INTEGRATED

SOLAR AREA LIGHT

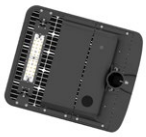
SPFX

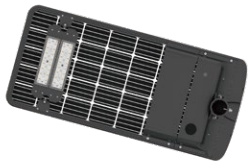
TECHNICAL SPECIFICATION

naturaled®

TECHNICAL SPECIFICATION & COMPONENTS

SPFX





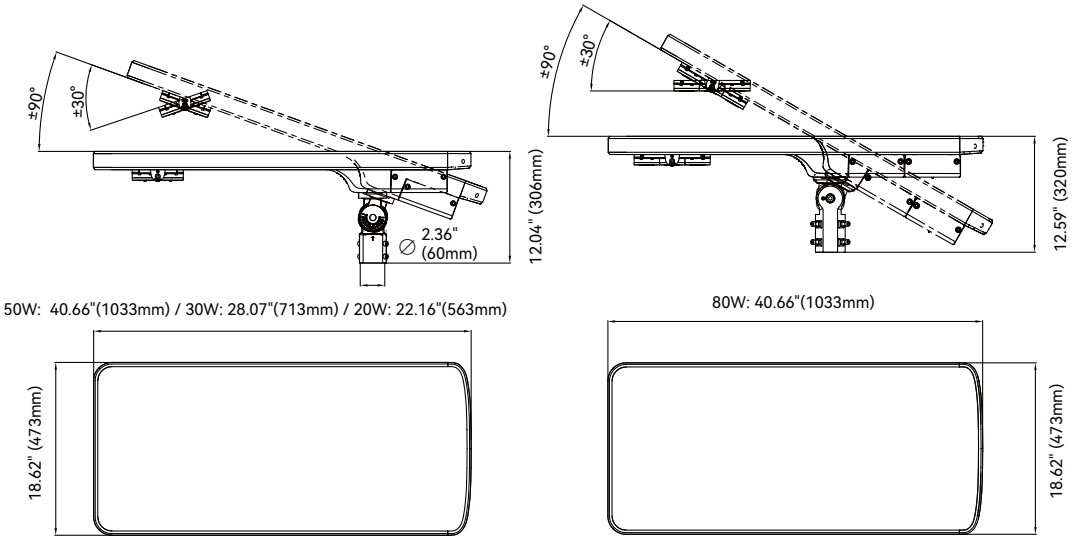

ITEM NO.	9803*	9804	9805	9806
MODEL NO.	SPFX20AL/T2/50K/BK-SF	SPFX30AL/T2/50K/BK-SF	SPFX50AL/T2/50K/BK-SF	SPFX80AL/T2/50K/BK-SF
LIGHTING MODULE				
Wattage	20W	30W	50W	80W
Efficiency	200lm/W			
Output	4000lm	6000lm	10000lm	16000lm
LED	CREE 5050 (Type II/III), 7070 (Type V)			
LED lifetime	100,000 hours			
Optics	Type II(Standard) / III, IV(Optional)			
CCT	5000K (Standard), Other CCT (Optional)			
Installation Height	8~15ft	8~20ft	10~25ft	15~30ft
BATTERY				
Technology	LiFePO4			
Capacity	230Wh (12.8V/18Ah)	307Wh (12.8V/24Ah)	460Wh (12.8V/36Ah)	614.4Wh (25.6V/24Ah)
Autonomy	3-4 Rainy Days (Auto)			
Charging time	5-6 hours			
Lifespan	Over 2000 CYCLES @ 80%			
Working temp	-20℃ to 60 ℃			
SOLAR PANEL				
Wattage	50 Watts /18V	60 Watts /18V	100 Watts / 18V	100 Watts / 36V
Technology	Monocrystalline			
Grade	A			
Lifetime	25 years			
ELECTRONIC				
Controller	MPPT (Maximum Power Point Tracking)			
Sensor	Microwave Motion Sensor			
Connector	Waterproof Connector, Plug and Play			
Protection	Battery Management System (BMS)			
MECHANICAL				
Pole mounting	Φ2.36" (60mm)			
Material	Aluminium and Stainless Steel			
SF Dimensions (mm)	563*473*320	713*473*320	1033*473*320	1033*473*320
SF Dimensions (inch)	22.17*18.62*12.6	28.07*18.62*12.6	40.67*18.62*12.6	40.67*18.62*12.6
Net weight(lbs/kg)	27.99lbs (12.7kg)	30.86lbs (14kg)	39.68lbs (18kg)	46.29lbs (21kg)
Wind resistance level	52m/s (wind of force 14 to 16)			

