LED Solar Obstruction Light and LED Solar Light in Inapplicable Areas

E0L-OB-LED and EOL-IA-LED

Operation Manual

Please read this manual carefully before construction, installation and operation of the product.

Please keep this manual properly for further reference.

This manual is subject to change without prior notice.

Airsafe Airport Equipment Co., Ltd.

Revision Description

No.	Description	Version No.	Revised by	Approved by	Date
1	First release	V1.0	Z.JL	C.JQ	Oct. 15, 2014
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1.0 Foreword

ICAO *Airport Service Manual* Part 9 "Airport Maintenance Practices" and FAA AC150/5345-26 *Maintenance of Airport Visual Aid Facilities* are the highest criterions for site installation and maintenance of such lighting fixtures. This manual was compiled with considerable reference to these two criterions.

The content stated in this manual is absolutely important, so construction personnel must read it carefully before construction. After properly understanding the entire content of this manual, construction personnel should carry out the construction in strict accordance with the methods specified herein, to ensure that the product is safely and properly installed in place.

Routine airport maintenance personnel should carry out the routine maintenance in strict accordance with the methods specified by relevant provisions, to ensure that the lighting fixtures are in the best operation condition.

Related personnel must strictly follow safety criterion. Any personnel without specialized training is strictly forbidden to touch the lighting fixtures and devices. Live line work should be avoided under any circumstances. Construction or maintenance personnel should get acquainted with first-aid knowledge, in case of any unexpected events.

1.1 Illustrations and Meanings

- Following illustrations will appear in this manual where necessary to remind or warn construction or maintenance personnel.
- Please continue reading the subsequent content of this manual after properly understanding the meanings of these illustrations.

■ To remind that the behavior may cause serious injury or death.
※ Detailed description will be given in the box.

■ To remind that the behavior may cause injury to people or damage to product.
※ Detailed description will be given in the box.

■ To notify that the behavior is prohibited.
※ Detailed description will be given in the box.

1.2 Safety Rules and Notices

■ Using the light fixtures outside of airport is strictly prohibited.
※ Inadequate maintenance or casual touch will cause light faults.

■ The frangible pole is equipped at the lower part of the light pole. When it is installed, upper part of the frangible pole bearing the force is prohibited.
※ The frangible pole may be broken.

■ Making sure that Lamp is on power-off state before the installation or maintenance of the lighting fixtures.
※ Keep sufficient battery voltage.

■ Non-professional electricians are strictly forbidden to maintain any electrical fault of the lighting fixtures.
※ It may damage any electrical component of the lighting fixtures or cause bigger fault.

■ Live line maintenance of the lighting fixtures is strictly prohibited; in case of lightning and/or thunderstorm, maintenance of the lighting fixtures is prohibited.
※ It may cause electric shock accident.

■ Be careful when handling the lighting fixtures.
※ Drop or collision may damage the parts or cause personal injury.

■ Please handle the damaged prism with gloves or other protective measures.
※ The glass fragment may scratch you hands.

1.3 Quality Assurance and Responsibility

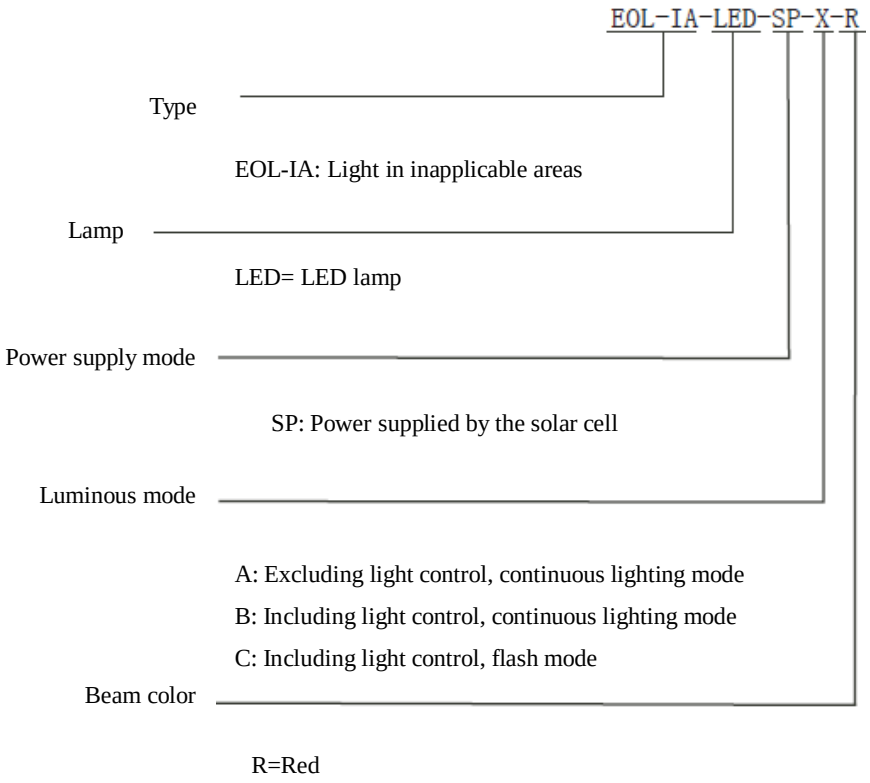
Any defect in design, material or workmanship, which may occur during proper and normal use over a period of one year from date of installation but less than 15 months from date of shipment, or within the warranty period of the tender, will be repaired or preplaced by manufacturer free of charge. The warranty doesn't cover the failures resulting from lamp burnt out, improper maintenance, installation or operation, or damages due to snow ploughs. Manufacturer shall not be liable to any further claims or particularly claims for damages not affecting the goods themselves.

