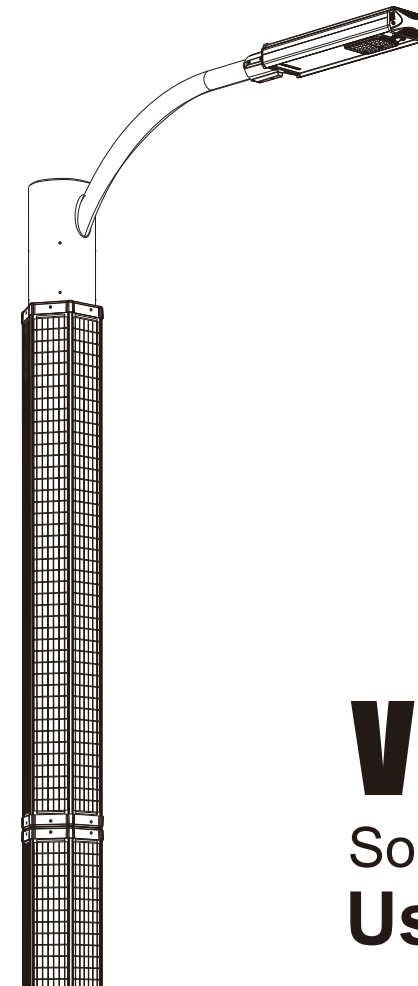


Troubleshooting

No.	Symptoms	Troubleshooting steps	Process
1	No light at night	Check that the lamp can be manually activated.	Refer to "Activation and Installation" section on this user guide and run activation tests.
		Check if the solar panel is blocked from the sunlight by houses, trees and other obstacles.	Clear obstructions or change installation location.
		Check if there is any artificial light source(s) shining on the solar panel during the night.	Remove the artificial light source(s) of interference or change the installation location.
		Examine status of each component based on the repair guide.	Replace the damaged component(s).
2	A serious shortage of working time	Check if the solar panel is blocked from the sunlight by houses, trees and other obstacles.	Clear obstructions or change installation location.
		Check if the surface of the solar panel is dusty or covered.	Clean the surface of solar panels as detailed above.
		Examine if the battery pack is damaged as per the repair guide instructions.	Replace damaged battery.
3	Lighting does not follow the normal operating mode of turning on and off		Reprogram.
4	Lights fail to turn on properly when humans approach	Check if the air temperature close to human body temperature.	When the air temperature is close to human temperature, motion detection may slow down. It will return to normal after the air temperature changes.
		Check if the installation height is too high.	It is out of motion detection range when installation height exceeds 8m. It is recommended to reduce the height or use other operating modes.
			Replace damaged motion sensor or controllers.

LEADSUN®

"Bright Ideas For An Even Brighter Future."



VERTHEx

Solar Street Light User Manual

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Thank you for choosing LEADSUN's solar street light.

If you have any question, please consult our customer services
sales@leadsunglobal.com

LEADSUN reserves the right to update product appearance, function and construction without notice.



Precaution

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

Operation Conditions & Limits

- This product is rated as IP66 protection grade.
- The operating temperature range is from -20°C to 60°C and the charging temperature limit is within 0°C to 51°C.
- The heavy-duty structure will survive up to a Category 12 typhoon or cyclone. (Storms above Category 12 may cause damages to the product).

Transportation & Storage

- This product contains lithium batteries. Please follow air transport regulations when shipping. It should be regarded as potentially flammable and explosive, and be isolated from other goods when stored, so as to avoid any damage.
- The solar panels of this product should be considered as fragile. There should never be more than 4 layers of boxes when stacked. To avoid damage to the panels, make sure no heavy pressure is applied to the boxes.
- Please store the product in temperature between 0°C to 45°C.
- If stored for a long period, the product should be recharged every 3 months. Please only use the special charger (purchased from manufacturer) to avoid damage to the battery or device. The charging method is: first fully charge the battery power, then discharge the battery power, and finally charge to 50% power.

Product Recycling

- This product is made from recyclable, high-performance materials. All materials are compliant to the ROHS standard. Do not dispose of this product with other household waste.
- Please check your local regulations on collection and disposal of electronic items. Proper disposal of used product helps prevent negative impacts on the environment.

