

ADVANCED ENERGY SOLUTIONS

PANEL & SURFACE LIGHT SOLUTIONS

**PRODUCTS
PORTFOLIO**

LIGHT IS LIFE

*Lighting says everything about the working environment.
Lighting is at the heart of the way people think and build.*

Modern lighting requires products and services of the highest standards, innovative solutions, technical excellence, design flexibility and consistent performance.

ADVANCED ENERGY SOLUTIONS COMPANY was established to meet the highly growing demands of energy management and energy efficiency.

Either you own small facility or large plant we are here to give you the best solution in the field.

With a talented highly qualified engineering team we are striving to meet the highest standards using state of the art technologies to meet all requirements of our customers.

Our team also provide scientifically certified lighting studies.



MADE IN KSA

Our collection are manufactured with high quality in accordance with national/international standards with specifications to meet the harsh climate of the Arab Gulf countries.

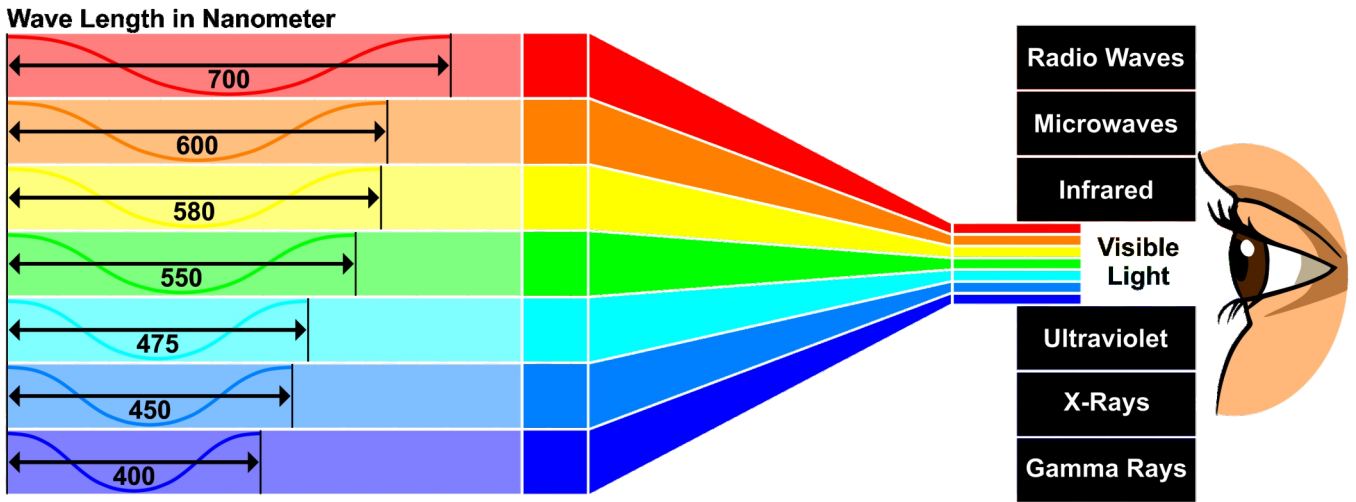
We offer a five-years warranty on all of our fixtures, as we design and calculate the body of the fixture in accordance with the LED chip and the driver to ensure the efficiency and quality of the product.

Whether indoor or outdoor fixtures with 50K hours working life and up to 100K hours as an option.



50,000 working hours

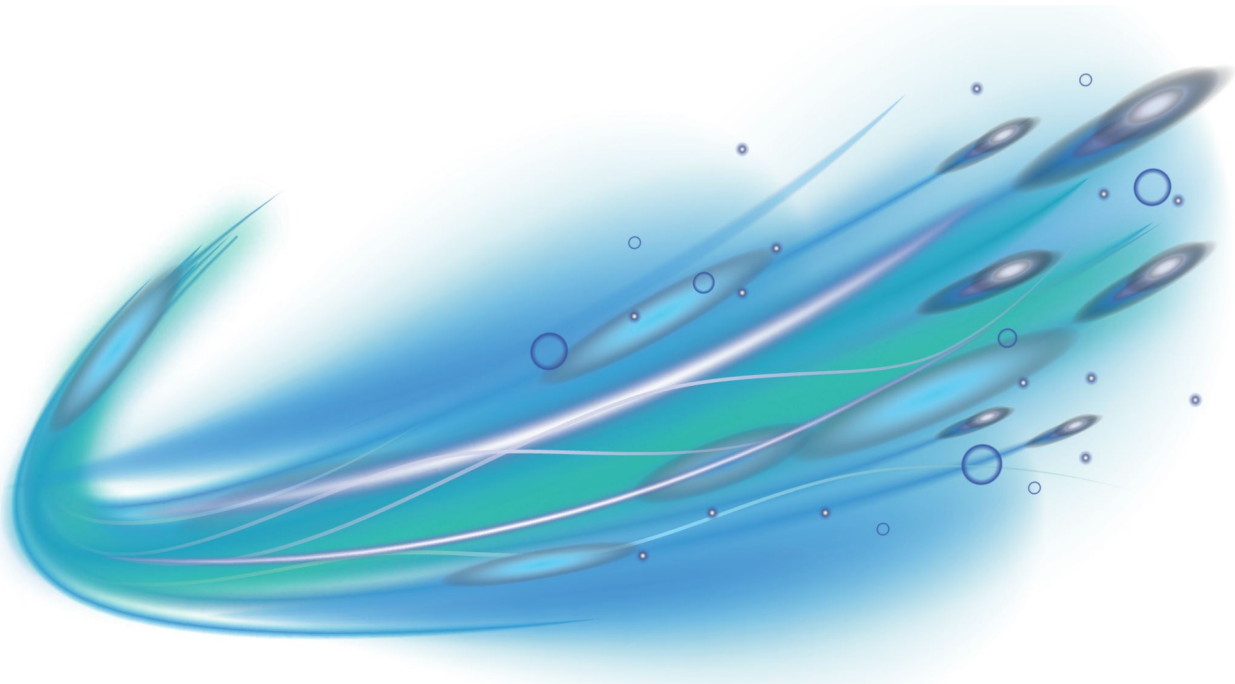
INTRODUCTION TO LIGHT SCIENCE



Light or visible light is electromagnetic radiation within the portion of the electromagnetic spectrum that can be perceived by the human eye. Visible light is usually defined as having wavelengths in the range of 400–700 nm, between the infrared (with longer wavelengths) and the ultraviolet (with shorter wavelengths).

