Eco Induction Systems, LLC

Our goal is a 50% reduction of lighting energy consumption.

Ken Houston
President
214-202-3667
kenhouston@ecoinductionsystems.com

Marc Migliazzo
Vice President, Lighting Specialist
214-325-6567
mamigliazzo@ecoinductionsystems.com

LEED GREEN ASSOCIATE

www.ecoinductionsystems.com

Induction Systems

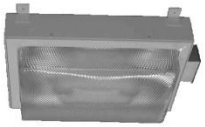
- goal is a **50% reduction** of lighting energy consumption
- High Quality – Glare Free light above 83
- Ideal replacement Lamp for HPS, Metal Halide, or LPS
- Induction light offers a 10 year written warranty
- Reduced replacement maintenance cost
- Instant “On” flicker-free Cold Start and Hot Re-Start
- Made with Amalgam Technology
- Reduced Heat Island effect.
- Product Life Cycle is **100,000 Hours** (10 years or more use).
- UL and ETL certified
- Power Factor 0.98%

Our Clients

Dallas Area Rapid Transit

State of Texas

City of Fort Worth



Cold Temperature Rated
Down to -40*F/C

Schwan Food Company's refrigerated warehouses are located Marshall, Minnesota (their HQ); Pasadena, Texas; and Stillwell, Oklahoma. Schwan has used Magnetic Induction Lighting for the past three years.

References:

Mr. Darrell Johnson, 918-696-8268
Stillwell Ok. - Warehouse Manager
Mr. Dat Gwinn, 713-740-7200
Pasadena TX. - Warehouse Manger

Modeled Two Refrigerated Warehouse With Induction Lighting

Based on a model of two refrigerated warehouse bays (each 100’ x 200’ x 40’) in Austin, TX with 24/7 operation, with an assumed cooling efficiency of 9.2 EER and no outside air, and assuming the warehouse was cooled to 40 °F, with a baseline model of 60 400 W metal halides and the proposed model of 60 200 W induction lamps, our predicted savings are as follows:

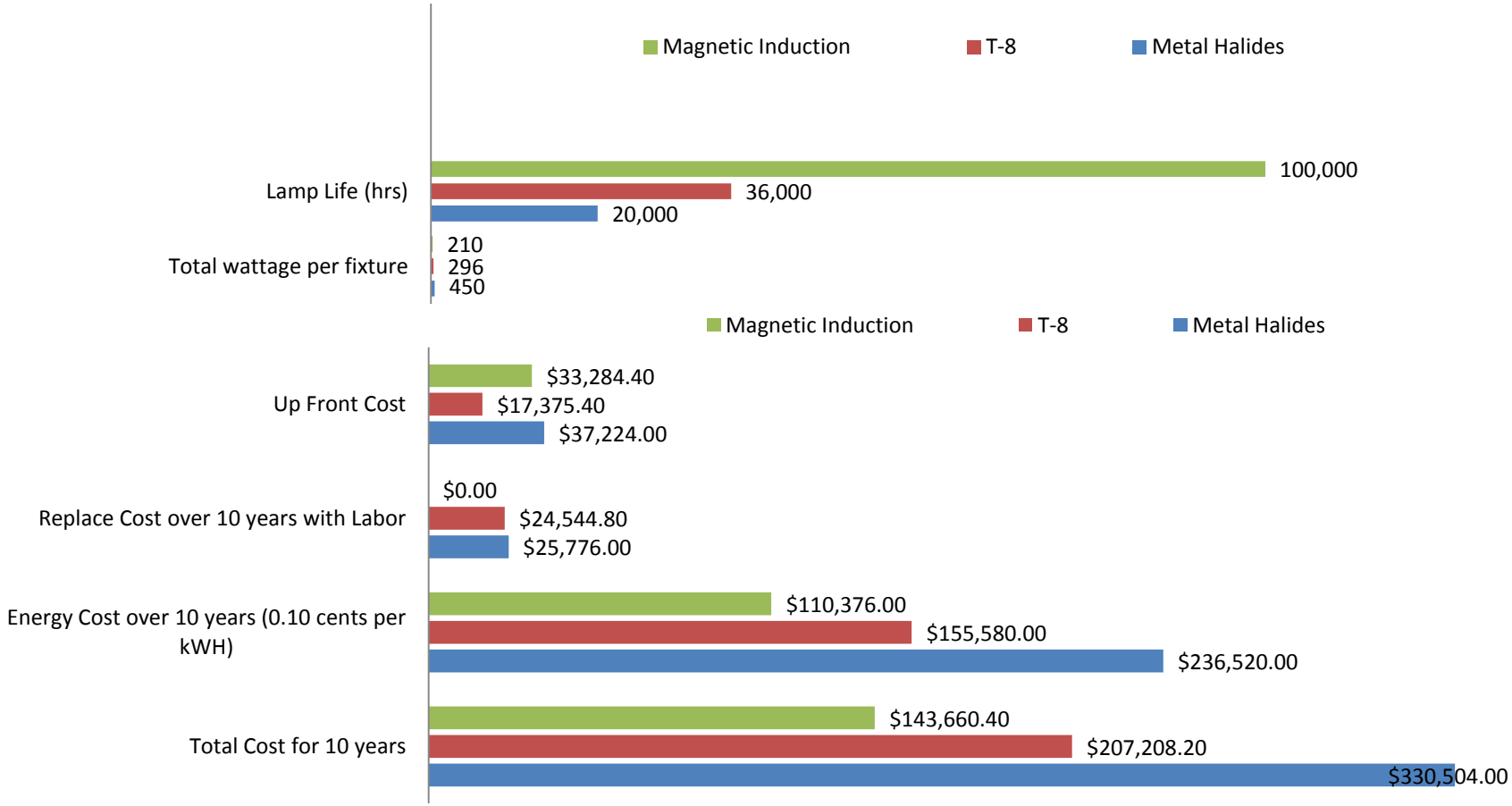
	Lights		Cooling		Fans		Total	
	Ann. Elec. (kWH)	Peak Elec. (kW)	Ann. Elec. (kWH)	Peak Elec. (kW)	Ann. Elec. (kWH)	Peak Elec. (kW)	Ann. Elec. (kWH)	Peak Elec. (kW)
Base line	143280	21.6	223495	68.9	325227	37.1	692002	127.6
Proposed	71640	10.8	197465	63.6	307866	35.1	576971	109.6
Savings	50%	50%	12%	8%	5%	5%	17%	14%

