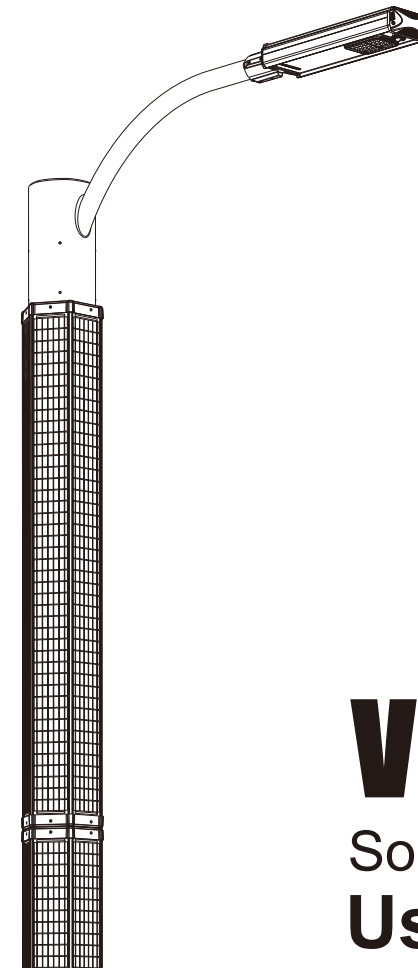


Troubleshooting

No.	Symptoms	Troubleshooting steps	Process
1	No light at night	Check if the light can be manually activated.	Refer to the "Product Activation" and "Product Installation" sections in this user manual and perform activation tests.
		Check if the solar panel is obstructed by houses, trees, or other objects.	Clear any obstructions or consider changing the installation location.
		Check if any artificial light sources are shining near the solar panel at night.	Remove any interfering artificial light sources or change the installation location.
		Examine the status of each component according to the Maintenance Guide.	Replace any damaged components.
2	A serious shortage of working time	Check if the solar panel is obstructed by houses, trees, or other obstacles.	Clear any obstructions or consider changing the installation location.
		Check if the surface of the solar panel is dusty or covered.	Clean the surface of the solar panel as described above.
		Examine the battery pack for damage, following the Maintenance Guide.	Replace any damaged battery.
3	The light is not operating according to the preset working mode, including turning on and off.		Reprogram.
4	The light brightness is incorrect when a person approaches (this applies only to products with motion sensors).	Check if the air temperature is close to human body temperature.	When the air temperature is close to the human body temperature, motion detection may slow down. It will return to normal once the air temperature changes.
		Check if the product is installed too high.	If the installation height exceeds 8 meters, it may be outside the motion detection range. It is recommended to lower the height or use other operating modes.
			Replace any damaged motion sensors or controllers.

LEADSUN®

Bright Ideas For An Even Brighter Future.



VertHex

Solar Street Light

User Manual

Thank you for choosing LEADSUN's solar street light. If you have any questions, please consult our customer service at sales@leadsunglobal.com.

LEADSUN reserves the right to update the product's appearance, function, and construction without notice. In case of discrepancies between the illustration or description and the actual product, please refer to the actual product. LEADSUN ensures the accuracy and reliability of this manual but is not responsible for any loss or damage resulting from the use or operation of the product.

LEADSUN INC.

Address: 865 S Milliken Ave, Unit G,
Ontario, CA 91761 USA
Phone: +1 (909) 476-0900
Email: sales@leadsun-us.com

LEADSUN Australia PTY LTD

Address: 42 Greens Road,
Dandenong South, Victoria 3175
Phone: +61 1300 281 005
Fax: +61 3 8610 0393
Email: sales@leadsun.com.au

LEADSUN Global Limited

Address: 3/F, No.1 Workshop, No.15,
Pingbei 2nd Road, Nanping, Zhuhai,
Guangdong, P.R. China 519060.
Phone: +86-756-2289712
Email: sales@leadsunglobal.com



Cautions

Before using the solar street light, carefully read the follow precautions to avoid damage or error.



Working Condition

- Product Protection Grade: IP66
- The product is designed with high-strength structural integrity and can withstand a wind speed simulation of up to Level 16. However, the product may still be damaged when used in extreme hurricane conditions.
- Working Temperature Range: -20°C to 51°C (charging temperature is limited to 0°C to 51°C). For products with a heating function, they can operate in the temperature range of -30°C to 51°C.
- All modular components of the product are waterproof and rated IP66. The holes and slits on the luminaires are designed to aid heat dissipation and drainage. The metal parts are made of anodized, rustproof aluminum, which is capable of withstanding high temperatures and humid conditions. However, it is recommended to avoid installing the street light in areas with heavy acid mist or salt exposure.



Transportation and Storage

- The product contains high-capacity LiFePO4 battery components. Please adhere to aviation transport regulations when shipping. Treat the product as a flammable and explosive hazardous material, and store it separately from other goods.
- The solar panel is fragile; stacking is limited to two layers. Do not stack beyond this limit or place heavy objects on top.
- Store the product within a temperature range of 0°C to 25°C.
- If the product is stored for an extended period, it should be charged every six months. Please use the dedicated charger to charge the product (charger sold separately) to avoid potential damage to the battery or device.



