

Light shapes the city of tomorrow.

PUBLIC LIGHTING • SOLAR • CONNECTED

SMART CITY
WIRELESS MESH NETWORK



CATALOGUE D-SLS-28

2026

D-SLS-28 20-150 W • Crown Lantern

D-SLS
Digital-Smart Lighting Solutions

OVERVIEW · CROWN LANTERN

Royal crown, chased frieze and ogival bowl — the signature of historic centres



28 050 lm

maximum luminaire flux · 150 W

187 lm/W

luminaire efficacy · T_a 25 °C

20 – 150 W

power range

DALI-2 · D4i

programmable driver · NFC

100 000 h

L90B10 · IES TM-21

7 years

warranty · 10 years optional

Made one by one, equipped like a road luminaire

The Crown Lantern is made one by one in our workshops: die-cast aluminium dome, top crown and decorative frieze in brass or gilded aluminium — patinated, gilded or RAL finish. Beneath the decorative part sits exactly the technical platform of D-SLS road luminaires — replaceable LED module, DALI-2 / D4i driver programmable via NFC, integrated SPD and Zhaga Book 18 · 20 socket ready for LidarMesh remote management. The decoration is handcrafted; the electronics, maintenance and warranty are industrial.



Historic centres

Mounting height 3.5 to 5 m, CCT 2700 K or 1800 K, opal bowl: a warm light that respects historic buildings.



Squares and esplanades

Mounting height 4 to 10 m, 40 to 150 W depending on area: uniform illuminance for squares, forecourts and main roads.



Paths and promenades

Mounting height 3.5 to 4.5 m, 20 to 40 W, LiDAR dimming on demand: pedestrian safety, restraint at night.

D-SLS-28 · NEW ON-BOARD TECHNOLOGIES

Reflector optic, LiDAR node, D4i · DALI-2 · Thread — the connected platform of the range

Reflector optical unit — aluminium reflectance $\geq 98\%$



Sealed optical chamber with aluminium reflector, the LED is never seen directly: reflected light, anti-glare, no exposed PMMA lens. Reflectance $\geq 98\%$, ULOR 0 %, wide measured distribution (C0 – C180). LED module replaceable without tools.

New technologies used



LiDAR node

presence detection, counting, Zhaga D4i socket



Static detection

integrated mmWave radar — presence without movement



Thread mesh network

IPv6, self-healing, TALQ 2.7.1



Tunable White

1800 → 6500 K controlled via D4i + DT8



Certified interfaces



D4i

Intelligence serving urban lighting

Interoperability

D4i-compliant for open ecosystems

Power and data on the same cable

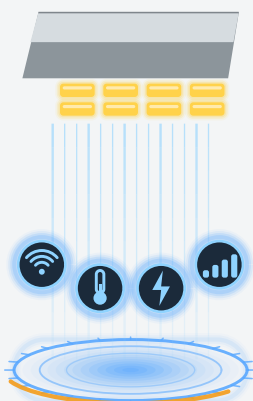
standardised interface

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

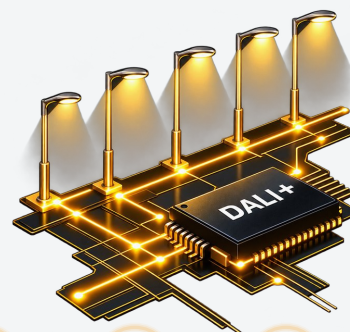
group and address management

Interoperability

certified multi-brand DALI+ ecosystem

Flexibility

suited to current and future projects



Scenarios



Schedules



Regulation



Supervision

D-SLS-28 — the six connected functions



TUNABLE WHITE



LiDAR NODE



MESH NETWORK



SECURE VPN



OTA SELF-HEALING



AI ANTI-THEFT

THE PRODUCT IN DETAIL

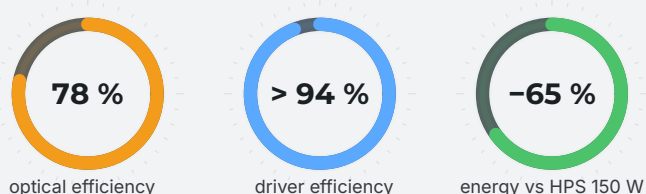
What you see — and what lies beneath

Body & decor	Die-cast aluminium dome, top crown and decorative frieze in brass or gilded aluminium — patinated, gilded or RAL finish
Glazing / bowl	Ogival bowl in UV-stabilised polycarbonate or blown glass — opal or clear version
Optical block	Four LED strips on a black board at the top, under flat tempered glass — the bowl diffuses the flux, the crown hides the source from direct view
Fixing	Suspended by M22 threaded entry on bracket, arm or wall mount — reuse of existing decorative supports
Dimensions	Overall height 860 mm · diameter at frieze 520 mm (indicative values)
Weight	11 → 14 kg depending on version

