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SL40 SMART SOLAR SAIL PLUS

All-in-One Smart Solar LED Street Light

A full range solar street luminaire with flexibility, low maintenance and with advanced iNet smart control system.

- 100-200W
- 200lm/W
- IP66
- LifePO4
- Timer dim
- Mono-crystalline Silicon Panel
- 32°F to + 140 °F
- PIR Sensor
- Sustainable
- IK08
- MPPT
- High flexibility

IoT TECHNOLOGY
REMOTE MONITORING

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SL40 SMART SOLAR SAIL PLUS

The Most Powerful And Durable Integrated Solar Light

Harness the power of the sun with the all-in-one Smart Solar Sail Plus (100W–200W)—a high-output solar luminaire designed to deliver consistent, high-lumen performance for streets, pathways, and public spaces.
Engineered with a large solar array and high-capacity battery, it provides reliable, all-night illumination in demanding environments.
Integrated remote monitoring enables real-time performance tracking and proactive maintenance, significantly reducing long-term operating costs.
No trenching. No electrical infrastructure. Just powerful, intelligently managed lighting built for performance and efficiency.

Applications

- Street Lighting
- Roadway Lighting
- Pathway Lighting
- Ramp Lighting
- Sidewalk Lighting
- Private Road Lighting
- Farm Lighting
- Wildlife Area Lighting
- Perimeter Security
- Lighting
- Park Lighting
- Railway Yard Lighting
- Fence Lighting
- Campus Lighting
- Ship Dock Lighting
- Remote Area Lighting
- Gate Lighting
- Jogging Path Lighting

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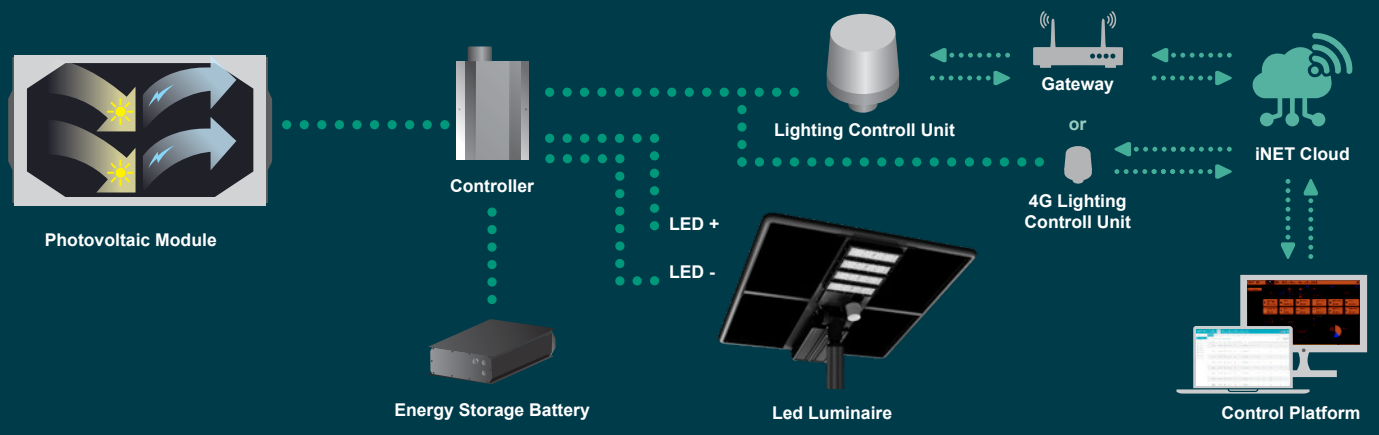
Proven Reliability. Exceptional Value.

- Only top quality mono - crystalline silicon solar panels with high efficiency and long lifetime are used.
- High-quality lithium batteries store solar energy to deliver dependable power when needed, while providing multiple days of backup operation during cloudy or low-sun conditions
- High-efficacy LEDs deliver powerful illumination with maximum energy efficiency. A dedicated low-voltage solar controller with intelligent dimming optimizes power management and extends system operating autonomy. LEDs are rated for 50,000+ hours with a nominal CRI of 70.
- Microprocessor-controlled algorithms automatically detect sunrise and sunset for optimized lighting operation.
- Easy installation with no trenching, wiring, or external power supply required. Direct pole mounting with an adjustable spigot (0°–90°).

What our fixtures and system can do



The entire lighting system is guaranteed for 5 years and the 10 years guaranteed for battery maintenance.

Premium-grade Integrated All-in-one Design, Easy to Install and Maintain.

Light on/off and dimming programmable smart light.

Zero carbon emission

No Trenching or Cabling Work Needed.

Using Grade A+ battery cell, the battery cycle life more than 4000 times.

High Luminous Efficiency of 210~220lm/W to Maximize Battery Performance.

Pivoting LED Modules Deliver the Best Lighting Control.

IP66 Luminaire Ensures Long Lasting and Consistent High Performance.

24-7 battery life monitoring, battery life cycle reminder, work report.

