

HIGHLIGHT HL-ML-ASL

Specifications



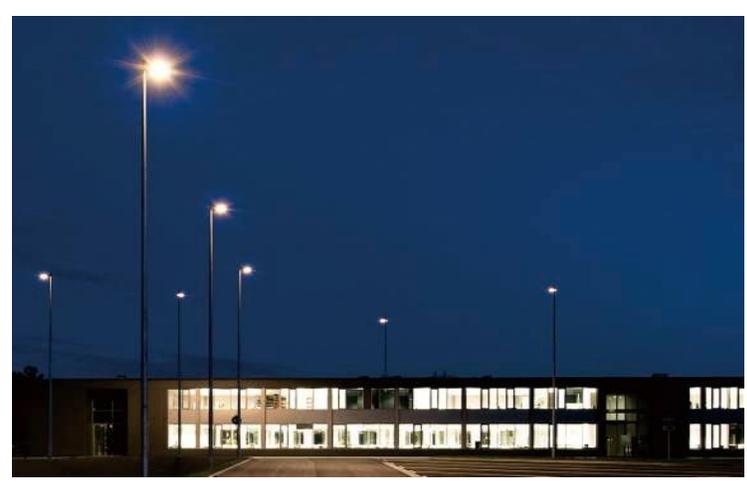
THE COMBINATION OF SIMPLICITY ELEGANCE AND DURABILITY

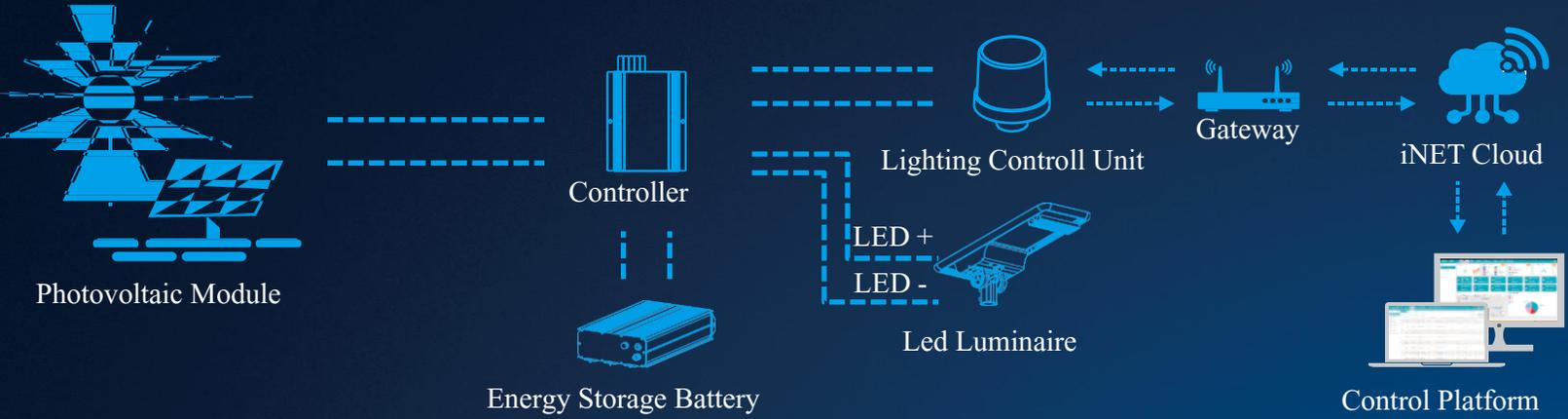
Harnessing the power of the sun, the all-in-one HIGHLIGHT HL-ML-ASL solar luminaire delivers zero carbon illumination to brighten your streets, pathways, and public spaces. It stands apart with its originality and solid construction, seamlessly integrating solar panels and large battery to provide real and continuous high brightness output for long operation hours.

Embrace the future of sustainable lighting with HIGHLIGHT HL-ML-ASL, where style meets substance in a beautiful, efficient package.



*Up on request





FIXTURE FEATURES

-  Faster installation
-  Premium-grade Integrated All-in-one Design, Easy to Install and Maintain.
-  Light On/off and Dimming Programmable Smart Lighting.
-  Zero carbon emission
-  No Trenching or Cabling Work Needed.
-  Using Grade A+ battery cell, the battery cycle life more than 4500 times
-  High Luminous Efficiency of 210~220lm/W to Maximize Battery Performance.
-  Pivoting LED Modules Deliver the Best Lighting Control.
-  IP67 Luminaire Ensures Long Lasting and Consistent High Performance.

