

# Light shapes the city of tomorrow.

STREET LIGHTING • SOLAR • CONNECTED

## SMART CITY

WIRELESS MESH NETWORK



CATALOGUE D-SLS-33

# 2026

D-SLS-33 20 – 150 W • Bell Ø750

**D-SLS**  
Digital-Smart Lighting Solutions

## OVERVIEW · BELL Ø750 · D-SLS-33

A 750 mm bell for market halls, covered courtyards and large covered squares



D-SLS-33 — Ø750 bell, spun dome

**28 050 lm**

maximum luminaire flux · 150 W · 4000 K

**187 lm/W**

luminaire efficacy · CRI 70

**Handcrafted**

made one by one in the workshop

**IP66 · IK08**

optical unit · impact resistance

**DALI-2 · D4i**

programmable driver · NFC

**7 years**

warranty · 10 years optional

### Made to order, equipped like a street light

D-SLS-33 is a long-throw pendant: a **spun and pressed Ø 750 mm** aluminium dome, 505 mm high, with a perforated cooling chimney, made to order in our workshop. Inside is the technical core of D-SLS street lights: LED modules with indirect reflectors under tempered glass, a **DALI-2 D4i + DT8** driver, a 10 kV SPD and a Zhaga socket for LidarMesh remote management.



#### Market halls

Market halls, covered markets and courtyards.



#### Covered squares

Galleries, forecourts and large volumes.



#### Pendant

On M22 threaded rod, tensioned cable or bracket arm.

## D-SLS-33 · NEW EMBEDDED TECHNOLOGIES

*Indirect inter-reflection reflector, LiDAR node, D4i · DALI-2 · Thread — the range's connected platform*

### Indirect reflector (inter-reflection) — reflectance $\geq 98\%$



Satin aluminium reflector optics, the LED is never seen directly: reflected light, anti-glare, no PMMA lens. Reflectance  $\geq 98\%$ , ULOR 0 %, asymmetric road distribution. One-piece LED matrix, removable by screws.

### New technologies used



#### LiDAR node

presence detection, counting, Zhaga D4i socket underneath



#### Static detection

integrated mmWave radar — presence without motion



#### Thread mesh network

IPv6, self-healing, TALQ 2.7.1



#### Tunable White

2700  $\rightarrow$  6500 K controlled via D4i + DT8



### Certified interfaces

THREAD

TALQ 2.7.1

ZHAGA BOOK 18

NFC

DALI-2

D4i



#### D4i

Intelligence serving urban lighting

#### Interoperability

D4i-compliant for open ecosystems

#### Power and data over the same cable

standardised interface

#### Smart sensors

detection, counting, energy monitoring

#### Predictive maintenance

real-time diagnostics and remote management



#### DALI+

Advanced, scalable management

#### Precise control

dimming and lighting scenarios

#### Multi-device

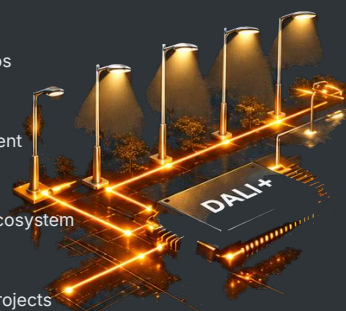
group and address management

#### Interoperability

certified multi-brand DALI+ ecosystem

#### Flexibility

suited to current and future projects



Scenarios



Schedule



Control



Supervision

### D-SLS-33 — the six connected functions



TUNABLE WHITE



LiDAR AI



MESH NETWORK



SECURE VPN



SELF-HEALING OTA



AI ANTI-THEFT

## PRODUCT ARCHITECTURE · D-SLS-33 · SIX KEY POINTS

*A fully dismountable luminaire: everything can be replaced on site, without special tools*

1

### Ø 750 mm dome

Spun and pressed aluminium, 505 mm high — colour defined on order.



2

### Road core range

Same LED module, same driver and same Zhaga socket as the road luminaires.



3

### Programmable driver

DALI-2 · D4i + DT8 via NFC, optional Tunable White.



4

### Protection

IP66 optical unit, SPD 10 kV / 10 kA, stainless valve.



5

### Remote management

LiDAR node and LidarMesh CMS via the Zhaga Book 18 socket.



6

### Handmade

Made to order: colour, finish and engraving to specification.



### IN BRIEF

|                      |                                                                                                        |
|----------------------|--------------------------------------------------------------------------------------------------------|
| <b>Construction</b>  | Die-cast aluminium housing EN AC-46100 (high-pressure) — Ø 750 mm dome spun one by one in the workshop |
| <b>Screen / bowl</b> | Flat tempered glass at the base of the dome                                                            |
| <b>Mounting</b>      | Pendant on M22 threaded rod or tensioned cable                                                         |
| <b>Protection</b>    | IP66 · IK08 · SPD 10 kV / 10 kA · stainless pressure-equalising valve                                  |
| <b>Range</b>         | 20 · 30 · 40 · 50 · 60 · 80 · 100 · 120 · 150 W                                                        |

**20 – 150 W**

power range

**187 lm/W**

luminaire efficacy

**IP66 · IK08**

sealing · impact

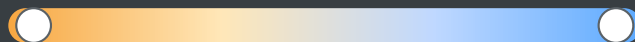
**Zhaga Book 18**

remote management ready

## PERFORMANCE & SAVINGS · DASHBOARD



### TUNABLE WHITE — CCT RANGE (TW OPTION)



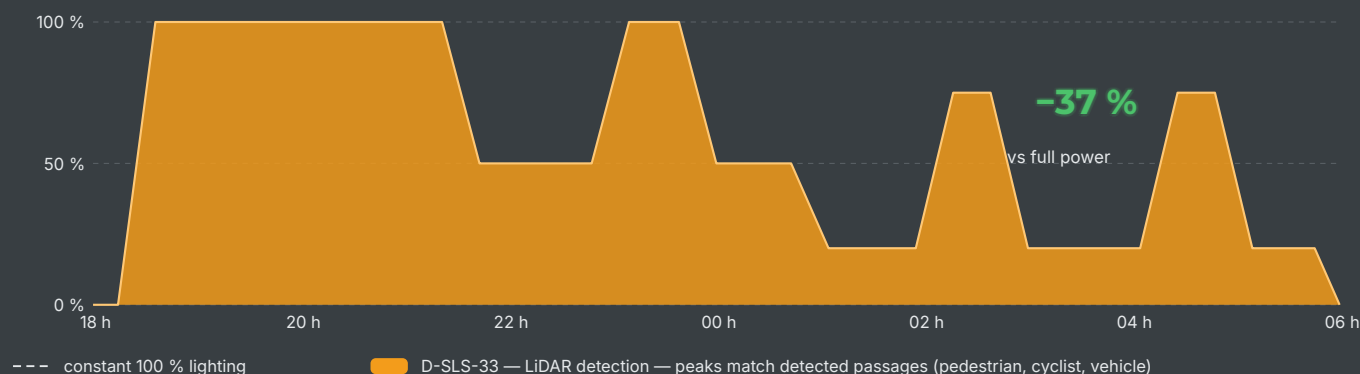
2700 K WARM

COOL 6500 K

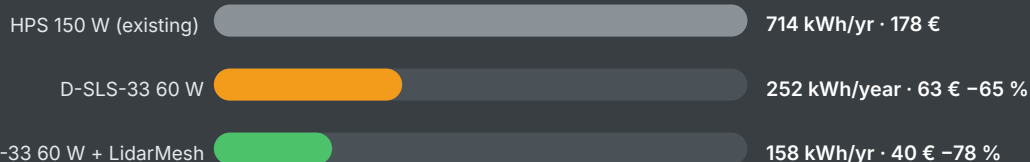
D4i + DT8 control — CRI 70 · 80 · 90 · 97, MacAdam < 3 SDCM

Fixed CCTs: 2700 · 3000 · 4000 · 5000 K

### LiDAR ADAPTIVE DIMMING — TYPICAL NIGHT PROFILE



### ANNUAL CONSUMPTION PER POINT — 4 200 h/yr · 0.25 €/kWh



Assumptions: HPS 150 W (170 W system incl. ballast) replaced by a D-SLS-33 60 W at the same illuminance level.

