ENERGY & TECHNICAL SERVICES CONFERENCE

SAVE ENERGY & REDUCE CARBON FOOTPRINT
OMNI ORLANDO RESORT AT CHAMPION'S GATE,
ORLANDO, FLORIDA. SEPTEMBER 7-10, 2008

FMI®
FOOD MARKETING INSTITUTE

- Steve Sindoni
- Commercial Engineer
- OSRAM Sylvania

Lighting

Energy Efficient
Product & Industry Update

OSRAM SYLVANIA

Introducing ecologic®3.

See green in a new light.

Sustainability isn't just about one feature. The ECOLOGIC®3 family of lamps combines the three major aspects of environmental responsibility into a superior sustainability solution: longer lamp life, higher lumens per watt and RoHS compliance for hazardous materials. It all adds up to a lower environmental impact and a lower impact on your wallet and an unwavering commitment to the environment from SYLVANIA.

ECOLOGIC®3 at a glance:

- Longer life
- Higher efficacy
- RoHS compliant*

GLOBAL CARE

U.S. GREEN BUILDING COUNCIL

ENERGY STAR AWARD 2007
SUSTAINED EXCELLENCE

SEE THE WORLD IN A NEW LIGHT

SYLVANIA

A Brief Overview of Energy Efficient Lighting Systems

-T8 & T5 systems

-Energy management ballasts

-Ceramic HID

-LED Systems

OCTRON® 4' T8 Family – Updated

	Octron Series	Initial Lumen	Maint. Lumen[5]	Lumen Maint.[5]	CRI	3hr Life PS[3]	12hr Life PS[4]	3hr Life IS[1]	12hr Life IS[2]
32W	700	2,800	2,520	90%	78	25,000	30,000	24,000	28,000
32W	700XP	2,850	2,708	95%	78	36,000	42,000	24,000	36,000
32W	800	2,950	2,802	95%	85	30,000	35,000	24,000	28,000
32W	800XP	3,000	2,850	95%	85	36,000	42,000	24,000	36,000
32W	800XPS	3,100	2,945	95%	85	36,000	42,000	24,000	36,000
32W	800XP/XL	2,950	2,861	97%	85	40,000	46,000	36,000	40,000
30W	800XP/SS[6]	2,850	2,680	94%	85	36,000	42,000	24,000	36,000
28W	800XP/SS[6]	2,725	2,562	94%	85	36,000	42,000	24,000	36,000
28W	800XP/XL/SS[6]	2,600	2,522	94%	85	40,000	46,000	36,000	40,000
25W	800XP/SS[6]	2,475	2,350	95%	85	36,000	42,000	24,000	36,000
25W	800XP/XLSS[6]	2,400	2,328	97%	85	40,000	46,000	36,000	40,000

1: Operated on Instant Start ballast at 3 hrs/start 2: Operated on Instant Start ballast at 12 hrs/start.
3: Operated on Sylvania Programmed Start ballast at 3 hrs/start. 4: Operated on Sylvania Programmed Start ballasts at 12 hrs/start. 5: @ 8000 hours
6: 28&30W SuperSaver lamps are for >60F ambient on any instant start ballast or Sylvania PSN/PSX ballast.
25W SuperSaver lamps are for >70F ambient on any instant start ballast or Sylvania PSN/PSX ballast.

The industry's first product to operate from either Power-line Fluorescent controllers or low-voltage (0-10 Vdc) controls.

- ***POWERSENSE™ Dimming Systems***

  - **Full-Range Dimming**
- ***High Efficiency***
- ***Dual Control Versatility***
- ***Universal Voltage***