SYSTEM FEATURES

-  7*24 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

RELIABILITY UNEXPECTED VALUE



Only top quality mono/ poly- crystalline silicon solar panels with high efficiency and long lifetime are used.



Quality lithium batteries are used to store the energy, provide energy for immediate requirements, and enable a back-up for days when there is little or no sun.



High Lumen LED for maximum efficacy. Dedicated designed low-voltage solar controller technology with dimming capabilities for power-save management. Lifetime > 150,000 hrs and CRI nominal 70.



Microprocessor managed algorithms autonomously determine sunrise and sunset.



Easy to install without buying cables and rectifiers, directly on pole with an adjustable spigot 0°~90°.



Strong wind resistance: Designed to withstand wind speeds up to 190 mph. Ideal for very windy regions.

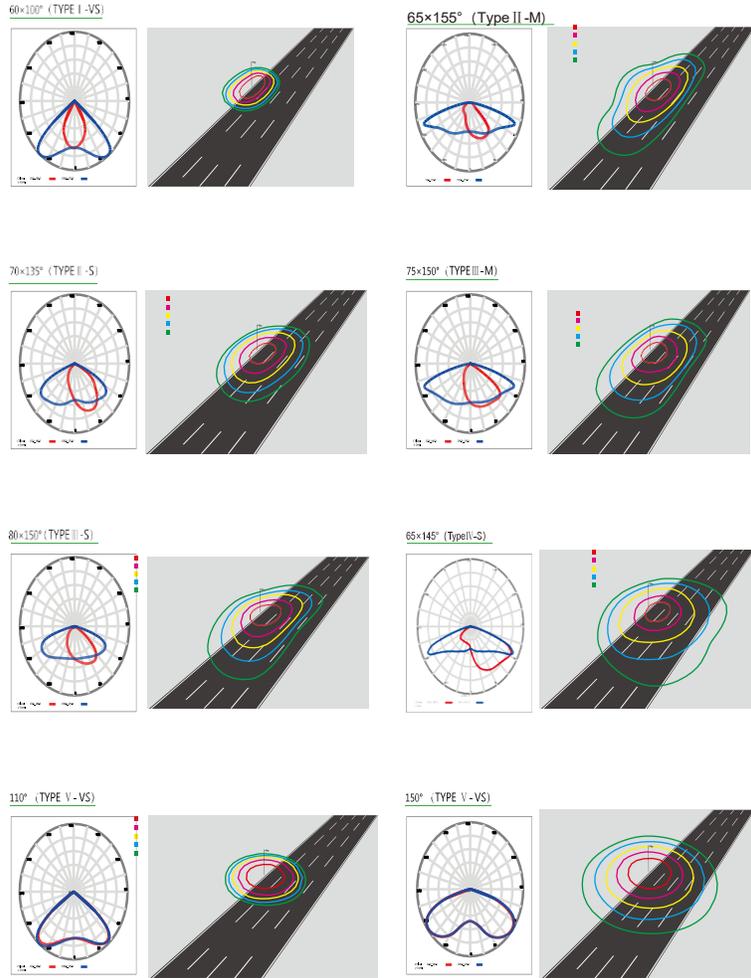


Mounting hardware made of corrosion-resistant materials.

Solar engine able to rotate horizontally by 360 degrees, Made marine grade aluminum.



PHOTOMETRICS



Default setting: 19FT high Installation, 100% brightness.



