Contents

INTRODUCTION

This manual contains important information concerning your X-600W wind turbine and its installation and operation.

It is strongly recommended that you read this manual yourself with its contents before installing and operating the Wind turbine system.

The X-600W wind turbine is designed to provide a direct current (DC) power supply via a battery bank for 12/24V equipment, lighting, etc. It is robustly constructed and designed to give many years of trouble free service with the minimum of maintenance. Please take notice of our General Guidelines for the user and Inspection and Maintenance sections.

GENERAL GUIDELINES & WARNINGS!

• Mounting pole outside diameter MUST NOT exceed 49mm. Larger section poles must not be used as this will reduce the tower to blade clearance. In high wind conditions this could cause damage to the wind generator by allowing the blade to come into contact with the mounting pole. A broken blade will cause turbine imbalance with consequent damage.

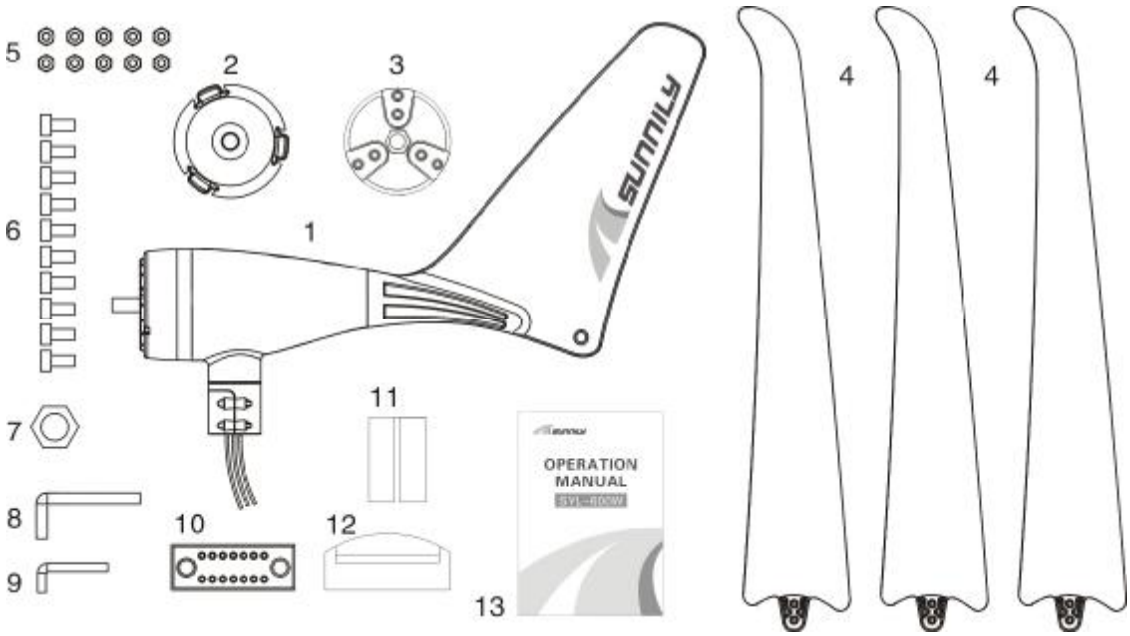
• When turning, the turbine must never be allowed to rotate unless it is electrically connected to a controller or batteries. Avoid applying a short circuit to the wind turbine particularly in high winds. If a short circuit is necessary first slow the turbine as described below. Caution must be exercised at all times to avoid electric shock.

• Stopping the turbine – this may be necessary to undertake battery maintenance. If possible stopping the turbine should be done in low wind speed conditions. The turbine can be slowed by rotating or orienting the tail fin upwind, this will slow the turbine sufficiently for it to be safely secured to the pole with rope. Avoid leaving the turbine tied up for any period of time, we recommend that the turbine either be covered to give protection from the weather or removed and stored in a dry location.

• No attempt to repair the system should be made until the wind generator is restrained from turning.

• The Wind turbine is fitted with ceramic magnets, which can be damaged by heavy handling. The main generator assembly should be treated with care during transit and assembly.

