KIRITO



SL02 G4.0

Integrated Solar Street Light

Low-Temperature Resistant Solar Lighting Solution for Frigid Regions

Reliable Performance Down to -20℃

- 10W-60W
- Up to 200lm/W
- IP66
- -20°C to + 50°C
- LiFePO4
- Microwave
- Timer dim
- Energy saving



New Demands for Solar Street Lights in Cold Climates

As solar lighting expands into northern and high-altitude regions, reliable operation in freezing conditions is becoming increasingly important.
However, conventional battery systems can face significant performance challenges in low temperatures.

3 Key Challenges in Cold-Climate Applications

Low-Temperature Charging

Freezing conditions can reduce charging efficiency and increase the risk of lithium plating during charging.

Reduced Battery Performance

Low temperatures slow down battery chemistry, reducing available capacity and shortening lighting runtime.

Higher Maintenance Costs

Remote and harsh environments make battery maintenance and replacement more difficult, increasing long-term operating costs.



SL02 G4.0 — Built for Cold-Climate Solar Lighting

All-in-one Design

The SL02 G4.0 is a fully integrated solar street light engineered for harsh cold-climate projects.

Built with a custom low-temperature LiFePO4 battery and an intelligent BMS system, it delivers stable charging-discharging performance under freezing conditions, ensuring uninterrupted night-time illumination throughout cold winters.

It simplifies installation, on-site service, and long-term operation for roads, parks, industrial zones and remote northern sites.



Why It Works at -20°C ?

Low-Temperature Core Technology LiFePO4 Battery



Optimized Cathode

Nano-Structured LiFePO4 + Three-dimensional Conductive Network.

Shortens ion pathways, improves electron conductivity and maintains efficient electrochemical reactions at low temperatures.

High-Rate Anode

Surface-Modified Anode for Faster Ion Transfer

Reduces interfacial resistance, improves low-temperature reaction kinetics and helps suppress lithium plating during cold-weather charging.

Low-Temperature Electrolyte

Optimized Solvent + Lithium Salt + Additives

Maintains electrolyte fluidity and lithium-ion mobility, supporting stable electrochemical reactions down to -20°C.

