



SYSTEM MODEL #:

DATE / /

PROJECT

TYPE

## BULB SYSTEM



### BULB TYPE LAMP AND ELECTRONIC BALLAST

Model Number	Watts	Input Current (Amp) 120V - 277V	Input Power	Rated Initial Luminance (LM)	Efficacy (LM/W)*	Luminance Maintenance (60Khrs)	CRI	Color Temp. (Kelvin)	Average Lamp Life (Hours)
HH-ILS-BP35-5K	35	0.31 - 0.13	37	2450 - 2625	70 - 75				
HH-ILS-BP55-5K	55	0.48 - 0.21	58	4125 - 4380	75 - 80				
HH-ILS-BP85-5K HH-ILS-BDS85-5K	85	0.74 - 0.32	89	6375 - 6800	75 - 80				
HH-ILS-BP100-5K HH-ILS-BDS100-5K	100	0.88 - 0.38	105	7500 - 8000	75 - 80				
HH-ILS-BP120-5K	120	1.05 - 0.45	126	9000 - 9600	75 - 80	70%-75%	> 80	2720K - 6500K 5K Standard Color	100,000
HH-ILS-BP165-5K HH-ILS-BDS165-5K	165	1.44 - 0.62	173	11550 - 12375	70 - 75				
HH-ILS-BP200-5K HH-ILS-BDS200-5K	200	1.75 - 0.76	210	14000 - 15000	70 - 75				
HH-ILS-GDS-250-5K	250	2.19 - 0.95	263	17500 - 18750	70 - 75				

\* LM/W is based on Lamp Power.

### SPECIFICATIONS COMMON TO ALL BALLASTS

### CERTIFICATIONS

Input Voltage	120V-277V (UNV)	Case Temp.	<65°C	
Input Frequency	50/60 Hz	Operating Temp.	(0°C to 50°C)	
Output Frequency	250K Hz	Open Fixture		
THD	< 10%	Operating Temp.	(-20°C to 50°C)	
Power Factor	> 0.95	Closed Fixture		
Constant Wattage Output	± 5%	Max Remote Distance**	4.5 ft. (54")	
EMI/RFI Compliance	FCC Part 18-A	Sound Rating	Class A	
Surge Protection	Yes			

\*\*IMPORTANT: Do not modify wiring type or length without contacting Fulham.

Hi-Pot Testing	Contact Fulham before performing test(s).
Wiring	Plug and Play Connectors. Contact Fulham for wiring support.

### SYSTEM MODEL NUMBER EXAMPLE

**HH-ILS-BP100-5K** - A 100 Watt Induction System with Bulb Lamp, Profile Ballast and 5000 Kelvin Temp.

<b>HH</b>	<b>ILS</b>	<b>B</b>	<b>P</b>	<b>100</b>	<b>5K</b>
HH = HIGHHORSE	ILS = INDUCTION LIGHTING SYSTEM	B = BULB LAMP G = GLOBE LAMP	P = PROFILE BALLAST DS = DISC BALLAST	SYSTEM WATTS	KELVIN TEMP. Specify Kelvin when ordering. 5K is standard stock color.

This is an original product from Fulham, Co., Inc.



SYSTEM MODEL #:

DATE / /

PROJECT

TYPE

## LAMP SPECIFICATIONS

### Lamp Type

Bulb	Internal Inductor Type
Hybrid Fluorescent	All
Primary Ignition	Low Frequency Inductor Coil

### Thermal Management

Induction Lamp Core Mounting Base Temp.	100°C - 120°C
Amalgam Lamp Tip Temperature Range <sup>1</sup>	55°C - 125°C
Bulb	Convection or Conduction

