² solid copper wire per terminal

Lamp Seasoning

Refer to the lamp manufacturer's requirements for lamp seasoning requirements prior to dimming.

Job Name:	Model Numbers:
Job Number:	

EcoSystem® H-Series Ballasts for Linear and U-Bend T8 Lamps


Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem H Series Ballasts	Input Voltage (V~)	Ballast Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)
T8 and U-Bend 	32 W (48 in)	1	C	EHD T832 C U 1 10	120	0.30	1.00	35.1	3000	85	2.85	0.91
					240	0.15	1.00	35.0	3000	86	2.85	0.91
					277	0.13	1.00	34.8	3000	86	2.87	0.92
		1	C	EHD T832 C U 1 17	120	0.34	1.17	40.1	3510	88	2.92	0.93
					240	0.17	1.17	40.0	3510	88	2.92	0.94
		2	C	EHD T832 C U 2 10	120	0.58	1.00	66.5	6000	90	1.50	0.96
					240	0.28	1.00	66.3	6000	90	1.51	0.97
2	C	EHD T832 C U 2 17	120	0.67	1.17	76.9	7020	91	1.52	0.97		
			240	0.31	1.17	76.5	7020	92	1.53	0.98		
3	G	EHD T832 G U 3 10	120	0.83	1.00	95.4	9000	94	1.05	1.01		
			240	0.40	1.00	94.9	9000	95	1.05	1.01		
3	G	EHD T832 G U 3 17	120	0.95	1.17	106.8	10530	99	1.10	1.05		
			240	0.47	1.17	106.5	10530	99	1.10	1.05		
					277	0.41	1.17	105.7	10530	100	1.11	1.06

* Actual number may vary with lamp model. Please consult lamp manufacturer for lamp-specific data.


For other lamp lengths, use a Hi-lume® 3D ballast to match dimming performance.

Job Name:	Model Numbers:
Job Number:	

EcoSystem® H-Series T5 Linear Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem H Series Ballasts	Input Voltage (V~)	Ballast Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)
	28 W (45.2 in)	1	C	EHD T528 C U 1 10	120	0.27	1.00	32.9	2,900	88	3.04	0.85
					240	0.13	1.00	32.9	2,900	88	3.04	0.85
					277	0.12	1.00	32.6	2,900	89	3.07	0.86
		2	C	EHD T528 C U 2 10	120	0.54	1.00	65.2	5,800	89	1.53	0.86
					240	0.26	1.00	65.0	5,800	89	1.54	0.86
					277	0.23	1.00	64.5	5,800	90	1.55	0.87

EcoSystem® H-Series T5HO Linear Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem H Series Ballasts	Input Voltage (V~)	Ballast Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)
	54 W (45.2 in)	1	C	EHD T554 C U 1 10	120	0.51	1.00	57.9	5,000	86	1.73	0.93
					240	0.26	1.00	58.0	5,000	86	1.72	0.93
					277	0.20	1.00	56.5	5,000	88	1.77	0.96
		2	C	EHD T554 C U 2 10	120	0.98	1.00	119.3	10,000	84	0.84	0.91
					240	0.47	1.00	119.0	10,000	84	0.84	0.91
					277	0.41	1.00	110.1	10,000	91	0.91	0.98

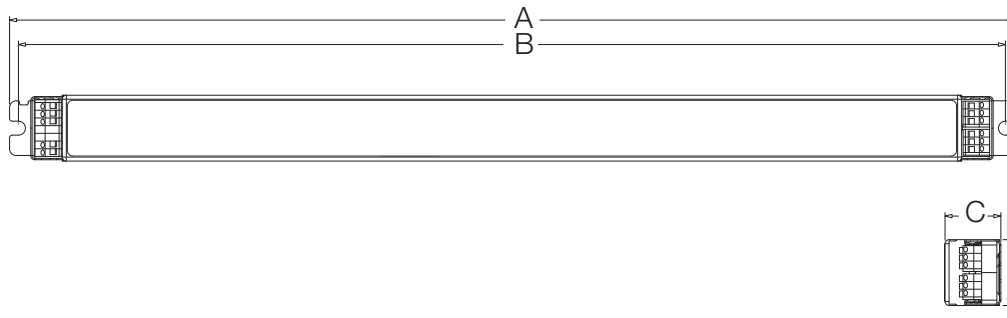
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Job Name:	Model Numbers:
Job Number:	

