SOLAR STREET LIGHT

INSTALLATION MANUAL

FOR MODEL BRIGHTA30

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GENERAL INFORMATION

Thank you for selecting Greenshine solar light and thank you for your contribution to environmental protection! Greenshine solar light is environmentally friendly -100% powered by the sun and user friendly - it will work automatically with little maintenance.

Although Greenshine solar light is very simple to install, please take the time to read this manual and become familiar with the light. This will help you with many problems you may encounter.

Check each component before installation: the appearance, specification, quantity, etc.. If you encounter any problems with the solar light before or during installation. STOP installation and contact Greenshine. We will provide you with timely assistance.

Enjoy your solar light!

1. COMPONENTS LIST

Components	Description	Quantity
Pole	Material: Hot galvanized & spraying painted steel Height: 20 feet	1
Solar Panel	Mono/poly-crystalline, conversion efficiency: 13-15% 12V 80W	2
Storage Battery	Gel cell deep cycle battery 12V 50Ah	2
Controller	Waterproof solar charge controller 12/24V 10A	1
Light Fixture	CREE LEDs, material: Die-casting aluminum 24V 30W, IP65	1
Storage Battery Box	PVC Water-proof battery boxes	1
Foundation Kit	Screwed anchor bolts, templates and nuts	1
Other Accessories	Cables, fasteners such as bolts and nuts	

2. STORAGE TIPS AND OPERATING ENVIRONMENT

- **Storage Tips**
  - Keep the all the components well packaged during storage.
  - Store in a well-ventilated area and keep components away from dust and dirt.
  - Environmental Temperature Range: -4°F to 140°F
  - Relative Humidity: less than 90%, without condensation.
  - Keep goods away from corrosive gases and liquids.
  - DO NOT invert the battery.
  - IMPORTANT: For long-term storage, the battery should be connected to a battery tender or discharged and charged once a month. Or the battery may work improperly.
- **Operating Environment**
  - Ambient Operating Temperature Range: 5°F to 122°F
  - Humidity Range: 0 - 90%

IMPORTANT SAFETY INSTRUCTIONS

- SAVE THESE INSTRUCTIONS — This manual contains important instructions that should be followed during installation and maintenance.
- The installation and maintenance must be carried out by qualified technicians.
- WARNING—Smoking and fires are strictly prohibited at the installation site. Lead acid batteries can generate small amount of hydrogen which may cause explosion when exposed to fire. NEVER short circuit the battery (Never connect its "+" wire directly with the "-" wire.) because short circuits may damage the battery.
- DO NOT short circuit the solar panel or load while connected to the controller. This will DAMAGE the controller.
- The controller and battery should be protected from direct sunlight. Ensure adequate space for air flow around it.
- Be very careful of the fragile components like solar panel and light fixture during transferring and installation.
- Be very careful of the finished surfaces of the pole, lamp arm, brackets and light fixture during transferring and installation. The paint is easily damaged if not well protected.
- Be careful when working with copper wire and other components as they are sharp.
- Everyone except working staff should be kept at least 30 feet away from the job site.
- Installation during rainy days is not recommended.

TOOLS NEEDED

Name	Application
Tape measure	Measuring the pole distance, cable and so on
Adjustable wrench	Screwing fasteners on solar panel & bracket, battery box, etc.
Excavator	Digging foundation pit
Concrete mixing machine	Mixing concrete
Wheelbarrow	Transferring concrete material
Level	Measuring the surface of foundation concrete
Multi-meter	Measuring the voltage, current of the lighting system
Wire stripper	Stripping wires
Waterproof tape	Insulating the wire connections
Steel wire (Dia. 1-2mm)	Guiding the cable through lamp arms and poles, etc.
Flat blade screwdrivers	Screwing fasteners for battery box
Phillips head screwdrivers	Screwing fasteners for battery box
Allen wrench	Screwing fasteners for light fixtures
Hammer	Cleaning the concrete on the foundation template
Chisel	Cleaning the concrete on the foundation template
Compass	Measuring the right direction to point the solar panel
Socket wrench	Screwing fasteners for lamp arm, mounting brackets and foundation kit
Nylon cable tie	Tying the cables
Truck crane	Hoisting the pole
Shovel	Backfilling the battery box
Light meter	Measuring illuminance

ESTIMATED INSTALLATION TIME

Foundation building	7 days. The concrete takes about 6 days to become completely solidified.
Storage battery installation	2 hours per light
Light fixture installation	1 hour per light
Solar panel installation	2 hours per light
Controller installation	1 hour per light
Hoisting	2 hours per light

