Glossary of terms

Ballast lumen factor BLF (%)

Refers to the ratio of light output from the lamp on emergency operation to the nominal light output.

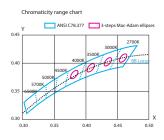
Beam Angle

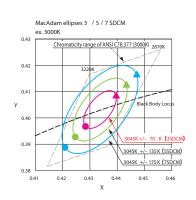
Indicates how broadly the light is emitted from a reflector lamp. It can be thought of as an imaginary cone whose apex intersects the lamp face, and the breadth of the cone extends outwards to the point where luminous intensity has diminished to 50% of the centre beam value.

Binning

The term binning refers to the variations which occur within a single production batch of LED's such as chromaticity, lumen output and forward voltage. It is important that a specific bin has been identified and selected to ensure a uniform and constantly even lighting installation is achieved. If all the LED's were selected from one production batch and used in the same luminaire or installation, there would be a mix of colour temperatures and brightness levels. For the lighting manufacturer / designer binning is an essential part of LED specification.

MacAdam ellipses methodology was created in 1943 for mathematically constructing ellipses around target points, something which became very useful for the lamp industry. ANSI C78.377 is now the standard for chromaticity specified by the American National Standards Institute. ANSI recommends that lamp manufacturers stay within a "4-step" ellipse. This means that, given a certain target point on the CIE diagram, manufacturers are given a fairly wide range of perceptible differences.





Candela (cd)

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

Colour Correlated Temperature (CCT)

An incandescent light bulb is very close to a perfect black-body radiator, so its colour temperature is basically the temperature of the filament. However many light sources, such as fluorescent tubes or high intensity discharge lamps, emit light by processes other than thermal radiation and therefore it is not possible to apply the black-body spectrum. For these light sources it is possible to assign what is known as a colour correlated temperature (CCT). The CCT is the colour temperature of a black-body (Planckian) radiator which most closely matches the colour of the light emitted from the lamp.





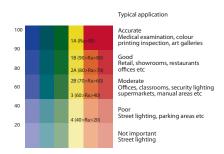
Warm White 3000K

Neutral White 4000K

Colour Rendering Index (CRI)

The colour rendering of a light source is an indicator of its ability to realistically reproduce the colour of an object. The chart illustrates our ability to accurately determine colour depending on the colour rendering properties of the light source. The higher the colour rendering index (on a scale of 0 to 100) of the source the better our ability to perceive differences in colour, which is a considerable aid to highlighting fashion products and effective display of coloured artworks.

The CIE colour rendering index (CRI) is a method to determine how well a light source's illumination of eight standardised colour patches compares to the illumination provided by a reference source. At Ra (8) the perceived colour shift of eight reference colours is measured as a percentage and averaged to give one number. However it is currently understood that due to the spectral power distribution of LED's that instead of using the standard Ra8 it is important to include 7 additional colours which include red, yellow, blue & green and use Ra14 to ensure better results.

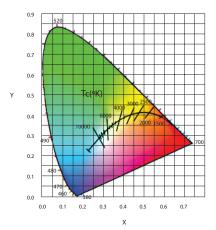




Colour Temperature

Colour temperature is a characteristic of visible light that plays a significant role in lighting applications. The colour temperature of a light source is the temperature of a perfect black-body radiator that radiates light of a similar appearance to that of the light source. The colour temperature is measured in units of absolute temperature; Kelvin (K).

Colour temperature works paradoxically to our cultural associations with colour, red as hot and blue as cold. On the black-body curve, blue occurs at higher temperatures than red. A good example is a candle which has a warm red orange appearance but in fact has a low Kelvin temperature, 1850K. Therefore higher colour temperatures (5000K more) are called cool colours (blueish white); lower colour temperatures (2700 – 3000K) are called warm colours (yellowish white through red).



The Planckian locus shows the chromaticities of black-body light sources of various colour temperatures and lines of constant correlated colour temperature shown within the CIE chromaticity diagram

Glossary of terms

Dimmability

The Sylvania lamps range includes dimmable LEDs lamps. 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.