2.0 Introduction

This manual involves the following series lighting fixtures:

EOL-IA-LED----------Solar light in Inapplicable Areas

Type of Light in Solar Energy Inapplicable Areas (EOL-IA):



2.1 Technical Specifications

This product conforms to the provisions of the following standards or technical specifications. For dated standards or technical specifications, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- International Electrotechnical Commission (IEC) TS 61827;
- Convention on International Civil Aviation Annex 14- *Aerodromes* Volume 1;
- International Civil Aviation Organization (ICAO)- *Aerodrome Design Manual*- Part 4: Visual Aids;
- Federal Aviation Administration (FAA) AC150/5345-46;
- Federal Aviation Administration (FAA) EB 67;
- GB/T 7256 *General Requirements of Lighting Fixtures for Civil Airport*;
- Department of Airport of Civil Aviation Administration of China: Advisory Circular, *Technical Requirements for Runway and Taxiway Aid Lighting Fixtures* (AC-137-CA-2015-03)
- Department of Airport of Civil Aviation Administration of China, Advisory Circular, *General Technical Requirements for Civil Airport LED Aid Lighting Fixtures* (AC-137-CA-2015-01)

2.2 Application Environment

- Altitude: below 4,000m;
- Outdoor: -55℃ ~ +55℃;
- Relative air humidity: not more than 95%;
- In rain, snow, ice and water;
- Expose to corrosive salt atmosphere
- Basic earthquake intensity VII.

2.3 Application Scope

Elevated LED obstruction light and light in inapplicable areas for Category I, II and III airports.

The solar illumination intensity has great impacts on the use effects of the lighting fixtures. For the areas with insufficient sunlight all year round, the solar lighting fixture product is not suggested.

■ Using the lighting fixtures beyond the specified scope is strictly prohibited.

※ Application beyond the specified scope will cause damage or risk to any component.

■ Please confirm the use by referring to the sunlight table attached to the specification.

※ It is impossible to ensure that the lighting fixtures work normally in the areas with insufficient sunlight.

2.4 Technical Parameters

Description	Type	Rated Power	Life of Light Source
LED Solar Light in Inapplicable Areas	EOL-IA-LED	0.7VA	≥50,000h

Lamp: LED particle*1

Power supply: Solar cell

Requirement of annual average illumination duration: ＞3.1h/d

Maximum service time without sunlight: 8 days (five-level light) /40 days (three-level light)

Remote control mode: Infrared ray

Remote control distance and angle: 1~1.5m 0°~90°

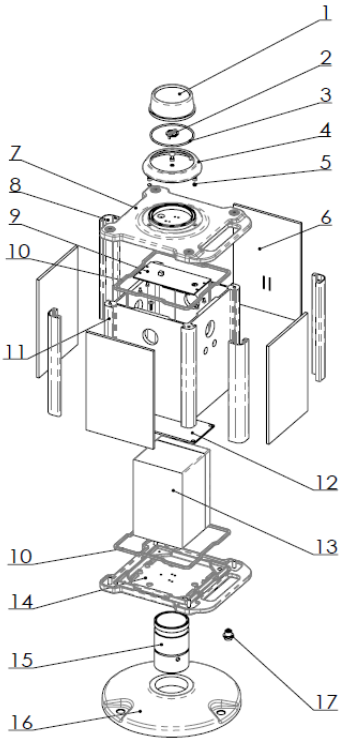
IP rating: IP65

2.5 Technical Features

- Long life, energy saving, maintenance free and other characteristics of LED will bring huge economic benefits to customers;
- Proprietary prism structure and manufacturing process, making the optical efficiency excellent;
- Strict LED color management ensures the consistency of light color;
- The prism is made of the glass, whose surface resists the erosion of wind and sand;
- Unique taper design of the prism edge effectively prevents accumulation of rain, snow, wind and sand;
- LED of the international first-class brand is used, with proprietary drive circuit, greatly enhancing the reliability and extending the service life of the lighting fixtures;
- Advanced solar cell panel is selected, with high energy efficiency conversion and ultra-long service life;
- The power source management software of the lighting fixtures may effectively give full play to the efficiency of the solar cell panel;
- The industrial accumulator is employed, which has the properties of low self-discharge and low current charging;
- The waterproof aviation receptacle is reserved for charging the external charger;
- Lighting fixtures have compact structure and attractive appearance;
- Main body of the lighting fixtures is made of aluminum alloy material with special anodizing surface treatment, and all fasteners are made of stainless steel, thus being applicable to all kinds of harsh environment;
- High precision components machining ensures dimensional quality and precision of the lighting fixtures.
- Overall protection rating of the lighting fixtures reaches IP65 and dust will not be easily accumulated in them;

2.6 Structure

1. Prism
2. LED lamp
3. Gasket
4. Front cover
5. Gasket
6. Solar panel
7. Upper cover of shell
8. Shell cutting
9. Circuit board
10. Light body gasket
11. Shell framework
12. Accumulator pressing bracket
13. Accumulator
14. Bottom cover of shell
15. Frangible pole
16. Flange 3
17. Receptacle



2.7 Mode of Lighting Fixtures

Operation modes of the lighting fixtures are controlled by the infrared ray controller, including constant light mode, light control mode and standby mode. When the lighting fixtures leave the factory, the "light control mode" is set. Meanwhile, the luminous intensity of the lighting fixtures is step 3 under any mode.

1. Constant light mode:

Under the constant light mode, the lighting fixtures constantly and continuously give out light on day and at night.

Approximate operation time of the lighting fixtures under the constant light mode is as follows: 64 days for step-1 lighting fixtures, 56 days for step-2 lighting fixtures, 30 days for step-3 lighting fixtures, 14 days for step-4 lighting fixtures and 4 days for step-5 lighting fixtures (the above-mentioned data are the theoretical values of the new lighting fixtures, which are fully charged and continuously give out light).