≈ 10.8 years

return on investment\*

-139 kg

CO2 avoided per point per year

zero

relamping — L90B10 ≥ 100 000 h

100 %

remotely controllable (TALQ 2.7.1)

### Reading the dashboard

\* Energy only, based on the above price and an indicative investment of €1 500 per point — excluding installation and avoided relamping; precise costing on study. Savings combine the efficacy of the LED platform (187 lm/W luminaire), optics that direct the flux onto the useful area, and managed dimming (LidarMesh) that lights at full power only when needed.

## KEY BENEFITS · 8 REASONS TO CHOOSE THE D-SLS-33



### Ø 750 mm dome

Ø 750 mm spun and pressed aluminium dome, perforated cooling chimney — colour defined on order.



### Handmade in the workshop

Made to order: colour, finish and engraving to specification.



### “Dark-light” indirect reflector

Indirect (inter-reflection) aluminium reflector  $\rho \geq 98\%$  (ISO 7668 / DIN 5036-3): the LED is never seen directly — optical efficiency  $\geq 95\%$ , glare-free, no PMMA lens.



### LUSSO-5050AUX LED module

Source LED CSP, luminaire 187 lm/W (4000 K · CRI 70 ·  $T_q$  25 °C), L90B10  $\geq$  100 000 h (TM-21) — module replaceable on site.



### NFC-programmable driver

DALI-2 and D4i + DT8: wirelessly adjustable output current, dim-to-off  $< 0.5$  W, stand-alone dimming profiles, OLC compensation.



### Remote management ready

Zhaga Book 18 socket: the LiDAR-ATMANI-AI node and the LidarMesh CMS platform can be added at any time, without opening the luminaire.



### Full protection

Type II SPD 10 kV / 10 kA with end-of-life indicator, IP66, IK08, stainless steel pressure-equalising valve.



### 7-year warranty

Extension to 10 years (W10 option) — electronics from ENEC-certified series, product-specific EU declaration of conformity.

## MATERIALS & CONSTRUCTION · THE D-SLS-33 BODY

CPS technical file — 1 / 3: luminaire body materials & construction

|                                  |                                                                                                                                                                                                                                                                                               |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Housing</b>                   | Housing in <b>injected</b> aluminium (high-pressure die-cast) — alloy <b>EN AC-46100 (AlSi11Cu2(Fe))</b> to UNI EN 1706, EN 10204 3.1 material certificate                                                                                                                                    |
| <b>LED module</b>                | Removable / replaceable — <b>Zhaga Book 18</b> standard · under-driven <b>LUSO-5050AUX</b> LEDs · Zhaga Book 18 sensor socket fitted as standard                                                                                                                                              |
| <b>Dome</b>                      | <b>Spun and pressed</b> aluminium Ø 750 × H 505 mm — perforated chimney                                                                                                                                                                                                                       |
| <b>Closure</b>                   | Flat <b>tempered glass</b> at the base of the dome — access from below                                                                                                                                                                                                                        |
| <b>Optical unit</b>              | Aluminium LED plate under flat tempered glass — IP66, removable at height                                                                                                                                                                                                                     |
| <b>Finish</b>                    | RAL colour of your choice — outdoor-grade polyester powder coating, gilding or patina optional                                                                                                                                                                                                |
| <b>Fasteners</b>                 | A2 stainless steel                                                                                                                                                                                                                                                                            |
| <b>Reflector</b>                 | High-reflectance aluminium $p \geq 98\%$ (ISO 7668 / DIN 5036-3), inter-reflection — anti-iridescence textured surface, sealed optical chamber, EN 10204 3.1 material certificate                                                                                                             |
| <b>Sealing</b>                   | EPDM gaskets · M20 × 1.5 stainless IP68 cable gland — IP66 optical unit                                                                                                                                                                                                                       |
| <b>Pressure-equalising valve</b> | Stainless steel with hydrophobic membrane — lets air through, never water or dust                                                                                                                                                                                                             |
| <b>Anti-corrosion treatment</b>  | Housing surface preparation before painting: alkaline degreasing, pickling and <b>chemical conversion passivation</b> , then <b>oven-cured polyester powder coating <math>\geq 70\ \mu\text{m}</math></b> — salt spray 500 h (ISO 9227), corrosivity C3 standard, C5-M seaside optional (MAR) |
| <b>Paint finish</b>              | Outdoor-grade polyester powder $\geq 70\ \mu\text{m}$ (ISO 2360), adhesion class 0 (ISO 2409), UV resistant — C5 seaside optional (MAR)                                                                                                                                                       |
| <b>Driver</b>                    | Programmable DALI-2 / D4i + DT8 electronics — tool-free plug-in, integrated 10 kV / 10 kA SPD                                                                                                                                                                                                 |

### A fully dismountable luminaire

All wear parts — LED module, driver, SPD, gaskets — are replaced on site from the aerial platform, without removing the luminaire or returning it to the workshop. A repairable architecture compliant with EU ecodesign (EU) 2019/2020.

#### DOCUMENTATION

LED LM-80 files, driver datasheets and material certificates available on request for tender dossiers.

**IP66**

optical block sealing

**IK08**

impact resistance

**A2**

stainless fasteners

**$\geq 70\ \mu\text{m}$**

powder coating

**500 h**

salt spray ISO 9227

**10 kV**

Integrated SPD



D-SLS-33

# TECHNICAL SPECIFICATIONS · D-SLS-33

CPS technical file — 2 / 3: technical data to compare point by point with the CPS