Built-in GPS Tracking for Product Security

Remote Real-time Monitoring and Management

Powerful Data Collection and Analysis Functions

Precise Battery Monitoring

AI Enabled Pole/Light Tilt Alarm

Flexible and Adjustable Work Mode

Seamless Integration of Charge Controllers with IoT System

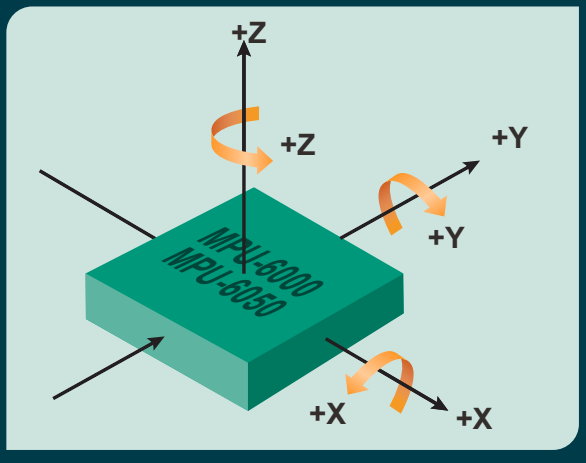
Smart Anti-Theft Design

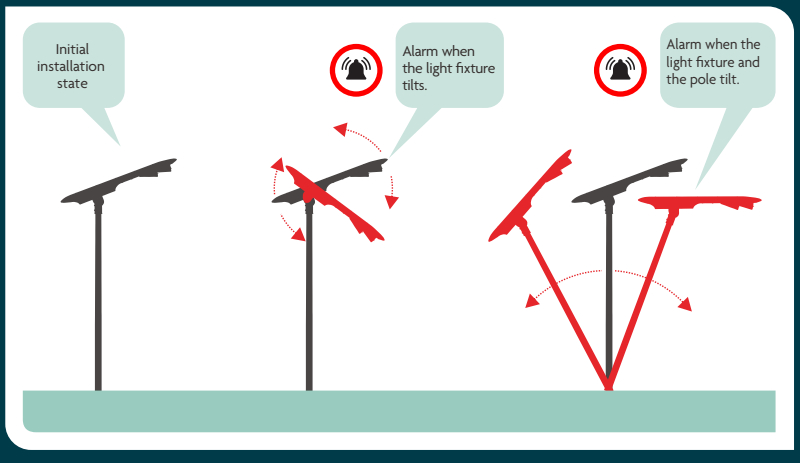
Real-Time Geo Tracking

The real-time mini Geo anti theft tracking device is fitted in an un-accessible location of the solar street light fixture, which is permanently powered to enable security recovery teams to track and locate the solar lights anywhere via the live app to recover the product and arrest the thieves as long as the the solar light battery has power.

AI Enabled Pole/Light Tilt Alarm

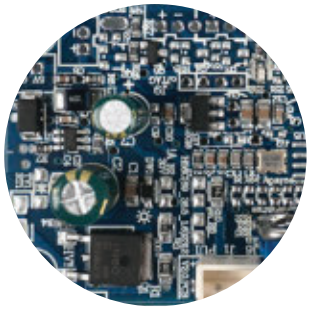
When the solar lights go on wireless IoT smart management system, sophisticated AI algorithm based on gyroscope and accelerometer data intelligently locks the lights' angle upon installation, any unauthorized attempt at theft or tampering will be detected, alarms will be activated at the Operation Center and alert text message will be instantly sent from Central Management Platform to the security teams.





Precise Battery Status Monitoring

The solar light features a high-precision coulometer, also known as a coulomb meter, which provides accurate readings on battery performance by measuring its current. It can detect and display, in real-time, the battery's voltage, current, power, actual capacity, remaining time, and other key parameters, ensuring you have an accurate understanding of the battery's status at all times



Stay Powerful The DC Charge Port

A DC charge port is offered as an option to be integrated into Smart Solar Sail, ensuring the battery remains charged even during extended periods in the warehouse. No more worrying about flat batteries when you need them the most. Embrace the continuous and dependable lighting with our state-of-the-art Smart Solar Sail street light

Built to Last

Our Smart Solar Sail fixtures and poles are engineered using premium-grade materials to ensure long-lasting durability and reliable, maintenance-free performance. They deliver a high-quality off-grid lighting solution designed for efficiency, sustainability, and years of dependable operation.

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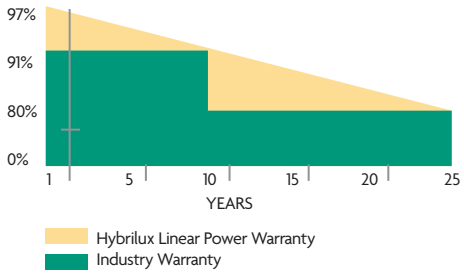
Mono Solar Panel

Higher Durability
The multi-busbar design can decrease the risk of the cell micro- cracks and fingers broken.

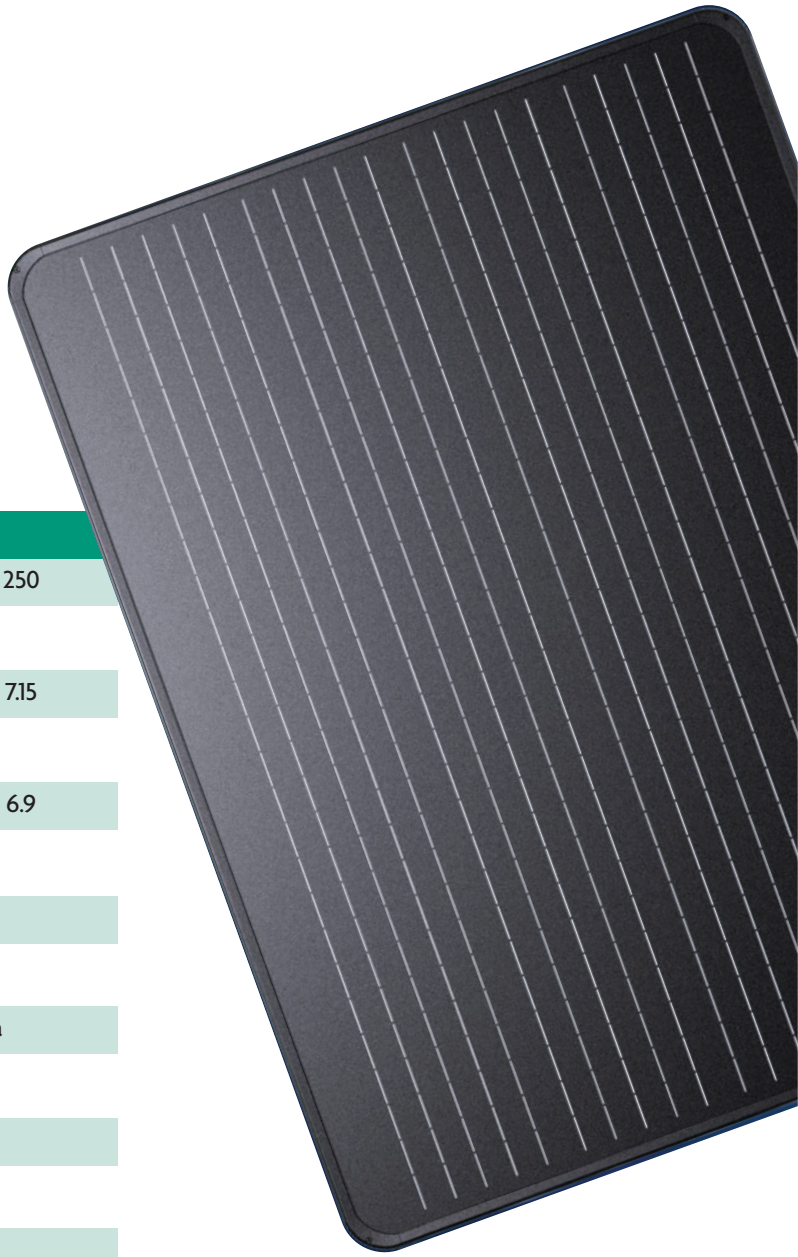
PID Resistant
Tested in accordance to the standard lEC 62804, our PV modules have demonstrated resistancea gainst PlD (Potential Induced Degradation), which translates to security for your investment.