INSTALLATION INSTRUCTIONS

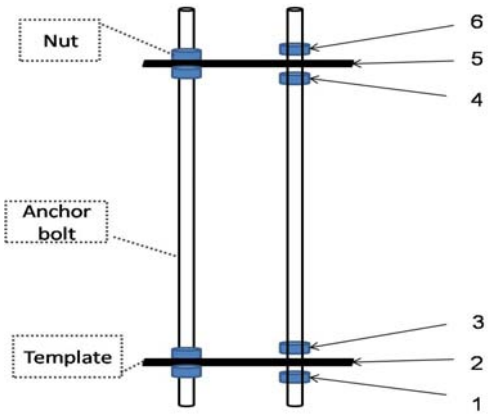
1. INSTALLATION SITE SELECTION

- Choose a site with sufficient sunshine during the day.
- Make sure the site is away from big trees or buildings that block the sunlight.
- There should be no direct light source above the solar panel, or its light detectors may work improperly.
- The solar street light should be kept away from any heat source, or its life will be shortened.
- The pole must be installed on sufficiently solid ground. Please let us know beforehand if it has to be installed in sandy soil or some other atypical soil.
- If the pole has to be installed close to bodies of water, please make sure the battery will remain above the water line.

2. FOUNDATION BUILDING

A. FOUNDATION KIT ASSEMBLING

- Assemble the foundation kits following the order marked in the following drawing:



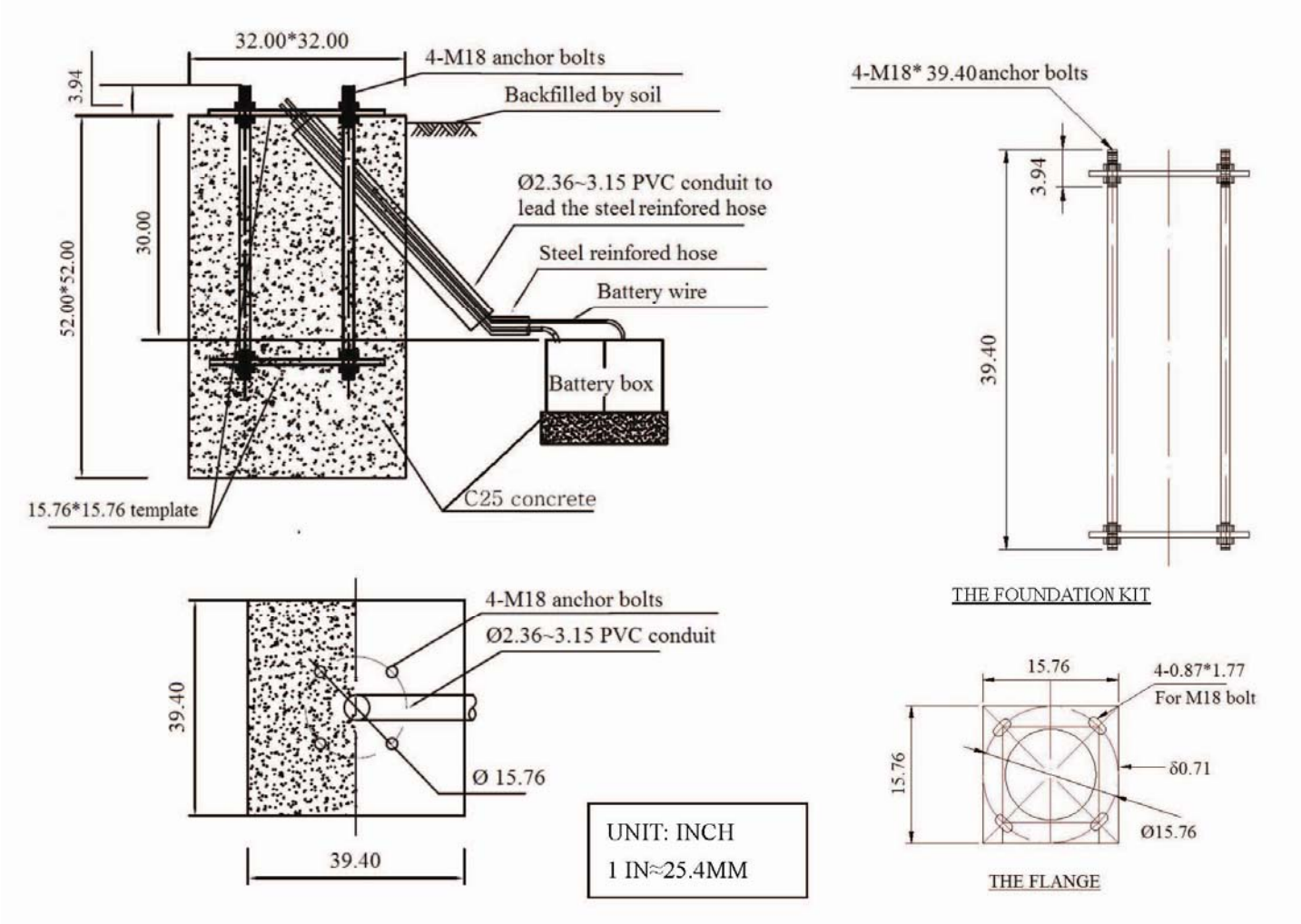
Drawing

Note

- Ensure the threaded portion of the anchor bolt is as long as possible.
- Measure the template with spirit level and make sure it is level.
- Wrap the screws on the top side with tape to protect it from being damaged by concrete.

B. FOUNDATION KIT SETTING

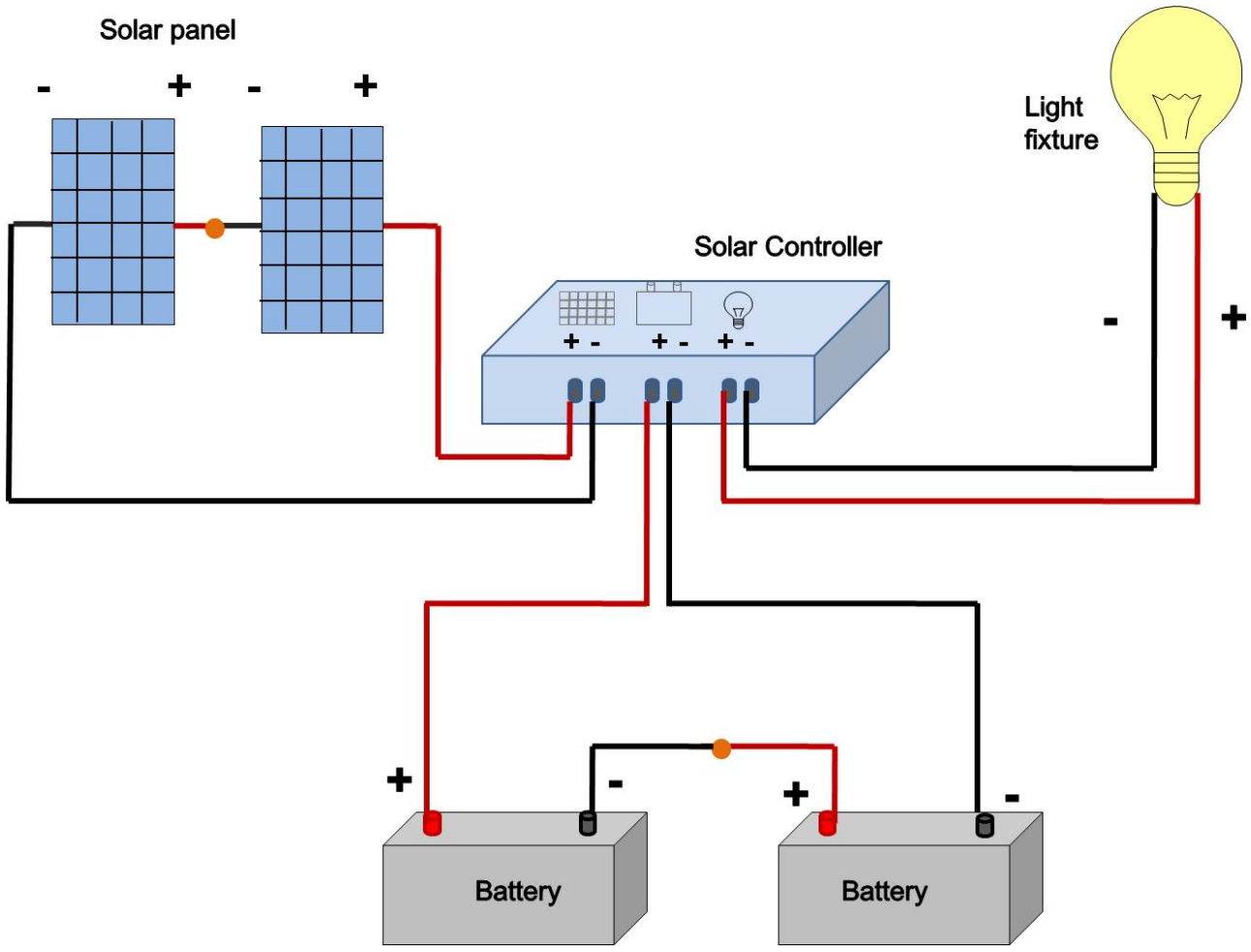
①. Dig the foundation pit as per the foundation drawing and mix the cement at the same time.
②. Fix the PVC conduit to the anchor bolt and dig a small hole for the PVC conduit.
③. Set the foundation kit and keep its template level (Measure it with a level).
④. Plug both ends of the PVC conduit to prevent debris or water sinking into it.
⑤. Pour concrete and keep the template of foundation kit level.
⑥. Clean the top of the foundation and smooth the surface.
⑦. Dig the battery pit on the PVC conduit side after the concrete is completely solidified in 5~7 days.



