

North American Manufacturing Enterprises, Inc, DBA



L I G H T I N G

Manufacturing High Technology Lighting

COMPANY BROCHURE

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COMPANY INTRODUCTION



MISSION STATEMENT

The management team at North American Manufacturing Enterprises (NAME) and its subsidiary, MHT LIGHTING, understand that there is a large demand for energy efficient lighting solutions that is currently not being adequately addressed in the industry.

MHT LIGHTING's mission is to design, manufacture, sell and service the highest quality and most innovative *Induction Lighting* products. MHT LIGHTING is leading the industry with focus on technology innovation and product development while offering a truly differentiated solution to its customers and partners and providing the best total customer experience.

COMPANY PROFILE



North American Manufacturing Enterprises and its lighting subsidiary, MHT Lighting, manufacture and sell energy efficient lighting systems, with a specific focus on Induction Lighting. We design, assemble and quality test all products in our 55,000 square foot facility in Staten Island, New York. Our factory has achieved ISO 9000/1 Certification based on our manufacturing standards and practices. MHT's products are approved for sales into NAFTA countries and meet "Buy American" requirements under Section 1605 of the American Reinvestment and Recovery Act. MHT also maintains distribution centers in Staten Island, New York and San Diego, California. Our current markets include the United States, Mexico, Canada, Central and South America. Our goal is to expand to a world-wide presence.

MHT Lighting has focused on taking an **innovative approach** to the Energy Efficient lighting market. We are constantly striving to expand and improve our offering with unique features such as **Intelligent Controls** and **enhanced lighting quality and performance** through the latest design and reflector technologies. Marketing our Induction Lighting products since 2005, our 2009 initial product line was extremely well received and in early 2010 we introduced an expanded product line to include virtually all applications for Induction Lighting. Later this year and into 2011, we will be bringing to market new fixtures and additional Energy Efficient technologies.

Our products save money by consuming significantly less energy and by having an extremely long life-span. Less energy used combined with lower maintenance and replacement costs not only save money, they reduce our overall carbon footprint and are helping enhance the planet.

GO GREEN!

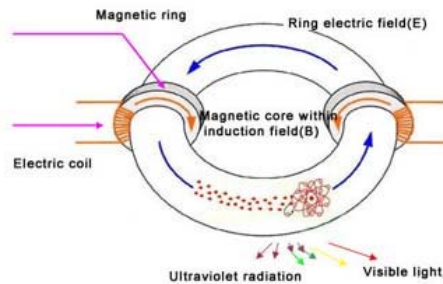
INDUCTION LIGHTING TECHNOLOGY

WHAT IS INDUCTION LIGHTING TECHNOLOGY?

Induction Lighting Technology is a proven lighting technology that has been around for over 100 years. Due to recent advancements in Electronic Ballast technology, it has more recently become a viable option for the commercial and municipal markets. Induction Lighting has been utilized extensively for street lighting applications in Asia, Australia, and Europe, however with the recent initiatives to "GO GREEN", induction lighting technology is now emerging as the best choice for energy efficient lighting in North America.

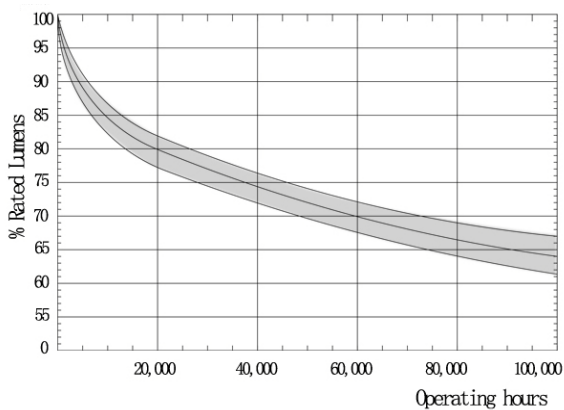
What is induction lighting?

