

SmartTM-DCLi series
infrared induction
Solar charge controller
Suitable for Lithium battery
(Constant Current, Boost)
10A 30W

User Manual

Solar charge controller Smart-DCLi series User Manual

Dear Clients,

Thanks for selecting the **Smart™-DC** series solar controller. Please take the time to read this user manual, this will help you to take advantage of controller's new features.

This manual gives important recommendations for installing, programming, using and so on. Read it carefully in your own interest please.

1. Description of Function

Smart-DCLi series intelligent solar controller, is programmable and especially for boost mode LED solar street light system. It includes constant current driver function, which can make the cost of the whole system much lower.

- Can output constant current (output current can be set).
- Automatic power balance 365 mode, 365 days can be lit
- Human infrared induction.
- 5 stages time and dimming can be adjusted
- Sensitive time delay can be set range from 10~150s.
- Can read parameters and running status
- If battery voltage is low, it can be set to dimming
- Dimming start voltage and percentage can be set
- Auto sleeping during transportation
- Low temperature charging protection
- When BMS power off because of LVD, it can activate the system automatically
- Charging target voltage and recovery voltage can be set
- Day/Night threshold can adjust automatically
- Remote Unit to configure, with LCD display
- IP65, Suitable for a variety of external applications
- Full automatic electronic protect function

2. Safety instructions and waiver of liability

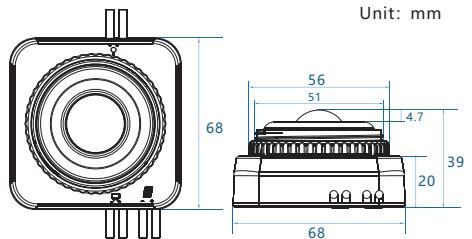
2.1 Safety

- ① The solar charge controller may only be used in PV systems in accordance with this user manual and the specifications of other modules manufacturers. No energy source other than a solar generator may be connected to the solar charge controller.
- ② Batteries store a large amount of energy, never short circuit a battery under all circumstances. We strongly recommend connecting a fuse directly to the battery to protect any short circuit at the battery wiring.
- ③ Batteries can produce flammable gases. Avoid making sparks, using fire or any naked flame. Make sure that the battery room is ventilated.
- ④ Avoid touching or short circuiting wires or terminals. Be aware that the voltages on special terminals or wires can be as much as twice the battery voltage. Use isolated tools, stand on dry ground, and keep your hands dry.
- ⑤ Keep children away from batteries and the charge controller.

2.2 Liability Exclusion

The manufacturer shall not be liable for damages, especially on the battery, caused by use other than as intended or as mentioned in this manual or if the recommendations of the battery manufacturer are neglected. The manufacturer shall not be liable if there has been service or repair carried out by any unauthorized person, unusual use, wrong installation, or bad system design.

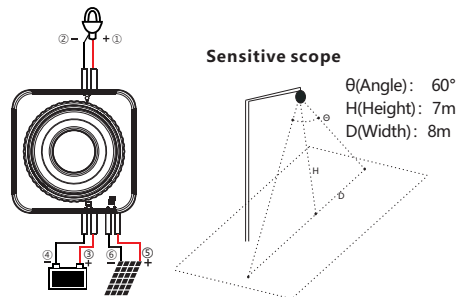
3. Dimensions



4. Installation


4.1 Connection sequence

The following diagrams provide an overview of the connections and the proper order.



1. Follow the chart, connect the load (positive pole and negative pole) with the corresponding brown and blue cables firstly, then seal them with tape.
2. Connect battery positive pole and negative pole to the corresponding red and black cables, the load will be on after 8s;
3. Connect the panel positive pole and negative pole to the corresponding red and black(or green) cables, the load will be off after 8s, and the controller begins to charge.
4. Confirm the LED display status: If the red LED is super slow flashes(2.5s on/2.5s off), it is normal; else if the red LED is fast flashes, it means fault, please refer to the 10.2 Faults and Alarms to identify the reason.

- Make sure the length between battery and controller is as short as possible.
- Recommended minimum wire size: 2.5mm².

 Infrared sensor range will change with temperature, light conditions and so on, subject to the actual measurement.

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4.2 Transportation mode

The controller is generally integrated with the lithium battery in the lithium battery pack for transport, if the controller works normal during transport, it will waste of energy and increase the transport risk. If the controller is set to transport mode, the load has no output, then the power consumption is reduced by about 60%, to avoid lithium battery voltage too low.


4.2.1 Open circuit protection

If the controller is only connected with the battery, but not connected with solar and load, the controller will enter transportation mode after 5 minutes.

4.2.2 Press the "Test" key in transport mode

Press the "Back" and "Backlight" key at the same time more than 3s, the remote controller will work in transport mode.

Press the "Test" key in the transport mode, the remote controller displays "Transport OK" and will beep a long sound, the controller enters into transport mode.


 If the controller enters transport mode, the red LED will slow flash(0.2s on/5s off), the green and yellow led will be off and the remote control displays "Open CP".

4.2.3 Exit the transportation mode

When the load is properly connected, press the test key or connect the solar panel more than 1s during daytime, the transport mode will terminate and the controller will work normally.

5.Remote controller, Default setting

When Smart-DCLi series controller is connected to the system, you can setting the controller with S-Unit infrared remote controller. Detailed setting operations, please read S-Unit User Manual.

 **Remark:** Be sure to set only one Smart-DCLi unit at a time.



5.1 Test function

Press the "Test" key of S-Unit, the controller will turn on load for 1min. During daytime, the testing function can help users to verify correct installation or for system trouble shooting. 1min later the load will automatically turn off.

The relationship between "Test" key press times in the 1min and the output power of the controller is shown in the following table:

"Test" press times	Output power
1	Dimming1
2	Dimming2
3	Dimming3
4	Dimming4
5	Dimming5
6	End of test function

5.2 Read the parameters

Press the "Parameter" key of the S-unit to read the setting parameters of the controller.

Num	Name	Factory Default
1	Time1	4H
2	Dim1	100%
3	Time2	0H
4	Dim2	100%
5	Time3	0H
6	Dim3	100%
7	Time4	0H
8	Dim4	0%
9	Time5	0H
10	Dim5	100%
11	D/N Thr	5.0V
12	D/N Dly	0min
13	Load I	0.3A
14	Dim Auto	365
15	Battery	LI
16	CVT	12.6V
17	CVR	12.4V
18	LVD	9.0V
19	LVR	9.8V
20	0°C Chg	Yes
21	DelayOff	10s
22	Dim NP	10%

5.3 Read the running status

Press the "Status" key of the S-unit to read the running status of the controller.

Num	Name	Name describe	Unit
	Status:	Charge	
1	Batt V	Battery voltage	V
2	Load I	Load current	A
3	Load V	Load voltage	V
4	PV V	PV voltage	V
5	PV I	PV current	A
6	Energy	Total generating capacity	AH
7	OD Times	Over discharge times	Times
8	FC Times	Fully charge times	Times
9	Day1-HV	A day ago highest voltage	V
10	Day1-LV	A day ago lowest voltage	V
11	Day2-HV	Two days ago highest voltage	V
12	Day2-LV	Two days ago lowest voltage	V
13	Day3-HV	Three days ago highest voltage	V
14	Day3-LV	Three days ago lowest voltage	V

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6.Starting up the controller

6.1 Battery Type

Smart-DCLi series controller applies to Lithium rechargeable battery. The charging target and charging recovery voltage can be set according to customer requirements.

