

EcoSystem® H-Series 347 V~ Ballast 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 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™ devices, GRAFIK Eye® QS with EcoSystem® connection, PowPak™ dimming module with EcoSystem® connection, and Quantum® systems, allowing for integration into an existing/planned EcoSystem® lighting control system
- 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
- 100% compatible with all Lutron® 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
- Custom ballast factors available. Design tool and specifications can be found at www.lutron.com/ballasttool



EcoSystem® H-Series, case type C

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

LUTRON® SPECIFICATION SUBMITTAL

Page

Job Name:

Model Numbers:

Job Number:

Specifications

Standards

- CSA certified (evaluated to the requirements of C22.2 No. 74)
- Class P thermally protected
- Meets ANSI C82.11 High Frequency Ballast Standard
- Meets 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

Environment

- Minimum lamp starting temperature: 50 °F (10 °C)
- Relative humidity: less than 90% non-condensing
- Sound Rating: Class A
- Maximum ballast case temperature: 167 °F (75 °C)

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 to 18 AWG (0.75 to 1.5 mm²) solid copper wire per terminal

Lamp Seasoning

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

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 ±2% light output for line voltage variations of ±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: 347 V~ 60 Hz
- Frequency of Operation: greater than 42 KHz
- Ballast Factor (BF): 1.0/1.17 for T8 lamps and 1.0 for T5 and T5HO lamps

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:

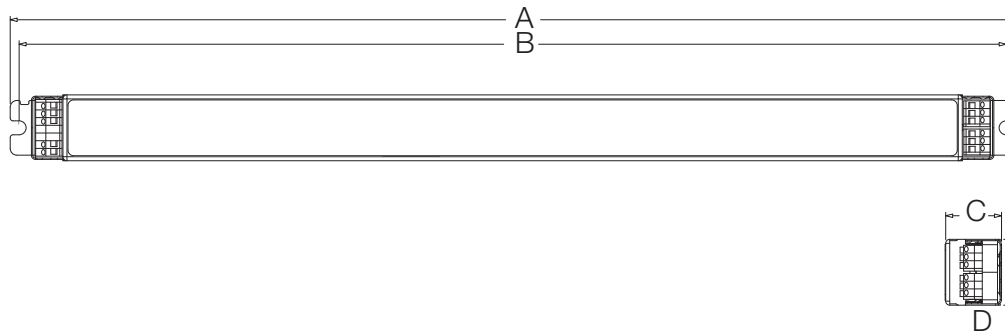
BF	Dimming Range (Max/Min (BF))	Dimming Ratio
1.0	1.00 / 0.01	100:1

Job Name:	Model Numbers:
Job Number:	

EcoSystem® H-Series Ballasts

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem® H-Series	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)
T5HE	28 W (45.2 in [1148 mm])	1	C	EHD T528 C 347 110	347	0.09	1.00	30.9	2900	94	3.23	0.91
		2	C	EHD T528 C 347 210	347	0.17	1.00	58.4	5800	99	1.71	0.96
T5HO	54 W (45.2 in [1148 mm])	1	C	EHD T554 C 347 110	347	0.17	1.00	58.4	5000	86	1.71	0.92
		2	C	EHD T554 C 347 210	347	0.34	1.00	116.8	10,000	86	0.86	0.92
T8	32 W (48 in [1219 mm])	1	C	EHD T832 C 347 110	347	0.10	1.00	34.4	3000	87	2.91	0.93
		2	C	EHD T832 C 347 210	347	0.19	1.00	65.3	6000	92	1.53	0.98
		1	C	EHD T832 C 347 117	347	0.12	1.17	41.2	3510	85	2.84	0.91
		2	C	EHD T832 C 347 217	347	0.22	1.17	75.6	7020	93	1.55	0.99

Type C Case Dimensions



- 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)

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

Job Name:	Model Numbers:
Job Number:	