An induction light is similar to a fluorescent light in that mercury in a gas fill inside the bulb is excited, emitting UV radiation that in turn is converted into visible white light by the phosphor coating on the bulb. Fluorescent lamps use electrodes to strike the arc and initiate the flow of current through the lamp, which excites the gas fill. Each time voltage is supplied by the ballast and the arc is struck, the electrodes degrade a little, eventually causing the lamp to fail. Induction lamps do not use internal electrodes, but use a high-frequency generator with a power coupler. The generator produces a radio frequency magnetic field to excite gas fill.



With no electrodes, the lamp lasts longer - in fact, up to 100,000 hours, with the lamp producing 70% of its original light output at 60,000 hours. In other words, their rated life is 5-7 times longer than metal halide (7,500 to 20,000 hours at 10 hours/start) and about seven times longer than T12HO fluorescent (at 10 hours/start)

Need a lumen maintenance curve of Induction vs HID here.



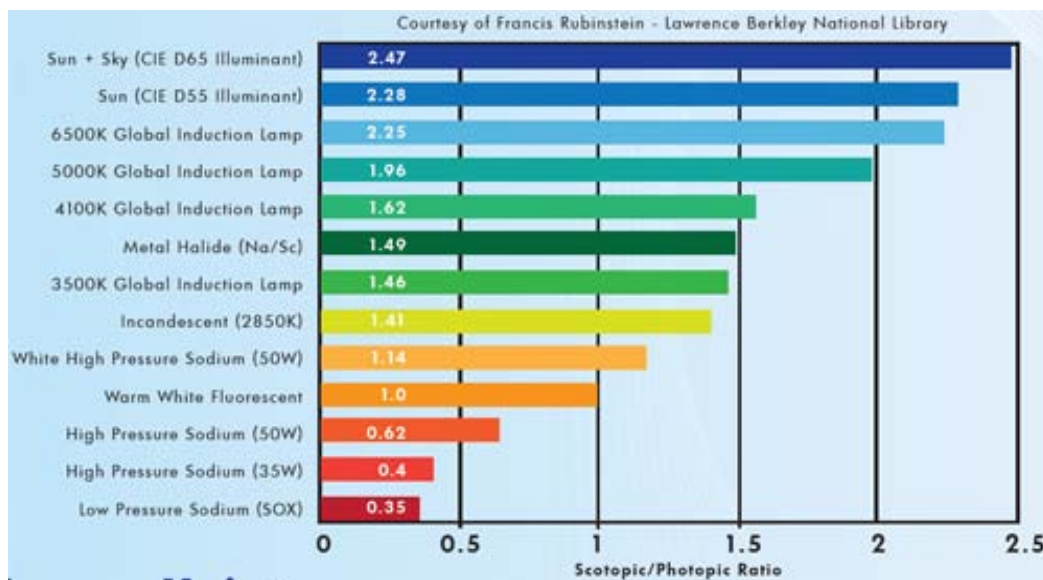
What is the quality of the light output?

Light is measured in Lumens (Lux or foot Candles). The S/P ratio of a lamp is important as it provides a number that can be used to multiply the output reading of a lamp using a 1951 standard conventional meter to determine how much light, which is useful to the human eye, a lamp produces. These are known as Visually Effective Lumens (VEL).

Using a conventional light meter or spectrometer, the light is measured to determine the photopic vision sensitivity curve. Using the same light source with a light meter calibrated to the scotopic, the scotopic sensitivity curve is determined. The resulting readings form an S/P ratio that can be expressed as a Single number.

The chart below gives a comparison of MHT Induction Lamps S/P ratio compared to other common industrial lamps. These figures are based on Data received from Francis Rubenstein or Berkley Labs.