|                                        |                                                                                                                                                                                                                                                                                    |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applications</b>                    | Lighting for market halls, covered markets, courtyards, galleries and large covered squares · classes C and P (EN 13201)                                                                                                                                                           |
| <b>Body / construction</b>             | Die-cast aluminium housing EN AC-46100 (high-pressure) — Ø 750 mm dome spun one by one in the workshop                                                                                                                                                                             |
| <b>Optical unit</b>                    | <b>Indirect</b> (inter-reflection) satin aluminium reflector — total reflectance $\rho \geq 98\%$ (ISO 7668 / DIN 5036-3) · LED never seen directly, no PMMA lens · asymmetric road distribution                                                                                   |
| <b>Optical efficiency</b>              | $\geq 95\%$ — $Tl \leq 10\%$                                                                                                                                                                                                                                                       |
| <b>Screen / bowl</b>                   | Flat tempered glass at the base of the dome                                                                                                                                                                                                                                        |
| <b>Photobiological safety</b>          | EN 62471 — risk group 0 (RG0), no UVA emission                                                                                                                                                                                                                                     |
| <b>Insulation class</b>                | Class I (standard) · class II optional                                                                                                                                                                                                                                             |
| <b>Anti-corrosion treatment</b>        | Housing surface preparation before painting: alkaline degreasing, pickling and <b>chemical conversion passivation</b> , then oven-cured polyester powder coating $\geq 70\ \mu\text{m}$ — salt spray 500 h (ISO 9227), corrosivity C3 standard, <b>C5-M seaside</b> optional (MAR) |
| <b>Ingress protection</b>              | <b>IP 66</b> (IEC 60529) · <b>IK 08</b> (IEC 62262)                                                                                                                                                                                                                                |
| <b>Pressure equalisation</b>           | <b>Stainless-steel</b> pressure-equalising valve with hydrophobic membrane — no internal condensation or thermal pumping                                                                                                                                                           |
| <b>Mounting / fixing</b>               | Pendant on M22 threaded rod or tensioned cable                                                                                                                                                                                                                                     |
| <b>Dimensions &amp; weight</b>         | Dimensioned drawing and weight per size supplied with each offer                                                                                                                                                                                                                   |
| <b>Wiring</b>                          | Plug-in terminal block · tool-free connectors · M20 × 1.5 stainless cable gland IP68                                                                                                                                                                                               |
| <b>Temperatures</b>                    | Operation $-30\text{ }^{\circ}\text{C}$ / $+50\text{ }^{\circ}\text{C}$ (ta $50\text{ }^{\circ}\text{C}$ ) · storage $-40\text{ }^{\circ}\text{C}$ / $+80\text{ }^{\circ}\text{C}$                                                                                                 |
| <b>Power supply</b>                    | 220 – 240 V AC · 50 / 60 Hz — 90 – 305 V AC optional                                                                                                                                                                                                                               |
| <b>Driver</b>                          | Programmable <b>DALI-2</b> · <b>D4i</b> + <b>DT8</b> via NFC · efficiency $> 94\%$ · power factor $> 0.95$ · dim-to-off $< 0.5\text{ W}$                                                                                                                                           |
| <b>Surge protection</b>                | <b>Integrated type II SPD 10 kV common mode / 6 kV differential mode (10 kA), end-of-life indicator</b> — 20 kV external SPD optional (SP20)                                                                                                                                       |
| <b>Thermal controller</b>              | Thermal controller <b>NTC-ETM DIGITAL</b> — NTC probe on LED array and driver, digital threshold programmable via NFC, automatic current reduction when the threshold is exceeded                                                                                                  |
| <b>LED</b>                             | Ceramic <b>LUSSO-5050AUX CSP TECHNOLOGIES</b> LED chip, under-driven — source <b>LED CSP</b> · luminaire <b>187 lm/W</b> (4000 K · CRI 70 · Tq $25\text{ }^{\circ}\text{C}$ )                                                                                                      |
| <b>Wattages &amp; flux</b>             | 20 · 30 · 40 · 50 · 60 · 80 · 100 · 120 · 150 W — up to <b>28 050 lm</b> (4000 K · CRI 70 · Tq $25\text{ }^{\circ}\text{C}$ )                                                                                                                                                      |
| <b>Colour temperatures</b>             | 2700 · 3000 · <b>4000</b> · 5000 K — Tunable White 2700 – 6500 K (TW option)                                                                                                                                                                                                       |
| <b>CRI · MacAdam</b>                   | CRI 70 (standard) · 80 · 90 · 97 — <b>&lt; 3 SDCM</b>                                                                                                                                                                                                                              |
| <b>Lifetime</b>                        | <b>L90B10 <math>\geq 100\ 000\text{ h}</math></b> (IES LM-80 / TM-21) — maintenance factor 0.80 used in studies                                                                                                                                                                    |
| <b>Dimming &amp; remote management</b> | DALI-2 · D4i + DT8 · stand-alone profiles · <b>Zhaga Book 18</b> socket — LiDAR node and LidarMesh CMS TALQ 2.7.1 (LD option)                                                                                                                                                      |
| <b>Warranty</b>                        | <b>7 years</b> — 10 years optional (W10)                                                                                                                                                                                                                                           |

RoHS

IP66

IK08

EN 60598

EN 62471

DALI-2

D4i + DT8

Zhaga Book 18

TALQ 2.7.1

## Standards framework

Reference standards: EN IEC 60598-1:2021/A11:2022, EN 60598-2-3, EN 62493, EN 62471, EN 55015, EN 61547, EN 61000-3-2, EN 61000-3-3, EN 61000-4-5, EN 13201, IEEE 1789 — driver EN 61347-1 / EN 61347-2-13. LDT / IES files and DIALux study supplied with every offer.

## CERTIFICATIONS & STANDARDS

CPS technical file — 3 / 3: certificates, tests and standards framework

### Current D-SLS certificates

|                           |                                                                                                                                                     |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ENEC</b>               | Certificate No. HN 69290740 — TÜV Rheinland InterCert Kft. · EN IEC 60598-1:2021 + EN 60598-2-3                                                     |
| <b>Types covered</b>      | 443 types D-SLS-a-b-cd — series 03 to 21A and 25                                                                                                    |
| <b>ENEC parameters</b>    | AC 220 – 240 V · 50/60 Hz · class I · IP66 · ta 45 °C                                                                                               |
| <b>TÜV SÜD</b>            | Certificate No. N8A 08132 0101 — Low Voltage Directive 2014/35/EU · EN 62493                                                                        |
| <b>Families</b>           | D-SLS-a-b-cd — series 03 · 05 · 06 · 07 · 09 · 11B · 12A · 13 · 14 · 15 · 18 · 19 · 20 · 21A                                                        |
| <b>TÜV SÜD parameters</b> | 200 – 240 V · 50/60 Hz · class II · IP66 · IK09 · ta 50 °C                                                                                          |
| <b>This product</b>       | The D-SLS-33 uses the electronic platform (driver, SPD, LED module) of the certified series; it is covered by its own EU declaration of conformity. |

Copies of certificates and test reports supplied with every tender.

### Additional tests

- **IP66** — IEC 60529 depending on family
- **IK08 / IK09** — IEC 62262 (impact resistance)
  - **EN 62471** — photobiological safety RG0
- **EN 61000-4-5** — surge immunity 10 kV / 6 kV
- **EMC** — EN 55015 · EN 61547 · EN 61000-3-2 / -3-3
- **LM-80 / TM-21** — lifetime  $\geq$  100 000 h L90B10

### Standards framework

#### Luminaire safety

EN IEC 60598-1 · EN 60598-2-3 · EN 60598-2-5

#### Photobiology

EN 62471

#### Electromagnetic compatibility

EN 55015 · EN 61547 · EN 61000-3-2 · EN 61000-3-3 · EN 61000-4-5

#### Protection

EN 60529 (IP) · EN 62262 (IK)

#### Application

EN 13201 (public lighting) · UNI 11248 (classes M, C, P) · CIE 150 (light pollution)

#### Control & interoperability

IEC 62386 (DALI-2 · D4i) · Zhaga Book 18 · TALQ 2.7.1

#### Lifetime

IES LM-80 · IES TM-21 · IES LM-79 · UNI EN 13032-1

#### European directives

2014/35/EU (low voltage) · 2014/30/EU (EMC) · 2011/65/EU (RoHS)

RoHS

IP66

IK08

EN 60598

EN 62471

DALI-2

D4i + DT8

Zhaga Book 18

TALQ 2.7.1

### Compliance dossier

The above parameters are those stated on the current ENEC certificate and TÜV SÜD attestation; the product features on the previous pages reflect the luminaire's current commercial definition. Compliant with Directives 2014/35/EU, 2014/30/EU and 2011/65/EU; EU declaration of conformity, ENEC certificate, IP / IK reports and photometric files attached to every tender file.