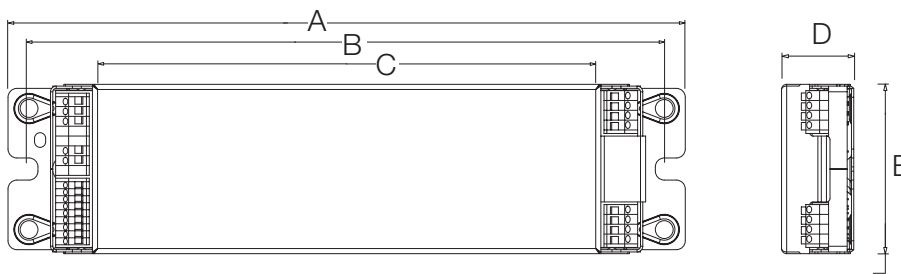
Case Dimensions

C



- A 18.00 in (457 mm)
- B 17.68 in (449 mm)
(mounting centers)
- C 1.0 in (25 mm)
- D 1.18 in (30 mm)

G



- A 9.5 in (241 mm)
- B 8.9 in (226 mm)
(mounting centers)
- C 7.1 in (180 mm)
- D 1.0 in (25 mm)
- E 2.38 in (60 mm)

Job Name:	Model Numbers:
Job Number:	

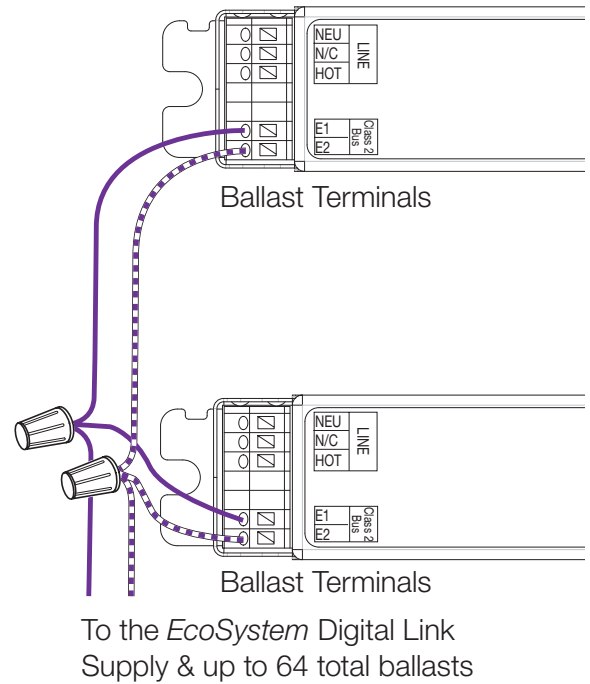
EcoSystem® H-Series Wiring Diagrams

EcoSystem Digital Link Overview

- The *EcoSystem* Digital Link wiring (E1 and E2) connects the digital ballasts together to form a lighting control system
- Each *EcoSystem* Digital Link supports up to 64 digital ballasts, 64 occupant sensors, 16 daylight sensors, and 64 wallstations or IR receivers
- Sensors do not directly connect to *EcoSystem* H-Series ballasts
- No 3-wire phase control with *EcoSystem* H-Series ballasts
- E1 and E2 (*EcoSystem* digital link wires) are polarity insensitive and can be wired in any topology
- An *EcoSystem* Energi Savr Node™, GRAFIK Eye® QS Control Unit with *EcoSystem*, or Quantum® system provides power for the *EcoSystem* Digital Link and supports system programming
- All *EcoSystem* Digital Link programming is completed by using the *EcoSystem* Programmer, GRAFIK Eye® QS with *EcoSystem*, or Quantum® System

