AE3C

Solar Street Light

User Manual

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LEADSUN®

"Bright Ideas For An Even Brighter Future."

AE3C

Solar Street Light

User Manual

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.

For any discrepancies in illustration or description, please refer to individual/real objects.

LEADSUN assures the accuracy and reliability of this manual, but is not responsible for any loss or damage related to any operation of the products.

A3C.060-C

⚠ Cautions

Please read the below cautions carefully before using the AE series solar street light to avoid physical injury and product failure caused by improper use.

Attention to the Electric Shock

- To avoid electric shock, street light with AC adapter must be installed by qualified electricians and constructors.
- The street light with AC adapter is customized product, please confirm the street light AC adapter is in accord with the local electric supply standard.
- Make sure the electric supply power is cut off during the installation and implement waterproof and insulation protection.

Working Condition

- Product protection grade IP66
- The product is high-strength structural designed and can pass the 16-level wind speed simulation test. But the product may still be damaged when used in the harsh hurricane environment.
- Working temperature range from -20℃ to 51℃ (charging temperature is limited within 0℃ to 51℃). The product with heating function can work from -40℃ to 51℃.
- All internal parts of AE3C are waterproof and rated IP66. Holes and slits on the luminaires are designed for heat dissipation and drainage. Metal parts are made of anodized rustproof aluminum, which can withstand high temperatures and humid weather. However, it is recommended that you avoid installing the street light in areas with heavy acid mist or salt influx.

Transportation and Storage

- The product contains high capacity lithium-ion battery components, please follow the aviation transport law. Please regard the product as the flammable and explosive hazardous substance and store it separately from other goods.
- The solar panel of the product is fragile, tier limitation is two layers. No stacking out of limits and No press with heavy stuff.
- Store the product under the temperature from 0℃ to 25℃
- It should be charged every six months if the product is stored for long time. please use the special charger to charge the product (the charger needs additional purchase) in order to avoid battery or device damage.

Product Maintenance

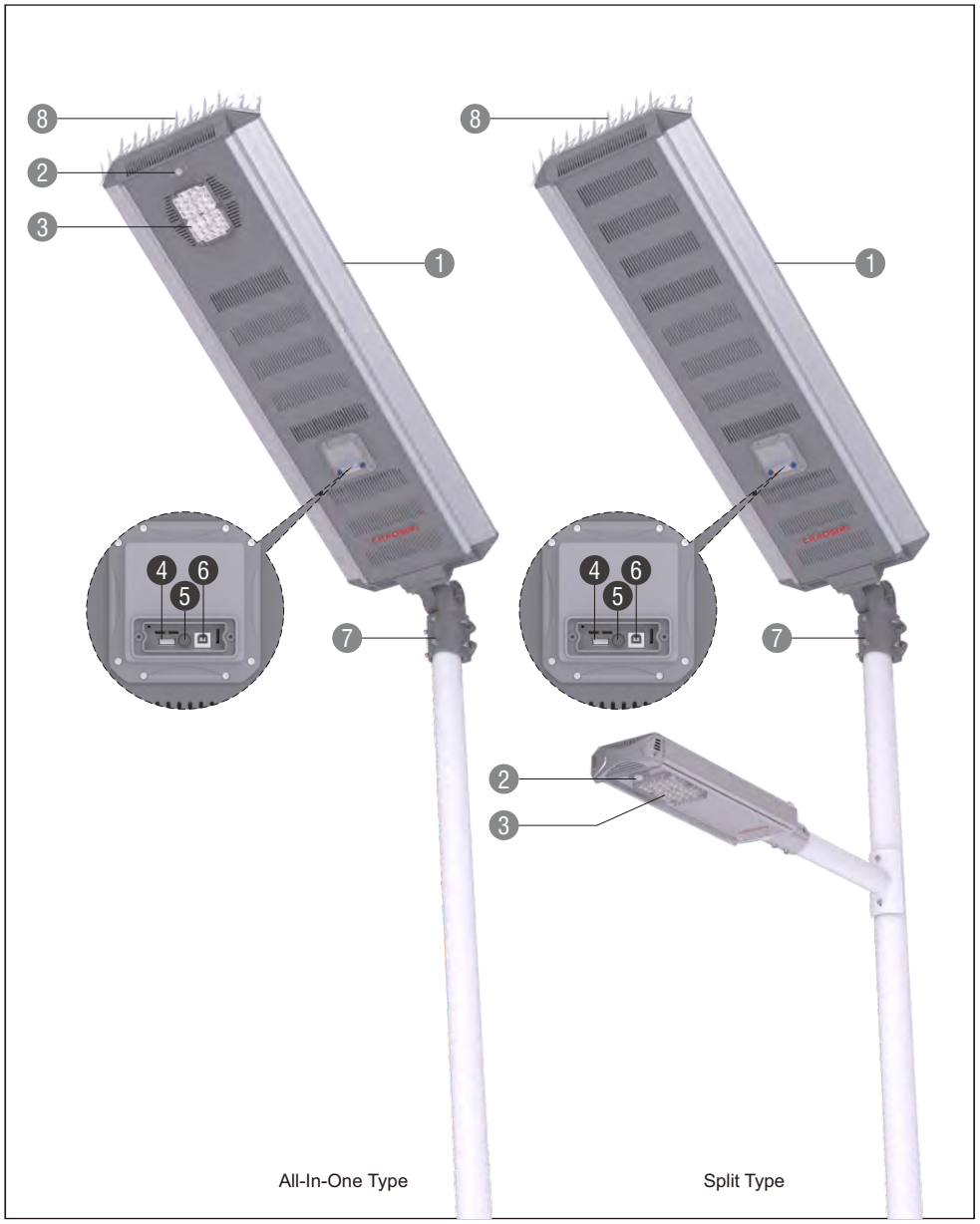
- In order to assure that the solar panel receive the light efficiently, please use clear water to clean the dirt mark on the surface of the panel regularly and prohibit the use of chemical or abradant which includes chlorobenzene.
- Only manufacturer, service agent or qualified personnel can replace the light source or other circuit components of the lighting device. Without authorization, using the third party component to replace is prohibited or it would cause serious damage to the product. if the user disassembles the product without authorization, warranty becomes void.
- If you need to replace the components /accessories, please go to www.leadsunglobal.com, or contact the local distributor.

