

EcoSystem® H-Series Ballasts

EcoSystem® H-Series digitally addressable ballasts provide a low-cost, flexible solution for any space in any application. Architectural dimming to 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.



EcoSystem® H-Series, case type M

30 mm W x 25 mm H x 359 mm L

Features

- Continuous, flicker-free dimming from 100% to 1% for T5, T5HO and T8 lamps
- 100% compatible with all EcoSystem® controls
- CE-marked; ENEC, InMetro, and CCC Certified
- Registered under the Consumer Protection Registration Scheme in Singapore
- S-Mark Certified for Argentina
- Compatible with GRAFIK Eye® QS with EcoSystem® control units, Energi Savr Node™ with EcoSystem® unit and Quantum® software, allowing for integration into an existing or planned EcoSystem® lighting control solution
- RoHS Compliant
- 100% performance tested at factory
- 100% burned in at factory
- Ballast is protected from miswires of any input power to EcoSystem® control lead, or from lamp leads to each other and/or ground
- 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 going 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 kHz and 42 kHz
- Ultra-quiet operation
- End-of-lamp-life protection circuitry ensures safe operation throughout entire lamp life
- Nonvolatile memory restores all ballast settings after power failure

Job Name:	Model Numbers:
Job Number:	

Specifications

Regulatory Approvals

- Manufacturing facilities employ ESD reduction practices that comply with the requirements of ANSI/ESD S20.20
- Registered under the Consumer Protection Registration Scheme in Singapore
- S-Mark Certified for Argentina
- Lutron® Quality Systems registered to ISO 9001:2008

IEC

- Safety: IEC 61347-1; IEC 61347-2-3
- Performance: IEC 60929
- EMC-Emissions: CISPR 15
- EMC-Immunity: IEC 61547
- EMC-Harmonics: IEC 61000-3-2

CE-Marked; ENEC Certified

- Safety: EN 61347-1; EN 61347-2-3
- EMC-Emissions: EN 55015
- EMC-Immunity: EN 61547
- EMC-Harmonics: IEC 61000-3-2
- Energy Efficiency: EN 50294

InMetro Certified

- Safety: ABNT NBR 14417
- Performance: ABNT NBR 14418

CCC Certified

- Safety: GB 19510.4
- EMC-Emissions: GB 17743
- EMC-Harmonics: GB 17625.1

Environment

- Minimum lamp starting temperature: 10 °C
- Relative humidity: less than 90% non-condensing
- Sound Rating: Class A
- Maximum ballast temperature: $t_C = 70$ °C

Performance

- Dimming Range: 100% to 1% measured relative light output for T5, T5HO and T8
- 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
- Standby Power: less than 0,50 W
- Typical Total Harmonic Distortion (THD) less than 10% *
- Frequency of Operation: greater than 42 KHz
- Ballast Factor (BF): 1,0 for T5, T5HO and T8 lamps

Dimming Range for T5, T5HO and T8 lamps:

BF	Dimming Range (Max/Min)	Dimming Ratio
1,0	1,00 / 0,01	100:1

Ballast Wiring & Mounting

- Ballast is earthed to the fixture via a mounting screw
- Ballast and fixture must be earthed
- Ballast mounts using two screws (or sheet metal feature and one screw) within a fluorescent fixture
- Power and lamp wiring terminals accept one 0,75 mm² to 1,5 mm² (18 AWG to 16 AWG) solid copper wire per terminal

Lamp Seasoning

Prior to dimming lamps, refer to the lamp manufacturer's lamp seasoning requirements

Warranty

For warranty information, please see:
www.lutron.com/TechnicalDocumentLibrary/Ballast%20and%20Driver%20Warranty.pdf

* Typical THD for models EHDT514ME110 and EHDT521ME110 less than 15%.