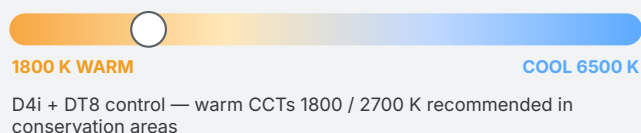
Custom manufacturing

Each unit is made to order: RAL colour, gilded or patinated finish, frieze pattern and engraving of the municipal arms are set at order, with no tooling surcharge beyond the first piece. Dimensioned drawings and a finish sample are supplied before series production.

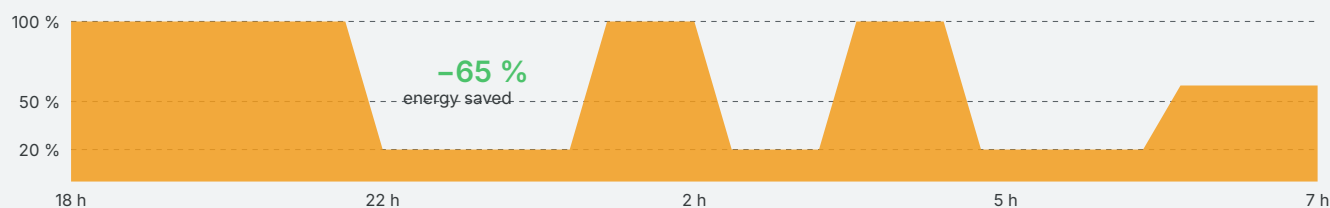
PERFORMANCE & SAVINGS · DASHBOARD



TUNABLE WHITE — CCT RANGE



LiDAR ADAPTIVE DIMMING — TYPICAL NIGHT PROFILE



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

HPS 150 W discharge lantern	714 kWh/yr
D-SLS-28 60 W	252 kWh/year -65 %
D-SLS-28 60 W + LidarMesh	106 kWh/year -85 %

Assumptions: illuminance level maintained per EN 13201, on-demand dimming via LiDAR detection.

152 €

saved / point / year with LiDAR

152 kg

CO₂ avoided / point / year with LiDAR

zero

relamping — L90B10 ≥ 100 000 h

100 %

remotely controllable · LD option

KEY FEATURES



Chased crown and frieze

Decorative elements cast then hand-finished, gilded or patinated — the detail that wins approval from heritage authorities.



Replaceable ogival bowl

UV-stabilised polycarbonate or blown glass, clear or opal: the most exposed wear part is replaced on its own.



LED plate accessible from the top

Four LED strips on a black board, closed by flat glass: remove the bowl, two screws, and the board is changed from a bucket lift.



NFC-programmable driver

DALI-2 and D4i + DT8: wireless adjustable output current, dim-to-off 94 %.



Remote-management ready

Zhaga Book 18 · 20 socket: the LiDAR node and the LidarMesh CMS platform can be added later, without opening or removing the luminaire.



Protection and durability

SPD 10 kV / 10 kA type II, IP67, IK09, stainless IP68 cable gland — LED module, driver and SPD replaceable on site.

Artisan decor, industrial core

A handcrafted luminaire is not a series product: it is made to order, from drawings, with the finish and decor approved by the client. What D-SLS brings is an industrial technical core — the same driver, the same LED module and the same remote-management socket as on the range's road luminaires — and therefore the same lifetime, the same maintenance and the same warranty.

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CPS

COMPONENTS · COMMON TECHNICAL PLATFORM

Parts common to the entire D-SLS range — replaceable without tools

Sealing & remote management



Stainless pressure-equalisation valve — hydrophobic membrane, IP67 maintained over the entire service life



D-SLS LiDAR node on Zhaga Book 18 · 20 socket — D4i, clip-on at any time without opening the luminaire

Driver	ENEC-certified programmable DALI-2 / D4i electronics — LED current set via NFC when unpowered, tool-free plug-out
Protection	Integrated 10 kV / 10 kA type II SPD with end-of-life indicator: automatic disconnection on opening
LED module	Removable and field-replaceable — tool-free · programmable NTC-ETM DIGITAL
Connection	Removable wiring plate, screw terminal block — IP68 stainless cable gland

New technologies used



TUNABLE WHITE
1800 – 6500 K controlled via D4i presence detection, counting, Zhaga D4i socket + DT8



LIDAR NODE
AI presence detection, counting, Zhaga D4i socket



MESH NETWORK
IPv6, self-healing TALQ remote management and cybersecurity updates and self-diagnostics 2.7.1



