ST-Z Series

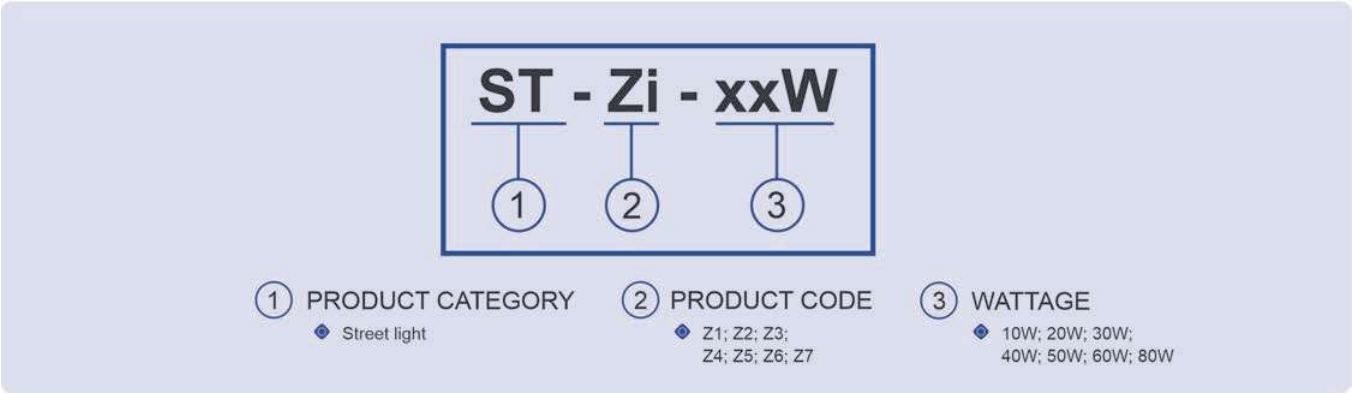
LED Solar Street Light

IP65 | SMART SENSOR | DIM | CRI 70/80 | 200 lm/W | BIFACIAL SOLAR PANEL

Features

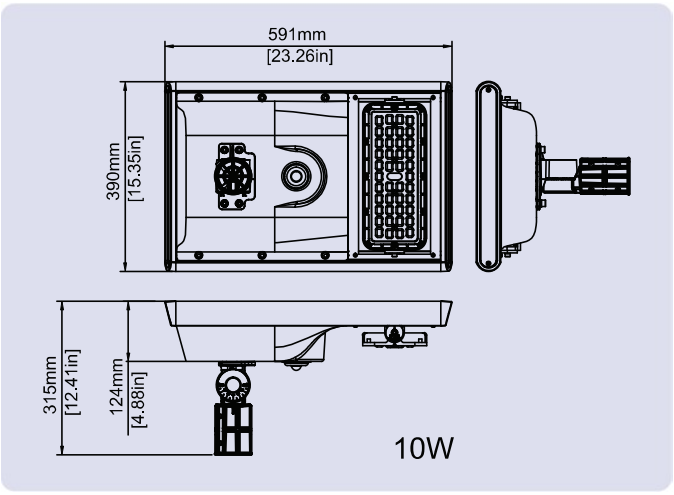
- ST-Z solar street light features all in one design function, low profile design, with PIR/ microwave motion sensor and smart controller all built in.
- Bilateral Solar Panel design. Suitable for remote region, non electricity supply zone.
- Deep cycle battery, charge and discharge over 2000 times.
- Operating time: operate 5~7 rainy days under intelligent model.
- Power range: from 10W to 80W.
- Various installation methods: pole mounting, wall mounting, etc.
- Rotable LED module, ensuring best solar panel angle to the sun.
- Ultra-high light efficiency: 200 lm/W

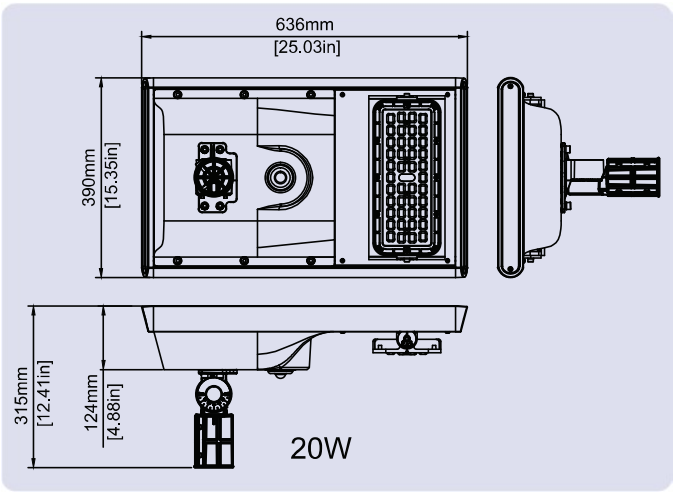
Catalog Number Logic:

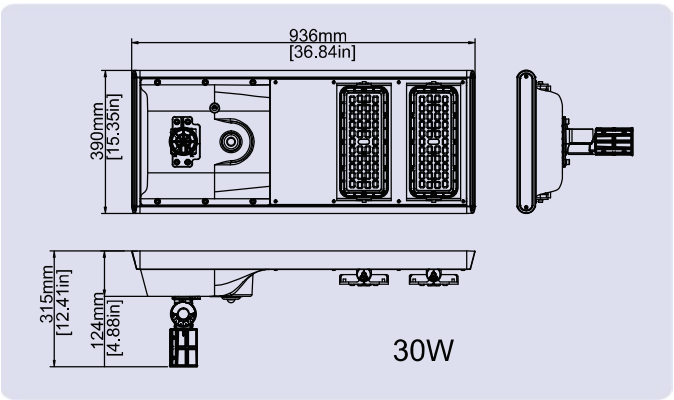


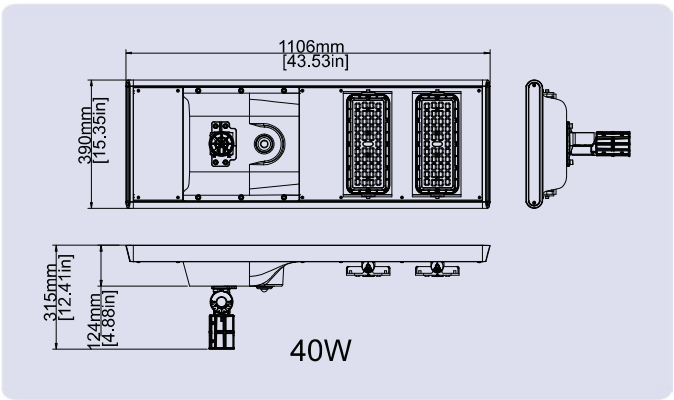
Electrical Data							
Model	ST-Z1 10W	ST-Z2 20W	ST-Z3 30W	ST-Z4 40W	ST-Z5 50W	ST-Z6 60W	ST-Z7 80W
Power	10W	20W	30W	40W	50W	60W	80W
Control Option	Photocell sensor, Timing, dimming, intelligent power saving, microwave sensor or PIR sensor.						
Work Mode	2H-100%; 4H-Detected: 60%, None: 20%; 6H-Detected: 40%, None: 10%						
Photometric Data							
LED Manufacturer	3030 optional						
Lens	Polycarbonate						
Efficacy (lm/W, Std. Dev. ±3%)@CCT=5700K, CRI>70Ra	190lm/W	190lm/W	190lm/W	190lm/W	190lm/W	190lm/W	190lm/W
Luminous flux (lm, Std. Dev. ±3%)@CCT=5700K, CRI>70Ra	2000lm	4000lm	6000lm	8000lm	10000lm	12000lm	16000lm
ULOR	Luminaire inclination:± 45°						
CCT	3000K, 4000K, 5000K, 5700K, 6500K						
CRI	70Ra/80Ra optional (80Ra matches efficacy of 190Lm/W)						
Beam angle	T2-M(60°x156°)/T3-M(75°x160°)/T4-M(78°x153°)						
IP Rating	IP65, according to standard EN 60529						
Housing	Heavy-duty die-cast aluminum (EN AC-46100)						
Surface treatment	Anti-UV thermosetting polyester / 80 micron epoxy primer + Anti-UV thermosetting polyester (for extremely corrosive environments).						
Painting	Black, Custom request						
Mounting	Post Top						
Solar Panel Data							
Photovoltaic panel	Single side monocrystalline solar panel						
Solar Panel	30W	40W	60W	70W	90W	90W	120W
Li-ion Battery	153WH	230WH	307WH	384WH	537WH	537WH	691WH
Charing Time	4.3Hrs	5.7Hrs	5.1Hrs	5.5Hrs	6Hrs	6Hrs	5.7Hrs
Run Time(@full power)	15.3hrs	11.5hrs	10.2hrs	7.6Hrs	9Hrs	9Hrs	8.5Hrs
Ambient Temperature	-10°C to 50°C (14°F to 122°F)						
Control system	MPPT/PWM optional						
Maximum Autonomy	Operate 2~3 rainy days under intelligent model.						
Others							
Lifespan	L90B10 > 52000h, @Ta 25°C						
Warranty	3 years (Warranty extension up to 5 years on request)						
Certification	CE/RoHs						
Product Size	591x390x315mm	635x390x315mm	936x390x315mm	1106x390*315mm	1336x390*315mm	1336x390*315mm	1725.7x390x303mm (Net Weight: 23.1kg)