POWERSENSE™ Dimming

- Great for conference rooms and offices
- Simple to install and operate

All you need is…

Absolutely <u>No</u> <u>control wires</u>

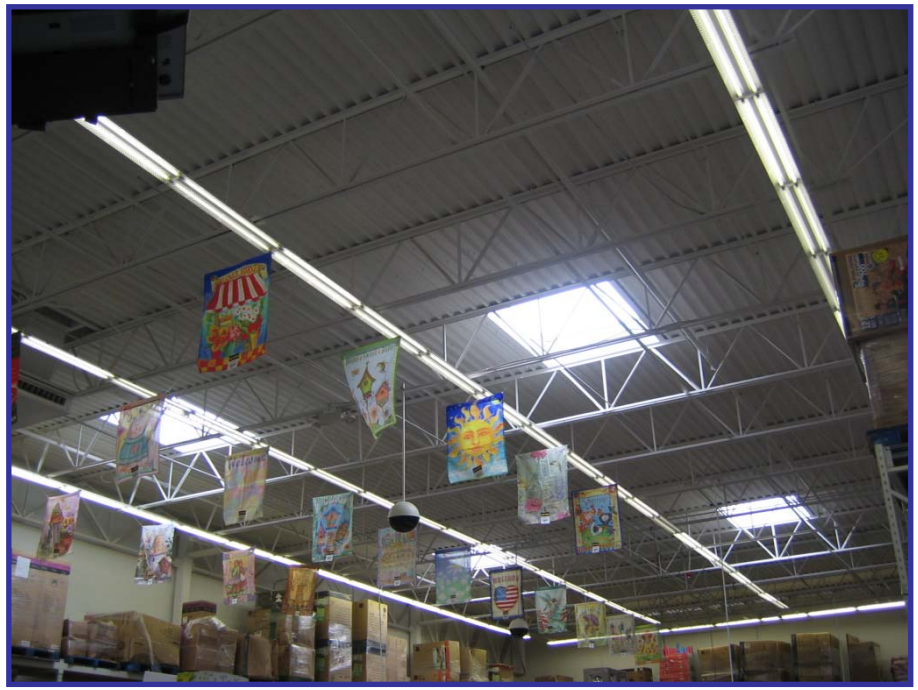
100%

T8 5%
T5 1%

POWERSENSE™ T8 Dimming

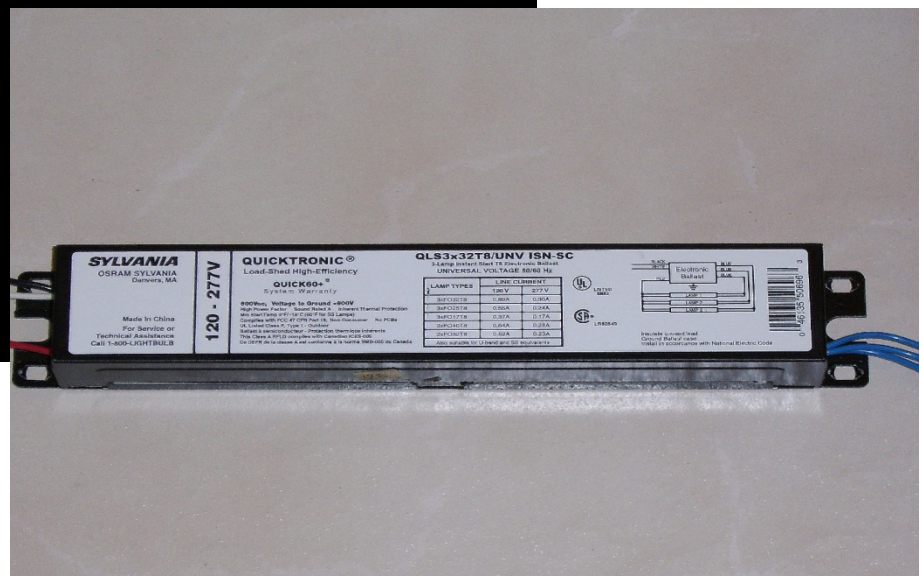
- Excellent for Energy Mgt & Daylight Harvesting
- High-Efficiency design

  Higher than **<u>ANY</u>** competitor!!!