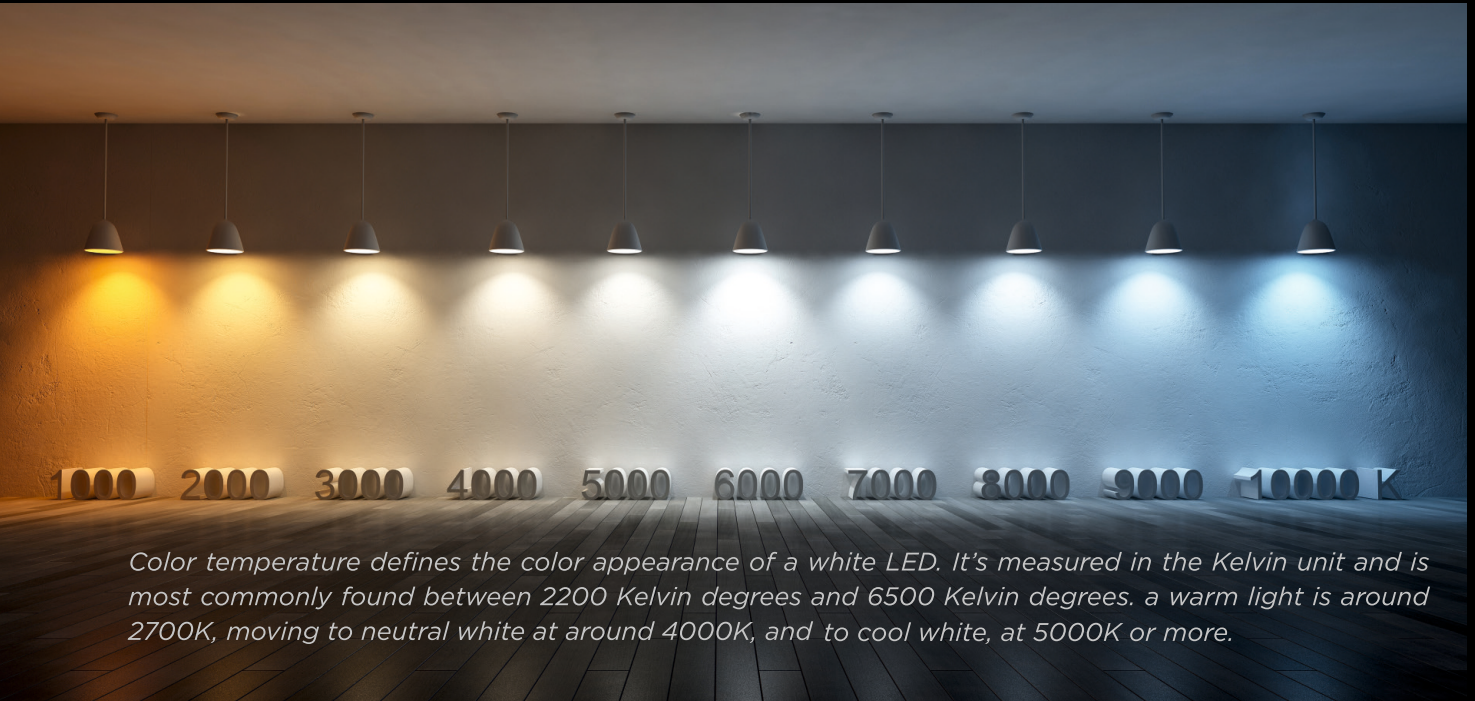
The main source of light on Earth is the Sun. Historically, another important source of light for humans has been fire, from ancient campfires to modern LED lamps, the development of solid state materials and electronic systems give the chance of artificial lighting to simulate sun light with maximum efficiency.

The primary properties of visible light are intensity, propagation direction, frequency or wavelength spectrum.





CORRELATED COLOR TEMPERATURE (CCT)

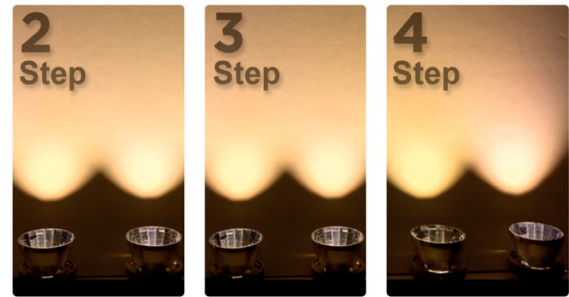
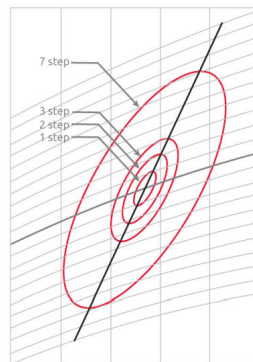
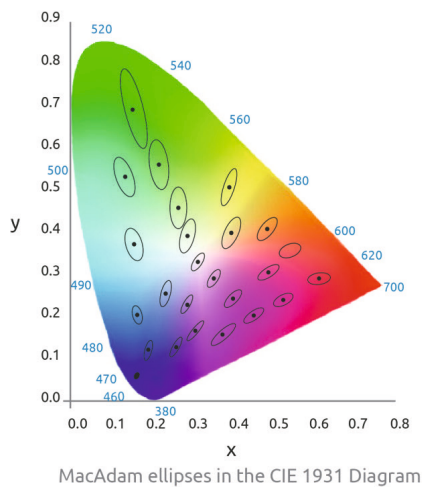


COLOR RENDERING INDEX (CRI)



It is a quantitative measure of the ability of a light source to reveal the colors of various objects faithfully in comparison with an ideal or natural light source like sunlight, the CRI of the sunlight is 100, that means if the CRI is close to 100 the colors will be reflected truly and naturally, the illustration above shows how CRI can affect the appearance of colors.