■ The constant light mode is only used for the illumination under some special states.

※ The power consumption under this mode is high.

2. Light control mode:

Under the light control mode, when the environmental intensity is lower than 35FC (about 376Lux), the lighting fixture gives out light. When the environmental intensity is higher than 60FC (645Lux, the lighting fixture goes out. Under the state of sunny day, the lighting fixture gives out light for about 14h per day and is turned off for about 10h. Under the normal cases, this mode is suggested for the normal use of the airport.

Operation time of the lighting fixtures under the light control mode is as follows: About 75 days for step-1 lighting fixtures, about 64 days for step-2 lighting fixtures, about 40 days for step-3 lighting fixtures, about 22 days for step-4 lighting fixtures and about 8 days for step-5 lighting fixtures (the above-mentioned data are the theoretical values, without charging and the lighting fixture gives out light 14h per day).

■ Changing this operation mode without authorization is prohibited.

※ The power consumption under other modes is too high.

3. Standby mode:

The standby mode is often used for the warehouse storage. The long-term storage time of the lighting fixture is three months without its lamp turned on (the ambient temperature is lower than 35℃). The lighting fixture is stored in the warehouse. When it is in the standby mode, the lighting fixture shall be fully charged once per three months to ensure that the cell is valid.

■ After long-term storage, the lighting fixtures shall be charged before use.

※ The lighting fixture performance may be poor.

■ This mode is used for the warehouse storage or transportation.

※ Long-term power loss of the lighting fixtures may impact the service life of the cell.

4. Precautions:

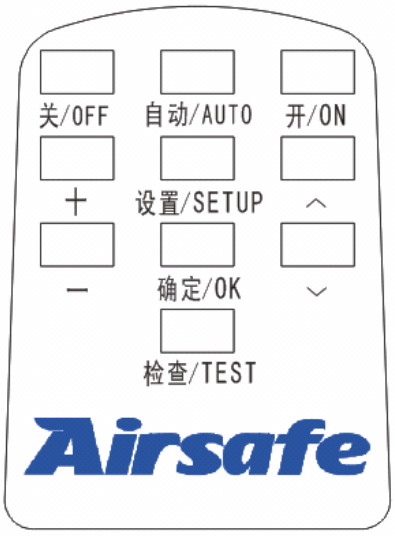
Because the solar lighting fixture works normally depending on the weather to some extent, we suggest the user to use the light control mode. The lighting fixture is turned off on day and turned on at night. Under the state of sunny day, the accumulator is charged by the solar cell panel to keep its electricity sufficient, so as to make the lighting fixture work stably and normally for a long time. Under the state of long-term overcast and rainy weather, without charging through sunlight, when the internal power is used up, in order to protect the internal accumulator, the lighting fixture will enter the standby mode. At this moment, the lighting fixture is remotely controlled with any key of the remote control, which goes out after flashing for three times. In such case, the lighting fixture shall be charged immediately or the internal accumulator shall be replaced immediately. For the charging method, see Section 4.4. For the steps of cell replacement, see Section 4.1.

Along with the increase of service time of the lighting fixtures, the electric power storage capacity of the internal accumulator is reduced step by step and the above-mentioned theoretical values of the operation time will be shortened accordingly. The regular replacement time of the internal accumulator suggested is less than three years. Such time is different from the guaranteed service life and expected service life of the cell.

A little of combustible gas may be generated in the lighting fixture. Do not use the lighting fixture nearby the articles generating heat, open fire or spark.

2.8 Operation of Remote Control

The remote control is divided into the advanced management remote control and standard remote control.



(Advanced Management Remote Control)

(Standard Remote Control)

Advanced management remote control: It may change the operation state of the lighting fixture and adjust its luminous intensity. Unless the lighting fixture mode shall be changed, such remote control is often not used.

Standard remote control: Remote control used daily for easily operating the light control mode and standby mode.

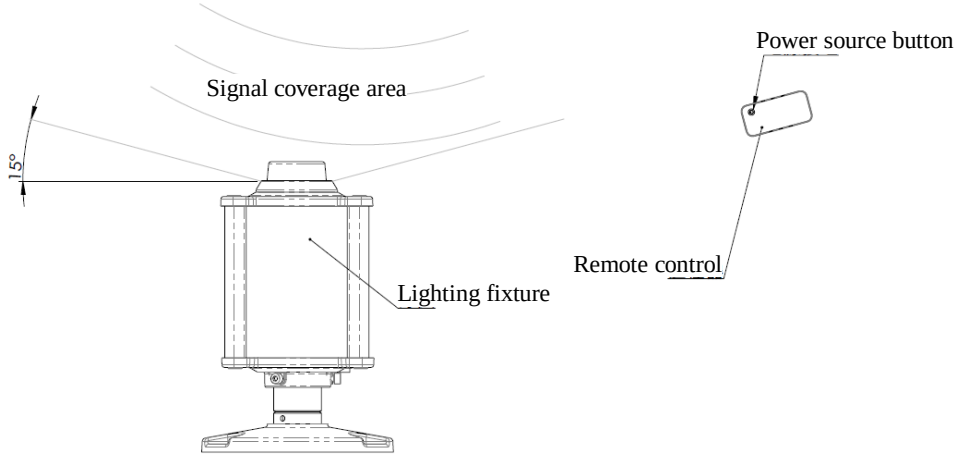
■ Advanced management remote control shall be kept by a particular person.

※ Prevent misoperation of the remote control

Method to remotely control the lighting fixture with a remote control:

Hold a remote control with hands to effectively and remotely control the lighting fixture at any position in the space which is higher than its prism plane and whose distance is no greater than 2m. The position of about upward 15° included angle of the prism plane of the lighting fixture is the best remote control point as shown in Figure above.

