SYLVANIA

LED Lamps

Brighter thinking

SYLVANIA

Your global partner for full spectrum lighting solutions

We are Havells Sylvania, one of the world's major lighting groups for more than a century. We strive to improve the way people live by enabling them to enjoy better lighting in a more sustainable manner. Today, we continue to build on our exceptional reputation as an innovator and creator of high-efficiency, energy-saving, light sources and luminaires, by providing full spectrum lighting solutions tailored to individual needs.

Our three main brands – Concord, Lumiance and Sylvania – concentrate strengths in innovative product design, engineering and production, plus application expertise, in their specialised areas of activity: high-end architectural, decorative and functional professional lighting respectively.

Our 2007 acquisition, by Havells India Ltd, gives us the financial strength and resources to significantly expand and improve the business. The group, which has 94 branches and representative offices and 8,000 staff in more than 50 countries, has grown rapidly to become a US$ 1.2 billion company with 18 manufacturing plants in India, Europe, Latin America and Africa, producing globally acclaimed products such as switchgear, cables, wiring devices and lighting.

LED technology by Sylvania

Our technology has reached the stage where you can confidently replace old technology lamps with the latest LED retrofit lamps for general lighting purposes. Sylvania LED lamps will deliver satisfied customers by replacing incandescent and halogen lamps with LED, keeping the light level and comfort they are used to, but achieving huge energy savings.

Our LED lamps share one unique Sylvania design, building on our heritage with the spiralised reflectors used on halogen lamps. Our performance is best in class, making it easier to make the best choice on the market and take no risks on safety or quality. LED lamps contain no mercury, no lead, and achieve up to 90% energy savings, making them very environmentally friendly.

Over 100 years of innovation on lamps technology






1986

Superia Closed Low Voltage halogen lamps
First Halogen lamp with UV protection

1990

HI-SPOT® E27 Halogen Range – 230V
First mains voltage Halogen range, directly replacing incandescent

1993

SHP TwinArc HID
Exceptional reliability, immediate re-strike after a power interruption

1995

HI-SPOT® E27 Halogen
First mains voltage Halogen range, directly replacing incandescent

1997

HI-SPOT® ES50 Halogen
Patented spiral faceted aluminized reflector, no transformer needed

2000

Micro-Lynx F CFL
New unconventional form CFL, ultra compact size

2003

BriteSpot ES50 Reflector Metal Halide
Metal Halide First Compact GX10 reflector Metal Halide lamp

2006

Superia ES50 Halogen
technology breakthrough with maximized lamp life, light output and efficacy

2007

CFL Mini-Lynx Fast Start
Compact energy saver for instant light

2008

HI-SPOT® Superia ECO
HI-SPOT® Superia ECO Halogen mains voltage GU10 spot with 30% energy saving

2011

GU10 LED
First European made true 50W halogen retrofit

T2 Luxline Slim System
Elegant concept with ultra slim ballast and robust lampholder

Sylvania invented the first GU10 lamp in 1997

At the edge of innovation on LED

LED GU10 – 15 years in the making

With much being made in the national media regarding LED lamps, it is interesting to note that Sylvania is still innovating in GU10 technology with a product range first launched to great acclaim nearly 15 years ago, as you can see in the graph of the previous page. The lamp is manufactured at Sylvania's state-of-the-art facility in Tienen (Belgium), where the original halogen GU10 lamp was invented and first produced back in 1997. This new product offers outstanding performance of 350 lumen output and up to 25,000 hours of life.

"For a long time the market has been crying out for a product that is a straight replacement for a 50W GU10 halogen lamp," says Peter Dillen, Strategic Business Unit Director LED. "The GU10 halogen format is hugely popular across the lighting world but until now, there has been no replacement LED product that is not flawed in some way. In our opinion, the 350lm ES50 LED has no draw-backs, it is a straight replacement for a 50W halogen flood and delivers the lower energy costs and reduced maintenance of LED technology. All this, and at an extremely competitive price point! We're anticipating huge demand for the product and are looking forward to it occupying the same iconic position as our halogen forebear."

The 350lm ES50 has various patented design features that have overcome the shortcomings of comparative products in the marketplace. The current best alternatives are larger lamps that do not fit into all luminaires, or traditional-sized products that, in reality, fail to match the true 50W halogen performance. The new design strikes a perfect balance between heat sink size and space between the cooling fins to achieve clear air circulation and effective heat evacuation. The result is a smaller, lighter lamp delivering a higher 350 lumen output, to offer class-leading performance that sets a new benchmark for LEDs.

LED Excellence centre, Tienen (Belgium)

Sylvania LED Lamps

Benefits you can count on

- Very high energy efficency, meaning very **low CO_2 emissions.**
- **Very long lifetime**, typically 15 times longer than more conventional light sources.
- High CRI >90 for **excellent colour rendering and high quality lighting.**
- **Instant start** making LED ideal for hall, bathroom, apartments using automatic movement detection or manual switching.
- **Solid state** lighting (no discharge, no filament) so LED is ideal for applications in areas with a lot of vibrations.
- **No UV emission** = ideal for museums, art galleries, shops and all applications sensitive to decoloration.
- **Not sensitive to low temperatures** so ideal for use in outdoor lighting in suitable fixtures.
- **Very low IR** so ideal for lighting of heat sensitive objects like food, fish, chocolate and savings on air conditioning costs.
- Environmental friendly, less heat, **no mercury**.
- **Dimmability** to create the right atmosphere.
- **Compatibility** with virtually any installation.

Big savings without compromising quality

Sylvania's LED lamps provide tremendous energy savings when compared to traditional light sources and achieve great performance. See the next pages to discover how we can help you save money.

Calculate your savings online

Discover how much you can save in your business. Make a personalised calculation online.

