majelite

THE LIGHTING LANGUAGE

# CONTENTS

majelite
THE LIGHTING LANGUAGE

With great pride, **majelite** the manufacturer of highly engineered lighting fixtures and the provider of quality lighting solutions, presents its 8th edition product catalogue

It has been more than 15 years striving to attain a long term and sustainable position in the lighting field and to be associated with benefits of good and efficient lighting.

Today the name **majelite** has a considerable weight in the local and international market place and we will continue the purposeful and consistent work to further develop our range of products and their quality and reliability.

**majelite** will accord top priority to customer satisfaction by maintaining the highest manufacturing and quality standards.

This catalogue expresses our level of commitment towards our valuable customer.

The **majelite** Team

# GENERAL SPECIFICATIONS

MajeLite products and components are designed to comply with the safety, electrical, thermal and mechanical requirements of European norms :

- EN60598
- EN55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778

## TECHNICAL BACK–UP

Al MajeLite products are manufactured to the most stringent norms and standards and in collaboration with internationally renowned and world leading certified suppliers of lighting components and parts which form the backbone of our technical know–how.

Our quality control department not only constantly evaluates new and existing designs but also monitor and approve bought in components of particular interest to specifiers and users.

## Who Are We ?

- Majees Lighting Industries LLC is An ISO 9001:2015, 14001:2015, & BS OHSAS 18001:2007 certified limited liability company, established under the commercial laws of Oman, dully registered in March 1996.

- A national manufacturer of a wide range of highly engineered lighting fixtures produced in conformity with the most stringent international standards and norms at a comprehensive state of the art manufacturing facility at Sohar Industrial Estate on a site area of 8000 sq. mtr with an installed capacity of 150,000 fittings per annum.

- With products successfully installed in a large number of major projects in Oman and other GCC countries since 1996.

- **majelite** a national manufacturer with market presence in over seven International markets, successfully covering various market segments.

- **majelite** products are technically backed–up by internationally renowned and world's leading ISO certified suppliers of lighting components and parts. The support provided by our technical partners ensure trouble free performance. Five years warranty provided.

- At **majelite** we are not only a specialized lighting manufacturer but we speak well the language of Light which is not simply about "on and off ", it is a much broader vocabulary, one rich enough to express feelings emotions and sensations.

## Quality Policy

- To provide a range of lighting & electrical products under **majelite** brand beyond the on–off and in compliance with customers specified and implied needs.
- To strive for greater customer awareness of our products and the language we speak very well – "The Language of Light".
- To create a friendly environment which maximize the contribution of all employees and fosters a spirit of `Pride and Workmanship'.
- To operate in a safe, reliable and cost effective manner, whilst protecting the health of the people & conserving the environment.
- To develop and implement a company wide simple, clear and effective management system supported by essential documentation and to have it reviewed continuously to improve its effectiveness.

## Mission

To provide Quality and Cost Effective LIGHTING SOLUTIONS for all functional lighting needs and in return achieve total CUSTOMER SATISFACTION from a vibrant, trouble free & quality installation.

# DESIGN & PRODUCT DEVELOPMENT

## Production Processes

### Metal Fabrication

Metal Fabrication is accomplished with an advance and fully automated CNC punching lines and metal forming machines in accordance to a pre–set CAM programs before its sent to chemical treatment and powder coating.

### Chemical Treatment & Powder Coating

All metal housings under go a class II corrosion resistant pretreatment by spraying at 2.5 ba pressure (decreasing, water rinsing – Iron Phosphating / Chromating–cold water rinsing–hot water rinsing–drying at 100 C°) before it is electro–statically powder coated with an extremely durable polyurethane powder (for indoor luminaries) or polyester powder (for outdoor luminaries) followed by a high temperature curing process at 200C°.

Zinc coating and other corrosion classes can also be satisfied on request.

**Class 0 :** Very little corrosion risks, relative humidity under 60%. Corrosion.

**Class I :** Little corrosion risks, well ventilated rooms. Cor rosion.

**Class II :** Medium corrosion risk, fluctuating temperature and humidity. Corrosion.

**Class III :** Large corrosion risk, for Coastal and Industrial area.

**Class IV :** Very high corrosion risk, constant high humidity and near chemical & industries.

## Assembly & Packaging

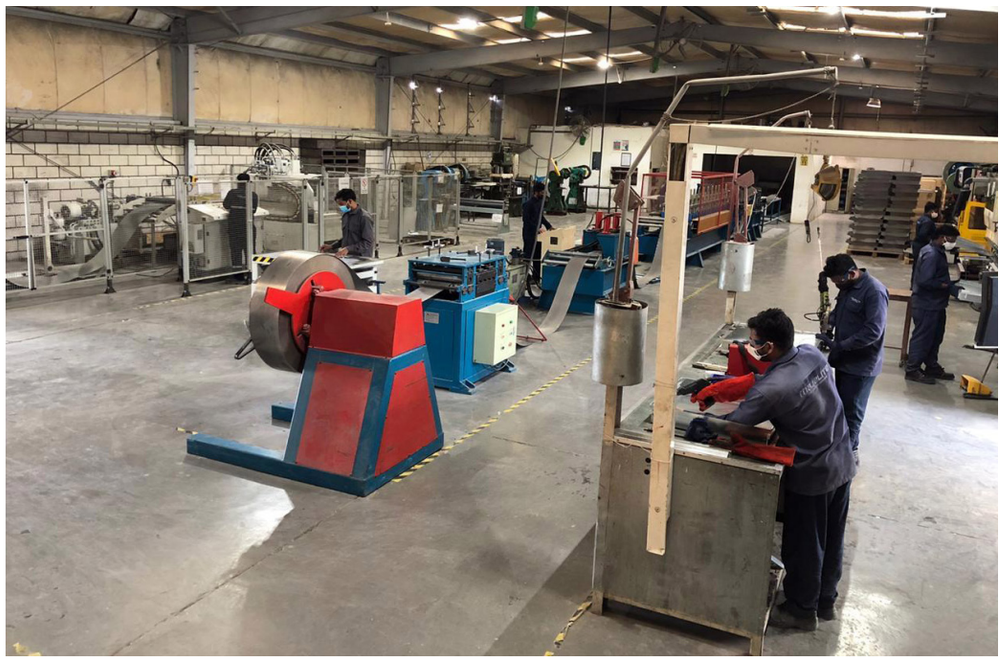
All assembly worls are done manually on a fully automated transfer lines with an on–line quality checks as per majelite quality plan covering visual, mechanical, and electrical inspection checks before it is finally packed.

## Lighting & Luminaire Design Software

majelite has an in–house state of the art lighting software to provide quality and cost effective lighting solutions and designs in full compliance with EN–12464–1 & EN12664 and achieve total customer satisfaction from a vibrant, trouble–free and quality installation. In addition, our luminaire design software for research and optimization of virtual luminaires allow a fast and accurate photometric and suitability analysis for most lighting applications and custom designed products.

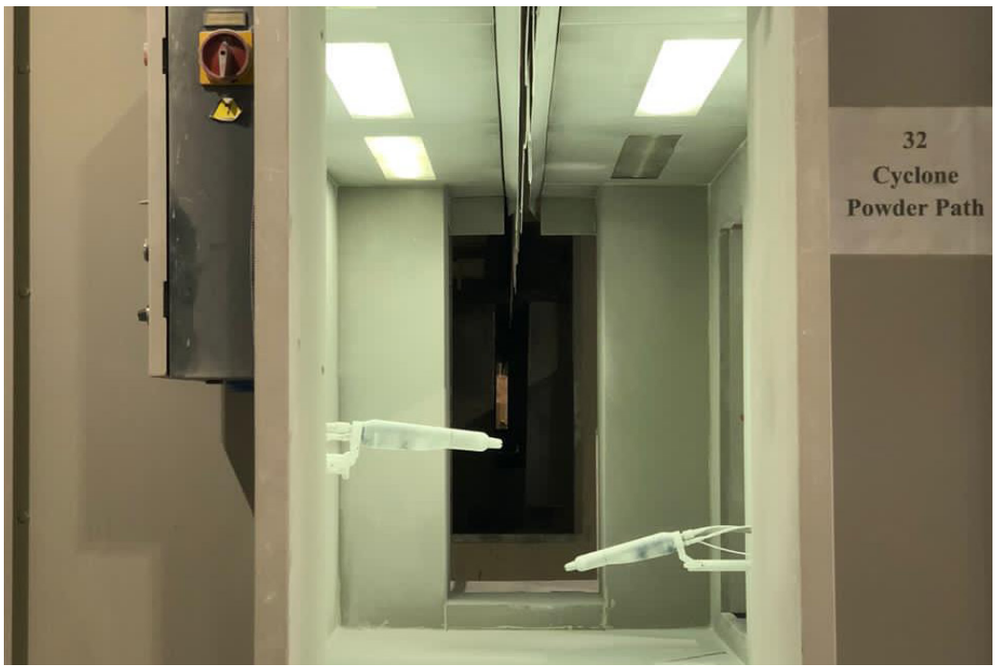
# METAL FABRICATION


# METAL FABRICATION



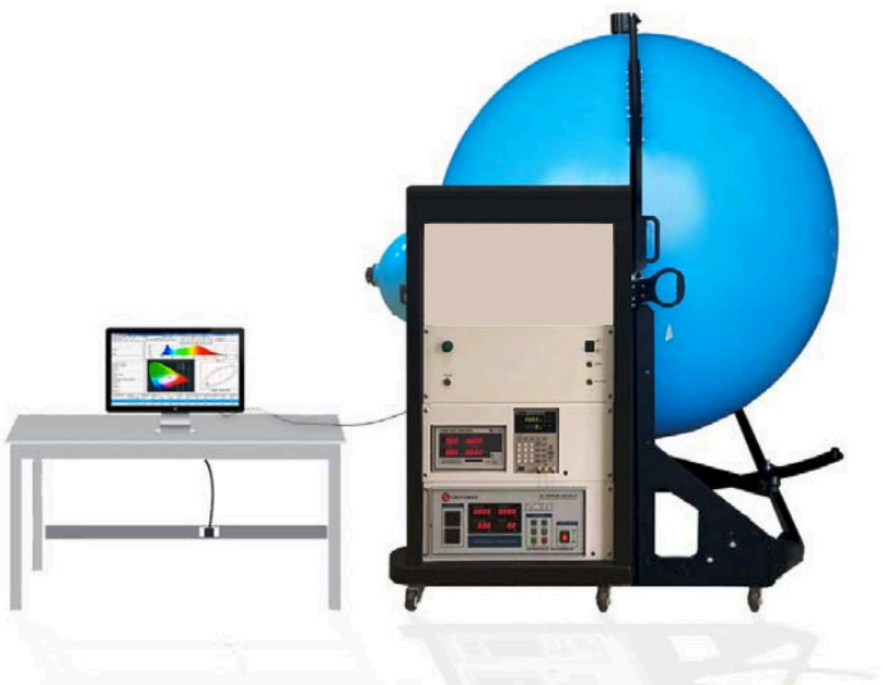
# PRE-TREATMENT

# POWDER COATING




# ASSEMBLY


# TESTING



# CERTIFICATIONS

TÜV NORD

## CERTIFICATE

Management system as per
**ISO 9001 : 2015**

In accordance with TÜV Middle East procedures, it is hereby certified that

**Majees Lighting Industries LLC**
**Road 1C, Sohar Industrial Estate**
**Postal Code 327**
**Sultanate of Oman**

majelite
THE LIGHTING LANGUAGE

applies a management system in line with the above standard for the following scope

**EA: 19, 29/1**

**Design, Manufacturing and Distribution of Electrical & Lighting Fixtures**

Certificate Registration No. EIAC 03 00615
Audit Report No. 1000 2575

Valid from 03-07-2017
Valid until 02-07-2020

Certification Body

Abu Dhabi, 03-07-2017

This certification was conducted in accordance with the TÜV Middle East auditing and certification procedures and is subject to regular surveillance audits.

TÜV Middle East Mezzanine Floor, Danat Tower A, Airport Road, P.O. Box 46030, Abu Dhabi, UAE www.tuvme.com

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

eiac مركز الإمارات العالمي للاعتماد Emirates International Accreditation Centre
011-CB-QMS

TÜV NORD TÜV Middle East ISO 9001

# CERTIFICATE

Management system as per
**ISO 14001 : 2015**

In accordance with TÜV Middle East procedures, it is hereby certified that

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**Road 1C, Sohar Industrial Estate**
**Postal Code 327**
**Sultanate of Oman**

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Certificate Registration No. EIAC 04 00615
Audit Report No. 1000 2576

Valid from 03-07-2017
Valid until 02-07-2020

Certification Body

Abu Dhabi, 03-07-2017

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011-CB-EMS

# CERTIFICATIONS

TÜV NORD

## CERTIFICATE

Management system as per
**BS OHSAS 18001 : 2007**

In accordance with TÜV Middle East procedures, it is hereby certified that

**Majees Lighting Industries LLC**
**Road 1C, Sohar Industrial Estate**
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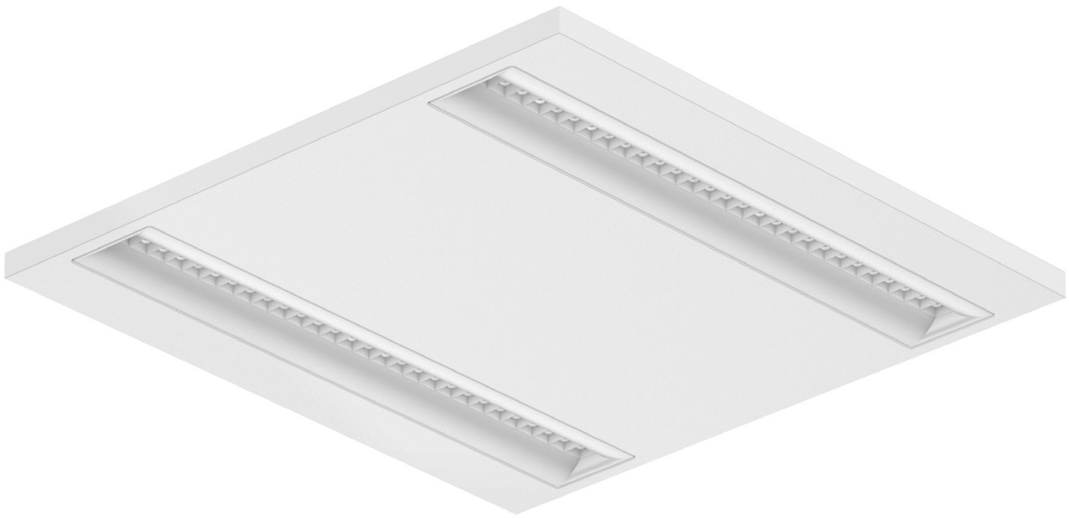
eiac
مركز الإمارات العالمي للاعتماد
Emirates International Accreditation Centre
011-CB-OHSMS

TÜV NORD
TÜV Middle East
BS OHSAS 18001

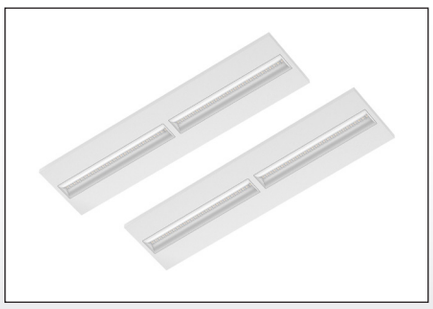

JSRS
joint supplier
registration system
CERTIFICATE OF APPROVAL
Awarded to
MAJEES LIGHTING INDUSTRIES LLC
As an Approved Supplier to the Oman Oil & Gas Industry's Joint Supplier Registration System (JSRS)
Country of Origin : Oman
JSRS Supplier Code : OM102298
Registration Date : 02-02-2015
Valid till : 30-01-2023
Special Status : NIL
National SME Classification : SME-Medium
businessgateways
INTERNATIONAL
MINISTRY OF OIL & GAS
This Certificate is issued for supplying Products & Services to Oil & Gas and other related Industries in Oman and is not valid to acquire permits from other Governmental or Non-Governmental agencies.
Certificate No. : JSRSOM1717628900002 / Issued On : 22-02-2020

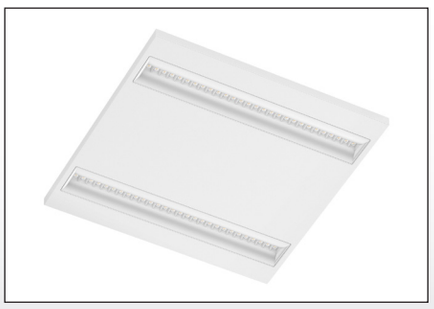
# RECESSED MODULAR

# RLR



IP40 | UP TO 175 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)





| PRODUCT CODES | | |
|---|---|---|
| | **RLR6060–4000/35** | **RLR30120–4000/35** |
| **CONSTRUCTION:** | | |
| Housing & Optics: | In trimmed sheet steel, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature polycarbonate material. | |
| Mounting Device | Recess / Suspension Mounting Using Suspension Kits | |
| Product Dimension (mm) | 597 x 597 x 28 | 297 x 1197 x 28 |
| Product Color | RAL9016 | |
| **ELECTRICAL:** | | |
| Input Voltage | 220–240V AC | |
| Frequency | 50–60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 35W | |
| Power Consumption Tolerance | +/–10% | |
| Protection Class | Safety Class(II) | |
| Glow Wire Test | 850 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | Optional | |
| Dimming Options (Variant) | Dali / 1–10V / Triac Dimmable. | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 4000 Lmns | |
| CCT | 5000K (S) – 4000K / 3000K (O) | |
| CRI | >80 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25$^0$ C | |
| Operating Ambient Temperature | +10 to + 55$^0$ C | |
| Storage Temperature | –20 to + 80$^0$ C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP40 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 80 deg | |
| CE Markings | Yes | |
| Net Weight | 2.1 Kgs | 2.4 Kgs |
| Glare Rating | <19 | |
| **VARIANTS:** | | |

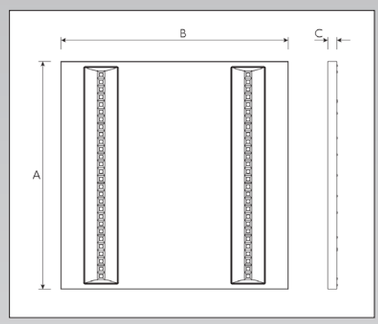
Suspension Kit to be ordered separately using the code SK to the suffix of the product code. L90 modules are also available in different CCT on request.

(S) – Standard Version. (O) – Optional upon request and to be mentioned along with code of the product.

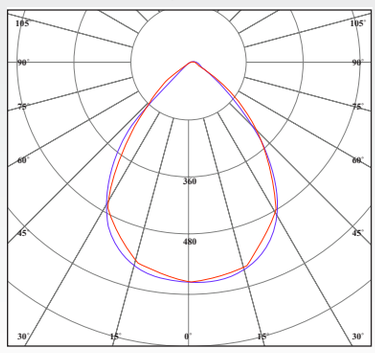
Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED modular fitting made of Zinc coated steel, powder coated to corrosion class II low glare lenses and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25$^0$ C lumen maintenance, .....color temperature, IP40.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# RLC

IP40

UP TO 175 lm/W

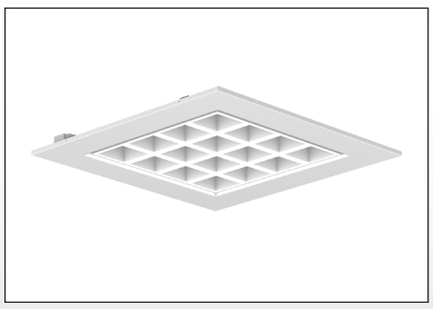
L80 B10

constant CURRENT

ENEC 15 Components

CE

3MacAdam (3SDCM)



| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **RLC3060–2000/18** | **RLC6060–3000/25** | **RLC6060–4000/36** | **RLC30120–4000/36** |
| **CONSTRUCTION:** | | | | |
| Housin & optics:: | In trimmed sheet steel, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature PMMA material. | | | |
| Mounting Device | Recess / Suspended – Using Suspension kits. | | | |
| Product Dimension (mm) | 295 x 595 x 38 | 595 x 595 x 38 | 595 x 595 x 38 | 295 x 1195 x 38 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 18W | 25W | 36W | 36W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 650 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 2000 Lmns | 3500 Lmns | 4000 Lmns | 4000 Lmns |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 40° C | | | |
| Storage Temperature | –20 to + 60° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 100 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 1.5 Kgs | 2 Kgs | 2 Kgs | 3 Kgs |
| Glare Rating | <16 | | | |
| **VARIANTS:** | | | | |

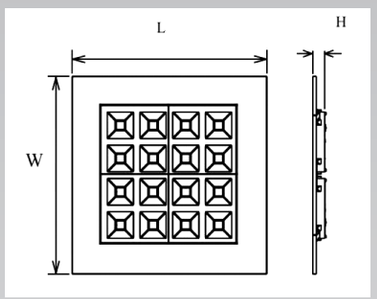
Suspension Kit to be ordered separately using the code SK to the suffix of the product code.

(S) – Standard Version. (O) – Optional upon request and to be mentioned along with code of the product.

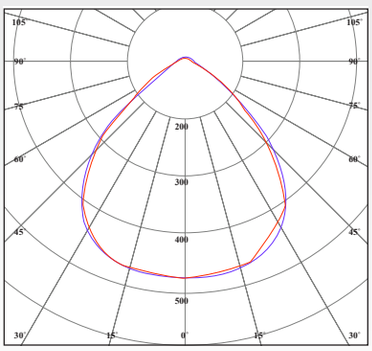
Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED modular fitting made of Zinc coated steel, powder coated to corrosion class II low glare lenses and ENEC certified components, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP40.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# RLO

IP20 | UP TO 175 lm/W | L80 B10 | constant CURRENT | EN 15 Components | CE | 3MacAdam (3SDCM)

| PRODUCT CODES | | |
|---|---|---|
| | **RLO6060-3900/33** | **RLO30120-3900/33** |
| **CONSTRUCTION:** | | |
| Housing & Optics: | In trimmed sheet steel, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermohardened polyurethane powder, stabilized and UV protected. Optics made of high temperature PMMA material. | |
| Mounting Device | Recess Mounting using Suspension Kit. | |
| Product Dimension (mm) | 597 x 597 x 70 | 1197 x 2597 x 70 |
| Product Color | RAL9016 | |
| **ELECTRICAL:** | | |
| Input Voltage | 240-220V AC | |
| Frequency | 50-60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 33W | |
| Power Consumption Tolerance | +/-10% | |
| Protection Class | Safety Class(I) | |
| Glow Wire Test | 650 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | Optional | |
| Dimming Options (Variant) | Dali / 1-10V | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 3900 Lmns | |
| CCT | 5000K (S) - 4000K / 3000K (O) | |
| CRI | >80 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | |
| Operating Ambient Temperature | +10 to + 55° C | |
| Storage Temperature | -20 to + 80° C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP20 | |
| Impact in Joules | IK03 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 90 deg | |
| CE Markings | Yes | |
| Net Weight | 2Kgs | |
| Glare Rating | <19 | |
| **VARIANTS:** | | |

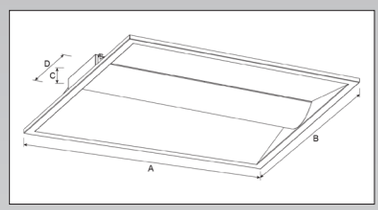
(S) - Standard Version. (O) - Optional upon request and to be mentioned along with code of the product.

Suspension Kit to be ordered separately using the code SK to the suffix of the product code.

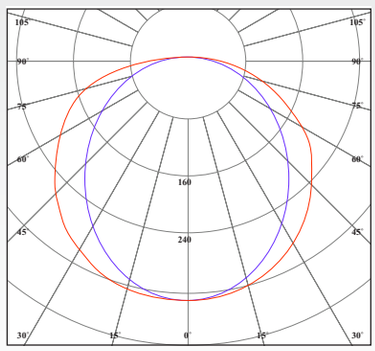
Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED modular fitting made of Zinc coated steel, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP20.

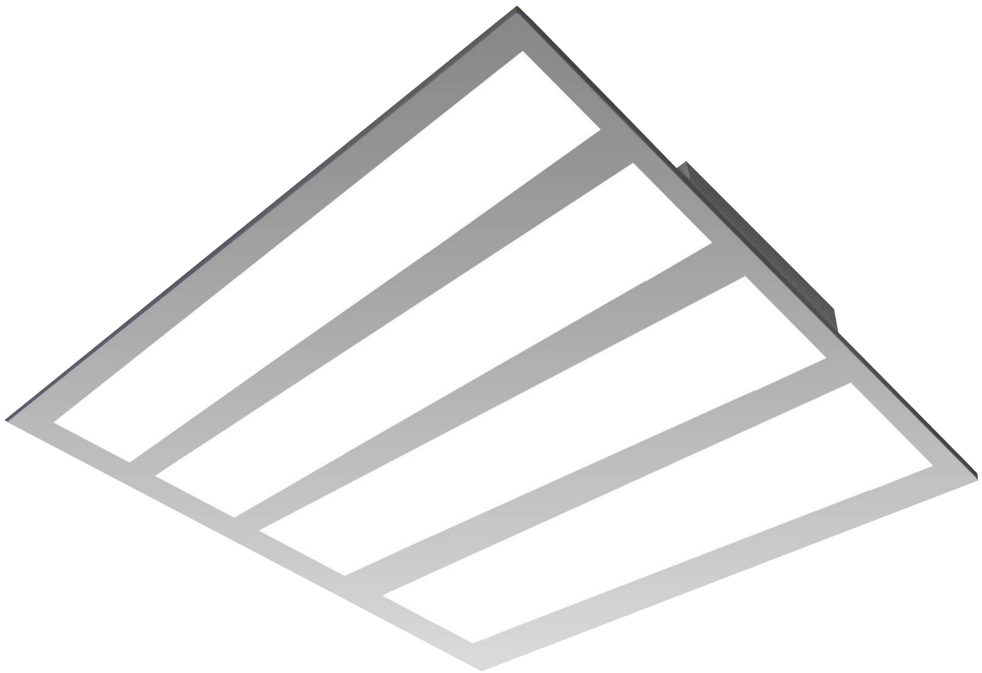



Luminous Intensity Distribution

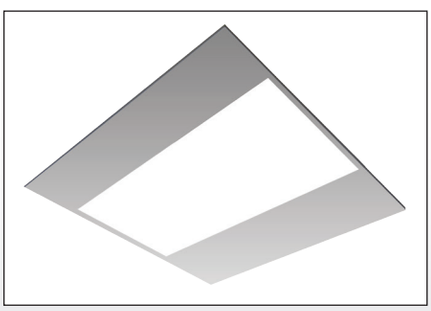


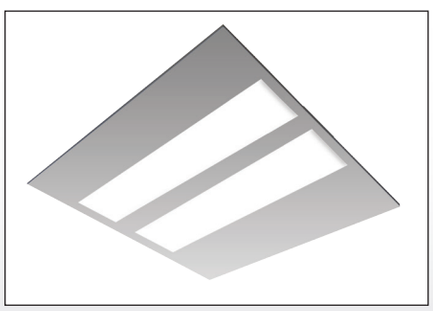

Luminous intensity (cd/klm) in level C 0° - 180°
Luminous intensity (cd/klm) in level C 90° - 270°

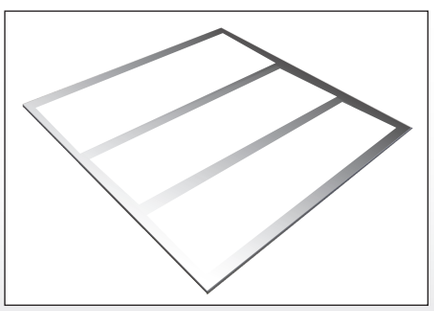
# ODC



IP40 | UP TO 175 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)



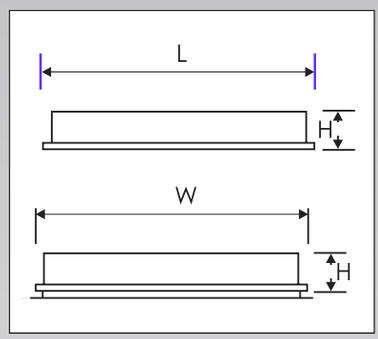




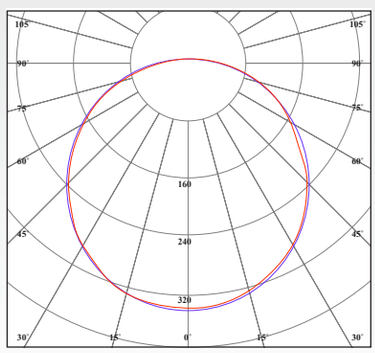
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **ODC1–3400/26** | **ODC2–2250/17** | **ODC3–3400/26** | **ODC4–4500/35** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | In trimmed sheet steel, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature UV stabilized PMMA material. Excellent optical characteristics with high transmission, diffusion rate, special micro embossing and free static treatment. | | | |
| Mounting Device | Recess Mounting | | | |
| Product Dimension (mm) | 597 x 597 x 90 | | | |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 26W | 17W | 26W | 35W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / Smart Controls | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 3400 | 2250 | 3400 | 4500 |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 2.5 Kgs | | | |
| **VARIANTS:** | | | | |
| Available in 297 x 1197mm Linear Length also. | | | | |
| (S) – Standard Version. (O) – Optional upon request and to be mentioned along with code of the product. | | | | |
| For Metal Tray Ceiling, Please order for mounting clamp/s separately using the code MT to the suffix of the code. | | | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED modular fitting made of Zinc coated steel, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP40.