### Documents supplied with every offer



#### ENEC certificate

Certificate No. HN 69290740 and test report — TÜV Rheinland InterCert



#### TÜV SÜD attestation

Certificate No. N8A 08132 0101 — series 03 (cigar-type column)



#### EU declaration

EU Declaration of Conformity — Directives 2014/35/EU · 2014/30/EU · 2011/65/EU



#### IP / IK reports

IP66 to IEC 60529 · IK09 / IK10 to IEC 62262, per family



#### LED lifetime

LM-80 reports and IES TM-21 projection of LED modules



#### Photometry

LDT / IES files per reference and CCT · DIALux / Relux calculation report

## TYPE TESTS & ROBUSTNESS

### TYPE TESTS

|                   |                                                                                                                 |
|-------------------|-----------------------------------------------------------------------------------------------------------------|
| Temperature rise  | ta 50 °C — EN 60598-1 § 12: driver tc and LED module tp, values corrected to the reference ambient.             |
| Sealing           | IP 66 — IEC 60529 (dust · powerful water jets).                                                                 |
| Mechanical impact | IK 08 — IEC 62262 (5 joules), on assembled luminaire.                                                           |
| Vibration         | IEC 60068-2-6 — according to the suspension method: M22 threaded rod, tensioned cable or bracket arm.           |
| Surges            | 10 kV / 10 kA — EN 61000-4-5; replaceable type II SPD with end-of-life indicator — optional 20 kV external SPD. |
| Photometry        | EN 13032 / LM-79 — LDT and IES files per reference and per CCT.                                                 |
| Long-term flux    | LM-80 + TM-21 — L90B10 ≥ 100 000 h.                                                                             |
| Corrosion         | ISO 9227 salt spray — 500 h on coating and fasteners.                                                           |

### ROBUST PRODUCT — DESIGN CHOICES

|               |                                                                                                           |
|---------------|-----------------------------------------------------------------------------------------------------------|
| Construction  | High-pressure die-cast aluminium housing EN AC-46100 — Ø 750 mm dome spun piece by piece in the workshop. |
| Screen / bowl | Flat tempered glass at the base of the dome.                                                              |
| Fasteners     | A2 stainless steel                                                                                        |

### Repairability

The D-SLS-33 is designed to be **repairable on site**: LED module, driver and SPD are replaced individually, without removal or special tools. This architecture meets the circular-economy requirements of EU ecodesign and extends the useful life of the installation well beyond the warranty.

ta 50 °C

operating ambient temperature

5 J

IK08 on assembled luminaire

500 h

salt spray ISO 9227

10 kV / 10 kA

surge immunity

## LED MODULE LIFETIME · IES TM-21 PROJECTION

LM-80-21 report · 18 000 h · 180 samples · 0 failures · 55 to 105 °C · 160 mA per LED in operation

### An under-driven LED, an over-sized warranty

D-SLS luminaires use a high-power ceramic LED chip **LUSSO-5050AUX** driven at only **160 mA**, i.e. 19 % of the test current: the junction runs far from its limits, less heat must be dissipated and ageing becomes almost imperceptible. The chip maker's LM-80 tests, run at 850 mA and up to 105 °C, still show **96 % of initial flux after 100 000 hours**; under real operating conditions, flux loss over ten years is below 2 %. This performance reserve allows D-SLS to commit to **7 years on parts, labour and travel, extendable to 10 years**, with 90 % guaranteed flux (L90).

### PROJECTED LED MODULE LIFETIME

| SOLDER POINT TEMPERATURE $T_s$ | FLUX AT 100 000 h | L97         | L96         | L90         | L80         |
|--------------------------------|-------------------|-------------|-------------|-------------|-------------|
| 55 °C                          | 97,8 %            | ≈ 130 000 h | ≈ 170 000 h | ≈ 418 000 h | ≈ 868 000 h |
| 85 °C                          | 97,4 %            | ≈ 114 000 h | ≈ 150 000 h | ≈ 372 000 h | ≈ 779 000 h |
| 100 °C                         | 96,8 %            | ≈ 94 000 h  | ≈ 124 000 h | ≈ 312 000 h | ≈ 655 000 h |

**TM-21 reportable values** (cap 6 × 18 000 h): L96 · L90 · L80 > 108 000 h at all temperatures; L97 > 108 000 h at 55 and 85 °C. Highlighted row: envelope operating condition adopted for the warranty — **L96B10 at 100 000 h**. 100 °C obtained by Arrhenius interpolation between the 85 °C and 105 °C datasets.

### Reading note

An LED does not “burn out”: it slowly loses light. Its lifetime is therefore measured by the **number of hours after which it still retains a given percentage of its initial light**. That is what the figure after the “L” means:

- **L97** = operating hours before the LED drops to 97 % of its initial light (3 % loss).
- **L96** = 96 % of light remaining (4 % loss).
- **L90** = 90 % of light remaining (10 % loss) — the usual reference in specifications.
- **L80** = 80 % of light remaining (20 % loss) — the conventional “end of life” threshold for an LED.

$T_s$  is the temperature measured at the LED solder point on its board: the lower it is, the longer the LED lasts. A well-cooled luminaire runs at around 55 – 85 °C; 100 °C is the worst case used for the warranty.

Reading example: at  $T_s$  100 °C, after **100 000 hours** (about 23 years at 12 h per night), the LED still delivers **96.8 %** of its initial light; it would take **312 000 hours** (over 70 years) to fall to 90 %.

### CALCULATION CHAIN — LUSSO-5050AUX LED + ALUMINIUM REFLECTOR

**LED CSP**

LED source · 160 mA ·  $T_q$  25 °C

**× 92 %**

thermal factor  $T_s$  85 °C

**× 78 %**

reflector 86.26 % · glazing

**× 93 %**

driver efficiency

**= 187 lm/W**

published luminaire · 180 lm/W at  $t_a$  50 °C

187 lm/W calculated and published at  $T_q$  25 °C · 180 lm/W at  $t_a$  50 °C — 150 W → 28 050 lm · 60 W → 11 220 lm · flux tolerance ±7 %.

## ELECTRICAL FEATURES · PROGRAMMABLE DRIVER

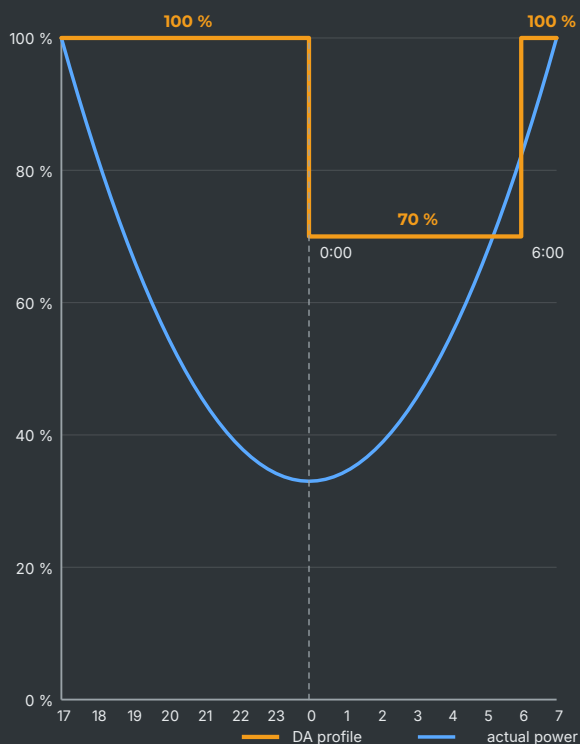
|                               |                                                                                                                                                                                          |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power supply</b>           | 220 – 240 V AC · 50 / 60 Hz (90 – 305 V AC optional · tolerance $\pm 10\%$ )                                                                                                             |
| <b>LED current</b>            | 350 – 1 000 mA — wirelessly adjustable via NFC (AOC: programmable output current)                                                                                                        |
| <b>Power factor</b>           | $> 0.95$ (full load — PLM)   $> 0.98$ (full load — F, DA, DAC)                                                                                                                           |
| <b>Efficiency</b>             | $> 94\%$                                                                                                                                                                                 |
| <b>Interfaces</b>             | Zhaga-certified DALI-2 · D4i + DT8 · NFC · PWM · 0 – 10 V                                                                                                                                |
| <b>Auxiliary power supply</b> | 24 V DC / 125 mA / 3 W always on (12 V DC with option A12) · built-in 16 V DC bus (DALI-2)                                                                                               |
| <b>Surge protection</b>       | Integrated SPD 10 kV / 10 kA type II — 10 kV common mode / 6 kV differential mode — LED indicator and thermal fuse: load disconnection at end of life · external SPD 20 kV (SP20 option) |
| <b>Lifetime</b>               | $\geq 100\,000$ h L90B10 · $\geq 100\,000$ h L90 (IES TM-21)                                                                                                                             |
| <b>Warranty</b>               | 7 years (10 years with W10 option)                                                                                                                                                       |

### Built-in smart functions

- **Dim-to-off** — smart board standby  $< 0.5$  W
- **3 timer modes** (Timer setup) — scheduled consumption reduction
- **OLC** Output Lumen Compensation — constant flux over service life
- **OTP** — NTC-ETM DIGITAL built into the driver and LED array, programmable digital thresholds
- Thermal sensing and LED module protection
- End-of-life indicator · light output compensation
- **F** (fixed) · **DA** (autonomous dimming) · **DAC** (autonomous + control) modes
- Astronomical clock and calendar profiles (LD option)

### DA profile — stand-alone dimming

DA Profile



Example of an NFC-programmed profile: 100 % at dusk, dimmed to 70 % from 0:00 to 6:00, back to 100 % before dawn — no control wiring, matched to the actual power curve (blue).