MACADAM ELLIPSE



n-steps MacAdam ellipses

MacAdam ellipse is a region on a chromaticity diagram (CIE 1931) which contains all colors which are indistinguishable to the average human eye, from the color at the center of the ellipse.

Slight color differences in the appearance of LED light are measured in steps, the higher the N-steps, the greater the visual difference between two white light sources.

DIMMING OF LIGHT



Dimmers are devices connected to a light fixture and used to lower the brightness of light, you can use several different dimming options to dim LED Lighting, as phase cut (Triac), 0/1-10v dimming and DALI system, but beware that the driver must support type of dimming you use.

A-Phase Cut (Triac) dimming:

This type of control is a traditional one, accomplished without any need for an additional control wires. It involves connecting a dimmer in series between one of the mains wire and the equipment.

B-0/1-10v dimming:

The 0/1-10V system enables dimming of the brightness from around 10% to 100%. This is done by sending an analogue signal (0/1-10v) to the equipment over an additional two wires control system.

C-DALI system:

Digital Addressable Lighting Interface, DALI is a digital and addressable communication interface for lighting systems. Digital signals are transmitted over a bus of two-wire control wire, used for control of large systems.

BEAMS OF LIGHT

Beam of light is a directional projection of light energy radiating from a light source.
Different beam angles are better for certain cases;

For example :

A display of shop goods might need a spotlight with a very narrow beam, while for office lighting you will need a wide beam fixture.

There are also special cases where beams are not symmetrical, as in street light where special type of lenses are used to distribute light.

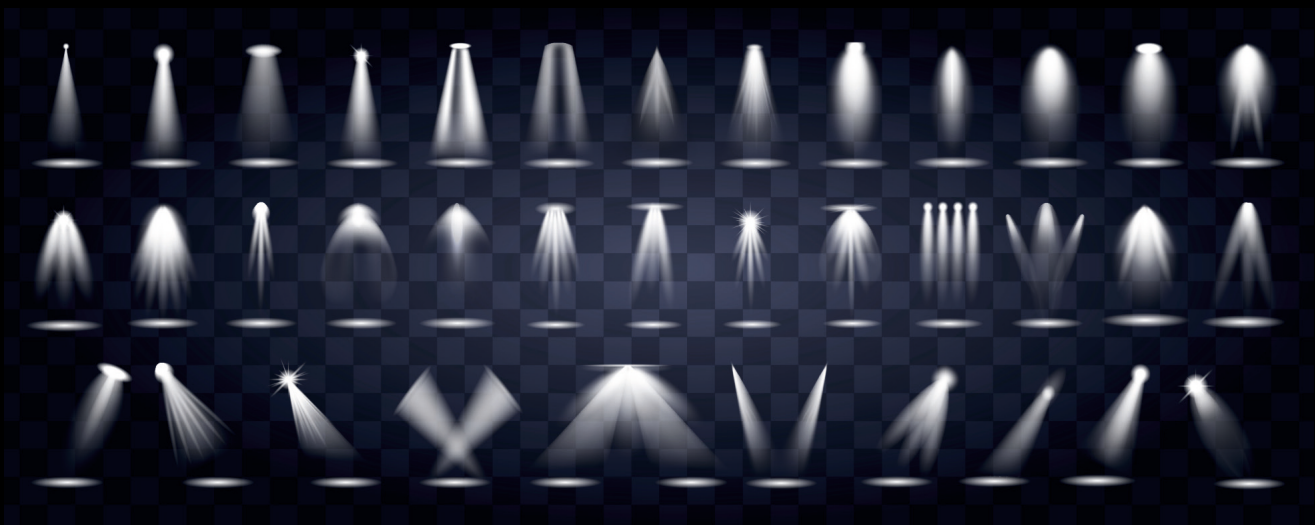
• HOMOGENEOUS BEAMS

• Wide Beams

Wide beam angle is usually used for general lighting, like office rooms and school rooms, wide beam fixtures are characterize by soft and anti-glare diffusing system with low UGR.

• Narrow Beams

Narrower beam angle is preferable when you need to illuminate surfaces and focus on smaller details.



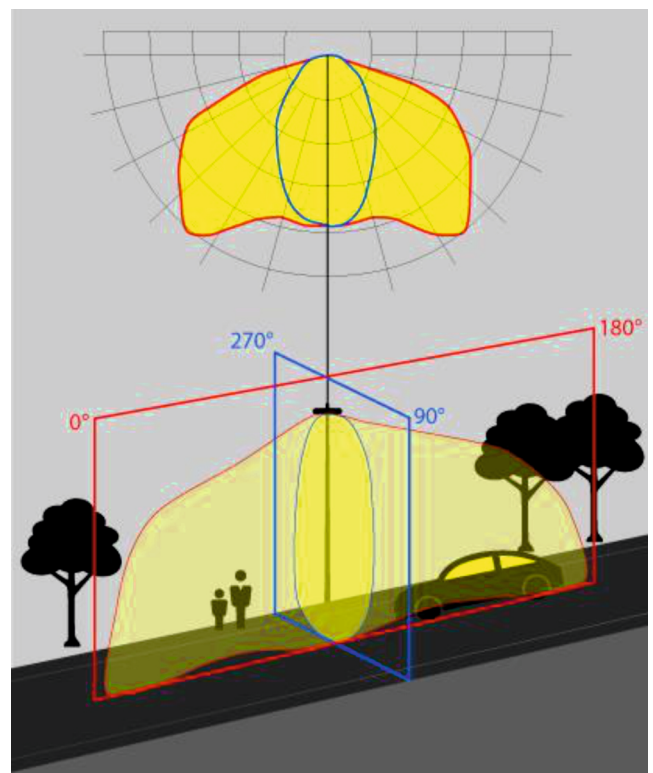
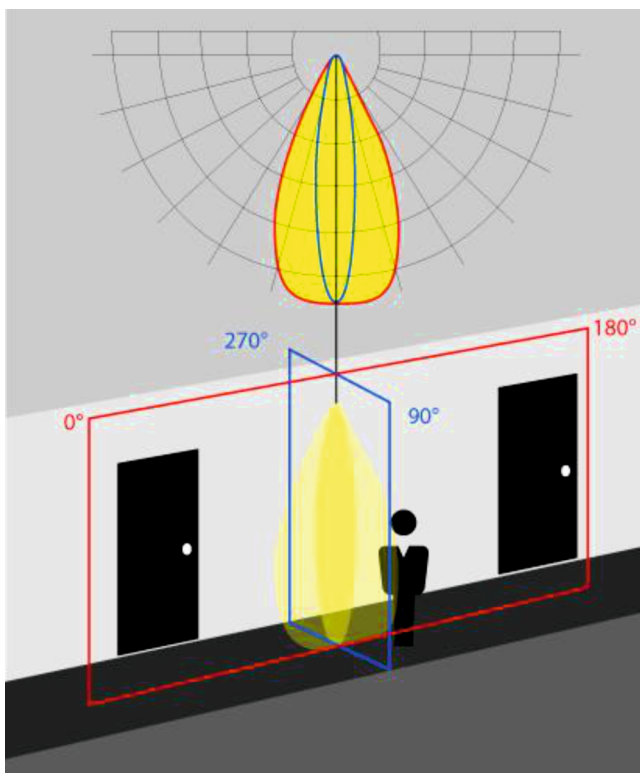
• SPECIAL BEAMS