### Lamp Operation (Highly Stable)

Kelvin Temperature (Standard Stock)	5000K
Other Kelvin Temperatures Limited Stock <sup>2</sup>	3500K, 4000K
Custom <sup>3</sup>	2700K, 3000K, 6000K, 6500K
Kelvin Color Temperature Tolerance	±300K
Color Temperature Fluctuation	Low
LPW Fluctuation	Low
Ambient Temperature Fluctuation	Low
Temperature (Closed Fixture)	-20°C
Temperature (Open Fixture)	0°C
Temperature (Closed Fixture)	-40°C (Contact Fulham)
EMI	Meets International Standard L Level FCC Non-Consumer Units Compliant FCC 47-CFR Part 18

<sup>1</sup>LPW is related to the temperature of Amalgam and Kelvin Temperature to maintain >90% output.

<sup>2</sup>Limited stock on hand. Lead time varies.

<sup>3</sup>Must be ordered. Ten week lead time and orders are non-cancellable. Only large orders are accepted.

### Vibration Tests

The HighHorse Induction lamp is designed to tolerate shock and vibration that would be expected in typical applications such as post top, bridge, roadway underpass or tunnel lighting. HighHorse Induction lamps have been tested under the following conditions with no damage:

Shock - Lamps subjected to three (3) one-half wave shocks of 10 ms duration at 20 g.

The vibration parameters were adapted from ANSI C136.31-2001, American National Standard for Roadway Lighting Equipment - Luminaire Vibration, Section 5, luminaire vibration test.

Start Freq.	Amplitude	End Freq.	Amplitude
5 Hz	1.5 G	7.07107 Hz	3.5 G
10 Hz	3.5 G	30 Hz	3.5 G

Sweep between 5 Hz and 30 Hz at 0.861654 Min/sweep (Linear)

Duration: 100,000 cycles at 100%

Total test time: 1:36:30

Care should be taken when mounting the ballast to minimize vibration

UV (bare lamp-less with lens)	5uw/cm2
-------------------------------	---------



SYSTEM MODEL #:

DATE / /

PROJECT

TYPE

## BULB SPECIFICATIONS

## Amalgam Hg. Content (Low)

Amalgam Type High Quality Solid Pellet

35W - 250W Bulb Type Lamps 4 Mg. - 8 Mg.

35W - 250W Lamps &lt;3.5%

## Lamp Orientation

Bulb Universal

## Lamp Compatibility

Bulb HighHorse Profile/Disc Ballast

## Lamp Advanced Features

- Ultra-High Life 100,000 Hrs Lamp Technology
- Wide Range of Wattage Options 35W – 250W
- Full Kelvin Color Range 2700 – 6500K (see availability on page 2)
- Instant Start
- Flicker Free Operation
- Frequency Tuned Wattage to Ballast
- High Efficacy
- High CRI (Color Rendering Index)
- Low Lamp Lumen Depreciation
- High Quality Solid Mercury for Stable Operation
- Low Mercury Content
- Pre-Wired Lamp Input Connector
- Universal Heat Sink Mounting
- Universal Orientation
- Profile and Disc Ballast Compatible
- Operates with Motion Sensor Line Control

Fulham's induction lamps and ballasts are exempt from the Buy American Provisions (Section 1605) of the American Reinvestment and Recovery Act-2009. Fulham's Induction Lamps and Ballasts therefore qualify for EERE Recovery Act Funds. For more information about Fulham's Induction Lighting System and Retrofit Program please visit [www.fulham.com](http://www.fulham.com).



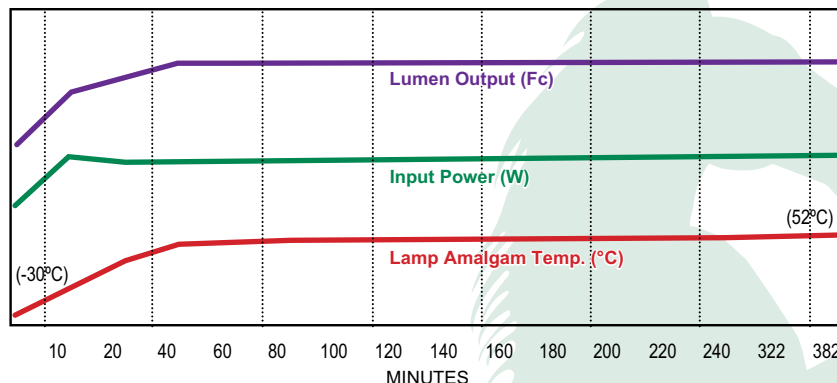
SYSTEM MODEL #:

DATE / /

PROJECT

TYPE

## PERFORMANCE CHARTS

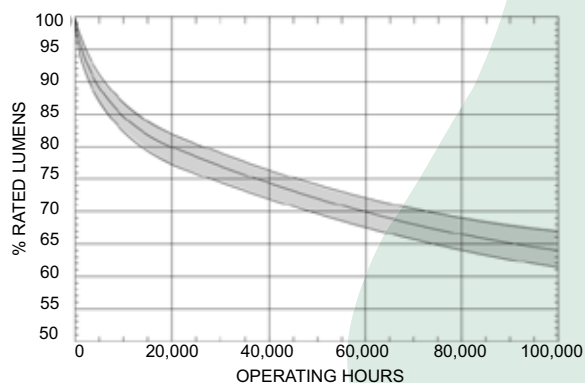


### Cold Start Lumen Maintenance Chart

HighHorse induction systems operate within a wide range of ambient; the chart is an example of a 100W induction system operated at extreme cold temperature. It is recommended if the system requires a cold start at -30°C that a thermal blanket be installed at the factory on the amalgam tip; this will ensure a consistent start and rapid stabilization of the lamp and lumen output.

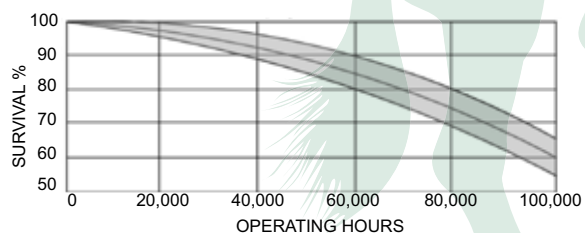
Closed fixture example, actual performance varies with fixture types.

NOTE: Purpose of Lumen Maintenance Chart is strictly to show relation of the three variables over time.



### Rated Lumen Maintenance Chart

Rated Lumen Maintenance is largely determined by operating temperature of the lamp and quality of lamp design; Fulham HighHorse induction systems are designed and manufactured with high quality tri-phosphors and solid amalgam to optimize the performance and rated life of the lamp. The above chart is intended to represent an average rated lumen output stated as a percentage of the initial lumen output over the rated life of the lamp. Operating the lamp within the temperatures specification will typically result in not less than 70% lumen output at 60Khrs.

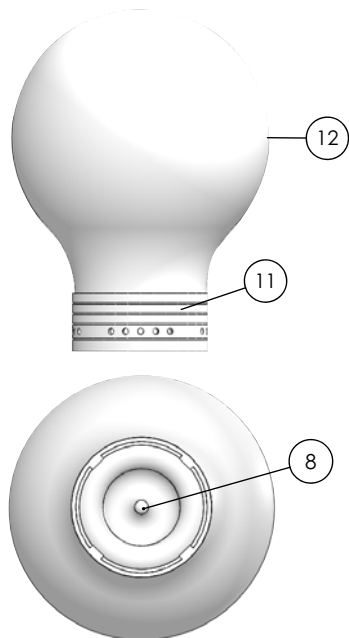


### System Rated Life Chart

System Rated Life varies with operating temperature and application. Fulham HighHorse induction generators are designed with high quality long lasting components and when operated at the rated Tc 65°C expected life is 60Khrs with failure rate of 15% to 20%. Operating temperatures less than the rated Tc 65°C can typically improve life expectancy and reduce failure rate.