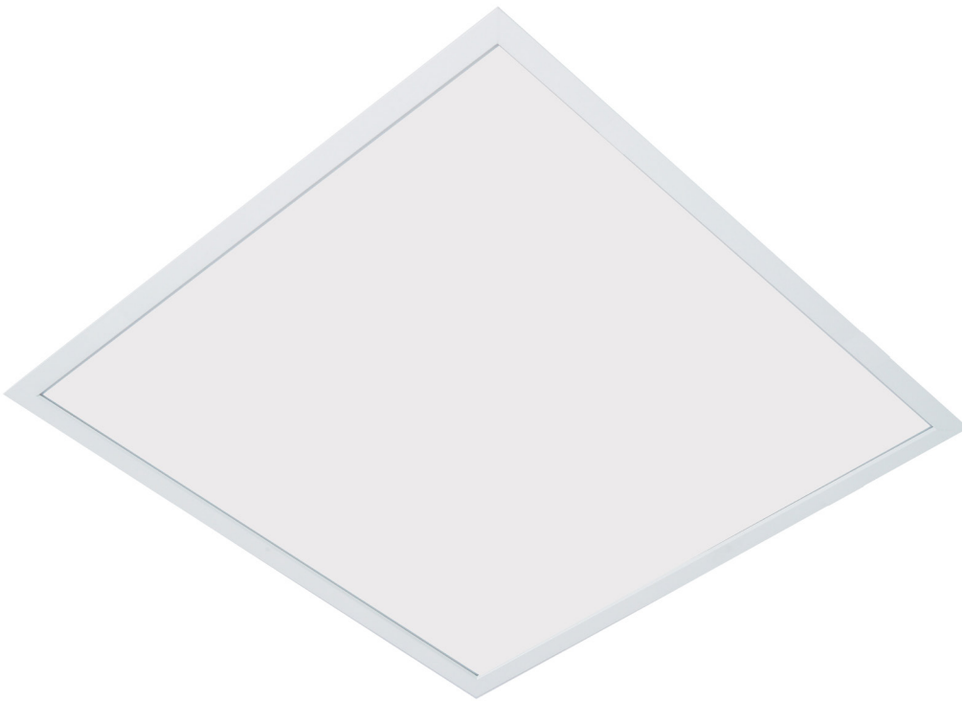



Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

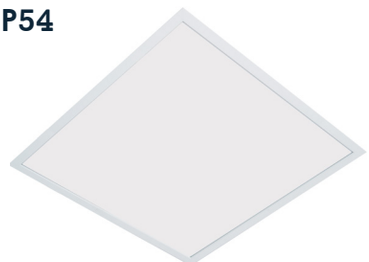
# ODR

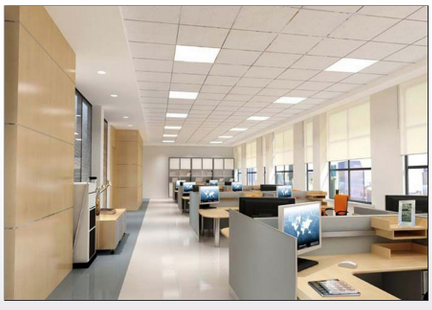


IP40 | UP TO 175 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)

**IP65**

**IP54**

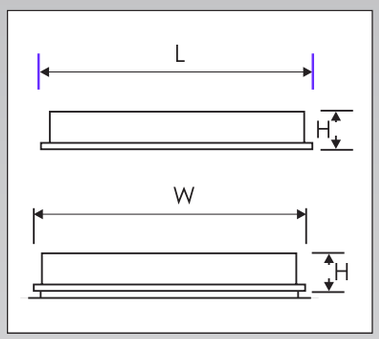




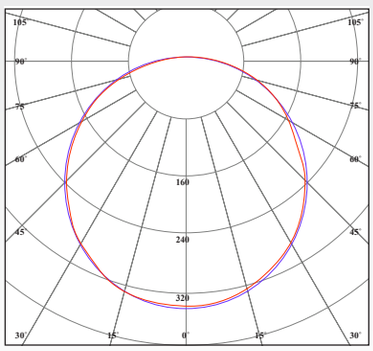
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **ODR3030–1340/13** | **ODR 6060 3600/26** | **ODR6060–4682/39** | **ODR30120 – 4682/39** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | In trimmed sheet steel, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature UV stabilized PMMA material. Excellent optica l characteristics with high transmission, diffusion rate, special micro embossing,and free static treatment. | | | |
| Mounting Device | Recess mounting and supported using suspension kits / threaded rods. | | | |
| Product Dimension (mm) | 297 x 297 x 90 | 597 x 597 x 90 | 597 x 597 x 90 | 297 x 1197 x 90 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 13W | 26W | 39W | 39W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 1340 | 3600 | 4682 | 4682 |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 1.4 Kgs | 1.4 Kgs | 2.5 Kgs | 3 Kgs |
| **VARIANTS:** | | | | |
| Available in IP54 & IP65 Version. Please add IP54/IP65 to the suffix of the code. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| For Metal Tray Ceiling, Please order for mounting clamps separately using the code MT to the suffix of the code. | | | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED modular fitting made of Zinc coated steel, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP40.

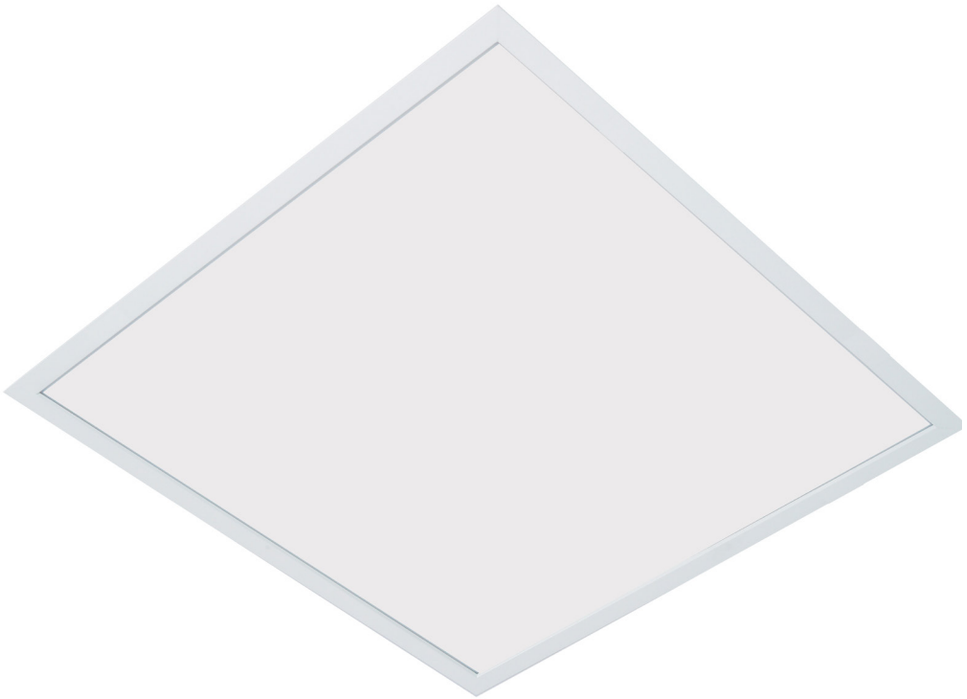



Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

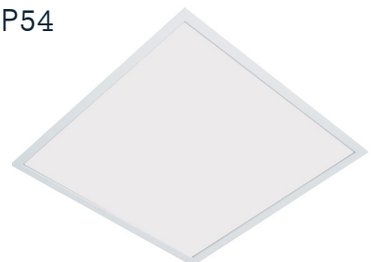
# ODR

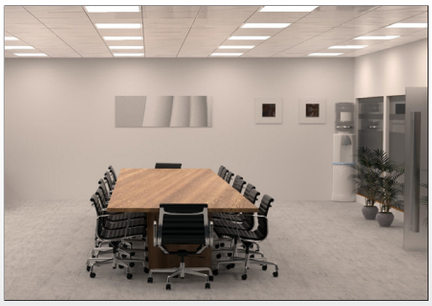


IP40 | UP TO 175 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)

IP65

IP54





| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **ODR30120–5630/43** | **ODR30150 5630/43** | **ODR60120–9300/78** | **ODR60120 – 11500/105** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | In trimmed sheet steel, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature UV stabilized PMMA material. Excellent optica l characteristics with high transmission, diffusion rate, special micro embossing,and free static treatment. | | | |
| Mounting Device | Recess mounting and supported using suspension kits / threaded rods. | | | |
| Product Dimension (mm) | 297 x 1197 x 90 | 297 x 1467 x 90 | 597 x 1197 x 90 | 597 x 1197 x 90 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 43W | 43W | 78W | 105W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 5630 | 5630 | 9300 | 11500 |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 3.5 Kgs | 4 Kgs | 5 Kgs | 5 Kgs |
| **VARIANTS:** | | | | |

Available in IP54 & IP65 Version. Please add IP54/IP65 to the suffix of the code.

Required variants to be added to the suffix of the code of the fixture.

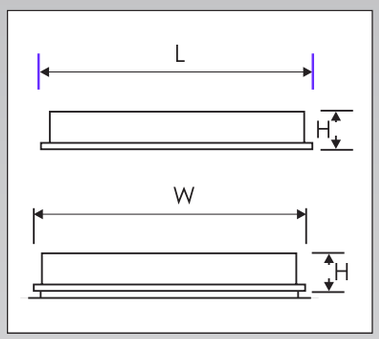
For Metal Tray Ceiling, Please order for mounting clamps separately using the code MT to the suffix of the code.

Suspension Kit to be ordered separately using the code SK to the suffix of the product code.

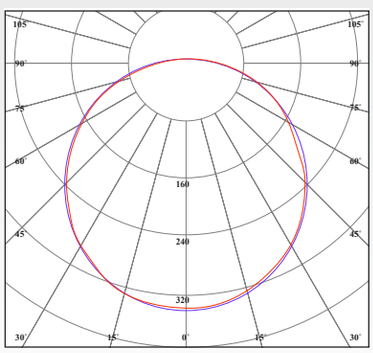
Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED modular fitting made of Zinc coated steel, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP40.

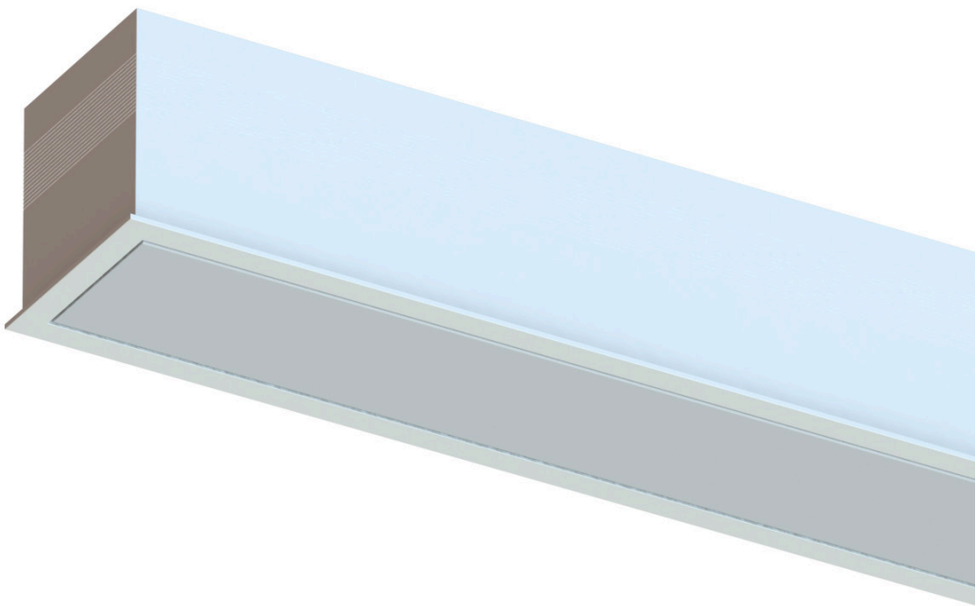



Luminous Intensity Distribution

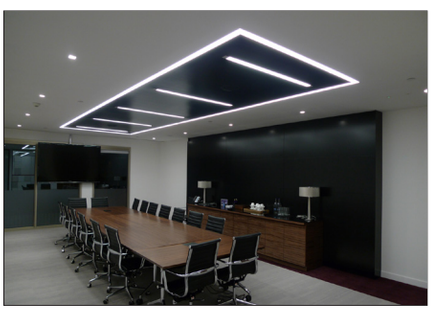


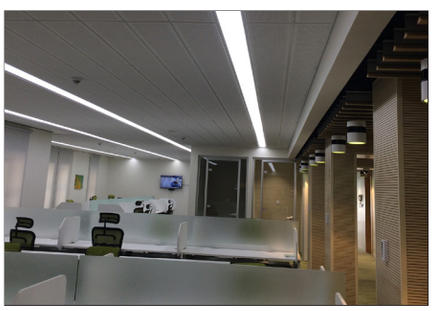

Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# LNR



IP40 | UP TO 175 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)

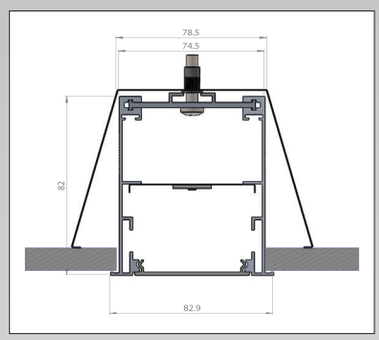




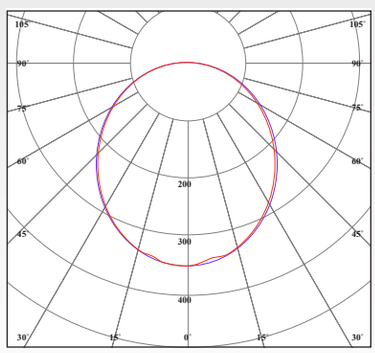
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **LNR860–2300/17** | **LNR8116–2300/17** | **LNR8116–4500/35** | **LNR8142–5600/43** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | In extruded aluminum, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature UV stabilized PMMA material. Excellent optical characteristics with high transmission, diffusion rate, special micro embossing,and free static treatment. | | | |
| Mounting Device | Recess Mounting using Adjustable Mounting Channel provided. | | | |
| Product Dimension (mm) | 583 x 83 x 82 | 1160 x 83 x 82 | 1160 x 83 x 82 | 1460 x 83 x 82 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 17W | 17W | 35W | 43W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 2300 | 2300 | 4500 | 5600 |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25$^0$ C | | | |
| Operating Ambient Temperature | +10 to + 55$^0$ C | | | |
| Storage Temperature | –20 to + 80$^0$ C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 1.2 Kgs | 1.8 Kgs | 2.3 Kgs | 2.8 Kgs |
| Glare Rating | <19 | | | |
| **VARIANTS:** | | | | |
| Available in Asymmetric Version. Please add code ASM to the suffix of the code. | | | | |
| Available in IP54 Version. Please add IP54 to the suffix of the code. | | | | |
| Customised dimensions are available on request, also can be produced in customized shapes. | | | | |
| (S) Standard (O) Optional upon request to be mentioned along with code of the product. | | | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED modular fitting made of 1.2mm 6063 extruded aluminum, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25$^0$ C lumen maintenance, .....color temperature, IP40.



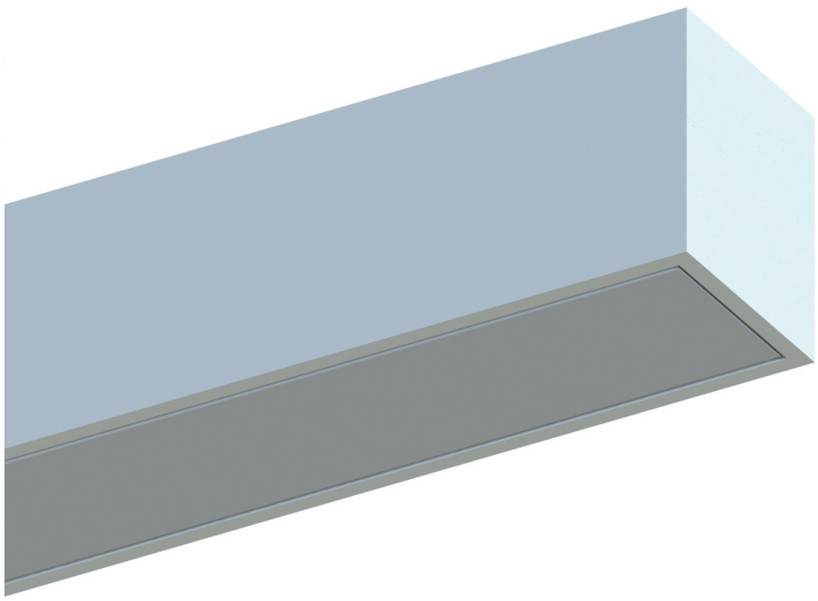

Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# SURFACE & SUSPENDED

# LNS

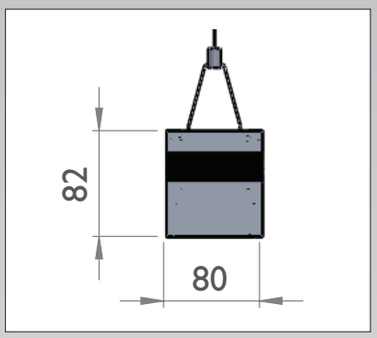


IP40 | UP TO 175 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)

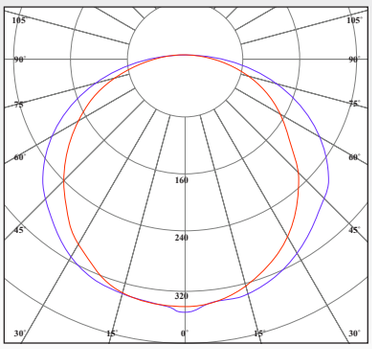
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **LNS860–2300/17** | **LNS8116–2300/17** | **LNS8116–4500/35** | **LNS8142–5600/43** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | In extruded aluminum, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature UV stabilized PMMA material. Excellent optical characteristics with high transmission, diffusion rate, special micro embossing,and free static treatment. | | | |
| Mounting Device | Surface / Suspension mounting using Suspension Kit. | | | |
| Product Dimension (mm) | 580 x 80 x 82 | 1160 x 80 x 82 | 1160 x 80 x 82 | 1460 x 80 x 82 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 17W | 17W | 35W | 43W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / Smart Controls | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 2300 | 2300 | 4500 | 5600 |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 1.2 Kgs | 1.8 Kgs | 2.4 Kgs | 3.2 Kgs |
| Glare Rating | <19 | | | |
| **VARIANTS:** | | | | |
| Available in Asymmetric Version. Please add code ASM to the suffix of the code. | | | | |
| Available in IP54 Version. Please add IP54 to the suffix of the code. | | | | |
| Customised dimensions are available on request, also can be produced in customized shapes. | | | | |
| (S) Standard (O) Optional upon request to be mentioned along with code of the product. | | | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Surface/Suspended LED fixture made of 1.2mm 6063 extruded aluminum, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP40.



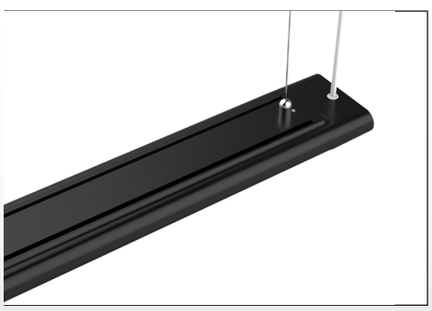

Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# TNS

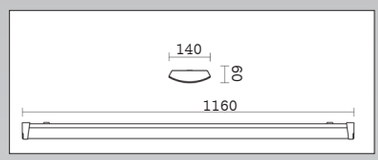
IP40 | UP TO 175 lm/W | L80 B10 | constant CURRENT | EN 15 Components | CE | 3MacAdam (3SDCM)



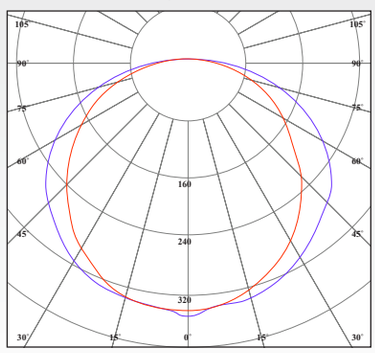
| PRODUCT CODES | | |
|---|---|---|
| | **TNS60-2640/22** | **TNS120-5400/44** |
| **CONSTRUCTION:** | | |
| Housing & Optics: | In extruded aluminum, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated. Optics made of high temperature UV stabilized PS material. | |
| Mounting Device | Surface / Suspension mounting using Suspension Kit. | |
| Product Dimension (mm) | 600 x 140 x 60 | 1160 x 140 x 60 |
| Product Color | RAL9016 | |
| **ELECTRICAL:** | | |
| Input Voltage | 220-240V AC | |
| Frequency | 50-60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 22W | 44W |
| Power Consumption Tolerance | +/-10% | |
| Protection Class | Safety Class(I) | |
| Glow Wire Test | 850 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | Optional | |
| Dimming Options (Variant) | Dali / 1-10V / Smart Controls | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 2640 | 5400 |
| CCT | 4000K (S) - 5000K / 3000K (O) | |
| CRI | >80 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | |
| Operating Ambient Temperature | +10 to + 55° C | |
| Storage Temperature | -20 to + 80° C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP40 | |
| Impact in Joules | IK03 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 90 deg | |
| CE Markings | Yes | |
| Net Weight | 3.2 Kgs | 3.2 Kgs |
| **VARIANTS:** | | |
| (S) Standard (O) Optional upon request to be mentioned along with code of the product. | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | |

## How to Specify :

.....Lm and a min. of .....lm/w Surface LED fixture made of 1.2mm 6063 extruded aluminum, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature , IP40

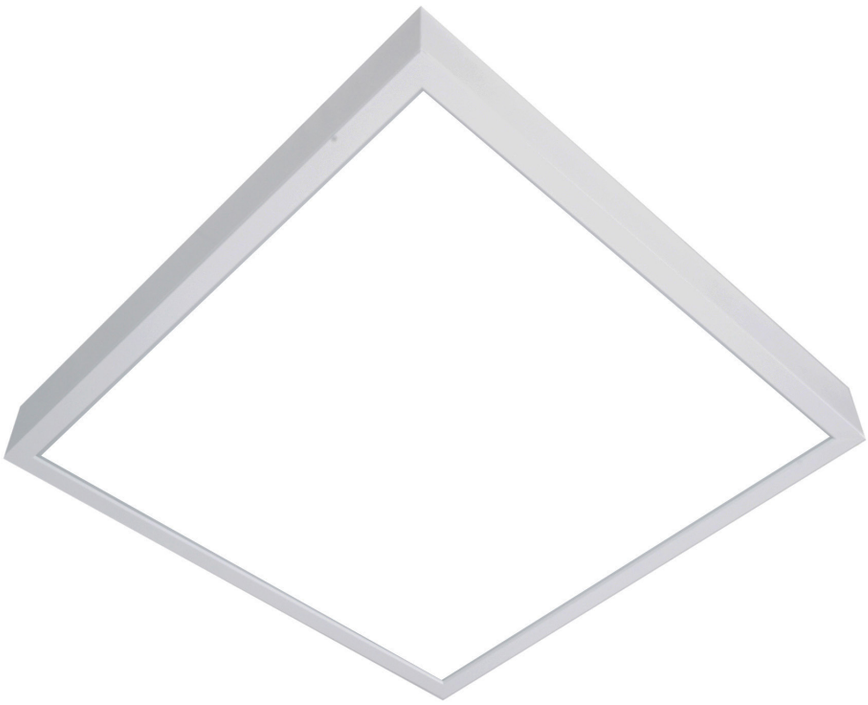



Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° - 180°
Luminous intensity (cd/klm) in level C 90° - 270°

# ODS



IP40

UP TO 175 lm/W

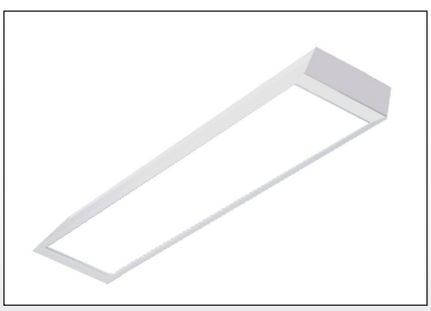
L80 B10

constant CURRENT

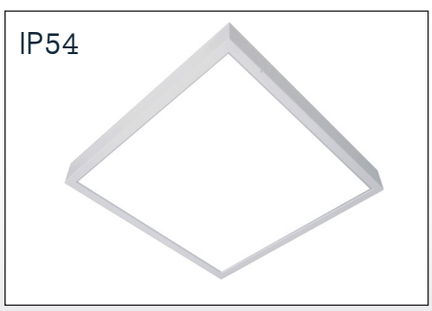
EN 15 Components

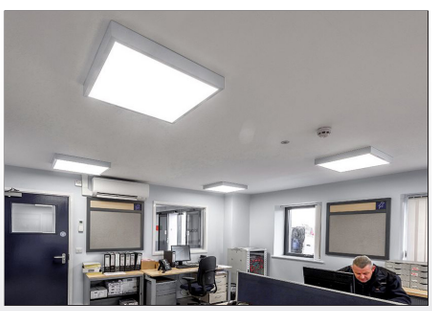
CE

3MacAdam (3SDCM)



IP54

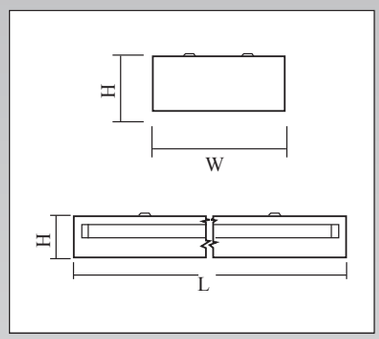




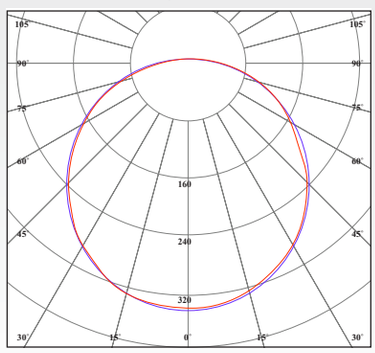
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **ODS3030–2300/18** | **ODS3060–3400/26** | **ODS6060–4000/30** | **ODS30120–6200/52** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | In trimmed sheet steel, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature UV stabilized PMMA material. Excellent optica l characteristics with high transmission, diffusion rate, special micro embossing,and free static treatment. | | | |
| Mounting Device | Surface / Suspension Mounting using Suspension Kits. | | | |
| Product Dimension (mm) | 300 x 300 x 90 | 300 x 600 x 90 | 620 x 620 x 90 | 1220 x 300 x 90 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 18W | 26W | 30W | 52W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 2300 | 3400 | 4000 | 6200 |
| CCT | 5000K(S), 4000K (O), 3000K(O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25$^0$ C | | | |
| Operating Ambient Temperature | +10 to + 55$^0$ C | | | |
| Storage Temperature | –20 to + 80$^0$ C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 1.4 Kgs | 1.4 Kgs | 2.5 Kgs | 3 Kgs |
| **VARIANTS:** | | | | |
| Available in IP54 Version. Please add IP54 to the suffix of the code. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Surface LED fixture made of Zinc coated steel, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25$^0$ C lumen maintenance, .....color temperature, IP40.



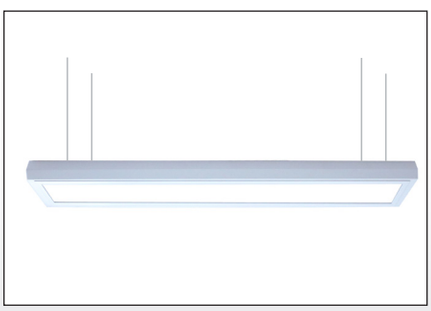

Luminous Intensity Distribution

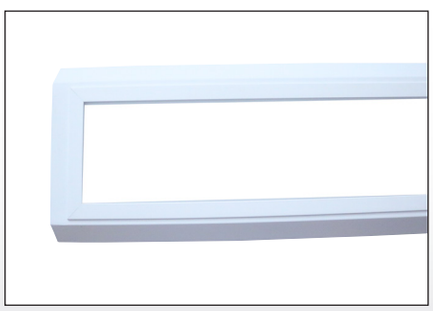



Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# ODS20

IP40 | UP TO 175 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)

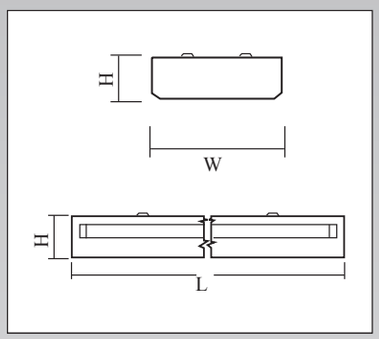




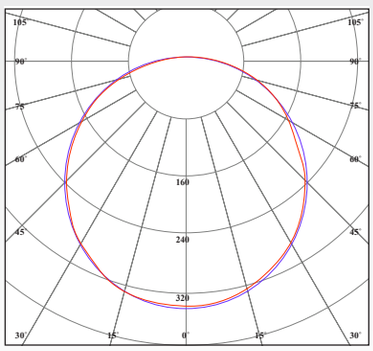
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **ODS2060–2300/17** | **ODS20120–2300/17** | **ODS20120–4500/35** | **ODS20120–6200/52** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | In trimmed sheet steel, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature UV stabilized PMMA 3–layer material. Excellent optical characteristics with high transmission, diffusion rate, special micro embossing,and free static treatment. | | | |
| Mounting Device | Surface / Suspension Mounting using Suspension Kits. | | | |
| Product Dimension (mm) | 200 x 600 x 70 | 200 x 1200 x 70 | 200 x 1200 x 70 | 200 x 1200 x 70 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 17W | 17W | 35W | 52W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 2300 | 2300 | 4500 | 6200 |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 1.8 Kgs | 3 Kgs | 3 Kgs | 3 Kgs |
| **VARIANTS:** | | | | |
| Available in IP54 Version. Please add IP54 to the suffix of the code. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Surface LED fixture made of Zinc coated steel, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP40.

