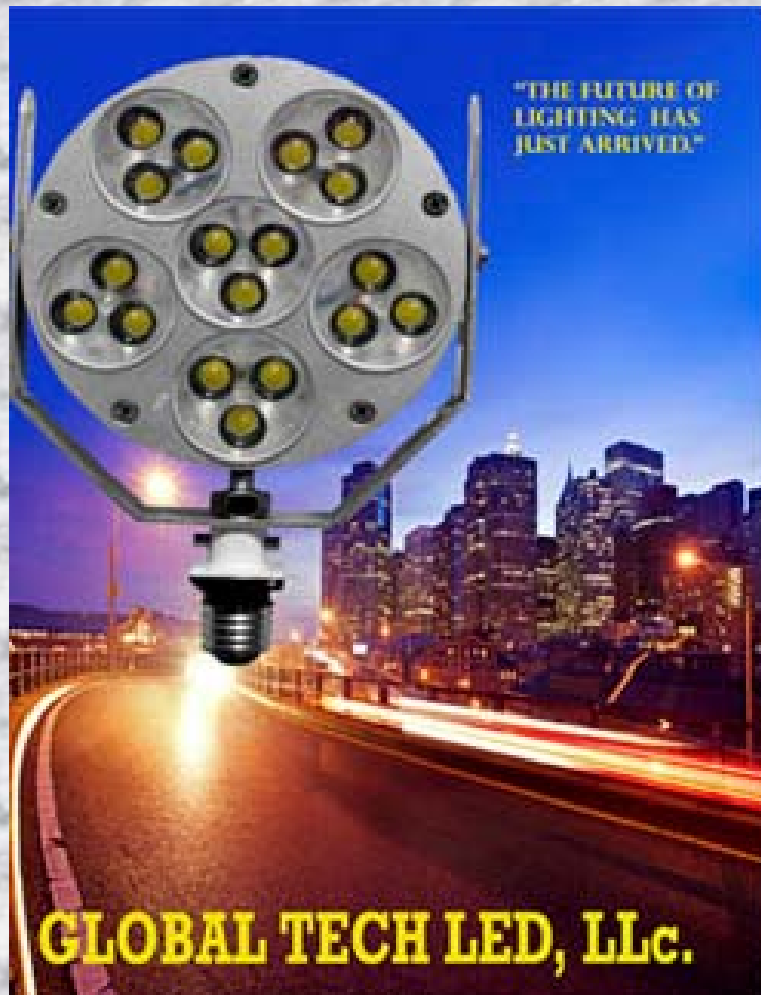


WWW.MPSEFFICIENCY SOLUTIONS.COM

Global Tech LED Solstice Model



Made in USA

Overview

- Energy Savings of 70-80%
- Less Than 3 Year Payback in Most Cases
- 200,000 Hour Life Span Rating
- 48 W Replaces up to 175 W
- 88 W Replaces up to 400 W
- 254 W Replaces 1000 W
- Retrofit or New UL Fixtures Available
- Made in the USA

Micro Processor

- Global Tech's on board micro processor is a simple solution for flexible and intelligent High Brightness LED control. Whether driving single or multiple strings of LED's, remote interface or monitoring- you can be assured of optimal LED control over wide ranges of operating temperatures and environments.

LED Smart Driver

- Our LED Smart Driver Design is a micro controller based system utilizing software refined over years of lab and field testing. Originally developed in 2004 due to the lack of suitable LED driver components, the first product was a single six LED string current controller. Over 10,000 units were sold and are still operating today. From this simple single LED string controller we have advanced to a multiple LED string controller with interface and remote monitoring capabilities.

Why We Beat Competition

- LEDs in parallel are notoriously poor at sharing current. Small mismatches in forward voltage and dynamic resistance can result in large imbalances in current from string to string. As LED slug temperature increases the imbalances increase. The difference in light output from the hottest string may not be noticeable but the lifetime and lumen maintenance decreases.

Our Smart Driver

- Our LED Smart Driver provides current regulation for each individual string of LED's using buck mode PWM control with high side current sense. Current accuracy over the LED operating temperature range is +/- 3%. Modular design enables scalability of the number of LED strings. Isolation of the high current switching from the micro controller eliminates the feedback in and around the micro controller package. This feedback causes poor current regulation and inconsistent performance in integrated LED Driver IC solutions. Compact design of the driver combined with advanced thermal management technology allows the driver and LED's to share the same PCB.