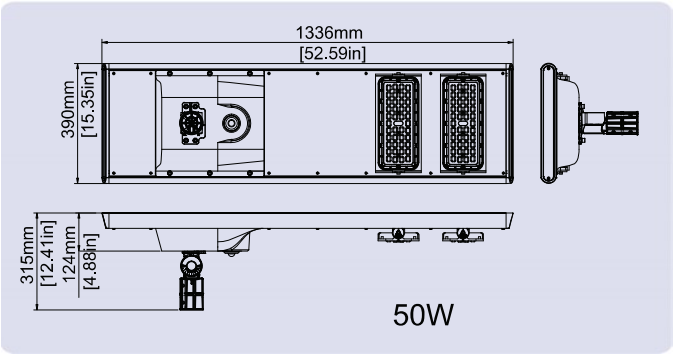
Dimension: Unit: inch/mm

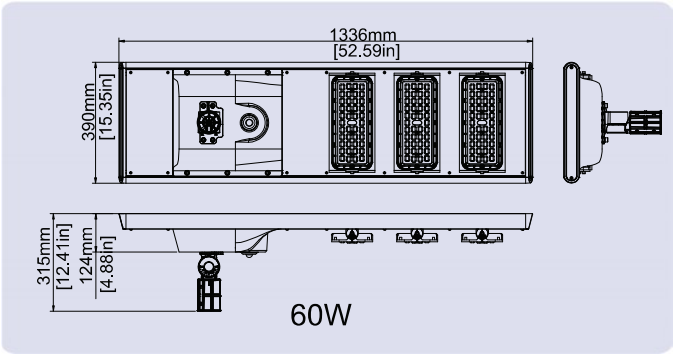


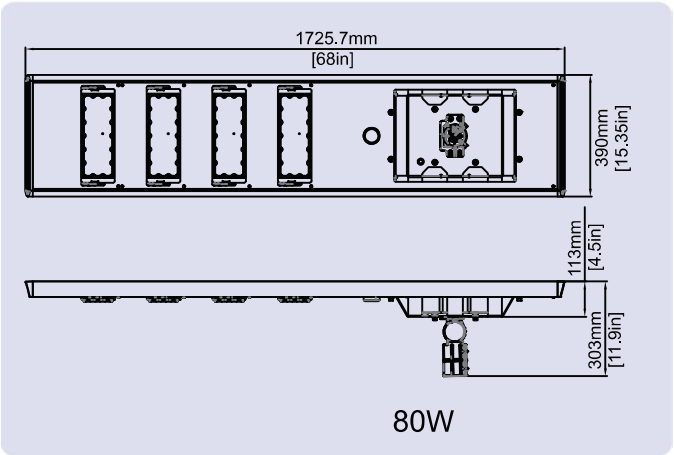


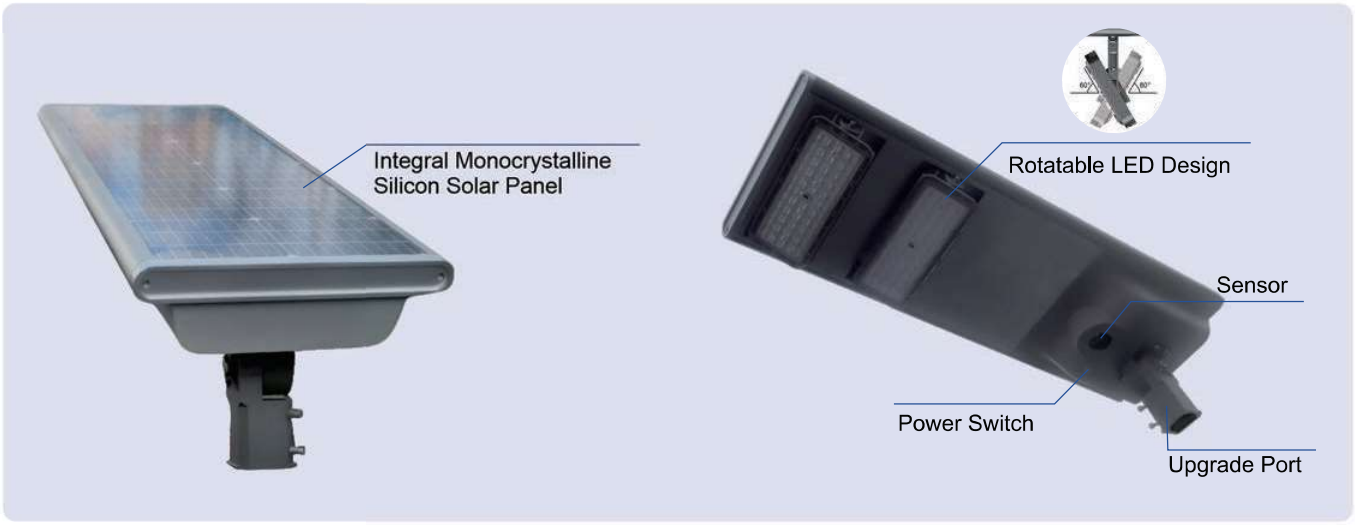




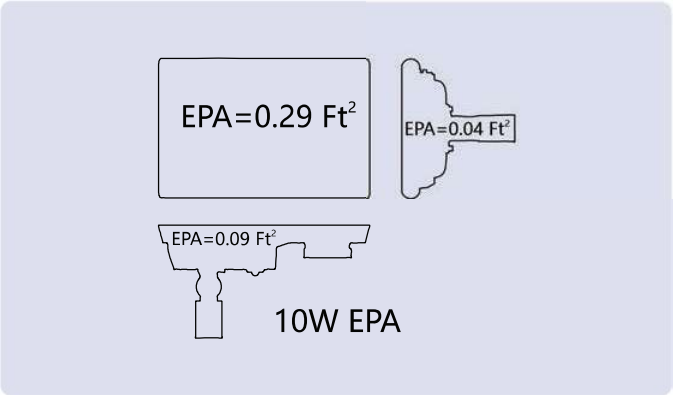


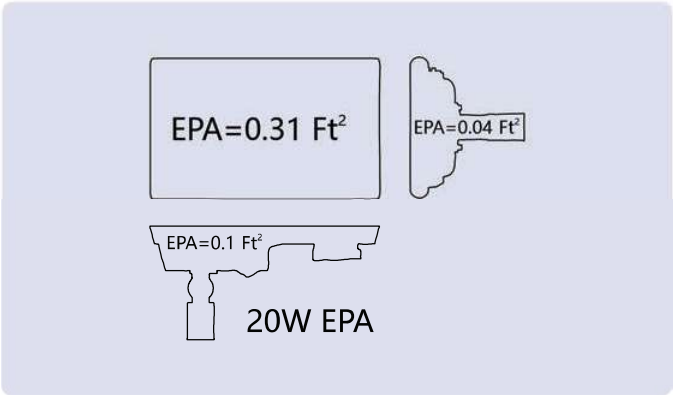


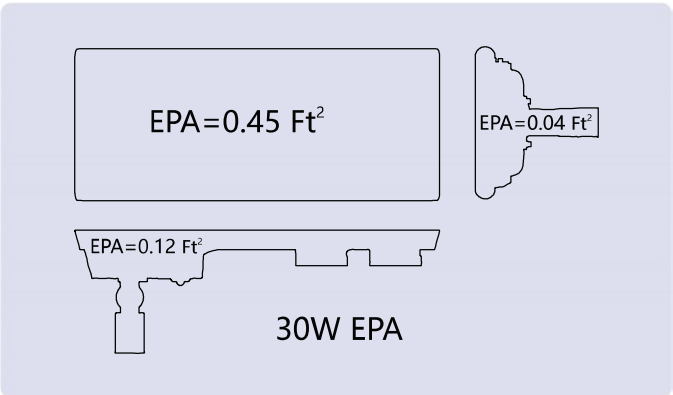


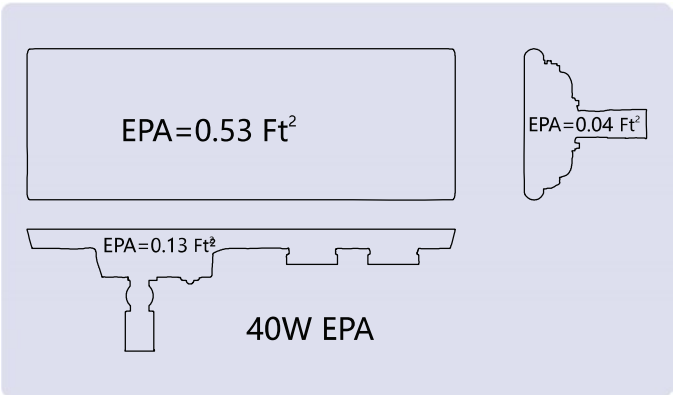


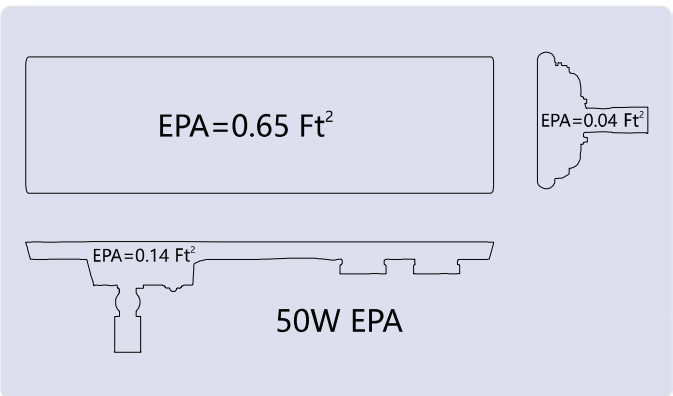
EPA Wind Ratings:

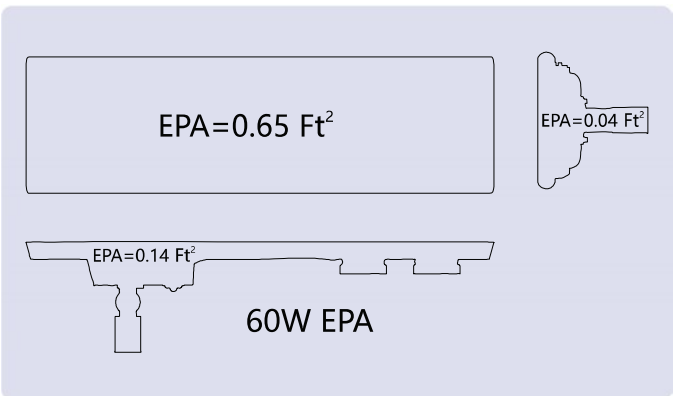






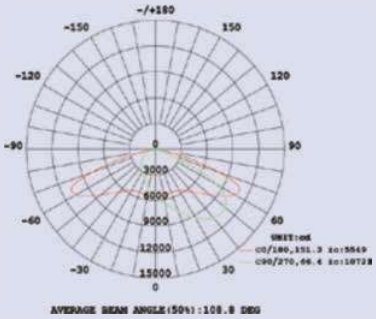




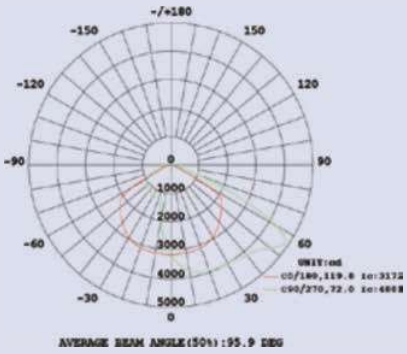


Photometry:

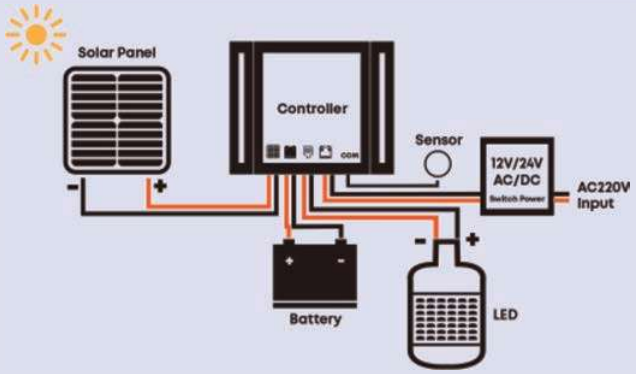
Type III



Type IV



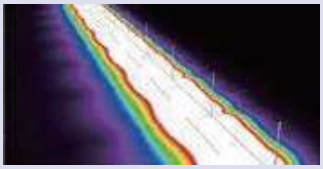
Working Way:



The solar panel receives solar radiation energy and converts it into electricity, which is stored in the battery by the photovoltaic controller. At night, when the illumination gradually decreases to about 10 LUX and the solar panel voltage is 5V, the charge and discharge controller detects this voltage value, and controls the battery to discharge for the LEDs to complete the process of daytime charging and evening discharge.

Photometrics Design

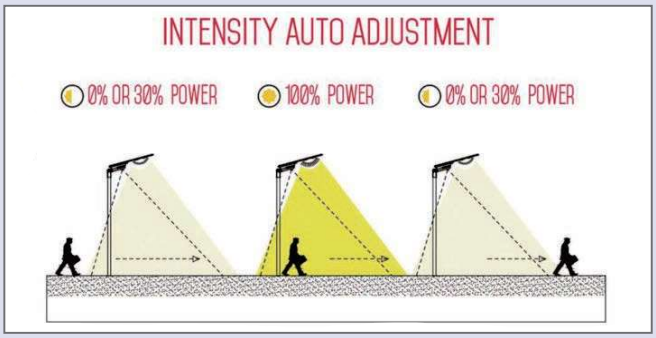
Planning and analyzing of street lights can be done by using lighting design software, which allows lighting simulations. It uses rendering, the process of generating an image from a model, by means of computer programs resulting in different tools for measuring the simulate light levels

