

Innovation ♦ Teamwork ♦ Excellence



IRVIN STEEL

A division of Irvin International Inc.

LED Retro Kit Specifications



WHY GO LED?

Light Emitting Diode, more commonly known as "LED", represents the cutting edge of lighting technology. LEDs operate on a totally different concept than traditional incandescent style lights. Instead of using a brittle metal filament that is susceptible to shock and vibration, LEDs are solid-state devices with no moving parts utilizing an electronic chip that is encapsulated in an epoxy substrate. This design provides increased durability and a protective seal against outside or foreign elements.

LEDs are not new technology, as they have been used in industrial and commercial applications for over 20 years. They were just not bright enough for outdoor – until now. The challenge with traditional HID and even newer MV fixtures is high energy consumption, frequent maintenance, sometimes very poor light quality, and dangerous materials (like mercury).



30 sheet poster utilizing ZON LED™ inside Holophane Panel-Vue™ fixtures

The next evolution of LED is ZON LED's™ Planar Style LED Array Chips, an array of LEDs consolidated onto a single light emitting chip. Coupled with the proper drivers, heat dissipating fixtures and other ZON LED™ patented fixture technologies, the ZON LED™ Gen IV lights represent the brightest LED Light Fixtures on the planet. Further, they produce a much wider spectrum of light than conventional lighting alternatives (6,000-7,500° K), and even most Gen III LEDs. As a result, the perceived light emitted from ZON LED™ fixtures is much higher than conventional counterparts, and is much easier on human eyes.

WHAT ARE THE BENEFITS OF ZON LED AND LED LIGHTING?

ZON LED's Gen IV LED fixture Retrofit's and High Bay Lighting Fixtures provide a direct replacement for 'Conventional' High Bay HID, Fluorescent, and they excel in virtually every way.

- **Life** – ZON LEDs are guaranteed for Five years (almost 50,000 hours of continuous use) with life rating of up to 100,000 hours. Passive cooling means no moving parts and extended life. Power supplies carry a Three year warranty.
- **Consistent Performance** – ZON LEDs have no appreciable decline in output over the life of the bulb compared to some HIDs which can suffer from 60% or more depreciation in output over their life.
- **Energy Savings** – In proper replacement applications, ZON LEDs save up to 70% over HIDs and 50% over fluorescent lighting. They also run cooler than traditional fixture types, reducing air conditioner loads (the cost of electricity has gone up an average of 6.7% a year since 1970).
- **Better Quality Light** – ZON LEDs are rated at 6,000-7,500 degrees Kelvin, very close to daylight spectrum, with no UV pollution. They are healthier for the eyes than other lighting, create better visibility, and have been noted to improve employee efficiency and safety.
- **Scotopically Enhanced** – Traditional lighting output is measured in photopic output. However, scotopic output has more bearing on the effectiveness of lighting. Higher scotopic output means that a lower power ZON LED can be used to replace much higher lumen output lights of other types.
- **Safe / Rugged / Quiet** – ZON LEDs use low voltage, contain no mercury or lead, and have no filament to break or casings to explode. They are resistant to heat, cold and shock. They produce no flicker, no buzz, and output no UV or infrared radiation.
- **Green** – ZON LEDs are among the greenest lighting on the planet, produced without hazardous materials, and contributing to some of the largest green house gas reductions of any lighting available.

ZONRF1002- Holophane LED Retrofit Light



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BETTER EFFICIENCY AND COST-SAVINGS...

ZON LED's NEW Holophane Retrofit Solution replaces the internal electronics and bulb of a Panel-Vue™ or Sign-Vue™ fixture to a maintenance-free LED lighting appliance.

LEDs are not new technology, they have been used in industrial and commercial applications for over 20 years, except they were just not bright enough.... until ZON LED. The challenge with traditional HID and even newer MV fixtures is high energy consumption, frequent maintenance, sometimes very poor light quality, and dangerous materials (like mercury).

ZON LED's ZONRF1002 produces 15,300 lumens* with a 102 watt maximum power consumption for dramatic energy cost reduction. Up to 50,000 hour rated lamp life (10 years at 12/7 operation) means drastically reduced maintenance costs (materials and labor) over the life of the fixture. And, in addition to the significant energy savings, ZON LED's LEDs are mercury free, lead free, and produce no UV or infrared emissions making the work place AND the environment safer.

