

Light shapes the city of tomorrow.

PUBLIC LIGHTING · SOLAR · CONNECTED

SMART CITY

WIRELESS MESH NETWORK

CATALOGUE D-SLS-25M

2026

D-SLS-25M 200 – 2 000 W · Modular floodlight

D-SLS
Digital Smart Lighting Solutions

OVERVIEW · MODULAR FLOODLIGHT · D-SLS-25M

Sports and large-area lighting — a single chassis, 27 wattages, 100 % passive cooling



374 000 lm

max. luminaire flux · 2 000 W · 4000 K

187 lm/W

luminaire efficacy · CRI 70

27 wattages

from 200 to 2 000 W on a single chassis

IP66 · IK09

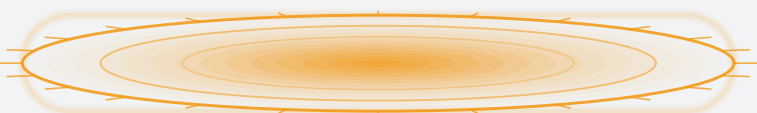
sealing · impact resistance

0 – 180°

adjustable bracket with graduation

7 years

warranty · 10 years optional



D-SLS-25M — modular chassis with adjustable bracket

One floodlight, every playing area

The D-SLS-25M assembles identical LED modules on an aluminium chassis with **100 % passive cooling**: from **200 to 2 000 W** in 27 ratings, with no fan or wearing parts. The asymmetric **STU-M** optic with indirect reflector limits glare for players and residents. Programmable **DALI-2 D4i + DT8** driver, training / competition / maintenance scenarios, compliant with **NM EN 12193**.



Sports pitches

Football, basketball, tennis —
EN 12193 training and
competition levels.



Large areas

Esplanades, logistics and port
areas, car parks.



Façades

High-power architectural
lighting.

D-SLS-25M · NEW EMBEDDED TECHNOLOGIES

Indirect reflector by inter-reflection, 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, anti-glare light, no PMMA lens. Reflectance $\geq 98\%$, ULOR 0 %, asymmetric STU-M distribution for playing areas. One-piece LED matrix, screw-removable.



New technologies used



LiDAR node
presence detection, counting, Zhaga D4i socket underneath



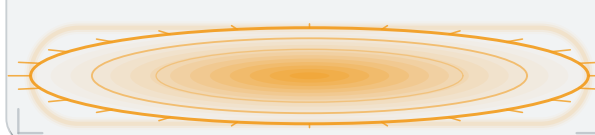
Static detection
built-in mmWave radar — presence without motion



Thread mesh network
IPv6, self-healing, TALQ 2.7.1



Tunable White
2700 → 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 on the same cable

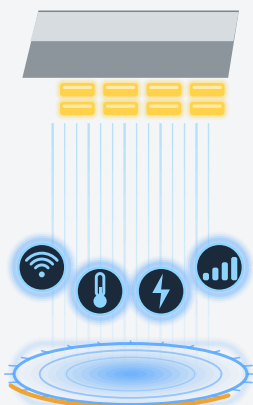
standardised interface

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

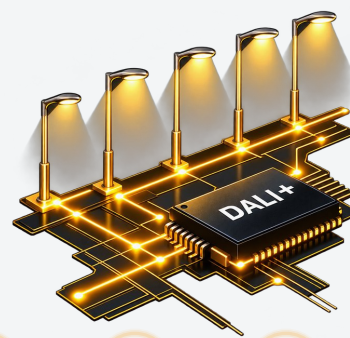
group and address management

Interoperability

certified multi-brand DALI+ ecosystem

Flexibility

suited to current and future projects



Scenarios



Schedules



Regulation



Supervision

D-SLS-25M — the six connected functions



TUNABLE WHITE



LiDAR AI



MESH NETWORK



SECURE VPN



OTA SELF-HEALING



AI ANTI-THEFT

PRODUCT ARCHITECTURE · D-SLS-25M · SIX KEY POINTS

A fully dismountable luminaire: everything is replaced on site, no special tools

1

Modular

27 wattages on a single chassis: the same spare part for the whole installed base.



2

Passive cooling

No fan: silent, reliable, lifetime $\geq 100\,000$ h.



3

STU-M optics

Asymmetric with indirect reflector: controlled glare, useful light on the area.



4

Sports scenarios

Training · competition · maintenance in one click, DALI-2 D4i + DT8.



5

Adjustable bracket

0 – 180° adjustment with graduated scale: repeatable aiming.



6

Protection

IP66 / IK09, SPD 10 kV / 10 kA, extra-clear tempered glass.



