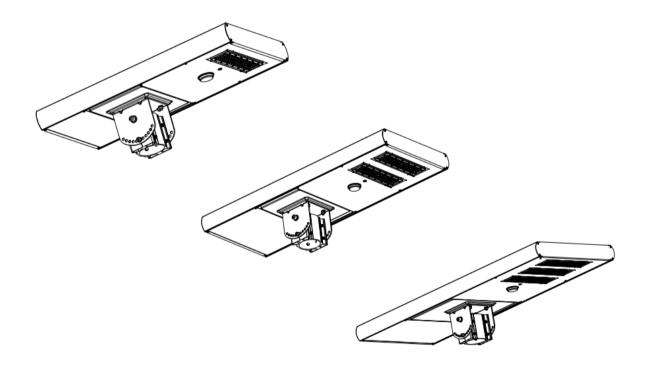
# **PHILIPS**

# BRP010 Solar LED Road Lighting Mounting Instructions

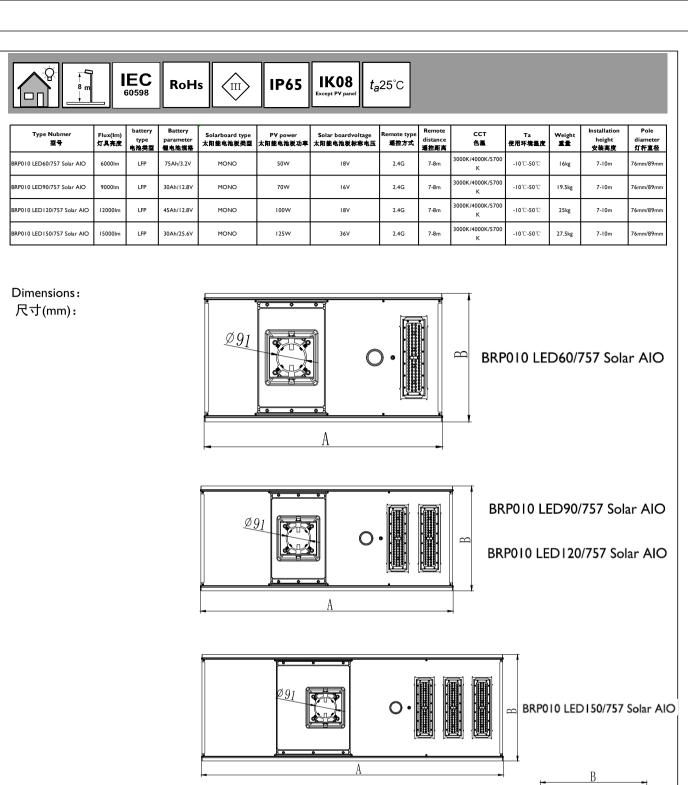


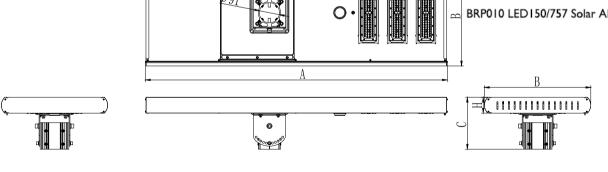
Page 1

#### Note:

The MI sheet will be updating according to new technical and new products. You should ask Signify representative to get the latest version.

Post code: 200233





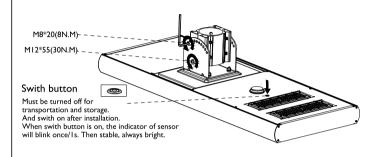
Type number 系列型号	Α	В	С	Н
BRP010 LED60/757 Solar AIO	797	430	235	72
BRP010 LED90/757 Solar AIO	1037	430	235	72
BRP010 LED120/757 Solar AIO	1157	481	235	72
BRP010 LED150/757 Solar AIO	1367	482	235	72

Unit:mm 单位:mm

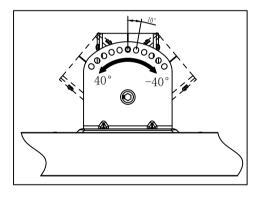
## Installation

Step I: A: Open the package and check if the light fixture is in good condition. Click the switch button to test if the light is working properly (solar panel should be tested in a dark environment).