SECURE VPN



OTA SELF-HEALING



AI ANTI-THEFT
detection and alert smart

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CPS

TECHNICAL SPECIFICATIONS · MECHANICS & OPTICS

Artisan bowl lantern — royal crown, chased frieze and ogival bowl, D-SLS technical platform

Applications	Historic centres, squares and esplanades, avenues and promenades, forecourts, public gardens, monument surroundings — classes P, C and M (UNI 11248 / EN 13201) · mounting height 3.5 to 10 m
Body & decor	Die-cast aluminium dome, top crown and chased frieze in brass or gilded aluminium — patinated, gilded or RAL finish · made one by one, frieze pattern and coat of arms on request
Optical block	Four LED strips on a black plate at the top, under flat tempered glass — flux directed downwards, the bowl diffuses, the crown hides the source from direct view · wide distribution, a single optic validated by testing
Optical efficiency	≥ 78 % (clear bowl) — ULOR 0 % (opaque plate at the top) · opal bowl: efficiency ≥ 65 %, reduced luminance
Screen	Flat tempered glass 5 mm thick on the optical unit (EN 12150-1) · ogival bowl in UV-stabilised polycarbonate (non-yellowing, IK10) or blown glass — clear or opal version
Photobiological safety	EN 62471 — EXEMPT group (RG0) · automatic power disconnection when the dome is opened
Insulation class	Class II (class I on request)
Ingress protection	IP 67 optical unit (IEC 60529 — temporary immersion 30 min / 1 m) · IK 09 overall (IEC 62262) — IK 10 on polycarbonate bowl
Pressure equalisation	Stainless steel pressure-equalisation valve with hydrophobic membrane — lets air and water vapour through, never liquid water or dust: no internal condensation, no thermal pumping · ingress protection fully maintained
Mounting	Suspended by M22 (3/4" G) threaded entry on bracket, wall arm or wall mount — vertical lantern · adapters for existing decorative supports (cast iron, wrought iron) · post-top on Ø60 mm column via spigot (option)
Exposed surface	Lateral: ≈ 0.30 m ² · SCx ≈ 0.24 m ² (ogival bowl) — indicative values
Dimensions	Overall height 860 mm — diameter at frieze 520 mm — bowl Ø ≈ 380 mm · dimensioned drawings supplied with order
Weight	11 kg → 14 kg depending on bowl and decor
Wiring	Removable wiring plate, 2.5 mm ² screw terminal block — tool-free opening and maintenance · M20 × 1.5 stainless IP68 cable gland
Temperatures	Operation: -30 °C / +50 °C (ta 50 °C certified) · Storage: -40 °C / +80 °C
Colour temperatures	1800 K · 2700 K · 3000 K · 4000 K · 5000 K · Tunable White 1800 – 6500 K (option TW)
CRI	70 (standard) · 80 · 90 · 99
MacAdam ellipse	< 3 SDCM (standard)
LED	LUSSO-5050AUX CSP TECHNOLOGIES LED chip — source 280 lm/W · luminaire 187 lm/W (Tq 25 °C) · Rth 0.9 °C/W · each LED driven at 160 mA (5.3 V · 0.85 W) · programmable NTC-ETM DIGITAL
Driver	DALI-2 / D4i + DT8 programmable via NFC — 90 – 305 V AC, PF > 0.95, efficiency > 94 % · integrated 10 kV / 10 kA type II SPD with end-of-life indicator
Power & flux	20 · 30 · 40 · 60 · 80 · 100 · 120 · 150 W — up to 28 050 lm (4000 K / CRI 70, Tq 25 °C) 22 → 165 LEDs at 160 mA (≈ 1.1 LED per watt) · other wattages on request

EN 60598

EN 62471

RoHS

IP67

IK09

Class II

DALI-2

D4i

Zhaga Book 18

Compliance summary

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 13201, IEEE 1789 — ENEC-certified driver (EN 61347-1 / EN 61347-2-13). Handcrafted luminaire made one by one: conformity is established by EU declaration and by certification of critical components (ENEC-certified power module, LM-80 qualified LEDs). Calculated photometric values — LM-79 reports on assembled luminaire in progress.

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CERTIFICATIONS & STANDARDS

CPS

ENEC certificate no. HN 69290740

Test body	TÜV Rheinland InterCert Kft. (MEEI, Budapest)
Standards	EN IEC 60598-1:2021 + EN 60598-2-3
Holder	D-SLS SRL — Via Bocchetto 6, 20123 Milano (MI), Italia
Covered types	D-SLS-a-b-cd families — common electrical platform (LED module, DALI-2 / D4i driver, SPD) shared by the D-SLS-28 lantern · handcrafted decorative body: EU declaration of conformity per series
Certified parameters AC 220 – 240 V · class II · ta 50 °C · IP66 (certificate in force)	

Copy of certificate and test report supplied with every bid.