IN BRIEF

Construction	Die-cast aluminium housing (high-pressure) EN AC-46100 — cast-in passive cooling fins
Screen / bowl	Extra-clear tempered glass
Fixing	Adjustable bracket 0 – 180° with graduation
Protection	IP66 · IK09 · SPD 10 kV / 10 kA · stainless pressure-equalisation valve
Range	200 · 300 · 400 · 600 · 800 · 1000 · 1200 · 1500 · 2000 W

200 – 2 000 W

power range

187 lm/W

luminaire efficacy

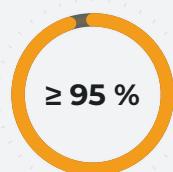
IP66 · IK09

sealing · impacts

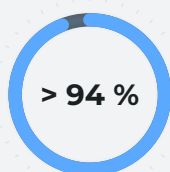
Zhaga Book 18

remote-management ready

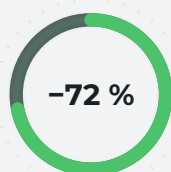
PERFORMANCE & SAVINGS · DASHBOARD



optical efficiency

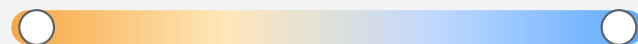


driver efficiency



energy

TUNABLE WHITE — CCT RANGE (OPTION TW)



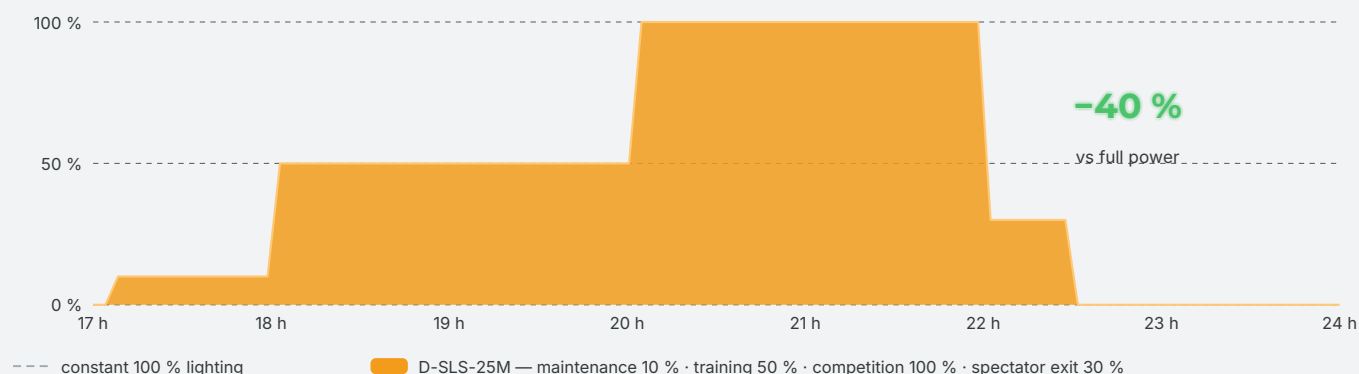
2700 K WARM

COOL 6500 K

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

Fixed CCT: 2700 · 3000 · 4000 · 5000 K

SPORTS SCENARIOS — TYPICAL EVENING PROFILE



ANNUAL CONSUMPTION PER POINT — 1 500 h/yr · 0.25 €/kWh

Metal halide 2 000 W (existing)	3 225 kWh/yr · €806
D-SLS-25M 1000 W	1 500 kWh/yr · €375 -53 %
D-SLS-25M 1000 W + scenarios	906 kWh/yr · €226 -72 %

Assumptions: 2 000 W metal halide (2 150 W system, ballast included) replaced by a D-SLS-25M 1000 W at the same illuminance level.

≈ 6.0 years

return on investment*

-580 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 price above and an indicative investment of €3 500 per point — excluding installation and avoided relamping, exact costing on study. Savings combine the efficacy of the LED platform (187 lm/W luminaire), an optic that directs flux to the useful area, and controlled dimming (scenarios) that only lights at full power when needed.

KEY FEATURES · 8 REASONS TO CHOOSE THE D-SLS-25M



27 wattages, one chassis

From **200 to 2 000 W** with identical modules: a single spare part for the whole sports facility.



100 % passive cooling

No fan or wearing parts: silent, reliable, lifetime $\geq 100\,000$ h.



« Dark-light » indirect reflector

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



LUSSO-5050AUX LED module

LED CSP source, 187 lm/W luminaire (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, autonomous 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

SPD 10 kV / 10 kA type II with end-of-life indicator, **IP66, IK09**, stainless steel pressure-equalisation valve.



7-year warranty

Extension to **10 years** (W10 option) — **ENEC-certified** electronic platform and **TÜV SÜD** attestation.