Product Maintenance

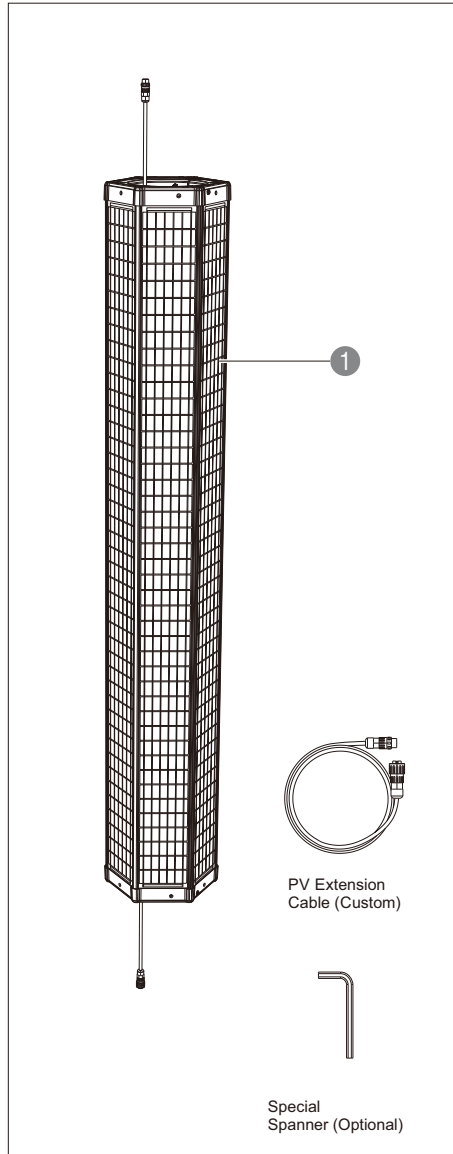
- To ensure effective solar radiation absorbing, clean the surface of the solar panels regularly with water and a soft cloth. Don't use highly soluble chemicals or abrasives containing aminobenzene.
- This solar street light operates on a low DC voltage. Unless it's customized, do not connect any components or ports to any AC power supply or higher rated DC voltage system.
- The light sources contained in these luminaries shall only be replaced by the manufacturer or his service agent or any equivalently qualified persons.
- Using any third party components to replace the original ones without authorization is forbidden. The product will lose warranty if the users disassemble the products without the manufacturer's prior authorization.
- To order replacement parts or to have them fitted, please visit www.leadsunglobal.com or contact your local distributor.

Part Description

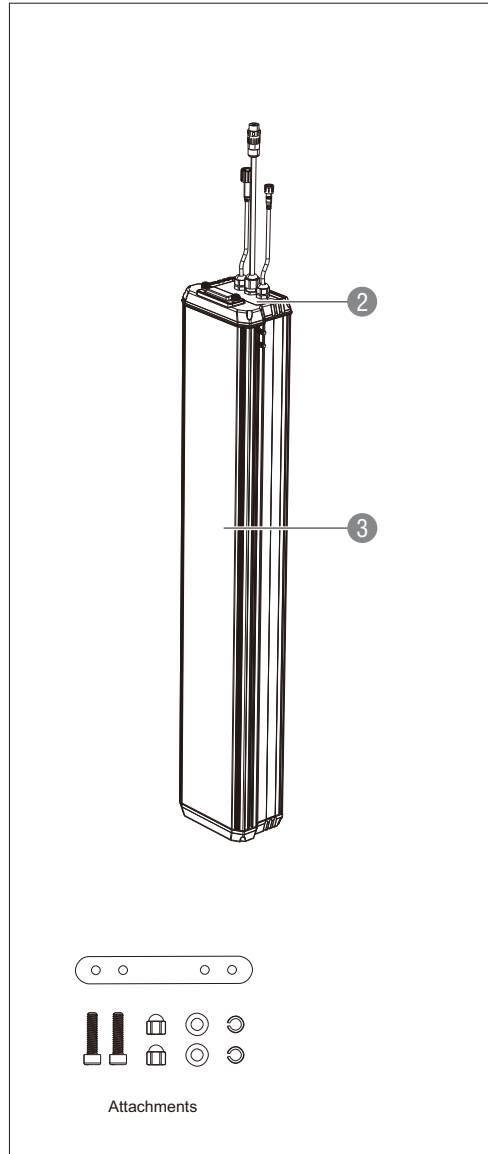


Check if you have all the components listed below before installation, the components and quantity of each set as follows:

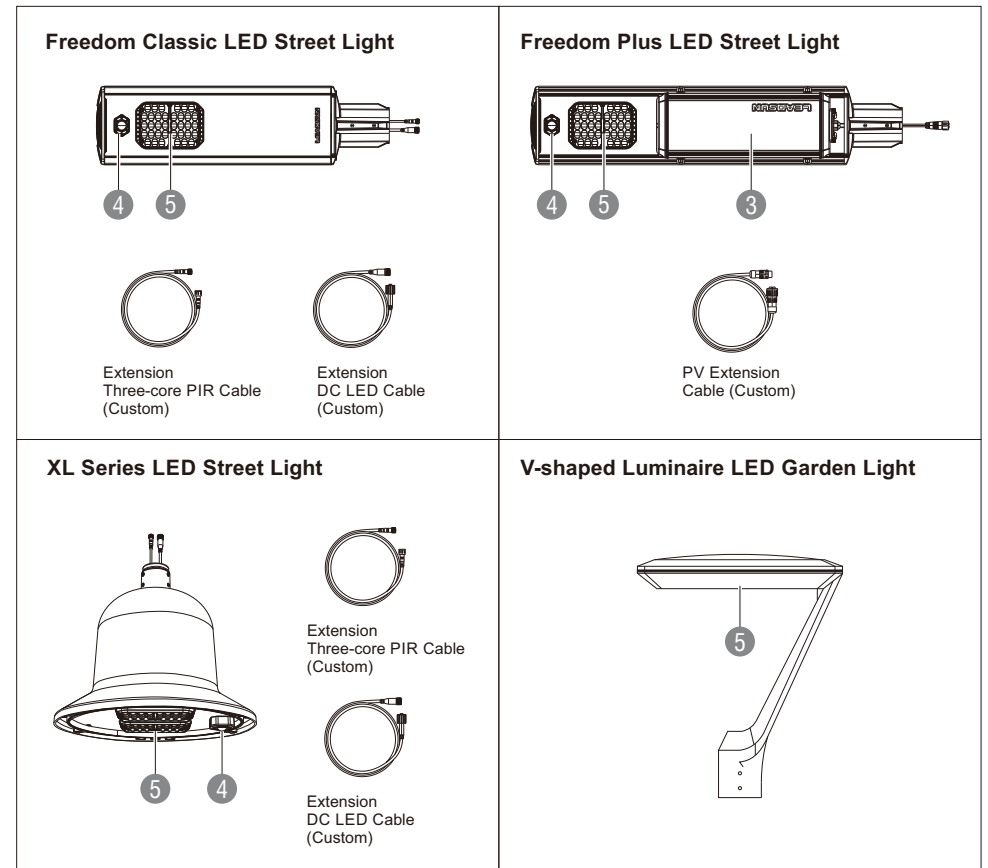
Solar Engine:



MPPT Controller with Battery:



Luminaire (Optional):



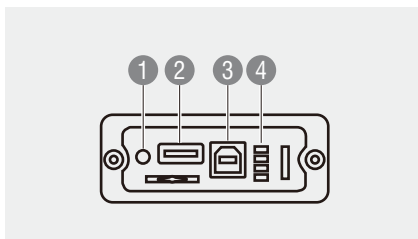
The Part list is the whole product series functions instruction. The user can look up the corresponding function according to the purchased product.

No.	Parts	Functions
1	Solar Engine	Absorbs and converts solar energy into electricity.
2	MPPT Controller	Charging and discharging control.
3	Control Unit	Built-in batteries.
4	Motion Sensor	Detects human movement and control lighting intensity.
5	LED Lamp	Lighting.

Product Activation

* **In the daytime:** When connecting the LED street light to the solar engine, the street light lights up for 20 seconds, and then turns off. It means the solar street light has been activated automatically.

* **At night:** Press the ON/OFF button for 5 seconds, and then the LED street light switches on. It means the solar street light has been activated manually. Then, If you short press the button, the light will switch between ON and OFF.



1 Switch Button of Solar Light

* ON Mode:

The system will work normally, charging in the daytime and discharging at night.

* Transport (idle) Mode:

The solar street light will power off in one hour and then stay in the OFF mode, for transportation, storage, or maintenance purpose, until it's re-activated.

* OFF Mode:

The system will not work, charge or discharge.

* Power ON:

a. In the daytime:

The solar street lights gets activated and powered on automatically (i.e. to light up for 20s and then switch off), once it is taken out of the carton (for the all in one type), or when the LED street light is connected to the solar engine (for the split type).

b. At Night:

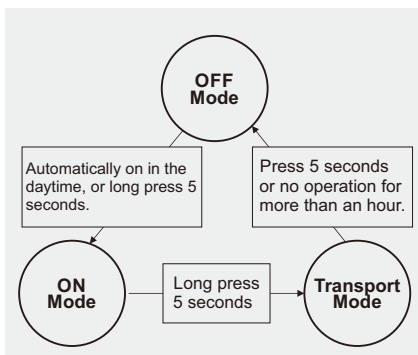
Long press the ON/OFF button for 5 seconds to get the solar street light activated manually (i.e. to switch on), with the solar engine connected to the led light.

* Power OFF:

Press the ON/OFF button for 5 seconds when the light is On, to see the light flashes for 3s and then switches off to come into Transport Mode; Then press the button for 5s again, or have no operation for one hour, to have the light flash for 1 second and switch off to get the solar street light power off.

* Switch ON/OFF the Light:

When the solar street light is activated and powered on, short press the ON/OFF button, and then the light will switch between on and off.



4 Indicating Descriptions

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

⚠ Remarks:

1. Annotations:

Slowly flashing: The indicator lamp turns on, and then turns off in 640ms, then turns on again in another 640ms, then turns off again in another 640ms,

Instantly flashing: The indicator lamp turns on, and then turns off in 80ms, then turns on again in another 1.2s, then turns off again in another 80ms, then turns on again in another 1.2s,

Quickly flashing: The indicator lamp turns on, and then turns off in 80ms, then turns on again in another 80ms, then turns off again in another 80ms,

2. In case you have any difficulty to determine the indicator lamps' working status, please just take a short video of the indicator lamps' working and send it to our factory for further analysis.