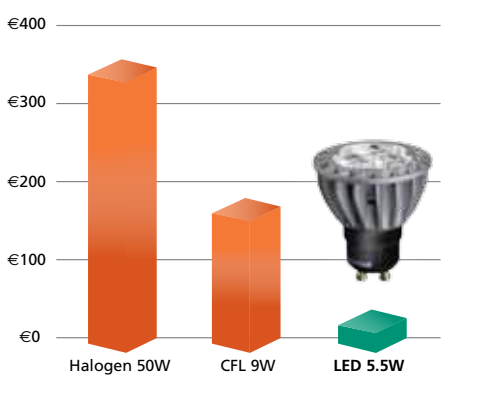
www.havells-sylvania.com

3 year warranty period on all LED lamps

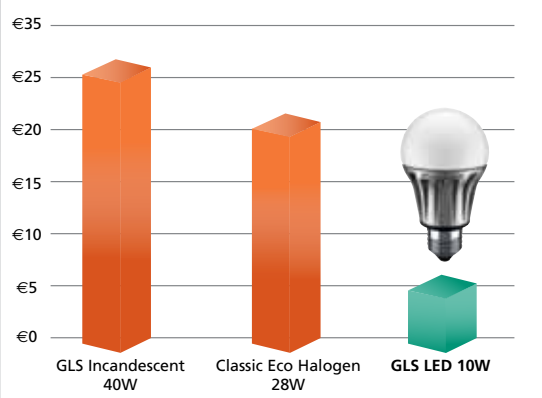
Details of the warranty conditions can be found on our website or with the Sylvania sales representative.

Cost of energy per year

Halogen and CFL versus **LED**



Incandescent and halogen versus **LED**

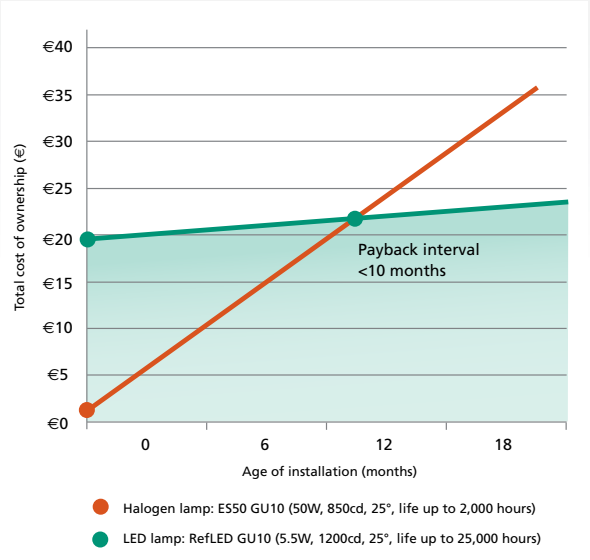


Cost of energy per year = $\frac{\text{lamp wattage}}{1000}$ **x burning hours x 365** $\frac{\text{days}}{\text{year}}$ **x energy cost** $\frac{€}{\text{KWh}}$ **x number of lamps**

Cost of enery per year for 50W halogen GU10 lamps = $\frac{50W}{1000}$ **x 11 h / day x 365 x 0,17 €/Kwh x 500**

Your return on investment

Total cost for professional use 11hrs a day or 4,000 hours a year = Break-even in < 14 months



Same light output, lower wattage

Incandescent lamps: wattage in W	Typical luminous flux in lumen	Luminous flux required for LED lamps as per EU regulation (ERP DIM) in lumen
15	100	136
25	220	249
40	415	470
60	710	806
75	925	1055
100	1340	1521

Lumen, the new light output standard

Wattage is no longer the best way to measure light output. Wattage tells you how much power is consumed, not the amount of light emitted. To understand the light output of a lamp, we should use lumen.

How much can you save?

Sylvania offers a wide selection of energy saving LED retrofit lamps with excellent colour rendering and high quality light, creating a friendly, comfortable atmosphere for your business. Find out in the next pages how much money you can save by simply changing your lightbulbs.

Find out about our lightbulbs and luminaire solutions in our specific Hospitality brochure. Download it on our website or request your electronic copy on hospitality@havells-sylvania.com

Get the right lamp for each of your hotel areas

Entrance (outdoor)

HI-SPOT® RefLED PAR38 outdoor

Reception

HI-SPOT® RefLED ES50 GU10

Meeting room

HI-SPOT® RefLED PAR20

Fitness and leisure centre

LED 550lm AR111

Kitchen

Microlynx high performance

SAVE

€14,375

PER YEAR

By replacing 500 halogen 35W GU10 spots with LED 7.5W RefLED GU10

Payback is achieved < 10 months.
The saving per lamp is €34.50 per year.

The total savings calculations in this brochure are based on the following principles:

- Compared to a lamp with the same luminous flux (halogen for reflector or incandescent for non directional lamps)
- Power consumption
- Lamp life
- Cost of 1 Kwh = 0,17 €/KWh
- Cost of the lamps, replacement cost (including lamp costs, labour cost €35/h)
- 10 lamps
- 4,000 burning hours per year

Hall and lift

Toledo Tubes

Guest room

Toledo GLS A60 dimmable

Bathroom

RefLED LV MR16

Restaurant and bar

Toledo Globe

Terrace, garden, around swimming pool

PAR56 swimming pool lamp

HI-SPOT® RefLED ES50 GU10

The new HI-SPOT® RefLED ES50 GU10 350lm LED lamp, a true LED retrofit replacement for the 50W Halogen GU10 and GZ10. The innovative design strikes a perfect balance between the heat sink size requirements and the space between the cooling fins to achieve clear air circulation and effective heat evacuation. The result is a smaller, lighter lamp, delivering 350 lumen output, setting a new benchmark for LEDs.

The first true 50W Halogen Retrofit

€355

Savings per year

for 10 lamps

Lumen and halogen wattage equivalent

65W	450lm
50W	350lm
35W	230lm

The HI-SPOT® RefLED ES50 GU10 350lm is available in 2700K Homelight, 3000K Warm white and 4000K Cool white colours with a beam angle of either 25° or 40°; the 25° delivers 1200 candela, and the 40° delivers 600 candela in the warm white colour temperatures. Furthermore, the new HI-SPOT® RefLED ES50 GU10 350lm LED lamp beats market standards by offering an exceptionally high power factor of 0.8; making it extremely efficient in converting input power (VA) into output.

Coming soon 450lm version and 350lm dimmable.

From Lux Magazine (UK)

★★★★★

RECOMMENDS

We love this lamp. It's the first true LED replacement for GU10 halogen that we've seen (and we've seen a few). It hits all the numbers and the beam quality is awesome. A stunning achievement we recommend without reservation.