1 / 3

CPS

MATERIALS & CONSTRUCTION · THE D-SLS-25M BODY

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

Housing	Die-cast aluminium housing (high-pressure) — alloy EN AC-46100 (AlSi11Cu2(Fe)) to UNI EN 1706, EN 10204 3.1 material certificate
LED module	Removable / replaceable — Zhaga Book 18 standard · under-driven LUSO-5050AUX LEDs · Zhaga Book 18 sensor socket fitted as standard
Chassis	Die-cast aluminium EN AC-46100 — passive cooling fins sized for t_a 50 °C
Modules	Identical, interchangeable 200 W LED modules — STU-M optics with indirect reflector
Screen	Extra-clear tempered glass — high-temperature silicone gasket
Bracket	Hot-dip galvanised steel, 0 – 180° adjustment with graduation and protractor
Fasteners	A2 stainless steel — remote driver box as option
Reflector	High-reflectance aluminium $\rho \geq 98 \%$ (ISO 7668 / DIN 5036-3), inter-reflection — anti-iridescence textured surface, sealed optical chamber, EN 10204 3.1 material certificate
Sealing	EPDM gaskets · stainless M20 × 1.5 cable gland IP68 — IP66 optical unit
Pressure-equalisation valve	Stainless steel with hydrophobic membrane — lets air through, never water or dust
Anti-corrosion treatment	Housing surface preparation before painting: alkaline degreasing, pickling and chemical conversion passivation , then oven-cured polyester powder coating $\geq 70 \mu\text{m}$ — salt spray 500 h (ISO 9227), C3 corrosivity standard, C5-M seaside optional (MAR)
Paint	Exterior-grade polyester powder $\geq 70 \mu\text{m}$ (ISO 2360), adhesion class 0 (ISO 2409), UV resistant — C5 seaside optional (MAR)
Driver	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, seals — are replaced on site, with the lift in position, without removing the luminaire or returning it to the workshop. A repairable architecture compliant with European Ecodesign Regulation (EU) 2019/2020.

DOCUMENTATION

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

IP66

optical unit sealing

IK09

impact resistance

A2

stainless fixings

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

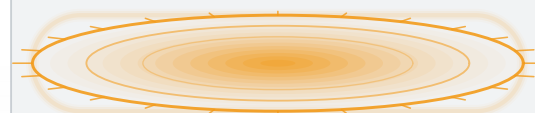
powder coating

500 h

salt spray ISO 9227

10 kV

Integrated SPD



D-SLS-25M

2 / 3

CPS

TECHNICAL SPECIFICATIONS · D-SLS-25M

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

Applications	Sports and large-area lighting — football, basketball and tennis pitches, esplanades, logistics and port areas, façades · NM EN 12193 (classes I, II, III)
Body / construction	Die-cast aluminium housing (high-pressure) EN AC-46100 — cast-in passive cooling fins
Optical block	Indirect reflector (inter-reflection) in satin aluminium — total reflectance $\rho \geq 98\%$ (ISO 7668 / DIN 5036-3) · LED never seen directly, no PMMA lens · asymmetric STU-M distribution for playing areas
Optical efficiency	$\geq 95\%$ — $TI \leq 10\%$
Screen / bowl	Extra-clear tempered glass
Photobiological safety	EN 62471 — risk group 0 (RG0), no UVA emission
Insulation class	Class I (standard) · class II as option
Anti-corrosion treatment	Housing surface preparation before painting: alkaline degreasing, pickling and chemical conversion passivation , then oven-cured polyester powder coating $\geq 70\ \mu\text{m}$ — salt spray 500 h (ISO 9227), C3 corrosivity standard, C5-M seaside optional (MAR)
Ingress protection	IP 66 (IEC 60529) · IK 09 (IEC 62262)
Pressure equalisation	Stainless steel pressure-equalisation valve with hydrophobic membrane — no internal condensation, no thermal pumping
Mounting / fixing	Adjustable bracket 0 – 180° with graduation
Dimensions & weight	Dimensioned drawing and weight per size supplied with every offer
Wiring	Pluggable terminal block · tool-free connectors · M20 x 1.5 stainless IP68 cable glands
Temperatures	Operation –30 °C / +50 °C (ta 50 °C) · storage –40 °C / +80 °C
Power supply	220 – 240 V AC · 50 / 60 Hz — 90 – 305 V AC optional
Driver	DALI-2 · D4i + DT8 programmable via NFC · efficiency > 94 % · power factor > 0.95 · dim-to-off < 0.5 W
Surge protection	Integrated type II SPD 10 kV common mode / 6 kV differential mode (10 kA), end-of-life indicator — external 20 kV SPD optional (SP20)
Thermal controller	NTC-ETM DIGITAL thermal controller — NTC probe on LED matrix and driver, digital threshold programmable via NFC, automatic current reduction when threshold is exceeded
LED	LUSSO-5050AUX CSP TECHNOLOGIES ceramic LED chip, under-driven — source LED CSP · luminaire 187 lm/W (4000 K · CRI 70 · Tq 25 °C)
Power & flux	200 · 300 · 400 · 600 · 800 · 1000 · 1200 · 1500 · 2000 W — up to 374 000 lm (4000 K · CRI 70 · Tq 25 °C)
Colour temperatures	2700 · 3000 · 4000 · 5000 K — Tunable White 2700 – 6500 K (TW option)
CRI · MacAdam	CRI 70 (standard) · 80 · 90 · 97 — < 3 SDCM
Lifetime	L90B10 $\geq 100\ 000$ h (IES LM-80 / TM-21) — maintenance factor 0.80 used in studies
Dimming & remote management	DALI-2 · D4i + DT8 · autonomous profiles · Zhaga Book 18 socket — LiDAR node and LidarMesh CMS TALQ 2.7.1 (LD option)
Warranty	7 years — 10 years optional (W10)