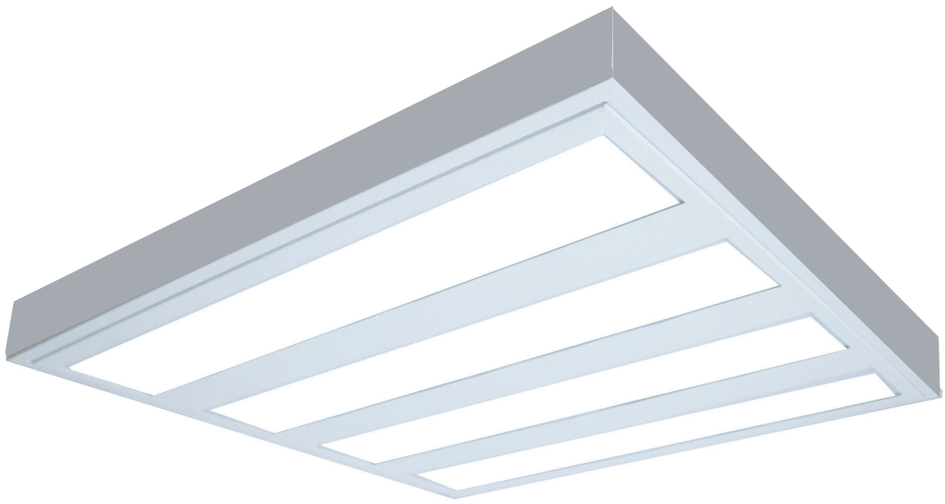



Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# ODCS



IP40

UP TO 175 lm/W

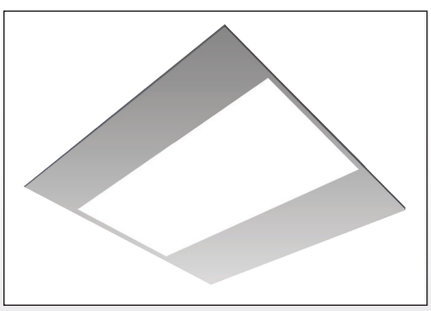
L80 B10

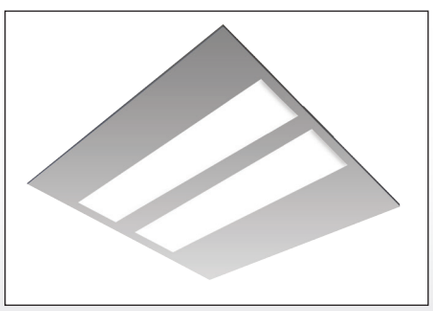
constant CURRENT

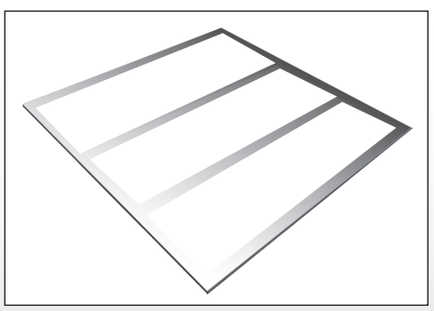
EN EC 15 Components

CE

3MacAdam (3SDCM)



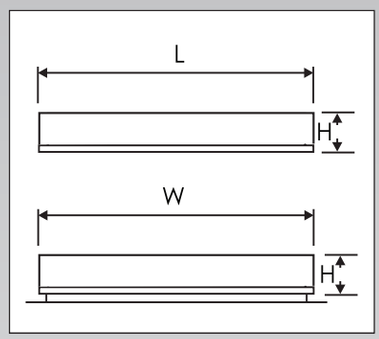




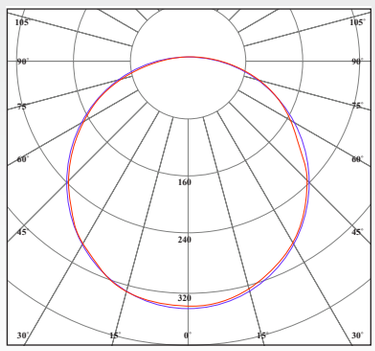
| PRODUCT CODES | ODCS1–3380/26 | ODCS2–2250/17 | ODCS3–3380/26 | ODCS4–4500/35 |
|---|---|---|---|---|
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | In trimmed sheet steel, chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature UV stabilized PMMA 3-layer material. Excellent optical characteristics with high transmission, diffusion rate, special micro embossing,and free static treatment. | | | |
| Mounting Device | Surface / Suspension Mounting | | | |
| Product Dimension (mm) | 620 x 620 x 90 | 620 x 620 x 90 | 620 x 620 x 90 | 620 x 620 x 90 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 26W | 17W | 26W | 35W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / Smart Controls | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 3200 | 2300 | 3500 | 4600 |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 2.2 Kgs | 2.2 Kgs | 2.2 Kgs | 2.2 Kgs |
| **VARIANTS:** | | | | |
| Available in 300 x 1220mm & 300 x 1520mm Linear Length also. | | | | |
| (S) Standard (O) Optional upon request to be mentioned along with code of the product. | | | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Surface LED fixture made of Zinc coated steel, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP40.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# VML

IP44

UP TO 175 lm/W

L80 B10

constant CURRENT

EN 15 Components

CE

3MacAdam (3SDCM)

| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **VML30–600/4** | **VML60–1200/9** | **VML120–2300/17** | **VML120–4600/36** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | Made of Extruded Aluminum Alloy with PC end caps and a gear tray made of 0.7mm trimmed sheet steel, surface chemically treated to corrosion class II by high pressure spraying at 2.5bar before its finally electrostatic ally powder coated with 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of stabilized extruded Polycarbonate Striped Diffuser and end caps. | | | |
| Mounting Device | Surface Mounting using Screws | | | |
| Product Dimension (mm) | 300 x 65 x 75 | 580 x 65 x 75 | 1140 x 65 x 75 | 1140 x 65 x 75 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 4W | 9W | 17W | 36W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(ii) | | | |
| Glow Wire Test | 650 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 600 | 1200 | 2300 | 2800 |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP44 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 0.8 Kg | 0.8 Kg | 1.2 Kgs | 1.5 Kgs |
| **VARIANTS:** | | | | |

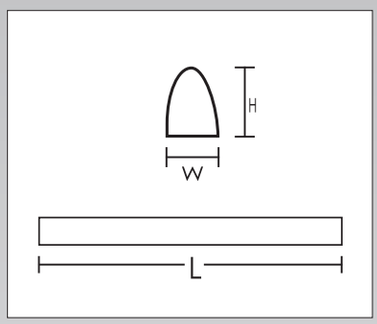
(S) – Standard Version. (O) – Optional upon request and to be mentioned along with code of the product.

Available with shaver socket also. Please add "SS" to the suffix of the code.

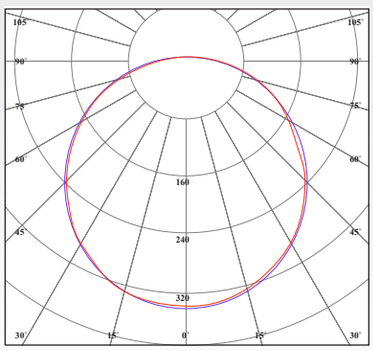
Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

## How to Specify :

.....Lm and a min. of .....lm/w Surface LED fixture made of 1.2mm 6063 extruded aluminum, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, LL80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature , IP44.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# OD

IP54

UP TO 140 lm/W

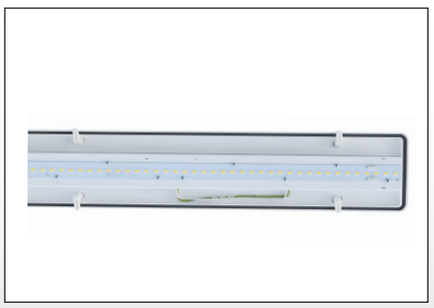
L80 B10

constant CURRENT

EN 15 Components

CE

3MacAdam (3SDCM)



| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **OD120–2300/17** | **OD120–3200/22** | **OD120–4000/30** | **OD120–5200/35** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | Injection Moulded, UV Stabilized, Polycarbonate housing and with UV Stabilized PMMA Diffuser, not to be exposed to direct sun light. | | | |
| Mounting Device | Surface using Standard Fixing Accessories Provided/Suspension Mounting using Suspension Kit. | | | |
| Product Dimension (mm) | 1160 x 159 x 109 | 1160 x 159 x 109 | 1160 x 159 x 109 | 1160 x 159 x 109 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 17W | 22W | 30W | 35W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / Smart Controls | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 2300 | 3200 | 4000 | 5200 |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP54 | | | |
| Impact in Joules | IK10 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 1.7 Kgs | 2.2 Kgs | 2.2 Kgs | 2.2 Kgs |
| **VARIANTS:** | | | | |

Available in 1500 mm Linear Length also.

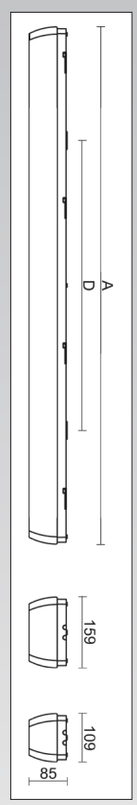
(S) – Standard Version. (O) – Optional upon request and to be mentioned along with code of the product.

Suspension Kit to be ordered separately using the code SK to the suffix of the product code.

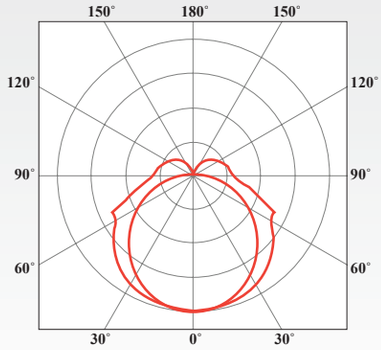
Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

## How to Specify :

.....Lm and a min. of .....lm/w Surface LED fixture made of UV Stabilized, Polycarbonate housing and UV Stabilized PMMA Diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP54.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

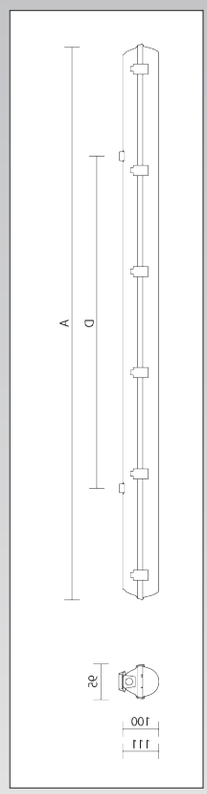
# WP

IP66 | UP TO 175 lm/W | L80 B10 | constant CURRENT | EN 15 Components | CE | 3MacAdam (3SDCM)

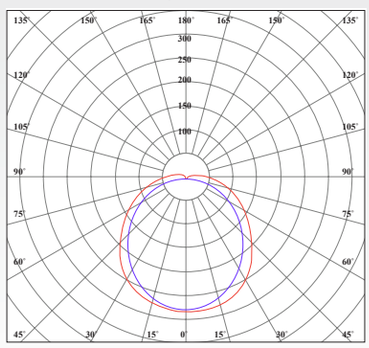
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **WP60–1200/9** | **WP120–2300/17** | **WP120–4500/35** | **WP120–6000/55** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | Injection Moulded, UV Stabilized, Polycarbonate housing with powder coated sheet steel LED / Driver mounting tray and with UV Stabilized PMMA Diffuser, not to be exposed to direct sun light. | | | |
| Mounting Device | Surface using Standard Fixing Accessories Provided / Suspension Mounting using Suspension Kit. | | | |
| Product Dimension (mm) | 662 x 95 x 100 | 1272 x 95 x 100 | 1272 x 95 x 100 | 1272 x 125 x 100 |
| Product Color | RAL7002 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 9W | 17W | 35W | 55W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / Smart Controls | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 1200 | 2300 | 4500 | 6000 |
| CCT | 5000K (S) – 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP66 | | | |
| Impact in Joules | IK09 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 2.2 Kgs | | | |
| **VARIANTS:** | | | | |
| Available in 1500 mm Linear Length also. | | | | |
| (S) – Standard Version. (O) – Optional upon request and to be mentioned along with code of the product. | | | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Surface LED fixture made of injected molded PC body, powder coated to corrosion class II metal tray, with injected molded PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP66.



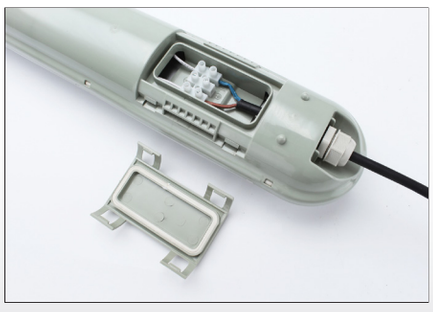

Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# CWP

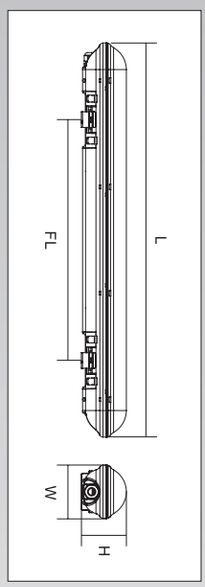
IP66 | UP TO 175 lm/W | L80 B10 | constant CURRENT | EN 15 Components | CE | 3MacAdam (3SDCM)



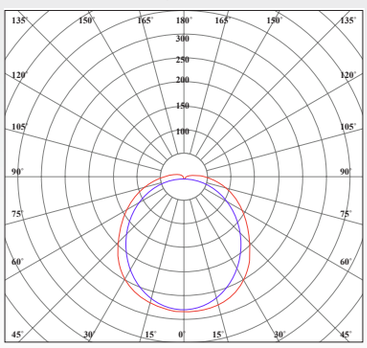
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **CWP-60 1210/12** | **CWP-60 1825/17** | **CWP-120 2432/25** | **CWP-120 4000/40** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics: | Injection Moulded, UV Stabilized, Polycarbonate housing with powder coated sheet steel LED / Driver mounting tray and with UV Stabilized Clip-less PMMA Diffuser, not to be exposed to direct sun light. | | | |
| Mounting Device | Surface using Standard Fixing Accessories Provided / Suspension Mounting using Suspension Kit. | | | |
| Product Dimension (mm) | 631 x 86 x 70 | 631 x 86 x 70 | 1231 x 86 x 70 | 1231 x 86 x 70 |
| Product Color | RAL7002 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220-240V AC | | | |
| Frequency | 50-60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 12W | 17W | 25W | 40W |
| Power Consumption Tolerance | +/-10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1-10V / Smart Controls | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 1210 | 1825 | 2432 | 4000 |
| CCT | 5000K (S) - 4000K / 3000K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 60000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | -20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP66 | | | |
| Impact in Joules | IK09 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 1.85 Kgs | | | |
| **VARIANTS:** | | | | |
| Available in 1500 mm Linear Length also. | | | | |
| (S) - Standard Version. (O) - Optional upon request and to be mentioned along with code of the product. | | | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Surface LED fixture made of injected molded PC body, powder coated to corrosion class II metal tray, with injected molded PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 60000hrs @ 25° C lumen maintenance, .....color temperature, IP66.



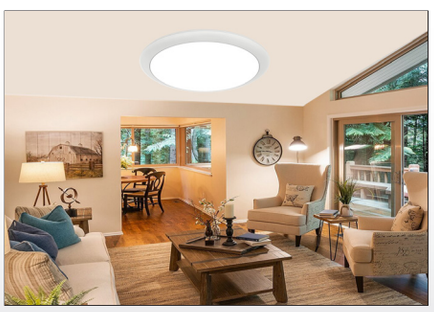

Luminous Intensity Distribution



Luminous intensity (cd/klm) in level C 0° - 180°
Luminous intensity (cd/klm) in level C 90° - 270°

# CSU

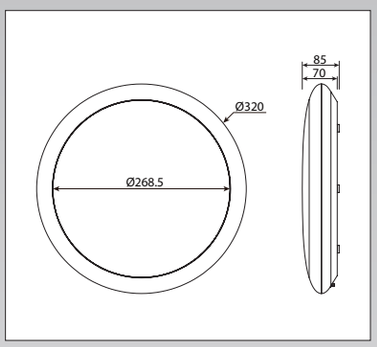
IP65 | UP TO 182 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)



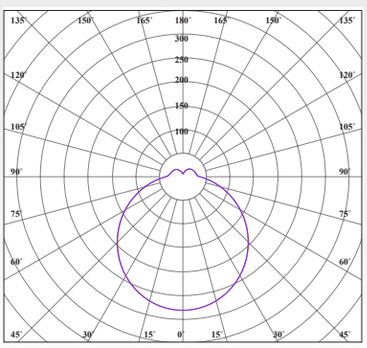
| PRODUCT CODES | | |
|---|---|---|
| | **CSU–2100/18** | **CSU–2700/25** |
| **CONSTRUCTION:** | | |
| Housing & Optics: | Made of Polycarbonate body, all stabilized and UV protected,. Optics made of high temperature Polycarbonate opal diffuser, not to be exposed to direct sun light. | |
| Mounting Device | Surface Mounting. | |
| Product Dimension (mm) (DXH) | 320 x 85 | |
| Product Color | RAL9010 | |
| **ELECTRICAL:** | | |
| Input Voltage | 220–240V AC | |
| Frequency | 50–60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 18W | 25W |
| Power Consumption Tolerance | +/–10% | |
| Protection Class | Safety Class(I) | |
| Glow Wire Test | 850 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | Optional | |
| Dimming Options (Variant) | Dali / 1–10V | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 2100 | 2700 |
| CCT | 5000K (S) – 4000K / 3000K (O) | |
| CRI | >80 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25$^0$ C | |
| Operating Ambient Temperature | +10 to + 40$^0$ C | |
| Storage Temperature | –20 to + 80$^0$ C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP65 | |
| Impact in Joules | IK09 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 90 deg | |
| CE Markings | Yes | |
| Net Weight | 1.8 Kgs | |
| **VARIANTS:** | | |
| (S) standard (O) Optional. | | |
| Required variants to be added to the suffix of the code of the fixture. | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | |

## How to Specify :

.....Lm and a min. of .....lm/w Surface LED fixture made of injected molded PC body, powder coated to corrosion class II metal tray, with injected molded PC diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25$^0$ C lumen maintenance, .....color temperature, IP65.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

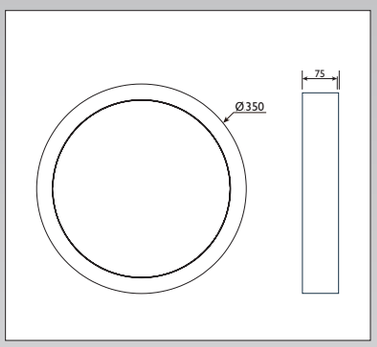
# CSG

IP40 | UP TO 175 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)

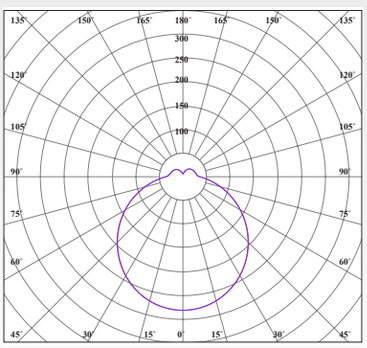
| PRODUCT CODES | | |
|---|---|---|
| | **CSG-2900/27** | **CSG-4000/40** |
| **CONSTRUCTION:** | | |
| Housing & Optics: | Made of Aluminum Alloy, surface chemically treated to corrosion class II by high pressure spraying at 2.5bar before its finally electrostatic ally powder coated with 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of high temperature UV stabilized PMMA 3-layer material. Excellent optical characteristics with high transmission, diffusion rate, special micro embossing,and free static treatment. | |
| Mounting Device | Surface Mounting. | |
| Product Dimension (mm) (DXH) | 350 x 75 | 400 x 75 |
| Product Color | RAL9016 | |
| **ELECTRICAL:** | | |
| Input Voltage | 220-240V AC | |
| Frequency | 50-60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 27W | 40W |
| Power Consumption Tolerance | +/-10% | |
| Protection Class | Safety Class(I) | |
| Glow Wire Test | 850 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | Optional | |
| Dimming Options (Variant) | Dali / 1-10V | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 2900 | 4000 |
| CCT | 5000K (S) - 4000K / 3000K (O) | |
| CRI | >80 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25$^0$ C | |
| Operating Ambient Temperature | +10 to + 40$^0$ C | |
| Storage Temperature | -20 to + 80$^0$ C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP40 | |
| Impact in Joules | IK03 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 90 deg | |
| CE Markings | Yes | |
| Net Weight | 2.2 Kgs | |
| **VARIANTS:** | | |
| (S) standard (O) Optional. | | |
| Required variants to be added to the suffix of the code of the fixture. | | |
| Customised dia available on request. | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | |

## How to Specify :

.....Lm and a min. of .....lm/w Surface LED fixture made of Aluminum Alloy, powder coated to corrosion class II with micro embossing PMMA diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25$^0$ C lumen maintenance, .....color temperature, IP40.




Luminous Intensity Distribution

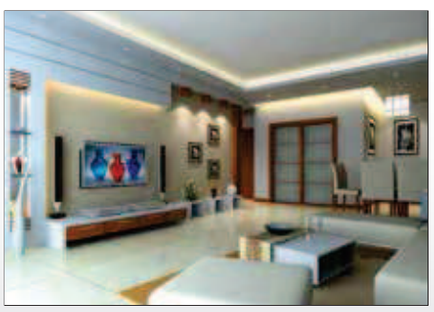


Luminous intensity (cd/klm) in level C 0° - 180°
Luminous intensity (cd/klm) in level C 90° - 270°

# DOWNLIGHTS

# RSPD

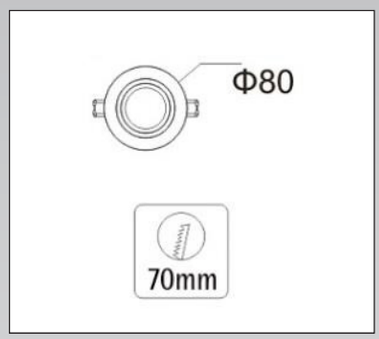
IP40 | UP TO 182 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)



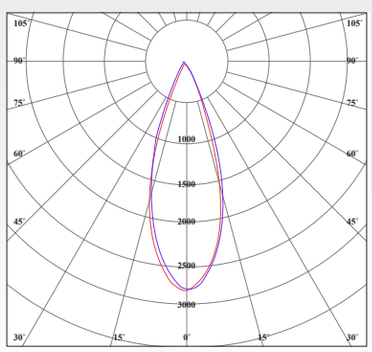
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **RSPD-600/5** | **RSPD-750/7** | **RSPD-1000/9** | **RSPD-1200/11** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electro-statically powder coated with a 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of high purity anodized specular spun aluminium, and glare control glass diffuser. | | | |
| Mounting Device | Recess Mounting using the spring clips. | | | |
| Product Dimension (mm) D x H x RC | 80 x 80 x 70 | 80 x 80 x 70 | 80 x 100 x 70 | 80 x 100 x 70 |
| Product Colour | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220-240V AC | | | |
| Frequency | 50-60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 5W | 7W | 9W | 11W |
| Power Consumption Tolerance | +/-10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1-10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 600 | 750 | 1000 | 1200 |
| CCT | 5000K (S) - 4000K / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | -10 to + 40° C | | | |
| Storage Temperature | -20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK06 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 24 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 0.250 Kgs | 0.250 Kgs | 0.250 Kgs | 0.400 Kgs |
| **VARIANTS:** | | | | |
| Available in 38° and 60° Beam Angles also - Code+Beam Angle Code. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II metal tray, with low glare optics and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP40.



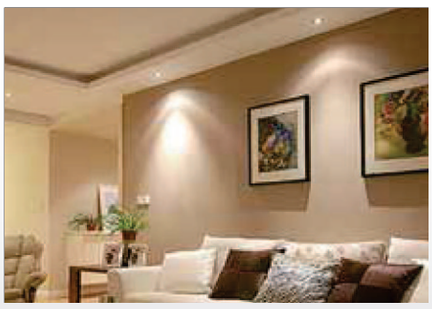

Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° - 180°
Luminous intensity (cd/klm) in level C 90° - 270°

# SSPD

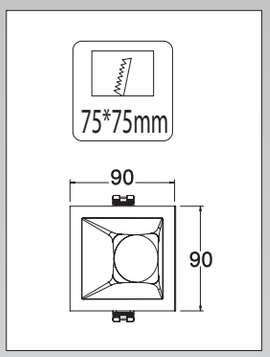
IP40 | UP TO 182 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)



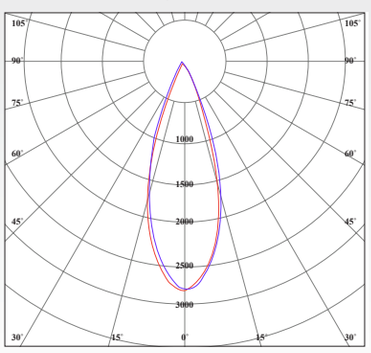
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **SSPD–600/5** | **SSPD–750/7** | **SSPD–1000/9** | **SSPD–1200/11** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electro–statically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high purity anodized specular spun aluminum, and glare control glass diffuser. | | | |
| Mounting Device | Recess Mounting using the spring clips. | | | |
| Product Dimension (mm) D x H x RC | 90 x 80 x 75 | 90 x 80 x 75 | 90 x 80 x 75 | 110 x 85 x 98 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 5W | 7W | 9W | 11W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / Triac | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 600 | 750 | 1000 | 1200 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | –10 to + 40° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK06 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 24 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 0.250 Kgs | 0.250 Kgs | 0.250 Kgs | 0.400 Kgs |
| **VARIANTS:** | | | | |
| Available in 38° and 60° Beam Angles also – Code+Beam Angle Code. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II metal tray, with low glare optics and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C maintenance, .....color temperature, IP40.



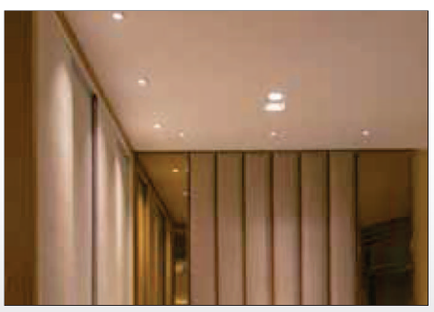

Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# SLD

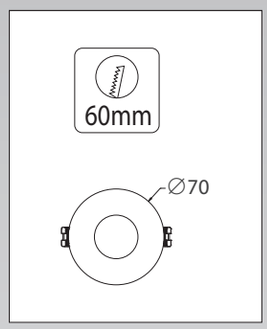
IP40 | UP TO 182 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)



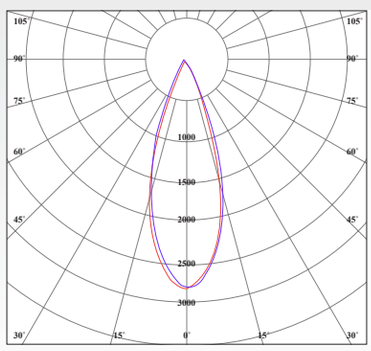
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **SLD-600/5** | **SLD-750/7** | **SLD-1000/9** | **SLD-1200/11** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electro-statically powder coated with a 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of high purity anodized specular spun aluminum, and glare control glass diffuser. | | | |
| Mounting Device | Recess Mounting using the spring clips. | | | |
| Product Dimension (mm) D x H x RC | 70 x 60 x 60 | 70 x 60 x 60 | 70 x 80 x 60 | 70 x 80 x 60 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220-240V AC | | | |
| Frequency | 50-60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 5W | 7W | 9W | 11W |
| Power Consumption Tolerance | +/-10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1-10V / Triac | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 615 | 750 | 1000 | 1200 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | -10 to + 40° C | | | |
| Storage Temperature | -20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK06 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 38 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 0.250 Kgs | 0.250 Kgs | 0.250 Kgs | 0.400 Kgs |
| **VARIANTS:** | | | | |
| Available in 38° and 60° Beam Angles also – Code+Beam Angle Code. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II metal tray, with low glare optics and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C maintenance, .....color temperature, IP40.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# IPDL

IP65

UP TO 182 lm/W

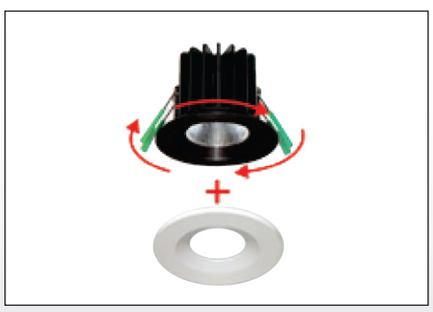
L80 B10

constant CURRENT

ENEC 15 Components

CE

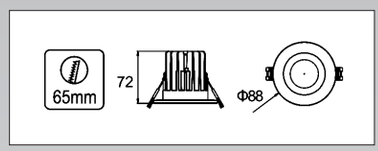
3MacAdam (3SDCM)



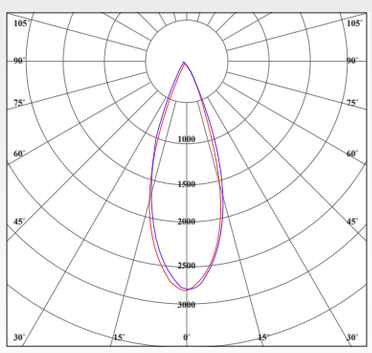
| PRODUCT CODES | | | |
|---|---|---|---|
| | **IPDL–600/5** | **IPDL–750/7** | **IPDL–1000/9** |
| **CONSTRUCTION:** | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high purity anodized specular spun aluminum, and glare control glass diffuser. Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying a t 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of high purity anodized specular spun aluminum, and glare control glass diffuser. | | |
| Mounting Device | Recess Mounting using the spring clips. | | |
| Product Dimension (mm) D x H x RC | 88 x 72 x 65 | 88 x 72 x 65 | 88 x 72 x 65 |
| Product Color | RAL9016 | | |
| **ELECTRICAL:** | | | |
| Input Voltage | 220–240V AC | | |
| Frequency | 50–60 Hz | | |
| Power Factor | > 0.90 | | |
| Power Consumption | 5W | 7W | 9W |
| Power Consumption Tolerance | +/–10% | | |
| Protection Class | Safety Class(I) | | |
| Glow Wire Test | 850 deg C /30 Sec | | |
| **CONTROLS:** | | | |
| Dimmable | Optional | | |
| Dimming Options (Variant) | Dali / 1–10V / Triac | | |
| **PERFORMANCE:** | | | |
| Luminaire Lumens | 600 | 750 | 1000 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | |
| CRI | >80 | | |
| Initial Chromacity | SCDM <3 | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25$^0$ C | | |
| Operating Ambient Temperature | –10 to + 40$^0$ C | | |
| Storage Temperature | –20 to + 80$^0$ C | | |
| Ripple on Modules | <3% | | |
| **GENERAL:** | | | |
| Ingress Protection | IP65 | | |
| Impact in Joules | IK06 | | |
| Replaceable Modules | Yes | | |
| Luminaire Beam Angle | 38 deg | | |
| CE Markings | Yes | | |
| Net Weight | 0.250 Kgs | | |
| **VARIANTS:** | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | |
| Suspension Kit to be ordered separately using the code SK to the suffix of the product code. | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II metal tray, with low glare optics and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25$^0$ C maintenance, .....color temperature, IP40.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