The model shows 50-60% savings in annual electric usage due to lights, 12% savings in annual electric usage due to cooling equipment, and 5% savings in annual electric usage due to fan energy. The total annual electric savings is 17% with a 14% decrease in peak electricity demand.

Source of the study University of Wisconsin Energy Institute

Modeling Lighting source Warehouse with Induction Lighting

The charts below are based on a model of three light sources high bay warehouse usage (each 100' x 200' x 40') with 24/7 operation, and a quantity of 60 fixtures.



Magnetic Induction out performs the other lights because it has the smallest wattage, lowest maintenance costs, lowest energy usage, greatest overall cost saving over a 10 year period with a 10-year written warranty.

Note: Assumptions are on page two.

Assumptions:

The chart used the following fixtures:

Metal Halides (GE-DG540EOV)

Price of fixture is $550.50 and price of lamp is $65.90 for a total of $616.40

Due to the short life of the Metal Halide you need to replace them 4 times over a 10 year period. The replacement kit with ballast & lamp cost is $217.75 ea.(GEM-400NK5AC$-55)

Metal Optics T8x204mvolt23 fixture / GEF32T8/spx41/eco (T-8 lamp)

Price of fixture is $257.25 and price of lamp is $5.39 ea.(6x$5.39=$32.34) for a total of $289.59

The T-8 has a longer life span and will need to be replaced 2 times over a 10 year period. The replacement cost of lamp is $5.39 each (6x$5.39=$32.34 per fixture) and the two ballasts are $53.90 each(GE-332-MAX90-V60)

T/VNep#3400(Magnetic Induction)