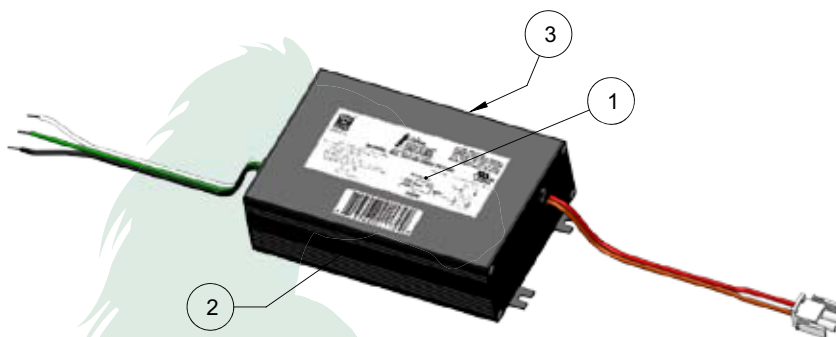
## TEMPERATURE TEST POINTS

**PLEASE NOTE:** Induction lamps are fragile and require care when handling; do NOT allow the glass to come in contact with metal objects. The amalgam glass can easily be broken.

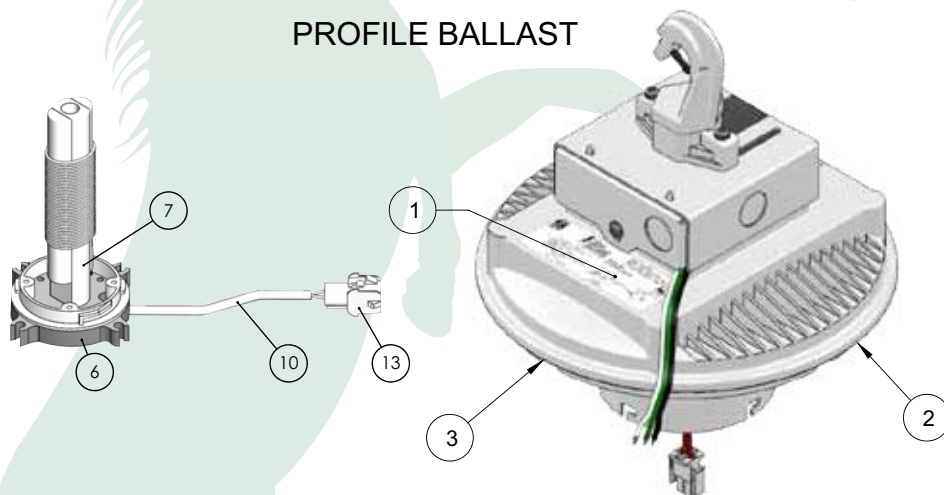


**BULB LAMP**

For the 165 W-250W Bulb the amalgam is located to the side of the lamp, instead of the center of the lamp (test point #8a).



**PROFILE BALLAST**



**DISC BALLAST**

Note: Test points 2 and 3 are on the side of the ballast; location is not precise.

### TEMPERATURE POINTS

TEST POINT	LOCATION	RATED TEMPERATURE	MAX TEMPERATURE
1	BALLAST: TC	< 65°C (149°F)	65°C (149°F)
2	BALLAST: SIDE 1	< 65°C (149°F)	65°C (149°F)
3	BALLAST: SIDE 2	< 65°C (149°F)	65°C (149°F)
4	BALLAST PLATE/MOUNTING LOCATION	N/A	N/A
5	BALLAST AMBIENT	N/A	N/A
6	LAMP BASE (HEAT SINK)	< 120°C (248°F)	120°C (248°F)
7	LAMP POWER COUPLER	< 120°C (248°F)	130°C (266°F)
8	GLASS VESSEL AMALGAM TIP	55°C (131°F) - 125°C (257°F)	125°C (257°F)
9	LAMP AMBIENT	< 80°C (176°F)	100°C (212°F)
10	POWER COUPLER WIRE RATING	< 140°C (284°F)	150°C (302°F)
11	GLASS VESSEL PLASTIC SLEEVE	<150°C (302°F)	180°C (356°F)
12	GLASS VESSEL @ MAX DIAMETER	<140°C (284°F)	150°C (302°F)
13	WIRE CONNECTOR	<105°C (221°F)	105°C (221°F)