Product Recycling

- The product is made of recyclable high-performance materials and components, please don't dispose with other household garbage.
- Please understand the local rules about the separate collection of electronics and electrical products, dispose the waste products in the right way that avoids potential negative effects to environment and human health.

Part Description

Standard Parts Description



All-In-One Type

Split Type

Wireless Parts Description

LoRa Type

Part Description

Wireless Parts Description

Gateway Type with LoRa Type　　Gateway Type with FRP Antenna

No.	Parts	Functions
1	Solar Panel	Absorbs and converts solar energy into electricity.
2	Motion Sensor	Detects human movement and control lighting intensity.
3	LED Lamp	Lighting.
4	Type A USB Port of Controller	For battery charging via 14VDC 1.5A power supply
5	Switch Button of Solar Light	To turn on/off the light or switch the light to a different mode
6	Type B USB Port of Controller	For program input
7	Solar Engine Bracket	For mounting the solar engine to the pole
8	Bird Spike	Prevents solar panel contamination from bird droppings
9	LoRa Antenna	For nodes communicating with the Gateway
10	LoRa Antenna	For Gateway communicating with nodes
11	FRP Antenna	For Gateway communicating with nodes
12	SIM Card Slot	Insert 2G/4G card
13	Switch Button of Gateway	To start/restart the gateway
14	Type B USB port of Gateway	For Gateway programming only
15	Gateway indicator lamps	Red indicator is on: Gateway is powered; Green indicator is on: 4G module is working; Blue indicator is flashing: 4G data is being transmitted; Yellow indicator is on: 4G module has access to the Internet.

Part List

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

All-In-One List of Supply


All-In-One


Mounting Bracket


M12 × 85 Screw bolt 1pc


Bird Spike


M8 × 16 Screw 6pcs
M4 × 8 Screw 3pcs
M4 Lock Washer 3pcs
M4 Flat Washer 3pcs


LORA Antenna
(Gateway Type 2pcs)
(Optional)

Split Type List of Supply


Solar Engine


Mounting Bracket


Waterproof Extension Cables


Bird Spike

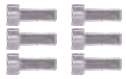

M12 × 85 Screw Bolt 1pc


M8 × 16 Screw 6pcs
M4 × 8 Screw 3pcs
M4 Lock Washer 3pcs
M4 Flat Washer 3pcs


LORA Antenna
(Gateway Type 2pcs)
(Optional)

Split Type Street Light

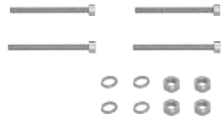

FREEDOM Classic LED Street Light


M8 Screws 6pcs

Split Type Street Light (Optional, With Clamping Bracket)


LED Street Light


Bracket of
LED Lamp


M8×90 Screws 4pcs
M8 Spring Washers 4pcs
M8 Nuts 4pcs

Wireless Parts Description (Optional, With FRP Antenna)


Lightning Arrester


Fixing Clip


Spare Splint


Spare M8 Screws 2pcs


N Line


Ground Wire


M5 Screws 6pcs


Spring Pad 3pcs
Flat Pad 3pcs


M8 Screw Nut 3pcs


M8 Screw Nut 3pcs


FRP Antenna

Bracket Rod

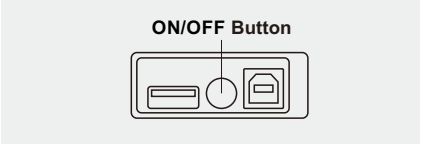
Note:

If the solar street light doesn't have wireless control function, there is no relevant accessories such as antennas. Users can choose this function according to their needs.

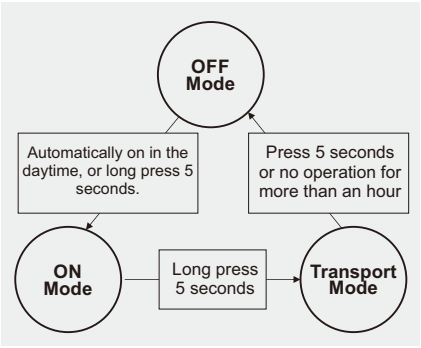
Product Activation

* **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.

*** Remarks:



* **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.

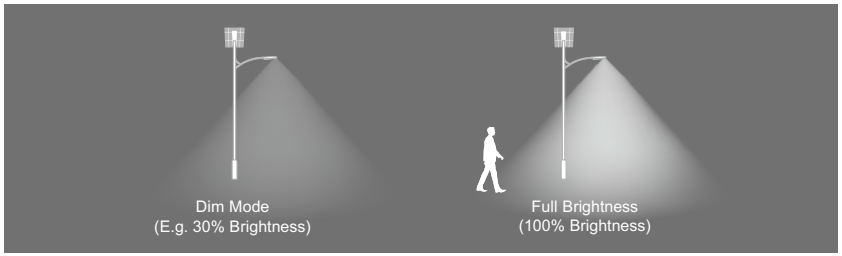
* **Power OFF:**
  Press the ON/OFF button for 5 seconds when the light is On, to see the light flashes for 3s and then switches off to come into Transport Mode; Then press the button for 5s again, or have no operation for one hour, to have the light flash for 1 second and switch off to get the solar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

Before Installation

1. Working Mode Description

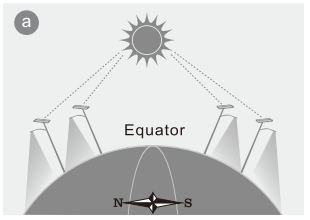
The product default setting controls the light through photo sensing of the solar panel, and the light will turn on automatically when it's dark, and turn off automatically when it's bright. The street light will go into the dim mode when no one around at night and it will full brightness when someone around.

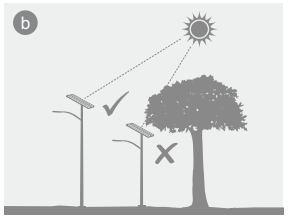


2. Installation Direction of Solar Panel

a Please select the appropriate product according to the installation site's sunlight intensity and required operating time. If you are in the northern hemisphere, face the solar panels towards the south as far as possible when installing the solar street light; if you are in the southern hemisphere, face the solar panels towards the north.

b For maximum operation efficiency of the solar panels, make sure the sunlight is not blocked by buildings or trees.





3. Installation Altitude and Distance Parameters

Before installing, please according to the height and distance (between the street lights) restrictions by each respective product type. Consult our product specialists for special lighting requirements.

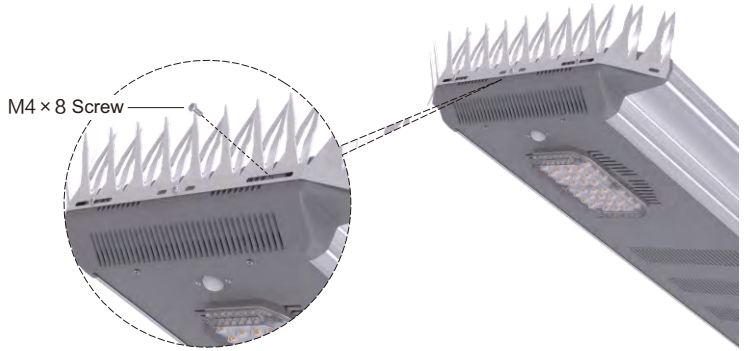
Power	Bat Wing Light Source	
	Installation Height	Installation Distance
15W	4~6m	15~25m
20W	4~6m	15~25m
30W	5~8m	20~30m
50W	7~10m	25~35m
80W	10~12m	30~40m

Product Installation

All In One

1. Install the Bird Spike

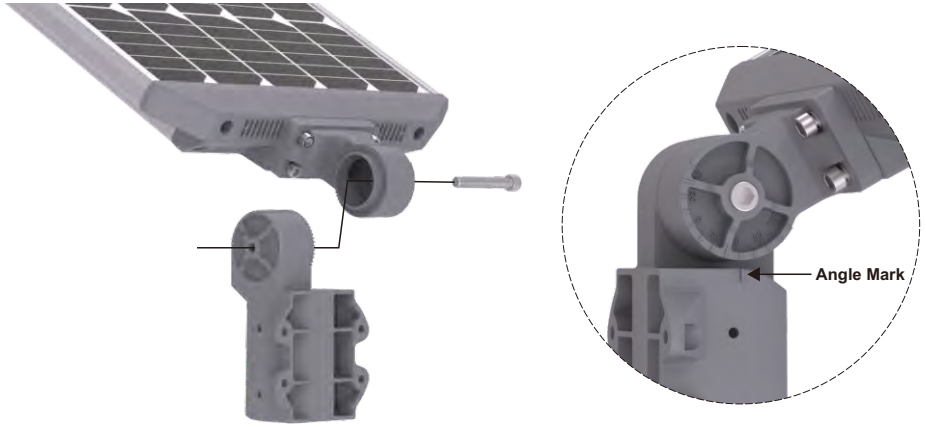
Use 3 sets of M4×8 screws, lock washers and flat washers to fix the bird spike along the rim of the top of solar engine. (See Picture 1)



Picture 1

2. Install the Bracket

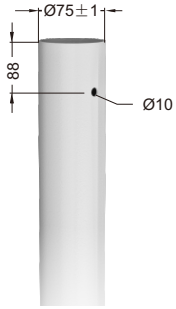
Thread cables from the hole of the bracket and set a proper angle so that the solar panel can obtain the maximum energy from the sun (each scale on the bracket is 6 degrees). Fix the bracket by fastening a M12×85 bolt. (See Picture 2)



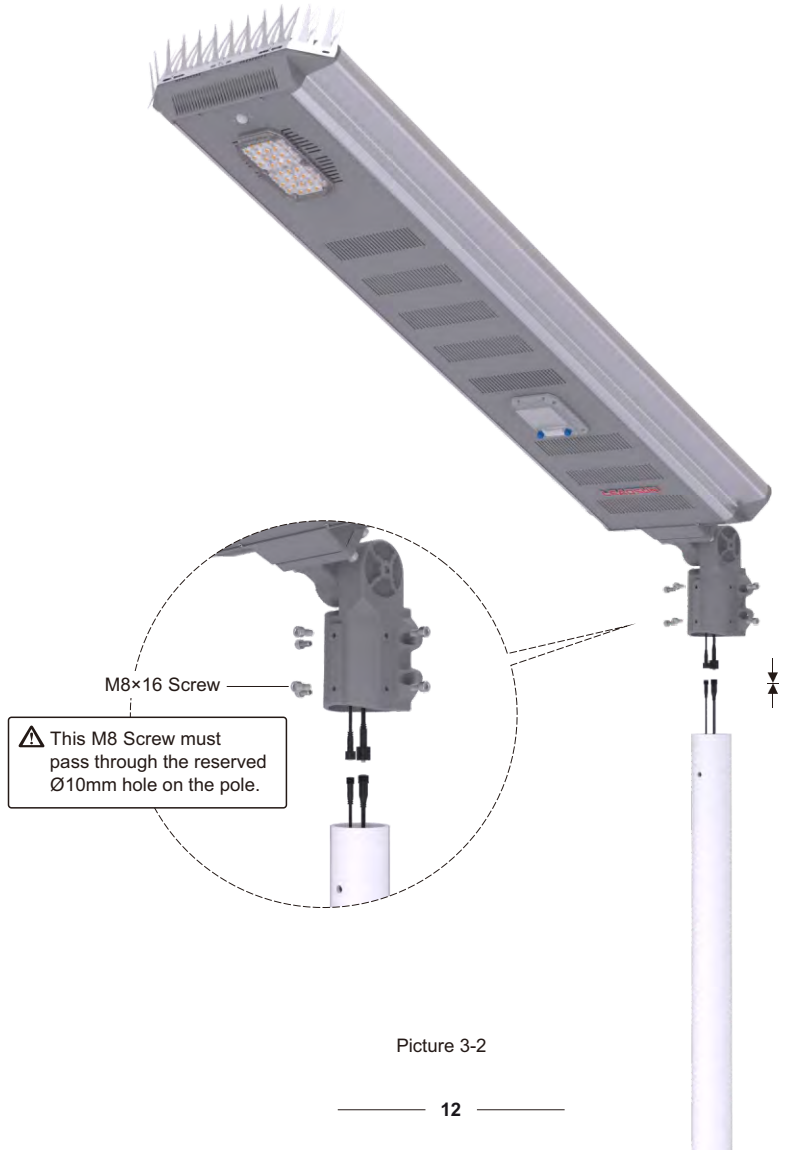
Picture 2

3. Drill Holes On the Pole and Install the Light

1. Drill a Φ10 hole on the lamp pole (88mm away from the top of pole) for bracket mounting. The hole should align to one of holes on bracket and keep the light on right way. (See Picture 3-1)
2. Place the lamp onto the pole and fasten with 6pcs M8×16 screws. Make sure one of screws is screwed into the hole on the pole. (See Picture 3-2)



Picture 3-1

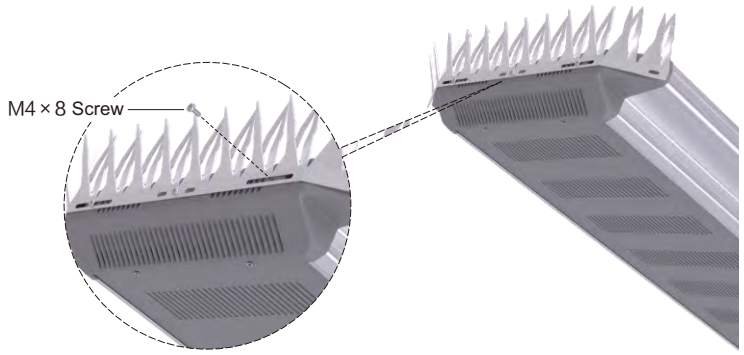


Picture 3-2

Split Type

1. Install the Bird Spike

Use 3 sets of M4×8 screws, lock washers and flat washers to fix the bird spike along the rim of the top of solar engine. (See Picture 4)



Picture 4

2. Install the Bracket

Thread cables from the hole of the bracket and set a proper angle so that the solar panel can obtain the maximum energy from the sun (each scale on the bracket is 6 degrees). Fix the bracket by fastening a M12×85 bolt. (See Picture 5)

Picture 5

3. Light Pole Cantilever Wire Threading

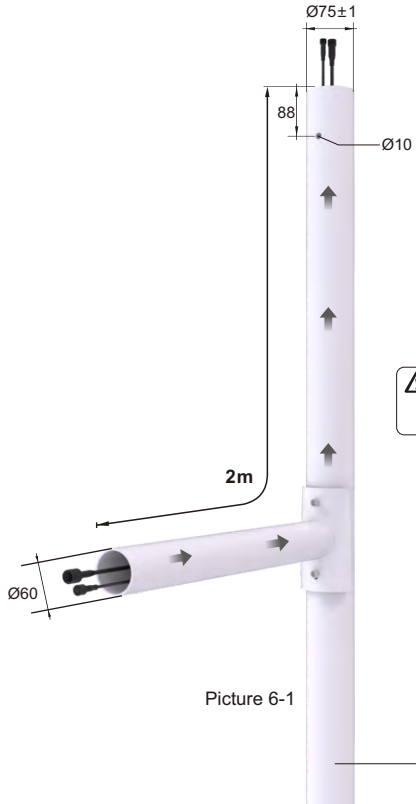
1. **Determine the Direction.** Determine the light installation direction first. Drill a Φ10mm hole at the position which is 88mm away from the top of the pole to fix bracket. (See Picture 6-1)

2. **Cantilever Threading.** The diameter of the cantilever shall not exceed 60mm. Pass two extension cables through the cantilever and the top of the lamp pole. (Lamp pole shape in the Picture 6-1 for reference only)

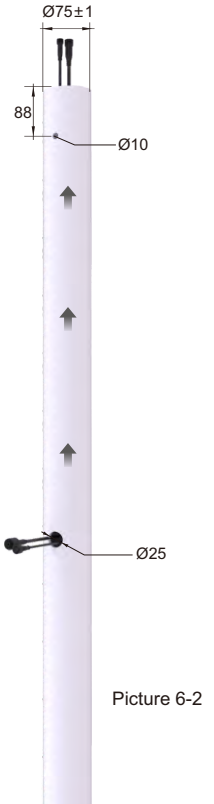
RHEA MINI LED Street Light Pole (Optional)

Firstly, determine and mark the AE3C solar engine and luminaire position according to the optimum sun radiation and road condition. Then drill a Φ10mm hole at the position which is 88mm away from the top of the pole to fix bracket. Drill the other Φ25 hole on the pole where the luminaire is installed for threading extension cables.

Thread 2 extension cables from the small hole for luminaire to the top of lamp pole. (See Picture 6-2)



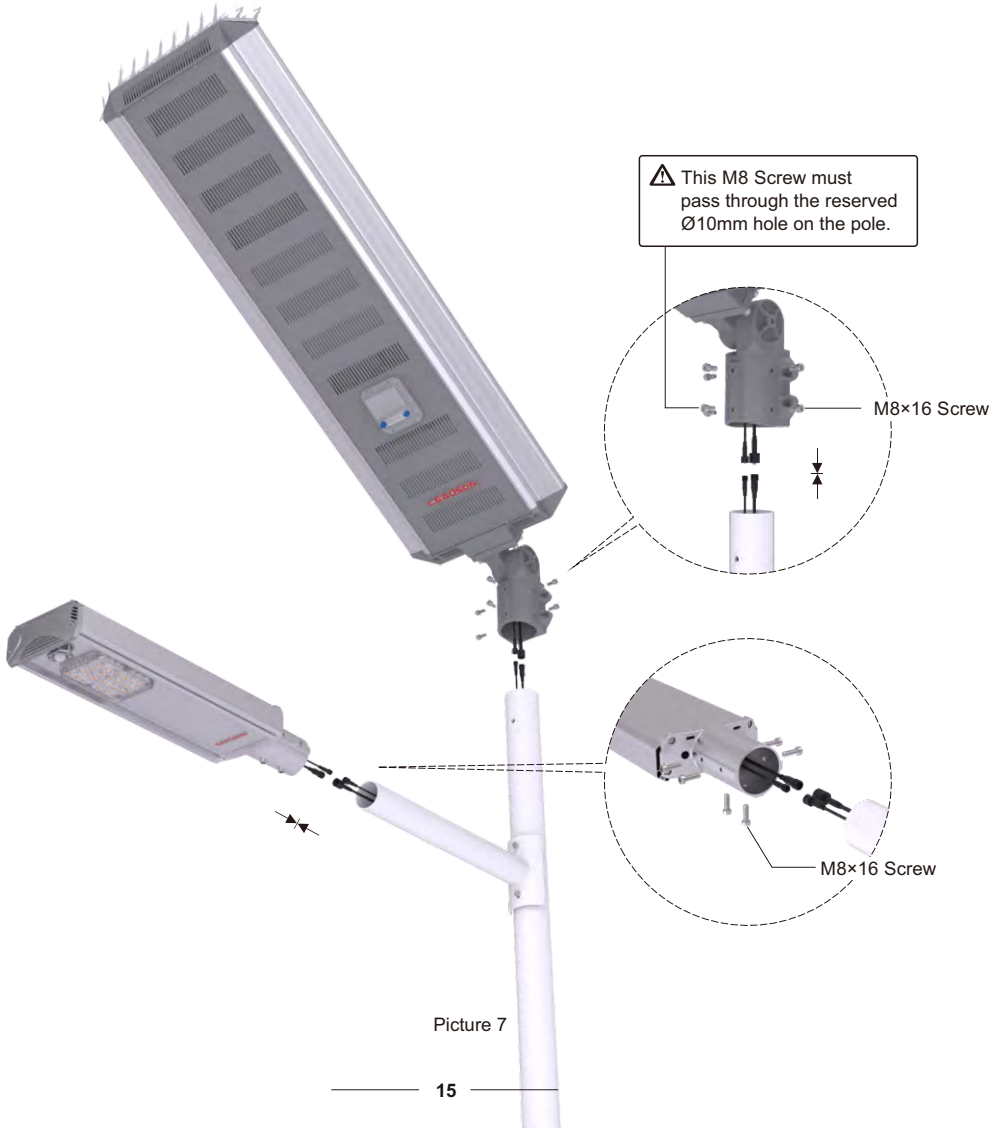
Picture 6-1



Picture 6-2

3. FREEDOM Classic LED Street Light Installation.

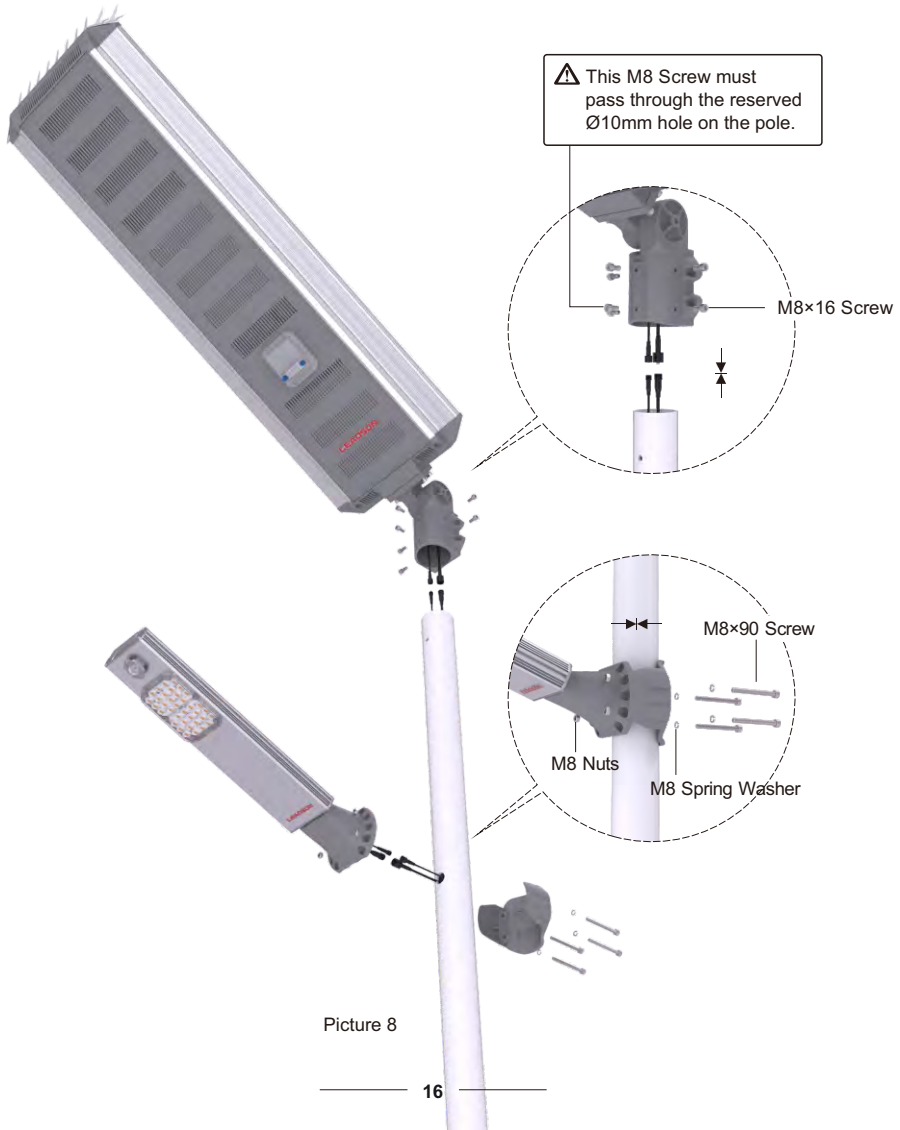
1. **Mount the luminaire:** Connect the extension cables from the cantilever to the cables of the luminaire and lock the connectors. Embed the luminaire bracket into the cantilever and fasten it by 6 M8×16 screw and make sure the luminaire has been installed stably on the pole. Then the installation is finished. If you use a electric wrench, torque should be set to 14N·m) (See Picture 7).
2. **Mount the AE3C solar engine:** Connect all cables together and lock the terminals. Mount the AE3C solar engine on the pole with 6pcs of M8×16 screws. Make sure one of the screws is screwed into the Φ10 hole. (See Picture 7)



Picture 7

4. RHEA MINI LED Street Light (Optional) Installation.

1. **Mount the luminaire:** Connect the luminaire and solar engine with the corresponding cables. Mount the luminaire on the pole with 4pcs of M8×90 bolts. The maximum torque for those M8 bolts is 14Nm. Do not surpass this torque specification. (See Picture 8)
2. **Mount the AE3C solar engine:** Connect all cables together and lock the terminals. Mount the AE3C solar engine on the pole with 6pcs of M8×16 screws. Make sure one of the screws is screwed into the Φ10 hole. (See Picture 8)



Picture 8

6. Wireless System Installation (Suitable for Wireless Type)

⚠ Cautions:

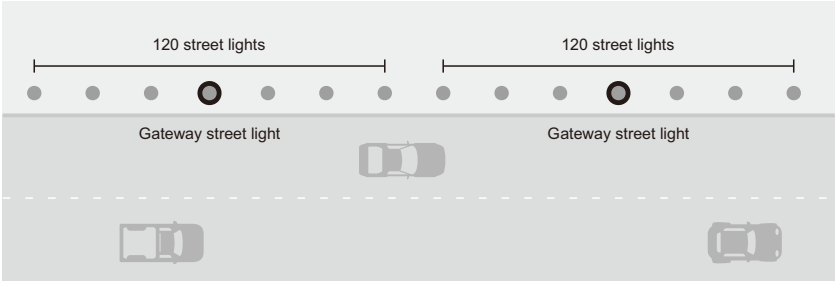
1. Please confirm if the 4G module in the gateway can support the data network covered by the local carrier before installation.
2. When using the inbuilt gateway with 4G module , users need to insert a SIM card which has the data service into the gateway. Relevant fee of data service will be charged by the local carrier.

How users place the Gateway?

Each Gateway covers a range from 800m to 3000m, depending on if there are barriers to block signal transmission. One Gateway can control 120 slave units.

1 Road Installation

Build lighting group of wireless solar street light along the road. All lamps must be divided into one or several groups. Each group contains a Gateway and max 120 slave units. The Gateway should be in the middle of the group.



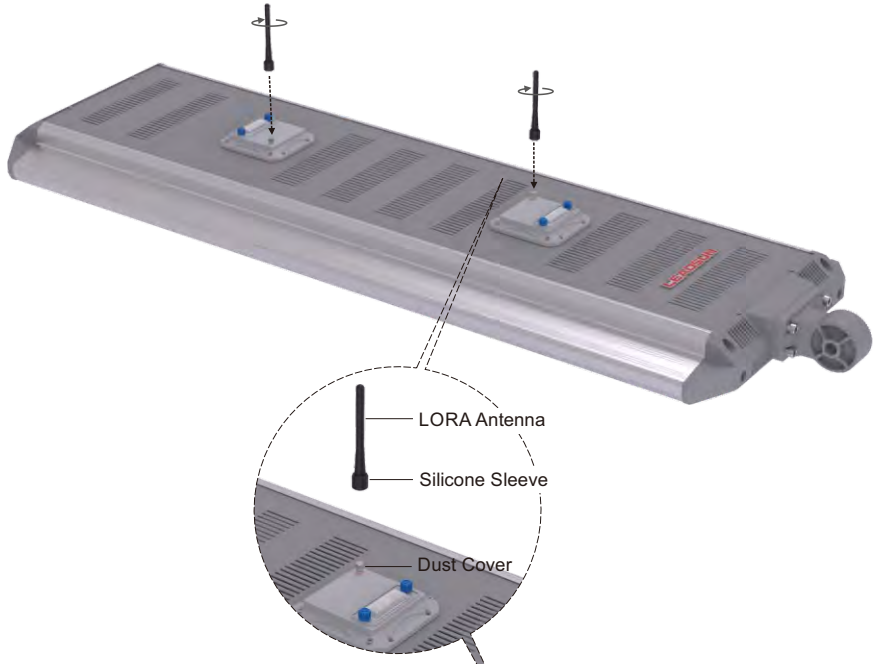
2 Village/Factory/Park Installation:

For installation in village/factory/park area, the Gateway is recommended to be placed in the center of the area.

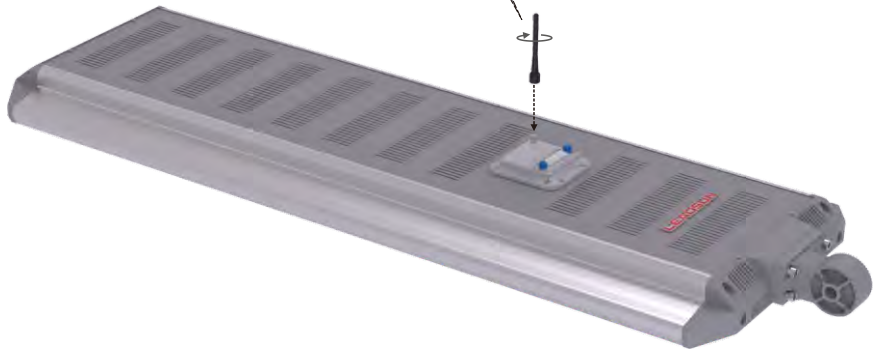
Antenna Installation

Connect the antenna to the corresponding positions according to the picture below.

Gateway Antenna Installation:



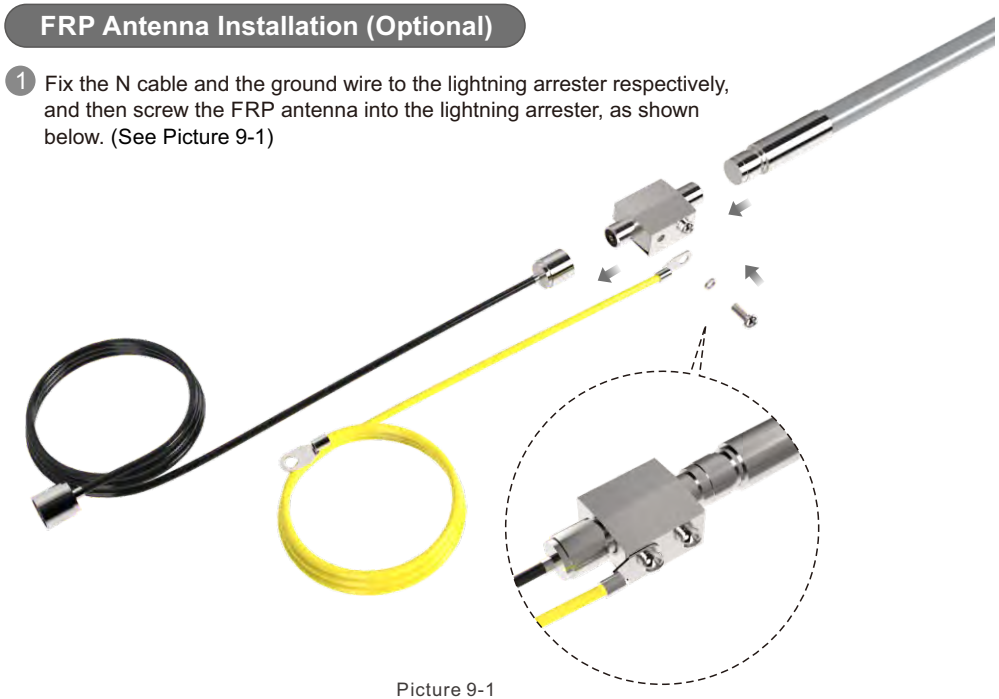
LORA Terminal Antenna Installation:



Product Installation

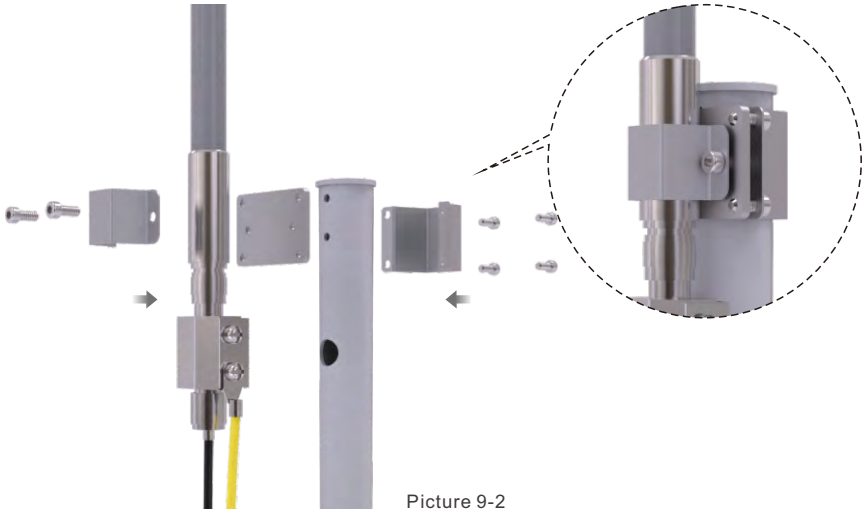
FRP Antenna Installation (Optional)

1 Fix the N cable and the ground wire to the lightning arrester respectively, and then screw the FRP antenna into the lightning arrester, as shown below. (See Picture 9-1)



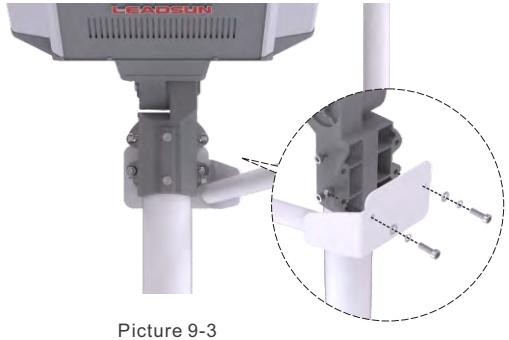
Picture 9-1

2 Use the fixing clips and screws to fix the FRP antenna to the bracket rod. (See Picture 9-2)



Picture 9-2

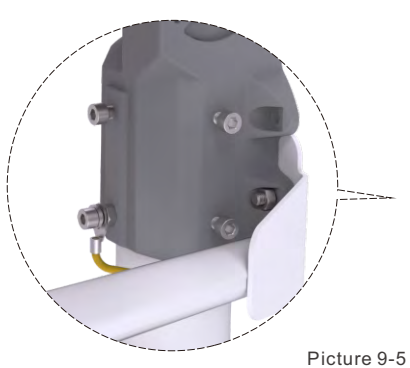
3 Fix the bracket rod to the product bracket with screws and nuts, as shown in Picture 9-3. You can also use a spare splint to mount the bracket rod on the light pole, as shown in Picture 9-4.

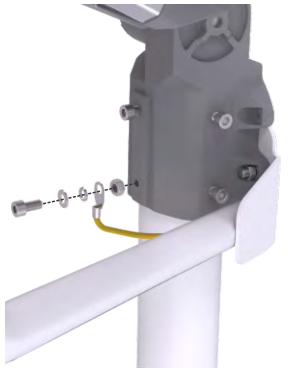


Picture 9-3

Picture 9-4

4 Fix the other end of the ground wire on the light pole or lead it to the ground. The lightning protection ground resistance is generally not greater than 4 ohms. Finally, tie and fasten the ground wire and the N-head wire. (See Picture 9-5)





Picture 9-5

5 Screw the N-head cable into the antenna terminal on the controller and fasten. (See Picture 9-6)

Picture 9-6

Product Installation

Insert SIM Card

1. With the gateway switched off, i.e., its red indicator lamp is off, insert the 2G/4G SIM card into the slot according to the picture.

Cautions:
Ensure the SIM card cutting edge is face down and the magnetic stripe is away from the indicator light.

2. **Gateway Communication**

Push the switch button of the solar engine controller for 5 seconds to active it (This step is not needed if the solar engine has been activated), then push the switch button of the Gateway for 5 seconds to see its red indicator lamp turns on.

Wait until the Gateway's communication is connected successfully, i.e., its yellow indicator lamp turns on.

⚠ #13 is the switch button of the Gateway.

Software Operation Instruction

1. Please use LEDSUN EDGE APP to remotely control and configure the street light, visit www.leadsunglobal.com and follow the steps to Download the LEADSUN EDGE.

A. For APPLE users please go to the APP STORE and install the APP 'LEADSUN EDGE' .

B. Android cellphone please visit www.leadsunglobal.com or go to the software platforms like Google Play to download and install 'LEADSUN EDGE'.

C. PC App please visit http://47.52.88.104:8083/Home/Login

2. **Add Gateways/Lights on App**

Open APP **'LEADSUN EDGE'**→Project **'Add Project'** →Gateway **'Add Gateway'** →Gateway column **'Add Equipment'** →Gateway column **'Reboot'**

Wait for 2~5 minutes and then refresh the page in APP, the lights are online and displayed under the Gateway column.

3. **Test Network Communication**

Click the light column → Click **'Remote Control'** to turn on/off the lights remotely via the App, for testing the network communication is successful, before you proceed to install the solar light.

4. **Mark Pole Numbers**

After the solar light is installed, mark a serial number on its pole as the pole number. And on the App, change the Equipment Name of the solar light to the same as its pole number for future maintenance convenience. Open and keep the GPS access of your mobile phone, open LEADSUN EDGE App within 1m of the light pole, and update/get the Longitude and Latitude coordinates of the solar light on the page of “Edit Equipment”. This is very important for analyzing the light’s network signal status.

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.