Price of fixture and lamp is $554.74

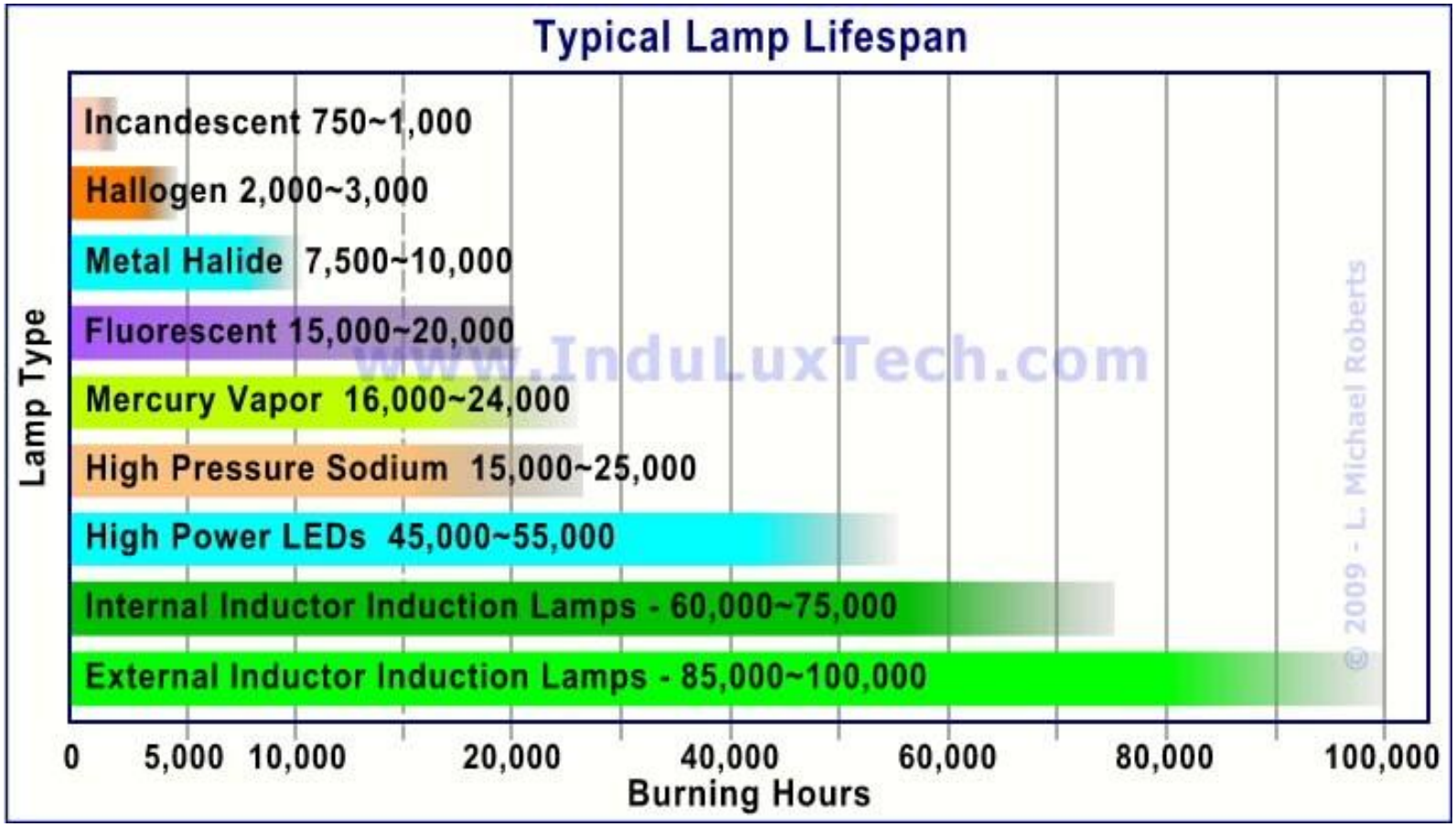
The is no replacement cost for the first 10 years

Labor on all maintenance is at $75.00 per hour for a licensed electrician

All Pricing was as of September 21, 2011

Magnetic Induction Lamps Vs. LED Lamps

While Magnetic Induction Lighting technology has matured in the past few years, it is often overlooked or underutilized in lighting applications since none of the major manufacturers promote induction lamps in any significant way. LED lighting seems to get the most "buzz" in the market as LEDs are promoted as the best alternative to conventional lighting due to their longevity. Induction lamps have a lifespan of 80,000 to 100,000 hours (depending on type and model), which is much longer than the typical high-power white LED lamp life span which is in the 50,000 to 55,000 range. Magnetic Induction Lighting is the longest lasting light on the market today.



Reduce energy consumption by 50% or more with Magnetic Induction Lighting

- Today operating costs of all businesses and government agencies are under scrutiny. One major expense, energy consumption, can be reduced with the installation of Magnetic Induction Lamps

- The owners of this basement parking garage replaced 23 light fixtures with high energy-saving Induction Retrofit Kits. The original fixtures(200 Metal Halide/30 watt ballast) were replaced with 80 watt Induction Lights with a 5 watt ballast. This resulted in an energy savings of 63% per fixture including a 5 year warranty for both lamp and ballast.

Basement parking garage
100 Throckmorton, Ft. Worth, Texas

BP Gas Station in Naples, Florida

While induction lighting can have higher initial costs, most companies see a return in less than two years. Our BP client in Naples, Florida replaced all lighting at an eight pump gas station with Magnetic Induction Lighting and saw a **$6,000 savings the first year** in energy, repair and maintenance costs.

Magnetic Induction vs. High Pressure Sodium

Light on the right is 200 watt induction light; light on the left is 400 watt high pressure sodium light. This test was at the Dallas Area Rapid Transit center in January 2011. DART has submitted a budget request for 2012 to re-lamp the exterior of this facility using induction lighting.

Before and After on the West Side

DART building with 400 Watt HPS lighting.

DART building with 200 Watt Induction lighting.

This installation was done by Ken Houston/Marc Migliazzo in March of 2011

Before and After on the East Side

DART building with 400 Watt HPS lighting.

