Table of Contents

SOLAR CONTROLLER

1500 / 1500+

3000 / 3000+

WARNINGS

IMPORTANT WARNINGS AND SAFETY MEASURES

Read all instructions thoroughly before operating this unit in order to avoid injury to self, property, or unit. For additional questions and clarifications, contact your sales representative or the factory. Keep instructions for future reference.

Risk of Electrical Shock if used improperly or mishandled. Energized Equipment: Electrical Shock and Explosion Hazards.

DANGER

- **Do not** submerge in water or other liquids. Keep in dry environment. Device is splashdown capable and rain resistant.
- **Do not** operate in flammable or explosive environments.
- **Do not** operate in inclement weather. Unit can sustain serious damage during hurricanes. Remove solar panels and store accordingly.

- **Do not** operate if unit is damaged in any way, including loose electronics, frayed charging cords and/or exposed wires.
- **Do not** overload the system by attaching appliances that have not been approved for nominal operation.
- **Do not** place foreign objects inside of the power outlets.
- **Do not** disassemble. There are no user serviceable parts. Warranty voided if seal broken. Contact manufacturer for all repairs.

CAUTION

- **Do not** use to operate any medical life support equipment.
- **Consult your physician** before using with CPAP devices or other non-life support medical equipment.
- **Do not** use any loads over 1500W for inverSOL 1500 and 3000W for inverSOL 3000 and 3000+ for risk of damage to the inverter.
- **Not recommended** for use below 32° F (0° C) or above 140° F (60° C). Place control module out of direct sunlight to prevent overheating.

Please read this user's manual carefully before operating your inverSOL generator.

INTRODUCTION

HELLO AND WELCOME!

Thank you for choosing inverSOL as your cost-effective solar-powered generator. You have chosen a brand designed with the highest regard to quality, safety, and technical performance. Our units include industrial-grade components, the latest in design techniques, and production with the highest commitment to quality. We hope that you will enjoy the convenience and reliability of your new unit. The key components of each model include: solar panels and control module with battery bank. Depending on the model selected, the unit will power basic life necessities; such as, a refrigerator, LED lights, fans, laptops, and televisions.

SOLAR GENERATORS VS. GAS GENERATORS

While both technologies use inverters to convert power to run appliances, gasoline generators may be rated for a specific load, 1500 watts, for example, and should provide power to appliances for that rated amount. Solar inverters, by contrast, provide power **up to rated** inverter load. This means your unit may provide *less power* than the inverter's capability. The actual watt-hours available is determined by the *number ofsolar panels* and battery modules connected.

COMPONENT LIST

GETTING TO KNOW YOUR INVERSOL MODEL

Table 1. Component List

MODEL:	1500	1500+	3000	3000+
Included Solar Panels	1 (320 W*)	1 (320 W*)	2 (640 W*)	2 (640 W*)
(Max Panel Capacity)	390 W	780 W	1560 W	2080 W
Power Inverter	1	1	2	2
MPPT Solar Controller	2	2	4	4
110 VAC GFCI Outlets	2	2	4	4
Battery Capacity	1200 Wh	2400 Wh	2400 Wh	4800 Wh
Usable Capacity	1125 Wh	1200 Wh	1200 Wh	2400 Wh
Cables	1 x Panel Connection Cable	1 x Panel Connection Cable	1 x Panel Connection Cable	1 x Panel Connection Cable 1 x Battery Connection Cable
Surge Capacity	3000 W Max	3000 W Max	6000 W Max	6000 W Max
Continuous-Load Output	1500 W	1500 W	3000 W	3000 W
Max # Battery Modules	0	0	4	6
Max # Additional Panels	0	1	2	3