Additional tests

- IP67 — IEC 60529 (dust · immersion 30 min / 1 m)
- IK09 — IEC 62262 (impact resistance, 10 J)
- EN 62471 — photobiological safety RGO
- 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
- EN 12150-1 — optical unit tempered glass · EN 14179 heat-soak
- ISO 9227 — salt spray 500 h on coating and gilding

Standards framework

Luminaire safety

EN IEC 60598-1 · EN 60598-2-3

Electromagnetic compatibility

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

Application

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

Lifetime

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

Photobiology

EN 62471

Protection

EN 60529 (IP) · EN 62262 (IK)

Control & interoperability

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

European directives

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

EN 60598

EN 62471

RoHS

IP67

IK09

Class II

DALI-2

D4i

Zhaga Book 18

Compliance file

The parameters above are those stated on the current ENEC certificate; the product characteristics on the previous pages reflect the current commercial definition of the luminaire. The D-SLS-28 lantern uses the certified electrical platform of the D-SLS-a-b-cd families; its decorative body, made one by one, is covered by an EU declaration of conformity per series. CE marking under 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
EU Declaration	EU Declaration of Conformity — directives 2014/35/EU · 2014/30/EU · 2011/65/EU
IP / IK reports	IP67 per IEC 60529 · IK09 per IEC 62262 on assembled luminaire
LED lifetime	LM-80-21 report, 18 000 h (0 failures), and IES TM-21 projection
Photometry	Measured photometric curve · LDT / IES files per wattage and CCT
Lighting study	DIALux / Relux calculation report to EN 13201 — classes M, C and P

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 67 — IEC 60529 (dust · temporary immersion 30 min / 1 m).
Mechanical impact	IK 09 overall — IEC 62262 (10 joules), on assembled luminaire.
Vibration	IEC 60068-2-6 — luminaire suspended on bracket, wall arm and wall mount.
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; LM-79 reports with standard optic: in progress.
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

Body / cover	Die-cast (high-pressure) aluminium EN AC-46100 per UNI EN 1706 — EN 10204 type 3.1 material certificate.
Coating	Exterior-grade polyester powder coating: thickness ≥ 70 µm (ISO 2360), adhesion class 0 (ISO 2409), salt spray 500 h (ISO 9227), UV resistant.
Reflector	High-reflectance aluminium
Screen	5 mm extra-clear flat tempered glass: EN 12150-1, heat-soak test EN 14179, double-sided anti-reflective coating (EN 410).
Closure	Die-cast aluminium hooks + stainless-steel springs — A2 stainless fasteners, tool-free opening.
Wiring	Removable wiring plate, plug-in connectors — tool-free driver and SPD replacement.
Pressure-equalisation valve	Stainless steel valve with hydrophobic membrane — equalises internal pressure at every day / night cycle without affecting sealing; replaceable without opening the luminaire.

Repairability

The luminaire is designed to be repairable on site: LED module, driver and SPD are replaced individually, without removing the luminaire or using 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

certified ambient temperature

10 J

IK09 on assembled luminaire

500 h

salt spray ISO 9227

10 kV / 10 kA

surge immunity

Operating conditions

Temperatures	Operation -30 °C / +50 °C (ta 50 °C certified) · storage -40 °C / +80 °C
Sealing	IP67 optical unit · stainless steel pressure-equalisation valve
Impact	IK09 complete luminaire · IK10 on polycarbonate bowl
Surges	Integrated 10 kV / 10 kA type II SPD · optional external 20 kV SPD (SP20)
Corrosion	Salt spray 500 h (ISO 9227) · optional C5 anti-corrosion (MAR)
Installation	Mounting height 3.5 to 10 m · M22 threaded entry on bracket, wall arm or wall mount

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 LED chip driven at only 160 mA, i.e. 19 % of the test current: the junction operates far from its limits, the 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 %. It is this performance reserve that enables

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 $6 \times 18\,000$ 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 — LUSO-5050AUX LED + ALUMINIUM REFLECTOR

280 lm/W

LED source · 160 mA · T_q 25 °C

× 92 %

thermal factor T_s 85 °C

× 78 %

reflector 86.26 % · bowl 90 %

× 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 · 80 W → 14 960 lm · tolerance ± 7 % on flux.