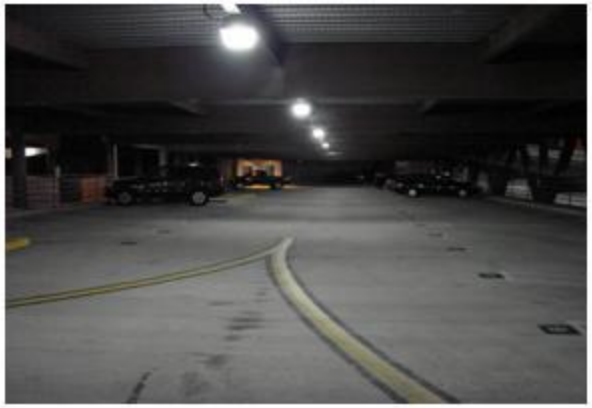
DART building with 200 Watt Induction lighting.

This installation was done by Ken Houston/Marc Migliazzo in March of 2011

Before: 175W HPS and 150W Metal Halide

After: 80W Induction

Before: 175W High Pressure Sodium



After: 85W Induction

Before: 250W High Pressure Sodium

After: 100W Induction

Environmental Facts of Magnetic Induction Lamps

- Environmentally friendly induction lamps use less energy and generally use less mercury per hour of operation than conventional lighting due to their long lifespan. The mercury is in a solid form and can be easily recovered if the lamp is broken, or for recycling at end-of-life.

- These benefits offer a considerable cost savings of between 35% and 55% in energy and maintenance costs for induction lamps compared to other types of lamps that they replace. In some applications, advanced energy savings technologies incorporated into the fixtures can provide energy savings as high as 75%.

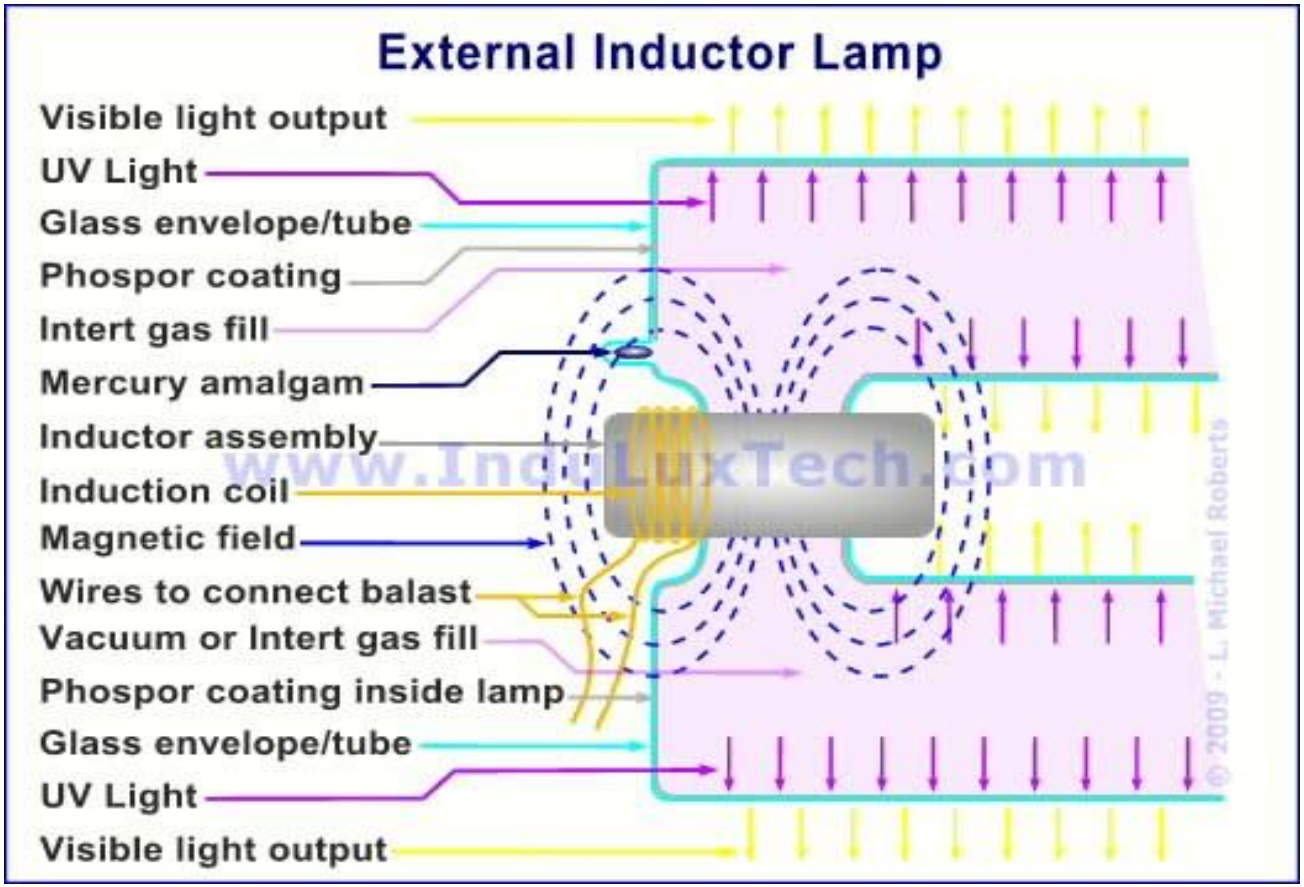
- Stay ahead of ever toughening environmental regulations by reducing carbon footprint.