Temperature measurements are recommended to be at the rated temperature instead of the maximum temperature for best performance. Maximum lamp temperatures can not be exceeded at the maximum ambient temperature of the fixture.



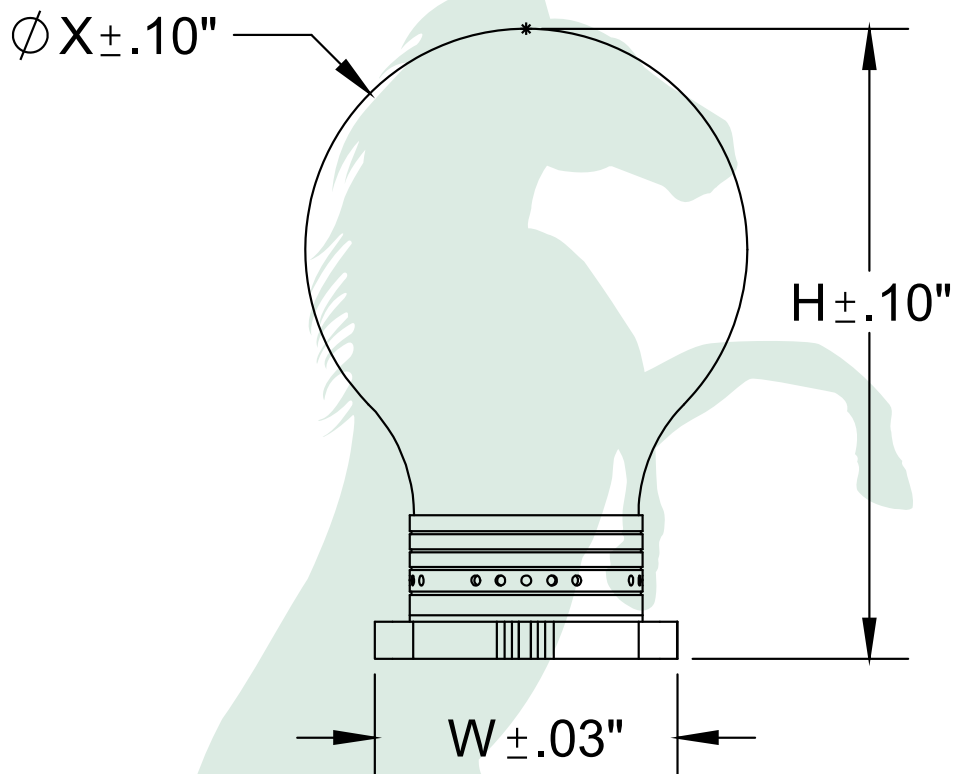
SYSTEM MODEL #:

DATE / /

PROJECT

TYPE

## DIMENSIONS - BULB



Bulb Lamp

### BULB LAMP

Model No.	H (in)	W (in)	ØX (in)	Input Wire L (in)*
HH-IL-B35W5K	5.51	2.27	3.89	8-12
HH-IL-B55W5K	6.09	2.92	4.27	8-12
HH-IL-B85W5K	6.09	2.92	4.27	8-12
HH-IL-B100W5K	7.18	2.92	5.12	11-15
HH-IL-B120W5K	7.18	2.92	5.12	11-15
HH-IL-B165W5K	8.82	3.46	5.48	16-21
HH-IL-B200W5K	8.82	3.46	5.48	16-21
HH-IL-G250W5K**	9.37	2.51	6.65	16-21

Contact Fulham for detailed drawings.