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.

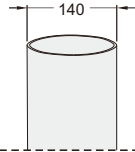
1 Before Installation

Lamp Pole Installation Requirements

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

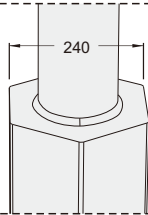
(For freedom classic street light and freedom plus street light installation)

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.



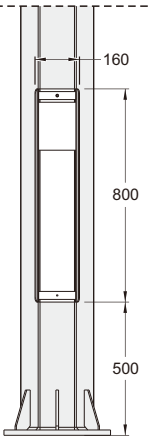
A spare opening for connecting the luminaire with battery.

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



Opening hole for cable threading

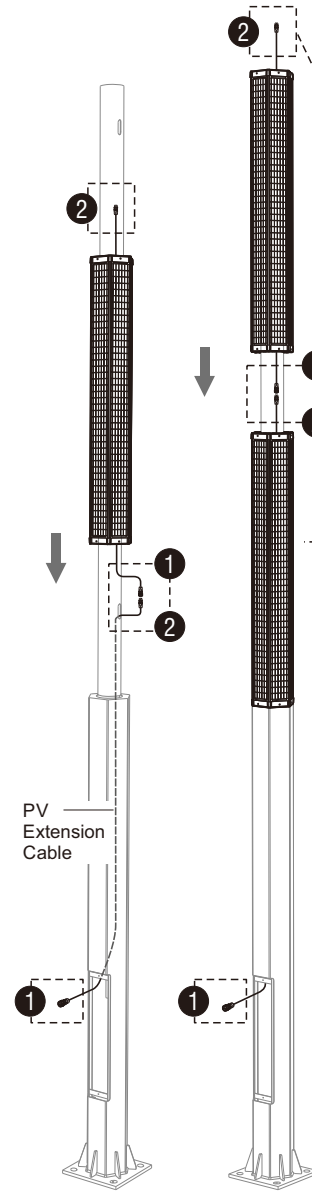
Open a door at the bottom of the pole to install batteries. The recommended size of the door is 800*160mm, which can fit a battery of maximum 1230Wh, as shown in the picture.



Picture 1

2 Solar Panel Installation

Method 1



Picture 2-1

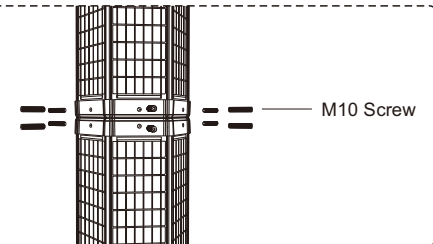
Picture 2-2

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.

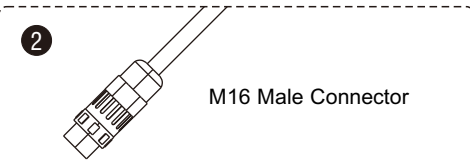
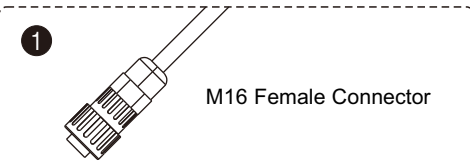
2. Installation of the second solar panel. Please connect the M16 male connector of the first solar panel to the M16 female connector of the second solar panel. If there are more than 2 solar panels (e.g. 3, 4, 5, 6 pcs), please keep the connection of each two solar panels in the same way. As shown in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



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. Our company shall not be held liable for any damages incurred during the installation process.

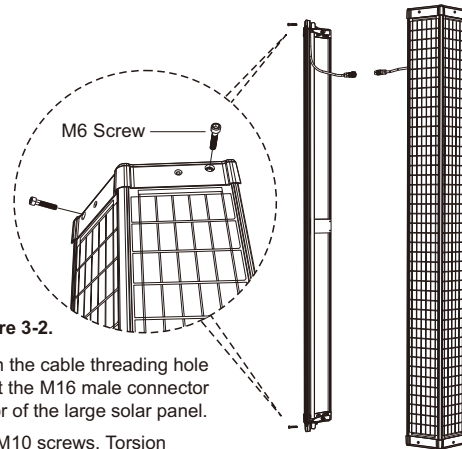
2. Installation of the first solar panel, as shown in Picture 3-2.

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.