ENEC

TÜV SÜD

RoHS

IP66

IK09

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 12193, 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

ENEC	Certificate no. HN 69290740 — TÜV Rheinland InterCert Kft. · EN IEC 60598-1:2021 + EN 60598-2-3
Covered types	443 D-SLS-a-b-cd types — series 03 to 21A and 25
ENEC parameters	AC 220 – 240 V · 50/60 Hz · class I · IP66 · ta 45 °C
TÜV SÜD	Attestation no. N8A 08132 0101 — Low Voltage Directive 2014/35/EU · EN 62493
Families	D-SLS-a-b-cd — series 03 · 05 · 06 · 07 · 09 · 11B · 12A · 13 · 14 · 15 · 18 · 19 · 20 · 21A
TÜV SÜD parameters	200 – 240 V · 50/60 Hz · class II · IP66 · IK09 · ta 50 °C

Copies of certificates and test reports supplied with every bid.

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 ≥ 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 (street 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)

ENEC

TÜV SÜD

RoHS

IP66

IK09

DALI-2

D4i + DT8

Zhaga Book 18

TALQ 2.7.1

Compliance file

The parameters above are those on the current ENEC certificate and TÜV SÜD attestation; the product characteristics on previous pages correspond to the luminaire's current commercial definition. Compliance 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 each tender file.

Documents supplied with every offer



ENEC certificate

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



TÜV SÜD attestation

Attestation 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 per IEC 60529 · IK09 / IK10 per IEC 62262, by family



LED lifetime

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



Photometry

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

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 09 — IEC 62262 (10 joules), on assembled luminaire.
Vibration	IEC 60068-2-6 — depending on mounting: adjustable bracket 0 – 180° with graduation.
Surges	10 kV / 10 kA — EN 61000-4-5; replaceable type II SPD with end-of-life indicator — external 20 kV SPD optional.
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	Salt spray ISO 9227 — 500 h on coating and fasteners.

ROBUST PRODUCT — DESIGN CHOICES

Construction	Die-cast aluminium housing (high-pressure) EN AC-46100 — cast-in passive cooling fins.
Screen / bowl	Extra-clear tempered glass.
Bracket	Hot-dip galvanised steel, 0 – 180° adjustment with graduation and protractor
Fasteners	A2 stainless steel — remote driver box as option

Repairability

The D-SLS-25M 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 European ecodesign and extends the installation's useful life well beyond the warranty.

ta 50 °C

operating ambient temperature

10 J

IK09 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 operation per LED

An under-driven LED, an over-sized warranty

D-SLS luminaires use a high-power ceramic **LUSSO-5050AUX** LED chip driven at only **160 mA**, i.e. 19 % of the test current: the junction works far from its limits, heat to dissipate is reduced and ageing becomes almost imperceptible. The chip manufacturer's LM-80 tests, conducted at 850 mA and up to 105 °C, still give **96 % of initial flux after 100 000 hours**; under real operating conditions, flux loss over ten years of operation is below 2 %. This performance reserve allows D-SLS to commit the company to **7 years 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 used 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 as the **number of hours after which it still retains a given percentage of its initial light**. That is what the figure after the 'L' indicates:

- **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 specification reference.
- **L80** = 80 % of light remaining (20 % loss) — the conventional "end-of-life" threshold of 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 % · tempered glass

× 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 — 2 000 W → 374 000 lm · 1 200 W → 224 400 lm · tolerance ±7 % on flux.