Press the button, the lighting fixture will flash once as confirmation of the instruction after receiving it. When the angle and distance are appropriate (see Figure below), single remote control may trigger several lighting fixtures and change the operating mode.



Operating method of the standard remote control is as follows:

After the remote control button is pressured by aiming at the lighting fixture, the lighting fixture will enter the corresponding mode.

Press the button “ON” on the remote control to start the light control mode 按 of the LED lighting fixture: When the environmental intensity is lower than 35FC (about 376Lux), the lighting fixture gives out light and when the environmental intensity is higher than 60FC (about 645Lux), the LED particle goes out.

Press the button “OFF” on the remote control to turn off the LED lighting fixture, which enters the standby mode.

If this product is not charged continuously through sunlight for a long time, it will automatically recover to the operation mode or ON/OFF state prior to cell protection after the cell power is recovered. After the cell is replaced, the lighting fixture will recover its default factory setup (light control mode, step 3 light).

Operation of the advanced management remote control is as follows:

The advanced management remote control is kept and operated by the management person of the user department. Because it may change the operation mode of the lighting fixture, it must be operated in strict accordance with the provisions of the specification.

After the remote control button is pressed by aiming at the lighting fixture, the lighting fixture enters the corresponding mode.

Press the button "ON" on the remote control to start the constant light mode of the LED lighting fixture.

Press the button "OFF" on the remote control to turn off the LED lighting fixture, which enters the standby mode.

Press the button "AUTO" on the remote control to start the light control mode of the LED lighting fixture.

When the button "TEST" on the remote control is pressed for a while, the lighting fixture will continuously flash if it is in the light control mode, otherwise there will be not effects.

Step adjustment steps of the advanced management remote control are as follows:

1. Press the button "SETUP" for 5s until the lighting fixture flashes once.
2. Press the button "OK" for 5s until the lighting fixture flashes once and now it enters the setup mode.
3. Step will be increased by one by pressing "∧" and will be decreased by one by pressing "∨". There are 5 steps, which include step 1, 2, 3, 4 and 5. If the current steps is unknown, "∨" may be pressed for consecutive 5 times to adjust the step to the minimum one, then press "∧" to select the step required. Whenever the step is changed, LED will flash once.
4. Press the button "OK", the lighting fixture will flash once, meaning to save and exit. There will be automatic save and exit by pressing other buttons or no action for 20s.

■ Operating and controlling the lighting fixtures with other unknown remote controls are prohibited.

※ Otherwise they may change the operation mode of the lighting fixtures or there will be other unknown problems.

■ When the product leaves the factory, the light control operation mode has been set, which shall not be changed without authorization.

※ Too high energy consumption may cause shortened luminous time of the lighting fixtures.

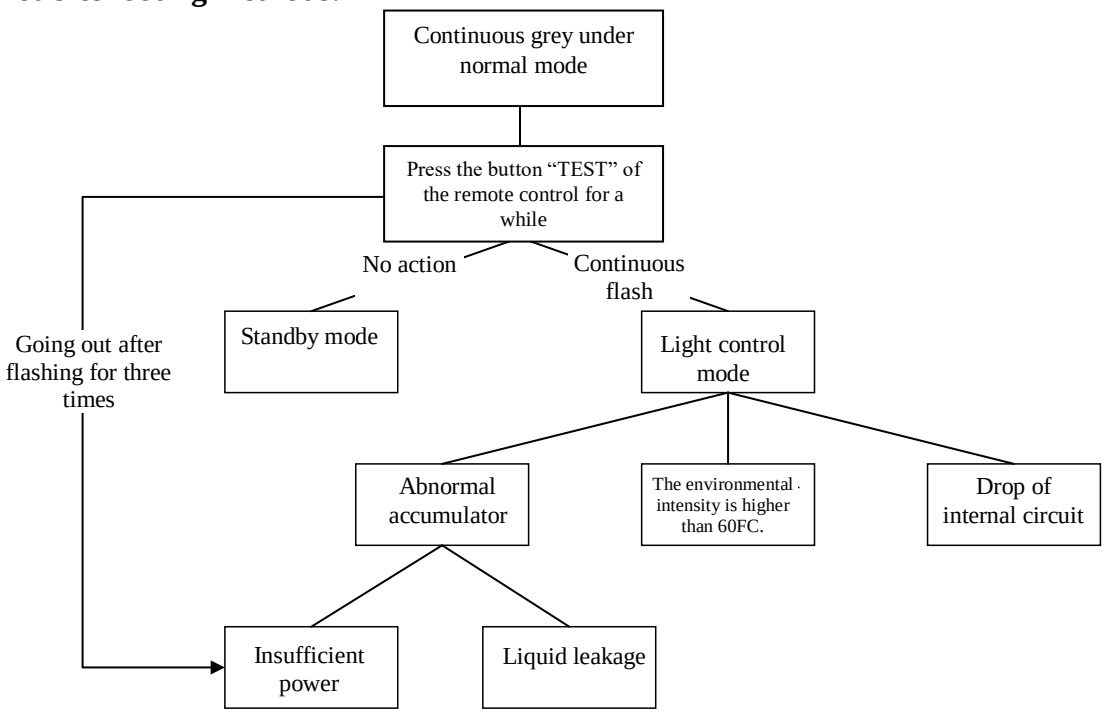
2.9 Handling of Abnormal State of Lighting Fixtures

I. Abnormal Failure of Lighting Fixtures

Possible causes:

1. Misoperation of the remote control causes the lighting fixture in the standby mode.
2. Under the light control mode, the environmental intensity is always higher than 60FC (about 645Lux).
3. Abnormal internal accumulator in the lighting fixture.
4. Drop of internal circuit.

