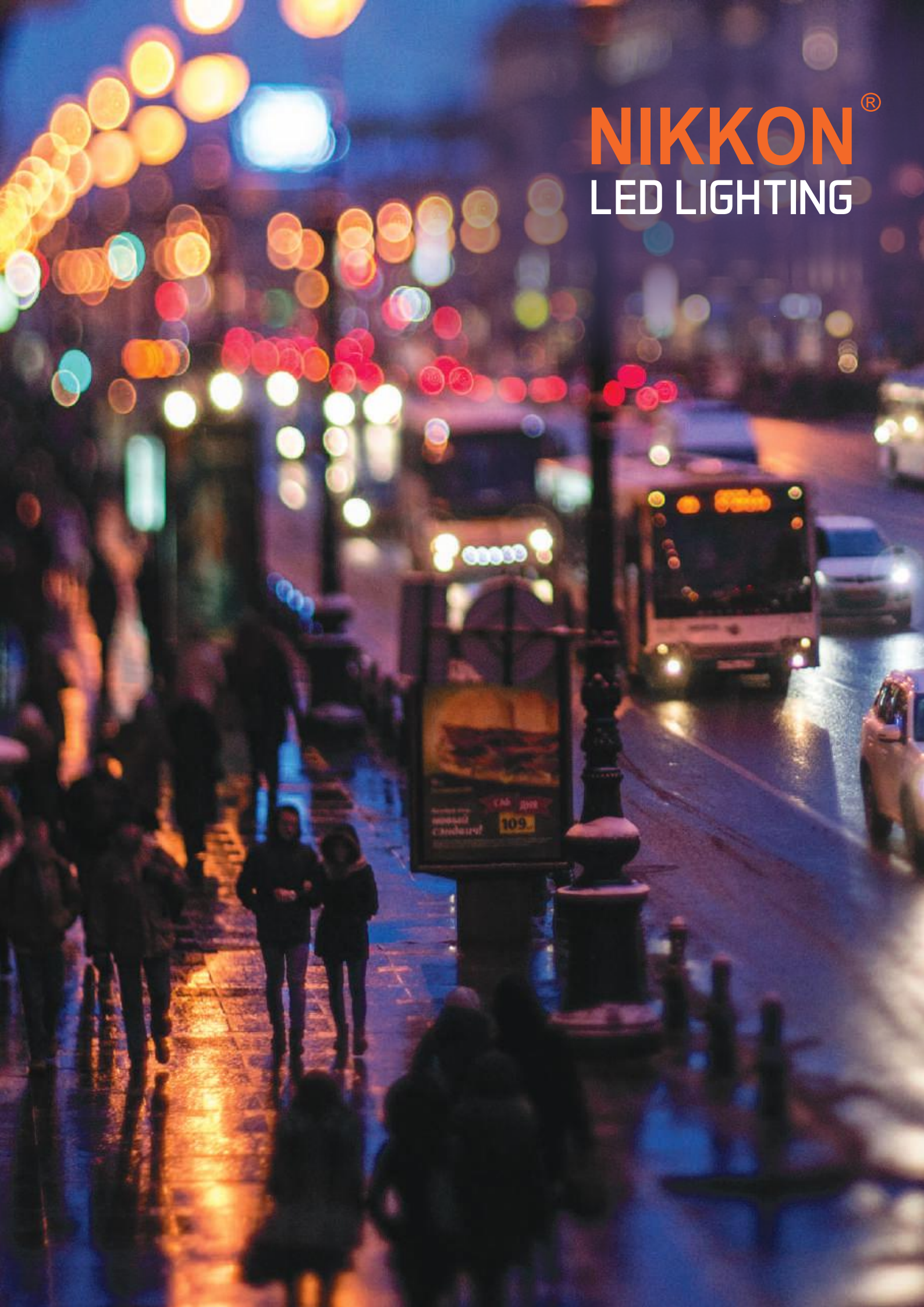


A full-page photograph of a city street at night. The scene is filled with out-of-focus lights from buildings, street lamps, and vehicles, creating a bokeh effect. Pedestrians are walking on a wet sidewalk that reflects the ambient light. A bus and a car are visible on the road. In the upper right corner, the text 'NIKKON LED LIGHTING' is overlaid in a bold, sans-serif font. The word 'NIKKON' is orange, and 'LED LIGHTING' is white. A registered trademark symbol (®) is located at the top right of the word 'NIKKON'.

NIKKON[®]

LED LIGHTING



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ABOUT SUCCESS

Success Electronics & Transformer Manufacturer Sdn. Bhd. (Success) is wholly owned subsidiaries of Success Transformer Corporation Berhad (STC), one of the largest lighting and transformer manufacturing company incorporated in Malaysia since 1980.

The company develops, manufactures and distributes leading-edge LED Industrial lighting, and transformer products that smash the status quo and help customers gain and maintain a competitive edge.

NIKKON® and its logo are either registered trademarks or trademarks of Success Company in Malaysia.

Feel free to visit Success Website www.success.com.my for Success Product information or visit our Corporate Website www.stcgroup.com.my to learn more about our portfolio.

WELCOME TO NEW ERA OF LIGHTING

THE LED ERA DEFINITELY ARRIVED!

Light Emitting Diode (LED) technology has long become standard. It outperforms nearly all conventional light sources in terms of service life, energy efficiency & luminous efficiency, thus become indispensable for indoor and outdoor applications.



The basis for light generation inside a LED: a solid-state semiconductor, is the conversion of electrical energy directly into light. Energy released is emitted as electromagnetic radiation in the visible range, meaning in the form of light.



The light emitted from a diode is not the by-product of a thermal process as with incandescent lamps but is generated as part of an electrical reaction within the diode, with recombination of positive and negative charge carriers in the junction area of the semiconductor.



In 21st century, people are looking for innovative lighting solutions that can fulfill the technical and economical requirements. LED lighting solutions can integrate and interact with people and the spaces they use in unprecedented ways that have limitless potential to improve the quality of both the environment and life for people around the world.

In addition to economic efficiency, LED systems also offer the opportunity for easy control.

For example, the lighting duration and level can be controlled optimally, which allows for appropriate illumination.



"There is no alternative for reducing energy consumption and operating costs, whilst simultaneously optimizing the lighting of safety-relevant areas."



SIMPLE CHANGES, MAJOR IMPACT!



The lighting industry is evolving rapidly, driven by the energy efficiency imperative and the world of possibilities open up by the LED revolution, not to mention legislative pressures such as Kyoto and the Energy-related Products Directive (ErP).

To help municipal decision makers on pace with the latest developments and the best solutions for creating a sustainable city, we are spreading the word under the theme of GO ECO.

Lighting accounts roughly for 19% of the world's electricity use and about 75% of all lighting is based on old, energy-inefficient solutions.

Hence, lighting is one of the fastest and most cost-effective ways to save energy. Switching to green alternatives has an immediate impact on energy use, CO2 emissions, the environment and improves light quality.

LIGHTS WITH ENDLESS POSSIBILITIES

CREATING A SUSTAINABLE CITY WITH ECO LIGHTING

NIKKON® has a long-standing commitment to provide lighting solutions that improve people's lives and proactively addressing environmental issues in pursuit of a sustainable, "brighter" future, we are constantly exploring ways to maximize energy efficiency, minimize the use of hazardous substances and reduce waste. Thanks to our years of experience in the field of light management systems now we can offer intelligent light control for street and outdoor lighting that helping city planners and municipalities reduce the energy consumption and cut down the total energy cost.

SENSIBLE LED SOLUTIONS FEATURE THREE SPECIFIC BENEFITS:



Firstly, they are almost free of maintenance with an enormous service life of more than 50,000 hours.

Secondly, they are characterized by optimal energy efficiency. This environmental aspect deserves particular attention, because LEDs not only consume less electricity, leading to less CO2 emissions, but also produce less waste and don't contain hazardous substances such as mercury. Because LED luminaires are smaller than conventional products, packaging and transport effort is also reduced.

Thirdly, LED luminaires offer planners completely new options for design. If optimal photometric systems are used, the distribution of light in the room, glare reduction or light color can be modified. Put briefly, the optimum technology exists for all application cases ranging from offices to museum lighting and food display, and these can also be wrapped in smaller, more purist or more elegant luminaire designs.

NIKKON® engineering team, formed by lighting specialists equip with the long-term know-how, passionate commitment and international experience integrates the LEDs light source, optic, control system and housing enables optimal solutions.

ADVANTAGES OF LEDs:



- Long Life Span
- Energy Efficient
- Low Power Consumption
- Low maintenance
- Robust (No Moving Parts)
- Minimal UV emissions
- No Radiated Heat (IR) from Light
- Doesn't Emit Radio Frequency Interference
- Minimal attraction of Bugs and Insects
- Digitally Controllable
- Unaffected by Cold Temperatures
- Resistant to Shock, Vibrations & External Impacts
- Fast Response
- Instantaneous Switch-On
- Colors Availability (RGB LEDs and Color Mixing)
- Light Disbursement
- Capable for Frequent on-off Cycling
- No Mercury
- Reduced Carbon Emissions
- Greatly Reduced Light Pollution
- Small Footprint (Design Flexibility)
- Low-Voltage Power Supply (Increased Safety)
- Silent Operation
- Ease of Installation
- No Flicker

Your Return on Investment (ROI) Please visit www.nikkonlighting.com for ROI calculation tools.

LIGHTING CONTROLS & MONITORING

To further enhance safety, predictability and measurability, as a leader of LED lighting manufacturer in Malaysia, we are proudly introducing "iLCS", an Intelligent Lighting Control System that can be monitored remotely.



This system come with a communication device built into the fixture, integrated with the driver circuitry and the two communicate with each other. The fixtures transmit data to a central, remotely located monitoring system and have the ability to report pertinent information related to the lighting system (lumen output, energy consumption, etc).



LIGHTING TECHNOLOGY: MONITORING AND REPORTING

LED technology allows the lights to be dimmed with simple circuitry and paired with occupancy sensors to create a "intelligent" lighting system.



Faster payback period and further energy reduction

Occupancy sensor integration

Advanced dimming based on user defined settings

Controlling individual or groups of LED fittings to reduce wasted light

Demand response

"Intelligent" lumen depreciation settings to maintain original light level

Real time notifications

Predictable energy usage

Custom reporting based on user recs

Zero maintenance lighting system

Emergency fitting battery life monitoring

Failure detection and notification

NIKKON® LUMINAIRE MANUFACTURING PROCESS

INTEGRATED SYSTEM

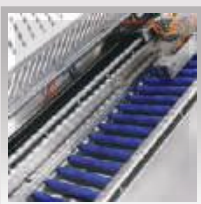
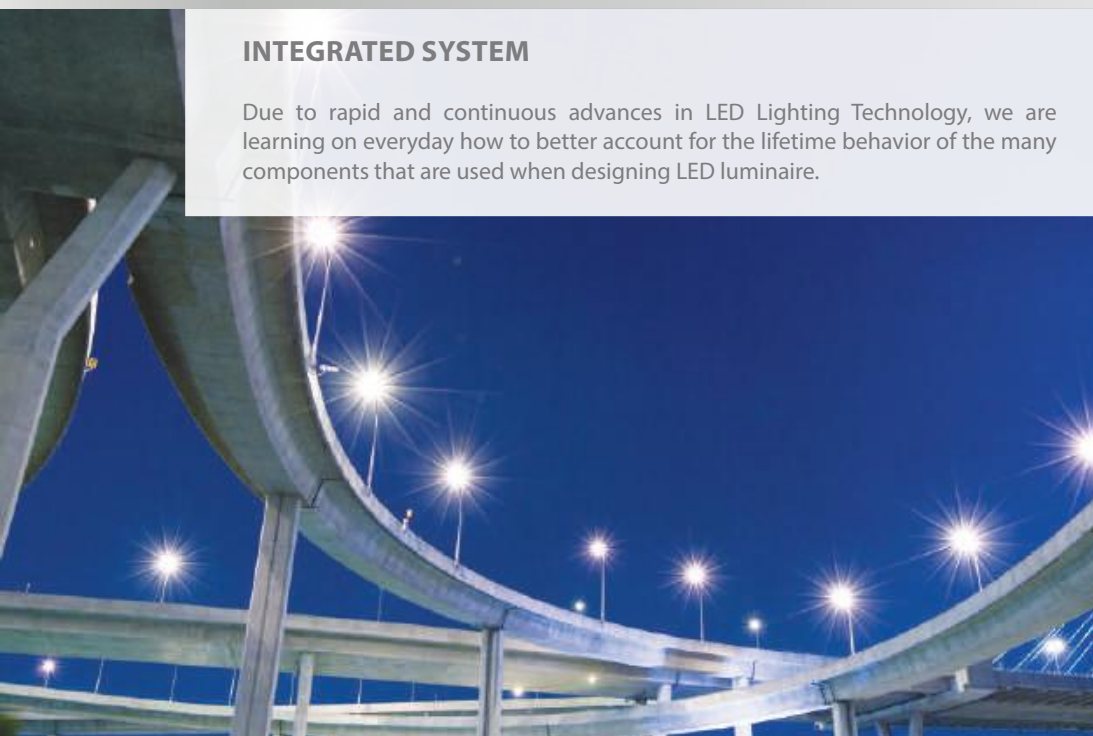
Due to rapid and continuous advances in LED Lighting Technology, we are learning on everyday how to better account for the lifetime behavior of the many components that are used when designing LED luminaire.

As a manufacturer, we spend a great deal of time and effort designing and developing all aspects of a lighting system, including control system, board layouts, component quality, thermal management features, optics, and mechanical design.

The LED luminaire design is then validated through a series of in-situ tests to verify the luminaire achieved the expected performance levels for heat dissipation, light output, and so on.

Since all the aspects of a LED luminaire are interdependent, operational performance can be determined only by testing the fixture as an Integrated System.

Thus, our engineers need to take into consideration as an entire system during the manufacturing process to ensure the Reliability of the entire LED Luminaire.



SYSTEM RELIABILITY

LEDs are more complex than traditional lighting. It is an electromechanical system that includes semi-conductor light sources, provisions for heat transfer, electrical control, optical conditioning, mechanical support, and protection, as well as aesthetic design elements. Because the LEDs themselves are expected to have long life, all of these other components, adhesives, sealants, solder joints and other materials must be equally long-lived. To the extent they are not, they will limit useful life.

ADDITIONAL INFORMATION

- 1: LED Lighting Technology is a fundamentally new kind of lighting, using new principles, materials, and means of control. When properly evaluated and deployed, LED lighting systems have the ability to improve both the quality of the environment and the quality of life for people around the world.
- 2: In-situ is a Latin phrase that translates literally to "on site" or "in position". In-situ testing is now a priority when testing our LED light systems for more reliable results. It is the measurement of the LED source case temperature within the LED system (luminaire or lamp) while it is operating in its designed position and/or environment (In "SITUation"). The measurement is performed at the temperature measurement point (Tc Point) indicated by the LED package manufacturer.
- 3: LED lighting fixtures are integrated systems in which the light sources (LEDs), the fixture housing, and the primary

MANUFACTURING PROCESS

All components in a luminaire affect system reliability and the reliability of a luminaire is affected by the reliability of every single component. Given that the LED luminaire is a system, it is vital to recognize all aspects of the entire system and not just individual components that can affect or limit lifetime. Please bear in mind that all LED luminaires available in market are not created Equally! It is critical to understand our Manufacturing Process from-the-ground-up fixture to understand factors that our engineers consider in designing a LED luminaire.

optics are inseparable. Lumen measurements of LED luminaire, therefore, are performed on the entire system, and already account for light lost to the housing and lensing.

- 4: Well-designed LED lighting fixtures can retain 70% of their initial output for 50,000 hours or more, depending on operating conditions and other factors. At 24 hours per day of continuous use, such fixtures can deliver useful light for six years or longer - many times compared to incandescent sources and up to twice compared to long-life fluorescent sources.
- 5: LED luminaires do not always fail in a "lights out" fashion as with other lighting sources. Possible LED failures include: Catastrophic - abrupt failure; Lumen maintenance - lighting levels reduced below a lower limit and Color shift - Change in color of light.



LED STREET LANTERN

LEDXION S466	03
LEDXION GALAXY M1 & M2	05
LEDXION S536	07
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LEDXION S436 EA	11
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LED STREET LANTERN

THE NEW ERA OF STREET LIGHTING ARRIVED!

.....

The world is continuously changing – and so is the cityscape. We are able to match these changes with the LED technologies adapted in Roadway Lighting. With the intelligent light control system, individual luminaires can be grouped for example, in streets and pedestrian overpasses. The system also permits the user to control and monitor the luminaires, individually or in groups – depending on the application.

Whether roads, paths or industrial installations – street lighting needs to be reliable in all situations. NIKKON have many years of experience and is reliable. We have outdoor industrial lighting system and components to meet the diverse requirements of the roadway lighting.

SURGE PROTECTION DEVICE

.....

Manufacturers of LED lighting systems frequently design LED drivers for over-voltage between 2 kV and 4 kV. However this protection is not sufficient for street lighting systems. Ecological use of LED modules is only possible if the intended operating time is reached. Economic advantages can be rendered ineffective if the LED modules fail prematurely and have to be replaced.

By installing an additional SPD in the LED Luminaire System, it can protect against overvoltage that arise due to direct and indirect lightning strikes on the main distribution supply line. The benefits of SPD is easy installation, maintain and replace.







LUMINAIRE SPECIFICATIONS

• System Power	200W 250W 300W 350W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Interpon300AS 94-163X2/T
• Optical Cover	High Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +50°C
• Installation	Ø60mm Side Entry / Post Top
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	1-10V Dimming, Full Programmable
• Optics	Type I, Type II, Type III, Type IV, Type V or Type Asy Lens
• Control	Intelligent Light Control System
• Installation	Mounting Bracket (Highmast Lighting)

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15, IEC62722



APPLICATION

- Motor Ways, Municipal Areas, Expressways, Highmasts, Tennis / Sport Courts, Carparks, Jetties & Ports

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
200W	K09129 S466 200W	80	26360	216	840 x 540 x 275	18.0 kg
250W	K09129 S466 250W	100	32610	265	840 x 540 x 275	18.0 kg
300W	K09129 S466 300W	120	38870	315	840 x 540 x 275	18.0 kg
350W	K09129 S466 350W	120	43610	373	840 x 540 x 275	18.0 kg

* Please indicate LED color temperature and optic when ordering.

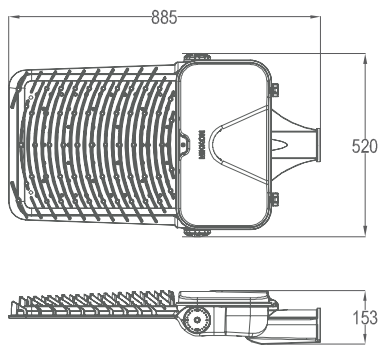
* Programmable dimming LED driver is available upon request.

* All result tested base on 5000K CCT LEDs.

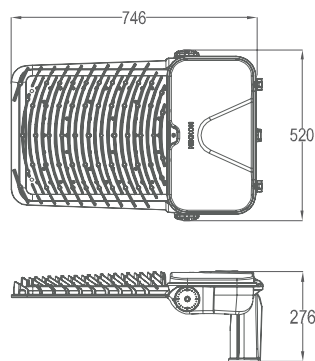


DIMENSION

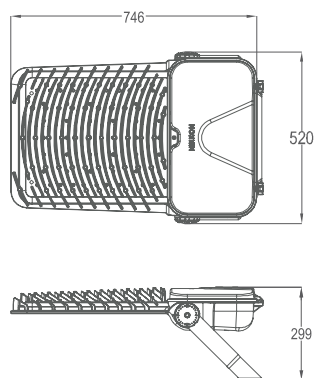
Side Entry



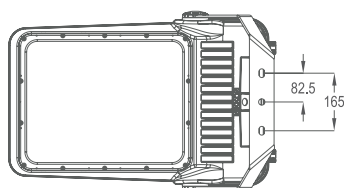
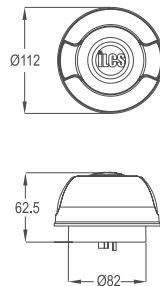
Post Top



Mounting Bracket

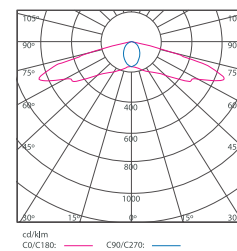


Light Control Unit

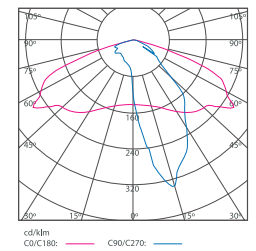


PHOTOMETRIC

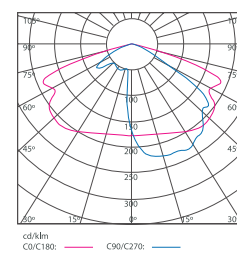
Type I



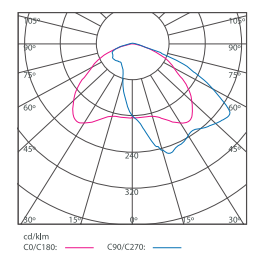
Type II



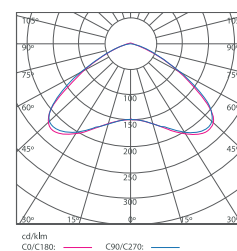
Type III



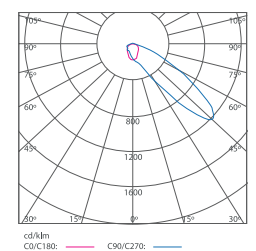
Type IV



Type V



Type ASY





GALAXY M1



GALAXY M2

LUMINAIRE SPECIFICATIONS

- **Power** M1 - 30W, 60W, 90W, 120W
M2 - 120W, 140W, 160W, 180W, 200W, 220W
- **Fitting Material** Marine Grade High Corrosive Resistant Die- Cast Aluminium
- **Fitting Color** White Aluminium, Akzo Nobel RAL9006
- **Optical Cover** High Transparency Tempered Glass
- **Ingress Protection** IP66
- **Impact Protection** IK08
- **Voltage** 220 ~ 240 Vac 50 / 60Hz
- **Electrical Safety Class** Class I (Class II Upon Request)
- **Operating Temperature** -30 ~ +50°C
- **Surge Protections** 10KV, 20KA
- **Installation** M1 - Ø48 mm or Ø60 mm (Upon Request)
M2 - Ø60 mm

OPTIONAL FEATURES (UPON REQUEST)

- **Driver** 1-10V Dimming, Time Dimming Control, Constant Current-Output
- **Optics** Type II or Type III Lens
- **Control** Intelligent Light Control System

LED MODULE SPECIFICATIONS

- **Color Temperature** 3000K Warm White
4000K Neutral White
5000K Cool White
- **Color Rendering Index (CRI)** >70
- **L70** 100,000 Hrs @ 25°C
- **PCB Material** Metal Core
- **PCB Trace** Copper
- **SMD Connector** WAGO 2060 Series

COMPLIANCE STANDARD

- **LED** LM80, UL, RoHS
- **Driver** CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
- **Luminaire** LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471, IEC62722



APPLICATION

- M1 - Pathways, Car Parks, Foot Paths, Access Ways, Parks, Road Lightings, Residential Areas & Pedestrian Areas
- M2 - Pedestrian Areas, Residential Areas, Rural Roads, Urban Roads & Expressway Lightings

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
30W	K09132 M1 30W	72	4185	31	550 x 400 x 235	9.0 kg
60W	K09132 M1 60W	72	8370	62	550 x 400 x 235	9.0 kg
90W	K09132 M1 90W	108	12420	92	550 x 400 x 235	9.0 kg
120W	K09132 M1 120W	108	13500	122	550 x 400 x 235	9.0 kg
120W	K09133 M2 120W	240	16430	120	840 x 325 x 560	17.0 kg
140W	K09133 M2 140W	240	19180	142	840 x 325 x 560	17.0 kg
160W	K09133 M2 160W	240	21540	165	840 x 325 x 560	17.0 kg
180W	K09133 M2 180W	300	23410	182	840 x 325 x 560	17.0 kg
200W	K09133 M2 200W	300	26400	201	840 x 325 x 560	17.0 kg
220W	K09133 M2 220W	300	29250	234	840 x 325 x 560	17.0 kg

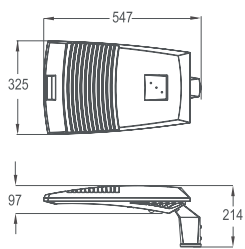
* Please indicate LED color temperature and optic when ordering.