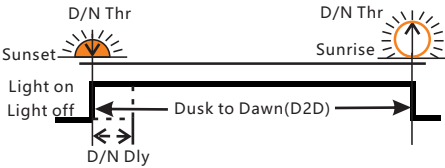
6.2 0°C Charging Protection

"0°C Chg" can be set to "Yes", "Slow" or "No". When the controller detects that the ambient temperature is higher than 0°C, the charging function is normal. When the ambient temperature is low than 0°C, if the "0°C Chg" is set to "Yes", the charging function is normal, else if the "0°C Chg" is set to "slow", the max charging current is 20% of the rated current, else if the "0°C Chg" is set to "No", the controller does not charge the battery. The user can select the appropriate charging method.

7. Streetlight Function

For controllers with infrared sensing function, if work mode is set to "Five-stage Night Mode" Or "T0T mode", "DelayOff" and "Dim NP" work in "Time3" and "Time4" period. "DelayOff" setting range: 10~150s. "Dim NP" setting range: 0~100%.

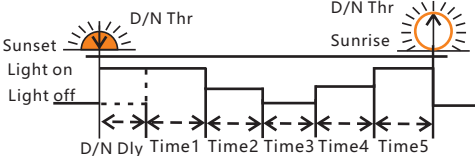
7.1 Dusk to Dawn (D2D, no induction function)



If "Time1" is set to "D2D", the controller works in dusk to dawn mode.

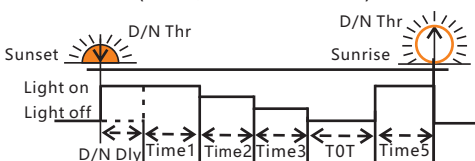
- 1.MPPT-DC controller is set to D2D mode, the corresponding dimming setting is still valid.
2. If "Time1" is set to D2D mode, "Time4" can not be set to T0T mode.

7.2 Five-stage Night Mode(Time3, Time4 can induction)



You can set the Time 1-5 and Dim 1-5 with S-Unit.

7.3 T0T mode(Time3, T0T can induction)



If "Time4" of the S-Unit is set to "T0T", this mode is T0T mode.

* If "Time4" is set to T0T mode, "Time1" can not set to D2D mode.

Parameter setting example:

Time1: 1.0H/100% Time2: 2.0H/80%
 Time3: 3.0H/60% Time4: T0T/40%
 Time5: 2.0H/100%
 DelayOff: 10s Dim NP: 10%

The controller works as follows:

After the arrival of the evening the first time the load is lit for 1 hour (full power 100%), the second time the load is lit for 2 hours (power 80%), the third time load light for 3 hours (when people is near the lamp then the load is 60% light, when people is away from the lamp the load is 60% * 10% light), and then the controller according to the actual night time automatically calculate the length of the fourth paragraph (when people is near the lamp then the load is 40% light, when people is away from the lamp the load is 40% * 10% light), the fifth time load light 2 hours (full power 100%).

8.LVD, LVR, Threshold, Dimming

8.1 Low Voltage Disconnect(LVD)

Low voltage disconnect setting range: 8.0~15.0V.

8.2 Low Voltage Reconnect(LVR)

Low voltage reconnect setting range: 8.6~16.0V.

If the controller goes into low voltage disconnect, it will restore only when the battery being recharged to the recovery voltage.

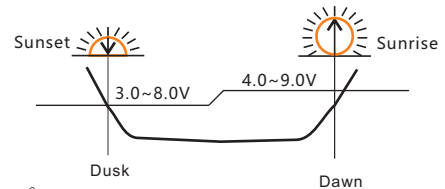
8.3 Day/Night Threshold, Day/Night Delay

The controller recognizes day and night based on the solar array open circuit voltage. This day/night threshold can be modified according to local light conditions and the solar array used.

Day/Night threshold setting range: 3.0~8.0V.

In the evening, when the solar array open circuit voltage reaches the setting day/night threshold, you can adjust the day/night delay time to make the load turn on a little later.

Day/Night delay time setting range: 0~30min.



1. Day/Night threshold voltage of load disconnect is 1V higher than the setting data, means the load will disconnect when the solar voltage at 4.0~9.0V.


2.The controller has an automatic day/night threshold adjustment function. If the lowest voltage of solar array is higher than the setting day/night threshold, the load has no output in first night, 24 hours later the controller can automatically adjust the day/night threshold to meet the requirements of lighting at night.

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8.4 Auto Dimming


8.4.1 Auto Dimming mode

The "Dim Auto" item of S-Unit is set to "Yes", set "Dim V" and "Dim %" at the same time, press the "Send" key to set up the controller. when the battery voltage is lower than the voltage of "Dim V", it starts to dimming automatically. Battery voltage reduces per 0.1V, load current decreased according to the set of "Dim %", the minimum output current is 10% of the setting current.

 If the controller is set to "Dim" or "Auto Dim", the minimum output power can be as low as 50mA.

8.4.2 365mode

365 mode is based on the battery power (charge power, discharge power) energy control. If the battery charge more during the day, then discharge more at night. The controller can calculate the dimming ratio according to the charging power and the remaining power of battery, so as to avoid the load shutdown due to the low battery voltage.


 When using the 365 mode, the system should be designed to meet the requirements of three rainy days.

9.Safety Features

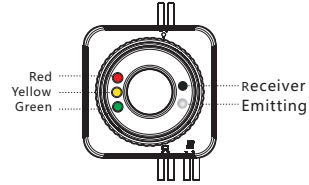
	Solar terminal	Battery terminal	Load terminal
Reverse polarity	Protected	Protected	Protected
Short circuit	Protected	Protected *1	Switches off immediately
Over current	—	—	Switches off with delay
Reverse Current	Protected	—	—
Over voltage	Max.25V *2	Max. 20V	—
Low voltage	—	—	Switches off
Over temp.	If the temperature reaches the set value, the controller cuts off the load.		

*1. Battery must be protected by fuse, or battery will be permanently damaged.

*2. The solar panel voltage should not exceed this limit for a long time.

 **Warning: The combination of different error conditions may cause damage to the controller. Always remove the error before you continue connecting the controller.**

10.LED indications and Faults & Alarms



10.1LED Display Explanation

LED	Status	Function
Green LED	On	not charging
	Slow flash(0.5/2s)	Charging
Yellow LED	Off	Over voltage protection
	On	Battery is normal
	Slow flash(0.5/2s)	Battery voltage is low
	Fast flash(0.1/0.1s)	Low voltage protection
Red LED	Slow flash(2.5/2.5s)	Work normal
	On	The output power is 0.
	Fast flash(0.1/0.1s)	Short circuit or Over current protection
	Flash(0.5/0.5s)	Over temperature protection
	Super slow flash (0.2s on/5s off)	Open circuit or transport mode. *1

*1.If the controller is in transport mode, the red LED is super slow flash(0.2s on/5s off), the green and yellow led is off.

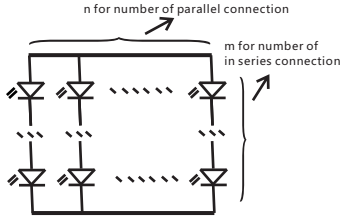
*2.Detailed fault information can be read by S-Unit remote controller.

10.2Faults & Alarms

Fault	Status	Reason	Remedy
Loads are not powered	Low volt. protection	Battery capacity is low	Load will be reconnected when battery is recharged
	Overcurrent, short circuit protection	Loads are over current or short circuit	Switch off all loads, remove short circuit, load will be reconnected after 1 minute automatically
	Over temp. protection	Controller temp. is too high	Load reconnects after temp. reduces
High voltage at battery terminal	Over voltage protection	High battery voltage > (" CVT" +0.2V)	Check if other sources overcharge the battery. If not,controller is damaged.
		Battery wires or battery fuse damaged, battery has high resistance.	Check battery wires, fuse and battery.
Battery is empty after a short time	Low voltage protection	Battery has low capacity	Change battery
Battery can't be charged	Green LED is off	PV panel fault or reverse connection	Check panels and connection wires


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11. Recommended connection of LED



Following connect ways is for the LED lights
(Vf: 2.9V~3.4V; I: 300mA, Power: 1W)

Output Voltage	Load current	Recommendatory connect way
(Vbat+2V) ~ 55V	0.3~2.0A	M=5~18 N=1~6

 **Note:** If the current setting requirements exceed the current range of the controller, then the controller is unable to set successfully.