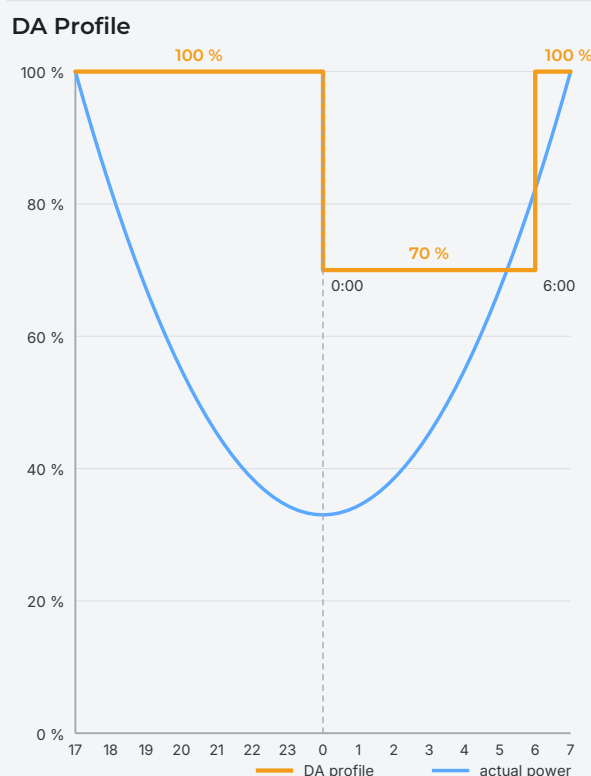
ELECTRICAL SPECIFICATIONS · PROGRAMMABLE DRIVER

Power supply	220 – 240 V AC · 50 / 60 Hz (90 – 305 V AC optional · tolerance $\pm 10\%$)
LED current	350 – 1 000 mA — wirelessly adjustable via NFC (AOC: programmable output current)
Power factor	> 0.95 (full load — PLM) > 0.98 (full load — F, DA, DAC)
Efficiency	$> 94\%$
Interfaces	DALI-2 · D4i + DT8 Zhaga-certified · NFC · PWM · 0 – 10 V
Auxiliary supply	24 V DC / 125 mA / 3 W always on (12 V DC optional A12) · integrated 16 V DC bus (DALI-2)
Surge protection	Integrated SPD 10 kV / 10 kA type II — 10 kV common mode / 6 kV differential mode — LED signal and thermal fuse: load disconnected at end of life · external 20 kV SPD (option SP20)
Lifetime	$\geq 100\,000$ h L90B10 · $\geq 100\,000$ h L90 (IES TM-21)
Warranty	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 lifetime
- **OTP** — **NTC-ETM DIGITAL** built into driver and LED matrix, programmable digital thresholds
- Thermal sensing and LED module protection
- End-of-life indicator · output light compensation
- Modes **F** (fixed) · **DA** (autonomous dimming) · **DAC** (autonomous + control)
- Astronomical clock and calendar profiles (option LD)

DA profile — autonomous dimming



Example of an NFC-programmed profile: 100 % at dusk, reduced 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 (OPTION LD)

D-SLS smart node — Zhaga Book 18 / D4i

- **LiDAR presence detection** — pedestrians, cyclists, vehicles: switching and dimming on demand
- **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: CCTV camera, audio / video, environmental sensors, Internet access
- **DMX / Art-Net** dynamic lighting for façades and ceremonies

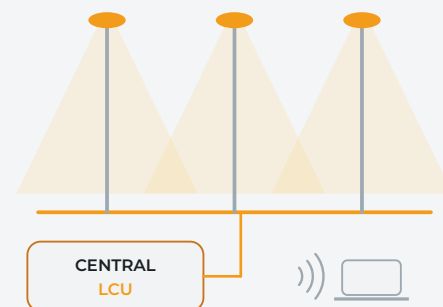
Protocols:

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



HD-PLC architecture — powerline

HD-PLC



Communication over the existing supply 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, calendar 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

Role-based secure 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 11 pm — full level per EN 13201

50 %

Quiet night

calendar-scheduled dimming

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 — in 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 powerline

TALQ 2.7.1

CMS interoperability

NETWORK, UPDATES & SUPERVISION · LD OPTION

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

MESH NETWORK & CONNECTIVITY

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

REMOTE UPDATES (OTA) — SELF-HEALING

Principle	Firmware update of the entire installed base remotely, without field intervention — dual A/B partition: a healthy version is always available.
Probation	Each new version must prove correct operation (network, DALI, supervision) within 10 minutes — otherwise automatic rollback to the previous version.
Rollback guards	Hardware watchdog, reboot loop, network or routing loss, silent DALI, memory anomaly — every guard triggers rollback.
Canary deployment	In controlled waves 1 % → 10 % → 50 % → 100 % of the installed base — automatic halt and operator alert at the slightest rollback.
OTA security	Images signed and verified by a hardware secure element before flashing — secure boot, encrypted memory, SHA-256 integrity check, anti-rollback.

SUPERVISION & AI COPILOT

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

D-SLS-25M — the six connected functions



TUNABLE WHITE



LIDAR AI



MESH NETWORK



SECURE VPN



OTA SELF-HEALING



AI ANTI-THEFT

LidarMesh CMS · D-SLS PROPRIETARY REMOTE-MANAGEMENT PLATFORM

D-SLS proprietary cloud platform — no dependence on any third-party supplier.