High-level Benefits of Magnetic Induction Lighting

- **Improve working conditions -** Vastly upgrade the quality of light and lux levels in key working areas for improved staff productivity, health & safety standards.
- **Reduce maintenance –**Decrease the requirement and expense for lighting system maintenance (hiring of lifting equipment for lamp changes, etc.)
- **Lower energy bills -** Reduce energy consumption of the existing lighting by up to 60%.
- **Quick payback** - Get a complete return on investment in 1-3 years.

Long Term Benefits of Magnetic Induction Lamps

- Long life span due to the lack of electrodes between 65,000 and 100,000 hours depending on the lamp model;
- Very high energy conversion efficiency of between 62 and 90 Lumens/watt (higher wattage lamps are more energy efficient);
- High power factor due to the low loss in high frequency electronic ballasts which are between 95% and 98% efficient;
- Minimal Lumen depreciation (declining light output with age) compared to other lamp types as filament evaporation and depletion is absent;



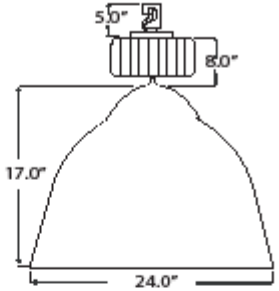
In a variation of this technology, a light bulb shaped glass lamp, which has a test-tube like re-entrant central cavity, is coated with phosphors on the interior and filled with inert gas and a pellet of mercury amalgam. The induction coil is wound around a ferrite shaft which is inserted into the central test-tube like cavity. The inductor is excited by high frequency energy provided by an external electronic ballast causing a magnetic field to penetrate the glass and excite the mercury atoms. The atoms emit UV light, which is converted to visible light by the phosphor coating.

INDUCTION - 24" HIGH-BAY HYBRID Light Fixtures

100,000 Hrs Life

The Next Generation of Lighting

Circular Induction Lamp Inside



Specification:

- Ballast Type	Electronic
- Start Method	InstantON
- Hot Re-start	InstantON
- Universal Input Line Voltage	120-277 VAC
- Input Line Frequency	50/60 Hz
- Lamp Life	100,000 Hrs.
- Lumen Maintenance @75,000Hrs	>70%
- Color Temperature	5000°K or 4100°K
- Color Rendering Index (CRI)	83
- Minimum Starting Temperature	-20° F
- Maximum Operating Temperature	160° F
- Lamp Operating Frequency	250 kHz
- Power Factor	> 0.98
- Total Harmonic Distortion	< 10%
- Inrush Current Peak	< 10 Amp
- ETL Listed / UL Standard 1598	Yes
- FCC Compliance	Part 18, Subp.C

Tempterature

Applications, Features, and Benefits

- 24 inch heat and impact resistant UV protected diffuser and lens, patented Miro (TM) reflector insert, and black aluminum housing.
- White cast aluminum gear box with 3" mounting hook
- Ballast made with long life components
- InstantON(TM) flicker-free Cold Start and Hot Re-Start
- Correlated Color Temperature of 5000°K for greater visibility
- High Power Factor, Low THD - Replaceable Ballast
- Concealed continuous gasket seals against harmful dust, dirt, moisture and insects
- Advanced phosphors for high Lumen Maintenance and high lumen output
- Up to 20 years Maintenance free operation
- Light Sensor Detector (LD) - optional
- Motion Sensor Detector (MD) - optional

Product Information

Item No.	Description	Watts	Initial Lumens	Line Voltage Supply	Line Current	Total Harmonic Distortion (THD)	Power Factor	Packaging Dimensions		
								Width	Length	Height
19150-HYB	24" High-Bay - Hybrid	150	12,000	120-277 VAC	1.31-0.56 Amp	<10%	0.98	24 in. 610 mm	24 in. 610 mm	30 in. 762 mm
19200-HYB	24" High-Bay - Hybrid	200	16,000	120-277 VAC	1.75-0.75 Amp	<10%	0.98	24 in. 610 mm	24 in. 610 mm	30 in. 762 mm
19250-HYB	24" High-Bay - Hybrid	250	20,000	120-277 VAC	2.18-0.94 Amp	<10%	0.98	24 in. 610 mm	24 in. 610 mm	30 in. 762 mm
19300-HYB	24" High Bay - Hybrid	300	24,000	120-277 VAC	2.62-1.13 Amp	<10%	0.98	24 in. 610 mm	24 in. 610 mm	30 in. 762 mm
19400-HYB	24"High-Bay - Hybrid	400	32,000	120-277 VAC	3.50-1.51 Amp	<10%	0.98	24 in. 610 mm	24 in. 610 mm	30 in. 762 mm