ELECTRICAL SPECIFICATIONS · PROGRAMMABLE DRIVER

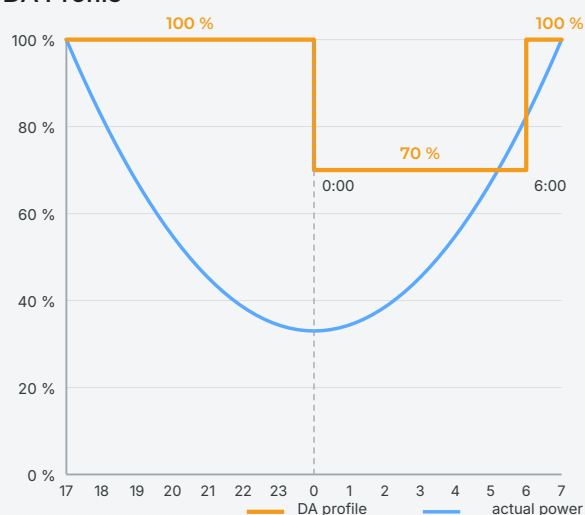
Power supply	90 – 305 V AC · 50 / 60 Hz (tolerance $\pm 10\%$ — other voltages and tolerances on request)
LED current	350 – 1 000 mA — wirelessly adjustable via NFC (AOC: programmable output current)
Power factor	> 0.95 (full load — PLM) > 0.98 (full load — F, DA, DAC)
Efficiency	$> 94\%$
Interfaces	DALI-2 · D4i 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 · $> 100\,000$ 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 integrated in the driver and the LED matrix, digital programmable threshold
- Digital thermal sensing (NTC): driver and LED module protection, programmable
- 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

DA Profile



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 driver powers the node, which measures 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
- Dynamic DMX / Art-Net lighting for façades and ceremonies

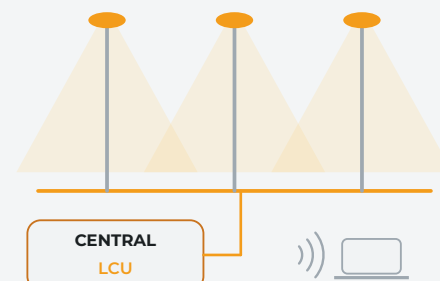
Protocols:

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



HD-PLC architecture — powerline

HD-PLC



Communication over the existing supply cable to the LCU — 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
- Alarms and diagnostics: driver, SPD, temperature, voltage • Predictive maintenance and work-order management
- Dimming scenarios by zone, calendar and detection
- D4i energy metering, reports and export
- 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 23:00 — full level per EN 13201

50 % Quiet night

scheduled reduction to calendar

20 % Standby

empty street — ramp-up instant 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

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

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 — over 10 000 nodes per platform: if a node fails, traffic bypasses it 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-28 — the six connected functions



TUNABLE WHITE



LiDAR NODE



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 platform
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

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.

10 000+

nodes per platform

99,9 %

platform availability

24/7

technical support

0

software to install

End-to-end security

Encryption	WireGuard encrypted link (ChaCha20-Poly1305) from each segment to the platform
Firmware	Images signed, verified by hardware secure element · secure boot · anti-rollback
Data	European Union hosting · CSV / JSON export · the operator remains owner
AI anti-theft	Detection of luminaire opening or displacement and immediate alert to the operator

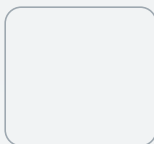
FINISHES & DECOR

Body colour, decorative element finish, frieze pattern — defined at order

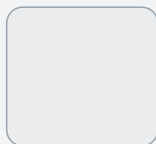
Most requested body colours



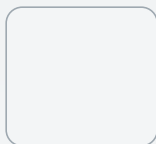
RAL 9005
jet black



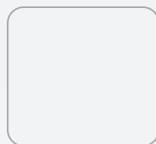
RAL 7016
anthracite grey



RAL 7011
iron grey



RAL 6009
fir green



RAL 8019
grey brown



RAL 3005
wine red



RAL 1036
pearl gold



RAL 9007
grey aluminium

Any other RAL colour on request — outdoor-grade polyester powder lacquer, UV-resistant, salt spray 500 h.

Decorative element finish



Gilded

Satin gold paint on crown, frieze and base — the standard finish



Patinated

Brushed antique gold, darkened recesses — for historic buildings



Bronze

Matt bronze, soft contrast with an anthracite body



Body colour

Decoration painted in the body colour — understated look, silhouette only

Frieze patterns and engraving

Standard pattern

D-SLS chased frieze reproduced identically across the whole order — existing mould, no tooling cost

Municipal coat of arms

Coat of arms or logo built into the frieze or engraved on the base — vector file supplied by the client

Custom pattern

Frieze designed from a survey of existing street furniture — first piece approved before series production

Identification engraving

Asset number, installation year or street name engraved on the base — useful for asset management

Pre-series validation

A colour and finish sample is submitted before series production, and the first piece is presented to the client. As decorative elements are painted separately from the body, a finish change during the project remains possible without restarting production.