Scotopic/Photopic Ratios for Various Light Sources (NEED TO PHOTOSHOP OUT "Global" from INDUCTION LAMP)



APPLICATIONS:

Induction Lighting is best suited for applications where lighting is difficult or expensive to maintain due to the accessibility of the lights. Given the below features/benefits and comparisons of Induction vs HID, LED and Fluorescent, Induction is ideally suited for a wide variety of applications such as:

- **Outdoor** Parking Lots, Parking Garages, Security and Area Lighting
- **Indoor** Warehouses, Manufacturing, Retail and Food Storage/Processing
- **Street/Roadway** Street Lighting, Highways, Intersections, Parks
- **Retrofits** HID Replacement, Specialty Fixtures, etc

FEATURES AND BENEFITS:

- EXTREMELY LONG LIFE -** 100,000 Hours rated lifetime (IESNA) – 4 to 5 times traditional sources
- ENERGY EFFICIENT -** On average of 40% and up to 80% energy savings over HID
- HIGHEST QUALITY LIGHT -** High color rendering index (80+ CRI) provides best visual acuity
- SUPERIOR LUMEN MAINTENANCE –** Consistent light with 70% of initial lumens at 60,000 hours
- INSTANT-ON/NO RE-STRIKE –** No warm up-period - only have lights on when you need them
- DIMMABLE –** Reduce energy an additional 50% using step-dimming feature
- CONTROLS CAPABLE –** Save on energy and maintenance with 2-way Controls/Communication
- ECO-FRIENDLY –** Aside from the Energy and Maintenance Savings, you are also saving on additional carbon footprint from the shipping, packaging and recycling of lights

INDUCTION vs HID (Metal Halide, High-Pressure Sodium), Fluorescent and LED

	Induction	MH	HPS	LED	T8	LPS	MV
Ignition time	Instant	5-10 min	5-8 min	Instant	Instant	6-8 min	5-15 min
Hot Re-strike	Yes	No	No	Yes	Yes	No	No
Lifespan	60-100K	8-10K	18-24K	30-50K	6-10K	16-18K	10K
Avg Mercury content	5mg	10-1000mg	12-50mg	N/A	10-43mg	6-45mg	14-100mg
Lumens per Watt	65-90L/W	65-115L/W	150L/W	50-100L/W	80-100L/W	183-200	15-45L/W
Lumen Maintenance	70%	55-60%	55-65%	45-60%	50-75%	80-85%	55%
CRI	>80	64	21	>75	62	N/A	40
Color Temperature	2700-6500K	3000-4000K	2000K	2700-6500K	3000-5000K	1800K	4000K
S/P Ratio*	1.96	1.49	0.62	1.85	1.62	0.35	0.86
Power Consumption	Low	High	High	Low	Low	High	High
Flicker	No	Yes	Yes	No	yes	Yes	Yes
Maintenance Cost	Very Low	High	High	Low	Medium	High	High

MHT INDUCTION LIGHTING

MHT Lighting's goal is to differentiate from the competition by offering a unique combination of innovation and the highest quality products and customer service.

- **Innovation** MHT strives to lead the industry with the latest in technology innovations
- **Quality** MHT produces the Highest Quality Induction products that undergo full Quality Assurance
- **Ballast** MHT only utilizes the most advanced induction ballasts, which is most often the weakest link of any induction system
- **Controls** MHT has implemented Step Dimming and Controls as an Energy and Maintenance Savings and Value Added solution
- **ISO Certification** MHT's factory is the only US-based Induction Manufacturing facility to undergo ISO9000/1 Certification for quality control processes
- **Buy American** MHT's Products qualify for "Buy American" inclusion in ARRA Federal Stimulus projects
- **NAFTA** MHT's Products qualify for NAFTA tax benefits for import/export to Canada and Mexico
- **Warranty** MHT's Fixtures have a full 10-year manufacturer warranty
- **Quality** MHT's testing and inspection procedures are done with the most advanced equipment and every product comes with a certificate of compliance.



COST COMPARISONS/SAVINGS:

Lighting costs money.

When considering options on whether to upgrade to Energy Efficient Lighting, or to do nothing at all, there are a few things to consider:

- 1) How much are your energy costs?
- 2) How often are you replacing your lights?
- 3) How much are you paying just to MAINTAIN your lights?
- 4) How much should you pay for a new, energy efficient light source?