12. Technical Data

	Item	SMR1006-DCN5MLiR
Battery Parameters	Max Charging Current	10A
	Charging voltage target	10.0~17.0V(Programmable)
	Charging voltage recovery	8.5~16.8V(Programmable)
	Low voltage disconnect	8.0~15.0V(Programmable)
	Low voltage reconnect	8.6~16.0V(Programmable)
	Battery Type	Lithium
	0°C Charging protection	Yes, Slow, No(Programmable)
Panel Parameters	Max volt on Bat. Terminal	20V
	Max volt on PV terminal	25V
	Dusk/Dawn detect volt.	3.0~8.0V (Programmable)
Load Parameters	Day/Night delay time	0~30min(Programmable)
	Output Current	0.15~2.0A(Programmable)
	Output Voltage	(Battery voltage + 2V) ~ 55V
	Output power	1~30W
	Min current	50mA(Dimming)
	Current precision	±2%
	Max LED driver efficiency	95%
	Dimming	0~100%(Programmable)
	Auto dimming	Yes, No, 365(Programmable)
	Voltage of start dimming	9.0~Charging target voltage(Programmable)
	Dimming percentage	1~20%(Programmable)
	Induction delay off time	10~150s(Programmable)
Dimming when no people	0~100%(Programmable)	
System Parameters	Self consumption	6mA
	Dimensions	68 * 68 * 39mm
	Weight	150g
	Wire size	2.5mm ²
	Ambient temperature	-35~+60°C
	Ambient humidity	0~100%RH
	Protection degree	IP65
Max Altitude	4000m	

Smart-Unit(SU05/7)

Remote Controller



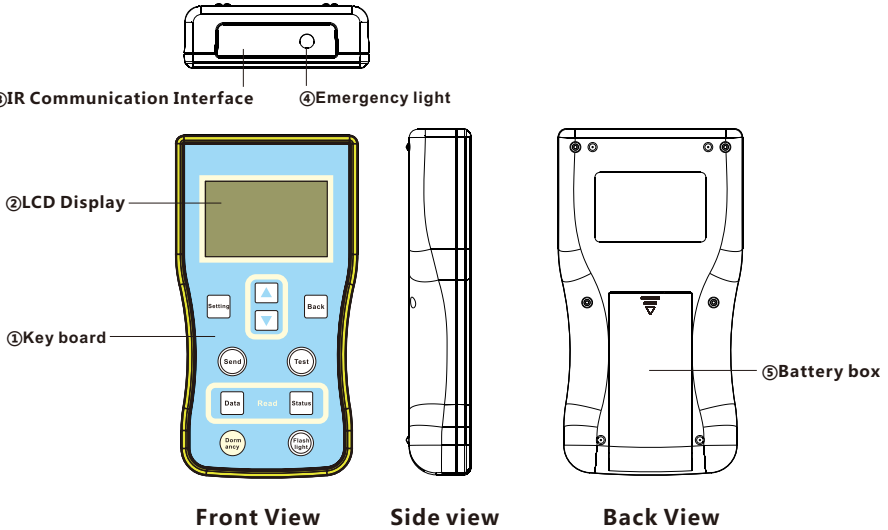
User Manual

Smart Remote Controller Smart-Unit User Manual

Dear Clients,

Thanks for choosing the S-Unit series Smart Remote Controller. With the S-Unit you own a state-of the art device which was developed according to the latest available technical standards. This manual gives important recommendations for installing, programming, using and so on. Read it carefully in your own interest please.

1. Panel graphics



2. Description of Function

It comes with a number of outstanding features, such as:

- Professional design of intelligent remote controller settings for a variety of products
- Large LCD display with parameters and running status
- Simple and clear configuration interface
- Automatic sleeping without operation, press some keys to wake up
- Power supply: (AA) x 2pcs batteries, Battery capacity indicator
- Emergency light and SOS lights

3. Key operate instruction

Key Name	Function	Long press key function
Setting	Parameter setting/ confirmation	Press "Set" and "Light" key to lock or unlock the parameters
▲	1.Menu Page Up 2.Increase the setting data	Continuous increase the setting data
▼	1.Menu Page Down 2.Decrease the setting data	Continuous decrease the setting data
Back	Return to the menu / exit	_____
Send	Send Parameters	_____
Test	Test the setting	_____
Read	Data	Read Parameters
	Status	Read running status
Dormancy	Send dormancy command	_____
Flashlight	1.Open the emergency lighting 2.SOS lights switch	Press "Light" and "Set" key to lock or unlock the parameters

4. Icon Description

4.1 Battery capacity indication



Capacity $\geq 75\%$




$50\% \leq \text{Capacity} < 75\%$



$25\% \leq \text{Capacity} < 50\%$



Capacity $< 25\%$

 If the battery capacity $< 25\%$ then the battery icon flashes to remind the user to replace the battery.

4.2 Key lock and unlock



Key lock



Key unlock

4.3 Communication success and failure

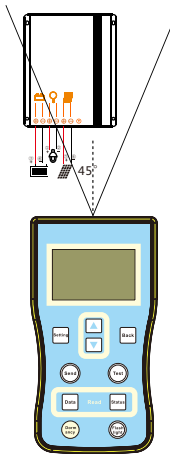


Communication success



Communication failure


5. Operating





5.1 Precautions

- Install two AA batteries, positive and negative poles can not be reversed;
- The remote controller will automatically enter sleep mode after 1min without any key operation;
- The remote controller sets the solar controller one by one, could not set several controllers at the same time;
- Turn on the Flashlight will shorten battery life;
- When the low battery symbol is displayed, please replace the battery;
- If long time no operation, the battery should be taken out.

5.2 Wake Up

1. Press "Set" or ""
"Dormancy" will wake up the remote controller.
2. Press the "FlashLight" key to wake up the remote controller will also turn on the lights.

5.3 Parameter Setting

Press ""
can browse the setting parameters, when you want to modify the shading parameter, you can press the "Setting" key, then the cursor starts blinking, press the ""
key, the current parameter can be adjusted, after adjustment is complete, press the "Setting" key to change to the next parameter or press the "Back" key to exit the current parameter setting.

If the cursor does not blink when you press the "Setting" key, then the current parameter can not be changed.

—For details, please refer to Chapter 7, "Parameters Setting."

5.4 Send

When the parameters are set up, aim at the solar charge controller and press the "Send" key. If send successfully, remote controller displays "Send Successful" and will beep a long sound; if failed, remote controller displays "Send Failure" and beep three short sounds; if the parameters such as battery type, load current or voltage settings are wrong, remote controller displays "Data Error" and beep three short sounds.

NOTE: If you press the "Send" key, do not immediately remove the remote controller, otherwise it will cause setup failed.

5.5 Test

Aim at the solar charge controller and press "Test" key, the load will be on, press the "Test" key again the output power of the load will switch to 50%. Test mode will last for 1 min, then enter the normal work mode.

Note: This feature varies by controller, please refer to the controller's user manual.

5.6 Read


5.6.1 Read the parameters

Aim at the solar charge controller and press the "Data" key, the remote controller will read the setting value of the controller. If reading successfully, the remote controller will beep a long sound and display the setting values, you can press " " key to navigate through the parameters, press the "Back" key to return to the previous page. If failed, the remote controller will display "Read Failure" and beep three short sounds, after 4s the remote controller automatically returns to the previous page.