Job Name:	Model Numbers:
Job Number:	

Models for Europe and Singapore (CE[†], ENEC[†] Certification, Registered under the Consumer Protection Registration Scheme in Singapore)

EcoSystem® H-Series ballasts for T5 Linear Lamps

For proper dimming, all lamps must comply to accepted standards, 14 W (60081-IEC-6520), 21 W (60081-IEC-6530) and 28 W (60081-IEC-6640)


Not for use with Reduced Wattage Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem® H-Series	Input Voltage (V~)	Input Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)
	14 W (549 mm)	1	M	EHD T514 ME 1 10	220 240	0,09 0,08	1,00 1,00	19,8 19,2	1 350 1 350	68 70	5,05 5,21	0,71 0,73
		2	M	EHD T514 ME 2 10	220 240	0,16 0,15	1,00 1,00	35,2 36,0	2 700 2 700	77 75	2,84 2,78	0,80 0,78
	21 W (848 mm)	1	M	EHD T521 ME 1 10	220 240	0,12 0,11	1,00 1,00	26,4 26,4	2 100 2 100	80 80	3,79 3,79	0,80 0,80
		2	M	EHD T521 ME 2 10	220 240	0,22 0,20	1,00 1,00	48,4 48,0	4 200 4 200	87 88	2,07 2,08	0,87 0,88
	28 W (1 148 mm)	1	M	EHD T528 ME 1 10	220 240	0,15 0,13	1,00 1,00	33,0 31,2	2 900 2 900	88 93	3,03 3,21	0,85 0,90
		2	M	EHD T528 ME 2 10	220 240	0,29 0,26	1,00 1,00	63,8 62,4	5 800 5 800	91 93	1,57 1,60	0,88 0,90

EcoSystem® H-Series ballasts for T5HO Linear Lamps

For proper dimming, all lamps must comply to accepted standards, 24 W (60081-IEC-6620), 39 W (60081-IEC-6730) and 54 W (60081-IEC-6840)

Not for use with Reduced Wattage Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem® H-Series	Input Voltage (V~)	Input Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)
	24 W (549 mm)	1	M	EHD T524 ME 1 10	220 240	0,13 0,12	1,00 1,00	28,6 28,8	2 000 2 000	70 69	3,50 3,47	0,84 0,83
		2	M	EHD T524 ME 2 10	220 240	0,25 0,23	1,00 1,00	55,0 55,2	4 000 4 000	73 73	1,82 1,81	0,87 0,87
	39 W (848 mm)	1	M	EHD T539 ME 1 10	220 240	0,20 0,18	1,00 1,00	44,0 43,2	3 500 3 500	80 81	2,27 2,31	0,89 0,90
		2	M	EHD T539 ME 2 10	220 240	0,37 0,34	1,00 1,00	81,4 81,6	7 000 7 000	86 86	1,23 1,23	0,96 0,96
	54 W (1 148 mm)	1	M	EHD T554 ME 1 10	220 240	0,29 0,26	1,00 1,00	63,8 62,4	5 000 5 000	78 80	1,57 1,60	0,85 0,87
		2	M	EHD T554 ME 2 10	220 240	0,51 0,48	1,00 1,00	112,2 115,2	10 000 10 000	89 87	0,89 0,87	0,96 0,94

[†] Certification is applicable to any country recognizing the certification body.

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


Job Name:	Model Numbers:
Job Number:	

Models for Argentina (S-Mark[†] Certification)

EcoSystem® H-Series ballasts for T5 Linear Lamps

For proper dimming, all lamps must comply to accepted standards, 14 W (60081-IEC-6520), 21 W (60081-IEC-6530) and 28 W (60081-IEC-6640)