*Only available through special order

5 YEARS 3 YEARS **Warranty:** 5 years for fixture, 3 years for battery.

DIMENSIONS

Slip Fitter Mounting

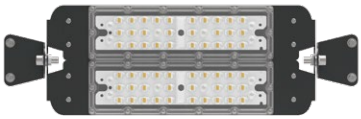


PACKING

Model No.	n.w. (1 pc)		QTY/ CTN	N.W. (1 CTN)		G.W. (1 CTN)		Carton Dimensions (mm)	CBM (M^3)	QTY/20GP	QTY/40HQ
	kgs	lbs		kgs	lbs	kgs	lbs				
SPFX20AL/T2	12.70	27.94	1	12.70	27.94	14.20	31.24	665*520*390	0.1349	210	480
SPFX30AL/T2	14.00	30.80	1	14.00	30.80	16.00	35.20	815*520*390	0.1653	170	390
SPFX50AL/T2	18.00	39.60	1	18.00	39.60	21.00	46.20	1135*520*390	0.2302	125	280
SPFX80AL/T2	21.00	46.00	1	21.00	46.00	25.00	55.00	1135*520*390	0.2302	125	280

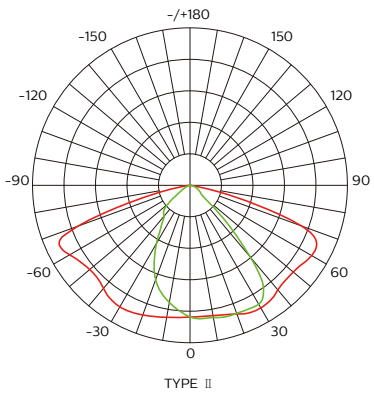
LUMINAIRE LIGHTING MODULE

Two Options

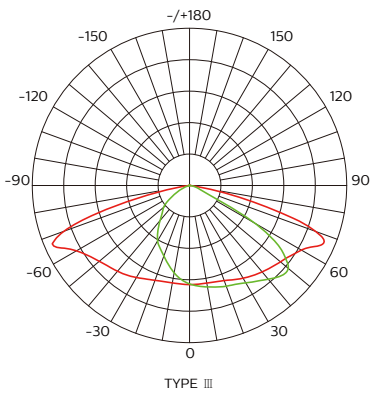
Types	Pic	Chips	IP	Advantages
PC module (standard)		5050	66	-Economic price -Higher impact resistance -Multiple beam angle choices
Glass lens module (optional)		7070	66	-Long-term use without husbanda y -No yellowish issue -Corrosion resistant -High temperature resistant, easy to clean -UV resistant -Up to 95% light transmittance, sustained high luminous fux output.