Key features

- 7.5W, the first true 50W Halogen retrofit
- Up to 85% of energy savings
- As per IEC standard dimensions, its compact size means it can retrofit all GU10 and GZ10 type luminaires
- Beam angles of 25° and 40°
- Available in different colour temperatures: 2700K homelight,
- 3000K warm white and 4000K cool white
- Up to 51lm/w in cool white
- High light output: 350lm
- Long lifetime, more than 25,000 hours
- High power factor of 0.8
- Made in Tienen Belgium, ensuring you of European craftsmanship

RefLED LV MR16

Sylvania's new MR16 LED, a direct replacement for the popular MR16 halogen lamp. Available in 350lm and 450lm, they provide replacement options for both the 35W and 50W halogen versions.

As expected with LED technology, the new MR16 variants offer 80% energy savings versus halogen and a lifetime of up to 25,000 hours.

Furthermore, the new 50W alternative version is the first retrofit MR16 LED replacement lamp to achieve 450lm without the use of an active cooling fan. Manufactured at Sylvania's state-of-the-art facility in Tienen, Belgium, the range benefits from European build quality, performance and reliability – and because, unlike other similar lamps, it does not incorporate a cooling fan, the MR16 LED is quiet in operation. The new lamp can be used in any existing MR16 luminaire – even IP rated ones with a protective lens.

€200

Savings per year

for 10 lamps

MADE IN BELGIUM EUROPE

DIMMABLE

Lumen and halogen wattage equivalent

50W → **450lm**

35W → **350lm**

Key features

- Compact size = 100% retrofit for existing fittings
- Available in either 350lm or 450lm
- Long life; 25,000 hours
- 80% energy saving vs. halogen means fast payback
- Made in Europe
- High power factor : 0.8
- Fully compatible with magnetic transformers and broad compatibility with many electronic transformers
- Without cooling fan, quiet operation
- Halogen like warm light
- Suitable for use in bathrooms when installed in an IP44 rated fixture
- Driver 12V DC compatible with MR16 LED retrofit lamps

Sylvania LED range

SAVE
€203
PER YEAR PER
10 LAMPS

SAVE up to
€331
PER YEAR PER
10 LAMPS

SAVE
€438
PER YEAR PER
10 LAMPS

HI-SPOT® RefLED Home ES50 GU10 dimmable

Compact 4W retrofit GU10 replacement for mains voltage halogen spotlights.

Applications
Ideal for hospitality spaces such as rooms, corridors or receptions.

Key features
- Long life 25,000 hours
- 85% energy saving
- Suitable for retrofit replacement of mains voltage halogen lamps (220V-240V)
- 30° beam angle
- Low power consumption 4W
- Warm white 3000K
- High colour rendering CRI 80

HI-SPOT® RefLED PAR16/20/30

The ideal energy saving alternative for lighting in public areas and shops.

Applications
For indoor use in open/ventilated luminaires.

Key features
- Suitable for retrofit replacement of incandescent and halogen PAR lamps (220V- 240V)
- Warm white 3000K
- Good colour rendering CRI 80
- Long life 30,000 hours
- Uniform light distribution
- 80-90% energy saving
- Warm natural colour rendering
- Light output matching 35-50-75W halogen
- Minimum maintenance costs

HI-SPOT® RefLED PAR38 outdoor

Weather resistant build for exterior lighting, with an attractive and unique matt finish.

Applications
Outdoor.

Key features
- Suitable for retrofit replacement of incandescent and halogen PAR lamps (220V- 240V)
- Up to 90% energy savings compared to Incandescent or Halogen equivalents
- Suitable for exterior lighting with suitably rated luminaire
- Weather-resistant
- 3000K Warm white
- Good colour rendering CRI = 85
- Very long lifetime 30,000 hours

SAVE
€200
PER YEAR PER
10 LAMPS

SAVE
€200
PER YEAR PER
10 LAMPS

SAVE
€192
PER YEAR PER
10 LAMPS

RefLED LV MR16

A direct replacement for the popular MR16 halogen lamp. Available in 350lm and 450lm, they provide replacement options for both the 35W and 50W halogen versions.

Applications
Ideal for hospitality spaces such as rooms, corridors or receptions.

Key features
- Compact size = 100% retrofit for existing fittings
- Available in either 350lm or 450lm
- Fully dimmable (on cutting edge dimmers)
- Long life time: 25,000 hours
- 80% energy saving vs. halogen means fast payback)

RefLED 550lm AR111

The new RefLED 550lm AR111 is an energy efficient solution with reduced maintenance costs featuring the latest LED technology from Sylvania.

Applications
Perfect for hotels and retail.

Key features
- 10W, low energy consumption product with low maintenance costs
- Excellent colour rendering CRI 80
- High output of 550lm
- Lifetime of 50,000 hours
- High power factor, 0.9
- Fully dimmable
- Same size as halogen lamps, fits AR111 luminaires
- Broad compatibility with dimmers and high frequency
- electronic transformers

RefLED SA111

The only LED lamp on the market which has the same attractive design as the halogen equivalent.

Applications
Ideal for retail display and the hospitality sector. Particularly suited for use in supermarkets and convenience stores as the lamp does not emit UV or IR rays, so light-sensitive products, such as food, are protected.

Key features
- Authentic AR111 with aluminium patented spiralised reflector design offering uniform light distribution
- Only LED retrofit lamp that has the same attractive design as the halogen, due to LED's being placed at the back of the antiglare shield
- High output of 300lm
- Very low glare
- Long lifetime 25,000 hours
- Available in 3000K Warm white light (halogen-like)

SAVE
€274
PER YEAR PER
10 LAMPS

ToLEDo GLS A60 dimmable

Replacement of 40W incandescent lamps (220V-240V). Suitable for indoor applications in open/ventilated luminaires.

Applications
Ideal for general lighting in hotels, restaurants, shops, offices and homes.

Key features
- Very long life 35,000 hours
- 75% energy saving
- Warm natural colour rendering
- High power factor
- Minimum maintenance costs
- Short pay-back period

SAVE
€250
PER YEAR PER
10 LAMPS

ToLEDo GLS candles and balls satin

Suitable for replacement of 15-25-40W incandescent lamps (220V-240V)

Applications
Suitable for indoor applications in open/ventilated luminaires.