Not for use with Reduced Wattage Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem® H-Series	Input Voltage (V~)	Input Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)
	14 W (549 mm)	1	M	EHD T514 ME 1 10-R	220 240	0,09 0,08	1,00 1,00	19,8 19,2	1 350 1 350	68 70	5,05 5,21	0,71 0,73
		2	M	EHD T514 ME 2 10-R	220 240	0,16 0,15	1,00 1,00	35,2 36,0	2 700 2 700	77 75	2,84 2,78	0,80 0,78
	28 W (1 148 mm)	1	M	EHD T528 ME 1 10-R	220 240	0,15 0,13	1,00 1,00	33,0 31,2	2 900 2 900	88 93	3,03 3,21	0,85 0,90
		2	M	EHD T528 ME 2 10-R	220 240	0,29 0,26	1,00 1,00	63,8 62,4	5 800 5 800	91 93	1,57 1,60	0,88 0,90

EcoSystem® H-Series ballasts for T5HO Linear Lamps

For proper dimming, all lamps must comply to accepted standards, 24 W (60081-IEC-6620), 39 W (60081-IEC-6730) and 54 W (60081-IEC-6840)

Not for use with Reduced Wattage Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem® H-Series	Input Voltage (V~)	Input 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 (1 148 mm)	1	M	EHD T554 ME 1 10-R	220	0,29	1,00	63,8	5 000	78	1,57	0,85
					240	0,26	1,00	62,4	5 000	80	1,60	0,87
		2	M	EHD T554 ME 2 10-R	220	0,51	1,00	112,2	10 000	89	0,89	0,96
240	0,48				1,00	115,2	10 000	87	0,87	0,94		

[†] Certification is applicable to any country recognizing the certification body.

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


Job Name:	Model Numbers:
Job Number:	

Models for Brazil (InMetro[†] Certification)

EcoSystem® H-Series ballasts for T5 Linear Lamps

For proper dimming, all lamps must comply to accepted standards, 14 W (60081-IEC-6520), 21 W (60081-IEC-6530) and 28 W (60081-IEC-6640)


Not for use with Reduced Wattage Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem® H-Series	Input Voltage (V~)	Input Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)
	14 W (549 mm)	1	M	EHD T514 ME 1 10-B	127 220	0,15 0,09	1,00 1,00	19,6 19,8	1 350 1 350	69 68	5,12 5,05	0,72 0,71
		2	M	EHD T514 ME 2 10-B	127 220	0,28 0,16	1,00 1,00	35,0 35,4	2 700 2 700	77 76	2,86 2,82	0,80 0,79
	21 W (848 mm)	1	M	EHD T521 ME 1 10-B	127 220	0,20 0,12	1,00 1,00	25,4 26,4	2 100 2 100	82 80	3,94 3,79	0,83 0,80
		2	M	EHD T521 ME 2 10-B	127 220	0,39 0,22	1,00 1,00	49,5 48,4	4 200 4 200	85 87	2,02 2,07	0,85 0,87
	28 W (1 148 mm)	1	M	EHD T528 ME 1 10-B	127 220	0,26 0,15	1,00 1,00	33,5 33,7	2 900 2 900	86 86	2,98 2,97	0,84 0,83
		2	M	EHD T528 ME 2 10-B	127 220	0,50 0,29	1,00 1,00	63,6 63,4	5 800 5 800	91 92	1,57 1,58	0,88 0,88

EcoSystem® H-Series ballasts for T5HO Linear Lamps

For proper dimming, all lamps must comply to accepted standards, 24 W (60081-IEC-6620), 39 W (60081-IEC-6730) and 54 W (60081-IEC-6840)