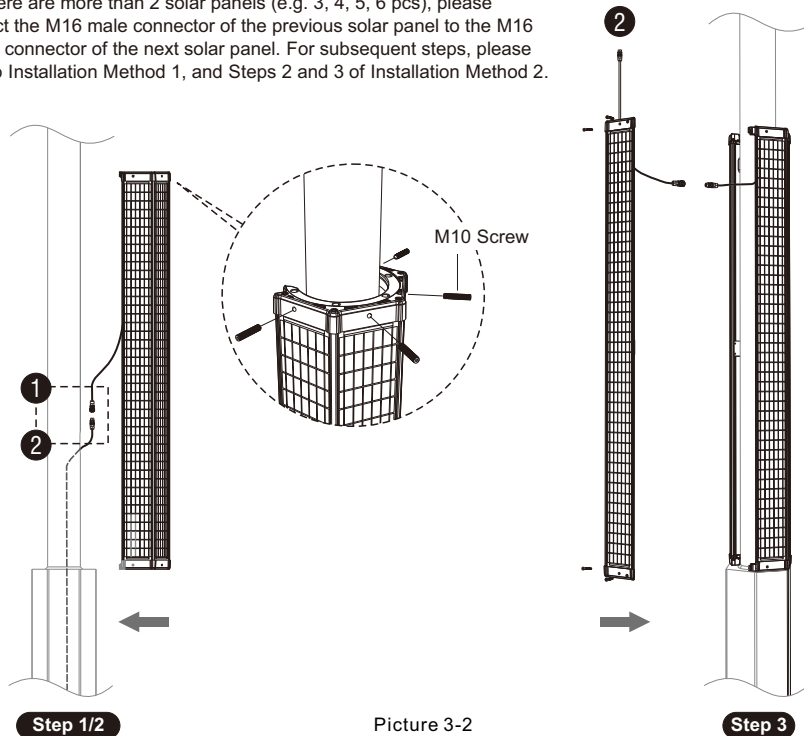
Step 2: Pre-fix the large solar panel to the pole with the 8 M10 screws. Torsion should be set to 1Nm.

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. Torsion should be set to 2Nm.

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.