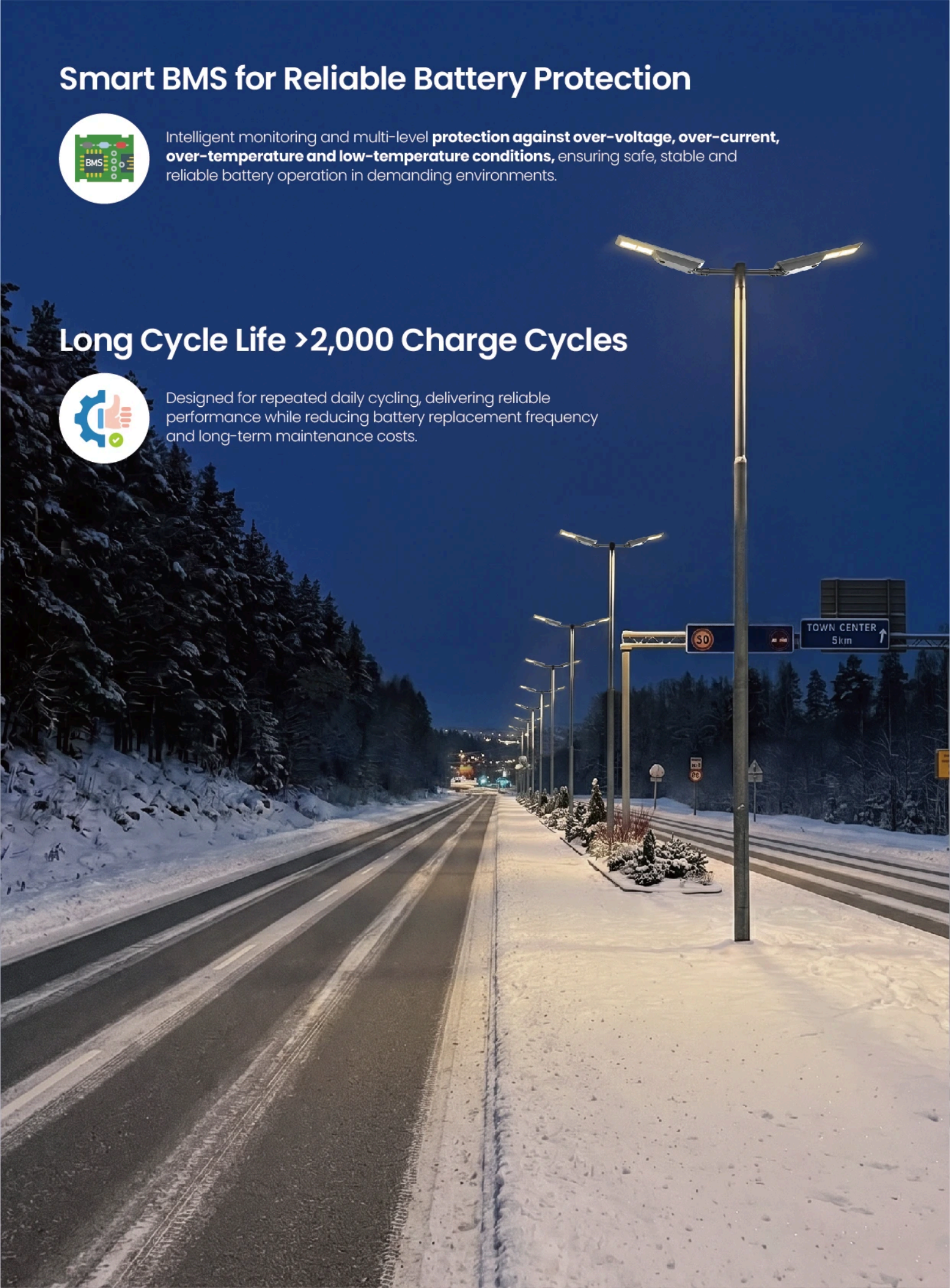


Smart BMS for Reliable Battery Protection

Intelligent monitoring and multi-level **protection against over-voltage, over-current, over-temperature and low-temperature conditions,** ensuring safe, stable and reliable battery operation in demanding environments.

Long Cycle Life >2,000 Charge Cycles

Designed for repeated daily cycling, delivering reliable performance while reducing battery replacement frequency and long-term maintenance costs.



Mono-crystalline Solar Panel

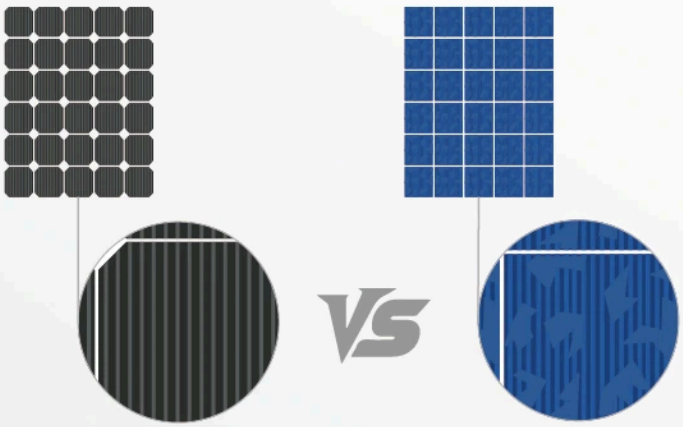
High-efficiency monocrystalline silicon solar panels with a photoelectric conversion rate of 20%–23%, which is 3%–5% higher than conventional polycrystalline panels. Resistant to high and low temperatures, UV radiation, and salt spray corrosion, they provide lasting, stable, and reliable power for solar street lights.

Mono

To make cells for monocrystalline panels,silicon is formed into bars and cut into wafers.

Poly

To make cells for polycrystalline panels,fragments ofsilicon are melted together to form the wafers.