*NOMINAL WATTAGE MAY VARY; SUBJECT TO CHANGE WITHOUT NOTICE

Technical Specifications

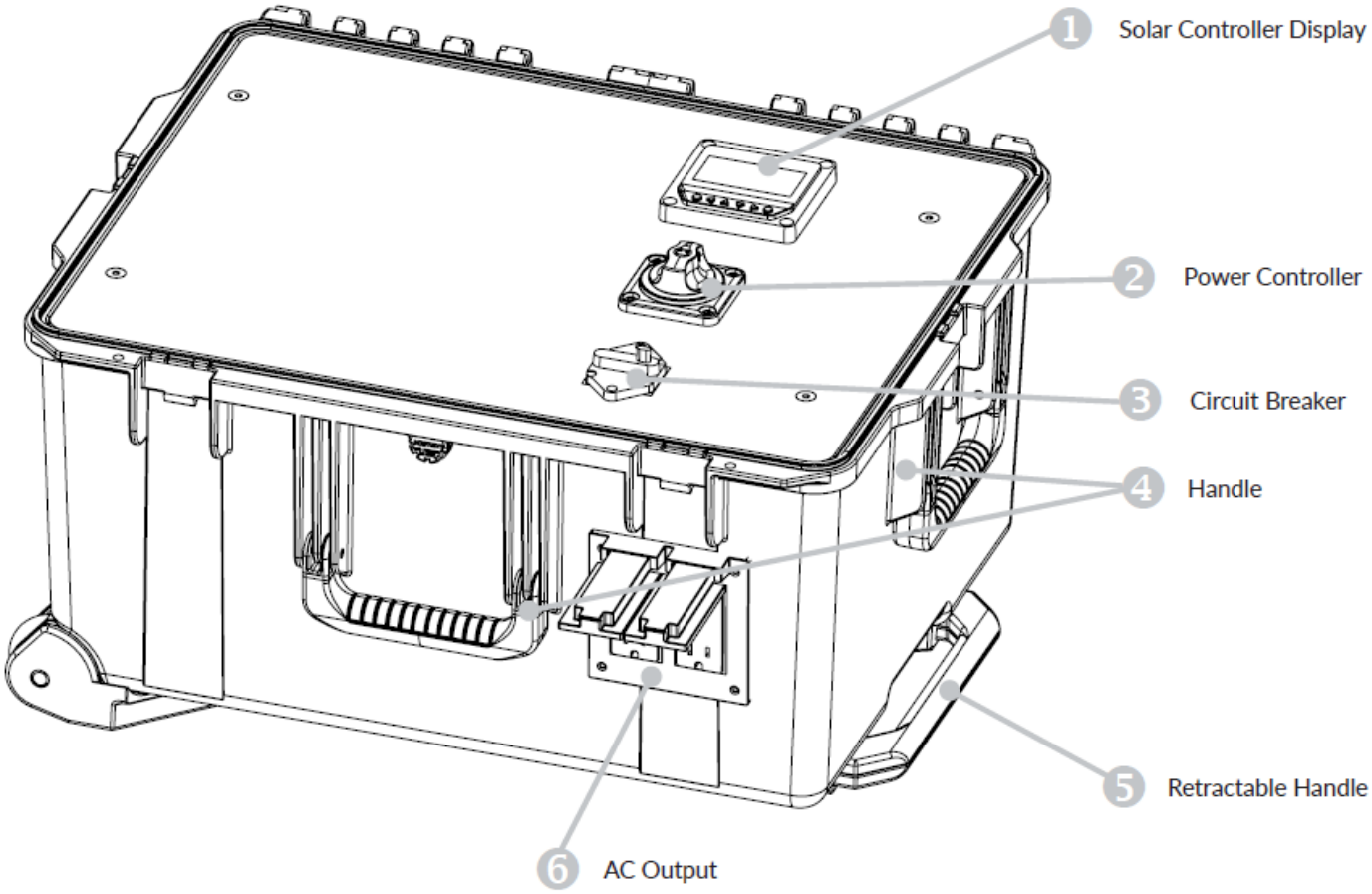
Specifications by Model

	1500	1500	3000	3000+
		Inverter		
AC Output	AC 120V, 60Hz, 12.5A Cont, 24A Max Rated active power 1500W Rated apparent power 1500 VA	AC 120V, 60Hz, 12.5A Cont, 24A Max Rated active power 1500W Rated apparent power 1500 VA	AC 120V, 60Hz, 25A Cont, 54A Max Rated active power 3000W Rated apparent power 3000 VA	AC 120V, 60Hz, 25A Cont, 54A Max Rated active power 3000W Rated apparent power 3000 VA
		Internal AC Charger Rating		
AC Input	120VAC, 60Hz, 0.35A Max	120VAC, 60Hz, 0.7A Max	120VAC, 60Hz, 0.7A Max	120VAC, 60Hz, 0.7A Max
DC Charge Output	12VDC, 3.5A Nominal	24VDC, 3.6A Nominal	24VDC, 3.6A Nominal	24VDC, 3.6A Nominal
		Solar Charger Rating		
DC Charge Input	150VDC Max, 37.5ADC Short Circuit Current Max	150VDC Max, 37.5ADC Short Circuit Current Max	150VDC Max, 2 x 37.5ADC Short Circuit Current Max	150VDC Max, 50ADC Short Circuit Current Max
DC Charge Power	390W Max	780W Max	1,560W Max	2,080W Max
		Battery Specifications		
Battery Type	1 x 12V Non-spillable Deep Cycle AGM Sealed Lead Acid	2 x 12V Non-spillable Deep Cycle AGM Sealed Lead Acid	2 x 12V Non-spillable Deep Cycle AGM Sealed Lead Acid	2 x 24V $LiFePo_4$

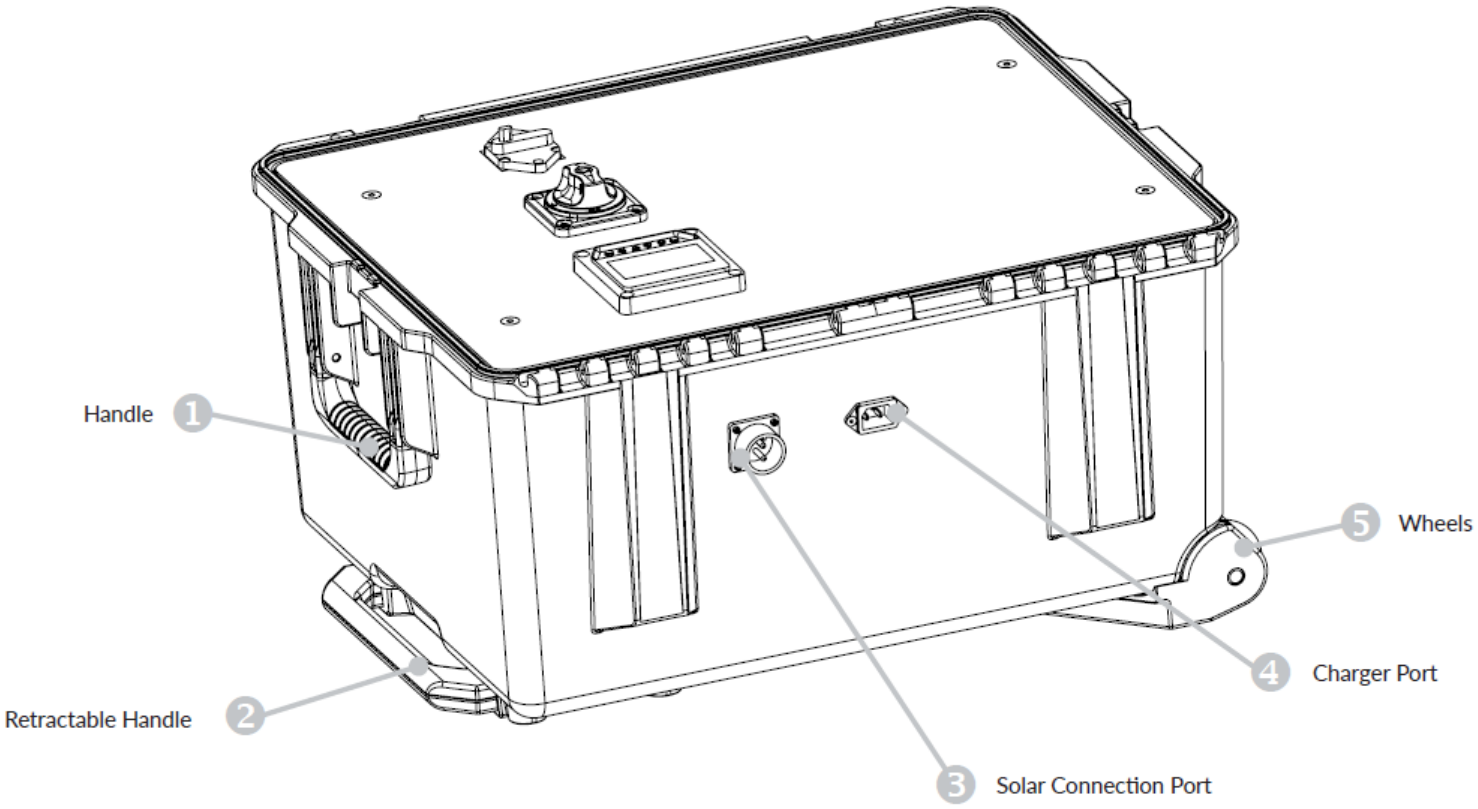
**Non-spillable Deep Cycle AGM Sealed Lead Acid*