Key features
- Satin coating
- Warm white 3000K or extra warm 2500/2600K
- Excellent colour rendering > Ra90 for 2500K types
- Long life 15,000 hours
- Uniform light distribution
- Minimum maintenance costs
- Short pay-back period
- up to 90% energy savings

SAVE
€240
PER YEAR PER
10 LAMPS

ToLEDo Globe G95

Low maintenance, cost-saving indoor lighting with uniform light distribution.

Applications
A great solution to create the perfect ambiance in your hotel or restaurant whilst saving money.

Key features
- 9W delivering 470lm - 40W incandescent equivalent
- Available in E27 cap
- Satin finish
- 2700K Homelight
- Instant start
- Long lifetime 25,000 hours
- 80% energy savings when compared to incandescent equivalent
- Incandescent like light, not achieved by CFL lamps

SAVE up to
€150
PER YEAR PER
10 LAMPS

ToLEDo Home candles and balls clear

Suitable for indoor applications, where the sparkle of a crystal clear lamp is required. Available in E14 and E27 socket, B22 on demand.

Applications
Ideal for general and decorative lighting in hotels, restaurants, homes and historical buildings.

Key features
- Long life 15,000 hours
- Sparkling light
- 70-85% energy saving
- Warm natural colour rendering
- Low heat radiation = safe to touch
- Minimum maintenance costs
- Short pay-back period
- Exclusive Sylvania virtual filament lens delivers superior light distribution
- Very compact dimensions, fits all existing luminaires

SAVE
€170
PER YEAR PER
10 LAMPS

ToLEDo Hi-PIN G9

The smallest LED lamp we've ever made

Applications
Ideal lamp for decorative and residential applications.

Key features
- Easy installation with G9 plug-in-base
- 100% Retrofit: direct replacement of Halogen
- Up to 80% energy saving
- Comes in 2700K Homelight
- Long lifetime of 15,000 hours
- Benefits from a good light distribution
- Suitable for use in open luminaire following Luminaire standard EN 60598-1

SAVE
€170
PER YEAR PER
10 LAMPS

ToLEDo Pygmy

The compact LED lamp for special applications.

Applications
Fridges and cold environment applications. Easily fitted into small decorative luminaires such as sewing machines.

Key features
- Humidity and cold resistant
- 100% retrofit
- E14 cap
- Robust compact size
- IP65 lamp: water and dust resistant
- Satin finish
- Long lifetime 15,000 hours
- Very low energy consumption
- 3000K Warm white
- Excellent light effect and colour rendering

SAVE
€120
PER YEAR PER
10 LAMPS

SAVE
€170
PER YEAR PER
10 LAMPS

SAVE
€160
PER YEAR PER
10 LAMPS

LED ToLEDo Tube

The perfect retrofit to existing linear fluorescent wT8 tubes.

Applications
Industrial lighting such as warehouses and logistic areas, car parks, transport facilities or even supermarket cold rooms.

Key features
- Retrofit with most of T8 luminaires
- LED technology: up to 50% energy savings
- Very long life: 40,000 hours, reducing maintenance costs
- Available in 10W, 15W, 20W and 25W
- Available in 3000K Warm white, 4000K Cool white and 6500K Daylight
- Satin cover to reduce glare

Microlynx high performance

Very compact design – the perfect cabinet lamp.

Applications
Ideal for cabinet lighting in kitchens or bedrooms and shop lighting applications where space is reduced.

Key features
- High lumen output: 250lm (3000K)
- Comes in 2700K Homelight, 3000K Warmwhite, 4000K Cool White and 6000K Daylight
- Very long life: 15,000 hours
- Instant start
- Comes in clear or satin finish
- Compatible with Lumiance Insaver & Microsaver (Recessed, Semi-Recessed & Surface mounted)

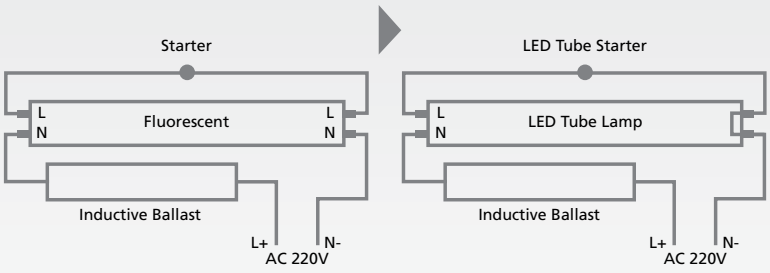
PAR56 LED swimming pool lamp

The Sylvania PAR56 LED represents a top class professional development for underwater illumination of swimming pools and fountains etc.

Applications
All retrofit PAR56 underwater lamps.
Swimming pools and fountains.

Key features
- Choice between RGB lamps or fixed white version
- Remembers last chosen color, by switching on again
- High power LED retrofit for incandescent PAR lamps
- Produces full spectrum of rich colours or white (multi-colours)
- Sylvania patent pending colour control technology
- Simple on/off switching sets colour changing or fixed mode (can be achieved by using a standard switch)
- Optional Sylvania remote control and receiver available
- Identical shape to incandescent PAR56 = easy retrofit

LED ToLEDo Tube
Installation instructions for magnetic ballast



- No need to change luminaire or rewire the fixture
- Remove existing starter and replace with the starter provided with lamp (See instruction below)
- Only suitable for use with MAGNETIC BALLAST, cannot be used with electronic ballasts

Coming Soon

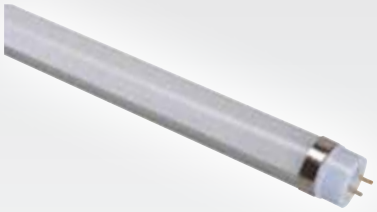
A selection of some of our more exciting products that are going to be launched in the upcoming months.