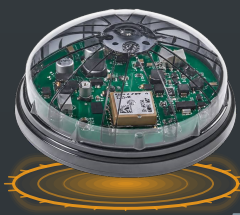
## REMOTE MANAGEMENT · LidarMesh CMS & D-SLS LiDAR NODE (LD OPTION)

### D-SLS smart node — Zhaga Book 18 / D4i

- **LiDAR presence detection** — pedestrians, cyclists, vehicles: on-demand switching and dimming
- **GPS location** · astronomical clock · calendar
- **D4i interface**: the node powers, meters and controls the driver (energy, diagnostics)
- **Thread mesh network (IPv6)** · **TALQ 2.7.1 gateway** · LoRaWAN 3 – 15 km · HD-PLC 0 – 10 km
- **Peripherals**: surveillance camera, audio / video, environmental sensors, Internet access
- **Dynamic DMX / Art-Net lighting** for façades and ceremonies

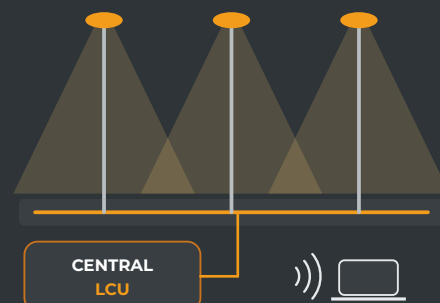
Protocols:

D4i   DALI-2   TALQ 2.7.1   Thread  
LoRaWAN   HD-PLC   PWM   0 – 10 V  
DMX   Art-Net



### HD-PLC architecture — power line carrier

#### HD-PLC



Communication over the existing power cable to the control unit — no additional network to deploy on the poles.



### LidarMesh CMS — D-SLS remote management platform (D-SLS Cloud Infrastructure)

- GIS mapping of light points and cabinets
- Dimming scenarios by zone, schedule and detection
- Alarms and diagnostics: driver, SPD, temperature, voltage
- D4i energy metering, reports and export
- Predictive maintenance and work-order management
- Open TALQ 2.7.1 API — interoperable with third-party CMS

Secure role-based access, European hosting on the D-SLS Cloud Infrastructure — control from smartphone, tablet or supervision workstation.



### Road scenario — four levels, zero intervention

**100 %**

Evening

from sunset to 23:00 —  
full level per EN 13201

**50 %**

Quiet night

scheduled dimming to  
calendar

**20 %**

Standby

empty road — instant ramp-up  
on LiDAR detection

**0 %**

Dawn

astronomical switch-off, driver <  
0,5 W

### Implementation

The LiDAR node mounts on the luminaire's Zhaga Book 18 socket — at the factory or retrofitted on an existing installation, without opening the luminaire. The D4i driver powers it and reports energy consumed, operating hours and diagnostics. Each luminaire becomes an individual measurement and control point of the LidarMesh CMS platform.

**IPv6**

Thread mesh network

**3 – 15 km**

LoRaWAN range

**0 – 10 km**

HD-PLC power-line carrier

**TALQ 2.7.1**

CMS interoperability

## NETWORK, UPDATES & SUPERVISION · LD OPTION

*LidarMesh CMS platform and D-SLS LiDAR node functions — optional, not included in the supply standard.*

### MESH NETWORK & CONNECTIVITY

|                          |                                                                                                                                                                      |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Architecture</b>      | Every luminaire is an identical TALQ 2.7.1 gateway — exposed TALQ API, DALI D4i functions, IPv6 addressing.                                                          |
| <b>Mesh network</b>      | Self-organising, self-healing mesh — sized for over 10 000 nodes: if a node fails, traffic automatically routes around it.                                           |
| <b>Internet access</b>   | At the client's choice: WiFi, 4G/LTE, Ethernet or fibre — a single link serves a whole segment, with instant failover if it drops.                                   |
| <b>Network frugality</b> | A single download per segment: updates spread hop by hop across the mesh.                                                                                            |
| <b>Stand-alone mode</b>  | Full offline operation: lighting, DALI dimming, LiDAR detection, astronomical calendar (RTC + GPS) and local log — synchronisation resumes when the network returns. |
| <b>Network security</b>  | End-to-end encrypted link (WireGuard, ChaCha20-Poly1305) up to the platform.                                                                                         |

### REMOTE UPDATES (OTA) — SELF-HEALING

|                          |                                                                                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Principle</b>         | Remote firmware update of the whole fleet, no site visit — dual A/B partition: a sound version always remains available.                                      |
| <b>Probation</b>         | Each new version must prove correct operation (network, DALI, supervision) within 10 minutes — otherwise it automatically rolls back to the previous version. |
| <b>Rollback guards</b>   | Hardware watchdog, reboot loop, network or routing loss, silent DALI, memory fault — each guard triggers a rollback.                                          |
| <b>Canary deployment</b> | In controlled waves 1 % → 10 % → 50 % → 100 % of the fleet — automatic halt and operator alert at the slightest rollback.                                     |
| <b>OTA security</b>      | Images signed and verified by a hardware secure element before flashing — secure boot, encrypted memory, SHA-256 integrity check, anti-rollback.              |

### SUPERVISION & AI COPILOT

|                               |                                                                                                                                |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Dashboard</b>              | GPS map of every luminaire · real-time status, consumption, alarms and history · one-click DALI configuration.                 |
| <b>AI copilot</b>             | Plain-language incident diagnosis, deployment recommendations and automatic campaign report.                                   |
| <b>Predictive maintenance</b> | Pre-failure alert for LED module / driver / SPD — optional sensors: brightness, temperature, air quality, noise.               |
| <b>Energy budget</b>          | Cap set by the operator, never exceeded: self-regulation if spending drifts, per-luminaire monitoring, savings and CO2 report. |

#### D-SLS-33 — the six connected functions



TUNABLE WHITE



LIDAR AI



MESH NETWORK



SECURE VPN



SELF-HEALING OTA



AI ANTI-THEFT

## LidarMesh CMS · D-SLS PROPRIETARY REMOTE MANAGEMENT PLATFORM

### Proprietary D-SLS cloud platform — no dependence on any third-party provider.

Each luminaire is a TALQ 2.7.1 gateway. The installation is managed from a web browser, with no software to install: multi-user access with differentiated permissions, open API, cloud or on-premise deployment on request.