NOTE: SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

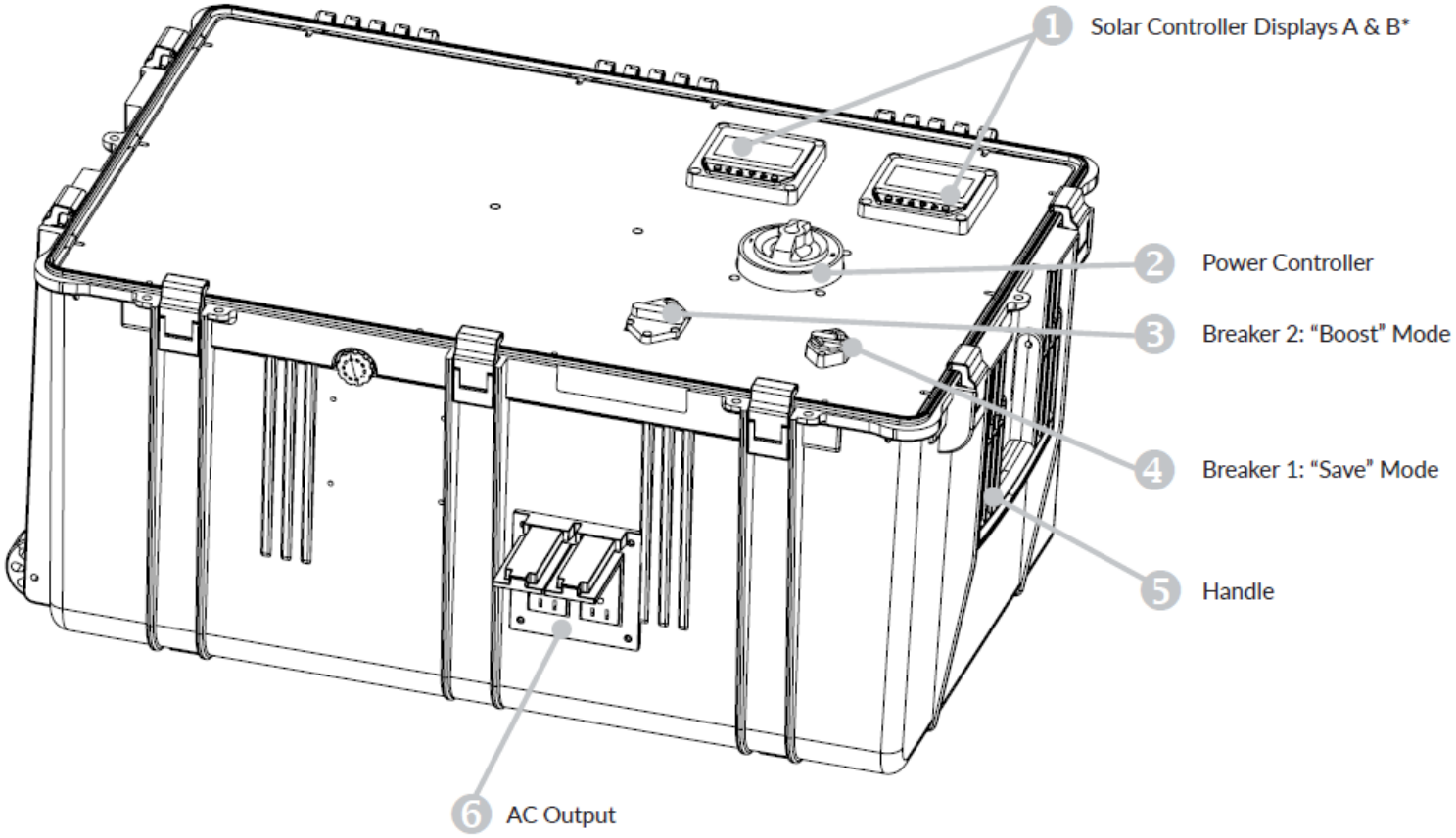
FRONT VIEW 1500 SERIES



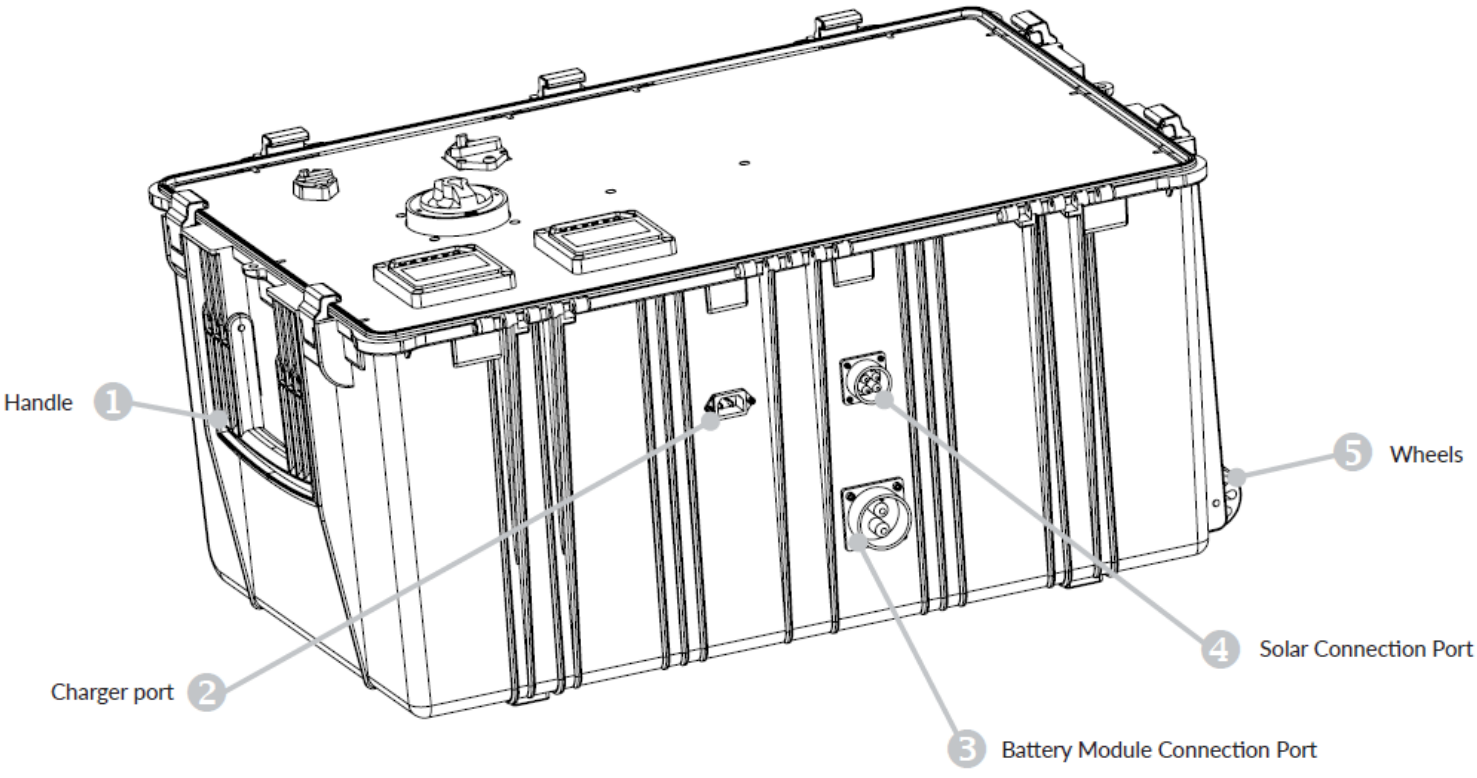
REAR VIEW 1500 SERIES



FRONT VIEW 3000 SERIES



REAR VIEW 3000 SERIES



INSTALLATION

Initial installation of your inverSOL generator and a brief training on how to operate the unit will be performed by a qualified technician. Refer to the *Quick Installation Guide* for more information related to setup.

The following instructions are intended to aid in storing and then reinstallation, should that be necessary.