3. SOLAR STREET LIGHT INSTALLATION

A. PREPARATION

a) Study the Connection Diagram before Installation



Connection diagram

b) Cable Cutting and Labeling

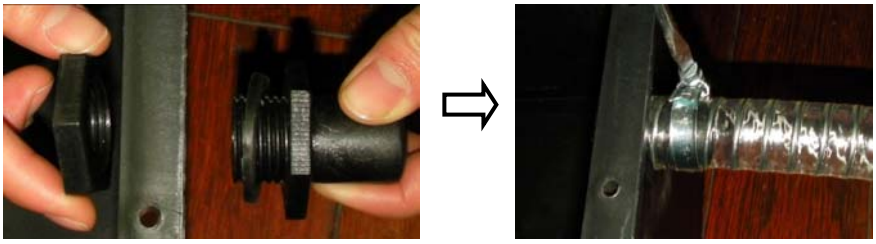
- Measure and cut the cable
  - The length of cable for solar panel = pole length + length of pole sleeve on the solar panel bracket
  - The length of cable for light fixture = pole length + lamp arm length
- Label the cut cables as “panel cable” and “lamp cable”

c) Cable Stripping

- Strip wires for battery, light fixture, and solar panel. Wrap both the “+” and “-” wires of battery and solar panel with insulation tape to avoid short circuit.
- Strip wires for the panel cable and lamp cable

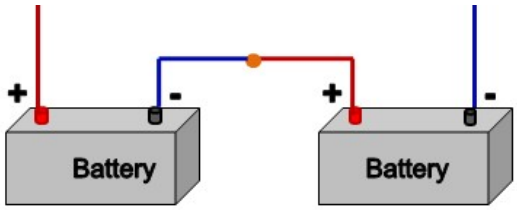
B. STORAGE BATTERY INSTALLATION

①. Assemble the connector of the battery box as per the following picture. Do not screw the connector too hard or it may break.



②. Place the battery into the battery box.

③. Connect two batteries in series.



④. Wrap both the "+" and "-" wires of battery with insulation tape to avoid short circuit.

⑤. Pass the cable of the battery through the wire reinforced hose.

⑥. Cover the battery box, add the sealing ring and seal it tightly with fasteners.

⑦. Bury the battery box in the battery pit and pass the wire reinforced conduct through the PVC pipe (Refer to the Foundation Drawing).

⑧. Fill some sands around the battery box ensure there is a proper operating temperature for battery in winter.

Pass wires through the connector Add sealing ring Seal the box

C. TEST THE LIGHTING SYSTEM BEFORE MOUNTING

①. Connect the controller with the output cable of the battery.

②. Connect light fixture with the controller. If the lamp lights up (Sometime it takes 1~2 minutes for the lamp to light up), go on to the next step. If the lamp still doesn't light up, check the connection and contact us.

③. Connect the solar panel with the controller. If the lamp turns off when the solar panel put under the sunlight charging, you can start mount. If lamp is still on, check the connection and contact us.

④. The disassembly order should be: solar panel → light fixture → storage battery

Note

✧ Follow the connection diagram in the previous page during connecting.

✧ Connect **"–"** first, then **"+"**.

✧ Avoid short circuit.