We also have a 150 watt option for 14 x 48 sized boards and any other structure in a high ambient lighting area that provides just a little more brightness and improved visibility.

LED RETROFIT BENEFITS

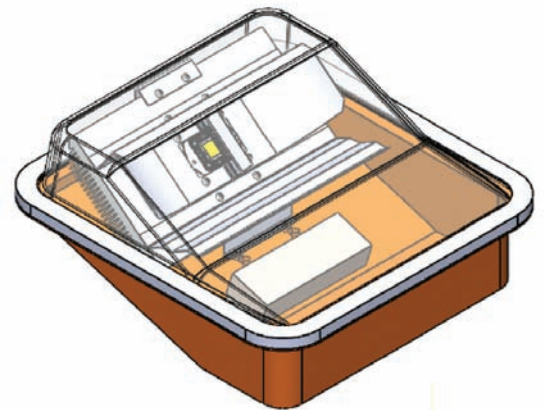
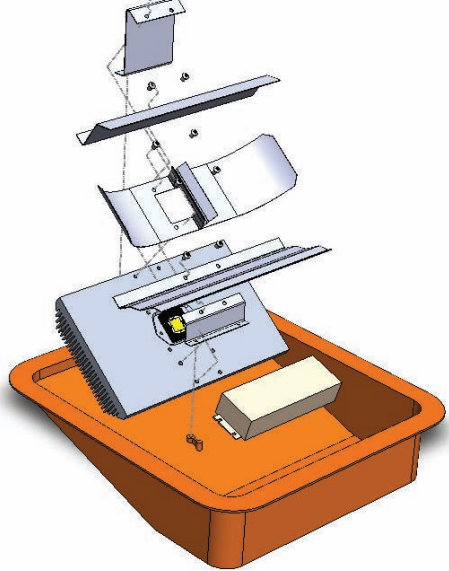
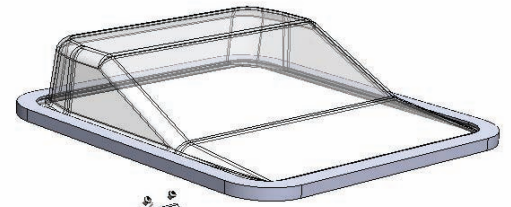
- ▶ Reduce operating costs by up to 75% over HID
- ▶ Fully dimmable (using Accent Glow) and compatible with various control systems
- ▶ Scotopically enhanced (fuller spectrum) for higher quality light output
- ▶ Contains no hazardous mercury, so they do not require recycling
- ▶ Rated for up to 50,000 hours life
- ▶ Rugged: no fragile filament or tube, resistant to heat, cold, and shock
- ▶ Silent and free of annoying flicker and buzz
- ▶ Produces no UV or infrared emissions
- ▶ Uses low voltage IP 65 power supplies thus improving safety
- ▶ R.O.I (return on investment) in as little as 12 months
- ▶ Qualifies for high rebates and tax benefits

EASY INFIELD RETROFIT

- ▶ Fast replacement
- ▶ Replacement clear lens
- ▶ No holes to drill
- ▶ No modifications to box
- ▶ No extra tools
- ▶ IP65 ZON LED power supply
- ▶ Less than 20 minute change out per fixture

*Scotopic lumen performance, a complete measure of how the eye perceives light, is a more accurate measure of light output to determine appropriate replacement options.

**Holophane, Panel-Vue, Sign-Vue are registered trademarks of AcuityBrands





Lamp

Planar LED 1 x 100W LED Chips
Operating Temperature -30 ~ +60°C
Light Output (Photopic) 7,500 lm
Light Output (Scotopic) 15,300 lm
Emission angle 75% at 120°
Color Temperature 6,000 ~ 7,500°K
CRI (Color Rendering Index) 90
Mercury Content / Lead Content 0mg / 0mg

Power (100W) x 1

- Universal AC input/full range (up to 280VAC)
- Protections: Short circuit/overload/over voltage/over temperature
- Built in active PFC (Power Factor Correction) function
- Cooling by free air convection (no moving parts)
- IP65 rated