#### SMART MESH NETWORK

|              |                                                                    |
|--------------|--------------------------------------------------------------------|
| Technology   | Self-organising, self-healing mesh — over 10 000 nodes per network |
| Protocols    | IPv6 SLAAC · Thread · TALQ 2.7.1 · DALI-2 D4i + DT8                |
| Safety       | End-to-end encrypted tunnel · secure boot · signed firmware        |
| Connectivity | WiFi · 4G/LTE · Ethernet · fibre — a single link per segment       |

#### ENERGY BUDGET & SOLAR

|                   |                                                                                                             |
|-------------------|-------------------------------------------------------------------------------------------------------------|
| Energy budget     | Cap in euros or kWh set by the operator — never exceeded: real-time self-regulation, luminaire by luminaire |
| Solar integration | Monitoring of PV generation, storage and grid feed-in — adaptive control based on weather and reserve       |
| Savings report    | Dashboard of kWh saved / CO2 avoided / euros billed — automatic monthly report                              |
| Dynamic pricing   | Lighting programme adapted to the grid tariff (off-peak / peak hours)                                       |

#### TALQ 2.7.1 INTEROPERABILITY

|                    |                                                                                                |
|--------------------|------------------------------------------------------------------------------------------------|
| TALQ standard      | TALQ 2.7.1 API exposed on every node — compatible with any third-party TALQ-certified CMS      |
| DALI D4i functions | The 8 mandatory D4i functions (Part 102/103/251/252/253/304/306/351) + diagnostics             |
| Schedules          | Real astronomical calendars (GPS + RTC sunrise / sunset) · scenarios · manual override         |
| Independence       | The operator remains owner of its data · CSV / JSON export · portability to any other TALQ CMS |

#### ACCESS & SERVICE

|               |                                                                                                    |
|---------------|----------------------------------------------------------------------------------------------------|
| Client access | Multi-browser web interface · iOS and Android mobile app                                           |
| Multi-site    | Multi-municipality and multi-district management · rights delegation · full operation traceability |
| Hosting       | D-SLS Cloud Infrastructure (European Union) · 99.9 % availability · 24/7 technical support         |

10 000+

nodes per mesh network

99,9 %

platform availability

24/7

technical support

0000

software to install

### Stand-alone mode — no Internet

The installation remains controllable even without a connection: lighting, DALI dimming, LiDAR detection, astronomical clock and local log all work offline. Synchronisation with the platform resumes automatically when the network returns — no permanent connection is required for daily operation.

## OPTIONS · COMBINABLE ORDER CODES



### **LD** LidarMesh remote management

LiDAR-ATMANI-AI D4i node on Zhaga Book 18 socket: presence detection, GPS, astronomical clock, TALQ 2.7.1 gateway, access to LidarMesh CMS.



### **M22 / CB** Rod, cable or bracket

M22 threaded rod, tensioned cable or bracket arm on a pole — matching accessories.



### **SP20** External 20 kV SPD

External surge arrester cascaded with the built-in 10 kV / 10 kA SPD — high-lightning areas, overhead networks.



### **W10** 10-year warranty

Standard warranty extended from 7 to 10 years, subject to project registration and compliant operating conditions.



### **MAR** C5 coastal anti-corrosion

Reinforced surface treatment for marine or industrial atmospheres (ISO 12944 C5), stainless fasteners.



### **RAL** Colour of choice

Custom RAL colour — municipal marking and co-branding on request.



### **TW** Tunable White

Tunable white 2700 – 6500 K controlled via D4i + DT8 — circadian and event scenarios.



### **A12** 12 V DC auxiliary

12 V DC auxiliary output replacing the standard 24 V DC — supply for third-party sensors and nodes.



### **CAP** Expandable sensors

Air quality, noise, weather — add-on modules on the LiDAR node, data reported to LidarMesh CMS.



### **S3** CRI 80 · 90 · 97 · 3 SDCM

Colour rendering above the CRI 70 standard and tighter colour binning — enhancing historic buildings.

### Control

All options can be combined and are added at the end of the reference, in the order of the coding table — e.g. D-SLS-33-50-60A-740-LD-SP20-W10. Mechanical options are supplied fitted; the LD option is factory-installed and configured or added later on the Zhaga Book 18 socket, without opening the luminaire.

## CASE STUDY · 200 MARKET-HALL BELLS

150 W HPS to replace — indicative example

**-78 %**

energy with LidarMesh

**111 MWh**

saved per year across the installation

**27 788 €**

of energy bill avoided each year

### Existing fleet — HPS 150 W

- 200 points · 170 W system per point
- 142 800 kWh/yr · 35 700 € bill
- Lamp replacement every 3 to 4 years
- On/off switching, no dimming
- No remote metering or diagnostics

### D-SLS-33 60 W solution

- 200 × D-SLS-33-50-60A-740
- 31 649 kWh/yr · 7 912 € with LidarMesh
- Zero relamping — L90B10 ≥ 100 000 h
- On-demand LiDAR dimming
- D4i metering per point, monthly report

### CUMULATIVE SAVINGS — D-SLS-33 + LidarMesh vs HPS 150 W (in €)

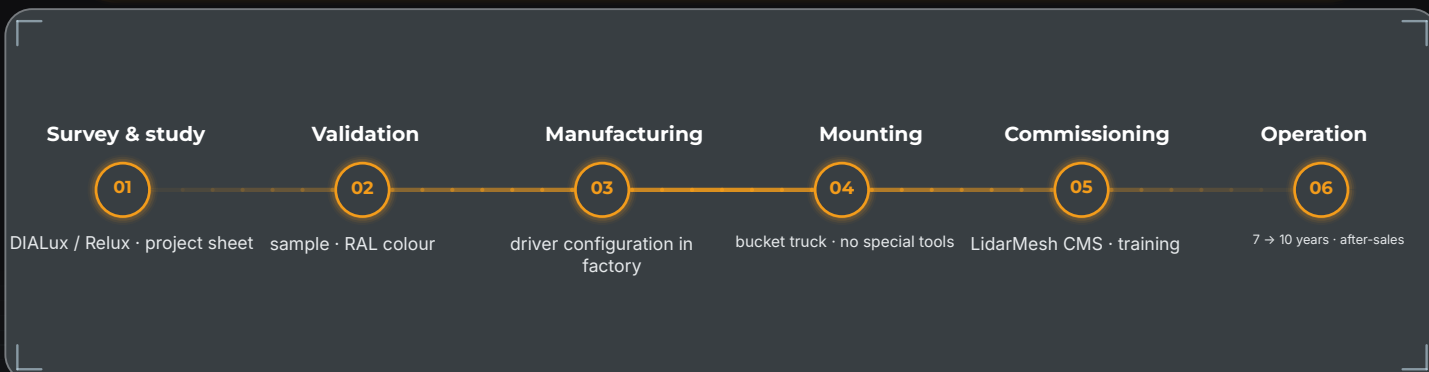


Energy only — excluding avoided relamping. Indicative investment ≈ €300 000 (luminaires + nodes + platform), excl. installation: payback ≈ 10.8 years · -28 t CO<sub>2</sub> per year.

### Calculation assumptions

Assumptions: 4 200 h/year · 0.25 €/kWh · 0.25 kg CO<sub>2</sub>/kWh — the D-SLS-33 60 W achieves the required EN 13201 levels when replacing 150 W HPS lamps. DIALux / Relux study supplied with every project.

## PROJECT PATH · FROM ORDER TO OPERATION



## THE D-SLS-33 & THE ENVIRONMENT

*Responsible public lighting — respectful of biodiversity, the night sky and local residents*

### Light the useful area — and nothing else.

Every technical choice — optics, spectrum, control — aims to reduce light trespass and impact on wildlife: compliance with EU directives, ecodesign (EU) 2019/2020, photobiological group RG0, zero UVA emission.