Troubleshooting methods:



1. Press the button "TEST" on the remote control for a while
2. Check whether the environmental intensity is too high
3. Dismount the lighting fixture and check whether the internal circuit drops.
4. Check whether the accumulator has liquid leakage.

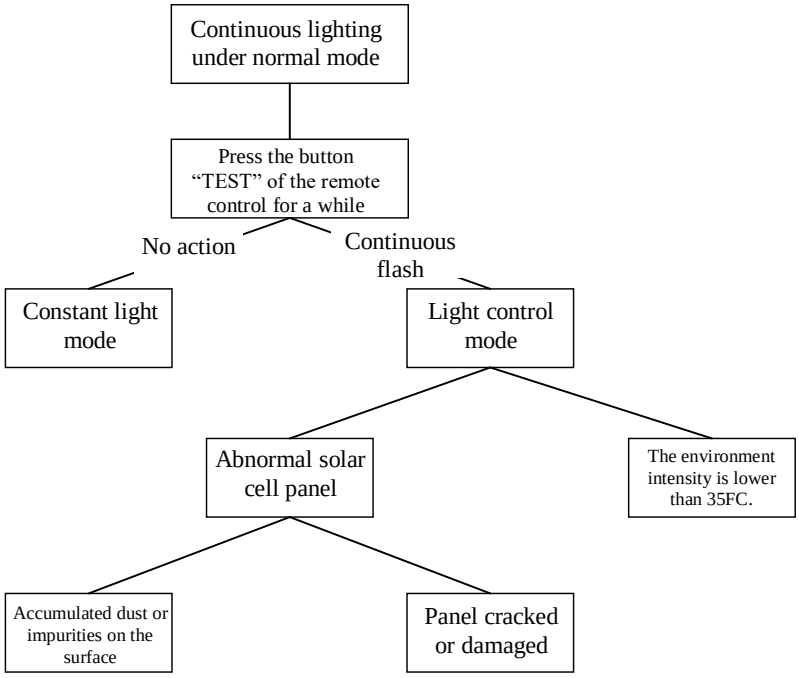
Solutions:

1. If the lighting fixture is in the standby mode caused by misoperation of the remote control, it shall be remotely controlled with a standard remote control to make it enter the light control mode. For the operation of the remote control, see Section 2.8.
2. If the abnormal failure of the lighting fixture is caused by insufficient power of the accumulator, the lighting fixture shall be timely charged. For the charging method, see Section 4.4.
3. If the abnormal failure of the lighting fixture is caused by liquid leakage of the accumulator, the accumulator shall be timely replaced. For the replacement steps, see Section 4.1.
4. If the abnormal failure of the lighting fixture is caused by drop of the internal circuit, the circuit shall be timely wired or contact the manufacturer.
5. If the abnormal failure of the lighting fixture is caused by the environmental intensity, the light pollution around the lighting fixture shall be minimized.

II. Abnormal illumination of Lighting Fixtures

Possible causes:

1. Misoperation of the remote control makes the lighting fixture in the constant light mode.
2. Under the light control mode, the environmental intensity is always lower than 35 FC (about 376Lux).
3. Abnormal solar cell panel.
4. Troubleshooting methods.



1. Press the button “TEST” on the remote control for a while.
2. Check whether the environmental intensity is too low.
3. Check whether there is accumulated dust or impurity on the surface of the solar cell panel.
4. Check whether the solar cell panel is cracked or damaged.

Solutions:

1. If the lighting fixture is in the constant light mode caused by misoperation of the remote control, the lighting fixture shall be remotely controlled with a remote control to enter the light control mode. For operation of the remote control, see Section 2.8.
2. If the lighting fixture continuously lights up abnormally caused by the accumulated dust or impurities on the surface of the solar cell panel, the solar cell panel shall be timely cleaned. For the cleaning method, see Section 5.1.
3. If the lighting fixture continuously lights up abnormally caused by the crack or damage of the solar cell panel, please timely contact the manufacturer.
4. If the lighting fixture continuously lights up abnormally caused by the environmental intensity, it shall be placed in a spacious place exposed to the sunlight.

III. Failed Charging of Accumulator

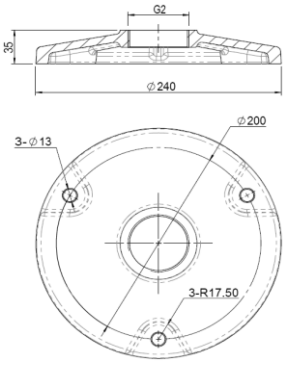
Dismount the lighting fixture, take out of the accumulator and check whether it has liquid leakage. If so, replace the accumulator. For the replacement steps, see Section 4.1. If not, the driver board may be faulty. For the replacement steps, see Section 4.3.

3.0 Installation

Requirements for installation should be learned thoroughly before installation including installation tools and site requirement, etc., to avoid malfunction of the light due to incorrect installation.

3.1 Direction Installation of Flange

This manual does not give any guidance to installation of chassis. Please seek for technical support from construction side. Dimension of chassis to be installed is as follows:



3.2 Safety Precautions

Correct installation of the lighting fixture is crucial according to the design and on-site situation. Site cleaning and direction of the lighting fixture will directly impact its normal functions.

During installation of the lighting fixtures, consideration shall be given to the following:

1. The lighting fixture must be installed in a place with sufficient sunlight, free of any sheltering. It shall be ensured that there is no shield shadow on the surface facing the light of the battery pack throughout the day. In order to prevent the handle of the lower and upper front covers of the lighting fixture shading the sunlight, it is suggested that the handle should face the downsun direction (north) during installation of the lighting fixture.
2. When it is impossible for no sheltering throughout the day, there shall not be sheltering during the sunlight period.

■ The lighting fixture shall not be close to the heat source as much as possible and ventilation is very important.

※ Otherwise it impacts the service life and charging efficiency of the lighting fixture.