Each luminaire is a TALQ 2.7.1 gateway. The installed base is managed from a browser, no software to install: multi-user access with differentiated permissions, open API, cloud or on-premises 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 & SOLAR BUDGET

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 production, storage and grid injection — adaptive control based on weather and reserve
Savings report	Dashboard of kWh saved / CO2 avoided / euros invoiced — automatic monthly report
Dynamic pricing	Lighting programme matched to 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
Calendars	True astronomical calendars (GPS sunrise / sunset + RTC) · scenarios · manual override
Autonomy	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 · delegation of rights · 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

0

software to install

Stand-alone mode — no Internet

The fleet remains controllable even without a connection: lighting, DALI dimming, LiDAR detection, astronomical calendar and local log 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

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



VIS / DEP Visor & remote driver

Additional anti-glare visor and remote driver box at pole base for ground-level maintenance.



SP20 External 20 kV SPD

External surge protection device cascaded with the integrated 10 kV / 10 kA SPD — areas with high storm activity, overhead networks.



W10 10-year warranty

Extension of the standard warranty 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 steel fasteners.



RAL Colour of choice

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



TW Tunable White

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



A12 12 V DC auxiliary

12 V DC auxiliary output instead of the standard 24 V DC — powers sensors and third-party nodes.



CAP Expandable sensors

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



S3 CRI 80 · 90 · 97 · 3 SDCM

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

Control

All options are cumulative and declared at the end of the reference, in the order of the coding table — e.g. **D-SLS-25M-6-1200A-740-LD-SP20-W10**. Mechanical options are delivered fitted; the LD option is installed and configured at the factory or added later on the Zhaga Book 18 socket, without opening the luminaire.

CASE STUDY · 16 MUNICIPAL STADIUM FLOODLIGHTS

Metal halide 2 000 W to replace — indicative example

-72 %

energy with scenarios

37 MWh

saved per year across the stock

9 276 €

of bills avoided every year

Existing base — Metal halide 2 000 W

- 16 points · 2 150 W system per point
- 51 600 kWh/yr · €12 900 billed
- Lamp replacement every 3 to 4 years
- On/off switching, no dimming
- No metering or remote diagnostics

D-SLS-25M 1000 W solution

- 16 × D-SLS-25M-5-1000A-740
- 14 495 kWh/yr · €3 624 with scenarios
- Zero relamping — L90B10 ≥ 100 000 h
- Training / competition scenarios
- D4i metering per point, monthly report

CUMULATIVE SAVINGS — D-SLS-25M + scenarios vs metal halide 2 000 W (in €)

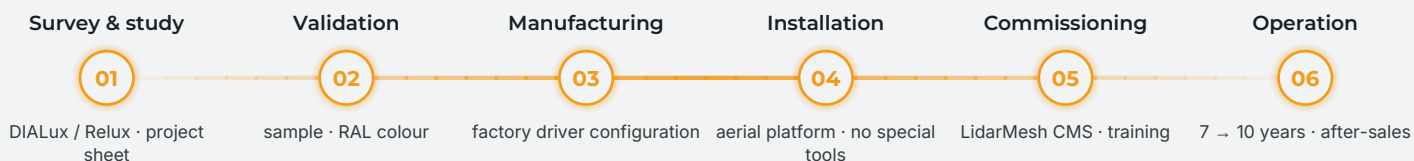
Year 1		9 276 €
Year 5		46 382 €
Year 10		92 763 €

Energy only — excluding avoided relamping. Indicative investment ≈ 56 000 € (luminaires + nodes + platform), excl. installation: payback ≈ 6.0 years · -9 t CO2 per year.

Calculation assumptions

Assumptions: 1 500 h/year · 0.25 €/kWh · 0.25 kg CO2/kWh — the D-SLS-25M 1000 W achieves the required EN 12193 levels replacing 2 000 W metal halide lamps. DIALux / Relux study supplied with every project.

PROJECT ROADMAP · FROM ORDER TO OPERATION



THE D-SLS-25M & THE ENVIRONMENT

Responsible street lighting — respectful of biodiversity, the night sky and neighbours

Light the useful area — and nothing else.

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

INTRUSIVE LIGHT & NEIGHBOURS

Upward flux	Asymmetric STU-M optics with indirect reflector: beam cut off above the horizontal at 0° tilt, light contained within the playing area.
Environmental zones	Sizing to CIE 150 and EN 12193: obtrusive light towards residents and glare verified in DIALux study.
Scheduled switch-off	Astronomical switch-off and dimming, per-zone scenarios: no space lit at full power when empty.