Coating & long-term durability

Lacquer

Outdoor-grade polyester powder · thickness $\geq 70 \mu\text{m}$ (ISO 2360) · adhesion class 0 (ISO 2409)

Resistance

Salt spray 500 h (ISO 9227) on coating and gilding · UV-resistant, no chalking

MAR option

C5 anti-corrosion (ISO 12944) for marine or industrial atmospheres · stainless fasteners

OPTIONS & CUSTOMISATION



RAL Colour and finish

Any RAL colour on the body; gilding, patina or bronze on decorative elements — sample approved before series.



GRAV Frieze & coat of arms

Frieze pattern of choice, municipal arms or custom engraving — reproduced identically across the whole order.



LD LidarMesh remote management

D4i LiDAR node on Zhaga Book 18 · 20 socket: presence detection, GPS, astronomical clock, TALQ 2.7.1 gateway



TW Tunable White

Dynamic white 1800 – 6500 K controlled via D4i + DT8 — evening ambiances, events, heritage lighting.



SP20 External 20 kV SPD

External surge protector cascaded with the integrated SPD — high-lightning areas and overhead networks.



MAR C5 anti-corrosion

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



W10 10-year warranty

Warranty extension from 7 to 10 years, upon project registration and compliant operating conditions.



SUP Brackets & wall arms

Matching supports with M22 threaded entry — single bracket, double arm, wall bracket, rigid stem.

Control

Options can be combined and are added at the end of the reference — e.g. D-SLS-28-60W-727-LD-W10. Decor customisation (colour, frieze, coat of arms) is set at order from drawing and sample; it affects neither photometric performance nor warranty.

REPLACEMENT EQUIVALENCES — DISCHARGE LAMPS → D-SLS-28

Existing luminaire	System power	D-SLS-28 equivalent	Luminaire flux (4000 K)	Energy saving
Mercury vapour 125 W	135 W	D-SLS-28-30W	5 610 lm	-78 %
HPS 100 W discharge lantern	115 W	D-SLS-28-40W	7 480 lm	-65 %
HPS 150 W discharge lantern	170 W	D-SLS-28-60W	11 220 lm	-65 %

Reading the table

Indicative equivalences at maintained illuminance (EN 13201) — to be confirmed by a DIALux study accounting for road geometry, mounting height and maintenance factor. In conservation areas, colour temperatures of 2700 K and 1800 K are recommended: they reduce insect attraction and respect the night-time character of historic buildings.

EN 13201

M, C and P classes

2700 / 1800 K

Recommended CCTs in conservation areas

DIALux

study supplied with every project

PHOTOMETRY · CALCULATION CHAIN

From the source to the luminaire output flux

Values published in the following tables are calculated from the complete chain: source 280 lm/W (160 mA per LED) × thermal factor 92 % (Ts 85 °C) × optical efficiency 78 % (aluminium reflector 86.26 % measured · clear bowl 90 %) × driver ≥93 %, i.e. 187 lm/W luminaire calculated — 187 lm/W published at Tq 25 °C and 180 lm/W at ta 50 °C. Tolerance ±7 % on flux, ±5 % on power, at Vin = 230 V AC.

280 lm/W

LED source · 160 mA

× 92 %

thermal factor

× 78 %

optics + bowl

× 93 %

driver

= 187 lm/W

luminaire · Tq 25 °C

Distribution

Four LED strips on a black board at the top, under flat tempered glass — the bowl diffuses the flux, the crown hides the source from direct view

Photometric files

LDT and IES per reference and per colour temperature — LM-79 reports on assembled luminaire in progress

Photobiological safety

EN 62471 — risk group 0 (RG0), no UVA emission

Flux maintenance

LM-80 + TM-21 — L90B10 ≥ 100 000 h at ta 50 °C

Layout study

DIALux / Relux to EN 13201 (classes M, C, P), supplied with every project

78 %

optical efficiency

RG0

photobiological group EN 62471

±7 %

flux tolerance

CODING · BUILD AN ORDER REFERENCE

Reference structure

D-SLS-28

Model

–

60W

Power

–

730

CCT · CRI

–

RAL7016

Finish

–

LD

Options

Example: D-SLS-28-60W-730-RAL7016-LD = 60 W, 3000 K / CRI 70, RAL 7016 colour, with remote-management node.

Power

20 · 30 · 40 · 60 · 80 · 100 · 120 · 150 W

Luminaire power at Vin = 230 V AC (±5 %). Other wattages by adding or removing LED modules, on request.