Downward Flux Fraction (DFF)

The factor of the total LOR, which is downward, taking the combined ULOR and DLOR as 100%. Using Cassini as an example, the DLOR is 37% and the ULOR is 15% so the combined is 52%. If this is taken as 100% LOR, 72% is downward (37% divided by 53%).

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.

Glare

Glare is the discomfort caused by high luminances in the field of vision.

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 Havells-Sylvania lamps and luminaires 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 and luminaires 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.

Illuminance

This definition determines the amount of light that covers a surface. If \emptyset is the luminous flux and S is the area of the given surface then the illuminance E is determined by E= \emptyset /S. The unit of illumination in SI system is Ix, and in foot-pound system it is foot-candle. One Ix is the illuminance of 1 m² surface area uniformly lighted by 1 Im of luminous flux.

Junction Temperature (Tj)

The temperature of the Junction of the LED die inside the LED lamp. Measuring the LED die temperature by direct mechanical means is difficult and may lead to erroneous results. It is recommended that the Tj is calculated with manufacturer's data through measurement of the temperature at the solder point (Tsp).

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.

Light

Light Electromagnetic radiation with a wavelength between 380-780nm. Ultraviolet light has a wavelength of less than 380nm whilst infrared light's is greater than 720nm.

Lighting level

The incidence of light flux on a surface per unit of area, measured in lux. There is a difference between the vertical and horizontal lighting level.

Light output ratio (LOR)

The ratio of the luminaire light output to lamp light output. The efficiency of the luminaire.

Lumen (Im)

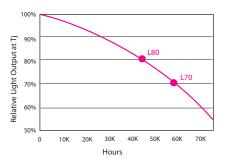
Unit of luminous flux used to describe a quantity of light emitted by a source or received by a surface.

Lumen Maintenance

Rated Lumen Maintenance Life (Lxx): The elapsed operating time over which the LED light source will the percentage, xx, of its initial light output.

- L80 = Time to 80% lumen maintenance, in hours
- L70 = Time to 70% lumen maintenance, in hours

For LED lamps and luminaires, lumen maintenance is often shown as curves of relative lumen output over time for the LED under various operating conditions, such as drive current and junction temperature.



Luminance

The measure of brightness with which the eye perceives an illuminated surface from a certain direction. The luminous intensity per unit of visible surface of a light source (direct) or an illuminated surface (reflection). Luminance is indicated in candelas per square metre (cd/m2).

Luminous efficacy (lm/w)

Indicates how efficiently a light source converts electrical energy to light.

Luminous flux (lm)

The total light output of a light source measured in lumens.

Luminous intensity (cd)

The power of a source or illuminated surface to emit light in a particular direction, measured in candelas.

Lux (lux)

The unit of illuminance, equal to one lumen per square metre (lm/m²).

Glossary of terms

Performance cone

Shows whether the luminaire emits a narrow or wide beam of light and indicates the lighting level measured at the centre of the beam. The beam diameter and angle indicate where half the illuminance is measured in relation to the centre of the beam. It gives only a rough guide of the size of beams narrower than 40°.

Recycling

Havells-Sylvania lamps and luminaires 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.

Shielding angle (°)

The horizontally measured angle from which the lamp or reflection from it in the reflector is no longer visible. It is an important measure of glare and, therefore, light comfort.

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. 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.

Uniformity ratio of illuminance

This indicates the degree of evenness of the light on the working surface and is shown as a ratio of the minimum to the mean lighting level on a surface. The lower the number the more disturbing the light.

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. Havells-Sylvania lamps and luminaires do not emit any UV radiation.

Useful lumens (Im)

For use with directional lamps. This is the amount of luminous flux within a 90° cone in the forward facing direction of the lamp, This will tell you the amount of 'useful' light emitted from a directional light.

Utilisation factor

The ratio of the light flux which the reference surface receives to the totalled luminous fluxes of the installation lamps. This is influenced by the shape of the room and selected luminaire and is expressed in the form of UF tables.

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).

Wat

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.

