



LINE CONCHIGLIA

E.LUMA STAND-ALONE PHOTOVOLTAIC KIT

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ENERGY AUTONOMY AND SMART LIGHTING FOR URBAN SPACES AND INFRASTRUCTURE

DKC Group develops integrated electrical engineering solutions for energy distribution, protection and management applications, combining Made in Italy design and manufacturing with direct control over the supply chain. With this approach, we provide coordinated, reliable and technically

consistent systems, with a single point of contact throughout the entire plant life cycle. **The Conchiglia Line stand-alone photovoltaic kit** fits right into this vision. It creates self-contained, solar-powered lighting systems, reduces energy consumption and simplifies installation, while

eliminating the need for connection to the mains. Ideal for urban and rural roads, car parks and open spaces, public gardens and sports facilities, this system ensures continuity of service, environmental sustainability and optimised infrastructure costs.

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A complete system for autonomous lighting

With the stand-alone photovoltaic kit, you can install street lighting systems **completely off the grid**.

The panel charges the battery during the day, and when it gets dark, the energy stores powers the light fixture automatically.

The control unit manages the system in a smart manner, optimising its range, performance and service continuity.

CONTENTS OF THE KIT

- Light fixture**
High-efficiency 40-LED lamp with up to 60W power rating, dimmable
- 120Wp PV panel**
Adjustable to various intermediate angles
- Panel mounting structure**
Painted steel profile
- Light fixture reach**
Hot-dip galvanised steel
- Storage battery**
Lithium LiFePO₄ 12.8V/90Ah
- Command and control unit**
- Remote connection (optional)**
Additional LoRaWAN module
- POLE NOT INCLUDED**

KEY ADVANTAGES

-  **SUSTAINABILITY AND REDUCED EMISSIONS**
Power generated from renewable sources to reduce CO₂ emissions and grid electricity consumption, and support local authorities' environmental sustainability objectives and energy transition programmes.
-  **TOTAL ENERGY SELF-SUFFICIENCY**
The independent off-grid system is perfect for remote areas or where connection is difficult or not economically viable.
-  **REDUCED INFRASTRUCTURE COSTS**
Since there is no need for excavation works, cable ducts and connections to the network, construction times, initial and upkeep costs are greatly reduced during the entire system's life cycle.
-  **QUICK AND STRAIGHTFORWARD INSTALLATION**
A pre-configured kit and integrated components designed for rapid installation and guaranteed commissioning times, without any complex on-site work needed.
-  **UNINTERRUPTED SERVICE AND SMART MANAGEMENT**
The control unit with MPPT algorithm optimises the photovoltaic module output and protects the battery, ensuring energy efficiency and long-term reliability.
-  **LONGER SERVICE LIFE WITH LIFEPO₄ BATTERIES**
Lithium technology for operational stability, shorter charging times, a long service life and no maintenance.
-  **SMART MONITORING AND SMART CITY INTEGRATION**
Local app management and remote monitoring set-up (integration in the Energy Portal) to keep the parameters under control and optimise consumption.



LIGHT FIXTURE

DAYS OF OPERATION

Data refer to a fully charged battery operating on a 10-hour daily cycle without any reduction

	12 W	30 W	42 W	60 W
CAPACITY 1 x 90 Ah battery	9.5 days (96 hours)	4 days (38 hours)	2.5 days (27 hours)	2 days (19 hours)

EFFICIENCY AND RELIABILITY

The light fixture is designed to **ensure an even lighting distribution** and high performance in road and urban environments. **Fitted with 40 high-efficiency LEDs** for uniform illumination on the ground.

Main features

- High-efficiency LEDs **up to 200 lm/W**
- Luminous flux **up to 12,000 lumens**
- Maximum power **60W**
- **Symmetrical optics** for uniform lighting
- **IP66** protection rating and Insulation class II
- Temperature **4000°K - CRI>70**
- Energy class **A12+ - IPEA=2.76**

cycle path

RATED INPUT POWER (W)	FLUX (lm)	HEIGHT (m)	INTERD. (m)	EMIN (lux)	EMED (lux)	EMAX (lux)	ROAD CLASS	GLARING CLASS
12	2430	5	20	6	12	23	P2	D4/G6
30	6076	5	27	5	21	55	P2	D4/G6
42	8507	5	25	9	32	78	P1	D4/G6
60	12153	5	34	4	34	107	P1	D4/G6