First-class Quality Assurance
·10-year warranty for material and technology.
·25-year linear power output warranty.



High Power Density
High conversion efficiency 23% and more power output persquare meter, by lower series resistance and improved light harvesting.

Bigger Cells with better performance
A slight increase of the size of our cells, Boosts the performance of the newest modules by six percent on average.



Specifications		
Maximum Power (Pmax/W)	160	250
Open Circuit Voltage(Voc/V)	43.2	
Short Circuit Current(Isc/A)	4.65	7.15
Maximun Power Voltage(Vmp/V)	36V	
Maximum Power Current(Imp/A)	4.4	6.9
Module Efficiency (%)	24	
Output Tolerance (%)	±3	
Operating Temperature	40°F±104°F	
Wind Load/Snow Load	2400pa/5400pa	
NOCT	113±35°F	
Temp Coefficient of lsc	+0.046%/°F	
Temp Coefficinet of Voc	-0.275%/°F	
Tem Coefficient of Pmax	-0.350%/°F	

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High Performance Battery Pack Grade A+ Cell

LiFePo4 batteries have a higher energy density they can store more energy in a smaller and lighter package. This makes them ideal for applications where weight and space are a concern.

Advantage of LiFePO4

- A Long Lifespan
- No Active Maintenance
- Lightweight Champion
- High Efficiency
- Safety
- High Discharge Rates
- Extreme Temperatures
- Rechargeable Multiple Times

Specifications					
Capacity	24Ah	30Ah	36Ah	42Ah	48Ah
Nominal Voltage	25.6V				
Charging Voltage	29.2V				
Load Voltage	≥24V				
Standard Charging Method	5A(CC)charging to 29.2V; After CV(DC 29.2V) Charge until charging current≤0.02C				
Charging Current	≥20A				
Max Discharge Current	≥20A				
Over Current	≥20A				
Cut-Off Discharge Voltage	20V				
Operating Temperature Range	LiFePO4：Charge: -4°F to 140°F Discharge: -4°F to 140°F)				
Storage	-4°F ~140°F				
Battery Category	LifePO4				
Cycle Life	≥4000				

LiFePO4 Battery

2000-5000 Cycles

5-10 Years life

2.5~12.8kg

Environmentally friendly

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General Specifications

Solar Panel	Mono-crystaline
Wattage range	100W–200W
Lumen range	20,000lm–40,000lm
LEDs	Philips Lumileds
Control	MPPT / PWM Controller
Color Temperature	5000K (2500–6500K available)
IES	60x100°/65x145/65x155°/70x135°/75x150°/80x150°/110°/150°
IP	IP66
IK	IK08
Battery	LifeP04 Battery
Extra Tools	Slip Filter
Operating Temperature	LiFePO4:Charge: -4°F to 140°F Discharge: -4°F to 140°F)
Storing Temperature	-4°F to 140°F

Description

SL40 is a full range solar street light, five sizes cover 100W, 120W, 1500W, 180W and 200W, well satisfy different applications. Smart control with built-in microwave motion sensor and timer dimming.
Adjustable mounting angle, adjustable LED module and removable battery for easy installation, maintenance and replacement.

Fixtures Specifications

Model No.	SL40-100	SL40-120	SL40-150	SL40-180	SL40-200
Power	100W	120W	150W	180W	200W
Modules	2	3	3	4	4
Efficacy	200lm/W	200lm/W	200lm/W	200m/W	200lm/W
Lumens	20,000lm	24,000lm	30,000lm	36,000lm	40,000lm
Solar Panel	160W/36V	160W/36V	250W/36V	250W/36V	250W/36V
Battery (Premium)	25.6V/36Ah	25.6V/36Ah	25.6V/42Ah	25.6V/42Ah	25.6V/48Ah

The solar panel and battery configuration is based on 6 hours charging time.

Key Features

- All in one design, efficiency up to 213lm/W.
- Built in microwave motion senor and timer dimming function
- Higher conversion Mono-crystalline photovoltaic solar panel.
- Luminaire size length and width can be customized.
- Solar panel and battery configurations can be customized.
- Easy maintainance with removable battery.
- LED module is adjustable.