LED SMART DRIVER SOFTWARE FEATURES

- Multiple temperature control values. Over temperature protection, shut down at critical temperature and resume operation temperature.
- Under voltage lockout for power off or brownout.
- Soft start.
- User selectable current.
- Operation time/date control
- Fan operation
- Dimming
- Daylight Harvesting
- Occupancy sensing

LED SMART DRIVER INTERFACE

- 0-10 V Dimming
- DALI
- RS-232
- USB
- Ethernet
- Wireless

LED SMART DRIVER REMOTE MONITORING

- Remote monitoring of the LED Smart Driver can be achieved using any of the bi-directional interface methods listed above. System health, performance and operational data can be sent to a remote base.

Features & Benefits 48 W

- Replaces Up to 175 W Metal Halide, HPS, LPS, Mercury Vapor, Induction Lighting, and More.
- 200,000 Life Span Achievable Based on Outdoor Temperatures
- Can be Powered Down to 27 W If Less Light is Desired.
- 5 Year Warranty Standard
- 10 Year Warranty Available

Features & Benefits 88 W

- Replaces Up to 400 W Metal Halide, HPS, LPS, Mercury Vapor, Induction Lighting, and More.
- 200,000 Life Span Achievable Based on Outdoor Temperatures
- Can be Powered Down to 68 W If Less Light is Desired.
- 5 Year Warranty Standard
- 10 Year Warranty Available

Applications

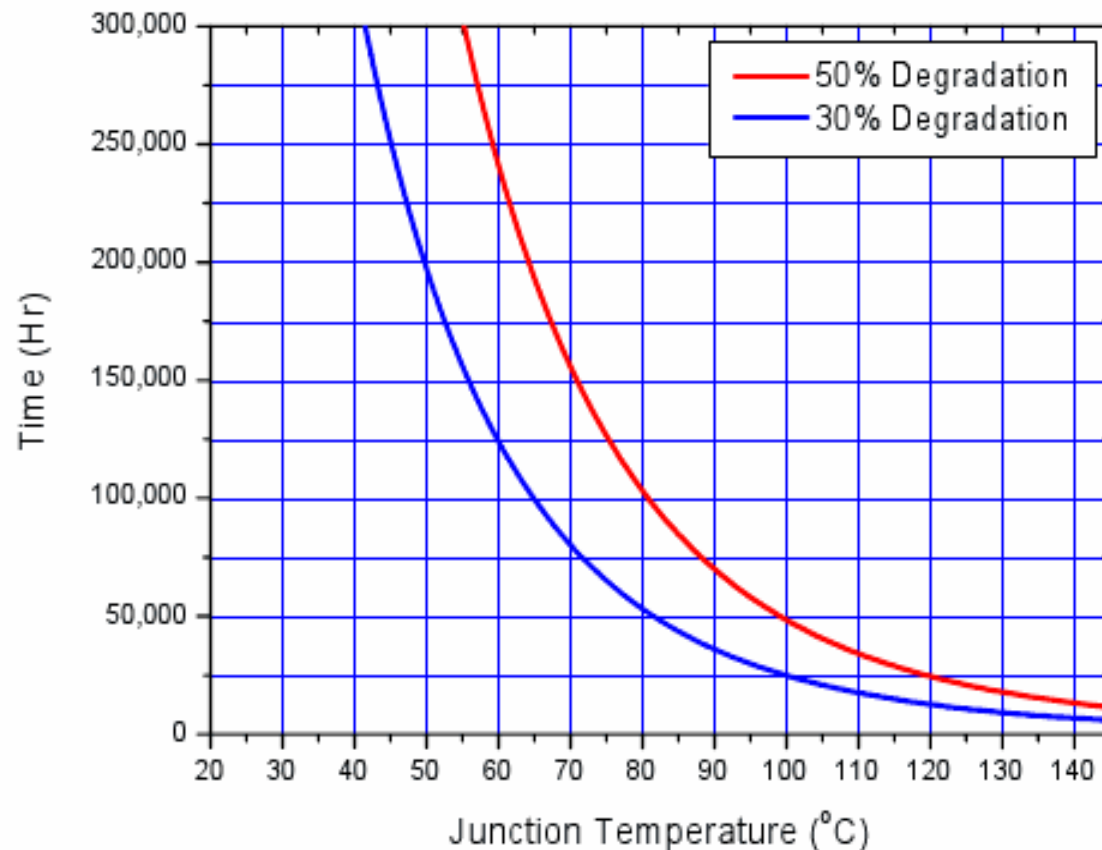
- Street Lights
- Parking Lot Lights
- Wall Packs
- High Bays
- Parking Garage's
- Spot Lighting
- Custom Designed Lighting Systems

Specifications Available

- Photometrics
- Reliability Charts
- Installation Instructions
- Test Reports
- Comparison Reports
- Saving Calculations