* All result tested base on 5000K CCT LEDs.

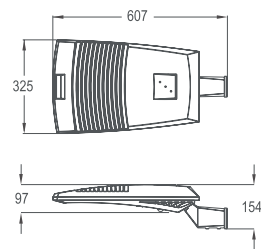


DIMENSION

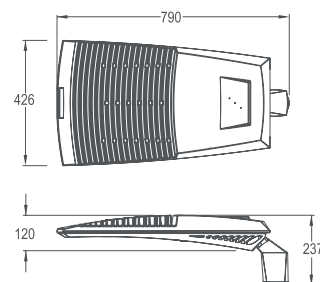
K09132 M1 - Post Top



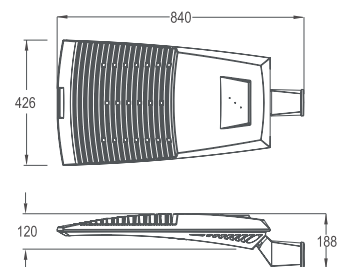
K09132 M1 - Side Entry



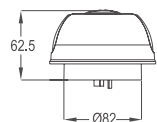
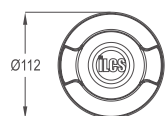
K09133 M2 - Post Top



K09133 M2 - Side Entry

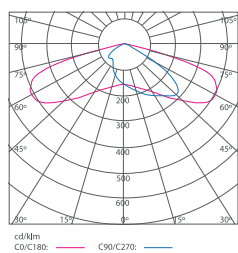


Light Control Unit

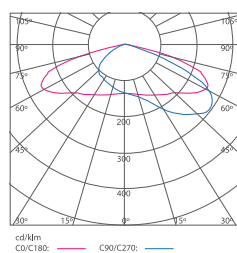


PHOTOMETRIC

Type II



Type III



Note: All specifications are subject to change without prior notice for product improvement. Images, pictures, and illustrations used are for illustrative purposes only and the color printed may differ from the actual product.



LUMINAIRE SPECIFICATIONS

• Power	150W 170W 190W 210W
• Fitting Material	Marine Grade Non-Corrosive Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Surge Protections	10KV, 20KA
• Installation	Ø48 - 60mm

OPTIONAL FEATURES (UPON REQUEST)

• Driver	Time Control, 1-10V Dimming, Full Programmable
• Control	Intelligent Light Control System
• Sensor	NEMA Photocell

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15, IEC62722



APPLICATION

- Rural Roads, Urban Roads, Express Ways, Car Parks, Roundabouts, Motorways & Municipal Areas

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
150W	K09131 150W	70	20110	157	800 x 380 x 200	13.0 kg
170W	K09131 170W	80	22130	174	800 x 380 x 200	13.0 kg
190W	K09131 190W	90	23885	197	800 x 380 x 200	13.0 kg
210W	K09131 210W	90	25570	217	800 x 380 x 200	13.0 kg

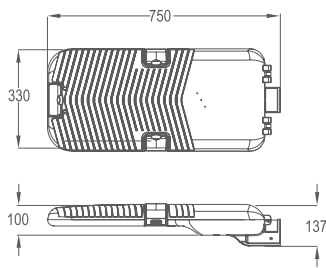
* Please indicate LED color temperature and optic when ordering.

* Programmable dimming LED driver is available upon request.

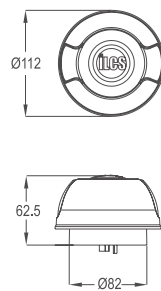
* All result tested base on 5000K CCT LEDs.



DIMENSION

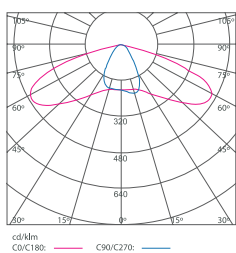


Light Control Unit

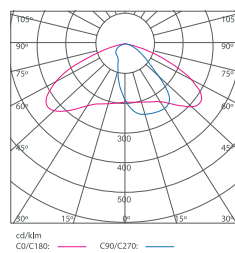


PHOTOMETRIC

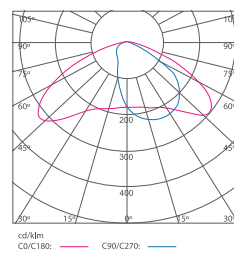
Type 1



Type 2



Type 3





LUMINAIRE SPECIFICATIONS

• Power	90W 120W 150W 170W
• Fitting Material	Marine Grade Non-Corrosive Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Surge Protections	10KV, 20KA
• Installation	Ø48 - 60mm

OPTIONAL FEATURES (UPON REQUEST)

• Driver	Time Control, 1-10V Dimming, Full Programmable
• Control	Intelligent Light Control System
• Sensor	NEMA Photocell

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15, IEC62722



APPLICATION

- Rural Roads, Urban Roads, Express Ways, Car Parks, Roundabouts, Motorways & Municipal Areas

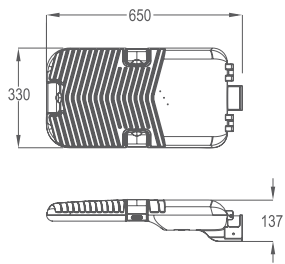
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
90W	K09130 90W	42	11685	95	660 x 360 x 210	11.0 kg
120W	K09130 120W	56	15650	125	660 x 360 x 210	11.0 kg
150W	K09130 150W	70	19080	155	660 x 360 x 210	11.0 kg
170W	K09130 170W	70	21200	177	660 x 360 x 210	11.0 kg

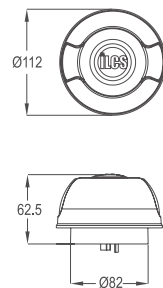
* Please indicate LED color temperature and optic when ordering.
* Programmable dimming LED driver is available upon request.
* All result tested base on 5000K CCT LEDs.



DIMENSION

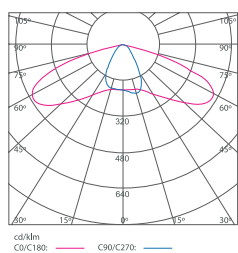


Light Control Unit

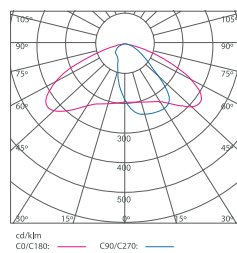


PHOTOMETRIC

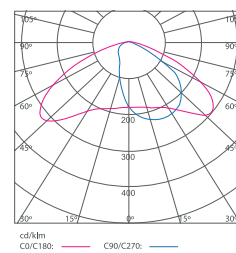
Type 1



Type 2



Type 3





LUMINAIRE SPECIFICATIONS

• Power	125W 150W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Ø48 - 60mm Side Entry
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	Time Control, DALI, 1-10V Dimming, Full Programmable
• Optics	Type I, Type II, Type III or Type IV Lens
• Control	Intelligent Light Control System
• Sensor	Mini Photocell, NEMA Photocell

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15



APPLICATION

- Residential Areas, Municipal & Expressway Lightings

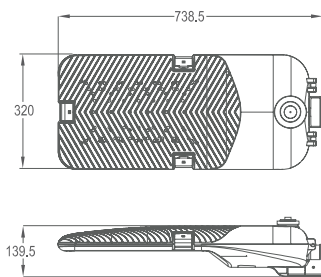
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
125W	K09220 EA 125W	60	17050	132	800 x 380 x 200	11.0 kg
150W	K09220 EA 150W	72	20600	160	800 x 380 x 200	11.0 kg

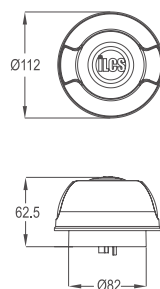
* Please indicate LED color temperature and optic when ordering.
* Programmable dimming LED driver is available upon request.
* All result tested base on 5000K CCT LEDs.



DIMENSION

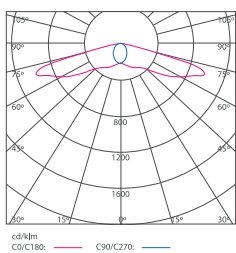


Light Control Unit

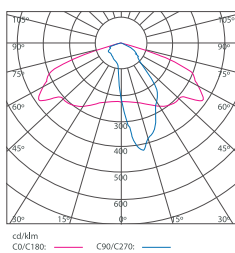


PHOTOMETRIC

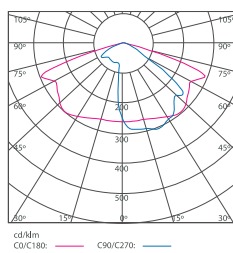
Type I



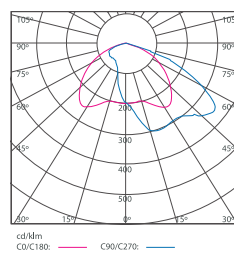
Type II



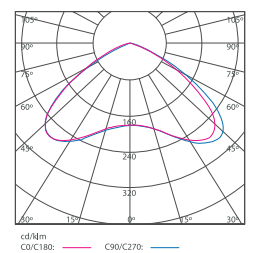
Type III



Type IV



Type V



NIKKON®

LEDXION S436 STREET LANTERN



LUMINAIRE SPECIFICATIONS

• Power	150W 170W 190W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Ø48 - 60mm Side Entry
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	Time Control, DALI, 1-10V Dimming, Full Programmable
• Control	Intelligent Light Control System
• Sensor	Mini Photocell, NEMA Photocell

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15, IEC62722



APPLICATION

- Residential Areas, Municipal & Expressway Lightings

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
150W	K09220 150W	70	20700	153	800 x 380 x 200	11.0 kg
170W	K09220 170W	80	23600	180	800 x 380 x 200	11.0 kg
190W	K09220 190W	90	26500	198	800 x 380 x 200	11.0 kg

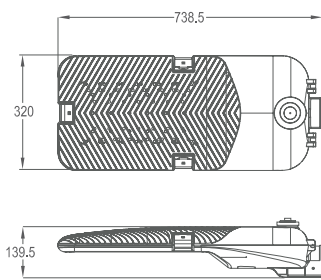
* Please indicate LED color temperature when ordering.

* Programmable dimming LED driver is available upon request.

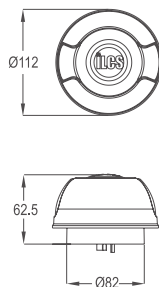
* All result tested base on 5000K CCT LEDs.



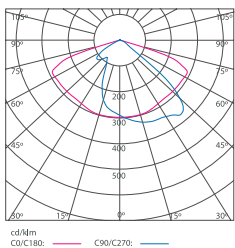
DIMENSION



Light Control Unit



PHOTOMETRIC





LUMINAIRE SPECIFICATIONS

• Power	165W 185W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	White Aluminium, Akzo Nobel RAL9006
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Ø48 - 60mm Side Entry
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Optics	Type II or Type III Lens
• Control	Intelligent Light Control System
• Sensor	Mini Photocell, NEMA Photocell

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Metal Core (Aluminium)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471, IEC62722



APPLICATION

- Residential Areas, Municipal Areas, Expressway Lightings, Commercial Areas, Parking Areas & Parks

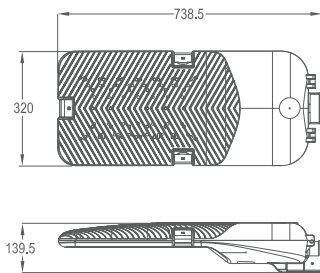
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
165W	K09220 165W	216	21320	175	800 x 380 x 200	11.0 kg
185W	K09220 185W	216	23520	195	800 x 380 x 200	11.0 kg

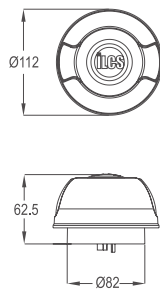
* Please indicate LED color temperature and optic when ordering.
* All result tested base on 5000K CCT LEDs.



DIMENSION

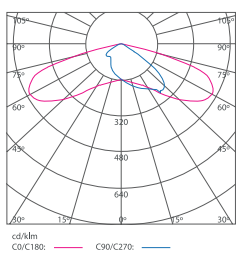


Light Control Unit

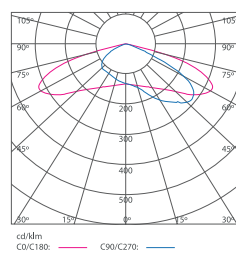


PHOTOMETRIC

Type II



Type III





LUMINAIRE SPECIFICATIONS

• Power	75W 100W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Ø48 - 60mm Side Entry
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	Time Control, DALI, 1-10V Dimming, Full Programmable
• Optics	Type I, Type II, Type III or Type IV Lens
• Control	Intelligent Light Control System
• Sensor	Mini Photocell, NEMA Photocell

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15



APPLICATION

- Residential Areas, Municipal, Expressway & Facade Lightings

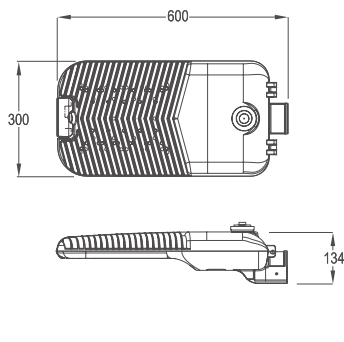
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
75W	K09121 EA 75W	36	10800	83	660 x 360 x 210	9.0 kg
100W	K09121 EA 100W	48	13840	105	660 x 360 x 210	9.0 kg

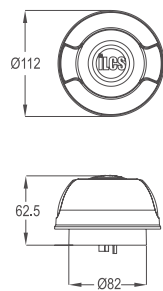
* Please indicate LED color temperature and optic when ordering.
* Programmable dimming LED driver is available upon request.
* All result tested base on 5000K CCT LEDs.



DIMENSION

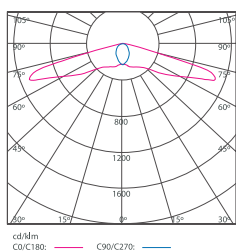


Light Control Unit

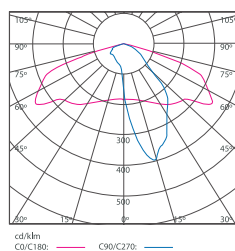


PHOTOMETRIC

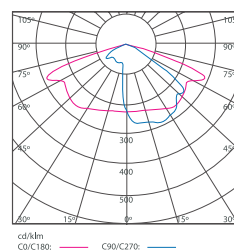
Type I



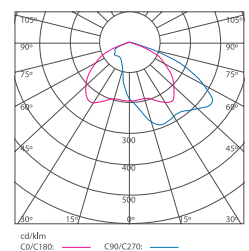
Type II



Type III



Type IV



NIKKON®

LEDXION S433 STREET LANTERN



LUMINAIRE SPECIFICATIONS

• Power	90W 120W 150W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Ø48 - 60mm Side Entry
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	Time Control, DALI, 1-10V Dimming, Full Programmable
• Control	Intelligent Light Control System
• Sensor	Mini Photocell, NEMA Photocell

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15, IEC62722



APPLICATION

- Residential Areas, Municipal, Expressway Lightings

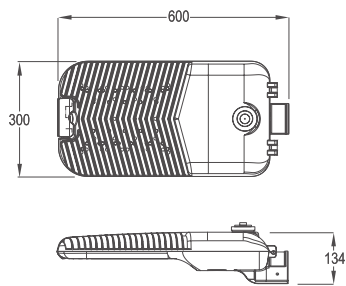
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
90W	K09121 90W	42	12270	93	660 x 360 x 210	9.0 kg
120W	K09121 120W	56	15800	120	660 x 360 x 210	9.0 kg
150W	K09121 150W	70	19860	151	660 x 360 x 210	9.0 kg

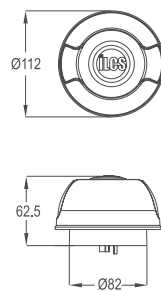
* Please indicate LED color temperature when ordering.
 * Programmable dimming LED driver is available upon request.
 * All result tested base on 5000K CCT LEDs.



DIMENSION

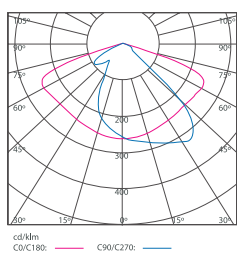


Light Control Unit



PHOTOMETRIC

K09121 150W





LUMINAIRE SPECIFICATIONS

• Power	85W 115W 145W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	White Aluminium, Akzo Nobel RAL9006
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Ø48 - 60mm Side Entry
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Optics	Type II or Type III Lens
• Control	Intelligent Light Control System
• Sensor	Mini Photocell, NEMA Photocell

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Metal Core (Aluminium)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471, IEC62722



APPLICATION

- Residential Areas, Municipal Areas, Commercial Areas, Parking Areas & Parks

MEASUREMENT & ORDER CODE

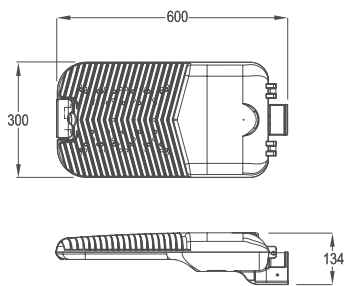
WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
85W	K09121 85W	108	11020	87	660 x 360 x 210	9.0 kg
115W	K09121 115W	144	14560	123	660 x 360 x 210	9.0 kg
145W	K09121 145W	144	17780	157	660 x 360 x 210	9.0 kg

* Please indicate LED color temperature and optic when ordering.

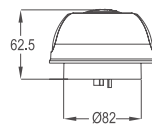
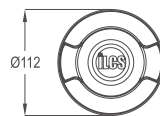
* All result tested base on 5000K CCT LEDs.



DIMENSION

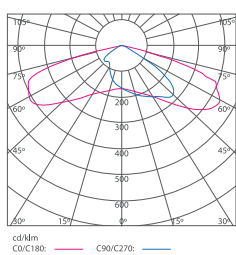


Light Control Unit

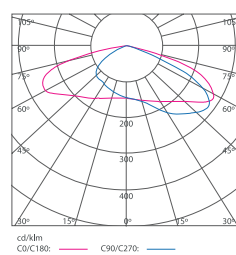


PHOTOMETRIC

Type II



Type III





LUMINAIRE SPECIFICATIONS

• Power	30W 40W 60W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Ø42 - 60mm Side Entry * Post Top Spigot is Available Upon Request.
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	1-10V Dimming
• Control	Intelligent Light Control System
• Sensor	Mini Photocell

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471



APPLICATION

- Pathways, Parks, Car Parks, Foot Paths, Access Ways, Road Lightings & Residential Areas

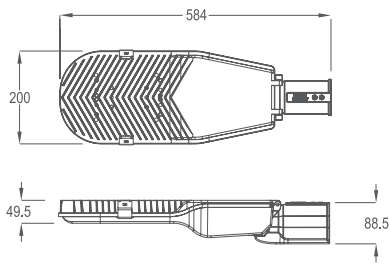
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
30W	K09360 30W	14	4150	34	600 x 245 x 158	4.0 kg
40W	K09360 40W	18	5660	42	600 x 245 x 158	4.0 kg
60W	K09360 60W	28	8200	66	600 x 245 x 158	4.2 kg

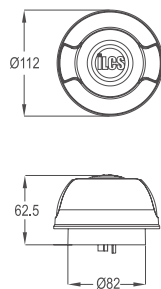
* Please indicate LED color temperature when ordering.
* All result tested base on 5000K CCT LEDs.



DIMENSION

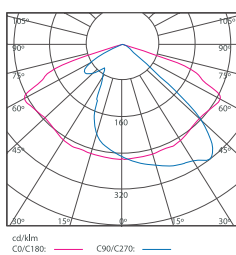


Light Control Unit



PHOTOMETRIC

K09360 60W



Note: All specifications are subject to change without prior notice for product improvement. Images, pictures, and illustrations used are for illustrative purposes only and the color printed may differ from the actual product.



LUMINAIRE SPECIFICATIONS

• Power	30W 40W 60W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	White Aluminium, RAL9006
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Ø42 - 60mm Side Entry * Post Top Spigot is Available Upon Request.
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Optics	Type II or Type III Lens
• Control	Intelligent Light Control System

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Metal Core (Aluminium)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547
• Luminaire	LM79, EN60598-1, EN60598-2-3, EN62493, EN55015, EN61547, EN61000, EN62471



APPLICATION

- Pathways, Parks, Car Parks, Foot Paths, Access Ways, Road Lightings & Residential Areas

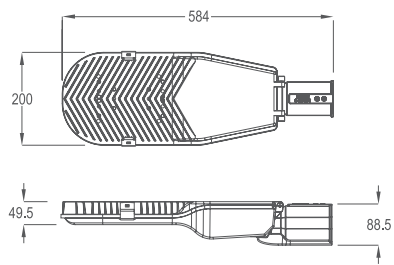
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
30W	K09360 S439-MP 30W	48	3800	34	600 x 245 x 158	4.2 kg
40W	K09360 S439-MP 40W	48	4800	44	600 x 245 x 158	4.2 kg
60W	K09360 S439-MP 60W	72	7200	65	600 x 245 x 158	4.2 kg

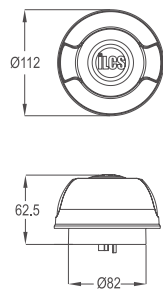
* Please indicate LED color temperature and optic when ordering.
* All result tested base on 5000K CCT LEDs.



DIMENSION

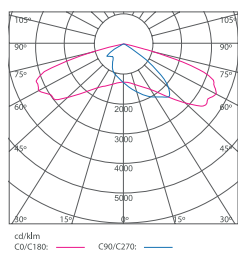


Light Control Unit

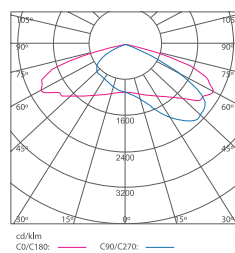


PHOTOMETRIC

Type II



Type III





SLE-S



SLE-M



SLE-L

LUMINAIRE SPECIFICATIONS

- **Power** 80W (SLE-S)
100W (SLE-M)
120W (SLE-M)
150W (SLE-L)
180W (SLE-L)
- **Fitting Material** Non-Corrosive Die-Cast Aluminium
- **Fitting Color** Dark Gray, Akzo Nobel RAL7012
- **Ingress Protection** IP65
- **Voltage** 220 ~ 240 Vac 50 / 60Hz
- **Operating Temperature** -30 ~ +45°C
- **Installation** Ø48 - 60mm Side Entry / Post Top
- **Surge Protections** 10KV, 20KA

LED MODULE SPECIFICATIONS

- **Color Temperature** 3000K Warm White
4000K Neutral White
5000K Cool White
- **Color Rendering Index (CRI)** >70
- **L70** 100,000 Hrs @ 25°C
- **PCB Material** Metal Core

COMPLIANCE STANDARD

- **LED** LM80, UL, RoHS
- **Driver** CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
- **Luminaire** MS IEC60598-1, MS IEC60598-2-3



APPLICATION

- Urban Roads, Highways, Parking Areas, Residential Areas, Industrial Areas, Parks & Commercial Areas

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	TYPICAL LUMINOUS FLUX	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
80W	K09127 SLE-S 80W	9480	670 x 300 x 180	5.45 kg
100W	K09127 SLE-M 100W	10010	790 x 345 x 210	7.5 kg
120W	K09127 SLE-M 120W	13200	790 x 345 x 210	7.5 kg
150W	K09128 SLE-L 150W	16500	900 x 385 x 215	12.0 kg
180W	K09128 SLE-L 180W	19500	900 x 385 x 215	12.0 kg

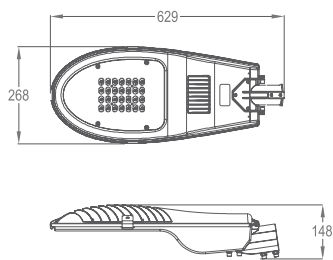
* Please indicate LED color temperature when ordering.

* All result tested base on 5000K CCT LEDs.