photometric data

RATED INPUT POWER (W)	FLUX (lm)	HEIGHT (m)	EMIN (lux)	EMED (lux)	EMAX (lux)	GLARING CLASS
12	2430	5	5	12	23	D4/G6
12	2430	6	3	8	16	D4/G6
12	2430	9	2	4	7	D4/G6
30	6076	5	11	29	57	D4/G6
30	6076	6	8	20	40	D4/G6
30	6076	9	6	11	18	D4/G6
42	8507	5	16	40	80	D4/G6
42	8507	6	11.4	28	56	D4/G6
42	8507	9	8	15	26	D4/G6
60	12153	5	23	57	114	D4/G6
60	12153	6	16	40	80	D4/G6
60	12153	9	11	22	37	D4/G6

traffic conditions

RATED INPUT POWER (W)	FLUX (lm)	HEIGHT (m)	INTERD. (m)	LUM. (cd/m²)	UO	UI	TI	ROAD CLASS
12	2430	5	20	0.87	0.74	0.81	11	M4
12	2430	6	24	0.62	0.77	0.81	9	M5
12	2430	9	30	0.35	0.85	0.88	5	M6
30	6076	5	20	2.17	0.74	0.81	14	M3
30	6076	6	24	1.55	0.77	0.81	11	M3
30	6076	9	30	0.87	0.85	0.88	6	M4
42	8507	5	20	3.04	0.74	0.81	14	M3
42	8507	6	24	2.18	0.77	0.81	11	M3
42	8507	9	30	1.21	0.85	0.88	9	M3
60	12153	5	20	3.11	0.77	0.81	12	M3
60	12153	6	24	3.73	0.81	0.88	11	M3
60	12153	9	30	1.73	0.85	0.88	7	M3

MODULE

Photovoltaic module: optimised energy production

The high-efficiency single-crystal silicon panel maximises the energy output and ensures long-term reliability.

Electrical specifications (at 1000 W/m²; 25°C, Am 1.5)

Design advantages

- High energy efficiency – 120Wp
- Sizes 1080 × 586 × 35 mm
- Weight: 7 kg
- Efficiency :19%
- Weather resistant structure
- Adjustable tilt to optimise solar gain
- Wind-resistant up to 100 km/h
- 24 month warranty

Storage system: efficiency and durability

The **new 90Ah LiFePO₄ lithium battery** represents a system evolution and ensures greater energy efficiency, shorter charging times and a more stable, long-lasting performance.

BENEFITS

- longer service life
- low self-discharge
- charge/discharge cycles according to IEC 896, Part 2
- 12.8V **voltage** – 1152Wh **capacity**
- **12 month warranty**

STRUCTURE



Mounting the photovoltaic panel

The photovoltaic module is secured with a painted steel profile frame with a pole-mounted bracket, and the following characteristics:

- Photovoltaic array adjustable tilt angle (TILT): +/- 40°
- Pole-mounting bracket for diameters from 70 to 76 mm
- Wind-resistant up to 100 km/h

Battery-holding basket with pole mount

- Made of painted steel
- It can be mounted both on the module support structure and on the pole head
- Painted, with rail fitting and with stainless steel fixings
- Designed to withstand over 100 km/h of wind power
- Outer pole head diameter: 70 - 76mm
- Weight: 35Kg

- Light fixture reach
- made of painted steel
 - Anchor collars for poles with diameters ranging from 70 to 76 mm

COMMAND AND CONTROL

SMART CONTROL UNIT: MANAGEMENT AND OPTIMISATION

The command and control unit incorporates advanced functions for **managing the off-grid system**, to optimise the **operating cycles** and protect the components.

Main functions

- **MPPT charge** regulator
- **Lighting control:** twilight-activated or programmed with customised profiles
- LED power saving and protection: luminous flux reduction and **‘ramp-up’ switching** to preserve components
- **Smart control & Data logging:** RTC module for managing operating cycles and recording operational data
- **Battery protection:** integrated critical operating conditions prevention system
- Monitoring and connectivity: **Password-protected Bluetooth app (iOS/Android)**
- **Remote monitoring:** Compatible with the Energy Portal and the LoRa network for centralised control

E.LUMA APP: SMART CONTROL AT YOUR FINGERTIPS

An intuitive interface for total performance control:

System status monitoring

- Battery voltage and current
- Panel voltage
- Lamp power

Configuration

- Switch-on mode: twilight on or programmed
- Twilight on/off times set-up

Service functions

- Date and time set-up
- Password change
- Firmware updates

Advanced programming

- Definition of time slots with reduced luminous flux
- Exporting/Importing settings to other devices

Testing and diagnostics

- Luminous flux control 0–100%
- Flow test for immediate intensity verification
- History of the last 7 days with event logs (power on/off and battery status)





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