LED MR16 >450lm
dimmable

LED GU10 ES50 350lm
dimmable

LED GU10 ES50 >450lm
non dimmable

LED A60 >60W



LED tubes (2ft, 4ft, 5ft)
rotating caps

Ordering guides

Code	General description	EAN code	Voltage	Colour in (Kelvin)	Watt	Base	Lumen	Life (h)
ToLEDo GLS E27								
0026150	ToLEDo Gls A60 5W Clear E27 Sl	5410288261508	100-250V	2700	5.0	E27	200	15,000
0026151	ToLEDo Gls A60 5W Clear E27 Bl	5410288261515	100-250V	2700	5.0	E27	200	15,000
0026512	ToLEDo GLS 5 W E27 SL	5410288265124	200-250V	2700	5.0	E27	250	15,000
0026513	ToLEDo GLS 5 W E27 BL	5410288265131	200-250V	2700	5.0	E27	250	15,000
0026680	ToLEDo GLS 7,5W E27 SL	5410288266800	200-250V	2700	7.5	E27	470	15,000
0026681	ToLEDo GLS 7,5W E27 BL	5410288266817	200-250V	2700	7.5	E27	470	15,000
0026737	ToLEDo GLS 10,5W E27 SL	5410288267371	200-250V	2700	10.5	E27	806	15,000
0026739	ToLEDo GLS 10,5 W E27 BL	5410288267395	220-240V	2700	10.5	E27	806	15,000
0026290	ToLEDo Gls Dimmable 10W E27 Sl	5410288262901	220-240V	2700	10.0	E27	470	35,000
ToLEDo GLS B22								
0026717	ToLEDo GLS 5 W B22 SL	5410288267173	200-250V	2700	5.0	B22	250	15,000
0026719	ToLEDo GLS 7,5W B22 SL	5410288267197	200-250V	2700	7.5	B22	470	15,000
ToLEDo Globe								
0026323	ToLEDo Globe G60 3 W S E27 Sl	5410288263236	220-240V	2500	3.0	E27	250	15,000
0026425	ToLEDo Globe G60 3 W S E27 Bl	5410288264257	220-240V	2500	3.0	E27	250	15,000
0026910	ToLEDo G60 470LM SL	5410288269108	220-240V	2500	5.0	E27	470	15,000
0026911	ToLEDo G60 470LM Bl	5410288269115	220-240V	2700	5.0	E27	470	15,000
0026522	ToLEDo GLOBE G95 SL	5410288265223	220-240V	2700	9.0	E27	470	25,000
ToLEDo Candle & Bent tip								
0026304	ToLEDo Home Candle 1,5W Cl E14 B	5410288263045	220-240V	2700	1.5	E14	60	15,000
0026326	ToLEDo Home Twisted Candle 1,5W C E14 B	5410288263267	220-240V	2700	1.5	E14	60	15,000
0026701	ToLEDo Home Bent Tip 1,5W E14 B	5410288267012	220-240V	2700	1.5	E14	60	15,000
0026154	ToLEDo Candle 3W Clear E14 Sl	5410288261546	100-250V	2700	3.0	E14	90	15,000
0026158	ToLEDo Bent Tip 3W Cl E14 Sl	5410288261584	100-250V	2700	3.0	E14	90	15,000
0026156*	ToLEDo Candle Satin 2,5W E14 Sl	5410288261560	220-240V	2600	2.5	E14	136	15,000
0026157*	ToLEDo Candle Satin 2,5W E14 Bl	5410288261577	220-240V	2600	2.5	E14	136	15,000
0026160*	ToLEDo Bent Tip 2,5W Satin E14 S	5410288261607	220-240V	2600	2.5	E14	136	15,000
0026161*	ToLEDo Bent Tip 2,5W Satin E14 B	5410288261614	220-240V	2600	2.5	E14	136	15,000
0026293	ToLEDo Candle 3 W Satin E14 Sl	5410288262932	220-240V	2500	3.0	E14	250	15,000
0026294	ToLEDo Candle 3 W Satin E14 Bl	5410288262949	220-240V	2500	3.0	E14	250	15,000
0026295	ToLEDo Bent Tip 3W Satin E14 Sl	5410288262956	220-240V	2500	3.0	E14	250	15,000
0026296	ToLEDo Bent Tip 3W Satin E14 Bl	5410288262963	220-240V	2500	3.0	E14	250	15,000
ToLEDo Ball								
0025128	7 Colour Led Ball E27 Bls Chan	5410288251288	220-240V	NA	0.7	E27		25,000
0026307	ToLEDo Home Ball 1,5W Cl E14 B	5410288263076	220-240V	2700	1.5	E14	60	15,000
0026309	ToLEDo Home Ball 1,5W Cl E27 B	5410288263090	220-240v	2700	1.5	E27	60	25,000
0026162	ToLEDo Ball 3w Clear E14 Sl	5410288261621	100-250V	2700	3.0	E14	90	15,000
0026186	ToLEDo Ball 3w Clear E27 Sl	5410288261867	100-250V	2700	3.0	E27	90	15,000
0026164*	ToLEDo Ball Satin 2,5W E14 Sl	5410288261645	220-240V	2600	2.5	E14	136	15,000
0026165*	ToLEDo Ball Satin 2,5W E14 Bl	5410288261652	220-240V	2600	2.5	E14	136	15,000
0026178*	ToLEDo Ball Satin 2,5W E27 Sl	5410288261782	220-240V	2600	2.5	E27	136	15,000