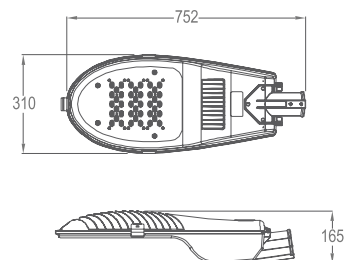


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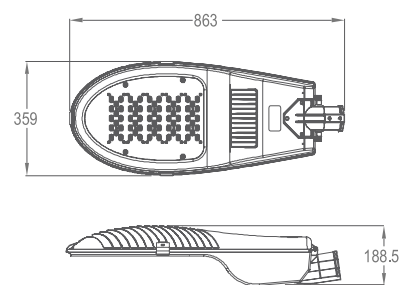
K09127 SLE-S



K09127 SLE-M

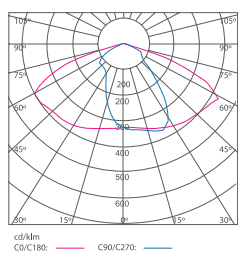


K09127 SLE-L

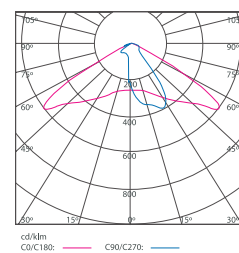


PHOTOMETRIC

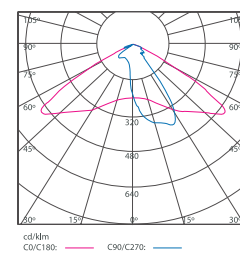
K09127 SLE-S



K09127 SLE-M



K09127 SLE-L





VELO 30W

VELO 60W

VELO 100W & 120W

LUMINAIRE SPECIFICATIONS

- **Power** 30W
60W
100W
120W
- **Fitting Material** Non-Corrosive Die-Cast Aluminium
- **Fitting Color** White Aluminium, Akzo Nobel RAL9006
- **Optical Cover** 95% Transparency Tempered Glass
- **Ingress Protection** IP65
- **Impact Protection** IK08
- **Voltage** 220 ~ 240 Vac 50 / 60Hz
- **Electrical Safety Class** Class I
- **Operating Temperature** -30 ~ +45°C
- **Installation** Ø42mm Side Entry (30W)
Ø48mm Side Entry (60W, 100W & 120W)
- **Surge Protections** 10KV, 20KA
- **Beam Angle** 145° x 65°, Type II

LED MODULE SPECIFICATIONS

- **Color Temperature** 3000K Warm White
4000K Neutral White
5000K Cool White
- **Color Rendering Index (CRI)** >70
- **L70** 100,000 Hrs @ 25°C
- **PCB Material** Metal Core

COMPLIANCE STANDARD

- **LED** LM80, UL, RoHS
- **Driver** CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547
- **Luminaire** EN60598-1, EN60598-2-3



APPLICATION

- Pathways, Parks, Car Parks, Foot Paths, Access Ways, Road Lightings, Residential Areas, Municipal Expressways & Facade Lightings

MEASUREMENT & ORDER CODE

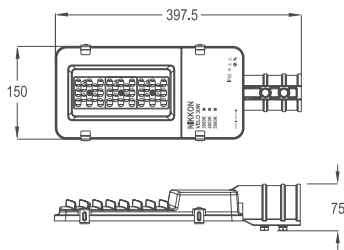
WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
30W	VELO 30W	36	4000	34	410 x 170 x 115	1.6 kg
60W	VELO 60W	72	7600	62	465 x 200 x 100	2.4 kg
100W	VELO 100W	144	13000	101	545 x 270 x 105	4.2 kg
120W	VELO 120W	144	15200	120	545 x 270 x 105	4.2 kg

* All result tested base on 5000K CCT LEDs.

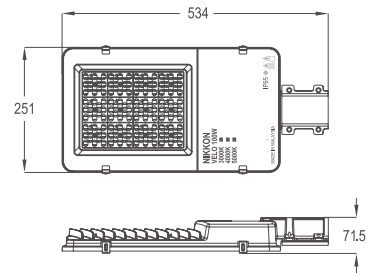


DIMENSION

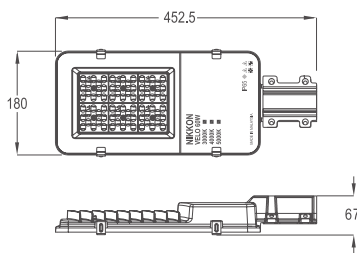
VELO 30W



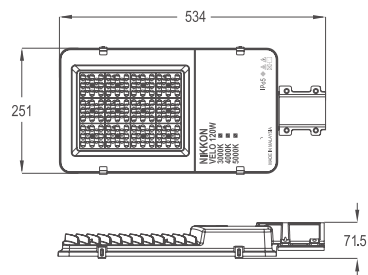
VELO 100W



VELO 60W

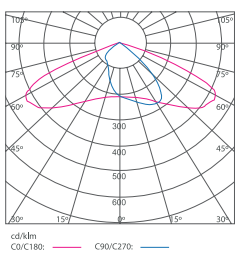


VELO 120W



PHOTOMETRIC

Type II



LEDXION S439 SOLAR STREET LANTERN



LUMINAIRE SPECIFICATIONS

• Power	30W 40W 60W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	24V _{DC}
• Operating Temperature	-30 ~ +45°C
• Installation	Ø42mm Side Entry
• Surge Protections	MOV & TVS

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	SOLAR PANEL CAPACITY
30W	SLD 30W LED 24V2	14	70Wp x 2
40W	SLD 40W LED 24V2	18	100Wp x 2
60W	SLD 60W LED 24V2	28	140Wp x 2

* Please indicate LED color temperature when ordering.

SYSTEM SPECIFICATIONS

• Solar Panel Type	Mono Crystalline Silicon PV
• Solar Panel Capacity	2 Panels of 17V 70Wp (30W) 2 Panels of 17V 100Wp (40W) 2 Panels of 17V 140Wp (60W)
• Backup Time	2 Days Autonomy with 10~11hrs Operation
• Charge Controller	10A Charge Controller c/w Timer
• Battery	2 x 12V 55Ah Seal Lead Acid Battery (30W) 2 x 12V 80Ah Seal Lead Acid Battery (40W) 2 x 12V 110Ah Seal Lead Acid Battery (60W)
• Control Box	Solar Charge Controller Seal Lead Acid Battery

FEATURES

- Powered by Mono Crystalline Silicon PV with High Module Conversion Efficiency
- High Efficiency LED lamp
- 4.5 metres Hot Dipped Galvanized Steel Lamp Post
- Ease of Installation and Mobility (No Underground Wire Required)
- Outdoor Type IP66 Street Lantern Fixture and IP43 Control Box

COMPLIANCE STANDARD

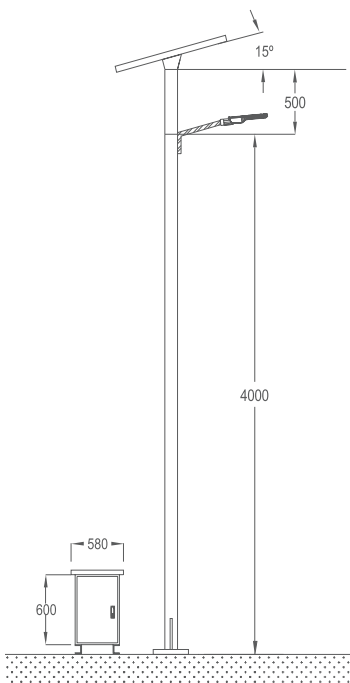
- LED LM80, UL, RoHS

APPLICATION

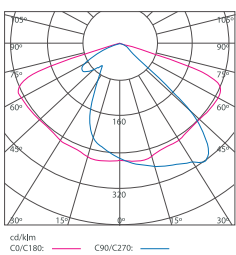
- Municipal Lightings, Agriculture Lightings, Aquaculture Lightings & Residential Areas



DIMENSION



PHOTOMETRIC



LEDXION S439 DIMMING SOLAR STREET LANTERN



LUMINAIRE SPECIFICATIONS

• Power	30W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	24V _{DC}
• Operating Temperature	-30 ~ +45°C
• Installation	Ø42 - 60mm Side Entry
• Surge Protections	MOV & TVS

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

SYSTEM SPECIFICATIONS

• Solar Panel Type	Mono Crystalline Silicon PV
• Solar Panel Capacity	1 Panel of 33V 100Wp
• Backup Time	2 Days Autonomy with 10~11hrs Operation
• Charge Controller	10A Charge Controller c/w Timer
• Battery	2 x 12V 33Ah Seal Lead Acid Battery
• Control Box	Solar Charge Controller Seal Lead Acid Battery

FEATURES

- Powered by Mono Crystalline Silicon PV with High Module Conversion Efficiency
- High Efficiency LED Lamp
- 4.5 metres Hot Dipped Galvanized Steel Lamp Post
- Ease of Installation and Mobility (No Underground Wire Required)
- Outdoor Type IP66 Street Lantern Fixture and IP43 Control Box
- 50% Dimming After 4 Hours Operation

COMPLIANCE STANDARD

- LED LM80, UL, RoHS

APPLICATION

- Municipal Lightings, Agriculture Lightings, Aquaculture Lightings & Residential Areas

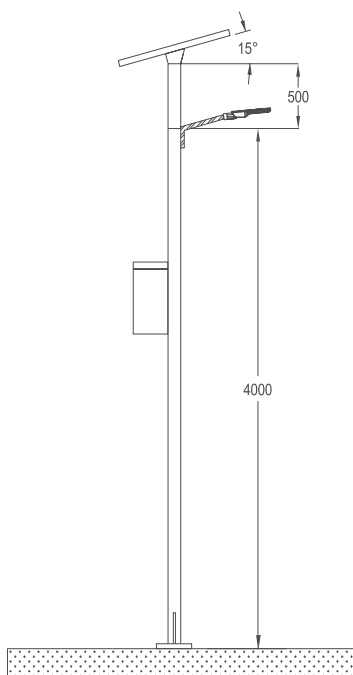
MEASUREMENT & ORDER CODE

WATTAGE	FIXTURE TYPE	ORDER CODE	NO. OF PANEL	SOLAR PANEL CAPACITY	DIMMING WATTAGE
30W	S439	SLD 30W LED 24V2 DIMMING	1	100Wp	15W

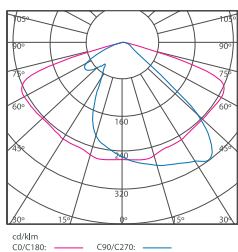
* Please indicate LED color temperature when ordering.



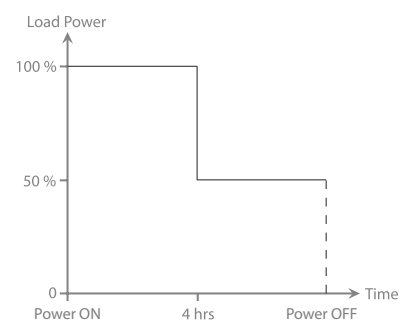
DIMENSION



PHOTOMETRIC



DIMMING TIMELINE



Note: All specifications are subject to change without prior notice for product improvement. Images, pictures, and illustrations used are for illustrative purposes only and the color printed may differ from the actual product.



30W



60W

LUMINAIRE SPECIFICATIONS

- Power 30W
60W
- Fitting Material Aluminium Alloy
- Fitting Color Silver
- Ingress Protection IP65
- Impact Protection IK09
- Operating Temperature -30 ~ +55°C
- Installation Ø60 - 68mm Pole

LED MODULE SPECIFICATIONS

- Color Temperature 5000K Cool White
- L70 100,000 Hrs @ 25°C

SYSTEM SPECIFICATIONS

- Solar Panel Type Mono Crystalline
- Solar Panel Capacity 18V 60Wp (30W)
18V 100Wp (60W)
- Backup Time 12 Hours Everyday, 3-4 Raining Day
- Charge Controller MPPT Charging, Valid for 6 Hours of Sunshine
Overheat Protection
Output Short Circuit Protection
- Battery 12V 24Ah Lithium Battery (30W)
12V 42Ah Lithium Battery (60W)

FEATURES

- Consisting of Solar Battery, Solar Controller and LED Light
- Without Memory Effect, Used at Anytime
- Environmentally Friendly Products, No Pollution, Safe to Use
- Simple Installation; without Wires and Distribution Box
- Advanced Diffuse Technology Ensure the Informity of High and Stablephotoelectric Conversion Efficiency
- Standby Mode 50%
- Overheat Protection and Short Circuit Protection

APPLICATION

- Municipal Lightings, Agriculture Lightings, Aquaculture Lightings & Residential Areas

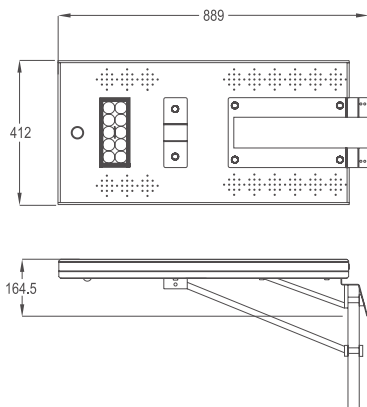
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	LM / W	SOLAR PANEL CAPACITY	NETT WEIGHT
30W	INTEGRATED SOLAR 30W	10	130	18V 60Wp	14.0 kg
60W	INTEGRATED SOLAR 60W	20	130	18V 100Wp	21.0 kg

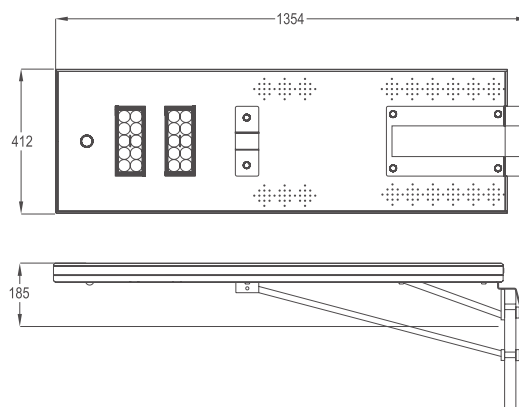


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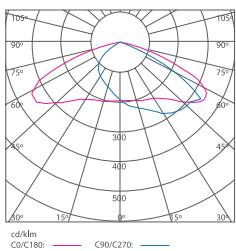
30W



60W



PHOTOMETRIC



LED BAY LIGHTING

HIGHBAY AND LOWBAY

Bay Lighting for indoor industrial applications can be divided into highbay and lowbay applications. A general highbay application mounting heights are over 20 feet (6 meters), while a general lowbay application mounting heights are 20 feet (6 meters) or less.

The already low operating costs due to excellent luminous efficiency and low maintenance effort can be further reduced by using DALI dimmable luminaires. LED has far higher lumen maintenance and the light source's lifespan can reach a longer period of time.

LED highbays are instant-on, with no flickering or warm up period. Unaffected by frequent on-off power cycles, LED highbays are the ideal choice for overhead lighting connected to motion sensors. Lifespan ranges from 50,000 to 100,000 hours, reducing the need for maintenance and replacement.

Lowbays work in much the same way as a highbay. The main differences will be in the lamp types selected, the types of reflectors and optics used. Ideal for areas that require a balance between high vertical and horizontal illumination with excellent glare control at low mounting heights.

It is designed to produce optimum illumination from the lamp, optical system and ballast, while providing specific light patterns for specific applications. These reliable systems help to improve safety and energy savings, while enhancing productivity and efficiency. It is a right way to put your industrial workplace in the best possible light.







LUMINAIRE SPECIFICATIONS

• Power	150W 190W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7016
• Optical Cover	95% Transparency Clear Tempered Glass
• Ingress Protection	IP20 IP66 (Upon Request)
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Hook Mounting Bracket
• Surge Protections	10KV, 20KA (External)

OPTIONAL FEATURES (UPON REQUEST)

• Driver	DALI, 1-10V Dimming
• Optics	Wide Beam, MB51 or NB19
• Control	Intelligent Light Control System

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	EN60598-1, EN60598-2-1, EN62493, EN55015, EN61547, EN61000, EN62471



APPLICATION

- Warehouses, Multipurpose Halls, Exhibition Halls, Production Areas & Factories

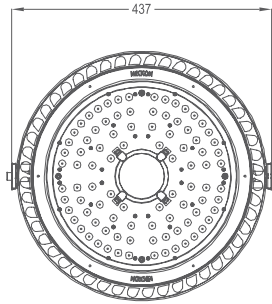
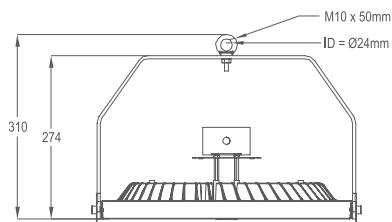
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
150W	K14104 150W	72	19700	165	490 x 490 x 195	8.3 kg
190W	K14104 190W	92	25300	205	490 x 490 x 195	8.3 kg

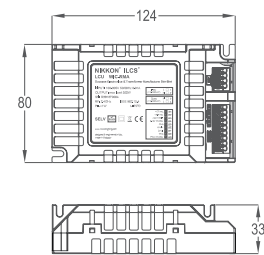
* Please indicate LED color temperature and optic when ordering.
* All result tested base on 5000K CCT LEDs.



DIMENSION

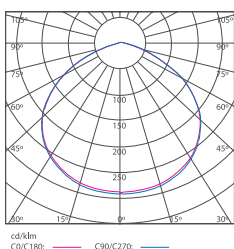


Light Control Unit

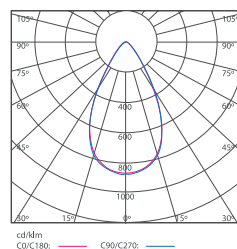


PHOTOMETRIC

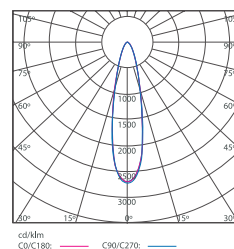
100° Wide Beam Angle (WB)



51° Medium Beam Angle (MB51)



19° Narrow Beam Angle (NB19)



Note: All specifications are subject to change without prior notice for product improvement. Images, pictures, and illustrations used are for illustrative purposes only and the color printed may differ from the actual product.



LUMINAIRE SPECIFICATIONS

• Power	80W 100W 120W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7016
• Optical Cover	95% Transparency Clear Tempered Glass
• Ingress Protection	IP20 IP66 (Upon Request)
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Hook Mounting Bracket
• Surge Protections	10KV, 20KA (External)

OPTIONAL FEATURES (UPON REQUEST)

• Driver	DALI, 1-10V Dimming
• Optics	Wide Beam, MB51 or NB19
• Control	Intelligent Light Control System

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	EN60598-1, EN60598-2-1, EN62493, EN55015, EN61547, EN61000, EN62471



APPLICATION

- Eateries, Retails, Hallways, Storage Rooms & Halls

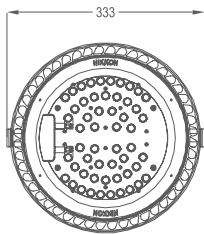
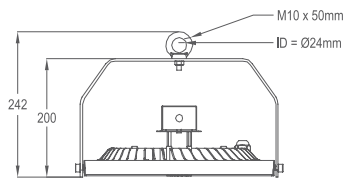
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
80W	K14102 80W	38	10800	84	365 x 365 x 155	4.6 kg
100W	K14102 100W	46	13060	104	365 x 365 x 155	4.6 kg
120W	K14102 120W	54	15000	123	365 x 365 x 155	4.6 kg

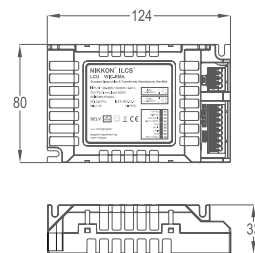
* Please indicate LED color temperature and optic when ordering.
* All result tested base on 5000K CCT LEDs.



DIMENSION

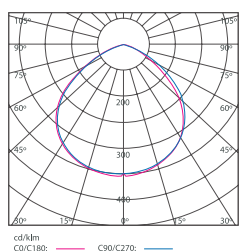


Light Control Unit

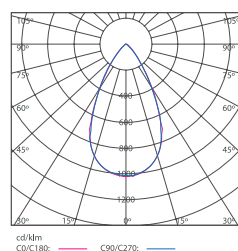


PHOTOMETRIC

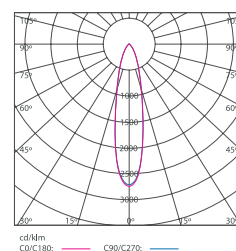
100° Wide Beam Angle (WB)



51° Medium Beam Angle (MB51)



19° Narrow Beam Angle (NB19)



NIKKON®

LEDXION S6310 MINI HIGHBAY



LUMINAIRE SPECIFICATIONS

• Power	40W 50W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7016
• Optical Cover	Anti Glare High Transparency Frosted Tempered Glass
• Ingress Protection	IP20 IP66 (Upon Request)
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Hook Mounting Bracket
• Surge Protections	10KV, 20KA (External)

OPTIONAL FEATURES (UPON REQUEST)

• Driver	1-10V Dimming
• Optics	Wide Beam, MB51 or NB19
• Control	Intelligent Light Control System

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	EN60598-1, EN60598-2-1, EN62493, EN55015, EN61547, EN61000, EN62471



APPLICATION

- Eateries, Retails, Hallways, Storage Rooms & Halls

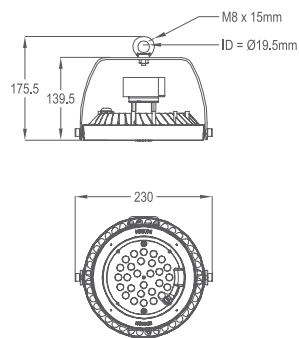
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
40W	K14103 40W	19	4900	45	275 x 275 x 145	2.0 kg
50W	K14103 50W	24	6120	56	275 x 275 x 145	2.0 kg

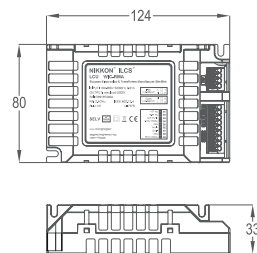
* Please indicate LED color temperature and optic when ordering.
* All result tested base on 5000K CCT LEDs.



DIMENSION

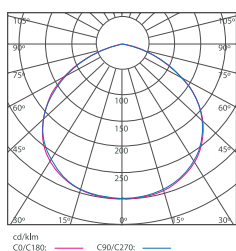


Light Control Unit

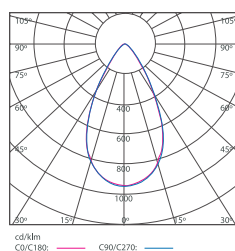


PHOTOMETRIC

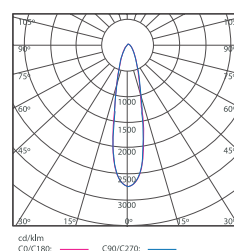
100° Wide Beam Angle (WB)



51° Medium Beam Angle (MB51)



19° Narrow Beam Angle (NB19)



NIKKON®

LEDXION ECO GEN 2 HIGHBAY



LUMINAIRE SPECIFICATIONS

• Power	40W 80W 120W 160W
• Reflector Material	Deep Draw Non-Corrosive Aluminium
• Fitting Color	White, Akzo Nobel RAL9010
• Optical Cover	Anti Glare Frosted Polycarbonate Diffuser
• Heat Sink	Extruded Aluminium
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Hook Mounting
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	Constant Current, Time Control, DALI, 1-10V Dimming, Full Programmable
• Optics	Wide Beam, MB51 or NB19

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	EN60598-1, EN60598-2-1, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15



APPLICATION

- Warehouses, Multipurpose Halls, Exhibition Halls, Production Areas & Factories

MEASUREMENT & ORDER CODE

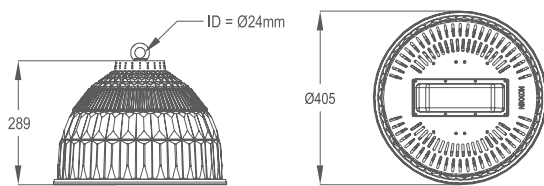
WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
40W	K14101 40W	18	5200	44	420 x 420 x 370	3.9 kg
80W	K14101 80W	36	9430	85	500 x 500 x 430	5.6 kg
120W	K14101 120W	54	13920	124	500 x 500 x 430	6.8 kg
160W	K14101 160W	72	19210	167	600 x 600 x 490	8.2 kg

* Please indicate LED color temperature when ordering.
* All result tested base on 5000K CCT LEDs.