Dimensions

Model No.	SL40-100	SL40-120	SL40-150	SL40-180	SL40-200
L x W x H (in.)	45.3"X 33.5"X 8.6"	45.3"X 33.5"X 8.6"	47.6"X 45.3"X 8.6"	47.6"X 45.3"X 8.6"	47.6"X 45.3"X 8.6"

Applications

- Street Lighting
- Roadway Lighting
- Pathway Lighting
- Ramp Lighting
- Sidewalk Lighting
- Private Road Lighting
- Farm Lighting
- Wildlife Area Lighting
- Perimeter Security
- Park Lighting
- Railway Yard Lighting
- Fence Lighting
- Campus Lighting
- Ship Dock Lighting
- Remote Area Lighting
- Military Base Lighting
- Gate Lighting
- Jogging Path Lighting

New Features

IoT Monitoring
Remote Control
Add in Tilt Alarm
GPS Tracking

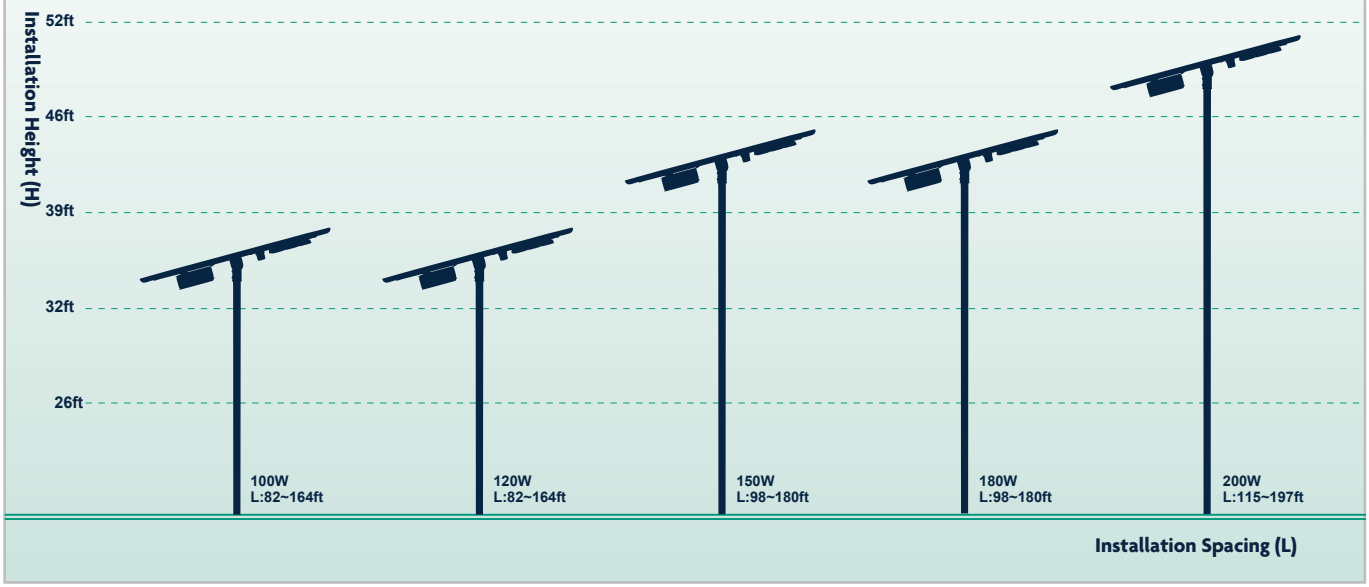
***Please consult with us for details on new features**
Please refer to individual part pages for a more detail specification on each component.

Specifications are subject to change.

EPA Value

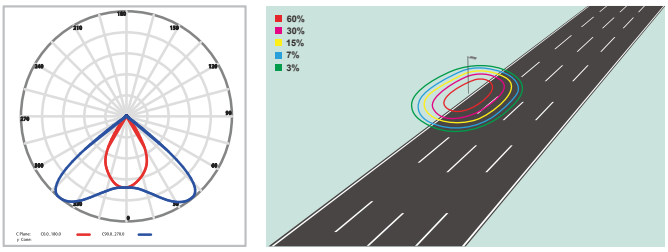
Model No.	Power	Horizontal Angle Solar Panel (#s)	EPA (ft^2)
SL40-100 SL40-120	100W 120W	0	0.83
		5	0.92
		10	1.83
		15	2.73
		20	3.61
		25	4.46
		30	5.28
SL40-150 SL40-180 SL40-200	150W 180W 200W	0	1.12
		5	1.31
		10	2.61
		15	3.89
		20	5.14
		25	6.35
		30	7.51