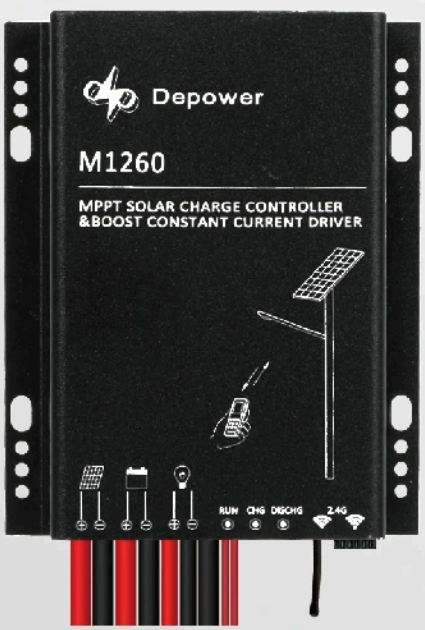




MPPT controller

SL02 G4.0 - 010/020/030/040/050/060 B

MPPT/12.8V



High Performance

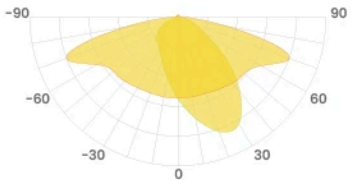
Lighting efficiency reaches up to 200 lm/W, delivering higher brightness with lower power consumption. This reduces system requirements, extends battery life, and prolongs the lifespan of the luminaire.

Up to
200 lm/W

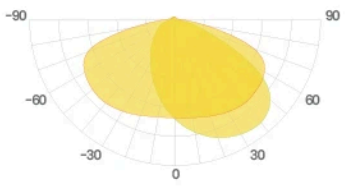


Multiple Distribution Options

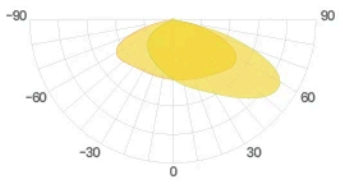
Precise light distribution design with different beam angles, flexibly adaptable to diverse application requirements.



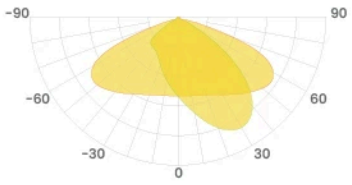
Type II Medium (58x162° Tilt25°)
R08802



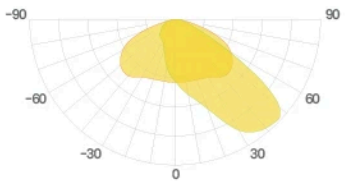
Type III Medium (79x152° Tilt40°)
R08803



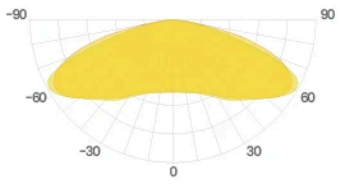
Type IVvery Short (67x150° Tilt60°)
R08804



Type II Short (64x145° Tilt30°)
U16602



Type III short (44x147° Tilt45°)
U16603



Type VS 158°
U16605

Precision Design



Easy Battery Maintenance

Flip-Top Design
Easy battery access without removing the solar panel. Faster service, lower labor costs.



Microwave Sensor for Smart Dimming

Motion-Activated Dimming for Extended Runtime



Flexible Installation

±15° Adjustable Spigot for easier installation



Working Mode

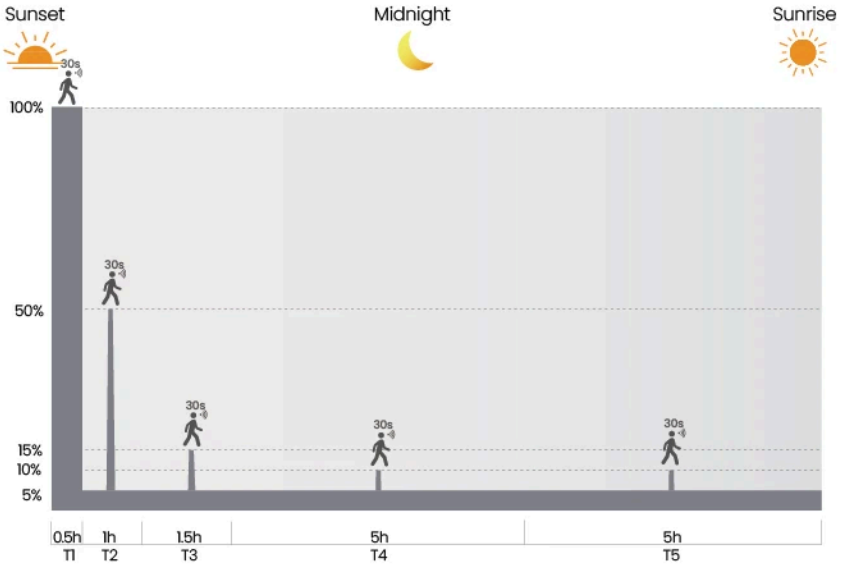
Note: Factory settings can also be set in batches according to different needs.