Abbreviations

1	Abreviations	Meaning
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1-10V 1-10V analogue dimmable ballast 3 hours emergency 3 hours emergency 3 pcx 3 Pack ALU Aluminium ASYM Asymmetric Bl. Black BRI Black BRI Bright CHR Chrome CON Connected DALI Digital Adjustable Lighting Interface DB Dimmable ballast DBLASYM Double asymmetric DB Dimmable ballast DBLASYM Double asymmetric DBI O 1-10V analogue dimmable ballast DBLASYM Double saymmetric DSI Digital Serial Interface DS Double Sided light output ET Emergency 1 hour ET Emergency 1 h	840	·
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Guide to lamp and luminaires symbols

Electrical protection

EN 60.598

Class 1 – fittings comply with class 1 (I) earthed electrical requirements i.e. functional insulation in all parts and earth termination.



Class 2 – fittings comply with class 2 (II) double insulated electrical requirements i.e. complete insulation in all parts without earth termination. In the event of an electrical fault, no dangerous voltage can reach touchable metal parts.



Class 3 – fittings comply with class 3 (III) triple insulated electrical requirements i.e. designed to connect to an external low voltage supply which is the same as the internal operating voltage requirement. In the event of an electrical fault, no dangerous voltage can develop. Inflammability of surface protection EN 60.598



Suitable for mounting in or on furniture made or semi-incombustible or normally combustible materials such as wood.



Fittings made for mounting in or on furniture made of materials of unknown properties.



XXX°C Passes the 650° glow wire test in accordance with IEC 695-2-1.



Horizontal rotation



Vertical tilt



Safety isolating transformer



Electronic transformer



Electronic ballast/gear



HID lamp requires an external ignitor



Trailing edge dimmable (capacitive)



Leading edge dimmable (inductive)



Ingress protection



Impact protection



Minimum distance in metres permitted from lighted object



European Norms Electrical Certification



Suitable for Office applications



Suitable for Education applications

Suitable for Healthcare applications



Suitable for Retail and Display applications



Suitable for Exterior applications



Allowed lamp operating positions



Universal burning position



Horizontal burning position



Vertical burning position



Incandescent Candle and Ball: Base up not allowed



Lamp can be operated in luminaires without a protective shield



Lamp should be operated only in a luminaire provided with a protective shield



Lamp emits a high level of UV radiation



(UV STOP) Reduced UV emissions



COOL Cool beam reflector



Not dimmable



Protection against water contact



Internal ignitor



External ignitor

Ballast is required



Lamp should not be operated when the outer bulb is broken



Be aware of high temperatures when replacing lamp



Do not hold the lamp glass when installing or removing



Switch off power supply before replacing lamp



Do not touch lamp with bare fingers when replacing lamp



Energy saving



Treat lamp as small chemical waste



≫ Open packaging and read instructions



Read instructions before use



Lamp complies with legal standards



Lamp complies with legal standards



Green Point



Bowl Mirror lamps



- Luminaire can be looped



RoHS compliant

WEE compliant



WARRANTY Warranty logo, please refer to intro pages for full details



RAL reference

Standard Terms And Conditions Of Sale

DEFINITIONS

The following definitions shall apply to these terms and conditions:

"Business Day" means a day other than a Saturday, Sunday or public

holiday in England;

"Buyer" means the party purchasing goods from the Seller;

"Buyer Specification" any specification for the Products, including any related

plans and drawings, that is supplied to the Seller by the Buyer, or produced by the Seller and agreed in writing by

the Buyer;

"Contract" means the contract between the Seller and the Buyer for

the sale and purchase of the Products in accordance with

these Terms;

"Force Majeure Event" has the meaning given in clause 8;

"Order" means Buyer's order for the Products, as set out in the

Buyer's Purchase Order Form. The procedure for placing

orders is outlined in clause 2.4.

"Products" means the goods purchased by Buyer from the Seller in

accordance with these Terms:

"Product Specification" means the specification relating to Products provided by

Seller:

"Seller" means Havells Sylvania Europe Limited;

"Terms" the terms and conditions set out in this document.