Product Maintenance

- To ensure the solar panel receives light efficiently, regularly clean the surface of the solar panel with clear water to remove dirt or marks. Do not use chemicals or abrasives, including chlorobenzene.
- Only the manufacturer, authorized service agent, or qualified personnel should replace the light source or other circuit components of the product. Unauthorized replacement with third-party components is prohibited, as it may cause serious damage to the product. If the user disassembles the product without authorization, the warranty will be voided.
- For component or accessory replacements, please visit www.leadsglobal.com or contact your local distributor.



Product Recycling

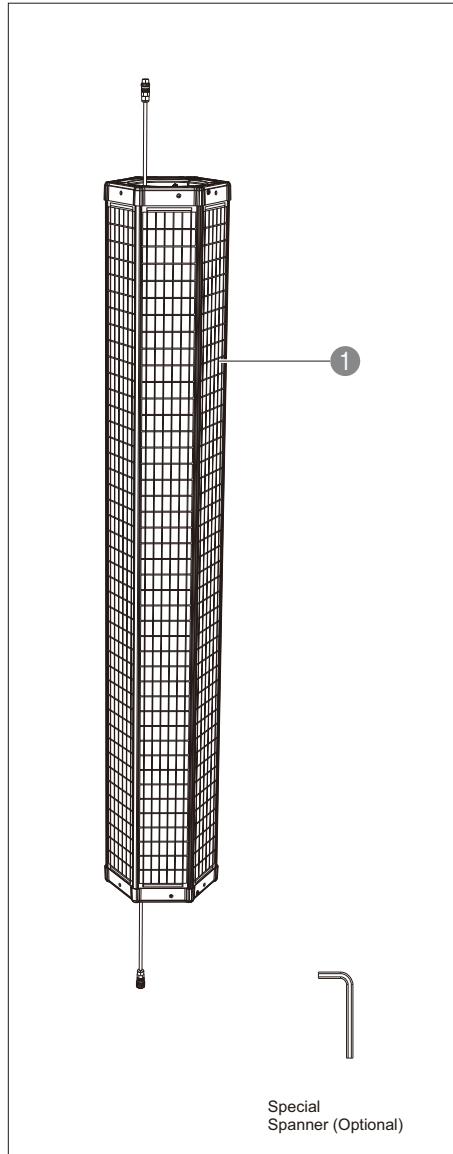
- This product is made from recyclable high-performance materials and components. Please do not dispose of it with household waste.
- Be sure to follow local regulations regarding the separate collection of electronic and electrical products, and dispose of waste properly to avoid potential negative impacts on the environment and human health.

Part Description

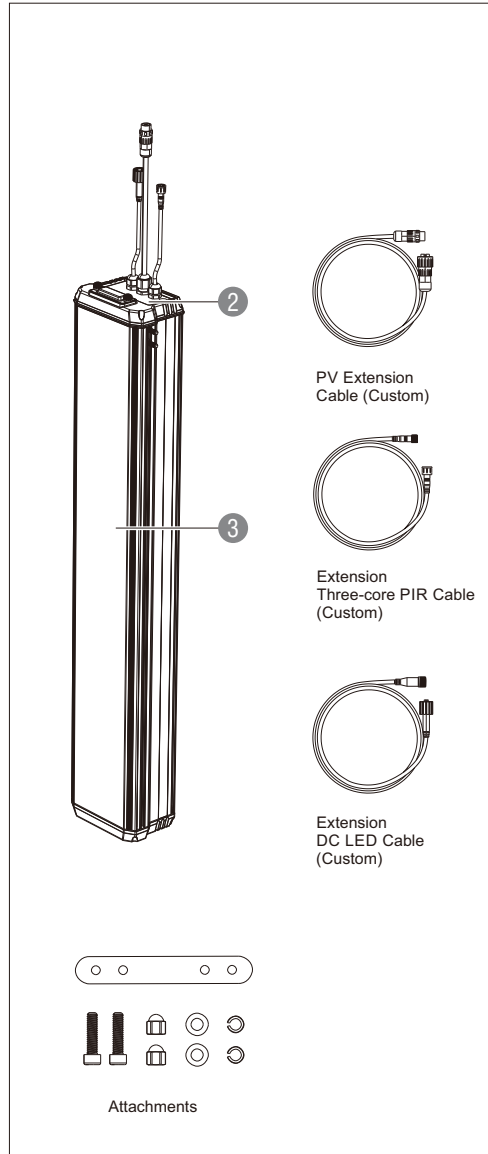


Check if you have all the components listed below before installation, the components and quantity of each set are as follows:

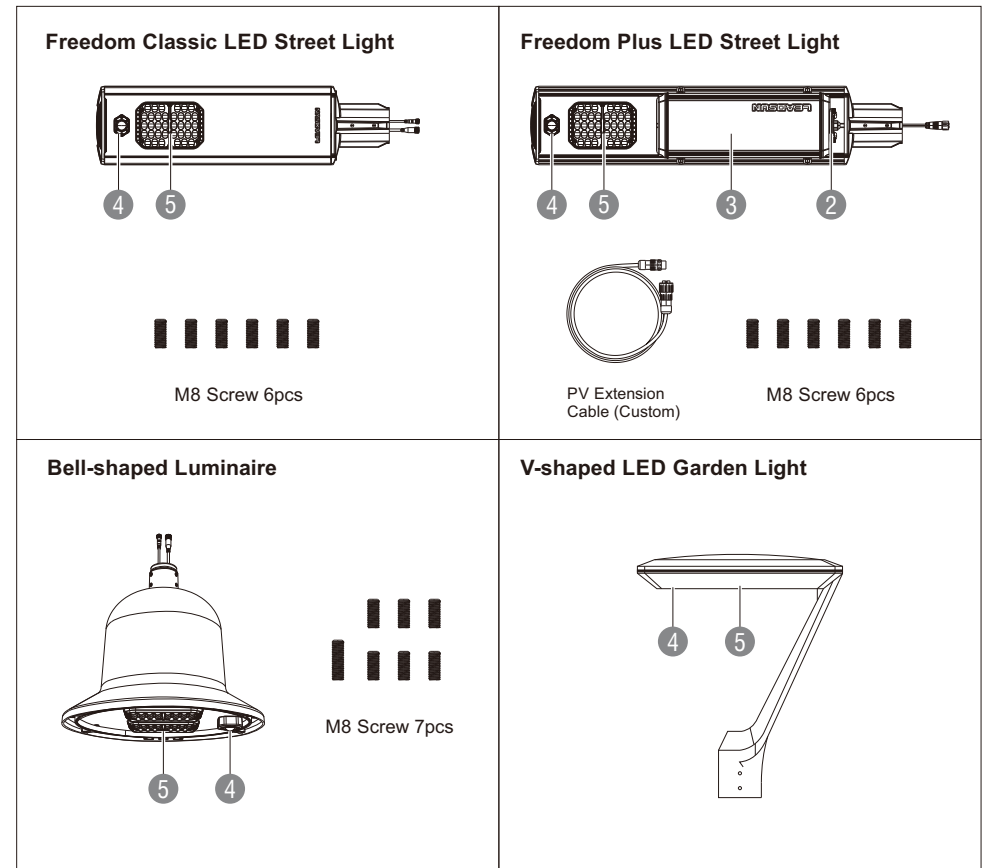
Solar Panel Components:



MPPT Controller with Battery:



Luminaire (Optional):



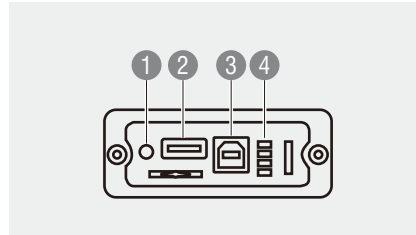
This list outlines the functions of each component in the product. Users can refer to it to find the corresponding function for the components of the product they have purchased.

No.	Parts	Functions
1	Solar panel	To absorb and convert solar energy into electricity.
2	MPPT controller	To control charging and discharging, operating modes, and to provide system protections.
3	Battery box	To store the built-in batteries.
4	Motion sensor	To detect human movement and control lighting intensity.
5	LED lamp	Lighting.

Product Activation

* **During the day:** When the LED luminaire is connected to the solar engine, the LED module will light up for 20 seconds and then turn off. This indicates that the solar street light has been automatically activated.

At night: Press and hold the controller switch button for 5 seconds, and the LED module will turn on, indicating that the solar street light has been manually activated. Afterward, a short press of the button will toggle the light between ON and OFF.



1 Switch Button of Solar Light

To turn ON/OFF the light or switch the light to a different mode.

* ON Mode:

The lighting system operates normally, charging during the day and discharging at night.

* Transport (idle) Mode:

The solar street light will power off after one hour and remain in OFF mode. This mode is used for transportation, storage, or maintenance purposes until the light is re-activated.

* OFF Mode:

The lighting system will not operate, charge, or discharge.

* Power ON:

a. During the Day:

The solar street light is automatically activated and powered on when it is removed from the carton (for all-in-one type) or when the LED luminaire is connected to the solar engine (for split type). You will see the LED module light up for 20 seconds and then turn off.

b. At Night:

To manually activate the solar street light, press and hold the controller switch button for 5 seconds with the solar engine connected to the LED luminaire. You will see the LED module turn on.

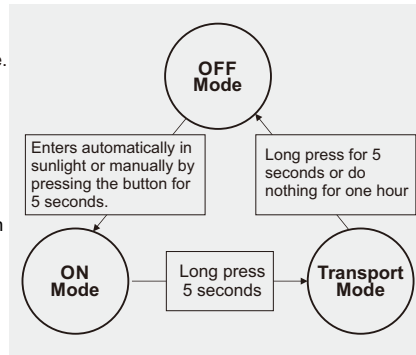
* Power OFF:

Press and hold the controller switch button for 5 seconds while the light is in ON Mode. The light will flash for 3 seconds and then turn off, entering Transport Mode.

To fully power off the solar street light, press and hold the button for 5 seconds again, or leave it inactive for one hour. The light will flash for 1 second and then turn off.

* Switch ON/OFF the Light:

Once the solar street light is powered on and activated, short press the controller switch button to toggle the light between ON and OFF.



2 Type A USB Port of Controller

For battery charging via 14VDC 1.5A power supply.

3 Type B USB Port of Controller

For program input.