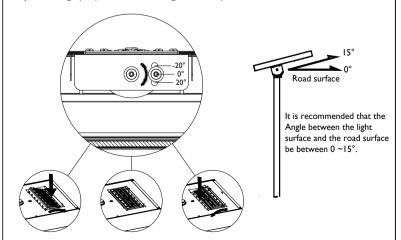
Remove the M8 screw (8N.M) and loosen the M12 screw (30N.M).(Prepare accessories and tools:6MM hex wrench, 10MM hex wrench)



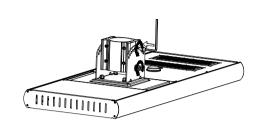
Step 2: Adjust the tailstock angle (adjustable range of  $\pm 40^{\circ}$ ) according to the local lighting conditions.



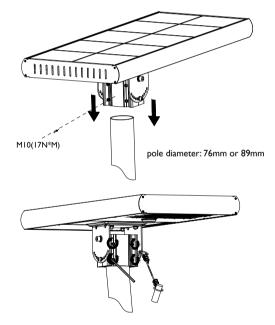
Step 3::Adjust led module to the appropriate angle by pressing (adjustment range  $\pm 20^{\circ}$ )



Step 4: Tighten the M8 screw (8N.M) and the M12 screw (30N.M).

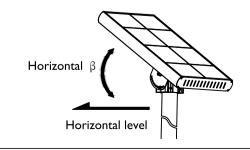


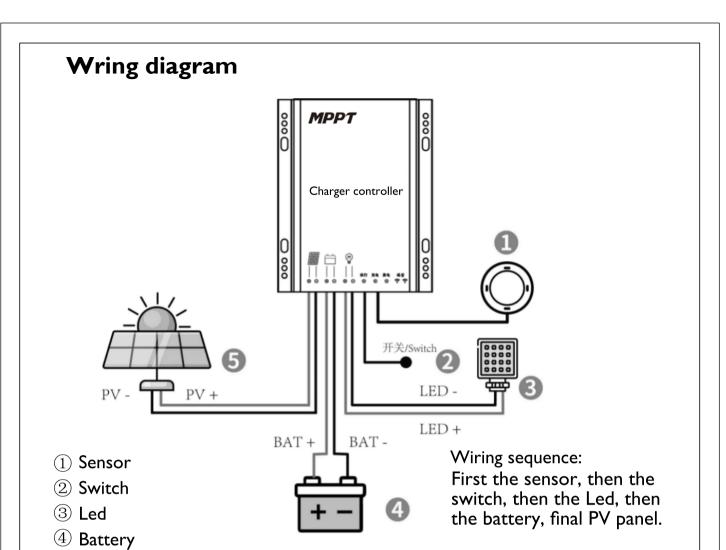
Step 5: Insert lamp into lamp pole, tighten M10 screw, torque 17N.M. (Tool: 5MM hex key)



Safety chain is recommended to install (Safety chain diameter ≥5mm and drop height ≤0.5m, no supplied in the luminaire).

Step 6: The tilt (horizontal angle  $\,\beta$ ) of the luminaire must follow Signify's requirements to ensure the maximum amount of sunlight is gained. You can contact Signify representative to get it.





# Installation&Wring Preparation

The follow tools are necessary.