• Street Light Beams

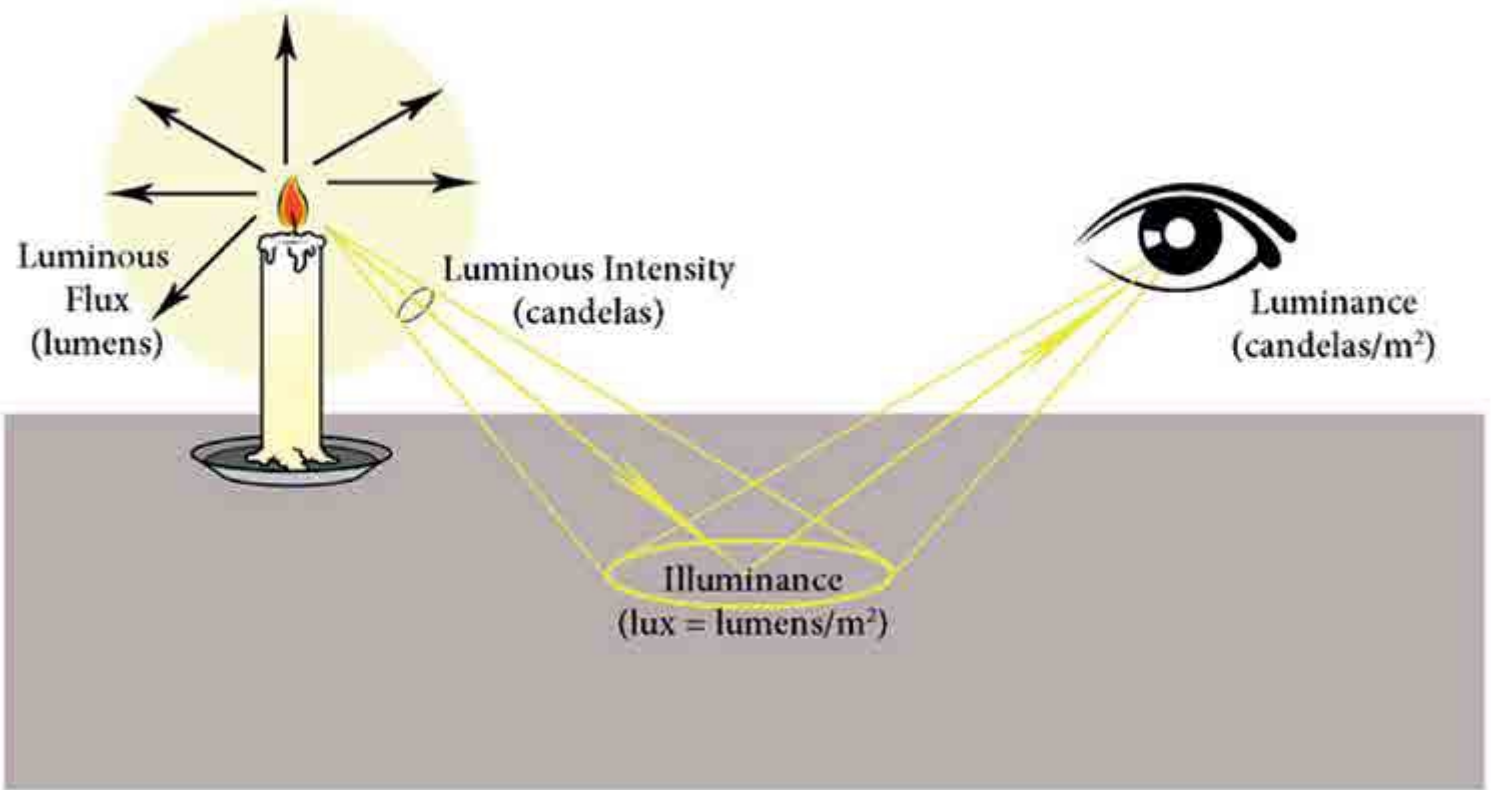
We use special lenses for street light, because beam angles of the street light need to be guided to specific direction to meet the requirement of the road, highways, multi-lane wide street, alleys.

LIGHT DISTRIBUTION CURVE

Light distribution curve is a visual representation of the light diffused by a luminaire. This graph tries to transpose a three dimensional concept (the light diffusion of a lamp or fixture in a space) onto a two dimensional medium.



MEASUREMENTS OF LIGHT



LUMINOUS FLUX (LUMENS-LM)

The luminous flux describes the quantity of light emitted by a light source.

Radiant flux is the measure of the total power of electromagnetic radiation (including infrared, ultra violet, and visible light), luminous flux describe the quantity derived from radiant flux (radiant power) by evaluating the radiation in accordance with the spectral sensitivity of the human eye. Without further specification, it refers to the initial luminous flux.