In these Terms, the following rules apply:

A person includes a natural person, corporate or unincorporated body (whether or not having separate legal personality);

A reference to a party includes its personal representatives, successors or permitted assigns:

A reference to a statute or statutory provision is a reference to such statute or provision as amended or re-enacted. A reference to a statute or statutory provision includes any subordinate legislation made under that statute or statutory provision, as amended or re-enacted:

Any phrase introduced by the terms including, include, in particular or any similar expression shall be construed as illustrative and shall not limit the sense of the words preceding those terms.

A reference to writing or written includes faxes.

CONTRACT FORMATION

In the absence of a written agreement to the contrary executed by Seller, these Terms shall apply to every sale of Products between Seller and Buyer.

A quotation by Seller does not constitute an offer and Seller reserves the right to withdraw or revise any quotation prior to time of its acceptance of Buyer's purchase order.

An Order constitutes an offer by Buyer to purchase the Products in accordance with these Terms. The contract shall be formed at the time when Buyer's Order is confirmed in writing or by action by Seller, at which point the Contract shall come into existence

Orders can be placed with our Sales Office by completing a Purchase Order Form and can be sent via fax, EDI (Electronic Data Information) or COMNET (Havells Sylvania's Internet Portal). Orders must be confirmed by us in writing.

Any terms and conditions proposed by Buyer or contained in any Order, Buyer Specification or other document sent by Buyer are expressly rejected by Seller and waived by Buyer.

These Terms apply to the purchase of Products to the exclusion of any other terms that Buyer seeks to impose or incorporate, or which are implied by trade, custom, practice or course of dealing.

The Contract constitutes the entire agreement between the parties. Buyer acknowledges that it has not relied on any statement, promise or representation made or given by or on behalf of Seller which is not set out in the Contract, save that nothing in this clause shall exclude liability for fraudulent misrepresentation.

Any typographical, clerical or other error or omission in any sales literature, quotation, price list, acceptance of offer, invoice or other document or information issued by Seller shall be subject to correction without any liability on the part of the Seller.

PRODUCT SPECIFICATIONS

Seller reserves the right to make any changes to the Product Specification, that is required to conform with any applicable statutory or EU requirements.

Unless otherwise specifically agreed to in writing by the Seller, all descriptive and forwarding specifications, drawings and particulars of weight and dimension issued by Seller are approximate only and are intended to present a general idea of the Products to which they refer and shall not form any part of any contract.

PRICE

The price for Products shall be the price quoted by Seller to Buyer or, when no price is quoted, the Seller's list price at date of delivery, unless otherwise agreed in writing by the parties.

All costs associated with and/or arising out of implementation of the WEEE Directive on electrical or electronic waste into national law shall be charged to the Buyer separately.

The price of the Products is exclusive of amounts in respect of value added tax ("VAT") Any other tax, tariff, duty or charge which Seller may be required to pay or collect, now or hereafter imposed by any governmental authority or agency, foreign or domestic, with respect to the sale, purchase, production, processing, storage, delivery, transportation, use, or consumption of any of the products or services covered hereby, including all taxes upon or measured by receipts from sales or services will be charged to the Buyer by the Seller.

DELIVERY AND SHORTFALL

Delivery shall be made on Ex-Works (Incoterms 2010) basis unless otherwise agreed in writing. Should the Seller agree to deliver Product otherwise than at Seller's premises, Buyer shall be liable to pay Seller's charges for transport, packaging and insurance.

Where the Product is to be delivered in instalments, each delivery shall constitute a separate Contract which shall be invoiced and paid for separately. If Seller fails to deliver the Products, its liability shall be limited to the costs and expenses incurred by Buyer in obtaining replacement goods of similar description and quality less the price of the Products.

If Buyer fails to fulfil terms of purchase under this contract including failure to make payment on the due date, Seller may defer further shipments without notice until the breach is remedied, or reserve the right to cancel such shipments if the breach is not gured.

No claim in respect of loss in transit or short delivery will be accepted unless the Seller is advised in writing of such loss or short delivery at the time of delivery. The shortfall must be specified in writing on the Purchase Order Form.

The following details must be stated on the form:

Conditions of packages

Date consignment received

Date Seller was advised

The extent of damage or shortfall.

PASSING OF RISK AND TITLE

All risk in the Products shall pass to Buyer upon completion of delivery.