EcoSystem® H-Series Wiring Diagrams

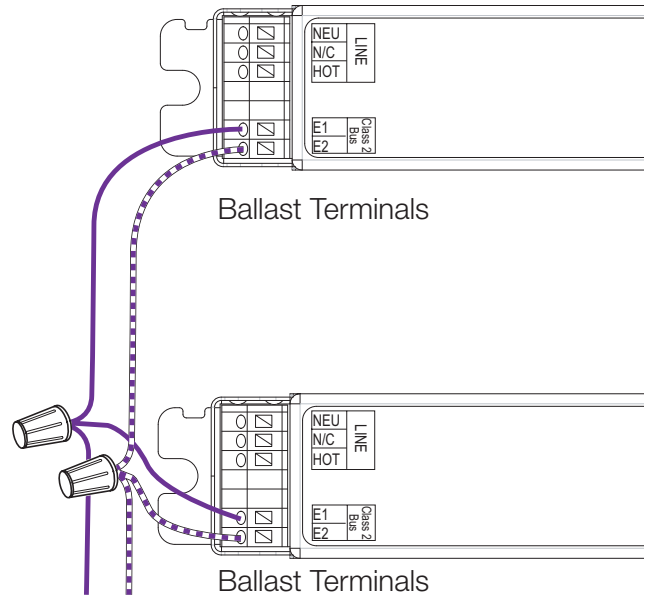
EcoSystem® Digital Link Overview

- The EcoSystem® Digital Link wiring (E1 and E2) connects the digital ballasts and drivers together to form a lighting control system.
- Each EcoSystem® Digital Link supports up to 64 digital ballasts or LED drivers, 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™ device, GRAFIK Eye® QS control unit with EcoSystem® connection, PowPak™ dimming module with EcoSystem® connection, or Quantum® system provides power for the EcoSystem® Digital Link and supports system programming.
- All EcoSystem® Digital Link programming is completed by using the Energi Savr App for *Apple iPad*, *iPod Touch* or *iPhone* mobile digital devices, GRAFIK Eye® QS with EcoSystem® connection, PowPak™ dimming module with EcoSystem® connection, or Quantum® System.
- For complete information, see EcoSystem® Design & Application Guide (P/N 367-1533).

EcoSystem® Digital Link Wiring

- Ballast EcoSystem® Digital Link terminals only accept one 18 to 16 AWG (0.75 to 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.
- * PowPak™ dimming module with EcoSystem® connection can support 32 ballasts or LED drivers.

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To the EcoSystem® Digital Link Supply

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:

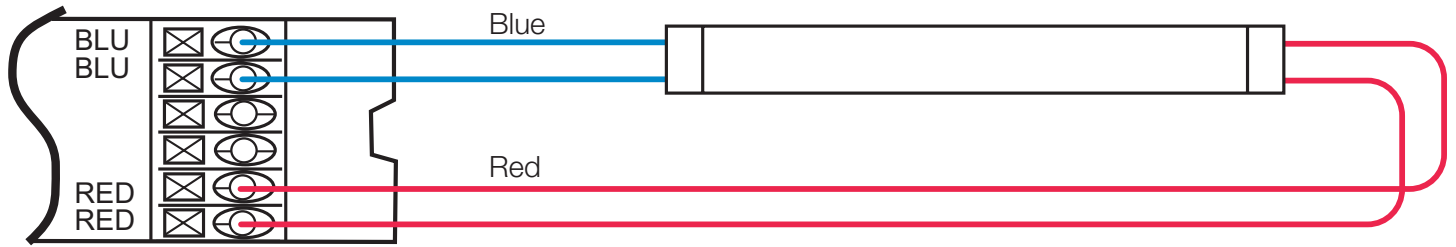
Wire Gauge	Digital Link Length (max)
12 AWG	2200 ft
14 AWG	1400 ft
16 AWG	900 ft
18 AWG	550 ft