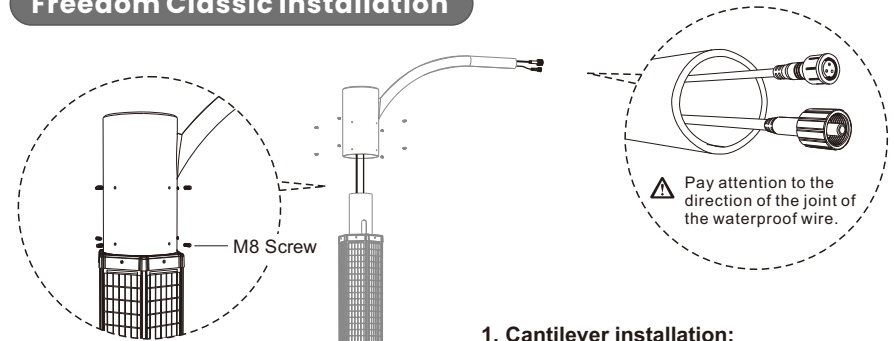
Picture 3-1



Picture 3-2

3 Street Light Installation

Freedom Classic Installation

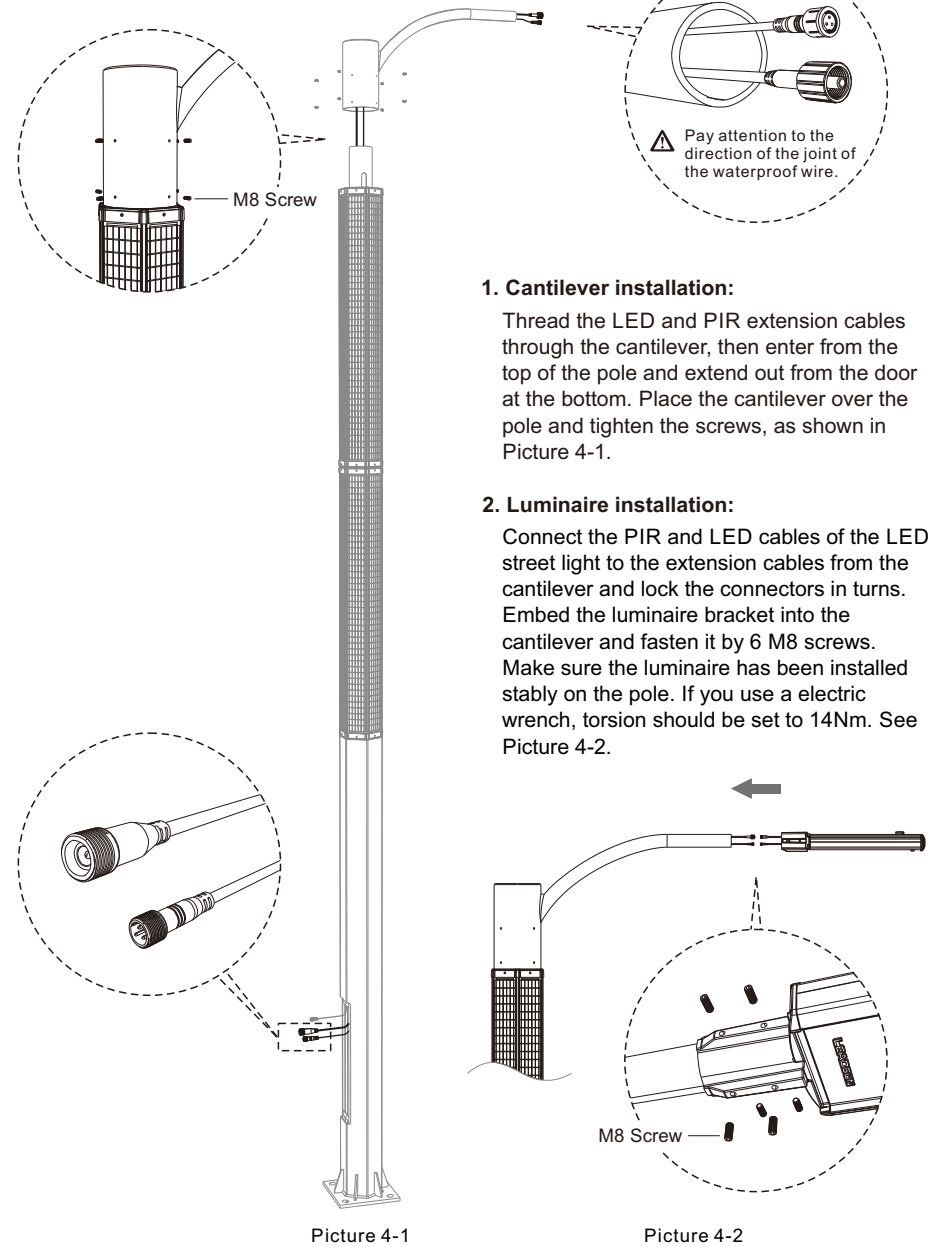


1. Cantilever installation:

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 LED street light to the extension cables from the cantilever and lock the connectors in turns. Embed the luminaire bracket into the cantilever and fasten it by 6 M8 screws. Make sure the luminaire has been installed stably on the pole. If you use a electric wrench, torsion should be set to 14Nm. See Picture 4-2.