CHECK YOU HAVE RECEIVED



NO.1	1 pcs	generator
NO.2	1 pcs	nose cone
NO.3	1 pcs	hub
NO.4	3 pcs	blade
NO.5	10 pcs	Nut (M6)
NO.6	10 pcs	socket cap screw
NO.7	1 pcs	Nut(M20 x1.5)
NO.8	1 pcs	allen key(8mm)
NO.9	1 pcs	allen key(5mm)
NO.10	1 pcs	Anti-static pads
NO.11	1pcs	PVC slip cover
NO.12	1 pcs	controller
NO.13	1 pcs	operation manual

In the event of loss or damage, consult your dealer or the manufacturer.

WHAT YOU WILL NEED

Tools

- screw drivers
- set of spanners
- wire strippers
- wire crimpers
- heat shrink or electrical tape
- multimeter

For correct tightening of the screws a torque wrench is recommended.
Tools for the mast installation are not listed here. See respective instructions.

Other Items You Will Need

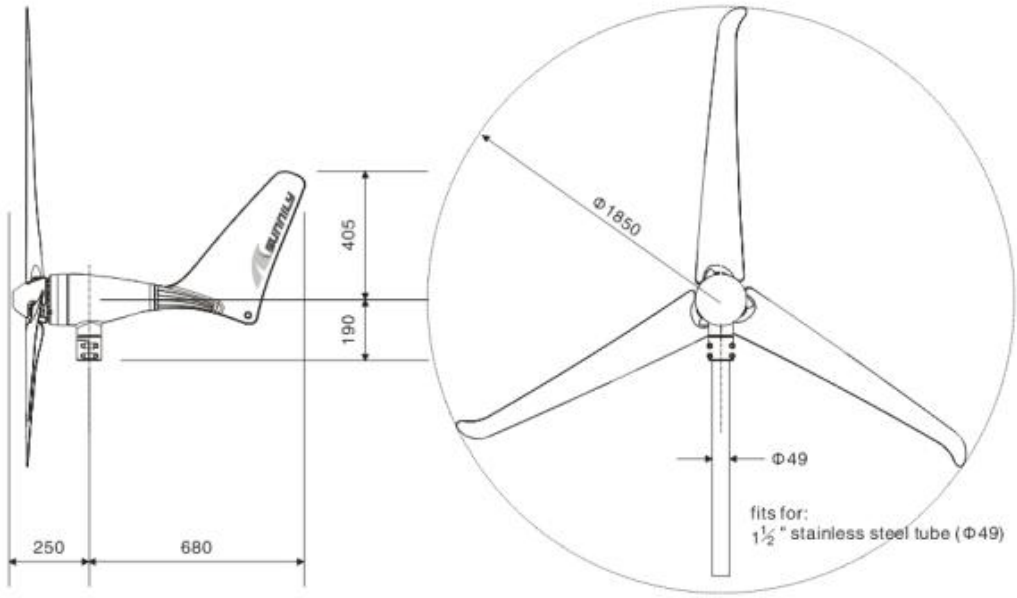
- Mounting pole
- Cable
- Batteries
- Battery terminals
- Connector blocks (as determined by your total system)