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

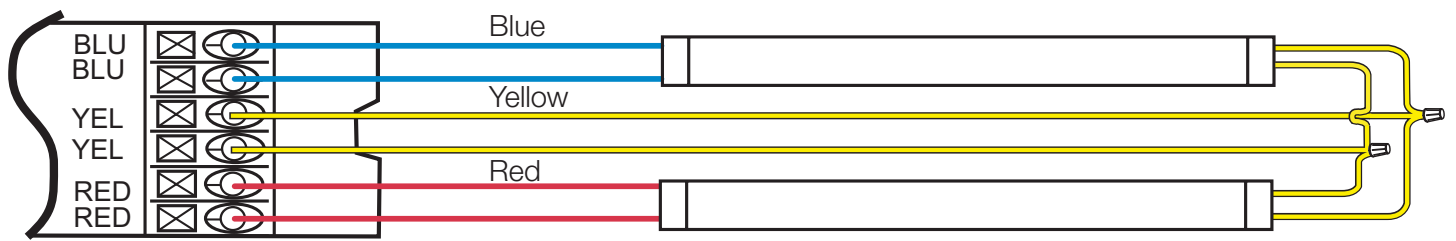
Job Name:	Model Numbers:
Job Number:	

T8, T5, and T5HO Wiring Examples

Wiring to One Lamp (C case shown)



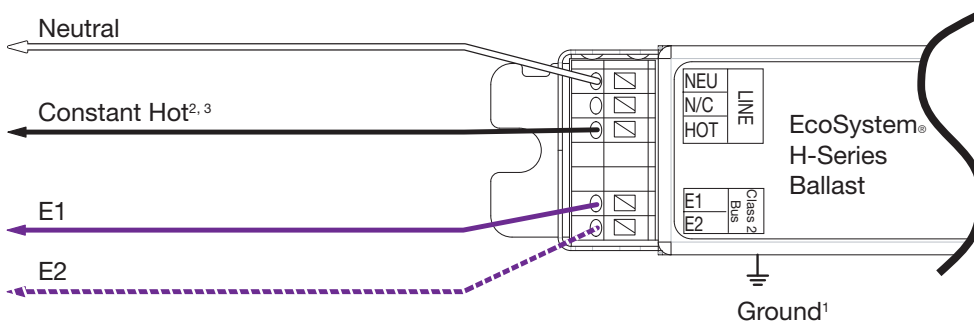
Wiring to Two Lamps (C case shown)



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

EcoSystem® H-Series Power Wiring Diagram



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 or system functionality will be lost.

Job Name:	Model Numbers:
Job Number:	

ATTENTION ELECTRICIANS AND CONTRACTORS

Ballast/Socket Leads

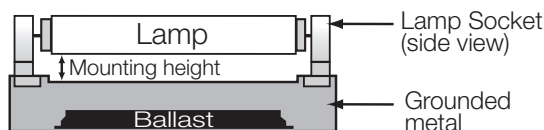
Lead lengths from ballast to socket must not exceed 7 ft (2 m) for T8, T5, and T5HO linear lamps.

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. Having a fluorescent lamp too close to the grounded metal 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. Please note that all of the lamp heights are measured between the grounded metal surface and the glass wall of the lamp.



IMPORTANT: Lamps must never touch ground plane and should be placed without obstruction.

Mounting for T5 and T5HO Lamps

Mount lamps 1/16 to 3/8 in (1.6 to 9.5 mm) away from the grounded metal surface.

Mounting for T8 Lamps

Mount lamps 1/8 to 3/4 in (3.2 to 19 mm) away from the grounded metal surface.

Ballast Operating Temperature

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

Cold Air Flow

Ensure that no cold air (from HVAC system, etc) is blowing across the lamps. Cooling the lamp will cause performance issues as noted in NEMA LSD-34.

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

Some fluorescent lamp manufacturers recommend that new fluorescent lamps be operated at full output (“seasoned”) before they can be dimmed, 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 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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