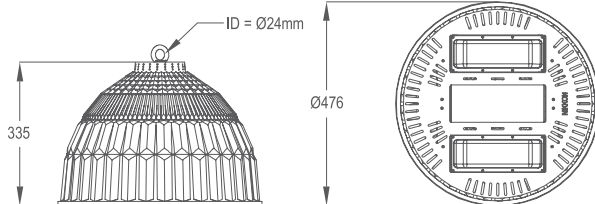


DIMENSION

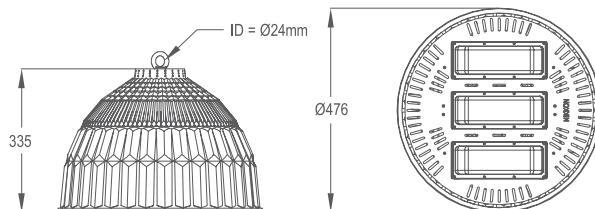
K14101 40W



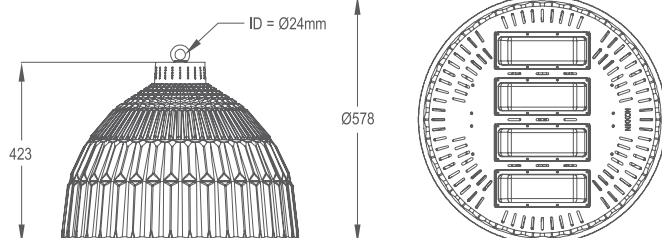
K14101 80W



K14101 120W

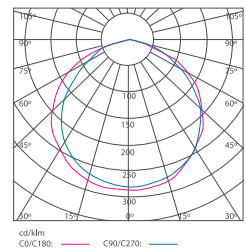


K14101 160W

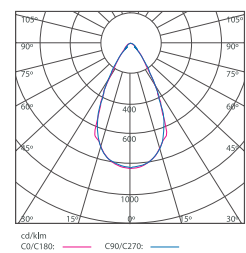


PHOTOMETRIC

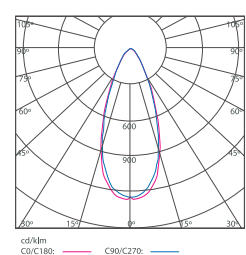
Wide Beam



MB51



NB19



NIKKON®

DRACO HELÓ HIGHBAY



HELÓ 150W



HELÓ 200W

LUMINAIRE SPECIFICATIONS

• Power	150W 200W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Black
• Optical Cover	Transparency Tempered Glass
• Ingress Protection	IP65
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Light Efficiency	>100 lm/W
• Power Factor	>0.9
• Operating Temperature	-30 ~ +45°C
• Installation	Hook Mounting
• Surge Protections	Yes, 4kV
• Pre-Wire	300 mm

APPLICATION

- Warehouses, Multipurpose Halls, Exhibition Halls, Production Areas & Factories

LED MODULE SPECIFICATIONS

• Color Temperature	5700K Daylight
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Metal Core

FEATURES

- Built-In IC Technology
- Direct AC supply Connection (220 ~ 240 Vac 50 / 60Hz)
- No External Driver Required
- High System Efficiency
- Mid Power LEDs
- Thin & Lightweight Size
- Internal Surge Protection Devices (SPD)

COMPLIANCE STANDARD

• LED	LM80
• Luminaire	EN60598-1, EN60598-2-1, EN55015, EN61547, EN61000



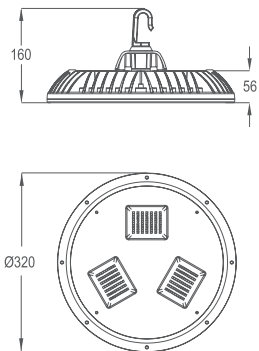
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
150W	K14112 HELÓ 150W	15000	150	330 x 135 x 330	3.2 kg
200W	K14113 HELÓ 200W	20000	200	390 x 135 x 390	4.2 kg

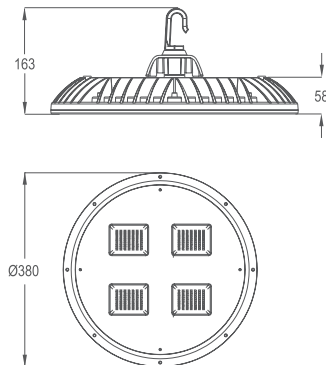


DIMENSION

HELÓ 150W

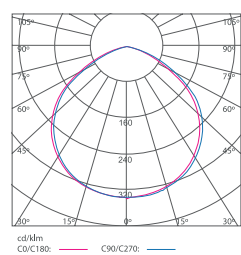


HELÓ 200W

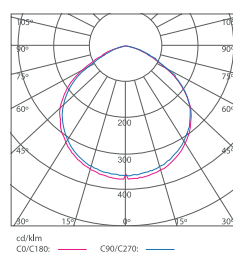


PHOTOMETRIC

HELÓ 150W



HELÓ 200W



NIKKON®

DRACO HELÓ HIGHBAY



HELÓ 50W



HELÓ 100W

LUMINAIRE SPECIFICATIONS

• Power	50W 100W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Black
• Optical Cover	Transparency Tempered Glass
• Ingress Protection	IP65
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Light Efficiency	>100 lm/W
• Power Factor	>0.9
• Operating Temperature	-30 ~ +45°C
• Installation	Hook Mounting
• Surge Protections	Yes, 4kV
• Pre-Wire	300 mm

APPLICATION

- Eateries, Retails, Hallways, Storage Rooms, Halls & Factories

LED MODULE SPECIFICATIONS

• Color Temperature	5700K Daylight
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Metal Core

FEATURES

- Built-In IC Technology
- Direct AC Supply Connection (220 ~ 240 Vac 50 / 60Hz)
- No External Driver Required
- High System Efficiency
- Mid Power LEDs
- Thin & Lightweight Size
- Safety Wire
- Internal Surge Protection Devices (SPD)

COMPLIANCE STANDARD

• LED	LM80
• Luminaire	EN60598-1, EN60598-2-1, EN55015, EN61547, EN61000



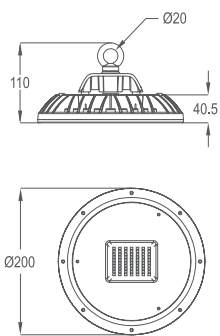
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
50W	K14110 HELÓ 50W	5000	50	205 x 94 x 205	1.0 kg
100W	K14111 HELÓ 100W	10000	100	265 x 103 x 265	1.9 kg

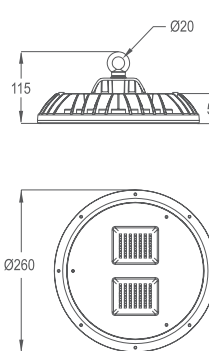


DIMENSION

HELÓ 50W

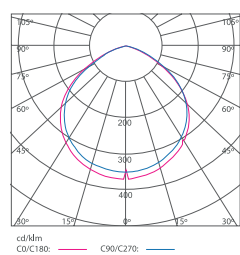


HELÓ 100W

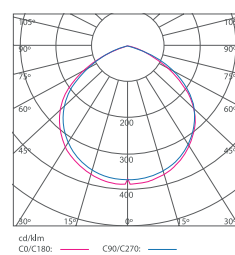


PHOTOMETRIC

HELÓ 50W



HELÓ 100W



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DRACO UFO HIGHBAY



LUMINAIRE SPECIFICATIONS

• Power	100W 150W 200W 240W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Black
• Optical Cover	Transparency Clear Tempered Glass (Wide Beam) PC Cover Lens (Medium Beam)
• Ingress Protection	IP65
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Hook Mounting
• Pre-Wire	300 mm

OPTIONAL FEATURES

• Optics	Medium Beam or Wide Beam
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LED MODULE SPECIFICATIONS

• Color Temperature	5000K Cool White
• Color Rendering Index (CRI)	>80
• L70	100,000 Hrs @ 25°C

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN61347, EN55015, EN61000, EN61547, EN62384, UL
• Luminaire	EN60598-1, EN60598-2-1, EN62493, EN55015, EN61547, EN61000



APPLICATION

- Eateries, Retails, Hallways, Storage Rooms & Halls

MEASUREMENT & ORDER CODE

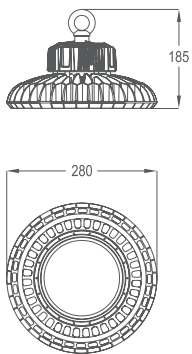
WATTAGE	ORDER CODE	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT	FITTING DIMENSION (mm)			
						A	B	C	D
100W	K14107 100W	12700	100	330 x 330 x 205	3.5 kg	280	185	135	69
150W	K14108 150W	20100	150	390 x 390 x 205	5.3 kg	340	187	138	71
200W	K14109 200W	26400	200	445 x 445 x 215	7.0 kg	400	196	147	76
240W	K14109 240W	30600	240	445 x 445 x 215	7.0 kg	400	196	147	76

* Please indicate optic when ordering.

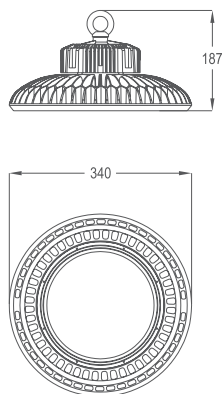


DIMENSION

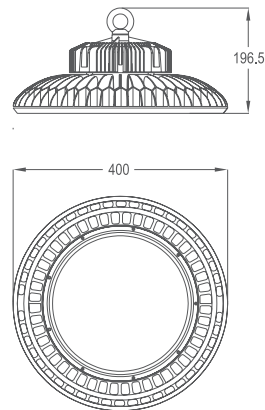
K14107 100W



K14108 150W

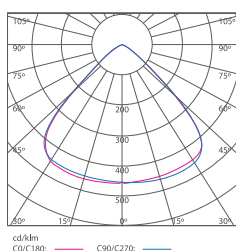


K14109 200W / 240W

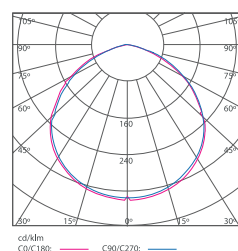


PHOTOMETRIC

Medium Beam



Wide Beam





PC Reflector



PC Visor

LUMINAIRE SPECIFICATIONS

- Power 100W
150W
200W
- Fitting Material Non-Corrosive Die-Cast Aluminium
- Fitting Color Black
- Optical Cover 95% Transparency Clear Tempered Glass
- Ingress Protection IP65
- Voltage 220 ~ 240 Vac 50 / 60Hz
- Electrical Safety Class Class I
- Operating Temperature -30 ~ +45°C
- Installation Hook Mounting
- Pre-Wire 300 mm

OPTIONAL FEATURES (UPON REQUEST)

- Reflector Polycarbonate
- Visor Polycarbonate
- Beam Angle 60D, 90D, 120D

LED MODULE SPECIFICATIONS

- Color Temperature 5700K Daylight
- Color Rendering Index (CRI) >70
- L70 100,000 Hrs @ 25°C

COMPLIANCE STANDARD

- LED LM80, UL, RoHS
- Driver CE, EN61347, EN55015, EN61000, EN61547, EN62384, UL

APPLICATION

- Eateries, Retails, Hallways, Storage Rooms & Halls

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
100W	UF1 100W	12000	100	330 x 330 x 205	3.8 kg
150W	UF1 150W	18000	150	390 x 390 x 205	4.1 kg
200W	UF1 200W	24000	200	445 x 445 x 215	4.2 kg

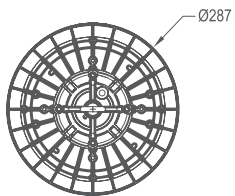
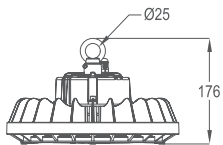
* Please indicate beam angle when ordering.

* All result tested base on 5700K CCT LEDs.

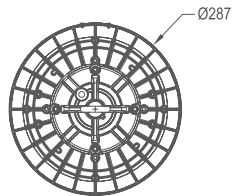
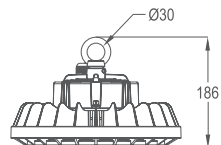


DIMENSION

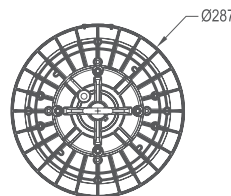
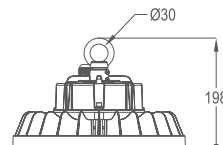
UF1 100W



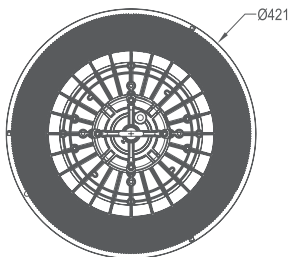
UF1 150W



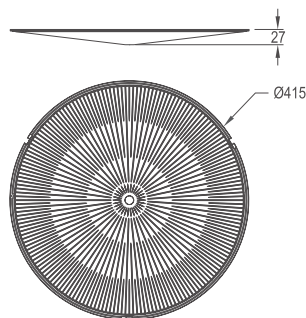
UF1 200W



PC Reflector

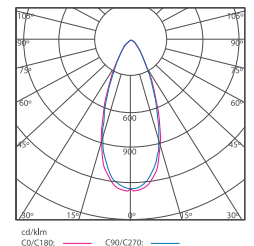


PC Visor

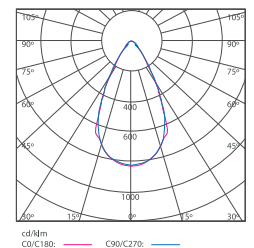


PHOTOMETRIC

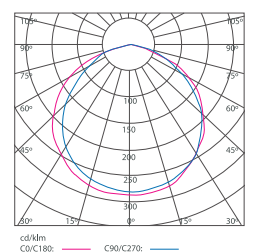
60D



90D



120D





UF2 90W

UF2 120W

LUMINAIRE SPECIFICATIONS

- Power 90W
120W
- Fitting Material Aluminium Alloy
- Fitting Color Silver
- Optical Cover Polycarbonate
- Ingress Protection IP54
- Impact Protection IK08
- Voltage 220 ~ 240 Vac 50 / 60Hz
- Electrical Safety Class Class I
- Operating Temperature -30 ~ +45°C
- Installation Wire Suspension
- Pre-Wire 300 mm

LED MODULE SPECIFICATIONS

- Color Temperature 5700K Cool White
- Color Rendering Index (CRI) >70 Cool White
- L70 100,000 Hrs @ 25°C

COMPLIANCE STANDARD

- LED LM80, UL, RoHS
- Driver CE, EN61347, EN55015, EN61000, EN61547, EN62384, UL

APPLICATION

- Warehouses with Racking System & Storage Rooms

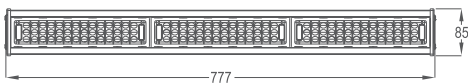
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
90W	UF2 90W	12150	93	835 x 135 x 135	2.6 kg
120W	UF2 120W	16200	126	1090 x 120 x 365	3.3 kg

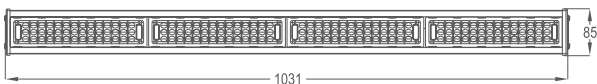


DIMENSION

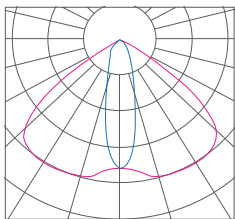
UF2 90W



UF2 120W



PHOTOMETRIC



cd/klm
C0/C180: — C90/C270: —

Note: All specifications are subject to change without prior notice for product improvement. Images, pictures, and illustrations used are for illustrative purposes only and the color printed may differ from the actual product.



LUMINAIRE SPECIFICATIONS

• Power	40W 80W 120W 160W
• Fitting Material	Cold Roll Steel
• Fitting Color	White, Akzo Nobel RAL9010
• Optical Cover	Anti Glare Frosted Polycarbonate Diffuser
• Heat Sink	Extruded Aluminium
• Ingress Protection	IP20
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Surface Mounting
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	1-10V Dimming
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LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	EN60598-1, EN60598-2-1, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15



APPLICATION

- Petrol Kiosks, Toll Plazas, Canopy Lightings, Multipurpose Halls, Warehouses, Gymnasiums & Exhibition Halls

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
40W	K03107 40W	18	5200	42	340 x 230 x 193	4.2 kg
80W	K03107 80W	36	9430	85	360 x 275 x 193	5.0 kg
120W	K03107 120W	54	13920	123	405 x 350 x 193	7.0 kg
160W	K03107 160W	72	19210	169	490 x 350 x 193	9.4 kg

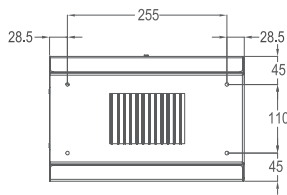
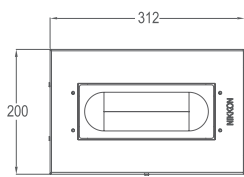
* Please indicate LED color temperature when ordering.

* All result tested base on 5000K CCT LEDs.

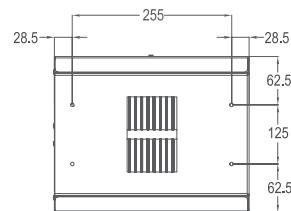
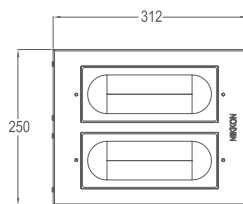


DIMENSION

K03107 40W

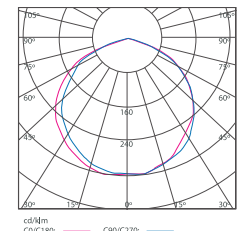


K03107 80W

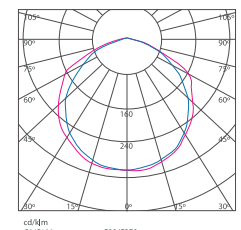


PHOTOMETRIC

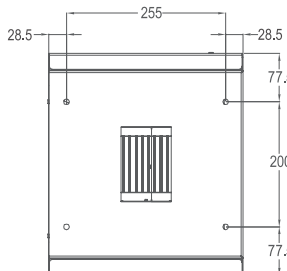
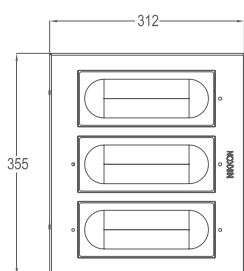
K03107 40W



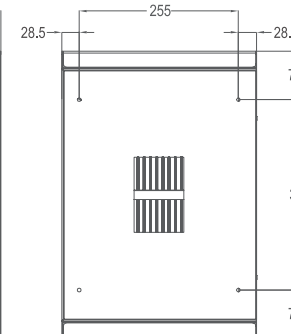
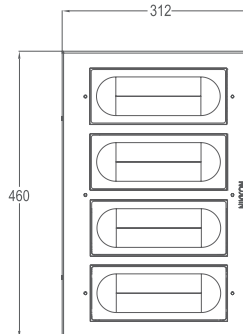
K03107 80W



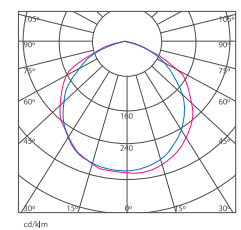
K03107 120W



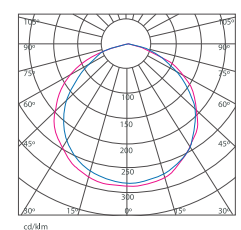
K03107 160W



K03107 120W



K03107 160W





LUMINAIRE SPECIFICATIONS

• Power	40W 80W 120W 160W
• Fitting Material	Cold Roll Steel
• Fitting Color	White, Akzo Nobel RAL9010
• Optical Cover	Anti Glare Frosted Polycarbonate Diffuser
• Heat Sink	Extruded Aluminium
• Ingress Protection	IP20
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Opening Hole : 156 x 326 mm (40W) 251 x 326 mm (80W) 346 x 326 mm (120W) 441 x 326 mm (160W)
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	1-10V Dimming
• Optics	Wide Beam

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
40W	K03108 40W	18	5200	42	440 x 230 x 200	4.2 kg
80W	K03108 80W	36	9430	85	440 x 320 x 200	5.0 kg
120W	K03108 120W	54	13920	123	440 x 420 x 200	7.0 kg
160W	K03108 160W	72	19210	169	440 x 525 x 200	9.4 kg

* Please indicate LED color temperature when ordering.
* All result tested base on 5000K CCT LEDs.

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	EN60598-1, EN60598-2-1, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15



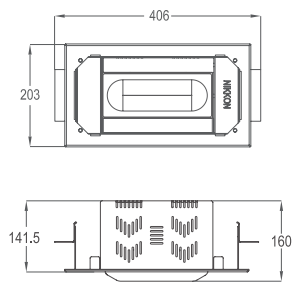
APPLICATION

- Petrol Kiosks, Toll Plazas, Canopy Lightings, Multipurpose Halls, Warehouses, Gymnasiums & Exhibition Halls

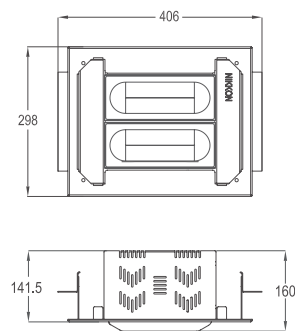


DIMENSION

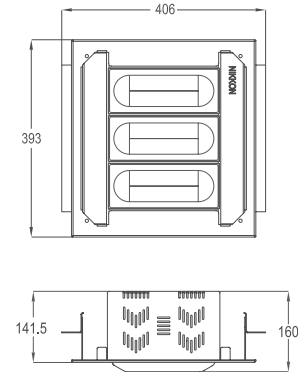
K03108 40W



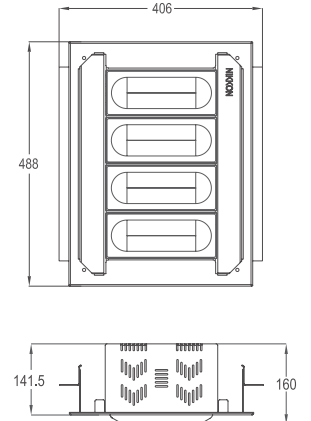
K03108 80W



K03108 120W

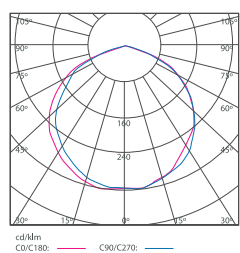


K03108 160W

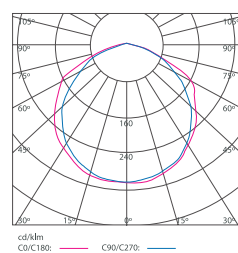


PHOTOMETRIC

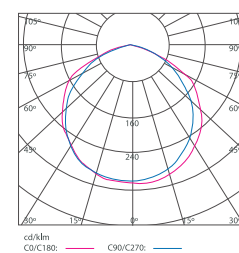
K03108 40W



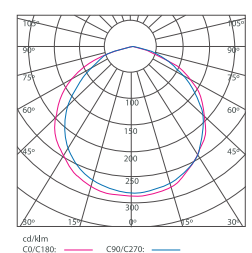
K03108 80W



K03108 120W



K03108 160W



NIKKON®

ARGENTO CUBO LOWBAY



CUBO SURFACE



CUBO RECESSED

LUMINAIRE SPECIFICATIONS

- **Power** 80W
100W
120W
150W
- **Fitting Material** Cold Roll Steel
- **Fitting Color** White, Akzo Nobel RAL9010
- **Optical Cover** Anti Glare Frosted Polycarbonate Diffuser
- **Heat Sink** Extruded Aluminium
- **Ingress Protection** IP20
- **Impact Protection** IK08
- **Voltage** 220 ~ 240 Vac 50 / 60Hz
- **Electrical Safety Class** Class I
- **Operating Temperature** -30 ~ +40°C
- **Installation** Surface Mounting (CUBO Surface)
Opening Hole : 400 x 400mm (CUBO Recessed)
- **Surge Protections** 10KV, 20KA

LED MODULE SPECIFICATIONS

- **Color Temperature** 3000K Warm White
5000K Cool White
- **Color Rendering Index (CRI)** >70
- **L70** 100,000 Hrs @ 25°C
- **PCB Material** Metal Core
- **SMD Connector** WAGO 2060 Series

COMPLIANCE STANDARD

- **LED** LM80, UL, RoHS
- **Driver** CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
- **Luminaire** EN60598-1, EN60598-2-1, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15



APPLICATION

- Petrol Kiosks, Toll Plazas, Canopy Lightings, Multipurpose Halls, Warehouses, Gymnasiums & Exhibition Halls

MEASUREMENT & ORDER CODE

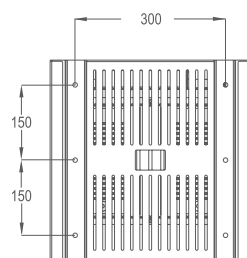
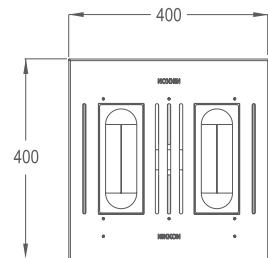
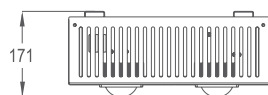
WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	Lm/W	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
80W	CUBO 80W Surface	108	11260	140	80W	435 x 435 x 225	7.8 kg
100W	CUBO 100W Surface	108	13340	133	100W	435 x 435 x 225	7.8 kg
120W	CUBO 120W Surface	162	16120	134	120W	435 x 435 x 225	8.5 kg
150W	CUBO 150W Surface	162	19900	132	150W	435 x 435 x 225	8.5 kg
80W	CUBO 80W Recessed	108	11260	140	80W	545 x 485 x 225	7.8 kg
100W	CUBO 100W Recessed	108	13340	133	100W	545 x 485 x 225	7.8 kg
120W	CUBO 120W Recessed	162	16120	134	120W	545 x 485 x 225	8.5 kg
150W	CUBO 150W Recessed	162	19900	132	150W	545 x 485 x 225	8.5 kg

* Please indicate LED color temperature when ordering.
* All result tested base on 5000K CCT LEDs.