10 Year Total Cost of Ownership Comparison

HID Source	Watts	Mean Pupil Lumens	CRI	Annual Energy	Lamp Changes	Material Cost	Labor Cost	10 Year Cost
Induction	40	4200	85	\$ 14.72	0		\$ -	\$ 210.24
Metal Halide	70	4235	65	\$ 28.21	3.5	\$ 245.00	\$ 350.00	\$ 877.07
HPS	70	3465	21	\$ 28.21	2.5	\$ 150.00	\$ 250.00	\$ 682.07
Induction	70	7350	85	\$ 25.75	0		\$ -	\$ 367.92
Metal Halide	100	6050	65	\$ 40.30	3.5	\$ 245.00	\$ 350.00	\$ 997.96
HPS	150	7425	21	\$ 60.44	2.5	\$ 150.00	\$ 250.00	\$ 1,004.44
Induction	100	10500	85	\$ 36.79	0		\$ -	\$ 525.60
Metal Halide	200	12100	65	\$ 80.59	3.5	\$ 245.00	\$ 350.00	\$ 1,400.92
HPS	200	9900	21	\$ 80.59	2.5	\$ 150.00	\$ 250.00	\$ 1,205.92
Induction	150	15750	85	\$ 55.19	0		\$ -	\$ 788.40
Metal Halide	250	15125	65	\$ 100.74	5	\$ 350.00	\$ 500.00	\$ 1,857.40
HPS	300	14850	21	\$ 120.89	3	\$ 180.00	\$ 300.00	\$ 1,688.88
Induction	200	21000	85	\$ 73.58	0		\$ -	\$ 1,051.20
Metal Halide	360	21780	65	\$ 145.07	5	\$ 350.00	\$ 500.00	\$ 2,300.66
HPS	400	19800	21	\$ 161.18	3	\$ 180.00	\$ 300.00	\$ 2,091.84
Induction	300	31500	85	\$ 110.38	0		\$ -	\$ 1,576.80
Metal Halide	500	30250	65	\$ 201.48	5	\$ 350.00	\$ 750.00	\$ 3,114.80
HPS	500	24750	21	\$ 201.48	3	\$ 180.00	\$ 300.00	\$ 2,494.80
Induction	400	42000	85	\$ 147.17	0		\$ -	\$ 2,102.40
Metal Halide	750	45375	65	\$ 302.22	5	\$ 350.00	\$ 750.00	\$ 4,122.20
HPS	750	37125	21	\$ 302.22	3	\$ 180.00	\$ 450.00	\$ 3,652.20

*** Assumptions: \$0.12/kwH Energy Cost, 8hrs/day per Start, \$100/hr Labor Cost

Simple Payback and ROI Calculators

1) Simple Payback Method

$$\text{Present Cost of Energy} = \frac{\text{Watts}}{\text{Watts}} \times \frac{\text{Hours/Yr}}{\text{Hours/Yr}} \times \frac{\text{kwh Rate}}{\text{kwh Rate}} \times \frac{\text{\# Lights}}{\text{\# Lights}} / 1,000 = \$ \frac{\text{Total Energy Cost}}{\text{Total Energy Cost}}$$

$$\text{Future Cost of Energy} = \frac{\text{Watts}}{\text{Watts}} \times \frac{\text{Hours/Yr}}{\text{Hours/Yr}} \times \frac{\text{kwh Rate}}{\text{kwh Rate}} \times \frac{\text{\# Lights}}{\text{\# Lights}} / 1,000 = \$ \frac{\text{Total Energy Cost}}{\text{Total Energy Cost}}$$