4 Function Indicator Lights

No.	Indicator light Status	Meaning
1	Blue light slowly flashing, red light instantly flashing.	Battery cannot get recharged.
2	Blue light constantly on, red light instantly flashing.	Battery cannot get discharged.
3	Blue light instantly flashing, red light off.	Battery over-discharged.
4	Blue light constantly on, red light quickly flashing.	DCOUT short-circuited.
5	Blue light slowly flashing, red light quickly flashing.	LED light short-circuited.
6	Blue light constantly on, red light constantly on.	LED light has no power supply.
7	Blue light instantly flashing, red light constantly on.	No voltage increase to the led light.
8	Blue light quickly flashing, red light constantly on.	LED light open-circuited.
9	Blue light slowly flashing, red light constantly on.	Abnormal Voltage of LED light.
10	Blue light constantly on, red light off.	Normal discharging
11	Blue light off, red light off, green lights off.	No indication
12	Both green lights 1 and 2 slowly flashing.	Battery recharging
13	Both green lights 1 and 2 constantly on.	Battery fully recharged.
14	Both green lights 1 and 2 quickly flashing.	Charging exceeds protection current.
15	Both green lights 1 and 2 quickly flashing, red light quickly flashing.	Charging exceeds inhibit current (short circuit)

⚠ Remarks:

1. Annotations:

- **Slowly flashing:** The indicator light turns on for 640ms, then turns off for 640ms, and this cycle repeats (on for 640ms, off for 640ms, etc.).
- **Instantly flashing:** The indicator light turns on for 80ms, then turns off for 1.2s, and this cycle repeats (on for 80ms, off for 1.2s, etc.).
- **Quickly flashing:** The indicator light turns on for 80ms, then turns off for 80ms, and this cycle repeats (on for 80ms, off for 80ms, etc.).

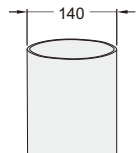
2. In case you have any difficulty determining the indicator lights' status, please record a short video of the indicator lights in operation and send it to Leadsun team for further analysis.

1 Before Installation

Lamp Pole Installation Requirements

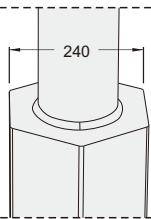
Customize the dimensions and hole positions of the lamp pole according to picture 1.

VertHex solar panel will fit into the light pole from the top. It is recommended to use a pole with a diameter of 140mm, as shown in the picture.



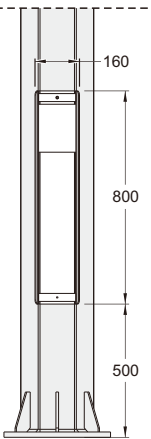
A spare opening for connecting the luminaire with battery.

It is suitable to use a hexagonal lamp pole with side space of 240mm, as shown in the picture.



Opening hole for cable threading

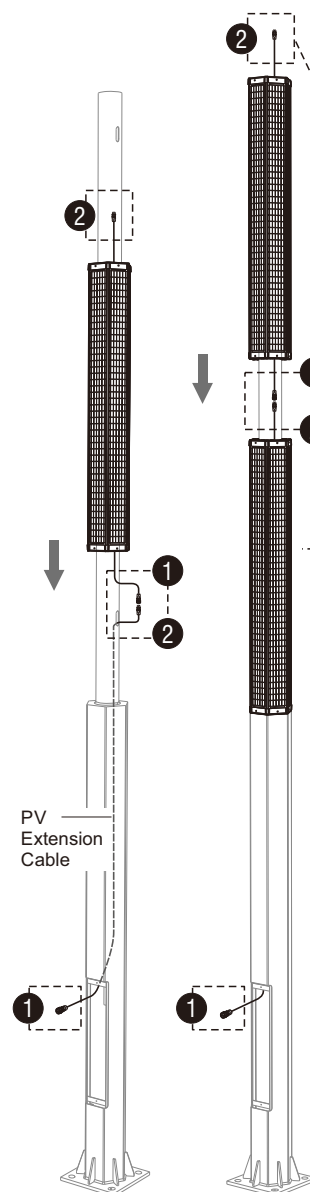
Open a door at the bottom of the pole to install batteries. The recommended size of the door is 800*160mm, which can fit a battery of maximum 1230Wh, as shown in the picture.



Picture 1

2 Solar Panel Installation

Method 1



Picture 2-1

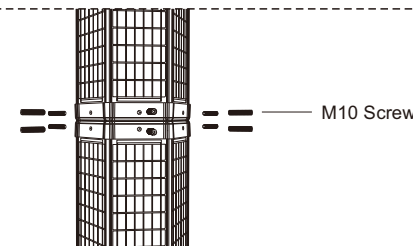
Picture 2-2

1. Installation of the first solar panel. Firstly, use the PV extension cable to pass through the cable threading hole of the light pole to the door at the bottom. Then connect the M16 male connector of the extension cable to the M16 female connector of the solar panel. As shown in Picture 2-1.

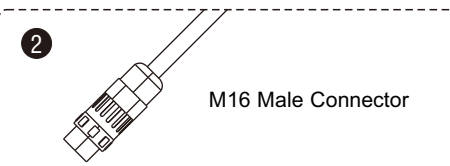
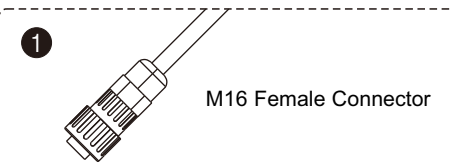
2. Installation of the second solar panel. Please connect the M16 male connector of the first solar panel to the M16 female connector of the second solar panel. If there are more than 2 solar panels (e.g. 3, 4, 5, 6 pcs), please keep the connection of each two solar panels in the same way. As shown in Picture 2-2.

NOTES:

- a. Do Not Connect the M16 male connector of the last solar panel. Just leave that M16 male connector there and cover it with a waterproof cap.
- b. Do Not Connect the M16 male and female connector of the same solar panel.