EcoSystem Digital Link Wiring

- Ballast *EcoSystem* Digital Link terminals only accept one 16-18 AWG or 0.75 mm²-1.5 mm² solid copper wire per terminal
- Make sure that the supply breaker to the Digital Ballast and *EcoSystem* Digital Link Supply is OFF when wiring
- Connect the two conductors to the two Digital Ballast terminals E1 and E2 as shown
- Using two different colors for E1 and E2 will reduce confusion when wiring several ballasts together
- The *EcoSystem* Digital Link may be wired Class 1 or Class 2. Consult applicable electrical codes for proper wiring practices



Notes

- The *EcoSystem* Digital Link Supply does not have to be located at the end of the Digital Link
- *EcoSystem* Digital Link length is limited by the wire gauge used for E1 and E2 as follows:

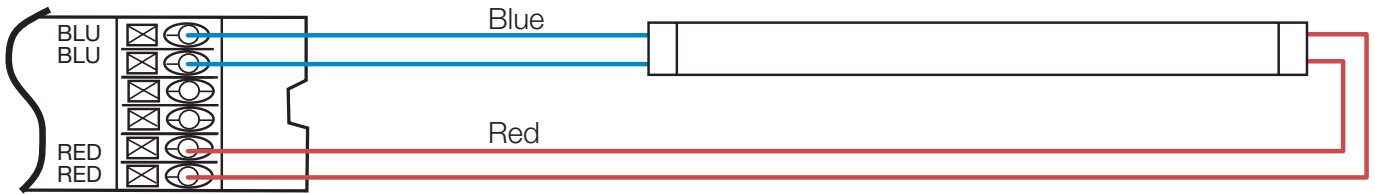
Wire Gauge	Digital Link Length (max)
12 AWG	2200 ft
14 AWG	1400 ft
16 AWG	900 ft
18 AWG	550 ft

Wire Size	Digital Link Length (max)
4.0 mm ²	828 m
2.5 mm ²	517 m
1.5 mm ²	310 m
1.0 mm ²	207 m
0.75 mm ²	155 m

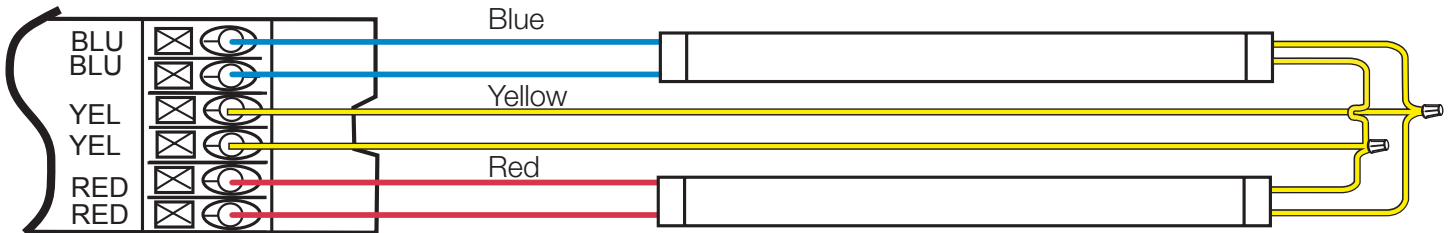
Job Name:	Model Numbers:
Job Number:	