LUMINOUS EFFICACY (lm/w)

It is the ratio of the luminous flux to the electrical power consumed (lm/W). It is a measure of a light source's economic efficiency, and it indicates of how well a light source produces visible light.

LUMINOUS INTENSITY (CANDELA OR cd) $I = \frac{\Phi}{\Omega}$

Means the total of the luminous flux leaving the source and propagated in the element of solid angle containing the given direction.

ILLUMINANCE (LUX) $E = \frac{\Phi}{A}$

Illuminance means the quantity of light (luminous flux) hitting the surface A.

LUMINANCE (CD/M²) $L = \frac{I}{A_L \cdot \cos\epsilon}$ $L = \frac{E \cdot \rho^*}{\pi}$

It describes on one hand a light source's impression of brightness, and on the other hand a surface specific-ations, and therefore depends to a large extent on the degree of reflection.

FEATURE ICONS

COLOR TEMPERATURE TUNING



ADJUSTABLE ANGLES



COLOR RENDERING INDEX 80



ALUMINUM BODY



RED, GREEN, BLUE & WHITE COLOR MODEL



INGRESS PROTECTION 20 OR 54



INGRESS PROTECTION 67



INDOOR INSTALLATION



INSULATION CONTACT

Recessed Luminaires that have the IC rating Can have insulation up to the sides and covering them.



INSULATION CONTACT - FIRE RESISTANT

Recessed Luminaires that have the IC-Frating can have insulation abutted to and/or covering them. These down lights are also sealed so insulation cannot get into the fitting.



CYANOSIS OBSERVATION INDEX

Visual detection of cyanosis in a patient. For Hospital and medical tasks.



EASY TO INSTALL



DIMMABLE



LUMINAIRE SUITABLE FOR DIRECT MOUNTING ON NORMALLY FLAMMABLE SURFACES



ONLY SUITABLE FOR MOUNTING ON NON COMBUSTIBLE SURFACES.



IMPACT PROTECTION



APPROVAL ICONS

ILLUMINATING ENGINEERING SOCIETY CLASSIFICATION



THREE STEP MACADAM CHIPS



FIVE YEARS WARRANTY



GERMAN CONFORMITY



EUROPE CONFORMITY



RESTRICTION OF HAZARDOUS SUBSTANCES



QUALITY ASSURED FIRM ISO9001 CERTIFICATE



FEDERAL COMMUNICATIONS COMMISSION CERTIFICATE



REGULATORY COMPLIANCE MARK



CERTIFICATE BODY



SAUDI ARABIA CONFORMITY



APPLIANCE CLASS I



APPLIANCE CLASS II




APPLIANCE CLASS III



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SURFACE MOUNTED



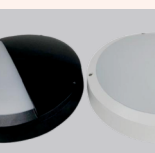
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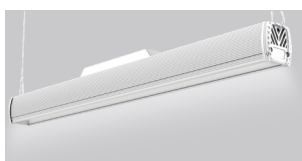
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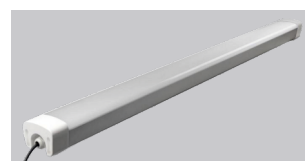
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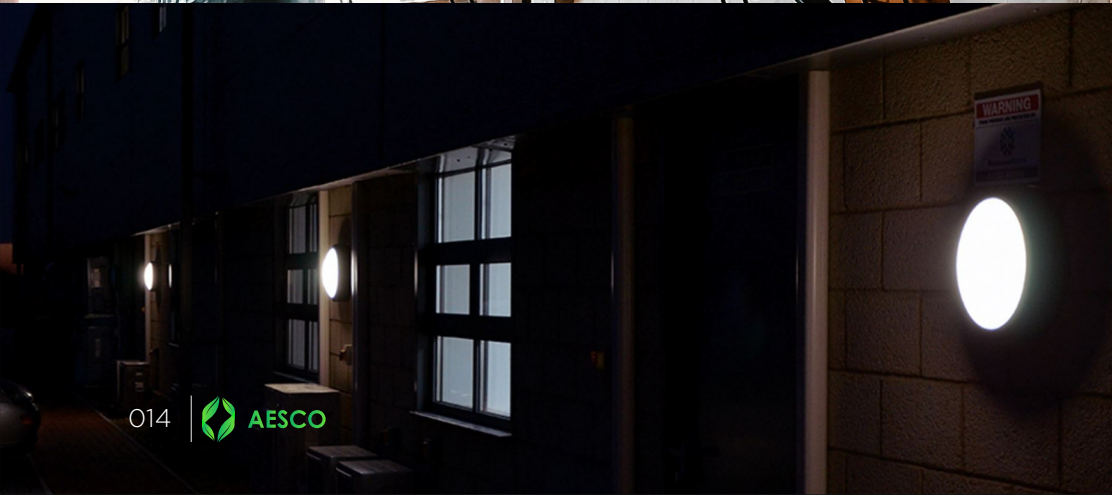


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SURFACE MOUNT

Our collection of surface mount comes in different shapes and types; to suite different architectural decoration, from a circular and square shape, with different methods of installation and a simple easy installation mechanism. Surface mount fixtures does not need decoration change of the place, and also it comes with different ingress protection grades to meet all indoor/outdoor requirements.







SURFACE MOUNT CORE FAMILY



APPLICATION

Simple and elegant round down light for surface installation, aluminum body for good heat dissipation. You can install it in: Residential lighting, villas, public areas, Hotel, Kitchen, Shopping Mall, Restaurant etc....