Not with standing delivery and the passing of risk in the Product, all title in and to the Products shall not pass to Buyer until payment for has been received by Seller in full (in cash or cleared funds)

Standard Terms And Conditions Of Sale

Until such time as title in the Products passes to Buyer, the Buyer shall:

not be entitled to pledge or in any way charge or otherwise encumber by way of security for any indebtedness any of Product;

hold Product as Seller's fiduciary agent and bailee;

not remove, deface or obscure any identifying mark or packaging on or relating to the Products:

keep the Product separate from those of Buyer and third parties and properly stored, protected and insured and identified as Seller's property;

notify Seller immediately if it becomes subject to any of the events set out in clause 12;

provide Seller with such information relating to the Products as Seller may require from time to time,

For the avoidance of doubt, nothing in this clause 6.3 shall operate to prevent Buyer from reselling or using the Products in the ordinary course of its business.

Buyer shall bear the risk of any loss or damage to or deterioration of the Products from whatever cause arising following delivery of the Products to Buyer.

If before title to the Products passes to Buyer, Buyer becomes subject to any of the events set out in clause 12, or Seller reasonably believes that any such event is about to happen and notifies Buyer accordingly, then, provided that the Products have not been resold, or irrevocably incorporated into another product, and without limiting any other right or remedy, Seller may at any time require Buyer to deliver the Product back to Seller.

PAYMENT

Buyer shall pay all invoices in full and in cleared funds without any setoff or deduction, within the payment term specified on the invoice and in the currency specified in the invoice, free of exchange collection, or other charges.

If Buyer fails to pay any invoice in full by the due date under the Contract, Seller may suspend production and/or decline to make shipment or delivery of all or part of the unshipped Product. In addition, the Buyer shall pay interest on the overdue amount at the applicable rate in accordance with the Late Payment of Commercial Debts (Interest) Act 1998. Such interest shall accrue on a daily basis from the due date until the date of actual payment of the overdue amount, whether before or after judgment. The Buyer shall pay the interest together with the overdue amount.

Buyer shall not be entitled to assert any credit, set-off or counterclaim against Seller in order to justify withholding payment of any such amount in whole or in part. Seller may at any time, without limiting any other rights or remedies it may have, set off any amount owing to it by Buyer against any amount payable by the Seller to the Buyer.

FORCE MAJEURE

Seller shall not be liable for any failure to perform or delay in performance due to circumstances beyond Seller's reasonable control, including but not limited to riot, war or hostilities between nations, civil war, civil commotion, acts of terrorism, governmental orders or regulations, import or export regulations or embargoes, acts of God, fire, accidents, strikes, lock-outs, or other industrial actions or trade disputes (whether involving employees of the Seller or of a supplier), lack of transportation facilities, delays of carriers, inability to obtain raw materials, curtailment of or failure in obtaining sufficient electrical power, or any other contingencies beyond the reasonable control of Seller ("Force Majeure Event"). In the case of a Force Majeure Event, Seller may, in its sole discretion, cancel, reduce or modify its deliveries to Buyer without liability for any damages whatsoever.

WARRANTY; CLAIMS; LIMITATION OF LIABILITY.

Subject to the conditions set out below, Seller warrants that on delivery and for a period of 24 months from the date of delivery, the Products shall:

correspond to the Product Specifications agreed to in writing by Seller; and be free from defects in design, material and workmanship, unless otherwise indicated by Seller in the product specification or elsewhere.

Subject to clause 9.3 if: Buyer gives notice in writing to Seller during the warranty period set out in clause 9.1 above and within a reasonable time of discovery that some or all of the Products do not comply with the warranty set out in clause 9.1;

Seller is given a reasonable opportunity of examining such Products;

Buyer (if asked to do so by Seller) returns such Products to Seller's place of business at Buyer's cost,

Where we consider that the Product is covered by this warranty, we will repair and/or replace ONLY the defective lamp(s) within a reasonable period of time. Further warranty is excluded unless compulsory required by law. For the avoidance of doubt, "repair or replace the defective lamps" does not include any removal or reinstallation activities, costs or expenses, including without limitation, labor costs or expenses.