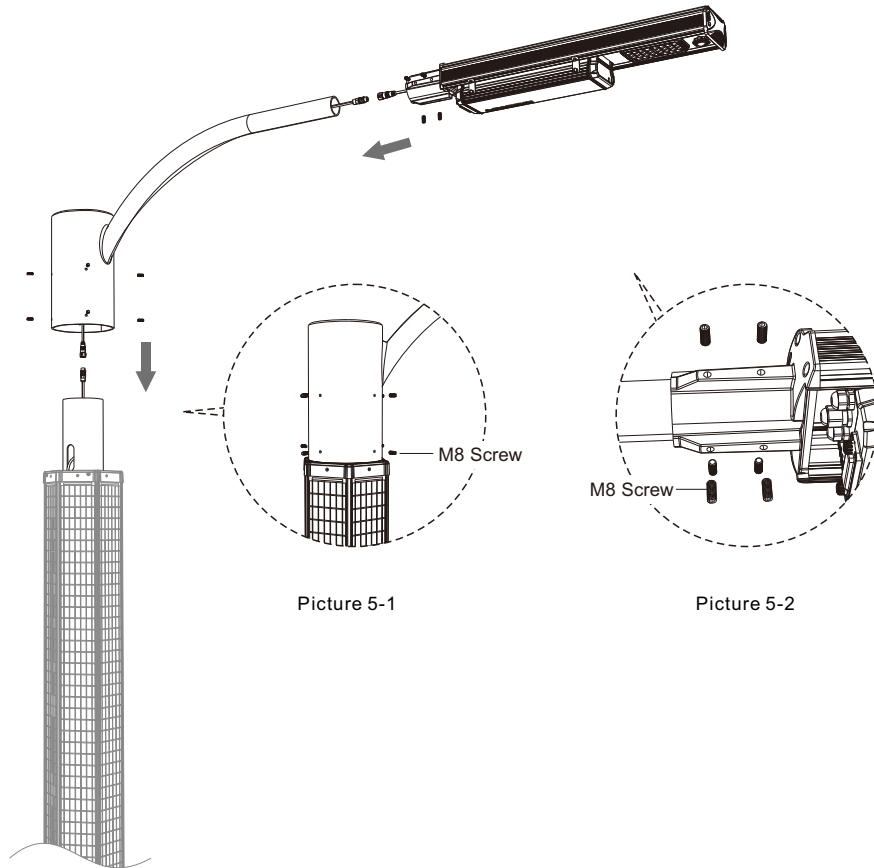


Picture 4-1

Picture 4-2

3 Street Light Installation

Freedom Plus Installation



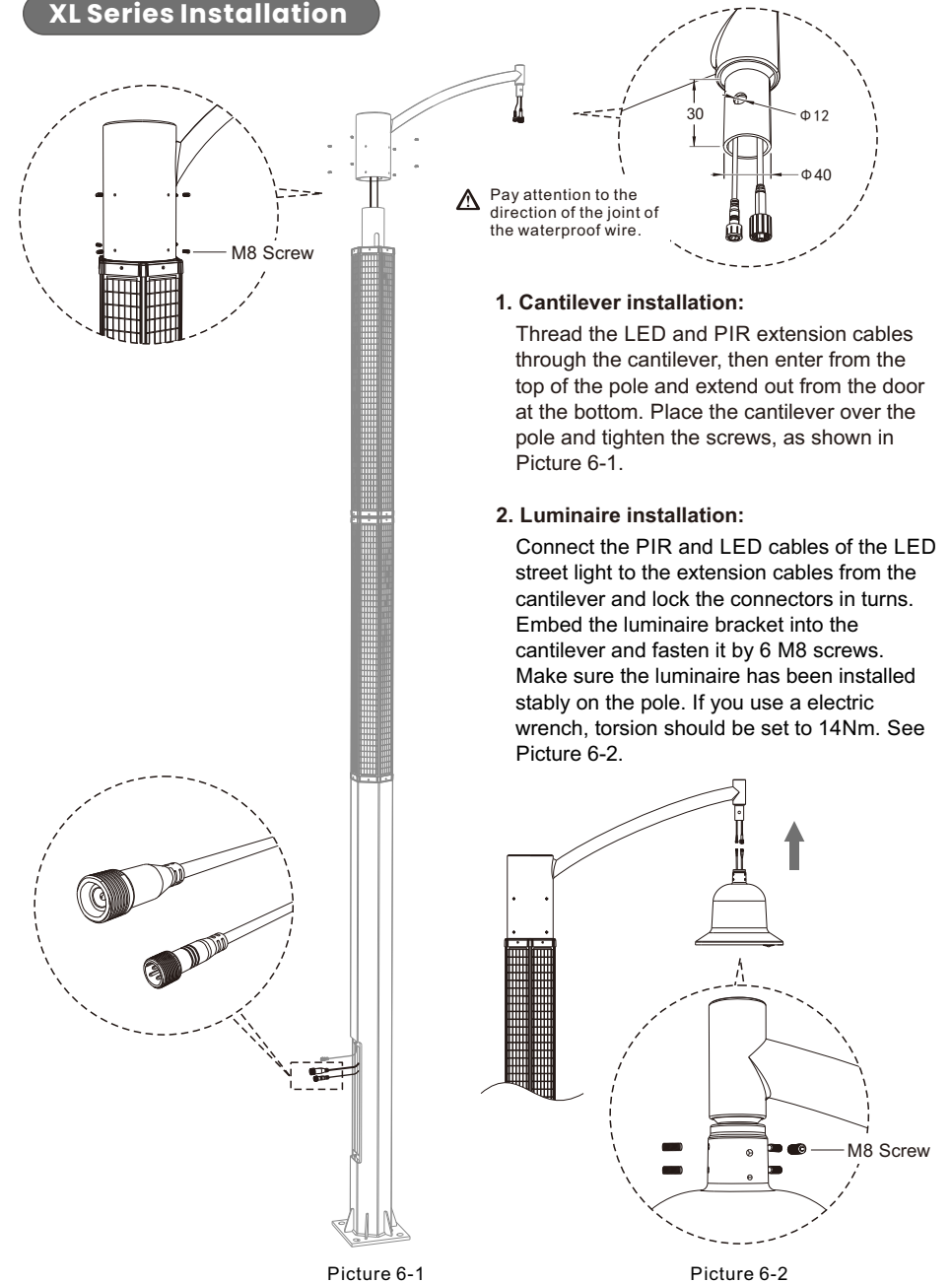
1. Cantilever installation:

Thread the M16 extension wire 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 cable of FREEDOM Plus LED street light to the extension cable and insert the luminaire bracket into the cantilever. Secure the light to the cantilever by tightening the 6 M8 screws. (If using an electric wrench, the torque should be set to 14N·m). See Picture 5-2.

XL Series Installation



1. Cantilever installation:

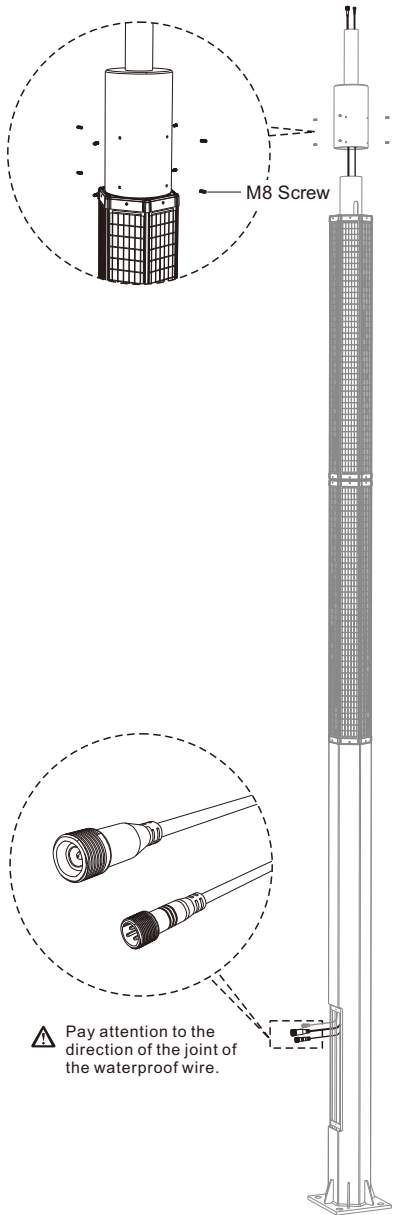
Thread the LED and PIR extension cables through the cantilever, then enter from the top of the pole and extend out from the door at the bottom. Place the cantilever over the pole and tighten the screws, as shown in Picture 6-1.