APPROVALS & STANDARDS

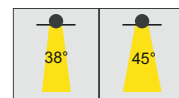
Saudi Standard SASO 2902 *	Energy Efficiency, functionality & labeling requirements for lighting products -Part2-
IECEE certificate *	As per IEC60598-2-3:2002+A1:2011 IEC60598-1:2014+A1:2017
Power supply approval marks	UL/CSA/CE/ENEC/CCB/CCC
Degree of protection provided by enclosures, ingress protection(IP)	IEC 60529:2013

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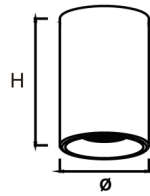
TECHNICAL INFORMATION

FAMILY	Core
Wattage	10W 15W 20W 30W 40W
CRI	80 90
CCT	2700K 3000K 3500K 4000K 5000K 5700K 6500K
Beam	38° 45°
Lumen	1000lm 1500lm 2000lm 3000lm 4000lm
Finish	Black White
Material	Die-casting aluminum body and heatsink, PMMA lenes
Driver	Tridonic Philips Lifud



CUTOUT & DIMENSION

MODEL	POWER	DIMENSION
AESDLE	10W	Ø90mm * H90mm
	15W	Ø110mm * H120mm
	20W	Ø130mm * H152mm
	30W	Ø170mm * H185mm
	40W	Ø193mm * H193mm



ORDERING INFORMATION

EXAMPLE : AESDLG1-10W-80-30-W-45-PH-ND

Model	Wattage	CRI	CCT	Body Color	Beam	DriverType	Dimming
AESDLG1	10W	80	30	W	45°	Ph	ND
AESDLG1	10W	80	27 2700K	W White	38°	Tr Tridonic	ND Non Dim
	15W	90	30 3000K	B Black	45°	Ph Philips	TD Triac Dim
	20W		35 3500K			Lf Lifud	VD 0/1-10VDim
	30W		40 4000K				DA DALI Dim
	40W		50 5000K				
			57 5700K				
			65 6500K				



SURFACE MOUNT CORE FAMILY



APPLICATION

Simple and elegant round down light for surface installation with high impact resistance, and high ingress protection (IP65), in aluminum body for good heat dissipation. You can install it in: Residential lighting, villas, public areas, Hotel, Kitchen, Shopping Mall, etc....

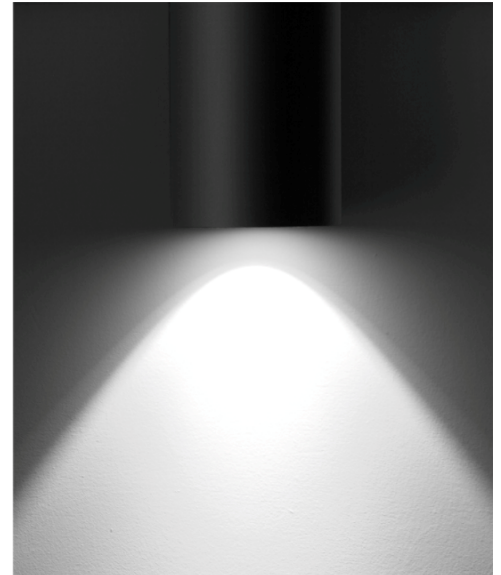
APPROVALS & STANDARDS

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Power supply approval marks	UL/CSA/CE/ENEC/CCB/CCC
Degree of protection provided by enclosures, ingress protection(IP)	IEC 60529:2013

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TECHNICAL INFORMATION

FAMILY	Core
Wattage	10W 20W 30W
CRI	80 90
CCT	2700K 3000K 3500K 4000K 5000K 5700K 6500K
Beam	45°
Lumen	1000lm 2000lm 3000lm
Finish	Black White
Material	Die-casting aluminum body and heatsink, PMMA lenes
Driver	Tridonic Philips Lifud



CREE

CITILED
The Light Engine

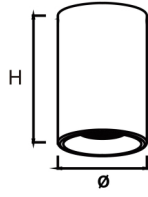
NICHIA

TRIDONIC



CUTOUT & DIMENSION

MODEL	POWER	DIMENSION
AESBL2	10W	Ø110mm * H130mm
	20W	Ø145mm * H150mm
	30W	Ø180mm * H165mm



ORDERING INFORMATION

EXAMPLE : AESBL2-10W-80-30-W-PH-ND

Model	Wattage	CRI	CCT	Body Color	DriverType	Dimming
AESBL2	10W	80	30	W	Ph	ND
AESBL2	10W	80	27 2700K	W White	Tr Tridonic	ND Non Dim
	20W	90	30 3000K	B Black	Ph Philips	TD Triac Dim
	30W		35 3500K		Lf Lifud	VD 0/1-10VDim
			40 4000K			DA DALI Dim
			50 5000K			
			57 5700K			
			65 6500K			



SURFACE MOUNT CORE FAMILY



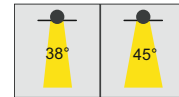
APPLICATION

Simple and elegant square down light for surface installation, aluminum body for good heat dissipation. You can install it in: Residential lighting, villas, public areas, Hotel, Kitchen, Shopping Mall, Restaurant etc....

APPROVALS & STANDARDS

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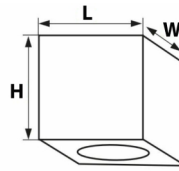
TECHNICAL INFORMATION

FAMILY	Core
Wattage	10W 20W 30W 40W
CRI	80 90
CCT	2700K 3000K 3500K 4000K 5000K 5700K 6500K
Beam	38° 45°
Lumen	1000lm 2000lm 3000lm 4000lm
Finish	White
Material	Die-casting aluminum body and heatsink, PMMA lenes
Driver	Tridonic Philips Lifud



CUTOUT & DIMENSION

MODEL	POWER	DIMENSION
AESTRL	10W	L90mm * W90mm * H90mm
	20W	L110mm * W110mm * H120mm
	30W	L130mm * W130mm * H135mm
	40W	L160mm * W160mm * H165mm



ORDERING INFORMATION

EXAMPLE : AESTRL-10W-80-30-45-PH-ND

Model	Wattage	CRI	CCT	Beam	DriverType	Dimming
AESTRL	10W	80	30	45	Ph	ND
AESTRL	10W	80	27 2700K	38°	Tr Tridonic	ND Non Dim
	20W	90	30 3000K	45°	Ph Philips	TD Triac Dim
	30W		35 3500K		Lf Lifud	VD 0/1-10VDim
	40W		40 4000K			DA DALI Dim
			50 5000K			
			57 5700K			
			65 6500K			



SURFACE MOUNT PLUS FAMILY



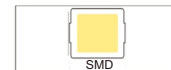
APPLICATION

Simple and elegant round surface mount light, for outdoor or indoor installation on a wall or facade, high ingress protection (Ip65), in Polycarbonate body for high reliability. You can install it in: outer walls, corridors, outer balcony, lift shaft, public areas, etc....