Seller shall be under no liability in respect of any defect in the Products arising from: any drawing, design or any Buyer Specification supplied by Buyer; Buyer making any further use of the Products after giving notice in accordance with clause 9.2;

normal wear and tear, wilful damage, negligence, abnormal storage or working conditions, improper handling, third party interference (e.g. improper installation, overuse, excess voltage or frequency oscillations);

failure to follow Seller's instructions (whether oral or in writing) as to the storage, commissioning, installation, use and maintenance of the Products or (if there are none) good trade practice;

misuse, alteration or repair of the Products without the Seller's approval

For the avoidance of doubt, the above warranty does not extend to parts, materials or equipment not manufactured by Seller, in respect of which Buyer shall only be entitled to the benefit of any such warranty or guarantee as is given to Seller by the third party manufacturer

Except as set out in these Terms, all warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract

These Terms shall also apply to any repaired or replacement Products supplied by Seller. Nothing in these Terms shall limit or exclude Seller's liability for:

death or personal injury caused by its negligence; or fraud or fraudulent misrepresentation.

Subject to clause 9.6, Seller shall not be liable to Buyer, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any loss of profit or indirect or consequential loss or damages arising under or in connection with the Contract.

PATENTS

Between the Buyer and the Seller, all Intellectual Property Rights and all other rights in the Deliverables and materials shall be owned by the Seller. Where necessary, the Seller licenses all such rights limited to the Buyer free of charge and on a non-exclusive, royalty free rights of the IP to the extent as is necessary to enable the Buyer to make reasonable use of the Deliverables and the Services.

Should Products sold by Seller be the subject to a claim for patent infringement, Seller may, at its sole option and expense, either procure for Buyer the right to continue using said Product, or modify same so that it becomes non-infringing, or replace it with non-infringing Product, or remove the Product and refund the purchase price paid by Buyer.

Buyer agrees to defend and indemnify Seller from and against any liability for or on account of any infringement or alleged infringement of any patented or unpatented inventions or trade secret with respect to (i) any use of Products by Buyer or their customers, including without limitation use of Products alone or in combination with other components or (ii) Products furnished, or methods used by Seller, in accordance with specifications or instructions furnished by or expressly or implicitly prescribed by Buyer.

DESIGN OWNERSHIP

Any specifications, drawings, or other technical information, data, tools, dyes, patterns, masks, test equipment, software and any other item designed, supplied, or created by Seller in performance of Buyer's order, (the "Creative Elements" shall remain the exclusive property of Seller, and no right, title or license in any such item or design is hereby granted to Buyer and Buyer is prohibited from copying or using the Creative Elements without Seller's prior written consent.

Standard Terms And Conditions Of Sale

INSOLVENCY

Either party shall have the right to cancel any order in the event that the other party is insolvent (or as applicable, bankrupt) according to the law, or has made any arrangements with its creditors or under the law with a view to avoiding an impending insolvency (or as applicable, bankruptcy), or has had any person appointed by its creditors or under law as a consequence of debts which have fallen, or which are about to fall, due and which the relevant party is unable to properly repay.

PRIVACY POLICY

The Customer acknowledges and agrees that details of the Customer's name, address and payment record may be submitted to a credit reference agency, and personal data will be processed by and on behalf of the Seller in connection with the Services. Information may also be used for marketing activity and will be held on our customer database.

Havells Sylvania endeavours to respect the confidentiality of any personal data provided and to use them in line with the UK Data Protection Act 1998. This policy also applies to the above mentioned credit reference agencies Havells Sylvania works with. For further information please consult our privacy policy which is accessible on our company website www.havells-sylvania.com or upon request a copy will be provided.

ASSIGNMENT AND SUBCONTRACTING

Seller may at any time assign, transfer, charge, subcontract or deal in any other manner with all or any of its rights or obligations under the Contract. This includes an assignment of the Contract or parts of it made under these Terms at any time to an affiliate its right to receive payment;

Buyer may not assign any of its rights or obligations hereunder without the previous written consent of Seller, which will not be unreasonably withheld.