Loadshed Lighting System

Responsive Lighting Control for Peak Load Mgt & Demand Response



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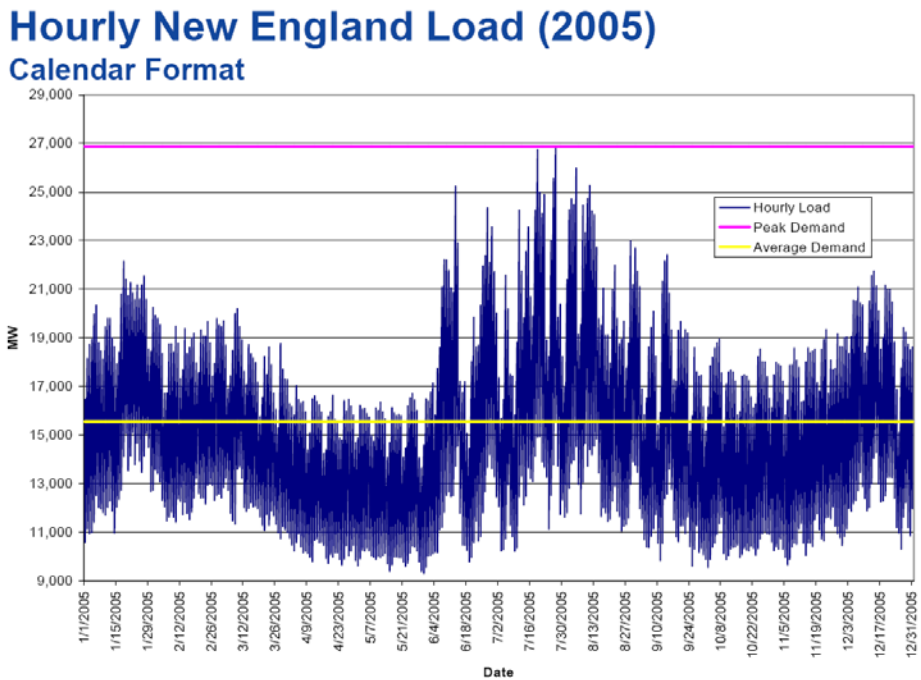
Why Manage Peak Loading?