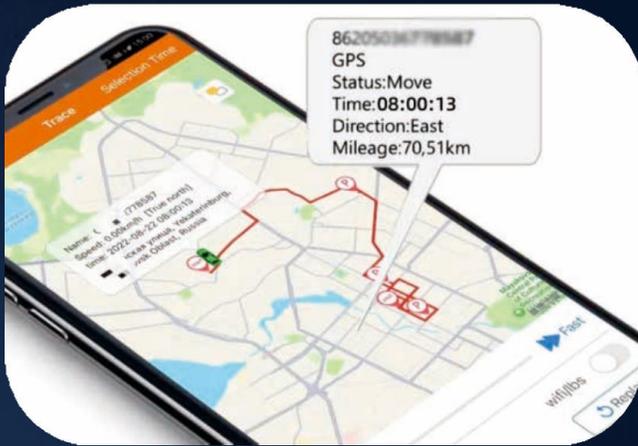
LED CERTIFICATIONS-

UL / CUL / DLC / LM79 / SAA / ENEC / CB /

CE / ErP / RoHS / IK08

PERFORMANCE

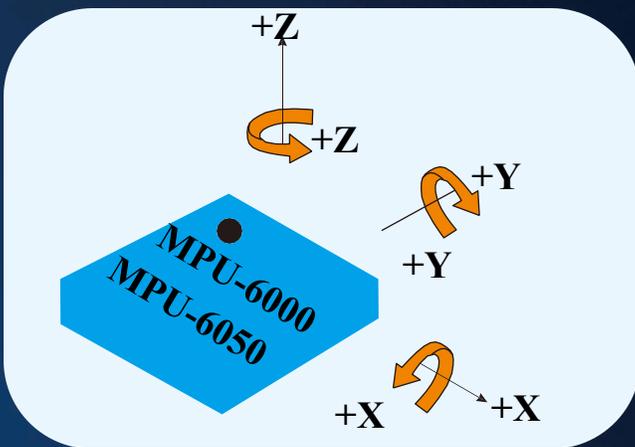
	20W~200W
	210~220lm/W
	Philips Lumileds
	PIR & Microwave & Timer Dimming
	Smart MPPT / PWM Controller
	5,000K (2,500-6,500K Optional)
	60×100° / 65×145° / 65×155° / 70×135° / 75×150° / 80×150° / 110° / 150°
	IP67
	IK08
	Mono/ poly crystalline silicon photovoltaic panels
	LiFeP04 battery
	Slip fitter, U-Bracket, Separate LED
	Operating Temperature: -40°F to 158°F



SMART ANTI THEFT DESIGN

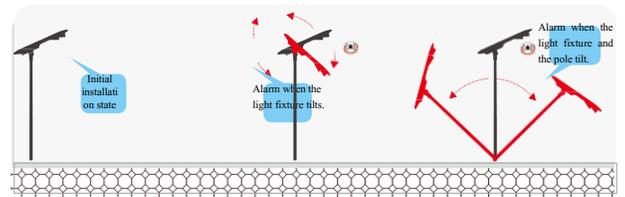
Real-Time Geo Tracking

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 HIGHLIGHT HL-ML-ASL, 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 HIGHLIGHT HL-ML-ASL solar street light.



INSTALLATION

The solar panel can be adjusted to the best angle where it is able to absorb maximum sunshine. The most optimum direction to face the solar panel is somewhere between south and west. It is at this location that the panel will receive the maximum sunlight throughout the day.



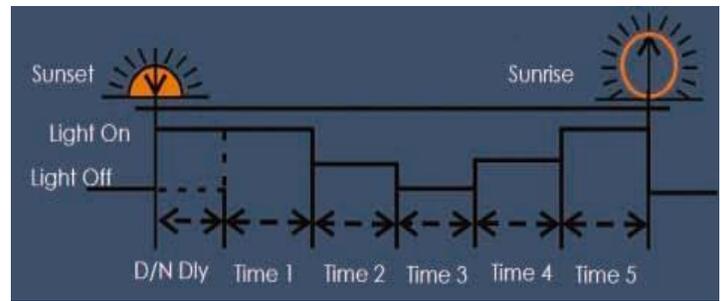
SOLAR CONTROLLER - B

Smart MPPT Controller



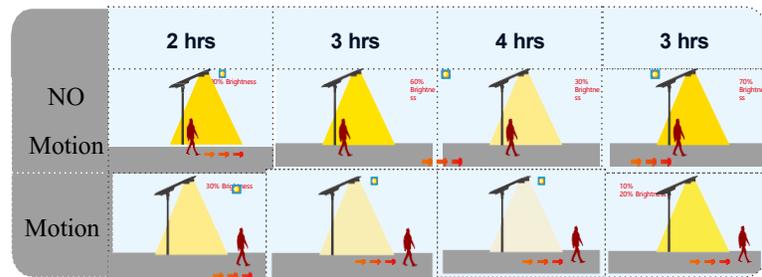
Five-Stage Mode

The lamps lighting divide into 5 stage, each stage time and dim can be setting according to demands. With dimming 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%;