Mode A (With Sensor)

Mode A (Default Working mode)			
	Working hours	Not detected	Detected
Time 1	0.5h	100%	100%
Time 2	1h	5%	50%
Time 3	1.5h	5%	15%
Time 4	5h	5%	10%
Time 5	5h	5%	10%

Light Delay 30s: When motion is detected,the light operates at the Detected brightness level.When no motion is detected,after 30 seconds,the light switches to the Not detected brightness level

Runtime: 10W operates for 3-5 days on a full charge
Runtime: 20W-60W operates for 2-3 days on a full charge

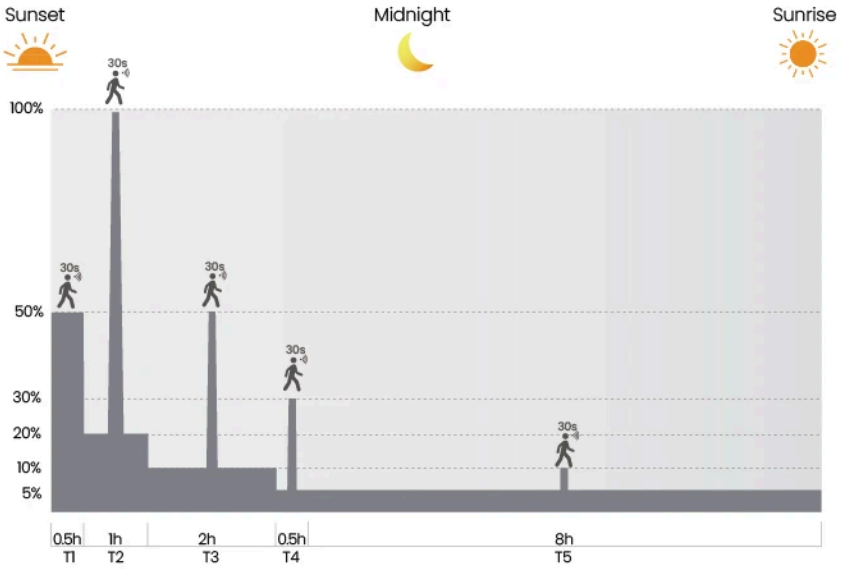


Mode B (With Sensor)

Mode B			
	Working hours	Not detected	Detected
Time 1	0.5h	50%	50%
Time 2	1h	20%	100%
Time 3	2h	10%	50%
Time 4	0.5h	5%	30%
Time 5	8h	5%	10%

Light Delay 30s: When motion is detected,the light operates at the Detected brightness level.When no motion is detected,after 30 seconds,the light switches to the Not detected brightness level.