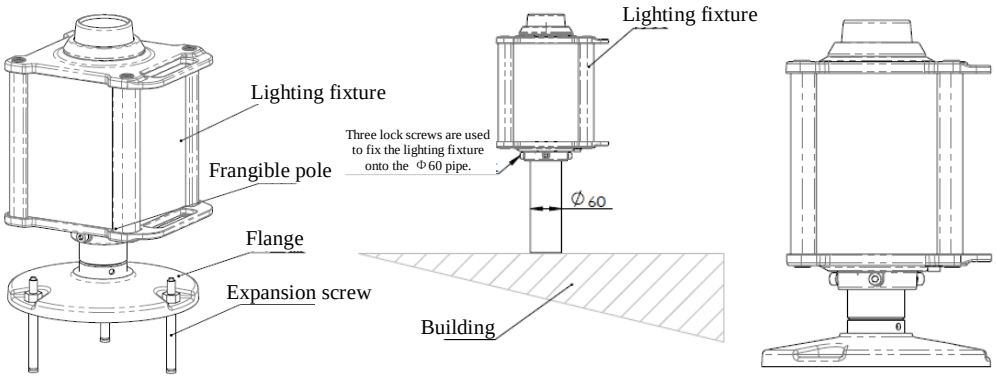
3.3 Installation and Use

The installation methods of the lighting fixture are simple. This Manual provides three installation methods for reference:

Method 1: Installed on the floor

Method 2: Installed on top of the building

Method 3: Directly rotated on the floor



Method 1 Method 2 Method 3

■ When unpacking the carton, check whether it is intact.

※ Damage to the carton may damage the lighting fixture components.

■ The manufacturer requires the professional to install the lighting fixture.

※ The professional may ensure normal work of the lighting fixture.

■ Making sure to carefully read the installation description of the lighting fixture, which is very important.

※ Improper installation method is a key cause of failure of the lighting fixtures.

■ Using the non-special tools to install the lighting fixtures is strictly prohibited.

※ Otherwise it may cause damage to the lighting fixtures or personal injury.

3.4 Installation Steps

Method 1: Floor installation of flange

- Clean the site, especially the place contacting the lighting fixture flange;
- Screw the Ø10*110 expansion screw;
- Connect the Ø240 flange of the lighting fixture with the floor;
- Screw the lower extension pole of the frangible pole into the Ø240 flange for fixation;
- Load the lighting fixture into the extension pole of the frangible pole and tighten the screw to fix it.

Method 2: Installation on the building

- Load the lighting fixture into the Ø60 pipe reserved and tighten the screw for fixing it.

■ For installation on the outer façade of the building, making sure all screws are tightened.
※ Otherwise it may cause personal injury due to high drop.

Method 3: Direct use

- Lighting fixtures are directly placed at the threshold. This use method is only limited to the urgent engineering repair and service time is short. After the lighting fixtures are used, they must be collected immediately, rather than left on site.

■ This method is not suggested unless it is used as a last resort.
※ Failure of formal fixation may cause unexpected accidents.

4.0 Replacement of Components of Lighting Fixtures

When any damage or failure occurs to any consumable or other component of the lighting fixtures, it is required to timely dismantle the lighting fixtures for replacement of the component. Replacement of components needs to dismount the lighting fixtures, so any minor error will cause adverse consequences. The manufacturer requires users to attach importance to the following warnings. It is required to be careful during disassembly, to conduct comprehensive inspection of lighting fixtures, to replace some vulnerable parts as required, and to ensure the performance of the lighting fixtures after disassembly.

- Replacement of components must be conducted by personnel who have received professional training.

※ To avoid various failures of the lighting fixtures.

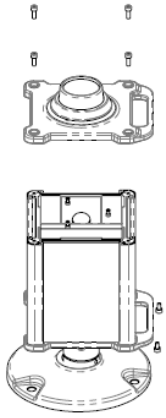
- It is suggested that maintenance of the lighting fixtures be carried out in lighting station or workshop.

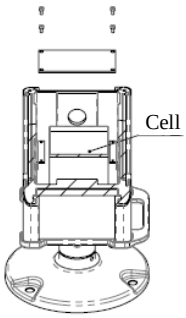
※ Any impurities mixed in the lighting fixtures may cause any failure of the lighting fixtures.

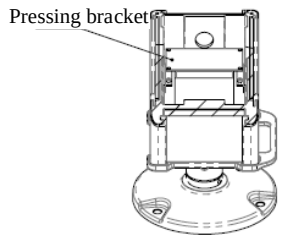
- The manufacturer suggests that various gaskets should be replaced during each maintenance of the lighting fixtures.

※ Aging and damage of gaskets are the main reasons for the leakage of lighting fixtures.

4.1 Replace Cell







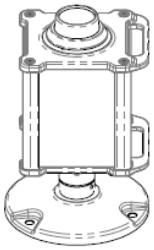


Figure 4-1 Figure 4-2 Figure 4-3 Figure 4-4

1. Turn off the lighting fixture, unscrew four screws on the upper cover of the shell, move out it (Figure 4-1) and loosen the connecting cable relating to the cell from the circuit board;

■ External protective sleeve of the plug-in spring shall not be damaged.

※ Otherwise it may cause electric short circuit.

■ Force to plug or pull the plug-in spring shall be appropriate; otherwise too great force will cause its deformation.

※ Otherwise it may cause electric short circuit.

2. Unscrew four screws on the pressing bracket and take out it (Figure 4-2);

3. After a new cell is replaced, plug the wire, place the pressing bracket and lock the screw (Figure 4-3);

4. Connect the connecting cable and circuit board according to the previous wiring method, cover the upper cover of the shell and tighten the screws (Figure 4-4).

■ Confirm that there are no impurities in O-gasket and seal groove.