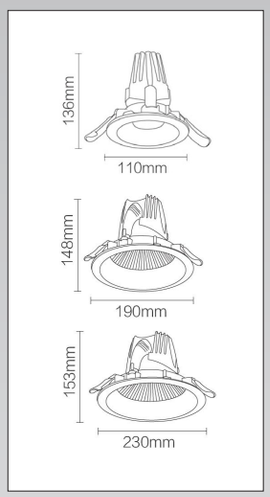
# ORDL

IP44 | UP TO 182 lm/W | L80 B10 | constant CURRENT | EN 61347-2-13 15 Components | CE | 3MacAdam (3SDCM)

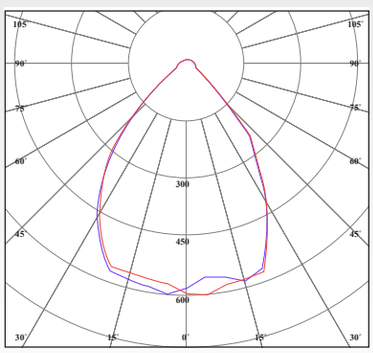
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **ORDL110–1000/10** | **ORDL190–2340/19** | **ORDL190–3330/28** | **ORDL230–4200/35** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of high purity anodized specular spun aluminum, and glare control glass diffuser. | | | |
| Mounting Device | Recess Mounting with Spring Clips | | | |
| Product Dimension (mm) D x H x RC | 110 x 136 x 100 | 190 x 148 x 175 | 230 x 153 x 210 | 230 x 153 x 210 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 10W | 19W | 28W | 35W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / SMART CONTROLS | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 1000 | 2340 | 3330 | 4200 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP44 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 1.3 Kgs | 1.3 Kgs | 1.5 Kgs | 1.5 Kgs |
| Glare Rating | <23 | | | |
| **VARIANTS:** | | | | |
| IP54 version available upon Request. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II metal tray, with low glare optics and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP44.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# DDL

IP44

UP TO 182 lm/W

L80 B10

constant CURRENT

ENEC 15 Components

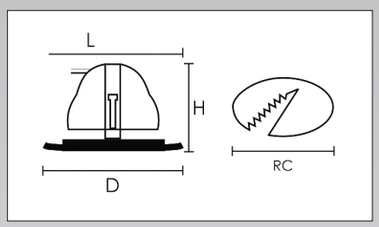
CE

3MacAdam (3SDCM)

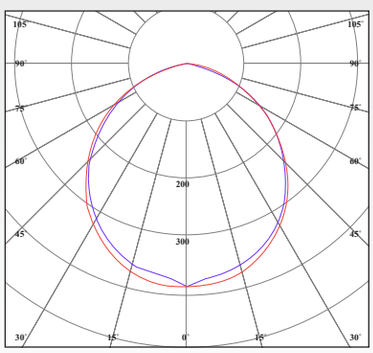
| PRODUCT CODES | DDL17–1500/13 | DDL17–2192/18 | DDL22–2632/21 | DDL22–3550/29 |
|---|---|---|---|---|
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of white spun aluminum reflector, and glare control glass diffuser. | | | |
| Mounting Device | Recess Mounting with Spring Clips | | | |
| Product Dimension (mm) D x H x RC | 170 x 60 x 160 | 170 x 60 x 160 | 220 x 60 x 210 | 220 x 60 x 210 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 13W | 18W | 21W | 29W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 1500 | 2192 | 2632 | 3550 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP44 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 0.800 Kgs | 0.800 Kgs | 1.10 Kgs | 1.20 Kgs |
| **VARIANTS:** | | | | |
| Available in IP54 & IP65 Version also. CCT– (S) Standard (O) Optional. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II metal tray, with white spun aluminum reflector and glare control glass diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP44.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# EDL

IP54

UP TO 182 lm/W

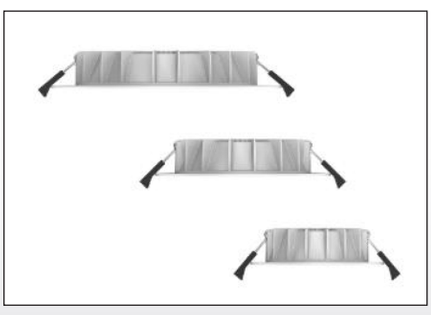
L80 B10

constant CURRENT

EN EC 15 Components

CE

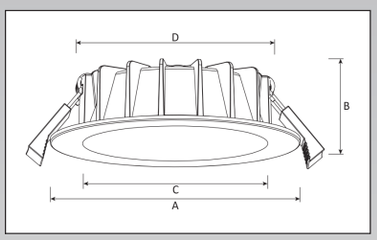
3MacAdam (3SDCM)



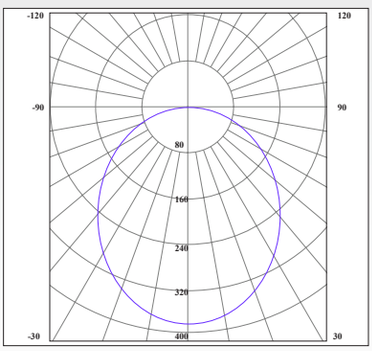
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **EDL110–1100/12** | **EDL145–2000/18** | **EDL190–2600/25** | **EDL225–3600/35** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo–hardened polyurethane powder, stabilized and UV protected. Optics made of white spun aluminum, and glare control glass diffuser. | | | |
| Mounting Device | Recess Mounting with Spring Clips | | | |
| Product Dimension (mm) D x H x RC | 110 x 30 x 95 | 145 x 30 x 130 | 190 x 30 x 170 | 225 x 34 x 210 |
| Product Color | RAL9010 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 12W | 18W | 25W | 35W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / TRIAC | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 1150 | 2000 | 27500 | 3600 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <4 | | | |
| Lumen Maintenance | L80 / B10 > 60000hrs @ 25$^0$ C | | | |
| Operating Ambient Temperature | +10 to + 40$^0$ C | | | |
| Storage Temperature | –20 to + 60$^0$ C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP54 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 0.25 Kgs | 0.35 Kgs | 0.50 Kgs | 0.65 Kgs |
| **VARIANTS:** | | | | |
| IP54 & IP65 versions available upon Request. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II metal tray, with low glare optics and ENEC certified LED modules & driver, L80 / B10 > 60000hrs @ 25$^0$ C lumen maintenance, .....color temperature, IP54.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# DDLD

IP44

UP TO 182 lm/W

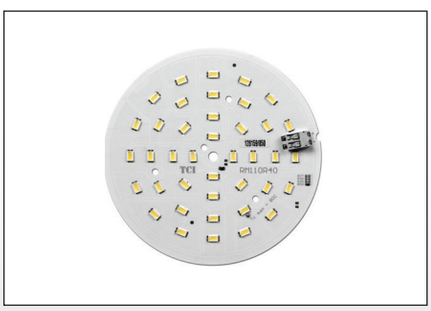
L80 B10

constant CURRENT

ENEC 15 Components

CE

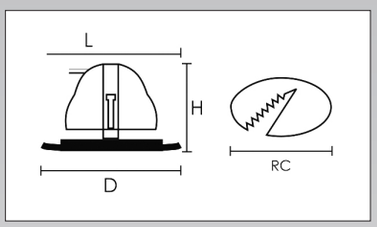
3MacAdam (3SDCM)



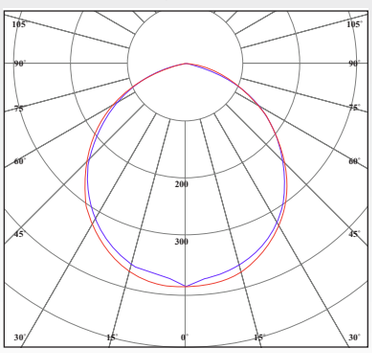
| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **DDLD190–1500/13** | **DDLD190–2192/18** | **DDLD230–2632/21** | **DDLD230–3500/29** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of white spun aluminum reflector, and glare control glass diffuser | | | |
| Mounting Device | Recess Mounting with Spring Clips | | | |
| Product Dimension (mm) D x H x RC | 190 x 95 x 175 | 190 x 95 x 175 | 230 x 95 x 215 | 230 x 95 x 215 |
| Product Color | RAL9016 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 13W | 18W | 21W | 29W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / SMART CONTROLS | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 1500 | 2192 | 2632 | 3500 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP44 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 1.00 Kgs | 1.00 Kgs | 1.30 Kgs | 1.30 Kgs |
| Glare Rating | <19 | | | |
| **VARIANTS:** | | | | |
| Available in Different Beam Angles – Code + Beam Angle Code | | | | |
| IP54 Version available upon Request. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II metal tray, with low glare optics and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, .....color temperature, IP44 .

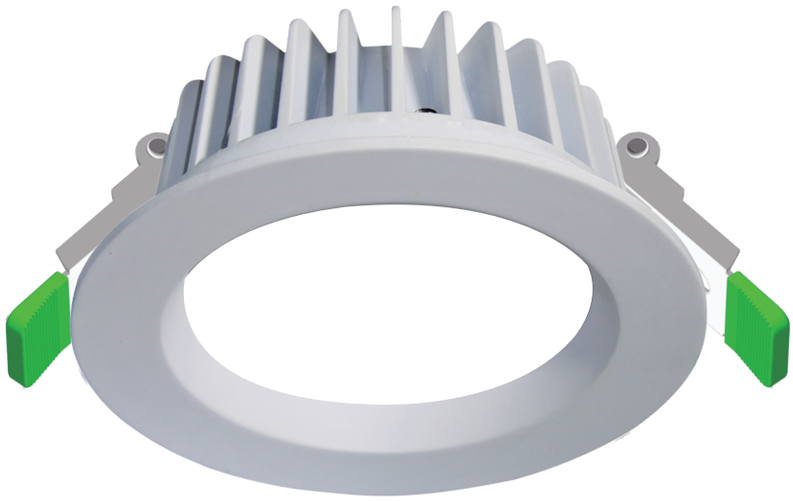



Luminous Intensity Distribution

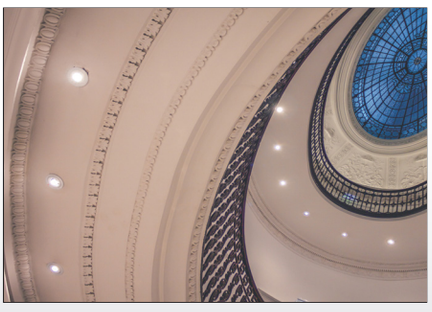



Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# ADL-53



IP54 | UP TO 182 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)

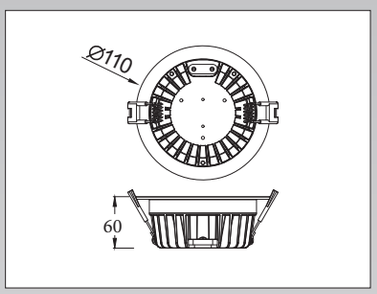


| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **ADL 533 – 900/10** | **ADL 534 – 1350/15** | **ADL 535 – 1650/18** | **ADL 538 – 2650/29** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of PS, LED diffuser. | | | |
| Mounting Device | Recess Mounting with Spring Clips | | | |
| Product Dimension (mm) D x H x RC | 110 x 60 x 90 | 140 x 82 x 125 | 160 x 82 x 145 | 230 x 106 x 200 |
| Product Color | RAL9010 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 10W | 15W | 18W | 29W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / SMART CONTROLS | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 900 | 1350 | 1650 | 2650 |
| CCT | 4000K (S) / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 60000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP54 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 0.200 Kgs | 0.370 Kgs | 0.570 Kgs | 0.700 Kgs |

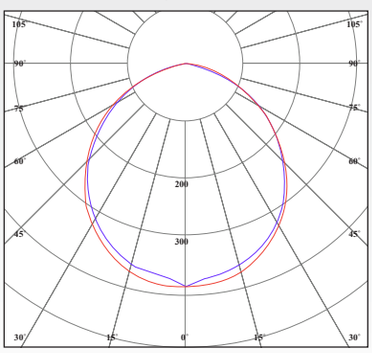
Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II with low glare optics, L80 / B10 > 60000hrs @ 25° C lumen maintenance, .....color temperature, IP54.

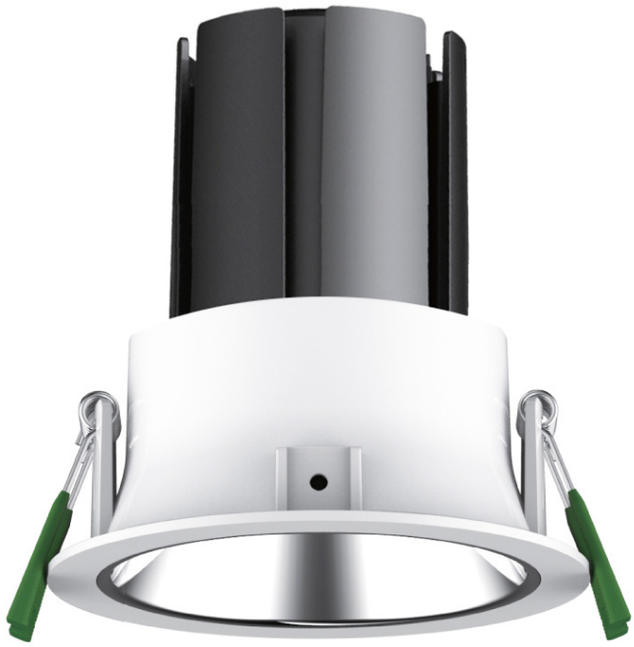



Luminous Intensity Distribution

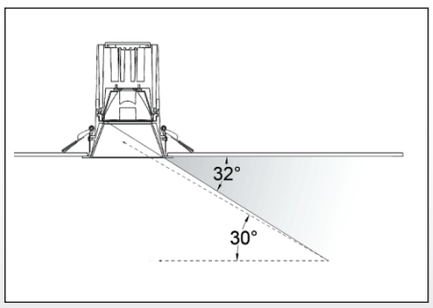


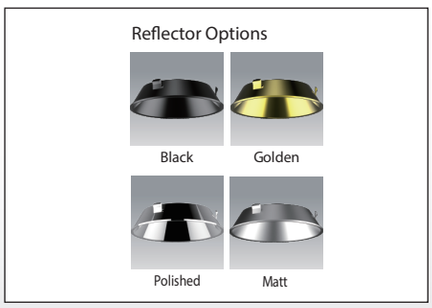

Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# ADL-32



IP40 | UP TO 182 lm/W | L80 B10 | constant CURRENT | EN EC 15 Components | CE | 3MacAdam (3SDCM)



| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **ADL 32 – 1350/15** | **ADL 32 – 1650/18** | **ADL 32 – 1980/22** | **ADL 32 – 2160/24** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of Polished Aluminum Refelctor. | | | |
| Mounting Device | Recess Mounting with Spring Clips | | | |
| Product Dimension (mm) D x H x RC | 102 x 131 x 90 | | | |
| Product Color | RAL9010 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 15W | 18W | 22W | 24W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / SMART CONTROLS | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 1350 | 1650 | 1980 | 2160 |
| CCT | 4000K (S) / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 60000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 0.500 Kgs | | | |

Available in 18° 24° 38° 55° Beam Angles – Code + Beam Angle Code

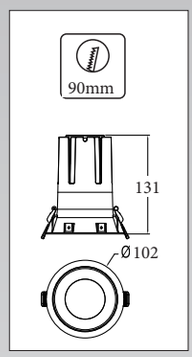
IP54 Version available upon Request. Bigger dia with higher lumens are available from same family.

Required variants to be added to the suffix of the code of the fixture.

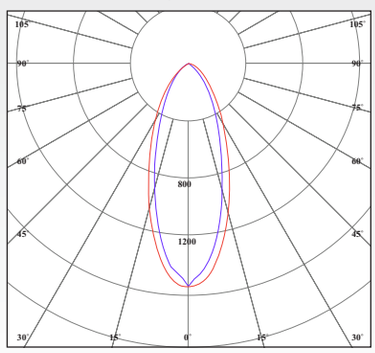
Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II with low glare optics, L80 / B10 > 60000hrs @ 25° C lumen maintenance, .....color temperature, IP40.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# ADL-07

IP40

UP TO 182 lm/W

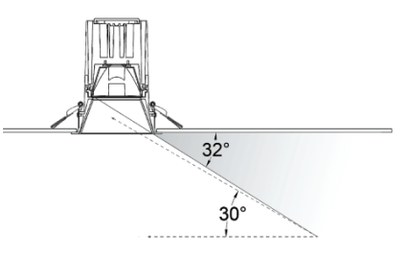
L80 B10

constant CURRENT

EN EC 15 Components

CE

3MacAdam (3SDCM)




Reflector Options

| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **ADL 07 – 1650/18** | **ADL 07 – 1980/22** | **ADL 07 – 2160/24** | **ADL 07 – 2520/28** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of cast aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of Polished Aluminum Refelctor. | | | |
| Mounting Device | Recess Mounting with Spring Clips | | | |
| Product Dimension (mm) D x H x RC | 140 x 169 x 125 | | | |
| Product Color | RAL9010 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 18W | 22W | 24W | 28W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1–10V / SMART CONTROLS | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 1650 | 1980 | 2160 | 2520 |
| CCT | 4000K (S) / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 60000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP40 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 0.500 Kgs | | | |

Available in 15° 24° 38° Beam Angles – Code + Beam Angle Code

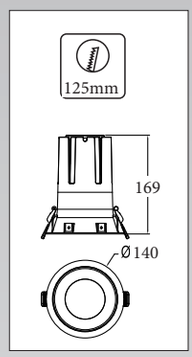
IP54 Version available upon Request. Bigger dia with higher lumens are available from same family.

Required variants to be added to the suffix of the code of the fixture.

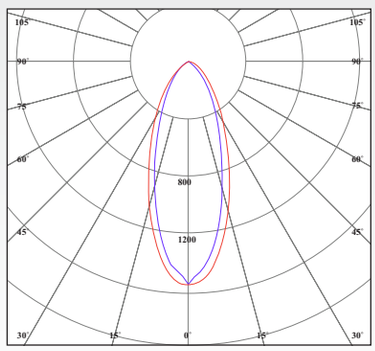
Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of die cast aluminum frame, powder coated to corrosion class II with low glare optics, L80 / B10 > 60000hrs @ 25° C lumen maintenance, .....color temperature, IP40.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# GDL-2

IP54

UP TO 182 lm/W

L80 B10

constant CURRENT

EN 15 Components

CE

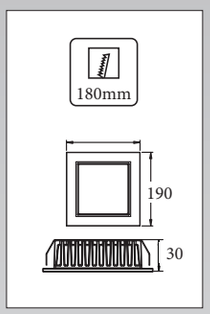
3MacAdam (3SDCM)

| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **GDL-2-990/11** | **GDL2-1710/18** | **GDL2-2640/24** | **GDL2-3840/32** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of aluminum frame chemically treated surface to corrosion class II by high pressure spraying at 2.5 bar before its finally electrostatically powder coated with a 60 micron thermo-hardened polyurethane powder, stabilized and UV protected. Optics made of PS, LED diffuser. | | | |
| Mounting Device | Recess Mounting with Spring Clips | | | |
| Product Dimension (mm) D x H x RC | 110 x 110 x 90 | 110 x 110 x 90 | 300 x 90 x 290 | 300 x 90 x 290 |
| Product Color | RAL9010 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220-240V AC | | | |
| Frequency | 50-60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 11W | 18W | 24W | 32W |
| Power Consumption Tolerance | +/-10% | | | |
| Protection Class | Safety Class(II) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | Optional | | | |
| Dimming Options (Variant) | Dali / 1-10V / SMART CONTROLS | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 990 | 1710 | 2640 | 3840 |
| CCT | 5000K (S) - 4000K / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L80 / B10 > 60000hrs @ 25° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | -20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP54 | | | |
| Impact in Joules | IK03 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 0.200 Kgs | 0.370 Kgs | 0.700 Kgs | 0.700 Kgs |

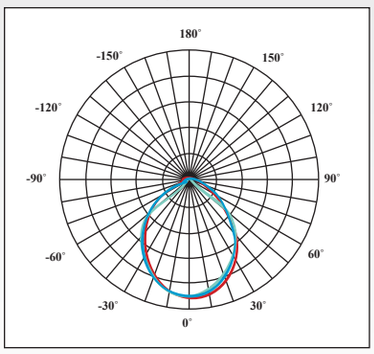
Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

## How to Specify :

.....Lm and a min. of .....lm/w Recessed LED downlight fixture made of aluminum frame, powder coated to corrosion class II metal tray, with low glare optics and ENEC certified LED modules & driver, L80 / B10 > 60000hrs @ 25° C lumen maintenance, .....color temperature, IP40.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° - 180°
Luminous intensity (cd/klm) in level C 90° - 270°

# INDUSTRIAL & OUTDOORS

# FLL

IP66 | UP TO 179 lm/W | L90 B10 | constant CURRENT | EN 61347-2-13 15 Components | CE | 3MacAdam (3SDCM)

| PRODUCT CODES | | | |
|---|---|---|---|
| | **FLL-5050/41** | **FLL-10100/82** | **FLL-15200/123** |
| **CONSTRUCTION:** | | | |
| Housing & Optics. | Made of high purity 6063 anodized aluminum alloy, chemically treated, and polyester powder coated. Optics made of PMMA suitable for operations under high temperature , 90 degree distribution beam angle as standard with excellent transmission efficiency of 93 %, high thermal stability and UV resistant and pro tected with thermally treated flat toughed glass. | | |
| Mounting Device | Adjustable Mounting Bracket | | |
| Product Dimension (mm) L x W x H | 340 x 404 x 70 | 340 x 404 x 70 | 480 x 404 x 70 |
| Product Color | RAL7042 | | |
| **ELECTRICAL:** | | | |
| Input Voltage | 220-240V AC | | |
| Frequency | 50-60 Hz | | |
| Power Factor | > 0.90 | | |
| Power Consumption | 41W | 82W | 123W |
| Power Consumption Tolerance | +/-10% | | |
| Protection Class | Safety Class(I) | | |
| Glow Wire Test | 850 deg C /30 Sec | | |
| **CONTROLS:** | | | |
| Dimmable | NA | | |
| Dimming Options (Variant) | Dali / 1-10V | | |
| **PERFORMANCE:** | | | |
| Luminaire Lumens | 5050 | 10100 | 15200 |
| CCT | 5000K (S) - 4000K / 3000K / 2700K (O) | | |
| CRI | >70 | | |
| Initial Chromacity | SCDM <3 | | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | | |
| Operating Ambient Temperature | +10 to + 55° C | | |
| Storage Temperature | -20 to + 80° C | | |
| Ripple on Modules | <3% | | |
| **GENERAL:** | | | |
| Ingress Protection | IP66 | | |
| Impact in Joules | IK09 | | |
| Replaceable Modules | Yes | | |
| Luminaire Beam Angle | 90 deg | | |
| CE Markings | Yes | | |
| Net Weight | 6 Kgs | 6 Kgs | 10 Kgs |
| **VARIANTS:** | | | |

Available in Different Beam Angles for specific design requirements/applications. Please refer to Page 113.

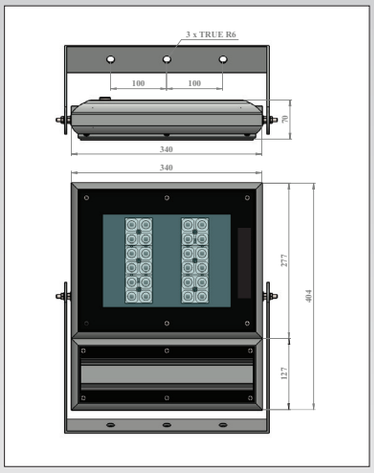
Required variants to be added to the suffix of the code of the fixture. (S)- Standard (O)- Option.

Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

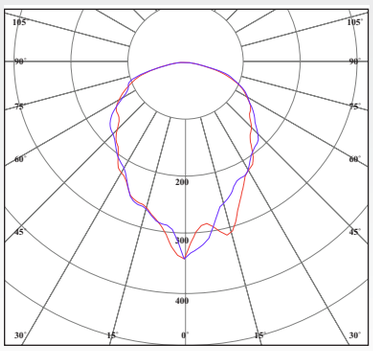
## How to Specify :

.....Lm and a min. of .....lm/w LED Floodlight made of 6063 extruded aluminum, powder coated to corrosion class II with PMMA lenses, thermally treated toughened glass, and ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65° C lumen maintenance, ..... color temperature, IP66 and infull conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° - 180°
Luminous intensity (cd/klm) in level C 90° - 270°

# FLL

IP66

UP TO 179 lm/W

L90 B10

constant CURRENT

EN 15 Components

CE

3MacAdam (3SDCM)

| PRODUCT CODES | | |
|---|---|---|
| | **FLL–20200/163** | **FLL–25200/204** |
| **CONSTRUCTION:** | | |
| Housing & Optics. | Made of high purity 6063 anodized aluminum alloy, chemically treated, and polyester powder coated. Optics made of PMMA suitable for operations under high temperature , 90 degree distribution beam angle as standard with excellent transmission efficiency of 93 %, high thermal stability and UV resistant and pro tected with thermally treated flat toughed glass. | |
| Mounting Device | Adjustable Mounting Bracket | |
| Product Dimension (mm) L x W x H | 580 x 404 x 70 | 580 x 404 x 70 |
| Product Color | RAL7042 | |
| **ELECTRICAL:** | | |
| Input Voltage | 220–240V AC | |
| Frequency | 50–60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 163W | 204W |
| Power Consumption Tolerance | +/–10% | |
| Protection Class | Safety Class(I) | |
| Glow Wire Test | 850 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | NA | |
| Dimming Options (Variant) | Dali / 1–10V | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 20200 | 25200 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | |
| CRI | >70 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | |
| Operating Ambient Temperature | +10 to + 55° C | |
| Storage Temperature | –20 to + 80° C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP66 | |
| Impact in Joules | IK09 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 90 deg | |
| CE Markings | Yes | |
| Net Weight | 7 Kgs | |
| **VARIANTS:** | | |

Available in Different Beam Angles for specific design requirements/applications. Please refer to Page 113.

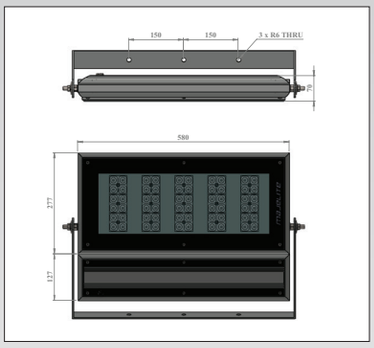
Required variants to be added to the suffix of the code of the fixture. (S)– Standard (O)– Option.

Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

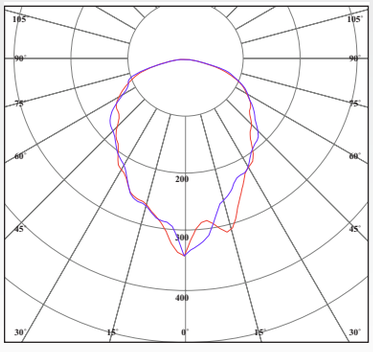
## How to Specify :

.....Lm and a min. of .....lm/w LED Floodlight made of 6063 extruded aluminum, powder coated to corrosion class II with PMMA lenses, thermally treated toughened glass, and ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65° C lumen maintenance, ..... color temperature, IP66 and infull conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# FLL-H

IP66

UP TO 179 lm/W

L90 B10

constant CURRENT

EN 15 Components

CE

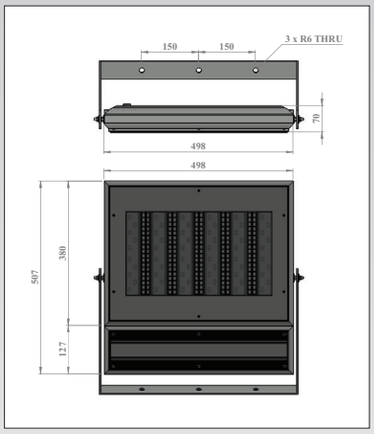
3MacAdam (3SDCM)

| PRODUCT CODES | | | | | |
|---|---|---|---|---|---|
| | **FLLH–30000/250** | **FLLH–35000/290** | **FLLH–40000/330** | **FLLH–45000/370** | **FLLH–55000/455** |
| **CONSTRUCTION:** | | | | | |
| Housing & Optics. | Made of high purity 6063 anodized aluminum alloy , chemically treated, and polyester powder coated. Optics made of PMMA suitable for operations under high temperature, 90 degree distribution beam angle as standard with excellent transmission efficiency of 93%, high thermal stability and UV resistant. | | | | |
| Mounting Device | Adjustable Mounting Bracket | | | | |
| Product Dimension (mm) L x W x H | 498 x 507 x 70 | 568 x 507 x 70 | 638 x 507 x 70 | 708 x 507 x 70 | 778x507x70 |
| Product Color | RAL7042 | | | | |
| **ELECTRICAL:** | | | | | |
| Input Voltage | 220–240V AC | | | | |
| Frequency | 50–60 Hz | | | | |
| Power Factor | > 0.90 | | | | |
| Power Consumption | 250W | 290W | 330W | 370W | 455W |
| Power Consumption Tolerance | +/–10% | | | | |
| Protection Class | Safety Class(I) | | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | | |
| **CONTROLS:** | | | | | |
| Dimmable | NA | | | | |
| Dimming Options (Variant) | NA | | | | |
| **PERFORMANCE:** | | | | | |
| Luminaire Lumens | 30000 | 35000 | 40000 | 45000 | 55000 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | | |
| CRI | >70 | | | | |
| Initial Chromacity | SCDM <3 | | | | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | | |
| Storage Temperature | –20 to + 80° C | | | | |
| Ripple on Modules | <3% | | | | |
| **GENERAL:** | | | | | |
| Ingress Protection | IP66 | | | | |
| Impact in Joules | IK09 | | | | |
| Replaceable Modules | Yes | | | | |
| Luminaire Beam Angle | 90 deg | | | | |
| CE Markings | Yes | | | | |
| **VARIANTS:** | | | | | |
| Available in Different Beam Angles for specific design requirements/applications. Please refer to Page 113. | | | | | |
| Required variants to be added to the suffix of the code of the fixture. (S)– Standard (O)– Option. | | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | | |

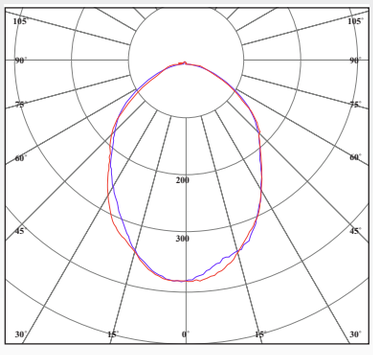
## How to Specify :

.....Lm and a min. of .....lm/w LED Floodlight made of 6063 extruded aluminum, powder coated to corrosion class II with PMMA lenses and ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65° C lumen maintenance, ..... color temperature, IP66 and in full conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778




Luminous Intensity Distribution

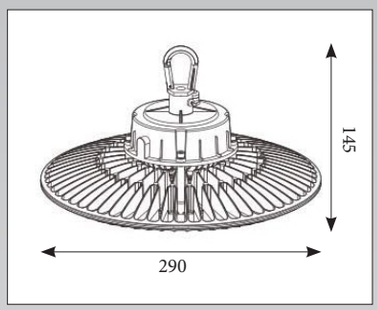



Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

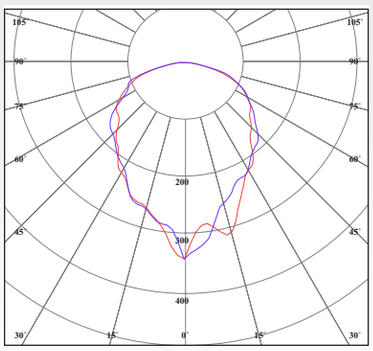
# CHBL

IP65 | UP TO 179 lm/W | L90 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)

| PRODUCT CODES | | | | | |
|---|---|---|---|---|---|
| | **CHBL–8400/60** | **CHBL–14000/100** | **CHBL–21000/150** | **CHBL–28000/200** | **CHBL–33600/240** |
| **CONSTRUCTION:** | | | | | |
| Housing & Optics. | Made of high pressure die cast aluminum alloy, chemically treated & polyester powder coated. Optical Lens made of PMMA suitable for operations under high temperature, 90° distribution beam angle as standard with excellent transmission efficiency of 93%, high thermal stability and UV resistant and protected with diffuser. | | | | |
| Mounting Device | Fixed Mounting Hook | | | | |
| Product Dimension (mm) D x H | 290 x 145 | 290 x 145 | 290 x 145 | 326 x 155 | 326 x 155 |
| Product Color | RAL9005 | | | | |
| **ELECTRICAL:** | | | | | |
| Input Voltage | 220–240V AC | | | | |
| Frequency | 50–60 Hz | | | | |
| Power Factor | > 0.90 | | | | |
| Power Consumption | 60W | 100W | 150W | 200W | 240W |
| Power Consumption Tolerance | +/–10% | | | | |
| Protection Class | Safety Class(I) | | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | | |
| **CONTROLS:** | | | | | |
| Dimmable | NA | | | | |
| Dimming Options (Variant) | NA | | | | |
| **PERFORMANCE:** | | | | | |
| Luminaire Lumens | 8400 | 14000 | 21000 | 28000 | 33600 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | | |
| CRI | >80 | | | | |
| Initial Chromacity | SCDM <3 | | | | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | | |
| Storage Temperature | –20 to + 80° C | | | | |
| Ripple on Modules | <3% | | | | |
| **GENERAL:** | | | | | |
| Ingress Protection | IP65 | | | | |
| Impact in Joules | IK03 | | | | |
| Replaceable Modules | Yes | | | | |
| Luminaire Beam Angle | 120/90/60 deg | | | | |
| CE Markings | Yes | | | | |
| Net Weight | 3.5 Kg | 4.5 Kg | 6 Kg | 6 Kg | 7.5 Kg |
| **VARIANTS:** | | | | | |
| Required variants to be added to the suffix of the code of the fixture. (S)– Standard (O)– Option. | | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | | |

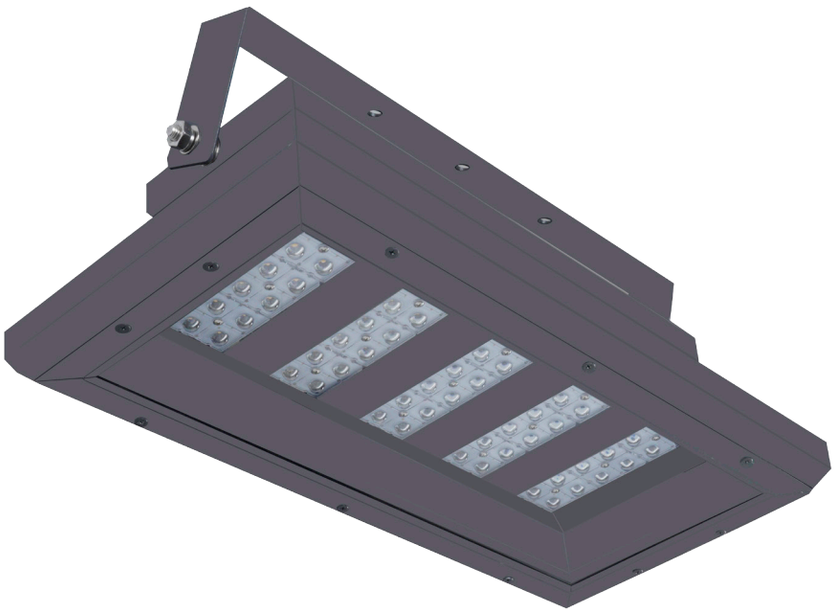



Luminous Intensity Distribution

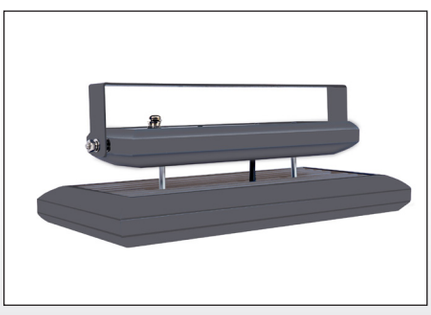



Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# HBL



IP66 | UP TO 179 lm/W | L90 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)



| PRODUCT CODES | HBL–10100/82 | HBL–15200/122 | HBL–20200/163 | HBL–25200/204 |
|---|---|---|---|---|
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of high purity 6063 anodized aluminum alloy , chemically treated, and polyester powder coated. Optics made of PMMA suitable for operations under high temperature, 90 degree distribution beam angle as standard with excellent transmission efficiency of 93%, high thermal stability and UV resistant and protected with thermally treated flat toughed glass. | | | |
| Mounting Device | Surface / Suspension Mounting using threaded Rod. | | | |
| Product Dimension (mm) L x W x H | 480 x 277 x 162 | 480 x 277 x 162 | 580 x 277 x 168 | 580 x 277 x 168 |
| Product Color | RAL7042 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 82W | 122W | 163W | 204W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | NA | | | |
| Dimming Options (Variant) | Dali / 1–10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 10100 | 15200 | 20200 | 25200 |
| CCT | 3000 / 4000 / 5000 K | | | |
| CRI | >70 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP66 | | | |
| Impact in Joules | IK09 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 6 Kgs | 7.5 Kgs | 9 Kgs | 9 Kgs |
| **VARIANTS:** | | | | |

Available in Different Beam Angles Available in 45D, 60D, 130D. Please suffix of the Beam Angle to the code of the fixture. Please refer to Page 113.

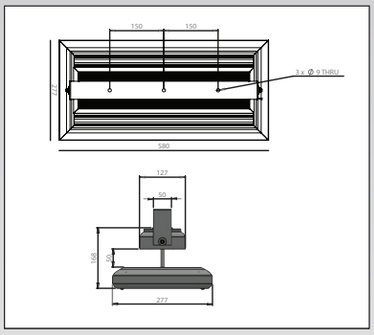
Suffix (O) is Optional and (S) is Standard.

Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

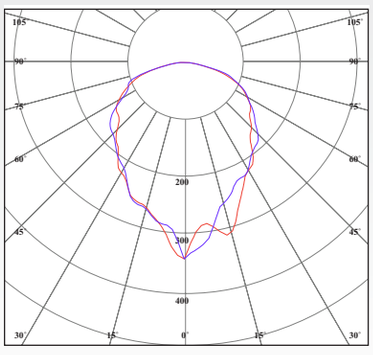
## How to Specify :

.....Lm and a min. of .....lm/w LED Highbay made of 6063 extruded aluminum, powder coated to corrosion class II with PMMA lenses and ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65° C lumen maintenance, ..... color temperature, IP66 and in full conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778



Luminous Intensity Distribution



Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# HBL-H

IP66

UP TO 179 lm/W

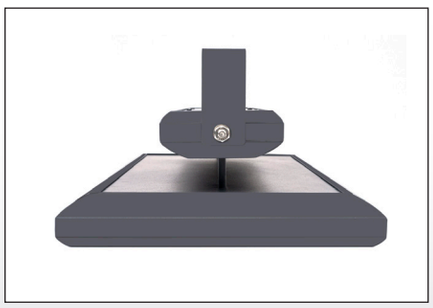
L90 B10

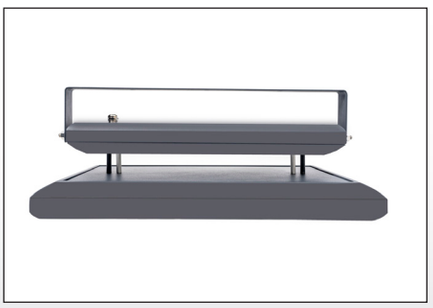
constant CURRENT

EN 15 Components

CE

3MacAdam (3SDCM)





| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **HBLH–25000/204** | **HBLH–30000/250** | **HBLH–35000/290** | **HBLH–40000/330** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of high purity 6063 anodized aluminum alloy , chemically treated, and polyester powder coated. Optics made of PMMA suitable for operations under high temperature, 90 degree distribution beam angle as standard with excellent transmission efficiency of 93%, high thermal stability and UV resistant and protected with thermally treated flat toughed glass. | | | |
| Mounting Device | Surface / Suspension Mounting using threaded Rod. | | | |
| Product Dimension (mm) L x W x H | 428 x 380 x 165 | 498 x 380 x 165 | 568 x 380 x 165 | 638 x 380 x 165 |
| Product Color | RAL7042 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 204W | 250W | 290W | 330W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | NA | | | |
| Dimming Options (Variant) | Dali / 1–10V | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 25000 | 30000 | 35000 | 40000 |
| CCT | 5000 (S) / 4000 / 3000 K | | | |
| CRI | >70 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP66 | | | |
| Impact in Joules | IK09 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| Net Weight | 13 Kgs | 13 Kgs | 14 Kgs | 16 Kgs |
| **VARIANTS:** | | | | |

Available in Different Beam Angles for specific design requirements/applications. Please refer to Page 113.

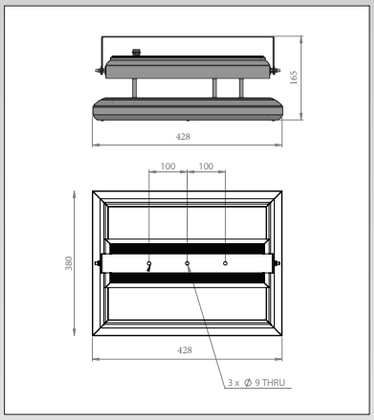
Required variants to be added to the suffix of the code of the fixture. (S)– Standard (O)– Option.

Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

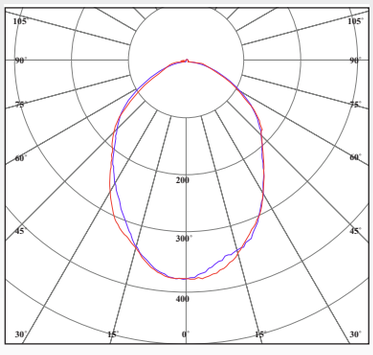
## How to Specify :

.....Lm and a min. of .....lm/w LED Highbay made of 6063 extruded aluminum, powder coated to corrosion class II with PMMA lenses and ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65° C lumen maintenance, ..... color temperature, IP66 and in full conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778



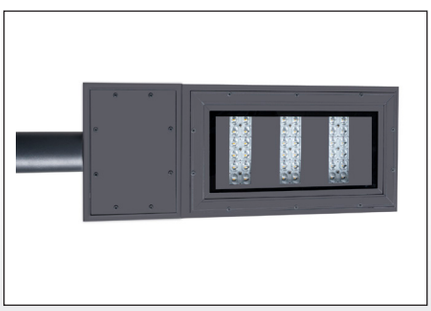

Luminous Intensity Distribution

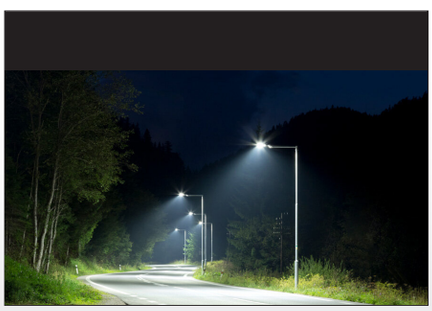



Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# RLL

IP66 | UP TO 179 lm/W | L90 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)



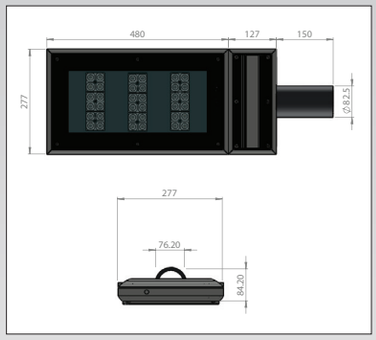


| PRODUCT CODES | RLL–10100/82 | RLL–15200/123 | RLL–20200/163 | RLL–25200/204 |
|---|---|---|---|---|
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of high purity 6063 anodized aluminum alloy , chemically treated, and polyester powder coated. Optics made of PMMA suitable for operations under high temperature, 90 degree distribution beam angle as standard with excellent transmission efficiency of 93 % , high thermal stability and UV resistant and pro tected with thermally treated flat toughed glass. | | | |
| Mounting Device | FIXED SPIGOT SUITABLE FOR 48–60MM DIA | | | |
| Product Dimension (mm) L x W x H | 757 x 277 x 100 | 757 x 277 x 100 | 857 x 277 x 100 | 857 x 277 x 100 |
| Product Color | RAL7042 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 82W | 123W | 163W | 204W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | NA | | | |
| Dimming Options (Variant) | NA | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 10100 | 15200 | 20200 | 25200 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP66 | | | |
| Impact in Joules | IK09 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | Batwing Distribution. | | | |
| CE Markings | Yes | | | |
| Net Weight | 12 Kgs | 12 Kgs | 14 Kgs | 16 Kgs |
| **VARIANTS:** | | | | |
| Available in Different Beam Angles depending on the Road Width, Pole Height, Type of Road. For Beam Angles Codes Refer Page 113. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

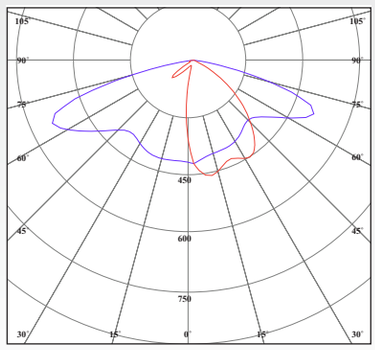
## How to Specify :

.....Lm and a min. of .....lm/w LED Street Light made of 6063 extruded aluminum, powder coated to corrosion class II with PMMA lenses, thermally treated toughened glass, and ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65° C lumen maintenance, .....color temperature, IP66 and infull conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# GRL

IP66

UP TO 179 lm/W

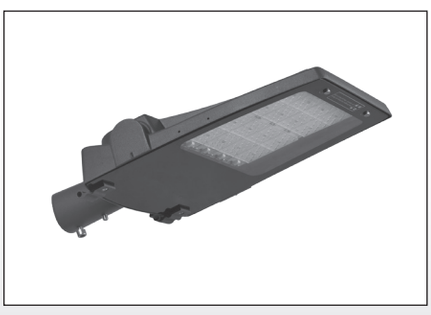
L90 B10

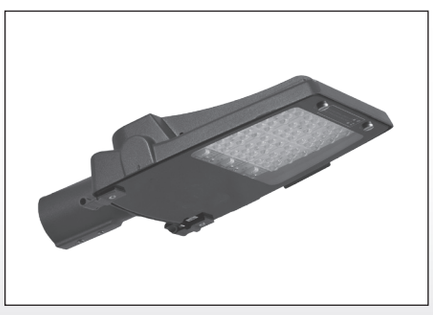
constant CURRENT

ENEC 15 Components

CE

3MacAdam (3SDCM)



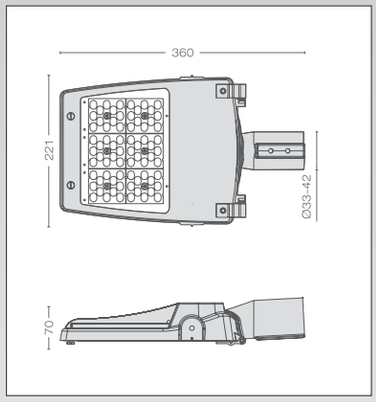


| PRODUCT CODES | | | | |
|---|---|---|---|---|
| | **GRL–6900/60** | **GRL–11500/100** | **GRL–17250/150** | **GRL–23000/200** |
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Made of high die cast aluminum alloy, chemically treated, and polyester powder coated. Optics made of PMMA suitable for operations under high temperature, batwing distribution beam angle as standard with excellent transmission efficiency of 93 %, high thermal stability and UV resistant and pro tected with thermally treated flat toughed glass. | | | |
| Mounting Device | FIXED SPIGOT SUITABLE FOR 48–60MM DIA | | | |
| Product Dimension (mm) L x W x H | 360 x 221 x 70 | 500 x 333 x 82 | 500 x 333 x 82 | 573 x 336 x 82 |
| Product Color | RAL7042 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 60W | 100W | 150W | 200W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | NA | | | |
| Dimming Options (Variant) | NA | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 6900 | 115000 | 17250 | 23000 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | |
| CRI | >75 | | | |
| Initial Chromacity | SCDM <5 | | | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP66 | | | |
| Impact in Joules | IK07 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | Batwing Distribution. | | | |
| CE Markings | Yes | | | |
| Net Weight | 2.45 Kgs | 6 Kgs | 6 Kgs | 6.8 Kgs |
| **VARIANTS:** | | | | |
| Available in Different Beam Angles depending on the Road Width, Pole Height, Type of Road. For Beam Angles Codes Refer Page 113. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

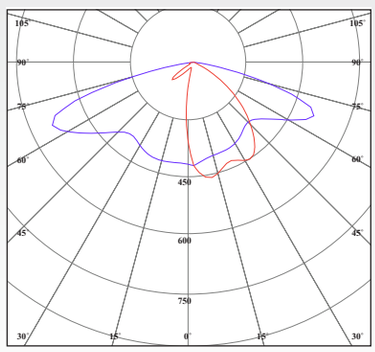
## How to Specify :

.....Lm and a min. of .....lm/w LED Street Light made of die cast aluminum, powder coated to corrosion class II with PMMA lenses, toughened glass, and ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65° C lumen maintenance, .....color temperature, IP66 and infull conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# RLL-G

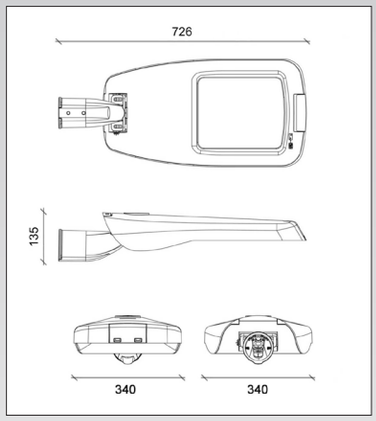
IP66 | UP TO 179 lm/W | L90 B10 | constant CURRENT | ENEC 15 Components | ENEC 05 | CE | 3MacAdam (3SDCM)

| PRODUCT CODES | | | |
|---|---|---|---|
| | **RLL-G 12500/98** | **RLL-G 16000/125** | **RLL-G 18500/148** |
| **CONSTRUCTION:** | | | |
| Housing & Optics. | Made of cast aluminum alloy, chemically treated, and polyester powder coated. Optics made of PMMA suitable for operations under high temperature, ME3 Class distribution beam angle as standard with excellent transmission efficiency of 93 % , high thermal stability and UV resistant and pro tested with thermally treated flat toughed glass. | | |
| Mounting Device | FIXED SPIGOT SUITABLE FOR 48-60MM DIA | | |
| Product Dimension (mm) L x W x H | 726 x 340 x 135 | | |
| Product Color | RAL9007 | | |
| **ELECTRICAL:** | | | |
| Input Voltage | 220-240V AC | | |
| Frequency | 50-60 Hz | | |
| Power Factor | > 0.90 | | |
| Power Consumption | 98W | 125W | 148W |
| Power Consumption Tolerance | +/-10% | | |
| Protection Class | Safety Class(I) | | |
| Glow Wire Test | 850 deg C /30 Sec | | |
| **CONTROLS:** | | | |
| Dimmable | NA | | |
| Dimming Options (Variant) | 1-10V, DALI, Smart Controls | | |
| **PERFORMANCE:** | | | |
| Luminaire Lumens | 12500 | 16000 | 18500 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | |
| CRI | >80 | | |
| Initial Chromacity | SCDM <3 | | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | | |
| Operating Ambient Temperature | +10 to + 55° C | | |
| Storage Temperature | -20 to + 80° C | | |
| Ripple on Modules | <3% | | |
| **GENERAL:** | | | |
| Ingress Protection | IP66 | | |
| Impact in Joules | IK09 | | |
| Replaceable Modules | Yes | | |
| Luminaire Beam Angle | Batwing Distribution. | | |
| Markings | CE & ENEC CERTIFIED | | |
| Net Weight | 12Kgs | | |
| **VARIANTS:** | | | |
| Available in Different Beam Angles depending on the Road Width, Pole Height, Type of Road. For Beam Angles Codes Refer Page 112. | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | |

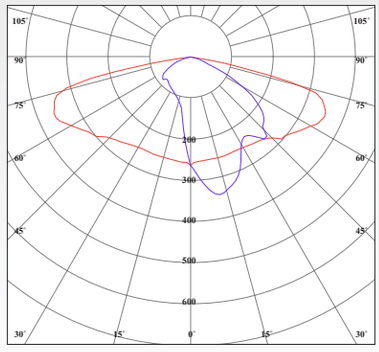
## How to Specify :

.....Lm and a min. of .....lm/w LED Street light made of high pressure cast aluminum, powder coated to corrosion class II with PMMA lenses, thermally treated toughened glass, and ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65° C lumen maintenance, .....color temperature, IP66 and in full conformity with :

- EN60598
- EN55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778



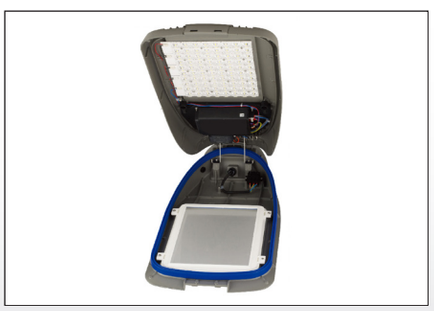

Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# RLL-G

IP66 | UP TO 179 lm/W | L90 B10 | constant CURRENT | ENEC 15 Components | ENEC 05 | CE | 3MacAdam (3SDCM)



| PRODUCT CODES | | | |
|---|---|---|---|
| | **RLL-G 26500/171** | **RLL-G 30000/218** | **RLL-G 34500/288** |
| **CONSTRUCTION:** | | | |
| Housing & Optics. | Made of cast aluminum alloy, chemically treated, and polyester powder coated. Optics made of PMMA suitable for operations under high temperature, ME3 Class distribution beam angle as standard with excellent transmission efficiency of 93%, high thermal stability and UV resistant and pro tested with thermally treated flat toughed glass. | | |
| Mounting Device | ADJUSTABLE SPIGOT SUITABLE FOR 48-60MM DIA | | |
| Product Dimension (mm) L x W x H | 890 x 400 x 135 | | |
| Product Color | RAL9007 | | |
| **ELECTRICAL:** | | | |
| Input Voltage | 220-240V AC | | |
| Frequency | 50-60 Hz | | |
| Power Factor | > 0.90 | | |
| Power Consumption | 171W | 218W | 288W |
| Power Consumption Tolerance | +/-10% | | |
| Protection Class | Safety Class(I) | | |
| Glow Wire Test | 850 deg C /30 Sec | | |
| **CONTROLS:** | | | |
| Dimmable | NA | | |
| Dimming Options (Variant) | 1-10V, DALI, Smart Controls | | |
| **PERFORMANCE:** | | | |
| Luminaire Lumens | 26500 | 30000 | 34500 |
| CCT | 5000K (S) - 4000K / 3000K / 2700K (O) | | |
| CRI | >80 | | |
| Initial Chromacity | SCDM <3 | | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65$^0$ C | | |
| Operating Ambient Temperature | +10 to + 55$^0$ C | | |
| Storage Temperature | -20 to + 80$^0$ C | | |
| Ripple on Modules | <3% | | |
| **GENERAL:** | | | |
| Ingress Protection | IP66 | | |
| Impact in Joules | IK09 | | |
| Replaceable Modules | Yes | | |
| Luminaire Beam Angle | Batwing Distribution. | | |
| CE Markings | Yes | | |
| Net Weight | 12 Kgs | | |
| **VARIANTS:** | | | |

Available in Different Beam Angles depending on the Road Width, Pole Height, Type of Road. For Beam Angles Codes Refer Page 112.

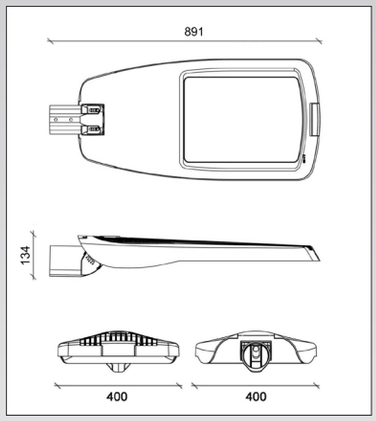
Required variants to be added to the suffix of the code of the fixture.

Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

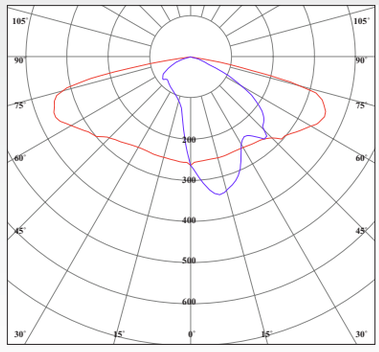
## How to Specify :

.....Lm and a min. of .....lm/w LED Street light made of high pressure cast aluminum, powder coated to corrosion class II with PMMA lenses, thermally treated toughened glass, and ENEC certified LED modules & driver L90 / B10 > 80000hrs @ 65$^0$ C lumen maintenance, .....color temperature, IP66 and in full conformity with :

- EN60598
- EN55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778

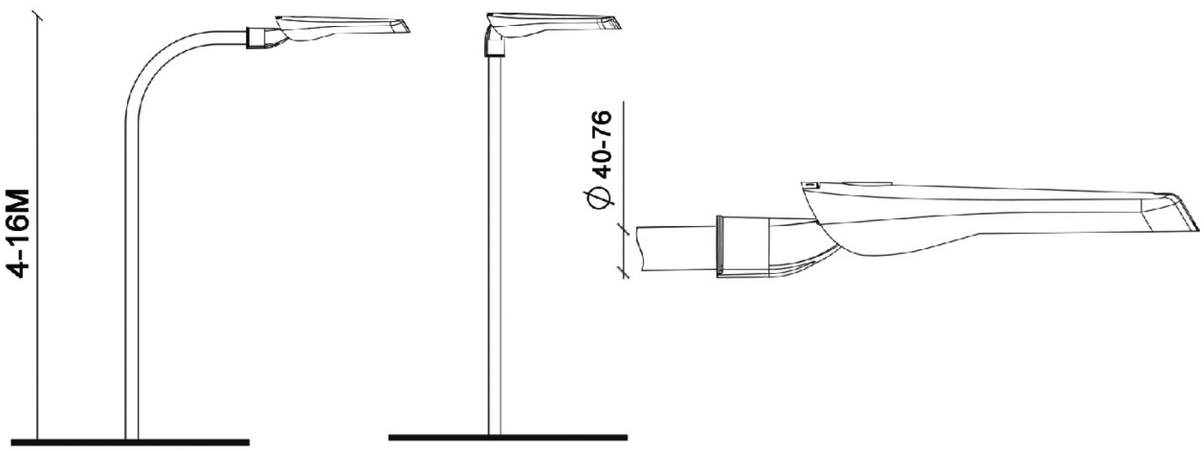



Luminous Intensity Distribution

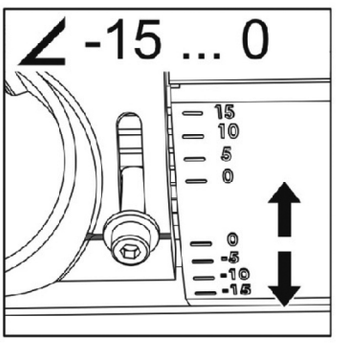


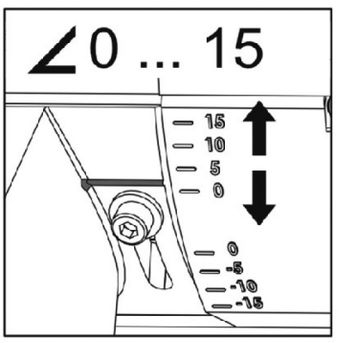

Luminous intensity (cd/klm) in level C 0° - 180°
Luminous intensity (cd/klm) in level C 90° - 270°

## CONSOLE DIMENSIONS

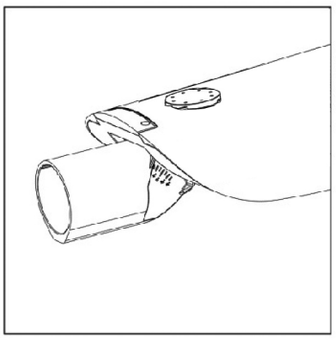



## ANGLE POSITION DIMENSIONS

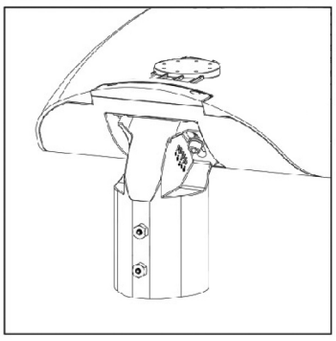



**HORIZONTAL ENTRY**



**VERTICAL ENTRY**



# ACCESSORIES

## Microwave Motion Sensor

Detailed Product Description
Operating Voltage: 120-277Vac, 50/60Hz
HF System: 5.BGHz±75MHz,ISM Wave Band
IP Rating: IP65
Rated Load: 120Vac 4A Electronic/magnetic Ballast
277Vac 3A Electronic/magnetic Ballast
Operation Temperature: -25□-55□
Function: 2 Step/3 Step Dimming/On Off Function
Mounting Height: 6-15m
Cover Color: Blank Or White
Hold Time: 5s/30s/1 min/3min/5min/1 Omin/20min/30min

## Connector

10m cable with IP66 rated connector offers easy
Installation of the street luminaires.
3 wire cable connector


## Surge Protection device

The unique solution for Outdoor lighting systems offering full protection against high surges in insulation Class I/II installations,Provides high surge protection of up to 10KV/10KA for all lighting technologies.