INSTALLATION OF INVERSOL SOLAR GENERATOR:

1. Place solar panel(s) in a location that receives the most direct sunlight during the course of a day. Panels must be secured to prevent damage and/or personal injury. *If using an optional panel bracket mount, ensure that ground kit is installed appropriately to ground rod.*
2. Attach the MC4 solar panel cable to the connectors. If only one panel is being used, connect it to the “M1” and “F1” connectors.
3. Run that cable to the intended location of the generator, preferably indoors or in an area with constant shade, and plug it into the appropriate port.
4. *OPTIONAL* Additional battery modules (purchased separately) should be within 3ft (1m) of the generator. Access to the connectors need to be unimpeded. Connect the generator with the battery module using the cable provided. ***NOT applicable to the 1500 model***
5. On the Solar Controller Display, verify the system is charging the batteries.
6. Wait 10 seconds for the system to calibrate its settings prior to plugging in any devices or appliances.
7. Verify the charge on the batteries before using power from the system.

DISMANTLING & STORAGE

Units are designed to be portable and easy to store in cases of inclement weather or when not in use.

STORING YOUR INVERSOL SOLAR GENERATOR:

1. Turn off and disconnect all appliances connected to the unit.
2. Turn the Power Controller to the OFF position.
3. Using the provided tool (Figure A), disconnect the cable going to the solar panel(s) and then disconnect the cable from the control module. This can be done in any order.
4. Disconnect additional battery modules (if attached).
5. Re-attach the caps onto the connectors on the modules for storage.
6. Refer to section Battery Maintenance

It is recommended that the panel(s) be stored in a safe place to minimize the possibility of damage while not in use.

The cables should also be coiled and stored in a safe place until they are needed.

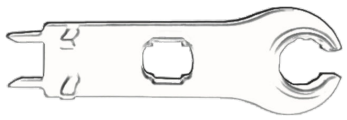


Figure A

MODULAR EXPANSION OF UNITS

INCREASING UNIT'S POWER CAPACITY

1500 SERIES	3000 SERIES
The 1500 series is not modular. Battery modules cannot be added to these units. However, the 1500+ has the capacity to handle a second solar panel.	The 3000 series is modular, meaning they are designed to accommodate expansion to the system after purchase. Panels and/or batteries can be added for increased power.

INSTALLING ADDITIONAL BATTERIES TO THE 3000 SERIES:

Battery modules can be connected to one another to extend the overall capacity.

1. Place the battery module(s) within 3ft (1m) of the unit.
2. Connect the first battery module to the unit via provided battery cable.
3. Plug any additional battery modules into that first attached battery module using the battery cable and designated connection ports. They will be linked to one another like a daisy chain. ***See section "Expanding the 3000 Series".***

INSTALLING ADDITIONAL SOLAR PANELS:

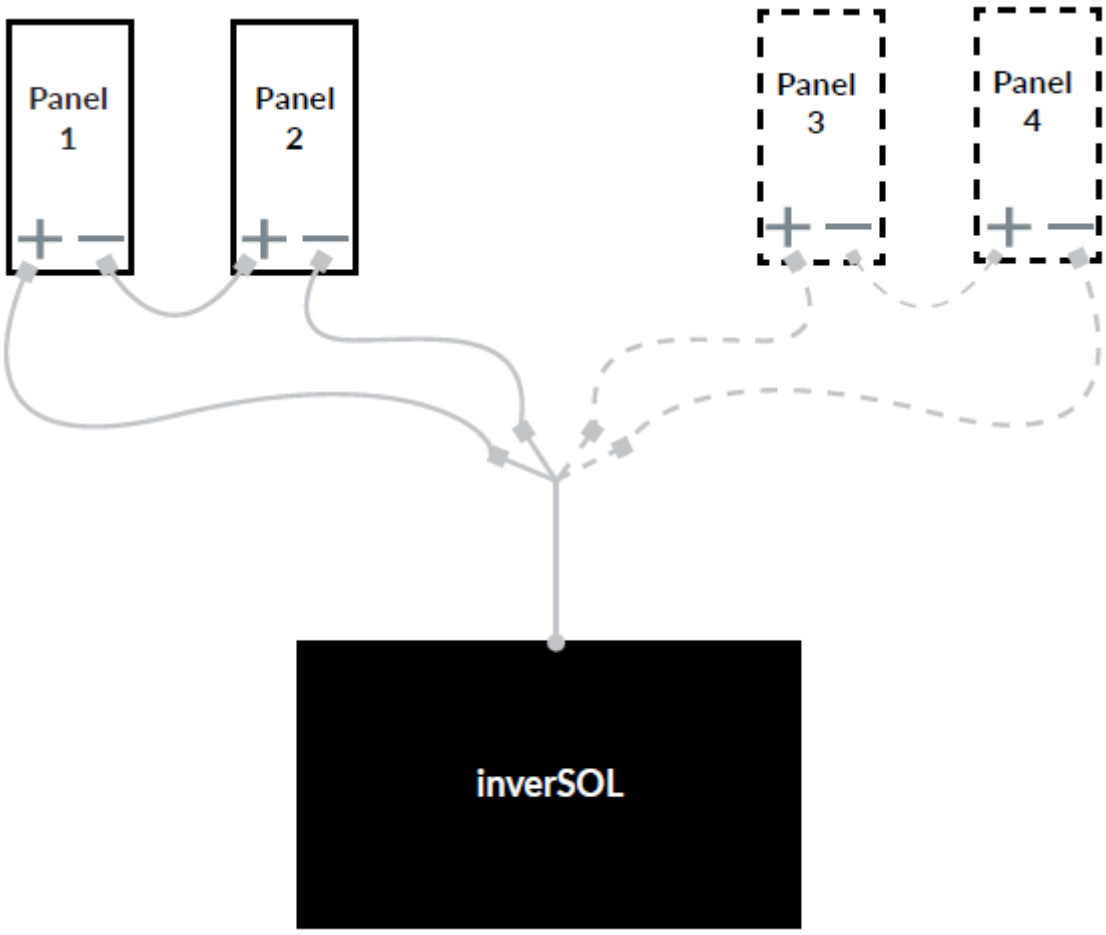
Solar panels can be added to increase the amount of solar power captured. The number of additional solar panels depends on the number of installed solar controllers. Each solar controller can handle two 320W (72 cell) solar panels.

The circular plug on the panel connection cable attaches to the unit. On the other end of the cable is one set of +/- connectors for the 1500+ or two sets of +/- connectors for the 3000 series; these connectors match up to the connectors on the solar panels.