2. Luminaire installation:

Connect the PIR and LED cables of the LED street light to the extension cables from the cantilever and lock the connectors in turns. Embed the luminaire bracket into the cantilever and fasten it by 6 M8 screws. Make sure the luminaire has been installed stably on the pole. If you use an electric wrench, torsion should be set to 14Nm. See Picture 6-2.

3 Street Light Installation

V-shaped Luminaire LED Garden Light Installation



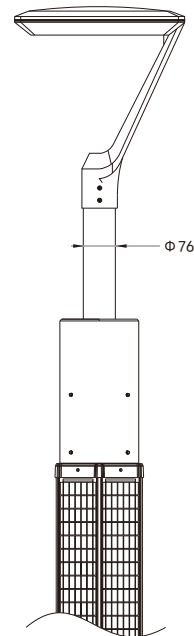
Picture 7-1

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 7-1.

2. Luminaire installation:

Connect the PIR and LED cables of the LED street light to the extension cables from the cantilever and lock the connectors in turns. Embed the luminaire bracket into the cantilever and fasten it by 6 M8 screws. Make sure the luminaire has been installed stably on the pole. If you use an electric wrench, torsion should be set to 14Nm. See Picture 7-2.



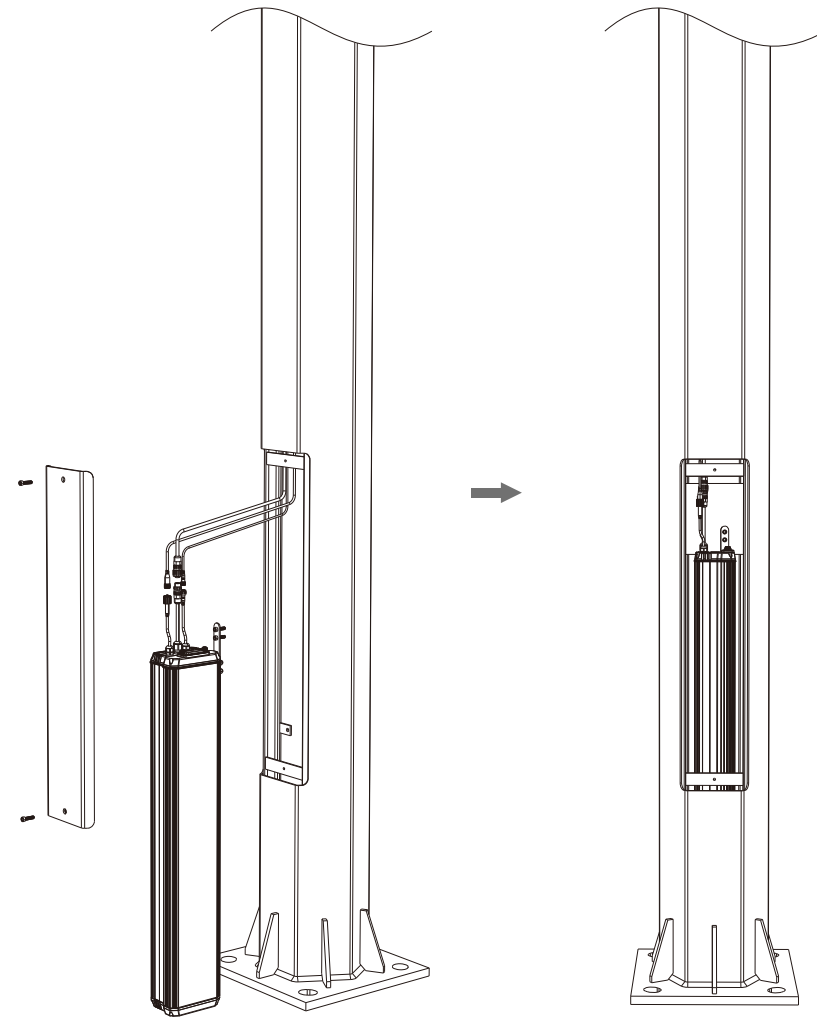
Picture 7-2

4 Solar Panel Installation Method 2

Battery Installation

1. Open the door at the bottom of the lamp pole, and connect the PV cable, LED cable, and PIR cable respectively. Once all cables are properly connected, in the day the product will activate automatically, as shown in Picture 8-1.

2. Use screws to fix the battery inside the lamp pole and lock the door. As shown in Picture 8-2.



Picture 8-1

Picture 8-2