## Shorting Cap

Standard: ANSI C136.10-1996

## Photocell

Standard: ANSIC136.10-2010

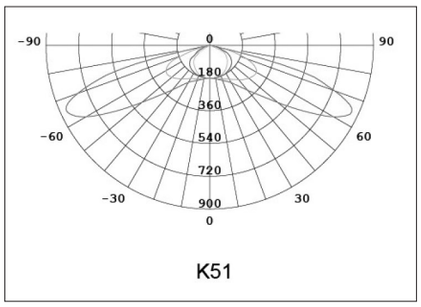
## Nema Socket

Standard: ANSIC136.10

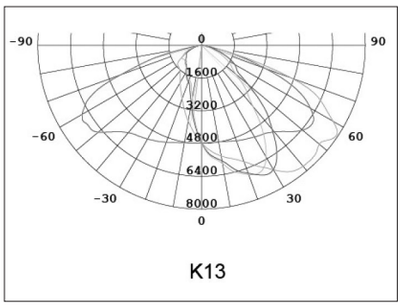
## Zhaga Connector

□Contacts rating: 1.5A,30V(24V typical)
□Meets 10KV dielectric withstand voltage to mounting surface
□4 pole contacts
-pin 1: 24Vdc
-pin 2: DALI (or DALI based protocol) -/common ground
-pin 3: DALI (or DALI based protocol)+
-pin 4: General 1/0

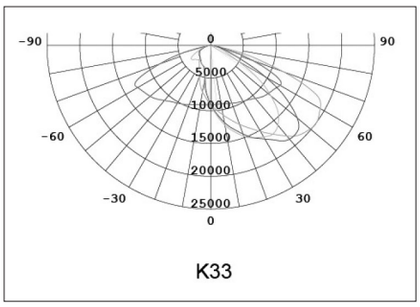
# OPTICS FOR RLLG STREET LIGHT



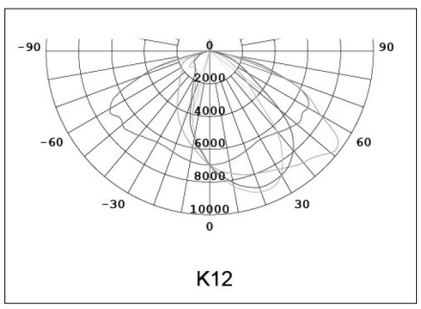

K51



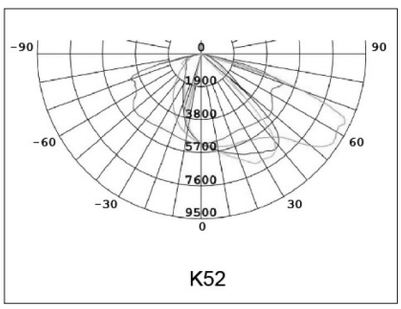

K13



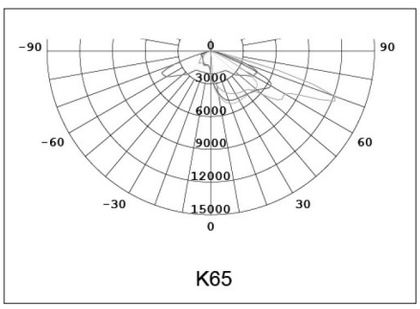

K33



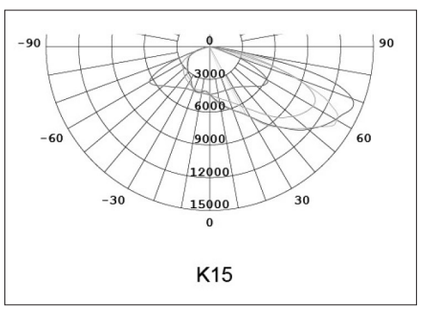

K12



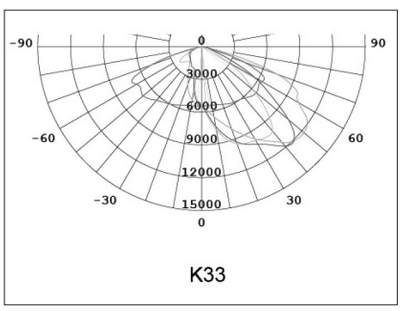

K52



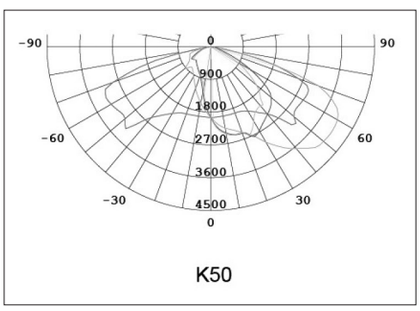

K65



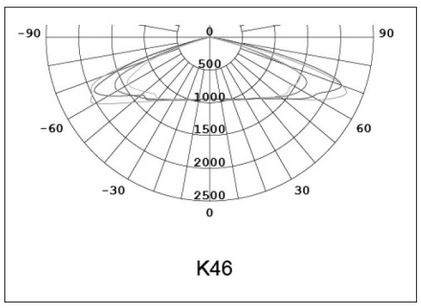

K15




K33

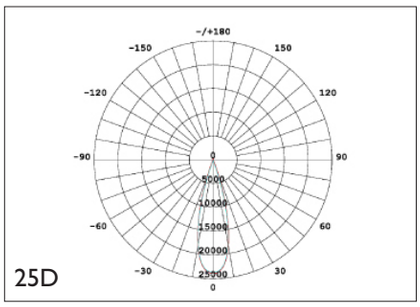



K50

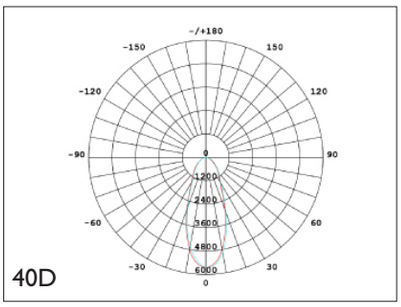



K46

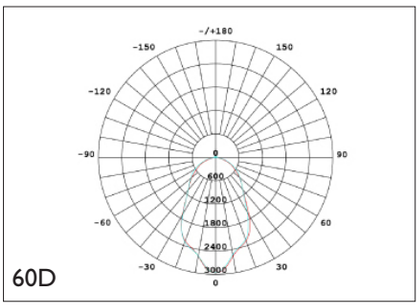
## OPTICS FOR FLOOD LIGHT



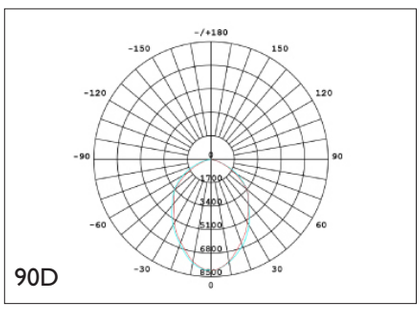
25D



40D

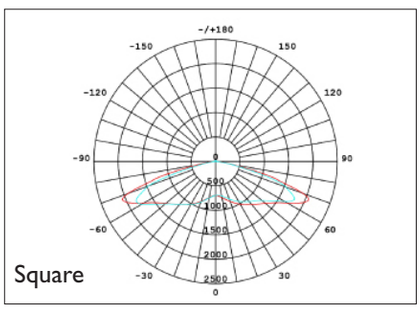


60D

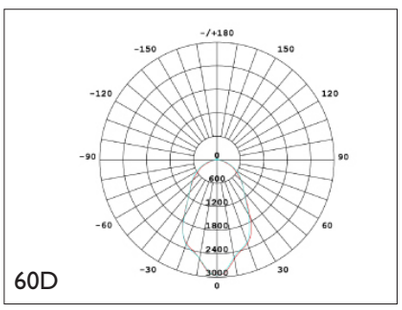


90D

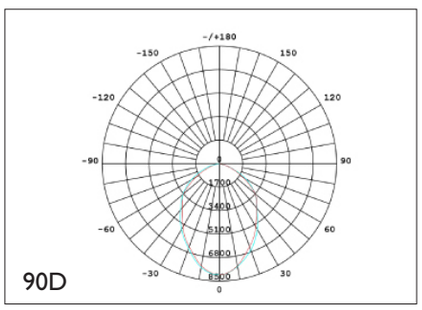
## OPTICS FOR HIGHBAY



Square

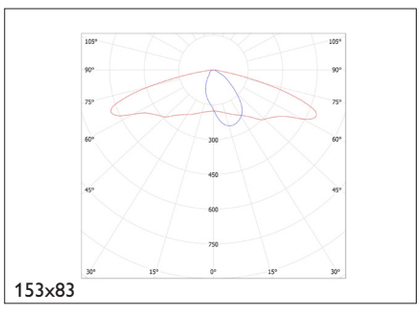


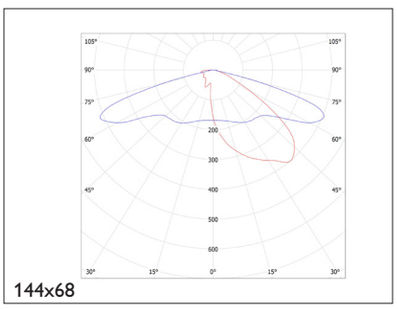
60D

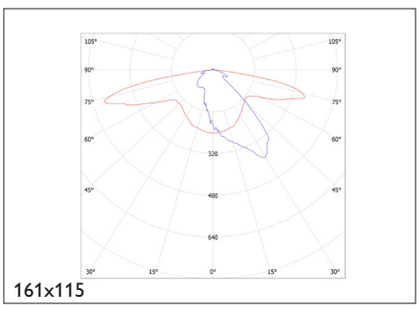


90D

## OPTICS FOR RLL STREET LIGHT


153x83


144x68


161x115

# IRL

IP66

UP TO 179 lm/W

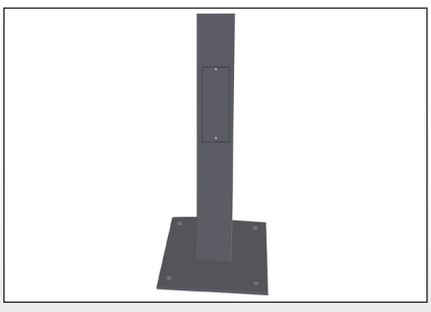
L90 B10

constant CURRENT

ENEC 15 Components

CE

3MacAdam (3SDCM)

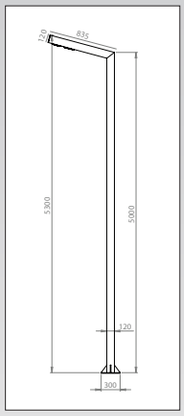


| PRODUCT CODES | IRL–4800/35 | IRL–9200/65 | IRL–12700/89 | IRL–15700/110 |
|---|---|---|---|---|
| **CONSTRUCTION:** | | | | |
| Housing & Optics. | Pole made of high tensile steel grade mechanically joined with an extruded anodized aluminum alloy, all chemically treated, and polyester powder coated to corrosion class II. Optics made of high heat resistance silicon material suitable for type II optimized lens as standard with excellent transmission efficiency of 93%, high thermal stability and UV resistant. | | | |
| Mounting Device | Floor Mounting using Provided Base Plate | | | |
| Product Dimension (mm) L x W x H | 4000 x 120 x 120 | 5000 x 120 x 120 | 6000 x 120 x 120 | 6000 x 120 x 120 |
| Product Color | RAL7042 | | | |
| **ELECTRICAL:** | | | | |
| Input Voltage | 220–240V AC | | | |
| Frequency | 50–60 Hz | | | |
| Power Factor | > 0.90 | | | |
| Power Consumption | 35W | 65W | 89W | 110W |
| Power Consumption Tolerance | +/–10% | | | |
| Protection Class | Safety Class(I) | | | |
| Glow Wire Test | 850 deg C /30 Sec | | | |
| **CONTROLS:** | | | | |
| Dimmable | NA | | | |
| Dimming Options (Variant) | NA | | | |
| **PERFORMANCE:** | | | | |
| Luminaire Lumens | 4800 | 9200 | 12700 | 15700 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | | | |
| CRI | >80 | | | |
| Initial Chromacity | SCDM <3 | | | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | | | |
| Operating Ambient Temperature | +10 to + 55° C | | | |
| Storage Temperature | –20 to + 80° C | | | |
| Ripple on Modules | <3% | | | |
| **GENERAL:** | | | | |
| Ingress Protection | IP66 | | | |
| Impact in Joules | IK09 | | | |
| Replaceable Modules | Yes | | | |
| Luminaire Beam Angle | 90 deg | | | |
| CE Markings | Yes | | | |
| **VARIANTS:** | | | | |
| Available in Different Beam Angles. Also available with double head arrangement. For Beam Angles Codes Refer Page 113. | | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | | |

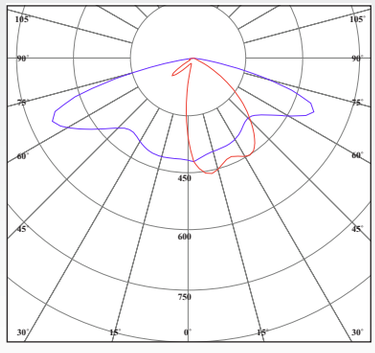
## How to Specify :

.....Lm and a min. of .....lm/w LED Integrated Road Light made of 6063 extruded aluminum, powder coated to corrosion class II with PMMA lenses and ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65° C lumen maintenance, .....color temperature, IP66 and infull conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778

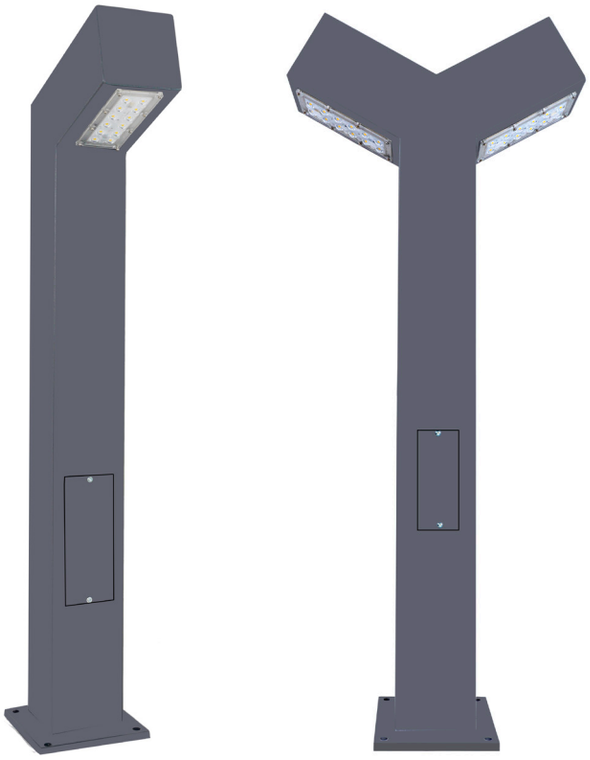



Luminous Intensity Distribution



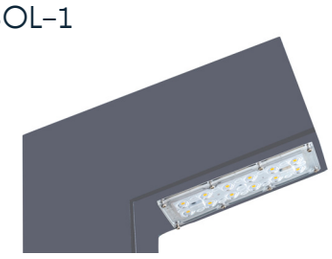

Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# IBOL

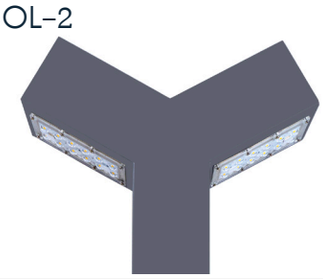


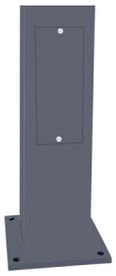
IP66 | UP TO 179 lm/W | L90 B10 | constant CURRENT | EN 15 Components | CE | 3MacAdam (3SDCM)

IBOL-1



IBOL-2





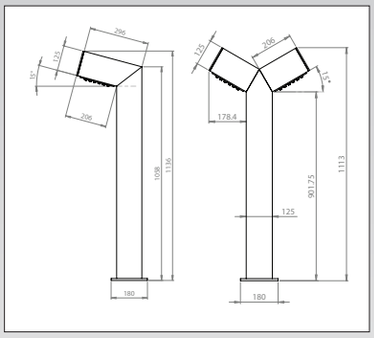
| PRODUCT CODES | | |
|---|---|---|
| | **BOL-2000/11** | **IBOL2-4000/22** |
| **CONSTRUCTION:** | | |
| Housing & Optics. | Made of high tensile steel grade mechanically joined with an extruded Anodized aluminum alloy, all chemically treated, and polyester powder coated to corrosion class II. Optics made of high heat resistance silicon material suitable for, type II optimized lens as standard with excellent transmission efficiency of 93%, high thermal stability and UV resistant. | |
| Mounting Device | Floor Mounting using Provided Base Plate | |
| Product Dimension (mm) L x W x H | 1000 x 125 | 1000 x 125 x 125 |
| Product Color | RAL7042 | |
| **ELECTRICAL:** | | |
| Input Voltage | 220-240V AC | |
| Frequency | 50-60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 11W | 22W |
| Power Consumption Tolerance | +/-10% | |
| Protection Class | Safety Class (I) | |
| Glow Wire Test | 850 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | NA | |
| Dimming Options (Variant) | NA | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 2000 Lmns | 4000 Lmns |
| CCT | 5000K (S) - 4000K / 3000K / 2700K (O) | |
| CRI | >70 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65$^0$ C | |
| Operating Ambient Temperature | +10 to + 55$^0$ C | |
| Storage Temperature | -20 to + 80$^0$ C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP66 | |
| Impact in Joules | IK09 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 90 deg | |
| CE Markings | Yes | |
| Net Weight | 7 Kgs | |

Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

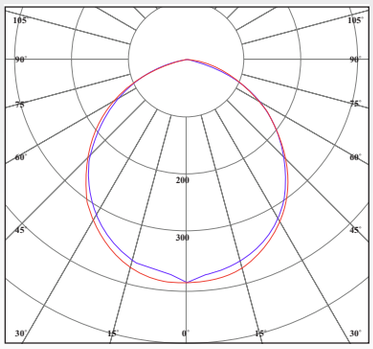
## How to Specify :

.....Lm and a min. of .....lm/w LED Garden Light made of 6063 extruded aluminum, powder coated to corrosion class II, with optics made of high heat resistance silicon material, ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65$^0$ C lumen maintenance, .....color temperature, IP66 and infull conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778



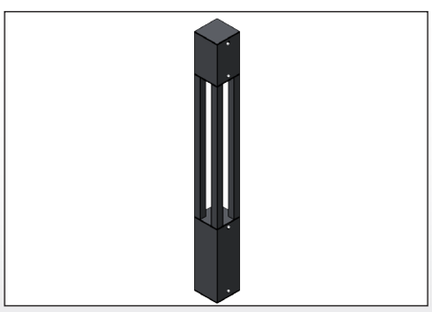
Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° - 180°
Luminous intensity (cd/klm) in level C 90° - 270°

# BOLF

IP66 | UP TO 179 lm/W | L90 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)



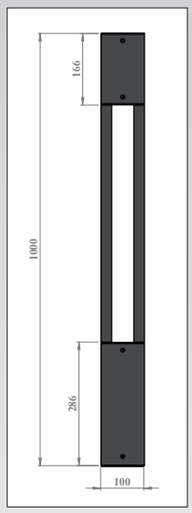
| PRODUCT CODES | | |
|---|---|---|
| | **BOLF-950/8** | **BOLF-1300/11** |
| **CONSTRUCTION:** | | |
| Housing & Optics. | Made of high tensile steel grade mechanically joined with an extruded Anodized aluminum alloy, all chemically treated, and polyester powder coated to corrosion class II. Made of high heat resistance silicon material suitable for type II optimized lens as standard with excellent transmission efficiency of 93%, high thermal stability and UV resistant. | |
| Mounting Device | Floor Mounting using Provided Base Plate | |
| Product Dimension (mm) H x W | 1000 x 100 | |
| Product Color | RAL7042 | |
| **ELECTRICAL:** | | |
| Input Voltage | 220-240V AC | |
| Frequency | 50-60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 8W | 11W |
| Power Consumption Tolerance | +/-10% | |
| Protection Class | Safety Class (I) | |
| Glow Wire Test | 850 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | NA | |
| Dimming Options (Variant) | NA | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 950 Lmns | 1300 Lmns |
| CCT | 4000K (S) - 5000K / 3000K / 2700K (O) | |
| CRI | >70 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L80 / B10 > 60000hrs @ 65° C | |
| Operating Ambient Temperature | +10 to + 55° C | |
| Storage Temperature | -20 to + 80° C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP66 | |
| Impact in Joules | IK03 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 90 deg | |
| CE Markings | Yes | |
| Net Weight | 5 Kgs | |

Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology.

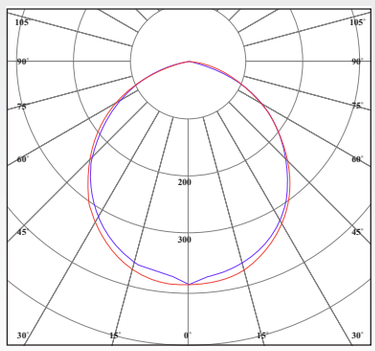
## How to Specify :

.....Lm and a min. of .....lm/w LED made of 6063 extruded aluminum, powder coated to corrosion class II with PMMA lenses and ENEC certified LED modules & driver, L80 / B10 > 60000hrs @ 65° C lumen maintenance, .....color temperature, IP66 and infull conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° - 180°
Luminous intensity (cd/klm) in level C 90° - 270°

# WL

IP66

UP TO 179 lm/W

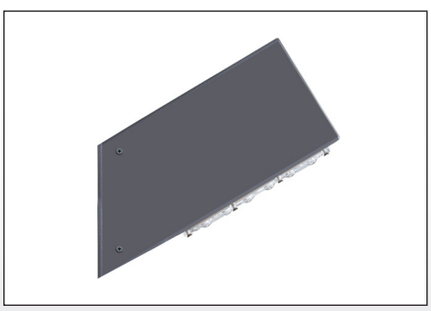
L90 B10

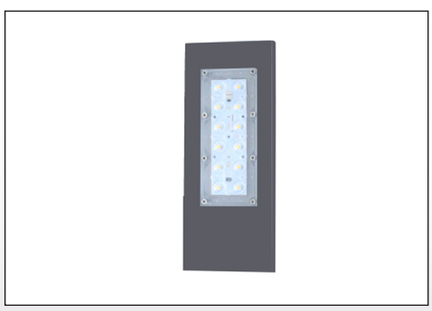
constant CURRENT

ENEC 15 Components

CE

3MacAdam (3SDCM)



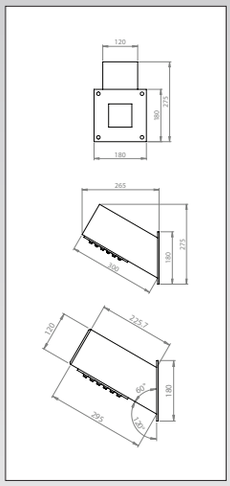


| PRODUCT CODES | | |
|---|---|---|
| | **WL-2600/26** | **WL-4500/44** |
| **CONSTRUCTION:** | | |
| Housing & Optics. | Made of high tensile steel grade mechanically joined with an extruded anodized aluminum alloy, all chemically treated, and polyester powder coated to corrosion class II. Made of high heat resistance silicon material suitable for, type II optimized lens as standard with excellent transmission efficiency of 93%, high thermal stability and UV resistant. | |
| Mounting Device | Wall Mounting using Provided Base Plate | |
| Product Dimension (mm) L x W x H | 300 X 120 | |
| Product Color | RAL7042 | |
| **ELECTRICAL:** | | |
| Input Voltage | 220–240V AC | |
| Frequency | 50–60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 26W | 44W |
| Power Consumption Tolerance | +/–10% | |
| Protection Class | Safety Class(I) | |
| Glow Wire Test | 850 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | NA | |
| Dimming Options (Variant) | NA | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 2600 | 4500 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | |
| CRI | >70 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L90 / B10 > 80000hrs @ 65° C | |
| Operating Ambient Temperature | +10 to + 55° C | |
| Storage Temperature | –20 to + 80° C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP65 | |
| Impact in Joules | IK09 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 90 deg | |
| CE Markings | Yes | |
| Net Weight | 2 Kgs | |
| **VARIANTS:** | | |
| Available in Different Beam Angles – For Difference available Beam Angle Codes, For Beam Angles Codes Refer Page 113. | | |
| Required variants to be added to the suffix of the code of the fixture. | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | |

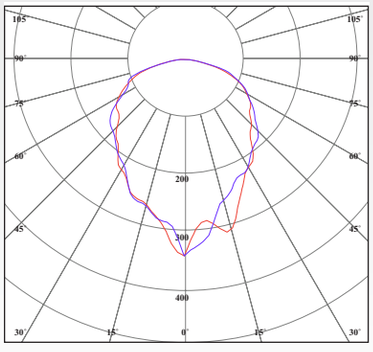
## How to Specify :

.....Lm and a min. of .....lm/w LED wall light made of 6063 aluminum, powder coated to corrosion class II with PMMA lenses, thermally treated toughened glass, and ENEC certified LED modules & driver, L90 / B10 > 80000hrs @ 65° C lumen maintenance, .....color temperature, IP65 and in full conformity with :

- EN60598
- EN 55015
- EN61000
- EN61347
- EN61547
- EN62031
- EN62471
- EN62031
- EN62778




Luminous Intensity Distribution

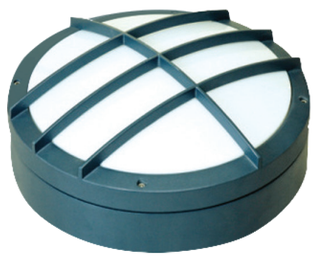



Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

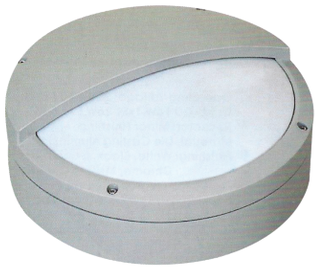
# BH

IP65 | UP TO 182 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)

G



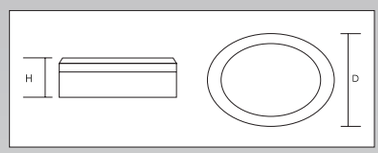
H



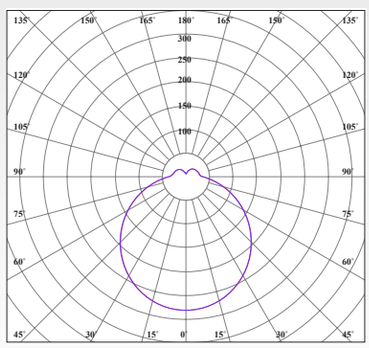
| PRODUCT CODES | | |
|---|---|---|
| | **BH275–2000/18** | **BH350–3350/29** |
| **CONSTRUCTION:** | | |
| Housing & Optics. | Made of high pressure die–cast aluminum alloy finished to corrosion class II by high pressure spraying at 2.5 bar before its finally electro–statically powder coated with a 60 micron thermo–hardened polyester powder, stabilized and UV protected. Optics is made of stabilized and UV protected PC material | |
| Mounting Device | Wall Mounting | |
| Product Dimension (mm) D x H | 275 x 95 | 350 x 142 |
| Product Color | RAL9016 | |
| **ELECTRICAL:** | | |
| Input Voltage | 220–240V AC | |
| Frequency | 50–60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 18W | 29W |
| Power Consumption Tolerance | +/–10% | |
| Protection Class | Safety Class(I) | |
| Glow Wire Test | 850 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | NA | |
| Dimming Options (Variant) | NA | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 2000 | 3350 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | |
| CRI | >80 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25$^0$ C | |
| Operating Ambient Temperature | +10 to + 55$^0$ C | |
| Storage Temperature | –20 to + 80$^0$ C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP65 | |
| Impact in Joules | IK03 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 90 deg | |
| CE Markings | Yes | |
| Net Weight | 1.8 Kgs | 2.2 Kgs |
| **VARIANTS:** | | |
| Available with guard ring and half eyelid covers. Please add (G) or (H) to the code of the fixture if required. | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | |

## How to Specify :

.....Lm and a min. of .....lm/w LED Bulkhead made of high pressure cast aluminum, powder coated to corrosion class II with PC Diffuser and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25$^0$ C lumen maintenance, ..... color temperature, IP65.