1. Place additional solar panel(s) in close proximity to existing panel such that it will not be shaded by surrounding objects.
2. Panels will connect in pairs and then attach to the panel connection cable. Each set of +/- connectors on the cable can support 2 panels.
3. Once the panel connectors are attached to the cable connectors, plug the panel connection cable into the solar connection port (Page 8, #4) on the back of the unit. ***Optional cable splitters available for purchase.***

CONNECTING ADDITIONAL PANELS

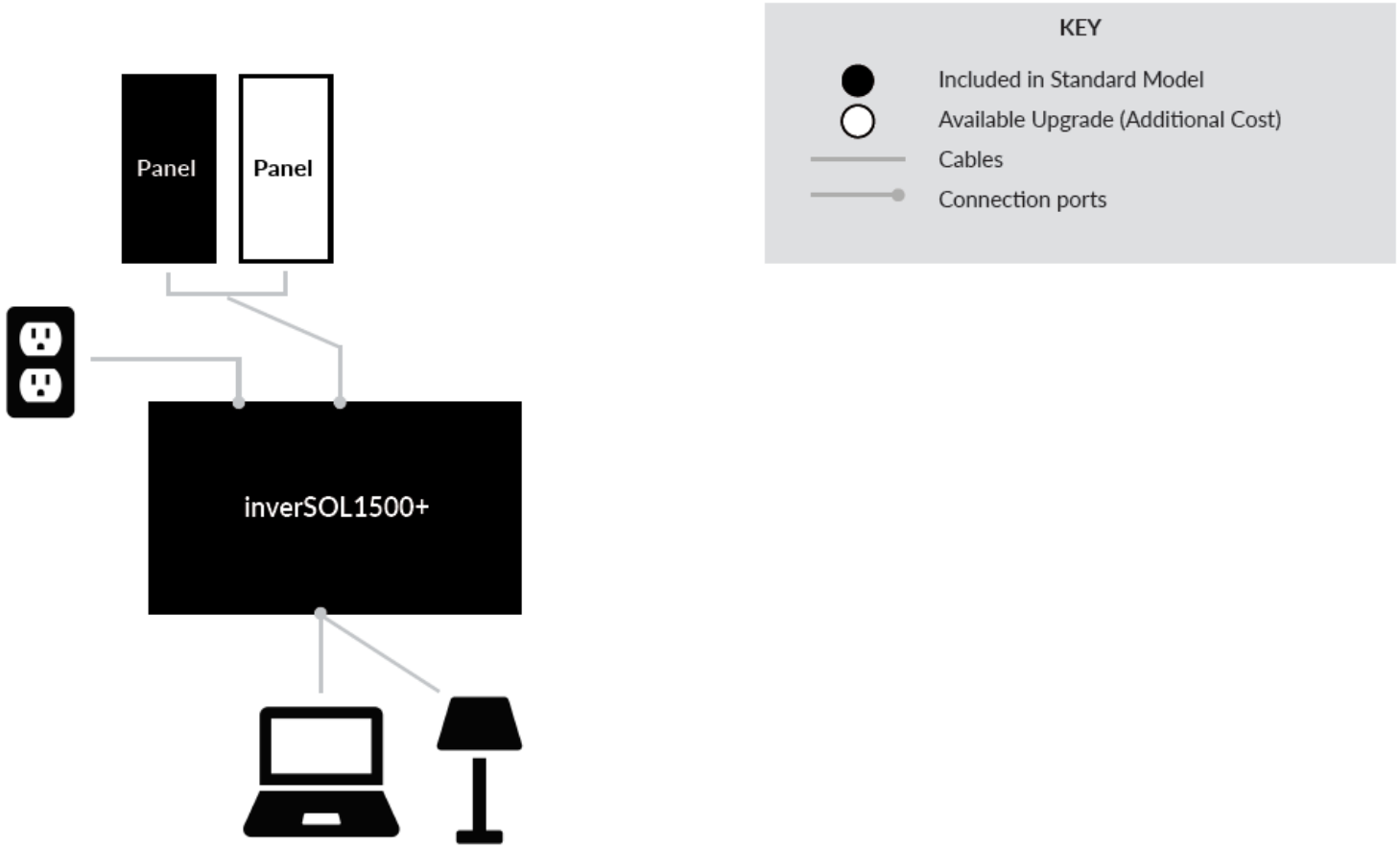
ILLUSTRATING PROPER PANEL CONNECTION



*The above diagram shows attaching panels in series. Panel 1 and 2 comprise a group; Panel 3 and 4 comprise a second group. A third panel can be added into the series of each group (for the 3000+ model only).

EXPANDING THE 1500+

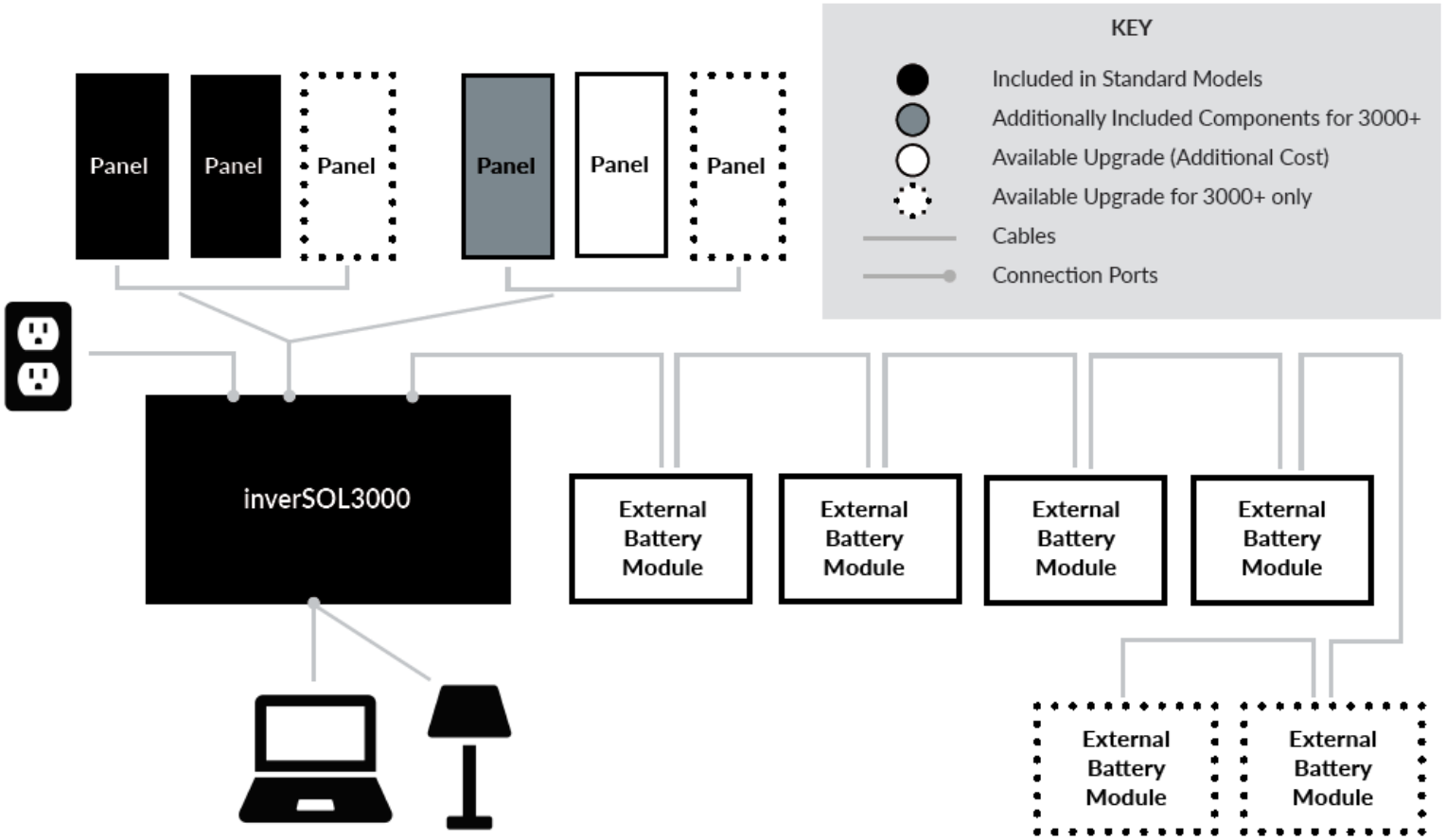
DIAGRAM TO ILLUSTRATE EXPANSION



The diagrams (on this and the opposite page) are simplified depictions on how to expand the inverSOL units. Refer to section "Connecting Additional Panels" to see the +/- connection points for linking multiple panels. **Reminder: the 1500 model is NOT expandable.