※ Otherwise they may cause water leakage or abnormal operation of the lighting fixtures.

4.2 Replace Prism

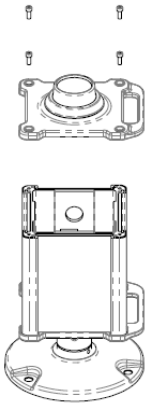


Figure 4-5

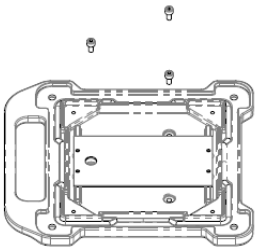


Figure 4-6

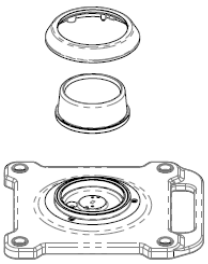


Figure 4-7

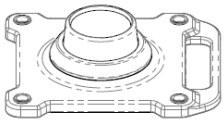


Figure 4-8

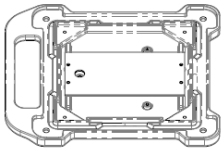


Figure 4-9

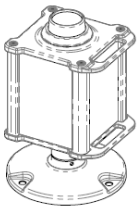


Figure 4-10

1. Unscrew four screws on the upper cover of the shell, take out the front cover-upper (Figure 4-5) and loosen the connecting cable relating to the circuit board.
2. Unscrew three screws in the upper cover of the shell (4-6);
3. Remove the upper cover of the shell and replace a new inverse tape prism (Figure 4-7).
4. Assemble the upper cover of the shell and new prism to the original positions (Figure 4-8) and tighten three screws (Figure 4-9).

■ Confirm that there are no impurities in O-gasket and seal groove.

※ Otherwise they may cause water leakage or abnormal operation of the lighting fixtures.

5. Connect the connecting cable to the original position of the circuit board, cover the front cover and tighten the screws (Figure 4-10).

4.3 Replace Internal Drive

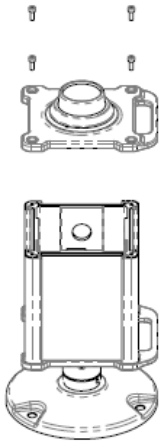


Figure 4-11

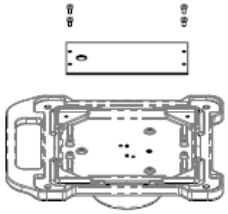


Figure 4-12

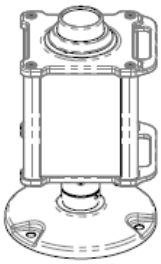


Figure 4-13

1. Unscrew four screws on the upper cover of the shell, take out it (Figure 4-11) and loosen the connecting cable relating to the circuit board.

2. Unscrew the set screws of four circuit boards (Figure 4-12), replace a new circuit board and tighten the screws.

3. Connect the connecting cable to the original position of the circuit board, cover the upper cover of the shell and tighten the screws (Figure 4-13).

4.4 Accumulator Charging

Too long storage or long-term overcast and rainy weather may make the power in the accumulator to be exhausted. In order to protect the accumulator, the lighting fixture will enter the sleep state. At this moment, LED will automatically go out and the remote control fails to remotely control the lighting fixture. In the normal sunshine, the lighting fixture will automatically quit the sleep state after reaching the start voltage and recover the state before going out for continuous operation. If there is no sunshine for a long time, the accumulator may be charged or directly replace a charged accumulator to ensure the operation of the lighting fixture.

Specific operation steps of accumulator charging are as follows:

1. Unscrew the aerial receptacle under the lighting fixture (Figure 4-14);
2. Plug the aerial plug with a connecting cable into the receptacle under the lighting fixture (Figure 4-15);
3. Connect the connecting cable with the switching mode power supply for charging;
4. After charging, pull down the aerial plug and screw the waterproof cover of the aerial receptacle.

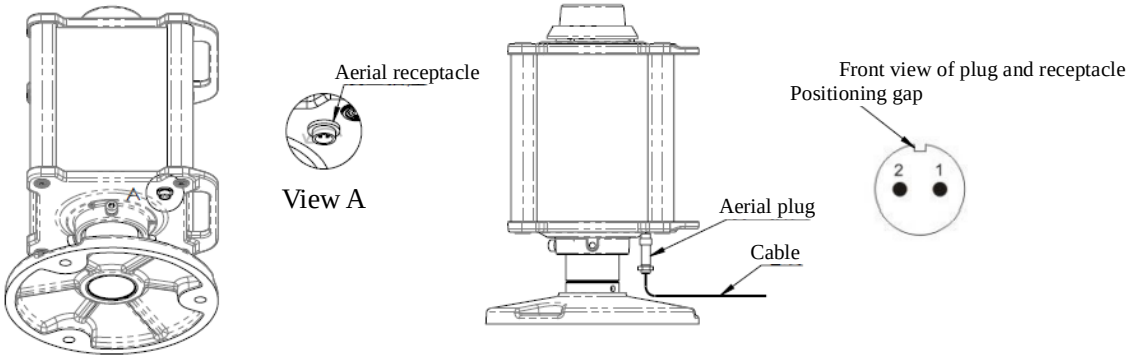


Figure 4-14 Figure 4-15

Notes: The connection position of the aerial plug and receptacle is controlled by the positioning gap.

■ The aerial plug and receptacle must be correctly connected.
※ Avoid charging failure or other electrical faults.

■ Prior to long-term storage, power shall be supplemented.
※ Otherwise it may impact the overall cell life.

5.0 Maintenance of Lighting Fixtures

Suggestions for daily maintenance provided in this section are only for reference. Airports may formulate their own daily maintenance guidelines with reference to other provisions or maintenance experience of airport staff; the manufacturer does not provide any hard-and-fast rules.