Tj vs. Life Time Graph of Z-Power P4 1W Pure White Series

50% & 30% Degradation graph of Luminous output



*This calculation can be done using the Arrhenius Model as shown below

$$R(t) = \exp(-\lambda t)$$

$$\lambda_2 = \lambda_1 \exp\left[\frac{E_A}{k} \left(\frac{1}{T_1} - \frac{1}{T_2}\right)\right]$$

where

$R(t)$ = Probability that unit will operate at time t

λ = failure rate

t = Time component is on

λ_1 = failure rate at junction temperature T_1

λ_2 = failure rate at junction temperature T_2

E_A = activation energy, in units eV

k = Boltzmann's constant ($8.617 \times 10^{-5} \text{ eV/K}$)

T = junction temperature in $^{\circ}\text{K}$ ($^{\circ}\text{K} = ^{\circ}\text{C} + 273$)

48 W With Lenses



88 W with Lenses



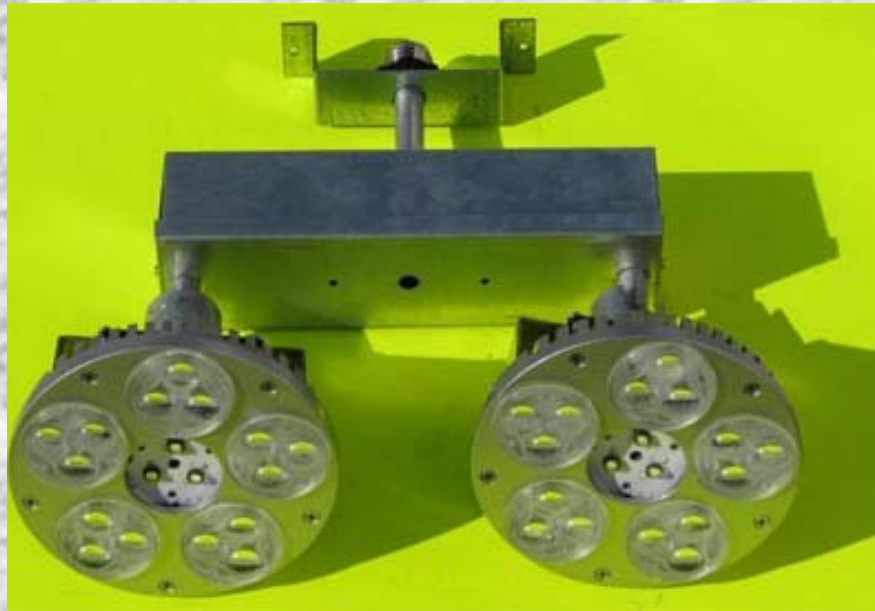
Lenses On Unit

- We Can Add Lenses to the LED Units to Direct the Light Where it is Desired
- With or Without Lenses Our LED Does Not Allow Light Pollution
- We Can Direct Our LED's to in Any Direction to Meet or Exceed Customers Lighting Needs