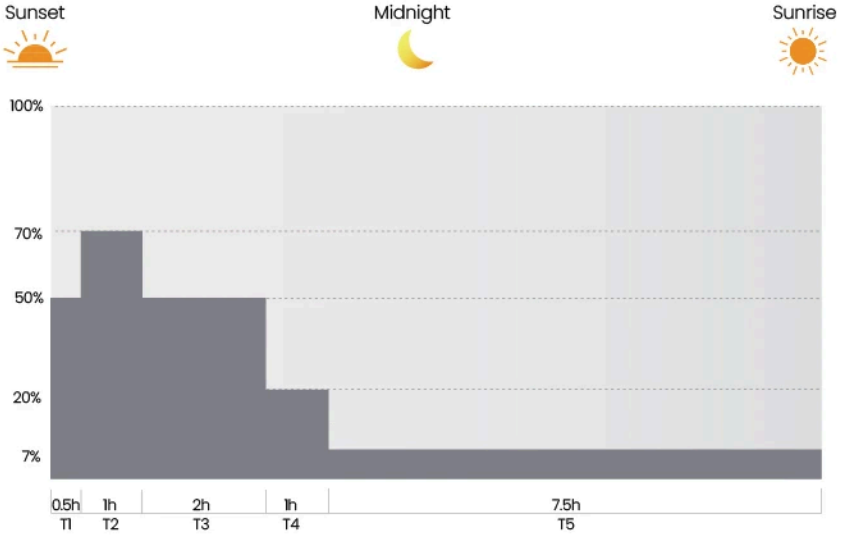
Runtime: 10W operates for 3-4.5 days on a full charge
Runtime: 20W-60W operates for 2-2.5days on a full charge



Mode C (Without Sensor)

Mode C		
	Working hours	Not detected
Time 1	0.5h	50%
Time 2	1h	70%
Time 3	2h	50%
Time 4	1h	20%
Time 5	7.5h	7%

Runtime: 10W operates for 1.5-2 .5 days on a full charge
Runtime: 20W-60W operates for 1-2 days on a full charge



Applications

Perfect for locations experiencing long, freezing winters: northern rural roads, mountain scenic spots, high-latitude industrial parks, remote residential compounds and snowy area public lighting projects, where stable year-round lighting is required.

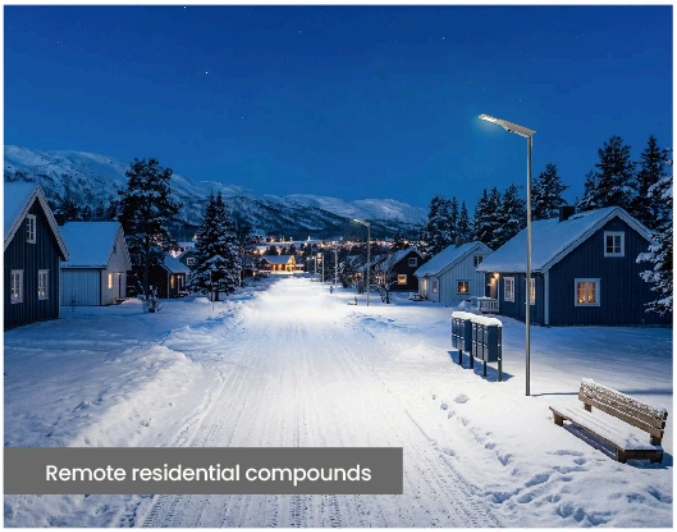

Northern rural roads



Mountain scenic spots



High-latitude industrial parks


Remote residential compounds

ADDITIONAL PRODUCT SPECIFICATIONS

Series Code	SL02 G4.0
Power	10W, 20W, 30W, 40W, 50W, 60W
Efficacy	200lm/W
CCT	3000K, 4000K, 5000K
CRI(Ra)	70, 80
Corrosion Class	C3
IP Rating	IP66
IK Rating	IK08
Mounting Option	Side Entry, Post Top
Warranty	3 years for battery, 5 years for other part
Operating Temperature	-20°C to + 50°C

The SL02 G4.0 is an integrated solar street light engineered for cold environments down to -20°C, offering 10W to 60W outputs at up to 200 lm/W. It pairs a custom low-temperature LiFePO4 battery and a smart BMS with a monocrystalline solar panel and an MPPT controller to guarantee stable performance. An integrated microwave sensor and smart lighting modes maximize energy efficiency, providing 2-3 days of autonomy. The fixture features a flip-open housing for rapid battery maintenance, paired with an adjustable spigot providing ±15° of tilt for precise optical positioning.

PRODUCT VIEWS



VIEW 1



VIEW 2



VIEW 3



VIEW 4

PRODUCT VIEWS



VIEW 5