D. LIGHT FIXTURE AND SOLAR PANEL INSTALLATION

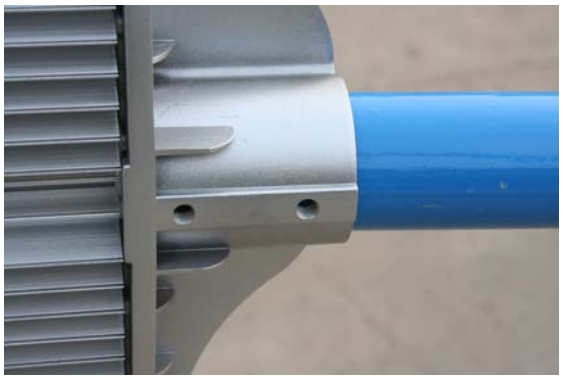
Light fixture Installation

①. Pass the lamp cable through the arm and pole.

②. Fix the arm to the pole

③. Connect the lamp cable with the light fixture.

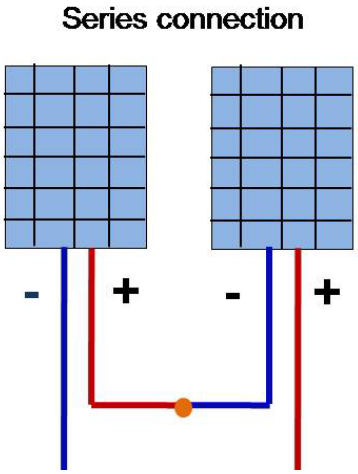
④. Mount the lamp onto the arm.



Solar Panel Installation

①. Fix solar panel to the bracket

②. Connect two panels in series.



③. Pass the panel cable though the pole.

④. Connect panel cable with the junction box (or the cable from the junction) on the back side of the solar panel.

⑤. Use a compass to point the solar panel to the equator (It should face the south in the Northern Hemisphere and north in the Southern Hemisphere).

⑥. Fix the bracket to the pole.

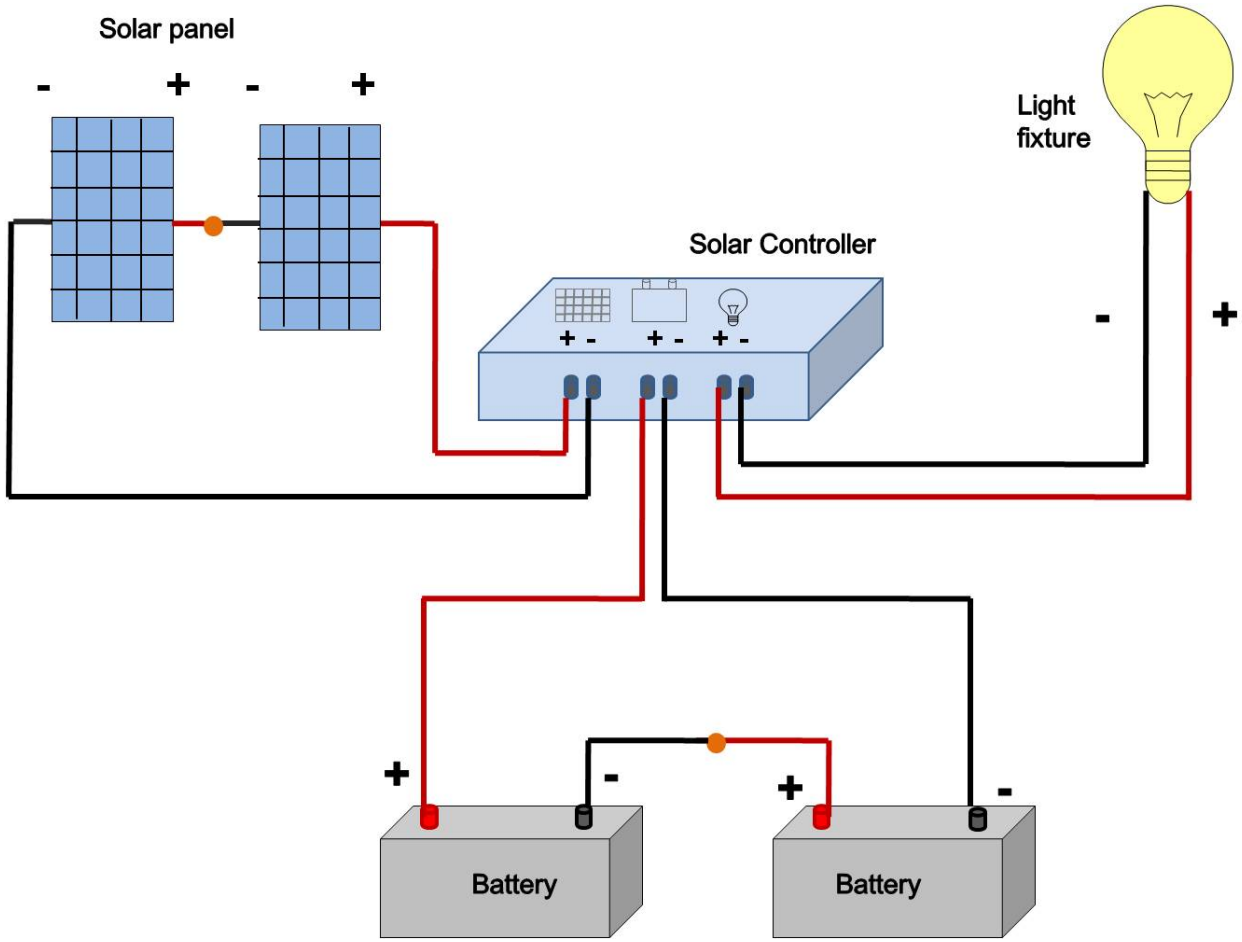
✧ Place the panel on a thick cardboard (bigger than two panels) to protect it.