NOCTURNAL WILDLIFE

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

ECODESIGN & LIFE CYCLE

EU ecodesign	Compliant with Regulation (EU) 2019/2020: $P_{stLM} \leq 1$ · $SVM \leq 0.4$ · light sources and drivers replaceable without tools.
Longevity	L90B10 $\geq$ 100 000 h: no relamping, zero lamp waste, zero mercury contamination.
CO2 avoided	Case study (16 × metal halide 2 000 W → D-SLS-25M 1000 W): about 9 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 12193 (sports lighting) · Regulation (EU) 2019/2020 on ecodesign · International Dark-Sky Association. Obtrusive light study supplied with every project.

PHOTOMETRY · D-SLS-25M · 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. The values in the following tables are **complete luminaire** values — driver and optics included — measured at $V_{in} = 230\text{ V AC}$, modes F / DA / DAC. The **LUSSO-5050AUX** source is under-driven: the luminaire efficacy of **187 lm/W** (4000 – 5000 K, CRI 70, $T_q 25\text{ }^\circ\text{C}$) includes thermal, optical (optical efficiency $\geq 95\%$) and driver ($> 94\%$) losses. At operating ambient $t_a 50\text{ }^\circ\text{C}$: **180 lm/W**. Tolerance $\pm 7\%$ on flux, $\pm 5\%$ on power.

LED CSP

LUSSO-5050AUX source

187 lm/W

luminaire · $T_q 25\text{ }^\circ\text{C}$

180 lm/W

luminaire · $t_a 50\text{ }^\circ\text{C}$

L90B10

$\geq 100\,000\text{ h} \cdot \text{TM-21}$

PHOTOMETRIC DATA

Optics	Indirect reflector (inter-reflection) in satin aluminium — reflectance $\rho \geq 98\%$ (ISO 7668 / DIN 5036-3), LED never seen directly, no PMMA lens
Photometric files	LDT and IES per reference and per colour temperature
Photobiological safety	EN 62471 — risk group 0 (RG0), no UVA emission
Flux 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 NM EN 12193 (classes I, II, III), supplied with every project

A

STU-M asymmetrical
photometry

B

Symmetrical
photometry

C

Intensive
photometry

Available colour temperatures

2700 K

727

3000 K

730

4000 K

740

5000 K

750

TW

2700 – 6500 K

$\geq 95\%$

optic efficiency

RG0

photobiological group EN 62471

$\pm 7\%$

flux tolerance

PHOTOMETRIC TABLES · 5000 K & 4000 K · CRI 70

REFERENCE	POWER* W · Tq 25 °C	EFFICACY lm/W · Tq 25 °C	FLUX* lm · Tq 25 °C	POWER* W · ta 50 °C	EFFICACY lm/W · ta 50 °C	FLUX* lm · ta 50 °C
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5000 K · CRI 70 · Vin 230 V AC · modes F / DA / DAC · Rev. 10/2026

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

D-SLS-25M-1-200A	200	187	37 400	200	180	36 000
D-SLS-25M-2-300A	300	187	56 100	300	180	54 000
D-SLS-25M-2-400A	400	187	74 800	400	180	72 000
D-SLS-25M-3-600A	600	187	112 200	600	180	108 000
D-SLS-25M-4-800A	800	187	149 600	800	180	144 000
D-SLS-25M-5-1000A	1000	187	187 000	1000	180	180 000
D-SLS-25M-6-1200A	1200	187	224 400	1200	180	216 000
D-SLS-25M-8-1500A	1500	187	280 500	1500	180	270 000
D-SLS-25M-10-2000A	2000	187	374 000	2000	180	360 000

REFERENCE	POWER* W · Tq 25 °C	EFFICACY lm/W · Tq 25 °C	FLUX* lm · Tq 25 °C	POWER* W · ta 50 °C	EFFICACY lm/W · ta 50 °C	FLUX* lm · ta 50 °C
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4000 K · CRI 70 · Vin 230 V AC · modes F / DA / DAC · Rev. 10/2026

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

D-SLS-25M-1-200A	200	187	37 400	200	180	36 000
D-SLS-25M-2-300A	300	187	56 100	300	180	54 000
D-SLS-25M-2-400A	400	187	74 800	400	180	72 000
D-SLS-25M-3-600A	600	187	112 200	600	180	108 000
D-SLS-25M-4-800A	800	187	149 600	800	180	144 000
D-SLS-25M-5-1000A	1000	187	187 000	1000	180	180 000
D-SLS-25M-6-1200A	1200	187	224 400	1200	180	216 000
D-SLS-25M-8-1500A	1500	187	280 500	1500	180	270 000
D-SLS-25M-10-2000A	2000	187	374 000	2000	180	360 000

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

PHOTOMETRIC TABLES · 3000 K & 2700 K · CRI 70

REFERENCE	POWER* W · Tq 25 °C	EFFICACY lm/W · Tq 25 °C	FLUX* lm · Tq 25 °C	POWER* W · ta 50 °C	EFFICACY lm/W · ta 50 °C	FLUX* lm · ta 50 °C
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3000 K · CRI 70 · Vin 230 V AC · modes F / DA / DAC · Rev. 10/2026