### OBTRUSIVE LIGHT & NEIGHBOURS

|                             |                                                                                                                      |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------|
| <b>Upward flux</b>          | LED plate under the opaque dome, indirect reflector aimed at the ground: no light is emitted towards the sky.        |
| <b>Environmental zones</b>  | Design to CIE 150 and EN 13201 (zones E1 to E4): façade luminance, glare and upward flux verified in a DIALux study. |
| <b>Scheduled switch-off</b> | Astronomical switch-off and dimming, zone scenarios: no more space lit at full power when empty.                     |

### NOCTURNAL WILDLIFE

|                            |                                                                                                                                       |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tailored spectrum</b>   | 2700 K and 3000 K versions: warm wavelengths attract far fewer insects than cool-white sources or discharge lamps.                    |
| <b>Zero UV</b>             | LEDs emit no UVA / UVB radiation — insects are not attracted to the source, even at close range.                                      |
| <b>Controlled dimming</b>  | Lighting on demand: when unused, intensity drops to 10 – 30 %, limiting the attraction effect and preserving nocturnal flight cycles. |
| <b>Logarithmic dimming</b> | Smooth 0.1 – 100 % transitions per EN 62386 — no flash or abrupt gradient.                                                            |

### ECODESIGN & LIFE CYCLE

|                     |                                                                                                                                     |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>EU ecodesign</b> | Compliant with Regulation (EU) 2019/2020: $P_{stLM} \leq 1$ · $SVM \leq 0.4$ · light sources and drivers replaceable without tools. |
| <b>Longevity</b>    | L90B10 $\geq$ 100 000 h: no relamping, zero lamp waste, zero mercury contamination.                                                 |
| <b>CO2 avoided</b>  | Case study (200 × HPS 150 W → D-SLS-33 60 W): about 28 t of CO2 avoided per year.                                                   |

**RG0**

photobiological group — EN 62471

**0 UVA**

no ultraviolet radiation

**2700 K**

warm “wildlife” spectrum option

### References & project study

References: CIE 150 (limitation of obtrusive light) · EN 13201 and UNI 11248 (lighting classes) · ecodesign Regulation (EU) 2019/2020 · International Dark-Sky Association. Obtrusive-light study supplied with every project.

## PHOTOMETRY · D-SLS-33 · FROM SOURCE TO LUMINAIRE

### Indirect reflector — measurement conditions

**Indirect reflector** optics by inter-reflection — satin aluminium  $\rho \geq 98 \%$ , the LED is never seen directly. Values in the following tables are **complete luminaire** values — driver and optics included — measured at  $V_{in} = 230 \text{ V AC}$ , F / DA / DAC modes. The **LUSSO-5050AUX** source is underdriven: the luminaire efficacy of **187 lm/W** (4000 – 5000 K, CRI 70,  $T_q 25^\circ\text{C}$ ) includes thermal, optical (optical efficiency  $\geq 95 \%$ ) and driver ( $> 94 \%$ ) losses. At operating ambient  $t_a 50^\circ\text{C}$ : **180 lm/W**. Tolerance  $\pm 7 \%$  on flux,  $\pm 5 \%$  on power.

#### LED CSP

LUSSO-5050AUX source

#### 187 lm/W

luminaire ·  $T_q 25^\circ\text{C}$ 

#### 180 lm/W

luminaire ·  $t_a 50^\circ\text{C}$ 

#### L90B10

 $\geq 100\,000 \text{ h}$  · TM-21

### PHOTOMETRIC DATA

|                        |                                                                                                                                                      |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Optics                 | Indirect (inter-reflection) satin aluminium reflector — reflectance $\rho \geq 98 \%$ (ISO 7668 / DIN 5036-3), LED never seen directly, no PMMA lens |
| Photometric files      | LDT and IES per reference and colour temperature                                                                                                     |
| Photobiological safety | EN 62471 — risk group 0 (RG0), no UVA emission                                                                                                       |
| Lumen maintenance      | LM-80 + TM-21 — L90B10 $\geq 100\,000 \text{ h}$                                                                                                     |
| Colour rendering       | CRI 70 standard · 80 · 90 · 97 optional · MacAdam $< 3 \text{ SDCM}$                                                                                 |
| Layout study           | DIALux / Relux to EN 13201 (M, C, P classes), supplied with every project                                                                            |

A

Asymmetric  
photometry

B

Symmetrical ambient  
photometry

### Available colour temperatures

2700 K

727

3000 K

730

4000 K

740

5000 K

750

TW

2700 – 6500 K

 $\geq 95 \%$ 

optical efficiency

RG0

EN 62471 photobiological group

 $\pm 7 \%$ 

flux tolerance

# PHOTOMETRIC TABLES · 5000 K & 4000 K · CRI 70

| REFERENCE | POWER*<br>W · Tq 25 °C | EFFICIENCY<br>lm/W · Tq 25 °C | FLUX*<br>lm · Tq 25 °C | POWER*<br>W · ta 50 °C | EFFICIENCY<br>lm/W · ta 50 °C | FLUX*<br>lm · ta 50 °C |
|-----------|------------------------|-------------------------------|------------------------|------------------------|-------------------------------|------------------------|
|-----------|------------------------|-------------------------------|------------------------|------------------------|-------------------------------|------------------------|

5000 K · CRI 70 · Vin 230 V AC · F / DA / DAC modes · Rev. 10/2026

Tq 25 °C: laboratory | ta 50 °C: operating ambient

|                   |     |     |        |     |     |        |
|-------------------|-----|-----|--------|-----|-----|--------|
| D-SLS-33-40-20A   | 20  | 187 | 3 740  | 20  | 180 | 3 600  |
| D-SLS-33-40-30A   | 30  | 187 | 5 610  | 30  | 180 | 5 400  |
| D-SLS-33-50-40A   | 40  | 187 | 7 480  | 40  | 180 | 7 200  |
| D-SLS-33-50-50A   | 50  | 187 | 9 350  | 50  | 180 | 9 000  |
| D-SLS-33-50-60A   | 60  | 187 | 11 220 | 60  | 180 | 10 800 |
| D-SLS-33-100-80A  | 80  | 187 | 14 960 | 80  | 180 | 14 400 |
| D-SLS-33-100-100A | 100 | 187 | 18 700 | 100 | 180 | 18 000 |
| D-SLS-33-200-120A | 120 | 187 | 22 440 | 120 | 180 | 21 600 |
| D-SLS-33-200-150A | 150 | 187 | 28 050 | 150 | 180 | 27 000 |

| REFERENCE | POWER*<br>W · Tq 25 °C | EFFICIENCY<br>lm/W · Tq 25 °C | FLUX*<br>lm · Tq 25 °C | POWER*<br>W · ta 50 °C | EFFICIENCY<br>lm/W · ta 50 °C | FLUX*<br>lm · ta 50 °C |
|-----------|------------------------|-------------------------------|------------------------|------------------------|-------------------------------|------------------------|
|-----------|------------------------|-------------------------------|------------------------|------------------------|-------------------------------|------------------------|

4000 K · CRI 70 · Vin 230 V AC · F / DA / DAC modes · Rev. 10/2026

Tq 25 °C: laboratory | ta 50 °C: operating ambient

|                   |     |     |        |     |     |        |
|-------------------|-----|-----|--------|-----|-----|--------|
| D-SLS-33-40-20A   | 20  | 187 | 3 740  | 20  | 180 | 3 600  |
| D-SLS-33-40-30A   | 30  | 187 | 5 610  | 30  | 180 | 5 400  |
| D-SLS-33-50-40A   | 40  | 187 | 7 480  | 40  | 180 | 7 200  |
| D-SLS-33-50-50A   | 50  | 187 | 9 350  | 50  | 180 | 9 000  |
| D-SLS-33-50-60A   | 60  | 187 | 11 220 | 60  | 180 | 10 800 |
| D-SLS-33-100-80A  | 80  | 187 | 14 960 | 80  | 180 | 14 400 |
| D-SLS-33-100-100A | 100 | 187 | 18 700 | 100 | 180 | 18 000 |
| D-SLS-33-200-120A | 120 | 187 | 22 440 | 120 | 180 | 21 600 |
| D-SLS-33-200-150A | 150 | 187 | 28 050 | 150 | 180 | 27 000 |

\* Power and flux ±5 % · complete-luminaire values (driver and optics included) · Tq 25 °C: laboratory; ta 50 °C: operating ambient. LDT / IES files and DIALux / Relux calculation provided per project.