** Watts = Lamp Wattage + Ballast Wattage (5% for Induction, 10-15% for HID)

** Hours/Yr = Hours/Day x Days/Week x Weeks/Year

Annual Savings: \$ _____

$$\text{Simple Payback} = \left(\frac{\text{Cost of Lights}}{\text{Cost of Lights}} - \frac{\text{Energy Rebate}}{\text{Energy Rebate}} \right) \div \frac{\text{Annual Savings}}{\text{Annual Savings}} = \frac{\text{Payback}}{\text{Payback}} \text{ (in years)}$$

2) 10 Year ROI Method

$$\text{Present Cost of Energy} = \frac{\text{Watts}}{\text{Watts}} \times \frac{\text{Hours/Yr}}{\text{Hours/Yr}} \times \frac{\text{kwh Rate}}{\text{kwh Rate}} \times \frac{\text{\# Lights}}{\text{\# Lights}} / 1,000 = \$ \frac{\text{Total Energy Cost}}{\text{Total Energy Cost}}$$

$$\text{Future Cost of Energy} = \frac{\text{Watts}}{\text{Watts}} \times \frac{\text{Hours/Yr}}{\text{Hours/Yr}} \times \frac{\text{kwh Rate}}{\text{kwh Rate}} \times \frac{\text{\# Lights}}{\text{\# Lights}} / 1,000 = \$ \frac{\text{Total Energy Cost}}{\text{Total Energy Cost}}$$

** Watts = Lamp Wattage + Ballast Wattage (5% for Induction, 10-15% for HID)

** Hours/Yr = Hours/Day x Days/Week x Weeks/Year

TEN YEAR ENERGY SAVINGS

$$= \left(\$ \frac{\text{Present Cost}}{\text{Present Cost}} - \$ \frac{\text{Future Cost}}{\text{Future Cost}} \right) \times 10 = \$ \frac{\text{10 yr Energy Savings}}{\text{10 yr Energy Savings}}$$

TEN YEAR LAMP/BALLAST/LABOR MAINTENANCE SAVINGS:

$$= \frac{\text{Lamp/Ballast Replacements}}{\text{Lamp/Ballast Replacements}} \times \left(\$ \frac{\text{Cost of New Lamp/Ballast}}{\text{Cost of New Lamp/Ballast}} + \$ \frac{\text{Labor Cost per Change}}{\text{Labor Cost per Change}} \right) = \$ \frac{\text{10yr Maint Savings}}{\text{10yr Maint Savings}}$$

10 YEAR ROI

$$= \left(\frac{\text{10yr Energy Savings}}{\text{10yr Energy Savings}} + \frac{\text{10yr Maint Savings}}{\text{10yr Maint Savings}} \right) / \left(\frac{\text{Cost of New Light+Install}}{\text{Cost of New Light+Install}} - \frac{\text{Utility Rebate}}{\text{Utility Rebate}} \right) = \frac{\text{ROI \%}}{\text{ROI \%}}$$

** Lamp/Ballast Replacements Avg 3.5 for Metal Halide, 2.5 for HPS per 10yr Period

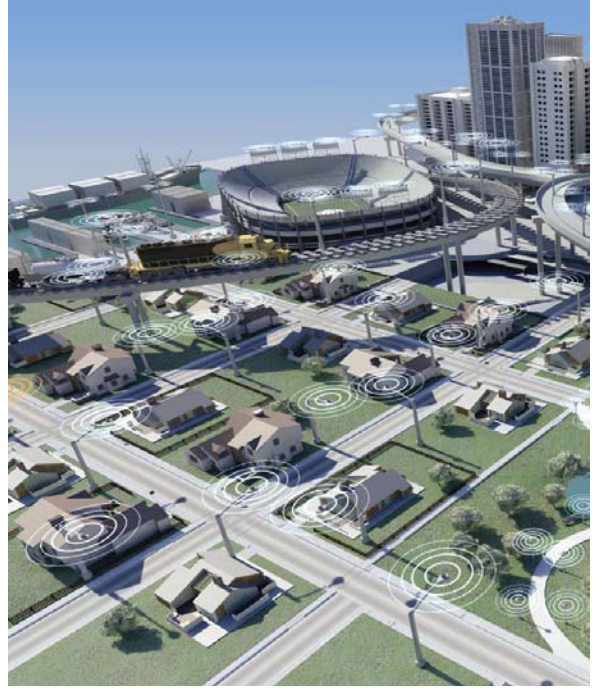
** Labor Cost includes Labor plus Equipment Rental

MHT Lighting partners with ROAM® wireless controls?