5.6.2 Read the running status

Aim at the solar charge controller and press the "**Status**" key, the remote controller will read the running status of the controller. If reading successfully, the remote controller will beep a long sound and display the running status, you can press "**▲▼**" key to navigate through the data, press the "**Back**" key to return to the previous page. If failed, the remote controller will display "**Read Failure**" and beep three short sounds, after 4s the remote controller automatically returns to the previous page.

—For details, refer to Chapter 6, "Running status"

 When display parameters or status successfully, the "**Send**" key does not work, only after press the "**Back**" key to exit, the "**Send**" key will be available.

5.7 Dormancy

For the lithium series controller, aim at the solar charge controller and press the "**Dormancy**" key, the remote control shows "**Transport OK**" and will be a long sound, the controller goes into the transport mode which will reduce the power consumption. If the remote control shows "**Transport Error**" and beeps three short sounds, the controller does not enter the transport mode.

If you want to exit the transport mode, aim at the solar charge controller and press "**Test**" key.

—To exit the transport mode, please refer to the controller's user manual.

5.8 Flashlight

Press the "**Flashlight**" key, the emergency light will be on, press again will switch to the SOS light, press the key the third times, the light will be off.

If you did not shut down light, it will automatically turn off after 30s.

5.9 Lock

Press the "**Setting**" and "**Flashlight**" key at the same time more than 3s, the remote controller beeps two short sounds, then the "**Setting**" key will be lock to prevent carelessness operation.

If you want to unlock, press the "**Setting**" and "**Flashlight**" key again at the same time more than 3s, the remote controller beeps one short sound and the unlocked symbol comes out.

5.10 Buzzer

Beep length	Instruction
— (A short sound)	Unlock
— — (Two short sounds)	Key lock
— — — (Three short sounds)	Communication failure
— — — — (A long sound)	Communication successful

6. Running Status


When you press "**Status**" key, the first line of the LCD displays the system status, including "**Charge**", "**Discharge**" or "**Convert**" and so on.

If the controller is being protected for some reason, the remote controller will display failure information in priority, include "**Over CD**", "**Short CD**", "**Low VD**", "**Over VP**", "**Over TD**", "**Open CP**" and "**HardwareP**".

Please refer to the controller's user manual to troubleshoot the system.

Name	Name Describe
Charge	charging
Discharge	discharging
Convert	in charge and discharge conversion
Over CD	Over current disconnect
Short CD	Short circuit disconnect
Low VD	Low voltage disconnect
Over VP	Over voltage protection
Over TD	Over temperature disconnect
Open CP	Open circuit protection
HardwareP	Hardware protection

Num	Name	Name describe	Unit
	Status :	Charge	
1	Batt V	Battery voltage	V
2	Load I	Load current	A
3	Load V	Load voltage	V
4	PV V	PV voltage	V
5	PV I	PV current *1	A
6	Energy	Total generating capacity	AH
7	OD Times	Over discharge times	Times
8	FC Times	Fully charge times	Times
9	Day1-HV	A day ago highest voltage	V
10	Day1-LV	A day ago lowest voltage	V
11	Day2-HV	Two days ago highest voltage	V
12	Day2-LV	Two days ago lowest voltage	V
13	Day3-HV	Three days ago highest voltage	V
14	Day3-LV	Three days ago lowest voltage	V

-  1. Some types of controller are temporarily unable to detect PV current, the remote control displays "---".
2. When read status information successfully, press the "**▲▼**" key to navigate the page, press the "**Back**" key to return to the previous page.

Smart Remote Controller Smart-Unit User Manual

7.Parameters setting

Num	Name	Range	Name describe	Step Length	Factory Default
1	Time1	0~6.5H+24H+D2D *1	The first working time	0.5H	4H
2	Dim1	0~100%	Dimming of the first working time	10%	100%
3	Time2	0~7.5H	The second working time	0.5H	0H
4	Dim2	0~100%	Dimming of the second working time	10%	100%
5	Time3	0~7.5H	The third working time	0.5H	0H
6	Dim3	0~100%	Dimming of the third working time	10%	100%
7	Time4	0~7.0H+T0T	The fourth working time	0.5H	0H
8	Dim4	0~100%	Dimming of the fourth working time	10%	0%
9	Time5	0~7.5H	The fifth working time	0.5H	0H
10	Dim5	0~100%	Dimming of the fifth working time	10%	100%
11	D/N Thr	3.0~20.0V	Day/Night Threshold voltage	0.5V	5V
12	D/N Dly	0~30min	Day/Night open load delay time	5min	0min
13	Load I	0.15~6.0A	Load current	0.05A	0.3A
14	Dim Auto	Yes/No/365 *2	Automatic dimming	—	Yes
15	Dim V	8.0~32.0V *3	The voltage of start dimming	0.1V	12.5V
16	Dim %	1~20%	Automatic dimming percentage	1%	10%
17	Battery	LIQ/GEL/LI *4	Battery type	—	GEL
18	CVT	8.0~32.0V	Charging voltage target	0.1V	14.6V
19	CVR	7.5~31.8V *5	Charging voltage recovery	0.1V	14.0V
20	LVD	10.8~11.8V, Soc1~Soc5 *6	Low voltage disconnect	0.1V	11.0V
21	LVR	11.4~12.8V *7	Low voltage reconnect	0.1V	12.0V
22	0°C Chg	Yes/No/Slow *8	0°C Charging Protection	—	Yes
23	DelayOff	10~150s *9	Sensing delay off time	10s	10s
24	Dim NP	0~100% *10	Dimming when no people	10%	10%

*1.If "Time1" is set to "24H" , the load will work for 24hours.

*2.If you select "Yes" in the "Dim Auto" item, then the "Dim V" and "Dim %" will display. The 365 model is only applicable to lithium series controller.

*3.For the lithium battery, "Dim V" should not be greater than the "CVT" ; for the Gel or Liquid battery, "Dim V" should not be greater than 12.5V.

*4.If you select "LI" in the "Battery" item, then the "CVT" and "CVR" will display.

*5."CVR" should be less than "CVT" 0.2~1.5V, if you want to reduce "CVT", you should first reduce "CVR".

*6.The data in the table is only for Gel or Liquid cell. If you select "LI" in the "Battery" item, the range of "LVD" is 6.0~30.0V, the range of "LVR" is 6.6~31.0V.

Soc range : Soc1 : 11.0~11.6V; Soc2 : 11.1~11.7V; Soc3 : 11.2~11.8V; Soc4 : 11.4~11.9V; Soc5 : 11.6~12.0V

*7."LVR" should be higher than "LVD" at least 0.6V, if you want to improve "LVD", you should first improve "LVR".

*8."0°C Chg" is suitable for lithium series controller. It can be set to "Yes", "Slow" or "No" . When the controller detects that the ambient temperature is higher than 0°C, the charging function is normal. when the ambient temperature is low than 0°C, if the "0°C Chg" is set to "Yes" , the charging function is normal, else if the "0°C Chg" is set to "slow" , the max charging current is 20% of the rated current, else if the "0°C Chg" is set to "No" , the controller does not charge the battery.

*9. "DelayOff" : This feature is suitable for controller with the infrared sensing function, when people is near the lamp, it will work as pre-setting power, when people is away from the lamp, after "DelayOff" time It will work as "Dim NP" power.

*10. "Dim NP" :This feature is suitable for controller with the infrared sensing function, When people is away from the lamp and the controller works in "Time3" or "Time4" period, the controller runs according to "Dim NP" power.

*11.Voltage parameters set by remote controller only for 12V system, for 24V system, the actual operating parameters are doubled. For lithium battery, please refer to the controller' s user manual.

8. Work Mode

8.1 Standard(24H)

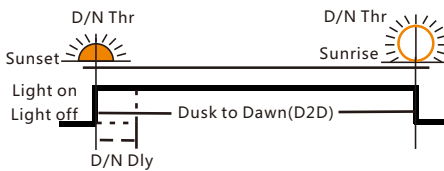


Light On

For controllers with "Standard" function(Smart series), if "Time1" is set to "24H" or "7.0H" and sent to the controller successfully, the controller' s load will always open.

