Operating the City Green Lighting

Building the Harmonious Society

DMX Solar LED Street Light Specification

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I. Basic Principles

During the day, solar panel will receive the sunshine energy, then convert to electrical energy and save in the battery, put into use for the street lights in the nights automatically, and cut off during the day time.

II. System Configuration

Design Standards

1. Working Time: 12 hours (In three sessions, each 4 hours, the brightness were 100%, 60%, 30%);

2. Continuous Rain Days: 4 days

LED Street Light (Light Sources)	Model No.		SP90	LU2	LU4
	Input Voltage		12V	24V	24V
	Power Consumption		24W	48W	96W
	Lumens		2,150 lm	4,300 lm	8,600 lm
	Illumination		(H=6m): ≥11 lux（Equal to HPS 28 lux）	(H=8m): ≥13 lux（Equal to HPS 33 lux）	(H=10m): ≥15 lux（Equal to HPS 38 lux）
Solar Panel (Pls choose 1 solution according the sunlight hours)	Sunlight 3h	Spec.	85W/17V	170W/35V	170W/35V
		Q'ty	2PCS	2PCS	4PCS
	Sunlight 4h	Spec.	65W/17V	130W/35V	130W/35V
		Q'ty	2PCS	2PCS	4PCS
	Sunlight 5h	Spec.	50W/17V	100W/17V	100W/17V
		Q'ty	2PCS	2PCS	4PCS
	Sunlight 6h	Spec.	85W/17V	170W/35V	170W/35V
		Q'ty	1PCS	1PCS	2PCS
	Sunlight 7h	Spec.	75W/17V	150W/35V	150W/35V
		Q'ty	1PCS	1PCS	2PCS
	Sunlight 8h	Spec.	65W/17V	130W/35V	130W/35V
		Q'ty	1PCS	1PCS	2PCS
Battery	Spec.		150Ah/12V	150Ah/12V	150Ah/12V
	Q'ty		1PCS	2PCS	4PCS
City Electric Charger	Spec.		300W/12V	300W/24V	300W/24V
	Q'ty		1PCS	1PCS	1PCS
Street Lighting Controller	Spec.		350W/12V	350W/24V	350W/24V
	Q'ty		1PCS	1PCS	1PCS
Solar Control Cabinet	Spec.		600(L)×300(W)×700(H)	600(L)×300(W)×1000(H)	600(L)×500(W)×1000(H)
	Q'ty		1PCS	1PCS	1PCS
Lamp Pole	Spec.		Commend 6M	Commend 8M	Commend 10M

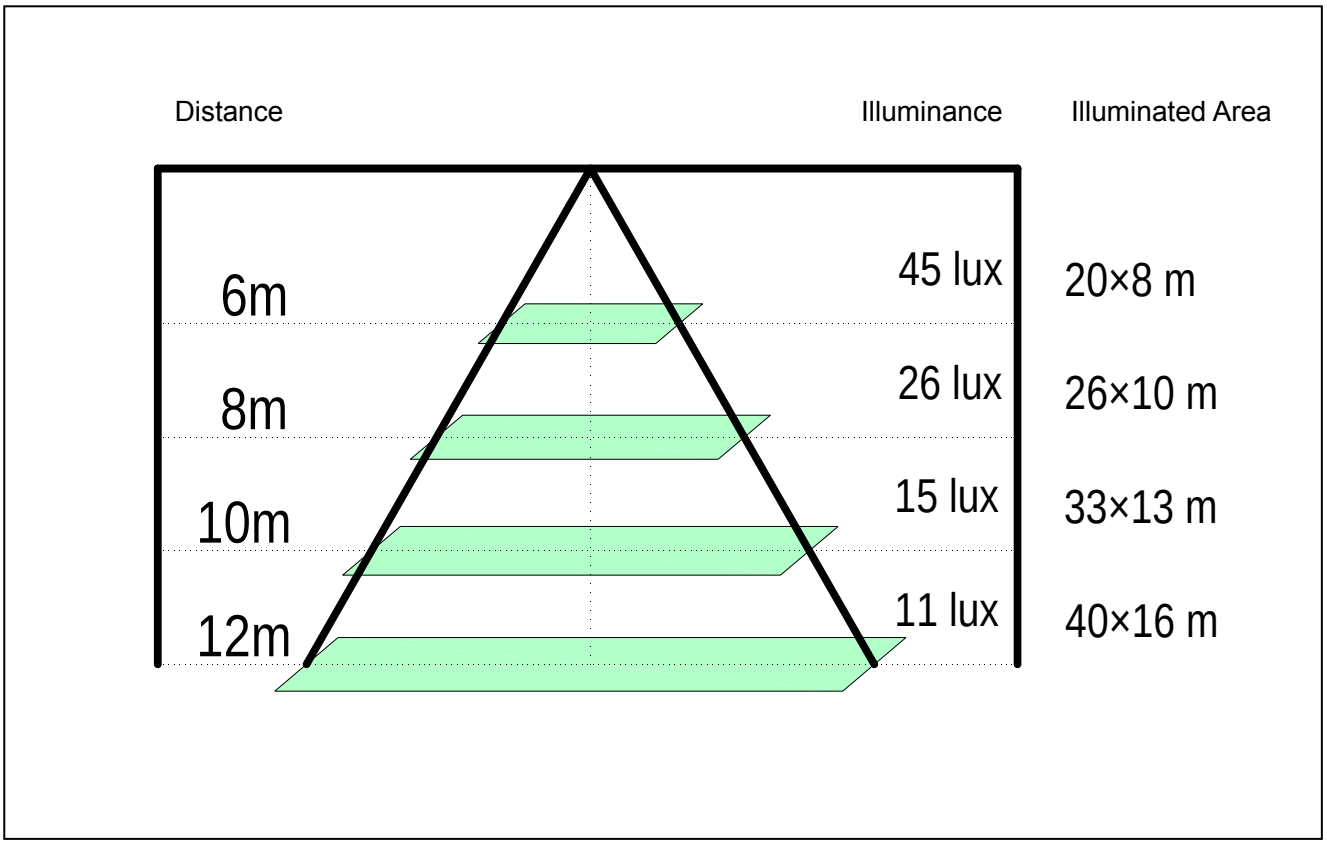
III. Technical Parameters

Model	SP90	LU2	LU4
Input Voltage	12 V	24 V	24 V
Input Current	2.7 A	2.7 A	5.4 A
LED Consumption	24 W	48 W	96 W
Power Supply Consumption	4 W	8 W	16 W
LED Luminous Efficiency	≥80 lm/w		
LED Initial Flux	2,150 lm (Tj=25℃)	4,300 lm (Tj=25℃)	8,600 lm (Tj=25℃)
LED Maintain Flux	2,000 lm (Tj=60℃,Ta=25℃)	4,000 lm (Tj=60℃,Ta=25℃)	8,000 lm (Tj=60℃,Ta=25℃)
Lamp's Flux	1,800 lm (Tj=60℃,Ta=25℃)	3,600 lm (Tj=60℃,Ta=25℃)	7,200 lm (Tj=60℃,Ta=25℃)
Lamp's Efficiency (%)	>90 %		
Illumination (E)	≥23 lux(H=4 m) ≥15 lux (H=5 m) ≥11 lux (H=6 m) ≥6.5 lux (H=8 m) (Equal to 2.5 time than HPS light)	≥22 lux (H=6 m) ≥13 lux (H=8 m) ≥7.6 lux (H=10 m) ≥5 lux (H=12 m) (Equal to 2.5 time than HPS light)	≥45 lux (H=6 m) ≥26 lux (H=8 m) ≥15 lux (H=10 m) ≥11 lux (H=12 m) (Equal to 2.5 time than HPS light)
Effective Illuminated Area	13×5 m (H=4 m) 17×7 m (H=5 m) 20×8 m (H=6 m) 26×10 m (H=8 m)	20×8 m (H=6 m) 26×10 m (H=8 m) 33×13 m (H=10 m) 40×16 m (H=12 m)	20×8 m (H=6 m) 26×10 m (H=8 m) 33×13 m (H=10 m) 40×16 m (H=12 m)
Color Temperature	Pure White: 5,000 ~ 7,000 K; Warm White:3,000～4,000K		
Color Index(CRI)	Ra＞75		
Light Source	DMX Emitter (1 Watt)		
Light Distribution Curve/Beam Pattern	Asymmetric (Bat Wing)/ Rectangular Beam		
The Highest Light Intensity Angle	120°:The Horizontal Axis:110°, The Vertical Axis:45°; 140°:The Horizontal Axis:130, The Vertical Axis:45°		
Beam Angle	120°:The Horizontal Axis:110°, The Vertical Axis:45°; 140°:The Horizontal Axis:130, °The Vertical Axis:45°		
Junction Temperature(Tj)	70 °C ± 1 0% (Ta= 25 °C)	60 °C ± 1 0% (Ta= 25 °C)	60 °C ± 1 0% (Ta= 25 °C)
System Resistance (Rja)	1.4 °C / W	0.28 °C / W	0.19 °C / W
Working Temperature / Humidity	- 30 °C ~ 40 °C / 10 % ~ 90 % RH		
Storage Temperature	10 °C ~ 85 °C		
Working Life	> 50,000 Hrs		
Light Body& Lampshade / Base	Aluminum Alloy and PC / E40 (SP90) LU4/LU4 (Hoop)		
The Dimensions (Unit: mm)	90 (Ø) X 275 (L)	540 (L) X 315 (W) X 90 (H)	715 (L) X 315 (W) X 90(H)
Net Weight	1 kg	7 kg	10 kg
IP Rating	IP 60	IP 65	IP 65

IV. Photometric Performance

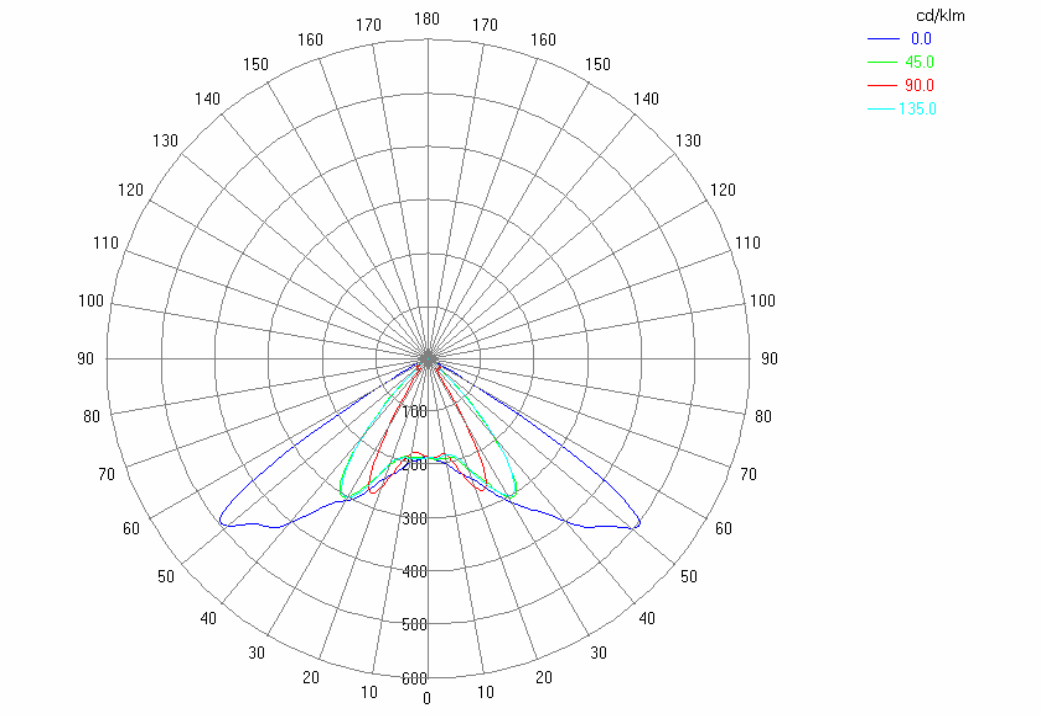
Bat-wing beam pattern of the distribution curve also can be changed by different section's demand. Rationally control the distribution to be a rectangular beam pattern. When the installation height=12m, the beam pattern is 40x16m rectangular , and the radiation-efficiency is more than 70% in the effective region, the total transparence is more than 90%, the greatest extent possible to reduce the loss of light, the LED light has been fully utilized. The illumination uniformity is very good in the effective radiation region, even better than 0.7, higher than the highest grades of 0.4 of the state road's standards. The edge of the beam pattern is very clear and slide, no adverse glare out of the effective radiation region, will not cause any light pollution, it is an idea cut-lighting lamp. Satisfy the requirements of the road lighting or other special lighting, which can be widely used in the special requirements such as street lighting, advertising lighting, etc.; it is a green, energy-saving, environmentally friendly lighting product.

A. Illuminance Distribution at Different Heights

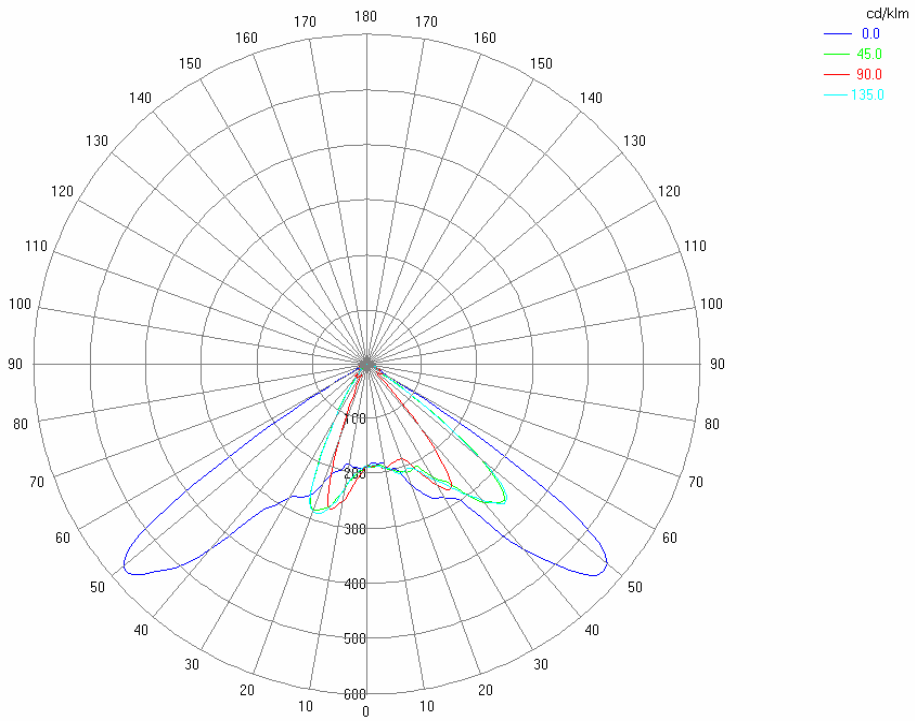


B. Light Distribution Curve:

a. Lamp's Plane Installation

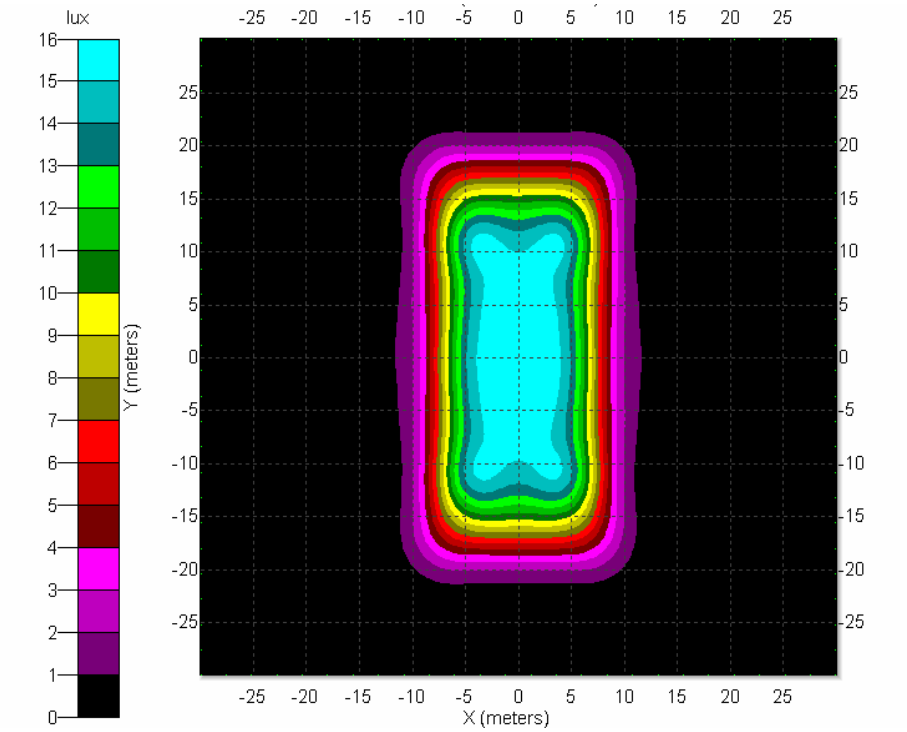


b. Lamp's Inclined Installation

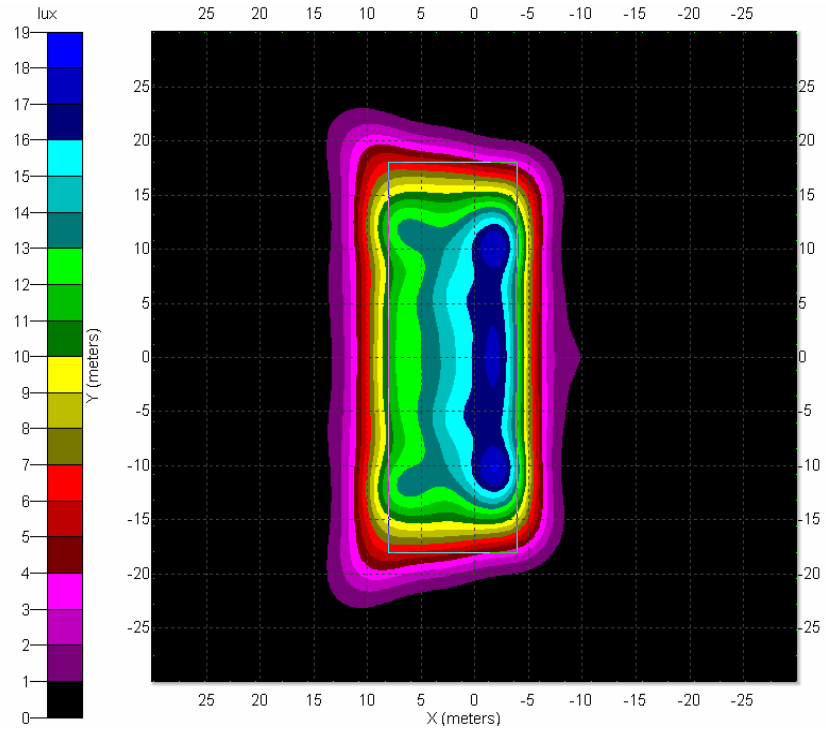


C. Plane Equal Illuminance Distribution Map

a. Lamp's Plane Installation

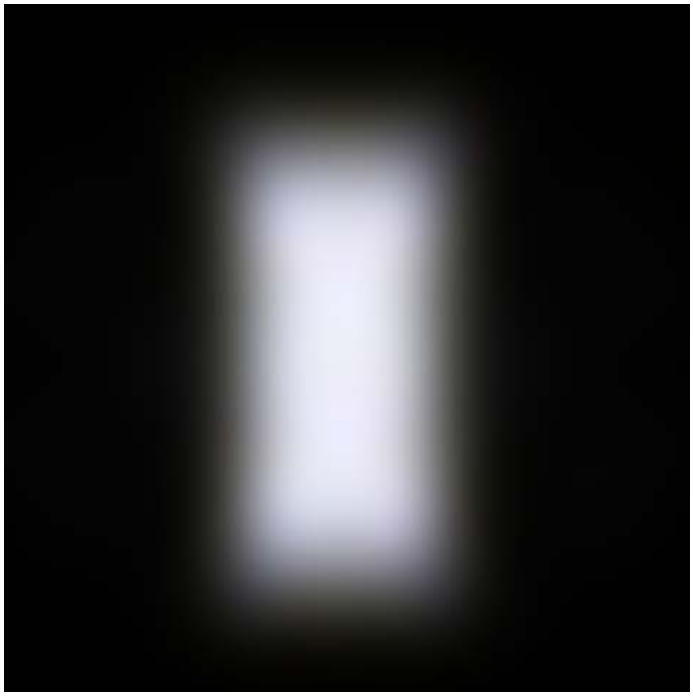


b. Lamp's Inclined Installation

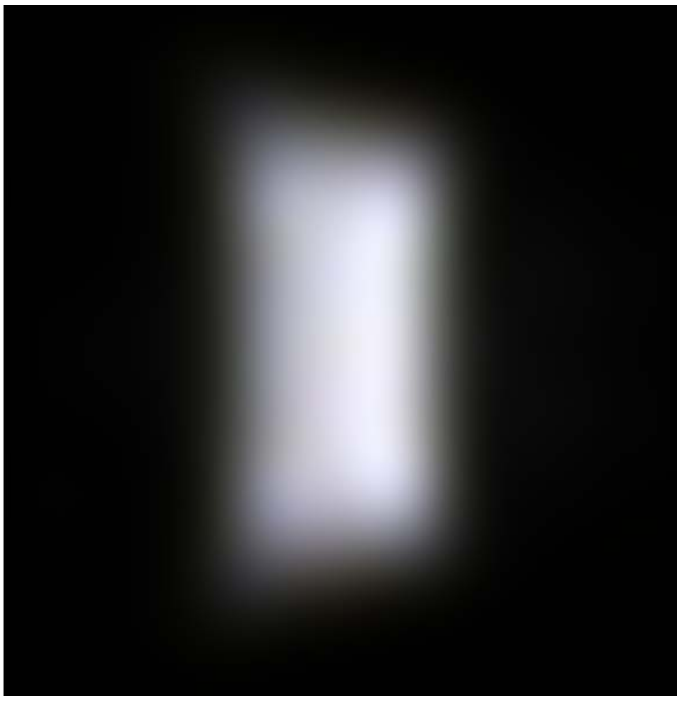


D. Actual Effect on the Road (Beam Pattern)

a. Lamp's Plane Installation



b. Lamp's Inclined Installation



The Beam Pattern is rectangular (rectangle), good illumination uniformity, brightness difference is very little between the spot of center and periphery. Almost no difference in the direction of extending the road completely with the continuous extension of the road, it is the ideal lighting lamps for road lighting.

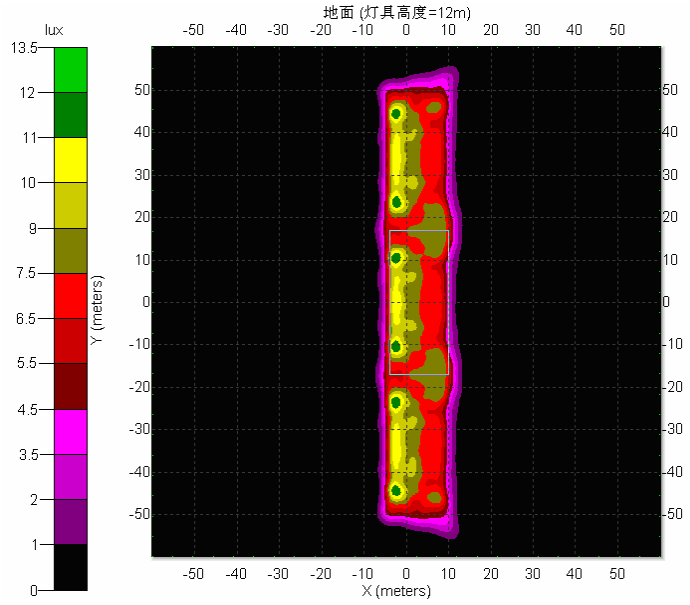
V. Application Examples

◆ The Actual Effects On the Road

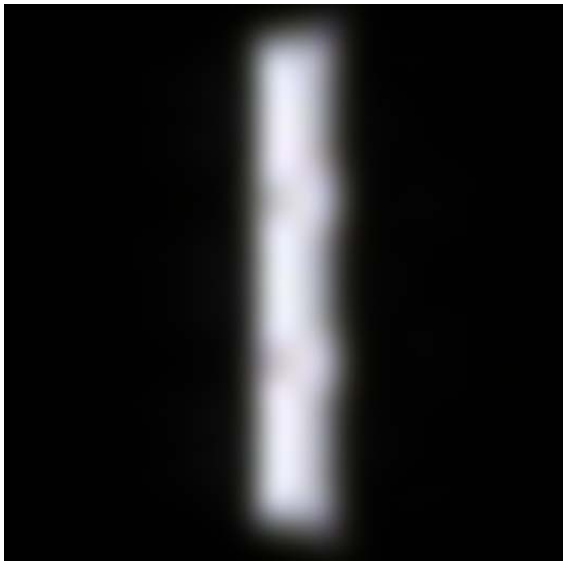
A. Unilateral Road Layout

Lamp Model: LU4 Lamp Power Consumption: 96W Lamp Height:12M Lamp Pole Space:32M Lamp Elevation: 10°~ 15° Road Width : 14 M(two-way 4 lanes) Lamp Pole Length: 3 ~ 4m

Equal Illuminance Distribution



Actual Lighting Effects (Beam Pattern)

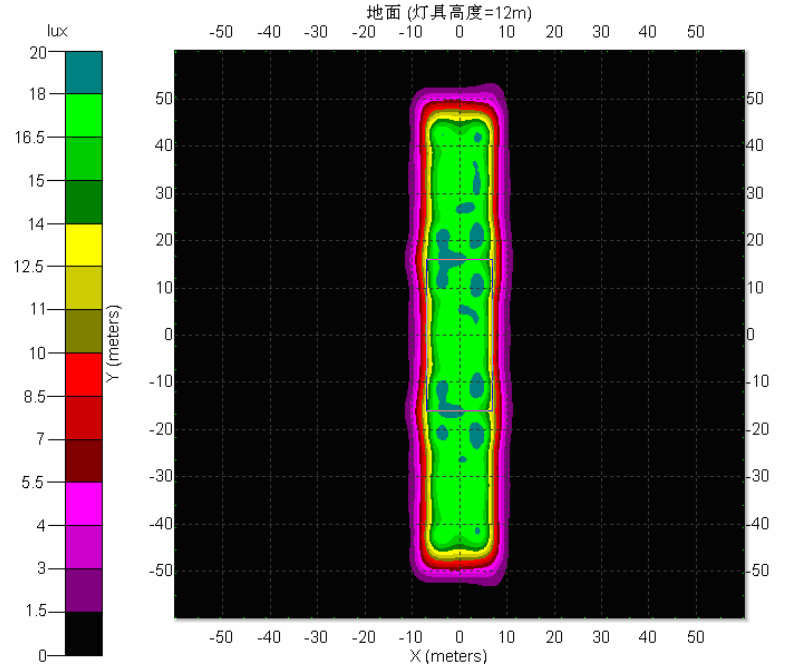


Above picture is we install the lamps on each side of the road, each 3 lamp's illumination map and beam pattern, in a single lamp's effective covered regional (pane area) is very uniform illumination,10m(3 lanes) width intensity values: 11lux maximum, 7.5lux minimum , 14m(4lanes) 11 lux maximum, 6lux minimum, uniformity value> 0.5. The brightness difference is very little between the center of the beam pattern and edge, almost no difference in the direction of the road extension, fully consistent with the road for the extended, reached the ideal road lighting effects.

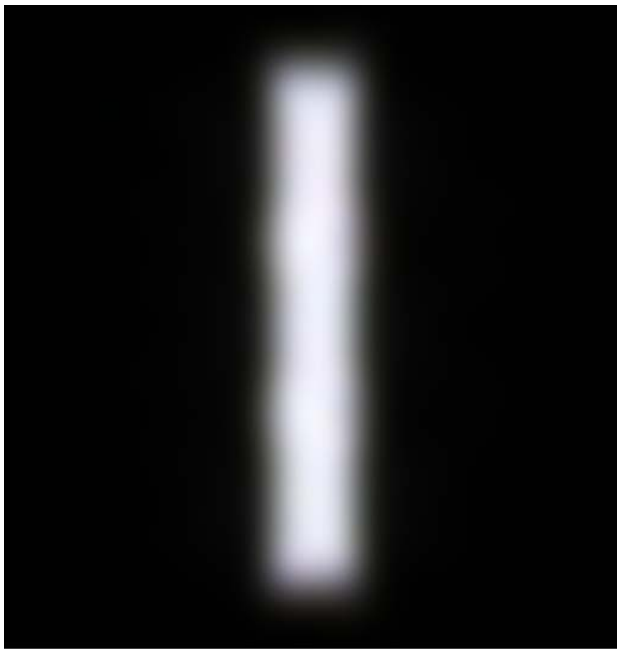
B. Symmetrically On Both Sides of the Road

Lamp Model: LU4 Lamp Power Consumption: 96W Lamp Height:12M Lamp Pole Space:32M Lamp Elevation: 10°~ 15° Road Width : 14 M(two-way 4 lanes) Lamp Pole Length: 3 ~ 4m

Equal Illuminance Distribution



Actual Lighting Effects (Beam Pattern)



Above picture is we install the lamps on each side of the road, each 3 lamp's illumination map and beam pattern, in a single lamp's effective covered regional (pane area) is very uniform illumination,14m(4 lanes) width intensity values: 20lux maximum,14lux minimum , uniformity value> 0.7. The brightness difference is very little between the center of the beam pattern and edge, almost no difference in the direction of the road extension, fully consistent with the road for the extended, reached the ideal road lighting effects.

VI. Common Installation & Illumination Contrast

A. Recommended Installation and Illumination Comparison List

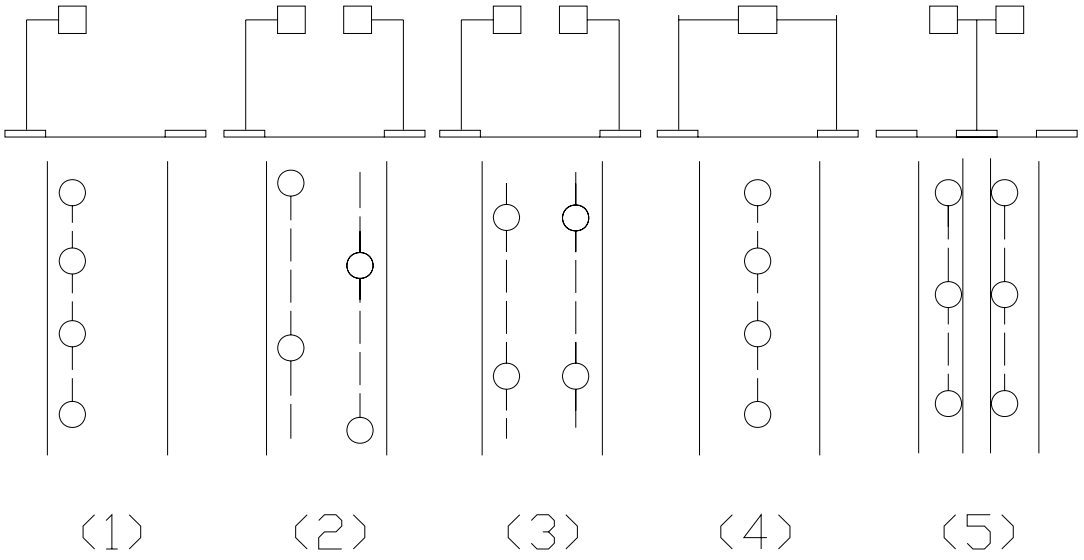
Installation Style	Installation Angle	Road Width	Lamp Height	Lamp Distance	Ground Illumination						Luminance Uniformity	Vertical Uniformity	Remark
					LU2(56W)		LU4(112W)		LU6(168W)				
					Max.	Average	Max.	Average	Max.	Average			
Unilateral Installation (No central buffer zone)	10°～15°	Two-way 2 Lanes(7m)	6m	15~18m	11	7	22	15	45	30	0.66	0.75	See Below Remark 1
		Two-way 4 Lanes(14m)	12m	32~36m	3	2	5	3	11	7	0.66	0.75	
Center Symmetrical Installation / Bilateral Installation	10°～15°	Two-way 4 Lanes(14m)	6m	15~18m	11	7	22	15	45	30	0.66	0.75	
			8m	20~24m	7	4	13	8	26	17	0.66	0.75	
		Two-way 6 Lanes(21m)	10m	25~30m	4	3	8	5	15	10	0.66	0.75	
		Two-way 8 Lanes(28m)	12m	32~36m	3	2	5	3	11	7	0.66	0.75	
Horizontal Suspension Installation (Height Uniformity)	0°	Two-way 2 Lanes(7m)	8m	20~24m	7	5	13	10	26	19	0.75	0.75	See Below Remark 2
		Two-way 4 Lanes(14m)	14m	36~42m	2	2	4	3	9	6	0.75	0.75	
Bilateral Installation(Height Uniformity)	10°～15°	Two-way 4 Lanes(14m) (No central buffer zone)	12m	32~36m	5	4	10	8	22	18	1	0.85	

Remark 1: The Uniformity is good, the illumination on the lane of lamp pole side is better than other lanes (Please see page 8, Integrated High Power LED Street Lamp 5 common installation styles. About Illumination Actual Effects, please see page 10 of Unilateral Installation Sketch)

Remark 2: The Uniformity is very good, the illumination on each lane is same (Please see page 18, Integrated High Power LED Street Lamp 5 common installation styles. About Illumination Actual Effects, please see page 11 of Bilateral Installation Sketch)

Note: ① If it is necessary to increase the brightness, we can do the following measures: Install 2 lamps on the same lamp pole; B. Narrowing the gap between the lamp poles. ② If compare sodium light with LED, LED illumination multiply by 2.5 for the sodium light illumination. For example: 20 lux LED streetlight wins 50lux sodium light; ③ The yellow area is in low illuminance, we do not recommend you use.

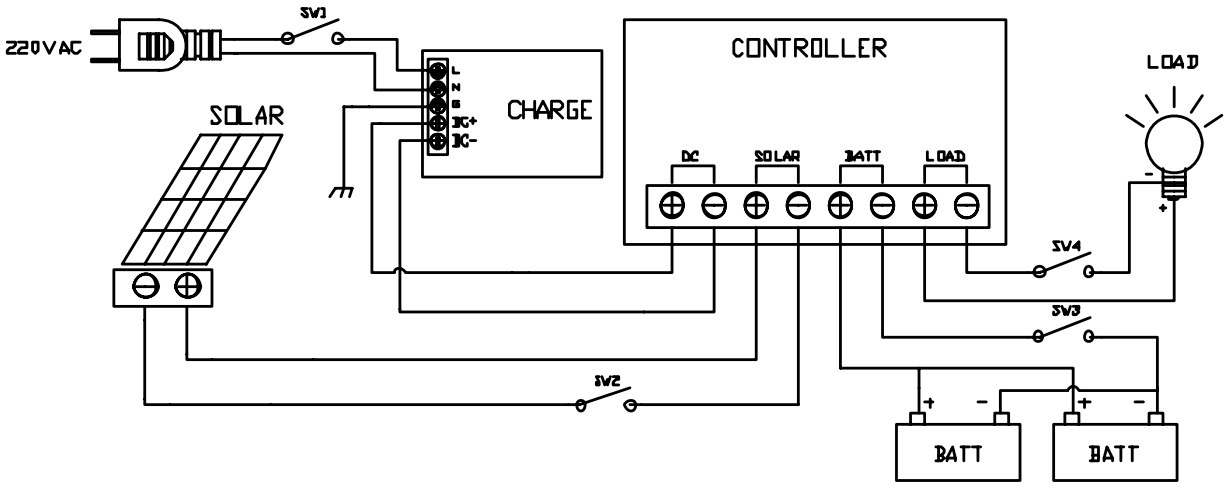
B. Five Common Formats to Install Street Light



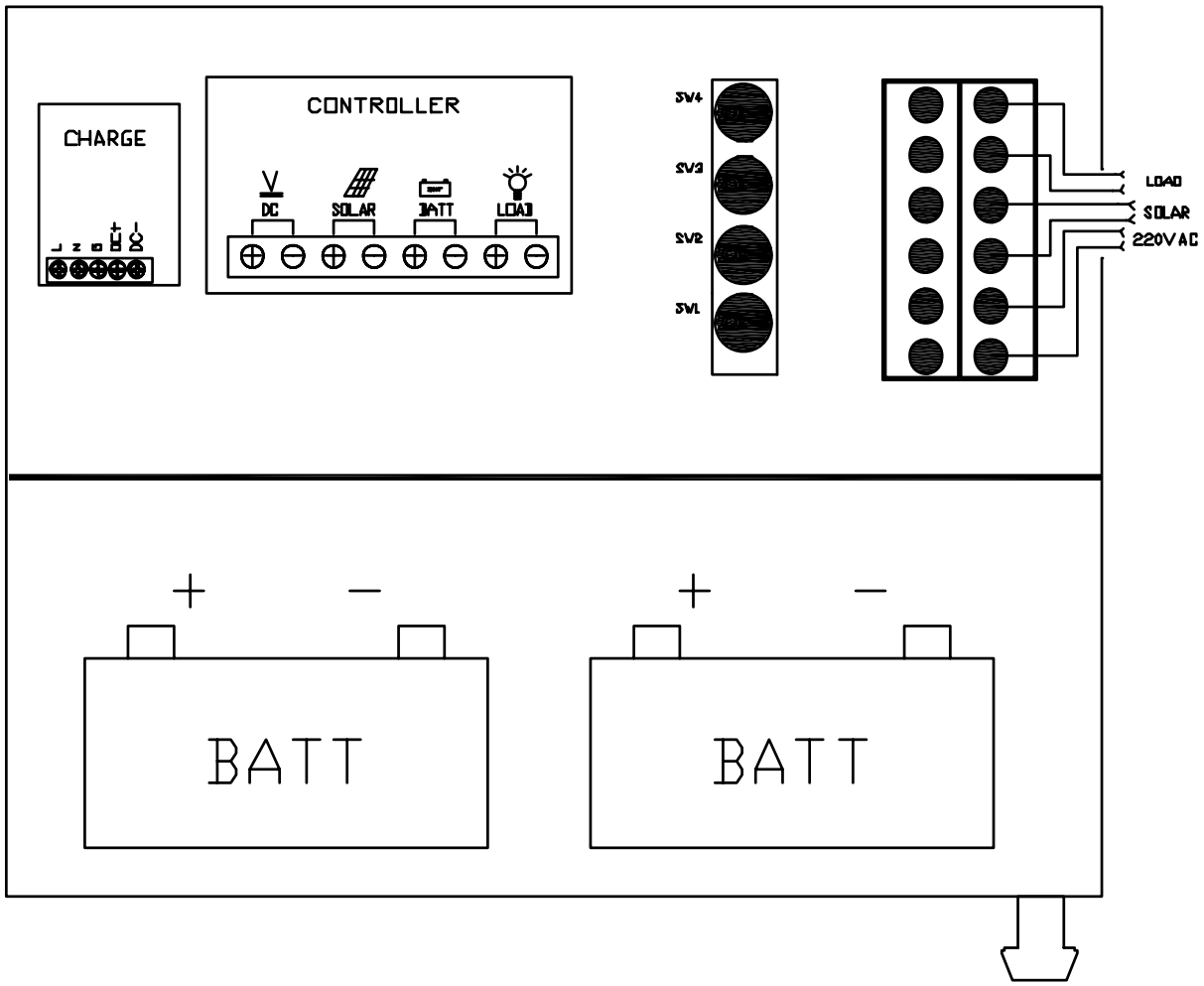
1. Unilateral Installation, 2.Bilateral Staggered Installation, 3. Bilateral Symmetry Installation, 4.Horizontal Suspension Installation, 5.Center Symmetry Installation

VII. Wiring Diagram

A. System Wiring Diagram

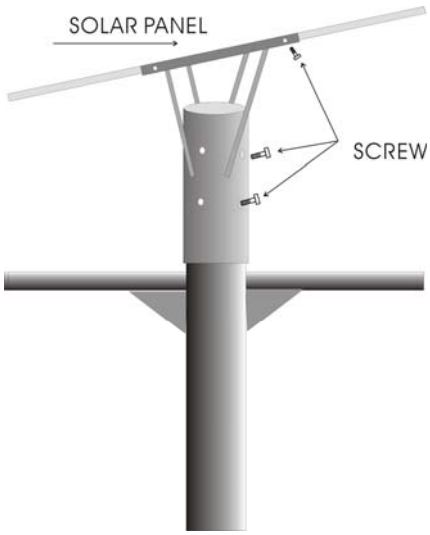


B. Internal Control Box Wiring Diagram



VIII. Installation Instruction

A. The Installation of Solar Panels



a. Connect the solar panels by the polar, and then install the solar panels on the bracket.

b. Install the anti-skid, unloaded the lamp pole, and install the bracket on the solar panel, adjust the solar panel's direction and angle, then tight the screw at last.

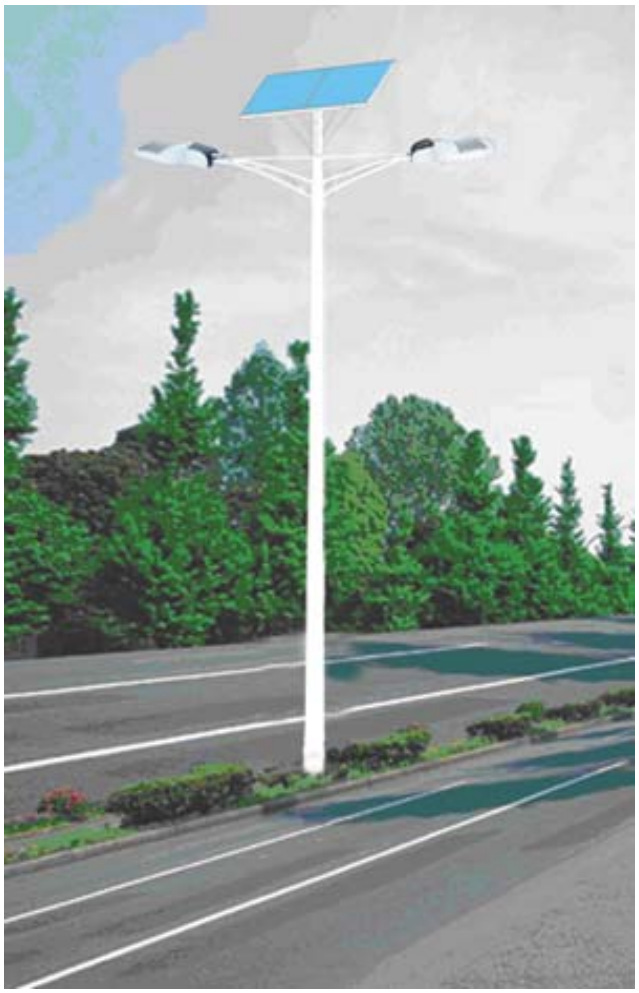
B. The Installation of LED Street Lights

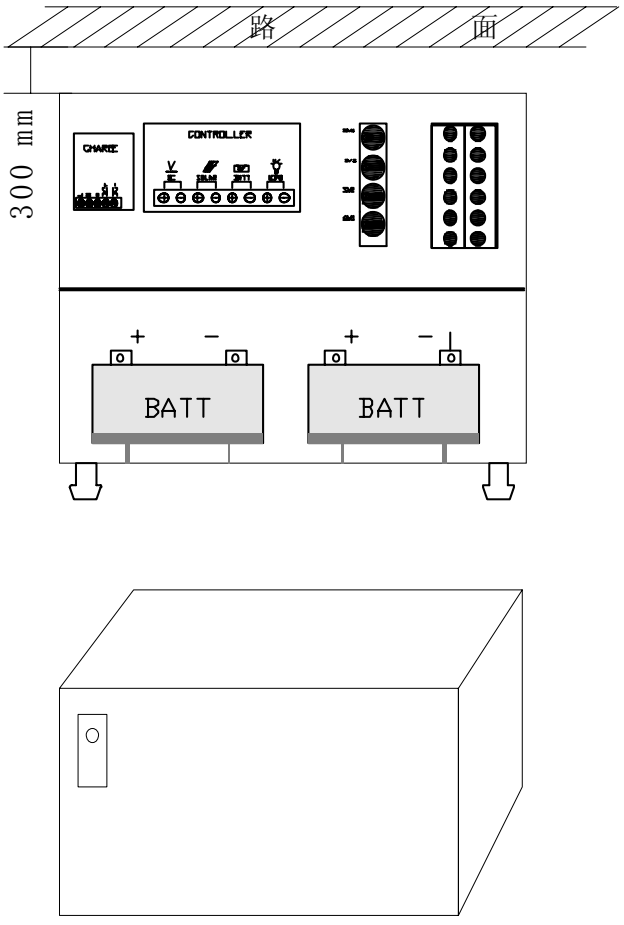
Put the LED Street Light on the lamp pole arm, tight the screws, fix the street light on the lamp pole arm, and then connect the wires.

C. The Installation of Controller

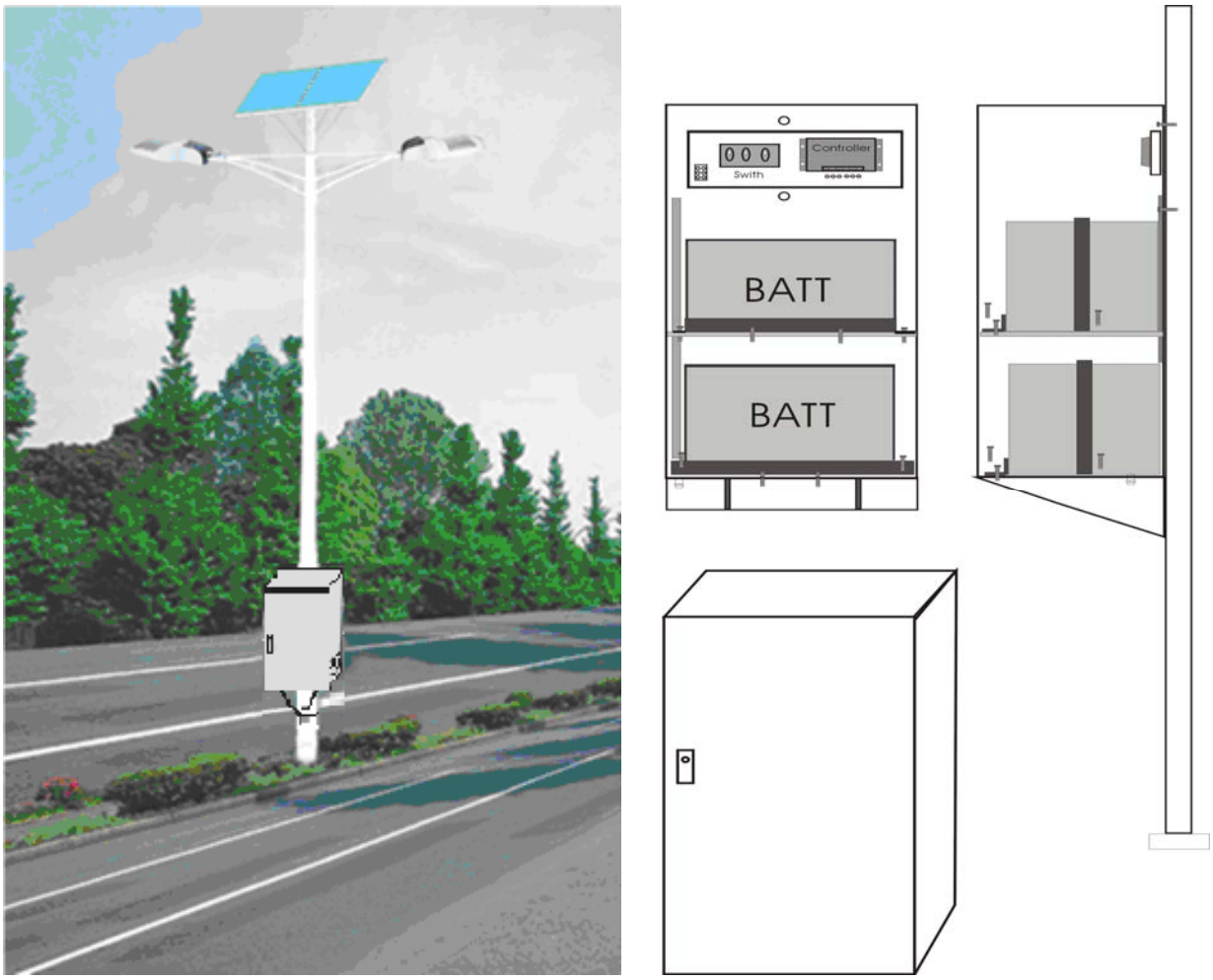
There are 2 screws on the back of the control box, use these 2 screws to fix the control box on the lamp pole. Please confirm there are 2 corresponding screw holes on the pole first.

First install the controller on above of the bracket, and connect the wires according the above wiring diagram.





Control Box Buried Underground Installation Diagram



The Control Box Fixed on Lamp Pole Installation Diagram

IX. Use Instruction

A. You have finished installing the internal components already; please connecting all the external components according the associated wiring diagram, the internal wiring diagram only supply for maintenance, please DO NOT do modifications and installation by yourself.

B. You must try to install it by yourself before selling out.

C. If you have any more questions, please contact with our technical support people. Thanks.