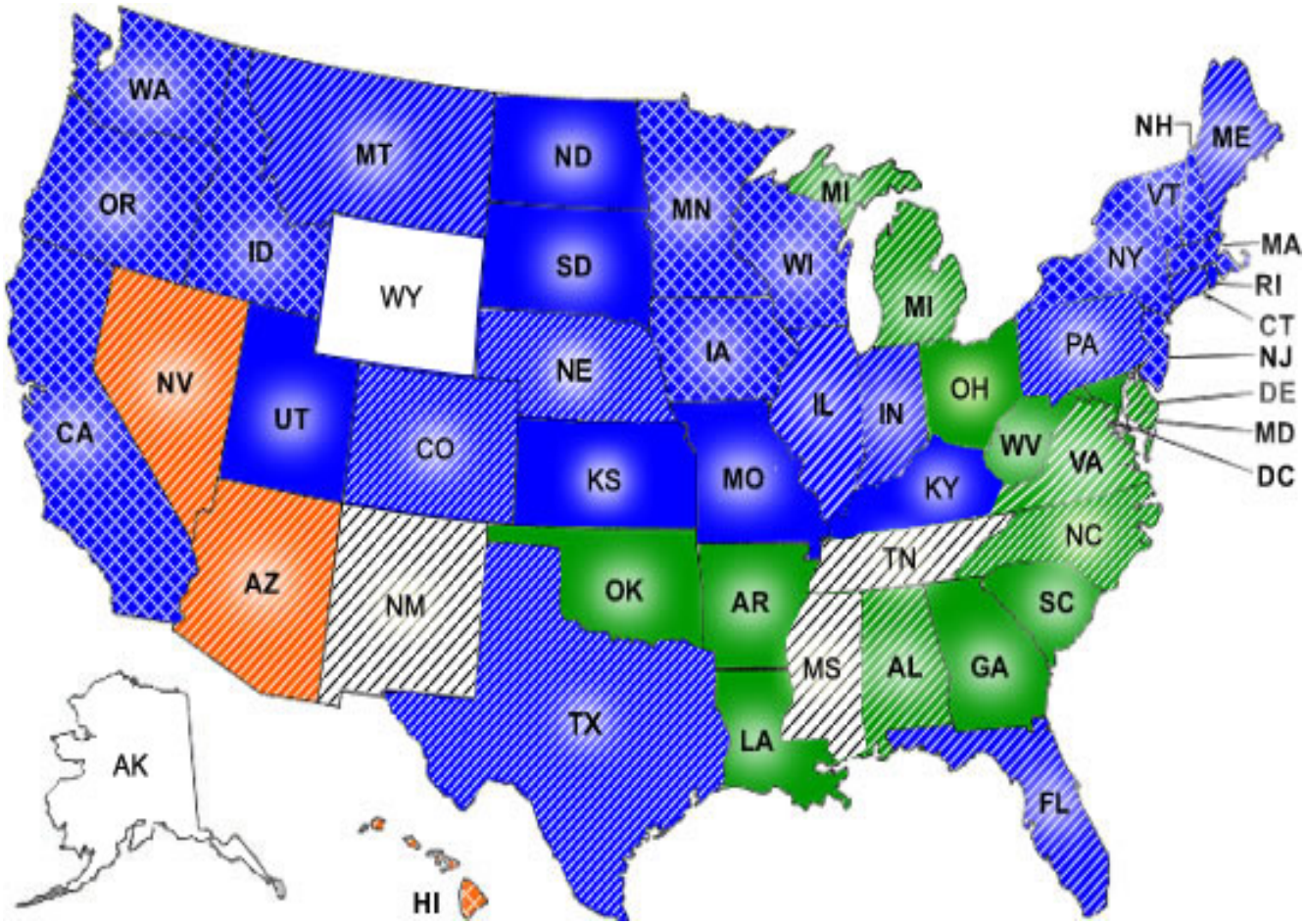


- New England Power Demand – 2005 (Peak Days)
  - 5 Days over 25 GW
  - 22 Days over 23 GW
  - 43 Days over 21 GW
  - (only 3 to 4 hours per day)

- Electricity use growing
  - Power Systems strained to keep pace
  - Supply must increase to maintain stability
    Or else…
    Peak Events can cause crippling Blackouts
- Energy Suppliers have 2 options
  - Purchase less efficient power from the market (more CO emissions), and expand T&D delivery systems

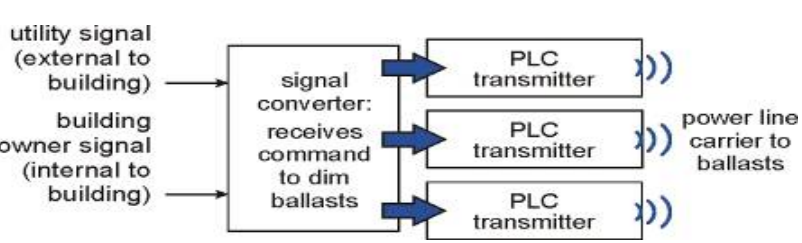
  OR…
  - Reduce Peaks!
    Purchase load shed “power” from Demand Response Provider (zero emissions)

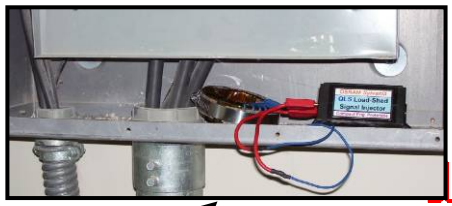
	These states have public purpose and/or utility energy efficiency programs as well as demand response/load management programs.
	These states have demand response/load management programs.
	These states have public purpose and/or utility energy efficiency programs.
	These states have distributed energy resource options available.
	These states have gas energy efficiency programs.
	These states have no energy management programs.

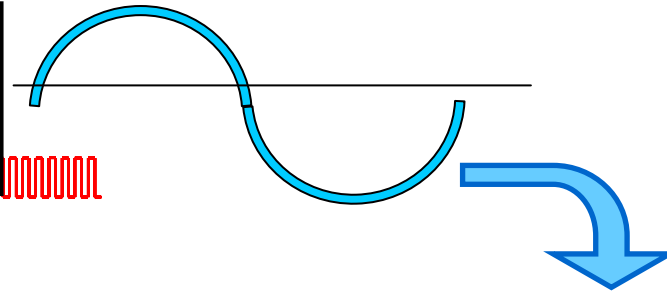


Source – US DOE/FEMP - http://www1.eere.energy.gov/femp/program/utility/printable_versions/utilityman_energymanage.html

HOW does it work?