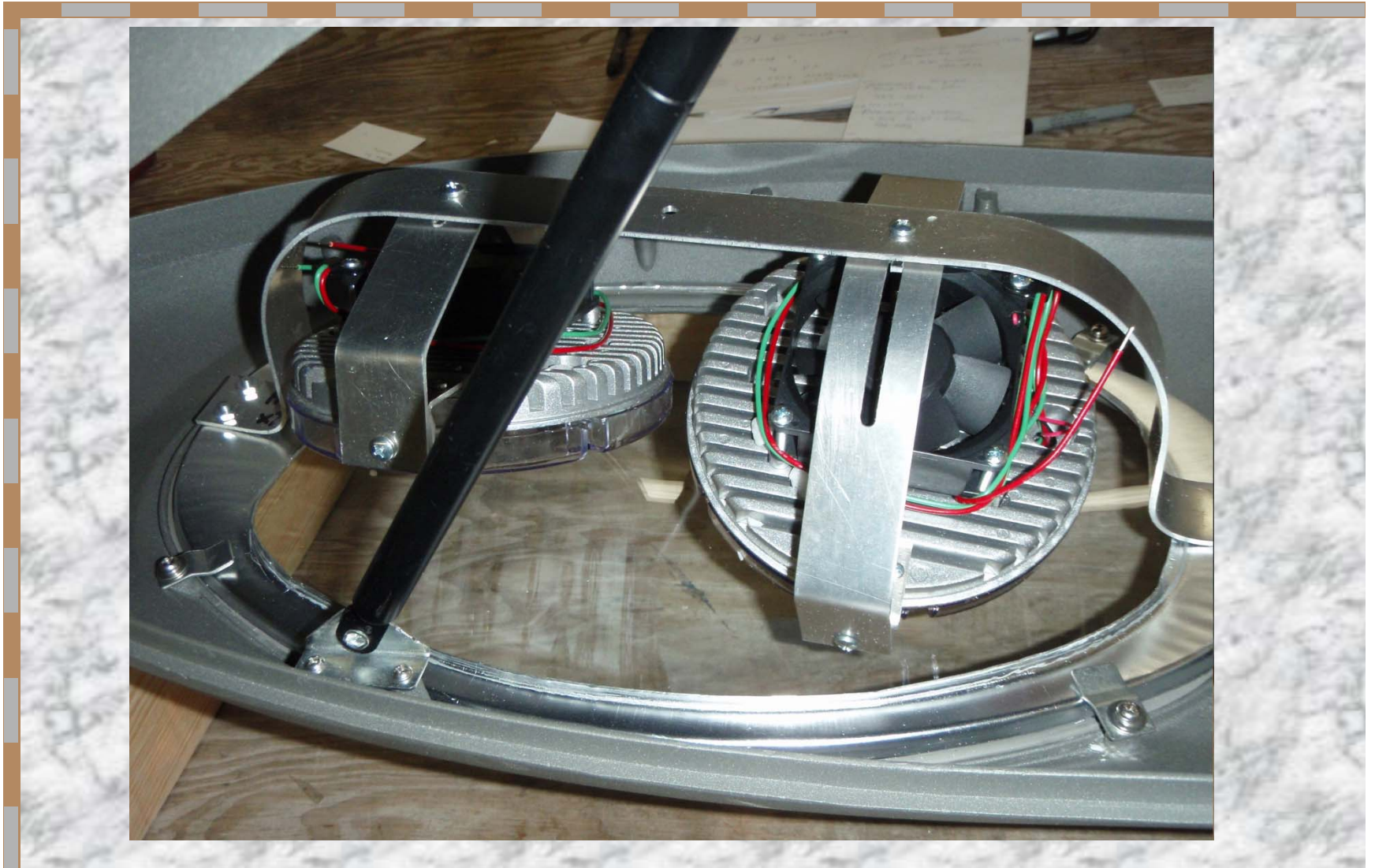
Single High Bay Retrofit



Double Solstice in High Bay



Double Solstice in Cobra Head



Double Solstice Cobra Head

- Notice the Ability to Adjust the LED's Left, Right, Forward, or Backward
- Double LED Cobra Head Can Achieve 160' Spread