✧ Make sure the junction box is above the center when mounting the panel.

E. CONTROLLER INSTALLATION

Open the pole window and set the controller in the pole. Secure it by the hex screws.

Connect the battery, light fixture, solar panel with controller according to the connection diagram



Connection diagram

Note

- ✧ Connect **"–"** first, then **"+"**.
- ✧ The connections of the cables must be connected firmly and wrapped with waterproof tape

F. HOISTING

Lift the pole with a crane and put it on the foundation.

Place the washer and screw down the nuts on each bolt.

Note

- Do not change the working mode or load without contacting Greenshine. The solar lighting system is custom designed; it may work improperly after any changes.
- All bolts and cable terminals must be tightened to ensure reliable connection. Please make sure that the polarity is not reversed, including each component, storage battery, controller, etc..
- As each solar street light is powered by an independent power supply (battery), they may not turn on or turn off simultaneously.

TROUBLESHOOTING

Problem	Problem Cause	Solution
Lamp does light up at all	Ambient light is much stronger	The light source will start automatically when the ambient light dims to a certain degree
	Light source is damaged	Replace it with the same light source
	The output circuit is open, short, or grounded	Check the output circuit connection
	The connection between the storage battery's terminals is an open circuit	Check the connection between the storage battery's terminals and make sure it is okay.
	The controller is damaged	Repair the controller or replace it with the same model controller.
Lamp works irregularly or shuts off too soon	The solar panel is covered by other things	Clean the solar panel.
	The voltage of the storage battery is below 11.1V (22V for 24V system)	1. If the low voltage is caused by too many rainy days, it will recover automatically when the sun returns. 2. Check the connection of the solar panel 3. Check the battery connection

MAINTENANCE

Greenshine's solar street lights are designed to be essentially maintenance free. In certain regions with extreme conditions, however, some level of maintenance is required to ensure the proper function of the lights. These regions are typically where there is a risk of dust, snow, or ice covering the solar panels and thus reducing the power of the lights. In regions with frequent rain, the tilt angle of the solar panels allow for self cleaning of dust. However, in places where rain is infrequent, periodic manual cleaning of the panels may be required.

Typical maintenance schedule:

- Every Week: Inspection of street lights to ensure all the lights are working. If there are lights which are not lit, perform analysis to understand cause and conduct repairs.

- Every 2 Month: Inspect street light panels and clean ones which are covered with dust or sand. The best way to clean the panels is with a brush at the end of a long pole. Care should be taken to avoid damaging the solar panels.

- Every 5-7 Years: Replace the solar street light batteries if the voltages drop below normal levels. The battery has an expect life of 5-7 years.

Note

- Please do not use components from other suppliers for replacement without our allowance, as this may cause damage to the lighting system.
- Do not use water to flush it from top to bottom when cleaning the solar panel

DISCLAIMER

By installing or using any Greenshine product in any way for any purpose, you (the customer) do so at entirely at your own risk. Greenshine and its owners are not responsible for any damages caused by using or installing our products be it personal injury, damage of property, prosecution (from a result of using our products), legal fees or loss of earnings whether the Greenshine product was fitted correctly as per this 'installation guide' or not.