—For details, refer to the controller's instruction manual.

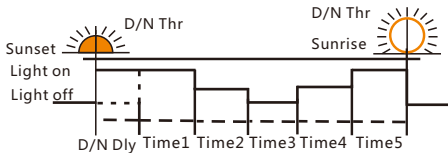
8.2 Dusk to Dawn (D2D)



If "Time1" is set to "D2D", the controller works in dusk to dawn mode.

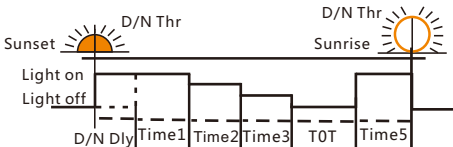
If "Time1" is set to D2D mode, "Time4" can not be set to TOT mode.

8.3 Five-stage Night Mode



You can set the Time 1-5 and Dim 1-5 with S-Unit.

8.4 TOT mode(can set the load on time before morning coming)



If "Time4" of the S-Unit is set to "TOT", this mode is TOT mode.

* If Time4 is set to TOT mode, Time1 can not set to D2D mode.

8.5 Infrared sense mode

For controllers with infrared sensing function, if work mode is set to " Five-stage Night Mode" or " TOT mode" , "DelayOff" and "Dim NP" works in "Time3" and "Time4" period.

If you set the operating mode parameters are as follows:

Num	Name	Setting Data
1	Time1	1.0H
2	Dim1	100%
3	Time2	2.0H
4	Dim2	80%
5	Time3	3.0H
6	Dim3	60%
7	Time4	T0T
8	Dim4	40%
9	Time5	2.0H
10	Dim5	100%
11	DelayOff	10s
12	NP Dim	10%

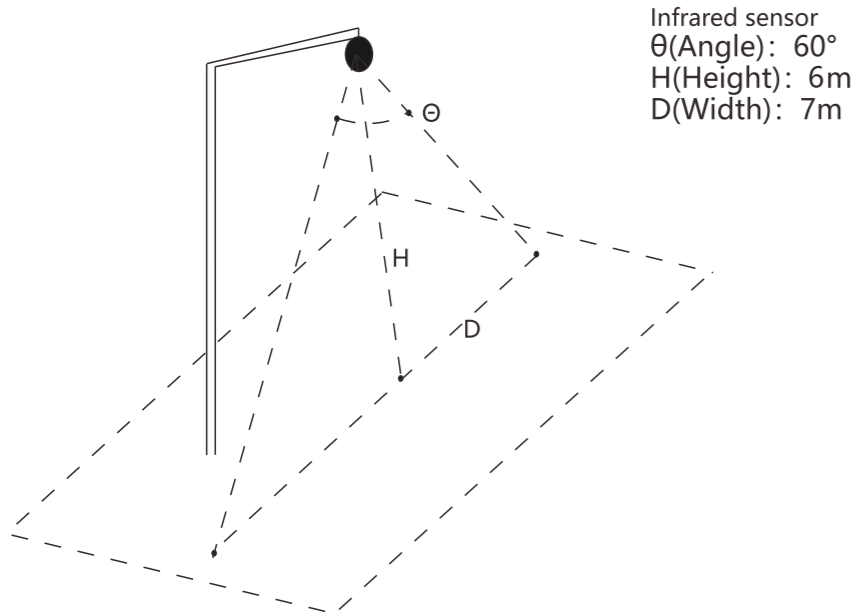
The controller works as follows :

After the arrival of the evening the first time the load is lit for 1 hour (full power 100%), the second time the load is lit for 2 hours (power 80%), the third time load light for 3 hours (when people is near the lamp then the load is 60% light, when people is away from the lamp the load is 60% * 10% light), and then the controller according to the actual night time automatically calculate the length of the fourth paragraph (when people is near the lamp then the load is 40% light, when people is away from the lamp the load is 40% * 10% light), the fifth time load light 2 hours (full power 100%).

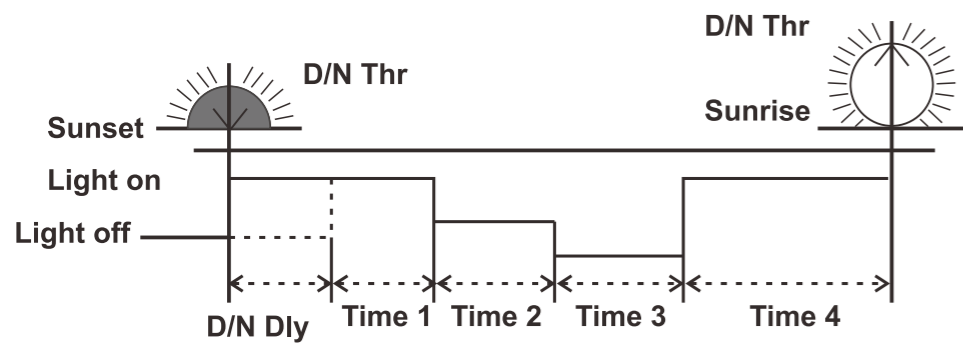
9. Technical parameters

Battery model	(AA) x 2Pcs
Power supply voltage	3.0V
Power consumed of sleep mode	<6uA
Normal power consumption	<6mA
Sending power consumption	<20mA
Light consumption	<15mA
Backlight consumption	<7mA
Effective distance	<8m
Size(mm)	120x65x20 (Lx W x H)
Weight	92g (Not including the battery)
Automatic sleep	1min
Lighting time	30s
Backlight time	30s
2000mAH battery setting quantity	50000↑ (Backlight and light are closed)
Working temperature	-25°C~50°C
Protection degree	IP22

PIR Sensor Detect Areas

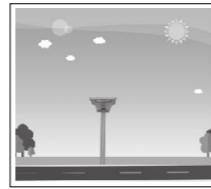


4 Stages Night Mode



* Please note the sensor function is available from time 1 to time 4.
 * You can set the fixtures with 4 stages timmer dimming yourself by the remote control.

Factory Default Setting



With sufficient natural light, the light keeps charging



The light keeps 100% brightness for 0.5hour



The light keeps 50% brightness when presence is detected in the 1st 4hours



The light keeps 10% when there is no presence is detected after 30S hold time in the 1st 4hours



The light keeps 20% brightness when presence is detected in the 2nd 4hours



The light keeps 10% when there is no presence is detected after 30S hold time in the 2nd 4hours

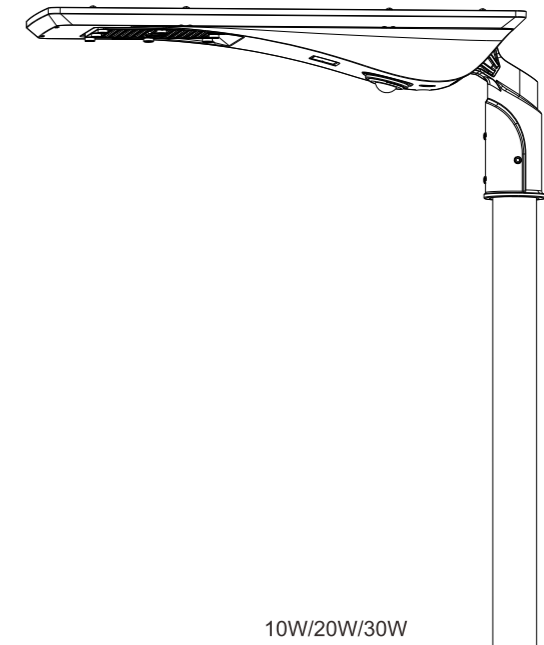


The light keeps 10% brightness for 3hours until the sunrise.