**5** PV panel

Multimeter/ DC Clamp meters



Spanner



Electrical screw driver



screw driver



Service hatch door opening tool



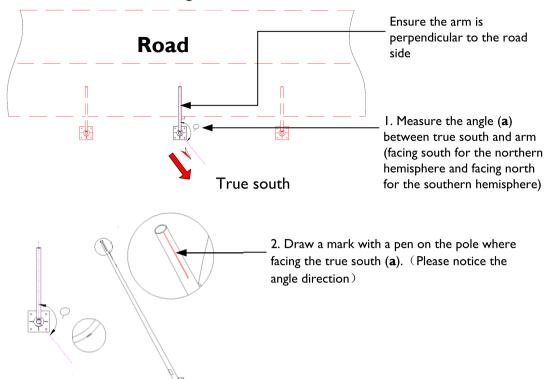
Insulating gloves

#### Note:

The tools listed do not include items needed for pole installation and other construction work.

# Pole installation

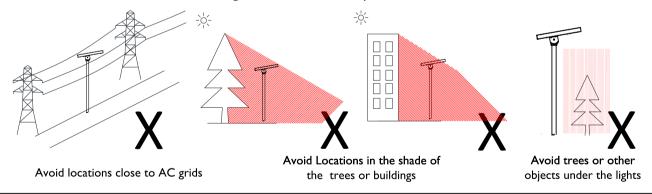
### Mark the Angle between True South and Arm



Note: The foundation is not provided by Signify, it is designed and constructed by third party. the third party must be responsible for the reliability and safety. A weak foundation may cause safety accident.

#### Install in the correct location

The pole location must follow the design layout. The battery chamber must be positioned close to the foundation but avoiding some locations as pictured below.



## Sensoring road width

#### Note:

- The product mounting height must be <= 8meters. Incase mounted above 8meters, the strength and performance of the luminaire will be compromised.
- 2. The detection range of the sensor is related to the movement speed/ the size of movement object/the installation height and angle/the installation site/reflectors around the sensor, etc. The detection range given on the instruction is typical values and tested in an outdoor open area with a personnel condition of 165cm height/65kg weight.

# **Dimming setting**

	Dimming setting					
Туре	BRP010 LED60/757 Solar AIO	BRP010 LED90/757 Solar AIO	BRP010 LED120/757 Solar AIO	BRP010 LED150/757 Solar AIO		
Flux	6000lm	9000lm	I 2000lm	I 5000lm		
Driver Mode	Sense	Sense	Sense	Sense		
Light Delay	30s	30s	30s	30s		
First Time	2H	2H	2H	2H		
Light Ratio	100%	100%	100%	100%		
Idle Ratio	20%	20%	20%	20%		
Secnd Time	3H	3H	3H	3H		
Light Ratio	50%	50%	50%	50%		
Idle Ratio	10%	10%	10%	10%		
Third Time	7H	7H	7H	7H		
Light Ratio	30%	30%	30%	30%		
Idle Ratio	10%	10%	10%	10%		
MorningLight	On	On	On	On		
MorningTime	2H	2H	2H	2H		
Light Ratio	30%	30%	30%	30%		
Idle Ratio	10%	10%	10%	10%		

Note: Don't change the defaults working mode, otherwise the performance of the product can be adversely affected if the factory setting is changed and set on wrong parameters.