ROAM® is an award-winning streetlight monitoring system that minimizes the total life-cycle cost of your streetlight network while enhancing the safety, sustainability and service levels that your citizens expect. ROAM represents a complete transformation in the way street lighting maintenance is performed – enabling proactive and efficient resolution of streetlight issues before citizen complaints can be initiated. Never before has streetlight monitoring been so easy, yet so effective for municipalities and utilities.

*Save up to
85% saving
over existing
HPS
Streetlights*

- Streetlight operating information is wirelessly communicated from all streetlights to the ROAM Network Operations Center.
 - The Network Operations Center provides immediate and proactive alerts of and identified malfunction.
- ROAM diagnoses the problem and dispatches a maintenance crew to a specific location, utilizing GPS technology.



In addition, ROAM continuously collects operating data on your MHT Induction streetlight system which, when accessed through a secure internet portal, provides critical data for budgeting, maintenance schedules and asset management.

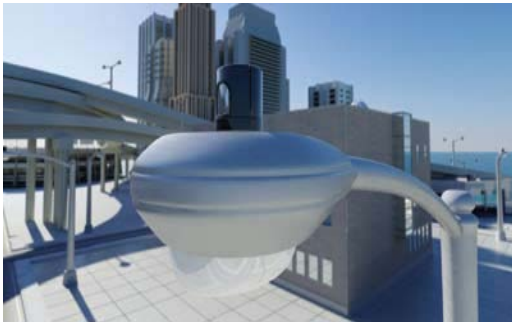


Photo Control- Communications Node

- Compatible with any NEMA twist-lock receptacle
- Self-registering, self-hearing mesh network
- Patented diagnostics



Communications Gateway

- Manages up to 5,000 nodes
- Flexible, wireless communication to the NOC



Secure Web Portal

- Password-protected access to system information
- Full work order management suite

POWER LINE CARRIER (PLC) CONTROLS – FULL CONTROLS VIA 2-WAY COMMUNICATIONS



Managed Street Lighting Networks

Lighten Your Streetlights' Energy Load and Lower Your Costs

Many cities are upgrading their streetlight technologies to Induction and LED lights, however, between the initial investment of LED lights and controls, the paybacks are up to 3 times that of induction lights. **MHT Lighting** is the first fully controllable induction light that has full two-way communication. It's a great, green way to further lower energy costs — especially when switching from older HID technology. Adding an intelligent network to control those lights is even smarter, letting you reduce energy costs by 60 percent or more. And the extra benefits of this network — streamlined operations, lower maintenance costs, improved safety, less light pollution, and enhanced urban environments — may end up being even greater than the energy savings.

Start with the i.LON SmartServer segment controller

The SmartServer, combined with MHT electronic ballasts powered by LonWorks technology, is the cornerstone of intelligent street lighting systems around the world —and it's already the leading segment controller in the European market.



Add SMART streetlights embedded with LonWorks technology

Each MHT induction luminaire in the street lighting network includes a ballast that's been integrated with one of our power line smart transceivers. This lets it automatically detect lamp failures, dim the light in % increments, and report vital statistics such as consumed energy, lamp-burning hours, voltage, current, and ballast temperature. It also lets each luminaire act as its own energy submeter. For example, our MHT induction lights can flash in a predetermined sequence to help route emergency traffic or help emergency response personnel locate an accident scene more quickly.

Manage with Web-based host software.

Control your entire network with easy-to-use host software. These Web-based applications, provided by several manufacturers, offer a highly visual graphical environment to help city personnel manage WAN communications, track failures, check system health, automatically install new SmartServers, and collect, organize, and store data. They also extend to higher-level applications, for use with service databases, billing, notification, energy management, and other existing systems.