0026179*	ToLEDo Ball Satin 2,5W E27 Bl	5410288261799	220-240V	2600	2.5	E27	136	15,000
0026297	ToLEDo Ball 3 W Satin E14 Sl	5410288262970	220-240V	2500	3.0	E14	250	15,000
0026298	ToLEDo Ball 3 W Satin E14 Bl	5410288262987	220-240V	2500	3.0	E14	250	15,000
0026299	ToLEDo Ball 3 W Satin E27 Sl	5410288262994	220-240V	2500	3.0	E27	250	15,000
0026300	ToLEDo Ball 3 W Satin E27 Bl	5410288263007	220-240V	2500	3.0	E27	250	15,000
Hi-Spot RefLED								
20W Halogen replacement								
0026302	RefLED Home Dim.Es50 4W Gu10 bl	5410288263021	220-240V	3000	4.0	GU10	165	25,000
0026490	RefLED Home Dim.Es50 4W Gu10 S	5410288264905	220-240V	3000	4.0	GU10	165	25,000
35W Halogen replacement								
0026518*	RefLED ES50 3,5W 3000K 25° BL NV	5410288265186	200-250V	3000	3.5	GU10	210	35,000
0026551*	RefLED ES50 3,5W 4000K 25° BL NV	5410288265513	200-250V	4000	3.5	GU10	235	35,000
0026710*	RefLED ES50 3,5W 3000K 40° BL NV	5410288267104	200-250V	3000	3.5	GU10	210	35,000
0026711*	RefLED ES50 3,5W 4000K 40° BL NV	5410288267111	200-250V	4000	3.5	GU10	235	35,000
0026517*	RefLED ES50 3,5W 3000K 25° SL NV	5410288265179	200-250V	3000	3.5	GU10	210	35,000
0026550*	RefLED ES50 3,5W 4000K 25° SL NV	5410288265506	200-250V	4000	3.5	GU10	235	35,000
0026192*	RefLED ES50 3,5W 3000K 40° SL NV	5410288261928	200-250V	3000	3.5	GU10	210	35,000
0026714*	RefLED ES50 3,5W 4000K 40° SL NV	5410288267142	200-250V	4000	3.5	GU10	235	35,000
0026525	RefLED ES50 230LM 2700K 40° SL	5410288265254	220-240V	2700	4.5	GU10	230	25,000
0026526	RefLED ES50 230LM 3000K 25° SL	5410288265261	220-240V	3000	4.5	GU10	230	25,000
0026527	RefLED ES50 230LM 2700K 40° BL	5410288265278	220-240V	3000	4.5	GU10	230	25,000
0026528	RefLED ES50 230LM 3000K 40° SL	5410288265285	220-240V	3000	4.5	GU10	230	25,000
0026529	RefLED ES50 230LM 4000K 25° SL	5410288265292	220-240V	4000	4.5	GU10	230	25,000
50W Halogen replacement Non Dimmable								
0026746	RefLED ES50 7,5 W 350 LM 2700K 25 NON- DIM SL	5410288267463	200-250V	2700	7.5	GU10	350	25,000
0026748	RefLED ES50 7,5W 350 LM 2700K 40 NON-DIM SL	5410288267487	200-250V	2700	7.5	GU10	350	25,000
0026747	RefLED ES50 7,5W 350 LM 3000K 25 NON- DIM SL	5410288267470	200-250V	3000	7.5	GU10	350	25,000
0026749	RefLED ES50 7,5W 350 LM 3000K 40 NON-DIM SL	5410288267494	200-250V	3000	7.5	GU10	350	25,000
0026770	RefLED ES50 7,5 W 350 LM 4000K 25 NON-DIM SL	5410288267708	200-250V	4000	7.5	GU10	350	25,000
0026771	RefLED ES50 7,5W 350 LM 4000K 40 NON-DIM SL	5410288267715	200-250V	4000	7.5	GU10	350	25,000
0026850	RefLED ES50 7,5W 350 LM 2700K 40 NON-DIM BL	5410288268507	200-250V	2700	7.5	GU10	350	25,000
50W Halogen replacement Dimmable								
0026725*	DIM RefLED PAR16 8W GU10 36° SL 2700K	5410288267258	200-250V	2700	8.0	GU10	300	35,000
0026400*	DIM RefLED PAR16 8W GU10 36° SL 3000K	5410288264004	200-250V	3000	8.0	GU10	300	35,000
50W Halogen replacement Dimmable retrofit								
0026360†	DIM RefLED ES50 350LM 2700K 25°	5410288263601	200-250V	2700	5.5	GU10	350	25,000
0026361†	DIM RefLED ES50 350LM 2700K 40°	5410288263618	200-250V	2700	5.5	GU10	350	25,000
0026362†	DIM RefLED ES50 350LM 3000K 25°	5410288263625	200-250V	3000	5.5	GU10	350	25,000
0026363†	DIM RefLED ES50 350LM 3000K 40°	5410288263632	200-250V	3000	5.5	GU10	350	25,000
0026364†	DIM RefLED ES50 350LM 4000K 25°	5410288263649	200-250V	4000	5.5	GU10	350	25,000
0026365†	DIM RefLED ES50 350LM 4000K 40°	5410288263656	200-250V	4000	5.5	GU10	350	25,000
0026366†	DIM RefLED ES50 350LM 2700K 40° BL	5410288263618	200-250V	2700	5.5	GU10	350	25,000