Output

Line regulation: +/- 0.5%
Load regulation: +/- 0.5%
Rated Power: 100W

Input

Voltage: 90-280VAC
Frequency range: 47-63Hz
Power factor: PF>=0.95/230VAC PF>=0.98/115VAC at full load
AC current: 2A (115VAC) 1A (240VAC)
Leakage current: <1mA/240VAC
Working temperature: -30 ~ +60°C
Voltage Input: 90 - 280VAC
Power Consumption: 102W
Working temperature: -30 ~ +55°C @ full load
Working Humidity: 20 - 05% RH non condensing

Fixture

Average Ambient Operating Temperature: 55°C
Heat Sink: Aluminum - 9830 cm² surface
Electrical Connection: Pigtail / Mounted Wiring Box
Fixture Weight: 7.9kg / 18.2.lbs
Mounting: Existing Holes and Hardware
Mount Rating: NA
Dimensions: (linear) 18(l) x 8.5(w) x 2(h) inches
Dimensions: (metric) 457(l) x 215(w) x 50(h) mm

Green Benefits of ZON LED Gen IV LEDs

As a rule, LED bulbs use 1/6th less electricity than standard bulbs.

They have an unparalleled even spectrum of light and have a lifespan beyond ten years.

LED's provide us with the most efficient way to save energy and conserve our natural resources. If LED's were implemented right now universally, we would never need to build another power plant.

Just changing your lighting to LED alone will reduce your energy bill and CO₂ footprint by over 50%. LED lighting has the potential to eliminate over 115 million metric tons of carbon emissions.

Environmental Compliance

ZON LED Lighting Systems are compliant to the Restriction of Hazardous Substances Directive or RoHS. The restricted materials including lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ether (PBDE) are not used in ZON LED Lighting Systems to provide an environmentally friendly product to the customers.

Safety standards

UL1012: EN61347-1, EN61347-2-13, UL60950-1, TUV EN60950-1 EMI Conduction & radiation Compliance to EN55015, EN55022(CISPR22) Class B
EMS Immunity: Compliance to EN61000-4-2,3,4,5,6,8,11; EN150204, EN61547,EN55024.

ZON LED 100W Planar LED

- Ultra High Light Output
- Scotopically enhanced at 6,500°K +
- Full performance in all temperatures
- Instant on, dimmable

Warranty

Power Supply: 3 Years
Planar LED: 5 Years

Patents #61/181,698
Patents #61/307,837



How Much Will You Save?



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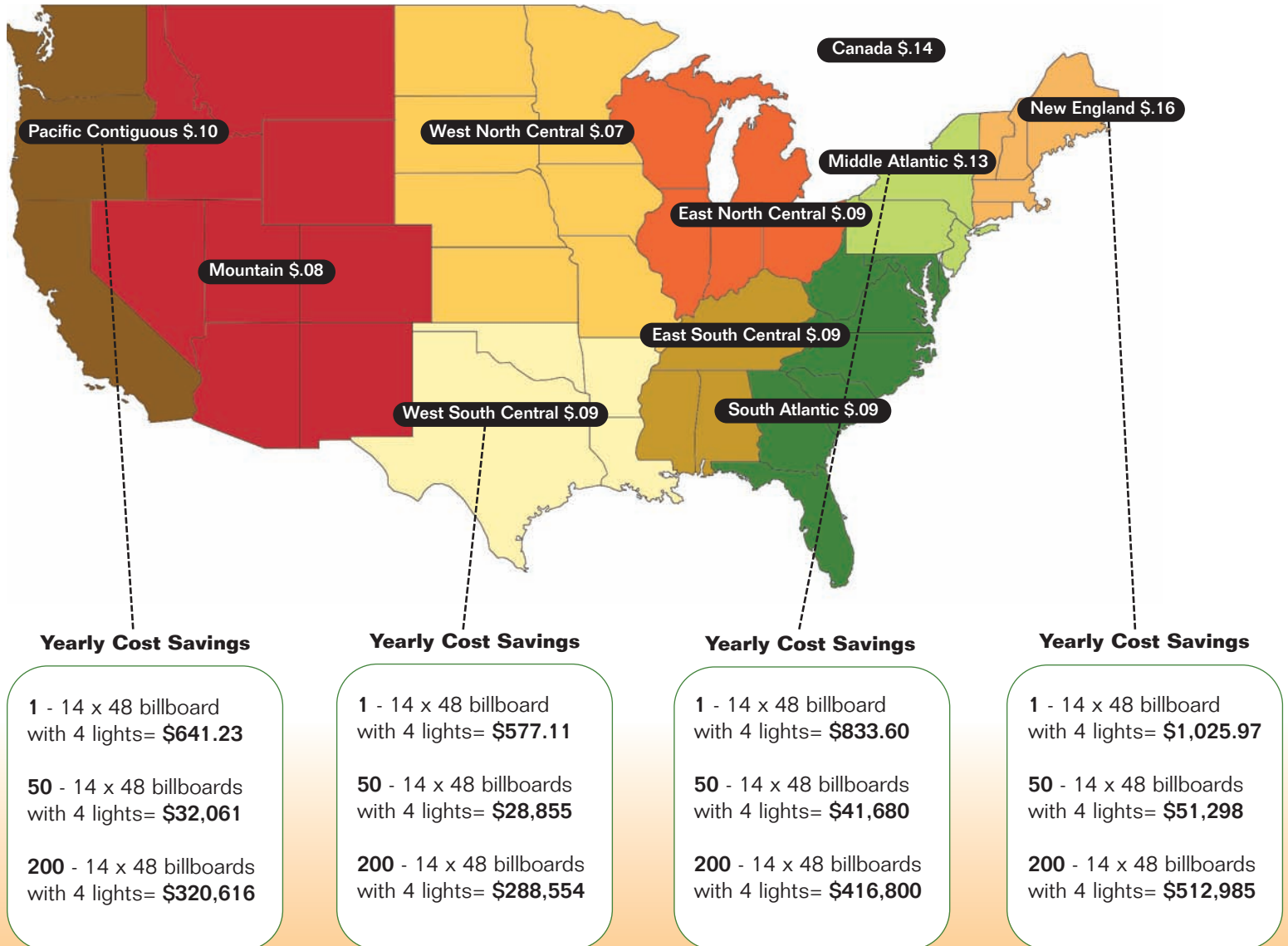
A Lot...