Installation Reference

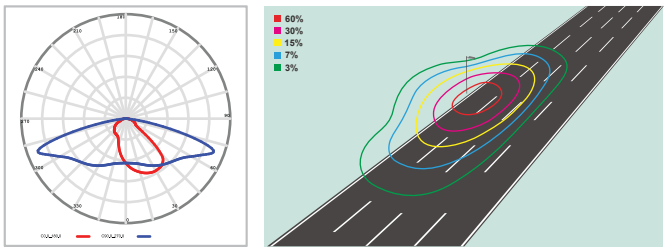


Photometrics

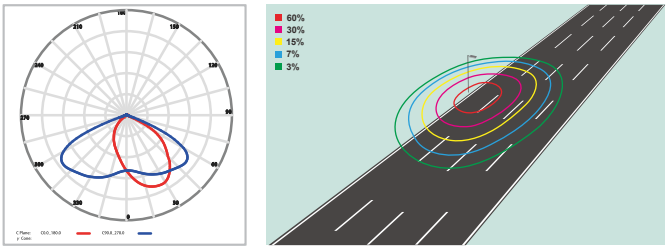
60 X 100° Type I -VS



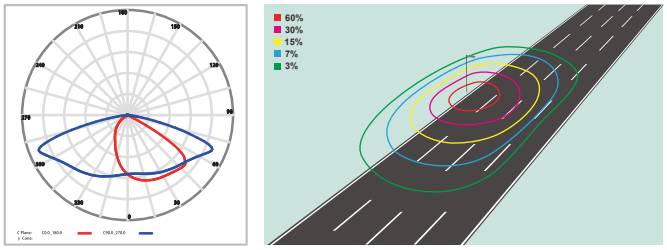
65 X 155° Type II -M



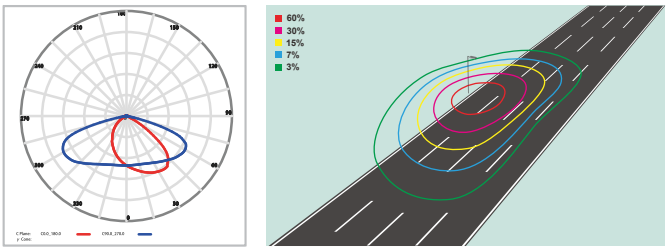
70 X 135° Type II -S



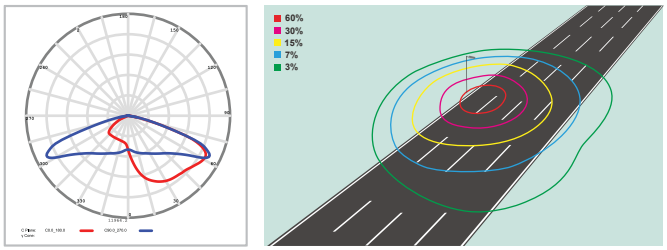
75 X 150° Type III -M



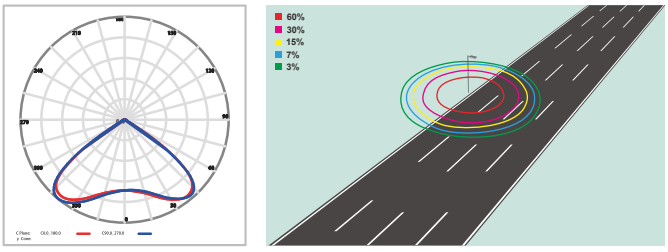
80 X 150° Type III -S



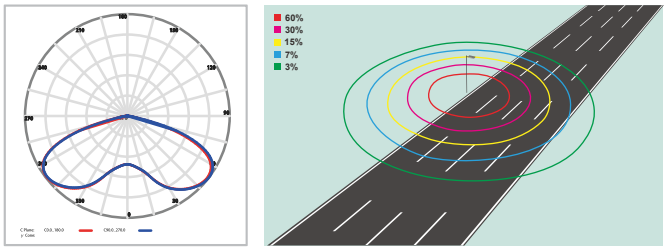
65 X 145° Type IV -S



110 ° Type V -VS



150° Type V -VS



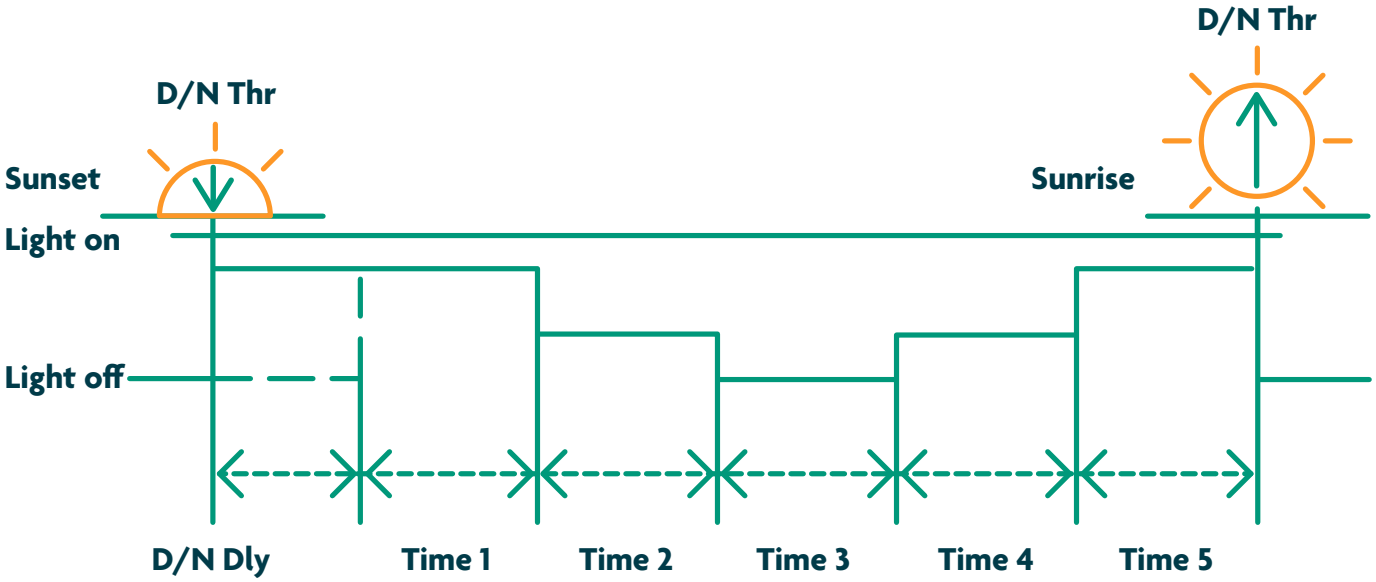
Default setting: 20-ft mounting height; 100% brightness.

Regular MPPT Controller

The lamps lighting divide into 5 stage, each stage time and dim can be setting according to demands. With diming setting, it is an efficient way to save energy, and keep the lamp working in best power and time.

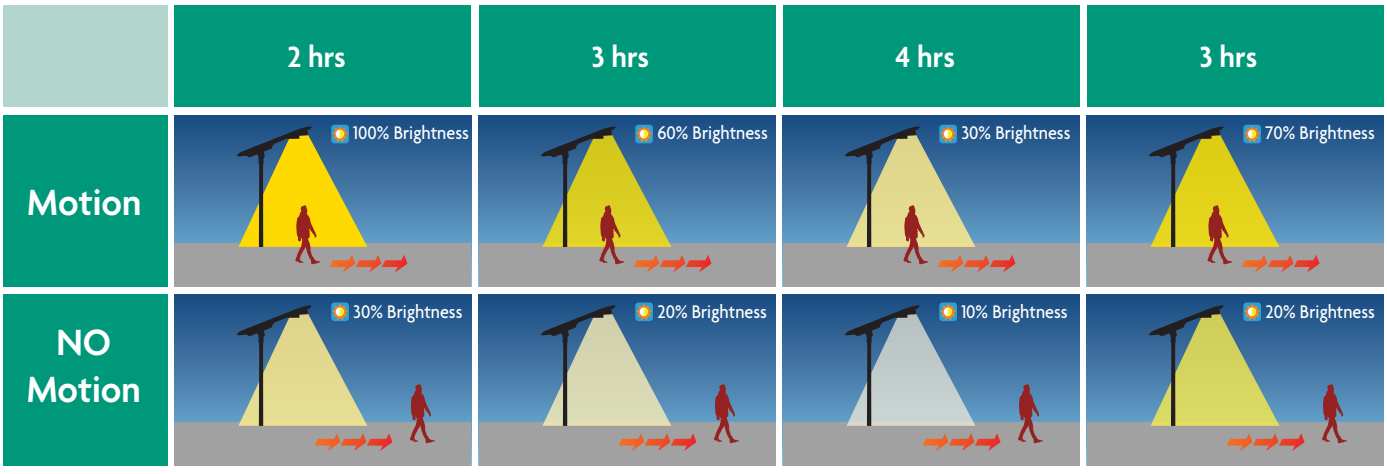
Five-Stage Mode

The lamps lighting divide into 5 stage, each stage time and dim can be setting according to demands. With diming setting, it is an efficient way to save energy, and keep the lamp working in best power and time.