3. Use a spanner to tighten the 12 M10 screws at the top and bottom of the solar panels. Set the wrench torque to 2 N·m.



2 Solar Panel Installation

Method 2

1. After unboxing the vertical solar panel, loosen the 4 M6 screws and disconnect the M16 connectors to separate the solar panel into a large panel and a small panel, as shown in Picture 3-1.

Note: The solar panel is fragile. Handle it with care during disassembly by placing it on the ground horizontally and lightly. Don't touch it by any other hard objects or drop it to prevent breakage. Leadsun shall not be held liable for any damages incurred during the installation process.

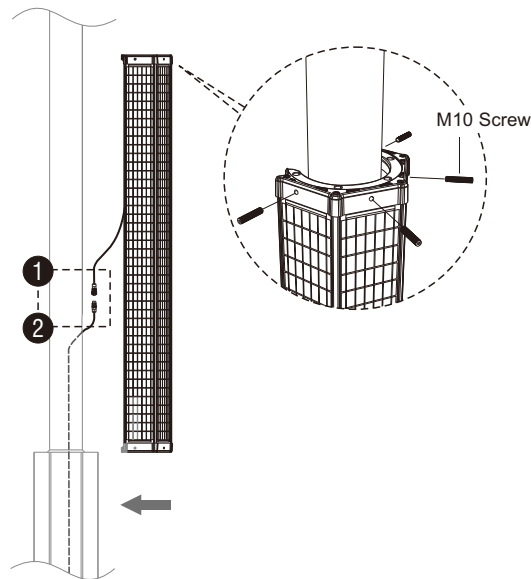
2. Installation of the first solar panel, as shown in Picture 3-2.

Step 1: Firstly, use the PV extension cable to pass through the cable threading hole of the pole to the door at the bottom. Then connect the M16 male connector of the extension cable to the M16 female connector of the large solar panel.

Step 2: Pre-fix the large solar panel to the pole with the 8 M10 screws. Set the wrench torque to 1 N·m.

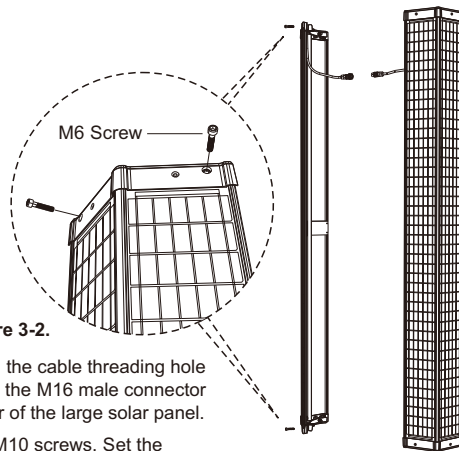
Step 3: Connect the M16 male connector of the large solar panel to the M16 female connector of the small solar panel. Fix the panels by tightening all M6 and M10 screws. Set the wrench torque to 2 N·m.

3. If there are more than 2 solar panels (e.g. 3, 4, 5, 6 pcs), please connect the M16 male connector of the previous solar panel to the M16 female connector of the next solar panel. For subsequent steps, please refer to Installation Method 1, and Steps 2 and 3 of Installation Method 2.