IP66

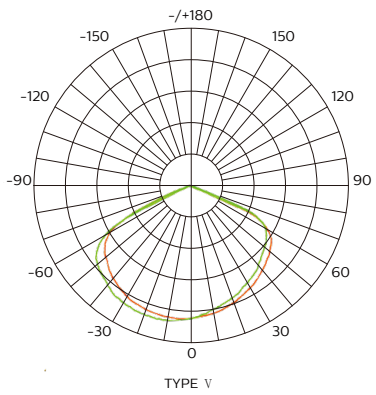
LIGHT DISTRIBUTION CURVES



TYPE Ⅱ



TYPE Ⅲ



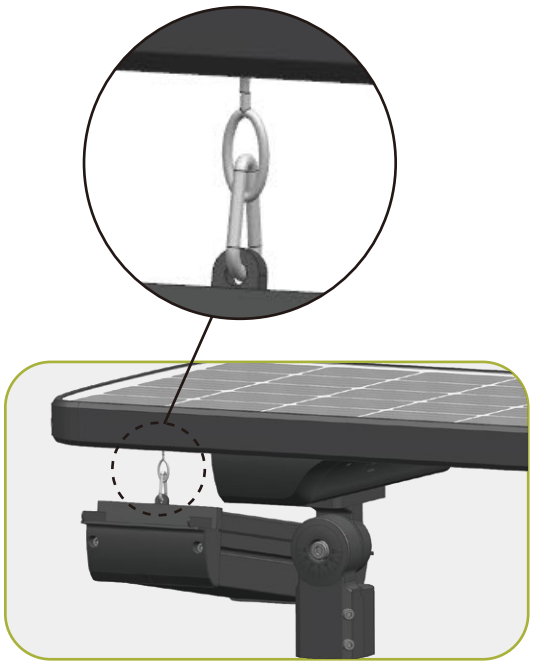
TYPE Ⅴ

BATTERY LIFEPO4

- Cycle life: over 2000 Cycles
- Battery technology: LIFEPO4
- Battery warranty: 3 years
- Quick replacement: Inter changeable box, quick replacement
- Anti-drop Protection
- Aluminum die-casting protective case: IP66 Batteries can be protected against water, moisture, and shock.
- Temperature range: -20°~60°.
- Capacity: Support 3-4 rainy days
- UN38.3 IEC62133 certification

BMS System

The full name of the Battery Management System, is the link between the battery and the user, is mainly responsible for the management of the battery's charging and discharging performance, in order to ensure that the battery's safe, stable and long-life operation



COMPARISONS OF DIFFERENT BATTERY TECHNOLOGIES

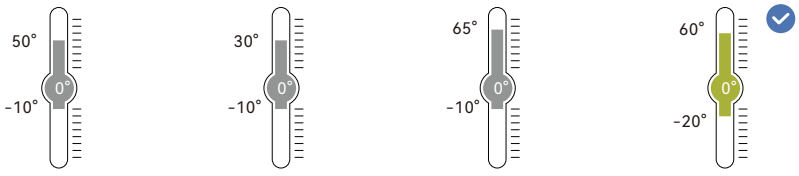
LIFETIME & CYCLES

Comparison of different battery technologies

Lead Acid	NimH	Lithium ION	Lithium LifePO4
200	700	800	2 000

CHARGING TEMPERATURE RANGE WITHOUT CAPACITY LOSS

Minimum & Maximum temperature range for Optimal charing during the day



Lead Acid	NimH	Lithium ION	Lithium LifePO4

SOLAR PANEL

1 Material:

Monocrystalline silicon, tempered glass

2 Solar panel shade in the rain and sunny days of power generation:

Sunny days, power generation efficiency is very good. When it is cloudy and rainy, as long as the sun is bright during the day, it will absorb solar energy, more than 5 consecutive cloudy and rainy days will be completely out of power.

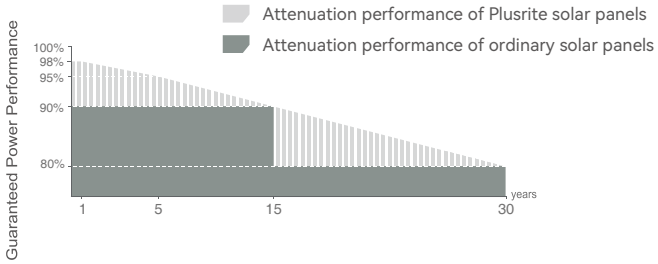
3 Advantages of double-sided solar panels:

1) 10% higher absorption efficiency than single-sided, but the price rise is very little impact on the whole light
2) Enhanced waterproof, IP67
3) Corrosion and impact resistance
4) Class A solar panels, available for 25 years
5) Meet the IEC61215; IEC61703; UL1703 standards
6) Cleaning recommendation: 6-12 months cleaning. If it has not been cleaned for 5 years, the power generation efficiency will decrease by about 30%.