Motion Sensor Mode

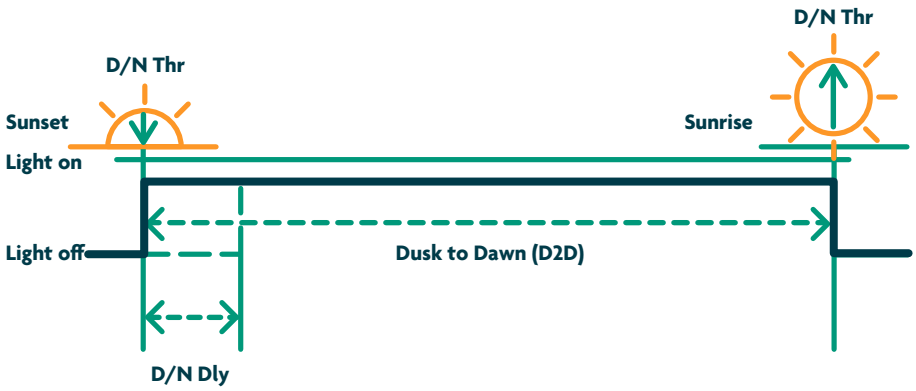
Motion: 2 hrs-100%; 3 hrs-60%; 4 hrs-30%; 3 hrs-70%;
Without Motion: 2 hrs-30%; 3 hrs-20%; 4 hrs-10%; 3 hrs-20%;



Hybrid MPPT Controller

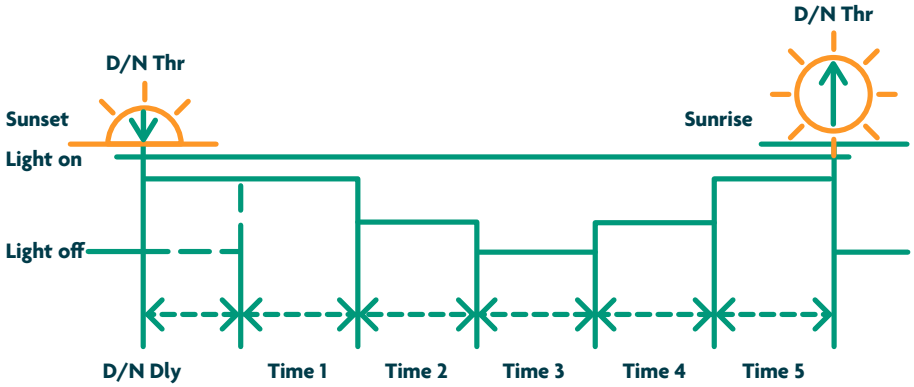
Dusk to Dawn (D2D)

When fixture is set to D2D, it works in dusk to dawn mode. The fixture will turn on while the sun is down, as determined by the solar panel voltage.



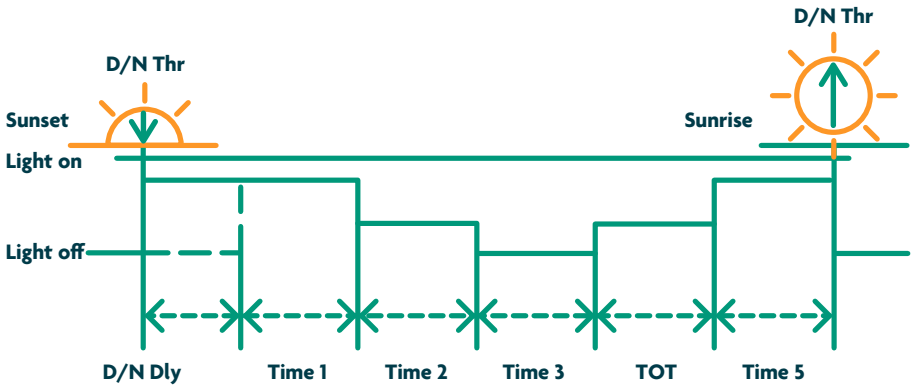
Five-stage Night Mode

The lamps lighting divide into 5 stage, each stage time and dim can be setting according to demands. With diming setting, it is an efficient way to save energy, and keep the lamp working in best power and time.

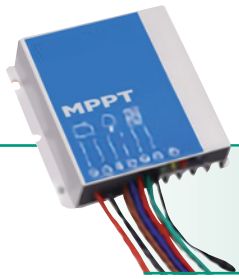


TOT Mode

(Can set the load on time before morning coming.)
When fixture is set to T0T then it will determine Time4 based on Time5 and previous data on the time of sunrise.