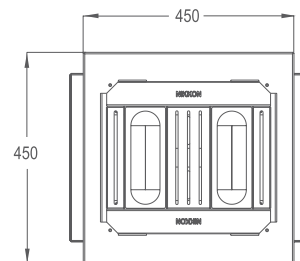
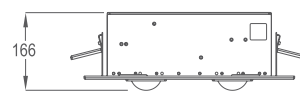


DIMENSION

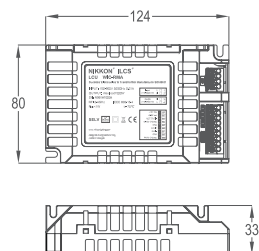
CUBO SURFACE



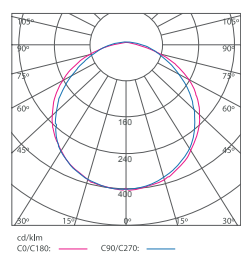
CUBO RECESSED



Light Control Unit



PHOTOMETRIC



Note: All specifications are subject to change without prior notice for product improvement. Images, pictures, and illustrations used are for illustrative purposes only and the color printed may differ from the actual product.



LUMINAIRE SPECIFICATIONS

• Power	70W 105W 140W
• Fitting Material	Cold Roll Steel
• Fitting Color	White, Akzo Nobel RAL9010
• Optical Cover	Anti Glare Frosted Polycarbonate Diffuser
• Heat Sink	Extruded Aluminium
• Ingress Protection	IP20
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +40°C
• Installation	Surface Mounting
• Surge Protections	4KV, 12KA

LED MODULE SPECIFICATIONS

• Color Temperature	5700K Cool White
• Color Rendering Index (CRI)	>70
• L70	40,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
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APPLICATION

- Petrol Kiosks, Toll Plazas, Canopy Lightings, Multipurpose Halls, Warehouses, Gymnasiums & Exhibition Halls

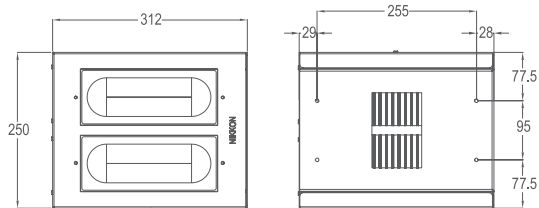
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
70W	K03109 70W SMS	72	6600	360 x 275 x 193	5.0 kg
105W	K03109 105W SMS	92	9900	405 x 350 x 193	7.0 kg
140W	K03109 140W SMS	144	13200	490 x 350 x 193	9.4 kg



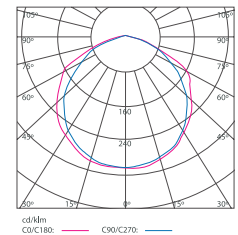
DIMENSION

K03109 70W SMS

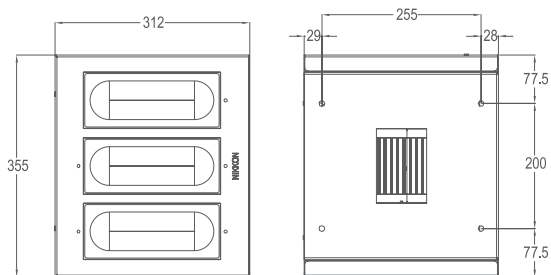


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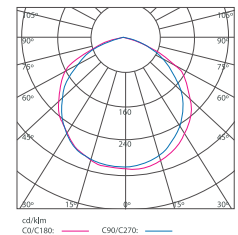
K03109 70W SMS



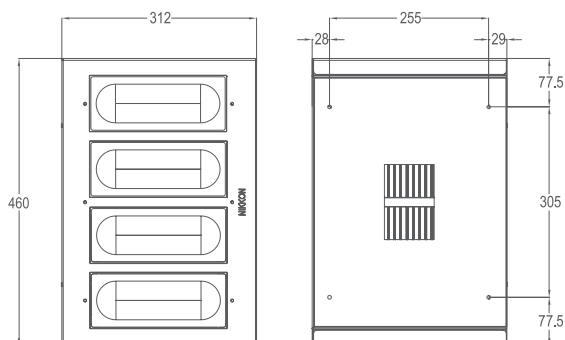
K03109 105W SMS



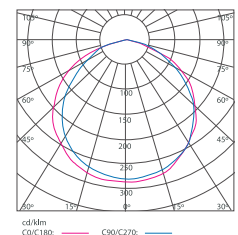
K03109 105W SMS



K03109 140W SMS



K03109 140W SMS





LUMINAIRE SPECIFICATIONS

• Power	70W 105W 140W
• Fitting Material	Cold Roll Steel
• Fitting Color	White, Akzo Nobel RAL9010
• Optical Cover	Anti Glare Frosted Polycarbonate Diffuser
• Heat Sink	Extruded Aluminium
• Ingress Protection	IP20
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +40°C
• Installation	Recessed Mounting Opening Hole: 251 x 326 mm (70W) 346 x 326 mm (105W) 441 x 326 mm (140W)
• Surge Protections	4KV, 12KA

LED MODULE SPECIFICATIONS

• Color Temperature	5700K Cool White
• Color Rendering Index (CRI)	>70
• L70	40,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

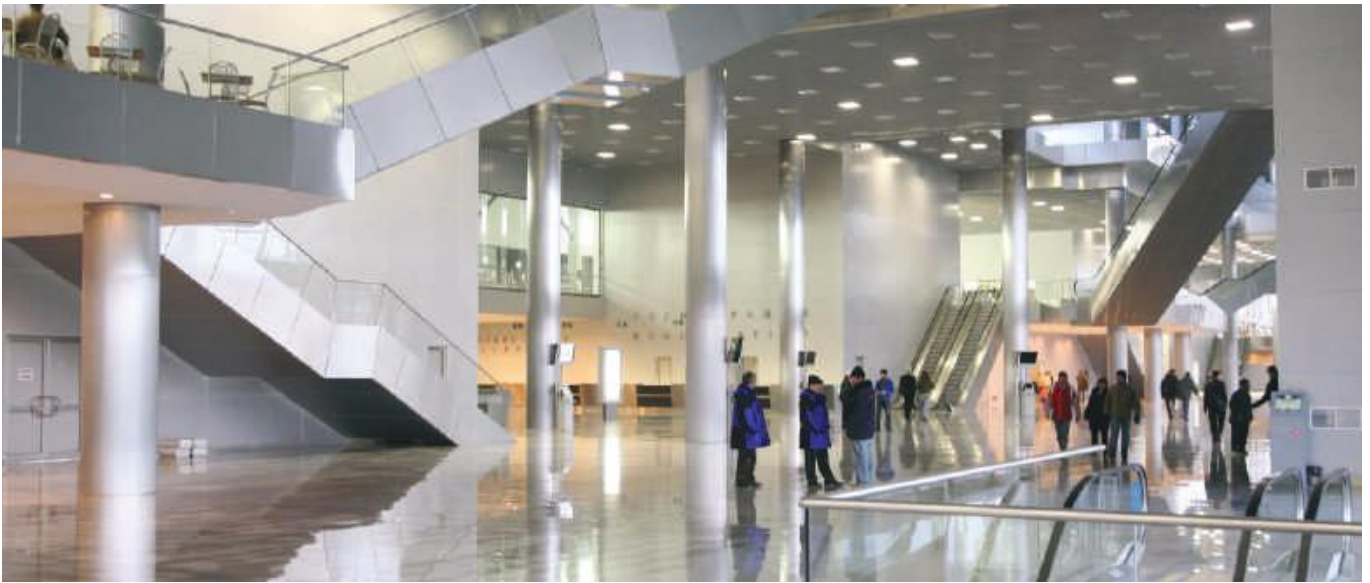
• LED	LM80, UL, RoHS
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APPLICATION

- Petrol Kiosks, Toll Plazas, Canopy Lightings, Multipurpose Halls, Warehouses, Gymnasiums & Exhibition Halls

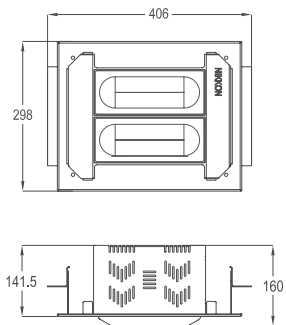
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
70W	K03110 70W RMS	72	6600	440 x 320 x 200	5.0 kg
105W	K03110 105W RMS	92	9900	440 x 420 x 200	7.0 kg
140W	K03110 140W RMS	144	13200	440 x 525 x 200	9.4 kg

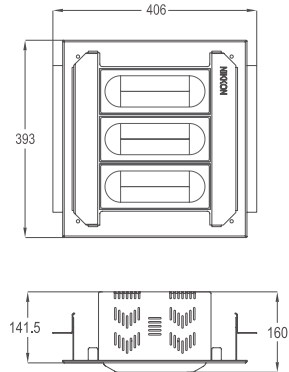


DIMENSION

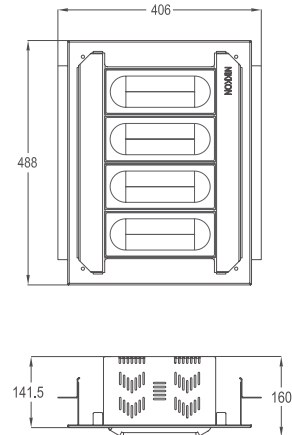
K03110 70W RMS



K03110 105W RMS

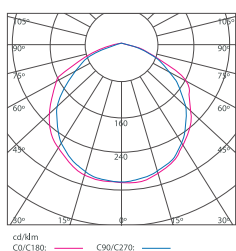


K03110 140W RMS

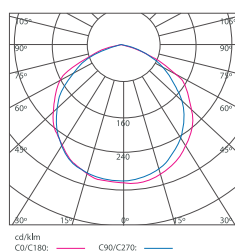


PHOTOMETRIC

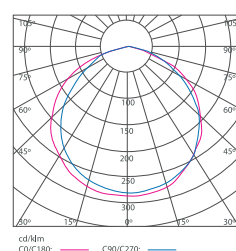
K03110 70W RMS



K03110 105W RMS



K03110 140W RMS



LED FLOODLIGHT

LIGHTING SOLUTIONS FOR FACADE AND ARCHITECTURE

.....

A large powerful light, typically one of several used to illuminate a sports field, a stage, or the exterior of a building. Floodlights are broad-beamed, high-intensity artificial lights.

Floodlights are a very versatile method of illuminating areas where a conventional mounting arrangement may not be an option. The floodlight will have an asymmetric throw of light which can be angled into the space to be lit.

Care and consideration of glare should be taken when designing with floodlights, due to the brightness of the fitting and the fact it may be angled close to horizontal.

In the recent years there have been new developments, and LED technology has come a long way. Now LED floodlights are bright enough to be used for illumination purposes. The main reason for the use of LEDs is the lower power consumption and the fact that LED bulbs last longer.

Facade lighting not only illuminates but also highlights. Whether it is about accenting architectural details or highlighting complete buildings and objects, NIKKON LED luminaires set architecture in the light it deserves.

The illumination complement a variety of architectural expressions, elements and details. It provides significantly more energy savings and cost efficiency. Suitable for building facade, sculptures and locations which require emphatic lighting.





NIKKON®

LEDXION AEROS II FLOODLIGHT



AEROS II 480W



AEROS II 720W

LUMINAIRE SPECIFICATIONS

• Power	480W 720W
• Fitting Material	316 Grade Stainless Steel
• Optical Cover	High Transparency Polycarbonate
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Mounting Bracket
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	Constant Current, 1-10V Dimming, DALI
• Beam Angle	Narrow Beam Medium Beam Asymmetrical
• Power Cable	2m (Pre-Wire) 5m, 10m, 15m & 20m (Optional)

LED MODULE SPECIFICATIONS

• LED Type	5050
• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70 >90 (Upon Request)
• L70	100,000 Hrs @ 25°C
• PCB Material	Metal Core (Alumina)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	EN60598-1, EN60598-2-5, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15

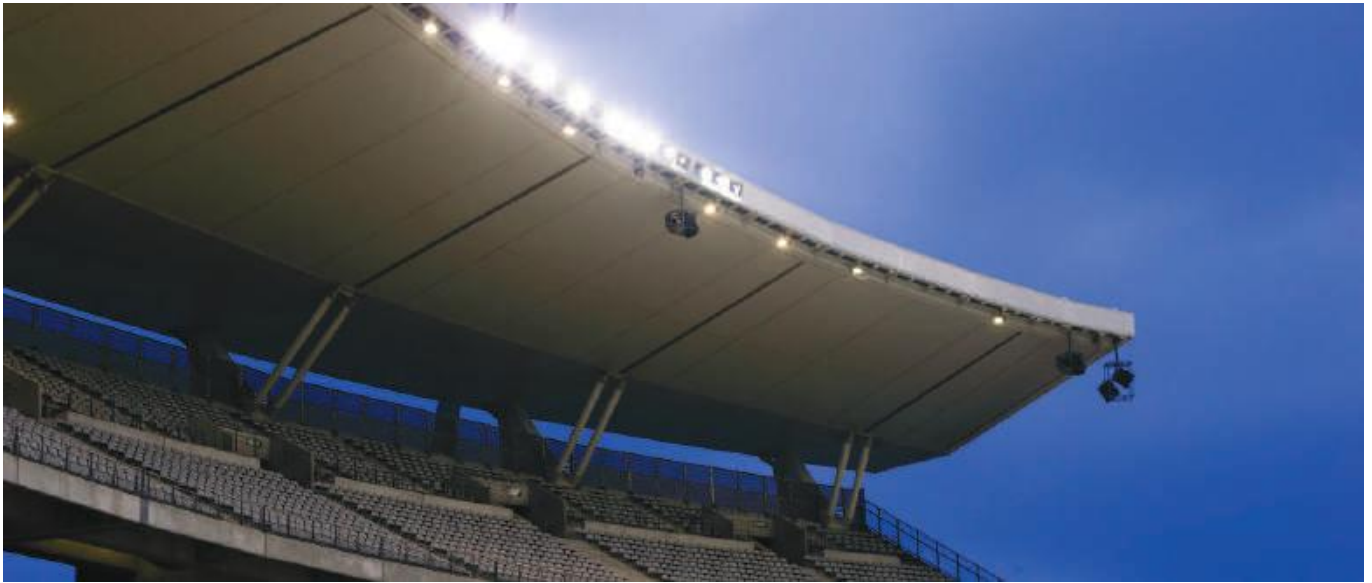
APPLICATION

- Sport Lightings, Stadium Lightings, Jetties & Highmasts

MEASUREMENT & ORDER CODE

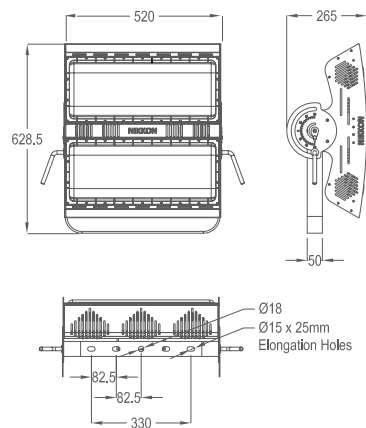
WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
480W	AEROS II 480W	168	64550	480	672 x 576 x 330 520 x 350 x 215 (Control Gear)	19.0 kg + 10.0 kg (RCG)
720W	AEROS II 720W	252	96800	720	951 x 596 x 330 520 x 350 x 215 (Control Gear)	23.0 kg + 10.0 kg (RCG)

* Please indicate LED color temperature and beam angle when ordering.
* All result tested base on 5000K CCT LEDs.

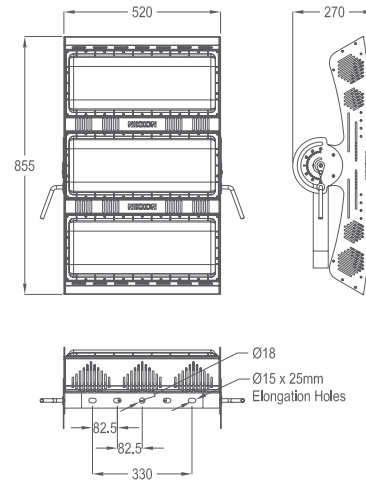


DIMENSION

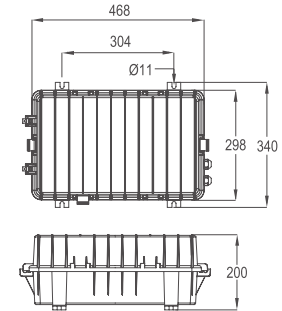
K10130 480W



K10131 720W

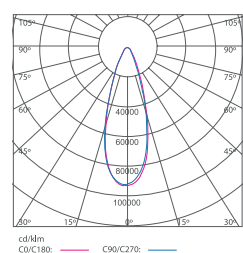


Control Gear

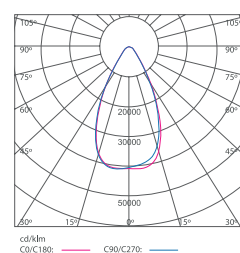


PHOTOMETRIC

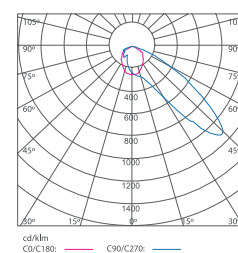
Narrow Beam



Medium Beam



Asymmetrical Beam



Note: All specifications are subject to change without prior notice for product improvement. Images, pictures, and illustrations used are for illustrative purposes only and the color printed may differ from the actual product.

NIKKON®

LEDXION AEROS FLOODLIGHT



AEROS 360W



AEROS 540W

LUMINAIRE SPECIFICATIONS

- **Power** 360W
540W
- **Fitting Material** 316 Grade Stainless Steel
- **Optical Cover** High Transparency Polycarbonate
- **Ingress Protection** IP66
- **Impact Protection** IK08
- **Voltage** 220 ~ 240 Vac 50 / 60Hz
- **Electrical Safety Class** Class I
- **Operating Temperature** -30 ~ +45°C
- **Installation** Mounting Bracket
- **Surge Protections** 10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

- **Driver** Constant Current, 1-10V Dimming, DALI
- **Beam Angle** 51° (MB51)
19° (NB19)
- **Control** Intelligent Light Control System
- **Power Cable** 2m (Pre-Wire)
5m, 10m, 15m & 20m (Optional)

LED MODULE SPECIFICATIONS

- **Color Temperature** 3000K Warm White
4000K Neutral White
5000K Cool White
- **Color Rendering Index (CRI)** >70
- **L70** 100,000 Hrs @ 25°C
- **PCB Material** Ceramic (Alumina Substrate)
- **PCB Trace** Silver Conductor (Ag)
- **SMD Connector** WAGO 2060 Series

COMPLIANCE STANDARD

- **LED** LM80, UL, RoHS
- **Driver** CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
- **Luminaire** EN60598-1, EN60598-2-5, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15



APPLICATION

- Sport & Facade Lightings, Jetties, Highmasts, Sea Ports, Tower Cranes & Stadium Lightings

MEASUREMENT & ORDER CODE

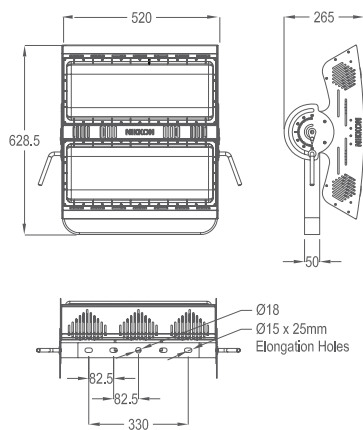
WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
360W	K10130 360W	168	44000	388	672 x 576 x 330 520 x 350 x 215 (Control Gear)	19.0 kg + 9.0 kg (RCG)
540W	K10131 540W	252	65000	585	951 x 596 x 330 520 x 350 x 215 (Control Gear)	23.0 kg + 10.0 kg (RCG)

* Please indicate LED color temperature and beam angle when ordering.
* All result tested base on 5000K CCT LEDs.

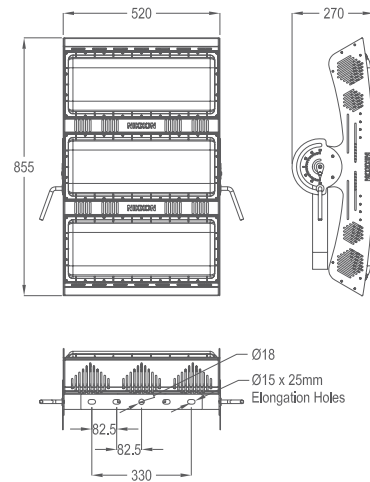


DIMENSION

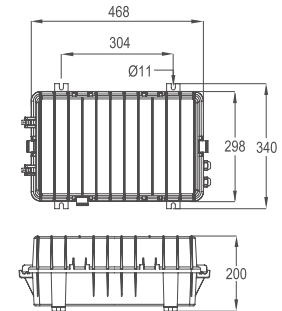
K10130 360W



K10131 540W

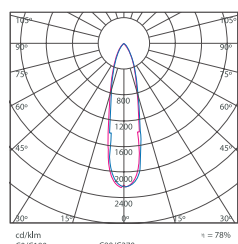


Control Gear

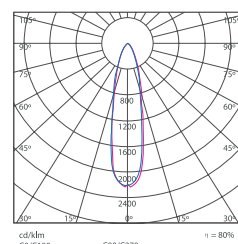


PHOTOMETRIC

K10130 360W



K10131 540W





CERVELLI S3



CERVELLI S5

LUMINAIRE SPECIFICATIONS

- **Power**
S3 - 100W
S3 - 150W
S3 - 200W

S5 - 250W
S5 - 300W
S5 - 350W
- **Fitting Material**
Marine Grade High Corrosive Resistant Die-Cast Aluminium
- **Bracket Material**
316 Stainless Steel
- **Fitting Color**
White Aluminium, Akzo Nobel RAL9006
- **Optical Cover**
High Transparency Tempered Glass
- **Ingress Protection**
IP66
- **Impact Protection**
IK08
- **Voltage**
220 ~ 240 Vac 50 / 60Hz
- **Electrical Safety Class**
Class I
- **Operating Temperature**
-30 ~ +45°C
- **Surge Protections**
10KV, 20KA
- **Installation**
Bracket Mount

OPTIONAL FEATURES

- **Driver**
1-10V Dimming, Full Programmable, Constant Current Output
- **Optics**
Narrow, Medium, Wide, Asymmetrical

LED MODULE SPECIFICATIONS

- **LED Type**
5050
- **Color Temperature**
3000K Warm White
4000K Neutral White
5000K Cool White
6500K Daylight
- **L70**
50,000 Hrs
- **PCB Material**
Metal Core (Aluminium)

COMPLIANCE STANDARD

- **LED**
LM80, UL, RoHS
- **Driver**
CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
- **SPD**
IEC 61643-11, UL 1449
- **Luminaire**
EN60598-1, EN60598-2-5, EN62493, EN55015, EN61547, EN61000, EN62471

APPLICATION

- Parking Areas, Facades Lightings, Stadiums / Sport Lightings, Jetties, Ports & Highmasts

MEASUREMENT & ORDER CODE

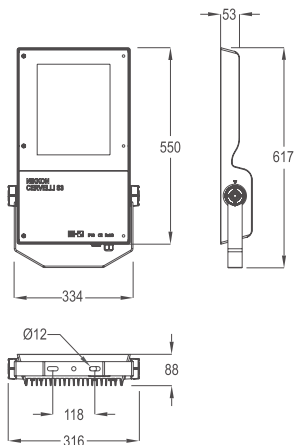
MODEL	WATTAGE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	SYSTEM EFFICIENCY lm / W	NETT WEIGHT
S3	100W	48	14700	98	665 x 385 x 150	150	10.0 kg
S3	150W	64	21600	149	665 x 385 x 150	145	10.0 kg
S3	200W	80	28330	196	665 x 385 x 150	145	10.0 kg
S5	250W	96	38970	252	755 x 485 x 160	155	16.0 kg
S5	300W	120	45050	297	755 x 485 x 160	151	16.0 kg
S5	350W	144	51300	350	755 x 485 x 160	146	16.0 kg

* Please indicate LED color temperature and optic when ordering.
* All result tested base on 5000K CCT LEDs.