Ordering Information

(SAMPLE NUMBER : 19150-HYB-UNV-MD-C3-PL)

Series
19 = High-Bay

Wattage
150 = 150W
200 = 200W
250 = 250W
300 = 300W
400 = 400W

Reflector Type
HYB = Hybrid

Voltage
UNV = Universal
480 = 480V

Accessories
LD = Light Sensor Detector / Photocell
MD = Motion Sensor Detector

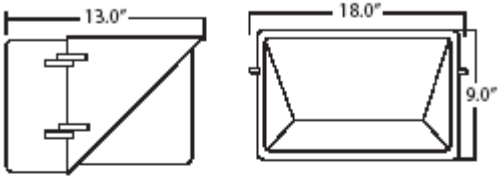
Options
*C3 = 3' Cord-No Plug (Other Lengths available by specifying cord length C6 = 6' cord)
PC3 = 3' Cord with NEMA Plug (verify plug type when ordering)
**PL = Polycarbonate Lens
* Product comes standard with 3' Cord-No Plug
** Product comes standard with Polycarbonate Lens

NEPTUN Light Inc

INDUCTION - WALL PACK - Flood Type Fixtures

100,000 Hrs Life — The Next Generation of Lighting

Rectangular Induction Lamp Inside



Specification:

- Ballast Type	Electronic
- Start Method	InstantON
- Hot Re-start	InstantON
- Universal Input Line Voltage	120-277 VAC
- Input Line Frequency	50/60 Hz
- Lamp/Ballast System Life	100,000 Hrs.
- Lumen Maintenance @75,000Hrs	>70%
- Color Temperature	5000°K
- Color Rendering Index (CRI)	83
- Minimum Starting Temperature	-20°F
- Maximum Operating Temperature	160°F
- Lamp Operating Frequency	250 kHz
- Power Factor	> 0.98
- Total Harmonic Distortion	< 10%
- Inrush Current Peak	< 10 Amp
- ETL Listed / UL Standard 1598	Yes
- FCC Compliance	Part 18, Subp. C

Applications, Features, and Benefits

- Flood type wall pack
- Heat and impact resistant tempered glass lens
- Aluminum cast housing with electrocoat bronze paint
- Ballast made of long life components
- InstantON(TM) flicker-free Cold Start and Hot Re-Start
- Correlated Color Temperature of 5000°K for greater visibility
- High Power Factor, Low THD Replaceable Ballast
- Concealed continuous gasket seals against harmful dust, dirt, moisture and insects
- Advanced phosphors for high Lumen Maintenance and high lumen output
- Aluminum Anodized reflector for superior long term performance
- Up to 20 years Maintenance free operation
- Ideal replacements for HPS and HID floodlights up to 250 Watts

Product Information

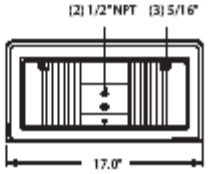
Item No.	Description	Watts	Initial Lumens	Line Voltage Supply	Line Current	Total Harmonic Distortion (THD)	Power Factor	Packaging Dimensions		
								Width	Length	Height
21080FLD	Wall Pack - Flood Type	80	6,400	120-277 VAC	0.69-0.30 Amp	<10%	0.98	9.5 in. 241 mm	19 in. 482 mm	13.5 in. 342 mm
21100FLD	Wall Pack - Flood Type	100	8,000	120-277 VAC	0.87-0.37 Amp	<10%	0.98	9.5 in. 241 mm	19 in. 482 mm	13.5 in. 342 mm
21120FLD	Wall Pack - Flood Type	120	9,600	120-277 VAC	1.05-0.45 Amp	<10%	0.98	9.5 in. 241 mm	19 in. 482 mm	13.5 in. 342 mm
21150FLD	Wall Pack - Flood Type	150	12,000	120-277 VAC	1.31-0.56 Amp	<10%	0.98	9.5 in. 241 mm	19 in. 482 mm	13.5 in. 342 mm

Ordering Information

(SAMPLE NUMBER : 21080FLD-UNV-LD)

- **Series**: 21 = Wall Pack
- **Wattage**: 080 = 80W; 100 = 100W; 120 = 120W; 150 = 150W
- **Type**: FLD = Flood Type
- **Voltage**: UNV = Universal 120-277V; 480 = 480V
- **Options & Accessories**: LD = Light Sensor Detector / Photocell; MD = Motion Detector

Mounting Information



INDUCTION - FLOOD LIGHT Fixtures

100,000 Hrs Life

The Next Generation of Lighting

Circular Induction Lamp Inside

Specification:

- Ballast Type	Electronic
- Start Method	InstantON
- Hot Re-start	InstantON
- Universal Input Line Voltage	120-277 VAC
- Input Line Frequency	50/60 Hz
- Lamp Life	100,000 Hrs.
- Lumen Maintenance @75,000Hrs	>70%
- Color Temperature	5000°K
- Color Rendering Index (CRI)	83
- Minimum Starting Temperature	-20°F
- Maximum Operating Temperature	160°F
- Lamp Operating Frequency	250 kHz
- Power Factor	> 0.98
- Total Harmonic Distortion	< 10%
- Inrush Current Peak	< 10 Amp
- FCC Compliance	Part 18, Subp.C

Applications, Features, and Benefits

- Heat and impact resistant tempered fluted glass lens
- Aluminum cast housing with electrocoat greypaint
- Ballast made of long life components
- InstantON(TM) flicker-free Cold Start and Hot Re-Start
- Correlated Color Temperature of 5000°K for greater visibility
- High Power Factor, Low THD Replaceable Ballast
- Concealed continuous gasket seals against dust, dirt, moisture and insects
- Features yoke bracket for easy mounting
- Advanced phosphors for high Lumen Maintenance and high lumen output
- Aluminum Anodized reflector for superior long term performance
- Up to 20 years Maintenance free operation
- Ideal replacements for HPS and HID floodlights up to 200 Watts

Product Information

Item No.	Description	Watts	Initial Lumens	Line Voltage Supply	Line Current	Total Harmonic Distortion (THD)	Power Factor	Packaging Dimensions		
								Width	Length	Depth
50080	FLOOD LIGHT	80	6,400	120-277 VAC	0.69-0.30 Amp	<10%	0.98	12 in. 355 mm	16 in. 406 mm	10 in. 255 mm
50100	FLOOD LIGHT	100	8,000	120-277 VAC	0.87-0.37 Amp	<10%	0.98	12 in. 355 mm	16 in. 406 mm	10 in. 255 mm

Ordering Information

(SAMPLE NUMBER : 50080-UNV)

Series
50 = Flood

Wattage
080 = 80W
100 = 100W

Voltage
UNV = Universal

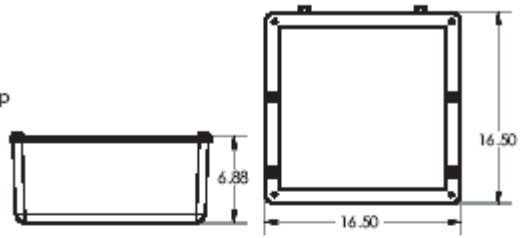
INDUCTION - 16" FLOOD Light Fixtures

100,000 Hrs Life

The Next Generation of Lighting

Circular Induction Lamp
Inside

YOKE
BRACKET



Specification:

- Ballast Type	Electronic
- Start Method	InstantON
- Hot Re-start	InstantON
- Universal Input Line Voltage	120-277 VAC
- Input Line Frequency	50/60 Hz
- Lamp/Ballast System Life	100,000 Hrs.
- Lumen Maintenance @75,000Hrs	>70%
- Color Temperature	5000°K
- Color Rendering Index (CRI)	83
- Minimum Starting Temperature	-20°F
- Maximum Operating Temperature	160°F
- Lamp Operating Frequency	250 kHz
- Power Factor	> 0.98
- Total Harmonic Distortion	< 10%
- Inrush Current Peak	<10 Amp
- ETL Listed / UL Standard 1598	Yes
- FCC Compliance	Part 18, Subp.C

Applications, Features, and Benefits

- Clear tempered glass lens
- Housing made of heavy gauge die cast aluminum with electrocoat bronze paint
- Ballast made of long life components
- Vertically fluted reflector made of special aluminum
- InstantON(TM) flicker-free Cold Start and Hot Re-Start
- Correlated Color Temperature of 5000°K for greater visibility
- High Power Factor, Low THD Replaceable Ballast
- Advanced phosphors for high Lumen Maintenance and high lumen output
- Up to 20 years Maintenance free operation
- IP 65 Rated
- EPA Rating = 0.78
- Very High Output , High Light Quality and Very Long Life
- Mounting Standard: Slip Fitter (SF) or Yoke Bracket (YK)
- Light Sensor Detector (LD) - optional
- Motion Sensor Detector (MD) - optional