The controller recognizes day and night based on the Solar Array Open Circuit Voltage, this day/night threshold can be modified according to local light conditions and the Solar Array Used, setting range 3.0~8.0V.

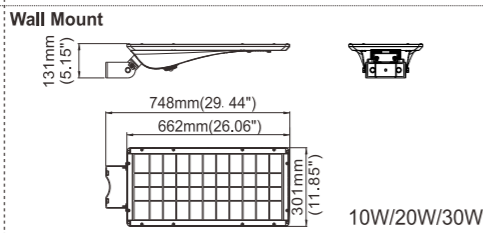
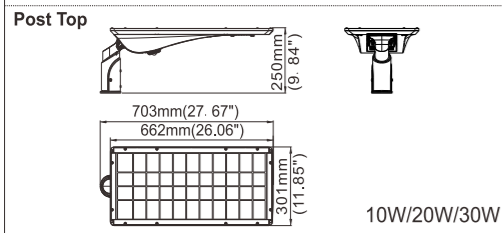
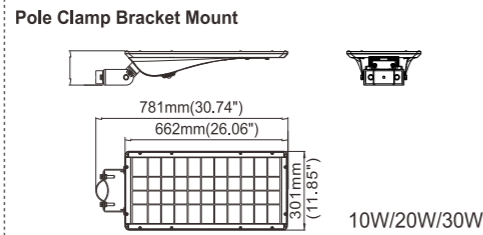
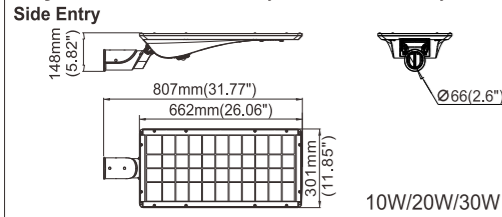
LED Solar Street Light

Instruction Manual

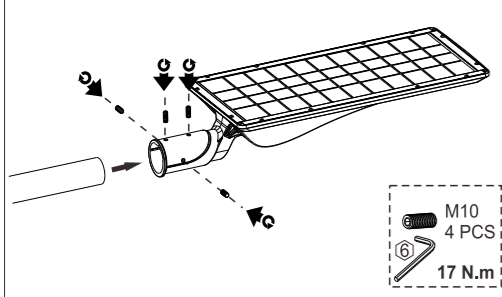


10W/20W/30W

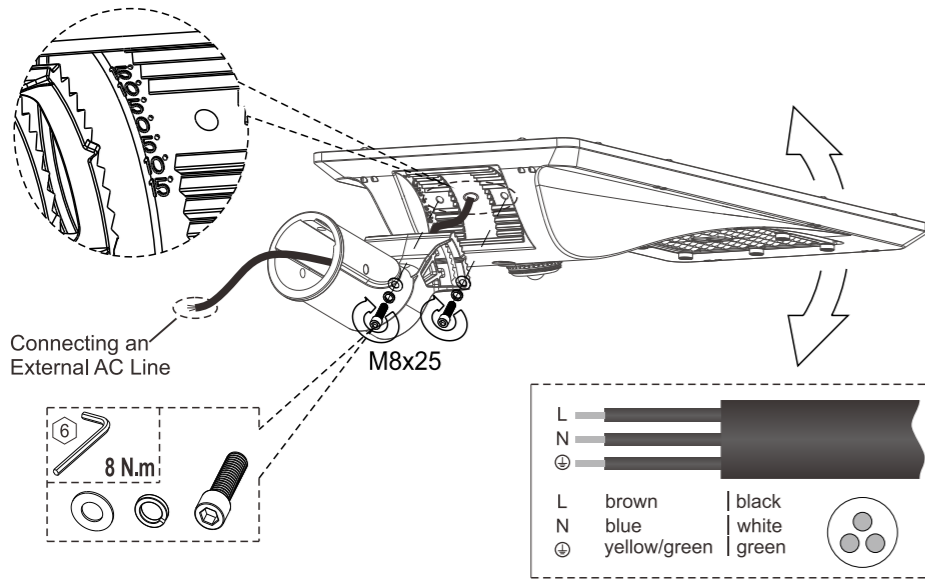
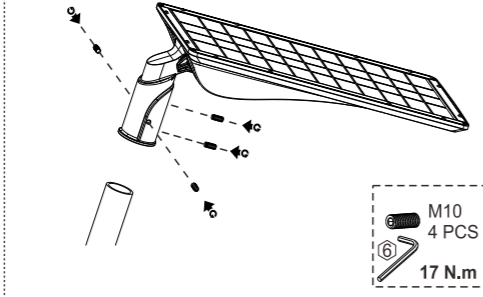
Physical Dimensions(Unit: mm/inch)



Side Entry Mount

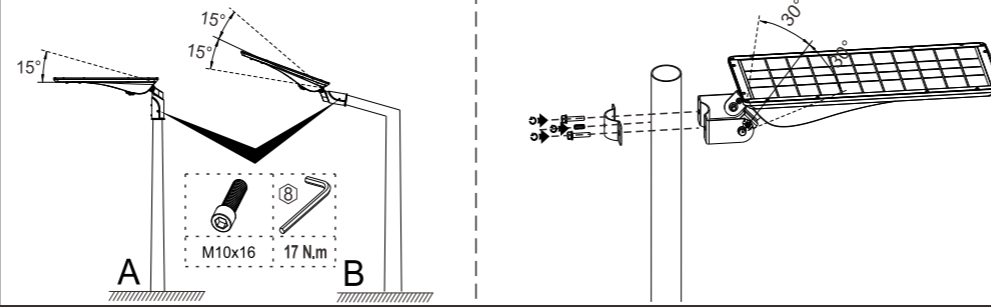


Post Top Mount

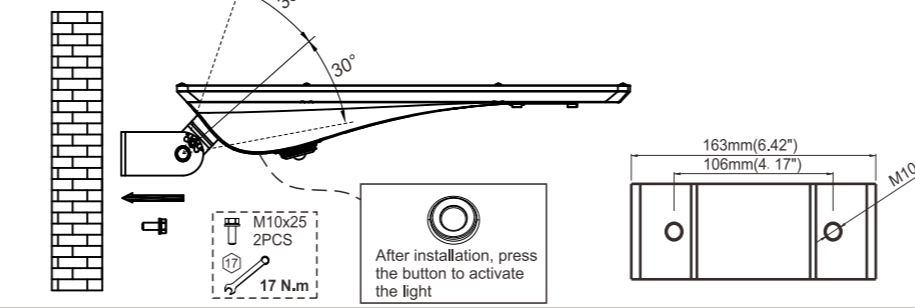


Pole Clamp Bracket Mount

Available for 60/76mm Pole

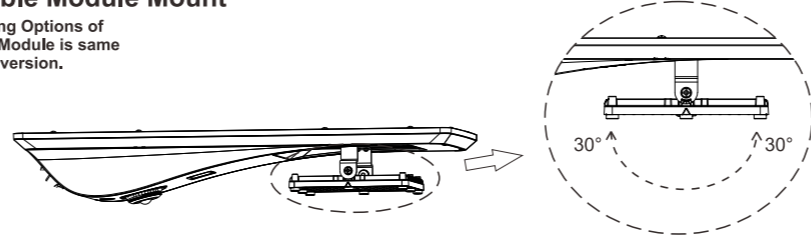


Wall Mount



Adjustable Module Mount

The Mounting Options of Adjustable Module is same like normal version.

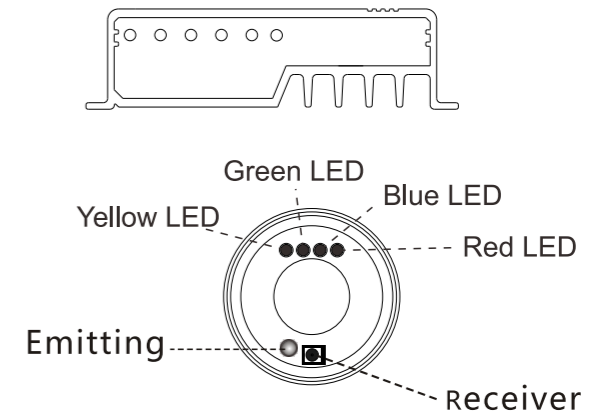


Main Function

This is hybrid solar energy street light. When the battery storage is insufficient(the battery voltage is lower than 9.6V), the luminaire will automatically switch to the mains power supply. When the solar power supply restores the voltage, the system will automatically cut off the mains power supply and restore the solar power supply.

Product Specifications	10W	20W	30W
Input Voltage	100-277V AC / 120-277 V AC / 100-240V AC / 220-240V AC (Subject to the input voltage on nameplate)		
Power Frequency	50 / 60 Hz		
Outlook Dimensions	807x301x148mm(31.77"x11.85"x5.83")		
Net Weight	6±0.3kg(13.23±0.66Lbs)		
Projected Area	0.24m²(2.56ft²)		
Working Temperature	0°C to +50°C(32°F to +122°F)		
Storing Temperature	-20°C to +60°C(-4°F to +140°F)		

Check the status of the controller

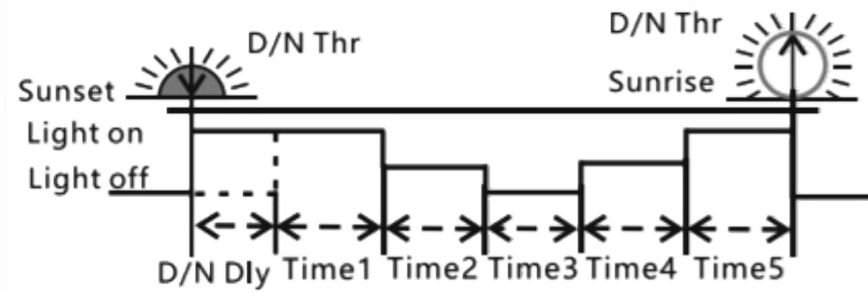


LED Display Explanation

Indicator light	Status	Indicator light description
Blue light (battery)	Bright	Battery powered
	Out	No output voltage of battery
	Slow flash	Municipal power supply
Red light (photovoltaic)	Flash	Battery undervoltage
	Bright	The battery is in a state of charging saturation
	Out	The output voltage of the solar panel is lower than the light voltage (dark night)
Green light (load)	Flash	solar panels are charging the battery
	Slow Flash	During the charging process, the protection is started because the temperature is too high or too low
	Bright	The light is on, and the load has output
Yellow light (induction)	Out	The light is turned off, and the load has no output
	Flash	Load output open circuit protection, short circuit protection, over current protection, over power protection
	Slow Flash	In the process of slow flash discharge, the protection is started because the temperature is too high or too low.
Red, green and blue lights take turns flashing(at this time, it is powered by the solar panel)	Bright	Sense that someone is walking or an object is moving (the controller with induction has this light)
Red, green and blue lights take turns flashing(at this time, it is powered by the solar panel)		Battery protection board. The system is opening and restarting the battery protection board. 2, the system can not find the battery, the battery has no communication, it may be reverse connection, the positive and negative poles are not connected properly, and there is something wrong with the battery.

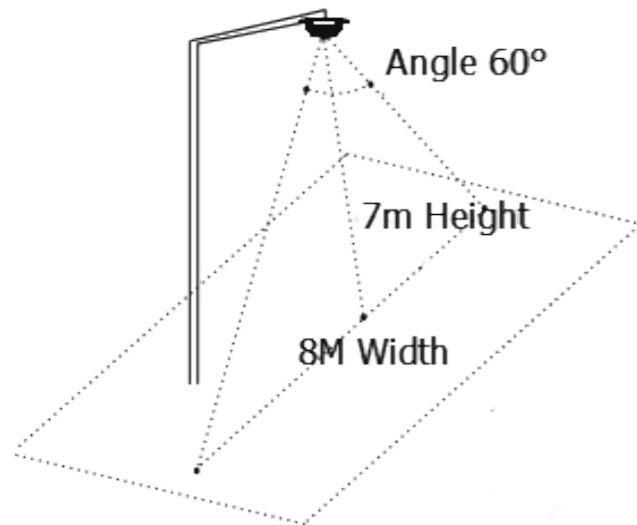
Detailed fault information can be read by SG-Unit remote control.

5 Stage Night Mode

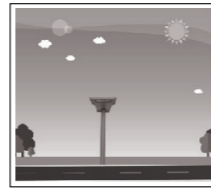


- * Please note the Sensor function is only available at Time 3 and Time 4
- * You can set the fixtures with 5 stages timer dimming yourself by the remote Controller.

PIR Sensor Detect Areas



Factory Default Setting



With sufficient natural light, the light keeps charging



The light keeps 100% brightness for 0.5hour



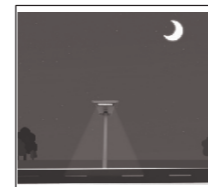
The light keeps 50% brightness when presence is detected in the 1st 4hours



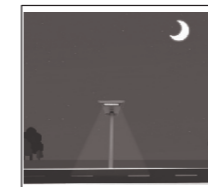
The light keeps 10% when there is no presence is detected after 30S hold time in the 1st 4hours



The light keeps 20% brightness when presence is detected in the 2nd 4hours



The light keeps 10% when there is no presence is detected after 30S hold time in the 2nd 4hours



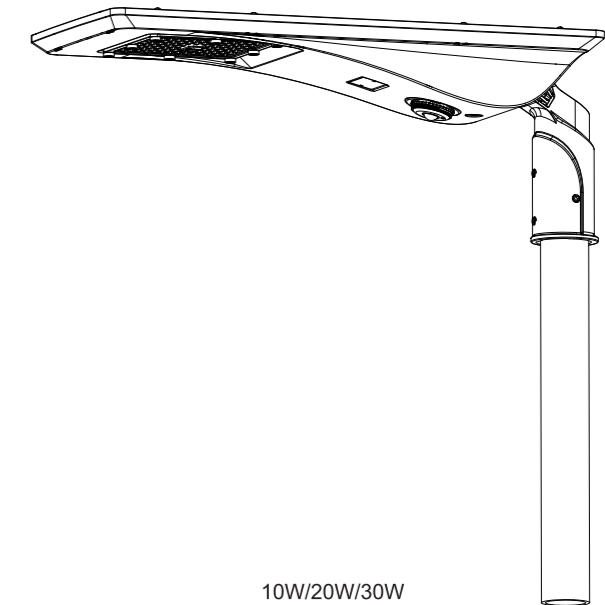
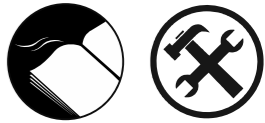
The light keeps 10% brightness for 3hours until the sunrise.

The Controller recognizes day and night based on the Solar Array Open Circuit Voltage, this day/night threshold can be modified according to local light conditions and the Solar Array Used, setting range 3.0 ~8.0V

For more details, Please refer to the specification sheet of the Controller and Remote Controller.

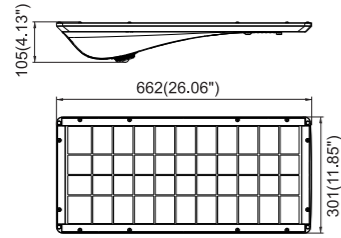
LED Solar Street Light

Instruction Manual

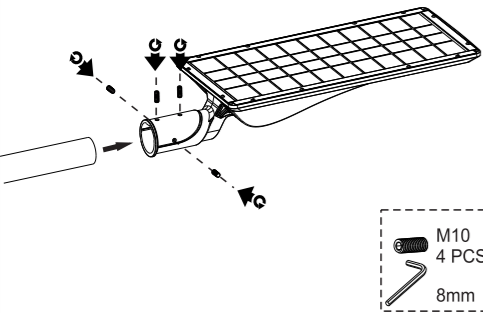


10W/20W/30W

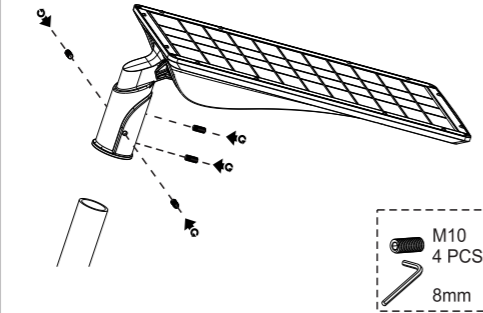
Standard Version



Side Entry Mount

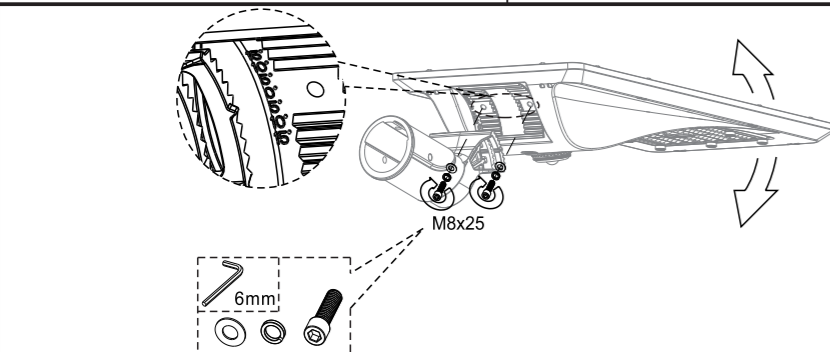
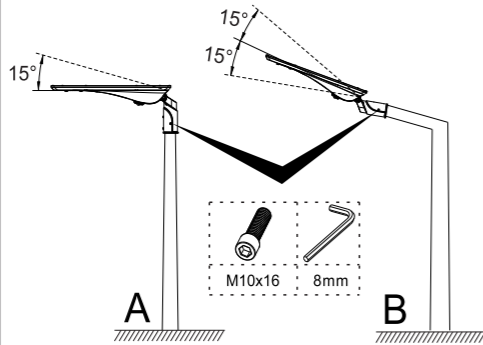
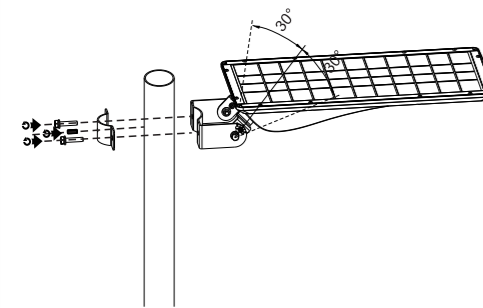


Post Top Mount

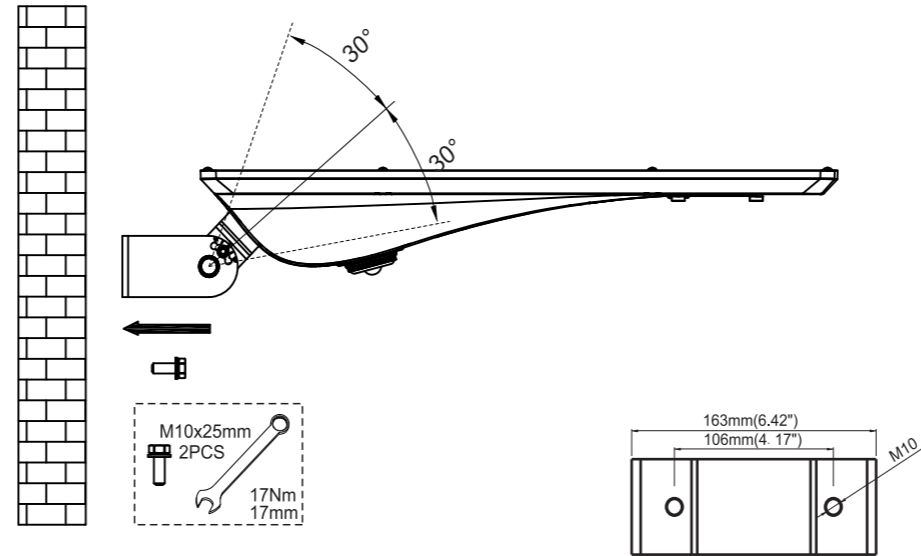


Pole Clamp Bracket Mount

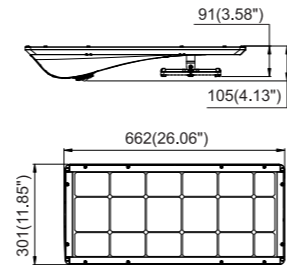
Available for 60/76mm Pole



Wall Mount

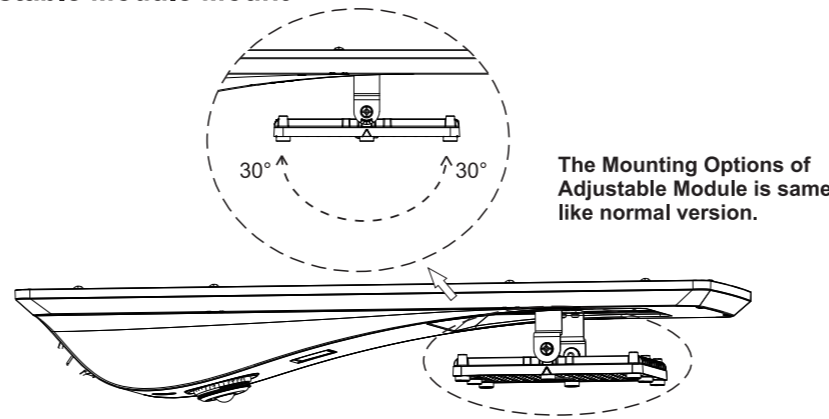


Adjustable Module(Optional)

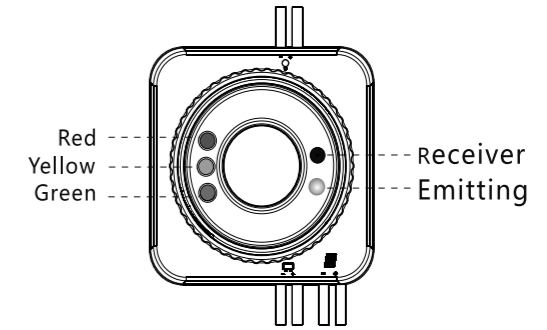


The Mounting Options of Adjustable Module is same like normal version.

Adjustable Module Mount



LED indications and Faults & Alarms



LED Display Explanation

LED	Status	Function
Green LED	On	not charging
	Slow flash(0.5/2s)	Charging
Yellow LED	Off	Over voltage protection
	On	Battery is normal
	Slow flash(0.5/2s)	Battery voltage is low
	Fast flash(0.1/0.1s)	Low voltage protection
Red LED	Slow flash(2.5/2.5s)	Work normal
	On	The output power is 0.
	Fast flash(0.1/0.1s)	Short circuit or Over current protection
	Flash(0.5/0.5s)	Over temperature protection
	Super slow flash (0.2s on/5s off)	Open circuit or transport mode. *1

*1.If the controller is in transport mode, the red LED is super slow flash(0.2s on/5s off), the green and yellow led is off.

*2.Detailed fault information can be read by S-Unit remote controller.