CCT · CRI

718 = 1800 K · **727** = 2700 K · **730** = 3000 K · **740** = 4000 K · **750** = 5000 K

First digit = CRI: 7 = 70 (standard), 8 = 80, 9 = 90 · TW = Tunable White 1800 – 6500 K

Finish

Body colour: RALxxxx · CUIVRE · BRONZE · Decorative elements: -OR gilded · -PAT patinated · -RAL body colour

Frieze and coat of arms: GRAV suffix with the pattern attached to the order.

Options

LD LidarMesh remote management · TW Tunable White · SP20 external SPD 20 kV · MAR anti-corrosion C5 · W10 10-year warranty · SUP matching bracket or arm

Cumulative options, added in this order at the end of the reference.

Quotation & custom manufacturing

A reference fully describes the configuration delivered — to be copied as is onto quotes and purchase orders. For custom manufacturing (size, specific decor, adaptation to an existing support), the D-SLS design office issues a dedicated reference after survey: sa@d-sls.com.

PHOTOMETRIC TABLES · 5000 K & 4000 K · CRI 70

REFERENCE	POWER*	EFFICACY	FLUX*	POWER*	EFFICACY	FLUX*
	W · Tq 25 °C	lm/W · Tq 25 °C	lm · Tq 25 °C	W · ta 50 °C	lm/W · ta 50 °C	lm · ta 50 °C
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-28-20W	20	187	3 740	20	180	3 600
D-SLS-28-30W	30	187	5 610	30	180	5 400
D-SLS-28-40W	40	187	7 480	40	180	7 200
D-SLS-28-60W	60	187	11 220	60	180	10 800
D-SLS-28-80W	80	187	14 960	80	180	14 400
D-SLS-28-100W	100	187	18 700	100	180	18 000
D-SLS-28-120W	120	187	22 440	120	180	21 600
D-SLS-28-150W	150	187	28 050	150	180	27 000

REFERENCE	POWER*	EFFICACY	FLUX*	POWER*	EFFICACY	FLUX*
	W · Tq 25 °C	lm/W · Tq 25 °C	lm · Tq 25 °C	W · ta 50 °C	lm/W · ta 50 °C	lm · ta 50 °C
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-28-20W	20	187	3 740	20	180	3 600
D-SLS-28-30W	30	187	5 610	30	180	5 400
D-SLS-28-40W	40	187	7 480	40	180	7 200
D-SLS-28-60W	60	187	11 220	60	180	10 800
D-SLS-28-80W	80	187	14 960	80	180	14 400
D-SLS-28-100W	100	187	18 700	100	180	18 000
D-SLS-28-120W	120	187	22 440	120	180	21 600
D-SLS-28-150W	150	187	28 050	150	180	27 000

* Luminaire power and flux measured at Vin = 230 V AC, modes F / DA / DAC, CRI 70. CCT/CRI order codes: 750 and 740. Respective efficacies: 187 / 187 lm/W at Tq 25 °C and 180 / 180 lm/W at ta 50 °C. The highlighted row is the 60 W reference configuration. Other CRI (80, 90, 99) and Tunable White: flux on request — values derive from the source × optics × driver chain, tolerance ± 7 %.

PHOTOMETRIC TABLES · 3000 K & 2700 K · CRI 70

REFERENCE	POWER*	EFFICACY	FLUX*	POWER*	EFFICACY	FLUX*
	W · Tq 25 °C	lm/W · Tq 25 °C	lm · Tq 25 °C	W · ta 50 °C	lm/W · ta 50 °C	lm · ta 50 °C
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-28-20W	20	177	3 540	20	170	3 400
D-SLS-28-30W	30	177	5 310	30	170	5 100
D-SLS-28-40W	40	177	7 080	40	170	6 800
D-SLS-28-60W	60	177	10 620	60	170	10 200
D-SLS-28-80W	80	177	14 160	80	170	13 600
D-SLS-28-100W	100	177	17 700	100	170	17 000
D-SLS-28-120W	120	177	21 240	120	170	20 400
D-SLS-28-150W	150	177	26 550	150	170	25 500

REFERENCE	POWER*	EFFICACY	FLUX*	POWER*	EFFICACY	FLUX*
	W · Tq 25 °C	lm/W · Tq 25 °C	lm · Tq 25 °C	W · ta 50 °C	lm/W · ta 50 °C	lm · ta 50 °C
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-28-20W	20	171	3 420	20	165	3 300
D-SLS-28-30W	30	171	5 130	30	165	4 950
D-SLS-28-40W	40	171	6 840	40	165	6 600
D-SLS-28-60W	60	171	10 260	60	165	9 900
D-SLS-28-80W	80	171	13 680	80	165	13 200
D-SLS-28-100W	100	171	17 100	100	165	16 500
D-SLS-28-120W	120	171	20 520	120	165	19 800
D-SLS-28-150W	150	171	25 650	150	165	24 750