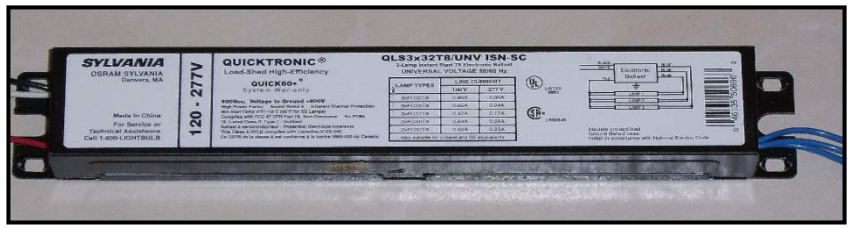






Generator induces signal

core wraps around all 4 panel leads

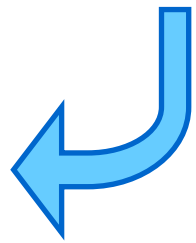


Simple ballast installation

same as QHE, no control wires

Peak load reduction

33% ltg pwr – Up to 200hrs/yr



QUICKTRONIC® High Efficiency Fluorescent Systems – Bi-level Systems

T8 QUICKSTEP®

Bi-level Systems

- High Efficiency
- Two light levels
  - 55 watts @ 0.87 BF
  - 27 watts @ 0.37 BF
- Program Start Operation
  - Extends lamp life
  - Use with Occupancy sensor

Available 1st Qtr. '08

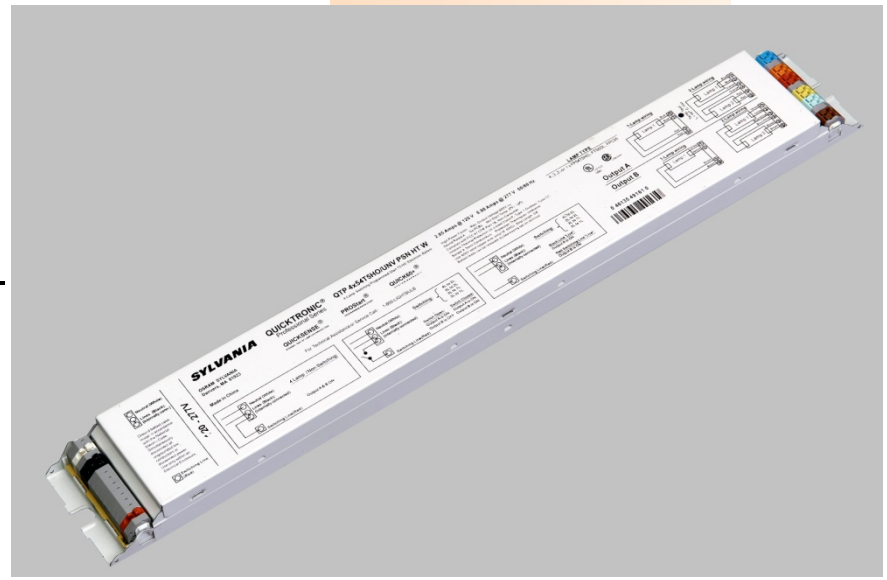
QUICKTRONIC®
Fluorescent Systems – Bi-level Systems

- ***T5HO QUICKSTEP® Bi-level Systems***

  - Lowered Starting Ballast Factor (.80)
  - Two light levels
    - 96 watts @ 0.80 BF
    - 52 watts @ 0.40 BF
  - Program Start Operation
    - Extends lamp life
    - Use with Occupancy sensor

QUICKTRONIC®
Fluorescent Systems – Bi-level Systems

- ***T5HO 4 Lamp Switchable Ballasts***
  - Allows for Switching:
    - 4 lamps to 2 lamps
    - 3 lamps to 2 lamps
    - 3 lamps to 1 lamp
    - 2 lamps to 1 lamp
  - High Ambient Operation –
    - Ex. High bay installations
    - Direct replacement std 400W MH
  - Distribution Centers
    - Optimum Energy Management



View the World in a New Light”

Ceramic Metal Halide

POWERBALL®

OSRAM SYLVANIA

Transition to Advanced Ceramic Technology

Spherical arc tube

POWERBALL®

The "Shape" of Light

SYLVANIA
(Today)

METALARC®
POWERBALL® EL

"The Shape of Light"

25W Integrated PAR38

Performance:

- 25 W @ 120V input
- 12,000 hrs
- 1,220 lumens
- 3000K
- 82 CRI
- CBCP
  - 10° Spot = 26,000
  - 25° Flood = 5,600
  - 40° Wide FL = 2,100

Features

- **EXCLUSIVE** *POWERBALL®* Arc Tube Technology
  - Accurate "Red" rendering (R9)
  - Consistent Color
  - Long Life
- Integrated Electronic Ballast
  - Precise Power Regulation
  - Low Input Voltage Shutdown
  - Thermal Monitoring w/ High Temp Shutdown
  - End-of-Life Protection
- ECOLOGIC®
  - Meets Federal* TCLP standards

TRU COLOR™ LONG LIFE™ ENERGY SAVING™ ECOLOGIC®™

Check State and Local Disposal Requirements

METALARC® POWERBALL® EL

"The Shape of Light"

Benefits

- Simple, cost effective retrofit of Halogen PAR38 Lamps
  - Over twice the light output @ ½ the wattage
    - Significant energy savings
    - Utility rebates available in many areas
  - 4X the life = reduced maintenance costs
- Ideal for ambient and accent lighting applications
  - Retail
  - Commercial

Halogen PAR38 Flood	Lamp Life (Hrs)		CBCP (Candela)		Energy Savings	
	Halogen	Powerball® EL	Halogen	Powerball® EL	Watts	Dollars*
120 W	3,000	12,000	4,600	5,600	95 W	$114.00
90 W	2,500	12,000	3,500	5,600	65 W	$78.00
75 W	2,500	12,000	3,150	5,600	50 W	$60.00
60 W	3,000	12,000	2,500	5,600	35 W	$42.00

Energy Savings per lamp over life time - based on $.10 kWh

The POWERBALL® Difference

- **Better Color Rendering**

- **Industry's Highest CRI in "930"**

- Best 'Red' Rendering
  - –Higher R9's = More Red's
  - –More Red = Better 'White'

20W *POWERBALL*® SYSTEM

- 20W ***POWERBALL***®
  - TC & PAR30 - Available now
  - Electronic Ballasts Only (ANSI M156)
    - SYLVANIA Ballast Offering: #51908 & 51909
- Features & Benefits
  - Better choice vs. Tungsten Halogen
    - **1/3** Energy Cost
    - **4 to 5X** More Life
    - Qualify for Energy Rebate Programs

Applications:

- Retail
- Grocery
- Architectural

	LIFE	Initial Lumens
20WTC CMH	12000 hrs	1700
20WPAR30 CMH	12000 hrs	1200
75W PAR38 TH	2500 hrs	1060

www.sylvania.com

SYLVANIA QUICKTRONIC®
Electronic HID Systems

Market Trends

Ceramic Now Makes up more than 12% of Metal Halide Sales and is the Fastest Growing Product Line in HID