ZON LED's ZONRF1002 produces 15,300 lumens* with a 102 watt maximum power consumption for dramatic energy cost reduction. And, with up to 50,000 hour rated lamp life (10 years at 12/7 operation) means drastically reduced maintenance costs (materials and labor) over the life of the fixture. "Lights out" on high energy usage.

In the New England area, running a single 400-watt metal halide consuming 468 watts for 365 hours (one month 12 hours per day) would cost \$27.33 in electricity alone based on the average retail price of electricity. Because the ZON LED uses only 102 watts, running the light for 365 hours will cost only \$5.96 under the same scenario. In addition, you will no longer spend time or money replacing bulbs (average cost of \$150 per face). In just **one year for one billboard with four fixtures** using ZON LED, **you would save \$1,025.97** on your **electric bill** alone (not counting maintenance and bulb savings). Imagine the savings if every billboard light you owned was using ZON LED technology! Go to www.isioutdoor.com/LEDlighting.asp for more information. To view rebates and incentives for your state, go to www.dsireusa.org

See the chart below to find out the average savings for your part of the country.

Average retail price of electricity are below for each of the main areas of the United States
Data is from the US Energy Information Agency (www.eia.doe.gov)

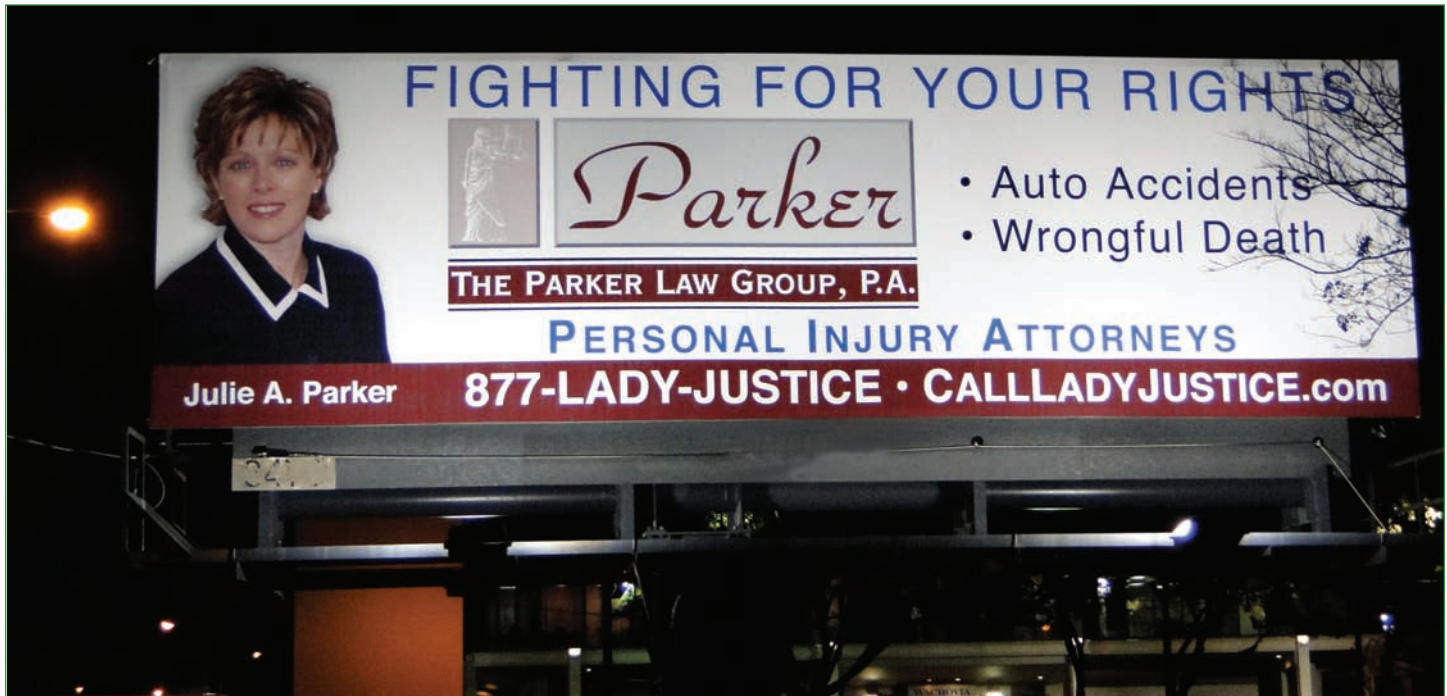


Before and After Photos on a 10.6 x 36



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Before – with two Holophane Panel-Vue's™



After – with each Panel-Vue™ converted to ZON LED



NOTE: Colors and levels of photos were not manipulated



We are committed to providing you with an elegant solution for projects demanding both style and performance. We guarantee unsurpassed quality by offering:

- Three Year Limited Warranty on LED Driver
- Five Year Limited Warranty on the LED



Limited LED Product and Driver

We warrant to the original purchaser, with proof of purchase, its delivered products should be free from defects in the material and workmanship for up to five years from date of shipment.