Product Information

Item No.	Description	Watts	Initial Lumens	Line Voltage Supply	Line Current	Total Harmonic Distortion (THD)	Power Factor	Packaging Dimensions		
								Width	Length	Height
38080	16" FLOOD Fixture	80	6,400	120-277 VAC	0.69-0.30 Amp	<10%	0.98	22 in. 558 mm	19 in. 482 mm	10 in. 254 mm
38100	16" FLOOD Fixture	100	8,000	120-277 VAC	0.87-0.37 Amp	<10%	0.98	22 in. 558 mm	19 in. 482 mm	10 in. 254 mm
38120	16" FLOOD Fixture	120	9,600	120-277 VAC	1.05-0.45 Amp	<10%	0.98	22 in. 558 mm	19 in. 482 mm	10 in. 254 mm
38150	16" FLOOD Fixture	150	12,000	120-277 VAC	1.31-0.56 Amp	<10%	0.98	22 in. 558 mm	19 in. 482 mm	10 in. 254 mm
38200	16" FLOOD Fixture	200	16,000	120-277 VAC	1.75-0.75 Amp	<10%	0.98	22 in. 558 mm	19 in. 482 mm	10 in. 254 mm

Ordering Information

(SAMPLE NUMBER : 38080-UNV-SF-LD)

Series
38 = 16" Flood

Wattage
080 = 080W
100 = 100W
120 = 120W
150 = 150W
200 = 200W

Voltage
UNV = Universal
480 = 480V

Mount
SF = Slip-Fitter
YK = Yoke Bracket

Accessories
LD = Light Sensor / Photocell
MD = Motion Sensor

INDUCTION - Flush Mount Retrofit Kit

100,000 Hour Life

The Next Generation of Lighting

Application Fixtures

Specification:

- Ballast Type	Electronic
- Start Method	InstantON™
- Hot Re-start	InstantON™
- Universal Input Line Voltage	120-277 VAC
- Input Line Frequency	50/60 Hz
- Lamp Life	100,000 Hrs.
- Lumen Maintenance @75,000Hrs	>70%
- Color Temperature	5000°K
- Color Rendering Index (CRI)	above 83
- Minimum Starting Temperature	-20°F
- Maximum Operating Temperature	160°F
- Lamp Operating Frequency	250 kHz
- Power Factor	> 0.98
- Total Harmonic Distortion	< 10%
- Inrush Current Peak	< 10 Amp
- ETL Listed	Yes
- FCC Compliance	Part 18, Subp. C

Applications, Features, and Benefits

- Ideal replacement lamp for outlawed mercury lamps in outdoor acorns with Medium (E26) or Mogul (E40) base
- Bright White light (5000°K) for greater visibility and safety
- High Quality - Glare Free light with CRI above 83
- Electronic Ballasts made with long life components
- InstantON(TM) flicker-free Cold Start and Hot Re-Start
- High Power Factor, Low THD Ballast technology
- Advanced phosphors for high Lumen Maintenance and high lumen output
- Optional : 4100°K, 6500°K
- Universal Mounting Positions: Base up, Base down, Horizontal
- Made with Amalgam Technology
- New! Patented Technology

Product Information - Retrofit Kit

Item No.	Description	Watts	Initial Lumens	CRI	MOL (Oval)	MOL (Pear)	D (Oval)	D (Pear)
OV-26080RK-UNV-FM	80W Induction BULB + Ballast Retrofit Kit	80	5,600	< 83	8.5 in. 222 mm	N/A	5.0 in. 127 mm	N/A
OV-26100RK-M-UNV-FM	100W MINI Induction BULB + Ballast Retrofit Kit	100	7,000	< 83	8.5 in. 222 mm	N/A	5.0 in. 127 mm	N/A
OV / PE - 26100RK-UNV-FM	100W Induction BULB + Ballast Retrofit Kit	100	7,000	< 83	9.25 in. 233 mm	8.25 in. 211 mm	5.0 in. 127 mm	6.0 in. 140 mm
OV / PE - 26125RK-UNV-FM	125W Induction BULB + Ballast Retrofit Kit	125	8,750	< 83	9.75 in. 247 mm	9.25 in. 233 mm	5.25 in. 127 mm	6.0 in. 140 mm
OV / PE - 26150RK-UNV-FM	155W Induction BULB + Ballast Retrofit Kit	150	10,500	< 83	9.75 in. 247 mm	9.25 in. 233 mm	5.25 in. 133 mm	6.0 in. 140 mm
OV / PE - 26165RK-UNV-FM	165W Induction BULB + Ballast Retrofit Kit	165	11,550	< 83	9.75 in. 247 mm	9.25 in. 233 mm	5.25 in. 133 mm	6.0 in. 140 mm

UNV = 120-277 VAC
Note : Ballasts are Included In the Retrofit Kits

Product Information - Ballasts

Item No.	Description	Watts	Line Voltage Supply	THD	Power Factor	Ballast Dimensions	Mounting Dimensions
NIB-B-***W-UNV	Bulb Type Induction Ballast	80, 100, 125, 150, 165	120 - 277VAC	< 10%	0.98	8.0L x 3.0W x 2.0H in. 203 x 76 x 50 mm	9.0 in. 228 mm

*** Wattage : Must match bulb wattage