* Luminaire power and flux measured at Vin = 230 V AC, modes F / DA / DAC, CRI 70. CCT/CRI order codes: 730 and 727. Respective efficacies: 177 / 171 lm/W at Tq 25 °C and 170 / 165 lm/W at ta 50 °C. The highlighted row is the 60 W reference configuration. Other CRI (80, 90, 99) and Tunable White: flux on request — values derive from the source × optics × driver chain, tolerance ±7 %.

PHOTOMETRIC TABLE 1800 K & PHOTOMETRIC CURVE

REFERENCE	POWER*	EFFICACY	FLUX*	POWER*	EFFICACY	FLUX*
	W · Tq 25 °C	lm/W · Tq 25 °C	lm · Tq 25 °C	W · ta 50 °C	lm/W · ta 50 °C	lm · ta 50 °C
1800 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-28-20W	20	140	2 800	20	135	2 700
D-SLS-28-30W	30	140	4 200	30	135	4 050
D-SLS-28-40W	40	140	5 600	40	135	5 400
D-SLS-28-60W	60	140	8 400	60	135	8 100
D-SLS-28-80W	80	140	11 200	80	135	10 800
D-SLS-28-100W	100	140	14 000	100	135	13 500
D-SLS-28-120W	120	140	16 800	120	135	16 200
D-SLS-28-150W	150	140	21 000	150	135	20 250

* Luminaire power and flux measured at Vin = 230 V AC, modes F / DA / DAC, CRI 70. CCT/CRI order code: 718. Efficacy of 140 lm/W at Tq 25 °C and 135 lm/W at ta 50 °C. The highlighted row is the 60 W reference configuration. Other CRI (80, 90, 99) and Tunable White: flux on request.

MEASURED PHOTOMETRIC CURVE — REFLECTOR OPTICAL BLOCK

Goniophotometric measurement of the aluminium-reflector optical unit — the only optic suited to the D-SLS-28 and validated by test. Flux fully directed downwards, wide distribution along the road axis (C0 – C180).

Optics Aluminium reflector ≥ 98 % · tempered glass

Measured module 143 × 54 mm

C planes — C0 – C180 — C90 – C270

ULOR 0.00 % — no flux towards the sky

DLOR 86.26 % — optical block efficiency

Unit cd/klm (intensity per 1 000 lm)

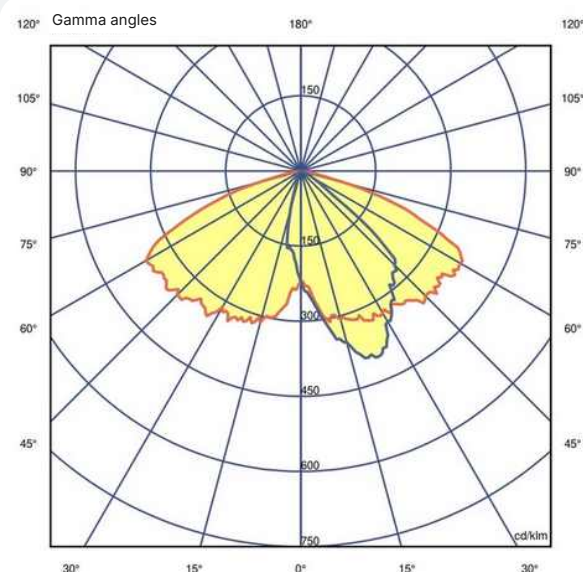
0,00 %

ULOR

86,26 %

Measured DLOR

LDT / IES files and full measurement report supplied on request.



WARRANTY & SERVICES



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 $\leq 50^{\circ}\text{C}$.



10-year extension (W10)

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



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).



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.



LidarMesh commissioning

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



Spare parts & after-sales

LED modules, drivers, SPD, glass and gaskets available throughout the warranty period — on-site replacement with no special tools.

PROJECT ROADMAP · FROM ORDER TO OPERATION

Survey & study

01

DIALux · dimensioned first piece
finish sample

Validation

02

first piece presented to the client

Manufacturing

03

driver configuration ready to install
in factory

Installation

04

M22 · LidarMesh CMS takeover
of supports

Commissioning

05

scenarios · 7 → 10 years
training

Operation

06

after-sales · parts
available



D-SLS-28 • 20-150 W

D-SLS SRL — Digital Smart Lighting Solutions

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