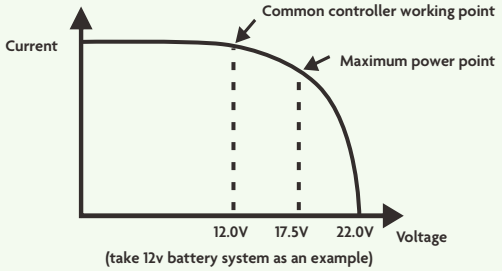


MPPT Charge Controller



Features

- Innovative Max Power Point Tracking(MPPT) technology,tracking efficiency >99.9%
- Full digital technology, high charge conversion efficiency up to 97.5%,discharge conversion efficiency up to 96.5%
- Can output constant current (output current can be set)
- 5 stages time and dimming can be adjusted
- Can read parameters and running status
- If battery voltage is low, it can be set to dimming
- Dimming start voltage and percentage can be set
- Day/Night threshold can adjust automatically
- AGM, Liquid, GEL and Lithium battery for selection
- 32°F Charging Protection (Lithium)
- When BMS power off because of LVD, it can activate the system automatically
- Four stages charge way: MPPT, boost, equalization, float
- IP67, Strong and durable aluminum caseFull automatic electronic protect function



Indicator Functions

LED	Status	Function
Green LED	On	Solar panel is correctly connected,but not charged
	Fast flash(0.1s/0.1s)	Charging
	Flash(0.5s/0.5s)	Equal or Boost Charging
	Slow flash(0.5s/2s)	Float Charging, Lithium constant voltage charge
Yellow LED	Off	Over voltage protection
	On	On Battery is normal
	Slow flash(0.5s/2s)	Battery voltage is low
	Fast flash(0.1s/0.1s)	Low voltage protection
Red LED	Off	Work normal (Standard version)
	On	The output power is 0
	Super slow(0.2s/5s)	Open circuit protection
	Flash(0.5s/0.5s)	Over temperature
	Fast flash(0.1s/0.1s)	Short circuit or Over current protection

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MPPT Charge Controller Specifications

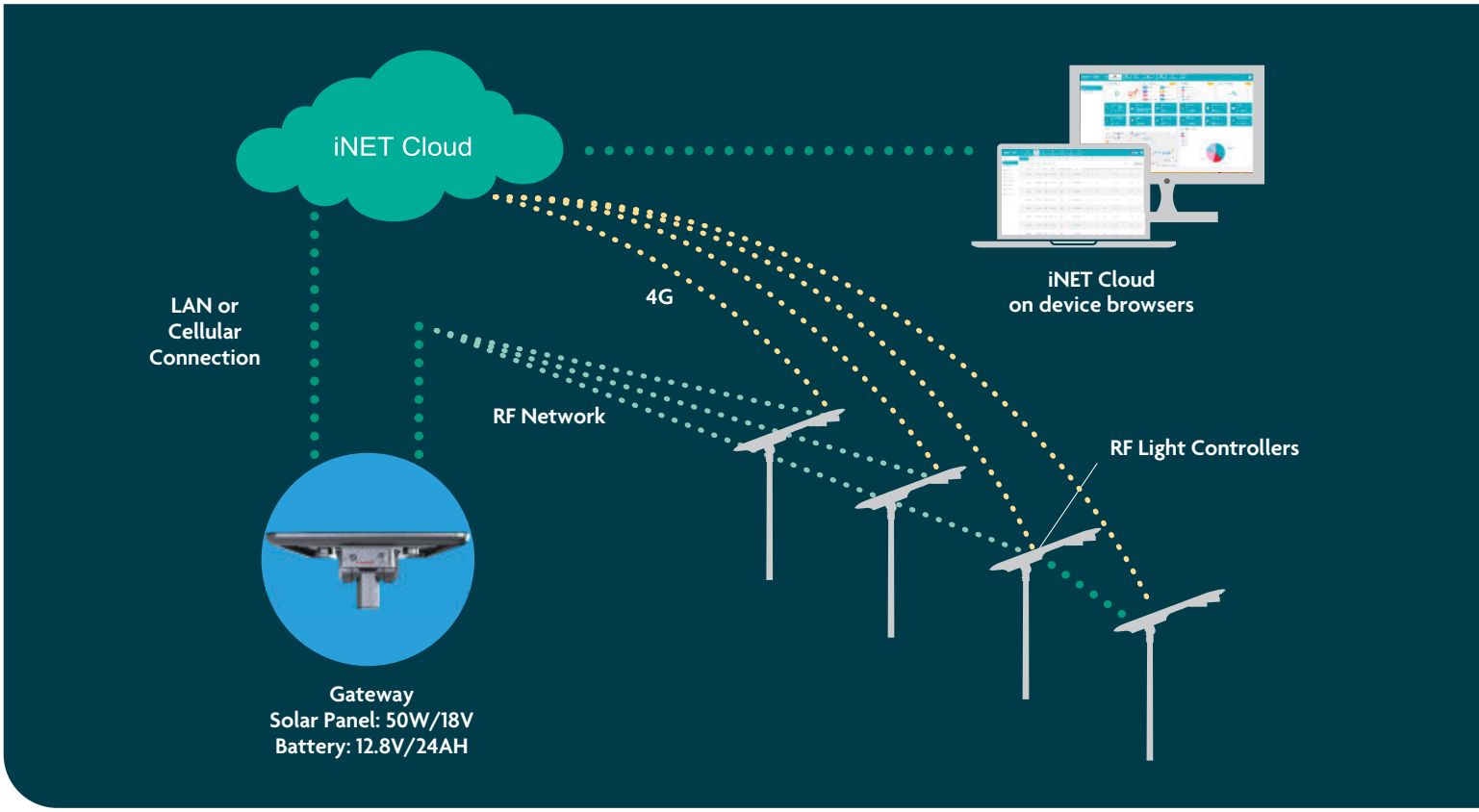
Battery Parameters	System Voltage	12V	12V/24V	12V/24V	12V/24V
	Max Charging Current	8A	10A	15A	20A
	Battery Type	Lithium			
	Charging Volt. Target	10.0-17.0V (Programmable, default:12.6V)	10.0-32.0V(Programmable, default: 12.6V)		
	Charging Volt. Recovery	9.2-16.8V (Programmable, default:12.4V)	9.2-31.8V(Programmable, default: 12.4V)		
	Low voltage disconnect	9.0-15.0V (Programmable, default:9.8V)	9.0-30.0V(Programmable, default: 9.0V)		
	Low voltage reconnect	9.6-16.0V (Programmable, default:9.8V)	9.6-31.0V (Programmable, default: 9.8V)		
	0°C Charging protection	Yes, Slow, No(Programmable)			
Panel Parameters	Max volt on PV terminal	60V		55V	55V
	Max input power	100W-120W	130W/260W	200W/400W	260W/520W
	Dusk/Dawn detect volt.	3.0-8.0V (Programmable)	3.0-20.0V (Programmable)		
	Day/Night delay time	0-30min (Programmable)	0-30min (Programmable)		
	MPPT tracking range	(Battery Voltage +1.0V) ~Voc×0.9			
Load Parameters	Output Power	1-60W	10-60W/20-120W	10-90W/20-180W	
	Output Voltage	20 ~ 55V	15-60V/35-60V	20-55V/30-55V	
	Current setting range	0.15-3.0A (Programmable)	0.15-4.0A (Programmable)	0.15-6.0A (Programmable)	
	Min current	100mA (Dimming)			
	Current precision	±2%			
	Dimming	0-100% (Programmable)			
	Voltage of start dimming	10.0-17.0V(Lithium)	10.0-32.0V(Lithium)		
	Dimming percentage	1-20% (Programmable)			
System Parameters	Max tracking efficiency	>99.9%			
	Max charge conversion	97.50%			
	Max LED driver efficiency	96%			
	Communication mode	Infrared/2.4G/RS485			
	Induction mode	Infrared Human Sensing/Microwave Sensing			
	Self consumption	6-25mA			
	Ambient temperature	-315-+140 F°			
	Ambient humidity	0-100%RH			
	Protection degree	IP 67			
	Max Altitude	4000m			