Double Solstice Cobra Head



Post Top Retrofit



Cobra Head Retrofit



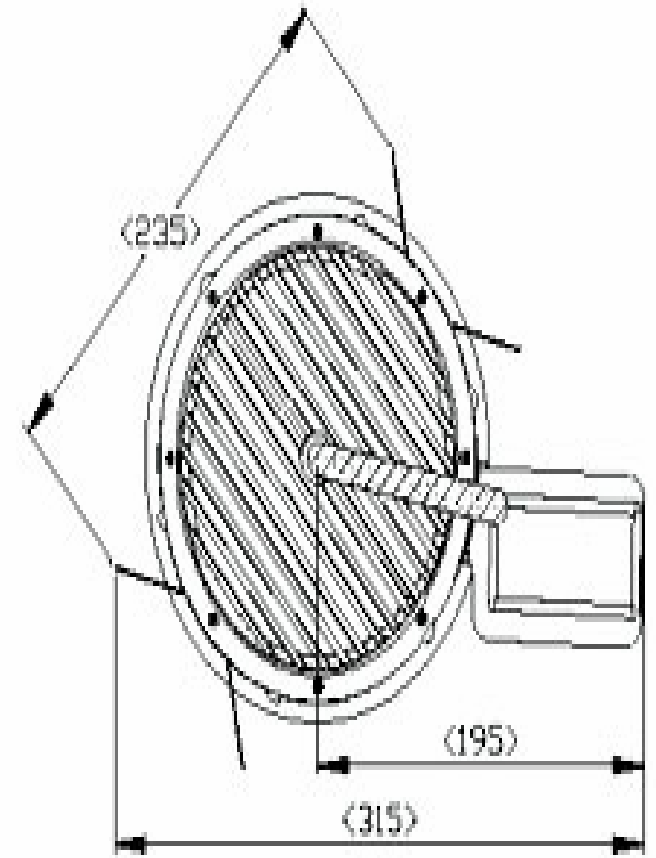
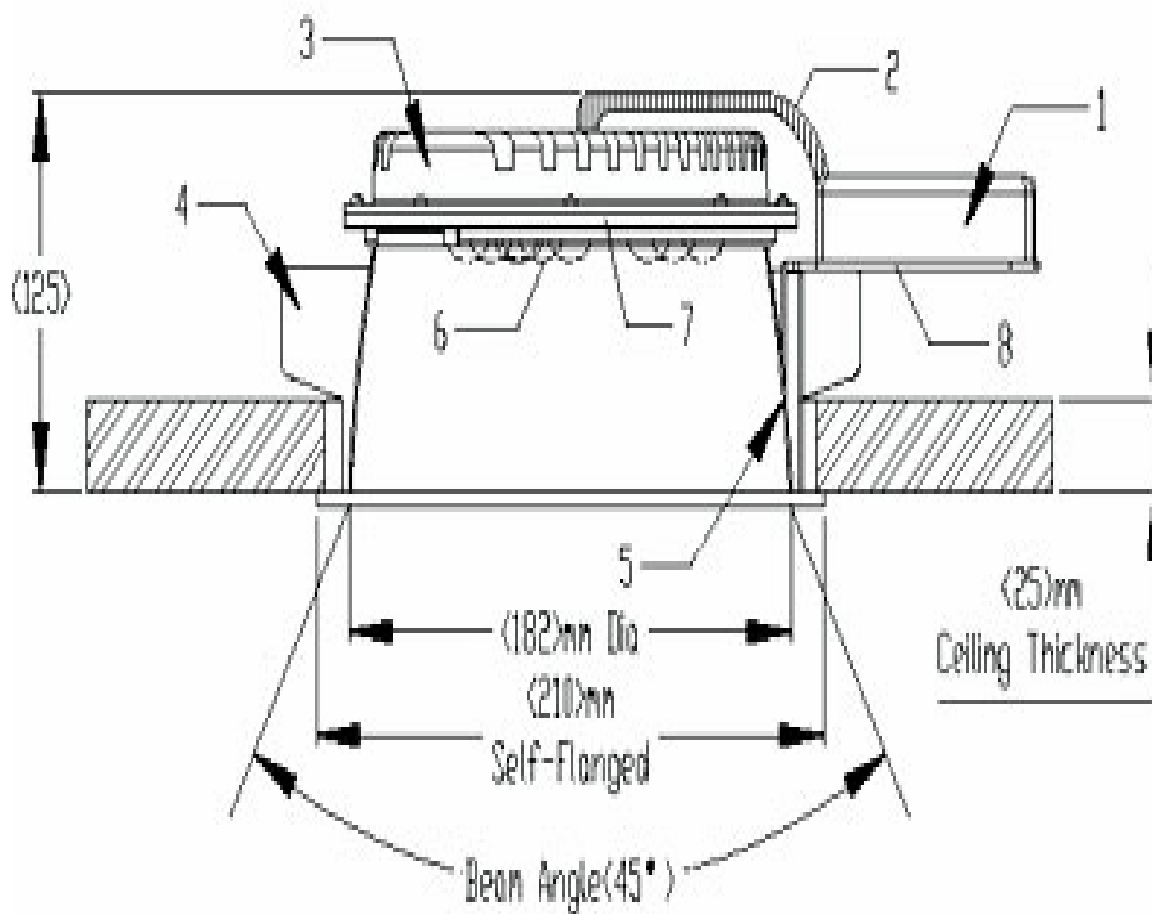
Gardco GP1 Bracket Retrofit



High Hat Retrofit



High Hat Retrofit



Top View

Ceiling Cutout: 200mm Dia

Other Fixture Options for Solstice





Florida Gulf Coast Garage



Florida Gulf Coast University 48W LED Garage Retrofit



City of Naples Roadway



Collier County



NCH Healthcare



Atlantic City Municipal Garage

Savings

- Original Lamp Wattage: 400W
- Replacement Lamp Wattage: 88W
- Watts Saved Per LED: 312
- Number of Lamps to Replace: 1000
- Total Watts Saved: 312000
- Total Kilowatts Saved: 312

Savings

- Hours of use per day: 8
- Days of use per week: 7
- Weeks of use per year: 52
- Total Hours per year usage: 2912
- Total KWH Saved Per Year: 908544

Savings

- Energy Cost per KWH: 0.10
- Total Energy Cost Savings per Year:
\$90,854.40

Savings

- Maintenance Cost per Fixture: \$60
- Number of fixtures: 1000
- Total Maintenance Cost: \$60,000

Savings



■ **YEARLY SAVINGS: \$150,854.40**

CONCLUSION

**So The Question IS NOT Why
Global Tech LED?**

It IS Why Not Global Tech LED?