Single Charge

Double Charge

Solar Panel Attenuation Comparison



4 Attenuation of solar energy absorption capacity:

In windy and sandy places, physical wear and tear is the main impact (physical wear and tear brought about by wind and sand will damage the encapsulation structure of PV modules, leading to excessive power attenuation or accelerated aging, which in turn affects the service life of the modules and power generation)

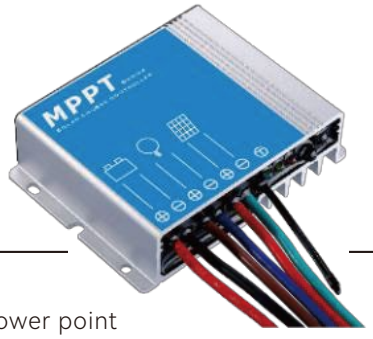
MOTION SENSOR MICROWAVE

SPFX are equipped with microwave detectors that use the Doppler effect (like car radars) to detect a nearby objects and measure the distance. The sensor emits a high frequency wave to reflect off of and analyze the objects in the vicinity.

Types	Pic	Dection Zone	Advantages
MICROWAVE MOTION SENSOR		26 ft (max)	1. Only detect specific moving objects. Much better reliability 2. Insensitivity to other environmentalvari-ations such as light, color, temperature, etc

CONTROLLER MPPT (Standard)

MPPT controllers are designed for solar street light system, which can increase the charging efficiency by about 20% compared with the traditional PWM controllers, and can reduce the cost of the whole street lighting.



- Innovative maximum power point tracking technology (MPPT), maximum power point tracking efficiency >99%.
- Full digital control technology, charging conversion efficiency up to 97.5%, discharge conversion efficiency up to 96.5%.
- Five-stage time and power adjustment, power 0~100% adjustable.
- Automatic power down operation can be set when the battery power is low.
- Automatic light control point adjustment function.
- Charging automatic power down operation when the temperature exceeds the set value to avoid high temperature damage to the controller.
- External temperature sensor, automatic temperature compensation (liquid, gel and AGM batteries).
- Four-stage charging: MPPT, strong charging, equalization charging, float charging.
- Li-ion battery low-temperature charging protection function, environmental temperature below zero degrees can be prohibited or slow charging.
- Li-ion battery pack transportation mode, load off on the way, activated after 1 second of installation.

REMOTE CONTROL

- Infrared remote control mode and wireless remote control mode can be.
- Elected, wireless remote control distance can be selected.
- Wireless remote control has strong anti-interference ability and good penetration.
- Large LCD screen displays parameters and data.
- Simple and easy to understand interface design.
- No operation automatic sleep, ultra-low sleep power consumption; key to wake up.
- Two No.5 batteries power supply, battery capacity indication.
- Emergency lighting and SOS signal.
- Interval for switching between presence and absence: 1 minute

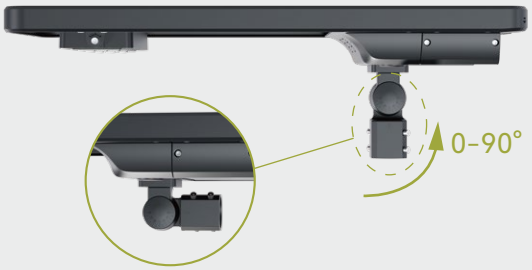
*Additional Control Manual

	After Dark	No Motion Detected	Motion Detected	
SPFX Reference #1	3H	30%	100%	(Common Factory Setting) Setting for relatively sunny cities: 122Wh - 20W 183Wh - 30W 305Wh - 50W 488Wh - 80W
	8H	20%	50%	
	3H	20%	70%	

	After Dark	No Motion Detected	Motion Detected	
SPFX Reference #2	2H	30%	100%	Recommended for modes with relatively little sunlight: 69Wh - 20W 103Wh - 30W 172Wh - 50W 276Wh - 80W
	3H	20%	50%	
	6H	10%	20%	
	1H	10%	30%	

MOUNTING

Slip Fitter Mounting 20/30/50/80W



Global Wind Level

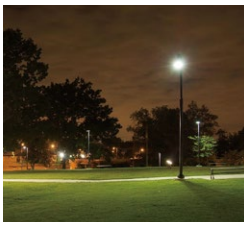
Hurricane Level 3

WIND RESISTANCE

- Frame Material: Aviation aluminum profle using a one-piece roll-round process, high quality polyester powder coating.
- Wind resistance test: **52m/s** (Global wind level 16, U.S. hurricane level 3).

APPLICATION

Main Roads



Pathways & Alleys

Bike Paths

Car Parks & Rest Areas

Hiking Trails & Campsites