Smart IoT Solar Lighting Management

The integrated smart control system combines advanced solar lighting technology with IoT-enabled wireless communication, providing real-time monitoring and remote management of every lighting asset. Through a secure cloud-based platform, operators can continuously monitor the performance and operating status of key system components—including the luminaire, solar panel, battery, and controller. This intelligent system allows users to remotely control lighting schedules, adjust brightness levels, and verify operational status across entire lighting networks from any computer or mobile device. Real-time alerts and performance data enable proactive maintenance and improved system reliability, reducing operational costs and ensuring consistent lighting performance.

Multiple lighting profiles can be programmed based on time of day, traffic activity, or site-specific requirements, allowing lights to automatically adjust output levels to maximize energy efficiency and extend battery autonomy.
The system architecture includes single-light controllers, centralized communication gateways, and a cloud-based smart management platform. Each luminaire transmits operational data through a wireless network to the cloud, enabling centralized monitoring, analytics, and remote control across large-scale lighting deployments.

This smart infrastructure transforms traditional lighting into a connected, data-driven asset, improving reliability, reducing maintenance costs, and enabling smarter management of public and commercial lighting networks.



System & Hardware

Automatic Light On/Off & Dimming Control

- By time setting
- On/Off or dimming with motion sensor detection
- On/Off or dimming with photocell detection

Accurate Operation & Fault Monitor

- Real-time monitor on eachfixture working status
- Accurate report on fault detected
- Provide location of fault, no patrol required
- Collect operation data, such as voltage and power consumption

Extra I/O Ports for Sensor Expandability

- Environment Monitor
- Traffic Monitor
- Security Surveillance
- Seismic Activities Monitor

Reliable Mesh Network

- Self proprietary wireless control mode
- Reliable node to node, gateway to node communication
- Up to 1000 nodes per network
- Maximum network diameter 6,561 ft

Easy-to-use Platform

- Easy monitor on each and all lights status
- Support lightning policy remote set-up
- Cloud server accessible from computer or hand held device

Installations Notes

1. Due to variations in longitude and latitude at the installation site, the angle at which the sun's rays illuminate differs. During installation, it is crucial for the solar panel to be oriented towards the sun precisely at 12:00 noon. However, often due to factors like road direction and light poles, achieving this alignment becomes challenging. The solar panel must still maintain a horizontal position even if it can't be ideally oriented towards the sun at noon due to road lighting requirements.
Several conditions can lead to suboptimal functioning of standard lamps. Prior to making a purchase, it's important to communicate these factors to the salesperson and consider increasing the solar panel's power capacity:
a. Any deviation below the horizontal plane of the solar panel, relative to the solar irradiation angle, will result in a significant decline in the solar panel's power generation efficiency.
b. When installing solar lamps and lanterns, it's essential to avoid any obstacles that might block sunlight, such as trees or buildings.
c. Natural elements like rain, ice, snow, dust, clouds, and bird droppings can reduce the solar panel's power generation efficiency. Ensuring that the solar panel remains unobstructed by barriers like trees and buildings, and accounting for factors such as the solar panel's angle and external elements, are vital for optimal performance.

2. Install lamps at a considerable distance from areas prone to strong electromagnetic interference, such as high-voltage cables and high-power wireless transmission towers. These sources could potentially disrupt the lamp control system, leading to malfunctions and improper operation.

3. When the temperature drops below 0°, the efficiency of lithium iron phosphate batteries for charge and discharge decreases. To prevent damage and the battery protection triggered by overdischarge, it's advisable to explain this to the sales staff and consider increasing battery capacity before making a purchase.

4. Any environmental impact can result in a decline in the efficiency of solar panel power generation. Repeated discharge of the lithium iron phosphate battery might easily activate the protection mechanism, causing the lamps to stop functioning normally. Most lithium batteries can be restored to operation by disconnecting and reconnecting the battery-light source connection and the solar panel connection.

5. Once the battery protection has been deactivated and reactivated, our focus should be on identifying and resolving any natural environmental factors that compromise the efficiency of solar panel power generation, as well as minimizing the power consumption of the light source.

6. Install the lamps on days abundant with sunshine. The lamps are initially set to 30% power upon leaving the factory. Prior to installation and usage, ensure that the lamps can receive effective sunlight charging for at least 4 hours after activation. Failure to do so may trigger battery startup stress protection due to excessive discharge, leading to abnormal lamp operation.

7. The self-discharge and stress protection features of the lithium iron phosphate battery necessitate that if the lamp remains unused and uninstalled for a period of 60 to 90 days from the factory departure, it must undergo a 4-hour effective sun charging upon activation. Instances where lamp functionality is compromised due to the aforementioned circumstances are not included in the warranty coverage. However, we are committed to assisting customers in identifying and analyzing the underlying causes, and devising plans for enhancements. It's important to note that lamps unable to activate after battery protection will not be covered by the warranty.