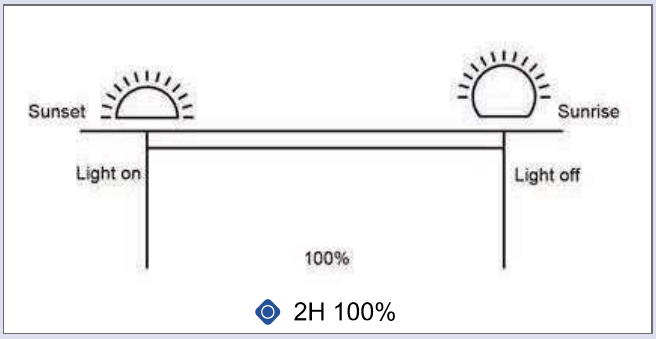


Example of
urban branch road

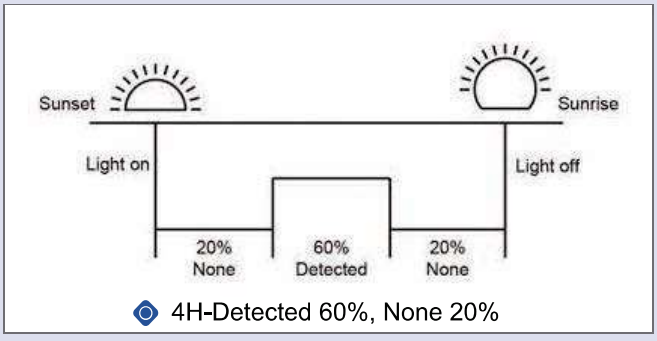
Example of
main road & parking lot

Autonomy Control

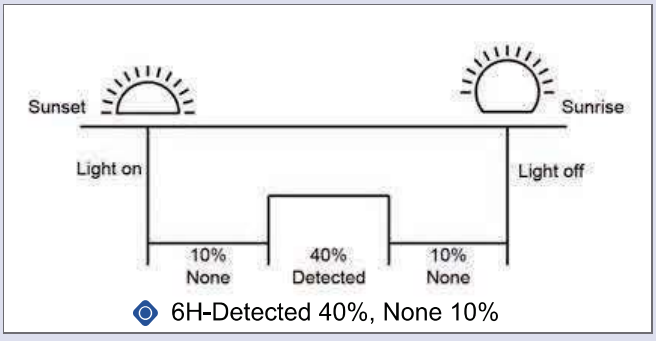




2H 100%

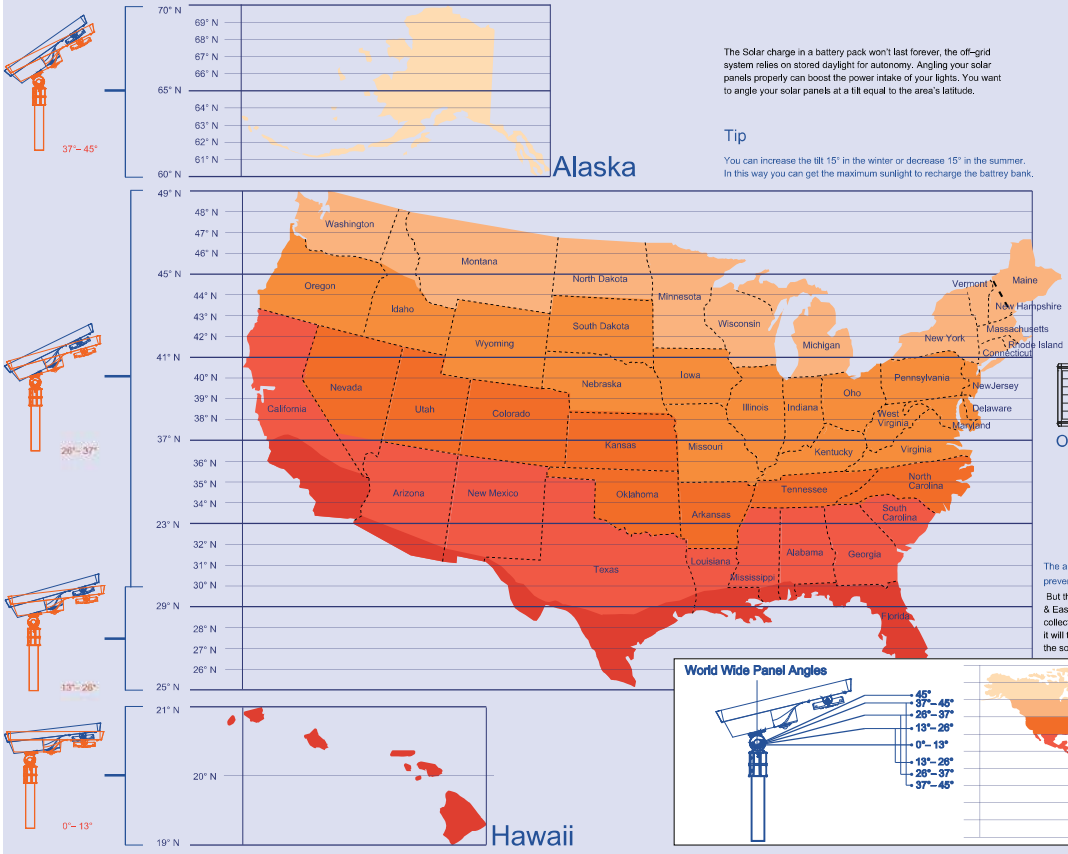


4H-Detected 60%, None 20%



6H-Detected 40%, None 10%

Panel Angle



The Solar charge in a battery pack won't last forever, the off–grid system relies on stored daylight for autonomy. Angling your solar panels properly can boost the power intake of your lights. You want to angle your solar panels at a tilt equal to the area's latitude.

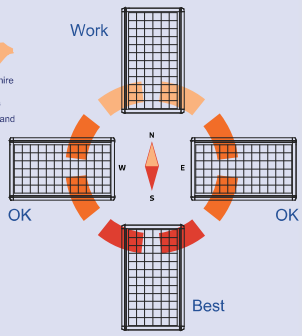
Tip

You can increase the tilt 15° in the winter or decrease 15° in the summer. In this way you can get the maximum sunlight to recharge the battrey bank.

Key

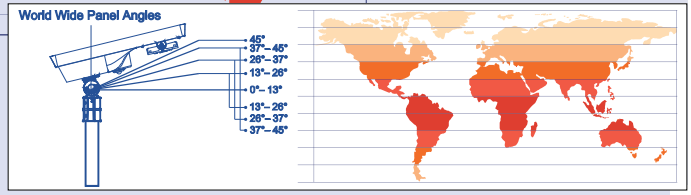
Strong sunlight | Nromal sunlight | Less sunlight

Best Facing Direction of Solar Panel

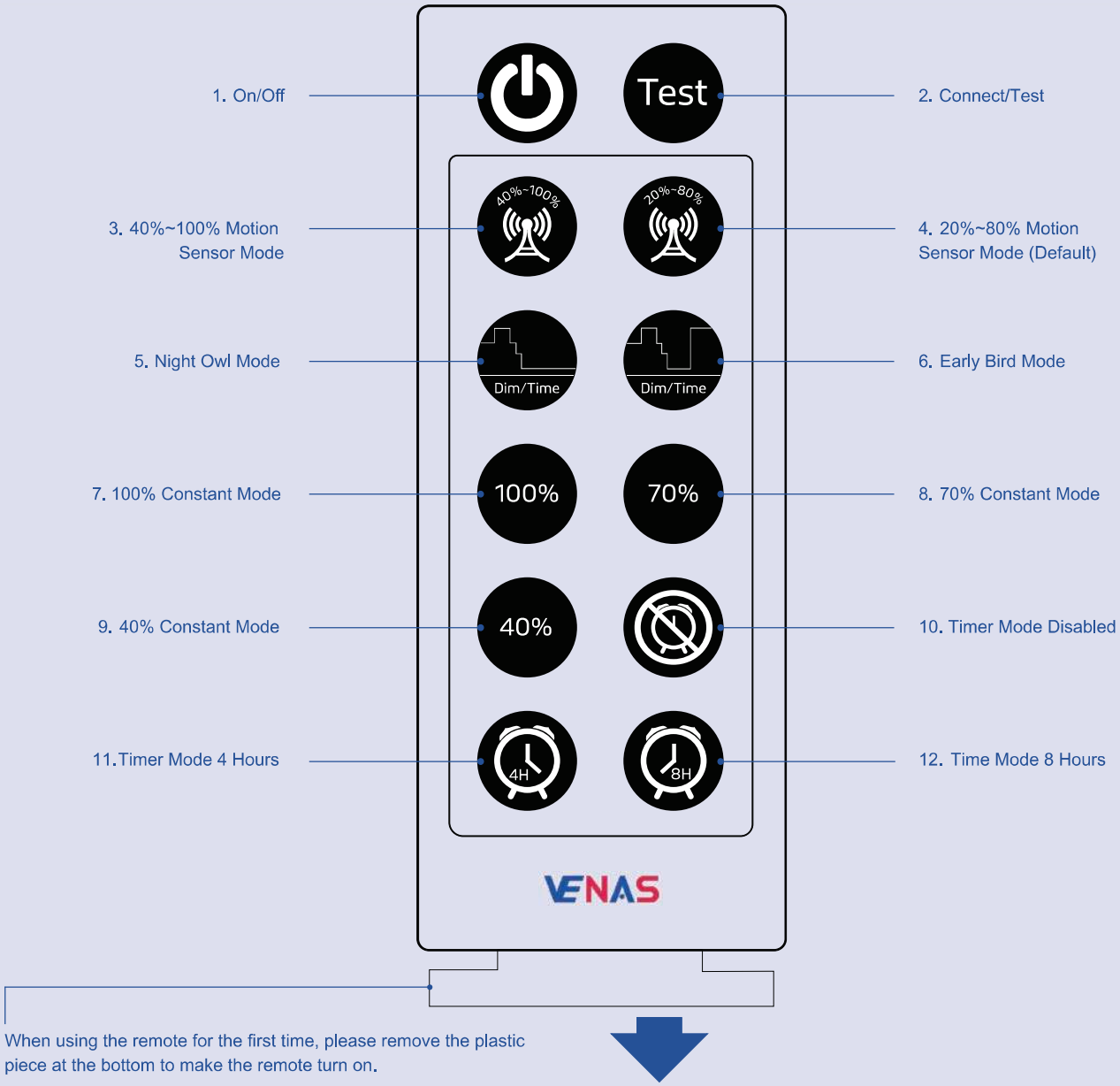


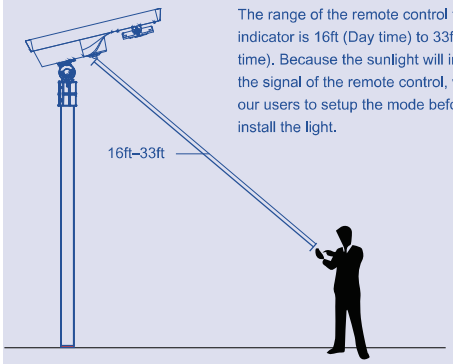
The area will dictate the installation of the fixtures and will sometimes prevent the lights from facing south.

But that's okay! Panels facing West & East won't get as much light as a Southern facing panels but will still collect a good amount of sunlight. A North–facing panel also works, but it will take longer to charge than any other direction. This would mean that the solar charge will be less optimal if installations are facing that way.



Remote Control Guide





The range of the remote control to the indicator is 16ft (Day time) to 33ft (Night time). Because the sunlight will impact the signal of the remote control, we suggest our users to setup the mode before they install the light.

1. On/Off

When off is selected, the light will stop working. Solar panel will not charge the battery and the battery will not supply electricity to the light.

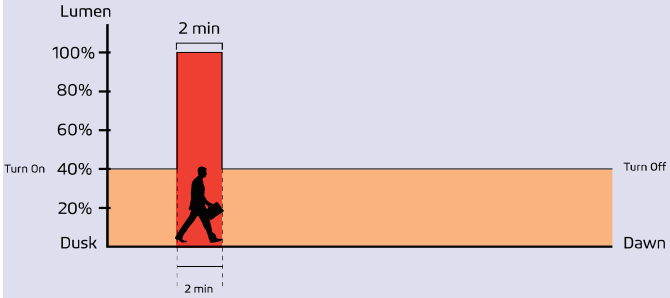
2. Connect/Test

Remote control device can be connected with any lighting fixture, one at a time. To connect, press the button once. It also functions as a test button. To test, press the “Test” button once, the red light will indicate the fixture is charging, green light indicates that the fixture is operating. Testing lasts for 10 seconds, then goes back to the mode previously in use.

Remote Control Guide

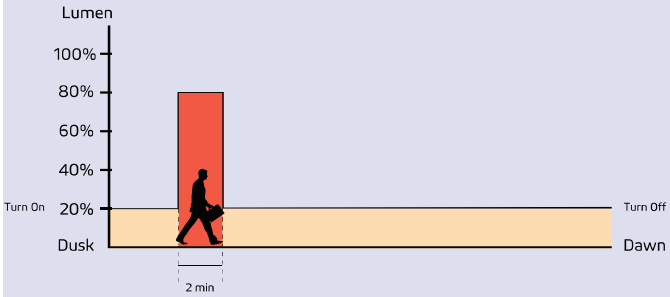
3. 40%~100% Motion Sensor Mode

Constant 40% brightness (turn on at dusk, turn off at dawn);
100% brightness turns on for 2 minutes when motion detected.



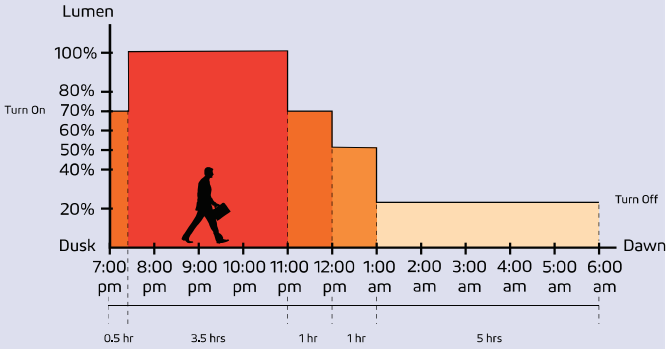
4. 20%~80% Motion Sensor Mode (Default)

Constant 20% brightness (turn on at dusk, turn off at dawn);
80% brightness turns on for 2 minutes when motion detected.



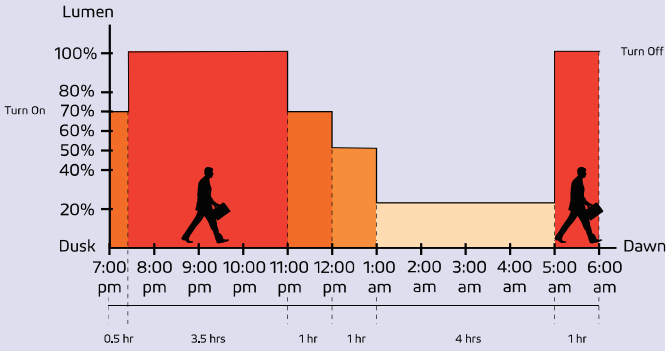
5. Night Owl Mode

Changes as natural light decreases/increases (turn on at dusk); 70% brightness for 0.5 hour, 100% brightness for 3.5 hours, 70% brightness for 1 hour, 50% brightness for 1 hour, 20% brightness for 5 hours (turn o ffat Dawn).



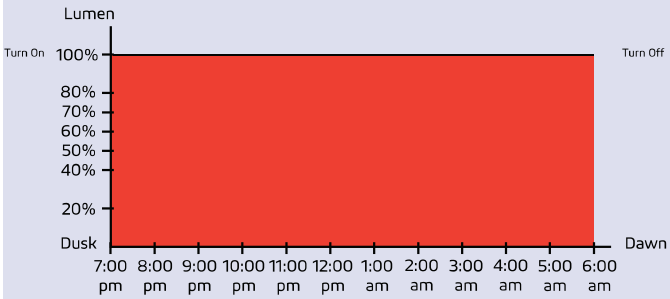
6. Early Bird Mode

Changes as natural light decreases/increases with increased brightness near dawn for early risers (turn on at dusk); 70% brightness for 0.5 hour, 100% brightness for 3.5 hours, 70% brightness for 1 hour, 50% brightness for 1 hour, 20% brightness for 4 hours, 100% brightness for 1 hour (turn o ffat Dawn).



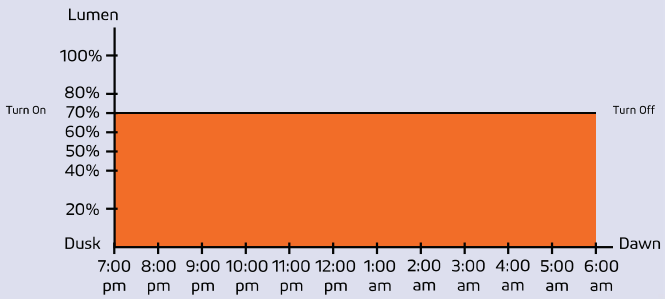
7. 100% Constant Mode

100% brightness from dusk to dawn.



8. 70% Constant Mode

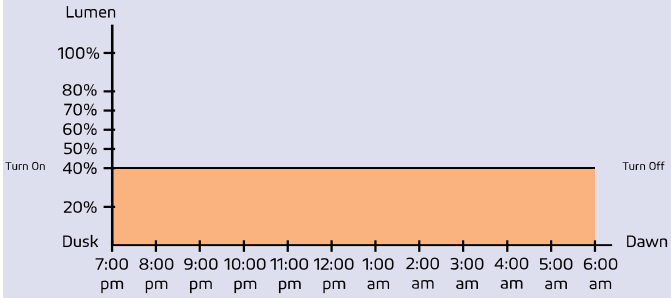
70% brightness from dusk to dawn.



Remote Control Guide

9. 40% Constant Mode

40% brightness from dusk to dawn.

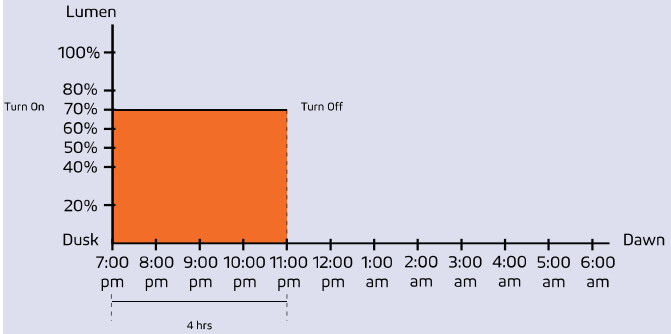


10. Timer Mode Disabled

Press this button to turn o ffTimer Mode; settings go back to before Timer Mode was last activated.

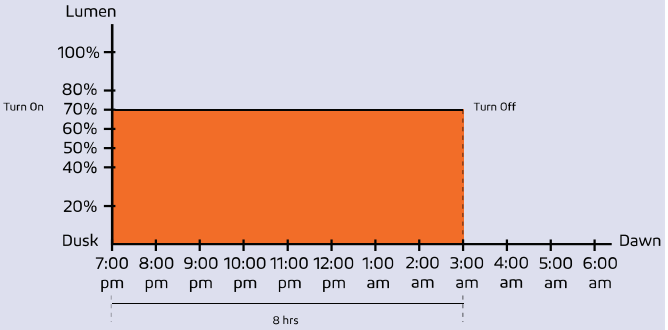
11. Timer Mode 4 Hours

This is an additional mode which can work with any other modes. For example: press this button at any time after you turn on 70% Constant Mode, if the light turns on at 7pm at dusk, it will turn off at 11pm. It will repeat the same schedule hereafter until it is canceled by pressing Timer Disabled.



12. Time Mode 8 Hours

This is an additional mode which can work with any other modes. For example: press this button at any time after you turn on 70% Con stant Mode , if the light turns on at 7pm at dusk, it will turn off at 3am. It will repeat the same schedule hereafter until it is canceled by pressing Timer Disabled.

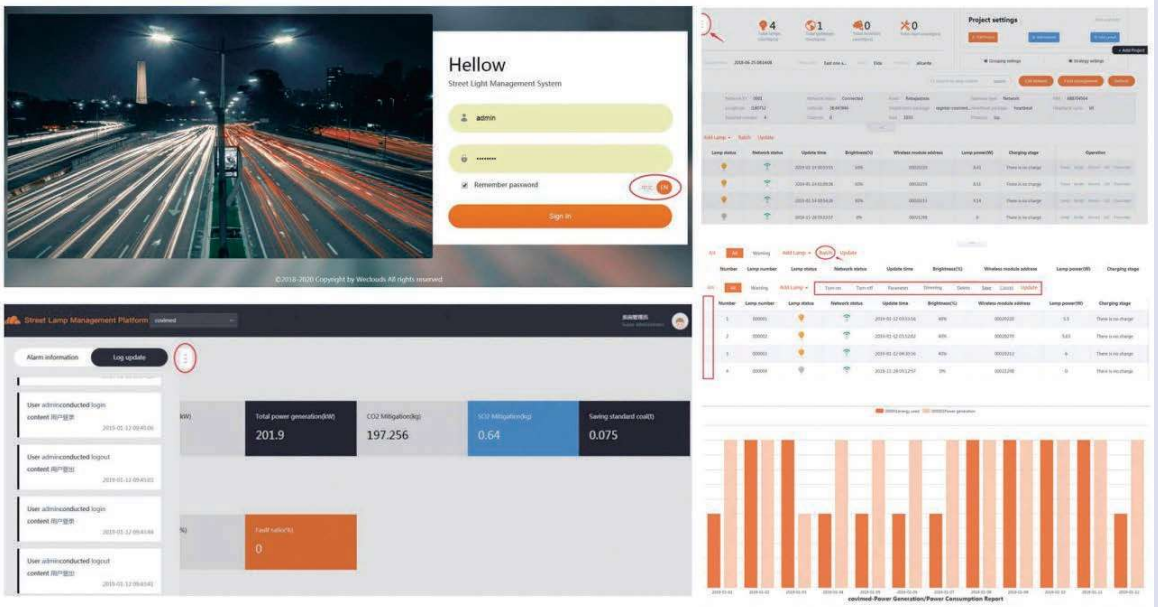


Important

Dust and dawn time may be diffrent in other locations and seasons. The sensors of our products will follow the light patterns of where it is installed. The time period shown in the chart above is just an example to help you understand the different lighting modes only.

Smart Lighting Control System:

Data Project Management:



The system can pre-set one or more lighting modes according to different time of day and traffic flow, automatically turn on or off any lamp, and adjust the switching time and illumination according to environmental requirements to achieve the purpose of energy saving and consumption reduction.

IOT Management, Intelligent Lighting:

Venas perfectly combine traditional solar street lighting architecture+Internet of things + wireless communication technology perfectly, achieve monitoring and management of remote background data, real-time understand the normal working status of each component of solar energy (street lights, photovoltaic panels, batteries, controllers), allow you to know the end customer's product usage that is thousands of miles away without leaving home, or to manage the opening and closing of street lights and the adjustment of bright spot power in a timely manner.

Remote monitoring Real time monitoring

ST-Z series with wireless communication function, Through the intelligent management system of solar street lamp and wireless module, have remote monitoring and real-time monitoring.

Automatic fault alarm

Real time monitoring of solar panel voltage, current, power, battery charging and discharging current, voltage, load working state, controller working state data and fault automatic alarm.

Remote control

Support remote switch on and o ffdimmer and battery, load parameter modification.

Fault tracking and precise positioning

Multi peak PWM technology, suitable for partial shading or partial damage of photo voltaic cells, and the tracking efficiency is more than99%.

Map location

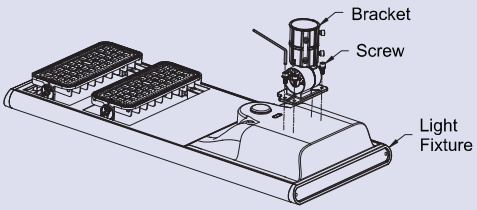
Using GIS maps, with geographic display capabilities.

The Internet of Things solar street light management system is mainly composed of a street light component+a centralized controller+a single light controller+a smart cloud platform. The centralized controller and the single light controller aggregate the data collected by the single light via the GPRS/NB-IOT wireless communication network. The centralized controller uploads data to the system cloud platform through GPRS data flow, providing data dependence for mobile phone and computer terminal access.

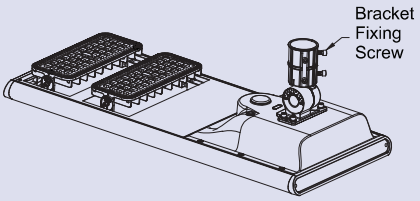
Performance Comparison Between Smart IOT Solar LED Street Light and Traditional Street Light

Solar led street light controller type	PWM+IOT controller	Instruction
Light decay detecting	√	Automatic light decay detection and adjustement
Charging in rainy days	√	PWM charge 3 rainy days is equivalent to a sunny day
Battery management	√	Battery lifespan management
Remote monitoring	√	Remotely monitor the status of each street light in real time
Optimize configuration	√	Through data analysis, complete the optimal configuration of solar panels and batteries in different regions
Fault alarm	√	Automatically detect system failures and alert to mobile phones or computers
Intelligent analysis	√	Automatically collect the detailed data for per light at per night, and statistical report analysis
Artificial intelligence	√	Big data collection and analysis through the system platform, complete the intelligent operation of street light and achieve stable lighting throughout the year

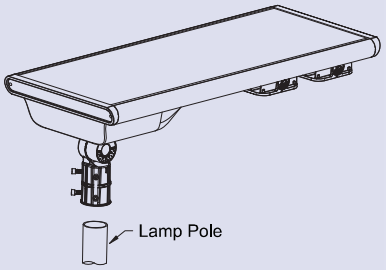
Installation Procedure



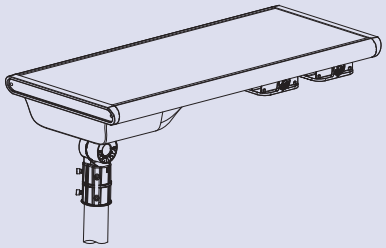
1. Align the bracket with the installation hole.



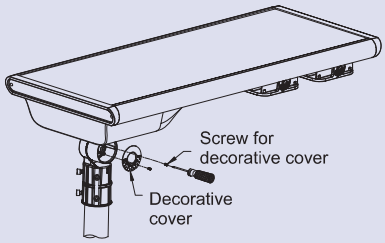
2.Tighten the mounting screws (4 PCS) and loosen the bracket-fixing screws.



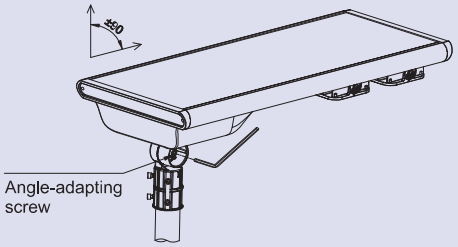
3.Stick the lamp into the lamp pole



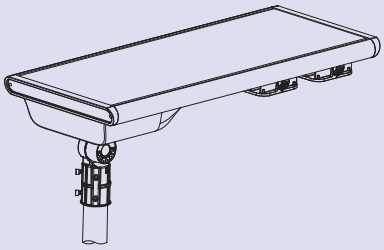
4. Tighten the bracket-fixing screws(4 Pcs).



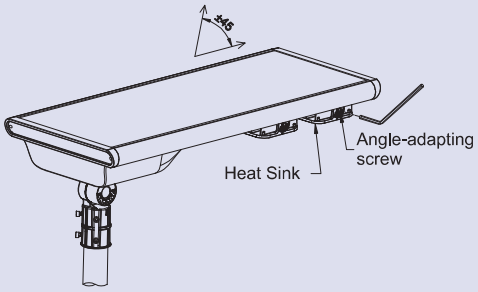
5. Detach the decorative cover with a screw driver.



6. Loosen the angle-adapting screws and adjust the fixture to a desirable angle(± 90°).



7. Tighten the angle-adapting screws and put the decorative cover on.



8. Loosen the screws on heat sink to adjust its angle(± 45°). When this is done, tighten them up.

Packing List

- Instruction Guide *1
- LED Fixture *1
- Bracket *1
- Remote Controller *1