Not for use with Reduced Wattage Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem® H-Series	Input Voltage (V~)	Input Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)
	24 W (549 mm)	1	M	EHD T524 ME 1 10-B	127 220	0,23 0,13	1,00 1,00	29,2 28,6	2 000 2 000	68 70	3,42 3,50	0,82 0,84
		2	M	EHD T524 ME 2 10-B	127 220	0,44 0,25	1,00 1,00	53,9 55,0	4 000 4 000	72 73	1,79 1,82	0,86 0,87
	39 W (848 mm)	1	M	EHD T539 ME 1 10-B	127 220	0,35 0,20	1,00 1,00	44,5 44,0	3 500 3 500	79 80	2,25 2,27	0,88 0,89
		2	M	EHD T539 ME 2 10-B	127 220	0,66 0,37	1,00 1,00	83,8 81,4	7 000 7 000	84 86	1,19 1,23	0,93 0,96
	54 W (1 148 mm)	1	M	EHD T554 ME 1 10-B	127 220	0,50 0,29	1,00 1,00	64,0 62,7	5 000 5 000	78 80	1,56 1,59	0,84 0,86
		2	M	EHD T554 ME 2 10-B	127 220	0,93 0,55	1,00 1,00	118,4 120,8	10 000 10 000	84 83	0,84 0,83	0,91 0,89

Continued on next page...

[†] Certification is applicable to any country recognizing the certification body.

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


Job Name:	Model Numbers:
Job Number:	

Models for Brazil (InMetro[†] Certification) *(continued)*

EcoSystem® H-Series ballasts for T8 Linear Lamps

For proper dimming, all lamps must comply to accepted standards, 32 W (NEMA LL9-2009)

Not for use with Reduced Wattage Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem® H-Series	Input Voltage (V~)	Input Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)
 T8 Linear	32 W (1 220 mm)	1	M	EHD T832 ME 1 10-B	127 220	0,28 0,16	1,00 1,00	35,7 35,2	3 000 3 000	84 85	2,80 2,84	0,90 0,91
		2	M	EHD T832 ME 2 10-B	127 220	0,53 0,31	1,00 1,00	67,2 67,8	6 000 6 000	89 89	1,49 1,48	0,95 0,94

[†] Certification is applicable to any country recognizing the certification body.

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


Job Name:	Model Numbers:
Job Number:	

Models for China (CCC[†] Certification)

EcoSystem® H-Series ballasts for T5 Linear Lamps

For proper dimming, all lamps must comply to accepted standards, 14 W (60081-IEC-6520), 21 W (60081-IEC-6530) and 28 W (60081-IEC-6640)


Not for use with Reduced Wattage Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem® H-Series	Input Voltage (V~)	Input Current (A)	Ballast Factor (BF)	Input Power (W)	System Lumens* (lm)	System Efficacy* (lm/W)	Ballast Efficacy Factor (BEF)	Relative System Efficacy (RSE)
	14 W (549 mm)	1	M	EHD T514 ME 1 10-C	220 240	0,09 0,08	1,00 1,00	19,8 19,2	1 350 1 350	68 70	5,05 5,21	0,71 0,73
		2	M	EHD T514 ME 2 10-C	220 240	0,16 0,15	1,00 1,00	35,2 36,0	2 700 2 700	77 75	2,84 2,78	0,80 0,78
	28 W (1 148 mm)	1	M	EHD T528 ME 1 10-C	220 240	0,15 0,13	1,00 1,00	33,0 31,2	2 900 2 900	88 93	3,03 3,21	0,85 0,90
		2	M	EHD T528 ME 2 10-C	220 240	0,29 0,26	1,00 1,00	63,8 62,4	5 800 5 800	91 93	1,57 1,60	0,88 0,90

EcoSystem® H-Series ballasts for T5HO Linear Lamps

For proper dimming, all lamps must comply to accepted standards, 54 W (60081-IEC-6840)

Not for use with Reduced Wattage Lamps

Lamp Type	Lamp Watts (length)	Lamps per Ballast	Case Size	EcoSystem® H-Series	Input Voltage (V~)	Input 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 (1 148 mm)	1	M	EHD T554 ME 1 10-C	220 240	0,29 0,26	1,00 1,00	63,8 62,4	5 000 5 000	78 80	1,57 1,60	0,85 0,87
		2	M	EHD T554 ME 2 10-C	220 240	0,51 0,48	1,00 1,00	112,2 115,2	10 000 10 000	89 87	0,89 0,87	0,96 0,94