GOVERNING LAW AND JURISDICTION

The Contract, and any dispute or claim arising out of or in connection with it or its subject matter or formation (including non-contractual disputes or claims), shall be governed by, and construed in accordance with, English law, and the parties irrevocably submit to the exclusive jurisdiction of the courts of England and Wales.

MISCELLANEOUS

No waiver by Seller of any breach of the contract by Buyer shall be considered as a waiver of any subsequent breach of the same or any other provision.

If any provision of these Terms is held by any competent authority to be invalid or unenforceable in whole or in part, the validity of the other provisions of these Terms and the remainder of the provision in question shall not be affected.

No variation to this Contract shall be valid unless agreed to in writing and signed by an authorized representative of Seller and Buyer.

The Seller may, from time to time and without notice, change the Products in order to comply with any applicable safety or statutory requirements, provided that such changes do not materially affect the nature, scope of, or the charges for the Products. If the Seller requests a change to the scope of the Products for any other reason, the Customer shall not unreasonably withhold or delay consent to it.

EXCLUSION OF THIRD PARTY RIGHTS

The Contracts (Rights of Third Parties) Act 1999 shall not apply to these Terms nor any contract made under them and no person other than Buyer and Seller shall have any rights there under, nor shall any such contract or these Terms be enforceable under that Act by any other person.

Specifications

The following notes prepared to meet the company's obligations imposed by the Health & Safety at Work Act 1974 (Amended 1988) are of a general nature only. Specific information regarding installation use and disposal appropriate to individual models is provided in the instruction leaflet packed with the product, or can be found on the relevant pages of this catalogue.

The Health & Safety at Work Act 1974 imposes upon the users of the company's products an obligation to ensure that all personnel involved in the installation, handling, use or disposal of these products are acquainted with the information provided by the Company and are made fully aware of any precautions that need to be taken.

The installation of these products should only be carried out by a qualified contractor in accordance with the instructions supplied with the product.

Specifications

Leadership in design is based on constant development and improvement. Whilst great care is taken to give up-to-date information in this publication, the right is reserved to change any specifications herein detailed, without prior notice. All descriptions, illustrations etc, in this publication shall not form part of any contract.

Lamps

Wattage and where applicable type of lamp are shown for every fitting. Incorrect lamps may affect efficiency, change the planned distribution, create glare and in some cases, seriously overheat the luminaire. Unless otherwise stated all luminaires are supplied without lamps.

Transformer & Control Gear

Transformers and Control Gear are available for 240V 50HZ and 230V 50HZ with other options subject to special quotation.

240V 50HZ will be supplied unless any other voltage is requested at the time of ordering.

Product colours and finishes

The Havells-Sylvania range of standard colours has been rationalised. This change situation has provided Havells-Sylvania with the opportunity to harmonise our standard colours in line with developments that have taken place in architectural materials and building accessories.

For reference the standard paint finishes are now:

LED Lamps

RAL 9023 Dark Silver RAL 9016 Traffic White

Please note:

- Due to photography and the printing process the colours reproduced in this catalogue may not be truly representative.
- Though paint colours may be the same, gloss, matt, satin and textured finishes will appear different.

Protection of Electronic Components

All products incorporating electronic components are protected against damage which may result from transients on the mains supply.

The level of protection incorporated is generally in excess of the minimum level specified in the current international standards.

It is the customer's responsibility to ensure that electronic equipment is not subjected to transients above these international immunity standards. In extreme cases additional suppression devices may be needed on the mains supply. The company does not take responsibility for damage to products caused by excessive mains transients. Patents Many of the products listed in this publication are the subject of Patents or Patent Applications and/or Design Registration UK and other countries.

Conditions of Sale

Our exhaustive Conditions of sales are available on our website under (see below web address), or by request by calling your local sales office.

www.havells-sylvania.com/terms-and-conditions

Product Specifications

Seller reserves the right to make any changes to the Product Specification, that is required to conform with any applicable statutory or EU requirements.

Unless otherwise specifically agreed to in writing by the Seller, all descriptive and forwarding specifications, drawings and particulars of weight and dimension issued by Seller are approximate only and are intended to present a general idea of the Products to which they refer and shall not form any part of any contract.