APPROVALS & STANDARDS

Saudi Standard SASO 2902 *	Energy Efficiency, functionality & labeling requirements for lighting products -Part2-
IECEE certificate *	As per IEC60598-2-3:2002+A1:2011 IEC60598-1:2014+A1:2017
Power supply approval marks	UL/CSA/CE/ENEC/CCB/CCC
Degree of protection provided by enclosures, ingress protection(IP)	IEC 60529:2013

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CREE

LUMILEDS

NICHIA

OSRAM

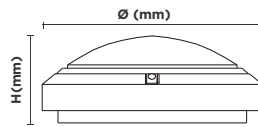
TECHNICAL INFORMATION

FAMILY	PLUS
Wattage	12W 16W 18W 24W
CRI	80 90
CCT	2700K 3000K 3500K 4000K 5000K 5700K 6500K
Beam	120°
Lumen	1200lm 1500lm 1800lm 2400lm
Finish	White
Material	Polycarbonate body, PMMA diffuser
Driver	Tridonic Philips Lifud
Ambient (Ta) Temperature	-20°C to +50°C



CUTOUT & DIMENSION

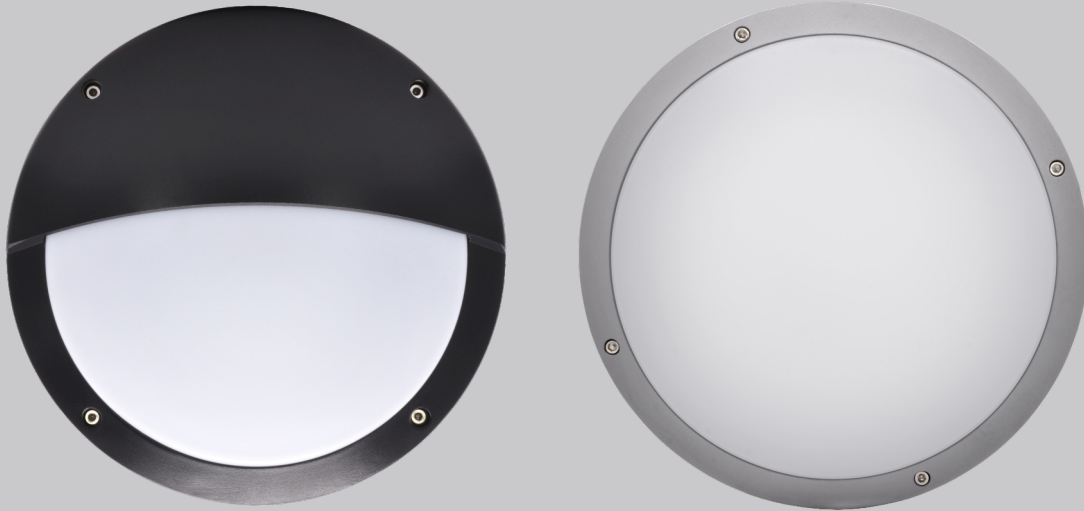
MODEL	POWER	DIMENSION
AESCL1	12W	Ø260mm * H110mm
	16W	Ø260mm * H110mm
	18W	Ø330mm * H100mm
	24W	Ø330mm * H100mm



ORDERING INFORMATION

EXAMPLE : AESCL1-12W-80-30-PH-ND

Model	Wattage	CRI	CCT	DriverType	Dimming
AESCL1	12W	80	30	Ph	ND
AESCL1	12W	80	27 2700K	Tr Tridonic	ND Non Dim
	16W	90	30 3000K	Ph Philips	TD Triac Dim
	18W		35 3500K	Lf Lifud	VD 0/1-10VDim
	24W		40 4000K		DA DALI Dim
			50 5000K		
			57 5700K		
			65 6500K		



SURFACE MOUNT PLUS FAMILY



APPLICATION

Simple and elegant round surface mount light, for outdoor installation on a wall or facade, with high impact resistance, and high ingress protection (IP54), in aluminum body for good heat dissipation. You can install it in: outer wall, corridor, outer balcony, lift shaft, public areas, etc....

APPROVALS & STANDARDS

Saudi Standard SASO 2902 *	Energy Efficiency, functionality & labeling requirements for lighting products -Part2-
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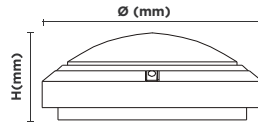
TECHNICAL INFORMATION

FAMILY	PLUS
Wattage	14W 20W
CRI	80 90
CCT	2700K 3000K 3500K 4000K 5000K 5700K 6500K
Beam	120°
Lumen	1200lm 1800lm
Finish	Black Silver
Material	Die-casting aluminum body, PMMA diffuser
Driver	Tridonic Philips Lifud
Ambient (T _a) Temperature	-20°C to +50°C



CUTOUT & DIMENSION

MODEL	POWER	DIMENSION
AESFCD1	14W	Ø145mm * H65mm
	20W	Ø275mm * H86mm



ORDERING INFORMATION

EXAMPLE : AESFCD1-14W-80-NC-30-S-PH-ND

Model	Wattage	CRI	Body	CCT	Body Color	DriverType	Dimming
AESFCD1	14W	80	NC	30	W	Ph	ND
AESFCD1	14W	80	SC Semi Cutoff	27 2700K	S Silver	Tr Tridonic	ND Non Dim
	20W	90	NC No Cutoff	30 3000K	B Black	Ph Philips	TD Triac Dim
				35 3500K		Lf Lifud	VD 0/1-10VDim
				40 4000K			DA DALI Dim
				50 5000K			
				57 5700K			
				65 6500K			

PANEL LIGHT

Panel light is a widely used economic indoor fixture, where the light pass through the high transmittance light guide plate to form a uniform plane luminous effect, with illumination uniformity, comfortable and bright light, eye fatigue effectively relieved. The panel comes with two options for ingress protection IP20/54 to meet all indoor requirements.





PANEL LIGHT



APPLICATION

LED slim design Panel with durable long life LED engine, product life time of 50000 hours, smooth light without glare, With high color rendering index, utilizing high power factor anti flickering driver, and low harmonics distortion.

You can install it in: Office Building, schools, Conference Room, Corridor, Exhibition Hall, Store, Museum, etc...

APPROVALS & STANDARDS

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TECHNICAL INFORMATION

FAMILY	PANEL
Wattage	40W 54W
CRI	80 90
CCT	2700K 3000K 3500K 4000K 5000K 5700K 6500K
Beam	120°
Lumen	3240.0lm 4374.0lm
Finish	Silver White
Material	Die-casting aluminum body, PMMA opal diffuser
Driver	Tridonic Philips Lifud
Ambient (Ta) Temperature	-20°C to +50°C



CREE

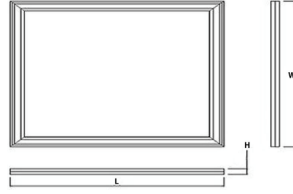
LUMILEDS

NICHIA

OSRAM

CUTOUT & DIMENSION

MODEL	POWER	DIMENSION
AES-PL1-40W	40W	L595mm*W595mm*H9.8mm
AES-PL1-54W	54W	L595mm*W595mm*H9.8mm



ORDERING INFORMATION

















EXAMPLE : AES-PL1-40W-80-30-B-PH-ND

Model	Wattage	CRI	CCT	IP	FrameColor	DriverType	Dimming
AES-PL1	40W	80	30	20	W	Ph	ND
AES-PL1	40W	80	30 3000K	20	W White	Tr Tridonic	ND Non Dim
	54W	90	40 4000K	54	S Silver	Ph Philips	VD 0/1-10VDim
			50 5000K			Lf Lifud	DA DALI Dim
			57 5700K				
			60 6000K				
			65 6500K				

INGRESS PROTECTION

IP Ratings are an international numeric classification to indicate the degrees of protection provided by enclosures for electrical equipment against water and solid object accordance with IEC 60598-1:2003.

IPXX

	0 No protection against contact and ingress of objects.		0 No protection against ingress of water.
	1 Protected against solid objects Ø>50 mm and greater, such as the back of a hand.		1 Protected against dripping water; vertically falling drops shall have no harmful effect on the device when mounted in a normal position.
	2 Protected against solid objects Ø>12.5 mm and greater, such as fingers or similar objects.		2 Protected against dripping water; vertically falling drops shall have no harmful effect on the device when the enclosure is tilted at an angle of 15° from its normal position.
	3 Protected against solid objects Ø>2.5 mm and greater, such as tools, thick wires, etc.		3 Protected against water falling as a spray at any angle up to 60° from the vertical line.
	4 Protected against solid objects Ø>1 mm and greater, such as wires, large ants etc.		4 Protected against splashing water; water splashed against the enclosure from any direction shall have no harmful effect.
	5 Dust protected, ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment.		5 Water projected by a nozzle (6.3 mm) under 30kPa pressure at distance of 3 meters from any direction shall have no harmful effects.
	6 Dust-tight, no ingress of dust; complete protection against dust (dusttight).		6 Water projected in powerful jets (12.5 mm) under 100kPa pressure at distance of 3 meters from any direction shall have no harmful effects.
			7 protected against the effects of temporary immersion of water; no harmful effect is possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 meter maximum of submersion).
			8 The equipment is suitable for continuous immersion in water as per the conditions specified by the manufacturer.

IMPACT PROTECTION

IK Ratings are an international numeric classification to indicate the degrees of protection provided by enclosures against external mechanical impacts in accordance with IEC 62262:2002.

IKXX

00	No protection.	06	Protected against 0.25kg mass of impact dropped from 400mm above the impacted surface.
01	Protected against 0.25kg mass of impact dropped from 56mm above the impacted surface.	07	Protected against 0.5kg mass of impact dropped from 400mm above the impacted surface.
02	Protected against 0.25kg mass of impact dropped from 80mm above the impacted surface.	08	Protected against 1.7kg mass of impact dropped from 300mm above the impacted surface.
03	Protected against 0.2kg mass of impact dropped from 140mm above the impacted surface.	09	Protected against 5kg mass of impact dropped from 200mm above the impacted surface.
04	Protected against 0.25kg mass of impact dropped from 200mm above the impacted surface.	10	Protected against 5kg mass of impact dropped from 400mm above the impacted surface.
05	Protected against 0.25kg mass of impact dropped from 280mm above the impacted surface.		

REFERENCE STANDARDS

• SASO 2902	Energy efficiency, functionality and labeling requirements for lighting products (part 2).
• SASO 2927:2019	Energy efficiency functionality and labeling requirements for lighting products-part 3: Street lighting.
• IES 610000-3-2	Electromagnetic compatibility (EMC) - Part 3-2: Limits for harmonic current emissions (equipment input current 16 A per phase).
• IEC 62471	Photo biological Safety of Lamps and Lamp Systems.
• IEC TR 62778	Application of 62471 to light sources and luminaires (blue light).
• IEC 60598-1/2017	Luminaires - Part 1: General requirements and tests.
• IEC 61547:2009	Equipment for general lighting purposes - EMC immunity requirements.
• IEC 61643-11:2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems Requirements and test methods.
• IES LM-79-08	Electrical and photometric measurements of Solid State lighting products.
• IES LM-80-08	Measuring lumen maintenance of LED Light sources.
• IES LM-82-12	Method for characterisation of LED light Engines and Integrated LED lamps for Electrical properties as a function of the temperature.
• IES LM-84-14	Measuring Luminous Flux and Color Maintenance of LED Lamps, Light Engines, and Luminaires.
• ISTMT	In-SITU Temperature Measurement Testing.
• IES TM21-11	Projecting long term lumen maintenance of LED light sources.
• IES TM28-14	Projecting long-term luminous flux maintenance of LED lamps and luminaires.
• IEC 60529:2013	Degrees of protection provided by enclosures (IP Code).
• ISO 9227:2017	Corrosion tests in artificial atmospheres Salt spray tests.
• ISO 4628-2:2016	Paints and varnishes - Evaluation of degradation of coatings Designation of quantity and size of defects, and of intensity.

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