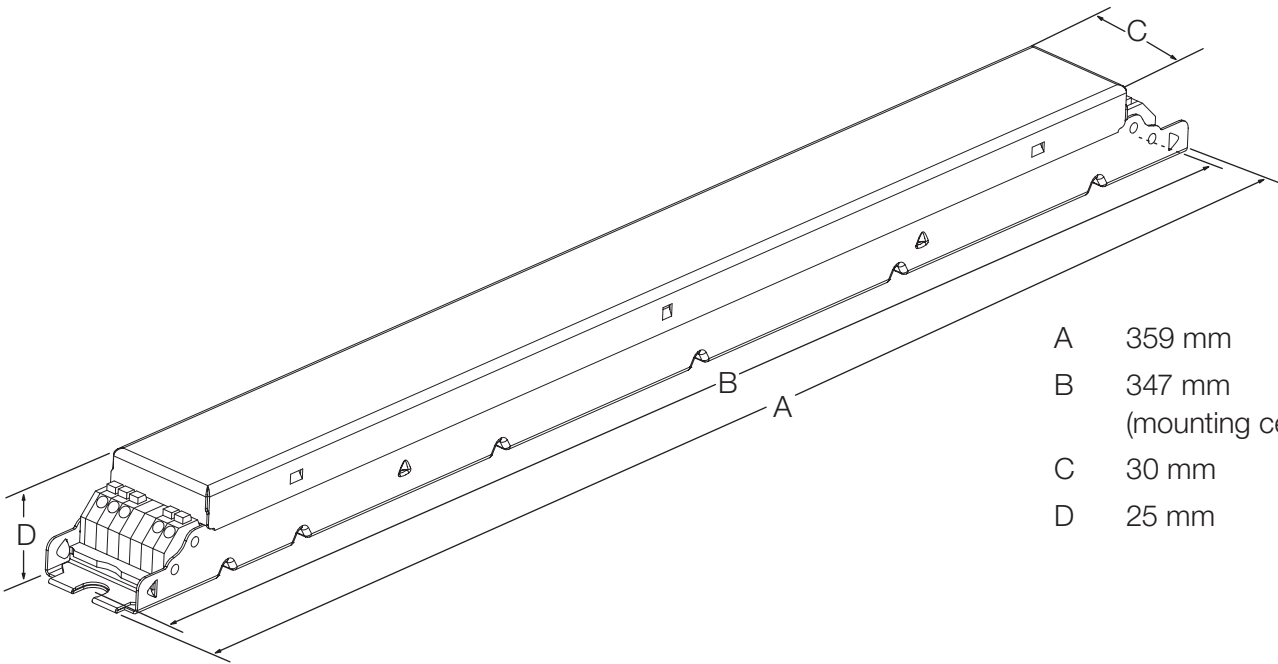
[†] Certification is applicable to any country recognizing the certification body.

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

Job Name:	Model Numbers:
Job Number:	

Case Dimensions

M



- A 359 mm
- B 347 mm
(mounting centers)
- C 30 mm
- D 25 mm

Job Name:	Model Numbers:
Job Number:	