Luminous Intensity Distribution




Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

# BHS

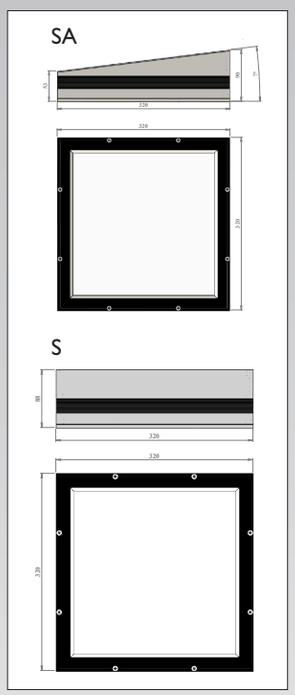
IP65 | UP TO 175 lm/W | L80 B10 | constant CURRENT | ENEC 15 Components | CE | 3MacAdam (3SDCM)

SA

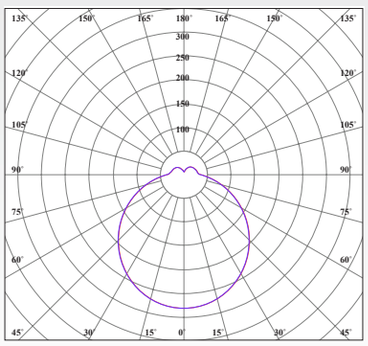
| PRODUCT CODES | | |
|---|---|---|
| | **BH275–2000/18** | **BH350–3350/29** |
| **CONSTRUCTION:** | | |
| Housing & Optics. | Made of high pressure die–cast aluminum alloy finished to corrosion class II by high pressure spraying at 2.5 bar before its finally electro–statically powder coated with a 60 micron thermo–hardened polyester powder, stabilized and UV protected. Optics is made of thermally treated toughened glass°. | |
| Mounting Device | Wall Mounting | |
| Product Dimension (mm) W x H x D | 320 x 320 x 88 | |
| Product Color | RAL7042 | |
| **ELECTRICAL:** | | |
| Input Voltage | 220–240V AC | |
| Frequency | 50–60 Hz | |
| Power Factor | > 0.90 | |
| Power Consumption | 18W | 29W |
| Power Consumption Tolerance | +/–10% | |
| Protection Class | Safety Class(I) | |
| Glow Wire Test | 850 deg C /30 Sec | |
| **CONTROLS:** | | |
| Dimmable | NA | |
| Dimming Options (Variant) | NA | |
| **PERFORMANCE:** | | |
| Luminaire Lumens | 2000 | 3350 |
| CCT | 5000K (S) – 4000K / 3000K / 2700K (O) | |
| CRI | >80 | |
| Initial Chromacity | SCDM <3 | |
| Lumen Maintenance | L80 / B10 > 90000hrs @ 25° C | |
| Operating Ambient Temperature | +10 to + 55° C | |
| Storage Temperature | –20 to + 80° C | |
| Ripple on Modules | <3% | |
| **GENERAL:** | | |
| Ingress Protection | IP65 | |
| Impact in Joules | IK08 | |
| Replaceable Modules | Yes | |
| Luminaire Beam Angle | 90 deg | |
| CE Markings | Yes | |
| Net Weight | 1.8 Kgs | 2.2 Kgs |
| **VARIANTS:** | | |
| Required variants to be added to the suffix of the code of the fixture. | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | |

## How to Specify :

.....Lm and a min. of .....lm/w LED Bulkhead made of high pressure cast aluminum, powder coated to corrosion class II, thermally treated toughened glass, and ENEC certified LED modules & driver, L80 / B10 > 90000hrs @ 25° C lumen maintenance, ..... color temperature, IP65.




Luminous Intensity Distribution



Luminous intensity (cd/klm) in level C 0° – 180°
Luminous intensity (cd/klm) in level C 90° – 270°

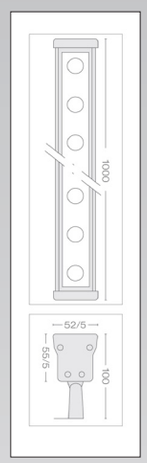
# WW

IP65 | UP TO 175 lm/W | L80 B10 | constant CURRENT | EN 15 Components | CE | 3MacAdam (3SDCM)

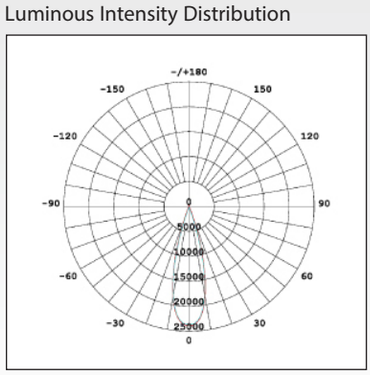
| PRODUCT CODES | | | |
|---|---|---|---|
| | **WW-1920/16** | **WW-2400/20** | **WW-3600/30** |
| **CONSTRUCTION:** | | | |
| Housing & Optics. | Made of cast aluminum alloy, chemically treated, and polyester powder coated. Optics made of PMMA suitable for operations under high temperature, with excellent transmission efficiency, high thermal stability and UV resistant, with thermally treated flat toughed glass. | | |
| Mounting Device | Adjustable Floor/Wall mounting bracket. | | |
| Product Dimension (mm) L x W x H | 1000 x 55 x 55 | | |
| Product Color | RAL7042 | | |
| **ELECTRICAL:** | | | |
| Input Voltage | 220-240V AC | | |
| Frequency | 50-60 Hz | | |
| Power Factor | > 0.90 | | |
| Power Consumption | 16W | 20W | 30W |
| Power Consumption Tolerance | +/-10% | | |
| Protection Class | Safety Class(I) | | |
| Glow Wire Test | 850 deg C /30 Sec | | |
| **CONTROLS:** | | | |
| Dimmable | NA | | |
| Dimming Options (Variant) | 1-10V, DALI, Smart Controls | | |
| **PERFORMANCE:** | | | |
| Luminaire Lumens | 1920 | 2400 | 3600 |
| CCT | 4000K (S) / 3000K / 2700K (O) | | |
| CRI | >80 | | |
| Initial Chromacity | SCDM <3 | | |
| Lumen Maintenance | L80 / B10 > 60000hrs @ 65° C | | |
| Operating Ambient Temperature | +10 to + 55° C | | |
| Storage Temperature | -20 to + 80° C | | |
| Ripple on Modules | <3% | | |
| **GENERAL:** | | | |
| Ingress Protection | IP65 | | |
| Impact in Joules | IK09 | | |
| Replaceable Modules | Yes | | |
| Luminaire Beam Angle | 60° (S), 10° and 25° (O) | | |
| CE Markings | Yes | | |
| Net Weight | 2.4 Kgs | | |
| **VARIANTS:** | | | |
| Available in Different Beam Angles as mentioned above. | | | |
| Required variants to be added to the suffix of the code of the fixture. | | | |
| Note: Lumens, wattage & dimensions are subject to change due to the fast development in LED technology. | | | |

## How to Specify :

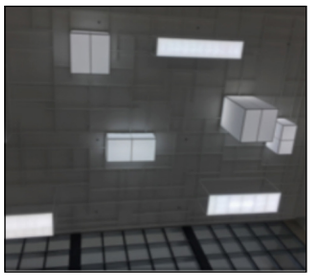
.....Lm and a min. of .....lm/w LED Bulkhead made of high pressure cast aluminum, powder coated to corrosion class II with PMMA lenses, thermally treated toughened glass, and ENEC certified LED modules & driver, L80 / B10 > 60000hrs @ 65° C lumen maintenance, ..... color temperature, IP65.

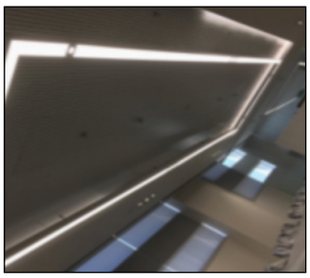


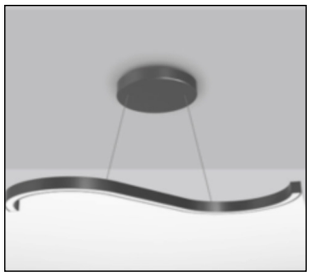

Luminous Intensity Distribution

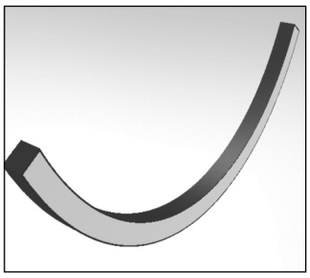


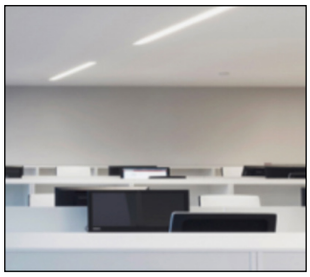
# Custom Designs

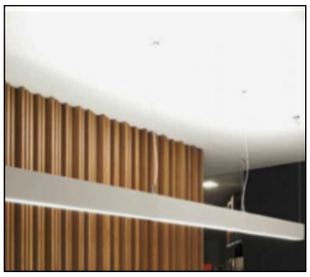
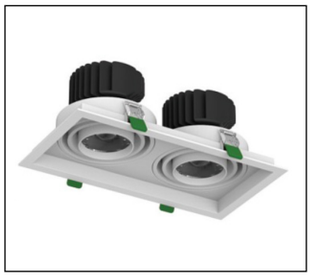




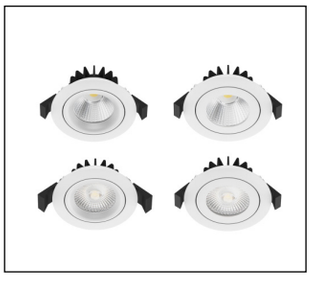










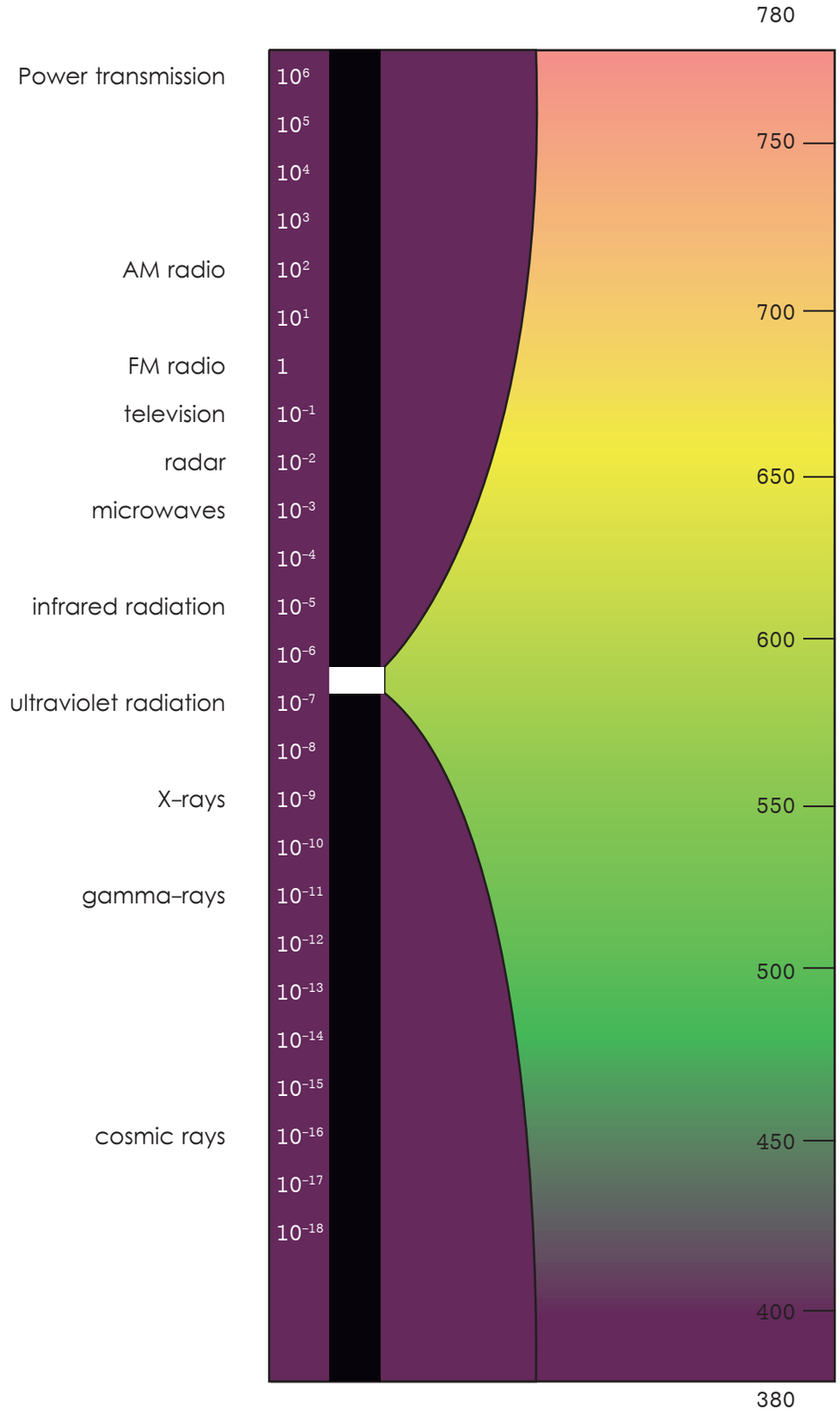

In addition to our well established relation with some reputable foundries and plastic specialists for proto type castings and mouldings majelite has an in house luminaire design software for research and optimization of virtual luminaries allowing a fast and accurate photometric and suitability analysis for most lighting applications which enable us to offer a wide range of custom made fixtures, beyond the standard range listed in this catalogue, to suit the special needs and requirements of architects and consultants.

At majelite we assure our valuable customers of being a one stop supplier for all their lighting requirements. We simply outsource the castings and mouldings and complete the design process to a finished, tested and guaranteed product.

We at majelite speak the Lighting Language very well.

## The spectrum of electromagnetic radiation.

The extent of visible light is shown to the right, much enlarged.

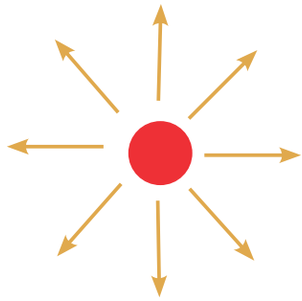


# Technical Aspects

## Lighting Concepts and Mangnitudes.

### Light Flux

Symbol– Φ
Unit – Lumen (lm)
Light flux is the total quantity of light emitted per second by a light source.
The value of the light flux emitted by each type of lamp is given by the manufacturers in their catalogues:



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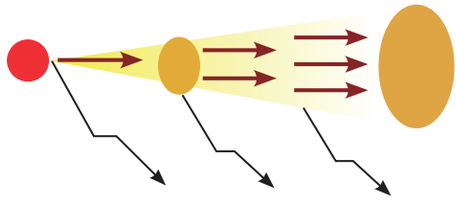
### Light intensity

Symbol–I
Unit – Candela (cd)
Light flux emitted in a particular direction from a given light source. It can also be defined as a light flux irradiated through a tri–dimensional angle directed by the magnitude of the re–ferred angle.

$$I = \frac{\Phi}{\omega}$$



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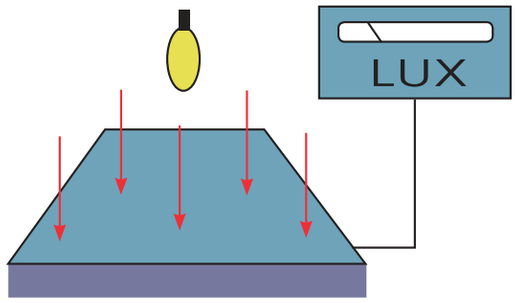
### Illuminance

Symbol – E
Unit – lux(lx) lx=Lumen/m2
Illuminance is the quantity of incidental light falling onto a given surface, divided by the value of the said surface, taking into consider–ation that it is uniformly illuminated.

$$E = \frac{\Phi}{Surface}$$

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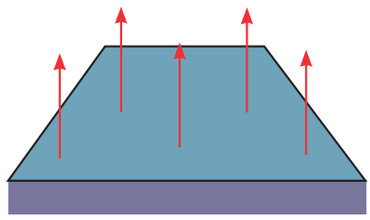
### Luminance or brightness

Symbol – L
Unit – candela per square meter (cd/m2)
Luminance is the sensation of brightness that the eye perceives from a surface and is di–rectly connected with the luminous intensity absorbed by this surface as well as its reflec–tion factor.

$$L = \frac{I}{Surface}$$



# Recommended Indoor illumination levels

| | | 0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 |
|---|---|---|
| GENERAL AREAS | Corridors, transit areas | |
| | Warehouses, deposits | |
| | Storage depots | |
| | Garages | |
| | Changing rooms, washrooms, showers, we | |
| | Packaging, shipment | |
| AUDITORIUM | Theatres, concert halls | |
| | Recreation rooms | |
| LIBRARIES | Bookshelves | |
| | Reading areas | |
| | Classification areas, waiting areas | |
| EXPOSITIONS | Museums and art galleries | |
| | Halls and fairs | |
| GASTRONOMY | Hotel rooms | |
| | Restaurant, dining rooms | |
| | Halls, self-service restaurants | |
| | Hotel kitchen | |
| SMELTING PLANTS | Oven area | |
| | Base mixture area, | |
| | Fine mixture area control area | |
| IRON FOUNDRIES | Production areas without manual intervention | |
| | Production areas with manual intervention | |
| | Permanently occupied work areas | |
| | Control and testing areas | |
| MOSQUES | Aisles | |
| | Choirs, altars, pulpits | |
| FOOD INDUSTRY | General work areas | |
| | Automatic processing | |
| CERAMICS INDUSTRY | Oven areas | |
| CLOTHING INDUSTRY | Sewing | |
| | Control | |
| | Ironing | |
| LEATHER INDUSTRY | Tanning areas | |
| | Finishing areas | |
| | Decorating areas | |
| CEMENT INDUSTRY | Grinding, ovens, automatic processes | |
| GLASS INDUSTRY | Blowing areas | |
| | Enameling, polishing | |

| | | 0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 |
|---|---|---|
| | Colouring, decoration | |
| | Optical glass | |
| ELECTRICAL INDUSTRY | Cable manufacturing | |
| | Assembly of telephone apparatus | |
| | Coil winding | |
| | Assembly of radio and TV apparatus | |
| | High precision assembly | |
| CHEMICAL INDUSTRY | Automatic processes | |
| | Semi automatic processes | |
| | General installation areas | |
| | Testing areas, laboratories | |
| | Control | |
| | Colour control | |
| TEXTILE INDUSTRY | Opening of bales, carding, ironing | |
| | Threading | |
| | Spool winding, | |
| | Combing, dyeing, weaving | |
| ASSEMBLY LINES | Big machinery | |
| | Assembly of car chassis, motors | |
| | Assembly of small parts | |
| | High precision assembly | |
| OFFICES | General duties | |
| | Cashiers | |
| | Meeting rooms | |
| | Normal jobs | |
| | Technical drawing | |
| | Big offices | |
| | Laboratories | |
| PAPER INDUSTRY | Manufacture of paper and cardboard | |
| | Classification and control | |
| SHOPS AND | General lighting in big shopping malls | |
| SUPERMARKETS | General lighting – others shops | |
| TYPOGRAPHY | Typesetting rooms | |
| AND BINDING | Column setting | |
| | Typolithography | |
| | Reproduction and colour printing | |
| | Binding | |
| | Finish, dry printing | |
| MACHINE OPERATING | Occasional work | |
| | Work benches and machinery | |
| | Welding | |
| | Assembly of big pieces | |
| | Assembly of medium pieces | |
| | Assembly of small pieces | |
| | Automatic precision machines | |
| | High precision work | |
| | Testing and control of small complicated parts | |

## IP Rating Explanation

| Rate | Dust Protection 1st Digit | Moisture Protection 2nd Digit |
|---|---|---|
| 0 | No protection against ingress of solid | No protection against water |
| 1 | Protection against ingress of large sized, solid foreign bodies.Objects equal to or greater than 50 mm | Protection against vertical drops of liquid. |
| 2 | Protection against ingress of medium sized, solid foreign bodies.Objects equal to or greater than 12.50 mm. | Protection against drops of liquid. Drops of liquid shall have no harmful effect when the luminaire is tilted at any angle up to 150 from the vertical. |
| 3 | Protection against ingress of small, solid foreign bodies. Objects equal to or greater than 2.50 mm. | Protection against rain. Rain falling at an angle equal to or less than 600 from the vertical shall have no harmful effect |
| 4 | Protection against small particles. Objects equal to or greater than 1.00 mm. | Protection against splashing. Liquid splashed from any direction shall have no harmful effect. |
| 5 | Protection against harmful deposits of dust. The ingress of dust is not totally prevented, but dust cannot enter in an amount sufficient to interfere with satisfactory operation of the equipment. Dust protected | Protection against jet water. Water projected by a nozzle from any direction under stated conditions shall have no harmfull effects |
| 6 | Protection against ingress of dust. The ingress of dust is totally prevented. Dust tight. | Protection against heavy seas and powerful water jets. |
| 7 | | Protection against immersion in water. It must not be possible for water to enter the luminaire under stated conditions of pressure and time. |

# LED Modules Rated Values and their Use

Definitions of thermal, electrical and photometric characteristics have been set out in international standards to characterise light sources and luminaires.

Certain thermal, electrical and photometric data are published with a rated value – a quantitative value for a given light source or luminaire characteristic under specified operating conditions. The relevant values and conditions are set out in standards or defined by manufacturers or responsible vendors. This is vital if rated values are to be comparable. Many manufacturers' documents contain nominal values, which are approximations of(more precise) rated values.

To take account of possible differences in manufacturers' product designs or differences in components and tolerances in manufacturing processes, the rated value should be published with upper and lower thresholds. This should help to ensure reliable operating conditions and optimal information about the relevant characteristics of light sources and luminaires.

Typical examples of rated values are lamp voltage and lamp current. A typical example of a nominal value is the wattage on the packaging of conventional lamps.

The connection between the different values can be explained by taking a conventional high–pressure discharge lamp HCI–T 35 W (IEC nomenclature: MT 35) as an example:

- The nominal input power of the lamp is 35 W – practically the name of the lamp.
- The rated input power of the lamp, however, is 39 W – the power for which the lamp was designed.
- The measured input power of the lamp may be 38 W – actual tolerances are shown in the lamp specification sheets.

### 1 Rated Luminaire Input Power P (in W)

Rated input power is the effective power of the luminaire in terms of rated voltage. It is used for planning the energy consumption of the luminaire and includes the power consumed by all components (including control gear) incorporated in the luminaire and required for its operation.

Input power is measured at the rated ambient temperature tq after thermal stabilisation.

Effective power is measured at 100% of the light output (defined operating point). In the case of dimmable luminaires, dimmed settings are not taken into account at present.

The electrical input power of the LED luminaire as a whole is declared in Watts (W).

For luminaires with constant luminous flux technology, effective power at rated life Lx (see 7a) needs to be additionally declared.

### 2 Rated Luminaire Luminous Flux Fv (in lm)

The rated luminous flux of a luminaire is the total power radiated in all directions within the visible spectrum; it always refers to the initial luminous flux emitted by the semiconductor light sources in the luminaire under defined operating conditions.

The initial luminous flux values measured for luminaires must be no more than ten percent lower than the rated luminous flux of the reference luminaire for which the data is published.

Unless stated otherwise, the luminous flux value given for the luminaire as a whole is based on an ambient temperature of 25 °C.

It is not customary for luminaire luminous flux to be measured and published for luminaires with traditional light sources (non-LED). In such cases, the lamp luminous flux (of the lamps used) is normally multiplied by the luminaire light output ratio (LOR). In LED technology, the separate declaration of luminaire light output ratios is less common.

### 3 LED Luminaire Efficacy $\eta v$ (in lm/W)

Luminaire efficacy is the quotient of radiant luminous flux and electrical power consumed.

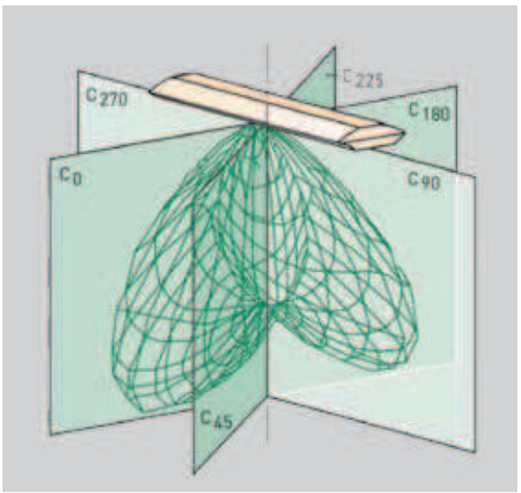
The measured initial luminous flux is divided by the measured initial input power of the same LED luminaire. Luminaire efficacy is expressed as lumens per Watt (lm/W).

Note: Luminaire efficacy is occasionally used to rate energy efficiency. For an assessment of energy efficiency, it is generally not enough to consider this parameter alone because it also includes stray light that does not help illuminated the target area. This applies particularly in the case of narrow beam luminaires and streetlights.

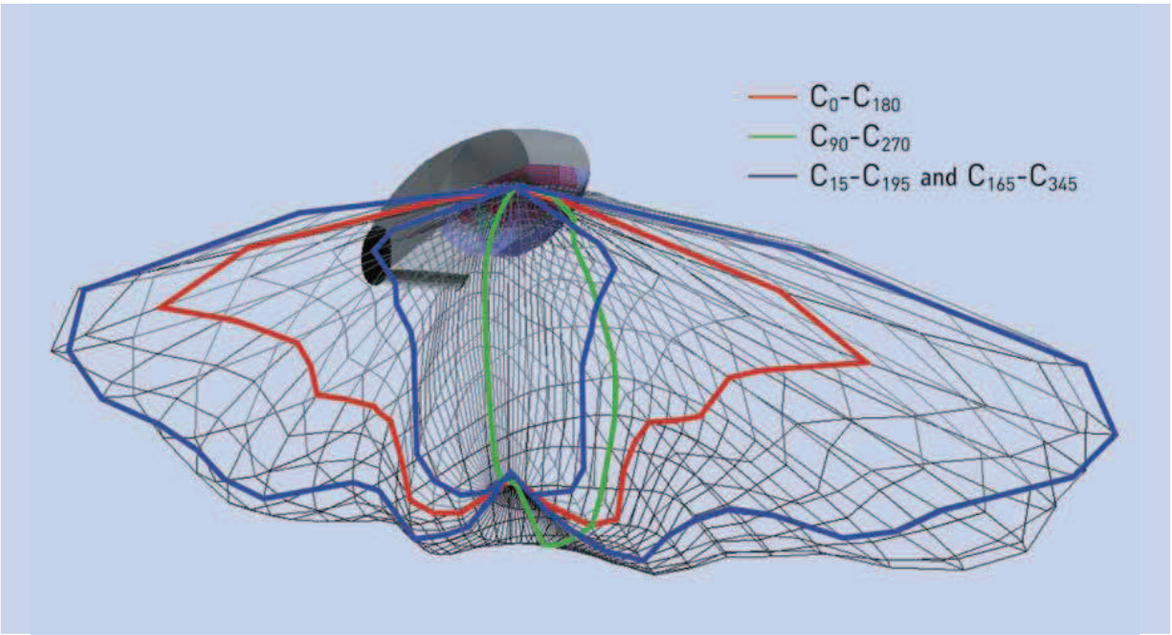
### 4 Luminous Intensity Distribution of Luminaires

The spatial distribution of the luminous intensity of a light source is indicated by intensity distribution curves. Fig. 1 shows the luminous intensity distribution of an interior luminaire and Fig. 2 that of a streetlight.

**Fig. 1: Example of the luminous intensity distribution of an interior luminaire**



## Fig. 2: Example of the luminous intensity distribution of a streetlight




Sections through the vertical axis are represented by intensity distribution curves (IDCs) for C planes plotted on polar coordinates. They are based on luminous intensity values in standard luminaire operating conditions (e.g. normal position of use, ambient temperature 25 °C). The values are expressed as cd (candela).

Depending on the shape and symmetry of the luminous intensity distributed by a luminaire, a distinction is made between narrow angle, wide angle, symmetrical and asymmetrical intensity distribution. In the case of luminaires, a distinction is also made between direct and indirect radiation. Intensity distribution curves are created using a goniophotometer and disclosed in lighting design documents.

### 5 Colour Quality

The colour quality of white light is defined by the following characteristics:

a light colour, expressed as a corre lated colour temperature
b colour rendering, expressed as ren dering index
c colour tolerance, expressed in Mac Adam ellipses

### 5a Correlated Colour Temperature CCT (in K)

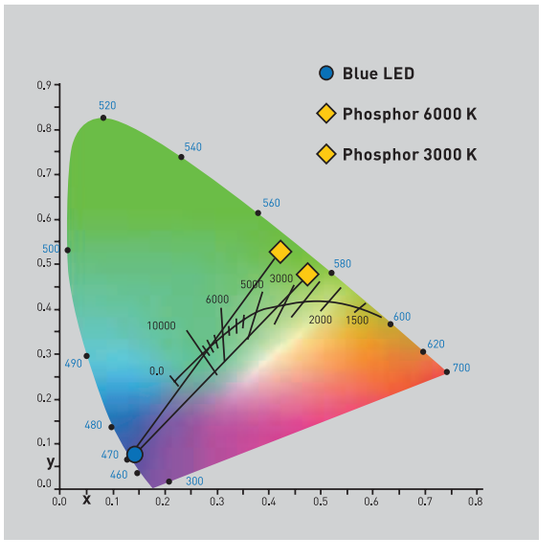
The light colour of white light is defined by correlated colour temperature Tcp expressed in K (Kelvin). Temperatures are described as warm white up to 3,300 K, neutralwhite from 3,300 K to 5,300 K and daylight white over 5,300 K (Fig. 3). Correlated colour temperatures should be declared rounded to 100 K (recommendation). In a typical design assignment, care should be taken to ensure that only light sources with similar colour temperatures (100 K tolerance) are used.