We will repair, or at our option, replace the defective product during the standard warranty period. This warranty applies only to the repair or replacement of the product and only when the product is properly handled, installed and maintained according to our instructions.

This warranty excludes defects resulting from improper installation, acts of God, fire, vandalism or civil disturbances. Purchaser must notify us in writing within 60 days of noticing the defect. This warranty excludes field labor or service charges related to the repair or replacement of the product. We reserve the right to change the warranty period without prior notice and without incurring obligation and expressly disclaims all warranties not stated in this limited warranty.

Limited LED Warranty

We warrant to the original purchaser, with proof of purchase, its supplied LEDs for five years from date of shipment. ZON LED will repair, or at our option, replace the defective fixture during the stated warranty period should there be greater than three simultaneous LED failures per fixture.

"Failure" is considered a non-operating LED. This warranty excludes field labor or service charges related to the repair or replacement of the product. We reserve the right to change the warranty period without prior notice and without incurring obligation and expressly disclaims all warranties not stated in this limited warranty.

Limited Finish Warranty

We will warrant to the original purchaser, with proof of purchase, for a period of 10 years from date of shipment. We will repair, or at our option, replace the defective finish if it exhibits cracking, peeling, excessive fading or corrosion defects during the warranty period.

This warranty applies only to the finish and only when the product is properly handled, maintained, installed and exposed to normal environmental conditions. This warranty excludes defects resulting from improper handling, storage, installation, acts of God, fire, vandalism or civil disturbances.

Purchaser must notify us in writing within 60 days of noticing the defect. This warranty excludes field labor or service charges. We reserve the right to change the warranty period without prior notice and without incurring obligation and expressly disclaim all warranties not stated in this limited warranty.

Outstanding LED **Lighting**

www.isioutdoor.com



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