# PHOTOMETRIC TABLES · 3000 K & 2700 K · CRI 70

| REFERENCE | POWER*<br>W · Tq 25 °C | EFFICIENCY<br>lm/W · Tq 25 °C | FLUX*<br>lm · Tq 25 °C | POWER*<br>W · ta 50 °C | EFFICIENCY<br>lm/W · ta 50 °C | FLUX*<br>lm · ta 50 °C |
|-----------|------------------------|-------------------------------|------------------------|------------------------|-------------------------------|------------------------|
|-----------|------------------------|-------------------------------|------------------------|------------------------|-------------------------------|------------------------|

3000 K · CRI 70 · Vin 230 V AC · F / DA / DAC modes · Rev. 10/2026

Tq 25 °C: laboratory | ta 50 °C: operating ambient

|                   |     |     |        |     |     |        |
|-------------------|-----|-----|--------|-----|-----|--------|
| D-SLS-33-40-20A   | 20  | 177 | 3 540  | 20  | 170 | 3 400  |
| D-SLS-33-40-30A   | 30  | 177 | 5 310  | 30  | 170 | 5 100  |
| D-SLS-33-50-40A   | 40  | 177 | 7 080  | 40  | 170 | 6 800  |
| D-SLS-33-50-50A   | 50  | 177 | 8 850  | 50  | 170 | 8 500  |
| D-SLS-33-50-60A   | 60  | 177 | 10 620 | 60  | 170 | 10 200 |
| D-SLS-33-100-80A  | 80  | 177 | 14 160 | 80  | 170 | 13 600 |
| D-SLS-33-100-100A | 100 | 177 | 17 700 | 100 | 170 | 17 000 |
| D-SLS-33-200-120A | 120 | 177 | 21 240 | 120 | 170 | 20 400 |
| D-SLS-33-200-150A | 150 | 177 | 26 550 | 150 | 170 | 25 500 |

| REFERENCE | POWER*<br>W · Tq 25 °C | EFFICIENCY<br>lm/W · Tq 25 °C | FLUX*<br>lm · Tq 25 °C | POWER*<br>W · ta 50 °C | EFFICIENCY<br>lm/W · ta 50 °C | FLUX*<br>lm · ta 50 °C |
|-----------|------------------------|-------------------------------|------------------------|------------------------|-------------------------------|------------------------|
|-----------|------------------------|-------------------------------|------------------------|------------------------|-------------------------------|------------------------|

2700 K · CRI 70 · Vin 230 V AC · F / DA / DAC modes · Rev. 10/2026

Tq 25 °C: laboratory | ta 50 °C: operating ambient

|                   |     |     |        |     |     |        |
|-------------------|-----|-----|--------|-----|-----|--------|
| D-SLS-33-40-20A   | 20  | 171 | 3 420  | 20  | 165 | 3 300  |
| D-SLS-33-40-30A   | 30  | 171 | 5 130  | 30  | 165 | 4 950  |
| D-SLS-33-50-40A   | 40  | 171 | 6 840  | 40  | 165 | 6 600  |
| D-SLS-33-50-50A   | 50  | 171 | 8 550  | 50  | 165 | 8 250  |
| D-SLS-33-50-60A   | 60  | 171 | 10 260 | 60  | 165 | 9 900  |
| D-SLS-33-100-80A  | 80  | 171 | 13 680 | 80  | 165 | 13 200 |
| D-SLS-33-100-100A | 100 | 171 | 17 100 | 100 | 165 | 16 500 |
| D-SLS-33-200-120A | 120 | 171 | 20 520 | 120 | 165 | 19 800 |
| D-SLS-33-200-150A | 150 | 171 | 25 650 | 150 | 165 | 24 750 |

Tunable White 2700 – 6500 K (TW option): efficacy depends on the programmed colour point. CRI ≥ 80 / 90 / 97 on request — dedicated tables supplied with the quote.

## REPLACEMENT EQUIVALENCES · HIGH CRI &amp; TUNABLE WHITE

## DISCHARGE LAMPS → D-SLS-33

| Existing lamp        | System power | D-SLS-33 equivalent | Luminaire flux (4000 K) | Energy saving |
|----------------------|--------------|---------------------|-------------------------|---------------|
| Mercury vapour 125 W | 137 W        | D-SLS-33-40-30A     | 5 610 lm                | -78 %         |
| HPS 70 W             | 84 W         | D-SLS-33-50-40A     | 7 480 lm                | -52 %         |
| HPS 100 W            | 115 W        | D-SLS-33-50-50A     | 9 350 lm                | -57 %         |
| HPS 150 W            | 170 W        | D-SLS-33-50-60A     | 11 220 lm               | -65 %         |
| HPS 250 W            | 275 W        | D-SLS-33-100-80A    | 14 960 lm               | -71 %         |
| Metal halide 250 W   | 280 W        | D-SLS-33-100-100A   | 18 700 lm               | -64 %         |
| HPS 400 W            | 430 W        | D-SLS-33-200-150A   | 28 050 lm               | -65 %         |

Indicative equivalences at maintained illuminance — to be confirmed by a DIALux / Relux study accounting for geometry, mounting height and the chosen maintenance factor.

## CRI ≥ 90 / 97 (option S3) &amp; Tunable White (option TW) — 60 W reference

187 lm/W

CRI 70 · 4000 – 5000 K · T<sub>a</sub> 25 °C

CRI 80 · 90 · 97

S3 option — tables on request

&lt; 3 SDCM

MacAdam colour binning

2700 – 6500 K

Tunable White · D4i + DT8

High colour-rendering versions keep the same optical chain; values indicative, dedicated tables supplied with the offer. The Tunable White version is controlled via D4i + DT8: efficacy depends on the programmed colour point.

EN 13201

maintained illuminance level

-52 → -78 %

of energy on retrofit

DIALux / Relux

study supplied with every project

## CODING · BUILDING AN ORDER REFERENCE

### D-SLS-33 code structure

D-SLS-33

–

50

–

60

–

A

–

740

–

LD

Series

Size

Power

Photometry

CCT · CRI

Options

Example: D-SLS-33-50-60A-740-LD — 60 W, 4000 K CRI 70, LidarMesh remote management.

### AVAILABLE CHOICES

**Power** 20 · 30 · 40 · 50 · 60 · 80 · 100 · 120 · 150 W

**Size** 40 (20 – 30 W) · 50 (40 – 60 W) · 100 (80 – 100 W) · 200 (120 – 150 W)

**Photometry** A asymmetric · B ambient symmetric

**CCT · CRI** 727 · 730 · 740 · 750 (CRI 70) — 8xx / 9xx at CRI 80 / 90 — TW Tunable White

**Finish** RAL 9005 (standard) — colours of your choice

### Combinable option suffixes

LD

LidarMesh remote management

SP20

External SPD 20 kV

W10

10-year warranty

MAR

C5 anti-corrosion

A12

12 V auxiliary

TW

Tunable White

S3

3 SDCM / higher CRI

RALxxxx

colour of choice

### Quotes & purchase orders

A reference fully describes the delivered configuration: it is carried as-is onto quotations, purchase orders and bills of quantities. Options are cumulative and appended in this order at the end of the reference.

## WARRANTY & SERVICES

1

### 7-year warranty

Standard **7-year** warranty on the complete luminaire — LED module, optics, driver and SPD — for a compliant installation and an operating ambient temperature  $\leq 50$  °C.



2

### 10-year extension (W10)

With project registration at commissioning: warranty extended to **10 years**, covering flux maintenance (L90) and spare-part availability.



3

### Lighting studies

DIALux / Relux photometric study to EN 13201 / UNI 11248, LDT / IES files, LED LM-80 reports and calculation notes for tender files (LM-79 reports in progress).



4

### Factory configuration

LED current (NFC), DA / DAC dimming profiles, DALI-2 addresses, OTP thresholds and D4i parameters set at the factory per the project sheet — luminaires ready to install.



5

### LidarMesh commissioning

Integration of light points into **LidarMesh CMS**, scenario creation, operator training and remote support.



6

### Spare parts & after-sales

Zhaga Book 18 LED modules, drivers, glass and gaskets available throughout the warranty period — on-site replacement without special tools.



### Sales & technical contact

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Digital Smart Lighting Solutions

**D-SLS-33 • 20 – 150 W**

**D-SLS SRL — Digital Smart Lighting Solutions**

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