Warranty; Claims; Limitation of liability

Subject to the conditions set out below, Seller warrants that on delivery and for a period of 24 months from the date of delivery, the Products shall:

correspond to the Product Specifications agreed to in writing by Seller; and be free from defects in design, material and workmanship, unless otherwise indicated by Seller in the product specification or elsewhere.

Subject to clause 9.3 if: Buyer gives notice in writing to Seller during the warranty period set out in clause 9.1 above and within a reasonable time of discovery that some or all of the Products do not comply with the warranty set out in clause 9.1;

Seller is given a reasonable opportunity of examining such Products;

Buyer (if asked to do so by Seller) returns such Products to Seller's place of business at Buyer's cost.

Where we consider that the Product is covered by this warranty, we will repair and/or replace ONLY the defective lamp(s) within a reasonable period of time. Further warranty is excluded unless compulsory required by law. For the avoidance of doubt, "repair or replace the defective lamps" does not include any removal or reinstallation activities, costs or expenses, including without limitation, labor costs or expenses.

Seller shall be under no liability in respect of any defect in the Products arising from: any drawing, design or any Buyer Specification supplied by Buyer; Buyer making any further use of the Products after giving notice in accordance with clause 9.2:

normal wear and tear, wilful damage, negligence, abnormal storage or working conditions, improper handling, third party interference (e.g. improper installation, overuse, excess voltage or frequency oscillations);

failure to follow Seller's instructions (whether oral or in writing) as to the storage, commissioning, installation, use and maintenance of the Products or (if there are none) good trade practice;

misuse, alteration or repair of the Products without the Seller's approval.

For the avoidance of doubt, the above warranty does not extend to parts, materials or equipment not manufactured by Seller, in respect of which Buyer shall only be entitled to the benefit of any such warranty or guarantee as is given to Seller by the third party manufacturer

Except as set out in these Terms, all warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

These Terms shall also apply to any repaired or replacement Products supplied by Seller. Nothing in these Terms shall limit or exclude Seller's liability for:

death or personal injury caused by its negligence; or fraud or fraudulent misrepresentation.

Subject to clause 9.6, Seller shall not be liable to Buyer, whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any loss of profit or indirect or consequential loss or damages arising under or in connection with the Contract.

Patents

Between the Buyer and the Seller, all Intellectual Property Rights and all other rights in the Deliverables and materials shall be owned by the Seller. Where necessary, the Seller licenses all such rights limited to the Buyer free of charge and on a non-exclusive, royalty free rights of the IP to the extent as is necessary to enable the Buyer to make reasonable use of the Deliverables and the Services.

Should Products sold by Seller be the subject to a claim for patent infringement, Seller may, at its sole option and expense, either procure for Buyer the right to continue using said Product, or modify same so that it becomes non-infringing, or replace it with non-infringing Product, or remove the Product and refund the purchase price paid by Buyer.

Buyer agrees to defend and indemnify Seller from and against any liability for or on account of any infringement or alleged infringement of any patented or unpatented inventions or trade secret with respect to (i) any use of Products by Buyer or their customers, including without limitation use of Products alone or in combination with other components or (ii) Products furnished, or methods used by Seller, in accordance with specifications or instructions furnished by or expressly or implicitly prescribed by Buyer.

Design ownership

Any specifications, drawings, or other technical information, data, tools, dyes, patterns, masks, test equipment, software and any other item designed, supplied, or created by Seller in performance of Buyer's order, (the "Creative Elements" shall remain the exclusive property of Seller, and no right, title or license in any such item or design is hereby granted to Buyer and Buyer is prohibited from copying or using the Creative Elements without Seller's prior written consent.

Privacy policy

The Customer acknowledges and agrees that details of the Customer's name, address and payment record may be submitted to a credit reference agency, and personal data will be processed by and on behalf of the Seller in connection with the Services. Information may also be used for marketing activity and will be held on our customer database

Havells Sylvania endeavours to respect the confidentiality of any personal data provided and to use them in line with the UK Data Protection Act 1998. This policy also applies to the above mentioned credit reference agencies Havells Sylvania works with. For further information please consult our privacy policy which is accessible on our company website www.havells-sylvania.com or upon request a copy will be provided.

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