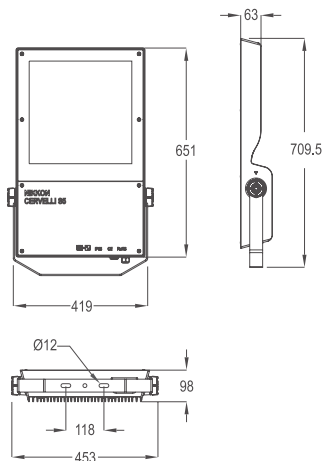


DIMENSION

CERVELLI S3

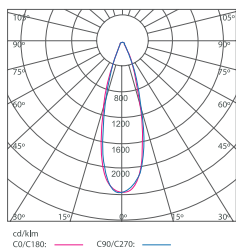


CERVELLI S5

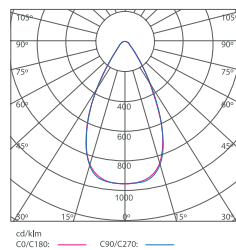


PHOTOMETRIC

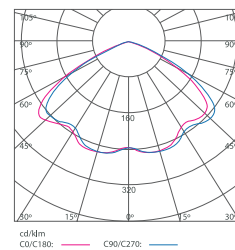
Narrow Beam



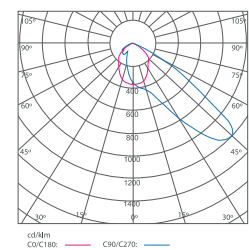
Medium Beam



Wide Beam



Asymmetrical Beam



LEDXION S2266 FLOODLIGHT



Type 1

Type 2

Type 3

Type 4

LUMINAIRE SPECIFICATIONS

• Power	140W 185W 230W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	Anti Glare High Transparency Frosted Tempered Glass
• Ingress Protection	IP66 (Lamp & Gear Compartments) IP65 (Control Gear) - for Type 3 & 4
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Mounting Bracket (Type 1 & 4) Pole Mounting (Type 2) Wall Mounting (Type 3)
• Surge Protections	10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

• Driver	1-10V Dimming
• Beam Angle	140° x 70° (WB) 51° (MB51) 19° (NB19)
• Fixture	Type 1 - Built-In Control Gear Type 2 - Pole Mounted with External Driver Type 3 - Wall Mounted with External Control Gear Type 4 - Mounting Bracket with External Control Gear

MEASUREMENT & ORDER CODE

WATTAGE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE
140W	66	16700	145
185W	88	23120	194
230W	110	28300	242

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 4000K Neutral White 5000K Cool White
• Color Rendering Index (CRI)	>70 Cool White & Neutral White >80 Warm White
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	EN60598-1, EN60598-2-5, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15



APPLICATION

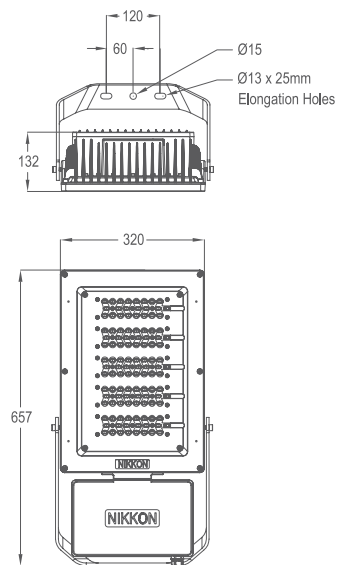
- Parking Areas, Facade & Stadium Lightings, Sport Lightings, Commercial & Residential Areas, & Jetties

* Please indicate LED color temperature and beam angle when ordering.
* Programmable dimming LED driver is available upon request.
* All result tested base on 5000K CCT LEDs.

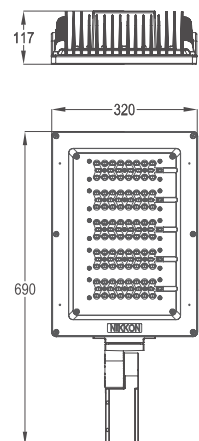


DIMENSION

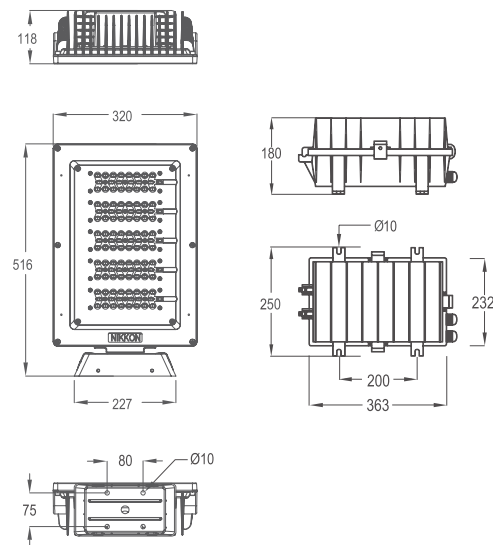
Type 1 - Standard LED FL



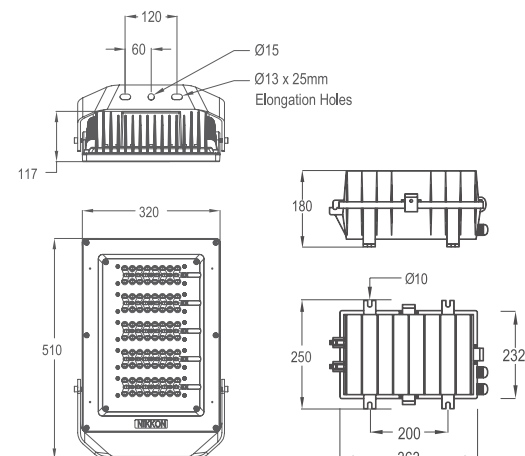
Type 2 - Pole Mounted LED FL



Type 3 - Wall Mounted LED FL

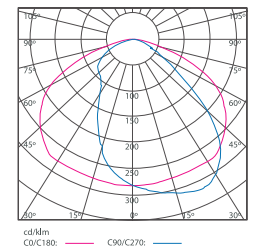


Type 4 - Mobile LED FL

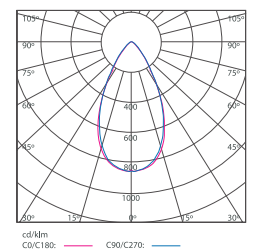


PHOTOMETRIC

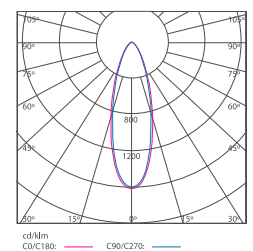
Floodlight (WB)



Floodlight (MB51)



Spotlight (NB19)





Type 1



Type 4



LUMINAIRE SPECIFICATIONS

• Power	125W 190W
• Fitting Material	Die-Cast Aluminium Non-Corrosive
• Fitting Color	Dark Gray, Akzo Nobel RAL7012
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66 (Lamp & Gear Compartments) IP65 (Control Gear) - for Type 4
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Mounting Bracket
• Surge Protections	10KV, 20KA
• Beam Angle	11°

OPTIONAL FEATURES (UPON REQUEST)

• Fixture	Type 1 - Built-In Control Gear Type 4 - Mounting Bracket with External Control Gear
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LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 5700K Day Light
• Color Rendering Index (CRI)	>70 Day Light >80 Warm White
• L70	100,000 Hrs @ 25°C
• PCB Material	Ceramic (Alumina Substrate)
• PCB Trace	Silver Conductor (Ag)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384

APPLICATION

- Facade & Sport Lightings, Commercial Areas & Jetties

MEASUREMENT & ORDER CODE

WATTAGE	NO. OF LEDs	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	TYPE	ORDER CODE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
125W	16	14500	140	1	K10119 SN 125W (Type 1)	730 x 390 x 180	16.7 kg
125W	16	14500	140	4	K10119 SN 125W (Type 4)	640 x 390 x 165	13.5 kg
190W	24	20500	211	1	K10119 SN 190W (Type 1)	730 x 390 x 180	17.7 kg
190W	24	20500	211	4	K10119 SN 190W (Type 4)	640 x 390 x 165	14.5 kg

* Please indicate LED color temperature when ordering.

* RCG 4.7 kg (Type 4)

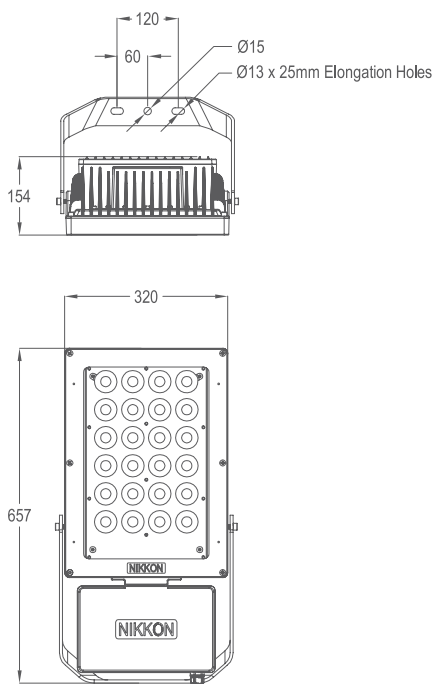
* Programmable dimming LED driver is available upon request.

* All result tested base on 5700K CCT LEDs.

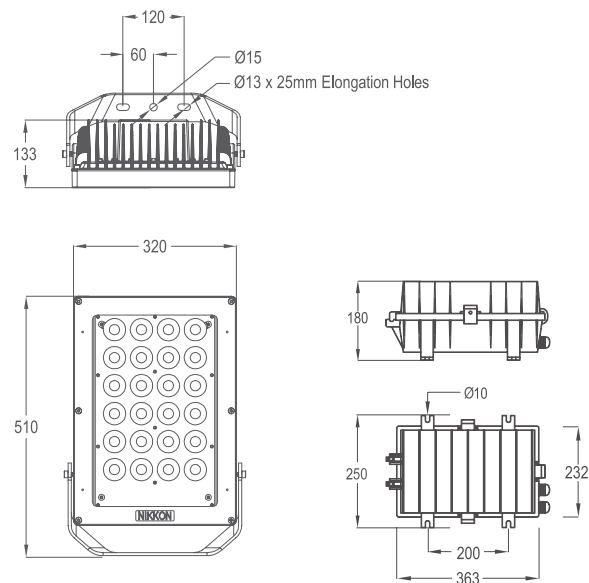


DIMENSION

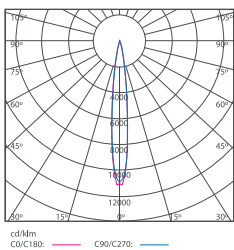
Type 1 - Standard LED FL



Type 4 - Mobile LED FL



PHOTOMETRIC



LEDXION S2090N & S2180N ECO FLOODLIGHT



S2090N 90W



S2180N 180W

LUMINAIRE SPECIFICATIONS

- **Power** 90W
180W
- **Fitting Material** Non-Corrosive Die-Cast Aluminium
- **Fitting Color** White Aluminium, Akzo Nobel RAL9006
- **Optical Cover** 95% Transparency Clear Tempered Glass
- **Ingress Protection** IP66
- **Impact Protection** IK08
- **Voltage** 220 ~ 240 Vac 50 / 60Hz
- **Electrical Safety Class** Class I
- **Operating Temperature** -30 ~ +45°C
- **Installation** Bracket Mounting
- **Surge Protections** 10KV, 20KA

OPTIONAL FEATURES (UPON REQUEST)

- **Driver** 1-10V Dimming
- **Optics** Wide Beam, MB51 or NB19

LED MODULE SPECIFICATIONS

- **Color Temperature** 3000K Warm White
5000K Cool White
- **Color Rendering Index (CRI)** >70
- **L70** 100,000 Hrs @ 25°C
- **PCB Material** Ceramic (Alumina Substrate)
- **PCB Trace** Silver Conductor (Ag)
- **SMD Connector** WAGO 2060 Series

COMPLIANCE STANDARD

- **LED** LM80, UL, RoHS
- **Driver** CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
- **Luminaire** EN60598-1, EN60598-2-5, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15



APPLICATION

- Historical Buildings, Praying Halls, Theatres, Museums, Passageways, Corridors Areas & Exhibition Halls

MEASUREMENT & ORDER CODE

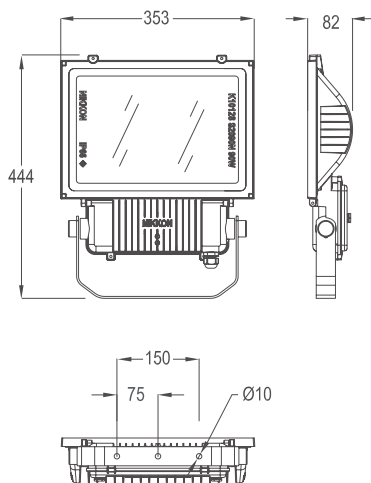
WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
90W	K10128 90W	44	12420	98	500 x 405 x 126	5.0 kg
180W	K10129 180W	88	24610	194	560 x 468 x 150	9.0 kg

* Please indicate LED color temperature and optic when ordering.
* All result tested base on 5000K CCT LEDs.

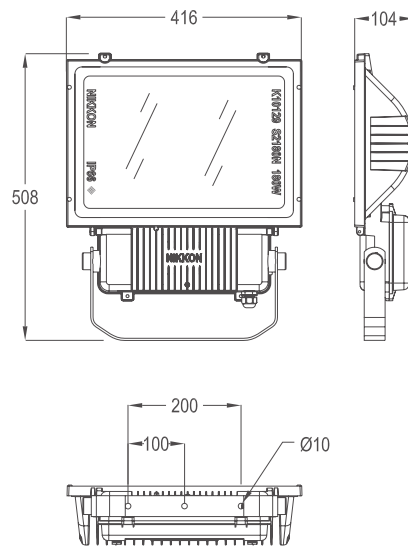


DIMENSION

K10128 90W

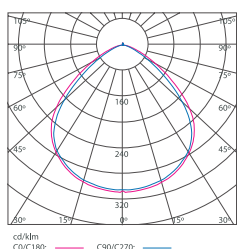


K10129 180W

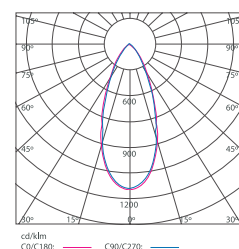


PHOTOMETRIC

90° Wide Beam Angle (WB)



51° Narrow Beam Angle (NB)





S2090-MP 90W



S2180-MP 180W

LUMINAIRE SPECIFICATIONS

• Power	90W 180W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	White Aluminium, Akzo Nobel RAL9006
• Optical Cover	95% Transparency Clear Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Bracket Mounting
• Surge Protections	10KV, 20KA

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Metal Core (Aluminium)
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384
• Luminaire	EN60598-1, EN60598-2-5, EN62493, EN55015, EN61547, EN61000, EN62471, CISPR 15



APPLICATION

- Historical Buildings, Praying Halls, Theatres, Museums, Passageways, Corridors Areas & Exhibition Halls

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
90W	K10128 90W	112	11170	97	500 x 405 x 126	5.0 kg
180W	K10129 180W	224	22600	184	560 x 468 x 150	9.0 kg

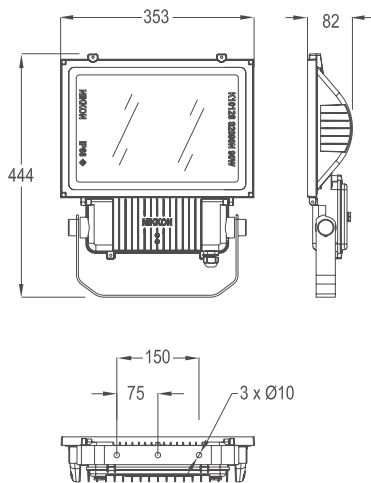
* Please indicate LED color temperature when ordering.

* All result tested base on 5000K CCT LEDs.

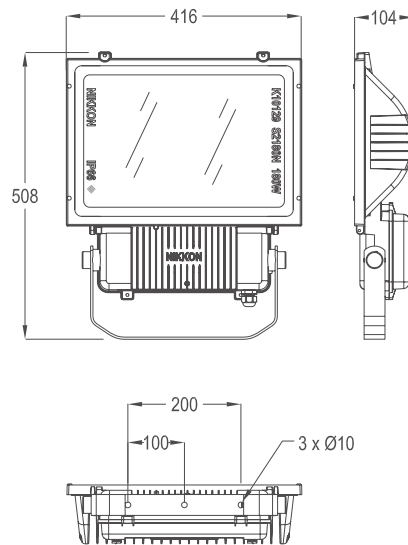


DIMENSION

K10128 90W

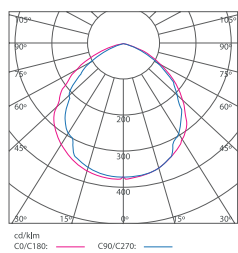


K10129 180W

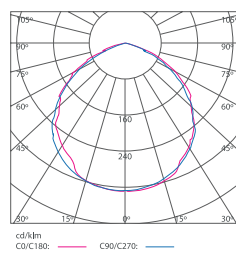


PHOTOMETRIC

K10128 90W



K10129 180W





LUMINAIRE SPECIFICATIONS

• Power	30W 60W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	White Aluminium, Akzo Nobel RAL9006
• Optical Cover	95% Transparency Clear Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +45°C
• Installation	Mounting Bracket
• Surge Protections	10KV, 20KA

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 5000K Cool White
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Metal Core
• PCB Trace	Copper
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384

APPLICATION

- Parks & Gardens, Facade Lightings, Parking, Commercial & Residential Areas

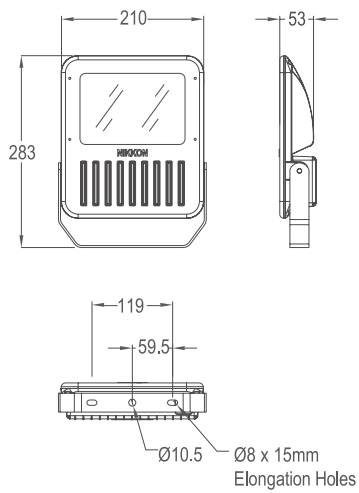
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
30W	K10132 HP 30W	14	3900	33	303 x 254 x 64	1.8 kg
60W	K10132 HP 60W	28	7450	65	303 x 254 x 64	1.8 kg

* Please indicate LED color temperature when ordering.
* All result tested base on 5000K CCT LEDs.

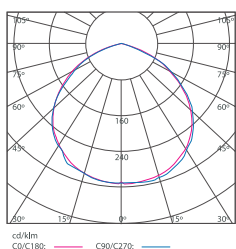


DIMENSION

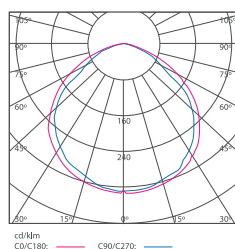


PHOTOMETRIC

K10132 HP 30W



K10132 HP 60W





LUMINAIRE SPECIFICATIONS

• Power	30W 60W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	White Aluminium, Akzo Nobel RAL9006
• Optical Cover	95% Transparency Tempered Glass
• Ingress Protection	IP66
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +40°C
• Installation	Mounting Bracket
• Surge Protections	4KV, 12KA

FEATURES

- Built-In IC Technology
- Direct AC Supply Connection (220 ~ 240 Vac 50 / 60Hz)
- No External Driver Required
- High System Efficiency
- Mid Power LEDs
- Thin & Lightweight Size

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDs	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
30W	K10132 AC 30W	24	2500	29	303 x 254 x 64	1.8 kg
60W	K10132 AC 60W	48	4500	53	303 x 254 x 64	1.8 kg

* Please indicate LED color temperature when ordering.

* All result tested base on 5700K CCT LEDs.

LED MODULE SPECIFICATIONS

• Color Temperature	3000K Warm White 5700K Daylight
• Color Rendering Index (CRI)	>70
• L70	100,000 Hrs @ 25°C
• PCB Material	Metal Core
• PCB Trace	Copper

COMPLIANCE STANDARD

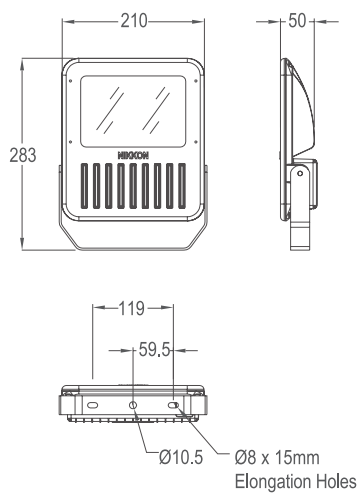
• LED	LM80, UL, RoHS
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APPLICATION

- Parks & Gardens, Facade Lightings, Parking, Commercial & Residential Areas

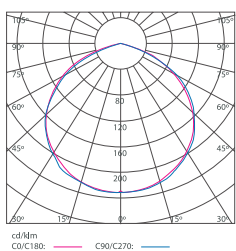


DIMENSION

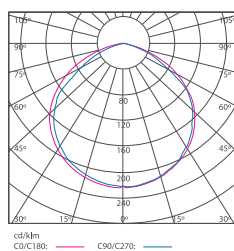


PHOTOMETRIC

K10132 AC 30W



K10132 AC 60W



NIKKON®

DRAGO ZULO FLOODLIGHT



ZULO 150W



ZULO 200W

LUMINAIRE SPECIFICATIONS

- **Power** 150W
200W
- **Fitting Material** Non-Corrosive Die-Cast Aluminium
- **Fitting Color** Black
- **Optical Cover** Transparency Tempered Glass
- **Ingress Protection** IP65
- **Impact Protection** IK08
- **Voltage** 220 ~ 240 Vac 50 / 60Hz
- **Electrical Safety Class** Class I
- **Operating Temperature** -30 ~ +45°C
- **Installation** Mounting Bracket
- **Surge Protections** Yes, 4kV
- **Pre-Wire** 300 mm

APPLICATION

- Parks, Gardens, Facade Lightings, Parking Areas, Commercial and Residential Areas

LED MODULE SPECIFICATIONS

- **Color Temperature** 3000K Warm White
5700K Daylight
- **Color Rendering Index (CRI)** >70
- **L70** 100,000 Hrs @ 25°C
- **PCB Material** Metal Core

FEATURES

- Built-In IC Technology
- Direct AC Supply Connection (220 ~ 240 Vac 50 / 60Hz)
- No External Driver Required
- High System Efficiency
- Mid Power LEDs
- Thin & Lightweight Size
- Internal Surge Protection Devices (SPD)

COMPLIANCE STANDARD

- **LED** LM80
- **Luminaire** EN60598-1, EN60598-2-5, EN62493, EN55015, EN61547, EN61000



MEASUREMENT & ORDER CODE

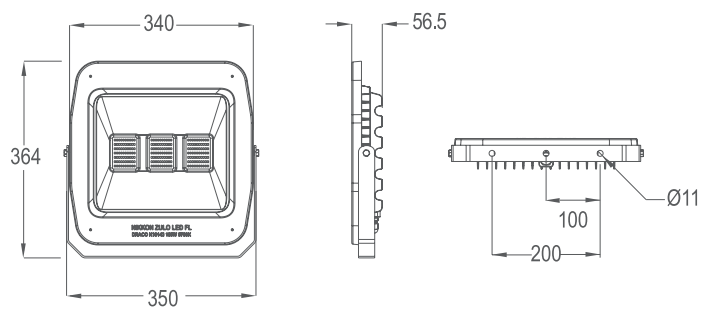
WATTAGE	ORDER CODE	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
150W	K10143 150W	13500	150	Inner : 375 x 375 x 67 Outer : 390 x 370 x 395 * 5 pcs per carton	3.6 kg
200W	K10144 200W	18000	200	Inner : 420 x 420 x 72 Outer : 435 x 395 x 440 * 5 pcs per carton	4.7 kg

* Please indicate LED color temperature when ordering.
* All result tested base on 5700K CCT LEDs.