Other Items You May Have Selected

- wind turbine Charge Controller
- Cable
- Voltmeter & Ammeter

TECHNICAL CHARACTERISTICS

Required space

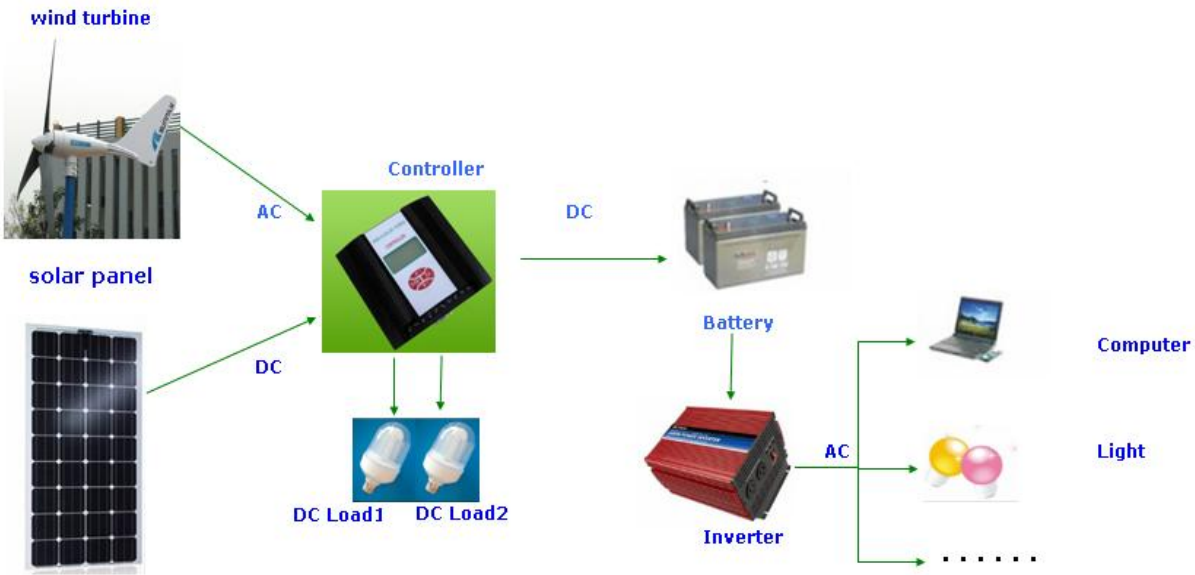


Technical Specification:

Rated power	600W
Maximum power	700W
Voltage	24V
Start wind speed	2.0m/s
Rated wind speed	12.5m/s
Security wind speed	45m/s
Net Weight	15kg
Packing size	98*56*25cm
Wind wheel diameter	1.85m
Brake	Electromagnetic brake
Blade number	3
Tower height	6m
Blade material	CFRP
Control System	Electromagnetic
Generator	Three-phase permanent magnet synchronous generator
Speed way	Automatically adjust the windward angle

WIRING DIAGRAMS

Wiring diagram



CABLES

The cross sections of the wires to be used depend on their length and the rated voltage of your wind generator. After you decided where to set up the mast measure the distance from the mast head to the battery and then select the minimum cross section required on the basis of the following tables. In order to keep the losses of power in the lines as small as possible, you should not use lines with under-sized cross sections.

For the 24 Volt version

distance from mast head to the battery	up to 10,6 m	10,7 – 17,6 m	17,7 – 28,2 m	28,3 – 42,4 m	42,3 – 70,6 m	70,7 – 112,9 m
minimum cross section recommended per cable	2,5 mm²	4 mm²	6 mm²	10 mm²	16 mm²	25 mm²

WARNING: Cables with insufficiently dimensioned cross sections can heat up extremely and cause electrical fire.

BATTERY

Lead acid batteries are most commonly used.

Another important criterion for battery selection is the capacity, expressed in ampere-hours (Ah). This value represents the quantity of storable energy. The required capacity depends on your individual situation (wind location, consumption structure, combination with other generators like PV etc.). Your battery dealer surely will assist you selecting the suitable battery.

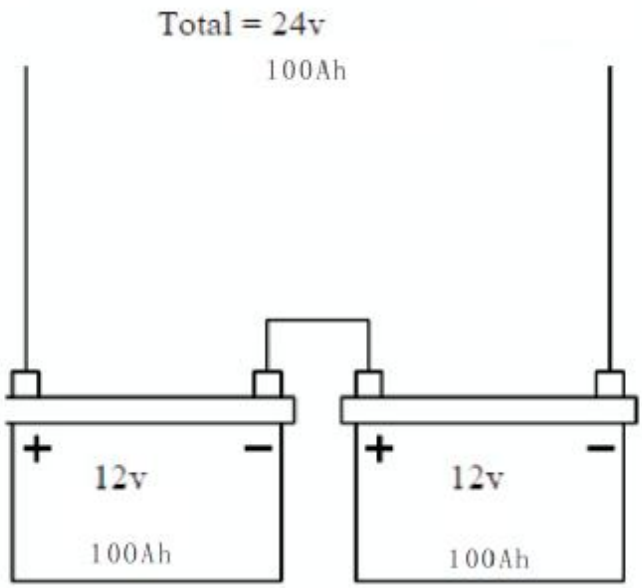
WARNING: Never install the batteries at places with danger of spark formation.

Provide sufficient ventilation at any time.

WARNING: Never short-circuit the battery.

NOTE: The battery terminals may be connected only after all work on the electric system has been completed.

For protection against too high currents and or short-circuit, **fuses** must be installed in the positive (+) wires to the battery.



It is essential to observe polarity as follows:

Red is + Positive

Black is – Negative

CHARGE CONTROLLER

Before installing the charge regulator please read the respective operating instructions. Also follow the instructions concerning the point of installation. The charge regulator should be placed close to the battery as it detects their ambient temperature for optimum performance.