EXPANDING THE 3000 SERIES

DIAGRAM TO ILLUSTRATE EXPANSION



SYSTEM OPERATION

POWER CONTROLLER 1500 SERIES

The unit is ready for use once the solar panel is installed and connected to the generator.

Use the Power Controller (Figure B) to control the output for the unit. The rotary switch toggles between OFF and ON.

**** In order for the solar panels to charge the batteries, the unit must be in ON mode. The batteries will not charge in OFF mode ****

On Mode

To use the generator, turn the switch to ON.

If user attempts to exceed the power limit, the circuit breaker will trip (Figure C, 1) and need to be reset. If the breaker trips, open the control module and rotate the Power Controller to OFF. Next, push the yellow trip indicator back into place, a click will occur when the breaker is reset.

Auxiliary Mode

During periods where the unit will be stored for extended periods, and not attached to any solar panel, it is highly recommended to use the auxiliary battery maintainer. To do this, rotate the Power Controller

into OFF mode, and then simply plug the AC cord from the battery module into a working AC outlet. Auxiliary mode will keep the batteries fully charged in preparation for the next time they are required.

1500 CONTROL PANEL

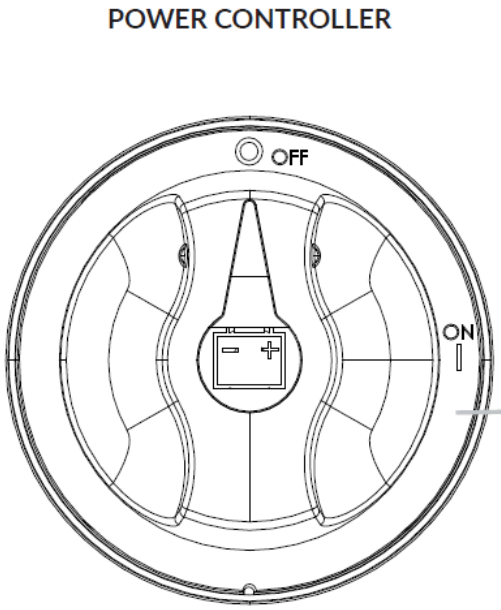


Figure B

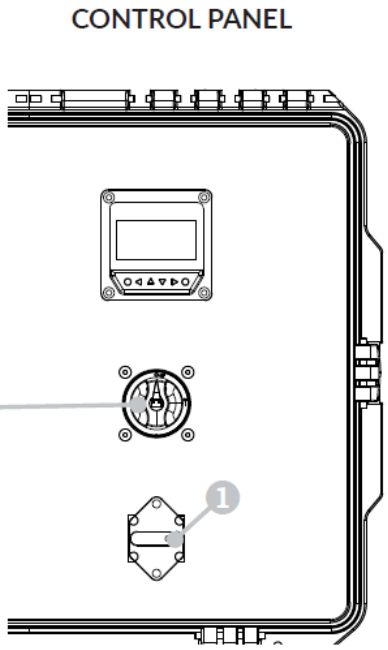


Figure C

POWER CONTROLLER 3000 SERIES

The unit is ready for use once the solar panel is installed and connected to the generator.

The unit's power output can be controlled using the Power Controller (Figure D). The rotary switch toggles between the two operational modes of the unit. Rotate the red switch inside the control module to either SAVE mode or BOOST mode.

**** In order for the solar panels to charge the batteries, the unit must be in SAVE or BOOST mode. The batteries will not charge in OFF mode. ****

Save Mode

SAVE mode (position 1 on the rotary switch) limits power consumption. Operating the unit in this mode extends the run time of the batteries, which is ideal for use when the weather forecasts overcast skies. It is recommended to use this mode to ensure preservation of battery life for overnight usage (see "Usage and Runtimes" section).

If user attempts to exceed the power limit, circuit breaker 1 will trip (Figure E) and need to be reset. If breaker 1 trips, open the control module and rotate the Power Controller to OFF. Next, push the yellow trip indicator back into place, a click will occur when the breaker is reset.

Boost Mode

BOOST mode (position 2 on the rotary switch) allows usage of the inverter's full capacity. However, operating the unit in boost mode diminishes the overall runtime of the batteries (See "Usage and Runtimes" section).

If user exceeds the power limit, circuit breaker 2 will trip (Figure D) and need to be reset. If this breaker trips, then the amount of power being used is in excess of the capability of the inverter. Unplug all appliances, then rotate the Power Controller to OFF. To reset the breaker, push the yellow trip indicator until it clicks back into place.

Auxiliary Mode

During periods where the unit will be stored for extended periods, and not attached to any solar panel, it is highly recommended to use the auxiliary battery maintainer. To do this, rotate the Power Controller into OFF mode, and then simply plug the AC cord from the battery module into a working AC outlet. Auxiliary mode will keep the batteries fully charged in preparation for the next time they are required.

3000 CONTROL PANEL

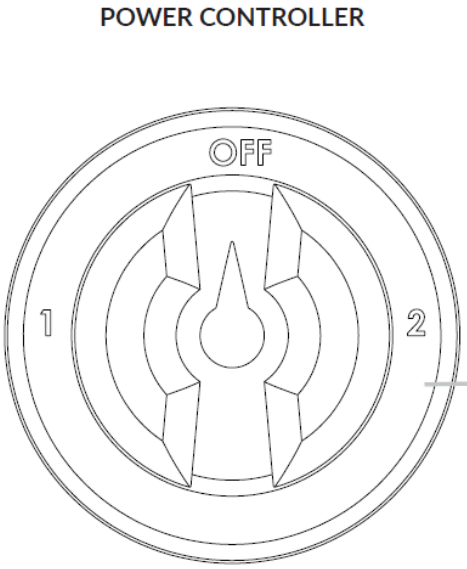


Figure D

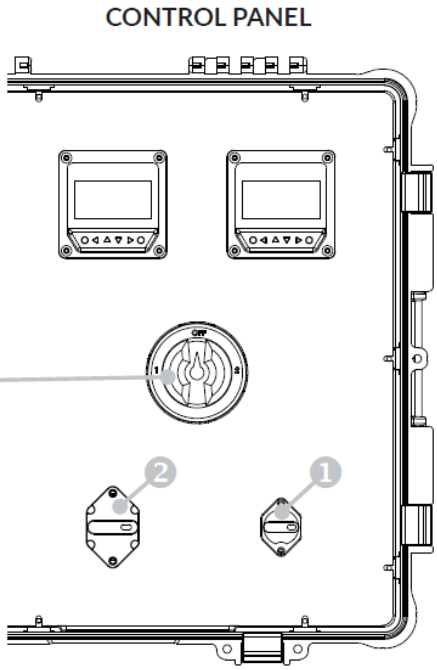


Figure E

SOLAR CONTROLLER DISPLAY

inverSOL units come with built-in solar controllers and a user-friendly MT50 display to view the system's status. The user can cycle through the different screens on display. The controller screen will display current output from the panel(s), the charge status of the batteries, total energy captured for the day and month, and other miscellaneous system information.