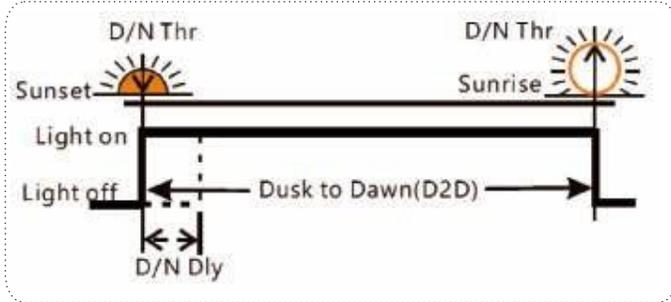
SOLAR CONTROLLER - C

Hybrid MPPT Controller



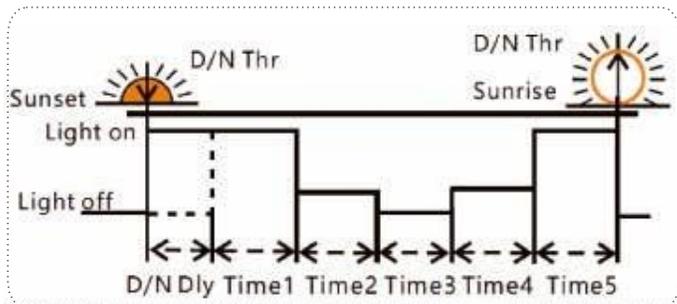
Dusk to Dawn (D2D)

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

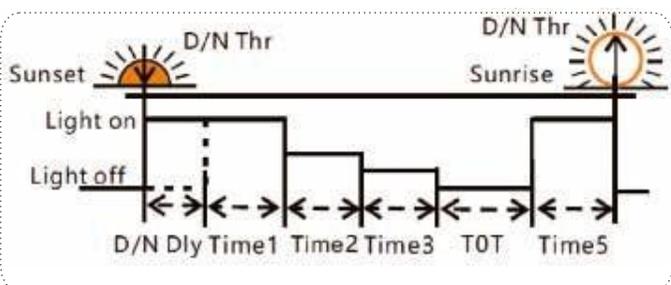
The lamps lighting divide into 5 stage, each stage time and dim can be setting according to demands. With diming setting, it is an efficient way to save energy, and keep the lamp working in best power and time.



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.



MONO SOLAR PANEL



Higher Durability

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



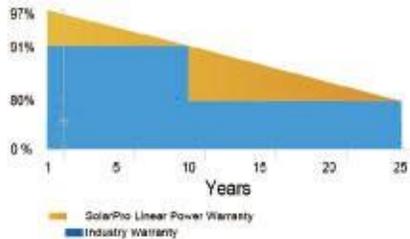
PID Resistant

Tested in accordance to the standard IEC 62804, our PV modules have demonstrated resistance against PID (Potential Induced Degradation), which translates to security for your investment.



First-class Quality Assurance

·25-year 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)	55	75	105/ 160/250
Open Circuit Voltage(Voc/V)	22.8		43.2
Short Circuit Current(Isc/A)	3.25	4.31	3.15
Maximum Power	18V		36V
Voltage(Vmp/V) Maximum	3.1	4.2	2.9
Power Current(Imp/A) Module	24		
Efficiency(%)	±3		
Output Tolerance(%)	-40°F~+158°F		
Operating Temperature	2400pa/5400pa		
Wind Load/Snow Load	45±2°C		
NOCT	+0.046%/°C		
Temp Coefficient of Isc	-0.275%/°C		
Temp Coefficient of Voc	-0.350%/°C		

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
- ◆ 12 years based on 80% & 4500 life cycles
- ◆ 5 days autonomy based on full charge



Specifications

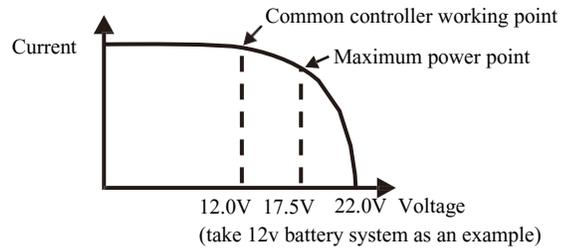
Capacity	12AH	18AH	24AH	36AH	48AH
Nominal Voltage		12.8V			25.6V
Charging Voltage		14.6V			29.2V
Load Voltage		≥12V			≥24V
Standard charging method		5A(CC)charging to 14.6V; After CV(DC 14.6V) Charge until charging current ≤0.02C		5A(CC)charging to 29.2V; After CV(DC 29.2V) Charge until charging current ≤0.02C	
Max charging current		≤10A		≤20A	
Max discharge current		≤10A		≤20A	
Over current		≤10A		≤20A	
Cut off discharge Voltage		10V		20V	
Operating temperature range	Standard Type LiFePO ₄ : Charge: -40°F to 158°F & Discharge: -40°F to 158°F Full Temperature range Type LiFePO ₄ : Charge: -40°F to 158°F & Discharge: -40°F to 158°F				
Storage	-40°F ~ 158°F				
Battery category	LiFePO ₄				
Cycle life	≥4000				