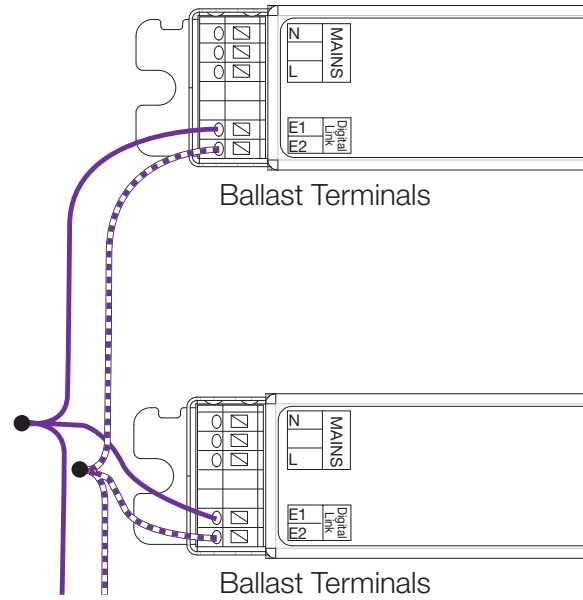
EcoSystem® H-Series Wiring Diagrams

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 occupancy sensors, 16 daylight sensors, and 64 wallstations or IR receivers. Refer to each control specification for specifics on maximum number of controls per link.
- E1 and E2 (EcoSystem® digital link wires) are polarity insensitive and can be wired in any topology.
- An EcoSystem® Energi Savr Node™ module, GRAFIK Eye® QS with EcoSystem® control unit, 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®, or Quantum® systems.

EcoSystem® Digital Link Wiring

- Ballast EcoSystem® Digital Link terminals accept one 0,75 mm² to 1,5 mm² (18 AWG to 16 AWG) 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.



To the EcoSystem® Digital Link Supply and up to 64 total ballasts

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:

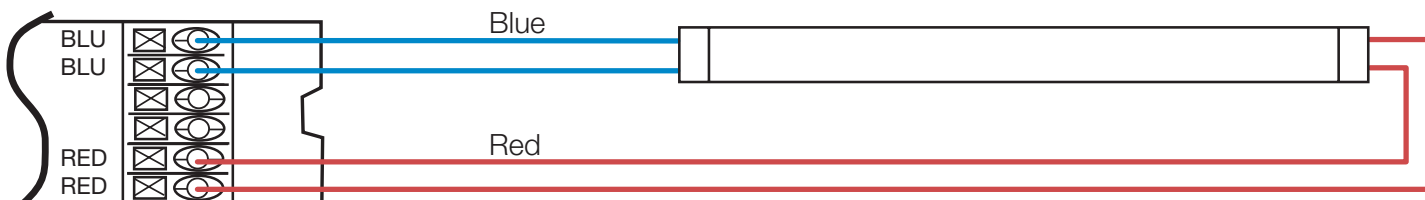
Wire Size	Digital Link Length (max)
4,0 mm ²	825 m
2,5 mm ²	515 m
1,5 mm ²	310 m
1,0 mm ²	205 m
0,75 mm ²	155 m
12 AWG	2 200 ft
14 AWG	1 400 ft
16 AWG	900 ft
18 AWG	550 ft

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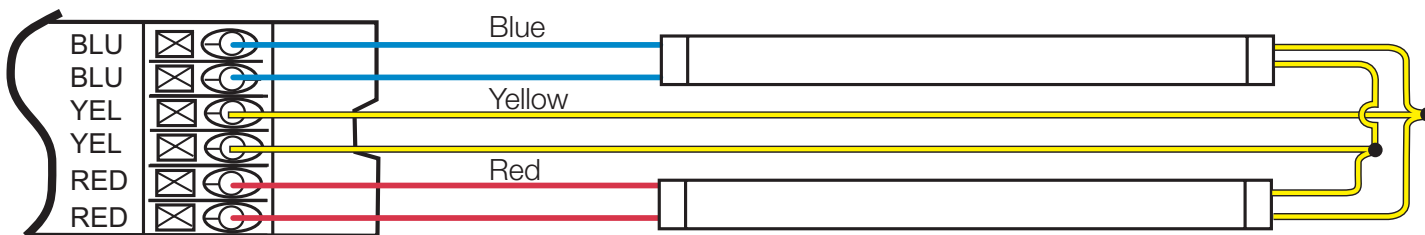
Job Name:	Model Numbers:
Job Number:	

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

Wiring to One Lamp (M case shown)



Wiring to Two Lamps (M case shown)