\* Subject to change. Contact Fulham for specific wire lengths.

\*\* 250W Globe only available with disc generator

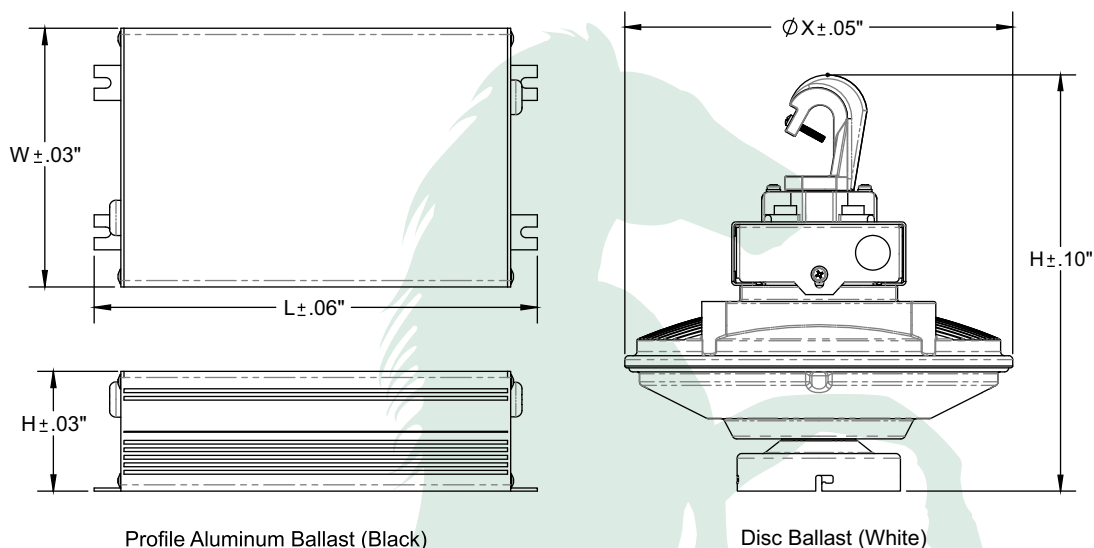
SYSTEM MODEL #:

DATE / /

PROJECT

TYPE

## DIMENSIONS - BALLASTS



### PROFILE BALLAST

Model No.	SIZE	L (in)	W (in)	H (in)	Input Wire L (in)*	Output Wire L (in)*
HH-IB-UNV-BGP35	SMALL	6.00	3.68	1.59	6-12	6-12
HH-IB-UNV-BGP55	SMALL	6.00	3.68	1.59	6-12	6-12
HH-IB-UNV-BGP85	MEDIUM	7.06	4.12	1.91	6-12	6-12
HH-IB-UNV-BGP100	MEDIUM	7.06	4.12	1.91	6-12	6-12
HH-IB-UNV-BGP120	MEDIUM	7.06	4.12	1.91	6-12	6-12
HH-IB-UNV-BGP165	STANDARD	8.46	4.75	2.07	6-12	6-12
HH-IB-UNV-BGP200	STANDARD	8.46	4.75	2.07	6-12	6-12

### DISC BALLAST

Model No.	SIZE	H (in)	ØX (in)	Input wire L (in)*	Output wire L (in)*
HH-IB-UNV-BGDS85	SMALL	9.52	8.04	3-6	3-4
HH-IB-UNV-BGDS100	SMALL	9.52	8.04	3-6	3-4
HH-IB-UNV-BGDS165	MEDIUM	10.30	9.60	3-6	3-4
HH-IB-UNV-BGDS200	STANDARD	10.94	11.04	3-6	3-4
HH-IB-UNV-BGDS250	STANDARD	10.94	11.04	3-6	3-4

Contact Fulham for detailed drawings.

\* Subject to change. Contact Fulham for specific wire lengths.