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

D-SLS-25M-1-200A	200	177	35 400	200	170	34 000
D-SLS-25M-2-300A	300	177	53 100	300	170	51 000
D-SLS-25M-2-400A	400	177	70 800	400	170	68 000
D-SLS-25M-3-600A	600	177	106 200	600	170	102 000
D-SLS-25M-4-800A	800	177	141 600	800	170	136 000
D-SLS-25M-5-1000A	1000	177	177 000	1000	170	170 000
D-SLS-25M-6-1200A	1200	177	212 400	1200	170	204 000
D-SLS-25M-8-1500A	1500	177	265 500	1500	170	255 000
D-SLS-25M-10-2000A	2000	177	354 000	2000	170	340 000

REFERENCE	POWER* W · Tq 25 °C	EFFICACY lm/W · Tq 25 °C	FLUX* lm · Tq 25 °C	POWER* W · ta 50 °C	EFFICACY lm/W · ta 50 °C	FLUX* lm · ta 50 °C
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2700 K · CRI 70 · Vin 230 V AC · modes F / DA / DAC · Rev. 10/2026

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

D-SLS-25M-1-200A	200	171	34 200	200	165	33 000
D-SLS-25M-2-300A	300	171	51 300	300	165	49 500
D-SLS-25M-2-400A	400	171	68 400	400	165	66 000
D-SLS-25M-3-600A	600	171	102 600	600	165	99 000
D-SLS-25M-4-800A	800	171	136 800	800	165	132 000
D-SLS-25M-5-1000A	1000	171	171 000	1000	165	165 000
D-SLS-25M-6-1200A	1200	171	205 200	1200	165	198 000
D-SLS-25M-8-1500A	1500	171	256 500	1500	165	247 500
D-SLS-25M-10-2000A	2000	171	342 000	2000	165	330 000

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

REPLACEMENT EQUIVALENCES · HIGH CRI & TUNABLE WHITE

DISCHARGE LAMPS → D-SLS-25M

Existing lamp	System power	D-SLS-25M equivalent	Luminaire flux (4000 K)	Energy saving
Metal halide 400 W	430 W	D-SLS-25M-1-200A	37 400 lm	-53 %
Metal halide 1 000 W	1 080 W	D-SLS-25M-3-600A	112 200 lm	-44 %
HPS 1 000 W	1 100 W	D-SLS-25M-3-600A	112 200 lm	-45 %
Metal halide 1 500 W	1 620 W	D-SLS-25M-4-800A	149 600 lm	-51 %
Metal halide 2 000 W	2 150 W	D-SLS-25M-5-1000A	187 000 lm	-53 %
2 × MH 2 000 W	4 300 W	D-SLS-25M-10-2000A	374 000 lm	-53 %

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) & Tunable White (option TW) — 1200 W reference

187 lm/W

CRI 70 · 4000 – 5000 K · T_q 25 °C

CRI 80 · 90 · 97

option S3 — tables on request

< 3 SDCM

MacAdam colour binning

2700 – 6500 K

Tunable White · D4i + DT8

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

EN 12193

illuminance level maintained

-44 → -53 %

energy on retrofit

DIALux / Relux

study supplied with every project

CODING · BUILD AN ORDER REFERENCE

D-SLS-25M reference structure

D-SLS-25M

Series

6

Size

1200

Power

A

Photometry

740

CCT · CRI

LD

Options

Example: D-SLS-25M-6-1200A-740-LD — 1200 W, 4000 K CRI 70, LidarMesh remote management.

AVAILABLE OPTIONS

Power	200 · 300 · 400 · 600 · 800 · 1000 · 1200 · 1500 · 2000 W
Size	number of modules: 1 to 10 (200 W to 2 000 W)
Photometry	A asymmetric STU-M · B symmetric · C intensive
CCT · CRI	727 · 730 · 740 · 750 (CRI 70) — 8xx / 9xx for CRI 80 / 90 — TW Tunable White
Finish	Anthracite grey, any RAL

Cumulative option suffixes

LD

LidarMesh remote management

SP20

External 20 kV SPD

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 over as is to quotations, purchase orders and bills of quantities. Options are cumulative and added 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, optic, driver and SPD — for a compliant installation and an operating ambient temperature $\leq 50^{\circ}\text{C}$.



2

10-year extension (W10)

On project registration at commissioning: warranty extended to **10 years**, including 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 factory-set per project sheet — luminaires ready to install.



5

LidarMesh commissioning

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



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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D-SLS-25M • 200 – 2 000 W

D-SLS SRL — Digital Smart Lighting Solutions

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Catalogue D-SLS-25M 2026 • Rev. 10/2026 • Modular floodlight, 200 – 2 000 W range •
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