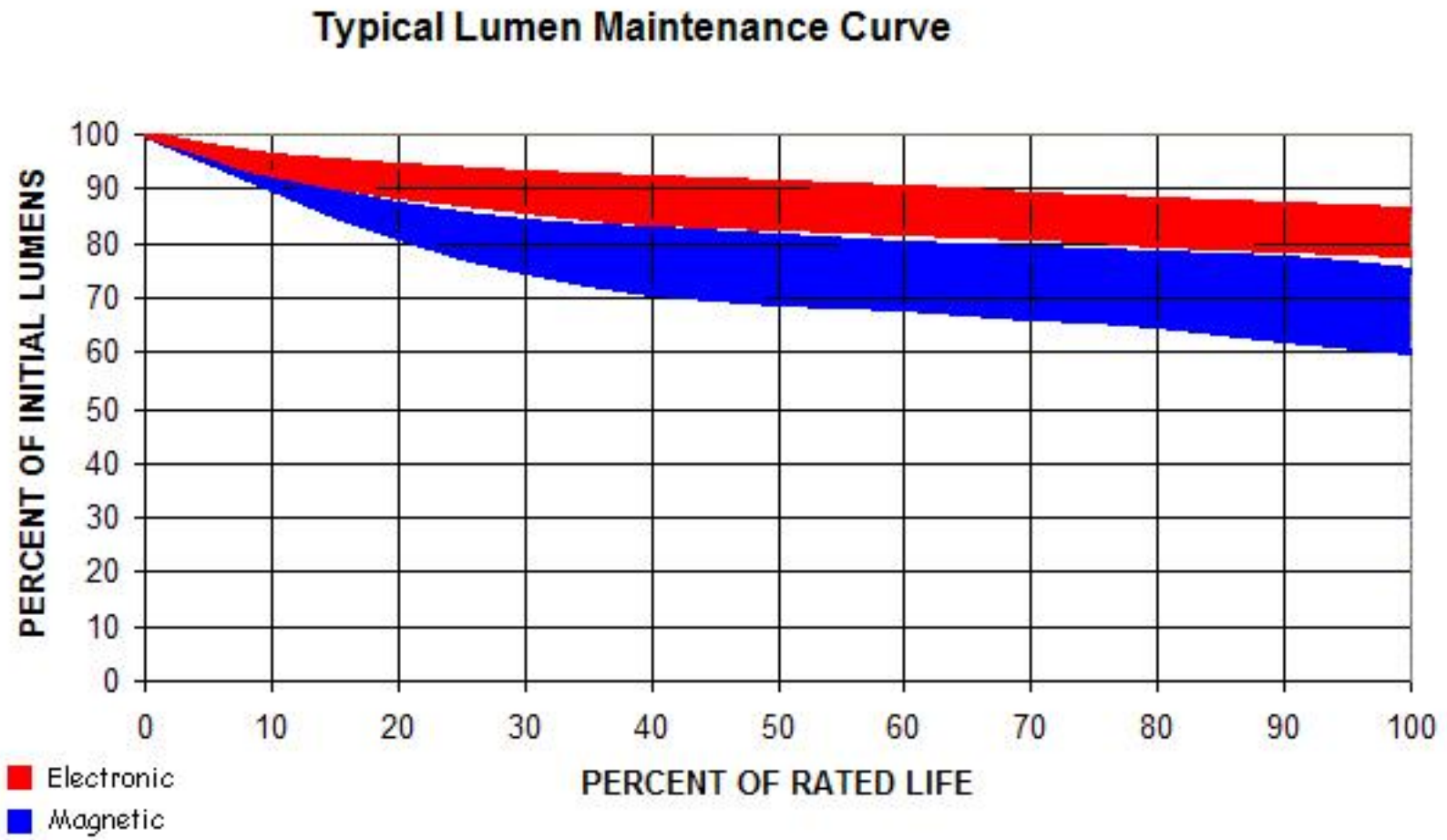
Key Features

- High Efficiency
- Longer Life
- Excellent Color Rendering
- Lower Energy Costs Including HVAC
- Less Maintenance of Accent Lighting

E-HID High Wattage System Advantages (200 – 400 W)

- Longer lamp life: ~10% improvement
- Better lumen maintenance: ~11% increase
- Energy Savings ~ 25% (M400/Mag versus MCP320/Elec)
- Easy to Install – Single Piece Versus 4 for Magnetic
- End of Life Shut Down
- Higher Maintained CCT & CRI
- Reduced ballast weight
- QUICK 60+® System Warranty

Lumen Maintenance



Magnetic Vs. Electronic Watt for Watt Savings

	Magnetic	Electronic	Watts Savings	Energy Savings*
35 W	54	44	10	$4.00
50 W	67	58	9	$3.60
70 W	95	78	17	$6.80
100 W	130	110	20	$8.00
150 W	185	167	18	$7.20
200 W	232	215	17	$6.80
250 W	290	269	21	$8.40
320 W	368	344	24	$9.60
350 W	400	376	24	$9.60
400 W	458	430	28	11.20

* Based on 4,000 hrs per year @ $.10 kWh

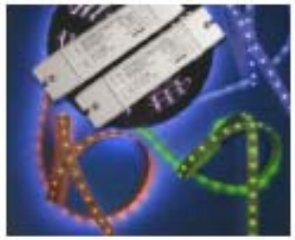
Electronic HID Vs T-5 System Comparison

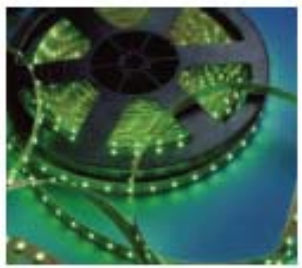
Lamp Type	M400/U	MCP320 (E/M)	6 lamp T5HO
Initial Lumens	36,000	37,500	30,000
Mean Lumens	23,500	32,344/ 28,125	27,900
Lumen Maintenance	65%	86% / 75%	93%
System Wattage	452	343/368	351
Fixture Type	Alum. high bay	High bay prismatic	High bay indust.
Fixture Efficiencies	65-75%	80-90%	85-95%
Actual Lumens	16,450	27,492	25,110