Code	General description	EAN code	Voltage	Colour in (Kelvin)	Watt	Base	Lumen	Life (h)
Hi-Spot RefLED (continued)								
65 W Halogen replacement 450lm								
0026308‡	RefLED ES50 450LM 2700K 25°	5410288263083	200-250V	2700	7.0	GU10	450	25,000
0026310	RefLED ES50 450LM 2700K 40°	5410288263106	200-250V	2700	7.0	GU10	450	25,000
0026311	RefLED ES50 450LM 3000K 25°	5410288263113	200-250V	3000	7.0	GU10	450	25,000
0026312	RefLED ES50 450LM 3000K 40°	5410288263120	200-250V	3000	7.0	GU10	450	25,000
0026313‡	RefLED ES50 450LM 4000K 25°	5410288263137	200-250V	4000	7.0	GU10	450	25,000
0026314	RefLED ES50 450LM 4000K 40°	5410288263144	200-250V	4000	7.0	GU10	450	25,000
0026319	RefLED WHITE ES50 450LM 2700K 40°	5410288263199	200-250V	2700	7.0	GU10	450	25,000
0026320	RefLED WHITE ES50 450LM 3000K 40°	5410288263205	200-250V	3000	7.0	GU10	450	25,000
Par Lamps								
0025171	RefLED PAR16 E14 3000k Sl	5410288251714	100-250V	3000	3.5	E27	175	15,000
0025172	RefLED PAR16 E14 3000k Bl	5410288251721	100-250V	3000	3.5	E27	175	15,000
0025176	RefLED PAR16 3,5W E14 4000k Sl	5410288251769	100-250V	4000	3.5	E27	185	15,000
0026705	Hi-Spot RefLED PAR 20 SL	5410288261713	100-250V	3000	5.5	E27	300	30,000
0026707	Hi-Spot RefLED PAR 30 SL	5410288267128	100-250V	3000	11.0	E27	610	30,000
0026500	Hi-Spot RefLED PAR 38 outdoor SL	5410288265001	100-250V	3000	15.0	E27	750	30,000
RefLED low volt MR16								
14W Halogen								
0026174*	RefLED Mr16 4W 3000k Sl	5410288261744	12V	3000	4.0	GU5.3	200	35,000
0026175*	RefLED Mr16 4W 3000k Bl	5410288261751	12V	3000	4.0	GU5.3	200	35,000
35W Halogen								
0026306	DIM RefLED MR 16 7W 350LM 3000K 25°	5410288263069	12V	3000	7.0	GU5.3	350	25,000
0026340	DIM RefLED MR 16 7W 350LM 3000K 40°	5410288263403	12V	3000	7.0	GU5.3	350	25,000
0026341	DIM RefLED MR 16 7W 350LM 2700K 40°	5410288263410	12V	2700	7.0	GU5.3	350	25,000
0026351	DIM RefLED MR 16 7W 350LM 4000K 40°	5410288263519	12V	4000	7.0	GU5.3	350	25,000
50W Halogen								
0026350	DIM RefLED MR 16 7W 450LM 2700K 40°	5410288263502	12V	2700	7.0	GU5.3	450	25,000
0026342	DIM RefLED MR 16 7W 450LM 3000K 40°	5410288263427	12V	4000	7.0	GU5.3	450	25,000
RefLED low volt AR111								
35W Halogen equivalent								
0026315	RefLED SA111 10° SL	5410288263151	12V	2700	11.0	G53	300	25,000
0026316	RefLED SA111 25° SL	5410288263168	12V	2700	11.0	G53	300	25,000
0026317	RefLED SA111 40° SL	5410288263175	12V	2700	11.0	G53	300	25,000
50W Halogen equivalent Dimmable								
0026402	DIM RefLED AR111 550LM 3000K 40°	5410288264028	12V	3000	10.0	G53	550	50,000
0026403	DIM RefLED AR111 550LM 3000K 25°	5410288264035	12V	3000	10.0	G53	550	50,000
Hi-Spot Deco / Home								
0026726*	RefLED DECO ES50 1 W RED BL	5410288267265	210-250V		1.0	GU10	25	15,000
0026733*	RefLED DECO ES50 1 W RED SL	5410288267333	210-250V		1.0	GU10	25	15,000
0026727*	RefLED DECO ES50 1 W BLUE BL	5410288267272	210-250V		1.0	GU10	10	15,000
0026734*	RefLED DECO ES50 1 W BLUE SL	5410288267340	210-250V		1.0	GU10	10	15,000
0026728*	RefLED DECO ES50 1 W GREEN BL	5410288267289	210-250V		1.0	GU10	37	15,000
0026735*	RefLED DECO ES50 1 W GREEN SL	5410288267357	210-250V		1.0	GU10	37	15,000
0026736	RefLED DECO ES50 1,8W WHITE SL	5410288267364	210-250V	3000	1.5	GU10	75	15,000
0026553	RefLED ES50 250LM 2700K 30°	5410288265537	100-254V	2700	4.0	GU10	250	15,000
0026554	RefLED ES50 330LM 3000K 30°	5410288265544	100-254V	3000	6.0	GU10	330	15,000
ToLEDo Special Satin								
0026730	LED Hi-Pin G9 Frosted SL	5410288267302	220-250V	2700	1.0	G9	55	15,000
0026731	LED Hi-Pin G9 Frosted BL	5410288267319	220-250V	2700	1.0	G9	55	15,000
0026510	ToLEDo SPECIAL PYGMY SL	5410288265100	220-240V	3000	1.8	E14	60	15,000
0026511	ToLEDo SPECIAL PYGMY BL	5410288265117	220-240V	3000	1.8	E14	60	15,000
Microlynx								
0025060	Micro-Lynx Led White Satin	5410288250601	230-240	6500	1.5	GX53	20	15,000
Microlynx High Performance								
0026664	Microlynx LED 4 W Clear 2700K	5410288266640	220-240V	2700	4.0	GX53	250	15,000
0026780	Microlynx LED 4 W Clear 3000K	5410288267807	220-240V	3000	4.0	GX53	250	15,000
0026781	Microlynx LED 4 W Clear 4000K	5410288267814	220-240V	4000	4.0	GX53	260	15,000
0026830	Microlynx LED 4 W Clear 6000K	5410288268309	220-240V	6000	4.0	GX53	300	15,000
0026782	Microlynx LED 4 W Frosted 2700K	5410288267821	220-240V	2700	4.0	GX53	250	15,000
0026783	Microlynx LED 4 W Frosted 3000K	5410288267838	220-240V	3000	4.0	GX53	250	15,000
0026666	Microlynx LED 4 W Frosted 4000K	5410288266664	220-240V	4000	4.0	GX53	260	15,000
0026831	Microlynx LED 4 W Frosted 6000K	5410288268316	220-240V	6000	4.0	GX53	300	15,000
LED Tubes								
2F								
0026155	ToLEDo Tube 2F 10W 3000K	5410288261553	220-240V	3000	10.0	G13	760	40,000
0027001	ToLEDo Tube 2F 10W 4000K	5410288270012	220-240V	4000	10.0	G13	760	40,000
0027002	ToLEDo Tube 2F 10W 6500K	5410288270029	220-240V	6500	10.0	G13	800	40,000
4F								
0026742	ToLEDo Tube 4F 3000K	5410288267425	220-240V	3000	20.0	G13	1600	40,000
0027003	ToLEDo Tube 4F 4000K	5410288270036	220-240V	4000	20.0	G13	1600	40,000
0027004	ToLEDo Tube 4F 6500K	5410288270043	220-240V	6500	20.0	G13	1680	40,000
5F								
0026187	ToLEDo Tube 5F 4000K	5410288261874	220-240V	4000	25.0	G13	1800	40,000
LED PAR56 Swimming Pool Lamps								
0060527	PAR56 LED LAMP RGB + Multicolour (18 LED)	5410288605272	12V		25.0	Screw lugs		25,000
0060528	PAR56 LED LAMP White (12 LED)	5410288605289	12V		20.0	Screw lugs	1100	25,000
Optional Remote Control Unit								
0060523	PAR56 LED Receiver	5410288605234	110/250V			Screw terminals		
0060522	PAR56 LED Remote Control	5410288605227	12V battery					