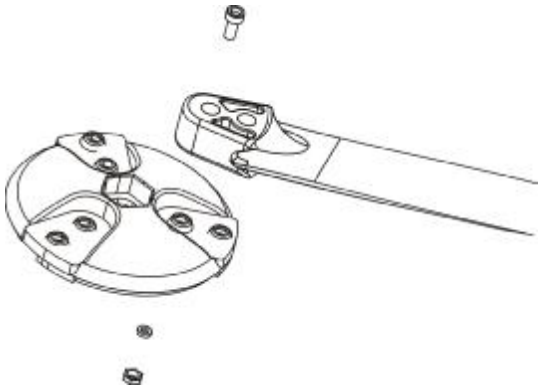
FUSES

To protect the battery against short-circuit fuses can be installed in the positive line between the wind generator and the battery and in the positive line between the battery and charge regulator. The fuses are of 25 ampere (24 V-system)

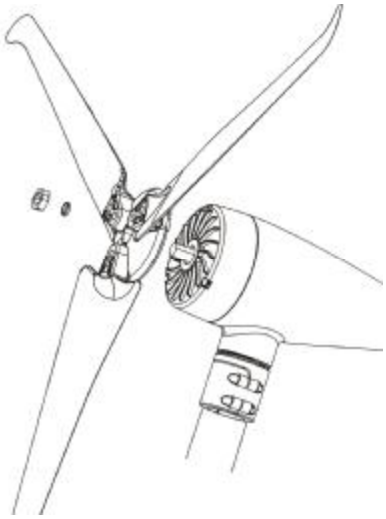
TOWERS

Mounting pole outside diameter is 49mm for at least 6m high, thickness above 4mm.

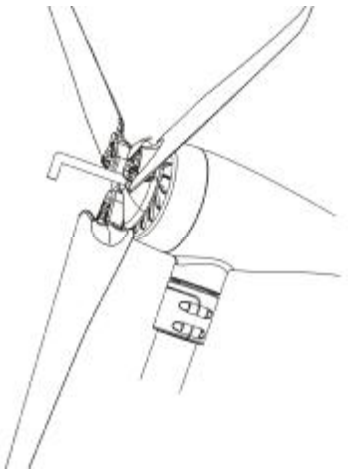
INSTALLATION:



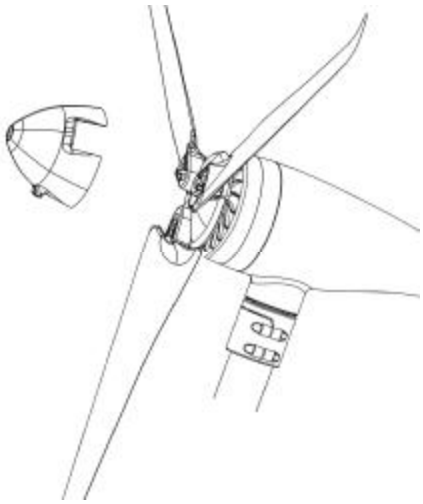
Step1



Step2



Step3



Step4

FINAL MECHANICAL CHECK

1. Check the tightness of the blade fixing screws and generator mounting screws.
2. Check free rotation of the hub and yaw axis.

Before raising and securing the wind generator, check that:

1. All final mechanical checks have been made.
2. The cable is not trapped.
3. All electrical connections are secure and safe.

• The wind generator can now be raised into position.