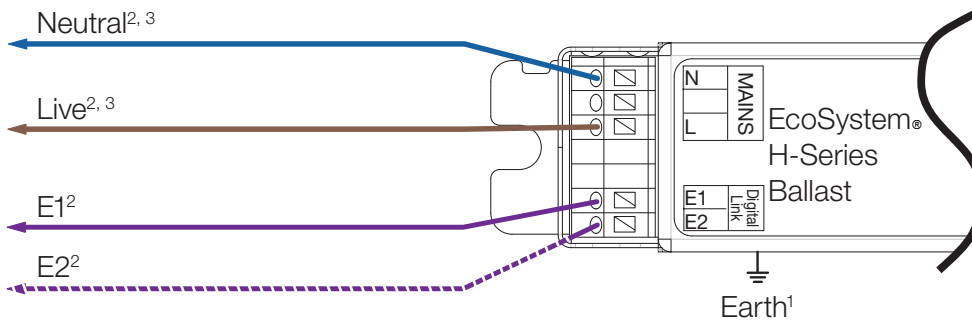


NOTICE

- Maximum ballast to lamp socket lead length is 2 m.
- Wire colors shown correspond to the terminal color on the ballast, but may vary depending upon fixture construction.

Job Name:	Model Numbers:
Job Number:	

EcoSystem® Power Wiring Diagram



- ¹ Ballast is earthed via the case.
- ² Color code shown for the identification of line and neutral conductors are in compliance with IEC/EN/BSEN 60446, and BS7671, color may vary based on local codes and standards.
- ³ 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 2 m for T5, T5HO and T8 linear lamps.

Lamp Sockets

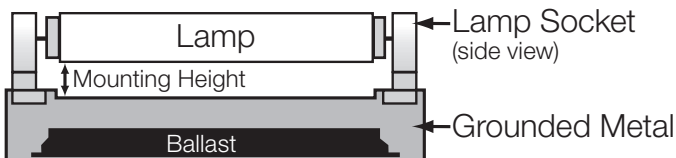
Lutron requires that sockets MUST comply with IEC 60400. Prior to installation sockets must be inspected for marks to ensure compliance with IEC 60400. Two examples of these marks are  and . Use only rapid start sockets. DO NOT use instant start sockets (see Lutron® Application Note #122 [P/N 048122] for more information).

Lamp Mounting

For proper lamp performance, lamps must be mounted at the correct height from the earthed metal surface. Having a fluorescent lamp too close to the earthed metal will make the minimum intensity too low and reduce lamp life. Having a fluorescent lamp too far away from the earthed metal will make the lamp flicker or not turn on at all. Refer to the table below for lamp mounting height requirements.

Lamp Mounting Height Requirements

Lamp Type	Lamp Mounting Height
T8 Linear	3,2 to 19,1 mm
T5 Linear	1,6 to 9,5 mm



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

Ballast Operating Temperature

Ballast t_C must not exceed 70 °C.

Cold Air Flow

Ensure that no cold air (from HVAC system, etc) is blowing across the lamps. Cooling the lamp may cause performance issues.

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

Prior to dimming lamps, refer to the lamp manufacturer's lamp seasoning requirements.

SERVICE

Replacement Ballasts

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

Technical Assistance

For questions concerning the installation or operation of this product, call the Lutron Technical Support Center. Please provide exact model number when calling.

Brazil +55.11.3257.6745

Monday–Friday 8:30 to 17:30 BRT

Central/South America: +1.610.282.6701

China 10.800.712.1536 (Beijing)

10.800.120.1536 (Shanghai)

800.901.849 (Hong Kong)

Europe +44.(0)20.7680.4481

Monday–Friday 9:00 to 19:00 GMT

Singapore: 800.120.4491

Other countries: +1.610.282.3800

24 hours per day, 7 days per week

For further information, please visit:
www.lutron.com/ballasts

Job Name:	Model Numbers:
Job Number:	