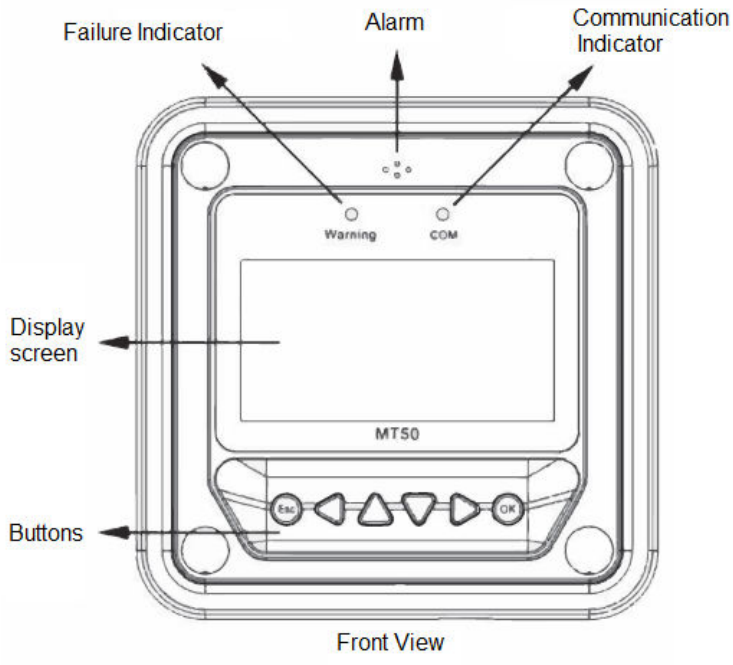


Figure E

MONITORING SCREEN

The Solar Controller Display's monitoring screen allows the user to decipher the status of the unit through icons.

① **Battery Status Icons**

Optimal Battery, Low Battery, Capacity Exceeded

② **Day and Night Icons**

Night, Day

③ **Charge Current Icon**

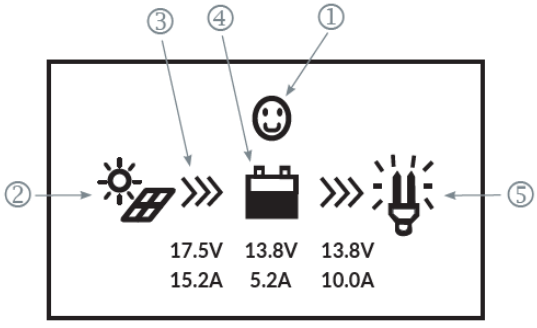
The icon is animated if there is charge current.

④ **Battery Icon**

Visually represents the battery capacity remaining; Critically Low

⑤ **Voltage Status Icon**

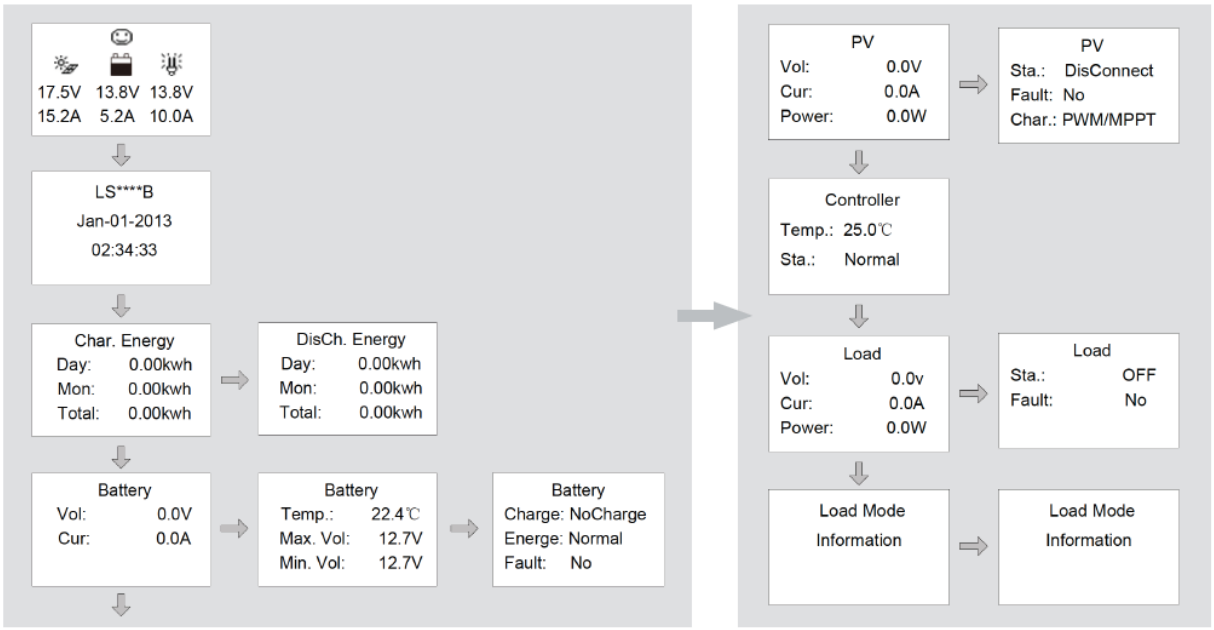
Normal Voltage, Low Voltage



NOTE: In manual mode, pressing the "OK" button will switch the load status between "ON" and "OFF".