# Troubleshooting & Maintenance

# **Troubleshooting Table**

Bad phenomenon of luminaire	Failure analysis	Solution
iunmane	I.The switch may not conduct	1. Whether the switch button is normal, if the switch is pressed, there will be a sound.  2. If the switch button is damaged, you can open the 2 wires of the switch, and use a multimeter to test the continuity of the switch in different states., If it is a switch problem, you can cut it and replace it with a new one, or you can cut it off, connect the two wires in parallel, and wrap them with insulating tape (the switch function could not be used).
No light, no indicator	2.The connection terminals may be in poor contact, loose, or fall off	Visually inspect for loose wires. Use a multimeter to test whether the two terminals of the terminal are connected. If it is connected, it is normal; if it is not connected, it may be due to poor wiring or the terminal is not connected, and the terminal can be replaced.
	3.Solar panel may be demaged	In the sunlight, disconnect the solar panel wire and use a multimeter to test the short-circuit current and open circuit voltage of the solar panel. If there is no voltage or voltage but no current, it indicates that the solar panel is damaged;
	4.Battery is no electrical.	Make sure that other components are normal, use a multimeter to test whether there is voltage across the battery, if there is voltage, the battery is normal: If there is no voltage, it needs to be activated by charging (theluminaire should be exposed to the sun for more than 0.5 hours).
	5.The controller may be damaged	Make sure that other parts are in normal condition, it can be determined that the controller is damaged and needs to be replaced with a new controller.
The light is off, the sensor red indicator flashes quickly	I.The load may be shorted or open	Visually inspect or use a multimeter to test the short circuits or open circuits in the positive and negative terminals of the load, ensuring that the terminals are in normal condition. Replace with a new LED module.
	2. Undervoltage Battery	If the battery voltage is lower than the clearing undervoltage point in the parameter settings, recharge and activate (the lamp should be exposed to sunlight for more than 0.5 hours). If it cannot be activated, it is judged that the battery has a fault and needs to be replaced with a new battery.
	3.The battery or solar panel may be badly wired	Visually inspect for loose wires. Use a multimeter to test whether the two terminals of the terminal are connected. If it is connected, it is normal; if it is not connected, it may be due to badly wiring or the terminal is not connected, and the terminal can be replaced.
	4.The battery may be overcharged and overdischarged or protected by the BMS board	Use a multimeter to test whether there is voltage at both ends of the battery, if there is a voltage, it means it is normal. If there is no voltage, it needs to be charged to activate, and it needs to be charged once after a maximum of 3 months of storage. If it cannot be activated, it is judged that the battery is faulty and needs to be replaced with a new battery.
	5.Overtemperature protection	Firstly, confirm if the appearance of the controller temperature sensor is damaged. If it is damaged, the controller needs to be replaced. If the appearance is normal, confirm if the actual battery compartment temperature exceeds 65 degrees Celsius. If it exceeds 65 $^{\circ}$ C $^{\circ}$ 5 $^{\circ}$ C, it is considered normal protection. After the temperature returns to normal, it will recover on its own.
	6.Solar panel damaged	In the sunlight, use a multimeter to test the short-circuit current and open-circuit voltage of the solar panel. If there is no voltage or there is voltage and no current, it means that the solar panel is damaged.
	7.controller damaged	Make sure that the above components are in normal condition, it can be determined that the controller is broken and needs to be replaced with a new one.
The light is off, the red indicator of controller flashes quickly	I.The load may be shorted or open	Visually inspect or use a multimeter to test the short circuits or open circuits in the positive and negative terminals of the load, ensuring that the terminals are in normal condition. Replace with a new LED module.
The light is off, the yellow-green indicator of controller flashes slowly	I.Parameter setting error	Read the controller settings parameters with the remote control and analyze the specific problem points.
	The solar panels are not installed at the right angle.	Observe whether the solar panel installation method of the luminaire is correct. Install the solar panel in the northern hemisphere to face south, and the tilt angle is recommended to be equal to the local latitude $+5\sim20^{\circ}$ .
The battery life is significantly shorter	2.The solar panel may be shaded,lead to a decrease in charge.	Observe whether the solar panel of the luminaire receives direct sunlight during the day, remove the shade, or keep the luminaire away from the shade.
	3.There may be dust accumulation on the solar panel, which reduces the charging capacity	It is recommended to clean it every 6 months. The specific frequency depends on the dust accumulation. It can be cleaned with neutral tap water.
	4.There may be more rainy weather, and lithium batteries may experience long-term battery depletion	Long term cloudy and rainy weather, the solar panel generates only 5-30% of the standard charging amount. Place the lamp under sunlight for continuous charging for 8 hours
	5.lt is possible that the battery capacity has deteriorated significantly	Professional lithium battery capacity testing equipment can be used to test the actual capacity of the battery. If the battery capacity is lower than 80% during the warranty period, it indicates that the battery has decayed in advance and needs to be replaced with a new battery.
	6.The solar panel may be damaged and cannot be charged	In the sunlight, use a multimeter to test the short-circuit current and open-circuit voltage of the solar panel. If there is no voltage or there is voltage and no current, it means the solar panel is damaged.
	I.May be affected by the installation environment	Check whether there is interference from base stations, metal meshes, etc. near the installation of lamps, resulting in insensitivity of induction. Whether there are moving objects near the light pole, such as buildings, trees, water flow, etc., affecting the malfunction, whether the installation is too high, etc.
Insensitive induction, misoperation	2.lt may be that the sensor is not energized or damaged	Observe whether there is a red indicator light on the sensor. If there is an indicator light, it means power is on. If there is no indicator light, you need to confirm that the sensor wiring is normal. You can open the battery compartment and reconnect the sensor connector. If there is still no indicator light, it means the sensor is connected. Abnormal, need to replace the new sensor.

#### Notes

- If encounter any abnormal situation or failure, please immediately contact Signify representative. Do not
  try to repair system by yourself to avoid any damage to the system and injure to people.
- For more detail solutions, please check respective Datasheet/MI.

# Remote Control Status Read Troubleshooting (for those with a remote control that can be read)

Phenomenon	Remote control read state analysis	Meaning	Troubleshooting methods
Bato	BatVoltageLow	Battery over-discharge, low voltage	Automatic recovery when the battery is fully charged. If it cannot be restored or cannot be charged, use a multimete to test whether there is voltage at both ends of the battery If there is no voltage, the battery is faulty and needs to be replaced with a new one.
	BatOverVoltage	Battery voltage is too high	Check if battery voltage is correct
		load short or open	Use a multimeter to check if the load is connected properl
	OutputFault	No load	Check whether the load is connected or the positive and negative poles are reversed.
	Off		Pay attention to the ventilation and cooling of the battery, and the battery will automatically recover after the battery temperature is lowered.
		The battery temperature is too high	If the temperature drops or there is a display fault, first confirm whether the appearance of the temperature senso of the controller is damaged. If it is damaged, the controlle needs to be replaced.
Not charge	PV Reverse	Positive and negative poles of photovoltaic panels are reversed	Check whether the positive and negative poles of the PV panel are connected correctly
Not charge	OutputFault	Overcharge protection of lithium battery protection board	Lithium battery automatically resumes charging after voltage drops, do not need to be processed.

### **Maintenance**

#### **Panel**

- I. PV Panel has to be cleaned quarterly or whenever not performing according to specs, whichever is earlier. (The PV panel cleaning frequency are most depend on location, local pollution and climate event such as storms, typhoon or if PV panel is actually covered with soils/bird shits etc.;)
- 2. If in heavy dust area, It is required to clean the solar module regularly (may be once a quarter) with a damp towel to guarantee optimum performance of the solar panel;
- 3. Do not use any type of solvent for cleaning and be careful not to put too much pressure on the module while cleaning.
- 4. Check if there is trees shading on the PV panel, if yes, please trim the trees to avoiding the shading on the PV panels.

#### **Battery**

If any abnormal symptom happened, Battery maybe need maintenance. following below check point and test:

- 1. Check local abnormal climates condition, rainy days, flood events, storm etc.;
- 2. Check if there is any loose connections, visual check the terminal joint rusting or not, check damage signs of connector or terminals, check if the water immerge into the connector;
- 3. Check cleanliness of battery and cracks or damage of the battery;
- 4. Measure and record ambient temperature in battery chamber and case temperature on battery;
- 5. Measure and record total voltage and float current of battery;
- 6. Conduct a discharge test (5H rate) with actual load to check batteries healthy.

#### **Battery or product Storage:**

- I. Battery as chemical product cannot be stored for long time;
- 2. The battery should be preserved at the clean dry environment within -20~+45°C temperature;
- 3. Storage time: battery is charged in ex-work condition (as per required law of dangerous good needs or UN38.3), for ensuring battery performance, do not exceed storage time as following definition;
- -20°C to 35°C, up to 6 months. (The battery should be recharged every 6 months)
- -20°C to 45°C, up to I month. (The battery should be recharged every I months)
- 4. If battery is preserved for a long time(more than I I months), the battery should be discharged and recharged for once. Even so, it will impact the battery performance;
- 5. If LFP battery is stored for more than 3 months at temperature above 35degC, may need supplemental charge before its use with luminaire. (Refer battery datasheet for final recommendation).
- 6. The battery backup time will reduce if the ambient temperature is < -20degree Celsius or >45degree Celsius.

#### **Notice:**

Improper maintenance will shorten the LFP battery service life or decrease the service performance.

- I. Improper maintenance will shorten the LFP battery service life or decrease the service performance.
- 2. Charge the product under sunlight for 8 hours before first use.

#### Maintenance after the Warranty

1. If you need a external battery chargers for LFP batteries ,Please contact to Signify authorized person or service center.

#### Replacement

- I. If the battery capacity is actually less than the rated capacity of 70% or as per warranty statement and conditions for remaining capacity or End of life, it is required to be replaced with new one to comply with the designed system requirement.
- 2. When replacing the batteries, use properly type, size, number and ratings based on the system design.

# **Warning**

The Signify mounting instructions must be strictly followed, otherwise warranty will be void and potential application, reliability, or safety issues may arise. The mounting instructions in this document is for standard All-in-One solar road lighting system installation. If any large deviation (such as multi systems sharing pole/base/component, component change, wiring change, installation location change, etc..) from this MI sheet is needed according to special application, it is required to contact with Signify representative for special instructions. Otherwise, the deviation from standard instructions may cause abnormal system operation or even dangerous situation. Any breach of this guideline, Signify will not have any liability.

Pole is not provided by Signify, it is designed and manufactured by third party. The design can be different depend on their FEM calculation and material choices according to local, state and Federal regulations. Third party must validate pole strength such as Wind force test, Snow load test, Vibration test, Shock test and other reliability and safety test after assembling luminaire.

#### **Battery & Panel**

- I. The recycle of the used battery should strictly follow the local laws and regulations. It is forbidden to handle the battery as normal garbage for disposal;
- 2. Do not open, short circuit, or mutilate batteries as injury may occur;
- 3. Never move battery box by pulling the cables of the battery;
- 4. Note to handle the panel and battery box with great care during the installation and transportation;
- 5. The installation is highly suggested during the day. The controller system need sun light input to activate for normal working status. Any system installed at night may not light up properly at first night. The system will work normally at second night;
- 6. In case the dimming curve is set, the control system require 3 sunny days to bring system working at designed dimming;
- 7. Check if there is other light source irradiate at panel system.
- 8. The product must be charged every 6 months when idle. If it needs to be transported or stored for a long time, And it is necessary to timely check, charge and record; otherwise, the battery will be damaged. Charging method: In sunny conditions, open the lamp switch, the solar panel is placed facing the sun, continuous charging for I-2 days. Note:use a multimeter to test the voltage at both ends of the battery is more than 3.3V (3.2V LiFePO4)/I3V (I2.8V LiFePO4) / 26V(25.6V LiFePO4).
- 9. Solar panels are fragile, so please do not scratch or bump when installed. Scratches, dirt and shelter on the surface will affect the power generation efficiency of solar panels.
- 10. The switch must be turned off during transportation and storage to ensure that the lamp is not working.
- II. The battery presents a risk of electrical shock and a high short circuit current. Only a qualified Signify service representative who is knowledgeable in batteries and the required precautions is permitted to service the battery. Keep unauthorized personnel away from batteries.
- 12. Do not operate battery beyond published voltage, current and temperature limits;
- 13. Do not reverse connections(polarity) from charger to battery;
- 14. Do not incinerate, crush or disassemble battery;
- 15. Do not over charge or over discharge the battery;
- 16. Do not dispose of the batteries in a fire, the batteries may explode;
- 17. Do not pierce battery with a sharp object such as a needle;
- 18. Do not hit with a hammer, step on or throw or drop to cause strong shock;
- 19. Do not use a battery with serious scar or deformation;
- 20. Stop using the battery if abnormal heat, odor, discoloration, deformation or abnormal condition is detected;
- 21. If liquid leaking from the battery gets into your eyes, do not rub your eyes. Wash them well with clean water and go to see a doctor immediately;
- 22. Do not heat or throw battery into a fire, water.

- 23. Never test the battery charge by shorting its +/- terminals;
- 24. Avoid any charge/discharge when moving batteries. Wear all appropriate safety clothing and equipment.
- 25. The misuse of this battery could result in human injury and/or battery damage. In no event will Signify be responsible or liable for either indirect or consequential damage or injury that may have resulted from the misuse of the battery;
- 26. Whoever installs the system takes full responsibility for safety.
- 27. The solar lighting system contains batteries. Lack of preventative maintenance could reduce the battery's lifetime or even be dangerous. Check the application environment regularly (lighting performance, Shading on PV panel);
- 28. Failure to replace a battery before it becomes exhausted may cause the case to crack, possibly releasing electrolytes from inside the battery and resulting in secondary issues such as odor, smoke, and fire;
- 29. The battery system must be in proper maintenance according to the "Trouble shooting & Maintenance" parts in this MI sheet. This is essential for safety and the reliability of the lighting system;
- 30. During transportation, keep the battery/luminaire from acutely vibration, impacting, solarization, drenching.

#### Sensor & Diming Waring

- I. Installation location shall be away from WIFI, omnidirectional antennas for mobile communications, small base stations for telecommunications, TV antennas, etc. Signal source too close may disable the dimming functions.
- 2. The dimming function of luminaire might be effected by the objects with vibration in its sensing area. The lampshould not be installed on the surface of vibration, and the lamp should not be covered. (e.g. trees or leaves). There should be no trees under the light. The sensor otherwise may be triggered or not triggered by mistake.
- 3. The product has good penetration effect on plastic and wood. Avoid metal shielding around the antenna, which will reflect and block microwave and affect the actual induction effect.
- 4. Walls, glass, and ceramics will bring reflection and penetration attenuation of electromagnetic waves, and reduce the sensing distance of the sensor. The thicker the material is, the more serious the attenuation is.
- 5. The movement of animals and objects within the sensing range may cause the light to turn on, which is a normal phenomenon.
- 6. The electromagnetic wave emitted by microwave sensor in the practical application environment, the different reflectivity of obstacles will lead to different induction range, which is normal phenomenon.
- 7. Please ensure that there is no moving object such as fan, motor, water stream and rainwater around the luminaire, otherwise the motion sensor may false trigger frequently.

#### **Product system Warning**

- 1. Please turn on the power switch of the fixture before use, and test whether it is functional before installation.
- 2. Ensure that the power switch is on when working normally. Please test whether the lamps are charged and discharged normally before installation (the solar panel is charged by sunlight and the lamp is off; Solar panels block sunlight, do not charge, light).
- 3. Do not place the product in water or fire, as there may be explosion risk.
- 4. The product can withstand typhoon of grade 12, storm above may cause damage to the product.
- 5. The installation distance, both transverse and longitudinal, should be greater than 1.5m. If the installation distance is too close, individual lamps may be misfit.
- 6. Switch off main power supply before Installation, maintenance and any operation.
- 7. The control gear contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person. The light source and/or the external flexible cable contained in this luminaire are not replaceable, in case of damage replace the luminaire.
- 8. This product is not suitable for corrosive environment, such as areas less than 10 km from the coast, port crane, sea-crossing bridge, island.
- 9. The luminaire should avoid storage and usage in such a surroundings or an occasion that is with corrosion or hazardous gases like sulfide, halide,phthalate and so on.
- 10. The Luminaire should never be used in submerged wet conditions e.g. under water, soil, snow etc.
- 11. Not suitable for use in strong vibration work condition and this product has been verificate by vibration test 3G.
- 12. Not suitable for use on moveable surface objects.
- 13. Luminaire installed must not be in contact with combustible materials.

- 14. Manufacturer is not responsible to improper use, change and modification structure on luminaire. Any damage or unsafety losses caused by these factors under not to be allowed, manufacturer do not take any responsibility for this situation.
- 15. For periodically cleaning maintenance of luminaire, acid solution or alkali solution cannot be used as a cleaning solution to wash outside surface of luminaire.
- 16. Luminaire must be used within the applicable product specification of installation instruction and environmental conditions for storage and operation according to application guidelines provided by Signify for valid product warranty.
- 17. You must understand the risk of working with batteries and be prepared and equipped to take the necessary safety precautions. If not, contact Signify service.
- 18. Always keep sparks, flames and smoking materials away from the battery, always wear protective clothing and use nonconductive or insulated tools when working with battery system.
- 19. Remove all jewelry that could produce a short circuit.
- 20. In case of FIRE: To extinguish a fire in a battery room containing lead acid batteries, use CO2, foam, or dry chemical extinguishing media. Do not discharge the extinguisher directly onto the battery. The resulting thermal shock may cause cracking of the battery case/cover.
- 21. This product does not need any external electrical connection It works 100% on solar energy.
- 22. The product works on Dusk and Dawn principle once it is activated. From Sunrise to Sunset the battery charges (luminaire OFF) and from Sunset to Sunrise the battery discharges(luminaire ON). The luminaire will not switch ON incase any light source nearby from which light is falling on the solar panel of the luminaire.
- 23. This product is designed for outdoor using on small roads and streets, internal roads, minor streets etc. This product is not suitable for use on main roads, vehicle movement areas, motorways, or highways, etc. where there is traffic movement which can cause wrong sensor triggering.
- 24. Sufficient sunlight is required during the daytime to charge the battery. In cases of partial solar charging, the product may not charge completely, leading to less working hours during the night.
- 25. When multiple luminaires are installed side-by-side in the same direction, the distance between each two luminaires should be kept at least 1.5m to avoid mutual interference.
- 26. The product is made of high-quality aluminum extrusion and sheet metal material suitable for outdoor usage up to three years.
- 27. Please exercise caution in using this product when it reaches the end of its service lifetime (3years).
- 28. Monthly maintenance is required. Please visually inspect the product to avoid any potential risk of damage after its service lifetime.
- 29. User of this product is requested to follow local waste disposal, separation and waste collection regulations applicable in the country/state where this product is being used since there is inbuilt battery in the luminaire. Please act accordingly to the local rules and do not dispose old product and packaging without compliance of those rules. The correct disposal of product and packaging will help to prevent negative consequences to the environment, health and well-being of inhabitants. Product contains battery and that should dispose of separately from other municipal waste via designated collection facilities in compliance with local rules and regulations. When disposing the product, the battery should be removed by a trained and authorized professional.
- 30. The product contains Lithium Ferro Phosphate battery. It is important to note that if the product is not used (charged) within 6 months from the date of manufacturing (as in the product, package label) the battery will be in the state of over
- discharged condition due to its self-discharge properties and the product is not likely to switch on and performance of the product will be affected, such as but not limited to reduced lumen output, faster dimming, shorter light ON time etc.
- 31. In case the storage condition and timeline not complied, the warranty of the product shall be void.
- 32. For detailed warranty terms and conditions please reach out to the authorized Signify representative/partner.
- 33. If you have any question concerning safety when working with the battery system, contact your local Signifysales/service representative to clarify any of the noted safety precautions and ask for professional service.
- 34. The final product interpretation authority of our company.