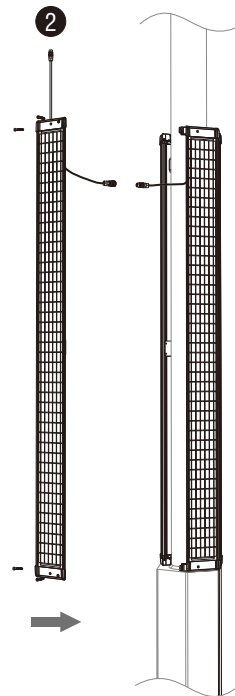


Step 1/2

Picture 3-2



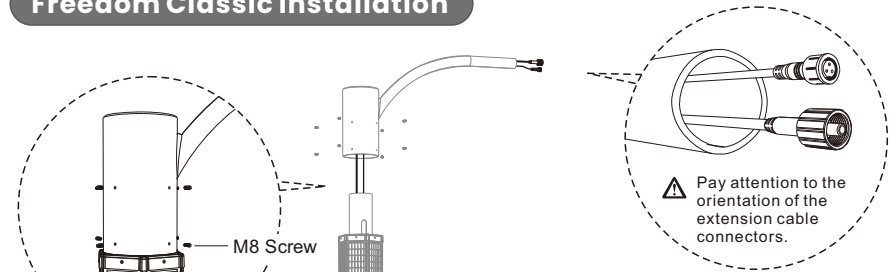
Picture 3-1



Step 3

3 Luminaire Installation

Freedom Classic Installation

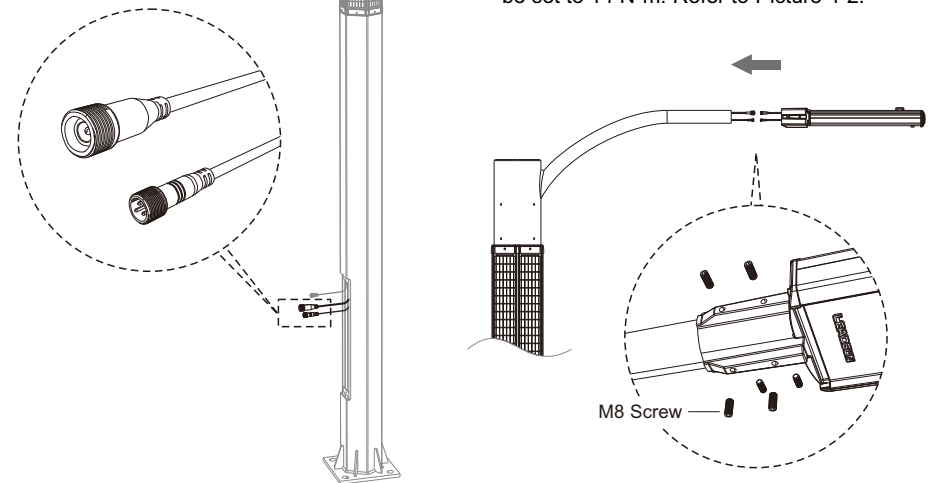


1. Cantilever installation:

Thread the LED and PIR extension cables through the cantilever, then enter from the top of the pole and extend out from the door at the bottom. Place the cantilever over the pole and tighten the screws, as shown in Picture 4-1.

2. Luminaire installation:

Connect the PIR and LED cables of the luminaire to the extension cables from the cantilever and secure the connectors. Insert the luminaire bracket into the cantilever and fasten it using 6 M8 screws. Ensure that the luminaire is securely installed on the pole. If using an electric wrench, the torque should be set to 14 N·m. Refer to Picture 4-2.

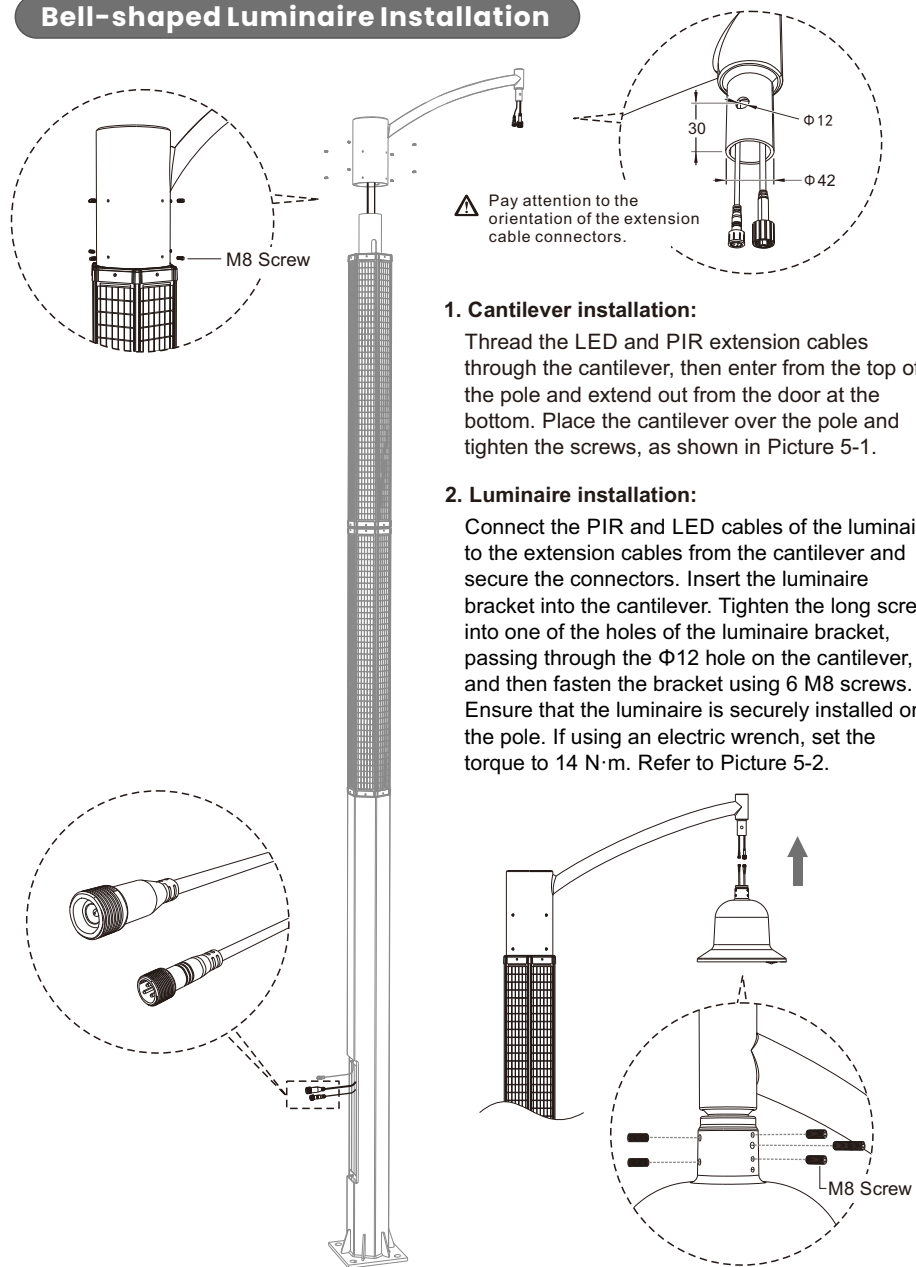


Picture 4-1

Picture 4-2

3 Luminaire Installation

Bell-shaped Luminaire Installation



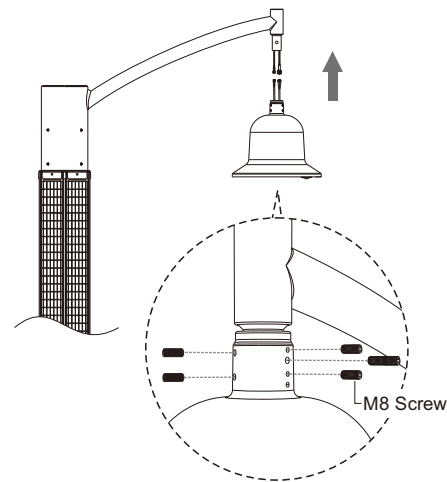
Picture 5-1

1. Cantilever installation:

Thread the LED and PIR extension cables through the cantilever, then enter from the top of the pole and extend out from the door at the bottom. Place the cantilever over the pole and tighten the screws, as shown in Picture 5-1.