REAL-TIME MONITORING

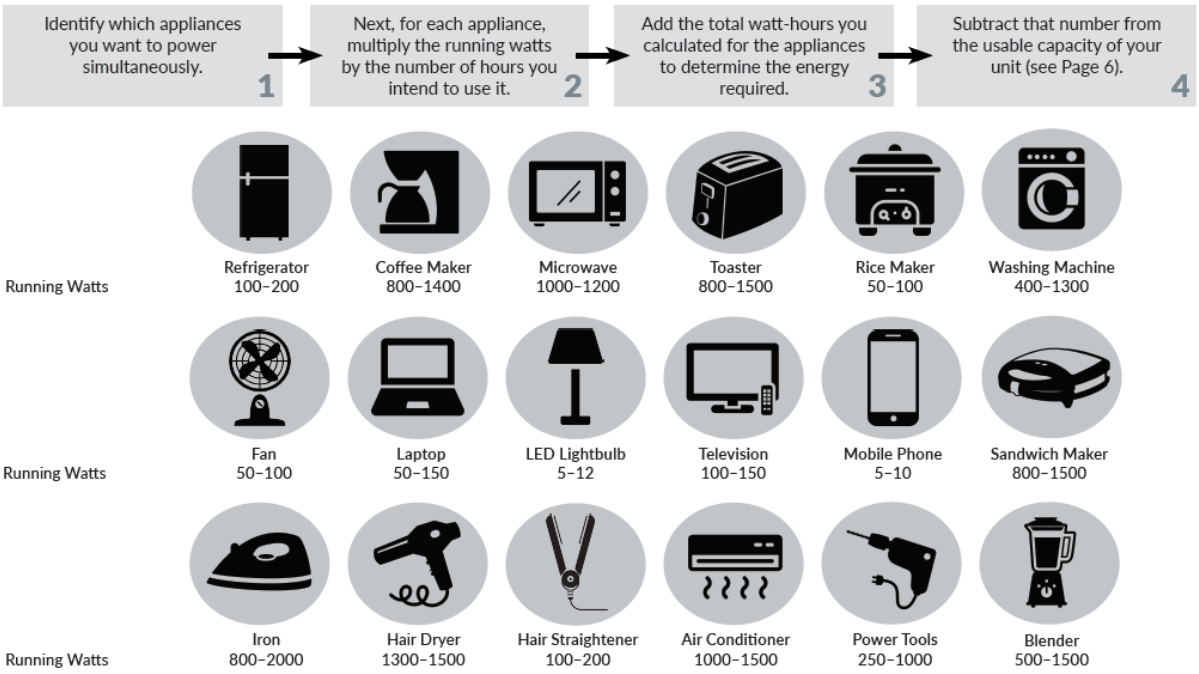
There are 14 pages that users can access to review the system's operation. Use the arrow buttons on the Solar Controller Display to cycle through the pages.



CALCULATING APPLIANCE LOAD

CALCULATING APPLIANCE LOAD

HOW TO CALCULATE WHAT APPLIANCES TO USE



COMPARING SAMPLE LOADS

SAMPLE APPLIANCE PAIRINGS

inverSOL models are not suitable for use with certain products or loads (if they require more current than the unit can provide.) This limit applies to the total number of devices attached. The 3000 series offers Save/Boost mode.

	1500	1500+	3000		3000+	
	On	On	Save	Boost	Save	Boost
Blender				●		●
Fan	●	●	●	●	●	●
Laptop/Desktop		●		●		●
Microwave						●
Phone Charging	●	●	●	●	●	●
Power Tools						●
Refrigerator	●	●	●	●	●	●
Television		●		●	●	●
Toaster				●		●
LED Lightbulbs	●	●	●	●	●	●
Estimated Run-Time *	Up to 10 Hrs	Up to 10 Hrs	Up to 12 Hrs	Up to 5 Hrs	Up to 20 Hrs	Up to 8 Hrs

*This chart illustrates the estimated number of hours the unit will run on a fully-charged battery before it is completely drained if recharging is unavailable.

ESTIMATED AVERAGE RUN-TIME

HOW COMBINING APPLIANCES AFFECTS RUN-TIME

The following chart illustrates common combinations and how the pairings will impact the estimated run-time of each standard unit. The hours are based on a fully charged battery with *no additional charge* being added to the unit (i.e. during night or severely overcast days).

	1500	1500+	3000	3000+	
 =	12	12	12	48	HRS
 =	10	10	10	40	HRS
 =	7.75	7.75	7.75	31	HRS
 =	7.5	7.5	7.5	30	HRS

* Estimated values only; times can vary.

BATTERY MAINTENANCE

Your device has an internal, non-removable, rechargeable battery. **Do not** attempt to remove the battery, as you may damage the device. The battery can be charged and discharged over 500 times, but it will eventually need replacement. In this case, contact the factory for service.

CHARGE MAINTENANCE

A battery charger/maintainer is included. These are designed to charge batteries over an AC plug, and/or supply a small trickle of electricity to your batteries in order to keep the battery fully charged. By using a maintainer, you will be able to extend the life of your batteries; depending on use properly maintained batteries may last for more than 5 years.

LONG-TERM STORAGE RECOMMENDATIONS & CONCERNS

A sealed lead-acid battery can be stored for up to 2 years without use. During that period, it is vital to check the voltage and charge it when the battery drops to 23V. Low charge increases the possibility of sulfation. The best temperature for battery storage is 77°F (25°C). The allowable temperature ranges from –4°F to 122°F (–20°C to 50°C).

END OF LIFE/RECYCLING

Always return your used electronic products, batteries, and packaging materials to dedicated collection points.

Batteries should not be placed in garbage.

DO NOT DISMANTLE THE UNIT*Warranty is void if the plate is opened by unauthorized personnel. For technical support, contact the factory.*

TROUBLESHOOTING

SOLUTIONS TO POSSIBLE ISSUES

	SYMPTOM	POSSIBLE ROOT CAUSE	POSSIBLE SOLUTION
NO AC OUTPUT	No power output / Solar Controller Display off	Unit not turned on	Turn the Power Controller to the SAVE position
	No power output / Solar Controller Display on	Tripped breaker	Breakers will trip as a result of excessive power consumption. Consider turning your knob to the BOOST position or disconnect high power devices before resetting the breaker
CHARGING ISSUES	Solar Controller Display shows low voltage / current coming from PV array	Low (“0.0A, 0.0V”) solar radiation is being received	Make sure the solar panels are connected and have an unobstructed view of the sky, and the solar panels surface is clean

CUSTOMER SERVICE & SUPPORT

WARRANTY

For the period of warranty noted below, and beginning upon the successful registration of the unit, inverSOL warrants that its generator will be free from defects in material and workmanship for the items and period set forth below. inverSOL will, at its discretion, repair or replace any part(s) which, upon evaluation, inspection and testing by inverSOL, is found to be defective.

Warranty does not cover scratches, color fading due to usage, alterations, fire and flood, misuse and failure to follow instructions for care and maintenance.

Warranty Coverage (Years)	2	5
Warranty Includes	Parts & Labor	Limited Parts Only

SUPPORT

To report an issue, please contact inverSOL customer service. In order to efficiently resolve problems. When opening a support request, a case number will be assigned and provided to you. Retain and use this case number in order to facilitate future communications with us regarding the matter. Our highly trained technical support engineers deliver support for your critical issues during business hours, 9 AM to 5 PM, Monday through Saturday.

RETURN/EXCHANGE POLICY

If you are experiencing any problems with your unit, please contact customer service. If, after speaking to a customer service representative, the unit is deemed non-working or malfunctioning, a Return Materials Authorization (RMA) will be issued. The product **must** be returned to inverSOL ***within 14 business days*** from the date the RMA is issued in order to receive a replacement unit. The replacement unit may be new or refurbished and of the same or comparable design. The replacement unit will be subject to the remainder of the warranty period.

Contact Info

Headquarters & Manufacturing: 1 Ave. Ponce de Leon, Esq. Georgetti Urb. Billy Suarez, Caguas, Puerto Rico 00725

Engineering: 11 Centre Park, Rochester, NY 14614

Web: inversolpr.com

Online Shop: https://inversolpr.com/shop

Customer Service Hotline: 1.888.803.2202

facebook.com/inversolpr twitter.com/inversolpr

Thank You

At inverSOL, LLC, we are committed to the well-being of our customers and, by the utilization of renewable forms of energy. We encourage the conservation of our natural resources. Thank you for choosing our portable solar generators as your emergency backup power solution.