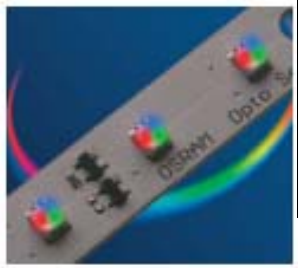
LED

OSRAM SYLVANIA

LED Fixtures Featuring OSRAM SYLVANIA LED Systems







OSRAM SYLVANIA

Step, Landscape and Marker Lights

Typical applications of these types of fixtures include:

- Highlighting trees, plants and landscaping
- Lighting paths and walkways
- Decorative and safety lighting for indoor and outdoor stairs, walls and buildings
- Accent lighting around decks, patios, pools and gardens
- Egress lighting

OSRAM SYLVANIA

Undercabinet, Accent, Display and Cove Lighting

Typical applications of these types of fixtures include:

- Task lighting under cabinets
- Cove lighting
- Edge lighting
- Providing decorative or functional features to interior spaces
- Highlighting or accenting architectural elements
- Display and showcase lighting

General Lighting

Typical applications of these types of fixtures include:

- Lighting open spaces, rooms and hallways in buildings, offices, retailers and homes

OSRAM SYLVANIA

Architectural and Façade Lighting

lighting designer: Randy Sabedra, RS Lighting

Typical applications of these types of fixtures include:

- Lighting the exterior of entire buildings
- Adding decorative elements to façades or other structures
- Highlighting architectural elements
- Entry lighting

Refrigeration, Freezer and Cooler Lighting

Typical applications of these types of fixtures include:

- Glass front refrigerated cooler and freezer doors
- Industrial walk-in coolers and freezers
- Food service prep areas
- Grocery store islands
- Salad bars

ENVIROBRITE SSL

cooLED STICK

Features

- Service life of 50,000 hours
- Innovative low profile aluminum heat sink for maximum LED durability
- Optical lenses to enhance performance
- -30 degree start up temperature
- Light weight for easy installation
- No ultraviolet or infrared radiation
- 38.6 LPW to 66.2 LPW performance
- RoHS compliant

ElectraLED®

Energy Efficient LED Flood Lights

TrüColor OH18™ & OH24™

Design Features

- LED engine and driver system engineered for maximum component life
- Latest generation LED components and optics
- Flexible beam options from spot to flood
- Rugged and robust thermal platform
- Available in 20 and 26 watt versions
- Greatly reduced energy, maintenance and total life cycle costs

SYLVANIA
LED TECHNOLOGY

ElectraLED, Inc.

2750°K
3000°K
3500°K
4200°K
5100°K
6500°K

ElectraLED, Inc. • 12722 62nd Street N, Suite 200 • Largo, FL 33773 • 866-561-7610 • Fax 727-561-7605
info@electraled.com • www.electraled.com

TruColor TL18™

ElectraLED®

Energy Efficient LED Track Lights

Design Features

- LED engine and driver system engineered for maximum component life
- For use on most commercial track systems 120 - 277 VAC
- Latest generation LED components and optics
- Flexible beam options from spot to flood
- Available in black, white and silver color options
- Greatly reduced energy, HVAC impact, maintenance and total life cycle costs

CLASSIFIED c UL us

SYLVANIA

LED TECHNOLOGY

ElectraLED, Inc.

2750°K
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info@electraled.com • www.electraled.com

Healthcare Lighting

Typical applications of these types of fixtures include:

- Lighting patient areas of hospitals and healthcare facilities

Signage

Typical applications of these types of fixtures include:

- Backlighting channel letter signs
- Custom backlit interior or exterior signs, letters or numbers

OSRAM SYLVANIA