EcoSystem H-Series Ballast Wiring Diagrams – T8, T5, and T5HO linear lamps

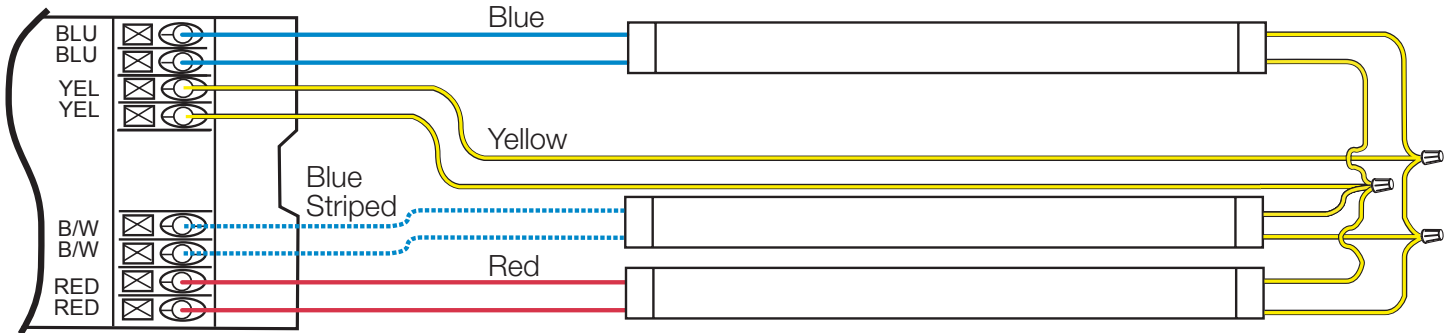
Wiring to One Lamp (C case shown)



Wiring to Two Lamps (C case shown)



Wiring to Three Lamps (G case shown)

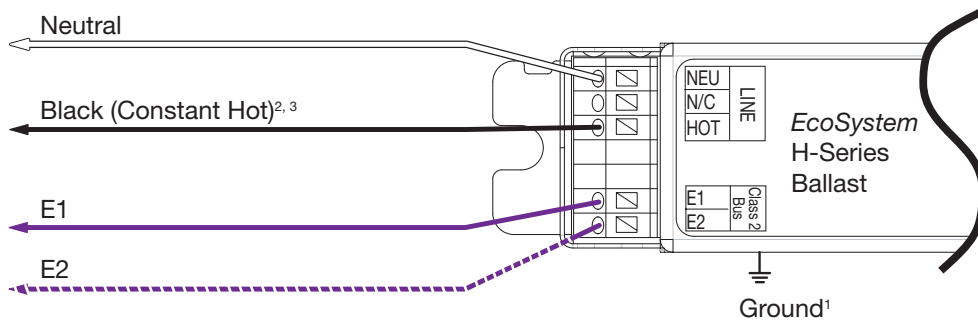


NOTICE

- Maximum ballast to lamp socket lead length is 7 ft (2 m)
- Wire colors shown are labeled on the ballast, but may vary depending upon fixture construction

Job Name:	Model Numbers:
Job Number:	

EcoSystem Power Wiring Diagrams



¹ Ballast is grounded via the case.

² Wire colors shown are for *Lutron* controls and ballasts only. Dimming control wires may not match ballast wire colors.

³ The Constant Hot must not be wired to a switching device.

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 T8, T5, and T5HO linear lamps.

Lamp Sockets

Lamp sockets as per IEC 60400 are required to ensure positive lamp-pin to socket contact.

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 ± 1/4 in away from the grounded metal surface for T8 lamps and 3/8 in ± 1/8 in for T5 and T5HO 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.

Ballast Operating Temperature

Ballast case temperature must not exceed 167 °F (75 °C) at any point on the ballast.

Wiring and Grounding

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

ATTENTION FACILITIES MANAGERS

PERFORMANCE

Lamp Seasoning

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

SERVICE

Replacement Parts

Use replacement parts with exact Lutron® model numbers. Consult Lutron if you have any questions.

Further Information

For further information, please visit us at www.lutron.com/ballasts or contact our 24-hour Technical Support Center at 1.800.523.9466.

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