SMART 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)
- Up to 9 stages time and dimming can be adjusted
- Bluetooth monitoring via app- Option
- 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
- 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 case full 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	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

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: 9.0V)		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	-40~+158F			
	Ambient humidity	0~100%RH			
	Protection degree	IP67			
	Max Altitude	4000m			

A FUTURE PROOF SOLUTION

Smart City

iNET™ Intelligent Lighting Monitor & Control System is a cloud based wireless smart system designated for lighting management.

With gateways + control node., iNET™ System monitors lights performance status, collects operation data, controls lights on/off or dimming, and sends alarm in case of fault detected.

System & Hardwares



- Automatic light ON/OFF & Dimming Control**
- By time settings
 - ON/OFF or dimming with motion sensor detection
 - ON/OFF or dimming photocell detection

- Accurate Operation & Fault Monitor**
- Real-time monitor on each light working status
 - Accurate report on fault detected
 - Provide location on fault no patrol required
 - Collect each light operation data, such as voltage, current power consumption

- Extra I/O Ports for Sensor Expandability**
- Environment Monitor
 - Traffic monitor
 - Security Surveillance
 - Seismic Activities Monitor

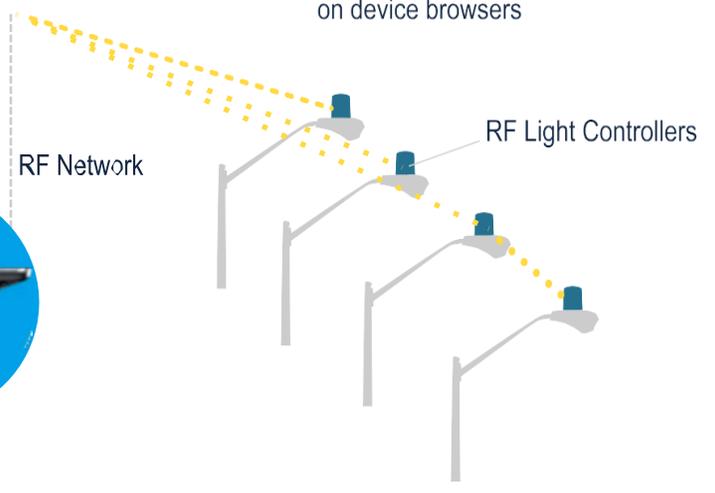
- Reliable Mesh Network**
- Self-proprietary wireless control node
 - Reliable node to node, gateway to node communication
 - Up to 1000 nodes per network
 - Max. network diameter 2000 m

- Easy to use Platform**
- Easy monitor on each and all lights status
 - Support lighting policy remote set-up
 - Cloud server accessible from computer or handheld device



iNET Cloud
on device browsers

LAN or Cellular Connection



ORDERING GUIDE

Ordering Guide: HIGHLIGHT HL-ML-ASL-45W-20W-1-25K -12AH-BLK-SP-00

Model	Solar Panel	LED Power	Distribution type	LED Color Temp	Battery Options	Body Color	Mounting options	Options
HIGHLIGHT	55W	20W	2- Type II	25K	12AH	BLK - Black	SP- Slip Fitter	00 - No motion sensor
HL-ML-ASL	75W	30W	3- Type III	30K	18AH	GR - Grey	UB- U-Bracket	01 -Motion sensor
	105W	40W	4 – Type IV	40K	24AH	BRZ - Bronze	SEP – Separate LED	HY- Hybrid
	160W	50W	5 – Type V	45K	30AH			
	250W	60W		50K	36AH			
		80W		65K	42AH			
		90W		Amber	48AH			
		100W						
		120W						
		150W						
		180W						
	200W							



*Up on request

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