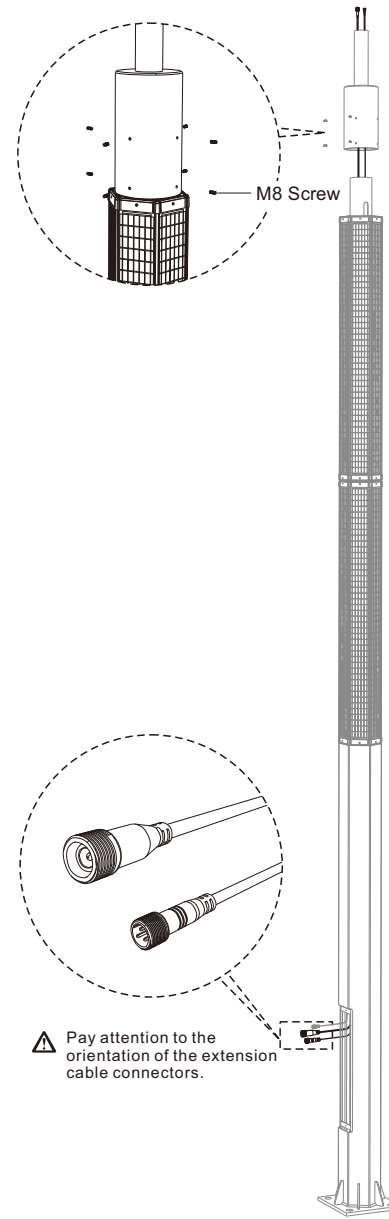
2. Luminaire installation:

Connect the PIR and LED cables of the luminaire to the extension cables from the cantilever and secure the connectors. Insert the luminaire bracket into the cantilever. Tighten the long screw into one of the holes of the luminaire bracket, passing through the $\Phi 12$ hole on the cantilever, and then fasten the bracket using 6 M8 screws. Ensure that the luminaire is securely installed on the pole. If using an electric wrench, set the torque to 14 N·m. Refer to Picture 5-2.



Picture 5-2

V-shaped LED Garden Light Installation



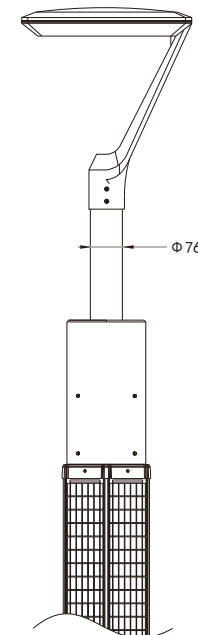
Picture 6-1

1. Cantilever installation:

Thread the LED and PIR extension cables through the cantilever, then enter from the top of the pole and extend out from the door at the bottom. Place the cantilever over the pole and tighten the screws, as shown in Picture 6-1.

2. Luminaire installation:

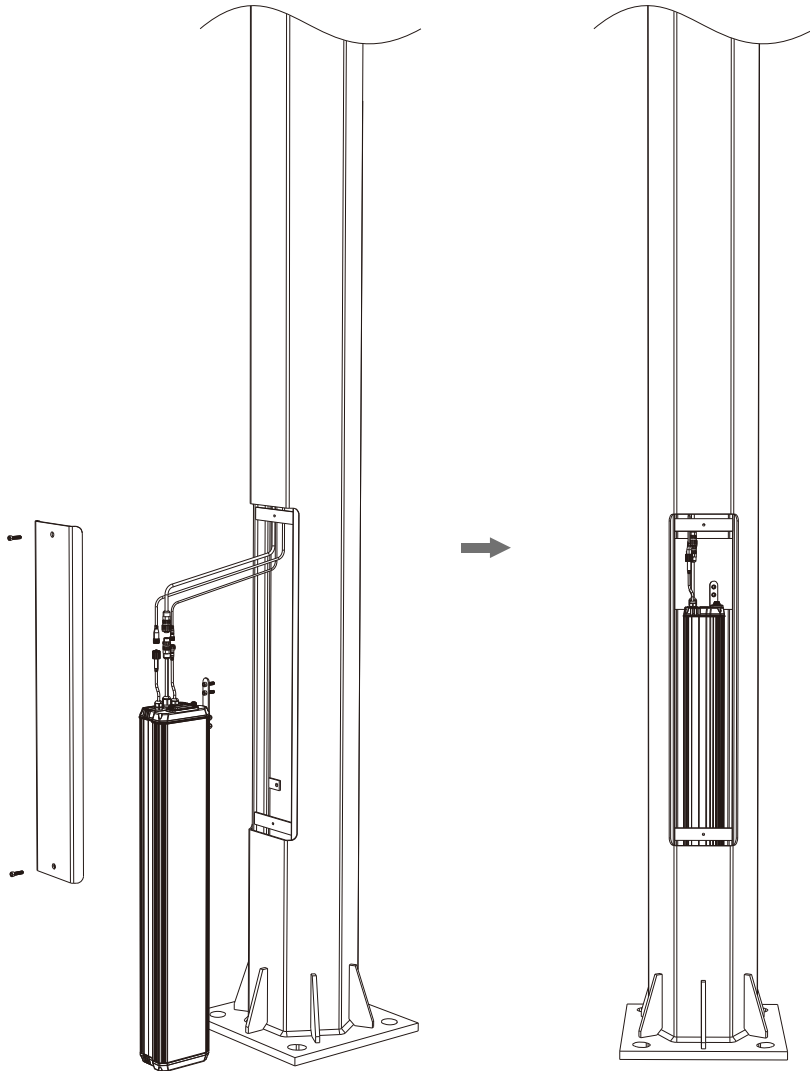
Connect the PIR and LED cables of the luminaire to the extension cables from the cantilever and secure the connectors. Insert the luminaire bracket into the cantilever and fasten it using screws. Ensure that the luminaire is securely installed on the pole. If using an electric wrench, the torque should be set to 14 N·m. Refer to Picture 6-2.



Picture 6-2

4 Battery Installation

1. Open the door at the bottom of the lamp pole, and connect the PV cable, LED cable, and PIR cable respectively, as shown in Picture 7-1. Once all cables are properly connected, in the day the product will activate automatically.
2. Use screws to secure the battery box inside the lamp pole and lock the door, as shown in Picture 7-2.



Picture 7-1

Picture 7-2

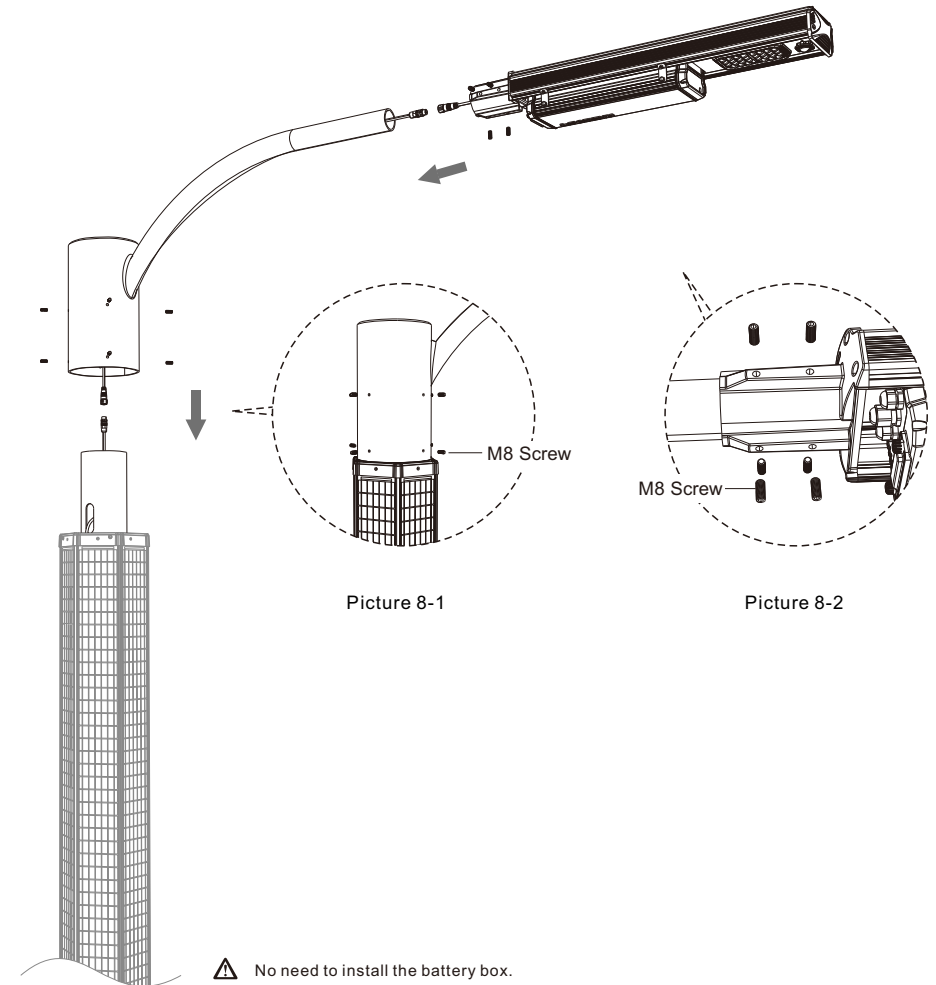
5 Freedom Plus Installation

1. Cantilever installation:

Thread the PV extension cable through the cantilever, then connect it to the PV cable of the solar panel. Place the cantilever over the pole and tighten the screws, as shown in Picture 8-1.

2. Luminaire installation:

Connect the PV cable of the luminaire to the extension cable from the cantilever and secure the connector. Insert the luminaire bracket into the cantilever and fasten it using 6 M8 screws. Ensure that the luminaire is securely installed on the pole. If using an electric wrench, the torque should be set to 14 N·m. Refer to Picture 8-2.



Picture 8-1

Picture 8-2

⚠ No need to install the battery box.