Maintenance of the lighting fixtures for airports shall be conducted by professionals as stated in 1.0 Foreword.

5.1 Daily Maintenance

Daily maintenance mainly means cleaning of the lighting fixture, including cleaning of the prism surface and solar panel surface.

The prism surface directly impacts the luminous angle of the lighting fixture. If there are impurities or other stains on the prism surface, the outer surface of the glass may be wiped with a clean and soft towel to keep the optical lens bright and clean.

Dirt retention on the solar panel surface seriously impacts the charging effects and shortens the service life of the lighting fixture, which may be wiped with a clean and soft towel.

During cleaning, please note whether various screws of the lighting fixture are tightened and the frangible pole is intact.

5.2 Regular Spot Check and Troubleshooting

Serial No.	Failure Phenomenon	Possible Reasons	Countermeasures
1	LED lamp assy failure	Damage to the internal drive	Replace the internal drive
2	The lighting fixtures is darker	There are some stains on the prism surface.	Clean up stains on the prism surface.
3	Existence of moisture and water	Damage to the prism or gasket	Replace the prism or gasket
4	No action of photoswitch	The sensitization opening is stained. Low voltage sleep state	Clean the sensitization opening Charging with sunshine

■ The frangible pole or prism must be replaced in case of any damage.

※ Otherwise it may cause other unnecessary damage.

■ Taking down the lighting fixture prism on site is strictly prohibited without authorization.

※ Otherwise it may cause water seepage or other faults of the lighting fixture.

■ Dismounting this lighting fixture by the laypeople is strictly prohibited.

※ Otherwise it may cause failure of the lighting fixture.

6.0 List of Components and Ordering of Spare Parts and Accessories

The list of parts of this product and relevant ordering information of the spare parts and accessories are shown in the Table of this Chapter. The manufacturer accepts to order in a manner of component or separate ordering of the parts. When ordering, please contact the manufacturer or deal according to the ordering No. listed in the Table.

The manufacturer recommends to purchase some key parts from the original manufacturer to ensures all indexes of the lighting fixtures.

■ When prism cannot work normally, pleader order it from our company.

※ Other prism may affect lighting angle and light intensity of the lighting fixtures.

List of components and spare articles:

Structure No.	Component Name	Order No.	Remarks
1	Prism	931116	Inverse taper prism (assy)
2	LED lamp	979271-R	LED lamp 1P-O-6 red
3	Gasket	41114	O- gasket 71×2.65
4	Front Cover	44515-R	
5	O- gasket 3.5×1.5	41152-	O- gasket 3.5×1.5
6	Solar panel	9791A0	Solar panel module
7	Upper cover of shell	241H1	Front cover-upper
8	Shell cutting	241F1	
9	Circuit board	79142	Circuit board of light in inapplicable areas
10	Light body gasket	41157	Front cover gasket
12	Accumulator pressing bracket	46432	Accumulator pressing bracket
13	Accumulator	6FM12	Valve control sealed accumulator
14	Bottom cover of shell	241H2	Front cover-lower
15	Frangible pole	46433	Frangible pole
16	Flange	276A1	Flange 240
17	Waterproof aerial receptacle	SP1310/S2	Waterproof aerial receptacle

List of supporting accessories of this product is as follows (needing additional order):

Serial No.	Part Name	Order No.	Description
1	Remote control	79158	Remote control
2	Charging source	70805	Charging source of light in inapplicable areas

7.0 Packaging, Transportation and Storage

7.1 Packaging and Weight

Lighting fixture:
Packaging: 1 pcs / box (excluding frangible flange)

Gross weight: 13 KG / box

Volume: 210×235×300mm

Flange：
Packaging: 6 pcs / box

Gross weight: 8.5 KG

Volume: 250×250×185mm

7.2 Transportation Mode

Well packed products may be transported in three modes- railway, highway and air according to factors such as transportation distance, quantity of lights and delivery cycle.

7.3 Storage

This product shall be stored in a place which is dry, well ventilated and far away from heat source and has no caustic gas. Custody should be checked on a regular basis.

Appendix I: Total Solar Radiation Quantity and Annual Average Sunshine Equivalents in Regions of China

Region category	Regions	Annual solar radiation quantity		Annual sunshine duration	Annual average sunshine time under standard illumination (h)
		$MJ/m^2 \cdot year$	$kWh/m^2 \cdot year$		
I	North of Ningxia and Gansu, south of Xinjiang and west of Qinghai and Tibet	6,680-8,400	1,855-2,333	3,200-3,300	5.08-6.3
II	Northwest of Hebei, north of Shanxi, south of Inner Mongolia, south of Ningxia, central part of Gansu, east of Qinghai, southeast of Tibet and south of Xinjiang	5,852-6,680	1,625-1,855	3,000-3,200	4.45-5.08
III	Southeast of Shandong, Henan and Hebei, south of Shanxi, north of Xinjiang, northwest of Jilin, Liaoning, Yunnan and Shannxi, southeast of Gansu, south of Guangdong and Fujian, north of Jiangsu and Anhui and southwest of Taiwan	5,016-5,852	1,393-1,625	2,200-3,000	3.8-4.45
IV	North of Hunan, Hubei, Guangxi, Jiangxi, Zhejiang, Fujian and Guangdong, south of Shaanxi, Jiangsu and Anhui and northeast of Heilongjiang and Taiwan	4,190-5,016	1,163-1,393	1,400-2,200	3.1-3.8
V	Sichuan and Guizhou	3,344-4,190	928-1,163	1,000-1,400	2.5-3.1

The final right to interpret this manual is reserved by Airsafe Airport Equipment Co., Ltd.

Thanks for your purchasing and using AIRSAFE product!

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