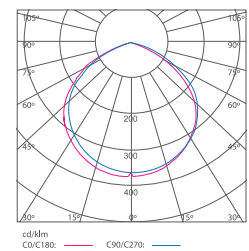
DIMENSION

ZULO K10143 150W

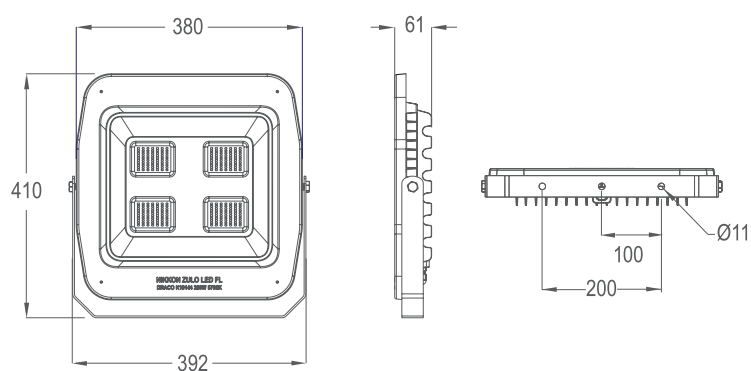


PHOTOMETRIC

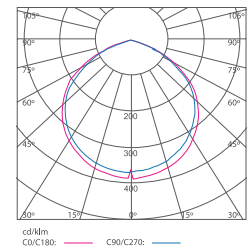
ZULO K10143 150W



ZULO K10144 200W



ZULO K10144 200W





ZULO 30W



ZULO 50W



ZULO 100W

LUMINAIRE SPECIFICATIONS

- **Power** 30W
50W
100W
- **Fitting Material** Non-Corrosive Die-Cast Aluminium
- **Fitting Color** Black
- **Optical Cover** Transparency Tempered Glass
- **Ingress Protection** IP65
- **Impact Protection** IK08
- **Voltage** 220 ~ 240 Vac 50 / 60Hz
- **Electrical Safety Class** Class I
- **Operating Temperature** -30 ~ +45°C
- **Installation** Mounting Bracket
- **Surge Protections** Yes, 4kV
- **Pre-Wire** 300 mm

APPLICATION

- Parks, Gardens, Facade Lightings, Parking Areas, Commercial and Residential Areas

LED MODULE SPECIFICATIONS

- **Color Temperature** 3000K Warm White
5700K Daylight
- **Color Rendering Index (CRI)** >70
- **L70** 100,000 Hrs @ 25°C
- **PCB Material** Metal Core

FEATURES

- Built-In IC Technology
- Direct AC Supply Connection (220 ~ 240 Vac 50 / 60Hz)
- No External Driver Required
- High System Efficiency
- Mid Power LEDs
- Thin & Lightweight Size
- Internal Surge Protection Devices (SPD)

COMPLIANCE STANDARD

- **LED** LM80
- **Luminaire** EN60598-1, EN60598-2-5, EN62493, EN55015, EN61547, EN61000



MEASUREMENT & ORDER CODE

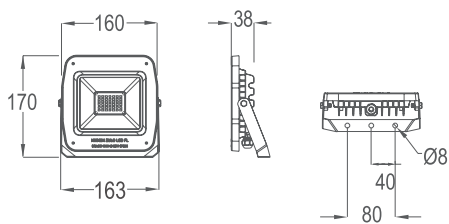
WATTAGE	ORDER CODE	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
30W	K10140 30W	3150	30	Inner : 180 x 180 x 40 Outer: 460 x 380 x 195 * 20 pcs per carton	0.7 kg
50W	K10141 50W	5250	50	Inner : 210 x 210 x 50 Outer: 440 x 275 x 230 * 10 pcs per carton	1.0 kg
100W	K10142 100W	10800	100	Inner : 328 x 328 x 58 Outer: 620 x 340 x 345 * 10 pcs per carton	2.8 kg

* Please indicate LED color temperature when ordering.
* All result tested base on 5700K CCT LEDs.



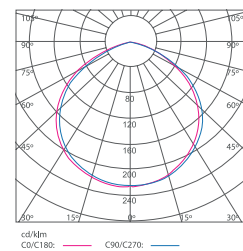
DIMENSION

ZULO K10140 30W

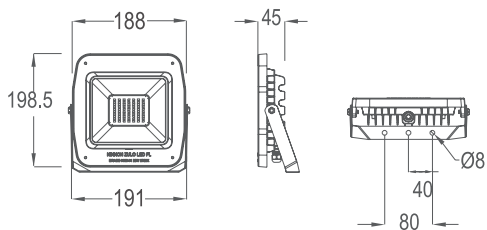


PHOTOMETRIC

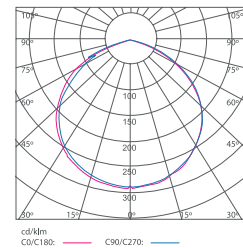
ZULO K10140 30W



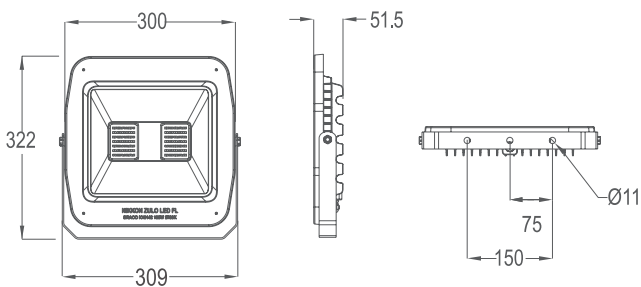
ZULO K10141 50W



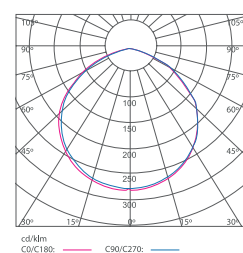
ZULO K10141 50W



ZULO K10142 100W



ZULO K10142 100W



LED OUTDOOR COMMERCIAL

Outdoor lighting has many facets. There are many aspects and concerns regarding outdoor lighting. It is important to create an illumination scenario that is reflecting the building or areas identity.

Outdoor lighting should be carefully designed with regard to placement, intensity, timing, duration and colour. Different illumination creates different effects. Outdoor lighting should be durable, long-lasting and efficient. Selecting an energy efficient solution will contribute both to the environment and to reduce cost.

NIKKON bollards for parks and spots, wall luminaire, light columns and light lines can withstands adverse weather thanks to robust optics reliably ensure good visual conditions. Outdoor lighting also allows you to take advantage of your outdoor spaces after dark and adds value to your home.

BENEFITS OF NIKKON LED IN OUTDOOR APPLICATIONS

- Optimal functionality and design
- Low environmental burden due to long service life
- Each coloured outdoor illuminations equip with all current control systems
- Precise optics with reduced light scatter for optimal light effects & high efficiency
- Easy operation due to optimised thermal management
- Resistant to fracture and vibration







LUMINAIRE SPECIFICATIONS

- **Power** 90W
60W
30W
- **Fitting Material** Non-Corrosive Die-Cast Aluminium
- **Fitting Color** White Aluminium, Akzo Nobel RAL9006
- **Ingress Protection** IP54
- **Voltage** 90 ~ 295 Vac 50 / 60Hz
- **Electrical Safety Class** Class I
- **Operating Temperature** -30 ~ +50°C
- **Surge Protections** 10KV, 20KA

LED MODULE SPECIFICATIONS

- **Color Temperature** 3000K Warm White
5000K Cool White
- **Color Rendering Index (CRI)** >70
- **L70** 50,000 Hrs @ 25°C

COMPLIANCE STANDARD

- **LED** LM80, UL, RoHS
- **Driver** CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384

APPLICATION

- Pedestrian Precincts, Shopping Areas, City Centers, Car Parks, Parks & Gardens

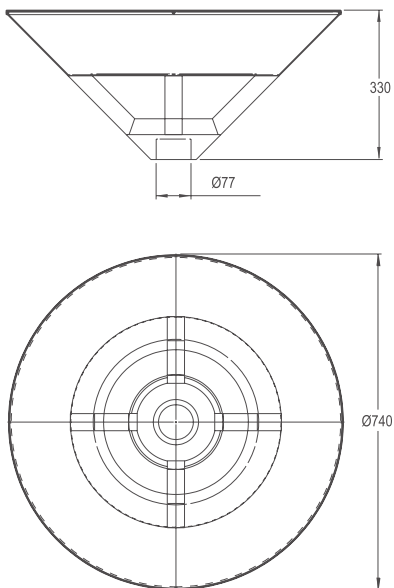
MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	NO. OF LEDS	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	NETT WEIGHT
90W	K12102 90W	42	7760	103	13.5 kg (excluding pole weight)
60W	K12103 60W	28	5230	67	
30W	K12105 30W	14	3680	34	

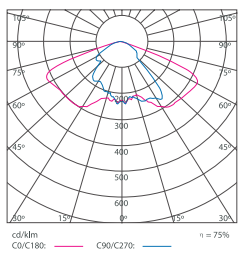
* Please indicate LED color temperature when ordering.
* All result tested base on 5000K CCT LEDs.



DIMENSION



PHOTOMETRIC





LUMINAIRE SPECIFICATIONS

• Power	20W 40W
• Fitting Material	Non-Corrosive Die-Cast Aluminium
• Fitting Color	Black, Akzo Nobel RAL9005
• Optical Cover	Frosted Polycarbonate Diffuser
• Ingress Protection	IP65
• Impact Protection	IK08
• Voltage	220 ~ 240 Vac 50 / 60Hz
• Electrical Safety Class	Class I
• Operating Temperature	-30 ~ +40°C
• Installation	Wall Mounting
• Surge Protections	10KV, 20KA

LED MODULE SPECIFICATIONS

• Color Temperature	20W - 3000K Warm White - 6500K Daylight 40W - 3000K Warm White - 4000K Neutral White - 5000K Cool White
• Color Rendering Index (CRI)	20W - >80 Warm White 40W - >70 Cool White & Neutral White - >80 Warm White
• L70	100,000 Hrs @ 25°C
• PCB Material	20W - Metal Core 40W - Ceramic (Alumina Substrate)
• PCB Trace	Silver
• SMD Connector	WAGO 2060 Series

COMPLIANCE STANDARD

• LED	LM80, UL, RoHS
• Driver	CE, EN62493, EN61347, EN50581, EN55015, EN61000, EN61547, EN62384

APPLICATION

- Facade Lightings, Praying Halls, Corridors, Passage Ways, Exhibition Halls

MEASUREMENT & ORDER CODE

WATTAGE	ORDER CODE	TYPICAL LUMINOUS FLUX	TYPICAL WATTAGE	CARTON DIMENSION (L x W x H) mm	NETT WEIGHT
20W	K10116 20W	1350	22.5	310 x 270 x 200	2.5 kg
40W	K10116 40W	4600	42	310 x 270 x 200	3.0 kg

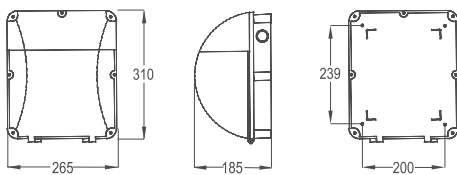
* Please indicate LED color temperature when ordering.

* All result tested base on 5000K CCT LEDs.

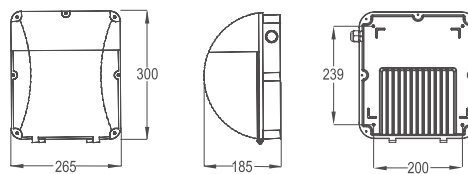


DIMENSION

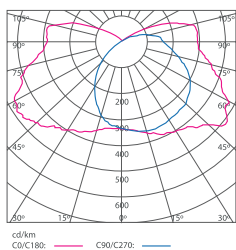
K10116 20W



K10116 40W



PHOTOMETRIC



A

Additive Color Model - A type of RGB color model that describes how different proportions of red, green, and blue light combine to create colors. In the additive color model, combining red, green, and blue light produces white light.

Ambient Lighting - The general lighting present in an area -excluding task lighting and accent lighting but including general lighting and daylight streaming in.

Ambient Temperature (Ta) - 1. The air temperature surrounding the device. 2. The surrounding temperature within an environment.

Ampere (Amp) - The unit for measuring rate of flow of electrical current: Current (Amps) = Power (Watts) / Voltage (Volts)

Anode - Positive charged terminal/electrode toward which electrons flow.

ANSI Binning - The system defined by the American National Standards Institute for the binning specifications for light emitting diodes.

AWG - Abbreviation for "American Wire Gauge." A gauge that assigns a number value to the diameter of a wire.

B

Backlit Sign - A sign where the sign face is illuminated from behind. Also called illuminated sign.

Bi-Color LED - A single LED device containing 2 different color LED dice. The different colored dice can be illuminated independently or together.

Bin (Binning) - The systematic dividing of distribution of performance parameters (Flux, Wavelength or CCT, and Vf) in to small finite groupings that may be selected to optimize assembly performance.

Black Body / Black Body Radiator - An object that absorbs all electromagnetic radiation falling on it. Because it reflects no light, a black body appears black. As a black body is heated to incandescence, it radiates light in a sequence of colors, from red to orange to yellow to white to blue, depending on its temperature. This color sequence describes a curve within a color space, known as the black-body curve.

Brightness - Often used incorrectly with respect to illumination as a synonym for luminous flux, an objective measurement of the visible power of a light source. The term is correctly used when describing screen brightness in a display or television. (see Nits).

C

Candela - 1. A unit of luminous intensity equal to 1/60th of the normal intensity of one square centimeter of a blackbody radiating at the temperature of solidification of platinum. 2. Unit of luminous intensity. One candela equals one lumen per steradian.

Candle Power - Luminous intensity expressed in candelas.

Case Temperature - The temperature measured at the LED package/case.

Cathode - The terminal/electrode that is negatively charged & from which electrons flow.

CCT - See Correlated Color Temperature.

Ceramic PCB - Made of Alumina Substrate, able to withstand high insulation, frequency and temperature.

Chip - See LED chip.

Chromaticity - An objective specification of the quality of a color, independent of its luminance, as determined by its or saturation & hue.

CIE - See International Commission on Illumination.

CIE 1931 Color Space - A color space created by the International Commission on Illumination (CIE) in 1931 to define the entire.

CIE Chromaticity Diagram - 1. A horseshoe shaped line connecting the chromaticities of the spectrum of colors. 2. In 1931 (Commission Internationale de l'Eclairage (CIE) established the X-Y-Z tristimulus system for measuring color properties, based on the assumption that every color is a combination of three primary colors: red, green and blue. The CIE Chromaticity Diagram is a two dimensional color space that defines all of the colors perceived by the human eye. Pure colors are located on the extreme outer edges of the diagram and white is located in the center.

Color Bin - LEDs are sorted according to their wavelength or CIE coordinates into different groupings or "bins."

Color Definition - The color of uniformly illuminated objects described using three terms: Hue: Describes the situation when the appearance of different colors is similar (e.g. matching blues and pinks). Lightness: Describes a range of grayness between black and white. Chroma: Describes the degree of departure from gray of the same lightness and increasing color (e.g. red, redder, pure red).

Color (Dominant Wavelength) - LEDs are designed to give off a specific color emission. The dominant wavelength is a quantitative measure of an LED color as perceived by the human eye and is usually measured in nanometers (a billionth of a meter). In order to specify an LED, you must specify the color or dominant wavelength range required for your application. Some applications may have color constraints in order to meet specific government specifications or regulatory guidelines.

Color Gamut - The range of colors within the CIE Chromaticity Diagram included when combining different sources.

Color Model - An abstract mathematical model describing the way colors can be represented as groups of values or color components. RGB (Red-Green-Blue) is a color model with three color components, and CMYK (Cyan-Magenta-Yellow and Key (Black)) is a color model with four color components.

Color Rendering - A general expression for the effect of a light source on the color appearance of objects.

Color Rendering Index (CRI) - 1. A measure of the degree of color shift objects undergo when illuminated by the light source as compared with those same objects when illuminated by a reference source of comparable color temperature. The reference source has a CRI of 100. 2. Indicates how well a light source renders colors of people and objects, compared to a reference source.

Color Spectrum / Visible Spectrum - The visible spectrum is the portion of the electromagnetic spectrum that is visible to the human eye, typically between 390nm and 750nm.

Color Temperature - 1. The description used to describe the effect of heating an object until it glows incandescently, the emitted radiation, and apparent color, changes proportional to the temperature; easily envisioned when considering hot metal in a forge that glows red, then orange, and then white as the temperature increases. 2. A measure of the color of a light source relative to a black body at a particular temperature expressed in degrees Kelvin (K). Incandescent lights have a low color temperature (approximately 2800K) and have a red-yellowish tone; daylight has a high color temperature (approximately 6000K) and appears bluish (the most popular fluorescent light, Cool White, is rated at 4100K). Lamps with color temperatures below 5000K tend to be more yellow/red, lamps rated between 5000 and 6000K are viewed as white, while lamps above 6000K tend to have a blue cast.

Conformal Phosphor Coating - Phosphor application process that uniformly coats the LED chip with phosphor.

Continuous Forward Current - The maximum continuous operating current the LED can withstand without diminishing its operating life.

Controller - A device that controls the output of color-changing and tunable white lighting fixtures. Controllers typically have software components for configuring fixtures and designing and editing light shows, and hardware components for sending control data to fixtures.

Cool White - A term loosely used to denote a color temperature of around 4000K.

Correlated Color Temperature (CCT) - 1. The absolute temperature of a blackbody whose chromaticity most nearly resembles that of the light source. Usually specified in Kelvin (K). The lower the Kelvin temperature, the warmer the light feels, or appears. 2. The measure used to describe the relative color appearance of a white light source. CCT indicates whether a light source appears more yellow/gold/orange or more blue, in terms of the range of available shades of "white." CCT is given in kelvins (unit of absolute temperature).

Cost of Light - Usually refers to the cost of operating & maintaining a lighting system on an ongoing basis. The 88-8-4 rule states that (typically) 88% is the cost of electricity, 8% is labor & only 4% is the cost of lamps.

CRI - The measure of a light source's ability to render the color of objects "correctly," as compared with a reference source with comparable color temperature – scale is from 1-100 – higher the number, richer the colors.

Current - Measured in amperes, it is the flow of electrons through a conductor. Also known as electron flow.

Current-Limiting Resistor - A resistor is added in series between the power source and the LED to regulate the current delivered to the device (see Ohm's Law).

Current Type (AC/DC) - Whether the operational voltage is based on Alternating Current or Direct Current.

D

DALI - See Digital Addressable Lighting Interface

Delivered Light - The amount of light a lighting fixture or lighting installation delivers to a target area or task surface, measured in foot candles (fc) or lux (lx).

Die - 1. Chip; light emitting semiconductor. 2. The chip within the LED package; the plural form is dice.

Diffused Encapsulation - Glass particles are suspended within the epoxy lens of the LED diffusing the light over a wide viewing area. The encapsulation may be white or colored to match the LED output.

Diffuser - An object with irregularities on a surface causing scattered reflections.

Digital Addressable Lighting Interface (DALI) - A digital communications protocol for controlling and dimming lighting fixtures, originally developed in Europe.

Dimmable - Whether or not the lamp lumens can be varied while maintaining reliability.

Dimmer, Dimming Control - A device used to lower the light output of a source, usually by reducing the wattage it is being operated at. Dimming controls are increasing in popularity as energy conserving devices.

Diode - A two terminal device that conducts in only one direction.

Directional Light Source - A light source that emits light only in the direction it is pointed or oriented.

DMX - A digital communications protocol for controlling lighting fixtures, originally developed to control stage lighting.

Dominant Wavelength - A measure of the hue sensation perceived by the human eye.

Driver - Electronics used to power illumination sources.

E

Efficacy - The light output of a light source divided by the total electrical power input to that source, expressed in lumens per watt (lm/W).

Efficiency - See Luminous efficiency.

Electroluminescence - The conversion of electrical energy into light via non-thermal means.

Electrostatic Discharge (ESD) - A sudden redistribution of static charge which can be damaging to sensitive components.

ELV-type Dimmer - An electronic low voltage dimmer, used to dim LED lighting fixtures with electronic transformers.

Encapsulation - A hard rugged epoxy surrounding the LED die, provides diffusion & lensing of the LED light.

Epoxy - Organic polymer frequently used for a dome or lens, often prone to optical decay over time, resulting in poor lumen maintenance. High quality LEDs contain no epoxy in the optical system and deliver superior lumen maintenance.

Eye-sensitivity Curve - See spectral luminous efficiency function.

F

Flicker - The periodic variation in light level caused by AC operation that can lead to strobe effects.

Floodlight - A luminaire used to light a scene or object to a level much brighter than its surroundings.

Flow Soldering - Flow or wave soldering technique in large scale electronic assembly to solder all the connections on a printed circuit board by moving the board over a wave of molten solder.

Flux / Luminous Flux - 1. Luminous flux is the measure of the perceived power of light, adjusted to reflect the varying sensitivity of the human eye to different wavelengths of light. 2. The total electromagnetic energy emitted by the light source into a sphere (360°) surrounding the light source. 3. The sum of all the lumens (lm) emitted by a source (see lumen).

Foot Candle (fc) - A measure of illumination in which one unit equals the amount of light delivered by a one-candela light source to a one square-foot surface one foot away.

Foot-lambert - An obsolete term referring to a luminance of 1/? Candelas per square foot.

LIGHTING TERMS - CONT.

Forward Bias - A P-N junction bias which allows current to flow through the junction. Forward bias decreases the resistance of the depletion layer.

Forward Current - Current through a diode in the direction of its greatest conduction.

Forward Voltage (Vf) - The operating voltage of the LED. The typical rating is the voltage at which the LED will light. The maximum rating is the voltage that, if exceeded, will diminish LED lifetime.

FR4 - A widely accepted printed circuit board (PCB) material which is fiberglass reinforced epoxy laminates that are flame retardant.

Freedom From Binning - Describes the case where the entire production of white LEDs can be described by a single CCT and within a declared number of MacAdam ellipses. No subdivision or color binning of the LEDs is required for use in the intended application.

Fresnel Lens - A thin optical lens consisting of concentric rings of segmental lenses and having a short focal length.

G

General illumination - A term used to distinguish between lighting that illuminates tasks, spaces, or objects from lighting used in indicator or purely decorative applications. In most cases, general illumination is provided by white light sources, including incandescent, fluorescent, high-intensity discharge sources, and white LEDs. Lighting used for indication or decoration is often monochromatic, as in traffic lights, exit signs, vehicle brake lights, signage, and holiday lights.