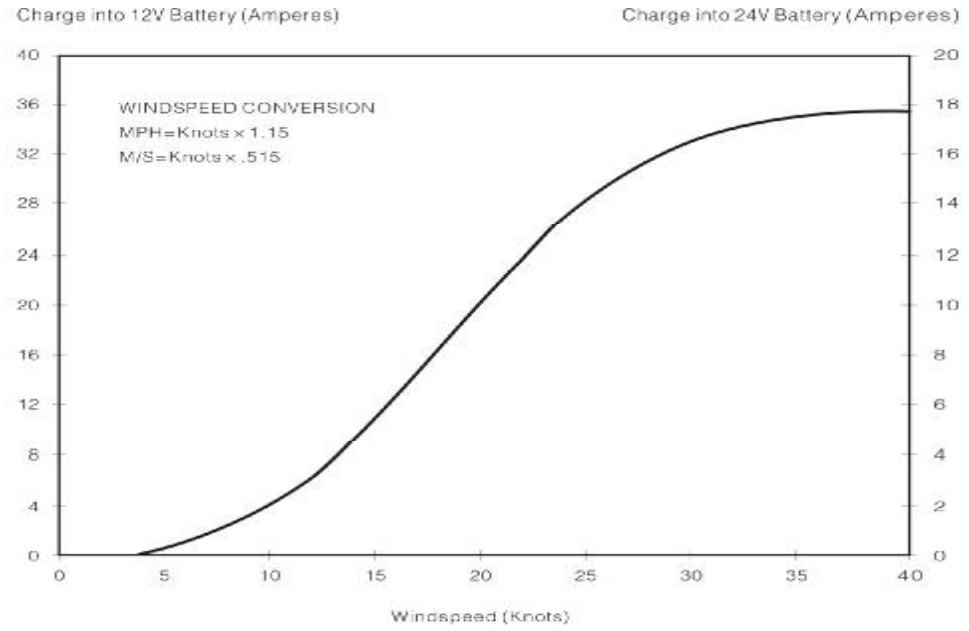
Take care to avoid all moving parts when raising and lowering the wind generator.

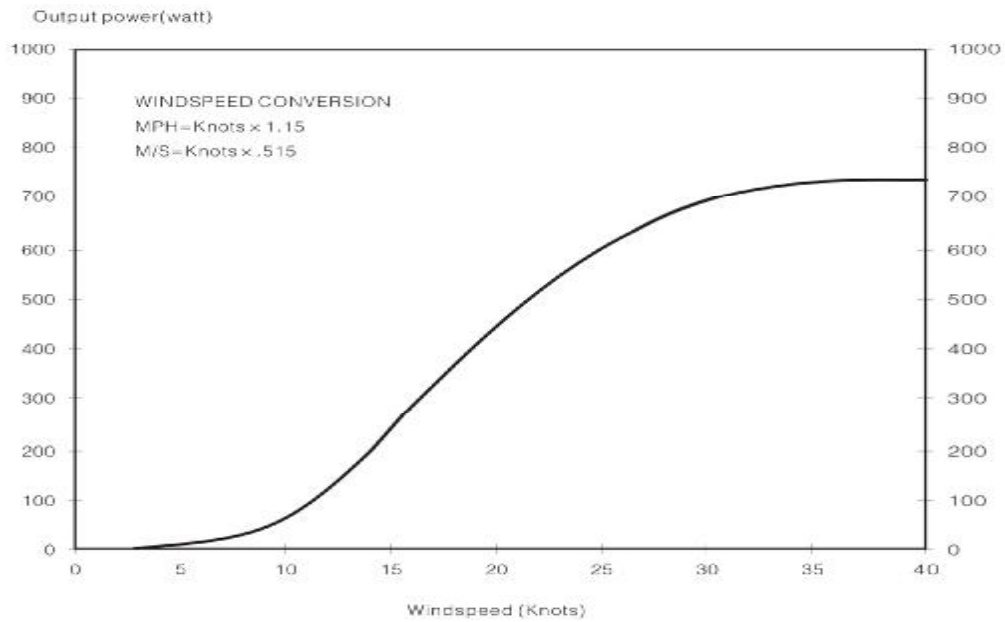
• When raised, secure the structure firmly in an upright position. The performance of your Wind turbine can be impaired if the pole is not vertical .

SPECIFICATION AND PERFORMANCE

The curve shown below is for ideal, non-turbulent wind conditions; this may not be achieved in some installations.

Output power data											
wind speed (m/s)	2	3	5	7	8	10	11	12	12.5	15	>15.0
Output Voltage	20	20	23.7	24.1	25	25.4	26.1	26.2	26.3	26.9	Protect
Output power(watt)	0	18	41	154	250	373	500	520	600	700	





INSPECTION AND MAINTENANCE

The X-600W requires no scheduled maintenance but an annual inspection should be carried out to monitor the general condition of the system to ensure the electrical and mechanical integrity and safety of the system.

WARNING! Before inspection, the turbine should either be lowered to the ground or tied to prevent the generator from turning. To stop the generator from turning proceed as follows:

1) Turn the wind generator out of the wind (180°) using the tail. A hole is provided in the tail fin to assist in this. The generator will gradually slow down.
2) Tie a blade to the mounting pole to prevent it from rotating.