*Available until depletion of stock.
†Coming soon (September 2012)
‡Available on demand only.

The complete LED lexicon

Beam Angle

Indicates how broadly the light is emitted from a reflector lamp. It can be thought of as an imaginary cone whose apex intersects the lamp face, and the breadth of the cone extends outwards to the point where luminous intensity has diminished to 50% of the centre beam value.

Binning

A process of sorting out individual LEDs according to their colour, photometric and electrical parameters. Raw LEDs cannot yet be manufactured with the same consistency as conventional light sources, and the colour differences from one LED to the next can be visible to the naked eye. This situation is handled by measuring 100% of the production and all LEDs having similar values are placed in the same bin. Sylvania takes only LEDs from certain qualified bins for the assembly of our LED lamps, such that the consumer will not be aware of deviations in the finished product.

Candela

The unit of measurement for luminous intensity, which refers to the quantity of light emitted in a particular direction. The symbol is cd.

Correlated Colour Temperature (CCT)

An approximate indication of the colour impression created by a white light source. It describes how 'warm' or 'cool' the appearance of the light will be. The unit of measurement is the Kelvin (K). Sylvania LED lamps are offered in colour temperatures of 2500-2700K (extra warm, similar to incandescent), 3000K (warm white, similar to halogen), 4000K (neutral white) and 6000K (daylight).

Colour Rendering Index (CRI)

Indicates the ability of a light source to illuminate objects in their true colours. It is measured by shining the light of the lamp onto fifteen test colours (R1 to R15) and measuring the shift from the true colour to the apparent colour under the test lamp. The scores of the individual results are averaged to derive the Ra value. The higher the Ra the better the colour rendering properties. Daylight and incandescent lamps are the only sources to achieve perfect score of Ra 100. All Sylvania LEDs have a good Ra >80, and certain premium versions achieve Ra >90.

Dimmability

The Sylvania range includes dimmable LEDs. Most conventional dimmers have been designed for incandescent lamps and are therefore rated for higher minimum loads (W) than LED lamps consume. There may therefore be some restrictions in terms of functionality of dimmers with individual LEDs – but when more than one lamp is used to increase the total loading, dimming becomes easier.

Drivers

Electronic devices that transform the high mains voltage into a constant current lower voltage for operating the LEDs. A miniature electronic driver is contained inside the base of each Sylvania LED lamp.

Heat Sink

A device used to conduct heat away from the LED sources and dissipate it to the surrounding air. The more efficiently an LED is cooled the greater its efficacy, light output and lifetime. Materials having excellent thermal properties and optimised cooling fin geometries are engineered into Sylvania lamps to deliver the pinnacle of performance.

Infrared (IR) Radiation

Comprises electromagnetic waves in the spectral range between visible light and microwaves, which produce a heating effect when absorbed by materials. All lamps produce infrared radiation, but the quantity emitted by LEDs is far lower than other technologies and this makes them ideal for reducing air conditioning load, as well as for the illumination of heat-sensitive goods.

LED (Light Emitting Diode)

An electronic semiconductor component which emits light when an electrical current flows through it. The colour of light emitted depends on the chemical doping of the semiconductor material.

Lens

An optical component having two refractive surfaces, at least one of which is either convex or concave. In LED lamps the function of a lens is to focus or disperse the light rays to achieve the desired beam angle or light distribution pattern.

Lifetime

LED lamps can have extremely long lives, however their light output diminshes as they age. They can carry on working until they are emitting less than 10% of their initial light output, but with so little light left they would be practically useless. Sylvania defines the lifetime of its LED lamps the same way as for other lamps: i.e. the burning hours until the light output has decreased to 70% of the initial value, or when 50% of a group of lamps will have failed – whichever is the soonest. The International Electrotechnical Commission (IEC) is currently preparing an international standard based on similar threshold values.

Lumen

The photometric unit of luminous flux. Luminous flux is a measure of the total quantity of visible radiation emitted in all directions, which is weighted to take account of the sensitivity of the human eye to different colours.

Recycling

Sylvania LED lamps are extremely durable and do not contain any mercury, lead or other toxic metals. However because their drivers contain electronic components they must be disposed of as waste electrical and electronic equipment at the end of their life.

Reflector

An optical component having a mirror surface, which captures light rays from the source and bounces them back at a particular angle. Although more commonly used in incandescent and halogen lamps, some Sylvania LED lamps use reflectors to control their light instead of a lens.

Switching Frequency

LED lamps cannot be switched on and off indefinitely, but are rated to tolerate an impressive 60,000 switching cycles or more.

TCO (Total Cost of Ownership)

TCO includes all the costs over the entire life of a lamp or for a particular operating time. It covers procurement costs, electricity consumption costs, relamping costs and may even incorporate a reduction in the necessary air conditioning load. LEDs are presently more expensive to purchase than lamps based on other technologies, but their minimal energy consumption results in rapid payback when replacing incandescent and halogen lamps.

Transformer

A device for reducing the high mains voltage down to a lower voltage, particularly common for the operation of 12 Volt halogen lamps. A distinction is made between conventional (magnetic) transformers and electronic transformers. Sylvania low voltage LEDs will function on all magnetic transformers, and compatibility details with electronic transformers are available in the technical data sheets.

Ultra Violet (UV) radiation

Comprises electromagnetic waves in the spectral range between visible light and X-rays, which are invisible to the human eye but essential for all life (delivered via natural sunlight). Small amounts of UV are emitted by many light sources (e.g. Halogen and Discharge) and over time will cause fading of coloured objects being illuminated. Sylvania LED lamps do not emit any UV radiation.

Volt

The derived SI unit of electrical pressure (symbol V). Low voltage LED lamps (12V) operate with transformers. High-voltage LED lamps can be operated directly on the mains supply (220-240V).

Watt

Watt is the SI unit of power and was used for incandescent lamps as an indication of their light output. Since modern energy saving lamps and LED lamps consume far less power to achieve the same brightness, however, the wattage is no longer as meaningful. The lumen value is now used instead.

Wattage Comparison According to ErP

The EU directive for nondirectional light (ErP DIM I) requires a certain luminous flux from LED lamps to make a comparison with incandescent lamps.

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