Ghosting - An effect that occurs when lighting fixtures in the OFF state faintly glow as a result of residual voltage in the circuit.

Goniophotometer - A photometric device for testing the luminous intensity distribution, efficiency, and luminous flux of luminaires.

H

Heat Sink - A part of the thermal system that conducts/convects heat away from sensitive components, such as LEDs & electronics.

HID Lamp (High Intensity Discharge) - A general term for mercury, metal halide and high-pressure sodium lamps. HID lamps contain compact arc tubes with enclose various gases and metal salts operating at relatively high pressures and temperatures.

Highbay Lighting - Lighted designed for typically industrial locations with a ceiling height of 25 feet or above.

High Power LED - A high power LED, sometimes referred to as a power LED, is one that is driven at a current of 350 mA/ higher.

High-Brightness - Often applied to an LED but has no measured meaning & does not indicate any level of performance.

Hot/Cold Factor - The relative light output performance at a temperature compared to the light output at a nominal or test temperature. For "Hot Tested" products is the relative light output at 100°C Tj compared to 85°C Tj.

Hot Testing - LED performance testing and specification at an elevated temperature of 85°C.

HPS Lamp (High Pressure Sodium) - HPS lamps are high intensity discharge light sources that produce light by an electrical discharge through sodium vapor operating at relatively high pressures and temperatures. HOT RESTART TIME: time it takes for a HID lamp to reach 9-% of light output after going from on to off to on.

I

IES / IESNA - Illuminated Engineering Society. Produce charts on where the light is. See Illuminating Engineering Society.

ILCS - Intelligent Lighting Control System, is an intelligent network based lighting control solution that incorporates communication between various system inputs and outputs related to lighting control with the use of one or more central computing devices. Lighting control systems are widely used on both indoor and outdoor lighting of commercial, industrial, and residential spaces. Lighting control systems serve to provide the right amount of light where and when it is needed. Lighting control systems are employed to maximize the energy savings from the lighting system, satisfy building codes, or comply with green building and energy conservation programs. Lighting control systems are often referred to under the term Smart Lighting.

Illuminance - 1. The intensity of light falling on a surface area. If the area is measured in square feet, the unit of illuminance is footcandles (fc). If measured in square meters, the unit of illuminance is lux (lx). 2. The "density" of light (lumens/area) incident on a surface; i.e. the light level on a surface. Illuminance is measured in foot-candles or lux.

Illuminating Engineering Society of North America (IES) - The recognized technical authority on illumination, communicating information on all aspects of good lighting practice to its members, to the lighting community & to consumers through a variety of programs, publications & services.

Inboard Power Integration - An approach to power management that integrates the power supply directly into a fixture's circuitry, creating an efficient power stage that consolidates line voltage conversion and LED current regulation.

Incandescent Lamp - A light source where voltage passes through a filament to create heat which, in turn, creates light.

Indirect Lighting - The method of lighting a space by directing the light from luminaires upwards towards the ceiling. The light scattered off the ceiling produces a soft, diffuse illumination for the entire area.

Infrared (Near) - Gases can be excited directly by radio-frequency or microwaves from a coil that creates induced electromagnetic fields. This is called induction lighting & it differs from a conventional discharge, which uses electrodes to carry current into the arc. Induction lamps have no electrodes inside the chamber & generally, therefore, have longer life than standard lamps. Electromagnetic radiation with wavelength range from 700 nm – 3000 nm.

InGaLED - The preferred LED (Light Emitting Diode) semiconductor material system containing Indium, Gallium & Nitrogen to produce green, blue & white-colored LED light sources.

Integrating Sphere - A device used for a variety of optical, photometric, or radiometric measurements.

Intensity Bin - LEDs are sorted according to their intensity values into different groupings or “bins”.

Inverse Square Law - Formula stating that if you double the distance from the light source, the light level goes down by a factor of 4, if you triple the distance, it goes down by a factor of 9, and so on.

IP Rating - The IP Code (or International Protection Rating, sometimes also interpreted as Ingress Protection Rating)* consists of the letters IP followed by two digits and an optional letter. As defined in international standard IEC 60529, it classifies the degrees of protection provided against the intrusion of solid objects (including body parts like hands and fingers), dust, accidental contact, and water in electrical enclosures. The standard aims to provide users more detailed information than vague marketing terms such as waterproof.

K

Kelvin Temperature-Term and symbol (K) used to indicate the comparative color appearance of a light source when compared to a theoretical blackbody. Yellowish incandescent lamps are 3000K. Fluorescent light sources range from 3000K to 7500K and higher. The color measurement for white light. The higher the number, the more blue (i.e. 7000K) the white will appear and the lower the number (i.e. 3200K) the warmer the light will appear. This is important if, as an example you have a set of halo / reverse channel letters mounted on a white background. A 5500K to 6500K is typically preferred and is the more common K color of most LED. On the other hand if you have the same letters on a wood background, a warmer LED chip in the 2800K to 3500K would give a nice warm illumination making the wood background look very nice.

Kilowatt (kW) - The measure of electrical power equal to 1000 watts.

L

Lambertian-Radiation pattern where the brightest spot is in the middle and it drops off at a constant rate from the middle. This pattern is only used when we cover the Qube with another lens (i.e. we leave the lens on from the existing wall-pack because the customer wants a glass lens and we use a plastic lens on the Qube).

Lamp Size - Industry standard classifications for lamp sizes are based on descriptive designators referring to the diameter of the lamp. “T-1” is the base designation for a 1/8” diameter lamp. Other designations are based on the T-1 standard, i.e., T-1 3/4 is 1 3/4 multiplied by 1/8, or .219”.

Lead Frame - A metallic frame used for mounting and connecting LED chips. The leadframe functions as the electrical leads of the device.

Leading Edge Dimmer - A type of dimmer that regulates power to lamps by delaying the leading edge of each half-cycle of AC power. Compatible with many LED fixtures.

LED - See Light Emitting Diode.

LED Array - An assembly of LED packages or dies on a printed circuit board or substrate, possibly with optical elements and additional thermal, mechanical, and electrical interfaces that are intended to connect to the load side of an LED driver.

LED Chip (Chip) - The light producing semiconductor device that may or may not be incorporated into an LED.

LED Driver - An electronic circuit that converts input power into a current source — a source in which current remains constant despite fluctuations in voltage. An LED driver protects LEDs from normal voltage fluctuations, overvoltages, and voltage spikes.

LED Luminaire - A complete lighting unit consisting of LED-based light emitting elements and a matched driver together with parts to distribute light, to position and protect the light emitting elements, and to connect the unit to a branch circuit. The LED based light emitting elements may take the form of LED packages, (components), LED arrays (modules) LED Light Engine, or LED lamps. The LED luminaire is intended to connect directly to a branch circuit.

LED Module - See LED array.

Lens - A transparent or semi-transparent element which controls the distribution of light by redirecting individual rays. Luminaires often have lenses in addition to reflectors.

Light - Radiant energy that can be sensed or seen by the human eye. Visible light is measured in lumens.

LCU - Light Control Unit, easily installed inside the luminaire or externally. It is a principal component of the ILCS street light control network. The LCU controls its LED driver to provide On/Off and dimming functionality. The LCU provides various comprehensive energy measurements, luminaire parameters and maintenance statuses. The LCUs receive commands individually or as a group from the Data Control Unit (DCU) gateway; commands can be changed as and when needed.

Light Emitting Diode (LED) - 1. A Light Emitting Diode (LED) is a solid-state semiconductor device that converts electrical energy directly into light. On its most basic level, the semiconductor is comprised of two regions. The p-region contains positive electrical charges while the n-region contains negative electrical charges. When voltage is applied and current begins to flow, the electrons move across the n region into the p region. The process of an electron moving through the p-n junction releases energy. The dispersion of this energy produces photons with visible wavelengths. 2. Based on inorganic (non-carbon based) materials. An LED is a semi-conducting device that produces light when an electrical current flows through it. LEDs were first developed in the 1960s but were used only in indicator applications until recently.

Light Meter - A device that measures the illuminance at a location calibrated either in foot-candles or in lux. When you find the footcandles for a certain application (i.e. parking lot light – stand directly under it, measure the light, then walk 5’, 10’, 15’ and 20’ in all directions and measure the light at each point).

Light Output - See luminous flux.

LM79 - Verifies the IES files are correct, lens losses, etc.

LM80 - Light depreciation over time – test LED chip at 6,000 hours.

L70 - 30% light loss in 70,000 hours (shorthand for lumen depreciation to 70% of initial lumen output, it indicates 70% of lumen maintenance).

LIGHTING TERMS - CONT.

Lumen (lm) - The international (SI) unit of luminous flux or quantity of light and equals the amount of light that is spread over a square foot of surface by one candle power when all parts of the surface are exactly one foot from the light source. For example, a dinner candle provides about 12 lumens.

Lumens per Watt - In SI, luminous efficacy has units of lumens per watt (lm/W). Photopic luminous efficacy has a maximum possible value of 683 lm/W, for the case of monochromatic light at a wavelength of 555 nm (green).

Lumen Depreciation - Describes the percentage of light lost relative to the initial lumen output. See lumen maintenance for more information.

Lumen Maintenance - The luminous flux at a give time in the life of the LED. This is expressed as a percentage of the intial luminous flux.

Lumen Maintenance Curve - A graph illustrating the predicted average light output behavior over time of a single LED or solution.

Lumen Output - The total lumens emitted of a light source, system, or solution.

Luminaire - A lighting fixture complete with installed lamps and other accessories.

Luminance - A measure of "surface brightness" when an observer is looking in the direction of the surface. It is measured in candelas per square meter (or per square foot) and was formerly referred to as "photometric brightness".

Luminous Efficiency - 1.The percentage of total lamp lumens that a lighting fixture, luminaire, or system emits, minus any blocked or wasted light. 2. The most commonly used measure of the energy efficiency of a light source. It is stated in lumens per watt (lm/W), indicating the amount of light a light source produces for each watt of electricity consumed. For white high- brightness LEDs, luminous efficacy published by LED manufacturers typically refers to the LED chip only, and doesn't include driver losses.

Luminous Flux - See Flux.

Luminous Intensity (lv) - Luminous Intensity is equal to the amount of luminous flux emitted into a very small solid angle at a defined angular orientation from the light source. The measurement for luminous intensity is the lumen or candela.

Lux (lx) - The SI (International) unit of illuminance, or luminous flux incident on a unit area, frequently defined as one lumen per square meter (lm/m2).

M

MacAdam Ellipse-A MacAdam ellipse is the region on a chromaticity diagram which contains all colors which are indistinguishable, to the average human eye, from the color at the center of the ellipse.

Material System - The material, such as aluminum indium gallium phosphide (AlInGaP) and indium gallium nitride (InGaN), used within an LED to produce light of a specific color.

MCPCB - A widely accepted Printed Circuit Board (PCB) material with a Metal Core (MC) for better thermal performance.

Mean Spherical Candle Power (MSCP) - The average luminous intensity of a lamp illuminating in all directions. The measurement is made by placing the lamp in the center of a sphere.

Milliamp / mA - The current any given LED module needs for efficient operation. The higher mA number, the brighter the LED will be, however this higher mA also (typically) reduces LED life. Higher ma also causes more heat that the PN Junction & if not cooled properly will lead to premature failure. Thus for long term benefits, you want the lowest mA you can effectively get, while not affecting the brightness. This is partially accomplished by using first quality "chips" as we do at US LED.

N

Nanometer (nm) - The nanometer (one-billionth of a meter) is the measurement unit for peak wavelength. Visible light falls in the range of 380 to 700nm.

NITS - Measurement of display screen brightness. 1 nit = 1 cd/m2. The more nits, the brighter the picture.

NTSC Color Space - The range of colors within the CIE Chromaticity Diagram included when combining phosphor based RGB sources in CRTs such a televisions and computer monitors.

O

Onboard Power Integration - An approach to power management that integrates the power supply into a fixture's housing, eliminating the need for an external power supply.

Open Channel Letter - A channel letter with returns that project forward from face of letter such that the neon tubing is visible.

Operating Current - The amount of current an LED is designed to draw from the power source.

Operating Temperature - The temperature range over which an LED is designed to operate safely.

P

Passive Component - A Component that does not amplify a signal. Resistors and capacitors are examples.

PC Amber (Phosphor Converted) - PC amber is a method of making amber colored LEDs from royal blue LED chips. It requires the use of special phosphors & results in a more reliable, less temperature sensitive & more consistent amber LED.

Phosphor - 1. A coating of phosphorescent material from a royal blue LED pass through causing those photons to exit with a different color property. 2. An inorganic chemical compound processed into a powder & deposited on the inner glass surface of fluorescent tubes & some mercury & metal-halide lamp bulbs. Phosphors absorb short wavelength ultraviolet radiation & to transform & emit it as visible light.

Phosphor Conversion - 1. This is the process which photons from an LED chip are converted to a different color. White LEDs & some colored LEDs are made using phosphor conversion. 2. A method used to generate white light with LEDs. A blue or near-ultraviolet LED is coated with a yellow or multichromatic phosphor, resulting in white light.

Photometer - An instrument for measuring a property of light, especially luminous intensity or flux. A photometer uses special colored filters to replicate the response of the human eye. Light intensity is measured in candle power, usually by comparison with a standard source.

Photometry - The measurement of light and related quantities.

Power Dissipation - Amount of heat energy generated by a device in one second when current flows through it.

Power Factor - The active power divided by the apparent power (i.e., product of the rms input voltage and rms input current of a driver).

Power Factor Correction - In an electronic device, such as an LED lighting fixture, a system of inductors, capacitors, or voltage converters to adjust the power factor of electronic devices toward the ideal power factor of 1.0.

R

Radiant Flux - The total energy emitted by a light source across all wavelengths, measured in watts.

Radiometry - The measurement of radiant energy (including light) in terms of absolute power. Compare photometry.

Resistance - Symbolized "R" and measured in ohms. Opposition to current flow and dissipation of energy in the form of heat.

Resistor - Component made of material that opposes flow of current and therefore has some value of resistance.

RGB - Stands for red, green & blue lights. When the primaries are mixed, the resulting light appears white to the human eye. Mixing the light from red, green, and blue LEDs is one way to produce white light.

RGB Color Model - An additive color model in which red, green, and blue light are added together in different proportions to produce a broad range of colors, including white.

T

Temperature Sensor - Heat sensing device – like a thermostat – sends a signal to the power source that LED's are getting too hot, will dim down to save LED's (on the Qube there are 2 black dots, one on each end, these are the thermistors).

Thermal Management - Controlling the operating temperature of the product through design, eg. includes heat sinks & improved airflow.

Thermal Pad Temperature - The measured temperature of the thermal pad during testing. The thermal pad aids in the conduction of heat away from the component being cooled & into the heatsink.

Thermal Resistance (K/W) - Material's ability to conduct heat.

Troffer - A long, recessed lighting unit, installed in ceiling opening.

U

Ultraviolet (UV) - Electromagnetic radiation with wavelength shorter than that of visible light.

V

Viewing Angle - The maximum angle at which a display can be viewed with acceptable visual performance.

Voltage (V) - Electrical pressure or force that causes current to flow.

Voltage Drop - Voltage or difference in potential developed across a component due to current flow.

W

Wall Plug Efficiency - This typically refers to the effectiveness of converting electrical power to light output. It is defined as the ratio of the radiant flux to the input electrical power.

Warm Colors - Warmer colors in the light spectrum; red, orange & yellow.

Warm White - Correlated color temperature between 3000K & 3500K, usually perceived as slightly yellow.

Waterproof - The product can be submerged into calm water with limited depth as stated for each specific product. Most aluminum bodied LED products will not do well in salt or acidic water.

Watt - 1. The unit of electrical power as used by an electrical device during its operation. Many lamps come with rating in watts to indicate their power consumption. 2. The unit for measurement of electrical power; the energy required to light the product. The lower the wattage, the less energy is used. It defines the rate of energy consumption by an electrical device when it is in operation. The energy cost of operating an electrical device is calculated as its wattage times the hours of use. In single phase circuits, it is related to volts and amps by the formula: Volts x Amps x PowerFactor = Watts.

KEY TO CLASSIFICATION CODES

APPROVALS AND STANDARDS

Luminaires sold in the market are expected to comply with the appropriate safety requirements as laid down in the European series of standards EN 60598 prepared by CENELEC, the European Committee for Electrotechnical Standardisation, and which are almost fully harmonised with the worldwide series of standards IEC 60598. European standards are accepted as the national standards and published as such.

Since the issuing of the Low Voltage Directive the availability of the appropriate safety standards has improved the overall quality of our luminaires.

The CE mark, which is a condition for the free circulation on the entire European market of products that are safe, for example, is the way our organisation demonstrates its compliance with the relevant European legislation.

CE A condition for the free circulation on the entire European market of products that are safe.

For more information on the European platform of Testing agencies, please consult their website www.EEPCA.org

ELECTRICAL SAFETY CLASSES

 Class I – Luminaires in this class have basic insulation and are fitted with an earthing point (identified) for the connection of all those exposed metal parts that could conceivably become live in the presence of a fault. Where the Class I luminaire is provided with a flexible power lead, it must include an earth wire.

 Class II – Luminaires in this class are designed and constructed in such a way that exposed metal parts cannot become live. This can be achieved by means of either reinforced or double insulation, but without a provision for protective earthing.

 Class III – The luminaires in this class are those in which protection against electric shock relies on supply at Safety Extra-Low Voltage (SELV), typically 12V or 24V, and in which voltages higher than those of SELV (50V a.c. r.m.s.) are not generated. A Class III luminaire should not be fitted with a facility for protective earthing.

PROTECTION AGAINST MECHANICAL SHOCK

IK NO.	SHOCK (JOULES)	DESCRIPTION	EXAMPLE
IK00	-		
IK01	0.15		
IK02	0.2	Standard	Standard open luminaire, closed luminaire with acrylic cover
IK03	0.3	Standard Plus	
IK04	0.5		Open luminaire with reinforced optical system
IK05	0.7		
IK06	1		
IK07	2	Reinforced	
IK08	5	Vandal-Protected	Closed luminaire with polycarbonate or hardened glass cover
IK09	10		
IK10	20	Vandal-resistant	Closed luminaire

THE INGRESS PROTECTION SYSTEM

First Number

Degree of protection against accidental contact/contact with external elements

NO.	DESCRIPTION	EXPLANATION
0	Non-protected	Not protected
1	Hand-protected	Protected against solid objects exceeding 50mm in diameter
2	Finger-protected	Protected against finger contact with live parts; and against solid objects exceeding 12mm in diameter
3	Tool-protected	Protected against contact with live parts by tools, wire or similar objects over 2.5mm thick; and protection against penetration of solid objects exceeding 2.5mm in diameter
4	Wire-protected	Protected against contact with live parts by tools, wire or similar objects over 1mm thick; protection against penetration of solid objects exceeding 1mm in diameter
5	Dust-accumulation protected	Complete protection against contact with live parts and against harmful accumulation of dust; some dust may penetrate but not to the extent that operation is impaired
6	Dust-penetration protected	Complete protection against contact with live parts and against penetration of dust

Second Number

Degree of protection against ingress of moisture

NO.	DESCRIPTION	EXPLANATION
0	Non-protected	Not protected against moisture
1	Drip-proof against vertical water drops	Water drips falling vertically shall have no harmful effect
2	Drip-proof when tilted at angles of up to 15°	Water drips shall have no harmful effect
3	Rain/spray-proof	Water falling at an angle of up to 60° shall have no harmful effect
4	Splash-proof	Splashing water from any direction shall have no harmful effect
5	Jet-proof	Water projected by a nozzle from any direction shall have no harmful effect. (Nozzle diameter 12.5mm, pressure 100 kPa)
6	Watertight	Watertight; temporary immersion in water under specified conditions of pressure and time possible without ingress of water in harmful quantities
7	Pressure Watertight	Pressure watertight; continuous submersion in water under specified conditions of pressure & time without ingress of water in harmful quantities

AMBIENT TEMPERATURE

NIKKON® luminaires are designed to meet the (environmental) conditions under which they are most likely to be used. The maximum ambient temperature T_a under which a luminaire can be operated safely, is indicated on the type label on the product; if no indication is given the product is intended for a maximum ambient temperature of 25°C. The ambient temperature always refers to the typical use of the luminaire: indoors or outdoors.

The majority of luminaires developed for office, shop & general indoor applications show no T_a , thus indicating 25°C. Luminaires designed for industrial highbay applications are designed for ambient temperatures as high as 40 to 45°C. The use of luminaires above their specified maximum ambient temperature may reduce safety margins and will mostly lead to a reduction of the lifetime of the various components.

Electronic equipment, ballasts and lighting controls are particularly sensitive to overheating. Although (extremely) low temperatures do not normally affect the safety of luminaires, this may affect operation during the starting-up phase of the lamp. Fluorescent lamps should not be used below -5°C to -10°C.

Upon request special solutions are often possible for higher or lower ambient temperatures.

ELECTRICAL SUPPLY

An important step has been taken to harmonise the European mains supply voltage. From 2003 onwards the voltage delivered for use in buildings is 230V/400V with a tolerance of $\pm 10\%$. **NIKKON®** luminaires are designed for the future and will operate well on the supply of today and tomorrow. An example is the electronic ballast designed for a rated mains voltage of 220-240V, with tolerance for safety of $\pm 10\%$ and tolerances for performance of -8% and +6%, covering the full range between 202V and 254V.

ELECTRICAL SAFETY CLASSES

Electrical equipment is classified according to the protection level against electrical shock. In normal operation as well as during service and maintenance, luminaires should be protected against electrical shock. The safety of a luminaire depends on electrical, mechanical and thermal aspects, both under normal and fault conditions. The electrical safety classification drawn up by the IEC embraces 3 luminaire classes: Class I, II and III. Low voltage luminaires designed to meet the Safety Extra-Low Voltage (SELV) limits can be categorised as Class III.

The key (pg.103) gives a brief description of each electrical safety class. The official definitions are too long to be reproduced in full here, but can be summarised as printed below. If a protective earth connection is available, Class I luminaires are applied. However, if there is no earth connection or if eddy currents are present, Class II luminaires shall be applied. Class II water-protected luminaires are applied in wet and outdoor locations. Local electricity boards can provide the appropriate advice.

PROTECTION AGAINST MECHANICAL SHOCK

The impact resistance of a luminaire defines the protection of the luminaire against mechanical shock. The European standard EN 50102 defines the degrees of protection against external mechanical impact (IK code) and the method of testing.

The luminaire housing should withstand the defined energy of the mechanical shock without losing its electrical and mechanical safety, or the basic luminaire function. Translated into a more practical implementation, this means that after withstanding the shock, deformation of the mirror and housing is allowed, although broken lamps, an unsafe electrical situation and failure to meet the specified IP classifications are not permitted.

The impact resistance is expressed as a group numeral, for instance IK06, which is related to the impact energy. The table (pg.167) shows the ten IK classifications and the defined shock energy expressed in joules. Notice that fully vandal-proof luminaires are not available; vandal-protected (IK09) and vandal-resistant (IK10) are the best achievable classifications.

PROTECTION AGAINST INGRESS OF SOLID OBJECTS, DUST AND MOISTURE

The Ingress Protection system (IP) EN 60529, 1991 defines various degrees of protection against the ingress of foreign bodies, dust and moisture. The term 'foreign bodies' includes things like fingers and tools coming into contact with the electrical live parts of the product. Both safety aspects (contact with live parts) and harmful effects on the function of the luminaire are defined.

The designation to indicate the degree of protection consists of the characteristic letters IP followed by 2 digits indicating conformity with the conditions stated in the (pg.103). (pXXX). All **NIKKON®** luminaires fulfil the minimum classification: IP20 (protected against finger contact with live parts), however a selection of luminaires, especially those for industrial and outdoor (road) applications, meet a higher IP classification.

It is important to realise that the specification and safety of luminaires are only secured if the necessary maintenance is carried out according to the instructions of the manufacturer within the time schedules indicated.

SAFETY DISTANCE

In the application of reflector lamps and luminaires with narrow beam distributions of a high intensity, a minimum distance between light source and illuminated surface has to be ensured. This is to prevent too high temperatures of the illuminated surface.

Minimum values for safety distances are specified on the luminaire packing. The specified values must be considered as the shortest distances permitted between light source and illuminated object or surface to ensure long-lasting safe operation.

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