### 5b Colour Rendering Index CRI

Despite identical light colour, light sources can have different colour rendering characteristics because of the different spectral composition of their beam. The general colour rendering index, Ra, was introduced to provide a benchmark for identifying the colour rendering characteristics of a light source objectively. It indicates how closely the perceived colour of an object matches its appearance under a particular reference light source.

According to EN 12464–1, sources with a colour rendering index below 80 should not be used for work areas in which people spend a significant length of time.

Fig. 3: CIE chromaticity diagram




To identify the light colour and colour rendering characteristics of light sources clearly in addition to manufacturers' descriptions, a manufacturer-neutral three-digit colour code has been introduced internationally (see Table
1). The code number 840, for instance, denotes a colour rendering index of 80 to 89 and a colour temperature of 4,000 K, which is within the neutral-white light colour range.

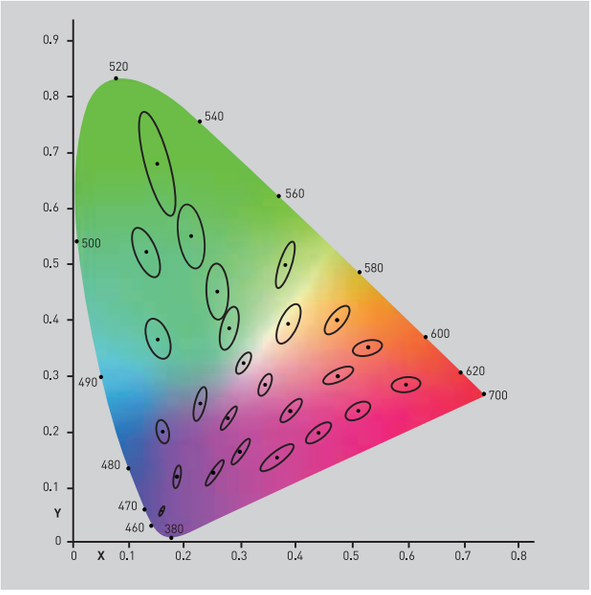
Fig. 4: Example of good colour rendering

Fig. 5: Example of poor colour rendering

## 5c Colour Tolerance

The chromatic coordinates of a particular colour can be defined precisely by x and y coordinates in the CIE Chromaticity Diagram (according to the 1931 CIE Colour Space; DIN 5033). The coordinates of the achromatic locus (white), for example, are x = 0.3333 and y = 0.3333.

**Fig. 6: MacAdam ellipses in the CIE chromaticity diagram**



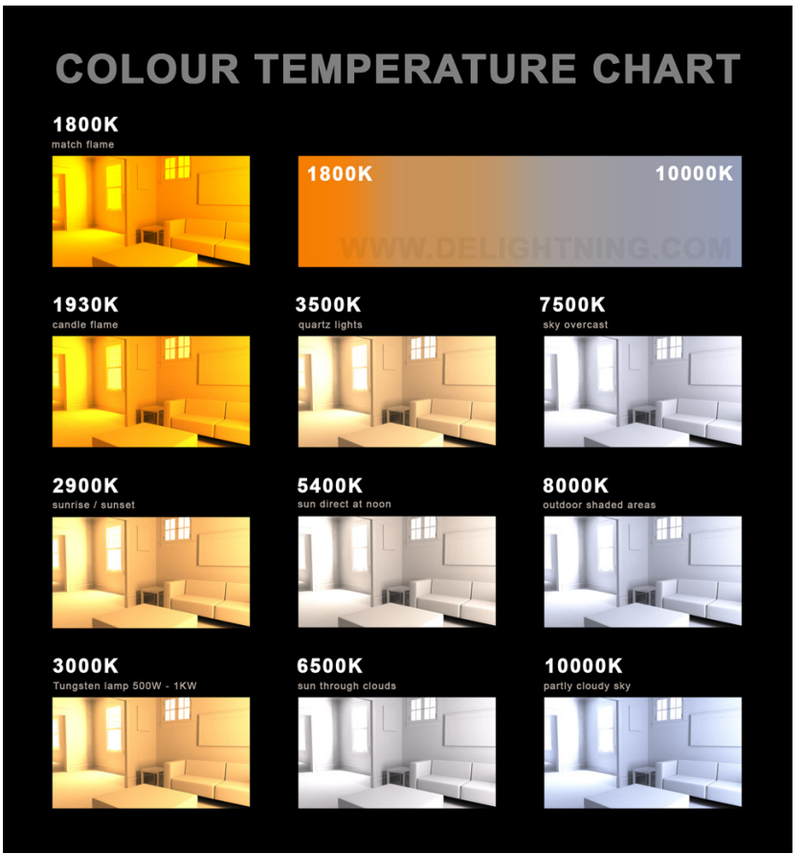

MacAdam ellipses refer to a region on the CIE Chromaticity Diagram that contains all the colours that the human eye cannot distinguish from the colour at the centre of the ellipse. The contour of the ellipse indicates the colours that can just be distinguished.

MacAdam ellipses are often extended, e.g. to three, five or seven times their original diameter. These 3, 5 or 7–step MacAdam ellipses are used to differentiate between two light sources, the steps representing the range of colour difference. Light sources with a 3–step– MacAdam ellipse colour difference will show less marked differences than light sources with a colour difference spanning a 5–step MacAdam ellipse.

Care should be taken to ensure small colour differences – especially for lighting applications where individual light sources are not far apart and can be seen simultaneously.

Tab. 1: Identification of LED light sources in terms of colour rendering index and colour temperature

| 1st numeral indicates colour rendering | | 2nd and 3rd numerals indicate light colour | |
|---|---|---|---|
| 1st digit | $R_a$-range | 2nd and 3rd numeral | Colour temperature |
| 9 | 90 – 100 | 27 | 2,700 K |
| 8 | 80 – 89 | 30 | 3,000 K |
| 7 | 70 – 79 | 40 | 4,000 K |
| 6 | 60 – 69 | 50 | 5,000 K |
| 5 | 50 – 59 | 60 | 6,000 K |
| 4 | 40 – 49 | 65 | 6,500 K |



### 6 Rated Ambient Temperature for Luminaires

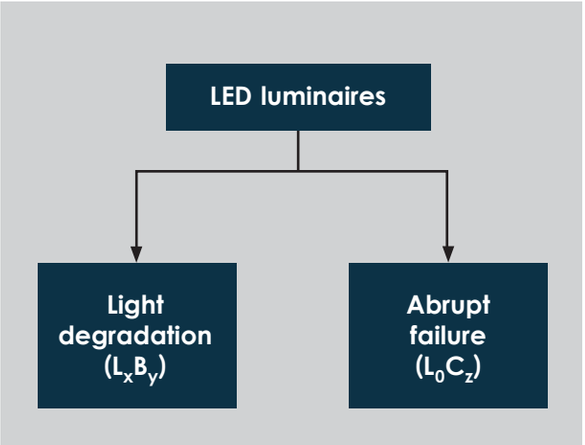
Luminaire performance is influenced by ambient temperature.

The rated ambient temperature Ta is the high–est sustained temperature in which the lumi–naire may be operated under normal operating conditions.

Tc : maximum case temperature as provided by module manufacturer.

Tp: the temperature at which the data is provided.

Fig. 7: LED luminaire longevity criteria




### 7 Longevity Criteria for LED Lighting Products

LED lifespans are not measured only to the point of abrupt failure: up to a certain point, the majority of LEDs do not actually fail at all; their luminosity decreases over time (light de–gradation). The lifespan of LEDs, modules and luminaires is thus limited by the failure of the relevant electronics or by the luminous flux falling below a predefined minimum level. Fig. 7 shows the two longevity criteria, abrupt failure and light degradation, as defined in current IEC draft standards:

In the case of **LEDs**, the two parameters essen–tially depend on the permissible cur–rent and the temperature inside the LED. LED manufac–turers need to declare the rel–evant informati–on so that module or lumi–naire manufactur–ers can determine the life expectancy of their products.

In the case of LED modules, light degrada–tion and abrupt failure are also influenced by the electrical interconnection of the LEDs, the temperature at the tc or tp point and other characteristics of the module. Temperature at the tc point (marking on housing or PCB) is the maximum temper–ature permitted for safety under normal operating conditions. The tp point tem–perature is the temperature at which the performance parameters are estimated. The temperatures at tc and tp points can differ. Module manufacturers must there–fore make this information available to luminaire manufacturers so that the lat–ter may determine the life expectancy of their products.

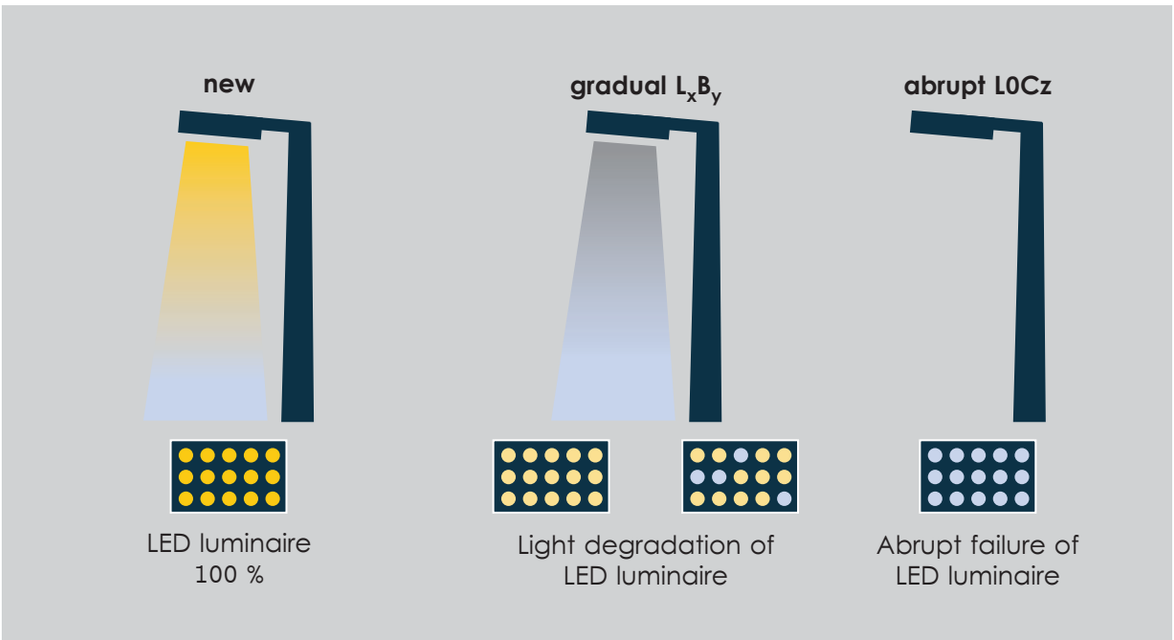
This guide presents comparable quality criteria that facilitate the assessment of technical claims for LED luminaires. LED modules and individual LEDs are not con–sidered in greater depth below.

### 7.1 Longevity Criteria for LED Luminaires

In the case of **LED luminaires**, degradation and abrupt failure depend additionally on the electrical operating data of the LEDs or modules in the luminaires, the ambient temperature for the application and other characteristics of the LED luminaires. Luminaire manufacturers must declare the relevant information so that the user or designer of a lighting installation can determine when the installation requires maintenance.

Fig. 8 shows the original state, degradation and abrupt failure of a luminaire (terminology from current draft standard):

**Fig. 8: Failure state of a luminaire (original state, degradation and abrupt failure)**

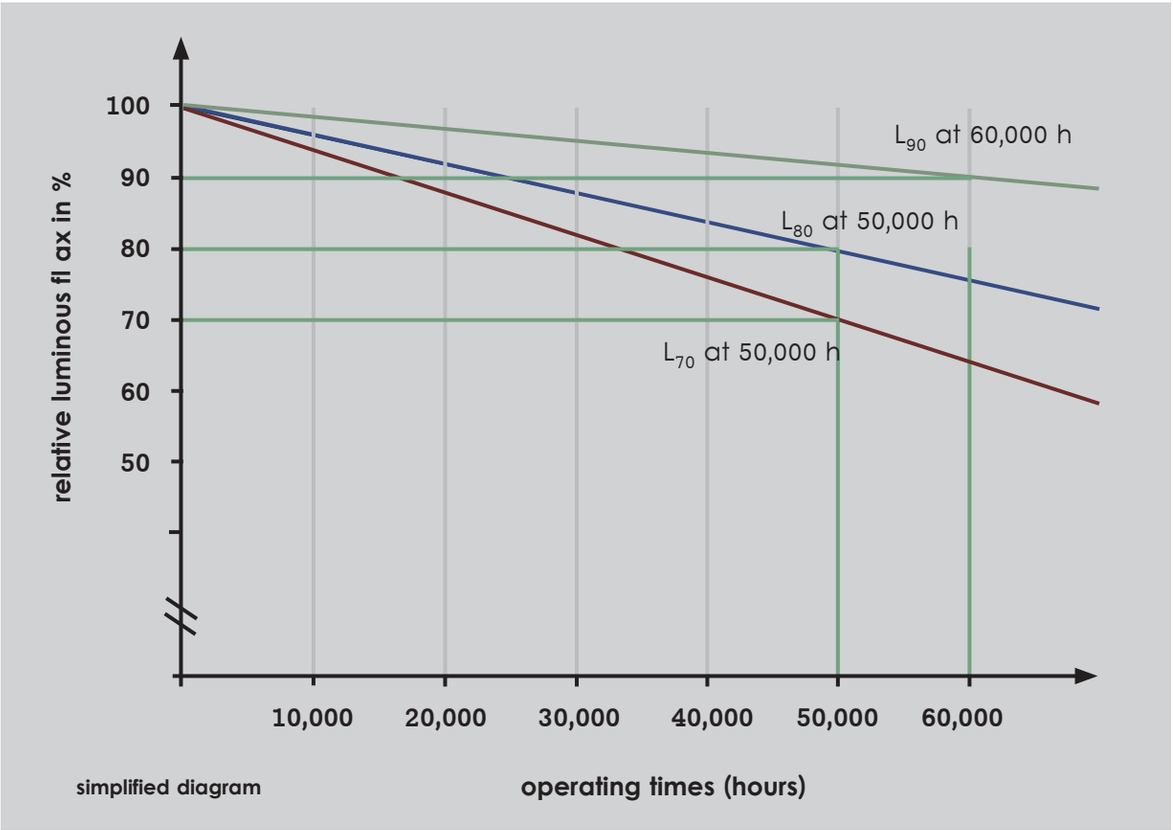



### 7a Rated Life (Lx) (useful life)

The light degradation of LED luminaires is indicated by rated or useful life Lx, where luminous flux declines to a percentage x of initial luminous flux.

Typical values of 'x' are 70 (L70) or 80 percent (L80) for a given rated or useful life.

Fig. 9: Schematic representation of the change in luminous fl ux over operating time




### 7b Taking Account of Lumen Loss (By)

The percentage of LED luminaires that fall below the target luminous fl ux of x percent (see x of Lx) at the end of their designated life is expressed by the 'gradual failure fraction' (By, see Fig. 8) (percentage of failures as a result of gradual loss of luminous fl ux). Gradual lumen loss refers to the product considered – LED luminaire or LED module – and can occur as a result of a gradual decline in luminous fl ux or the abrupt failure of individual LEDs on the module (see Fig. 8).

The value B50 thus means that 50 percent of a number of LEDs of the same type fail to deliver the declared percentage 'x' of luminous fl ux at the end of rated life 'L'. Occasionally, for certain applications, B10 may be of interest, i.e. the point in time when only ten percent of the LED luminaires fail to deliver the declared percentage 'x' of their initial luminous flux.

The $B_{50}$ criterion (median value) is used to indicate the average luminous fl ux of LED luminaires functioning at the end of the rated median useful life Lx (x = percentage of initial value).

The $B_y$ criterion says nothing, however, about the luminous fl ux of the individual LED luminaires or their precise distribution.

## WHAT IS A DRIVER AND WHAT IS IT USED FOR?

Operating an LED module always requires control gear (a ballast), which in the field of LEDs is called a driver.

Current can only flow in one direction through an LED (diode). A rise in internal temperature during operation can lead to a rise in current and with that power uptake within the LED, which in turn leads to a further increase in temperature. Failing to limit this vicious circle can lead to the destruction of an LED. Preventing this from happening is one of the tasks performed by a driver.

LED modules can be operated with one of two different supply sources (drivers) depending on gearshift assembly:

- a constant current source
- a constant voltage source

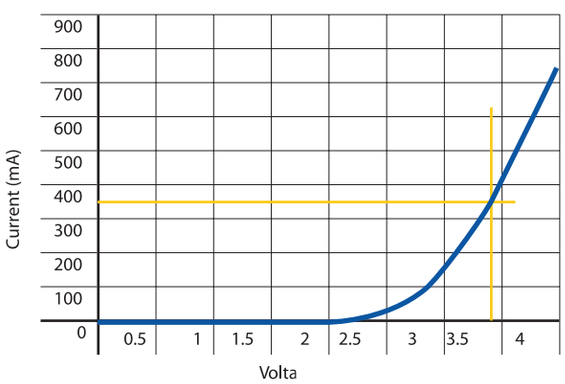
### DRIVERS FOR CONSTANT CURRENT OR CONSTANT VOLTAGE OPERATION

If an LED module is operated using a constant voltage source but without current limitation, the current will increase up to the thermal destruction of the LED. To avoid this effect, LED modules for operation with constant voltage are fitted with integrated current control.

When operating an LED using a constant current source, the current operating the LED is kept at a constant level, with current control being integrated in the driver. Constant current sources can feature either transistors or integrated circuits. The use of a constant current source is more efficient.

### Characteristic curve of a white high-performance LED

Nominal current 350 mA, Voltage 3.4 V




Operating point = intersection of the yellow auxiliary lines

Tolerance values for output currents constitute a qualitative criterion and a value of ± 5% is typical for high-quality devices, while a value of ± 10% is characteristic of low-cost devices.

### AC OR DC

The primary or mains connection side of universal drivers should be suitable for use with both AC (alternating current) and DC (direct current). This makes it possible to supply these devices both with 230 V AC mains power during normal operation and with 220 V DC battery power during emergency operation. The driver's secondary side always provides direct voltage, since LEDs are semi-conductors that only let current pass in one direction.

### SELV OR NOT SELV

Standing for "Safety Extra Low Voltage", SELV describes low voltages with safe isolation, e.g. with an isolation transformer. SELV ensures an enhanced degree of protection against electrical shock, as laid down in the requirements of the basic safety standard IEC 61140 "Protection against electric shock – Common aspects for installation and equipment", which, as a European standard, also has the status of a German standard (EN 61140). This standard is applicable with regard to affording protection against electric shock to humans and livestock. The standard intends to lay down principles and requirements that together will apply to electrical appliances, systems and control gear or that are required for their coordination. The standard applies to equipment, systems and control gear without voltage limitation. The requirements of the standard are applicable only if they have been integrated into other standards or if in such standards reference is made to these requirements. The standard is not designed to act as an independent standard. SELV devices feature special insulation to parts conducting mains voltage, which con-stitutes safe isolation. The permissible magnitude of SELV voltages that carry a risk of accidental contact is specified in the respective applications. Should these

maximum voltages be exceeded, protection against direct contact is required. As a rule of thumb it can be said that SELV devices are more technically sophisticated than non–SELV devices. But they also provide optimum protection.

**POWER FACTOR AND EFFICIENCY**

In the field of electrical engineering, the power factor $\phi$ expresses the ratio of real power P to apparent power S (see formula):
$\lambda = P / S$

Real power P is a physical value that constitutes the amount of transferred power. Apparent power S is a product of effective voltage and effective current, and thus more of an "artificial" concept that serves to specify the loads acting on means of transfer (e.g. conductors). As a result, the power factor $\lambda$ is always a positive value of $\leq 1$. It thus defines the degree to which power is converted into usable energy in a device.

In accordance with the IEC 62384 performance standard, the power factor for LED drivers will be displayed on the type label as follows: $\lambda = 0.95$

The efficiency of a device is defined using its power efficiency value $\eta$. The power efficiency factor of a device is defined as the output power Pout divided by the input power Pin. The respective measuring procedure for LED drivers will be defined in the IEC 62442–3 standard, which is currently under preparation. Highquality devices feature a power efficiency factor upwards of 85% ($\eta \geq 0.85$).

**RIPPLE**

Ripple refers to alternating voltage superimposed on direct voltage. The corresponding ripple current leads to a rise in temperature inside LED modules and decrease the light quality. Two factors are decisive in this respect: the magnitude of the current and its frequency.
The ripple value is a clear performance marker. High–quality drivers will come with a value of approx. 10%, while lower– performance drivers will have values of ≥ 30%.

**NO–LOAD, OVERLOAD AND SHORT–CIRCUIT PROTECTION**

The above–mentioned operational states can impair driver func–tions or even lead to driver destruction. It is therefore important to ensure that such devices are fitted with sufficient short–circuit and overload protection, and are suitable for no–load operation.

Before they exceed the upper temperature limit, high–quality devices limit current consumption and, by reducing the power supply, thus reduce the internal temperature. Should the devices continue to be overloaded, a safety cut–out will activate and switch the devices off. From a technical point of view, this is achieved using an NTC (negative temperature coefficient) resistor or an electronic circuit. When overloaded, low–performance devices simply switch off and remain switched off or even break down completely.

A difference is made between short–term and permanent short circuits. Devices for both types are available on the market. In this regard, it is important to note that ensuring permanent short–circuit resistance is more technically sophisticated, but also provides the highest level of protection. No–load operation can also lead to the destruction of devices without protection. For this reason, devices must also be resistant to no–load operation.

**SERVICE LIFE AND FAILURE RATE**

When used in combination with LED modules, a driver's service life and failure rate are further decisive criteria. In real–life applications, care should be taken to ensure components perfectly match to prevent damaging the system due to the presence of an "inferior" component. High–quality drivers provide a service life of ≥ 50,000 hours with a failure rate of 0.2% per 1,000 hours. Low–performance devices come with a service life of 30,000 hours and failure rates of 0.5% per 1,000 hours.

**EMC**

EMC (electromagnetic compatibility) not only covers outgoing interference, but also immunity against such interference and the creation of mains current and mains voltage irregularities. To ensure the most diverse electrical and electronic devices can work alongside each other without causing problems, it is important that limit values for radio disturbance are not exceeded and that minimum requirements for immunity to in–

terference are satisfied. Observing specified limit values forms the basis for this. Proof is furnished by applying the European standard EN 55015: "Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment", which is based on the IEC/CISPR standard of the same name.

### THERMAL BEHAVIOUR

To ensure that electronic components function safely, it is important to observe their maximum thermal loads. Normally, the manufacturer will specify a precise point on the driver for temperature measuring purposes. To avoid shortening the service life of a device, the specified highest temperature must not be exceeded at this so-called tc point. This measuring point is defined by testing the driver during normal operation at the maximum permissible ambient temperature ta. As both the design-related ambient temperature and the driver's level of self-heating, which is dependent on the power supply, can greatly vary, the casing temperature should be measured at the tc point under realistic installation conditions. The difference between the tc and the ta value is a measure for the level of self-heating and thus the driver's power loss. The lower this difference in value is, the higher the quality of the driver. Good air circulation can improve thermal behaviour and positively influence the driver's service life.

### SPIKE RESISTANCE

In practice, mains power supply networks are susceptible to transients and do not correspond to the clean sinus wave pattern they should theoretically display. Such irregularities in mains power can, for instance, be caused by switching large inductive or capacitive loads. Voltage spikes, in particular, pose a particular challenge for control gear.

To ensure drivers can withstand such voltage spikes, they must be designed in accordance with IEC 61547 "Equipment for general lighting purposes – EMC immunity requirements". The standard lays down requirements for the electromagnetic immunity of lighting systems. The provisions of this standard are based on the requirements for residential, commercial and industrial environments, as set out in IEC 61000-6-1, but adapted to suit real-life conditions for operating lighting technology.

In line with EN 61547, drivers are tested with a test voltage of 1 kV for inputs ≤ 25 W and 2 kV for inputs > 25 W between power and earth. However, manufacturers of high-quality devices normally conduct such tests with higher voltages. The requirements for outdoor applications are much more stringent, demanding test voltages of 2–8 kV between phase and neutral conductor, depending on the respective manufacturer's classification.

### DEGREE OF PROTECTION AND MARK OF CONFORMITY

Together with the mark of conformity issued by testing institutes, the pertinent approbations are a "MUST" for all kinds of control gear. In this regard, a difference is made between safety tests (EN 61347), performance tests (EN 62384), energy consumption tests (EN 62442-3), EMC tests (EN 55015, EN 61547, EN 61000-3-2) and tests regarding the assessment of electromagnetic fields (EN 62493). For drivers, the ENEC mark serves to document that relevant safety and performance requirements have been met. The degree of protection of control gear is expressed by an IP number. IP20 devices are suitable for integration in indoor luminaires without special requirements. IP65 devices are, for instance, used for outdoor lighting applications.

### PROTECTION CLASS I AND PROTECTION CLASS II

All electrically conductive casing parts must be protected by con nection to electrical earth for Protection Class I (see symbol) devices. Devices designed for independent operation must feature a mechanical cable grip for the power supply cable.

Devices of Protection Class II (see symbol) feature
double or reinforced insulation between the mains
power circuit and the output side or the metal casing.
If a cable with a protective earth conductor is used,
this must not be connected to the casing

**BUILT–IN AND INDEPENDENT OPERATION**
Drivers for LEDs can be suitable for two di ferent kinds of operation:

1. Built–in
Permanent integration in a luminaire or a casing that performs a task that is similar to a luminaire.
2. Independent Operation
As for instance when installed in a false ceiling.

Stricter EMC test methods apply for devices destined for independent operation since cable lengths can vary in such cases. With re–gard to devices designed for independent use, care must be taken to ensure that they feature the sym–bol shown on the left.

**DIMMABLE DRIVERS**
Dimming LED lighting using light control sys–tems and dimmable drivers provides several advantages:
• Energy and cost savings due to reduced power consumption
• Less environmental impact due to lower CO2 emissions
• More convenient thanks to flexible light scenes to suit any occasion

From technical point of view, there are vari–ous ways to address a driver, in which re–gard a basic difference is made between digital and analogue control options. When it comes to ways of effecting digital control, DALI (Digital Addressable Lighting Interface) is becoming ever more established. DMX is a further digital control protocol and often used for RGB and effect lighting. Analogue control is effected with the help of a 1–10 V control voltage interface. Directly address–ing the 230 V mains voltage side enables phase–cutting control.

**TUNEABLE WHITE**
In a manner similar to the way that light intensity can be varied by dimming, Tune–able White enables infinite adjustment of the light temperature. From "warm white" to "cool" daylight, light–colour moods ranging between, e.g., 1,700 K and 6,500 K are possible.

This function provides the advantage of customising lighting moods even further. Different times of the day or seasons can be recreated and dynamically repro–duced. State–of–the–art drivers and light control devices make it possible to pre–cisely adjust light temperatures to suit the given circumstances, not only in retail and office environments, but also in medical facilities and in private applications. The positive effect of adjustable light, as en–abled by suitable control gear, is always at the forefront.

**STANDARDS AND DIRECTIVES**
Within the EU, the general rule applies that electrical control gear is allowed to retail on the market only if the basic requirements of the applicable European directives (ad–opted as national laws) have been met. Control gear used for lighting applications is subject to the EC low–voltage directive, the EMC directive and the ErP directive (and possibly further directives as well). As a result, safety, EMC, EMF, eco–design, etc. requirements must be satisfied by products and documentation must be ensured


majelite
THE LIGHTING LANGUAGE

majelite guarantees its customers a peace of mind and satisfaction on all purchased products. Our guarantee not only represents our level of commitment towards our valuable customers but also our confidence in our products. This guarantee is valid on all components of the product from the date of purchase for 5 years against manufacturing defects. All our customers can rest assured that they are working with a top quality and reliable product and a company with a sense of responsibility.

# General Sales & Delivery Conditions

The acceptance of an order by majelite supposes in all cases that the buyer understands and agrees with the following general conditions of sale and delivery:

1. All orders should be placed in writing, by fax or any other written means and under no circumstances we shall accept the cancel–lation nor the alteration of a confirmed order.

2. Al quotes, whether written or verbal, do not constitute a commit–ment and do not in any way oblige us to accept the order. All orders or undertakings are only valid if they have been ratified by majelite

3. Delivery times will be effected within the agreed period and they do not constitute a commitment. Delivery times given by majelite are for information only. Any delays which occur, do not authorize the buyer to cancel the order nor to apply any penalties or claim indemnifies, unless there is an agreement to the contrary.

4. majelite reserve the right to cancel any order if for reasons beyond our control such as industrial action, labor disputes etc. Orders for any specially manufactured goods can not be can–celled by the buyer, without our written consent, in which case all costs up to cancellation date will be borne by the buyer.

5. Once goods have been handed over to the transport company, delivery is deemed to have been carried our correctly. We are not responsible for any breakages which may occur during trans–portation. The buyer should charge these to transport company. We will be happy to assist the buyer with any such reclamation.

6. Measurements given in this catalogue are millimeters. We reserve the right to introduce any modifications deemed necessary to meet the requirements of market trends.

7. Complaints will only be valid if the fault is reported to us within 7 days of the receipt of goods. If a fault is established and goods are kept in their original conditions majelite will take the ap–propriate measures.

8. Parties subject to any disputes, doubts or divergences that may arise from the interpretation or fulfillment of these conditions, will renounce their statute laws and will submit to the law of Sultanate of Oman.

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THE LIGHTING LANGUAGE