Benefits

- **Greatly reduce energy use.** Our smart street lighting network adapts light levels to meet real-time requirements. Dim or brighten lights according to a preset schedule or in response to weather events, like an increase in cloud cover.
- **Lower maintenance costs.** Maintenance companies can track and monitor individual lamps, and replace components based on actual performance history — often before they fail. If they do fail, automatic alarms notify the system, so there's no need for roving inspections. *The result: safer cities that cost less to operate.*
- **Install quickly and affordably.** The SmartServer's automatic discovery and commissioning feature means new devices can be bought and installed online in minutes instead of hours, and with minimal training. The host software gives you an overall view of the entire system, so you can make smart decisions, fast.
- **Future-proof your investment.** The SmartServer works with any WAN your city deploys — now and in the future — ensuring a safe, future-proof investment for your community. But that's not all. Since the SmartServer is designed to work with any LonWorks based sensor or control device, as well as other industry-standard control protocols, it offers unparalleled flexibility:
 - Add new technologies as they become available, without changing your network or retraining personnel.
 - Add new services, such as traffic and environmental sensors, flashing LEDs for emergencies, or on-demand lighting for special events — without touching your infrastructure.
 - Mix and match luminaire types — using Induction in one sector, for instance, and HID or HPS in another.
 - Add new devices to your street lighting network by simply plugging them in.
- **Provide high reliability, even in the face of urban growth.** The LonWorks approach supports urban growth, because new buildings, road construction, and other developments won't affect the power line communications technology.

CONTROLS by others - DIMMING VIA ANALOG/SENSOR CONTROLS

The MHT Induction lamp can be controlled with an analog low-voltage interface of 0 to 10 Volts DC which controls the dimming function. No rework or modification of the original dimming system is needed when the lamp is changed. The induction lamp retrofit is extremely suitable for the places where such analog lighting control system exists.

Description of the 0-10V analogue dimming interface

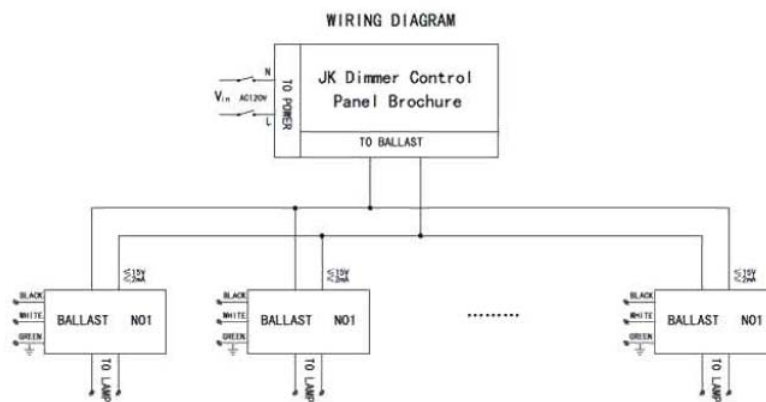
- The 0-10V dimming interface is electronically isolated within the ballast for safety and reliability.
- The dimmable ballast can work as a regular ballast to drive the lamp at full range when the interface is not connected.
- The interface and be controlled at each fixture or fixtures can be “daisy-chained” to control multiple fixtures from a single interface
- The output wattage is at the full range within the 1st minute of the start.

Description of Controls

Dimming Controls consist of 2 basic options

- Sensor (Occupancy, Photoelectric) – has the ability to turn lights on/off, as well as reduce light/wattage to pre-set limits.
- Wireless/Wall Switch – has the ability to dim from 40% to 100% manually from an installed switch on the wall, or a wireless remote control.

Note: To control multiple systems with the same interface, a separate low-voltage circuit must be installed to carry the 0-10V DC signal.



◇ Wiring Diagram 2