• Whilst the generator is stationary, the following routine checks should be performed:

1) Check the blade screws for tightness.
2) Check all other nuts, bolts and screws for tightness.
3) Check the yaw axis for free rotation.
4) Check tower assembly for condition.
5) Check the tension of the guy wires if applicable. The tension of guy wires should be checked frequently during the first year.
6) The unit can be wiped with a mild detergent and rinsed with water to remove dirt and debris.

Note: The Wind turbine is designed for continuous running to achieve maximum resistance to water ingress, should the unit be restrained for any extended period it is recommended that it be covered.

TROUBLESHOOTING

In the unlikely event that your X-600W should develop a defect, the turbine should first be tied to prevent the blades from turning to perform the static tests below. (Follow the procedure described in the Inspection and Maintenance section)

It will be necessary to let it run for the tests to check for power production.

1. Read the Electrical Connection and Up and Running sections and be satisfied that your system complies.

2. Is there sufficient wind? The X-600W needs 5 knots wind speed to start charging. The wind speed across the turbine blades may be greatly reduced in a marina or built-up area compared with the reading on a masthead anemometer or weather reports.

3. Static Tests:

• Is the battery in good condition? Check the voltage and electrolyte level of each battery.

• Check electrical continuity throughout the system, especially corrosion and poor connections in cable joins and connector blocks.

4. Running Tests:

• Check for power output from the wind turbine, following this procedure:

A. Set a digital multimeter to DC Amps, scale of between 5 and 10 if possible. Connect the meter positive (+) probe to the wind generator output positive cable and the meter negative (-) to the regulator input positive. Provided there is sufficient wind there should be a current reading. This establishes that power is being delivered.

B. Using the same multimeter setting as above measure between the regulator to battery + and the battery +. Provided there is sufficient wind there should be a current reading. This establishes if power is passing through the regulator.

C. If both above are unsuccessful set the multimeter to DC Volts. Disconnect the wind generator from the regulator and connect the meter + to the wind generator +and the meter . to the wind generator -. Provided there is sufficient wind there should be a variable voltage reading according to the speed of the wind seen at the wind turbine. This will establish if the wind generator is able to deliver power or not.

D. If tests A and C are successful but test B fails to produce results connect the wind generator directly to the battery. Set the digital multimeter to DC Amps and measure power between the wind generator + and the battery +. If a reading is measured, providing there is sufficient wind, then the regulator is faulty.

E. If the wind turbine fails to deliver any current or open circuit V reading undertake the further tests below.

5. Mechanical inspection. It may be necessary to remove the wind generator from its pole for the following tests.

• Check the brushes and slip ring for wear or damage. To inspect the brushes, remove the nacelle by removing the three fixing screws and slide the nacelle backwards towards the tail fin. The brushes and slip ring can be inspected by removing the four self-tapping screws holding the brush holder assembly in place. Remove any black deposits from slip ring with emery paper. Heavy deposits and reduced power indicate a possible reverse connection to the battery

• Check hub for free rotation with generator disconnected from battery.

If the hub does not rotate freely, check for a possible short circuit in the wiring. If no wiring fault is found refer to your dealer or manufacturer.

If the above checks have identified a need for spare parts or failed to identify the problem you should contact manufactures who can advise you of your nearest distributor in their world wide network. In the first instance we recommend that you contact the company from whom the product was originally purchased.

If in doubt, refer to your dealer or manufacturer.

L I M I T E D W A R R A N T Y

The **NEWMEIL** Company Limited Warranty provides free replacement cover for all defects in parts and workmanship for 36 months from the date of purchase. **NEWMEIL** obligation in this respect is limited to replacing parts which have been promptly reported to the seller and are in the seller's opinion defective and are so found by **NEWMEIL** upon inspection. A valid proof of purchase will be required if making a warranty claim.

This Warranty is void in the event of improper installation, owner neglect, misuse, damage caused by flying debris or natural disasters including lightning and hurricane force winds. This warranty does not extend to support posts, inverters, batteries or ancillary equipment not supplied by the manufacturer. No responsibility is assumed for incidental damage. No responsibility is assumed for consequential damage. No responsibility is assumed for damage caused by the use of any unauthorized components.

For your future reference we recommend you note the following:

Serial Number:

Date of Purchase:

Date of Installation:

Type of Regulator: